Deloitte & Touche

Anvil Range Mining Complex Monitor Mine Waste Rock Trial Covers: 2006 Data Summary

2006/07 - Task 17a

Prepared for

Deloitte and Touche Inc.

on behalf of

Faro Mine Closure Planning Office

Prepared by

SRK Consulting
Engineers and Scientists

Project Reference Number
SRK 1CD003.086

July 2007

Anvil Range Mining Complex

Monitor Mine Waste Rock Trial Covers: 2006 Data Summary

2006/07 Task 17a

Deloitte & Touch Inc.

On behalf of

Faro Mine Closure Planning Office

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SRK Project Number 1CD003.086

July 2007

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Executive Summary

Objectives and Primary Findings:

This report summarizes the data collected from the waste rock trial covers at the Anvil Range Mining Complex during the 2006 monitoring season (May to November). The intent of this report is to document the field results and provide feedback on the quality of data collection. Where data collection problems are identified, this report provides recommendations to remedy the problems as well as mitigation measures that can be implemented to prevent similar problems from occurring again. This report does not contain a technical analysis of the data, but simply confirms that the instrumentation systems are working as expected, and that the data collected follows reasonable trends.

Detailed information regarding operation, calibration, suitability and accuracy of the monitoring instrumentation used to collect the data presented in this report is provided in the as-built report (SRK 2006a), and therefore is not repeated here.

Future Work Recommendations:

The report provides a series of recommendations to improve data collection during subsequent monitoring years. These range from improved monitoring protocols to the provision of increased backup systems in case of problems.

Title:	Anvil Range Mining Complex: Monitor Mine Waste Rock Trial Covers: 2006 Data Summary – 2006/07 Task 17a
Consultant:	SRK Consulting (Canada) Inc.
Status:	Draft
Date:	March 14, 2007
Size:	74 / 81 (Body, including figures / Total Report)
Appendices:	3 (Three)

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1 Introduction and Scope of Report

1.1 General

Deloitte & Touche Inc. (D&T) was appointed Interim Receiver of the property, assets and undertaking of Anvil Range Mining Corporation (ARMC), and its subsidiaries, Anvil Range Properties Inc., (collectively "Anvil") pursuant to an Order of Mr. Justice Blair of the Ontario Court (General Division) dated April 12, 1998. SRK Consulting (Canada) Inc. (SRK) was retained by D&T, on behalf of the Faro Mine Closure Planning Office (FMCPO) to assist in the development of a Final Closure and Reclamation Plan (the "Plan") for the Anvil Range Mining Complex. Based on current expectations, this Plan will be submitted to the relevant regulating authorities by February 2009. Engineering studies are being undertaken in the interim to provide the necessary scientific background information required to characterize and estimate costs for various closure methods that may be used in the Plan.

This report summarizes data collected between May and November 2006 under 2006/07 Task 17a, "Monitoring of Waste Rock Pile Trial Covers at Vangorda", as stipulated in an SRK proposal dated May 1, 2006. The 2006/07 Task 17a follows 2005/06 Task 20a, "Waste Rock Dump Cover Trials" (SRK 2006b), and 2004/05 Task 14a. No report was issued for 2004/05 Task 14a because construction of the cover trials was only completed in September 2004, and there was no data to report. An "as-built" report for the trial covers has been prepared as a separate report under 2004/05 Task 14a (SRK 2006a).

1.2 Background of the Project

The ARMC has about 185 million cubic meters of waste rock covering about 542 ha of surface area. Detailed geochemical characterization has confirmed that much of this waste rock is acid generating and contains leachable metals. As part of the Plan currently being developed for the ARMC, various mitigation methods for these waste rock piles are being considered. One of these methods includes physical covering of the waste rock piles.

The specific functions that a cover would have to perform have not been defined. However, the most likely functions would include;

- preventing direct exposure and contact with the waste rock,
- reducing, and possibly minimizing infiltration through the waste rock, and
- providing a medium that would allow re-vegetation of the piles.

Other potential functions have not been excluded, but there appears to be consensus within the Working Group responsible for the description and evaluation of the cover methods, that constructing covers to act as oxygen barriers would not be beneficial. Significant oxidation of the waste rock has already occurred, effectively negating benefits offered by oxygen exclusion.

One of the single most challenging aspects of cover design for the site entails designing an infiltration reducing cover that will continue to perform effectively in the very long term, using the locally available till and glacio-fluvial soils. It is standard practice to make use of numerical models to assess the potential performance ranges of different cover configurations. However, the only reliable method to evaluate the physical aspects that determine long-term cover performance is to monitor site specific trial covers.

Subsequently, six trial covers (CT#1, CT#2A, CT#2B, CT#3A, CT#3B and CT #4) were constructed on the Vangorda waste rock pile in September 2004, as illustrated in Figures 1, 2 and 3. These trial covers have been designed to test a range of different physical performance criteria for the available materials, specifically focused towards evaluating performance as “infiltration reducing” covers. Detailed water balance instrumentation was installed in the trial covers in June 2005 (see Figures 4 through 8).

It is anticipated that these trial covers will be monitored for up to five years, and that the information gleaned from these covers will be used to optimize final cover designs for the ARMC. Useful data is likely to only be available at the conclusion of the 2007 monitoring season, since at that time at least two full years of data will be available.

1.3 Scope of Work

This report summarizes the data collected from the trial covers during the 2006 monitoring season (May to November). The intent of this report is to document the basic field results and provide feedback on the quality of data collection. Where data collection problems are identified, this report provides recommendations to remedy the problems as well as mitigation measures that can be implemented to prevent similar problems from occurring again. This report does not contain a technical analysis of the data.

Detailed information regarding the monitoring instrumentation used to collect the data presented in this report, covering their operation, calibration, suitability and accuracy is provided in the as-built report (SRK 2006), and therefore is not repeated here.

1.4 Methods

Six trial covers (Figures 2 and 3) were constructed in September 2004, in accordance with SRK design requirements. Construction was carried out by a local contractor, Tim Moon Construction, supported by ARMC staff and equipment. Construction supervision was carried out by two SRK engineers, Maritz Rykaart, P.Eng. and Peter Mikes, E.I.T. The instrumentation was installed in June 2005 by Mr. Rykaart. The instrumentation was commissioned in June 2005. Complete construction and instrumentation details are provided in an as-built report (SRK 2006a).

ARMC staff, including two UBC summer students, was trained by SRK to carry out the field monitoring for the 2006 monitoring season (May to November). A written monitoring protocol was provided to ARMC, and is included as Appendix A. Data was downloaded directly from the different data loggers onto a laptop computer. In addition, a series of readings were collected manually and converted into electronic format. All field data collected by ARMC was sent to SRK via e-mail.

SRK used the proprietary software linked to each of the data loggers to open and view the data to ensure that the loggers were operating satisfactorily. All data was collated into a master database at the end of the season. This master database converts raw field data into its final useable format by correctly applying material specific calibration information. The figures illustrating the field data presented in this report (Figures 10 through 95) were created using this master database. Figures 10 through 95 do not show all the data collected to date. These figures only present the data collected during the 2006 monitoring season. As a result, figures presenting the 2006 data as a graph will have lines extending from the end of the 2005 data set to the start of the 2006 data set. The range of the x-axis has been set to obscure this artefact but it can still be observed on the left hand side of the graph. Complete details of how data is prepared for input into the database and how the database was developed are included in the as-built report (SRK 2006a).

In addition to the data presented in this report, weather data are collected from two on-site weather stations, and annual snow surveys are conducted by staff from the Yukon Territorial Government (Janowicz *et al*. 2005, 2006). This data is not presented here, but will be used to compare the validity of the trial cover data when detailed data analysis is carried out following future years of monitoring.

1.5 Report Structure

Section 2 contains information associated with the series of automated data loggers collecting field monitoring data for the trial covers. The remainder of the instrumentation data is collected manually, the details of which are presented in Section 3. The final section of the report provides a summary of the action items arising from this data summary report.

2 Automated Instrumentation Data Logger Data

2.1 Davis Instruments Vantage Pro (Weather Stations and Satellite Stations)

Complete climatic data is collected at the Vangorda Waste Rock Pile trial cover location using two Davis Instruments Vantage Pro Weather stations. The first station is located on the sloped CT#1 trial cover and the second on the dividing berm between horizontal trial covers CT#2A and CT#2B. Figure 2 schematically illustrates these locations. Additional climatic data (air temperature and relative humidity), as well as shallow soil moisture and temperature data, are collected via two satellite Davis Instruments stations located approximately 25 m from these two primary weather stations, as illustrated in Figure 4. Figures 6 and 7 illustrate the locations of the soil moisture and temperature sensors installed as part of the satellite stations.

At each setup, the data from the weather station and the satellite station is collected by a Vantage Pro data logger housed in the weather enclosure situated beneath the weather station. The data loggers collect and store primary climatic data, as listed in Table 1. This data is measured directly from the suite of climatic sensors. This data is also presented as time-series graphs in Figures 10 through 21. Review of the data confirms that all the instruments and the data loggers performed well during the 2006 monitoring season. The data is realistic and no data loss occurred.

In addition to the sensor data listed in Table 1, the data logger uses this primary data to calculate a series of secondary climatic information. Since, this report focuses on the integrity of the primary collected data, this reduced data was not reported. SRK did, however, review all this data to confirm that the data logger was operating satisfactorily, and that the data collected made sense. This data has also been imported into the central database for future use. Appendix B provides a brief summary of this data.

No maintenance was carried out on the weather or satellite stations. However, regular visual inspections by the monitoring staff concluded that there were no problems. New batteries were ordered and installed when the stations were re-commissioned in 2006. As, a precautionary measure, a spare set of batteries were provided on site. The battery voltages were manually recorded every time the dataloggers were downloaded, providing additional confirmation that everything was functioning as it should.

Table 1: Summary of Primary Data Collected by Davis Instruments Vantage Pro Weather and Satellite Stations

Parameter	Location	Sample Frequency	Units	Figure	Comment
Rainfall	Both weather stations	Every 50-60 sec; output as hourly total	mm	Figure 10	Reported as “mean hourly”, but is in fact an hourly total; Rain rate (mm/hr) is also recorded (not presented)
Ambient Outside Air Temperature	Both weather and satellite stations	Every 10-12 sec; output as mean hourly	^oC	Figure 11	Max/Min hourly also recorded at weather stations (not presented)
Relative Humidity	Both weather and satellite stations	Every 50-60 sec; output as mean hourly	%	Figure 12	Range of 0% to 100%
Solar Radiation	Both weather stations	Every 50-60 sec; output as mean hourly	W/m^2	Figure 13	“Hi solar radiation”, i.e. peak hourly solar radiation also recorded (not presented)
Barometric Pressure	Both weather stations	Every 50-60 sec; output as mean hourly	mm Hg	Figure 14	
Wind Speed	Both weather stations	Every 2.5-3 sec; output as mean hourly	km/hr	Figure 15	Max/Min hourly also recorded at weather stations (not presented)
Wind Direction	Both weather stations	Every 2.5-3 sec; output as mean hourly	N/E/S/W	Figure 16	Max hourly also recorded at weather stations (not presented)
Ultraviolet (UV) Index	Both weather stations	Every 50-60 sec; output as mean hourly	Scale 1 – 16	Figure 17	“Hi UV Index”, i.e. maximum hourly UV Index also recorded (not presented)
Soil Moisture[1]	Both satellite stations	Every 50-60 sec; output as mean hourly	Cb	Figure 18 (CT#1); Figure 21 (CT#2A)	Measured at two depths
Soil Temperature	Both satellite stations	Every 50-60 sec; output as mean hourly	^oC	Figure 19 (CT#1); Figure 22 (CT#2A)	Measured at two depths

1. Soil Moisture is measured in units of centibar (Cb) according to the supplier, which is not a true unit of soil moisture. The true parameter measured by this instrument is, in actual fact, soil matric suction.

2.2 Campbell Scientific CR10X

2.2.1 General Setup

Two Campbell Scientific CR10X data loggers collect soil matric suction and temperature data from Campbell Scientific CS229 matric suction sensors, as well as soil volumetric moisture content from Sentek Sensor Technologies EnviroSCAN sensors. These data loggers are located adjacent to each other in the monitoring hut, as illustrated in Figures 4 and 5.

The first data logger (CR10X #1) collects the soil matric suction, temperature and volumetric moisture content data from CT#2A and 2B. The second data logger (CR10X #2) records the same suite of data from CT#1, CT#3A, CT#3B, and CT#4. In addition, the CR10X #2 data logger records data from three tipping buckets used to measure the interflow from CT#3A, CT#3B and CT#4. Details of the instrument locations are presented in Figures 4 through 8.

Data collected by the CR10X data loggers are stored in a series of "Arrays" (i.e. a summary table of data). The soil matric suction, temperature and volumetric moisture content are recorded every six hours (midnight, 6AM, noon, and 6PM), whilst the interflow is recorded instantaneously (i.e. whenever there is flow data is recorded, irrespective of the time interval). Daily summary output of all the data is provided, which also includes information about the battery voltage for diagnostic purposes.

2.2.2 Battery Voltage

The data loggers and instruments are powered by a 12V battery (one per data logger). These batteries are continuously recharged using solar energy (one solar panel per battery). The data logger has an internal protection circuit that will shut the logger down if the battery voltage drops below 10.5V, or exceeds 15V. For this reason, the data loggers have been programmed to record the battery voltage as part of the daily summary array. This information, for data logger CR10X #1, is shown in Figure 22 and confirms that the system performed as expected.

A solar panel failure for data logger CR10X#2 in 2005 resulted in permanent damage to the system battery. As a result the data logger was powered with a 12Volt CAT battery. There was a programming error in the CR10X#2 array that should output the battery voltage, and as a result the battery voltage data was not stored. This programming error will be remedied in 2007.

The written monitoring protocol however did require a physical diagnostic check on the batteries and solar panels every time that the data is downloaded, which confirmed that both systems were functioning properly.

2.2.3 Soil Matric Suction

Soil matric suction is measured in each trial cover using a series of Campbell Scientific CS229 thermal conductivity sensors. There are three to six sensors in each trial cover, as illustrated in Figures 6 to 8. Soil matric suction is recorded as a voltage differential by the data logger. This voltage differential, through the application of material specific calibration curves, is converted to matric suction, expressed in kPa. This conversion is done by SRK during the process of transferring the data logger data to a central database. Figures 23 through 28 illustrate the converted soil matric suction values recorded during the 2006 season.

All the sensors have performed as expected. The measurement values are within the expected range and the trends observed appear realistic. Figures 24 and 25 show large negative spikes in the data collected by Array 130 until the end of July where the data flatlines at a large negative value. It appears that a loose connection has lead to this array behaving sporadically before it became non-functional at the end of July 2006. This will be remedied in 2007.

2.2.4 Soil Temperature

The soil temperature is measured using the same CS229 thermal conductivity sensors, recording the soil matric suction. This occurs because the first step in recording the soil matric suction entails taking an in-situ soil temperature reading. Just as with the matric suction data, the raw data is recorded as a voltage and, through application of the material specific calibration curves in the post-processing phase, the soil temperature profiles illustrated in Figures 29 to 34 are produced.

All sensors performed as expected. Measurement values are within the expected range and the observed trends appear realistic. Figures 30 and 31 again show the sensors from trial covers CT#2A and CT#2B failing at the end of July. Since these sensors are fed from a single multiplexer, using a single cable, it is likely that a loose connection is the cause of this error. The reason for this failure will be traced and remedied in 2007 when the instruments are recommissioned.

2.2.5 Soil Volumetric Moisture Content

A profile of soil volumetric moisture content is measured in each trial cover using Sentek Senor Technologies EnviroSCAN probes. Each profile contains between seven and thirteen individual beads, as illustrated in Figures 6 to 8. The data recorded by the sensors is relative volumetric moisture content, expressed as a fraction, using a standard calibration curve. During the post-possessing, these values are corrected to actual volumetric moisture contents by applying material specific calibration curves. This data is presented in Figures 35 through 40, and confirms that all sensors performed as expected.

2.2.6 Interflow Totals (Tipping Buckets)

Interflow is measured on CT#3A, CT#3B and CT#4. This interflow is measured using two methods. The first is a Seametrics flowmeter (see Section 2.4), and the second is a 0.2 mm tipping bucket, as illustrated in Figures 5, 6 and 8. Instantaneous flow data from these tipping buckets is recorded by the CR10X #2 data logger in the form of a number of counts. As part of the post-processing, these counts are summed for every 24-hour period, and the total volume is calculated by multiplying the count number with the tip capacity. This daily data is presented in Figures 41 through 43. The tipping buckets have performed as expected, and the scarcity of data simply denotes a lack of interflow.

2.3 Lakewood Systems UL16 Data Logger (Soil Temperature)

Two thermistor strings, each with eight M-Squared thermistor beads, have been installed in the Grum Overburden Dump, as illustrated in Figure 9. These two thermistor strings (String A and String B) are monitored by a Lakewood UL16 data logger which records a relative voltage every twelve hours. These raw voltage profiles are presented in Figures 44 and 45, and confirm that the strings are performing as expected. *The Figures only present data up to August 2007. This is simply a post-processing error and will be corrected for the Final Report.*

The written protocol was modified to ensure that the collected data was in the appropriate format (actual soil temperature). The 2005 data was recaptured along with the 2006 data using the appropriate format.

2.4 Seametrics DL75 Data Loggers (Surface Runoff and Interflow)

Surface runoff is measured from each trial cover using individual Seametrics flowmeters, each connected to an individual Seametrics DL75 data logger. Interflow from CT#3A, CT#3B and CT#4 is also measured with a similar setup (in addition to tipping buckets, as discussed in Section 2.2.6). Each of these nine flowmeters is located in a monitoring hut, with the flow directed to them through a series of buried drainage pipes, as illustrated in Figure 5.

The data loggers record an instantaneous flow rate every 60 seconds. This data is used to calculate an incremental flow volume. In addition, each data logger calculates a total volume and flow rate over a user specified timeframe, in this case the entire 2006 season. This surface runoff data is presented in Figures 46 through 50 and the interflow data is presented in Figure 51.

All flowmeters are performing as expected. Field staff, who visited the site almost daily throughout the 2006 field season, however confirmed that they did not see any discernable runoff collect in the runoff drains at any time.

It should however be noted that the flowmeters will not record very low flows. Therefore, if the runoff is very low, there will be no record of it. Since it was anticipated that runoff will be short duration, high intensity events, this was not considered to be a concern. Therefore a backup system to measure the very low flows, such as the tipping buckets used for interflow measurements, was not installed. During the 2006 season the written monitoring protocol required a physical examination of the interflow pipes to monitor the presence of water to determine if an additional method of monitoring will be required. A record of these observations is included as Appendix C.

3 Manually Collected Instrumentation Data

3.1 M-Squared Thermistor Cables (Soil Temperature)

Four thermistor strings each with eight thermistor beads have been installed adjacent to the two strings connected to the Lakewood Systems data logger, in the Grum Overburden Dump. Their installation details are presented in Figure 9. These four thermistor strings are manually read at irregular intervals by the site staff and the raw data is reported as resistances. These resistance values are converted to soil temperatures during the post-processing phase. The measured soil temperature profiles for the 2006 season from these four strings are shown in Figures 52 through 55. All thermistor strings performed as expected.

3.2 Sentek Sensor Technologies Diviner 2000 (Soil Volumetric Moisture Content)

Each trial cover has six to eight vertical PVC access tubes, as illustrated in Figure 5. A Sentek Senor Technologies Diviner 2000 probe is inserted manually into each of these tubes to record an instantaneous reading of the soil volumetric moisture content profile at 10 cm intervals. Data was collected throughout the 2006 monitoring season from each of the 40 access tubes on an irregular schedule. However, for most of the period, daily readings were taken. Data is recorded using a portable data logger, and expresses the results in terms of relative volumetric moisture content. During the post-processing stage, material specific calibration curves are applied. Figures 56 through 95 present the final volumetric moisture content profiles for each access tube. Data collected from these tubes confirm that the instrument performed as expected.

4 Action Items

This report documents the second season of data collected for the trial covers constructed on the Vangorda waste rock pile. The trial covers were constructed in September 2004, and the instrumentation installation was carried out in June 2005. For the 2006 season, instrumentation was commissioned in May 2006, and shut down on November 2nd, 2006, when the ground temperatures remained consistently below freezing, effectively shutting down the system water balance. Data collection and instrumentation performance was good, and the partial loss of data experienced for CT#2A and CT#2B will not significantly affect the overall quality of information. The following is a list of recommendations that should be implemented to ensure that the 2007 monitoring is successful:

- The instrumentation should be re-commissioned in 2007 prior to the freshet; probably late April or early May.
- Continue with the written protocol requiring field staff to carry out a manual diagnostic test on the battery and solar panel of each Campbell Scientific and Vantage Pro data logger.
- All the Davis Instruments weather and satellite stations should be equipped with new batteries.
- During at least two significant rainfall events, a detailed visual assessment of the cover performance should be made to ensure that the runoff monitoring systems are working effectively. If the flowmeters are not recording the data adequately, consideration should be given to adding low flow tipping bucket gauges.
- The manual Grum Overburden Dump thermistors should be read at a bi-weekly frequency (i.e. once every two weeks), and whenever possible, the manual moisture content profiles should be measured daily.
- A detailed monitoring protocol for the 2007 season will be provided by SRK for the site monitoring staff at the time of system re-commissioning. This monitoring protocol will include a checklist of items to inspect.
- Repair the connectors of lead wires between the CS229 Thermal Conductivity Sensors and the AM16/32 Multiplexer which is connected to the CR10X#1 Datalogger. It is suspected that connectors of the lead wires between the CS229 Thermal Conductivity Sensors and AM16/32 Multiplexer are faulty. The AM16/32 Multiplexer's Array 130 reports data collected by the EnviroSCAN Probes as well as the CS229 Thermal Conductivity Sensors. The EnviroSCAN data does not show the same large negative spikes in the data collected to the end of July where the data flatlines at a large negative value.

This report, "**Anvil Range Mining Complex, Monitor Mine Waste Rock Trial Covers, 2006 Data Summary: 2006/07 Task 17a"**, has been prepared by SRK Consulting (Canada) Inc.

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Principal Engineer

5 References

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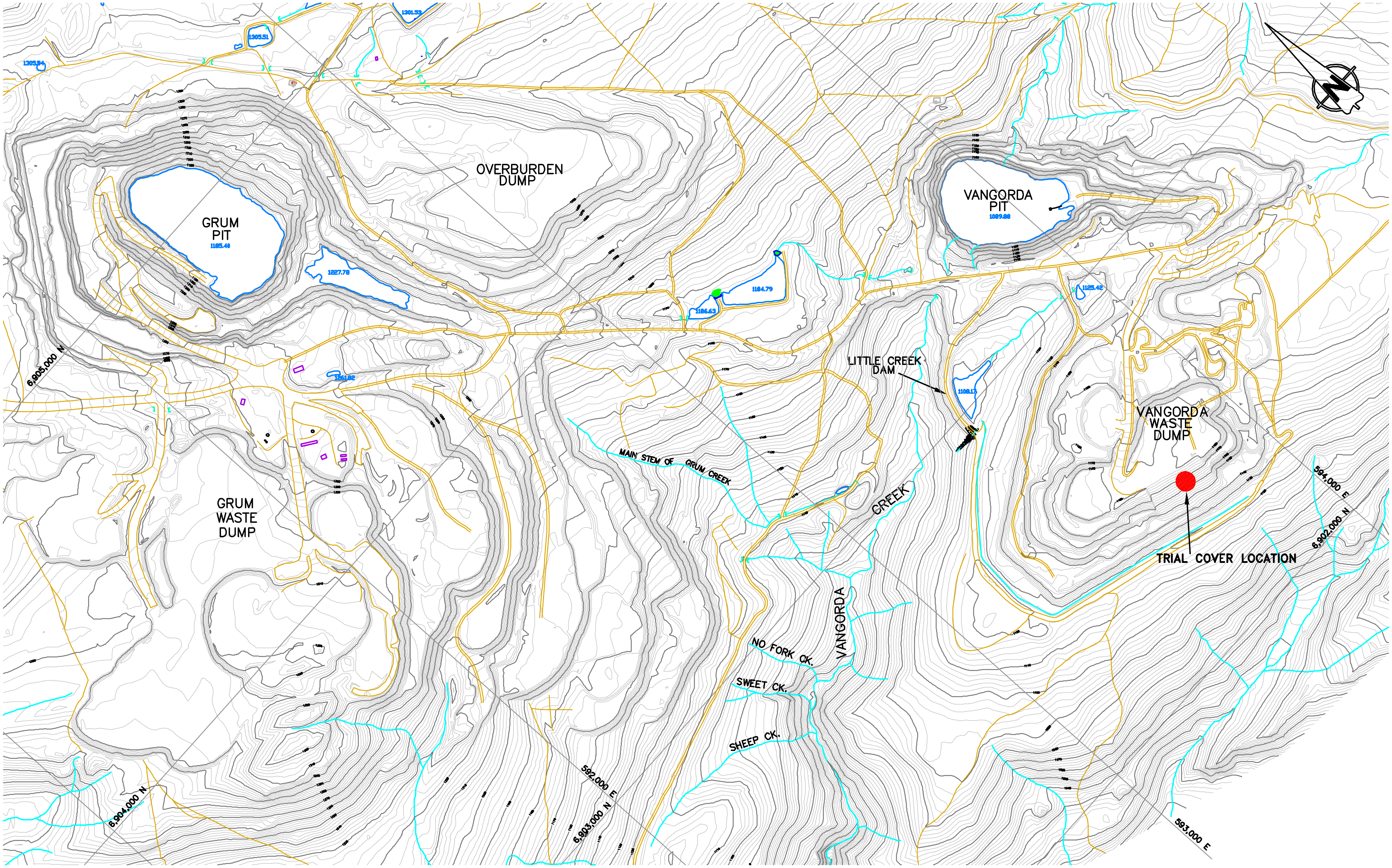
Figures



0 100 200 300 400 500 metres

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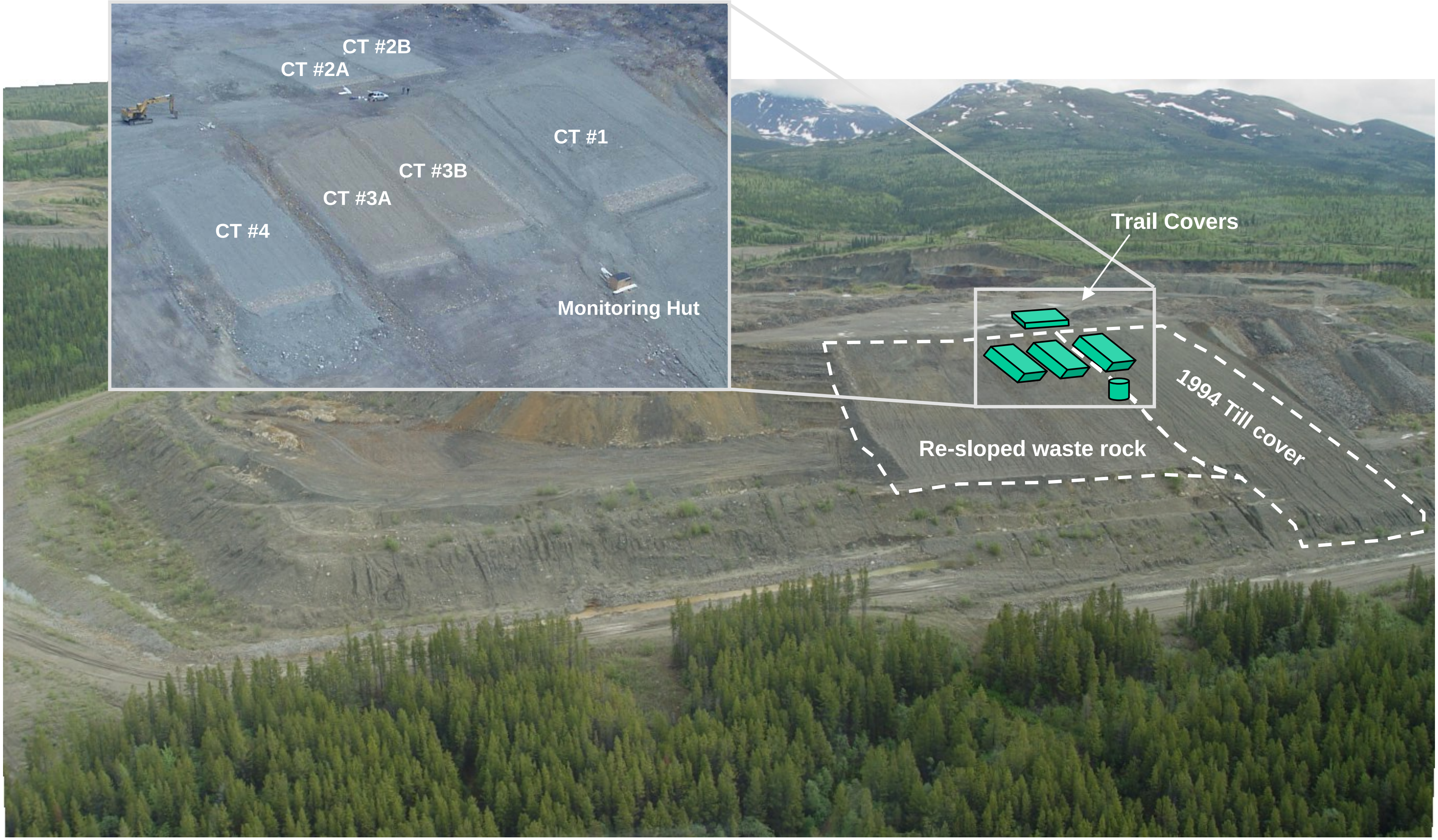
Deloitte & Touche

