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REPROCESSED AND INTERPRETED SEISMIC REFLECTION DATA FROM THE ARCTIC PLATFORM, PARRY ISLANDS FOLD BELT, AND THE SVERDRUP BASIN ON EASTERN MELVILLE ISLAND, CANADIAN ARCTIC ISLANDS: A study of geophysical data acquired by industry within portions of NTS 78F, 78G, 79B and 88E

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SEISMOLOGY OF MELVILLE ISLAND

ABSTRACT

Some 795 km of industry acquired 8 and 10 second reflection seismic data from Melville Island, Northwest Territories, have been reprocessed, migrated and interpreted. In addition, 71 km of 6 second two-way reflection profiles were similarly reprocessed to provide tie information. All the seismic lines are of excellent quality with many quasi-continuous reflecting horizons to depths of 25 km. This has made it possible to identify the main acoustic impedance and tectonic features through a thick section of the Precambrian Proterozoic.

A preliminary attempt has been made to identify the tops of the Cambrian, Proterozoic and Archean horizons on the basis of borehole information to Ordovician horizons, extrapolation to outcrop areas on Devon Island, northern Baffin Island, Boothia Peninsula and the lower Mackenzie River area, unconformities visible on the seismic reflection cross sections and other characteristics of seismic reflected data. The depth of the *Archean* crystalline basement appears at two-way travel times of at least 9 to 10 seconds or at depths of 25 to 28 km in the central part of Sabine Peninsula. On the Dundas Peninsula it appears to occur at two way travel times of 7 to 8 seconds or at depths of 20 to 22 km.

The top of the *Precambrian Proterozoic* is at about 13 to 15 km on the northern end of Sabine Peninsula as compared with the depth of 10 km on Dundas Peninsula. The *Proterozoic* succession is stratified, and tectonically complicated. The seismic reflection cross sections indicate a number of unconformities and some orogenic activity. Its average thickness is about 10 to 12 km corresponding to a two-way travel-time difference of 3.5 seconds. The top of the *Proterozoic* units is a characteristic unconformity.

The basal formations of the Phanerozoic sequence forms the next unit of intermediate depth, comprising of a well stratified, planar, sedimentary succession with several disconformities and minor unconformities. These are probably *Cambrian* and lower Ordovician strata with a thickness of about 5 km. Apart from a gentle folding, the *Cambrian* strata are practically undisturbed on the southern part of the Parry Island Fold Belt. However they underwent intensive deformation on the northern portion of the Parry Island Fold Belt and in the area belonging to the Sverdrup Basin.

The uppermost unit is series of Ordovician and Devonian strata separated from the intermediate unit by a major decollement zone, the Ordovician Bay Fjord formation. This unit dips north and thins on the Sabine Peninsula which is on the south-western margin of the Sverdrup Basin. The effects of the Upper Devonian Ellesmerian orogeny show up well on the seismic sections as a series of detachment faults and folds. On the Sabine Peninsula these rocks are covered by a sedimentary wedge of Carboniferous, Permian and Mesozoic formations.

PROJECT OBJECTIVES

Selected reflection seismic lines on Melville Island with two-way travel times of 8 or 10 seconds were acquired by the Geological Survey of Canada from Panarctic Oils Ltd. In addition there are several lines with only 6 seconds of two-way travel time. A portion of the available seismic data, consisting of 865.9 km, is to be reprocessed and interpreted with emphasis on the intermediate and deep horizons.

INTRODUCTION

Melville Island, a member of the Canadian Arctic Archipelago and the study area in particular, is located between latitudes 74° and 77° N, and longitudes 107° and 114° W (Figure 1). The area of the island extends into three adjacent tectonic provinces of Arctic Canada. The southernmost part (western Dundas Peninsula) belongs to the Arctic Platform. The central area of the island, a wide, east-west oriented zone, is part of the Parry Islands Fold Belt, also known as the *Franklinian Mobile Belt*. The northernmost extent of the Island, including Sabine Peninsula, is situated on the south-western flanks of the Sverdrup Basin.

The depth of the Precambrian (Archean?) crystalline basement under the sedimentary sequences of Melville Island is not yet known. The basement might be covered by a series of Precambrian and younger sedimentary units of a thickness reaching at least 10 km (Aitken et al, 1973; Balkwill and Fox, 1982; Fox, 1985). Their material might include clastics, dolomite, stromatolitic and argillaceous limestones, as well as gypsum-anhydrite formations.

A carbonate sequence from the early Cambrian is known on central Ellesmere Island with a thickness of 4 km. The oldest strata penetrated by drilling on Melville Island in the Parry Islands Fold Belt are of Early and Middle Ordovician, belonging to the Eleanor River Formation (Fox, 1985). Borehole data also confirmed the presence of Middle Ordovician evaporites (Bay Fjord Fm.), limestone, argillaceous limestone and dolomite (Thumb Mountain and Irene Bay formations). The Bay Fjord formation consists of 43% salt, 50% dolomite and 7% of salt with dolomite interbeds in a complete section of borehole Sabine Bay A-07. In several other boreholes its lateral stratigraphic equivalent is dolomite. The Thumb Mountain carbonate rocks are known in outcrop as well as from borehole records. In Sabine Bay A-07 their thickness is more than 800 m.

Silurian and lower Devonian limestones, dolomite and siltstone are also known on the Island. Their equivalent lateral shale formations are Cape Phillips (Silurian, lower Devonian), and Eids (Lower and Middle Devonian) A great mass of Middle and Late Devonian Strata, known as the 'Devonian Clastic Wedge', is a characteristic part of Melville Island geology (Embry and Klovan, 1976). Shale, siltstone and fine sandstone

(Blackley, Cape de Bray, Weatherall beds) and fine to medium grained sandstone with shale interbeds (Hecla Bay and Griper Bay Formations) form the clastic wedge. The top of the Devonian strata is everywhere a major unconformity. The Upper Devonian Ellesmerian Orogeny caused a series of detachment faults and folds in the Paleozoic strata.

Compressional fold structures can be seen also in the unconformably overlying Carboniferous strata (Canyon Fjord Fm.). Its cause, the lower Permian, post-Ellesmerian deformation, is referred to as the Melvillian Disturbance.

A Carboniferous rifting initiated the evolution of the northernmost tectonic province on Melville Island, the Sverdrup Basin. While the early Triassic sequence (Bjorne Formation) here is essentially non-marine, the Middle Triassic to Lower Jurassic strata consist of deltaic and non-marine clastics.

In the interpretation of seismic sections from Melville Island one has to expect a superposition of extensional and compressional tectonics which occurred at different times. In addition, there are diabase intrusives, evaporite diapirism, reefs and other carbonate buildups.

SEISMIC DATA PROCESSING

Selection of a processing company

To have the Melville Island seismic data processed we invited four processing companies to submit a proposal with respect to prices, time, along with information about technical facilities (software and hardware), personnel qualification, etc. Every one of the companies responded.

Our choice of companies to be invited to bid was based mainly on previous general information. Two of the companies, Western Geophysical Co. and Geophysical Services Inc., are wholy U.S. owned. They have excellent processing capabilities and own R+D personnel. Veritas Seismic Ltd. is fully Canadian owned with first class hardware and software capabilities. Their software was developed mainly by their own professionals. Veritas Seismic was the company that processed our seismic data for the former contract on Melville Island seismology. It was selected again on the basis of technical ability and price.

Parameters for seismic processing

As a basic step towards reduction of processing costs all lines have been resampled to 4 ms. The primary interest of reprocessing and interpretation was directed towards the intermediate and deep horizons. Below a two-way reflection time of about 4 seconds the amplitude response is significantly reduced for frequencies above 60 Hz. Thus, the appropriate lower Nyquist frequency (125 Hz) did not affect the quality of the corresponding part of the seismic sections.

The planned and executed schedule of *processing sequence* was as follows:

(i) gain expansion:
spherical divergence correction applied in form of the function $At e^{n}$;
(ii) shot records displayed;
(iii) geometry files;
(iv) instrument and geophone dephasing;
(v) deconvolution and bandpass filter analysis;
(vi) deconvolution applied to the raw data;
(vii) residual amplitude analysis and application;
(viii) structure statics:
elevation corrected to sea level;
(ix) automatic surface consistent statics;
(x) shot records displayed with NMO;
(xi) preliminary stack and display;
(xii) velocity analysis;
(xiii) NMO with spatial interpolation between controls;
(xiv) first break mutes;
(xv) correlation statics within CMP ensembles;
(xvi) stack and common offset stack;
(xvii) post stack deconvolution;
(xviii) band pass filter analysis;
(xix) bandpass filter;
(xx) amplitude equalization;
(xxi) complete display, fully annotated, and final magnetic tapes;
(xxii) migration;
(xxiii) display of migrated section, fully annotated

Filter analysis and application:

Bandpass filters with different parameters were applied on several lines after stacking in order to determine the suitable filter bandwidth. The test parameters included filters of 5/8 - 25/30, 5/8 - 30/40, 5/8-40/50, and 5/8-50/60 Hz. Due to the primary interest in deeper reflections the lower limit of the filters was not questionable. On the other hand, inspection of the test results showed, that the broadband filters gave the best results on the entire recorded time. Accordingly a broadband, 5/8-50/60 Hz, uniform filter was applied on the raw data. After the processing sequence the data were filtered again, in some cases this time with a time varying digital bandpass filter. Its parameters were 10/13-50/60 Hz on the upper parts (0-3500 ms) of the sections, and 5/7.5-50/60 Hz below this.

Deconvolution, spiking:

The effect of deconvolution proved to be satisfactory with one run, applied only on the raw data. The operator length was usually 120 ms. Three gates were used for design and the operators were applied appropriately in corresponding three overlapping windows. 5% prewhitening proved to be optimal.

Static corrections:

The elevation was corrected to the sea level. Two values were used for replacement velocity. In the northern area on Sabine Peninsula, where younger sediments constitute the uppermost layers it was 10,000 ft/s. Everywhere else 12,000 ft/s was applied for this purpose. The automatic surface consistent statics were based on the data-window between 3.0 to 6.0 seconds. The maximum shift allowed was 16 ms.

Velocity analysis and migration:

Decisions with respect to the applicable velocity functions for processing, migration and/or travel time-depth conversion were based on the velocity analysis of the seismic data and the low frequency interpretation of sonic log measurements in selected boreholes near the seismic lines. Velocity scan was carried out at every 200 or 400 common depth points, corresponding to 22000/44000 ft (6.7/13.5 km).

Based upon the velocity data and the preliminary stacked sections four section segments from the area were selected for a test migration procedure using a 45^{o} finite difference algorithm written by a Veritas software development group. Velocity functions were determined for the application of the test migration. The selected segments, representing data from different parts of the area, were:

Line 1786, CMP 800 - CMP 1783.
The interval velocity function was based upon the RMS velocity at CMP 1451.

Line 1141, entire length.
The interval velocity function was determined from the sonic log data of Beverly Inlet G-13.

Line 2145, entire length.
The interval velocity function was determined from the sonic log data of Sherard Bay F-34.

Line 1921, CMP 1250 - CMP 1800.
Velocity functions were given for both ends of the segment At CMP 1250 the velocity function was based on the RMS spectra at CMP 1251, at CMP 1800 on the other hand, we used the sonic log of Sherard Bay F-34.

The line segments were migrated in three different runs. The input velocity functions for the three calculations were 100%, 80%, and 70% of the basic velocity data.

The results of the test migration were used to select velocity functions for the individual lines (Figure 2). Our proposed interval velocity data were calculated, upon consideration of additional seismic and geological information, by taking different fractions (70 - 100 %) of the original interval velocities mainly based on the following sources (for locations see enclosed map, Figure 5):

A. Seismic velocity spectrum at CMP 1451 on Line 1768;
B. Seismic velocity spectrum at CMP 1250 on Line 1921;
Sonic log measurements in bore-holes:
C. Panarctic et al. Beverly Inlet G-13;
D. Texex King Point West B-53;
E. Panarctic et al. Sabine Bay A-07;
F. Panarctic et al. Sherard Bay F-34;
G. Panarctic et al. Drake Point D-68;
H. Panarctic et al. Chads Creek B-64.

A 45 degree finite difference algorithm was used for migration. The input velocity functions are listed in details in Appendix 2.

GRAVITY DATA PROCESSING

A Bouguer gravity map was compiled from available EMR and industry data (Figure 3). Interpolating and correcting the industrial data base involved a large amount of work but it allowed us to obtain detail in areas where the coverage from Canadian government sources was sparse. This map proved to be of use in obtaining general trends over Melville Island. The gravity data is also included on the migrated seismic sections together with the elevation of the surface.

INTERPRETATION OF THE SEISMIC SECTIONS

General technical remarks

The recorded field data for the sections are of very good quality. Large number of reflected events can be recognized at all depths. These signals are sometimes so strong on individual field records that they dominate over the naturally present noise arrivals.

The displays of the single records reveal the nature of the specific noise arrivals on Melville Island. *Surface waves* are rather strong. Their effect is obvious even on the stacked sections. The long offset, double split line-spread in the case of line 2144, for instance, is designed partly to overcome these difficulties. Due to the permafrost in the Arctic *ice-breaks* are present at random times on the records. This phenomenon is caused by delayed secondary strain release after shots. Fortunately, they can be spatially filtered out by the stacking procedure due to the randomness of occurrence. Some *amplifier* or *electrical discharge noise spikes* due to lightning also occurred. Their effect was eliminated by their *surgical removal* from the records before further processing took place. In general, the migrated sections are free from most of the disturbing effects described above. Higher stacking coverage and lower source sizes when the seismic data was acquired initially in the field, following modern exploration practice, would have brought even further improvement to the otherwise excellent quality sections.

Interpretation of the seismic sections was based mainly on the migrated version of the lines. Naturally, the basic, conventional stacked sections had to be continuously compared with them. Seismic stratigraphic information, especially the amplitude and reflection configuration related aspects of facies analysis which might serve as basis for stratum or formation identification, can be more readily obtained from the conventional stacked sections. On the other hand the migrated sections are best for studying the structural and tectonic characteristics, such as synclines and faults, due to compressional or extensional structural events. The conventional CMP seismic sections have complicated seismic images with diffraction arrivals in greater evidence which make interpretation difficult in areas where the acoustic impedance has abrupt discontinuities.

The seismic sections and the results of our seismic interpretation are displayed on 8.5" by 11" sheets for convenience in reading this report and for ease of duplication of an open file report. The correlated reflections are drawn on the attached line-diagrams. These have been generated with the help of an Adobe Illustrator algorithm on a Macintosh microcomputer using an Apple Laserwriter. The line diagrams show the main identified features which include stratum boundaries and possible fault traces. They are fitted to overlay the migrated seismic sections on a light table or when duplicated on transparent sheets. They may be spliced together to form long sections covering any part of the study area but slight mismatching will result due to

optical differences in duplicating hardware, etc. Wherever possible, the coded lines representing picked reflections are identified with a special system of shading. The legend for the code is shown in figure 8. The identification provides information according to our best knowledge about the particular boundary. The boundaries for the tops of the Cambrian, Proterozoic and Archean horizons are not based on well data or direct geological constraints and should be regarded as tentative geophysical interpretations.

In order to ensure uniquely determined horizontal positioning along the seismic cross sections a kilometer scale is attached to their upper part. Zero kilometers is assigned to the zero shotpoint locations. During the following discussion these kilometer rulers should be used for identification of horizontal positions. In cases where kilometer units are used to indicate vertical thickness or depth this distinction is expressed explicitly.

Remarks about the interpretation procedure

On the basis of seismic stratigraphic criteria the sections can be divided into three major distinctive depth zones. The uppermost one, which has been extensively explored by boreholes and seismic lines processed some years ago, bears most characteristically the main features of the tectonic provinces. Over the restricted extent of the Arctic platform on Western Dundas Peninsula (Lines **1168, 1169, 1862**) and in the Parry Island Fold Belt (seismic lines between **1171** and **TPC2**) this uppermost semi-horizontal zone contains the middle Ordovician to Devonian strata. In the Fold Belt the lowermost stratum belonging to this stratigraphically visible upper unit is the Bay Fjord formation, serving as a major decollement level. The structural forms of compressional tectonics are distinct above this level. North of line **TPC2,** on the southwestern margin of the Sverdrup Basin, this uppermost band of strata dips towards the north. It gives place to younger, Carboniferous, Permian and Mesozoic strata that take over the role of the uppermost zone. Thus, the Ordovician-Devonian succession becomes part of the second zone, constituting the formations of intermediate depth. Note that in accordance with the main purpose of the investigation, which is concentrated on the lower Paleozoic and Precambrian formations, the attached line drawings feature only general characteristics of the middle and upper Paleozoic and Mesozoic formations.

The middle zone in the first two tectonic provinces is distinct in appearance from both the upper and the lower parts. It consists of at least one seismic sequence on the Platform and in the Parry Island Fold Belt. The zone is approximately 5 km thick with an apparently parallel horizontal succession of strata. Closer examination, however, reveals that some reflected events represent surfaces with mild angular unconformity. Based on outcrop and borehole data from Devon Island the uppermost part of this middle sequence is most likely lower Ordovician. Since the Devon Island data indicate continuous sedimentation through the upper Cambrian and lower Ordovician boundary, no unconformity is expected. The horizon marked C1 has been chosen on the basis of extrapolation from Devon Island to be rather close to the top of the *'Cambrian'* sequence. In the *Cambrian* succession another horizon labelled C2, and occasionally a third one, C3, was correlated over many lines. This band of seismic (and stratigraphic) events constitute the lower

part of the intermediate zone in the Sverdrup Basin area.

The lower limit of the Cambrian sequence has been chosen to be a well defined unconformity on the seismic reflection records. The '*lower Cambrian*' reflections terminate on it in onlap and occasionally in downlap situation. Below this boundary the internal reflection configuration differs from those above. Lower frequency content, divergent/convergent and semi-parallel reflections are common. Erosional truncations expressed by toplap reflection terminations emphasize the boundary from below. Having no possibility for borehole identification these characteristics were used to determine the top of *Proterozoic* strata essentially on the entire study area. The appropriate code on the line-drawn sections for our interpretation of the top of the *Precambrian Proterozoic* rocks is Pr 1. The travel-time map of this reflector surface is presented on Figure 7. Again, it should be emphasized that there are no local outcrops or well information to substantiate independently this correlation. This surface has a general dip towards the north. It is tilted from 3.4 s on Dundas Peninsula to 5.2-5.4 seconds on the northern end of Sabine Peninsula. Due to the velocity distribution (See Figure 6) this corresponds to a real tilt from about 10 km depth on Dundas Peninsula to about 13 to 15 km depth on Sabine Peninsula. The average northward dip on the various lines varies from about 0.7^{o} to 1.2^{o}.

The internal stratified structure of the *Proterozoic* formations suggests that they consists of a thick sedimentary sequence. The thickness varies from at least 10 to 15 km. There are a large number of good reflecting horizons at depths of 10 to 25 km depth. The seismic images leave no doubt that the primary structure has been shaped by recurring phases of tectonic movement. Fractured zones show up with discontinuous gaps between longer continuous reflections. At least 3 major unconformities mark periods of erosion and tectonic disturbance. Intrusions, including sills, seem to cause localized *reflection crossings.* While having an overall view about the stratigraphic, depositional and tectonic trends in the *Proterozoic*, mapping a continuous surface would be more efficient on a dense seismic grid of lines. Still, based on general seismic stratigraphic appearance and similarities in geological setting, we marked the most prominent reflections and reflection fractions below the Phanerozoic section. In certain cases they are distinguished by identifiers as Pr 2, Pr 3, or Pr Unc., etc. The horizons can be followed consistently over short distances. Over long distances, of course, identification with the same code does not necessarily mean that the boundaries, represented by the reflections, are of the same age or formation. Rather, the same code indicates that, according to our inevitably subjective judgement, the overall geological situation or setting seems to be similar.

The lower boundary of this band of *Proterozoic* reflected energy can be seen on certain lines in the form of segmented, mostly horizontal or near horizontal, bands. These are situated near the bottom of the seismic sections and have very large amplitudes on the field records, as well as on the conventional CMP sections, indicating a profound change in acoustic impedance. The migrated sections also show them,

however, sometimes dimmed in nature due to the truncating behavior of the finite difference computer algorithm near data boundaries. These reflection fractions are marked with Ar(?) on the line sections, indicating that they may be the top of the *Archean* crystalline basement.

The Arctic Platform

The western part of lines **1168, 1862** and the southern end of **1169** are on the Arctic Platform. The intermediate Zone 2 on these sections, consisting of horizontal, parallel reflections between t_0 = 2.1 s and 3.8 s, separates very visibly the upper and lower zones. The strong reflection at 2.1 s on the eastern end of line **1168** corresponds to the top of the Ordovician Bay Fjord formation. The westward continuation of this reflection is rather weak, changing in amplitude at the same locations where all the reflections above also change. Among these upper reflections the one at t_0 =1.5 s is especially characteristic. Its corrugated appearance and the changes in thickness towards the east at the 7 km benchmark indicate that it is originated from the surface of a planar carbonate buildup. It can be correlated on line **1169** between 0 and 10 km, and on the entire length of line **1862.** Since the upper zone of the adjacent sections to the east show elements of intensive compressional tectonics as opposed to the horizontally layered stratigraphy here, this limit is indeed the boundary between the Arctic Platform and the Parry Island Fold Belt.

The difference between the two tectonic provinces is not at all apparent on the intermediate and deep parts of these sections. The continuity is virtually undisturbed. The vertical minor discontinuity on line **1168** is almost unrecognizable. It is probably the seismic image due to the changes associated with the edge of the upper carbonate buildup. The Proterozoic succession is divided by two prominent groups of strong reflectors, having rather transparent zones between them. They are denoted by the labels Pr 2 and Pr 3 and are tilted towards the eastern end of the section.. Pr 3 dips from a depth of 14 km to about 17 km in a distance of 20 km. This corresponds to a dip of about 8.5^{o}. There are two further unconformities beneath the major unconformity representing the top of the *Proterozoic* succession. These are recognized over widespread portion of the study area.

Line **1169** also shows Pr 2 and Pr 3 although with much less tilt. Locally, the resultant dip seems to be towards the northeast. These horizons are interrupted by several minor faults which apparently have not affected any of the strata above the level of the unconformity beneath the *Proterozoic* surface.. These faults indicate definitely a period of extensional tectonics prior to some lower Paleozoic stage. The apparently horizontal appearance of Pr 2 and Pr 3 on line **1862** is due to the strike direction of the section. Between benchmarks 28 and 18 on Line **1862** the second internal unconformity seem to have truncated a minor

progradational sequence above Pr 3. Note that the dome shaped relief indicated by Pr 3 is imaged by a very weak reflector. It may not correlate to other segments labelled Pr 3 but may indicate the presence of a large intrusion. This portion of the section is rather transparent and corresponds to a local maximum on the Bouguer gravity map in this area. The nearly horizontal reflection segments at 7 seconds may be a part of the *Archean basement* (?) .

The Parry Islands Fold Belt

The immediate continuation of lines **1168** and **1862** to the east are **1171** and **1768** respectively. The middle zone of lower Ordovician and Cambrian strata are planar in geometry with minor undulations. Some gentle undulations show up beneath the thrusted structures of the upper decollement zone (Bay Fjord). These may indicate a mild response of the *Cambrian* sequences to the compressional forces. Since a minor effect of the undulation can be traced also through the *Precambrian* reflectors, this may be a processing artifact due to velocity pull-up under the upper thrust faults.

On the western end of both lines the first strong Proterozoic reflector, Pr 2, images a minor basin. Between t_0 = 3.8 s, the *Proterozoic* surface, and t_0 = 5.0 s, Pr 2, an undisturbed, parallel horizontally bedded, basin fill is indicated. The strong reflections, on the other hand, below and including Pr 2 seem to have originated from a series of parallel strata which, in turn, participated in a thick-skin tectonic event. Their repetitive sequence and some indications of internal translational surfaces suggest that the strata between Pr 2, Pr 2a, Pr 2b, Pr 2c and Pr 2d are the posterosional remnants of a large thrust-sheet. If this is true, thrusting must have occurred from the west. Note that the tectonically weakened strata fractured and must have been filled with sills, which partly explains some complicated wave images. It is interesting to note that the eastward continuation of this sequence indicates extensional rather than compressional tectonics. East of the horst-like structure at benchmark 23 of line **1768** and benchmark 32 of line **1171** a series of extensional type listric faults appear. Pr 3 serves as a decollement level. Note again the overall lower amplitude of the reflected energy on the eastern end of both lines.

Line **1770** is perpendicular to section numbers 1171 and 1768. Indications are that a large listric fault divides **1171** and **1768**, which might explain some of the differences between the fault distribution of the two lines. Line **1770** also shows similar *Proterozoic* stratigraphy with strong reflectors identified as Pr 2 and Pr 3 and the unconformities. Fortunately this line was obtained closer to the main strike direction of the *Proterozoic* sequence.

Line **1138** is the eastward continuation of **1171**. Under the planar *Cambrian* succession the *Proterozoic* unconformity surface shows up very distinctly. The *Precambrian* strata here display the effects of extensional tectonics. In addition to Pr 3 an erosional surface also serves as a decollement level.

Line **1762** traversed several folded structures of the upper zone. A large listric fault between benchmarks 10 and 15 km affected both *Proterozoic* and *Cambrian* strata. Its detachment level, Pr 5, is a spectacular unconformity. It seems to have been the margin of a small depression, which is about 10 km wide on this section, and which was filled from the south. Note the downlap reflection terminations south of the listric fault on the elevated portion of this unconformity. The depression is filled with fairly parallel strata. Their reflections terminate with onlap on the flanks of the small basin.

Line **1139** displays a listric fault. Pr 3 again is the detachment surface. The upward convexity of the strata on the downthrown side is probably due to the velocity pull-up originating from the thrust faulting on the upper level, rather than an indication of growth faulting. Some onlap reflection terminations show that Pr 3 here is also an unconformity. Some horizontal reflection segments at 7 seconds may be a part of the *Archean* basement.

Reflections from the *Proterozoic* on the northeast end of Line **1140** arrive with diminished energy. This may be due to scattering of energy by the thrusted structure in the upper level but alternative explanations are more plausible. There are, first of all, other thrusted structures which do not destroy completely the reflections from beneath. Furthermore, this transparent zone on the section coincides with a local gravity maximum. The cause may be an intrusive zone similar to the one mentioned in connection with line **1862.**

At the beginning of line **1141** the direction of the long regional profile turns straight north. Pr 2 can still be identified with rather strong reflections. Strata between Pr 2 and Pr 1 are truncated by the unconformity surface which is interpreted to be the top of the *Proterozoic* succession.

TPC8, the northward continuation of the regional profile was recorded to only 6 seconds. Still it provides information about the uppermost 15 km of the crust. Between horizontal benchmarks 2 and 10 km the seismic image of a compressional structure can be seen. Its detachment level is probably identical with Pr 2, the uppermost strong reflector beneath the *Proterozoic* surface. The fractures affected the oldest *Ordovician*, all the *Cambrian* and the youngest *Precambrian* strata.

Line **1190** was measured on the flanks of several compressional structures. Accordingly, elastic sidewaves play a significant role in shaping the seismic section. Between benchmarks 10 and 25 km the repetition of strata originates from traversing a thrust structure in the strike direction. The middle zone, consisting of lower *Ordovician* and *Cambrian* strata, is also involved in compressional tectonic movement. The unconformity at the top of the *Proterozoic* succession serves as a decollement level. There is another unconformity identified between reflector C1 and C2. This truncates a progradational sequence between

benchmarks 20 and 33 km. The unconformity beneath the *Proterozoic* surface is nearly conformable with the strata below. Reflections, i.e. strata boundaries, terminate on this unconformity from above with downlap on the western side and with onlap on the eastern end of the section. An interesting feature is an erosional basin near benchmark 27 km. The dome shaped structure below this feature might be a reflection pattern from sidewaves since no gravity anomaly is associated with it.

Line **TPC7,** another 6 second profile, features many folds and thrust faults in the upper section. The thrust fault at benchmark 18 km is the location of borehole Texex King Point West B-53. The decollement level of this structure is Bay Fjord formation. Another system of thrust faults appears on the northern end of the section. Its decollement zone is in the *Cambrian* strata. Several faults having compressional origin affected the upper part of the *Proterozoic* succession, as well.

Line **TPC2** ensures the continuity between the lines of the Parry Island Fold Belt and the lines obtained in the Sverdrup Basin. It also shows some interesting features. All of its faults seem to have an extensional origin. In the *Proterozoic* section Pr 2 serves as an unconformity for the successive reflections from above.

The southern flank of the Sverdrup Basin (Sabine Peninsula)

Line **1921** traverses the southernmost margin of the Sverdrup Basin. The uppermost zone is interrupted by a half graben between horizontal benchmarks 17 and 23 km on the seismic sections. The lower *Ordovician* and *Cambrian* sequences, which thin towards the north, have such compressional features as thrusts, folds and duplication of sequences of strata. The decollement level is in the *Proterozoic* at Pr 1. The surfaces of these thrust sheets provided another surface for translational motion. Around benchmark 20 km a 'V' shaped system of faults embraces a compressionally shaped semiparallel series of strata. Their identification is rather difficult but their thickness is at least 6 km. At the southern end of the line the lower *Ordovician* and *Cambrian* strata have a thickness of only about 4 km. Thus, the top of the 'V' shaped fill must contain some other, middle and upper Ordovician and possibly Devonian strata.

North of benchmark 30 the original dual upper zones constitute the middle zone in the Sverdrup Basin tectonic province. Permian, Triassic and Jurassic wedge shaped strata occupy the upper part of the section. Since the top of the *Proterozoic* is dipping more gently than the uppermost strata, the combined thickness of the Cambrian, Ordovician and Devonian strata seems to decrease. While identification of the Permian boundaries from above and identification of the top of the *Proterozoic* from the bottom poses no problem, there is very little information with regard to the changes in ratio of thickness of the strata mentioned. A long thrust fault reaching from the deeper *Proterozoic* to the Permian terminates the southern part of the section. Another compressional unit towards the north, displayed in full on lines **2674** and

1920, has a boundary, a terminating fault at benchmark 51 km on this line. This fault also affected strata between the *Proterozoic* and the early Permian. The *Proterozoic* surface is very well identifiable. Beneath Pr 1 there are numerous reflections. The line diagrams just emphasize a few of them.

The southern flank of the Sverdrup Basin on Sabine Peninsula will be discussed in the following paragraphs based on three different transects. The common southern part is line **1921** in every case. The continuation to the north can be examined on the basis of lines **1179** and **1180**, or on a semi-parallel profile on line **2674**. The third profile is line **1920**, a continuation of **1921** in northwestern direction.

Lines **1179** and **1180** give the direct continuation of line **1921** towards the north. Their most prominent feature is the display of a basin in the second intermediate zone. It is bounded by a large fault and several accompanying faults on line 1921 from the south and a series of listric faults at benchmark 10-20 on line 1180 from the north. The extent of the basin in this cross section is about 50 km. The youngest strata affected by any of the faults in the basin are Permian. On the lower extent the top of the *Proterozoic* unconformity, Pr 1, seems to be the main decollement level. However, the southern limiting fault is detached below the *Proterozoic* surface (see line **1921**). At least on the level of Pr 1 it shows certain compressional features, although the upper, younger strata are virtually discontinuous as a result of extensional movements. The northern limiting fault on line **1180** shows explicitly extensional features. There are indications in the younger strata that this is a growth fault. Note that just below the northern series of southward dipping listric faults another fault of rather low angle is present. It is likely of compressional origin. In the upper half of the basin succession on line **1179** there is another detachment level. No well control is available to identify this boundary. However, provided it was also developed here with the evaporites, this might be identical with the Ordovician Bay Fjord level. Accepting that the Permian Belcher Channel is well defined above, the Devonian formations have to be less than about 2 km thick in this area. They must be even thinner, if present at all, at the northern end of line **1180**. Note some anomalous reflection configurations near benchmark 10 suggesting the presence of local carbonate buildups.

The uppermost zone of the sections consists of a northward dipping wedge shaped unit of Permian and Mesozoic strata. There is no evidence for any major tectonic disturbance. This unit developed as a result of the differential subsidence on the southern margin of the Sverdrup Basin in a period of thermal relaxation .

The general appearance of the other alternative profile, line **2674**, is naturally the same. The differences are mostly due to the changing distance and angle between the lines (1179, 1180 and 2674) discussed previously. The compressional structure of the upper *Proterozoic* sequence is imaged more clearly. Pr 1, the unconformity surface of the *Proterozoic* section, is steeper towards the north on this line indicating that the track of this section is closer to the true dip.

The northwest branch from line **1921** is given by line **1920**. A remarkable difference is that the

previously delineated basin is bounded by two major listric faults. However, they are a straight continuation of Precambrian faults. On the level of the *Proterozoic* surface they both indicate thrusting. The second, smaller fault on the southeast end of the basin (benchmark 20 km) and the faults at benchmark 50 km between t_0 = 2s and 4s also display compressional features. The other faults inside the basin indicate explicitly extensional tectonics. The upper detachment level, presumably the Bay Fjord or its equivalent, is less emphasized on this section.

The uppermost zone is the same as the previously discussed Permian and Mesozoic margin. The reflection from top of the Permian Van Hauen and the Trold Fjord diverge near benchmark 10 to 15 indicating a wedge shaped thickening of the Trold Fjord formation towards the north and the northwest. The lower zone of the section shows the *Proterozoic* internal structure below the basin. This reflections from the *Proterozoic* indicate compressional tectonics. The thrusted feature at benchmark 17 km and t_0 = 6 s can be correlated on lines **2144** and **2674** as well. On line **2144** it is at benchmark 7 km and t_0 = 6.5 s. On line **2674,** on the other hand, it is at benchmark 9 km at t_0 = 6.4 s. These sections indicate that thrusting was from the north. The trends of the basin structure and faults have independent characteristics from the trend associated with this thrust sheet.

A grid of two-way 10 second reflection lines, **2144, 2145** and **2146,** connects the two previous profiles and provide some very valuable penetration to greater depths. Note that their vertical scale on the displays is different from the rest of the lines in order to accommodate the entire recording time to 10 seconds. Line **2144** is parallel with line **1920**. The type of faults indicate a certain mixture of compressional and extensional characteristics. Although identification of the reflections from and between the tectonic units is rather difficult, the compressional, thrusted, positions of the layers seem to be more or less restricted to the strata below the *Proterozoic* surface. The strong package of reflections at the 9 second level indicate a rather flat, eroded surface. It is most likely an indication of an eroded *Archean* crystalline basement complex.

Lines **2145** and **2146** are close to the strike direction. Some discontinuous reflections on line **2145** indicate that a faulted zone might separate lines **2144** and **1920.** The flat reflection segments at 9 seconds may show the position of the crystalline basement. Line **2146** helps to identify some reflectors as the seismic image of unconformities.

Any tectonic models will have to explain the evidence for both compressional and extensional features in a dynamic context. This procedure might need additional geophysical data, including the interactive modelling of gravity data. Some of the gravity anomalies are discordant with the seismic structure of the middle and upper crust and indicate that they must be modelled as density variations in the lower crust or upper mantle. Based on the data on Sabine Peninsula several versions of a tectonic model might be developed. Here we refer only to some of the possible mechanisms. One of the main points is to explain the

co-existing extensional and compressional features in the central basin of Sabine Peninsula. It is possible that a mild compressional period before the end of the Proterozoic created a fractured zone, the outline of the future basin. After the Cambrian period, most likely in connection with rifting of the Sverdrup Basin, an extensional sub-basin developed. The appropriate major displacement zones preferred lines of weakness on former faults. Otherwise the structure of the basin is that of a characteristic rifted depression. It is interesting to note that the central part of the basin coincides with a relative maximum on the gravity map.

CONCLUSIONS

More than 870 km of 6, 8 and 10 second reflection seismic lines have been reprocessed, migrated and interpreted. Their excellent quality made it possible to identify the main stratigraphic and tectonic features along a regional cross section on the eastern part of Melville Island.

The bottom of the whole succession seem to be the *Archean* basement. The strong but scattered reflected energy from 7 to 8 seconds point to a rather flat, eroded surface at a depth of about 20 to 22 km. The depth of the *Archean* basement reaches at least 25 to 28 km in the central part of Sabine Peninsula.

The *Archean* reflectors are covered by a stratified, tectonically disturbed unit consisting of *Proterozoic* sequences. Its average thickness is about 10 to 12 km corresponding to a two-way travel-time difference of 3.5 seconds. The top of the *Proterozoic* succession is a characteristic unconformity and is at about 13 to 15 km on the northern end of Sabine Peninsula as compared with the depth of 10 km on Dundas Peninsula. The *Proterozoic* succession is stratified, and tectonically complicated. The reflections indicate a number of unconformities. These strata were deformed partly before the end of the Proterozoic. Eastward thrusting on Dundas Peninsula and southward compression on central Sabine Peninsula probably preceded a period of dominantly extensional tectonics. The upper part of the *Proterozoic* was affected by the tectonic movements of post-Proterozoic times. Both the *Archean* basement and the top of the *Proterozoic* dip to the north.

The next unit, of intermediate depth, comprises a well stratified, planar sedimentary succession with widespread disconformities and minor unconformities. These are probably *Cambrian* and lower *Ordovician* strata with a thickness of about 5 km. Apart from a gentle folding, the Cambrian strata are practically undisturbed on the southern part of the Parry Island Fold Belt. However, they underwent intensive tectonic activity on the northern portion of the Perry Island Fold Belt and in the area belonging to the Sverdrup Basin. On Sabine Peninsula a mild compressional period before the end of the Proterozoic might have created a fractured zone, where later an extensional basin developed. The upper *Proterozoic, Cambrian,* Ordovician and Devonian strata participated in the rifting events of the Sverdrup Basin. As a result an uplifted area with compressional features is situated at the boundary between the Parry Islands Foldbelt and the Sverdrup Basin.

On the Sabine Peninsula a rifted subbasin displaying mainly extensional tectonics developed most likely in close connection with the origin of the Sverdrup Basin.

The uppermost unit in much of the area is a series of Ordovician and Devonian strata which has been involved in a major period of orogenesis and is separated from the intermediate unit by a major decollement zone, the Ordovician Bay Fjord formation. The south-western margin of the Sverdrup Basin may be seen on the Sabine Peninsula. Here the uppermost two units thin and dip towards the north. They are covered on the Sabine Peninsula by a sedimentary wedge of Carboniferous, Permian and Mesozoic formations.

RECOMMENDATIONS

The present study has indicated that much valuable information can be obtained about the Precambrian Era in the Arctic basin with seismic reflection studies. At some time in the future LITHOPROBE type studies should be conducted in the area to probe the full extent of the crystalline basement in the lower crust and the attitude of the mantle. Before this is undertaken much more can be done in the study of the seismic sections made available by the reprocessing in this contract. In addition other geophysical information including the available gravity and magnetic may be used in conjunction with the seismic sections to study the third dimension below Melville Island.

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Appendix 1: Table of lines with field parameters

Line-yr.	(1)[1]	(2a)	(2b)	(3)	(4)	(5)	(6)	(7)	stns	mi	km
1138-73	73	48	5280	880	220	6	2	8.0	288	11.1	17.8
1139-73	91	48	5500	880	220	6	2	8.0	360	15.0	24.0
1140-73	107	48	5280	880	220	6	2	8.0	424	17.4	28.3
1141-73	83	48	5500	880	220	6	2	8.0	328	13.7	21.9
1168-73	80	48	5280	880	220	6	2	8.0	316	13.1	21.0
1169-73	143	48	5280	880	220	6	2	8.0	568	23.7	37.9
1171-73[3]	233	48	5280	880	220	6	2	8.0	928	38.0	60.8
1179-74	164	48	6765	495	165	8	2	8.0	489	15.3	24.5
1180-74[2]	300	48	6765	(2)	165	(2)	2	8.0	712	23.4	37.4
1190-73	290	48	5500	880	220	6	2	8.0	1156	48.0	76.8
1762-75	168	48	550	880	220	6	2	8.0	668	27.8	44.5
1768-75	221	48	5500	880	220	6	2	8.0	880	36.2	57.9
1770-73	182	48	5500	880	220	6	2	8.0	724	30.2	48.3
1862-75	136	48	5500	880	220	6	2	8.0	540	23.0	36.8
1920-76S	215	48	5500	440	220	12	2	8.0	428	17.8	28.5
1920-76N	262	48	11440	440	220	12	2	8.0	522	21.8	34.9
1921-76S	277	48	5500	440	220	12	2	8.0	552	23.0	36.8
1921-76N	328	48	9900	220	220	24	2	8.0	328	13.7	21.9
2144-76[3]	167	48	11440	440	220	12	2	10.0	332	13.9	22.2
2145-76	175	48	11440	440	220	12	2	10.0	348	14.5	23.2
2146-76	181	48	11440	440	220	12	2	10.0	360	15.0	24.0
2674-81S	116	96	10780	880	220	12	2	8.0	460	19.1	30.6
2674-81N	131	96	10780	880	220	12	2	8.0	520	21.7	34.7
TPC2-73	67	48	5280	880	220	6	2	6.0	368	15.5	24.8
TPC7-73	108	48	5280	880	220	6	2	6.0	428	17.8	28.5
TPC8-73	67	48	5280	880	220	6	2	6.0	264	11.2	17.9
TOTAL :										540.9	865.9

(1) number of shotpoints
(2) a - number of traces/record
b - far-trace offset (feet)
(3) shotpoint spacing (feet)
(4) station spacing (feet)
(5) CMP fold
(6) sampling interval (milliseconds)
(7) record length (seconds)

[1] working tapes 9T, 6250 bpi, demultiplexed, SEG-Y format.

[2] shotpoint spacing and CMP fold vary 495'/330' and 8/12 respectively

[3] reprocessed in phase I, February 1987

Appendix 2

Detailed list of the input velocity functions applied for migration of the seismic lines (time in milliseconds, interval velocity in m/s):

Total length of lines

1862, 1168, 1169, 1768, 1770, 1762, 1138:

Based upon the velocity spectra at CMP 1451 on Line 1768 (Dundas Peninsula):

Time	Int.Vel.
0	
	9300
1300	
	11850
1600	
	14960
2000	
	16400
2800	
	15400
8000	

Total length of lines

1139, 1140, 1141, TPC8, TPC7, TPC2

Based upon the sonic log data from Beverly Inlet G-13

Time	Int.Vel.
0	
	9300
210	
	10000
630	
	8750
860	
	10780
1100	
	9300
1430	
	10800
1700	
	15400
8000	

Total length of line **1190**

Based upon the sonic log data from Sabine Bay A-07

Time	**Int.Vel.**
0	
	8800
1000	
	10150
1300	
	14550
2200	
	15400
8000	

Line **1921**

At **CMP 1 and CMP 1250** (constant function between them):

Based upon the velocity spectra at CMP 1250 on Line 1921:

Time	**Int.Vel.**
0	
	10600
800	
	10300
1100	
	11200
1500	
	14450
2700	
	15400
8000	

At **CMP 1818** (northern end of the section):

Based upon the sonic log data from Sherard Bay F-34

Time	**Int.Vel.**
0	
	8550
900	
	11250
1600	
	10850
2100	
	12200
2800	
	15400
8000	

Total length of lines
2145, 2146, 1179
Based upon the sonic log data from Sherard Bay F-34

Time	Int.Vel.
0	
	8550
900	
	11250
1600	
	10850
2100	
	12200
2800	
	15400
8000	

Line **2674**

At **CMP 1** (southern end of the line):
Based upon the velocity spectra at CMP 1250 on Line 1921:

Time	Int.Vel.
0	
	10600
800	
	10300
1100	
	11200
1500	
	14450
2700	
	15400
8000	

At **CMP 1300** and **CMP 2028** (constant function between them, on the northern end of the line):
Based upon the sonic log data from Drake Point D-68

Time	Int.Vel.
0	
	8870
900	
	11500
2550	
	14000
3000	
	15400
8000	

Line **1920**

At **CMP 1** (south-eastern end of the line):

Based upon the velocity spectra at CMP 1250 on Line 1921:

Time	**Int.Vel.**
0	
	10600
800	
	10300
1100	
	11200
1500	
	14450
2700	
	15400
8000	

At **CMP 905** (approximate intersection with line 2145):

Based upon the sonic log data from Sherard Bay F-34

Time	**Int.Vel.**
0	
	8550
900	
	11250
1600	
	10850
2100	
	12200
2800	
	15400
8000	

At **CMP 1625** and **CMP 1926** (constant function between them, north-western end of the line):

Based upon the sonic log data from Chads Creek B-64

Time	**Int.Vel.**
0	
	7680
600	
	9450
1000	
	12100
1500	
	14500
2000	
	11800
2600	
	15400
8000	

Total length of line **1180**

Based upon the sonic log data from Drake Point D-68

Time	**Int.Vel.**
0	
	8870
900	
	11500
2550	
	14000
3000	
	15400
8000	

Appendix 3

Velocity data from sonic log measurements in selected boreholes:

Drake-Point D-68

Δh = 44.2 m Δto = 0.025 s

t_o (ms)	h (m)	v_{int} (m/s)	v_{av} (m/s)	v_{RMS} (m/s)
0	0			
		3000		
900	1300		2900	3000
		3900		
2550	4600		3600	3690
		4750		
2900	5450		3760	4200

Sherard Bay F-34

Δh = 72.0 m Δt_0 = 0.041 s

t_0 (ms)	h (m)	v_{int} (m/s)	v_{av} (m/s)	v_{RMS} (m/s)
0	0			
		2900		
900	1260		2800	2900
		3800		
1600	2580		3220	3320
		4700		
2100	3670		3500	3700
		5300		
2800	5550		4000	4160

Winter-Harbour No. 1 A-09
Δh = / 27.4 m Δto = 0.013 s

t_0 (ms)	h (m)	v_{int} (m/s)
0	0	
		3581
750	1341	
		3810
1310	2408	
		4694
1530	2926	
		5547
1750	3536	
		6767
1850	3810	

King Point West B-53
Δh = 236.8 m Δto = 0.125 s

t_0 (ms)	h (m)	v_{int} (m/s)
0	0	
		3139
100	152	
		3597
300	518	
		3962
510	945	
		6096
840	1951	
		5547
980	2347	
		6096
1040	2530	
		5547
1100	2697	
		6767
1320	3109	

Sabine Bay A-07

Δh = 147.5 m Δt_0 = 0.077 s

t_0 (ms)	h (m)	v_{int} (m/s)	v_{av} (m/s)	v_{RMS} (m/s)
0	0			
		3350		
1000	1680		3350	3350
		4420		
1280	2286		3570	3610
		6340		
2190	5180		4730	4930

Beverly Inlet G-13

Δh = 179.0 m Δt_0 = 0.094 s

t_0 (ms)	h (m)	v_{int} (m/s)	v_{av} (m/s)	v_{RMS} (m/s)
0	0			
		4060		
210	430		4060	4060
		4350		
630	1340		4250	4257
		3810		
856	1770		4140	4140
		4700		
1069	2270		4250	4260
		6100		
1103	2680		4860	4502
		4060		
1433	3350		4680	4410
		4700		
1693	3960		4680	4455
		6800		
1721	4054		4710	4500

Dundas N-82
Δh = 228.0 m Δt_o = 0.121 s

t_0 (ms)	h (m)	v_{int} (m/s)	v_{av} (m/s)	v_{RMS} (m/s)
0	0			
		4000		
1375	2750		4000	4000
		4760		
1460	2950		4040	4050
		6700		
1475	3500		4750	4090
		5600		
1490	3950		5300	4105
		7150		
1500	4100		5470	4130

Marryatt K-71
Δh = 90.5 m Δt_o = 0.044 s

t_0 (ms)	h (m)	v_{int} (m/s)	v_{av} (m/s)	v_{RMS} (m/s)
0	0			
		2600		
700	980		2800	2600
		3400		
1100	1650		3000	2900
		4200		
2600	4700		3600	3700
		5000		
2900	5450		3750	3870

Weatherall O-10
Δh = 157.9 m Δto = 0.084 s

t_0 (ms)	h (m)	v_{int} (m/s)
0	0	
		3050
220	335	
		3810
490	853	
		4054
700	1280	
		5852
980	2103	
		5090
1060	2286	

Chads Creek B-64
Δh = 79.9 m Δt_0 = 0.047 s

t_0 (ms)	h (m)	v_{int} (m/s)	v_{av} (m/s)	v_{RMS} (m/s)
0	0			
		2600		
600	800		2700	2600
		3200		
1000	1430		2900	2850
		4100		
1500	2440		3250	3320
		4900		
2000	3640		3650	3780
		4000		
2400	4470		3720	3820
		5000		
2600				3920

MELVILLE ISLAND

Scale = 1 : 2,000,000

Reflection travel times
Top of the 'Proterozoic' events

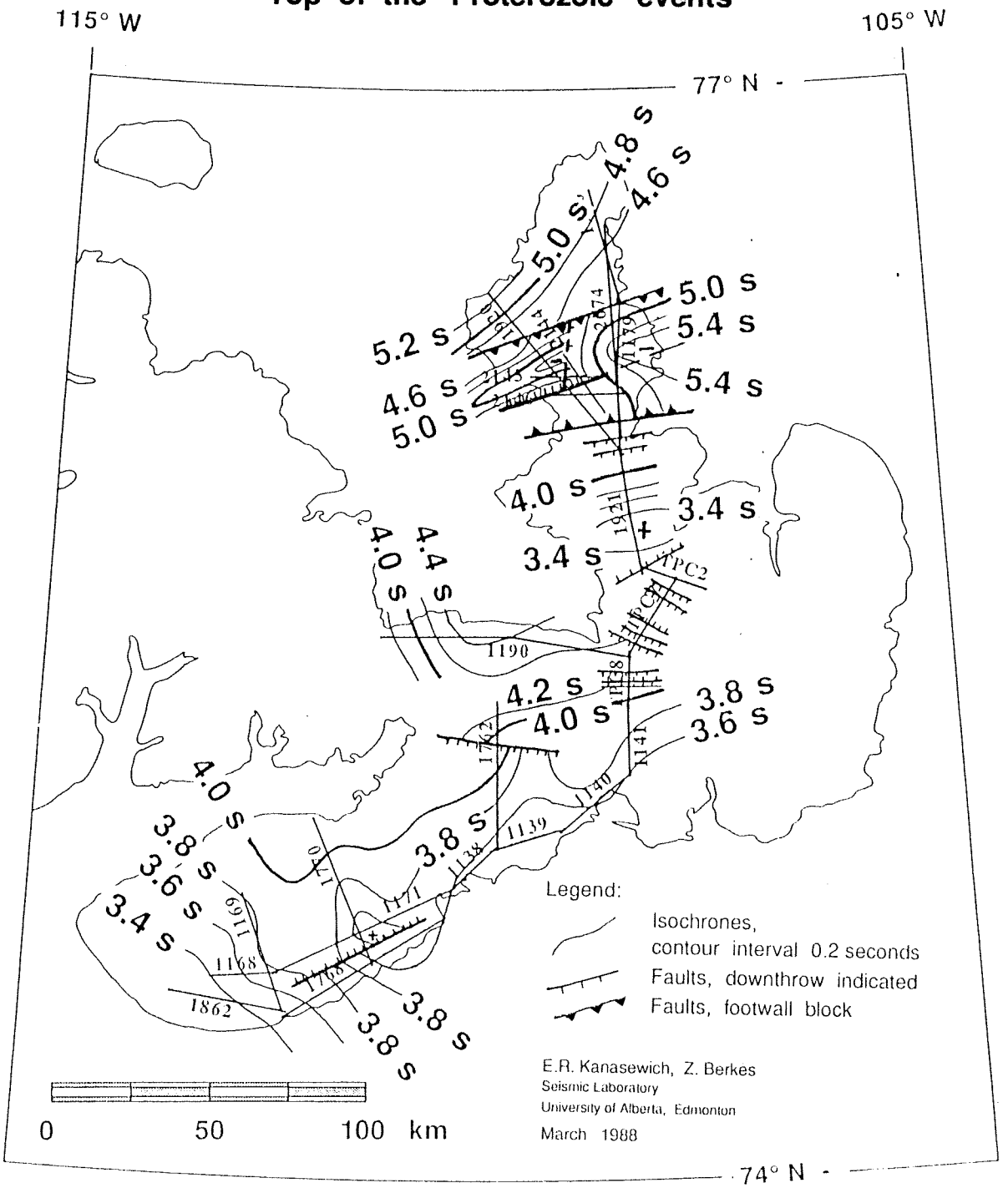


Figure 7

Figure 8. Code to Seismic Reflection Horizons on Melville Island

Period and Formation	Code	Symbol	Period and Formation	Code	Symbol
Cretaceous					
Christopher: Cr-Ch	5% 0.6 Solid		Isachsen Cr : Is	5% 1.0 Solid	
Jurassic					
Mould Bay: J MB	5% 2 Solid		Shei Point: J SP	60% 1 Solid	
Triassic					
Bjorne: Tr Bj	60% 2 Solid		Tr 2	5% 2 Solid	
Permian					
Trold Fiord: P TF	40% 4 Solid		Degerbois: P De	100% 0.0 Solid	
Belcher Channel : P BC	40% 2 Solid		Van Hauen: P VH	40% 3 Solid	
Carboniferous			Canyon Fj: Ca CF	40% 1 Solid	
Devonian					
Beverly Inlet: D BI	5% 0.6 Dash 5 2		Weatherall: D We	5% 1 Dash 5 2	
Cape de Bray: D CdB	60% 0.6 Dash 5 2		Blue Bjord: D BF	60% 1 Dash 5 2	
Eids, D 1 : D Ei	60% 2 Dash 5 2		Reef	5% 4 Dash 5 2	
Ordovician					
Irene Bay: Or IB	5% 3 Dash 5 2		Thumb Mt Or TM	40% 2 Dash 5 2	
Bay Fjord: Or BF	40% 3 Dash 5 2		Eleanor R.:Or ER	5% 4 Dash 5 2	
Or 2	5% 3 Dash 5 2		Or 3	5% 4 Dash 5 2	
Cambrian					
Camb 1 C1	60% 3 Dash 3 2		C 2	60% 2 Dash 3 2	
C3	60% 1 Dash 3 2		C 4	60% 0.6 Dash 3 2	
Precambrian Proterozoic					
PC Unc Pr1	60% 4 Solid		PC Pr2	60% 3 Solid	
PC Pr3	60% 2 Solid		PC Pr4	60% 1 Solid	
Unconformity 2	40% 3 Dash 5 7 R		Unconformity 3	60% 3 Dash 5 7 R	
ARCHEAN (Crystaline Basement?)?					
Ar	40% 4 Dash 7 5		Ar 2	40% 3 Dash 7 5	
Faults	100 % 1 Solid				

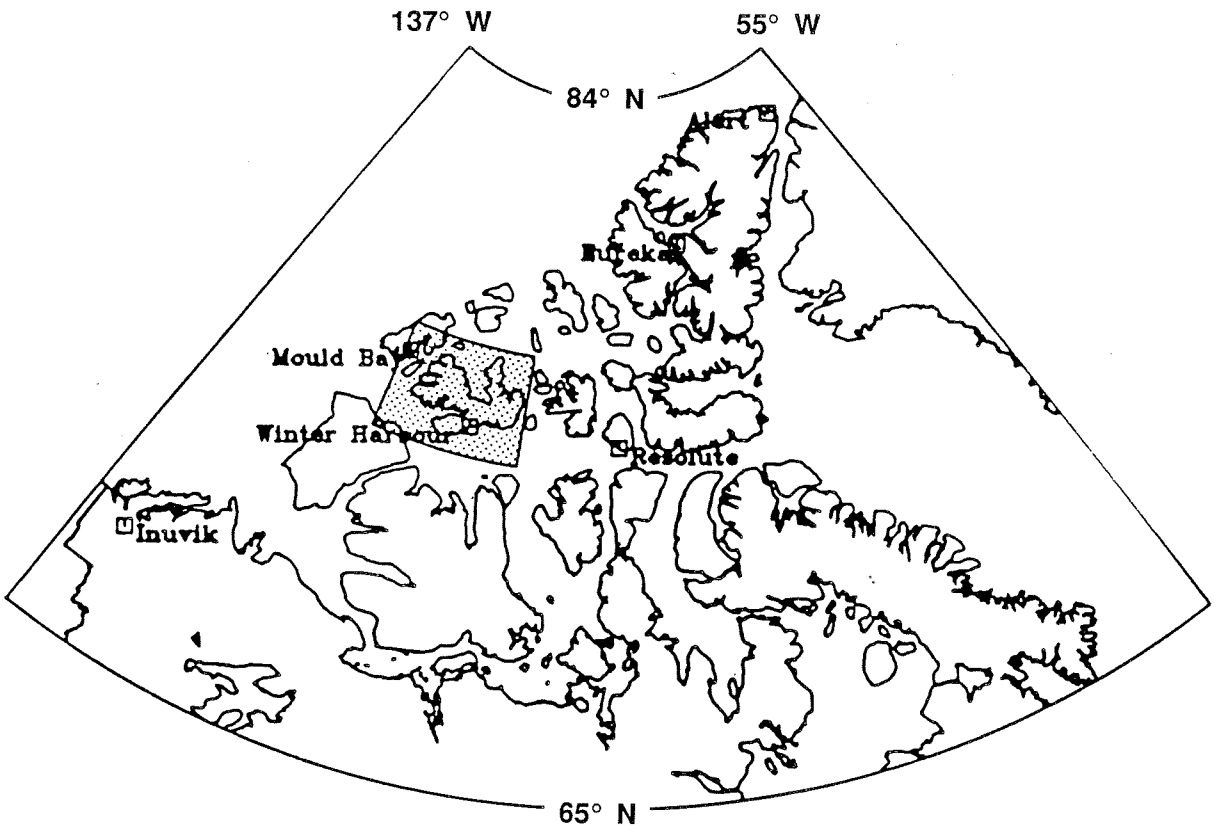

Arctic Canada
137° W
55° W
84° N
Alert
Eureka
Mould Bay
Winter Harbour
Resolute
Inuvik
65° N

Figure 1

MELVILLE ISLAND

Scale = 1 : 2,000,000

Location map of seismic lines

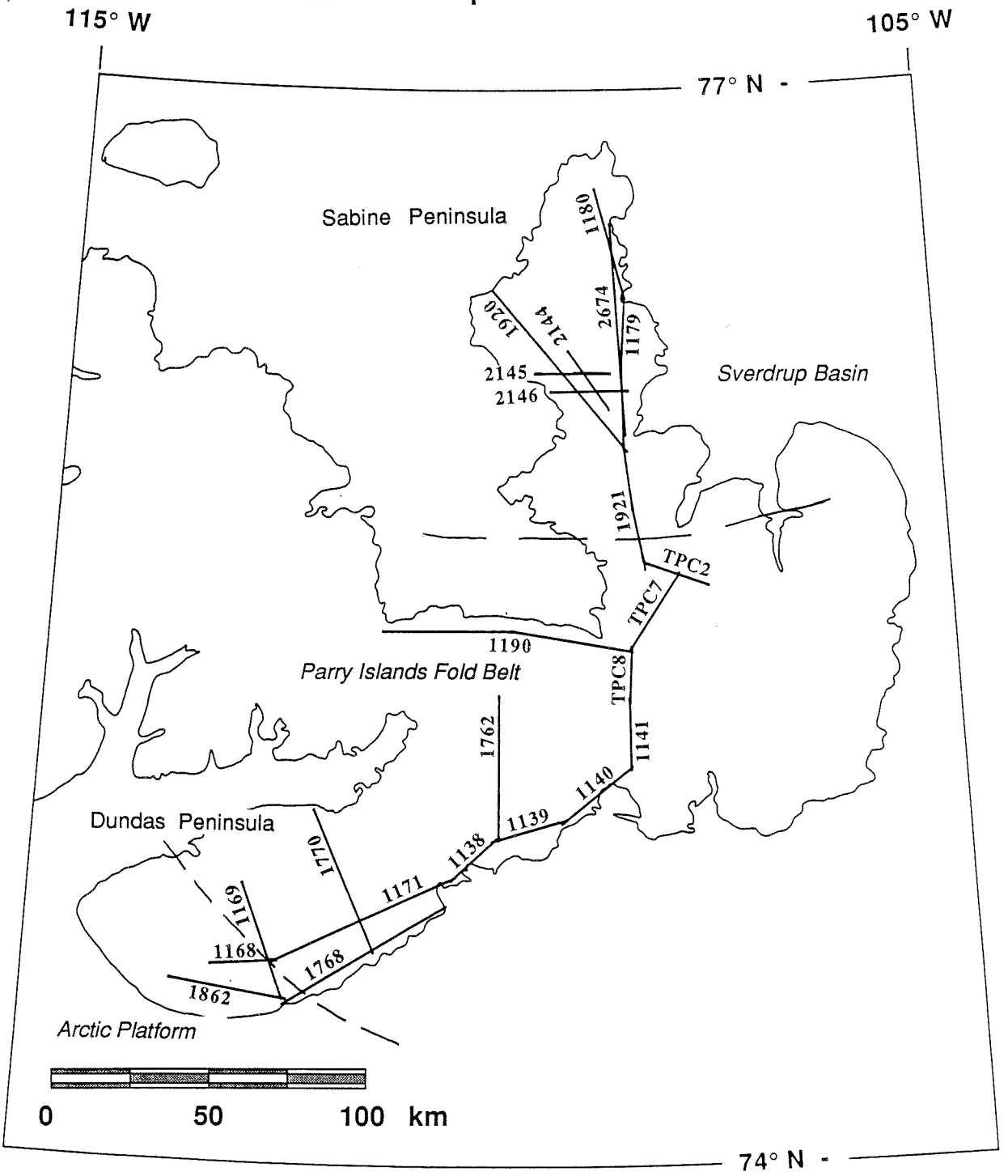
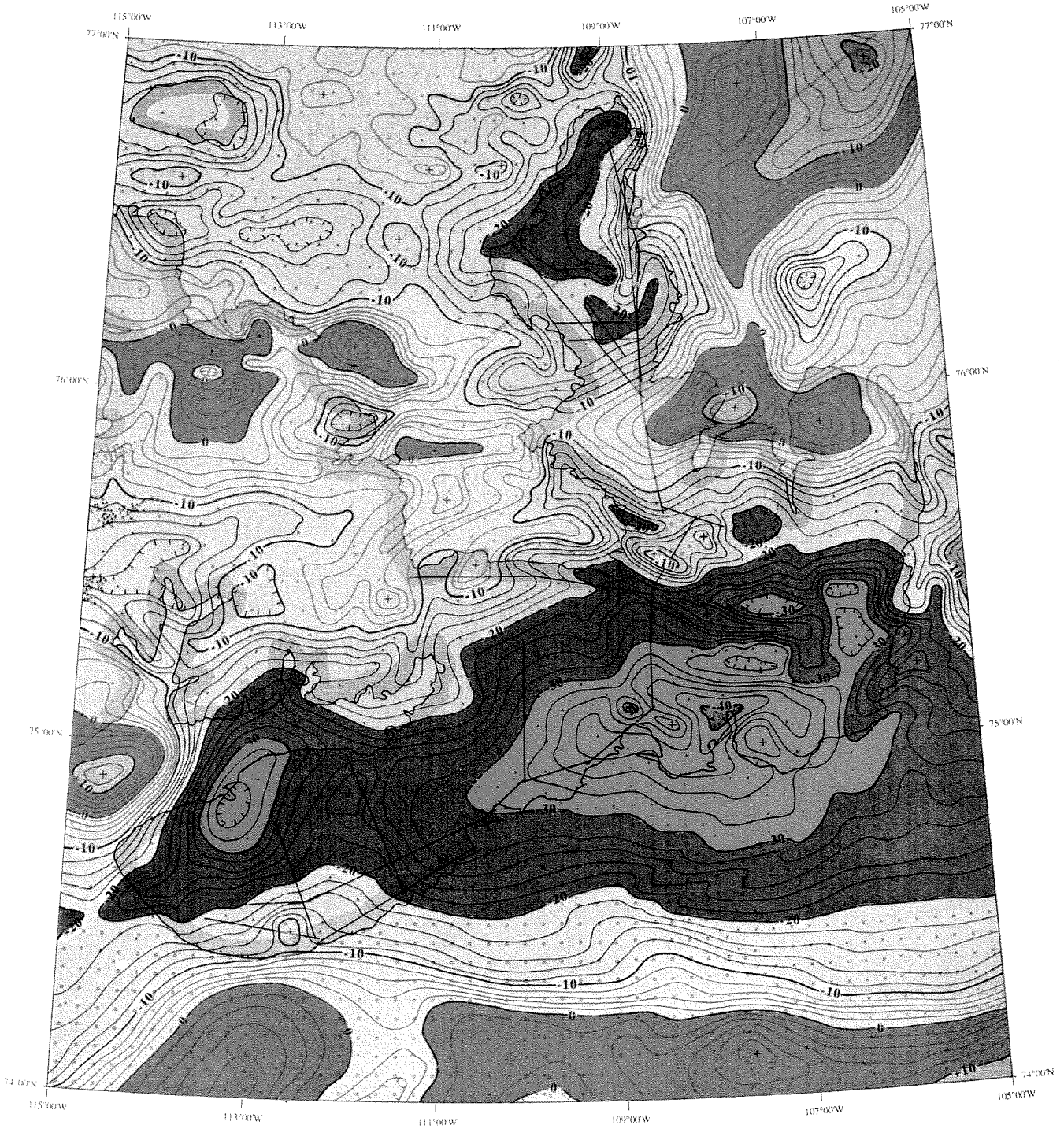


Figure 2

Melville Island

Bouguer anomaly gravity map

August 1987



0 20 40 60 80 100 km

-50 -40 -30 -20 -10 0 +10 +20 mGal

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Department of Physics, University of Alberta
Edmonton, Alberta

Data from
Department of Energy, Mines and Resources
&
Panarctic Oils, Ltd.

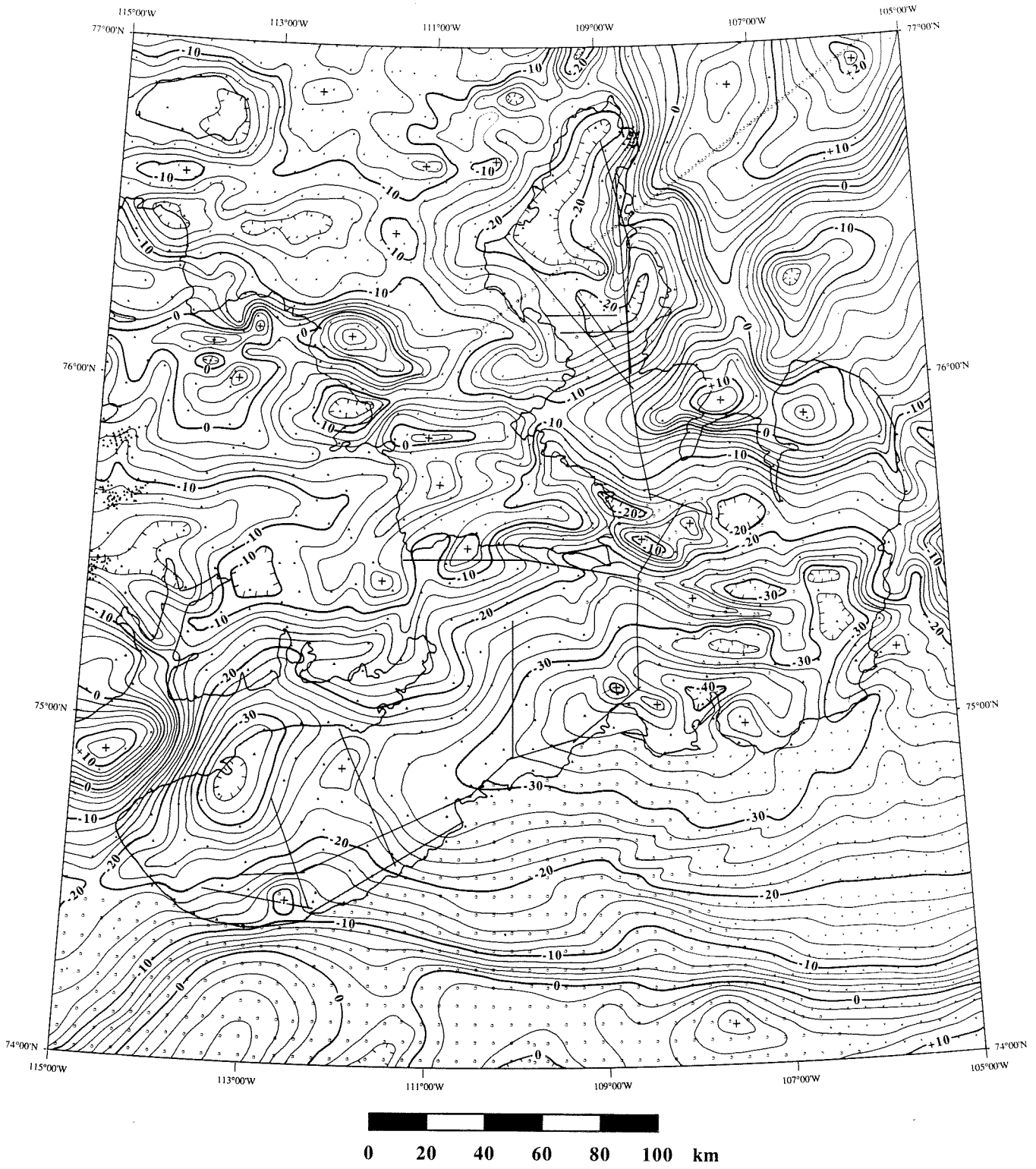
Contour interval: 2.0 mGal (20 μms^{-2})
gravity low
gravity high
seismic line

Station locations with accuracy of data:
x ± 1 mGal
Δ ± 3 mGal
o unknown

Melville Island

Bouguer anomaly gravity map

August 1987



E.R. Kanasewich and Z. Berkes
Seismic Laboratory, Geophysics
Department of Physics, University of Alberta
Edmonton, Alberta

Data from
Department of Energy, Mines and Resources
&
Panarctic Oils, Ltd.

Contour interval: 2.0 mGal (20 μms^{-2})
gravity low
gravity high
seismic line

Station locations with accuracy of data:
x ± 1 mGal
Δ ± 3 mGal
ø unknown

Figure 4

MELVILLE ISLAND

Scale = 1 : 2,000,000

Location map of seismic lines and main velocity information

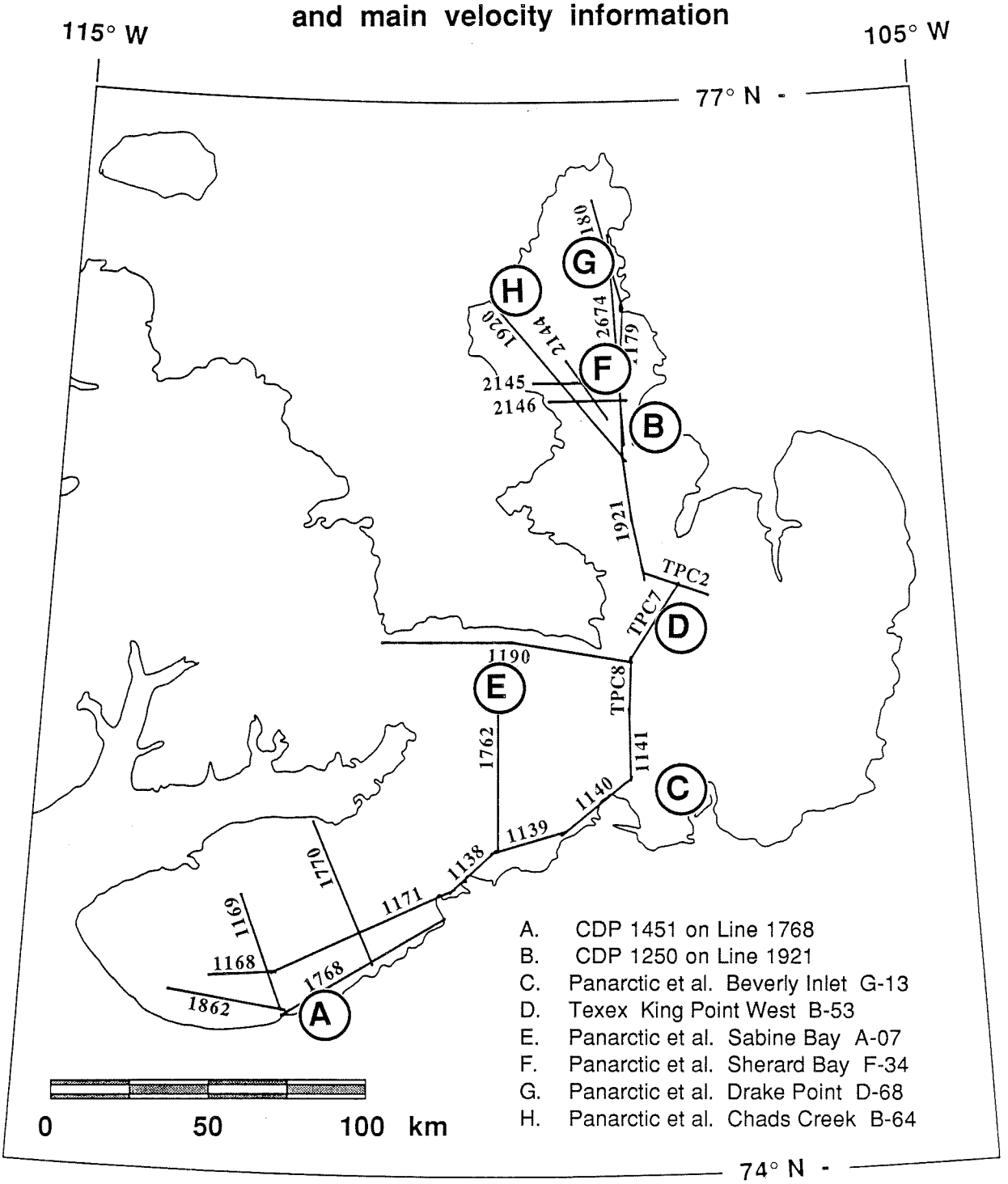


Figure 5

MELVILLE ISLAND

Scale = 1 : 2,000,000

Two-way travel-time isochrones
at constant depth of 5 km

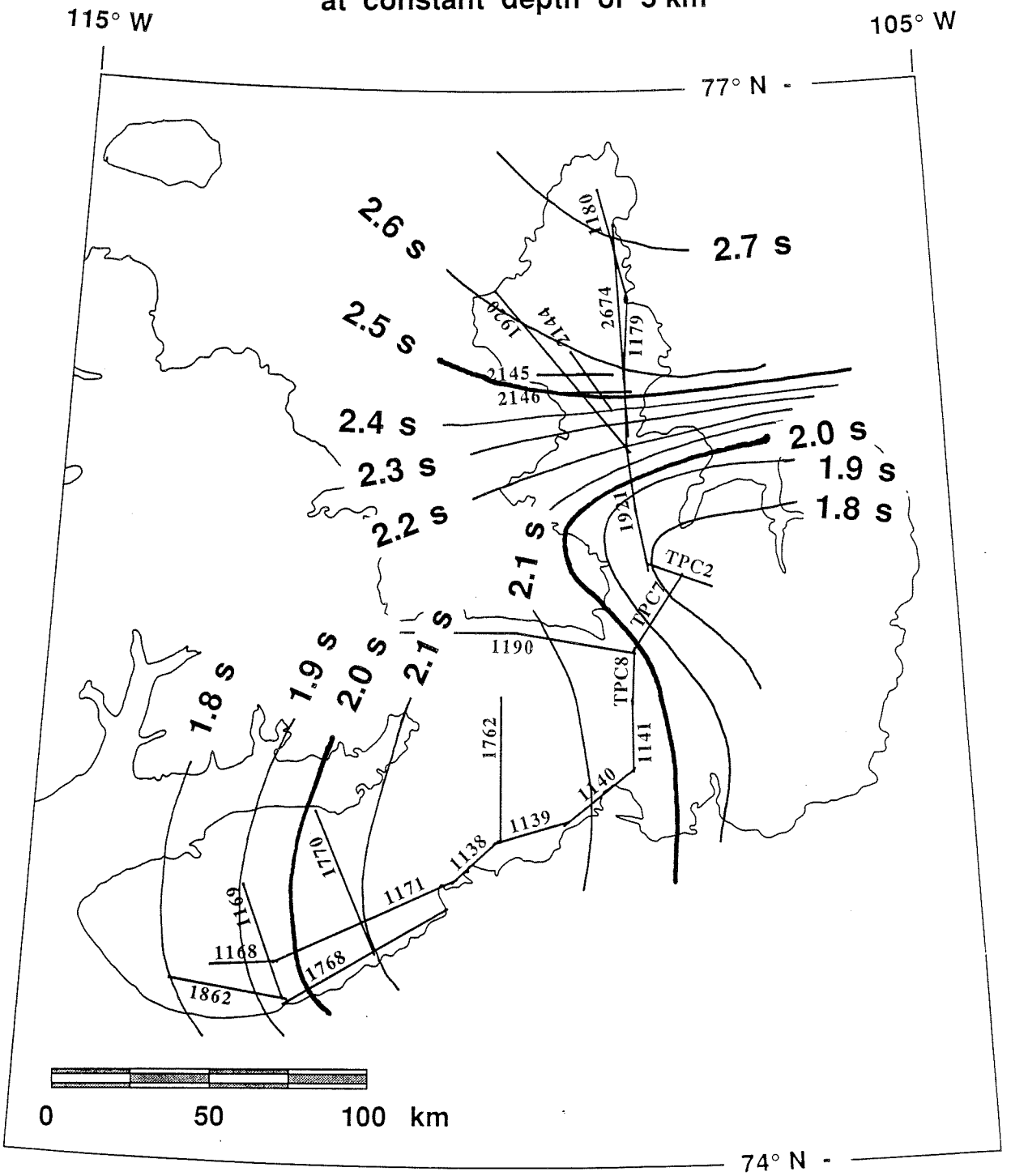
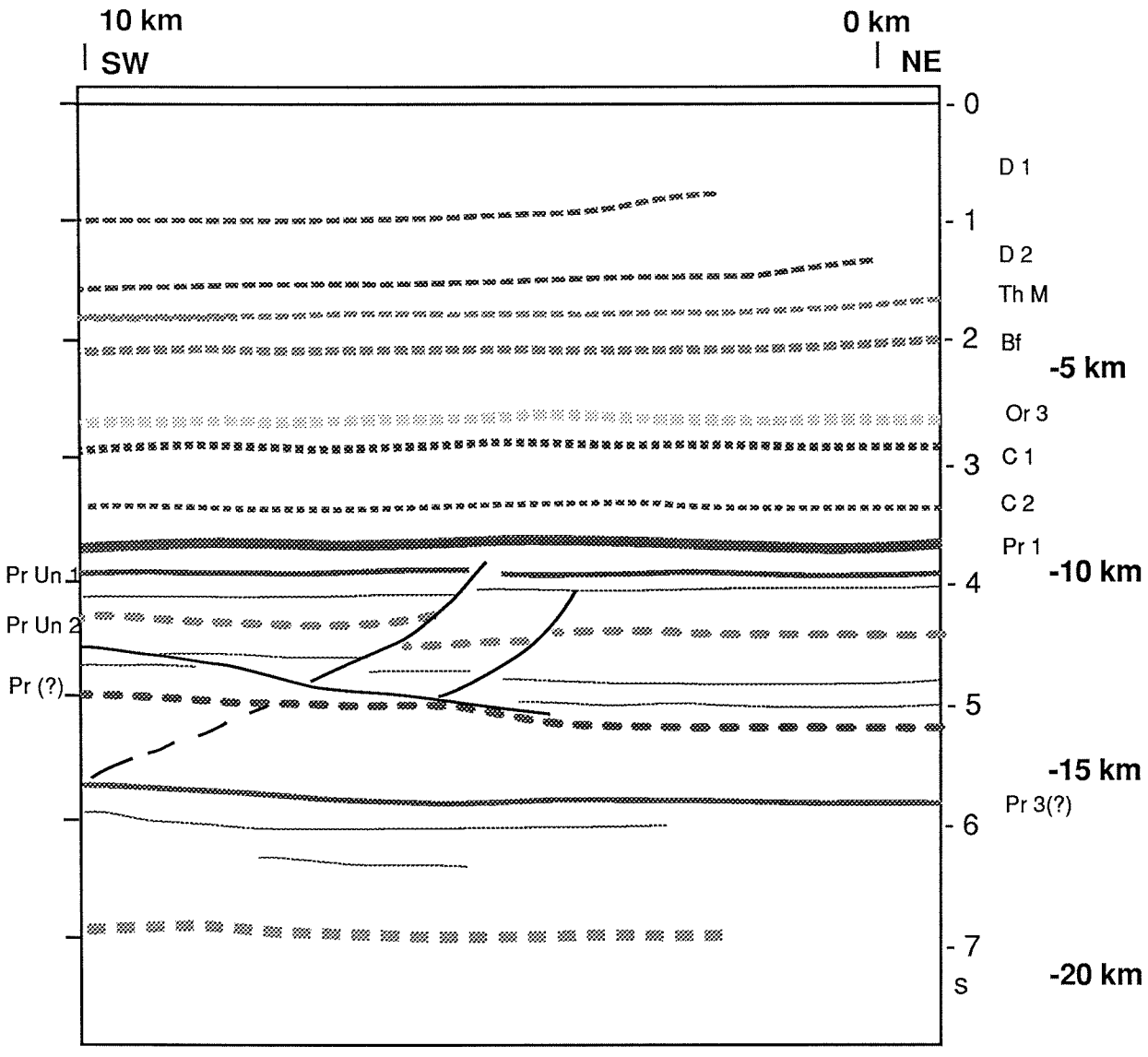
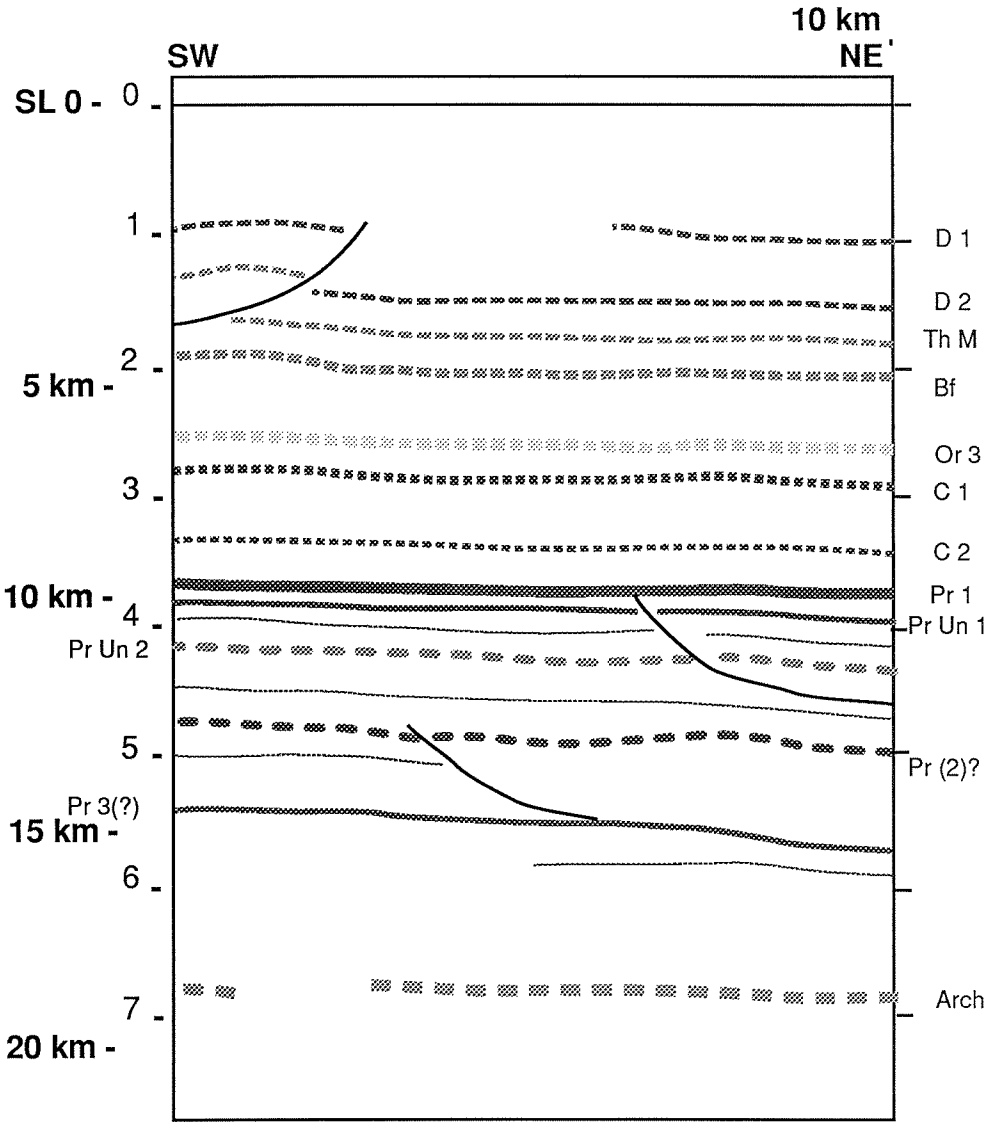


