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ABSTRACT

Apatite fission track (AFT) and elemental data are presented for a Permian and Devonian sample from northern Yukon in support of a journal paper (submitted to Geochronology) that discusses multikinetic AFT data interpretation and modelling techniques. The Permian sample is from an exploration well in Eagle Plain and the Devonian sample is from an outcrop to the northeast along the Dempster highway on the western flank of the Richardson Anticlinorium. Both detrital samples contain apatite with overdispersed ages that fail the χ^2 test which suggests each sample has more than one AFT age population. Age mixture modelling software was used to identify multiple AFT age populations that correlate with apatite composition determined using electron microprobe analysis. Single-grain age and length data were sorted into different kinetic populations for each sample using eCl values (effective Cl; derived from the multi-element based r_{mr0} parameter). Each kinetic population is treated as a separate thermochronometer with its own composition-dependent annealing characteristics that enhances model thermal-history resolution. The multikinetic AFT thermal model, AFTINV, was used to obtain multicycle heating and cooling histories for these samples. Paleozoic and Late Cretaceous-Cenozoic burial/exhumation events are well documented in the study area, but model results suggest that the region experienced an additional phase of Triassic to Early Cretaceous heating and cooling.

INTRODUCTION

This report is meant to describe interpretation and modelling methods for multikinetic AFT data and accompany a paper (submitted to *Geochronology*): Issler, D.R., McDannell, K.T., O'Sullivan, P.B., Lane, L.S., 2021, Simulating sedimentary burial cycles – Part 2: Elemental-based multikinetic apatite fission-track interpretation and modelling techniques illustrated using examples from northern Yukon. This Open File contains the AFT and corresponding elemental data that are used to illustrate the methods in the paper. Detailed thermal history results obtained using AFTINV (Issler, 1996; Issler et al., 2005; McDannell and Issler, 2021) thermal modelling software are included in Appendix E. Discussions of data acquisition, interpretations, thermal modelling methods, and results are in Issler et al. (in review). The regional geological implications of the model results will be discussed in a more comprehensive future paper that includes more samples. This is the first in a series of planned data reports for a larger multi-kinetic AFT thermochronological study of the northern Yukon being undertaken by the Geological Survey of Canada (Issler and Lane, 2016).

SAMPLE LOCATIONS

Figure 1 shows the location of the two AFT samples. Sample P013-12 is a sandstone cuttings sample from the Permian Jungle Creek Formation at a depth of 1050-1100 m in a well in Eagle Plain. Permian strata are separated from 1 km of overlying Cretaceous by an unconformity that represents a 175 million-year hiatus. Borehole well cavings contamination does not appear to be an issue for this sample because it is below a shale section and samples from the shallower Cretaceous units (not shown) have distinctly different AFT characteristics. Sample 2009LHA003 (shortened to LHA003 for convenience) is an Upper Devonian Imperial Formation sandstone obtained from a quarry along the Dempster highway southwest of the Arctic Circle monument at the western margin of the Richardson Anticlinorium. Thin erosional remnants of Upper Triassic strata overlie Devonian rocks within the region (Norris, 1981) and Albian to Campanian strata

are preserved to the west in Eagle Plain Basin. Measured vitrinite reflectance (Appendix B) indicates that the samples experienced paleotemperatures high enough to cause significant AFT annealing.

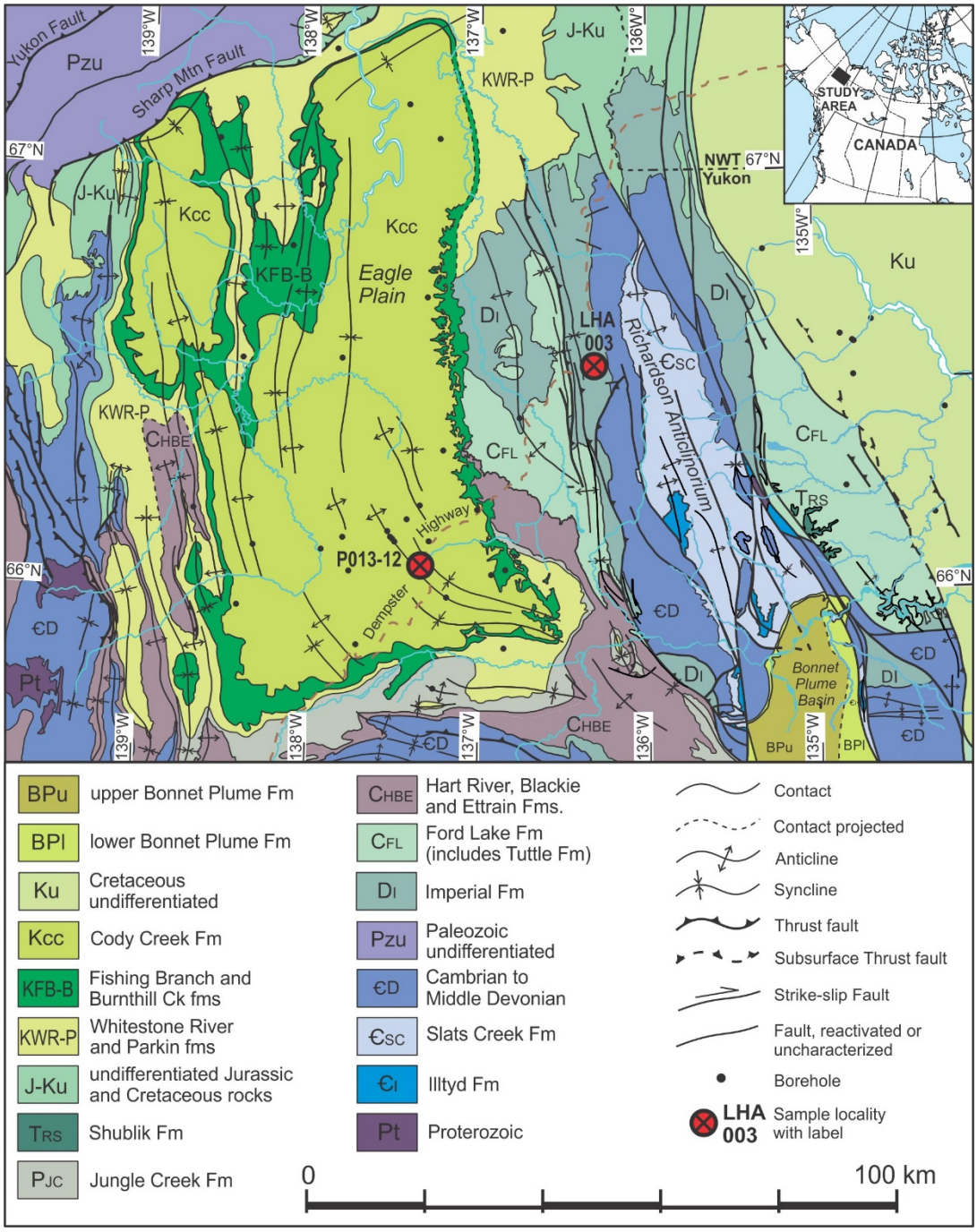

Figure 1. Regional geological setting and sample locations. Geology is simplified from Norris (1982a, 1982b, 1985) with modifications from Rohr et al. (2011), Lane (2012, 2013a, 2013b, 2017, 2020), Lane and Cecile (2021), and unpublished compilations.

AFT KINETIC POPULATIONS DEFINED USING ELEMENTAL DATA

Appendix A summarizes lab procedures for AFT data acquisition. Appendix B, C and D contain AFT age data, track length measurements, and apatite elemental data (apfu; atoms per formula unit) from electron probe microanalysis (EPMA), respectively, along with descriptive information for the P013-12 and LHA003 samples. Raw elemental weight % oxide data for both samples are included in two separate Excel files as a supplement with this report. AFT age data were acquired using the LA-ICP-MS method (Hasebe et al., 2004; Donelick et al., 2005; Chew and Donelick, 2012; Cogné et al., 2020) which allows for the direct measurement of U concentration and avoids the requirement for sample irradiation using the traditional external detector method (e.g., Hurford and Green, 1982). AFT data for sample LHA003 were acquired at AtoZ Inc. in 2011. AFT analyses for sample P013-12 were done for two separate aliquots by GeoSep Services in 2015.

D_{par} is the mean maximum length of AFT etch figures on the polished mineral surface parallel to the crystallographic c-axis (Donelick, 1993; Burtner et al., 1994) and it is a commonly used kinetic parameter that is a proxy for chemical composition. D_{par} data were obtained while collecting AFT age and length measurements as part of the routine AFT analysis. Elemental data were obtained for apatite grains that have age and length measurements in order to constrain the composition-dependent, multi-kinetic AFT annealing behavior that appears to be the main cause of age dispersion for these detrital samples. The elemental data were used to calculate the empirical r_{mr0} kinetic parameter (Carlson et al., 1999) which was then converted to an effective Cl (eCl) value using the r_{mr0}–Cl correlation in Ketcham et al. (1999) as described in McDannell and Issler (2021) and Issler et al. (in review). More details of data acquisition steps are in Appendix A and Issler et al. (in review).

Figures 2a and 2b show single-grain AFT ages displayed on radial plots for samples P013-12 and LHA003, respectively, generated using the DensityPlotter program (v. 8.4) of Vermeesch (2012). Both AFT samples have significant age dispersion (48% and 25%) and fail the χ^2 test. Age mixture modelling suggests that each sample has more than one age population as shown by the radial arms that correspond to the peak ages (Fig. 2a and b) and this is consistent with their detrital nature. The numbers in brackets beside the peak ages represent the approximate proportion of grains assigned to each population. The points on the radial plots are coloured-coded according to the kinetic populations defined using eCl values in the panels below (figs. 2c-f). Figures 2c and 2d show single grain ages and length measurements sorted into three kinetic populations with respect to eCl (the corresponding nonlinear r_{mr0} axis is shown at the top of each plot) for sample P013-12. Not all the grains were suitable for probing (Appendix D) but there is enough data to define the populations. Grains lacking elemental data were sorted based on their age; lengths that could not be linked to an age grain were sorted using D_{par} (Appendix B and C). Inclusion of the unprobed grains increases the amount of data for modelling without significantly changing population ages and mean lengths. Sample LHA003 is a high-quality sample with two well-resolved kinetic populations (Fig. 2e and f). Overall, there is good agreement between the ages obtained from kinetic population interpretations and age mixture modelling which supports the notion that differential annealing is controlling the AFT parameters.

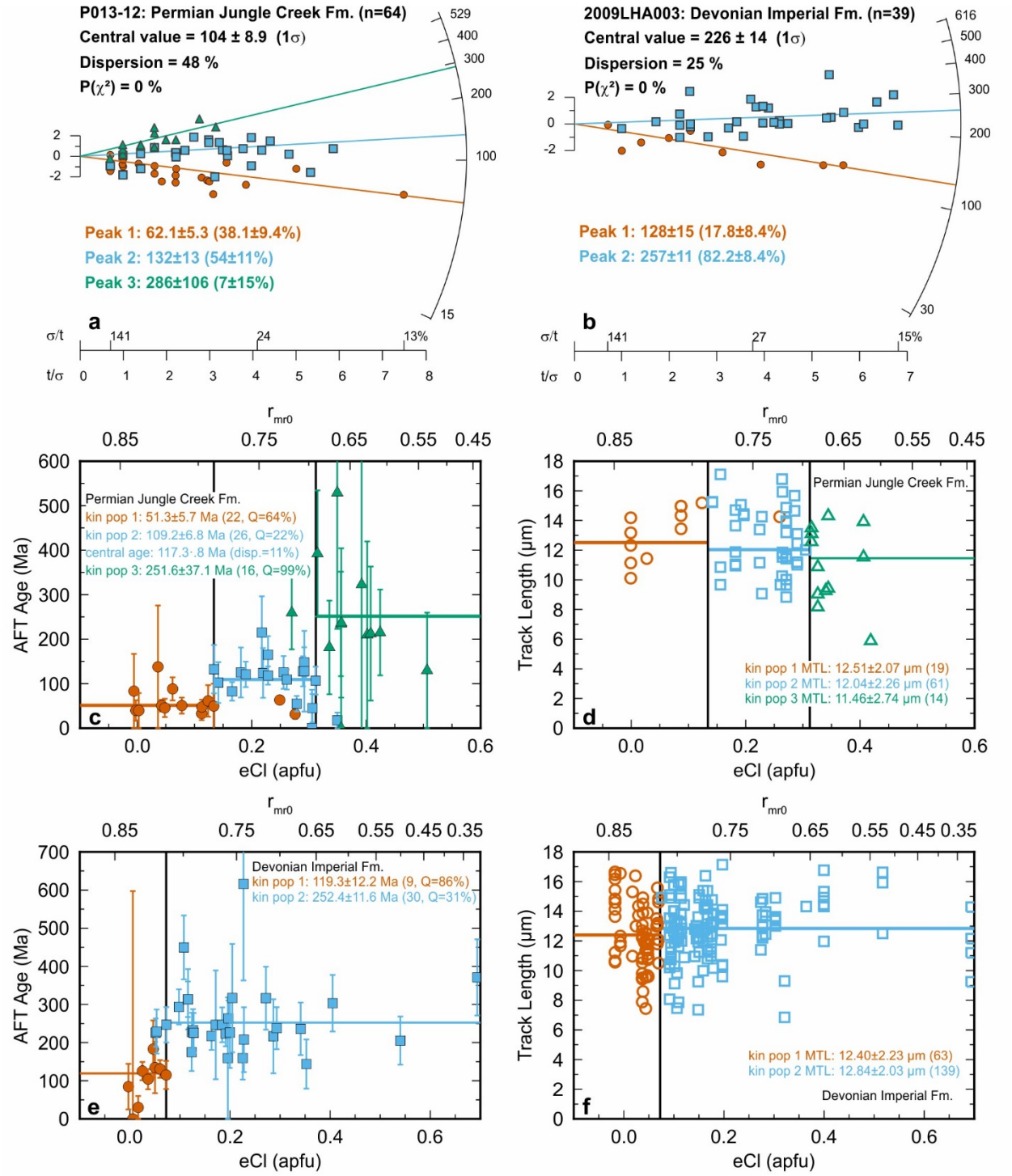

Figure 2. Radial plots of single grain ages for the Permian (a) and Devonian (b) multikinetic AFT samples. Each point has unit standard error (y-axis) and is plotted with respect to its relative precision (x-axis) with highest precision ages closest to the age scale. Points are colour-coded according to the kinetic populations defined by sorting the age and length data using eCl values for the Permian (c and d) and Devonian (e and f) samples. Peaks ages on the radial plots from age mixture modelling show good agreement with kinetic population ages. Vertical black lines are boundaries between kinetic populations. A few grains in both samples are inferred to cross population boundaries and are assigned to kinetic populations based on their age.

AFTINV THERMAL HISTORY RESULTS

Appendix E contains AFTINV thermal history results for c-axis projected length models for the two samples. Details of the modelling method and boundary conditions are in Issler et al. (in review) and Appendix E. Figure 3 summarizes the final thermal history results for the two samples (see Appendix E for other plots). AFTINV can handle up to four AFT kinetic populations including combinations of detrital, volcanic, and diagenetic apatite. The initial search space (yellow shaded region in Fig. 3) can be defined with broad temperature limits over time intervals of variable step size. Temperature limits can be estimated based on available geological constraints and AFT sample attributes such as population ages, degrees of annealing and thermal maturity. Generally, it is necessary to refine boundary conditions and the style of thermal history through iterative modelling in order to discover what is required to obtain solutions that satisfy the data. Users can choose different thermal history styles (e.g., heating, cooling, single heating–cooling event, etc.) and impose rate limits over different time ranges to construct thermal histories in a piecewise manner. The model randomly selects temperature inflection points within user specified time intervals to simulate times for maximum temperature, deposition and/or onset of reheating. Thermal histories are built forward and backward from a randomly selected point by randomly choosing the rate of temperature change (projection angle to the next temperature point) within specified limits. The model is run in two stages. In the first stage, thermal histories are generated using a nondirected Monte Carlo scheme and the model converges after 300 statistically significant (> 0.05 significance level) solutions have accumulated. This is followed by using a controlled random search algorithm (CRS; Price, 1977; Willett, 1997) to update the initial solution set to obtain up to a maximum of 300 solutions at the 0.5 significance level. The preferred solution for both cases is calculated as the exponential mean of the set of 300 thermal solutions. Although this may not be the “best fit” solution, it provides a smoothed, representative solution that generally is a good fit to the data.

The high-quality Devonian sample LHA003 retains a longer record of the thermal history than sample P013-12 and requires three cycles of post-depositional heating and cooling to obtain solutions that closely fit the AFT data (lower panel, Fig. 3). A two-cycle heating and cooling model was tried but was unsuccessful in obtaining solutions. Paleozoic and Cretaceous burial and erosion cycles are known from preserved stratigraphy in the region, but Triassic and Jurassic rocks are almost entirely absent. There are thin (20-30 m) remnants of Upper Triassic rocks in the northern part of the study area (Norris, 1981) and this was used as a constraint for a possible burial heating event that initiated during the Late Triassic. The model was structured to allow for an extra event without forcing it to occur at any particular temperature. The model solutions show rapid heating during Devonian-Carboniferous burial followed by substantial cooling (> 100 °C) prior to reheating in the Triassic with the second temperature peak occurring during Jurassic-Early Cretaceous time. These results are supported by the newer Permian sample P013-12 in Eagle Plain to the west that shows a similar cycle of Triassic-Early Cretaceous heating and cooling but with temperatures that were hotter by approximately 30 °C (upper panel, Fig. 3) which results in a higher degree of AFT annealing.

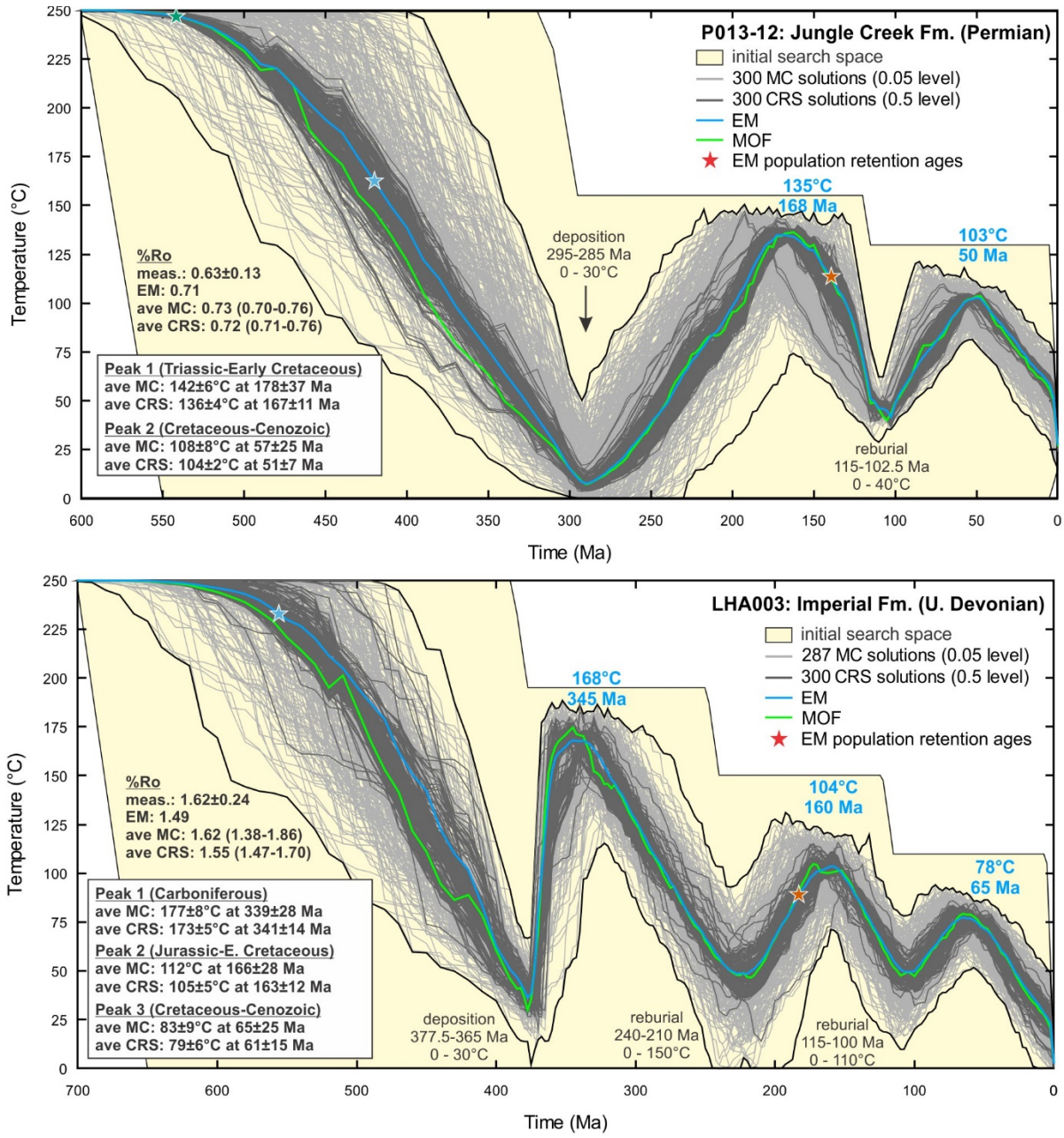

Figure 3. AFTINV thermal history results for Permian well sample, P013-12 (upper panel), and Devonian quarry sample, LHA003 (lower panel). Plots were produced by combining the thermal history solutions obtained by the Monte Carlo (MC) and the CRS calculations (see Appendix E). The light grey (0.05 significance level) and dark grey (0.5 significance level) curves define statistically acceptable solution space. The solution bounds (black curves) are not valid solutions. The yellow regions are the initial model search space. The blue curves represent the exponentional mean (EM) of 300 solutions at the 0.5 level. The green curves are the closest fitting minimum objective function (MOF) solutions. Both solutions give excellent fits to the AFT data. Model retention ages correspond to the age of the oldest and shortest fission track (~ 2 μm in length) and give an estimate of the portion of the thermal history retained by each kinetic population, with retention age increasing with track retentivity. Retention age symbol colour: population 1 (orange star), population 2 (blue star) and population 3 (green star). Uncertainties on average peak temperature and time of peak temperature are two standard deviations. Both samples show the same Jurassic thermal event.

DISCUSSION

The data and thermal histories presented here and in Issler et al. (in review) are meant to show the benefits of acquiring elemental data to properly interpret and model AFT samples with significant age dispersion. Although age dispersion is common for sedimentary rocks it can occur with any rocks containing compositionally variable apatite. Our results demonstrate that complicated thermal histories with multiple cycles of heating can be recovered from quality multikinetic AFT samples by exploiting the different annealing characteristics of each kinetic population. Our Devonian sample illustrates how unexpected detail can be recovered from a multikinetic sample with abundant age and track length data. It appears that extensive erosion has removed much of the stratigraphic evidence for a Late Triassic-Early Cretaceous burial-exhumation cycle but its associated thermal effects on AFT annealing are retained in the multikinetic sample. These results and their geologic implications will be discussed as part of a larger study in a future paper.

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APPENDIX A: Apatite fission track and U-Pb age data acquisition

AFT data were acquired for LHA003 at AtoZ Inc. in 2011 and for P013-12 in 2015 at GeoSep Services (GSS) under similar conditions. All laboratory procedures for each sample, including mineral separation and grain mounting were performed under identical conditions by both AtoZ and GSS. Paul O'Sullivan performed all analytical procedures, including individual grain selection, parameter measurement, data processing, and data interpretation. Laser ablation of all samples for age analyses were performed using the equipment at the Washington State University School of Earth and Environmental Sciences GeoAnalytical Laboratory in Pullman, Washington.

Spontaneous tracks (NS) were first counted for each AFT+UPb analysis in unpolarized light at 2000x magnification using a Zeiss Axioplan microscope. If possible, NS values were determined from 40 grains for each AFT+UPb analysis. Following this, the apatite mounts were irradiated using fission fragments from a ^{252}Cf source in a vacuum chamber in order to enhance the number of confined fission tracks (CFT) available for measurement (e.g. Donelick et al., 2005). The irradiated apatite grain mounts were then re-etched using the same procedure as before in order to reveal a new set of horizontal CFT within the exposed apatite grains. These confined tracks were viewed and measured in both unpolarized and polarized light at 2000x magnification using a Zeiss Axioplan microscope. Only natural, horizontal, fully confined fission tracks in apatite with clearly visible ends were considered candidates for length measurement. The length and crystallographic orientation of each fission track was determined using a digitizing tablet interfaced with a personal computer. The precision of each track length is estimated to be ±0.20 μm; the precision of each track angle to the crystallographic c-axis is estimated to be ±2 degrees.

Once analytical measurements were completed for all AFT+UPb (NS counts and CFT measurements), a Finnigan Element II Magnetic 177 Sector inductively coupled plasma-mass spectrometer equipped with a New Wave Nd-YAG 213nm laser ablation system (LA-ICPMS) was used to measure isotopic data necessary for all apatite FT and UPb grain age calculations. The data acquisition parameters for the laser ablation system and mass spectrometer are listed in Table A1.

Table A1. FT - ICPMS/laser operating conditions and data acquisition parameters.

ICPMS: operating conditions	
Instrument	Finnigan Element II Magnetic Sector ICP-MS
Forward power	1.25 kW
Reflected power	<5 W
Plasma gas	Ar
Coolant flow	15 l/min
Carrier flow	1.0 l/min (Ar) 0.8 l/min (He) – optimized daily
Auxiliary flow	0.9 l/min
ICPMS: acquisition parameters	
Dwell time	18 milliseconds per peak point
Points per peak	4
Mass window	5%
Scans	30
Data acquisition time	22 sec
Data acquisition mode	electronic scanning
Isotopes measured	^{43}Ca (apatite) or ^{29}Si (zircon), ^{238}U, ^{232}Th, and ^{147}Sm
Laser: operating conditions	
Laser type	New Wave UP213 (Nd: YAG)
Wavelength	213 nm
Laser mode	Q switched
Laser output power	8 J/cm
Laser warm up time	6 sec
Shot repetition rate	5 Hz
Sampling scheme	spot (16 μm AFT, 20 μm ZrnUPb)

Data were collected for the following isotopic masses: ^{43}Ca, ^{147}Sm, ^{204}Pb, ^{206}Pb, ^{207}Pb, ^{232}Th, and ^{238}U (30 scans over 22 sec). Each analysis consisted of a 6-second integration on peaks with the laser shutter closed (for background measurements) followed by the shutter opening and the laser ablating apatite material for the remainder of the analysis. A 20-second delay occurred between analyses. The beam diameter was 16 μm and the frequency was set at 5 Hz, yielding ablation pits ~16-18 μm deep. He and Ar gas were used to deliver the ablated material into the plasma source.

APPENDIX B: Apatite fission track and U-Pb age data

Tables B1 and B2 list the data required for calculating single grain and pooled AFT ages for samples P013-012 and LHA003 using the LA-ICP-MS zeta calibration method (Cogné et al., 2020) and the age equations in Donelick et al. (2005) and Vermeesch (2017). AFT ages are reported with the associated symmetrical one standard deviation and asymmetrical 95% confidence limits; ages and their uncertainties were calculated using a zeta value and standard error of 12.35698 ± 0.225136 and 1.55125 x 10^{-10} yr^{-1} for the ^{238}U total decay constant. Grains with zero spontaneous track counts ($N_s = 0$) have an uncertainty range from 0 Ma to an upper age limit calculated using $N_s = 3$ (+95 % confidence limit column). The $N_s = 0$ ages were recalculated (not shown here) for the purpose of displaying them on a radial plot (Fig. 2) by using an EDM-like equation and adding a ½ count to both the spontaneous and equivalent induced track counts (Vermeesch, 2017). Other data include estimated U, Th and Sm concentrations, the number of etch figures used to calculate their average length parallel (D_{par}) and perpendicular (D_{per}) to the mineral c-axis, and an apatite U-Pb age (excluding values that were rejected following quality control procedures). U, Th and Sm are not absolute measurements due to documented variations in values between analytical sessions (Cogné et al., 2020) and they are not used for any calculations. Original, pre-filtered values are reported in the table and very high values can indicate analytical problems such as U spikes associated with the laser intersecting an inclusion.

Measured Cl and F, and calculated OH (in atoms per formula unit; apfu) and r_{mr0} values are listed for all probed age grains with acceptable elemental data (Appendix D). The r_{mr0} values were calculated using the elemental data and equation 6 of Carlson et al. (1999) and then were converted to eD_{par} and eCl values using correlations given in Ketcham et al. (1999). AFT data were sorted into different kinetic populations using eCl (derived from r_{mr0}) values. Some grains have replicate eCl (and D_{par}) values associated with independent age and length measurements (identified using probe x-y coordinates) for the same grain and they provide some measure of the variability in kinetic parameter determination (Issler et al., 2018, in review). Measured D_{par} and effective Cl values for length measurements associated with age grains are shown in tables C1 and C2. In cases of significant variability, a single eCl value (either associated with the age or length measurement) was chosen to be representative of both measurements in order to reduce kinetic population overlap on plots of age and length versus eCl. Some grains were too small or lacked smooth surfaces for probing. Age grains without probe data and a few grains that are inferred to overlap with another population were assigned to kinetic populations using their AFT age. The pooled AFT age (± one standard deviation), χ^2 probability for assessing whether data are consistent with a single age population (Q; > 5% for a pass), central age (Galbraith, 2005; Vermeesch, 2017) and associated age dispersion are listed for each kinetic population. A few grains were rejected due to poor quality U analyses which yielded ages that were too young (U spike) or too old (U below measurement resolution).

Table B1: Apatite fission track data for sample McParlon A-25 (1050-1100 m) (GSS P013-12)
Formation/age: Jungle Creek Fm., Permian (Sakmarian-Artinskian)
Sample type/location: well cuttings, NTS 116-I-04, Eagle Plain, Yukon (66.06947 °N, 137.31389 °W)
AFT age/length/Dpar analysis: Paul O'Sullivan (Geosep Services), May 7, 2015 (mount #A), December 20, 2015 (mount #B) & August 15, 2016 (reprocessed mount #A)
Elemental analysis (EPMA): Owen Neill (WSU), May 20, 2015 (mount #A); Oct. 9, 2016 (mount #B age grains); Feb. 26, 2017 (mount #B length grains)
%Ro = 0.63±0.06 (±1σ) at 1150 m (n=30, pellet # 036-13) (J. Reyes)

															Age Meas.						Length Meas.				
Grain No.	N_s	Area Ω_i (cm^2)	$^{238}U/^{43}Ca$ P_i (dmnls)	σ_{Pi} (dmnls)	FT age (Ma)	σ (Ma)	-95% C.I. (Ma)	+95% C.I. (Ma)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	U (ppm)	Th (ppm)	Sm (ppm)	meas. F (apfu)	meas. Cl (apfu)	calc. OH (apfu)	rmro	eD_{par} (μm)	eCl (apfu)	meas. D_{par} (μm)	eCl (apfu)	U-Pb Age (Ma)	2σ (Ma)	Comment
kinetic pop #1 (-0.1 < eff Cl < 0.134 apfu)																									
4A	1	3.8828E-05	0.0038	1.6595E-04	83.3	83.4	72.0	509.8	2	1.91	0.38	1	4	14	1.862	0.001	0.137	0.842	1.73	-0.006					
5B	3	3.8828E-05	0.0240	3.7359E-04	39.7	22.9	27.2	85.6	2	1.68	0.26	5	17	39	1.834	0.003	0.163	0.841	1.74	-0.003			87.6	112.7	
2B	1	2.9121E-05	0.0107	3.3952E-04	39.4	39.4	34.1	246.5	1	1.98	0.28	2	22	77	1.840	0.003	0.157	0.839	1.76	0.003			328.6	379.7	
21A	1	1.4561E-05	0.0061	1.7675E-04	137.8	137.9	119.0	818.0	1	2.17	0.41	1	0	57	2.008	0.002	0.000	0.828	1.87	0.036			2447.4	2280.0	
31B	15	1.4561E-05	0.2503	6.2116E-03	50.7	13.2	20.5	34.3	4	1.86	0.33	52	78	182	1.855	0.045	0.100	0.825	1.89	0.043					
20B	5	3.3975E-05	0.0399	1.8145E-03	45.4	20.4	26.9	65.7	3	1.90	0.46	8	8	48	1.708	0.009	0.283	0.823	1.91	0.048	2.10	0.027	299.7	139.6	length gr 14B
7B	12	1.2134E-05	0.1376	7.9727E-03	88.2	26.0	39.2	70.1	3	1.78	0.35	29	113	58	1.786	0.012	0.203	0.818	1.95	0.062	1.42	0.087	305.9	85.7	length gr 4B
27B	8	3.8828E-05	0.0500	1.0430E-03	50.7	18.0	25.7	51.9	3	1.98	0.38	10	14	189	1.442	0.005	0.552	0.812	2.00	0.078			448.1	130.5	
26B	5	9.7070E-06	0.1932	1.1818E-02	32.9	14.8	19.5	48.0	3	1.82	0.38	35	16	98	1.645	0.038	0.318	0.798	2.12	0.112	2.15	0.124			length gr 15B
29B	9	2.7180E-05	0.0855	5.2744E-03	47.7	16.2	23.5	46.0	4	1.90	0.41	15	26	40	1.488	0.003	0.509	0.797	2.12	0.113					
22B	3	1.7473E-05	0.0344	1.1979E-03	61.3	35.5	42.0	131.8	2	1.93	0.38	7	136	219	1.756	0.118	0.127	0.793	2.15	0.124			2034.0	203.6	
33B	1	9.7070E-06	0.0257	4.7203E-03	49.4	50.2	42.9	318.9	1	1.61	0.35	5	3	300	1.806	0.055	0.140	0.788	2.19	0.134					
39B	62	2.9121E-05	0.4143	1.5347E-02	63.2	8.4	14.8	19.2	4	2.04	0.42	68	563	416	1.349	0.112	0.539	0.730	2.56	0.249					
11B	10	1.7473E-05	0.2240	1.5148E-02	31.5	10.2	15.0	28.6	4	2.06	0.33	43	169	241	1.515	0.270	0.216	0.714	2.65	0.276	2.16	0.260	1534.2	247.5	length gr 8B
2A	20	1.9414E-05	0.4334	2.0738E-01	29.3	15.5	19.1	54.7	4	2.11	0.46	60	587	1317							1.94				length gr 1A
13A	9	7.7656E-06	0.3088	4.2721E-03	46.2	15.4	22.5	43.6	3	1.88	0.42	65	1186	1450							1.63		150.8	125.5	length gr 10A
25A	1	7.7656E-06	0.0192	7.1462E-04	82.4	82.5	71.2	503.9	1	1.64	0.32	596	####	####											
26A	0	1.7473E-05	0.0240	2.3877E-03	0.0	43.9		87.7	1	1.91	0.36	0	46	406											
27A	0	1.1648E-05	0.0038	1.6686E-04	0.0	392.3		784.6	1	1.94	0.57	1	4	14											
38B	5	2.4268E-05	0.0411	1.5315E-03	61.7	27.7	36.5	88.7	3	2.04	0.49	138	149	168											
19A	3	7.7656E-06	0.0758	3.4388E-02	62.7	46.1	48.2	205.4	2	2.45	0.36	5	739	113											
34B	26	1.4561E-05	0.2680	8.9584E-03	81.8	16.3	26.8	39.8	3	2.01	0.51	55	741	370									385.4	277.1	
pooled (22)	**200**				**51.3**	**5.7**	**10.3**	**12.8**		**1.93**	**0.39**					**0.048**			**2.05**	**0.091**					**Q=64%**
central age					**57.1**	**4.7**																			**Dispersion = 9%**
kinetic pop #2 (0.134 < eff Cl < 0.312 apfu)																									
18B	5	1.4561E-05	0.0411	1.5317E-03	102.5	46.0	60.5	146.3	4	1.77	0.32	9	5	79	1.354	0.029	0.618	0.793	2.15	0.122	1.87	0.142	242.5	146.4	length gr 12B
16B	6	1.2134E-05	0.0456	1.5230E-03	132.6	54.4	73.9	164.6	3	1.89	0.40	9	1	140	1.495	0.005	0.500	0.788	2.19	0.134			2013.9	196.8	
3B	16	1.3590E-05	0.1752	4.3615E-03	82.5	20.8	32.5	53.5	4	2.02	0.31	37	294	205	1.373	0.089	0.538	0.774	2.29	0.166	2.05	0.156	181.0	35.3	length gr 2B
1A	5	1.3590E-05	0.0360	8.4651E-04	125.1	56.1	73.8	177.3	3	1.86	0.38	8	74	298	1.733	0.108	0.159	0.766	2.34	0.181			352.2	373.4	
6A	18	1.9414E-05	0.0939	1.7703E-03	120.9	28.7	45.4	72.3	4	2.46	0.41	21	293	701	1.512	0.087	0.401	0.762	2.37	0.190	2.06	0.182	214.8	225.4	length gr 6A
28B	7	1.4561E-05	0.0272	5.2825E-04	214.8	81.4	113.3	235.2	4	2.09	0.38	5	51	194	1.280	0.092	0.628	0.747	2.46	0.218	2.88	0.228	345.4	186.7	length gr 16B
17B	5	1.4561E-05	0.0339	1.6710E-03	124.1	55.9	73.4	177.1	2	1.47	0.22	6	47	238	1.432	0.064	0.504	0.746	2.47	0.220	2.12	0.197	181.0	116.3	length gr 11B
1B	16	2.4268E-05	0.0487	1.0761E-03	165.1	41.5	64.8	105.8	3	1.97	0.35	10	22	114	1.574	0.064	0.362	0.742	2.49	0.228	1.92	0.224	612.8	54.8	length gr 1B
15B	36	1.9414E-05	0.1920	6.0826E-03	118.2	20.2	34.0	47.5	4	1.57	0.37	40	363	342	1.462	0.116	0.423	0.742	2.49	0.228	2.23	0.264	187.4	52.6	length gr 9B
10B	12	1.4561E-05	0.0806	4.1955E-03	125.2	36.8	55.3	98.4	4	2.38	0.48	15	190	432	1.510	0.066	0.425	0.726	2.58	0.256	2.39	0.286	199.1	189.9	length gr 6B
4B	24	9.7070E-06	0.2773	7.6449E-03	109.2	22.6	36.8	55.3	4	2.07	0.35	56	511	365	1.357	0.119	0.524	0.723	2.60	0.261	2.59	0.264	154.5	28.2	length gr 3B
24B	10	1.4561E-05	0.1537	6.2864E-03	55.0	17.6	25.9	48.8	4	2.14	0.29	26	216	195	1.215	0.113	0.672	0.713	2.66	0.278	2.57	0.271			length gr 13B
13B	15	9.7070E-06	0.1480	8.2905E-03	127.8	33.8	52.2	87.8	4	2.39	0.31	30	368	660	1.303	0.073	0.624	0.706	2.69	0.290	2.47	0.290	189.8	101.3	length gr 7B
35B	20	2.4268E-05	0.0680	2.4848E-03	148.1	33.7	53.7	83.7	4	2.48	0.49	14	121	160	1.034	0.114	0.852	0.705	2.70	0.292					
40B	2	2.9121E-05	0.0066	3.1216E-04	127.9	90.7	96.7	384.4	2	2.64	0.46	1	4	172	1.064	0.140	0.796	0.705	2.70	0.292					

Table B1 continued

Grain No.	N_s	Area Ω_i (cm^2)	$^{238}U/^{43}Ca$ P_i (dmnls)	σ_{Pi} (dmnls)	FT age (Ma)	σ (Ma)	-95% C.I. (Ma)	+95% C.I. (Ma)	Etch Figs.	Age Meas. D_{par} (μm)	Age Meas. D_{per} (μm)	Age Meas. U (ppm)	Age Meas. Th (ppm)	Age Meas. Sm (ppm)	meas. F (apfu)	meas. Cl (apfu)	calc. OH (apfu)	rmro	eD_{par} (μm)	eCl (apfu)	Length Meas. D_{par} (μm)	Length Meas. eCl (apfu)	U-Pb Age (Ma)	U-Pb 2σ (Ma)	Comment
8B	0	1.2134E-05	0.0175	6.5382E-04	0.0	86.2		172.4	1	1.99	0.29	3	13	92	1.974	0.010	0.017	0.696	2.74	0.305					
21B	2	1.2134E-05	0.0451	1.7227E-03	45.0	31.9	34.0	138.5	2	1.95	0.63	10	28	72	0.935	0.105	0.960	0.695	2.75	0.306			201.0	100.7	
12B	12	3.0577E-05	0.0450	1.7973E-03	106.8	31.2	47.0	83.5	3	2.26	0.39	10	76	268	1.177	0.123	0.701	0.692	2.76	0.312			318.3	205.4	
25B	1	9.7070E-06	0.0724	2.6729E-03	17.5	17.6	15.2	111.2	1	2.20	0.35	9	62	397	1.323	0.087	0.590	0.666	2.89	0.350					
8A	29	1.7473E-05	0.2637	4.5800E-03	77.3	14.5	24.1	34.9	3	2.04	0.45	64	961	379							2.49		117.9	54.4	length gr 7A
12A	9	1.7473E-05	0.0383	6.6592E-04	164.0	54.8	79.4	152.2	3	2.15	0.45	10	136	176							2.58		516.6	2280.0	length gr 9A
18A	3	1.4561E-05	0.0146	4.6036E-04	171.6	99.3	117.1	359.0	3	2.07	0.46	3	32	79											
23A	9	9.7070E-06	0.0622	1.3396E-03	181.6	60.8	88.0	168.3	2	2.34	0.48	14	221	219											
9B	11	9.7070E-06	0.0871	5.9477E-03	158.8	49.2	72.8	133.2	4	2.50	0.71	16	40	160									192.5	99.0	
30B	1	9.7070E-06	0.0107	3.3938E-04	117.5	117.6	101.5	705.2	2	2.19	0.43	278	920	193											
37B	11	5.8242E-06	0.1821	2.7181E-03	126.9	38.4	57.3	103.6	4	2.46	0.57	37	323	280									155.6	34.5	
pooled (26)	**285**				**109.2**	**6.8**	**12.7**	**14.4**		**2.13**	**0.41**					**0.084**			**2.54**	**0.244**					**Q=22%**
central age					**117.3**	**7.8**																			**Dispersion = 11%**
kinetic pop #3 (0.312 < eff Cl < 0.55)																									
24A	10	1.2134E-05	0.0385	6.6863E-04	259.3	82.3	120.5	221.4	3	2.42	0.71	10	136	176	1.065	0.130	0.806	0.718	2.63	0.270			516.6	2280.0	
20A	8	1.4561E-05	0.0168	1.2049E-03	392.5	141.8	198.9	391.3	3	2.73	0.68	3	17	187	1.060	0.178	0.762	0.690	2.78	0.315	2.54	0.312	140.7	122.3	length gr 11A
23B	3	9.7070E-06	0.0208	8.4673E-04	181.4	105.1	123.9	379.4	1	1.84	0.31	4	45	210	1.203	0.100	0.697	0.676	2.84	0.336					
22A	3	5.8242E-06	0.0115	3.4368E-04	529.1	306.1	358.0	1021.9	2	2.14	0.52	2	12	107	0.959	0.223	0.818	0.666	2.89	0.350	2.61	0.340	1221.4	1095.3	length gr 12A
11A	4	1.7473E-05	0.0119	3.0726E-04	234.1	117.3	147.2	384.6	3	2.43	0.89	2	20	127	0.958	0.128	0.914	0.662	2.91	0.356	2.37	0.326	303.2	470.7	length gr 4A
14B	0	1.2134E-05	0.0065	2.5723E-04	0.0	227.7		455.4	1	2.15	0.30	1	4	139	1.149	0.172	0.680	0.662	2.91	0.356					
32B	2	1.9414E-05	0.0053	2.5850E-04	236.5	167.7	178.4	688.5	2	2.06	0.34	1	4	530	1.297	0.246	0.457	0.661	2.91	0.357					
7A	1	1.2134E-05	0.0031	1.1652E-04	322.7	323.0	278.2	1753.5	1	2.53	0.37	1	3	282	1.292	0.262	0.447	0.635	3.03	0.392			270.3	1518.3	
5A	1	7.7656E-06	0.0075	2.1160E-04	209.7	209.8	181.0	1200.9	1	2.60	0.82	2	14	256	1.171	0.322	0.507	0.627	3.06	0.402	2.42	0.406	84.1	612.2	length gr 5A
19B	2	1.9414E-05	0.0059	2.0594E-04	212.5	150.5	160.3	621.7	2	2.23	0.35	1	11	1700	1.333	0.147	0.520	0.623	3.08	0.408					
3A	5	1.4561E-05	0.0194	4.4408E-04	215.1	96.4	126.5	299.8	2	2.22	0.54	4	19	296	1.191	0.256	0.553	0.609	3.13	0.424	2.51	0.419	282.0	366.8	length gr 2A
17A	1	1.9414E-05	0.0049	1.8531E-04	129.8	129.9	112.1	774.3	1	2.29	0.41	1	9	197	0.917	0.374	0.709	0.536	3.40	0.506			456.0	1046.1	
10A	1	7.2803E-06	0.0082	4.4531E-04	204.1	204.4	176.2	1174.4	1	1.80	0.32	2	18	158											
15A	2	7.7656E-06	0.0135	3.6325E-04	231.2	163.6	174.3	672.1	1	2.74	0.60	216	431	537											
16A	1	7.7656E-06	0.0069	1.7726E-04	225.9	226.0	194.9	1283.4	1	2.98	0.69	1	16	77											
6B	3	9.7070E-06	0.0093	3.5168E-04	397.4	230.1	269.9	790.8	2	2.80	0.46	2	7	127									295.4	198.6	
pooled (16)	**47**	**1.97E-04**			**251.6**	**37.1**	**63.3**	**84.1**		**2.37**	**0.52**					**0.211**			**2.96**	**0.373**					**Q=99%**
central age					**272.5**	**40.0**																			**Dispersion = 0%**
Rejected outlier ages (poor U analyses?)																									
14A	6	1.0192E-05	0.0034	1.0321E-03	1865.5	953.5			2	2.35	0.47	0	20	48											
9A	7	1.7473E-05	0.4924	8.2500E-02	10.0	4.2			2	1.99	0.37	15	2311	439											
36B	1	1.4561E-05	0.3105	2.0469E-02	2.7	2.7			1	2.75	0.62	94	334	88							2.36				len gr 18B

N_s is the number of spontaneous tracks

Ω_i is the track count area

Table B2: Apatite fission track data for sample 2009LHA003C1 (AtoZ 1148-06)
Formation/age: Imperial Fm., Upper Devonian (early Famennian?)
Sample type/location: outrop, NTS 116-I-09, Dempster Highway quarry, Yukon (66.552744 °N, 136.338984 °W)
AFT age/length/Dpar analysis analysis: Paul O'Sullivan (AtoZ Inc.), June 2, 2011
Elemental analysis (EPMA): apfu and total elemental wt% values were included with AFT age and length data
%Ro = 1.62±0.1 (±1s) (pellet # 401-09; n=21) (J. Reyes)

															Age Meas.						Length Meas.				
Grain No.	N_s	Area Ω_i (cm^2)	$^{238}U/^{43}Ca$ P_i (dmnls)	σ_{Pi} (dmnls)	FT age (Ma)	σ (Ma)	-95% C.I. (Ma)	+95% C.I. (Ma)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	U (ppm)	Th (ppm)	Sm (ppm)	meas. F (apfu)	meas. Cl (apfu)	calc. OH (apfu)	rmro	eD_{par} (μm)	eCl (apfu)	meas. D_{par} (μm)	eCl (apfu)	U-Pb Age (Ma)	2σ (Ma)	Comment
Kinetic pop #1 (-0.1 < effective Cl < 0.0725 apfu)																									
17	2	9.7070E-06	0.0299	8.9117E-04	84.5	59.8	63.9	256.8	2	1.96	0.51	7	19	46	1.926	0.003	0.071	0.841	1.74	-0.003					
14	0	9.7070E-06	0.0029	2.2125E-04	0.0	597.4		1194.8	1	1.97	0.54	0	0	13	1.771	0.009	0.218	0.838	1.77	0.006					
1	1	1.2134E-05	0.0339	1.0792E-03	30.0	30.0	25.9	188.7	1	2.00	0.63	7	5	157	1.961	0.006	0.028	0.835	1.80	0.017			485.5	372.7	
36	28	4.3682E-06	0.6255	1.2630E-02	125.4	23.9	39.5	57.5	4	2.24	0.71	130	1052	2298	1.975	0.021	0.000	0.832	1.83	0.025			585.7	312.4	
40	17	1.2134E-05	0.1651	1.2584E-02	104.0	26.5	41.4	68.3	4	2.07	0.56	35	10	25	1.556	0.029	0.414	0.828	1.87	0.036			439.8	299.0	
3	6	1.1648E-05	0.0343	8.5312E-04	183.2	75.0	101.8	225.0	3	2.10	0.63	8	35	215	1.647	0.023	0.329	0.824	1.90	0.047			243.7	396.1	
26	4	1.1648E-05	0.0311	8.3932E-04	134.8	67.6	85.0	226.0	3	2.38	0.45	8	13	12	1.621	0.004	0.375	0.822	1.91	0.050	2.18	0.0173			len gr 28
28	34	7.7656E-06	0.4092	1.5780E-02	130.9	23.1	38.7	54.7	4	2.05	0.51	83	153	90	1.633	0.070	0.293	0.819	1.95	0.060	1.88	0.0670	373.4	97.4	len gr 30
24	10	9.7070E-06	0.1096	4.8582E-03	115.1	36.8	54.1	101.4	4	1.92	0.41	21	9	513	1.893	0.013	0.093	0.814	1.99	0.072			404.8	241.2	
pooled (9)	**102**				**119.3**	**12.2**	**22.0**	**26.9**		**2.08**	**0.55**					**0.020**			**1.86**	**0.035**					**Q=86%**
central age					**122.8**	**12.4**																			**Dispersion = 0%**
Kinetic pop #2 (0.0725 < effective Cl < 0.7 apfu)																									
7	39	4.3682E-06	0.4793	1.5152E-02	226.2	37.1	62.5	85.8	4	1.70	0.34	99	219	348	1.845	0.085	0.069	0.822	1.92	0.052			396.6	85.0	
13	16	7.2803E-06	0.1165	3.1597E-03	229.1	57.8	89.8	145.9	4	2.04	0.41	23	6	593	1.898	0.005	0.096	0.821	1.92	0.053			581.4	451.2	
32	29	1.1648E-05	0.1223	3.0874E-03	246.7	46.4	76.4	109.7	4	2.15	0.52	26	7	463	1.985	0.001	0.014	0.814	1.99	0.073	2.01	0.101	532.7	142.9	len gr 39
11	42	7.7656E-06	0.2225	5.1439E-03	293.6	46.1	77.9	105.1	4	2.36	0.48	48	19	97	1.430	0.027	0.540	0.804	2.07	0.098			547.3	96.3	
30	31	2.4268E-05	0.0339	1.5915E-03	449.6	83.9	136.7	193.4	4	2.21	0.62	7	45	172	1.194	0.045	0.756	0.799	2.10	0.108	2.36	0.109	438.7	356.5	len gr 33
6	47	1.1648E-05	0.1551	3.6183E-03	313.6	46.7	79.3	105.3	4	2.21	0.62	34	245	881	1.884	0.116	0.000	0.796	2.13	0.116	1.93	0.114			len gr 4
31	16	1.9414E-05	0.0317	8.3315E-04	313.8	79.1	122.4	197.7	4	2.61	0.78	7	240	254	1.128	0.066	0.804	0.796	2.13	0.116	3.15	0.120			len gr 40
39	13	4.3682E-06	0.2074	8.4004E-03	175.0	49.1	74.6	128.8	4	2.42	0.80	41	292	211	1.205	0.073	0.722	0.793	2.15	0.124			463.9	274.6	
9	21	7.7656E-06	0.1442	5.4740E-03	227.6	50.6	80.8	124.0	4	2.22	0.54	41	20	164	1.438	0.075	0.485	0.793	2.15	0.124	2.49	0.094	382.8	79.2	len gr 9
19	18	7.2803E-06	0.1292	3.6374E-03	232.2	55.3	87.0	137.6	4	1.80	0.39	26	75	314	1.586	0.054	0.359	0.792	2.16	0.126			571.2	177.2	
34	19	1.6987E-05	0.0602	1.4465E-03	225.6	52.2	82.7	129.2	4	2.33	0.51	13	133	562	1.921	0.057	0.022	0.791	2.17	0.127			296.1	238.1	
22	37	7.7656E-06	0.2668	6.4987E-03	217.0	36.3	60.9	84.2	4	2.25	0.59	53	83	405	1.446	0.207	0.338	0.775	2.28	0.163	1.97	0.167	415.7	88.9	len gr 22
12	3	7.7656E-06	0.0190	6.0200E-04	246.6	142.6	168.0	507.0	2	1.74	0.52	5	93	134	1.509	0.187	0.303	0.771	2.31	0.171					
15	30	1.7473E-05	0.0844	2.1418E-03	246.5	45.7	75.3	107.5	4	2.18	0.41	14	167	560	1.595	0.081	0.323	0.764	2.35	0.185	2.37	0.174			len gr 17
21	48	8.7363E-06	0.2988	6.1301E-03	223.3	32.8	56.1	74.5	4	2.30	0.57	60	369	640	1.661	0.338	0.000	0.761	2.37	0.192			347.9	61.5	
37	1	7.7656E-06	0.0099	3.3439E-04	159.2	159.3	137.5	935.3	1	2.07	0.53	2	40	246	0.976	0.028	0.994	0.759	2.39	0.196			611.5	585.6	
20	33	5.8242E-06	0.2602	6.0286E-03	263.7	46.6	77.3	108.5	4	2.11	0.57	58	213	550	1.648	0.266	0.076	0.758	2.39	0.197			602.3	277.7	
2	6	7.2803E-06	0.0442	1.1528E-03	226.3	92.7	125.5	276.0	4	2.06	0.46	10	80	183	1.734	0.076	0.185	0.757	2.40	0.200					
33	5	2.0385E-05	0.0093	2.9850E-04	316.7	142.1	185.7	434.2	4	2.19	0.46	2	10	339	1.450	0.028	0.523	0.754	2.42	0.204			579.9	606.8	
27	8	1.2134E-05	0.0504	1.3658E-03	159.5	56.6	80.6	160.9	4	2.29	0.37	11	55	470	1.606	0.128	0.264	0.743	2.48	0.226			432.9	266.0	
10	6	1.4561E-05	0.0079	3.1684E-04	615.9	252.9	337.7	707.6	4	2.10	0.46	2	12	506	1.501	0.228	0.263	0.742	2.49	0.227					
29	6	1.1648E-05	0.0302	8.4867E-04	207.6	85.0	115.3	254.1	4	2.23	0.59	6	43	139	1.385	0.196	0.419	0.742	2.49	0.228			432.3	511.9	
4	15	1.9414E-05	0.0294	9.0515E-04	316.5	82.5	126.7	207.9	4	2.58	0.46	7	43	497	1.376	0.126	0.496	0.717	2.64	0.272	2.67	0.277	519.7	363.9	len gr 6
35	5	1.1648E-05	0.0241	7.9288E-04	216.7	97.2	127.5	302.6	4	2.61	0.68	5	55	245	1.202	0.112	0.686	0.708	2.68	0.287			325.2	370.4	
16	19	1.2134E-05	0.0799	2.0356E-03	237.7	55.0	87.1	136.0	4	2.41	0.60	16	194	560	1.320	0.175	0.496	0.704	2.71	0.293	3.11	0.283	333.5	289.3	len gr 18
25	12	1.4561E-05	0.0423	1.6354E-03	236.1	68.9	103.3	181.2	4	2.48	0.54	10	48	264	0.970	0.211	0.816	0.672	2.86	0.341	2.49	0.303	450.1	482.7	len gr 29
23	5	9.7070E-06	0.0438	1.3469E-03	143.9	64.5	84.8	203.5	4	2.62	0.46	9	51	211	0.881	0.155	0.962	0.664	2.90	0.353	1.63	0.321	371.8	501.6	len gr 21
8	17	9.7070E-06	0.0697	1.6437E-03	303.3	74.1	115.6	184.1	4	2.19	0.83	16	89	269	0.968	0.233	0.799	0.625	3.07	0.405			461.7	275.2	
38	11	1.1648E-05	0.0560	3.3420E-03	205.2	63.2	93.6	169.7	4	2.91	1.11	12	70	213	0.765	0.471	0.758	0.501	3.51	0.540	3.72	0.517	359.8	519.9	len gr 45
5	14	1.1648E-05	0.0389	9.9908E-04	370.8	99.8	151.8	251.9	4	3.43	0.98	8	73	303	0.772	0.652	0.576	0.310	4.01	0.694	3.90	0.694	599.6	486.3	len gr 7 eff Cl
pooled (30)	**572**				**252.4**	**11.6**	**21.8**	**23.8**		**2.29**	**0.57**					**0.150**			**2.45**	**0.216**					**Q=31%**
central age					**258.3**	**11.6**																			**Dispersion = 7%**

Table B2 continued

															Age Meas.						Length Meas.				
Grain No.	N_s	Area Ω_i (cm^2)	$^{238}U/^{43}Ca$ P_i (dmnls)	σ_{Pi} (dmnls)	FT age (Ma)	σ (Ma)	-95% C.I. (Ma)	+95% C.I. (Ma)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	U (ppm)	Th (ppm)	Sm (ppm)	meas. F (apfu)	meas. Cl (apfu)	calc. OH (apfu)	rmro	eD_{par} (μm)	eCl (apfu)	D_{par} (μm)	eCl (apfu)	U-Pb Age (Ma)	2σ (Ma)	Comment
Poor U analysis																									
18	1	1.7473E-05	0.0003	2.3394E-04	1835.4	2243.2			1	1.80	0.25	0	0	17	1.529	0.000	0.464	0.831	1.83	0.026					

N_s is the number of spontaneous tracks

Ω_i is the track count area

APPENDIX C: Apatite fission track length data

Tables C1 and C2 contain measured horizontal, confined fission track lengths and corresponding angles of tracks with respect to the crystallographic c-axis, D_{par} and D_{per} values (etch figure lengths parallel and perpendicular to c-axis), measured Cl and calculated OH contents, and r_{mr0} values with the derived parameters, eD_{par} and eCl. r_{mr0} values were calculated using elemental data (Appendix D) and the Carlson et al. (1999) multivariate equation and these values were converted to eD_{par} and eCl values using correlations given in Ketcham et al. (1999). Some length grains have replicate eCl (and D_{par}) values associated with independent age and length measurements that were done for the same apatite grain (identified using probe x-y coordinates for the grain mounts). For example, in tables C1 and C2, column 2 lists the grain number for the length measurement and the last column (comments) lists the associated age grain number that corresponds to the same apatite grain. In cases of significant variability, a single eCl value (either associated with the age or length measurement) was chosen to be representative of both measurements in order to reduce kinetic population overlap on plots of AFT age and length versus eCl. Measured D_{par} and eCl values for age measurements associated with length grains are shown in the tables. FT length data are grouped into different kinetic populations using the AFT age identifications and available eCl and D_{par} values. Multiple parameters are needed for sample P013-12 because not all grains could be probed. The mean AFT length (± one standard deviation) and average D_{par}, D_{per}, Cl, eD_{par} and eCl values are listed for each kinetic population.

Table C1: Apatite fission track length data for sample McParlon A-25 (1050-1100 m) (GSS P013-12)
Formation/age: Jungle Creek Fm., Permian (Sakmarian-Artinskian)
Sample type/location: well cuttings, NTS 116-I-04, Eagle Plain, Yukon (66.06947 °N, 137.31389 °W)

							Length meas.					Age meas.		
Track No.	Grain No.	Confined length (μm)	angle to C-axis (degrees)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	meas. Cl (apfu)	calc. OH (apfu)	rmro	eD_{par} (μm)	eCl (apfu)	meas. D_{par} (μm)	eCl (apfu)	Comments
kinetic pop #1 (-0.1 < eff Cl < 0.134 apfu)														
1	15A	14.18	49.13	4	2.06	0.46	0.007	0.377	0.841	1.75	-0.001			
2	15A	11.14	55.07	4	2.06	0.46	0.007	0.377	0.841	1.75	-0.001			
3	15A	13.17	18.22	4	2.06	0.46	0.007	0.377	0.841	1.75	-0.001			
4	15A	12.32	41.15	4	2.06	0.46	0.007	0.377	0.841	1.75	-0.001			
5	15A	10.11	68.56	4	2.06	0.46	0.007	0.377	0.841	1.75	-0.001			
6	14B	11.44	83.89	4	2.10	0.41	0.006	0.257	0.831	1.84	0.027	1.90	0.048	age gr 20B
7	4B	14.33	56.68	2	1.42	0.34	0.008	0.327	0.808	2.03	0.087	1.78	0.062	age gr 7B
8	4B	14.97	68.08	2	1.42	0.34	0.008	0.327	0.808	2.03	0.087	1.78	0.062	age gr 7B
9	4B	13.44	72.28	2	1.42	0.34	0.008	0.327	0.808	2.03	0.087	1.78	0.062	age gr 7B
10	4B	14.96	58.05	2	1.42	0.34	0.008	0.327	0.808	2.03	0.087	1.78	0.062	age gr 7B
11	15B	15.19	33.95	4	2.15	0.41	0.041	0.402	0.793	2.15	0.124	1.82	0.112	age gr 26B
12	8B	14.25	38.11	4	2.16	0.47	0.274	0.136	0.724	2.60	0.260	2.06	0.276	age gr 11B
13	10A	11.61	78.61	4	1.63	0.35						1.88		age gr 13A
14	10A	11.79	57.09	4	1.63	0.35						1.88		age gr 13A
15	1A	14.71	45.80	4	1.94	0.34						2.11		age gr 2A
16	1A	11.26	64.38	4	1.94	0.34						2.11		age gr 2A
17	1A	11.13	58.22	4	1.94	0.34						2.11		age gr 2A
18	1A	7.76	60.42	4	1.94	0.34						2.11		age gr 2A
19	1A	10.02	54.30	4	1.94	0.34						2.11		age gr 2A
Ave		**12.51**			**1.86**	**0.38**	**0.032**			**1.95**	**0.063**	**1.94**	**0.098**	
SD		**2.07**			**0.27**	**0.06**	**0.077**			**0.25**	**0.078**	**0.15**	**0.081**	
kinetic pop #2 (0.134 < eff Cl < 0.312 apfu)														
20	12B	15.23	51.75	4	1.87	0.28	0.029	0.746	0.785	2.21	0.142	1.77	0.122	age gr 18B
21	12B	15.26	67.86	4	1.87	0.28	0.029	0.746	0.785	2.21	0.142	1.77	0.122	age gr 18B
22	2B	9.67	73.85	4	2.05	0.44	0.099	0.449	0.778	2.26	0.156	2.02	0.166	age gr 3B
23	2B	17.11	20.98	4	2.05	0.44	0.099	0.449	0.778	2.26	0.156	2.02	0.166	age gr 3B
24	2B	10.85	75.60	4	2.05	0.44	0.099	0.449	0.778	2.26	0.156	2.02	0.166	age gr 3B
25	6A	11.05	54.43	4	2.06	0.43	0.084	0.260	0.766	2.34	0.182	2.46	0.190	age gr 6A
26	6A	14.70	37.81	4	2.06	0.43	0.084	0.260	0.766	2.34	0.182	2.46	0.190	age gr 6A
27	6A	13.65	42.35	4	2.06	0.43	0.084	0.260	0.766	2.34	0.182	2.46	0.190	age gr 6A
28	6A	11.87	56.39	4	2.06	0.43	0.084	0.260	0.766	2.34	0.182	2.46	0.190	age gr 6A
29	6A	10.95	30.86	4	2.06	0.43	0.084	0.260	0.766	2.34	0.182	2.46	0.190	age gr 6A
30	10B	15.06	27.90	4	1.98	0.35	0.071	0.426	0.761	2.37	0.192			
31	11B	14.44	52.74	4	2.12	0.29	0.071	0.558	0.758	2.39	0.197	1.47	0.220	age gr 17B
32	11B	14.35	68.60	4	2.12	0.29	0.071	0.558	0.758	2.39	0.197	1.47	0.220	age gr 17B
33	1B	13.39	34.09	4	1.92	0.35	0.062	0.422	0.744	2.48	0.224	1.97	0.228	age gr 1B
34	1B	11.16	72.07	4	1.92	0.35	0.062	0.422	0.744	2.48	0.224	1.97	0.228	age gr 1B
35	16B	14.26	78.39	4	2.88	0.47	0.096	0.696	0.742	2.49	0.228	2.09	0.218	age gr 28B
36	16B	9.07	87.73	4	2.88	0.47	0.096	0.696	0.742	2.49	0.228	2.09	0.218	age gr 28B
37	17B	9.67	63.24	3	2.47	0.50	0.109	0.691	0.723	2.60	0.261			
38	9B	16.79	36.23	4	2.23	0.41	0.122	0.611	0.722	2.61	0.264	1.57	0.228	age gr 15B
39	9B	10.25	56.57	4	2.23	0.41	0.122	0.611	0.722	2.61	0.264	1.57	0.228	age gr 15B
40	3B	11.75	62.35	4	2.59	0.39	0.116	0.688	0.721	2.61	0.264	2.07	0.261	age gr 4B
41	3B	11.84	58.86	4	2.59	0.39	0.116	0.688	0.721	2.61	0.264	2.07	0.261	age gr 4B
42	3B	11.54	55.57	4	2.59	0.39	0.116	0.688	0.721	2.61	0.264	2.07	0.261	age gr 4B
43	3B	15.93	39.48	4	2.59	0.39	0.116	0.688	0.721	2.61	0.264	2.07	0.261	age gr 4B
44	13B	14.87	65.71	4	2.57	0.51	0.111	0.651	0.717	2.63	0.271	2.14	0.278	age gr 24B
45	13B	13.87	25.76	4	2.57	0.51	0.111	0.651	0.717	2.63	0.271	2.14	0.278	age gr 24B

Table C1 continued

							Length meas.					Age meas.		
Track No.	Grain No.	Confined length (μm)	angle to C-axis (degrees)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	meas. Cl (apfu)	calc. OH (apfu)	rmro	eD_{par} (μm)	eCl (apfu)	meas. D_{par} (μm)	eCl (apfu)	Comments
46	13B	11.43	60.19	4	2.57	0.51	0.111	0.651	0.717	2.63	0.271	2.14	0.278	age gr 24B
47	13B	10.02	66.40	4	2.57	0.51	0.111	0.651	0.717	2.63	0.271	2.14	0.278	age gr 24B
48	13B	8.84	75.73	4	2.57	0.51	0.111	0.651	0.717	2.63	0.271	2.14	0.278	age gr 24B
49	13B	11.59	66.16	4	2.57	0.51	0.111	0.651	0.717	2.63	0.271	2.14	0.278	age gr 24B
50	13B	13.97	53.12	4	2.57	0.51	0.111	0.651	0.717	2.63	0.271	2.14	0.278	age gr 24B
51	13B	9.66	64.81	4	2.57	0.51	0.111	0.651	0.717	2.63	0.271	2.14	0.278	age gr 24B
52	13B	13.20	23.86	4	2.57	0.51	0.111	0.651	0.717	2.63	0.271	2.14	0.278	age gr 24B
53	6B	14.65	78.55	4	2.39	0.43	0.073	0.461	0.708	2.68	0.286	2.38	0.256	age gr 10B
54	6B	15.67	35.99	4	2.39	0.43	0.073	0.461	0.708	2.68	0.286	2.38	0.256	age gr 10B
55	7B	11.18	58.60	4	2.47	0.38	0.079	0.504	0.706	2.69	0.290	2.39	0.290	age gr 13B
56	7B	11.02	55.57	4	2.47	0.38	0.079	0.504	0.706	2.69	0.290	2.39	0.290	age gr 13B
57	7B	13.10	62.86	4	2.47	0.38	0.079	0.504	0.706	2.69	0.290	2.39	0.290	age gr 13B
58	7B	12.46	48.11	4	2.47	0.38	0.079	0.504	0.706	2.69	0.290	2.39	0.290	age gr 13B
59	7B	11.19	54.21	4	2.47	0.38	0.079	0.504	0.706	2.69	0.290	2.39	0.290	age gr 13B
60	3A	12.02	34.19	4	2.39	0.51	0.182	0.542	0.696	2.74	0.305			
61	14A	10.06	68.18	4	1.90	0.34								
62	14A	9.88	58.91	4	1.90	0.34								
63	14A	11.54	50.59	4	1.90	0.34								
64	14A	9.26	52.08	4	1.90	0.34								
65	8A	9.94	78.33	4	2.38	0.42								
66	8A	12.07	66.93	4	2.38	0.42								
67	8A	12.07	72.58	4	2.38	0.42								
68	8A	13.11	42.14	4	2.38	0.42								
69	8A	11.87	44.02	4	2.38	0.42								
70	8A	9.16	84.14	4	2.38	0.42								
71	8A	9.98	57.26	4	2.38	0.42								
72	7A	13.16	59.37	4	2.49	0.39						2.04		age gr 8A
73	7A	9.50	87.80	4	2.49	0.39						2.04		age gr 8A
74	7A	7.47	75.50	4	2.49	0.39						2.04		age gr 8A
75	7A	10.06	47.60	4	2.49	0.39						2.04		age gr 8A
76	7A	12.53	35.91	4	2.49	0.39						2.04		age gr 8A
77	7A	7.90	81.56	4	2.49	0.39						2.04		age gr 8A
78	9A	9.41	47.07	4	2.58	0.56						2.15		age gr 12A
79	9A	12.66	31.30	4	2.58	0.56						2.15		age gr 12A
80	9A	14.10	42.41	4	2.58	0.56						2.15		age gr 12A
Ave		**12.04**			**2.34**	**0.42**	**0.094**			**2.53**	**0.238**	**2.12**	**0.252**	
SD		**2.26**			**0.26**	**0.07**	**0.027**			**0.16**	**0.049**	**0.25**	**0.034**	
kinetic pop #3 (0.312 < eff Cl < 0.55)														
81	11A	12.56	49.04	4	2.54	0.46	0.171	0.735	0.692	2.76	0.312	2.73	0.315	age gr 20A
82	11A	13.50	59.89	4	2.54	0.46	0.171	0.735	0.692	2.76	0.312	2.73	0.315	age gr 20A
83	11A	13.11	52.37	4	2.54	0.46	0.171	0.735	0.692	2.76	0.312	2.73	0.315	age gr 20A
84	4A	10.87	52.54	4	2.37	0.50	0.127	0.830	0.682	2.81	0.326	2.43	0.356	age gr 11A
85	4A	9.04	72.44	4	2.37	0.50	0.127	0.830	0.682	2.81	0.326	2.43	0.356	age gr 11A
86	4A	8.16	52.41	4	2.37	0.50	0.127	0.830	0.682	2.81	0.326	2.43	0.356	age gr 11A
87	12A	9.26	54.02	4	2.61	0.74	0.211	0.870	0.673	2.86	0.340	2.14	0.350	age gr 22A
88	13A	9.43	71.70	4	2.68	0.52	0.149	0.834	0.670	2.87	0.344			
89	13A	14.31	53.41	4	2.68	0.52	0.149	0.834	0.670	2.87	0.344			
90	5A	11.53	89.38	4	2.42	0.52	0.330	0.468	0.624	3.07	0.406	2.60	0.402	age gr 5A
91	5A	13.91	45.43	4	2.42	0.52	0.330	0.468	0.624	3.07	0.406	2.60	0.402	age gr 5A
92	2A	5.89	76.29	4	2.51	0.51	0.263	0.536	0.614	3.11	0.419	2.22	0.424	age gr 3A

Table C1 continued

							Length meas.					Age meas.		
Track No.	Grain No.	Confined length (μm)	angle to C-axis (degrees)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	meas. Cl (apfu)	calc. OH (apfu)	rmro	eD_{par} (μm)	eCl (apfu)	meas. D_{par} (μm)	eCl (apfu)	Comments
93	5B	14.85	60.53	4	2.72	0.49								
94	5B	14.07	60.63	4	2.72	0.49								
Ave		**11.46**			**2.53**	**0.51**	**0.194**			**2.88**	**0.348**	**2.50**	**0.359**	
SD		**2.74**			**0.13**	**0.07**	**0.075**			**0.13**	**0.040**	**0.19**	**0.039**	

Table C2: Apatite fission track length data for sample 2009LHA003C1 (AtoZ 1148-06)
Formation/age: Imperial Fm., Upper Devonian (early Famennian?)
Sample type/location: outrop, NTS 116-I-09, Dempster Highway quarry, Yukon (66.552744 °N, 136.338984 °W)

							Length meas.					Age meas.		
Track No.	Grain No.	Confined length (μm)	angle to C-axis (degrees)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	meas. Cl (apfu)	calc. OH (apfu)	rmro	eD_{par} (μm)	eCl (apfu)	meas. D_{par} (μm)	eCl (apfu)	Comments
Kinetic pop #1 (-0.1 < effective Cl < 0.0725 apfu)														
1	26	10.56	46.58	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
2	26	10.65	57.73	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
3	26	14.13	74.62	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
4	26	16.18	31.47	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
5	26	11.22	47.94	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
6	26	15.43	33.75	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
7	26	16.46	34.72	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
8	26	13.64	52.00	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
9	26	14.83	47.28	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
10	26	14.59	40.41	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
11	26	16.65	34.85	4	2.08	0.46	0.000	0.215	0.846	1.69	-0.017			
12	41	16.55	43.31	4	1.69	0.36	0.010	0.073	0.843	1.73	-0.007			
13	41	11.90	66.92	4	1.69	0.36	0.010	0.073	0.843	1.73	-0.007			
14	41	12.33	51.56	4	1.69	0.36	0.010	0.073	0.843	1.73	-0.007			
15	41	11.66	72.46	4	1.69	0.36	0.010	0.073	0.843	1.73	-0.007			
16	28	10.97	77.15	4	2.18	0.35	0.006	0.176	0.834	1.81	0.017	2.38	0.050	age gr 26
17	28	15.31	35.72	4	2.18	0.35	0.006	0.176	0.834	1.81	0.017	2.38	0.050	age gr 26
18	37	16.39	64.30	4	2.22	0.42	0.032	0.390	0.832	1.82	0.023			
19	23	12.99	68.24	4	1.70	0.37	0.006	0.333	0.832	1.83	0.024			
20	10	13.71	55.44	4	1.85	0.29	0.000	0.000	0.830	1.85	0.029			
21	10	14.35	72.23	4	1.85	0.29	0.000	0.000	0.830	1.85	0.029			
22	38	10.81	77.04	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
23	38	13.08	60.93	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
24	38	10.90	65.45	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
25	38	9.51	36.71	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
26	38	12.20	30.18	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
27	38	12.69	69.02	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
28	38	**9.46**	39.69	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
29	38	9.43	83.82	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
30	38	7.88	78.24	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
31	38	9.80	59.27	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
32	38	10.53	85.79	4	1.62	0.33	0.000	0.000	0.827	1.87	0.037			
33	49	14.91	39.83	4	2.13	0.39	0.081	0.104	0.827	1.87	0.038			
34	49	13.89	36.65	4	2.13	0.39	0.081	0.104	0.827	1.87	0.038			
35	49	12.30	41.77	4	2.13	0.39	0.081	0.104	0.827	1.87	0.038			
36	16	8.59	68.69	4	1.97	0.32	0.006	0.302	0.827	1.87	0.038			
37	16	14.49	42.97	4	1.97	0.32	0.006	0.302	0.827	1.87	0.038			
38	32	11.91	65.30	4	2.19	0.45	0.042	0.272	0.826	1.88	0.041			
39	14	9.55	80.89	4	2.17	0.41	0.020	0.388	0.825	1.89	0.044			
40	14	11.36	53.81	4	2.17	0.41	0.020	0.388	0.825	1.89	0.044			
41	14	12.54	44.60	4	2.17	0.41	0.020	0.388	0.825	1.89	0.044			
42	14	7.44	88.25	4	2.17	0.41	0.020	0.388	0.825	1.89	0.044			
43	14	11.85	75.98	4	2.17	0.41	0.020	0.388	0.825	1.89	0.044			
44	20	12.18	76.36	4	1.80	0.46	0.004	0.226	0.824	1.90	0.047			
45	20	13.89	24.12	4	1.80	0.46	0.004	0.226	0.824	1.90	0.047			
46	20	9.67	76.46	4	1.80	0.46	0.004	0.226	0.824	1.90	0.047			
47	24	10.73	47.04	4	2.18	0.43	0.024	0.143	0.823	1.91	0.048			
48	24	11.79	56.55	4	2.18	0.43	0.024	0.143	0.823	1.91	0.048			

Table C2 continued

							Length meas.					Age meas.		
Track No.	Grain No.	Confined length (μm)	angle to C-axis (degrees)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	meas. Cl (apfu)	calc. OH (apfu)	A to Z rmro	calc. D_{par} (μm)	Eff. Cl (apfu)	meas. D_{par} (μm)	Eff. Cl (apfu)	Comments
49	24	11.40	49.88	4	2.18	0.43	0.024	0.143	0.823	1.91	0.048			
50	24	11.10	72.51	4	2.18	0.43	0.024	0.143	0.823	1.91	0.048			
51	13	10.85	35.10	4	1.84	0.38	0.004	0.196	0.823	1.91	0.049			
52	13	9.59	60.28	4	1.84	0.38	0.004	0.196	0.823	1.91	0.049			
53	31	13.50	84.59	4	1.93	0.38	0.052	0.000	0.817	1.96	0.065			
54	31	12.98	25.39	4	1.93	0.38	0.052	0.000	0.817	1.96	0.065			
55	30	12.10	56.13	4	1.88	0.44	0.079	0.151	0.816	1.97	0.067	2.05	0.060	age gr 28
56	30	13.19	61.17	4	1.88	0.44	0.079	0.151	0.816	1.97	0.067	2.05	0.060	age gr 28
57	30	11.80	27.19	4	1.88	0.44	0.079	0.151	0.816	1.97	0.067	2.05	0.060	age gr 28
58	30	15.57	34.80	4	1.88	0.44	0.079	0.151	0.816	1.97	0.067	2.05	0.060	age gr 28
59	30	13.04	32.86	4	1.88	0.44	0.079	0.151	0.816	1.97	0.067	2.05	0.060	age gr 28
60	12	14.62	55.87	4	1.88	0.41	0.002	0.530	0.815	1.98	0.069			
61	12	10.50	80.01	4	1.88	0.41	0.002	0.530	0.815	1.98	0.069			
62	12	14.84	62.02	4	1.88	0.41	0.002	0.530	0.815	1.98	0.069			
63	12	12.07	44.55	4	1.88	0.41	0.002	0.530	0.815	1.98	0.069			
Ave		**12.40**			**1.93**	**0.40**	**0.018**			**1.85**	**0.031**			
SD		**2.23**			**0.21**	**0.05**	**0.027**			**0.09**	**0.029**			
Kinetic pop #2 (0.0725 < effective Cl < 0.7 apfu)														
64	2	14.92	82.37	4	2.15	0.51	0.055	0.312	0.813	2.00	0.076			
65	43	13.53	40.07	4	2.70	0.60	0.042	0.065	0.806	2.05	0.092			
66	43	10.40	74.16	4	2.70	0.60	0.042	0.065	0.806	2.05	0.092			
67	43	10.21	55.13	4	2.70	0.60	0.042	0.065	0.806	2.05	0.092			
68	43	15.09	43.36	4	2.70	0.60	0.042	0.065	0.806	2.05	0.092			
69	43	13.52	40.49	4	2.70	0.60	0.042	0.065	0.806	2.05	0.092			
70	43	16.30	36.86	4	2.70	0.60	0.042	0.065	0.806	2.05	0.092			
71	43	12.38	69.05	4	2.70	0.60	0.042	0.065	0.806	2.05	0.092			
72	43	14.90	37.66	4	2.70	0.60	0.042	0.065	0.806	2.05	0.092			
73	43	10.45	71.89	4	2.70	0.60	0.042	0.065	0.806	2.05	0.092			
74	43	8.06	58.92	4	2.70	0.60	0.042	0.065	0.806	2.05	0.092			
75	9	13.01	46.16	4	2.49	0.48	0.068	0.333	0.805	2.06	0.094	2.22	0.124	age gr 9
76	9	16.60	29.14	4	2.49	0.48	0.068	0.333	0.805	2.06	0.094	2.22	0.124	age gr 9
77	9	10.88	53.49	4	2.49	0.48	0.068	0.333	0.805	2.06	0.094	2.22	0.124	age gr 9
78	9	11.23	81.59	4	2.49	0.48	0.068	0.333	0.805	2.06	0.094	2.22	0.124	age gr 9
79	9	12.87	66.10	4	2.49	0.48	0.068	0.333	0.805	2.06	0.094	2.22	0.124	age gr 9
80	9	11.58	63.55	4	2.49	0.48	0.068	0.333	0.805	2.06	0.094	2.22	0.124	age gr 9
81	9	10.75	51.67	4	2.49	0.48	0.068	0.333	0.805	2.06	0.094	2.22	0.124	age gr 9
82	8	14.00	30.03	4	2.84	0.76	0.010	0.155	0.803	2.08	0.100			
83	8	12.68	85.26	4	2.84	0.76	0.010	0.155	0.803	2.08	0.100			
84	8	15.78	22.15	4	2.84	0.76	0.010	0.155	0.803	2.08	0.100			
85	44	14.02	52.67	4	2.14	0.35	0.072	0.543	0.802	2.08	0.101			
86	39	10.29	54.77	4	2.01	0.33	0.002	0.272	0.802	2.08	0.101	2.15	0.073	age gr 32
87	39	11.91	65.13	4	2.01	0.33	0.002	0.272	0.802	2.08	0.101	2.15	0.073	age gr 32
88	39	13.32	68.63	4	2.01	0.33	0.002	0.272	0.802	2.08	0.101	2.15	0.073	age gr 32
89	39	9.12	67.66	4	2.01	0.33	0.002	0.272	0.802	2.08	0.101	2.15	0.073	age gr 32
90	35	7.46	66.43	4	1.89	0.42	0.013	0.103	0.800	2.10	0.106			
91	35	12.42	65.54	4	1.89	0.42	0.013	0.103	0.800	2.10	0.106			
92	35	12.16	47.44	4	1.89	0.42	0.013	0.103	0.800	2.10	0.106			
93	35	12.14	68.69	4	1.89	0.42	0.013	0.103	0.800	2.10	0.106			
94	35	13.35	77.93	4	1.89	0.42	0.013	0.103	0.800	2.10	0.106			
95	35	9.83	50.48	4	1.89	0.42	0.013	0.103	0.800	2.10	0.106			

Table C2 continued

							Length meas.					Age meas.		
Track No.	Grain No.	Confined length (μm)	angle to C-axis (degrees)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	meas. Cl (apfu)	calc. OH (apfu)	A to Z rmro	calc. D_{par} (μm)	Eff. Cl (apfu)	meas. D_{par} (μm)	Eff. Cl (apfu)	Comments
96	33	12.58	78.68	4	2.36	0.36	0.046	0.672	0.799	2.11	0.109	2.21	0.108	age gr 30
97	33	7.86	75.34	4	2.36	0.36	0.046	0.672	0.799	2.11	0.109	2.21	0.108	age gr 30
98	33	11.62	55.85	4	2.36	0.36	0.046	0.672	0.799	2.11	0.109	2.21	0.108	age gr 30
99	33	12.20	36.84	4	2.36	0.36	0.046	0.672	0.799	2.11	0.109	2.21	0.108	age gr 30
100	33	15.96	23.96	4	2.36	0.36	0.046	0.672	0.799	2.11	0.109	2.21	0.108	age gr 30
101	4	15.07	22.40	4	1.93	0.29	0.104	0.000	0.797	2.12	0.114	2.21	0.116	age gr 6
102	4	13.28	25.98	4	1.93	0.29	0.104	0.000	0.797	2.12	0.114	2.21	0.116	age gr 6
103	4	15.81	26.60	4	1.93	0.29	0.104	0.000	0.797	2.12	0.114	2.21	0.116	age gr 6
104	4	13.12	59.23	4	1.93	0.29	0.104	0.000	0.797	2.12	0.114	2.21	0.116	age gr 6
105	4	15.96	39.86	4	1.93	0.29	0.104	0.000	0.797	2.12	0.114	2.21	0.116	age gr 6
106	4	12.51	87.45	4	1.93	0.29	0.104	0.000	0.797	2.12	0.114	2.21	0.116	age gr 6
107	4	13.84	75.04	4	1.93	0.29	0.104	0.000	0.797	2.12	0.114	2.21	0.116	age gr 6
108	11	14.89	35.36	4	2.31	0.59	0.029	0.753	0.797	2.12	0.114			
109	11	13.14	51.47	4	2.31	0.59	0.029	0.753	0.797	2.12	0.114			
110	48	12.00	39.22	4	2.12	0.40	0.087	0.275	0.796	2.13	0.115			
111	48	12.84	31.36	4	2.12	0.40	0.087	0.275	0.796	2.13	0.115			
112	40	10.88	53.11	4	3.15	1.05	0.050	0.870	0.794	2.14	0.120	2.61	0.116	age gr 31
113	40	14.42	25.21	4	3.15	1.05	0.050	0.870	0.794	2.14	0.120	2.61	0.116	age gr 31
114	51	12.80	59.55	4	2.09	0.57	0.070	0.001	0.785	2.21	0.142			
115	51	10.96	54.93	4	2.09	0.57	0.070	0.001	0.785	2.21	0.142			
116	50	13.01	62.07	4	3.33	0.67	0.115	0.397	0.783	2.22	0.145			
117	50	12.16	43.70	4	3.33	0.67	0.115	0.397	0.783	2.22	0.145			
118	50	13.02	70.64	4	3.33	0.67	0.115	0.397	0.783	2.22	0.145			
119	50	12.65	54.86	4	3.33	0.67	0.115	0.397	0.783	2.22	0.145			
120	36	12.26	57.77	4	1.88	0.34	0.013	0.248	0.782	2.23	0.149			
121	36	13.61	50.81	4	1.88	0.34	0.013	0.248	0.782	2.23	0.149			
122	36	9.25	86.87	4	1.88	0.34	0.013	0.248	0.782	2.23	0.149			
123	36	7.36	69.64	4	1.88	0.34	0.013	0.248	0.782	2.23	0.149			
124	36	11.93	62.00	4	1.88	0.34	0.013	0.248	0.782	2.23	0.149			
125	25	15.10	52.07	4	2.43	0.52	0.000	0.379	0.781	2.24	0.151			
126	25	14.91	64.66	4	2.43	0.52	0.000	0.379	0.781	2.24	0.151			
127	25	12.17	68.83	4	2.43	0.52	0.000	0.379	0.781	2.24	0.151			
128	25	11.24	53.67	4	2.43	0.52	0.000	0.379	0.781	2.24	0.151			
129	25	12.67	59.41	4	2.43	0.52	0.000	0.379	0.781	2.24	0.151			
130	25	12.15	66.70	4	2.43	0.52	0.000	0.379	0.781	2.24	0.151			
131	46	12.00	36.42	4	2.46	0.45	0.056	0.764	0.777	2.27	0.158			
132	46	9.98	48.34	4	2.46	0.45	0.056	0.764	0.777	2.27	0.158			
133	46	15.39	25.53	4	2.46	0.45	0.056	0.764	0.777	2.27	0.158			
134	47	14.28	39.76	4	3.86	1.15	0.025	1.163	0.776	2.27	0.161			
135	47	12.75	55.26	4	3.86	1.15	0.025	1.163	0.776	2.27	0.161			
136	34	14.16	70.27	4	2.49	0.84	0.087	1.096	0.775	2.28	0.163			
137	34	14.71	58.05	4	2.49	0.84	0.087	1.096	0.775	2.28	0.163			
138	34	16.39	39.51	4	2.49	0.84	0.087	1.096	0.775	2.28	0.163			
139	5	10.80	62.34	4	2.29	0.33	0.039	0.203	0.773	2.29	0.167			
140	5	12.83	54.45	4	2.29	0.33	0.039	0.203	0.773	2.29	0.167			
141	22	13.54	31.47	4	1.97	0.57	0.221	0.247	0.773	2.29	0.167	2.25	0.163	age gr 22
142	22	12.26	78.85	4	1.97	0.57	0.221	0.247	0.773	2.29	0.167	2.25	0.163	age gr 22
143	22	11.35	52.75	4	1.97	0.57	0.221	0.247	0.773	2.29	0.167	2.25	0.163	age gr 22
144	22	15.38	68.14	4	1.97	0.57	0.221	0.247	0.773	2.29	0.167	2.25	0.163	age gr 22
145	22	13.78	34.50	4	1.97	0.57	0.221	0.247	0.773	2.29	0.167	2.25	0.163	age gr 22

Table C2 continued

							Length meas.					Age meas.		
Track No.	Grain No.	Confined length (μm)	angle to C-axis (degrees)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	meas. Cl (apfu)	calc. OH (apfu)	A to Z rmro	calc. D_{par} (μm)	Eff. Cl (apfu)	meas. D_{par} (μm)	Eff. Cl (apfu)	Comments
146	22	14.42	45.82	4	1.97	0.57	0.221	0.247	0.773	2.29	0.167	2.25	0.163	age gr 22
147	17	11.24	60.79	4	2.37	0.36	0.079	0.242	0.769	2.32	0.174	2.18	0.185	age gr 15
148	17	10.99	45.51	4	2.37	0.36	0.079	0.242	0.769	2.32	0.174	2.18	0.185	age gr 15
149	17	11.46	64.97	4	2.37	0.36	0.079	0.242	0.769	2.32	0.174	2.18	0.185	age gr 15
150	17	13.08	43.93	4	2.37	0.36	0.079	0.242	0.769	2.32	0.174	2.18	0.185	age gr 15
151	17	12.31	61.67	4	2.37	0.36	0.079	0.242	0.769	2.32	0.174	2.18	0.185	age gr 15
152	3	14.77	29.28	4	3.10	0.46	0.070	0.831	0.768	2.32	0.176			
153	3	12.48	46.74	4	3.10	0.46	0.070	0.831	0.768	2.32	0.176			
154	3	13.05	59.96	4	3.10	0.46	0.070	0.831	0.768	2.32	0.176			
155	3	13.16	44.46	4	3.10	0.46	0.070	0.831	0.768	2.32	0.176			
156	27	10.17	84.63	4	2.36	0.28	0.041	0.414	0.767	2.33	0.179			
157	27	13.28	40.58	4	2.36	0.28	0.041	0.414	0.767	2.33	0.179			
158	27	13.85	43.24	4	2.36	0.28	0.041	0.414	0.767	2.33	0.179			
159	27	13.76	65.55	4	2.36	0.28	0.041	0.414	0.767	2.33	0.179			
160	1	12.06	88.74	4	2.76	0.72	0.174	0.546	0.759	2.38	0.194			
161	1	13.63	46.82	4	2.76	0.72	0.174	0.546	0.759	2.38	0.194			
162	1	13.49	41.96	4	2.76	0.72	0.174	0.546	0.759	2.38	0.194			
163	19	17.14	53.71	4	2.51	0.60	0.173	0.549	0.758	2.39	0.197			
164	19	9.59	70.55	4	2.51	0.60	0.173	0.549	0.758	2.39	0.197			
165	19	10.39	66.42	4	2.51	0.60	0.173	0.549	0.758	2.39	0.197			
166	19	13.13	57.78	4	2.51	0.60	0.173	0.549	0.758	2.39	0.197			
167	19	14.09	58.29	4	2.51	0.60	0.173	0.549	0.758	2.39	0.197			
168	19	10.33	85.49	4	2.51	0.60	0.173	0.549	0.758	2.39	0.197			
169	19	13.70	33.36	4	2.51	0.60	0.173	0.549	0.758	2.39	0.197			
170	42	11.39	85.86	4	2.50	0.85	0.249	0.325	0.716	2.64	0.274			
171	42	14.61	29.23	4	2.50	0.85	0.249	0.325	0.716	2.64	0.274			
172	6	12.20	58.99	4	2.67	0.60	0.129	0.596	0.714	2.65	0.277	2.58	0.272	age gr 4
173	6	13.74	43.44	4	2.67	0.60	0.129	0.596	0.714	2.65	0.277	2.58	0.272	age gr 4
174	6	14.83	37.95	4	2.67	0.60	0.129	0.596	0.714	2.65	0.277	2.58	0.272	age gr 4
175	6	14.84	46.83	4	2.67	0.60	0.129	0.596	0.714	2.65	0.277	2.58	0.272	age gr 4
176	6	12.35	51.16	4	2.67	0.60	0.129	0.596	0.714	2.65	0.277	2.58	0.272	age gr 4
177	6	12.95	53.08	4	2.67	0.60	0.129	0.596	0.714	2.65	0.277	2.58	0.272	age gr 4
178	18	13.69	89.92	4	3.11	0.89	0.182	0.332	0.710	2.67	0.283	2.41	0.293	age gr 16
179	18	13.95	65.92	4	3.11	0.89	0.182	0.332	0.710	2.67	0.283	2.41	0.293	age gr 16
180	18	12.46	87.09	4	3.11	0.89	0.182	0.332	0.710	2.67	0.283	2.41	0.293	age gr 16
181	29	14.90	39.76	4	2.49	0.65	0.215	0.676	0.698	2.74	0.303	2.48	0.341	age gr 25
182	29	13.01	72.45	4	2.49	0.65	0.215	0.676	0.698	2.74	0.303	2.48	0.341	age gr 25
183	29	13.52	51.04	4	2.49	0.65	0.215	0.676	0.698	2.74	0.303	2.48	0.341	age gr 25
184	29	13.37	66.68	4	2.49	0.65	0.215	0.676	0.698	2.74	0.303	2.48	0.341	age gr 25
185	29	13.39	59.55	4	2.49	0.65	0.215	0.676	0.698	2.74	0.303	2.48	0.341	age gr 25
186	29	13.63	38.68	4	2.49	0.65	0.215	0.676	0.698	2.74	0.303	2.48	0.341	age gr 25
187	21	6.85	86.86	4	1.63	0.40	0.140	0.886	0.686	2.80	0.321	2.62	0.353	age gr 23
188	21	9.30	68.25	4	1.63	0.40	0.140	0.886	0.686	2.80	0.321	2.62	0.353	age gr 23
189	15	14.32	76.98	4	3.15	0.67	0.204	0.850	0.656	2.94	0.364			
190	52	14.32	46.11	4	4.11	1.12	0.255	0.862	0.629	3.05	0.400			
191	52	15.32	49.59	4	4.11	1.12	0.255	0.862	0.629	3.05	0.400			
192	52	11.97	66.71	4	4.11	1.12	0.255	0.862	0.629	3.05	0.400			
193	52	16.76	50.81	4	4.11	1.12	0.255	0.862	0.629	3.05	0.400			
194	52	14.92	33.13	4	4.11	1.12	0.255	0.862	0.629	3.05	0.400			
195	52	14.45	59.90	4	4.11	1.12	0.255	0.862	0.629	3.05	0.400			

Table C2 continued

							Length meas.					Age meas.		
Track No.	Grain No.	Confined length (μm)	angle to C-axis (degrees)	Etch Figs.	D_{par} (μm)	D_{per} (μm)	meas. Cl (apfu)	calc. OH (apfu)	A to Z rmro	calc. D_{par} (μm)	Eff. Cl (apfu)	meas. D_{par} (μm)	Eff. Cl (apfu)	Comments
196	45	15.93	39.97	4	3.72	1.25	0.458	0.823	0.525	3.43	0.517	2.91	0.540	age gr 38
197	45	12.50	81.17	4	3.72	1.25	0.458	0.823	0.525	3.43	0.517	2.91	0.540	age gr 38
198	45	16.62	34.96	4	3.72	1.25	0.458	0.823	0.525	3.43	0.517	2.91	0.540	age gr 38
199	7	12.15	61.23	4	3.90	1.00	0.652	0.576	0.310	4.01	0.694	3.43		age gr 5
200	7	9.24	57.45	4	3.90	1.00	0.652	0.576	0.310	4.01	0.694	3.43		age gr 5
201	7	14.28	55.18	4	3.90	1.00	0.652	0.576	0.310	4.01	0.694	3.43		age gr 5
202	7	11.20	78.83	4	3.90	1.00	0.652	0.576	0.310	4.01	0.694	3.43		age gr 5
Ave		**12.84**			**2.59**	**0.59**	**0.120**			**2.39**	**0.195**			
SD		**2.03**			**0.60**	**0.25**	**0.130**			**0.42**	**0.128**			

APPENDIX D: Apatite elemental data in atoms per formula unit (apfu)

Tables D1 and D2 contain elemental data corresponding to the AFT age and length measurements for samples P013-12 and LHA003. For sample P013-12, EPMA elemental data were acquired as weight % oxide values (see Excel spreadsheet supplement) at the Washington State University (WSU) GeoAnalytical Lab using a JEOL JXA-8500F instrument with an accelerating voltage of 15 KV, a beam current of 20 nA, and a beam size of 5 μm due to the small grain sizes. Elemental weight % oxide values were then converted to apfu using in house software (Probecal) that uses the stoichiometric model of Ketcham (2015) to calculate OH values. For the older LHA003 sample, EPMA elemental data were provided directly as apfu values by AtoZ Inc. and these values were used to interpret the AFT data. Subsequently, it was determined that the weight % oxide values were acquired at the University of Alaska, Fairbanks, Advanced Instrumentation Laboratory using a Cameca SX50 instrument with an accelerating voltage of 20 KV, a beam current of 20 nA, and a beam size of 5 μm (see Excel spreadsheet supplement). As a cross check, the elemental values were converted to apfu values using Probecal and yielded the same kinetic parameters as the AtoZ Inc. apfu values. Thirteen elements were measured for sample P013-12 and these include: F, Cl, Na, Mg, P, S, Ca, Mn, Fe, Sr, Y, La and Ce. These same elements plus Si, Ti, Zr, Al, As, Ba, K, Br, I, Sm and Nd were measured for sample LHA003. Not all the elements measured for LHA003 were used for r_{mr0} calculations because they are in low abundance and/or do not appear as variables in the original empirical r_{mr0} equation of Carlson et al. (1999) (see Table D2). Elemental data are grouped by the type of measurement (age or length) and are associated with the grain number and kinetic parameters, r_{mr0}, eD_{par}, eCl, and measured D_{par}. Data quality can be assessed by examining the original elemental weight % totals and the elemental totals for the Ca, P, and anion site.