Monitor Mine Waste Rock Trial Covers
2005 Data Summary

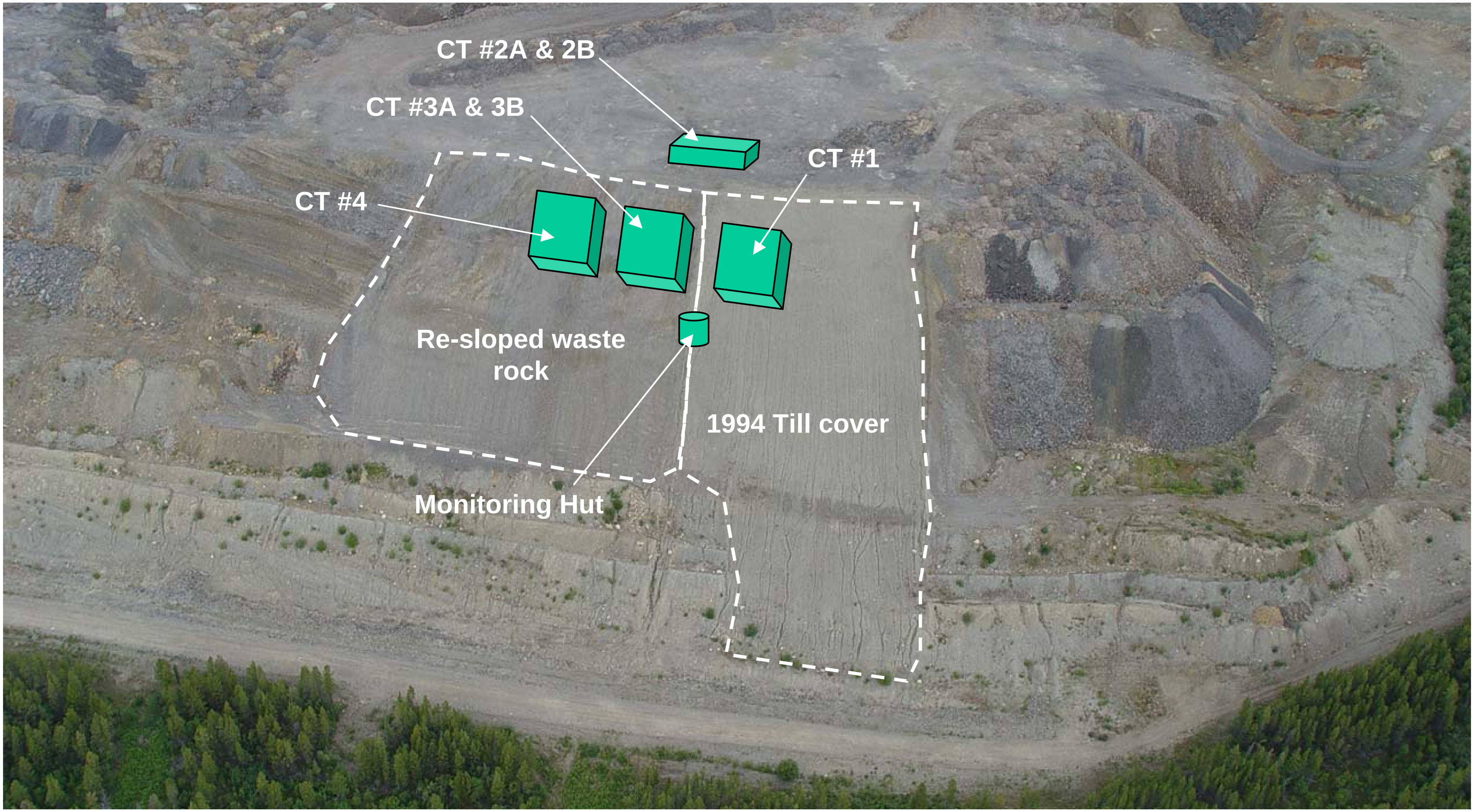
Location Plan for Trial Covers

Anvil Range Mining Complex

SRK JOB NO.: 1CD003.071	DATE: Mar. 2006	APPROVED: EMR	FIGURE: 1
Acad-Vangorda-Grum\Acad-2006\ site_plan_Thermistor.dwg			



SRK Consulting Engineers and Scientists VANCOUVER	Deloitte & Touche	Monitor Mine Waste Rock Trial Covers 2005 Data Summary
		Looking towards the trail covers on Vangorda Waste rock pile
Job No: 1CD003.071 Filename: Figures 4 to 8_20060322.ppt	**Anvil Range Mining Complex**	Date: March 2006 | Approved: EMR | Figure: 2



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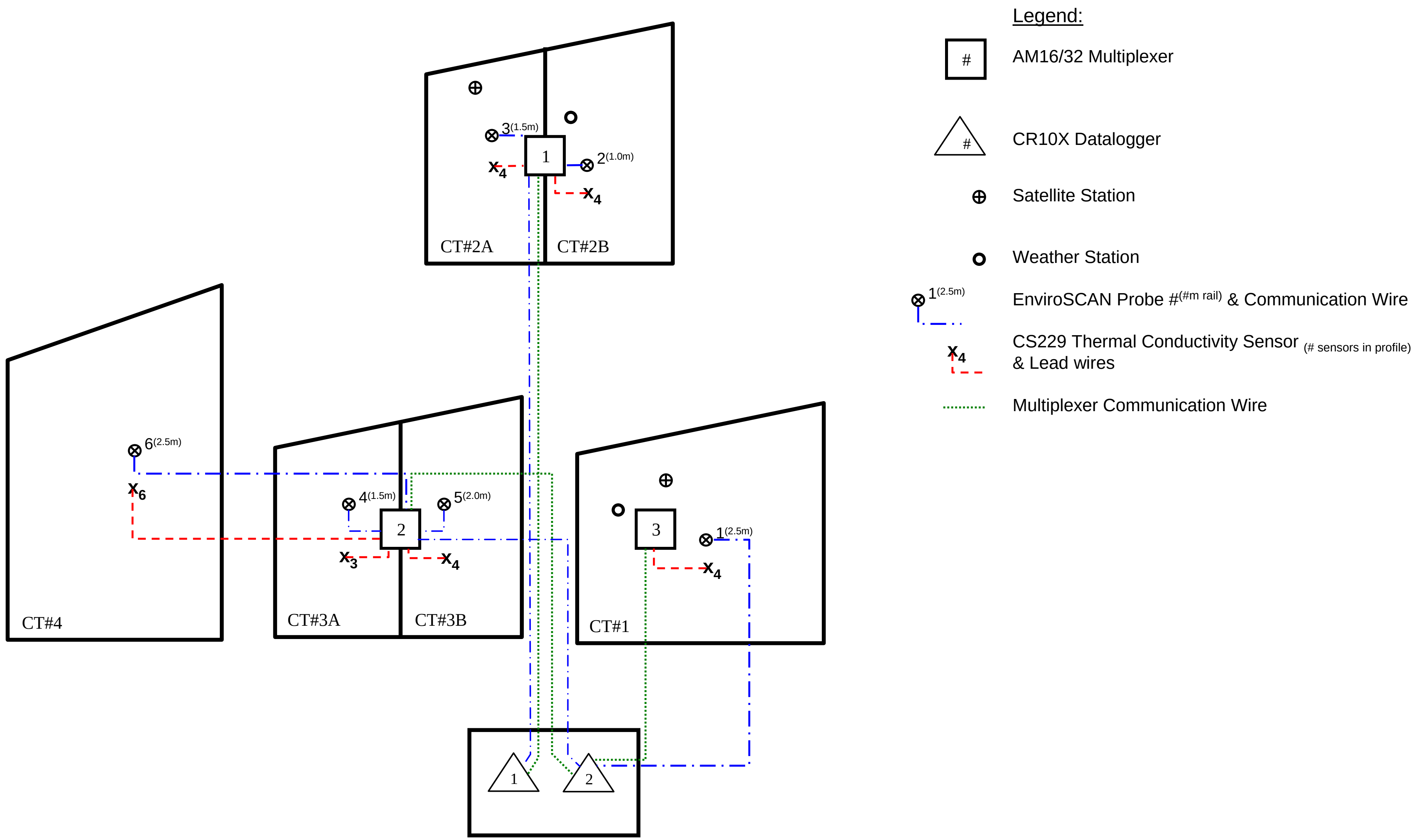
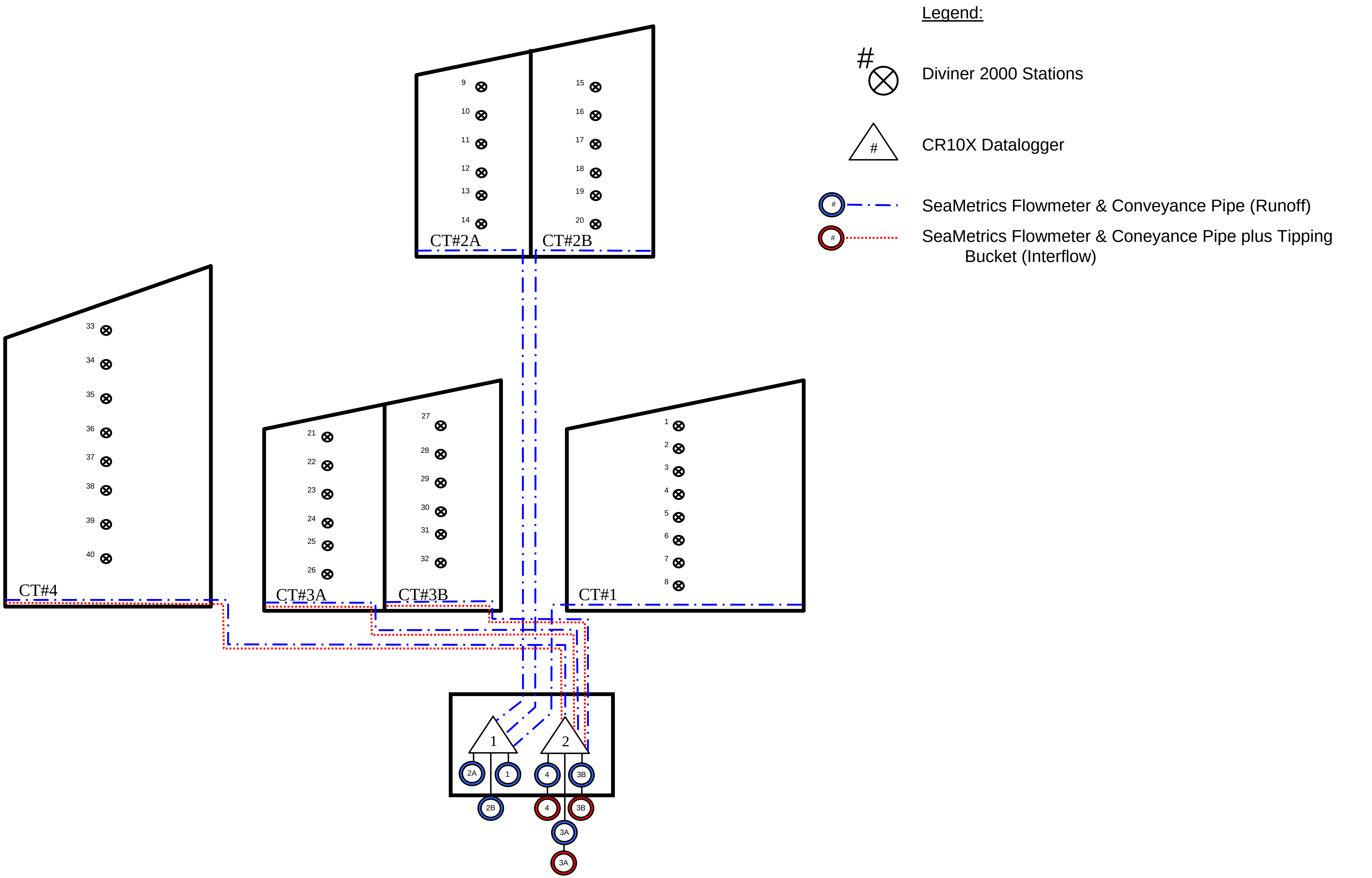
Monitor Mine Waste Rock Trial Covers
2005 Data Summary

Arial view of trail cover layout

Job No: 1CD003.071	Anvil Range Mining Complex	Date: March 2006	Approved: EMR
Filename: Figures 4 to 8_20060322.ppt		Figure: 3	



SRK Consulting Engineers and Scientists VANCOUVER	Deloitte & Touche	Monitor Mine Waste Rock Trial Covers 2005 Data Summary **Schematic trial cover layout showing automated soil suction, moisture instrumentation, datalogger as well as weather and satellite station locations**
Job No: 1CD003.071 Filename: Figures 4 to 8_20060322.ppt	**Anvil Range Mining Complex**	Date: March 2006 / Approved: EMR / Figure: 4



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VANCOUVER

Deloitte & Touche

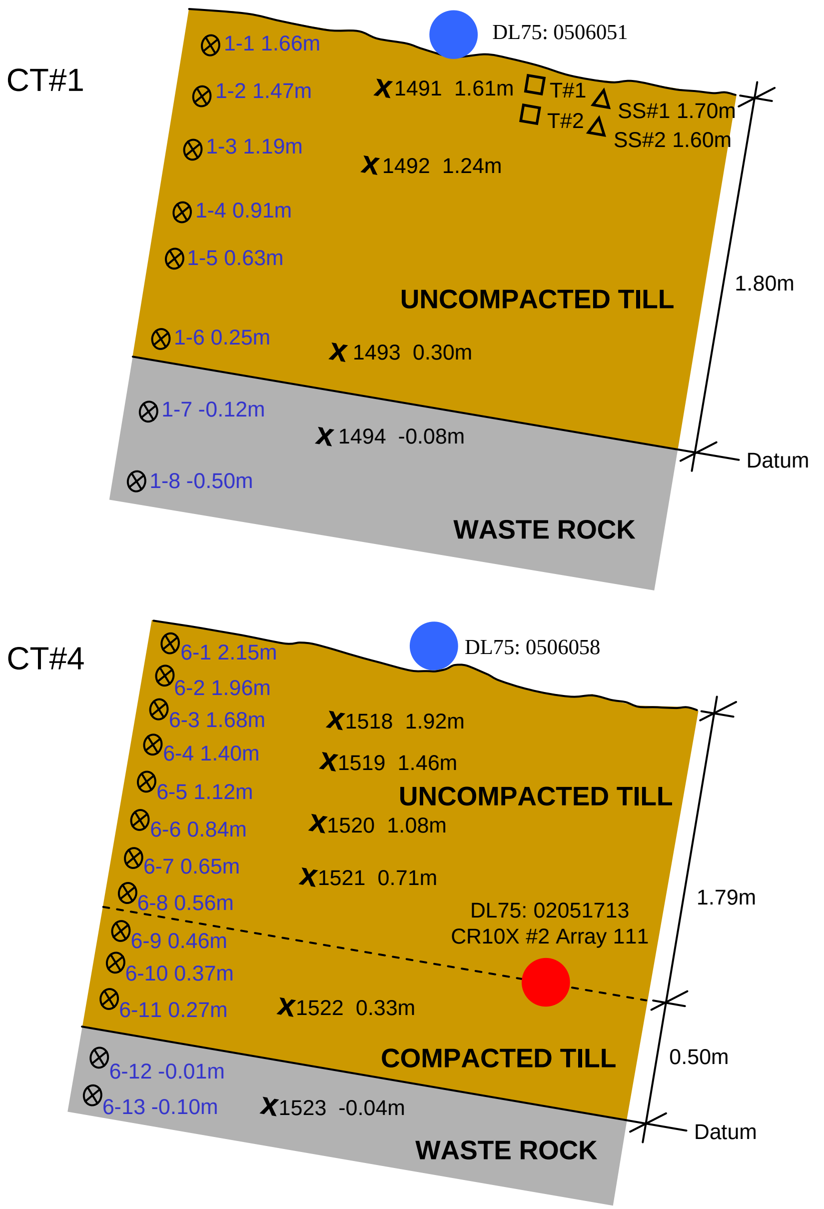
Monitor Mine Waste Rock Trial Covers
2005 Data Summary

Schematic trial cover layout showing Diviner 2000 stations, surface runoff, and interflow measurement locations

Job No: 1CD003.071
Filename: Figures 4 to 8_20060322.ppt

Anvil Range Mining Complex

Date:	Approved:	Figure:
March 2006	EMR	**5**

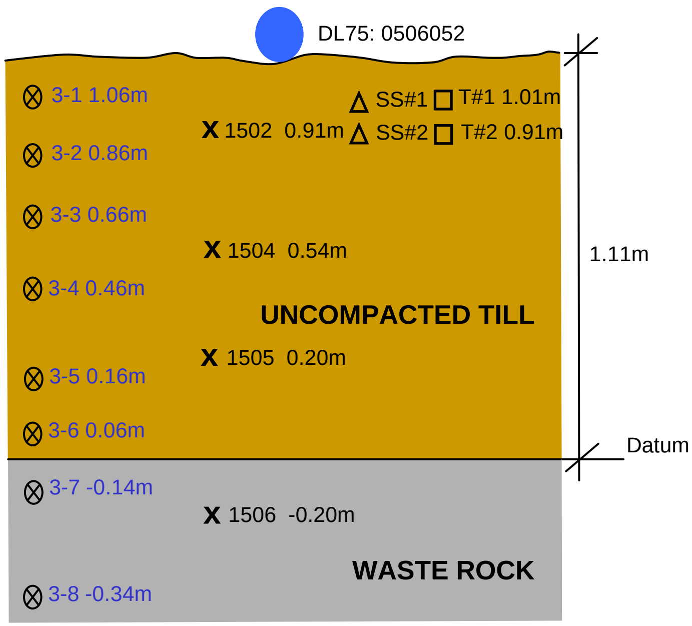


Legend:

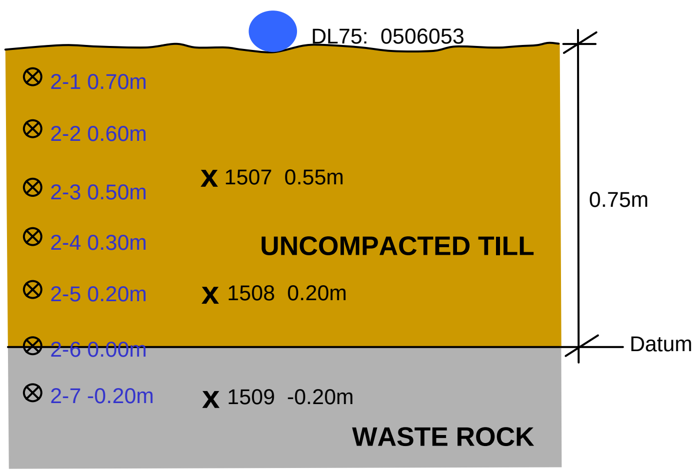
⊗	#-# #.##m	EnviroSCAN Probe, s/n and depth
X	# #.##m	CS229 Thermal Conductivity Sensor, s/n and depth
□	T## #.##m	Satellite Station Soil Temperature probe and depth
△	SS## #.##m	Satellite Station Soil Moisture probe and depth
● (red)	DL75: # CR10X #2 Array #	Seametrics Datalogger with Flowmeter and Tipping Bucket (Interflow)
● (blue)	DL75: #	Seametrics Datalogger with Flowmeter (Runoff)

Note:
Depths measured from Datum
- Positive = up
- Negative = down

SRK Consulting Engineers and Scientists VANCOUVER	Deloitte & Touche	Monitor Mine Waste Rock Trial Covers 2005 Data Summary
		Schematic Instrument Profiles for CT#1 and CT#4
Job No: 1CD003.071 Filename: Figures 4 to 8_20060322.ppt	**Anvil Range Mining Complex**	Date: March 2006 / Approved: EMR / Figure: 6



CT#2A



CT#2B

Legend:

#-# #.##m	EnviroSCAN Probe with bead s/n and depth
X # #.##m	CS229 Thermal Conductivity Sensor bead s/n and depth
T## #.##m	Satellite Station Temperature probe and depth
SS## #.##m	Satellite Station Soil Moisture probe and depth
DL75: # CR10X #2 Array #	Seametrics Datalogger with Flowmeter and Tipping Bucket (Interflow)
DL75: #	Seametrics Datalogger with Flowmeter (Runoff)

Note:
Depths measured from Datum
- Positive = up
- Negative = down

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Monitor Mine Waste Rock Trial Covers
2005 Data Summary

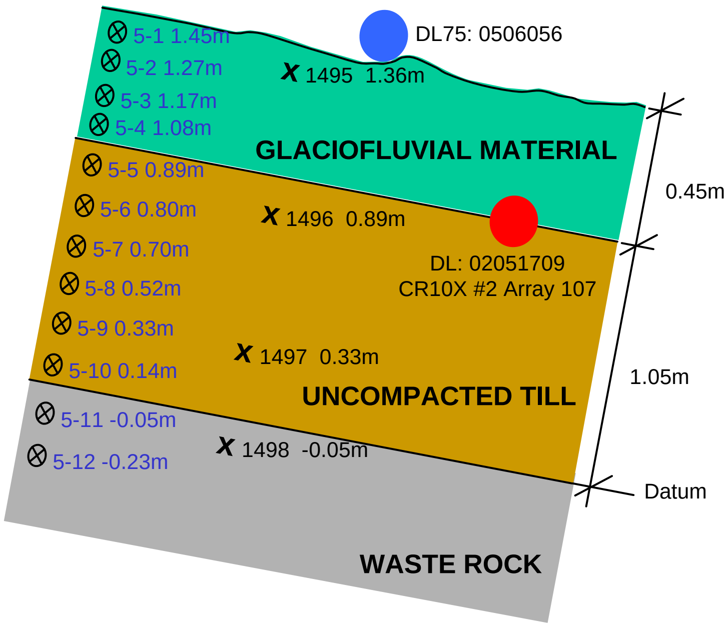
Schematic Instrument Profiles for CT#2A and CT#2B

Job No: 1CD003.071
Filename: Figures 4 to 8_20060322.ppt

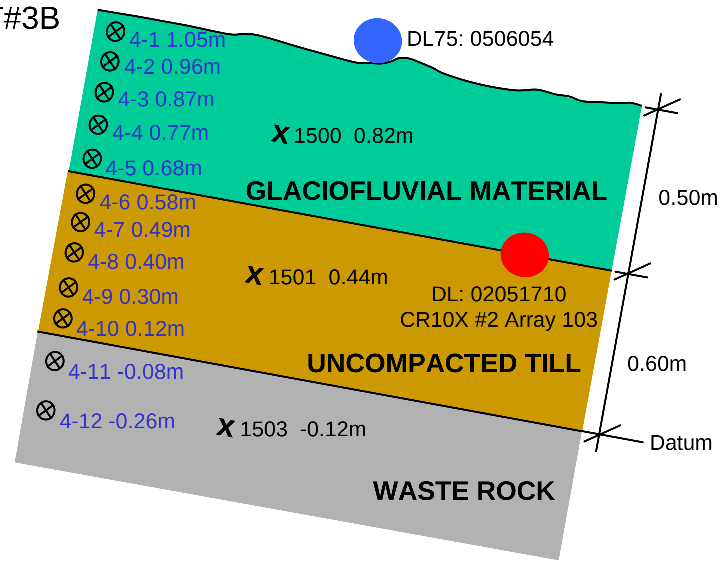
Anvil Range Mining Complex

Date: March 2006
Approved: EMR
Figure: 7

CT#3A



CT#3B



Legend:

⊗ #-# #.##m	EnviroSCAN Probe with bead s/n and depth
X # #.##m	CS229 Thermal Conductivity Sensor bead s/n and depth
□ T## #.##m	Satellite Station Temperature probe and depth
△ SS## #.##m	Satellite Station Soil Moisture probe and depth
● DL75: # CR10X #2 Array #	Seametrics Datalogger with Flowmeter and Tipping Bucket (Interflow)
● DL75: #	Seametrics Datalogger with Flowmeter (Runoff)

Note:
Depths measured from Datum
- Positive = up
- Negative = down

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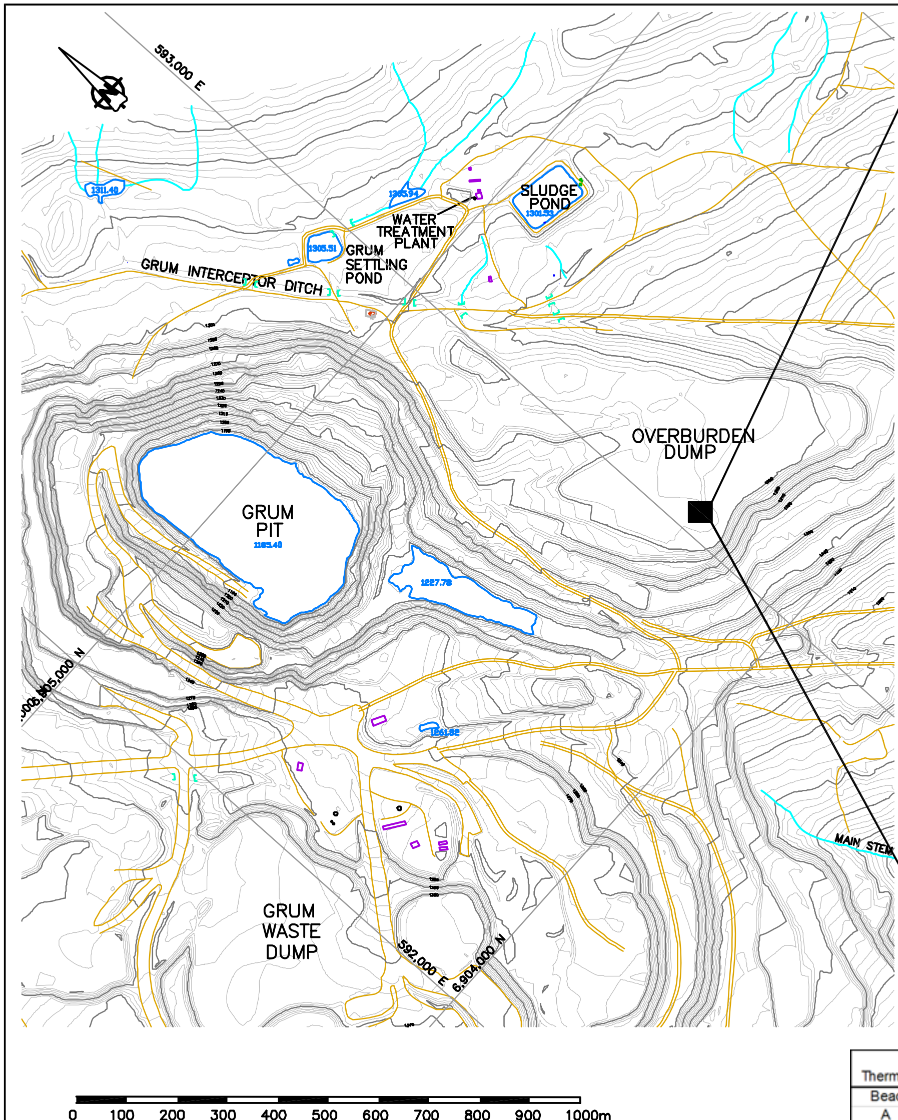
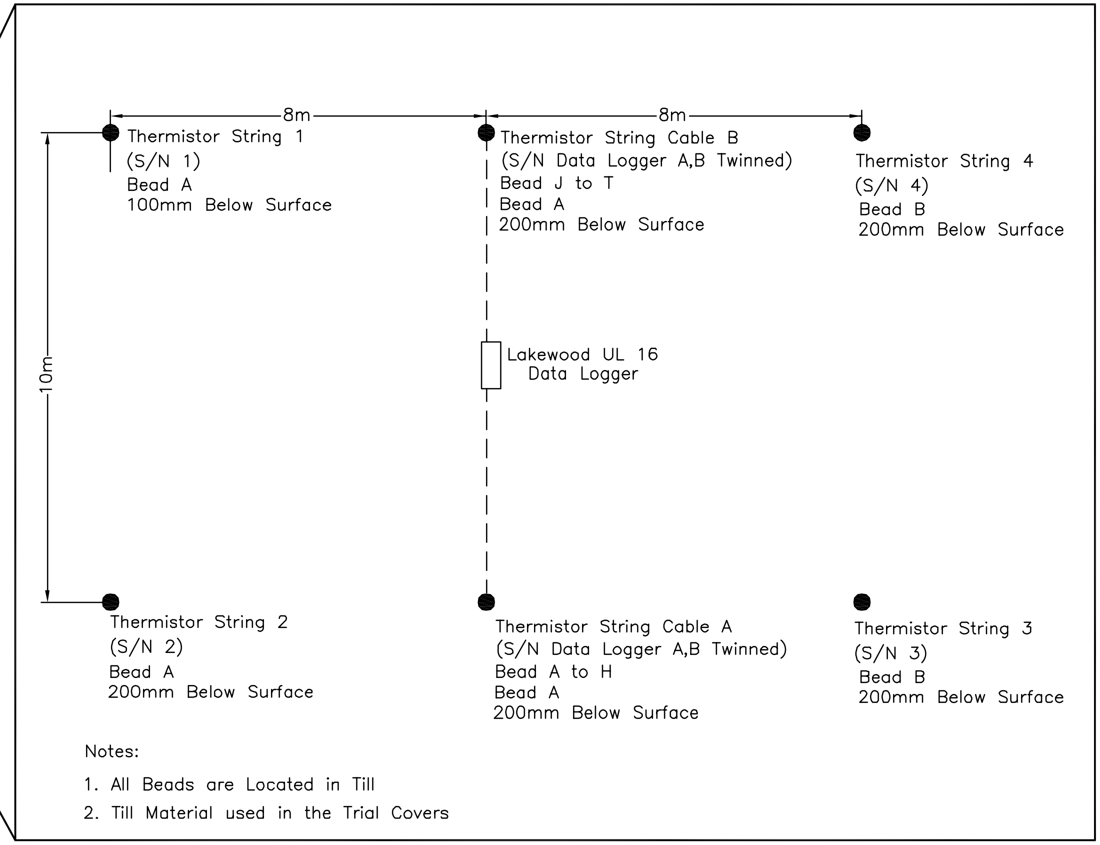
		Schematic Instrument Profiles for CT#3A and CT#3B
Job No: 1CD003.071 Filename: Figures 4 to 8_20060322.ppt	**Anvil Range Mining Complex**	Date: March 2006 / Approved: EMR / Figure: 8



