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Report on 2011 Field Activities and Collection of Ground Thermal and Active Layer Data in the Mackenzie Corridor Completed Under Northwest Territories Science Licence #14918

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ABSTRACT

This report presents a summary of field activities conducted in 2011 in the Mackenzie Corridor under N.W.T. Science Licence #14918. Air temperature, ground thermal and active layer data acquired from permafrost monitoring sites visited in 2011 throughout the corridor are provided in graphical and tabular format. This report will be distributed to community organizations and stakeholders in the study region to provide an update on field activities. The ground thermal and active layer data presented provide essential baseline information that can be utilized by stakeholders and others for various purposes such as land management activities, regulatory processes and design of northern infrastructure.

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1. INTRODUCTION

The Geological Survey of Canada has maintained a permafrost and active layer monitoring network in the Mackenzie Valley and Delta since the 1980s. This network provides information on permafrost thermal conditions and active layer thickness that is essential for land use planning decisions, engineering design of infrastructure, and for understanding the impacts of climate change on permafrost environments. The information collected from these monitoring sites are utilized to improve the characterization of regional baseline ground thermal conditions and to support development decisions in the Mackenzie corridor.

The purpose of this report is to provide a summary of the 2011 field activities conducted under N.W.T. Science Licence #14918 in order to inform the various community organizations, regulatory boards and other stakeholders in the region of our activities. This report provides a summary of the ground temperature and active layer data collected during August and September 2011. Although the primary objective of this report is to update stakeholders in the region on our activities and to make the data collected available to them, this information is also of interest to those requiring regional permafrost and active layer information such as industry, engineers and the academic and modeling communities.

2. STUDY SITES AND INSTRUMENTATION

Ground thermal monitoring sites along the Mackenzie corridor in the Gwich'in, Sahtu, Deh Cho, and Inuvialuit Settlement Regions were visited in August and September 2011. The location and brief description of each site visited in 2011 is provided in Figures 1, 2 and 3 and in Tables 1 and 2. Ground temperatures are measured with multi-sensor temperature cables installed in boreholes up to 20 m in depth. Temperatures are recorded by data loggers connected to the cables. The measurement system allows for an accuracy of ±0.1°C and a resolution of ±0.01°C. Data were automatically collected at eight hour intervals to provide a continuous record of ground temperature throughout the year. Further details on the site establishment, site characteristics and instrumentation can be found in Smith et al. (2007, 2008, 2009a and 2010a,b). Although an attempt was made to visit all the sites in August or September 2011, some sites were not visited due to accessibility, weather or other issues. Sites that were not visited in 2011 are included in the Tables 1 and 2 and Figures 1, 2 and 3 but not in the figures presented in appendix A.

The Geological Survey of Canada (GSC) also maintains about 40 active layer monitoring sites throughout the Mackenzie corridor many of which have been in operation since the early 1990s. Thaw tubes have been installed at these sites to determine the maximum thaw penetration and the ground surface position during the period of maximum thaw in the year prior to the site visit. Data obtained during 2011 site visits therefore allow the determination of the active layer thickness for 2010. Table 3 provides a list of sites from which data were obtained in August 2011. Further details on thaw tube establishment, instrumentation and site characteristics can be found in Nixon and Taylor (1994), Nixon et al. (1995) and Smith et al. (2009b).

Air and ground surface temperature data are collected at a number of ground thermal and active layer monitoring sites. Air temperatures are recorded using single channel data loggers

connected to a temperature sensor inserted into radiation shields 1.5 m above the ground surface. Further details on air and ground temperature instrumentation can be found in Taylor (2000). Ground surface temperatures are recorded using similar data loggers but with an internal temperature sensor. The data loggers are inserted about 5 cm below the ground surface. The data loggers have a resolution of 0.5ºC at -20ºC and an accuracy ranging from 0.5ºC at -20ºC to 0.2ºC at 0ºC. The data loggers record air and ground surface temperature every 3 hours.

3. DATA COLLECTION AND PRESENTATION

GSC permafrost thermal monitoring sites were visited in August and September 2011 to collect ground temperature data from the data loggers, make manual temperature measurements and to service the instrumentation. The temperatures acquired from the data loggers were checked visually and any irregular data were removed from the data record.

The continuous annual data record for each site was analyzed to determine the minimum and maximum temperature at each depth and to define the annual ground temperature envelope for the 2010-2011 period. These data are presented in graphical and tabular format for each site in Appendix A. The maximum thaw depth for each site was calculated by either interpolating between the maximum temperatures reached at the depths that bracket 0°C or by use of a frost probe. Maximum thaw depth is included with each temperature envelope in Appendix A.