Table D1: Apatite elemental data (apfu) for sample McParlon A-25 (1050-1100 m) (GSS P013-12) FT data (Jungle Creek Fm., Permian)

Anal. No.	F	Na	Mg	P	S	Ca	Mn	Fe	Sr	Y	La	Ce	Sm	Nd	Cl	OH	rmro	eDpar (μm)	eCl (apfu)	Meas. D_{par} (μm)	Grain Age (Ma)	S.D. (Ma)	Grain No.	Total Ca site 10	Total P site 6	Total F+Cl+OH 2	wt% totals
P013-12: age grains (mounts A and B)																											
1	1.733	0.028	0.016	5.957	0.003	9.951	0.009	0.051	0.001	0.011	0.009	0.018			0.108	0.159	0.766	2.34	0.181	1.86	125.1	56.1	1A	10.09	5.96	2.00	99.45
																				2.11	29.3	15.5	2A				
2	1.191	0.020	0.038	6.009	0.001	9.774	0.021	0.084	0.003	0.018	0.002	0.010			0.256	0.553	0.609	3.13	0.424	2.22	215.1	96.4	3A	9.97	6.01	2.00	100.77
3	1.862	0.013	0.000	5.960	0.021	9.994	0.011	0.012	0.007	0.000	0.000	0.005			0.001	0.137	0.842	1.73	-0.006	1.91	83.3	83.4	4A	10.04	5.98	2.00	101.26
4	1.171	0.029	0.047	5.958	0.017	9.862	0.020	0.068	0.001	0.012	0.004	0.013			0.322	0.507	0.627	3.06	0.402	2.60	209.7	209.8	5A	10.05	5.97	2.00	100.63
5	1.512	0.100	0.018	5.825	0.088	9.909	0.021	0.036	0.001	0.009	0.024	0.060			0.087	0.401	0.762	2.37	0.190	2.46	120.9	28.7	6A	10.18	5.91	2.00	99.74
6	1.292	0.057	0.036	5.934	0.045	9.805	0.039	0.069	0.005	0.016	0.005	0.010			0.262	0.447	0.635	3.03	0.392	2.53	322.7	323.0	7A	10.04	5.98	2.00	100.34
																				2.04	77.3	14.5	8A				
																				1.99	10.0	4.2	9A				
																				1.80	204.1	204.4	10A				
7	0.958	0.019	0.076	6.011	0.002	9.764	0.012	0.072	0.008	0.005	0.005	0.007			0.128	0.914	0.662	2.91	0.356	2.43	234.1	117.3	11A	9.97	6.01	2.00	99.79
																				2.15	164.0	54.8	12A				
																				1.88	46.2	15.4	13A				
																				2.35	1865.5	953.5	14A				
																				2.74	231.2	163.6	15A				
																				2.98	225.9	226.0	16A				
8	0.917	0.014	0.065	5.945	0.007	9.894	0.032	0.074	0.003	0.017	0.004	0.007			0.374	0.709	0.536	3.40	0.506	2.29	129.8	129.9	17A	10.11	5.95	2.00	100.60
																				2.07	171.6	99.3	18A				
																				2.45	62.7	46.1	19A				
9	1.060	0.014	0.043	5.968	0.004	9.915	0.011	0.059	0.001	0.011	0.002	0.008			0.178	0.762	0.690	2.78	0.315	2.73	392.5	141.8	20A	10.06	5.97	2.00	100.89
10	2.008	0.027	0.000	5.961	0.008	9.980	0.026	0.023	0.002	0.018	0.000	0.002			0.002	0.000	0.828	1.87	0.036	2.17	137.8	137.9	21A	10.08	5.97	2.01	101.04
11	0.959	0.021	0.017	5.925	0.024	9.994	0.027	0.057	0.002	0.000	0.001	0.005			0.223	0.818	0.666	2.89	0.350	2.14	529.1	306.1	22A	10.12	5.95	2.00	98.68
																				2.34	181.6	60.8	23A				
12	1.065	0.024	0.051	5.968	0.013	9.842	0.007	0.049	0.015	0.004	0.011	0.028			0.130	0.806	0.718	2.63	0.270	2.42	259.3	82.3	24A	10.03	5.98	2.00	100.48
																				1.64	82.4	82.5	25A				
																				1.91	0.0	43.9	26A				
																				1.94	0.0	392.3	27A				
13	1.574	0.024	0.070	5.976	0.013	9.819	0.012	0.062	0.014	0.005	0.004	0.013			0.064	0.362	0.742	2.49	0.228	1.97	165.1	41.5	1B	10.02	5.99	2.00	99.16
14	1.840	0.019	0.000	5.949	0.027	9.975	0.009	0.013	0.017	0.003	0.003	0.009			0.003	0.157	0.839	1.76	0.003	1.98	39.4	39.4	2B	10.05	5.98	2.00	98.44
15	1.373	0.000	0.003	5.888	0.017	10.123	0.011	0.035	0.007	0.010	0.005	0.018			0.089	0.538	0.774	2.29	0.166	2.02	82.5	20.8	3B	10.21	5.91	2.00	97.55
16	1.357	0.041	0.045	5.883	0.031	9.921	0.012	0.054	0.032	0.009	0.022	0.046			0.119	0.524	0.723	2.60	0.261	2.07	109.2	22.6	4B	10.18	5.91	2.00	98.55
17	1.834	0.003	0.004	5.966	0.004	10.009	0.007	0.012	0.010	0.009	0.003	0.007			0.003	0.163	0.841	1.74	-0.003	1.68	39.7	22.9	5B	10.06	5.97	2.00	99.56
																				2.80	397.4	230.1	6B				
18	1.786	0.013	0.002	5.905	0.026	10.063	0.010	0.028	0.005	0.004	0.009	0.018			0.012	0.203	0.818	1.95	0.062	1.78	88.2	26.0	7B	10.15	5.93	2.00	99.30
19	1.974	0.039	0.069	5.899	0.026	9.920	0.023	0.106	0.009	0.006	0.004	0.010			0.010	0.017	0.696	2.74	0.305	1.99	0.0	86.2	8B	10.19	5.92	2.00	98.78
																				2.50	158.8	49.2	9B				
20	1.510	0.140	0.023	5.711	0.158	9.941	0.022	0.058	0.010	0.011	0.022	0.051			0.066	0.425	0.726	2.58	0.256	2.38	125.2	36.8	10B	10.28	5.87	2.00	97.47
21	1.515	0.009	0.007	5.945	0.002	9.995	0.015	0.053	0.004	0.020	0.004	0.011			0.270	0.216	0.714	2.65	0.276	2.06	31.5	10.2	11B	10.12	5.95	2.00	98.77
22	1.177	0.087	0.038	5.896	0.081	9.773	0.018	0.061	0.016	0.006	0.011	0.030			0.123	0.701	0.692	2.76	0.312	2.26	106.8	31.2	12B	10.04	5.98	2.00	98.86
23	1.303	0.087	0.047	5.788	0.109	9.870	0.021	0.061	0.022	0.010	0.022	0.059			0.073	0.624	0.706	2.69	0.290	2.39	127.8	33.8	13B	10.20	5.90	2.00	97.56
24	1.149	0.020	0.046	5.902	0.021	9.998	0.026	0.070	0.004	0.015	0.000	0.005			0.172	0.680	0.662	2.91	0.356	2.15	0.0	227.7	14B	10.18	5.92	2.00	98.51
25	1.462	0.039	0.039	5.890	0.018	9.970	0.013	0.049	0.030	0.010	0.018	0.041			0.116	0.423	0.742	2.49	0.228	1.57	118.2	20.2	15B	10.21	5.91	2.00	98.66
26	1.495	0.012	0.003	5.949	0.004	10.029	0.015	0.039	0.002	0.014	0.000	0.002			0.005	0.500	0.788	2.19	0.134	1.89	132.6	54.4	16B	10.12	5.95	2.00	98.81
27	1.432	0.028	0.006	5.914	0.003	10.050	0.019	0.053	0.006	0.013	0.007	0.019			0.064	0.504	0.746	2.47	0.220	1.47	124.1	55.9	17B	10.20	5.92	2.00	97.89
28	1.354	0.010	0.003	5.937	0.014	10.047	0.009	0.029	0.012	0.008	0.000	0.000			0.029	0.618	0.793	2.15	0.122	1.77	102.5	46.0	18B	10.12	5.95	2.00	98.25
29	1.333	0.178	0.027	5.921	0.053	9.569	0.097	0.056	0.000	0.065	0.017	0.054			0.147	0.520	0.623	3.08	0.408	2.23	212.5	150.5	19B	10.06	5.97	2.00	96.85
30	1.708	0.017	0.003	5.861	0.027	10.194	0.027	0.015	0.006	0.003	0.003	0.003			0.009	0.283	0.823	1.91	0.048	1.90	45.4	20.4	20B	10.27	5.89	2.00	98.33
31	0.935	0.010	0.043	5.945	0.002	9.976	0.015	0.059	0.011	0.003	0.003	0.008			0.105	0.960	0.695	2.75	0.306	1.95	45.0	31.9	21B	10.13	5.95	2.00	97.66
32	1.756	0.010	0.006	5.924	0.002	10.083	0.006	0.035	0.004	0.012	0.004	0.014			0.118	0.127	0.793	2.15	0.124	1.93	61.3	35.5	22B	10.17	5.93	2.00	97.41
33	1.203	0.104	0.053	5.809	0.100	9.895	0.024	0.069	0.017	0.009	0.011	0.025			0.100	0.697	0.676	2.84	0.336	1.84	181.4	105.1	23B	10.21	5.91	2.00	99.05
34	1.215	0.046	0.053	5.888	0.058	9.866	0.010	0.057	0.029	0.006	0.012	0.027			0.113	0.672	0.713	2.66	0.278	2.14	55.0	17.6	24B	10.11	5.95	2.00	98.27

Table D1 continued

No.	F	Na	Mg	P	S	Ca	Mn	Fe	Sr	Y	La	Ce	Sm	Nd	Cl	OH	rmro	eDpar (μm)	eCl (apfu)	Meas. D_{par} (μm)	Grain Age (Ma)	S.D. (Ma)	Grain No.	Total Ca site 10	Total P site 6	Total F+Cl+OH 2	wt% totals
35	1.323	0.039	0.014	5.915	0.008	9.969	0.027	0.084	0.008	0.016	0.009	0.021			0.087	0.590	0.666	2.89	0.350	2.20	17.5	17.6	25B	10.19	5.92	2.00	97.05
36	1.645	0.014	0.002	5.922	0.010	10.098	0.014	0.035	0.004	0.005	0.000	0.000			0.038	0.318	0.798	2.12	0.112	1.82	32.9	14.8	26B	10.17	5.93	2.00	99.37
37	1.442	0.019	0.003	5.947	0.002	10.039	0.009	0.020	0.003	0.021	0.000	0.008			0.005	0.552	0.812	2.00	0.078	1.98	50.7	18.0	27B	10.12	5.95	2.00	98.20
38	1.280	0.070	0.040	5.886	0.083	9.817	0.015	0.039	0.038	0.004	0.008	0.023			0.092	0.628	0.747	2.46	0.218	2.09	214.8	81.4	28B	10.05	5.97	2.00	98.76
39	1.488	0.011	0.000	5.948	0.021	9.999	0.007	0.035	0.009	0.003	0.000	0.005			0.003	0.509	0.797	2.12	0.113	1.90	47.7	16.2	29B	10.07	5.97	2.00	100.01
																				2.19	117.5	117.6	30B				
40	1.855	0.019	0.000	5.943	0.002	10.020	0.011	0.019	0.005	0.009	0.015	0.026			0.045	0.100	0.825	1.89	0.043	1.86	50.7	13.2	31B	10.12	5.94	2.00	98.37
41	1.297	0.046	0.030	5.952	0.008	9.846	0.054	0.054	0.007	0.033	0.009	0.014			0.246	0.457	0.661	2.91	0.357	2.06	236.5	167.7	32B	10.09	5.96	2.00	98.79
42	1.806	0.051	0.003	5.929	0.027	9.939	0.005	0.045	0.004	0.010	0.009	0.031			0.055	0.140	0.788	2.19	0.134	1.61	49.4	50.2	33B	10.10	5.96	2.00	97.96
																				2.01	81.8	16.3	34B				
43	1.034	0.047	0.055	5.921	0.041	9.849	0.016	0.052	0.027	0.004	0.010	0.020			0.114	0.852	0.705	2.70	0.292	2.48	148.1	33.7	35B	10.08	5.96	2.00	96.68
																				2.75	2.7	2.7	36B				
																				2.46	126.9	38.4	37B				
																				2.04	61.7	27.7	38B				
44	1.349	0.047	0.038	5.874	0.060	9.902	0.011	0.052	0.027	0.006	0.016	0.031			0.112	0.539	0.730	2.56	0.249	2.04	63.2	8.4	39B	10.13	5.93	2.00	98.80
45	1.064	0.050	0.049	5.923	0.056	9.838	0.033	0.046	0.012	0.009	0.000	0.006			0.140	0.796	0.705	2.70	0.292	2.64	127.9	90.7	40B	10.04	5.98	2.00	99.34
P013-12: length grains (mounts A and B)																											
																				1.94			1A				
1	1.201	0.022	0.035	5.969	0.004	9.856	0.026	0.080	0.003	0.015	0.007	0.015			0.263	0.536	0.614	3.11	0.419	2.51			2A	10.06	5.97	2.00	99.60
2	1.277	0.071	0.046	5.942	0.063	9.738	0.029	0.053	0.005	0.013	0.007	0.012			0.182	0.542	0.696	2.74	0.305	2.39			3A	9.97	6.01	2.00	100.12
3	1.043	0.013	0.068	5.968	0.001	9.899	0.011	0.067	0.007	0.001	0.001	0.012			0.127	0.830	0.682	2.81	0.326	2.37			4A	10.08	5.97	2.00	100.04
4	1.202	0.030	0.046	5.976	0.022	9.806	0.015	0.071	0.004	0.014	0.002	0.008			0.330	0.468	0.624	3.07	0.406	2.42			5A	10.00	6.00	2.00	100.37
5	1.656	0.100	0.022	5.849	0.094	9.825	0.020	0.040	0.005	0.011	0.019	0.062			0.084	0.260	0.766	2.34	0.182	2.06			6A	10.10	5.94	2.00	98.96
																				2.49			7A				
																				2.38			8A				
																				2.58			9A				
																				1.63			10A				
6	1.094	0.009	0.037	5.918	0.002	10.047	0.014	0.060	0.005	0.014	0.004	0.005			0.171	0.735	0.692	2.77	0.312	2.54			11A	10.19	5.92	2.00	99.11
7	0.920	0.022	0.021	5.977	0.019	9.874	0.022	0.055	0.004	0.001	0.000	0.009			0.210	0.870	0.673	2.86	0.339	2.61			12A	10.01	6.00	2.00	100.36
8	1.017	0.010	0.048	5.992	0.005	9.831	0.024	0.065	0.005	0.009	0.001	0.009			0.149	0.834	0.670	2.87	0.344	2.68			13A	10.00	6.00	2.00	101.38
																				1.90			14A				
9	1.617	0.002	0.001	5.978	0.016	9.983	0.007	0.005	0.007	0.000	0.000	0.002			0.007	0.377	0.841	1.75	-0.001	2.06			15A	10.01	5.99	2.00	101.49
10	1.516	0.032	0.070	5.908	0.018	9.975	0.009	0.059	0.014	0.005	0.006	0.012			0.062	0.422	0.744	2.48	0.224	1.92			1B	10.18	5.93	2.00	98.91
11	1.452	0.005	0.004	5.873	0.019	10.152	0.012	0.033	0.004	0.007	0.008	0.021			0.099	0.449	0.778	2.26	0.156	2.05			2B	10.25	5.89	2.00	97.85
12	1.197	0.037	0.042	5.838	0.035	10.038	0.010	0.050	0.030	0.010	0.021	0.043			0.116	0.688	0.721	2.61	0.264	2.59			3B	10.28	5.87	2.00	97.08
13	1.666	0.015	0.003	5.912	0.024	10.034	0.009	0.031	0.007	0.007	0.009	0.022			0.008	0.327	0.808	2.03	0.087	1.42			4B	10.14	5.94	2.00	98.51
																				2.72			5B				
14	1.466	0.122	0.023	5.736	0.143	9.915	0.020	0.066	0.011	0.007	0.024	0.057			0.073	0.461	0.708	2.68	0.286	2.39			6B	10.25	5.88	2.00	95.22
15	1.417	0.078	0.047	5.756	0.107	9.957	0.020	0.066	0.023	0.011	0.022	0.060			0.079	0.504	0.706	2.69	0.290	2.47			7B	10.28	5.86	2.00	94.64
16	1.590	0.013	0.006	5.917	0.002	10.091	0.014	0.052	0.005	0.012	0.000	0.007			0.274	0.136	0.724	2.60	0.260	2.16			8B	10.20	5.92	2.00	97.96
17	1.267	0.036	0.040	5.866	0.021	10.011	0.009	0.053	0.032	0.011	0.019	0.045			0.122	0.611	0.722	2.61	0.264	2.23			9B	10.25	5.89	2.00	96.10
18	1.503	0.112	0.026	5.787	0.102	9.958	0.022	0.037	0.009	0.008	0.021	0.050			0.071	0.426	0.761	2.37	0.192	1.98			10B	10.24	5.89	2.00	95.74
19	1.372	0.027	0.006	5.938	0.002	10.020	0.017	0.044	0.004	0.008	0.008	0.016			0.071	0.558	0.758	2.39	0.197	2.12			11B	10.15	5.94	2.00	97.71
20	1.225	0.007	0.006	5.879	0.012	10.195	0.008	0.030	0.013	0.007	0.000	0.000			0.029	0.746	0.785	2.21	0.142	1.87			12B	10.27	5.89	2.00	95.37
21	1.238	0.052	0.049	5.848	0.060	9.974	0.011	0.055	0.030	0.004	0.009	0.024			0.111	0.651	0.717	2.63	0.271	2.57			13B	10.21	5.91	2.00	98.68
22	1.737	0.019	0.003	5.892	0.027	10.125	0.023	0.011	0.007	0.003	0.000	0.005			0.006	0.257	0.831	1.84	0.027	2.10			14B	10.19	5.92	2.00	98.61
23	1.557	0.017	0.003	5.914	0.010	10.111	0.013	0.034	0.006	0.004	0.000	0.000			0.041	0.402	0.793	2.15	0.124	2.15			15B	10.19	5.92	2.00	98.44
24	1.208	0.071	0.036	5.838	0.084	9.942	0.017	0.039	0.037	0.005	0.007	0.020			0.096	0.696	0.742	2.49	0.228	2.88			16B	10.17	5.92	2.00	95.71
25	1.200	0.044	0.068	5.898	0.031	9.944	0.008	0.052	0.023	0.005	0.008	0.018			0.109	0.691	0.723	2.60	0.261	2.47			17B	10.17	5.93	2.00	97.25
																				2.36			18B				

Table D2: Apatite elemental data (apfu) for sample 2009LHA003C1 (AtoZ 1148-06) FT data (Imperial Fm., Upper Devonian)

Anal. No.	F	Na	Mg	P	S	Ca	Mn	Fe	Sr	Y	La	Ce	Sm	Nd	Cl	OH	rmro	eDpar (µm)	eCl (apfu)	Meas. D_{par} (µm)	Grain Age (Ma)	S.D. (Ma)	Grain No.	Total Ca site 10	Total P site 6	Total F+Cl+OH 2	wt% totals
1148-06: age grains																											
1	1.961	0.050	0.004	5.996	0.004	9.850	0.017	0.018	0.006	0.031	0.000	0.005	0.001	0.000	0.006	0.028	0.835	1.80	0.017	2.00	30.0	30.0	1	9.98	6.00	1.99	99.85
2	1.734	0.023	0.079	5.960	0.019	9.743	0.007	0.063	0.032	0.000	0.004	0.008	0.000	0.007	0.076	0.185	0.757	2.40	0.200	2.06	226.3	92.7	2	9.97	5.98	2.00	97.12
3	1.647	0.007	0.011	5.997	0.002	9.920	0.017	0.015	0.004	0.004	0.001	0.001	0.000	0.004	0.023	0.329	0.824	1.90	0.047	2.10	183.2	75.0	3	9.98	6.00	2.00	97.06
4	1.376	0.023	0.063	5.959	0.001	9.768	0.014	0.064	0.010	0.009	0.005	0.025	0.003	0.007	0.126	0.496	0.717	2.64	0.272	2.58	316.5	82.5	4	9.99	5.96	2.00	95.42
5	0.721	0.069	0.024	5.961	0.028	9.735	0.023	0.068	0.014	0.000	0.014	0.030	0.000	0.010	0.661	0.615				3.43	370.8	99.8	5	9.99	5.99	2.00	90.58
6	1.884	0.035	0.005	5.913	0.000	9.780	0.016	0.030	0.004	0.012	0.027	0.055	0.006	0.015	0.116	0.000	0.796	2.13	0.116	2.21	313.6	46.7	6	9.98	5.91	2.00	98.63
7	1.845	0.014	0.010	5.956	0.006	9.884	0.008	0.019	0.001	0.007	0.010	0.020	0.000	0.010	0.085	0.069	0.822	1.92	0.052	1.70	226.2	37.1	7	9.98	5.96	2.00	96.62
8	0.968	0.044	0.044	5.959	0.033	9.756	0.017	0.074	0.013	0.003	0.008	0.020	0.001	0.008	0.233	0.799	0.625	3.07	0.405	2.19	303.3	74.1	8	9.99	5.99	2.00	92.93
9	1.438	0.012	0.000	5.997	0.004	9.912	0.007	0.028	0.011	0.002	0.000	0.006	0.002	0.000	0.075	0.485	0.793	2.15	0.124	2.22	227.6	50.6	9	9.98	6.00	2.00	92.53
10	1.501	0.044	0.017	5.985	0.000	9.827	0.007	0.044	0.006	0.007	0.009	0.023	0.000	0.002	0.228	0.263	0.742	2.49	0.227	2.10	615.9	252.9	10	9.98	5.98	1.99	95.11
11	1.430	0.020	0.004	5.999	0.001	9.910	0.017	0.022	0.000	0.005	0.002	0.000	0.001	0.000	0.027	0.540	0.804	2.07	0.098	2.36	293.6	46.1	11	9.98	6.00	2.00	94.02
12	1.509	0.053	0.003	5.878	0.064	9.840	0.007	0.029	0.028	0.000	0.005	0.017	0.000	0.003	0.187	0.303	0.771	2.31	0.171	1.74	246.6	142.6	12	9.98	5.94	2.00	88.88
13	1.898	0.024	0.004	5.999	0.001	9.895	0.006	0.032	0.008	0.013	0.000	0.001	0.000	0.001	0.005	0.096	0.821	1.92	0.053	2.04	229.1	57.8	13	9.98	6.00	2.00	97.33
14	1.771	0.000	0.000	6.000	0.000	9.957	0.000	0.016	0.005	0.003	0.002	0.002	0.000	0.000	0.009	0.218	0.838	1.77	0.006	1.97	0.0	597.4	14	9.98	6.00	2.00	98.31
15	1.595	0.032	0.072	5.944	0.005	9.716	0.010	0.048	0.012	0.007	0.020	0.041	0.007	0.011	0.081	0.323	0.764	2.35	0.185	2.18	246.5	45.7	15	9.98	5.95	2.00	94.04
16	1.320	0.069	0.019	5.902	0.029	9.701	0.030	0.052	0.010	0.006	0.024	0.047	0.006	0.018	0.175	0.496	0.704	2.71	0.293	2.41	237.7	55.0	16	9.98	5.93	1.99	95.30
17	1.926	0.003	0.010	6.000	0.000	9.951	0.003	0.020	0.003	0.000	0.000	0.001	0.001	0.001	0.003	0.071	0.841	1.74	-0.003	1.96	84.5	59.8	17	9.99	6.00	2.00	98.95
18	1.529	0.004	0.000	6.000	0.000	9.946	0.004	0.012	0.009	0.000	0.004	0.001	0.001	0.001	0.000	0.464	0.831	1.83	0.026	1.80	1835.4	2243.2	18	9.98	6.00	1.99	98.94
19	1.586	0.020	0.010	5.946	0.021	9.857	0.010	0.036	0.004	0.021	0.004	0.011	0.004	0.011	0.054	0.359	0.792	2.16	0.126	1.80	232.2	55.3	19	9.99	5.97	2.00	99.38
20	1.648	0.048	0.000	5.932	0.020	9.811	0.015	0.031	0.003	0.014	0.010	0.026	0.007	0.009	0.266	0.076	0.758	2.39	0.197	2.11	263.7	46.6	20	9.97	5.95	1.99	102.04
21	1.661	0.044	0.019	5.948	0.017	9.810	0.005	0.024	0.005	0.005	0.015	0.044	0.005	0.013	0.338	0.000	0.761	2.37	0.192	2.30	223.3	32.8	21	9.99	5.96	2.00	98.97
22	1.446	0.055	0.016	5.956	0.010	9.813	0.007	0.022	0.006	0.003	0.013	0.030	0.003	0.013	0.207	0.338	0.775	2.28	0.163	2.25	217.0	36.3	22	9.98	5.97	1.99	95.30
23	0.881	0.028	0.055	5.954	0.014	9.768	0.015	0.066	0.013	0.006	0.009	0.015	0.005	0.003	0.155	0.962	0.664	2.90	0.353	2.62	143.9	64.5	23	9.98	5.97	2.00	94.96
24	1.893	0.052	0.000	5.996	0.004	9.833	0.029	0.027	0.002	0.033	0.004	0.008	0.005	0.005	0.013	0.093	0.814	1.99	0.072	1.92	115.1	36.8	24	10.00	6.00	2.00	97.31
25	0.970	0.049	0.049	5.986	0.014	9.749	0.020	0.056	0.011	0.000	0.011	0.017	0.000	0.010	0.211	0.816	0.672	2.86	0.341	2.48	236.1	68.9	25	9.97	6.00	2.00	95.97
26	1.621	0.025	0.005	5.963	0.037	9.925	0.008	0.020	0.005	0.000	0.001	0.002	0.000	0.001	0.004	0.375	0.822	1.91	0.050	2.38	134.8	67.6	26	9.99	6.00	2.00	97.71
27	1.606	0.018	0.015	5.988	0.000	9.822	0.013	0.059	0.006	0.012	0.007	0.021	0.004	0.010	0.128	0.264	0.743	2.48	0.226	2.29	159.5	56.6	27	9.99	5.99	2.00	98.44
28	1.633	0.012	0.006	5.918	0.041	9.890	0.008	0.015	0.006	0.003	0.014	0.017	0.001	0.005	0.070	0.293	0.819	1.95	0.060	2.05	130.9	23.1	28	9.97	5.96	2.00	97.76
29	1.385	0.084	0.020	5.868	0.096	9.771	0.021	0.035	0.012	0.001	0.009	0.020	0.007	0.005	0.196	0.419	0.742	2.49	0.228	2.23	207.6	85.0	29	9.98	5.96	2.00	95.82
30	1.194	0.011	0.005	6.000	0.000	9.912	0.003	0.018	0.009	0.004	0.002	0.009	0.000	0.009	0.045	0.756	0.799	2.10	0.108	2.21	449.6	83.9	30	9.98	6.00	1.99	97.73
31	1.128	0.010	0.033	5.788	0.003	9.848	0.002	0.013	0.039	0.000	0.011	0.020	0.000	0.008	0.066	0.804	0.796	2.13	0.116	2.61	313.8	79.1	31	9.98	5.79	2.00	98.90
32	1.985	0.078	0.002	5.998	0.002	9.775	0.058	0.020	0.004	0.034	0.003	0.008	0.005	0.005	0.001	0.014	0.814	1.99	0.073	2.15	246.7	46.4	32	9.99	6.00	2.00	98.78
33	1.450	0.005	0.037	5.999	0.000	9.836	0.016	0.058	0.011	0.003	0.002	0.007	0.003	0.008	0.028	0.523	0.754	2.42	0.204	2.19	316.7	142.1	33	9.99	6.00	2.00	98.12
34	1.921	0.051	0.098	5.927	0.039	9.695	0.010	0.045	0.016	0.004	0.014	0.030	0.005	0.009	0.057	0.022	0.791	2.17	0.127	2.33	225.6	52.2	34	9.98	5.97	2.00	96.56
35	1.202	0.053	0.077	5.920	0.055	9.762	0.014	0.063	0.007	0.004	0.005	0.009	0.000	0.002	0.112	0.686	0.708	2.68	0.287	2.61	216.7	97.2	35	10.00	5.98	2.00	97.46
36	1.975	0.000	0.002	5.856	0.000	9.785	0.008	0.022	0.002	0.029	0.018	0.050	0.004	0.028	0.021	0.000	0.832	1.83	0.025	2.24	125.4	23.9	36	9.95	5.86	2.00	96.38
37	0.976	0.049	0.037	5.869	0.026	9.784	0.004	0.035	0.053	0.000	0.004	0.010	0.003	0.005	0.028	0.994	0.759	2.39	0.196	2.07	159.2	159.3	37	9.98	5.90	2.00	97.20
38	0.765	0.059	0.052	5.923	0.050	9.748	0.025	0.067	0.007	0.001	0.009	0.015	0.000	0.005	0.471	0.758	0.501	3.51	0.540	2.91	205.2	63.2	38	9.99	5.97	1.99	89.07
39	1.205	0.025	0.008	5.973	0.018	9.882	0.008	0.017	0.010	0.002	0.009	0.014	0.003	0.005	0.073	0.722	0.793	2.15	0.124	2.42	175.0	49.1	39	9.98	5.99	2.00	97.84
40	1.556	0.022	0.000	5.990	0.010	9.926	0.010	0.009	0.006	0.000	0.001	0.001	0.000	0.003	0.029	0.414	0.828	1.87	0.036	2.07	104.0	26.5	40	9.98	6.00	2.00	96.41
1148-06: length grains																											
1	1.276	0.022	0.009	5.967	0.017	9.871	0.018	0.027	0.003	0.000	0.011	0.025	0.000	0.004	0.174	0.546	0.759	2.38	0.194	2.76			1	9.99	5.98	1.99	97.60
2	1.632	0.028	0.003	5.924	0.044	9.888	0.009	0.020	0.009	0.003	0.005	0.016	0.000	0.006	0.055	0.312	0.813	2.00	0.076	2.15			2	9.99	5.97	2.00	99.01
3	1.099	0.009	0.034	5.920	0.005	9.853	0.005	0.032	0.035	0.000	0.007	0.010	0.003	0.008	0.070	0.831	0.768	2.32	0.176	3.10			3	9.99	5.92	2.00	95.92
4	1.896	0.014	0.004	5.921	0.001	9.809	0.014	0.033	0.003	0.011	0.027	0.057	0.005	0.016	0.104	0.000	0.797	2.12	0.114	1.93			4	9.99	5.92	2.00	99.82
5	1.756	0.030	0.061	5.944	0.025	9.727	0.008	0.055	0.042	0.000	0.011	0.023	0.001	0.010	0.039	0.203	0.773	2.29	0.167	2.29			5	9.97	5.97	2.00	98.88
6	1.275	0.018	0.077	5.953	0.000	9.731	0.017	0.060	0.012	0.012	0.009	0.026	0.007	0.013	0.129	0.596	0.714	2.65	0.277	2.67			6	9.98	5.95	2.00	99.16
7	0.772	0.059	0.023	5.963	0.022	9.759	0.024	0.065	0.008	0.000	0.013	0.023	0.003	0.010	0.652	0.576	0.310	4.01	0.694	3.90			7	9.99	5.99	2.00	92.83
8	1.835	0.046	0.013	5.827	0.055	9.645	0.005	0.031	0.181	0.000	0.020	0.034	0.004	0.006	0.010	0.155	0.803	2.08	0.100	2.84			8	9.99	5.88	2.00	93.39
9	1.593	0.007	0.000	5.998	0.002	9.916	0.009	0.025	0.015	0.002	0.003	0.001	0.000	0.003	0.068	0.333	0.805	2.06	0.094	2.49			9	9.98	6.00	1.99	97.23
10	2.000	0.062	0.000	5.998	0.002	9.805	0.031	0.018	0.003	0.046	0.002	0.016	0.000	0.004	0.000	0.000	0.830	1.85	0.029	1.85			10	9.99	6.00	2.00	100.48

Table D2 continued

No.	F	Na	Mg	P	S	Ca	Mn	Fe	Sr	Y	La	Ce	Sm	Nd	Cl	OH	rmro	eDpar (μm)	eCl (apfu)	Meas. D_{par} (μm)	Grain Age (Ma)	S.D. (Ma)	Grain No.	Total Ca site 10	Total P site 6	Total F+Cl+OH 2	wt% totals
11	1.215	0.003	0.005	5.999	0.001	9.924	0.016	0.019	0.009	0.006	0.000	0.000	0.001	0.001	0.029	0.753	0.797	2.12	0.114	2.31			11	9.98	6.00	2.00	99.34
12	1.466	0.007	0.000	5.981	0.005	9.922	0.006	0.022	0.000	0.024	0.001	0.004	0.000	0.006	0.002	0.530	0.815	1.98	0.069	1.88			12	9.99	5.99	2.00	101.00
13	1.799	0.026	0.017	5.996	0.004	9.888	0.009	0.026	0.001	0.001	0.001	0.000	0.003	0.004	0.004	0.196	0.823	1.91	0.049	1.84			13	9.98	6.00	2.00	98.28
14	1.590	0.005	0.000	5.995	0.005	9.937	0.012	0.015	0.006	0.000	0.000	0.000	0.000	0.000	0.020	0.388	0.825	1.89	0.044	2.17			14	9.97	6.00	2.00	96.38
15	0.940	0.030	0.048	5.977	0.019	9.772	0.028	0.061	0.011	0.000	0.009	0.014	0.001	0.010	0.204	0.850	0.656	2.94	0.364	3.15			15	9.98	6.00	1.99	99.51
16	1.681	0.020	0.000	5.986	0.011	9.925	0.004	0.021	0.005	0.005	0.000	0.000	0.001	0.002	0.006	0.302	0.827	1.87	0.038	1.97			16	9.98	6.00	1.99	97.43
17	1.677	0.050	0.085	5.946	0.007	9.714	0.007	0.049	0.009	0.003	0.016	0.039	0.008	0.015	0.079	0.242	0.769	2.32	0.174	2.37			17	9.99	5.95	2.00	98.80
18	1.476	0.037	0.029	5.893	0.030	9.716	0.034	0.055	0.010	0.004	0.021	0.049	0.003	0.015	0.182	0.332	0.710	2.67	0.283	3.11			18	9.97	5.92	1.99	87.19
19	1.278	0.035	0.003	5.951	0.009	9.837	0.016	0.027	0.001	0.004	0.019	0.030	0.003	0.005	0.173	0.549	0.758	2.39	0.197	2.51			19	9.98	5.96	2.00	97.80
20	1.766	0.000	0.000	5.981	0.004	9.930	0.008	0.026	0.007	0.003	0.001	0.012	0.001	0.005	0.004	0.226	0.824	1.90	0.047	1.80			20	9.99	5.98	2.00	98.00
21	0.969	0.025	0.044	5.964	0.012	9.792	0.015	0.062	0.012	0.000	0.007	0.016	0.004	0.010	0.140	0.886	0.686	2.80	0.321	1.63			21	9.99	5.98	1.99	96.00
22	1.526	0.039	0.013	5.951	0.009	9.842	0.011	0.024	0.003	0.004	0.014	0.025	0.001	0.010	0.221	0.247	0.773	2.29	0.167	1.97			22	9.98	5.96	1.99	96.74
23	1.659	0.014	0.006	6.000	0.000	9.939	0.005	0.015	0.000	0.001	0.000	0.001	0.000	0.001	0.006	0.333	0.832	1.83	0.024	1.70			23	9.98	6.00	2.00	98.01
24	1.827	0.027	0.000	5.969	0.002	9.869	0.002	0.027	0.005	0.021	0.000	0.008	0.000	0.012	0.024	0.143	0.823	1.91	0.048	2.18			24	9.97	5.97	1.99	97.39
25	1.620	0.042	0.008	5.997	0.004	9.824	0.027	0.044	0.008	0.017	0.000	0.003	0.003	0.008	0.000	0.379	0.781	2.24	0.151	2.43			25	9.98	6.00	2.00	99.32
26	1.785	0.018	0.000	5.996	0.004	9.922	0.008	0.007	0.000	0.024	0.003	0.001	0.001	0.006	0.000	0.215	0.846	1.69	-0.017	2.08			26	9.99	6.00	2.00	97.85
27	1.542	0.031	0.096	5.951	0.014	9.743	0.013	0.050	0.016	0.001	0.007	0.014	0.002	0.010	0.041	0.414	0.767	2.33	0.179	2.36			27	9.98	5.96	2.00	92.79
28	1.819	0.026	0.006	5.974	0.026	9.923	0.006	0.018	0.006	0.001	0.000	0.002	0.003	0.000	0.006	0.176	0.834	1.81	0.017	2.18			28	9.99	6.00	2.00	98.52
29	1.109	0.034	0.043	5.981	0.019	9.777	0.021	0.049	0.012	0.004	0.008	0.019	0.001	0.011	0.215	0.676	0.698	2.74	0.303	2.49			29	9.98	6.00	2.00	95.76
30	1.768	0.020	0.008	5.890	0.040	9.876	0.014	0.018	0.006	0.000	0.017	0.019	0.001	0.003	0.079	0.151	0.816	1.97	0.067	1.88			30	9.98	5.93	2.00	97.45
31	1.941	0.023	0.006	5.956	0.004	9.853	0.006	0.031	0.003	0.010	0.012	0.028	0.005	0.007	0.052	0.000	0.817	1.96	0.065	1.93			31	9.98	5.96	1.99	98.17
32	1.684	0.045	0.001	5.936	0.025	9.850	0.016	0.008	0.004	0.004	0.022	0.031	0.002	0.005	0.042	0.272	0.826	1.88	0.041	2.19			32	9.99	5.96	2.00	98.37
33	1.282	0.015	0.011	5.988	0.000	9.905	0.009	0.020	0.005	0.002	0.006	0.006	0.003	0.003	0.046	0.672	0.799	2.11	0.109	2.36			33	9.98	5.99	2.00	97.90
34	0.817	0.005	0.000	6.000	0.000	9.919	0.012	0.021	0.002	0.009	0.003	0.002	0.002	0.011	0.087	1.096	0.775	2.28	0.163	2.49			34	9.99	6.00	2.00	98.46
35	1.884	0.033	0.007	5.999	0.001	9.831	0.037	0.036	0.003	0.021	0.006	0.006	0.000	0.005	0.013	0.103	0.800	2.10	0.106	1.89			35	9.98	6.00	2.00	99.49
36	1.735	0.035	0.014	6.000	0.000	9.816	0.042	0.042	0.003	0.015	0.000	0.005	0.004	0.006	0.013	0.248	0.782	2.23	0.149	1.88			36	9.98	6.00	2.00	98.74
37	1.570	0.002	0.004	5.974	0.026	9.950	0.003	0.010	0.002	0.006	0.001	0.002	0.000	0.003	0.032	0.390	0.832	1.82	0.023	2.22			37	9.98	6.00	1.99	97.28
38	1.999	0.050	0.008	6.000	0.000	9.820	0.042	0.017	0.001	0.028	0.003	0.003	0.003	0.002	0.000	0.000	0.827	1.87	0.037	1.62			38	9.98	6.00	2.00	99.43
39	1.725	0.061	0.011	5.999	0.001	9.777	0.054	0.021	0.004	0.034	0.004	0.006	0.003	0.005	0.002	0.272	0.802	2.08	0.101	2.01			39	9.98	6.00	2.00	98.82
40	1.080	0.022	0.037	5.808	0.006	9.841	0.006	0.013	0.034	0.000	0.006	0.020	0.001	0.007	0.050	0.870	0.794	2.14	0.120	3.15			40	9.99	5.81	2.00	97.18
41	1.916	0.035	0.007	5.967	0.000	9.868	0.011	0.011	0.000	0.027	0.002	0.014	0.000	0.014	0.010	0.073	0.843	1.73	-0.007	1.69			41	9.99	5.97	2.00	99.11
42	1.410	0.056	0.042	5.919	0.054	9.754	0.027	0.046	0.002	0.003	0.008	0.017	0.001	0.008	0.249	0.325	0.716	2.64	0.274	2.50			42	9.96	5.97	1.98	85.10
43	1.888	0.057	0.066	5.942	0.022	9.672	0.005	0.032	0.082	0.000	0.015	0.035	0.004	0.016	0.042	0.065	0.806	2.05	0.092	2.70			43	9.98	5.96	2.00	99.32
44	1.385	0.019	0.000	5.999	0.001	9.919	0.003	0.020	0.011	0.000	0.004	0.005	0.002	0.004	0.072	0.543	0.802	2.08	0.101	2.14			44	9.99	6.00	2.00	97.68
45	0.713	0.058	0.049	5.944	0.042	9.743	0.024	0.062	0.010	0.001	0.007	0.017	0.004	0.006	0.458	0.823	0.525	3.43	0.517	3.72			45	9.98	5.99	1.99	100.19
46	1.173	0.065	0.012	5.940	0.030	9.806	0.009	0.027	0.017	0.004	0.006	0.014	0.002	0.013	0.056	0.764	0.777	2.27	0.158	2.46			46	9.97	5.97	1.99	95.77
47	0.812	0.054	0.035	5.865	0.004	9.792	0.000	0.032	0.052	0.000	0.006	0.014	0.002	0.007	0.025	1.163	0.776	2.27	0.161	3.86			47	9.99	5.87	2.00	92.53
48	1.635	0.023	0.001	5.899	0.036	9.836	0.012	0.027	0.013	0.000	0.017	0.039	0.004	0.005	0.087	0.275	0.796	2.13	0.115	2.12			48	9.98	5.93	2.00	94.47
49	1.814	0.041	0.002	5.949	0.032	9.868	0.012	0.011	0.009	0.000	0.006	0.022	0.000	0.007	0.081	0.104	0.827	1.87	0.038	2.13			49	9.98	5.98	2.00	98.20
50	1.485	0.061	0.021	5.749	0.131	9.775	0.013	0.024	0.053	0.000	0.009	0.015	0.000	0.008	0.115	0.397	0.783	2.22	0.145	3.33			50	9.98	5.88	2.00	96.32
51	1.928	0.080	0.068	5.912	0.055	9.715	0.007	0.049	0.016	0.003	0.011	0.022	0.003	0.012	0.070	0.001	0.785	2.21	0.142	2.09			51	9.98	5.97	2.00	96.93
52	0.883	0.126	0.072	5.763	0.143	9.617	0.014	0.061	0.035	0.000	0.016	0.028	0.001	0.010	0.255	0.862	0.629	3.05	0.400	4.11			52	9.98	5.91	2.00	82.16

APPENDIX E: AFTINV parameters and thermal history results

Issler et al. (in review) give a detailed discussion of data interpretation, model boundary conditions, and AFTINV model results for samples P013-12 and LHA003. AFTINV output and plots for c-axis projected length models are listed for the two samples. C-axis projection of track lengths improves model resolution by reducing the length dispersion caused by the variation in length with track orientation (Donelick et al., 1999). The model is run in two stages and model fits to measured AFT parameters are assessed using p-values. First, a set of 300 solutions is obtained at the 0.05 significance level using a nondirected Monte Carlo scheme. In the second stage, the solution set is updated to the 0.5 significance level using a controlled random search (CRS) learning algorithm.

Model output includes information on model constraints, parameters, boundary conditions, run times, and the number of forward models required for convergence. Detailed information is provided on the exponential mean and minimum objective function (best fit solution) time-temperature histories, the upper and lower temperature limits encompassing the thermal solutions, and summary information for the Monte Carlo (0.05 level) and CRS (0.5 level) solutions (model FT age and objective function value per kinetic population, time and magnitude of maximum temperature, and calculated %Ro). Detailed information is also given for the model retention age (age of oldest track > ~ 2 μm) and the time and temperature for the last track that was fully annealed (< ~ 2 μm). The model retention age and annealing time will be similar for conditions of rapid cooling from high temperature; for more protracted and complicated heating/cooling histories, the retention age and annealing time will differ and annealing temperatures will be considerably lower due to cumulative thermal effects.