THERMISTOR STRING LAYOUT



THERMISTOR STRING PROFILES

Thermistor String 1 (S/N 1)		Thermistor String 2 (S/N 2)		Thermistor String 3 (S/N 3)		Thermistor String 4 (S/N 4)		Thermistor String Cable A (S/N Datalogger A,B Twinned)		Thermistor String Cable B (S/N Datalogger A,B Twinned)	
Bead	Depth (m)	Bead	Depth (m)	Bead	Depth (m)	Bead	Depth (m)	Bead	Depth (m)	Bead	Depth (m)
A	0.1	A	0.2	A	-0.65	A	0.2	A	0.2	J	0.2
B	0.6	B	0.7	B	-0.15	B	0.7	B	0.7	K	0.7
C	1.1	C	1.2	C	0.35	C	1.2	C	1.2	L	1.2
D	2.1	D	2.2	D	1.35	D	2.2	D	2.2	N	2.2
E	3.1	E	3.2	E	2.35	E	3.2	E	3.2	P	3.2
F	4.1	F	4.2	F	3.35	F	4.2	F	4.2	R	4.2
G	5.1	G	5.2	G	4.35	G	5.2	G	5.2	S	5.2
H	6.1	H	6.2	H	5.35	H	6.2	H	6.2	T	6.2

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Monitor Mine Waste Rock Trial Covers
2005 Data Summary

Location Plan and Schematic Thermistor Layout on Grum Overburden Dump

SRK JOB NO.: 1CD003.071

Acad–Vangorda–Grum\Acad–2006\ site_plan_Thermistor.dwg

Anvil Range Mining Complex

DATE:	APPROVED:	FIGURE:
Mar. 2006	EMR	9

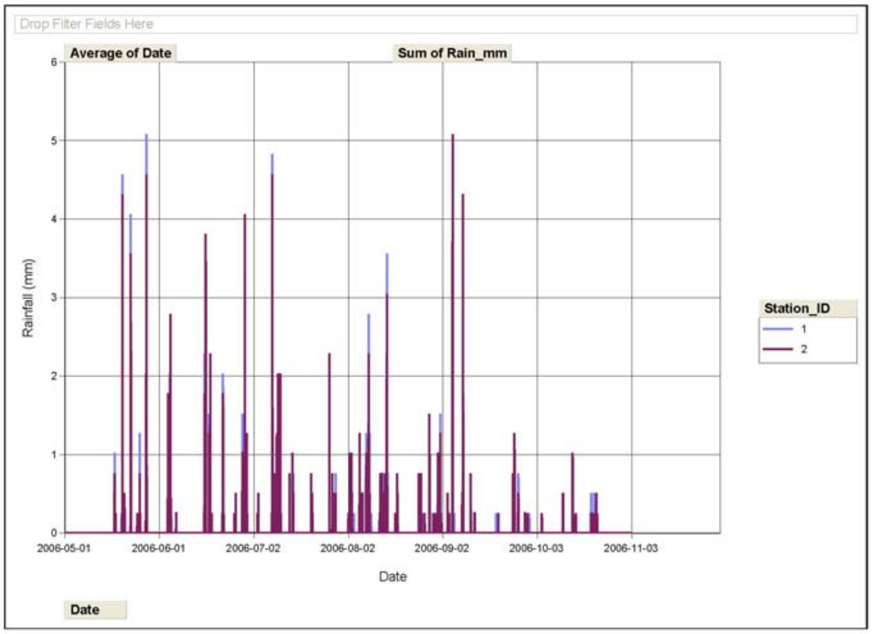

Figure 10: Total hourly rainfall on CT#1 & CT#2A, 2B recorded by the Davis Instruments Vantage Pro Weather Stations.

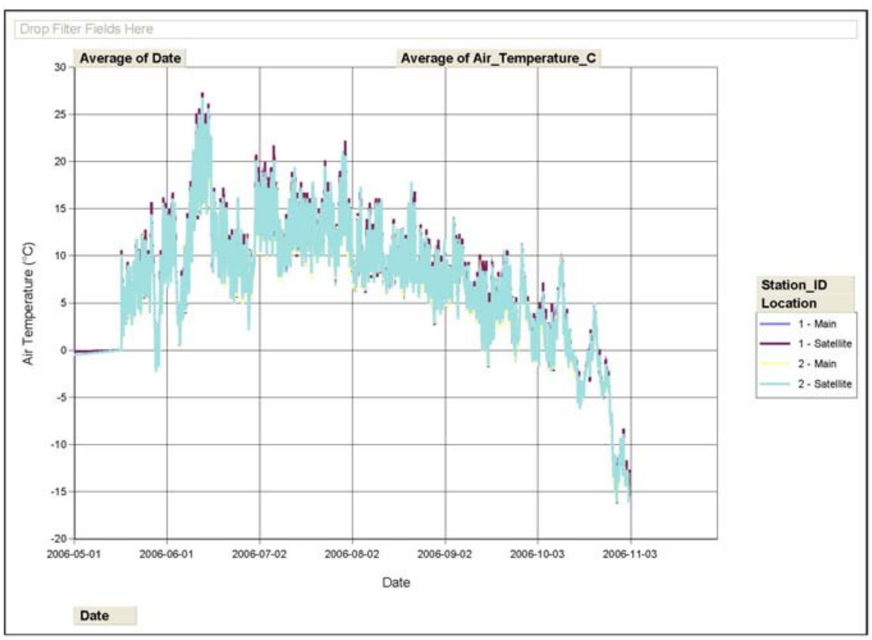

Figure 11: Mean hourly air temperature on CT#1 & CT#2A, 2B recorded by the Davis Instruments Vantage Pro Weather Stations and Satellite Stations.

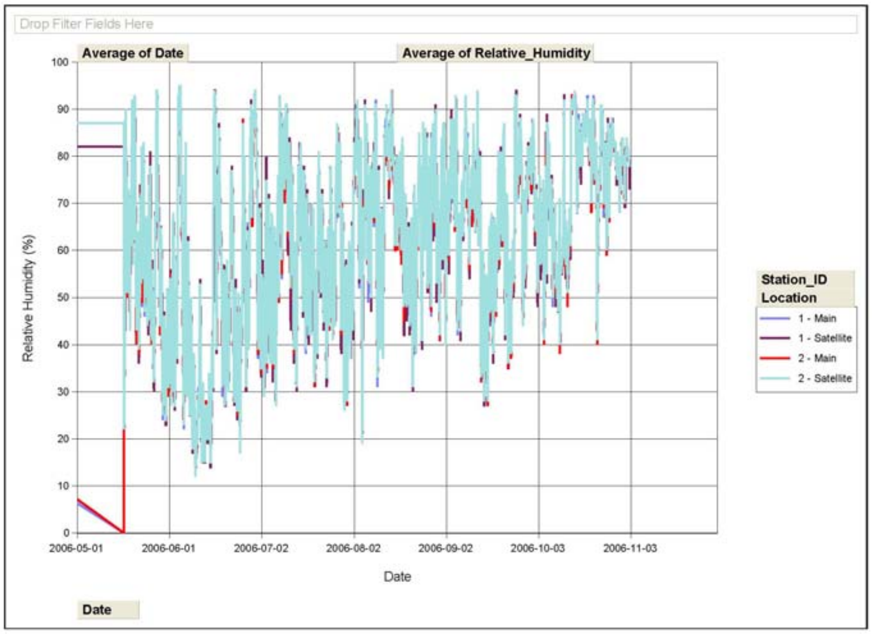

Figure 12: Mean hourly relative humidity on CT#1 & CT#2A, 2B recorded by the Davis Instruments Vantage Pro Weather Stations and Satellite Stations.

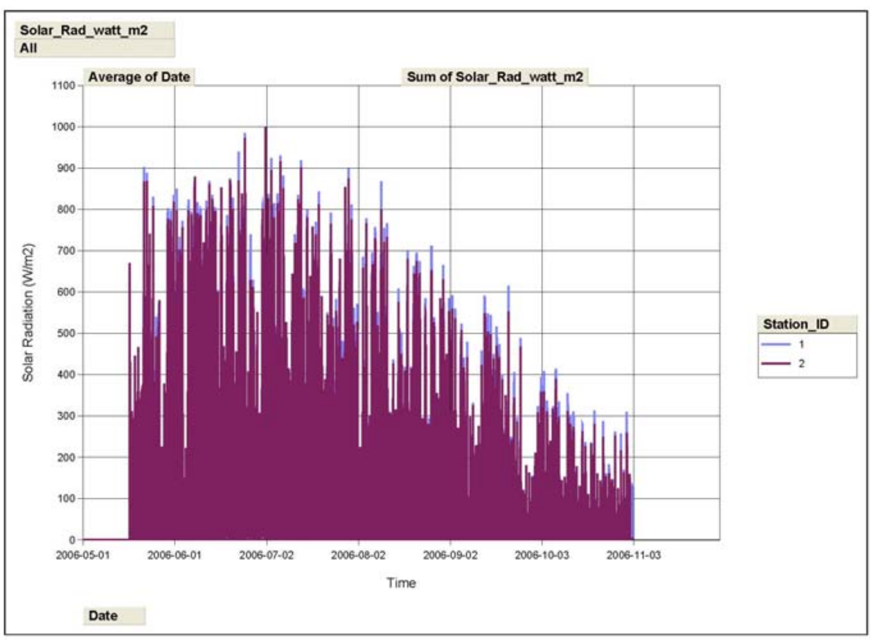

Figure 13: Mean hourly solar radiation on CT#1 & CT2A, 2B recorded by the Davis Instruments Vantage Pro Weather Stations.

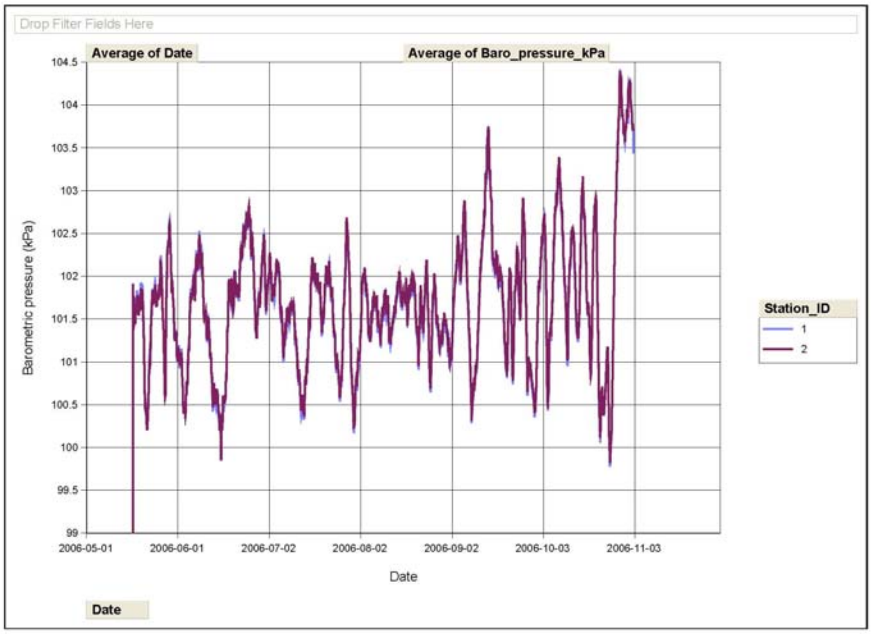

Figure 14: Mean hourly barometric pressure on CT#1 & CT#2A, 2B recorded by the Davis Instruments Vantage Pro Weather Stations.

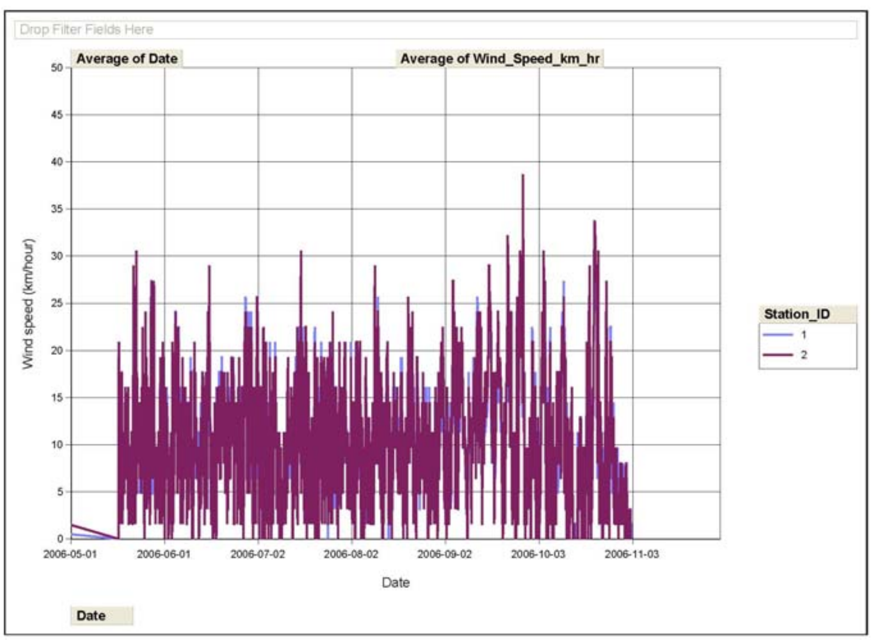

Figure 15: Mean hourly wind speed on CT#1 & CT#2A, 2B recorded by the Davis Instruments Vantage Pro Weather Stations.

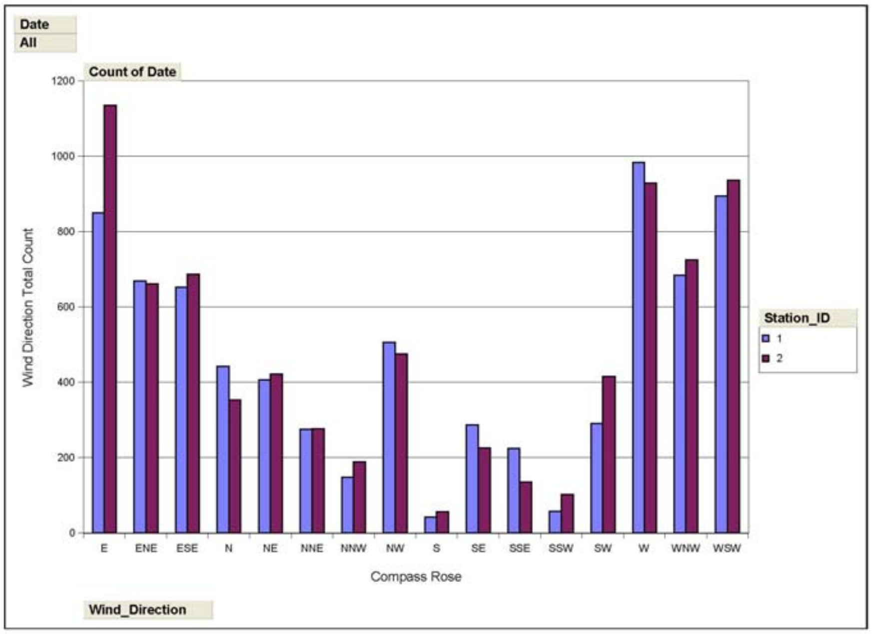

Figure 16: Wind direction totals (measured hourly) on CT#1 & CT#2A, 2B recorded by the Davis Instruments Vantage Pro Weather Stations.

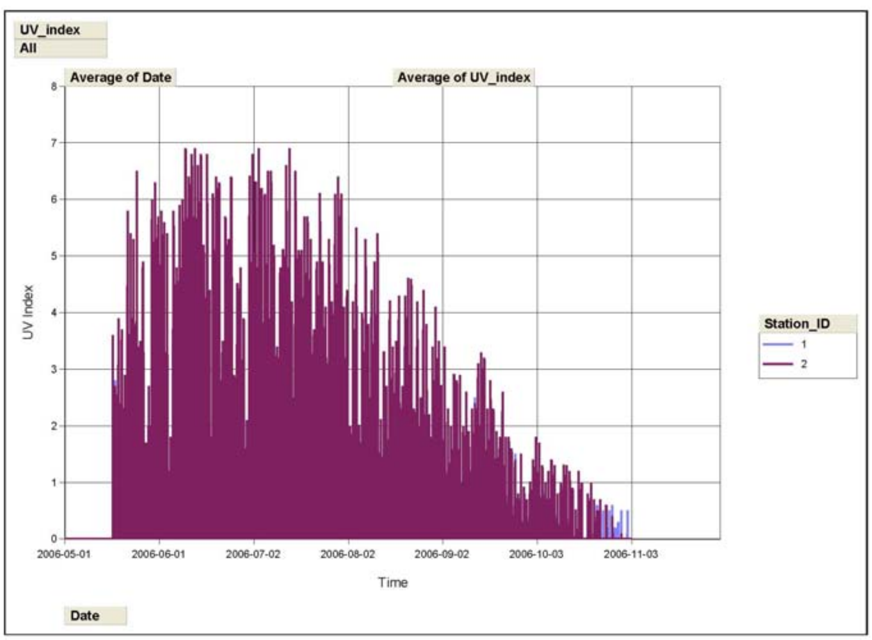

Figure 17: Mean hourly UV Index on CT#1 & CT#2A, 2B recorded by the Davis Instruments Vantage Pro Weather Stations.

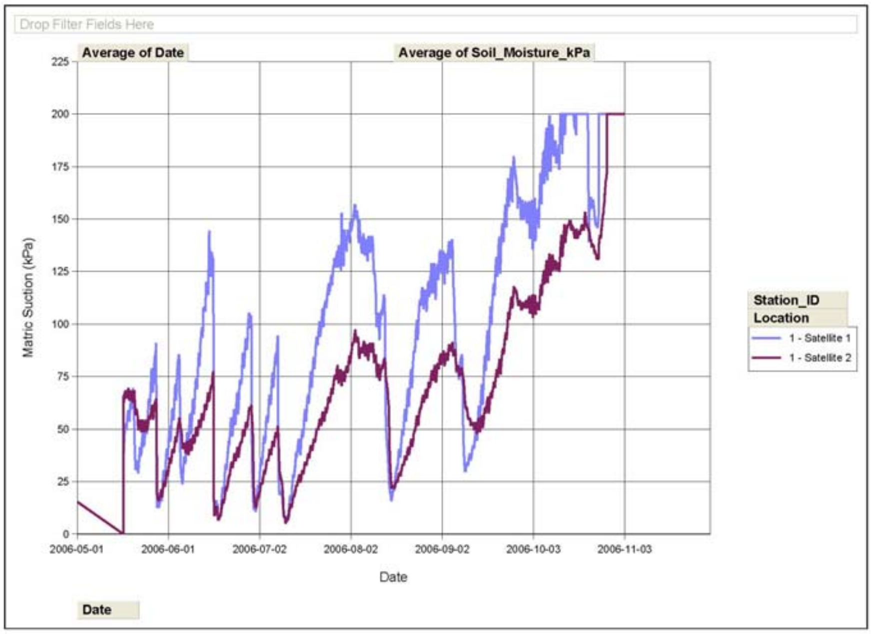

Figure 18: Mean hourly Matric Suction in CT#1 recorded by the Davis Instruments Vantage Pro Satellite Station.

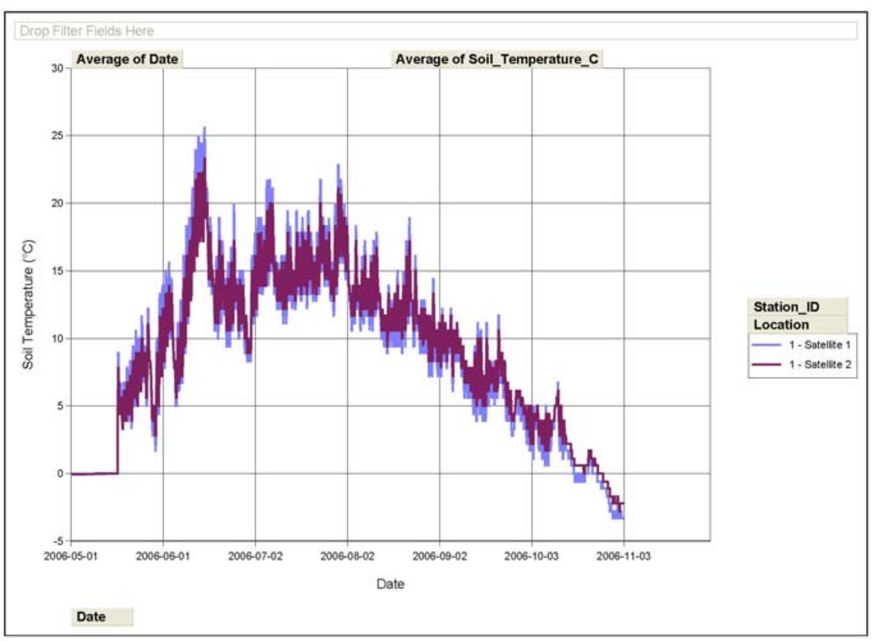

Figure 19: Mean hourly soil temperature in CT#1 recorded by the Davis Instruments Vantage Pro Satellite Station.

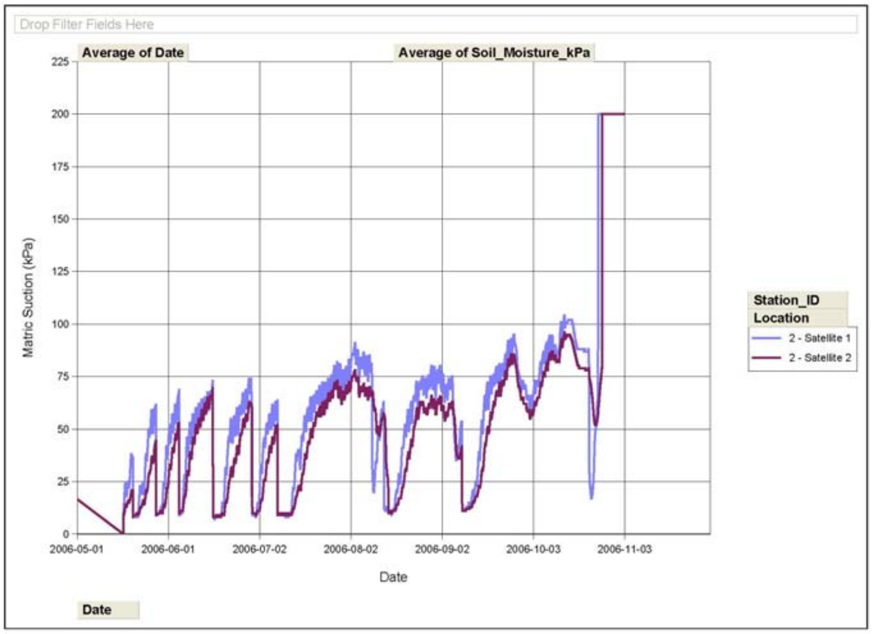

Figure 20: Mean hourly Matric Suction in CT#2A recorded by the Davis Instruments Vantage Pro Satellite Station.

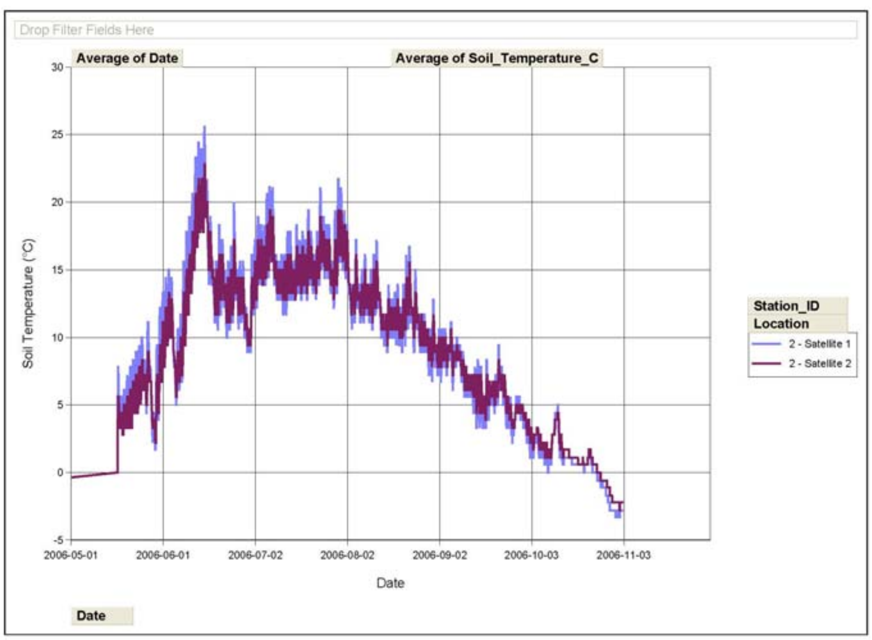

Figure 21: Mean hourly soil temperature in CT#2A recorded by the Davis Instruments Vantage Pro Satellite Station.

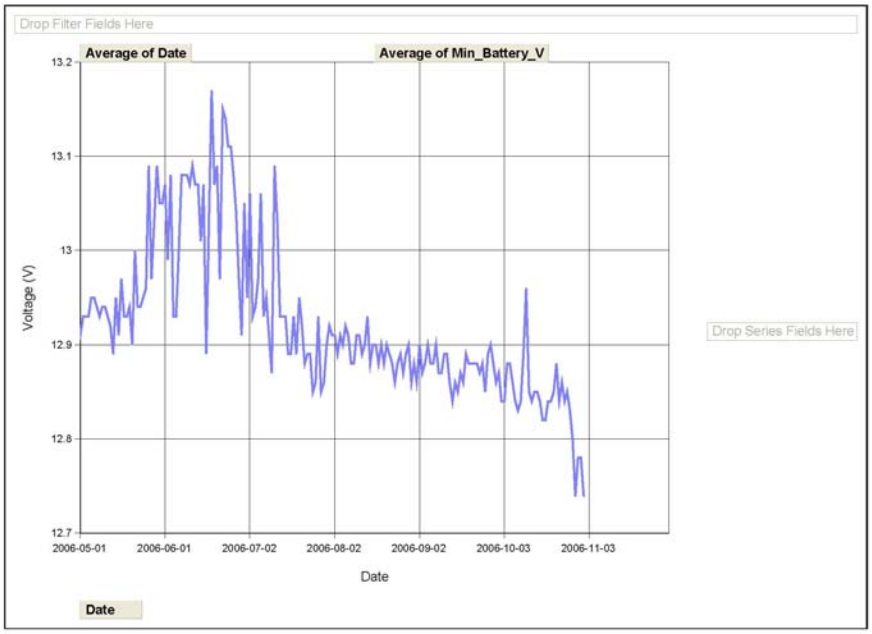

Figure 22: Daily battery voltage of the Campbell Scientific CR10X #1 Data Logger (Array 102).