Figure 6



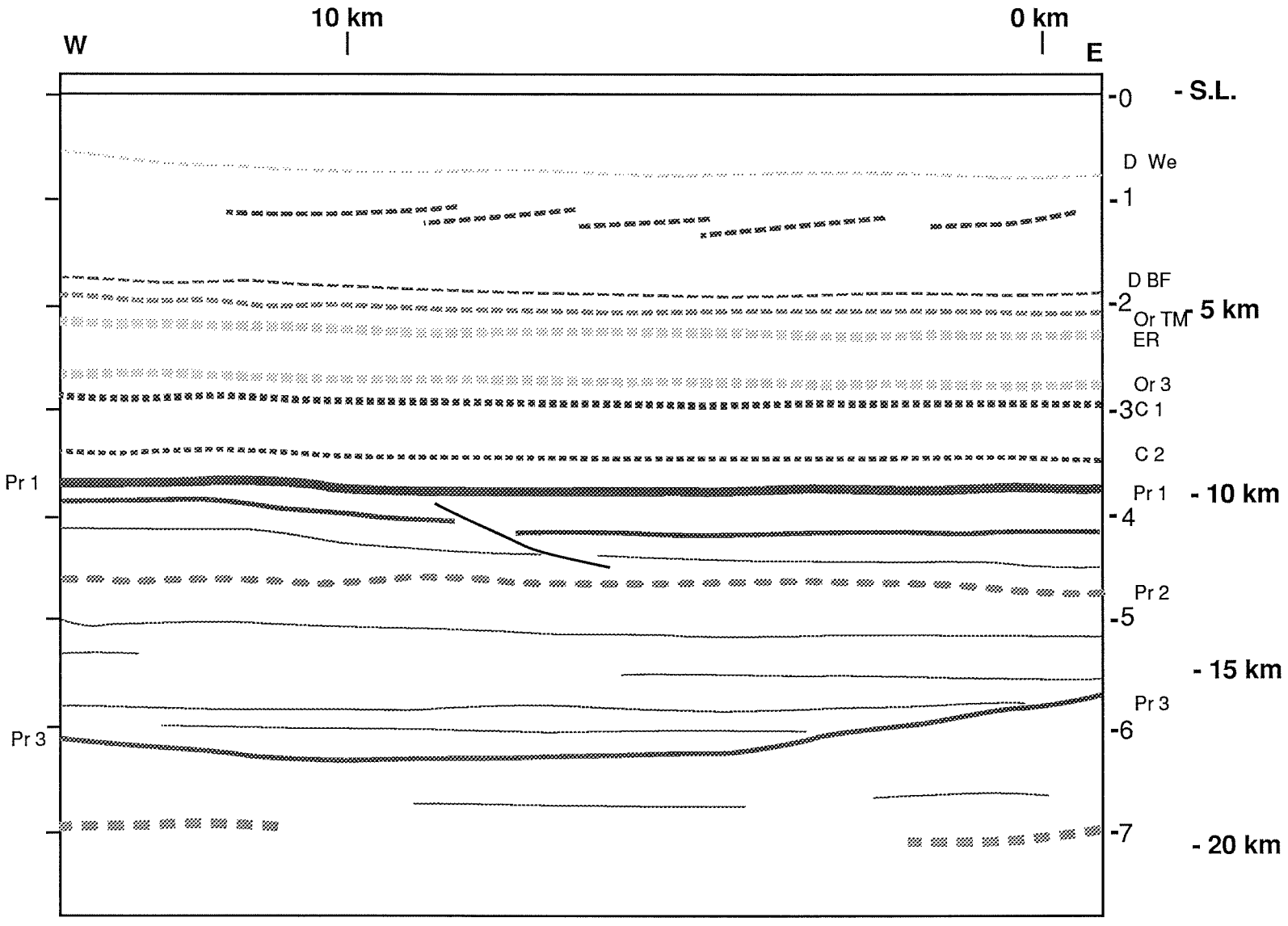
Melville Is. Line 1138/1

U of A - zb/erk



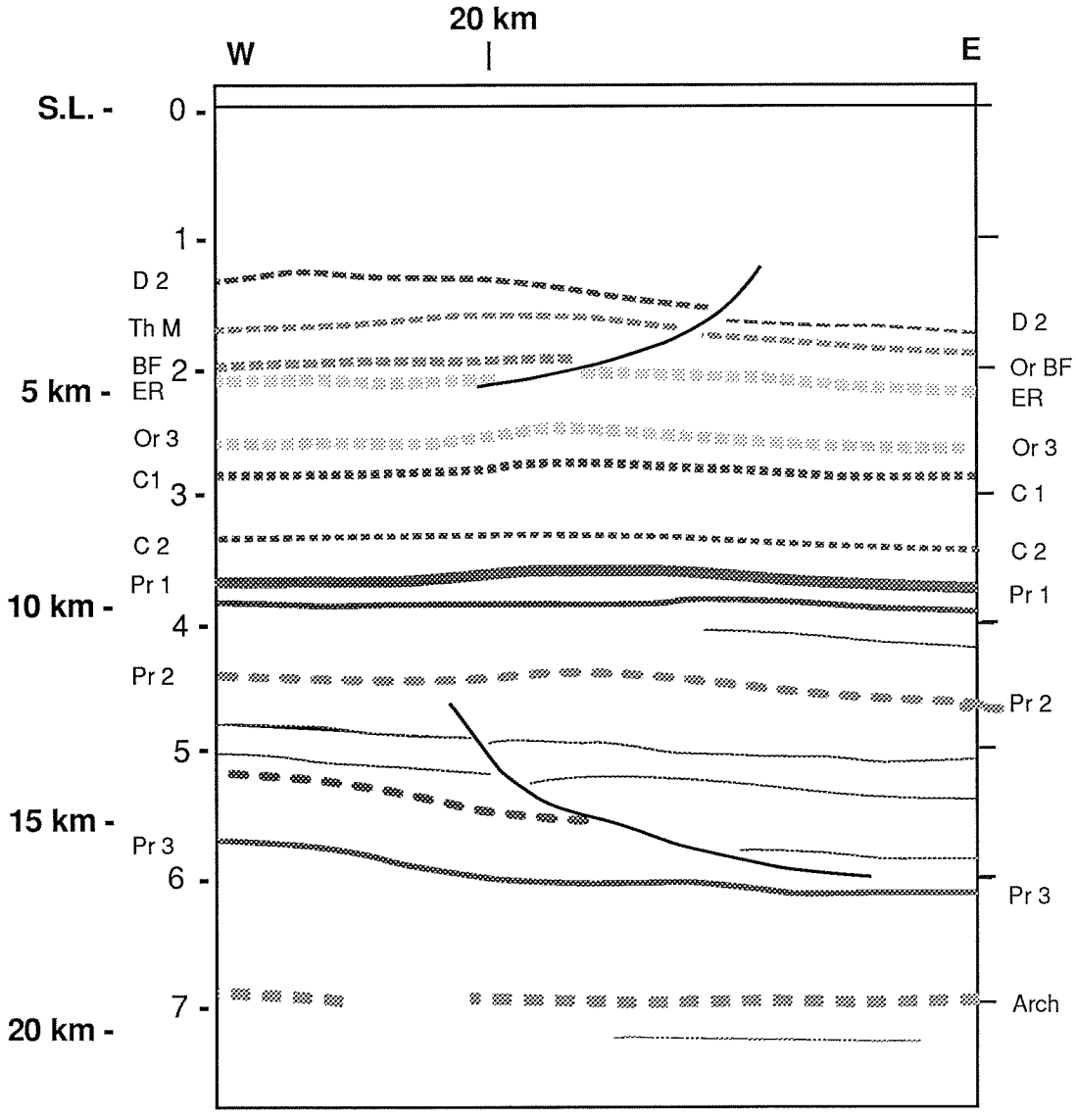
Melville Is. Line 1138/2

U of A - zb/erk



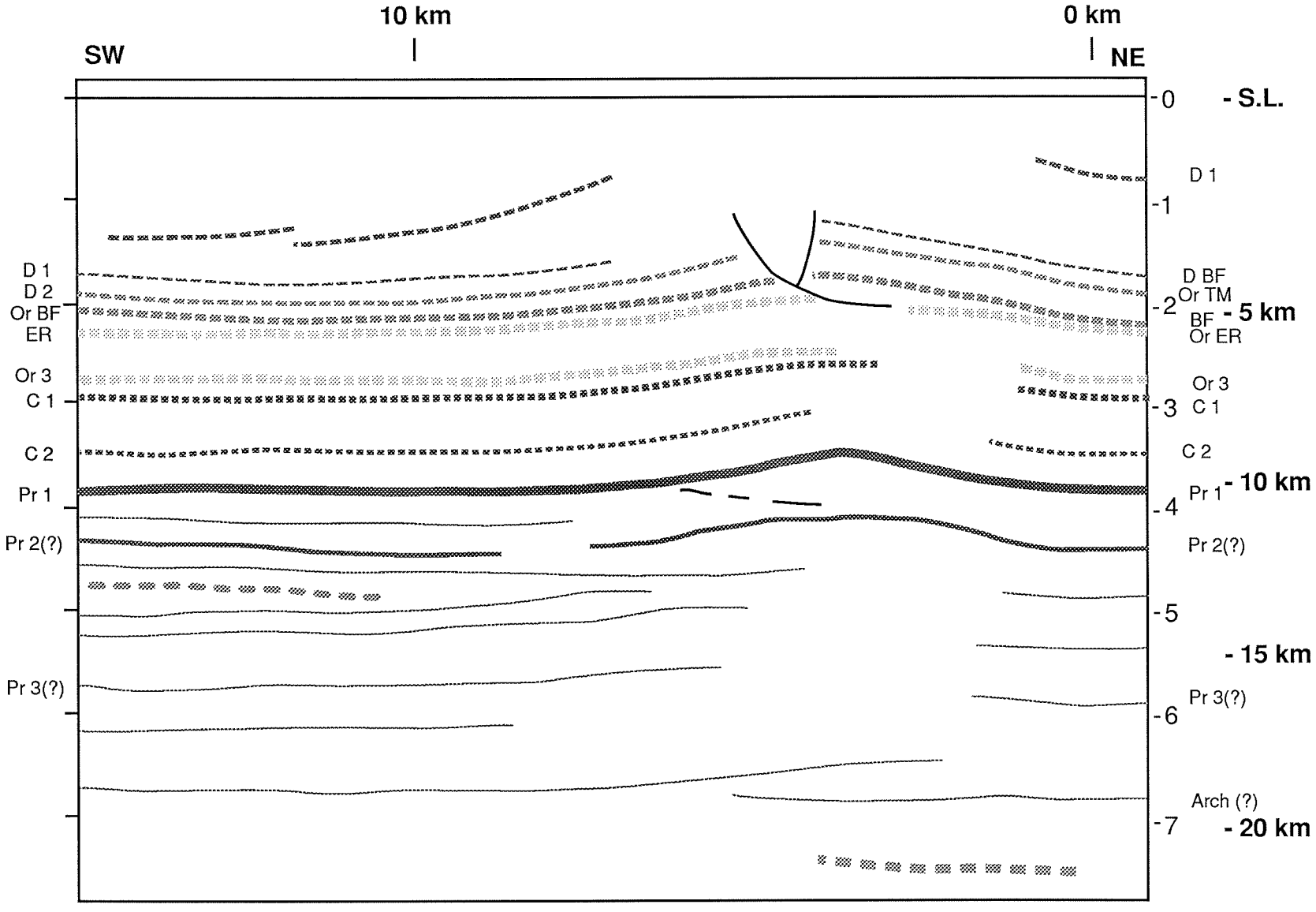
Melville Is. Line 1139/1

U of A - zb/erk



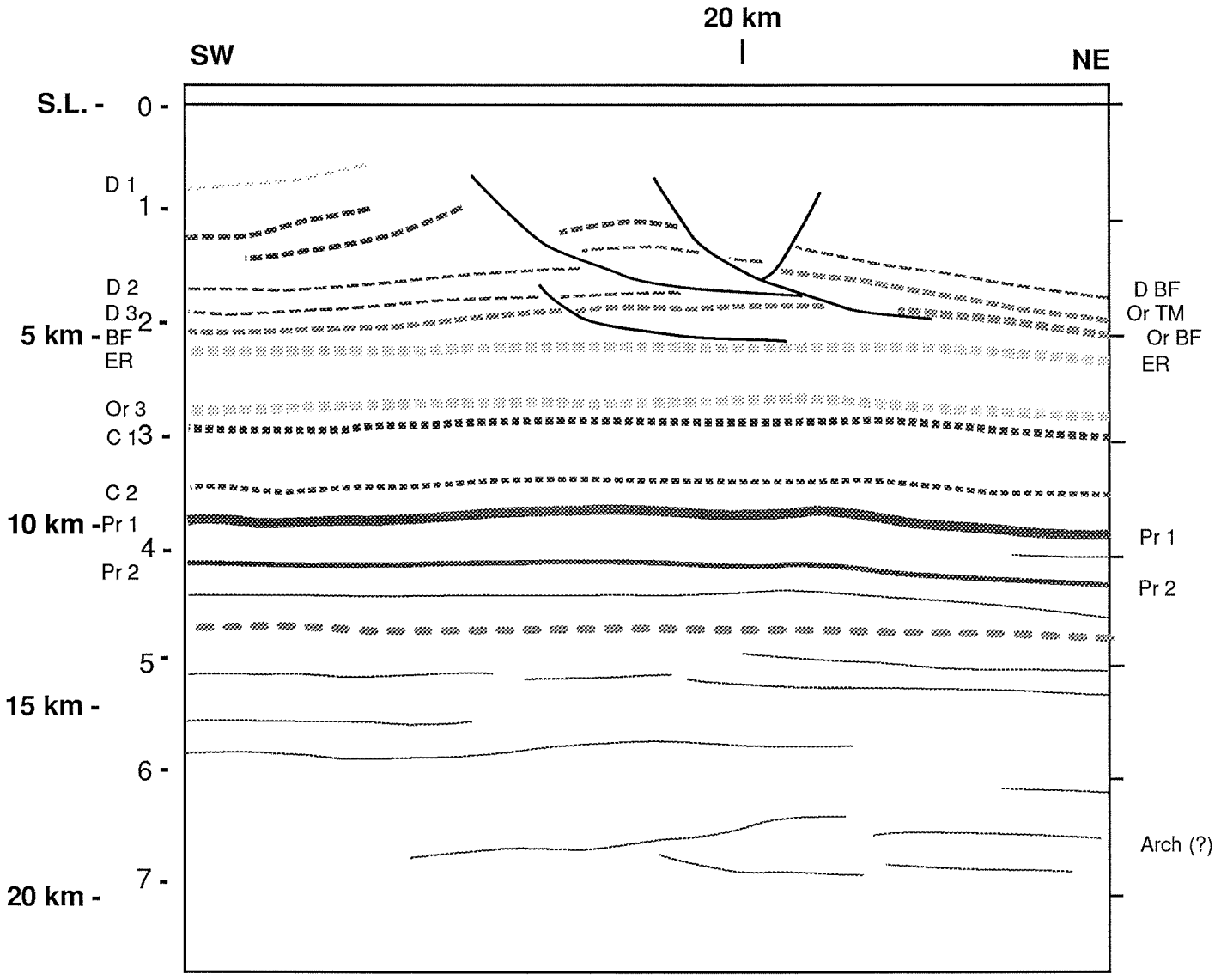
Melville Is. Line 1139/2

U of A - zb/erk



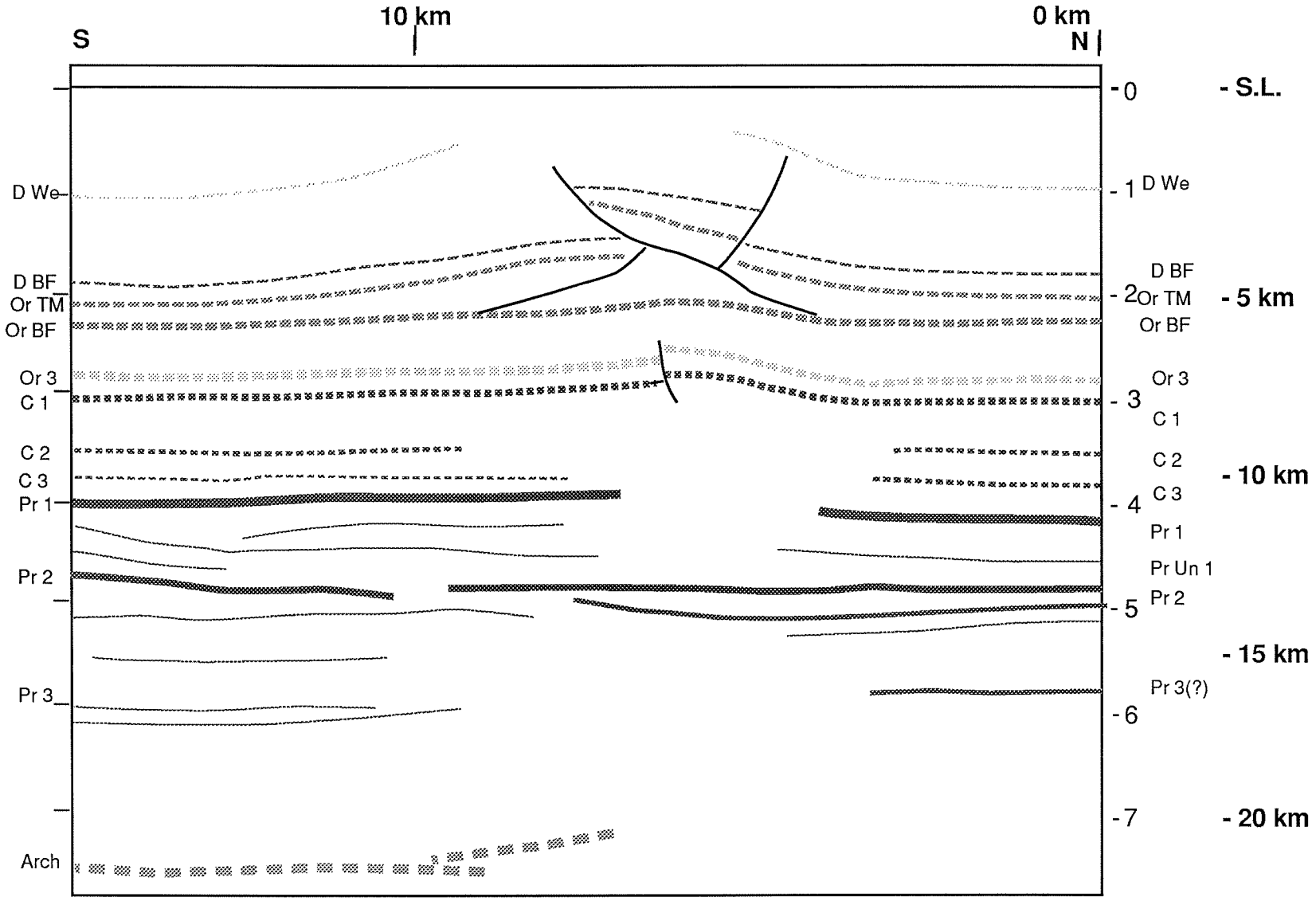
Melville Is. Line 1140/1

U of A -zb/erk



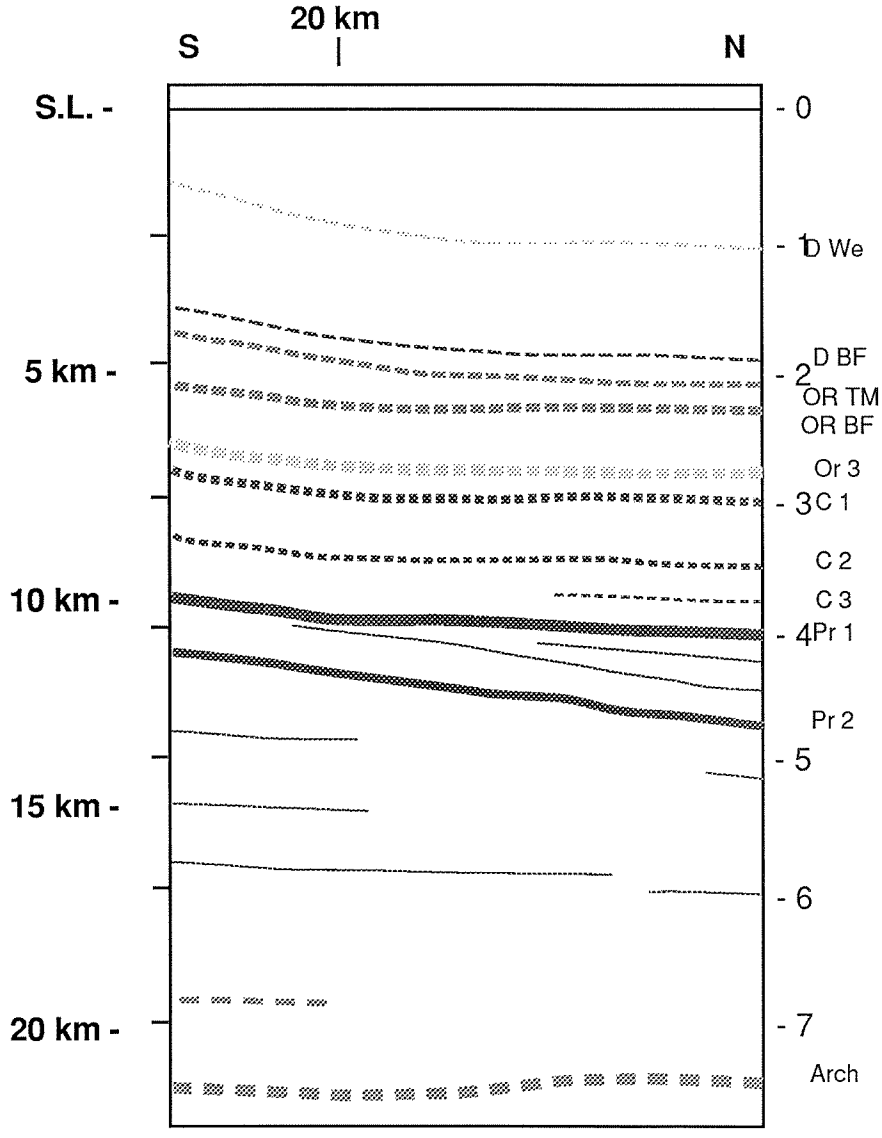
Melville Is. Line 1140/2

U of A - zb/erk

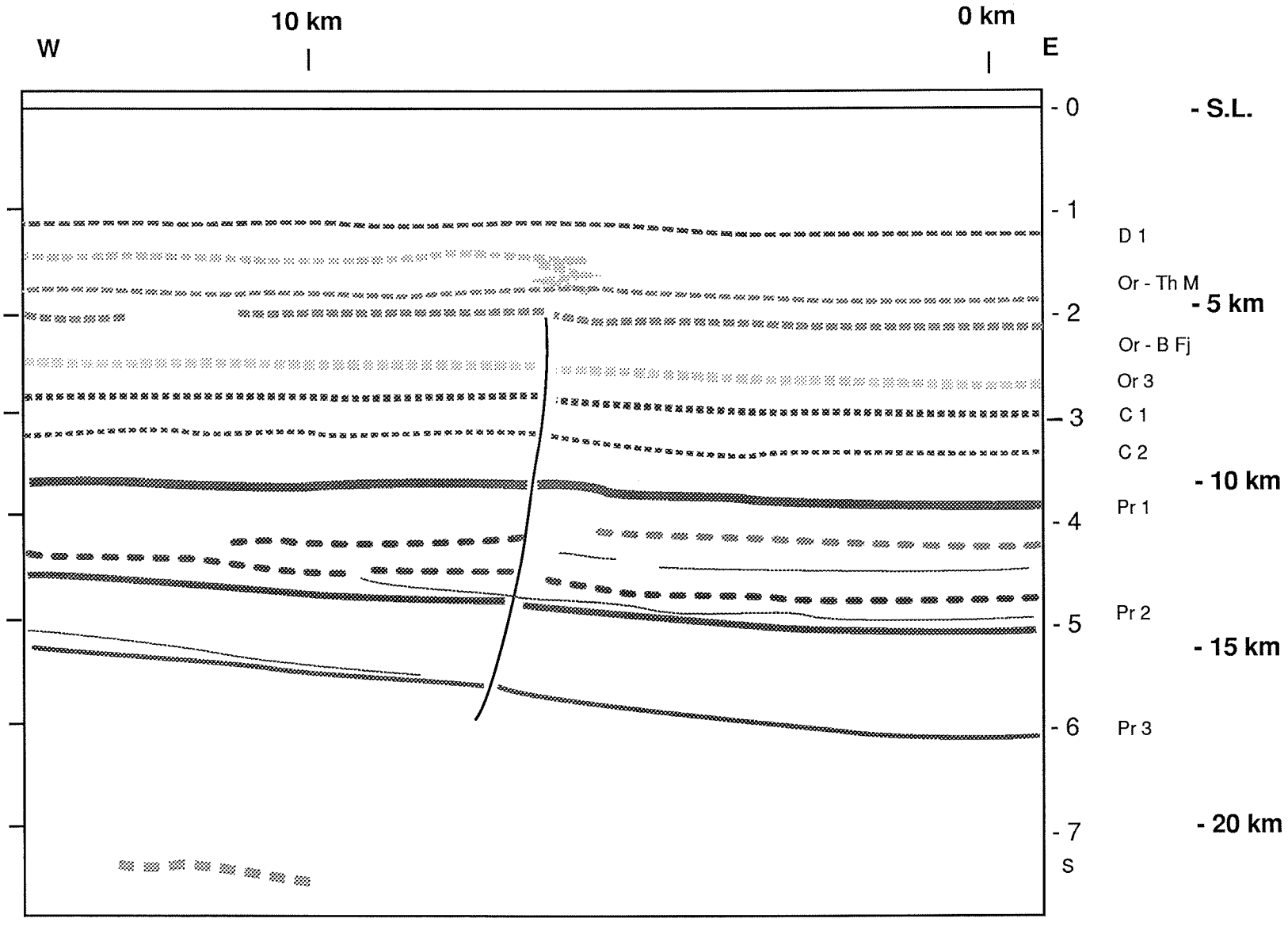


Melville Is. Line 1141/1

U of A - zb/erk

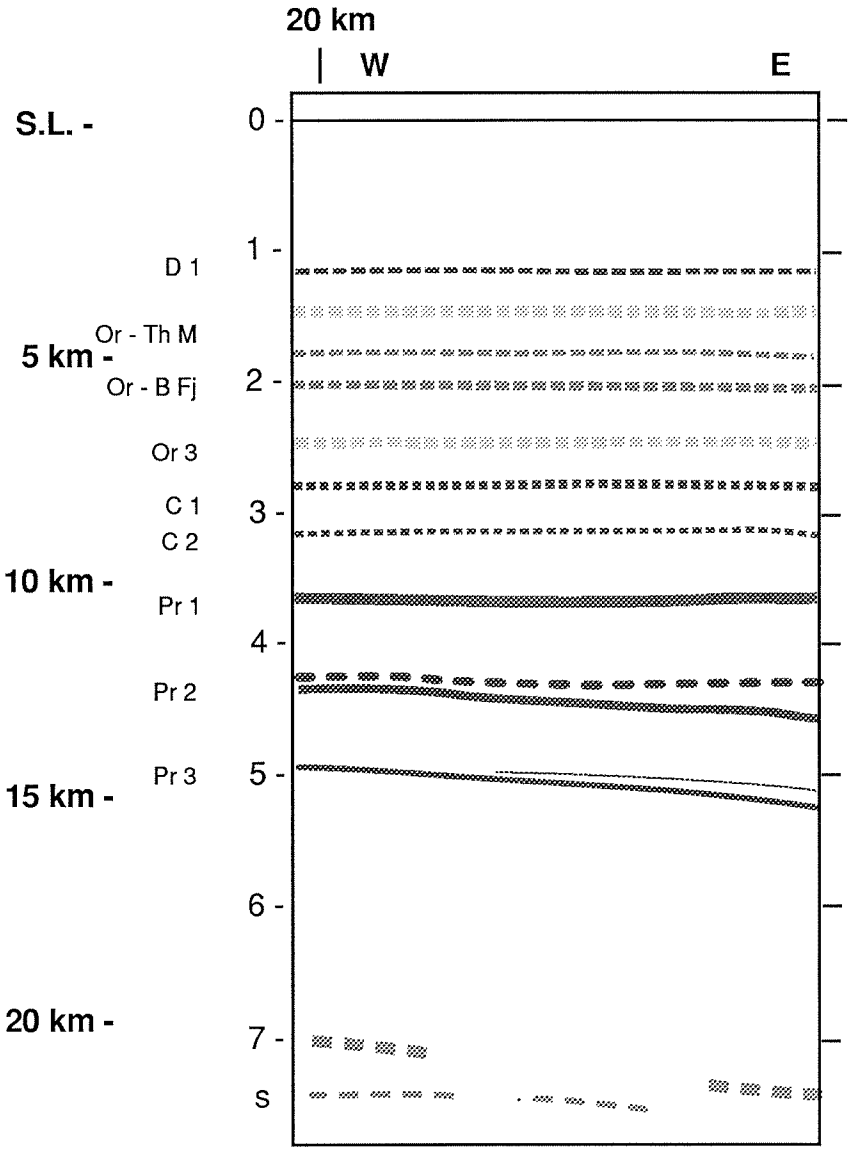


Melville Is. Line 1141/2 U of A - zb/erk

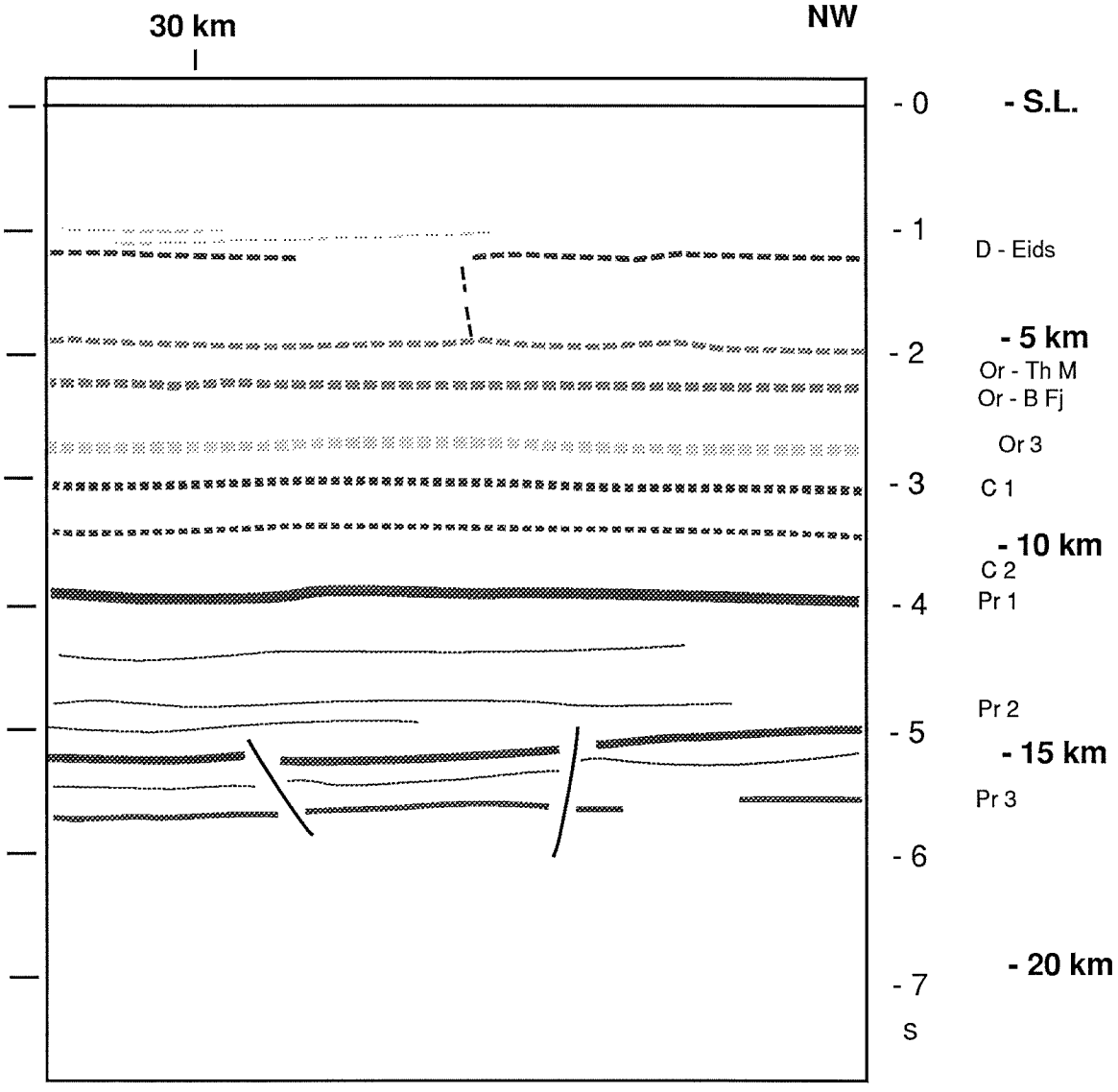


Melville Is. Line 1168 / 1

U of A - zb/erk

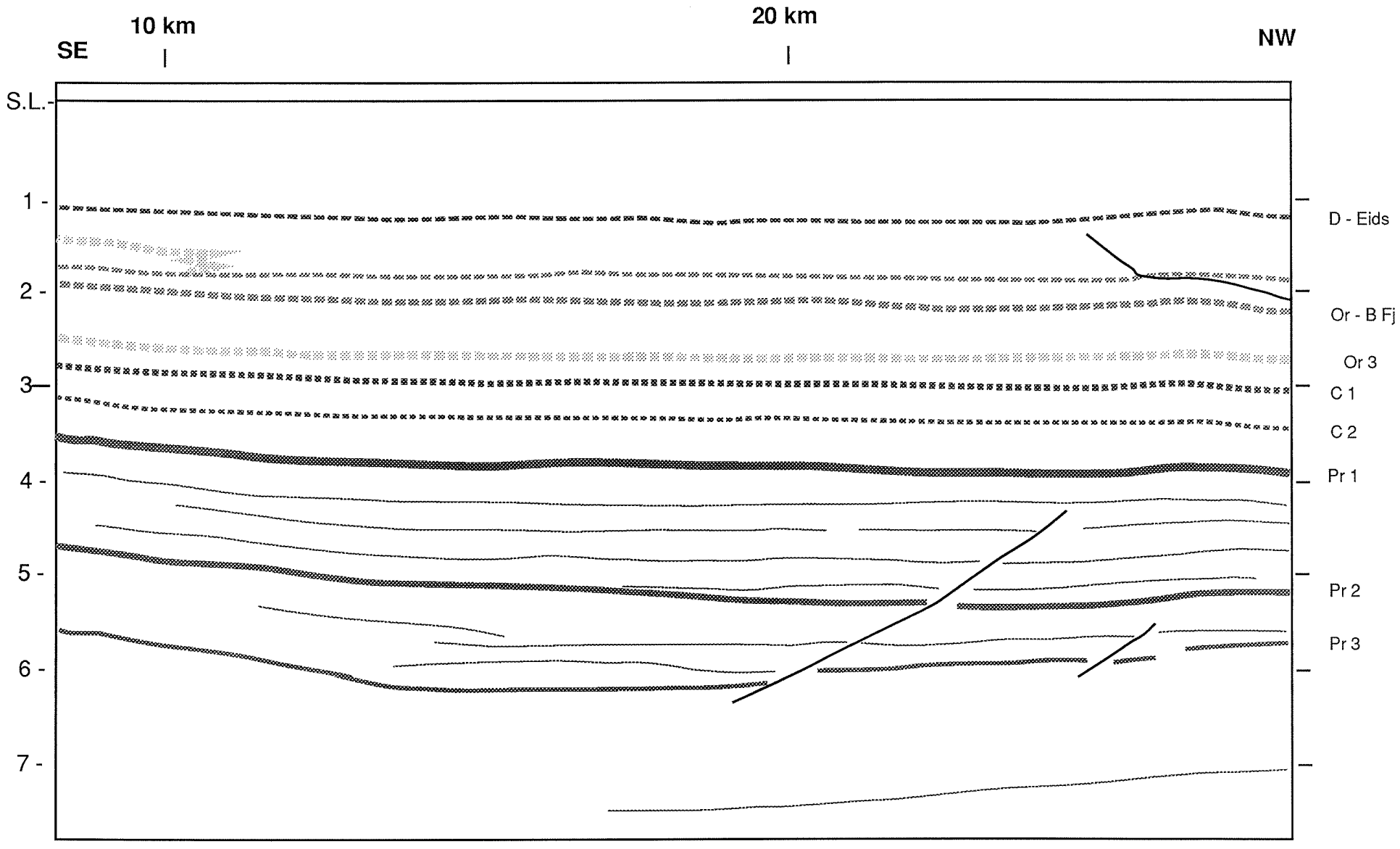


Melville Is. Line 1168 / 2 U of A - zb/erk



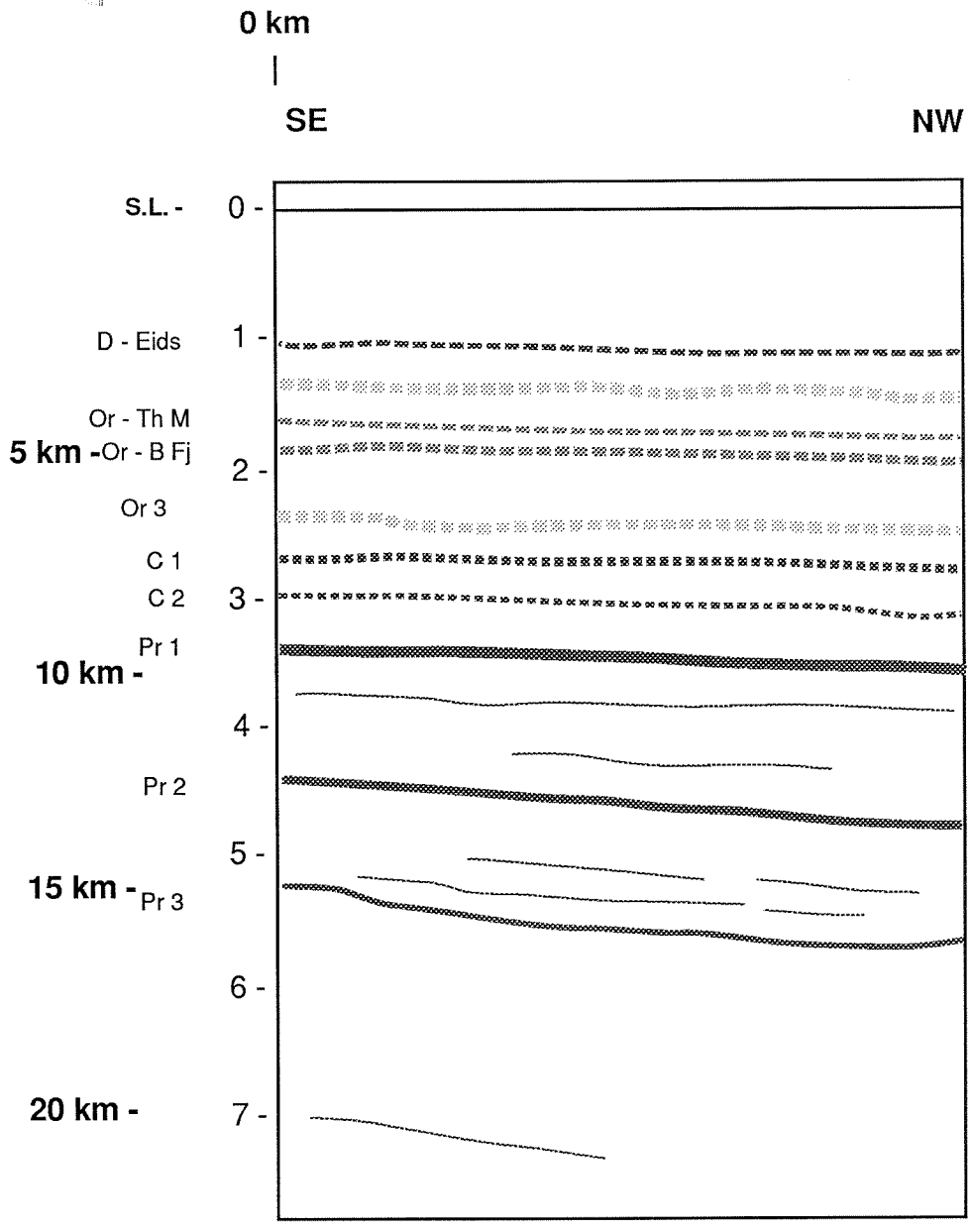
Melville Is. Line 1169 / 1

U of A - zb/erk



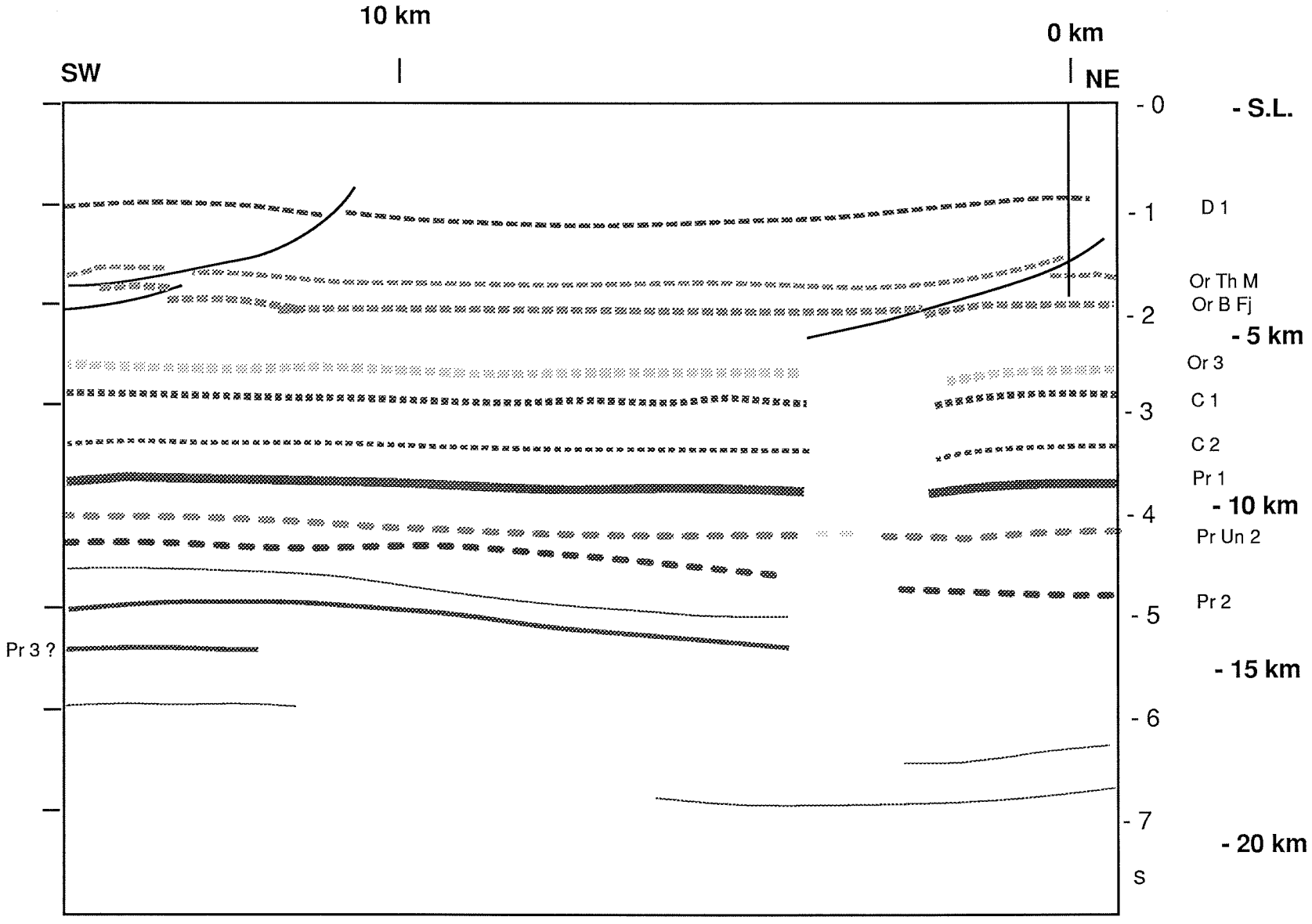
Melville Is. Line 1169 / 2

U of A - zb/erk



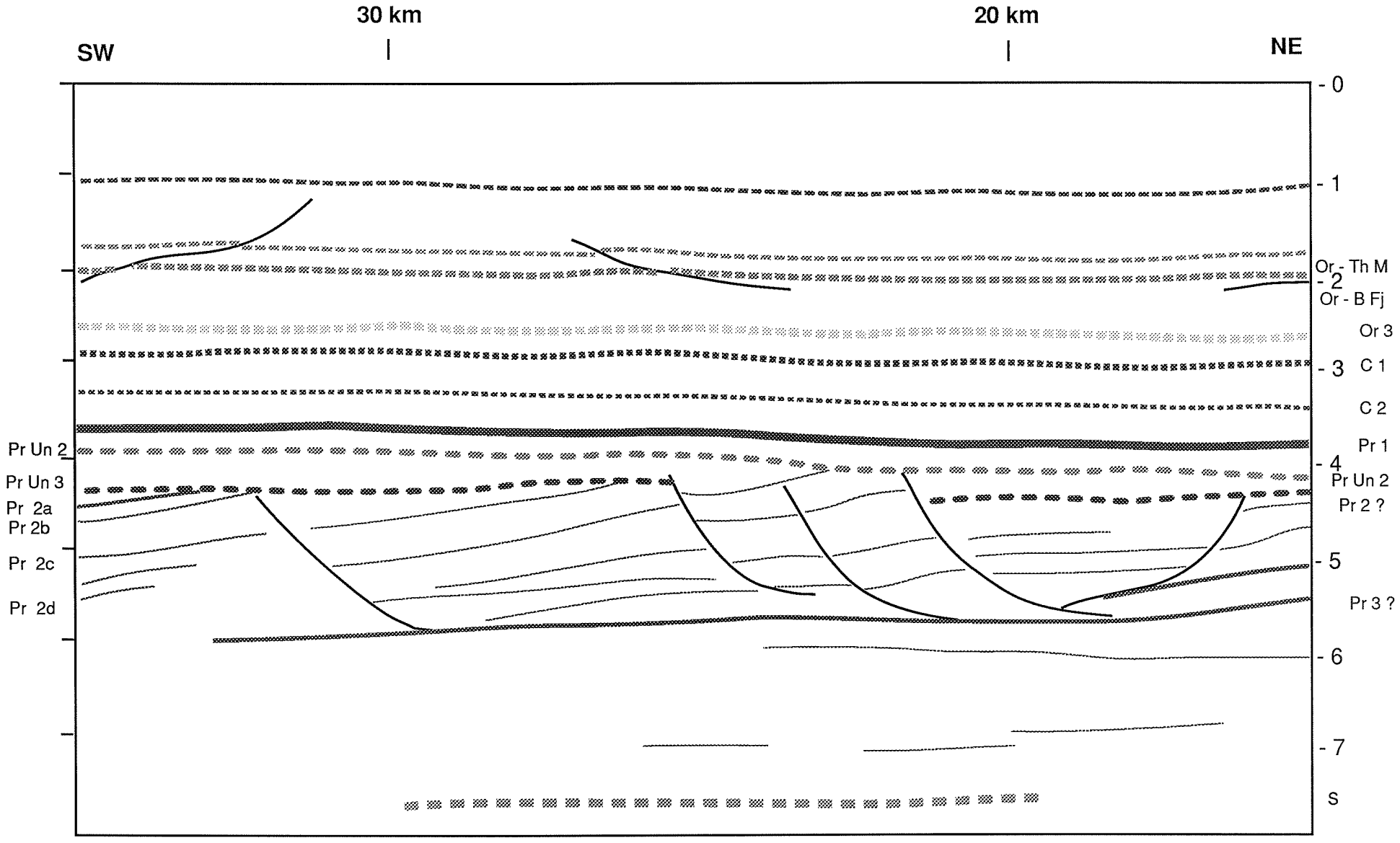
Melville Is. Line 1169 / 3

U of A - zb/erk



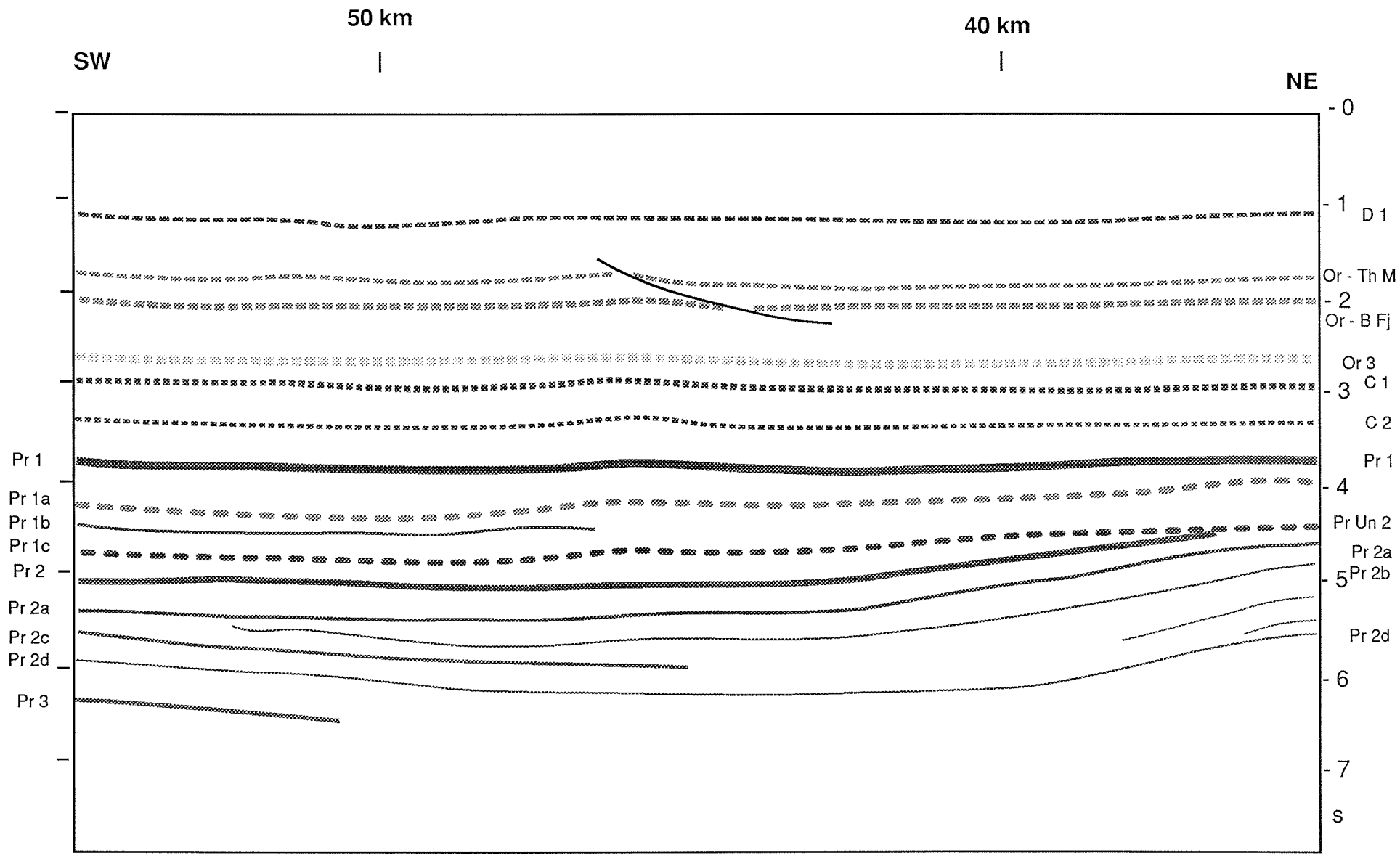
Melville Is. Line 1171 / 1

U of A - zb/erk



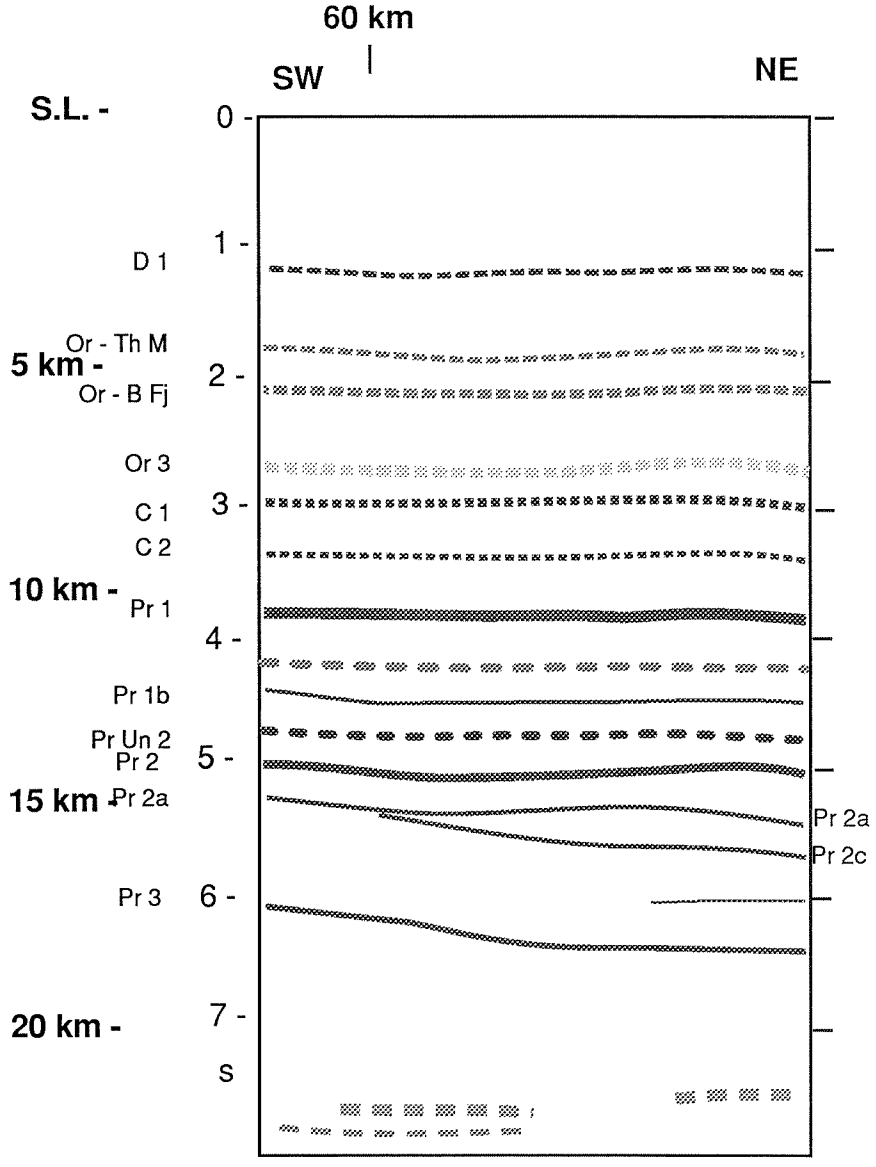
Melville Is. Line 1171 / 2

U of A - zb/erk

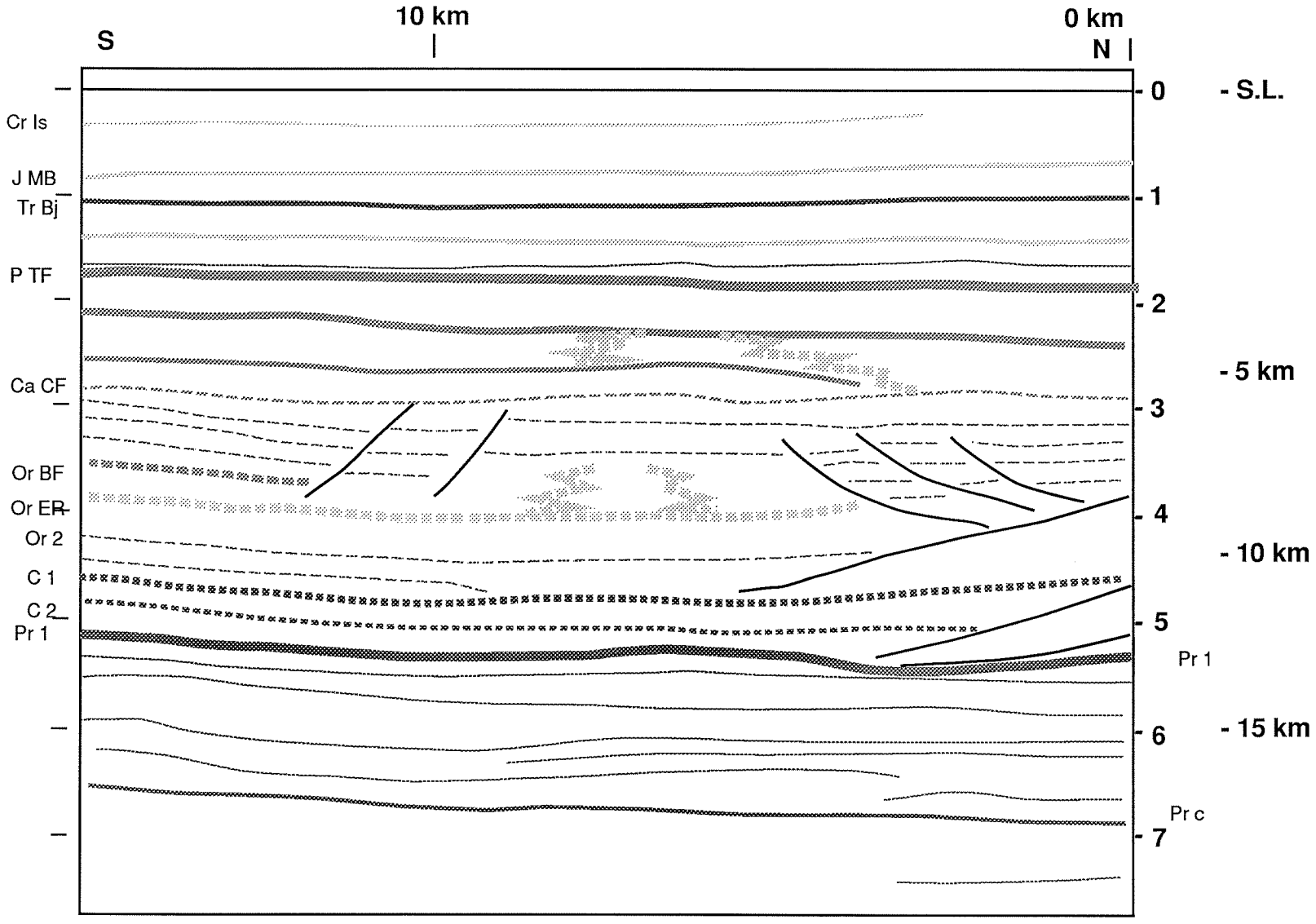


Melville Is. Line 1171 / 3

U of A - zb/erk

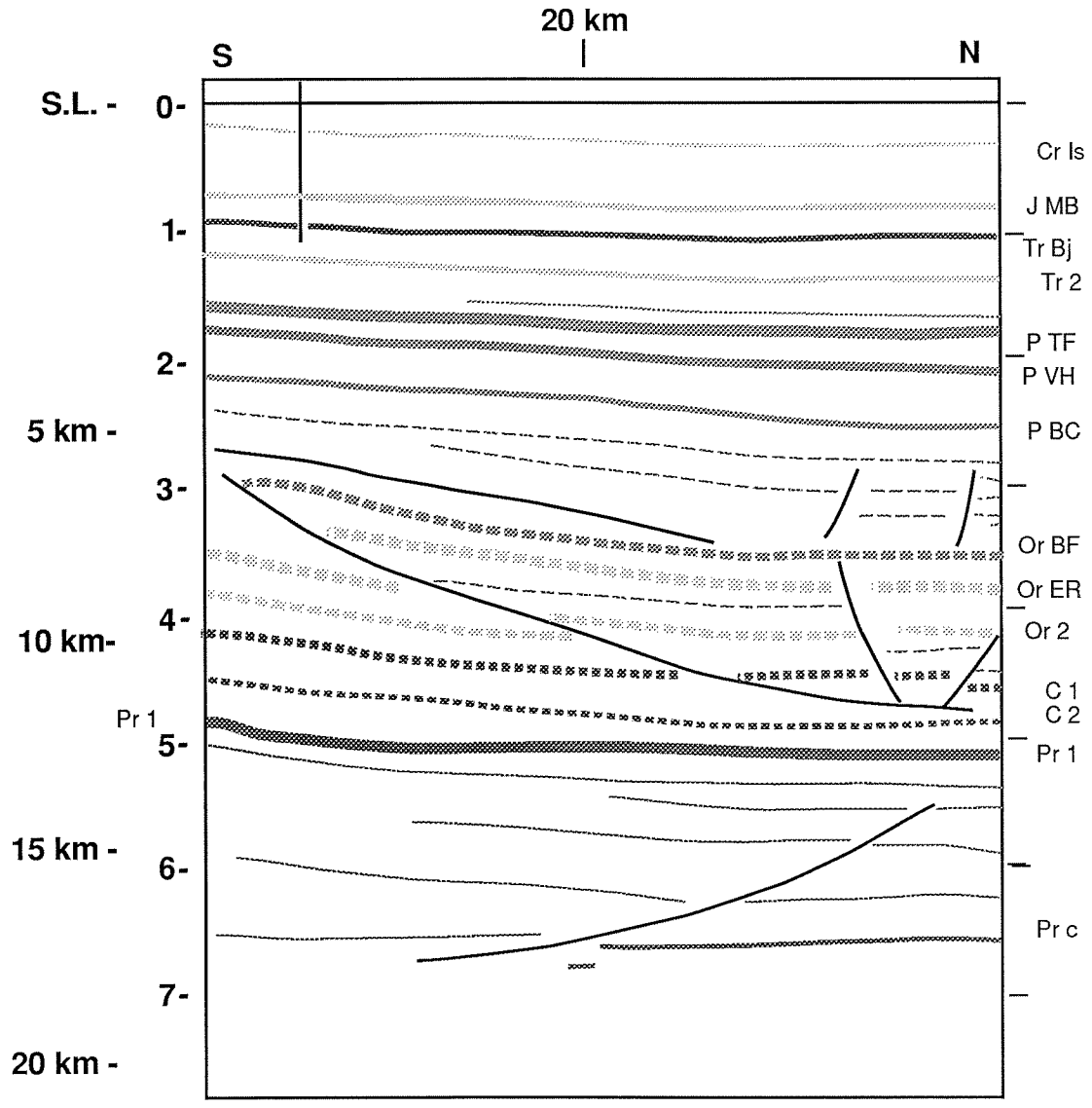


Melville Is. Line 1171 / 4 U of A - zb/erk



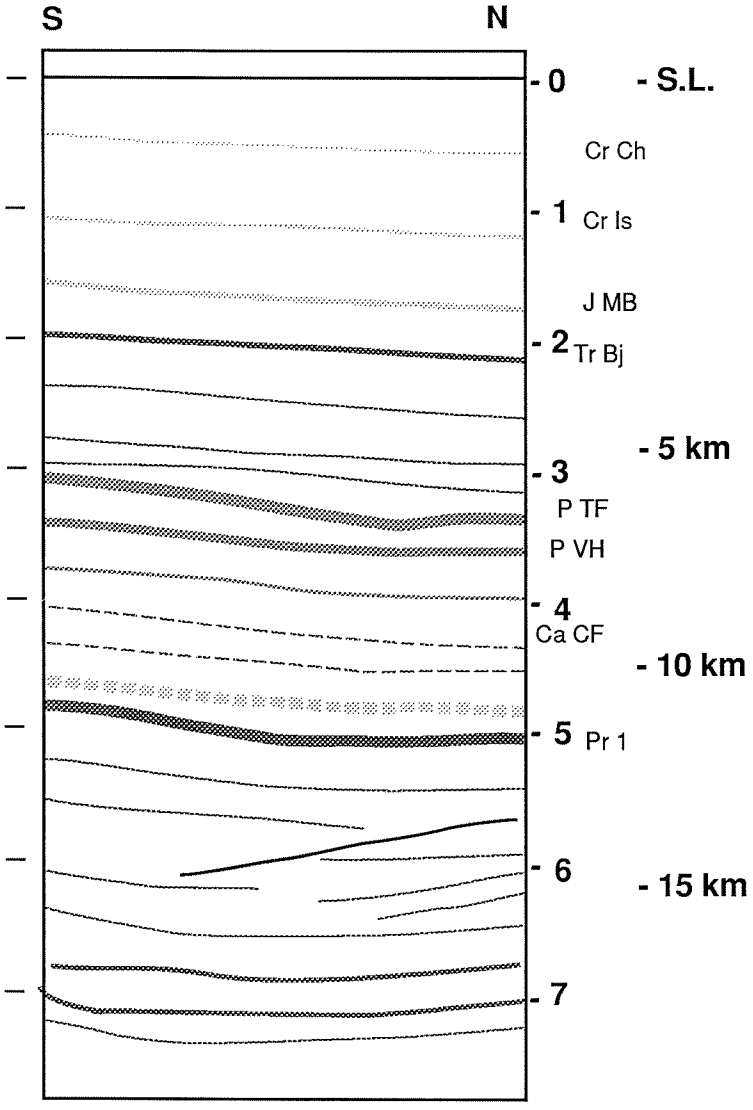
Melville Is. Line 1179/1

U of A - zb/erk

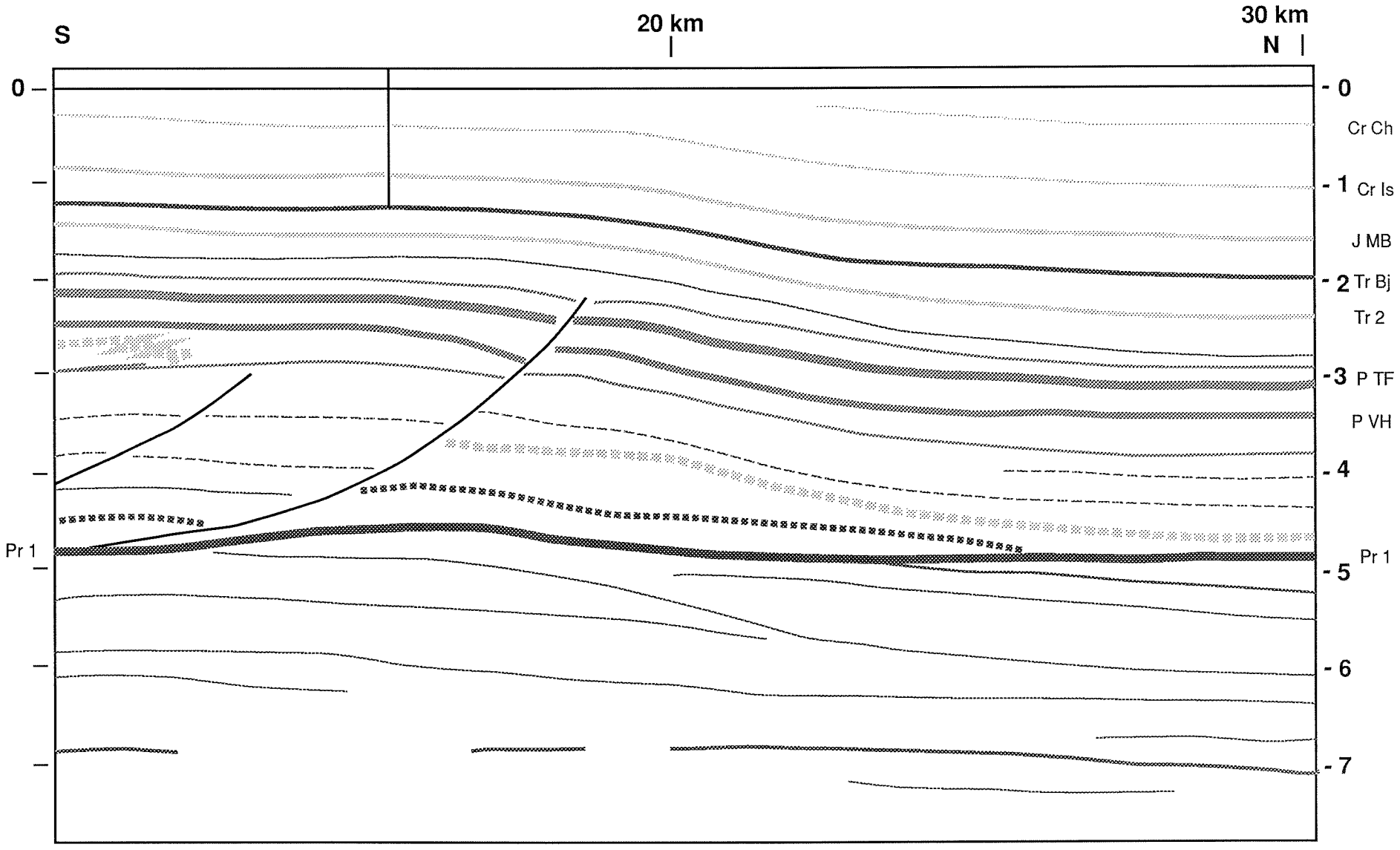


Melville Is. Line 1179/2

U of A - zb/erk

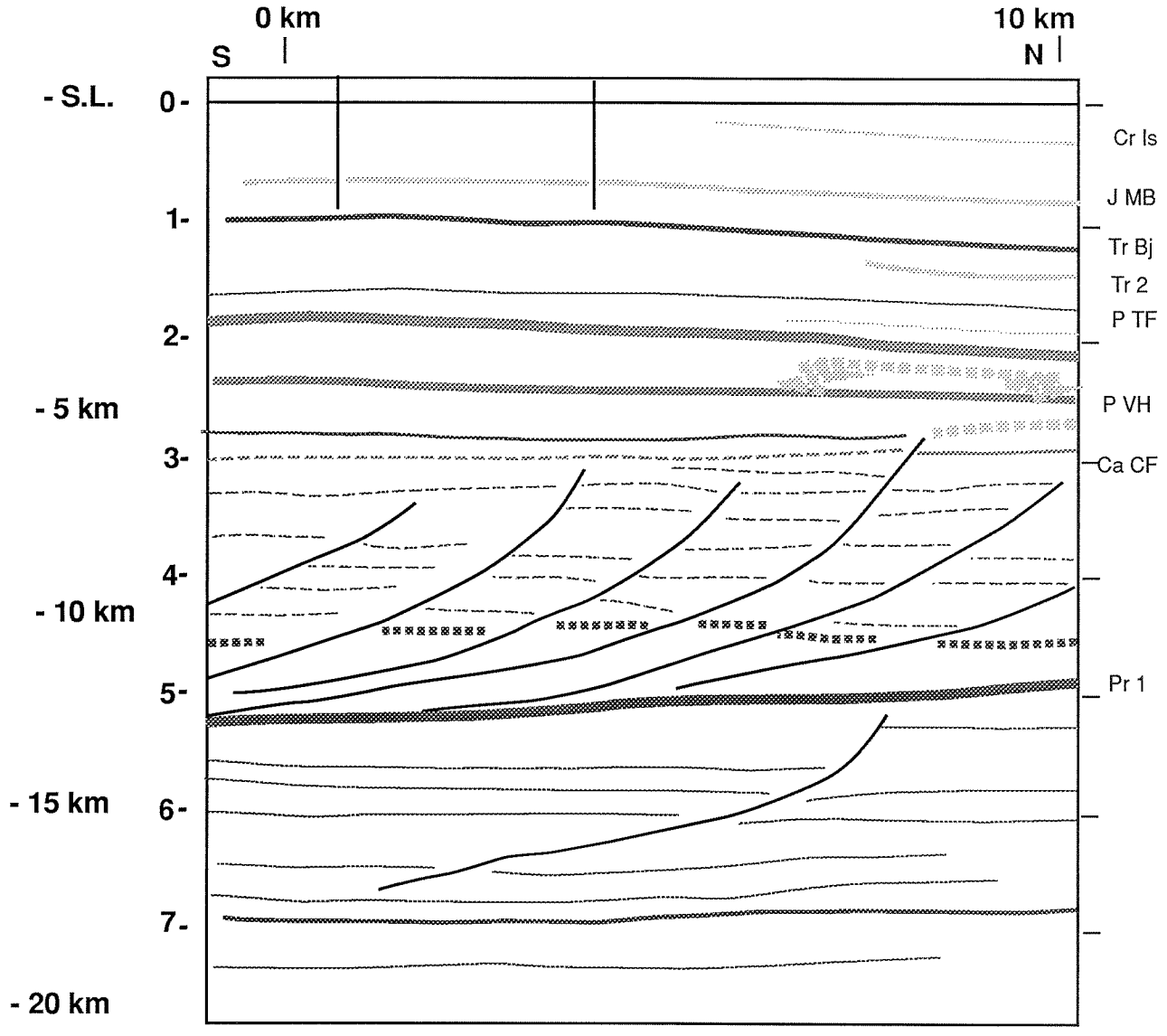


Melville Is. Line 1180/1 U of A - zb/erk



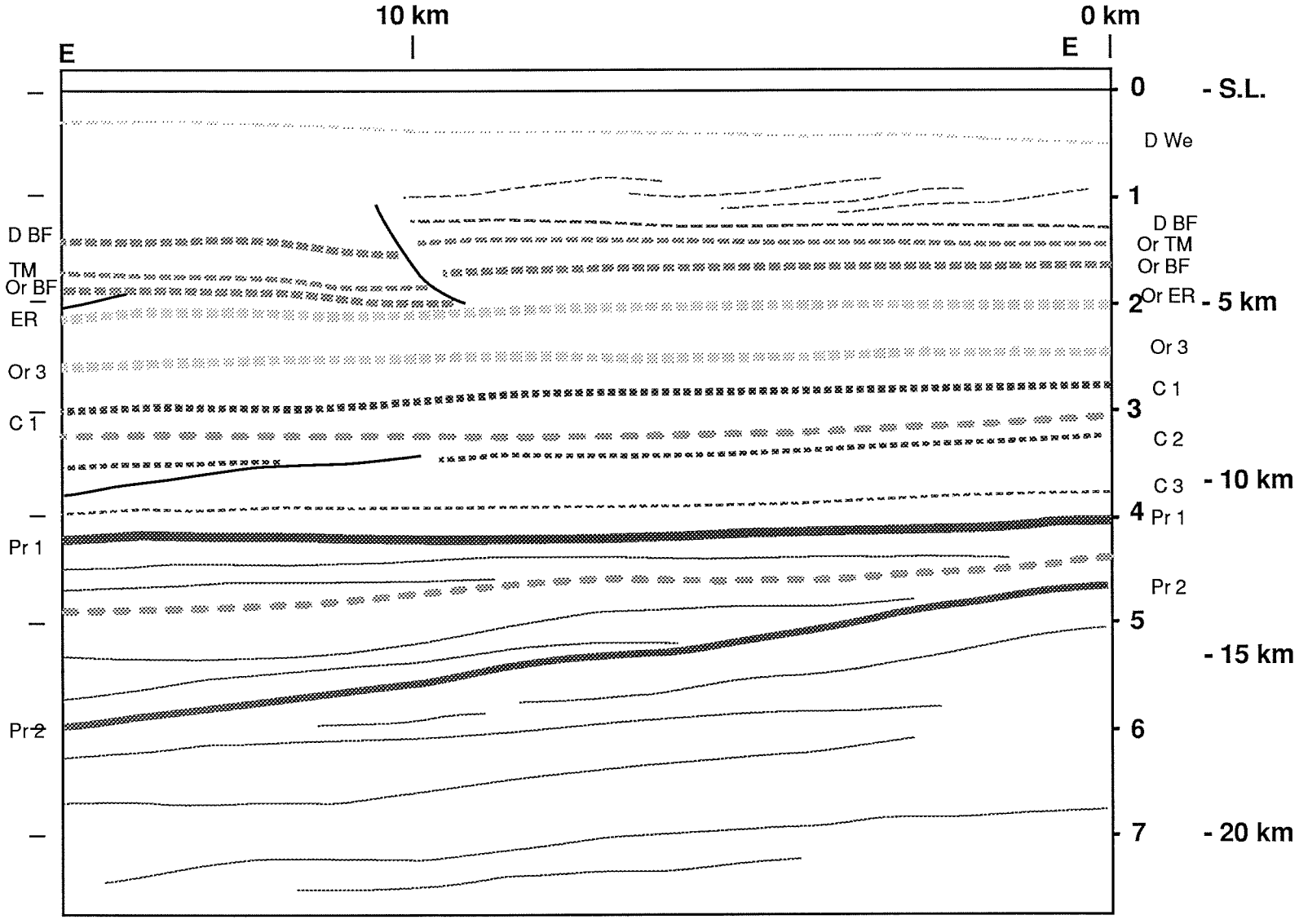
Melville Is. Line 1180/2

U of A - zb/erk



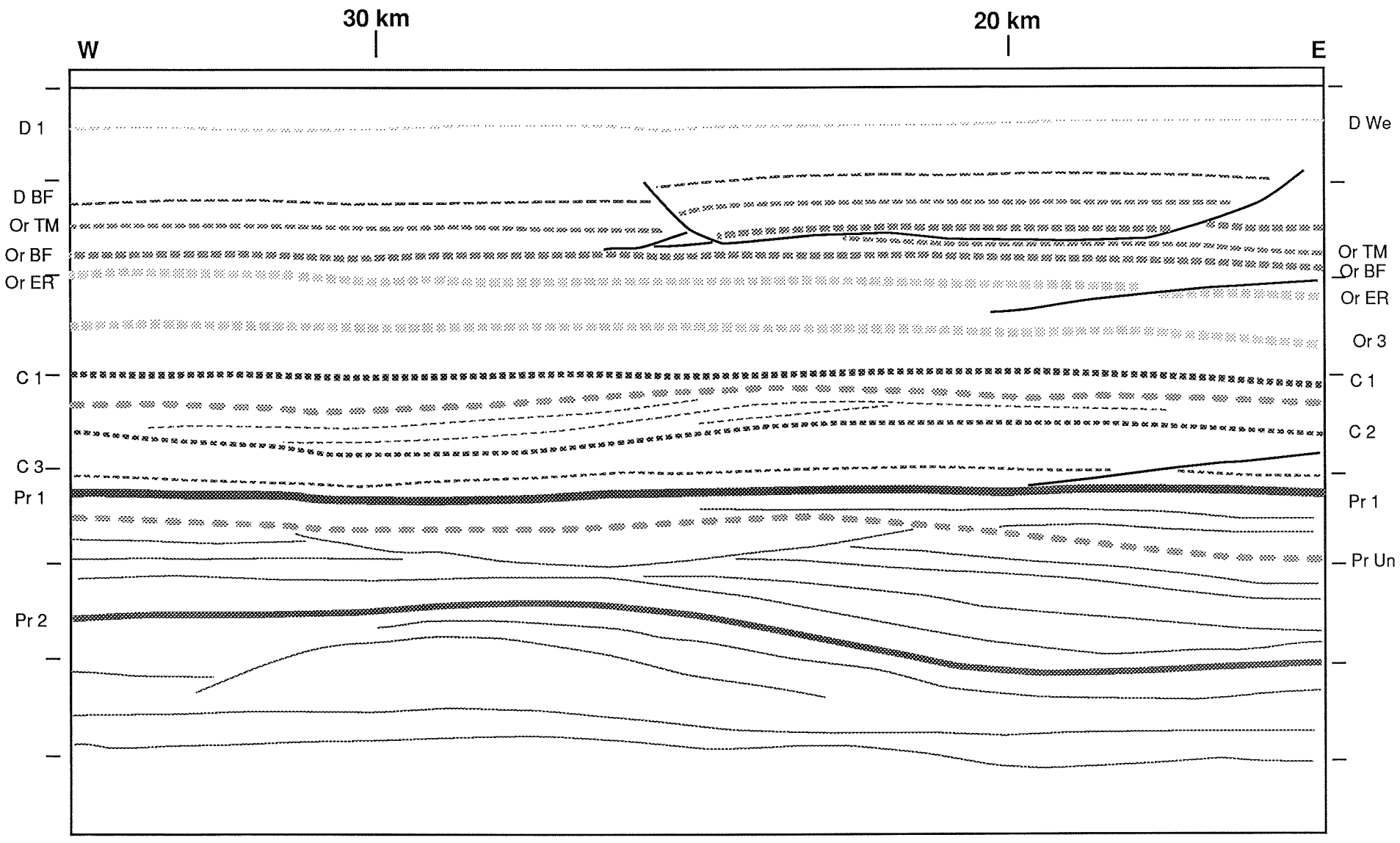
Melville Is. Line 1180/3

U of A - zb/erk



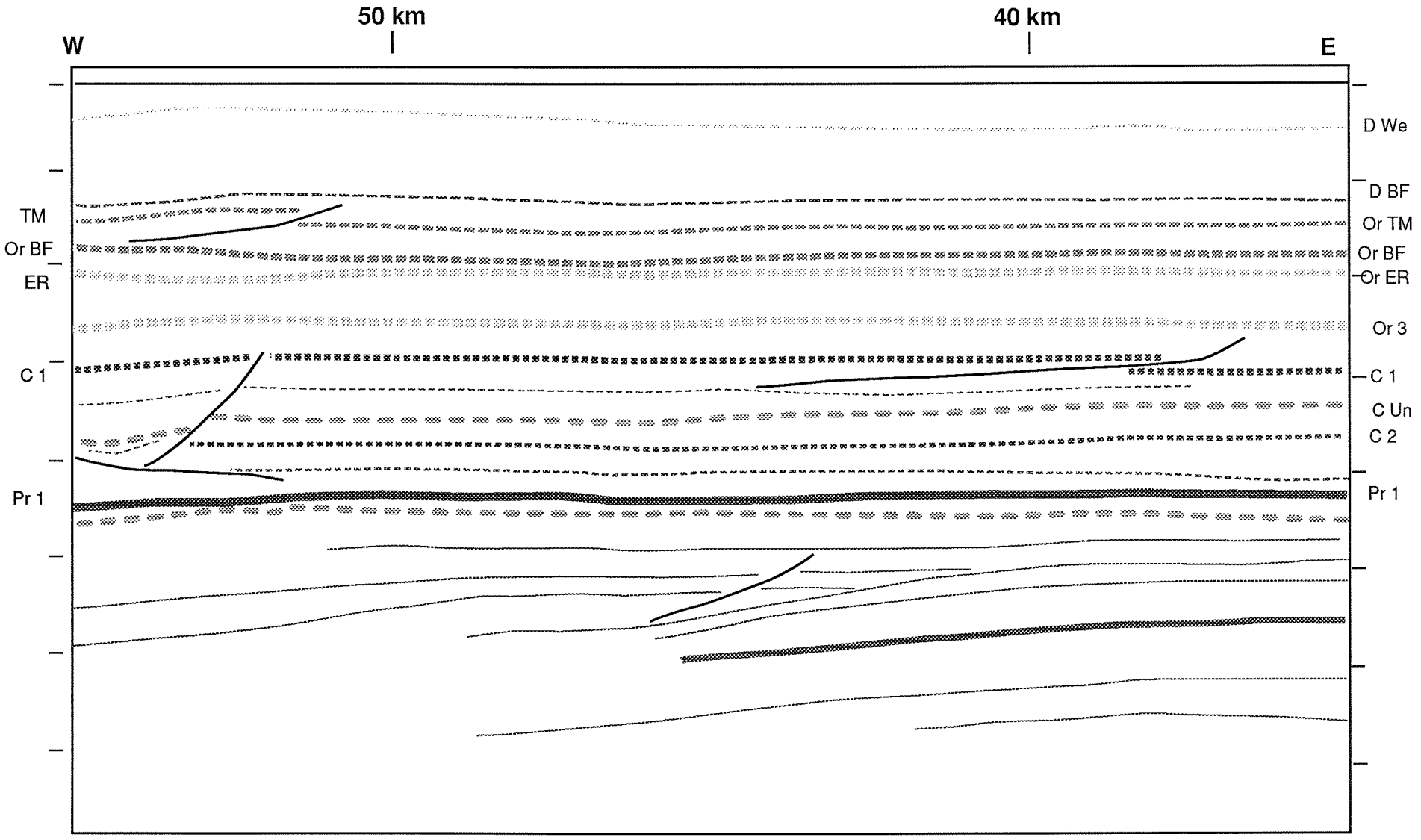
Melville Is. Line 1190/1

U of A - zb/erk



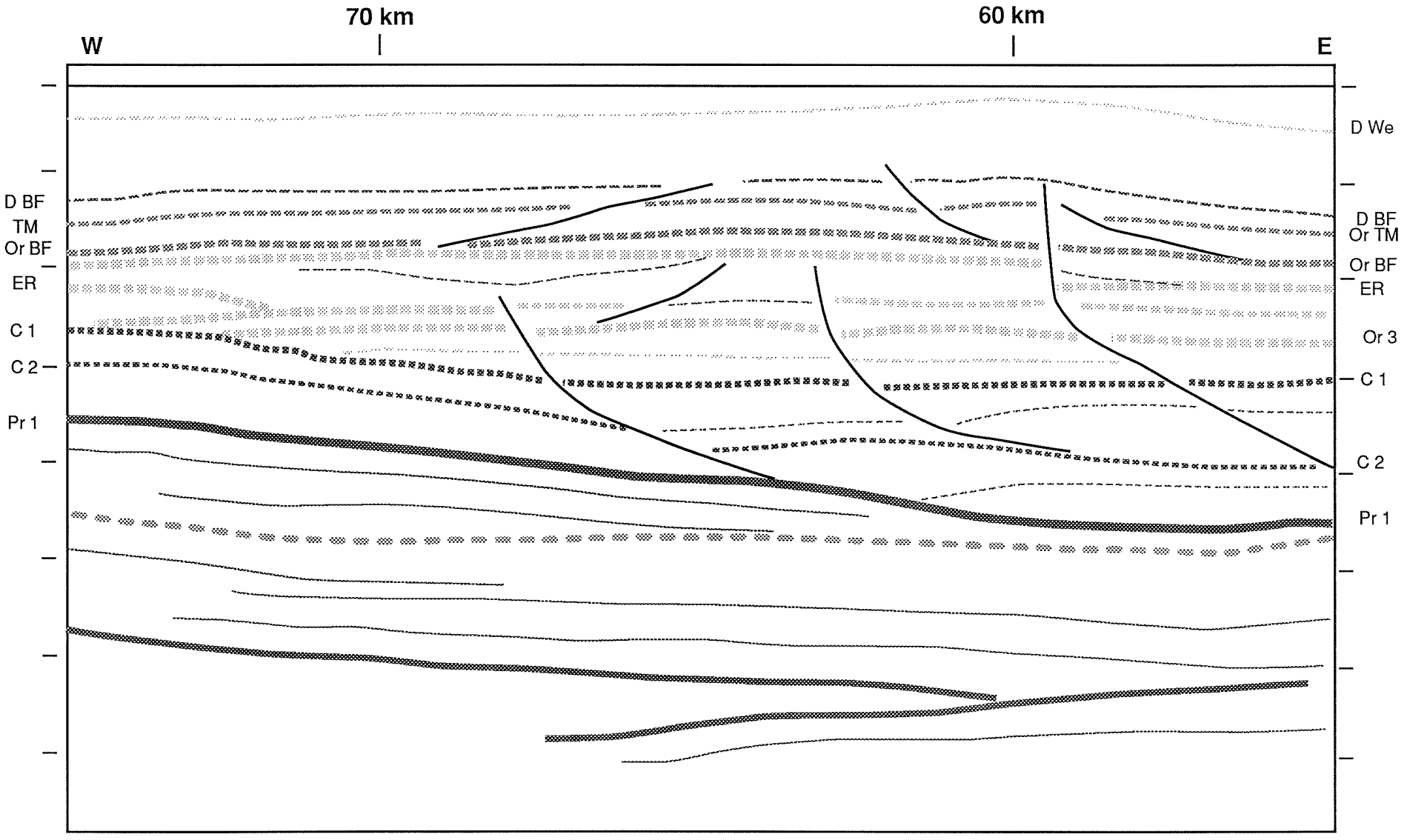
Melville Is. Line 1190/2

U of A - zb/erk



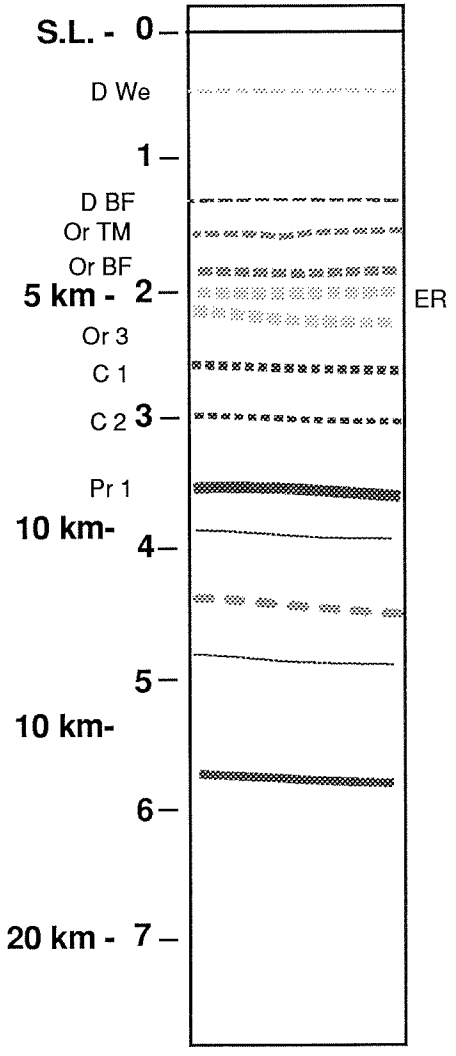
Melville Is. Line 1190/3

U of A - zb/erk

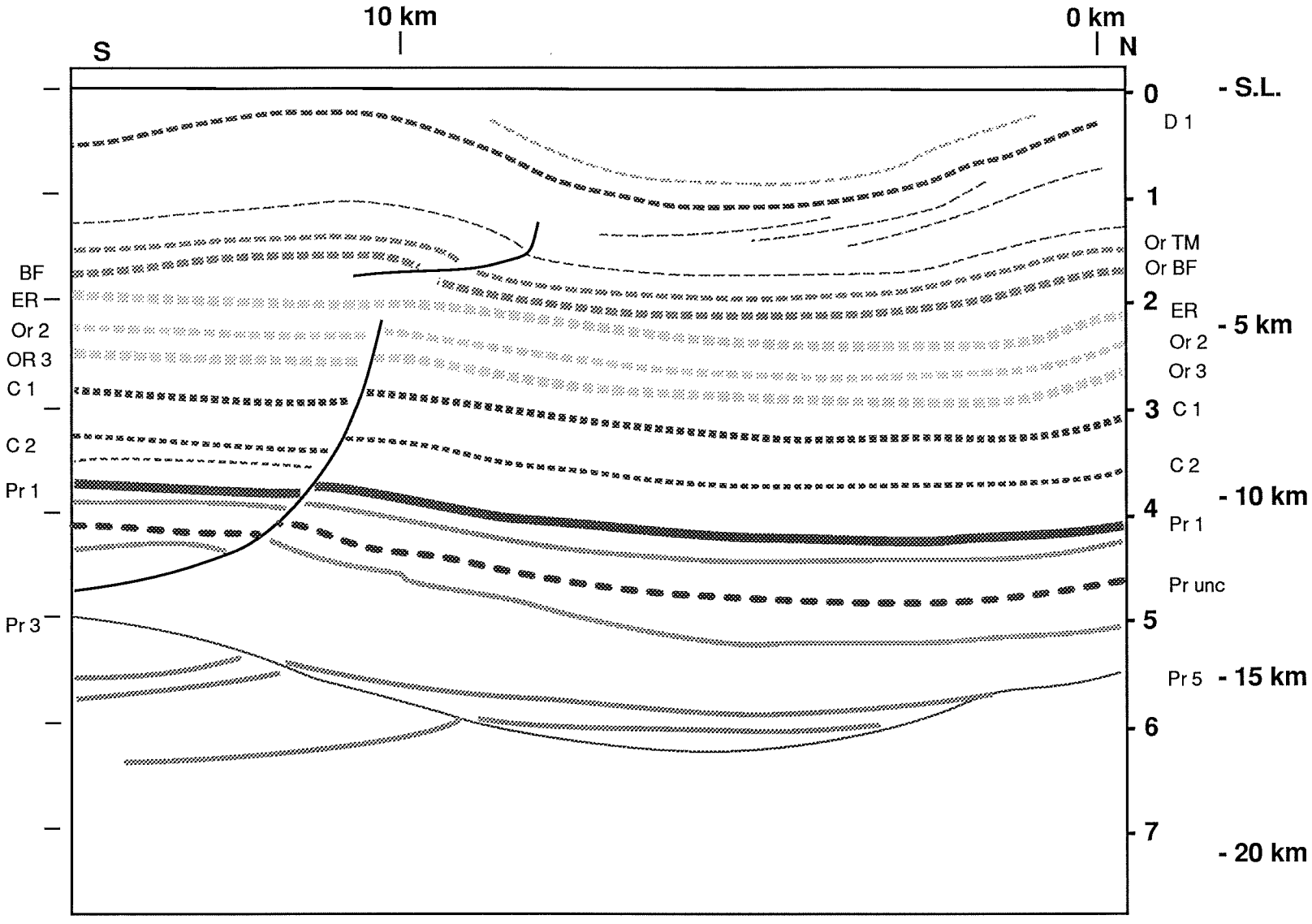


Melville Is. Line 1190/4

U of A - zb/erk

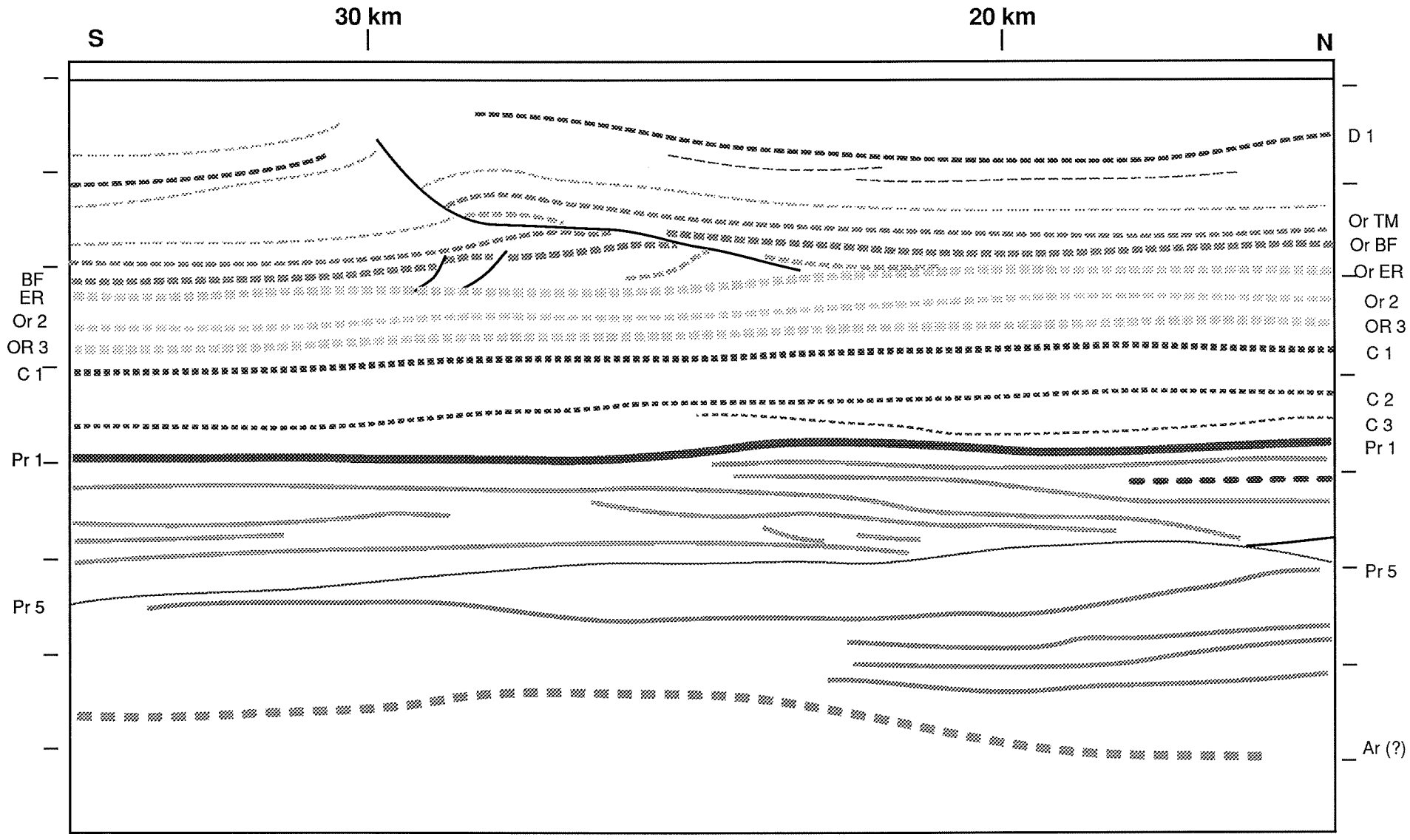


Melville Is. Line 1190/5



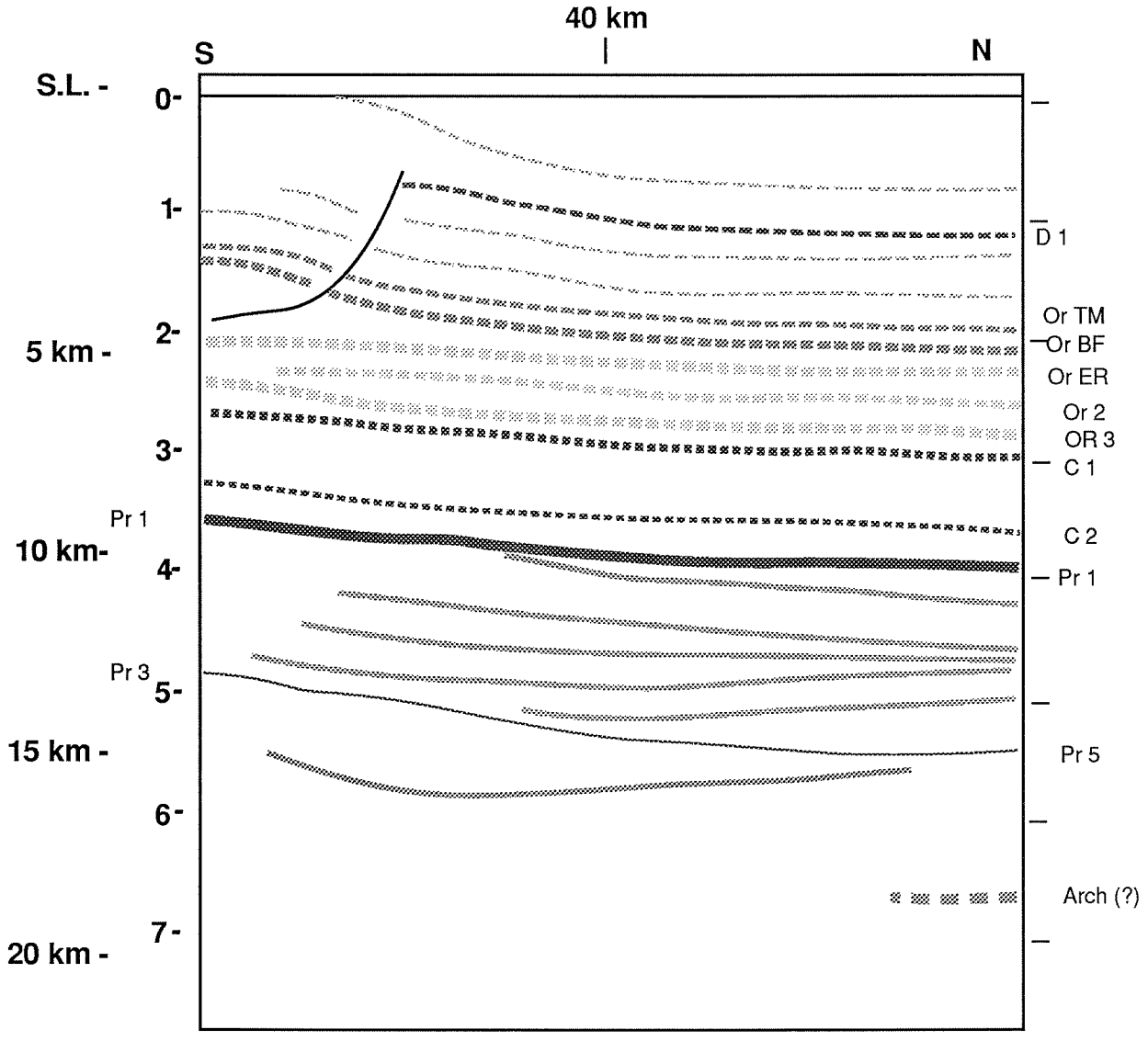
Melville Is. Line 1762/1

U of A - zb/erk



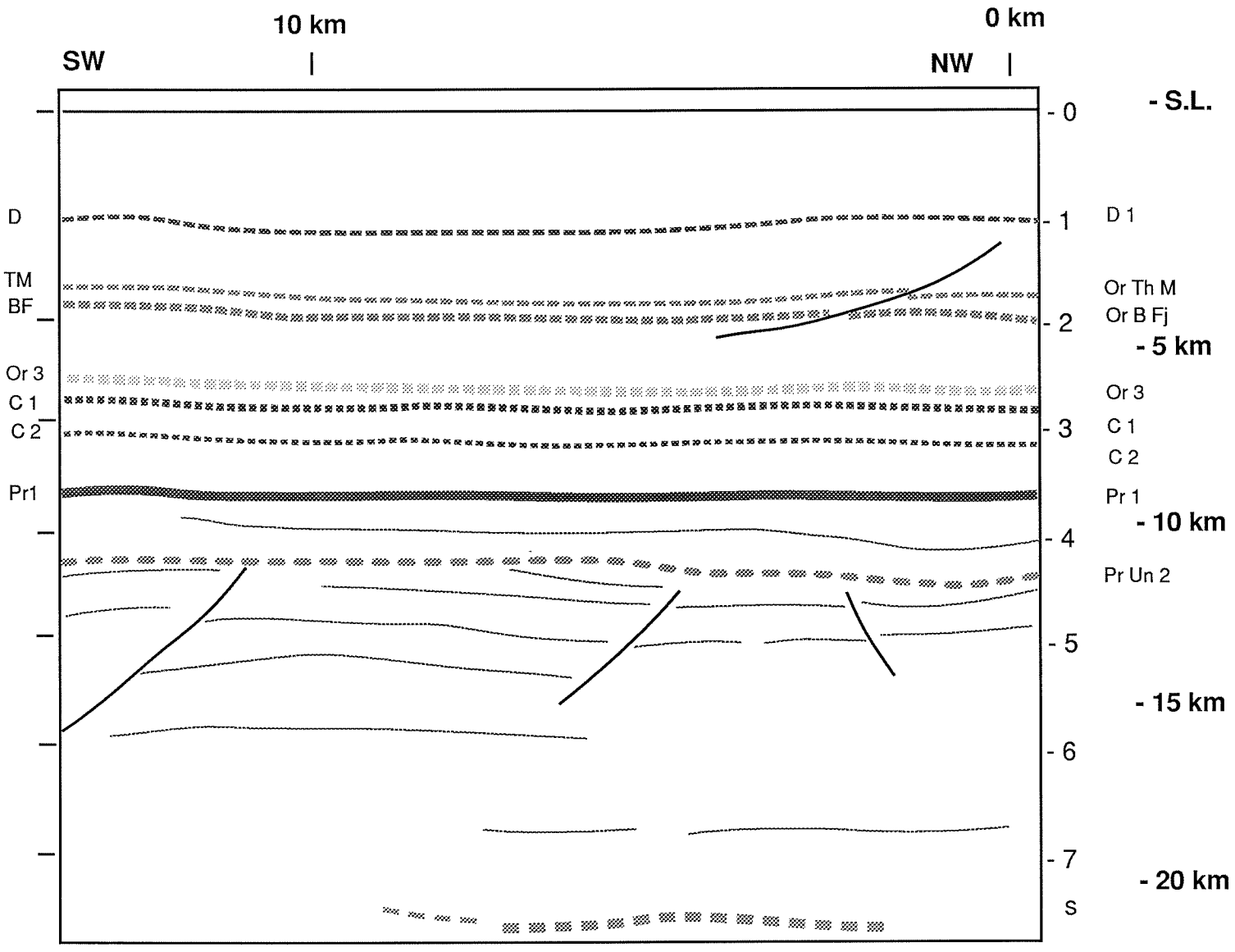
Melville Is. Line 1762/2

U of A - zb/erk



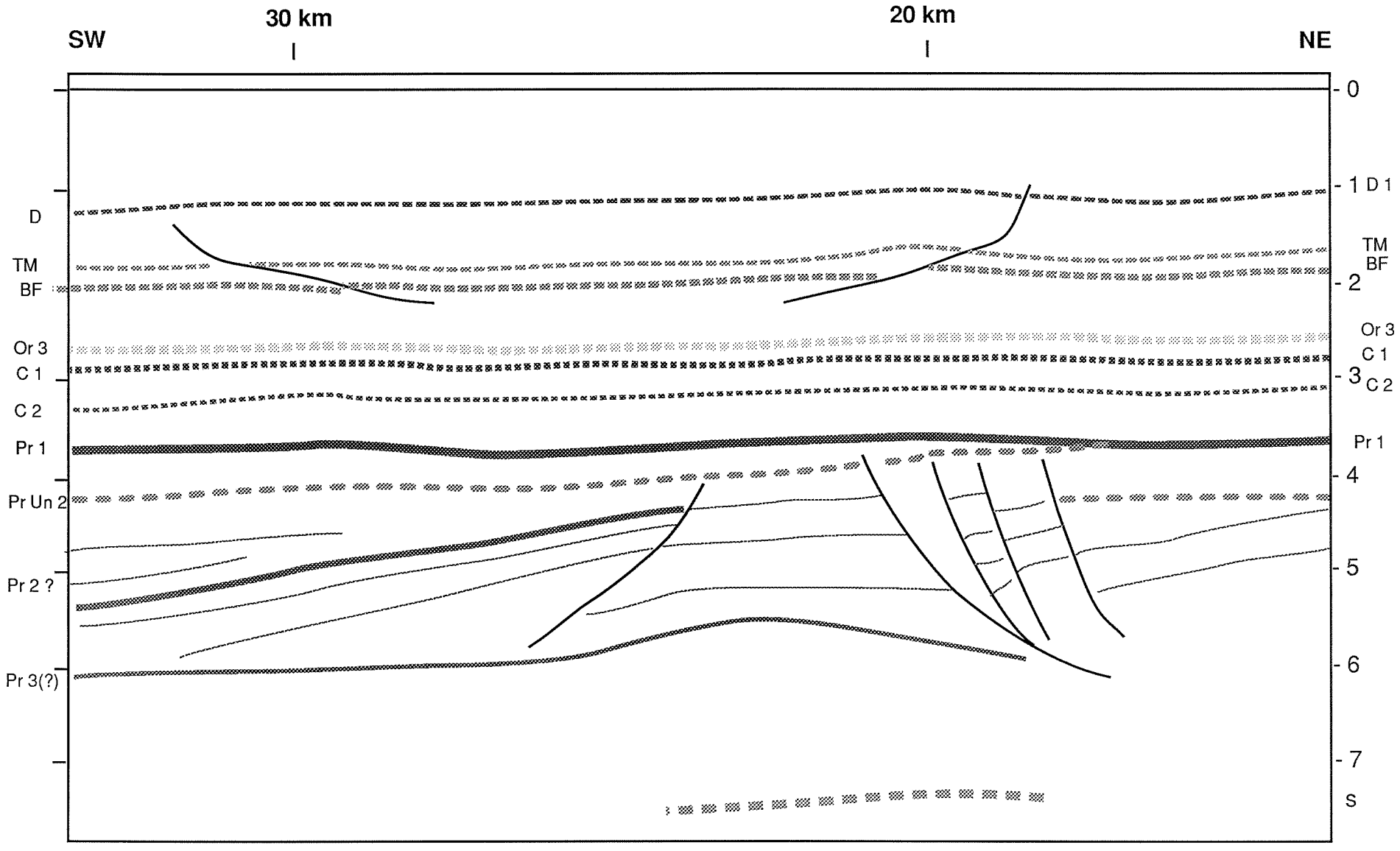
Melville Is. Line 1762/3

U of A - zb/erk



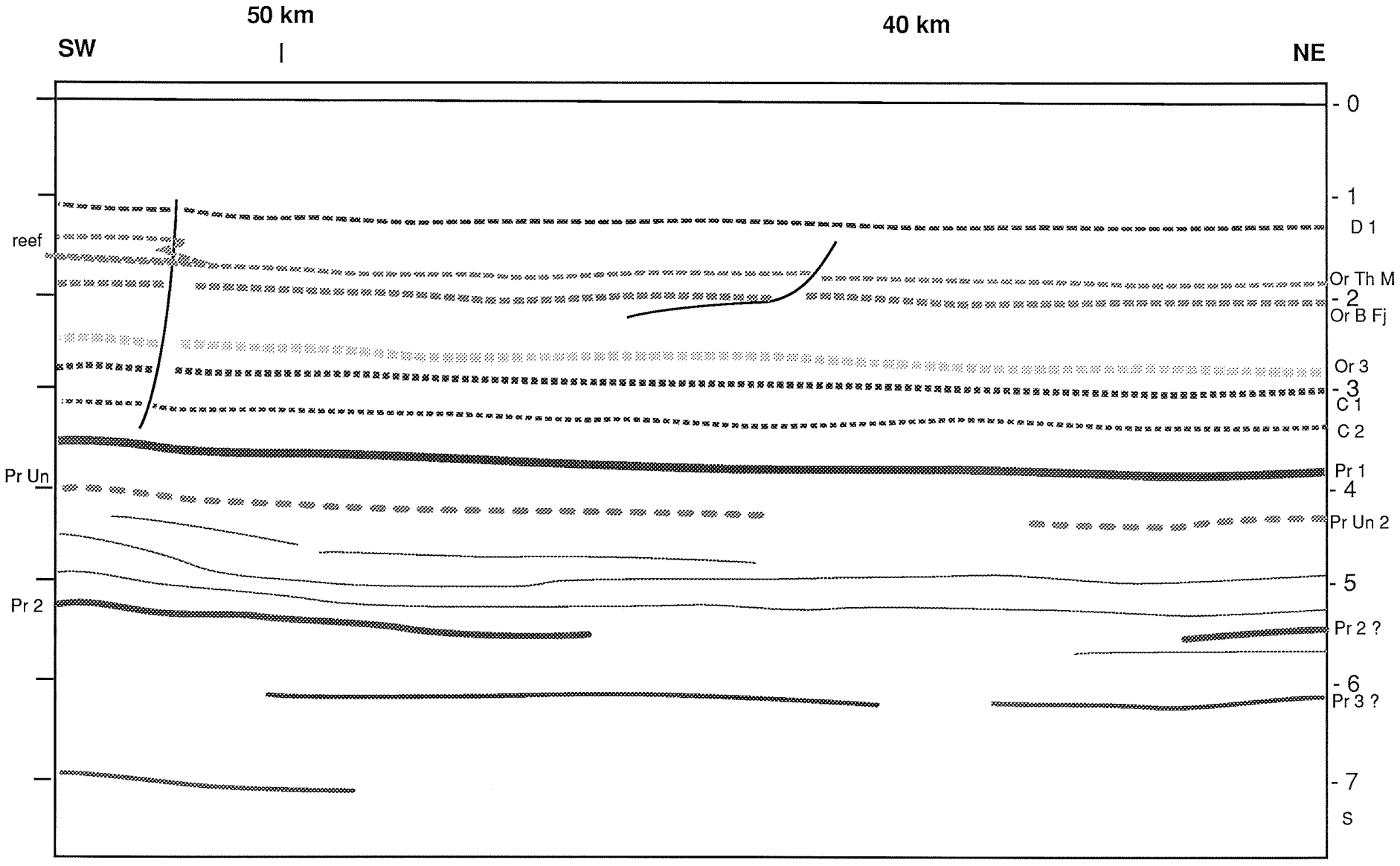
Melville Is. Line 1768 / 1

U of A - zb/erk



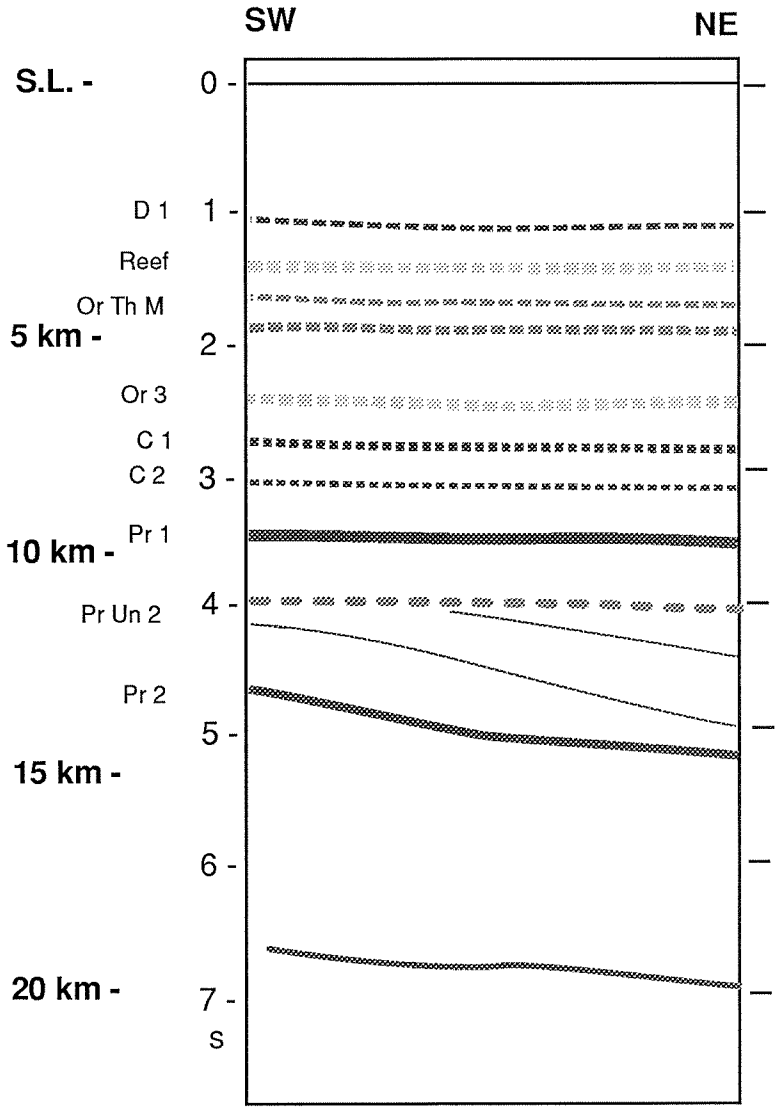
Melville Is. Line 1768 / 2

U of A - zb/erk

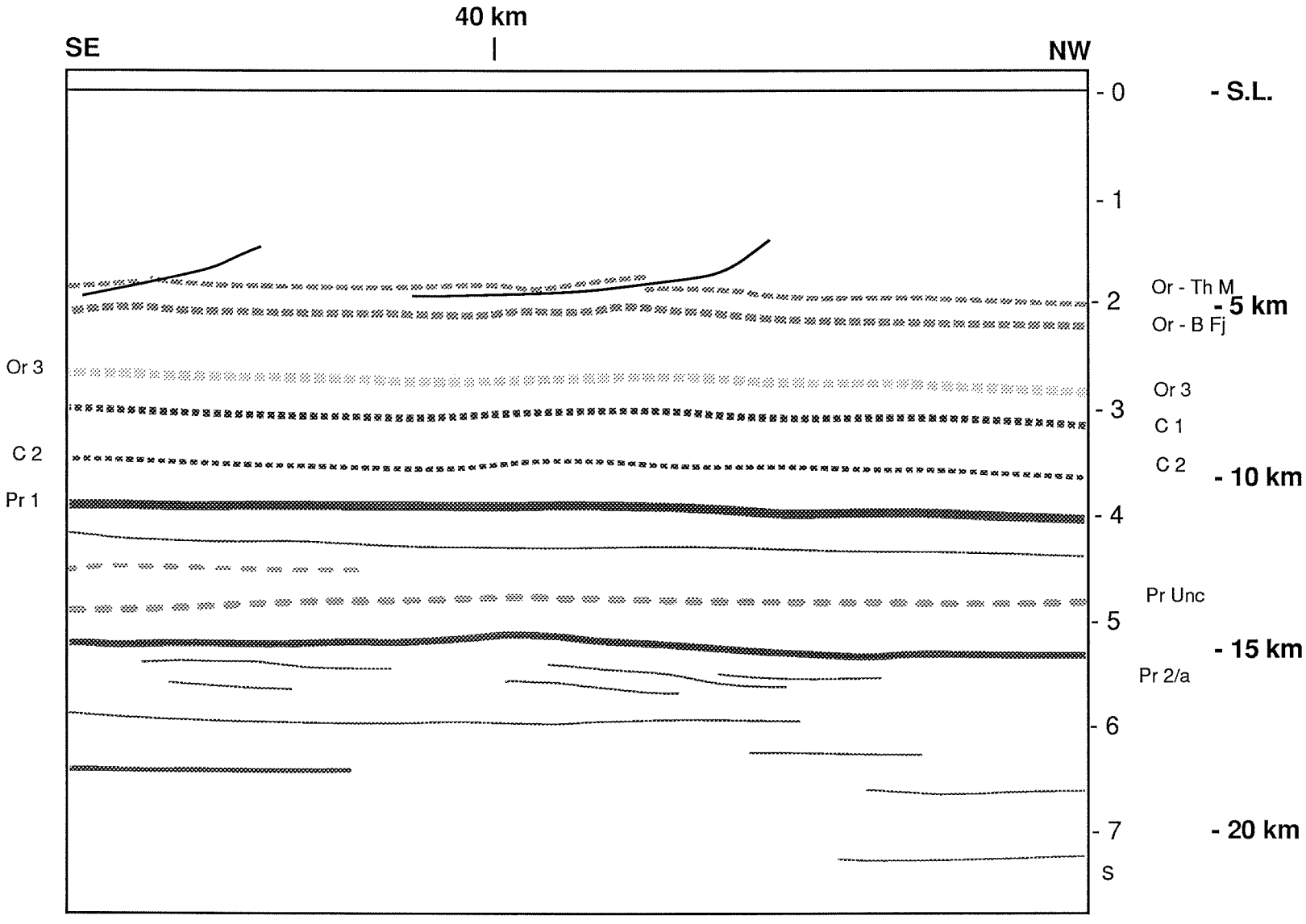


Melville Is. Line 1768 / 3

U of A - zb/erk

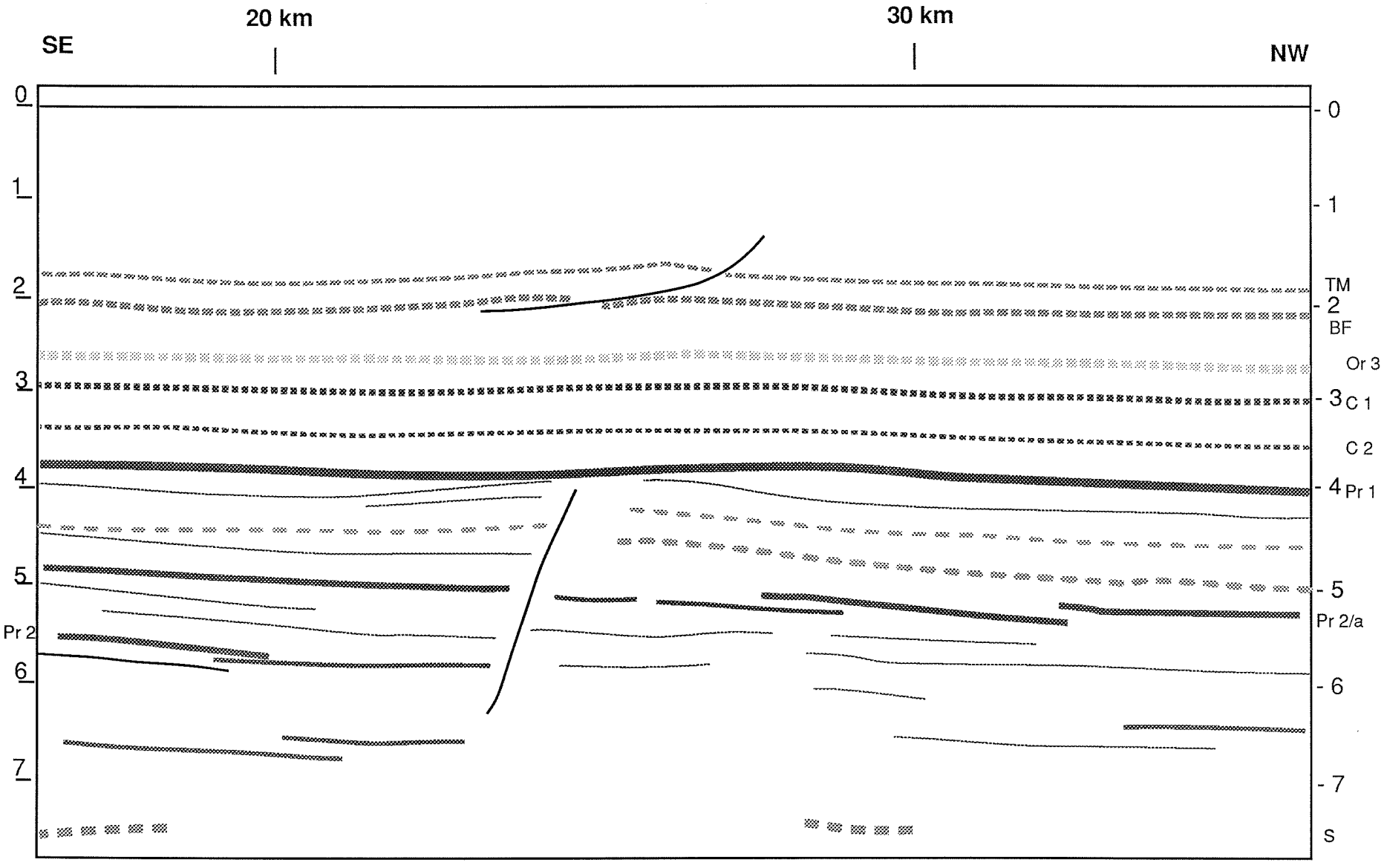


Melville Is. Line 1768 / 4



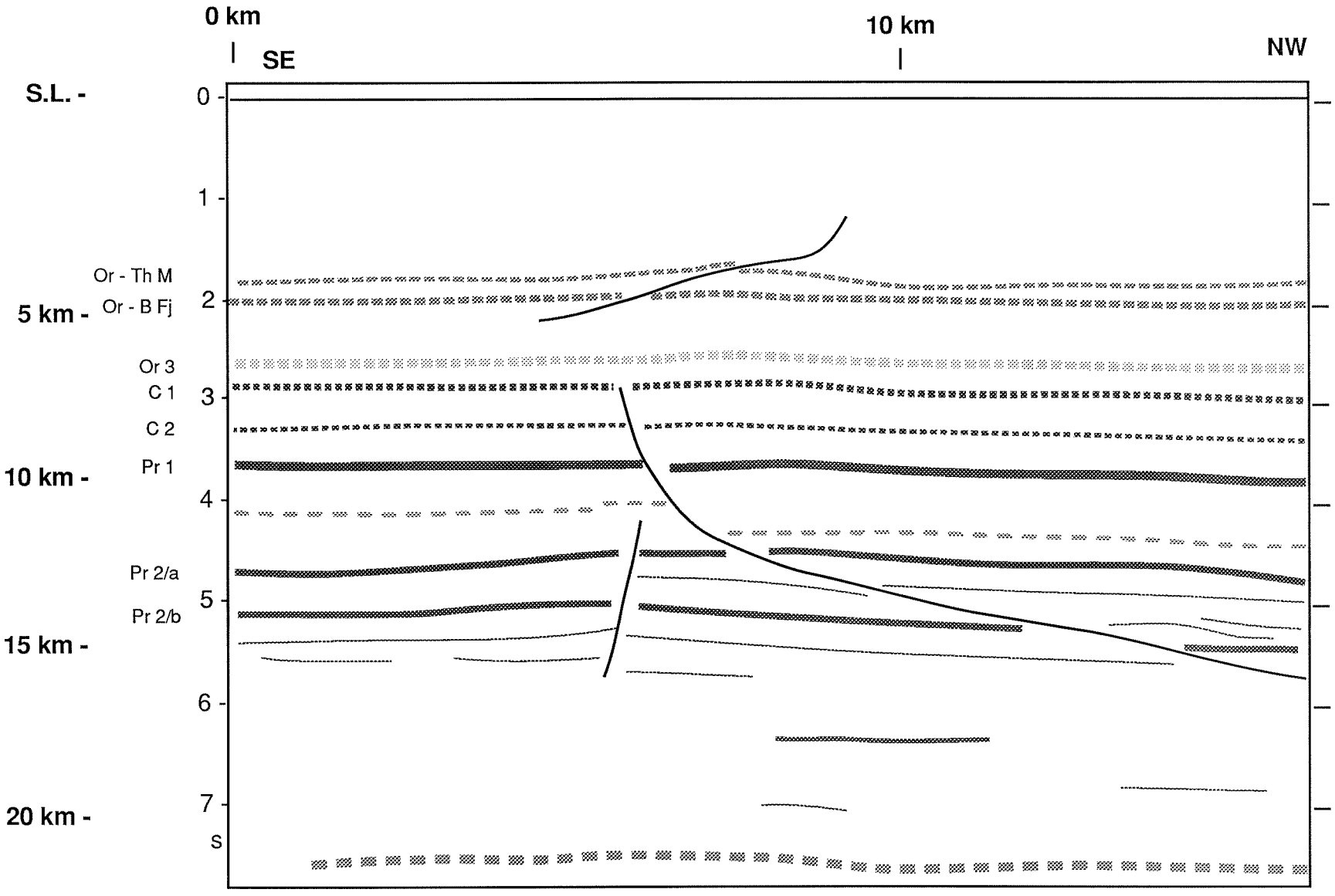
Melville Is. Line 1770 / 1

U of A - zb/erk



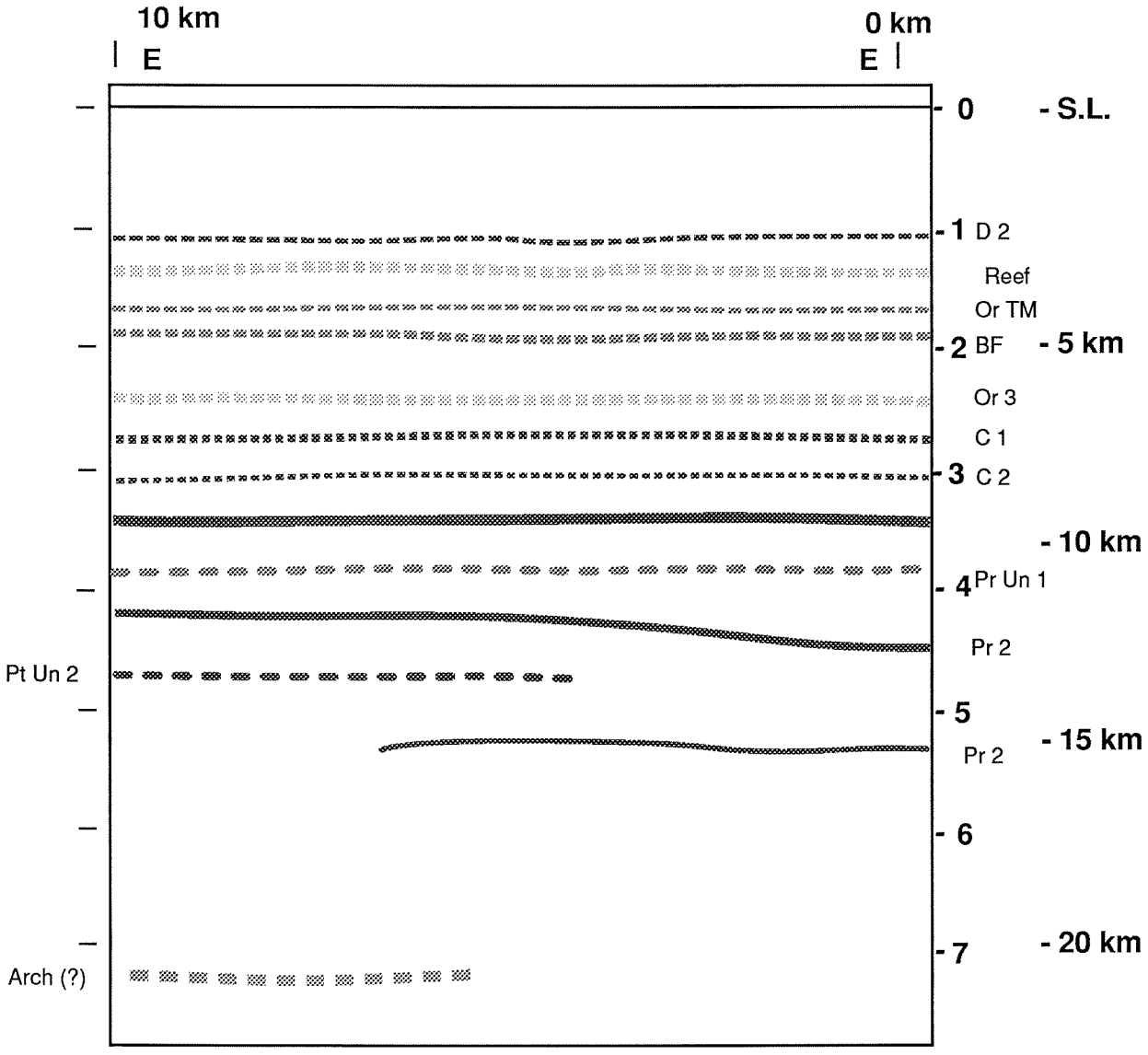
Melville Is. Line 1770 / 2

U of A - zb/erk



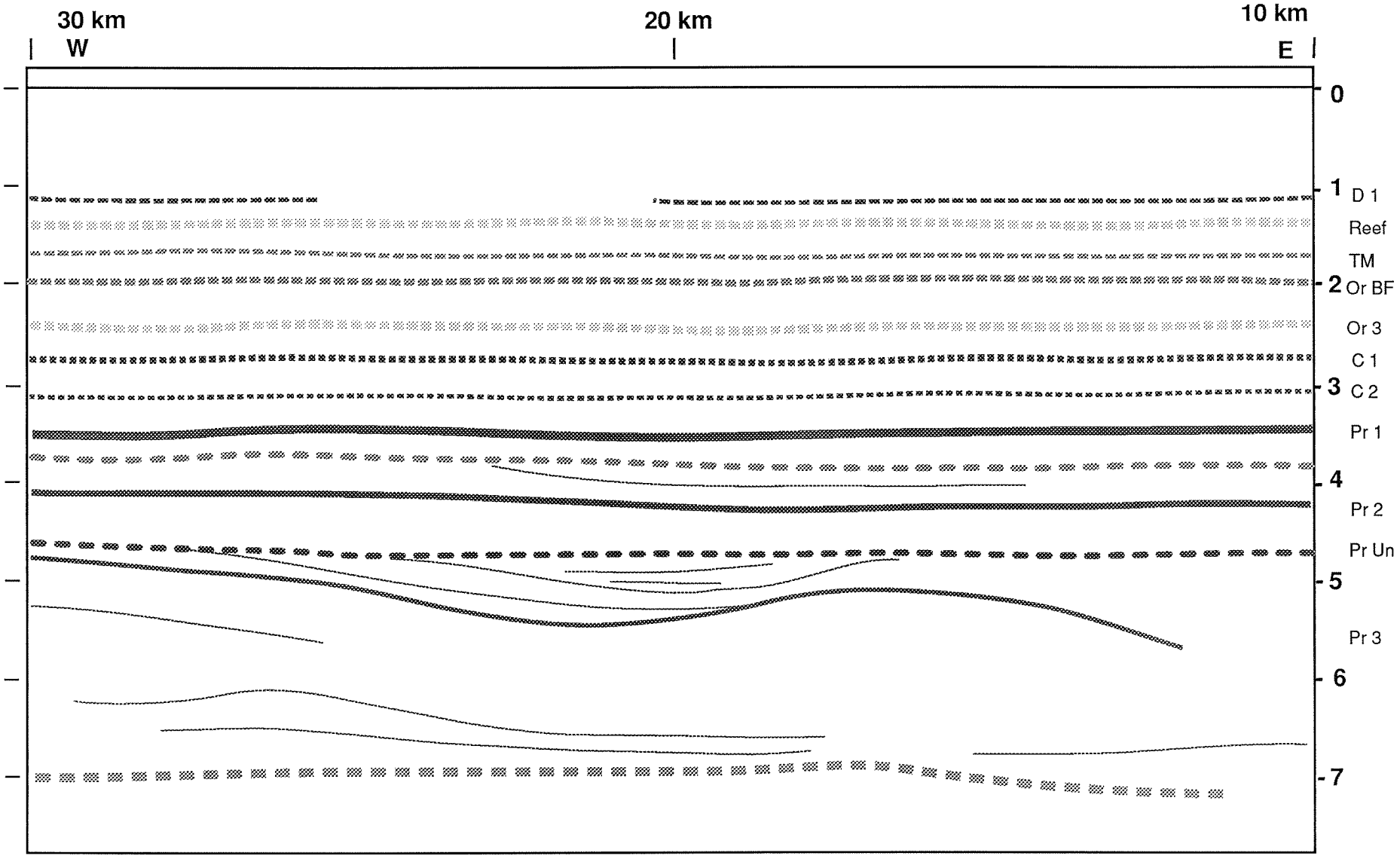
Melville Is. Line 1770 / 3

U of A - zb/erk



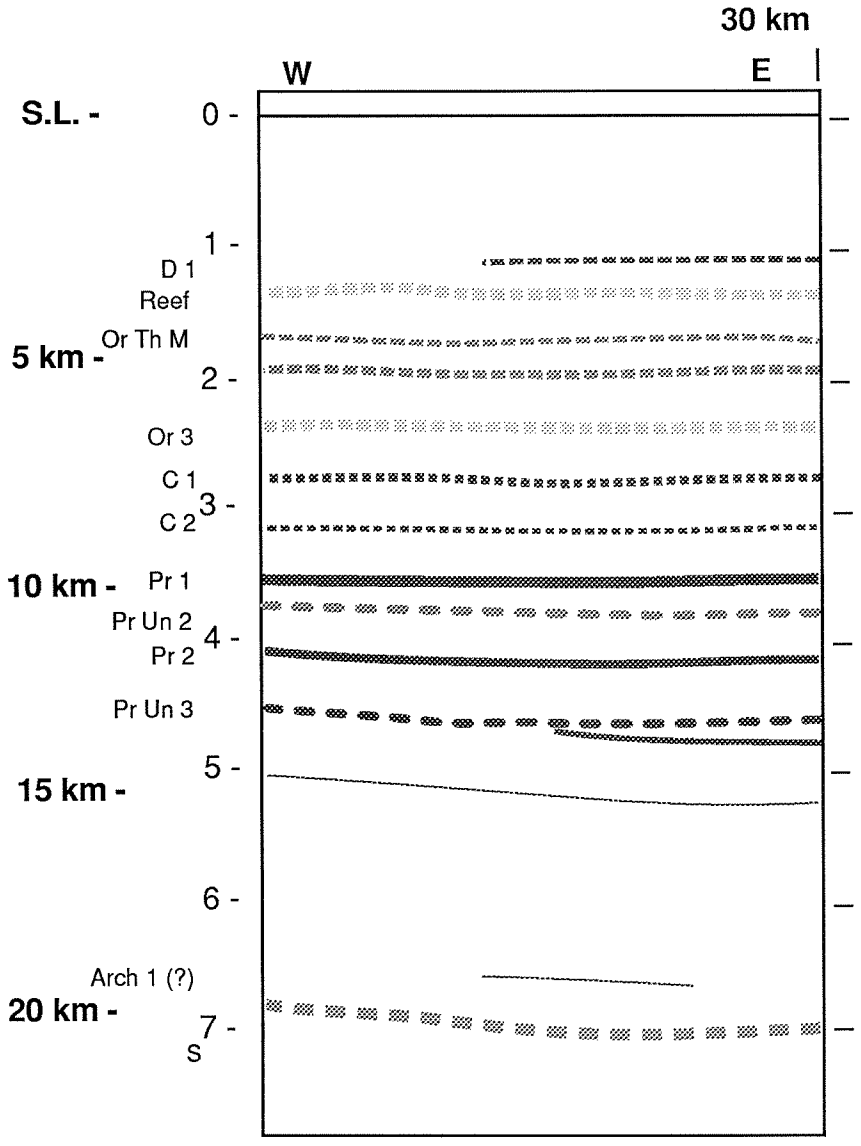
Melville Is. Line 1862/1

U of A - zb/erk

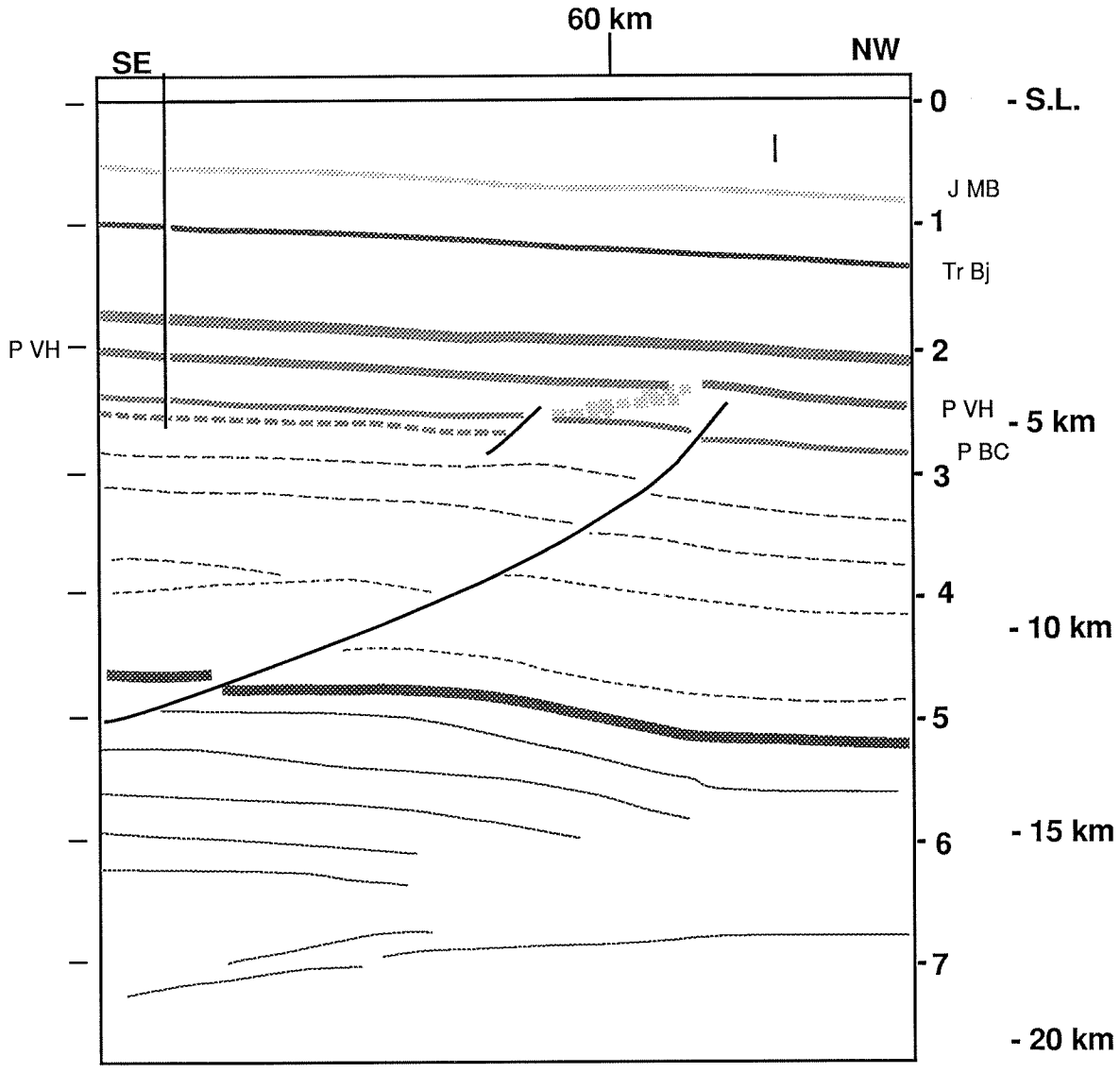


Melville Is. Line 1862/2

U of A - zb/erk



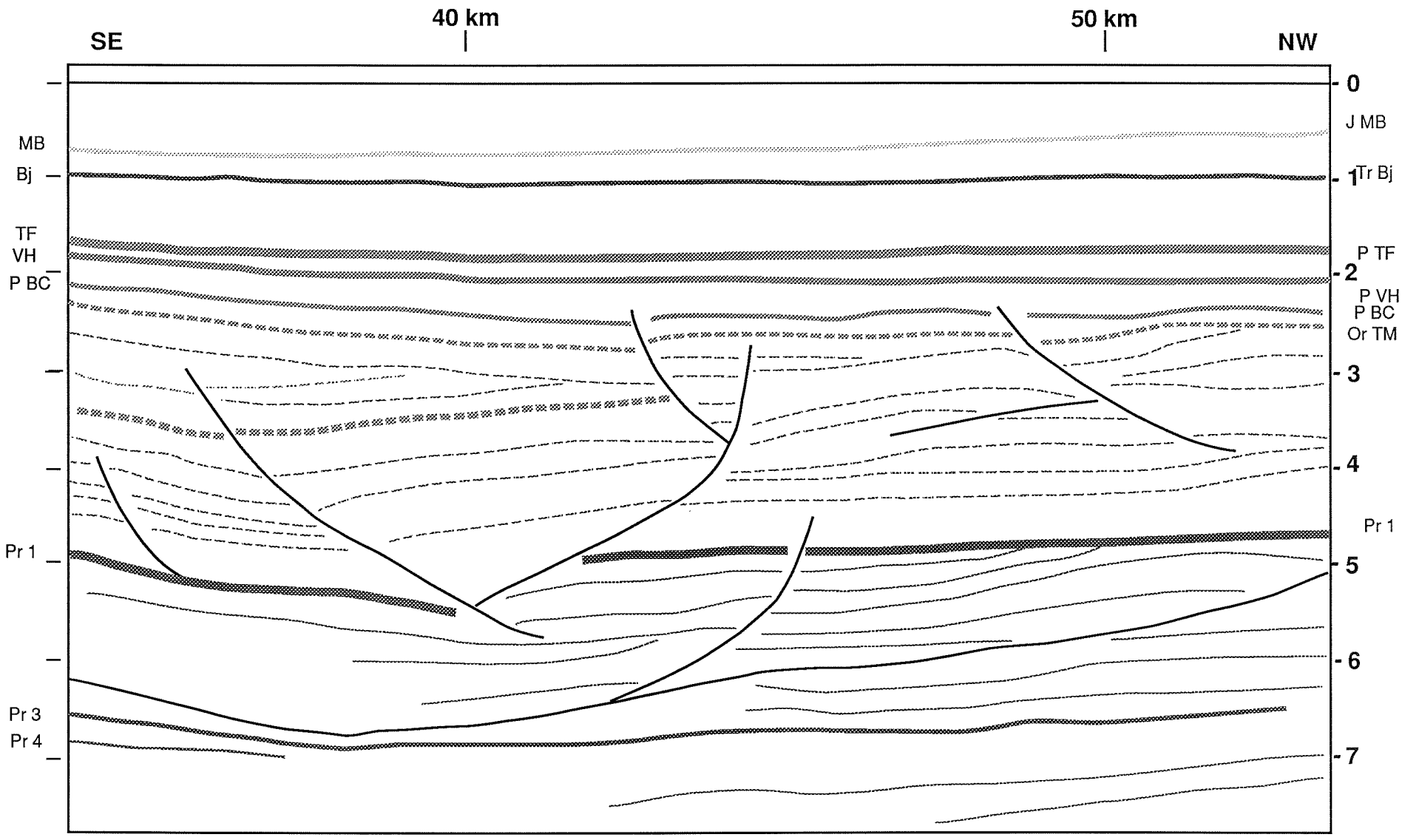
Melville Is. Line 1862 / 3 U of A - zb/erk