Plots include: (1) 300 acceptable Monte Carlo and CRS thermal solutions with corresponding exponential mean and minimum objective function (MOF; closest fitting) thermal histories plus temperature bounds defined by the solutions, (2) 300 predicted track length distributions for the Monte Carlo and CRS solutions, and the exponential mean and MOF track length distribution (plus envelope defined by 300 solutions) compared with the measured length data for each kinetic population, (3) histograms showing times of maximum temperature and maximum temperature for each heating/cooling cycle corresponding to the Monte Carlo and CRS solutions, (4) peak temperature versus time of peak temperature for each Monte Carlo and CRS solution per heating/cooling cycle, (5) a histogram showing the distribution of model retention ages for the Monte Carlo and CRS solutions, (6) the distribution of calculated $\%R_o$ values (using basin%Ro model; Nielsen et al., 2017) for the Monte Carlo and CRS solutions for post-depositional history and the final phase of burial/exhumation, and (7) the distribution of objective function values for the 300 Monte Carlo and CRS solutions per kinetic population.

```
P013-12 McParlon A-25 1075 m: Jungle Creek Fm (L Permian, ~290 Ma), %Ro~0.63±0.13, T~15 to 35 deg C
MOD#1D:Tstyle = 10, dep 295-285 Ma, HP1 max HR=CR=5; 2nd HP 115/102.5-0 Ma; max HR=CR=3, CR=20 from 5 Ma
KETCHAM ET AL ANNEALING MODEL FOR B2 CHLORAPATITE

 AFTINV v. 6.10 (August 22, 2019)
 INTEL VISUAL FORTRAN 19 FOR WINDOWS 2019
 (UPDATE 3) QUICKWIN APPLICATION
 PROGRAMMER: DALE ISSLER, GSC CALGARY, CANADA
 PHONE: 403-470-1903
 EMAIL: dale.issler@canada.ca


 INVERSION CONTROL PARAMETERS:
 -----------------------------------------------------
***MONTE CARLO RANDOM SEARCH TECHNIQUE USED AT 0.05 SIGNIFICANCE LEVEL (95% CONFIDENCE)***
***CONTROLLED RANDOM SEARCH TECHNIQUE USED AT 0.5 SIGNIFICANCE LEVEL (50% CONFIDENCE)***
 LENGTH DATA CORRECTED TO C-AXIS PARALLEL ORIENTATION
 NUMBER OF RETAINED SOLUTIONS =          300
 NUMBER OF MODEL TIME STEPS (M) =          149
 NUMBER OF PARAMETERS (M+1) =          150
 NUMERICAL ACCURACY (%), ACUR =   0.1000000
 COMPONENT TIME STEP LENGTH (DELSUB) =  2.500
 OBJ FN (2=CHI2; 3=K-S; 4=KUIPER) =            3
 THERMAL HISTORY GENERATION USING UNIFORM RANDOM DEVIATES (IRSEL=1)

 KINETIC POPULATION #           1
 CONVERGENCE TOLERANCE (0.050 SIGNIFICANCE) = 0.3015230
 # OF STANDARD DEVIATIONS TO FIT AGE = 2.0 (0.05 SIGNIFICANCE)
 CONVERGENCE TOLERANCE (0.5 SIGNIFICANCE) = 0.1837356
 # OF STANDARD DEVIATIONS TO FIT AGE = 0.674 (0.5 SIGNIFICANCE)

 KINETIC POPULATION #           2
 CONVERGENCE TOLERANCE (0.050 SIGNIFICANCE) = 0.1709520
 # OF STANDARD DEVIATIONS TO FIT AGE = 2.0 (0.05 SIGNIFICANCE)
 CONVERGENCE TOLERANCE (0.5 SIGNIFICANCE) = 0.1041711
 # OF STANDARD DEVIATIONS TO FIT AGE = 0.674 (0.5 SIGNIFICANCE)

 KINETIC POPULATION #           3
 CONVERGENCE TOLERANCE (0.050 SIGNIFICANCE) = 0.3490312
 # OF STANDARD DEVIATIONS TO FIT AGE = 2.0 (0.05 SIGNIFICANCE)
 CONVERGENCE TOLERANCE (0.5 SIGNIFICANCE) = 0.2126852
 # OF STANDARD DEVIATIONS TO FIT AGE = 0.674 (0.5 SIGNIFICANCE)

  COMBINED TRACK POPULATIONS:
 CONVERGENCE TOLERANCE (0.050 SIGNIFICANCE) = 0.1382050
  CONVERGENCE TOLERANCE (0.5 SIGNIFICANCE) =   8.4216423E-02

 AFT AGE BASED ON LA-ICP-MS METHOD
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 KINETIC POPULATION #  1 (DETRITAL)
 MEASURED AFT AGE  =   51.25
 SIGMA OF ERROR IN MEASURED AGE  =   5.74

 KINETIC POPULATION #  2 (DETRITAL)
 MEASURED AFT AGE  =  117.31
 SIGMA OF ERROR IN MEASURED AGE  =   7.75

 KINETIC POPULATION #  3 (DETRITAL)
 MEASURED AFT AGE  =  251.60
 SIGMA OF ERROR IN MEASURED AGE  =  37.09

 TOTAL NUMBER OF TRACKS MEASURED =           94
 TOTAL NUMBER OF TRACKS MODELLED =           94
 INITIAL RANDOM NUMBER GENERATOR SEED =          958
 SYSTEM RANDOM NUMBER GENERATOR RAN(ISEED)
 EXPANSION FACTOR (ALPHA) = 1.300
 REPOSITION FACTOR FOR EXPLICIT BOUND (DELTA) = 0.0010

 KINETIC POPULATION #  1
 Cl RANGE: -0.1000 -  0.1340
 REPRESENTATIVE Cl VALUE =  0.0500
 RMRO =  0.82248
 NUMBER OF TRACK LENGTHS =   19
 ORIGINAL MEAN TRACK LENGTH =  16.298
 INITIAL C-AXIS PROJECTED TRACK LENGTH =  16.725
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KINETIC POPULATION # 2
Cl RANGE: 0.1340 - 0.3120
REPRESENTATIVE Cl VALUE = 0.2400
RMRO = 0.73508
NUMBER OF TRACK LENGTHS = 61
ORIGINAL MEAN TRACK LENGTH = 16.501
INITIAL C-AXIS PROJECTED TRACK LENGTH = 16.915

KINETIC POPULATION # 3
Cl RANGE: 0.3120 - 0.5500
REPRESENTATIVE Cl VALUE = 0.5500
RMRO = 0.49092
NUMBER OF TRACK LENGTHS = 14
ORIGINAL MEAN TRACK LENGTH = 16.833
INITIAL C-AXIS PROJECTED TRACK LENGTH = 17.225

EMPIRICAL MODEL OF AGE REDUCTION
TRACK LENGTH REDUCTION COEFFICIENTS:
-19.84399986 0.38951001 -51.25299835 -7.64230013 -0.12327000 -11.98799992
COMPONENT VARIANCE COEFFICIENTS (CUBIC POLYNOMIAL):

	C1	C2	C3	C4
WILLETT MEAN LENGTH	0.78990000	0.00000000	0.00303500	-0.00229830
KETCHAM ET AL. MEAN LENGTH	7.46400023	-0.87330002	0.02858000	0.00000000
KETCHAM ET AL. C-AXIS PROJECTED LENGTH	2.31200004	-0.24420001	0.00845200	0.00000000
KETCHAM ET AL. REDUCED MEAN LENGTH	0.45719999	-0.88150001	0.49470001	0.00000000
KETCHAM ET AL. REDUCED C-AXIS PROJECTED	0.10810000	-0.16419999	0.10520000	0.00000000

	GEOLOGIC TIME (MA)	MODEL TIME (MY)	TEMPERATURE BOUNDS (DEG C) LOWER	UPPER	RATE BOUNDS (DEG C/MY) COOLING	HEATING	TIME INTERVAL
1	600.00	0.00	245.00	250.00	5.00	5.00	10.00
2	590.00	10.00	195.00	250.00	5.00	5.00	10.00
3	580.00	20.00	145.00	250.00	5.00	5.00	10.00
4	570.00	30.00	95.00	250.00	5.00	5.00	10.00
5	560.00	40.00	45.00	250.00	5.00	5.00	10.00
6	550.00	50.00	0.00	250.00	5.00	5.00	10.00
7	540.00	60.00	0.00	250.00	5.00	5.00	10.00
8	530.00	70.00	0.00	250.00	5.00	5.00	10.00
9	520.00	80.00	0.00	250.00	5.00	5.00	10.00
10	510.00	90.00	0.00	250.00	5.00	5.00	10.00
11	500.00	100.00	0.00	250.00	5.00	5.00	10.00
12	490.00	110.00	0.00	250.00	5.00	5.00	10.00
13	480.00	120.00	0.00	250.00	5.00	5.00	10.00
14	470.00	130.00	0.00	250.00	5.00	5.00	10.00
15	460.00	140.00	0.00	250.00	5.00	5.00	10.00
16	450.00	150.00	0.00	250.00	5.00	5.00	10.00
17	440.00	160.00	0.00	250.00	5.00	5.00	10.00
18	430.00	170.00	0.00	250.00	5.00	5.00	10.00
19	420.00	180.00	0.00	250.00	5.00	5.00	10.00
20	410.00	190.00	0.00	250.00	5.00	5.00	10.00
21	400.00	200.00	0.00	250.00	5.00	5.00	10.00
22	390.00	210.00	0.00	250.00	5.00	5.00	10.00
23	380.00	220.00	0.00	250.00	5.00	5.00	10.00
24	370.00	230.00	0.00	250.00	5.00	5.00	10.00
25	360.00	240.00	0.00	250.00	5.00	5.00	10.00
26	350.00	250.00	0.00	250.00	5.00	5.00	10.00
27	340.00	260.00	0.00	250.00	5.00	5.00	10.00
28	330.00	270.00	0.00	250.00	5.00	5.00	10.00
29	320.00	280.00	0.00	250.00	5.00	5.00	10.00
30	310.00	290.00	0.00	230.00	5.00	5.00	10.00
31	300.00	300.00	0.00	180.00	5.00	5.00	5.00
32	295.00	305.00	0.00	155.00	5.00	5.00	2.50
33	292.50	307.50	0.00	155.00	5.00	5.00	2.50
34	290.00	310.00	0.00	155.00	5.00	5.00	2.50
35	287.50	312.50	0.00	155.00	5.00	5.00	2.50
36	285.00	315.00	0.00	155.00	5.00	5.00	2.50
37	282.50	317.50	0.00	155.00	5.00	5.00	2.50
38	280.00	320.00	0.00	155.00	5.00	5.00	2.50
39	277.50	322.50	0.00	155.00	5.00	5.00	2.50
40	275.00	325.00	0.00	155.00	5.00	5.00	2.50
41	272.50	327.50	0.00	155.00	5.00	5.00	2.50
42	270.00	330.00	0.00	155.00	5.00	5.00	2.50
43	267.50	332.50	0.00	155.00	5.00	5.00	2.50
44	265.00	335.00	0.00	155.00	5.00	5.00	2.50

45	262.50	337.50	0.00	155.00	5.00	5.00	2.50
46	260.00	340.00	0.00	155.00	5.00	5.00	2.50
47	257.50	342.50	0.00	155.00	5.00	5.00	2.50
48	255.00	345.00	0.00	155.00	5.00	5.00	2.50
49	252.50	347.50	0.00	155.00	5.00	5.00	2.50
50	250.00	350.00	0.00	155.00	5.00	5.00	2.50
51	247.50	352.50	0.00	155.00	5.00	5.00	2.50
52	245.00	355.00	0.00	155.00	5.00	5.00	2.50
53	242.50	357.50	0.00	155.00	5.00	5.00	2.50
54	240.00	360.00	0.00	155.00	5.00	5.00	2.50
55	237.50	362.50	0.00	155.00	5.00	5.00	2.50
56	235.00	365.00	0.00	155.00	5.00	5.00	2.50
57	232.50	367.50	0.00	155.00	5.00	5.00	2.50
58	230.00	370.00	0.00	155.00	5.00	5.00	2.50
59	227.50	372.50	0.00	155.00	5.00	5.00	2.50
60	225.00	375.00	0.00	155.00	5.00	5.00	2.50
61	222.50	377.50	0.00	155.00	5.00	5.00	2.50
62	220.00	380.00	0.00	155.00	5.00	5.00	2.50
63	217.50	382.50	0.00	155.00	5.00	5.00	2.50
64	215.00	385.00	0.00	155.00	5.00	5.00	2.50
65	212.50	387.50	0.00	155.00	5.00	5.00	2.50
66	210.00	390.00	0.00	155.00	5.00	5.00	2.50
67	207.50	392.50	0.00	155.00	5.00	5.00	2.50
68	205.00	395.00	0.00	155.00	5.00	5.00	2.50
69	202.50	397.50	0.00	155.00	5.00	5.00	2.50
70	200.00	400.00	0.00	155.00	5.00	5.00	2.50
71	197.50	402.50	0.00	155.00	5.00	5.00	2.50
72	195.00	405.00	0.00	155.00	5.00	5.00	2.50
73	192.50	407.50	0.00	155.00	5.00	5.00	2.50
74	190.00	410.00	0.00	155.00	5.00	5.00	2.50
75	187.50	412.50	0.00	155.00	5.00	5.00	2.50
76	185.00	415.00	0.00	155.00	5.00	5.00	2.50
77	182.50	417.50	0.00	155.00	5.00	5.00	2.50
78	180.00	420.00	0.00	155.00	5.00	5.00	2.50
79	177.50	422.50	0.00	155.00	5.00	5.00	2.50
80	175.00	425.00	0.00	155.00	5.00	5.00	2.50
81	172.50	427.50	0.00	155.00	5.00	5.00	2.50
82	170.00	430.00	0.00	155.00	5.00	5.00	2.50
83	167.50	432.50	0.00	155.00	5.00	5.00	2.50
84	165.00	435.00	0.00	155.00	5.00	5.00	2.50
85	162.50	437.50	0.00	155.00	5.00	5.00	2.50
86	160.00	440.00	0.00	155.00	5.00	5.00	2.50
87	157.50	442.50	0.00	155.00	5.00	5.00	2.50
88	155.00	445.00	0.00	155.00	5.00	5.00	2.50
89	152.50	447.50	0.00	155.00	5.00	5.00	2.50
90	150.00	450.00	0.00	155.00	5.00	5.00	2.50
91	147.50	452.50	0.00	155.00	5.00	5.00	2.50
92	145.00	455.00	0.00	155.00	5.00	5.00	2.50
93	142.50	457.50	0.00	155.00	5.00	5.00	2.50
94	140.00	460.00	0.00	155.00	5.00	5.00	2.50
95	137.50	462.50	0.00	155.00	5.00	5.00	2.50
96	135.00	465.00	0.00	155.00	5.00	5.00	2.50
97	132.50	467.50	0.00	155.00	5.00	5.00	2.50
98	130.00	470.00	0.00	155.00	5.00	5.00	2.50
99	127.50	472.50	0.00	155.00	5.00	5.00	2.50
100	125.00	475.00	0.00	155.00	5.00	5.00	2.50
101	122.50	477.50	0.00	155.00	5.00	5.00	2.50
102	120.00	480.00	0.00	155.00	5.00	5.00	2.50
103	117.50	482.50	0.00	142.50	5.00	5.00	2.50
104	115.00	485.00	0.00	130.00	3.00	3.00	2.50
105	112.50	487.50	0.00	130.00	3.00	3.00	2.50
106	110.00	490.00	0.00	130.00	3.00	3.00	2.50
107	107.50	492.50	0.00	130.00	3.00	3.00	2.50
108	105.00	495.00	0.00	130.00	3.00	3.00	2.50
109	102.50	497.50	0.00	130.00	3.00	3.00	2.50
110	100.00	500.00	0.00	130.00	3.00	3.00	2.50
111	97.50	502.50	0.00	130.00	3.00	3.00	2.50
112	95.00	505.00	0.00	130.00	3.00	3.00	2.50
113	92.50	507.50	0.00	130.00	3.00	3.00	2.50
114	90.00	510.00	0.00	130.00	3.00	3.00	2.50
115	87.50	512.50	0.00	130.00	3.00	3.00	2.50
116	85.00	515.00	0.00	130.00	3.00	3.00	2.50
117	82.50	517.50	0.00	130.00	3.00	3.00	2.50
118	80.00	520.00	0.00	130.00	3.00	3.00	2.50
119	77.50	522.50	0.00	130.00	3.00	3.00	2.50
120	75.00	525.00	0.00	130.00	3.00	3.00	2.50
121	72.50	527.50	0.00	130.00	3.00	3.00	2.50
122	70.00	530.00	0.00	130.00	3.00	3.00	2.50

123	67.50	532.50	0.00	130.00	3.00	3.00	2.50
124	65.00	535.00	0.00	130.00	3.00	3.00	2.50
125	62.50	537.50	0.00	130.00	3.00	3.00	2.50
126	60.00	540.00	0.00	130.00	3.00	3.00	2.50
127	57.50	542.50	0.00	130.00	3.00	3.00	2.50
128	55.00	545.00	0.00	130.00	3.00	3.00	2.50
129	52.50	547.50	0.00	130.00	3.00	3.00	2.50
130	50.00	550.00	0.00	130.00	3.00	3.00	2.50
131	47.50	552.50	0.00	130.00	3.00	3.00	2.50
132	45.00	555.00	0.00	130.00	3.00	3.00	2.50
133	42.50	557.50	0.00	130.00	3.00	3.00	2.50
134	40.00	560.00	0.00	130.00	3.00	3.00	2.50
135	37.50	562.50	0.00	130.00	3.00	3.00	2.50
136	35.00	565.00	0.00	130.00	3.00	3.00	2.50
137	32.50	567.50	0.00	130.00	3.00	3.00	2.50
138	30.00	570.00	0.00	130.00	3.00	3.00	2.50
139	27.50	572.50	0.00	130.00	3.00	3.00	2.50
140	25.00	575.00	0.00	130.00	3.00	3.00	2.50
141	22.50	577.50	0.00	130.00	3.00	3.00	2.50
142	20.00	580.00	0.00	130.00	3.00	3.00	2.50
143	17.50	582.50	0.00	130.00	3.00	3.00	2.50
144	15.00	585.00	0.00	130.00	3.00	3.00	2.50
145	12.50	587.50	0.00	130.00	3.00	3.00	2.50
146	10.00	590.00	0.00	130.00	3.00	3.00	2.50
147	7.50	592.50	0.00	130.00	3.00	3.00	2.50
148	5.00	595.00	0.00	130.00	20.00	3.00	2.50
149	2.50	597.50	7.50	85.00	20.00	3.00	2.50
150	0.00	600.00	15.00	35.00			

HEATING/COOLING SELECTION SUMMARY:

TSTYLE	TIME RANGE MA	# OF EVENTS HEATING	COOLING	NHP	NCP	MINIMUM HEATING	MINIMUM COOLING	THERMAL PEAK	LOWER TEMP LIMIT DEG C	THERMAL MINIMUM	UPPER TEMP LIMIT DEG C	TEMP MIN TIME INTERVAL (MA)	TYPE OF THERMAL HISTORY
10	600.0- 0.0	2	MONOTONIC	2	-3	0.10	0.10	1	130.0	1	30.0	295.0- 285.0	COOL-HEAT-COOL-HEAT-COOL
								2	95.0	2	40.0	115.0- 102.5	

TIME RANGE FOR RANDOM SELECTION OF INITIAL MODEL POINT:
600.00 - 0.00 MA (TIME STEPS 1 TO 150)

%RO = 0.63 +/- 0.130 IS AN EXTRA CONSTRAINT FOR POST-DEPOSITIONAL THERMAL HISTORIES
%RO = 0.60 +/- 0.150 IS AN EXTRA CONSTRAINT FOR POST-EXHUMATION THERMAL HISTORIES
USE BASIN%RO MODEL
%RO CALCULATIONS BEGIN AT DEPOSITION AT APPROXIMATELY 290.00 Ma
%RO CALCULATIONS BEGIN AT ONSET OF REBURIAL AT APPROXIMATELY 110.00 Ma

MEASURED TRACK LENGTH DATA:
KINETIC POPULATION # 1; 19 MEASURED LENGTHS (MICRONS)

CONVENTIONAL MEAN	C-AXIS PROJECTED MEAN	ANGLE TO C-AXIS DEGREES
7.76	11.91	60.42
10.02	12.33	54.30
10.11	12.69	68.56
11.14	13.08	55.07
11.13	13.14	58.22
11.26	13.35	64.38
13.17	13.47	18.22
12.32	13.50	41.15
11.79	13.55	57.09
11.44	13.66	83.89
11.61	13.74	78.61
13.44	14.83	72.28
14.25	14.87	38.11
14.18	15.02	49.13
14.33	15.24	56.68
14.71	15.35	45.80
15.19	15.54	33.95
14.96	15.68	58.05
14.97	15.77	68.08

MEAN OF CONVENTIONAL LENGTHS = 12.51 + OR - 2.07 MICRONS
MEAN OF C-AXIS PROJECTED LENGTHS = 14.04 + OR - 1.20 MICRONS

MEASURED TRACK LENGTH DATA:
KINETIC POPULATION # 2;   61 MEASURED LENGTHS (MICRONS)

CONVENTIONAL MEAN	C-AXIS PROJECTED MEAN	ANGLE TO C-AXIS DEGREES
9.41	11.71	47.07
9.26	11.78	52.08
10.95	12.12	30.86
10.06	12.15	47.60
9.67	12.32	63.24
9.66	12.35	64.81
9.88	12.36	58.91
7.47	12.38	75.50
9.98	12.38	57.26
9.67	12.51	73.85
8.84	12.51	75.73
10.25	12.54	56.57
10.02	12.60	66.40
7.90	12.62	81.56
10.06	12.66	68.18
9.94	12.71	78.33
9.16	12.78	84.14
9.07	12.88	87.73
9.50	12.89	87.80
11.05	13.00	54.43
11.02	13.01	55.57
12.02	13.05	34.19
11.19	13.09	54.21
11.18	13.18	58.60
11.54	13.23	50.59
10.85	13.24	75.60
11.87	13.27	44.02
11.54	13.35	55.57
11.43	13.38	60.19
11.16	13.40	72.07
12.66	13.45	31.30
12.53	13.50	35.91
11.59	13.59	66.16
11.87	13.59	56.39
11.84	13.62	58.86
11.75	13.62	62.35
13.20	13.66	23.86
12.46	13.79	48.11
12.07	13.90	66.93
12.07	13.97	72.58
13.11	14.11	42.14
13.39	14.11	34.09
13.87	14.28	25.76
13.16	14.49	59.37
13.10	14.51	62.86
13.65	14.51	42.35
14.10	14.84	42.41
13.97	14.94	53.12
14.70	15.21	37.81
14.44	15.26	52.74
15.06	15.34	27.90
14.35	15.37	68.60
14.26	15.38	78.39
14.65	15.62	78.55
14.87	15.68	65.71
15.23	15.80	51.75
15.26	15.95	67.86
15.67	15.96	35.99
15.93	16.20	39.48
16.79	16.87	36.23
17.11	17.12	20.98

MEAN OF CONVENTIONAL LENGTHS = 12.04 + OR - 2.26 MICRONS
MEAN OF C-AXIS PROJECTED LENGTHS = 13.77 + OR - 1.32 MICRONS

MEASURED TRACK LENGTH DATA:
KINETIC POPULATION # 3;   14 MEASURED LENGTHS (MICRONS)

CONVENTIONAL MEAN	C-AXIS PROJECTED MEAN	ANGLE TO C-AXIS DEGREES
8.16	11.64	52.41
9.26	11.84	54.02

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      5.89           12.17              76.29
      9.04           12.43              72.44
      9.43           12.43              71.70
     10.87           12.83              52.54
     11.53           13.73              89.38
     12.56           13.88              49.04
     13.11           14.33              52.37
     13.50           14.73              59.89
     13.91           14.76              45.43
     14.07           15.11              60.63
     14.31           15.18              53.41
     14.85           15.63              60.53

MEAN OF CONVENTIONAL LENGTHS = 11.46 + OR -  2.74 MICRONS
MEAN OF C-AXIS PROJECTED LENGTHS = 13.62 + OR -  1.37 MICRONS


NUMBER OF FORWARD RANDOM TRIALS, ITER =    366876
 KINETIC POP#  1:  MAX OBJ FUNCTION =   0.301390
 KINETIC POP#  2:  MAX OBJ FUNCTION =   0.170405
 KINETIC POP#  3:  MAX OBJ FUNCTION =   0.347726
 KINETIC POP#  1:  MIN OBJ FUNCTION =   0.168973;  SOLUTION #    1
 KINETIC POP#  2:  MIN OBJ FUNCTION =   0.104560;  SOLUTION #  290
 KINETIC POP#  3:  MIN OBJ FUNCTION =   0.195596;  SOLUTION #    1
SOLUTION #    1; OBJ FUNCTION SUM:   0.533889
SOLUTION #  290; OBJ FUNCTION SUM:   0.594197
SOLUTION #    1; OBJ FUNCTION SUM:   0.533889
MIN OBJ SOLUTION: SOLUTION #  288

CONVERGENCE AT 0.050 SIGNIFICANCE LEVEL
 TOTAL NUMBER OF SOLUTIONS:          300
 NUMBER OF 0.5 SOLUTIONS:            0
STOP DATE  - MONTH:  9 DAY: 10 YEAR: 2019
STOP TIME :  9 HRS   19 MIN     2 S
 TOTAL EXECUTION TIME =  0.074597 HOURS OR    4.4758 MINUTES
 # OF TIME-TEMP ERRORS AND RETRIED SOLUTIONS IN TGEN2 =    12852.0000000000

 KINETIC POP#  1:  MAX OBJ FUNCTION =   0.183728
 KINETIC POP#  2:  MAX OBJ FUNCTION =   0.103646
 KINETIC POP#  3:  MAX OBJ FUNCTION =   0.211178
 KINETIC POP#  1:  MIN OBJ FUNCTION =   0.121212;  SOLUTION #   21
 KINETIC POP#  2:  MIN OBJ FUNCTION =   0.068476;  SOLUTION #  249
 KINETIC POP#  3:  MIN OBJ FUNCTION =   0.146428;  SOLUTION #   50
SOLUTION #   21; OBJ FUNCTION SUM:   0.383777
SOLUTION #  249; OBJ FUNCTION SUM:   0.390618
SOLUTION #   50; OBJ FUNCTION SUM:   0.355655
MIN OBJ SOLUTION: SOLUTION #  231

 CONVERGENCE AT 0.5 SIGNIFICANCE LEVEL
 NUMBER OF FORWARD MODELS:       528597
 TOTAL NUMBER OF SOLUTIONS:          300
 NUMBER OF 0.5 SOLUTIONS:          300
STOP DATE  - MONTH:  9 DAY: 10 YEAR: 2019
STOP TIME :  9 HRS   26 MIN    39 S
 TOTAL EXECUTION TIME =  0.201290 HOURS OR   12.0774 MINUTES
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P013-12 McParlon A-25 1075 m: Jungle Creek Fm (L Permian, ~290 Ma), %Ro~0.63±0.13, T~15 to 35 deg C

MOD#1D:Tstyle = 10, dep 295-285 Ma, HP1 max HR=CR=5; 2nd HP 115/102.5-0 Ma; max HR=CR=3, CR=20 from 5 Ma

KETCHAM ET AL ANNEALING MODEL FOR B2 CHLORAPATITE

AFTINV v. 6.10 (August 22, 2019)

INTEL VISUAL FORTRAN 19 FOR WINDOWS 2019

(UPDATE 3) QUICKWIN APPLICATION

MONTE CARLO RANDOM SEARCH METHOD

MINIMUM OBJECTIVE SOLUTION: LOWEST COMBINED OBJECTIVE FUNCTION

MODEL RESULTS AT 0.0500 SIGNIFICANCE LEVEL

TIME (MY)	TIME (MA)	EXP MEAN TEMPERATURE (DEG C)	EXP MEAN RATE (DEG/MY)	MIN OBJ TEMPERATURE (DEG C)	MIN OBJ RATE (DEG/MY)	LOWER TEMP BOUND	UPPER TEMP BOUND
0.00	600.00	249.99		250.00		247.39	250.00
10.00	590.00	249.95	-0.004	250.00	0.000	243.37	250.00
20.00	580.00	249.90	-0.005	250.00	0.000	238.63	250.00
30.00	570.00	249.73	-0.017	250.00	0.000	225.84	250.00
40.00	560.00	249.53	-0.020	250.00	0.000	214.84	250.00
50.00	550.00	249.28	-0.025	250.00	0.000	211.48	250.00
60.00	540.00	248.92	-0.036	249.55	-0.045	204.43	250.00
70.00	530.00	248.31	-0.062	240.58	-0.898	190.05	250.00
80.00	520.00	247.57	-0.074	239.26	-0.132	178.85	250.00
90.00	510.00	246.29	-0.127	234.48	-0.478	175.63	250.00
100.00	500.00	244.75	-0.155	225.58	-0.890	151.21	250.00
110.00	490.00	242.66	-0.209	220.91	-0.467	131.23	250.00
120.00	480.00	240.12	-0.254	205.60	-1.531	129.58	250.00
130.00	470.00	237.28	-0.285	197.35	-0.825	122.93	250.00
140.00	460.00	233.93	-0.335	189.87	-0.748	109.13	250.00
150.00	450.00	229.77	-0.415	174.19	-1.568	94.23	250.00
160.00	440.00	225.63	-0.415	170.57	-0.363	92.35	250.00
170.00	430.00	220.26	-0.537	163.82	-0.675	79.68	250.00
180.00	420.00	213.75	-0.651	152.47	-1.134	77.73	250.00
190.00	410.00	207.02	-0.672	118.72	-3.375	64.32	250.00
200.00	400.00	199.96	-0.707	115.57	-0.315	62.40	249.54
210.00	390.00	190.34	-0.962	94.24	-2.134	56.02	245.73
220.00	380.00	177.96	-1.237	74.45	-1.979	45.97	227.89
230.00	370.00	163.69	-1.428	69.77	-0.467	33.21	208.81
240.00	360.00	147.61	-1.608	58.32	-1.146	30.56	191.61
250.00	350.00	133.32	-1.429	48.43	-0.989	20.57	182.93
260.00	340.00	109.00	-2.432	41.65	-0.678	16.05	151.50
270.00	330.00	92.29	-1.671	33.13	-0.851	9.35	139.99
280.00	320.00	74.73	-1.756	18.06	-1.508	5.66	115.39
290.00	310.00	53.25	-2.149	14.61	-0.345	3.42	99.60
300.00	300.00	30.87	-2.238	13.38	-0.123	0.84	63.57
305.00	295.00	22.71	-1.631	12.58	-0.159	0.00	54.28
307.50	292.50	20.07	-1.057	11.83	-0.302	0.00	50.25
310.00	290.00	20.19	0.048	13.09	0.503	0.00	54.36
312.50	287.50	21.56	0.548	15.00	0.766	0.00	64.26
315.00	285.00	24.97	1.366	16.57	0.625	0.00	66.43
317.50	282.50	29.15	1.671	18.84	0.911	0.00	67.47
320.00	280.00	32.59	1.376	19.48	0.256	0.00	70.41
322.50	277.50	36.60	1.606	23.45	1.586	0.00	73.80
325.00	275.00	40.62	1.609	27.83	1.752	0.00	81.35
327.50	272.50	44.05	1.371	32.48	1.862	0.00	85.95
330.00	270.00	46.92	1.145	34.31	0.732	0.00	86.51
332.50	267.50	49.76	1.138	36.95	1.056	0.00	87.76
335.00	265.00	52.96	1.279	40.59	1.455	0.00	89.85
337.50	262.50	56.24	1.314	40.93	0.135	0.00	92.38
340.00	260.00	59.06	1.128	42.37	0.578	0.00	94.94
342.50	257.50	62.06	1.198	43.82	0.579	0.00	99.37
345.00	255.00	65.04	1.194	44.77	0.378	0.00	102.36
347.50	252.50	68.21	1.268	45.90	0.453	0.00	106.08
350.00	250.00	71.67	1.384	47.32	0.570	0.00	113.44
352.50	247.50	74.88	1.281	55.81	3.395	0.00	115.18
355.00	245.00	77.59	1.087	56.09	0.111	0.00	115.81
357.50	242.50	81.37	1.513	61.01	1.970	0.00	124.75
360.00	240.00	84.40	1.211	62.94	0.772	0.00	125.24
362.50	237.50	87.17	1.106	64.24	0.518	0.00	126.13
365.00	235.00	90.48	1.327	65.75	0.605	0.00	130.21
367.50	232.50	93.09	1.043	68.21	0.983	0.00	131.56
370.00	230.00	96.27	1.273	71.08	1.149	0.29	133.11
372.50	227.50	99.06	1.114	71.66	0.231	8.53	134.03
375.00	225.00	101.98	1.171	73.62	0.784	10.69	135.00
377.50	222.50	105.08	1.240	75.14	0.605	14.40	141.89
380.00	220.00	107.81	1.091	76.84	0.680	14.67	143.08
382.50	217.50	110.35	1.016	78.25	0.565	14.97	148.02
385.00	215.00	112.61	0.903	79.68	0.572	17.09	140.62
387.50	212.50	114.58	0.788	81.72	0.818	17.86	141.67
390.00	210.00	117.43	1.140	89.52	3.119	21.77	143.98
392.50	207.50	120.23	1.119	96.31	2.716	23.97	146.27
395.00	205.00	122.51	0.912	98.10	0.718	26.28	147.40
397.50	202.50	124.65	0.858	98.71	0.242	27.88	146.38
400.00	200.00	125.97	0.527	100.65	0.777	28.45	147.33
402.50	197.50	127.02	0.421	102.69	0.817	32.18	145.48
405.00	195.00	128.46	0.576	103.60	0.363	33.17	148.16
407.50	192.50	129.12	0.261	110.02	2.568	35.43	150.62
410.00	190.00	129.69	0.229	110.97	0.380	38.37	146.30
412.50	187.50	130.17	0.193	112.22	0.499	44.34	145.47
415.00	185.00	130.41	0.098	121.26	3.616	44.94	148.59
417.50	182.50	130.34	-0.030	122.39	0.453	48.54	145.54
420.00	180.00	130.13	-0.083	124.67	0.910	51.81	146.44
422.50	177.50	129.52	-0.243	126.53	0.747	54.72	149.21
425.00	175.00	128.37	-0.461	127.51	0.390	58.03	145.84
427.50	172.50	127.30	-0.429	130.89	1.353	58.41	148.11
430.00	170.00	126.01	-0.517	135.66	1.908	63.28	144.08
432.50	167.50	125.22	-0.314	141.31	2.258	63.92	145.19
435.00	165.00	124.28	-0.376	140.12	-0.476	73.10	145.62
437.50	162.50	123.34	-0.378	139.57	-0.221	74.24	145.25

440.00	160.00	122.41	-0.373	137.34	-0.892	72.91	146.22
442.50	157.50	121.20	-0.484	135.36	-0.792	72.24	146.96
445.00	155.00	119.87	-0.531	124.54	-4.328	68.67	143.45
447.50	152.50	119.08	-0.317	122.86	-0.671	68.10	142.06
450.00	150.00	117.80	-0.512	119.10	-1.505	64.19	146.34
452.50	147.50	115.84	-0.785	111.74	-2.943	62.76	141.48
455.00	145.00	114.28	-0.624	110.01	-0.692	61.56	140.21
457.50	142.50	112.51	-0.708	108.60	-0.565	59.89	140.40
460.00	140.00	111.44	-0.428	106.78	-0.727	58.77	141.73
462.50	137.50	110.88	-0.225	104.09	-1.077	55.33	145.45
465.00	135.00	109.41	-0.588	103.82	-0.106	51.63	143.39
467.50	132.50	106.98	-0.970	102.54	-0.513	50.13	145.92
470.00	130.00	102.44	-1.816	99.87	-1.070	45.58	141.41
472.50	127.50	96.26	-2.472	94.02	-2.337	43.64	140.00
475.00	125.00	88.70	-3.025	89.26	-1.907	41.80	127.50
477.50	122.50	79.50	-3.678	77.62	-4.656	39.48	115.00
480.00	120.00	70.55	-3.580	70.10	-3.007	38.75	102.50
482.50	117.50	61.13	-3.768	58.24	-4.743	36.17	90.00
485.00	115.00	52.32	-3.526	47.35	-4.356	32.85	77.50
487.50	112.50	48.35	-1.587	40.00	-2.941	30.15	70.00
490.00	110.00	46.57	-0.712	40.27	0.108	28.80	62.50
492.50	107.50	47.34	0.308	41.91	0.655	31.17	62.50
495.00	105.00	50.36	1.209	48.78	2.748	35.57	70.00
497.50	102.50	55.09	1.891	49.67	0.358	35.37	77.50
500.00	100.00	60.51	2.167	56.56	2.756	38.13	85.00
502.50	97.50	65.89	2.151	57.67	0.442	41.61	92.50
505.00	95.00	71.23	2.137	58.73	0.425	43.28	100.00
507.50	92.50	76.32	2.034	65.58	2.739	44.55	107.42
510.00	90.00	81.14	1.929	67.89	0.927	47.46	114.23
512.50	87.50	85.78	1.856	68.84	0.377	50.78	120.31
515.00	85.00	89.36	1.432	74.80	2.384	52.45	121.33
517.50	82.50	91.52	0.866	75.60	0.320	54.16	117.87
520.00	80.00	93.25	0.691	80.02	1.771	56.39	119.33
522.50	77.50	94.50	0.502	82.51	0.994	56.82	118.12
525.00	75.00	95.51	0.404	82.96	0.182	61.03	119.57
527.50	72.50	96.28	0.305	85.19	0.890	64.60	117.68
530.00	70.00	96.85	0.229	91.83	2.657	67.02	113.99
532.50	67.50	97.46	0.246	95.96	1.652	68.80	114.82
535.00	65.00	98.11	0.261	100.03	1.628	71.41	114.32
537.50	62.50	98.71	0.237	101.33	0.518	75.37	114.18
540.00	60.00	99.38	0.268	106.53	2.083	78.42	113.34
542.50	57.50	99.57	0.076	106.07	-0.187	80.30	118.19
545.00	55.00	99.44	-0.050	104.03	-0.815	81.12	113.58
547.50	52.50	99.40	-0.018	101.34	-1.075	81.38	111.95
550.00	50.00	98.87	-0.213	97.67	-1.466	78.82	111.02
552.50	47.50	97.92	-0.381	96.68	-0.397	76.43	108.38
555.00	45.00	96.35	-0.626	92.11	-1.830	74.13	108.03
557.50	42.50	94.84	-0.602	90.62	-0.595	72.19	108.61
560.00	40.00	92.91	-0.772	85.34	-2.111	69.95	107.83
562.50	37.50	90.90	-0.806	84.32	-0.409	67.98	108.38
565.00	35.00	88.48	-0.968	83.98	-0.136	63.39	105.56
567.50	32.50	86.15	-0.934	82.53	-0.580	58.47	106.43
570.00	30.00	83.63	-1.004	75.77	-2.705	55.75	101.79
572.50	27.50	81.10	-1.016	73.24	-1.010	49.82	99.46
575.00	25.00	78.31	-1.115	72.28	-0.385	48.23	96.93
577.50	22.50	75.61	-1.081	67.61	-1.867	44.78	96.58
580.00	20.00	73.27	-0.933	61.69	-2.371	43.03	91.42
582.50	17.50	70.78	-0.996	61.04	-0.260	42.37	90.32
585.00	15.00	68.35	-0.972	58.90	-0.855	38.92	89.96
587.50	12.50	65.95	-0.962	58.28	-0.248	35.51	84.54
590.00	10.00	63.75	-0.880	57.70	-0.233	32.94	82.60
592.50	7.50	61.36	-0.956	53.29	-1.762	32.40	80.99
595.00	5.00	58.97	-0.953	49.90	-1.356	29.28	80.02
597.50	2.50	54.59	-1.753	41.84	-3.225	20.34	74.78
600.00	0.00	28.28	-10.524	29.24	-5.040	15.30	34.99

EXPONENTIAL MEAN: TIME OF DEPOSITION = 292.5 Ma
EXPONENTIAL MEAN: TIME OF REBURIAL = 110.0 Ma

MINIMUM OBJ SOLUTION: TIME OF DEPOSITION = 292.5 Ma
MINIMUM OBJ SOLUTION: TIME OF REBURIAL = 112.5 Ma

SEARCH FOR MAXIMUM TEMPERATURE BETWEEN 285.00 - 115.00 MA

%RO MODEL: BASIN%RO

MODEL #	KIN POP# 1 CALCULATED AFT AGE (MA)	KIN POP# 2 CALCULATED AFT AGE (MA)	KIN POP# 3 CALCULATED AFT AGE (MA)	TIME OF MAXIMUM TEMP (MA)	MAXIMUM TEMP (DEG C)	KIN POP# 1 OBJECTIVE FUNCTION	KIN POP# 2 OBJECTIVE FUNCTION	KIN POP# 3 OBJECTIVE FUNCTION	%RO POST-DEP	%RO POST-EXH
1	49.51	132.67	259.99	180.00	137.19	0.168973	0.169320	0.195596	0.703	0.585
2	43.18	105.15	244.18	137.50	144.08	0.224774	0.134145	0.260190	0.727	0.584
3	57.32	128.20	228.18	185.00	141.63	0.228874	0.129763	0.264936	0.729	0.582
4	58.46	110.46	215.84	167.50	141.91	0.280092	0.150635	0.307550	0.745	0.571
5	42.00	104.45	231.42	180.00	144.65	0.267817	0.166610	0.310014	0.745	0.622
6	61.60	118.17	204.75	187.50	144.63	0.287661	0.163093	0.332985	0.754	0.597
7	56.19	125.42	213.91	195.00	145.90	0.281064	0.159352	0.325348	0.751	0.603
8	40.49	126.72	203.03	192.50	136.84	0.282541	0.162002	0.260780	0.727	0.581
9	46.51	111.85	240.51	150.00	143.76	0.213595	0.121100	0.247249	0.722	0.577
10	49.56	116.88	220.50	157.50	138.56	0.223191	0.108827	0.222191	0.713	0.575
11	57.67	109.34	214.19	197.50	140.87	0.246745	0.139895	0.285623	0.736	0.622
12	43.69	126.31	239.88	187.50	141.88	0.228302	0.144282	0.264274	0.728	0.579
13	41.30	125.63	249.60	160.00	141.13	0.261351	0.126072	0.211770	0.709	0.578
14	59.80	132.46	240.89	152.50	140.56	0.224600	0.167043	0.204217	0.706	0.575
15	48.75	104.74	215.98	157.50	145.13	0.244047	0.138587	0.282499	0.735	0.582
16	50.99	131.04	237.81	187.50	137.83	0.239628	0.151367	0.221225	0.712	0.577
17	41.72	128.30	206.36	195.00	135.26	0.250412	0.160983	0.219166	0.702	0.597
18	42.77	106.48	228.11	162.50	145.25	0.258560	0.146594	0.299299	0.741	0.578
19	55.65	132.29	236.35	195.00	140.01	0.207752	0.165116	0.239432	0.719	0.614
20	41.13	130.18	231.01	195.00	139.42	0.276962	0.167014	0.254602	0.725	0.578
21	45.62	129.98	230.45	195.00	135.72	0.189789	0.145397	0.215477	0.710	0.603
22	50.94	126.73	221.86	180.00	138.56	0.252927	0.139409	0.229279	0.715	0.617

23	45.61	128.40	195.61	202.50	146.38	0.296664	0.168400	0.343406	0.758	0.579
24	50.48	113.85	205.73	165.00	140.19	0.235674	0.133618	0.272807	0.732	0.576
25	52.10	131.35	213.66	185.00	135.98	0.194587	0.154817	0.232662	0.706	0.595
26	46.87	116.51	249.14	197.50	143.95	0.246209	0.139591	0.285002	0.736	0.614
27	54.22	132.37	238.79	210.00	143.98	0.284601	0.166098	0.329443	0.753	0.585
28	52.86	120.78	202.24	187.50	141.66	0.268390	0.152167	0.310678	0.746	0.581
29	61.46	127.45	223.02	180.00	140.32	0.268267	0.125108	0.255433	0.725	0.586
30	44.01	109.67	229.84	137.50	138.20	0.228780	0.112384	0.229453	0.715	0.586
31	55.89	124.78	261.93	145.00	135.10	0.223728	0.160120	0.200358	0.705	0.573
32	45.91	126.25	215.20	202.50	141.02	0.255599	0.119657	0.244302	0.721	0.598
33	55.90	116.50	220.60	180.00	142.08	0.251687	0.142697	0.291343	0.739	0.577
34	49.48	107.78	216.58	160.00	138.91	0.216886	0.122966	0.251058	0.724	0.581
35	57.88	118.65	235.96	165.00	143.61	0.259951	0.136348	0.278381	0.734	0.591
36	47.69	132.35	257.10	185.00	141.13	0.265535	0.165799	0.240638	0.720	0.610
37	57.62	103.46	219.52	132.50	145.88	0.241402	0.152779	0.279437	0.734	0.571
38	60.20	128.79	222.83	187.50	144.98	0.293656	0.166492	0.339924	0.757	0.572
39	48.87	129.99	209.88	210.00	135.51	0.188619	0.150273	0.221226	0.708	0.610
40	44.16	116.06	265.58	150.00	139.80	0.208221	0.118054	0.241029	0.720	0.591
41	61.00	123.81	234.94	182.50	145.54	0.264138	0.149756	0.305756	0.744	0.600
42	45.97	109.76	283.98	132.50	145.92	0.226658	0.128507	0.262371	0.728	0.586
43	53.10	119.52	248.15	167.50	141.31	0.221371	0.125509	0.256251	0.725	0.583
44	42.53	115.61	233.50	177.50	144.18	0.229072	0.153508	0.239634	0.719	0.616
45	49.66	102.76	220.05	150.00	138.74	0.214272	0.160490	0.248033	0.722	0.577
46	59.93	126.16	232.43	182.50	144.78	0.254544	0.144317	0.294651	0.740	0.575
47	43.07	123.58	228.65	185.00	145.83	0.241878	0.154176	0.272812	0.732	0.580
48	56.80	130.32	212.56	217.50	148.02	0.293073	0.166161	0.339250	0.756	0.614
49	55.95	118.52	235.23	162.50	140.10	0.210725	0.119473	0.243927	0.721	0.576
50	51.18	108.92	219.19	170.00	143.66	0.290035	0.164439	0.335734	0.755	0.576
51	51.82	127.14	222.29	182.50	141.21	0.218438	0.123846	0.252855	0.724	0.597
52	46.30	116.56	240.80	160.00	141.46	0.197370	0.111901	0.228468	0.715	0.577
53	48.27	114.45	222.24	167.50	142.72	0.235145	0.133318	0.272194	0.731	0.578
54	48.30	122.67	203.74	200.00	145.00	0.294873	0.167182	0.341333	0.757	0.607
55	50.13	120.52	215.07	205.00	147.40	0.291841	0.165463	0.337824	0.756	0.574
56	51.81	102.37	212.66	155.00	142.63	0.287680	0.164814	0.293058	0.739	0.572
57	53.43	106.77	229.09	142.50	139.32	0.300762	0.116267	0.235824	0.718	0.570
58	60.12	114.76	219.87	180.00	140.56	0.250607	0.142084	0.290093	0.738	0.575
59	60.00	118.65	237.14	137.50	145.45	0.266585	0.111349	0.227340	0.715	0.571
60	58.48	128.55	245.94	162.50	138.80	0.272836	0.123924	0.205127	0.706	0.571
61	48.65	117.17	230.32	185.00	138.81	0.231397	0.131193	0.267857	0.730	0.576
62	43.09	131.62	215.04	177.50	140.19	0.214225	0.157741	0.218810	0.708	0.583
63	40.18	125.30	235.76	177.50	139.72	0.290818	0.135360	0.239487	0.719	0.580
64	51.10	115.55	244.64	152.50	137.31	0.242299	0.133350	0.201649	0.705	0.576
65	43.32	132.28	234.01	205.00	142.90	0.260268	0.165007	0.301276	0.742	0.584
66	42.69	122.34	258.15	180.00	139.17	0.246058	0.161006	0.235229	0.718	0.617
67	55.90	123.67	259.42	167.50	139.17	0.205032	0.116246	0.237338	0.718	0.576
68	51.82	120.18	217.10	180.00	144.62	0.255251	0.144718	0.295469	0.740	0.590
69	43.79	113.49	199.87	185.00	142.88	0.265183	0.152746	0.306965	0.744	0.613
70	51.41	109.60	224.78	182.50	142.86	0.238096	0.158136	0.275611	0.733	0.627
71	53.12	125.86	245.95	177.50	141.69	0.224594	0.127336	0.259981	0.727	0.575
72	40.70	105.82	214.54	172.50	144.82	0.277005	0.142597	0.278763	0.734	0.612
73	52.41	107.66	207.46	190.00	145.97	0.281329	0.159503	0.325655	0.751	0.630
74	60.65	124.54	198.69	180.00	146.44	0.288605	0.163628	0.334077	0.754	0.582
75	60.44	124.86	228.32	197.50	142.51	0.241404	0.164545	0.259058	0.726	0.630
76	42.69	114.94	254.73	137.50	139.36	0.224879	0.109541	0.223648	0.713	0.581
77	47.51	105.89	224.81	152.50	138.52	0.217381	0.125962	0.239931	0.719	0.579
78	61.78	132.09	227.12	202.50	141.68	0.282924	0.163010	0.327502	0.752	0.576
79	44.16	117.34	231.81	200.00	142.04	0.245220	0.149472	0.283857	0.736	0.609
80	55.50	110.04	236.00	142.50	140.40	0.281395	0.115943	0.236719	0.718	0.571
81	57.14	132.64	213.69	207.50	146.27	0.280395	0.168969	0.324574	0.751	0.576
82	42.70	104.49	233.05	150.00	137.42	0.224641	0.141420	0.234591	0.717	0.596
83	50.89	116.67	243.72	167.50	145.19	0.274817	0.137633	0.281004	0.735	0.612
84	56.49	116.04	241.17	150.00	142.07	0.274414	0.120507	0.246038	0.722	0.572
85	40.16	119.09	223.21	190.00	143.27	0.291418	0.150800	0.307888	0.745	0.585
86	41.72	120.56	242.30	175.00	140.36	0.250343	0.116197	0.237238	0.718	0.577
87	52.43	112.24	220.74	155.00	140.58	0.280992	0.127611	0.260541	0.727	0.572
88	45.42	127.22	223.00	197.50	143.19	0.236795	0.140152	0.274105	0.732	0.607
89	54.09	118.63	252.80	137.50	141.92	0.275459	0.109935	0.223155	0.713	0.571
90	50.37	124.74	250.16	162.50	139.20	0.280288	0.118761	0.206432	0.707	0.572
91	57.50	113.25	256.98	137.50	142.01	0.239881	0.124556	0.254304	0.725	0.583
92	53.51	128.45	215.88	190.00	141.73	0.254288	0.126087	0.257431	0.726	0.595
93	40.75	123.61	228.84	172.50	137.77	0.275939	0.130393	0.229957	0.716	0.606
94	51.94	127.49	219.28	180.00	141.54	0.232545	0.120216	0.245444	0.721	0.589
95	53.31	115.27	223.02	192.50	150.62	0.282472	0.160151	0.326978	0.752	0.623
96	44.23	118.08	263.68	130.00	141.41	0.228332	0.155682	0.215937	0.710	0.576
97	48.31	106.12	215.86	172.50	142.88	0.289759	0.164282	0.335413	0.755	0.579
98	55.92	123.53	227.03	175.00	141.13	0.243324	0.137955	0.281662	0.735	0.578
99	51.10	126.32	227.38	165.00	138.73	0.186923	0.105978	0.216375	0.711	0.578
100	46.90	110.61	218.48	182.50	138.99	0.240968	0.148670	0.278936	0.734	0.576
101	48.57	116.64	224.61	155.00	138.52	0.191993	0.108853	0.222244	0.713	0.581
102	46.89	116.34	209.34	197.50	145.48	0.296575	0.168147	0.343304	0.758	0.580
103	49.78	129.27	228.20	195.00	142.33	0.262535	0.131843	0.246783	0.722	0.589
104	41.95	118.59	236.27	147.50	136.72	0.244180	0.167557	0.200531	0.705	0.589
105	40.26	132.42	257.40	187.50	140.78	0.288708	0.166572	0.250343	0.723	0.590
106	40.14	123.61	239.43	167.50	137.27	0.291858	0.120056	0.213392	0.709	0.586
107	50.73	122.30	237.31	175.00	139.43	0.237660	0.115871	0.236573	0.718	0.576
108	45.74	115.53	239.45	135.00	141.38	0.189505	0.107442	0.219363	0.712	0.579
109	51.69	128.04	247.79	180.00	137.99	0.286188	0.148322	0.207673	0.707	0.605
110	61.56	129.65	218.07	200.00	139.22	0.301013	0.136014	0.247080	0.722	0.619
111	61.25	124.09	242.23	177.50	145.95	0.285213	0.161705	0.330151	0.753	0.580
112	52.05	119.27	218.57	192.50	140.26	0.250866	0.131728	0.268948	0.730	0.614
113	60.52	128.71	230.67	185.00	142.05	0.255647	0.144942	0.295927	0.740	0.573
114	41.89	122.85	256.83	152.50	140.89	0.245826	0.140889	0.211507	0.709	0.580
115	54.87	109.20	204.54	195.00	141.19	0.280203	0.158864	0.324352	0.751	0.627
116	41.56	106.99	213.30	157.50	141.37	0.254485	0.125295	0.255814	0.725	0.587
117	51.14	110.54	215.29	172.50	139.55	0.225089	0.117184	0.239254	0.719	0.575
118	48.23	110.88	235.24	152.50	140.17	0.215667	0.122275	0.249648	0.723	0.579
119	48.42	112.59	227.99	182.50	143.87	0.268315	0.152124	0.310591	0.746	0.582
120	40.23	111.05	239.16	132.50	140.33	0.289600	0.110045	0.224678	0.714	0.581
121	53.89	108.02	248.91	145.00	138.24	0.212874	0.120691	0.246414	0.722	0.575
122	48.28	117.63	242.75	160.00	141.83	0.261161	0.111156	0.226946	0.715	0.574
123	55.85	126.56	250.24	185.00	148.59	0.292819	0.166017	0.338956	0.756	0.597
124	49.29	112.66	197.74	205.00	144.86	0.248896	0.148330	0.288112	0.737	0.619
125	41.09	125.33	232.50	182.50	143.18	0.266774	0.154975	0.274267	0.732	0.579
126	41.76	125.43	197.33	207.50	143.53	0.275987	0.159513	0.319472	0.749	0.584
127	43.32	114.37	231.46	187.50	145.47	0.280805	0.159206	0.325049	0.751	0.593
128	40.90	104.02	201.47	157.50	139.59	0.271949	0.146578	0.235883	0.714	0.612
129	53.27	131.45	244.55	190.00	144.01	0.295525	0.155919	0.268229	0.730	0.595
130	60.36	132.23	208.61	185.00	144.11	0.275427	0.164459	0.318823	0.749	0.587

131	60.09	102.79	212.47	180.00	142.25	0.294405	0.166917	0.340792	0.757	0.631
132	59.76	126.77	211.89	190.00	145.83	0.280724	0.159160	0.324955	0.751	0.582
133	46.94	119.87	227.03	192.50	144.10	0.288755	0.163713	0.334251	0.754	0.605
134	58.29	111.92	205.56	180.00	145.41	0.259923	0.147366	0.300876	0.742	0.622
135	40.96	123.93	218.71	192.50	145.39	0.294223	0.166813	0.340581	0.757	0.600
136	49.09	125.73	234.49	187.50	144.38	0.256061	0.145177	0.296407	0.740	0.586
137	58.91	129.87	254.77	170.00	142.66	0.291110	0.138476	0.244785	0.721	0.571
138	61.56	126.97	217.84	182.50	141.28	0.270808	0.124765	0.254732	0.725	0.610
139	41.60	112.68	218.52	177.50	149.21	0.296469	0.168087	0.343181	0.758	0.588
140	41.93	103.57	225.22	175.00	141.01	0.244814	0.151486	0.281366	0.735	0.616
141	40.99	116.98	228.12	170.00	141.63	0.269469	0.127019	0.259333	0.727	0.581
142	43.54	131.37	250.29	175.00	139.23	0.216091	0.155040	0.240890	0.720	0.599
143	41.19	124.67	229.11	185.00	138.46	0.280512	0.145431	0.241407	0.720	0.577
144	40.35	124.48	246.82	172.50	144.22	0.286440	0.142030	0.259655	0.727	0.579
145	55.52	123.95	210.25	197.50	143.85	0.272721	0.154623	0.315692	0.748	0.588
146	43.00	128.18	213.80	197.50	143.29	0.257215	0.145831	0.297742	0.741	0.601
147	48.45	128.14	215.52	200.00	140.82	0.237169	0.134466	0.274538	0.732	0.581
148	42.37	121.15	233.22	192.50	142.23	0.240788	0.136518	0.278727	0.734	0.599
149	60.03	110.45	225.99	172.50	139.62	0.243040	0.167927	0.225741	0.714	0.633
150	40.62	131.50	249.35	192.50	139.73	0.279140	0.156504	0.262183	0.728	0.579
151	52.36	113.57	206.62	180.00	139.42	0.228454	0.136944	0.237259	0.718	0.618
152	59.58	127.94	248.99	192.50	145.21	0.249243	0.141311	0.288514	0.737	0.622
153	40.02	129.92	215.01	175.00	136.73	0.294986	0.142100	0.202098	0.705	0.595
154	52.82	102.19	224.71	175.00	143.35	0.252083	0.166749	0.291801	0.739	0.625
155	59.97	116.27	235.45	150.00	134.89	0.228924	0.145272	0.197773	0.704	0.572
156	47.66	124.79	228.67	177.50	142.62	0.230637	0.130762	0.266977	0.729	0.593
157	45.50	116.73	214.46	195.00	141.63	0.214052	0.167482	0.247778	0.722	0.621
158	56.87	127.77	213.97	205.00	145.11	0.280993	0.159312	0.325266	0.751	0.584
159	52.36	109.42	209.13	190.00	140.15	0.203014	0.168819	0.235001	0.718	0.623
160	45.06	131.38	243.56	195.00	141.74	0.229212	0.155081	0.265327	0.729	0.584
161	53.26	131.99	216.44	197.50	138.10	0.199564	0.161854	0.231008	0.716	0.611
162	41.73	117.59	232.63	202.50	146.00	0.296760	0.170121	0.343518	0.758	0.612
163	56.59	118.55	228.74	177.50	144.09	0.294727	0.154504	0.315449	0.747	0.572
164	55.48	130.69	223.75	210.00	141.90	0.293710	0.166522	0.339987	0.757	0.593
165	45.13	129.45	219.62	195.00	139.98	0.222225	0.133837	0.257239	0.726	0.592
166	53.49	131.14	213.25	215.00	139.46	0.276764	0.152432	0.276660	0.733	0.602
167	59.13	108.88	189.11	170.00	141.68	0.274249	0.147898	0.301962	0.742	0.588
168	45.63	118.85	207.02	202.50	144.90	0.294560	0.167004	0.340971	0.757	0.617
169	51.70	131.98	210.99	202.50	146.02	0.277894	0.161760	0.321679	0.750	0.588
170	49.10	118.42	219.92	165.00	138.07	0.191572	0.108614	0.221756	0.713	0.582
171	61.52	120.21	242.78	165.00	139.49	0.269666	0.112582	0.229858	0.716	0.568
172	52.66	127.40	224.63	192.50	139.60	0.252725	0.119498	0.243978	0.721	0.587
173	60.73	119.90	240.73	177.50	144.48	0.253264	0.143591	0.293168	0.739	0.585
174	48.33	124.73	240.05	195.00	144.88	0.270735	0.153497	0.313393	0.747	0.592
175	48.60	128.72	236.89	195.00	143.79	0.234571	0.132993	0.271531	0.731	0.583
176	44.23	113.84	222.51	167.50	141.11	0.224850	0.127481	0.260278	0.727	0.580
177	46.20	127.89	230.67	165.00	138.14	0.207016	0.117432	0.204774	0.706	0.577
178	43.39	119.49	215.73	177.50	138.56	0.211491	0.119836	0.244669	0.721	0.604
179	52.75	118.50	226.29	175.00	137.39	0.234815	0.113856	0.232460	0.717	0.587
180	44.64	123.61	198.15	192.50	143.01	0.280495	0.159030	0.324690	0.751	0.589
181	56.85	127.63	217.26	190.00	144.15	0.268304	0.152118	0.310579	0.746	0.588
182	41.06	127.55	231.27	182.50	138.55	0.267591	0.116562	0.237984	0.719	0.592
183	43.58	129.07	214.17	190.00	145.52	0.221661	0.129617	0.256586	0.726	0.580
184	60.82	129.91	245.31	185.00	141.28	0.251337	0.138963	0.220165	0.712	0.613
185	57.59	113.43	223.44	172.50	146.55	0.252792	0.143323	0.292622	0.739	0.572
186	44.58	123.18	207.04	177.50	140.96	0.210524	0.119359	0.243694	0.721	0.579
187	46.58	117.02	258.65	145.00	137.33	0.180930	0.128528	0.209437	0.708	0.582
188	56.81	125.29	228.44	185.00	146.38	0.299964	0.170068	0.347227	0.759	0.574
189	57.60	130.94	243.27	195.00	142.17	0.294361	0.150307	0.226500	0.714	0.615
190	55.41	116.84	236.75	175.00	143.43	0.277305	0.125397	0.251158	0.724	0.618
191	53.55	124.91	243.51	162.50	137.49	0.290465	0.127912	0.204172	0.706	0.593
192	42.20	111.52	199.78	157.50	134.67	0.237703	0.117199	0.243854	0.708	0.590
193	55.04	113.88	202.65	170.00	143.74	0.277858	0.157535	0.321638	0.750	0.602
194	56.14	127.00	235.12	182.50	140.75	0.217406	0.123261	0.251661	0.724	0.574
195	43.75	118.80	209.32	177.50	141.24	0.230471	0.130668	0.266784	0.729	0.579
196	48.07	107.92	209.28	157.50	146.96	0.300395	0.170313	0.347726	0.760	0.586
197	43.78	123.07	272.15	150.00	136.38	0.209924	0.154183	0.204658	0.706	0.577
198	54.95	112.06	242.75	152.50	140.34	0.260998	0.120183	0.245376	0.721	0.571
199	53.07	128.73	237.50	200.00	138.96	0.200417	0.155131	0.228745	0.715	0.620
200	43.25	130.41	244.43	187.50	139.88	0.210077	0.144388	0.231139	0.716	0.593
201	61.54	118.11	210.47	177.50	147.25	0.296509	0.168109	0.343227	0.758	0.574
202	48.60	129.06	272.26	195.00	148.16	0.233789	0.132550	0.270625	0.731	0.582
203	46.62	130.99	237.97	202.50	141.42	0.195683	0.150863	0.226515	0.714	0.608
204	43.78	120.50	201.70	207.50	142.43	0.256701	0.169400	0.297147	0.741	0.612
205	45.42	120.51	214.18	190.00	137.65	0.194451	0.158594	0.225089	0.714	0.617
206	54.93	121.78	244.60	177.50	142.25	0.241596	0.136975	0.279662	0.734	0.615
207	56.22	121.23	217.47	207.50	144.08	0.275038	0.164910	0.318373	0.749	0.629
208	62.04	115.97	221.12	185.00	143.74	0.284130	0.161091	0.328898	0.753	0.628
209	48.40	106.80	224.52	165.00	144.92	0.256397	0.145368	0.296796	0.741	0.575
210	39.97	101.96	201.26	165.00	144.29	0.296347	0.169256	0.338778	0.756	0.587
211	45.05	104.98	201.21	185.00	140.63	0.240877	0.154938	0.278829	0.734	0.619
212	54.83	127.56	230.41	185.00	138.89	0.210726	0.119474	0.243928	0.721	0.610
213	44.00	121.17	241.49	172.50	137.67	0.219843	0.119754	0.210252	0.708	0.577
214	59.31	118.85	209.32	187.50	142.72	0.250840	0.142216	0.290362	0.738	0.573
215	49.02	123.92	209.96	205.00	141.54	0.276024	0.156495	0.319515	0.749	0.608
216	42.86	121.10	226.96	192.50	146.26	0.281274	0.159472	0.325592	0.751	0.592
217	46.05	120.94	271.70	160.00	139.88	0.190295	0.114969	0.220278	0.712	0.584
218	41.32	109.28	244.19	147.50	139.69	0.260724	0.118778	0.242509	0.720	0.587
219	53.65	115.30	212.41	192.50	144.05	0.285818	0.162048	0.330851	0.753	0.626
220	60.13	125.69	228.96	202.50	143.41	0.233181	0.146701	0.246143	0.722	0.622
221	50.73	127.20	225.99	200.00	140.87	0.230583	0.130732	0.266913	0.729	0.580
222	48.80	122.27	216.10	182.50	138.02	0.267648	0.129471	0.238742	0.719	0.574
223	42.95	113.89	210.50	182.50	143.53	0.275151	0.156000	0.318504	0.749	0.590
224	45.13	123.08	206.61	187.50	141.04	0.231381	0.131184	0.267837	0.730	0.604
225	45.89	123.97	243.67	180.00	139.37	0.268899	0.115240	0.235285	0.718	0.592
226	46.26	129.44	230.12	190.00	142.29	0.227424	0.133703	0.263257	0.728	0.586
227	53.97	122.10	267.17	145.00	139.07	0.217369	0.107782	0.220057	0.712	0.575
228	54.81	120.24	224.68	175.00	140.67	0.225150	0.127652	0.260625	0.727	0.604
229	51.65	125.18	224.22	187.50	144.26	0.241302	0.140797	0.279322	0.734	0.576
230	54.59	115.69	228.67	197.50	144.79	0.299491	0.169800	0.346679	0.759	0.624
231	53.94	132.77	222.93	185.00	136.79	0.194693	0.170405	0.225369	0.714	0.583
232	53.62	121.58	235.40	185.00	141.06	0.249272	0.141328	0.288547	0.737	0.586
233	58.92	130.10	212.44	185.00	142.40	0.298386	0.141021	0.283952	0.736	0.598
234	54.59	131.73	217.85	207.50	144.81	0.290827	0.158935	0.302487	0.743	0.591
235	42.22	115.53	192.83	172.50	139.40	0.237127	0.126168	0.276556	0.726	0.599
236	40.80	125.35	234.00	175.00	140.48	0.274578	0.132970	0.218083	0.711	0.577
237	59.61	126.39	218.73	175.00	137.17	0.219679	0.108207	0.220925	0.712	0.577
238	58.57	126.83	206.60	197.50	144.19	0.228547	0.129577	0.264557	0.729	0.575

239	51.43	117.36	234.13	187.50	144.66	0.256332	0.145330	0.296720	0.741	0.615
240	47.36	128.45	223.62	175.00	140.63	0.200762	0.122799	0.228861	0.715	0.578
241	52.99	103.11	232.71	162.50	142.78	0.234607	0.156613	0.270395	0.731	0.629
242	45.50	113.24	222.13	187.50	139.82	0.223155	0.135913	0.258316	0.726	0.612
243	59.50	111.29	229.48	190.00	143.47	0.249914	0.144878	0.289290	0.738	0.630
244	52.69	118.60	202.73	202.50	142.95	0.299182	0.169625	0.346321	0.759	0.620
245	62.43	131.23	247.45	200.00	147.33	0.293713	0.159081	0.324794	0.751	0.577
246	62.24	119.50	200.30	195.00	145.54	0.288685	0.157225	0.321005	0.750	0.613
247	50.47	110.70	245.69	182.50	142.00	0.260375	0.147623	0.301400	0.742	0.580
248	50.36	112.10	226.78	147.50	141.22	0.204488	0.115937	0.236707	0.718	0.581
249	59.31	128.92	230.03	207.50	143.27	0.272851	0.144672	0.255701	0.725	0.618
250	61.13	122.30	224.31	172.50	143.47	0.293692	0.166512	0.339967	0.757	0.572
251	45.21	123.25	239.68	180.00	141.69	0.224874	0.127495	0.260305	0.727	0.581
252	48.57	118.81	252.85	137.50	138.45	0.217187	0.139558	0.207634	0.707	0.575
253	59.61	127.32	246.68	185.00	146.14	0.270399	0.153306	0.313003	0.747	0.576
254	42.18	107.87	191.99	177.50	143.86	0.265369	0.150454	0.307181	0.744	0.581
255	52.05	113.53	248.02	150.00	146.34	0.238992	0.135499	0.276648	0.733	0.574
256	48.14	102.73	216.09	160.00	144.50	0.283217	0.160811	0.327841	0.752	0.578
257	47.86	115.74	222.13	152.50	139.18	0.196897	0.111633	0.227920	0.715	0.584
258	60.19	129.95	225.14	187.50	137.01	0.278786	0.139355	0.208012	0.707	0.603
259	62.32	123.29	223.96	180.00	144.14	0.290850	0.149669	0.305578	0.744	0.573
260	50.26	114.06	194.47	182.50	142.55	0.286501	0.162343	0.331454	0.753	0.620
261	42.29	120.80	221.84	200.00	143.50	0.235483	0.147746	0.267251	0.730	0.582
262	54.84	115.31	225.79	165.00	141.98	0.236908	0.134318	0.274236	0.732	0.578
263	42.95	116.82	220.12	185.00	143.18	0.261983	0.160450	0.276886	0.733	0.576
264	44.52	124.30	232.60	165.00	136.61	0.180466	0.120896	0.205402	0.707	0.580
265	40.54	129.58	228.11	175.00	145.84	0.281242	0.135325	0.267406	0.730	0.590
266	55.68	113.61	210.32	167.50	141.29	0.292336	0.113468	0.231666	0.716	0.571
267	41.70	105.94	234.98	172.50	148.11	0.256855	0.145627	0.297326	0.741	0.602
268	53.77	104.05	197.66	172.50	141.09	0.297815	0.156329	0.319176	0.749	0.571
269	43.81	120.89	235.79	190.00	141.03	0.246217	0.139596	0.285011	0.736	0.587
270	40.28	127.73	252.54	175.00	138.08	0.288263	0.148732	0.211188	0.709	0.596
271	52.62	128.14	228.53	197.50	141.55	0.224622	0.135803	0.260013	0.727	0.620
272	40.77	128.52	238.43	170.00	140.59	0.275334	0.126512	0.211808	0.709	0.583
273	57.90	124.99	219.78	200.00	141.40	0.231538	0.131273	0.268019	0.730	0.620
274	41.44	120.36	222.34	195.00	142.05	0.257826	0.128243	0.261832	0.728	0.583
275	43.11	106.59	236.55	160.00	146.22	0.270453	0.153337	0.313066	0.747	0.576
276	45.10	115.66	217.68	177.50	144.14	0.277747	0.157472	0.321509	0.750	0.601
277	50.36	129.27	214.09	182.50	138.34	0.275205	0.131890	0.251372	0.724	0.577
278	58.25	126.54	234.48	190.00	136.38	0.285302	0.158273	0.209880	0.708	0.617
279	52.65	124.67	235.15	177.50	141.60	0.225689	0.127957	0.261249	0.727	0.601
280	50.69	118.14	243.70	155.00	134.81	0.196961	0.155216	0.197450	0.704	0.575
281	41.71	128.62	234.55	180.00	138.78	0.250605	0.124732	0.224694	0.714	0.583
282	43.38	116.17	246.07	180.00	141.84	0.213326	0.168577	0.246938	0.722	0.621
283	51.81	120.24	200.32	190.00	146.30	0.288920	0.163806	0.334442	0.755	0.592
284	51.39	128.70	220.09	187.50	145.15	0.301390	0.134327	0.274254	0.732	0.593
285	53.15	104.76	249.99	165.00	145.62	0.264446	0.149931	0.306112	0.744	0.583
286	53.74	132.19	249.21	195.00	141.33	0.254426	0.164076	0.261383	0.727	0.605
287	58.23	123.73	258.41	132.50	142.69	0.276288	0.165290	0.208676	0.708	0.570
288	46.74	124.59	239.41	165.00	138.53	0.183537	0.110653	0.212455	0.709	0.583
289	60.00	126.68	211.50	177.50	141.85	0.286620	0.122379	0.249859	0.723	0.572
290	53.38	118.11	227.86	157.50	140.18	0.276158	0.104560	0.213479	0.710	0.572
291	57.04	132.63	214.39	202.50	143.60	0.274048	0.168903	0.317227	0.748	0.585
292	41.47	119.90	244.97	162.50	141.54	0.256849	0.120820	0.246676	0.722	0.597
293	40.94	103.92	219.12	152.50	138.82	0.270929	0.147682	0.234070	0.717	0.582
294	54.40	131.65	224.42	202.50	137.39	0.202981	0.158123	0.234963	0.718	0.594
295	43.38	107.46	227.08	162.50	141.53	0.284539	0.129466	0.264330	0.728	0.575
296	43.26	105.44	232.30	150.00	144.73	0.243034	0.137791	0.281326	0.735	0.577
297	60.52	121.31	222.81	170.00	138.71	0.293198	0.107142	0.218750	0.711	0.570
298	40.17	120.69	293.60	135.00	143.39	0.291019	0.113795	0.232335	0.717	0.581
299	46.39	120.27	251.10	145.00	140.21	0.283091	0.136282	0.212369	0.709	0.596
300	45.71	121.74	223.94	200.00	140.84	0.261389	0.142665	0.291277	0.738	0.610

AFT KINETIC POPULATION # 1

MAXIMUM OBJECTIVE FUNCTION = 0.301390

EXPONENTIAL MEAN TEMPERATURE SOLUTION:
OBSERVED AFT AGE = 51.3 MA CALCULATED AFT AGE = 51.2 MA
MODEL RETENTION AGE = 137.5 MA OBJ FUNCTION = 0.172667
TRACK ANNEALING TIME = 35.0 MA ANNEALING TEMPERATURE = 89.69 DEG C

TRACK LENGTH OBJ FUNCTION = 0.159499 AGE OBJ FUNCTION = 0.000453
LENGTH GOF PROBABILITY = 0.6804
AGE GOF PROBABILITY = 0.9976
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.172667 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.043422

%RO GOF PROBABILITY (POST-DEPOSITION) = 0.2521
%RO GOF PROBABILITY (POST-EXHUMATION) = 0.7733

LOWEST COMBINED OBJECTIVE FUNCTION

MINIMUM OBJECTIVE SOLUTION (SOLUTION # 43):
CALCULATED AFT AGE = 53.1 MA MODEL RETENTION AGE = 145.0 MA
OBJ FUNCTION = 0.221371
TRACK ANNEALING TIME = 52.5 MA ANNEALING TEMPERATURE = 102.68 DEG C

TRACK LENGTH OBJ FUNCTION = 0.203778 AGE OBJ FUNCTION = 0.048500
LENGTH GOF PROBABILITY = 0.3686
AGE GOF PROBABILITY = 0.7477
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.221371 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.033841

%RO GOF PROBABILITY (POST-DEPOSITION) = 0.0951
%RO GOF PROBABILITY (POST-EXHUMATION) = 0.8887

AVE AFT AGE = 50.2 MA

AFT KINETIC POPULATION # 2

MAXIMUM OBJECTIVE FUNCTION = 0.170405

EXPONENTIAL MEAN TEMPERATURE SOLUTION:
OBSERVED AFT AGE = 117.3 MA CALCULATED AFT AGE = 117.1 MA
MODEL RETENTION AGE = 368.1 MA OBJ FUNCTION = 0.128073
TRACK ANNEALING TIME = 168.1 MA ANNEALING TEMPERATURE = 125.76 DEG C

TRACK LENGTH OBJ FUNCTION = 0.128073 AGE OBJ FUNCTION = 0.002298
LENGTH GOF PROBABILITY = 0.2518
AGE GOF PROBABILITY = 0.9785
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.097895 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.024619

LOWEST COMBINED OBJECTIVE FUNCTION

MINIMUM OBJECTIVE SOLUTION (SOLUTION # 43):
CALCULATED AFT AGE = 119.5 MA MODEL RETENTION AGE = 429.6 MA
OBJ FUNCTION = 0.125509
TRACK ANNEALING TIME = 422.1 MA ANNEALING TEMPERATURE = 152.83 DEG C

TRACK LENGTH OBJ FUNCTION = 0.057536 AGE OBJ FUNCTION = 0.024324
LENGTH GOF PROBABILITY = 0.9851
AGE GOF PROBABILITY = 0.7760
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.125509 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.019186

AVE AFT AGE = 120.3 MA

AFT KINETIC POPULATION # 3

MAXIMUM OBJECTIVE FUNCTION = 0.347726

EXPONENTIAL MEAN TEMPERATURE SOLUTION:
OBSERVED AFT AGE = 251.6 MA CALCULATED AFT AGE = 199.5 MA
MODEL RETENTION AGE = 504.8 MA OBJ FUNCTION = 0.244979
TRACK ANNEALING TIME = 447.3 MA ANNEALING TEMPERATURE = 227.74 DEG C

TRACK LENGTH OBJ FUNCTION = 0.205617 AGE OBJ FUNCTION = 0.244979
LENGTH GOF PROBABILITY = 0.5440
AGE GOF PROBABILITY = 0.1604
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.199872 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.050264

LOWEST COMBINED OBJECTIVE FUNCTION

MINIMUM OBJECTIVE SOLUTION (SOLUTION # 43):
CALCULATED AFT AGE = 248.1 MA MODEL RETENTION AGE = 543.7 MA
OBJ FUNCTION = 0.256251
TRACK ANNEALING TIME = 488.7 MA ANNEALING TEMPERATURE = 218.99 DEG C

TRACK LENGTH OBJ FUNCTION = 0.142431 AGE OBJ FUNCTION = 0.016265
LENGTH GOF PROBABILITY = 0.9185
AGE GOF PROBABILITY = 0.9257
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.256251 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.039173

AVE AFT AGE = 227.9 MA

RETENTION AGES FOR ALL THERMAL SOLUTIONS:

	KINETIC POPULATION# 1			KINETIC POPULATION# 2			KINETIC POPULATION# 3		
MODEL #	RET AGE Ma	ANNEAL TIME Ma	ANNEAL TEMP DEG C	RET AGE Ma	ANNEAL TIME Ma	ANNEAL TEMP DEG C	RET AGE Ma	ANNEAL TIME Ma	ANNEAL TEMP DEG C
1	142.5	15.0	70.76	456.5	434.0	139.65	548.2	518.2	233.49
2	125.0	122.5	116.51	441.2	441.2	170.62	520.5	480.5	223.40
3	162.5	47.5	93.98	421.7	189.2	139.96	519.0	474.0	220.81
4	145.0	47.5	96.81	411.2	163.7	138.31	536.7	506.7	235.24
5	57.5	45.0	103.29	439.5	177.0	140.38	509.4	481.9	242.01
6	150.0	70.0	104.12	388.0	183.0	143.16	459.8	434.8	238.11
7	165.0	57.5	92.82	392.7	192.7	145.54	490.0	467.5	243.48
8	172.5	25.0	91.72	394.3	191.8	136.30	487.6	457.6	238.98
9	132.5	45.0	103.35	414.7	409.7	155.96	515.2	442.7	210.23
10	135.0	40.0	99.72	376.2	376.2	167.54	446.2	406.2	227.78
11	80.0	65.0	104.31	408.4	190.9	138.82	511.9	476.9	233.62
12	162.5	35.0	101.29	422.6	412.6	145.38	500.2	475.2	236.67
13	137.5	15.0	79.20	388.8	388.8	167.83	490.0	457.5	237.13
14	140.0	52.5	101.35	401.3	398.8	162.33	492.5	452.5	225.42
15	132.5	60.0	101.71	368.4	365.9	162.63	484.2	459.2	236.35
16	162.5	40.0	102.99	405.6	185.6	137.37	466.9	444.4	237.40
17	165.0	52.5	103.94	362.5	357.5	161.83	468.4	423.4	224.81
18	142.5	32.5	99.17	455.6	163.1	142.44	561.5	529.0	235.66
19	82.5	45.0	84.28	414.5	394.5	142.24	481.8	464.3	243.87
20	172.5	30.0	103.11	398.5	391.0	144.58	477.3	447.3	233.34
21	150.0	32.5	85.36	411.7	181.7	126.12	512.6	492.6	240.12
22	75.0	55.0	100.33	402.5	177.5	138.49	513.8	431.2	207.38
23	179.4	46.9	103.72	367.1	182.1	120.68	483.4	413.4	208.36
24	140.0	30.0	91.70	388.4	378.4	148.04	520.8	480.8	227.13
25	155.0	52.5	97.54	345.0	345.0	170.09	438.9	388.9	226.05
26	75.0	42.5	94.70	448.1	190.6	139.04	537.5	505.0	230.95
27	175.0	52.5	103.16	446.2	446.2	169.42	515.0	482.5	231.40
28	160.0	57.5	102.17	353.1	180.6	139.20	483.7	458.7	235.87
29	155.0	65.0	98.85	355.0	352.5	161.95	441.4	401.4	219.58
30	127.5	52.5	101.01	410.6	158.1	123.32	535.0	490.0	234.75
31	132.5	130.0	123.20	463.2	450.7	147.60	506.2	488.7	240.62
32	160.0	50.0	103.79	402.5	400.0	157.45	459.5	439.5	240.89
33	150.0	37.5	86.56	403.7	188.7	133.02	501.2	466.2	233.13
34	135.0	50.0	104.59	382.5	382.5	175.95	463.0	428.0	232.41
35	147.0	67.0	105.56	423.7	413.7	146.67	531.9	506.9	236.01
36	142.5	20.0	61.63	405.0	405.0	177.34	454.4	431.9	243.90
37	125.0	122.5	118.40	401.3	386.3	142.56	528.3	503.3	237.86
38	167.5	160.0	104.98	416.7	186.7	142.99	521.0	478.5	221.95
39	82.5	35.0	81.67	360.3	215.3	130.52	441.1	401.1	227.68
40	135.0	47.5	102.17	453.1	448.1	158.27	558.6	536.1	239.40
41	160.0	67.5	101.09	422.1	182.1	142.18	534.5	474.5	215.50
42	125.0	40.0	95.95	504.8	499.8	146.57	585.7	563.2	238.05
43	145.0	52.5	102.68	429.6	422.1	152.83	543.7	488.7	218.99
44	65.0	42.5	96.35	417.2	407.2	140.30	503.8	476.3	237.63
45	125.0	37.5	94.26	436.5	146.5	136.88	533.5	503.5	236.75
46	165.0	85.0	79.99	410.0	185.0	134.51	526.3	481.3	225.63
47	160.0	45.0	105.49	410.6	178.1	137.18	510.6	490.6	240.31
48	82.5	52.5	90.28	395.4	232.9	130.47	484.0	461.5	235.48
49	144.2	54.2	104.10	409.8	402.3	155.24	556.5	514.0	226.16
50	140.0	37.5	96.72	435.0	412.5	136.15	515.1	482.6	224.59
51	162.5	60.0	104.41	383.7	178.8	138.07	458.3	430.8	239.10

52	137.5	37.5	101.05	417.3	167.3	127.86	509.0	486.5	237.21
53	147.5	52.5	93.79	398.7	398.7	167.44	456.2	441.2	249.56
54	155.0	40.0	90.55	370.3	192.8	141.14	461.2	428.7	225.98
55	162.5	27.5	92.99	415.7	205.7	146.04	530.4	487.9	232.25
56	135.0	47.5	101.36	367.4	362.4	148.61	444.4	401.9	223.07
57	125.0	42.5	99.00	421.6	416.6	155.28	526.7	489.2	229.39
58	150.0	57.5	103.93	402.5	177.5	140.51	494.1	451.6	227.20
59	132.5	132.5	133.42	390.5	388.0	163.27	445.8	428.3	243.76
60	142.5	50.0	102.59	404.2	396.7	143.04	508.3	478.3	227.07
61	152.5	37.5	98.85	429.8	192.3	137.56	539.9	519.9	240.85
62	162.5	35.0	97.09	362.5	357.5	159.16	431.7	411.7	245.88
63	160.0	37.5	101.22	479.7	187.2	133.10	600.0	600.0	249.90
64	130.0	122.5	101.87	418.5	151.0	134.72	520.2	487.7	225.76
65	177.5	42.5	104.67	406.9	196.9	131.89	500.4	472.9	232.70
66	67.5	30.0	80.85	454.9	407.4	118.16	541.0	491.0	227.60
67	145.0	42.5	95.79	487.5	167.5	136.16	563.5	531.0	225.00
68	155.0	57.5	106.78	395.6	393.1	158.91	470.4	412.9	221.95
69	65.0	20.0	64.95	379.0	366.5	143.34	474.8	444.8	230.87
70	72.5	50.0	92.28	412.0	164.5	118.73	531.9	499.4	235.59
71	155.0	50.0	102.81	453.1	435.6	132.47	538.2	475.7	204.32
72	70.0	30.0	86.05	383.7	383.7	166.76	455.9	410.9	224.18
73	77.5	67.5	104.35	366.2	351.2	139.55	421.0	401.0	246.89
74	158.8	63.8	97.57	352.0	182.0	146.19	444.4	391.9	217.77
75	80.0	65.0	97.93	403.3	398.3	157.32	492.9	437.9	229.57
76	130.0	42.5	100.90	449.0	141.5	137.30	555.6	515.6	210.41
77	127.5	47.5	98.31	416.0	398.5	147.12	477.9	450.4	240.28
78	172.5	47.5	100.03	397.5	370.0	103.22	489.8	464.8	237.61
79	85.0	30.0	80.05	405.0	190.0	135.34	533.2	500.7	234.26
80	130.0	50.0	101.55	405.6	400.6	160.37	485.9	458.4	240.01
81	177.5	42.5	101.87	404.4	399.4	152.16	492.8	465.3	235.55
82	127.5	47.5	98.60	432.1	139.6	133.71	530.4	500.4	233.12
83	82.5	32.5	74.47	456.2	436.2	140.15	590.1	560.1	227.71
84	132.5	40.0	95.46	410.4	147.9	141.92	531.1	488.6	232.24
85	162.5	37.5	103.46	441.8	406.8	124.56	507.5	477.5	240.23
86	145.0	12.5	83.09	480.8	428.3	126.26	590.6	555.6	222.99
87	135.0	37.5	93.87	399.1	156.6	140.14	512.0	477.0	235.09
88	145.0	22.5	75.22	408.8	408.8	170.18	455.0	437.5	247.62
89	130.0	130.0	131.77	463.2	453.2	145.30	510.3	482.8	238.04
90	140.0	37.5	97.73	421.5	421.5	172.15	482.1	462.1	236.78
91	131.2	131.2	125.18	460.8	458.3	164.87	562.7	540.2	236.05
92	155.0	47.5	89.60	390.0	387.5	163.81	463.2	415.7	223.31
93	145.0	22.5	80.37	381.9	379.4	156.65	440.5	410.5	235.83
94	157.5	52.5	104.26	385.2	182.7	139.65	478.7	436.2	228.59
95	75.0	60.0	103.94	388.8	193.7	148.75	503.2	485.7	242.00
96	122.5	40.0	103.49	435.9	425.9	147.39	519.7	477.2	222.98
97	142.5	60.0	95.33	403.7	403.7	168.52	502.1	462.1	232.88
98	157.5	52.5	101.95	410.0	407.5	166.77	490.1	470.1	242.76
99	150.6	48.1	105.91	377.2	369.7	141.02	427.5	400.0	242.89
100	150.0	40.0	104.39	431.2	416.2	142.34	515.6	490.6	239.68
101	135.0	32.5	89.74	429.0	156.5	137.05	539.6	517.1	240.09
102	157.5	42.5	103.04	377.4	197.4	143.05	441.7	406.7	226.67
103	162.5	47.5	109.46	397.7	390.2	152.15	507.5	470.0	234.79
104	132.5	62.5	97.17	413.7	138.7	128.33	512.0	477.0	230.03
105	167.5	45.0	104.43	446.8	431.8	147.60	510.2	482.7	240.28
106	142.5	37.5	101.84	414.1	406.6	153.28	492.4	464.9	215.96
107	152.5	42.5	101.72	430.0	382.5	132.46	496.6	479.1	245.43
108	127.5	45.0	103.40	392.5	377.5	142.38	485.3	462.8	241.44
109	147.5	45.0	87.97	410.0	407.5	164.34	490.3	447.8	232.69
110	82.5	55.0	89.59	360.6	358.1	158.92	408.4	385.9	238.17
111	160.0	147.5	89.42	443.0	170.5	139.80	534.6	512.1	239.92
112	77.5	47.5	93.50	400.0	387.5	141.94	524.9	504.9	241.69
113	167.5	65.0	93.72	411.5	191.5	136.80	498.4	468.4	234.29
114	132.5	35.0	106.11	452.7	432.7	143.44	543.5	513.5	239.22
115	77.5	52.5	93.55	374.0	356.5	144.04	478.4	458.4	241.67
116	132.5	37.5	96.99	410.6	155.6	141.11	486.5	464.0	238.90
117	140.0	45.0	103.35	405.2	382.7	139.04	509.4	484.4	239.19
118	132.5	42.5	103.01	430.9	408.4	142.04	558.6	516.1	232.73
119	145.0	45.0	96.49	450.0	162.5	129.65	580.6	530.6	230.81
120	125.0	122.5	116.74	407.5	392.5	135.18	511.2	468.7	226.86
121	127.5	52.5	102.14	468.7	441.2	139.06	595.0	560.0	234.00
122	137.5	52.5	92.38	429.5	164.5	134.32	508.1	485.6	241.59
123	160.0	50.0	90.35	437.3	187.3	148.43	495.5	465.5	236.56
124	82.5	55.0	98.65	354.6	354.6	167.66	419.6	382.1	224.75
125	165.0	32.5	103.70	426.2	426.2	168.00	523.8	496.3	234.29
126	170.0	32.5	98.40	347.5	347.5	170.59	455.4	402.9	221.45
127	155.0	52.5	108.75	424.2	416.8	150.78	504.8	487.3	242.87
128	70.0	32.5	84.99	353.5	348.5	153.89	424.4	399.4	235.35
129	162.5	62.5	106.68	469.4	199.4	128.50	560.5	508.0	226.48
130	170.0	62.5	100.08	385.5	195.5	137.70	498.9	423.9	214.00
131	83.8	73.7	105.74	415.0	415.0	175.98	499.1	461.6	229.22
132	165.0	62.5	103.24	411.6	406.6	153.96	470.0	427.5	231.09
133	160.0	42.5	90.35	420.0	190.0	144.05	530.4	477.9	219.93
134	80.0	67.5	102.37	360.7	185.7	136.67	432.5	377.5	225.37
135	167.5	42.5	99.70	412.5	187.5	141.30	481.0	461.0	243.44
136	171.9	51.9	106.08	425.0	225.0	98.11	543.1	503.1	224.16
137	155.0	147.5	108.38	434.5	184.5	122.31	554.3	531.8	240.68
138	150.0	55.0	89.72	384.6	379.6	155.32	438.0	413.0	237.62
139	152.5	47.5	106.33	422.5	175.0	147.33	517.8	495.3	240.53
140	65.0	42.5	98.51	411.6	399.1	147.64	515.5	483.0	237.31
141	145.0	32.5	104.15	422.0	399.5	138.30	514.4	484.4	230.15
142	162.5	50.0	108.80	423.1	175.6	138.97	547.0	517.0	234.02
143	160.0	35.0	101.43	403.7	383.7	139.21	545.8	503.3	225.32
144	155.0	22.5	90.67	419.8	409.8	149.18	498.5	448.5	215.86
145	162.5	30.0	81.15	394.0	389.0	156.14	497.1	457.1	235.05
146	170.0	30.0	81.65	383.6	203.6	137.08	478.4	448.4	236.61
147	167.5	45.0	100.00	387.5	175.0	124.11	470.3	447.8	234.99
148	157.5	42.5	94.42	425.0	425.0	170.73	513.5	483.5	226.97
149	86.2	81.2	111.54	396.5	86.5	119.36	492.5	462.5	227.18
150	172.5	27.5	100.23	417.5	195.0	139.16	537.5	517.5	244.67
151	75.0	57.5	102.41	360.8	343.3	138.18	467.0	427.0	231.60
152	85.0	65.0	99.15	416.0	413.5	163.28	548.5	501.0	229.54
153	162.5	45.0	100.87	382.4	187.4	131.89	467.2	449.7	241.38
154	82.5	65.0	102.24	385.0	385.0	173.33	447.1	412.1	220.97
155	125.0	52.5	102.63	409.4	406.9	158.81	485.5	440.5	225.95
156	155.0	52.5	101.61	397.9	175.4	142.25	524.3	469.3	228.71
157	67.5	42.5	91.45	403.6	396.1	151.76	489.6	457.1	232.60
158	165.0	52.5	98.70	408.8	206.2	142.64	513.5	486.0	236.30
159	80.0	57.5	98.59	373.9	188.9	138.44	506.2	451.2	222.31

160	167.5	32.5	88.79	430.5	413.0	147.54	505.7	478.2	233.11
161	85.0	35.0	81.61	347.5	347.5	178.30	441.0	416.0	234.03
162	77.5	37.5	94.64	415.6	413.1	158.73	517.7	487.7	239.79
163	155.0	37.5	90.72	417.5	417.5	178.34	487.0	454.5	226.71
164	167.5	32.5	78.93	408.1	398.1	133.74	455.6	430.6	238.86
165	165.0	40.0	91.52	393.1	390.6	160.96	467.2	447.2	237.89
166	172.5	55.0	98.68	401.5	384.0	142.94	479.2	449.2	238.25
167	137.5	57.5	98.77	369.5	162.0	136.55	463.9	441.4	240.60
168	67.5	42.5	93.14	381.6	204.1	144.15	502.8	470.3	235.17
169	175.0	47.5	91.90	368.6	353.6	143.49	432.8	412.8	240.42
170	140.0	50.0	105.43	420.3	410.3	149.78	514.6	492.1	238.75
171	142.5	50.0	96.75	421.9	396.9	120.43	487.0	462.0	236.45
172	155.0	37.5	88.38	414.3	401.8	147.62	523.3	498.3	239.67
173	152.5	60.0	94.90	440.0	435.0	156.35	559.2	506.7	220.17
174	160.0	42.5	92.35	439.6	202.1	141.20	532.9	477.9	222.94
175	167.5	45.0	102.74	390.4	192.9	143.63	507.0	474.5	226.36
176	145.0	120.0	72.51	400.5	393.0	153.46	532.5	425.0	200.16
177	145.0	37.5	98.44	372.5	367.5	161.60	475.2	452.7	242.16
178	152.5	20.0	77.28	371.9	191.9	130.39	470.9	435.9	234.38
179	140.0	50.0	96.49	407.5	175.0	135.78	540.1	510.1	236.86
180	165.0	37.5	92.73	370.8	190.8	142.85	464.8	444.8	243.19
181	165.0	35.0	77.16	386.6	199.1	137.57	474.8	454.8	238.25
182	160.0	42.5	97.00	403.4	395.9	147.02	521.1	483.6	229.92
183	169.2	41.7	104.15	391.5	384.0	152.71	466.7	436.7	227.87
184	87.5	42.5	76.31	396.2	193.7	129.82	484.4	464.4	239.30
185	147.5	37.5	88.92	390.3	190.3	120.21	461.1	438.6	239.70
186	157.5	32.5	98.13	374.4	174.4	133.52	441.3	418.8	239.78
187	128.7	51.2	107.63	442.8	137.8	129.50	528.8	488.7	226.11
188	165.0	57.5	101.42	428.8	178.8	134.76	531.4	478.9	230.85
189	82.5	57.5	97.87	432.5	432.5	176.49	489.2	466.7	241.26
190	77.5	57.5	98.30	384.2	379.2	150.81	471.0	451.0	239.91
191	142.5	62.5	106.71	420.0	417.5	168.16	498.8	463.8	235.80
192	132.5	47.5	104.58	358.3	343.3	143.69	443.2	390.7	224.78
193	145.0	55.0	96.79	388.8	371.2	145.06	460.3	422.8	220.10
194	160.0	45.0	98.04	433.3	180.8	139.99	557.6	495.1	216.48
195	155.0	32.5	98.27	383.4	183.4	135.03	475.5	443.0	231.58
196	137.5	37.5	91.39	410.6	163.1	139.53	471.2	451.2	245.80
197	130.0	62.5	84.06	482.5	460.0	135.73	530.7	510.7	240.06
198	130.0	40.0	98.02	433.0	428.0	155.88	536.7	516.7	240.14
199	80.0	57.5	99.03	412.8	400.3	147.35	487.5	467.5	245.82
200	157.5	50.0	101.11	454.2	191.7	134.50	587.5	552.5	231.74
201	155.0	65.0	99.25	368.4	173.4	142.91	456.6	419.1	231.86
202	165.0	42.5	97.17	479.0	469.0	142.80	573.4	543.4	233.49
203	147.5	25.0	75.40	395.9	393.4	162.91	470.5	440.5	235.80
204	72.5	35.0	85.05	400.9	368.4	129.70	512.4	484.9	230.31
205	72.5	47.5	99.73	367.3	182.3	130.09	436.4	413.9	241.68
206	82.5	55.0	97.09	431.4	418.9	146.58	525.5	488.0	237.77
207	80.0	70.0	106.67	392.6	197.6	136.22	451.0	423.5	242.24
208	82.5	65.0	97.50	404.8	392.3	148.39	517.9	460.4	228.55
209	137.5	37.5	97.82	426.2	423.7	160.84	566.7	526.7	229.53
210	140.0	40.0	104.50	398.2	158.2	135.58	483.8	441.2	231.02
211	67.5	42.5	94.21	373.9	193.9	133.74	492.5	452.5	230.10
212	145.0	10.0	57.68	430.0	182.5	138.84	511.5	486.5	234.17
213	137.5	25.0	86.93	423.0	410.5	151.94	530.0	492.5	232.87
214	157.5	145.0	99.92	394.7	374.7	130.34	525.7	503.2	233.76
215	157.5	37.5	85.48	405.6	205.6	141.28	527.7	495.2	235.79
216	165.0	57.5	105.25	416.7	194.2	145.08	485.1	462.6	234.53
217	137.5	42.5	99.17	485.5	448.0	126.97	572.0	542.0	232.12
218	130.0	42.5	103.07	441.5	434.0	151.11	513.1	483.1	228.91
219	75.0	62.5	105.42	386.2	386.2	168.69	444.1	414.1	237.58
220	85.0	70.0	100.26	414.7	407.2	146.79	493.2	468.2	238.72
221	168.8	46.2	102.98	422.3	199.8	137.75	500.8	475.8	235.14
222	157.5	35.0	98.09	372.2	194.7	133.73	475.5	425.5	221.44
223	145.0	30.0	86.38	383.7	381.2	155.39	459.2	424.2	227.07
224	165.0	47.5	100.91	386.5	186.5	138.97	495.2	430.2	217.30
225	152.5	47.5	108.48	460.8	443.3	144.91	573.8	533.7	232.01
226	167.5	52.5	102.94	416.3	188.8	141.55	514.4	486.9	234.81
227	130.0	45.0	103.92	452.3	452.3	167.21	529.7	504.7	238.30
228	150.0	47.5	90.60	420.4	170.4	139.46	513.8	483.8	231.05
229	160.0	10.0	76.85	403.2	175.7	134.94	492.9	450.4	220.09
230	77.5	60.0	98.86	442.0	197.0	144.35	559.0	514.0	225.27
231	160.0	50.0	98.75	397.7	192.7	132.60	514.2	494.2	239.70
232	162.5	65.0	105.48	405.8	178.3	135.07	535.9	490.9	228.95
233	162.5	65.0	104.33	366.2	348.7	133.22	475.6	450.6	240.78
234	175.0	60.0	101.90	433.5	203.5	141.90	573.0	528.0	229.24
235	152.5	37.5	91.09	345.3	332.8	143.09	454.8	427.3	233.85
236	159.2	39.2	101.99	418.4	365.9	125.82	507.7	475.2	238.31
237	150.0	52.5	101.30	385.0	382.5	163.14	486.6	454.1	233.99
238	167.5	60.0	97.45	361.9	186.9	128.58	434.6	409.6	234.96
239	77.5	45.0	92.76	428.1	425.6	159.73	515.7	478.2	234.46
240	160.0	62.5	88.37	388.0	193.0	118.85	506.2	481.2	243.04
241	72.5	60.0	103.03	406.8	399.2	149.75	528.4	493.4	233.60
242	75.0	17.5	76.83	401.2	386.2	131.97	511.2	483.7	237.22
243	82.5	70.0	102.78	414.2	399.2	146.64	491.0	451.0	229.54
244	73.7	58.7	99.41	382.5	377.5	158.97	489.4	441.9	235.05
245	170.0	47.5	98.87	445.4	200.4	143.78	557.2	524.7	233.77
246	90.0	60.0	92.68	364.2	361.7	159.96	434.9	407.4	231.88
247	142.5	20.0	79.32	449.2	164.2	126.77	530.8	508.3	233.98
248	132.5	67.5	90.14	391.2	391.2	168.07	451.9	421.9	238.93
249	82.5	62.5	97.63	393.4	385.9	148.88	470.3	447.8	236.33
250	160.0	52.5	101.09	411.3	173.8	142.79	475.0	457.5	247.65
251	155.0	47.5	103.39	399.8	182.3	141.43	525.9	493.4	230.76
252	128.1	125.6	116.85	408.8	408.8	166.89	472.1	444.6	239.82
253	165.0	65.0	98.36	448.7	186.2	144.03	533.2	500.7	233.56
254	140.0	32.5	95.73	384.7	174.7	139.00	489.3	454.3	230.49
255	140.8	135.8	104.97	434.9	427.4	152.96	549.7	512.2	232.64
256	135.0	45.0	104.12	431.7	169.2	134.36	551.8	509.3	232.58
257	138.3	53.3	101.95	401.2	153.7	135.94	452.9	430.4	245.15
258	152.5	57.5	93.86	426.8	391.8	133.07	522.2	492.2	225.94
259	160.0	45.0	91.75	419.5	189.5	137.59	510.8	478.3	233.93
260	72.5	52.5	99.94	354.4	191.9	137.52	409.8	392.3	245.30
261	160.0	37.5	101.21	392.5	385.0	148.35	449.8	432.2	245.90
262	140.0	47.5	107.33	428.0	148.0	121.74	498.5	476.0	241.94
263	155.0	37.5	101.40	443.4	183.4	140.88	540.5	500.5	235.63
264	142.5	40.0	98.08	402.1	392.1	151.95	494.0	471.5	243.74
265	162.5	45.0	106.86	405.6	375.6	131.61	540.7	495.7	230.78
266	135.0	50.0	101.58	374.8	169.8	140.93	463.3	438.3	240.78
267	140.0	35.0	91.31	448.1	445.6	160.78	507.5	485.0	237.67

268	137.5	40.0	96.03	434.3	171.8	139.84	512.0	489.5	239.11
269	160.0	32.5	90.49	450.0	152.5	100.81	537.0	519.5	242.10
270	147.5	47.5	103.40	432.2	182.2	132.94	500.2	477.7	240.89
271	77.5	57.5	99.24	405.5	195.5	141.09	515.2	480.2	233.27
272	150.0	15.0	84.71	421.0	386.0	120.67	480.9	458.4	242.46
273	80.0	35.0	75.38	414.9	187.4	118.83	517.8	472.8	224.56
274	157.5	25.0	88.58	399.8	399.8	167.34	561.2	468.7	217.66
275	137.5	32.5	100.06	462.5	155.0	143.64	600.0	600.0	247.39
276	152.5	42.5	92.48	380.0	377.5	166.98	464.4	439.4	236.55
277	167.5	160.0	97.54	367.5	367.5	169.95	458.9	441.4	247.14
278	77.5	45.0	83.26	397.5	395.0	162.48	507.5	472.5	232.52
279	150.0	47.5	91.32	390.0	175.0	141.55	527.1	494.6	231.97
280	127.5	37.5	92.50	431.7	421.7	147.28	528.0	493.0	228.73
281	157.5	35.0	99.20	406.7	381.7	137.24	529.1	459.1	218.48
282	65.0	42.5	94.87	417.3	417.3	166.94	488.1	458.1	234.00
283	157.5	52.5	97.91	360.0	197.5	137.77	441.8	419.3	238.75
284	162.5	47.5	93.74	400.4	385.4	146.16	489.9	447.4	223.18
285	135.0	30.0	83.13	498.7	496.2	159.27	580.1	547.6	231.52
286	162.5	52.5	95.35	410.0	407.5	163.73	505.4	470.4	234.28
287	127.5	127.5	134.37	438.7	438.7	167.26	532.7	490.2	227.60
288	142.5	42.5	100.45	422.4	162.4	133.73	486.2	438.7	205.12
289	152.5	40.0	92.11	375.5	373.0	163.83	456.3	433.8	235.42
290	132.5	27.5	86.42	425.4	412.9	143.13	512.8	472.8	229.83
291	175.0	47.5	90.49	365.6	363.1	161.08	436.3	401.3	232.27
292	140.0	27.5	79.80	398.7	398.7	168.38	477.8	442.8	233.58
293	125.0	32.5	97.93	404.5	387.0	130.12	487.1	459.6	237.55
294	167.5	40.0	85.89	398.2	388.2	148.83	455.9	430.9	241.10
295	135.0	32.5	95.81	437.7	407.7	136.09	517.7	495.2	236.38
296	130.0	22.5	88.45	418.7	418.7	168.01	517.2	472.2	222.48
297	147.5	50.0	101.41	408.3	390.8	147.04	526.1	481.1	224.63
298	130.0	130.0	131.88	485.3	480.3	159.40	568.6	538.6	235.60
299	130.0	57.5	105.51	437.3	429.8	151.94	524.4	481.9	231.81
300	80.0	27.5	82.86	403.6	208.6	137.66	492.0	462.0	242.09

RETENTION AGE DISTRIBUTION FOR ALL ACCEPTABLE SOLUTIONS:

RETENTION AGES: KINETIC POPULATION # 1

AGE BIN (MA)	RELATIVE FREQUENCY
50.0 - 60.0	0.003
60.0 - 70.0	0.033
70.0 - 80.0	0.097
80.0 - 90.0	0.067
90.0 - 100.0	0.000
100.0 - 110.0	0.000
110.0 - 120.0	0.000
120.0 - 130.0	0.097
130.0 - 140.0	0.153
140.0 - 150.0	0.143
150.0 - 160.0	0.200
160.0 - 170.0	0.163
170.0 - 180.0	0.043
180.0 - 190.0	0.000
190.0 - 200.0	0.000
200.0 - 210.0	0.000
210.0 - 220.0	0.000
220.0 - 230.0	0.000
230.0 - 240.0	0.000
240.0 - 250.0	0.000
250.0 - 260.0	0.000
260.0 - 270.0	0.000
270.0 - 280.0	0.000
280.0 - 290.0	0.000
290.0 - 300.0	0.000
300.0 - 310.0	0.000
310.0 - 320.0	0.000
320.0 - 330.0	0.000
330.0 - 340.0	0.000
340.0 - 350.0	0.000
350.0 - 360.0	0.000
360.0 - 370.0	0.000
370.0 - 380.0	0.000
380.0 - 390.0	0.000
390.0 - 400.0	0.000
400.0 - 410.0	0.000
410.0 - 420.0	0.000
420.0 - 430.0	0.000
430.0 - 440.0	0.000
440.0 - 450.0	0.000
450.0 - 460.0	0.000
460.0 - 470.0	0.000
470.0 - 480.0	0.000
480.0 - 490.0	0.000
490.0 - 500.0	0.000
500.0 - 510.0	0.000
510.0 - 520.0	0.000
520.0 - 530.0	0.000
530.0 - 540.0	0.000
540.0 - 550.0	0.000
550.0 - 560.0	0.000
560.0 - 570.0	0.000
570.0 - 580.0	0.000
580.0 - 590.0	0.000
590.0 - 600.0	0.000

MODEL RETENTION AGE MODE # 1
AGE RANGE: 50.0 - 90.0 Ma
NUMBER OF AGES = 60
AVE MODEL RETENTION AGE = 77.15 +/- 6.71 MA

MODEL RETENTION AGE MODE # 2
AGE RANGE: 120.0 - 180.0 Ma
NUMBER OF AGES = 240
AVE MODEL RETENTION AGE = 150.04 +/- 14.14 MA

RETENTION AGES: KINETIC POPULATION # 2

AGE BIN (MA)			RELATIVE FREQUENCY
50.0	-	60.0	0.000
60.0	-	70.0	0.000
70.0	-	80.0	0.000
80.0	-	90.0	0.000
90.0	-	100.0	0.000
100.0	-	110.0	0.000
110.0	-	120.0	0.000
120.0	-	130.0	0.000
130.0	-	140.0	0.000
140.0	-	150.0	0.000
150.0	-	160.0	0.000
160.0	-	170.0	0.000
170.0	-	180.0	0.000
180.0	-	190.0	0.000
190.0	-	200.0	0.000
200.0	-	210.0	0.000
210.0	-	220.0	0.000
220.0	-	230.0	0.000
230.0	-	240.0	0.000
240.0	-	250.0	0.000
250.0	-	260.0	0.000
260.0	-	270.0	0.000
270.0	-	280.0	0.000
280.0	-	290.0	0.000
290.0	-	300.0	0.000
300.0	-	310.0	0.000
310.0	-	320.0	0.000
320.0	-	330.0	0.000
330.0	-	340.0	0.000
340.0	-	350.0	0.013
350.0	-	360.0	0.027
360.0	-	370.0	0.063
370.0	-	380.0	0.053
380.0	-	390.0	0.097
390.0	-	400.0	0.110
400.0	-	410.0	0.163
410.0	-	420.0	0.143
420.0	-	430.0	0.107
430.0	-	440.0	0.083
440.0	-	450.0	0.057
450.0	-	460.0	0.030
460.0	-	470.0	0.023
470.0	-	480.0	0.007
480.0	-	490.0	0.017
490.0	-	500.0	0.003
500.0	-	510.0	0.003
510.0	-	520.0	0.000
520.0	-	530.0	0.000
530.0	-	540.0	0.000
540.0	-	550.0	0.000
550.0	-	560.0	0.000
560.0	-	570.0	0.000
570.0	-	580.0	0.000
580.0	-	590.0	0.000
590.0	-	600.0	0.000

AVE MODEL RETENTION AGE = 409.44 +/- 29.69 MA

RETENTION AGES: KINETIC POPULATION # 3

AGE BIN (MA)			RELATIVE FREQUENCY
50.0	-	60.0	0.000
60.0	-	70.0	0.000
70.0	-	80.0	0.000
80.0	-	90.0	0.000
90.0	-	100.0	0.000
100.0	-	110.0	0.000
110.0	-	120.0	0.000
120.0	-	130.0	0.000
130.0	-	140.0	0.000
140.0	-	150.0	0.000
150.0	-	160.0	0.000
160.0	-	170.0	0.000
170.0	-	180.0	0.000
180.0	-	190.0	0.000
190.0	-	200.0	0.000
200.0	-	210.0	0.000
210.0	-	220.0	0.000
220.0	-	230.0	0.000
230.0	-	240.0	0.000
240.0	-	250.0	0.000
250.0	-	260.0	0.000
260.0	-	270.0	0.000
270.0	-	280.0	0.000
280.0	-	290.0	0.000
290.0	-	300.0	0.000
300.0	-	310.0	0.000
310.0	-	320.0	0.000
320.0	-	330.0	0.000
330.0	-	340.0	0.000
340.0	-	350.0	0.000
350.0	-	360.0	0.000
360.0	-	370.0	0.000
370.0	-	380.0	0.000
380.0	-	390.0	0.000
390.0	-	400.0	0.000
400.0	-	410.0	0.007
410.0	-	420.0	0.003
420.0	-	430.0	0.010

430.0 -	440.0	0.030
440.0 -	450.0	0.050
450.0 -	460.0	0.060
460.0 -	470.0	0.053
470.0 -	480.0	0.073
480.0 -	490.0	0.103
490.0 -	500.0	0.080
500.0 -	510.0	0.087
510.0 -	520.0	0.127
520.0 -	530.0	0.087
530.0 -	540.0	0.090
540.0 -	550.0	0.040
550.0 -	560.0	0.033
560.0 -	570.0	0.023
570.0 -	580.0	0.013
580.0 -	590.0	0.013
590.0 -	600.0	0.017

AVE MODEL RETENTION AGE = 501.71 +/- 38.26 MA

POST-DEPOSITIONAL THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.63 +/- 0.130; %RO FOR EXP MEAN SOLUTION = 0.70
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.73 +/- 0.016
MIN %RO = 0.70; MAX %RO = 0.76
%RO FOR MIN OBJ SOLUTION = 0.74

POST-EXHUMATION THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.60 +/- 0.150; %RO FOR EXP MEAN SOLUTION = 0.58
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.59 +/- 0.017
MIN %RO = 0.57; MAX %RO = 0.63
%RO FOR MIN OBJ SOLUTION = 0.61

BINNED %RO VALUES FOR POST-DEPOSITIONAL HISTORY:

%RO BIN	RELATIVE FREQUENCY
0.00 - 0.03	0.000
0.03 - 0.05	0.000
0.05 - 0.08	0.000
0.08 - 0.10	0.000
0.10 - 0.12	0.000
0.12 - 0.15	0.000
0.15 - 0.18	0.000
0.17 - 0.20	0.000
0.20 - 0.23	0.000
0.23 - 0.25	0.000
0.25 - 0.27	0.000
0.28 - 0.30	0.000
0.30 - 0.32	0.000
0.33 - 0.35	0.000
0.35 - 0.37	0.000
0.38 - 0.40	0.000
0.40 - 0.42	0.000
0.43 - 0.45	0.000
0.45 - 0.47	0.000
0.47 - 0.50	0.000
0.50 - 0.52	0.000
0.53 - 0.55	0.000
0.55 - 0.57	0.000
0.57 - 0.60	0.000
0.60 - 0.62	0.000
0.62 - 0.65	0.000
0.65 - 0.68	0.000
0.68 - 0.70	0.000
0.70 - 0.72	0.427
0.73 - 0.75	0.427
0.75 - 0.77	0.147
0.78 - 0.80	0.000
0.80 - 0.82	0.000
0.82 - 0.85	0.000
0.85 - 0.88	0.000
0.88 - 0.90	0.000
0.90 - 0.93	0.000
0.93 - 0.95	0.000
0.95 - 0.97	0.000
0.98 - 1.00	0.000

MINIMUM PEAK TEMPERATURE = 134.67 DEG C; MAXIMUM PEAK TEMPERATURE = 150.62 DEG C

PEAK TEMPERATURE: AVERAGE = 141.78 STAND DEV = 2.978

MAX TEMP BIN	RELATIVE FREQUENCY
100.00 - 102.00	0.000
102.00 - 104.00	0.000
104.00 - 106.00	0.000
106.00 - 108.00	0.000
108.00 - 110.00	0.000
110.00 - 112.00	0.000
112.00 - 114.00	0.000
114.00 - 116.00	0.000
116.00 - 118.00	0.000
118.00 - 120.00	0.000
120.00 - 122.00	0.000
122.00 - 124.00	0.000
124.00 - 126.00	0.000
126.00 - 128.00	0.000
128.00 - 130.00	0.000
130.00 - 132.00	0.000
132.00 - 134.00	0.000
134.00 - 136.00	0.027
136.00 - 138.00	0.073
138.00 - 140.00	0.187
140.00 - 142.00	0.267

142.00 - 144.00	0.187
144.00 - 146.00	0.190
146.00 - 148.00	0.050
148.00 - 150.00	0.017
150.00 - 152.00	0.003
152.00 - 154.00	0.000
154.00 - 156.00	0.000
156.00 - 158.00	0.000
158.00 - 160.00	0.000
160.00 - 162.00	0.000
162.00 - 164.00	0.000
164.00 - 166.00	0.000
166.00 - 168.00	0.000
168.00 - 170.00	0.000
170.00 - 172.00	0.000
172.00 - 174.00	0.000
174.00 - 176.00	0.000
176.00 - 178.00	0.000
178.00 - 180.00	0.000
180.00 - 182.00	0.000
182.00 - 184.00	0.000
184.00 - 186.00	0.000
186.00 - 188.00	0.000
188.00 - 190.00	0.000
190.00 - 192.00	0.000
192.00 - 194.00	0.000
194.00 - 196.00	0.000
196.00 - 198.00	0.000
198.00 - 200.00	0.000

MINIMUM PEAK TIME = 130.00 MA; MAXIMUM PEAK TIME = 217.50 MA

TIME OF PEAK TEMP: AVERAGE = 177.77 STAND DEV = 18.706

TIME AT MAX TEMP	RELATIVE FREQUENCY
129.38 - 130.62	0.003
130.62 - 131.88	0.000
131.88 - 133.12	0.013
133.12 - 134.38	0.000
134.38 - 135.62	0.007
135.62 - 136.88	0.000
136.88 - 138.12	0.023
138.12 - 139.38	0.000
139.38 - 140.62	0.000
140.62 - 141.88	0.000
141.88 - 143.12	0.007
143.12 - 144.38	0.000
144.38 - 145.62	0.017
145.62 - 146.88	0.000
146.88 - 148.12	0.010
148.12 - 149.38	0.000
149.38 - 150.62	0.030
150.62 - 151.88	0.000
151.88 - 153.12	0.027
153.12 - 154.38	0.000
154.38 - 155.62	0.013
155.62 - 156.88	0.000
156.88 - 158.12	0.023
158.12 - 159.38	0.000
159.38 - 160.62	0.023
160.62 - 161.88	0.000
161.88 - 163.12	0.027
163.12 - 164.38	0.000
164.38 - 165.62	0.040
165.62 - 166.88	0.000
166.88 - 168.12	0.027
168.12 - 169.38	0.000
169.38 - 170.62	0.023
170.62 - 171.88	0.000
171.88 - 173.12	0.040
173.12 - 174.38	0.000
174.38 - 175.62	0.050
175.62 - 176.88	0.000
176.88 - 178.12	0.060
178.12 - 179.38	0.000
179.38 - 180.62	0.063
180.62 - 181.88	0.000
181.88 - 183.12	0.050
183.12 - 184.38	0.000
184.38 - 185.62	0.067
185.62 - 186.88	0.000
186.88 - 188.12	0.053
188.12 - 189.38	0.000
189.38 - 190.62	0.047
190.62 - 191.88	0.000
191.88 - 193.12	0.040
193.12 - 194.38	0.000
194.38 - 195.62	0.057
195.62 - 196.88	0.000
196.88 - 198.12	0.037
198.12 - 199.38	0.000
199.38 - 200.62	0.033
200.62 - 201.88	0.000
201.88 - 203.12	0.037
203.12 - 204.38	0.000
204.38 - 205.62	0.017
205.62 - 206.88	0.000
206.88 - 208.12	0.020
208.12 - 209.38	0.000
209.38 - 210.62	0.010
210.62 - 211.88	0.000
211.88 - 213.12	0.000
213.12 - 214.38	0.000
214.38 - 215.62	0.003
215.62 - 216.88	0.000
216.88 - 218.12	0.003

DEPOSITION (ALL SOLUTIONS):
TIME RANGE FOR THERMAL MINIMUM: 285.0 - 295.0 Ma
TIME OF MINIMUM TEMPERATURE: AVERAGE = 290.3 STAND DEV = 3.5
TEMPERATURE RANGE FOR THERMAL MINIMUM: 0.0 - 30.0 deg C
MINIMUM TEMPERATURE: AVERAGE = 10.7 STAND DEV = 11.7

REBURIAL (ALL SOLUTIONS):
TIME RANGE FOR THERMAL MINIMUM: 102.5 - 115.0 Ma
TIME OF MINIMUM TEMPERATURE: AVERAGE = 109.2 STAND DEV = 4.3
TEMPERATURE RANGE FOR THERMAL MINIMUM: 28.8 - 40.0 deg C
MINIMUM TEMPERATURE: AVERAGE = 39.8 STAND DEV = 1.0

OBJECTIVE FUNCTIONS: KINETIC POPULATION # 1

AVERAGE OF OBJ FNS= 0.25356 STAND DEV = 0.03135

OBJ FUNC	RELATIVE FREQUENCY
0.000 - 0.010	0.0000
0.010 - 0.020	0.0000
0.020 - 0.030	0.0000
0.030 - 0.040	0.0000
0.040 - 0.050	0.0000
0.050 - 0.060	0.0000
0.060 - 0.070	0.0000
0.070 - 0.080	0.0000
0.080 - 0.090	0.0000
0.090 - 0.100	0.0000
0.100 - 0.110	0.0000
0.110 - 0.120	0.0000
0.120 - 0.130	0.0000
0.130 - 0.140	0.0000
0.140 - 0.150	0.0000
0.150 - 0.160	0.0000
0.160 - 0.170	0.0033
0.170 - 0.180	0.0000
0.180 - 0.190	0.0233
0.190 - 0.200	0.0367
0.200 - 0.210	0.0333
0.210 - 0.220	0.0700
0.220 - 0.230	0.0933
0.230 - 0.240	0.0833
0.240 - 0.250	0.0833
0.250 - 0.260	0.1033
0.260 - 0.270	0.0867
0.270 - 0.280	0.1133
0.280 - 0.290	0.1333
0.290 - 0.300	0.1233
0.300 - 0.310	0.0133
0.310 - 0.320	0.0000
0.320 - 0.330	0.0000
0.330 - 0.340	0.0000
0.340 - 0.350	0.0000
0.350 - 0.360	0.0000
0.360 - 0.370	0.0000
0.370 - 0.380	0.0000
0.380 - 0.390	0.0000
0.390 - 0.400	0.0000

OBJECTIVE FUNCTIONS: KINETIC POPULATION # 2

AVERAGE OF OBJ FNS= 0.14255 STAND DEV = 0.01821

OBJ FUNC	RELATIVE FREQUENCY
0.000 - 0.010	0.0000
0.010 - 0.020	0.0000
0.020 - 0.030	0.0000
0.030 - 0.040	0.0000
0.040 - 0.050	0.0000
0.050 - 0.060	0.0000
0.060 - 0.070	0.0000
0.070 - 0.080	0.0000
0.080 - 0.090	0.0000
0.090 - 0.100	0.0000
0.100 - 0.110	0.0367
0.110 - 0.120	0.1100
0.120 - 0.130	0.1433
0.130 - 0.140	0.1500
0.140 - 0.150	0.1567
0.150 - 0.160	0.1833
0.160 - 0.170	0.2067
0.170 - 0.180	0.0133
0.180 - 0.190	0.0000
0.190 - 0.200	0.0000

OBJECTIVE FUNCTIONS: KINETIC POPULATION # 3

AVERAGE OF OBJ FNS= 0.26800 STAND DEV = 0.04129

OBJ FUNC	RELATIVE FREQUENCY
0.000 - 0.010	0.0000
0.010 - 0.020	0.0000
0.020 - 0.030	0.0000
0.030 - 0.040	0.0000
0.040 - 0.050	0.0000
0.050 - 0.060	0.0000
0.060 - 0.070	0.0000
0.070 - 0.080	0.0000
0.080 - 0.090	0.0000
0.090 - 0.100	0.0000
0.100 - 0.110	0.0000

0.110 - 0.120	0.0000
0.120 - 0.130	0.0000
0.130 - 0.140	0.0000
0.140 - 0.150	0.0000
0.150 - 0.160	0.0000
0.160 - 0.170	0.0000
0.170 - 0.180	0.0000
0.180 - 0.190	0.0000
0.190 - 0.200	0.0100
0.200 - 0.210	0.0567
0.210 - 0.220	0.0567
0.220 - 0.230	0.0933
0.230 - 0.240	0.0900
0.240 - 0.250	0.0900
0.250 - 0.260	0.0700
0.260 - 0.270	0.0933
0.270 - 0.280	0.0800
0.280 - 0.290	0.0467
0.290 - 0.300	0.0600
0.300 - 0.310	0.0400
0.310 - 0.320	0.0533
0.320 - 0.330	0.0633
0.330 - 0.340	0.0533
0.340 - 0.350	0.0433
0.350 - 0.360	0.0000
0.360 - 0.370	0.0000
0.370 - 0.380	0.0000
0.380 - 0.390	0.0000
0.390 - 0.400	0.0000

CONTROLLED RANDOM SEARCH TECHNIQUE

MINIMUM OBJECTIVE SOLUTION: LOWEST COMBINED OBJECTIVE FUNCTION

MODEL RESULTS AT 0.5000 SIGNIFICANCE LEVEL

TIME (MY)	TIME (MA)	EXP MEAN TEMPERATURE (DEG C)	EXP MEAN RATE (DEG/MY)	MIN OBJ TEMPERATURE (DEG C)	MIN OBJ RATE (DEG/MY)	LOWER TEMP BOUND	UPPER TEMP BOUND
0.00	600.00	249.99		249.98		249.96	250.00
10.00	590.00	249.94	-0.005	249.92	-0.006	249.86	249.99
20.00	580.00	249.85	-0.009	249.86	-0.006	249.68	249.97
30.00	570.00	249.40	-0.046	249.27	-0.059	248.79	249.90
40.00	560.00	248.80	-0.060	248.92	-0.035	247.49	249.78
50.00	550.00	248.12	-0.068	248.32	-0.060	246.64	249.59
60.00	540.00	246.87	-0.125	246.80	-0.152	244.67	249.25
70.00	530.00	244.38	-0.249	244.23	-0.257	240.43	247.72
80.00	520.00	241.31	-0.307	240.87	-0.336	235.45	246.21
90.00	510.00	236.57	-0.474	235.17	-0.570	228.13	243.94
100.00	500.00	230.86	-0.571	229.04	-0.613	219.34	241.68
110.00	490.00	222.46	-0.840	219.37	-0.967	206.04	240.87
120.00	480.00	220.21	-0.225	220.33	0.096	201.10	236.93
130.00	470.00	211.81	-0.840	211.94	-0.839	187.29	230.33
140.00	460.00	202.34	-0.946	188.78	-2.316	171.50	221.59
150.00	450.00	193.85	-0.849	178.90	-0.989	157.31	215.01
160.00	440.00	187.30	-0.655	171.00	-0.790	143.28	214.92
170.00	430.00	174.56	-1.274	155.69	-1.531	124.75	198.50
180.00	420.00	162.49	-1.207	147.02	-0.867	112.85	185.74
190.00	410.00	149.84	-1.266	135.04	-1.198	95.49	173.22
200.00	400.00	138.60	-1.124	121.68	-1.336	79.01	162.59
210.00	390.00	122.34	-1.626	105.42	-1.626	76.80	145.99
220.00	380.00	112.24	-1.009	91.82	-1.359	64.57	133.16
230.00	370.00	98.35	-1.389	79.10	-1.272	67.29	118.64
240.00	360.00	87.12	-1.123	71.01	-0.809	53.80	106.48
250.00	350.00	76.02	-1.110	63.67	-0.734	44.32	93.81
260.00	340.00	64.32	-1.170	49.79	-1.388	43.96	89.66
270.00	330.00	53.28	-1.104	42.91	-0.688	34.88	73.93
280.00	320.00	41.22	-1.206	33.89	-0.902	23.00	66.13
290.00	310.00	29.37	-1.184	26.42	-0.746	17.75	45.98
300.00	300.00	15.26	-1.411	15.41	-1.101	8.10	28.27
305.00	295.00	10.32	-0.987	10.87	-0.908	3.94	19.59
307.50	292.50	8.43	-0.758	8.70	-0.871	3.59	17.06
310.00	290.00	7.67	-0.303	7.23	-0.586	3.73	17.27
312.50	287.50	8.13	0.185	7.85	0.248	3.90	18.29
315.00	285.00	9.02	0.354	8.89	0.414	4.33	20.28
317.50	282.50	10.45	0.575	10.16	0.511	5.03	23.49
320.00	280.00	11.72	0.506	11.13	0.385	5.60	26.67
322.50	277.50	13.18	0.584	12.36	0.493	6.70	30.02
325.00	275.00	15.28	0.840	14.14	0.711	7.78	34.01
327.50	272.50	16.71	0.573	15.19	0.423	8.42	37.49
330.00	270.00	18.68	0.787	17.05	0.741	9.49	41.48
332.50	267.50	20.49	0.722	18.63	0.632	10.30	45.77
335.00	265.00	22.85	0.947	20.79	0.865	11.37	50.65
337.50	262.50	25.84	1.195	24.11	1.327	13.12	53.38
340.00	260.00	28.10	0.905	26.69	1.035	14.34	54.15
342.50	257.50	30.55	0.977	29.39	1.080	15.34	56.97
345.00	255.00	33.22	1.069	32.36	1.188	17.60	59.46
347.50	252.50	35.60	0.951	33.76	0.557	20.10	66.89
350.00	250.00	38.66	1.226	37.48	1.487	22.22	69.71
352.50	247.50	41.32	1.065	40.78	1.323	23.52	72.37
355.00	245.00	43.55	0.889	43.39	1.043	25.26	73.93
357.50	242.50	46.16	1.047	46.68	1.317	29.57	76.17
360.00	240.00	48.75	1.035	49.92	1.294	33.87	79.20
362.50	237.50	52.78	1.614	55.72	2.320	37.76	80.61
365.00	235.00	56.55	1.504	59.71	1.597	40.13	86.04
367.50	232.50	60.00	1.381	62.70	1.193	42.94	90.50
370.00	230.00	63.93	1.571	65.71	1.208	46.32	94.52
372.50	227.50	66.62	1.076	68.29	1.028	48.90	98.23
375.00	225.00	70.38	1.507	73.66	2.152	51.76	99.91
377.50	222.50	72.43	0.820	74.73	0.425	54.53	101.45
380.00	220.00	75.62	1.276	77.11	0.954	58.81	105.24
382.50	217.50	78.02	0.958	80.22	1.245	62.06	104.97
385.00	215.00	81.29	1.309	82.60	0.951	64.66	108.59
387.50	212.50	83.77	0.992	83.60	0.400	66.12	112.64
390.00	210.00	84.98	0.484	83.31	-0.117	67.93	117.79
392.50	207.50	87.89	1.165	84.18	0.348	71.20	122.87
395.00	205.00	91.17	1.310	86.41	0.891	74.91	126.50

397.50	202.50	94.92	1.502	91.48	2.026	78.10	129.55
400.00	200.00	98.38	1.383	95.42	1.576	81.63	132.52
402.50	197.50	101.47	1.238	96.02	0.239	83.22	138.38
405.00	195.00	105.74	1.705	98.32	0.921	85.87	143.44
407.50	192.50	108.73	1.198	100.45	0.852	86.91	147.25
410.00	190.00	113.13	1.759	109.15	3.480	96.53	140.64
412.50	187.50	117.73	1.839	110.26	0.446	101.80	140.78
415.00	185.00	121.81	1.635	116.70	2.573	108.44	136.28
417.50	182.50	125.22	1.361	121.25	1.821	111.52	138.39
420.00	180.00	129.03	1.524	125.61	1.746	116.53	139.44
422.50	177.50	131.01	0.792	129.17	1.423	120.59	139.66
425.00	175.00	132.26	0.501	128.73	-0.177	123.18	140.50
427.50	172.50	134.75	0.995	134.24	2.207	115.98	143.88
430.00	170.00	134.67	-0.031	134.20	-0.016	113.68	142.92
432.50	167.50	135.05	0.152	135.75	0.619	110.90	142.96
435.00	165.00	134.36	-0.277	135.92	0.068	107.08	139.62
437.50	162.50	134.05	-0.123	136.43	0.203	102.48	137.88
440.00	160.00	132.85	-0.481	134.90	-0.613	98.41	140.02
442.50	157.50	131.15	-0.681	133.07	-0.730	95.66	138.54
445.00	155.00	129.01	-0.854	130.37	-1.082	92.96	136.74
447.50	152.50	127.44	-0.627	128.88	-0.595	89.24	133.77
450.00	150.00	127.08	-0.145	129.89	0.405	82.91	134.28
452.50	147.50	123.84	-1.298	125.32	-1.829	80.60	133.53
455.00	145.00	120.04	-1.519	119.65	-2.269	77.21	130.84
457.50	142.50	117.05	-1.199	115.95	-1.479	74.57	130.94
460.00	140.00	114.16	-1.155	112.91	-1.218	72.03	130.00
462.50	137.50	110.92	-1.294	110.04	-1.146	70.21	130.00
465.00	135.00	106.59	-1.733	104.87	-2.066	68.75	118.26
467.50	132.50	103.91	-1.073	103.35	-0.611	65.01	115.04
470.00	130.00	99.74	-1.667	99.51	-1.535	61.79	110.21
472.50	127.50	94.57	-2.068	94.41	-2.040	59.57	104.12
475.00	125.00	88.73	-2.336	87.26	-2.860	57.38	98.49
477.50	122.50	80.87	-3.145	79.76	-2.999	55.65	89.29
480.00	120.00	72.40	-3.388	71.31	-3.381	51.29	79.40
482.50	117.50	62.33	-4.027	60.47	-4.338	47.64	69.61
485.00	115.00	50.99	-4.537	48.74	-4.692	39.30	58.78
487.50	112.50	49.44	-0.621	49.04	0.120	39.40	54.30
490.00	110.00	46.09	-1.341	45.66	-1.349	40.00	51.09
492.50	107.50	45.91	-0.071	42.25	-1.367	42.00	52.61
495.00	105.00	44.99	-0.366	40.00	-0.899	39.77	54.44
497.50	102.50	41.69	-1.321	43.59	1.435	36.46	61.12
500.00	100.00	48.28	2.636	49.01	2.171	41.40	66.29
502.50	97.50	53.18	1.961	51.73	1.085	44.32	72.87
505.00	95.00	56.39	1.282	55.25	1.408	47.75	79.30
507.50	92.50	59.58	1.275	58.76	1.405	51.21	84.93
510.00	90.00	62.75	1.270	62.31	1.422	52.65	91.45
512.50	87.50	66.29	1.413	68.50	2.473	54.67	92.28
515.00	85.00	69.86	1.430	74.03	2.212	59.63	94.54
517.50	82.50	72.51	1.059	78.36	1.733	61.09	97.32
520.00	80.00	75.23	1.087	78.45	0.035	62.35	101.41
522.50	77.50	77.49	0.906	78.72	0.108	64.37	105.26
525.00	75.00	80.12	1.051	80.59	0.750	66.60	106.96
527.50	72.50	83.09	1.187	81.78	0.476	70.20	109.43
530.00	70.00	85.61	1.011	83.67	0.755	73.29	109.76
532.50	67.50	89.24	1.452	88.26	1.837	79.47	106.66
535.00	65.00	92.54	1.320	92.40	1.653	83.34	105.41
537.50	62.50	94.89	0.938	94.75	0.940	85.57	105.71
540.00	60.00	97.55	1.064	97.47	1.090	90.07	104.78
542.50	57.50	100.25	1.082	100.61	1.255	95.63	104.78
545.00	55.00	101.57	0.525	101.97	0.543	97.71	104.98
547.50	52.50	102.12	0.220	102.25	0.116	95.56	104.40
550.00	50.00	102.80	0.272	103.54	0.512	92.05	104.91
552.50	47.50	102.37	-0.169	103.65	0.044	87.64	105.87
555.00	45.00	99.88	-0.998	100.68	-1.188	87.05	103.09
557.50	42.50	96.97	-1.162	97.56	-1.245	85.86	101.75
560.00	40.00	94.19	-1.111	92.60	-1.987	83.89	99.93
562.50	37.50	91.59	-1.042	88.71	-1.555	80.68	98.69
565.00	35.00	89.57	-0.809	87.67	-0.415	78.59	95.82
567.50	32.50	86.73	-1.137	84.32	-1.340	76.93	92.16
570.00	30.00	84.07	-1.062	81.64	-1.073	75.00	89.68
572.50	27.50	82.13	-0.778	78.57	-1.227	73.71	87.64
575.00	25.00	79.25	-1.152	76.03	-1.017	70.71	83.36
577.50	22.50	75.76	-1.395	73.11	-1.166	69.70	79.02
580.00	20.00	73.66	-0.840	71.81	-0.522	67.76	77.15
582.50	17.50	70.03	-1.451	66.88	-1.973	63.96	73.64
585.00	15.00	67.87	-0.865	65.11	-0.708	61.13	72.39
587.50	12.50	65.36	-1.001	62.30	-1.124	60.07	69.55
590.00	10.00	63.74	-0.650	61.40	-0.360	57.11	67.29
592.50	7.50	61.08	-1.062	59.12	-0.909	53.45	65.34
595.00	5.00	58.53	-1.023	55.94	-1.273	51.48	63.28
597.50	2.50	51.67	-2.743	50.19	-2.300	44.12	58.88
600.00	0.00	27.33	-9.735	26.71	-9.393	24.05	31.37

EXPONENTIAL MEAN: TIME OF DEPOSITION = 290.0 Ma
EXPONENTIAL MEAN: TIME OF REBURIAL = 102.5 Ma

MINIMUM OBJ SOLUTION: TIME OF DEPOSITION = 290.0 Ma
MINIMUM OBJ SOLUTION: TIME OF REBURIAL = 105.0 Ma

SEARCH FOR MAXIMUM TEMPERATURE BETWEEN 285.00 - 115.00 MA

ALL SOLUTIONS ARE AT 0.5000 SIGNIFICANCE LEVEL

%RO MODEL: BASIN%RO

MODEL #	KIN POP# 1 CALCULATED AFT AGE (MA)	KIN POP# 2 CALCULATED AFT AGE (MA)	KIN POP# 3 CALCULATED AFT AGE (MA)	TIME OF MAXIMUM TEMP (MA)	MAXIMUM TEMP (DEG C)	KIN POP# 1 OBJECTIVE FUNCTION	KIN POP# 2 OBJECTIVE FUNCTION	KIN POP# 3 OBJECTIVE FUNCTION	%RO POST-DEP	%RO POST-EXH
1	49.32	119.28	233.45	172.50	134.17	0.136236	0.088382	0.171214	0.713	0.579
2	47.96	118.96	234.38	160.00	134.17	0.156233	0.100773	0.171401	0.709	0.578

3	49.85	116.61	232.01	162.50	134.36	0.178907	0.083622	0.167427	0.712	0.576
4	48.71	116.59	229.13	160.00	134.99	0.152893	0.075603	0.191073	0.714	0.578
5	53.21	121.76	237.06	172.50	136.47	0.143040	0.088597	0.156292	0.718	0.577
6	49.75	121.71	230.00	162.50	133.75	0.157780	0.096568	0.183676	0.709	0.578
7	52.25	118.25	232.80	172.50	138.83	0.159708	0.073685	0.159843	0.722	0.579
8	54.82	119.16	241.51	167.50	137.77	0.169519	0.076903	0.157012	0.726	0.576
9	53.62	120.67	238.47	157.50	133.68	0.151670	0.097331	0.169571	0.709	0.577
10	48.38	118.51	236.90	162.50	133.58	0.138658	0.087996	0.160909	0.712	0.579
11	54.07	120.80	237.89	167.50	137.39	0.144771	0.074326	0.151750	0.723	0.577
12	50.43	117.25	232.42	167.50	136.04	0.139666	0.070404	0.163100	0.718	0.578
13	51.00	116.44	230.76	167.50	135.40	0.161865	0.072254	0.177198	0.716	0.577
14	48.34	121.18	236.64	167.50	134.44	0.138192	0.095529	0.171182	0.711	0.579
15	52.76	122.40	239.20	172.50	136.21	0.124680	0.101416	0.157589	0.717	0.579
16	49.15	119.62	234.02	160.00	132.47	0.148006	0.098798	0.167907	0.709	0.578
17	52.40	120.29	237.72	167.50	134.87	0.176818	0.075754	0.167896	0.712	0.575
18	48.55	116.00	228.41	162.50	135.31	0.149152	0.072914	0.197190	0.716	0.578
19	50.90	121.21	236.62	170.00	134.91	0.157029	0.083186	0.159858	0.712	0.577
20	49.95	117.54	234.60	162.50	135.13	0.148429	0.076567	0.161112	0.714	0.578
21	52.04	122.48	239.68	172.50	135.72	0.121212	0.102969	0.159596	0.715	0.579
22	48.51	117.28	234.19	167.50	135.42	0.130098	0.075267	0.155448	0.717	0.580
23	48.45	121.29	233.43	162.50	133.84	0.139587	0.097840	0.174588	0.710	0.579
24	51.63	122.19	233.76	175.00	136.70	0.131778	0.097218	0.152250	0.720	0.581
25	49.55	119.61	238.52	160.00	137.95	0.154005	0.071639	0.156546	0.715	0.578
26	53.20	121.96	242.06	172.50	136.72	0.156347	0.092529	0.155756	0.718	0.577
27	49.92	116.54	234.29	160.00	138.78	0.164920	0.072497	0.148016	0.720	0.577
28	50.50	121.67	237.22	167.50	134.65	0.181631	0.086896	0.170796	0.711	0.576
29	52.43	120.61	235.21	172.50	136.73	0.153636	0.068991	0.162383	0.716	0.577
30	50.63	121.45	241.16	172.50	137.35	0.137134	0.082376	0.152879	0.723	0.582
31	47.93	112.76	228.52	172.50	135.70	0.157427	0.090682	0.196225	0.723	0.580
32	54.50	118.11	228.91	172.50	139.50	0.154195	0.079319	0.192928	0.729	0.579
33	50.15	117.02	231.72	167.50	135.54	0.146441	0.071068	0.169082	0.716	0.578
34	49.26	118.89	237.50	175.00	137.70	0.152824	0.075124	0.153380	0.724	0.585
35	50.06	118.82	234.02	167.50	134.88	0.154852	0.078312	0.162743	0.714	0.577
36	49.06	117.18	239.48	175.00	137.69	0.150152	0.075373	0.153889	0.724	0.584
37	51.29	119.55	232.69	172.50	134.26	0.167333	0.081180	0.168584	0.714	0.576
38	48.07	120.81	233.76	160.00	134.23	0.151058	0.101744	0.176441	0.709	0.578
39	53.92	116.42	235.81	167.50	137.89	0.166670	0.091286	0.166627	0.732	0.576
40	49.16	114.94	230.18	160.00	135.86	0.162724	0.072274	0.182164	0.715	0.577
41	50.87	119.50	233.89	162.50	134.95	0.181203	0.081546	0.169306	0.712	0.576
42	51.69	119.61	232.74	157.50	135.91	0.177938	0.081837	0.164550	0.712	0.576
43	47.63	120.41	234.16	165.00	134.87	0.172028	0.101885	0.177226	0.709	0.580
44	50.99	121.30	235.81	172.50	136.65	0.175586	0.089167	0.171406	0.713	0.581
45	51.37	119.17	235.29	172.50	136.99	0.157439	0.070069	0.159109	0.717	0.577
46	53.11	121.89	230.06	177.50	138.30	0.156161	0.091234	0.183184	0.721	0.578
47	50.24	118.24	232.36	162.50	135.51	0.161924	0.071859	0.163630	0.715	0.577
48	50.69	122.27	236.44	162.50	134.44	0.152411	0.098732	0.173235	0.711	0.578
49	51.35	119.99	232.03	167.50	134.11	0.174275	0.081321	0.166380	0.712	0.576
50	53.33	117.47	238.79	157.50	135.48	0.138152	0.071076	0.146428	0.719	0.578
51	51.98	119.66	235.57	172.50	137.41	0.155405	0.071600	0.156119	0.719	0.577
52	48.40	119.11	235.26	165.00	133.34	0.142261	0.097149	0.167784	0.710	0.578
53	50.74	118.47	235.04	160.00	136.30	0.162688	0.069279	0.155815	0.716	0.577
54	51.08	113.96	235.53	167.50	138.25	0.143968	0.086585	0.166652	0.732	0.578
55	50.64	118.03	233.23	167.50	135.80	0.144988	0.069786	0.156237	0.717	0.578
56	47.74	120.04	234.39	172.50	138.79	0.166651	0.079346	0.149863	0.719	0.579
57	53.97	119.21	234.05	170.00	137.66	0.142877	0.074810	0.152739	0.723	0.577
58	50.13	119.27	234.69	160.00	138.59	0.172910	0.069690	0.157757	0.716	0.576
59	49.42	118.97	234.32	172.50	134.91	0.138908	0.079223	0.161278	0.714	0.578
60	49.82	120.02	234.49	172.50	137.35	0.163201	0.072358	0.150406	0.720	0.583
61	53.51	117.09	234.21	162.50	135.55	0.176780	0.069978	0.153858	0.717	0.575
62	51.32	119.25	232.45	167.50	134.45	0.164233	0.077210	0.162870	0.714	0.576
63	52.31	118.77	234.61	172.50	138.85	0.140560	0.079692	0.162707	0.729	0.580
64	49.37	117.29	237.72	162.50	135.53	0.168905	0.088652	0.161176	0.712	0.577
65	49.43	116.61	236.06	157.50	135.84	0.154859	0.079682	0.160647	0.713	0.578
66	49.58	119.53	235.08	162.50	135.33	0.145929	0.076119	0.160955	0.714	0.578
67	51.12	116.40	228.88	172.50	138.26	0.138069	0.078280	0.193178	0.728	0.580
68	48.67	115.38	232.68	167.50	135.65	0.124809	0.072055	0.160898	0.718	0.580
69	48.81	116.66	231.96	162.50	134.86	0.148384	0.079207	0.166972	0.713	0.578
70	49.93	119.70	237.30	172.50	133.50	0.148451	0.099596	0.173908	0.710	0.578
71	50.13	116.25	228.19	165.00	135.02	0.178006	0.076222	0.199067	0.714	0.576
72	50.66	116.30	237.26	172.50	137.97	0.132360	0.075043	0.153215	0.724	0.579
73	54.44	117.05	233.24	170.00	136.88	0.169720	0.071451	0.156091	0.719	0.581
74	49.74	119.54	232.68	167.50	137.11	0.169889	0.071474	0.160859	0.718	0.577
75	53.39	120.49	236.57	172.50	137.77	0.159346	0.075568	0.153765	0.724	0.576
76	49.16	118.41	232.83	160.00	135.34	0.171566	0.078041	0.164219	0.713	0.577
77	53.49	120.35	238.14	167.50	136.38	0.172147	0.072911	0.148861	0.721	0.576
78	48.52	120.01	234.48	172.50	135.18	0.139389	0.081934	0.172740	0.713	0.579
79	48.00	114.54	228.89	160.00	135.88	0.154495	0.071131	0.193104	0.716	0.579
80	50.87	117.33	234.76	167.50	135.84	0.144777	0.070747	0.152522	0.718	0.578
81	52.67	119.46	227.65	172.50	137.97	0.136148	0.077191	0.203665	0.726	0.579
82	54.05	121.86	238.11	167.50	137.23	0.139838	0.090707	0.151045	0.722	0.577
83	49.54	118.58	234.74	167.50	135.20	0.137934	0.074154	0.158110	0.716	0.578
84	49.79	120.43	238.53	172.50	137.14	0.150335	0.072374	0.153763	0.720	0.583
85	50.57	118.80	235.79	162.50	134.46	0.156325	0.085079	0.166155	0.712	0.577
86	52.04	116.23	234.68	162.50	135.26	0.180984	0.068899	0.156040	0.716	0.575
87	51.23	119.26	233.62	165.00	134.19	0.176493	0.085608	0.169671	0.712	0.576
88	53.13	120.18	238.60	167.50	136.44	0.168740	0.072848	0.148821	0.721	0.576
89	54.42	117.35	231.74	172.50	137.00	0.158025	0.082115	0.168888	0.728	0.576
90	47.39	120.16	247.88	165.00	134.42	0.183119	0.097751	0.167750	0.710	0.579
91	53.38	122.17	236.05	172.50	136.62	0.176729	0.096745	0.164463	0.714	0.576
92	49.22	114.54	230.74	160.00	139.56	0.155921	0.075293	0.177348	0.724	0.578
93	49.18	120.18	237.23	167.50	133.85	0.140751	0.092652	0.168793	0.711	0.578
94	50.58	121.49	237.40	167.50	134.00	0.160441	0.088643	0.169810	0.711	0.577
95	48.44	119.02	235.38	167.50	134.68	0.133580	0.092579	0.157450	0.712	0.580
96	52.74	122.11	239.03	172.50	136.25	0.134662	0.095539	0.158241	0.717	0.578
97	48.50	122.21	234.43	172.50	135.98	0.142630	0.097581	0.175278	0.711	0.579
98	50.02	120.01	235.17	160.00	134.19	0.159048	0.090868	0.168423	0.710	0.577
99	48.87	113.26	227.65	160.00	136.08	0.153881	0.080765	0.203688	0.718	0.578
100	50.26	119.00	236.19	162.50	134.42	0.156637	0.084074	0.165255	0.712	0.577
101	48.46	117.93	232.39	160.00	135.11	0.137736	0.078001	0.163730	0.713	0.579
102	52.65	118.66	240.18	162.50	136.38	0.132895	0.070953	0.147874	0.719	0.578
103	48.86	117.95	239.27	162.50	135.77	0.168691	0.092866	0.163556	0.712	0.577
104	52.21	120.58	235.20	172.50	137.70	0.142845	0.075301	0.153741	0.724	0.581
105	50.10	119.97	246.36	175.00	137.26	0.128025	0.072585	0.151722	0.721	0.579
106	49.03	116.35	236.68	167.50	135.27	0.130848	0.072439	0.154695	0.717	0.579
107	51.54	117.91	227.43	172.50	137.88	0.139075	0.077274	0.205523	0.726	0.581
108	50.11	119.99	234.68	162.50	133.08	0.177848	0.103646	0.173974	0.708	0.576
109	50.57	117.58	234.76	167.50	136.02	0.142596	0.070575	0.152998	0.718	0.578
110	49.34	117.47	234.82	160.00	135.22	0.149102	0.074341	0.161937	0.714	0.578

111	49.54	118.60	236.53	167.50	134.98	0.140951	0.077249	0.161979	0.714	0.578
112	54.25	121.58	242.45	175.00	137.40	0.142364	0.085107	0.154024	0.724	0.578
113	49.60	120.44	229.56	162.50	134.63	0.159042	0.087621	0.187441	0.711	0.578
114	53.03	122.44	246.55	175.00	136.92	0.127575	0.102240	0.154354	0.720	0.578
115	53.75	120.53	237.56	167.50	136.00	0.170576	0.071676	0.152723	0.719	0.576
116	52.86	121.01	237.64	167.50	137.22	0.133093	0.075459	0.154064	0.724	0.580
117	50.51	120.49	233.69	160.00	134.57	0.177686	0.090402	0.171635	0.710	0.576
118	48.78	117.34	234.95	160.00	135.22	0.140229	0.075958	0.162020	0.714	0.579
119	48.67	115.31	228.60	162.50	136.55	0.132921	0.072415	0.195577	0.720	0.579
120	49.21	114.17	233.68	160.00	139.27	0.160345	0.073304	0.152362	0.721	0.577
121	51.38	120.99	234.62	172.50	138.23	0.170038	0.073935	0.150952	0.722	0.577
122	50.42	120.57	237.77	167.50	135.61	0.173796	0.076498	0.165868	0.714	0.576
123	50.32	117.97	231.57	162.50	135.91	0.166942	0.068801	0.170332	0.716	0.577
124	51.77	118.55	238.99	172.50	138.03	0.134442	0.076224	0.155625	0.725	0.579
125	53.33	116.74	234.20	162.50	135.23	0.183728	0.068957	0.156563	0.716	0.575
126	48.38	121.05	232.09	162.50	134.31	0.143884	0.095831	0.175111	0.710	0.579
127	48.55	115.08	229.77	160.00	136.11	0.140516	0.070443	0.185657	0.718	0.579
128	52.65	121.32	234.11	172.50	136.61	0.125516	0.079885	0.156626	0.717	0.578
129	52.54	120.35	239.58	172.50	138.62	0.157366	0.072370	0.156825	0.720	0.579
130	49.46	117.76	234.20	160.00	135.61	0.156074	0.075716	0.160313	0.714	0.578
131	51.59	119.73	234.96	172.50	137.19	0.154515	0.071331	0.158217	0.718	0.577
132	49.40	121.01	232.59	192.50	147.25	0.175057	0.099250	0.202639	0.754	0.602
133	50.32	115.40	233.50	157.50	136.98	0.168279	0.068932	0.154549	0.716	0.577
134	52.82	122.26	235.55	172.50	136.64	0.133841	0.098495	0.154397	0.720	0.580
135	48.85	114.98	228.54	162.50	135.14	0.161916	0.071133	0.196076	0.716	0.577
136	51.32	120.18	237.53	172.50	136.94	0.129758	0.072465	0.148440	0.720	0.580
137	47.85	120.01	238.12	165.00	134.95	0.161493	0.086581	0.160876	0.713	0.581
138	53.80	120.23	233.18	175.00	137.37	0.137954	0.077122	0.157459	0.726	0.577
139	48.21	118.13	238.36	167.50	136.30	0.144451	0.072250	0.147512	0.720	0.580
140	49.28	114.02	233.00	165.00	135.89	0.166410	0.083731	0.158152	0.716	0.583
141	50.49	118.57	234.47	160.00	136.44	0.162622	0.068820	0.155731	0.716	0.577
142	51.40	120.05	227.86	172.50	137.21	0.174737	0.076767	0.201890	0.716	0.581
143	52.00	116.94	233.99	162.50	134.74	0.176490	0.079257	0.163805	0.713	0.576
144	50.25	117.15	230.59	165.00	135.11	0.165745	0.073302	0.178609	0.715	0.577
145	48.06	120.92	233.89	172.50	138.49	0.151207	0.076630	0.154875	0.718	0.578
146	51.68	119.53	238.86	172.50	136.89	0.125537	0.071175	0.153761	0.719	0.578
147	51.56	120.87	235.18	172.50	137.82	0.138773	0.077239	0.157698	0.726	0.583
148	50.04	118.06	232.62	165.00	135.25	0.168548	0.078517	0.163966	0.713	0.576
149	51.30	122.20	235.17	170.00	134.30	0.166621	0.097414	0.164370	0.710	0.576
150	47.55	117.81	240.82	165.00	135.57	0.175773	0.075048	0.155395	0.716	0.580
151	51.36	120.92	235.38	167.50	134.34	0.160180	0.081498	0.165959	0.712	0.577
152	51.84	122.06	245.23	175.00	137.45	0.130547	0.094691	0.151116	0.722	0.579