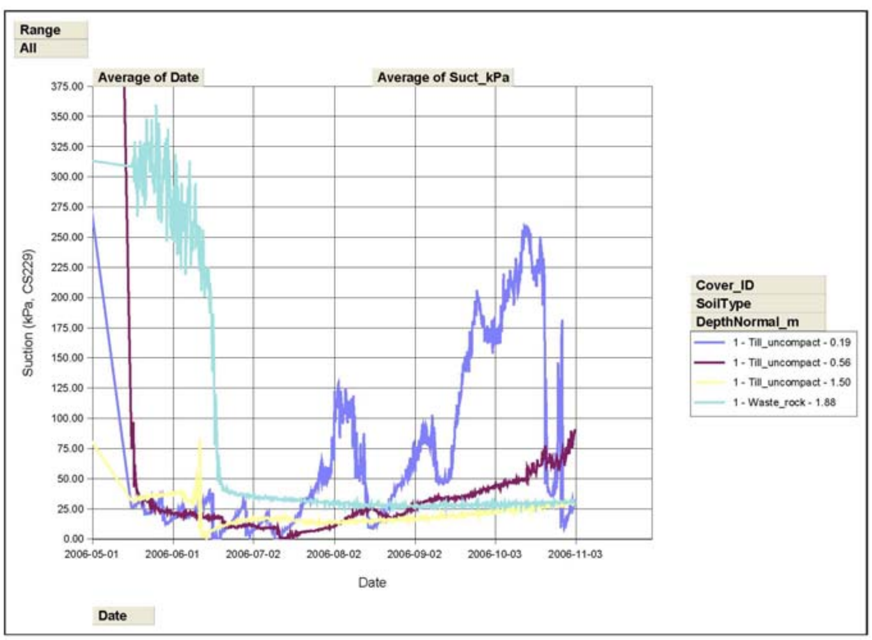

Figure 23: Soil matric suction measurements (taken every six hours) in CT#1 recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

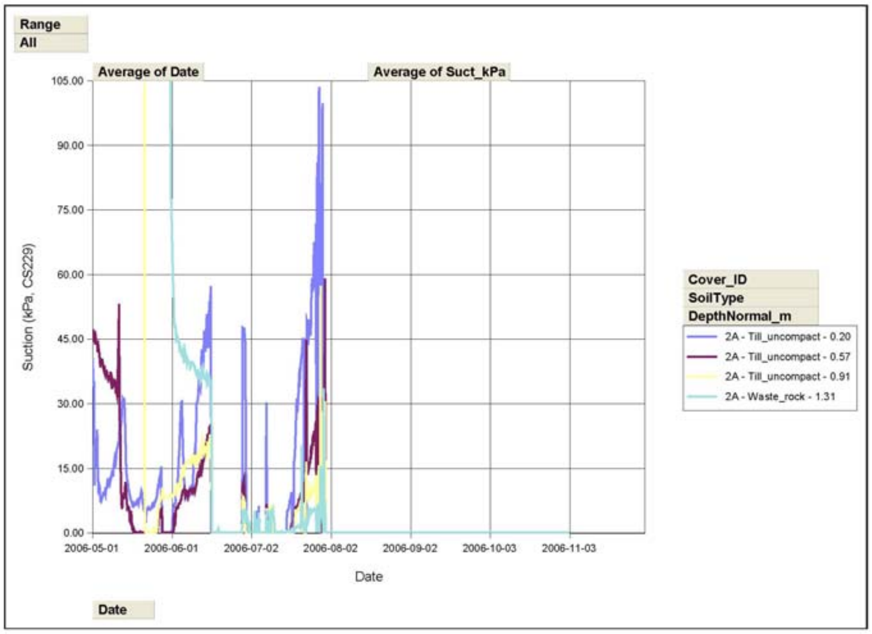

Figure 24: Soil matric suction measurements (taken every six hours) in CT#2A recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #1 (Array 130).

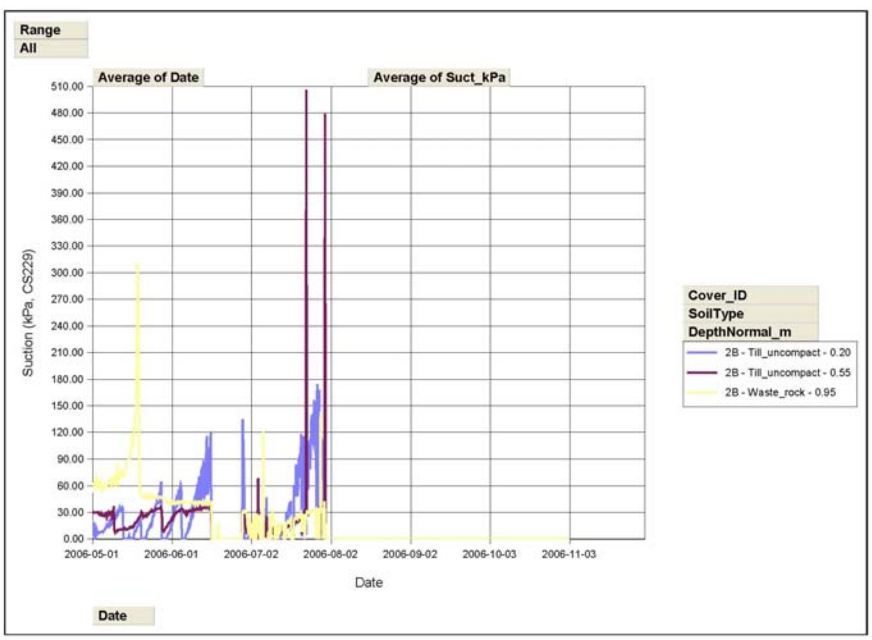

Figure 25: Soil matric suction measurements (taken daily) in CT#2B recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #1 (Array 130).

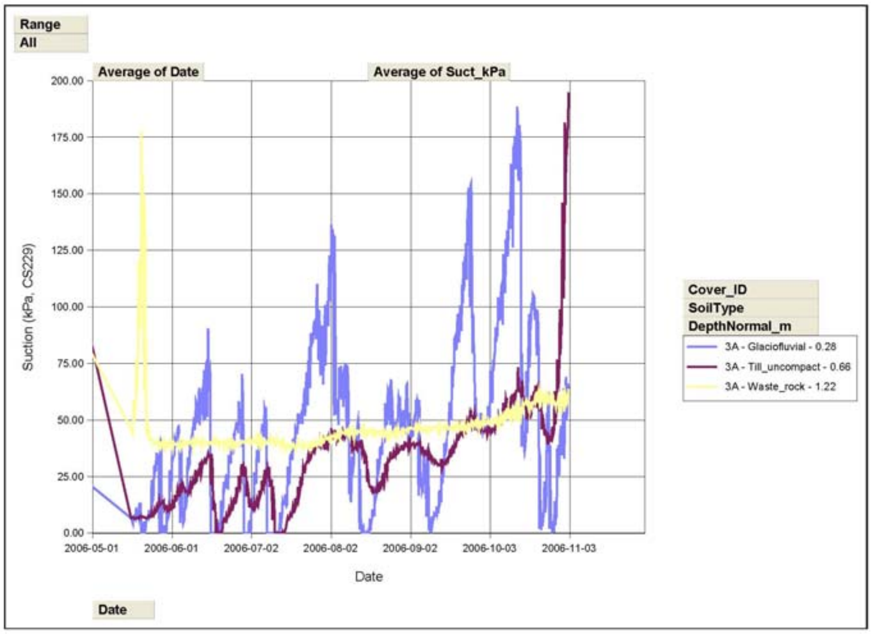

Figure 26: Soil matric suction measurements (taken every six hours) in CT#3A recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

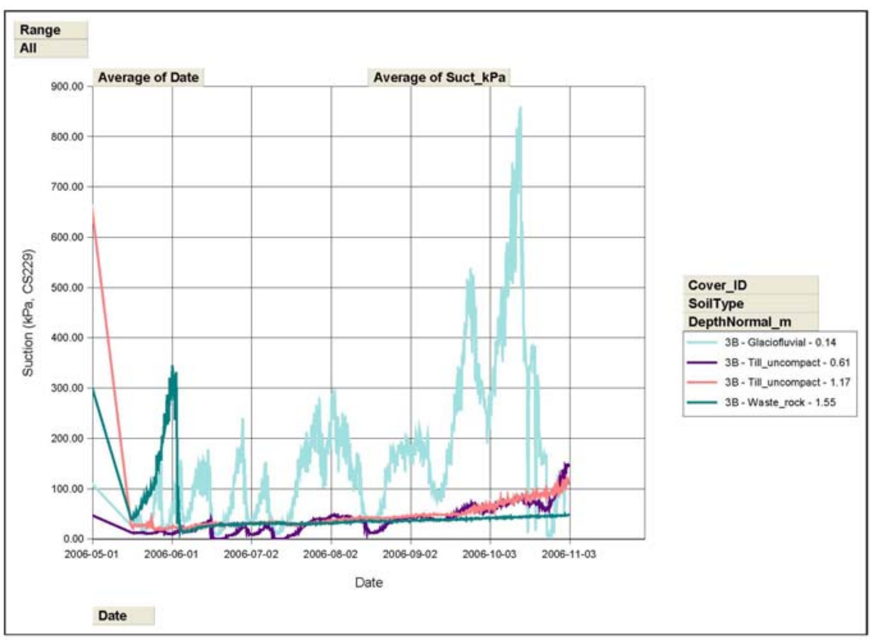

Figure 27: Soil matric suction measurements (taken every six hours) in CT#3B recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

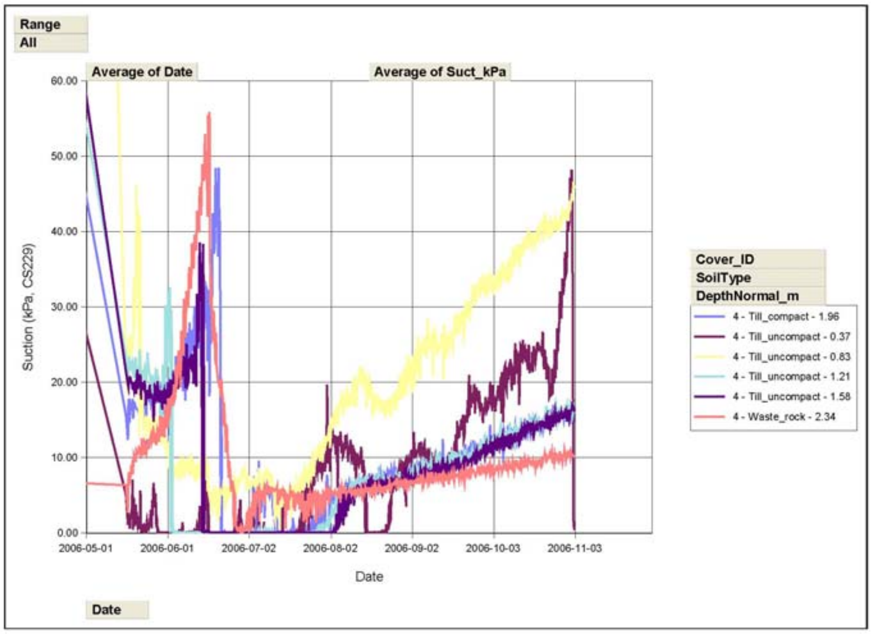

Figure 28: Soil matric suction measurements (taken every six hours) in CT#4 recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

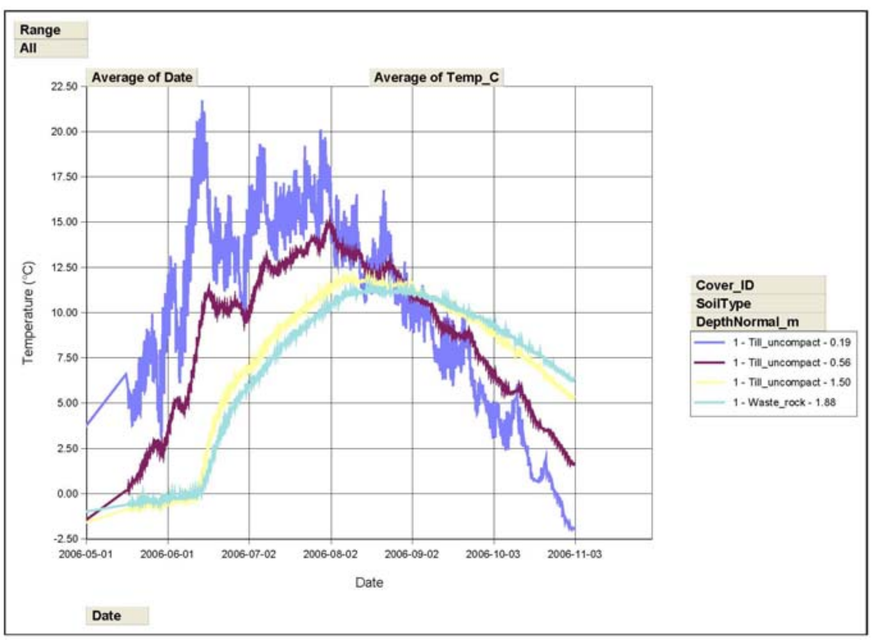

Figure 29: Soil temperature measurements (taken every six hours) in CT#1 recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

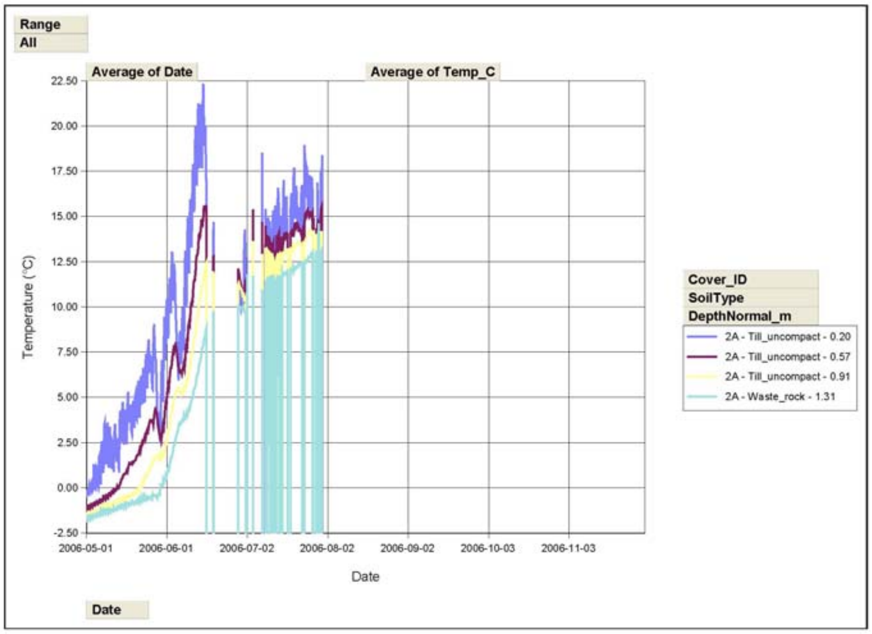

Figure 30: Soil temperature measurements (taken every six hours) in CT#2A recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #1 (Array 130).

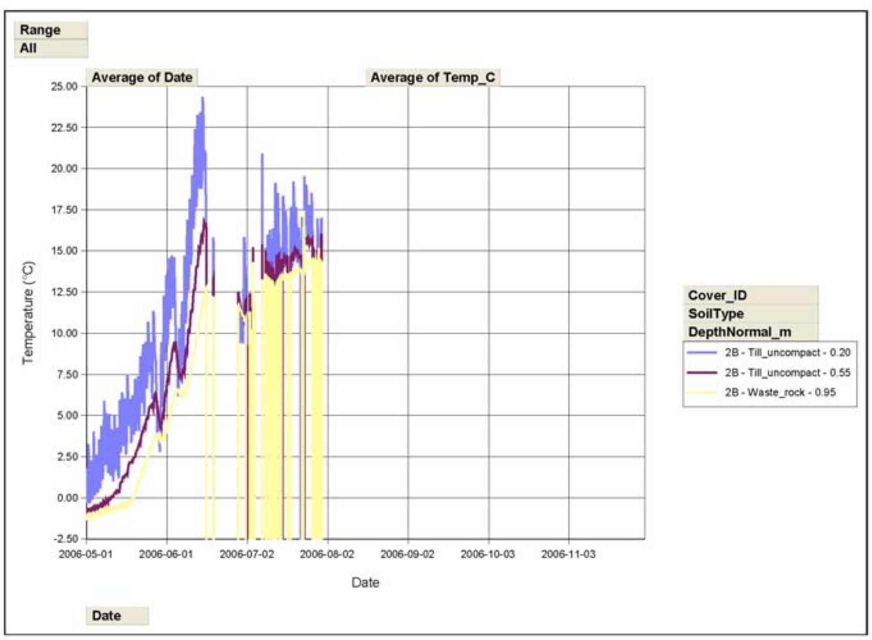

Figure 31: Soil temperature measurements (taken every six hours) in CT#2B recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #1 (Array 130).

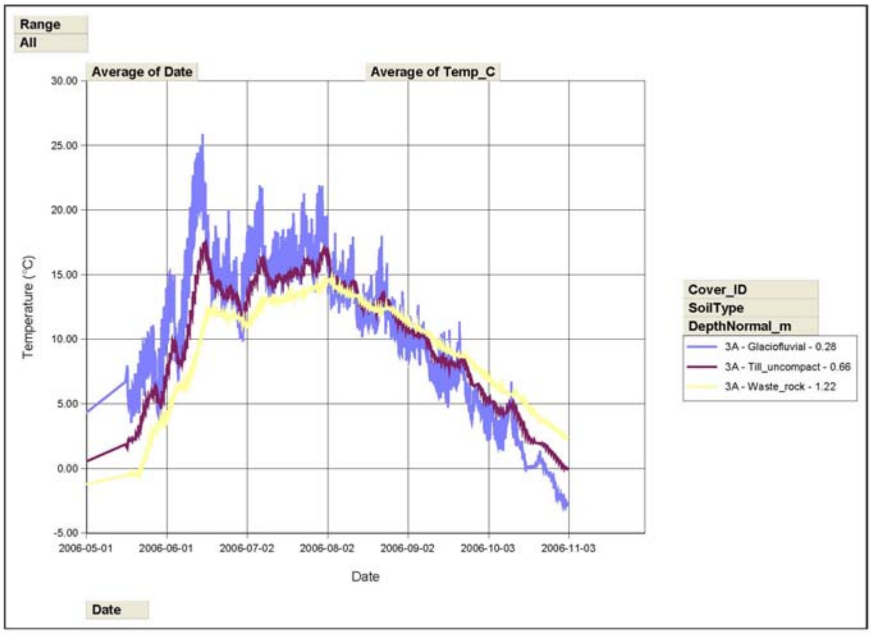

Figure 32: Soil temperature measurements (taken every six hours) in CT#3A recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

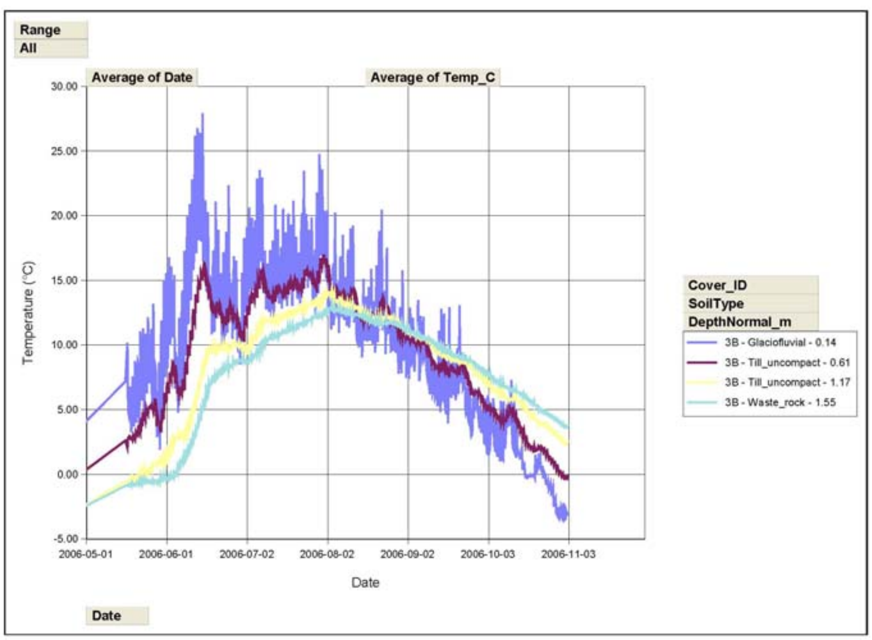

Figure 33: Soil temperature measurements (taken every six hours) in CT#3B recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

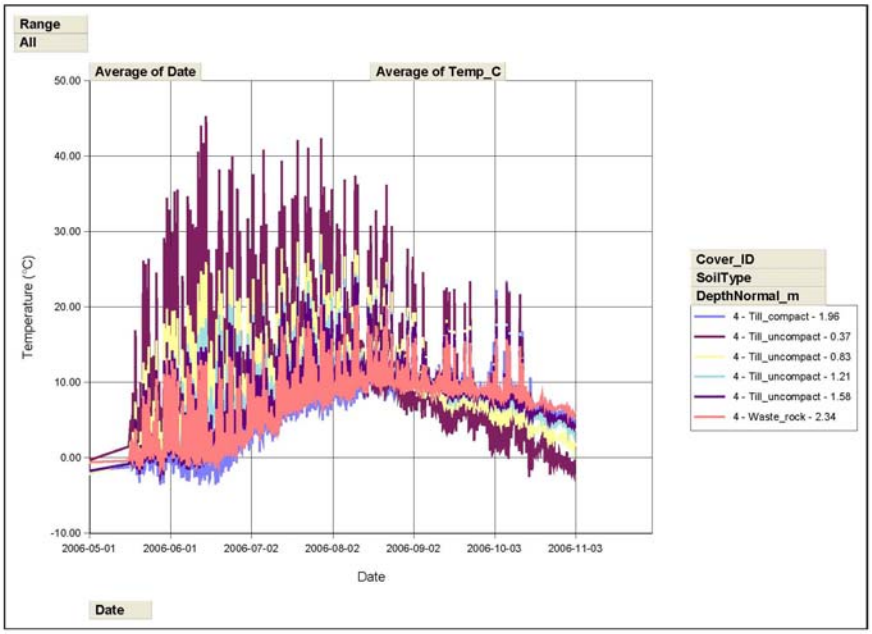

Figure 34: Soil temperature measurements (taken every six hours) in CT#4 recorded by CS229 sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

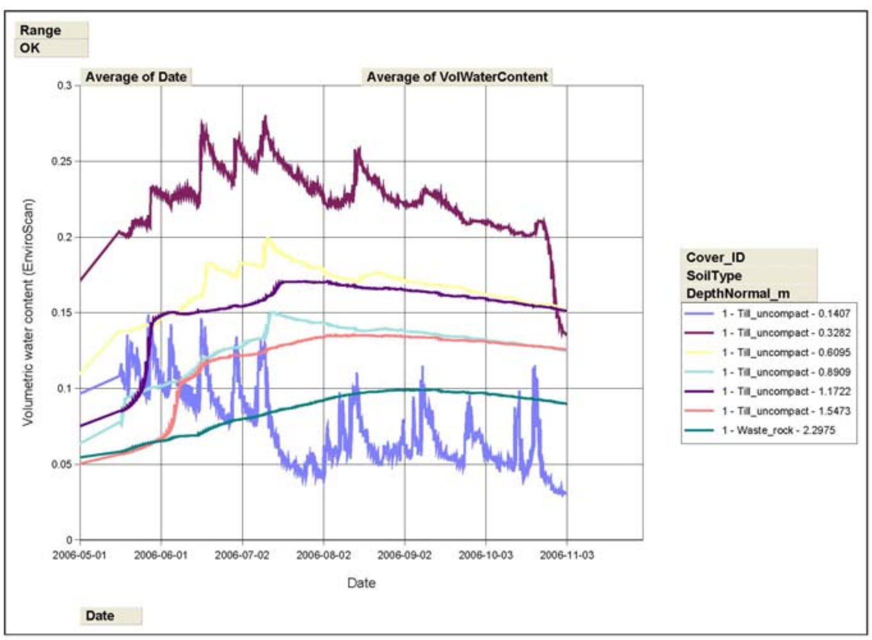

Figure 35: Volumetric moisture content measurements (taken every six hours) in CT#1 recorded by EnviroSCAN sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

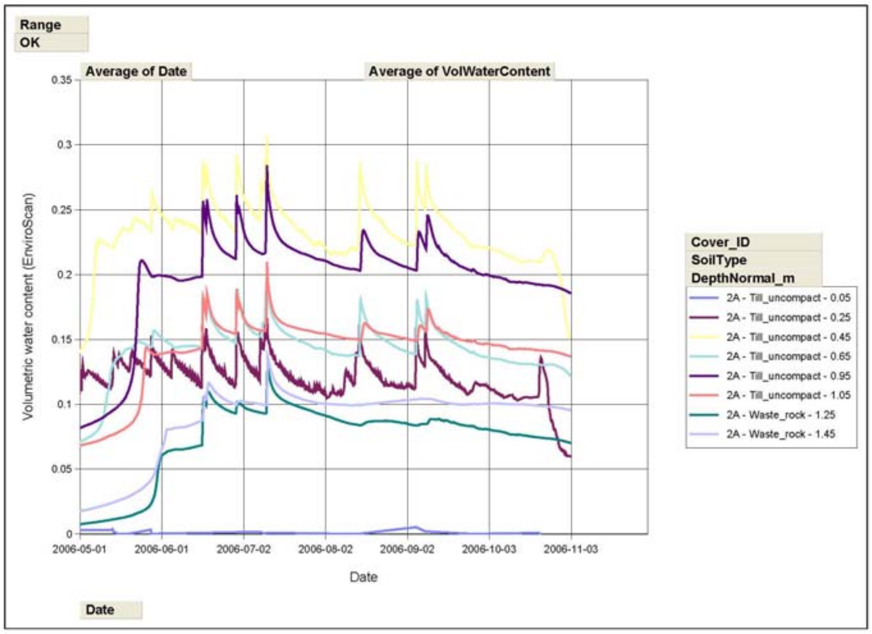

Figure 36: Volumetric moisture content measurements (taken every six hours) in CT#2A recorded by EnviroSCAN sensors connected to Campbell Scientific Data logger CR10X #1 (Array 130).

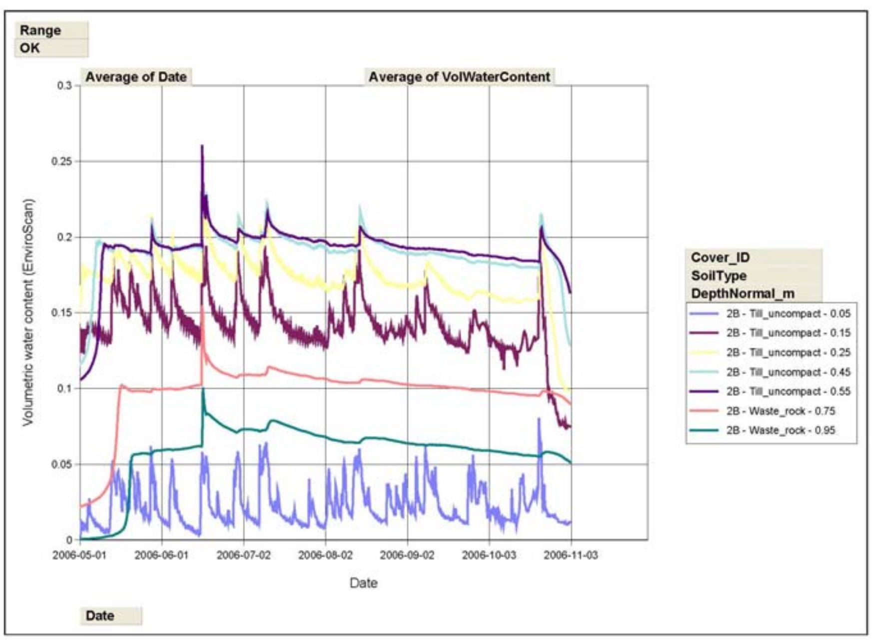

Figure 37: Volumetric moisture content measurements (taken every six hours) in CT#2B recorded by EnviroSCAN sensors connected to Campbell Scientific Data logger CR10X #1 (Array 130).

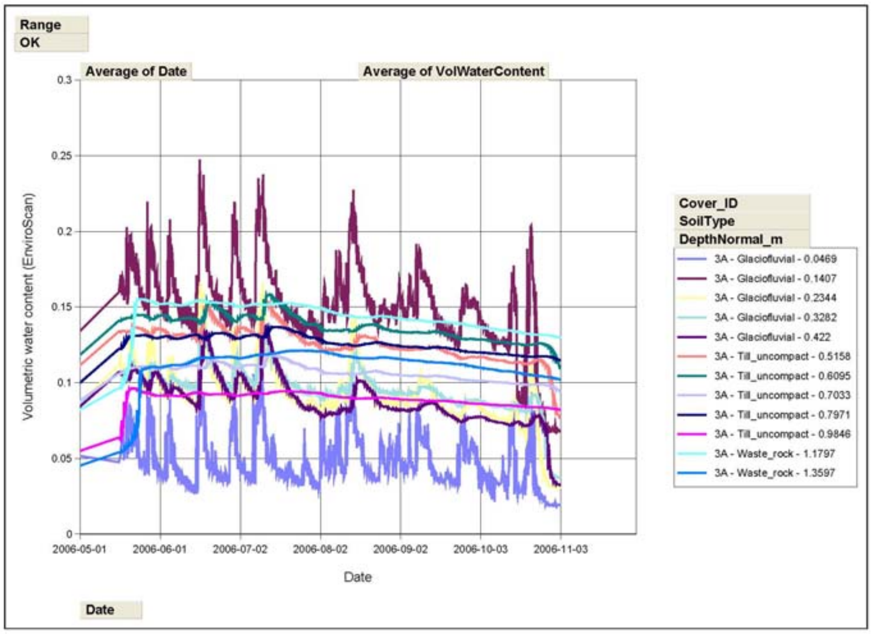

Figure 38: Volumetric moisture content measurements (taken every six hours) in CT#3A recorded by EnviroSCAN sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

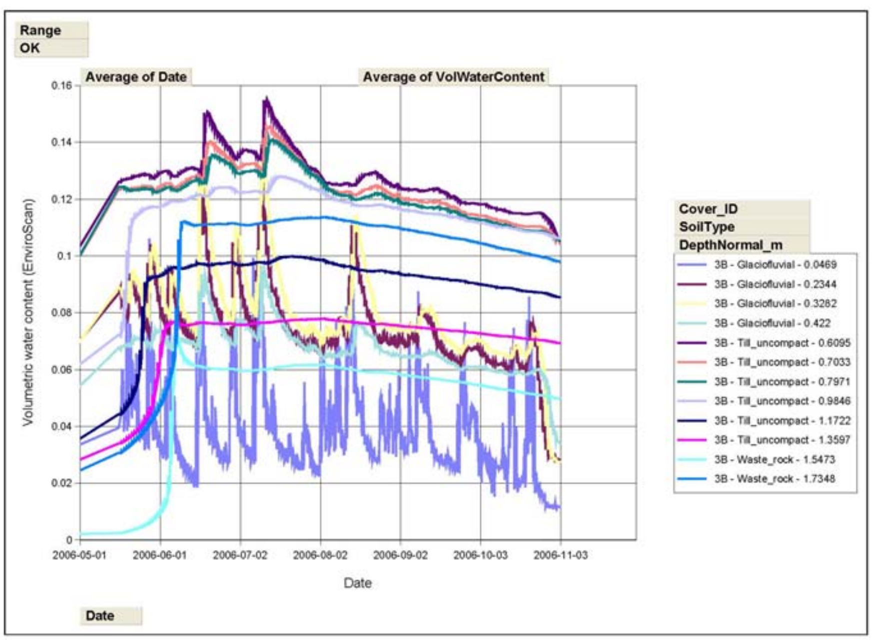

Figure 39: Volumetric moisture content measurements (taken every six hours) in CT#3B recorded by EnviroSCAN sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

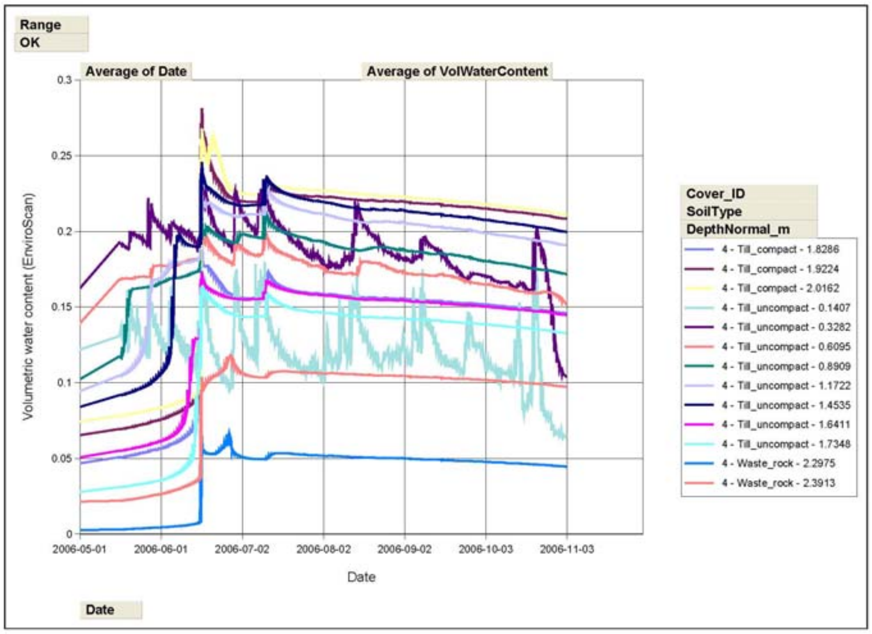

Figure 40: Volumetric moisture content measurements (taken every six hours) in CT#4 recorded by EnviroSCAN sensors connected to Campbell Scientific Data logger CR10X #2 (Array 168).