Melville Is. Line 1920/1

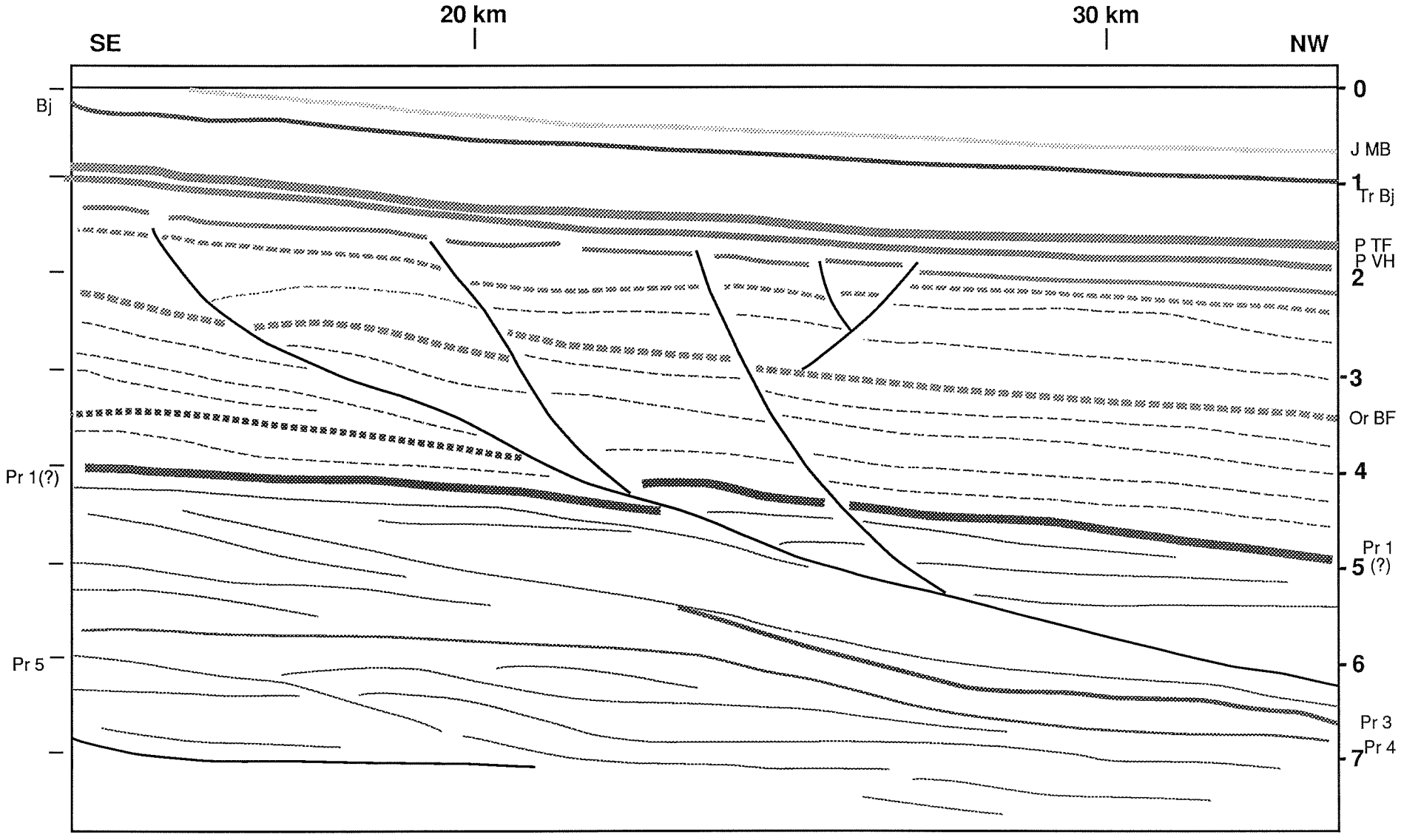
U of A - zb/erk

15



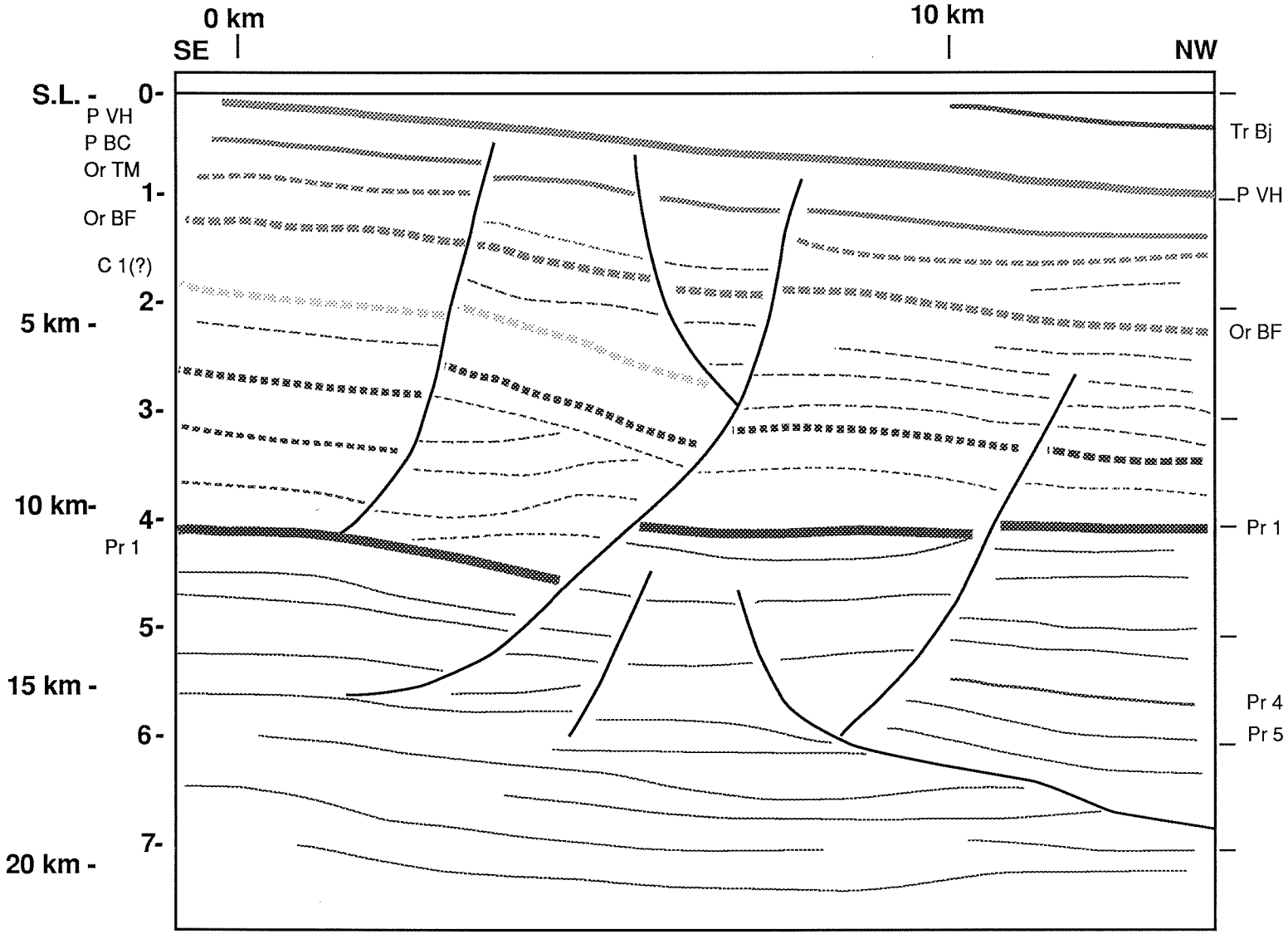
Melville Is. Line 1920/2

U of A - zb/erk



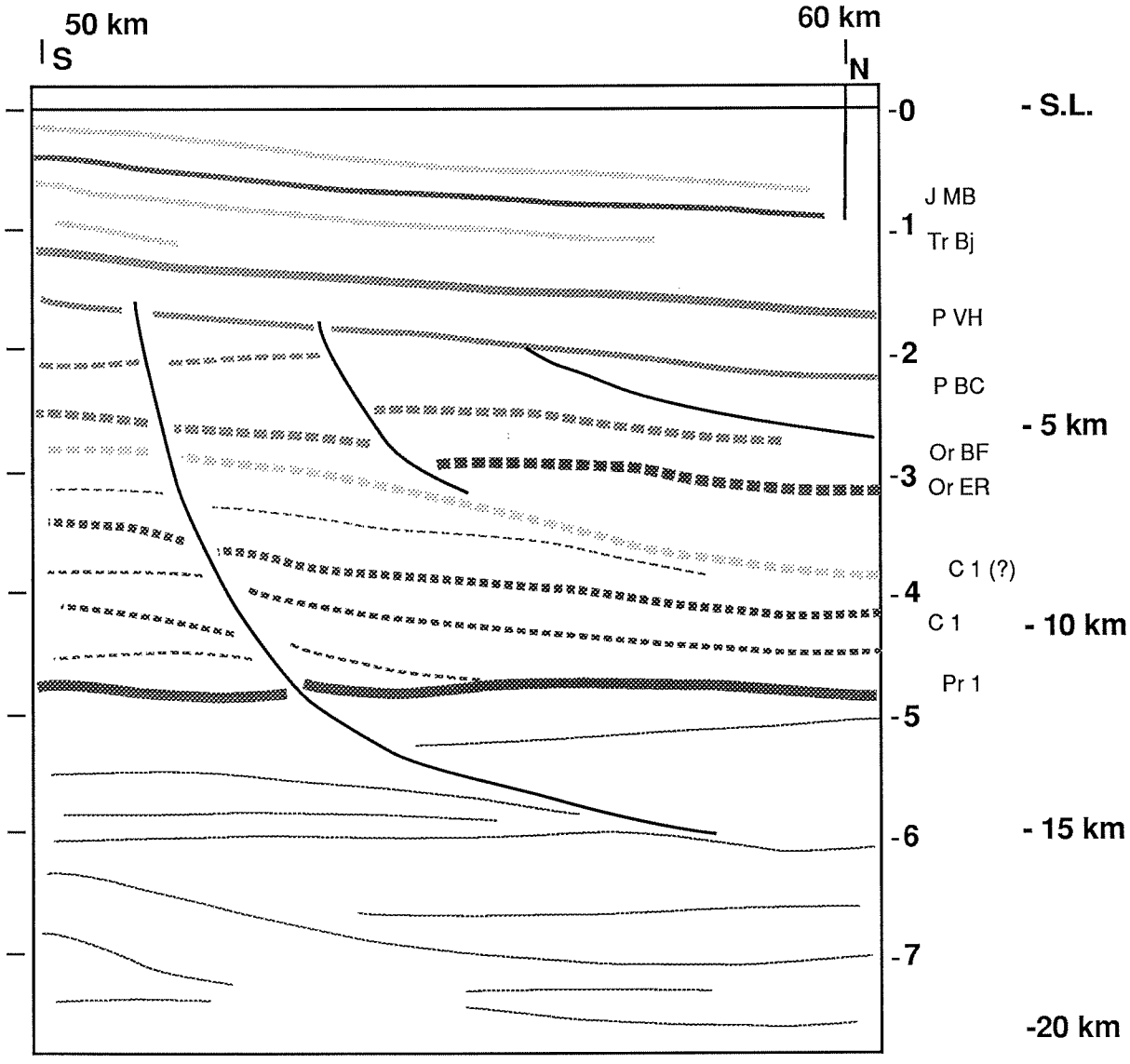
Melville Is. Line 1920/3

U of A - zb/erk



Melville Is. Line 1920/4

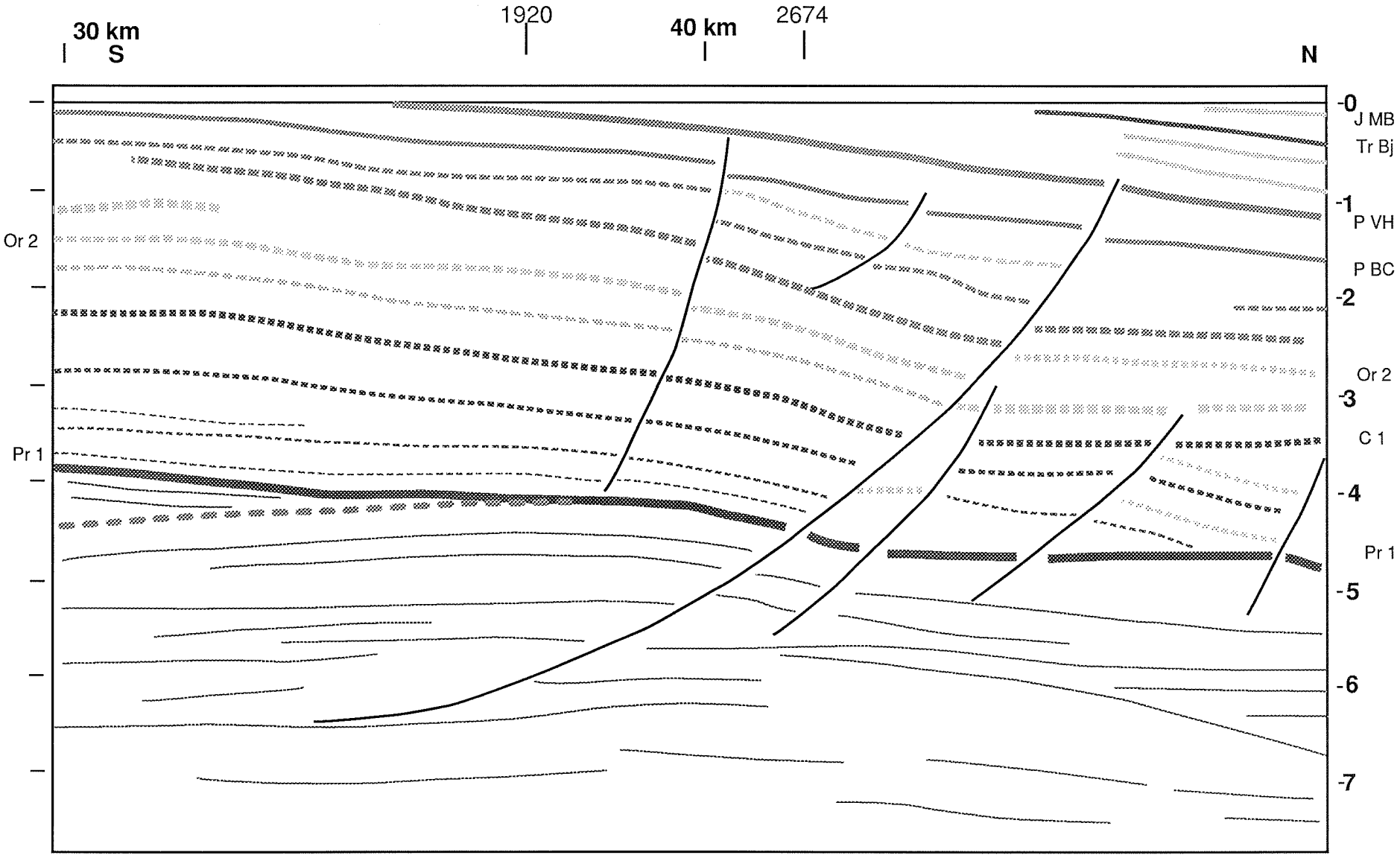
U of A - zb/erk



Melville Is. Line 1921/1

U of A - zb/erk

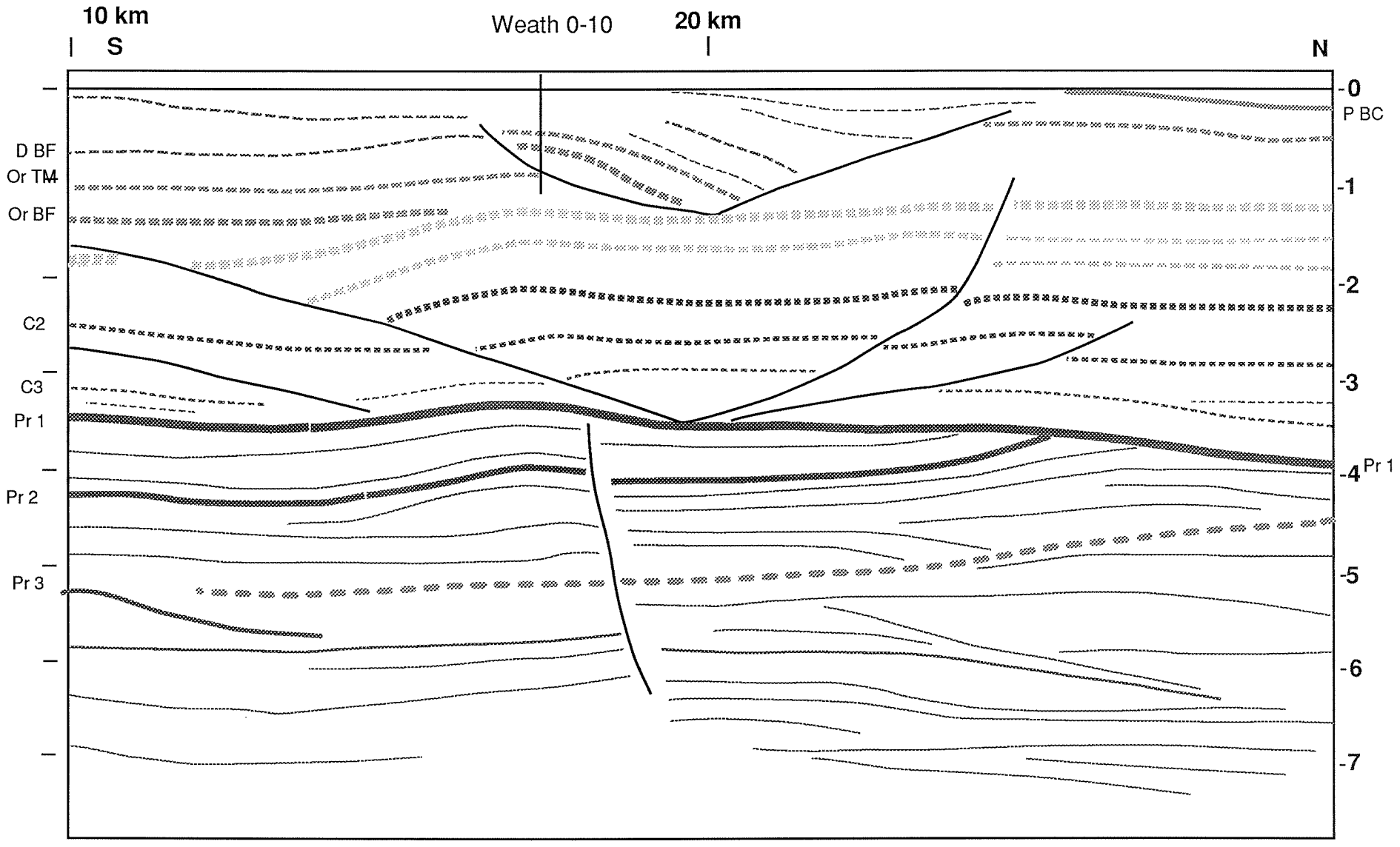
53



Melville Is. Line 1921/2

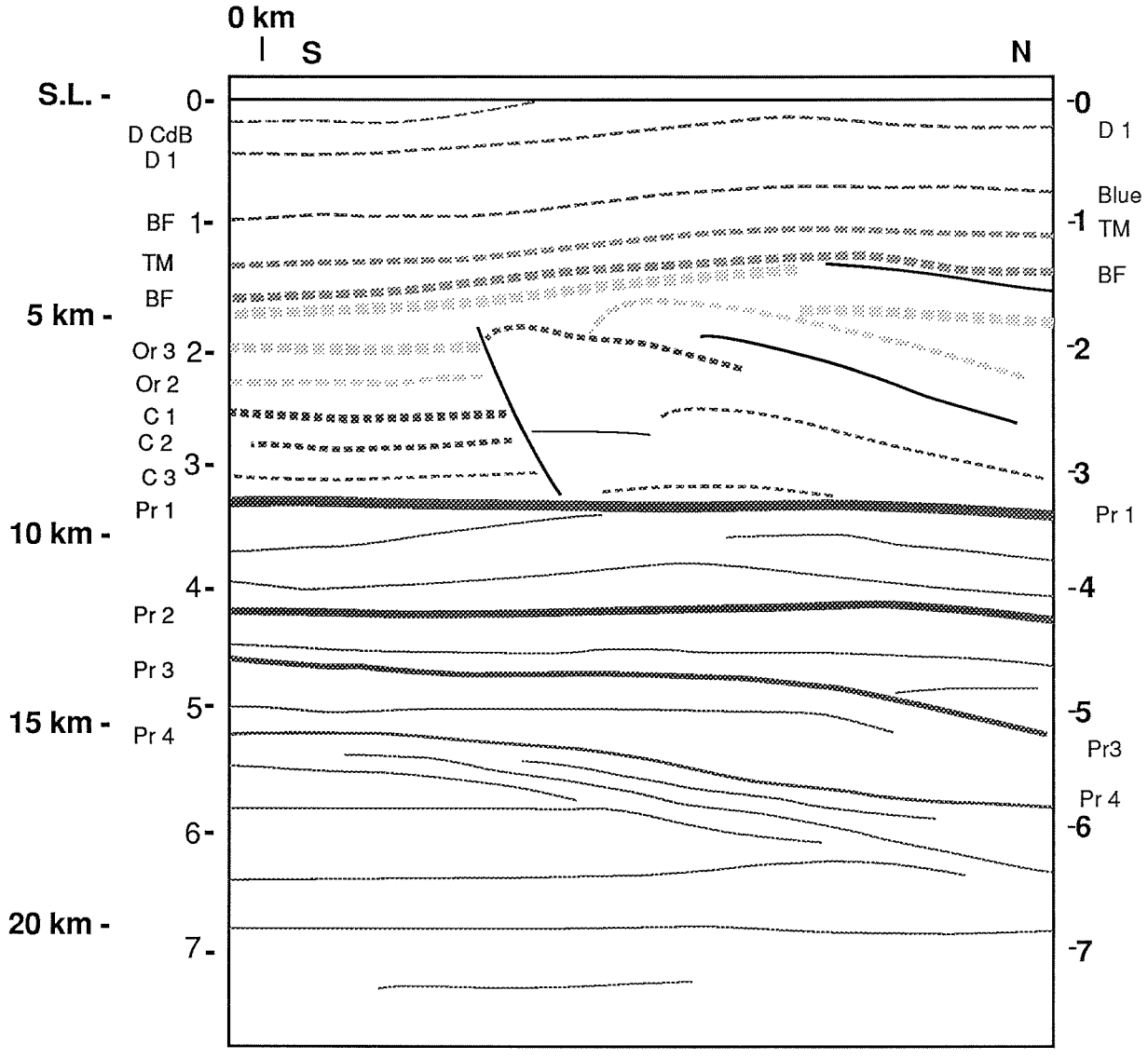
U of A - zb/erk

78



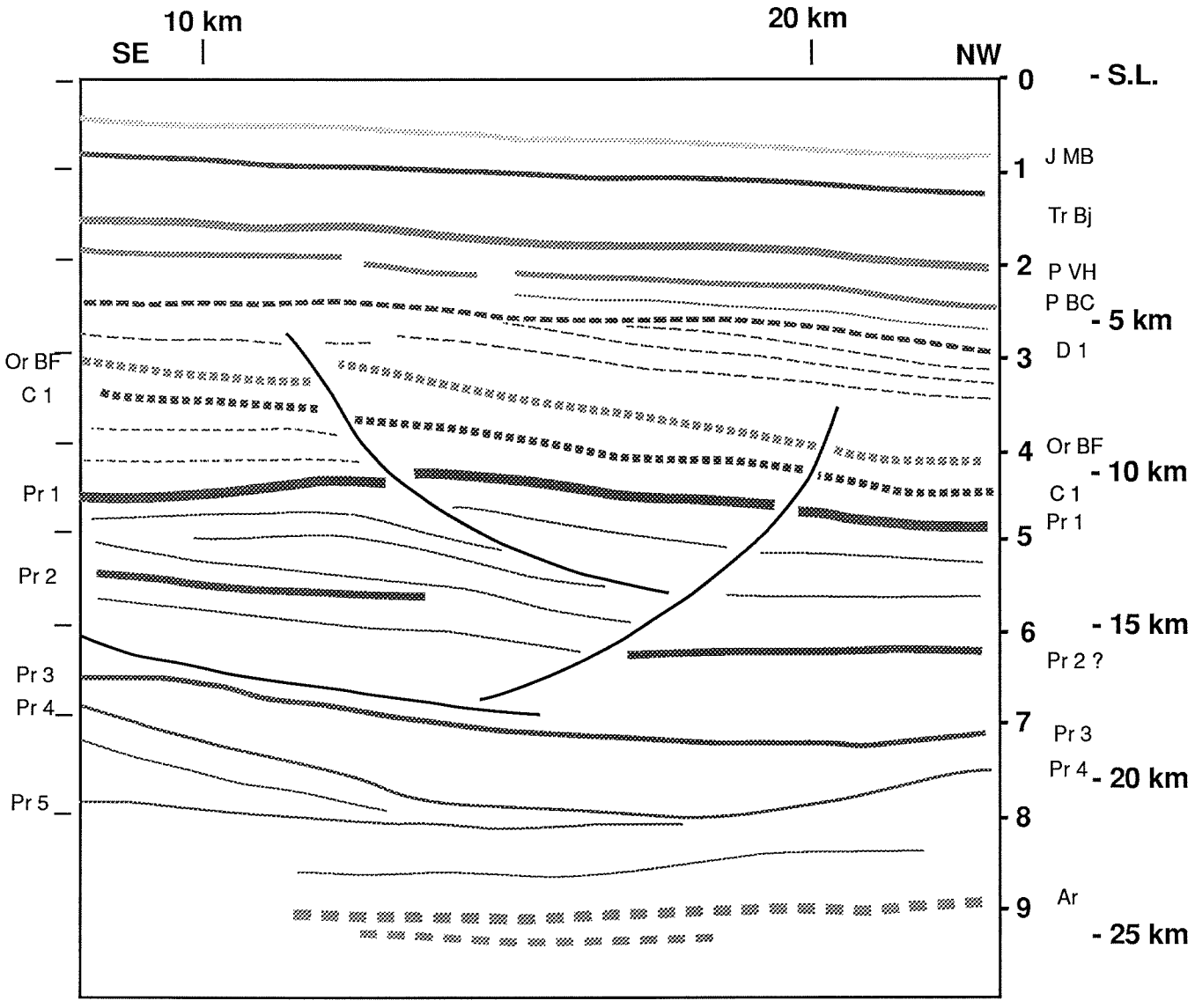
Melville Is. Line 1921/3

U of A - zb/erk



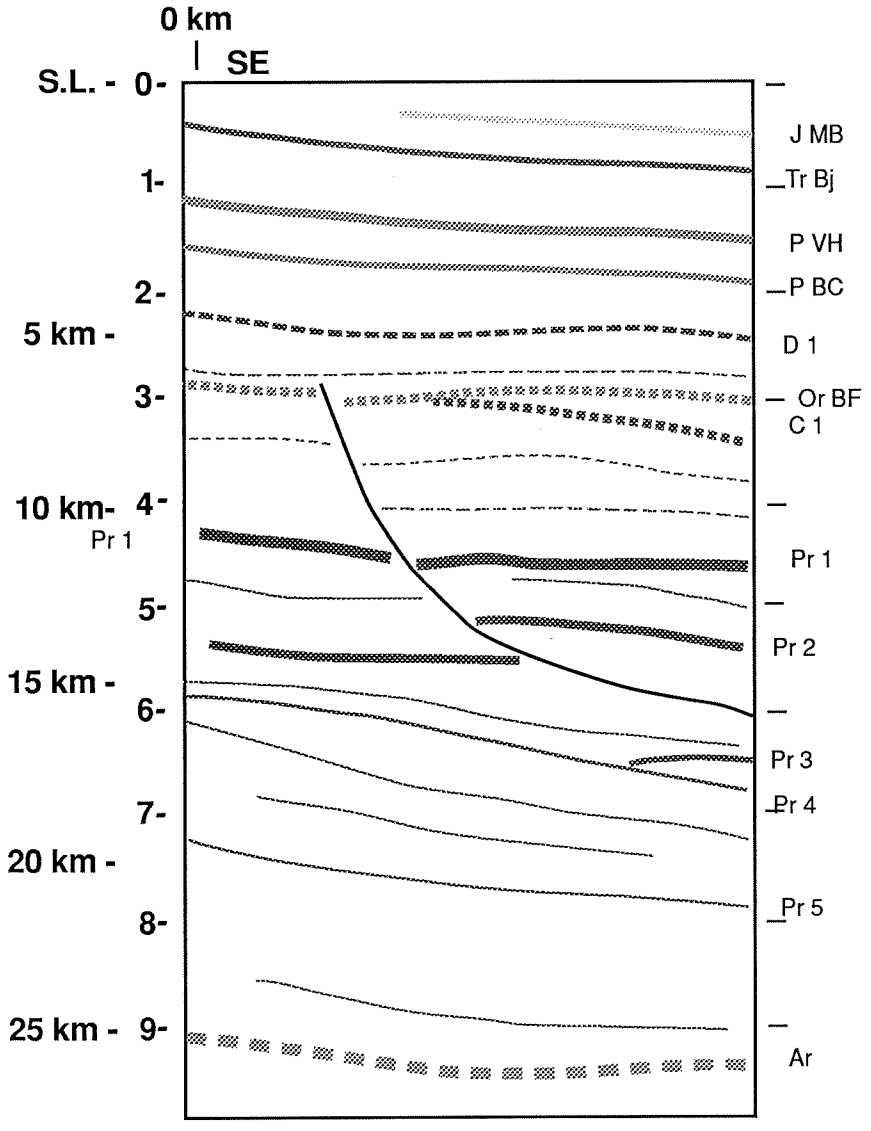
Melville Is. Line 1921/4

U of A - zb/erk

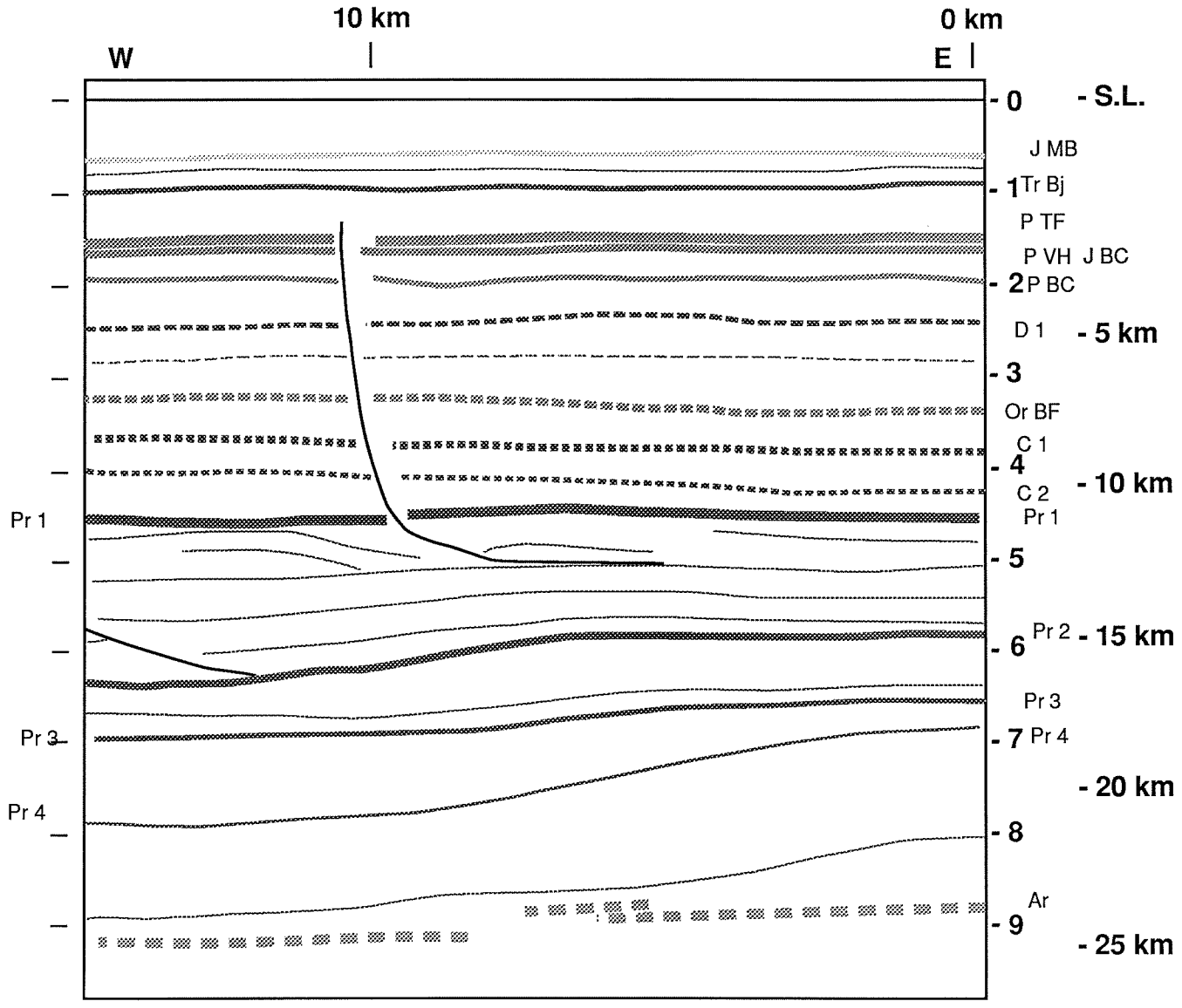


Melville Is. Line 2144/1

U of A - zb/erk

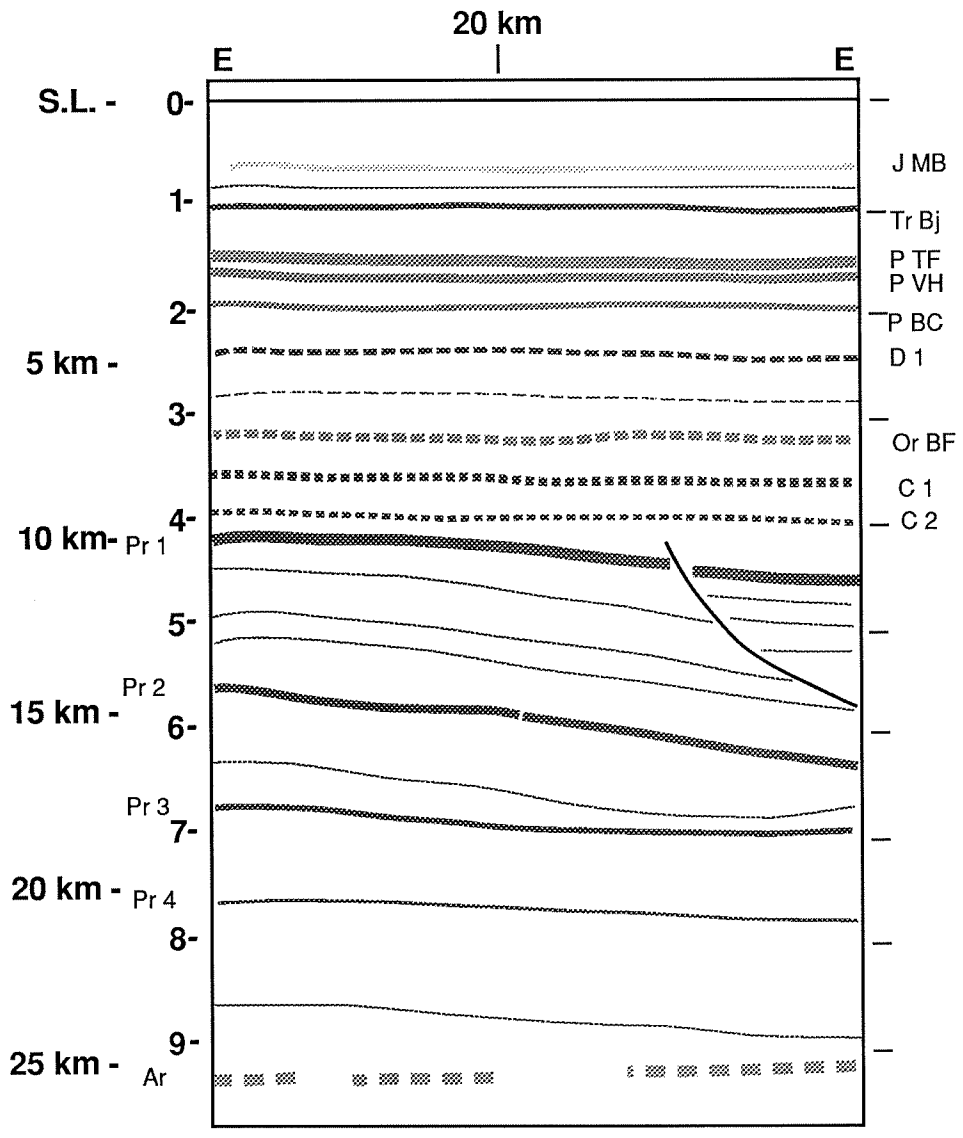


Melville Is. Line 2144/2 U of A - zb/erk

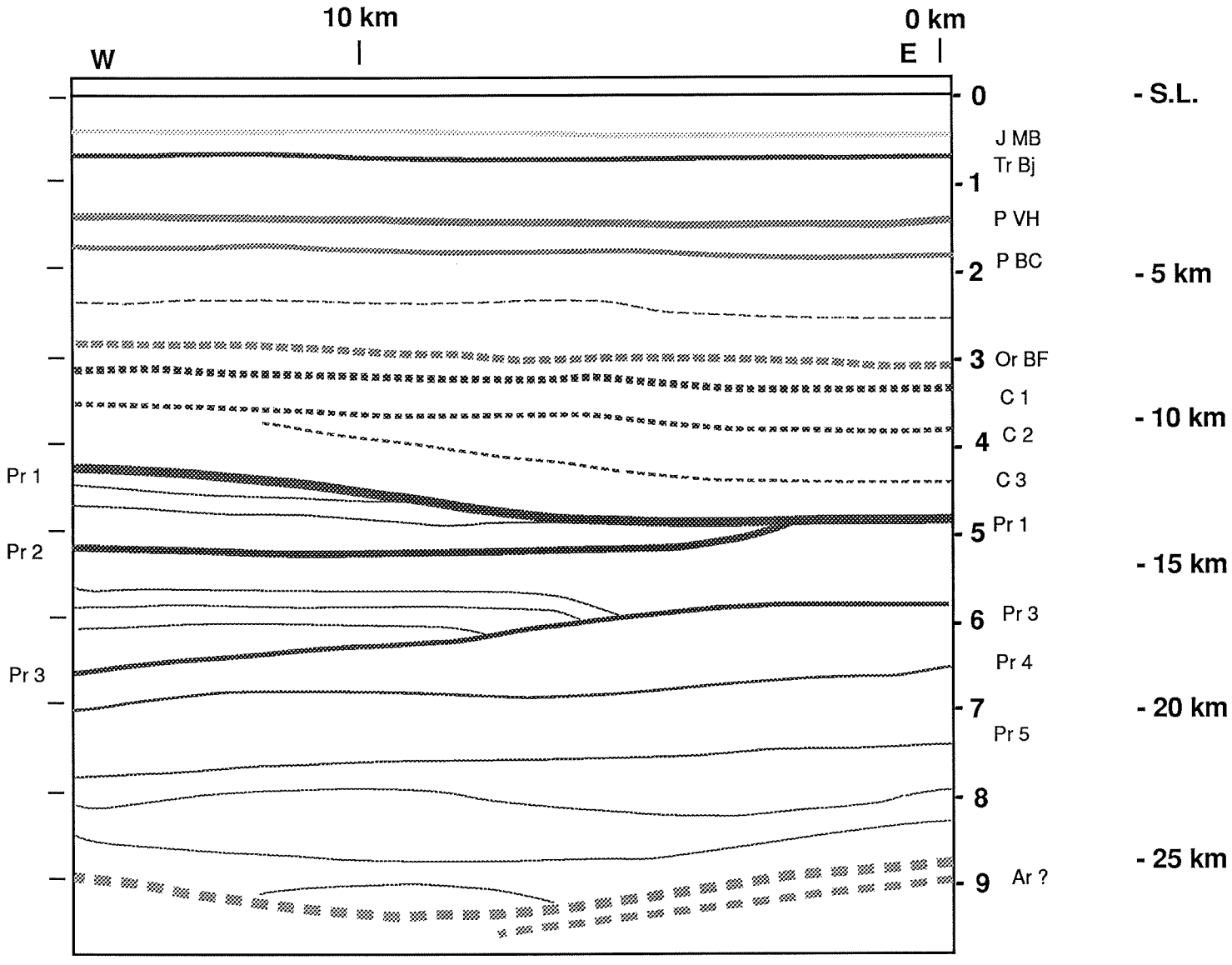


Melville Is. Line 2145/1

U of A - zb/erk

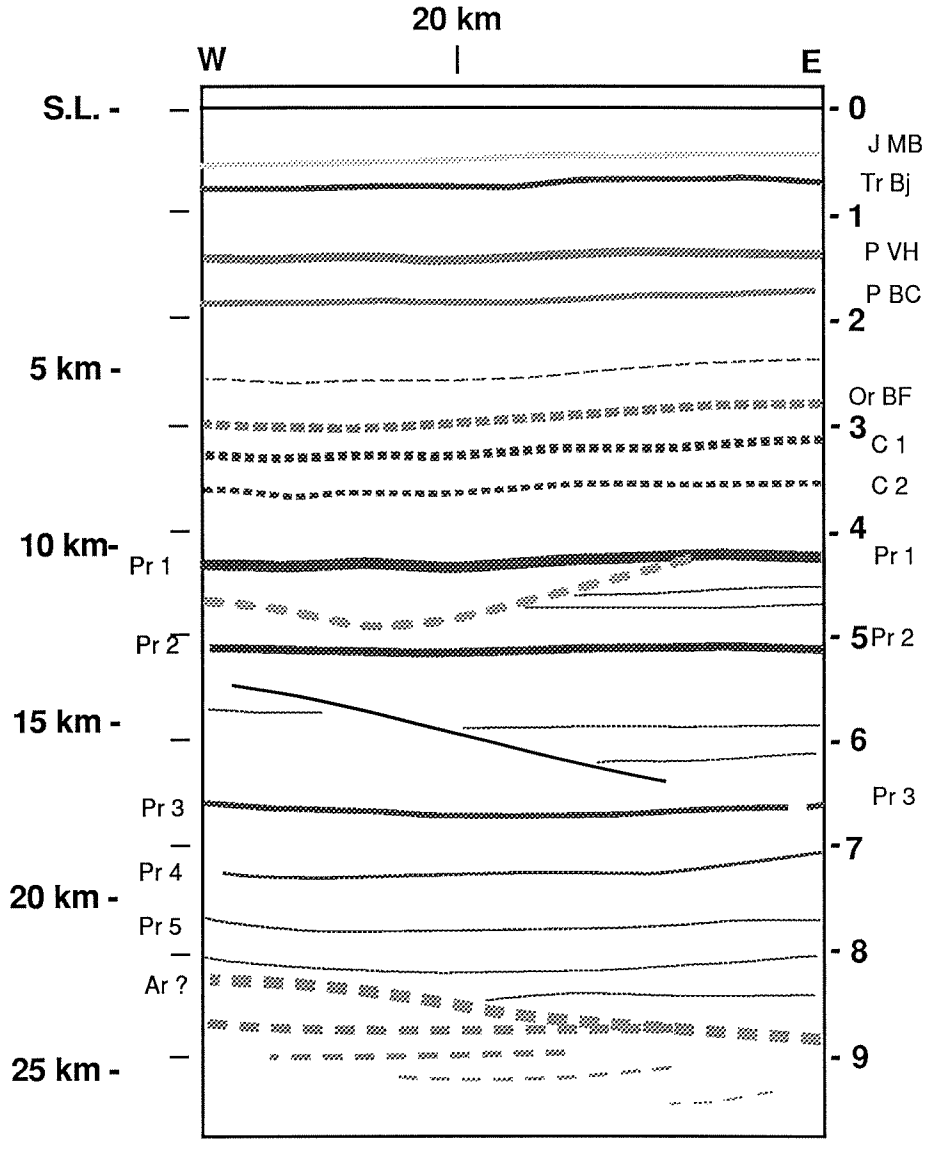


Melville Is. Line 2145/2 U of A - zb/erk

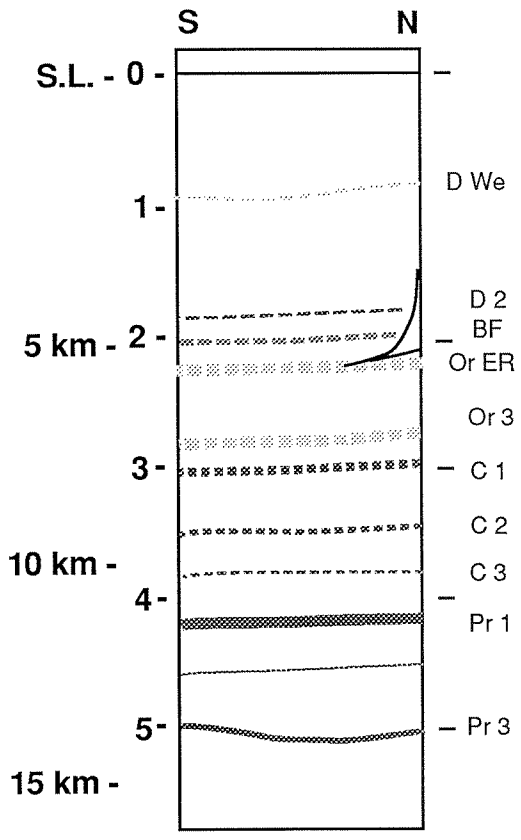


Melville Is. Line 2146/1

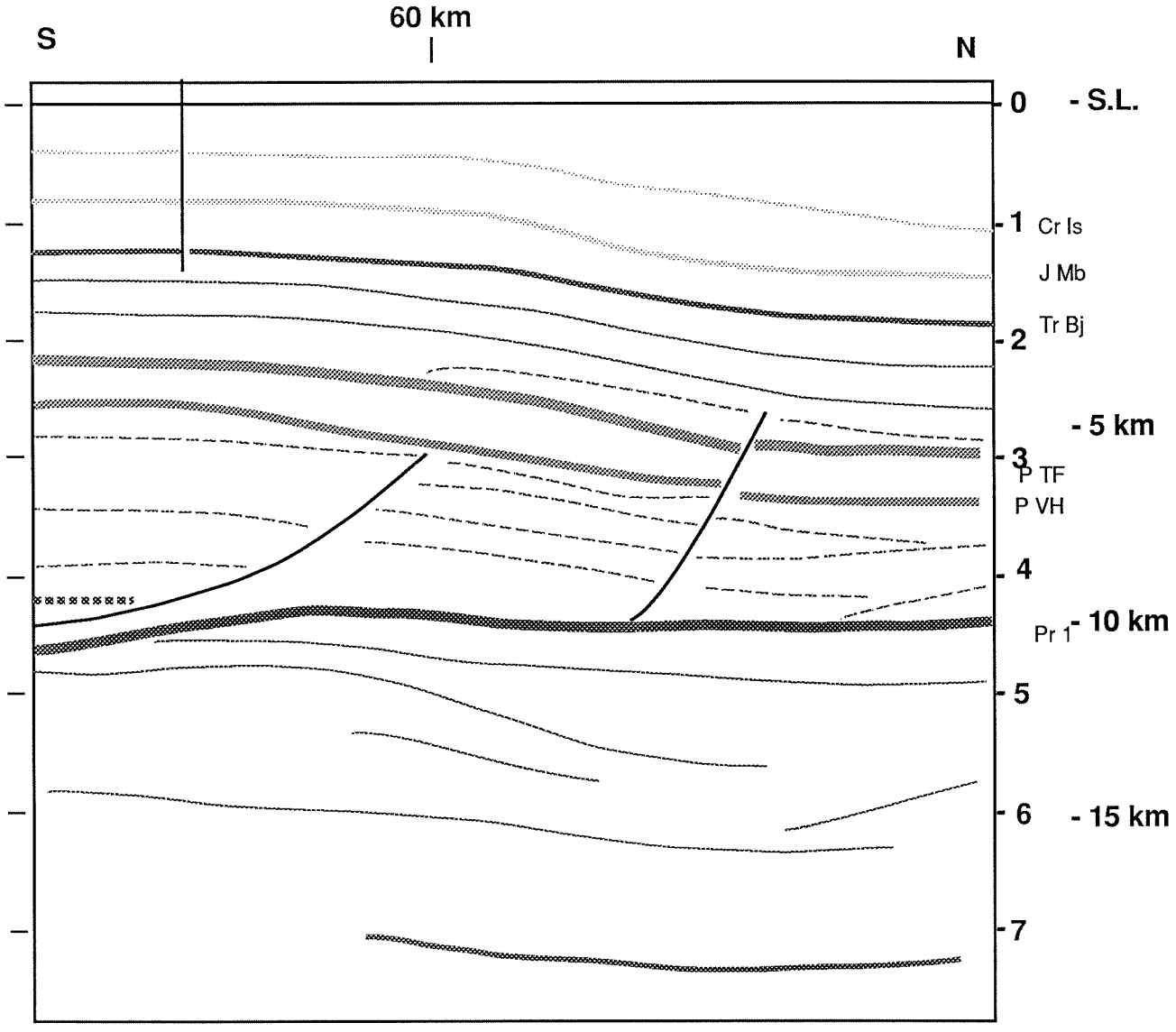
U of A - zb/erk



Melville Is. Line 2146/2 U of A - zb/erk

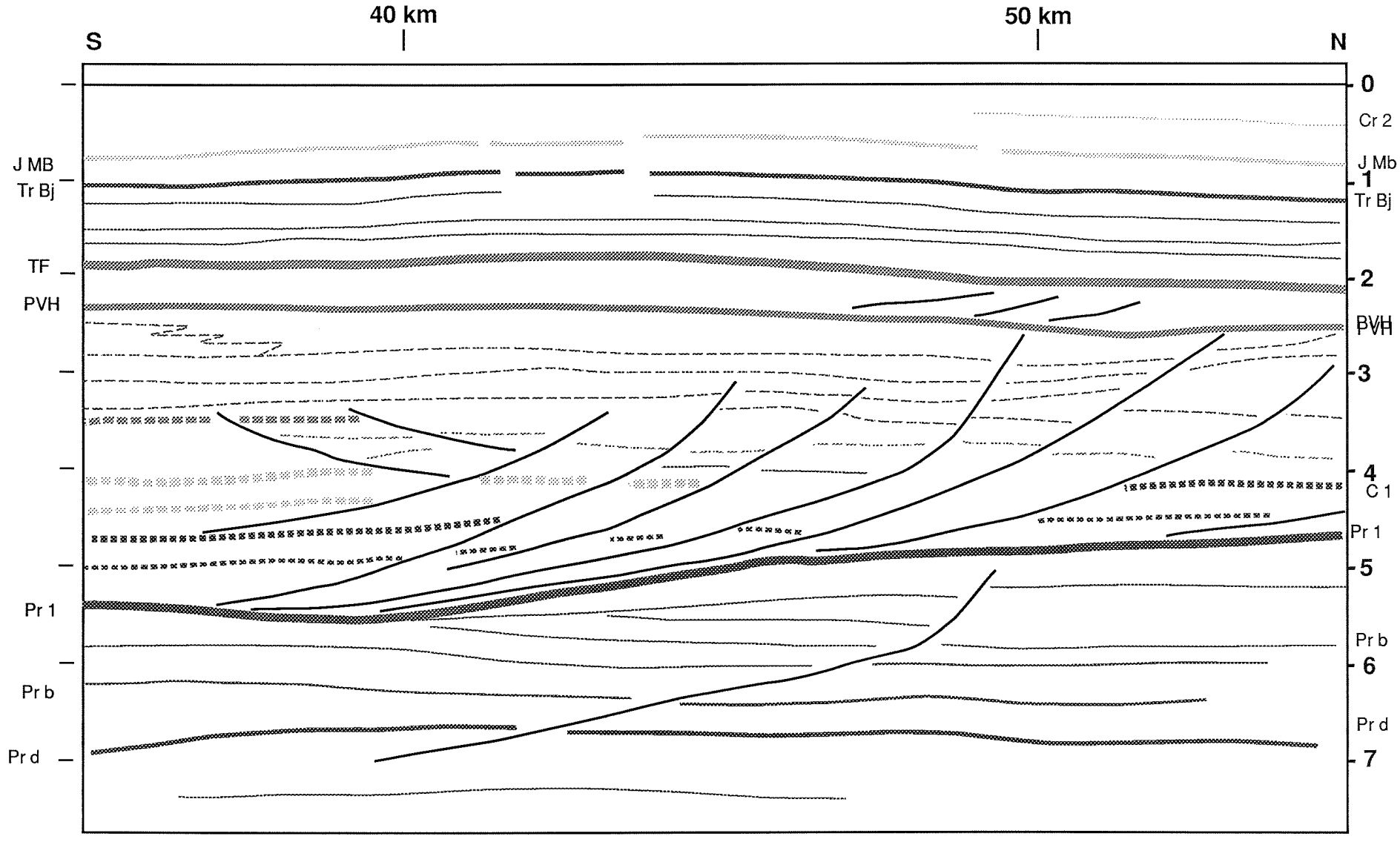


M. TPC 8/2



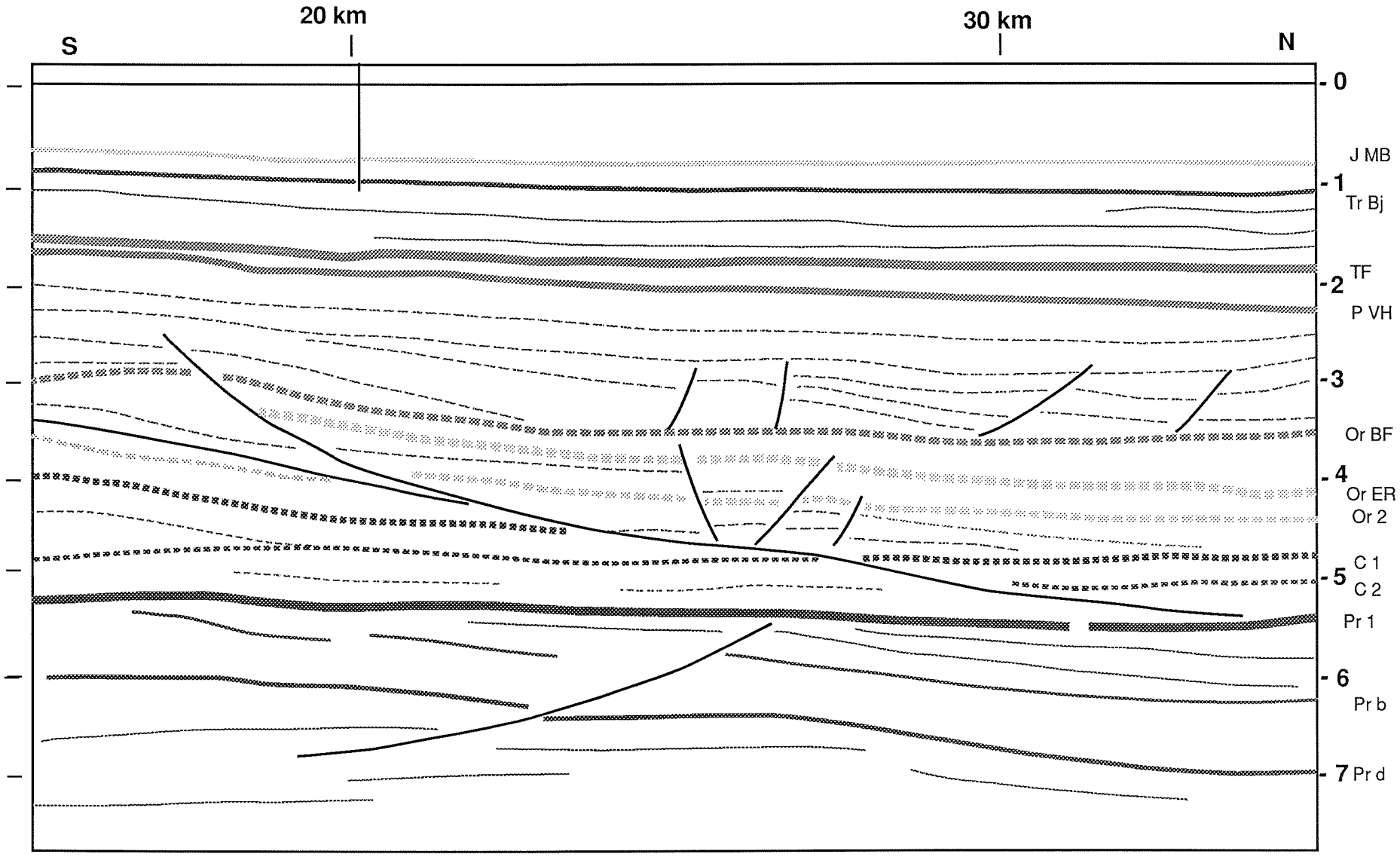
Melville Is. Line 2674/1

U of A - zb.erk



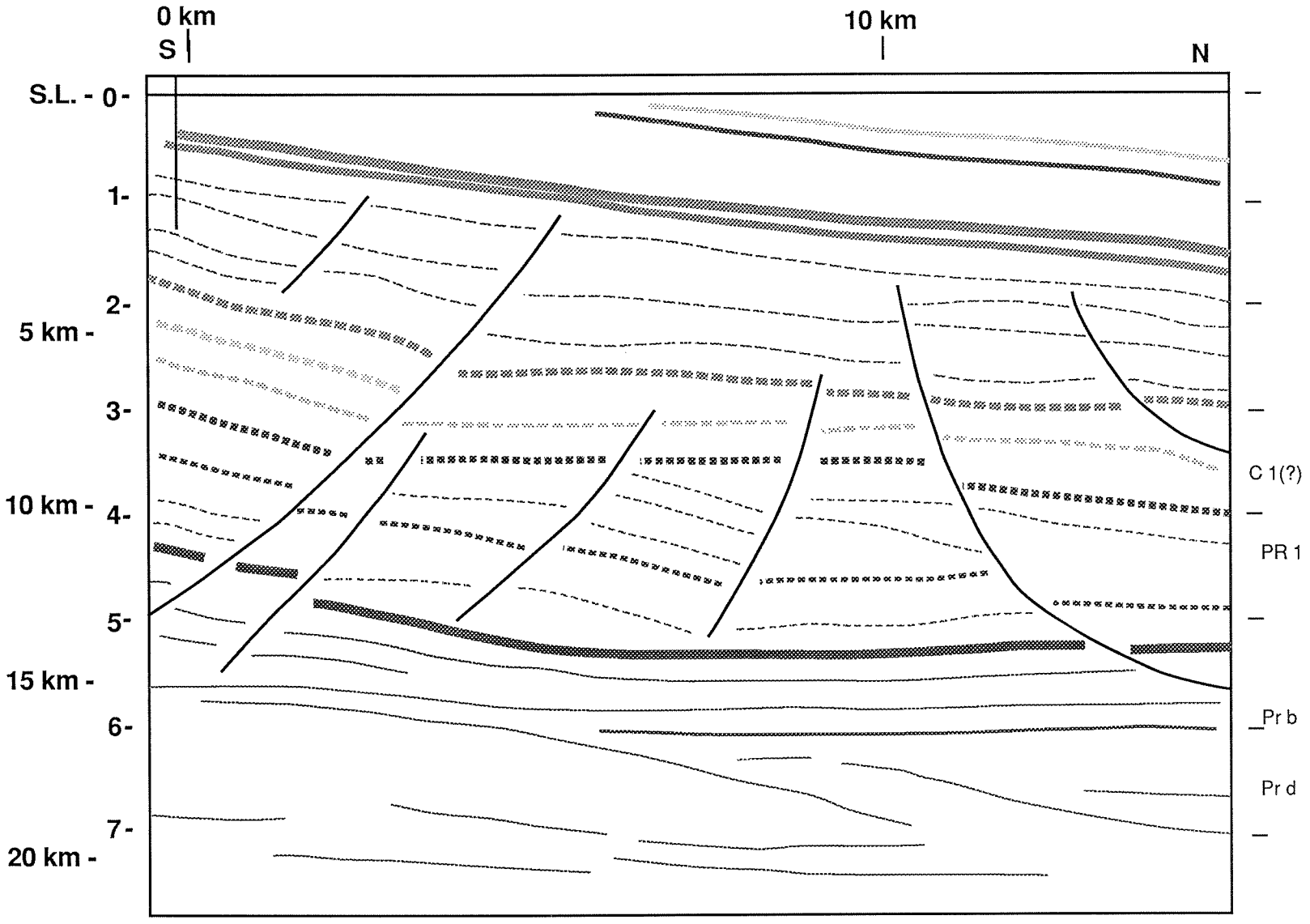
Melville Is. Line 2674/2

U of A - zb/erk



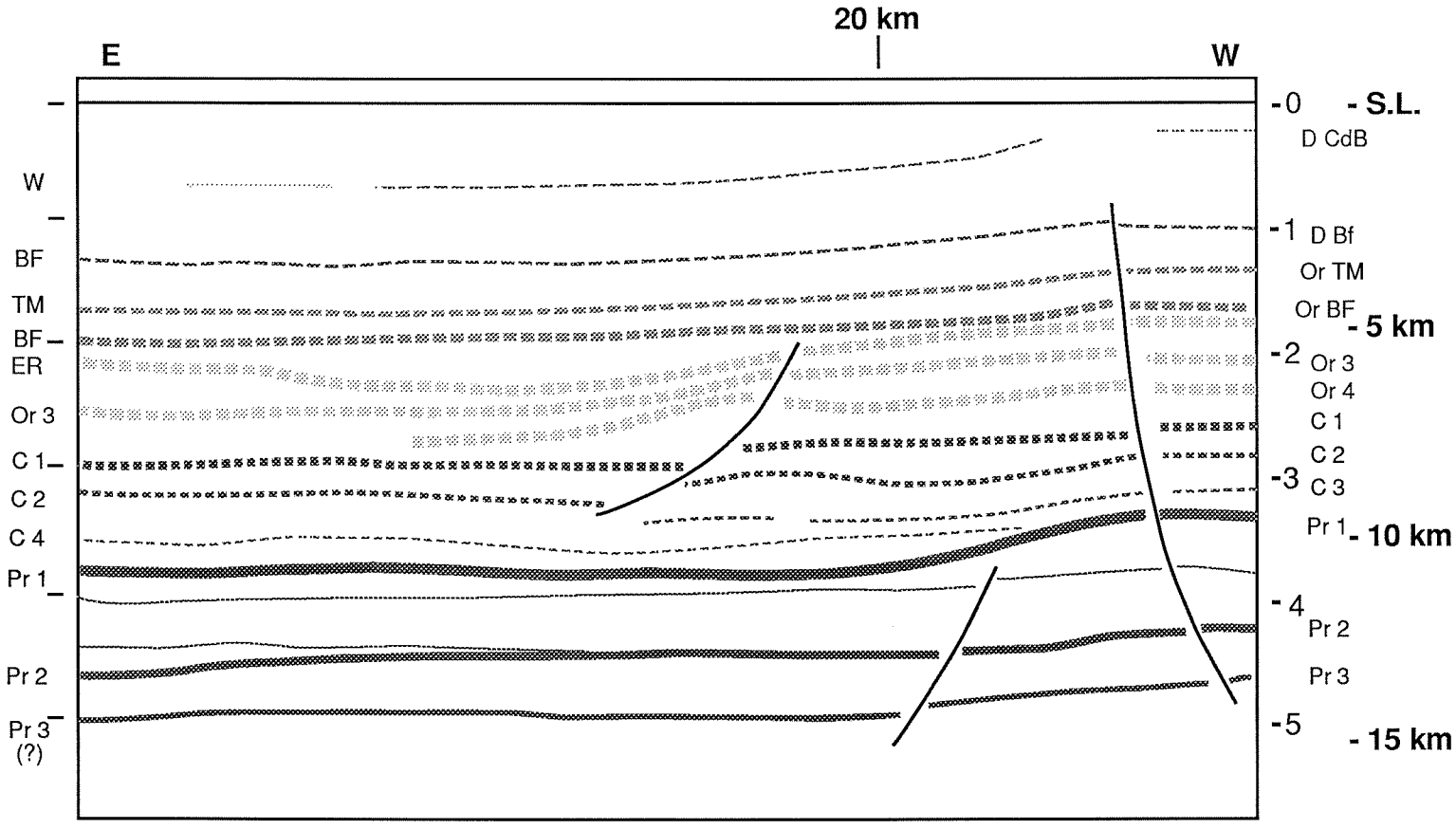
Melville Is. Line 2674/3

U of A - zb/erk



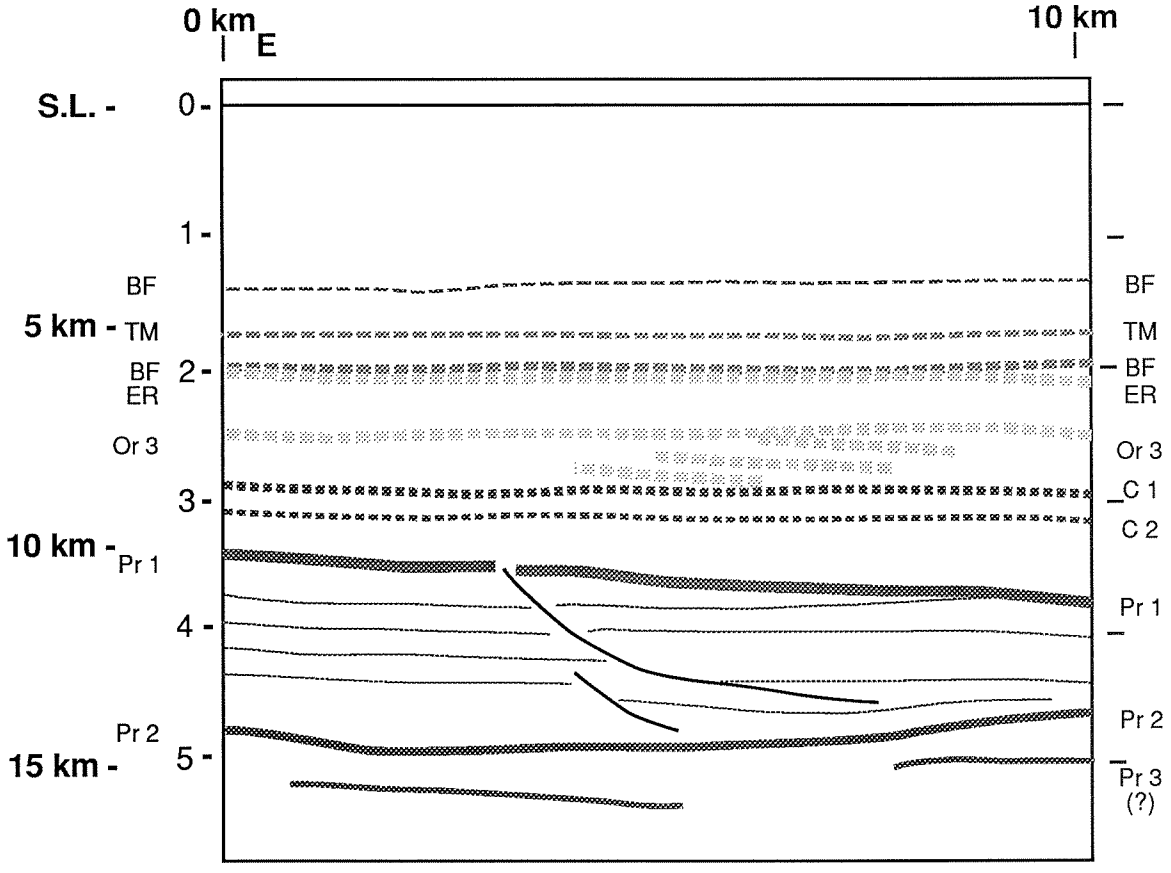
Melville Is. Line 2674/4

U of A - zb/erk



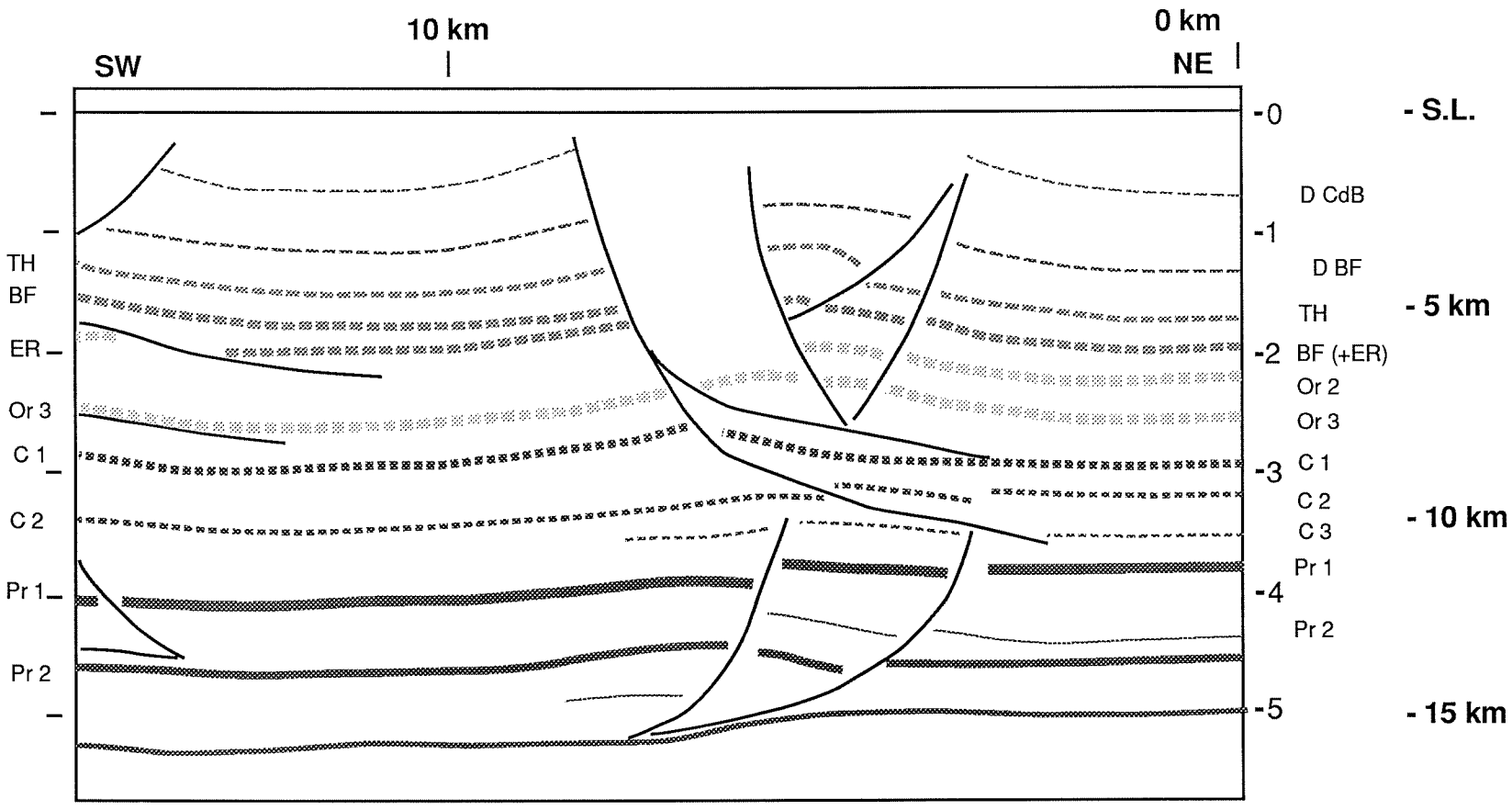
Melville Is. Line TPC2/1

U of A - zb/erk



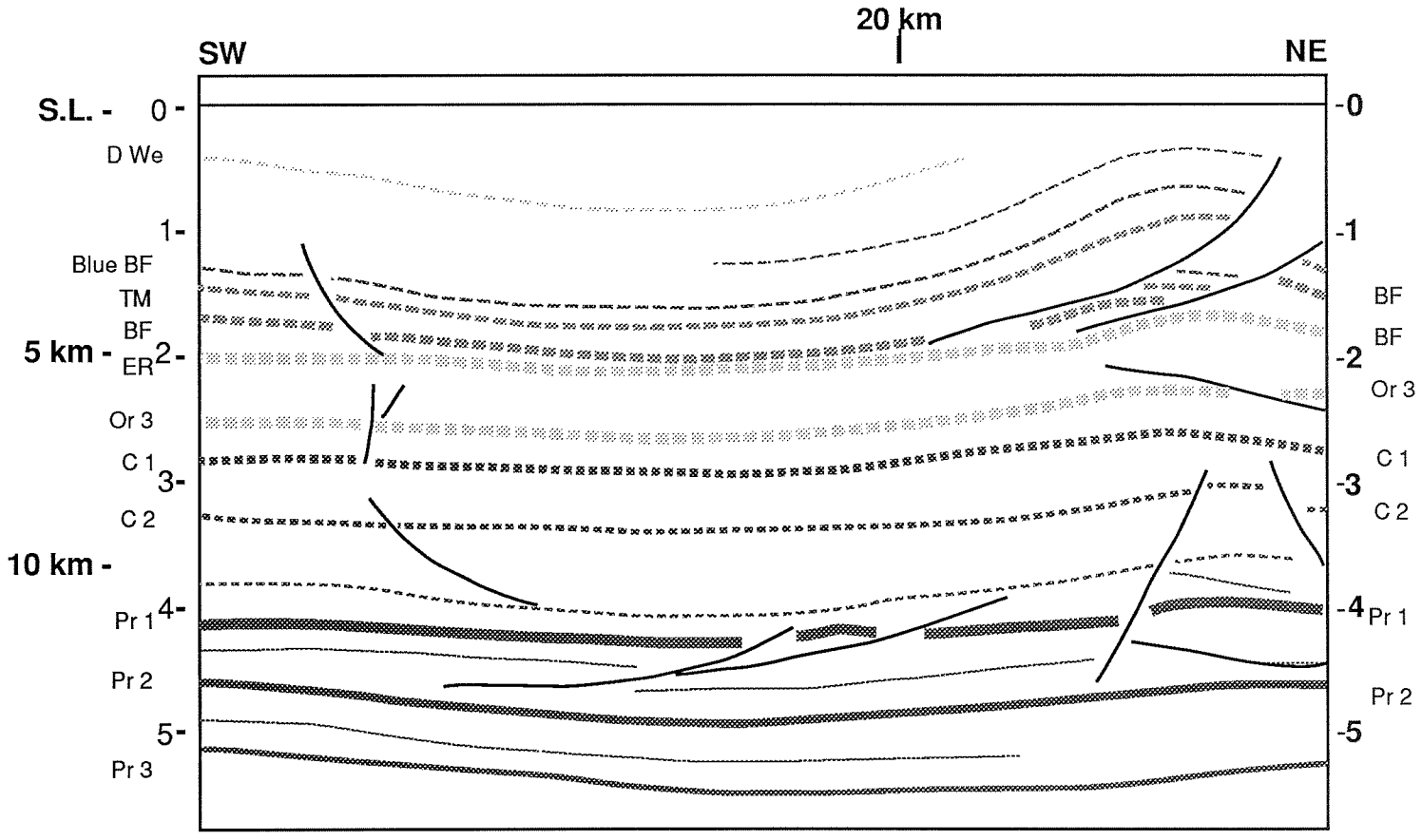
Melville Is. Line TPC2/2

U of A - zb/erk



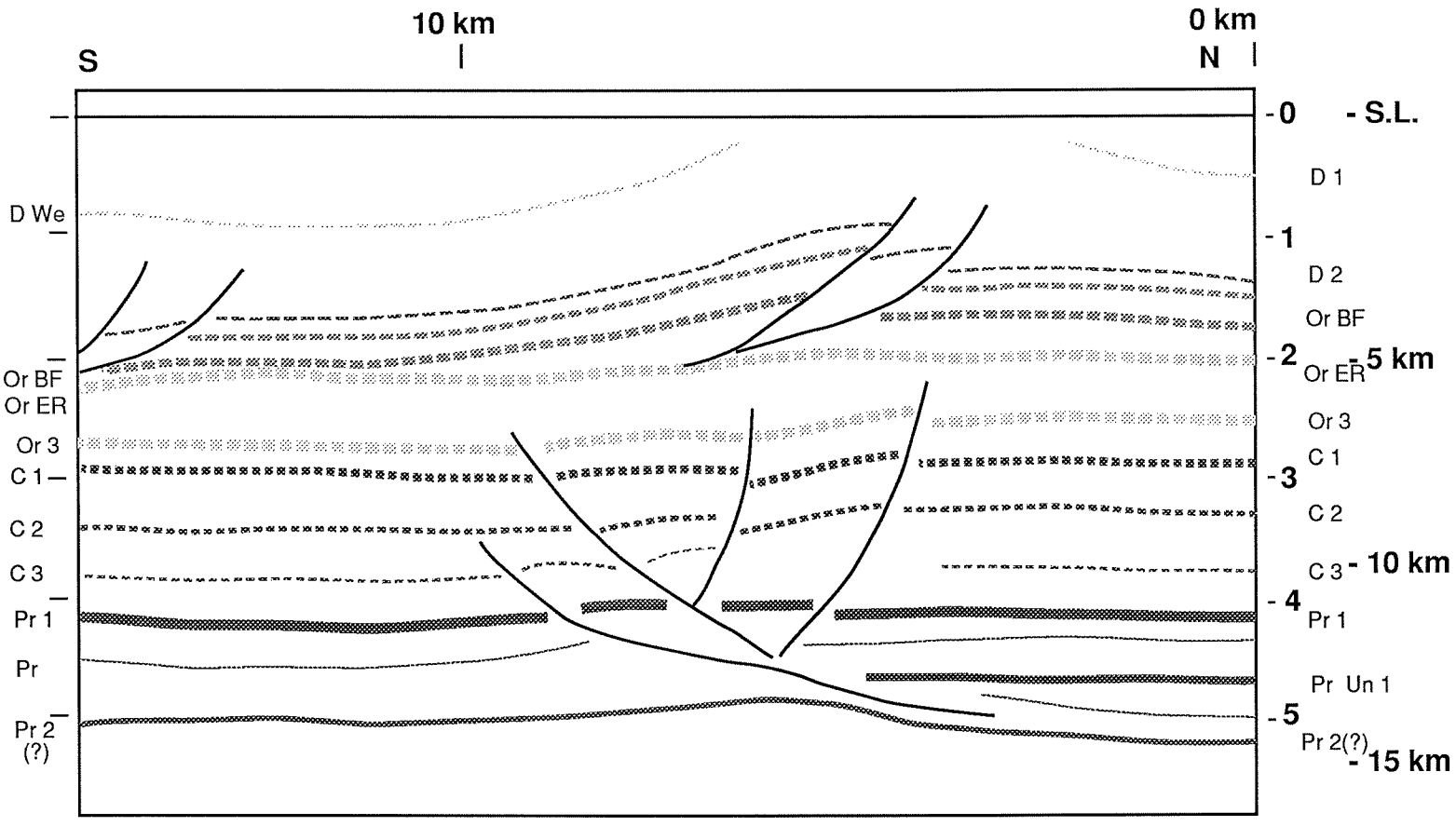
Melville Is. Line TPC7/1

U of A - zb/erk



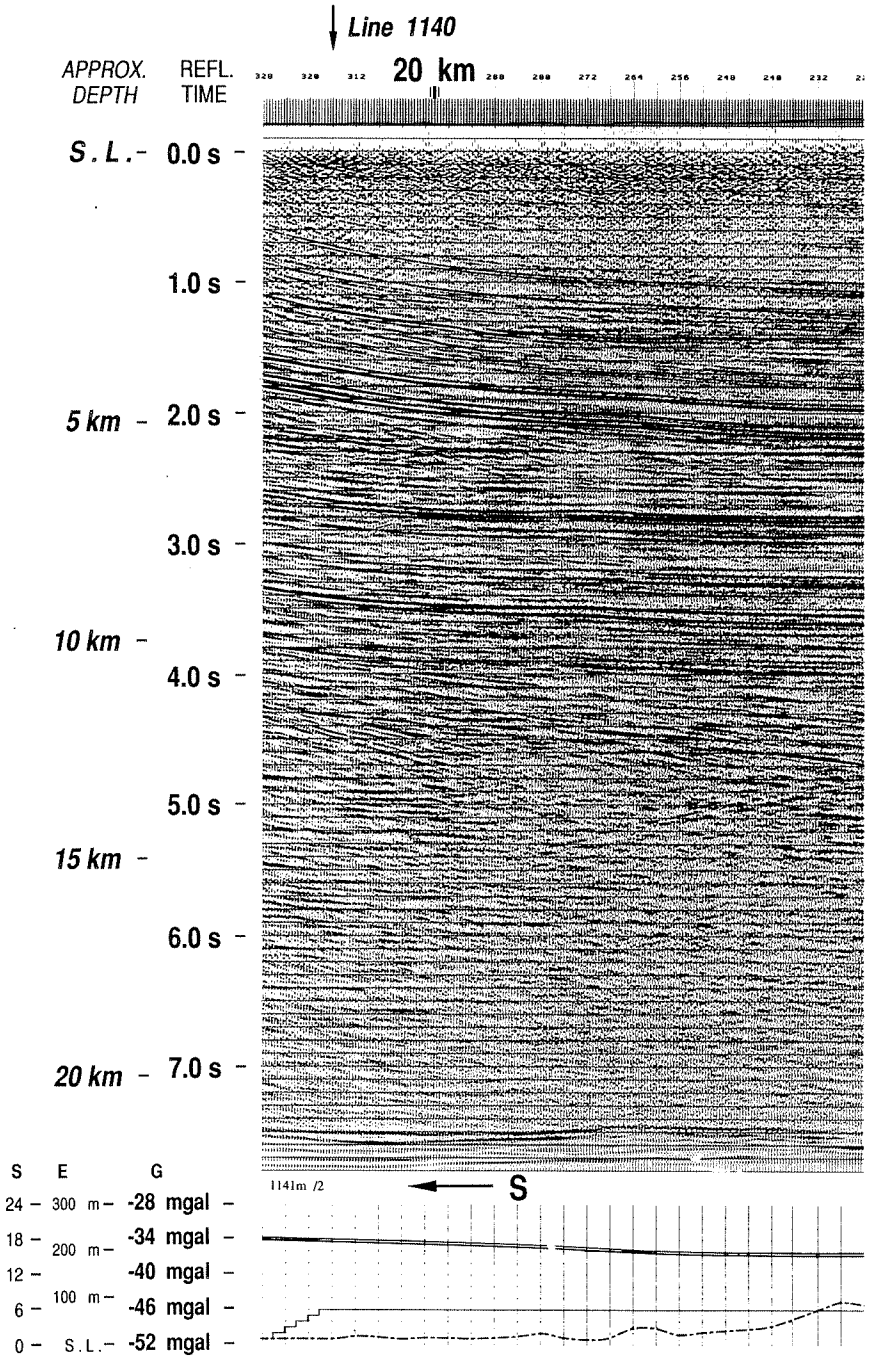
Melville Is. Line TPC7/2

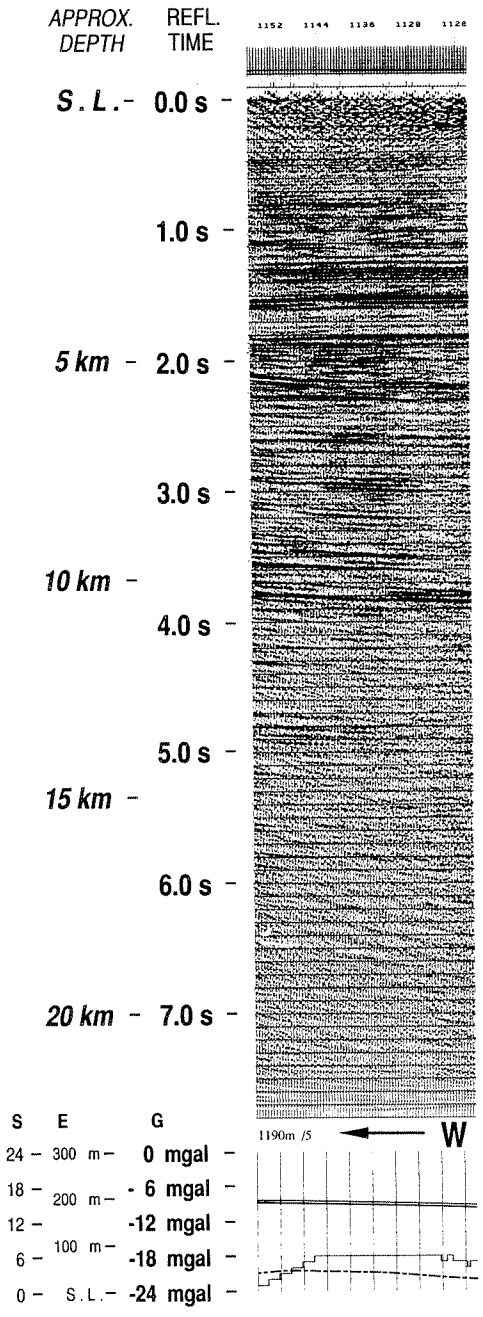
U of A - zb/erk

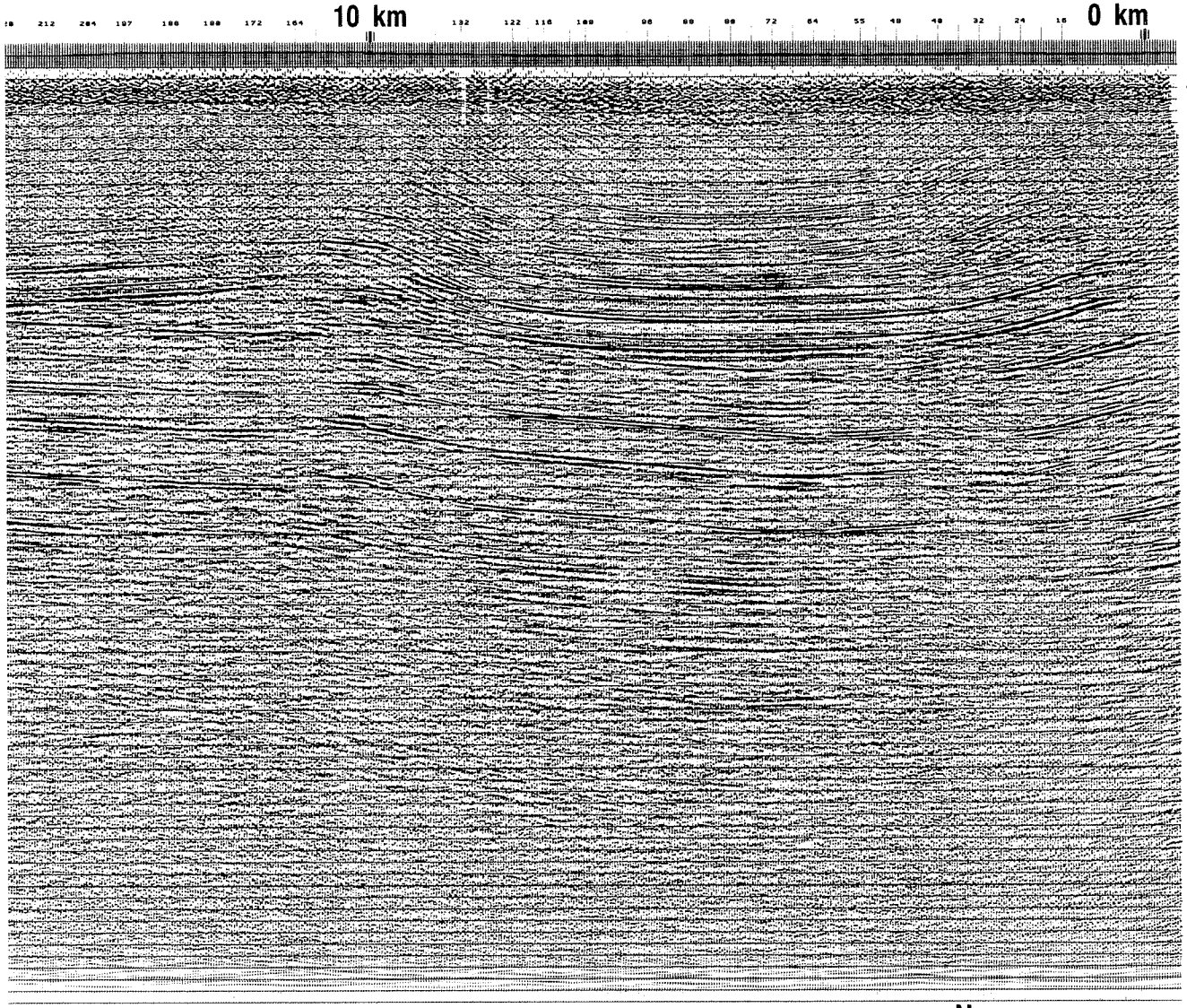


Melville Is. Line TPC-8/1

U of A - zb/erk


Line 1140
APPROX. DEPTH
REFL. TIME
20 km
S.L.- 0.0 s -
1.0 s -
5 km - 2.0 s -
3.0 s -
10 km -
4.0 s -
5.0 s -
15 km -
6.0 s -
20 km - 7.0 s -
S E G
24 - 300 m - -28 mgal -
18 - 200 m - -34 mgal -
12 - -40 mgal -
6 - 100 m - -46 mgal -
0 - S.L.- -52 mgal -
1141m /2
S


APPROX. DEPTH
REFL. TIME
1152 1144 1136 1128 1120
S.L.- 0.0 s -
1.0 s -
5 km - 2.0 s -
3.0 s -
10 km -
4.0 s -
5.0 s -
15 km -
6.0 s -
20 km - 7.0 s -
S E G
24 - 300 m - 0 mgal -
18 - 200 m - - 6 mgal -
12 - -12 mgal -
6 - 100 m - -18 mgal -
0 - S.L.- -24 mgal -
1190m /5
W



REFL. TIME

APPROX. DEPTH

-0.0 s - S.L.

-1.0 s

-2.0 s - 5 km

-3.0 s

-4.0 s -10 km

-5.0 s

-15 km

-6.0 s

-7.0 s -20 km

MELVILLE ISLAND, CANADA

Line No.: 1762

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1975
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution:	
Operator length:	120 ms
Prewhitening:	5 %
Filter, time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

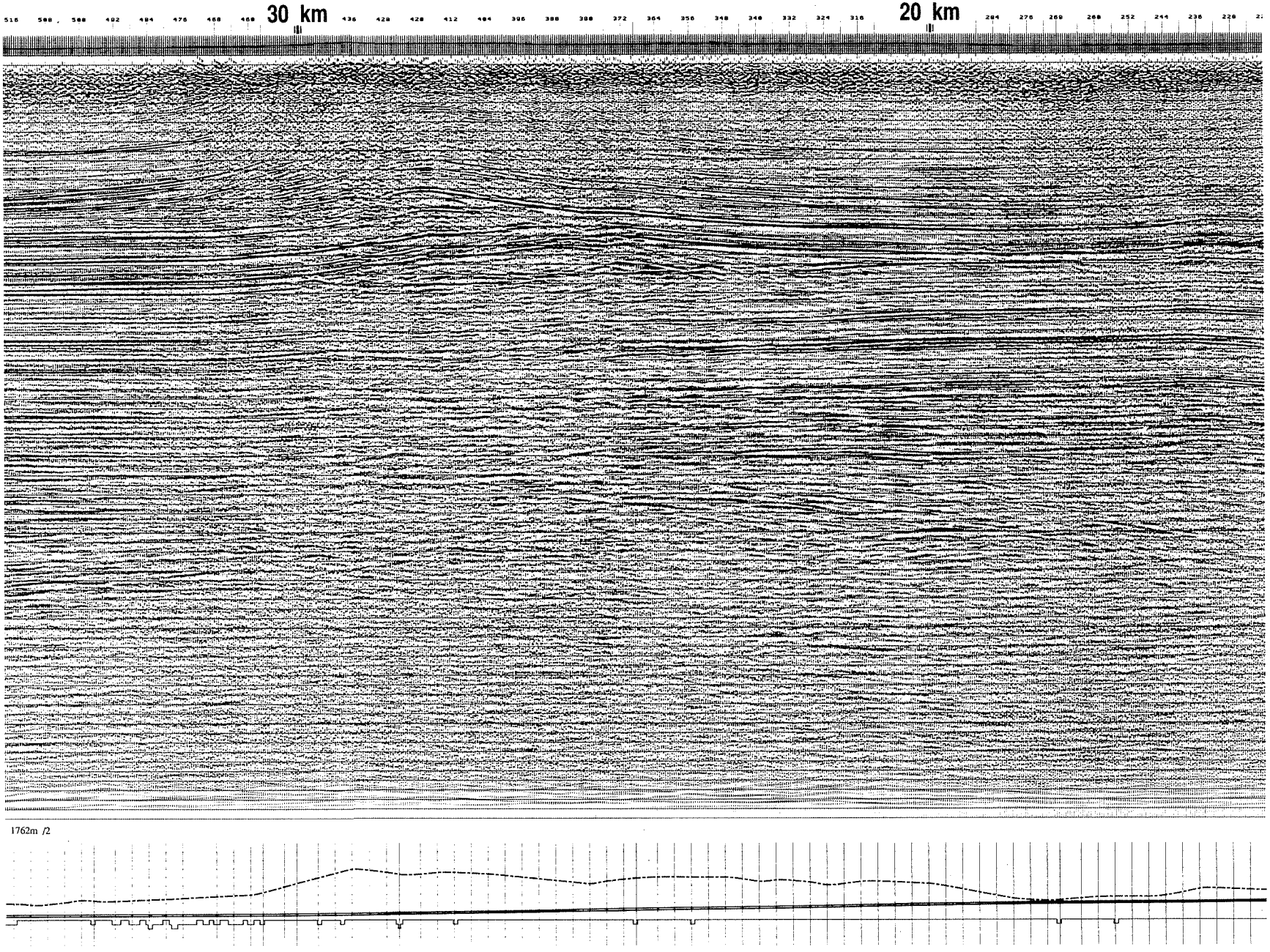
Interpretation:

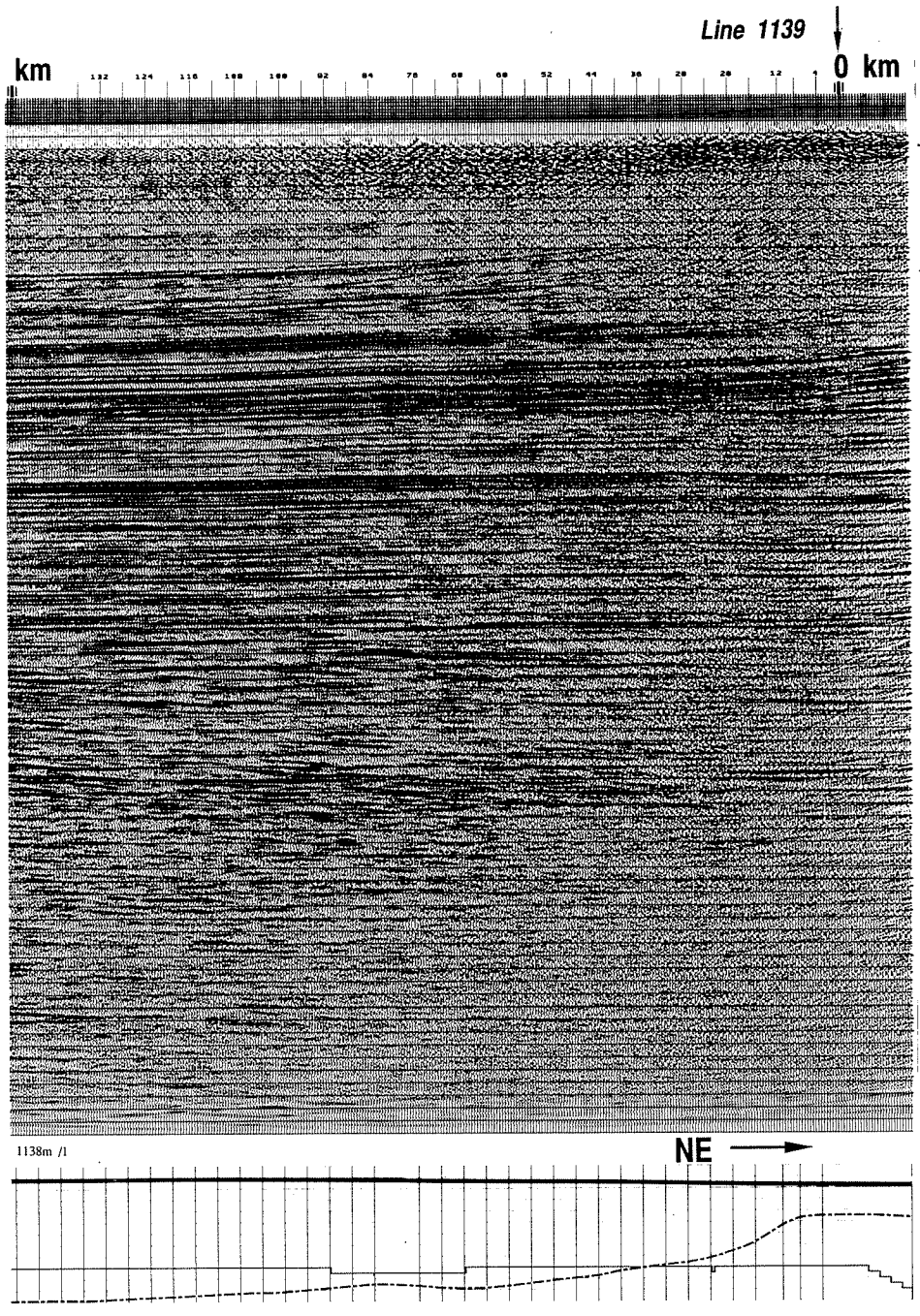
E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

1762m /1

N

G	E	S
-14 mgal	-300 m	- 24
-20 mgal	-200 m	- 18
-26 mgal		- 12
-32 mgal	-100 m	- 6
-38 mgal	-S.L.	- 0


30 km
20 km
1762m /2



MELVILLE ISLAND, CANADA

Line No.: **1138**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

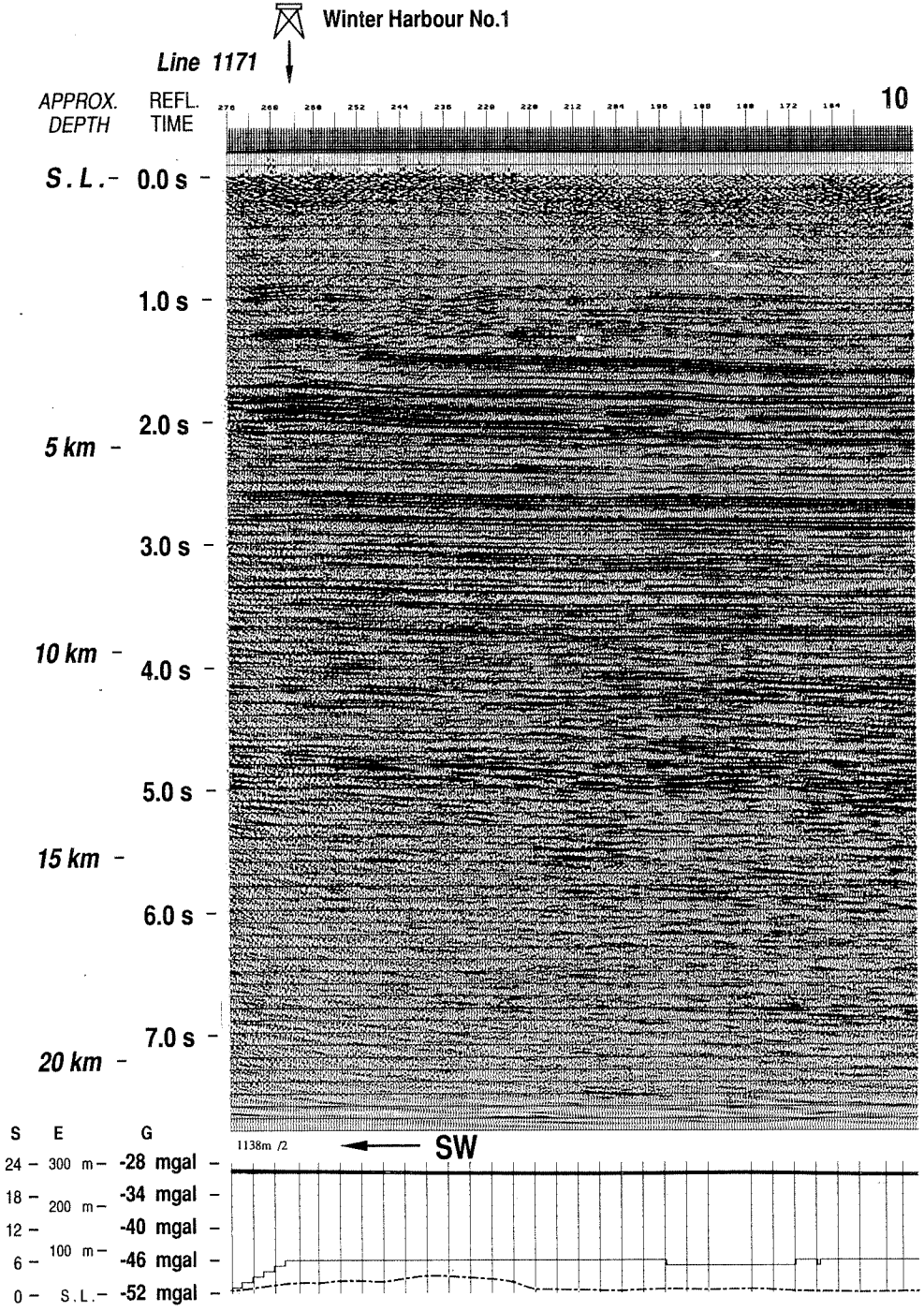
Processing parameters:

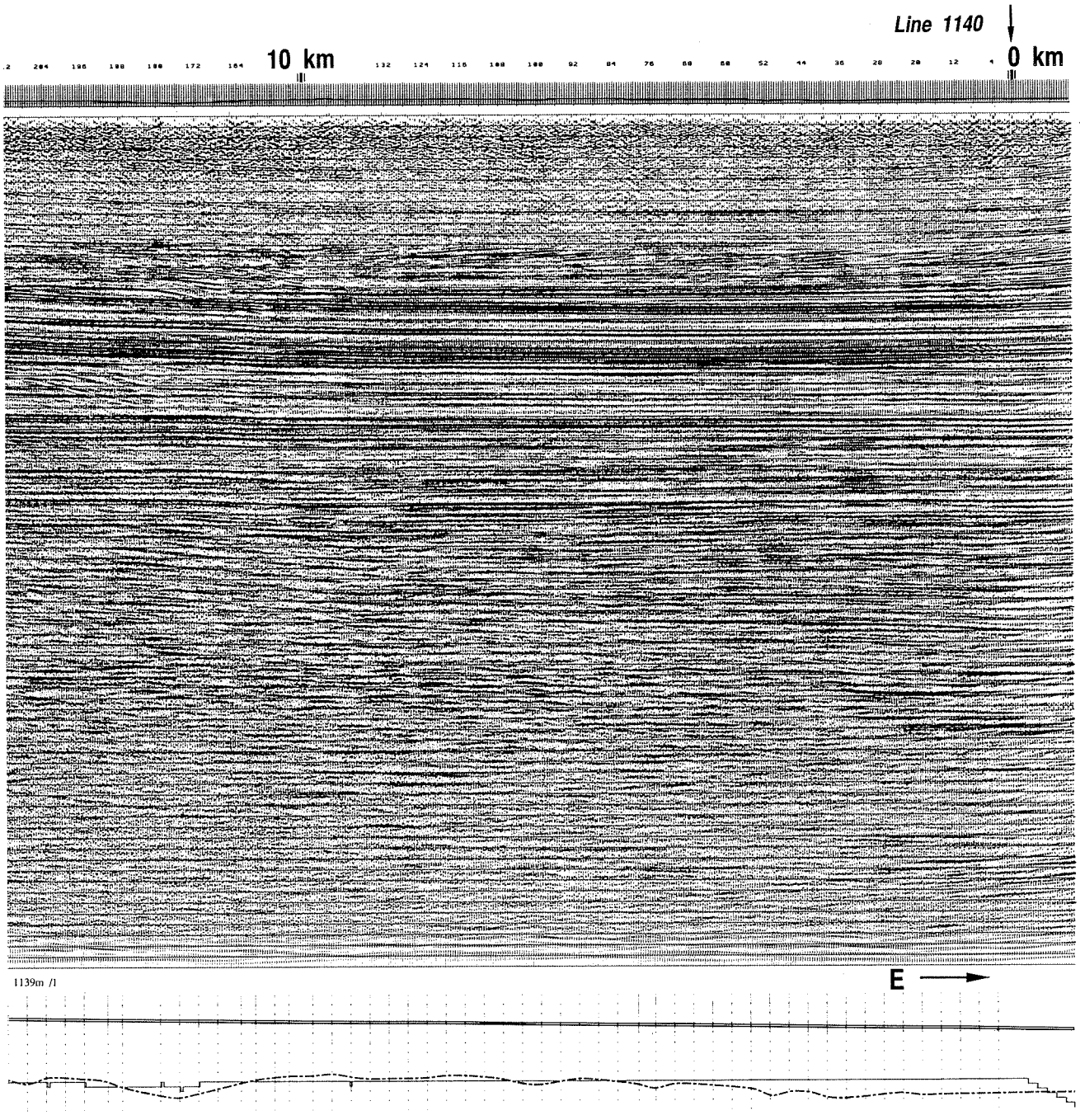
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Winter Harbour No.1
Line 1171
10
APPROX. DEPTH
REFL. TIME
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
S E G
1138m /2
SW
24 300 m -28 mgal
18 200 m -34 mgal
12 -40 mgal
6 100 m -46 mgal
0 S.L. -52 mgal



REFL. TIME | APPROX. DEPTH

-0.0 s — S.L.
-1.0 s
-2.0 s — 5 km
-3.0 s
-10 km
-4.0 s
-5.0 s
-15 km
-6.0 s
-7.0 s
-20 km

G	E	S
-28 mgal	300 m	24
-34 mgal	200 m	18
-40 mgal		12
-46 mgal	100 m	6
-52 mgal	S.L.	0

MELVILLE ISLAND, CANADA

Line No.: **1139**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

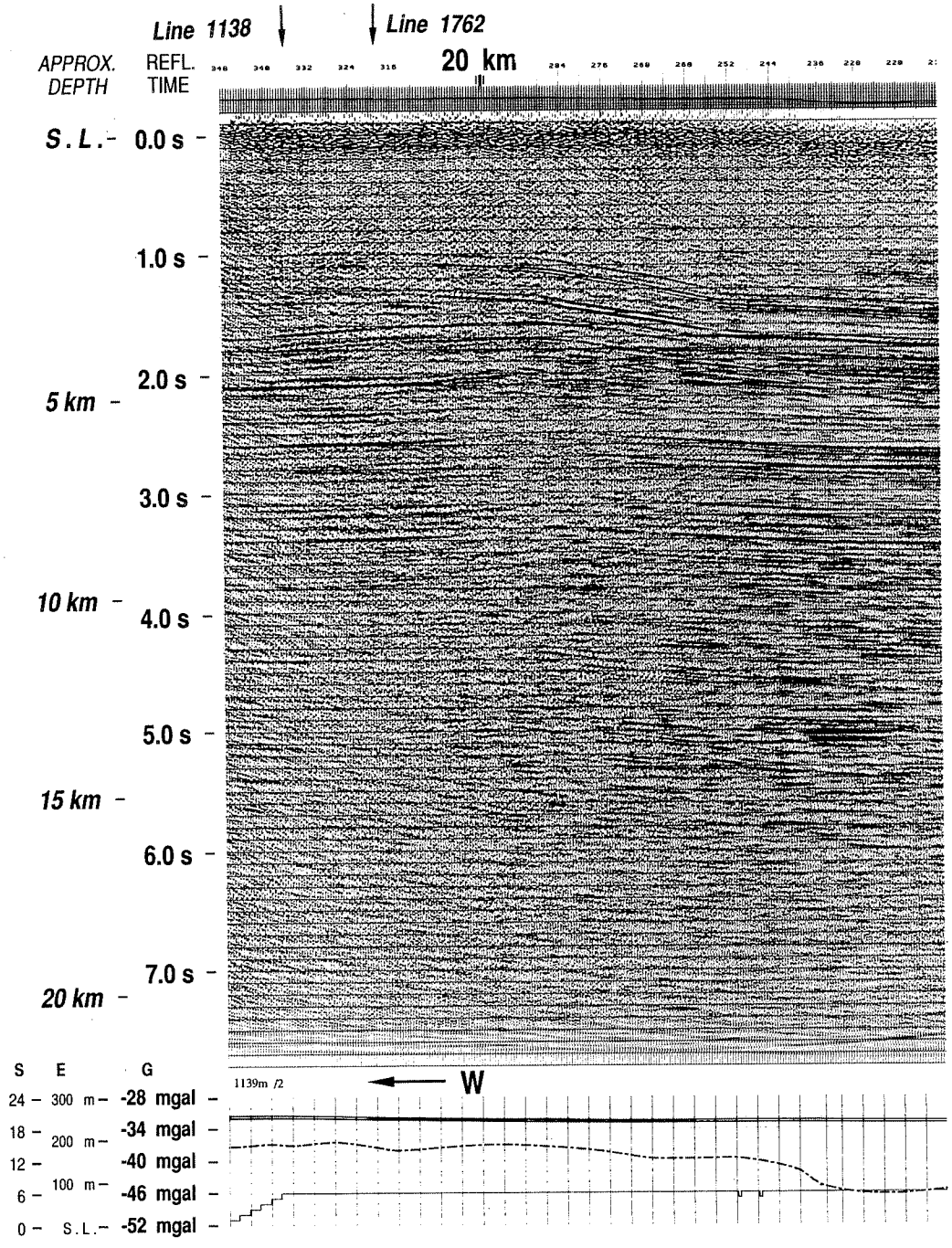
Processing parameters:

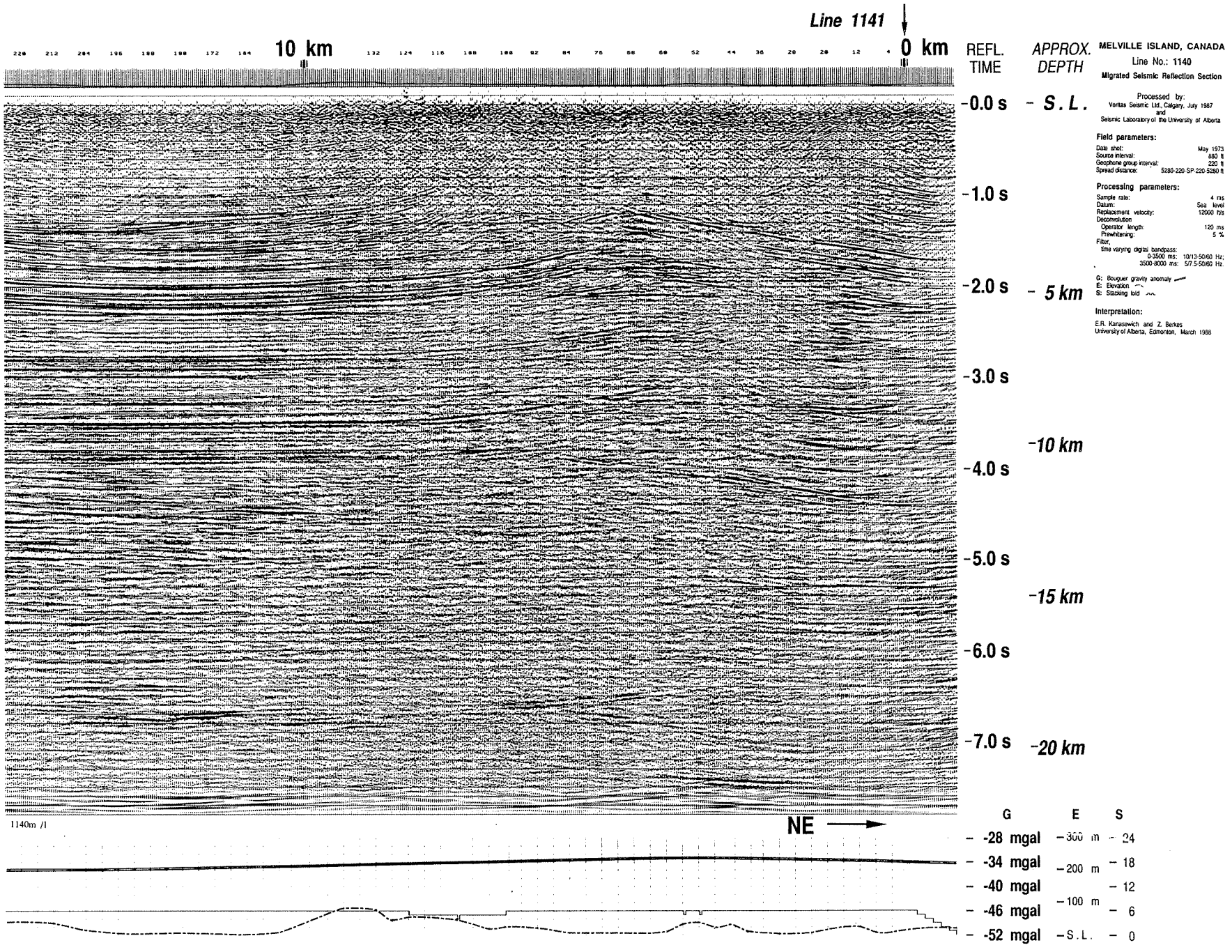
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 1138
Line 1762
APPROX. DEPTH
REFL. TIME
20 km
S.L.
0.0 s
1.0 s
2.0 s
5 km
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
S E G
24 300 m -28 mgal
18 200 m -34 mgal
12 -40 mgal
6 100 m -46 mgal
0 S.L. -52 mgal
1139m /2
W



MELVILLE ISLAND, CANADA
Line No.: 1140
Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