At some sites the data logger malfunctioned or was damaged so that a continuous temperature record could not be acquired for the 2010-2011 period. For these sites the 2011 manual temperature measurements are presented in Appendix A. For sites, such as those in the Inuvialuit Settlement region, which do not have data loggers connected to the cables, a ground temperature profile for August 2011 is provided.

Previous data collected from the thermal monitoring sites have also been presented in Smith et al. (2008, 2009a, 2010a, 2010b) and Ednie et al. (2011). In addition, summary ground temperature data are disseminated through the internet at www.gtnp.org.

The 2010 active layer thickness data are presented in Table 3 for all active layer monitoring sites that were visited in August 2011. Data collected prior to 2010 have been published in Smith et al. (2009b, 2010b) and Ednie et al. (2011). For active layer monitoring sites not visited in 2010, the values represent the estimated maximum depth of thaw penetration of the previous two summers.

Air and ground surface temperature records were visually checked and any irregularities were removed from the data record. Monthly averages of air and ground surface temperatures are presented in Appendix A. Tables 1, 2 and 3 identify air and ground surface temperature records associated with or next to a permafrost monitoring site or an active layer monitoring site. In Appendix A, the air and ground surface temperature records associated with a permafrost monitoring sites are presented on the same page.

Mean ground temperatures for 2010-2011 at 5 m and 10 m depth, along a latitudinal transect, are presented in figures 4 and 5, respectively. These two graphs show the range of ground temperatures found along the south-north transect through the corridor for 2010-2011. The variation of air and ground surface temperature with latitude is presented in Figure 6.

4. SUMMARY

This report provided a summary of 2011 field activities in the Mackenzie corridor conducted under N.W.T. Science Licence #14918. A summary of the ground thermal data collected at permafrost thermal monitoring sites in August and September 2011 for the previous one year period has been presented in graphical and tabular format. The 2010 active layer thickness for active layer monitoring sites visited in 2011 was also provided. This report will be distributed to the various community organizations and stakeholders within the region in order to provide them with an update of our activities. The data presented can be utilized for land management activities, regulatory processes and for engineering design. The addition of these data to existing records builds up the ground temperature time-series and also improves the quality of baseline permafrost conditions against which change may be measured.

5. ACKNOWLEDGEMENTS

Support for the 2011 field data collection was provided by Natural Resources Canada and the N.W.T. Cumulative Impact Monitoring Program of Aboriginal Affairs and Northern Development Canada. The enhancement of the monitoring network and previous data collection has benefitted from support from the Northern Energy Development Initiative, the Program for Energy Research and Development, and the Federal International Polar Year Program. Logistical support was provided by the Polar Continental Shelf Program and the Aurora Research Institute. We are also grateful for the continuing support for this project of the various community organizations and stakeholders in the region. Reviewing comments provided by Wendy Slanden are much appreciated. Finally, we would like to thank Jasmine Brewster, Janet Hurst, Willie Modeste, and Kate Snow for their help with fieldwork.

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Table 1. Thermal monitoring sites in the Deh Cho, Sahtu and Gwich'in Settlement Regions

Settlement region	Site name	Bore hole name	Elevation (m a.s.l.)	Latitude (N)	Longitude (W)	Landform	Vegetation Cover	Air/ ground surface temperature	Site visited 2011
Deh cho	Trout Road Crossing	TRC	420	60.83	120.48	Bog-dominated moraine plain	Dry peatland vegetation consisting of black spruce, tamarack, and feathermoss	None	Not visited
Deh cho	Trout River	Trout R	350	61.02	120.59	Organic terrain	Peatland with scattered spruce and sphagnum ground cover	None	Not visited
Deh cho	Jean-Marie Creek	JMC-01	198	61.44	120.95	Transition alluvial flood plain to organic (fen) over lacustrine plain	Poorly drained shrub fen	None	Not visited
		JMC-02	198	61.44	120.95	Transition alluvial flood plain to organic (fen) over lacustrine plain	Sandy ridge with spruce, pine forest	None	Not visited
Deh cho	Liard Spruce	97TC4	180	61.55	121.39	Surface of glaciolacustrine delta, late glacial (>10Ka)	Boreal, wetland shrub and sedge	Ground	21/08/2011
Deh cho	Manners Sources	MS-01 (Fen)	182	61.63	121.11	Eolian interdune	Thermokarst shrub fen	None	Not visited
		MS-02 (Crest)	182	61.63	121.10	Eolian dune crest	Pine forest	None	Not visited
Deh cho	Wrigley Highway (Open black spruce)	99TC3	183	61.66	121.34	Surface of glaciolacustrine delta, post glacial (>10Ka)	Small black spruce thicket with willow shrub, 100% cover of moss with lichen and boreal heath (coniferous)	Air / Ground	21/08/2011
Deh cho	Harris River	HAR-01	146	61.88	121.29	Moraine	Predominantly birch	None	Not visited
Deh cho	Wrigley Highway (Mature black spruce)	97TC2	165	61.92	121.71	Surface of glaciolacustrine delta, post glacial (>10Ka)	Boreal, black spruce (coniferous forest)	Air / Ground	20/08/2011 (Data from Aug 09-10)