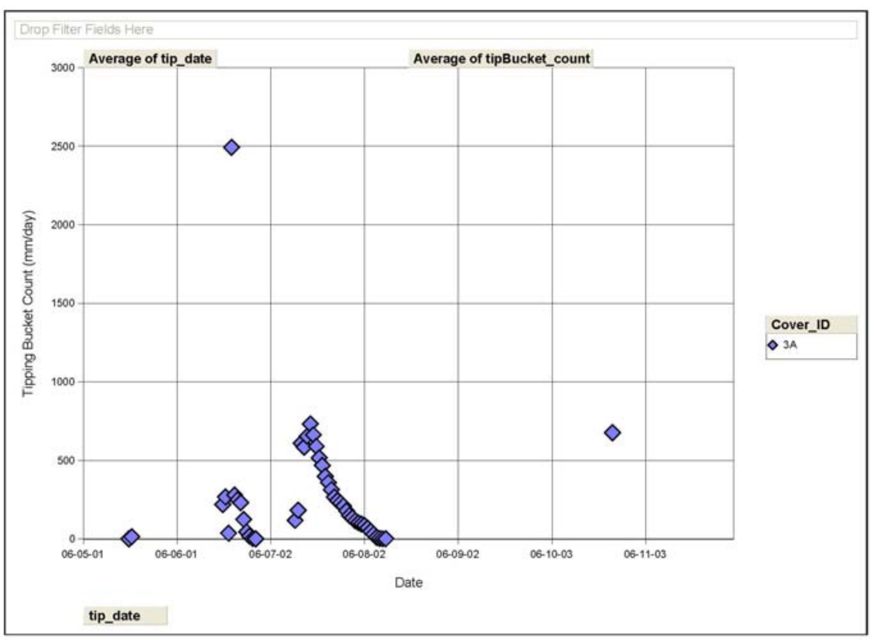

Figure 41: Interflow totals in CT#3A measured by a tipping bucket connected to Campbell Scientific Data logger CR10X #2 (Array 103).

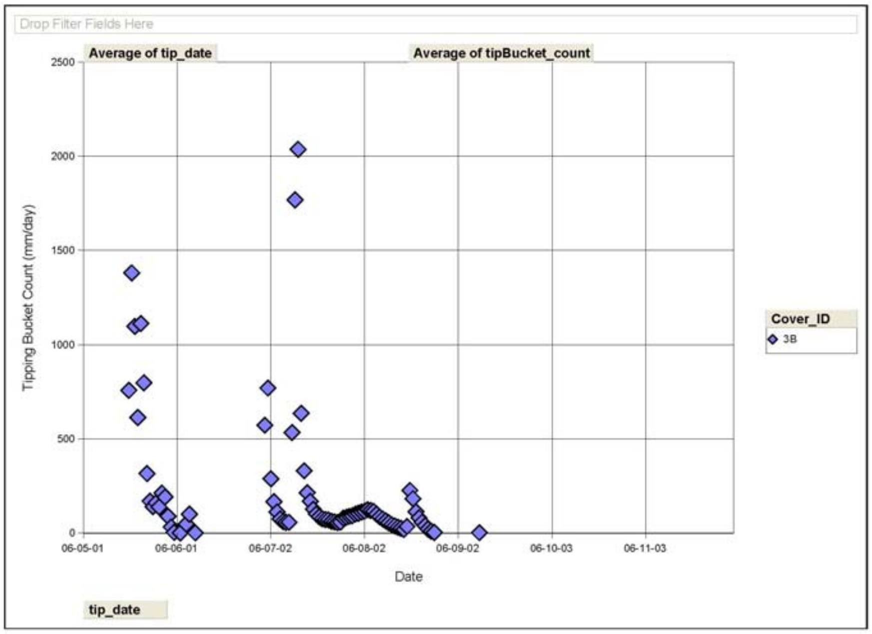

Figure 42: Interflow totals in CT#3B measured by a tipping bucket connected to Campbell Scientific Data logger CR10X #2 (Array 107).

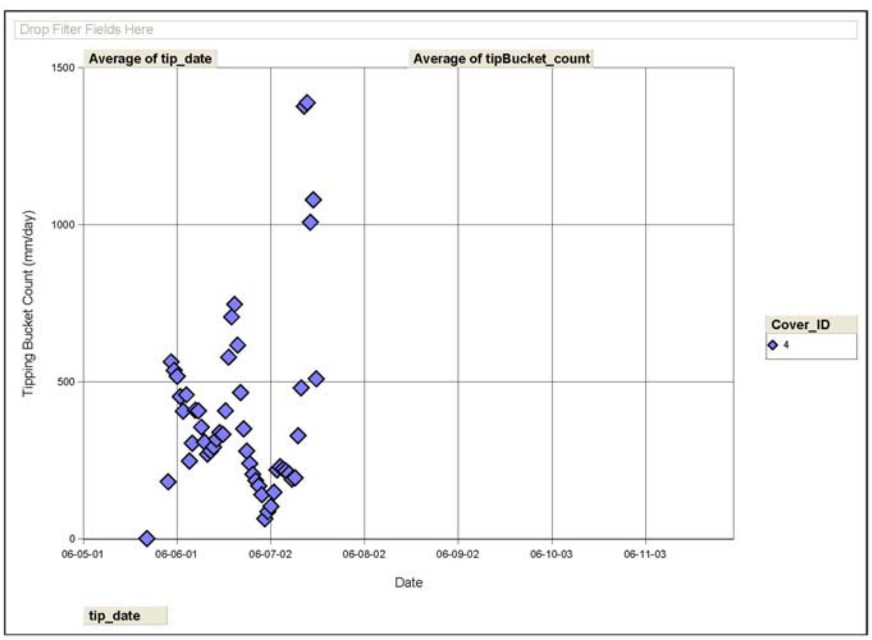

Figure 43: Interflow totals in CT#4 measured by a tipping bucket connected to Campbell Scientific Data logger CR10X #2 (Array 111).

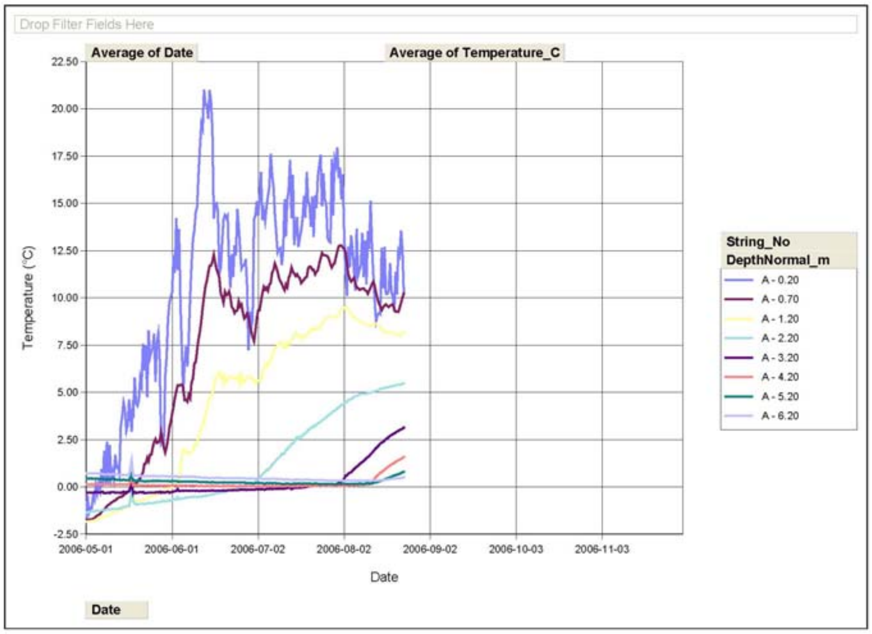

Figure 44: Soil temperature (measured every twelve hours) in Grum Overburden Dump by an M-squared thermistor string connected to a Lakewood Systems UL16 Data logger (Thermistor String A). Raw data displayed.

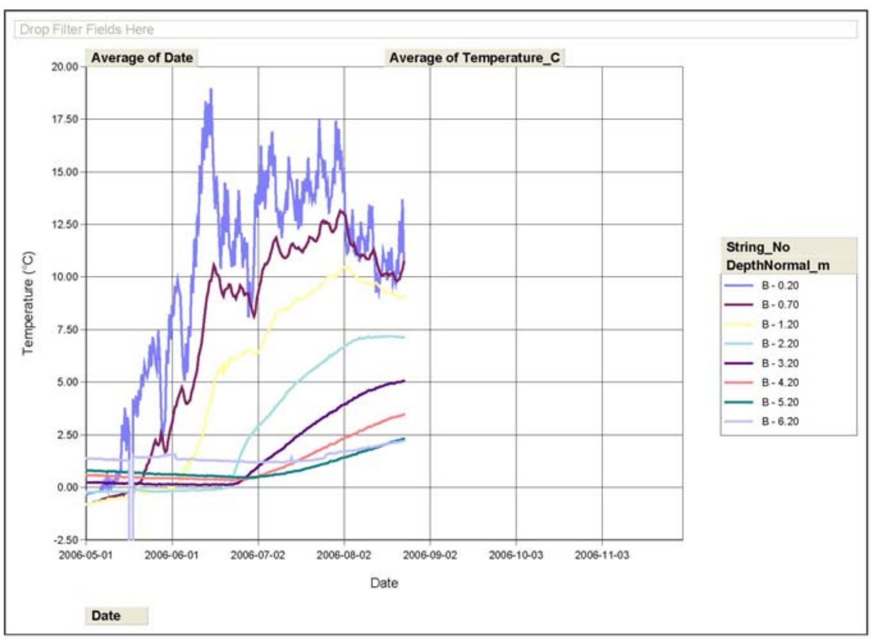

Figure 456: Soil temperature (measured every twelve hours) in Grum Overburden Dump by an M-squared thermistor string connected to a Lakewood Systems UL16 Data logger (Thermistor String B). Raw data displayed.

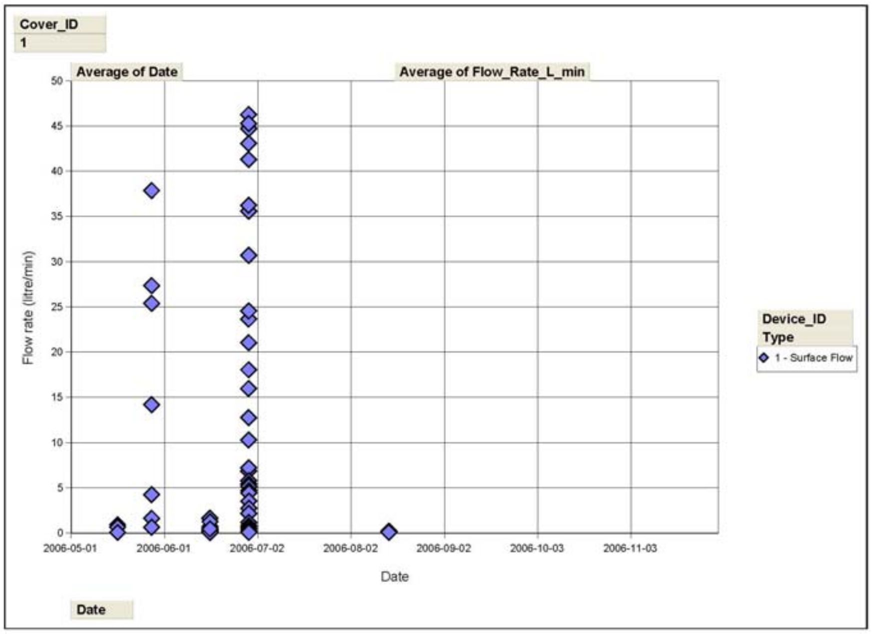

Figure 46: Surface runoff (measured every minute) on CT#1 by a Seametrics flowmeter connected to a Seametrics DL75 Data logger (File 0506051).

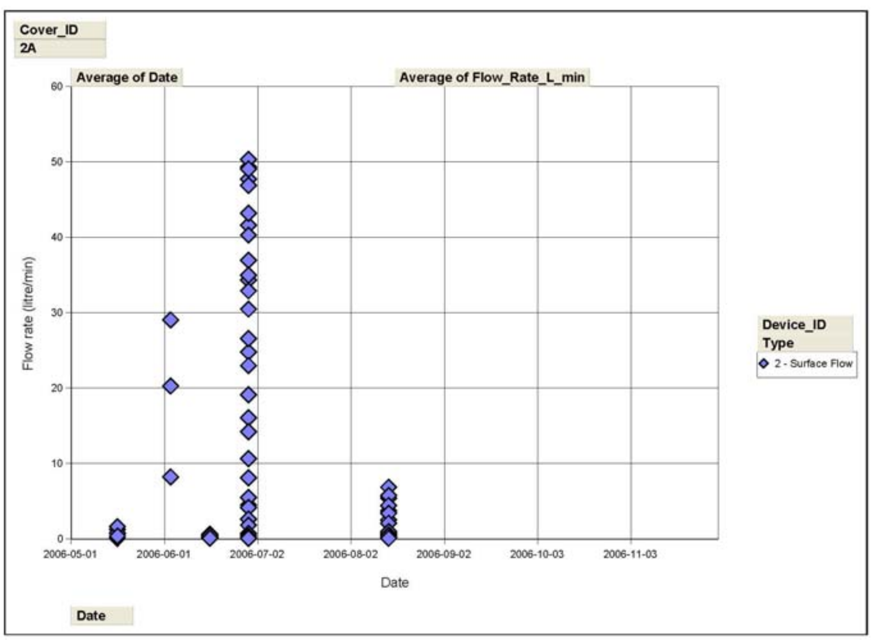

Figure 47: Surface runoff (measured every minute) on CT#2A by a Seametrics flowmeter connected to a Seametrics DL75 Data logger (File 0506052).

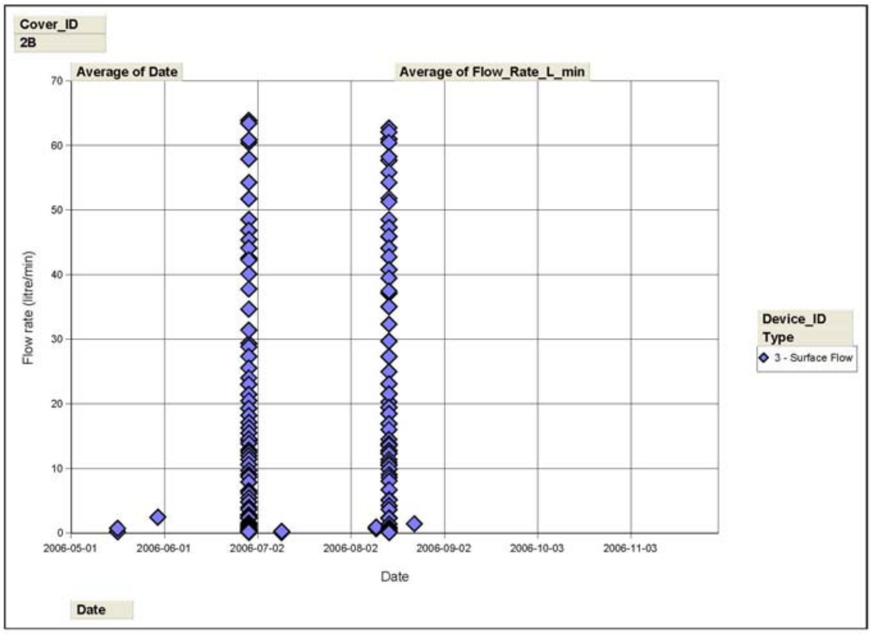

Figure 48: Surface runoff (measured every minute) on CT#2B by a Seametrics flowmeter connected to a Seametrics DL75 Data logger (File 0506053).

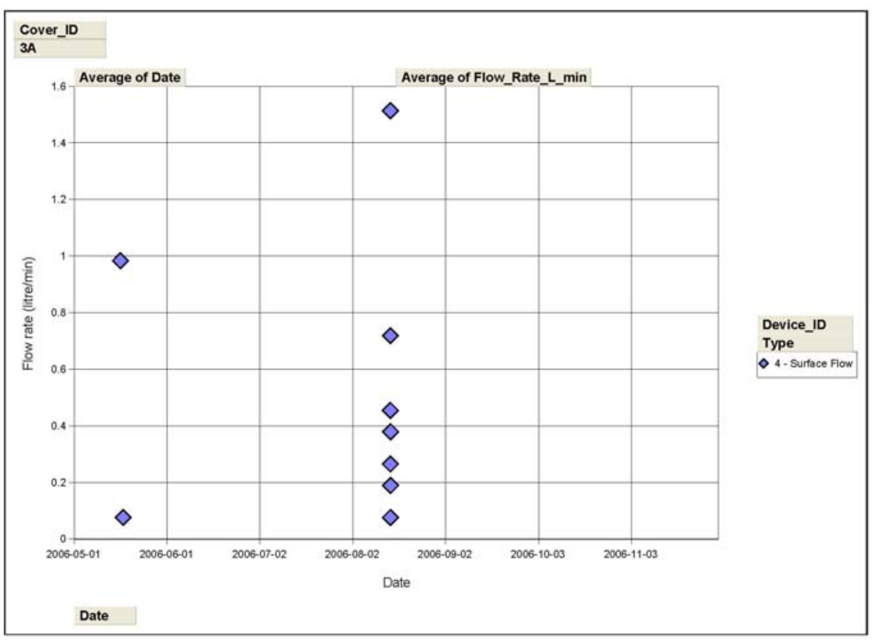

Figure 49: Surface runoff (measured every minute) on CT#3A by a Seametrics flowmeter connected to a Seametrics DL75 Data logger (File 0506054).

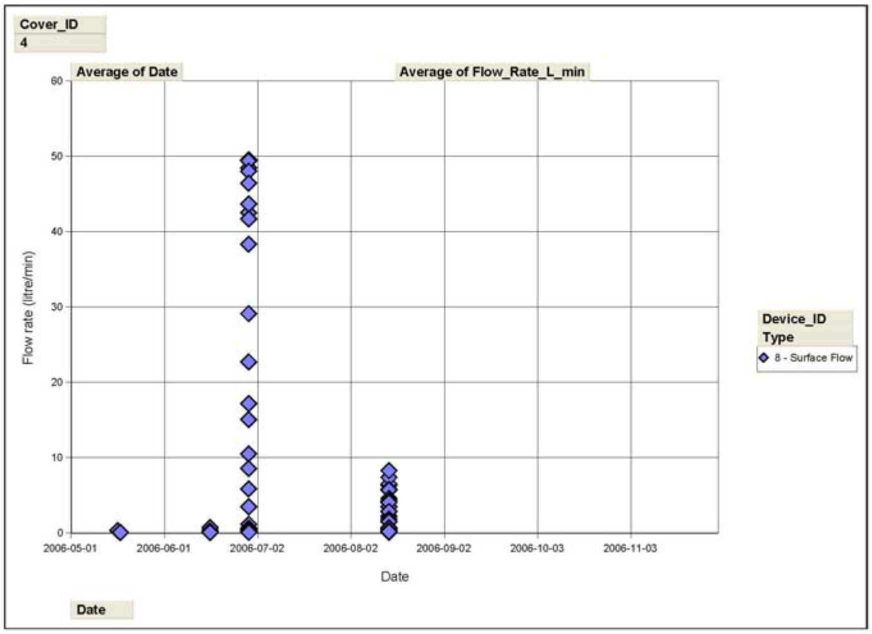

Figure 50: Surface runoff (measured every minute) on CT#4 by a Seametrics flowmeter connected to a Seametrics DL75 Data logger (File 0506058).

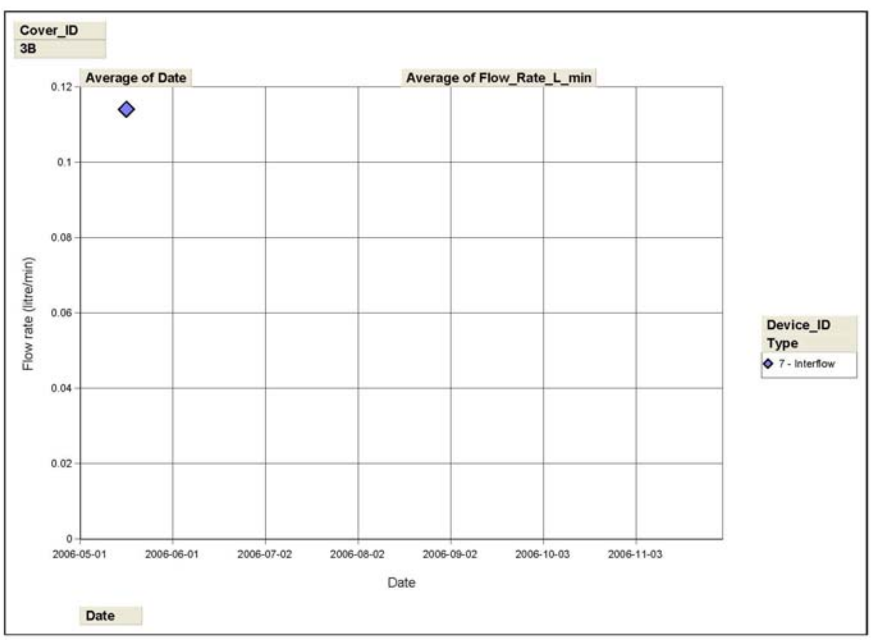

Figure 51: Interflow (measured every minute) in CT#3B by a Seametrics flowmeter connected to a Seametrics DL75 Data logger (File 0506057).

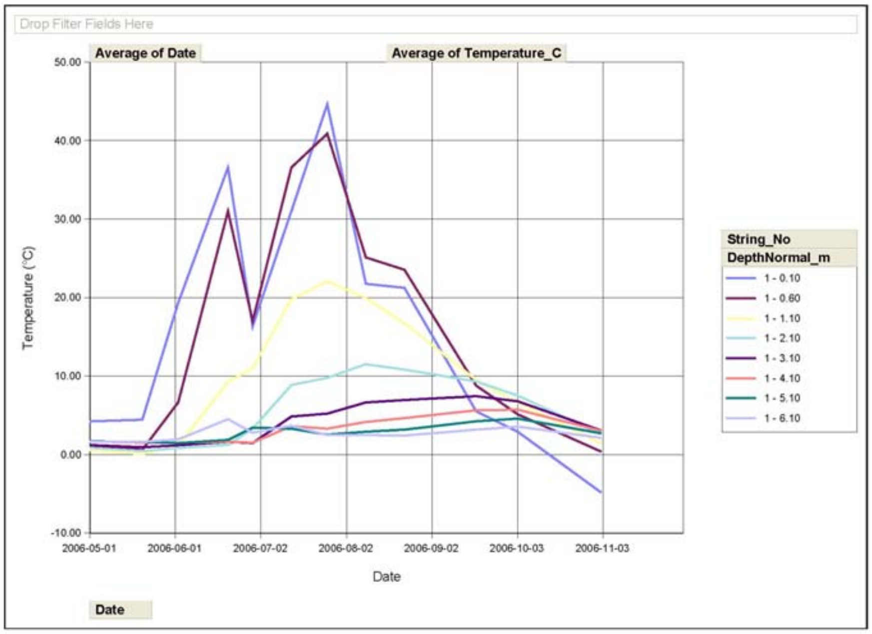

Figure 52: Monthly soil temperature measurements in Grum Overburden Dump by an M-Squared thermistor string measured manually (Thermistor String 1). Raw data expressed as resistances.

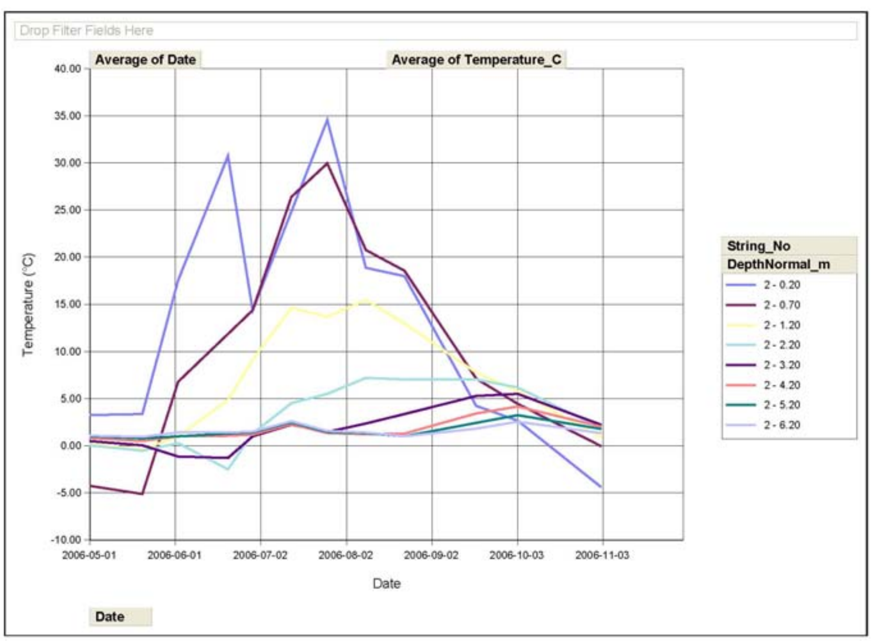

Figure 53: Monthly soil temperature measurements in Grum Overburden Dump by an M-Squared thermistor string measured manually (Thermistor String 2). Raw data expressed as resistances.

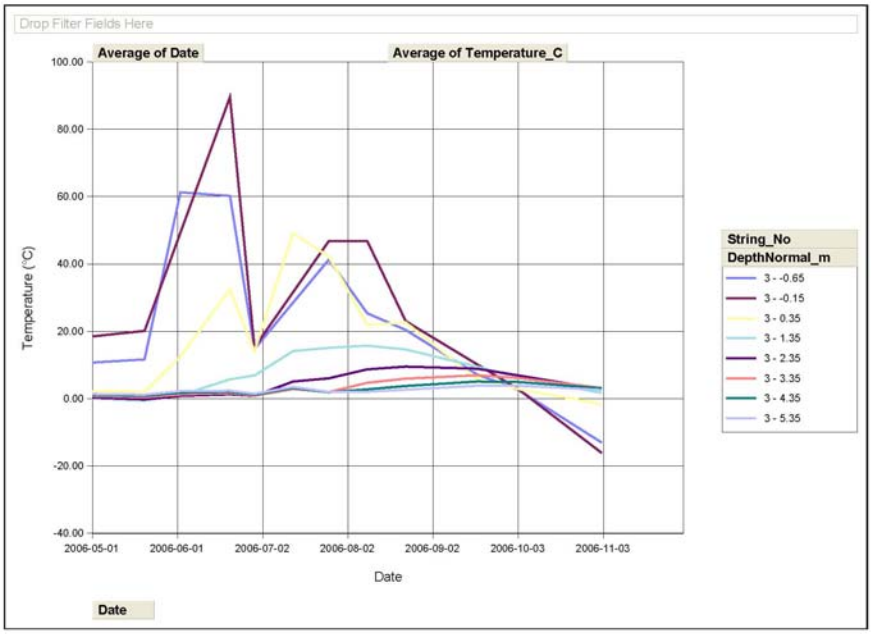

Figure 54: Monthly soil temperature measurements in Grum Overburden Dump by an M-Squared thermistor string measured manually (Thermistor String 3). Raw data expressed as resistances.