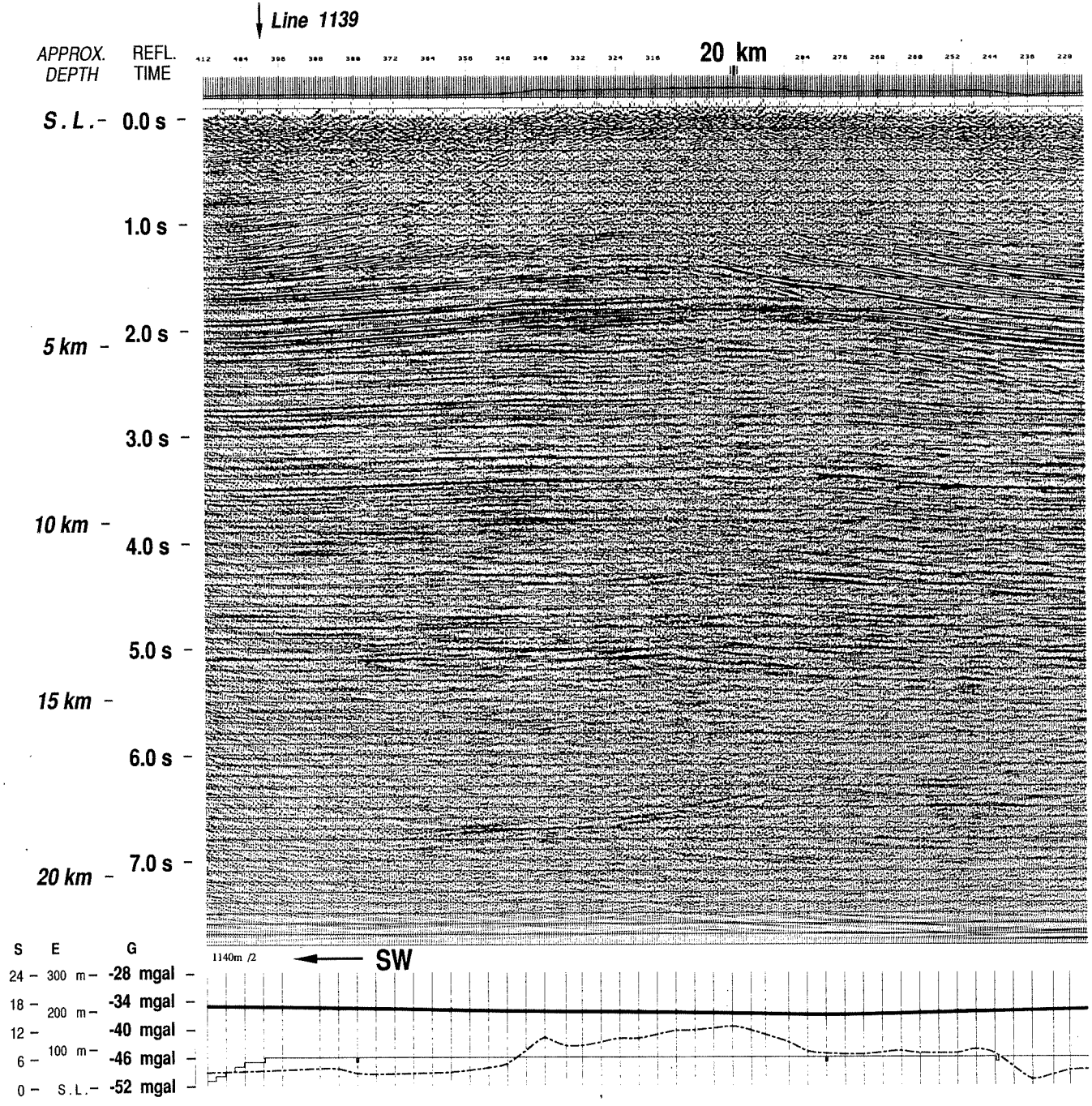
Processing parameters:

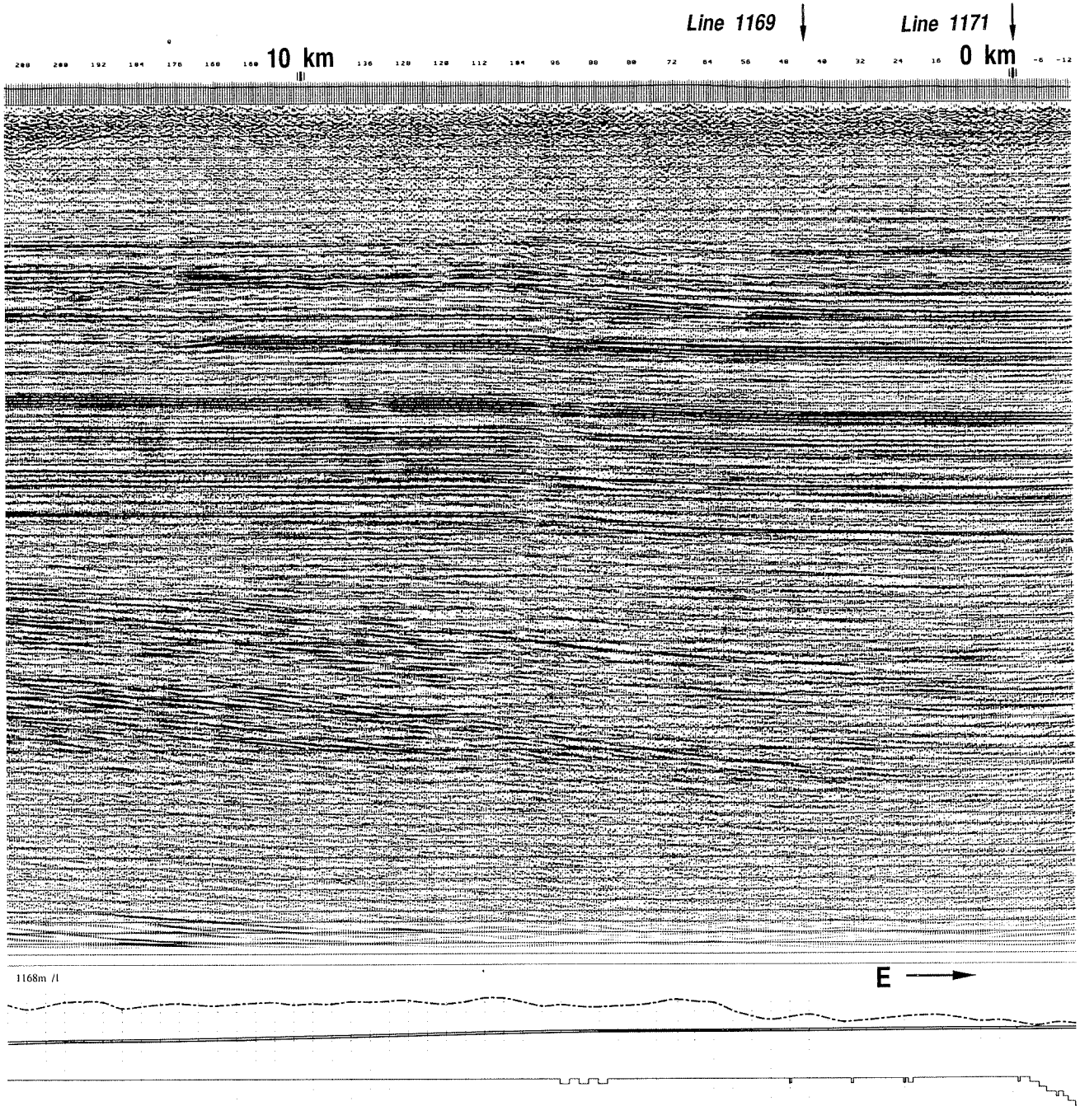
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 1139
APPROX. DEPTH
REFL. TIME
20 km
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
E
G
24
300 m
-28 mgal
18
200 m
-34 mgal
12
-40 mgal
6
100 m
-46 mgal
0
S.L.
-52 mgal
1140m /2
SW



MELVILLE ISLAND, CANADA

Line No.: **1168**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

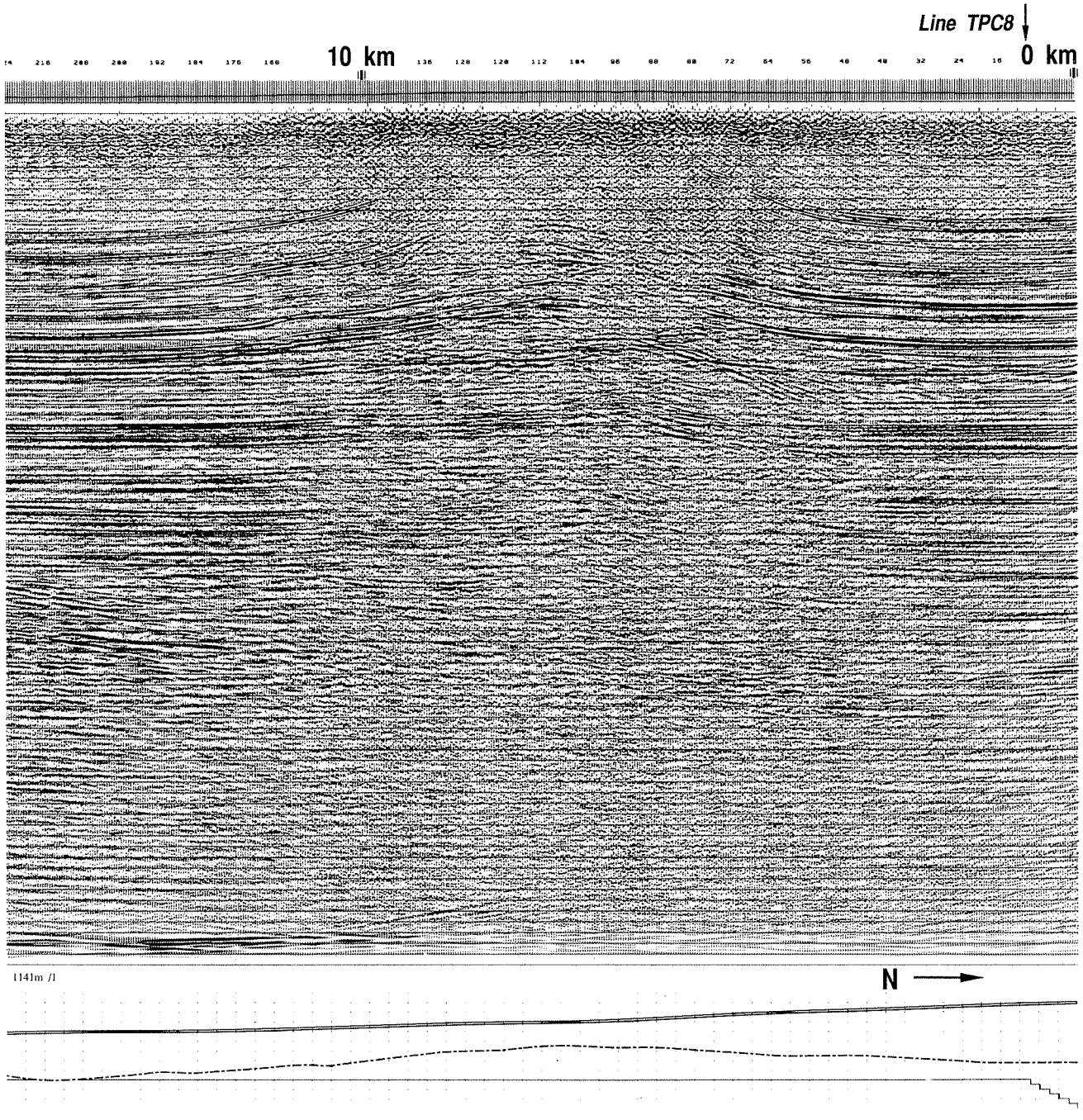
Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988



REFL. TIME | APPROX. DEPTH

-0.0 s - S.L.
-1.0 s
-2.0 s - 5 km
-3.0 s
-10 km
-4.0 s
-5.0 s
-15 km
-6.0 s
-7.0 s -20 km

G	E	S
- -28 mgal	-300 m	- 24
- -34 mgal	-200 m	- 18
- -40 mgal		- 12
- -46 mgal	-100 m	- 6
- -52 mgal	-S.L.	- 0

MELVILLE ISLAND, CANADA

Line No.: **1141**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

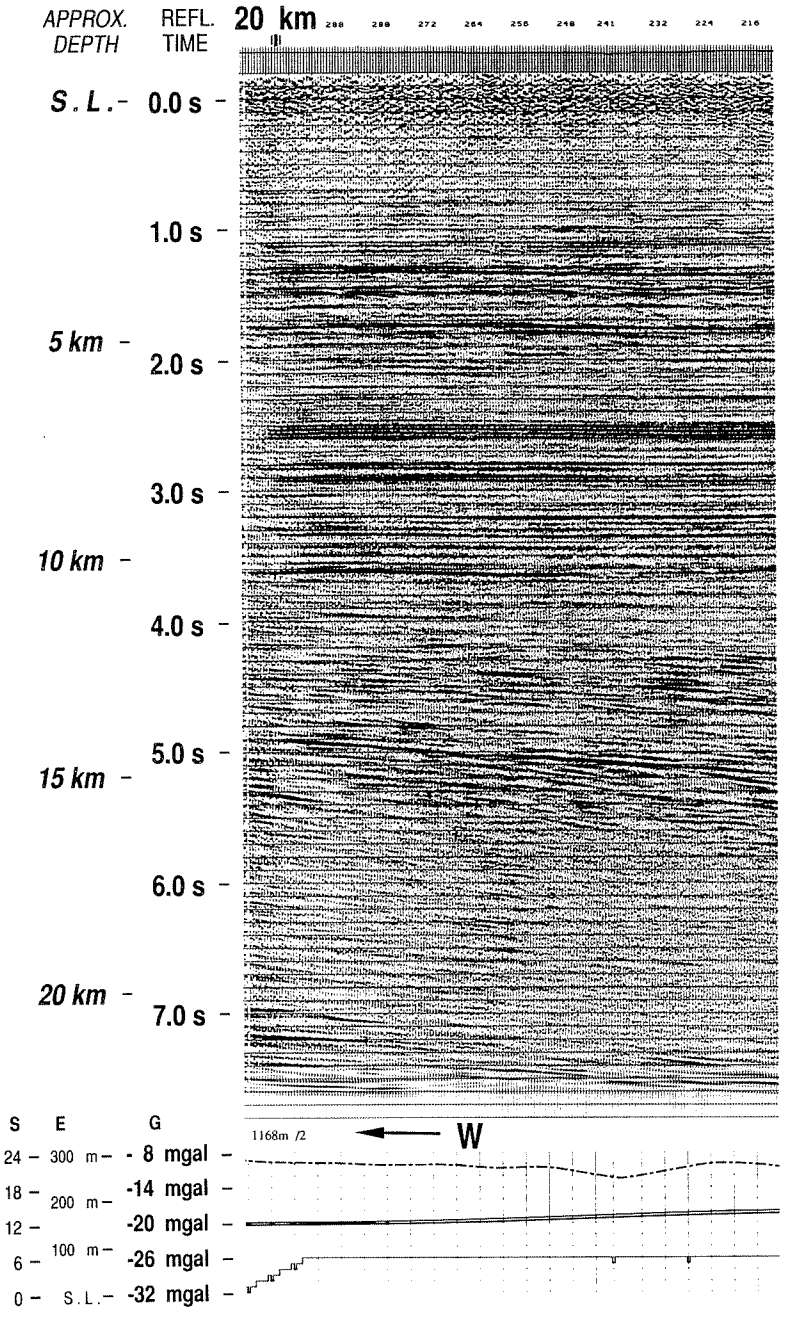
Processing parameters:

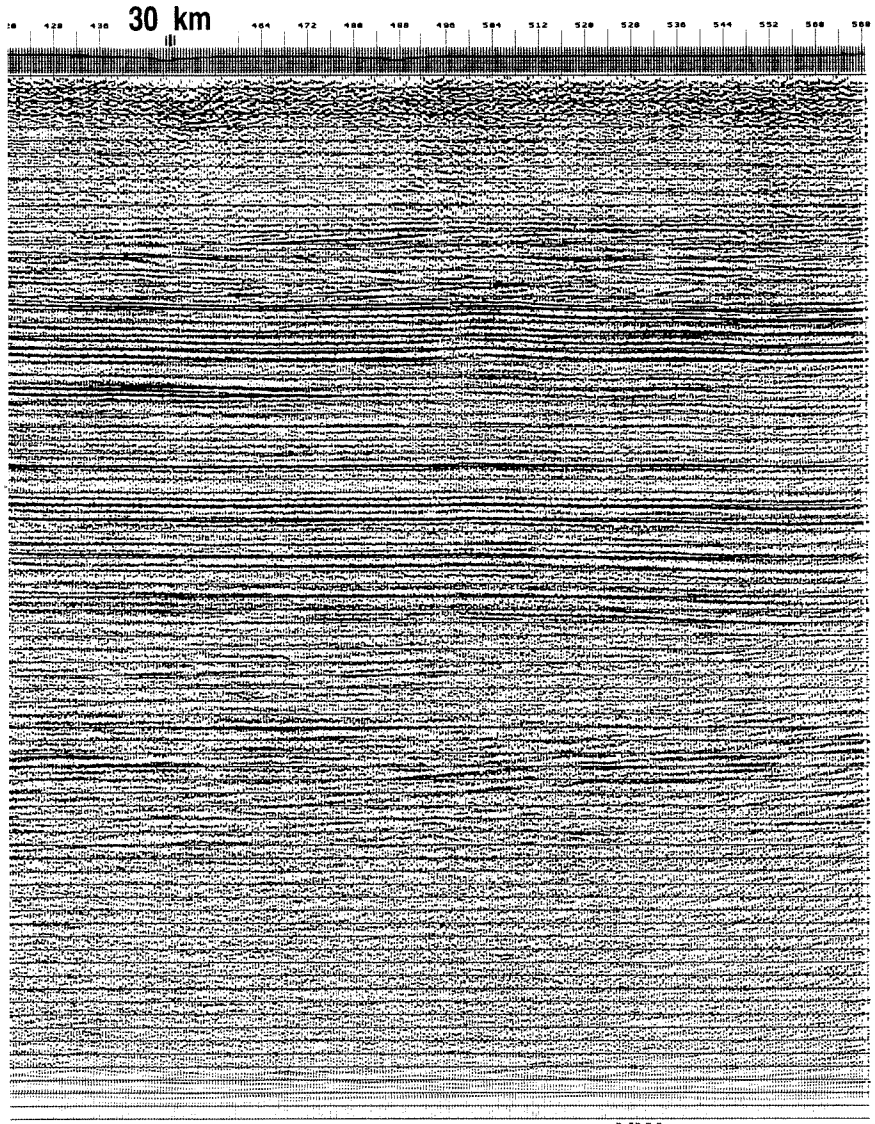
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


APPROX. DEPTH
REFL. TIME
20 km
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
E
G
24
300 m
- 8 mgal
18
200 m
-14 mgal
12
-20 mgal
6
100 m
-26 mgal
0
S.L.
-32 mgal
1168m /2
W



REFL. TIME

-0.0 s

-1.0 s

-2.0 s

-3.0 s

-4.0 s

-5.0 s

-6.0 s

-7.0 s

APPROX. DEPTH

- S.L.

- 5 km

-10 km

-15 km

-20 km

MELVILLE ISLAND, CANADA

Line No.: **1169**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

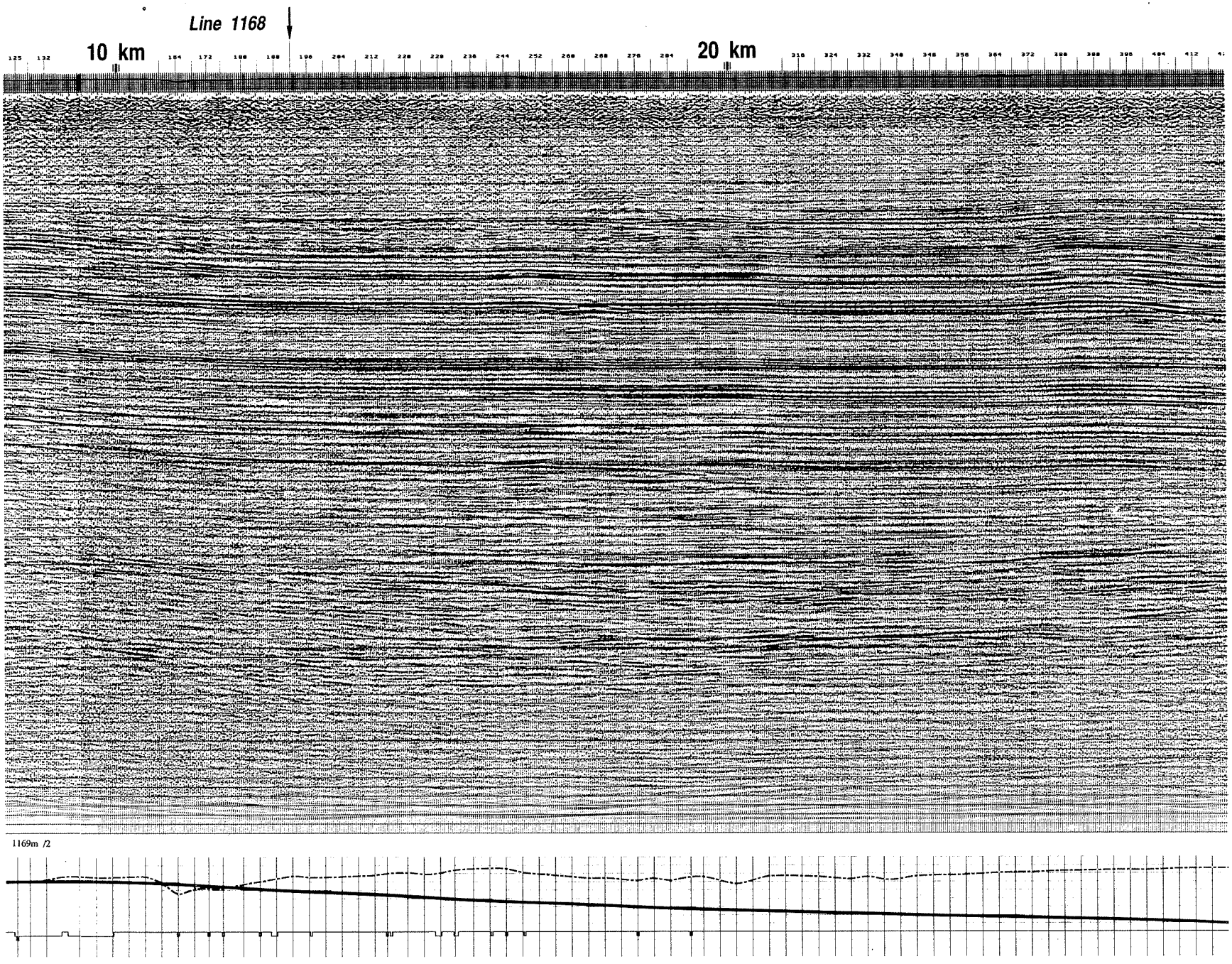
Interpretation:

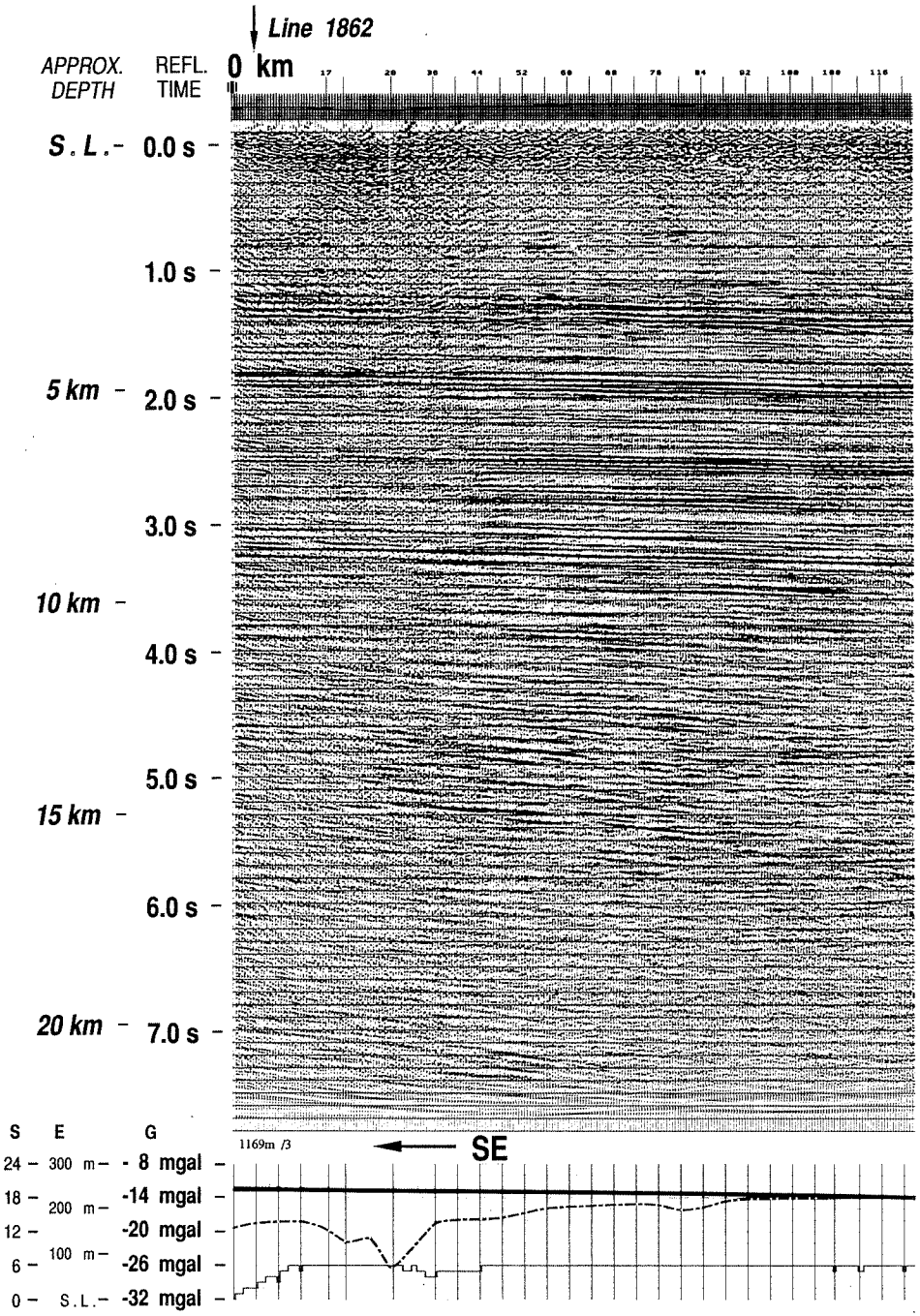
E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

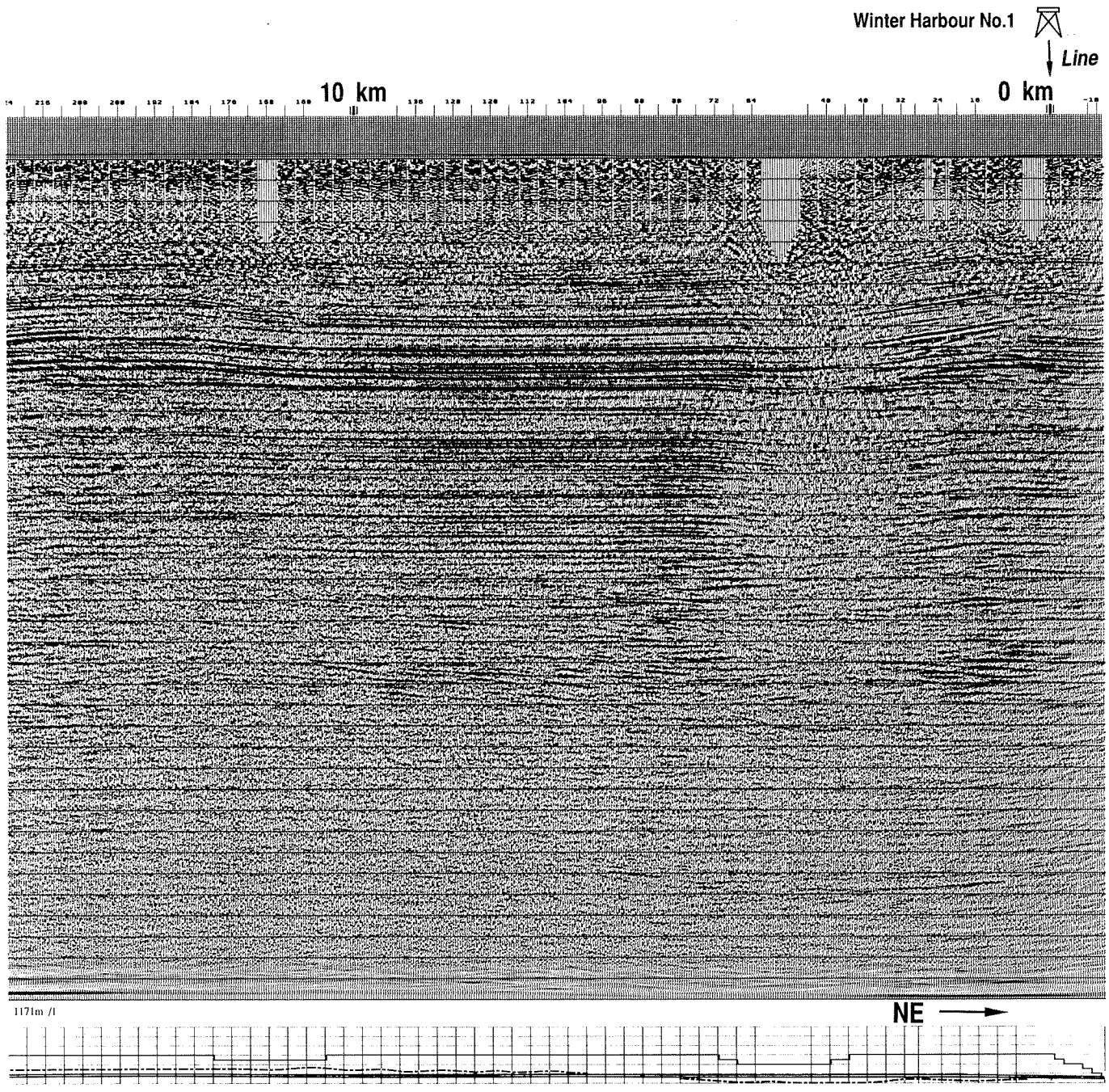
1169m /1

NW

G	E	S
- 8 mgal	-300 m	- 24
-14 mgal	-200 m	- 18
-20 mgal		- 12
-26 mgal	-100 m	- 6
-32 mgal	-S.L.	- 0


Line 1168
10 km
20 km
1169m /2


Line 1862
APPROX. DEPTH
REFL. TIME
0 km
S.L.-
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S E G
24 - 300 m - - 8 mgal
18 - 200 m - -14 mgal
12 - -20 mgal
6 - 100 m - -26 mgal
0 - S.L.- -32 mgal
1169m /3
SE



REFL. TIME

-0.0 s

-1.0 s

-2.0 s

-3.0 s

-4.0 s

-5.0 s

-6.0 s

-7.0 s

APPROX. DEPTH

- S.L.

- 5 km

-10 km

-15 km

-20 km

MELVILLE ISLAND, CANADA

Line No.: 1171

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, February 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	660 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-0-5170 ft

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	1 %
Filter,	
time varying digital bandpass:	
0-8000 ms:	5/7.5-50/60 Hz

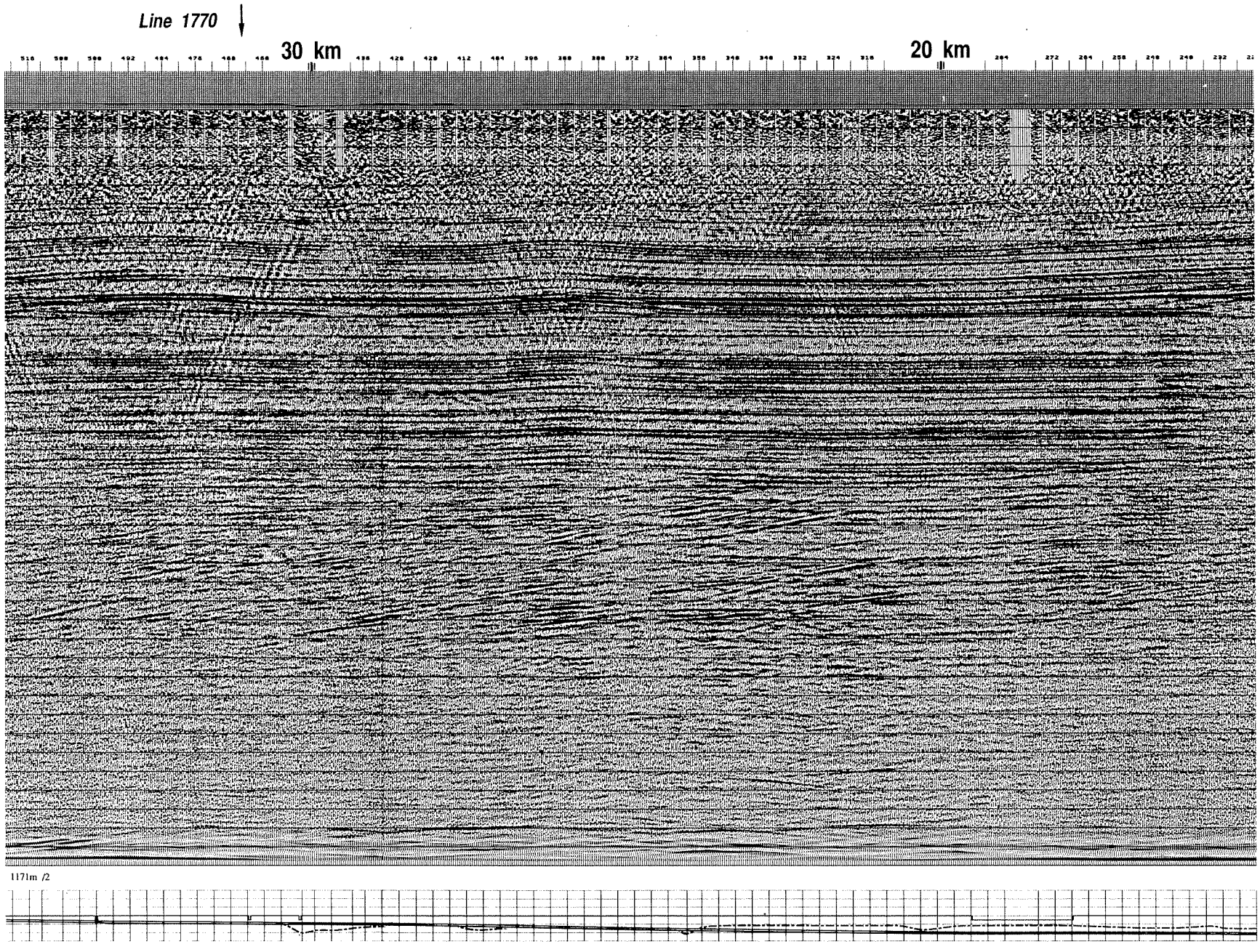
G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

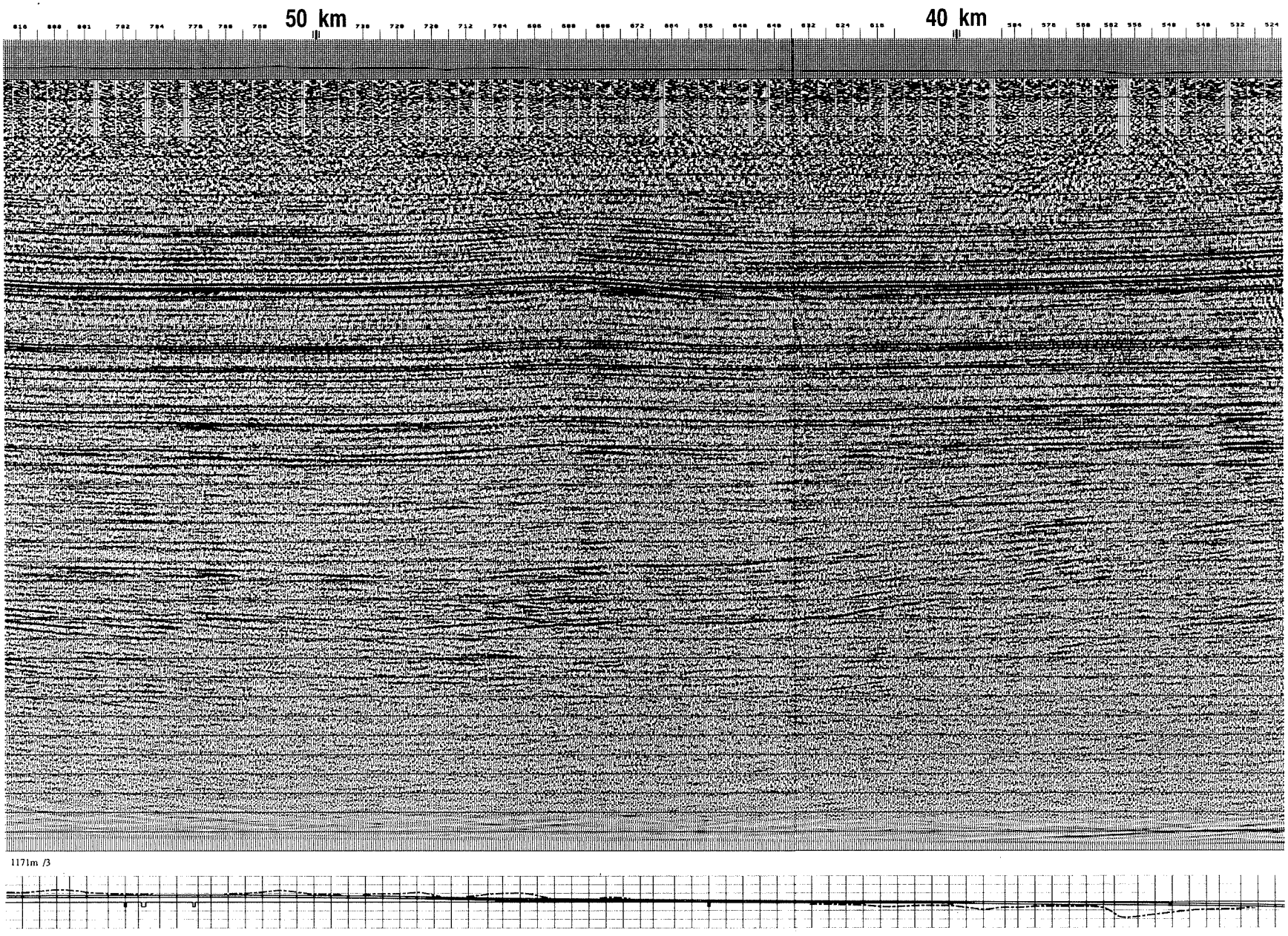
Interpretation:

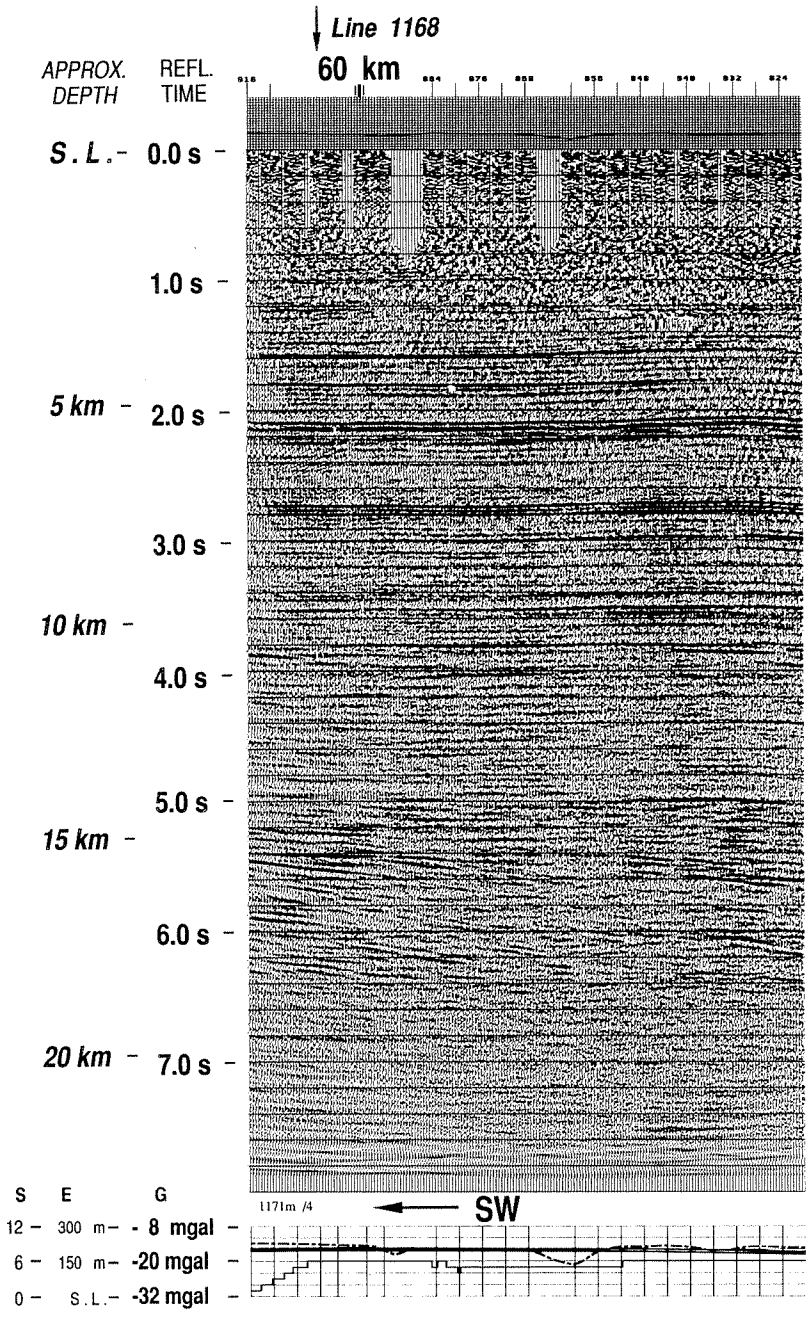
E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

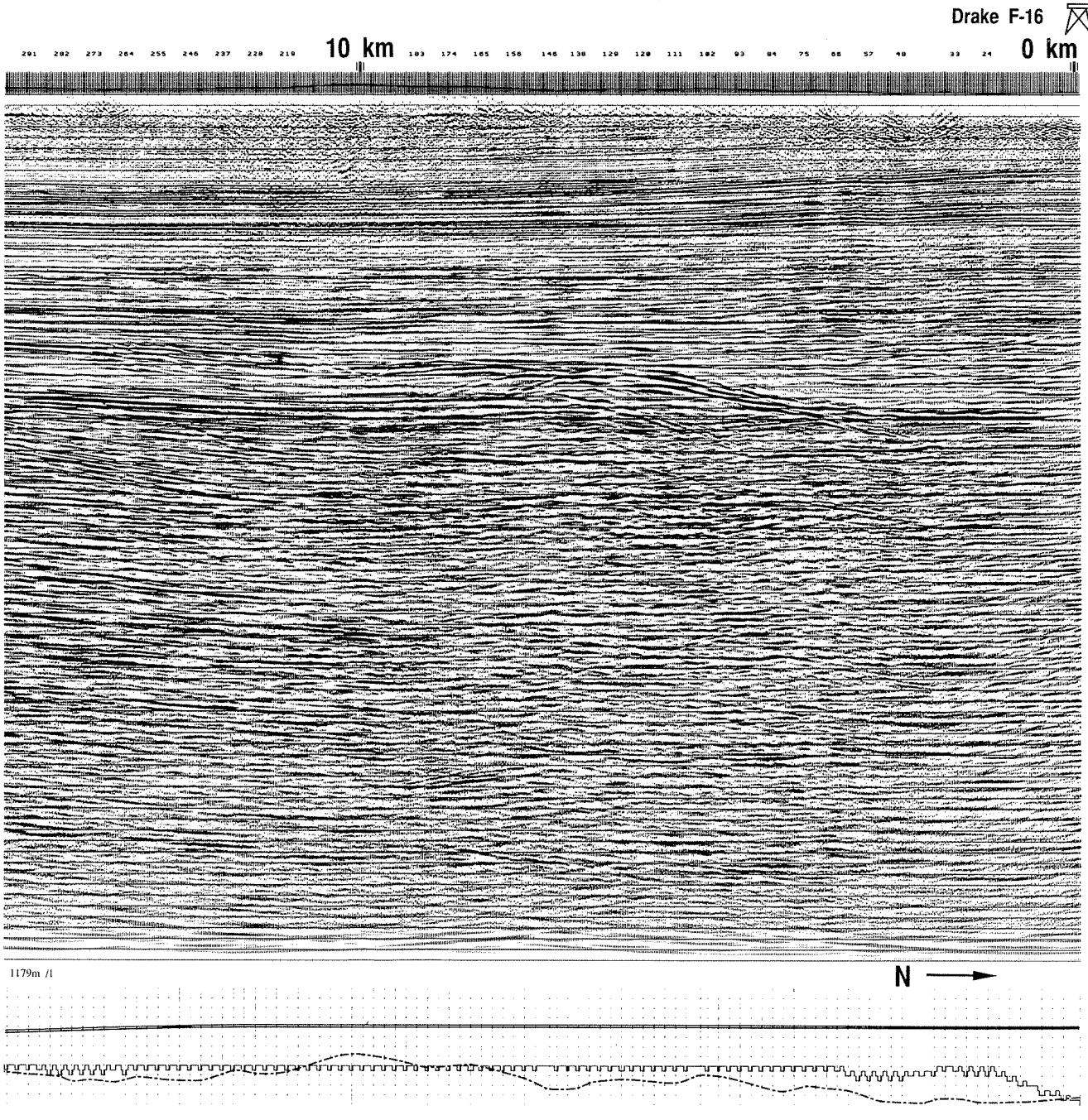
G	E	S
- - 8 mgal	- 300 m	- 12
- -20 mgal	- 150 m	- 6
- -32 mgal	- S.L.	- 0

12/


Line 1770
30 km
20 km
1171m /2


50 km
40 km
1171m /3


Line 1168
60 km
APPROX. DEPTH
REFL. TIME
S.L.- 0.0 s -
1.0 s -
5 km - 2.0 s -
3.0 s -
10 km -
4.0 s -
5.0 s -
15 km -
6.0 s -
20 km - 7.0 s -
S E G
12 - 300 m- - 8 mgal -
6 - 150 m- -20 mgal -
0 - S.L.- -32 mgal -
1171m /4
SW



REFL. TIME

-0.0 s

-1.0 s

-2.0 s

-3.0 s

-4.0 s

-5.0 s

-6.0 s

-7.0 s

APPROX. DEPTH

- *S.L.*

- *5 km*

-10 km

-15 km

-20 km

G	E	S
- 8 mgal	-300 m	- 24
-14 mgal	-200 m	- 18
-20 mgal		- 12
-26 mgal	-100 m	- 6
-32 mgal	-S.L.	- 0

MELVILLE ISLAND, CANADA

Line No.: **1179**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	October 1973
Source interval:	495 ft
Geophone group interval:	165 ft
Spread distance:	1485-330-SP-330-6765 ft

Processing parameters:

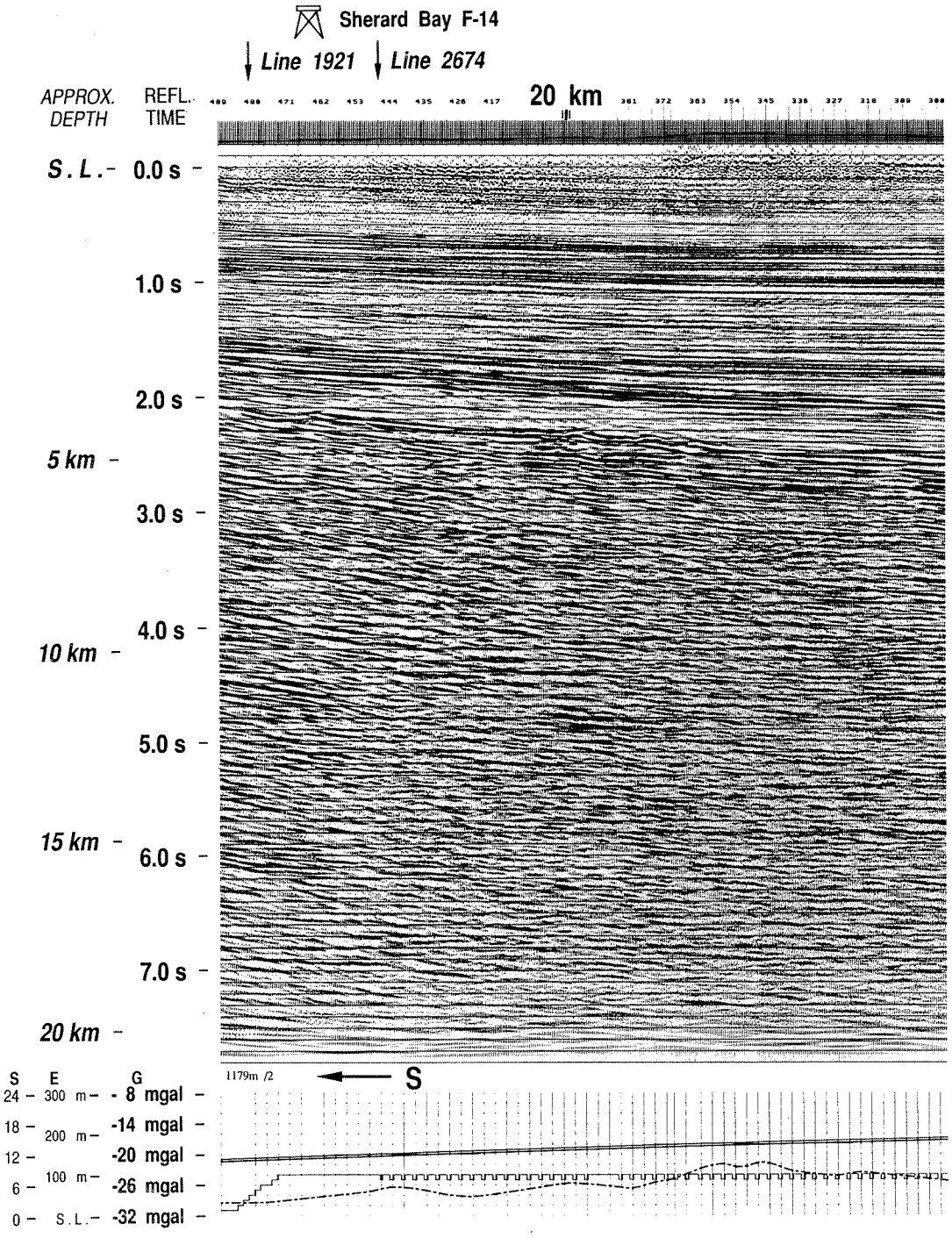
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

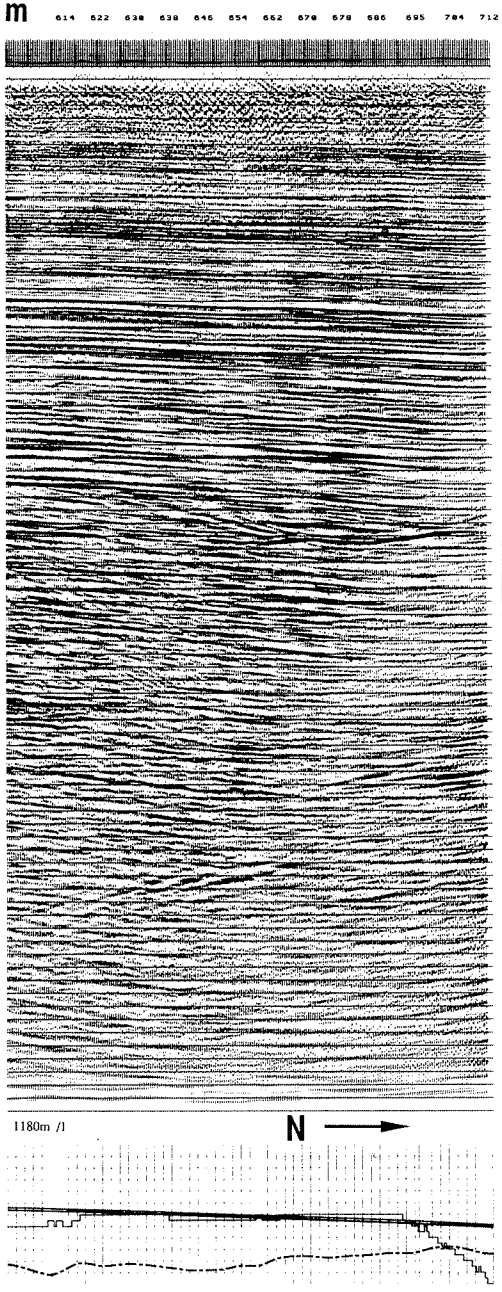
G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

1 2 3


Sherard Bay F-14
Line 1921
Line 2674
APPROX. DEPTH
REFL. TIME
20 km
S.L.
0.0 s
1.0 s
2.0 s
5 km
3.0 s
4.0 s
10 km
5.0 s
15 km
6.0 s
7.0 s
20 km
S E G
24 300 m - 8 mgal
18 200 m -14 mgal
12 -20 mgal
6 100 m -26 mgal
0 S.L. -32 mgal
1179m /2
S



REFL. TIME | *APPROX. DEPTH*

-0.0 s — *- S.L.*

-1.0 s

-2.0 s

- 5 km

-3.0 s

-4.0 s

-10 km

-5.0 s

-6.0 s

-15 km

-7.0 s

G	E	S
- - 8 mgal	-300 m	- 24
- -14 mgal	-200 m	- 18
- -20 mgal		- 12
- -26 mgal	-100 m	- 6
- -32 mgal	-S.L.	- 0

MELVILLE ISLAND, CANADA

Line No.: **1180**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	October 1973
Source interval:	495 ft
Geophone group interval:	165 ft
Spread distance:	1485-330-SP-330-6765 ft