Settlement region	Site name	Bore hole name	Elevation (m a.s.l.)	Latitude (N)	Longitude (W)	Landform	Vegetation Cover	Air/ ground surface temperature record	Site visited 2011
Deh cho	Wrigley Highway (Aspen)	97TC1	165	61.95	121.76	Surface of glaciolacustrine delta, post glacial (>10Ka)	Boreal, aspen grove (deciduous forest)	Air / Ground (No data from air or ground)	20/08/2011
Deh cho	Wrigley ferry transition	97TC5	165	61.98	121.88	Surface of glaciolacustrine delta, post glacial (>10Ka)	Boreal, open spruce (coniferous forest)	Air / Ground (No data from air or ground)	20/08/2011
Deh cho	Wrigley Highway (Fort Simpson bog)	99TC1	165	61.98	121.88	Peat plateau on surface of glaciolacustrine delta, post glacial (>10Ka)	Boreal, open black spruce (coniferous forest)	Air / Ground	20/08/2011
		99TC2	165	61.98	121.88	Thermokarst depression in the surface of glaciolacustrine delta, post glacial (>10Ka)	Boreal, sedge and sphagnum in depression surrounded by black spruce on raised peat rim	None	20/08/2011
Deh cho	Trail River	TR-01	181	62.09	121.76	Lacustrine plain and eolian landforms	Black spruce and tamarack forest with sphagnum and feathermoss ground cover	None	Not visited
Deh cho	Wrigley Highway (Liard Spruce)	99TC4	n/a	62.28	122.60	Organic terrain on till plain, post glacial (>10Ka)	Boreal burn, scattered small spruce, pine and aspen, heath ground cover	Air / Ground	22/08/2011
Deh cho	Willow Lake River	WLR-01	122	62.71	123.08	Alluvial fan	Open mixed forest	None	22/08/2011
Deh cho	River Between Two Mountains	RBTM-01	120	62.95	123.21	Transition lacustrine to alluvial to moraine terrain	Dense black spruce forest	None	22/08/2011
Deh cho		RBTM-02	150	62.93	123.18	Transition lacustrine to alluvial to moraine terrain	Dense black spruce forest	None	22/08/2011

Settlement region	Site name	Bore hole name	Elevation (m a.s.l.)	Latitude (N)	Longitude (W)	Landform	Vegetation Cover	Air/ ground surface temperature record	Site visited 2011
Sahtu	Steep Creek	Steep-01	62	64.19	124.37	Alluvial and colluvial, north facing slope of stream valley (site at edge of right-of-way)	Mixed, white spruce, jackpine, aspen, birch	None	14/09/2011
		Steep-02	134	64.18	124.38	Alluvial and colluvial, north facing slope of stream valley (site at edge of cleared right-of-way)	Mixed, white spruce, jackpine, aspen, birch	None	14/09/2011
		Steep-03	N/A	64.19	124.38	Alluvial and colluvial, north facing slope of stream valley (site on edge of wood chip insulated right-of-way)	Mixed, white spruce, jackpine, aspen, birch	None	14/09/2011
Sahtu	Saline River	SR-02	140	64.29	124.49	Glaciofluvial veneer over lacustrine	Burnt black spruce forest	None	14/09/2011
Sahtu	Little Smith Creek	LS-01	80	64.43	124.74	Alluvial flood plain	Open mature black spruce forest	None	13/09/2011
		LS-02	112	64.43	124.73	Glaciofluvial outwash plain	Tamarack, birch, poplar, and pine forest transition to spruce	None	13/09/2011
Sahtu	Old Fort Point	OFP-01	112	64.65	124.84	Lacustrine plain	Open mixed spruce, pine deciduous forest adjacent to open, low-lying fen	None	14/09/2011