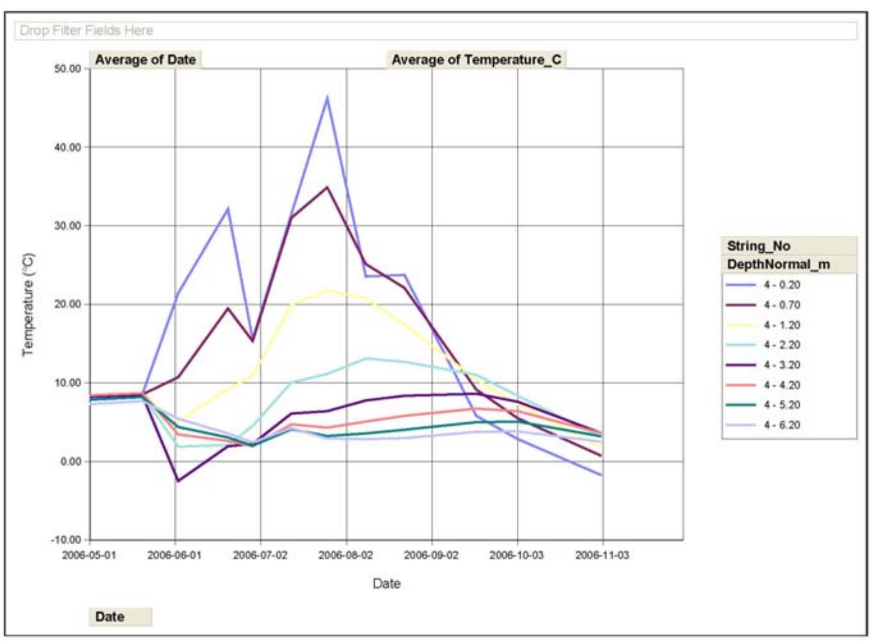

Figure 55: Monthly soil temperature measurements in Grum Overburden Dump by an M-Squared thermistor string measured manually (Thermistor String 4). Raw data expressed as resistances.

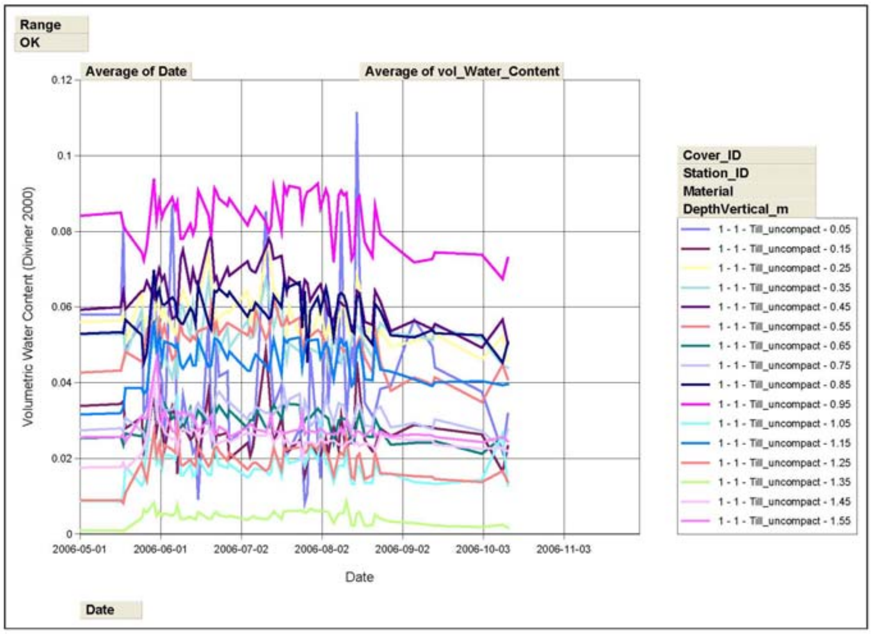

Figure 56: Daily volumetric moisture content in CT#1 (Station #1) measured manually by a Sentek Diviner 2000.

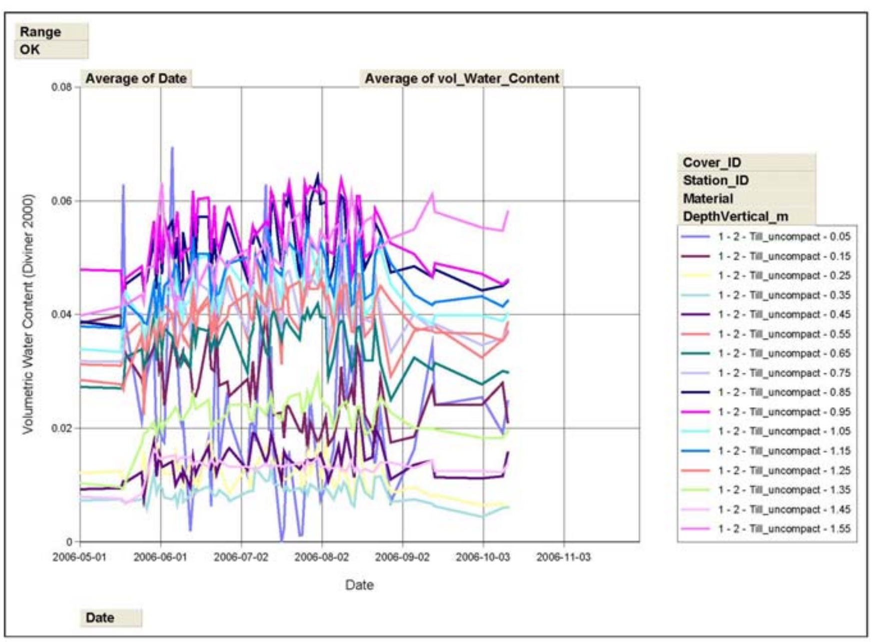

Figure 57: Daily volumetric moisture content in CT#1 (Station #2) measured manually by a Sentek Diviner 2000.

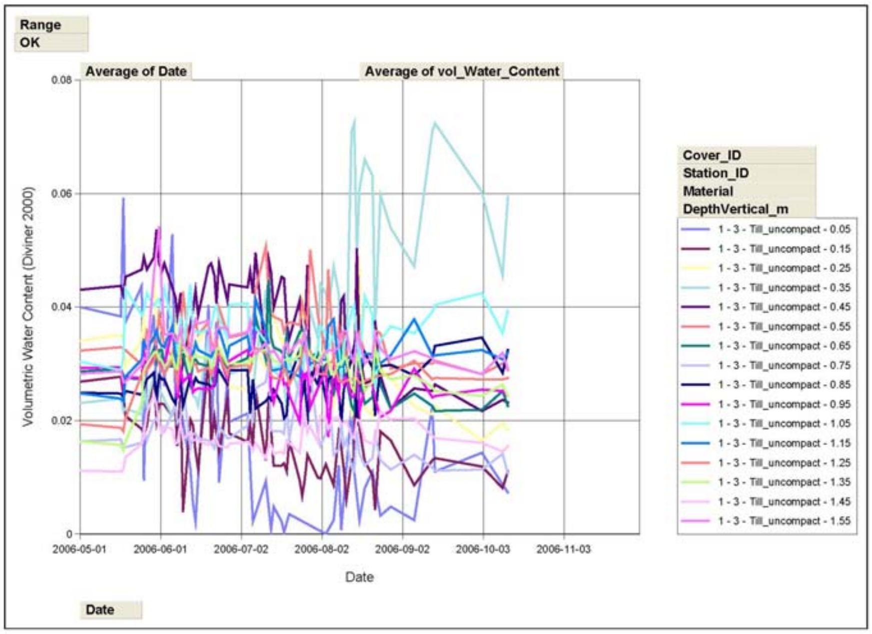

Figure 58: Daily volumetric moisture content in CT#1 (Station #3) measured manually by a Sentek Diviner 2000.

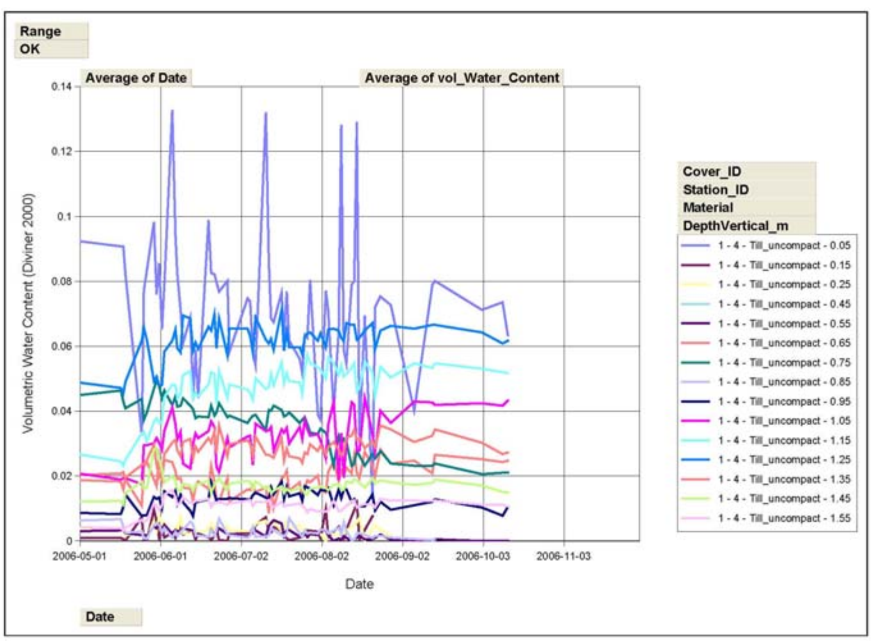

Figure 59: Daily volumetric moisture content in CT#1 (Station #4) measured manually by a Sentek Diviner 2000.

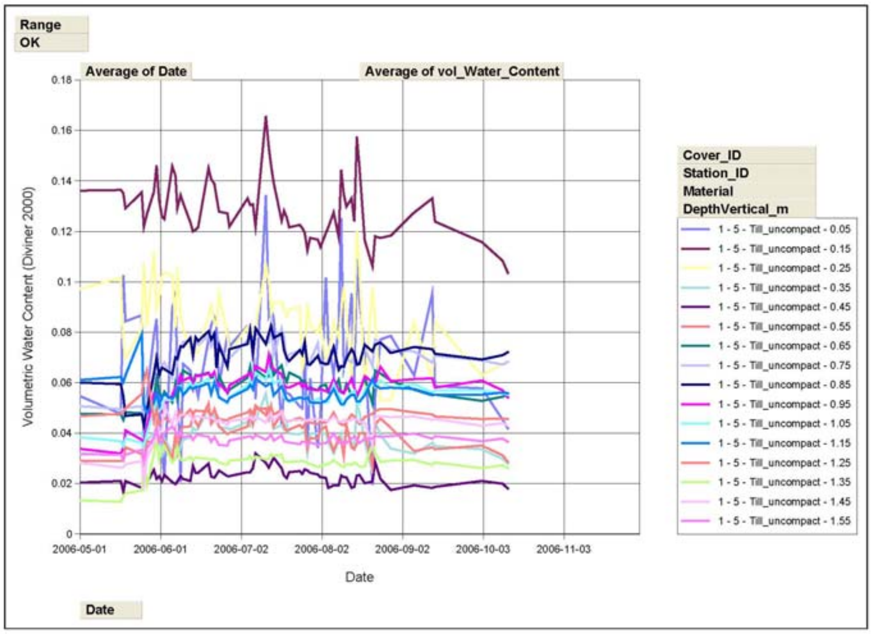

Figure 60: Daily volumetric moisture content in CT#1 (Station #5) measured manually by a Sentek Diviner 2000.

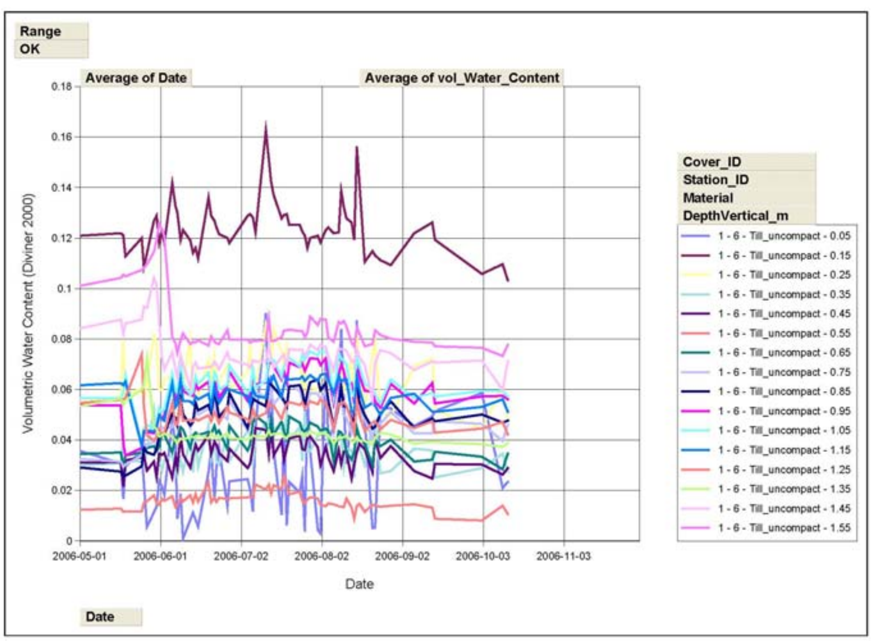

Figure 61: Daily volumetric moisture content in CT#1 (Station #6) measured manually by a Sentek Diviner 2000.

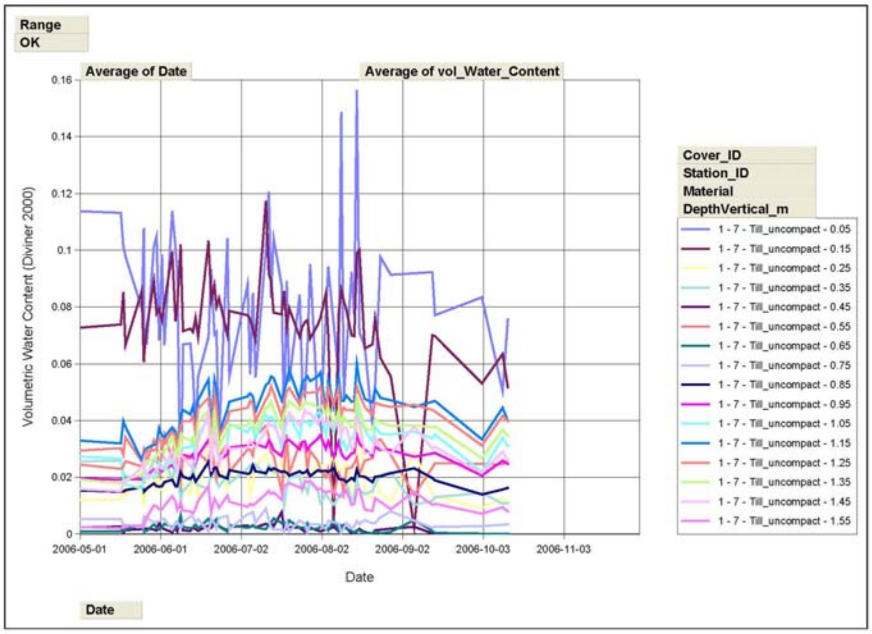

Figure 62: Daily volumetric moisture content in CT#1 (Station #7) measured manually by a Sentek Diviner 2000.

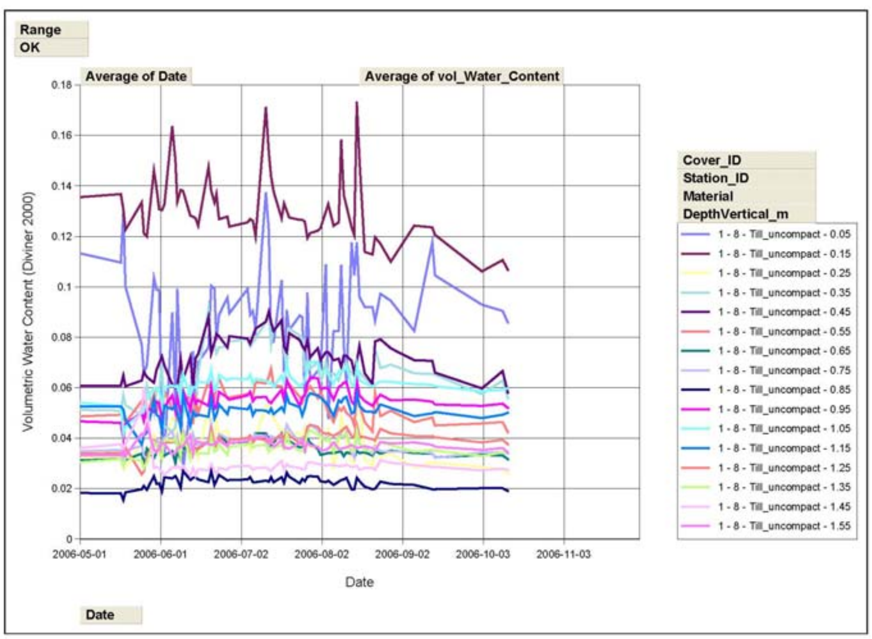

Figure 63: Daily volumetric moisture content in CT#1 (Station #8) measured manually by a Sentek Diviner 2000.

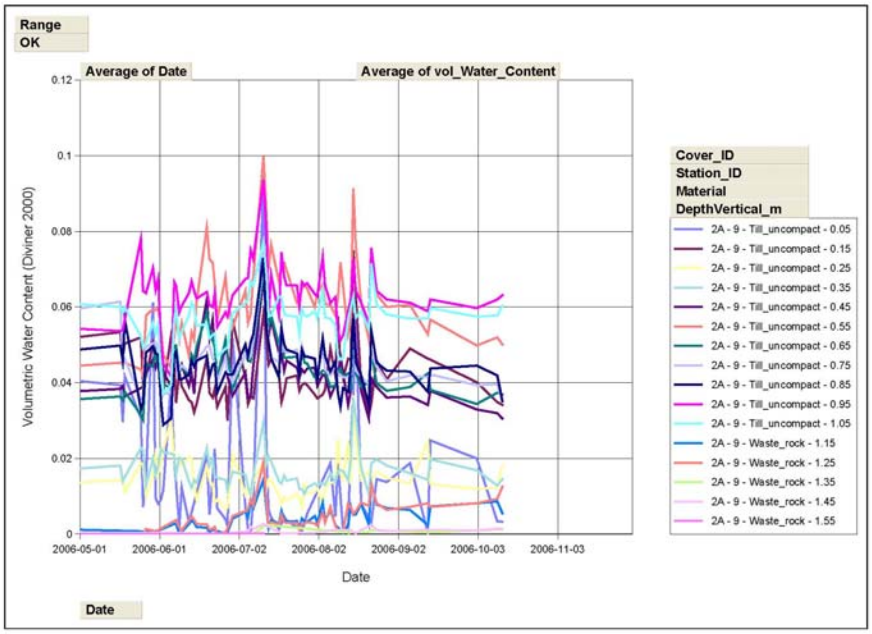

Figure 64: Daily volumetric moisture content in CT#2A (Station #9) measured manually by a Sentek Diviner 2000.

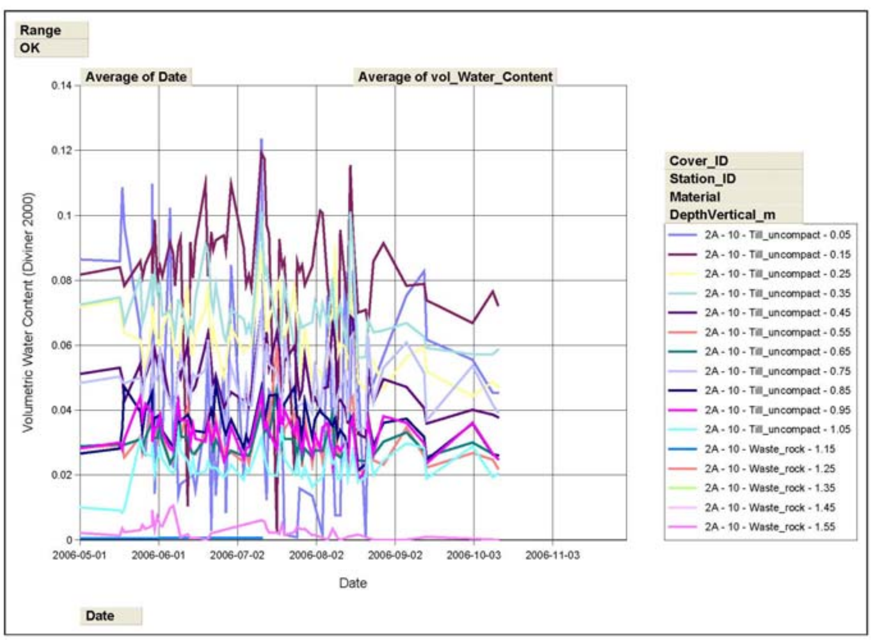

Figure 65: Daily volumetric moisture content in CT#2A (Station #10) measured manually by a Sentek Diviner 2000.

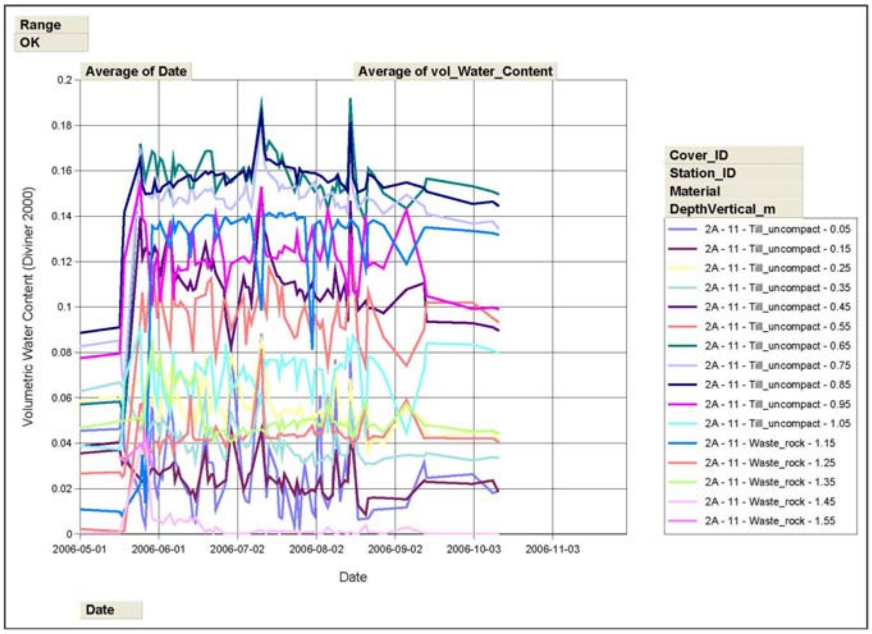

Figure 66: Daily volumetric moisture content in CT#2A (Station #11) measured manually by a Sentek Diviner 2000.

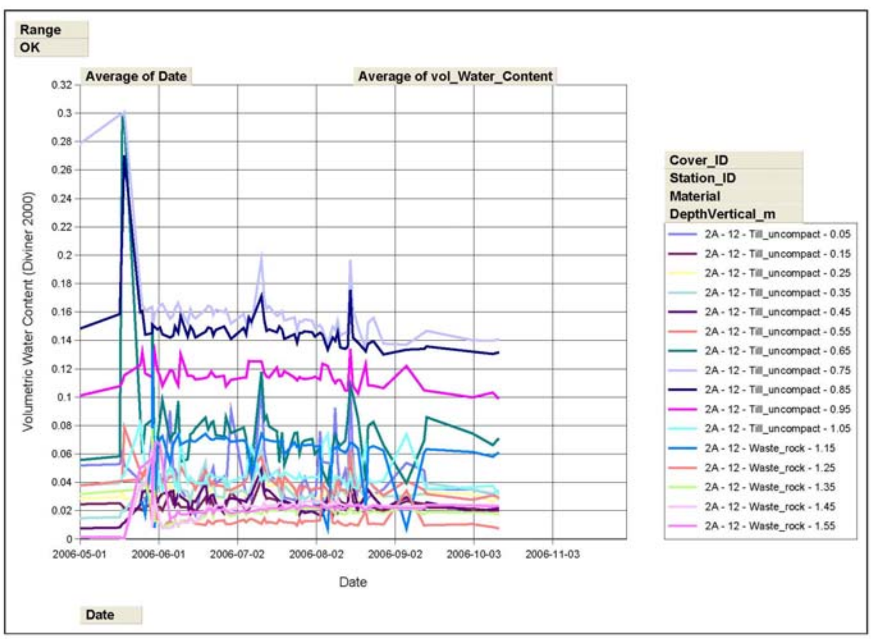

Figure 67: Daily volumetric moisture content in CT#2A (Station #12) measured manually by a Sentek Diviner 2000.

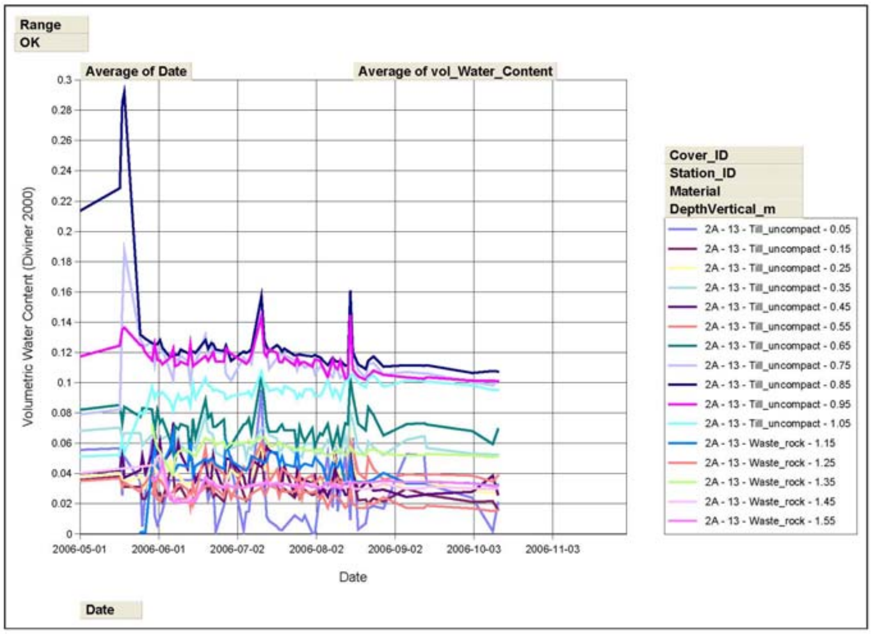

Figure 68: Daily volumetric moisture content in CT#2A (Station #13) measured manually by a Sentek Diviner 2000.

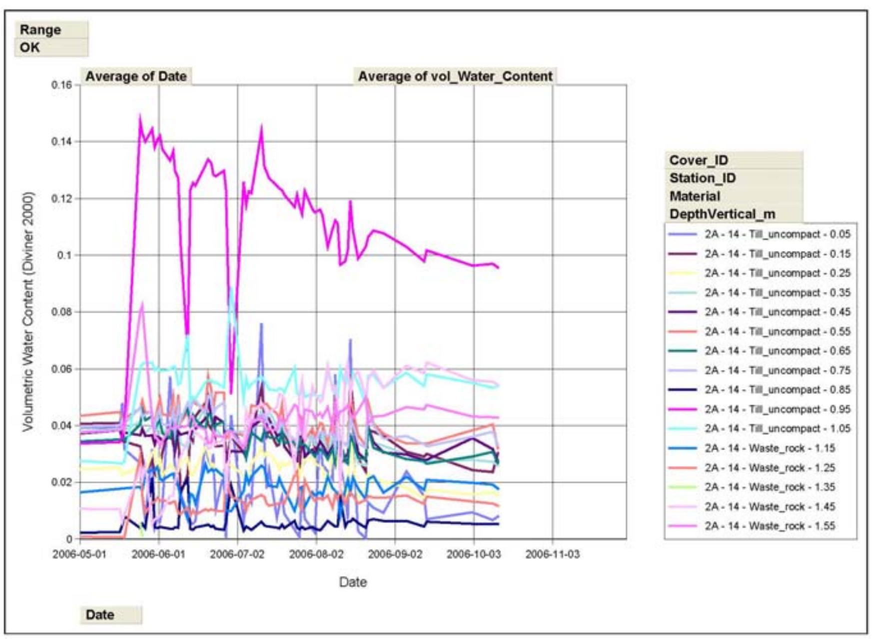

Figure 69: Daily volumetric moisture content in CT#2A (Station #14) measured manually by a Sentek Diviner 2000.