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

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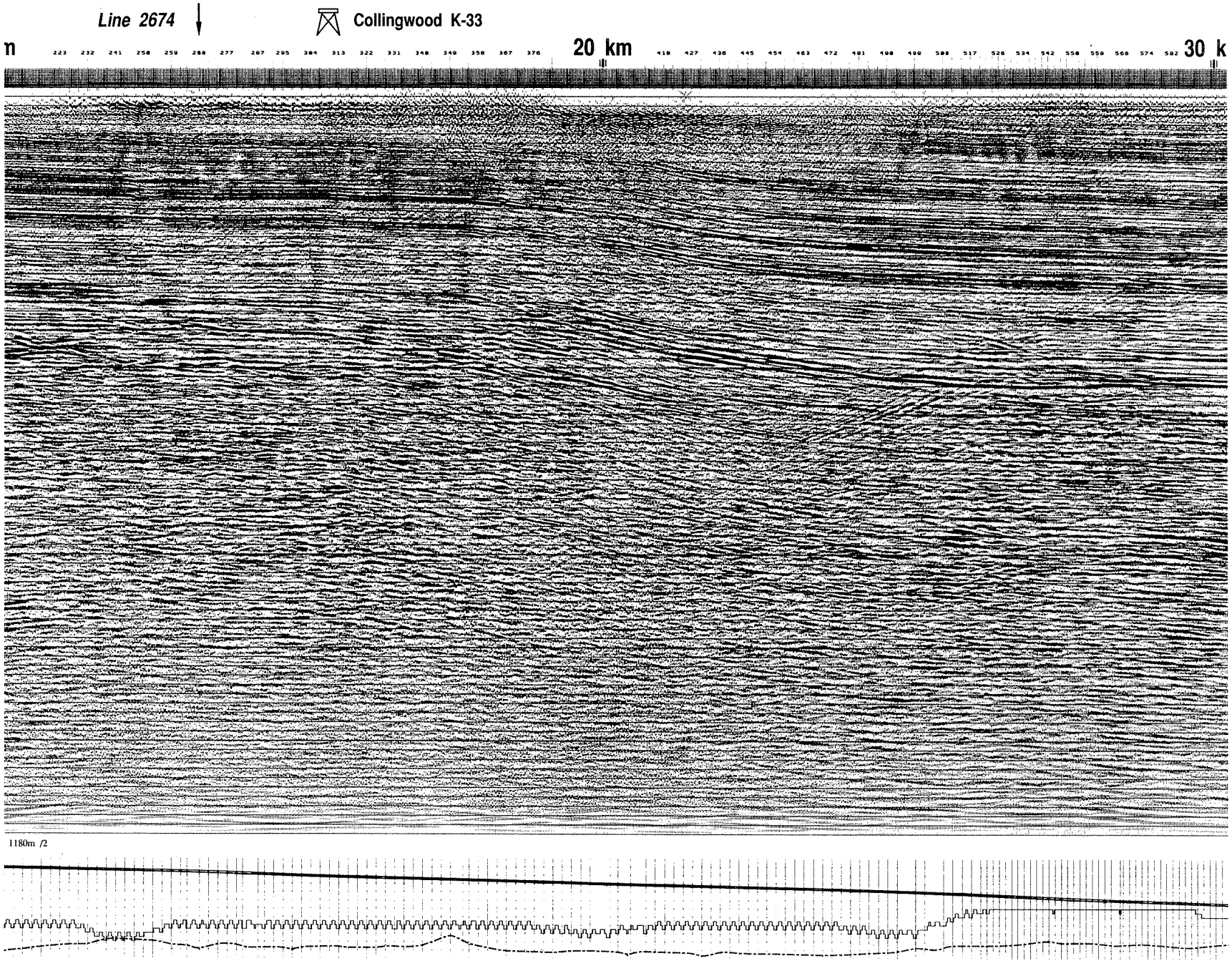
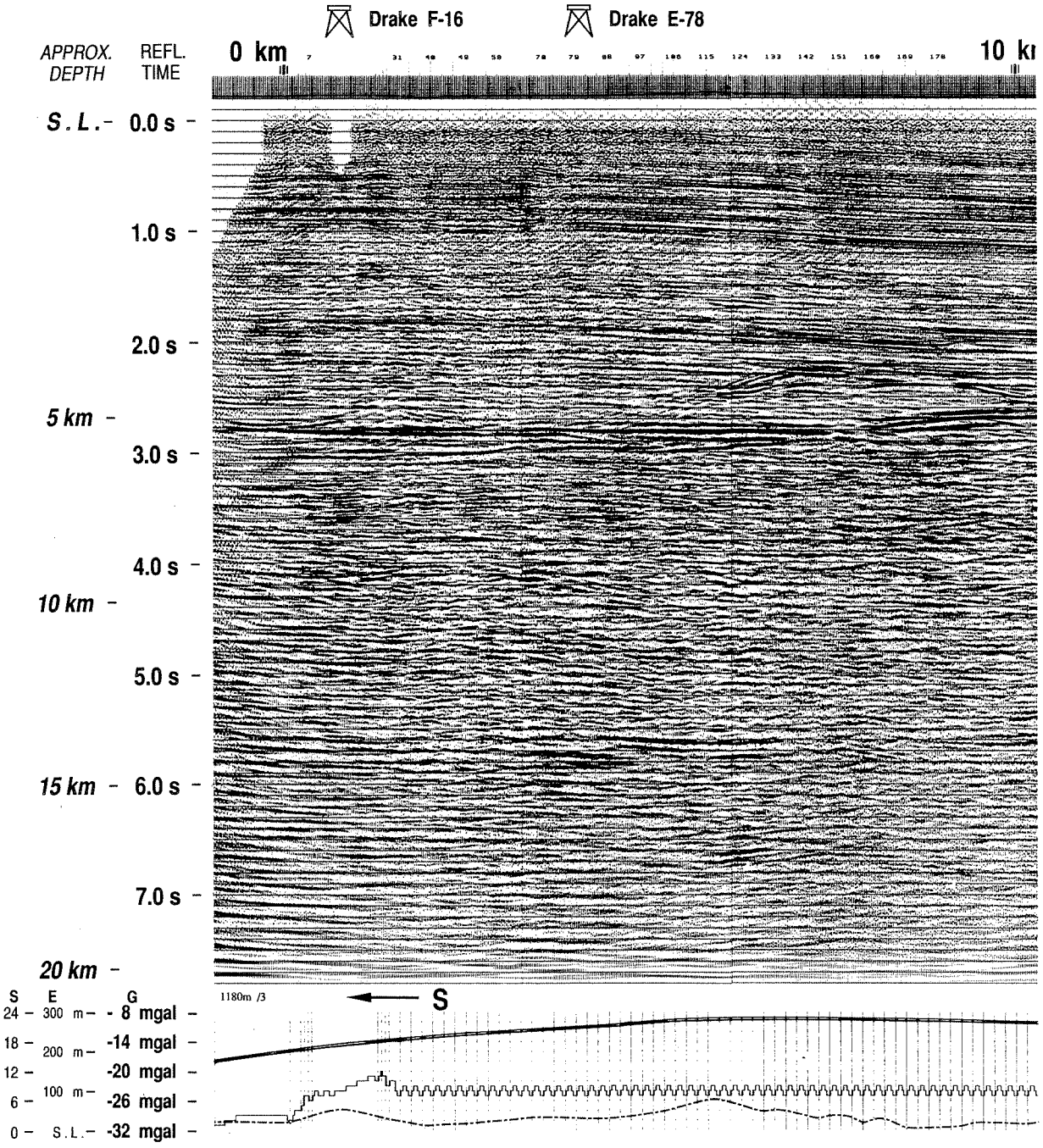
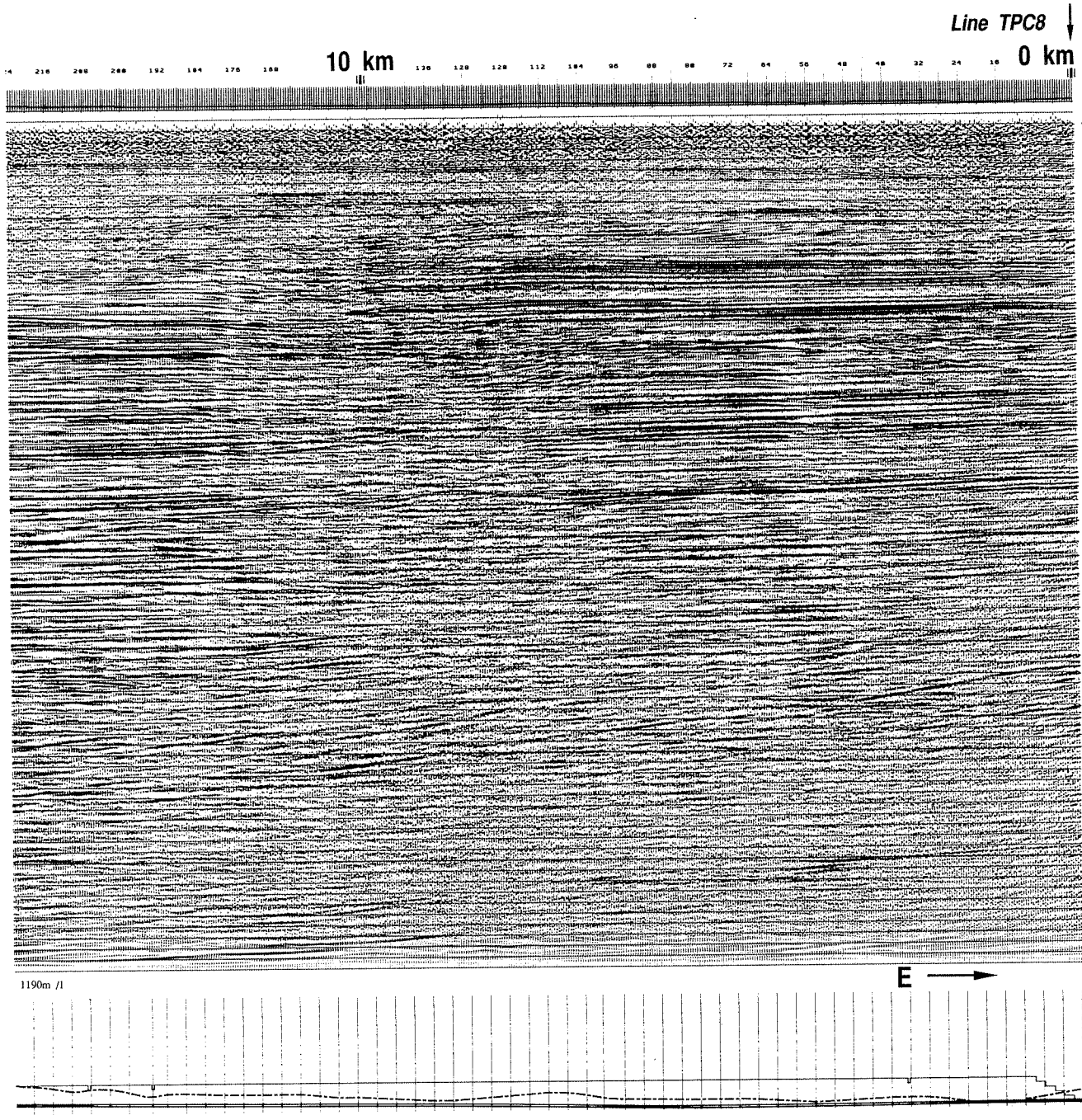

Line 2674
Collingwood K-33
n
20 km
30 k
1180m /2


Drake F-16
Drake E-78
APPROX. DEPTH
REFL. TIME
0 km
10 km
S.L.
0.0 s
1.0 s
2.0 s
5 km
3.0 s
4.0 s
10 km
5.0 s
15 km
6.0 s
7.0 s
20 km
S
E
G
24
300 m
- 8 mgal
18
200 m
-14 mgal
12
-20 mgal
6
100 m
-26 mgal
0
S.L.
-32 mgal
1180m /3
S



REFL. TIME	APPROX. DEPTH
-0.0 s	- S.L.
-1.0 s	
-2.0 s	- 5 km
-3.0 s	
	-10 km
-4.0 s	
-5.0 s	
	-15 km
-6.0 s	
-7.0 s	-20 km

MELVILLE ISLAND, CANADA

Line No.: **1190**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	November 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

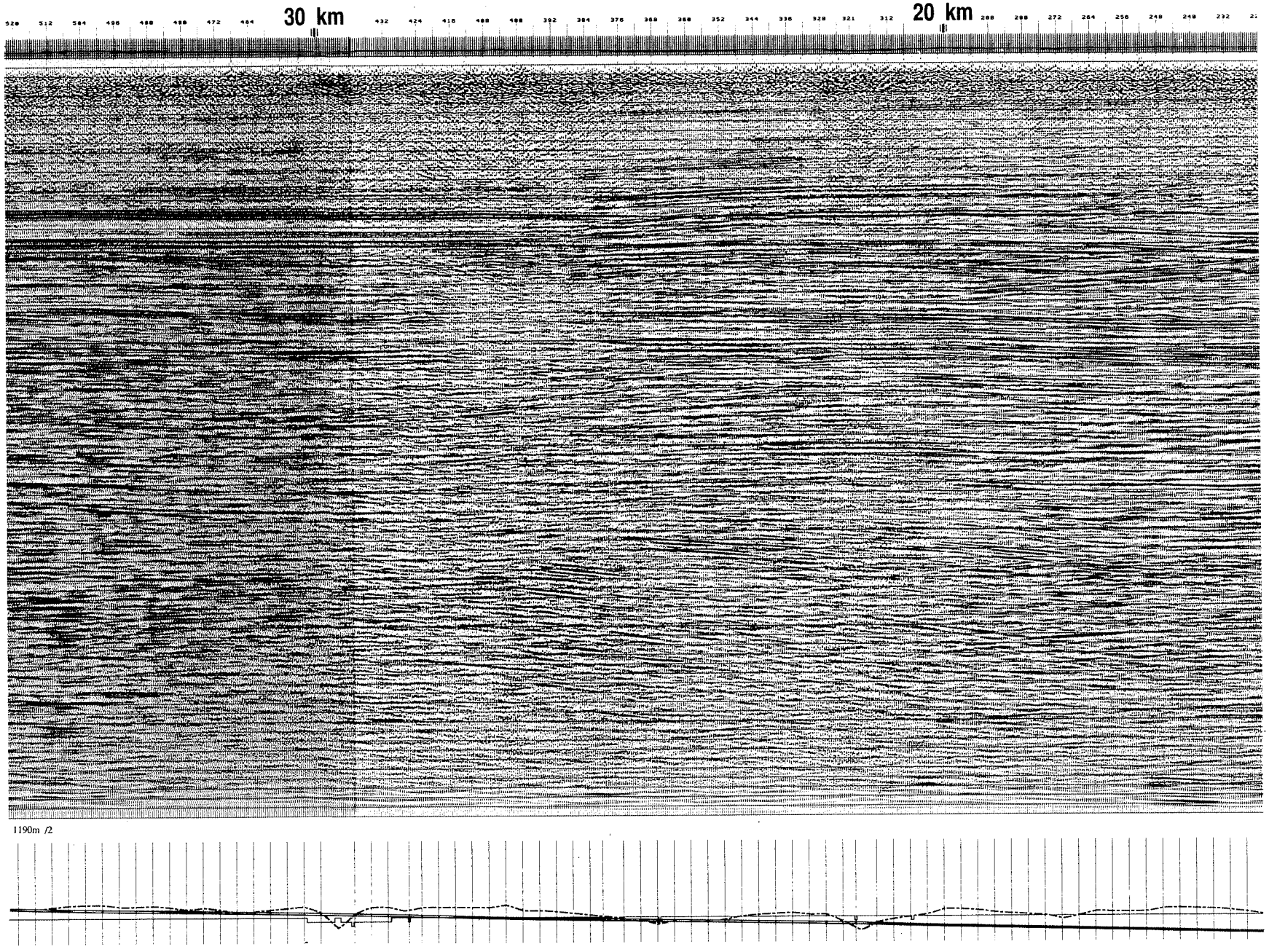
Interpretation:

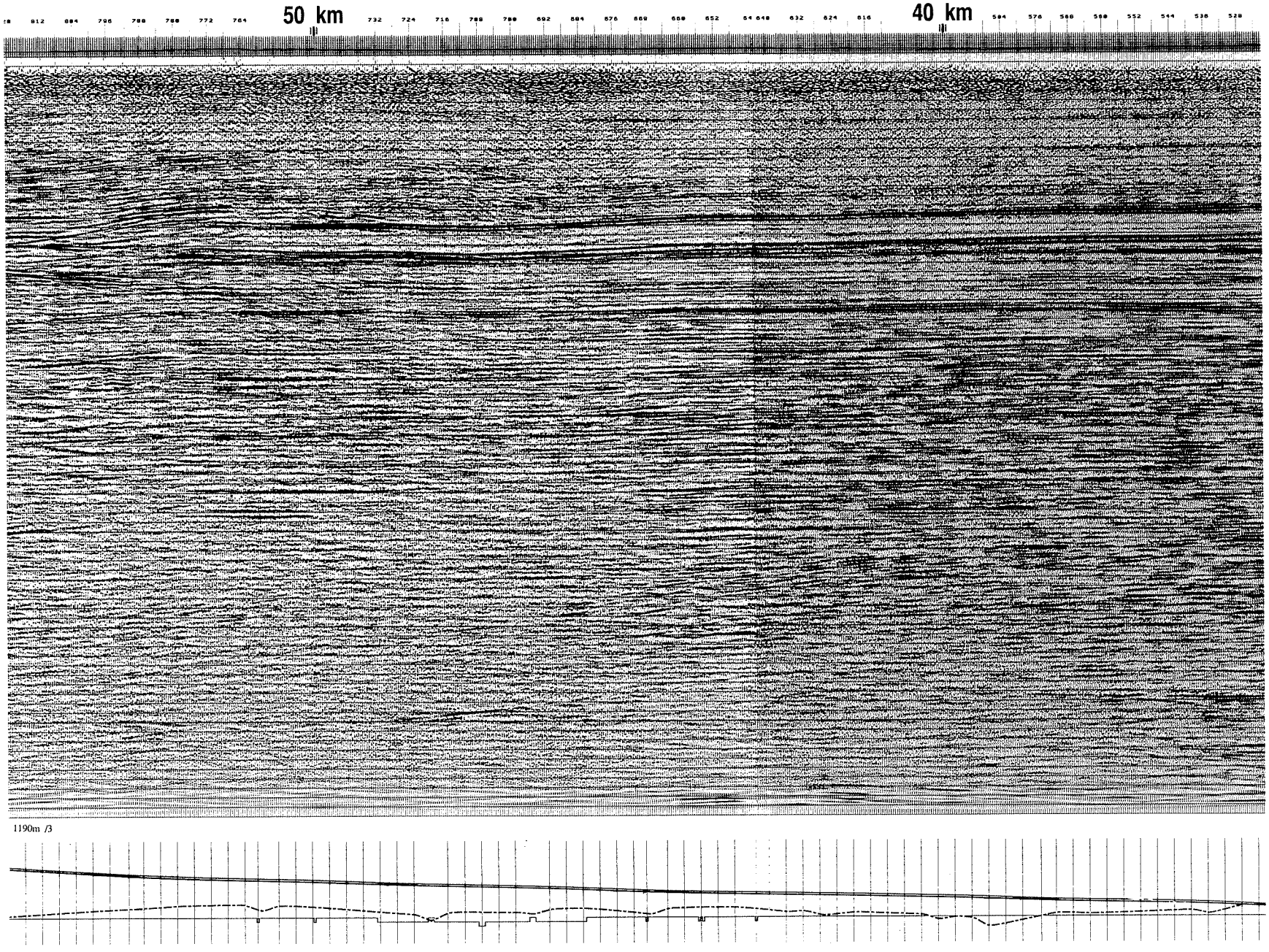
E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

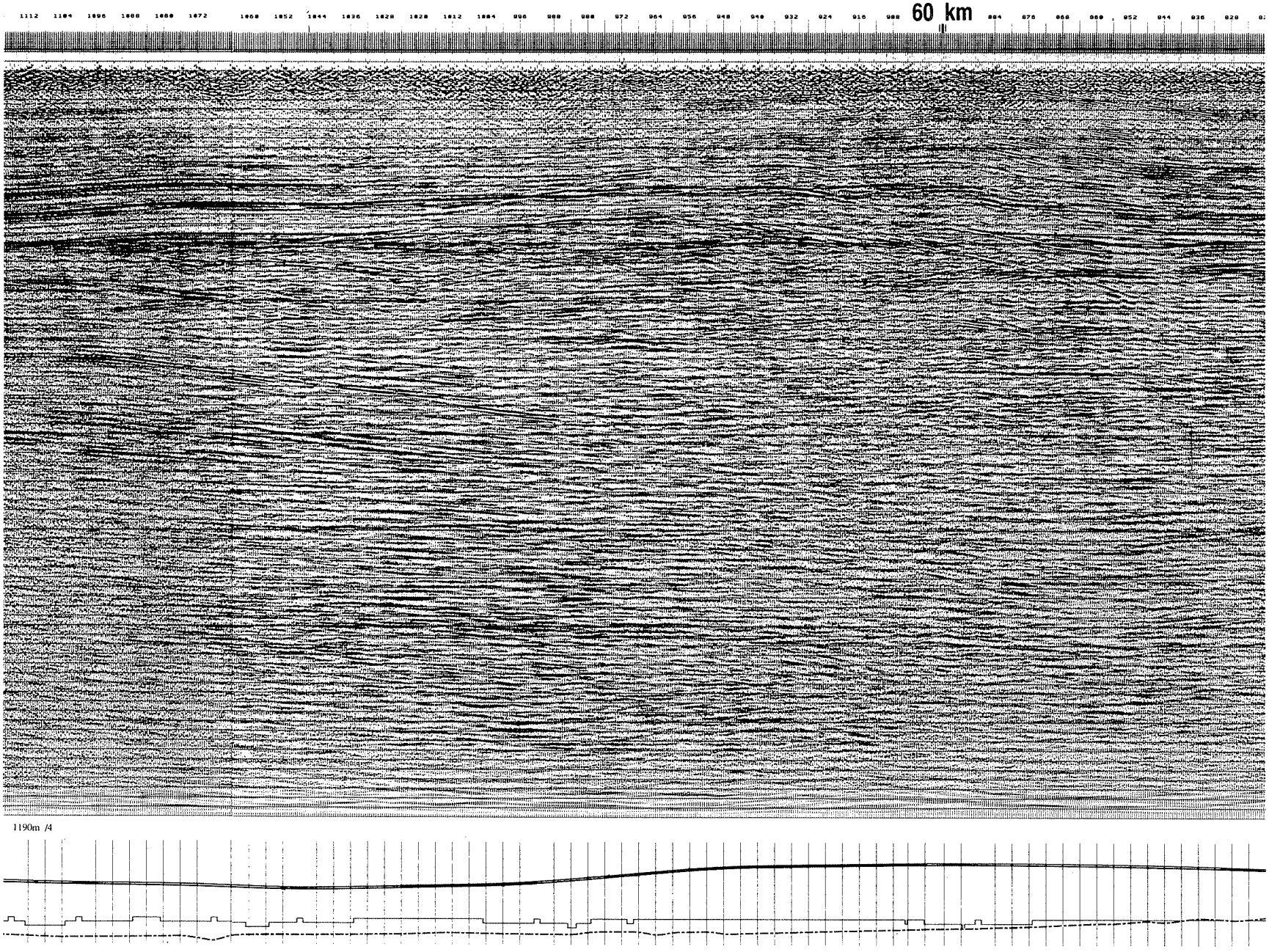
1190m /1

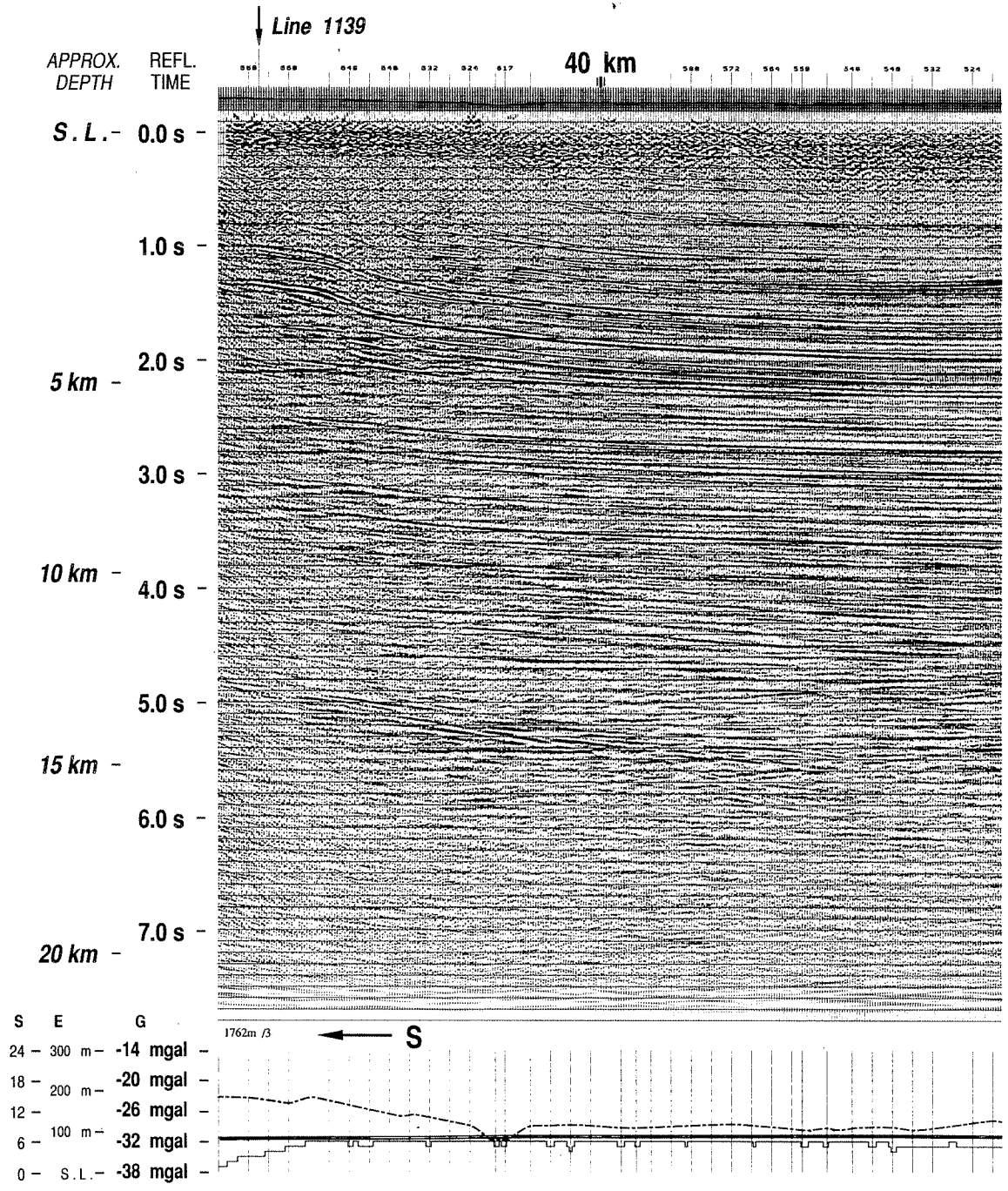
G	E	S
- 0 mgal	-300 m	- 24
- - 6 mgal	-200 m	- 18
- -12 mgal		- 12
- -18 mgal	-100 m	- 6
- -24 mgal	-S.L.	- 0

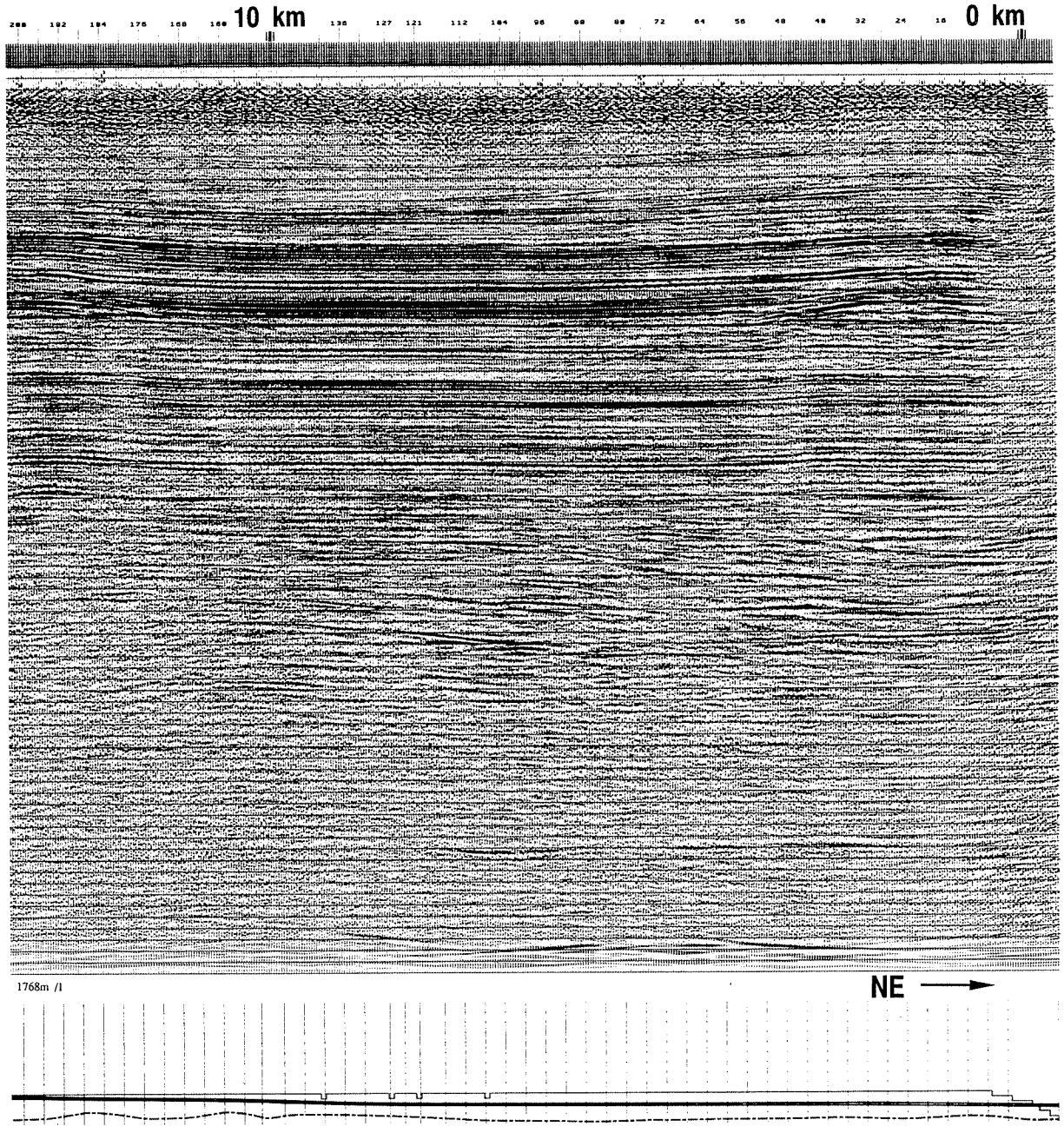
130


30 km
20 km
1190m /2


50 km
40 km
1190m /3


60 km
1190m /4


Line 1139
APPROX. DEPTH
REFL. TIME
40 km
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
E
G
24
300 m
-14 mgal
18
200 m
-20 mgal
12
-26 mgal
6
100 m
-32 mgal
0
S.L.
-38 mgal
1762m /3
S



MELVILLE ISLAND, CANADA

Line No.: **1768**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1975
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

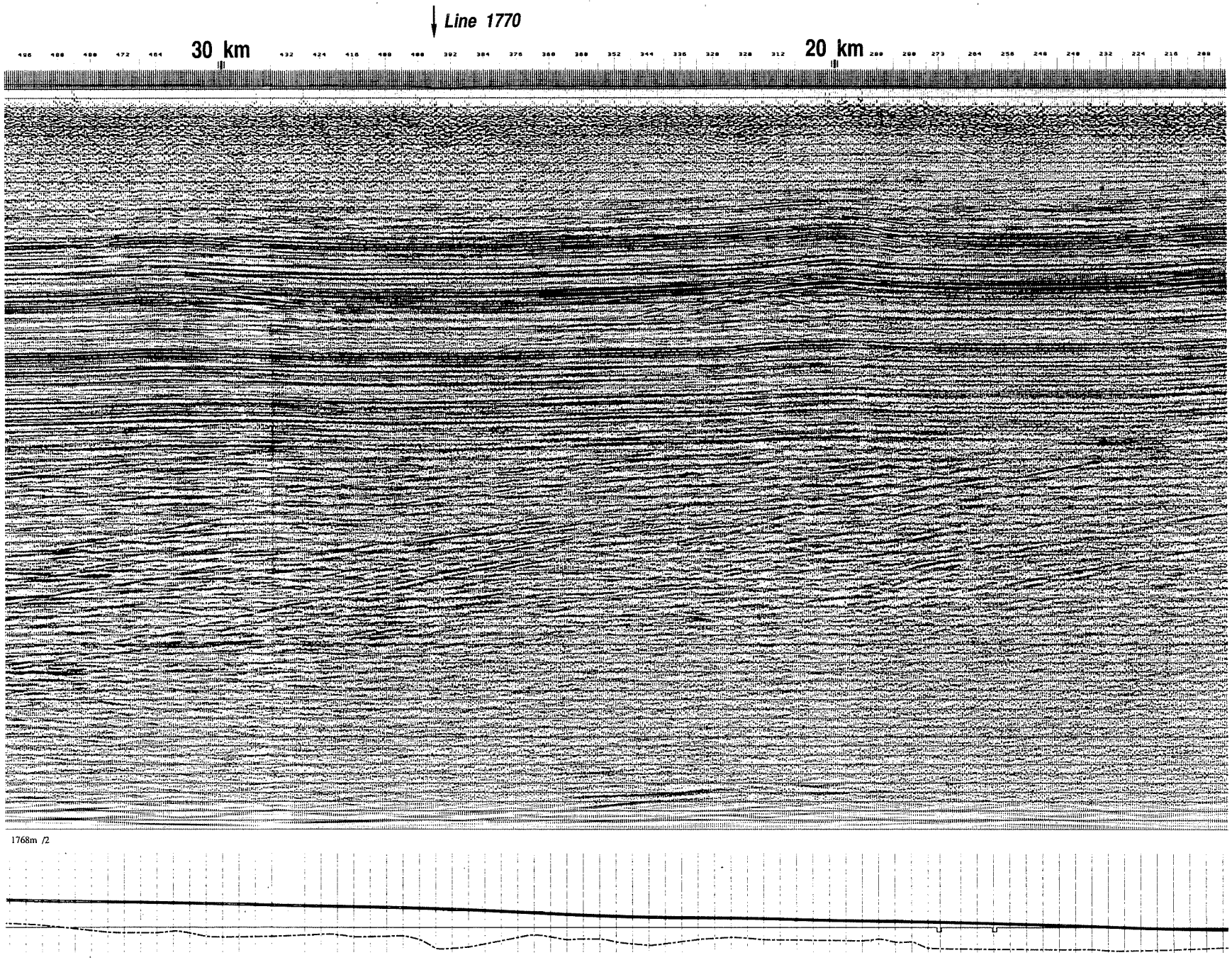
Processing parameters:

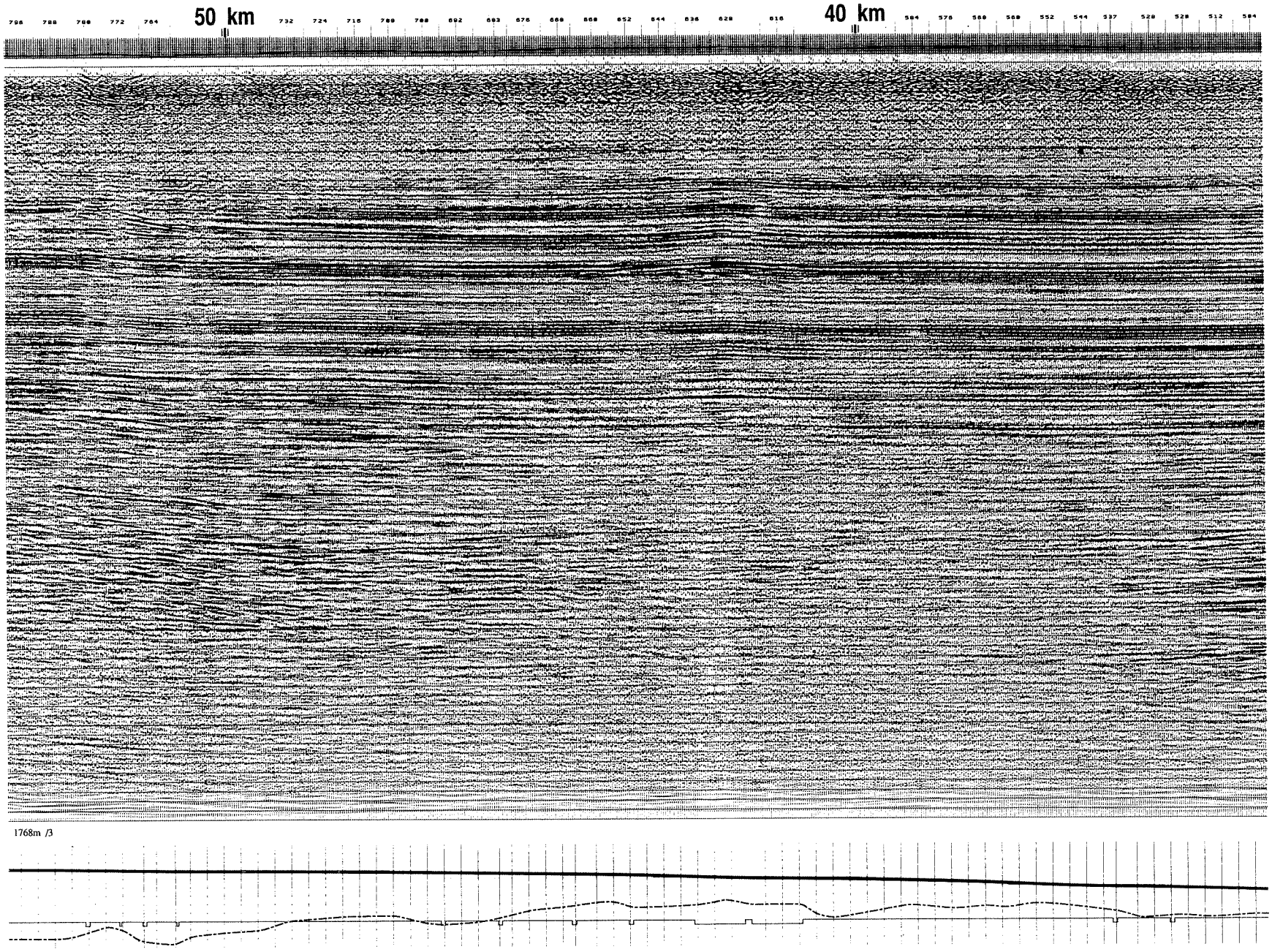
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

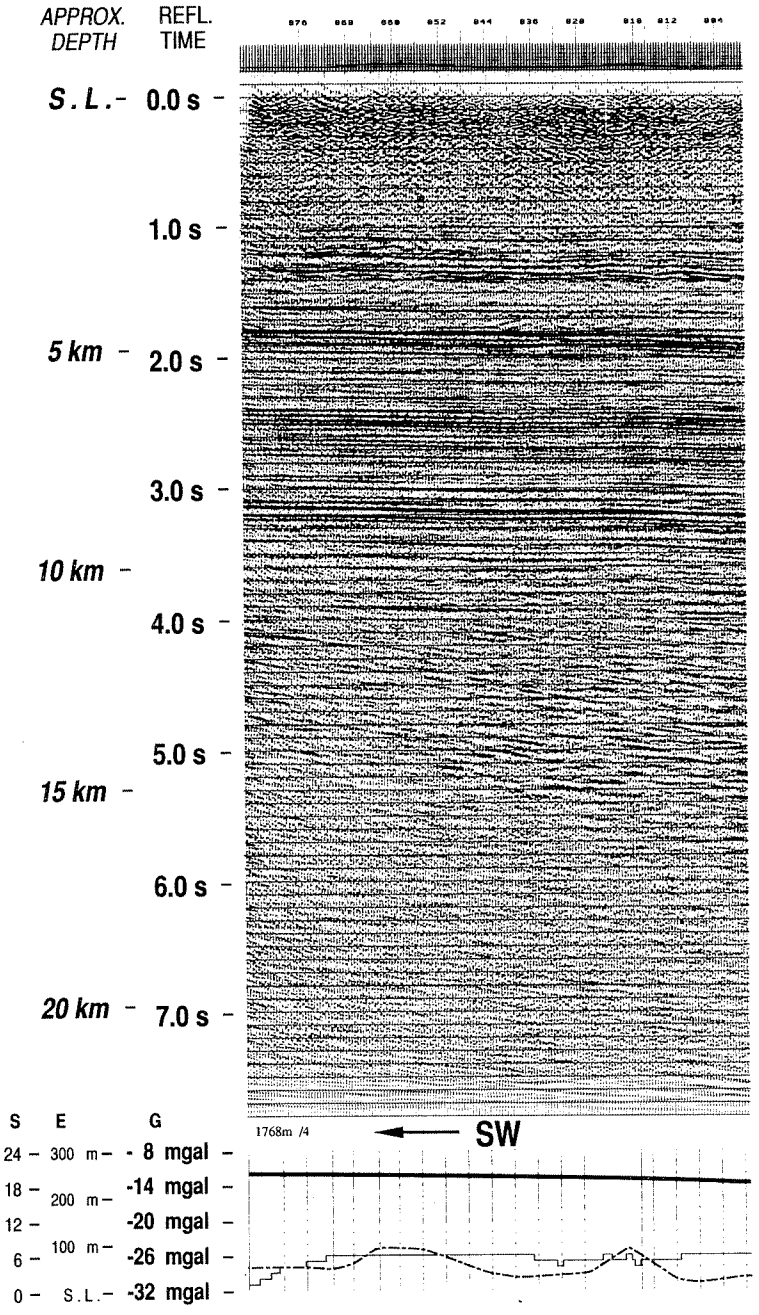
G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

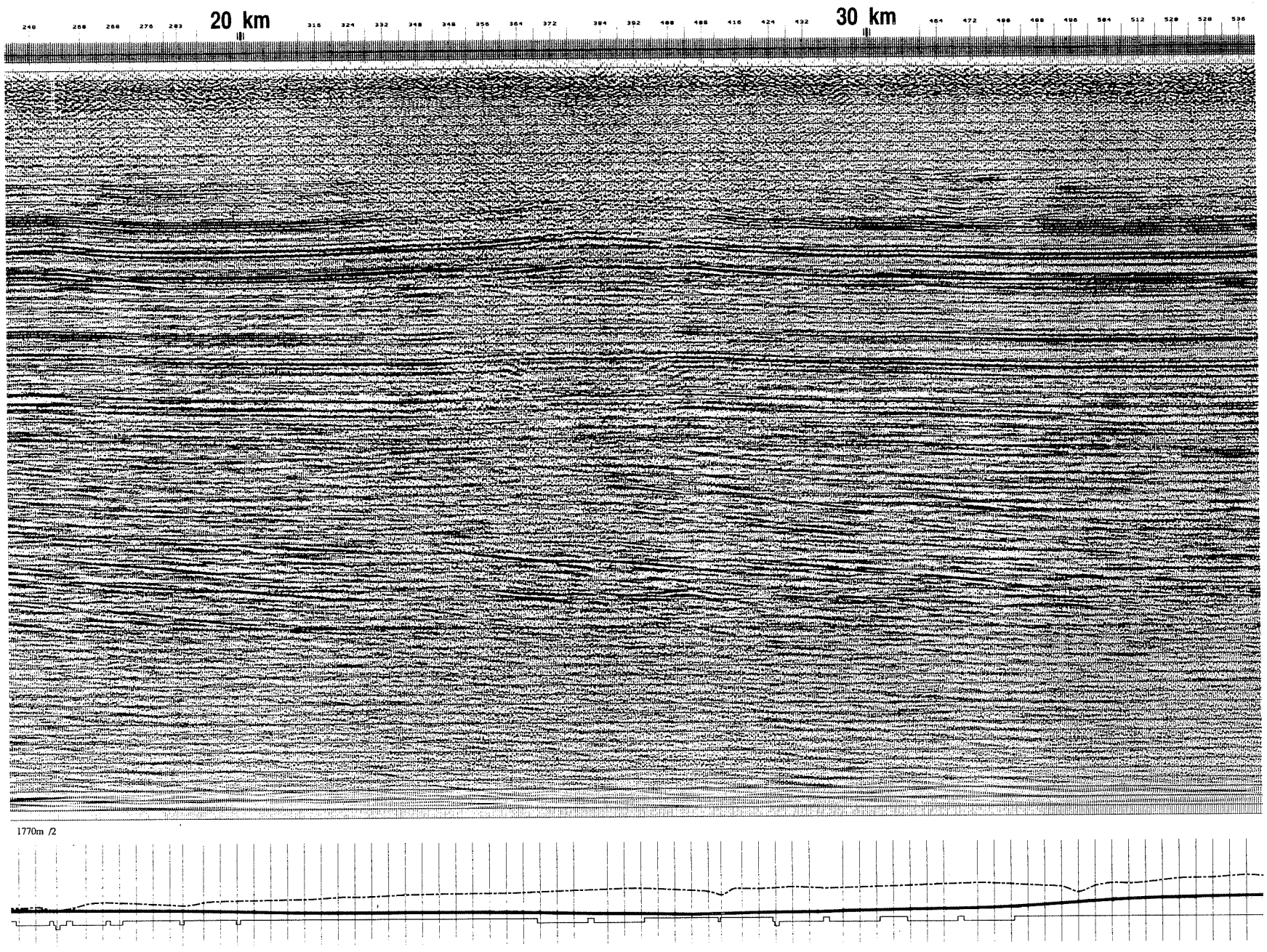
Interpretation:

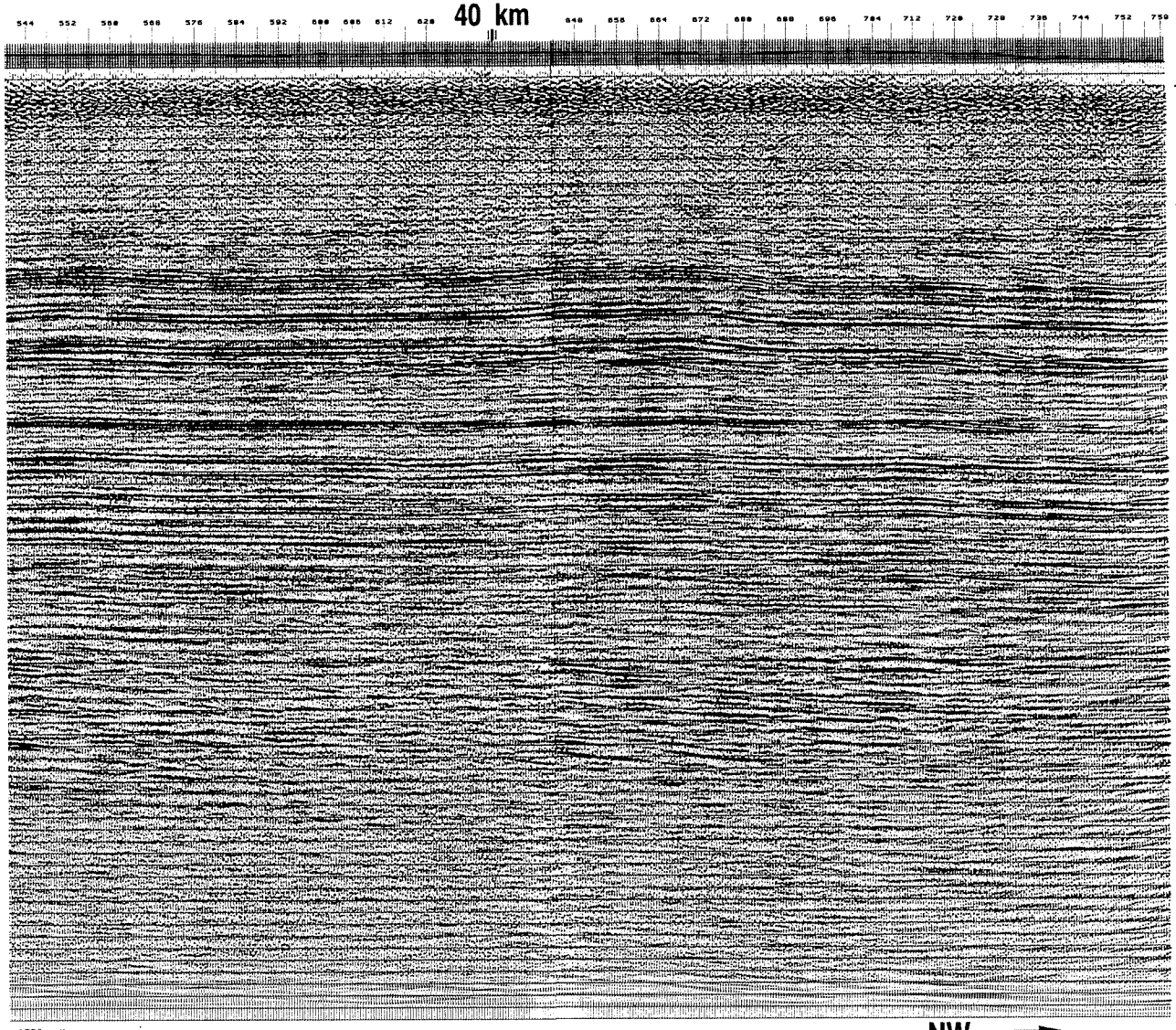
E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 1770
30 km
20 km
1768m /2


50 km
40 km
1768m /3


APPROX. DEPTH
REFL. TIME
S.L.- 0.0 s -
1.0 s -
5 km - 2.0 s -
3.0 s -
10 km -
4.0 s -
5.0 s -
15 km -
6.0 s -
20 km - 7.0 s -
S E G
24 - 300 m - - 8 mgal -
18 - 200 m - -14 mgal -
12 - -20 mgal -
6 - 100 m - -26 mgal -
0 - S.L.- -32 mgal -
1768m /4
SW


20 km
30 km
1770m /2



MELVILLE ISLAND, CANADA

Line No.: **1770**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1975
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

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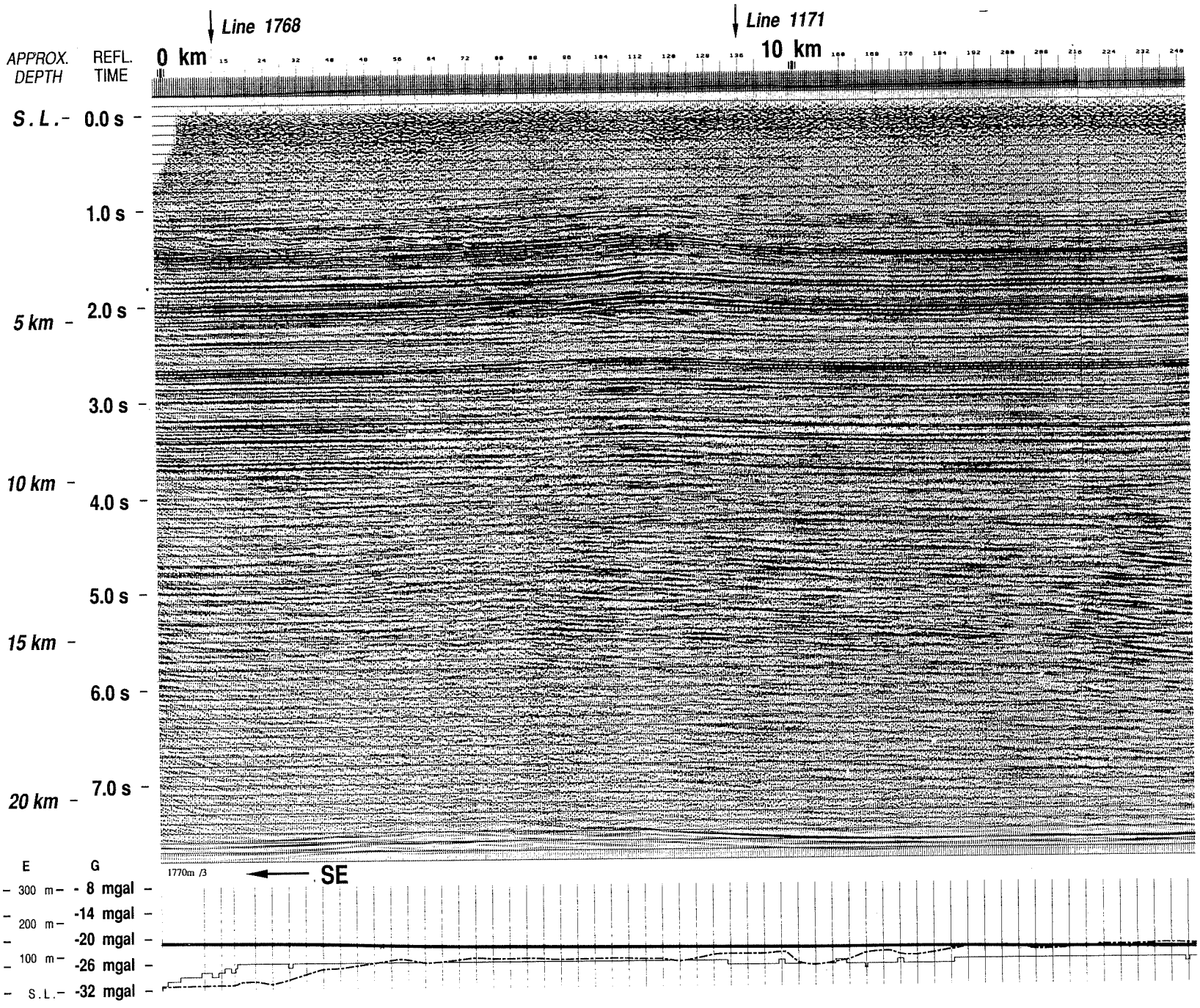
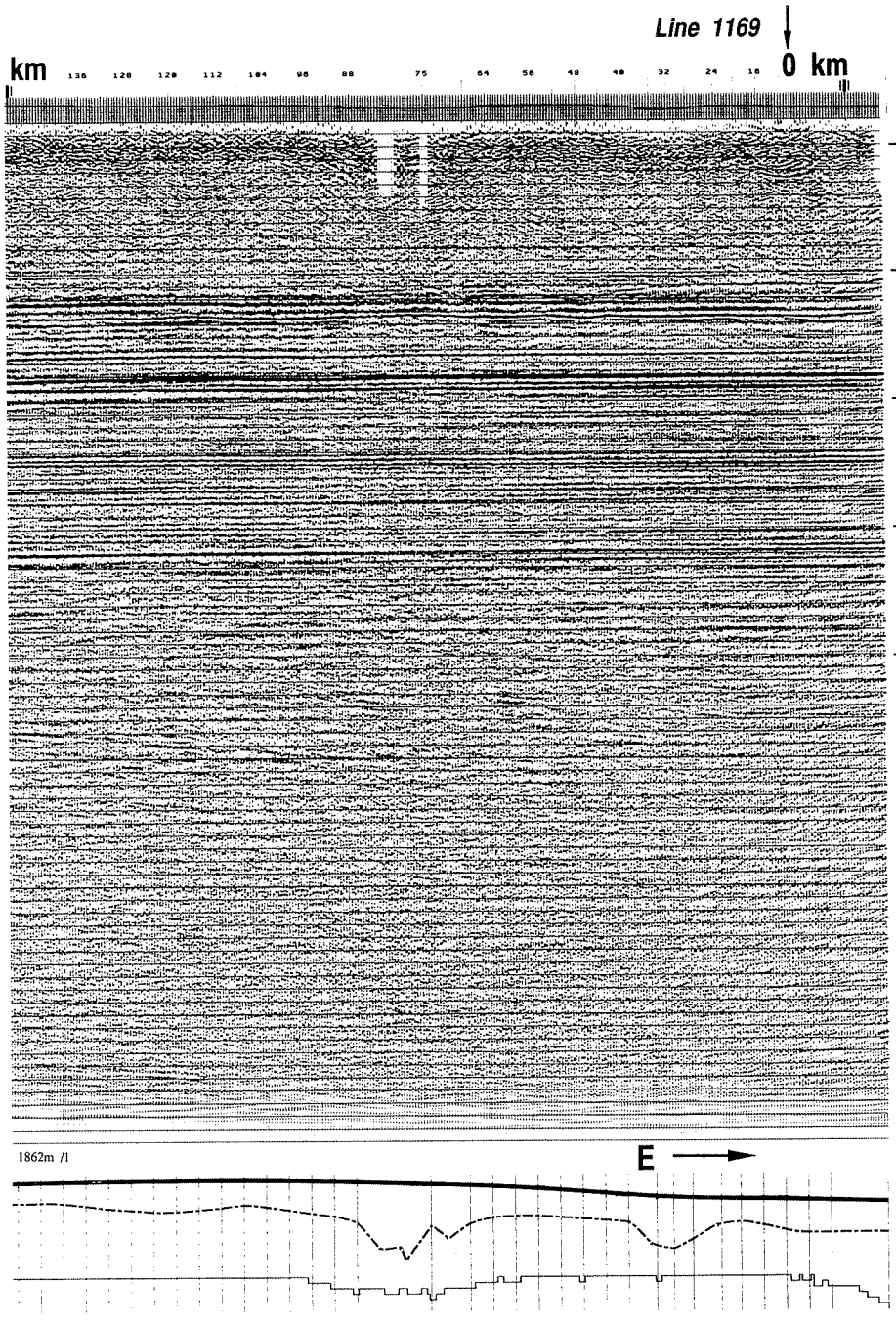

Line 1768
Line 1171
0 km
10 km
APPROX. DEPTH
REFL. TIME
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S E G
24 300 m - 8 mgal
18 200 m -14 mgal
12 -20 mgal
6 100 m -26 mgal
0 S.L. -32 mgal
1770m /3
SE



MELVILLE ISLAND, CANADA

Line No.: **1862**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1975
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

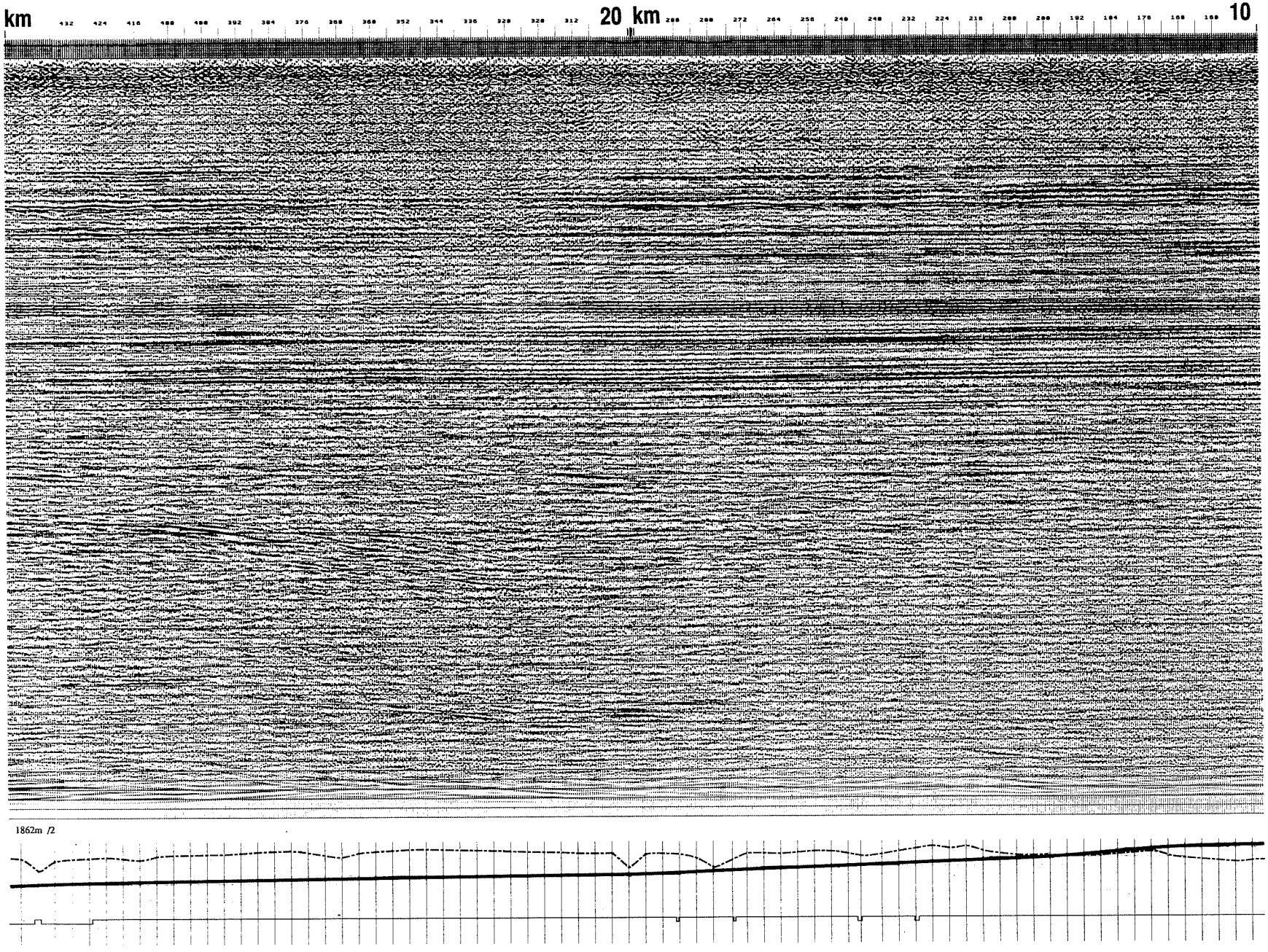
Processing parameters:

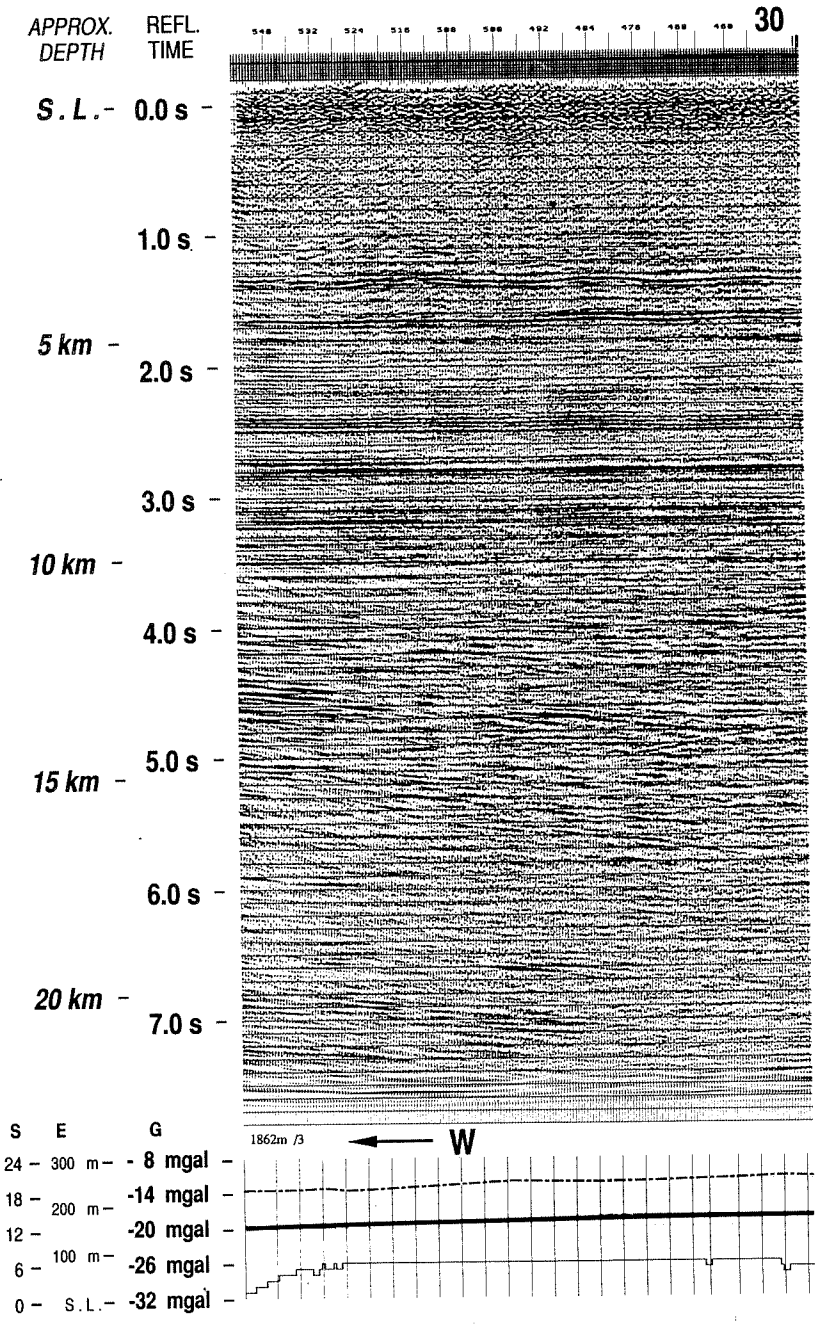
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

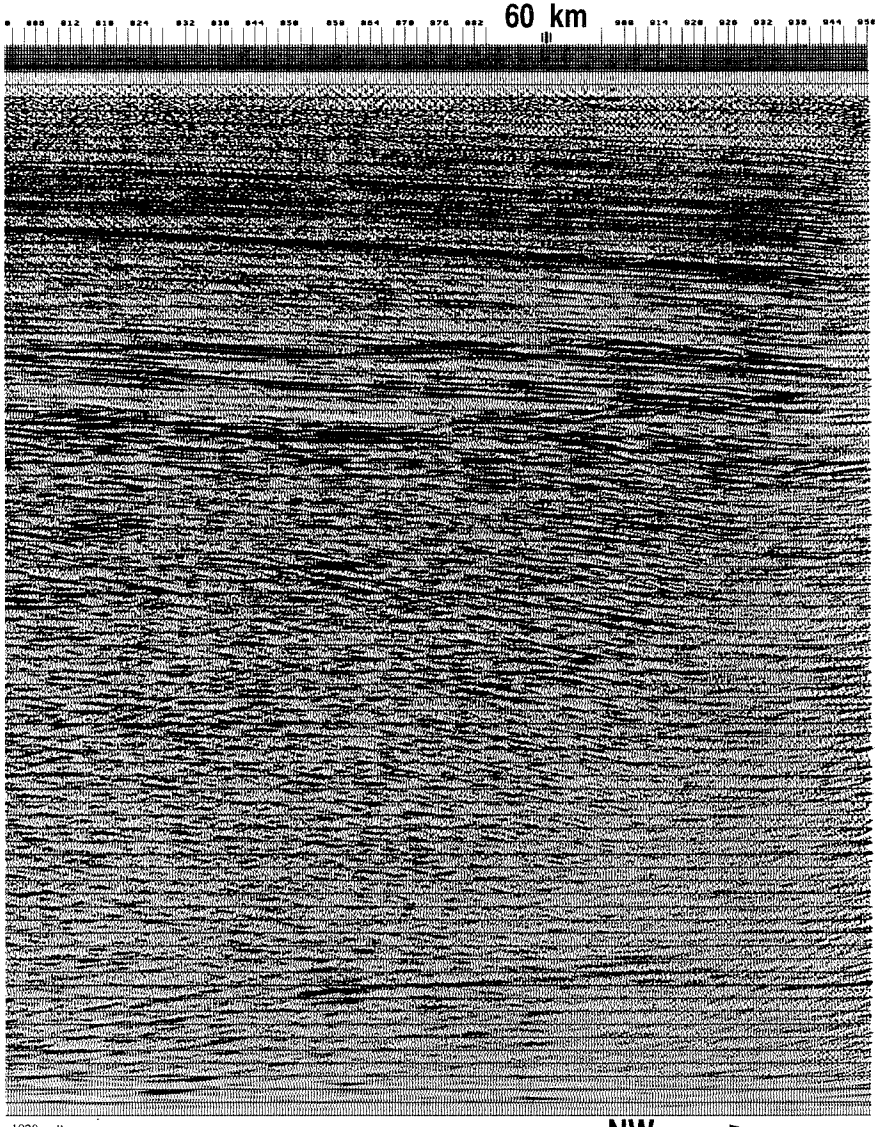
Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


km
20 km
10
1862m /2


APPROX. DEPTH
REFL. TIME
S.L.- 0.0 s -
1.0 s -
5 km -
2.0 s -
3.0 s -
10 km -
4.0 s -
5.0 s -
15 km -
6.0 s -
20 km -
7.0 s -
S E G
24 - 300 m - - 8 mgal -
18 - 200 m - -14 mgal -
12 - -20 mgal -
6 - 100 m - -26 mgal -
0 - S.L.- -32 mgal -
1862m /3
W

Chads Creek B-64



MELVILLE ISLAND, CANADA

Line No.: **1920**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	October 1975
Source interval:	440 ft
Geophone group interval:	220 ft
Spread distance:	5500-440-SP-440-5500 ft

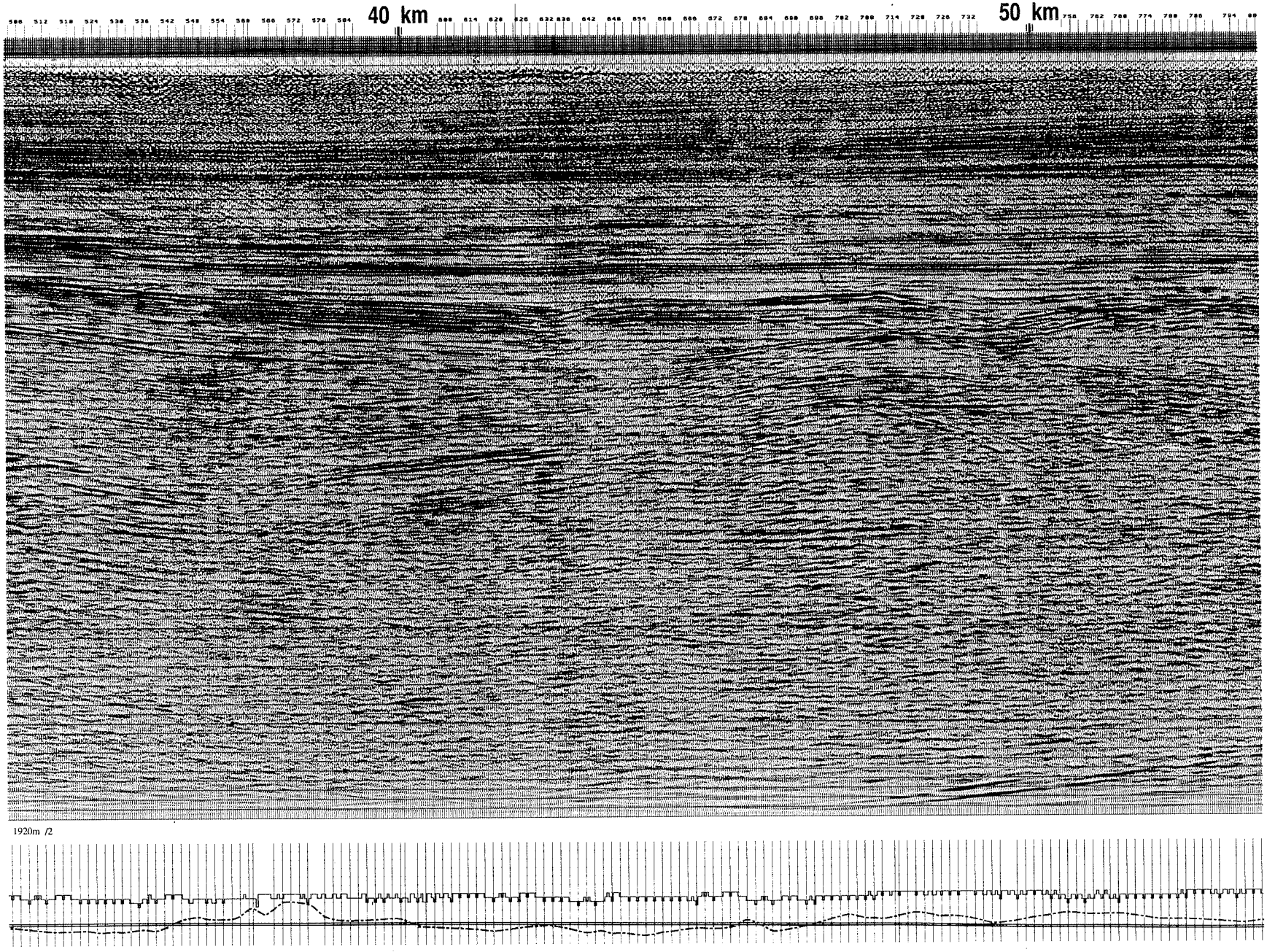
Processing parameters:

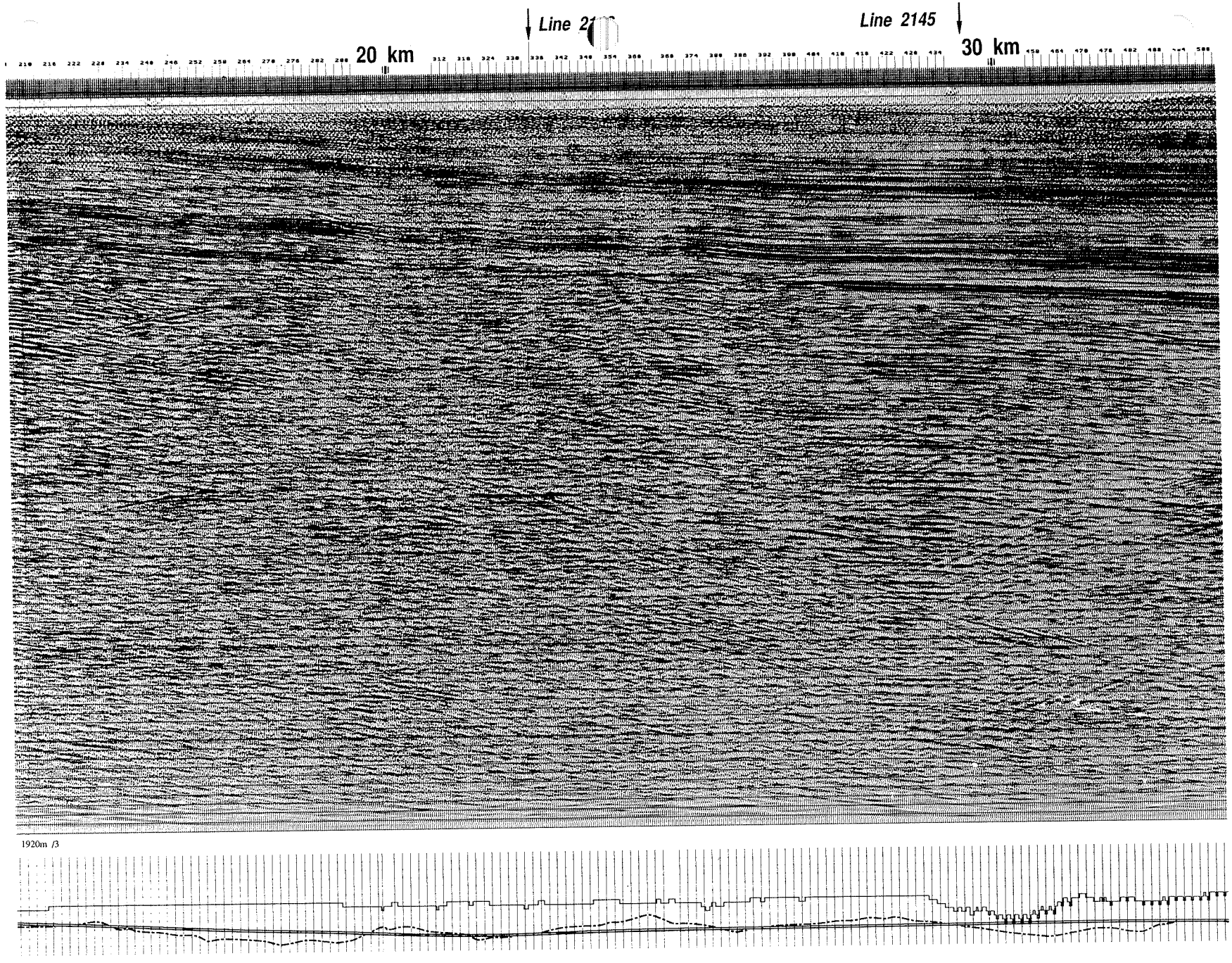
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

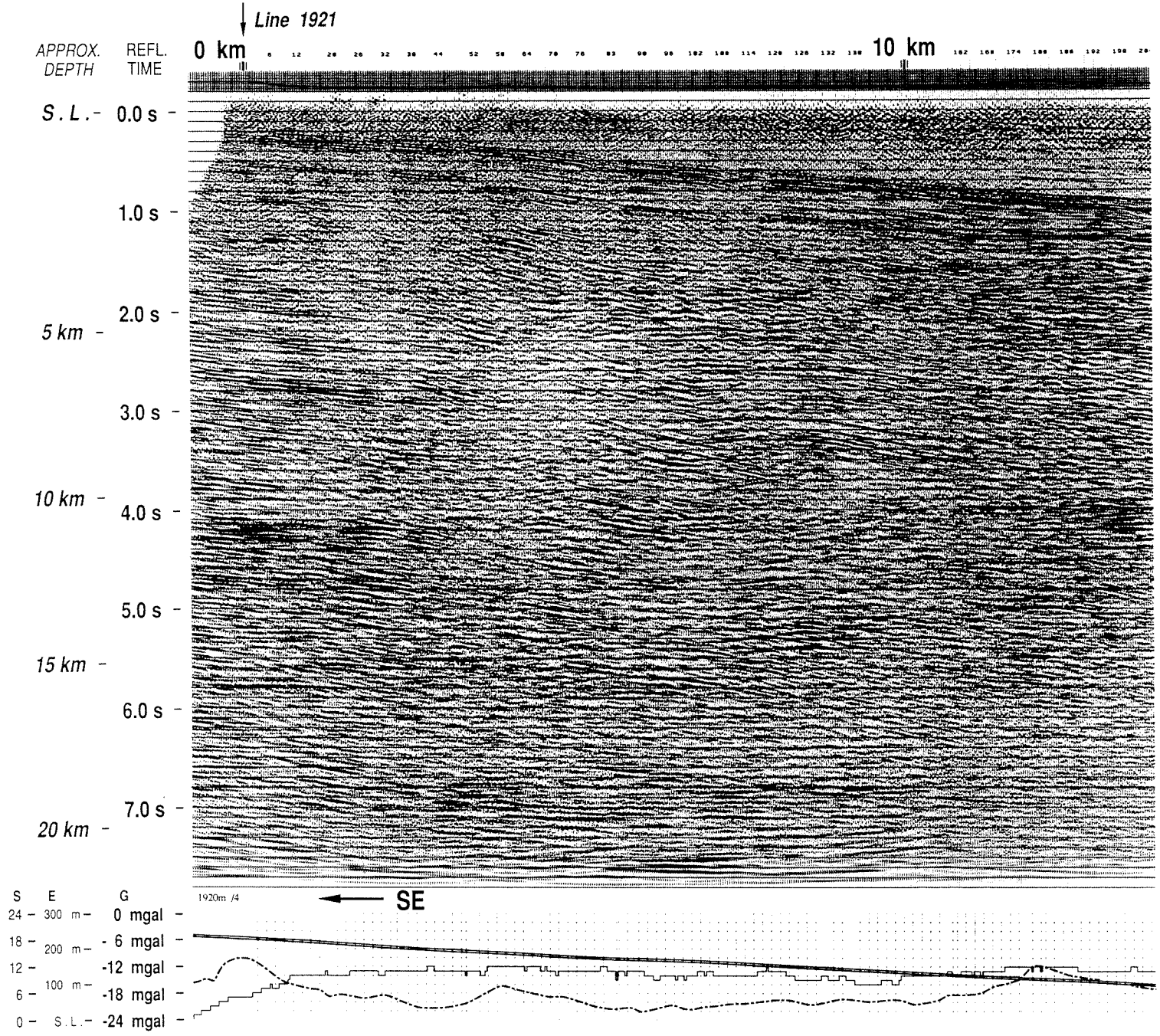
G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


40 km
50 km
1920m /2

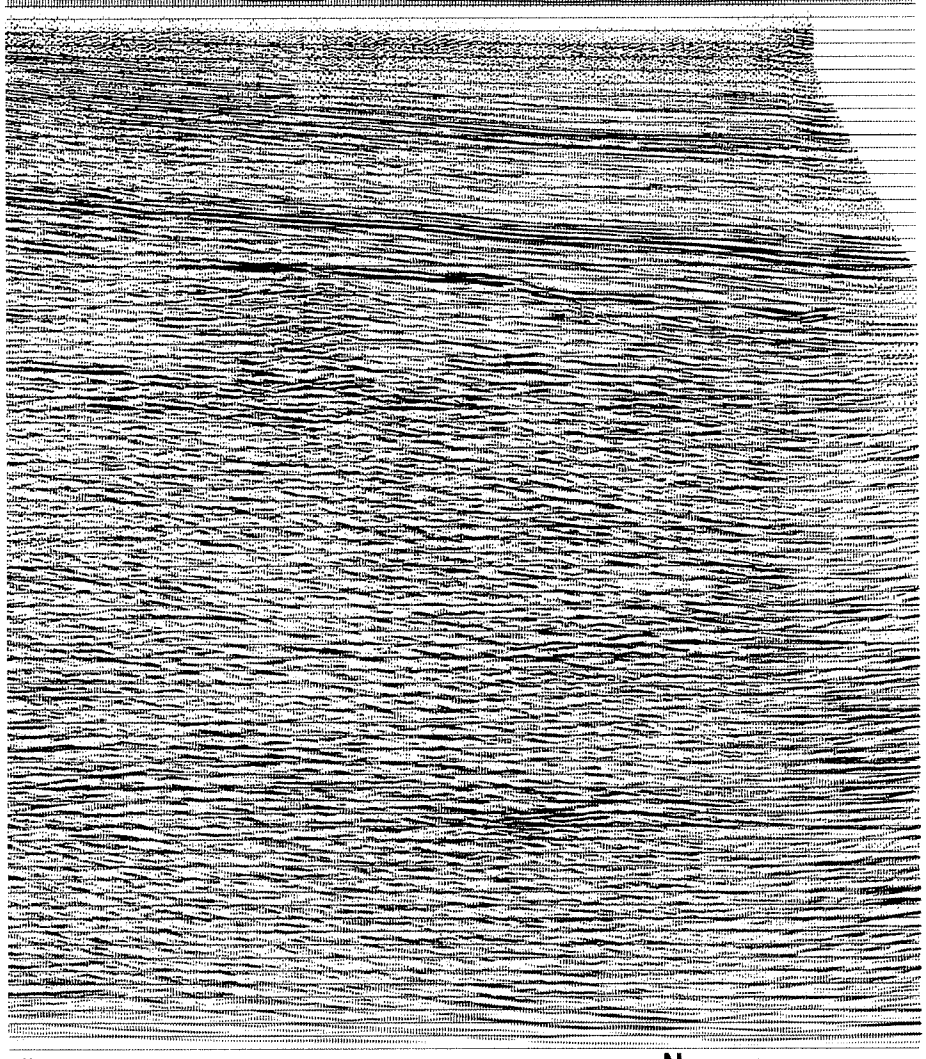

Line 2145
20 km
30 km
1920m /3


Line 1921
APPROX. DEPTH
REFL. TIME
0 km
10 km
S.L.-
0.0 s
1.0 s
2.0 s
5 km
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
1920m /4
SE
S E
G
24 - 300 m -
0 mgal
18 -
- 6 mgal
12 - 200 m -
-12 mgal
6 -
-18 mgal
100 m -
0 - S.L.-
-24 mgal

Sherard Bay F-14

Line 2146 ↓ Line 1179 ↓

km 763 769 775 781 787 793 799 805 811 817 823 829 835 841 847 853 859 865 871 877 60 km



REFL. TIME	APPROX. DEPTH
-0.0 s	- S.L.
-1.0 s	
-2.0 s	
	- 5 km
-3.0 s	
-4.0 s	
	-10 km
-5.0 s	
-6.0 s	-15 km
-7.0 s	
	-20 km

1921m /1

N →

G	E	S
- 0 mgal	-300 m	- 24
- - 6 mgal	-200 m	- 18
- -12 mgal		- 12
- -18 mgal	-100 m	- 6
- -24 mgal	-S.L.	- 0

MELVILLE ISLAND, CANADA

Line No.: **1921**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	October 1975
Source interval:	440 ft
Geophone group interval:	220 ft
Spread distance:	5500-440-SP-440-5500 ft

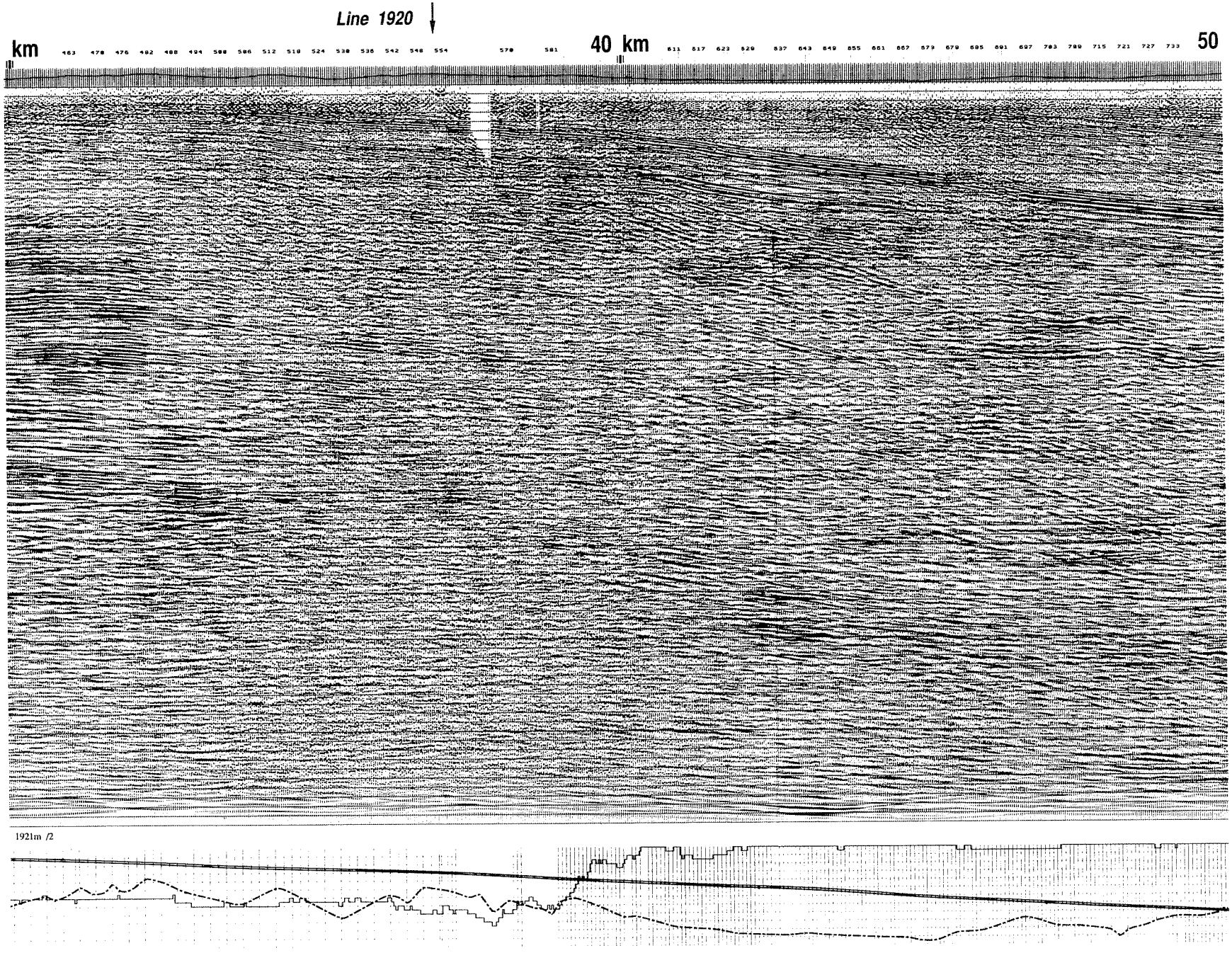
Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	12v ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

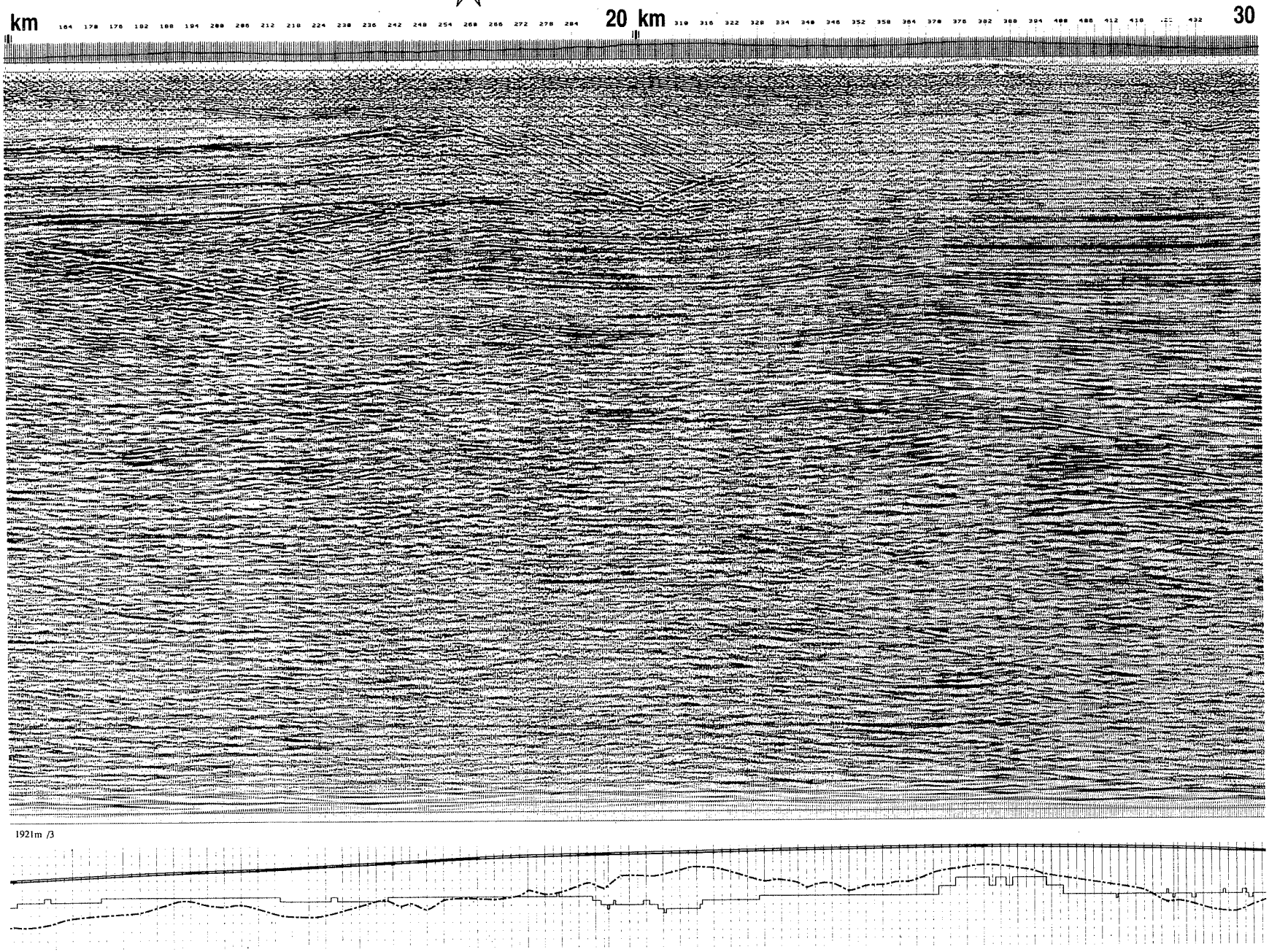
G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

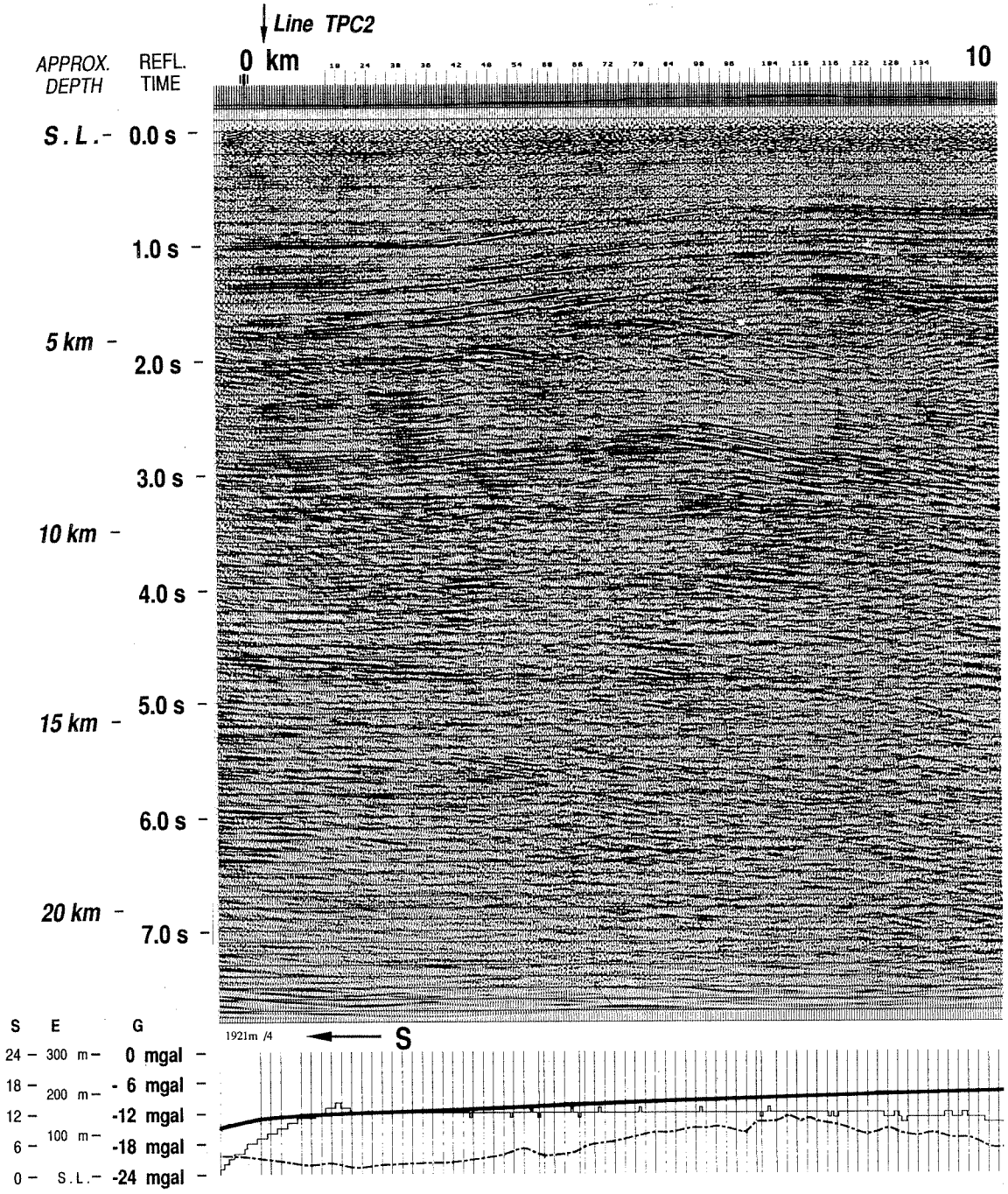
Interpretation:

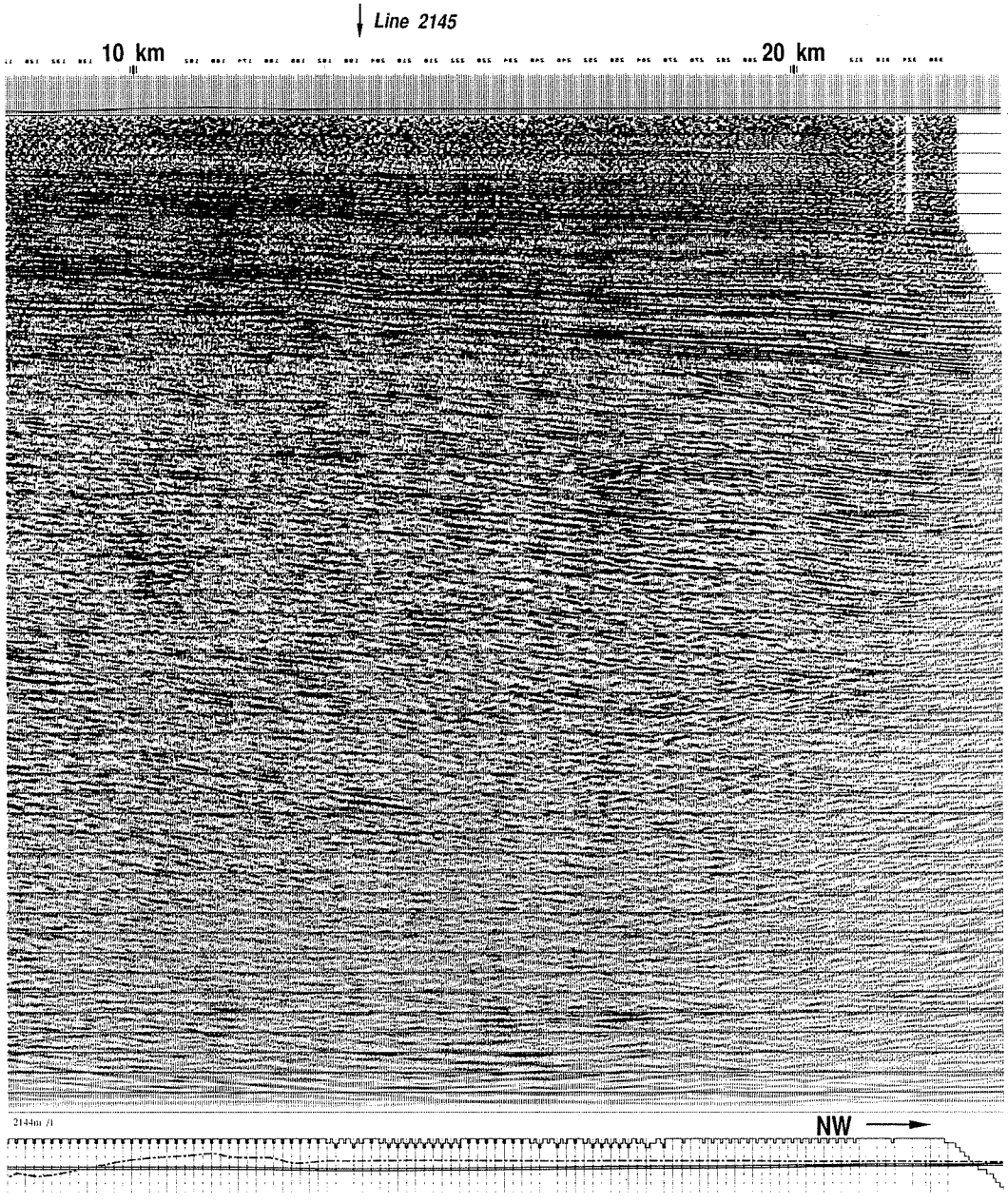
E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 1920
km
463 470 476 482 488 494 500 506 512 518 524 530 536 542 548 554 570 581
40 km
611 617 623 629 637 643 649 655 661 667 673 679 685 691 697 703 709 715 721 727 733
50
1921m /2

Weatherall O-10




Line TPC2
APPROX. DEPTH
REFL. TIME
0 km
10
S.L.- 0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S E G
24 - 300 m - 0 mgal
18 - 200 m - - 6 mgal
12 - -12 mgal
6 - 100 m - -18 mgal
0 - S.L.- -24 mgal
1921m /4
S



REFL. TIME | APPROX. DEPTH

-0.0 s - S.L.
-1.0 s
-2.0 s
- 5 km
-3.0 s
-4.0 s
-10 km
-5.0 s
-6.0 s -15 km
-7.0 s
-20 km
-8.0 s
-9.0 s
-25 km

	G	E	S
–	-14 mgal	–150 m	– 12
–	-20 mgal	– 75 m	– 6
–	-26 mgal	–S.L.	– 0

MELVILLE ISLAND, CANADA

Line No.: **2144**

Migrated Seismic Reflection Section

Processed by:
Ventas Seismic Ltd., Calgary, February 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	March 1976
Source interval:	440 ft
Geophone group interval:	220 ft
Spread distance:	1540-440-SP-440-1320, 3520-11220 ft