153	47.76	118.09	234.88	170.00	136.96	0.165640	0.081918	0.151988	0.715	0.580
154	53.73	122.50	235.60	172.50	136.57	0.180664	0.103448	0.168778	0.712	0.575
155	48.14	117.04	230.69	160.00	135.78	0.147728	0.076640	0.177804	0.714	0.578
156	52.46	113.76	234.51	150.00	134.28	0.177754	0.070728	0.147859	0.717	0.576
157	49.64	119.87	231.91	162.50	134.88	0.152027	0.082570	0.169242	0.712	0.578
158	49.41	119.65	239.45	162.50	133.76	0.166026	0.093780	0.164838	0.711	0.577
159	53.42	119.95	234.73	172.50	137.97	0.143219	0.077230	0.156534	0.726	0.577
160	52.02	121.26	237.06	162.50	134.29	0.177179	0.081542	0.165910	0.712	0.576
161	50.79	121.26	237.32	170.00	134.43	0.182614	0.088195	0.163675	0.710	0.576
162	49.72	120.56	235.64	172.50	135.70	0.136491	0.078561	0.154961	0.714	0.578
163	51.35	120.15	244.53	162.50	136.43	0.137561	0.069289	0.152952	0.716	0.578
164	48.53	120.83	241.46	167.50	136.13	0.131204	0.071427	0.149730	0.719	0.579
165	53.13	121.37	235.89	167.50	136.52	0.143629	0.080821	0.153058	0.719	0.577
166	49.52	119.81	233.64	172.50	139.48	0.151421	0.086131	0.152721	0.723	0.578
167	51.94	121.94	239.43	172.50	136.20	0.122592	0.092160	0.157841	0.717	0.579
168	51.92	121.49	235.85	167.50	134.28	0.174004	0.084234	0.167331	0.712	0.576
169	54.71	121.06	228.19	172.50	139.34	0.164226	0.074615	0.199019	0.722	0.577
170	48.99	116.35	233.07	160.00	135.07	0.163123	0.078032	0.163389	0.713	0.577
171	51.00	119.03	233.05	167.50	135.49	0.163072	0.069261	0.157764	0.716	0.577
172	51.17	118.38	231.01	167.50	135.59	0.162968	0.071229	0.175071	0.716	0.577
173	50.22	114.91	227.89	160.00	135.83	0.170549	0.068686	0.201603	0.716	0.577
174	49.66	119.71	232.00	160.00	134.68	0.175103	0.093136	0.174244	0.710	0.577
175	49.19	120.67	239.66	162.50	133.04	0.141811	0.092892	0.162966	0.711	0.578
176	54.04	118.83	234.60	172.50	138.63	0.141424	0.080182	0.163706	0.730	0.578
177	48.99	119.84	236.93	162.50	135.08	0.167430	0.097392	0.167941	0.710	0.577
178	51.90	118.87	229.28	172.50	137.89	0.133677	0.075790	0.189791	0.725	0.579
179	52.92	114.56	233.88	162.50	135.47	0.174130	0.070508	0.152376	0.718	0.575
180	49.45	116.57	229.60	167.50	135.94	0.155232	0.070261	0.187094	0.718	0.578
181	51.62	112.16	245.23	172.50	143.88	0.178909	0.102704	0.207098	0.757	0.581
182	49.18	120.22	227.65	172.50	140.19	0.153301	0.095923	0.203685	0.726	0.578
183	49.78	117.81	234.68	167.50	135.31	0.147221	0.073942	0.159302	0.715	0.578
184	53.22	115.95	234.98	167.50	137.91	0.142046	0.083815	0.163837	0.730	0.577
185	47.99	119.50	247.15	162.50	134.80	0.154964	0.090402	0.163844	0.712	0.579
186	52.86	118.62	235.31	167.50	138.42	0.138124	0.079757	0.159887	0.728	0.578
187	49.61	115.92	233.03	167.50	135.73	0.140138	0.070593	0.157888	0.717	0.578
188	52.78	121.10	235.25	167.50	136.61	0.139084	0.075402	0.152862	0.719	0.577
189	51.06	116.97	231.51	162.50	135.84	0.174301	0.073560	0.170844	0.714	0.576
190	54.03	118.69	227.90	172.50	139.84	0.141701	0.079212	0.201514	0.729	0.577
191	53.17	116.27	235.58	167.50	138.05	0.169499	0.092547	0.167136	0.732	0.576
192	52.28	120.88	230.97	172.50	136.97	0.128301	0.072742	0.175383	0.721	0.578
193	51.40	121.48	236.51	177.50	137.35	0.154523	0.083036	0.151618	0.722	0.583
194	50.74	122.46	235.15	167.50	133.23	0.165670	0.102640	0.174106	0.709	0.577
195	52.11	119.88	233.78	170.00	135.86	0.142905	0.074444	0.151991	0.723	0.583
196	51.79	119.15	233.28	167.50	135.33	0.168004	0.070342	0.159098	0.715	0.576
197	53.82	115.42	232.98	170.00	138.57	0.148736	0.100308	0.172171	0.735	0.581
198	49.34	116.88	230.15	162.50	136.36	0.144523	0.083049	0.182349	0.714	0.582
199	49.84	119.97	236.73	167.50	134.05	0.144572	0.091313	0.168870	0.711	0.578
200	50.28	120.82	234.80	162.50	134.41	0.165199	0.089212	0.169604	0.711	0.577
201	50.74	121.90	237.68	167.50	133.99	0.151670	0.091486	0.170814	0.710	0.577
202	51.63	118.30	237.02	167.50	136.52	0.163289	0.071032	0.153528	0.719	0.576
203	49.95	115.69	230.87	167.50	136.15	0.139077	0.071678	0.176308	0.719	0.578
204	50.03	117.65	233.90	167.50	135.41	0.155006	0.073083	0.158417	0.716	0.577
205	52.37	121.86	235.16	172.50	137.30	0.127837	0.090589	0.151256	0.720	0.579
206	47.64	118.94	233.47	160.00	134.71	0.171420	0.088770	0.169020	0.711	0.580
207	48.88	117.79	233.35	167.50	135.19	0.124033	0.076981	0.158240	0.716	0.579
208	53.41	121.53	232.41	170.00	137.32	0.144500	0.083993	0.163184	0.721	0.577
209	47.93	115.20	229.74	160.00	134.86	0.157403	0.085519	0.185882	0.712	0.580
210	48.51	120.82	236.95	167.50	136.31	0.130823	0.071522	0.148710	0.719	0.579
211	50.09	118.99	233.70	162.50	135.21	0.180765	0.080580	0.164783	0.712	0.576
212	52.14	121.63	233.46	172.50	136.77	0.140686	0.086068	0.155509	0.718	0.577
213	49.59	118.54	236.55	167.50	134.91	0.141148	0.077681	0.161288	0.714	0.578
214	48.95	116.94	228.24	172.50	136.10	0.150355	0.070935	0.198605	0.717	0.578
215	50.57	119.99	235.45	167.50	134.99	0.150303	0.078126	0.162012	0.714	0.578
216	49.91	122.48	227.88	177.50	137.97	0.164642	0.103061	0.201718	0.724	0.587
217	50.91	118.37	235.54	172.50	135.46	0.140546	0.069920	0.163115	0.715	0.578
218	53.56	115.98	235.13	167.50	137.19	0.154921	0.084423	0.162379	0.729	0.576

219	51.20	119.04	235.85	167.50	136.89	0.159592	0.072807	0.149537	0.721	0.577
220	51.16	119.45	236.42	167.50	135.20	0.161031	0.072717	0.159947	0.715	0.577
221	51.65	115.28	231.23	170.00	137.70	0.146732	0.102294	0.173173	0.734	0.584
222	51.25	118.34	233.03	167.50	134.77	0.167378	0.079087	0.164025	0.713	0.576
223	51.07	118.85	232.67	160.00	136.28	0.170748	0.068671	0.160969	0.715	0.576
224	47.39	118.62	234.19	160.00	134.17	0.182990	0.103036	0.175013	0.709	0.580
225	53.48	114.17	254.27	172.50	141.88	0.152179	0.099445	0.176156	0.738	0.578
226	50.48	121.71	236.22	162.50	134.08	0.161827	0.090900	0.170411	0.710	0.577
227	51.35	121.53	234.79	167.50	134.39	0.165077	0.085773	0.167119	0.711	0.577
228	51.71	120.68	246.59	167.50	135.47	0.139347	0.073241	0.154581	0.717	0.578
229	53.38	121.48	237.49	167.50	135.80	0.153916	0.083044	0.154382	0.718	0.577
230	49.38	119.91	243.33	167.50	136.00	0.130389	0.074536	0.158072	0.716	0.580
231	51.30	119.30	234.71	172.50	136.98	0.126144	0.071519	0.152255	0.719	0.579
232	51.68	121.96	232.27	172.50	138.28	0.154674	0.092646	0.164401	0.719	0.577
233	48.27	120.56	241.01	165.00	135.04	0.141613	0.081717	0.158734	0.714	0.580
234	51.39	117.62	235.51	162.50	134.88	0.161972	0.072035	0.159275	0.715	0.576
235	50.45	121.14	234.92	172.50	133.83	0.153023	0.094315	0.177055	0.711	0.577
236	48.81	119.95	236.34	172.50	137.69	0.138936	0.072991	0.151403	0.718	0.579
237	49.87	119.48	236.69	160.00	134.05	0.182134	0.097006	0.172537	0.709	0.576
238	48.32	117.95	231.00	167.50	135.09	0.138906	0.078816	0.175198	0.715	0.579
239	48.70	116.40	233.19	167.50	135.76	0.124474	0.071376	0.156548	0.718	0.580
240	50.37	119.72	240.83	172.50	137.81	0.140935	0.077444	0.158117	0.727	0.582
241	50.84	118.03	237.40	162.50	135.84	0.168441	0.068647	0.156061	0.716	0.576
242	48.47	115.93	233.85	167.50	135.76	0.131986	0.072289	0.150937	0.720	0.580
243	48.44	115.83	229.04	160.00	135.95	0.145428	0.072025	0.191807	0.716	0.578
244	51.43	121.62	234.22	172.50	136.71	0.128130	0.085851	0.154354	0.719	0.580
245	49.11	121.49	234.39	175.00	136.93	0.161282	0.083142	0.151921	0.720	0.586
246	48.47	118.09	231.73	162.50	134.88	0.136306	0.082689	0.168974	0.713	0.579
247	51.11	120.38	240.40	160.00	137.55	0.168912	0.070749	0.158208	0.715	0.576
248	48.32	115.80	231.31	160.00	134.99	0.139076	0.080322	0.172528	0.714	0.579
249	51.04	119.74	238.98	160.00	137.50	0.165012	0.068476	0.157130	0.715	0.577
250	49.88	120.95	238.33	167.50	136.73	0.132470	0.073723	0.150520	0.722	0.579
251	49.21	115.54	230.84	160.00	140.02	0.168302	0.073911	0.176529	0.722	0.577
252	52.67	117.74	236.08	167.50	135.16	0.170837	0.068723	0.156848	0.716	0.576
253	51.78	121.74	231.82	172.50	137.81	0.156214	0.088165	0.168176	0.720	0.577
254	48.27	119.10	231.34	160.00	134.48	0.145125	0.087625	0.172233	0.711	0.578
255	51.36	120.13	237.56	172.50	137.72	0.133732	0.075821	0.154803	0.725	0.580
256	50.64	120.81	239.21	162.50	132.65	0.155776	0.099718	0.168219	0.709	0.577
257	50.22	117.77	229.54	175.00	138.28	0.146555	0.078086	0.187579	0.727	0.582
258	48.48	118.04	246.43	165.00	134.55	0.147035	0.086378	0.160649	0.713	0.578
259	49.26	115.71	227.92	162.50	135.71	0.158593	0.070018	0.201340	0.717	0.578
260	49.76	120.30	234.45	167.50	135.21	0.135554	0.077746	0.151535	0.715	0.578
261	52.24	119.63	237.01	162.50	134.85	0.146927	0.076164	0.160506	0.713	0.577
262	48.17	117.84	233.47	172.50	133.98	0.146345	0.089047	0.164365	0.714	0.580
263	48.75	116.11	235.87	160.00	139.38	0.153557	0.073096	0.149240	0.721	0.578
264	52.33	118.22	237.79	165.00	133.81	0.168876	0.095284	0.172711	0.710	0.576
265	48.54	120.27	235.28	167.50	135.05	0.134920	0.088126	0.162928	0.712	0.579
266	47.99	119.91	226.86	167.50	137.71	0.168486	0.076509	0.210367	0.720	0.578
267	52.43	121.45	236.31	172.50	136.14	0.153019	0.091894	0.171313	0.711	0.577
268	48.62	114.19	227.71	160.00	136.41	0.155089	0.071529	0.203144	0.719	0.578
269	51.84	121.64	235.70	172.50	137.38	0.166604	0.086169	0.167658	0.715	0.580
270	52.39	122.37	239.24	172.50	136.29	0.154463	0.100709	0.166080	0.714	0.577
271	54.09	120.61	233.30	172.50	137.77	0.141907	0.075624	0.155614	0.724	0.577
272	49.81	120.86	234.71	167.50	133.96	0.153763	0.092201	0.170321	0.710	0.577
273	51.76	118.11	226.76	180.00	138.10	0.152843	0.074960	0.211178	0.724	0.581
274	52.08	120.63	244.29	167.50	135.52	0.173089	0.072224	0.160491	0.715	0.576
275	48.66	119.98	232.84	167.50	134.54	0.145957	0.087958	0.169282	0.712	0.578
276	49.17	116.08	232.57	167.50	135.84	0.129268	0.070833	0.161851	0.718	0.579
277	48.47	118.18	244.42	167.50	136.79	0.140498	0.072035	0.150779	0.720	0.581
278	49.74	118.93	232.83	162.50	133.94	0.178425	0.098160	0.174256	0.709	0.576
279	52.82	119.70	237.67	167.50	137.29	0.152686	0.073827	0.150732	0.722	0.577
280	49.86	119.33	240.54	172.50	134.23	0.173134	0.077568	0.158567	0.714	0.576
281	50.30	120.01	233.87	160.00	134.23	0.174894	0.092611	0.171992	0.710	0.577
282	49.37	120.38	239.38	167.50	133.71	0.164519	0.093752	0.164760	0.711	0.577
283	52.96	118.64	228.87	170.00	137.96	0.177454	0.074590	0.193316	0.723	0.586
284	52.89	114.02	233.92	162.50	135.56	0.159196	0.071214	0.150346	0.719	0.576
285	50.36	116.07	228.35	160.00	136.10	0.162305	0.068874	0.197698	0.716	0.577
286	49.28	121.42	234.45	167.50	133.82	0.159385	0.091636	0.170456	0.711	0.577
287	52.25	115.58	235.78	167.50	138.16	0.142485	0.083012	0.164935	0.731	0.578
288	51.89	119.69	237.32	172.50	138.23	0.140492	0.077353	0.157932	0.727	0.580
289	51.83	119.06	239.22	167.50	137.24	0.155786	0.073286	0.149628	0.721	0.577
290	49.18	120.41	234.59	167.50	134.27	0.137237	0.089007	0.167098	0.712	0.579
291	49.16	116.23	230.89	162.50	135.44	0.151811	0.076157	0.176070	0.714	0.578
292	50.99	112.56	233.47	157.50	138.37	0.162057	0.094697	0.154200	0.722	0.577
293	54.09	113.98	251.36	172.50	141.69	0.152726	0.098009	0.176790	0.738	0.577
294	52.40	121.23	233.08	167.50	136.85	0.139784	0.078046	0.157466	0.722	0.581
295	51.62	113.98	249.99	172.50	142.66	0.159683	0.095499	0.184843	0.743	0.581
296	49.69	121.09	246.04	175.00	137.05	0.151893	0.075204	0.149867	0.721	0.583
297	50.21	115.68	230.33	162.50	135.83	0.172988	0.069827	0.180830	0.717	0.577
298	50.84	121.77	228.21	192.50	145.50	0.154869	0.102295	0.198876	0.738	0.607
299	53.55	118.71	230.05	170.00	138.90	0.143618	0.092208	0.183279	0.732	0.578
300	52.35	119.52	240.88	172.50	136.78	0.163510	0.070711	0.156586	0.718	0.576

AFT KINETIC POPULATION # 1

MAXIMUM OBJECTIVE FUNCTION = 0.183728

EXPONENTIAL MEAN TEMPERATURE SOLUTION:
OBSERVED AFT AGE = 51.3 MA CALCULATED AFT AGE = 51.7 MA
MODEL RETENTION AGE = 140.0 MA OBJ FUNCTION = 0.156026
TRACK ANNEALING TIME = 47.5 MA ANNEALING TEMPERATURE = 102.58 DEG C

TRACK LENGTH OBJ FUNCTION = 0.156026 AGE OBJ FUNCTION = 0.019110
LENGTH GOF PROBABILITY = 0.7066
AGE GOF PROBABILITY = 0.9441
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.119247 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.028496

%RO GOF PROBABILITY (POST-DEPOSITION) = 0.1943
%RO GOF PROBABILITY (POST-EXHUMATION) = 0.7564

LOWEST COMBINED OBJECTIVE FUNCTION

MINIMUM OBJECTIVE SOLUTION (SOLUTION # 163):
CALCULATED AFT AGE = 51.3 MA MODEL RETENTION AGE = 140.0 MA
OBJ FUNCTION = 0.137561
TRACK ANNEALING TIME = 45.0 MA ANNEALING TEMPERATURE = 102.16 DEG C

TRACK LENGTH OBJ FUNCTION = 0.137561 AGE OBJ FUNCTION = 0.004725
LENGTH GOF PROBABILITY = 0.8373
AGE GOF PROBABILITY = 0.9862
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.122211 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.026862

%RO GOF PROBABILITY (POST-DEPOSITION) = 0.1746
%RO GOF PROBABILITY (POST-EXHUMATION) = 0.7487

AVE AFT AGE = 50.7 MA

AFT KINETIC POPULATION # 2

MAXIMUM OBJECTIVE FUNCTION = 0.103646

EXPONENTIAL MEAN TEMPERATURE SOLUTION:
OBSERVED AFT AGE = 117.3 MA CALCULATED AFT AGE = 119.1 MA
MODEL RETENTION AGE = 419.5 MA OBJ FUNCTION = 0.074419
TRACK ANNEALING TIME = 397.0 MA ANNEALING TEMPERATURE = 131.23 DEG C

TRACK LENGTH OBJ FUNCTION = 0.074419 AGE OBJ FUNCTION = 0.035381
LENGTH GOF PROBABILITY = 0.8757
AGE GOF PROBABILITY = 0.8188
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.067609 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.016156

LOWEST COMBINED OBJECTIVE FUNCTION

MINIMUM OBJECTIVE SOLUTION (SOLUTION # 163):
CALCULATED AFT AGE = 120.2 MA MODEL RETENTION AGE = 432.8 MA
OBJ FUNCTION = 0.069289
TRACK ANNEALING TIME = 417.8 MA ANNEALING TEMPERATURE = 146.55 DEG C

TRACK LENGTH OBJ FUNCTION = 0.067100 AGE OBJ FUNCTION = 0.056598
LENGTH GOF PROBABILITY = 0.9388
AGE GOF PROBABILITY = 0.7140
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.069289 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.015230

AVE AFT AGE = 118.9 MA

AFT KINETIC POPULATION # 3

MAXIMUM OBJECTIVE FUNCTION = 0.211178

EXPONENTIAL MEAN TEMPERATURE SOLUTION:
OBSERVED AFT AGE = 251.6 MA CALCULATED AFT AGE = 234.2 MA
MODEL RETENTION AGE = 541.8 MA OBJ FUNCTION = 0.162195
TRACK ANNEALING TIME = 481.8 MA ANNEALING TEMPERATURE = 220.33 DEG C

TRACK LENGTH OBJ FUNCTION = 0.162195 AGE OBJ FUNCTION = 0.147731
LENGTH GOF PROBABILITY = 0.8206
AGE GOF PROBABILITY = 0.6394
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.138036 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.032985

LOWEST COMBINED OBJECTIVE FUNCTION

MINIMUM OBJECTIVE SOLUTION (SOLUTION # 163):
CALCULATED AFT AGE = 244.5 MA MODEL RETENTION AGE = 543.1 MA
OBJ FUNCTION = 0.152952
TRACK ANNEALING TIME = 500.6 MA ANNEALING TEMPERATURE = 230.19 DEG C

TRACK LENGTH OBJ FUNCTION = 0.152952 AGE OBJ FUNCTION = 0.060120
LENGTH GOF PROBABILITY = 0.8706
AGE GOF PROBABILITY = 0.8488
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.141467 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.031094

AVE AFT AGE = 235.1 MA

RETENTION AGES FOR ALL THERMAL SOLUTIONS:

	KINETIC POPULATION# 1			KINETIC POPULATION# 2			KINETIC POPULATION# 3		
MODEL #	RET AGE Ma	ANNEAL TIME Ma	ANNEAL TEMP DEG C	RET AGE Ma	ANNEAL TIME Ma	ANNEAL TEMP DEG C	RET AGE Ma	ANNEAL TIME Ma	ANNEAL TEMP DEG C
1	137.5	32.5	89.79	414.0	409.0	156.65	538.6	468.6	217.63
2	135.0	42.5	100.80	419.0	406.5	146.27	537.5	485.0	222.53
3	135.0	35.0	92.32	412.4	404.9	152.54	535.8	478.3	226.01
4	135.0	35.0	93.69	406.8	379.2	118.61	533.9	478.9	230.08
5	145.0	57.5	100.76	428.6	416.1	146.85	544.3	499.3	228.18
6	137.5	30.0	87.47	404.2	391.7	142.19	531.1	456.1	212.95
7	145.0	55.0	102.49	429.8	419.8	146.96	545.2	497.7	226.00
8	145.0	62.5	97.19	438.8	426.3	147.70	542.8	502.8	232.31
9	135.0	47.5	102.22	424.3	394.3	121.10	545.1	500.1	229.92
10	135.0	132.5	116.14	418.4	400.9	139.77	542.0	502.0	232.60
11	147.5	60.0	99.57	431.3	423.8	152.14	545.8	503.3	230.41
12	140.0	52.5	102.25	420.6	160.6	134.60	543.5	503.5	232.23
13	137.5	47.5	103.49	415.5	148.0	129.23	540.4	500.4	232.68
14	137.5	27.5	85.44	419.3	174.3	132.54	540.5	500.5	232.97
15	145.0	57.5	101.86	431.5	401.5	125.02	546.9	506.9	231.73
16	132.5	35.0	93.09	414.3	391.8	131.90	531.2	476.2	225.75
17	145.0	127.5	91.48	420.4	165.4	134.73	541.7	479.2	218.86
18	137.5	47.5	104.23	411.3	396.3	142.71	535.2	482.7	227.86
19	140.0	52.5	101.62	420.6	160.6	133.81	541.1	503.6	233.87
20	137.5	47.5	103.89	419.9	404.9	141.52	540.8	495.8	228.28
21	142.5	45.0	99.19	427.5	140.0	110.85	547.2	507.2	232.52
22	137.5	42.5	100.22	423.8	416.3	153.28	543.8	501.2	230.37
23	140.0	50.0	102.72	413.7	403.7	149.94	538.8	493.8	227.26
24	145.0	25.0	77.80	436.4	418.9	139.45	540.4	480.4	217.03
25	140.0	62.5	90.97	424.7	159.7	136.36	538.8	501.2	234.99
26	146.2	53.8	102.12	427.7	415.2	147.66	545.2	495.2	224.38
27	140.0	62.5	90.88	424.9	417.4	151.58	536.3	488.8	224.74
28	140.0	37.5	94.41	421.2	411.2	149.02	537.6	465.1	212.14
29	145.0	55.0	102.25	419.5	402.0	138.36	547.2	507.2	231.86
30	147.5	57.5	103.03	435.0	422.5	147.91	543.1	495.6	228.22
31	135.0	42.5	100.81	413.0	173.0	134.86	542.8	495.3	228.45
32	145.0	47.5	100.33	420.1	187.6	128.06	549.6	464.6	203.98

33	137.5	47.5	103.73	419.9	174.9	134.24	540.0	472.5	215.97
34	145.0	47.5	100.17	435.9	153.4	122.20	548.8	501.3	229.42
35	137.5	37.5	93.56	418.7	138.7	113.62	543.7	506.2	233.98
36	145.0	30.0	81.91	440.9	408.4	128.43	548.8	491.3	221.47
37	137.5	42.5	99.36	413.6	406.1	152.86	538.0	488.0	227.49
38	135.0	40.0	99.19	408.0	398.0	152.01	533.9	478.9	227.31
39	145.0	45.0	99.48	425.5	408.0	144.40	543.8	503.8	231.49
40	135.0	47.5	104.12	412.7	395.2	141.22	535.3	497.8	233.31
41	137.5	47.5	103.73	410.5	400.5	152.35	534.2	489.2	226.75
42	137.5	50.0	102.25	424.6	154.6	131.72	535.2	485.2	224.95
43	137.5	47.5	103.60	414.2	406.7	151.71	547.1	507.1	231.99
44	143.3	53.3	103.68	425.7	413.2	145.46	548.2	510.7	234.40
45	142.5	40.0	94.09	420.7	408.2	147.87	547.2	507.2	231.87
46	147.5	45.0	97.73	407.7	395.2	144.86	549.4	504.4	228.82
47	137.5	42.5	100.02	415.5	165.5	134.52	537.5	487.5	222.82
48	140.0	52.5	101.67	408.3	398.3	151.71	533.3	460.8	215.89
49	137.5	42.5	98.54	416.9	406.9	149.79	544.4	501.9	230.18
50	137.5	52.5	102.96	429.6	407.1	135.91	545.4	507.9	234.53
51	145.0	52.5	102.76	421.6	406.6	142.64	546.7	504.2	230.36
52	135.0	42.5	100.02	417.8	407.8	149.99	537.5	480.0	223.50
53	140.0	47.5	102.86	423.6	413.6	150.24	539.6	489.6	223.18
54	145.0	55.0	102.28	425.2	405.2	142.09	546.3	511.3	235.03
55	137.5	32.5	88.65	420.0	187.5	108.74	540.5	473.0	215.35
56	147.5	52.5	101.12	423.2	400.7	137.51	545.8	483.3	213.86
57	145.0	47.5	100.78	425.9	393.4	121.20	544.9	499.9	227.95
58	140.0	65.0	86.91	423.5	416.0	153.80	536.3	498.8	235.09
59	137.5	27.5	84.53	422.2	409.7	144.28	540.0	480.0	221.30
60	145.0	47.5	102.13	428.3	410.8	145.00	548.7	511.2	234.18
61	135.0	32.5	86.93	421.5	406.5	142.79	539.0	491.5	225.86
62	137.5	40.0	95.90	417.7	405.2	148.31	542.0	492.0	222.57
63	145.0	40.0	92.65	433.1	175.6	137.93	542.6	500.1	229.96
64	135.0	45.0	103.12	431.4	416.4	141.95	547.1	507.1	231.52
65	136.2	48.8	104.04	422.7	162.7	132.33	537.0	497.0	230.83
66	137.5	37.5	94.45	417.7	405.2	147.91	540.6	503.1	234.48
67	147.5	50.0	101.47	430.5	408.0	138.84	537.8	487.8	225.26
68	137.5	47.5	104.28	418.4	408.4	150.42	541.2	488.7	221.53
69	135.0	45.0	103.25	415.9	408.4	153.30	537.5	455.0	206.54
70	137.5	47.5	103.04	415.3	402.8	145.97	538.6	476.1	220.09
71	135.0	25.0	81.99	410.5	395.5	143.95	533.1	475.6	226.26
72	145.0	47.5	101.45	434.2	416.7	139.97	547.8	505.3	231.13
73	140.0	47.5	94.71	410.0	390.0	144.62	543.2	468.2	217.93
74	142.5	37.5	96.43	418.8	396.3	135.17	541.4	503.9	233.86
75	146.2	53.8	102.31	428.6	416.1	147.24	546.5	509.0	233.74
76	135.0	20.0	76.95	413.1	175.6	124.07	535.4	490.4	225.95
77	142.5	30.0	84.25	427.4	417.4	149.24	547.2	512.2	234.87
78	140.0	45.0	103.52	411.8	399.3	141.77	535.6	445.6	203.24
79	135.0	47.5	104.76	412.9	402.9	151.70	532.7	482.7	226.88
80	137.5	40.0	95.82	420.7	398.2	134.70	543.4	463.4	203.77
81	147.5	55.0	102.63	428.6	181.1	133.83	542.2	499.7	228.57
82	147.5	60.0	99.28	428.5	403.5	132.67	545.3	500.3	228.91
83	137.5	32.5	89.39	421.8	409.3	145.61	544.9	507.4	233.10
84	147.5	47.5	98.98	430.5	155.5	122.95	549.2	479.2	208.56
85	137.5	50.0	102.93	418.0	138.0	117.03	541.6	496.6	227.48
86	135.0	40.0	94.82	422.7	395.2	127.28	538.6	468.6	212.09
87	137.5	52.5	101.33	410.8	165.8	134.04	535.2	467.7	219.48
88	142.5	37.5	91.61	426.0	411.0	145.32	543.5	496.0	225.48
89	147.5	140.0	104.53	422.3	159.8	132.83	543.2	473.2	208.74
90	137.5	40.0	97.99	435.4	427.9	154.01	542.6	505.1	234.45
91	140.0	35.0	89.43	417.8	402.8	146.64	544.2	504.2	231.29
92	137.5	37.5	95.91	421.5	171.5	132.39	536.1	486.1	224.03
93	137.5	45.0	102.55	418.0	405.5	147.26	541.3	473.8	216.10
94	140.0	55.0	100.25	419.2	174.2	132.68	542.1	499.6	229.50
95	137.5	50.0	103.57	427.4	384.9	114.86	543.2	503.2	232.38
96	145.0	57.5	100.90	429.3	409.3	138.04	546.2	503.7	231.34
97	140.0	32.5	90.77	416.4	411.4	156.60	535.6	473.1	225.69
98	137.5	57.5	96.83	417.8	400.3	141.87	540.4	497.9	231.27
99	135.0	55.0	98.70	416.6	404.1	146.55	537.6	500.1	233.77
100	137.5	50.0	102.90	419.3	401.8	139.33	542.3	502.3	231.77
101	137.5	55.0	98.77	412.7	402.7	152.04	539.3	464.3	212.89
102	140.0	45.0	98.47	434.5	409.5	133.74	550.3	510.3	233.42
103	135.0	42.5	101.00	431.1	406.1	129.62	542.9	497.9	228.78
104	147.5	57.5	102.59	432.1	422.1	147.97	546.8	494.3	224.58
105	145.0	30.0	83.59	447.1	439.6	149.52	548.8	503.8	228.97
106	137.5	45.0	102.72	421.4	408.9	145.94	542.4	472.4	211.36
107	147.5	52.5	102.98	428.2	413.2	145.97	540.5	503.0	234.08
108	137.5	55.0	99.36	415.0	170.0	131.78	538.7	493.7	228.47
109	140.0	52.5	102.16	422.6	412.6	151.75	543.3	503.3	232.21
110	137.5	50.0	102.92	413.6	166.1	133.51	542.1	502.1	231.55
111	140.0	50.0	103.06	421.6	404.1	139.86	543.2	500.7	230.66
112	145.0	50.0	101.33	440.9	180.9	132.66	542.6	500.1	230.45
113	140.0	52.5	100.67	400.4	392.9	153.41	522.9	462.9	225.58
114	147.5	60.0	100.16	442.5	155.0	127.13	552.3	514.8	233.93
115	145.0	55.0	101.53	423.9	401.4	135.37	543.8	481.2	216.32
116	147.5	57.5	102.59	432.4	152.4	118.30	546.2	508.7	233.97
117	135.0	30.0	87.06	413.8	401.3	146.93	539.9	464.9	211.69
118	137.5	50.0	103.06	416.7	409.2	152.00	541.2	498.7	229.89
119	140.0	55.0	100.59	412.3	159.8	133.87	537.8	475.3	225.53
120	137.5	42.5	100.77	422.1	162.1	138.92	533.4	470.9	212.72
121	150.0	40.0	99.00	422.8	412.8	149.89	550.0	500.0	224.20
122	142.5	55.0	99.51	420.1	390.1	122.38	540.3	497.8	231.37
123	137.5	20.0	76.21	421.0	411.0	150.74	540.9	498.4	230.90
124	145.0	52.5	102.86	435.4	170.4	137.88	549.0	506.5	230.07
125	135.0	35.0	88.67	421.5	409.0	146.97	538.2	495.7	231.26
126	137.5	42.5	101.17	409.4	161.9	133.94	534.3	456.8	208.06
127	135.0	40.0	98.23	416.1	403.6	146.61	535.4	492.9	228.30
128	145.0	55.0	102.45	426.0	156.0	126.96	545.0	500.0	230.49
129	142.5	50.0	103.23	422.6	147.6	121.92	542.5	487.5	219.49
130	137.5	50.0	102.56	417.5	400.0	141.92	538.8	493.7	225.74
131	145.0	57.5	100.09	419.7	407.2	144.83	546.4	506.4	232.55
132	160.0	25.0	73.31	425.2	190.2	146.58	536.4	493.9	235.72
133	135.0	47.5	103.55	424.8	414.8	147.75	533.0	473.0	221.33
134	147.5	57.5	102.30	428.1	413.1	146.14	547.0	502.0	230.41
135	137.5	52.5	100.51	412.7	402.7	151.59	537.1	482.1	229.50
136	142.5	45.0	99.36	430.7	415.7	144.68	545.6	495.6	225.97
137	137.5	37.5	94.40	428.1	413.1	144.20	546.9	509.4	233.38
138	147.5	35.0	87.18	430.7	415.7	144.23	542.8	500.3	230.98
139	145.0	45.0	103.44	430.8	168.3	136.14	544.7	504.7	231.30
140	132.5	47.5	102.76	424.5	167.0	135.33	546.7	506.7	232.31

141	137.5	25.0	81.45	424.8	414.8	147.89	537.7	485.2	222.94
142	142.5	35.0	85.38	422.5	175.0	135.23	546.8	486.8	216.13
143	137.5	55.0	101.02	417.8	147.8	129.93	541.9	501.9	232.35
144	137.5	45.0	102.34	407.8	397.8	151.32	536.0	491.0	227.28
145	147.5	52.5	100.97	423.0	413.0	150.41	546.1	501.1	228.07
146	145.0	57.5	101.45	430.6	415.6	143.82	545.4	502.9	231.12
147	147.5	37.5	87.94	431.2	416.2	144.14	547.8	505.3	231.92
148	140.0	50.0	102.71	419.1	406.6	146.84	540.8	500.8	233.19
149	140.0	52.5	101.74	426.2	386.2	119.96	543.9	498.9	228.45
150	140.0	52.5	102.71	428.4	418.4	149.81	544.2	499.2	227.63
151	137.5	2.5	55.43	419.1	406.6	146.39	540.2	495.2	228.86
152	145.0	42.5	95.96	442.5	152.5	124.24	547.9	505.4	231.20
153	137.5	45.0	102.00	445.5	433.0	144.78	546.3	503.8	230.86
154	140.0	45.0	100.11	416.8	171.8	134.95	544.9	499.9	227.01
155	135.0	42.5	101.78	405.0	182.5	111.52	532.2	484.7	229.22
156	135.0	130.0	112.97	416.6	151.6	133.74	527.5	482.5	231.34
157	137.5	42.5	100.26	408.1	168.1	133.23	536.9	491.9	225.66
158	135.0	45.0	101.98	422.5	165.0	133.67	537.6	477.6	219.78
159	147.5	57.5	100.94	432.1	179.6	137.16	543.9	498.9	227.98
160	137.5	37.5	93.44	422.2	414.7	151.90	542.6	502.6	233.29
161	140.0	47.5	102.51	423.4	170.9	133.98	541.4	501.4	232.52
162	140.0	47.5	103.30	425.6	178.1	128.31	543.2	503.2	232.51
163	140.0	45.0	102.16	432.8	417.8	146.55	543.1	500.6	230.19
164	147.5	52.5	101.27	434.1	166.6	134.67	546.6	509.1	233.42
165	142.5	25.0	79.21	428.0	158.0	130.96	541.0	476.0	212.90
166	145.0	35.0	92.57	425.5	418.0	153.36	546.3	503.8	229.75
167	145.0	55.0	102.47	427.6	160.1	132.80	545.1	502.6	231.91
168	137.5	30.0	85.98	419.3	181.8	124.13	542.1	477.1	216.41
169	145.0	50.0	103.37	418.1	160.6	127.04	548.3	503.3	227.66
170	135.0	37.5	95.14	415.0	402.5	148.13	542.8	497.8	230.84
171	137.5	45.0	102.33	417.3	409.8	152.17	541.2	498.7	230.61
172	137.5	45.0	102.02	417.7	402.7	145.22	540.0	487.5	221.76
173	135.0	47.5	104.25	404.0	394.0	146.44	532.2	469.7	224.09
174	135.0	27.5	85.64	409.6	167.1	132.27	533.2	483.2	227.91
175	135.0	132.5	116.42	418.7	403.7	142.12	540.0	497.5	232.24
176	147.5	65.0	96.46	426.2	151.2	121.28	542.6	482.6	219.17
177	135.0	25.0	83.75	429.5	422.0	151.83	544.4	494.4	223.08
178	149.2	54.2	102.92	428.4	410.9	143.85	540.4	502.9	234.22
179	137.5	60.0	96.63	420.6	153.1	132.48	539.5	492.0	225.35
180	137.5	45.0	102.71	416.5	406.5	149.39	541.6	499.1	230.23
181	147.5	60.0	99.29	450.9	173.4	141.78	550.1	492.6	213.43
182	150.0	35.0	91.62	414.5	184.5	132.48	545.8	488.3	216.94
183	137.5	35.0	91.18	420.3	405.3	144.45	544.4	506.9	233.44
184	145.0	50.0	101.26	423.7	166.2	137.74	544.9	497.4	222.94
185	137.5	42.5	100.58	435.5	425.5	149.40	547.2	507.2	231.46
186	145.0	52.5	101.86	438.4	420.9	141.06	549.1	496.6	224.40
187	137.5	32.5	88.54	422.9	412.9	151.29	543.9	506.4	233.75
188	142.5	32.5	86.37	428.8	168.8	136.55	540.5	483.0	220.06
189	137.5	57.5	97.65	426.0	416.0	149.75	537.3	469.8	210.15
190	145.0	45.0	97.28	411.8	164.3	128.72	546.1	466.1	213.14
191	146.2	51.2	101.59	425.0	170.0	137.64	543.1	480.6	214.32
192	147.5	50.0	101.95	426.6	391.6	121.87	537.7	490.2	227.96
193	147.5	45.0	95.37	434.0	156.5	121.54	549.4	494.4	223.39
194	137.5	32.5	89.47	418.9	408.9	150.17	544.1	501.6	231.10
195	153.3	60.8	103.50	417.2	167.2	133.63	543.7	508.7	235.51
196	140.0	55.0	100.47	418.7	158.7	132.88	540.6	495.6	228.47
197	150.0	50.0	99.82	433.9	188.9	129.96	548.8	503.8	228.10
198	135.0	50.0	103.22	423.4	398.4	134.81	543.1	495.6	225.87
199	137.5	45.0	102.52	418.6	406.1	146.21	541.7	471.7	213.29
200	137.5	42.5	100.10	416.1	173.6	130.34	538.3	495.8	229.74
201	140.0	47.5	103.32	418.0	398.0	137.90	544.9	507.4	233.27
202	142.5	47.5	102.46	422.6	390.1	121.22	543.0	505.5	234.17
203	137.5	47.5	103.88	418.2	403.2	144.06	542.4	469.9	209.88
204	137.5	42.5	99.13	421.0	408.5	146.51	541.0	478.5	219.54
205	145.0	50.0	102.41	428.0	415.5	148.06	547.3	499.8	226.65
206	135.0	40.0	98.51	414.0	406.5	153.26	542.1	499.6	228.55
207	137.5	42.5	100.03	420.4	405.4	143.23	540.0	485.0	221.16
208	145.0	47.5	101.21	422.6	180.1	129.83	544.6	507.1	233.27
209	132.5	37.5	95.33	414.3	404.3	150.34	536.0	476.0	223.48
210	147.5	132.5	93.35	431.0	156.0	129.32	546.6	511.6	235.17
211	137.5	20.0	76.24	418.5	403.5	144.39	538.3	475.8	219.88
212	147.5	60.0	98.74	425.8	173.3	135.99	543.6	506.1	234.10
213	137.5	25.0	81.15	422.7	412.7	151.41	541.9	469.4	208.52
214	140.0	50.0	102.58	414.8	407.3	152.49	537.2	479.7	227.44
215	137.5	30.0	86.34	421.5	406.5	142.95	542.0	472.0	211.83
216	147.5	40.0	89.56	438.6	423.6	144.22	550.3	510.3	232.74
217	142.5	30.0	82.95	417.8	407.8	151.41	541.2	481.2	220.81
218	145.0	45.0	98.70	425.0	375.0	101.39	544.0	476.5	209.60
219	142.5	45.0	100.91	424.5	179.5	131.69	544.9	507.4	232.84
220	140.0	52.5	101.77	421.4	406.4	143.16	540.5	485.5	221.37
221	150.0	30.0	79.65	420.7	163.2	135.26	540.8	488.3	219.92
222	137.5	45.0	102.06	419.8	404.8	141.72	540.2	490.2	224.02
223	140.0	55.0	100.21	420.9	410.9	149.88	538.4	493.4	227.99
224	135.0	37.5	95.22	411.8	174.3	129.02	534.4	459.4	210.63
225	145.0	45.0	98.42	454.0	444.0	148.18	554.5	517.0	232.62
226	137.5	45.0	102.62	417.0	392.0	125.39	539.8	467.3	209.86
227	137.5	40.0	96.37	421.2	411.2	149.82	541.5	496.5	227.52
228	142.5	55.0	102.23	442.5	170.0	135.21	549.9	499.9	224.35
229	142.5	35.0	88.69	423.1	408.1	146.45	543.1	478.1	215.66
230	142.5	30.0	83.29	439.6	427.1	146.42	550.9	508.4	232.63
231	142.5	45.0	99.18	428.7	408.7	138.27	547.2	509.7	233.36
232	147.5	52.5	101.46	420.7	388.2	120.77	545.0	502.5	231.31
233	140.0	52.5	102.67	428.0	418.0	150.20	544.6	487.1	217.87
234	137.5	50.0	102.75	420.5	410.5	151.42	539.1	479.1	221.28
235	140.0	50.0	103.33	410.9	403.4	153.13	530.1	475.1	226.62
236	142.5	40.0	97.98	429.5	422.0	152.08	544.4	506.9	232.73
237	135.0	35.0	92.60	417.8	407.8	149.26	540.0	485.0	222.05
238	140.0	57.5	96.66	416.6	401.6	142.89	538.0	483.0	223.75
239	137.5	47.5	104.13	419.6	404.6	142.48	541.2	483.8	220.94
240	148.8	56.2	103.27	439.6	424.6	141.68	545.6	505.6	232.94
241	137.5	42.5	99.30	426.9	161.9	134.84	540.1	502.6	234.62
242	135.0	40.0	97.33	424.1	386.6	118.48	544.6	504.6	231.99
243	135.0	45.0	103.52	417.0	404.5	146.12	539.3	501.8	232.49
244	145.0	47.5	99.66	434.8	412.3	136.26	544.7	502.2	230.57
245	147.5	50.0	101.88	433.4	413.4	140.02	550.7	505.7	230.83
246	137.5	47.5	104.28	409.1	399.1	149.03	533.5	443.5	203.51
247	140.0	52.5	101.18	428.6	418.6	150.14	539.3	489.3	222.93
248	135.0	47.5	104.76	415.9	408.4	152.89	538.8	483.8	224.53

249	140.0	40.0	97.09	426.2	413.7	146.50	539.5	474.5	208.00
250	147.5	130.0	92.20	435.3	405.3	130.69	547.2	507.2	231.54
251	137.5	37.5	96.64	419.3	156.8	137.19	531.8	464.3	206.14
252	137.5	55.0	101.30	423.1	150.6	131.20	539.1	464.1	205.97
253	147.5	55.0	100.03	423.9	171.4	137.26	549.3	509.3	231.24
254	135.0	35.0	93.54	404.9	392.4	139.01	533.7	483.7	229.91
255	145.0	52.5	103.24	433.4	178.4	134.88	549.7	512.2	233.95
256	135.0	50.0	103.31	418.7	161.2	132.52	541.2	493.7	227.80
257	150.0	57.5	102.99	427.6	180.1	135.40	546.6	494.1	226.08
258	135.0	20.0	77.73	436.1	156.1	132.43	546.4	506.4	232.33
259	135.0	32.5	90.84	404.1	164.1	135.46	531.1	466.1	222.25
260	137.5	45.0	101.76	421.6	149.1	126.03	542.6	492.6	225.23
261	137.5	52.5	102.63	420.0	190.0	103.02	542.5	482.5	219.07
262	137.5	52.5	102.19	415.9	408.4	153.60	541.0	501.0	233.64
263	137.5	40.0	98.66	426.9	166.9	135.35	535.5	488.0	225.37
264	135.0	40.0	93.70	417.6	405.1	148.52	540.7	500.7	233.60
265	137.5	45.0	102.83	420.0	382.5	115.42	544.4	499.4	228.65
266	145.0	37.5	99.31	414.1	386.6	133.86	538.6	478.6	224.62
267	140.0	47.5	102.68	423.2	408.2	145.06	546.2	508.7	233.29
268	135.0	42.5	101.13	408.0	153.0	133.27	531.2	481.2	229.58
269	142.5	45.0	100.36	425.0	375.0	110.21	546.8	509.3	233.27
270	142.5	32.5	86.06	419.4	156.9	124.97	545.8	505.8	232.83
271	147.5	60.0	99.66	432.1	174.6	137.71	542.7	497.7	228.80
272	137.5	42.5	99.95	415.1	400.1	144.82	539.7	492.2	224.19
273	145.0	45.0	97.92	409.6	402.1	154.14	533.2	478.2	226.57
274	142.5	50.0	102.00	433.9	421.4	145.15	548.8	508.8	232.55
275	140.0	50.0	102.55	414.0	384.0	124.09	539.0	481.5	225.75
276	138.7	48.8	104.30	419.4	166.9	135.47	542.8	502.8	232.74
277	145.6	53.1	102.96	438.8	408.8	129.17	550.4	505.4	230.70
278	137.5	52.5	100.99	412.5	402.5	152.23	535.0	485.0	226.12
279	145.0	50.0	101.88	422.5	157.5	133.76	544.1	509.1	235.08
280	137.5	42.5	100.14	426.6	411.6	142.03	541.9	471.9	209.63
281	135.0	42.5	100.44	412.9	137.9	120.02	541.2	483.8	223.70
282	136.7	49.2	103.26	423.3	410.8	147.45	540.6	490.6	223.11
283	140.0	45.0	92.19	410.0	390.0	145.98	541.2	483.8	223.57
284	135.0	50.0	103.04	422.3	157.3	133.23	539.1	496.6	230.20
285	137.5	50.0	102.63	405.4	397.9	155.99	535.1	490.1	226.88
286	137.5	42.5	100.53	414.3	144.3	121.37	539.6	474.6	217.67
287	145.8	50.8	101.82	426.0	176.0	134.90	546.1	511.1	235.11
288	145.0	40.0	92.48	437.1	412.1	132.12	549.8	504.8	227.62
289	145.0	55.0	101.78	425.0	50.0	102.19	545.7	508.2	234.48
290	137.5	42.5	99.97	419.7	392.2	122.02	537.5	465.0	211.03
291	137.5	52.5	101.30	416.5	404.0	146.37	540.7	500.7	233.20
292	135.0	47.5	103.70	429.9	157.4	135.67	536.8	489.3	224.35
293	147.5	60.0	98.27	450.5	165.5	140.31	553.0	510.5	229.59
294	145.0	40.0	91.06	430.5	415.5	144.28	544.9	504.9	231.82
295	145.0	20.0	73.03	450.7	175.7	138.70	552.8	517.8	235.98
296	145.0	27.5	79.54	442.6	415.1	131.17	552.3	502.3	225.20
297	137.5	47.5	103.91	408.1	163.1	135.27	538.0	483.0	225.66
298	155.0	32.5	79.58	419.8	194.8	145.14	525.0	487.5	231.59
299	147.5	17.5	69.63	426.6	184.1	131.32	540.4	495.4	225.53
300	145.0	47.5	101.22	428.5	418.5	149.48	545.4	492.9	221.97

RETENTION AGE DISTRIBUTION FOR ALL ACCEPTABLE SOLUTIONS:

RETENTION AGES: KINETIC POPULATION # 1

AGE BIN (MA)		RELATIVE FREQUENCY
100.0 -	110.0	0.000
110.0 -	120.0	0.000
120.0 -	130.0	0.000
130.0 -	140.0	0.603
140.0 -	150.0	0.387
150.0 -	160.0	0.010
160.0 -	170.0	0.000
170.0 -	180.0	0.000
180.0 -	190.0	0.000
190.0 -	200.0	0.000
200.0 -	210.0	0.000
210.0 -	220.0	0.000
220.0 -	230.0	0.000
230.0 -	240.0	0.000
240.0 -	250.0	0.000
250.0 -	260.0	0.000
260.0 -	270.0	0.000
270.0 -	280.0	0.000
280.0 -	290.0	0.000
290.0 -	300.0	0.000
300.0 -	310.0	0.000
310.0 -	320.0	0.000
320.0 -	330.0	0.000
330.0 -	340.0	0.000
340.0 -	350.0	0.000
350.0 -	360.0	0.000
360.0 -	370.0	0.000
370.0 -	380.0	0.000
380.0 -	390.0	0.000
390.0 -	400.0	0.000
400.0 -	410.0	0.000
410.0 -	420.0	0.000
420.0 -	430.0	0.000
430.0 -	440.0	0.000
440.0 -	450.0	0.000
450.0 -	460.0	0.000
460.0 -	470.0	0.000
470.0 -	480.0	0.000
480.0 -	490.0	0.000
490.0 -	500.0	0.000
500.0 -	510.0	0.000
510.0 -	520.0	0.000
520.0 -	530.0	0.000
530.0 -	540.0	0.000
540.0 -	550.0	0.000
550.0 -	560.0	0.000
560.0 -	570.0	0.000

AGE BIN (MA)			RELATIVE FREQUENCY
570.0 -	580.0		0.000
580.0 -	590.0		0.000
590.0 -	600.0		0.000

AVE MODEL RETENTION AGE = 140.69 +/- 4.70 MA

RETENTION AGES: KINETIC POPULATION # 2

AGE BIN (MA)			RELATIVE FREQUENCY
100.0 -	110.0		0.000
110.0 -	120.0		0.000
120.0 -	130.0		0.000
130.0 -	140.0		0.000
140.0 -	150.0		0.000
150.0 -	160.0		0.000
160.0 -	170.0		0.000
170.0 -	180.0		0.000
180.0 -	190.0		0.000
190.0 -	200.0		0.000
200.0 -	210.0		0.000
210.0 -	220.0		0.000
220.0 -	230.0		0.000
230.0 -	240.0		0.000
240.0 -	250.0		0.000
250.0 -	260.0		0.000
260.0 -	270.0		0.000
270.0 -	280.0		0.000
280.0 -	290.0		0.000
290.0 -	300.0		0.000
300.0 -	310.0		0.000
310.0 -	320.0		0.000
320.0 -	330.0		0.000
330.0 -	340.0		0.000
340.0 -	350.0		0.000
350.0 -	360.0		0.000
360.0 -	370.0		0.000
370.0 -	380.0		0.000
380.0 -	390.0		0.000
390.0 -	400.0		0.000
400.0 -	410.0		0.070
410.0 -	420.0		0.343
420.0 -	430.0		0.403
430.0 -	440.0		0.143
440.0 -	450.0		0.027
450.0 -	460.0		0.013
460.0 -	470.0		0.000
470.0 -	480.0		0.000
480.0 -	490.0		0.000
490.0 -	500.0		0.000
500.0 -	510.0		0.000
510.0 -	520.0		0.000
520.0 -	530.0		0.000
530.0 -	540.0		0.000
540.0 -	550.0		0.000
550.0 -	560.0		0.000
560.0 -	570.0		0.000
570.0 -	580.0		0.000
580.0 -	590.0		0.000
590.0 -	600.0		0.000

AVE MODEL RETENTION AGE = 422.69 +/- 8.94 MA

RETENTION AGES: KINETIC POPULATION # 3

AGE BIN (MA)			RELATIVE FREQUENCY
100.0 -	110.0		0.000
110.0 -	120.0		0.000
120.0 -	130.0		0.000
130.0 -	140.0		0.000
140.0 -	150.0		0.000
150.0 -	160.0		0.000
160.0 -	170.0		0.000
170.0 -	180.0		0.000
180.0 -	190.0		0.000
190.0 -	200.0		0.000
200.0 -	210.0		0.000
210.0 -	220.0		0.000
220.0 -	230.0		0.000
230.0 -	240.0		0.000
240.0 -	250.0		0.000
250.0 -	260.0		0.000
260.0 -	270.0		0.000
270.0 -	280.0		0.000
280.0 -	290.0		0.000
290.0 -	300.0		0.000
300.0 -	310.0		0.000
310.0 -	320.0		0.000
320.0 -	330.0		0.000
330.0 -	340.0		0.000
340.0 -	350.0		0.000
350.0 -	360.0		0.000
360.0 -	370.0		0.000
370.0 -	380.0		0.000
380.0 -	390.0		0.000
390.0 -	400.0		0.000
400.0 -	410.0		0.000
410.0 -	420.0		0.000
420.0 -	430.0		0.000
430.0 -	440.0		0.000
440.0 -	450.0		0.000
450.0 -	460.0		0.000
460.0 -	470.0		0.000

470.0 -	480.0	0.000
480.0 -	490.0	0.000
490.0 -	500.0	0.000
500.0 -	510.0	0.000
510.0 -	520.0	0.000
520.0 -	530.0	0.010
530.0 -	540.0	0.317
540.0 -	550.0	0.637
550.0 -	560.0	0.037
560.0 -	570.0	0.000
570.0 -	580.0	0.000
580.0 -	590.0	0.000
590.0 -	600.0	0.000

AVE MODEL RETENTION AGE = 541.90 +/- 5.02 MA

POST-DEPOSITIONAL THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.63 +/- 0.130; %RO FOR EXP MEAN SOLUTION = 0.71
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.72 +/- 0.007
MIN %RO = 0.71; MAX %RO = 0.76
%RO FOR MIN OBJ SOLUTION = 0.72

POST-EXHUMATION THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.60 +/- 0.150; %RO FOR EXP MEAN SOLUTION = 0.58
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.58 +/- 0.003
MIN %RO = 0.57; MAX %RO = 0.61
%RO FOR MIN OBJ SOLUTION = 0.58

BINNED %RO VALUES FOR POST-DEPOSITIONAL HISTORY:

%RO BIN		RELATIVE FREQUENCY
0.00 -	0.03	0.000
0.03 -	0.05	0.000
0.05 -	0.08	0.000
0.08 -	0.10	0.000
0.10 -	0.12	0.000
0.12 -	0.15	0.000
0.15 -	0.18	0.000
0.17 -	0.20	0.000
0.20 -	0.23	0.000
0.23 -	0.25	0.000
0.25 -	0.27	0.000
0.28 -	0.30	0.000
0.30 -	0.32	0.000
0.33 -	0.35	0.000
0.35 -	0.37	0.000
0.38 -	0.40	0.000
0.40 -	0.42	0.000
0.43 -	0.45	0.000
0.45 -	0.47	0.000
0.47 -	0.50	0.000
0.50 -	0.52	0.000
0.53 -	0.55	0.000
0.55 -	0.57	0.000
0.57 -	0.60	0.000
0.60 -	0.62	0.000
0.62 -	0.65	0.000
0.65 -	0.68	0.000
0.68 -	0.70	0.000
0.70 -	0.72	0.890
0.73 -	0.75	0.103
0.75 -	0.77	0.007
0.78 -	0.80	0.000
0.80 -	0.82	0.000
0.82 -	0.85	0.000
0.85 -	0.88	0.000
0.88 -	0.90	0.000
0.90 -	0.93	0.000
0.93 -	0.95	0.000
0.95 -	0.97	0.000
0.98 -	1.00	0.000

MINIMUM PEAK TEMPERATURE = 132.47 DEG C; MAXIMUM PEAK TEMPERATURE = 147.25 DEG C

PEAK TEMPERATURE: AVERAGE = 136.21 STAND DEV = 1.888

MAX TEMP BIN		RELATIVE FREQUENCY
100.00 -	102.00	0.000
102.00 -	104.00	0.000
104.00 -	106.00	0.000
106.00 -	108.00	0.000
108.00 -	110.00	0.000
110.00 -	112.00	0.000
112.00 -	114.00	0.000
114.00 -	116.00	0.000
116.00 -	118.00	0.000
118.00 -	120.00	0.000
120.00 -	122.00	0.000
122.00 -	124.00	0.000
124.00 -	126.00	0.000
126.00 -	128.00	0.000
128.00 -	130.00	0.000
130.00 -	132.00	0.000
132.00 -	134.00	0.073
134.00 -	136.00	0.453
136.00 -	138.00	0.347
138.00 -	140.00	0.100
140.00 -	142.00	0.013
142.00 -	144.00	0.007
144.00 -	146.00	0.003
146.00 -	148.00	0.003
148.00 -	150.00	0.000

MINIMUM PEAK TIME = 150.00 MA; MAXIMUM PEAK TIME = 192.50 MA

TIME OF PEAK TEMP: AVERAGE = 167.26 STAND DEV = 5.433

TIME AT MAX TEMP	RELATIVE FREQUENCY
149.38 - 150.62	0.003
150.62 - 151.88	0.000
151.88 - 153.12	0.000
153.12 - 154.38	0.000
154.38 - 155.62	0.000
155.62 - 156.88	0.000
156.88 - 158.12	0.020
158.12 - 159.38	0.000
159.38 - 160.62	0.137
160.62 - 161.88	0.000
161.88 - 163.12	0.163
163.12 - 164.38	0.000
164.38 - 165.62	0.043
165.62 - 166.88	0.000
166.88 - 168.12	0.280
168.12 - 169.38	0.000
169.38 - 170.62	0.040
170.62 - 171.88	0.000
171.88 - 173.12	0.257
173.12 - 174.38	0.000
174.38 - 175.62	0.037
175.62 - 176.88	0.000
176.88 - 178.12	0.010
178.12 - 179.38	0.000
179.38 - 180.62	0.003
180.62 - 181.88	0.000
181.88 - 183.12	0.000
183.12 - 184.38	0.000
184.38 - 185.62	0.000
185.62 - 186.88	0.000
186.88 - 188.12	0.000
188.12 - 189.38	0.000
189.38 - 190.62	0.000
190.62 - 191.88	0.000
191.88 - 193.12	0.007

DEPOSITION (ALL SOLUTIONS):
TIME RANGE FOR THERMAL MINIMUM: 287.5 - 292.5 Ma
TIME OF MINIMUM TEMPERATURE: AVERAGE = 289.4 STAND DEV =   1.4
TEMPERATURE RANGE FOR THERMAL MINIMUM: 3.6 -   17.1 deg C
MINIMUM TEMPERATURE: AVERAGE =   7.5 STAND DEV =   1.9

REBURIAL (ALL SOLUTIONS):
TIME RANGE FOR THERMAL MINIMUM: 102.5 - 115.0 Ma
TIME OF MINIMUM TEMPERATURE: AVERAGE = 105.1 STAND DEV =   4.1
TEMPERATURE RANGE FOR THERMAL MINIMUM: 36.5 -   40.0 deg C
MINIMUM TEMPERATURE: AVERAGE =   39.8 STAND DEV =   0.5

 OBJECTIVE FUNCTIONS: KINETIC POPULATION # 1

AVERAGE OF OBJ FNS= 0.15356 STAND DEV = 0.01516

OBJ FUNC	RELATIVE FREQUENCY
0.000 - 0.010	0.0000
0.010 - 0.020	0.0000
0.020 - 0.030	0.0000
0.030 - 0.040	0.0000
0.040 - 0.050	0.0000
0.050 - 0.060	0.0000
0.060 - 0.070	0.0000
0.070 - 0.080	0.0000
0.080 - 0.090	0.0000
0.090 - 0.100	0.0000
0.100 - 0.110	0.0000
0.110 - 0.120	0.0000
0.120 - 0.130	0.0533
0.130 - 0.140	0.1667
0.140 - 0.150	0.1933
0.150 - 0.160	0.2300
0.160 - 0.170	0.1933
0.170 - 0.180	0.1300
0.180 - 0.190	0.0333
0.190 - 0.200	0.0000

 OBJECTIVE FUNCTIONS: KINETIC POPULATION # 2

AVERAGE OF OBJ FNS= 0.08137 STAND DEV = 0.00999

OBJ FUNC	RELATIVE FREQUENCY
0.000 - 0.010	0.0000
0.010 - 0.020	0.0000
0.020 - 0.030	0.0000
0.030 - 0.040	0.0000
0.040 - 0.050	0.0000
0.050 - 0.060	0.0000
0.060 - 0.070	0.0667
0.070 - 0.080	0.4933
0.080 - 0.090	0.2000
0.090 - 0.100	0.1867
0.100 - 0.110	0.0533
0.110 - 0.120	0.0000
0.120 - 0.130	0.0000
0.130 - 0.140	0.0000

0.140 - 0.150	0.0000
0.150 - 0.160	0.0000
0.160 - 0.170	0.0000
0.170 - 0.180	0.0000
0.180 - 0.190	0.0000
0.190 - 0.200	0.0000

OBJECTIVE FUNCTIONS: KINETIC POPULATION # 3

AVERAGE OF OBJ FNS= 0.16623 STAND DEV = 0.01421

OBJ FUNC	RELATIVE FREQUENCY
0.000 - 0.010	0.0000
0.010 - 0.020	0.0000
0.020 - 0.030	0.0000
0.030 - 0.040	0.0000
0.040 - 0.050	0.0000
0.050 - 0.060	0.0000
0.060 - 0.070	0.0000
0.070 - 0.080	0.0000
0.080 - 0.090	0.0000
0.090 - 0.100	0.0000
0.100 - 0.110	0.0000
0.110 - 0.120	0.0000
0.120 - 0.130	0.0000
0.130 - 0.140	0.0000
0.140 - 0.150	0.0500
0.150 - 0.160	0.3567
0.160 - 0.170	0.3000
0.170 - 0.180	0.1533
0.180 - 0.190	0.0433
0.190 - 0.200	0.0500
0.200 - 0.210	0.0400
0.210 - 0.220	0.0067
0.220 - 0.230	0.0000
0.230 - 0.240	0.0000
0.240 - 0.250	0.0000
0.250 - 0.260	0.0000
0.260 - 0.270	0.0000
0.270 - 0.280	0.0000
0.280 - 0.290	0.0000
0.290 - 0.300	0.0000

OBSERVED TRACK LENGTH HISTOGRAM FOR KINETIC POPULATION # 1:

BIN SIZE (MICRONS)	RELATIVE FREQUENCY
0.0 - 1.0	0.000
1.0 - 2.0	0.000
2.0 - 3.0	0.000
3.0 - 4.0	0.000
4.0 - 5.0	0.000
5.0 - 6.0	0.000
6.0 - 7.0	0.000
7.0 - 8.0	0.000
8.0 - 9.0	0.000
9.0 - 10.0	0.000
10.0 - 11.0	0.000
11.0 - 12.0	0.053
12.0 - 13.0	0.105
13.0 - 14.0	0.421
14.0 - 15.0	0.105
15.0 - 16.0	0.316
16.0 - 17.0	0.000
17.0 - 18.0	0.000
18.0 - 19.0	0.000
19.0 - 20.0	0.000

OBSERVED TRACK LENGTH HISTOGRAM FOR KINETIC POPULATION # 2:

BIN SIZE (MICRONS)	RELATIVE FREQUENCY
0.0 - 1.0	0.000
1.0 - 2.0	0.000
2.0 - 3.0	0.000
3.0 - 4.0	0.000
4.0 - 5.0	0.000
5.0 - 6.0	0.000
6.0 - 7.0	0.000
7.0 - 8.0	0.000
8.0 - 9.0	0.000
9.0 - 10.0	0.000
10.0 - 11.0	0.000
11.0 - 12.0	0.033
12.0 - 13.0	0.279
13.0 - 14.0	0.344
14.0 - 15.0	0.131
15.0 - 16.0	0.164
16.0 - 17.0	0.033
17.0 - 18.0	0.016
18.0 - 19.0	0.000
19.0 - 20.0	0.000

OBSERVED TRACK LENGTH HISTOGRAM FOR KINETIC POPULATION # 3:

BIN SIZE (MICRONS)	RELATIVE FREQUENCY
0.0 - 1.0	0.000
1.0 - 2.0	0.000
2.0 - 3.0	0.000
3.0 - 4.0	0.000
4.0 - 5.0	0.000
5.0 - 6.0	0.000
6.0 - 7.0	0.000
7.0 - 8.0	0.000
8.0 - 9.0	0.000

9.0 - 10.0	0.000
10.0 - 11.0	0.000
11.0 - 12.0	0.143
12.0 - 13.0	0.286
13.0 - 14.0	0.143
14.0 - 15.0	0.214
15.0 - 16.0	0.214
16.0 - 17.0	0.000
17.0 - 18.0	0.000
18.0 - 19.0	0.000
19.0 - 20.0	0.000

MONTE CARLO RANDOM SEARCH METHOD

MINIMUM OBJECTIVE SOLUTION: LOWEST COMBINED OBJECTIVE FUNCTION

MODEL RESULTS AT 0.0500 SIGNIFICANCE LEVEL

SEARCH FOR MAXIMUM TEMPERATURE BETWEEN 102.50 - 0.00 MA

%RO MODEL: BASIN%RO

MODEL #	KIN POP# 1 CALCULATED AFT AGE (MA)	KIN POP# 2 CALCULATED AFT AGE (MA)	KIN POP# 3 CALCULATED AFT AGE (MA)	TIME OF MAXIMUM TEMP (MA)	MAXIMUM TEMP (DEG C)	KIN POP# 1 OBJECTIVE FUNCTION	KIN POP# 2 OBJECTIVE FUNCTION	KIN POP# 3 OBJECTIVE FUNCTION	%RO POST-DEP	%RO POST-EXH
1	49.51	132.67	259.99	55.00	107.87	0.168973	0.169320	0.195596	0.703	0.585
2	43.18	105.15	244.18	50.00	107.18	0.224774	0.134145	0.260190	0.727	0.584
3	57.32	128.20	228.18	65.00	104.53	0.228874	0.129763	0.264936	0.729	0.582
4	58.46	110.46	215.84	57.50	102.19	0.280092	0.150635	0.307550	0.745	0.571
5	42.00	104.45	231.42	57.50	118.19	0.267817	0.166610	0.310014	0.745	0.622
6	61.60	118.17	204.75	77.50	109.40	0.287661	0.163093	0.332985	0.754	0.597
7	56.19	125.42	213.91	75.00	110.33	0.281064	0.159352	0.325348	0.751	0.603
8	40.49	126.72	203.03	45.00	102.46	0.282541	0.162002	0.260780	0.727	0.581
9	46.51	111.85	240.51	47.50	104.64	0.213595	0.121100	0.247249	0.722	0.577
10	49.56	116.88	220.50	47.50	103.16	0.223191	0.108827	0.222191	0.713	0.575
11	57.67	109.34	214.19	82.50	114.55	0.246745	0.139895	0.285623	0.736	0.622
12	43.69	126.31	239.88	40.00	107.83	0.228302	0.144282	0.264274	0.728	0.579
13	41.30	125.63	249.60	37.50	105.25	0.261351	0.126072	0.211770	0.709	0.578
14	59.80	132.46	240.89	55.00	104.70	0.224600	0.167043	0.204217	0.706	0.575
15	48.75	104.74	215.98	57.50	104.37	0.244047	0.138587	0.282499	0.735	0.582
16	50.99	131.04	237.81	45.00	106.47	0.239628	0.151367	0.221225	0.712	0.577
17	41.72	128.30	206.36	57.50	108.44	0.250412	0.160983	0.219166	0.702	0.597
18	42.77	106.48	228.11	40.00	104.22	0.258560	0.146594	0.299299	0.741	0.578
19	55.65	132.29	236.35	72.50	111.56	0.207752	0.165116	0.239432	0.719	0.614
20	41.13	130.18	231.01	35.00	105.47	0.276962	0.167014	0.254602	0.725	0.578
21	45.62	129.98	230.45	60.00	110.53	0.189789	0.145397	0.215477	0.710	0.603
22	50.94	126.73	221.86	62.50	112.62	0.252927	0.139409	0.229279	0.715	0.617
23	45.61	128.40	195.61	47.50	104.04	0.296664	0.168400	0.343406	0.758	0.579
24	50.48	113.85	205.73	45.00	104.05	0.235674	0.133618	0.272807	0.732	0.576
25	52.10	131.35	213.66	67.50	108.30	0.194587	0.154817	0.232662	0.706	0.595
26	46.87	116.51	249.14	65.00	110.54	0.246209	0.139591	0.285002	0.736	0.614
27	54.22	132.37	238.79	60.00	105.86	0.284601	0.166098	0.329443	0.753	0.585
28	52.86	120.78	202.24	62.50	104.38	0.268390	0.152167	0.310678	0.746	0.581
29	61.46	127.45	223.02	80.00	105.23	0.268267	0.125108	0.255433	0.725	0.586
30	44.01	109.67	229.84	47.50	107.31	0.228780	0.112384	0.229453	0.715	0.586
31	55.89	124.78	261.93	55.00	102.71	0.223728	0.160120	0.200358	0.705	0.573
32	45.91	126.25	215.20	60.00	108.49	0.255599	0.119657	0.244302	0.721	0.598
33	55.90	116.50	220.60	55.00	105.72	0.251687	0.142697	0.291343	0.739	0.577
34	49.48	107.78	216.58	50.00	104.86	0.216886	0.122966	0.251058	0.724	0.581
35	57.88	118.65	235.96	70.00	109.18	0.259951	0.136348	0.278381	0.734	0.591
36	47.69	132.35	257.10	62.50	113.30	0.265535	0.165799	0.240638	0.720	0.610
37	57.62	103.46	219.52	57.50	104.28	0.241402	0.152779	0.279437	0.734	0.571
38	60.20	128.79	222.83	52.50	101.51	0.293656	0.166492	0.339924	0.757	0.572
39	48.87	129.99	209.88	65.00	110.19	0.188619	0.150273	0.221226	0.708	0.610
40	44.16	116.06	265.58	55.00	107.38	0.208221	0.118054	0.241029	0.720	0.591
41	61.00	123.81	234.94	82.50	108.73	0.264138	0.149756	0.305756	0.744	0.600
42	45.97	109.76	283.98	57.50	106.52	0.226658	0.128507	0.262371	0.728	0.586
43	53.10	119.52	248.15	60.00	106.53	0.221371	0.125509	0.256251	0.725	0.583
44	42.53	115.61	233.50	60.00	111.85	0.229072	0.153508	0.239634	0.719	0.616
45	49.66	102.76	220.05	50.00	103.85	0.214272	0.160490	0.248033	0.722	0.577
46	59.93	126.16	232.43	55.00	103.48	0.254544	0.144317	0.294651	0.740	0.575
47	43.07	123.58	228.65	45.00	107.99	0.241878	0.154176	0.272812	0.732	0.580
48	56.80	130.32	212.56	82.50	111.18	0.293073	0.166161	0.339250	0.756	0.614
49	55.95	118.52	235.23	55.00	104.34	0.210725	0.119473	0.243927	0.721	0.576
50	51.18	108.92	219.19	47.50	104.31	0.290035	0.164439	0.335734	0.755	0.576
51	51.82	127.14	222.29	67.50	107.04	0.218438	0.123846	0.252855	0.724	0.597
52	46.30	116.56	240.80	47.50	103.56	0.197370	0.111901	0.228468	0.715	0.577
53	48.27	114.45	222.24	40.00	105.63	0.235145	0.133318	0.272194	0.731	0.578
54	48.30	122.67	203.74	65.00	110.88	0.294873	0.167182	0.341333	0.757	0.607
55	50.13	120.52	215.07	42.50	102.81	0.291841	0.165463	0.337824	0.756	0.574
56	51.81	102.37	212.66	50.00	101.61	0.287680	0.164814	0.293058	0.739	0.572
57	53.43	106.77	229.09	50.00	102.91	0.300762	0.116267	0.235824	0.718	0.570
58	60.12	114.76	219.87	60.00	104.80	0.250607	0.142084	0.290093	0.738	0.575
59	60.00	118.65	237.14	60.00	104.74	0.266585	0.111349	0.227340	0.715	0.571
60	58.48	128.55	245.94	52.50	104.39	0.272836	0.123924	0.205127	0.706	0.571
61	48.65	117.17	230.32	47.50	104.68	0.231397	0.131193	0.267857	0.730	0.576
62	43.09	131.62	215.04	45.00	105.52	0.214225	0.157741	0.218810	0.708	0.583
63	40.18	125.30	235.76	32.50	106.43	0.290818	0.135360	0.239487	0.719	0.580
64	51.10	115.55	244.64	50.00	106.31	0.242299	0.133350	0.201649	0.705	0.576
65	43.32	132.28	234.01	42.50	105.49	0.260268	0.165007	0.301276	0.742	0.584
66	42.69	122.34	258.15	60.00	112.05	0.246058	0.161006	0.235229	0.718	0.617
67	55.90	123.67	259.42	52.50	106.88	0.205032	0.116246	0.237338	0.718	0.576
68	51.82	120.18	217.10	60.00	108.78	0.255251	0.144718	0.295469	0.740	0.590
69	43.79	113.49	199.87	57.50	112.91	0.265183	0.152746	0.306965	0.744	0.613
70	51.41	109.60	224.78	75.00	117.92	0.238096	0.158136	0.275611	0.733	0.627
71	53.12	125.86	245.95	52.50	103.49	0.224594	0.127336	0.259981	0.727	0.575
72	40.70	105.82	214.54	57.50	112.48	0.277005	0.142597	0.278763	0.734	0.612
73	52.41	107.66	207.46	80.00	119.33	0.281329	0.159503	0.325655	0.751	0.630
74	60.65	124.54	198.69	70.00	106.22	0.288605	0.163628	0.334077	0.754	0.582

75	60.44	124.86	228.32	82.50	117.87	0.241404	0.164545	0.259058	0.726	0.630
76	42.69	114.94	254.73	47.50	104.22	0.224879	0.109541	0.223648	0.713	0.581
77	47.51	105.89	224.81	55.00	104.47	0.217381	0.125962	0.239931	0.719	0.579
78	61.78	132.09	227.12	52.50	105.53	0.282924	0.163010	0.327502	0.752	0.576
79	44.16	117.34	231.81	62.50	111.08	0.245220	0.149472	0.283857	0.736	0.609
80	55.50	110.04	236.00	55.00	103.47	0.281395	0.115943	0.236719	0.718	0.571
81	57.14	132.64	213.69	45.00	104.89	0.280395	0.168969	0.324574	0.751	0.576
82	42.70	104.49	233.05	65.00	107.59	0.224641	0.141420	0.234591	0.717	0.596
83	50.89	116.67	243.72	65.00	114.32	0.274817	0.137633	0.281004	0.735	0.612
84	56.49	116.04	241.17	47.50	105.69	0.274414	0.120507	0.246038	0.722	0.572
85	40.16	119.09	223.21	42.50	105.99	0.291418	0.150800	0.307888	0.745	0.585
86	41.72	120.56	242.30	42.50	102.91	0.250343	0.116197	0.237238	0.718	0.577
87	52.43	112.24	220.74	50.00	104.31	0.280992	0.127611	0.260541	0.727	0.572
88	45.42	127.22	223.00	65.00	110.37	0.236795	0.140152	0.274105	0.732	0.607
89	54.09	118.63	252.80	50.00	102.47	0.275459	0.109935	0.223155	0.713	0.571
90	50.37	124.74	250.16	42.50	102.50	0.280288	0.118761	0.206432	0.707	0.572
91	57.50	113.25	256.98	62.50	107.98	0.239881	0.124556	0.254304	0.725	0.583
92	53.51	128.45	215.88	65.00	108.02	0.254288	0.126087	0.257431	0.726	0.595
93	40.75	123.61	228.84	57.50	110.24	0.275939	0.130393	0.229957	0.716	0.606
94	51.94	127.49	219.28	57.50	106.48	0.232545	0.120216	0.245444	0.721	0.589
95	53.31	115.27	223.02	72.50	114.59	0.282472	0.160151	0.326978	0.752	0.623
96	44.23	118.08	263.68	42.50	104.02	0.228332	0.155682	0.215937	0.710	0.576
97	48.31	106.12	215.86	50.00	105.15	0.289759	0.164282	0.335413	0.755	0.579
98	55.92	123.53	227.03	50.00	106.88	0.243324	0.137955	0.281662	0.735	0.578
99	51.10	126.32	227.38	47.50	106.18	0.186923	0.105978	0.216375	0.711	0.578
100	46.90	110.61	218.48	42.50	105.13	0.240968	0.148670	0.278936	0.734	0.576
101	48.57	116.64	224.61	55.00	106.40	0.191993	0.108853	0.222244	0.713	0.581
102	46.89	116.34	209.34	47.50	106.62	0.296575	0.168147	0.343304	0.758	0.580
103	49.78	129.27	228.20	50.00	111.02	0.262535	0.131843	0.246783	0.722	0.589
104	41.95	118.59	236.27	47.50	106.63	0.244180	0.167557	0.200531	0.705	0.589
105	40.26	132.42	257.40	47.50	107.51	0.288708	0.166572	0.250343	0.723	0.590
106	40.14	123.61	239.43	45.00	105.85	0.291858	0.120056	0.213392	0.709	0.586
107	50.73	122.30	237.31	47.50	106.18	0.237660	0.115871	0.236573	0.718	0.576
108	45.74	115.53	239.45	50.00	104.66	0.189505	0.107442	0.219363	0.712	0.579
109	51.69	128.04	247.79	67.50	109.20	0.286188	0.148322	0.207673	0.707	0.605
110	61.56	129.65	218.07	85.00	114.66	0.301013	0.136014	0.247080	0.722	0.619
111	61.25	124.09	242.23	57.50	106.67	0.285213	0.161705	0.330151	0.753	0.580
112	52.05	119.27	218.57	70.00	111.86	0.250866	0.131728	0.268948	0.730	0.614
113	60.52	128.71	230.67	57.50	105.30	0.255647	0.144942	0.295927	0.740	0.573
114	41.89	122.85	256.83	37.50	108.38	0.245826	0.140889	0.211507	0.709	0.580
115	54.87	109.20	204.54	80.00	115.15	0.280203	0.158864	0.324352	0.751	0.627
116	41.56	106.99	213.30	50.00	106.90	0.254485	0.125295	0.255814	0.725	0.587
117	51.14	110.54	215.29	47.50	105.29	0.225089	0.117184	0.239254	0.719	0.575
118	48.23	110.88	235.24	47.50	106.23	0.215667	0.122275	0.249648	0.723	0.579
119	48.42	112.59	227.99	55.00	104.88	0.268315	0.152124	0.310591	0.746	0.582
120	40.23	111.05	239.16	42.50	105.14	0.289600	0.110045	0.224678	0.714	0.581
121	53.89	108.02	248.91	52.50	104.91	0.212874	0.120691	0.246414	0.722	0.575
122	48.28	117.63	242.75	40.00	104.07	0.261161	0.111156	0.226946	0.715	0.574
123	55.85	126.56	250.24	72.50	108.16	0.292819	0.166017	0.338956	0.756	0.597
124	49.29	112.66	197.74	85.00	113.99	0.248896	0.148330	0.288112	0.737	0.619
125	41.09	125.33	232.50	35.00	105.56	0.266774	0.154975	0.274267	0.732	0.579
126	41.76	125.43	197.33	42.50	106.34	0.275987	0.159513	0.319472	0.749	0.584
127	43.32	114.37	231.46	52.50	111.04	0.280805	0.159206	0.325049	0.751	0.593
128	40.90	104.02	201.47	55.00	111.64	0.271949	0.146578	0.235883	0.714	0.612
129	53.27	131.45	244.55	62.50	107.33	0.295525	0.155919	0.268229	0.730	0.595
130	60.36	132.23	208.61	72.50	107.08	0.275427	0.164459	0.318823	0.749	0.587
131	60.09	102.79	212.47	85.00	117.72	0.294405	0.166917	0.340792	0.757	0.631
132	59.76	126.77	211.89	65.00	104.85	0.280724	0.159160	0.324955	0.751	0.582
133	46.94	119.87	227.03	60.00	109.84	0.288755	0.163713	0.334251	0.754	0.605
134	58.29	111.92	205.56	77.50	118.12	0.259923	0.147366	0.300876	0.742	0.622
135	40.96	123.93	218.71	55.00	108.60	0.294223	0.166813	0.340581	0.757	0.600
136	49.09	125.73	234.49	47.50	106.69	0.256061	0.145177	0.296407	0.740	0.586
137	58.91	129.87	254.77	57.50	102.83	0.291110	0.138476	0.244785	0.721	0.571
138	61.56	126.97	217.84	80.00	115.59	0.270808	0.124765	0.254732	0.725	0.610
139	41.60	112.68	218.52	50.00	107.87	0.296469	0.168087	0.343181	0.758	0.588
140	41.93	103.57	225.22	52.50	111.95	0.244814	0.151486	0.281366	0.735	0.616
141	40.99	116.98	228.12	37.50	106.80	0.269469	0.127019	0.259333	0.727	0.581
142	43.54	131.37	250.29	52.50	110.26	0.216091	0.155040	0.240890	0.720	0.599
143	41.19	124.67	229.11	37.50	104.59	0.280512	0.145431	0.241407	0.720	0.577
144	40.35	124.48	246.82	42.50	104.93	0.286440	0.142030	0.259655	0.727	0.579
145	55.52	123.95	210.25	65.00	106.63	0.272721	0.154623	0.315692	0.748	0.588
146	43.00	128.18	213.80	57.50	110.79	0.257215	0.145831	0.297742	0.741	0.601
147	48.45	128.14	215.52	55.00	104.87	0.237169	0.134466	0.274538	0.732	0.581
148	42.37	121.15	233.22	60.00	106.86	0.240788	0.136518	0.278727	0.734	0.599
149	60.03	110.45	225.99	87.50	120.31	0.243040	0.167927	0.225741	0.714	0.633
150	40.62	131.50	249.35	35.00	105.16	0.279140	0.156504	0.262183	0.728	0.579
151	52.36	113.57	206.62	72.50	112.14	0.228454	0.136944	0.237259	0.718	0.618
152	59.58	127.94	248.99	85.00	114.39	0.249243	0.141311	0.288514	0.737	0.622
153	40.02	129.92	215.01	50.00	109.23	0.294986	0.142100	0.202098	0.705	0.595
154	52.82	102.19	224.71	87.50	114.49	0.252083	0.166749	0.291801	0.739	0.625
155	59.97	116.27	235.45	57.50	103.57	0.228924	0.145272	0.197773	0.704	0.572
156	47.66	124.79	228.67	60.00	109.29	0.230637	0.130762	0.266977	0.729	0.593
157	45.50	116.73	214.46	62.50	112.67	0.214052	0.167482	0.247778	0.722	0.621
158	56.87	127.77	213.97	60.00	106.23	0.280993	0.159312	0.325266	0.751	0.584
159	52.36	109.42	209.13	85.00	113.02	0.203014	0.168819	0.235001	0.718	0.623
160	45.06	131.38	243.56	42.50	105.82	0.229212	0.155081	0.265327	0.729	0.584
161	53.26	131.99	216.44	77.50	111.83	0.199564	0.161854	0.231008	0.716	0.611
162	41.73	117.59	232.63	65.00	110.26	0.296760	0.170121	0.343518	0.758	0.612
163	56.59	118.55	228.74	47.50	105.22	0.294727	0.154504	0.315449	0.747	0.572
164	55.48	130.69	223.75	70.00	107.72	0.293710	0.166522	0.339987	0.757	0.593
165	45.13	129.45	219.62	57.50	106.84	0.222225	0.133837	0.257239	0.726	0.592
166	53.49	131.14	213.25	70.00	110.55	0.276764	0.152432	0.276660	0.733	0.602
167	59.13	108.88	189.11	67.50	105.72	0.274249	0.147898	0.301962	0.742	0.588
168	45.63	118.85	207.02	65.00	112.05	0.294560	0.167004	0.340971	0.757	0.617
169	51.70	131.98	210.99	60.00	107.34	0.277894	0.161760	0.321679	0.750	0.588
170	49.10	118.42	219.92	52.50	106.44	0.191572	0.108614	0.221756	0.713	0.582
171	61.52	120.21	242.78	60.00	100.16	0.269666	0.112582	0.229858	0.716	0.568
172	52.66	127.40	224.63	55.00	108.06	0.252725	0.119498	0.243978	0.721	0.587
173	60.73	119.90	240.73	75.00	107.33	0.253264	0.143591	0.293168	0.739	0.585
174	48.33	124.73	240.05	60.00	108.31	0.270735	0.153497	0.313393	0.747	0.592
175	48.60	128.72	236.89	47.50	105.56	0.234571	0.132993	0.271531	0.731	0.583
176	44.23	113.84	222.51	42.50	104.90	0.224850	0.127481	0.260278	0.727	0.580
177	46.20	127.89	230.67	45.00	103.31	0.207016	0.117432	0.204774	0.706	0.577
178	43.39	119.49	215.73	62.50	107.44	0.211491	0.119836	0.244669	0.721	0.604
179	52.75	118.50	226.29	60.00	106.74	0.234815	0.113856	0.232460	0.717	0.587
180	44.64	123.61	198.15	57.50	104.99	0.280495	0.159030	0.324690	0.751	0.589
181	56.85	127.63	217.26	65.00	106.62	0.268304	0.152118	0.310579	0.746	0.588
182	41.06	127.55	231.27	52.50	108.35	0.267591	0.116562	0.237984	0.719	0.592

183	43.58	129.07	214.17	40.00	104.20	0.221661	0.129617	0.256586	0.726	0.580
184	60.82	129.91	245.31	82.50	112.75	0.251337	0.138963	0.220165	0.712	0.613
185	57.59	113.43	223.44	55.00	103.63	0.252792	0.143323	0.292622	0.739	0.572
186	44.58	123.18	207.04	45.00	106.25	0.210524	0.119359	0.243694	0.721	0.579
187	46.58	117.02	258.65	50.00	109.37	0.180930	0.128528	0.209437	0.708	0.582
188	56.81	125.29	228.44	62.50	102.96	0.299964	0.170068	0.347227	0.759	0.574
189	57.60	130.94	243.27	72.50	112.10	0.294361	0.150307	0.226500	0.714	0.615
190	55.41	116.84	236.75	77.50	113.36	0.277305	0.125397	0.251158	0.724	0.618
191	53.55	124.91	243.51	62.50	107.85	0.290465	0.127912	0.204172	0.706	0.593
192	42.20	111.52	199.78	52.50	106.85	0.237703	0.117199	0.243854	0.708	0.590
193	55.04	113.88	202.65	72.50	110.30	0.277858	0.157535	0.321638	0.750	0.602
194	56.14	127.00	235.12	50.00	101.57	0.217406	0.123261	0.251661	0.724	0.574
195	43.75	118.80	209.32	42.50	105.01	0.230471	0.130668	0.266784	0.729	0.579
196	48.07	107.92	209.28	57.50	105.65	0.300395	0.170313	0.347726	0.760	0.586
197	43.78	123.07	272.15	42.50	103.48	0.209924	0.154183	0.204658	0.706	0.577
198	54.95	112.06	242.75	47.50	101.64	0.260998	0.120183	0.245376	0.721	0.571
199	53.07	128.73	237.50	82.50	114.51	0.200417	0.155131	0.228745	0.715	0.620
200	43.25	130.41	244.43	60.00	109.62	0.210077	0.144388	0.231139	0.716	0.593
201	61.54	118.11	210.47	62.50	103.16	0.296509	0.168109	0.343227	0.758	0.574
202	48.60	129.06	272.26	50.00	106.07	0.233789	0.132550	0.270625	0.731	0.582
203	46.62	130.99	237.97	62.50	110.27	0.195683	0.150863	0.226515	0.714	0.608
204	43.78	120.50	201.70	57.50	112.62	0.256701	0.169400	0.297147	0.741	0.612
205	45.42	120.51	214.18	70.00	113.96	0.194451	0.158594	0.225089	0.714	0.617
206	54.93	121.78	244.60	77.50	112.15	0.241596	0.136975	0.279662	0.734	0.615
207	56.22	121.23	217.47	80.00	118.45	0.275038	0.164910	0.318373	0.749	0.629
208	62.04	115.97	221.12	85.00	118.55	0.284130	0.161091	0.328898	0.753	0.628
209	48.40	106.80	224.52	47.50	104.28	0.256397	0.145368	0.296796	0.741	0.575
210	39.97	101.96	201.26	47.50	106.60	0.296347	0.169256	0.338778	0.756	0.587
211	45.05	104.98	201.21	65.00	112.93	0.240877	0.154938	0.278829	0.734	0.619
212	54.83	127.56	230.41	77.50	114.41	0.210726	0.119474	0.243928	0.721	0.610
213	44.00	121.17	241.49	37.50	105.98	0.219843	0.119754	0.210252	0.708	0.577
214	59.31	118.85	209.32	55.00	105.08	0.250840	0.142216	0.290362	0.738	0.573
215	49.02	123.92	209.96	67.50	112.37	0.276024	0.156495	0.319515	0.749	0.608
216	42.86	121.10	226.96	55.00	109.98	0.281274	0.159472	0.325592	0.751	0.592
217	46.05	120.94	271.70	50.00	107.36	0.190295	0.114969	0.220278	0.712	0.584
218	41.32	109.28	244.19	50.00	106.77	0.260724	0.118778	0.242509	0.720	0.587
219	53.65	115.30	212.41	75.00	114.19	0.285818	0.162048	0.330851	0.753	0.626
220	60.13	125.69	228.96	87.50	113.96	0.233181	0.146701	0.246143	0.722	0.622
221	50.73	127.20	225.99	47.50	108.38	0.230583	0.130732	0.266913	0.729	0.580
222	48.80	122.27	216.10	45.00	102.70	0.267648	0.129471	0.238742	0.719	0.574
223	42.95	113.89	210.50	47.50	107.86	0.275151	0.156000	0.318504	0.749	0.590
224	45.13	123.08	206.61	62.50	108.57	0.231381	0.131184	0.267837	0.730	0.604
225	45.89	123.97	243.67	50.00	110.19	0.268899	0.115240	0.235285	0.718	0.592
226	46.26	129.44	230.12	57.50	106.33	0.227424	0.133703	0.263257	0.728	0.586
227	53.97	122.10	267.17	47.50	104.34	0.217369	0.107782	0.220057	0.712	0.575
228	54.81	120.24	224.68	77.50	111.52	0.225150	0.127652	0.260625	0.727	0.604
229	51.65	125.18	224.22	50.00	105.49	0.241302	0.140797	0.279322	0.734	0.576
230	54.59	115.69	228.67	75.00	114.82	0.299491	0.169800	0.346679	0.759	0.624
231	53.94	132.77	222.93	60.00	105.80	0.194693	0.170405	0.225369	0.714	0.583
232	53.62	121.58	235.40	65.00	106.14	0.249272	0.141328	0.288547	0.737	0.586
233	58.92	130.10	212.44	75.00	108.60	0.298386	0.141021	0.283952	0.736	0.598
234	54.59	131.73	217.85	70.00	105.02	0.290827	0.158935	0.302487	0.743	0.591
235	42.22	115.53	192.83	57.50	107.96	0.237127	0.126168	0.276556	0.726	0.599
236	40.80	125.35	234.00	35.00	103.12	0.274578	0.132970	0.218083	0.711	0.577
237	59.61	126.39	218.73	57.50	105.53	0.219679	0.108207	0.220925	0.712	0.577
238	58.57	126.83	206.60	50.00	103.18	0.228547	0.129577	0.264557	0.729	0.575
239	51.43	117.36	234.13	72.50	115.49	0.256332	0.145330	0.296720	0.741	0.615
240	47.36	128.45	223.62	42.50	107.41	0.200762	0.122799	0.228861	0.715	0.578
241	52.99	103.11	232.71	75.00	119.57	0.234607	0.156613	0.270395	0.731	0.629
242	45.50	113.24	222.13	70.00	110.93	0.223155	0.135913	0.258316	0.726	0.612
243	59.50	111.29	229.48	85.00	121.33	0.249914	0.144878	0.289290	0.738	0.630
244	52.69	118.60	202.73	67.50	114.82	0.299182	0.169625	0.346321	0.759	0.620
245	62.43	131.23	247.45	52.50	106.71	0.293713	0.159081	0.324794	0.751	0.577
246	62.24	119.50	200.30	87.50	110.99	0.288685	0.157225	0.321005	0.750	0.613
247	50.47	110.70	245.69	60.00	105.59	0.260375	0.147623	0.301400	0.742	0.580
248	50.36	112.10	226.78	52.50	106.43	0.204488	0.115937	0.236707	0.718	0.581
249	59.31	128.92	230.03	77.50	112.94	0.272851	0.144672	0.255701	0.725	0.618
250	61.13	122.30	224.31	47.50	103.77	0.293692	0.166512	0.339967	0.757	0.572
251	45.21	123.25	239.68	45.00	106.74	0.224874	0.127495	0.260305	0.727	0.581
252	48.57	118.81	252.85	42.50	104.65	0.217187	0.139558	0.207634	0.707	0.575
253	59.61	127.32	246.68	60.00	104.16	0.270399	0.153306	0.313003	0.747	0.576
254	42.18	107.87	191.99	42.50	104.77	0.265369	0.150454	0.307181	0.744	0.581
255	52.05	113.53	248.02	50.00	103.17	0.238992	0.135499	0.276648	0.733	0.574
256	48.14	102.73	216.09	45.00	104.94	0.283217	0.160811	0.327841	0.752	0.578
257	47.86	115.74	222.13	47.50	107.95	0.196897	0.111633	0.227920	0.715	0.584
258	60.19	129.95	225.14	77.50	111.29	0.278786	0.139355	0.208012	0.707	0.603
259	62.32	123.29	223.96	62.50	102.17	0.290850	0.149669	0.305578	0.744	0.573
260	50.26	114.06	194.47	70.00	113.01	0.286501	0.162343	0.331454	0.753	0.620
261	42.29	120.80	221.84	45.00	104.65	0.235483	0.147746	0.267251	0.730	0.582
262	54.84	115.31	225.79	50.00	109.88	0.236908	0.134318	0.274236	0.732	0.578
263	42.95	116.82	220.12	35.00	102.51	0.261983	0.160450	0.276886	0.733	0.576
264	44.52	124.30	232.60	47.50	105.29	0.180466	0.120896	0.205402	0.707	0.580
265	40.54	129.58	228.11	45.00	108.03	0.281242	0.135325	0.267406	0.730	0.590
266	55.68	113.61	210.32	50.00	102.56	0.292336	0.113468	0.231666	0.716	0.571
267	41.70	105.94	234.98	55.00	108.82	0.256855	0.145627	0.297326	0.741	0.602
268	53.77	104.05	197.66	47.50	104.19	0.297815	0.156329	0.319176	0.749	0.571
269	43.81	120.89	235.79	52.50	108.25	0.246217	0.139596	0.285011	0.736	0.587
270	40.28	127.73	252.54	52.50	107.26	0.288263	0.148732	0.211188	0.709	0.596
271	52.62	128.14	228.53	80.00	114.80	0.224622	0.135803	0.260013	0.727	0.620
272	40.77	128.52	238.43	45.00	105.59	0.275334	0.126512	0.211808	0.709	0.583
273	57.90	124.99	219.78	80.00	115.84	0.231538	0.131273	0.268019	0.730	0.620
274	41.44	120.36	222.34	42.50	105.95	0.257826	0.128243	0.261832	0.728	0.583
275	43.11	106.59	236.55	40.00	104.02	0.270453	0.153337	0.313066	0.747	0.576
276	45.10	115.66	217.68	55.00	108.62	0.277747	0.157472	0.321509	0.750	0.601
277	50.36	129.27	214.09	37.50	105.11	0.275205	0.131890	0.251372	0.724	0.577
278	58.25	126.54	234.48	72.50	117.34	0.285302	0.158273	0.209880	0.708	0.617
279	52.65	124.67	235.15	72.50	108.43	0.225689	0.127957	0.261249	0.727	0.601
280	50.69	118.14	243.70	47.50	103.92	0.196961	0.155216	0.197450	0.704	0.575
281	41.71	128.62	234.55	42.50	107.14	0.250605	0.124732	0.224694	0.714	0.583
282	43.38	116.17	246.07	62.50	114.18	0.213326	0.168577	0.246938	0.722	0.621
283	51.81	120.24	200.32	70.00	105.72	0.288920	0.163806	0.334442	0.755	0.592
284	51.39	128.70	220.09	60.00	107.23	0.301390	0.134327	0.274254	0.732	0.593
285	53.15	104.76	249.99	62.50	106.52	0.264446	0.149931	0.306112	0.744	0.583
286	53.74	132.19	249.21	67.50	109.48	0.254426	0.164076	0.261383	0.727	0.605
287	58.23	123.73	258.41	52.50	104.54	0.276288	0.165290	0.208676	0.708	0.570
288	46.74	124.59	239.41	50.00	105.63	0.183537	0.110653	0.212455	0.709	0.583
289	60.00	126.68	211.50	52.50	105.32	0.286620	0.122379	0.249859	0.723	0.572
290	53.38	118.11	227.86	45.00	104.11	0.276158	0.104560	0.213479	0.710	0.572

291	57.04	132.63	214.39	62.50	103.58	0.274048	0.168903	0.317227	0.748	0.585
292	41.47	119.90	244.97	55.00	111.20	0.256849	0.120820	0.246676	0.722	0.597
293	40.94	103.92	219.12	42.50	108.61	0.270929	0.147682	0.234070	0.717	0.582
294	54.40	131.65	224.42	77.50	106.77	0.202981	0.158123	0.234963	0.718	0.594
295	43.38	107.46	227.08	47.50	105.05	0.284539	0.129466	0.264330	0.728	0.575
296	43.26	105.44	232.30	37.50	104.54	0.243034	0.137791	0.281326	0.735	0.577
297	60.52	121.31	222.81	52.50	101.79	0.293198	0.107142	0.218750	0.711	0.570
298	40.17	120.69	293.60	45.00	105.03	0.291019	0.113795	0.232335	0.717	0.581
299	46.39	120.27	251.10	57.50	110.86	0.283091	0.136282	0.212369	0.709	0.596
300	45.71	121.74	223.94	67.50	110.96	0.261389	0.142665	0.291277	0.738	0.610

POST-DEPOSITIONAL THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.63 +/- 0.130; %RO FOR EXP MEAN SOLUTION = 0.70
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.73 +/- 0.016
MIN %RO = 0.70; MAX %RO = 0.76
%RO FOR MIN OBJ SOLUTION = 0.74

POST-EXHUMATION THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.60 +/- 0.150; %RO FOR EXP MEAN SOLUTION = 0.58
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.59 +/- 0.017
MIN %RO = 0.57; MAX %RO = 0.63
%RO FOR MIN OBJ SOLUTION = 0.61

BINNED %RO VALUES FOR POST-EXHUMATION HISTORY:

%RO BIN	RELATIVE FREQUENCY
0.00 - 0.03	0.000
0.03 - 0.05	0.000
0.05 - 0.08	0.000
0.08 - 0.10	0.000
0.10 - 0.12	0.000
0.12 - 0.15	0.000
0.15 - 0.18	0.000
0.17 - 0.20	0.000
0.20 - 0.23	0.000
0.23 - 0.25	0.000
0.25 - 0.27	0.000
0.28 - 0.30	0.000
0.30 - 0.32	0.000
0.33 - 0.35	0.000
0.35 - 0.37	0.000
0.38 - 0.40	0.000
0.40 - 0.42	0.000
0.43 - 0.45	0.000
0.45 - 0.47	0.000
0.47 - 0.50	0.000
0.50 - 0.52	0.000
0.53 - 0.55	0.000
0.55 - 0.57	0.143
0.57 - 0.60	0.577
0.60 - 0.62	0.240
0.62 - 0.65	0.040
0.65 - 0.68	0.000
0.68 - 0.70	0.000
0.70 - 0.72	0.000
0.73 - 0.75	0.000
0.75 - 0.77	0.000
0.78 - 0.80	0.000
0.80 - 0.82	0.000
0.82 - 0.85	0.000
0.85 - 0.88	0.000
0.88 - 0.90	0.000
0.90 - 0.93	0.000
0.93 - 0.95	0.000
0.95 - 0.97	0.000
0.98 - 1.00	0.000

MINIMUM PEAK TEMPERATURE = 100.16 DEG C; MAXIMUM PEAK TEMPERATURE = 121.33 DEG C

PEAK TEMPERATURE: AVERAGE = 107.81 STAND DEV = 4.043

MAX TEMP BIN	RELATIVE FREQUENCY
100.00 - 102.00	0.020
102.00 - 104.00	0.103
104.00 - 106.00	0.283
106.00 - 108.00	0.217
108.00 - 110.00	0.107
110.00 - 112.00	0.103
112.00 - 114.00	0.070
114.00 - 116.00	0.057
116.00 - 118.00	0.013
118.00 - 120.00	0.020
120.00 - 122.00	0.007
122.00 - 124.00	0.000
124.00 - 126.00	0.000
126.00 - 128.00	0.000
128.00 - 130.00	0.000
130.00 - 132.00	0.000
132.00 - 134.00	0.000
134.00 - 136.00	0.000
136.00 - 138.00	0.000
138.00 - 140.00	0.000
140.00 - 142.00	0.000
142.00 - 144.00	0.000
144.00 - 146.00	0.000
146.00 - 148.00	0.000
148.00 - 150.00	0.000

MINIMUM PEAK TIME = 32.50 MA; MAXIMUM PEAK TIME = 87.50 MA

TIME OF PEAK TEMP: AVERAGE = 57.48 STAND DEV = 12.739

TIME AT MAX TEMP	RELATIVE FREQUENCY
31.88 - 33.12	0.003
33.12 - 34.38	0.000
34.38 - 35.62	0.017
35.62 - 36.88	0.000
36.88 - 38.12	0.023
38.12 - 39.38	0.000
39.38 - 40.62	0.020
40.62 - 41.88	0.000
41.88 - 43.12	0.067
43.12 - 44.38	0.000
44.38 - 45.62	0.057
45.62 - 46.88	0.000
46.88 - 48.12	0.103
48.12 - 49.38	0.000
49.38 - 50.62	0.090
50.62 - 51.88	0.000
51.88 - 53.12	0.063
53.12 - 54.38	0.000
54.38 - 55.62	0.070
55.62 - 56.88	0.000
56.88 - 58.12	0.077
58.12 - 59.38	0.000
59.38 - 60.62	0.073
60.62 - 61.88	0.000
61.88 - 63.12	0.057
63.12 - 64.38	0.000
64.38 - 65.62	0.050
65.62 - 66.88	0.000
66.88 - 68.12	0.027
68.12 - 69.38	0.000
69.38 - 70.62	0.033
70.62 - 71.88	0.000
71.88 - 73.12	0.033
73.12 - 74.38	0.000
74.38 - 75.62	0.023
75.62 - 76.88	0.000
76.88 - 78.12	0.033
78.12 - 79.38	0.000
79.38 - 80.62	0.023
80.62 - 81.88	0.000
81.88 - 83.12	0.020
83.12 - 84.38	0.000
84.38 - 85.62	0.023
85.62 - 86.88	0.000
86.88 - 88.12	0.013
88.12 - 89.38	0.000

CONTROLLED RANDOM SEARCH TECHNIQUE

MINIMUM OBJECTIVE SOLUTION: LOWEST COMBINED OBJECTIVE FUNCTION

MODEL RESULTS AT 0.5000 SIGNIFICANCE LEVEL

SEARCH FOR MAXIMUM TEMPERATURE BETWEEN 102.50 - 0.00 MA

ALL SOLUTIONS ARE AT 0.5000 SIGNIFICANCE LEVEL

%RO MODEL: BASIN%RO

MODEL #	KIN POP# 1 CALCULATED AFT AGE (MA)	KIN POP# 2 CALCULATED AFT AGE (MA)	KIN POP# 3 CALCULATED AFT AGE (MA)	TIME OF MAXIMUM TEMP (MA)	MAXIMUM TEMP (DEG C)	KIN POP# 1 OBJECTIVE FUNCTION	KIN POP# 2 OBJECTIVE FUNCTION	KIN POP# 3 OBJECTIVE FUNCTION	%RO POST-DEP	%RO POST-EXH
1	49.32	119.28	233.45	50.00	103.72	0.136236	0.088382	0.171214	0.713	0.579
2	47.96	118.96	234.38	47.50	104.25	0.156233	0.100773	0.171401	0.709	0.578
3	49.85	116.61	232.01	47.50	103.63	0.178907	0.083622	0.167427	0.712	0.576
4	48.71	116.59	229.13	47.50	104.92	0.152893	0.075603	0.191073	0.714	0.578
5	53.21	121.76	237.06	52.50	102.65	0.143040	0.088597	0.156292	0.718	0.577
6	49.75	121.71	230.00	47.50	104.29	0.157780	0.096568	0.183676	0.709	0.578
7	52.25	118.25	232.80	50.00	103.42	0.159708	0.073685	0.159843	0.722	0.579
8	54.82	119.16	241.51	55.00	102.48	0.169519	0.076903	0.157012	0.726	0.576
9	53.62	120.67	238.47	55.00	103.43	0.151670	0.097331	0.169571	0.709	0.577
10	48.38	118.51	236.90	50.00	104.44	0.138658	0.087996	0.160909	0.712	0.579
11	54.07	120.80	237.89	57.50	102.64	0.144771	0.074326	0.151750	0.723	0.577
12	50.43	117.25	232.42	50.00	103.61	0.139666	0.070404	0.163100	0.718	0.578
13	51.00	116.44	230.76	50.00	103.49	0.161865	0.072254	0.177198	0.716	0.577
14	48.34	121.18	236.64	47.50	104.38	0.138192	0.095529	0.171182	0.711	0.579
15	52.76	122.40	239.20	55.00	103.08	0.124680	0.101416	0.157589	0.717	0.579
16	49.15	119.62	234.02	50.00	104.29	0.148006	0.098798	0.167907	0.709	0.578
17	52.40	120.29	237.72	50.00	102.30	0.176818	0.075754	0.167896	0.712	0.575
18	48.55	116.00	228.41	47.50	104.85	0.149152	0.072914	0.197190	0.716	0.578
19	50.90	121.21	236.62	50.00	102.91	0.157029	0.083186	0.159858	0.712	0.577
20	49.95	117.54	234.60	47.50	103.97	0.148429	0.076567	0.161112	0.714	0.578
21	52.04	122.48	239.68	52.50	103.05	0.121212	0.102969	0.159596	0.715	0.579
22	48.51	117.28	234.19	47.50	104.22	0.130098	0.075267	0.155448	0.717	0.580
23	48.45	121.29	233.43	47.50	104.85	0.139587	0.097840	0.174588	0.710	0.579
24	51.63	122.19	233.76	57.50	102.96	0.131778	0.097218	0.152250	0.720	0.581
25	49.55	119.61	238.52	47.50	103.81	0.154005	0.071639	0.156546	0.715	0.578
26	53.20	121.96	242.06	55.00	102.24	0.156347	0.092529	0.155756	0.718	0.577
27	49.92	116.54	234.29	47.50	103.67	0.164920	0.072497	0.148016	0.720	0.577
28	50.50	121.67	237.22	47.50	103.55	0.181631	0.086896	0.170796	0.711	0.576
29	52.43	120.61	235.21	55.00	102.93	0.153636	0.068991	0.162383	0.716	0.577
30	50.63	121.45	241.16	57.50	103.38	0.137134	0.082376	0.152879	0.723	0.582
31	47.93	112.76	228.52	50.00	104.26	0.157427	0.090682	0.196225	0.723	0.580
32	54.50	118.11	228.91	52.50	103.45	0.154195	0.079319	0.192928	0.729	0.579

33	50.15	117.02	231.72	47.50	103.77	0.146441	0.071068	0.169082	0.716	0.578
34	49.26	118.89	237.50	57.50	103.94	0.152824	0.075124	0.153380	0.724	0.585
35	50.06	118.82	234.02	50.00	103.58	0.154852	0.078312	0.162743	0.714	0.577
36	49.06	117.18	239.48	57.50	103.79	0.150152	0.075373	0.153889	0.724	0.584
37	51.29	119.55	232.69	50.00	103.08	0.167333	0.081180	0.168584	0.714	0.576
38	48.07	120.81	233.76	47.50	105.05	0.151058	0.101744	0.176441	0.709	0.578
39	53.92	116.42	235.81	55.00	101.94	0.166670	0.091286	0.166627	0.732	0.576
40	49.16	114.94	230.18	47.50	104.57	0.162724	0.072274	0.182164	0.715	0.577
41	50.87	119.50	233.89	47.50	104.21	0.181203	0.081546	0.169306	0.712	0.576
42	51.69	119.61	232.74	50.00	103.17	0.177938	0.081837	0.164550	0.712	0.576
43	47.63	120.41	234.16	50.00	103.89	0.172028	0.101885	0.177226	0.709	0.580
44	50.99	121.30	235.81	50.00	103.89	0.175586	0.089167	0.171406	0.713	0.581
45	51.37	119.17	235.29	55.00	102.84	0.157439	0.070069	0.159109	0.717	0.577
46	53.11	121.89	230.06	55.00	104.09	0.156161	0.091234	0.183184	0.721	0.578
47	50.24	118.24	232.36	47.50	103.84	0.161924	0.071859	0.163630	0.715	0.577
48	50.69	122.27	236.44	47.50	104.57	0.152411	0.098732	0.173235	0.711	0.578
49	51.35	119.99	232.03	50.00	103.15	0.174275	0.081321	0.166380	0.712	0.576
50	53.33	117.47	238.79	50.00	103.84	0.138152	0.071076	0.146428	0.719	0.578
51	51.98	119.66	235.57	55.00	102.80	0.155405	0.071600	0.156119	0.719	0.577
52	48.40	119.11	235.26	50.00	104.04	0.142261	0.097149	0.167784	0.710	0.578
53	50.74	118.47	235.04	47.50	103.21	0.162688	0.069279	0.155815	0.716	0.577
54	51.08	113.96	235.53	55.00	102.30	0.143968	0.086585	0.166652	0.732	0.578
55	50.64	118.03	233.23	50.00	103.61	0.144988	0.069786	0.156237	0.717	0.578
56	47.74	120.04	234.39	47.50	103.76	0.166651	0.079346	0.149863	0.719	0.579
57	53.97	119.21	234.05	55.00	102.41	0.142877	0.074810	0.152739	0.723	0.577
58	50.13	119.27	234.69	47.50	103.60	0.172910	0.069690	0.157757	0.716	0.576
59	49.42	118.97	234.32	47.50	104.00	0.138908	0.079223	0.161278	0.714	0.578
60	49.82	120.02	234.49	55.00	104.98	0.163201	0.072358	0.150406	0.720	0.583
61	53.51	117.09	234.21	50.00	102.66	0.176780	0.069978	0.153858	0.717	0.575
62	51.32	119.25	232.45	50.00	103.24	0.164233	0.077210	0.162870	0.714	0.576
63	52.31	118.77	234.61	55.00	103.09	0.140560	0.079692	0.162707	0.729	0.580
64	49.37	117.29	237.72	47.50	103.90	0.168905	0.088652	0.161176	0.712	0.577
65	49.43	116.61	236.06	47.50	104.09	0.154859	0.079682	0.160647	0.713	0.578
66	49.58	119.53	235.08	47.50	104.03	0.145929	0.076119	0.160955	0.714	0.578
67	51.12	116.40	228.88	55.00	102.84	0.138069	0.078280	0.193178	0.728	0.580
68	48.67	115.38	232.68	47.50	104.31	0.124809	0.072055	0.160898	0.718	0.580
69	48.81	116.66	231.96	47.50	104.62	0.148384	0.079207	0.166972	0.713	0.578
70	49.93	119.70	237.30	50.00	103.43	0.148451	0.099596	0.173908	0.710	0.578
71	50.13	116.25	228.19	47.50	103.83	0.178006	0.076222	0.199067	0.714	0.576
72	50.66	116.30	237.26	55.00	102.97	0.132360	0.075043	0.153215	0.724	0.579
73	54.44	117.05	233.24	57.50	102.42	0.169720	0.071451	0.156091	0.719	0.581
74	49.74	119.54	232.68	47.50	104.10	0.169889	0.071474	0.160859	0.718	0.577
75	53.39	120.49	236.57	52.50	102.36	0.159346	0.075568	0.153765	0.724	0.576
76	49.16	118.41	232.83	47.50	104.34	0.171566	0.078041	0.164219	0.713	0.577
77	53.49	120.35	238.14	50.00	102.07	0.172147	0.072911	0.148861	0.721	0.576
78	48.52	120.01	234.48	47.50	104.89	0.139389	0.081934	0.172740	0.713	0.579
79	48.00	114.54	228.89	47.50	105.31	0.154495	0.071131	0.193104	0.716	0.579
80	50.87	117.33	234.76	50.00	103.55	0.144777	0.070747	0.152522	0.718	0.578
81	52.67	119.46	227.65	55.00	102.83	0.136148	0.077191	0.203665	0.726	0.579
82	54.05	121.86	238.11	57.50	102.66	0.139838	0.090707	0.151045	0.722	0.577
83	49.54	118.58	234.74	50.00	103.88	0.137934	0.074154	0.158110	0.716	0.578
84	49.79	120.43	238.53	57.50	103.75	0.150335	0.072374	0.153763	0.720	0.583
85	50.57	118.80	235.79	50.00	103.79	0.156325	0.085079	0.166155	0.712	0.577
86	52.04	116.23	234.68	50.00	102.75	0.180984	0.068899	0.156040	0.716	0.575
87	51.23	119.26	233.62	47.50	103.57	0.176493	0.085608	0.169671	0.712	0.576
88	53.13	120.18	238.60	50.00	102.13	0.168740	0.072848	0.148821	0.721	0.576
89	54.42	117.35	231.74	57.50	102.29	0.158025	0.082115	0.168888	0.728	0.576
90	47.39	120.16	247.88	47.50	104.24	0.183119	0.097751	0.167750	0.710	0.579
91	53.38	122.17	236.05	50.00	103.29	0.176729	0.096745	0.164463	0.714	0.576
92	49.22	114.54	230.74	47.50	103.89	0.155921	0.075293	0.177348	0.724	0.578
93	49.18	120.18	237.23	50.00	103.78	0.140751	0.092652	0.168793	0.711	0.578
94	50.58	121.49	237.40	47.50	103.33	0.160441	0.088643	0.169810	0.711	0.577
95	48.44	119.02	235.38	50.00	103.97	0.133580	0.092579	0.157450	0.712	0.580
96	52.74	122.11	239.03	52.50	102.58	0.134662	0.095539	0.158241	0.717	0.578
97	48.50	122.21	234.43	47.50	105.05	0.142630	0.097581	0.175278	0.711	0.579
98	50.02	120.01	235.17	47.50	103.81	0.159048	0.090868	0.168423	0.710	0.577
99	48.87	113.26	227.65	47.50	104.52	0.153881	0.080765	0.203688	0.718	0.578
100	50.26	119.00	236.19	50.00	103.80	0.156637	0.084074	0.165255	0.712	0.577
101	48.46	117.93	232.39	47.50	105.24	0.137736	0.078001	0.163730	0.713	0.579
102	52.65	118.66	240.18	52.50	102.69	0.132895	0.070953	0.147874	0.719	0.578
103	48.86	117.95	239.27	47.50	103.99	0.168691	0.092866	0.163556	0.712	0.577
104	52.21	120.58	235.20	55.00	103.17	0.142845	0.075301	0.153741	0.724	0.581
105	50.10	119.97	246.36	55.00	102.76	0.128025	0.072585	0.151722	0.721	0.579
106	49.03	116.35	236.68	50.00	103.97	0.130848	0.072439	0.154695	0.717	0.579
107	51.54	117.91	227.43	55.00	103.02	0.139075	0.077274	0.205523	0.726	0.581
108	50.11	119.99	234.68	50.00	103.38	0.177848	0.103646	0.173974	0.708	0.576
109	50.57	117.58	234.76	50.00	103.55	0.142596	0.070575	0.152998	0.718	0.578
110	49.34	117.47	234.82	47.50	104.70	0.149102	0.074341	0.161937	0.714	0.578
111	49.54	118.60	236.53	50.00	103.59	0.140951	0.077249	0.161979	0.714	0.578
112	54.25	121.58	242.45	55.00	102.55	0.142364	0.085107	0.154024	0.724	0.578
113	49.60	120.44	229.56	47.50	104.66	0.159042	0.087621	0.187441	0.711	0.578
114	53.03	122.44	246.55	55.00	102.36	0.127575	0.102240	0.154354	0.720	0.578
115	53.75	120.53	237.56	50.00	101.82	0.170576	0.071676	0.152723	0.719	0.576
116	52.86	121.01	237.64	55.00	103.49	0.133093	0.075459	0.154064	0.724	0.580
117	50.51	120.49	233.69	47.50	104.03	0.177686	0.090402	0.171635	0.710	0.576
118	48.78	117.34	234.95	47.50	104.82	0.140229	0.075958	0.162020	0.714	0.579
119	48.67	115.31	228.60	47.50	104.27	0.132921	0.072415	0.195577	0.720	0.579
120	49.21	114.17	233.68	47.50	104.16	0.160345	0.073304	0.152362	0.721	0.577
121	51.38	120.99	234.62	47.50	103.04	0.170038	0.073935	0.150952	0.722	0.577
122	50.42	120.57	237.77	47.50	103.59	0.173796	0.076498	0.165868	0.714	0.576
123	50.32	117.97	231.57	50.00	103.10	0.166942	0.068801	0.170332	0.716	0.577
124	51.77	118.55	238.99	55.00	102.91	0.134442	0.076224	0.155625	0.725	0.579
125	53.33	116.74	234.20	52.50	102.66	0.183728	0.068957	0.156563	0.716	0.575
126	48.38	121.05	232.09	47.50	105.03	0.143884	0.095831	0.175111	0.710	0.579
127	48.55	115.08	229.77	47.50	104.98	0.140516	0.070443	0.185657	0.718	0.579
128	52.65	121.32	234.11	55.00	102.77	0.125516	0.079885	0.156626	0.717	0.578
129	52.54	120.35	239.58	55.00	103.48	0.157366	0.072370	0.156825	0.720	0.579
130	49.46	117.76	234.20	47.50	104.15	0.156074	0.075716	0.160313	0.714	0.578
131	51.59	119.73	234.96	55.00	102.93	0.154515	0.071331	0.158217	0.718	0.577
132	49.40	121.01	232.59	70.00	108.33	0.175057	0.099250	0.202639	0.754	0.602
133	50.32	115.40	233.50	47.50	103.67	0.168279	0.068932	0.154549	0.716	0.577
134	52.82	122.26	235.55	57.50	102.87	0.133841	0.098495	0.154397	0.720	0.580
135	48.85	114.98	228.54	47.50	104.55	0.161916	0.071133	0.196076	0.716	0.577
136	51.32	120.18	237.53	52.50	103.25	0.129758	0.072465	0.148440	0.720	0.580
137	47.85	120.01	238.12	50.00	104.62	0.161493	0.086581	0.160876	0.713	0.581
138	53.80	120.23	233.18	55.00	102.24	0.137954	0.077122	0.157459	0.726	0.577
139	48.21	118.13	238.36	50.00	104.91	0.144451	0.072250	0.147512	0.720	0.580
140	49.28	114.02	233.00	50.00	104.20	0.166410	0.083731	0.158152	0.716	0.583

141	50.49	118.57	234.47	47.50	103.33	0.162622	0.068820	0.155731	0.716	0.577
142	51.40	120.05	227.86	52.50	103.65	0.174737	0.076767	0.201890	0.716	0.581
143	52.00	116.94	233.99	50.00	102.88	0.176490	0.079257	0.163805	0.713	0.576
144	50.25	117.15	230.59	47.50	103.65	0.165745	0.073302	0.178609	0.715	0.577
145	48.06	120.92	233.89	47.50	103.70	0.151207	0.076630	0.154875	0.718	0.578
146	51.68	119.53	238.86	55.00	102.99	0.125537	0.071175	0.153761	0.719	0.578
147	51.56	120.87	235.18	57.50	103.43	0.138773	0.077239	0.157698	0.726	0.583
148	50.04	118.06	232.62	50.00	103.23	0.168548	0.078517	0.163966	0.713	0.576
149	51.30	122.20	235.17	50.00	103.05	0.166621	0.097414	0.164370	0.710	0.576
150	47.55	117.81	240.82	50.00	104.38	0.175773	0.075048	0.155395	0.716	0.580
151	51.36	120.92	235.38	50.00	103.22	0.160180	0.081498	0.165959	0.712	0.577
152	51.84	122.06	245.23	55.00	102.77	0.130547	0.094691	0.151116	0.722	0.579
153	47.76	118.09	234.88	50.00	104.03	0.165640	0.081918	0.151988	0.715	0.580
154	53.73	122.50	235.60	50.00	103.43	0.180664	0.103448	0.168778	0.712	0.575
155	48.14	117.04	230.69	47.50	105.10	0.147728	0.076640	0.177804	0.714	0.578
156	52.46	113.76	234.51	52.50	103.37	0.177754	0.070728	0.147859	0.717	0.576
157	49.64	119.87	231.91	47.50	104.13	0.152027	0.082570	0.169242	0.712	0.578
158	49.41	119.65	239.45	50.00	103.48	0.166026	0.093780	0.164838	0.711	0.577
159	53.42	119.95	234.73	52.50	102.61	0.143219	0.077230	0.156534	0.726	0.577
160	52.02	121.26	237.06	50.00	103.15	0.177179	0.081542	0.165910	0.712	0.576
161	50.79	121.26	237.32	50.00	102.56	0.182614	0.088195	0.163675	0.710	0.576
162	49.72	120.56	235.64	50.00	103.59	0.136491	0.078561	0.154961	0.714	0.578
163	51.35	120.15	244.53	47.50	103.65	0.137561	0.069289	0.152952	0.716	0.578
164	48.53	120.83	241.46	50.00	104.43	0.131204	0.071427	0.149730	0.719	0.579
165	53.13	121.37	235.89	55.00	102.22	0.143629	0.080821	0.153058	0.719	0.577
166	49.52	119.81	233.64	50.00	103.48	0.151421	0.086131	0.152721	0.723	0.578
167	51.94	121.94	239.43	52.50	102.99	0.122592	0.092160	0.157841	0.717	0.579
168	51.92	121.49	235.85	50.00	103.24	0.174004	0.084234	0.167331	0.712	0.576
169	54.71	121.06	228.19	50.00	103.49	0.164226	0.074615	0.199019	0.722	0.577
170	48.99	116.35	233.07	47.50	104.35	0.163123	0.078032	0.163389	0.713	0.577
171	51.00	119.03	233.05	47.50	103.59	0.163072	0.069261	0.157764	0.716	0.577
172	51.17	118.38	231.01	50.00	103.42	0.162968	0.071229	0.175071	0.716	0.577
173	50.22	114.91	227.89	47.50	104.79	0.170549	0.068686	0.201603	0.716	0.577
174	49.66	119.71	232.00	47.50	104.58	0.175103	0.093136	0.174244	0.710	0.577
175	49.19	120.67	239.66	50.00	104.41	0.141811	0.092892	0.162966	0.711	0.578
176	54.04	118.83	234.60	55.00	102.51	0.141424	0.080182	0.163706	0.730	0.578
177	48.99	119.84	236.93	47.50	104.18	0.167430	0.097392	0.167941	0.710	0.577
178	51.90	118.87	229.28	52.50	102.97	0.133677	0.075790	0.189791	0.725	0.579
179	52.92	114.56	233.88	52.50	102.65	0.174130	0.070508	0.152376	0.718	0.575
180	49.45	116.57	229.60	47.50	103.89	0.155232	0.070261	0.187094	0.718	0.578
181	51.62	112.16	245.23	57.50	104.10	0.178909	0.102704	0.207098	0.757	0.581
182	49.18	120.22	227.65	47.50	103.25	0.153301	0.095923	0.203685	0.726	0.578
183	49.78	117.81	234.68	50.00	103.60	0.147221	0.073942	0.159302	0.715	0.578
184	53.22	115.95	234.98	57.50	102.56	0.142046	0.083815	0.163837	0.730	0.577
185	47.99	119.50	247.15	50.00	103.98	0.154964	0.090402	0.163844	0.712	0.579
186	52.86	118.62	235.31	57.50	102.28	0.138124	0.079757	0.159887	0.728	0.578
187	49.61	115.92	233.03	50.00	103.63	0.140138	0.070593	0.157888	0.717	0.578
188	52.78	121.10	235.25	52.50	102.34	0.139084	0.075402	0.152862	0.719	0.577
189	51.06	116.97	231.51	50.00	103.08	0.174301	0.073560	0.170844	0.714	0.576
190	54.03	118.69	227.90	52.50	103.15	0.141701	0.079212	0.201514	0.729	0.577
191	53.17	116.27	235.58	55.00	101.63	0.169499	0.092547	0.167136	0.732	0.576
192	52.28	120.88	230.97	52.50	102.77	0.128301	0.072742	0.175383	0.721	0.578
193	51.40	121.48	236.51	60.00	103.66	0.154523	0.083036	0.151618	0.722	0.583
194	50.74	122.46	235.15	50.00	103.21	0.165670	0.102640	0.174106	0.709	0.577
195	52.11	119.88	233.78	57.50	103.78	0.142905	0.074444	0.151991	0.723	0.583
196	51.79	119.15	233.28	50.00	103.22	0.168004	0.070342	0.159098	0.715	0.576
197	53.82	115.42	232.98	57.50	104.29	0.148736	0.100308	0.172171	0.735	0.581
198	49.34	116.88	230.15	55.00	104.55	0.144523	0.083049	0.182349	0.714	0.582
199	49.84	119.97	236.73	50.00	103.67	0.144572	0.091313	0.168870	0.711	0.578
200	50.28	120.82	234.80	47.50	103.80	0.165199	0.089212	0.169604	0.711	0.577
201	50.74	121.90	237.68	50.00	103.38	0.151670	0.091486	0.170814	0.710	0.577
202	51.63	118.30	237.02	50.00	102.52	0.163289	0.071032	0.153528	0.719	0.576
203	49.95	115.69	230.87	47.50	103.90	0.139077	0.071678	0.176308	0.719	0.578
204	50.03	117.65	233.90	50.00	103.53	0.155006	0.073083	0.158417	0.716	0.577
205	52.37	121.86	235.16	55.00	102.73	0.127837	0.090589	0.151256	0.720	0.579
206	47.64	118.94	233.47	47.50	105.87	0.171420	0.088770	0.169020	0.711	0.580
207	48.88	117.79	233.35	47.50	104.24	0.124033	0.076981	0.158240	0.716	0.579
208	53.41	121.53	232.41	55.00	102.57	0.144500	0.083993	0.163184	0.721	0.577
209	47.93	115.20	229.74	47.50	105.42	0.157403	0.085519	0.185882	0.712	0.580
210	48.51	120.82	236.95	50.00	104.67	0.130823	0.071522	0.148710	0.719	0.579
211	50.09	118.99	233.70	50.00	102.73	0.180765	0.080580	0.164783	0.712	0.576
212	52.14	121.63	233.46	52.50	102.65	0.140686	0.086068	0.155509	0.718	0.577
213	49.59	118.54	236.55	50.00	103.64	0.141148	0.077681	0.161288	0.714	0.578
214	48.95	116.94	228.24	47.50	105.11	0.150355	0.070935	0.198605	0.717	0.578
215	50.57	119.99	235.45	50.00	103.64	0.150303	0.078126	0.162012	0.714	0.578
216	49.91	122.48	227.88	57.50	104.78	0.164642	0.103061	0.201718	0.724	0.587
217	50.91	118.37	235.54	52.50	103.40	0.140546	0.069920	0.163115	0.715	0.578
218	53.56	115.98	235.13	57.50	102.40	0.154921	0.084423	0.162379	0.729	0.576
219	51.20	119.04	235.85	50.00	102.57	0.159592	0.072807	0.149537	0.721	0.577
220	51.16	119.45	236.42	50.00	103.26	0.161031	0.072717	0.159947	0.715	0.577
221	51.65	115.28	231.23	57.50	103.98	0.146732	0.102294	0.173173	0.734	0.584
222	51.25	118.34	233.03	50.00	103.34	0.167378	0.079087	0.164025	0.713	0.576
223	51.07	118.85	232.67	47.50	103.18	0.170748	0.068671	0.160969	0.715	0.576
224	47.39	118.62	234.19	47.50	105.30	0.182990	0.103036	0.175013	0.709	0.580
225	53.48	114.17	254.27	55.00	103.19	0.152179	0.099445	0.176156	0.738	0.578
226	50.48	121.71	236.22	47.50	103.81	0.161827	0.090900	0.170411	0.710	0.577
227	51.35	121.53	234.79	50.00	103.36	0.165077	0.085773	0.167119	0.711	0.577
228	51.71	120.68	246.59	55.00	102.28	0.139347	0.073241	0.154581	0.717	0.578
229	53.38	121.48	237.49	55.00	102.24	0.153916	0.083044	0.154382	0.718	0.577
230	49.38	119.91	243.33	55.00	102.94	0.130389	0.074536	0.158072	0.716	0.580
231	51.30	119.30	234.71	55.00	103.05	0.126144	0.071519	0.152255	0.719	0.579
232	51.68	121.96	232.27	50.00	102.66	0.154674	0.092646	0.164401	0.719	0.577
233	48.27	120.56	241.01	50.00	104.48	0.141613	0.081717	0.158734	0.714	0.580
234	51.39	117.62	235.51	50.00	103.04	0.161972	0.072035	0.159275	0.715	0.576
235	50.45	121.14	234.92	50.00	103.56	0.153023	0.094315	0.177055	0.711	0.577
236	48.81	119.95	236.34	47.50	103.78	0.138936	0.072991	0.151403	0.718	0.579
237	49.87	119.48	236.69	47.50	103.64	0.182134	0.097006	0.172537	0.709	0.576
238	48.32	117.95	231.00	47.50	104.41	0.138906	0.078816	0.175198	0.715	0.579
239	48.70	116.40	233.19	50.00	104.14	0.124474	0.071376	0.156548	0.718	0.580
240	50.37	119.72	240.83	57.50	103.52	0.140935	0.077444	0.158117	0.727	0.582
241	50.84	118.03	237.40	50.00	103.29	0.168441	0.068647	0.156061	0.716	0.576
242	48.47	115.93	233.85	50.00	104.12	0.131986	0.072289	0.150937	0.720	0.580
243	48.44	115.83	229.04	47.50	104.69	0.145428	0.072025	0.191807	0.716	0.578
244	51.43	121.62	234.22	57.50	102.76	0.128130	0.085851	0.154354	0.719	0.580
245	49.11	121.49	234.39	60.00	104.31	0.161282	0.083142	0.151921	0.720	0.586
246	48.47	118.09	231.73	47.50	104.77	0.136306	0.082689	0.168974	0.713	0.579
247	51.11	120.38	240.40	47.50	102.98	0.168912	0.070749	0.158208	0.715	0.576
248	48.32	115.80	231.31	47.50	105.08	0.139076	0.080322	0.172528	0.714	0.579

249	51.04	119.74	238.98	47.50	103.12	0.165012	0.068476	0.157130	0.715	0.577
250	49.88	120.95	238.33	50.00	104.73	0.132470	0.073723	0.150520	0.722	0.579
251	49.21	115.54	230.84	47.50	103.98	0.168302	0.073911	0.176529	0.722	0.577
252	52.67	117.74	236.08	50.00	102.80	0.170837	0.068723	0.156848	0.716	0.576
253	51.78	121.74	231.82	50.00	102.98	0.156214	0.088165	0.168176	0.720	0.577
254	48.27	119.10	231.34	47.50	104.77	0.145125	0.087625	0.172233	0.711	0.578
255	51.36	120.13	237.56	55.00	103.29	0.133732	0.075821	0.154803	0.725	0.580
256	50.64	120.81	239.21	50.00	103.97	0.155776	0.099718	0.168219	0.709	0.577
257	50.22	117.77	229.54	57.50	103.22	0.146555	0.078086	0.187579	0.727	0.582
258	48.48	118.04	246.43	47.50	103.98	0.147035	0.086378	0.160649	0.713	0.578
259	49.26	115.71	227.92	47.50	104.91	0.158593	0.070018	0.201340	0.717	0.578
260	49.76	120.30	234.45	50.00	103.53	0.135554	0.077746	0.151535	0.715	0.578
261	52.24	119.63	237.01	50.00	103.43	0.146927	0.076164	0.160506	0.713	0.577
262	48.17	117.84	233.47	50.00	104.10	0.146345	0.089047	0.164365	0.714	0.580
263	48.75	116.11	235.87	47.50	104.11	0.153557	0.073096	0.149240	0.721	0.578
264	52.33	118.22	237.79	55.00	102.51	0.168876	0.095284	0.172711	0.710	0.576
265	48.54	120.27	235.28	50.00	104.07	0.134920	0.088126	0.162928	0.712	0.579
266	47.99	119.91	226.86	47.50	104.51	0.168486	0.076509	0.210367	0.720	0.578
267	52.43	121.45	236.31	50.00	103.68	0.153019	0.091894	0.171313	0.711	0.577
268	48.62	114.19	227.71	47.50	105.19	0.155089	0.071529	0.203144	0.719	0.578
269	51.84	121.64	235.70	52.50	103.50	0.166604	0.086169	0.167658	0.715	0.580
270	52.39	122.37	239.24	55.00	102.90	0.154463	0.100709	0.166080	0.714	0.577
271	54.09	120.61	233.30	55.00	102.53	0.141907	0.075624	0.155614	0.724	0.577
272	49.81	120.86	234.71	47.50	103.55	0.153763	0.092201	0.170321	0.710	0.577
273	51.76	118.11	226.76	55.00	104.89	0.152843	0.074960	0.211178	0.724	0.581
274	52.08	120.63	244.29	50.00	102.37	0.173089	0.072224	0.160491	0.715	0.576
275	48.66	119.98	232.84	47.50	104.49	0.145957	0.087958	0.169282	0.712	0.578
276	49.17	116.08	232.57	47.50	104.36	0.129268	0.070833	0.161851	0.718	0.579
277	48.47	118.18	244.42	55.00	103.10	0.140498	0.072035	0.150779	0.720	0.581
278	49.74	118.93	232.83	47.50	103.53	0.178425	0.098160	0.174256	0.709	0.576
279	52.82	119.70	237.67	55.00	102.11	0.152686	0.073827	0.150732	0.722	0.577
280	49.86	119.33	240.54	47.50	103.49	0.173134	0.077568	0.158567	0.714	0.576
281	50.30	120.01	233.87	47.50	104.27	0.174894	0.092611	0.171992	0.710	0.577
282	49.37	120.38	239.38	50.00	103.49	0.164519	0.093752	0.164760	0.711	0.577
283	52.96	118.64	228.87	57.50	103.31	0.177454	0.074590	0.193316	0.723	0.586
284	52.89	114.02	233.92	52.50	103.09	0.159196	0.071214	0.150346	0.719	0.576
285	50.36	116.07	228.35	47.50	104.63	0.162305	0.068874	0.197698	0.716	0.577
286	49.28	121.42	234.45	47.50	103.78	0.159385	0.091636	0.170456	0.711	0.577
287	52.25	115.58	235.78	57.50	102.51	0.142485	0.083012	0.164935	0.731	0.578
288	51.89	119.69	237.32	55.00	103.24	0.140492	0.077353	0.157932	0.727	0.580
289	51.83	119.06	239.22	50.00	102.20	0.155786	0.073286	0.149628	0.721	0.577
290	49.18	120.41	234.59	50.00	103.84	0.137237	0.089007	0.167098	0.712	0.579
291	49.16	116.23	230.89	47.50	104.28	0.151811	0.076157	0.176070	0.714	0.578
292	50.99	112.56	233.47	50.00	103.74	0.162057	0.094697	0.154200	0.722	0.577
293	54.09	113.98	251.36	55.00	103.03	0.152726	0.098009	0.176790	0.738	0.577
294	52.40	121.23	233.08	55.00	103.46	0.139784	0.078046	0.157466	0.722	0.581
295	51.62	113.98	249.99	55.00	103.89	0.159683	0.095499	0.184843	0.743	0.581
296	49.69	121.09	246.04	57.50	103.62	0.151893	0.075204	0.149867	0.721	0.583
297	50.21	115.68	230.33	47.50	104.54	0.172988	0.069827	0.180830	0.717	0.577
298	50.84	121.77	228.21	70.00	109.76	0.154869	0.102295	0.198876	0.738	0.607
299	53.55	118.71	230.05	57.50	103.39	0.143618	0.092208	0.183279	0.732	0.578
300	52.35	119.52	240.88	55.00	102.17	0.163510	0.070711	0.156586	0.718	0.576

POST-DEPOSITIONAL THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.63 +/- 0.130; %RO FOR EXP MEAN SOLUTION = 0.71
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.72 +/- 0.007
MIN %RO = 0.71; MAX %RO = 0.76
%RO FOR MIN OBJ SOLUTION = 0.72

POST-EXHUMATION THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.60 +/- 0.150; %RO FOR EXP MEAN SOLUTION = 0.58
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.58 +/- 0.003
MIN %RO = 0.57; MAX %RO = 0.61
%RO FOR MIN OBJ SOLUTION = 0.58

BINNED %RO VALUES FOR POST-EXHUMATION HISTORY:

%RO BIN	RELATIVE FREQUENCY
0.00 - 0.03	0.000
0.03 - 0.05	0.000
0.05 - 0.08	0.000
0.08 - 0.10	0.000
0.10 - 0.12	0.000
0.12 - 0.15	0.000
0.15 - 0.18	0.000
0.17 - 0.20	0.000
0.20 - 0.23	0.000
0.23 - 0.25	0.000
0.25 - 0.27	0.000
0.28 - 0.30	0.000
0.30 - 0.32	0.000
0.33 - 0.35	0.000
0.35 - 0.37	0.000
0.38 - 0.40	0.000
0.40 - 0.42	0.000
0.43 - 0.45	0.000
0.45 - 0.47	0.000
0.47 - 0.50	0.000
0.50 - 0.52	0.000
0.53 - 0.55	0.000
0.55 - 0.57	0.003
0.57 - 0.60	0.990
0.60 - 0.62	0.007
0.62 - 0.65	0.000
0.65 - 0.68	0.000
0.68 - 0.70	0.000
0.70 - 0.72	0.000
0.73 - 0.75	0.000
0.75 - 0.77	0.000
0.78 - 0.80	0.000
0.80 - 0.82	0.000

0.82 - 0.85	0.000
0.85 - 0.88	0.000
0.88 - 0.90	0.000
0.90 - 0.93	0.000
0.93 - 0.95	0.000
0.95 - 0.97	0.000
0.98 - 1.00	0.000

MINIMUM PEAK TEMPERATURE = 101.63 DEG C; MAXIMUM PEAK TEMPERATURE = 109.76 DEG C

PEAK TEMPERATURE: AVERAGE = 103.61 STAND DEV = 0.907

MAX TEMP BIN	RELATIVE FREQUENCY
100.00 - 102.00	0.010
102.00 - 104.00	0.700
104.00 - 106.00	0.283
106.00 - 108.00	0.000
108.00 - 110.00	0.007
110.00 - 112.00	0.000
112.00 - 114.00	0.000
114.00 - 116.00	0.000
116.00 - 118.00	0.000
118.00 - 120.00	0.000

MINIMUM PEAK TIME = 47.50 MA; MAXIMUM PEAK TIME = 70.00 MA

TIME OF PEAK TEMP: AVERAGE = 51.05 STAND DEV = 3.745

TIME AT MAX TEMP	RELATIVE FREQUENCY
46.88 - 48.12	0.337
48.12 - 49.38	0.000
49.38 - 50.62	0.320
50.62 - 51.88	0.000
51.88 - 53.12	0.070
53.12 - 54.38	0.000
54.38 - 55.62	0.173
55.62 - 56.88	0.000
56.88 - 58.12	0.087
58.12 - 59.38	0.000
59.38 - 60.62	0.007
60.62 - 61.88	0.000
61.88 - 63.12	0.000
63.12 - 64.38	0.000
64.38 - 65.62	0.000
65.62 - 66.88	0.000
66.88 - 68.12	0.000
68.12 - 69.38	0.000
69.38 - 70.62	0.007

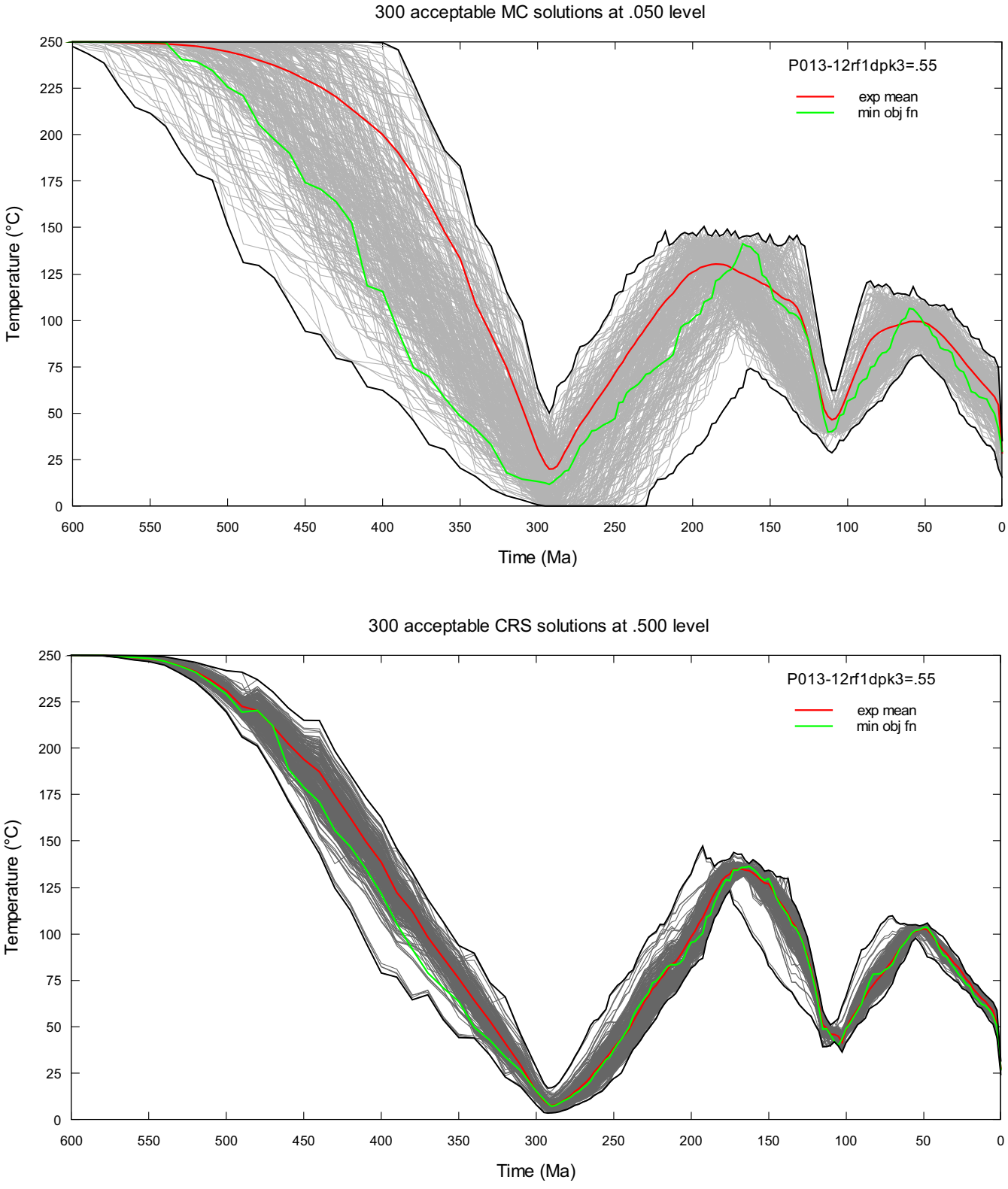


Figure E1. Upper panel shows 300 MC thermal history solutions (light grey) at the 0.05 significance level. The bounding envelopes do not represent solutions. Lower panel shows 300 CRS solutions at the 0.5 significance level that evolved from the initial MC solution set.

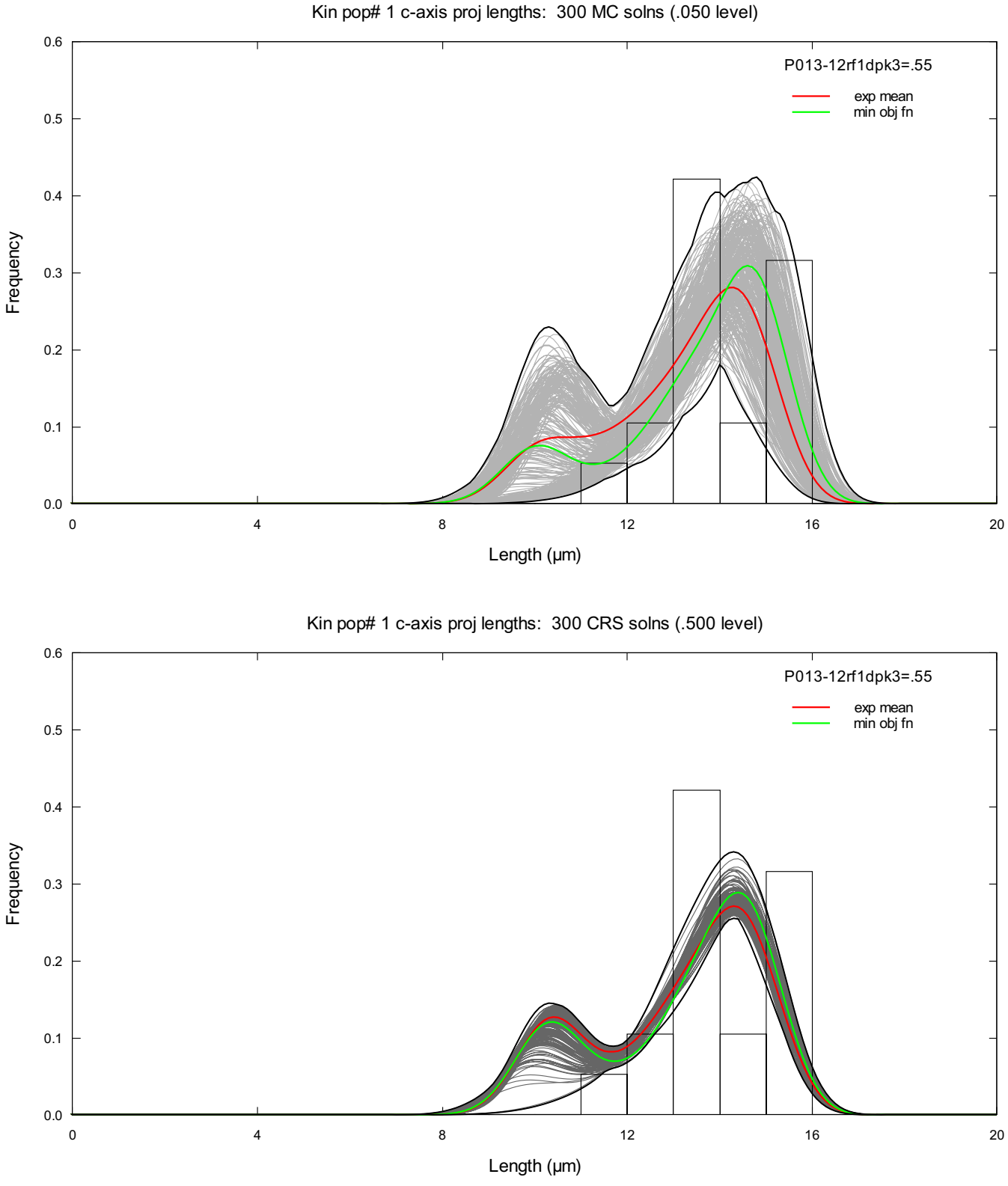


Figure E2. Upper panel shows 300 model predicted track length distributions for kinetic population #1 corresponding to the MC thermal history solutions at the 0.05 significance level in Figure E1. The bounding envelopes do not represent track length solutions. Histogram shows c-axis projected observed lengths. Lower panel shows 300 model predicted track length distributions for kinetic population #1 corresponding to the CRS thermal history solutions at the 0.5 significance level in Figure E1.

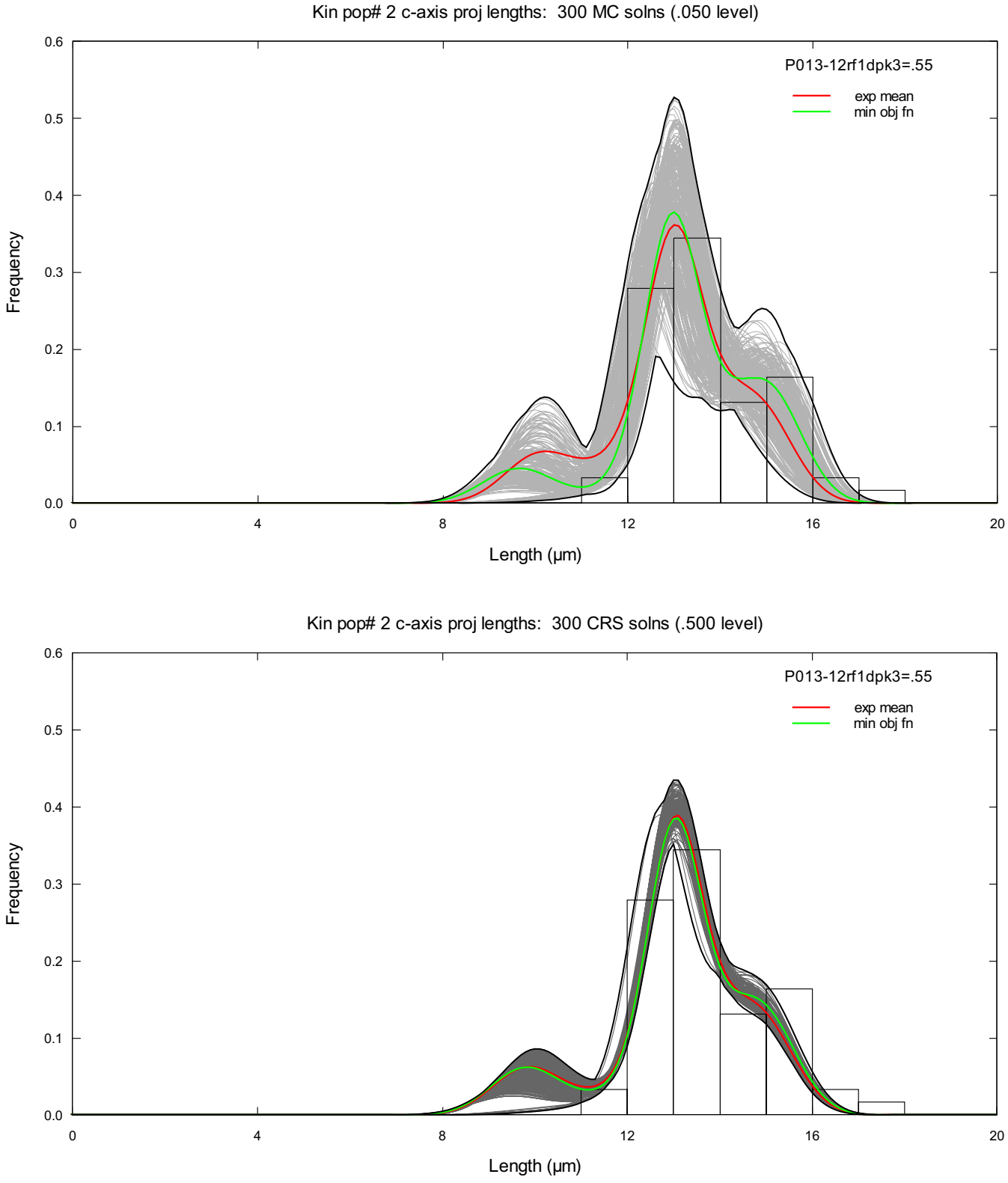


Figure E3. Upper panel shows 300 model predicted track length distributions for kinetic population #2 corresponding to the MC thermal history solutions at the 0.05 significance level in Figure E1. The bounding envelopes do not represent track length solutions. Histogram shows c-axis projected observed lengths. Lower panel shows 300 model predicted track length distributions for kinetic population #2 corresponding to the CRS thermal history solutions at the 0.5 significance level in Figure E1.

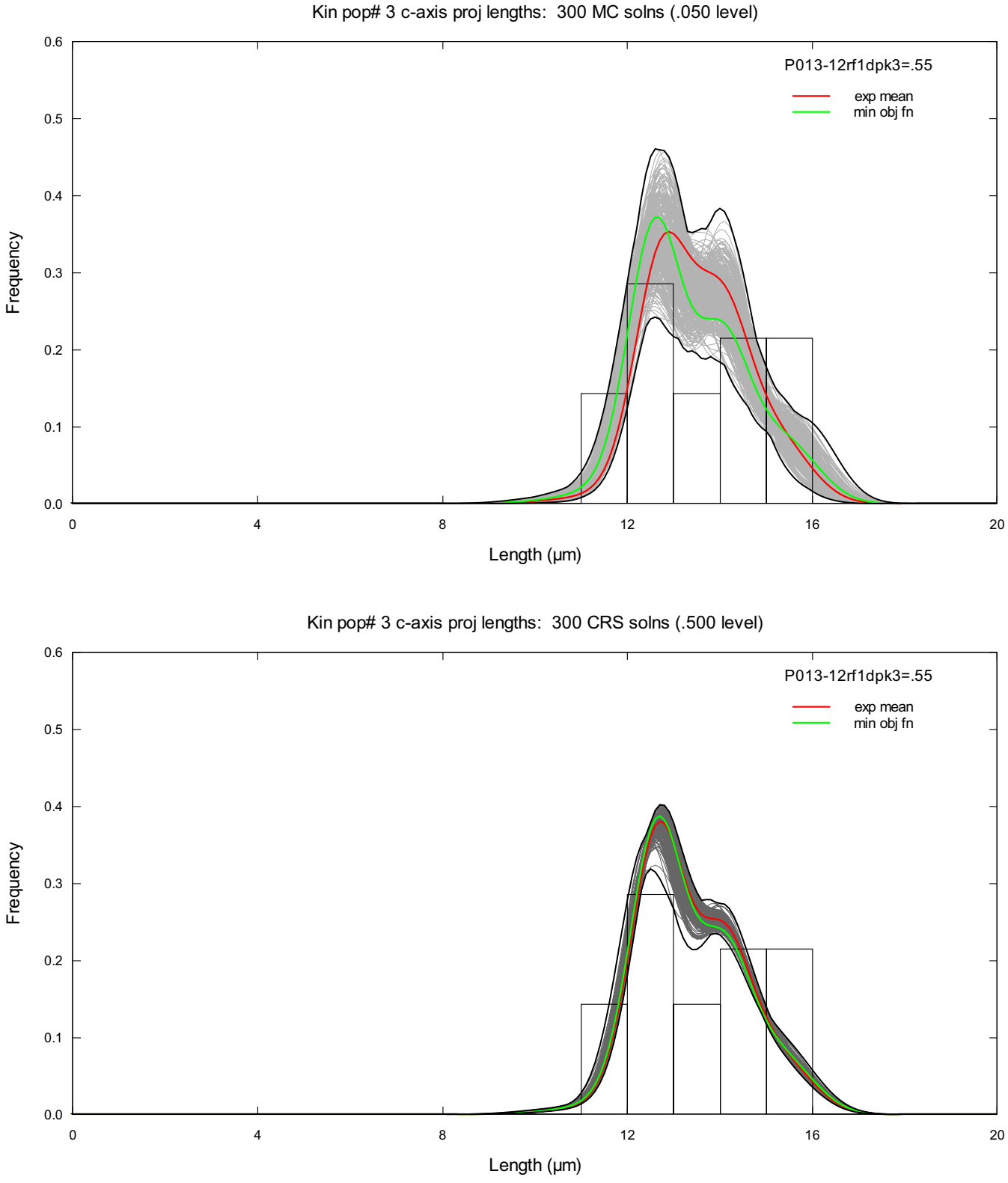


Figure E4. Upper panel shows 300 model predicted track length distributions for kinetic population #3 corresponding to the MC thermal history solutions at the 0.05 significance level in Figure E1. The bounding envelopes do not represent track length solutions. Histogram shows c-axis projected observed lengths. Lower panel shows 300 model predicted track length distributions for kinetic population #3 corresponding to the CRS thermal history solutions at the 0.5 significance level in Figure E1.

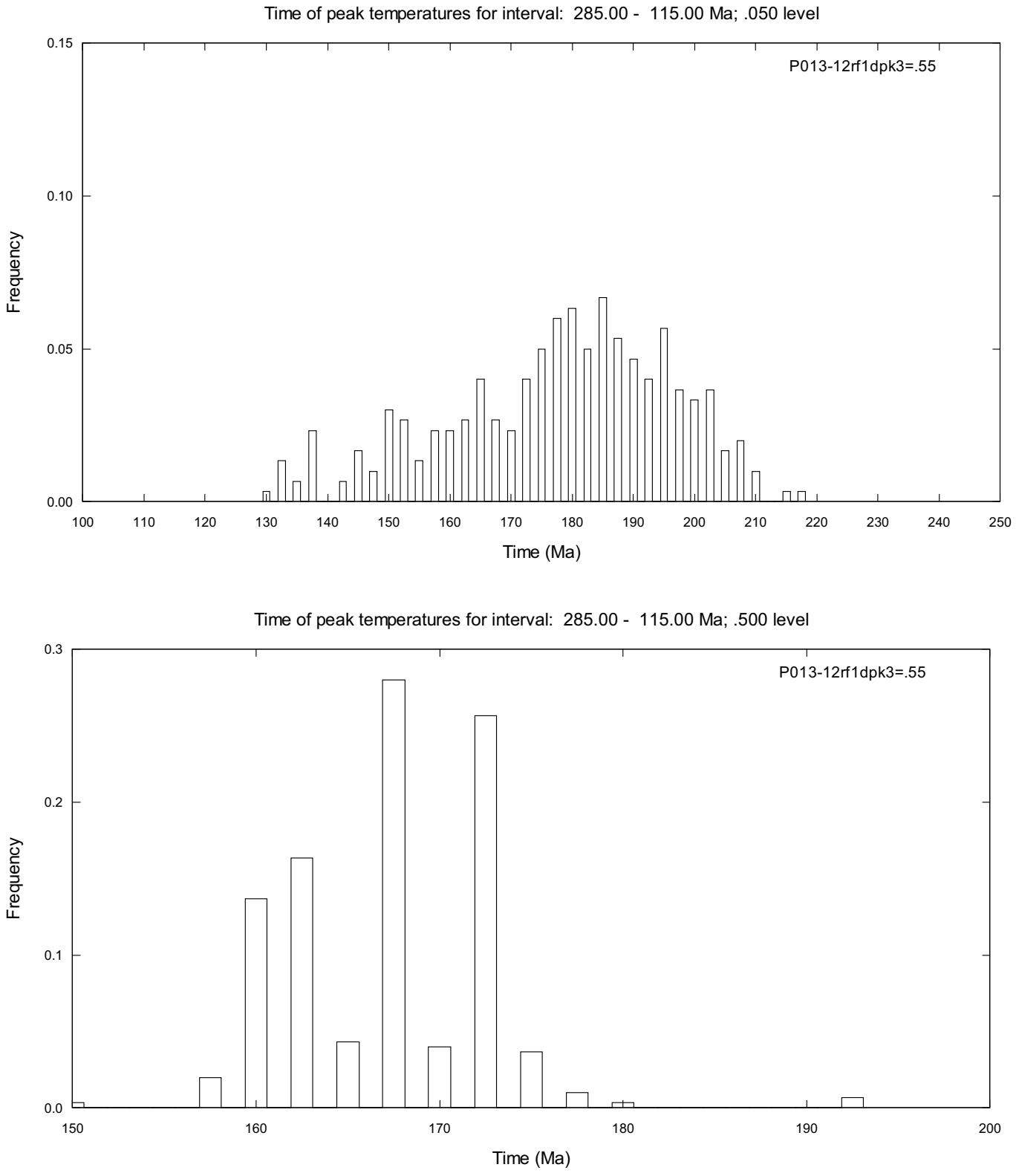


Figure E5. Upper panel shows the distribution of times of maximum temperature for thermal peak 1 over the time interval, 285 - 115 Ma, corresponding to the 300 MC thermal history solutions at the 0.05 significance level in Figure E1. Lower panel shows the distribution of times of maximum temperature for thermal peak 1 over the time interval, 285 - 115 Ma, corresponding to the CRS thermal history solutions at the 0.5 significance level in Figure E1.

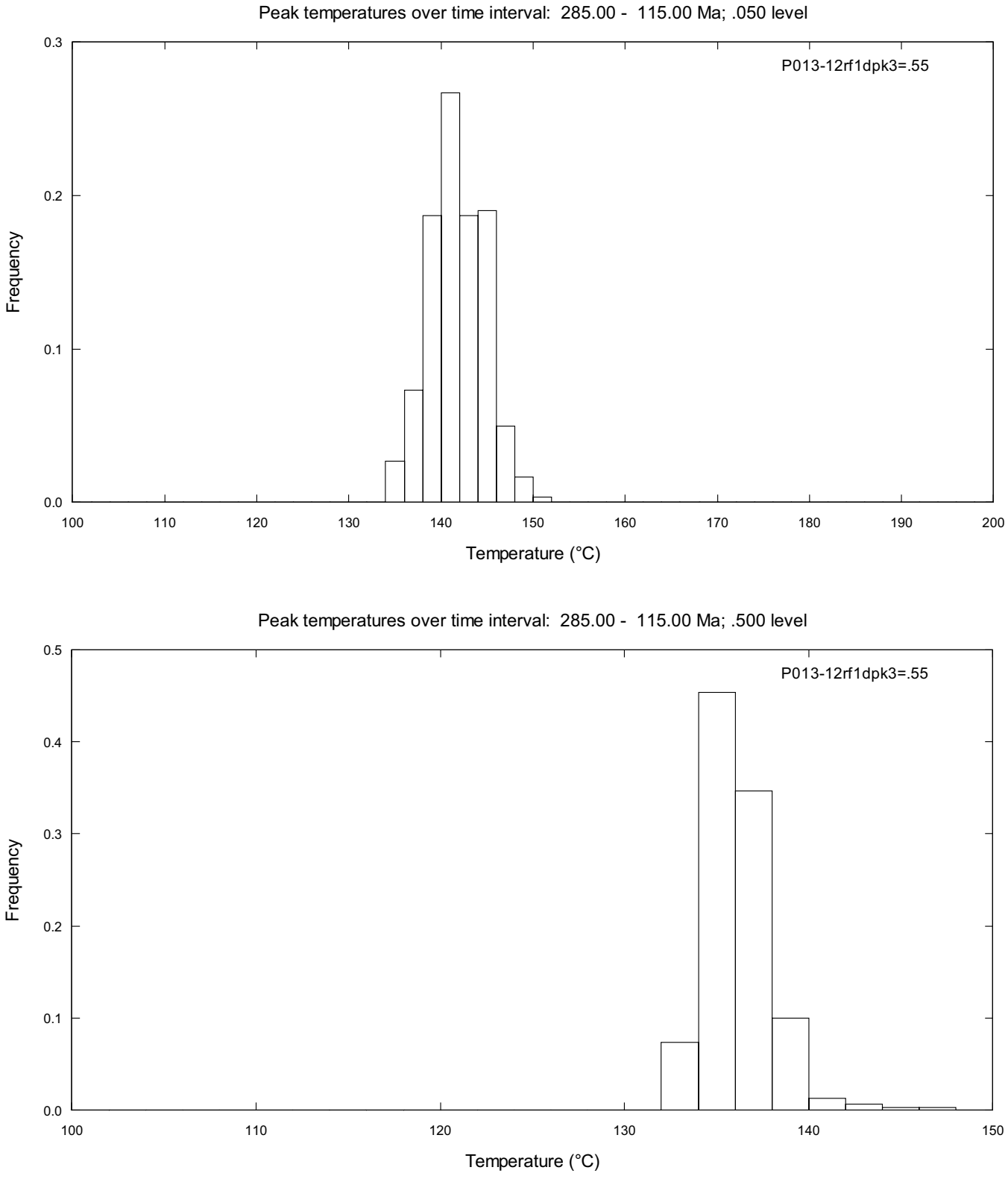


Figure E6. Upper panel shows the distribution of maximum temperatures for thermal peak 1 over the time interval, 285 - 115 Ma, corresponding to the 300 MC thermal history solutions at the 0.05 significance level in Figure E1. Lower panel shows the distribution of maximum temperatures for thermal peak 1 over the time interval, 285 - 115 Ma, corresponding to the CRS thermal history solutions at the 0.5 significance level in Figure E1.

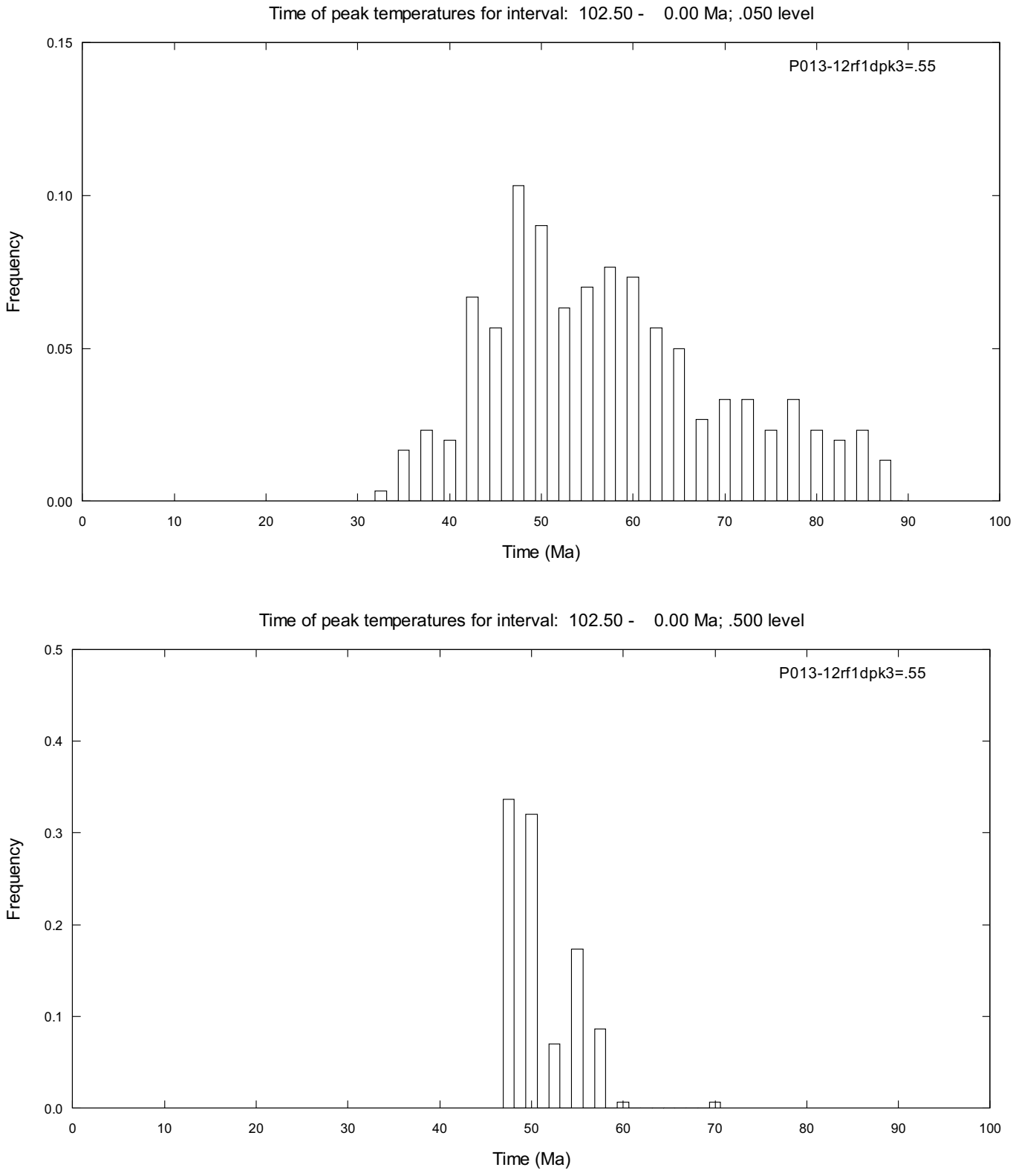


Figure E7. Upper panel shows the distribution of times of maximum temperature for thermal peak 2 over the time interval, 102.5 - 0 Ma, corresponding to the 300 MC thermal history solutions at the 0.05 significance level in Figure E1. Lower panel shows the distribution of times of maximum temperature for thermal peak 2 over the time interval, 102.5 - 0 Ma, corresponding to the CRS thermal history solutions at the 0.5 significance level in Figure E1.

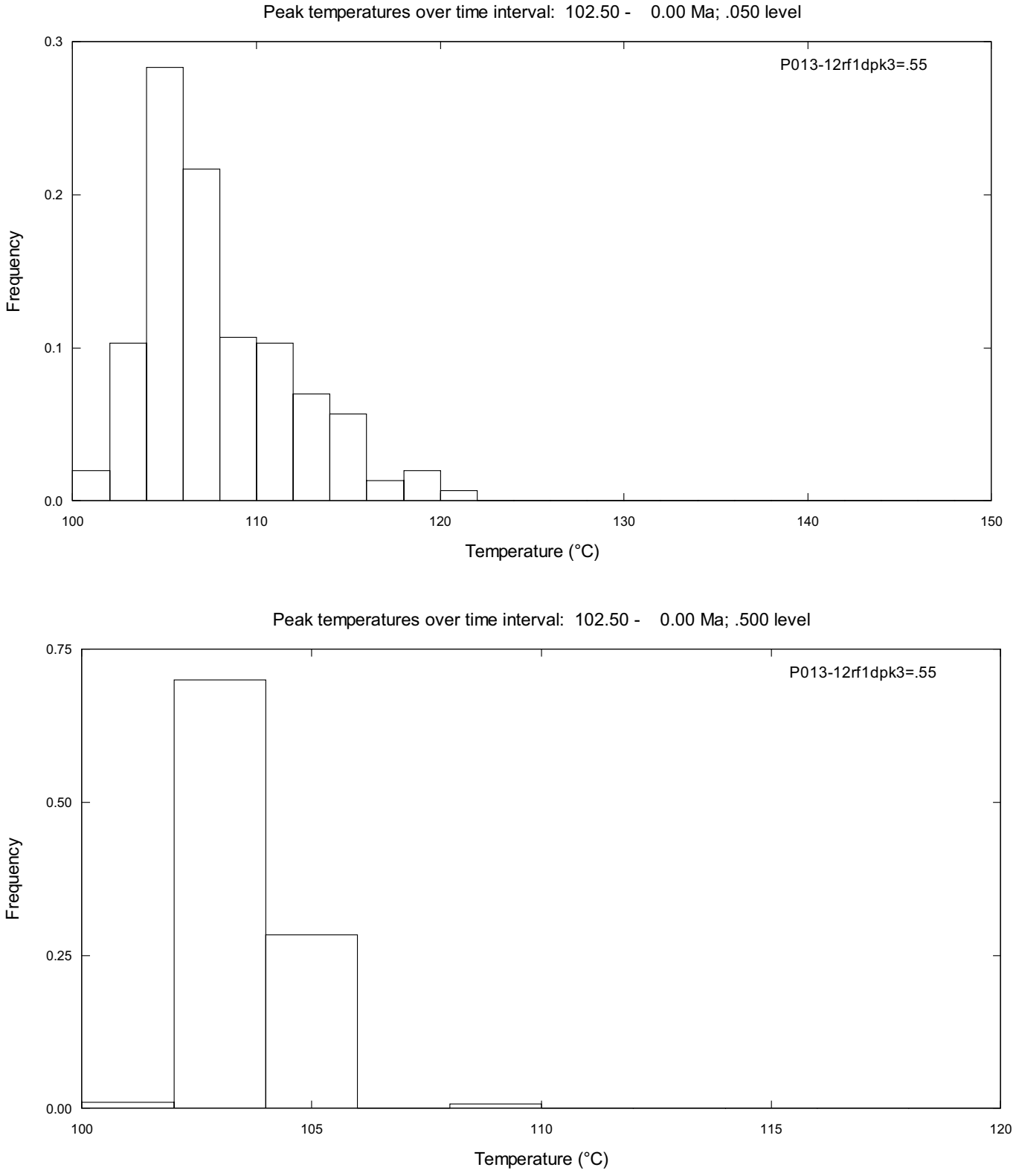
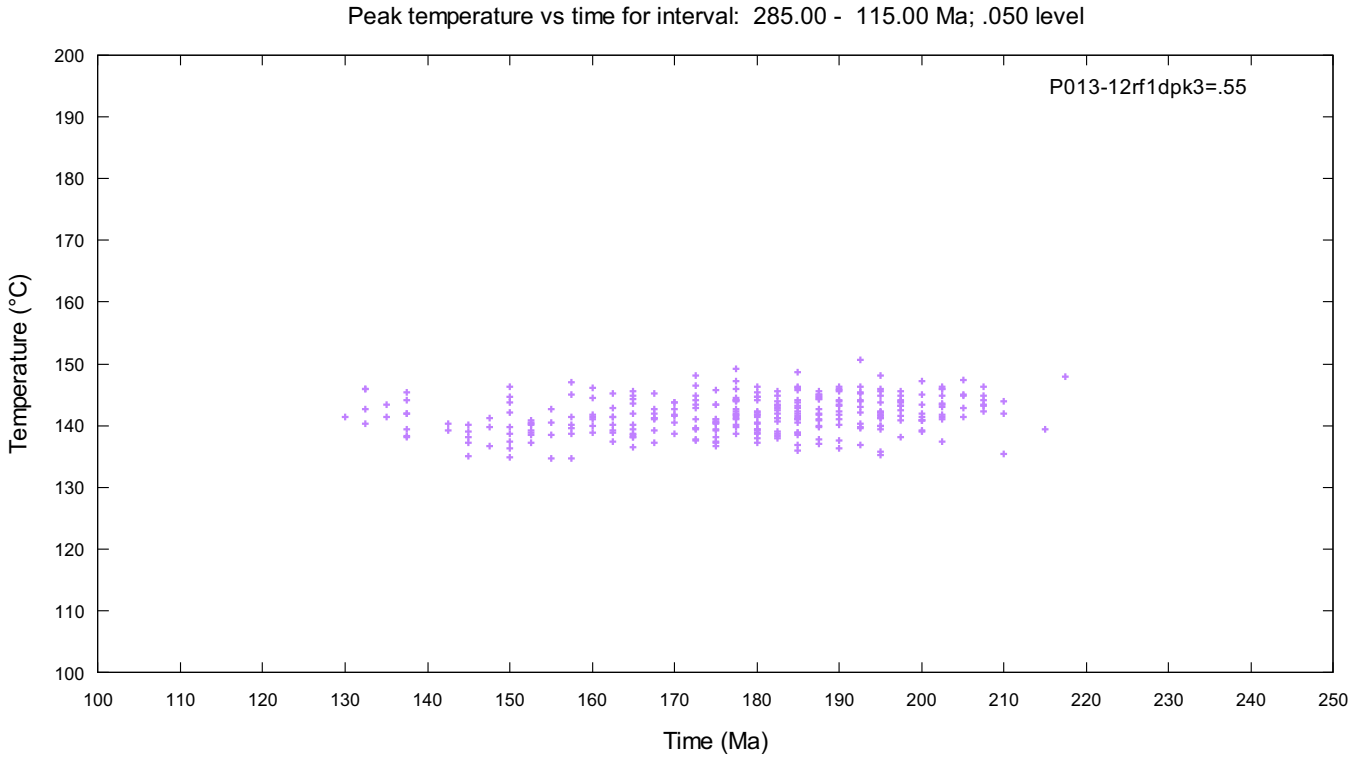


Figure E8. Upper panel shows the distribution of maximum temperatures for thermal peak 2 over the time interval, 102.5 - 0 Ma, corresponding to the 300 MC thermal history solutions at the 0.05 significance level in Figure E1. Lower panel shows the distribution of maximum temperatures for thermal peak 2 over the time interval, 102.5 - 0 Ma, corresponding to the CRS thermal history solutions at the 0.5 significance level in Figure E1.



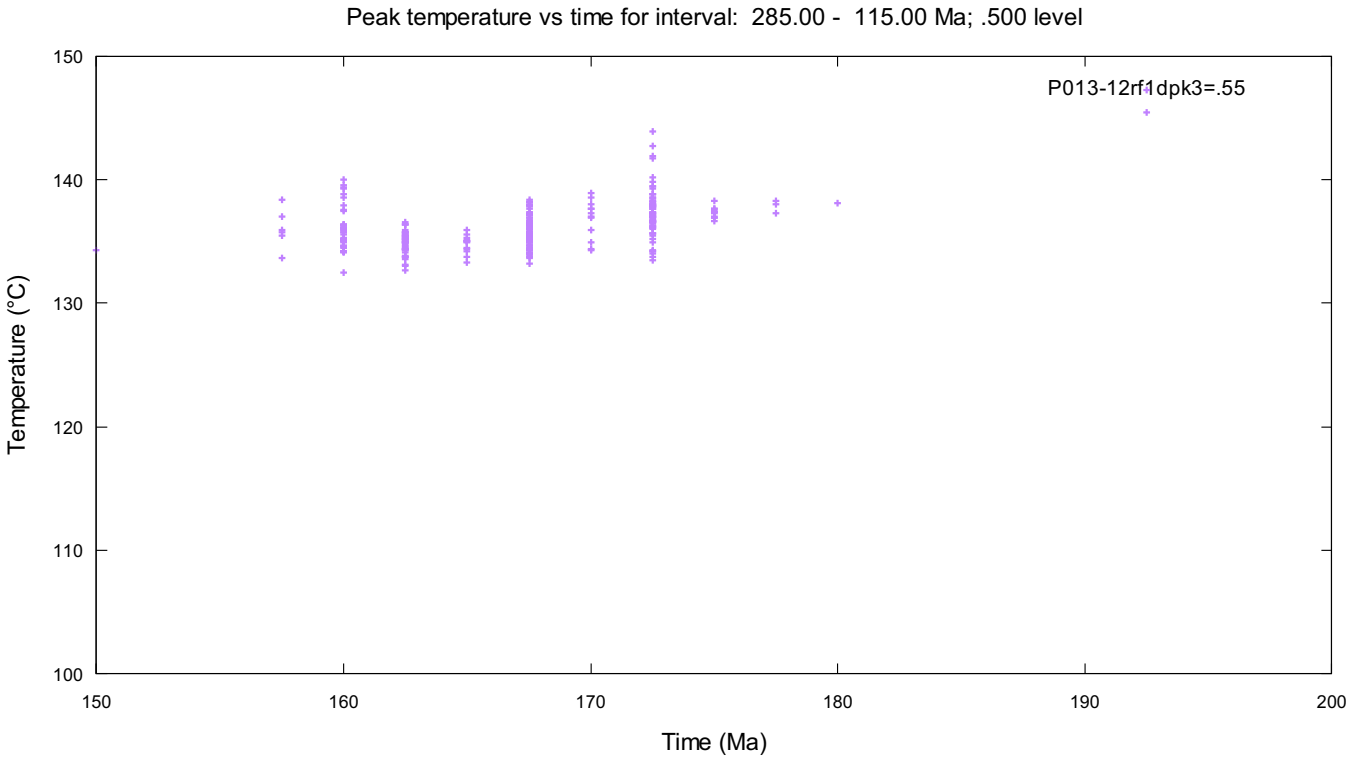


Figure E9. Upper panel shows maximum temperature versus time for thermal peak 1 over the time interval, 285 - 115 Ma, corresponding to the 300 MC thermal history solutions at the 0.05 significance level in Figure E1. Lower panel shows maximum temperature versus time for thermal peak 1 over the time interval, 285 - 115 Ma, corresponding to the CRS thermal history solutions at the 0.5 significance level in Figure E1.

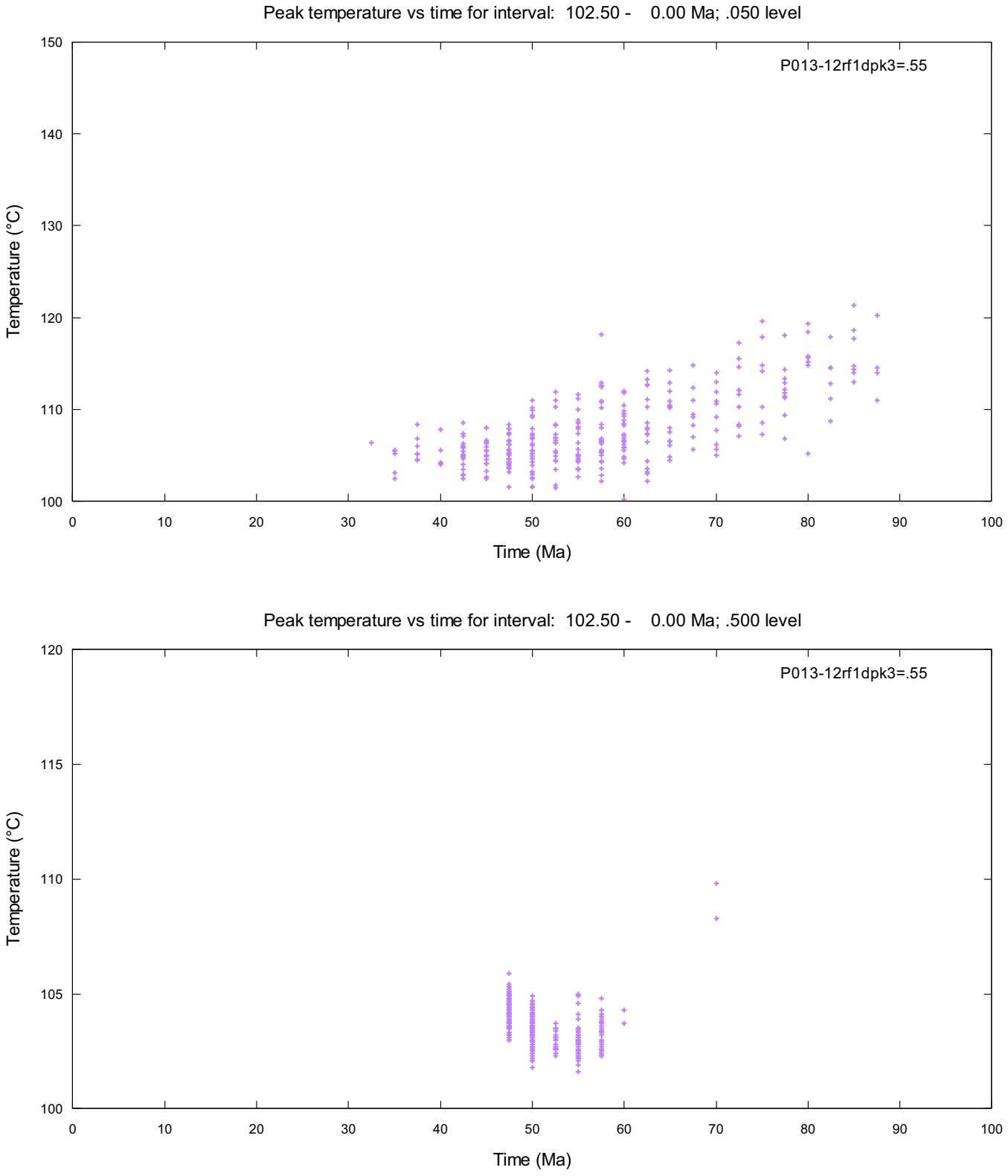


Figure E10. Upper panel shows maximum temperature versus time for thermal peak 2 over the time interval, 102.5 - 0 Ma, corresponding to the 300 MC thermal history solutions at the 0.05 significance level in Figure E1. Lower panel shows maximum temperature versus time for thermal peak 2 over the time interval, 102.5 - 0 Ma, corresponding to the CRS thermal history solutions at the 0.5 significance level in Figure E1.

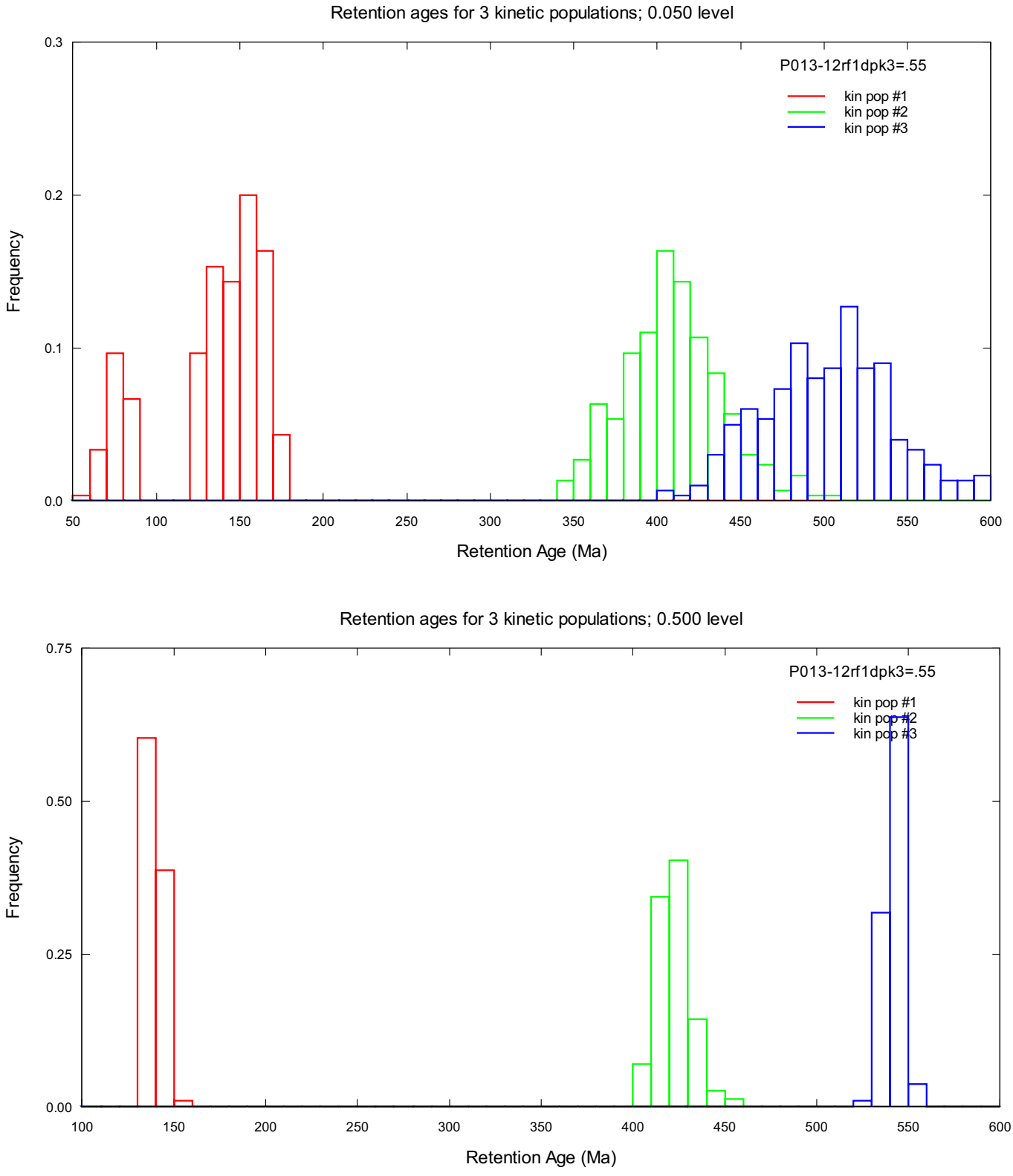


Figure E11. Upper panel shows distribution of model retention ages (age of shortest model track length; ~ 2μm) for each kinetic population corresponding to the 300 MC thermal history solutions at the 0.05 significance level in Figure E1. Lower panel shows distribution of model retention ages for each kinetic population, corresponding to the CRS thermal history solutions at the 0.5 significance level in Figure E1.

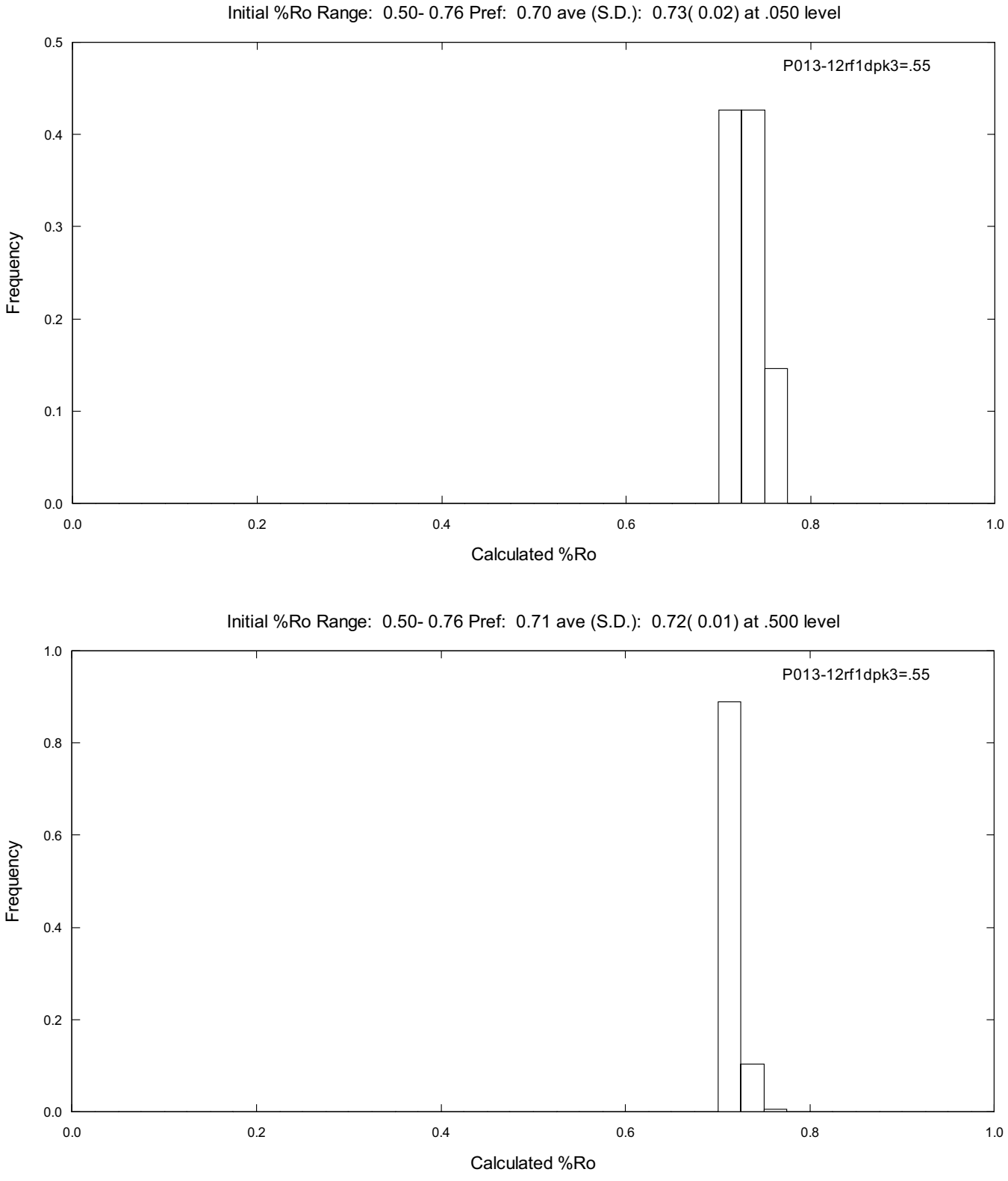


Figure E12. Upper panel shows distribution of calculated vitrinite reflectance values (basin%R_o model) for the post-depositional (post 295-285 Ma) history corresponding to the 300 MC thermal solutions at the 0.05 significance level in Figure E1. Lower panel shows distribution of calculated vitrinite reflectance values for the post-depositional (post 295-285 Ma) history corresponding to the CRS thermal solutions at the 0.5 significance level in Figure E1.

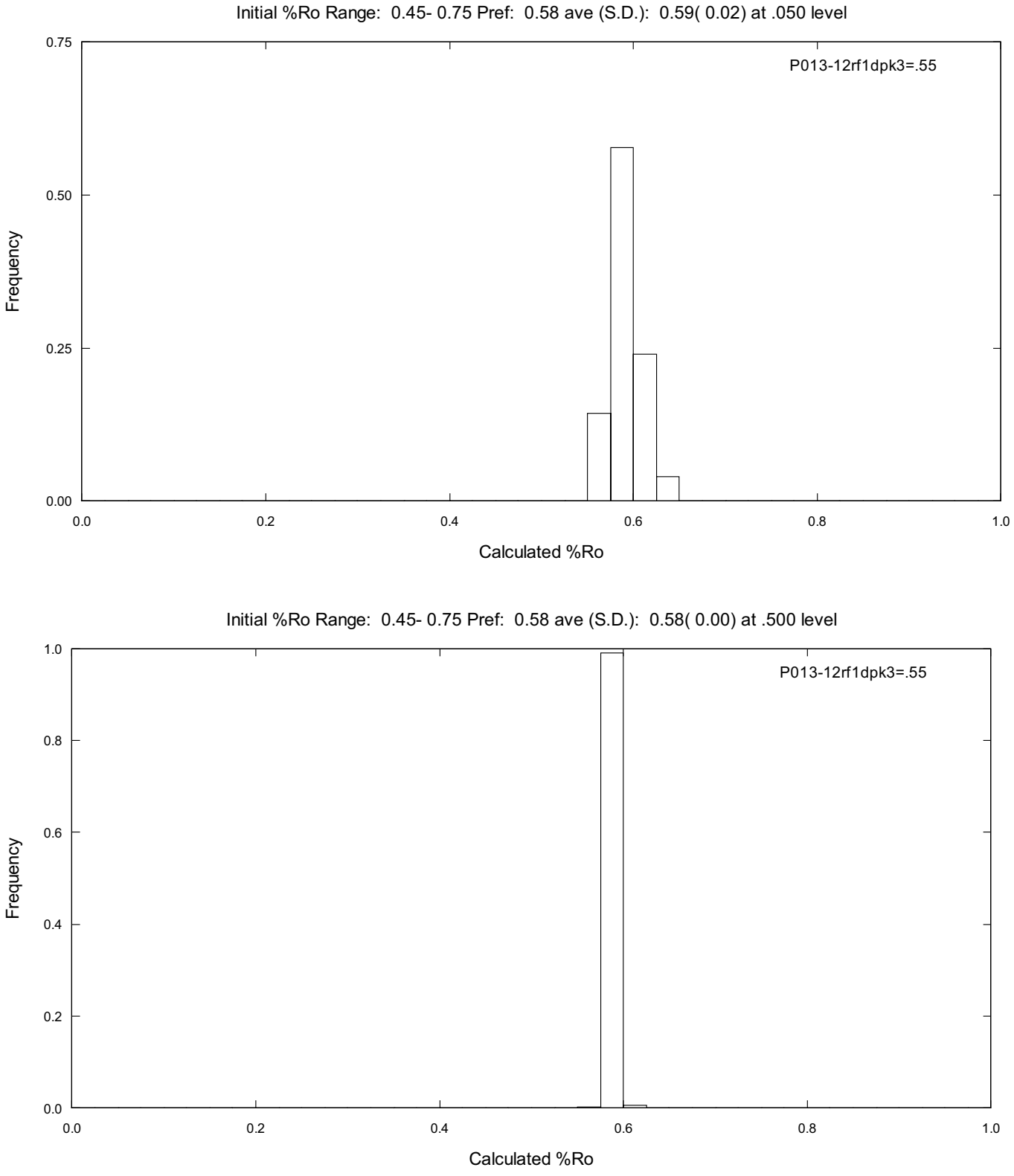


Figure E13. Upper panel shows distribution of calculated vitrinite reflectance values (basin%R_o model) for the post-thermal peak 1 history corresponding to the 300 MC thermal solutions at the 0.05 significance level in Figure E1. Calculations start after the onset of Cretaceous reburial (115-102.5 Ma). Lower panel shows distribution of calculated vitrinite reflectance values for the post-thermal peak 1 history corresponding to the CRS thermal solutions at the 0.5 significance level in Figure E1.

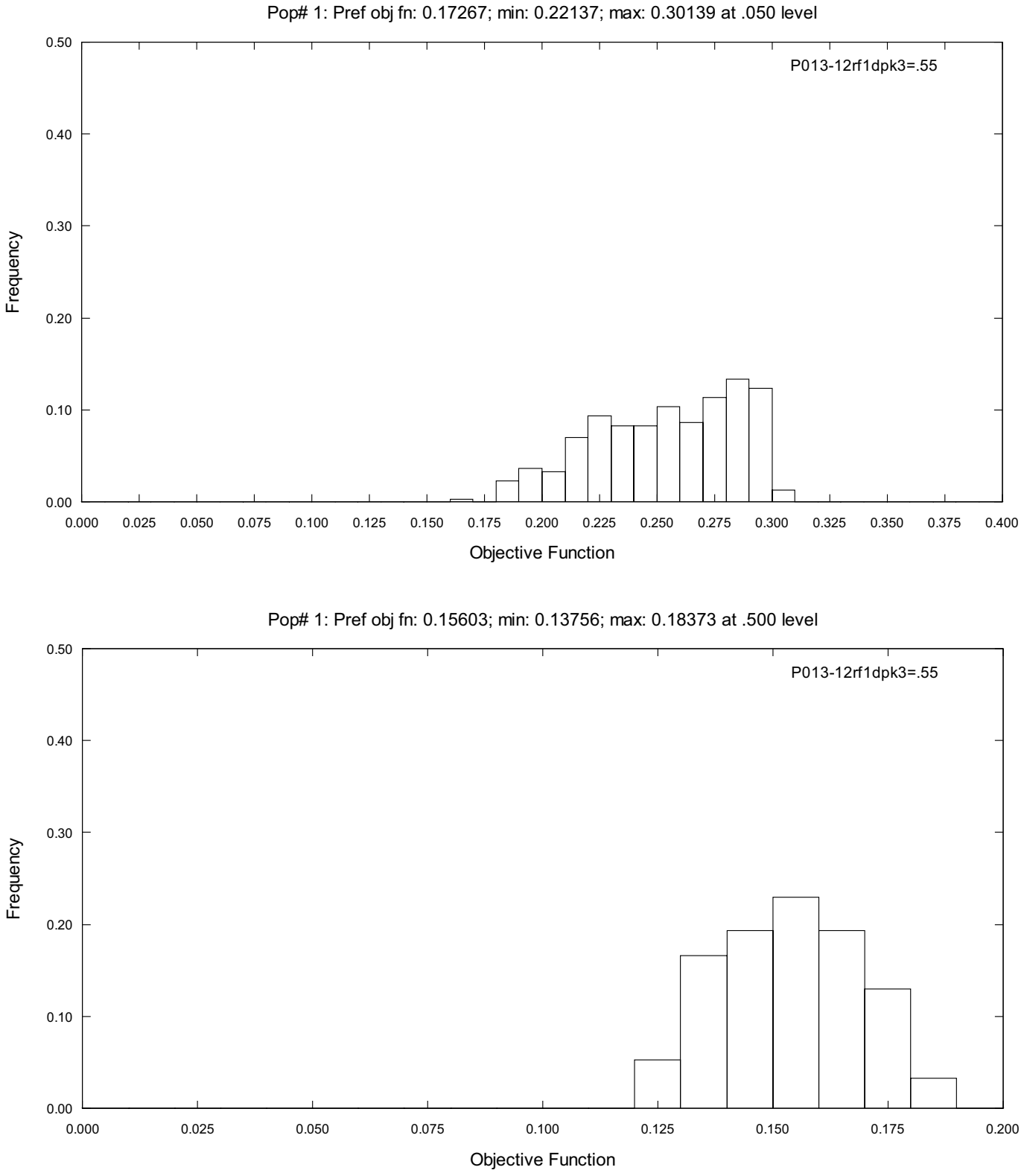


Figure E14. Upper panel shows distribution of objective function values for kinetic population #1 corresponding to the 300 MC thermal solutions in Figure E1 (0.05 significance level). Lower panel shows distribution of objective function values for kinetic population #1 corresponding to the CRS thermal solutions at the 0.5 significance level in Figure E1.

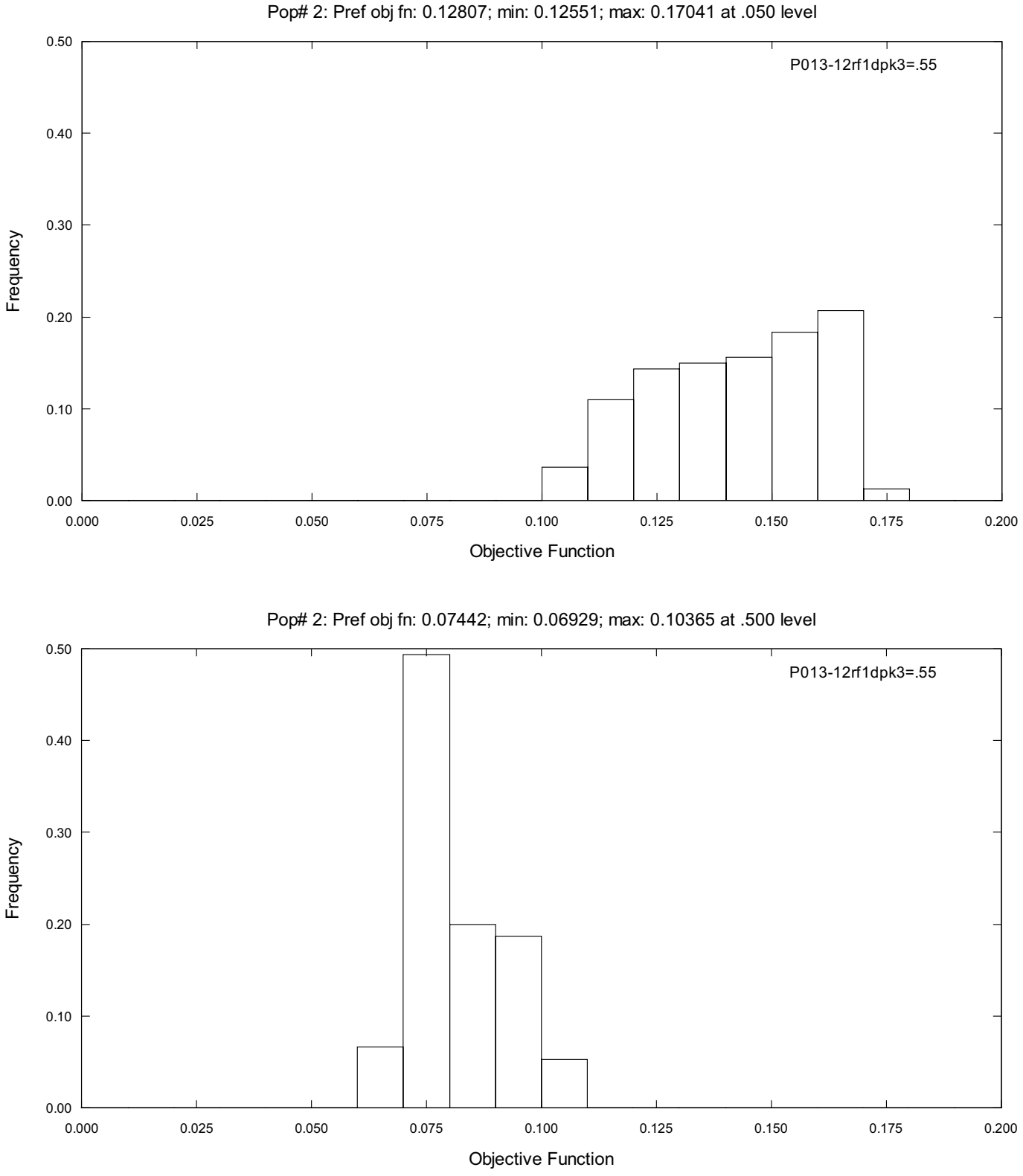


Figure E15. Upper panel shows distribution of objective function values for kinetic population #2 corresponding to the 300 MC thermal solutions in Figure E1 (0.05 significance level). Lower panel shows distribution of objective function values for kinetic population #2 corresponding to the CRS thermal solutions at the 0.5 significance level in Figure E1.

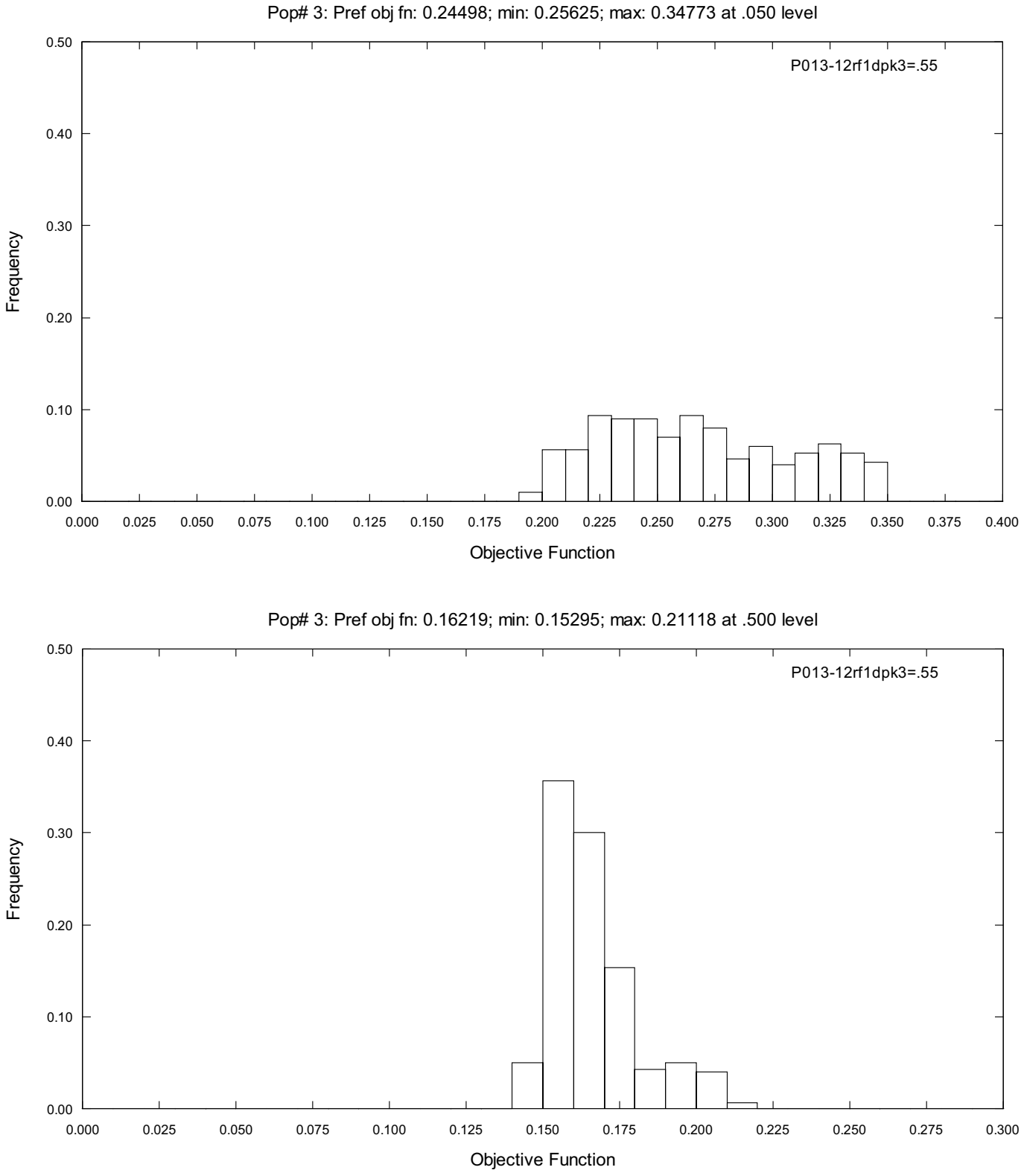


Figure E16. Upper panel shows distribution of objective function values for kinetic population #3 corresponding to the 300 MC thermal solutions in Figure E1 (0.05 significance level). Lower panel shows distribution of objective function values for kinetic population #3 corresponding to the CRS thermal solutions at the 0.5 significance level in Figure E1.