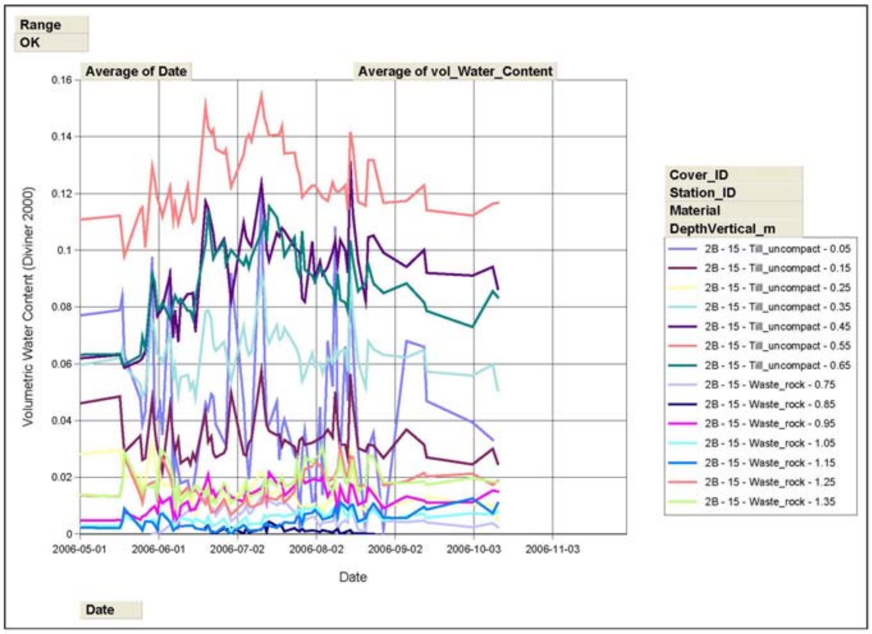

Figure 70: Daily volumetric moisture content in CT#2B (Station #15) measured manually by a Sentek Diviner 2000.

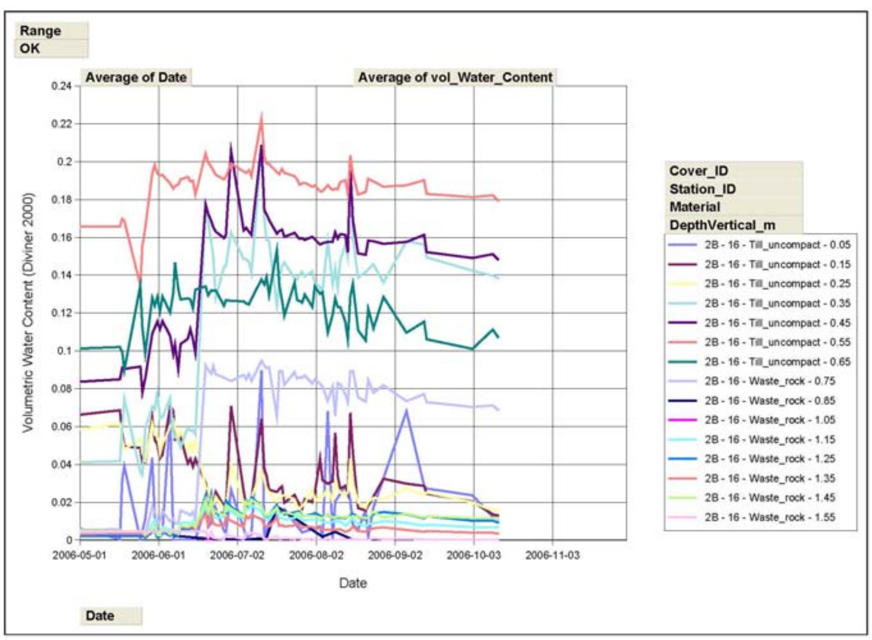

Figure 71: Daily volumetric moisture content in CT#2B (Station #16) measured manually by a Sentek Diviner 2000.

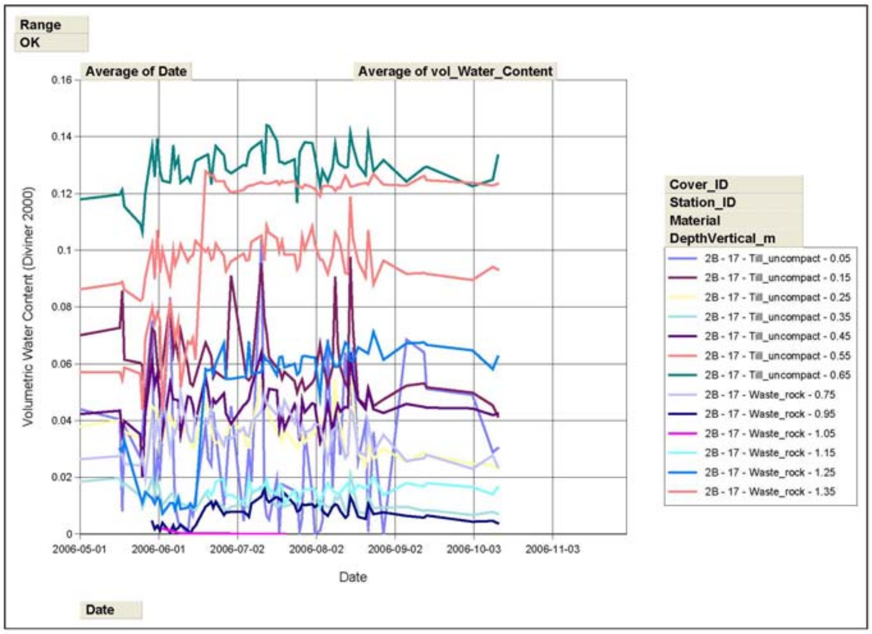

Figure 72: Daily volumetric moisture content in CT#2B (Station #17) measured manually by a Sentek Diviner 2000.

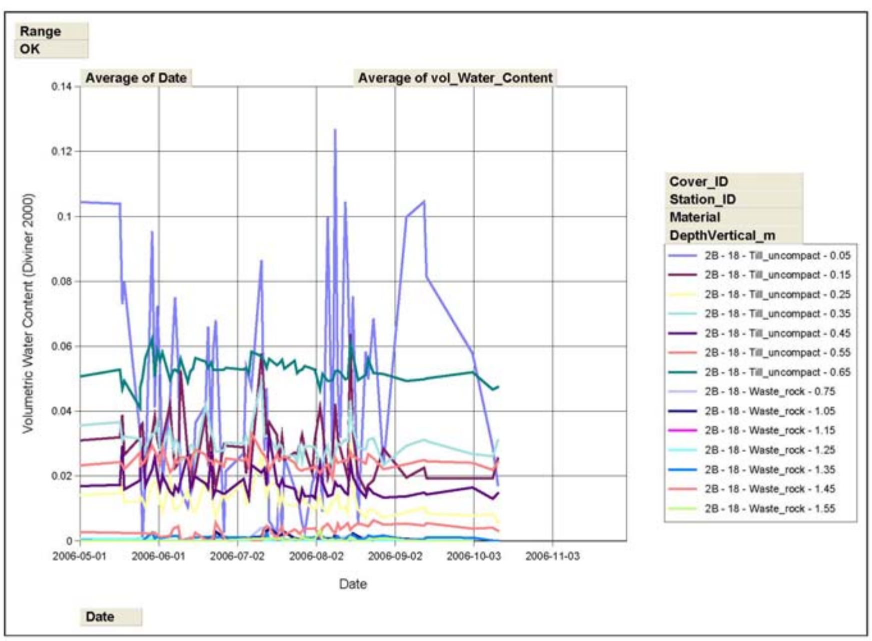

Figure 73: Daily volumetric moisture content in CT#2B (Station #18) measured manually by a Sentek Diviner 2000.

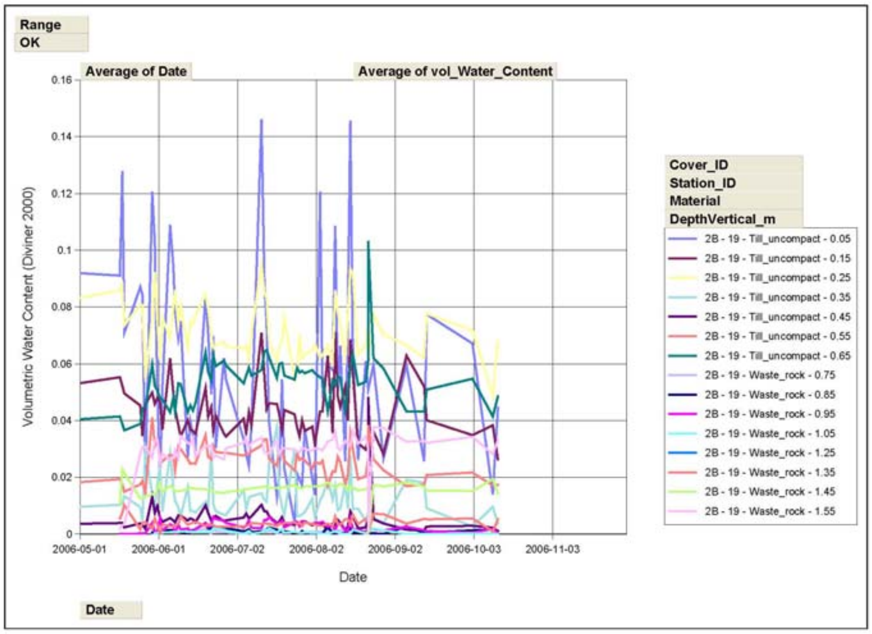

Figure 74: Daily volumetric moisture content in CT#2B (Station #19) measured manually by a Sentek Diviner 2000.

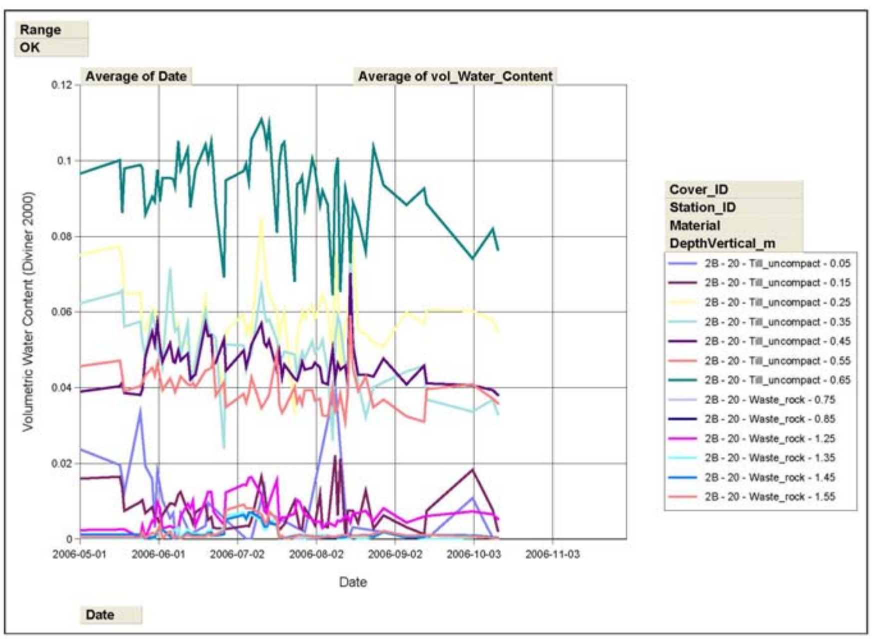

Figure 75: Daily volumetric moisture content in CT#2B (Station #20) measured manually by a Sentek Diviner 2000.

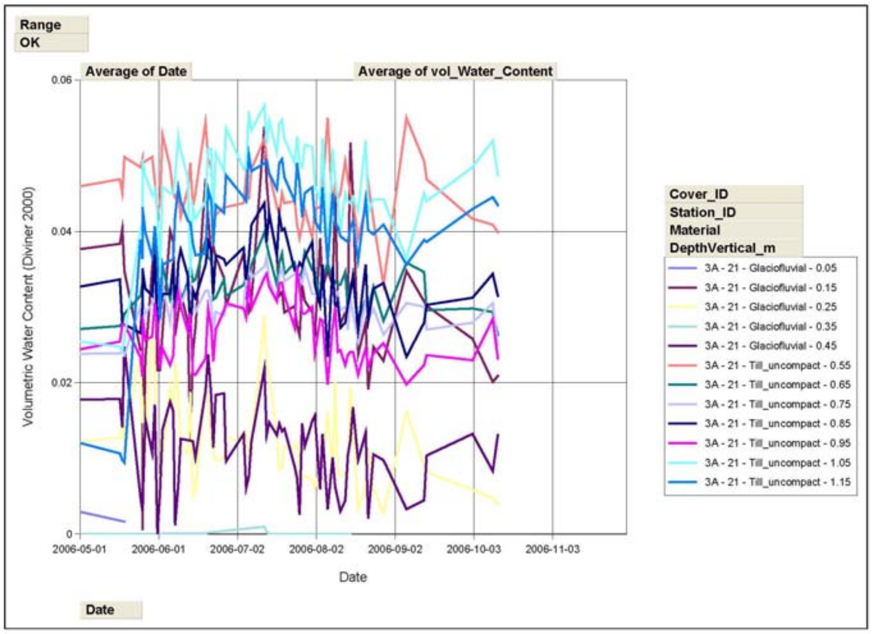

Figure 76: Daily volumetric moisture content in CT#3A (Station #21) measured manually by a Sentek Diviner 2000.

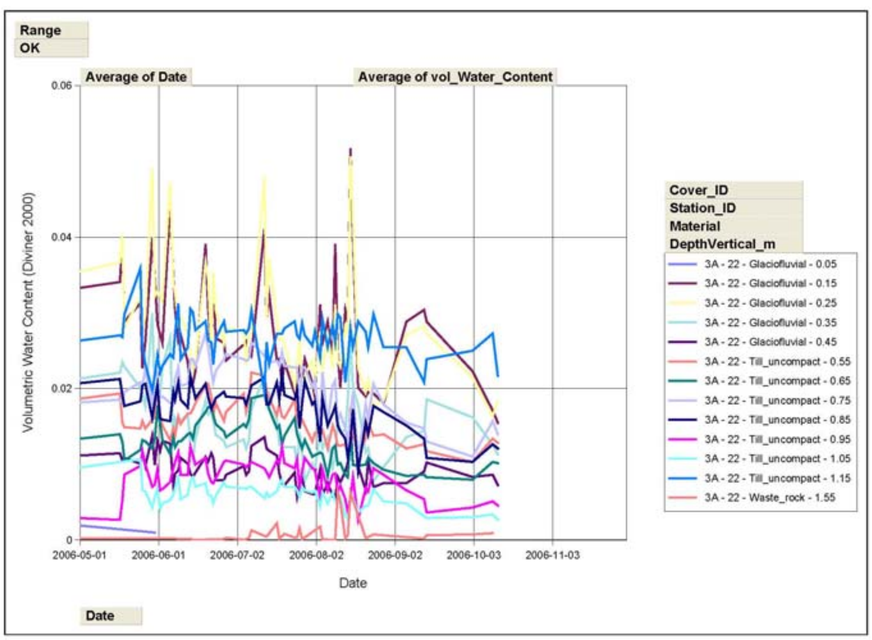

Figure 77: Daily volumetric moisture content in CT#3A (Station #22) measured manually by a Sentek Diviner 2000.

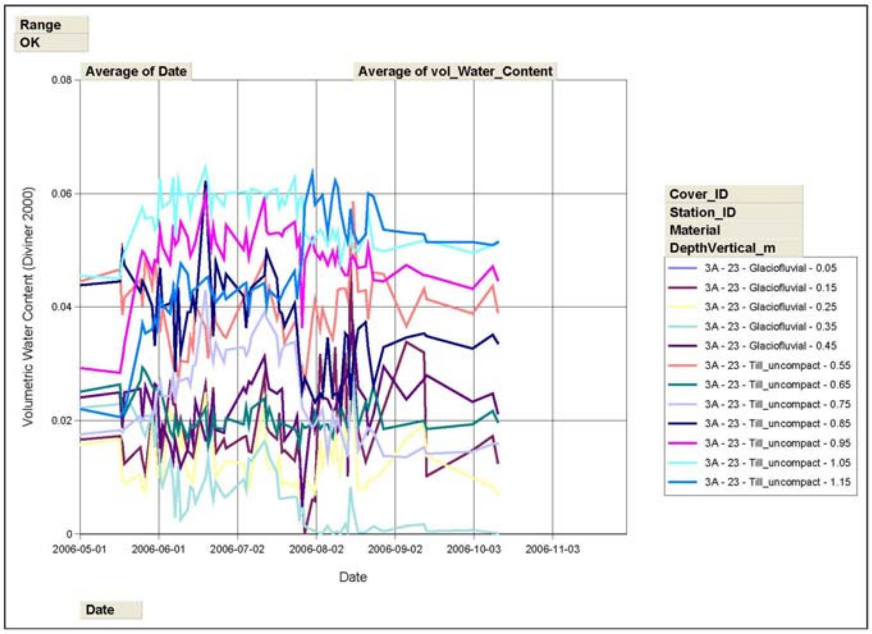

Figure 78: Daily volumetric moisture content in CT#3A (Station #23) measured manually by a Sentek Diviner 2000.

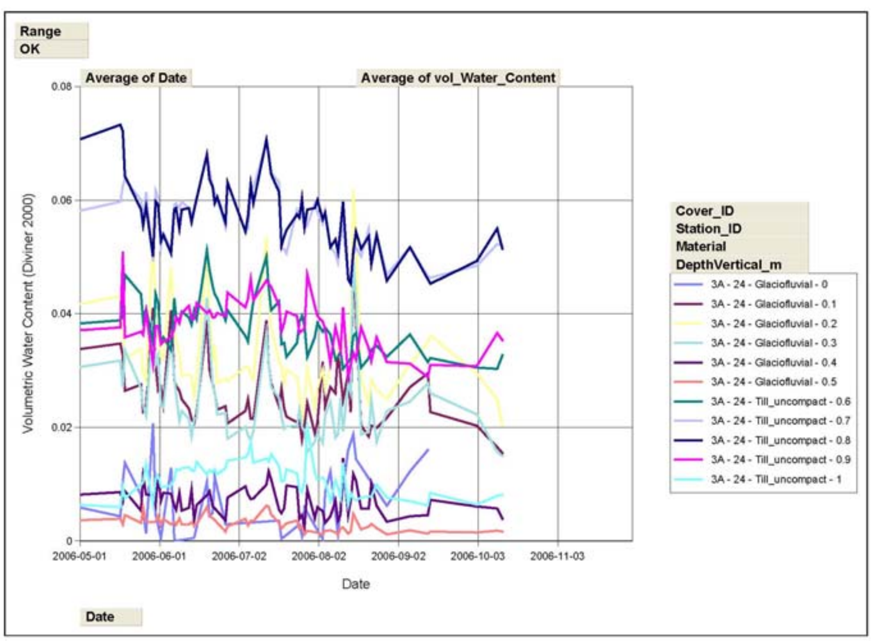

Figure 79: Daily volumetric moisture content in CT#3A (Station #24) measured manually by a Sentek Diviner 2000.

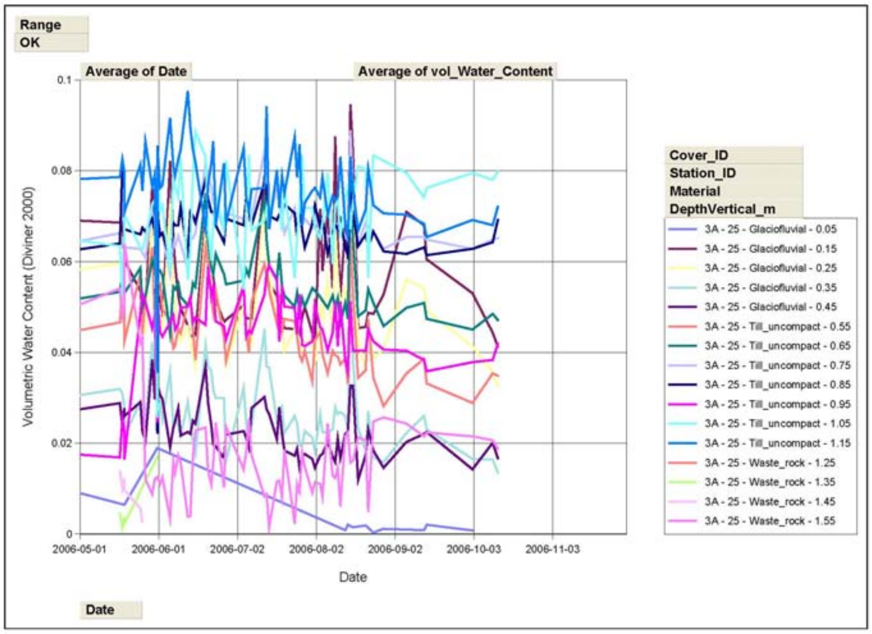

Figure 80: Daily volumetric moisture content in CT#3A (Station #25) measured manually by a Sentek Diviner 2000.

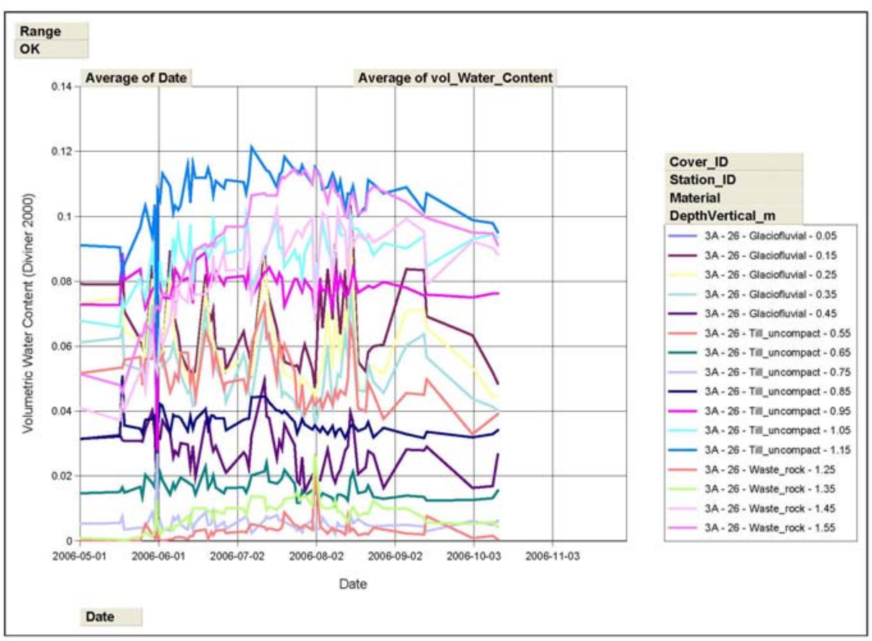

Figure 81: Daily volumetric moisture content in CT#3A (Station #26) measured manually by a Sentek Diviner 2000.

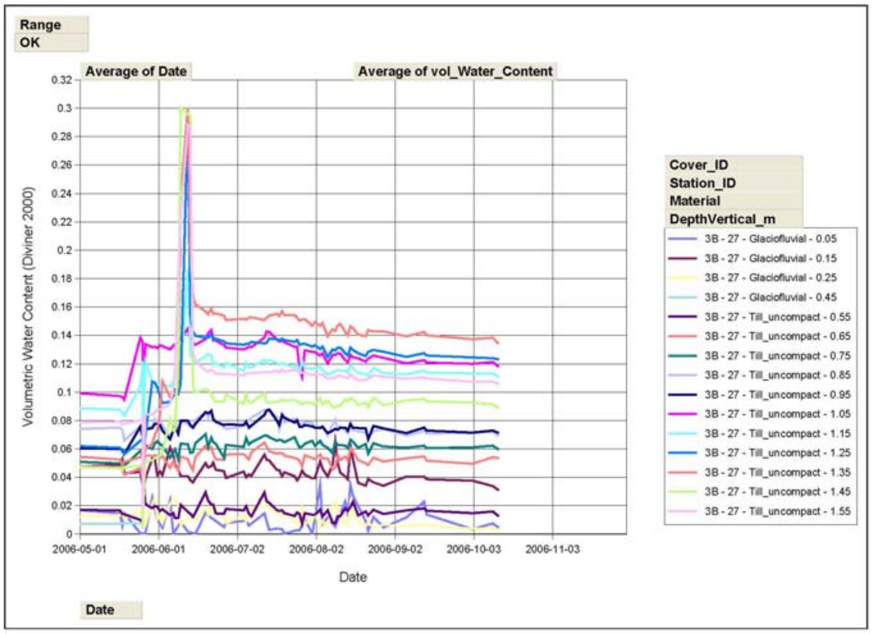

Figure 82: Daily volumetric moisture content in CT#3B (Station #27) measured manually by a Sentek Diviner 2000.

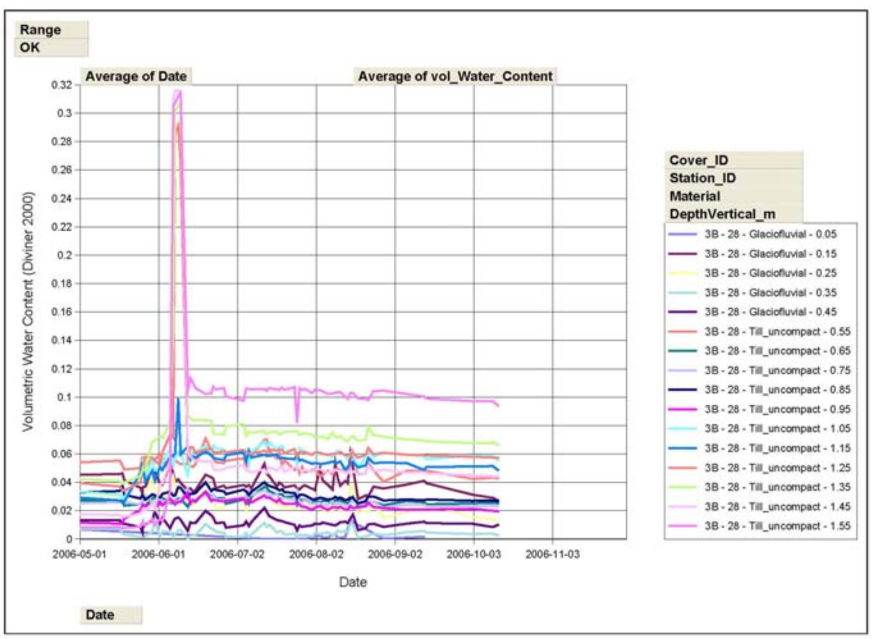

Figure 83: Daily volumetric moisture content in CT#3B (Station #28) measured manually by a Sentek Diviner 2000.

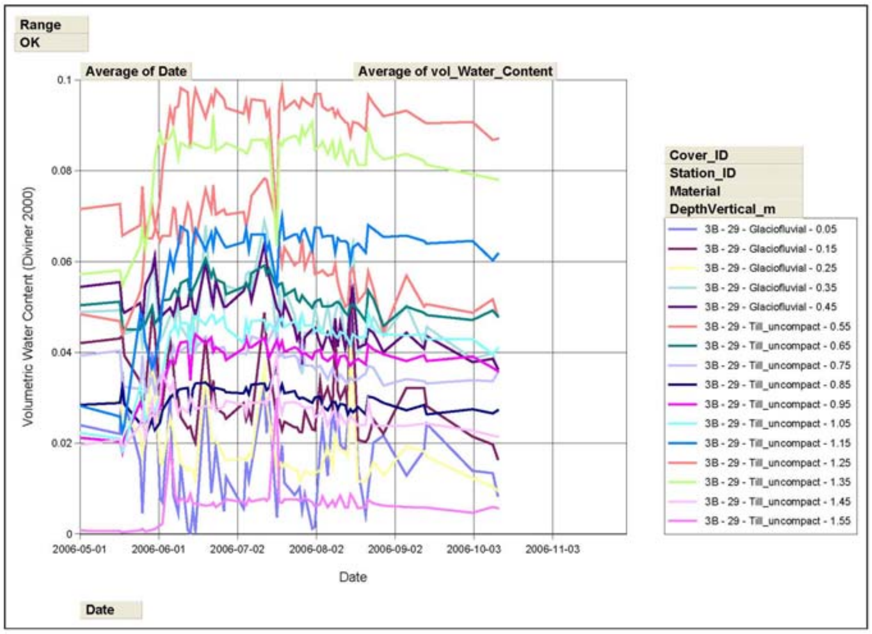

Figure 84: Daily volumetric moisture content in CT#3B (Station #29) measured manually by a Sentek Diviner 2000.

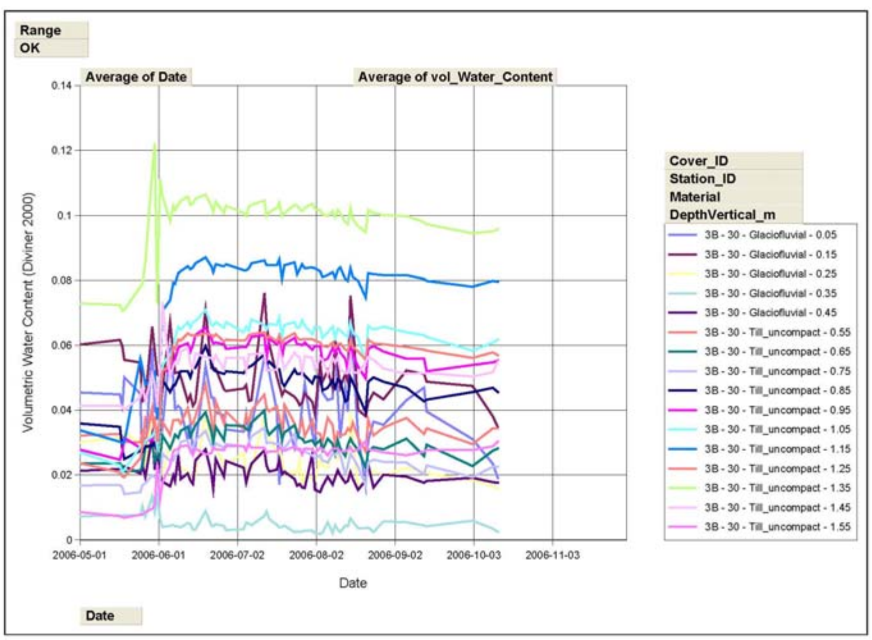

Figure 85: Daily volumetric moisture content in CT#3B (Station #30) measured manually by a Sentek Diviner 2000.