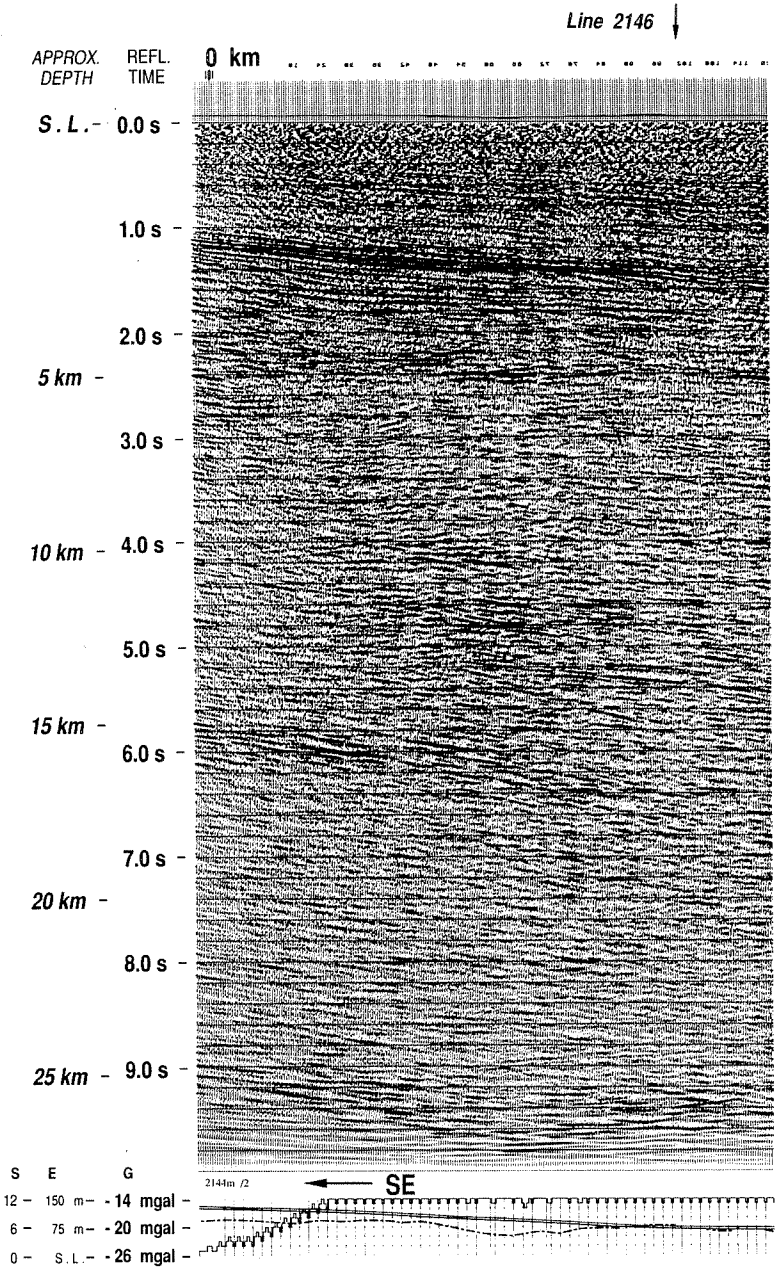
Processing parameters:

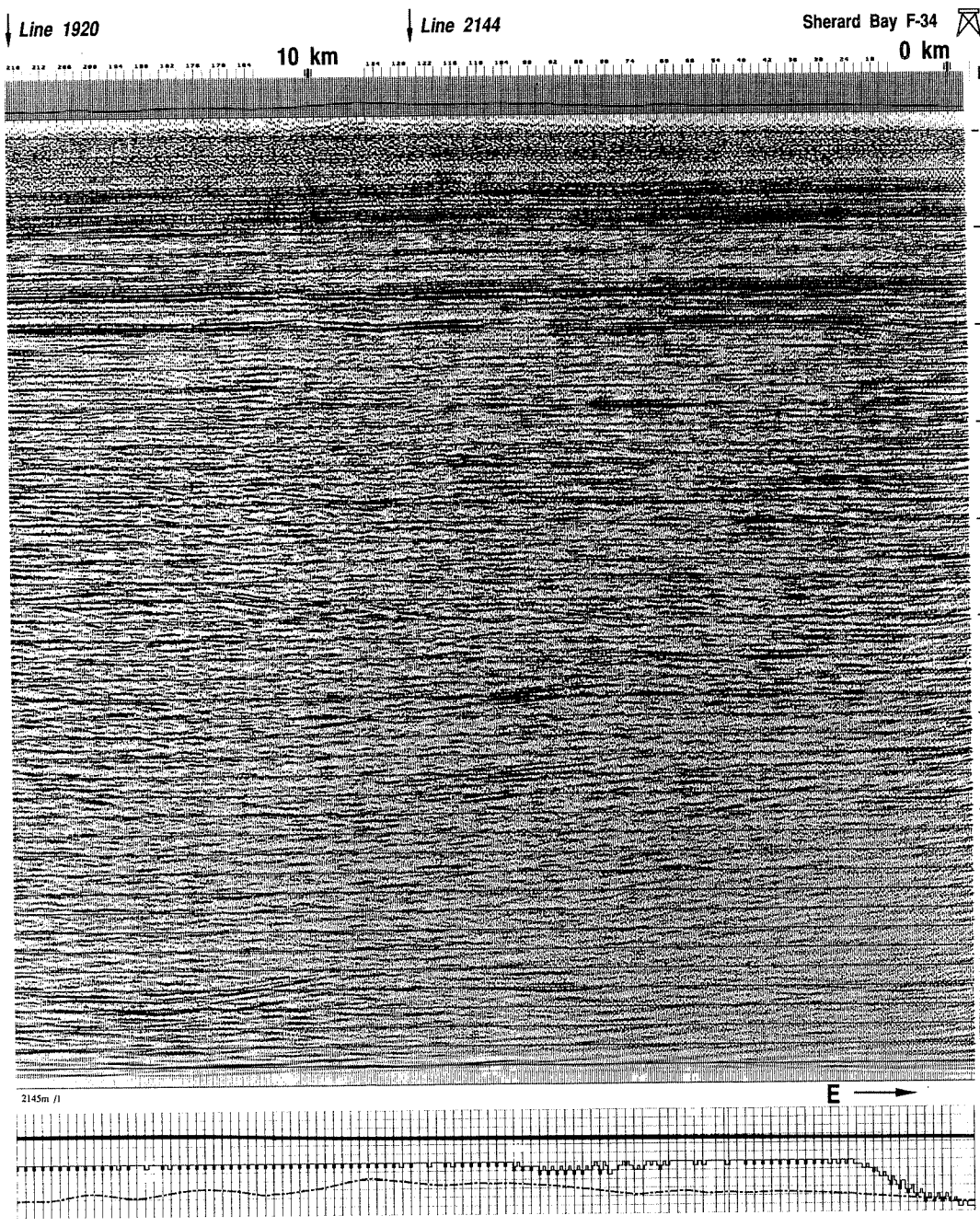
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-10000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 2146
APPROX. DEPTH
REFL. TIME
0 km
S.L.
0.0 s
1.0 s
2.0 s
5 km
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
8.0 s
25 km
9.0 s
S E G
12 – 150 m – -14 mgal –
6 – 75 m – -20 mgal –
0 – S.L. – -26 mgal –
2144m /2
SE



MELVILLE ISLAND, CANADA

Line No.: **2145**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	March 1976
Source interval:	440 ft
Geophone group interval:	220 ft
Spread distance:	1540-440-SP-440-11440 ft

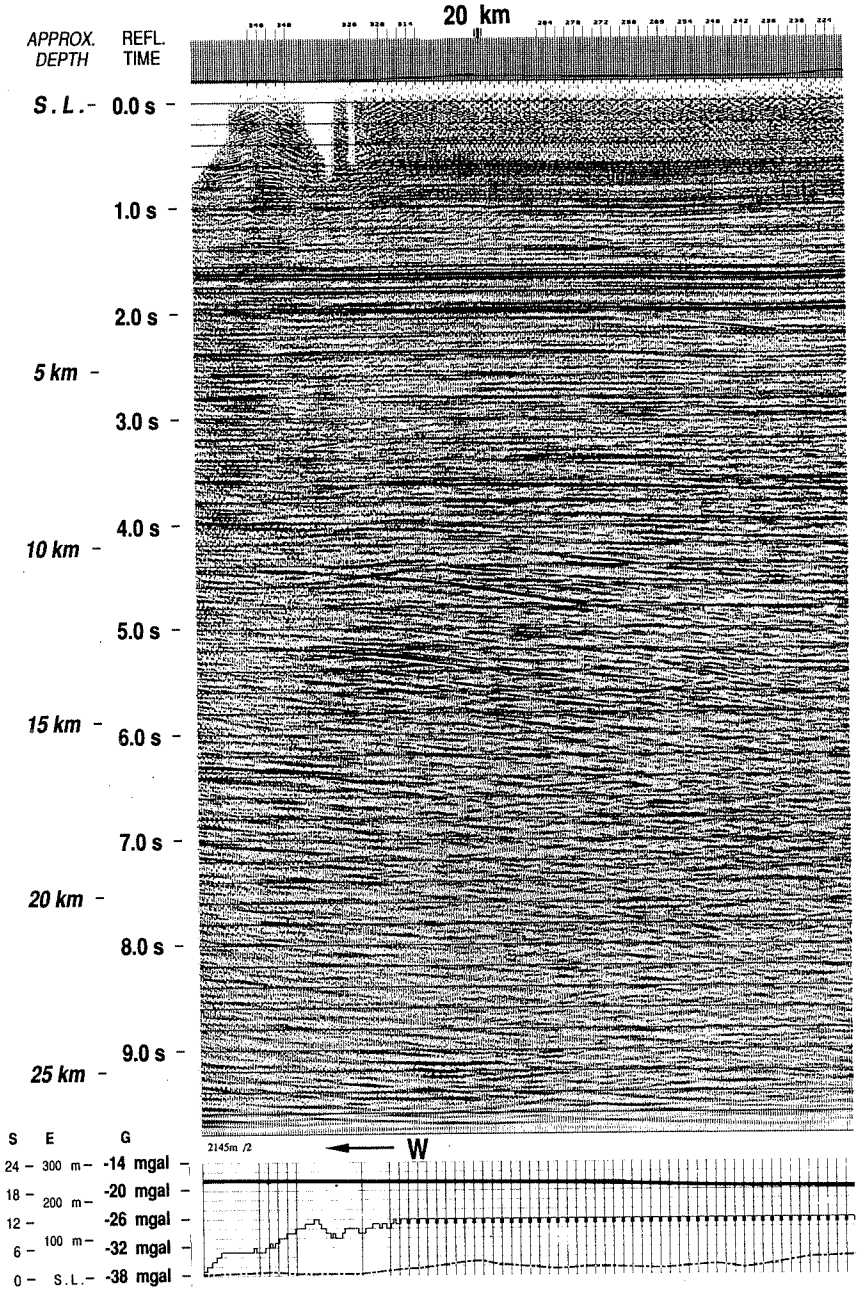
Processing parameters:

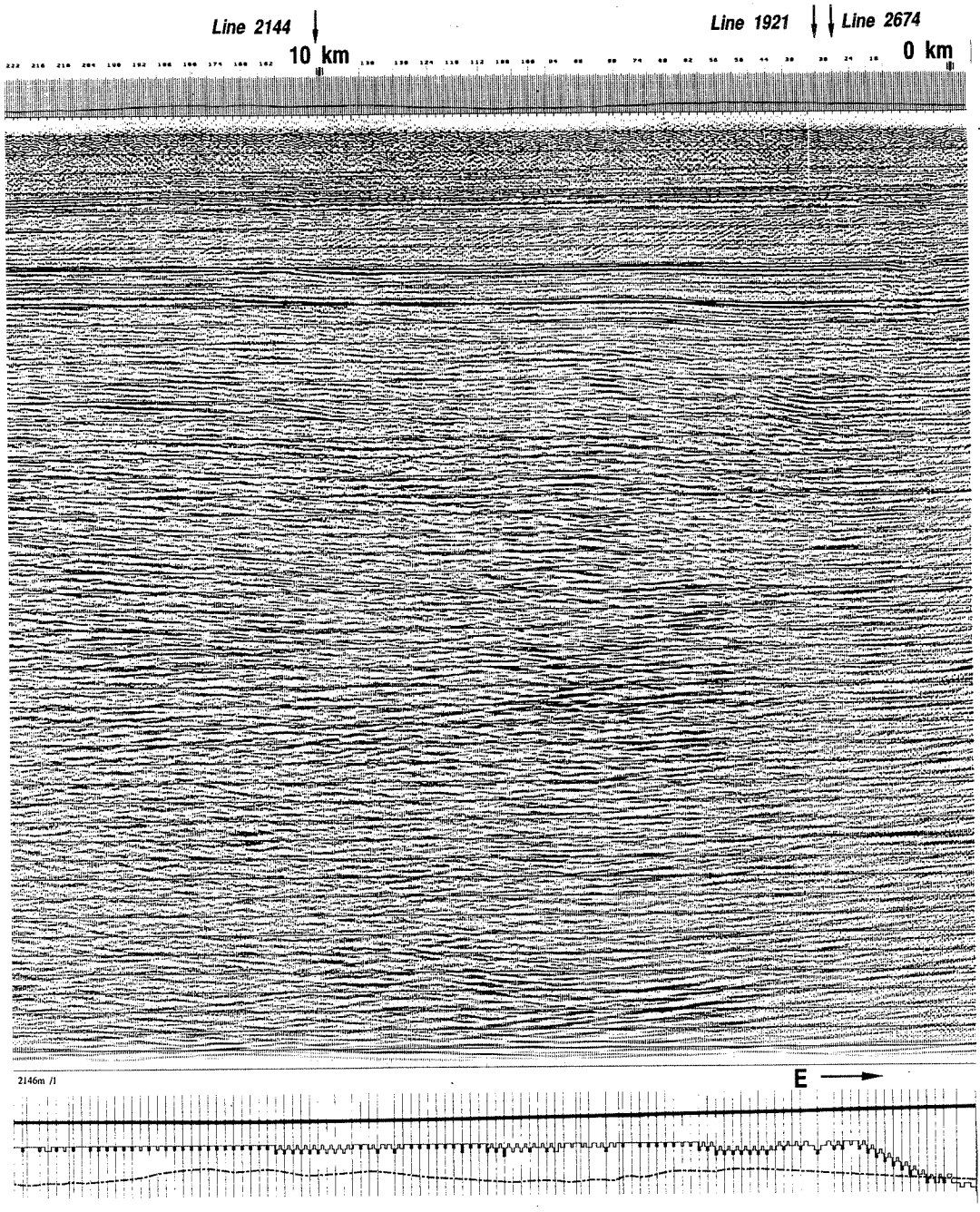
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-10000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


20 km
APPROX. DEPTH
REFL. TIME
S.L.- 0.0 s -
1.0 s -
2.0 s -
5 km -
3.0 s -
4.0 s -
10 km -
5.0 s -
15 km -
6.0 s -
7.0 s -
20 km -
8.0 s -
9.0 s -
25 km -
S E G
24 - 300 m - -14 mgal -
18 - 200 m - -20 mgal -
12 - -26 mgal -
6 - 100 m - -32 mgal -
0 - S.L.- -38 mgal -
2145m /2
W



MELVILLE ISLAND, CANADA

Line No.: **2146**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	March 1976
Source interval:	440 ft
Geophone group interval:	220 ft
Spread distance:	1540-440-SP-440-11440 ft

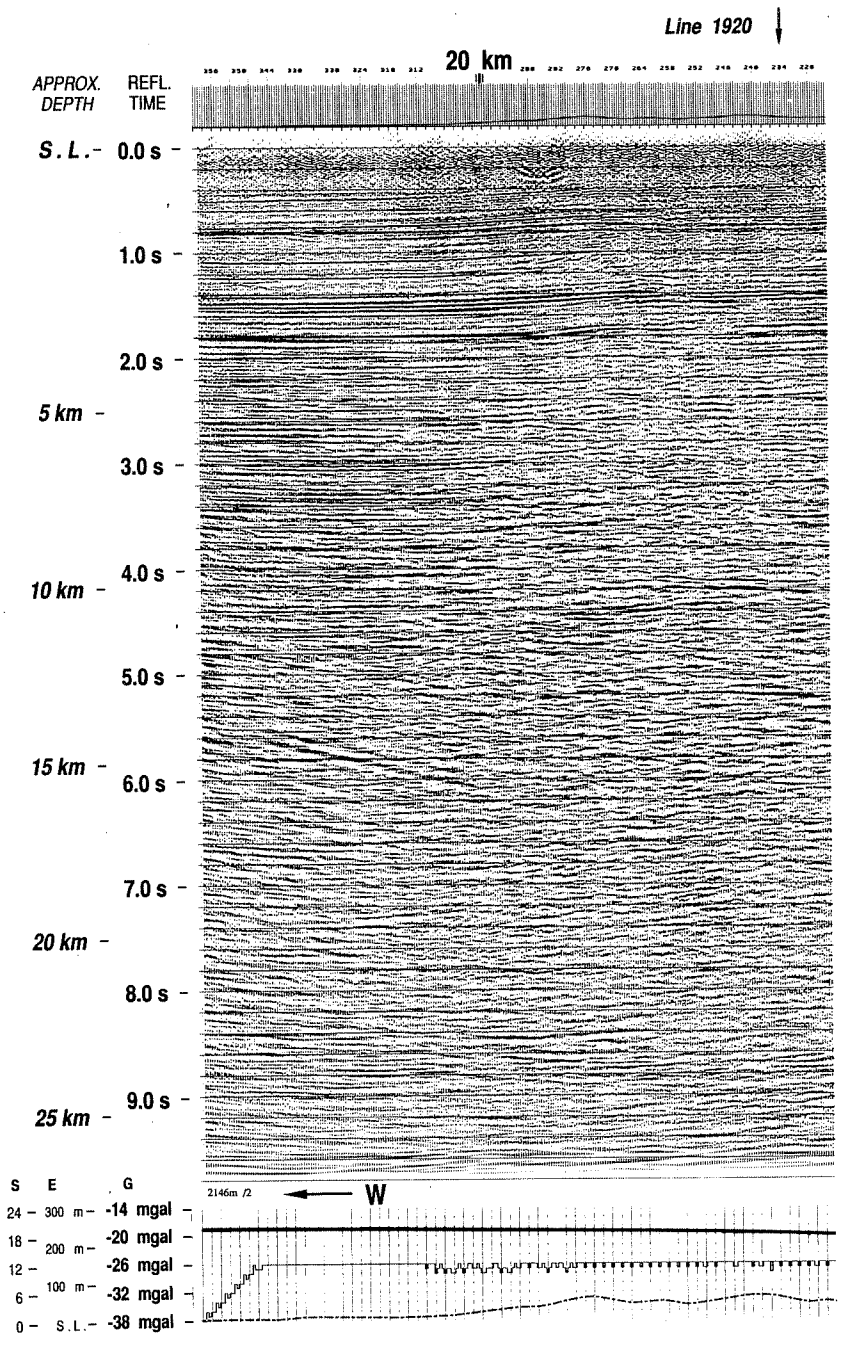
Processing parameters:

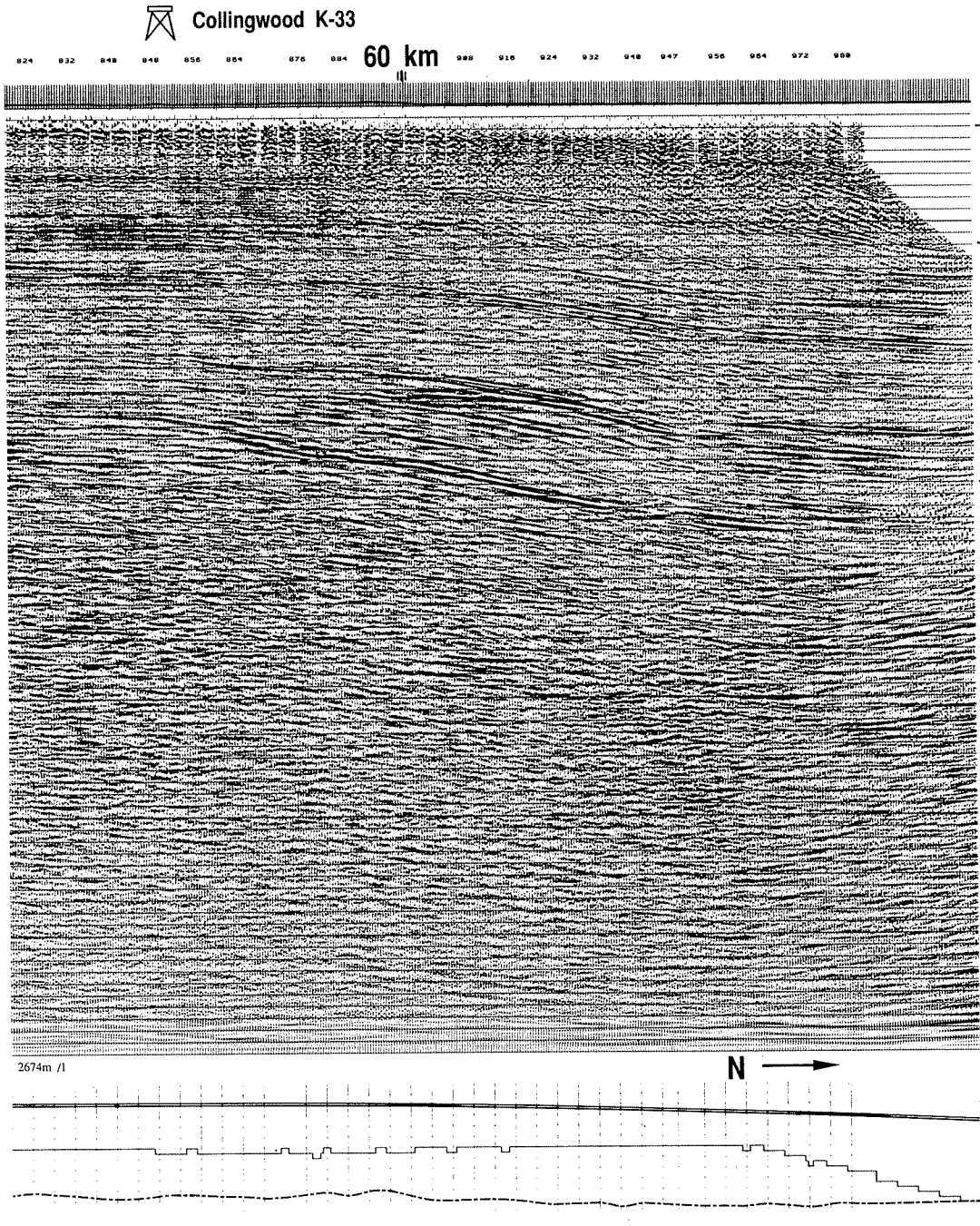
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-10000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 1920
20 km
APPROX. DEPTH
REFL. TIME
S.L.- 0.0 s -
1.0 s -
2.0 s -
5 km -
3.0 s -
10 km - 4.0 s -
5.0 s -
15 km - 6.0 s -
7.0 s -
20 km -
8.0 s -
25 km - 9.0 s -
S E G
24 - 300 m - -14 mgal -
18 - 200 m - -20 mgal -
12 - -26 mgal -
6 - 100 m - -32 mgal -
0 - S.L.- -38 mgal -
2146m /2
W



MELVILLE ISLAND, CANADA

Line No.: **2674**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	September 1981
Source interval:	268 m
Geophone group interval:	67 m
Spread distance:	3283-134-SP-134-3283 m

Processing parameters:

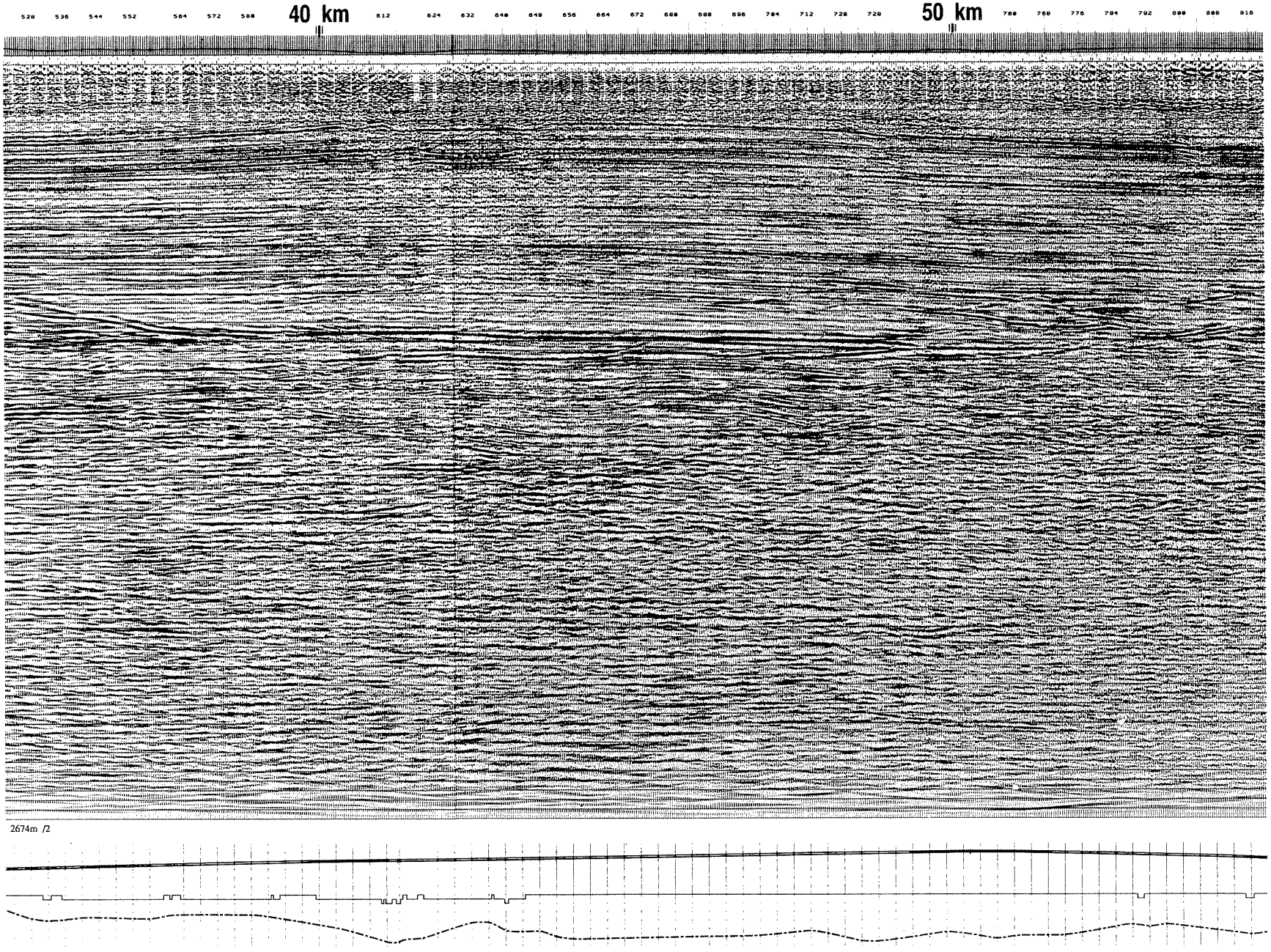
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter, time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

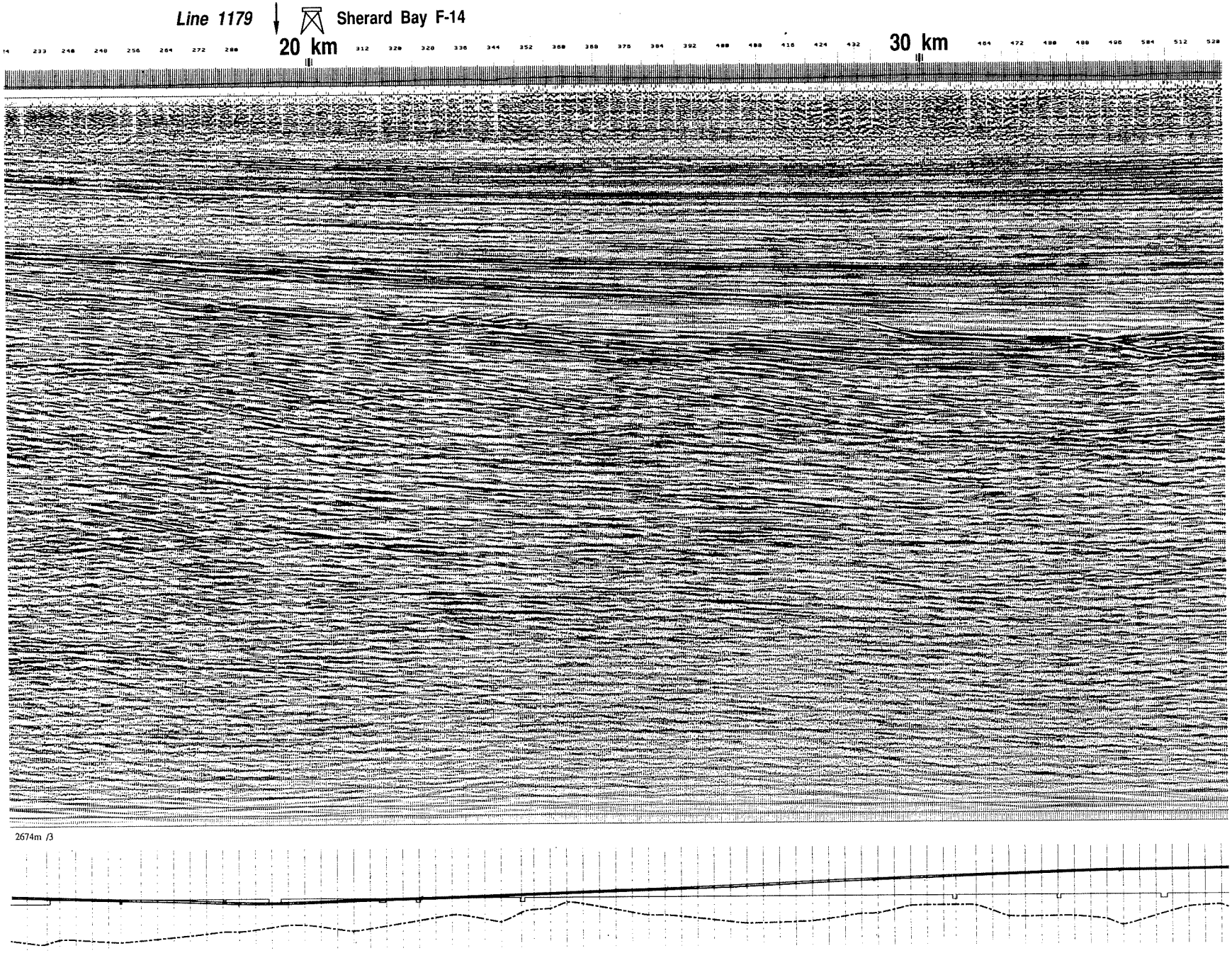
G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

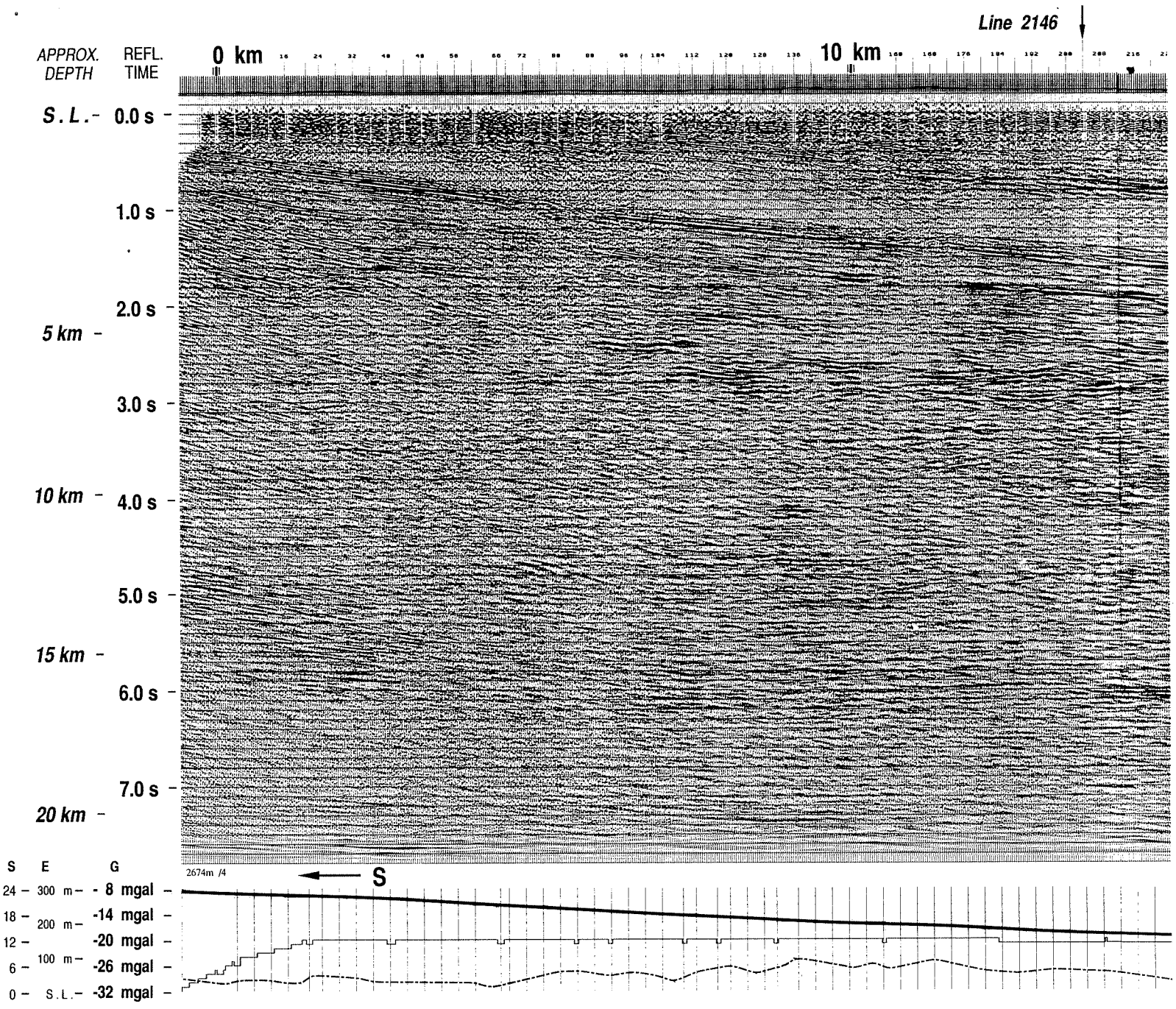
Interpretation:

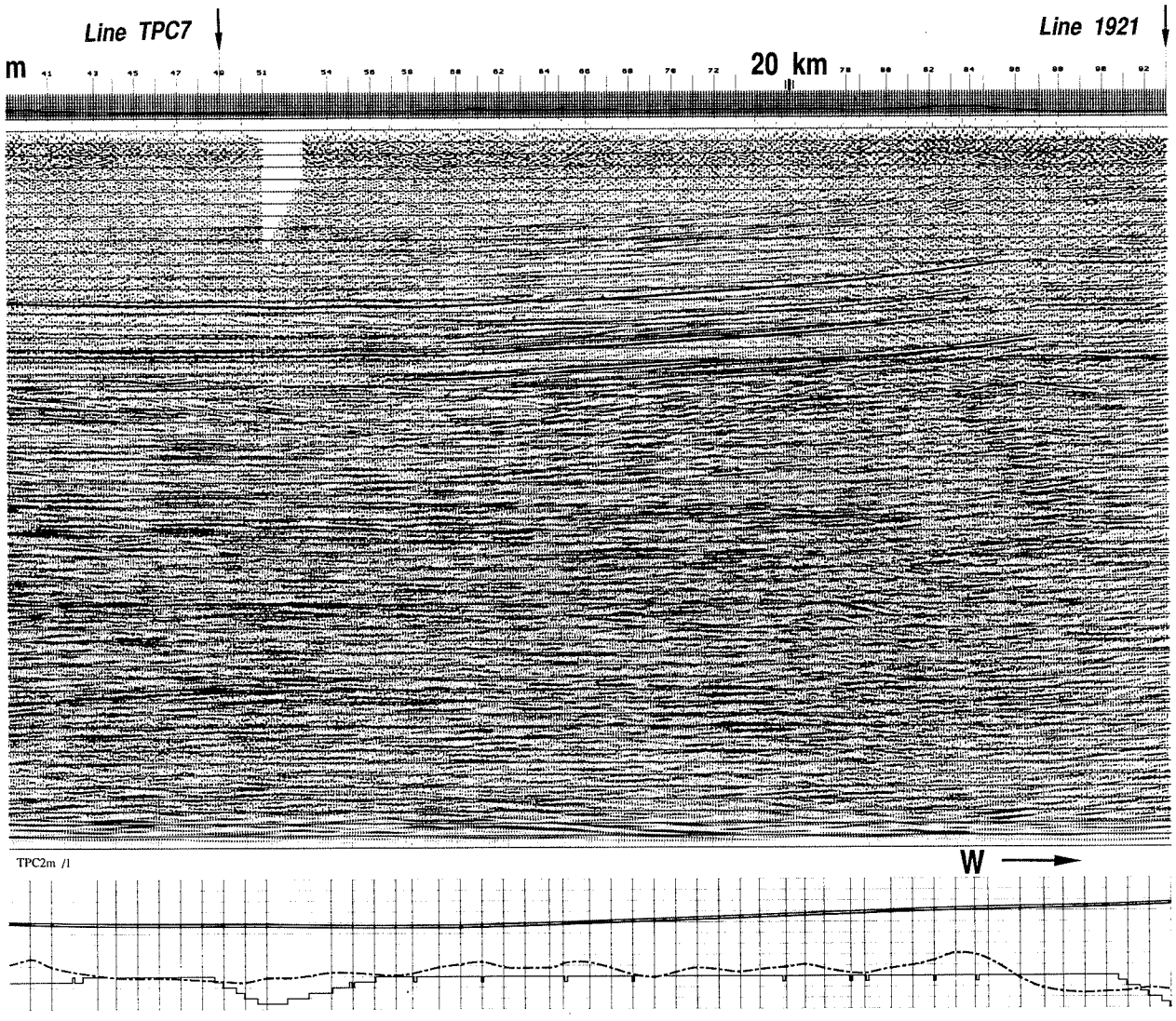
E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

Line 1180




Line 1179
Sherard Bay F-14
20 km
30 km
2674m /3


Line 2146
APPROX. DEPTH
REFL. TIME
0 km
10 km
S.L.
0.0 s
1.0 s
2.0 s
5 km
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
S
E
G
2674m /4
S
24
18
12
6
0
300 m
200 m
100 m
S.L.
- 8 mgal
-14 mgal
-20 mgal
-26 mgal
-32 mgal



REFL. TIME	APPROX. DEPTH
-0.0 s	- S.L.
-1.0 s	
-2.0 s	- 5 km
-3.0 s	
	-10 km
-4.0 s	
-5.0 s	-15 km

G	E	S
- - 8 mgal	-300 m	- 24
- -14 mgal	-200 m	- 18
- -20 mgal		- 12
- -26 mgal	-100 m	- 6
- -32 mgal	-S.L.	- 0

MELVILLE ISLAND, CANADA

Line No.: **TPC-2**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

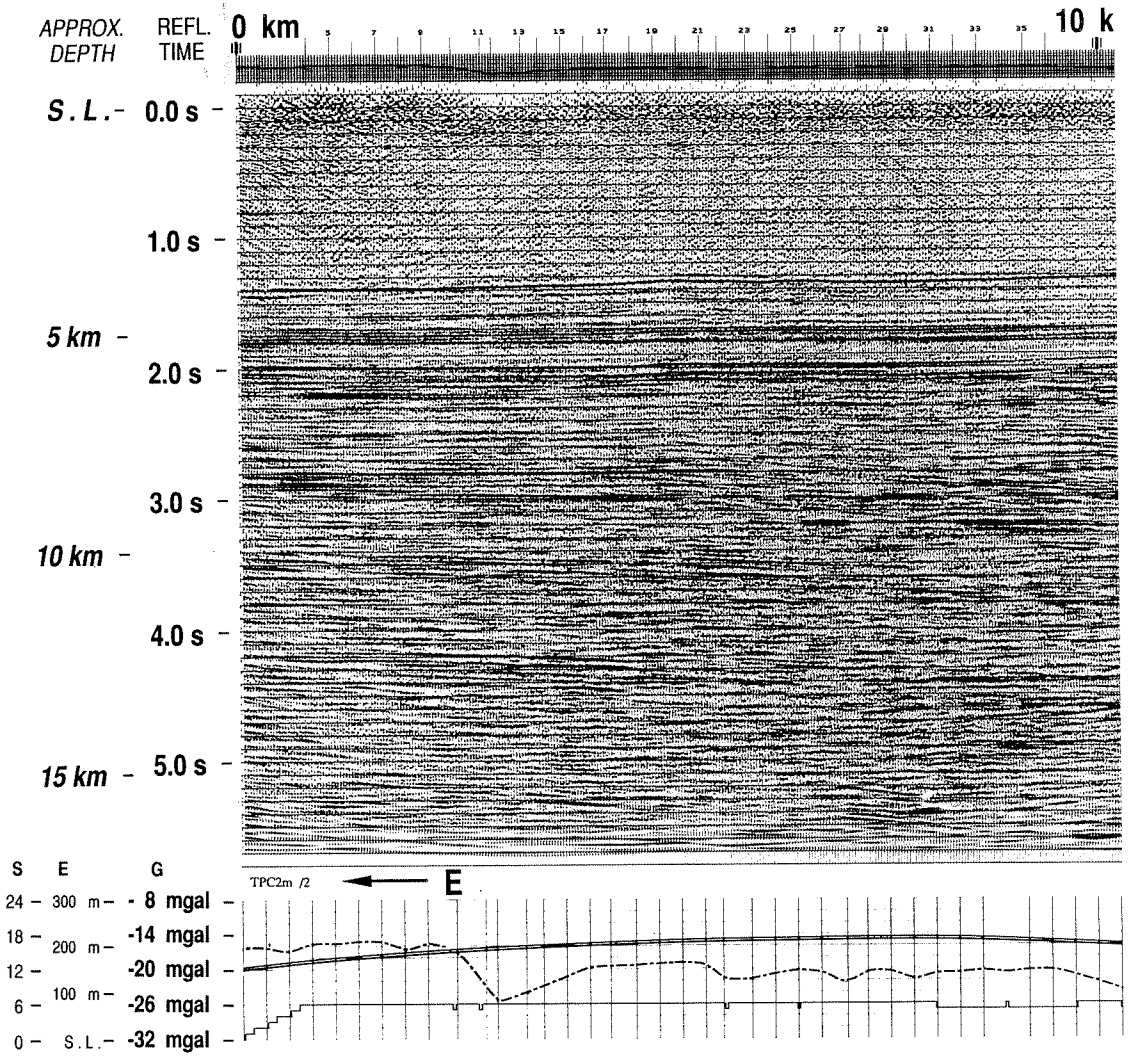
Processing parameters:

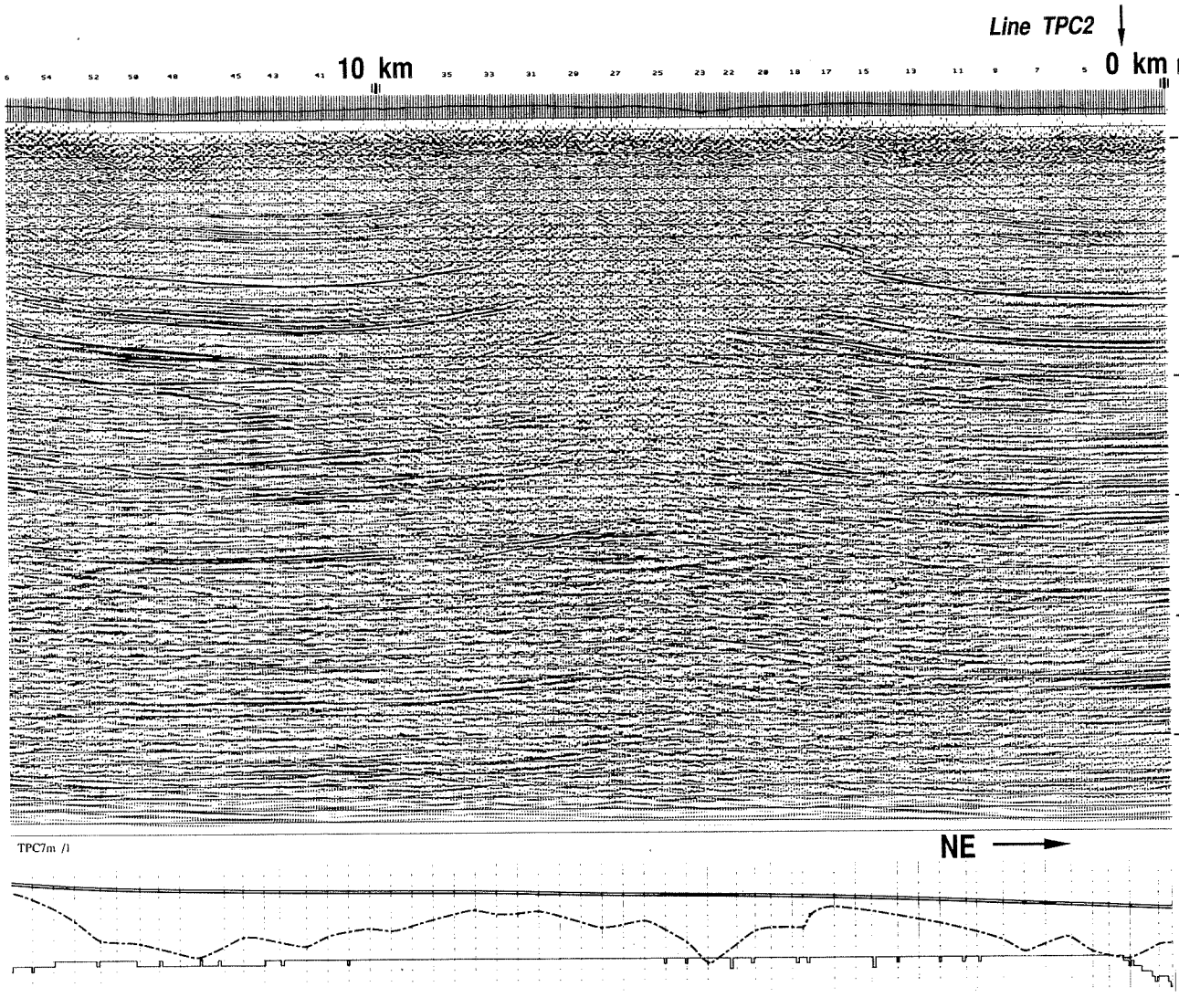
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-6000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


APPROX. DEPTH
REFL. TIME
0 km
10 k
S.L.- 0.0 s -
1.0 s -
5 km -
2.0 s -
3.0 s -
10 km -
4.0 s -
15 km - 5.0 s -
S E G
24 - 300 m - - 8 mgal -
18 - 200 m - -14 mgal -
12 - -20 mgal -
6 - 100 m - -26 mgal -
0 - S.L.- -32 mgal -
TPC2m /2
E



MELVILLE ISLAND, CANADA

Line No.: TPC-7

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

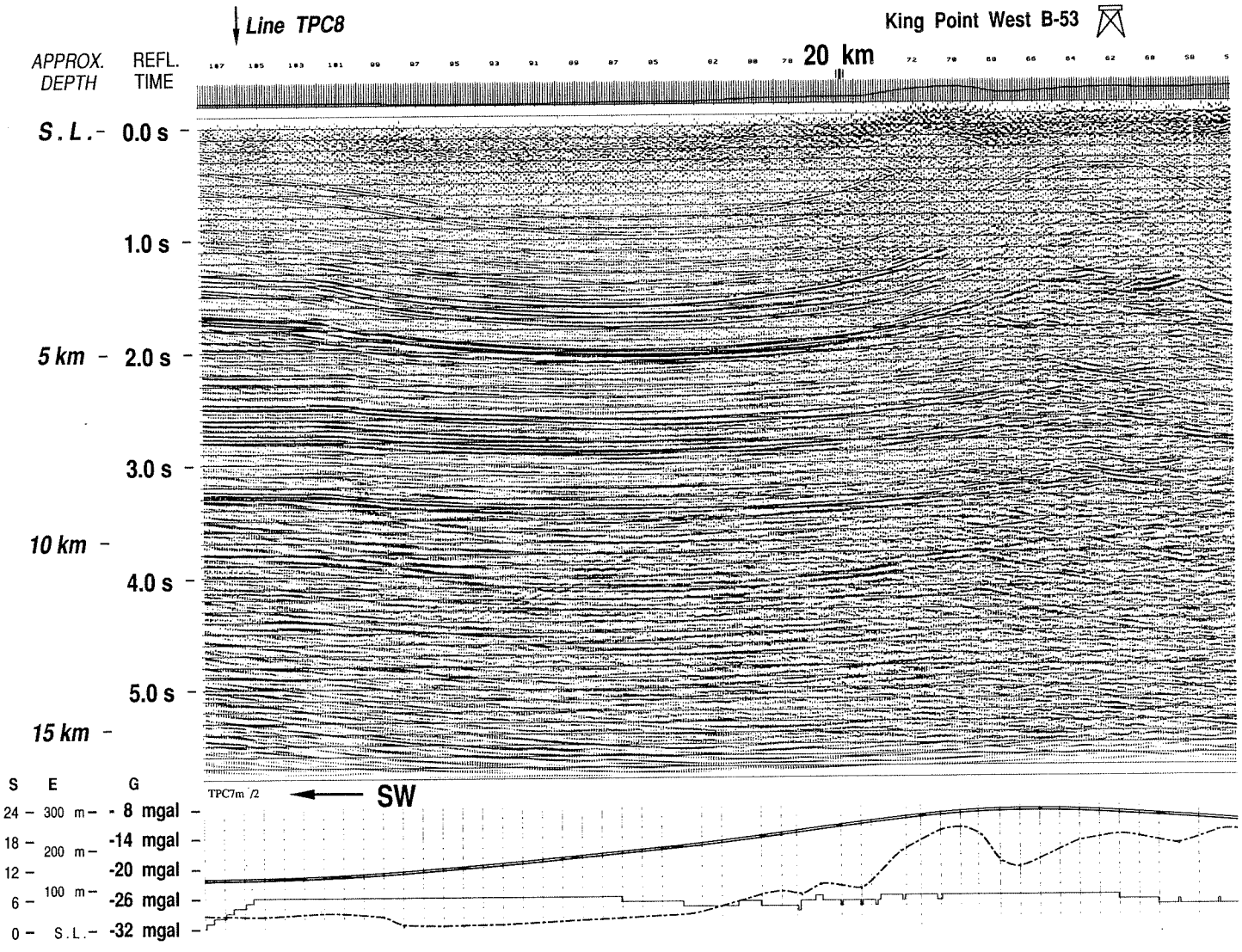
Processing parameters:

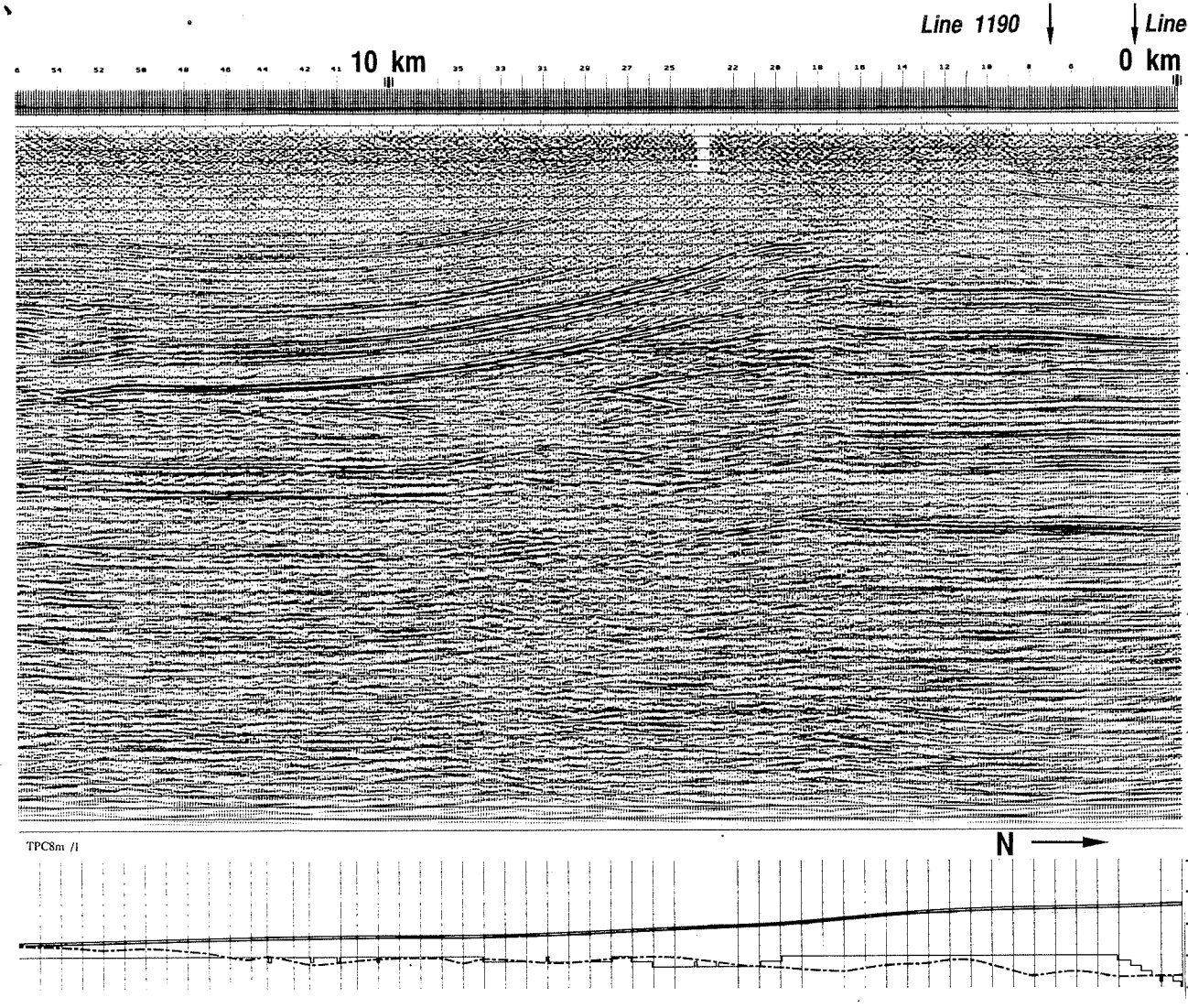
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-6000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line TPC8
King Point West B-53
APPROX. DEPTH
REFL. TIME
20 km
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
S E G
24 300 m -8 mgal
18 200 m -14 mgal
12 -20 mgal
6 100 m -26 mgal
0 S.L. -32 mgal
TPC7m /2
SW



MELVILLE ISLAND, CANADA

Line No.: **TPC-8**

Migrated Seismic Reflection Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-6000 ms:	5/7.5-50/60 Hz.

G: Bouguer gravity anomaly
E: Elevation
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

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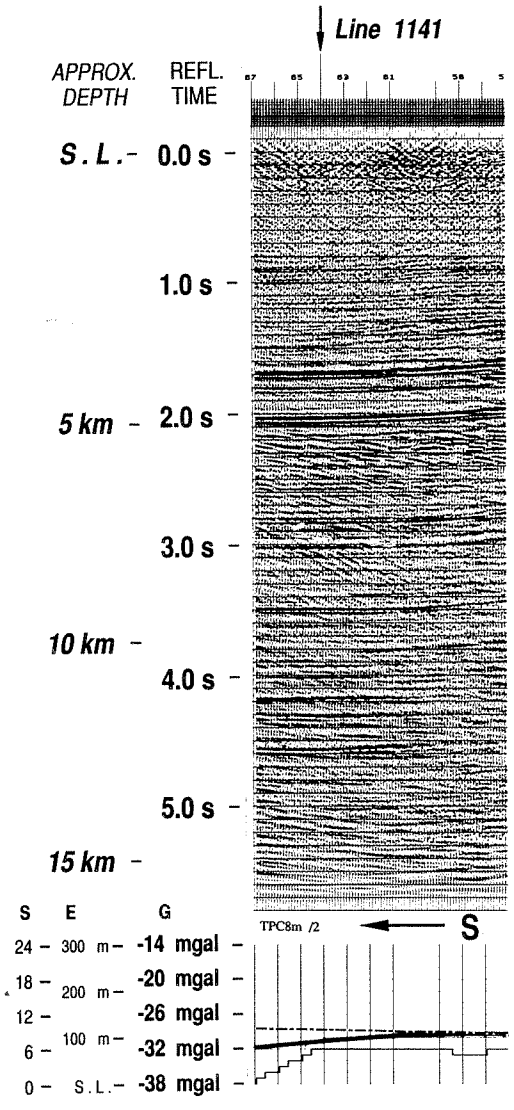
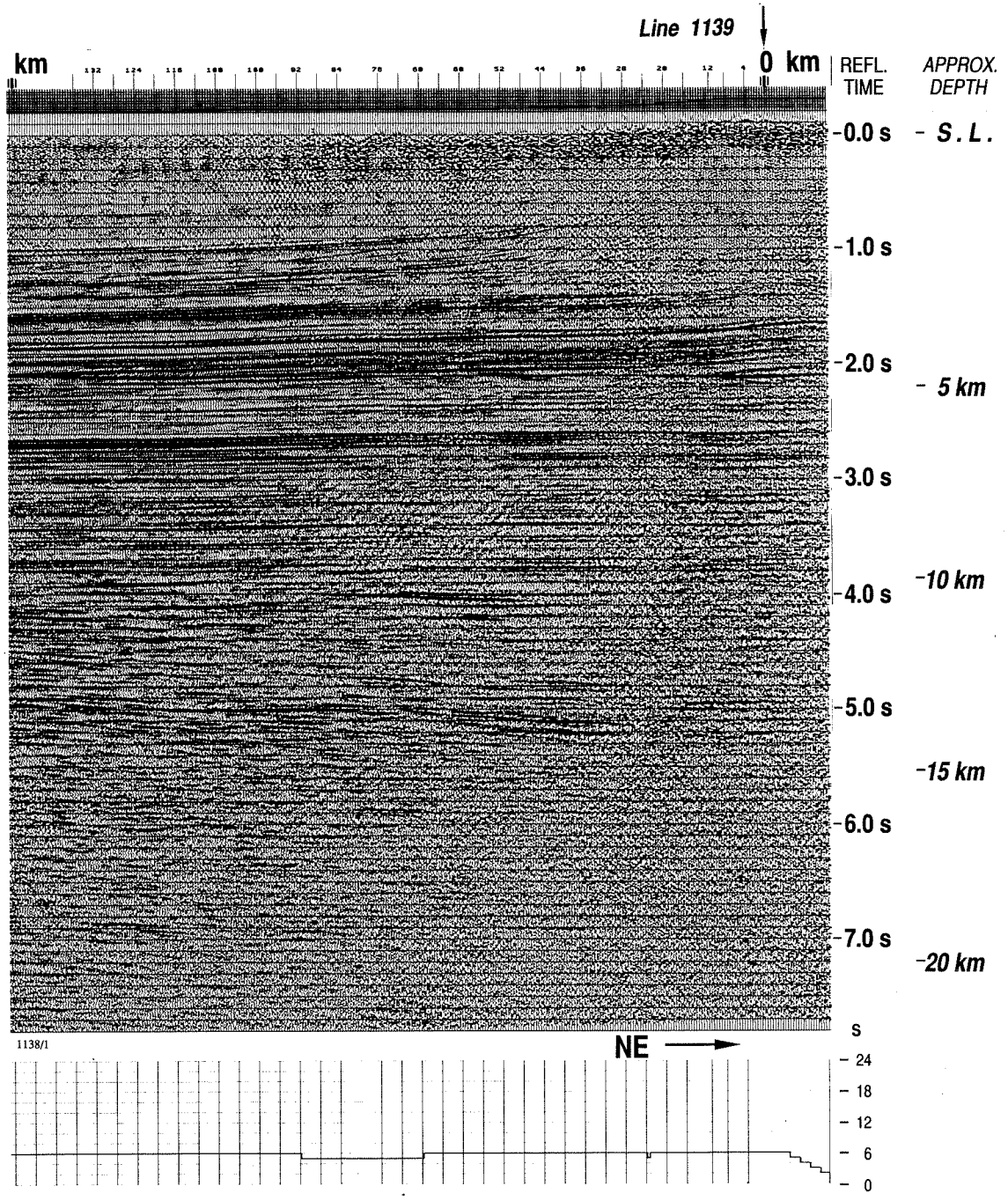

Line 1141
APPROX. DEPTH
REFL. TIME
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
S E G
24 300 m -14 mgal
18 200 m -20 mgal
12 -26 mgal
6 100 m -32 mgal
0 S.L. -38 mgal
TPC8m /2
S



MELVILLE ISLAND, CANADA

Line No.: **1138**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

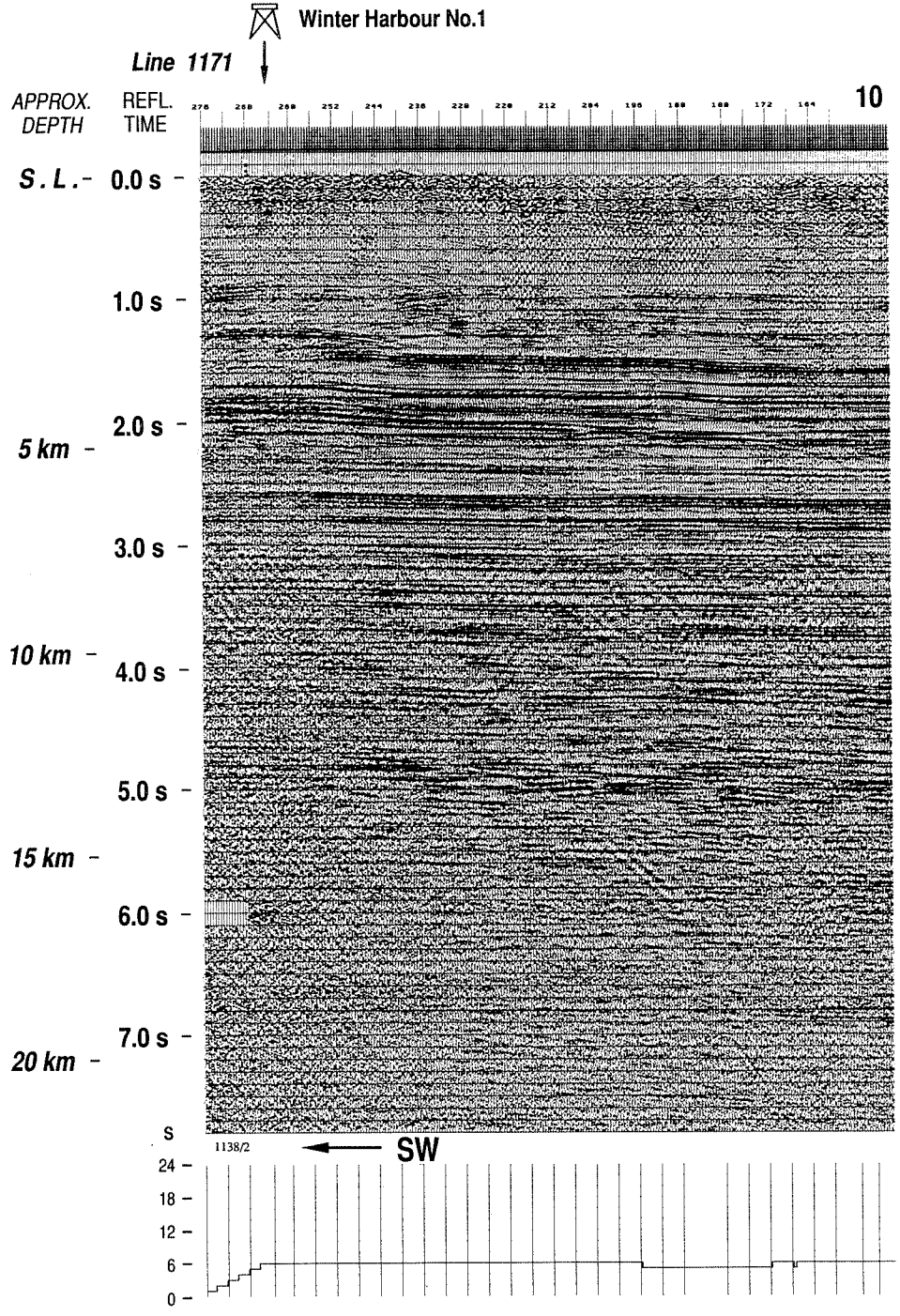
Processing parameters:

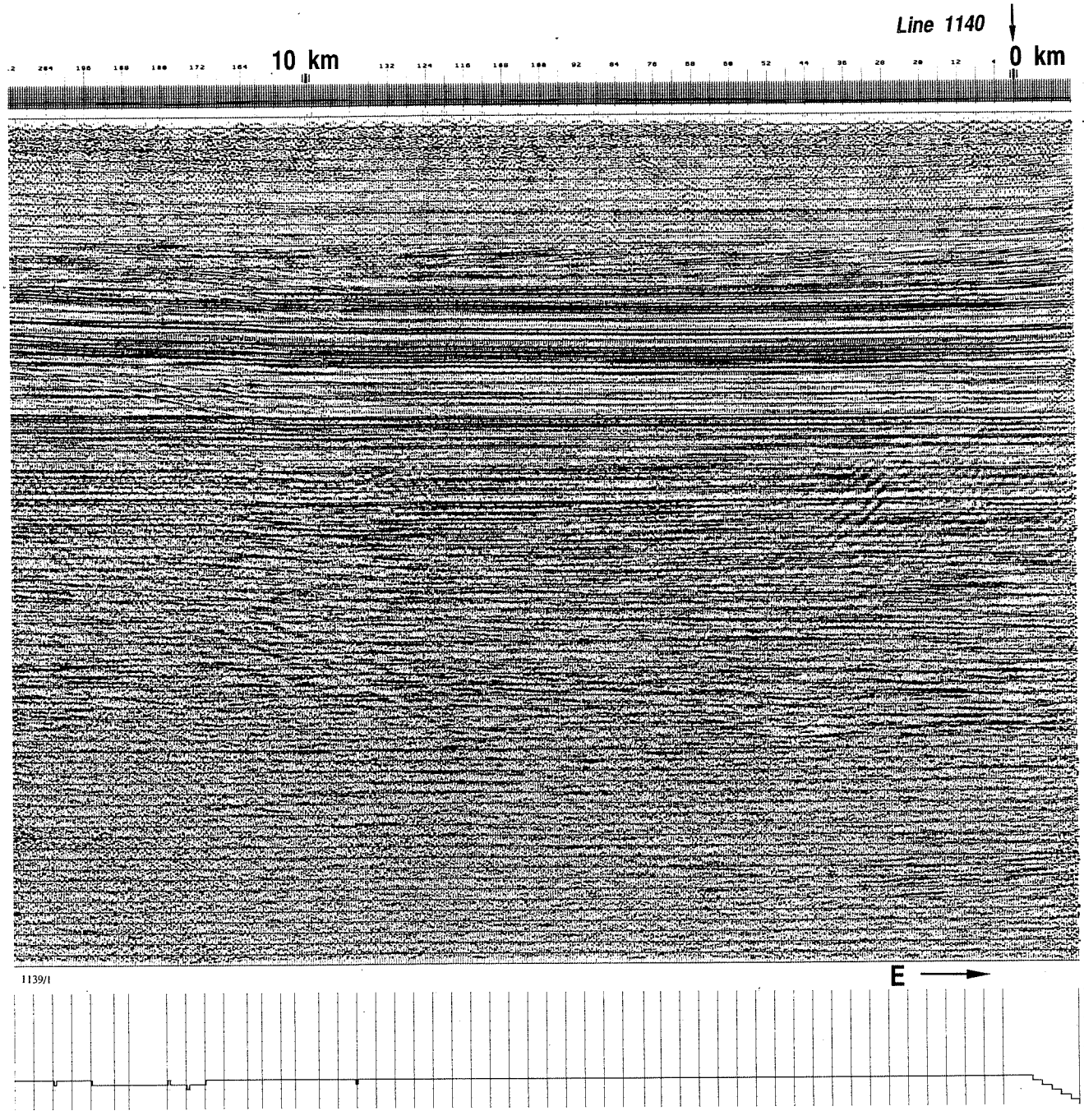
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Winter Harbour No.1
Line 1171
10
APPROX. DEPTH
REFL. TIME
S.L.
0.0 s
1.0 s
2.0 s
5 km
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
S
1138/2
SW
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **1139**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

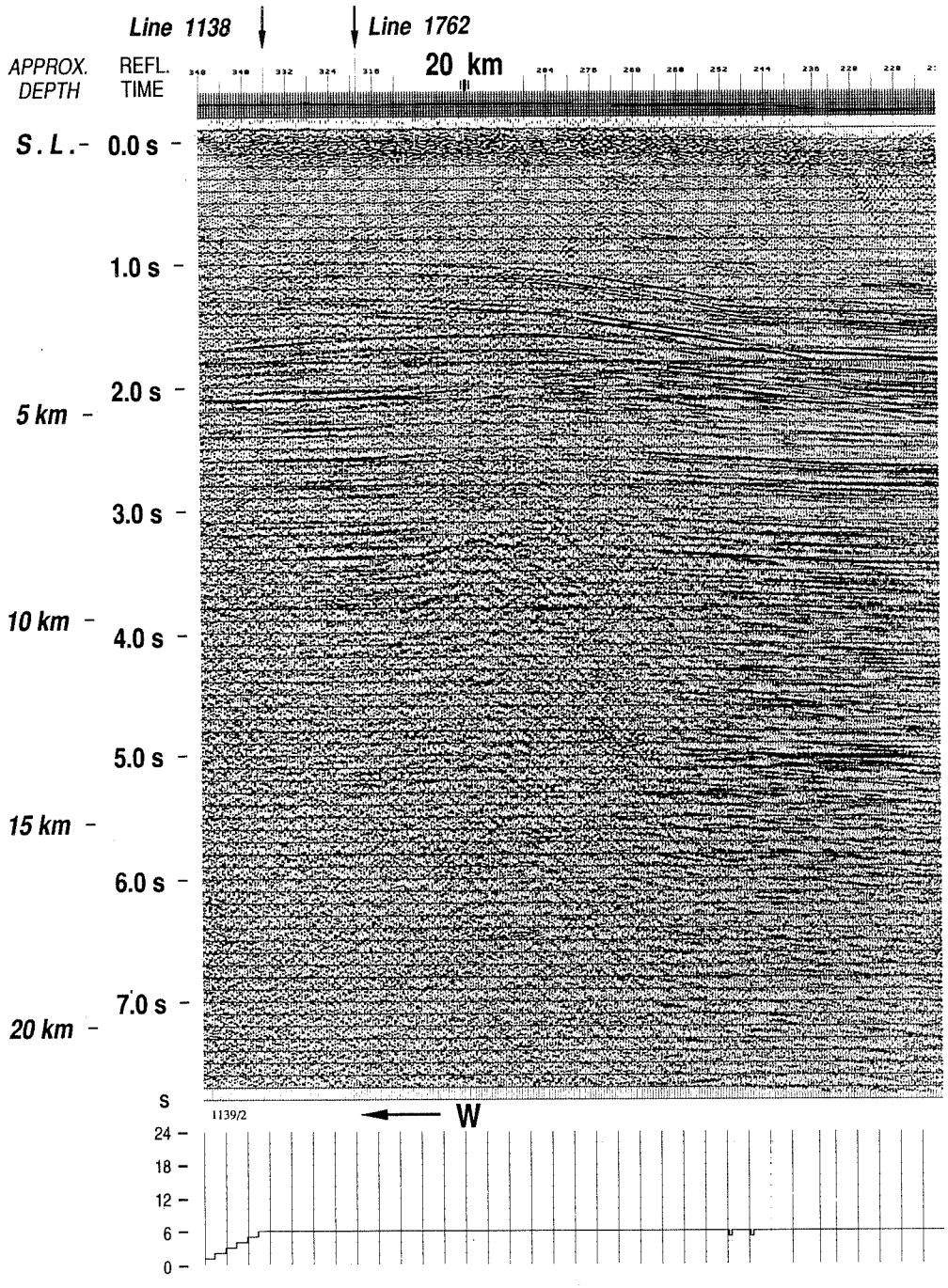
Processing parameters:

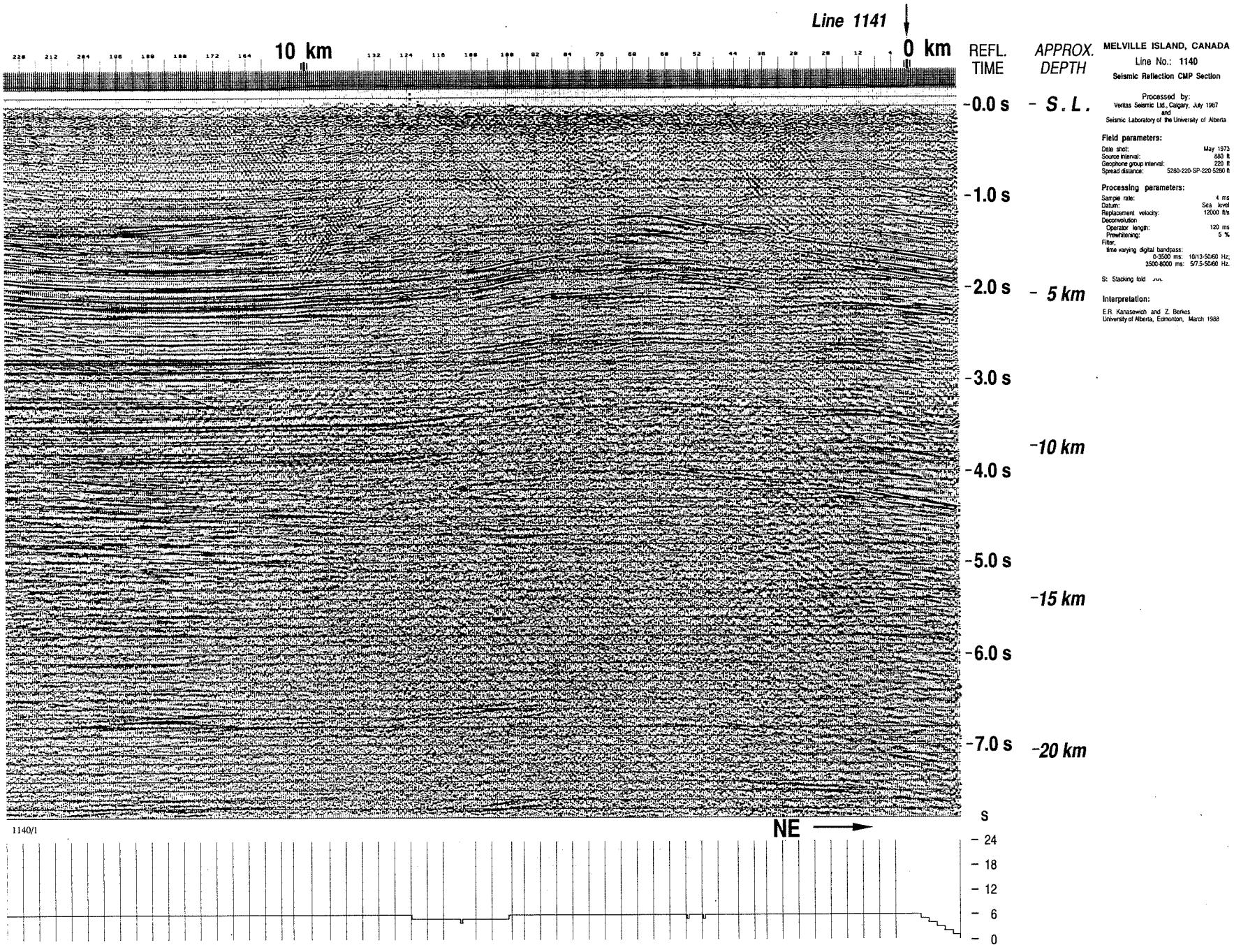
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 1138
Line 1762
APPROX. DEPTH
REFL. TIME
20 km
S.L.-
0.0 s
1.0 s
2.0 s
5 km
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
S
1139/2
W
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: 1140

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

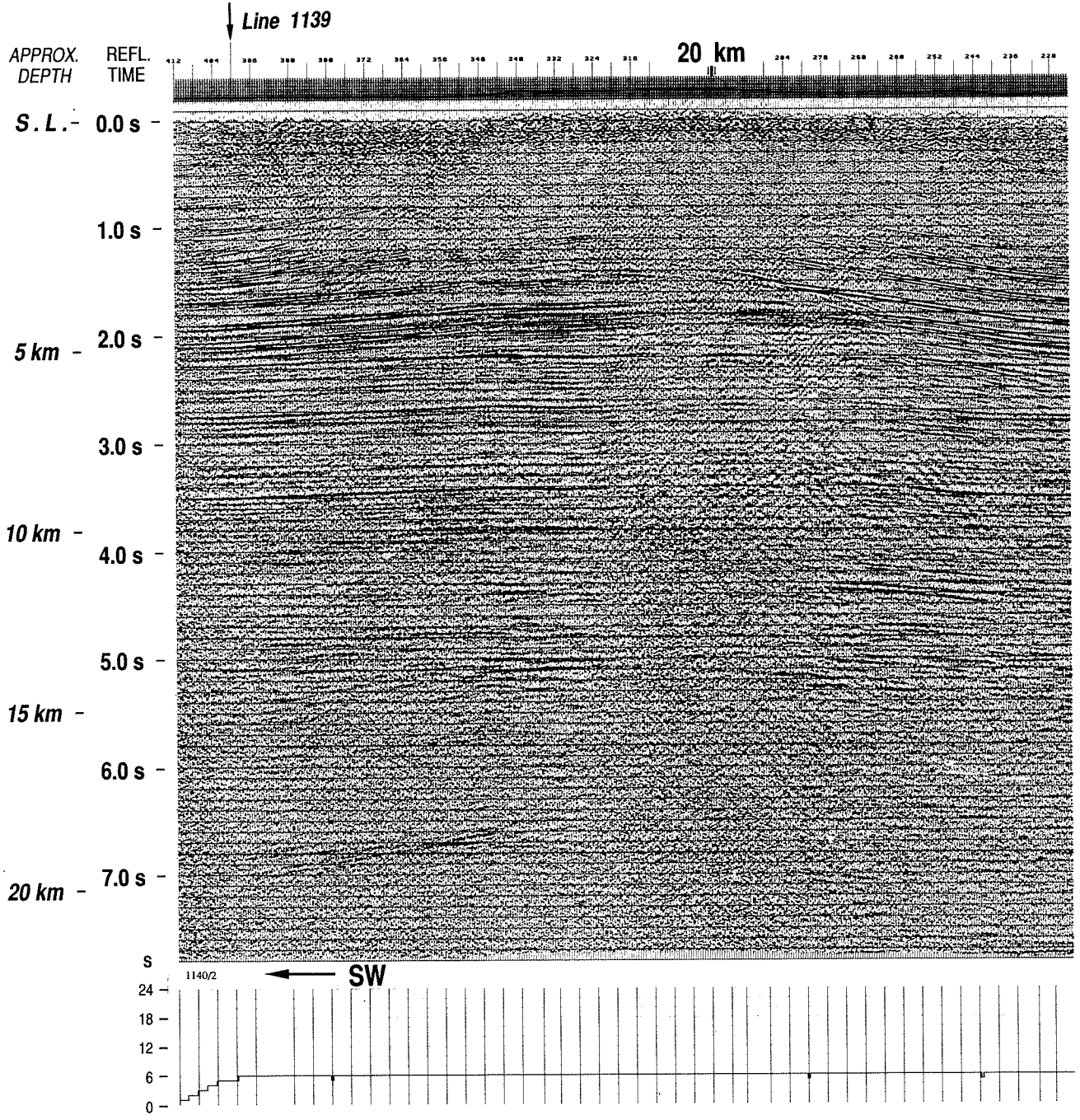
Processing parameters:

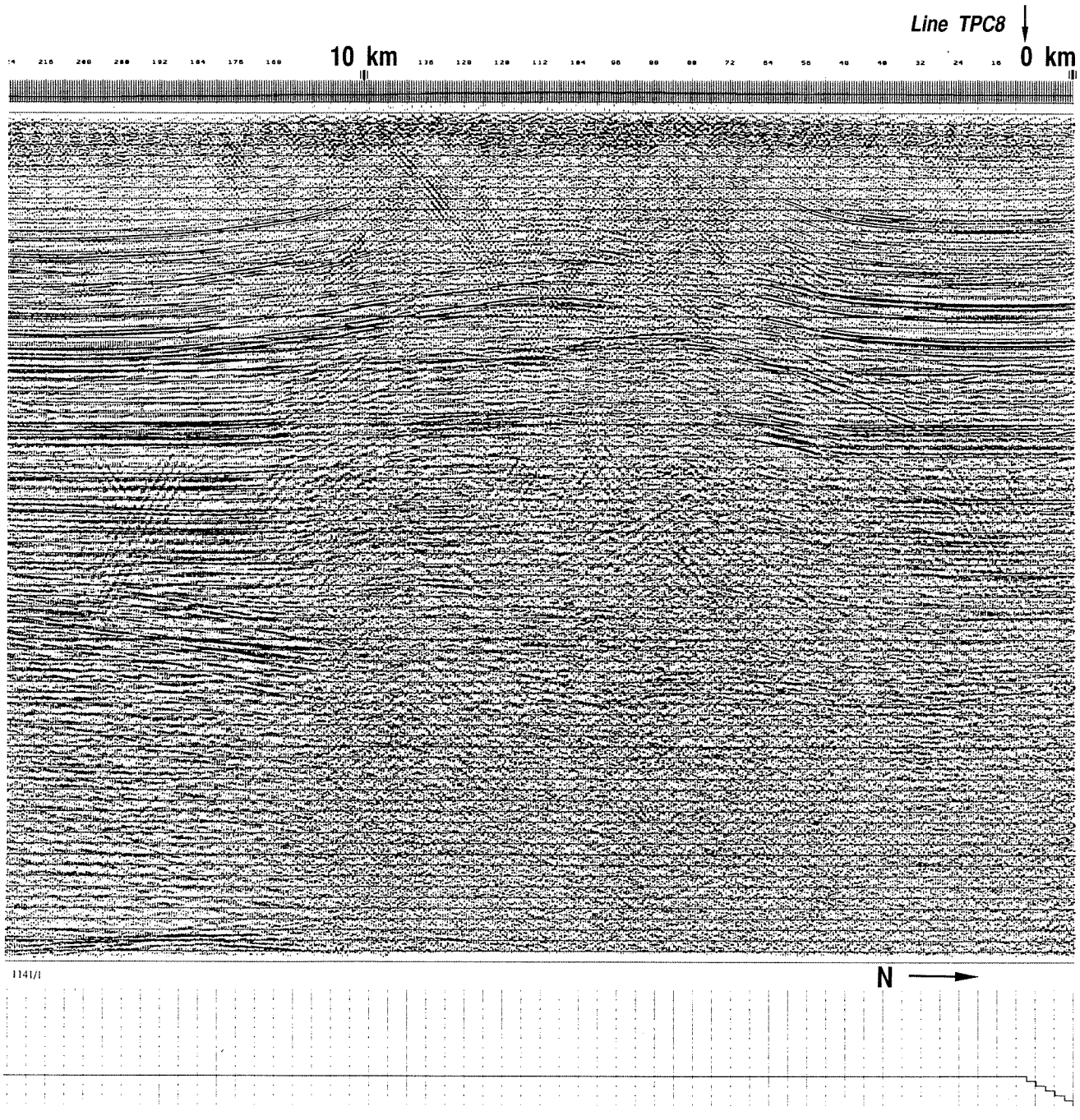
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 1139
APPROX. DEPTH
REFL. TIME
20 km
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
1140/2
SW
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **1141**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

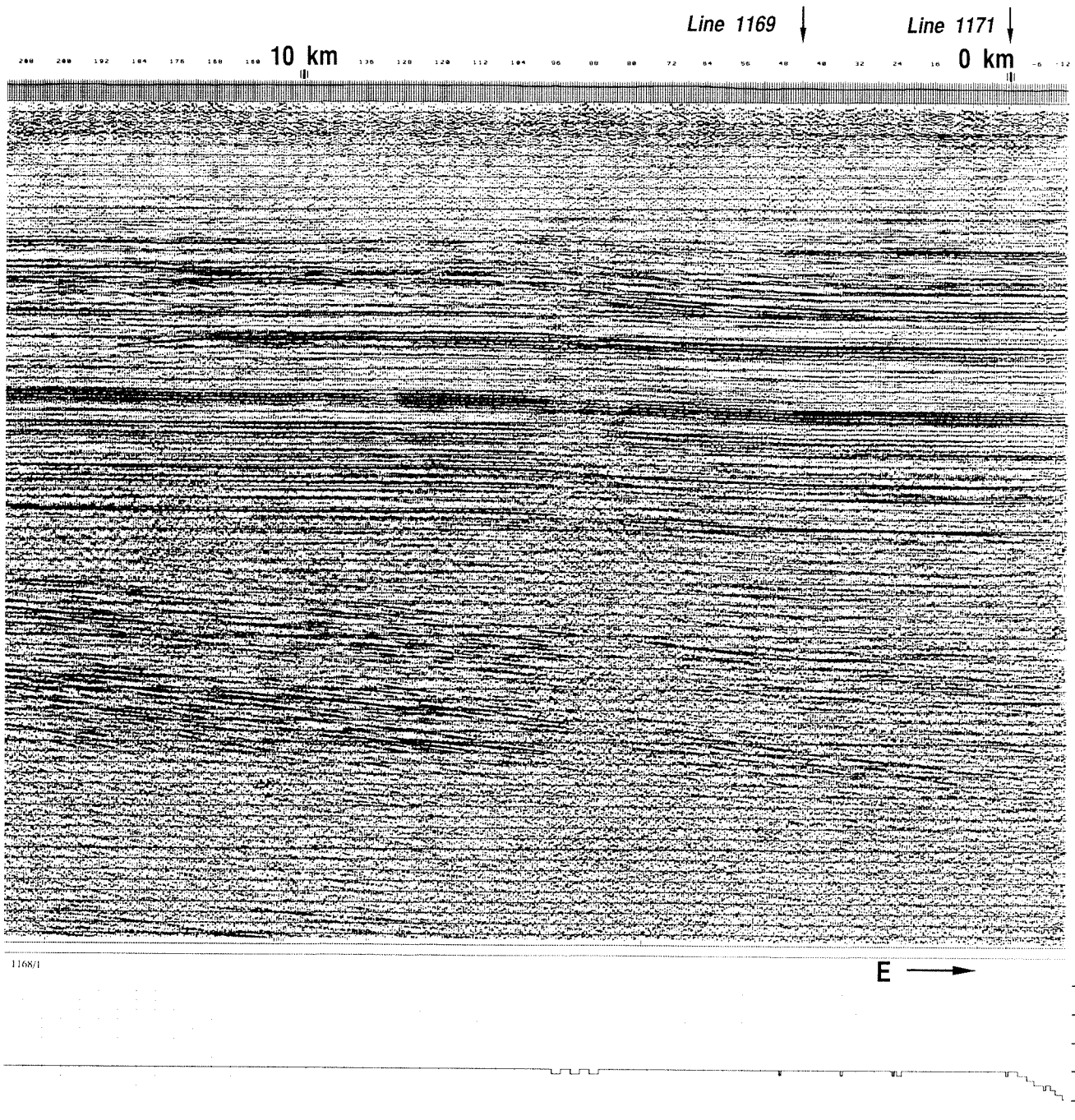
Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988



MELVILLE ISLAND, CANADA

Line No.: **1168**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

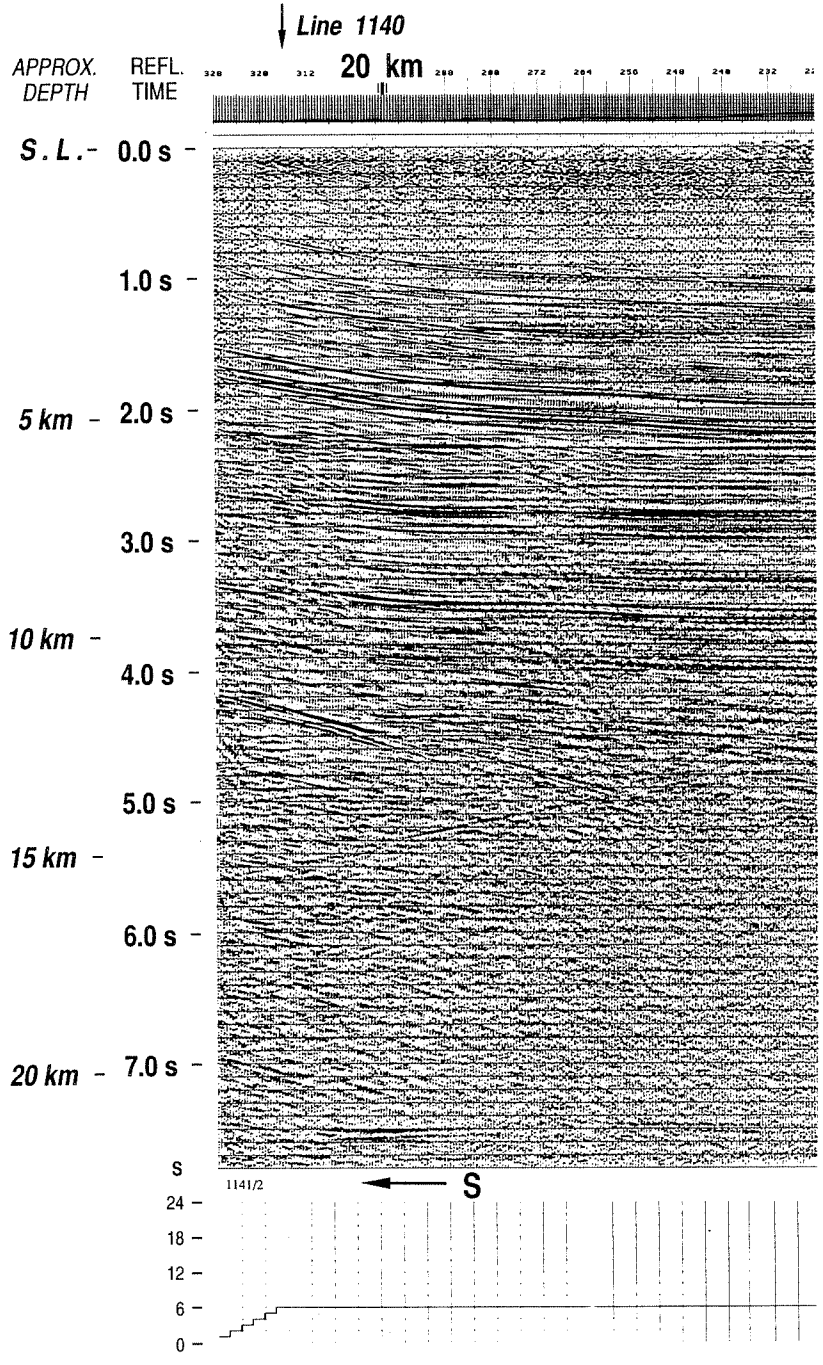
Processing parameters:

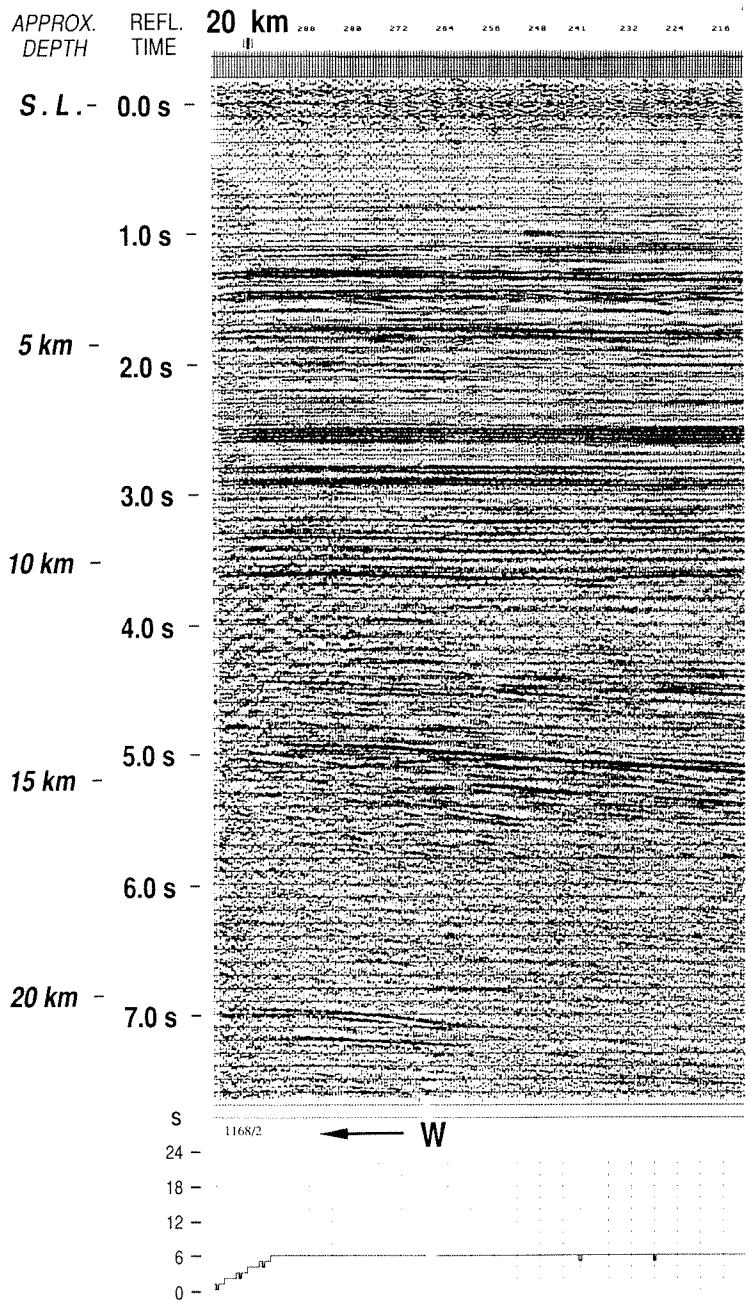
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

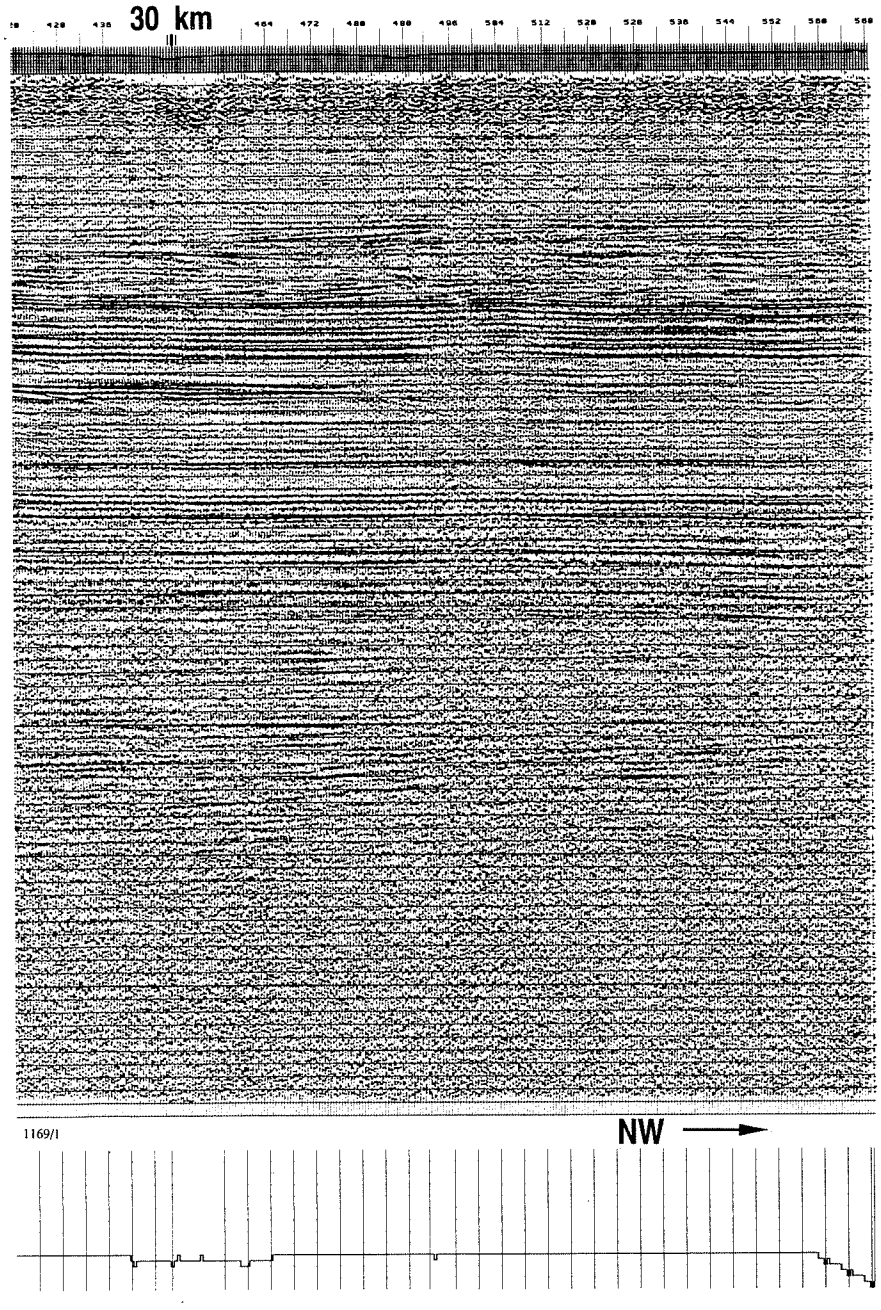
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 1140
APPROX. DEPTH
REFL. TIME
20 km
S.L.-
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
1141/2
S
24
18
12
6
0


APPROX. DEPTH
REFL. TIME
20 km
S.L.-
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
1168/2
W
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **1169**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

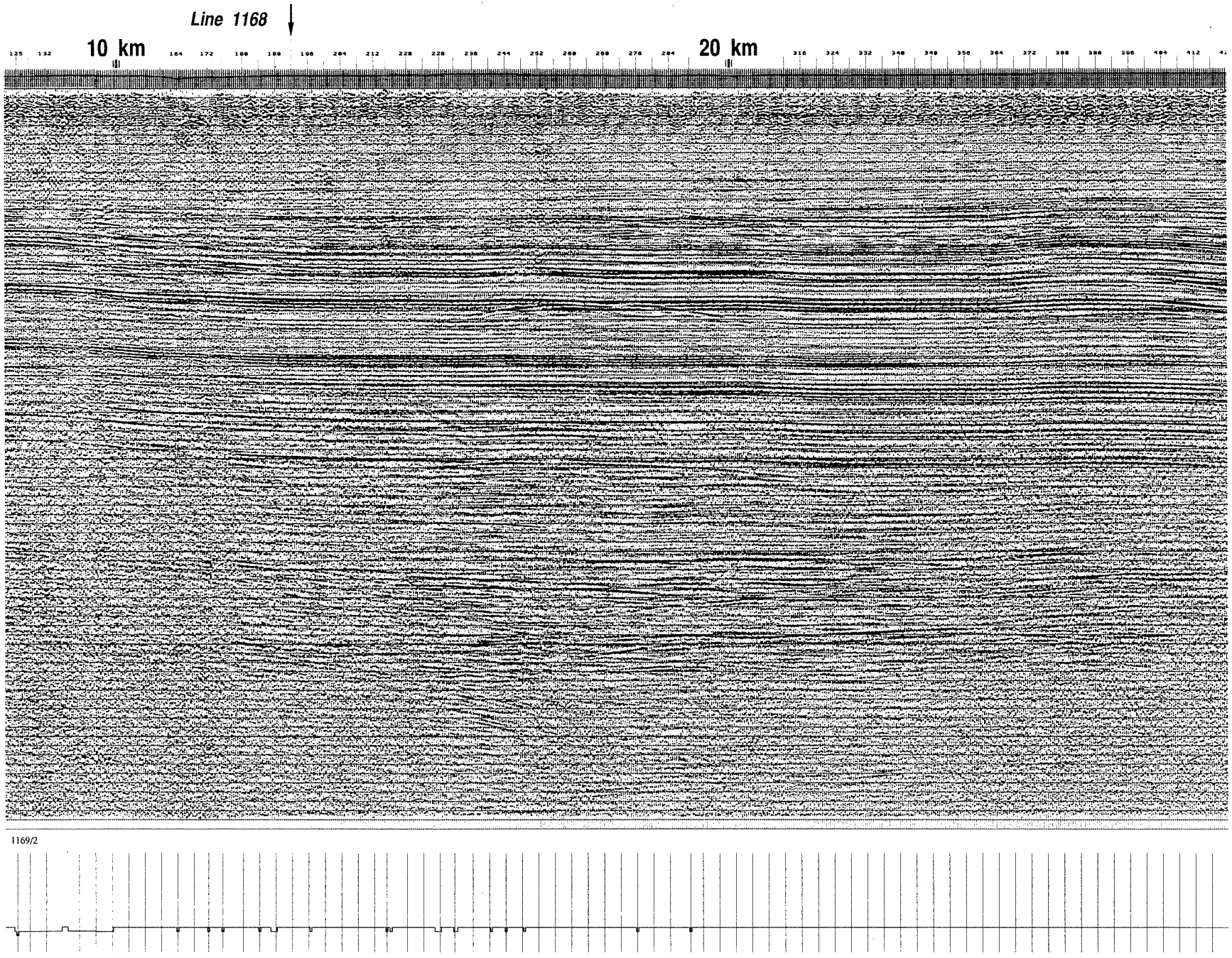
Processing parameters:

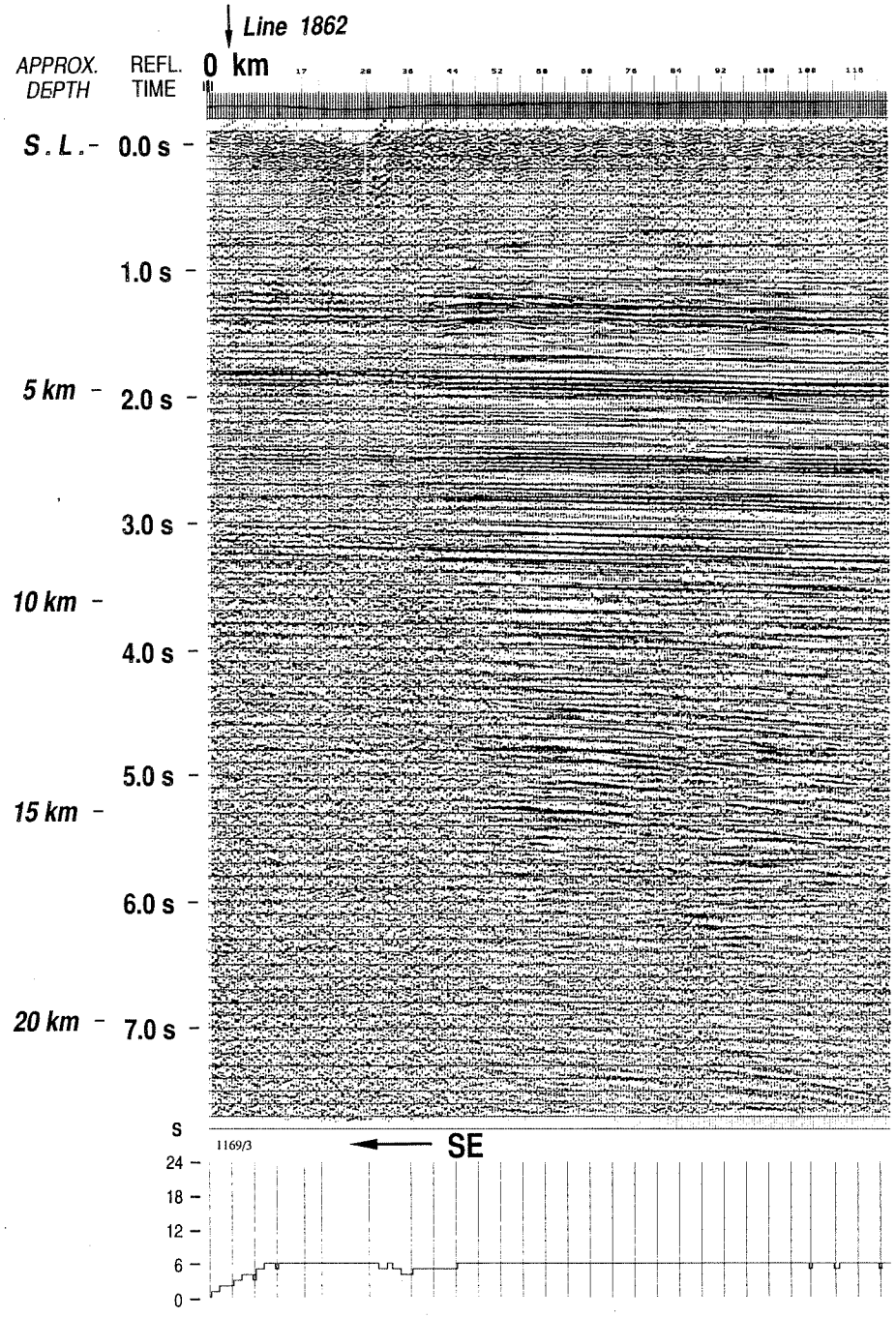
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

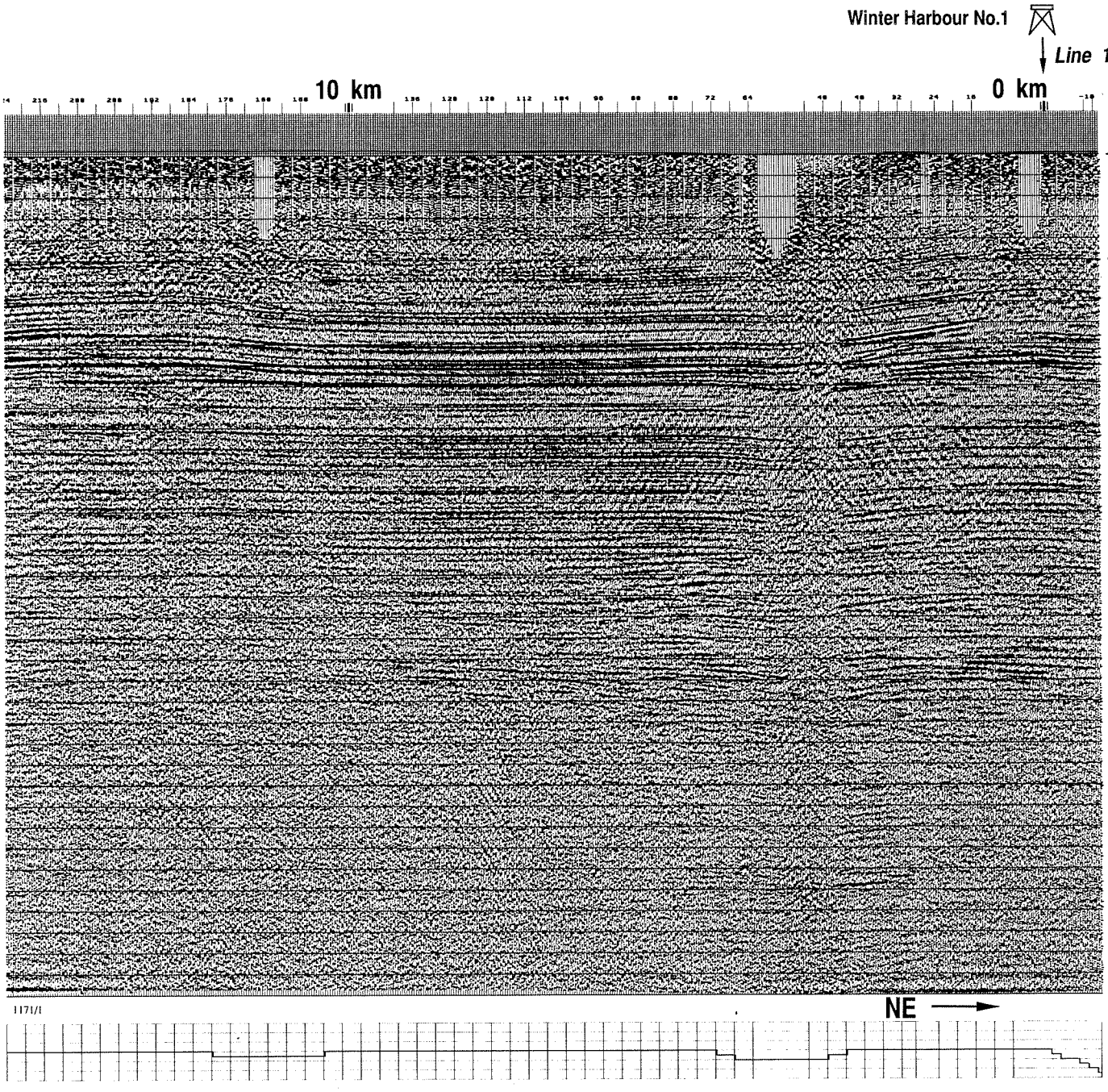
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 1168
10 km
20 km
1169/2


Line 1862
APPROX. DEPTH
REFL. TIME
0 km
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
1169/3
SE
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: 1171

Seismic Reflection CMP Section

Processed by:
Ventas Seismic Ltd., Calgary, February 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	May 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5260-220-SP-0-5170 ft

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 f/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	1 %
Filter,	
time varying digital bandpass:	
0-8000 ms:	5/7.5-50/60 Hz

S: Stacking fold ...