```
2009LHA003 (1148-06): Imperial Fm (U. Dev. - early Famennian), %Ro~1.62±0.24, T~0-5 deg C
MOD#1E:Tstyle = 10,5,4, dep 377.5-365 Ma, HP1 HR=15,CR=5; HP2 HR=CR=5; HP3 max HR=CR=3, CR=20 at 5 Ma
KETCHAM ET AL ANNEALING MODEL FOR B2 CHLORAPATITE

 AFTINV v. 6.10 (August 22, 2019)
 INTEL VISUAL FORTRAN 19 FOR WINDOWS 2019
 (UPDATE 3) QUICKWIN APPLICATION
 PROGRAMMER: DALE ISSLER, GSC CALGARY, CANADA
 PHONE: 403-470-1903
 EMAIL: dale.issler@canada.ca


 INVERSION CONTROL PARAMETERS:
 ----------------------------------------------------
***MONTE CARLO RANDOM SEARCH TECHNIQUE USED AT 0.05 SIGNIFICANCE LEVEL (95% CONFIDENCE)***
***CONTROLLED RANDOM SEARCH TECHNIQUE USED AT 0.5 SIGNIFICANCE LEVEL (50% CONFIDENCE)***
 LENGTH DATA CORRECTED TO C-AXIS PARALLEL ORIENTATION
 NUMBER OF RETAINED SOLUTIONS =          300
 NUMBER OF MODEL TIME STEPS (M) =          186
 NUMBER OF PARAMETERS (M+1) =          187
 NUMERICAL ACCURACY (%), ACUR =   0.1000000
 COMPONENT TIME STEP LENGTH (DELSUB) =  2.500
 OBJ FN (2=CHI2; 3=K-S; 4=KUIPER) =            3
 THERMAL HISTORY GENERATION USING UNIFORM RANDOM DEVIATES (IRSEL=1)

 KINETIC POPULATION #           1
 CONVERGENCE TOLERANCE (0.050 SIGNIFICANCE) = 0.1682668
 # OF STANDARD DEVIATIONS TO FIT AGE = 2.0 (0.05 SIGNIFICANCE)
 CONVERGENCE TOLERANCE (0.5 SIGNIFICANCE) = 0.1025348
 # OF STANDARD DEVIATIONS TO FIT AGE = 0.674 (0.5 SIGNIFICANCE)

 KINETIC POPULATION #           2
 CONVERGENCE TOLERANCE (0.050 SIGNIFICANCE) = 0.1139426
 # OF STANDARD DEVIATIONS TO FIT AGE = 2.0 (0.05 SIGNIFICANCE)
 CONVERGENCE TOLERANCE (0.5 SIGNIFICANCE) = 0.0694319
 # OF STANDARD DEVIATIONS TO FIT AGE = 0.674 (0.5 SIGNIFICANCE)

  COMBINED TRACK POPULATIONS:
 CONVERGENCE TOLERANCE (0.050 SIGNIFICANCE) = 0.0947044
  CONVERGENCE TOLERANCE (0.5 SIGNIFICANCE) =   5.7708949E-02

 AFT AGE BASED ON LA-ICP-MS METHOD
 ---------------------------------

 KINETIC POPULATION #  1 (DETRITAL)
 MEASURED AFT AGE  =  119.29
 SIGMA OF ERROR IN MEASURED AGE  =  12.25

 KINETIC POPULATION #  2 (DETRITAL)
 MEASURED AFT AGE  =  252.40
 SIGMA OF ERROR IN MEASURED AGE  =  11.61

 TOTAL NUMBER OF TRACKS MEASURED =          202
 TOTAL NUMBER OF TRACKS MODELLED =          202
 INITIAL RANDOM NUMBER GENERATOR SEED =          958
 SYSTEM RANDOM NUMBER GENERATOR RAN(ISEED)
 EXPANSION FACTOR (ALPHA) = 1.300
 REPOSITION FACTOR FOR EXPLICIT BOUND (DELTA) = 0.0010

 KINETIC POPULATION #  1
 Cl RANGE: -0.1000 -  0.0725
 REPRESENTATIVE Cl VALUE =  0.0300
 RMRO =  0.82980
 NUMBER OF TRACK LENGTHS =   63
 ORIGINAL MEAN TRACK LENGTH =  16.276
 INITIAL C-AXIS PROJECTED TRACK LENGTH =  16.705

 KINETIC POPULATION #  2
 Cl RANGE:  0.0725 -  0.7000
 REPRESENTATIVE Cl VALUE =  0.5000
 RMRO =  0.54182
 NUMBER OF TRACK LENGTHS =  139
 ORIGINAL MEAN TRACK LENGTH =  16.779
 INITIAL C-AXIS PROJECTED TRACK LENGTH =  17.175