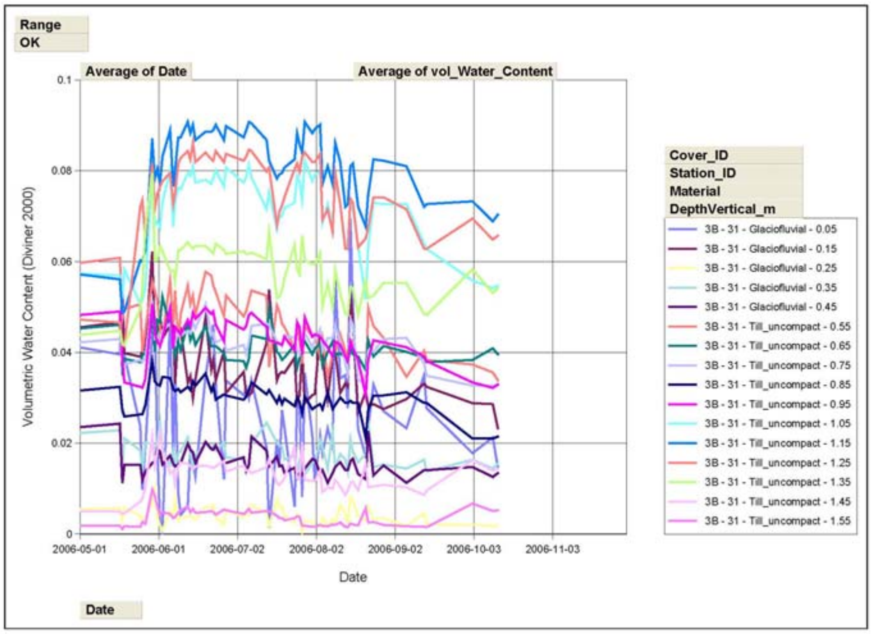

Figure 86: Daily volumetric moisture content in CT#3B (Station #31) measured manually by a Sentek Diviner 2000.

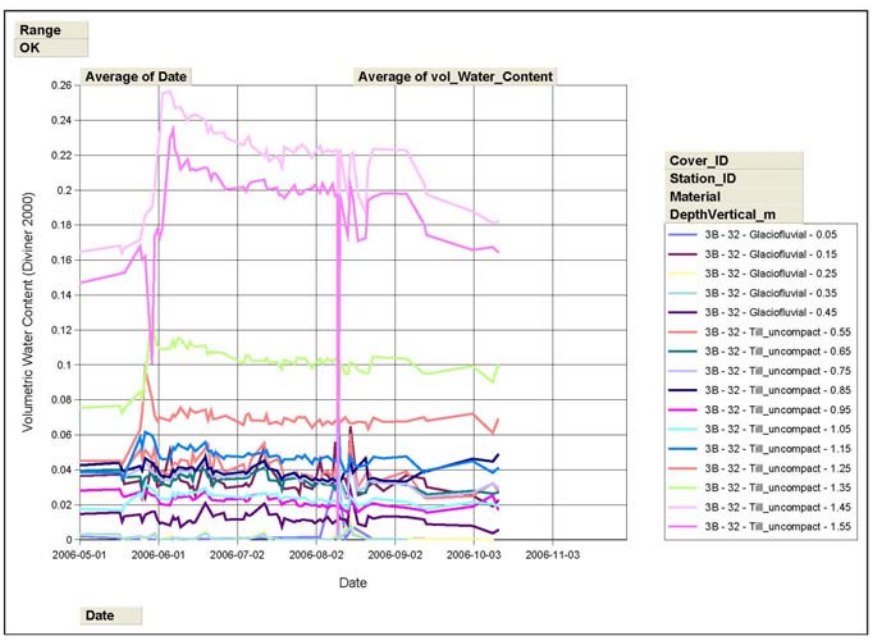

Figure 87: Daily volumetric moisture content in CT#3B (Station #32) measured manually by a Sentek Diviner 2000.

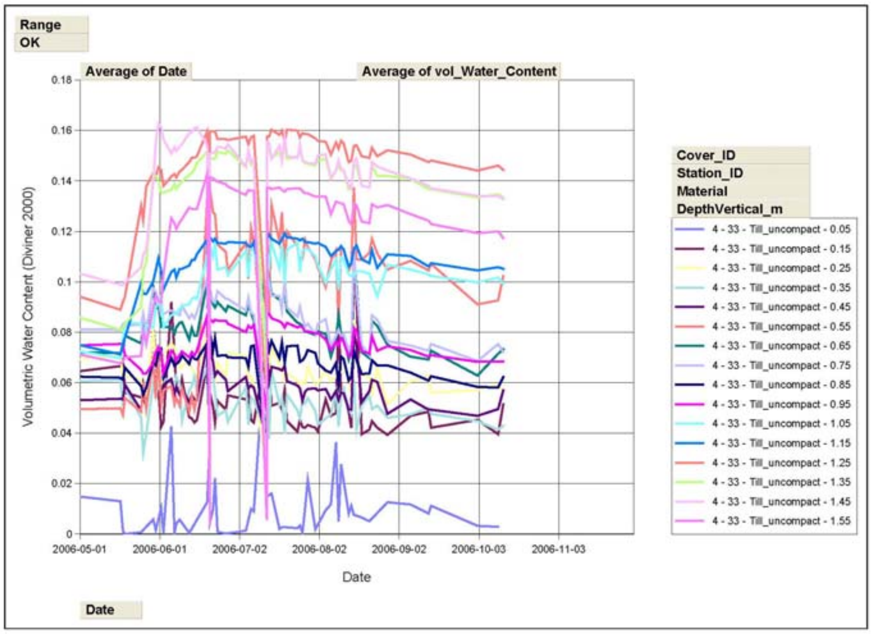

Figure 88: Daily volumetric moisture content in CT#4 (Station #33) measured manually by a Sentek Diviner 2000.

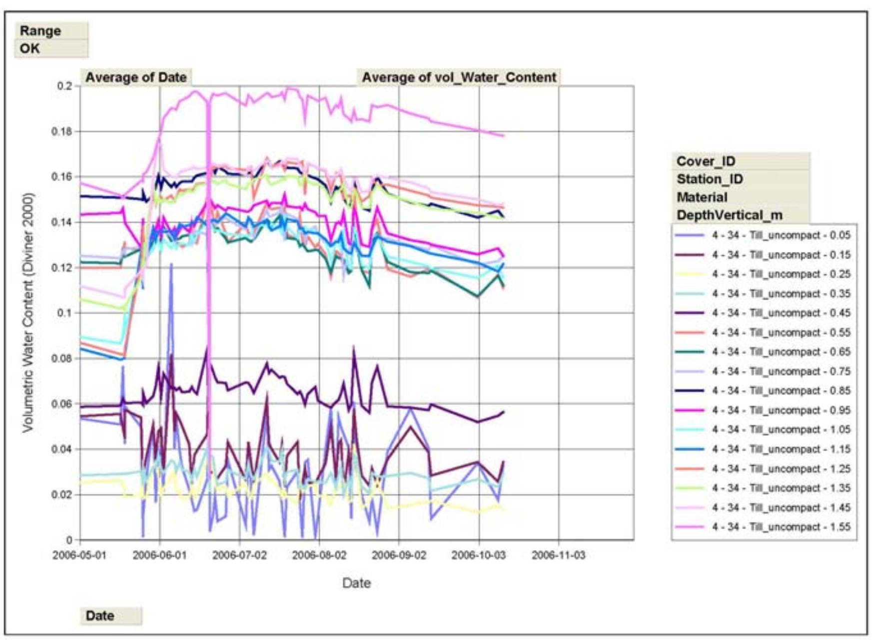

Figure 89: Daily volumetric moisture content in CT#4 (Station #34) measured manually by a Sentek Diviner 2000.

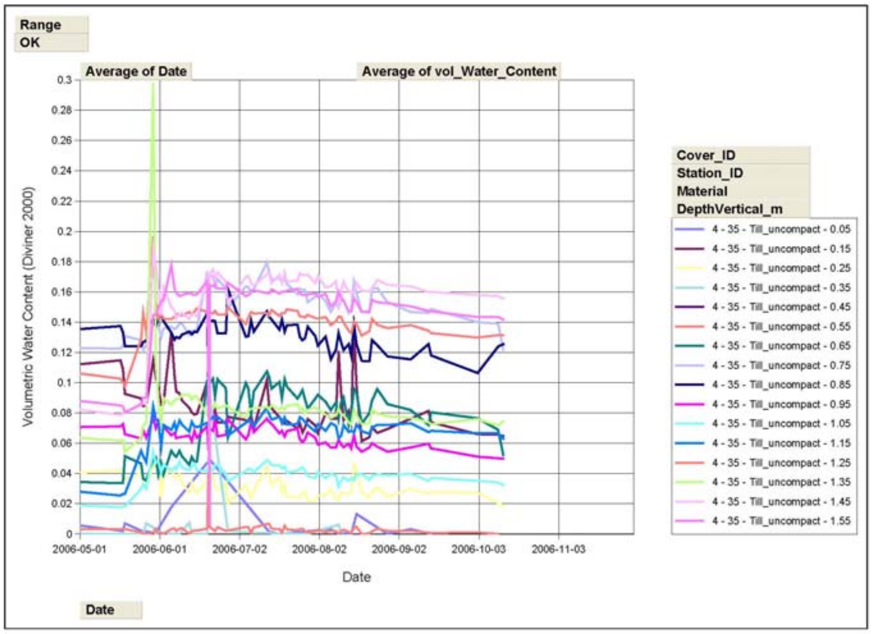

Figure 90: Daily volumetric moisture content in CT#4 (Station #35) measured manually by a Sentek Diviner 2000.

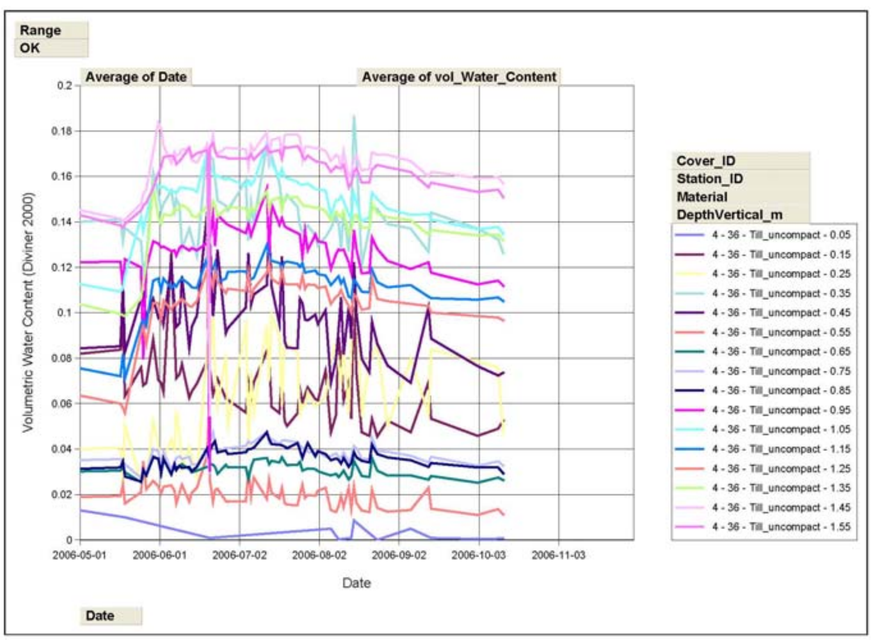

Figure 91: Daily volumetric moisture content in CT#4 (Station #36) measured manually by a Sentek Diviner 2000.

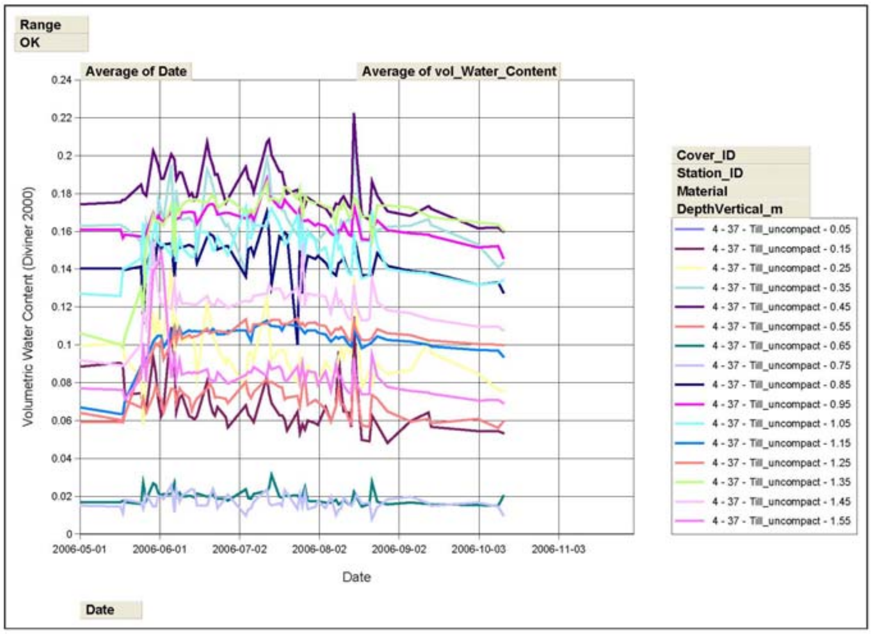

Figure 92: Daily volumetric moisture content in CT#4 (Station #37) measured manually by a Sentek Diviner 2000.

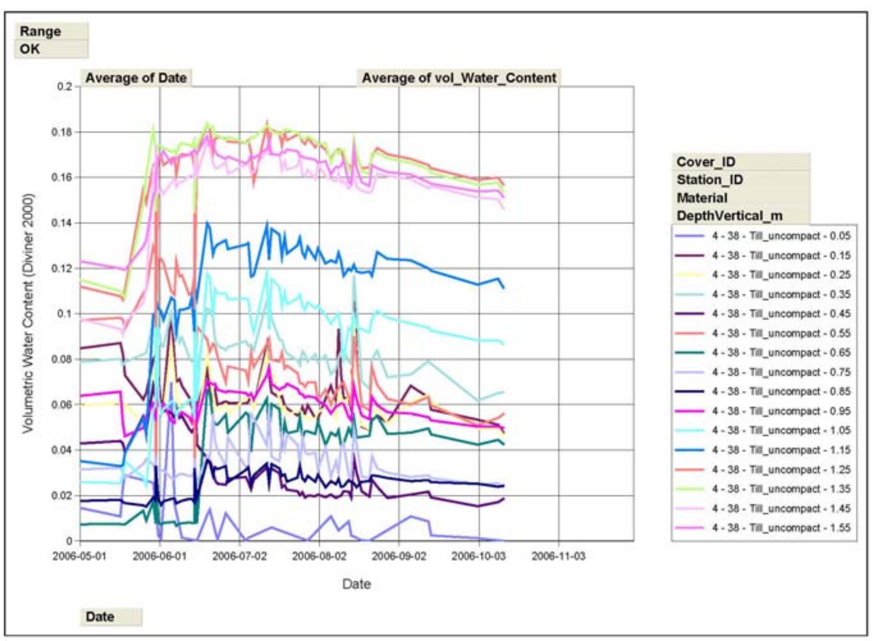

Figure 93: Daily volumetric moisture content in CT#4 (Station #38) measured manually by a Sentek Diviner 2000.

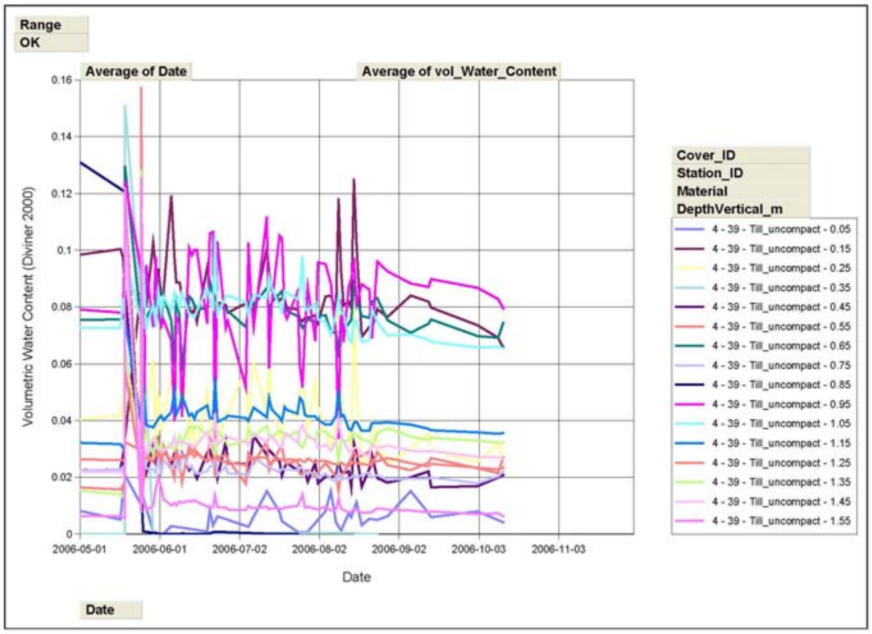

Figure 94: Daily volumetric moisture content in CT#4 (Station #39) measured manually by a Sentek Diviner 2000.

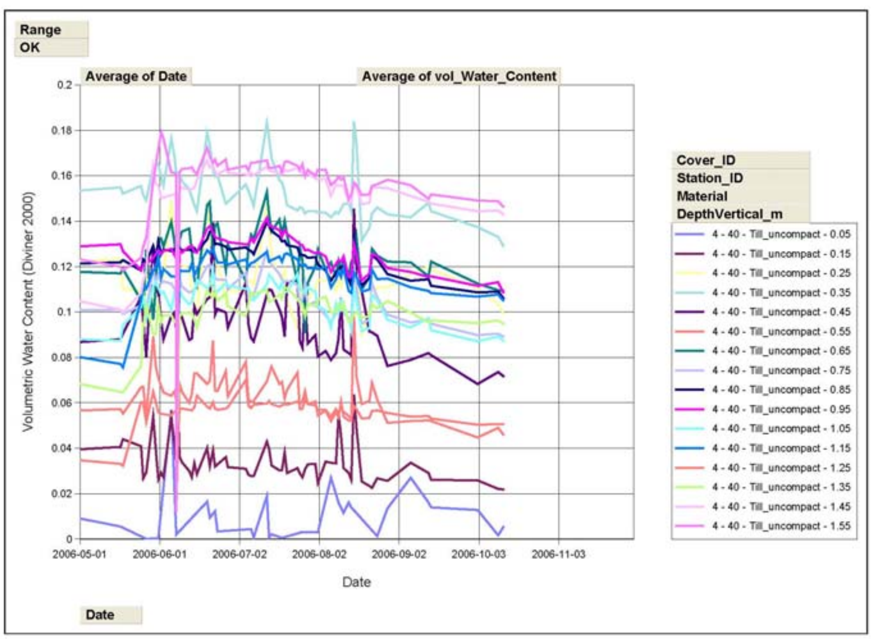

Figure 95: Daily volumetric moisture content in CT#4 (Station #40) measured manually by a Sentek Diviner 2000.

Appendix A
Notice of Monitoring Requirements for 2006 Season to ARMC Site Staff

SRK Consulting (Canada) Inc.
Suite 800 – 1066 West Hastings Street
Vancouver, B.C. V6E 3X2
Canada

vancouver@srk.com
www.srk.com

Tel: 604.681.4196
Fax: 604.687.5532

Technical Memorandum

To:	Dana Haggar	**Date:**	May 18, 2006
cc:	Cam Scott	**From:**	Maritz Rykaart
Subject:	Summer 2006 Monitoring Requirements for Waste Rock and Tailings Test Covers	**Project #:**	1CD003.051

The instrumentation for the Vangorda waste rock trial covers was reinstalled and initiated between May 15 and May 18, 2006. The regular on-site monitoring should therefore commence immediately, and continue until freeze-up (likely September or October). It is our understanding that the monitoring will be carried out by the Anvil laboratory staff, supported by two summer students.

Maritz Rykaart has trained the two summer student on what the requirements for monitoring are.

This Technical Memorandum provides more detail on the monitoring frequency that we require for these cover trials, as well as for the two Rose creek tailings test pads that was constructed in April 2004.

Table 1 below list the details of the required monitoring. This level of monitoring has been based on the assumed availability the summer students. In the event that these students cannot be committed to this schedule, we would provide you with a less rigorous monitoring plan, to best suit your staff availability.

Table 1: Monitoring requirements for the Period May through October 2006

Task	Details	Required Frequency	Estimated Time Commitment
Downloading of data loggers & diagnostics test	2 x Campbell Scientific CR10X 2 x Davis Instruments 1 x Lakefield Instruments (on Grum Overburden Dump) 9 x Seametrics 1 x Diviner 2000	Bi-Weekly	3 hours
Manual moisture content readings	40 Access tubes using Diviner probe	Daily (whenever possible)	2 hours
Manual flow observations	6 x Flow discharge pipes at Instrumentation hut	Daily (whenever possible)	Included in time for manual moisture content readings
Manual thermistor readings	4 x Thermistor stings (on Grum Overburden Dump)	Bi-Weekly	Included in time for downloading data loggers
Tailings test pad survey	Complete survey of pins, rocks and tubes.	Bi-Weekly	5 hours

We have included an estimated time commitment for each of the tasks, in case it may assist in your planning requirements. These time commitments assume two people working together, departing from the guardhouse, completing the field task, returning to the guard house and preparing and sending the data to SRK.

All data collected must please be forwarded electronically to SRK on a Bi-Weekly basis, accompanied by the attached completed Information data sheet. If the data is too much to e-mail, please let us know so we can set up a dedicated site on our Portal onto which the data can be uploaded.

Appendix B
Additional Climatic Data Calculated and Stored by Davis Instruments Vantage Pro Data Logger

Parameter	Description	Verification
Dew Point	Dew-point is the temperature to which air must be cooled for saturation (100% relative humidity) to occur, providing there is no change in water content. The dew-point is an important measurement used to predict the formation of dew, frost, and fog. Dew-point is also a good indicator of the air's actual water vapour content, unlike relative humidity, which takes the air's temperature into account. High dew-point indicates high vapour content; low dew-point indicates low vapour content. In addition a high dew-point indicates a better chance of rain and severe thunder storms.	Checked
Wind Run	Wind run is measurement of the "amount" of wind passing the station during a given period of time, expressed in either "miles of wind" or "kilometres of wind". WeatherLink calculates wind run by multiplying the average wind speed for each archive record by the archive interval.	Checked
Wind Chill	Wind chill takes into account how the speed of the wind affects our perception of air temperature. Your body warms the surrounding air molecules by transferring heat from your skin. If there's no air movement, this insulating layer of warm air molecules stays next to your body and offers some protection from cooler air molecules. Wind disperses this layer of warm air, causing the air temperature to "feel" colder. The faster the wind blows, the quicker the layer of warm air is dispersed, and the colder you feel. Above 76.7ºF (24.8ºC), wind movement has no effect on the apparent temperature. WeatherLink versions 5.1 and later use the Osczevski (1995) equation to calculate wind chill. This is the method adopted by the US National Weather Service in September of 2001.	Checked
Heat Index	The Heat Index uses the temperature and the relative humidity to determine how hot the air actually "feels." When humidity is low, the apparent temperature will be lower than the air temperature, since perspiration evaporates rapidly to cool the body. However, when humidity is high (*i.e.*, the air is saturated with water vapour) the apparent temperature "feels" higher than the actual air temperature, because perspiration evaporates more slowly. WeatherLink uses the Steadman (1979 & 1998) formula to calculate Heat Index, which is more accurate than the method used by the Vantage Pro console and is calculated for all temperatures.	Checked
THW Index	The THW Index uses humidity, temperature and wind to calculate an apparent temperature that incorporates the cooling effects of wind on our perception of temperature.	Checked
THSW Index	The THSW Index uses humidity, temperature, the cooling effects of wind and the heating effects of direct solar radiation to calculate an apparent temperature.	Checked
Solar Energy	The amount of accumulated solar radiation energy over a period of time is measured in Langleys.	Checked
UV Dose	Measured in MED which stands for Minimum Erythemal Dose, defined as the amount of sunlight exposure necessary to induce a barely perceptible redness of the skin within 24 hours after sun exposure. In other words, exposure to 1 MED will result in a reddening of the skin. Because different skin types burn at different rates, 1 MED for persons with very dark skin is different from 1 MED for persons with very light skin.	Checked
Heating DD	One heating degree–day is the amount of heat required to keep a structure at 65ºF when the outside temperature remains one degree below the 65ºF threshold for 24 hours. One heating degree–day is also the amount of heat required to keep that structure at 65ºF when the temperature remains 24ºF below that 65º threshold for 1 hour.	Checked
Cooling DD	One cooling degree–day is the amount of cooling required to keep a structure at 65ºF when the outside temperature remains one degree above the 65ºF threshold for 24 hours. One cooling degree–day is also the amount of cooling required to keep that structure at 65ºF when the temperature remains 24ºF above that 65º threshold for 1 hour.	Checked
Inside Temp	The temperature measured inside the console	Checked
Inside Humidity	The relative humidity measured inside the console	Checked
ET	Evapotranspiration is the measure of the quantity of moisture transpiring from the leaves of a crop and evaporating from the ground. ET values are calculated from measured data on wind run, air temperature, relative humidity, and solar radiation. The ET value is calculated once each hour using the data averaged over the prior hour	Checked
ISS Reception	The ISS Reception rate shows the percentage of wind data packets that have been successfully received by the Vantage Pro console	Checked

Appendix C
Summary Table of Test Cover Flow Monitoring Observations

2006 Vangorda Cover Testpads (CT) Flows

Date	Technician	CT 1	CT 2a	CT 2b	CT 3a	CT 3b	CT 4	Comments
May 23, 2006	A Anthony / N Grewal	Y	Y	Y	N	Y	Y	
May 24, 2006	A Anthony / N Grewal	Y	Y	Y	N	Y	Y	
May 25, 2006	A Anthony / N Grewal	Y	Y	Y	N	Y	Y	
May 26, 2006	A Anthony / N Grewal	Y	Y	Y	N	Y	Y	
May 31, 2006	A Anthony / N Grewal	Y	Y	Y	N	Y	N	
June 2, 2006	A Anthony / N Grewal	Y	Y	Y	N	Y	N	
June 12, 2006	A Anthony / N Grewal	N	N	N	N	Y	N	
June 14, 2006	A Anthony / N Grewal	N	N	N	N	Y	N	
June 15, 2004	A Anthony / N Grewal	N	N	N	N	Y	N	
June 19, 2006	A Anthony / N Grewal	Y	N	Y	Y	Y	Y	
June 26, 2006	A Anthony / N Grewal	N	N	N	N	N	N	
July 4, 2006	A Anthony / N Grewal	N	Y	Y	Y	Y	N	
July 6, 2006	A Anthony / N Grewal	N	N	N	N	Y	N	
July 11, 2006	A Anthony / N Grewal	Y	N	N	N	Y	N	
July 13, 2006	A Anthony / N Grewal	N	N	Y	N	Y	N	
July 17, 2006	A Anthony / N Grewal	N	N	N	N	N	N	
July 18, 2006	A Anthony / N Grewal	N	N	N	N	N	N	
July 24, 2006	A Anthony / N Grewal	N	N	N	N	N	N	
July 26, 2006	A Anthony / N Grewal	N	N	N	N	N	N	
July 31, 2006	A Anthony / N Grewal	N	N	N	N	N	N	
August 2, 2006	A Anthony / N Grewal	N	N	N	N	N	N	
August 9, 2006	A Anthony / N Grewal	Y	N	Y	N	N	Y	
August 15, 2006	A Anthony / N Grewal	Y	Y	Y	Y	Y	Y	
August 16, 2006	A Anthony / N Grewal	Y	N	N	N	Y	Y	
August 22, 2006	A Anthony / N Grewal	N	N	N	N	N	N	
August 23, 2006	A Anthony / N Grewal	N	N	N	N	N	N	
August 24, 2006	J Minder / R Meers	N	N	N	N	N	N	
August 28, 2006	J Minder / R Meers	N	N	N	N	N	N	
August 31, 2006	R Meers	Y	Y	Y	Y	Y	Y	
September 4, 2006	R Meers	Y	Y	Y	Y	Y	Y	
September 8, 2006	R Meers / C McKinnon	Y	N	Y	Y	Y	Y	CT 2a - water in pipe / no drips
September 13, 2006	R Meers / C McKinnon	Y	Y	Y	Y	Y	Y	
September 14, 2006	R Meers / C McKinnon	Y	N	N	N	Y	N	
September 18, 2006	R Meers / C McKinnon	N	N	N	N	N	N	
September 21, 2006	R Meers / C McKinnon	N	N	N	N	N	N	Missed some reads due to rain
October 2, 2006	R Haggar / R Meers	N	N	N	N	N	N	
October 10, 2006	C Mckinnon / R Meers	N	N	N	N	N	N	
October 12, 2006	C Mckinnon / R Meers	N	N	N	N	N	N	Winter - no further reads