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

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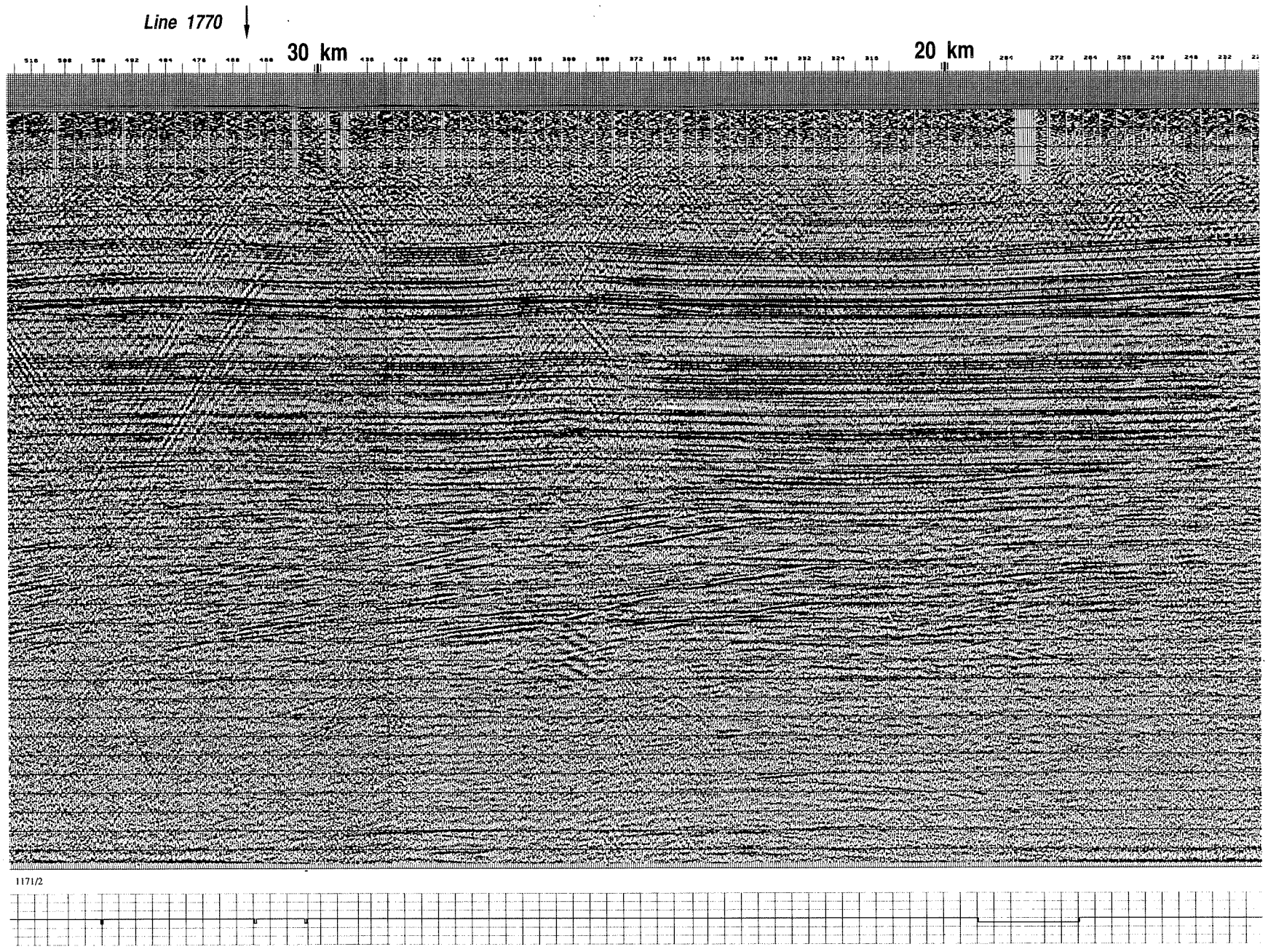
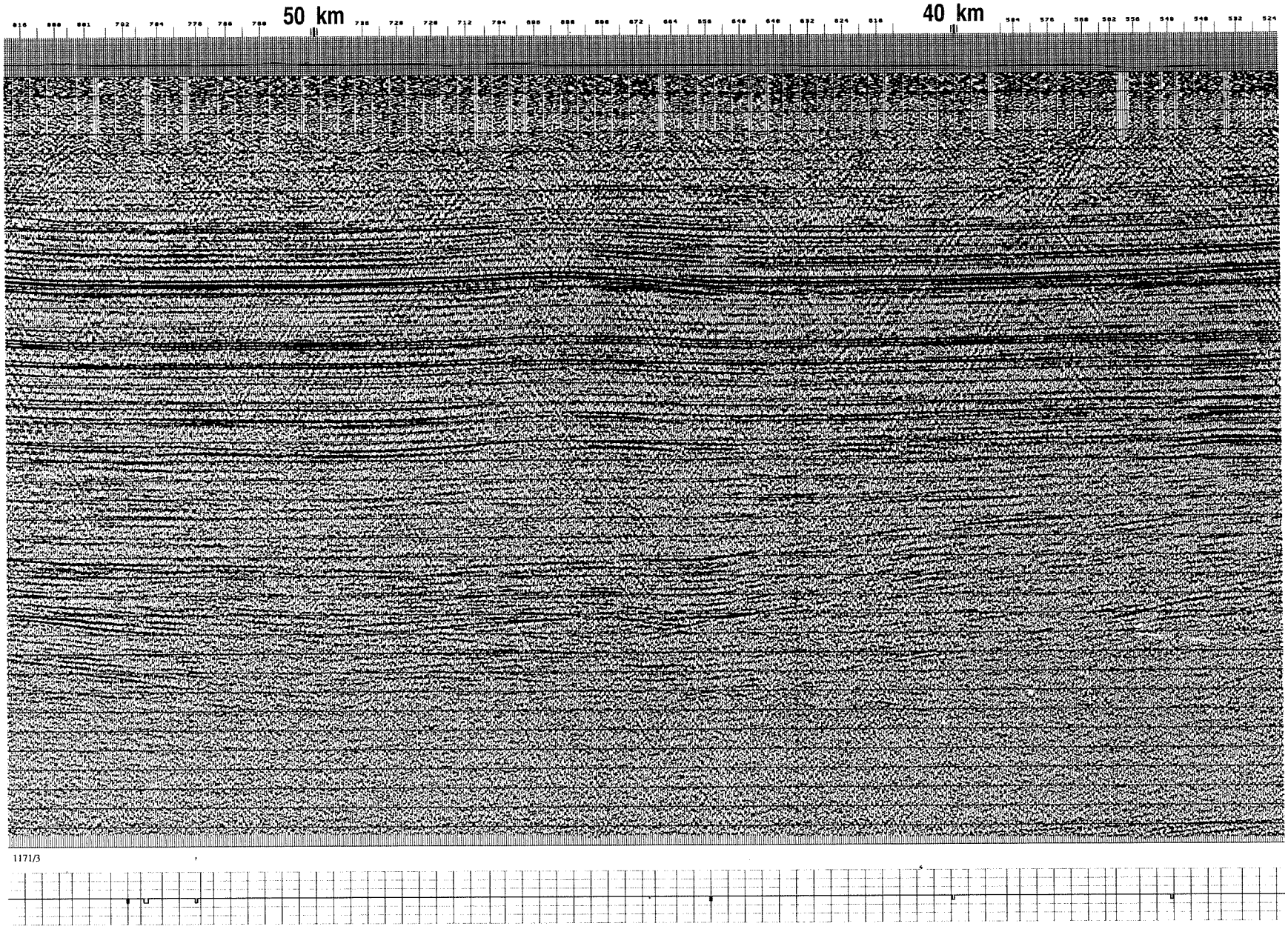
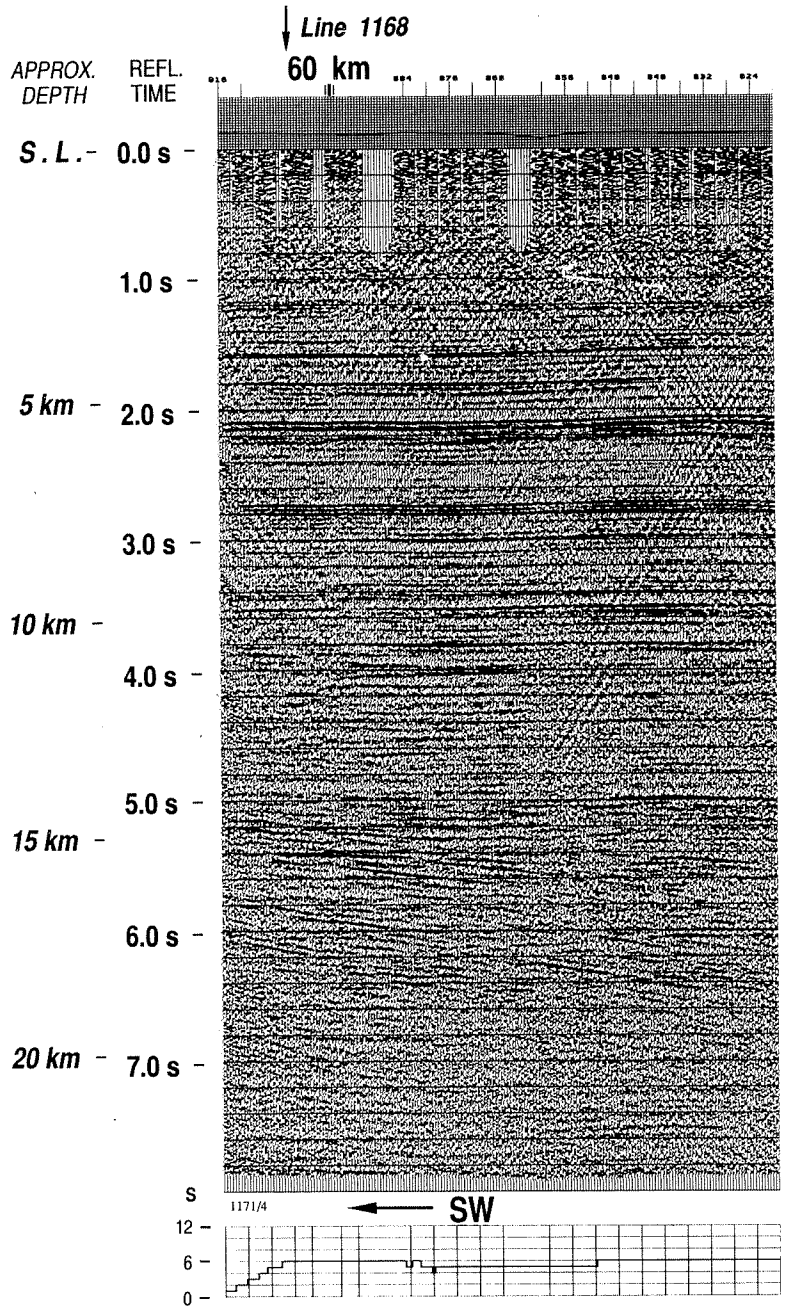
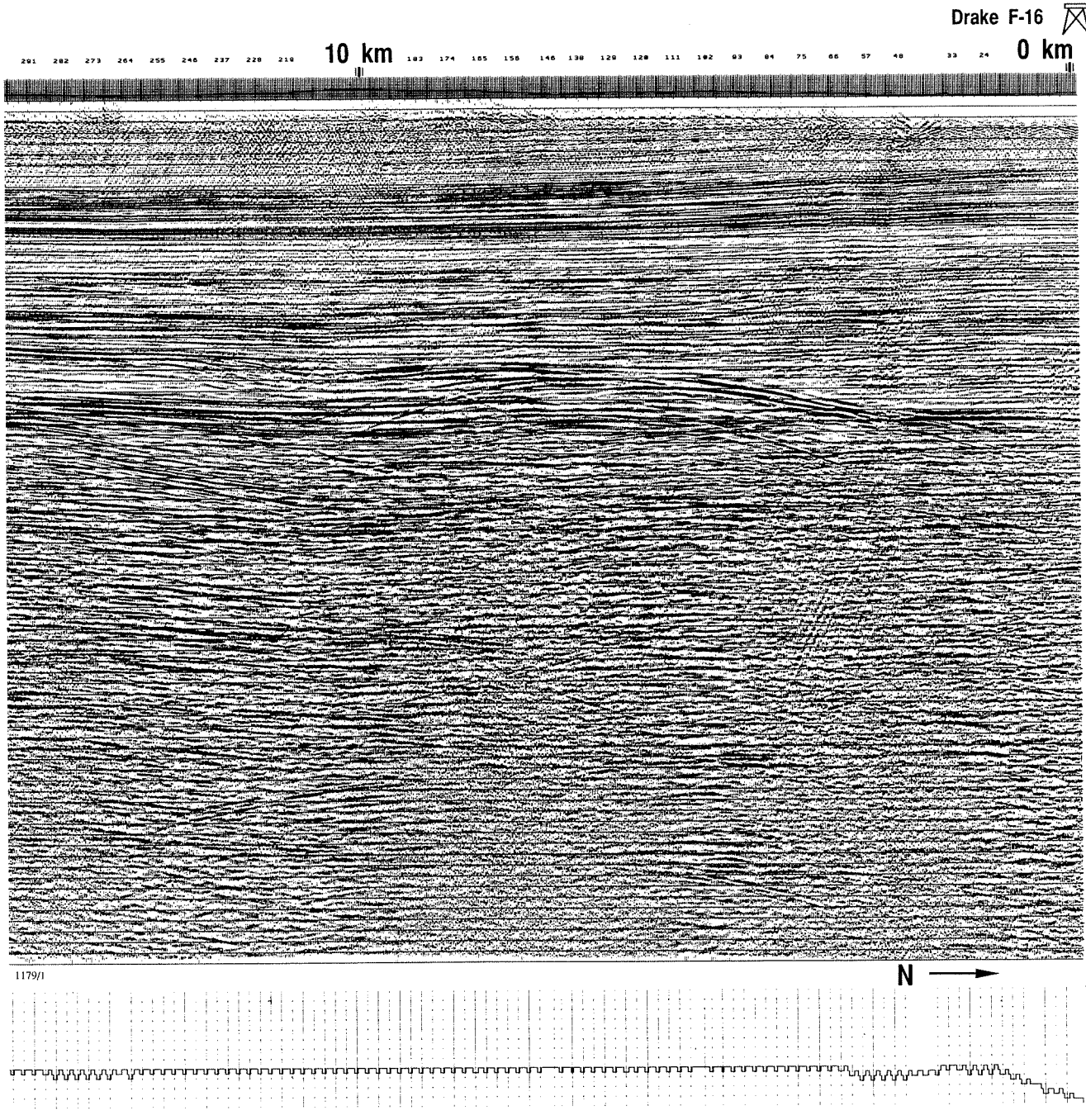

Line 1770
30 km
20 km
1171/2


50 km
40 km
1171/3


Line 1168
60 km
APPROX. DEPTH
REFL. TIME
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
1171/4
SW
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **1179**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	October 1973
Source interval:	495 ft
Geophone group interval:	165 ft
Spread distance:	1485-330-SP-330-6765 ft

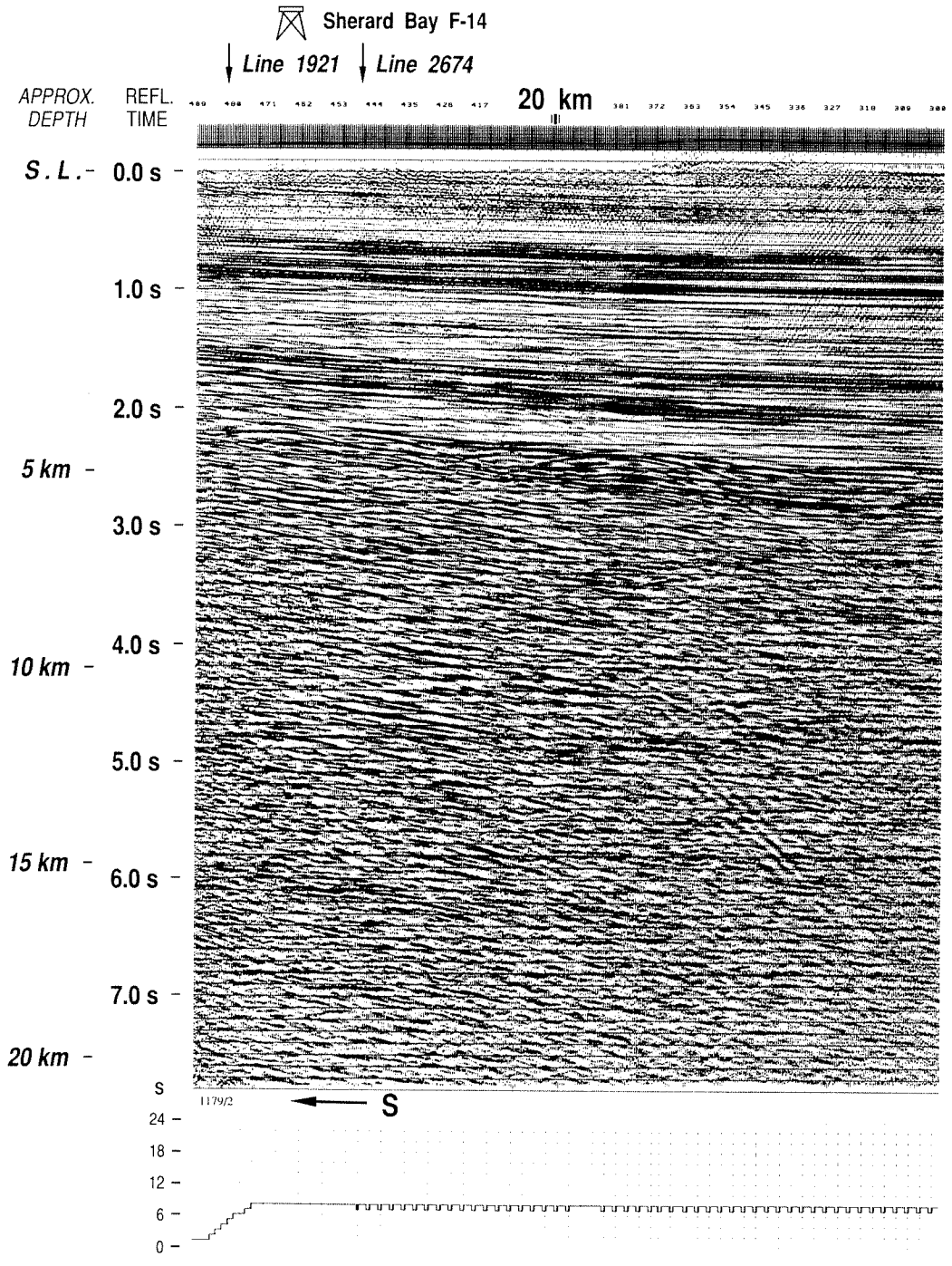
Processing parameters:

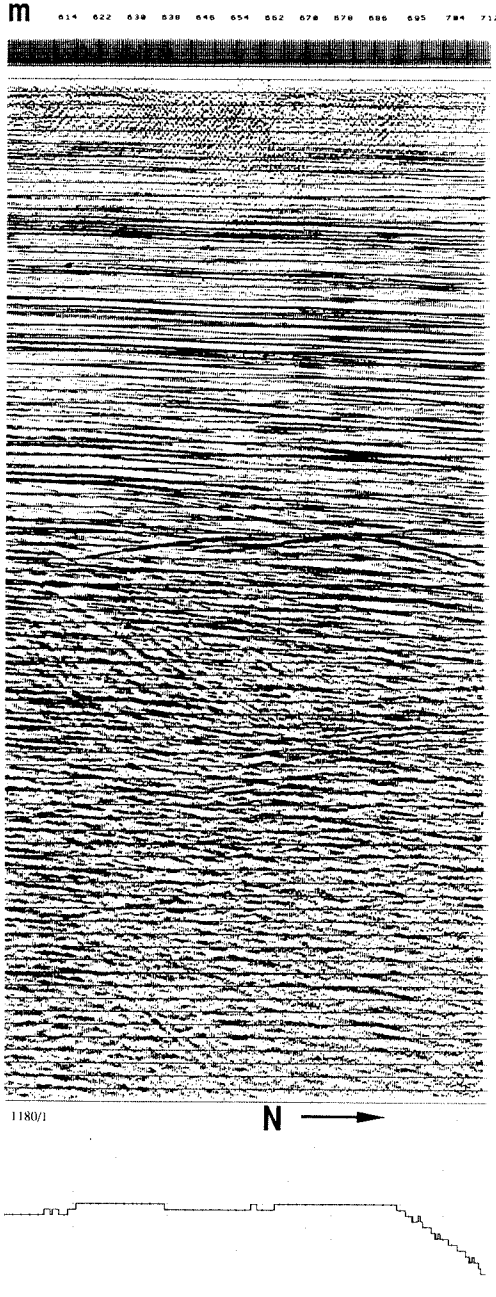
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Sherard Bay F-14
Line 1921
Line 2674
APPROX. DEPTH
REFL. TIME
20 km
S.L.
0.0 s
1.0 s
2.0 s
5 km
3.0 s
4.0 s
10 km
5.0 s
15 km
6.0 s
7.0 s
20 km
S
1179/2
S
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **1180**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	October 1973
Source interval:	495 ft
Geophone group interval:	165 ft
Spread distance:	1485-330-SP-330-6765 ft

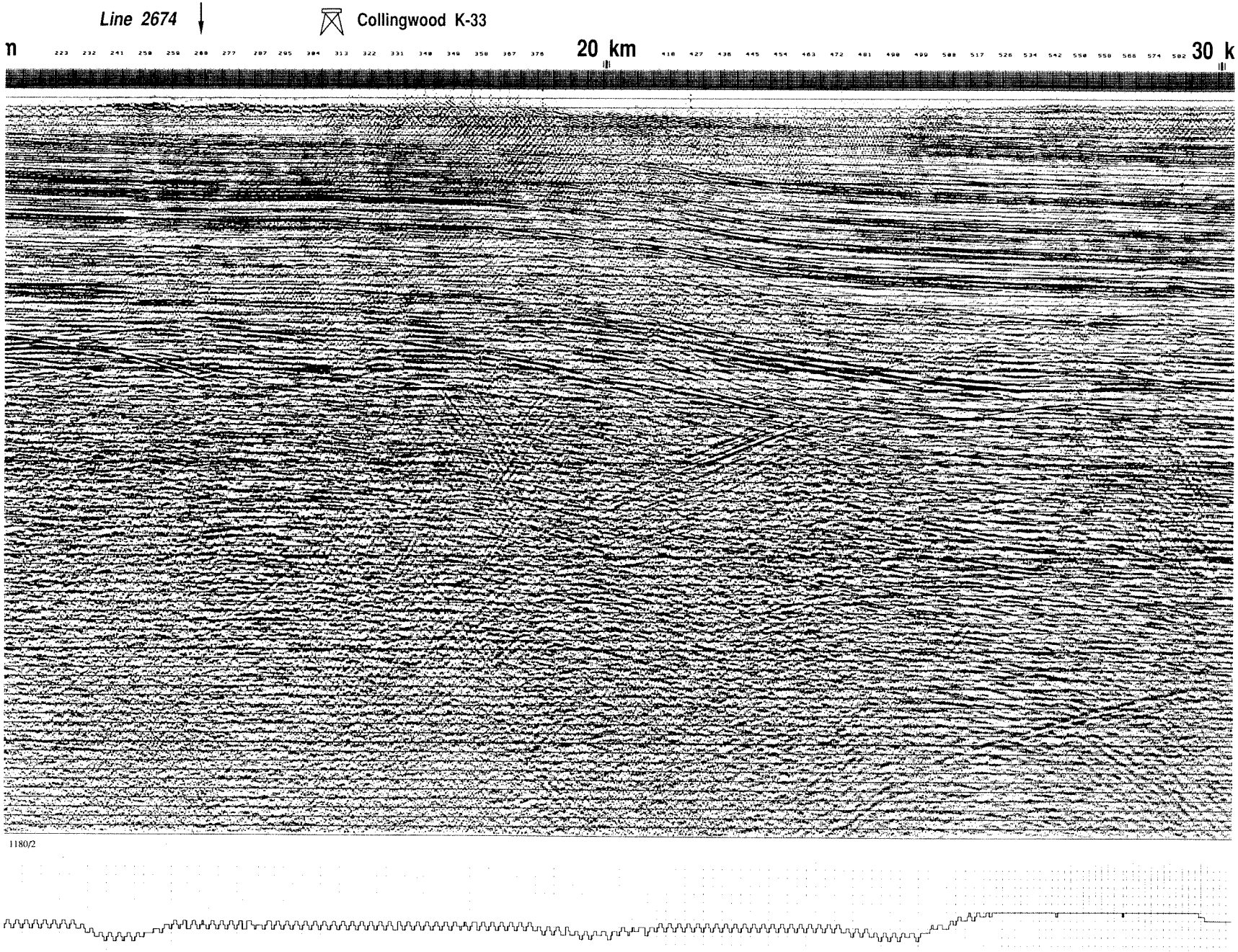
Processing parameters:

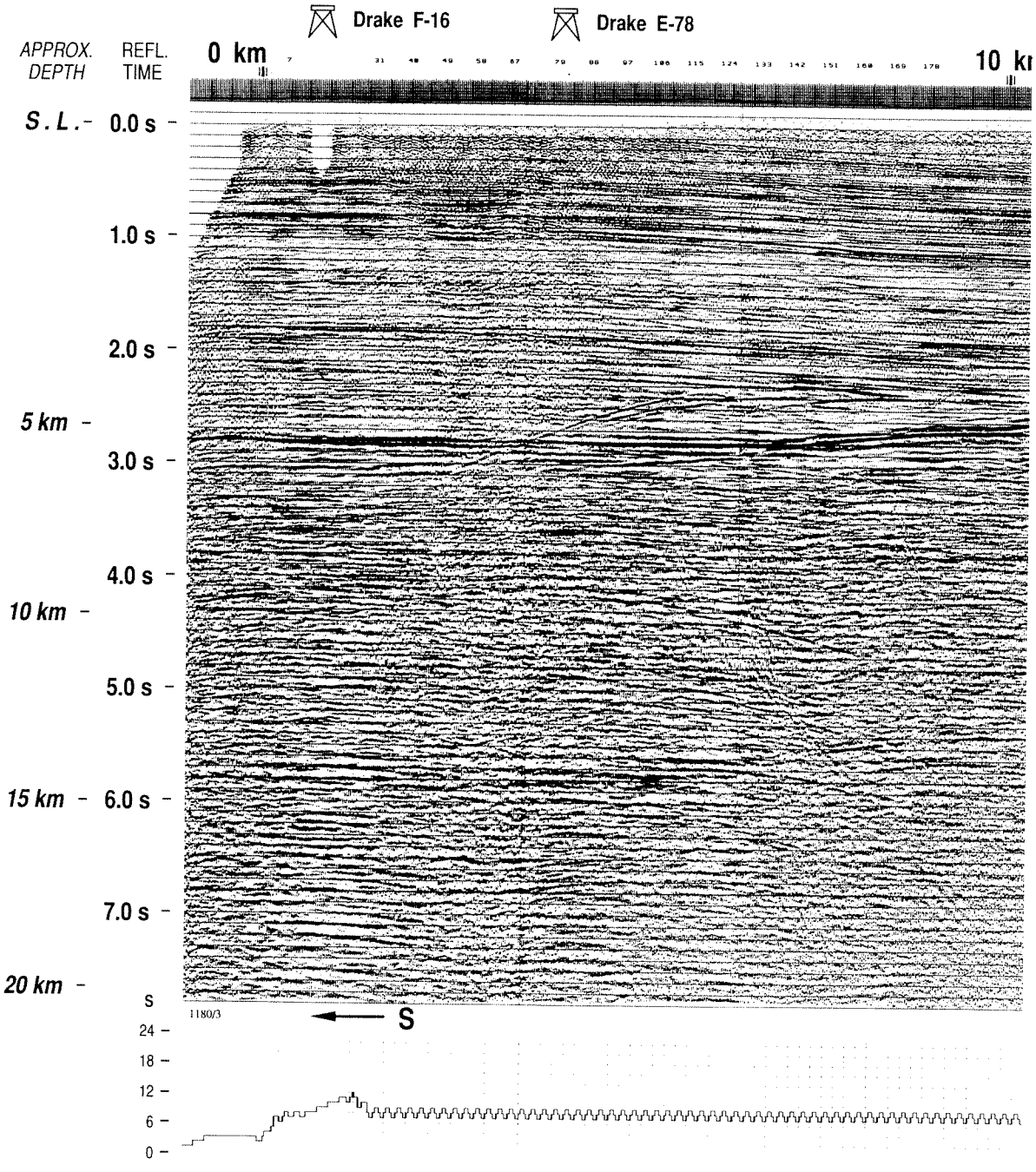
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

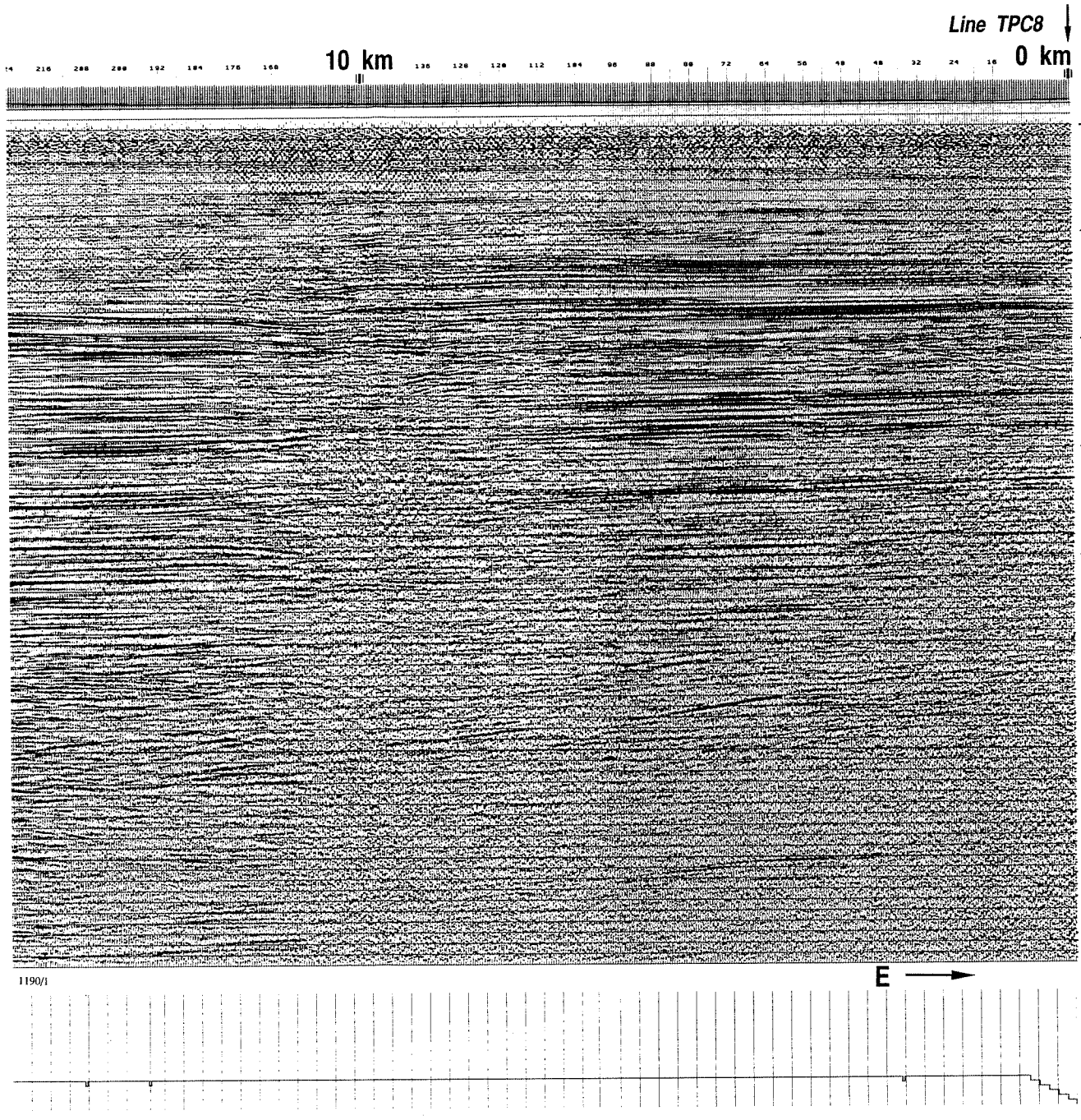
S: Stacking fold [illegible]

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 2674
Collingwood K-33
n
223 232 241 250 259 268 277 287 295 304 313 322 331 340 349 358 367 376
20 km
416 427 438 445 454 463 472 481 490 499 508 517 526 534 542 550 558 566 574 582
30 k
1180/2


Drake F-16
Drake E-78
APPROX. DEPTH
REFL. TIME
0 km
10 km
S.L.
0.0 s
1.0 s
2.0 s
5 km
3.0 s
4.0 s
10 km
5.0 s
15 km
6.0 s
7.0 s
20 km
S
1180/3
S
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **1190**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	November 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

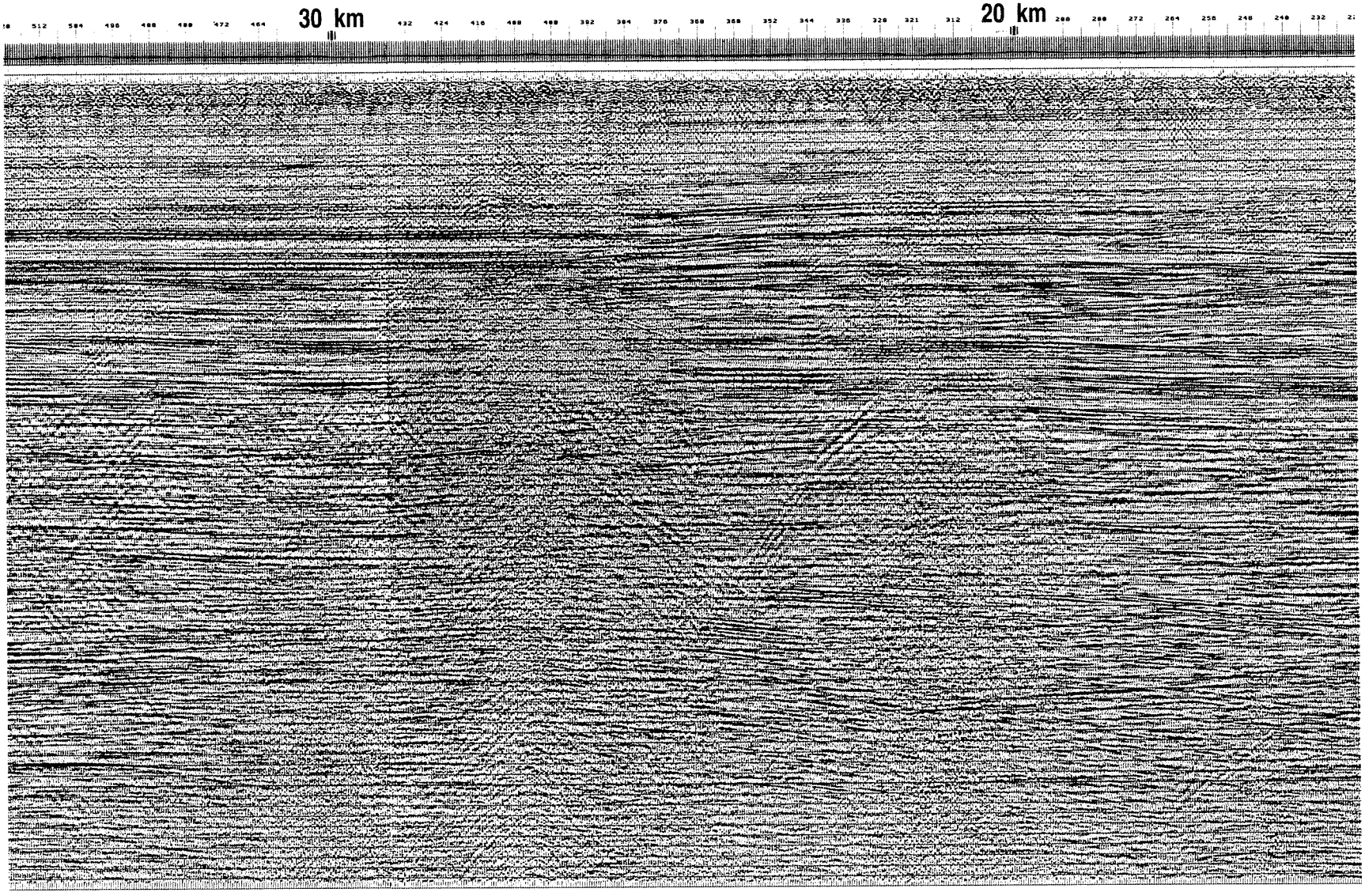
Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

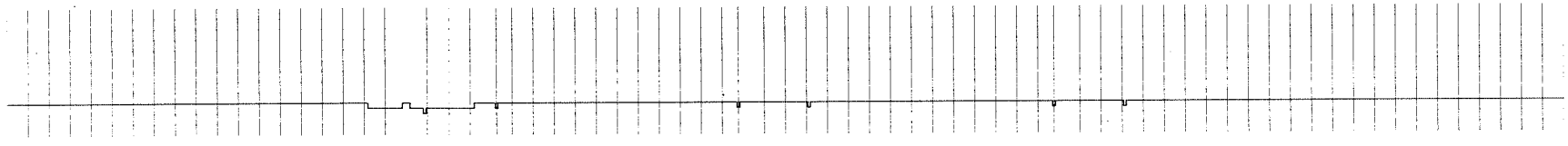
S: Stacking fold

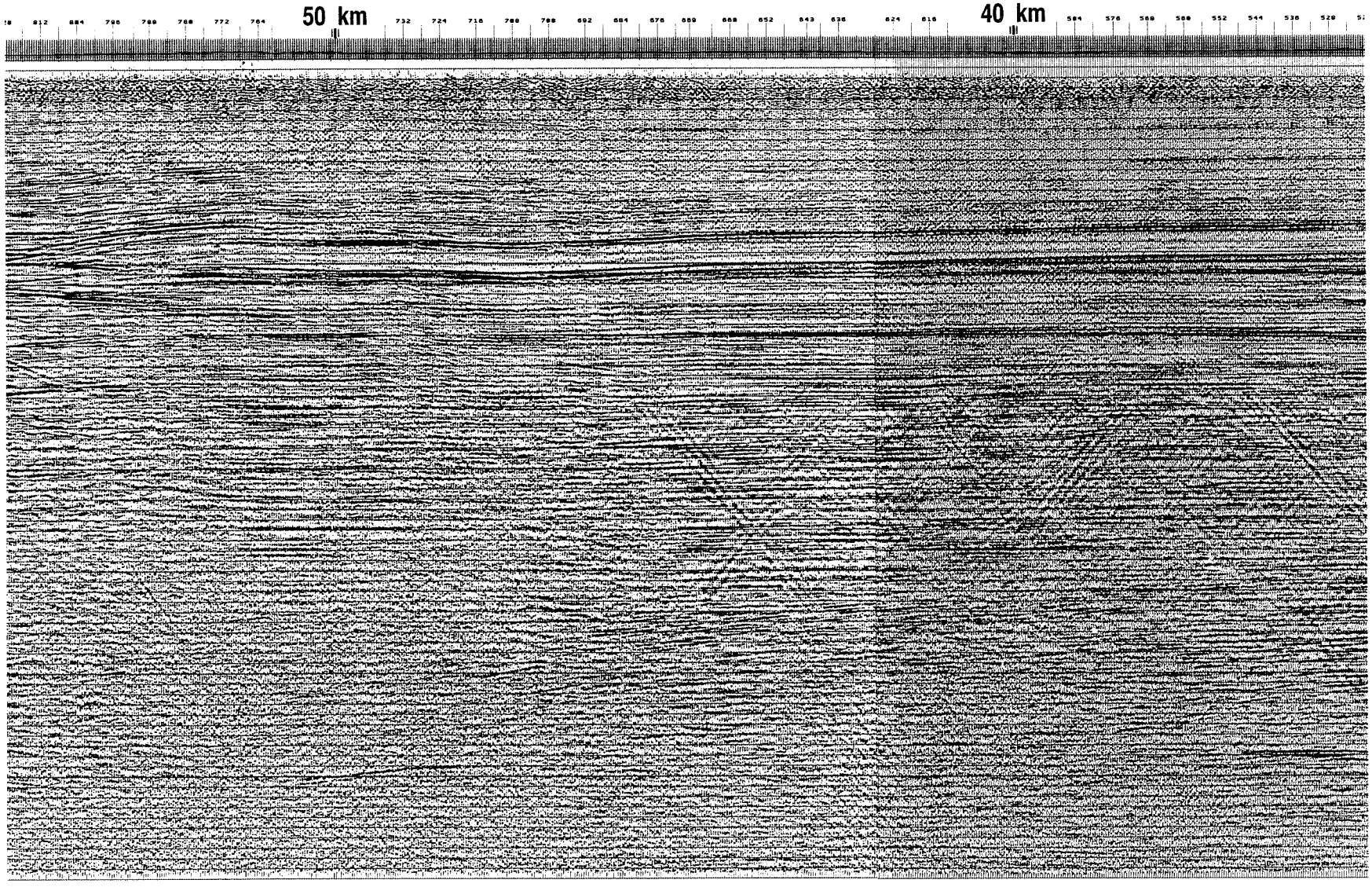
Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

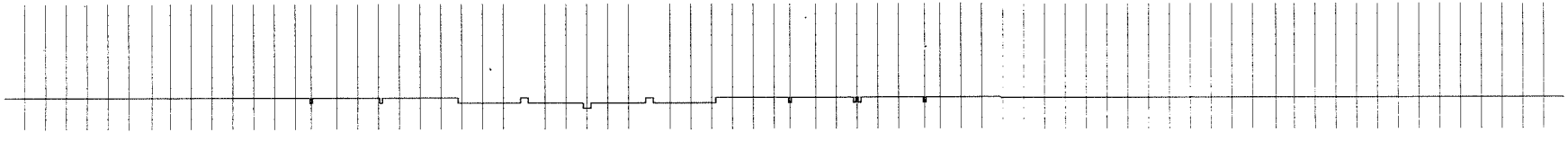


1190/2

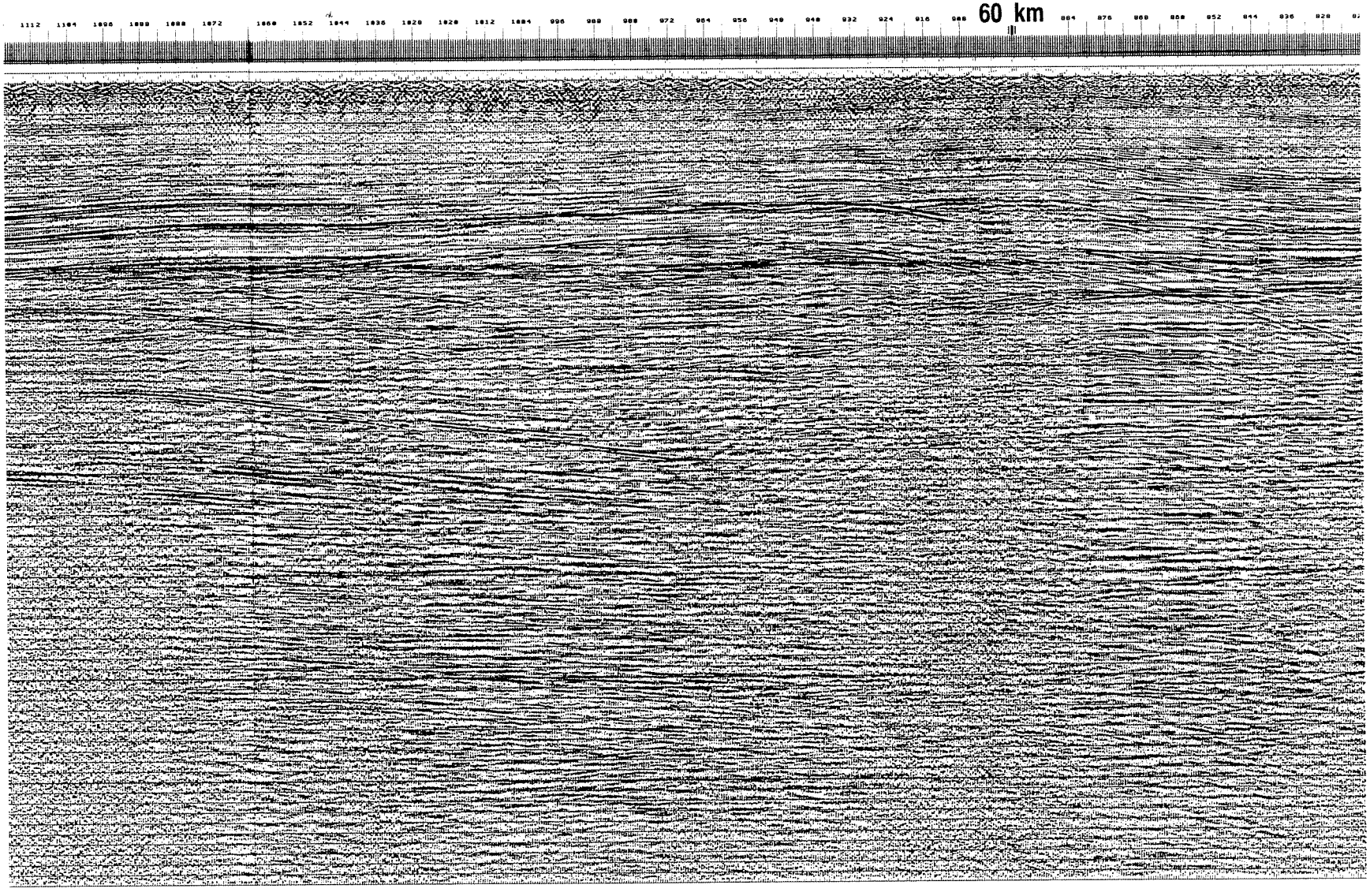


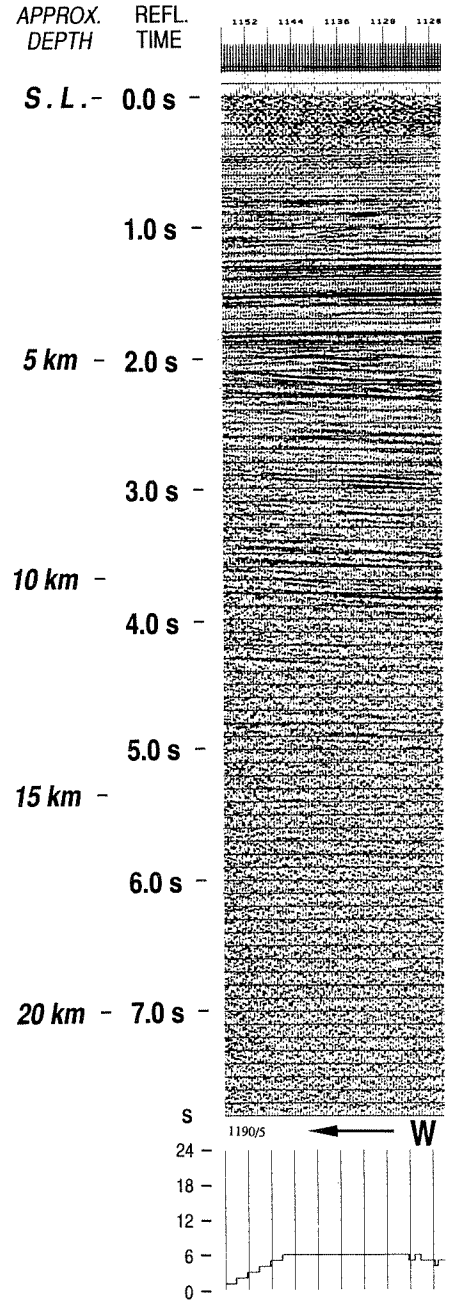


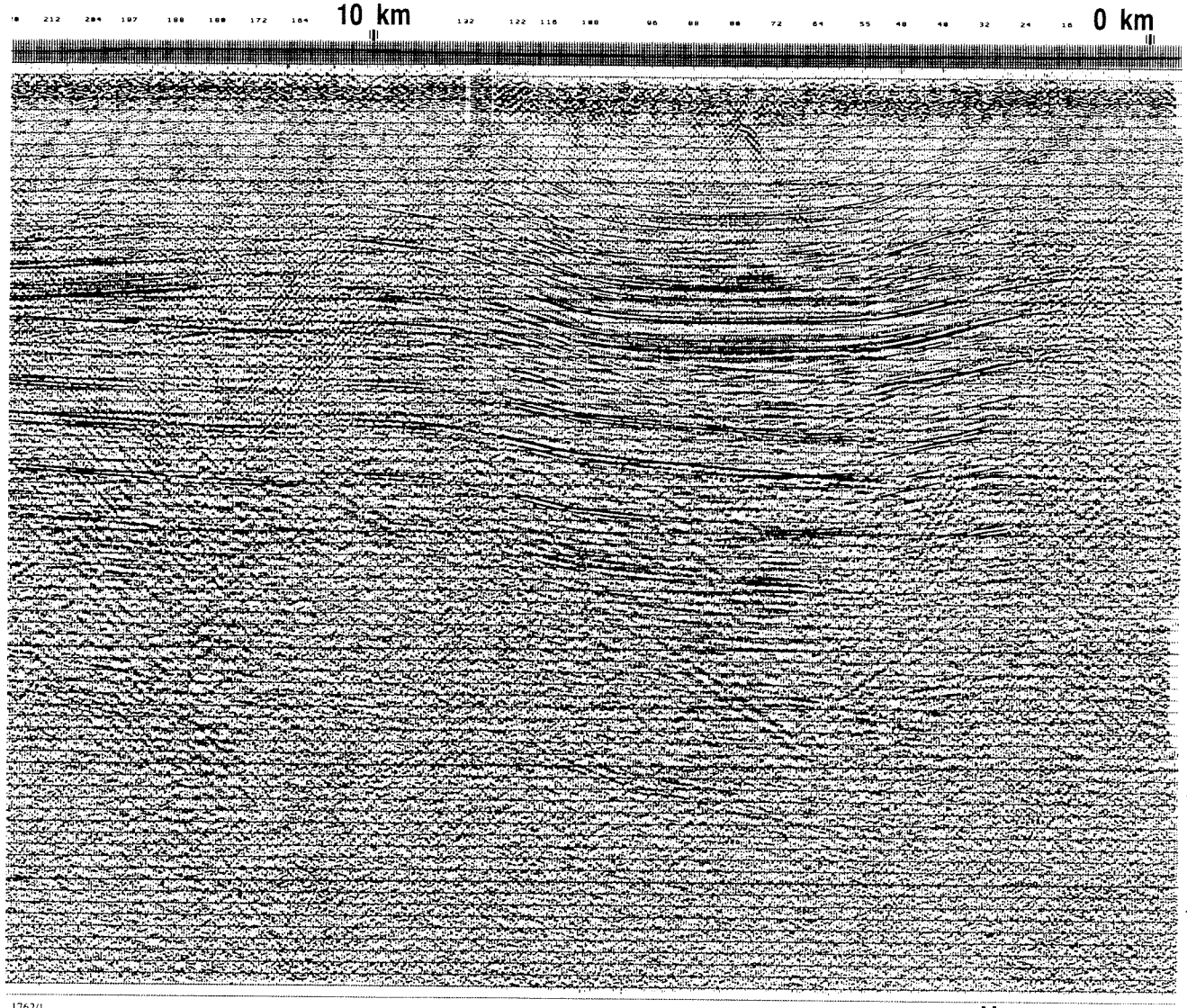
1190/3



561


60 km
1190/4


APPROX. DEPTH
REFL. TIME
1152
1144
1136
1128
1120
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
1190/5
W
24
18
12
6
0



REFL. TIME	APPROX. DEPTH
-0.0 s	- S.L.
-1.0 s	
-2.0 s	- 5 km
-3.0 s	
-4.0 s	-10 km
-5.0 s	
	-15 km
-6.0 s	
-7.0 s	-20 km

S
- 24
- 18
- 12
- 6
- 0

MELVILLE ISLAND, CANADA

Line No.: **1762**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1975
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

Processing parameters:

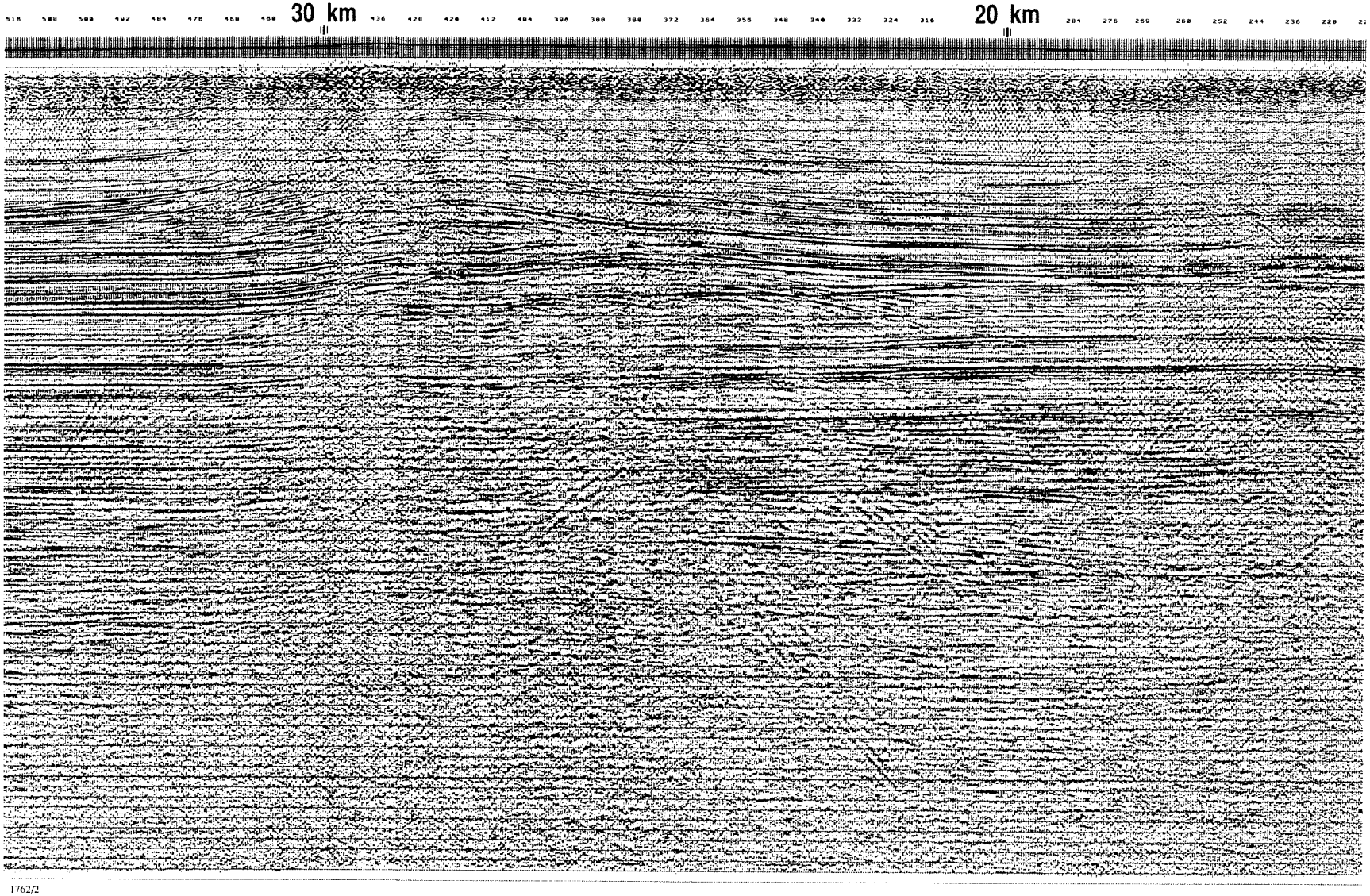
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

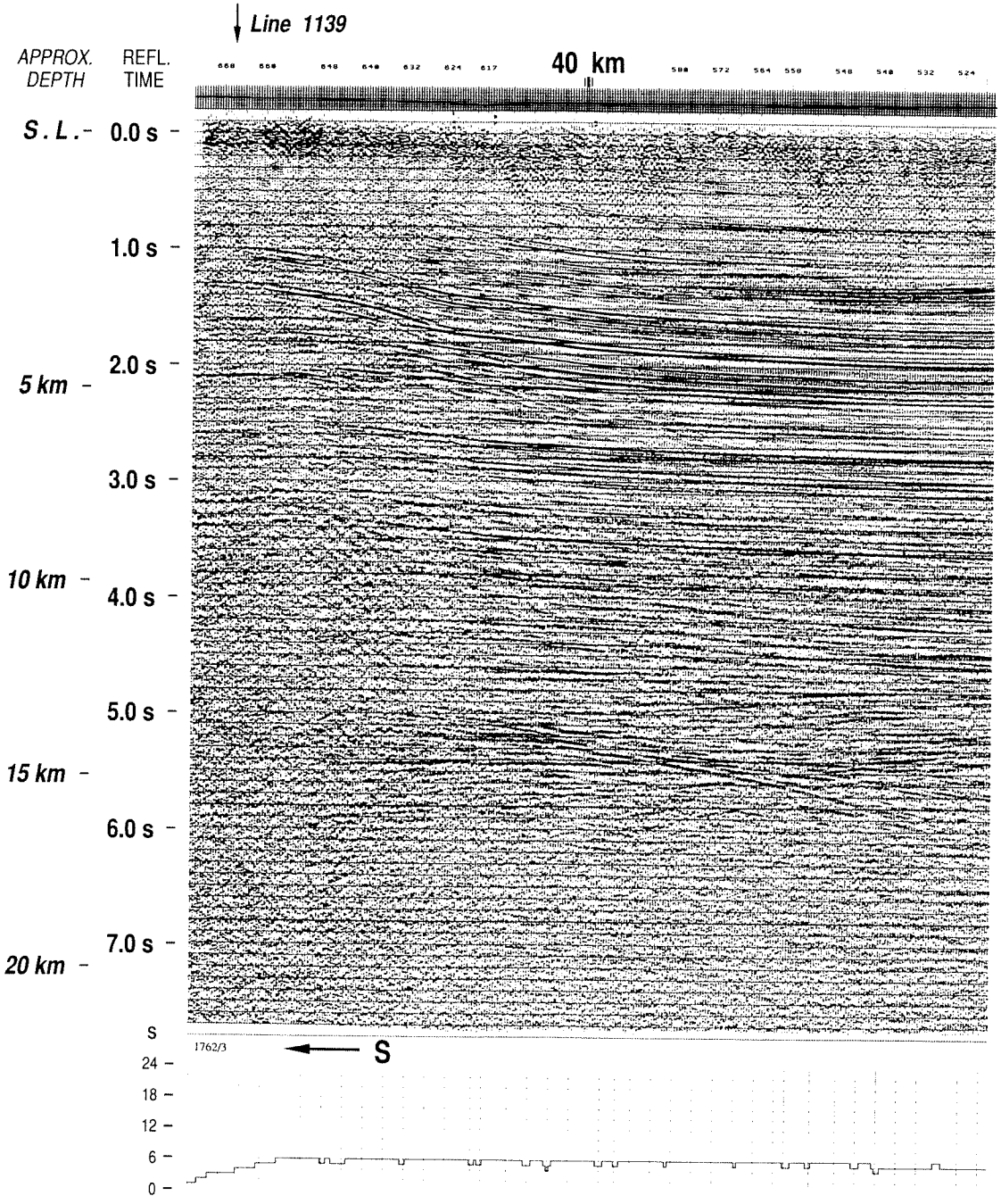
S: Stacking fold

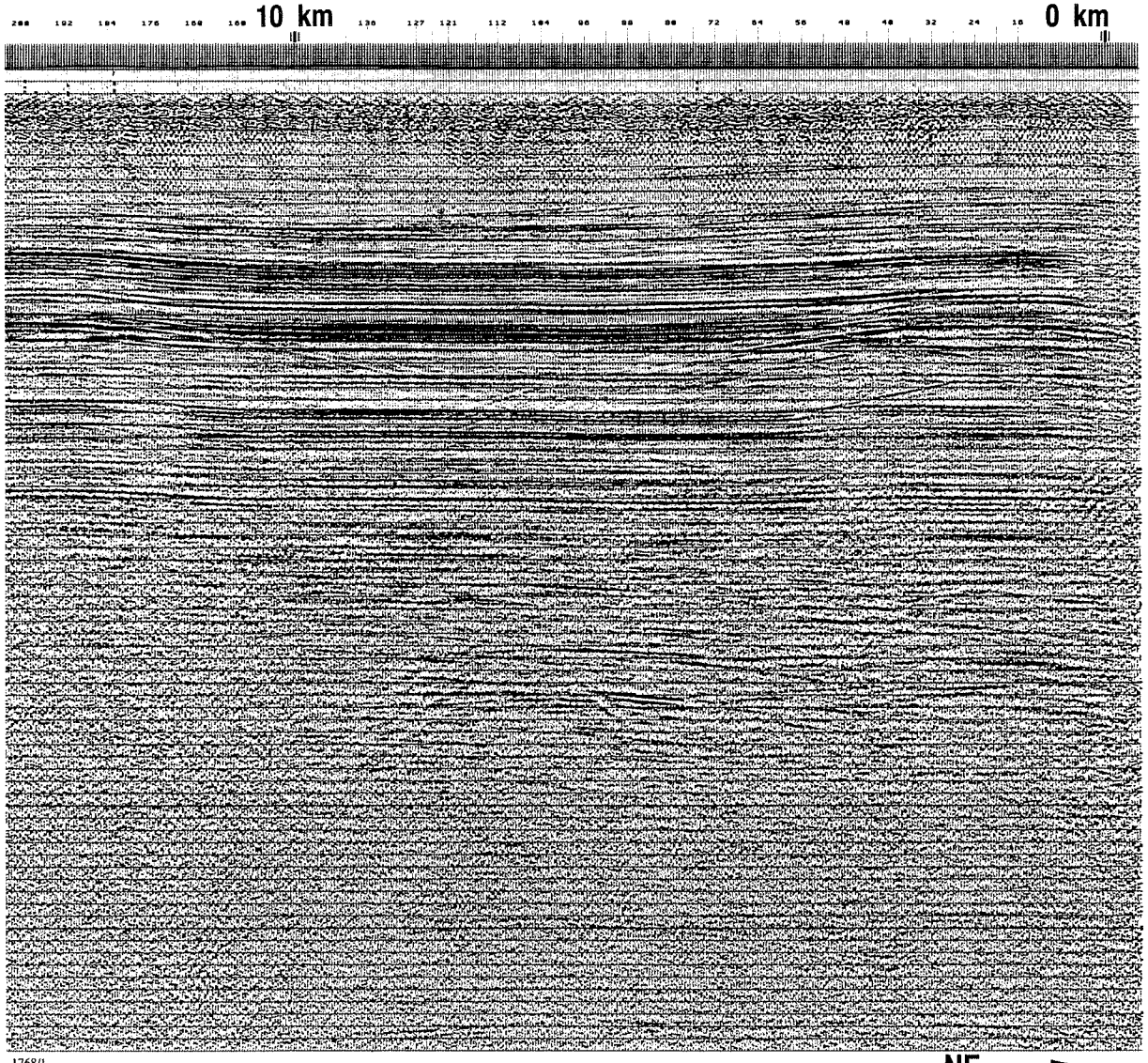
Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

961


30 km
20 km
1762/2


Line 1139
APPROX. DEPTH
REFL. TIME
40 km
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
S
1762/3
S
24
18
12
6
0



REFL. TIME

-0.0 s

-1.0 s

-2.0 s

-3.0 s

-4.0 s

-5.0 s

-6.0 s

-7.0 s

APPROX. DEPTH

- *S.L.*

- *5 km*

-10 km

-15 km

-20 km

S

- 24
- 18
- 12
- 6
- 0

MELVILLE ISLAND, CANADA

Line No.: **1768**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1975
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

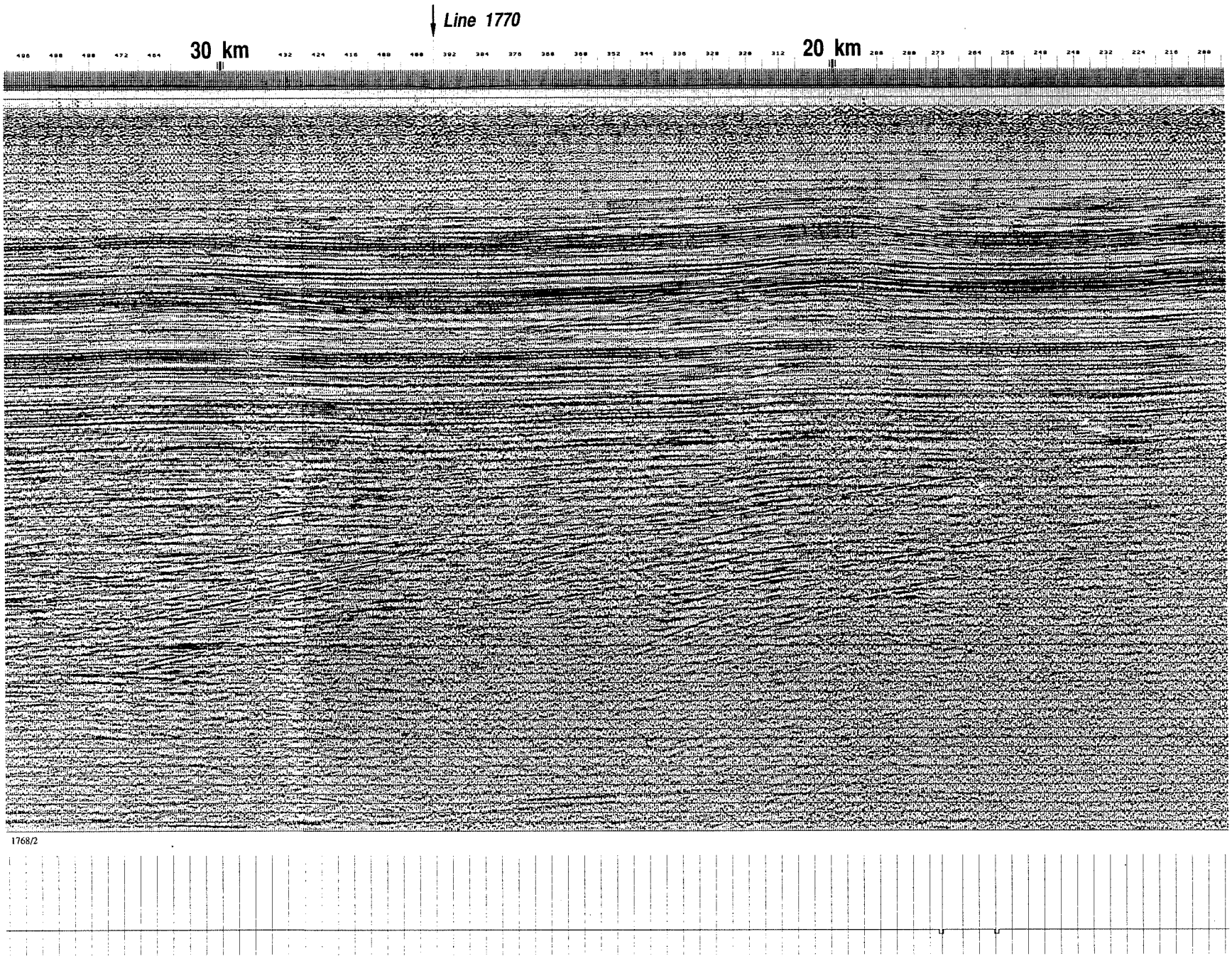
Processing parameters:

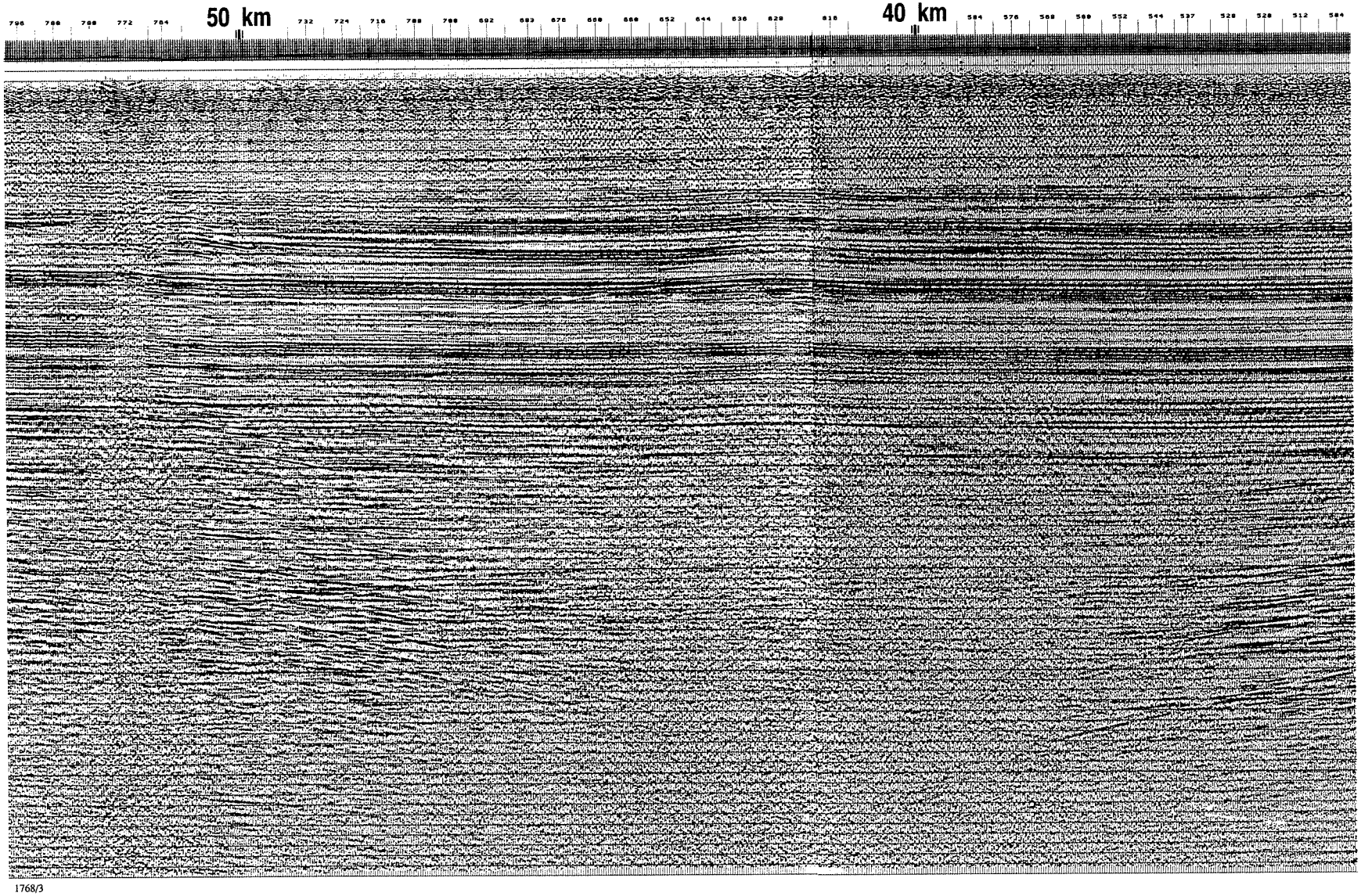
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

S: Stacking fold

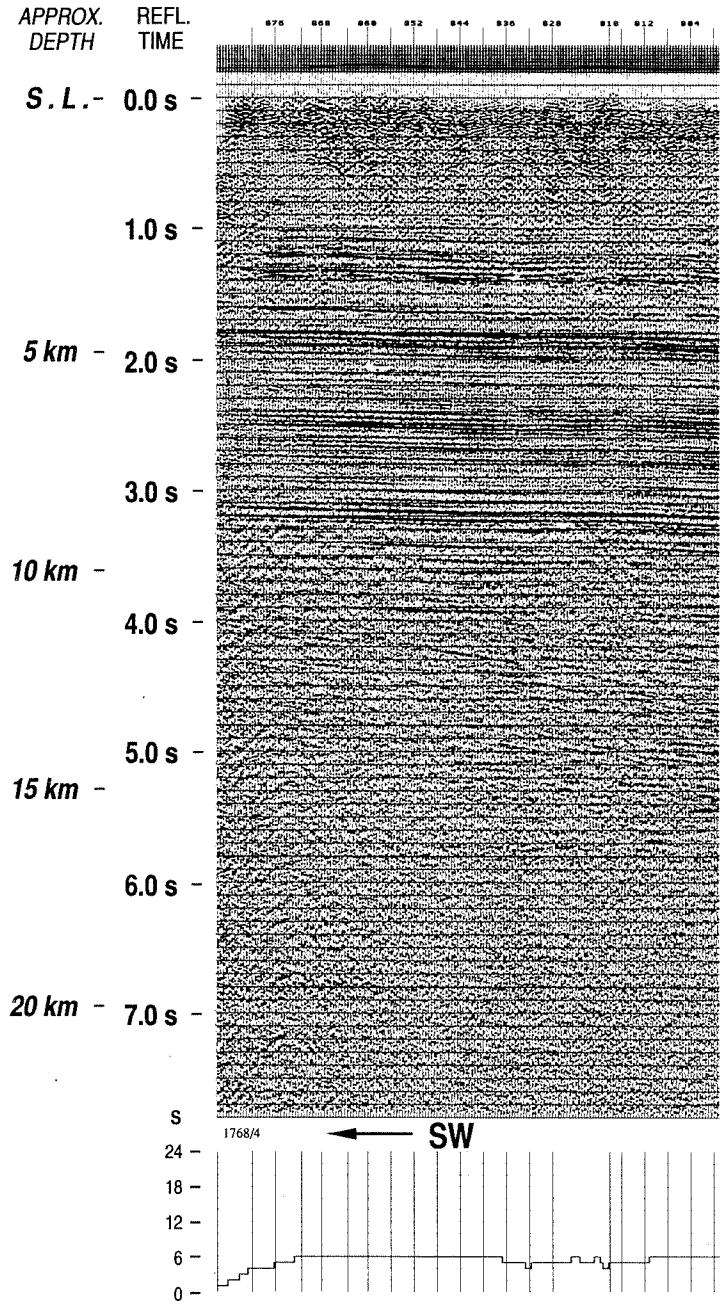
Interpretation:

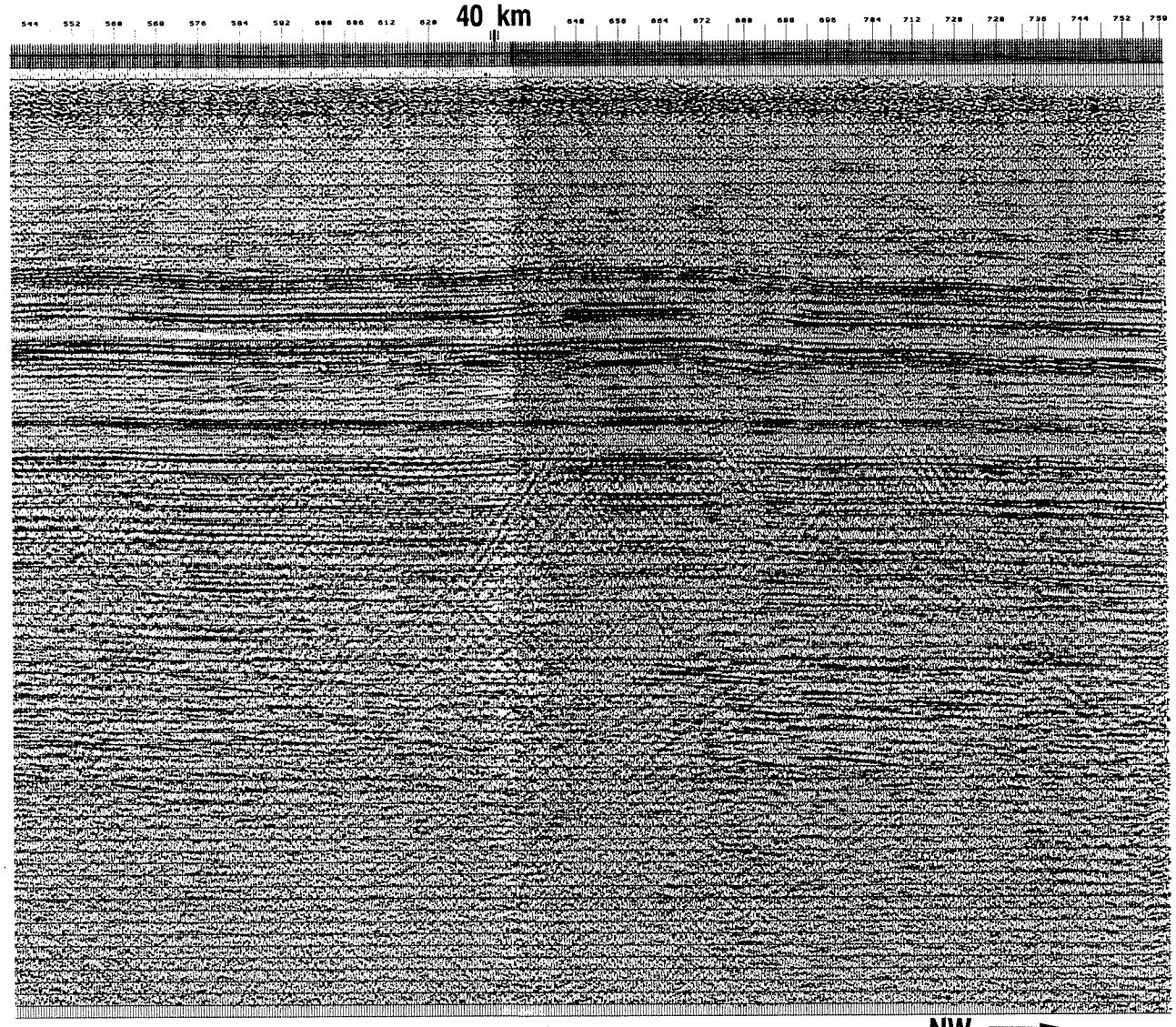
E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

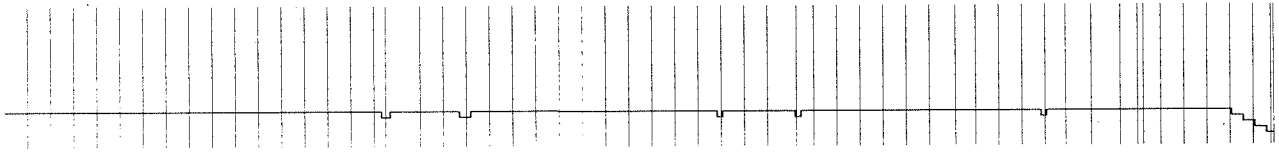

Line 1770
30 km
20 km
1768/2



1768/3


APPROX. DEPTH
REFL. TIME
S.L.-
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
1768/4
SW
24
18
12
6
0





REFL. TIME	APPROX. DEPTH
-0.0 s	- S.L.
-1.0 s	
-2.0 s	- 5 km
-3.0 s	
	-10 km
-4.0 s	
-5.0 s	
	-15 km
-6.0 s	
-7.0 s	-20 km

S
- 24
- 18
- 12
- 6
- 0

MELVILLE ISLAND, CANADA

Line No.: **1770**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1975
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

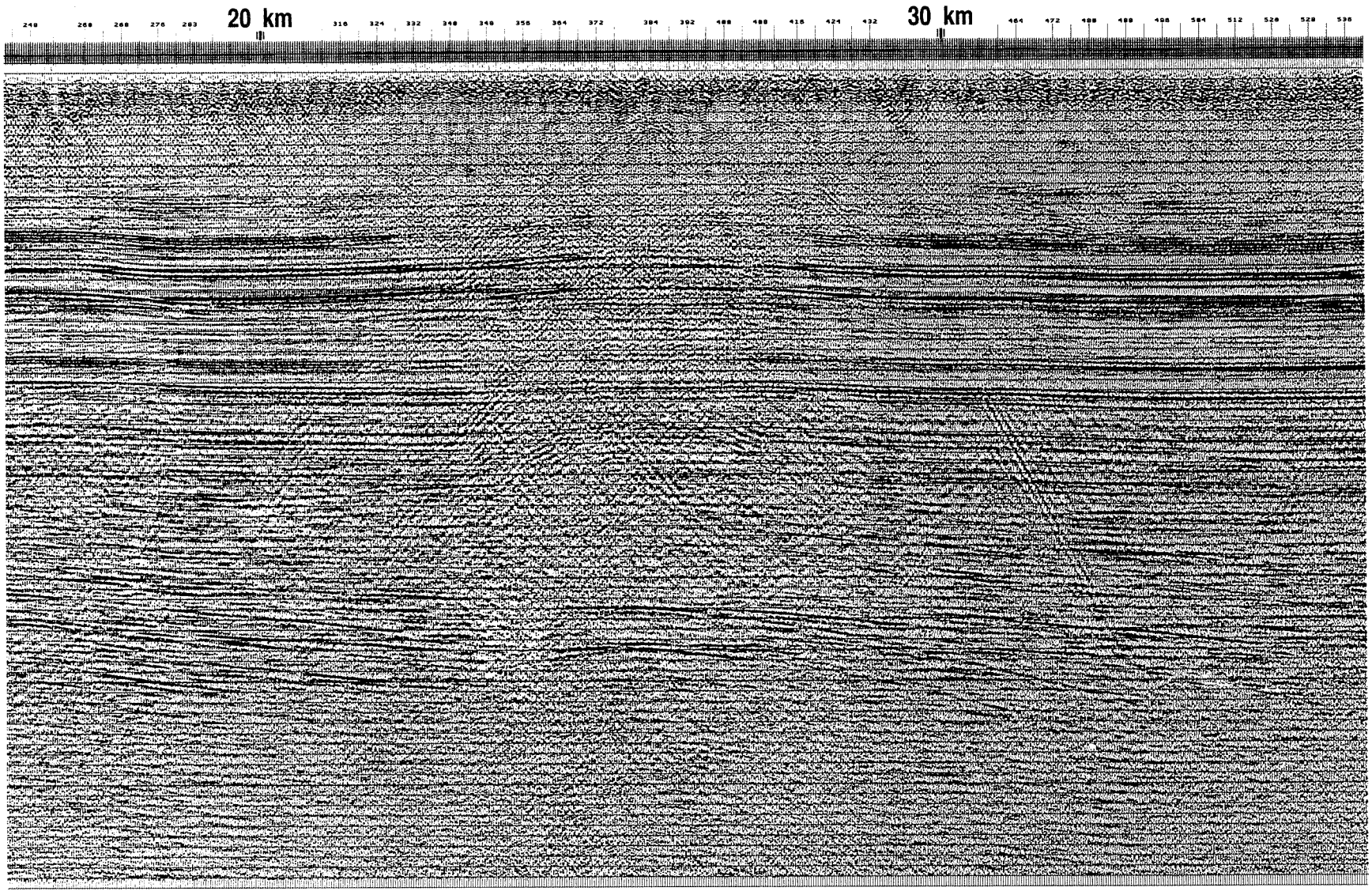
Processing parameters:

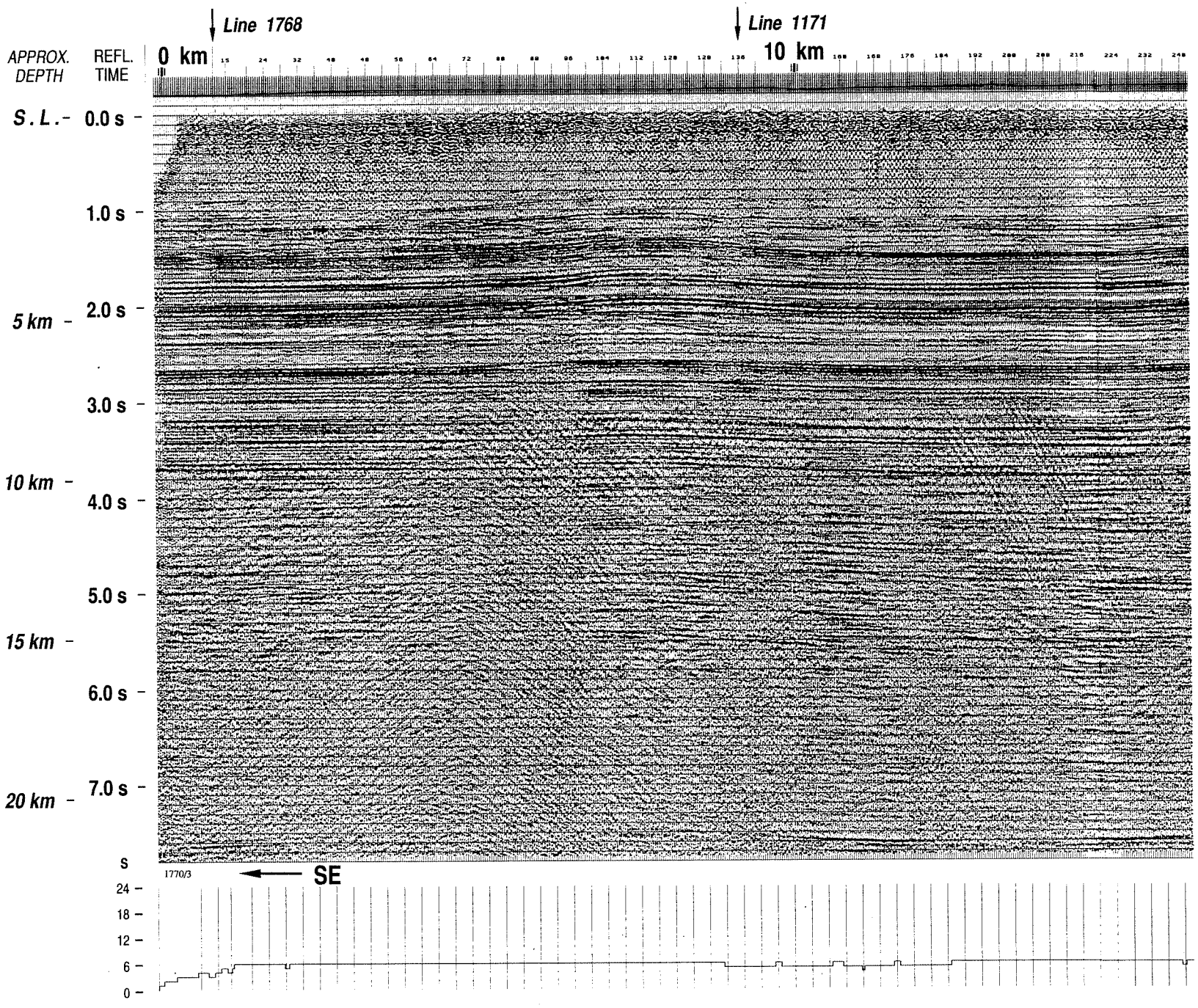
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

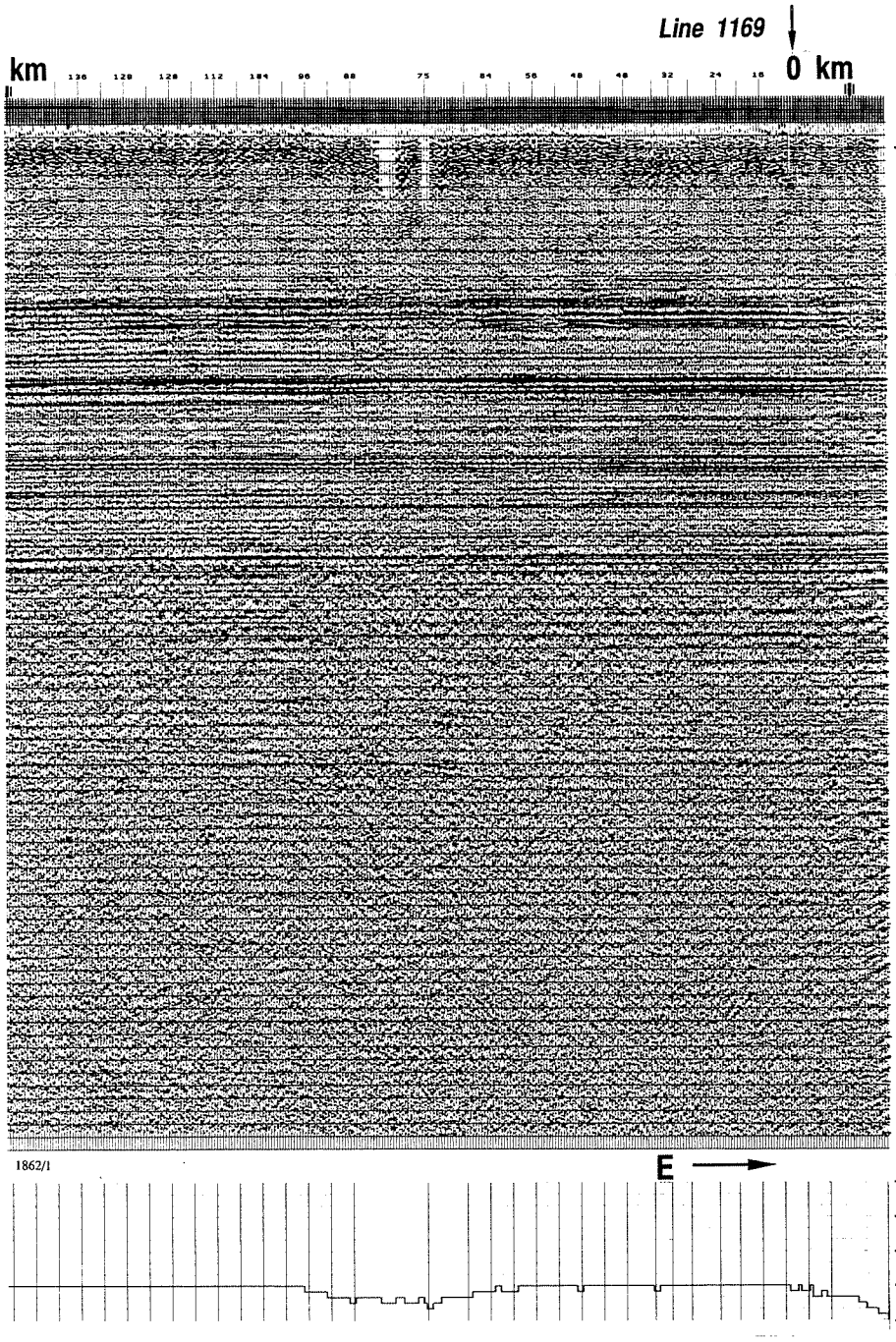
S: Stacking fold ...