 EMPIRICAL MODEL OF AGE REDUCTION
 TRACK LENGTH REDUCTION COEFFICIENTS:
-19.84399986   0.38951001 -51.25299835  -7.64230013  -0.12327000 -11.98799992
```

COMPONENT VARIANCE COEFFICIENTS (CUBIC POLYNOMIAL):

	C1	C2	C3	C4
WILLETT MEAN LENGTH	0.78990000	0.00000000	0.00303500	-0.00229830
KETCHAM ET AL. MEAN LENGTH	7.46400023	-0.87330002	0.02858000	0.00000000
KETCHAM ET AL. C-AXIS PROJECTED LENGTH	2.31200004	-0.24420001	0.00845200	0.00000000
KETCHAM ET AL. REDUCED MEAN LENGTH	0.45719999	-0.88150001	0.49470001	0.00000000
KETCHAM ET AL. REDUCED C-AXIS PROJECTED	0.10810000	-0.16419999	0.10520000	0.00000000

	GEOLOGIC TIME (MA)	MODEL TIME (MY)	TEMPERATURE BOUNDS (DEG C) LOWER	TEMPERATURE BOUNDS (DEG C) UPPER	RATE BOUNDS (DEG C/MY) COOLING	RATE BOUNDS (DEG C/MY) HEATING	TIME INTERVAL
1	700.00	0.00	245.00	250.00	5.00	5.00	10.00
2	690.00	10.00	195.00	250.00	5.00	5.00	10.00
3	680.00	20.00	145.00	250.00	5.00	5.00	10.00
4	670.00	30.00	95.00	250.00	5.00	5.00	10.00
5	660.00	40.00	45.00	250.00	5.00	5.00	10.00
6	650.00	50.00	0.00	250.00	5.00	5.00	10.00
7	640.00	60.00	0.00	250.00	5.00	5.00	10.00
8	630.00	70.00	0.00	250.00	5.00	5.00	10.00
9	620.00	80.00	0.00	250.00	5.00	5.00	10.00
10	610.00	90.00	0.00	250.00	5.00	5.00	10.00
11	600.00	100.00	0.00	250.00	5.00	5.00	10.00
12	590.00	110.00	0.00	250.00	5.00	5.00	10.00
13	580.00	120.00	0.00	250.00	5.00	5.00	10.00
14	570.00	130.00	0.00	250.00	5.00	5.00	10.00
15	560.00	140.00	0.00	250.00	5.00	5.00	10.00
16	550.00	150.00	0.00	250.00	5.00	5.00	10.00
17	540.00	160.00	0.00	250.00	5.00	5.00	10.00
18	530.00	170.00	0.00	250.00	5.00	5.00	10.00
19	520.00	180.00	0.00	250.00	5.00	5.00	10.00
20	510.00	190.00	0.00	250.00	5.00	5.00	10.00
21	500.00	200.00	0.00	250.00	5.00	5.00	10.00
22	490.00	210.00	0.00	250.00	5.00	5.00	10.00
23	480.00	220.00	0.00	250.00	5.00	5.00	10.00
24	470.00	230.00	0.00	250.00	5.00	5.00	10.00
25	460.00	240.00	0.00	250.00	5.00	5.00	10.00
26	450.00	250.00	0.00	250.00	5.00	5.00	10.00
27	440.00	260.00	0.00	250.00	5.00	5.00	10.00
28	430.00	270.00	0.00	250.00	5.00	5.00	10.00
29	420.00	280.00	0.00	250.00	5.00	5.00	10.00
30	410.00	290.00	0.00	250.00	5.00	5.00	10.00
31	400.00	300.00	0.00	250.00	5.00	5.00	10.00
32	390.00	310.00	0.00	250.00	5.00	5.00	5.00
33	385.00	315.00	0.00	232.50	5.00	5.00	2.50
34	382.50	317.50	0.00	220.00	5.00	5.00	2.50
35	380.00	320.00	0.00	207.50	5.00	5.00	2.50
36	377.50	322.50	0.00	195.00	5.00	15.00	2.50
37	375.00	325.00	0.00	195.00	5.00	15.00	2.50
38	372.50	327.50	0.00	195.00	5.00	15.00	2.50
39	370.00	330.00	0.00	195.00	5.00	15.00	2.50
40	367.50	332.50	0.00	195.00	5.00	15.00	2.50
41	365.00	335.00	0.00	195.00	5.00	15.00	2.50
42	362.50	337.50	0.00	195.00	5.00	15.00	2.50
43	360.00	340.00	0.00	195.00	5.00	15.00	2.50
44	357.50	342.50	0.00	195.00	5.00	15.00	2.50
45	355.00	345.00	0.00	195.00	5.00	15.00	2.50
46	352.50	347.50	0.00	195.00	5.00	15.00	2.50
47	350.00	350.00	0.00	195.00	5.00	15.00	2.50
48	347.50	352.50	0.00	195.00	5.00	15.00	2.50
49	345.00	355.00	0.00	195.00	5.00	15.00	2.50
50	342.50	357.50	0.00	195.00	5.00	15.00	2.50
51	340.00	360.00	0.00	195.00	5.00	15.00	2.50
52	337.50	362.50	0.00	195.00	5.00	15.00	2.50
53	335.00	365.00	0.00	195.00	5.00	15.00	2.50
54	332.50	367.50	0.00	195.00	5.00	15.00	2.50
55	330.00	370.00	0.00	195.00	5.00	15.00	2.50
56	327.50	372.50	0.00	195.00	5.00	15.00	2.50
57	325.00	375.00	0.00	195.00	5.00	15.00	2.50
58	322.50	377.50	0.00	195.00	5.00	15.00	2.50
59	320.00	380.00	0.00	195.00	5.00	15.00	2.50
60	317.50	382.50	0.00	195.00	5.00	15.00	2.50
61	315.00	385.00	0.00	195.00	5.00	15.00	2.50
62	312.50	387.50	0.00	195.00	5.00	15.00	2.50
63	310.00	390.00	0.00	195.00	5.00	15.00	2.50

64	307.50	392.50	0.00	195.00	5.00	15.00	2.50
65	305.00	395.00	0.00	195.00	5.00	15.00	2.50
66	302.50	397.50	0.00	195.00	5.00	15.00	2.50
67	300.00	400.00	0.00	195.00	5.00	15.00	2.50
68	297.50	402.50	0.00	195.00	5.00	15.00	2.50
69	295.00	405.00	0.00	195.00	5.00	15.00	2.50
70	292.50	407.50	0.00	195.00	5.00	15.00	2.50
71	290.00	410.00	0.00	195.00	5.00	15.00	2.50
72	287.50	412.50	0.00	195.00	5.00	15.00	2.50
73	285.00	415.00	0.00	195.00	5.00	15.00	2.50
74	282.50	417.50	0.00	195.00	5.00	15.00	2.50
75	280.00	420.00	0.00	195.00	5.00	15.00	2.50
76	277.50	422.50	0.00	195.00	5.00	15.00	2.50
77	275.00	425.00	0.00	195.00	5.00	15.00	2.50
78	272.50	427.50	0.00	195.00	5.00	15.00	2.50
79	270.00	430.00	0.00	195.00	5.00	15.00	2.50
80	267.50	432.50	0.00	195.00	5.00	15.00	2.50
81	265.00	435.00	0.00	195.00	5.00	15.00	2.50
82	262.50	437.50	0.00	195.00	5.00	15.00	2.50
83	260.00	440.00	0.00	195.00	5.00	15.00	2.50
84	257.50	442.50	0.00	195.00	5.00	15.00	2.50
85	255.00	445.00	0.00	195.00	5.00	15.00	2.50
86	252.50	447.50	0.00	195.00	5.00	15.00	2.50
87	250.00	450.00	0.00	195.00	5.00	15.00	2.50
88	247.50	452.50	0.00	187.50	5.00	15.00	2.50
89	245.00	455.00	0.00	175.00	5.00	15.00	2.50
90	242.50	457.50	0.00	162.50	5.00	15.00	2.50
91	240.00	460.00	0.00	150.00	5.00	5.00	2.50
92	237.50	462.50	0.00	150.00	5.00	5.00	2.50
93	235.00	465.00	0.00	150.00	5.00	5.00	2.50
94	232.50	467.50	0.00	150.00	5.00	5.00	2.50
95	230.00	470.00	0.00	150.00	5.00	5.00	2.50
96	227.50	472.50	0.00	150.00	5.00	5.00	2.50
97	225.00	475.00	0.00	150.00	5.00	5.00	2.50
98	222.50	477.50	0.00	150.00	5.00	5.00	2.50
99	220.00	480.00	0.00	150.00	5.00	5.00	2.50
100	217.50	482.50	0.00	150.00	5.00	5.00	2.50
101	215.00	485.00	0.00	150.00	5.00	5.00	2.50
102	212.50	487.50	0.00	150.00	5.00	5.00	2.50
103	210.00	490.00	0.00	150.00	5.00	5.00	2.50
104	207.50	492.50	0.00	150.00	5.00	5.00	2.50
105	205.00	495.00	0.00	150.00	5.00	5.00	2.50
106	202.50	497.50	0.00	150.00	5.00	5.00	2.50
107	200.00	500.00	0.00	150.00	5.00	5.00	2.50
108	197.50	502.50	0.00	150.00	5.00	5.00	2.50
109	195.00	505.00	0.00	150.00	5.00	5.00	2.50
110	192.50	507.50	0.00	150.00	5.00	5.00	2.50
111	190.00	510.00	0.00	150.00	5.00	5.00	2.50
112	187.50	512.50	0.00	150.00	5.00	5.00	2.50
113	185.00	515.00	0.00	150.00	5.00	5.00	2.50
114	182.50	517.50	0.00	150.00	5.00	5.00	2.50
115	180.00	520.00	0.00	150.00	5.00	5.00	2.50
116	177.50	522.50	0.00	150.00	5.00	5.00	2.50
117	175.00	525.00	0.00	150.00	5.00	5.00	2.50
118	172.50	527.50	0.00	150.00	5.00	5.00	2.50
119	170.00	530.00	0.00	150.00	5.00	5.00	2.50
120	167.50	532.50	0.00	150.00	5.00	5.00	2.50
121	165.00	535.00	0.00	150.00	5.00	5.00	2.50
122	162.50	537.50	0.00	150.00	5.00	5.00	2.50
123	160.00	540.00	0.00	150.00	5.00	5.00	2.50
124	157.50	542.50	0.00	150.00	5.00	5.00	2.50
125	155.00	545.00	0.00	150.00	5.00	5.00	2.50
126	152.50	547.50	0.00	150.00	5.00	5.00	2.50
127	150.00	550.00	0.00	150.00	5.00	5.00	2.50
128	147.50	552.50	0.00	150.00	5.00	5.00	2.50
129	145.00	555.00	0.00	150.00	5.00	5.00	2.50
130	142.50	557.50	0.00	150.00	5.00	5.00	2.50
131	140.00	560.00	0.00	150.00	5.00	5.00	2.50
132	137.50	562.50	0.00	150.00	5.00	5.00	2.50
133	135.00	565.00	0.00	150.00	5.00	5.00	2.50
134	132.50	567.50	0.00	150.00	5.00	5.00	2.50
135	130.00	570.00	0.00	150.00	5.00	5.00	2.50
136	127.50	572.50	0.00	150.00	5.00	5.00	2.50
137	125.00	575.00	0.00	150.00	5.00	5.00	2.50
138	122.50	577.50	0.00	147.50	5.00	5.00	2.50
139	120.00	580.00	0.00	135.00	5.00	5.00	2.50
140	117.50	582.50	0.00	122.50	5.00	5.00	2.50
141	115.00	585.00	0.00	110.00	3.00	3.00	2.50

142	112.50	587.50	0.00	110.00	3.00	3.00	2.50
143	110.00	590.00	0.00	110.00	3.00	3.00	2.50
144	107.50	592.50	0.00	110.00	3.00	3.00	2.50
145	105.00	595.00	0.00	110.00	3.00	3.00	2.50
146	102.50	597.50	0.00	110.00	3.00	3.00	2.50
147	100.00	600.00	0.00	110.00	3.00	3.00	2.50
148	97.50	602.50	0.00	110.00	3.00	3.00	2.50
149	95.00	605.00	0.00	110.00	3.00	3.00	2.50
150	92.50	607.50	0.00	110.00	3.00	3.00	2.50
151	90.00	610.00	0.00	110.00	3.00	3.00	2.50
152	87.50	612.50	0.00	110.00	3.00	3.00	2.50
153	85.00	615.00	0.00	110.00	3.00	3.00	2.50
154	82.50	617.50	0.00	110.00	3.00	3.00	2.50
155	80.00	620.00	0.00	110.00	3.00	3.00	2.50
156	77.50	622.50	0.00	110.00	3.00	3.00	2.50
157	75.00	625.00	0.00	110.00	3.00	3.00	2.50
158	72.50	627.50	0.00	110.00	3.00	3.00	2.50
159	70.00	630.00	0.00	110.00	3.00	3.00	2.50
160	67.50	632.50	0.00	110.00	3.00	3.00	2.50
161	65.00	635.00	0.00	110.00	3.00	3.00	2.50
162	62.50	637.50	0.00	110.00	3.00	3.00	2.50
163	60.00	640.00	0.00	110.00	3.00	3.00	2.50
164	57.50	642.50	0.00	110.00	3.00	3.00	2.50
165	55.00	645.00	0.00	110.00	3.00	3.00	2.50
166	52.50	647.50	0.00	110.00	3.00	3.00	2.50
167	50.00	650.00	0.00	110.00	3.00	3.00	2.50
168	47.50	652.50	0.00	110.00	3.00	3.00	2.50
169	45.00	655.00	0.00	110.00	3.00	3.00	2.50
170	42.50	657.50	0.00	110.00	3.00	3.00	2.50
171	40.00	660.00	0.00	110.00	3.00	3.00	2.50
172	37.50	662.50	0.00	110.00	3.00	3.00	2.50
173	35.00	665.00	0.00	110.00	3.00	3.00	2.50
174	32.50	667.50	0.00	110.00	3.00	3.00	2.50
175	30.00	670.00	0.00	110.00	3.00	3.00	2.50
176	27.50	672.50	0.00	110.00	3.00	3.00	2.50
177	25.00	675.00	0.00	110.00	3.00	3.00	2.50
178	22.50	677.50	0.00	110.00	3.00	3.00	2.50
179	20.00	680.00	0.00	110.00	3.00	3.00	2.50
180	17.50	682.50	0.00	110.00	3.00	3.00	2.50
181	15.00	685.00	0.00	110.00	3.00	3.00	2.50
182	12.50	687.50	0.00	110.00	3.00	3.00	2.50
183	10.00	690.00	0.00	110.00	3.00	3.00	2.50
184	7.50	692.50	0.00	110.00	3.00	3.00	2.50
185	5.00	695.00	0.00	105.00	20.00	3.00	2.50
186	2.50	697.50	0.00	55.00	20.00	3.00	2.50
187	0.00	700.00	0.00	5.00			

HEATING/COOLING SELECTION SUMMARY:

TSTYLE	TIME RANGE MA	# OF EVENTS HEATING	# OF EVENTS COOLING	NHP	NCP	MINIMUM HEATING	MINIMUM COOLING	THERMAL PEAK	LOWER TEMP LIMIT DEG C	THERMAL MINIMUM	UPPER TEMP LIMIT DEG C	TEMP MIN TIME INTERVAL (MA)	TYPE OF THERMAL HISTORY
10	700.0- 117.5	2	MONOTONIC	2	-3	0.01	0.01	1	155.0	1	30.0	377.5- 365.0	COOL-HEAT-COOL-HEAT-COOL
								2	0.0	2	150.0	240.0- 210.0	
5	117.5- 97.5	MONOTONIC	1	-1	1	0.01	0.01			1	110.0	115.0- 100.0	EXHUMATION THEN BURIAL
4	97.5- 0.0	1	MONOTONIC	1	-1	0.01	0.01	1	60.0				BURIAL THEN EXHUMATION

TIME RANGE FOR RANDOM SELECTION OF INITIAL MODEL POINT:
700.00 - 0.00 MA (TIME STEPS 1 TO 187)

%RO = 1.62 +/- 0.240 IS AN EXTRA CONSTRAINT FOR POST-DEPOSITIONAL THERMAL HISTORIES
%RO = 0.50 +/- 0.200 IS AN EXTRA CONSTRAINT FOR POST-EXHUMATION THERMAL HISTORIES
USE BASIN%RO MODEL
%RO CALCULATIONS BEGIN AT DEPOSITION AT APPROXIMATELY 370.00 Ma
%RO CALCULATIONS BEGIN AT ONSET OF REBURIAL AT APPROXIMATELY 110.00 Ma

MEASURED TRACK LENGTH DATA:
KINETIC POPULATION # 1; 63 MEASURED LENGTHS (MICRONS)

CONVENTIONAL MEAN	C-AXIS PROJECTED MEAN	ANGLE TO C-AXIS DEGREES
9.51	11.36	36.71
9.46	11.46	39.69
9.59	12.21	60.28
10.85	12.23	35.10
8.59	12.27	68.69
9.80	12.32	59.27
10.56	12.45	46.58
7.88	12.51	78.24

10.73	12.58	47.04
9.67	12.58	76.46
11.80	12.62	27.19
9.55	12.70	80.89
9.43	12.78	83.82
10.65	12.82	57.73
7.44	12.83	88.25
11.22	12.94	47.94
12.20	13.05	30.18
10.50	13.06	80.01
10.53	13.11	85.79
11.40	13.11	49.88
10.90	13.14	65.45
11.36	13.19	53.81
10.81	13.23	77.04
10.97	13.33	77.15
11.10	13.37	72.51
12.07	13.42	44.55
12.30	13.51	41.77
12.98	13.52	25.39
11.79	13.54	56.55
11.66	13.71	72.46
12.10	13.73	56.13
12.54	13.76	44.60
11.91	13.78	65.30
12.33	13.79	51.56
11.90	13.79	66.92
13.04	13.80	32.86
11.85	13.87	75.98
12.18	14.08	76.36
13.89	14.26	24.12
12.69	14.32	69.02
13.08	14.46	60.93
12.99	14.50	68.24
13.19	14.54	61.17
13.89	14.56	36.65
13.64	14.69	52.00
13.71	14.80	55.44
13.50	14.93	84.59
14.49	15.14	42.97
14.59	15.17	40.41
14.13	15.28	74.62
14.35	15.40	72.23
14.91	15.41	39.83
14.62	15.42	55.87
14.83	15.46	47.28
14.84	15.63	62.02
15.31	15.67	35.72
15.43	15.74	33.75
15.57	15.86	34.80
16.18	16.34	31.47
16.46	16.59	34.72
16.39	16.67	64.30
16.55	16.70	43.31
16.65	16.75	34.85

MEAN OF CONVENTIONAL LENGTHS = 12.40 + OR - 2.23 MICRONS
MEAN OF C-AXIS PROJECTED LENGTHS = 13.97 + OR - 1.35 MICRONS

MEASURED TRACK LENGTH DATA:
KINETIC POPULATION # 2; 139 MEASURED LENGTHS (MICRONS)

CONVENTIONAL MEAN	C-AXIS PROJECTED MEAN	ANGLE TO C-AXIS DEGREES
8.06	11.89	58.92
9.24	11.93	57.45
7.46	12.09	66.43
9.83	12.10	50.48
9.98	12.12	48.34
7.36	12.18	69.64
9.12	12.28	67.66
9.30	12.31	68.25
9.59	12.41	70.55
7.86	12.42	75.34
10.21	12.47	55.13
10.29	12.52	54.77
6.85	12.69	86.86

10.99	12.71	45.51
10.75	12.73	51.67
10.39	12.83	66.42
10.88	12.86	53.11
9.25	12.86	86.87
10.88	12.87	53.49
10.17	12.89	84.63
10.40	12.95	74.16
10.45	12.95	71.89
10.96	12.96	54.93
10.33	12.99	85.49
10.80	13.02	62.34
11.24	13.11	53.67
12.00	13.12	36.42
11.35	13.16	52.75
12.00	13.21	39.22
11.24	13.27	60.79
12.20	13.28	36.84
11.62	13.41	55.85
12.16	13.46	43.70
11.46	13.48	64.97
11.20	13.49	78.83
11.23	13.52	81.59
11.58	13.54	63.55
12.16	13.57	47.44
12.84	13.59	31.36
11.39	13.64	85.86
11.93	13.73	62.00
12.48	13.77	46.74
11.91	13.77	65.13
13.28	13.79	25.98
12.35	13.79	51.16
11.97	13.84	66.71
12.20	13.86	58.99
12.15	13.86	61.23
12.26	13.87	57.77
12.15	13.95	66.70
12.14	13.97	68.69
12.31	13.97	61.67
12.17	13.99	68.83
12.06	14.06	88.74
12.65	14.07	54.86
12.42	14.11	65.54
12.38	14.13	69.05
13.08	14.13	43.93
13.01	14.13	46.16
12.26	14.14	78.85
12.75	14.15	55.26
13.54	14.16	31.47
12.67	14.17	59.41
12.83	14.19	54.45
13.28	14.19	40.58
13.16	14.20	44.46
12.95	14.24	53.08
12.80	14.26	59.55
12.46	14.30	87.09
12.50	14.30	81.17
12.51	14.33	87.45
13.70	14.33	33.36
13.14	14.34	51.47
12.58	14.34	78.68
13.53	14.36	40.07
13.52	14.37	40.49
13.49	14.38	41.96
12.87	14.40	66.10
13.63	14.41	38.68
13.78	14.42	34.50
13.05	14.43	59.96
12.68	14.43	85.26
13.01	14.44	62.07
13.13	14.45	57.78
13.12	14.46	59.23
14.00	14.49	30.03
13.02	14.55	70.64
13.01	14.56	72.45
13.63	14.59	46.82
13.52	14.59	51.04
13.74	14.60	43.44

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     13.39           14.65              59.55
     13.61           14.65              50.81
     13.85           14.67              43.24
     13.32           14.72              68.63
     13.37           14.73              66.68
     14.42           14.74              25.21
     13.35           14.81              77.93
     14.28           14.93              39.76
     13.76           14.97              65.55
     14.02           14.97              52.67
     14.61           14.99              29.23
     13.69           15.05              89.92
     14.32           15.07              46.11
     13.95           15.09              65.92
     14.09           15.10              58.29
     13.84           15.10              75.04
     14.77           15.12              29.28
     14.42           15.14              45.82
     14.28           15.18              55.18
     14.16           15.27              70.27
     15.07           15.27              22.40
     14.92           15.31              33.13
     14.83           15.32              37.95
     14.89           15.32              35.36
     14.45           15.36              59.90
     14.90           15.37              37.66
     14.90           15.40              39.76
     14.32           15.41              76.98
     14.84           15.46              46.83
     14.71           15.51              58.05
     15.39           15.60              25.53
     15.09           15.60              43.36
     14.91           15.70              64.66
     15.10           15.71              52.07
     14.92           15.80              82.37
     15.32           15.84              49.59
     15.78           15.91              22.15
     15.81           15.98              26.60
     15.38           16.03              68.14
     15.96           16.08              23.96
     15.93           16.20              39.97
     15.96           16.23              39.86
     16.30           16.47              36.86
     16.39           16.56              39.51
     16.60           16.68              29.14
     16.62           16.72              34.96
     16.76           16.89              50.81
     17.14           17.16              53.71

MEAN OF CONVENTIONAL LENGTHS = 12.84 + OR -  2.03 MICRONS
MEAN OF C-AXIS PROJECTED LENGTHS = 14.27 + OR -  1.15 MICRONS


NUMBER OF FORWARD RANDOM TRIALS, ITER =   1419076
 KINETIC POP#  1:  MAX OBJ FUNCTION =   0.168266
 KINETIC POP#  2:  MAX OBJ FUNCTION =   0.113835
 KINETIC POP#  1:  MIN OBJ FUNCTION =   0.054271;  SOLUTION #  224
 KINETIC POP#  2:  MIN OBJ FUNCTION =   0.055153;  SOLUTION #  290
SOLUTION #  224; OBJ FUNCTION SUM:   0.158259
SOLUTION #  290; OBJ FUNCTION SUM:   0.121673
MIN OBJ SOLUTION: SOLUTION #  290

CONVERGENCE AT 0.050 SIGNIFICANCE LEVEL
 TOTAL NUMBER OF SOLUTIONS:          300
 NUMBER OF 0.5 SOLUTIONS:           13
STOP DATE  - MONTH:  9 DAY: 30 YEAR: 2019
STOP TIME : 12 HRS    9 MIN    15 S
 TOTAL EXECUTION TIME =  0.401697 HOURS OR   24.1018 MINUTES
 # OF TIME-TEMP ERRORS AND RETRIED SOLUTIONS IN TGEN2 =    39230.0000000000

 KINETIC POP#  1:  MAX OBJ FUNCTION =   0.102163
 KINETIC POP#  2:  MAX OBJ FUNCTION =   0.069425
 KINETIC POP#  1:  MIN OBJ FUNCTION =   0.049305;  SOLUTION #  214
 KINETIC POP#  2:  MIN OBJ FUNCTION =   0.050152;  SOLUTION #   70
SOLUTION #  214; OBJ FUNCTION SUM:   0.114913
SOLUTION #   70; OBJ FUNCTION SUM:   0.147357
MIN OBJ SOLUTION: SOLUTION #  133
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 CONVERGENCE AT 0.5 SIGNIFICANCE LEVEL
 NUMBER OF FORWARD MODELS:         90670
 TOTAL NUMBER OF SOLUTIONS:          300
 NUMBER OF 0.5 SOLUTIONS:            300
STOP DATE  - MONTH:  9 DAY: 30 YEAR: 2019
STOP TIME : 14 HRS   42 MIN    21 S
 TOTAL EXECUTION TIME =  2.953359 HOURS OR  177.2015 MINUTES
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2009LHA003 (1148-06): Imperial Fm (U. Dev. - early Famennian), %Ro~1.62±0.24, T~0-5 deg C

MOD#1E:Tstyle = 10,5,4, dep 377.5-365 Ma, HP1 HR=15,CR=5; HP2 HR=CR=5; HP3 max HR=CR=3, CR=20 at 5 Ma

KETCHAM ET AL ANNEALING MODEL FOR B2 CHLORAPATITE

AFTINV v. 6.10 (August 22, 2019)

INTEL VISUAL FORTRAN 19 FOR WINDOWS 2019

(UPDATE 3) QUICKWIN APPLICATION

MONTE CARLO RANDOM SEARCH METHOD

MINIMUM OBJECTIVE SOLUTION: LOWEST COMBINED OBJECTIVE FUNCTION

MODEL RESULTS AT 0.0500 SIGNIFICANCE LEVEL

TIME (MY)	TIME (MA)	EXP MEAN TEMPERATURE (DEG C)	EXP MEAN RATE (DEG/MY)	MIN OBJ TEMPERATURE (DEG C)	MIN OBJ RATE (DEG/MY)	LOWER TEMP BOUND	UPPER TEMP BOUND
0.00	700.00	250.00		250.00		249.46	250.00
10.00	690.00	249.99	-0.001	250.00	0.000	249.03	250.00
20.00	680.00	249.97	-0.002	250.00	0.000	244.97	250.00
30.00	670.00	249.94	-0.003	250.00	0.000	242.52	250.00
40.00	660.00	249.88	-0.006	250.00	0.000	232.98	250.00
50.00	650.00	249.77	-0.011	250.00	0.000	229.06	250.00
60.00	640.00	249.56	-0.021	250.00	0.000	215.79	250.00
70.00	630.00	249.35	-0.021	250.00	0.000	210.47	250.00
80.00	620.00	248.97	-0.038	250.00	0.000	206.26	250.00
90.00	610.00	248.38	-0.059	250.00	0.000	174.99	250.00
100.00	600.00	247.81	-0.057	250.00	0.000	169.36	250.00
110.00	590.00	246.89	-0.092	250.00	0.000	147.47	250.00
120.00	580.00	245.67	-0.122	250.00	0.000	144.32	250.00
130.00	570.00	244.23	-0.144	250.00	0.000	142.11	250.00
140.00	560.00	241.95	-0.228	250.00	0.000	141.12	250.00
150.00	550.00	239.40	-0.255	250.00	0.000	138.99	250.00
160.00	540.00	235.97	-0.342	250.00	0.000	130.94	250.00
170.00	530.00	231.81	-0.417	249.93	-0.007	122.46	250.00
180.00	520.00	227.46	-0.435	249.66	-0.027	110.14	250.00
190.00	510.00	221.92	-0.553	241.59	-0.807	105.54	250.00
200.00	500.00	215.06	-0.687	234.62	-0.697	91.15	249.94
210.00	490.00	207.02	-0.804	229.71	-0.491	84.77	249.82
220.00	480.00	197.57	-0.944	204.77	-2.493	81.45	248.22
230.00	470.00	187.54	-1.003	203.51	-0.127	74.13	244.87
240.00	460.00	173.42	-1.412	179.42	-2.408	59.66	233.66
250.00	450.00	161.55	-1.186	160.65	-1.878	59.27	215.03
260.00	440.00	151.86	-0.969	158.41	-0.224	51.87	214.27
270.00	430.00	135.36	-1.650	158.23	-0.018	49.86	187.73
280.00	420.00	119.32	-1.604	152.65	-0.558	45.33	168.26
290.00	410.00	95.40	-2.392	106.25	-4.640	39.47	141.13
300.00	400.00	73.24	-2.216	85.79	-2.046	34.67	116.07
310.00	390.00	55.38	-1.786	42.11	-4.368	21.33	91.63
315.00	385.00	48.42	-1.391	41.02	-0.218	15.85	75.02
317.50	382.50	44.88	-1.415	40.80	-0.090	14.31	72.58
320.00	380.00	41.48	-1.363	40.73	-0.027	13.86	67.25
322.50	377.50	38.21	-1.306	37.80	-1.170	13.83	66.73
325.00	375.00	45.30	2.836	34.29	-1.403	1.95	67.49
327.50	372.50	74.84	11.816	33.03	-0.505	9.17	104.95
330.00	370.00	107.41	13.025	27.00	-2.414	14.70	142.31
332.50	367.50	131.73	9.728	26.27	-0.291	16.39	177.34
335.00	365.00	141.78	4.021	62.55	14.511	13.96	179.37
337.50	362.50	150.58	3.520	94.68	12.855	14.24	183.97
340.00	360.00	155.97	2.155	122.20	11.006	19.69	187.31
342.50	357.50	160.31	1.736	124.67	0.988	30.90	184.43
345.00	355.00	163.12	1.126	128.65	1.594	35.15	184.83
347.50	352.50	164.61	0.597	134.14	2.195	37.09	188.55
350.00	350.00	164.93	0.127	137.39	1.298	50.69	186.02
352.50	347.50	164.99	0.025	142.62	2.093	52.15	183.78
355.00	345.00	165.56	0.228	143.69	0.427	55.92	183.23
357.50	342.50	165.92	0.143	145.01	0.528	56.91	182.17
360.00	340.00	165.93	0.005	145.78	0.310	70.37	186.31
362.50	337.50	166.01	0.031	175.27	11.794	97.02	181.59
365.00	335.00	165.81	-0.082	176.86	0.638	97.58	182.92
367.50	332.50	165.31	-0.197	176.94	0.033	102.43	183.04
370.00	330.00	164.76	-0.221	172.16	-1.912	107.29	182.99
372.50	327.50	164.28	-0.192	170.28	-0.753	112.70	186.46
375.00	325.00	162.87	-0.562	161.40	-3.553	113.57	183.70
377.50	322.50	161.27	-0.640	158.53	-1.148	115.43	179.89
380.00	320.00	159.57	-0.683	146.34	-4.874	114.08	184.34
382.50	317.50	157.83	-0.697	138.22	-3.249	110.40	180.44
385.00	315.00	155.65	-0.869	135.76	-0.986	105.76	178.99
387.50	312.50	153.16	-0.996	135.49	-0.106	104.93	179.59
390.00	310.00	150.78	-0.955	132.62	-1.149	101.50	177.75
392.50	307.50	147.76	-1.206	131.46	-0.463	100.39	175.66
395.00	305.00	145.30	-0.983	126.89	-1.828	93.05	174.20
397.50	302.50	142.70	-1.040	123.85	-1.215	88.01	172.20
400.00	300.00	140.24	-0.987	116.80	-2.823	87.22	173.20
402.50	297.50	137.86	-0.951	113.85	-1.180	81.93	174.46
405.00	295.00	135.09	-1.107	105.39	-3.382	77.96	175.55
407.50	292.50	132.09	-1.202	103.29	-0.842	74.91	171.42
410.00	290.00	129.34	-1.100	100.19	-1.238	73.50	170.77
412.50	287.50	125.92	-1.368	97.31	-1.152	73.19	170.04
415.00	285.00	123.25	-1.067	94.60	-1.084	69.58	167.08
417.50	282.50	120.56	-1.075	92.94	-0.666	64.68	164.03
420.00	280.00	117.14	-1.368	91.78	-0.463	63.53	161.47
422.50	277.50	114.76	-0.953	82.52	-3.703	61.70	161.05
425.00	275.00	112.19	-1.029	74.03	-3.398	58.18	160.57
427.50	272.50	109.24	-1.181	70.00	-1.612	50.76	158.19
430.00	270.00	105.45	-1.516	68.48	-0.608	45.48	150.81
432.50	267.50	101.96	-1.395	65.89	-1.034	44.89	143.03
435.00	265.00	98.18	-1.510	64.84	-0.423	43.61	138.98
437.50	262.50	95.27	-1.165	63.72	-0.448	40.70	136.88
440.00	260.00	92.26	-1.203	60.65	-1.229	34.61	132.95
442.50	257.50	89.10	-1.263	57.64	-1.201	28.57	129.06
445.00	255.00	86.62	-0.995	54.43	-1.285	24.72	126.74

447.50	252.50	83.76	-1.144	53.40	-0.412	21.26	125.46
450.00	250.00	80.45	-1.322	52.81	-0.235	10.43	114.99
452.50	247.50	77.36	-1.237	46.72	-2.436	6.62	113.45
455.00	245.00	73.60	-1.506	44.09	-1.055	0.31	107.53
457.50	242.50	70.90	-1.080	37.74	-2.540	0.29	103.77
460.00	240.00	68.10	-1.117	29.52	-3.284	0.01	103.35
462.50	237.50	65.64	-0.983	27.99	-0.614	0.00	103.21
465.00	235.00	62.94	-1.081	26.88	-0.442	0.00	93.45
467.50	232.50	60.84	-0.839	30.06	1.272	0.00	92.92
470.00	230.00	59.54	-0.522	30.59	0.210	0.00	93.30
472.50	227.50	58.82	-0.288	30.84	0.102	0.01	94.01
475.00	225.00	59.19	0.149	33.53	1.074	0.00	96.92
477.50	222.50	60.22	0.413	43.51	3.993	5.45	98.49
480.00	220.00	62.43	0.884	44.73	0.487	3.97	99.54
482.50	217.50	65.04	1.044	47.12	0.955	0.18	102.44
485.00	215.00	68.15	1.244	48.76	0.659	0.56	106.06
487.50	212.50	71.28	1.251	54.06	2.117	0.00	107.60
490.00	210.00	74.65	1.346	58.27	1.684	0.00	111.99
492.50	207.50	78.21	1.427	65.25	2.795	0.00	118.86
495.00	205.00	81.21	1.199	65.65	0.158	0.00	121.08
497.50	202.50	84.50	1.317	66.63	0.394	0.00	126.79
500.00	200.00	87.48	1.191	73.32	2.675	0.00	127.74
502.50	197.50	89.59	0.845	82.51	3.676	0.01	126.37
505.00	195.00	92.36	1.106	83.29	0.313	0.32	125.34
507.50	192.50	94.84	0.994	84.98	0.676	2.24	131.07
510.00	190.00	96.13	0.515	87.79	1.122	3.37	129.68
512.50	187.50	97.03	0.361	95.17	2.954	4.66	125.11
515.00	185.00	98.05	0.406	95.62	0.178	15.27	126.73
517.50	182.50	99.65	0.640	96.70	0.432	20.06	126.61
520.00	180.00	100.66	0.405	100.68	1.593	26.71	126.11
522.50	177.50	101.25	0.234	102.13	0.580	37.53	122.78
525.00	175.00	102.06	0.324	110.61	3.391	47.98	122.11
527.50	172.50	102.55	0.198	113.26	1.059	50.91	124.12
530.00	170.00	103.32	0.307	113.93	0.272	55.25	124.15
532.50	167.50	103.13	-0.078	113.36	-0.230	56.65	122.88
535.00	165.00	103.08	-0.018	110.70	-1.064	62.23	120.21
537.50	162.50	102.46	-0.250	109.29	-0.565	62.67	120.88
540.00	160.00	101.98	-0.192	104.69	-1.838	71.26	120.31
542.50	157.50	101.25	-0.291	103.06	-0.652	70.68	118.54
545.00	155.00	100.20	-0.419	102.76	-0.121	68.99	119.16
547.50	152.50	98.66	-0.617	101.59	-0.469	62.49	119.04
550.00	150.00	96.60	-0.823	99.11	-0.990	55.07	119.89
552.50	147.50	94.83	-0.709	93.89	-2.089	53.95	119.26
555.00	145.00	92.52	-0.922	90.25	-1.456	45.08	119.41
557.50	142.50	90.05	-0.991	86.75	-1.402	43.68	114.25
560.00	140.00	87.62	-0.970	83.67	-1.231	39.64	110.22
562.50	137.50	85.34	-0.912	79.43	-1.697	32.83	114.03
565.00	135.00	82.49	-1.142	70.46	-3.587	29.12	115.24
567.50	132.50	80.40	-0.835	69.25	-0.482	27.13	119.77
570.00	130.00	76.53	-1.546	69.09	-0.067	24.68	107.70
572.50	127.50	72.81	-1.491	68.67	-0.167	23.68	98.11
575.00	125.00	69.77	-1.212	65.27	-1.358	19.94	96.95
577.50	122.50	66.82	-1.183	64.63	-0.259	18.89	95.69
580.00	120.00	63.42	-1.359	61.30	-1.330	18.65	88.08
582.50	117.50	60.13	-1.318	55.96	-2.139	17.76	86.54
585.00	115.00	56.91	-1.285	53.96	-0.799	15.17	81.82
587.50	112.50	54.82	-0.837	55.18	0.488	12.15	80.98
590.00	110.00	53.53	-0.515	56.41	0.493	9.81	78.86
592.50	107.50	53.13	-0.162	58.52	0.844	9.87	78.24
595.00	105.00	53.52	0.158	60.61	0.834	13.76	78.44
597.50	102.50	54.68	0.461	60.90	0.116	16.69	79.08
600.00	100.00	56.72	0.818	61.55	0.262	19.98	84.09
602.50	97.50	59.29	1.028	67.86	2.524	21.79	88.93
605.00	95.00	61.57	0.911	68.45	0.236	22.92	89.47
607.50	92.50	63.66	0.835	70.44	0.794	25.31	88.92
610.00	90.00	65.83	0.871	74.21	1.509	28.51	89.20
612.50	87.50	68.07	0.894	74.41	0.082	29.16	92.75
615.00	85.00	70.11	0.819	76.93	1.005	31.03	94.08
617.50	82.50	71.49	0.550	78.13	0.484	37.35	92.22
620.00	80.00	72.96	0.589	81.81	1.471	38.90	91.13
622.50	77.50	74.27	0.523	81.89	0.030	38.98	92.72
625.00	75.00	74.97	0.282	85.47	1.432	40.67	91.61
627.50	72.50	75.50	0.209	85.95	0.194	41.57	92.50
630.00	70.00	75.79	0.118	84.73	-0.490	45.16	90.25
632.50	67.50	75.95	0.063	83.11	-0.647	46.61	90.73
635.00	65.00	75.81	-0.054	81.03	-0.832	49.32	89.05
637.50	62.50	75.37	-0.177	75.09	-2.373	50.14	89.92
640.00	60.00	74.69	-0.270	74.09	-0.404	50.58	88.28
642.50	57.50	73.74	-0.383	69.54	-1.819	51.69	85.71
645.00	55.00	72.70	-0.417	68.26	-0.512	50.33	85.95
647.50	52.50	71.52	-0.470	65.53	-1.091	48.54	85.06
650.00	50.00	70.14	-0.551	63.70	-0.735	46.45	86.39
652.50	47.50	68.62	-0.607	63.54	-0.063	43.91	86.43
655.00	45.00	66.80	-0.731	62.07	-0.588	42.70	84.15
657.50	42.50	64.54	-0.902	60.64	-0.574	39.34	83.15
660.00	40.00	62.22	-0.928	59.50	-0.454	36.77	81.81
662.50	37.50	60.05	-0.867	57.42	-0.834	34.76	78.29
665.00	35.00	57.96	-0.840	53.72	-1.478	32.68	78.75
667.50	32.50	55.61	-0.938	51.64	-0.830	27.99	75.15
670.00	30.00	53.20	-0.965	47.83	-1.525	22.35	74.34
672.50	27.50	51.09	-0.845	47.62	-0.085	18.53	75.04
675.00	25.00	48.91	-0.872	44.91	-1.085	18.42	73.82
677.50	22.50	46.61	-0.920	44.85	-0.023	10.99	70.90
680.00	20.00	44.10	-1.004	44.51	-0.134	10.51	64.38
682.50	17.50	41.65	-0.979	43.59	-0.370	6.17	62.69
685.00	15.00	39.36	-0.917	40.71	-1.152	1.15	60.84
687.50	12.50	37.07	-0.915	40.52	-0.078	0.55	56.64
690.00	10.00	34.89	-0.869	36.48	-1.614	0.02	56.31
692.50	7.50	32.76	-0.854	32.50	-1.593	0.00	53.94
695.00	5.00	30.41	-0.938	31.00	-0.600	0.00	51.13
697.50	2.50	26.87	-1.417	29.55	-0.580	0.00	48.93
700.00	0.00	2.65	-9.688	4.06	-10.194	0.00	5.00

EXPONENTIAL MEAN: TIME OF DEPOSITION = 377.5 Ma
EXPONENTIAL MEAN: TIME OF REBURIAL = 107.5 Ma

MINIMUM OBJ SOLUTION: TIME OF DEPOSITION = 367.5 Ma
MINIMUM OBJ SOLUTION: TIME OF REBURIAL = 115.0 Ma

SEARCH FOR MAXIMUM TEMPERATURE BETWEEN 365.00 - 240.00 MA

THE LAST 13 SOLUTIONS ARE AT 0.0500 SIGNIFICANCE LEVEL

%RO MODEL: BASIN%RO

MODEL #	KIN POP# 1 CALCULATED AFT AGE (MA)	KIN POP# 2 CALCULATED AFT AGE (MA)	TIME OF MAXIMUM TEMP (MA)	MAXIMUM TEMP (DEG C)	KIN POP# 1 OBJECTIVE FUNCTION	KIN POP# 2 OBJECTIVE FUNCTION	%RO POST-DEP	%RO POST-EXH
1	123.36	270.30	352.50	178.81	0.102198	0.101996	1.753	0.488
2	124.18	244.27	325.00	179.87	0.114331	0.098123	1.738	0.488
3	141.17	258.07	347.50	178.00	0.164604	0.096526	1.624	0.479
4	117.45	244.35	330.00	175.69	0.148113	0.090032	1.430	0.500
5	138.99	270.77	345.00	170.25	0.148676	0.090152	1.494	0.492
6	133.51	244.22	340.00	177.00	0.137317	0.095923	1.627	0.489
7	134.86	246.01	362.50	179.29	0.165129	0.064112	1.702	0.488
8	136.71	252.66	317.50	170.92	0.168034	0.113785	1.380	0.465
9	128.13	255.41	350.00	179.16	0.134544	0.074414	1.665	0.484
10	131.36	236.88	342.50	179.22	0.148059	0.082595	1.794	0.497
11	128.79	251.39	310.00	177.75	0.105701	0.088932	1.583	0.498
12	136.37	258.34	322.50	171.19	0.165070	0.095842	1.423	0.494
13	133.29	243.66	332.50	180.37	0.119109	0.091534	1.728	0.474
14	130.42	231.40	340.00	180.02	0.136604	0.102975	1.815	0.478
15	124.54	242.74	325.00	173.91	0.103166	0.092521	1.485	0.475
16	137.40	256.76	352.50	173.13	0.124395	0.063697	1.536	0.482
17	97.16	248.40	335.00	175.07	0.159729	0.099150	1.538	0.536
18	138.64	269.62	335.00	171.21	0.138298	0.093649	1.423	0.475
19	123.96	246.68	352.50	178.97	0.168009	0.067045	1.588	0.486
20	124.56	249.99	355.00	178.07	0.092854	0.097272	1.643	0.476
21	138.75	258.28	345.00	171.66	0.133683	0.073917	1.493	0.493
22	116.57	242.82	327.50	179.69	0.112244	0.063322	1.637	0.478
23	137.24	270.42	355.00	178.19	0.123320	0.093030	1.641	0.490
24	132.70	264.77	347.50	183.78	0.161545	0.109391	1.850	0.477
25	104.86	256.64	357.50	184.43	0.167401	0.113356	1.859	0.494
26	105.17	242.24	355.00	179.34	0.132357	0.092974	1.719	0.514
27	118.81	242.74	352.50	181.16	0.101268	0.100965	1.753	0.474
28	107.73	230.18	327.50	184.49	0.144019	0.108989	1.706	0.521
29	136.41	258.18	357.50	176.91	0.160706	0.083743	1.555	0.474
30	106.78	254.49	335.00	177.73	0.118446	0.081766	1.665	0.515
31	124.74	247.86	340.00	177.89	0.146527	0.081273	1.722	0.495
32	129.67	241.57	345.00	177.09	0.165283	0.100580	1.583	0.485
33	134.48	231.92	317.50	180.44	0.152103	0.100441	1.731	0.485
34	128.16	260.41	350.00	168.96	0.155788	0.105493	1.398	0.493
35	141.96	244.82	335.00	169.23	0.155703	0.102551	1.404	0.469
36	117.04	260.44	355.00	181.55	0.150136	0.070682	1.748	0.503
37	127.35	244.24	337.50	178.33	0.163271	0.098796	1.796	0.488
38	120.11	260.08	360.00	187.31	0.167735	0.097626	1.826	0.501
39	112.65	231.00	352.50	184.49	0.158025	0.107007	1.845	0.506
40	105.19	243.15	335.00	173.41	0.138100	0.103102	1.521	0.515
41	133.42	268.88	362.50	176.70	0.131554	0.102509	1.432	0.477
42	126.75	267.21	350.00	181.76	0.167288	0.110964	1.787	0.508
43	104.14	256.06	342.50	175.46	0.147832	0.090992	1.620	0.488
44	120.36	250.78	352.50	180.94	0.128968	0.093696	1.804	0.497
45	115.07	232.64	327.50	177.07	0.136650	0.096922	1.660	0.495
46	119.04	233.95	327.50	176.83	0.069472	0.090479	1.643	0.497
47	138.17	242.79	352.50	178.14	0.135709	0.102689	1.711	0.462
48	111.53	231.59	332.50	183.04	0.135763	0.102055	1.814	0.503
49	136.53	240.76	355.00	179.71	0.118426	0.089395	1.712	0.477
50	117.55	238.56	332.50	172.83	0.156466	0.067883	1.605	0.499
51	110.09	242.65	352.50	183.11	0.101802	0.112313	1.765	0.493
52	116.47	236.28	335.00	182.20	0.093590	0.079068	1.753	0.496
53	118.52	246.03	330.00	182.80	0.156973	0.096904	1.820	0.458
54	123.71	257.76	362.50	183.97	0.133794	0.087035	1.803	0.464
55	137.68	264.98	332.50	176.77	0.126337	0.112039	1.549	0.486
56	135.10	231.95	350.00	178.32	0.114743	0.113556	1.784	0.471
57	126.22	230.51	322.50	176.57	0.132649	0.107364	1.557	0.501
58	126.77	251.29	345.00	178.43	0.142550	0.086880	1.664	0.513
59	113.13	235.25	345.00	183.23	0.154494	0.087836	1.805	0.512
60	134.87	265.85	345.00	175.68	0.130526	0.104440	1.615	0.478
61	142.39	247.47	327.50	170.45	0.164356	0.107546	1.439	0.470
62	122.64	241.26	327.50	178.78	0.103592	0.059140	1.708	0.502
63	136.33	245.20	332.50	174.18	0.117061	0.101448	1.662	0.478
64	133.19	231.74	330.00	178.96	0.098445	0.101347	1.608	0.496
65	127.70	229.19	337.50	179.23	0.154614	0.113833	1.841	0.473
66	131.19	230.59	317.50	178.30	0.081713	0.106948	1.652	0.483
67	122.34	250.72	320.00	173.51	0.149728	0.069097	1.520	0.510
68	139.27	244.91	345.00	179.82	0.156031	0.109075	1.817	0.491
69	129.00	240.33	337.50	177.41	0.136583	0.084058	1.541	0.481
70	116.81	248.05	360.00	182.24	0.131682	0.089169	1.808	0.501
71	117.50	251.08	350.00	183.25	0.148350	0.085189	1.735	0.489
72	116.98	237.94	332.50	178.98	0.147348	0.070937	1.727	0.510
73	132.66	258.94	345.00	173.04	0.153207	0.100302	1.585	0.463
74	125.17	269.91	357.50	180.75	0.156405	0.097600	1.690	0.488
75	135.90	269.35	347.50	172.55	0.144473	0.096992	1.485	0.475
76	124.12	243.11	332.50	174.40	0.142343	0.065889	1.497	0.472
77	134.54	244.40	337.50	181.59	0.125012	0.103425	1.798	0.489
78	123.04	241.95	345.00	177.64	0.114098	0.065595	1.722	0.503
79	131.47	249.92	335.00	173.47	0.103583	0.083355	1.472	0.494
80	132.40	246.18	335.00	181.63	0.137132	0.094591	1.685	0.503
81	118.87	249.19	345.00	173.08	0.162617	0.110117	1.388	0.494
82	105.15	263.59	352.50	178.53	0.128454	0.091814	1.722	0.514
83	128.88	265.67	352.50	175.78	0.154158	0.078918	1.537	0.485
84	130.58	251.85	330.00	178.97	0.108810	0.093943	1.494	0.475
85	139.18	233.38	322.50	173.29	0.136642	0.093306	1.479	0.480
86	114.02	239.36	327.50	181.10	0.136140	0.088846	1.807	0.499
87	125.85	256.71	347.50	176.27	0.112013	0.060182	1.670	0.502
88	128.74	254.80	332.50	180.67	0.117931	0.101873	1.752	0.474
89	128.96	253.84	352.50	168.48	0.136185	0.092218	1.426	0.479
90	112.96	252.99	355.00	173.04	0.103976	0.080435	1.566	0.506

91	133.22	229.62	337.50	172.36	0.095657	0.111708	1.619	0.479
92	106.56	251.28	345.00	180.71	0.117089	0.068697	1.700	0.513
93	125.64	246.25	347.50	180.85	0.125075	0.087420	1.778	0.476
94	127.04	248.08	347.50	173.45	0.168266	0.075014	1.608	0.458
95	133.23	257.42	342.50	176.75	0.114938	0.109367	1.635	0.470
96	112.12	266.00	355.00	181.65	0.129889	0.073978	1.704	0.508
97	122.84	266.24	345.00	177.17	0.143021	0.073695	1.626	0.469
98	131.80	237.60	320.00	178.72	0.157607	0.089300	1.513	0.471
99	122.71	255.00	347.50	173.73	0.166302	0.074279	1.592	0.474
100	132.60	250.58	355.00	169.59	0.163831	0.107150	1.394	0.458
101	132.43	265.46	350.00	174.56	0.090248	0.070492	1.497	0.483
102	129.34	229.57	315.00	172.37	0.126096	0.111969	1.440	0.486
103	140.59	229.44	355.00	177.78	0.146325	0.112605	1.656	0.467
104	123.81	246.99	327.50	173.81	0.138034	0.068397	1.499	0.499
105	126.69	240.81	330.00	174.33	0.162677	0.073945	1.566	0.490
106	124.98	257.88	327.50	175.59	0.090574	0.098639	1.578	0.489
107	128.98	247.92	340.00	180.17	0.115341	0.100736	1.737	0.470
108	126.49	248.49	352.50	179.10	0.119502	0.086498	1.688	0.478
109	126.23	242.80	337.50	180.38	0.167471	0.113404	1.859	0.487
110	126.51	248.00	327.50	181.29	0.120571	0.074671	1.623	0.480
111	115.12	260.83	357.50	180.05	0.136971	0.070739	1.670	0.500
112	131.46	241.28	332.50	172.10	0.118581	0.087645	1.570	0.485
113	116.02	246.90	335.00	168.41	0.167877	0.113679	1.381	0.505
114	140.59	236.41	332.50	175.73	0.146343	0.113752	1.617	0.473
115	134.46	231.42	345.00	175.03	0.104212	0.102882	1.611	0.490
116	122.89	261.48	357.50	176.03	0.156440	0.097453	1.641	0.485
117	131.05	247.40	340.00	172.93	0.093766	0.086375	1.486	0.475
118	112.34	244.73	335.00	175.62	0.143275	0.089489	1.632	0.512
119	133.70	237.41	332.50	177.57	0.109445	0.109052	1.728	0.466
120	135.56	235.91	342.50	172.04	0.131833	0.082129	1.507	0.461
121	117.23	247.06	312.50	173.83	0.103791	0.060152	1.592	0.483
122	127.75	237.77	317.50	169.80	0.100041	0.095055	1.477	0.490
123	127.64	256.55	340.00	174.78	0.136808	0.082132	1.594	0.477
124	121.85	248.43	332.50	176.40	0.103728	0.098525	1.717	0.486
125	121.95	252.62	340.00	180.22	0.084839	0.094439	1.741	0.492
126	124.01	239.33	307.50	175.66	0.144174	0.103435	1.579	0.477
127	138.68	242.76	332.50	172.29	0.161694	0.096939	1.550	0.492
128	140.40	241.61	345.00	176.77	0.145024	0.077284	1.459	0.494
129	119.72	230.31	315.00	178.12	0.078779	0.108366	1.712	0.495
130	121.76	235.54	320.00	184.34	0.135403	0.082670	1.630	0.461
131	129.21	252.44	350.00	180.53	0.068118	0.093232	1.698	0.487
132	114.24	263.15	342.50	175.39	0.134594	0.104237	1.428	0.493
133	121.35	263.72	357.50	171.98	0.122920	0.098703	1.445	0.481
134	117.61	260.54	345.00	171.80	0.145202	0.105031	1.413	0.496
135	116.42	239.90	327.50	175.63	0.140557	0.084675	1.649	0.509
136	131.78	234.19	352.50	181.02	0.108600	0.089315	1.676	0.490
137	113.90	240.48	332.50	173.75	0.126609	0.076626	1.595	0.486
138	117.89	247.44	335.00	182.22	0.107152	0.059123	1.684	0.506
139	122.96	258.54	350.00	186.02	0.154904	0.081817	1.655	0.459
140	132.33	253.90	337.50	180.60	0.160288	0.090338	1.524	0.499
141	130.49	257.82	342.50	182.17	0.117691	0.085967	1.788	0.493
142	127.07	245.92	337.50	174.13	0.073982	0.076422	1.514	0.488
143	137.69	238.63	327.50	171.09	0.150626	0.091858	1.427	0.457
144	124.69	252.60	345.00	182.46	0.140685	0.095265	1.821	0.499
145	126.59	261.26	352.50	185.13	0.143188	0.096961	1.824	0.489
146	137.04	236.43	327.50	183.12	0.121898	0.106978	1.752	0.492
147	132.69	255.02	332.50	182.76	0.115779	0.110836	1.785	0.472
148	137.94	254.70	355.00	176.54	0.128888	0.087440	1.623	0.470
149	122.17	244.61	357.50	181.05	0.073129	0.101168	1.673	0.493
150	138.53	232.22	317.50	169.15	0.154217	0.112056	1.441	0.456
151	139.38	269.33	342.50	179.02	0.150049	0.113707	1.625	0.492
152	116.50	237.79	335.00	178.09	0.088501	0.071637	1.738	0.503
153	133.91	271.26	347.50	170.68	0.128355	0.096202	1.437	0.483
154	118.86	234.65	337.50	180.53	0.163303	0.110582	1.853	0.492
155	126.50	254.59	342.50	176.53	0.129303	0.069206	1.604	0.463
156	125.31	252.95	347.50	175.04	0.131533	0.070171	1.497	0.484
157	131.37	253.14	350.00	170.57	0.165044	0.111761	1.385	0.475
158	135.51	236.54	317.50	170.12	0.156526	0.107040	1.397	0.491
159	105.99	243.96	340.00	177.19	0.160997	0.067634	1.694	0.528
160	127.17	246.37	330.00	177.87	0.152827	0.101865	1.679	0.495
161	110.88	266.04	347.50	182.91	0.120748	0.069814	1.757	0.496
162	114.73	235.90	295.00	175.55	0.084177	0.080938	1.576	0.503
163	118.80	266.29	362.50	178.17	0.167689	0.081982	1.555	0.500
164	104.41	248.67	340.00	179.75	0.152070	0.085730	1.801	0.517
165	134.15	230.84	342.50	174.84	0.102060	0.105742	1.573	0.483
166	125.61	274.53	345.00	170.99	0.158264	0.108569	1.394	0.478
167	139.74	245.91	337.50	178.27	0.140457	0.113462	1.427	0.469
168	126.41	235.97	325.00	175.23	0.103124	0.099941	1.665	0.483
169	130.33	241.19	335.00	180.73	0.107892	0.103321	1.774	0.481
170	114.61	234.45	322.50	174.78	0.156681	0.088056	1.554	0.519
171	121.90	240.98	325.00	173.09	0.159455	0.076612	1.493	0.483
172	122.92	265.17	350.00	169.11	0.137309	0.092979	1.424	0.491
173	120.94	264.11	355.00	178.61	0.090232	0.109463	1.671	0.495
174	131.94	263.93	345.00	178.22	0.101341	0.094084	1.618	0.487
175	130.22	235.07	325.00	183.70	0.075039	0.106528	1.697	0.488
176	120.70	255.84	355.00	184.21	0.123143	0.097619	1.794	0.509
177	122.17	231.18	330.00	182.44	0.130615	0.104072	1.767	0.489
178	140.00	256.07	340.00	174.51	0.142262	0.090565	1.507	0.484
179	106.85	235.48	330.00	173.42	0.105696	0.082983	1.636	0.502
180	135.58	249.87	345.00	179.58	0.111901	0.093006	1.623	0.490
181	120.35	251.45	345.00	182.23	0.153702	0.084805	1.799	0.456
182	125.99	242.29	342.50	176.13	0.106933	0.065554	1.576	0.487
183	109.32	239.19	327.50	173.51	0.136744	0.069576	1.588	0.523
184	125.93	229.93	327.50	186.46	0.168150	0.110227	1.736	0.457
185	113.21	254.98	355.00	179.18	0.085489	0.094292	1.742	0.488
186	129.32	275.00	355.00	172.54	0.162497	0.110880	1.388	0.485
187	122.26	263.61	340.00	176.47	0.128404	0.098094	1.640	0.481
188	138.91	246.86	362.50	182.25	0.136816	0.101967	1.811	0.463
189	131.76	238.47	312.50	171.06	0.135125	0.095670	1.488	0.465
190	126.48	260.01	352.50	174.53	0.166964	0.087820	1.606	0.460
191	139.99	255.25	352.50	179.92	0.142183	0.097004	1.689	0.469
192	129.11	251.78	325.00	174.37	0.105751	0.094340	1.577	0.468
193	119.81	249.07	355.00	178.50	0.115960	0.074485	1.680	0.503
194	123.06	253.52	332.50	179.77	0.153526	0.097963	1.744	0.489
195	140.87	261.46	350.00	175.90	0.148249	0.093161	1.595	0.492
196	130.64	252.06	362.50	176.44	0.165691	0.083921	1.482	0.495
197	119.51	259.57	355.00	177.73	0.088163	0.110025	1.494	0.483
198	134.80	268.59	357.50	180.97	0.106564	0.091726	1.639	0.473

199	137.60	231.15	340.00	179.36	0.125766	0.110031	1.727	0.485
200	127.79	248.62	322.50	174.75	0.092547	0.089339	1.506	0.478
201	123.56	244.28	322.50	171.88	0.153334	0.102847	1.471	0.491
202	127.74	253.33	360.00	186.32	0.137399	0.093040	1.816	0.477
203	118.71	244.85	355.00	180.07	0.132617	0.089802	1.809	0.479
204	142.92	234.46	350.00	177.23	0.162335	0.101300	1.731	0.481
205	132.89	237.00	350.00	176.72	0.154166	0.104144	1.692	0.466
206	114.04	251.94	342.50	181.39	0.145939	0.100556	1.783	0.514
207	125.53	245.07	325.00	170.69	0.145561	0.098567	1.412	0.468
208	122.10	256.09	360.00	183.15	0.162212	0.109843	1.851	0.497
209	123.88	255.10	362.50	178.60	0.145522	0.094377	1.500	0.485
210	129.41	256.41	340.00	174.51	0.165600	0.074975	1.597	0.484
211	135.23	250.28	352.50	170.78	0.137606	0.093181	1.424	0.484
212	138.13	249.56	357.50	179.42	0.129424	0.083727	1.599	0.492
213	141.24	231.78	342.50	172.15	0.150811	0.101134	1.577	0.475
214	119.09	234.40	305.00	174.20	0.148080	0.098308	1.519	0.510
215	127.94	235.55	337.50	175.45	0.144296	0.111914	1.513	0.476
216	106.59	264.51	332.50	179.64	0.156456	0.088256	1.517	0.509
217	129.87	239.37	325.00	173.40	0.088243	0.080639	1.550	0.488
218	129.41	270.78	350.00	176.43	0.114502	0.090170	1.563	0.482
219	129.05	239.09	320.00	174.56	0.112675	0.090511	1.492	0.467
220	122.72	231.79	320.00	180.41	0.161755	0.104218	1.643	0.503
221	137.47	234.47	340.00	178.57	0.167132	0.087948	1.491	0.488
222	132.86	234.06	317.50	170.15	0.119467	0.108254	1.475	0.491
223	127.03	232.92	307.50	172.00	0.112896	0.111043	1.459	0.504
224	112.57	236.89	355.00	176.59	0.054271	0.103988	1.678	0.483
225	120.39	236.93	325.00	182.16	0.144820	0.075863	1.757	0.506
226	128.21	242.97	337.50	179.14	0.159220	0.091512	1.802	0.503
227	116.22	274.50	362.50	170.41	0.158063	0.108438	1.395	0.488
228	122.11	233.07	315.00	177.19	0.115208	0.094796	1.633	0.506
229	110.59	254.68	325.00	175.07	0.149700	0.066493	1.524	0.496
230	128.06	254.74	330.00	175.68	0.110130	0.071450	1.540	0.470
231	122.56	250.85	342.50	174.90	0.131278	0.094682	1.433	0.504
232	113.47	260.40	340.00	178.55	0.139243	0.069426	1.590	0.518
233	130.61	244.64	315.00	174.48	0.121044	0.103925	1.566	0.486
234	119.95	229.68	352.50	187.50	0.138310	0.111452	1.817	0.502
235	124.68	233.22	322.50	174.47	0.165603	0.094056	1.565	0.469
236	117.85	257.53	332.50	169.17	0.134463	0.107602	1.428	0.499
237	124.62	243.81	347.50	178.68	0.120897	0.081866	1.792	0.504
238	117.25	229.52	312.50	179.59	0.156101	0.112240	1.843	0.509
239	98.15	255.11	352.50	170.72	0.157859	0.110015	1.494	0.525
240	118.66	244.02	330.00	174.65	0.143837	0.093876	1.500	0.503
241	140.82	234.37	337.50	177.97	0.147926	0.102954	1.610	0.494
242	104.04	233.82	325.00	176.96	0.152274	0.091136	1.658	0.524
243	105.32	248.35	342.50	180.74	0.138311	0.108960	1.711	0.498
244	142.48	264.26	325.00	171.25	0.159310	0.101905	1.412	0.463
245	115.26	231.87	327.50	183.21	0.091249	0.100675	1.730	0.490
246	107.59	256.10	352.50	188.55	0.144653	0.097952	1.826	0.508
247	119.33	239.16	340.00	171.51	0.167138	0.113178	1.382	0.471
248	108.39	234.59	317.50	178.30	0.150229	0.087367	1.566	0.516
249	123.05	230.58	337.50	177.18	0.167390	0.107009	1.645	0.504
250	124.16	241.89	330.00	181.66	0.120244	0.074738	1.741	0.511
251	131.52	260.27	357.50	182.58	0.149878	0.099758	1.732	0.465
252	139.99	237.75	355.00	174.98	0.162669	0.110152	1.388	0.488
253	134.58	245.80	310.00	174.64	0.167220	0.105716	1.442	0.457
254	130.21	256.26	340.00	172.11	0.103364	0.082007	1.473	0.493
255	132.36	247.64	332.50	175.69	0.089769	0.078201	1.583	0.479
256	139.46	251.69	350.00	171.68	0.138534	0.078095	1.512	0.470
257	138.55	255.07	330.00	174.15	0.132267	0.092717	1.564	0.492
258	134.15	230.28	312.50	171.03	0.133419	0.108484	1.430	0.490
259	116.50	255.91	335.00	180.93	0.137452	0.108142	1.779	0.511
260	118.21	260.52	342.50	170.32	0.156996	0.109304	1.396	0.476
261	116.96	263.18	355.00	173.63	0.120478	0.077587	1.532	0.498
262	118.47	243.36	325.00	180.08	0.158143	0.098355	1.713	0.520
263	123.42	252.58	317.50	175.27	0.092223	0.078161	1.573	0.490
264	142.92	246.89	347.50	175.79	0.162296	0.109230	1.706	0.489
265	135.26	233.18	317.50	173.36	0.109696	0.100392	1.473	0.491
266	125.82	229.84	297.50	173.54	0.113110	0.110664	1.617	0.499
267	121.47	254.88	342.50	177.48	0.160511	0.089563	1.644	0.486
268	127.32	243.93	325.00	175.80	0.084650	0.083657	1.580	0.501
269	125.75	241.48	307.50	169.05	0.166909	0.113023	1.382	0.480
270	136.73	230.73	322.50	173.42	0.142742	0.110584	1.574	0.460
271	127.92	250.35	340.00	173.34	0.129691	0.091040	1.499	0.481
272	115.87	245.69	347.50	170.48	0.124592	0.084368	1.442	0.487
273	111.12	236.88	352.50	178.47	0.131264	0.105682	1.664	0.500
274	128.99	269.72	362.50	179.17	0.162392	0.084960	1.682	0.459
275	130.07	237.12	330.00	172.18	0.121881	0.074935	1.570	0.475
276	129.44	252.13	332.50	175.73	0.166353	0.069147	1.509	0.492
277	124.85	264.65	355.00	180.22	0.168232	0.083653	1.710	0.473
278	130.03	248.11	360.00	180.26	0.141170	0.095594	1.821	0.490
279	135.11	241.84	357.50	182.97	0.122392	0.082878	1.795	0.482
280	139.23	240.96	312.50	172.80	0.159400	0.102857	1.496	0.465
281	127.03	251.85	347.50	167.62	0.130567	0.088808	1.434	0.473
282	121.57	250.69	345.00	173.98	0.166390	0.111087	1.558	0.507
283	123.34	230.44	330.00	182.83	0.168108	0.113835	1.860	0.494
284	126.26	252.33	335.00	172.60	0.134287	0.083981	1.565	0.500
285	138.76	254.04	337.50	172.88	0.133762	0.074646	1.479	0.476
286	102.45	245.68	327.50	171.41	0.128611	0.087422	1.525	0.516
287	107.67	255.89	337.50	176.77	0.165238	0.094661	1.692	0.530
288	125.47	259.34	350.00	176.83	0.075845	0.065296	1.653	0.487
289	115.84	239.30	325.00	172.53	0.094065	0.068511	1.591	0.487
290	128.66	245.70	360.00	176.95	0.066521	0.055153	1.602	0.491
291	131.79	238.83	332.50	174.85	0.085859	0.068738	1.550	0.486
292	126.36	240.38	357.50	178.86	0.097945	0.066507	1.635	0.472
293	118.90	244.63	352.50	178.18	0.093591	0.059925	1.705	0.494
294	128.14	246.61	330.00	171.48	0.096862	0.065822	1.482	0.494
295	115.84	259.26	340.00	186.31	0.094851	0.068953	1.692	0.495
296	131.88	244.80	342.50	172.10	0.086635	0.058665	1.496	0.485
297	129.75	238.31	340.00	182.33	0.071848	0.069119	1.673	0.493
298	120.89	241.62	322.50	175.41	0.081916	0.065063	1.503	0.484
299	131.01	264.65	342.50	179.03	0.101658	0.069353	1.586	0.480
300	120.67	249.40	332.50	176.94	0.091053	0.068438	1.571	0.502

AFT KINETIC POPULATION # 1

 MAXIMUM OBJECTIVE FUNCTION =   0.168266

 EXPONENTIAL MEAN TEMPERATURE SOLUTION:
 OBSERVED AFT AGE = 119.3 MA CALCULATED AFT AGE = 124.6 MA
 MODEL RETENTION AGE = 175.0 MA   OBJ FUNCTION =   0.082001
 TRACK ANNEALING TIME = 117.5 MA ANNEALING TEMPERATURE =   61.77 DEG C

 TRACK LENGTH OBJ FUNCTION =   0.073172   AGE OBJ FUNCTION =   0.036691
 LENGTH GOF PROBABILITY = 0.8765
 AGE GOF PROBABILITY = 0.6628
 %RO OBJ FUNCTION (POST-DEPOSITION) =   0.082001   %RO OBJ FUNCTION (POST-EXHUMATION) =   0.015621

 %RO GOF PROBABILITY (POST-DEPOSITION) = 0.3297
 %RO GOF PROBABILITY (POST-EXHUMATION) = 0.8527

LOWEST COMBINED OBJECTIVE FUNCTION

 MINIMUM OBJECTIVE SOLUTION (SOLUTION # 300):
 CALCULATED AFT AGE = 120.7 MA MODEL RETENTION AGE = 165.0 MA
 OBJ FUNCTION =   0.091053
 TRACK ANNEALING TIME = 150.0 MA ANNEALING TEMPERATURE = 100.35 DEG C

 TRACK LENGTH OBJ FUNCTION =   0.091053   AGE OBJ FUNCTION =   0.009480
 LENGTH GOF PROBABILITY = 0.6526
 AGE GOF PROBABILITY = 0.9103
 %RO OBJ FUNCTION (POST-DEPOSITION) =   0.034255   %RO OBJ FUNCTION (POST-EXHUMATION) =   0.001372

 %RO GOF PROBABILITY (POST-DEPOSITION) = 0.6839
 %RO GOF PROBABILITY (POST-EXHUMATION) = 0.9870

 AVE AFT AGE = 125.6 MA

AFT KINETIC POPULATION # 2

 MAXIMUM OBJECTIVE FUNCTION =   0.113835

 EXPONENTIAL MEAN TEMPERATURE SOLUTION:
 OBSERVED AFT AGE = 252.4 MA CALCULATED AFT AGE = 238.6 MA
 MODEL RETENTION AGE = 533.2 MA   OBJ FUNCTION =   0.067878
 TRACK ANNEALING TIME = 500.7 MA ANNEALING TEMPERATURE = 216.22 DEG C

 TRACK LENGTH OBJ FUNCTION =   0.066606   AGE OBJ FUNCTION =   0.067878
 LENGTH GOF PROBABILITY = 0.5541
 AGE GOF PROBABILITY = 0.2335
 %RO OBJ FUNCTION (POST-DEPOSITION) =   0.055528   %RO OBJ FUNCTION (POST-EXHUMATION) =   0.010578

LOWEST COMBINED OBJECTIVE FUNCTION

 MINIMUM OBJECTIVE SOLUTION (SOLUTION # 300):
 CALCULATED AFT AGE = 249.4 MA MODEL RETENTION AGE = 503.0 MA
 OBJ FUNCTION =   0.068438
 TRACK ANNEALING TIME = 488.0 MA ANNEALING TEMPERATURE = 228.41 DEG C

 TRACK LENGTH OBJ FUNCTION =   0.068438   AGE OBJ FUNCTION =   0.014712
 LENGTH GOF PROBABILITY = 0.5188
 AGE GOF PROBABILITY = 0.7962
 %RO OBJ FUNCTION (POST-DEPOSITION) =   0.023196   %RO OBJ FUNCTION (POST-EXHUMATION) =   0.000929

 AVE AFT AGE = 247.8 MA

RETENTION AGES FOR ALL THERMAL SOLUTIONS:

	KINETIC POPULATION# 1			KINETIC POPULATION# 2		
MODEL #	RET AGE Ma	ANNEAL TIME Ma	ANNEAL TEMP DEG C	RET AGE Ma	ANNEAL TIME Ma	ANNEAL TEMP DEG C
1	287.5	122.5	70.57	576.0	556.0	218.59
2	262.5	145.0	94.46	520.0	517.5	247.82
3	270.0	20.0	59.79	537.5	505.0	197.11
4	162.5	150.0	100.04	542.7	532.7	229.48
5	297.5	140.0	94.87	592.5	580.0	229.45
6	175.0	157.5	93.00	526.7	519.2	230.00
7	187.5	160.0	89.85	510.4	495.4	222.85
8	170.0	157.5	95.28	507.6	500.1	236.93
9	172.5	62.5	69.53	530.6	518.1	229.18
10	187.5	177.5	100.70	569.2	559.2	227.50
11	175.0	155.0	96.92	638.9	608.9	221.79
12	275.0	100.0	77.03	504.2	494.2	232.00
13	175.0	157.5	89.63	511.5	466.5	217.53
14	167.5	155.0	97.03	470.0	465.0	233.89
15	162.5	147.5	101.62	533.6	521.1	232.09
16	182.5	57.5	79.16	547.8	542.8	235.64
17	145.0	85.0	93.42	542.3	504.8	215.71
18	285.0	155.0	95.33	578.2	545.7	218.20
19	175.0	55.0	59.55	537.1	532.1	235.01
20	165.0	152.5	103.32	552.5	537.5	228.51
21	187.5	82.5	79.70	563.8	543.8	221.35
22	148.8	143.7	108.09	515.0	477.5	205.76
23	297.5	57.5	76.05	545.6	538.1	233.95
24	285.0	42.5	74.35	563.0	550.5	230.61
25	287.5	67.5	84.06	578.7	571.2	233.31
26	145.0	135.0	106.14	597.9	585.4	222.32
27	152.5	145.0	107.04	540.9	533.4	230.89
28	155.0	132.5	91.37	580.4	560.4	224.14
29	282.5	160.0	89.60	504.6	494.6	221.27
30	282.5	127.5	90.26	560.1	552.6	234.28
31	162.5	82.5	80.32	540.9	525.9	221.18
32	176.9	169.4	105.11	620.1	605.1	226.36
33	177.5	177.5	121.36	554.2	531.7	213.60
34	292.5	130.0	91.31	529.1	526.6	239.92
35	255.0	137.5	62.06	491.1	471.1	220.77
36	165.0	125.0	86.91	546.4	538.9	234.66
37	162.5	142.5	91.67	619.9	604.9	220.91

38	160.0	72.5	76.52	560.0	525.0	208.44
39	152.5	145.0	106.82	517.7	512.7	235.30
40	157.5	142.5	99.02	530.2	517.7	232.36
41	171.1	166.1	107.09	562.8	532.8	204.62
42	302.5	140.0	94.53	590.3	585.3	237.71
43	143.1	135.6	106.94	617.5	587.5	214.28
44	160.0	155.0	106.73	505.1	495.1	225.91
45	160.0	132.5	85.37	535.1	512.6	223.17
46	158.8	148.8	96.68	551.2	521.2	201.79
47	177.5	160.0	93.90	508.9	506.4	240.21
48	155.0	142.5	99.41	566.7	501.7	209.77
49	175.0	165.0	98.02	551.6	519.1	217.07
50	157.5	145.0	95.53	579.1	534.1	213.13
51	143.7	138.7	105.59	486.2	471.2	217.25
52	155.0	147.5	105.74	538.6	511.1	220.54
53	167.5	50.0	71.66	598.8	576.2	221.74
54	162.5	145.0	96.32	616.0	583.5	216.10
55	282.5	160.0	92.81	549.9	527.4	214.10
56	170.0	162.5	99.24	630.8	620.8	231.73
57	170.0	155.0	96.12	540.3	525.3	222.75
58	282.5	80.0	86.10	567.0	562.0	235.18
59	162.5	50.0	72.69	619.0	609.0	226.26
60	287.5	142.5	89.18	533.1	525.6	231.27
61	255.0	167.5	88.13	531.0	513.5	221.10
62	167.5	160.0	106.39	554.5	534.5	222.92
63	177.5	162.5	94.83	547.5	472.5	200.80
64	182.5	170.0	102.12	528.7	503.7	219.27
65	170.0	132.5	80.32	540.7	510.7	214.15
66	175.0	155.0	98.07	550.3	542.8	234.95
67	255.0	60.0	66.42	531.1	526.1	235.62
68	277.5	165.0	94.90	522.1	509.6	229.42
69	170.0	82.5	77.25	572.2	557.2	227.03
70	160.0	82.5	75.76	565.1	535.1	218.49
71	161.2	148.8	95.38	538.5	511.0	219.03
72	162.5	137.5	78.63	516.1	508.6	234.64
73	167.5	142.5	88.45	505.1	497.6	236.18
74	297.5	147.5	96.94	572.1	567.1	231.04
75	170.0	162.5	106.62	605.8	575.8	220.84
76	165.0	152.5	104.96	542.0	539.5	238.33
77	175.0	162.5	99.87	542.1	532.1	232.41
78	169.2	156.7	99.42	559.9	554.9	232.16
79	255.0	45.0	73.24	537.9	527.9	230.67
80	172.5	137.5	80.73	535.7	518.2	228.82
81	170.0	55.0	79.63	553.9	531.4	205.19
82	150.0	145.0	110.02	651.2	638.7	222.86
83	170.0	155.0	98.98	530.0	527.5	247.84
84	275.0	155.0	101.33	536.6	521.6	230.40
85	187.5	162.5	90.77	499.4	494.4	237.24
86	162.5	55.0	84.96	613.7	606.2	231.26
87	172.5	60.0	82.47	613.0	605.5	234.19
88	162.5	142.5	87.17	530.5	490.5	214.96
89	163.7	156.2	106.15	469.6	454.6	220.36
90	155.0	127.5	82.05	606.4	581.4	215.03
91	181.9	169.4	99.79	574.0	566.5	231.26
92	152.5	70.0	87.19	513.3	495.8	224.93
93	160.0	147.5	102.18	569.9	562.4	234.92
94	157.5	142.5	93.69	563.5	558.5	234.97
95	277.5	142.5	100.58	551.5	549.0	241.28
96	155.0	115.0	82.69	516.4	498.9	219.31
97	157.5	140.0	95.62	502.2	487.2	227.33
98	172.5	165.0	107.58	553.7	526.2	206.23
99	155.0	137.5	97.97	584.5	564.5	220.17
100	165.0	157.5	104.46	509.3	486.8	211.87
101	175.0	147.5	76.96	584.5	567.0	220.56
102	170.0	132.5	77.01	528.1	495.6	211.65
103	181.4	176.4	108.14	581.1	548.6	212.39
104	271.2	258.7	84.57	536.3	526.3	227.36
105	267.5	160.0	100.53	548.8	538.8	218.57
106	285.0	147.5	92.19	522.1	487.1	201.96
107	170.0	150.0	86.28	569.3	551.8	214.97
108	277.5	135.0	99.85	512.5	495.0	226.62
109	167.5	160.0	105.39	499.0	496.5	241.53
110	165.0	40.0	78.07	544.5	527.0	225.87
111	165.0	62.5	80.03	548.5	541.0	235.96
112	182.5	57.5	76.70	547.7	497.7	207.07
113	157.5	87.5	84.00	585.8	553.3	218.17
114	180.8	175.8	108.78	518.7	501.2	231.46
115	176.9	174.4	112.11	519.9	499.9	221.05
116	152.5	75.0	79.98	596.6	581.6	223.55
117	170.0	55.0	77.98	547.2	529.7	224.49
118	157.5	95.0	83.30	569.7	559.7	225.42
119	174.1	171.6	114.25	586.6	571.6	227.17
120	172.5	165.0	103.22	546.4	541.4	238.18
121	162.5	137.5	85.67	526.8	501.8	215.35
122	170.0	162.5	107.20	544.2	536.7	223.85
123	162.5	150.0	100.49	610.4	607.9	246.09
124	270.0	65.0	79.83	507.1	499.6	230.73
125	272.5	67.5	75.88	567.9	532.9	217.97
126	252.5	142.5	82.67	504.1	491.6	225.52
127	267.5	170.0	97.61	530.8	528.3	241.79
128	185.0	170.0	96.52	476.7	469.2	228.83
129	157.5	145.0	94.33	538.2	530.7	230.18
130	155.0	125.0	78.32	623.8	596.2	221.35
131	277.5	150.0	98.70	525.8	503.3	222.35
132	267.5	60.0	78.16	594.3	561.8	213.27
133	152.5	137.5	85.95	506.5	491.5	228.38
134	162.5	152.5	101.89	560.0	557.5	248.20
135	271.2	151.2	103.48	515.8	505.8	228.72
136	185.0	165.0	97.64	572.5	567.5	242.00
137	152.5	145.0	102.45	580.8	578.3	244.56
138	170.0	75.0	83.03	570.3	542.8	214.14
139	287.5	137.5	90.65	577.1	524.6	206.56
140	262.5	97.5	77.44	554.4	534.4	217.29
141	182.5	152.5	91.39	572.9	567.9	240.03
142	175.0	147.5	91.32	541.4	536.4	233.43
143	177.5	170.0	108.12	511.2	508.7	240.33
144	165.0	150.0	99.78	595.6	555.6	210.35
145	167.5	155.0	101.66	560.2	537.7	225.17

146	182.5	170.0	98.64	572.9	567.9	240.45
147	175.0	130.0	69.13	522.9	510.4	226.68
148	175.0	167.5	104.56	621.9	616.9	235.17
149	160.0	152.5	104.25	569.6	562.1	221.61
150	182.5	167.5	99.27	555.9	545.9	230.41
151	302.5	157.5	101.93	526.2	513.8	229.04
152	160.0	150.0	102.25	540.3	500.3	213.82
153	297.5	160.0	95.01	598.1	593.1	234.64
154	164.0	156.5	109.42	525.8	483.2	201.25
155	168.8	153.7	101.23	557.2	527.2	187.04
156	175.0	147.5	89.14	568.1	535.6	217.63
157	165.0	55.0	65.49	516.2	488.7	224.62
158	190.0	57.5	77.12	550.2	535.2	223.11
159	270.0	77.5	90.26	577.7	562.7	223.85
160	272.5	122.5	80.48	530.6	518.1	215.09
161	150.0	132.5	101.52	555.0	540.0	228.08
162	162.5	60.0	75.77	544.3	536.8	231.57
163	302.5	140.0	102.12	548.4	543.4	236.66
164	155.0	70.0	86.70	543.1	533.1	230.95
165	172.5	165.0	103.60	562.2	547.2	224.94
166	170.0	145.0	91.17	507.9	502.9	237.35
167	177.5	170.0	107.31	560.0	540.0	223.14
168	257.5	142.5	87.96	524.8	522.2	242.47
169	167.5	65.0	73.47	633.1	628.1	238.79
170	170.0	77.5	88.69	553.7	543.8	218.25
171	160.0	140.0	78.60	602.5	542.5	203.66
172	167.5	60.0	82.96	560.8	558.3	243.61
173	300.0	72.5	81.68	496.1	476.1	221.65
174	292.5	137.5	84.38	540.9	523.4	219.12
175	177.5	152.5	91.29	551.0	523.5	219.44
176	292.5	142.5	91.94	498.1	493.1	235.43
177	165.0	42.5	77.26	550.0	530.0	224.77
178	280.0	147.5	97.34	542.8	525.3	213.31
179	255.0	70.0	84.00	595.3	585.3	229.99
180	271.2	153.7	93.28	584.6	572.1	230.85
181	152.5	145.0	100.10	538.8	511.3	205.58
182	165.0	157.5	106.59	524.4	519.4	233.64
183	155.0	57.5	71.39	495.6	485.6	231.26
184	160.0	147.5	92.32	544.9	534.9	227.63
185	145.0	130.0	87.31	558.5	538.5	219.46
186	285.0	72.5	78.99	529.4	516.9	228.68
187	287.5	142.5	91.55	492.1	489.6	236.21
188	175.0	165.0	99.48	561.2	548.7	230.52
189	167.5	157.5	102.68	604.0	591.5	227.28
190	187.5	52.5	69.27	509.5	499.5	227.89
191	182.5	165.0	95.21	513.1	505.6	232.30
192	180.0	37.5	65.43	540.8	523.2	221.13
193	160.0	150.0	105.20	526.8	511.8	229.02
194	267.5	67.5	74.09	618.9	608.9	229.23
195	282.5	167.5	91.45	573.5	556.0	222.92
196	175.5	173.0	117.23	531.6	514.1	225.06
197	155.0	137.5	95.58	541.2	538.8	239.78
198	290.0	150.0	94.21	575.4	560.4	221.04
199	177.5	162.5	100.80	500.8	498.3	243.56
200	262.5	75.0	77.17	510.7	493.2	227.92
201	175.0	150.0	92.97	596.8	556.7	206.33
202	160.0	150.0	101.91	541.6	531.6	233.42
203	170.0	70.0	72.86	611.0	581.0	212.40
204	185.0	180.0	110.66	593.4	575.9	223.45
205	167.5	160.0	107.18	520.2	500.2	218.03
206	287.5	137.5	93.02	531.2	491.2	216.31
207	265.0	137.5	81.46	531.5	519.0	229.57
208	163.7	151.2	99.29	587.9	570.4	215.46
209	175.0	152.5	96.86	545.9	520.9	221.66
210	267.5	27.5	62.50	636.4	586.4	202.50
211	187.5	165.0	93.68	571.9	556.9	225.15
212	185.0	177.5	107.61	588.3	578.3	232.61
213	187.5	180.0	104.45	551.1	533.6	220.55
214	168.8	163.7	108.90	577.2	532.2	207.74
215	170.0	160.0	105.46	570.0	562.5	230.95
216	255.0	50.0	58.95	660.0	615.0	208.56
217	170.0	157.5	100.28	504.3	486.8	222.73
218	287.5	72.5	81.44	529.4	521.9	223.89
219	164.4	161.9	111.71	546.7	536.7	230.02
220	162.5	150.0	98.21	498.8	491.3	227.72
221	194.4	191.9	112.07	502.9	487.9	227.52
222	182.5	55.0	82.33	600.2	587.7	227.80
223	240.0	65.0	74.45	570.9	533.4	215.77
224	146.2	131.2	92.02	568.5	563.5	235.27
225	167.2	164.7	114.06	508.1	500.6	231.25
226	267.5	57.5	79.49	507.1	489.6	223.19
227	295.0	120.0	80.90	516.5	504.0	228.16
228	167.5	72.5	84.67	574.4	551.9	217.06
229	155.0	20.0	60.57	557.2	517.2	208.72
230	167.5	152.5	100.45	570.6	560.6	223.15
231	162.5	137.5	88.89	546.0	531.0	224.15
232	172.5	60.0	76.59	509.6	502.1	231.63
233	265.0	157.5	94.49	510.0	497.5	233.13
234	160.0	155.0	103.90	525.0	517.5	237.81
235	157.5	147.5	102.78	547.5	540.0	236.93
236	155.0	142.5	97.24	591.8	589.3	240.77
237	167.5	157.5	104.57	551.2	541.2	227.01
238	253.7	151.2	98.43	540.8	528.3	229.81
239	140.0	92.5	82.80	532.5	525.0	228.85
240	165.0	142.5	92.08	619.6	612.1	225.06
241	185.0	172.5	101.13	599.1	576.6	217.42
242	155.0	72.5	88.69	586.7	579.2	230.39
243	134.0	131.5	111.32	621.0	603.5	220.26
244	277.5	145.0	103.44	585.8	573.2	222.98
245	151.2	143.7	108.11	531.3	513.8	224.62
246	285.0	85.0	82.01	554.7	542.2	210.52
247	165.0	137.5	93.85	529.2	474.2	192.77
248	160.0	67.5	89.63	511.8	496.8	210.49
249	175.0	157.5	92.84	501.6	491.6	226.16
250	170.0	82.5	79.40	487.5	477.5	229.17
251	282.5	157.5	96.23	553.2	535.7	222.73
252	190.0	180.0	103.52	538.7	526.2	218.64
253	170.0	142.5	83.55	593.5	588.5	238.50

254	275.0	62.5	83.24	557.4	539.9	216.60
255	167.5	160.0	106.14	570.0	567.5	247.68
256	187.5	165.0	94.15	546.8	534.3	228.20
257	195.0	62.5	78.19	568.1	558.1	230.21
258	181.2	178.8	111.45	519.9	504.9	223.27
259	282.5	75.0	87.16	520.7	510.7	230.22
260	275.0	52.5	76.71	567.3	549.8	223.14
261	157.5	142.5	97.65	530.3	525.3	238.77
262	270.0	150.0	98.28	503.8	493.7	232.09
263	270.0	75.0	79.54	570.4	522.9	212.59
264	182.5	170.0	95.35	541.2	528.7	220.41
265	177.5	65.0	83.38	586.4	571.4	228.93
266	175.0	72.5	80.31	615.8	598.3	225.83
267	282.5	120.0	59.61	528.0	513.0	229.89
268	270.0	140.0	89.00	590.1	532.6	196.93
269	170.0	135.0	88.96	550.5	543.0	229.03
270	178.1	175.6	113.88	500.6	488.1	225.34
271	165.0	150.0	100.28	597.7	590.2	235.20
272	162.5	47.5	81.48	475.4	467.9	236.84
273	152.5	135.0	97.01	563.1	555.6	233.66
274	162.5	62.5	71.17	536.6	506.6	206.56
275	176.7	166.7	98.51	552.9	545.4	234.71
276	270.0	42.5	76.10	545.8	533.3	228.89
277	160.0	117.5	65.48	543.0	538.0	238.46
278	180.0	47.5	83.29	648.8	638.8	215.40
279	182.5	165.0	101.52	545.9	505.9	211.55
280	252.5	127.5	72.54	568.4	543.4	216.42
281	170.0	160.0	102.13	552.4	522.4	201.29
282	172.5	165.0	101.03	549.2	539.2	222.13
283	156.2	148.8	99.46	543.6	538.6	236.68
284	280.0	67.5	84.91	565.5	540.5	223.12
285	185.0	162.5	91.33	537.9	515.4	221.22
286	145.0	55.0	79.67	516.6	506.6	226.20
287	290.0	142.5	98.87	563.7	553.7	229.61
288	165.0	145.0	90.26	565.2	555.2	230.32
289	268.7	136.2	98.68	558.0	553.0	235.38
290	175.0	145.0	85.48	564.2	529.2	220.11
291	172.5	165.0	108.95	480.0	477.5	247.57
292	165.0	152.5	99.97	535.7	523.2	229.61
293	155.0	147.5	103.84	593.9	533.9	194.82
294	177.5	57.5	84.28	524.0	519.0	237.10
295	152.5	60.0	82.70	595.7	570.7	211.92
296	170.0	65.0	81.13	502.4	484.9	219.19
297	167.5	155.0	96.57	541.1	508.6	201.23
298	162.5	147.5	103.30	498.8	491.3	232.30
299	175.0	122.5	61.31	558.7	551.2	230.11
300	165.0	150.0	100.35	503.0	488.0	228.41

RETENTION AGE DISTRIBUTION FOR ALL ACCEPTABLE SOLUTIONS:

RETENTION AGES: KINETIC POPULATION # 1

AGE BIN (MA)	RELATIVE FREQUENCY
100.0 - 110.0	0.000
110.0 - 120.0	0.000
120.0 - 130.0	0.000
130.0 - 140.0	0.007
140.0 - 150.0	0.033
150.0 - 160.0	0.163
160.0 - 170.0	0.270
170.0 - 180.0	0.153
180.0 - 190.0	0.100
190.0 - 200.0	0.007
200.0 - 210.0	0.000
210.0 - 220.0	0.000
220.0 - 230.0	0.000
230.0 - 240.0	0.003
240.0 - 250.0	0.000
250.0 - 260.0	0.033
260.0 - 270.0	0.063
270.0 - 280.0	0.053
280.0 - 290.0	0.073
290.0 - 300.0	0.030
300.0 - 310.0	0.010
310.0 - 320.0	0.000
320.0 - 330.0	0.000
330.0 - 340.0	0.000
340.0 - 350.0	0.000
350.0 - 360.0	0.000
360.0 - 370.0	0.000
370.0 - 380.0	0.000
380.0 - 390.0	0.000
390.0 - 400.0	0.000
400.0 - 410.0	0.000
410.0 - 420.0	0.000
420.0 - 430.0	0.000
430.0 - 440.0	0.000
440.0 - 450.0	0.000
450.0 - 460.0	0.000
460.0 - 470.0	0.000
470.0 - 480.0	0.000
480.0 - 490.0	0.000
490.0 - 500.0	0.000
500.0 - 510.0	0.000
510.0 - 520.0	0.000
520.0 - 530.0	0.000
530.0 - 540.0	0.000
540.0 - 550.0	0.000
550.0 - 560.0	0.000
560.0 - 570.0	0.000
570.0 - 580.0	0.000
580.0 - 590.0	0.000
590.0 - 600.0	0.000
600.0 - 610.0	0.000
610.0 - 620.0	0.000

620.0 -	630.0	0.000
630.0 -	640.0	0.000
640.0 -	650.0	0.000
650.0 -	660.0	0.000
660.0 -	670.0	0.000
670.0 -	680.0	0.000
680.0 -	690.0	0.000
690.0 -	700.0	0.000

MODEL RETENTION AGE MODE # 1
AGE RANGE: 130.0 - 200.0 Ma
NUMBER OF AGES = 220
AVE MODEL RETENTION AGE = 167.61 +/- 11.14 MA

MODEL RETENTION AGE MODE # 2
AGE RANGE: 230.0 - 310.0 Ma
NUMBER OF AGES = 80
AVE MODEL RETENTION AGE = 276.52 +/- 13.92 MA

RETENTION AGES: KINETIC POPULATION # 2

AGE BIN (MA)		RELATIVE FREQUENCY
100.0 -	110.0	0.000
110.0 -	120.0	0.000
120.0 -	130.0	0.000
130.0 -	140.0	0.000
140.0 -	150.0	0.000
150.0 -	160.0	0.000
160.0 -	170.0	0.000
170.0 -	180.0	0.000
180.0 -	190.0	0.000
190.0 -	200.0	0.000
200.0 -	210.0	0.000
210.0 -	220.0	0.000
220.0 -	230.0	0.000
230.0 -	240.0	0.000
240.0 -	250.0	0.000
250.0 -	260.0	0.000
260.0 -	270.0	0.000
270.0 -	280.0	0.000
280.0 -	290.0	0.000
290.0 -	300.0	0.000
300.0 -	310.0	0.000
310.0 -	320.0	0.000
320.0 -	330.0	0.000
330.0 -	340.0	0.000
340.0 -	350.0	0.000
350.0 -	360.0	0.000
360.0 -	370.0	0.000
370.0 -	380.0	0.000
380.0 -	390.0	0.000
390.0 -	400.0	0.000
400.0 -	410.0	0.000
410.0 -	420.0	0.000
420.0 -	430.0	0.000
430.0 -	440.0	0.000
440.0 -	450.0	0.000
450.0 -	460.0	0.000
460.0 -	470.0	0.007
470.0 -	480.0	0.010
480.0 -	490.0	0.007
490.0 -	500.0	0.030
500.0 -	510.0	0.083
510.0 -	520.0	0.067
520.0 -	530.0	0.077
530.0 -	540.0	0.100
540.0 -	550.0	0.150
550.0 -	560.0	0.107
560.0 -	570.0	0.100
570.0 -	580.0	0.070
580.0 -	590.0	0.043
590.0 -	600.0	0.060
600.0 -	610.0	0.017
610.0 -	620.0	0.037
620.0 -	630.0	0.013
630.0 -	640.0	0.013
640.0 -	650.0	0.003
650.0 -	660.0	0.007
660.0 -	670.0	0.000
670.0 -	680.0	0.000
680.0 -	690.0	0.000
690.0 -	700.0	0.000

AVE MODEL RETENTION AGE = 550.84 +/- 35.52 MA

POST-DEPOSITIONAL THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 1.62 +/- 0.240; %RO FOR EXP MEAN SOLUTION = 1.50
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 1.62 +/- 0.128
MIN %RO = 1.38; MAX %RO = 1.86
%RO FOR MIN OBJ SOLUTION = 1.57

POST-EXHUMATION THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.50 +/- 0.200; %RO FOR EXP MEAN SOLUTION = 0.48
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.49 +/- 0.015
MIN %RO = 0.46; MAX %RO = 0.54
%RO FOR MIN OBJ SOLUTION = 0.50

BINNED %RO VALUES FOR POST-DEPOSITIONAL HISTORY:

%RO BIN	RELATIVE FREQUENCY
0.00 - 0.05	0.000
0.05 - 0.10	0.000
0.10 - 0.15	0.000
0.15 - 0.20	0.000
0.20 - 0.25	0.000
0.25 - 0.30	0.000
0.30 - 0.35	0.000
0.35 - 0.40	0.000
0.40 - 0.45	0.000
0.45 - 0.50	0.000
0.50 - 0.55	0.000
0.55 - 0.60	0.000
0.60 - 0.65	0.000
0.65 - 0.70	0.000
0.70 - 0.75	0.000
0.75 - 0.80	0.000
0.80 - 0.85	0.000
0.85 - 0.90	0.000
0.90 - 0.95	0.000
0.95 - 1.00	0.000
1.00 - 1.05	0.000
1.05 - 1.10	0.000
1.10 - 1.15	0.000
1.15 - 1.20	0.000
1.20 - 1.25	0.000
1.25 - 1.30	0.000
1.30 - 1.35	0.000
1.35 - 1.40	0.047
1.40 - 1.45	0.083
1.45 - 1.50	0.103
1.50 - 1.55	0.087
1.55 - 1.60	0.147
1.60 - 1.65	0.127
1.65 - 1.70	0.110
1.70 - 1.75	0.120
1.75 - 1.80	0.080
1.80 - 1.85	0.077
1.85 - 1.90	0.020
1.90 - 1.95	0.000
1.95 - 2.00	0.000

MINIMUM PEAK TEMPERATURE = 167.62 DEG C; MAXIMUM PEAK TEMPERATURE = 188.55 DEG C

PEAK TEMPERATURE: AVERAGE = 176.95 STAND DEV = 4.201

MAX TEMP BIN	RELATIVE FREQUENCY
150.00 - 152.00	0.000
152.00 - 154.00	0.000
154.00 - 156.00	0.000
156.00 - 158.00	0.000
158.00 - 160.00	0.000
160.00 - 162.00	0.000
162.00 - 164.00	0.000
164.00 - 166.00	0.000
166.00 - 168.00	0.003
168.00 - 170.00	0.033
170.00 - 172.00	0.093
172.00 - 174.00	0.140
174.00 - 176.00	0.160
176.00 - 178.00	0.140
178.00 - 180.00	0.180
180.00 - 182.00	0.120
182.00 - 184.00	0.087
184.00 - 186.00	0.020
186.00 - 188.00	0.020
188.00 - 190.00	0.003
190.00 - 192.00	0.000
192.00 - 194.00	0.000
194.00 - 196.00	0.000
196.00 - 198.00	0.000
198.00 - 200.00	0.000

MINIMUM PEAK TIME = 295.00 MA; MAXIMUM PEAK TIME = 362.50 MA

TIME OF PEAK TEMP: AVERAGE = 338.90 STAND DEV = 13.786

TIME AT MAX TEMP	RELATIVE FREQUENCY
294.38 - 295.62	0.003
295.62 - 296.88	0.000
296.88 - 298.12	0.003
298.12 - 299.38	0.000
299.38 - 300.62	0.000
300.62 - 301.88	0.000
301.88 - 303.12	0.000
303.12 - 304.38	0.000
304.38 - 305.62	0.003
305.62 - 306.88	0.000
306.88 - 308.12	0.010
308.12 - 309.38	0.000
309.38 - 310.62	0.007
310.62 - 311.88	0.000
311.88 - 313.12	0.017
313.12 - 314.38	0.000
314.38 - 315.62	0.013
315.62 - 316.88	0.000
316.88 - 318.12	0.033
318.12 - 319.38	0.000
319.38 - 320.62	0.017
320.62 - 321.88	0.000
321.88 - 323.12	0.030
323.12 - 324.38	0.000
324.38 - 325.62	0.050

325.62 -	326.88	0.000
326.88 -	328.12	0.057
328.12 -	329.38	0.000
329.38 -	330.62	0.050
330.62 -	331.88	0.000
331.88 -	333.12	0.073
333.12 -	334.38	0.000
334.38 -	335.62	0.050
335.62 -	336.88	0.000
336.88 -	338.12	0.053
338.12 -	339.38	0.000
339.38 -	340.62	0.067
340.62 -	341.88	0.000
341.88 -	343.12	0.060
343.12 -	344.38	0.000
344.38 -	345.62	0.070
345.62 -	346.88	0.000
346.88 -	348.12	0.047
348.12 -	349.38	0.000
349.38 -	350.62	0.053
350.62 -	351.88	0.000
351.88 -	353.12	0.073
353.12 -	354.38	0.000
354.38 -	355.62	0.070
355.62 -	356.88	0.000
356.88 -	358.12	0.040
358.12 -	359.38	0.000
359.38 -	360.62	0.020
360.62 -	361.88	0.000
361.88 -	363.12	0.030

DEPOSITION (ALL SOLUTIONS):
TIME RANGE FOR THERMAL MINIMUM: 365.0 - 377.5 Ma
TIME OF MINIMUM TEMPERATURE: AVERAGE = 371.3 STAND DEV = 4.3
TEMPERATURE RANGE FOR THERMAL MINIMUM: 2.0 - 30.0 deg C
MINIMUM TEMPERATURE: AVERAGE = 28.6 STAND DEV = 2.9

REBURIAL (ALL SOLUTIONS):
TIME RANGE FOR THERMAL MINIMUM: 100.0 - 115.0 Ma
TIME OF MINIMUM TEMPERATURE: AVERAGE = 107.3 STAND DEV = 4.9
TEMPERATURE RANGE FOR THERMAL MINIMUM: 9.8 - 73.3 deg C
MINIMUM TEMPERATURE: AVERAGE = 44.1 STAND DEV = 12.7

OBJECTIVE FUNCTIONS: KINETIC POPULATION # 1

AVERAGE OF OBJ FNS= 0.13221 STAND DEV = 0.02606

OBJ FUNC	RELATIVE FREQUENCY
0.000 - 0.010	0.0000
0.010 - 0.020	0.0000
0.020 - 0.030	0.0000
0.030 - 0.040	0.0000
0.040 - 0.050	0.0000
0.050 - 0.060	0.0033
0.060 - 0.070	0.0100
0.070 - 0.080	0.0200
0.080 - 0.090	0.0400
0.090 - 0.100	0.0567
0.100 - 0.110	0.0900
0.110 - 0.120	0.0867
0.120 - 0.130	0.1000
0.130 - 0.140	0.1600
0.140 - 0.150	0.1300
0.150 - 0.160	0.1400
0.160 - 0.170	0.1633
0.170 - 0.180	0.0000
0.180 - 0.190	0.0000
0.190 - 0.200	0.0000

OBJECTIVE FUNCTIONS: KINETIC POPULATION # 2

AVERAGE OF OBJ FNS= 0.09196 STAND DEV = 0.01468

OBJ FUNC	RELATIVE FREQUENCY
0.000 - 0.010	0.0000
0.010 - 0.020	0.0000
0.020 - 0.030	0.0000
0.030 - 0.040	0.0000
0.040 - 0.050	0.0000
0.050 - 0.060	0.0167
0.060 - 0.070	0.1000
0.070 - 0.080	0.1033
0.080 - 0.090	0.1833
0.090 - 0.100	0.2467
0.100 - 0.110	0.2300
0.110 - 0.120	0.1200
0.120 - 0.130	0.0000
0.130 - 0.140	0.0000
0.140 - 0.150	0.0000
0.150 - 0.160	0.0000
0.160 - 0.170	0.0000
0.170 - 0.180	0.0000
0.180 - 0.190	0.0000
0.190 - 0.200	0.0000

CONTROLLED RANDOM SEARCH TECHNIQUE

MINIMUM OBJECTIVE SOLUTION: LOWEST COMBINED OBJECTIVE FUNCTION

MODEL RESULTS AT 0.5000 SIGNIFICANCE LEVEL

TIME (MY)	TIME (MA)	EXP MEAN TEMPERATURE (DEG C)	EXP MEAN RATE (DEG/MY)	MIN OBJ TEMPERATURE (DEG C)	MIN OBJ RATE (DEG/MY)	LOWER TEMP BOUND	UPPER TEMP BOUND
0.00	700.00	249.99		249.99		249.98	250.00
10.00	690.00	249.99	-0.001	249.99	-0.001	249.97	250.00
20.00	680.00	249.97	-0.001	249.96	-0.002	249.92	250.00
30.00	670.00	249.95	-0.002	249.92	-0.004	249.87	250.00
40.00	660.00	249.88	-0.007	249.82	-0.010	249.70	250.00
50.00	650.00	249.75	-0.013	249.62	-0.020	249.40	250.00
60.00	640.00	249.39	-0.036	249.07	-0.055	248.54	250.00
70.00	630.00	249.02	-0.037	248.49	-0.058	247.84	250.00
80.00	620.00	248.35	-0.067	247.61	-0.088	246.73	250.00
90.00	610.00	247.17	-0.118	245.76	-0.185	239.35	250.00
100.00	600.00	246.11	-0.106	244.06	-0.170	238.12	250.00
110.00	590.00	244.77	-0.134	241.57	-0.249	227.39	250.00
120.00	580.00	243.05	-0.172	238.83	-0.274	224.70	250.00
130.00	570.00	239.98	-0.307	234.34	-0.449	209.13	250.00
140.00	560.00	235.31	-0.467	229.21	-0.513	185.93	250.00
150.00	550.00	229.89	-0.542	220.82	-0.839	166.50	250.00
160.00	540.00	226.59	-0.331	214.26	-0.656	161.16	250.00
170.00	530.00	220.29	-0.630	207.11	-0.714	160.91	250.00
180.00	520.00	211.52	-0.877	195.08	-1.203	160.15	250.00
190.00	510.00	205.10	-0.642	201.26	0.618	155.42	250.00
200.00	500.00	195.62	-0.948	184.55	-1.670	148.67	249.94
210.00	490.00	187.13	-0.850	167.70	-1.686	144.64	249.82
220.00	480.00	178.95	-0.818	153.07	-1.462	139.95	248.22
230.00	470.00	162.23	-1.671	141.67	-1.140	123.26	211.94
240.00	460.00	150.64	-1.160	121.61	-2.006	109.33	203.35
250.00	450.00	142.21	-0.843	111.01	-1.060	73.96	201.21
260.00	440.00	122.61	-1.960	94.62	-1.640	72.14	158.41
270.00	430.00	110.07	-1.253	86.35	-0.827	66.34	158.23
280.00	420.00	101.66	-0.841	88.89	0.255	59.35	152.65
290.00	410.00	83.38	-1.828	78.39	-1.050	50.09	129.64
300.00	400.00	62.64	-2.075	60.48	-1.791	43.07	97.19
310.00	390.00	50.77	-1.186	45.83	-1.466	36.80	64.86
315.00	385.00	46.65	-0.825	40.85	-0.996	33.04	60.96
317.50	382.50	43.66	-1.193	41.29	0.176	30.48	56.40
320.00	380.00	40.20	-1.384	36.71	-1.831	29.76	52.16
322.50	377.50	36.36	-1.536	30.00	-2.684	26.73	49.46
325.00	375.00	38.34	0.791	35.23	2.091	26.58	67.49
327.50	372.50	49.86	4.610	51.92	6.677	26.71	104.95
330.00	370.00	79.64	11.909	70.12	7.282	20.13	142.31
332.50	367.50	99.69	8.020	99.48	11.741	26.27	160.77
335.00	365.00	119.54	7.942	131.51	12.814	29.83	170.42
337.50	362.50	139.98	8.175	151.19	7.872	67.28	173.10
340.00	360.00	152.38	4.960	159.90	3.482	102.56	178.59
342.50	357.50	159.42	2.814	165.05	2.063	104.32	179.25
345.00	355.00	161.83	0.964	167.85	1.119	105.52	177.71
347.50	352.50	163.26	0.572	169.51	0.662	107.64	178.18
350.00	350.00	164.92	0.666	171.08	0.632	107.67	177.15
352.50	347.50	167.03	0.845	172.98	0.760	108.91	180.11
355.00	345.00	168.15	0.447	174.66	0.672	121.77	177.76
357.50	342.50	167.78	-0.149	171.28	-1.355	133.90	179.03
360.00	340.00	167.57	-0.081	170.69	-0.236	135.58	186.31
362.50	337.50	168.00	0.169	170.31	-0.153	141.30	181.02
365.00	335.00	166.95	-0.417	165.50	-1.921	143.17	176.86
367.50	332.50	165.85	-0.443	161.10	-1.761	143.23	176.94
370.00	330.00	163.68	-0.866	152.21	-3.556	142.03	180.48
372.50	327.50	161.15	-1.014	151.28	-0.372	141.03	174.79
375.00	325.00	158.41	-1.094	149.41	-0.748	138.78	172.53
377.50	322.50	155.12	-1.317	145.72	-1.475	137.66	175.41
380.00	320.00	151.66	-1.382	145.76	0.013	132.57	173.89
382.50	317.50	148.35	-1.328	143.48	-0.911	131.10	171.38
385.00	315.00	146.12	-0.891	145.37	0.754	130.05	169.25
387.50	312.50	142.92	-1.281	141.97	-1.357	128.24	162.43
390.00	310.00	140.49	-0.972	139.26	-1.086	125.92	158.74
392.50	307.50	137.41	-1.232	135.41	-1.540	119.82	157.64
395.00	305.00	133.59	-1.525	131.40	-1.605	118.66	156.43
397.50	302.50	129.90	-1.476	128.18	-1.287	113.75	149.58
400.00	300.00	127.35	-1.022	125.29	-1.156	111.63	149.00
402.50	297.50	124.05	-1.317	122.67	-1.047	108.34	146.12
405.00	295.00	120.27	-1.512	117.88	-1.914	100.42	143.74
407.50	292.50	117.37	-1.160	114.34	-1.419	99.17	143.70
410.00	290.00	113.60	-1.509	110.79	-1.417	89.13	143.47
412.50	287.50	110.15	-1.378	109.37	-0.570	87.56	136.64
415.00	285.00	107.69	-0.985	106.42	-1.181	76.44	134.96
417.50	282.50	105.04	-1.060	103.10	-1.326	75.88	133.30
420.00	280.00	101.84	-1.283	98.88	-1.690	71.35	129.04
422.50	277.50	99.10	-1.095	95.69	-1.275	70.72	125.14
425.00	275.00	95.20	-1.561	92.56	-1.254	69.18	118.50
427.50	272.50	93.14	-0.823	93.24	0.274	66.86	116.80
430.00	270.00	89.89	-1.301	89.04	-1.678	64.30	113.07
432.50	267.50	86.62	-1.306	85.25	-1.518	62.73	110.38
435.00	265.00	82.97	-1.459	83.06	-0.875	59.39	103.60
437.50	262.50	79.95	-1.210	79.33	-1.492	55.05	102.38
440.00	260.00	77.16	-1.116	76.04	-1.317	50.99	101.37
442.50	257.50	74.65	-1.006	72.99	-1.219	48.67	100.84
445.00	255.00	72.43	-0.886	71.47	-0.609	48.12	99.71
447.50	252.50	70.25	-0.872	69.37	-0.842	47.49	99.43
450.00	250.00	66.73	-1.407	65.07	-1.720	45.99	98.29
452.50	247.50	64.51	-0.890	62.71	-0.941	45.90	97.74
455.00	245.00	62.04	-0.989	59.53	-1.275	44.09	88.21
457.50	242.50	59.08	-1.184	56.94	-1.034	37.74	82.22
460.00	240.00	56.81	-0.905	55.63	-0.525	29.52	79.63
462.50	237.50	53.91	-1.162	53.89	-0.697	27.99	75.18
465.00	235.00	52.12	-0.716	52.14	-0.700	26.88	74.47
467.50	232.50	50.42	-0.678	50.25	-0.753	30.06	74.07
470.00	230.00	49.64	-0.312	48.97	-0.514	30.59	69.60
472.50	227.50	48.53	-0.446	47.95	-0.409	30.84	70.36
475.00	225.00	48.85	0.128	47.86	-0.036	33.53	72.27
477.50	222.50	48.65	-0.078	48.91	0.420	34.53	73.57

480.00	220.00	48.51	-0.056	46.86	-0.817	33.32	74.17
482.50	217.50	49.92	0.560	46.56	-0.122	28.07	77.89
485.00	215.00	50.92	0.401	47.74	0.471	17.90	78.03
487.50	212.50	53.05	0.854	50.28	1.019	16.55	80.53
490.00	210.00	55.04	0.793	52.78	0.998	13.89	82.08
492.50	207.50	57.41	0.949	55.47	1.078	18.77	83.44
495.00	205.00	60.58	1.270	59.74	1.707	23.97	84.17
497.50	202.50	64.22	1.455	63.72	1.590	25.46	85.65
500.00	200.00	67.42	1.278	66.67	1.180	34.95	87.00
502.50	197.50	70.62	1.283	70.23	1.427	35.55	91.32
505.00	195.00	73.75	1.251	73.94	1.482	37.78	94.16
507.50	192.50	76.44	1.075	76.02	0.831	39.10	95.14
510.00	190.00	79.15	1.083	79.19	1.269	39.50	99.45
512.50	187.50	82.51	1.344	83.76	1.830	42.10	100.90
515.00	185.00	86.08	1.430	87.13	1.347	44.99	107.96
517.50	182.50	89.35	1.308	91.53	1.760	45.81	109.25
520.00	180.00	91.87	1.007	95.39	1.546	49.52	111.48
522.50	177.50	94.26	0.958	98.31	1.168	50.21	112.31
525.00	175.00	97.49	1.291	102.66	1.740	50.72	114.80
527.50	172.50	99.15	0.662	104.78	0.845	53.02	115.20
530.00	170.00	100.94	0.717	104.32	-0.183	58.45	113.93
532.50	167.50	101.32	0.152	100.73	-1.435	65.82	113.36
535.00	165.00	101.92	0.239	100.43	-0.122	66.68	111.32
537.50	162.50	102.76	0.338	100.07	-0.142	72.58	109.30
540.00	160.00	103.59	0.330	100.44	0.147	72.67	111.10
542.50	157.50	103.55	-0.015	100.82	0.154	83.52	112.60
545.00	155.00	102.34	-0.484	101.11	0.114	86.09	115.80
547.50	152.50	100.43	-0.762	101.54	0.173	85.88	113.49
550.00	150.00	97.63	-1.120	99.12	-0.971	81.71	106.89
552.50	147.50	95.38	-0.903	96.69	-0.968	74.94	104.29
555.00	145.00	92.56	-1.127	93.76	-1.175	74.46	102.21
557.50	142.50	88.83	-1.490	89.44	-1.727	73.42	101.37
560.00	140.00	86.34	-0.999	86.19	-1.298	72.76	101.89
562.50	137.50	83.46	-1.151	82.52	-1.469	63.90	104.45
565.00	135.00	79.85	-1.443	77.68	-1.938	58.44	96.76
567.50	132.50	76.85	-1.201	75.33	-0.938	57.33	95.71
570.00	130.00	73.13	-1.486	72.01	-1.329	53.95	88.73
572.50	127.50	70.23	-1.162	69.20	-1.123	53.23	84.83
575.00	125.00	67.30	-1.171	65.28	-1.566	48.88	83.33
577.50	122.50	64.06	-1.295	61.24	-1.617	47.69	81.27
580.00	120.00	60.98	-1.233	58.42	-1.128	47.08	80.37
582.50	117.50	58.27	-1.085	54.74	-1.473	45.61	77.24
585.00	115.00	55.11	-1.263	51.91	-1.133	38.97	67.11
587.50	112.50	52.79	-0.927	50.09	-0.728	37.96	65.49
590.00	110.00	50.83	-0.784	47.61	-0.992	36.29	63.98
592.50	107.50	49.70	-0.452	48.46	0.342	39.28	62.53
595.00	105.00	49.48	-0.088	49.47	0.403	39.48	60.86
597.50	102.50	49.50	0.009	48.65	-0.329	38.38	60.90
600.00	100.00	49.85	0.137	47.30	-0.540	32.17	65.72
602.50	97.50	52.01	0.865	49.81	1.004	33.22	67.91
605.00	95.00	54.28	0.906	51.81	0.801	33.77	70.11
607.50	92.50	56.70	0.969	54.91	1.241	33.86	71.32
610.00	90.00	58.99	0.915	57.60	1.074	40.37	74.21
612.50	87.50	61.16	0.869	60.71	1.245	41.86	74.41
615.00	85.00	63.07	0.764	62.07	0.543	43.10	76.93
617.50	82.50	65.27	0.882	65.03	1.185	44.46	78.13
620.00	80.00	68.43	1.264	66.87	0.735	47.29	81.81
622.50	77.50	70.31	0.751	67.07	0.082	50.98	82.35
625.00	75.00	72.50	0.877	70.18	1.244	55.29	85.47
627.50	72.50	74.48	0.792	72.01	0.732	56.97	85.95
630.00	70.00	75.55	0.427	76.42	1.762	57.68	84.73
632.50	67.50	76.83	0.511	78.43	0.804	62.85	83.11
635.00	65.00	77.45	0.249	79.31	0.355	64.17	83.88
637.50	62.50	76.84	-0.244	78.77	-0.216	65.20	84.43
640.00	60.00	76.93	0.036	78.87	0.038	67.78	83.96
642.50	57.50	76.03	-0.361	77.88	-0.393	69.54	84.77
645.00	55.00	74.75	-0.512	76.31	-0.629	67.05	82.53
647.50	52.50	72.70	-0.820	73.77	-1.018	65.08	80.01
650.00	50.00	71.67	-0.412	72.34	-0.572	60.72	80.90
652.50	47.50	70.44	-0.493	71.42	-0.367	60.63	80.60
655.00	45.00	68.40	-0.815	68.65	-1.109	57.61	79.17
657.50	42.50	65.65	-1.101	65.80	-1.141	52.91	75.92
660.00	40.00	63.43	-0.886	62.81	-1.196	49.52	73.97
662.50	37.50	60.28	-1.259	59.16	-1.458	47.08	71.45
665.00	35.00	58.55	-0.691	57.76	-0.562	42.50	70.66
667.50	32.50	55.90	-1.062	54.93	-1.132	38.34	66.92
670.00	30.00	52.42	-1.393	51.89	-1.215	35.31	63.04
672.50	27.50	49.05	-1.347	47.96	-1.573	33.95	60.50
675.00	25.00	46.46	-1.035	44.62	-1.336	31.61	57.68
677.50	22.50	43.42	-1.218	41.65	-1.189	27.18	55.02
680.00	20.00	40.99	-0.970	38.92	-1.088	21.54	51.54
682.50	17.50	38.76	-0.891	36.20	-1.088	21.25	51.41
685.00	15.00	36.35	-0.966	34.02	-0.873	17.22	50.67
687.50	12.50	34.01	-0.937	32.33	-0.676	13.67	49.30
690.00	10.00	31.60	-0.965	29.35	-1.195	11.86	45.33
692.50	7.50	28.78	-1.126	27.93	-0.566	9.92	43.24
695.00	5.00	26.31	-0.990	24.82	-1.246	9.60	38.53
697.50	2.50	22.96	-1.338	20.67	-1.660	6.13	36.18
700.00	0.00	2.56	-8.163	2.91	-7.102	0.36	4.66

EXPONENTIAL MEAN: TIME OF DEPOSITION = 377.5 Ma
EXPONENTIAL MEAN: TIME OF REBURIAL = 105.0 Ma

MINIMUM OBJ SOLUTION: TIME OF DEPOSITION = 377.5 Ma
MINIMUM OBJ SOLUTION: TIME OF REBURIAL = 100.0 Ma

SEARCH FOR MAXIMUM TEMPERATURE BETWEEN 365.00 - 240.00 MA

ALL SOLUTIONS ARE AT 0.5000 SIGNIFICANCE LEVEL

%RO MODEL: BASIN%RO

MODEL #	KIN POP# 1 CALCULATED AFT AGE (MA)	KIN POP# 2 CALCULATED AFT AGE (MA)	TIME OF MAXIMUM TEMP (MA)	MAXIMUM TEMP (DEG C)	KIN POP# 1 OBJECTIVE FUNCTION	KIN POP# 2 OBJECTIVE FUNCTION	%RO POST-DEP	%RO POST-EXH
1	121.95	256.97	337.50	173.11	0.060677	0.062353	1.563	0.485
2	123.98	253.06	330.00	171.98	0.058213	0.068841	1.510	0.493
3	124.81	256.18	345.00	169.36	0.068439	0.064877	1.481	0.482
4	125.38	255.56	342.50	172.87	0.082299	0.062157	1.519	0.473
5	123.64	253.65	345.00	175.07	0.053957	0.064984	1.622	0.485
6	124.35	253.70	332.50	171.75	0.062718	0.067844	1.506	0.491
7	123.75	250.04	357.50	173.16	0.089916	0.052707	1.538	0.483
8	125.71	256.57	342.50	173.33	0.083815	0.061919	1.520	0.473
9	124.83	250.48	335.00	172.01	0.077045	0.065294	1.531	0.484
10	127.27	258.07	340.00	170.57	0.099002	0.067562	1.484	0.475
11	124.26	251.64	332.50	172.51	0.061602	0.069192	1.512	0.491
12	126.19	252.92	347.50	172.04	0.094177	0.060897	1.519	0.469
13	122.69	257.91	337.50	171.59	0.059265	0.067664	1.513	0.483
14	125.99	255.27	342.50	171.91	0.083117	0.060845	1.523	0.473
15	123.83	249.84	335.00	172.60	0.079359	0.068682	1.503	0.483
16	122.59	253.26	337.50	172.21	0.074876	0.061226	1.568	0.476
17	121.63	255.75	342.50	174.17	0.100640	0.053670	1.567	0.484
18	124.93	254.72	347.50	172.42	0.090582	0.067551	1.491	0.473
19	120.30	258.71	335.00	170.06	0.059354	0.061477	1.516	0.494
20	125.74	252.75	342.50	171.65	0.080790	0.063504	1.506	0.473
21	126.88	256.59	347.50	172.62	0.099815	0.062333	1.518	0.467
22	121.95	254.42	342.50	174.22	0.100172	0.058838	1.529	0.478
23	124.22	258.08	345.00	172.30	0.061194	0.065193	1.539	0.486
24	124.38	250.14	347.50	176.94	0.099497	0.066711	1.665	0.483
25	126.16	255.83	345.00	171.34	0.085256	0.061606	1.522	0.473
26	125.19	253.97	342.50	172.31	0.086101	0.067082	1.493	0.471
27	124.38	248.53	330.00	180.48	0.073391	0.066170	1.603	0.479
28	124.80	254.64	342.50	173.60	0.082422	0.060044	1.533	0.472
29	123.98	251.25	347.50	173.28	0.101800	0.053516	1.536	0.480
30	124.46	257.64	345.00	173.14	0.064163	0.065238	1.552	0.486
31	125.50	252.91	342.50	172.67	0.082236	0.064382	1.557	0.473
32	125.47	259.34	350.00	176.83	0.075845	0.065296	1.653	0.487
33	123.21	254.84	347.50	175.17	0.094190	0.053309	1.566	0.475
34	123.96	255.53	345.00	172.51	0.058052	0.063499	1.541	0.482
35	124.08	251.18	332.50	172.81	0.062200	0.066621	1.533	0.493
36	123.76	253.41	332.50	172.10	0.065238	0.066876	1.511	0.495
37	126.34	257.85	345.00	171.48	0.087509	0.064811	1.495	0.485
38	126.59	256.07	350.00	172.99	0.091603	0.069028	1.511	0.477
39	125.44	255.25	347.50	174.86	0.086414	0.054683	1.578	0.473
40	125.76	256.79	345.00	172.65	0.080310	0.064857	1.557	0.476
41	125.76	253.80	342.50	172.33	0.087534	0.062149	1.523	0.470
42	123.19	250.34	337.50	173.44	0.081608	0.063880	1.522	0.483
43	123.35	250.62	332.50	172.80	0.053585	0.066164	1.532	0.493
44	122.32	250.73	332.50	172.20	0.076978	0.064164	1.537	0.498
45	122.79	250.65	332.50	171.84	0.066932	0.068850	1.509	0.496
46	125.20	251.33	337.50	172.57	0.087881	0.067890	1.539	0.486
47	122.68	254.06	345.00	174.54	0.051585	0.065316	1.613	0.484
48	125.00	255.41	335.00	171.43	0.085359	0.067011	1.524	0.484
49	115.84	239.30	325.00	172.53	0.094065	0.068511	1.591	0.487
50	124.54	253.69	332.50	172.65	0.065156	0.068398	1.529	0.493
51	121.98	252.66	332.50	172.61	0.072303	0.067456	1.511	0.496
52	125.71	254.89	345.00	173.40	0.079601	0.064608	1.540	0.485
53	122.97	248.79	332.50	173.41	0.068045	0.064801	1.579	0.495
54	123.56	250.90	332.50	172.32	0.053014	0.066819	1.517	0.491
55	125.15	250.57	330.00	176.98	0.099561	0.066273	1.553	0.477
56	125.90	255.51	345.00	172.36	0.081979	0.061745	1.536	0.475
57	124.03	254.91	345.00	171.02	0.058854	0.068495	1.508	0.486
58	124.18	251.04	332.50	173.11	0.060668	0.067164	1.543	0.493
59	127.12	255.92	357.50	178.87	0.097121	0.062116	1.550	0.473
60	124.09	254.40	337.50	168.76	0.091921	0.067304	1.475	0.472
61	122.39	253.31	345.00	176.10	0.052987	0.067936	1.655	0.484
62	123.65	253.87	345.00	172.34	0.079075	0.059997	1.501	0.485
63	121.95	252.11	332.50	172.96	0.070134	0.064018	1.534	0.495
64	122.38	251.53	347.50	175.51	0.092039	0.057091	1.613	0.481
65	128.66	245.70	360.00	176.95	0.066521	0.055153	1.602	0.491
66	123.14	250.41	332.50	171.85	0.050050	0.066643	1.529	0.493
67	125.03	253.95	345.00	174.16	0.071177	0.065640	1.591	0.484
68	122.94	250.53	332.50	171.82	0.063909	0.067704	1.520	0.494
69	122.99	254.82	345.00	174.83	0.052322	0.064818	1.619	0.486
70	123.55	249.94	347.50	175.74	0.097205	0.050152	1.594	0.476
71	123.95	250.75	332.50	173.68	0.063380	0.067726	1.553	0.494
72	123.89	252.39	350.00	172.70	0.090740	0.055870	1.521	0.479
73	131.79	238.83	332.50	174.85	0.085859	0.068738	1.550	0.486
74	122.72	253.91	342.50	171.31	0.079013	0.059710	1.554	0.475
75	123.32	254.08	337.50	170.26	0.079379	0.057938	1.526	0.475
76	125.49	255.07	342.50	172.86	0.087529	0.060703	1.530	0.469
77	124.99	252.51	345.00	175.40	0.071003	0.062625	1.611	0.484
78	123.09	253.08	332.50	171.82	0.050614	0.066589	1.515	0.493
79	126.70	254.81	360.00	175.29	0.091989	0.062693	1.568	0.481
80	127.45	253.44	347.50	179.04	0.101238	0.063700	1.654	0.468
81	127.30	258.46	350.00	172.48	0.099435	0.067015	1.499	0.478
82	126.03	256.53	350.00	171.52	0.094265	0.062714	1.497	0.477
83	126.36	240.38	357.50	178.86	0.097945	0.066507	1.635	0.472
84	123.06	253.94	345.00	175.19	0.051691	0.067022	1.629	0.484
85	125.41	256.20	347.50	173.51	0.075914	0.067175	1.583	0.475
86	124.41	252.13	335.00	172.57	0.079778	0.064232	1.521	0.482
87	125.45	255.30	345.00	171.85	0.076431	0.065175	1.505	0.474
88	123.09	253.58	342.50	170.92	0.082039	0.060306	1.544	0.474
89	122.82	251.55	335.00	172.90	0.091322	0.061768	1.548	0.487
90	118.90	244.63	352.50	178.18	0.093591	0.059925	1.705	0.494
91	125.63	254.09	342.50	170.97	0.079950	0.064735	1.496	0.473
92	123.29	252.89	345.00	175.63	0.049609	0.067130	1.648	0.485
93	124.34	253.77	347.50	175.40	0.089738	0.051630	1.582	0.474
94	123.17	252.45	332.50	172.65	0.056992	0.068642	1.515	0.493
95	124.35	247.71	330.00	175.33	0.101911	0.069001	1.615	0.483

96	123.52	251.88	332.50	172.59	0.061694	0.065829	1.524	0.494
97	125.37	256.37	342.50	168.62	0.092395	0.068130	1.478	0.472
98	126.36	255.57	342.50	171.67	0.090049	0.060986	1.522	0.471
99	122.97	252.50	332.50	173.01	0.064897	0.066819	1.537	0.494
100	121.97	259.70	335.00	170.08	0.061134	0.065867	1.515	0.492
101	126.07	255.85	347.50	173.67	0.085799	0.066647	1.584	0.472
102	125.38	251.69	357.50	172.23	0.092004	0.058743	1.494	0.484
103	123.96	257.04	347.50	175.38	0.091252	0.055126	1.555	0.473
104	122.08	250.20	332.50	172.74	0.077012	0.067627	1.523	0.496
105	127.40	246.95	342.50	173.02	0.100614	0.061781	1.513	0.483
106	122.95	255.12	342.50	171.07	0.080702	0.060077	1.549	0.475
107	124.82	255.12	347.50	174.14	0.076558	0.066755	1.593	0.474
108	124.61	254.08	345.00	174.93	0.065976	0.068585	1.617	0.484
109	125.00	253.45	332.50	171.99	0.070810	0.068824	1.516	0.494
110	123.43	252.55	345.00	172.81	0.087881	0.056665	1.518	0.485
111	122.95	255.41	337.50	171.90	0.078082	0.061205	1.571	0.475
112	125.59	254.28	345.00	174.60	0.078166	0.068034	1.581	0.483
113	124.62	253.26	357.50	179.05	0.074621	0.058457	1.569	0.479
114	125.63	257.04	347.50	171.48	0.081014	0.064947	1.501	0.473
115	124.03	253.80	337.50	172.52	0.061238	0.066314	1.513	0.494
116	125.35	254.45	342.50	173.95	0.082358	0.061537	1.552	0.471
117	124.28	256.11	340.00	168.90	0.091303	0.064860	1.492	0.472
118	123.02	256.18	345.00	172.75	0.057122	0.063628	1.552	0.484
119	123.42	249.40	330.00	172.39	0.064973	0.064153	1.544	0.495
120	123.86	253.00	332.50	172.56	0.056686	0.068926	1.514	0.493
121	124.53	254.66	345.00	172.23	0.065041	0.063779	1.519	0.486
122	124.23	256.33	342.50	173.79	0.061225	0.067861	1.582	0.484
123	126.24	257.59	342.50	172.84	0.086187	0.067063	1.521	0.471
124	126.61	254.81	330.00	176.91	0.090865	0.067896	1.485	0.478
125	128.14	246.61	330.00	171.48	0.096862	0.065822	1.482	0.494
126	125.39	251.40	345.00	176.35	0.075629	0.067934	1.655	0.483
127	123.19	254.21	342.50	170.11	0.085867	0.059458	1.518	0.473
128	125.84	252.58	360.00	173.15	0.081265	0.058082	1.517	0.482
129	124.87	248.15	330.00	180.32	0.075014	0.064123	1.575	0.478
130	126.82	253.42	342.50	170.08	0.093421	0.066769	1.486	0.483
131	124.18	254.85	347.50	177.16	0.090684	0.059183	1.643	0.474
132	123.37	250.71	335.00	171.46	0.050617	0.068549	1.522	0.491
133	122.77	253.49	345.00	173.28	0.052020	0.059939	1.574	0.486
134	126.80	256.43	342.50	171.58	0.093179	0.067995	1.490	0.468
135	125.32	255.60	345.00	173.01	0.074764	0.062882	1.547	0.484
136	123.48	253.13	332.50	171.85	0.053684	0.067284	1.510	0.493
137	123.93	251.04	335.00	172.94	0.081361	0.062665	1.545	0.484
138	123.81	254.14	332.50	172.08	0.056091	0.068897	1.505	0.493
139	124.14	251.33	332.50	172.78	0.060153	0.066698	1.525	0.492
140	124.28	251.52	332.50	172.52	0.061921	0.067250	1.520	0.492
141	124.69	256.45	345.00	173.53	0.067018	0.067385	1.568	0.484
142	125.29	252.95	347.50	173.97	0.074488	0.065448	1.609	0.476
143	123.98	251.71	332.50	171.55	0.058207	0.067829	1.517	0.493
144	124.50	249.29	347.50	173.81	0.101169	0.054319	1.531	0.484
145	124.37	255.36	357.50	178.23	0.073919	0.054665	1.596	0.479
146	126.63	254.19	347.50	175.00	0.100626	0.058310	1.539	0.470
147	123.15	254.89	345.00	174.64	0.053396	0.063962	1.612	0.485
148	122.21	248.68	332.50	172.72	0.081610	0.063599	1.533	0.498
149	123.76	256.28	345.00	174.33	0.055426	0.068024	1.605	0.483
150	122.00	251.01	335.00	172.93	0.092249	0.063443	1.541	0.487
151	125.10	251.35	345.00	176.77	0.073121	0.068881	1.675	0.484
152	122.96	253.07	337.50	171.34	0.077608	0.060882	1.560	0.475
153	126.61	250.77	330.00	178.78	0.099699	0.067249	1.516	0.473
154	126.31	255.60	347.50	172.74	0.087128	0.064970	1.534	0.470
155	122.82	250.85	332.50	171.97	0.056194	0.068439	1.513	0.494
156	123.32	252.91	345.00	175.20	0.051213	0.065196	1.630	0.486
157	115.84	259.26	340.00	186.31	0.094851	0.068953	1.692	0.495
158	122.81	251.89	335.00	173.33	0.089996	0.062903	1.559	0.487
159	125.70	254.69	345.00	174.65	0.079506	0.067830	1.583	0.483
160	125.25	255.29	345.00	172.12	0.075103	0.065354	1.504	0.475
161	124.38	256.10	360.00	174.42	0.085547	0.060638	1.510	0.479
162	125.75	255.50	347.50	174.19	0.081451	0.067363	1.609	0.473
163	123.32	252.60	345.00	175.20	0.059524	0.058652	1.621	0.486
164	122.63	253.14	337.50	170.61	0.081051	0.055854	1.531	0.474
165	122.01	253.68	332.50	172.12	0.067115	0.068088	1.507	0.495
166	124.45	256.62	347.50	173.94	0.085912	0.059527	1.533	0.475
167	123.76	254.87	360.00	175.54	0.086156	0.059867	1.495	0.486
168	124.31	251.66	357.50	172.42	0.096308	0.054131	1.521	0.484
169	123.27	254.52	337.50	171.16	0.078353	0.063508	1.543	0.475
170	123.92	255.33	342.50	170.82	0.057450	0.068114	1.487	0.486
171	124.48	256.61	342.50	173.69	0.093224	0.058927	1.534	0.476
172	125.37	257.70	347.50	173.58	0.075404	0.068144	1.584	0.476
173	123.62	252.95	337.50	171.93	0.053674	0.068568	1.504	0.492
174	122.33	253.23	332.50	172.12	0.051609	0.068848	1.505	0.493
175	124.55	255.96	342.50	173.53	0.088189	0.060666	1.521	0.474
176	125.55	254.65	347.50	175.58	0.078705	0.068291	1.623	0.473
177	122.49	257.34	337.50	173.01	0.058829	0.064229	1.527	0.486
178	125.80	254.59	345.00	171.15	0.083718	0.061001	1.523	0.473
179	124.21	253.50	345.00	173.89	0.061625	0.069242	1.615	0.484
180	126.08	258.40	345.00	171.71	0.084245	0.065142	1.509	0.482
181	124.50	254.10	347.50	174.93	0.080219	0.054267	1.573	0.475
182	124.92	254.36	357.50	175.39	0.077067	0.067147	1.511	0.479
183	122.26	251.87	332.50	172.95	0.067388	0.065203	1.529	0.495
184	126.06	247.99	335.00	170.87	0.084042	0.069131	1.485	0.483
185	131.88	244.80	342.50	172.10	0.086635	0.058665	1.496	0.485
186	125.99	256.61	342.50	170.41	0.086956	0.067311	1.483	0.472
187	121.93	252.19	332.50	173.17	0.071920	0.062568	1.535	0.496
188	125.44	254.80	360.00	178.59	0.092676	0.060402	1.596	0.478
189	125.85	258.06	342.50	172.13	0.081361	0.063960	1.504	0.474
190	125.66	255.53	347.50	173.78	0.080562	0.063659	1.574	0.473
191	125.82	257.45	342.50	171.68	0.081062	0.062597	1.515	0.474
192	123.80	255.48	347.50	175.75	0.102163	0.054744	1.547	0.474
193	123.16	253.00	332.50	172.65	0.063830	0.067729	1.526	0.493
194	125.65	254.38	347.50	172.33	0.078856	0.061207	1.551	0.475
195	124.05	253.80	345.00	173.47	0.059025	0.061630	1.549	0.483
196	123.49	257.60	345.00	172.44	0.057271	0.065307	1.547	0.486
197	124.98	251.33	335.00	171.79	0.084289	0.066098	1.531	0.484
198	123.80	253.11	332.50	172.17	0.066620	0.067008	1.526	0.495
199	127.27	253.58	347.50	172.58	0.099065	0.062865	1.523	0.469
200	124.66	253.65	337.50	171.74	0.066648	0.068689	1.503	0.492
201	122.03	252.47	332.50	173.25	0.073969	0.067592	1.548	0.495
202	122.07	251.99	332.50	172.75	0.080117	0.065282	1.531	0.497
203	129.75	238.31	340.00	182.33	0.071848	0.069119	1.673	0.493

204	124.86	254.73	337.50	173.21	0.085720	0.067433	1.553	0.486
205	124.46	255.47	347.50	174.98	0.095463	0.055169	1.545	0.474
206	125.02	253.90	332.50	171.77	0.071104	0.068018	1.507	0.490
207	125.16	258.12	345.00	173.20	0.073832	0.066576	1.582	0.478
208	122.69	252.62	332.50	171.98	0.064571	0.068059	1.515	0.495
209	123.91	249.92	335.00	173.11	0.079638	0.061152	1.549	0.484
210	124.85	258.42	345.00	173.48	0.068934	0.066224	1.565	0.485
211	123.16	256.28	345.00	172.71	0.058261	0.063959	1.549	0.484
212	124.13	256.08	337.50	171.98	0.086396	0.067624	1.527	0.486
213	124.09	253.80	332.50	172.39	0.059496	0.067490	1.509	0.493
214	122.64	254.15	345.00	175.00	0.049305	0.065608	1.627	0.485
215	124.79	255.47	342.50	174.27	0.075260	0.064440	1.592	0.475
216	125.04	256.09	345.00	172.81	0.078413	0.063534	1.565	0.477
217	123.03	255.67	342.50	173.22	0.056308	0.066221	1.564	0.482
218	125.68	256.19	345.00	169.99	0.079273	0.066904	1.473	0.478
219	124.56	251.29	347.50	177.03	0.101492	0.050283	1.591	0.473
220	120.89	241.62	322.50	175.41	0.081916	0.065063	1.503	0.484
221	121.10	258.99	335.00	170.02	0.057258	0.066293	1.536	0.494
222	124.32	254.36	332.50	171.88	0.062395	0.068946	1.502	0.493
223	123.97	251.07	332.50	171.34	0.058036	0.069194	1.510	0.493
224	126.34	253.65	342.50	170.83	0.087534	0.064926	1.498	0.483
225	124.21	255.72	345.00	173.20	0.061048	0.060311	1.568	0.484
226	123.33	252.28	332.50	172.68	0.050150	0.066451	1.523	0.492
227	122.80	254.06	337.50	171.93	0.081716	0.063390	1.570	0.474
228	126.28	255.70	342.50	172.32	0.086788	0.063330	1.512	0.472
229	122.79	255.29	342.50	171.84	0.080344	0.063366	1.576	0.475
230	124.98	252.72	345.00	174.43	0.070581	0.058580	1.581	0.485
231	123.99	256.86	347.50	174.94	0.091986	0.056197	1.561	0.474
232	125.13	255.03	345.00	174.40	0.072485	0.066991	1.593	0.484
233	123.82	253.57	332.50	172.86	0.063460	0.067846	1.528	0.495
234	126.33	256.87	345.00	172.77	0.087366	0.066494	1.524	0.482
235	123.07	256.52	345.00	172.46	0.053252	0.059554	1.553	0.484
236	125.23	251.57	345.00	177.44	0.073734	0.068635	1.699	0.483
237	122.81	253.36	345.00	175.42	0.054174	0.066539	1.638	0.484
238	127.39	249.23	335.00	170.92	0.100543	0.069387	1.533	0.480
239	123.52	252.63	332.50	172.62	0.060784	0.068594	1.520	0.493
240	124.10	252.10	342.50	173.83	0.082698	0.058874	1.532	0.474
241	126.72	253.90	342.50	172.89	0.092238	0.063499	1.518	0.470
242	124.18	252.13	345.00	176.37	0.062001	0.069380	1.647	0.487
243	125.17	254.32	347.50	172.82	0.101162	0.062383	1.543	0.475
244	123.29	250.76	332.50	172.68	0.064935	0.067112	1.525	0.494
245	122.72	251.62	332.50	173.44	0.071831	0.067564	1.542	0.495
246	126.16	255.35	347.50	173.06	0.096199	0.067749	1.542	0.467
247	122.78	254.39	345.00	174.52	0.053278	0.065520	1.609	0.485
248	125.30	252.86	347.50	174.45	0.087260	0.069145	1.596	0.471
249	124.13	253.63	332.50	172.10	0.060020	0.068129	1.511	0.494
250	119.34	256.93	335.00	171.58	0.065839	0.068853	1.579	0.494
251	124.25	255.79	345.00	173.85	0.061482	0.069334	1.588	0.484
252	123.75	255.00	332.50	172.84	0.061430	0.068254	1.533	0.494
253	126.01	256.71	342.50	171.52	0.089284	0.067722	1.492	0.470
254	124.08	254.34	332.50	171.72	0.059360	0.068892	1.499	0.493
255	123.97	251.25	332.50	172.84	0.062552	0.067432	1.526	0.494
256	122.64	249.99	332.50	172.89	0.070240	0.064892	1.557	0.496
257	123.19	258.32	347.50	175.60	0.098119	0.053216	1.570	0.477
258	124.84	253.49	335.00	172.40	0.086208	0.065029	1.537	0.485
259	125.37	254.15	345.00	172.11	0.075375	0.059968	1.546	0.475
260	122.52	253.56	332.50	172.42	0.070895	0.068091	1.512	0.496
261	125.96	257.64	342.50	172.97	0.086051	0.064667	1.504	0.472
262	124.38	253.11	332.50	172.04	0.070462	0.068095	1.512	0.496
263	122.71	250.83	335.00	172.85	0.088900	0.061096	1.552	0.486
264	122.54	250.30	332.50	171.67	0.049963	0.067916	1.523	0.493
265	124.89	250.40	335.00	172.50	0.072104	0.063843	1.528	0.481
266	126.41	249.97	330.00	177.52	0.088332	0.066540	1.484	0.477
267	123.89	252.63	347.50	176.85	0.084684	0.062485	1.633	0.475
268	123.85	251.17	332.50	173.20	0.071238	0.069425	1.543	0.494
269	124.12	253.21	347.50	173.87	0.091985	0.059993	1.533	0.475
270	126.25	256.53	342.50	170.74	0.087376	0.067275	1.488	0.472
271	124.58	251.98	345.00	175.16	0.065636	0.066335	1.610	0.485
272	123.43	252.89	332.50	173.21	0.055165	0.065542	1.526	0.493
273	125.32	255.54	345.00	174.30	0.076853	0.069002	1.591	0.474
274	124.17	257.34	345.00	173.62	0.060576	0.065559	1.567	0.487
275	124.80	255.58	357.50	179.25	0.074158	0.056342	1.592	0.479
276	124.07	253.63	345.00	176.06	0.061974	0.068665	1.638	0.487
277	125.62	256.38	337.50	169.71	0.088731	0.068050	1.500	0.472
278	124.12	253.79	332.50	172.06	0.059914	0.068963	1.514	0.493
279	124.60	256.93	345.00	172.12	0.065895	0.062619	1.567	0.482
280	131.01	264.65	342.50	179.03	0.101658	0.069353	1.586	0.480
281	122.62	254.51	337.50	171.26	0.079530	0.059092	1.556	0.475
282	126.94	255.45	347.50	176.48	0.098474	0.058075	1.598	0.471
283	120.67	249.40	332.50	176.94	0.091053	0.068438	1.571	0.502
284	123.40	250.89	332.50	171.98	0.051299	0.067216	1.518	0.493
285	125.67	249.25	347.50	180.11	0.091436	0.065478	1.702	0.471
286	125.75	255.81	347.50	172.90	0.081248	0.063846	1.555	0.473
287	125.83	249.09	342.50	173.13	0.084576	0.060108	1.524	0.484
288	126.05	254.84	347.50	172.07	0.100985	0.062284	1.509	0.467
289	126.78	252.40	330.00	179.08	0.098900	0.067668	1.515	0.473
290	125.94	257.90	347.50	173.46	0.082498	0.066289	1.571	0.473
291	123.65	251.06	332.50	173.20	0.060696	0.065900	1.534	0.494
292	125.26	258.05	345.00	173.15	0.075364	0.066221	1.574	0.476
293	123.68	253.63	330.00	172.11	0.066993	0.068123	1.526	0.495
294	124.28	249.50	335.00	172.53	0.082331	0.064982	1.558	0.485
295	123.85	250.80	332.50	173.99	0.056594	0.069313	1.564	0.493
296	122.33	253.19	345.00	174.66	0.051629	0.063983	1.614	0.485
297	124.14	250.58	335.00	172.67	0.083178	0.060771	1.561	0.486
298	123.87	253.55	337.50	169.13	0.087635	0.066535	1.481	0.472
299	122.22	254.49	332.50	172.13	0.066364	0.066758	1.516	0.495
300	123.63	252.77	347.50	176.60	0.093058	0.058957	1.619	0.477

AFT KINETIC POPULATION # 1

MAXIMUM OBJECTIVE FUNCTION = 0.102163

EXPONENTIAL MEAN TEMPERATURE SOLUTION:
OBSERVED AFT AGE = 119.3 MA CALCULATED AFT AGE = 125.2 MA
MODEL RETENTION AGE = 182.5 MA OBJ FUNCTION = 0.072951
TRACK ANNEALING TIME = 60.0 MA ANNEALING TEMPERATURE = 76.88 DEG C

TRACK LENGTH OBJ FUNCTION = 0.059377 AGE OBJ FUNCTION = 0.072951
LENGTH GOF PROBABILITY = 0.9757
AGE GOF PROBABILITY = 0.6313
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.055904 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.009542

%RO GOF PROBABILITY (POST-DEPOSITION) = 0.2755
%RO GOF PROBABILITY (POST-EXHUMATION) = 0.8523

LOWEST COMBINED OBJECTIVE FUNCTION

MINIMUM OBJECTIVE SOLUTION (SOLUTION # 296):
CALCULATED AFT AGE = 122.3 MA MODEL RETENTION AGE = 175.0 MA
OBJ FUNCTION = 0.051629
TRACK ANNEALING TIME = 60.0 MA ANNEALING TEMPERATURE = 78.82 DEG C

TRACK LENGTH OBJ FUNCTION = 0.051629 AGE OBJ FUNCTION = 0.037684
LENGTH GOF PROBABILITY = 0.9951
AGE GOF PROBABILITY = 0.8042
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.002555 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.007823

%RO GOF PROBABILITY (POST-DEPOSITION) = 0.9966
%RO GOF PROBABILITY (POST-EXHUMATION) = 0.8168

AVE AFT AGE = 124.4 MA

AFT KINETIC POPULATION # 2

MAXIMUM OBJECTIVE FUNCTION = 0.069425

EXPONENTIAL MEAN TEMPERATURE SOLUTION:
OBSERVED AFT AGE = 252.4 MA CALCULATED AFT AGE = 252.7 MA
MODEL RETENTION AGE = 556.2 MA OBJ FUNCTION = 0.067086
TRACK ANNEALING TIME = 518.7 MA ANNEALING TEMPERATURE = 210.72 DEG C

TRACK LENGTH OBJ FUNCTION = 0.067086 AGE OBJ FUNCTION = 0.002675
LENGTH GOF PROBABILITY = 0.5448
AGE GOF PROBABILITY = 0.9793
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.037856 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.006461

LOWEST COMBINED OBJECTIVE FUNCTION

MINIMUM OBJECTIVE SOLUTION (SOLUTION # 296):
CALCULATED AFT AGE = 253.2 MA MODEL RETENTION AGE = 571.1 MA
OBJ FUNCTION = 0.063983
TRACK ANNEALING TIME = 543.6 MA ANNEALING TEMPERATURE = 216.77 DEG C

TRACK LENGTH OBJ FUNCTION = 0.063983 AGE OBJ FUNCTION = 0.007066
LENGTH GOF PROBABILITY = 0.6060
AGE GOF PROBABILITY = 0.9453
%RO OBJ FUNCTION (POST-DEPOSITION) = 0.001730 %RO OBJ FUNCTION (POST-EXHUMATION) = 0.005298

AVE AFT AGE = 253.5 MA

RETENTION AGES FOR ALL THERMAL SOLUTIONS:

	KINETIC POPULATION# 1			KINETIC POPULATION# 2		
MODEL #	RET AGE Ma	ANNEAL TIME Ma	ANNEAL TEMP DEG C	RET AGE Ma	ANNEAL TIME Ma	ANNEAL TEMP DEG C
1	275.0	55.0	78.39	570.0	542.5	217.67
2	277.5	132.5	77.31	557.8	535.3	223.23
3	165.0	65.0	78.59	545.3	510.3	205.91
4	177.5	132.5	79.25	563.5	538.5	222.46
5	177.5	137.5	84.43	572.2	547.2	217.72
6	277.5	132.5	75.58	558.7	523.7	210.10
7	161.7	149.2	102.84	532.7	522.7	228.92
8	187.5	30.0	58.16	566.8	541.8	222.22
9	265.0	40.0	67.22	563.1	540.6	223.94
10	275.0	132.5	77.58	558.3	530.8	218.29
11	272.5	65.0	80.61	564.6	532.1	215.90
12	172.5	37.5	63.64	554.2	524.2	215.84
13	277.5	62.5	77.66	571.7	546.7	218.60
14	175.0	132.5	79.03	560.4	535.4	222.57
15	172.5	135.0	79.76	554.9	502.4	188.31
16	167.5	135.0	87.51	547.5	512.5	214.14
17	170.0	142.5	91.41	561.8	529.3	215.97
18	170.0	145.0	93.02	570.2	535.2	216.98
19	275.0	60.0	78.76	561.5	536.5	223.00
20	172.5	140.0	87.28	562.9	532.9	219.39
21	175.0	140.0	88.19	556.7	529.2	218.66
22	170.0	142.5	92.27	568.4	535.9	221.68
23	277.5	135.0	81.57	564.3	541.8	220.56
24	165.0	127.5	79.55	539.7	524.7	226.97
25	177.5	132.5	79.45	555.1	507.6	199.99
26	175.0	137.5	86.24	564.5	529.5	214.54
27	160.0	42.5	66.04	536.6	514.1	212.92
28	175.0	132.5	80.29	561.0	521.0	211.33
29	165.0	140.0	92.10	539.8	524.8	228.14
30	275.0	55.0	73.77	569.1	549.1	222.23
31	175.0	52.5	73.78	557.4	532.4	218.83
32	165.0	145.0	90.26	565.2	555.2	230.32
33	167.5	137.5	87.01	563.9	536.4	221.02
34	180.0	32.5	57.66	568.1	533.1	210.48
35	277.5	145.0	92.50	566.6	544.1	222.21
36	277.5	60.0	80.06	556.7	516.7	208.18
37	282.5	132.5	83.22	543.5	528.5	228.06
38	282.5	142.5	92.30	533.4	513.4	216.44
39	170.0	137.5	83.65	571.4	536.4	215.33
40	260.0	40.0	67.86	562.4	529.9	213.38
41	177.5	137.5	84.83	559.5	532.0	217.64
42	170.0	132.5	78.43	552.4	532.4	222.95
43	275.0	70.0	80.16	547.5	510.0	208.72
44	270.0	67.5	82.46	554.5	524.5	212.19
45	265.0	50.0	68.82	553.7	531.2	224.19
46	275.0	67.5	76.52	575.6	538.1	211.88

47	177.5	62.5	78.93	569.4	499.4	181.97
48	197.5	35.0	64.13	571.7	534.2	207.44
49	268.7	136.2	98.68	558.0	553.0	235.38
50	277.5	75.0	78.94	558.7	531.2	218.55
51	277.5	57.5	80.23	562.1	517.1	204.37
52	177.5	55.0	76.85	573.0	545.5	217.01
53	175.0	60.0	81.07	561.2	536.2	220.75
54	272.5	57.5	78.72	547.8	530.3	226.24
55	165.0	55.0	75.86	572.4	559.9	219.84
56	180.0	65.0	73.42	564.6	512.1	196.05
57	177.5	62.5	79.32	571.7	541.7	215.48
58	275.0	137.5	81.99	566.0	538.5	219.02
59	275.0	60.0	73.16	574.8	562.3	225.84
60	172.5	65.0	73.08	547.7	520.2	219.44
61	175.0	77.5	65.98	570.3	542.8	217.31
62	167.5	70.0	77.50	544.1	524.1	224.75
63	275.0	72.5	80.15	554.1	526.6	213.62
64	170.0	142.5	91.95	558.4	525.9	216.26
65	175.0	145.0	85.48	564.2	529.2	220.11
66	265.0	57.5	77.48	558.8	536.2	223.04
67	185.0	57.5	78.56	568.8	523.8	200.35
68	270.0	65.0	81.84	553.8	528.8	220.82
69	177.5	137.5	83.56	571.4	538.9	212.55
70	167.5	135.0	83.65	560.2	532.7	221.50
71	275.0	70.0	80.51	565.9	533.4	215.93
72	175.0	65.0	75.43	539.6	524.6	228.01
73	172.5	165.0	108.95	480.0	477.5	247.57
74	167.5	127.5	78.74	547.5	507.5	208.19
75	167.5	132.5	83.43	550.4	522.9	220.02
76	175.0	137.5	86.22	555.2	525.2	217.43
77	175.0	52.5	75.72	574.2	549.2	219.51
78	275.0	65.0	81.49	552.5	527.5	221.59
79	165.0	145.0	96.40	537.5	530.0	230.55
80	170.0	135.0	81.04	567.5	522.5	211.99
81	280.0	52.5	68.73	539.9	524.9	221.84
82	170.0	70.0	77.15	543.2	525.7	225.30
83	165.0	152.5	99.97	535.7	523.2	229.61
84	177.5	57.5	78.31	570.8	545.8	218.83
85	185.0	40.0	68.37	562.6	532.6	217.57
86	177.5	60.0	77.49	546.1	528.6	223.64
87	175.0	137.5	86.22	562.1	522.1	208.45
88	167.5	72.5	71.30	548.8	518.7	216.90
89	185.0	52.5	76.83	575.6	533.1	209.97
90	155.0	147.5	103.84	593.9	533.9	194.82
91	175.0	52.5	74.12	562.4	537.4	221.66
92	175.0	65.0	79.13	571.9	546.9	218.22
93	167.5	142.5	90.54	558.6	533.6	222.88
94	275.0	60.0	80.57	554.5	534.5	222.77
95	172.5	135.0	79.02	549.0	531.5	223.67
96	275.0	67.5	81.13	547.5	510.0	208.46
97	252.5	42.5	64.97	550.7	518.2	215.18
98	175.0	140.0	88.47	556.6	534.1	222.35
99	275.0	57.5	79.90	552.6	532.6	224.52
100	280.0	57.5	76.36	557.2	524.7	212.27
101	175.0	137.5	85.92	558.5	531.0	218.78
102	165.0	72.5	77.09	532.3	514.8	216.02
103	175.0	140.0	89.22	563.5	531.0	219.45
104	267.5	45.0	63.81	561.7	531.7	218.06
105	170.0	157.5	102.13	543.7	523.7	219.57
106	167.5	135.0	87.29	551.2	521.2	217.54
107	175.0	140.0	87.99	569.4	539.4	217.71
108	185.0	50.0	73.68	565.8	540.8	219.95
109	277.5	62.5	80.91	559.8	522.3	205.08
110	167.5	135.0	86.12	542.2	519.7	218.82
111	167.5	137.5	90.55	551.0	521.0	217.06
112	267.5	55.0	76.76	572.9	547.9	220.83
113	172.5	130.0	69.53	573.3	543.3	213.72
114	177.5	135.0	82.08	565.2	530.2	215.55
115	280.0	140.0	86.34	556.4	511.4	209.28
116	175.0	140.0	89.01	562.9	530.4	218.10
117	267.5	55.0	73.53	551.7	524.2	218.49
118	275.0	67.5	78.31	562.9	540.4	222.34
119	270.0	70.0	82.11	556.9	534.4	223.19
120	275.0	67.5	80.64	562.9	525.4	211.48
121	275.0	65.0	78.63	565.8	528.3	210.55
122	272.5	55.0	74.21	563.9	538.9	219.54
123	275.0	127.5	73.30	564.4	539.4	221.84
124	167.5	130.0	75.43	558.7	531.2	221.87
125	177.5	57.5	84.28	524.0	519.0	237.10
126	175.0	65.0	77.82	572.9	540.4	214.50
127	170.0	125.0	76.09	548.6	518.6	217.16
128	162.5	147.5	99.29	536.8	529.3	232.48
129	160.0	37.5	62.78	532.2	517.2	220.53
130	280.0	95.0	49.73	569.6	552.1	222.93
131	170.0	145.0	93.80	566.5	539.0	222.38
132	260.0	45.0	62.96	564.8	539.8	220.63
133	177.5	60.0	79.27	573.0	545.5	216.84
134	180.0	130.0	76.09	560.2	535.2	222.15
135	265.0	47.5	72.89	572.4	554.9	223.26
136	277.5	127.5	70.29	552.0	499.5	190.40
137	182.5	60.0	78.28	568.4	543.4	221.14
138	277.5	60.0	79.98	559.0	526.5	212.50
139	272.5	70.0	79.94	567.1	542.1	220.85
140	272.5	62.5	80.57	567.3	544.8	222.15
141	275.0	77.5	74.03	566.2	541.2	218.97
142	172.5	47.5	74.15	564.9	534.9	217.55
143	270.0	67.5	80.68	555.0	530.0	223.16
144	167.5	127.5	80.03	536.3	516.3	215.64
145	172.5	125.0	63.62	569.4	541.9	218.63
146	172.5	142.5	90.15	565.0	527.5	213.43
147	177.5	132.5	76.55	572.2	544.7	216.09
148	272.5	72.5	81.87	554.2	534.2	224.48
149	185.0	55.0	77.22	566.5	541.5	218.93
150	267.5	30.0	64.10	572.0	504.5	192.72
151	177.5	140.0	87.47	571.0	351.0	173.01
152	167.5	132.5	84.00	547.8	520.3	219.45
153	165.0	145.0	91.86	536.4	523.9	229.74
154	177.5	72.5	67.51	560.3	535.3	222.02

155	272.5	127.5	70.99	554.7	527.2	215.85
156	175.0	57.5	78.75	570.2	527.7	206.02
157	152.5	60.0	82.70	595.7	570.7	211.92
158	182.5	45.0	73.35	573.3	530.8	209.03
159	192.5	40.0	66.54	573.0	553.0	223.06
160	175.0	137.5	85.71	564.6	539.6	221.40
161	162.5	140.0	83.23	530.0	515.0	218.27
162	172.5	132.5	79.76	554.4	509.4	198.85
163	172.5	65.0	79.02	575.6	530.6	203.29
164	165.0	127.5	78.85	549.8	524.8	220.02
165	182.5	47.5	67.20	553.3	525.8	215.61
166	170.0	52.5	74.66	564.0	531.5	215.76
167	160.0	145.0	99.76	547.0	529.5	223.45
168	162.5	142.5	92.59	534.8	524.8	225.51
169	172.5	117.5	65.87	549.1	516.6	214.71
170	275.0	75.0	76.24	563.3	538.3	220.14
171	175.0	135.0	81.67	569.5	542.0	220.97
172	250.0	25.0	49.79	560.9	535.9	221.86
173	277.5	92.5	60.83	558.3	528.3	216.99
174	277.5	137.5	82.96	563.1	540.6	222.87
175	177.5	42.5	72.81	571.2	543.8	220.62
176	172.5	50.0	73.76	569.7	537.2	215.98
177	277.5	47.5	73.69	571.0	543.5	216.81
178	175.0	55.0	74.54	552.6	530.1	223.39
179	267.5	55.0	77.46	560.1	532.6	218.67
180	277.5	90.0	62.95	563.4	533.4	215.53
181	170.0	127.5	73.55	564.0	539.0	222.70
182	270.0	50.0	76.15	573.7	556.2	222.91
183	275.0	67.5	81.47	551.4	528.9	220.31
184	240.0	30.0	56.14	558.8	531.2	222.15
185	170.0	65.0	81.13	502.4	484.9	219.19
186	175.0	140.0	88.02	554.5	529.5	219.21
187	260.0	40.0	58.54	554.3	519.3	205.89
188	160.0	145.0	97.12	532.5	525.0	234.11
189	277.5	137.5	85.53	563.6	528.6	212.70
190	172.5	52.5	74.39	566.5	536.5	218.50
191	185.0	50.0	73.90	567.2	542.2	221.23
192	172.5	145.0	93.64	565.0	525.0	215.46
193	277.5	70.0	78.91	569.2	541.7	217.78
194	175.0	135.0	80.70	560.0	512.5	204.07
195	182.5	65.0	77.95	571.5	549.0	220.03
196	277.5	132.5	78.25	564.0	531.5	213.78
197	265.0	50.0	73.73	570.7	548.2	220.53
198	277.5	67.5	81.77	557.8	532.7	220.61
199	177.5	137.5	85.11	562.0	537.0	220.89
200	277.5	132.5	75.27	559.2	536.7	222.61
201	275.0	60.0	81.28	557.1	512.1	205.31
202	167.5	50.0	69.68	557.0	529.5	217.86
203	167.5	155.0	96.57	541.1	508.6	201.23
204	272.5	47.5	72.85	573.7	511.2	196.81
205	172.5	142.5	90.94	563.3	523.3	216.06
206	277.5	132.5	75.45	558.7	526.2	212.82
207	187.5	32.5	60.85	562.5	532.5	217.93
208	275.0	65.0	82.05	554.8	529.8	217.59
209	170.0	50.0	75.76	548.8	523.8	217.28
210	275.0	120.0	61.56	565.7	528.2	211.03
211	275.0	65.0	78.18	564.4	541.9	221.03
212	275.0	67.5	77.38	573.0	520.5	193.57
213	280.0	145.0	92.90	555.1	507.6	210.83
214	175.0	55.0	77.03	570.8	540.8	214.88
215	172.5	130.0	75.60	564.2	531.7	216.66
216	180.0	45.0	74.40	562.5	530.0	215.72
217	272.5	57.5	75.27	564.0	539.0	219.70
218	260.0	40.0	61.29	538.0	518.0	216.08
219	170.0	147.5	93.02	558.0	533.0	222.87
220	162.5	147.5	103.30	498.8	491.3	232.30
221	280.0	72.5	80.97	566.0	533.5	217.80
222	277.5	62.5	80.76	559.1	531.6	218.53
223	270.0	70.0	81.04	552.9	522.9	215.59
224	282.5	147.5	94.52	567.2	517.2	198.01
225	175.0	50.0	72.88	571.4	538.9	212.78
226	275.0	77.5	76.29	553.9	533.9	223.58
227	167.5	122.5	73.14	547.7	510.2	211.23
228	175.0	130.0	75.46	557.9	522.9	212.50
229	165.0	42.5	65.71	548.0	520.5	219.39
230	175.0	142.5	91.49	576.5	554.0	220.83
231	170.0	142.5	91.44	565.9	538.4	223.23
232	185.0	55.0	77.16	568.4	545.9	222.21
233	277.5	47.5	65.81	557.0	532.0	220.00
234	265.0	52.5	74.45	568.2	545.7	220.95
235	177.5	62.5	79.05	572.2	547.2	217.99
236	175.0	145.0	94.08	571.1	541.1	215.76
237	175.0	47.5	72.27	571.9	534.4	208.44
238	175.0	142.5	90.23	574.4	551.9	221.36
239	277.5	140.0	85.12	565.4	527.9	212.35
240	177.5	127.5	73.48	567.1	529.6	212.62
241	177.5	55.0	73.33	557.3	524.8	214.68
242	180.0	37.5	62.45	573.8	551.3	221.65
243	170.0	130.0	80.09	543.5	521.0	221.76
244	275.0	75.0	78.73	563.8	533.7	218.65
245	275.0	57.5	79.86	553.8	523.8	209.86
246	177.5	70.0	69.08	561.1	538.6	223.84
247	180.0	57.5	78.54	573.8	553.8	222.53
248	172.5	47.5	71.77	553.7	521.2	213.86
249	277.5	72.5	80.42	557.6	532.6	221.30
250	177.5	60.0	79.18	565.9	533.4	217.21
251	190.0	37.5	60.41	566.2	531.2	209.74
252	280.0	145.0	93.57	558.4	535.9	222.81
253	177.5	127.5	72.94	561.1	533.6	218.98
254	280.0	145.0	93.60	557.2	519.7	207.01
255	275.0	62.5	81.23	565.1	537.6	220.31
256	262.5	52.5	72.05	552.5	522.5	215.33
257	170.0	145.0	93.64	565.3	525.3	211.33
258	190.0	45.0	70.52	572.8	552.8	223.05
259	175.0	140.0	87.70	560.3	512.8	204.46
260	277.5	57.5	79.28	564.9	532.4	213.91
261	267.5	42.5	71.77	566.8	541.8	222.25
262	277.5	52.5	71.50	559.4	521.9	205.32

263	180.0	60.0	78.51	577.6	550.1	216.81
264	267.5	67.5	81.04	561.8	539.3	222.93
265	180.0	37.5	65.64	547.0	512.0	199.52
266	162.5	145.0	92.30	541.7	526.7	226.96
267	172.5	145.0	93.77	562.9	532.9	218.86
268	277.5	142.5	88.07	568.0	508.0	200.35
269	172.5	140.0	88.81	562.5	522.5	210.97
270	177.5	75.0	66.06	557.4	524.9	212.24
271	185.0	55.0	77.65	573.8	548.8	219.83
272	275.0	47.5	67.60	553.7	528.7	218.37
273	182.5	60.0	74.23	562.7	515.2	202.55
274	275.0	65.0	78.81	568.7	548.7	222.49
275	177.5	27.5	52.86	574.4	556.9	221.76
276	182.5	47.5	73.75	573.5	548.5	219.67
277	272.5	30.0	52.44	551.5	526.5	220.75
278	277.5	65.0	81.29	560.4	535.4	221.22
279	167.5	140.0	85.73	552.3	532.3	226.10
280	175.0	122.5	61.31	558.7	551.2	230.11
281	167.5	137.5	91.48	551.9	524.4	218.96
282	175.0	150.0	94.29	570.0	540.0	220.48
283	165.0	150.0	100.35	503.0	488.0	228.41
284	265.0	52.5	72.16	553.4	518.4	208.65
285	170.0	135.0	84.89	559.4	521.9	213.18
286	175.0	130.0	75.70	567.3	537.3	217.92
287	167.5	155.0	101.31	540.8	525.8	227.67
288	175.0	65.0	72.04	554.2	526.7	217.57
289	165.0	145.0	91.64	532.5	517.5	228.44
290	177.5	60.0	74.25	556.8	521.8	210.80
291	275.0	140.0	86.11	561.2	508.7	202.30
292	185.0	47.5	74.34	564.2	541.7	223.18
293	280.0	145.0	93.51	561.1	538.6	222.32
294	182.5	62.5	78.45	571.6	546.6	219.90
295	275.0	132.5	75.85	567.1	539.6	218.60
296	175.0	60.0	78.82	571.1	543.6	216.77
297	177.5	40.0	69.15	572.5	547.5	218.63
298	172.5	62.5	73.95	545.6	505.6	206.11
299	267.5	55.0	77.57	555.3	527.8	218.84
300	170.0	137.5	87.15	565.6	538.1	222.24

RETENTION AGE DISTRIBUTION FOR ALL ACCEPTABLE SOLUTIONS:

RETENTION AGES: KINETIC POPULATION # 1

AGE BIN (MA)		RELATIVE FREQUENCY
150.0 -	160.0	0.020
160.0 -	170.0	0.200
170.0 -	180.0	0.323
180.0 -	190.0	0.067
190.0 -	200.0	0.007
200.0 -	210.0	0.000
210.0 -	220.0	0.000
220.0 -	230.0	0.000
230.0 -	240.0	0.003
240.0 -	250.0	0.003
250.0 -	260.0	0.017
260.0 -	270.0	0.077
270.0 -	280.0	0.273
280.0 -	290.0	0.010
290.0 -	300.0	0.000
300.0 -	310.0	0.000
310.0 -	320.0	0.000
320.0 -	330.0	0.000
330.0 -	340.0	0.000
340.0 -	350.0	0.000
350.0 -	360.0	0.000
360.0 -	370.0	0.000
370.0 -	380.0	0.000
380.0 -	390.0	0.000
390.0 -	400.0	0.000
400.0 -	410.0	0.000
410.0 -	420.0	0.000
420.0 -	430.0	0.000
430.0 -	440.0	0.000
440.0 -	450.0	0.000
450.0 -	460.0	0.000
460.0 -	470.0	0.000
470.0 -	480.0	0.000
480.0 -	490.0	0.000
490.0 -	500.0	0.000
500.0 -	510.0	0.000
510.0 -	520.0	0.000
520.0 -	530.0	0.000
530.0 -	540.0	0.000
540.0 -	550.0	0.000
550.0 -	560.0	0.000
560.0 -	570.0	0.000
570.0 -	580.0	0.000
580.0 -	590.0	0.000
590.0 -	600.0	0.000
600.0 -	610.0	0.000
610.0 -	620.0	0.000
620.0 -	630.0	0.000
630.0 -	640.0	0.000
640.0 -	650.0	0.000
650.0 -	660.0	0.000
660.0 -	670.0	0.000
670.0 -	680.0	0.000
680.0 -	690.0	0.000
690.0 -	700.0	0.000

MODEL RETENTION AGE MODE # 1
AGE RANGE: 150.0 - 200.0 Ma
NUMBER OF AGES = 185
AVE MODEL RETENTION AGE = 173.54 +/- 6.88 MA

MODEL RETENTION AGE MODE # 2
AGE RANGE: 230.0 - 290.0 Ma
NUMBER OF AGES = 115
AVE MODEL RETENTION AGE = 273.21 +/-   6.64 MA

 RETENTION AGES: KINETIC POPULATION # 2

AGE BIN (MA)	RELATIVE FREQUENCY
150.0 - 160.0	0.000
160.0 - 170.0	0.000
170.0 - 180.0	0.000
180.0 - 190.0	0.000
190.0 - 200.0	0.000
200.0 - 210.0	0.000
210.0 - 220.0	0.000
220.0 - 230.0	0.000
230.0 - 240.0	0.000
240.0 - 250.0	0.000
250.0 - 260.0	0.000
260.0 - 270.0	0.000
270.0 - 280.0	0.000
280.0 - 290.0	0.000
290.0 - 300.0	0.000
300.0 - 310.0	0.000
310.0 - 320.0	0.000
320.0 - 330.0	0.000
330.0 - 340.0	0.000
340.0 - 350.0	0.000
350.0 - 360.0	0.000
360.0 - 370.0	0.000
370.0 - 380.0	0.000
380.0 - 390.0	0.000
390.0 - 400.0	0.000
400.0 - 410.0	0.000
410.0 - 420.0	0.000
420.0 - 430.0	0.000
430.0 - 440.0	0.000
440.0 - 450.0	0.000
450.0 - 460.0	0.000
460.0 - 470.0	0.000
470.0 - 480.0	0.003
480.0 - 490.0	0.000
490.0 - 500.0	0.003
500.0 - 510.0	0.007
510.0 - 520.0	0.000
520.0 - 530.0	0.007
530.0 - 540.0	0.060
540.0 - 550.0	0.097
550.0 - 560.0	0.273
560.0 - 570.0	0.370
570.0 - 580.0	0.173
580.0 - 590.0	0.000
590.0 - 600.0	0.007
600.0 - 610.0	0.000
610.0 - 620.0	0.000
620.0 - 630.0	0.000
630.0 - 640.0	0.000
640.0 - 650.0	0.000
650.0 - 660.0	0.000
660.0 - 670.0	0.000
670.0 - 680.0	0.000
680.0 - 690.0	0.000
690.0 - 700.0	0.000

AVE MODEL RETENTION AGE = 559.16 +/-   13.10 MA

POST-DEPOSITIONAL THERMAL HISTORY:

 %RO CONSTRAINT INCLUDED:
 INPUT %RO RANGE = 1.62 +/- 0.240; %RO FOR EXP MEAN SOLUTION = 1.49
 AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 1.55 +/- 0.046
 MIN %RO = 1.47; MAX %RO = 1.70
 %RO FOR MIN OBJ SOLUTION = 1.62

POST-EXHUMATION THERMAL HISTORY:

 %RO CONSTRAINT INCLUDED:
 INPUT %RO RANGE = 0.50 +/- 0.200; %RO FOR EXP MEAN SOLUTION = 0.48
 AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.48 +/- 0.008
 MIN %RO = 0.47; MAX %RO = 0.50
 %RO FOR MIN OBJ SOLUTION = 0.48

BINNED %RO VALUES FOR POST-DEPOSITIONAL HISTORY:

%RO BIN	RELATIVE FREQUENCY
0.00 - 0.05	0.000
0.05 - 0.10	0.000
0.10 - 0.15	0.000
0.15 - 0.20	0.000
0.20 - 0.25	0.000
0.25 - 0.30	0.000
0.30 - 0.35	0.000
0.35 - 0.40	0.000
0.40 - 0.45	0.000
0.45 - 0.50	0.000
0.50 - 0.55	0.000
0.55 - 0.60	0.000
0.60 - 0.65	0.000
0.65 - 0.70	0.000
0.70 - 0.75	0.000
0.75 - 0.80	0.000
0.80 - 0.85	0.000
0.85 - 0.90	0.000
0.90 - 0.95	0.000

0.95 -	1.00	0.000
1.00 -	1.05	0.000
1.05 -	1.10	0.000
1.10 -	1.15	0.000
1.15 -	1.20	0.000
1.20 -	1.25	0.000
1.25 -	1.30	0.000
1.30 -	1.35	0.000
1.35 -	1.40	0.000
1.40 -	1.45	0.000
1.45 -	1.50	0.097
1.50 -	1.55	0.523
1.55 -	1.60	0.243
1.60 -	1.65	0.100
1.65 -	1.70	0.030
1.70 -	1.75	0.007
1.75 -	1.80	0.000
1.80 -	1.85	0.000
1.85 -	1.90	0.000
1.90 -	1.95	0.000
1.95 -	2.00	0.000

MINIMUM PEAK TEMPERATURE = 168.62 DEG C; MAXIMUM PEAK TEMPERATURE = 186.31 DEG C

PEAK TEMPERATURE: AVERAGE = 173.39 STAND DEV = 2.270

MAX TEMP BIN	RELATIVE FREQUENCY
150.00 - 152.00	0.000
152.00 - 154.00	0.000
154.00 - 156.00	0.000
156.00 - 158.00	0.000
158.00 - 160.00	0.000
160.00 - 162.00	0.000
162.00 - 164.00	0.000
164.00 - 166.00	0.000
166.00 - 168.00	0.000
168.00 - 170.00	0.023
170.00 - 172.00	0.213
172.00 - 174.00	0.490
174.00 - 176.00	0.160
176.00 - 178.00	0.060
178.00 - 180.00	0.037
180.00 - 182.00	0.010
182.00 - 184.00	0.003
184.00 - 186.00	0.000
186.00 - 188.00	0.003
188.00 - 190.00	0.000
190.00 - 192.00	0.000
192.00 - 194.00	0.000
194.00 - 196.00	0.000
196.00 - 198.00	0.000
198.00 - 200.00	0.000

MINIMUM PEAK TIME = 322.50 MA; MAXIMUM PEAK TIME = 360.00 MA

TIME OF PEAK TEMP: AVERAGE = 341.02 STAND DEV = 7.313

TIME AT MAX TEMP		RELATIVE FREQUENCY
321.88 -	323.12	0.003
323.12 -	324.38	0.000
324.38 -	325.62	0.003
325.62 -	326.88	0.000
326.88 -	328.12	0.000
328.12 -	329.38	0.000
329.38 -	330.62	0.040
330.62 -	331.88	0.000
331.88 -	333.12	0.217
333.12 -	334.38	0.000
334.38 -	335.62	0.073
335.62 -	336.88	0.000
336.88 -	338.12	0.070
338.12 -	339.38	0.000
339.38 -	340.62	0.013
340.62 -	341.88	0.000
341.88 -	343.12	0.143
343.12 -	344.38	0.000
344.38 -	345.62	0.217
345.62 -	346.88	0.000
346.88 -	348.12	0.150
348.12 -	349.38	0.000
349.38 -	350.62	0.017
350.62 -	351.88	0.000
351.88 -	353.12	0.003
353.12 -	354.38	0.000
354.38 -	355.62	0.000
355.62 -	356.88	0.000
356.88 -	358.12	0.030
358.12 -	359.38	0.000
359.38 -	360.62	0.020

DEPOSITION (ALL SOLUTIONS):
TIME RANGE FOR THERMAL MINIMUM: 365.0 - 377.5 Ma
TIME OF MINIMUM TEMPERATURE: AVERAGE = 375.0 STAND DEV = 2.8
TEMPERATURE RANGE FOR THERMAL MINIMUM: 20.1 - 30.0 deg C
MINIMUM TEMPERATURE: AVERAGE = 29.7 STAND DEV = 0.8

REBURIAL (ALL SOLUTIONS):
TIME RANGE FOR THERMAL MINIMUM: 100.0 - 115.0 Ma
TIME OF MINIMUM TEMPERATURE: AVERAGE = 104.9 STAND DEV = 4.5
TEMPERATURE RANGE FOR THERMAL MINIMUM: 32.2 - 60.7 deg C
MINIMUM TEMPERATURE: AVERAGE = 46.6 STAND DEV = 4.1

OBJECTIVE FUNCTIONS: KINETIC POPULATION # 1

AVERAGE OF OBJ FNS= 0.07640 STAND DEV = 0.01456

OBJ FUNC	RELATIVE FREQUENCY
0.000 - 0.010	0.0000
0.010 - 0.020	0.0000
0.020 - 0.030	0.0000
0.030 - 0.040	0.0000
0.040 - 0.050	0.0100
0.050 - 0.060	0.1600
0.060 - 0.070	0.1733
0.070 - 0.080	0.2033
0.080 - 0.090	0.2467
0.090 - 0.100	0.1600
0.100 - 0.110	0.0467
0.110 - 0.120	0.0000
0.120 - 0.130	0.0000
0.130 - 0.140	0.0000
0.140 - 0.150	0.0000
0.150 - 0.160	0.0000
0.160 - 0.170	0.0000
0.170 - 0.180	0.0000
0.180 - 0.190	0.0000
0.190 - 0.200	0.0000

OBJECTIVE FUNCTIONS: KINETIC POPULATION # 2

AVERAGE OF OBJ FNS= 0.06434 STAND DEV = 0.00419

OBJ FUNC	RELATIVE FREQUENCY
0.000 - 0.010	0.0000
0.010 - 0.020	0.0000
0.020 - 0.030	0.0000
0.030 - 0.040	0.0000
0.040 - 0.050	0.0000
0.050 - 0.060	0.1600
0.060 - 0.070	0.8400
0.070 - 0.080	0.0000
0.080 - 0.090	0.0000
0.090 - 0.100	0.0000

OBSERVED TRACK LENGTH HISTOGRAM FOR KINETIC POPULATION # 1:

BIN SIZE (MICRONS)	RELATIVE FREQUENCY
0.0 - 1.0	0.000
1.0 - 2.0	0.000
2.0 - 3.0	0.000
3.0 - 4.0	0.000
4.0 - 5.0	0.000
5.0 - 6.0	0.000
6.0 - 7.0	0.000
7.0 - 8.0	0.000
8.0 - 9.0	0.000
9.0 - 10.0	0.000
10.0 - 11.0	0.000
11.0 - 12.0	0.032
12.0 - 13.0	0.222
13.0 - 14.0	0.333
14.0 - 15.0	0.159
15.0 - 16.0	0.175
16.0 - 17.0	0.079
17.0 - 18.0	0.000
18.0 - 19.0	0.000
19.0 - 20.0	0.000

OBSERVED TRACK LENGTH HISTOGRAM FOR KINETIC POPULATION # 2:

BIN SIZE (MICRONS)	RELATIVE FREQUENCY
0.0 - 1.0	0.000
1.0 - 2.0	0.000
2.0 - 3.0	0.000
3.0 - 4.0	0.000
4.0 - 5.0	0.000
5.0 - 6.0	0.000
6.0 - 7.0	0.000
7.0 - 8.0	0.000
8.0 - 9.0	0.000
9.0 - 10.0	0.000
10.0 - 11.0	0.000
11.0 - 12.0	0.014
12.0 - 13.0	0.158
13.0 - 14.0	0.209
14.0 - 15.0	0.353
15.0 - 16.0	0.194
16.0 - 17.0	0.065
17.0 - 18.0	0.007
18.0 - 19.0	0.000
19.0 - 20.0	0.000

MONTE CARLO RANDOM SEARCH METHOD

MINIMUM OBJECTIVE SOLUTION: LOWEST COMBINED OBJECTIVE FUNCTION

MODEL RESULTS AT 0.0500 SIGNIFICANCE LEVEL

SEARCH FOR MAXIMUM TEMPERATURE BETWEEN 210.00 - 117.50 MA

THE LAST 13 SOLUTIONS ARE AT 0.0500 SIGNIFICANCE LEVEL

%RO MODEL: BASIN%RO

MODEL #	KIN POP# 1 CALCULATED AFT AGE (MA)	KIN POP# 2 CALCULATED AFT AGE (MA)	TIME OF MAXIMUM TEMP (MA)	MAXIMUM TEMP (DEG C)	KIN POP# 1 OBJECTIVE FUNCTION	KIN POP# 2 OBJECTIVE FUNCTION	%RO POST-DEP	%RO POST-EXH
1	123.36	270.30	152.50	103.92	0.102198	0.101996	1.753	0.488
2	124.18	244.27	157.50	100.64	0.114331	0.098123	1.738	0.488
3	141.17	258.07	187.50	105.40	0.164604	0.096526	1.624	0.479
4	117.45	244.35	162.50	111.96	0.148113	0.090032	1.430	0.500
5	138.99	270.77	150.00	101.54	0.148676	0.090152	1.494	0.492
6	133.51	244.22	175.00	108.34	0.137317	0.095923	1.627	0.489
7	134.86	246.01	182.50	109.24	0.165129	0.064112	1.702	0.488
8	136.71	252.66	170.00	111.72	0.168034	0.113785	1.380	0.465
9	128.13	255.41	165.00	107.63	0.134544	0.074414	1.665	0.484
10	131.36	236.88	190.00	117.45	0.148059	0.082595	1.794	0.497
11	128.79	251.39	175.00	111.40	0.105701	0.088932	1.583	0.498
12	136.37	258.34	160.00	102.57	0.165070	0.095842	1.423	0.494
13	133.29	243.66	180.00	114.47	0.119109	0.091534	1.728	0.474
14	130.42	231.40	177.50	117.85	0.136604	0.102975	1.815	0.478
15	124.54	242.74	162.50	111.23	0.103166	0.092521	1.485	0.475
16	137.40	256.76	192.50	113.95	0.124395	0.063697	1.536	0.482
17	97.16	248.40	145.00	111.21	0.159729	0.099150	1.538	0.536
18	138.64	269.62	170.00	100.73	0.138298	0.093649	1.423	0.475
19	123.96	246.68	155.00	107.58	0.168009	0.067045	1.588	0.486
20	124.56	249.99	170.00	122.73	0.092854	0.097272	1.643	0.476
21	138.75	258.28	175.00	107.90	0.133683	0.073917	1.493	0.493
22	116.57	242.82	150.00	119.89	0.112244	0.063322	1.637	0.478
23	137.24	270.42	147.50	106.08	0.123320	0.093030	1.641	0.490
24	132.70	264.77	172.50	105.79	0.161545	0.109391	1.850	0.477
25	104.86	256.64	130.00	107.68	0.167401	0.113356	1.859	0.494
26	105.17	242.24	145.00	110.40	0.132357	0.092974	1.719	0.514
27	118.81	242.74	157.50	117.02	0.101268	0.100965	1.753	0.474
28	107.73	230.18	165.00	116.12	0.144019	0.108989	1.706	0.521
29	136.41	258.18	175.00	108.60	0.160706	0.083743	1.555	0.474
30	106.78	254.49	152.50	105.58	0.118446	0.081766	1.665	0.515
31	124.74	247.86	165.00	109.13	0.146527	0.081273	1.722	0.495
32	129.67	241.57	182.50	125.94	0.165283	0.100580	1.583	0.485
33	134.48	231.92	177.50	121.40	0.152103	0.100441	1.731	0.485
34	128.16	260.41	145.00	100.39	0.155788	0.105493	1.398	0.493
35	141.96	244.82	185.00	105.78	0.155703	0.102551	1.404	0.469
36	117.04	260.44	167.50	111.08	0.150136	0.070682	1.748	0.503
37	127.35	244.24	170.00	111.85	0.163271	0.098796	1.796	0.488
38	120.11	260.08	155.00	107.02	0.167735	0.097626	1.826	0.501
39	112.65	231.00	157.50	118.54	0.158025	0.107007	1.845	0.506
40	105.19	243.15	162.50	111.78	0.138100	0.103102	1.521	0.515
41	133.42	268.88	170.00	117.11	0.131554	0.102509	1.432	0.477
42	126.75	267.21	132.50	99.09	0.167288	0.110964	1.787	0.508
43	104.14	256.06	145.00	114.70	0.147832	0.090992	1.620	0.488
44	120.36	250.78	167.50	120.15	0.128968	0.093696	1.804	0.497
45	115.07	232.64	162.50	109.15	0.136650	0.096922	1.660	0.495
46	119.04	233.95	155.00	112.46	0.069472	0.090479	1.643	0.497
47	138.17	242.79	185.00	119.43	0.135709	0.102689	1.711	0.462
48	111.53	231.59	155.00	112.29	0.135763	0.102055	1.814	0.503
49	136.53	240.76	180.00	116.51	0.118426	0.089395	1.712	0.477
50	117.55	238.56	160.00	114.51	0.156466	0.067883	1.605	0.499
51	110.09	242.65	145.00	119.41	0.101802	0.112313	1.765	0.493
52	116.47	236.28	160.00	118.19	0.093590	0.079068	1.753	0.496
53	118.52	246.03	152.50	106.02	0.156973	0.096904	1.820	0.458
54	123.71	257.76	157.50	110.11	0.133794	0.087035	1.803	0.464
55	137.68	264.98	170.00	106.15	0.126337	0.112039	1.549	0.486
56	135.10	231.95	170.00	116.05	0.114743	0.113556	1.784	0.471
57	126.22	230.51	177.50	121.59	0.132649	0.107364	1.557	0.501
58	126.77	251.29	155.00	103.51	0.142550	0.086880	1.664	0.513
59	113.13	235.25	170.00	118.04	0.154494	0.087836	1.805	0.512
60	134.87	265.85	152.50	106.79	0.130526	0.104440	1.615	0.478
61	142.39	247.47	182.50	106.21	0.164356	0.107546	1.439	0.470
62	122.64	241.26	170.00	118.49	0.103592	0.059140	1.708	0.502
63	136.33	245.20	182.50	114.26	0.117061	0.101448	1.662	0.478
64	133.19	231.74	190.00	120.31	0.098445	0.101347	1.608	0.496
65	127.70	229.19	177.50	116.28	0.154614	0.113833	1.841	0.473
66	131.19	230.59	177.50	109.93	0.081713	0.106948	1.652	0.483
67	122.34	250.72	157.50	108.01	0.149728	0.069097	1.520	0.510
68	139.27	244.91	180.00	101.38	0.156031	0.109075	1.817	0.491
69	129.00	240.33	185.00	118.58	0.136583	0.084058	1.541	0.481
70	116.81	248.05	157.50	108.66	0.131682	0.089169	1.808	0.501
71	117.50	251.08	165.00	116.38	0.148350	0.085189	1.735	0.489
72	116.98	237.94	165.00	115.15	0.147348	0.070937	1.727	0.510
73	132.66	258.94	162.50	110.97	0.153207	0.100302	1.585	0.463
74	125.17	269.91	157.50	105.78	0.156405	0.097600	1.690	0.488
75	135.90	269.35	172.50	113.23	0.144473	0.096992	1.485	0.475
76	124.12	243.11	160.00	109.88	0.142343	0.065889	1.497	0.472
77	134.54	244.40	177.50	113.24	0.125012	0.103425	1.798	0.489
78	123.04	241.95	172.50	118.66	0.114098	0.065595	1.722	0.503
79	131.47	249.92	172.50	105.71	0.103583	0.083355	1.472	0.494
80	132.40	246.18	172.50	112.78	0.137132	0.094591	1.685	0.503
81	118.87	249.19	157.50	107.14	0.162617	0.110117	1.388	0.494
82	105.15	263.59	150.00	117.43	0.128454	0.091814	1.722	0.514
83	128.88	265.67	172.50	113.89	0.154158	0.078918	1.537	0.485
84	130.58	251.85	162.50	105.50	0.108810	0.093943	1.494	0.475
85	139.18	233.38	200.00	127.74	0.136642	0.093306	1.479	0.480
86	114.02	239.36	152.50	110.19	0.136140	0.088846	1.807	0.499
87	125.85	256.71	165.00	109.93	0.112013	0.060182	1.670	0.502

88	128.74	254.80	160.00	113.55	0.117931	0.101873	1.752	0.474
89	128.96	253.84	165.00	113.81	0.136185	0.092218	1.426	0.479
90	112.96	252.99	155.00	108.64	0.103976	0.080435	1.566	0.506
91	133.22	229.62	187.50	119.99	0.095657	0.111708	1.619	0.479
92	106.56	251.28	152.50	110.53	0.117089	0.068697	1.700	0.513
93	125.64	246.25	160.00	111.44	0.125075	0.087420	1.778	0.476
94	127.04	248.08	162.50	113.32	0.168266	0.075014	1.608	0.458
95	133.23	257.42	147.50	103.32	0.114938	0.109367	1.635	0.470
96	112.12	266.00	157.50	111.59	0.129889	0.073978	1.704	0.508
97	122.84	266.24	155.00	109.91	0.143021	0.073695	1.626	0.469
98	131.80	237.60	172.50	113.23	0.157607	0.089300	1.513	0.471
99	122.71	255.00	162.50	117.04	0.166302	0.074279	1.592	0.474
100	132.60	250.58	167.50	116.48	0.163831	0.107150	1.394	0.458
101	132.43	265.46	170.00	110.87	0.090248	0.070492	1.497	0.483
102	129.34	229.57	177.50	115.53	0.126096	0.111969	1.440	0.486
103	140.59	229.44	190.00	126.11	0.146325	0.112605	1.656	0.467
104	123.81	246.99	130.00	101.50	0.138034	0.068397	1.499	0.499
105	126.69	240.81	167.50	102.81	0.162677	0.073945	1.566	0.490
106	124.98	257.88	157.50	103.92	0.090574	0.098639	1.578	0.489
107	128.98	247.92	162.50	109.99	0.115341	0.100736	1.737	0.470
108	126.49	248.49	135.00	101.12	0.119502	0.086498	1.688	0.478
109	126.23	242.80	167.50	113.25	0.167471	0.113404	1.859	0.487
110	126.51	248.00	177.50	119.96	0.120571	0.074671	1.623	0.480
111	115.12	260.83	150.00	107.36	0.136971	0.070739	1.670	0.500
112	131.46	241.28	182.50	107.01	0.118581	0.087645	1.570	0.485
113	116.02	246.90	162.50	109.76	0.167877	0.113679	1.381	0.505
114	140.59	236.41	192.50	122.64	0.146343	0.113752	1.617	0.473
115	134.46	231.42	185.00	126.73	0.104212	0.102882	1.611	0.490
116	122.89	261.48	160.00	120.31	0.156440	0.097453	1.641	0.485
117	131.05	247.40	167.50	109.14	0.093766	0.086375	1.486	0.475
118	112.34	244.73	165.00	119.05	0.143275	0.089489	1.632	0.512
119	133.70	237.41	175.00	122.11	0.109445	0.109052	1.728	0.466
120	135.56	235.91	177.50	116.22	0.131833	0.082129	1.507	0.461
121	117.23	247.06	150.00	109.32	0.103791	0.060152	1.592	0.483
122	127.75	237.77	175.00	119.88	0.100041	0.095055	1.477	0.490
123	127.64	256.55	160.00	111.62	0.136808	0.082132	1.594	0.477
124	121.85	248.43	137.50	105.82	0.103728	0.098525	1.717	0.486
125	121.95	252.62	155.00	104.74	0.084839	0.094439	1.741	0.492
126	124.01	239.33	155.00	103.38	0.144174	0.103435	1.579	0.477
127	138.68	242.76	177.50	103.13	0.161694	0.096939	1.550	0.492
128	140.40	241.61	192.50	121.13	0.145024	0.077284	1.459	0.494
129	119.72	230.31	160.00	116.68	0.078779	0.108366	1.712	0.495
130	121.76	235.54	157.50	112.56	0.135403	0.082670	1.630	0.461
131	129.21	252.44	155.00	104.62	0.068118	0.093232	1.698	0.487
132	114.24	263.15	147.50	108.84	0.134594	0.104237	1.428	0.493
133	121.35	263.72	155.00	119.16	0.122920	0.098703	1.445	0.481
134	117.61	260.54	165.00	113.27	0.145202	0.105031	1.413	0.496
135	116.42	239.90	150.00	103.53	0.140557	0.084675	1.649	0.509
136	131.78	234.19	185.00	110.73	0.108600	0.089315	1.676	0.490
137	113.90	240.48	155.00	114.51	0.126609	0.076626	1.595	0.486
138	117.89	247.44	162.50	105.82	0.107152	0.059123	1.684	0.506
139	122.96	258.54	157.50	104.18	0.154904	0.081817	1.655	0.459
140	132.33	253.90	170.00	99.57	0.160288	0.090338	1.524	0.499
141	130.49	257.82	182.50	110.77	0.117691	0.085967	1.788	0.493
142	127.07	245.92	172.50	110.58	0.073982	0.076422	1.514	0.488
143	137.69	238.63	185.00	117.31	0.150626	0.091858	1.427	0.457
144	124.69	252.60	170.00	113.13	0.140685	0.095265	1.821	0.499
145	126.59	261.26	170.00	110.28	0.143188	0.096961	1.824	0.489
146	137.04	236.43	182.50	114.03	0.121898	0.106978	1.752	0.492
147	132.69	255.02	170.00	109.74	0.115779	0.110836	1.785	0.472
148	137.94	254.70	180.00	118.82	0.128888	0.087440	1.623	0.470
149	122.17	244.61	167.50	116.61	0.073129	0.101168	1.673	0.493
150	138.53	232.22	190.00	115.39	0.154217	0.112056	1.441	0.456
151	139.38	269.33	157.50	102.94	0.150049	0.113707	1.625	0.492
152	116.50	237.79	162.50	116.11	0.088501	0.071637	1.738	0.503
153	133.91	271.26	175.00	104.03	0.128355	0.096202	1.437	0.483
154	118.86	234.65	162.50	112.61	0.163303	0.110582	1.853	0.492
155	126.50	254.59	172.50	119.15	0.129303	0.069206	1.604	0.463
156	125.31	252.95	177.50	109.52	0.131533	0.070171	1.497	0.484
157	131.37	253.14	170.00	114.77	0.165044	0.111761	1.385	0.475
158	135.51	236.54	182.50	107.42	0.156526	0.107040	1.397	0.491
159	105.99	243.96	157.50	104.67	0.160997	0.067634	1.694	0.528
160	127.17	246.37	140.00	106.68	0.152827	0.101865	1.679	0.495
161	110.88	266.04	152.50	108.64	0.120748	0.069814	1.757	0.496
162	114.73	235.90	157.50	106.48	0.084177	0.080938	1.576	0.503
163	118.80	266.29	142.50	102.13	0.167689	0.081982	1.555	0.500
164	104.41	248.67	160.00	110.55	0.152070	0.085730	1.801	0.517
165	134.15	230.84	175.00	114.96	0.102060	0.105742	1.573	0.483
166	125.61	274.53	165.00	112.90	0.158264	0.108569	1.394	0.478
167	139.74	245.91	190.00	126.62	0.140457	0.113462	1.427	0.469
168	126.41	235.97	165.00	106.01	0.103124	0.099941	1.665	0.483
169	130.33	241.19	170.00	114.39	0.107892	0.103321	1.774	0.481
170	114.61	234.45	180.00	118.56	0.156681	0.088056	1.554	0.519
171	121.90	240.98	165.00	116.79	0.159455	0.076612	1.493	0.483
172	122.92	265.17	157.50	108.23	0.137309	0.092979	1.424	0.491
173	120.94	264.11	155.00	103.33	0.090232	0.109463	1.671	0.495
174	131.94	263.93	160.00	106.03	0.101341	0.094084	1.618	0.487
175	130.22	235.07	165.00	108.25	0.075039	0.106528	1.697	0.488
176	120.70	255.84	152.50	105.31	0.123143	0.097619	1.794	0.509
177	122.17	231.18	172.50	124.12	0.130615	0.104072	1.767	0.489
178	140.00	256.07	155.00	103.49	0.142262	0.090565	1.507	0.484
179	106.85	235.48	140.00	104.95	0.105696	0.082983	1.636	0.502
180	135.58	249.87	157.50	103.14	0.111901	0.093006	1.623	0.490
181	120.35	251.45	155.00	117.65	0.153702	0.084805	1.799	0.456
182	125.99	242.29	165.00	113.69	0.106933	0.065554	1.576	0.487
183	109.32	239.19	155.00	113.21	0.136744	0.069576	1.588	0.523
184	125.93	229.93	167.50	118.51	0.168150	0.110227	1.736	0.457
185	113.21	254.98	147.50	118.00	0.085489	0.094292	1.742	0.488
186	129.32	275.00	162.50	105.37	0.162497	0.110880	1.388	0.485
187	122.26	263.61	157.50	107.17	0.128404	0.098094	1.640	0.481
188	138.91	246.86	180.00	119.97	0.136816	0.101967	1.811	0.463
189	131.76	238.47	167.50	114.90	0.135125	0.095670	1.488	0.465
190	126.48	260.01	152.50	107.31	0.166964	0.087820	1.606	0.460
191	139.99	255.25	182.50	110.74	0.142183	0.097004	1.689	0.469
192	129.11	251.78	157.50	106.12	0.105751	0.094340	1.577	0.468
193	119.81	249.07	162.50	115.58	0.115960	0.074485	1.680	0.503
194	123.06	253.52	150.00	106.72	0.153526	0.097963	1.744	0.489
195	140.87	261.46	182.50	103.52	0.148249	0.093161	1.595	0.492

196	130.64	252.06	175.00	119.82	0.165691	0.083921	1.482	0.495
197	119.51	259.57	157.50	116.04	0.088163	0.110025	1.494	0.483
198	134.80	268.59	157.50	103.17	0.106564	0.091726	1.639	0.473
199	137.60	231.15	187.50	124.02	0.125766	0.110031	1.727	0.485
200	127.79	248.62	157.50	108.41	0.092547	0.089339	1.506	0.478
201	123.56	244.28	165.00	107.32	0.153334	0.102847	1.471	0.491
202	127.74	253.33	157.50	112.58	0.137399	0.093040	1.816	0.477
203	118.71	244.85	147.50	105.63	0.132617	0.089802	1.809	0.479
204	142.92	234.46	192.50	131.07	0.162335	0.101300	1.731	0.481
205	132.89	237.00	175.00	116.59	0.154166	0.104144	1.692	0.466
206	114.04	251.94	152.50	102.35	0.145939	0.100556	1.783	0.514
207	125.53	245.07	155.00	109.70	0.145561	0.098567	1.412	0.468
208	122.10	256.09	162.50	110.30	0.162212	0.109843	1.851	0.497
209	123.88	255.10	180.00	118.53	0.145522	0.094377	1.500	0.485
210	129.41	256.41	170.00	106.33	0.165600	0.074975	1.597	0.484
211	135.23	250.28	190.00	111.16	0.137606	0.093181	1.424	0.484
212	138.13	249.56	197.50	124.97	0.129424	0.083727	1.599	0.492
213	141.24	231.78	192.50	121.09	0.150811	0.101134	1.577	0.475
214	119.09	234.40	172.50	116.74	0.148080	0.098308	1.519	0.510
215	127.94	235.55	185.00	118.86	0.144296	0.111914	1.513	0.476
216	106.59	264.51	142.50	108.34	0.156456	0.088256	1.517	0.509
217	129.87	239.37	167.50	112.74	0.088243	0.080639	1.550	0.488
218	129.41	270.78	162.50	107.18	0.114502	0.090170	1.563	0.482
219	129.05	239.09	170.00	120.19	0.112675	0.090511	1.492	0.467
220	122.72	231.79	170.00	124.15	0.161755	0.104218	1.643	0.503
221	137.47	234.47	195.00	123.41	0.167132	0.087948	1.491	0.488
222	132.86	234.06	200.00	119.42	0.119467	0.108254	1.475	0.491
223	127.03	232.92	170.00	102.78	0.112896	0.111043	1.459	0.504
224	112.57	236.89	152.50	119.04	0.054271	0.103988	1.678	0.483
225	120.39	236.93	167.50	118.00	0.144820	0.075863	1.757	0.506
226	128.21	242.97	172.50	106.25	0.159220	0.091512	1.802	0.503
227	116.22	274.50	145.00	104.71	0.158063	0.108438	1.395	0.488
228	122.11	233.07	160.00	109.89	0.115208	0.094796	1.633	0.506
229	110.59	254.68	152.50	107.46	0.149700	0.066493	1.524	0.496
230	128.06	254.74	167.50	111.80	0.110130	0.071450	1.540	0.470
231	122.56	250.85	167.50	113.79	0.131278	0.094682	1.433	0.504
232	113.47	260.40	155.00	107.21	0.139243	0.069426	1.590	0.518
233	130.61	244.64	162.50	105.74	0.121044	0.103925	1.566	0.486
234	119.95	229.68	162.50	120.88	0.138310	0.111452	1.817	0.502
235	124.68	233.22	167.50	122.32	0.165603	0.094056	1.565	0.469
236	117.85	257.53	162.50	115.64	0.134463	0.107602	1.428	0.499
237	124.62	243.81	170.00	115.05	0.120897	0.081866	1.792	0.504
238	117.25	229.52	142.50	102.11	0.156101	0.112240	1.843	0.509
239	98.15	255.11	140.00	109.51	0.157859	0.110015	1.494	0.525
240	118.66	244.02	170.00	117.09	0.143837	0.093876	1.500	0.503
241	140.82	234.37	192.50	115.83	0.147926	0.102954	1.610	0.494
242	104.04	233.82	150.00	108.48	0.152274	0.091136	1.658	0.524
243	105.32	248.35	132.50	119.77	0.138311	0.108960	1.711	0.498
244	142.48	264.26	147.50	105.66	0.159310	0.101905	1.412	0.463
245	115.26	231.87	157.50	116.43	0.091249	0.100675	1.730	0.490
246	107.59	256.10	145.00	106.75	0.144653	0.097952	1.826	0.508
247	119.33	239.16	157.50	107.31	0.167138	0.113178	1.382	0.471
248	108.39	234.59	157.50	110.31	0.150229	0.087367	1.566	0.516
249	123.05	230.58	177.50	111.26	0.167390	0.107009	1.645	0.504
250	124.16	241.89	167.50	110.73	0.120244	0.074738	1.741	0.511
251	131.52	260.27	170.00	106.80	0.149878	0.099758	1.732	0.465
252	139.99	237.75	200.00	124.59	0.162669	0.110152	1.388	0.488
253	134.58	245.80	182.50	119.10	0.167220	0.105716	1.442	0.457
254	130.21	256.26	147.50	102.06	0.103364	0.082007	1.473	0.493
255	132.36	247.64	172.50	113.70	0.089769	0.078201	1.583	0.479
256	139.46	251.69	192.50	115.53	0.138534	0.078095	1.512	0.470
257	138.55	255.07	182.50	107.36	0.132267	0.092717	1.564	0.492
258	134.15	230.28	182.50	119.72	0.133419	0.108484	1.430	0.490
259	116.50	255.91	160.00	104.52	0.137452	0.108142	1.779	0.511
260	118.21	260.52	145.00	105.23	0.156996	0.109304	1.396	0.476
261	116.96	263.18	160.00	111.41	0.120478	0.077587	1.532	0.498
262	118.47	243.36	155.00	101.89	0.158143	0.098355	1.713	0.520
263	123.42	252.58	162.50	106.90	0.092223	0.078161	1.573	0.490
264	142.92	246.89	185.00	113.28	0.162296	0.109230	1.706	0.489
265	135.26	233.18	190.00	121.80	0.109696	0.100392	1.473	0.491
266	125.82	229.84	172.50	109.04	0.113110	0.110664	1.617	0.499
267	121.47	254.88	160.00	106.11	0.160511	0.089563	1.644	0.486
268	127.32	243.93	155.00	105.32	0.084650	0.083657	1.580	0.501
269	125.75	241.48	160.00	108.55	0.166909	0.113023	1.382	0.480
270	136.73	230.73	180.00	121.31	0.142742	0.110584	1.574	0.460
271	127.92	250.35	167.50	112.96	0.129691	0.091040	1.499	0.481
272	115.87	245.69	155.00	107.52	0.124592	0.084368	1.442	0.487
273	111.12	236.88	155.00	113.05	0.131264	0.105682	1.664	0.500
274	128.99	269.72	165.00	111.41	0.162392	0.084960	1.682	0.459
275	130.07	237.12	177.50	112.62	0.121881	0.074935	1.570	0.475
276	129.44	252.13	182.50	104.65	0.166353	0.069147	1.509	0.492
277	124.85	264.65	155.00	109.77	0.168232	0.083653	1.710	0.473
278	130.03	248.11	175.00	108.96	0.141170	0.095594	1.821	0.490
279	135.11	241.84	197.50	115.77	0.122392	0.082878	1.795	0.482
280	139.23	240.96	155.00	100.09	0.159400	0.102857	1.496	0.465
281	127.03	251.85	170.00	116.09	0.130567	0.088808	1.434	0.473
282	121.57	250.69	177.50	122.78	0.166390	0.111087	1.558	0.507
283	123.34	230.44	157.50	116.09	0.168108	0.113835	1.860	0.494
284	126.26	252.33	162.50	109.53	0.134287	0.083981	1.565	0.500
285	138.76	254.04	187.50	114.42	0.133762	0.074646	1.479	0.476
286	102.45	245.68	142.50	111.06	0.128611	0.087422	1.525	0.516
287	107.67	255.89	145.00	101.44	0.165238	0.094661	1.692	0.530
288	125.47	259.34	160.00	110.19	0.075845	0.065296	1.653	0.487
289	115.84	239.30	137.50	104.45	0.094065	0.068511	1.591	0.487
290	128.66	245.70	170.00	108.77	0.066521	0.055153	1.602	0.491
291	131.79	238.83	175.00	114.80	0.085859	0.068738	1.550	0.486
292	126.36	240.38	167.50	111.69	0.097945	0.066507	1.635	0.472
293	118.90	244.63	152.50	113.49	0.093591	0.059925	1.705	0.494
294	128.14	246.61	165.00	108.91	0.096862	0.065822	1.482	0.494
295	115.84	259.26	155.00	115.80	0.094851	0.068953	1.692	0.495
296	131.88	244.80	172.50	114.80	0.086635	0.058665	1.496	0.485
297	129.75	238.31	172.50	115.20	0.071848	0.069119	1.673	0.493
298	120.89	241.62	162.50	109.11	0.081916	0.065063	1.503	0.484
299	131.01	264.65	175.00	111.35	0.101658	0.069353	1.586	0.480
300	120.67	249.40	170.00	113.93	0.091053	0.068438	1.571	0.502

POST-DEPOSITIONAL THERMAL HISTORY:

 %RO CONSTRAINT INCLUDED:
 INPUT %RO RANGE = 1.62 +/- 0.240; %RO FOR EXP MEAN SOLUTION = 1.50
 AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 1.62 +/- 0.128
 MIN %RO = 1.38; MAX %RO = 1.86
 %RO FOR MIN OBJ SOLUTION = 1.57

POST-EXHUMATION THERMAL HISTORY (240-210 to 0 Ma):

 %RO CONSTRAINT INCLUDED:
 INPUT %RO RANGE = 0.60 +/- 0.300; %RO FOR EXP MEAN SOLUTION = 0.60
 AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.61 +/- 0.025
 MIN %RO = 0.56; MAX %RO = 0.67
 %RO FOR MIN OBJ SOLUTION = 0.62

BINNED %RO VALUES FOR POST-EXHUMATION HISTORY:

%RO BIN	RELATIVE FREQUENCY
0.00 - 0.03	0.000
0.03 - 0.05	0.000
0.05 - 0.08	0.000
0.08 - 0.10	0.000
0.10 - 0.12	0.000
0.12 - 0.15	0.000
0.15 - 0.18	0.000
0.17 - 0.20	0.000
0.20 - 0.23	0.000
0.23 - 0.25	0.000
0.25 - 0.27	0.000
0.28 - 0.30	0.000
0.30 - 0.32	0.000
0.33 - 0.35	0.000
0.35 - 0.37	0.000
0.38 - 0.40	0.000
0.40 - 0.42	0.000
0.43 - 0.45	0.000
0.45 - 0.47	0.000
0.47 - 0.50	0.000
0.50 - 0.52	0.000
0.53 - 0.55	0.000
0.55 - 0.57	0.137
0.57 - 0.60	0.267
0.60 - 0.62	0.313
0.62 - 0.65	0.237
0.65 - 0.68	0.047
0.68 - 0.70	0.000
0.70 - 0.72	0.000
0.73 - 0.75	0.000
0.75 - 0.77	0.000
0.78 - 0.80	0.000
0.80 - 0.82	0.000
0.82 - 0.85	0.000
0.85 - 0.88	0.000
0.88 - 0.90	0.000
0.90 - 0.93	0.000
0.93 - 0.95	0.000
0.95 - 0.97	0.000
0.98 - 1.00	0.000

MINIMUM PEAK TEMPERATURE = 99.09 DEG C; MAXIMUM PEAK TEMPERATURE = 131.07 DEG C

PEAK TEMPERATURE: AVERAGE = 111.81 STAND DEV = 6.250

MAX TEMP BIN	RELATIVE FREQUENCY
50.00 - 52.00	0.000
52.00 - 54.00	0.000
54.00 - 56.00	0.000
56.00 - 58.00	0.000
58.00 - 60.00	0.000
60.00 - 62.00	0.000
62.00 - 64.00	0.000
64.00 - 66.00	0.000
66.00 - 68.00	0.000
68.00 - 70.00	0.000
70.00 - 72.00	0.000
72.00 - 74.00	0.000
74.00 - 76.00	0.000
76.00 - 78.00	0.000
78.00 - 80.00	0.000
80.00 - 82.00	0.000
82.00 - 84.00	0.000
84.00 - 86.00	0.000
86.00 - 88.00	0.000
88.00 - 90.00	0.000
90.00 - 92.00	0.000
92.00 - 94.00	0.000
94.00 - 96.00	0.000
96.00 - 98.00	0.000
98.00 - 100.00	0.007
100.00 - 102.00	0.033
102.00 - 104.00	0.067
104.00 - 106.00	0.087
106.00 - 108.00	0.117
108.00 - 110.00	0.120
110.00 - 112.00	0.117
112.00 - 114.00	0.097
114.00 - 116.00	0.080
116.00 - 118.00	0.090
118.00 - 120.00	0.093
120.00 - 122.00	0.037
122.00 - 124.00	0.020
124.00 - 126.00	0.020
126.00 - 128.00	0.013
128.00 - 130.00	0.000
130.00 - 132.00	0.003

132.00 - 134.00	0.000
134.00 - 136.00	0.000
136.00 - 138.00	0.000
138.00 - 140.00	0.000
140.00 - 142.00	0.000
142.00 - 144.00	0.000
144.00 - 146.00	0.000
146.00 - 148.00	0.000
148.00 - 150.00	0.000

MINIMUM PEAK TIME = 130.00 MA; MAXIMUM PEAK TIME = 200.00 MA

TIME OF PEAK TEMP: AVERAGE = 165.72 STAND DEV = 13.891

TIME AT MAX TEMP	RELATIVE FREQUENCY
129.38 - 130.62	0.007
130.62 - 131.88	0.000
131.88 - 133.12	0.007
133.12 - 134.38	0.000
134.38 - 135.62	0.003
135.62 - 136.88	0.000
136.88 - 138.12	0.007
138.12 - 139.38	0.000
139.38 - 140.62	0.010
140.62 - 141.88	0.000
141.88 - 143.12	0.013
143.12 - 144.38	0.000
144.38 - 145.62	0.030
145.62 - 146.88	0.000
146.88 - 148.12	0.023
148.12 - 149.38	0.000
149.38 - 150.62	0.027
150.62 - 151.88	0.000
151.88 - 153.12	0.043
153.12 - 154.38	0.000
154.38 - 155.62	0.083
155.62 - 156.88	0.000
156.88 - 158.12	0.090
158.12 - 159.38	0.000
159.38 - 160.62	0.057
160.62 - 161.88	0.000
161.88 - 163.12	0.077
163.12 - 164.38	0.000
164.38 - 165.62	0.057
165.62 - 166.88	0.000
166.88 - 168.12	0.057
168.12 - 169.38	0.000
169.38 - 170.62	0.087
170.62 - 171.88	0.000
171.88 - 173.12	0.053
173.12 - 174.38	0.000
174.38 - 175.62	0.043
175.62 - 176.88	0.000
176.88 - 178.12	0.047
178.12 - 179.38	0.000
179.38 - 180.62	0.027
180.62 - 181.88	0.000
181.88 - 183.12	0.047
183.12 - 184.38	0.000
184.38 - 185.62	0.027
185.62 - 186.88	0.000
186.88 - 188.12	0.013
188.12 - 189.38	0.000
189.38 - 190.62	0.023
190.62 - 191.88	0.000
191.88 - 193.12	0.023
193.12 - 194.38	0.000
194.38 - 195.62	0.003
195.62 - 196.88	0.000
196.88 - 198.12	0.007
198.12 - 199.38	0.000
199.38 - 200.62	0.010
200.62 - 201.88	0.000

CONTROLLED RANDOM SEARCH TECHNIQUE

MINIMUM OBJECTIVE SOLUTION: LOWEST COMBINED OBJECTIVE FUNCTION

MODEL RESULTS AT 0.5000 SIGNIFICANCE LEVEL

SEARCH FOR MAXIMUM TEMPERATURE BETWEEN 210.00 - 117.50 MA

ALL SOLUTIONS ARE AT 0.5000 SIGNIFICANCE LEVEL

%RO MODEL: BASIN%RO

MODEL #	KIN POP# 1 CALCULATED AFT AGE (MA)	KIN POP# 2 CALCULATED AFT AGE (MA)	TIME OF MAXIMUM TEMP (MA)	MAXIMUM TEMP (DEG C)	KIN POP# 1 OBJECTIVE FUNCTION	KIN POP# 2 OBJECTIVE FUNCTION	%RO POST-DEP	%RO POST-EXH
1	121.95	256.97	157.50	104.83	0.060677	0.062353	1.563	0.485
2	123.98	253.06	157.50	103.49	0.058213	0.068841	1.510	0.493
3	124.81	256.18	157.50	108.36	0.068439	0.064877	1.481	0.482
4	125.38	255.56	165.00	103.21	0.082299	0.062157	1.519	0.473