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


20 km
30 km
1770/2


Line 1768
Line 1171
APPROX. DEPTH
REFL. TIME
0 km
10 km
S.L.-
0.0 s
1.0 s
5 km -
2.0 s
3.0 s
10 km -
4.0 s
5.0 s
15 km -
6.0 s
20 km -
7.0 s
s
24
18
12
6
0
1770/3
SE



MELVILLE ISLAND, CANADA

Line No.: **1862**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1975
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

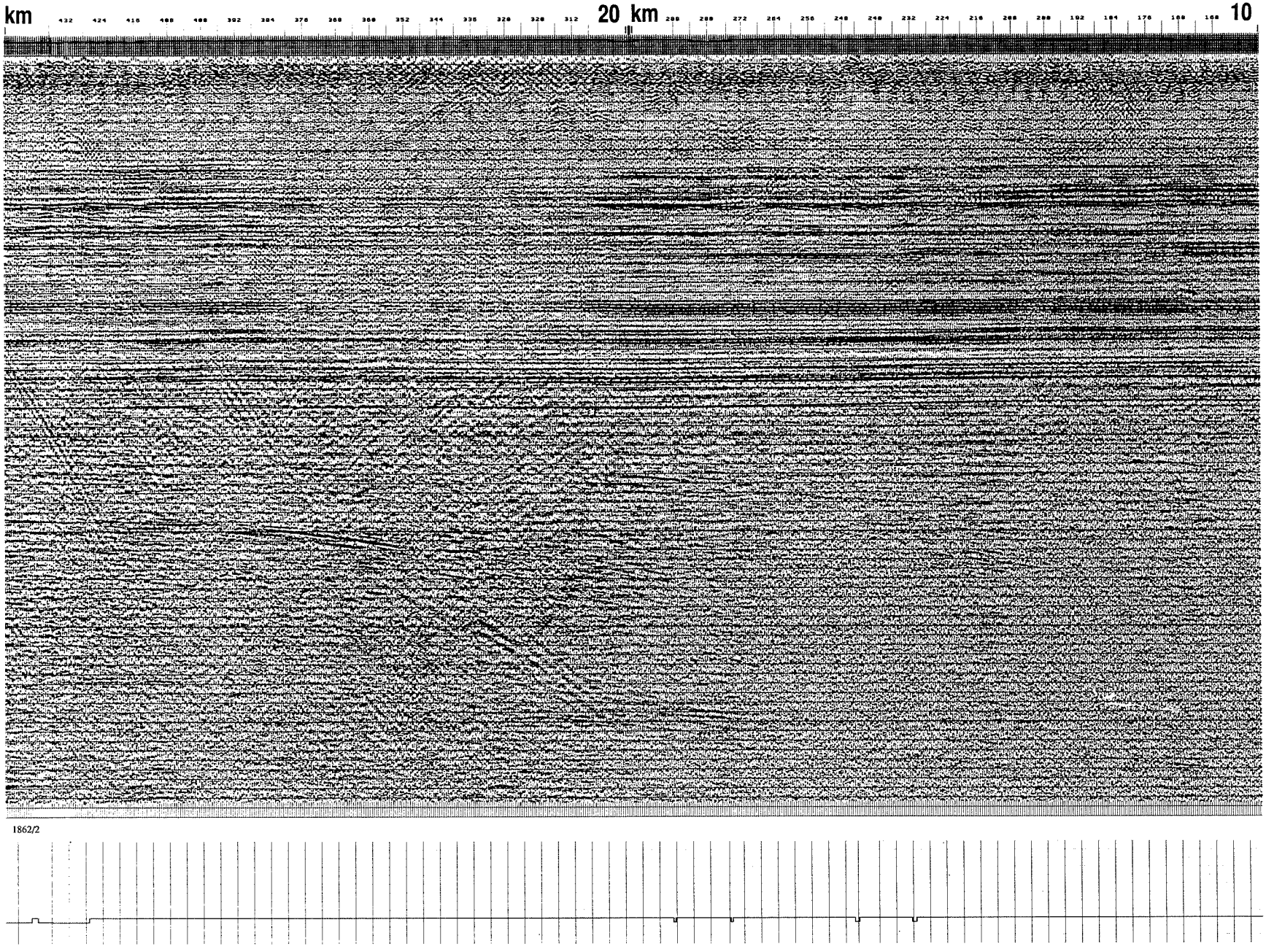
Processing parameters:

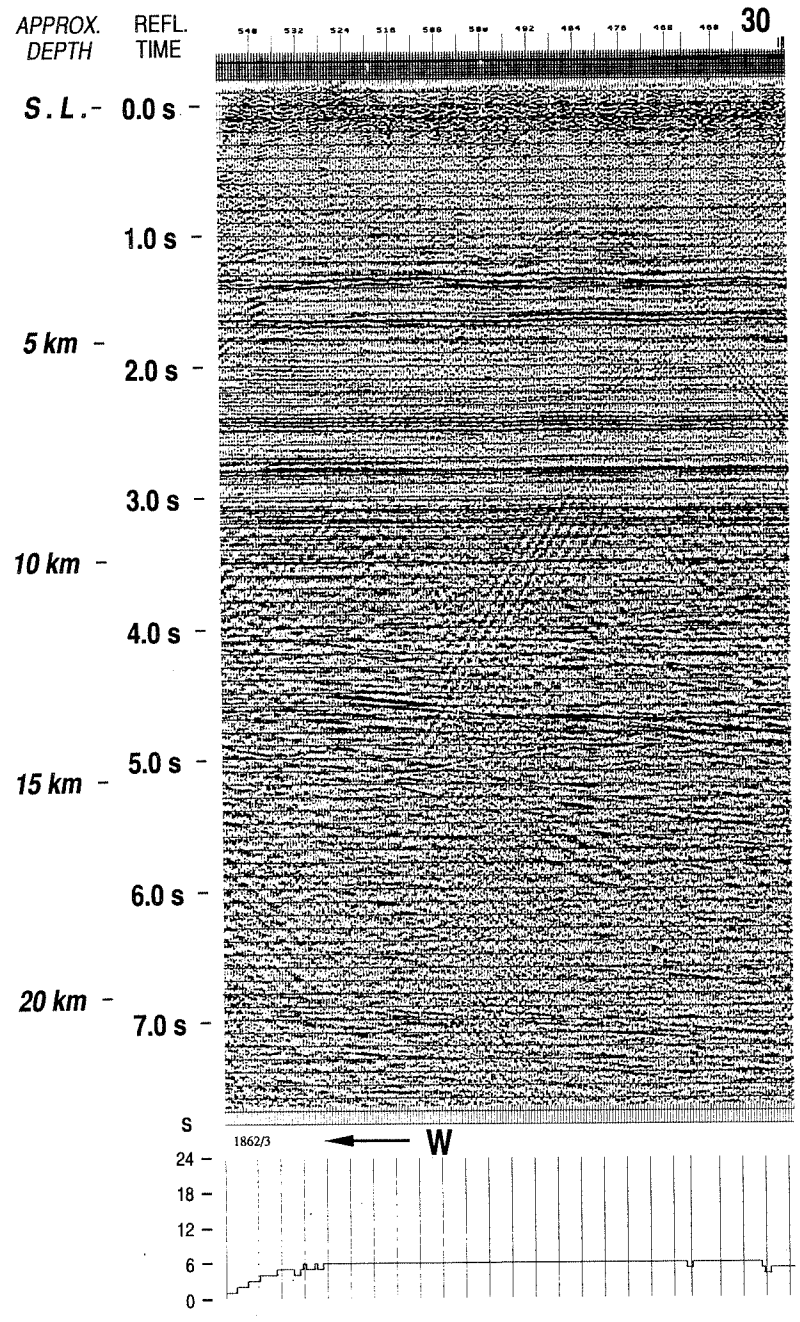
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

S: Stacking fold

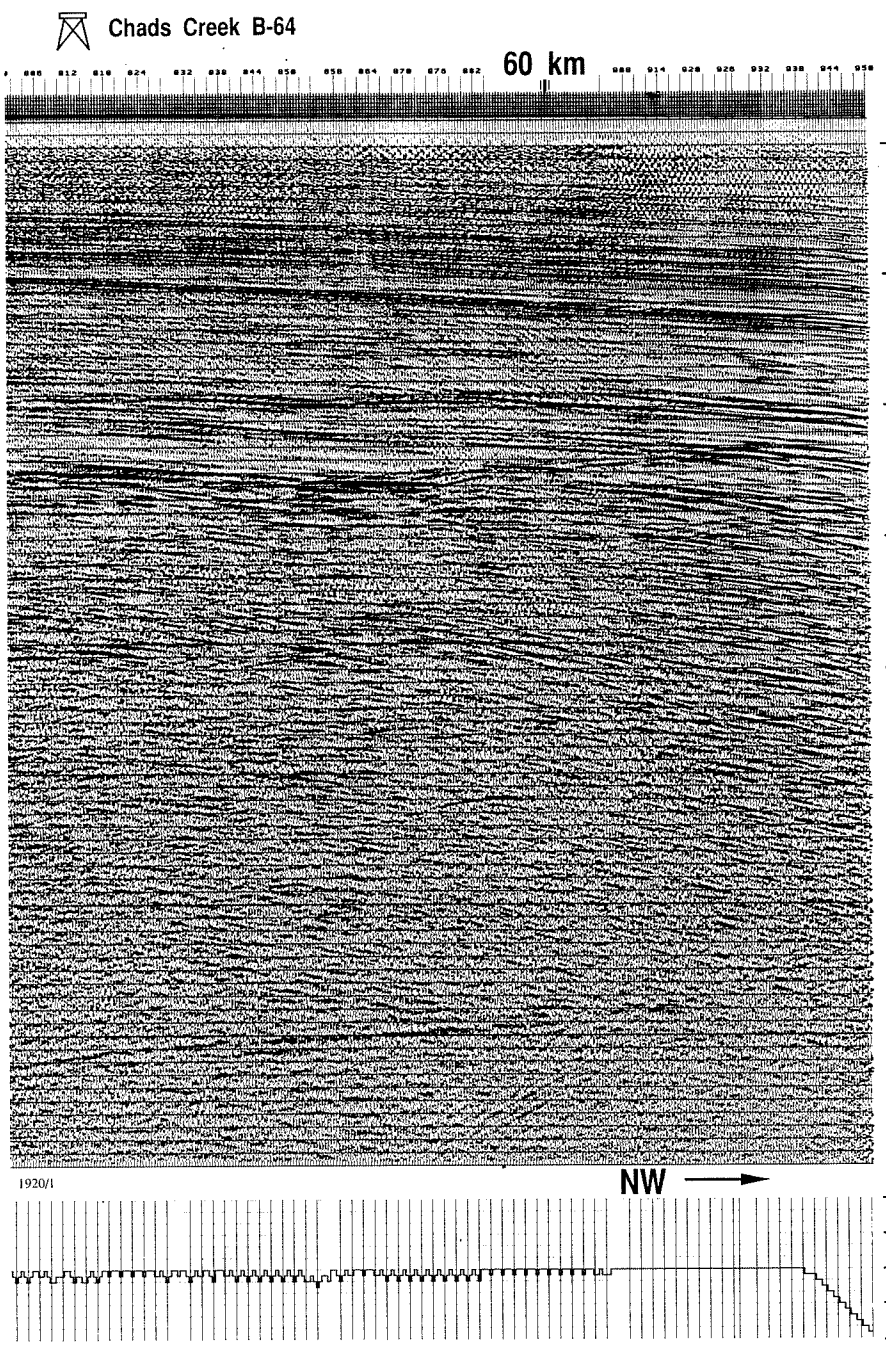
Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


km
20 km
10
1862/2


APPROX. DEPTH
REFL. TIME
30
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
1862/3
W
24
18
12
6
0

802



MELVILLE ISLAND, CANADA

Line No.: **1920**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	October 1975
Source interval:	440 ft
Geophone group interval:	220 ft
Spread distance:	5500-440-SP-440-5500 ft

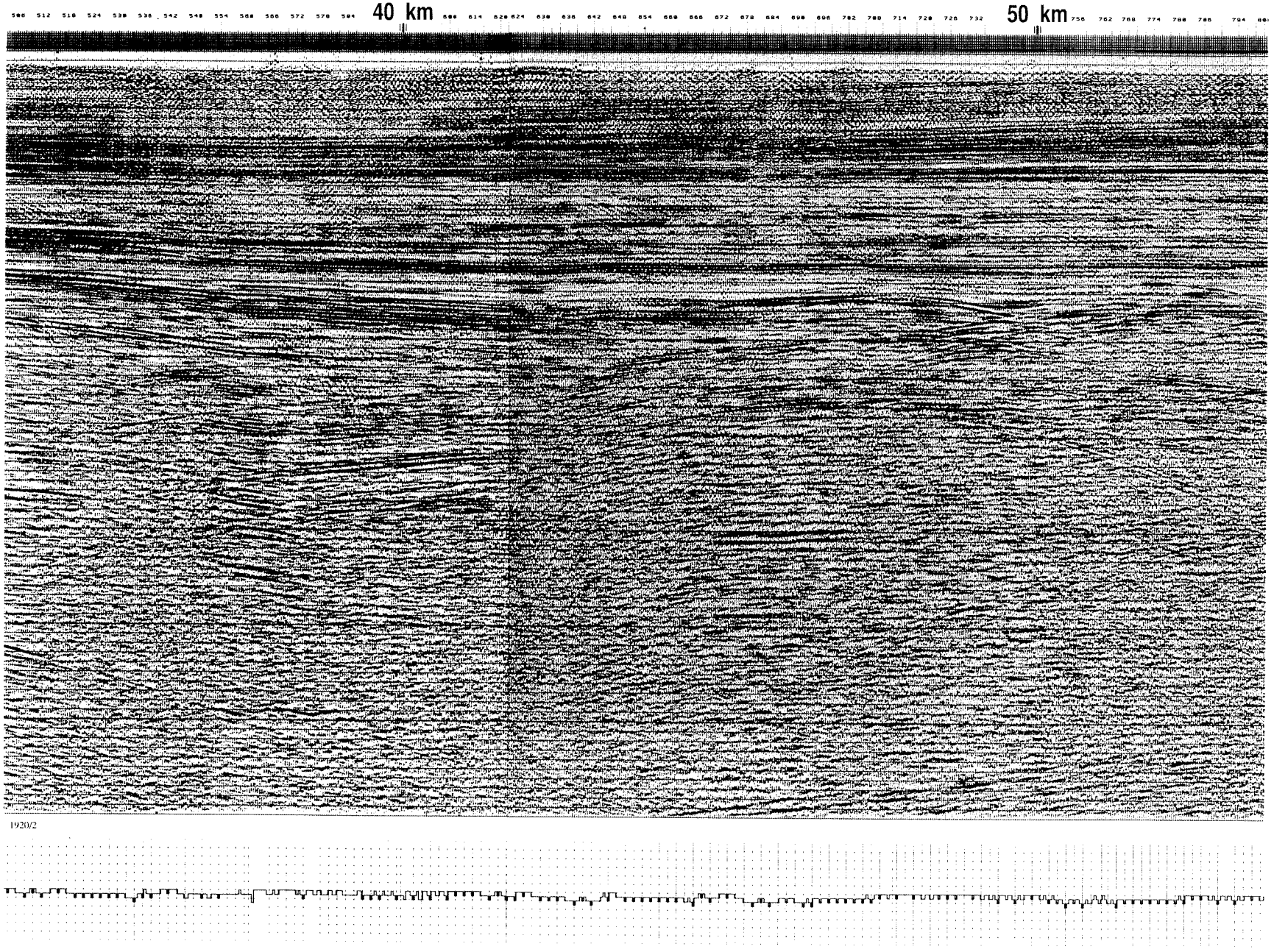
Processing parameters:

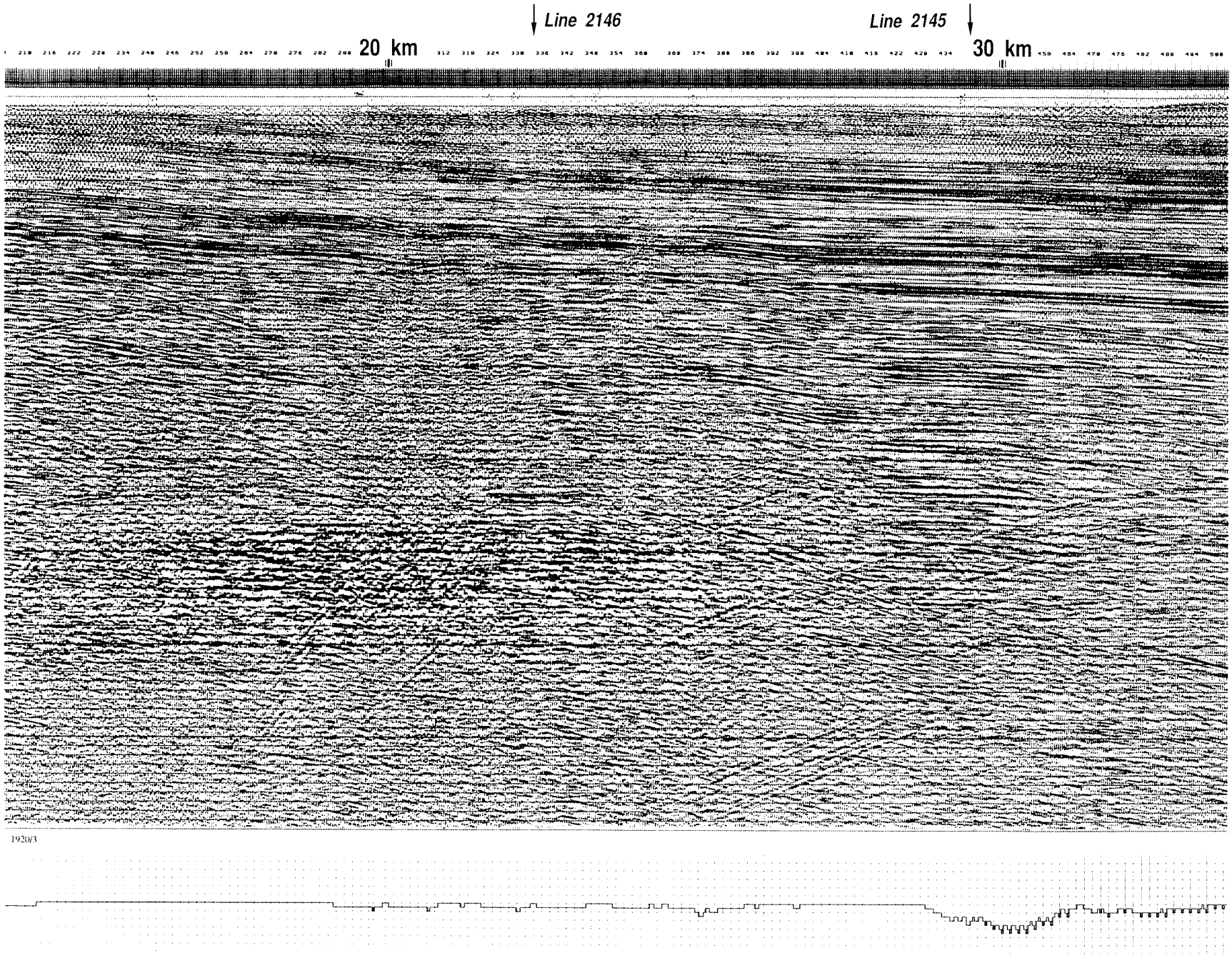
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

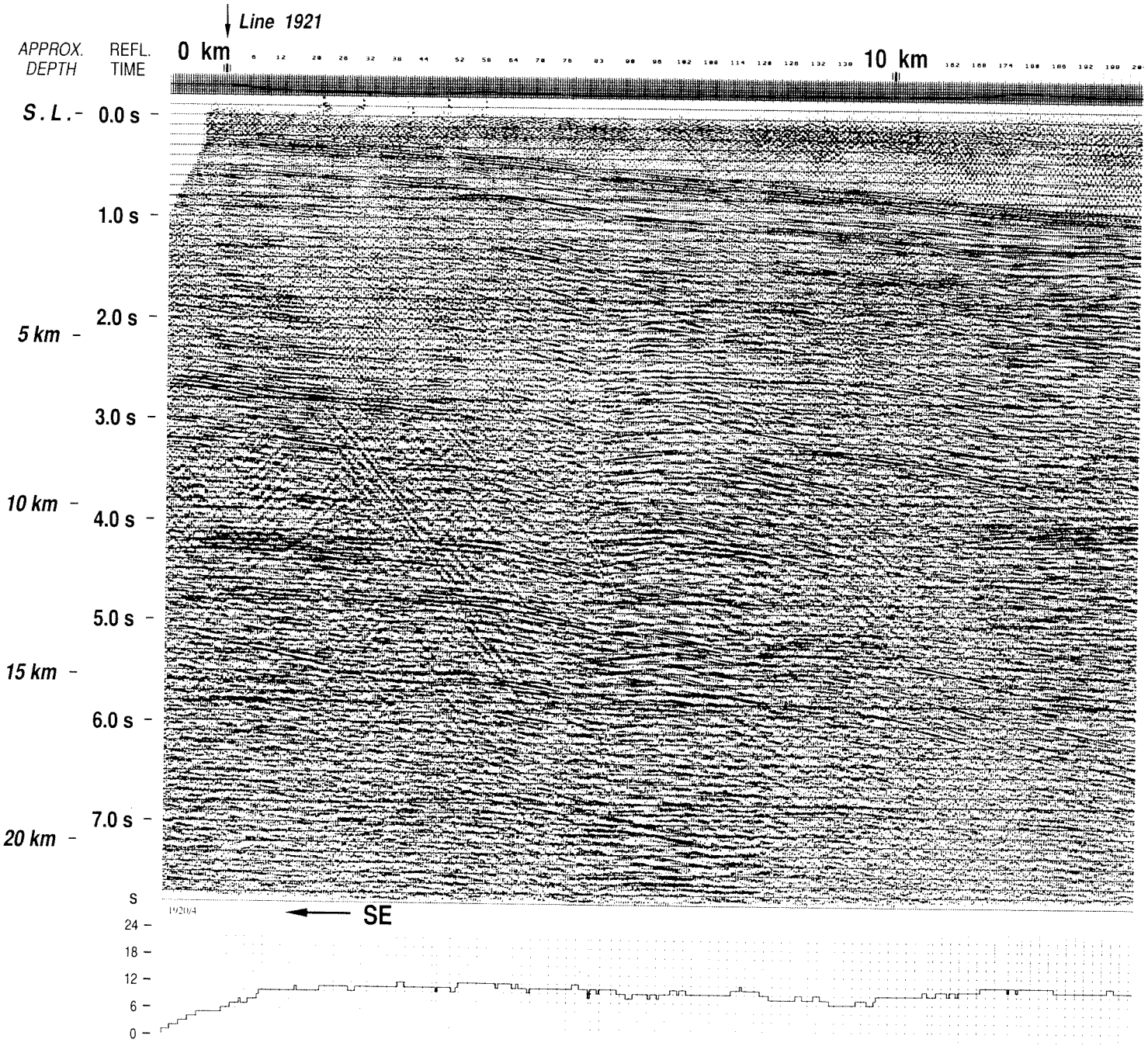
S: Stacking fold

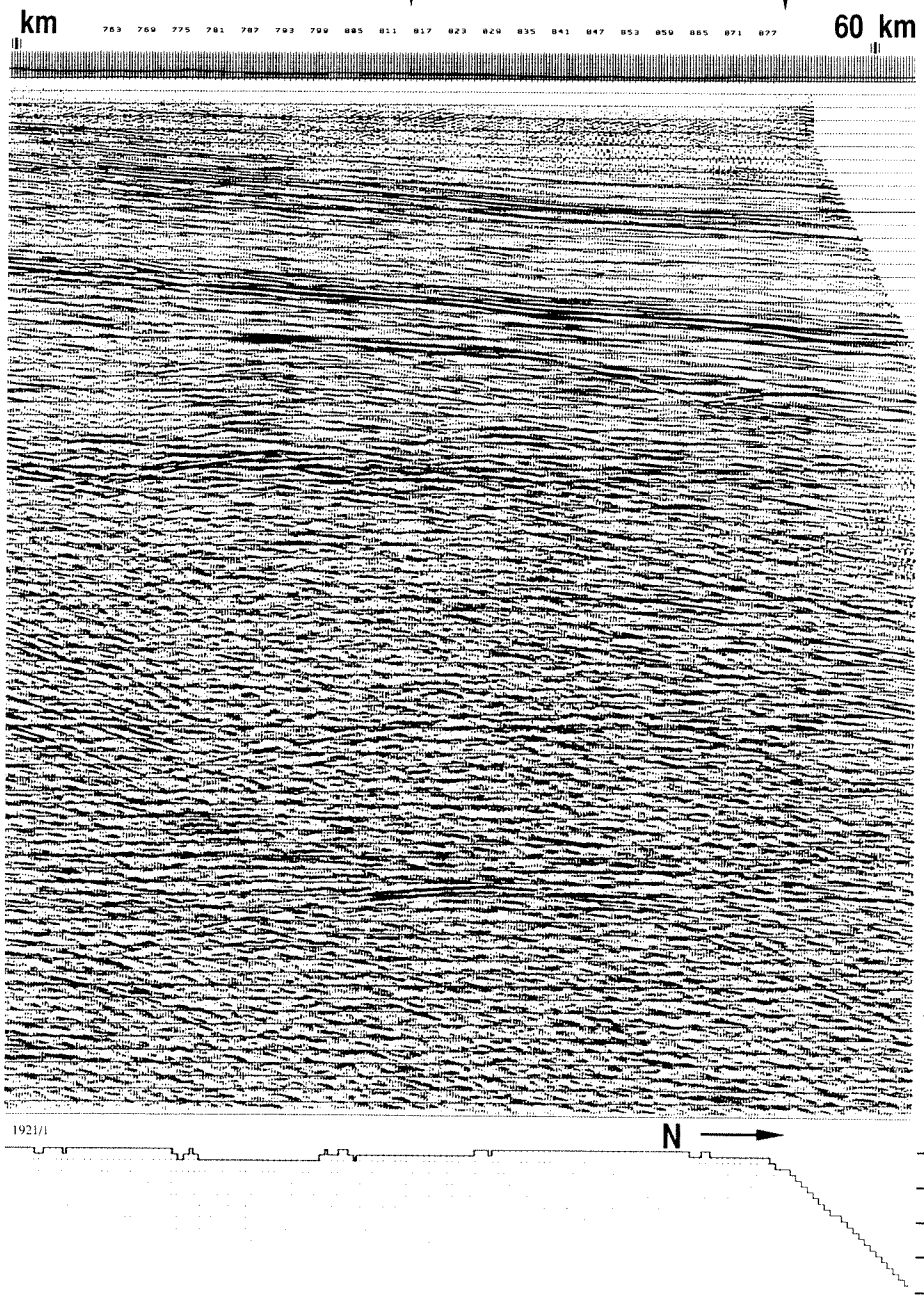
Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


40 km
50 km
1920/2


Line 2146
Line 2145
20 km
30 km
1920/3


Line 1921
APPROX. DEPTH
REFL. TIME
0 km
10 km
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
1920/4
SE
S
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **1921**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	October 1975
Source interval:	440 ft
Geophone group interval:	220 ft
Spread distance:	5500-440-SP-440-5500 ft

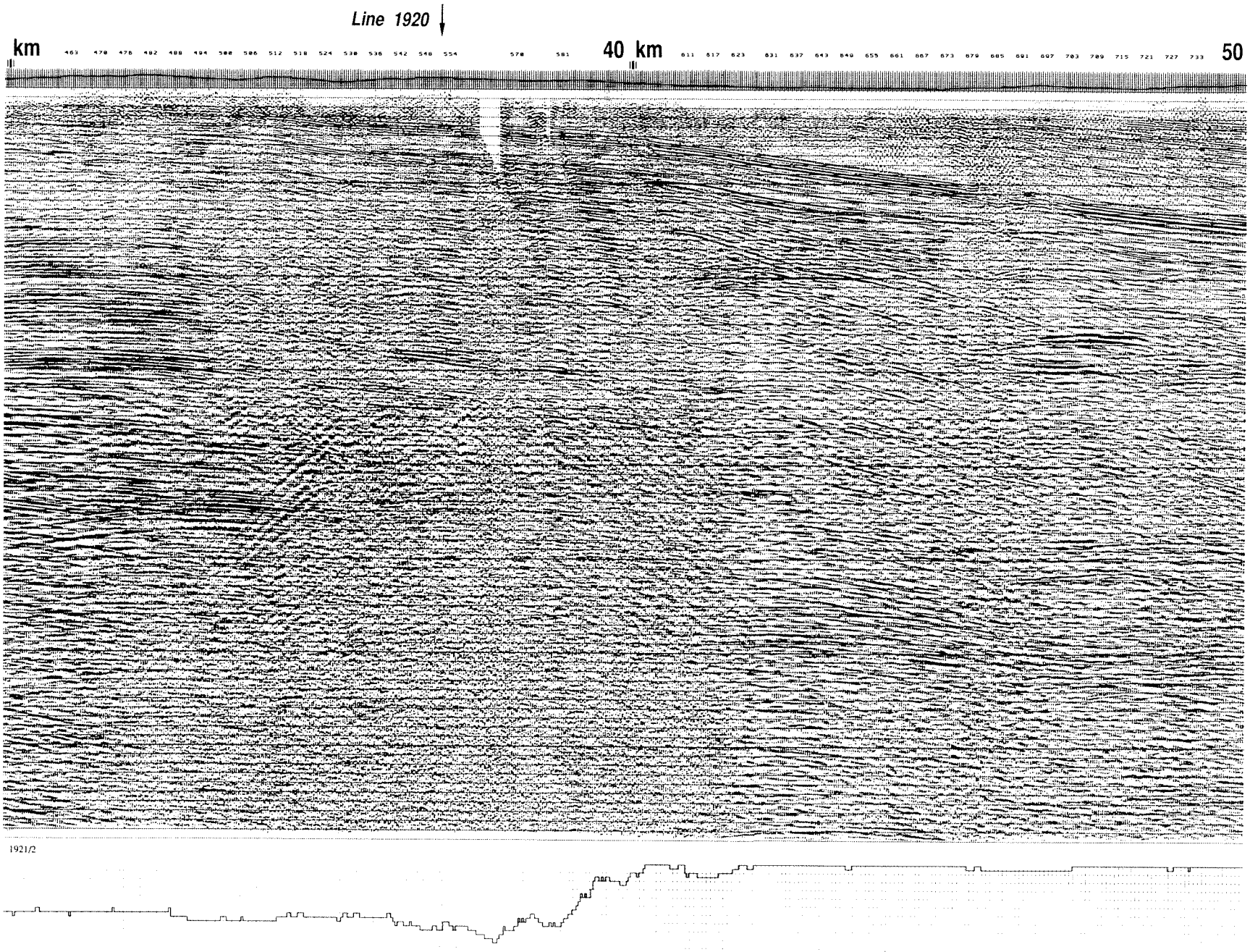
Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

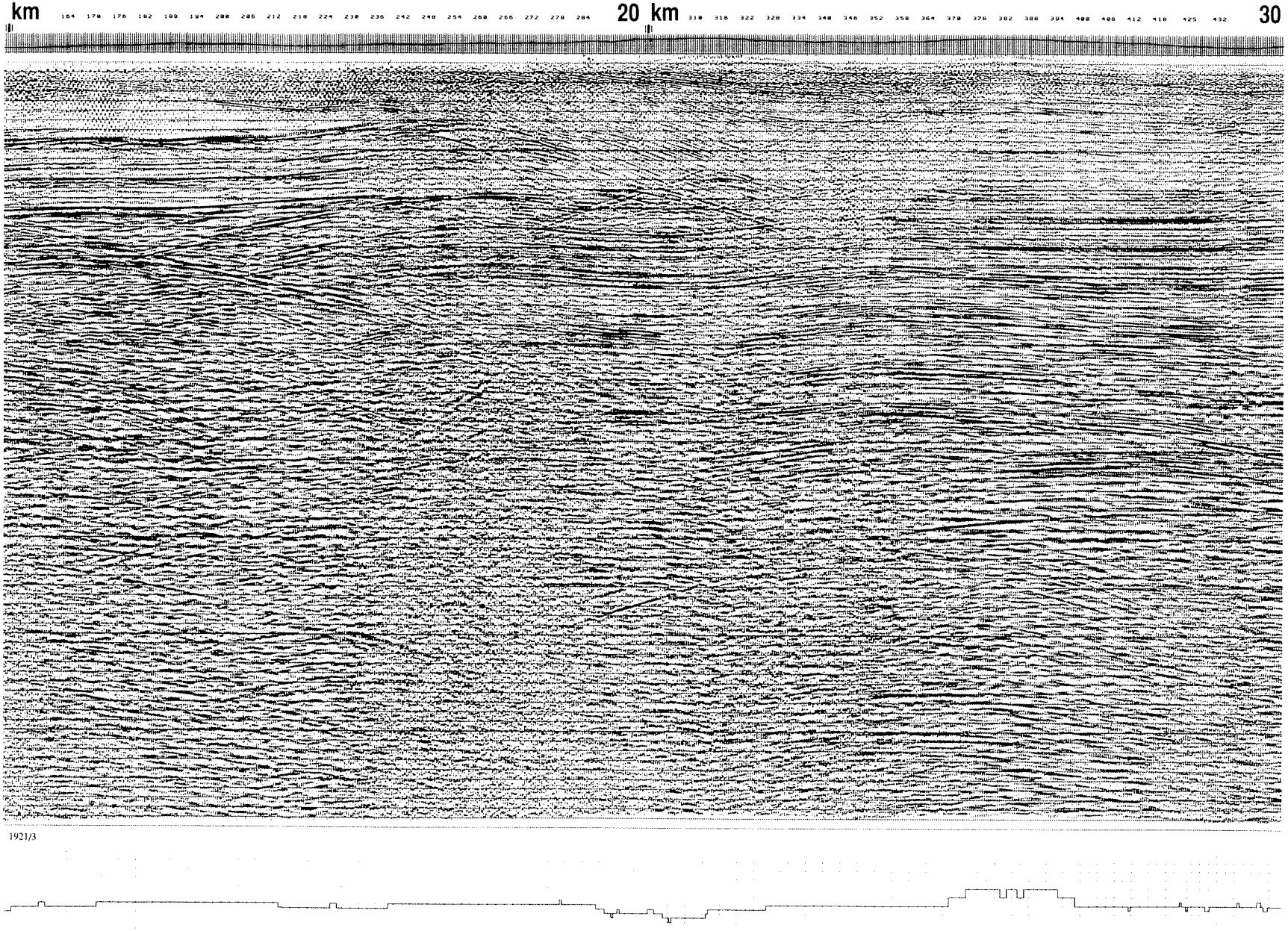
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

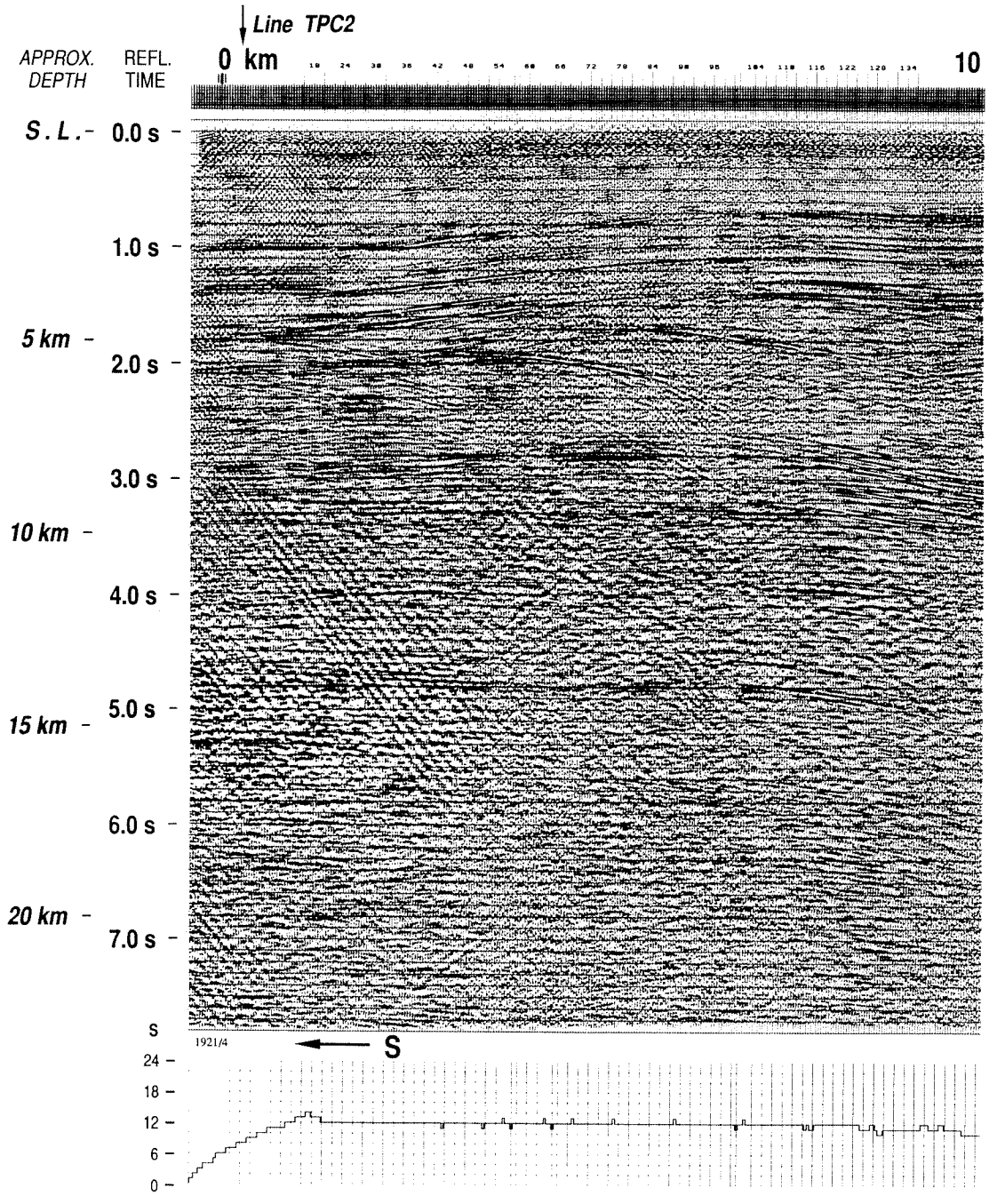

Line 1920
km
40 km
50
1921/2

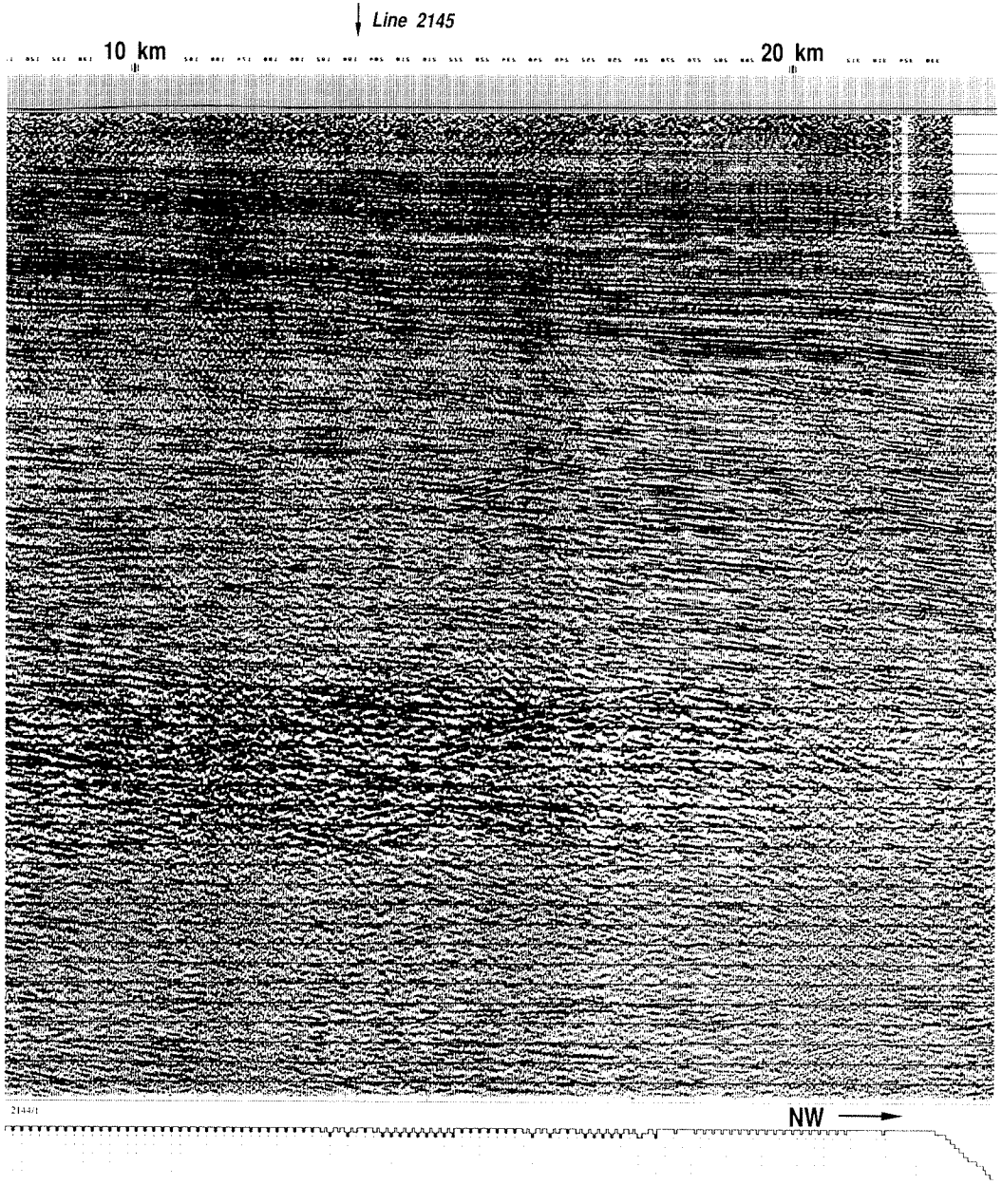
Weatherall O-10



1921/3

512


Line TPC2
APPROX. DEPTH
REFL. TIME
0 km
10
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
20 km
7.0 s
S
1921/4
S
24
18
12
6
0



REFL. TIME

-0.0 s

-1.0 s

-2.0 s

-3.0 s

-4.0 s

-5.0 s

-6.0 s

-7.0 s

-8.0 s

-9.0 s

APPROX. DEPTH

- S.L.

- 5 km

-10 km

-15 km

-20 km

-25 km

MELVILLE ISLAND, CANADA

Line No.: **2144**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, February 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	March 1976
Source interval:	440 ft
Geophone group interval:	220 ft
Spread distance:	1540-440-SP-440-1320, 3520-11220 ft

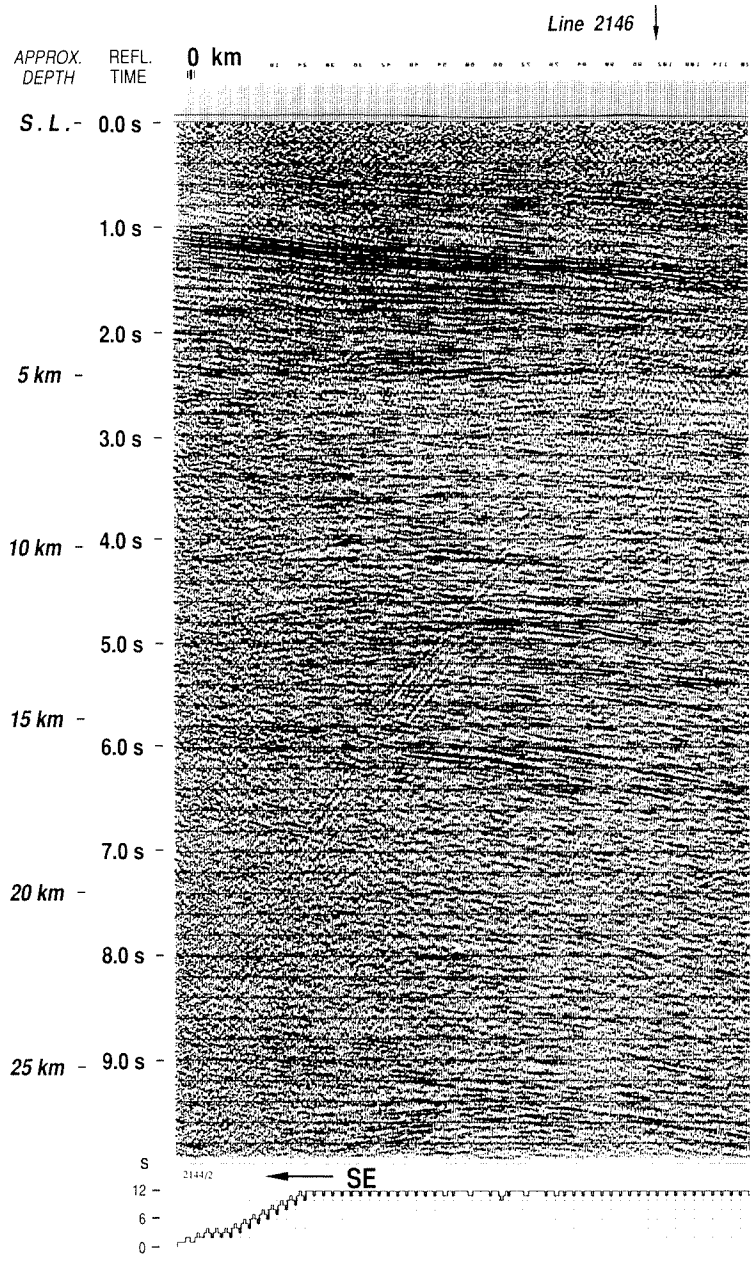
Processing parameters:

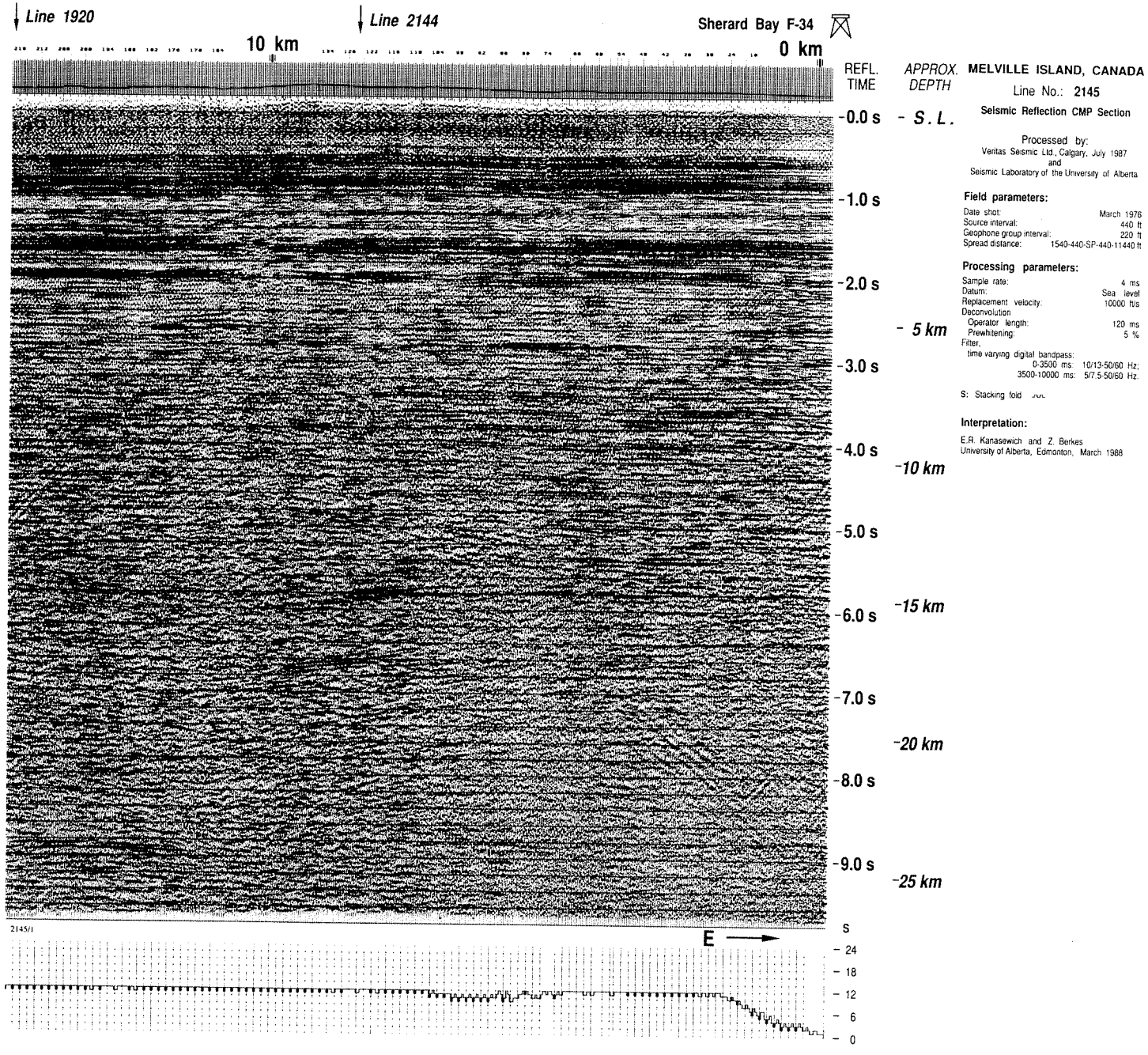
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-10000 ms:	5/7.5-50/60 Hz

S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 2146
APPROX. DEPTH
REFL. TIME
0 km
S.L.-
0.0 s
1.0 s
2.0 s
5 km
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
8.0 s
25 km
9.0 s
S
12
6
0
2144/2
SE



MELVILLE ISLAND, CANADA

Line No.: 2145

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	March 1976
Source interval:	440 ft
Geophone group interval:	220 ft
Spread distance:	1540-440-SP-440-11440 ft

Processing parameters:

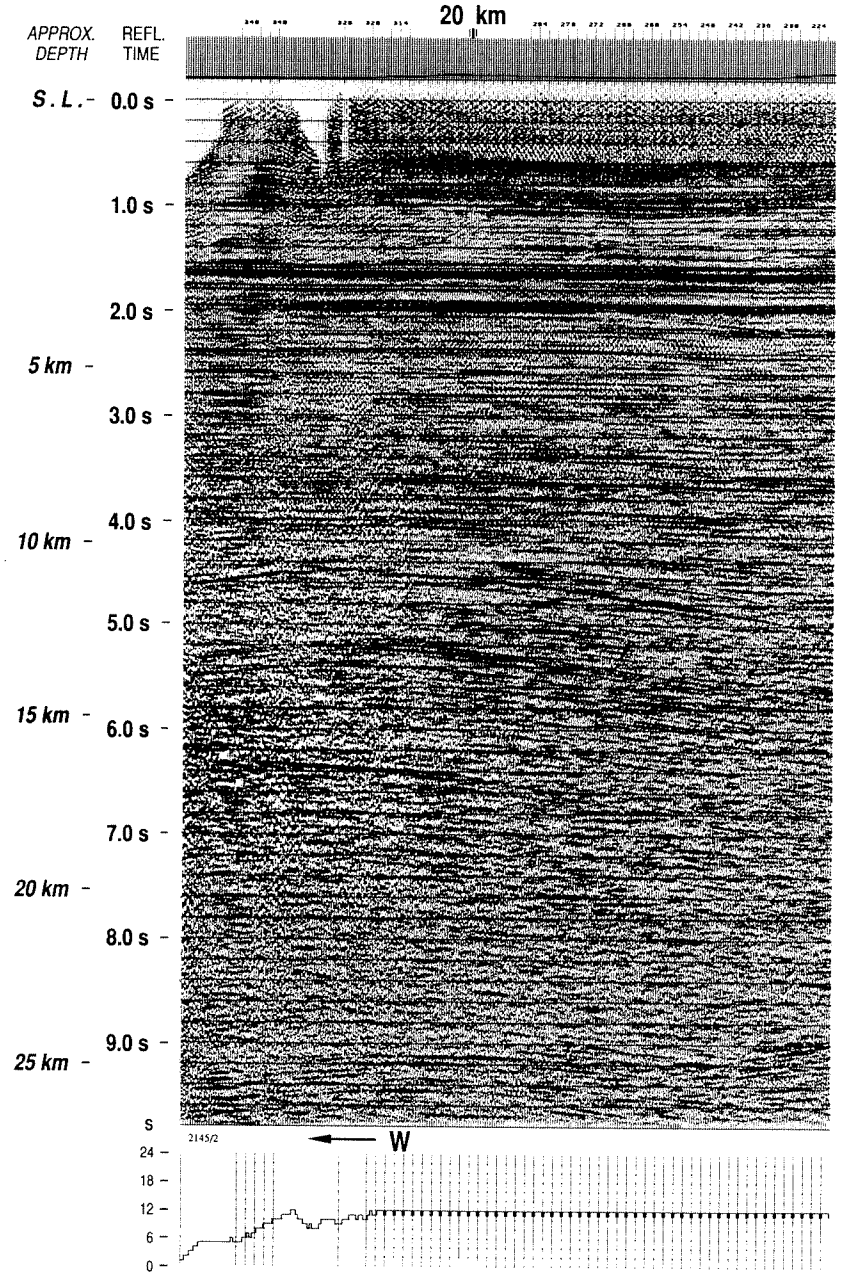
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-10000 ms:	5/7.5-50/60 Hz.

S: Stacking fold

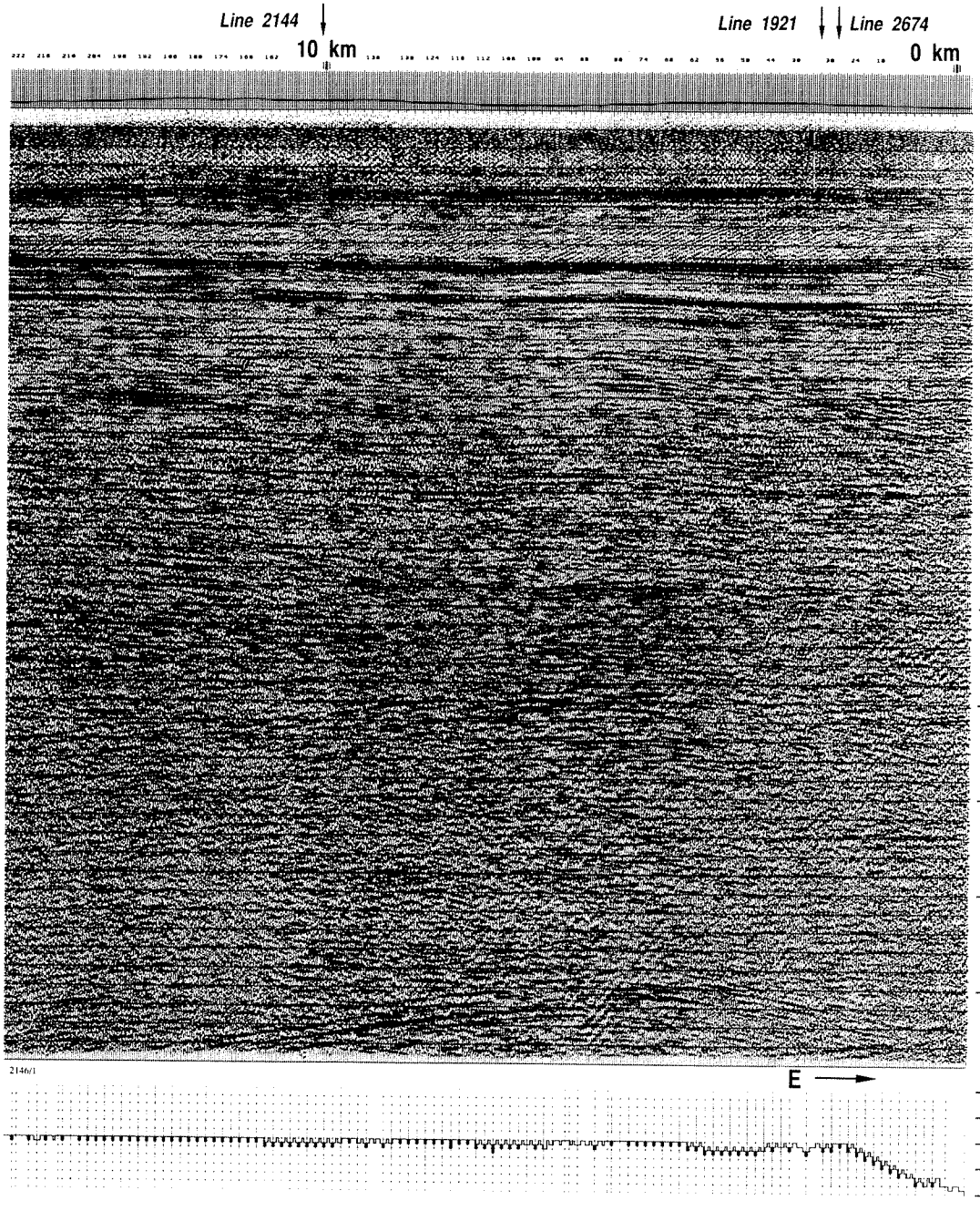
Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

2,9


20 km
APPROX. DEPTH
REFL. TIME
S.L.-
0.0 s
1.0 s
2.0 s
5 km
3.0 s
4.0 s
10 km
5.0 s
15 km
6.0 s
7.0 s
20 km
8.0 s
9.0 s
25 km
S
2145/2
W
24
18
12
6
0

220



MELVILLE ISLAND, CANADA

Line No.: **2146**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	March 1976
Source interval:	440 ft
Geophone group interval:	220 ft
Spread distance:	1540-440-SP-440-11440 ft

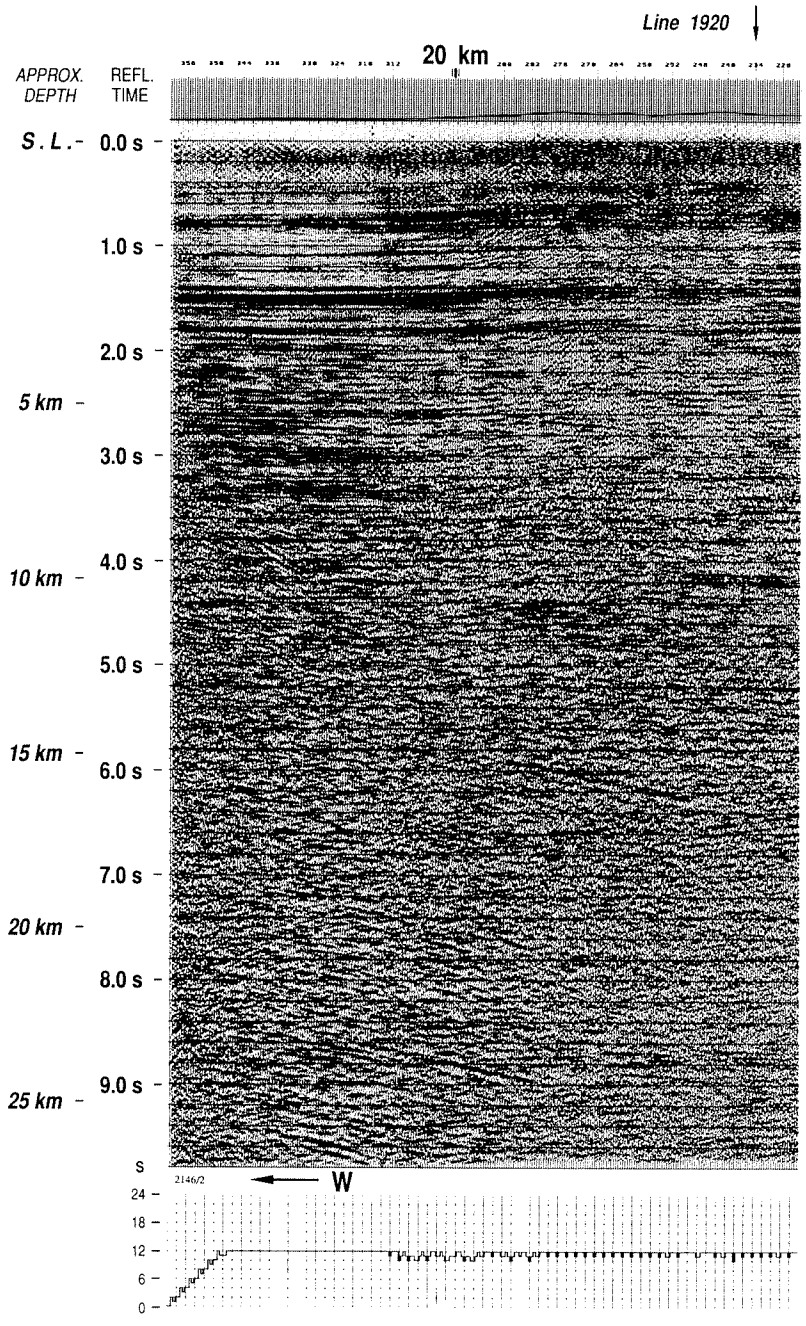
Processing parameters:

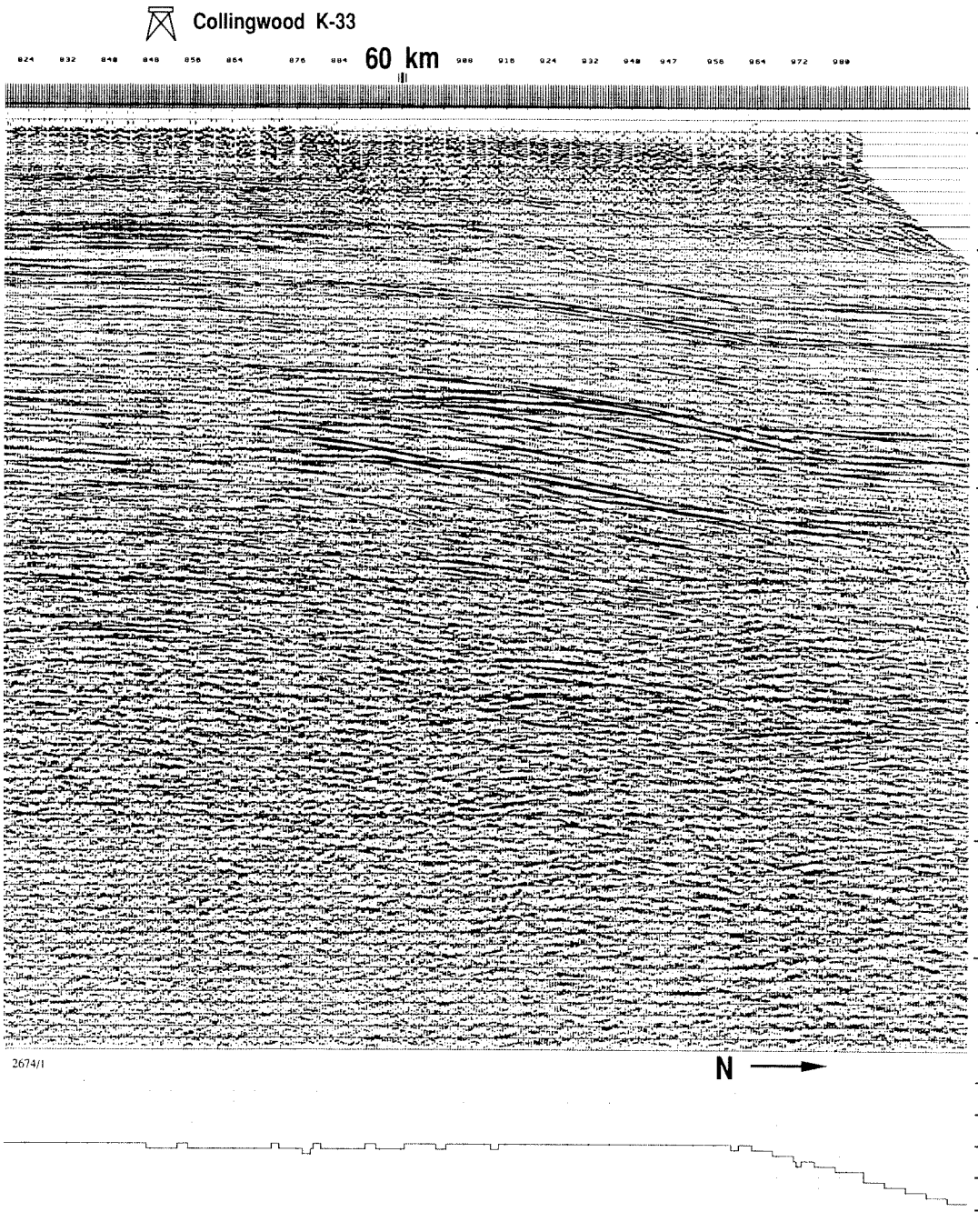
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-10000 ms:	5/7.5-50/60 Hz.

S: Stacking fold [illegible]

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line 1920
20 km
APPROX. DEPTH
REFL. TIME
S.L.-
0.0 s
1.0 s
2.0 s
5 km
3.0 s
10 km
4.0 s
5.0 s
15 km
6.0 s
7.0 s
20 km
8.0 s
25 km
9.0 s
S
2146/2
W
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **2674**

Seismic Reflection CMP Section

Processed by:
Ventas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	September 1981
Source interval:	268 m
Geophone group interval:	67 m
Spread distance:	3283-134-SP-134-3283 m

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	10000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-8000 ms:	5/7.5-50/60 Hz.

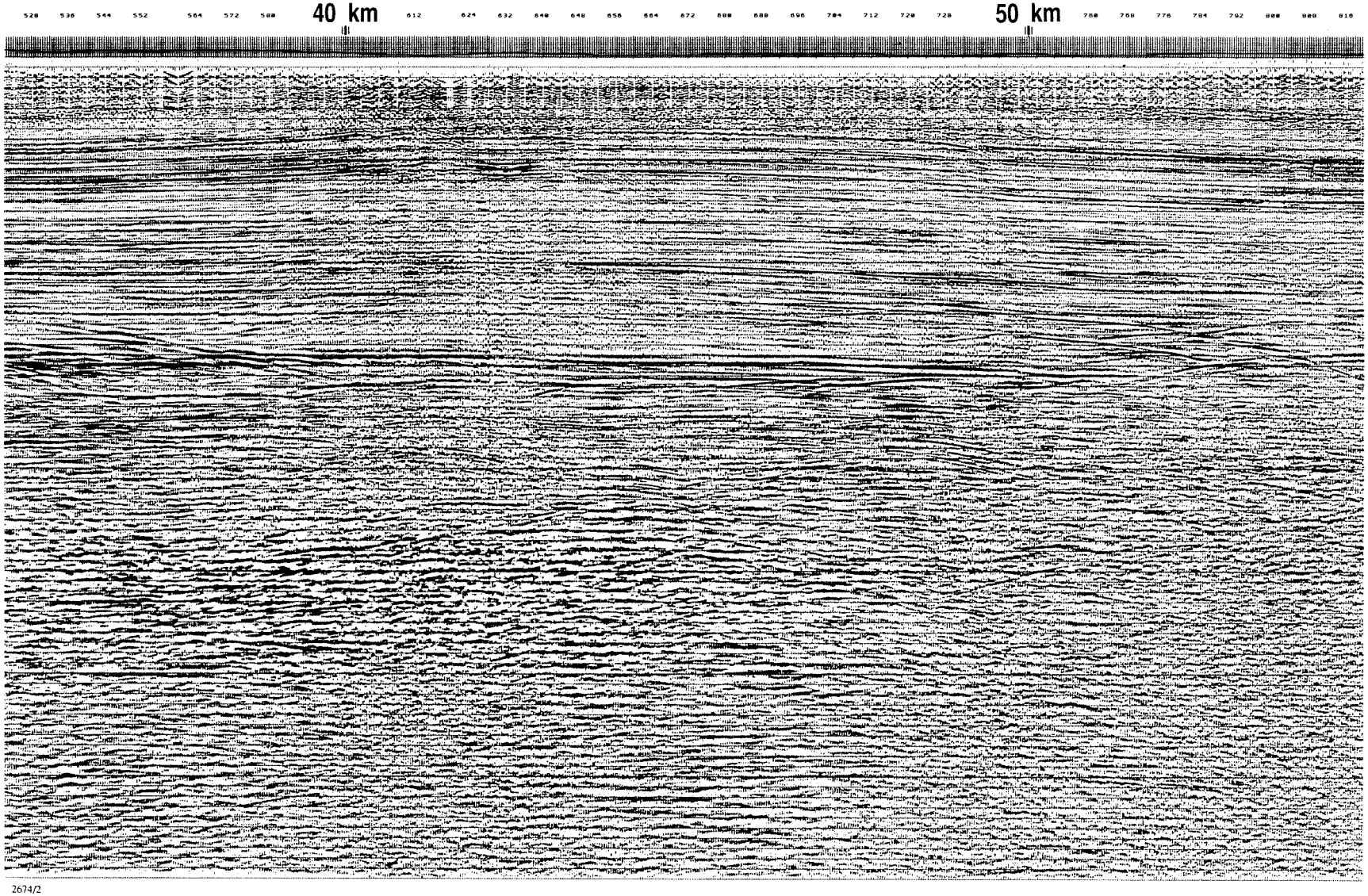
S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

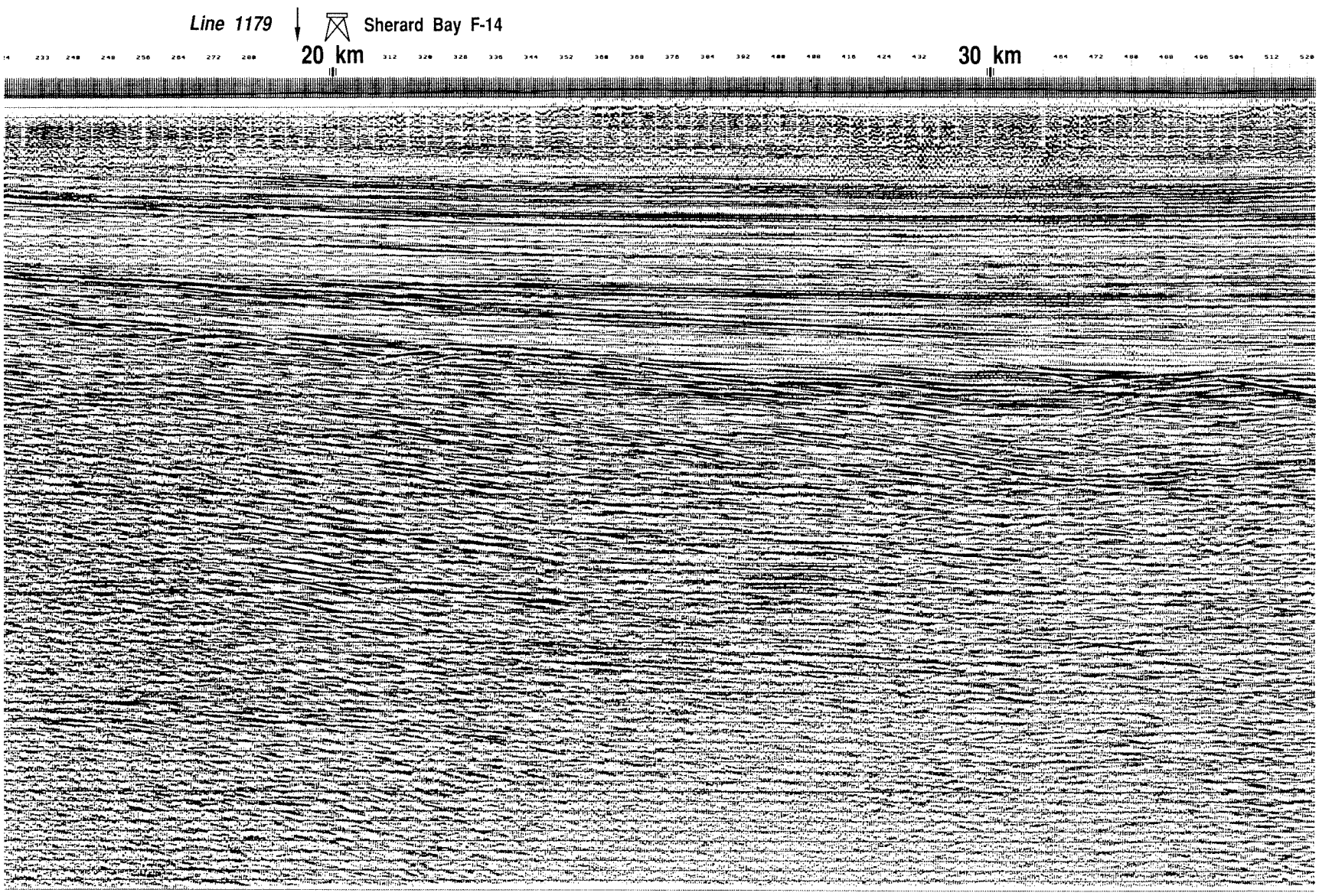
223

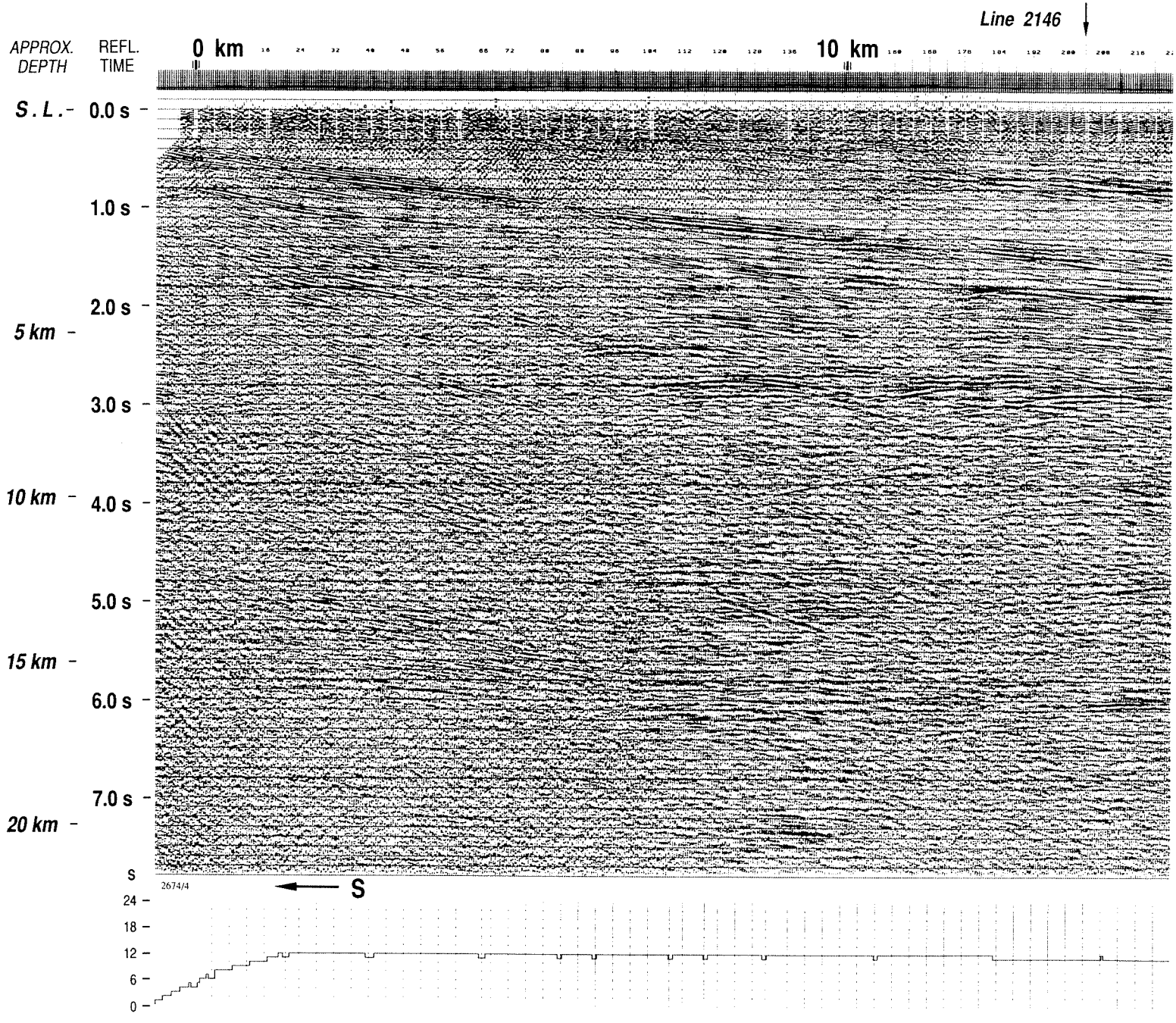
Line 1180

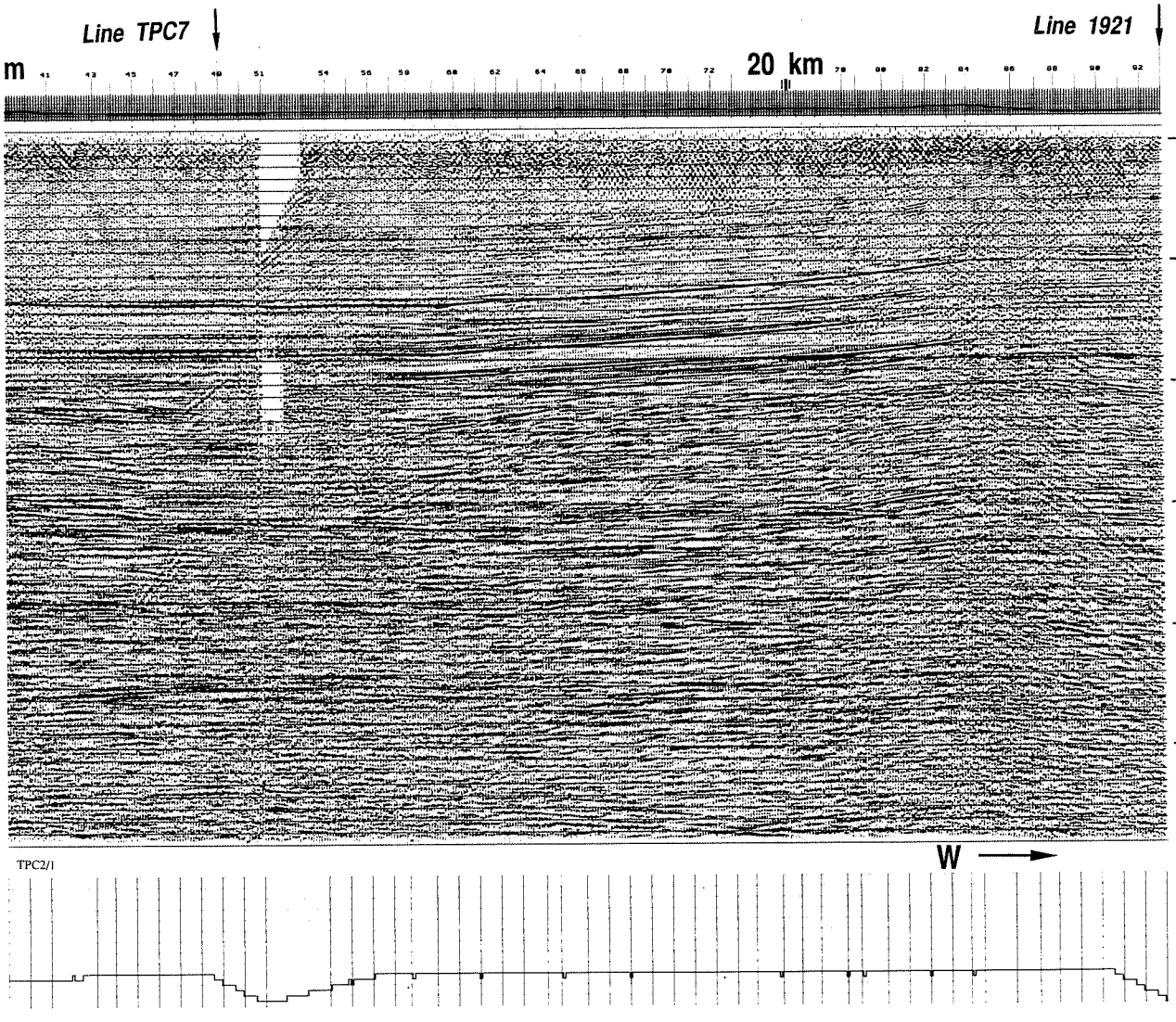


2674/2

224


Line 1179
Sherard Bay F-14
20 km
30 km
2674/3


Line 2146
APPROX. DEPTH
REFL. TIME
0 km
10 km
S.L.-
0.0 s
1.0 s
2.0 s
5 km -
3.0 s
10 km -
4.0 s
5.0 s
15 km -
6.0 s
7.0 s
20 km -
2674/4
S
S
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **TPC-2**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-6000 ms:	5/7.5-50/60 Hz.

S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

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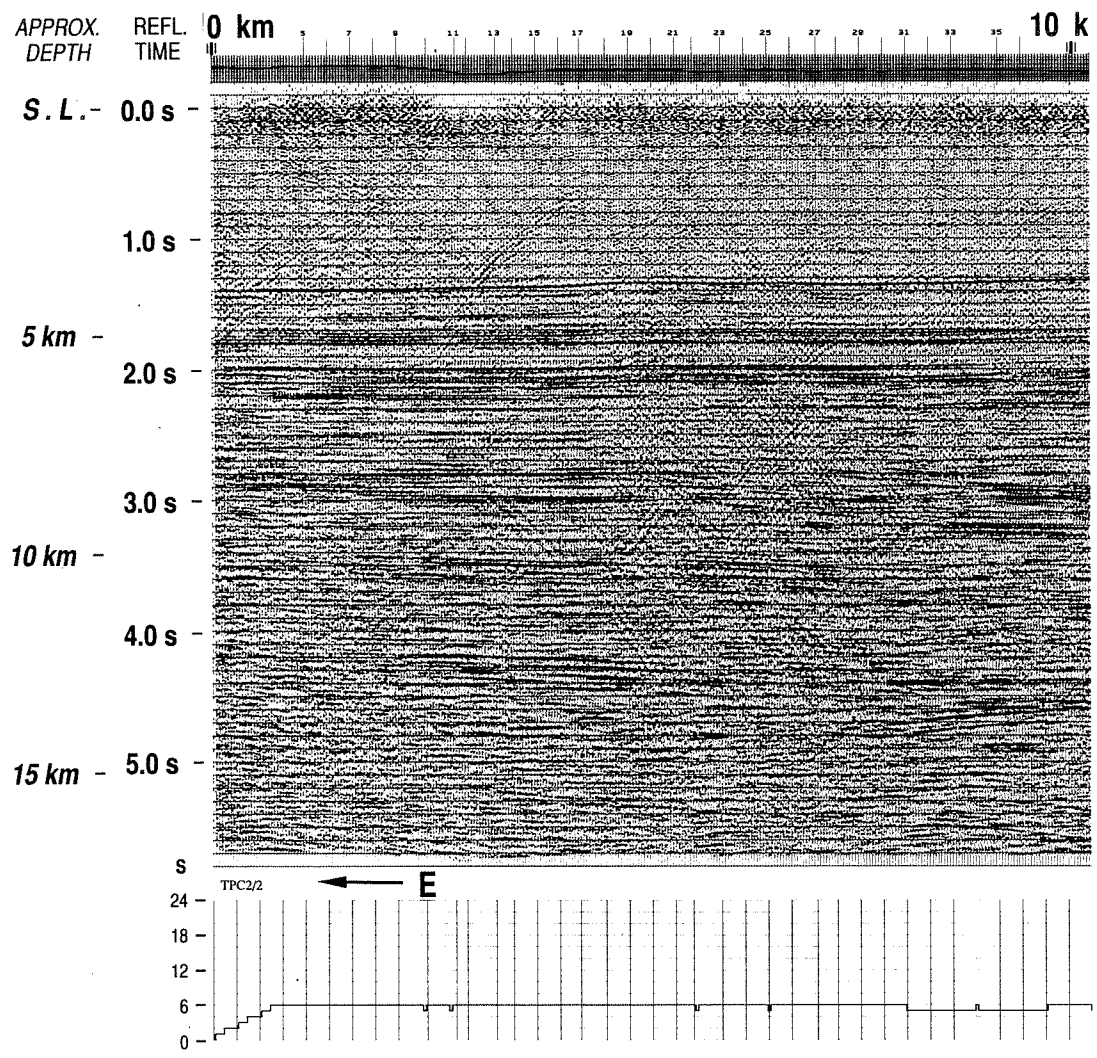
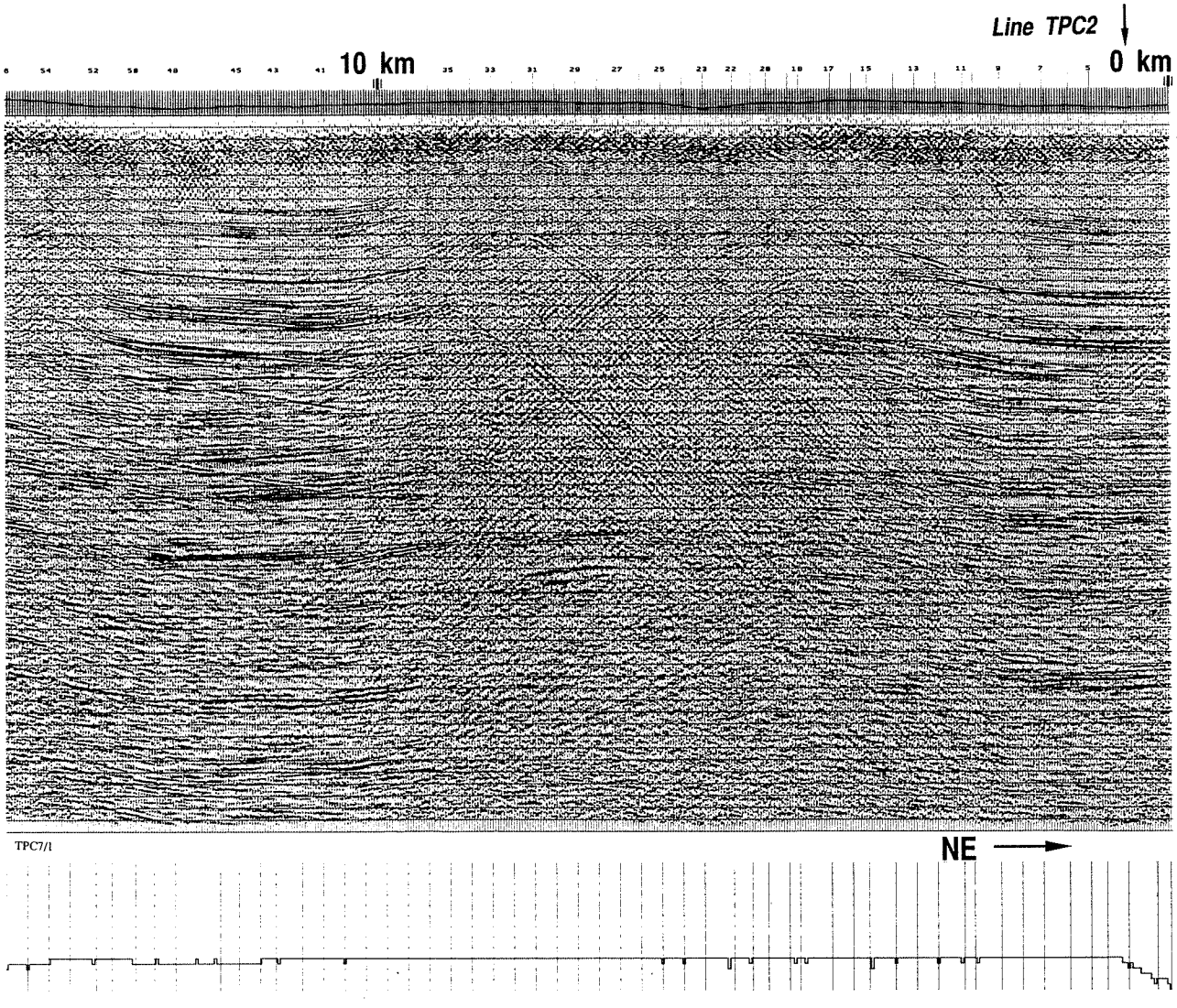

APPROX. DEPTH
REFL. TIME
0 km
10 k
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
15 km
5.0 s
S
TPC2/2
E
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **TPC-7**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

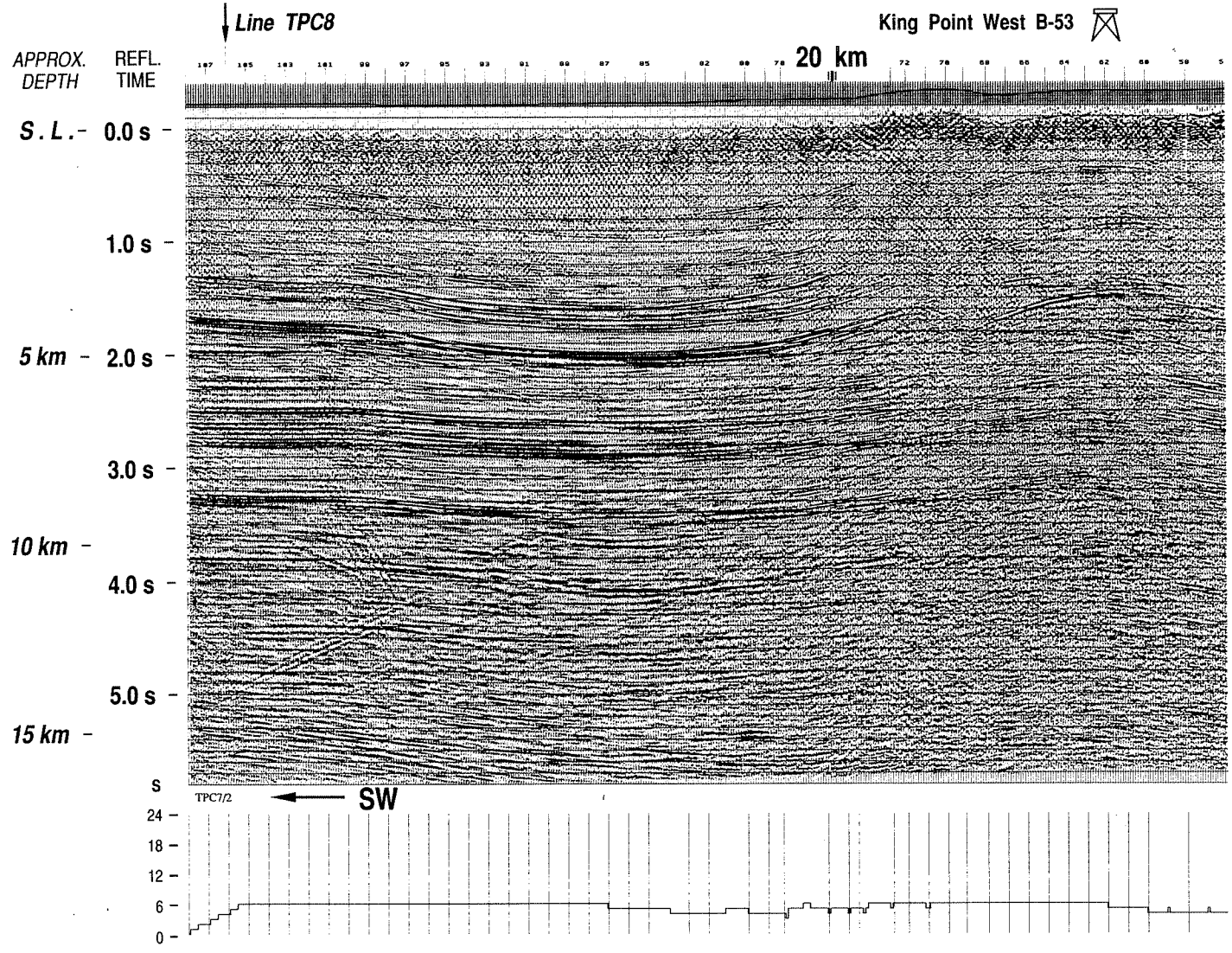
Processing parameters:

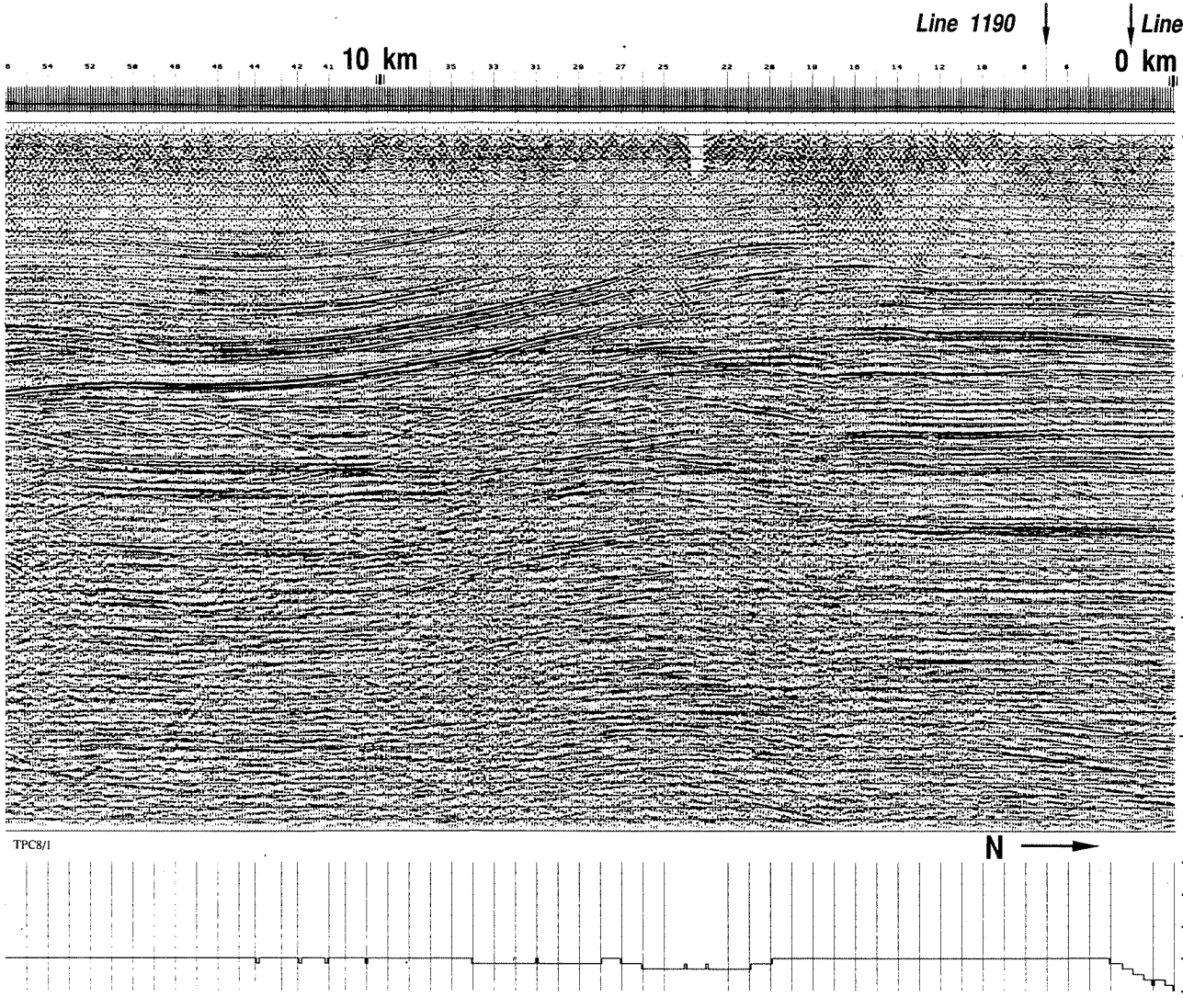
Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-6000 ms:	5/7.5-50/60 Hz.

S: Stacking fold ...

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988


Line TPC8
King Point West B-53
APPROX. DEPTH
REFL. TIME
20 km
S.L.-
0.0 s
1.0 s
5 km -
2.0 s
3.0 s
10 km -
4.0 s
5.0 s
15 km -
S
TPC7/2
SW
24
18
12
6
0



MELVILLE ISLAND, CANADA

Line No.: **TPC-8**

Seismic Reflection CMP Section

Processed by:
Veritas Seismic Ltd., Calgary, July 1987
and
Seismic Laboratory of the University of Alberta

Field parameters:

Date shot:	April 1973
Source interval:	880 ft
Geophone group interval:	220 ft
Spread distance:	5280-220-SP-220-5280 ft

Processing parameters:

Sample rate:	4 ms
Datum:	Sea level
Replacement velocity:	12000 ft/s
Deconvolution	
Operator length:	120 ms
Prewhitening:	5 %
Filter,	
time varying digital bandpass:	
0-3500 ms:	10/13-50/60 Hz;
3500-6000 ms:	5/7.5-50/60 Hz.

S: Stacking fold

Interpretation:

E.R. Kanasewich and Z. Berkes
University of Alberta, Edmonton, March 1988

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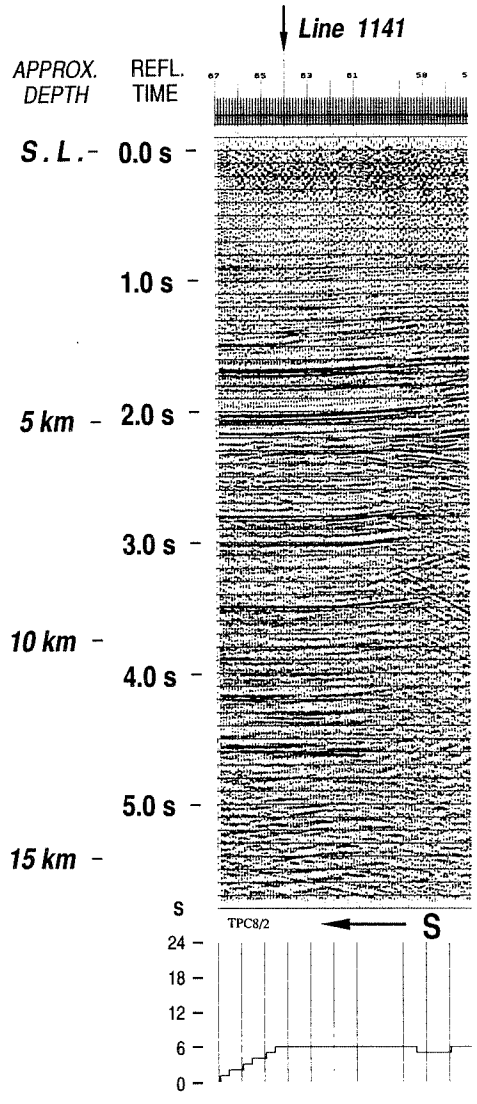
Line 1141
APPROX. DEPTH
REFL. TIME
S.L.
0.0 s
1.0 s
5 km
2.0 s
3.0 s
10 km
4.0 s
5.0 s
15 km
S
TPC8/2
S
24
18
12
6
0