5	123.64	253.65	172.50	105.05	0.053957	0.064984	1.622	0.485
6	124.35	253.70	157.50	103.38	0.062718	0.067844	1.506	0.491
7	123.75	250.04	157.50	110.45	0.089916	0.052707	1.538	0.483
8	125.71	256.57	165.00	102.47	0.083815	0.061919	1.520	0.473
9	124.83	250.48	157.50	104.18	0.077045	0.065294	1.531	0.484
10	127.27	258.07	157.50	102.85	0.099002	0.067562	1.484	0.475
11	124.26	251.64	157.50	104.69	0.061602	0.069192	1.512	0.491

12	126.19	252.92	165.00	104.14	0.094177	0.060897	1.519	0.469
13	122.69	257.91	157.50	104.09	0.059265	0.067664	1.513	0.483
14	125.99	255.27	165.00	103.40	0.083117	0.060845	1.523	0.473
15	123.83	249.84	157.50	107.76	0.079359	0.068682	1.503	0.483
16	122.59	253.26	157.50	106.09	0.074876	0.061226	1.568	0.476
17	121.63	255.75	170.00	106.30	0.100640	0.053670	1.567	0.484
18	124.93	254.72	170.00	107.43	0.090582	0.067551	1.491	0.473
19	120.30	258.71	160.00	103.30	0.059354	0.061477	1.516	0.494
20	125.74	252.75	170.00	104.65	0.080790	0.063504	1.506	0.473
21	126.88	256.59	165.00	104.35	0.099815	0.062333	1.518	0.467
22	121.95	254.42	167.50	106.34	0.100172	0.058838	1.529	0.478
23	124.22	258.08	155.00	102.01	0.061194	0.065193	1.539	0.486
24	124.38	250.14	162.50	107.26	0.099497	0.066711	1.665	0.483
25	126.16	255.83	160.00	103.04	0.085256	0.061606	1.522	0.473
26	125.19	253.97	165.00	103.88	0.086101	0.067082	1.493	0.471
27	124.38	248.53	157.50	111.00	0.073391	0.066170	1.603	0.479
28	124.80	254.64	165.00	103.47	0.082422	0.060044	1.533	0.472
29	123.98	251.25	162.50	107.47	0.101800	0.053516	1.536	0.480
30	124.46	257.64	155.00	102.09	0.064163	0.065238	1.552	0.486
31	125.50	252.91	157.50	103.71	0.082236	0.064382	1.557	0.473
32	125.47	259.34	160.00	110.19	0.075845	0.065296	1.653	0.487
33	123.21	254.84	170.00	106.39	0.094190	0.053309	1.566	0.475
34	123.96	255.53	170.00	102.63	0.058052	0.063499	1.541	0.482
35	124.08	251.18	157.50	103.33	0.062200	0.066621	1.533	0.493
36	123.76	253.41	157.50	103.07	0.065238	0.066876	1.511	0.495
37	126.34	257.85	160.00	104.33	0.087509	0.064811	1.495	0.485
38	126.59	256.07	162.50	102.80	0.091603	0.069028	1.511	0.477
39	125.44	255.25	170.00	106.82	0.086414	0.054683	1.578	0.473
40	125.76	256.79	165.00	102.78	0.080310	0.064857	1.557	0.476
41	125.76	253.80	165.00	103.51	0.087534	0.062149	1.523	0.470
42	123.19	250.34	157.50	108.12	0.081608	0.063880	1.522	0.483
43	123.35	250.62	157.50	104.83	0.053585	0.066164	1.532	0.493
44	122.32	250.73	160.00	104.39	0.076978	0.064164	1.537	0.498
45	122.79	250.65	157.50	105.70	0.066932	0.068850	1.509	0.496
46	125.20	251.33	157.50	102.73	0.087881	0.067890	1.539	0.486
47	122.68	254.06	172.50	103.81	0.051585	0.065316	1.613	0.484
48	125.00	255.41	157.50	103.73	0.085359	0.067011	1.524	0.484
49	115.84	239.30	137.50	104.45	0.094065	0.068511	1.591	0.487
50	124.54	253.69	157.50	102.79	0.065156	0.068398	1.529	0.493
51	121.98	252.66	157.50	104.03	0.072303	0.067456	1.511	0.496
52	125.71	254.89	172.50	105.44	0.079601	0.064608	1.540	0.485
53	122.97	248.79	160.00	106.45	0.068045	0.064801	1.579	0.495
54	123.56	250.90	157.50	105.68	0.053014	0.066819	1.517	0.491
55	125.15	250.57	167.50	110.61	0.099561	0.066273	1.553	0.477
56	125.90	255.51	165.00	102.90	0.081979	0.061745	1.536	0.475
57	124.03	254.91	170.00	103.76	0.058854	0.068495	1.508	0.486
58	124.18	251.04	157.50	104.03	0.060668	0.067164	1.543	0.493
59	127.12	255.92	157.50	104.70	0.097121	0.062116	1.550	0.473
60	124.09	254.40	160.00	105.05	0.091921	0.067304	1.475	0.472
61	122.39	253.31	172.50	105.00	0.052987	0.067936	1.655	0.484
62	123.65	253.87	162.50	105.67	0.079075	0.059997	1.501	0.485
63	121.95	252.11	157.50	104.93	0.070134	0.064018	1.534	0.495
64	122.38	251.53	170.00	105.58	0.092039	0.057091	1.613	0.481
65	128.66	245.70	170.00	108.77	0.066521	0.055153	1.602	0.491
66	123.14	250.41	157.50	104.86	0.050050	0.066643	1.529	0.493
67	125.03	253.95	172.50	104.55	0.071177	0.065640	1.591	0.484
68	122.94	250.53	157.50	104.28	0.063909	0.067704	1.520	0.494
69	122.99	254.82	172.50	105.01	0.052322	0.064818	1.619	0.486
70	123.55	249.94	170.00	107.03	0.097205	0.050152	1.594	0.476
71	123.95	250.75	157.50	104.02	0.063380	0.067726	1.553	0.494
72	123.89	252.39	162.50	104.60	0.090740	0.055870	1.521	0.479
73	131.79	238.83	175.00	114.80	0.085859	0.068738	1.550	0.486
74	122.72	253.91	160.00	105.83	0.079013	0.059710	1.554	0.475
75	123.32	254.08	160.00	106.32	0.079379	0.057938	1.526	0.475
76	125.49	255.07	165.00	103.80	0.087529	0.060703	1.530	0.469
77	124.99	252.51	172.50	106.78	0.071003	0.062625	1.611	0.484
78	123.09	253.08	157.50	104.25	0.050614	0.066589	1.515	0.493
79	126.70	254.81	160.00	109.96	0.091989	0.062693	1.568	0.481
80	127.45	253.44	170.00	108.10	0.101238	0.063700	1.654	0.468
81	127.30	258.46	160.00	105.18	0.099435	0.067015	1.499	0.478
82	126.03	256.53	160.00	107.24	0.094265	0.062714	1.497	0.477
83	126.36	240.38	167.50	111.69	0.097945	0.066507	1.635	0.472
84	123.06	253.94	172.50	103.98	0.051691	0.067022	1.629	0.484
85	125.41	256.20	157.50	102.64	0.075914	0.067175	1.583	0.475
86	124.41	252.13	157.50	107.12	0.079778	0.064232	1.521	0.482
87	125.45	255.30	170.00	103.47	0.076431	0.065175	1.505	0.474
88	123.09	253.58	160.00	105.71	0.082039	0.060306	1.544	0.474
89	122.82	251.55	157.50	105.68	0.091322	0.061768	1.548	0.487
90	118.90	244.63	152.50	113.49	0.093591	0.059925	1.705	0.494
91	125.63	254.09	165.00	103.34	0.079950	0.064735	1.496	0.473
92	123.29	252.89	172.50	105.18	0.049609	0.067130	1.648	0.485
93	124.34	253.77	165.00	106.39	0.089738	0.051630	1.582	0.474
94	123.17	252.45	157.50	104.42	0.056992	0.068642	1.515	0.493
95	124.35	247.71	157.50	107.87	0.101911	0.069001	1.615	0.483
96	123.52	251.88	157.50	104.91	0.061694	0.065829	1.524	0.494
97	125.37	256.37	160.00	104.66	0.092395	0.068130	1.478	0.472
98	126.36	255.57	165.00	103.68	0.090049	0.060986	1.522	0.471
99	122.97	252.50	157.50	104.49	0.064897	0.066819	1.537	0.494
100	121.97	259.70	160.00	102.09	0.061134	0.065867	1.515	0.492
101	126.07	255.85	165.00	103.08	0.085799	0.066647	1.584	0.472
102	125.38	251.69	157.50	107.76	0.092004	0.058743	1.494	0.484
103	123.96	257.04	167.50	104.46	0.091252	0.055126	1.555	0.473
104	122.08	250.20	157.50	105.83	0.077012	0.067627	1.523	0.496
105	127.40	246.95	170.00	111.08	0.100614	0.061781	1.513	0.483
106	122.95	255.12	160.00	106.37	0.080702	0.060077	1.549	0.475
107	124.82	255.12	170.00	104.06	0.076558	0.066755	1.593	0.474
108	124.61	254.08	170.00	102.90	0.065976	0.068585	1.617	0.484
109	125.00	253.45	157.50	101.81	0.070810	0.068824	1.516	0.494
110	123.43	252.55	162.50	106.21	0.087881	0.056665	1.518	0.485
111	122.95	255.41	160.00	106.32	0.078082	0.061205	1.571	0.475
112	125.59	254.28	172.50	103.95	0.078166	0.068034	1.581	0.483
113	124.62	253.26	157.50	106.88	0.074621	0.058457	1.569	0.479
114	125.63	257.04	165.00	103.15	0.081014	0.064947	1.501	0.473
115	124.03	253.80	157.50	102.34	0.061238	0.066314	1.513	0.494
116	125.35	254.45	165.00	103.93	0.082358	0.061537	1.552	0.471
117	124.28	256.11	157.50	104.00	0.091303	0.064860	1.492	0.472
118	123.02	256.18	155.00	103.08	0.057122	0.063628	1.552	0.484
119	123.42	249.40	157.50	104.35	0.064973	0.064153	1.544	0.495

120	123.86	253.00	160.00	104.19	0.056686	0.068926	1.514	0.493
121	124.53	254.66	155.00	102.33	0.065041	0.063779	1.519	0.486
122	124.23	256.33	155.00	102.75	0.061225	0.067861	1.582	0.484
123	126.24	257.59	165.00	101.94	0.086187	0.067063	1.521	0.471
124	126.61	254.81	160.00	108.39	0.090865	0.067896	1.485	0.478
125	128.14	246.61	165.00	108.91	0.096862	0.065822	1.482	0.494
126	125.39	251.40	172.50	107.33	0.075629	0.067934	1.655	0.483
127	123.19	254.21	160.00	105.29	0.085867	0.059458	1.518	0.473
128	125.84	252.58	160.00	110.61	0.081265	0.058082	1.517	0.482
129	124.87	248.15	157.50	111.17	0.075014	0.064123	1.575	0.478
130	126.82	253.42	157.50	100.18	0.093421	0.066769	1.486	0.483
131	124.18	254.85	170.00	107.13	0.090684	0.059183	1.643	0.474
132	123.37	250.71	157.50	104.32	0.050617	0.068549	1.522	0.491
133	122.77	253.49	172.50	104.34	0.052020	0.059939	1.574	0.486
134	126.80	256.43	170.00	103.12	0.093179	0.067995	1.490	0.468
135	125.32	255.60	170.00	103.23	0.074764	0.062882	1.547	0.484
136	123.48	253.13	157.50	103.70	0.053684	0.067284	1.510	0.493
137	123.93	251.04	157.50	105.04	0.081361	0.062665	1.545	0.484
138	123.81	254.14	157.50	103.27	0.056091	0.068897	1.505	0.493
139	124.14	251.33	160.00	104.67	0.060153	0.066698	1.525	0.492
140	124.28	251.52	157.50	104.52	0.061921	0.067250	1.520	0.492
141	124.69	256.45	155.00	102.34	0.067018	0.067385	1.568	0.484
142	125.29	252.95	170.00	103.66	0.074488	0.065448	1.609	0.476
143	123.98	251.71	160.00	104.30	0.058207	0.067829	1.517	0.493
144	124.50	249.29	162.50	106.71	0.101169	0.054319	1.531	0.484
145	124.37	255.36	157.50	106.63	0.073919	0.054665	1.596	0.479
146	126.63	254.19	170.00	106.72	0.100626	0.058310	1.539	0.470
147	123.15	254.89	172.50	104.33	0.053396	0.063962	1.612	0.485
148	122.21	248.68	157.50	105.93	0.081610	0.063599	1.533	0.498
149	123.76	256.28	170.00	102.20	0.055426	0.068024	1.605	0.483
150	122.00	251.01	157.50	105.04	0.092249	0.063443	1.541	0.487
151	125.10	251.35	172.50	107.01	0.073121	0.068881	1.675	0.484
152	122.96	253.07	160.00	106.06	0.077608	0.060882	1.560	0.475
153	126.61	250.77	160.00	109.20	0.099699	0.067249	1.516	0.473
154	126.31	255.60	170.00	103.44	0.087128	0.064970	1.534	0.470
155	122.82	250.85	157.50	104.94	0.056194	0.068439	1.513	0.494
156	123.32	252.91	172.50	105.04	0.051213	0.065196	1.630	0.486
157	115.84	259.26	155.00	115.80	0.094851	0.068953	1.692	0.495
158	122.81	251.89	157.50	105.80	0.089996	0.062903	1.559	0.487
159	125.70	254.69	172.50	104.23	0.079506	0.067830	1.583	0.483
160	125.25	255.29	170.00	103.48	0.075103	0.065354	1.504	0.475
161	124.38	256.10	160.00	109.96	0.085547	0.060638	1.510	0.479
162	125.75	255.50	165.00	103.89	0.081451	0.067363	1.609	0.473
163	123.32	252.60	172.50	107.22	0.059524	0.058652	1.621	0.486
164	122.63	253.14	160.00	106.53	0.081051	0.055854	1.531	0.474
165	122.01	253.68	157.50	106.49	0.067115	0.068088	1.507	0.495
166	124.45	256.62	160.00	104.41	0.085912	0.059527	1.533	0.475
167	123.76	254.87	160.00	111.10	0.086156	0.059867	1.495	0.486
168	124.31	251.66	157.50	108.51	0.096308	0.054131	1.521	0.484
169	123.27	254.52	160.00	105.27	0.078353	0.063508	1.543	0.475
170	123.92	255.33	155.00	103.10	0.057450	0.068114	1.487	0.486
171	124.48	256.61	165.00	103.96	0.093224	0.058927	1.534	0.476
172	125.37	257.70	165.00	102.91	0.075404	0.068144	1.584	0.476
173	123.62	252.95	157.50	103.08	0.053674	0.068568	1.504	0.492
174	122.33	253.23	157.50	104.47	0.051609	0.068848	1.505	0.493
175	124.55	255.96	165.00	103.32	0.088189	0.060666	1.521	0.474
176	125.55	254.65	170.00	104.45	0.078705	0.068291	1.623	0.473
177	122.49	257.34	157.50	104.62	0.058829	0.064229	1.527	0.486
178	125.80	254.59	160.00	103.66	0.083718	0.061001	1.523	0.473
179	124.21	253.50	170.00	102.51	0.061625	0.069242	1.615	0.484
180	126.08	258.40	155.00	101.78	0.084245	0.065142	1.509	0.482
181	124.50	254.10	170.00	104.51	0.080219	0.054267	1.573	0.475
182	124.92	254.36	157.50	105.30	0.077067	0.067147	1.511	0.479
183	122.26	251.87	157.50	104.85	0.067388	0.065203	1.529	0.495
184	126.06	247.99	165.00	103.73	0.084042	0.069131	1.485	0.483
185	131.88	244.80	172.50	114.80	0.086635	0.058665	1.496	0.485
186	125.99	256.61	162.50	103.79	0.086956	0.067311	1.483	0.472
187	121.93	252.19	157.50	106.70	0.071920	0.062568	1.535	0.496
188	125.44	254.80	157.50	110.76	0.092676	0.060402	1.596	0.478
189	125.85	258.06	160.00	101.98	0.081361	0.063960	1.504	0.474
190	125.66	255.53	170.00	103.89	0.080562	0.063659	1.574	0.473
191	125.82	257.45	165.00	103.02	0.081062	0.062597	1.515	0.474
192	123.80	255.48	170.00	106.33	0.102163	0.054744	1.547	0.474
193	123.16	253.00	157.50	103.42	0.063830	0.067729	1.526	0.493
194	125.65	254.38	170.00	103.49	0.078856	0.061207	1.551	0.475
195	124.05	253.80	172.50	104.36	0.059025	0.061630	1.549	0.483
196	123.49	257.60	155.00	102.19	0.057271	0.065307	1.547	0.486
197	124.98	251.33	157.50	103.06	0.084289	0.066098	1.531	0.484
198	123.80	253.11	160.00	103.57	0.066620	0.067008	1.526	0.495
199	127.27	253.58	170.00	103.66	0.099065	0.062865	1.523	0.469
200	124.66	253.65	160.00	102.73	0.066648	0.068689	1.503	0.492
201	122.03	252.47	157.50	104.88	0.073969	0.067592	1.548	0.495
202	122.07	251.99	157.50	107.28	0.080117	0.065282	1.531	0.497
203	129.75	238.31	172.50	115.20	0.071848	0.069119	1.673	0.493
204	124.86	254.73	157.50	102.96	0.085720	0.067433	1.553	0.486
205	124.46	255.47	167.50	105.26	0.095463	0.055169	1.545	0.474
206	125.02	253.90	160.00	102.97	0.071104	0.068018	1.507	0.490
207	125.16	258.12	157.50	102.57	0.073832	0.066576	1.582	0.478
208	122.69	252.62	157.50	103.84	0.064571	0.068059	1.515	0.495
209	123.91	249.92	157.50	108.00	0.079638	0.061152	1.549	0.484
210	124.85	258.42	155.00	102.23	0.068934	0.066224	1.565	0.485
211	123.16	256.28	155.00	103.02	0.058261	0.063959	1.549	0.484
212	124.13	256.08	157.50	103.62	0.086396	0.067624	1.527	0.486
213	124.09	253.80	157.50	103.16	0.059496	0.067490	1.509	0.493
214	122.64	254.15	172.50	104.29	0.049305	0.065608	1.627	0.485
215	124.79	255.47	160.00	103.79	0.075260	0.064440	1.592	0.475
216	125.04	256.09	165.00	102.90	0.078413	0.063534	1.565	0.477
217	123.03	255.67	155.00	102.63	0.056308	0.066221	1.564	0.482
218	125.68	256.19	160.00	106.50	0.079273	0.066904	1.473	0.478
219	124.56	251.29	170.00	107.95	0.101492	0.050283	1.591	0.473
220	120.89	241.62	162.50	109.11	0.081916	0.065063	1.503	0.484
221	121.10	258.99	160.00	102.74	0.057258	0.066293	1.536	0.494
222	124.32	254.36	157.50	103.12	0.062395	0.068946	1.502	0.493
223	123.97	251.07	157.50	104.26	0.058036	0.069194	1.510	0.493
224	126.34	253.65	157.50	99.36	0.087534	0.064926	1.498	0.483
225	124.21	255.72	172.50	104.71	0.061048	0.060311	1.568	0.484
226	123.33	252.28	157.50	104.82	0.050150	0.066451	1.523	0.492
227	122.80	254.06	157.50	105.47	0.081716	0.063390	1.570	0.474

228	126.28	255.70	165.00	103.42	0.086788	0.063330	1.512	0.472
229	122.79	255.29	160.00	106.11	0.080344	0.063366	1.576	0.475
230	124.98	252.72	172.50	106.45	0.070581	0.058580	1.581	0.485
231	123.99	256.86	170.00	106.39	0.091986	0.056197	1.561	0.474
232	125.13	255.03	172.50	104.67	0.072485	0.066991	1.593	0.484
233	123.82	253.57	157.50	103.42	0.063460	0.067846	1.528	0.495
234	126.33	256.87	170.00	103.52	0.087366	0.066494	1.524	0.482
235	123.07	256.52	172.50	104.11	0.053252	0.059554	1.553	0.484
236	125.23	251.57	172.50	107.31	0.073734	0.068635	1.699	0.483
237	122.81	253.36	172.50	104.50	0.054174	0.066539	1.638	0.484
238	127.39	249.23	172.50	109.55	0.100543	0.069387	1.533	0.480
239	123.52	252.63	157.50	104.15	0.060784	0.068594	1.520	0.493
240	124.10	252.10	165.00	103.10	0.082698	0.058874	1.532	0.474
241	126.72	253.90	165.00	103.30	0.092238	0.063499	1.518	0.470
242	124.18	252.13	172.50	104.58	0.062001	0.069380	1.647	0.487
243	125.17	254.32	162.50	105.30	0.101162	0.062383	1.543	0.475
244	123.29	250.76	157.50	104.00	0.064935	0.067112	1.525	0.494
245	122.72	251.62	157.50	104.42	0.071831	0.067564	1.542	0.495
246	126.16	255.35	165.00	103.23	0.096199	0.067749	1.542	0.467
247	122.78	254.39	172.50	104.03	0.053278	0.065520	1.609	0.485
248	125.30	252.86	165.00	103.70	0.087260	0.069145	1.596	0.471
249	124.13	253.63	160.00	102.81	0.060020	0.068129	1.511	0.494
250	119.34	256.93	152.50	104.31	0.065839	0.068853	1.579	0.494
251	124.25	255.79	172.50	102.69	0.061482	0.069334	1.588	0.484
252	123.75	255.00	157.50	103.18	0.061430	0.068254	1.533	0.494
253	126.01	256.71	165.00	103.10	0.089284	0.067722	1.492	0.470
254	124.08	254.34	157.50	103.07	0.059360	0.068892	1.499	0.493
255	123.97	251.25	157.50	104.09	0.062552	0.067432	1.526	0.494
256	122.64	249.99	157.50	105.70	0.070240	0.064892	1.557	0.496
257	123.19	258.32	170.00	106.57	0.098119	0.053216	1.570	0.477
258	124.84	253.49	157.50	103.44	0.086208	0.065029	1.537	0.485
259	125.37	254.15	170.00	103.58	0.075375	0.059968	1.546	0.475
260	122.52	253.56	157.50	103.12	0.070895	0.068091	1.512	0.496
261	125.96	257.64	165.00	102.39	0.086051	0.064667	1.504	0.472
262	124.38	253.11	157.50	102.02	0.070462	0.068095	1.512	0.496
263	122.71	250.83	157.50	105.85	0.088900	0.061096	1.552	0.486
264	122.54	250.30	157.50	104.57	0.049963	0.067916	1.523	0.493
265	124.89	250.40	157.50	106.75	0.072104	0.063843	1.528	0.481
266	126.41	249.97	160.00	110.33	0.088332	0.066540	1.484	0.477
267	123.89	252.63	170.00	105.71	0.084684	0.062485	1.633	0.475
268	123.85	251.17	157.50	103.92	0.071238	0.069425	1.543	0.494
269	124.12	253.21	170.00	105.16	0.091985	0.059993	1.533	0.475
270	126.25	256.53	160.00	103.54	0.087376	0.067275	1.488	0.472
271	124.58	251.98	172.50	104.18	0.065636	0.066335	1.610	0.485
272	123.43	252.89	157.50	104.14	0.055165	0.065542	1.526	0.493
273	125.32	255.54	170.00	102.52	0.076853	0.069002	1.591	0.474
274	124.17	257.34	155.00	102.15	0.060576	0.065559	1.567	0.487
275	124.80	255.58	157.50	105.98	0.074158	0.056342	1.592	0.479
276	124.07	253.63	172.50	104.19	0.061974	0.068665	1.638	0.487
277	125.62	256.38	160.00	103.89	0.088731	0.068050	1.500	0.472
278	124.12	253.79	157.50	103.29	0.059914	0.068963	1.514	0.493
279	124.60	256.93	157.50	107.91	0.065895	0.062619	1.567	0.482
280	131.01	264.65	175.00	111.35	0.101658	0.069353	1.586	0.480
281	122.62	254.51	160.00	105.96	0.079530	0.059092	1.556	0.475
282	126.94	255.45	175.00	106.65	0.098474	0.058075	1.598	0.471
283	120.67	249.40	170.00	113.93	0.091053	0.068438	1.571	0.502
284	123.40	250.89	157.50	105.51	0.051299	0.067216	1.518	0.493
285	125.67	249.25	170.00	107.90	0.091436	0.065478	1.702	0.471
286	125.75	255.81	165.00	103.38	0.081248	0.063846	1.555	0.473
287	125.83	249.09	167.50	111.18	0.084576	0.060108	1.524	0.484
288	126.05	254.84	165.00	103.71	0.100985	0.062284	1.509	0.467
289	126.78	252.40	160.00	109.03	0.098900	0.067668	1.515	0.473
290	125.94	257.90	162.50	102.55	0.082498	0.066289	1.571	0.473
291	123.65	251.06	160.00	104.44	0.060696	0.065900	1.534	0.494
292	125.26	258.05	160.00	102.60	0.075364	0.066221	1.574	0.476
293	123.68	253.63	157.50	103.41	0.066993	0.068123	1.526	0.495
294	124.28	249.50	157.50	104.37	0.082331	0.064982	1.558	0.485
295	123.85	250.80	157.50	104.22	0.056594	0.069313	1.564	0.493
296	122.33	253.19	172.50	104.78	0.051629	0.063983	1.614	0.485
297	124.14	250.58	157.50	104.84	0.083178	0.060771	1.561	0.486
298	123.87	253.55	160.00	105.02	0.087635	0.066535	1.481	0.472
299	122.22	254.49	157.50	105.70	0.066364	0.066758	1.516	0.495
300	123.63	252.77	170.00	105.86	0.093058	0.058957	1.619	0.477

POST-DEPOSITIONAL THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 1.62 +/- 0.240; %RO FOR EXP MEAN SOLUTION = 1.49
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 1.55 +/- 0.046
MIN %RO = 1.47; MAX %RO = 1.70
%RO FOR MIN OBJ SOLUTION = 1.62

POST-EXHUMATION THERMAL HISTORY (240-210 to 0 Ma):

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.60 +/- 0.300; %RO FOR EXP MEAN SOLUTION = 0.59
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.59 +/- 0.009
MIN %RO = 0.57; MAX %RO = 0.63
%RO FOR MIN OBJ SOLUTION = 0.60

BINNED %RO VALUES FOR POST-EXHUMATION HISTORY:

%RO BIN	RELATIVE FREQUENCY
0.00 - 0.03	0.000
0.03 - 0.05	0.000
0.05 - 0.08	0.000
0.08 - 0.10	0.000
0.10 - 0.12	0.000
0.12 - 0.15	0.000
0.15 - 0.18	0.000
0.17 - 0.20	0.000
0.20 - 0.23	0.000
0.23 - 0.25	0.000
0.25 - 0.27	0.000
0.28 - 0.30	0.000
0.30 - 0.32	0.000

0.33 - 0.35	0.000
0.35 - 0.37	0.000
0.38 - 0.40	0.000
0.40 - 0.42	0.000
0.43 - 0.45	0.000
0.45 - 0.47	0.000
0.47 - 0.50	0.000
0.50 - 0.52	0.000
0.53 - 0.55	0.000
0.55 - 0.57	0.010
0.57 - 0.60	0.873
0.60 - 0.62	0.113
0.62 - 0.65	0.003
0.65 - 0.68	0.000
0.68 - 0.70	0.000
0.70 - 0.72	0.000
0.73 - 0.75	0.000
0.75 - 0.77	0.000
0.78 - 0.80	0.000
0.80 - 0.82	0.000
0.82 - 0.85	0.000
0.85 - 0.88	0.000
0.88 - 0.90	0.000
0.90 - 0.93	0.000
0.93 - 0.95	0.000
0.95 - 0.97	0.000
0.98 - 1.00	0.000

MINIMUM PEAK TEMPERATURE = 99.36 DEG C; MAXIMUM PEAK TEMPERATURE = 115.80 DEG C

PEAK TEMPERATURE: AVERAGE = 105.09 STAND DEV = 2.544

MAX TEMP BIN	RELATIVE FREQUENCY
50.00 - 52.00	0.000
52.00 - 54.00	0.000
54.00 - 56.00	0.000
56.00 - 58.00	0.000
58.00 - 60.00	0.000
60.00 - 62.00	0.000
62.00 - 64.00	0.000
64.00 - 66.00	0.000
66.00 - 68.00	0.000
68.00 - 70.00	0.000
70.00 - 72.00	0.000
72.00 - 74.00	0.000
74.00 - 76.00	0.000
76.00 - 78.00	0.000
78.00 - 80.00	0.000
80.00 - 82.00	0.000
82.00 - 84.00	0.000
84.00 - 86.00	0.000
86.00 - 88.00	0.000
88.00 - 90.00	0.000
90.00 - 92.00	0.000
92.00 - 94.00	0.000
94.00 - 96.00	0.000
96.00 - 98.00	0.000
98.00 - 100.00	0.003
100.00 - 102.00	0.017
102.00 - 104.00	0.367
104.00 - 106.00	0.350
106.00 - 108.00	0.153
108.00 - 110.00	0.047
110.00 - 112.00	0.043
112.00 - 114.00	0.007
114.00 - 116.00	0.013
116.00 - 118.00	0.000
118.00 - 120.00	0.000

MINIMUM PEAK TIME = 137.50 MA; MAXIMUM PEAK TIME = 175.00 MA

TIME OF PEAK TEMP: AVERAGE = 162.52 STAND DEV = 6.088

TIME AT MAX TEMP	RELATIVE FREQUENCY
136.88 - 138.12	0.003
138.12 - 139.38	0.000
139.38 - 140.62	0.000
140.62 - 141.88	0.000
141.88 - 143.12	0.000
143.12 - 144.38	0.000
144.38 - 145.62	0.000
145.62 - 146.88	0.000
146.88 - 148.12	0.000
148.12 - 149.38	0.000
149.38 - 150.62	0.000
150.62 - 151.88	0.000
151.88 - 153.12	0.007
153.12 - 154.38	0.000
154.38 - 155.62	0.047
155.62 - 156.88	0.000
156.88 - 158.12	0.350
158.12 - 159.38	0.000
159.38 - 160.62	0.160
160.62 - 161.88	0.000
161.88 - 163.12	0.037
163.12 - 164.38	0.000
164.38 - 165.62	0.117
165.62 - 166.88	0.000
166.88 - 168.12	0.020
168.12 - 169.38	0.000
169.38 - 170.62	0.137
170.62 - 171.88	0.000
171.88 - 173.12	0.113
173.12 - 174.38	0.000
174.38 - 175.62	0.010

MONTE CARLO RANDOM SEARCH METHOD

MINIMUM OBJECTIVE SOLUTION: LOWEST COMBINED OBJECTIVE FUNCTION

MODEL RESULTS AT 0.0500 SIGNIFICANCE LEVEL

SEARCH FOR MAXIMUM TEMPERATURE BETWEEN 97.50 - 0.00 MA

THE LAST 13 SOLUTIONS ARE AT 0.0500 SIGNIFICANCE LEVEL

%RO MODEL: BASIN%RO

MODEL #	KIN POP# 1 CALCULATED AFT AGE (MA)	KIN POP# 2 CALCULATED AFT AGE (MA)	TIME OF MAXIMUM TEMP (MA)	MAXIMUM TEMP (DEG C)	KIN POP# 1 OBJECTIVE FUNCTION	KIN POP# 2 OBJECTIVE FUNCTION	%RO POST-DEP	%RO POST-EXH
1	123.36	270.30	72.50	83.84	0.102198	0.101996	1.753	0.488
2	124.18	244.27	50.00	81.63	0.114331	0.098123	1.738	0.488
3	141.17	258.07	52.50	81.46	0.164604	0.096526	1.624	0.479
4	117.45	244.35	57.50	85.71	0.148113	0.090032	1.430	0.500
5	138.99	270.77	72.50	85.71	0.148676	0.090152	1.494	0.492
6	133.51	244.22	85.00	84.96	0.137317	0.095923	1.627	0.489
7	134.86	246.01	45.00	83.81	0.165129	0.064112	1.702	0.488
8	136.71	252.66	57.50	79.72	0.168034	0.113785	1.380	0.465
9	128.13	255.41	85.00	79.56	0.134544	0.074414	1.665	0.484
10	131.36	236.88	60.00	88.28	0.148059	0.082595	1.794	0.497
11	128.79	251.39	72.50	83.72	0.105701	0.088932	1.583	0.498
12	136.37	258.34	92.50	83.09	0.165070	0.095842	1.423	0.494
13	133.29	243.66	45.00	78.58	0.119109	0.091534	1.728	0.474
14	130.42	231.40	72.50	81.45	0.136604	0.102975	1.815	0.478
15	124.54	242.74	70.00	76.13	0.103166	0.092521	1.485	0.475
16	137.40	256.76	60.00	80.80	0.124395	0.063697	1.536	0.482
17	97.16	248.40	85.00	94.08	0.159729	0.099150	1.538	0.536
18	138.64	269.62	60.00	81.62	0.138298	0.093649	1.423	0.475
19	123.96	246.68	82.50	83.90	0.168009	0.067045	1.588	0.486
20	124.56	249.99	60.00	79.40	0.092854	0.097272	1.643	0.476
21	138.75	258.28	87.50	85.03	0.133683	0.073917	1.493	0.493
22	116.57	242.82	65.00	79.31	0.112244	0.063322	1.637	0.478
23	137.24	270.42	65.00	83.82	0.123320	0.093030	1.641	0.490
24	132.70	264.77	50.00	82.16	0.161545	0.109391	1.850	0.477
25	104.86	256.64	67.50	84.98	0.167401	0.113356	1.859	0.494
26	105.17	242.24	77.50	86.10	0.132357	0.092974	1.719	0.514
27	118.81	242.74	65.00	76.42	0.101268	0.100965	1.753	0.474
28	107.73	230.18	72.50	92.50	0.144019	0.108989	1.706	0.521
29	136.41	258.18	40.00	81.81	0.160706	0.083743	1.555	0.474
30	106.78	254.49	77.50	91.63	0.118446	0.081766	1.665	0.515
31	124.74	247.86	87.50	82.82	0.146527	0.081273	1.722	0.495
32	129.67	241.57	52.50	81.60	0.165283	0.100580	1.583	0.485
33	134.48	231.92	42.50	80.30	0.152103	0.100441	1.731	0.485
34	128.16	260.41	72.50	83.33	0.155788	0.105493	1.398	0.493
35	141.96	244.82	42.50	79.05	0.155703	0.102551	1.404	0.469
36	117.04	260.44	82.50	87.10	0.150136	0.070682	1.748	0.503
37	127.35	244.24	92.50	81.59	0.163271	0.098796	1.796	0.488
38	120.11	260.08	85.00	90.07	0.167735	0.097626	1.826	0.501
39	112.65	231.00	75.00	89.41	0.158025	0.107007	1.845	0.506
40	105.19	243.15	77.50	88.88	0.138100	0.103102	1.521	0.515
41	133.42	268.88	67.50	77.54	0.131554	0.102509	1.432	0.477
42	126.75	267.21	87.50	86.23	0.167288	0.110964	1.787	0.508
43	104.14	256.06	45.00	81.81	0.147832	0.090992	1.620	0.488
44	120.36	250.78	70.00	85.63	0.128968	0.093696	1.804	0.497
45	115.07	232.64	72.50	81.42	0.136650	0.096922	1.660	0.495
46	119.04	233.95	65.00	86.31	0.069472	0.090479	1.643	0.497
47	138.17	242.79	52.50	75.09	0.135709	0.102689	1.711	0.462
48	111.53	231.59	67.50	88.29	0.135763	0.102055	1.814	0.503
49	136.53	240.76	62.50	80.39	0.118426	0.089395	1.712	0.477
50	117.55	238.56	47.50	86.43	0.156466	0.067883	1.605	0.499
51	110.09	242.65	67.50	83.73	0.101802	0.112313	1.765	0.493
52	116.47	236.28	70.00	84.23	0.093590	0.079068	1.753	0.496
53	118.52	246.03	55.00	73.29	0.156973	0.096904	1.820	0.458
54	123.71	257.76	65.00	76.35	0.133794	0.087035	1.803	0.464
55	137.68	264.98	70.00	79.90	0.126337	0.112039	1.549	0.486
56	135.10	231.95	57.50	77.19	0.114743	0.113556	1.784	0.471
57	126.22	230.51	65.00	85.56	0.132649	0.107364	1.557	0.501
58	126.77	251.29	75.00	89.56	0.142550	0.086880	1.664	0.513
59	113.13	235.25	67.50	87.71	0.154494	0.087836	1.805	0.512
60	134.87	265.85	77.50	79.74	0.130526	0.104440	1.615	0.478
61	142.39	247.47	42.50	78.15	0.164356	0.107546	1.439	0.470
62	122.64	241.26	72.50	87.79	0.103592	0.059140	1.708	0.502
63	136.33	245.20	60.00	80.06	0.117061	0.101448	1.662	0.478
64	133.19	231.74	72.50	84.56	0.098445	0.101347	1.608	0.496
65	127.70	229.19	65.00	75.09	0.154614	0.113833	1.841	0.473
66	131.19	230.59	65.00	80.31	0.081713	0.106948	1.652	0.483
67	122.34	250.72	95.00	89.47	0.149728	0.069097	1.520	0.510
68	139.27	244.91	55.00	83.43	0.156031	0.109075	1.817	0.491
69	129.00	240.33	80.00	79.48	0.136583	0.084058	1.541	0.481
70	116.81	248.05	75.00	87.17	0.131682	0.089169	1.808	0.501
71	117.50	251.08	52.50	81.63	0.148350	0.085189	1.735	0.489
72	116.98	237.94	67.50	89.48	0.147348	0.070937	1.727	0.510
73	132.66	258.94	65.00	74.72	0.153207	0.100302	1.585	0.463
74	125.17	269.91	47.50	82.27	0.156405	0.097600	1.690	0.488
75	135.90	269.35	72.50	76.25	0.144473	0.096992	1.485	0.475
76	124.12	243.11	47.50	76.63	0.142343	0.065889	1.497	0.472
77	134.54	244.40	70.00	83.19	0.125012	0.103425	1.798	0.489
78	123.04	241.95	67.50	88.96	0.114098	0.065595	1.722	0.503
79	131.47	249.92	60.00	84.23	0.103583	0.083355	1.472	0.494
80	132.40	246.18	85.00	87.97	0.137132	0.094591	1.685	0.503
81	118.87	249.19	65.00	83.67	0.162617	0.110117	1.388	0.494
82	105.15	263.59	70.00	89.07	0.128454	0.091814	1.722	0.514
83	128.88	265.67	75.00	82.17	0.154158	0.078918	1.537	0.485
84	130.58	251.85	72.50	79.45	0.108810	0.093943	1.494	0.475
85	139.18	233.38	55.00	80.83	0.136642	0.093306	1.479	0.480
86	114.02	239.36	57.50	85.27	0.136140	0.088846	1.807	0.499
87	125.85	256.71	65.00	88.79	0.112013	0.060182	1.670	0.502

88	128.74	254.80	67.50	80.27	0.117931	0.101873	1.752	0.474
89	128.96	253.84	70.00	78.81	0.136185	0.092218	1.426	0.479
90	112.96	252.99	75.00	86.93	0.103976	0.080435	1.566	0.506
91	133.22	229.62	52.50	80.57	0.095657	0.111708	1.619	0.479
92	106.56	251.28	75.00	87.34	0.117089	0.068697	1.700	0.513
93	125.64	246.25	65.00	80.03	0.125075	0.087420	1.778	0.476
94	127.04	248.08	60.00	75.48	0.168266	0.075014	1.608	0.458
95	133.23	257.42	67.50	78.22	0.114938	0.109367	1.635	0.470
96	112.12	266.00	87.50	87.07	0.129889	0.073978	1.704	0.508
97	122.84	266.24	67.50	79.21	0.143021	0.073695	1.626	0.469
98	131.80	237.60	35.00	78.75	0.157607	0.089300	1.513	0.471
99	122.71	255.00	70.00	79.39	0.166302	0.074279	1.592	0.474
100	132.60	250.58	60.00	74.58	0.163831	0.107150	1.394	0.458
101	132.43	265.46	55.00	81.69	0.090248	0.070492	1.497	0.483
102	129.34	229.57	67.50	81.19	0.126096	0.111969	1.440	0.486
103	140.59	229.44	45.00	76.86	0.146325	0.112605	1.656	0.467
104	123.81	246.99	80.00	84.52	0.138034	0.068397	1.499	0.499
105	126.69	240.81	47.50	83.03	0.162677	0.073945	1.566	0.490
106	124.98	257.88	60.00	83.58	0.090574	0.098639	1.578	0.489
107	128.98	247.92	52.50	76.29	0.115341	0.100736	1.737	0.470
108	126.49	248.49	70.00	78.19	0.119502	0.086498	1.688	0.478
109	126.23	242.80	52.50	84.34	0.167471	0.113404	1.859	0.487
110	126.51	248.00	40.00	79.57	0.120571	0.074671	1.623	0.480
111	115.12	260.83	75.00	86.19	0.136971	0.070739	1.670	0.500
112	131.46	241.28	55.00	79.24	0.118581	0.087645	1.570	0.485
113	116.02	246.90	85.00	86.89	0.167877	0.113679	1.381	0.505
114	140.59	236.41	57.50	79.26	0.146343	0.113752	1.617	0.473
115	134.46	231.42	67.50	82.09	0.104212	0.102882	1.611	0.490
116	122.89	261.48	75.00	80.36	0.156440	0.097453	1.641	0.485
117	131.05	247.40	52.50	80.31	0.093766	0.086375	1.486	0.475
118	112.34	244.73	92.50	88.92	0.143275	0.089489	1.632	0.512
119	133.70	237.41	60.00	76.03	0.109445	0.109052	1.728	0.466
120	135.56	235.91	57.50	74.42	0.131833	0.082129	1.507	0.461
121	117.23	247.06	52.50	81.10	0.103791	0.060152	1.592	0.483
122	127.75	237.77	72.50	84.31	0.100041	0.095055	1.477	0.490
123	127.64	256.55	75.00	78.26	0.136808	0.082132	1.594	0.477
124	121.85	248.43	62.50	81.54	0.103728	0.098525	1.717	0.486
125	121.95	252.62	75.00	84.56	0.084839	0.094439	1.741	0.492
126	124.01	239.33	45.00	80.08	0.144174	0.103435	1.579	0.477
127	138.68	242.76	55.00	84.86	0.161694	0.096939	1.550	0.492
128	140.40	241.61	77.50	84.67	0.145024	0.077284	1.459	0.494
129	119.72	230.31	62.50	85.51	0.078779	0.108366	1.712	0.495
130	121.76	235.54	57.50	75.52	0.135403	0.082670	1.630	0.461
131	129.21	252.44	62.50	82.40	0.068118	0.093232	1.698	0.487
132	114.24	263.15	70.00	83.43	0.134594	0.104237	1.428	0.493
133	121.35	263.72	62.50	79.52	0.122920	0.098703	1.445	0.481
134	117.61	260.54	60.00	83.02	0.145202	0.105031	1.413	0.496
135	116.42	239.90	62.50	89.92	0.140557	0.084675	1.649	0.509
136	131.78	234.19	55.00	82.90	0.108600	0.089315	1.676	0.490
137	113.90	240.48	45.00	81.65	0.126609	0.076626	1.595	0.486
138	117.89	247.44	80.00	88.14	0.107152	0.059123	1.684	0.506
139	122.96	258.54	42.50	72.20	0.154904	0.081817	1.655	0.459
140	132.33	253.90	87.50	86.70	0.160288	0.090338	1.524	0.499
141	130.49	257.82	60.00	86.71	0.117691	0.085967	1.788	0.493
142	127.07	245.92	62.50	81.96	0.073982	0.076422	1.514	0.488
143	137.69	238.63	42.50	74.91	0.150626	0.091858	1.427	0.457
144	124.69	252.60	85.00	86.54	0.140685	0.095265	1.821	0.499
145	126.59	261.26	67.50	83.81	0.143188	0.096961	1.824	0.489
146	137.04	236.43	70.00	84.06	0.121898	0.106978	1.752	0.492
147	132.69	255.02	62.50	78.91	0.115779	0.110836	1.785	0.472
148	137.94	254.70	52.50	78.43	0.128888	0.087440	1.623	0.470
149	122.17	244.61	75.00	83.42	0.073129	0.101168	1.673	0.493
150	138.53	232.22	62.50	73.54	0.154217	0.112056	1.441	0.456
151	139.38	269.33	75.00	81.43	0.150049	0.113707	1.625	0.492
152	116.50	237.79	77.50	85.47	0.088501	0.071637	1.738	0.503
153	133.91	271.26	62.50	80.82	0.128355	0.096202	1.437	0.483
154	118.86	234.65	50.00	85.17	0.163303	0.110582	1.853	0.492
155	126.50	254.59	60.00	73.05	0.129303	0.069206	1.604	0.463
156	125.31	252.95	45.00	82.50	0.131533	0.070171	1.497	0.484
157	131.37	253.14	70.00	79.59	0.165044	0.111761	1.385	0.475
158	135.51	236.54	67.50	82.98	0.156526	0.107040	1.397	0.491
159	105.99	243.96	80.00	90.48	0.160997	0.067634	1.694	0.528
160	127.17	246.37	87.50	85.14	0.152827	0.101865	1.679	0.495
161	110.88	266.04	75.00	84.87	0.120748	0.069814	1.757	0.496
162	114.73	235.90	72.50	86.08	0.084177	0.080938	1.576	0.503
163	118.80	266.29	55.00	85.65	0.167689	0.081982	1.555	0.500
164	104.41	248.67	65.00	88.69	0.152070	0.085730	1.801	0.517
165	134.15	230.84	60.00	81.14	0.102060	0.105742	1.573	0.483
166	125.61	274.53	50.00	79.19	0.158264	0.108569	1.394	0.478
167	139.74	245.91	60.00	78.11	0.140457	0.113462	1.427	0.469
168	126.41	235.97	55.00	79.97	0.103124	0.099941	1.665	0.483
169	130.33	241.19	57.50	82.89	0.107892	0.103321	1.774	0.481
170	114.61	234.45	75.00	91.61	0.156681	0.088056	1.554	0.519
171	121.90	240.98	55.00	80.75	0.159455	0.076612	1.493	0.483
172	122.92	265.17	60.00	83.98	0.137309	0.092979	1.424	0.491
173	120.94	264.11	70.00	85.22	0.090232	0.109463	1.671	0.495
174	131.94	263.93	75.00	81.64	0.101341	0.094084	1.618	0.487
175	130.22	235.07	65.00	82.26	0.075039	0.106528	1.697	0.488
176	120.70	255.84	75.00	88.71	0.123143	0.097619	1.794	0.509
177	122.17	231.18	47.50	83.31	0.130615	0.104072	1.767	0.489
178	140.00	256.07	62.50	80.38	0.142262	0.090565	1.507	0.484
179	106.85	235.48	72.50	84.52	0.105696	0.082983	1.636	0.502
180	135.58	249.87	67.50	82.98	0.111901	0.093006	1.623	0.490
181	120.35	251.45	27.50	75.04	0.153702	0.084805	1.799	0.456
182	125.99	242.29	52.50	81.02	0.106933	0.065554	1.576	0.487
183	109.32	239.19	77.50	92.72	0.136744	0.069576	1.588	0.523
184	125.93	229.93	32.50	75.15	0.168150	0.110227	1.736	0.457
185	113.21	254.98	57.50	80.34	0.085489	0.094292	1.742	0.488
186	129.32	275.00	67.50	83.14	0.162497	0.110880	1.388	0.485
187	122.26	263.61	47.50	81.43	0.128404	0.098094	1.640	0.481
188	138.91	246.86	57.50	75.81	0.136816	0.101967	1.811	0.463
189	131.76	238.47	70.00	77.06	0.135125	0.095670	1.488	0.465
190	126.48	260.01	62.50	76.64	0.166964	0.087820	1.606	0.460
191	139.99	255.25	57.50	76.65	0.142183	0.097004	1.689	0.469
192	129.11	251.78	60.00	76.81	0.105751	0.094340	1.577	0.468
193	119.81	249.07	77.50	87.31	0.115960	0.074485	1.680	0.503
194	123.06	253.52	82.50	81.46	0.153526	0.097963	1.744	0.489
195	140.87	261.46	55.00	85.95	0.148249	0.093161	1.595	0.492

196	130.64	252.06	55.00	85.12	0.165691	0.083921	1.482	0.495
197	119.51	259.57	62.50	80.08	0.088163	0.110025	1.494	0.483
198	134.80	268.59	47.50	78.13	0.106564	0.091726	1.639	0.473
199	137.60	231.15	82.50	80.25	0.125766	0.110031	1.727	0.485
200	127.79	248.62	75.00	78.45	0.092547	0.089339	1.506	0.478
201	123.56	244.28	50.00	81.60	0.153334	0.102847	1.471	0.491
202	127.74	253.33	67.50	80.32	0.137399	0.093040	1.816	0.477
203	118.71	244.85	62.50	80.97	0.132617	0.089802	1.809	0.479
204	142.92	234.46	57.50	80.27	0.162335	0.101300	1.731	0.481
205	132.89	237.00	67.50	78.00	0.154166	0.104144	1.692	0.466
206	114.04	251.94	77.50	89.66	0.145939	0.100556	1.783	0.514
207	125.53	245.07	57.50	77.57	0.145561	0.098567	1.412	0.468
208	122.10	256.09	77.50	85.14	0.162212	0.109843	1.851	0.497
209	123.88	255.10	50.00	82.23	0.145522	0.094377	1.500	0.485
210	129.41	256.41	62.50	83.41	0.165600	0.074975	1.597	0.484
211	135.23	250.28	60.00	81.02	0.137606	0.093181	1.424	0.484
212	138.13	249.56	67.50	84.72	0.129424	0.083727	1.599	0.492
213	141.24	231.78	50.00	78.71	0.150811	0.101134	1.577	0.475
214	119.09	234.40	75.00	86.93	0.148080	0.098308	1.519	0.510
215	127.94	235.55	50.00	80.86	0.144296	0.111914	1.513	0.476
216	106.59	264.51	77.50	89.60	0.156456	0.088256	1.517	0.509
217	129.87	239.37	75.00	82.11	0.088243	0.080639	1.550	0.488
218	129.41	270.78	72.50	81.64	0.114502	0.090170	1.563	0.482
219	129.05	239.09	57.50	75.45	0.112675	0.090511	1.492	0.467
220	122.72	231.79	87.50	87.52	0.161755	0.104218	1.643	0.503
221	137.47	234.47	55.00	82.99	0.167132	0.087948	1.491	0.488
222	132.86	234.06	52.50	84.17	0.119467	0.108254	1.475	0.491
223	127.03	232.92	77.50	89.66	0.112896	0.111043	1.459	0.504
224	112.57	236.89	52.50	83.51	0.054271	0.103988	1.678	0.483
225	120.39	236.93	67.50	88.19	0.144820	0.075863	1.757	0.506
226	128.21	242.97	67.50	88.42	0.159220	0.091512	1.802	0.503
227	116.22	274.50	80.00	81.88	0.158063	0.108438	1.395	0.488
228	122.11	233.07	70.00	87.96	0.115208	0.094796	1.633	0.506
229	110.59	254.68	52.50	83.92	0.149700	0.066493	1.524	0.496
230	128.06	254.74	62.50	77.99	0.110130	0.071450	1.540	0.470
231	122.56	250.85	80.00	87.12	0.131278	0.094682	1.433	0.504
232	113.47	260.40	85.00	91.95	0.139243	0.069426	1.590	0.518
233	130.61	244.64	57.50	81.81	0.121044	0.103925	1.566	0.486
234	119.95	229.68	67.50	88.39	0.138310	0.111452	1.817	0.502
235	124.68	233.22	72.50	76.24	0.165603	0.094056	1.565	0.469
236	117.85	257.53	72.50	85.04	0.134463	0.107602	1.428	0.499
237	124.62	243.81	72.50	89.92	0.120897	0.081866	1.792	0.504
238	117.25	229.52	85.00	88.45	0.156101	0.112240	1.843	0.509
239	98.15	255.11	75.00	90.90	0.157859	0.110015	1.494	0.525
240	118.66	244.02	60.00	87.00	0.143837	0.093876	1.500	0.503
241	140.82	234.37	80.00	88.38	0.147926	0.102954	1.610	0.494
242	104.04	233.82	77.50	90.02	0.152274	0.091136	1.658	0.524
243	105.32	248.35	75.00	83.11	0.138311	0.108960	1.711	0.498
244	142.48	264.26	75.00	74.18	0.159310	0.101905	1.412	0.463
245	115.26	231.87	70.00	82.75	0.091249	0.100675	1.730	0.490
246	107.59	256.10	80.00	88.23	0.144653	0.097952	1.826	0.508
247	119.33	239.16	45.00	79.35	0.167138	0.113178	1.382	0.471
248	108.39	234.59	67.50	90.73	0.150229	0.087367	1.566	0.516
249	123.05	230.58	70.00	86.43	0.167390	0.107009	1.645	0.504
250	124.16	241.89	75.00	89.62	0.120244	0.074738	1.741	0.511
251	131.52	260.27	47.50	74.84	0.149878	0.099758	1.732	0.465
252	139.99	237.75	62.50	82.55	0.162669	0.110152	1.388	0.488
253	134.58	245.80	55.00	76.30	0.167220	0.105716	1.442	0.457
254	130.21	256.26	65.00	83.47	0.103364	0.082007	1.473	0.493
255	132.36	247.64	65.00	79.78	0.089769	0.078201	1.583	0.479
256	139.46	251.69	62.50	79.01	0.138534	0.078095	1.512	0.470
257	138.55	255.07	70.00	85.52	0.132267	0.092717	1.564	0.492
258	134.15	230.28	60.00	83.01	0.133419	0.108484	1.430	0.490
259	116.50	255.91	77.50	88.92	0.137452	0.108142	1.779	0.511
260	118.21	260.52	47.50	78.42	0.156996	0.109304	1.396	0.476
261	116.96	263.18	85.00	83.68	0.120478	0.077587	1.532	0.498
262	118.47	243.36	82.50	89.75	0.158143	0.098355	1.713	0.520
263	123.42	252.58	70.00	82.83	0.092223	0.078161	1.573	0.490
264	142.92	246.89	80.00	83.03	0.162296	0.109230	1.706	0.489
265	135.26	233.18	67.50	85.38	0.109696	0.100392	1.473	0.491
266	125.82	229.84	82.50	86.84	0.113110	0.110664	1.617	0.499
267	121.47	254.88	45.00	81.53	0.160511	0.089563	1.644	0.486
268	127.32	243.93	77.50	88.00	0.084650	0.083657	1.580	0.501
269	125.75	241.48	65.00	79.90	0.166909	0.113023	1.382	0.480
270	136.73	230.73	52.50	74.11	0.142742	0.110584	1.574	0.460
271	127.92	250.35	70.00	80.13	0.129691	0.091040	1.499	0.481
272	115.87	245.69	47.50	82.20	0.124592	0.084368	1.442	0.487
273	111.12	236.88	80.00	86.85	0.131264	0.105682	1.664	0.500
274	128.99	269.72	60.00	74.56	0.162392	0.084960	1.682	0.459
275	130.07	237.12	62.50	76.47	0.121881	0.074935	1.570	0.475
276	129.44	252.13	55.00	82.14	0.166353	0.069147	1.509	0.492
277	124.85	264.65	77.50	75.57	0.168232	0.083653	1.710	0.473
278	130.03	248.11	50.00	86.27	0.141170	0.095594	1.821	0.490
279	135.11	241.84	55.00	84.67	0.122392	0.082878	1.795	0.482
280	139.23	240.96	42.50	75.34	0.159400	0.102857	1.496	0.465
281	127.03	251.85	47.50	78.14	0.130567	0.088808	1.434	0.473
282	121.57	250.69	62.50	89.70	0.166390	0.111087	1.558	0.507
283	123.34	230.44	80.00	85.03	0.168108	0.113835	1.860	0.494
284	126.26	252.33	65.00	87.73	0.134287	0.083981	1.565	0.500
285	138.76	254.04	62.50	79.35	0.133762	0.074646	1.479	0.476
286	102.45	245.68	70.00	90.25	0.128611	0.087422	1.525	0.516
287	107.67	255.89	85.00	93.37	0.165238	0.094661	1.692	0.530
288	125.47	259.34	72.50	83.11	0.075845	0.065296	1.653	0.487
289	115.84	239.30	55.00	81.31	0.094065	0.068511	1.591	0.487
290	128.66	245.70	62.50	84.43	0.066521	0.055153	1.602	0.491
291	131.79	238.83	57.50	82.86	0.085859	0.068738	1.550	0.486
292	126.36	240.38	52.50	77.07	0.097945	0.066507	1.635	0.472
293	118.90	244.63	75.00	83.42	0.093591	0.059925	1.705	0.494
294	128.14	246.61	57.50	84.77	0.096862	0.065822	1.482	0.494
295	115.84	259.26	57.50	84.53	0.094851	0.068953	1.692	0.495
296	131.88	244.80	67.50	81.39	0.086635	0.058665	1.496	0.485
297	129.75	238.31	72.50	82.75	0.071848	0.069119	1.673	0.493
298	120.89	241.62	57.50	79.68	0.081916	0.065063	1.503	0.484
299	131.01	264.65	50.00	80.90	0.101658	0.069353	1.586	0.480
300	120.67	249.40	72.50	85.95	0.091053	0.068438	1.571	0.502

POST-DEPOSITIONAL THERMAL HISTORY:

 %RO CONSTRAINT INCLUDED:
 INPUT %RO RANGE = 1.62 +/- 0.240; %RO FOR EXP MEAN SOLUTION = 1.50
 AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 1.62 +/- 0.128
 MIN %RO = 1.38; MAX %RO = 1.86
 %RO FOR MIN OBJ SOLUTION = 1.57

POST-EXHUMATION THERMAL HISTORY (115-100 to 0 Ma):

 %RO CONSTRAINT INCLUDED:
 INPUT %RO RANGE = 0.50 +/- 0.200; %RO FOR EXP MEAN SOLUTION = 0.48
 AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.49 +/- 0.015
 MIN %RO = 0.46; MAX %RO = 0.54
 %RO FOR MIN OBJ SOLUTION = 0.50

BINNED %RO VALUES FOR POST-EXHUMATION HISTORY:

%RO BIN	RELATIVE FREQUENCY
0.00 - 0.03	0.000
0.03 - 0.05	0.000
0.05 - 0.08	0.000
0.08 - 0.10	0.000
0.10 - 0.12	0.000
0.12 - 0.15	0.000
0.15 - 0.18	0.000
0.17 - 0.20	0.000
0.20 - 0.23	0.000
0.23 - 0.25	0.000
0.25 - 0.27	0.000
0.28 - 0.30	0.000
0.30 - 0.32	0.000
0.33 - 0.35	0.000
0.35 - 0.37	0.000
0.38 - 0.40	0.000
0.40 - 0.42	0.000
0.43 - 0.45	0.000
0.45 - 0.47	0.210
0.47 - 0.50	0.570
0.50 - 0.52	0.210
0.53 - 0.55	0.010
0.55 - 0.57	0.000
0.57 - 0.60	0.000
0.60 - 0.62	0.000
0.62 - 0.65	0.000
0.65 - 0.68	0.000
0.68 - 0.70	0.000
0.70 - 0.72	0.000
0.73 - 0.75	0.000
0.75 - 0.77	0.000
0.78 - 0.80	0.000
0.80 - 0.82	0.000
0.82 - 0.85	0.000
0.85 - 0.88	0.000
0.88 - 0.90	0.000
0.90 - 0.93	0.000
0.93 - 0.95	0.000
0.95 - 0.97	0.000
0.98 - 1.00	0.000

MINIMUM PEAK TEMPERATURE = 72.20 DEG C; MAXIMUM PEAK TEMPERATURE = 94.08 DEG C

PEAK TEMPERATURE: AVERAGE = 82.71 STAND DEV = 4.440

MAX TEMP BIN	RELATIVE FREQUENCY
50.00 - 52.00	0.000
52.00 - 54.00	0.000
54.00 - 56.00	0.000
56.00 - 58.00	0.000
58.00 - 60.00	0.000
60.00 - 62.00	0.000
62.00 - 64.00	0.000
64.00 - 66.00	0.000
66.00 - 68.00	0.000
68.00 - 70.00	0.000
70.00 - 72.00	0.000
72.00 - 74.00	0.013
74.00 - 76.00	0.060
76.00 - 78.00	0.070
78.00 - 80.00	0.130
80.00 - 82.00	0.180
82.00 - 84.00	0.173
84.00 - 86.00	0.133
86.00 - 88.00	0.097
88.00 - 90.00	0.100
90.00 - 92.00	0.030
92.00 - 94.00	0.010
94.00 - 96.00	0.003
96.00 - 98.00	0.000
98.00 - 100.00	0.000

MINIMUM PEAK TIME = 27.50 MA; MAXIMUM PEAK TIME = 95.00 MA

TIME OF PEAK TEMP: AVERAGE = 65.15 STAND DEV = 12.265

TIME AT MAX TEMP	RELATIVE FREQUENCY
26.88 - 28.12	0.003
28.12 - 29.38	0.000
29.38 - 30.62	0.000
30.62 - 31.88	0.000
31.88 - 33.12	0.003
33.12 - 34.38	0.000
34.38 - 35.62	0.003
35.62 - 36.88	0.000
36.88 - 38.12	0.000

38.12 -	39.38	0.000
39.38 -	40.62	0.007
40.62 -	41.88	0.000
41.88 -	43.12	0.020
43.12 -	44.38	0.000
44.38 -	45.62	0.030
45.62 -	46.88	0.000
46.88 -	48.12	0.037
48.12 -	49.38	0.000
49.38 -	50.62	0.033
50.62 -	51.88	0.000
51.88 -	53.12	0.053
53.12 -	54.38	0.000
54.38 -	55.62	0.057
55.62 -	56.88	0.000
56.88 -	58.12	0.063
58.12 -	59.38	0.000
59.38 -	60.62	0.070
60.62 -	61.88	0.000
61.88 -	63.12	0.073
63.12 -	64.38	0.000
64.38 -	65.62	0.060
65.62 -	66.88	0.000
66.88 -	68.12	0.083
68.12 -	69.38	0.000
69.38 -	70.62	0.070
70.62 -	71.88	0.000
71.88 -	73.12	0.070
73.12 -	74.38	0.000
74.38 -	75.62	0.080
75.62 -	76.88	0.000
76.88 -	78.12	0.053
78.12 -	79.38	0.000
79.38 -	80.62	0.037
80.62 -	81.88	0.000
81.88 -	83.12	0.020
83.12 -	84.38	0.000
84.38 -	85.62	0.037
85.62 -	86.88	0.000
86.88 -	88.12	0.023
88.12 -	89.38	0.000
89.38 -	90.62	0.000
90.62 -	91.88	0.000
91.88 -	93.12	0.010
93.12 -	94.38	0.000
94.38 -	95.62	0.003

CONTROLLED RANDOM SEARCH TECHNIQUE

MINIMUM OBJECTIVE SOLUTION: LOWEST COMBINED OBJECTIVE FUNCTION

MODEL RESULTS AT 0.5000 SIGNIFICANCE LEVEL

SEARCH FOR MAXIMUM TEMPERATURE BETWEEN 97.50 - 0.00 MA

ALL SOLUTIONS ARE AT 0.5000 SIGNIFICANCE LEVEL

%RO MODEL: BASIN%RO

MODEL #	KIN POP# 1 CALCULATED AFT AGE (MA)	KIN POP# 2 CALCULATED AFT AGE (MA)	TIME OF MAXIMUM TEMP (MA)	MAXIMUM TEMP (DEG C)	KIN POP# 1 OBJECTIVE FUNCTION	KIN POP# 2 OBJECTIVE FUNCTION	%RO POST-DEP	%RO POST-EXH
1	121.95	256.97	60.00	79.55	0.060677	0.062353	1.563	0.485
2	123.98	253.06	65.00	81.14	0.058213	0.068841	1.510	0.493
3	124.81	256.18	65.00	78.64	0.068439	0.064877	1.481	0.482
4	125.38	255.56	55.00	74.52	0.082299	0.062157	1.519	0.473
5	123.64	253.65	65.00	79.40	0.053957	0.064984	1.622	0.485
6	124.35	253.70	65.00	81.01	0.062718	0.067844	1.506	0.491
7	123.75	250.04	67.50	81.04	0.089916	0.052707	1.538	0.483
8	125.71	256.57	55.00	74.49	0.083815	0.061919	1.520	0.473
9	124.83	250.48	65.00	78.79	0.077045	0.065294	1.531	0.484
10	127.27	258.07	65.00	76.69	0.099002	0.067562	1.484	0.475
11	124.26	251.64	65.00	81.06	0.061602	0.069192	1.512	0.491
12	126.19	252.92	55.00	73.43	0.094177	0.060897	1.519	0.469
13	122.69	257.91	60.00	78.68	0.059265	0.067664	1.513	0.483
14	125.99	255.27	55.00	74.72	0.083117	0.060845	1.523	0.473
15	123.83	249.84	60.00	79.43	0.079359	0.068682	1.503	0.483
16	122.59	253.26	60.00	76.21	0.074876	0.061226	1.568	0.476
17	121.63	255.75	45.00	79.17	0.100640	0.053670	1.567	0.484
18	124.93	254.72	45.00	75.40	0.090582	0.067551	1.491	0.473
19	120.30	258.71	67.50	81.55	0.059354	0.061477	1.516	0.494
20	125.74	252.75	55.00	74.37	0.080790	0.063504	1.506	0.473
21	126.88	256.59	55.00	73.10	0.099815	0.062333	1.518	0.467
22	121.95	254.42	45.00	78.17	0.100172	0.058838	1.529	0.478
23	124.22	258.08	72.50	78.73	0.061194	0.065193	1.539	0.486
24	124.38	250.14	67.50	77.53	0.099497	0.066711	1.665	0.483
25	126.16	255.83	60.00	74.61	0.085256	0.061606	1.522	0.473
26	125.19	253.97	55.00	73.98	0.086101	0.067082	1.493	0.471
27	124.38	248.53	72.50	78.87	0.073391	0.066170	1.603	0.479
28	124.80	254.64	55.00	74.33	0.082422	0.060044	1.533	0.472
29	123.98	251.25	72.50	76.87	0.101800	0.053516	1.536	0.480
30	124.46	257.64	67.50	78.67	0.064163	0.065238	1.552	0.486
31	125.50	252.91	60.00	74.55	0.082236	0.064382	1.557	0.473
32	125.47	259.34	72.50	83.11	0.075845	0.065296	1.653	0.487
33	123.21	254.84	45.00	77.01	0.094190	0.053309	1.566	0.475
34	123.96	255.53	60.00	77.86	0.058052	0.063499	1.541	0.482
35	124.08	251.18	65.00	82.11	0.062200	0.066621	1.533	0.493
36	123.76	253.41	65.00	82.10	0.065238	0.066876	1.511	0.495
37	126.34	257.85	72.50	80.48	0.087509	0.064811	1.495	0.485
38	126.59	256.07	65.00	74.95	0.091603	0.069028	1.511	0.477
39	125.44	255.25	47.50	74.96	0.086414	0.054683	1.578	0.473

40	125.76	256.79	55.00	75.75	0.080310	0.064857	1.557	0.476
41	125.76	253.80	55.00	73.87	0.087534	0.062149	1.523	0.470
42	123.19	250.34	60.00	79.00	0.081608	0.063880	1.522	0.483
43	123.35	250.62	65.00	81.62	0.053585	0.066164	1.532	0.493
44	122.32	250.73	72.50	83.74	0.076978	0.064164	1.537	0.498
45	122.79	250.65	72.50	82.95	0.066932	0.068850	1.509	0.496
46	125.20	251.33	60.00	79.59	0.087881	0.067890	1.539	0.486
47	122.68	254.06	65.00	79.18	0.051585	0.065316	1.613	0.484
48	125.00	255.41	60.00	78.60	0.085359	0.067011	1.524	0.484
49	115.84	239.30	55.00	81.31	0.094065	0.068511	1.591	0.487
50	124.54	253.69	65.00	81.35	0.065156	0.068398	1.529	0.493
51	121.98	252.66	65.00	83.13	0.072303	0.067456	1.511	0.496
52	125.71	254.89	65.00	79.87	0.079601	0.064608	1.540	0.485
53	122.97	248.79	65.00	82.60	0.068045	0.064801	1.579	0.495
54	123.56	250.90	65.00	80.86	0.053014	0.066819	1.517	0.491
55	125.15	250.57	62.50	79.18	0.099561	0.066273	1.553	0.477
56	125.90	255.51	55.00	74.99	0.081979	0.061745	1.536	0.475
57	124.03	254.91	65.00	79.66	0.058854	0.068495	1.508	0.486
58	124.18	251.04	65.00	81.81	0.060668	0.067164	1.543	0.493
59	127.12	255.92	47.50	75.15	0.097121	0.062116	1.550	0.473
60	124.09	254.40	60.00	74.63	0.091921	0.067304	1.475	0.472
61	122.39	253.31	65.00	78.94	0.052987	0.067936	1.655	0.484
62	123.65	253.87	67.50	78.07	0.079075	0.059997	1.501	0.485
63	121.95	252.11	65.00	82.71	0.070134	0.064018	1.534	0.495
64	122.38	251.53	45.00	78.31	0.092039	0.057091	1.613	0.481
65	128.66	245.70	62.50	84.43	0.066521	0.055153	1.602	0.491
66	123.14	250.41	67.50	81.29	0.050050	0.066643	1.529	0.493
67	125.03	253.95	60.00	79.00	0.071177	0.065640	1.591	0.484
68	122.94	250.53	65.00	82.03	0.063909	0.067704	1.520	0.494
69	122.99	254.82	65.00	79.78	0.052322	0.064818	1.619	0.486
70	123.55	249.94	45.00	77.31	0.097205	0.050152	1.594	0.476
71	123.95	250.75	65.00	82.23	0.063380	0.067726	1.553	0.494
72	123.89	252.39	72.50	75.69	0.090740	0.055870	1.521	0.479
73	131.79	238.83	57.50	82.86	0.085859	0.068738	1.550	0.486
74	122.72	253.91	60.00	75.89	0.079013	0.059710	1.554	0.475
75	123.32	254.08	60.00	75.79	0.079379	0.057938	1.526	0.475
76	125.49	255.07	55.00	73.73	0.087529	0.060703	1.530	0.469
77	124.99	252.51	60.00	78.76	0.071003	0.062625	1.611	0.484
78	123.09	253.08	65.00	81.58	0.050614	0.066589	1.515	0.493
79	126.70	254.81	67.50	79.74	0.091989	0.062693	1.568	0.481
80	127.45	253.44	45.00	76.73	0.101238	0.063700	1.654	0.468
81	127.30	258.46	72.50	78.33	0.099435	0.067015	1.499	0.478
82	126.03	256.53	72.50	77.98	0.094265	0.062714	1.497	0.477
83	126.36	240.38	52.50	77.07	0.097945	0.066507	1.635	0.472
84	123.06	253.94	65.00	79.10	0.051691	0.067022	1.629	0.484
85	125.41	256.20	55.00	75.34	0.075914	0.067175	1.583	0.475
86	124.41	252.13	60.00	78.84	0.079778	0.064232	1.521	0.482
87	125.45	255.30	55.00	75.07	0.076431	0.065175	1.505	0.474
88	123.09	253.58	60.00	75.70	0.082039	0.060306	1.544	0.474
89	122.82	251.55	60.00	79.55	0.091322	0.061768	1.548	0.487
90	118.90	244.63	75.00	83.42	0.093591	0.059925	1.705	0.494
91	125.63	254.09	55.00	74.65	0.079950	0.064735	1.496	0.473
92	123.29	252.89	65.00	79.58	0.049609	0.067130	1.648	0.485
93	124.34	253.77	45.00	76.13	0.089738	0.051630	1.582	0.474
94	123.17	252.45	65.00	81.97	0.056992	0.068642	1.515	0.493
95	124.35	247.71	60.00	79.16	0.101911	0.069001	1.615	0.483
96	123.52	251.88	65.00	81.90	0.061694	0.065829	1.524	0.494
97	125.37	256.37	60.00	75.11	0.092395	0.068130	1.478	0.472
98	126.36	255.57	55.00	73.70	0.090049	0.060986	1.522	0.471
99	122.97	252.50	65.00	82.45	0.064897	0.066819	1.537	0.494
100	121.97	259.70	72.50	80.91	0.061134	0.065867	1.515	0.492
101	126.07	255.85	55.00	74.27	0.085799	0.066647	1.584	0.472
102	125.38	251.69	67.50	80.96	0.092004	0.058743	1.494	0.484
103	123.96	257.04	45.00	76.52	0.091252	0.055126	1.555	0.473
104	122.08	250.20	65.00	82.96	0.077012	0.067627	1.523	0.496
105	127.40	246.95	62.50	77.60	0.100614	0.061781	1.513	0.483
106	122.95	255.12	60.00	75.93	0.080702	0.060077	1.549	0.475
107	124.82	255.12	55.00	74.71	0.076558	0.066755	1.593	0.474
108	124.61	254.08	60.00	78.78	0.065976	0.068585	1.617	0.484
109	125.00	253.45	65.00	81.74	0.070810	0.068824	1.516	0.494
110	123.43	252.55	72.50	78.17	0.087881	0.056665	1.518	0.485
111	122.95	255.41	60.00	75.98	0.078082	0.061205	1.571	0.475
112	125.59	254.28	60.00	78.46	0.078166	0.068034	1.581	0.483
113	124.62	253.26	47.50	77.71	0.074621	0.058457	1.569	0.479
114	125.63	257.04	55.00	74.26	0.081014	0.064947	1.501	0.473
115	124.03	253.80	65.00	81.82	0.061238	0.066314	1.513	0.494
116	125.35	254.45	55.00	74.09	0.082358	0.061537	1.552	0.471
117	124.28	256.11	60.00	74.95	0.091303	0.064860	1.492	0.472
118	123.02	256.18	67.50	78.64	0.057122	0.063628	1.552	0.484
119	123.42	249.40	72.50	82.66	0.064973	0.064153	1.544	0.495
120	123.86	253.00	65.00	81.77	0.056686	0.068926	1.514	0.493
121	124.53	254.66	67.50	78.74	0.065041	0.063779	1.519	0.486
122	124.23	256.33	67.50	78.36	0.061225	0.067861	1.582	0.484
123	126.24	257.59	55.00	73.92	0.086187	0.067063	1.521	0.471
124	126.61	254.81	72.50	78.94	0.090865	0.067896	1.485	0.478
125	128.14	246.61	57.50	84.77	0.096862	0.065822	1.482	0.494
126	125.39	251.40	65.00	78.37	0.075629	0.067934	1.655	0.483
127	123.19	254.21	60.00	75.00	0.085867	0.059458	1.518	0.473
128	125.84	252.58	67.50	79.13	0.081265	0.058082	1.517	0.482
129	124.87	248.15	72.50	79.00	0.075014	0.064123	1.575	0.478
130	126.82	253.42	60.00	79.13	0.093421	0.066769	1.486	0.483
131	124.18	254.85	45.00	76.44	0.090684	0.059183	1.643	0.474
132	123.37	250.71	65.00	80.88	0.050617	0.068549	1.522	0.491
133	122.77	253.49	65.00	79.84	0.052020	0.059939	1.574	0.486
134	126.80	256.43	55.00	73.08	0.093179	0.067995	1.490	0.468
135	125.32	255.60	65.00	78.59	0.074764	0.062882	1.547	0.484
136	123.48	253.13	65.00	81.66	0.053684	0.067284	1.510	0.493
137	123.93	251.04	65.00	78.81	0.081361	0.062665	1.545	0.484
138	123.81	254.14	65.00	81.62	0.056091	0.068897	1.505	0.493
139	124.14	251.33	65.00	81.36	0.060153	0.066698	1.525	0.492
140	124.28	251.52	65.00	81.29	0.061921	0.067250	1.520	0.492
141	124.69	256.45	67.50	78.11	0.067018	0.067385	1.568	0.484
142	125.29	252.95	55.00	75.42	0.074488	0.065448	1.609	0.476
143	123.98	251.71	72.50	81.22	0.058207	0.067829	1.517	0.493
144	124.50	249.29	72.50	78.17	0.101169	0.054319	1.531	0.484
145	124.37	255.36	47.50	77.01	0.073919	0.054665	1.596	0.479
146	126.63	254.19	45.00	77.59	0.100626	0.058310	1.539	0.470
147	123.15	254.89	65.00	79.32	0.053396	0.063962	1.612	0.485

148	122.21	248.68	65.00	83.26	0.081610	0.063599	1.533	0.498
149	123.76	256.28	65.00	78.48	0.055426	0.068024	1.605	0.483
150	122.00	251.01	60.00	79.36	0.092249	0.063443	1.541	0.487
151	125.10	251.35	60.00	78.71	0.073121	0.068881	1.675	0.484
152	122.96	253.07	60.00	75.95	0.077608	0.060882	1.560	0.475
153	126.61	250.77	72.50	78.44	0.099699	0.067249	1.516	0.473
154	126.31	255.60	62.50	73.83	0.087128	0.064970	1.534	0.470
155	122.82	250.85	65.00	81.63	0.056194	0.068439	1.513	0.494
156	123.32	252.91	65.00	79.73	0.051213	0.065196	1.630	0.486
157	115.84	259.26	57.50	84.53	0.094851	0.068953	1.692	0.495
158	122.81	251.89	60.00	79.37	0.089996	0.062903	1.559	0.487
159	125.70	254.69	65.00	78.02	0.079506	0.067830	1.583	0.483
160	125.25	255.29	55.00	75.60	0.075103	0.065354	1.504	0.475
161	124.38	256.10	67.50	78.10	0.085547	0.060638	1.510	0.479
162	125.75	255.50	55.00	74.83	0.081451	0.067363	1.609	0.473
163	123.32	252.60	65.00	79.55	0.059524	0.058652	1.621	0.486
164	122.63	253.14	60.00	75.64	0.081051	0.055854	1.531	0.474
165	122.01	253.68	65.00	83.10	0.067115	0.068088	1.507	0.495
166	124.45	256.62	47.50	75.58	0.085912	0.059527	1.533	0.475
167	123.76	254.87	67.50	82.43	0.086156	0.059867	1.495	0.486
168	124.31	251.66	67.50	80.87	0.096308	0.054131	1.521	0.484
169	123.27	254.52	60.00	75.63	0.078353	0.063508	1.543	0.475
170	123.92	255.33	67.50	78.39	0.057450	0.068114	1.487	0.486
171	124.48	256.61	50.00	75.51	0.093224	0.058927	1.534	0.476
172	125.37	257.70	55.00	75.77	0.075404	0.068144	1.584	0.476
173	123.62	252.95	65.00	81.35	0.053674	0.068568	1.504	0.492
174	122.33	253.23	65.00	82.10	0.051609	0.068848	1.505	0.493
175	124.55	255.96	50.00	74.87	0.088189	0.060666	1.521	0.474
176	125.55	254.65	55.00	74.82	0.078705	0.068291	1.623	0.473
177	122.49	257.34	60.00	79.75	0.058829	0.064229	1.527	0.486
178	125.80	254.59	60.00	74.77	0.083718	0.061001	1.523	0.473
179	124.21	253.50	60.00	78.92	0.061625	0.069242	1.615	0.484
180	126.08	258.40	70.00	77.68	0.084245	0.065142	1.509	0.482
181	124.50	254.10	47.50	75.73	0.080219	0.054267	1.573	0.475
182	124.92	254.36	47.50	77.23	0.077067	0.067147	1.511	0.479
183	122.26	251.87	65.00	82.21	0.067388	0.065203	1.529	0.495
184	126.06	247.99	57.50	77.97	0.084042	0.069131	1.485	0.483
185	131.88	244.80	67.50	81.39	0.086635	0.058665	1.496	0.485
186	125.99	256.61	55.00	74.28	0.086956	0.067311	1.483	0.472
187	121.93	252.19	65.00	83.25	0.071920	0.062568	1.535	0.496
188	125.44	254.80	67.50	76.97	0.092676	0.060402	1.596	0.478
189	125.85	258.06	60.00	74.77	0.081361	0.063960	1.504	0.474
190	125.66	255.53	55.00	74.88	0.080562	0.063659	1.574	0.473
191	125.82	257.45	55.00	74.78	0.081062	0.062597	1.515	0.474
192	123.80	255.48	45.00	77.55	0.102163	0.054744	1.547	0.474
193	123.16	253.00	65.00	82.14	0.063830	0.067729	1.526	0.493
194	125.65	254.38	55.00	75.01	0.078856	0.061207	1.551	0.475
195	124.05	253.80	65.00	78.26	0.059025	0.061630	1.549	0.483
196	123.49	257.60	67.50	78.83	0.057271	0.065307	1.547	0.486
197	124.98	251.33	60.00	79.03	0.084289	0.066098	1.531	0.484
198	123.80	253.11	67.50	82.13	0.066620	0.067008	1.526	0.495
199	127.27	253.58	55.00	73.63	0.099065	0.062865	1.523	0.469
200	124.66	253.65	65.00	81.24	0.066648	0.068689	1.503	0.492
201	122.03	252.47	65.00	82.96	0.073969	0.067592	1.548	0.495
202	122.07	251.99	65.00	83.36	0.080117	0.065282	1.531	0.497
203	129.75	238.31	72.50	82.75	0.071848	0.069119	1.673	0.493
204	124.86	254.73	60.00	79.53	0.085720	0.067433	1.553	0.486
205	124.46	255.47	45.00	76.93	0.095463	0.055169	1.545	0.474
206	125.02	253.90	65.00	80.70	0.071104	0.068018	1.507	0.490
207	125.16	258.12	55.00	76.19	0.073832	0.066576	1.582	0.478
208	122.69	252.62	65.00	82.12	0.064571	0.068059	1.515	0.495
209	123.91	249.92	60.00	80.19	0.079638	0.061152	1.549	0.484
210	124.85	258.42	67.50	78.28	0.068934	0.066224	1.565	0.485
211	123.16	256.28	67.50	78.24	0.058261	0.063959	1.549	0.484
212	124.13	256.08	60.00	79.32	0.086396	0.067624	1.527	0.486
213	124.09	253.80	65.00	81.94	0.059496	0.067490	1.509	0.493
214	122.64	254.15	65.00	79.45	0.049305	0.065608	1.627	0.485
215	124.79	255.47	55.00	75.08	0.075260	0.064440	1.592	0.475
216	125.04	256.09	55.00	75.98	0.078413	0.063534	1.565	0.477
217	123.03	255.67	67.50	77.80	0.056308	0.066221	1.564	0.482
218	125.68	256.19	72.50	77.75	0.079273	0.066904	1.473	0.478
219	124.56	251.29	45.00	77.82	0.101492	0.050283	1.591	0.473
220	120.89	241.62	57.50	79.68	0.081916	0.065063	1.503	0.484
221	121.10	258.99	72.50	81.68	0.057258	0.066293	1.536	0.494
222	124.32	254.36	65.00	81.53	0.062395	0.068946	1.502	0.493
223	123.97	251.07	65.00	81.38	0.058036	0.069194	1.510	0.493
224	126.34	253.65	60.00	79.25	0.087534	0.064926	1.498	0.483
225	124.21	255.72	65.00	79.24	0.061048	0.060311	1.568	0.484
226	123.33	252.28	65.00	81.31	0.050150	0.066451	1.523	0.492
227	122.80	254.06	60.00	75.46	0.081716	0.063390	1.570	0.474
228	126.28	255.70	55.00	74.40	0.086788	0.063330	1.512	0.472
229	122.79	255.29	60.00	75.82	0.080344	0.063366	1.576	0.475
230	124.98	252.72	65.00	79.74	0.070581	0.058580	1.581	0.485
231	123.99	256.86	45.00	76.34	0.091986	0.056197	1.561	0.474
232	125.13	255.03	60.00	78.71	0.072485	0.066991	1.593	0.484
233	123.82	253.57	65.00	81.89	0.063460	0.067846	1.528	0.495
234	126.33	256.87	65.00	78.35	0.087366	0.066494	1.524	0.482
235	123.07	256.52	65.00	79.38	0.053252	0.059554	1.553	0.484
236	125.23	251.57	60.00	78.45	0.073734	0.068635	1.699	0.483
237	122.81	253.36	65.00	78.82	0.054174	0.066539	1.638	0.484
238	127.39	249.23	70.00	76.65	0.100543	0.069387	1.533	0.480
239	123.52	252.63	65.00	81.96	0.060784	0.068594	1.520	0.493
240	124.10	252.10	55.00	74.59	0.082698	0.058874	1.532	0.474
241	126.72	253.90	55.00	73.71	0.092238	0.063499	1.518	0.470
242	124.18	252.13	60.00	80.13	0.062001	0.069380	1.647	0.487
243	125.17	254.32	65.00	75.28	0.101162	0.062383	1.543	0.475
244	123.29	250.76	65.00	82.13	0.064935	0.067112	1.525	0.494
245	122.72	251.62	65.00	82.67	0.071831	0.067564	1.542	0.495
246	126.16	255.35	55.00	73.05	0.096199	0.067749	1.542	0.467
247	122.78	254.39	65.00	79.56	0.053278	0.065520	1.609	0.485
248	125.30	252.86	55.00	73.89	0.087260	0.069145	1.596	0.471
249	124.13	253.63	65.00	81.66	0.060020	0.068129	1.511	0.494
250	119.34	256.93	67.50	81.88	0.065839	0.068853	1.579	0.494
251	124.25	255.79	65.00	79.05	0.061482	0.069334	1.588	0.484
252	123.75	255.00	65.00	81.80	0.061430	0.068254	1.533	0.494
253	126.01	256.71	55.00	73.56	0.089284	0.067722	1.492	0.470
254	124.08	254.34	65.00	81.62	0.059360	0.068892	1.499	0.493
255	123.97	251.25	65.00	82.00	0.062552	0.067432	1.526	0.494

256	122.64	249.99	72.50	82.72	0.070240	0.064892	1.557	0.496
257	123.19	258.32	45.00	77.79	0.098119	0.053216	1.570	0.477
258	124.84	253.49	60.00	79.02	0.086208	0.065029	1.537	0.485
259	125.37	254.15	60.00	75.17	0.075375	0.059968	1.546	0.475
260	122.52	253.56	65.00	82.82	0.070895	0.068091	1.512	0.496
261	125.96	257.64	55.00	74.23	0.086051	0.064667	1.504	0.472
262	124.38	253.11	72.50	82.00	0.070462	0.068095	1.512	0.496
263	122.71	250.83	60.00	79.23	0.088900	0.061096	1.552	0.486
264	122.54	250.30	72.50	81.40	0.049963	0.067916	1.523	0.493
265	124.89	250.40	60.00	78.78	0.072104	0.063843	1.528	0.481
266	126.41	249.97	72.50	78.69	0.088332	0.066540	1.484	0.477
267	123.89	252.63	47.50	75.80	0.084684	0.062485	1.633	0.475
268	123.85	251.17	65.00	82.59	0.071238	0.069425	1.543	0.494
269	124.12	253.21	45.00	76.11	0.091985	0.059993	1.533	0.475
270	126.25	256.53	60.00	74.46	0.087376	0.067275	1.488	0.472
271	124.58	251.98	60.00	79.27	0.065636	0.066335	1.610	0.485
272	123.43	252.89	65.00	81.82	0.055165	0.065542	1.526	0.493
273	125.32	255.54	55.00	75.08	0.076853	0.069002	1.591	0.474
274	124.17	257.34	67.50	78.95	0.060576	0.065559	1.567	0.487
275	124.80	255.58	47.50	77.41	0.074158	0.056342	1.592	0.479
276	124.07	253.63	60.00	80.18	0.061974	0.068665	1.638	0.487
277	125.62	256.38	60.00	75.02	0.088731	0.068050	1.500	0.472
278	124.12	253.79	65.00	81.30	0.059914	0.068963	1.514	0.493
279	124.60	256.93	65.00	78.61	0.065895	0.062619	1.567	0.482
280	131.01	264.65	50.00	80.90	0.101658	0.069353	1.586	0.480
281	122.62	254.51	60.00	75.85	0.079530	0.059092	1.556	0.475
282	126.94	255.45	45.00	77.04	0.098474	0.058075	1.598	0.471
283	120.67	249.40	72.50	85.95	0.091053	0.068438	1.571	0.502
284	123.40	250.89	72.50	81.54	0.051299	0.067216	1.518	0.493
285	125.67	249.25	45.00	76.31	0.091436	0.065478	1.702	0.471
286	125.75	255.81	55.00	74.60	0.081248	0.063846	1.555	0.473
287	125.83	249.09	62.50	78.05	0.084576	0.060108	1.524	0.484
288	126.05	254.84	55.00	72.86	0.100985	0.062284	1.509	0.467
289	126.78	252.40	72.50	78.55	0.098900	0.067668	1.515	0.473
290	125.94	257.90	55.00	74.65	0.082498	0.066289	1.571	0.473
291	123.65	251.06	72.50	81.86	0.060696	0.065900	1.534	0.494
292	125.26	258.05	55.00	75.51	0.075364	0.066221	1.574	0.476
293	123.68	253.63	72.50	82.27	0.066993	0.068123	1.526	0.495
294	124.28	249.50	60.00	78.80	0.082331	0.064982	1.558	0.485
295	123.85	250.80	65.00	81.76	0.056594	0.069313	1.564	0.493
296	122.33	253.19	65.00	79.31	0.051629	0.063983	1.614	0.485
297	124.14	250.58	60.00	79.33	0.083178	0.060771	1.561	0.486
298	123.87	253.55	60.00	75.13	0.087635	0.066535	1.481	0.472
299	122.22	254.49	65.00	83.12	0.066364	0.066758	1.516	0.495
300	123.63	252.77	45.00	76.97	0.093058	0.058957	1.619	0.477

POST-DEPOSITIONAL THERMAL HISTORY:

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 1.62 +/- 0.240; %RO FOR EXP MEAN SOLUTION = 1.49
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 1.55 +/- 0.046
MIN %RO = 1.47; MAX %RO = 1.70
%RO FOR MIN OBJ SOLUTION = 1.62

POST-EXHUMATION THERMAL HISTORY (115-100 to 0 Ma):

%RO CONSTRAINT INCLUDED:
INPUT %RO RANGE = 0.50 +/- 0.200; %RO FOR EXP MEAN SOLUTION = 0.48
AVERAGE %RO FOR ALL SOLUTIONS (MEAN & STD. DEV.) = 0.48 +/- 0.008
MIN %RO = 0.47; MAX %RO = 0.50
%RO FOR MIN OBJ SOLUTION = 0.48

BINNED %RO VALUES FOR POST-EXHUMATION HISTORY:

%RO BIN	RELATIVE FREQUENCY
0.00 - 0.03	0.000
0.03 - 0.05	0.000
0.05 - 0.08	0.000
0.08 - 0.10	0.000
0.10 - 0.12	0.000
0.12 - 0.15	0.000
0.15 - 0.18	0.000
0.17 - 0.20	0.000
0.20 - 0.23	0.000
0.23 - 0.25	0.000
0.25 - 0.27	0.000
0.28 - 0.30	0.000
0.30 - 0.32	0.000
0.33 - 0.35	0.000
0.35 - 0.37	0.000
0.38 - 0.40	0.000
0.40 - 0.42	0.000
0.43 - 0.45	0.000
0.45 - 0.47	0.257
0.47 - 0.50	0.740
0.50 - 0.52	0.003
0.53 - 0.55	0.000
0.55 - 0.57	0.000
0.57 - 0.60	0.000
0.60 - 0.62	0.000
0.62 - 0.65	0.000
0.65 - 0.68	0.000
0.68 - 0.70	0.000
0.70 - 0.72	0.000
0.73 - 0.75	0.000
0.75 - 0.77	0.000
0.78 - 0.80	0.000
0.80 - 0.82	0.000
0.82 - 0.85	0.000
0.85 - 0.88	0.000
0.88 - 0.90	0.000
0.90 - 0.93	0.000
0.93 - 0.95	0.000
0.95 - 0.97	0.000
0.98 - 1.00	0.000

MINIMUM PEAK TEMPERATURE = 72.86 DEG C; MAXIMUM PEAK TEMPERATURE = 85.95 DEG C

PEAK TEMPERATURE: AVERAGE = 78.56 STAND DEV = 2.899

MAX TEMP BIN	RELATIVE FREQUENCY
50.00 - 52.00	0.000
52.00 - 54.00	0.000
54.00 - 56.00	0.000
56.00 - 58.00	0.000
58.00 - 60.00	0.000
60.00 - 62.00	0.000
62.00 - 64.00	0.000
64.00 - 66.00	0.000
66.00 - 68.00	0.000
68.00 - 70.00	0.000
70.00 - 72.00	0.000
72.00 - 74.00	0.050
74.00 - 76.00	0.220
76.00 - 78.00	0.117
78.00 - 80.00	0.303
80.00 - 82.00	0.183
82.00 - 84.00	0.113
84.00 - 86.00	0.013
86.00 - 88.00	0.000
88.00 - 90.00	0.000
90.00 - 92.00	0.000
92.00 - 94.00	0.000
94.00 - 96.00	0.000
96.00 - 98.00	0.000
98.00 - 100.00	0.000

MINIMUM PEAK TIME = 45.00 MA; MAXIMUM PEAK TIME = 75.00 MA

TIME OF PEAK TEMP: AVERAGE = 61.23 STAND DEV = 7.297

TIME AT MAX TEMP	RELATIVE FREQUENCY
44.38 - 45.62	0.067
45.62 - 46.88	0.000
46.88 - 48.12	0.030
48.12 - 49.38	0.000
49.38 - 50.62	0.010
50.62 - 51.88	0.000
51.88 - 53.12	0.003
53.12 - 54.38	0.000
54.38 - 55.62	0.160
55.62 - 56.88	0.000
56.88 - 58.12	0.017
58.12 - 59.38	0.000
59.38 - 60.62	0.197
60.62 - 61.88	0.000
61.88 - 63.12	0.017
63.12 - 64.38	0.000
64.38 - 65.62	0.303
65.62 - 66.88	0.000
66.88 - 68.12	0.087
68.12 - 69.38	0.000
69.38 - 70.62	0.007
70.62 - 71.88	0.000
71.88 - 73.12	0.100
73.12 - 74.38	0.000
74.38 - 75.62	0.003
75.62 - 76.88	0.000

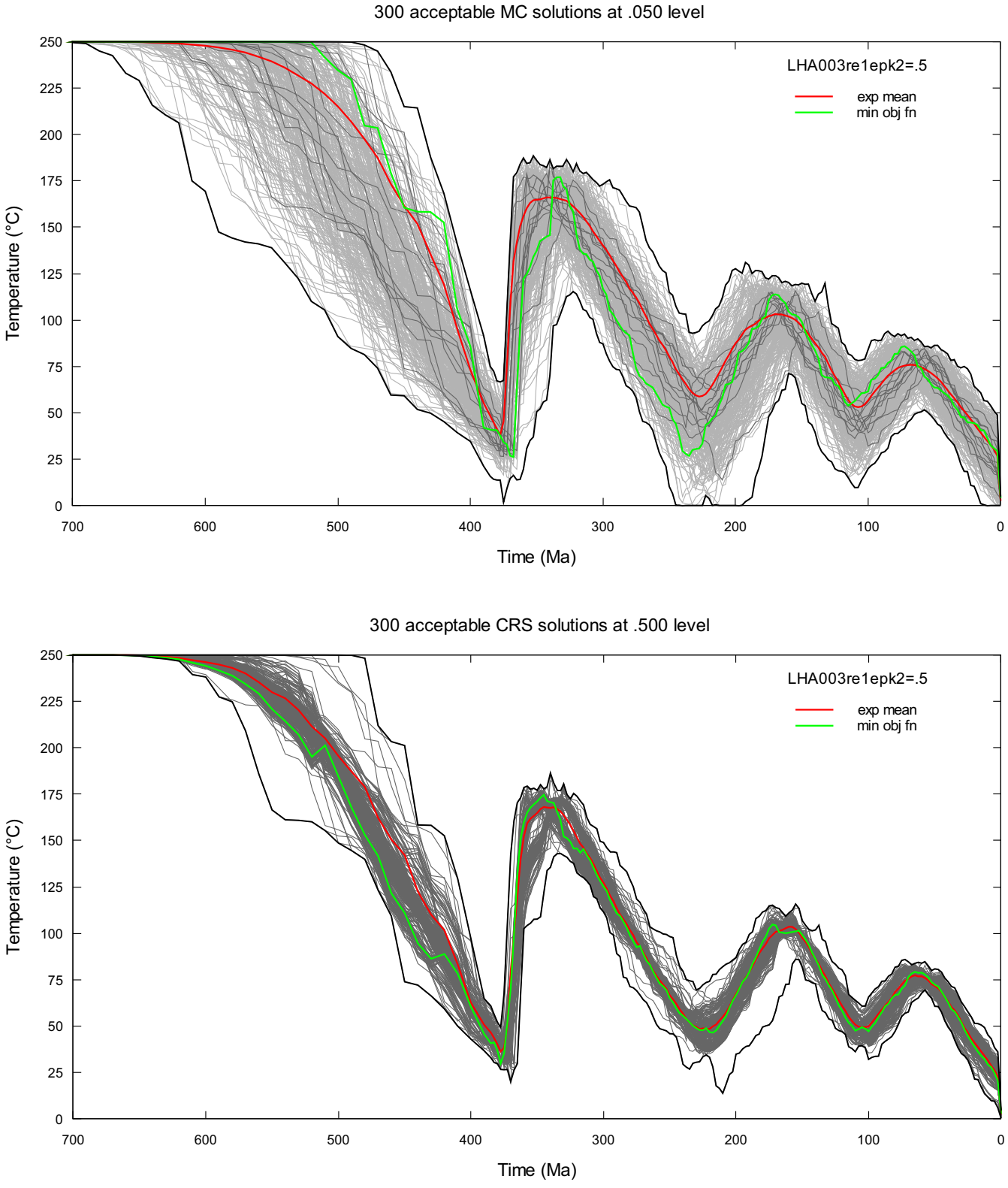


Figure E17. Upper panel shows 300 MC thermal history solutions (287 solutions (light grey) exceeding 0.05 significance level and 13 solutions (darker grey) exceeding 0.5 level). The bounding envelopes do not represent solutions. Lower panel shows 300 solutions exceeding the 0.5 significance level (13 MC solutions and 287 CRS solutions that evolved from the initial MC solution set).

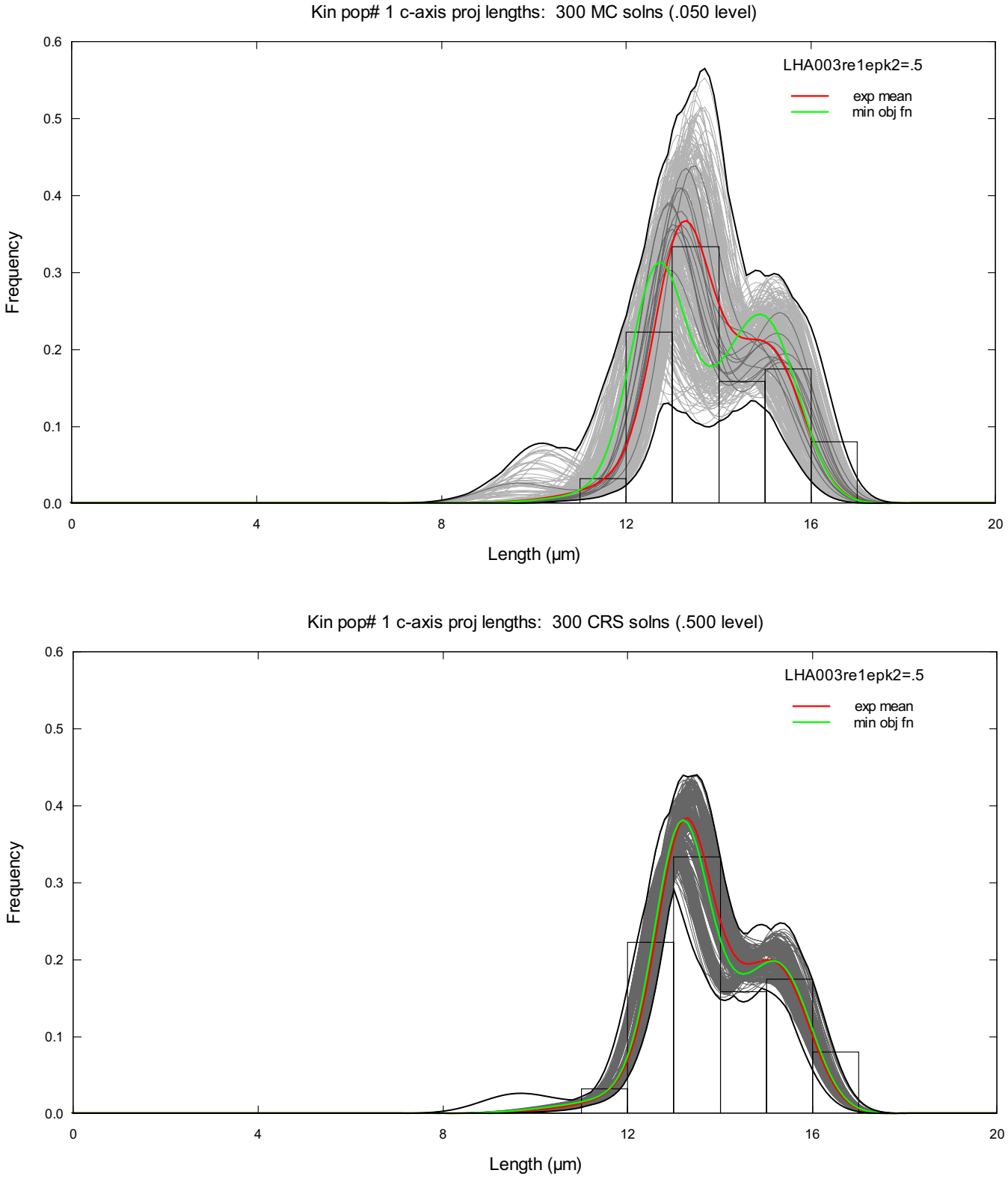


Figure E18. Upper panel shows 300 model predicted track length distributions for kinetic population #1 corresponding to the MC thermal history solutions in Figure E17 (287 solutions (light grey) exceeding 0.05 significance level and 13 solutions (darker grey) exceeding 0.5 level). The bounding envelopes do not represent track length solutions. Histogram shows c-axis projected observed lengths. Lower panel shows 300 model predicted track length distributions for kinetic population #1 corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

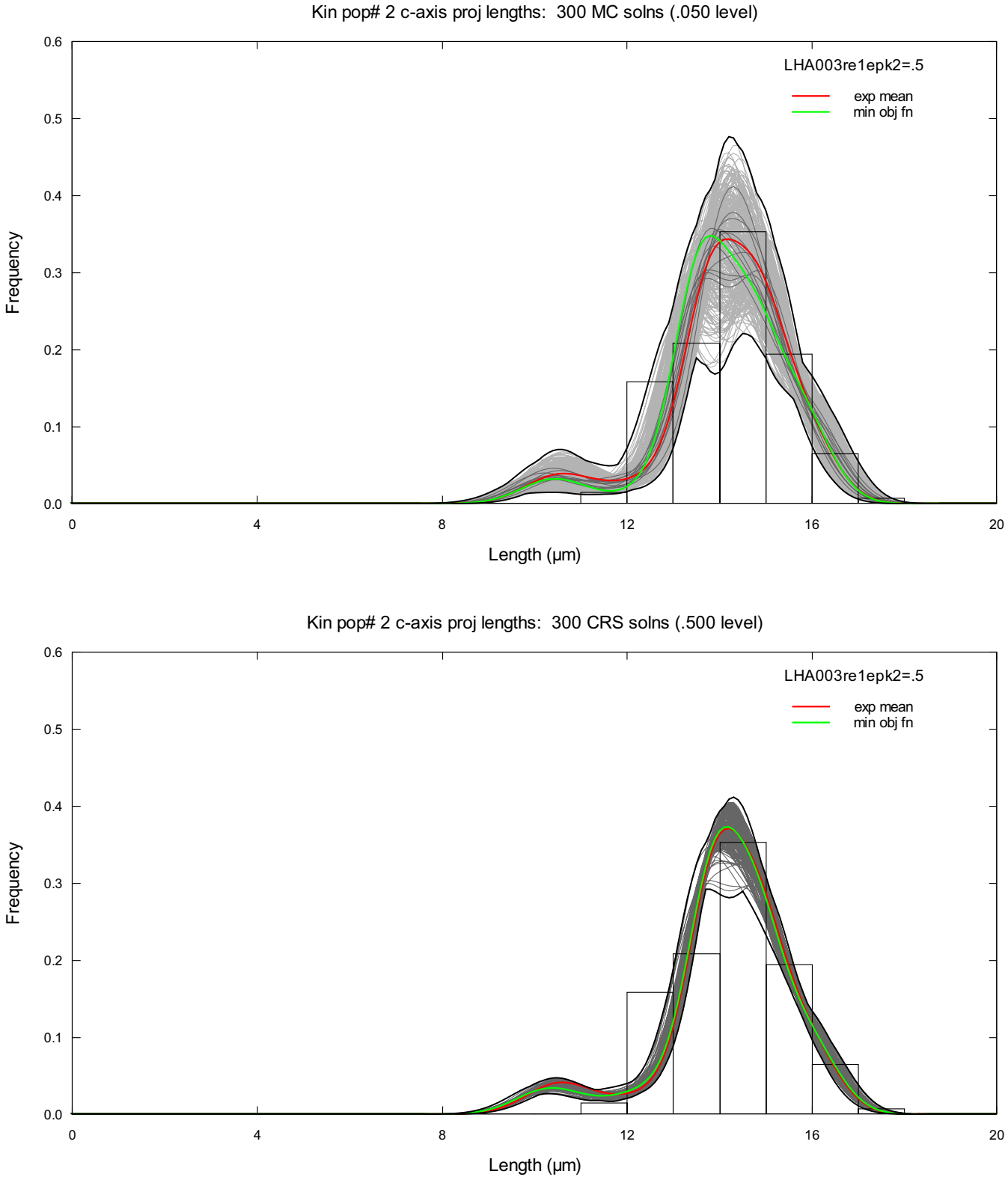


Figure E19. Upper panel shows 300 model predicted track length distributions for kinetic population #2 corresponding to the MC thermal history solutions in Figure E17 (287 solutions (light grey) exceeding 0.05 significance level and 13 solutions (darker grey) exceeding 0.5 level). The bounding envelopes do not represent track length solutions. Histogram shows c-axis projected observed lengths. Lower panel shows 300 model predicted track length distributions for kinetic population #2 corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

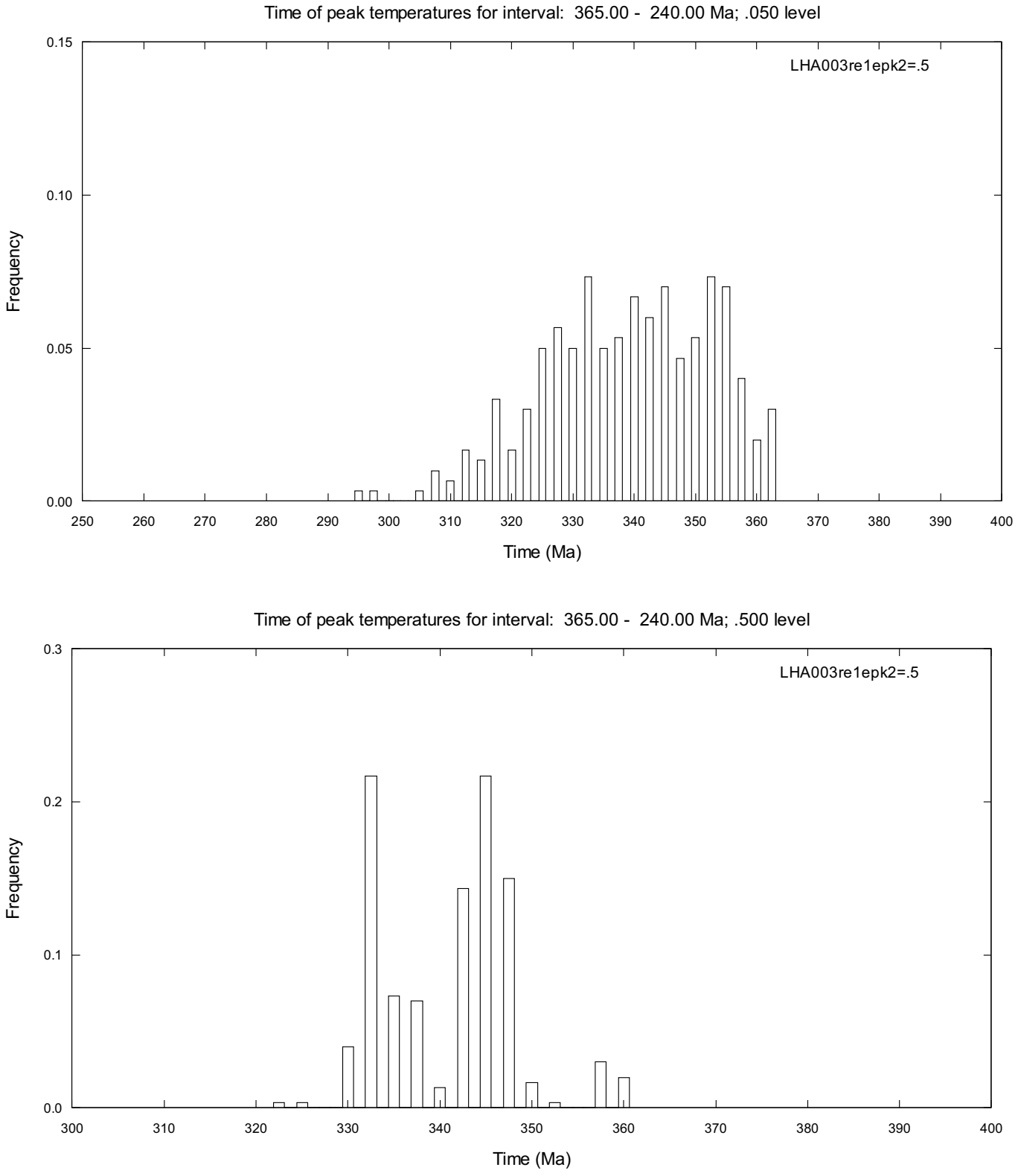


Figure E20. Upper panel shows the distribution of times of maximum temperature for thermal peak 1 over the time interval, 365 - 240 Ma, corresponding to the 300 MC thermal history solutions in Figure E17. Lower panel shows the distribution of times of maximum temperature for thermal peak 1 over the time interval, 365 - 240 Ma, corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

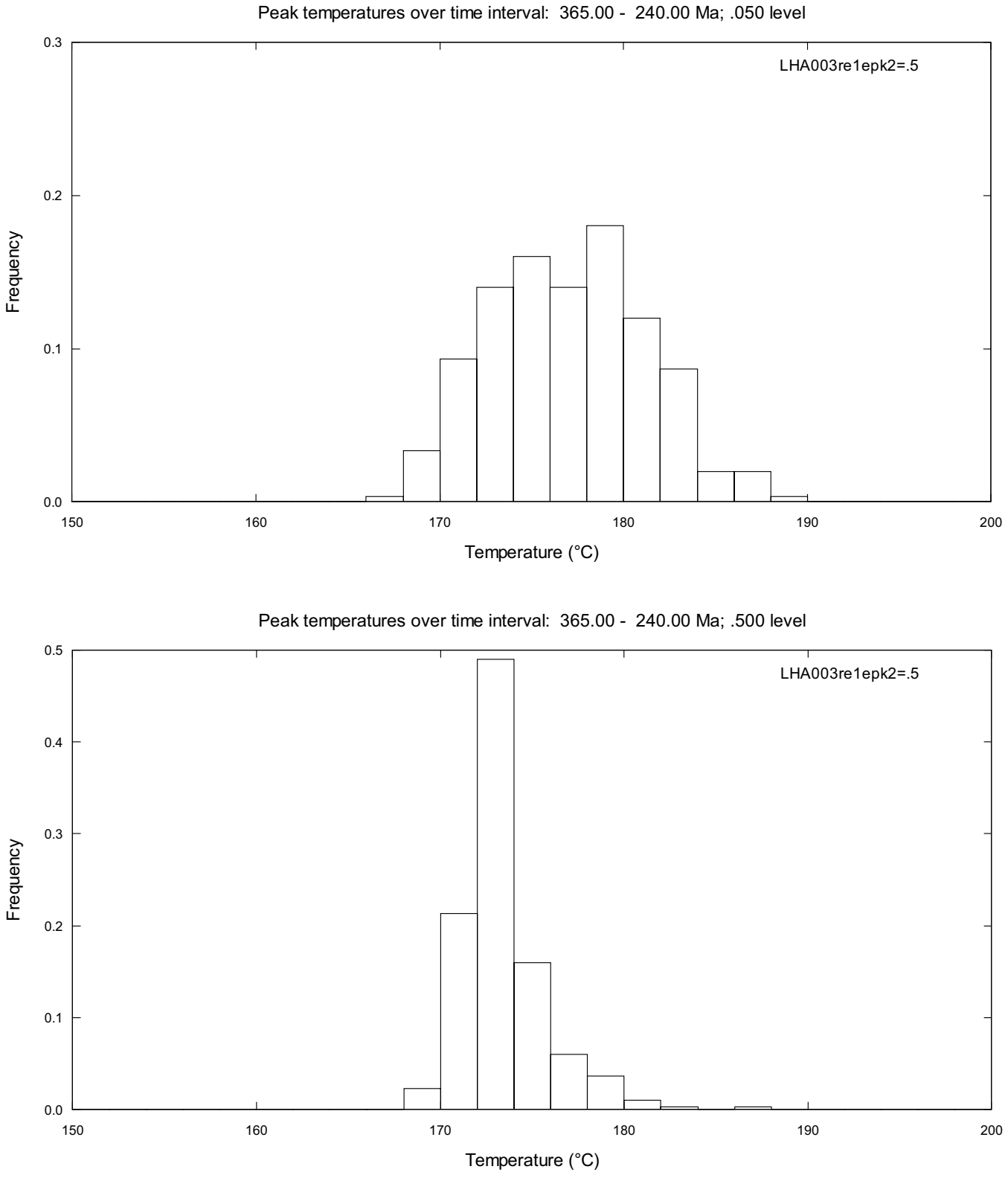


Figure E21. Upper panel shows the distribution of maximum temperatures for thermal peak 1 over the time interval, 365 - 240 Ma, corresponding to the 300 MC thermal history solutions in Figure E17. Lower panel shows the distribution of maximum temperatures for thermal peak 1 over the time interval, 365 - 240 Ma, corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

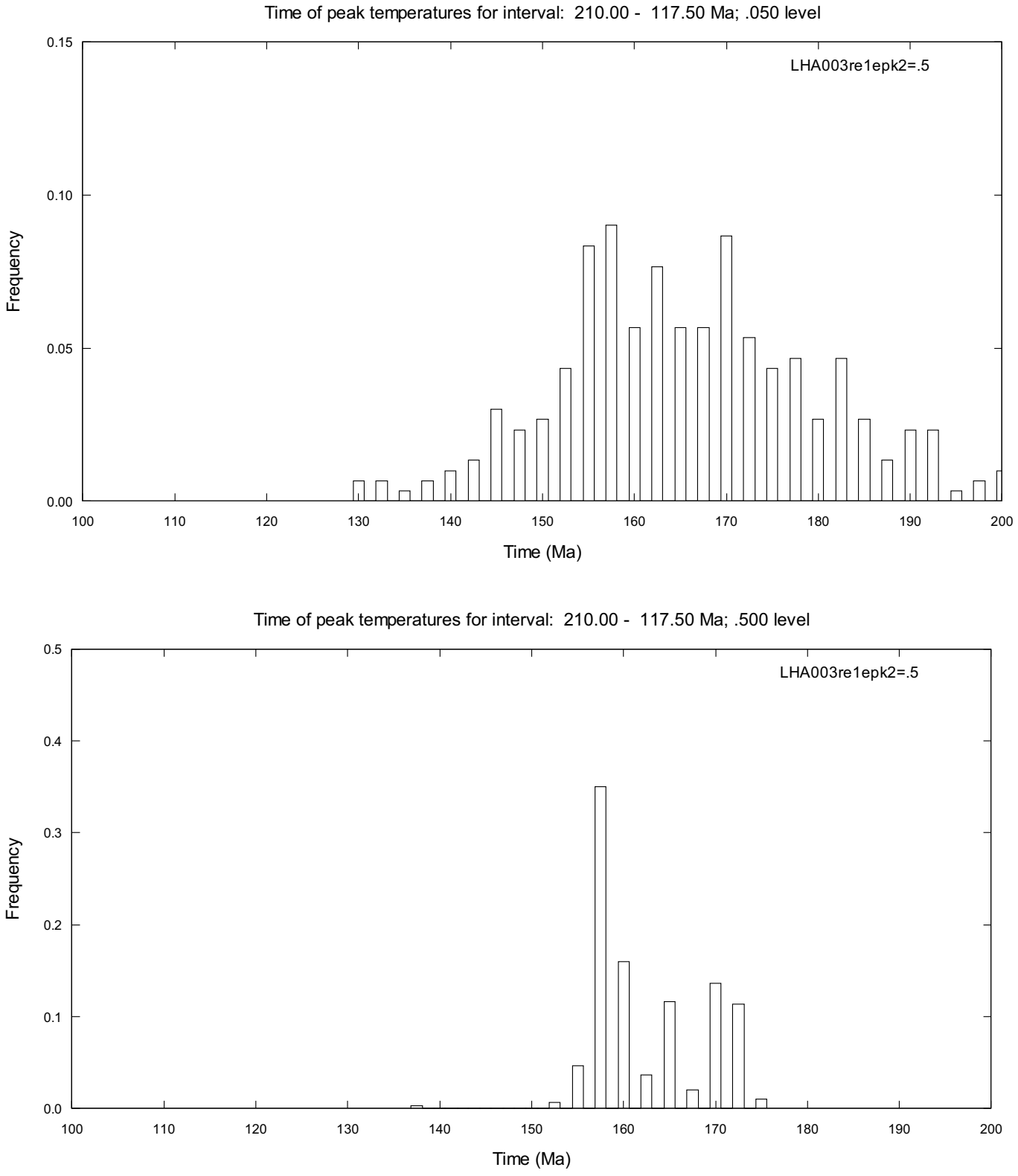
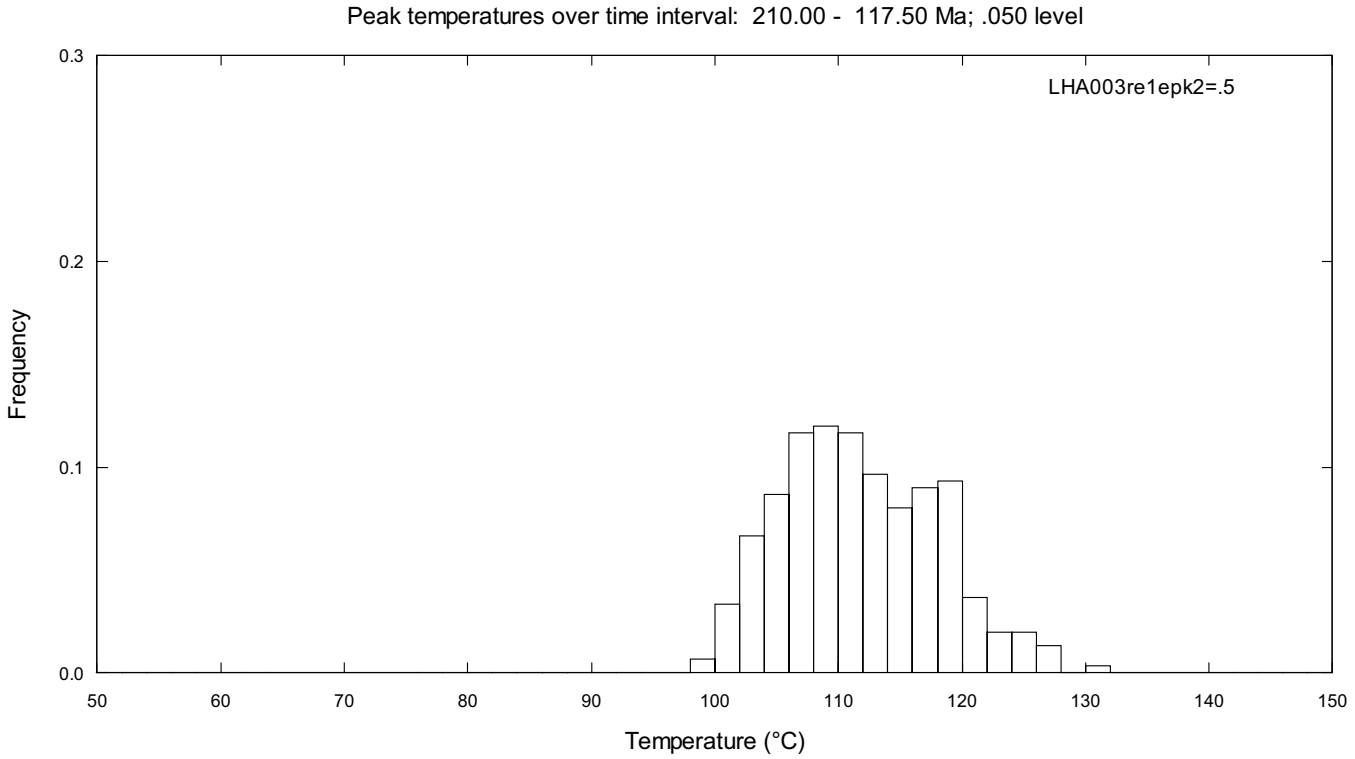


Figure E22. Upper panel shows the distribution of times of maximum temperature for thermal peak 2 over the time interval, 210 - 117.5 Ma, corresponding to the 300 MC thermal history solutions in Figure E17. Lower panel shows the distribution of times of maximum temperature for thermal peak 2 over the time interval, 210 - 117.5 Ma, corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.



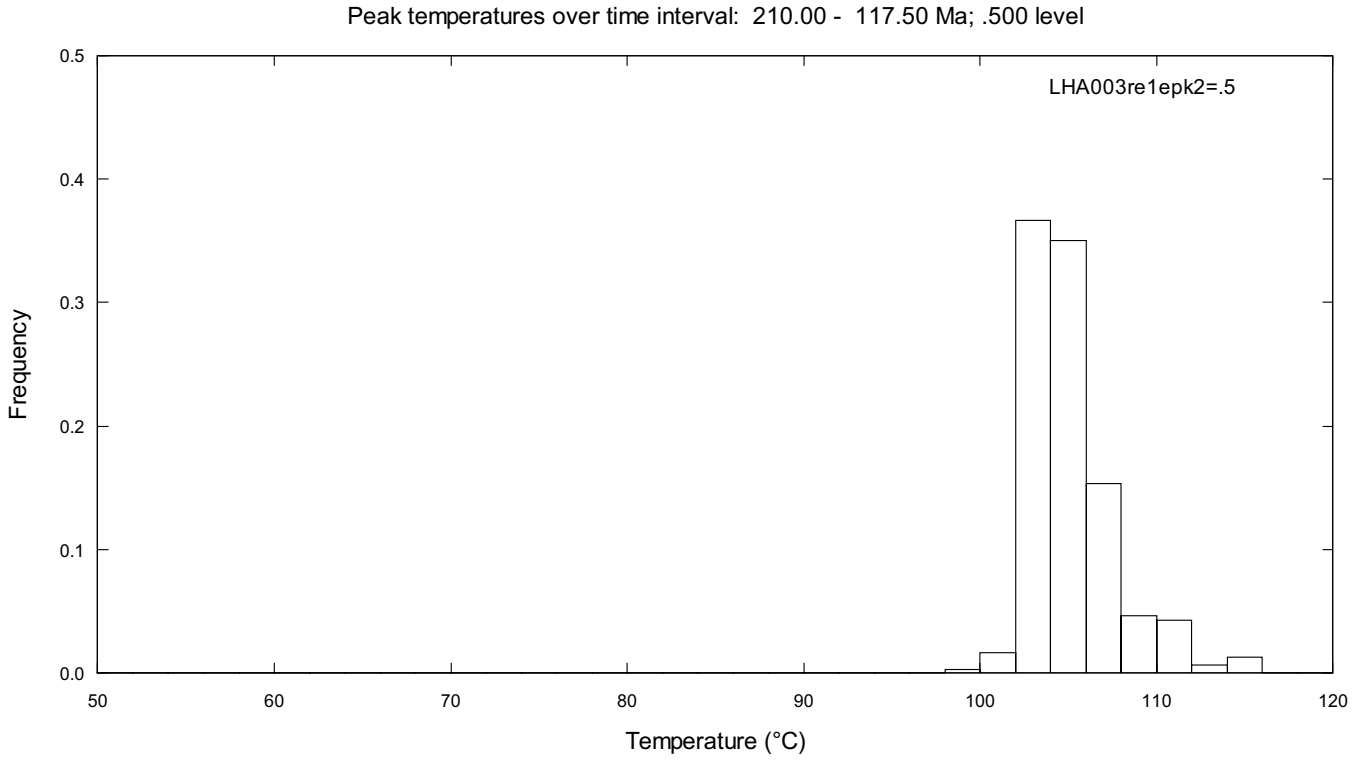


Figure E23. Upper panel shows the distribution of maximum temperatures for thermal peak 2 over the time interval, 210 - 117.5 Ma, corresponding to the 300 MC thermal history solutions in Figure E17. Lower panel shows the distribution of maximum temperatures for thermal peak 2 over the time interval, 210 - 117.5 Ma, corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

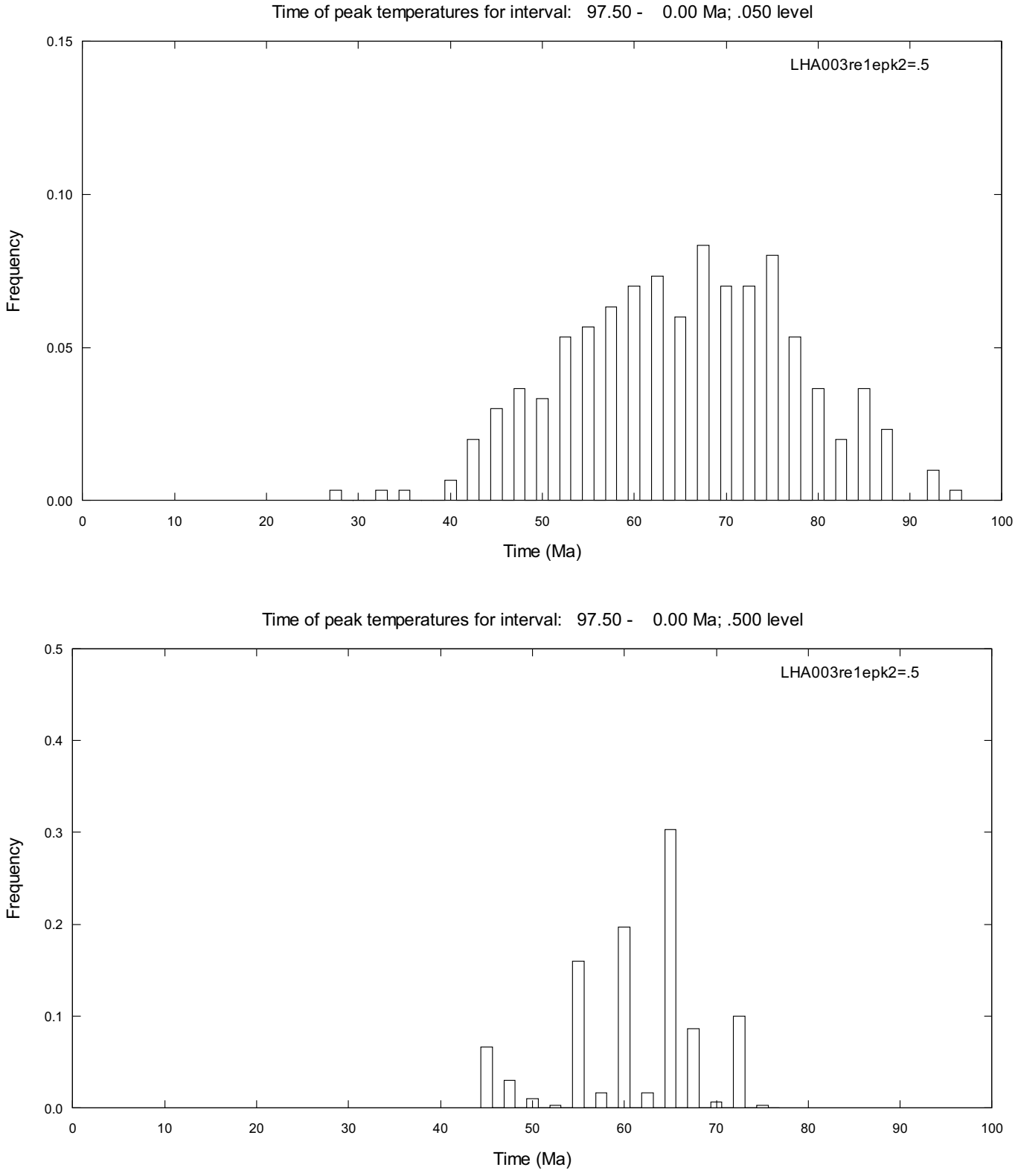


Figure E24. Upper panel shows the distribution of times of maximum temperature for thermal peak 3 over the time interval, 97.5 - 0 Ma, corresponding to the 300 MC thermal history solutions in Figure E17. Lower panel shows the distribution of times of maximum temperature for thermal peak 3 over the time interval, 97.5 - 0 Ma, corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

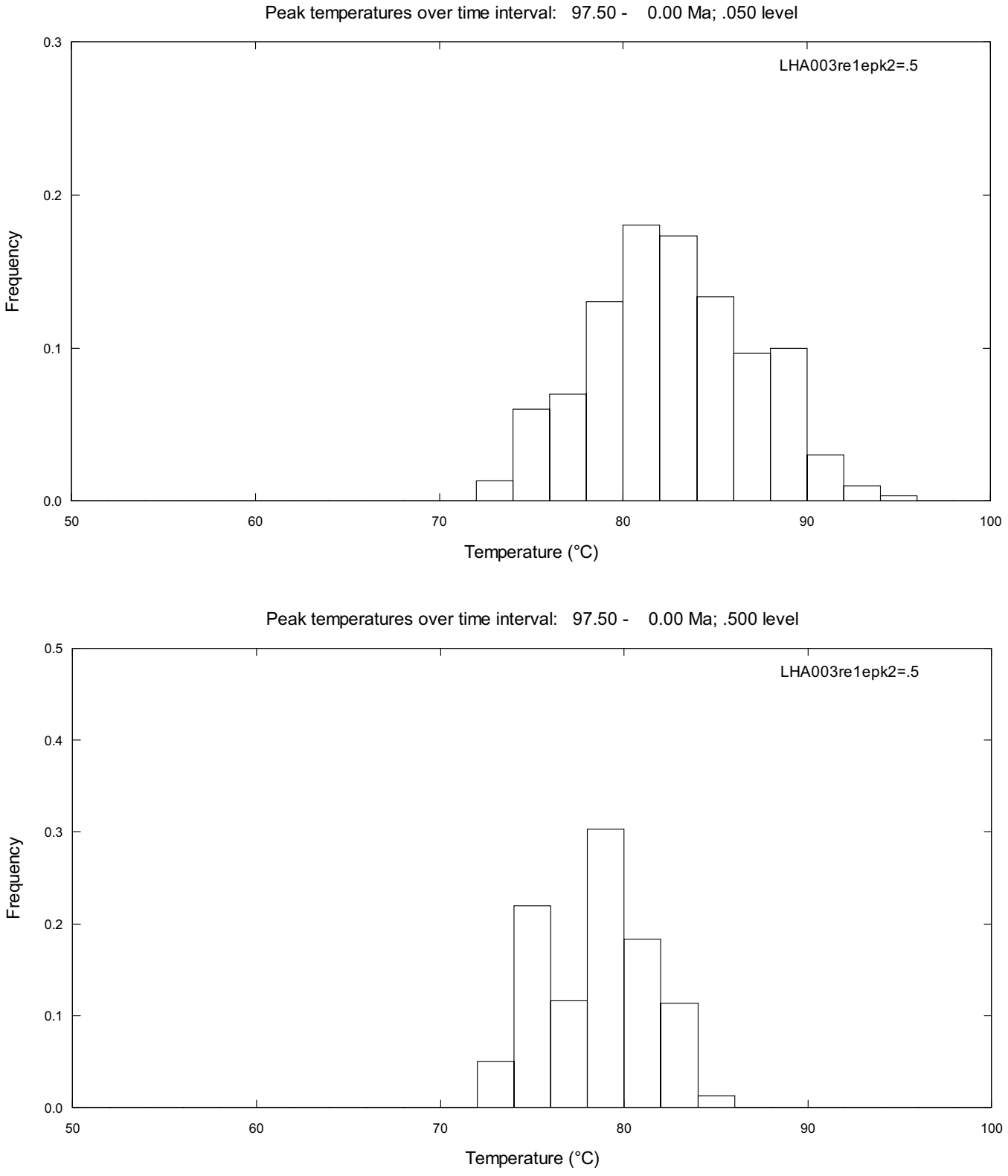


Figure E25. Upper panel shows the distribution of maximum temperatures for thermal peak 3 over the time interval, 97.5 - 0 Ma, corresponding to the 300 MC thermal history solutions in Figure E17. Lower panel shows the distribution of maximum temperatures for thermal peak 3 over the time interval, 97.5 - 0 Ma, corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

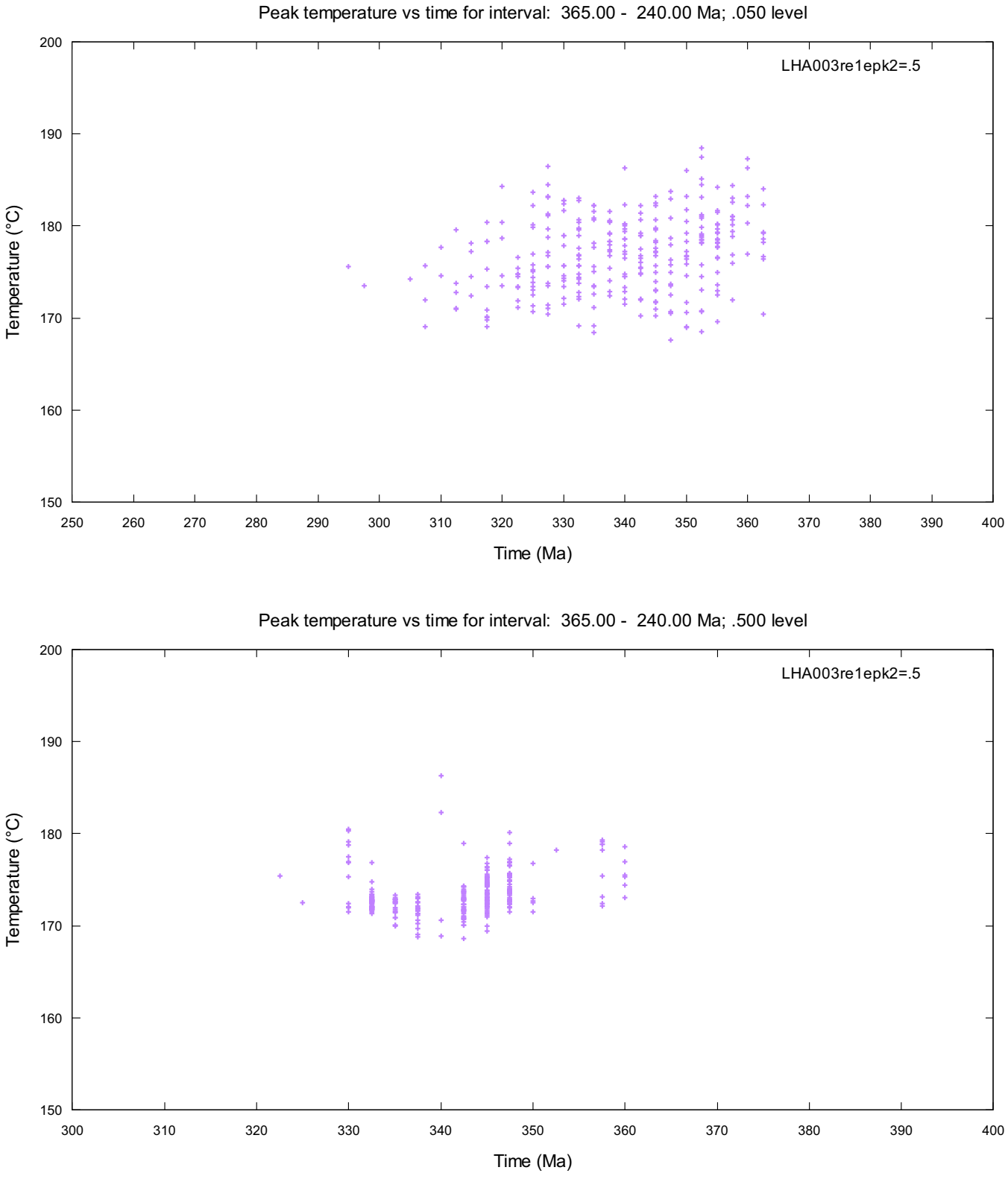


Figure E26. Upper panel shows maximum temperature versus time for thermal peak 1 over the time interval, 365 - 240 Ma, corresponding to the 300 MC thermal history solutions in Figure E17. Lower panel shows maximum temperature versus time for thermal peak 1 over the time interval, 365 - 240 Ma, corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

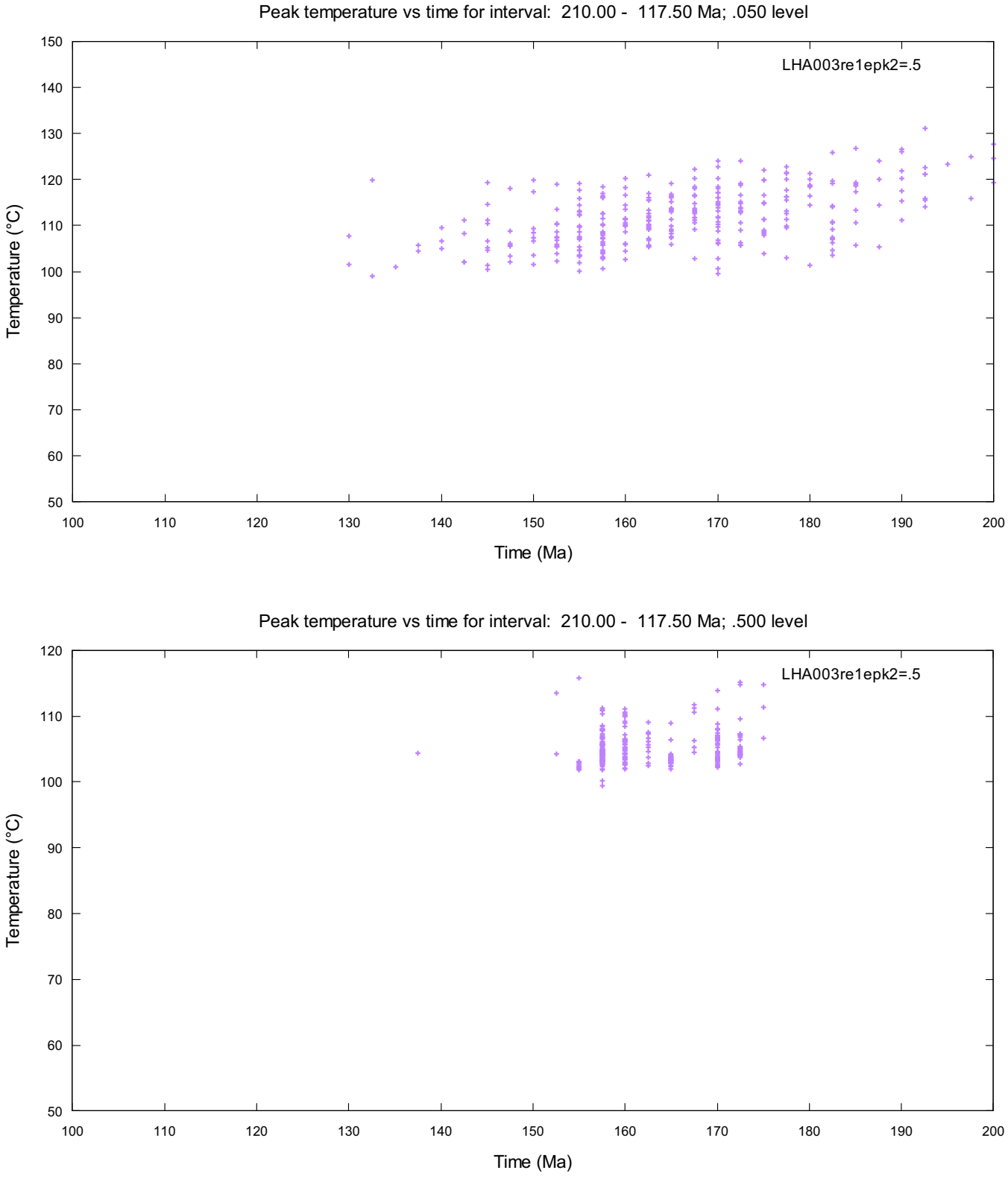


Figure E27. Upper panel shows maximum temperature versus time for thermal peak 2 over the time interval, 210 - 117.5 Ma, corresponding to the 300 MC thermal history solutions in Figure E17. Lower panel shows maximum temperature versus time for thermal peak 2 over the time interval, 210 - 117.5 Ma, corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

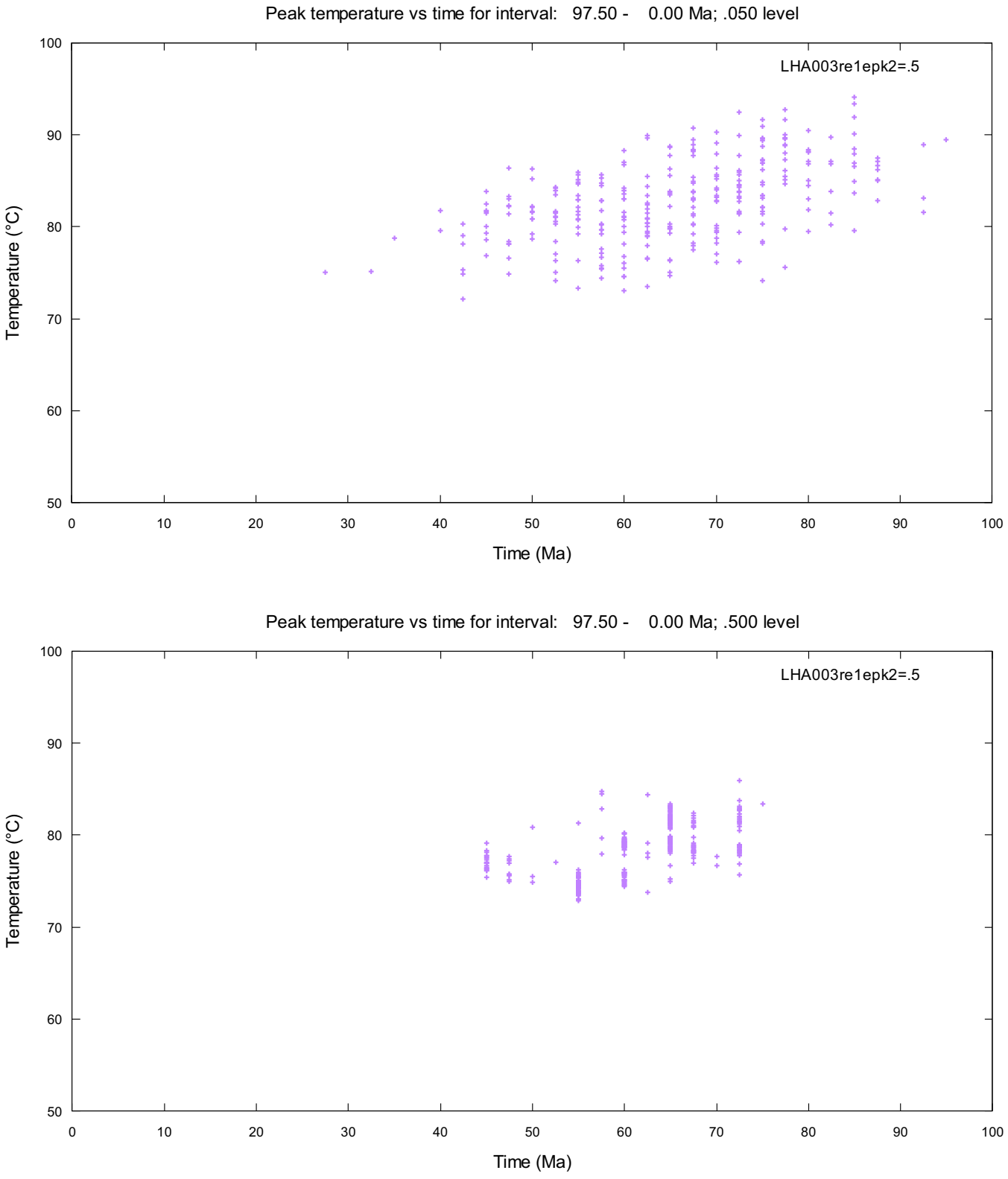


Figure E28. Upper panel shows maximum temperature versus time for thermal peak 3 over the time interval, 97.5 - 0 Ma, corresponding to the 300 MC thermal history solutions in Figure E17. Lower panel shows maximum temperature versus time for thermal peak 3 over the time interval, 97.5 - 0 Ma, corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

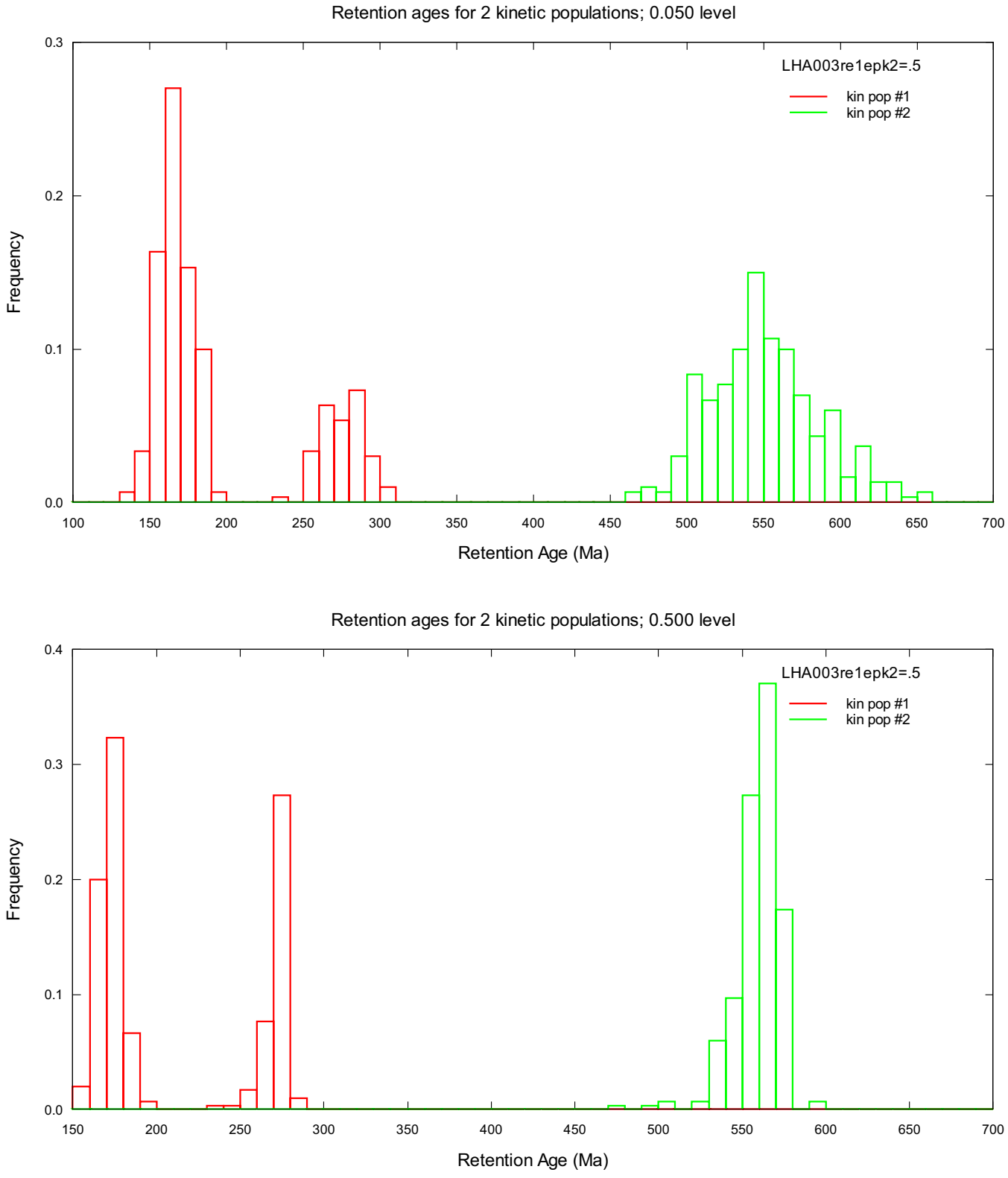


Figure E29. Upper panel shows distribution of model retention ages (age of shortest model track length; ~ 2μm) for each kinetic population corresponding to the 300 MC thermal history solutions in Figure E17. Lower panel shows distribution of model retention ages for each kinetic population, corresponding to the thermal history solutions that exceed the 0.5 significance level in Figure E17.

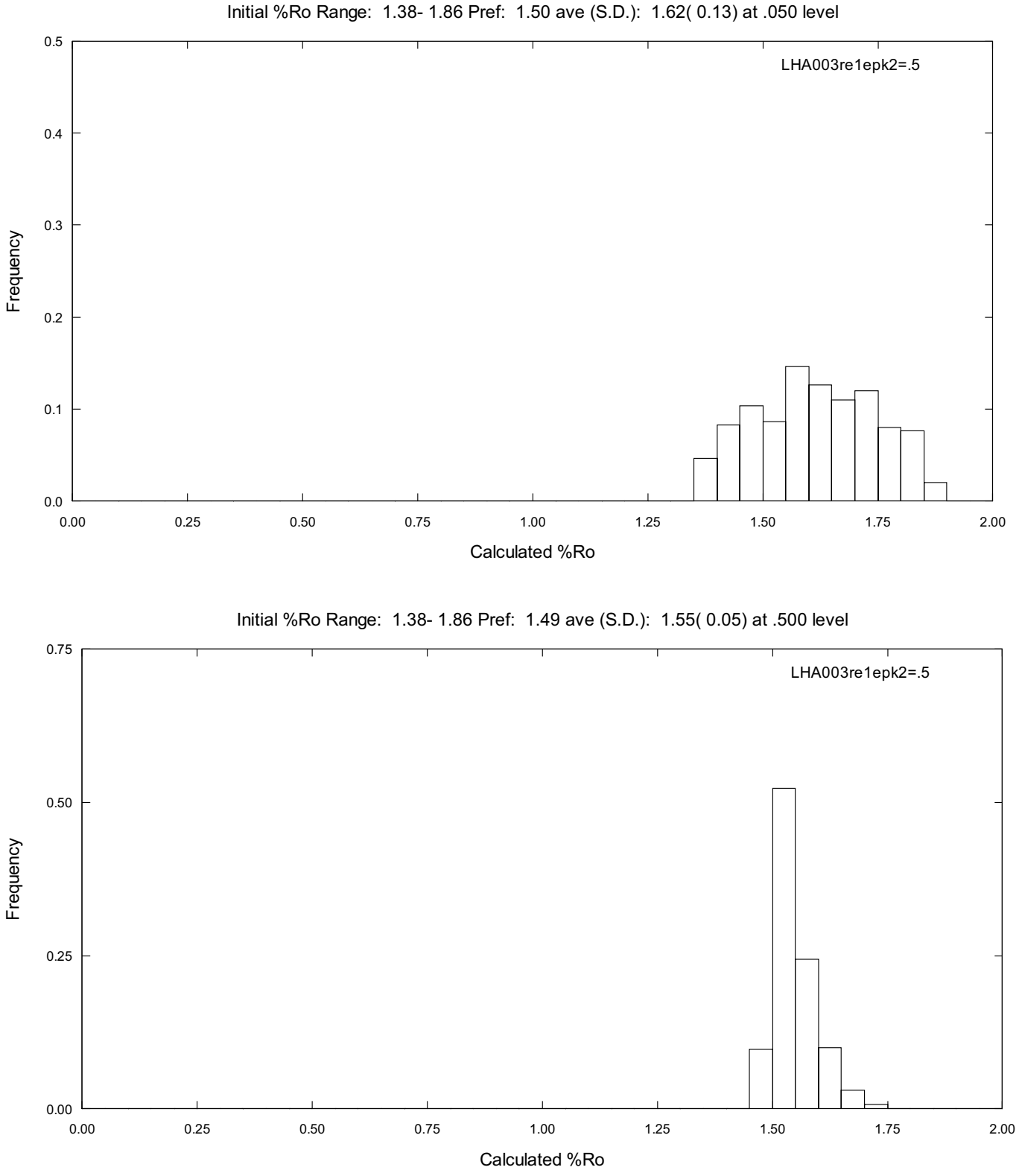


Figure E30. Upper panel shows distribution of calculated vitrinite reflectance values (basin%R_o model) for the post-depositional (post 377.5-365 Ma) history corresponding to the 300 MC thermal solutions in Figure E17. Lower panel shows distribution of calculated vitrinite reflectance values for the post-depositional (post 377.5-365 Ma) history corresponding to the thermal solutions that exceed the 0.5 significance level in Figure E17.

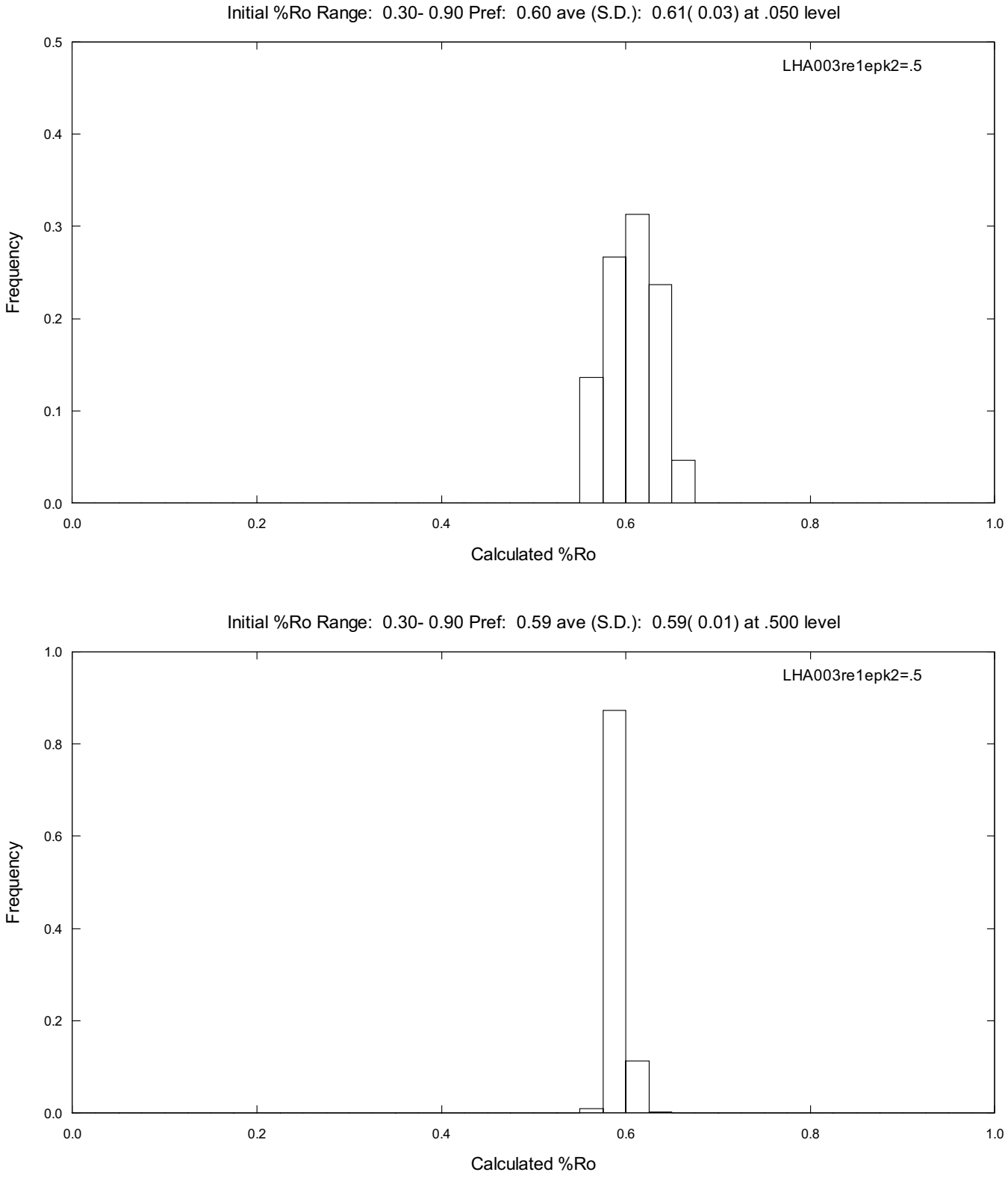


Figure E31. Upper panel shows distribution of calculated vitrinite reflectance values (basin%R_o model) for the post-thermal peak 1 history corresponding to the 300 MC thermal solutions in Figure E17. Calculations start after the onset of Triassic reburial (240-210 Ma). Lower panel shows distribution of calculated vitrinite reflectance values for the post-thermal peak 1 history corresponding to the thermal solutions that exceed the 0.5 significance level in Figure E17.

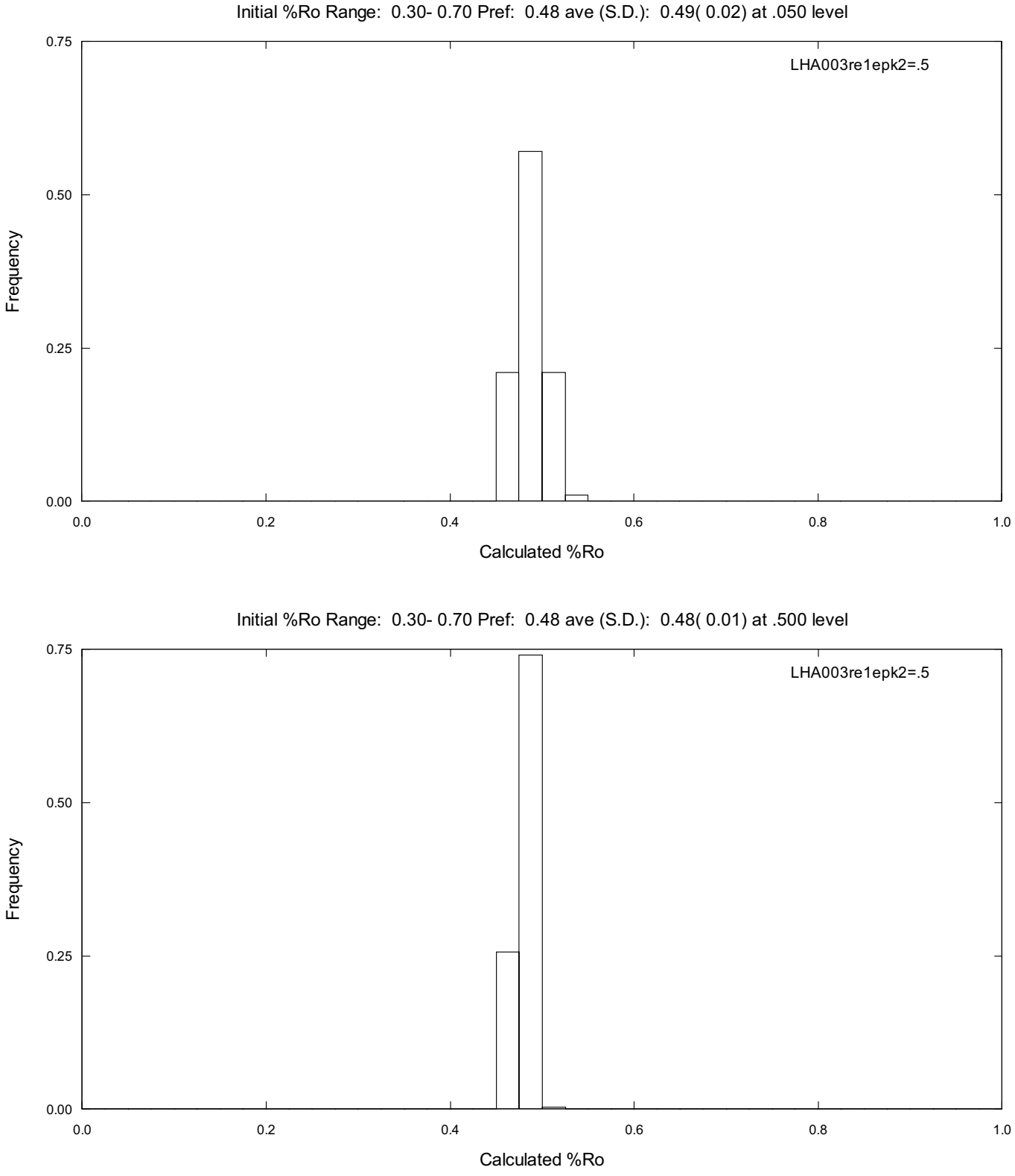


Figure E32. Upper panel shows distribution of calculated vitrinite reflectance values (basin%R_o model) for the post-thermal peak 2 history corresponding to the 300 MC thermal solutions in Figure E17. Calculations start after the onset of Cretaceous reburial (115-100 Ma). Lower panel shows distribution of calculated vitrinite reflectance values for the post-thermal peak 2 history corresponding to the thermal solutions that exceed the 0.5 significance level in Figure E17.

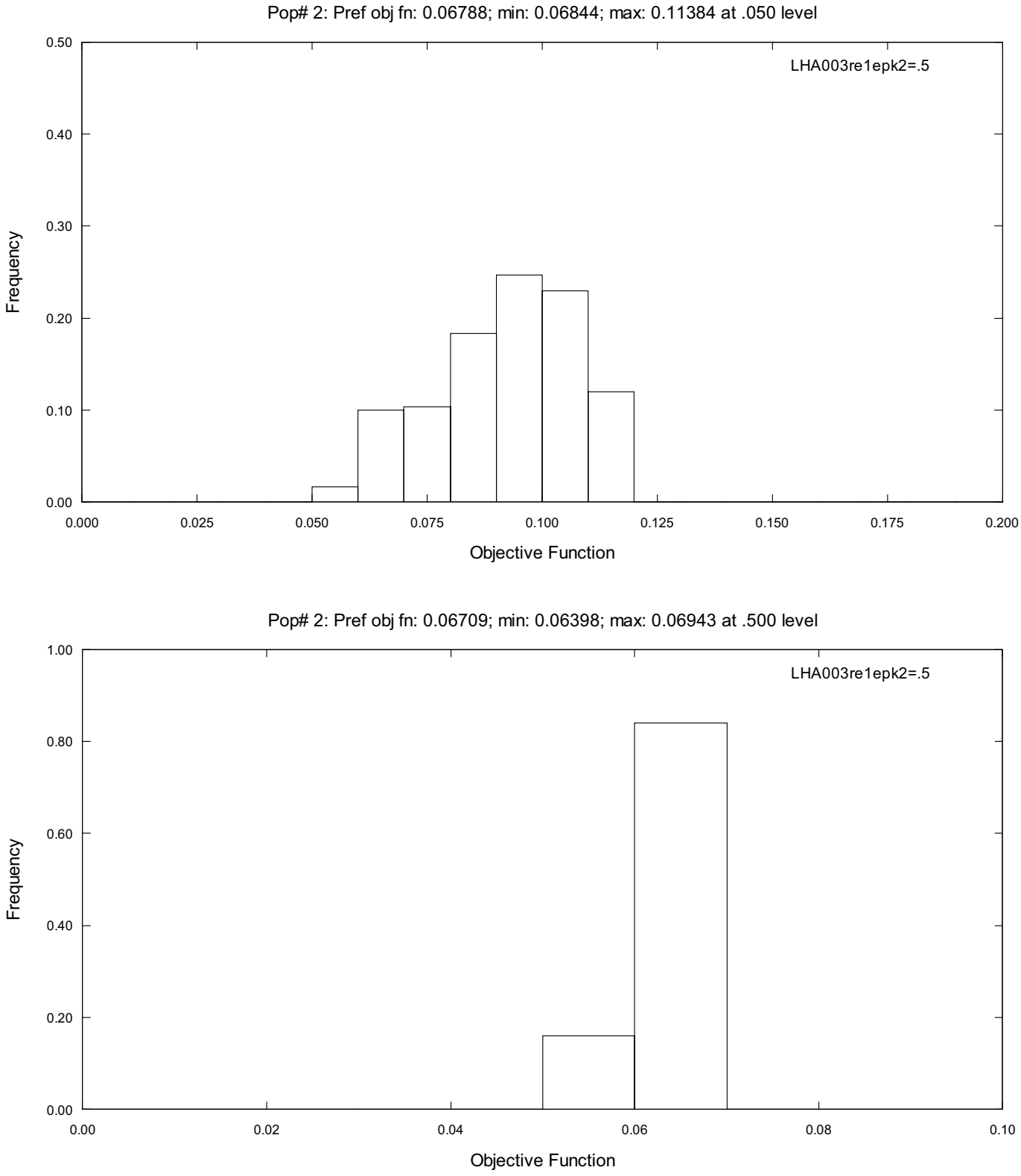


Figure E33. Upper panel shows distribution of objective function values for kinetic population #2 corresponding to the 300 MC thermal solutions in Figure E17 (0.05 significance level). Lower panel shows distribution of objective function values for kinetic population #2 corresponding to the thermal solutions that exceed the 0.5 significance level in Figure E17.

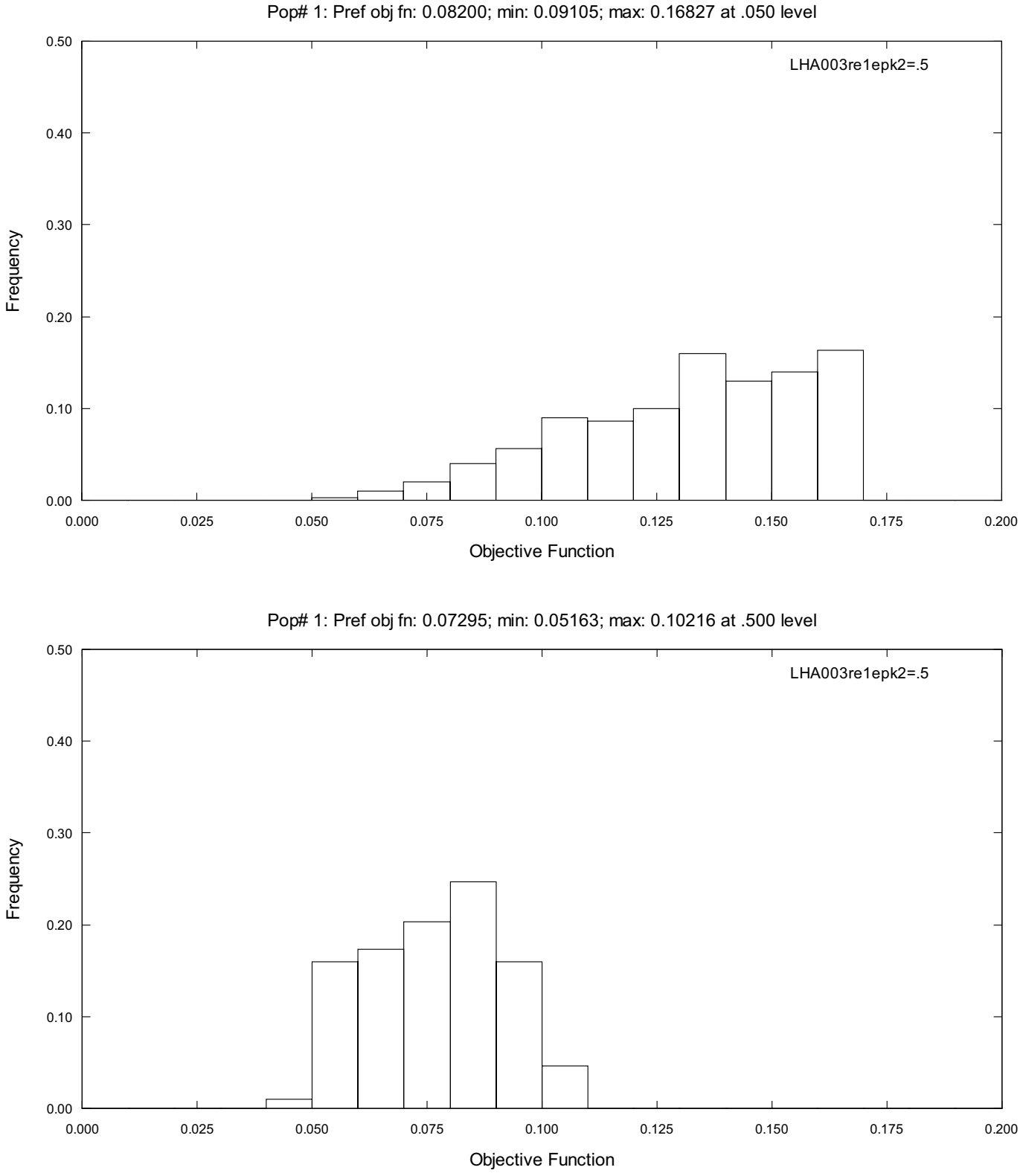


Figure E34. Upper panel shows distribution of objective function values for kinetic population #1 corresponding to the 300 MC thermal solutions in Figure E17 (0.05 significance level). Lower panel shows distribution of objective function values for kinetic population #1 corresponding to the thermal solutions that exceed the 0.5 significance level in Figure E17.