Settlement region	Site name	Bore hole name	Elevation (m a.s.l.)	Latitude (N)	Longitude (W)	Landform	Vegetation Cover	Air/ ground surface temperature record	Site visited 2011
Sahtu	Police Island	PI-01	113	64.83	125.012	Lacustrine plain	Recovering burn (burnt black spruce forest)	None	14/09/2011
		PI-02	113	64.83	125.01	Lacustrine plain	Unburnt, black spruce forest with moss and lichen ground cover	None	14/09/2011
Sahtu	Vermillion Creek	VC-01	92	65.10	126.14	Moraine plain (site at approach to water crossing)	NW side of creek, on top of ridge in black spruce forest	Air	13/09/2011
		VC-02	92	65.10	126.13	Moraine plain (site at approach to water crossing)	SE side of creek on plateau in area of burnt black spruce	None	13/09/2011
Sahtu	NW Fen	99TC5	n/a	65.30	126.86	Thermokarst surface of glaciolacustrine plain (near small fen)	Large white and black spruce with smaller birch closed canopy, moss with lichen ground cover	Ground	Not visited
Sahtu	Billy Creek North	BCN-01	90	65.40	127.32	Alluvial and eolian sediments overlying low-lying lacustrine plain	Peat cover with dense-forested black spruce and mixed shrub	None	12/09/2011
Sahtu	Oscar Creek	OC-01	64	65.44	127.44	Undulating glaciolacustrine terrain overlain by alluvial sediments	Peat cover with dense-forested birch and black spruce	None	12/09/2011

Settlement region	Site name	Bore hole name	Elevation (m a.s.l.)	Latitude (N)	Longitude (W)	Landform	Vegetation Cover	Air/ ground surface temperature record	Site visited 2011
Sahtu	Elliot Creek	EC-01	54	65.52	127.62	Lacustrine undulating plain, well drained elevated area	Peat cover on edge of open, mature black spruce forest	None	12/09/2011
		EC-02	54	65.52	127.62	Lacustrine plain overlain by alluvial sediments	Peat cover on edge of dense, mature black spruce forest	None	12/09/2011
Sahtu	Hanna River	HR-01	104	65.67	127.83	Lacustrine plain	Boggy burnt area	None	12/09/2011
Sahtu	Gibson Lake	GL-01	228	65.75	127.89	Hummocky moraine plain	Recovering burnt area with peat and shrubs	Air / Ground	12/09/2011
Sahtu	Chick Lake	CL-01	122	65.90	128.24	Moraine plain	Peat and organic soil with open black spruce forest and shrubs	None	12/09/2011
Sahtu	Snafu Creek	SC-01	100	66.00	128.35	Moraine plain	Peat bog, open black spruce forest, and lichen cover	None	12/09/2011

Settlement region	Site name	Bore hole name	Elevation (m a.s.l.)	Latitude (N)	Longitude (W)	Landform	Vegetation Cover	Air/ ground surface temperature record	Site visited 2011
Sahtu	Fort Good Hope South	FGHS-01	134	66.21	128.50	Hummocky peatland	Dense shrub and open black spruce	None	12/09/2011
		FGHS-02	134	66.21	128.50	Hummocky peatland	Peat plateau, lichen, open black spruce	None	12/09/2011
Sahtu	Jackfish Creek	JF-02	90	66.29	128.47	Eolian dune on moraine plain, well drained, elevated area	Black spruce forest and moss cover	None	12/09/2011
Gwich'in	Wood Bridge Lake	WBL-01	204	67.90	132.18	Alluvial plain	Black spruce forest	None	12/08/2011
Gwich'in	Hill Lake	HL-01	229	67.99	132.49	Moraine plain	Tundra	None	12/08/2011
		HL-02	234	67.99	132.49	Moraine plain	Shrub tundra	None	12/08/2011
Gwich'in	North Caribou Lake	NCL-01	209	68.15	132.94	Moraine plain	Peatland	None	12/08/2011
		NCL-02	217	68.15	132.93	Moraine plain	Stunted black spruce forest	None	12/08/2011

Settlement region	Site name	Bore hole name	Elevation (m a.s.l.)	Latitude (°N)	Longitude (°W)	Landform	Vegetation Cover	Air/ ground surface temperature record	Site visited 2011
Gwich'in	Campbell Lake	CaL-01	115	68.24	133.10	Moraine plain	Peatland	None	12/08/2011
		CaL-02	118	68.24	133.09	Moraine plain	Cutline	None	12/08/2011
		CaL-03	118	68.24	133.10	Moraine plain	Black spruce forest	None	12/08/2011
Gwich'in	Inuvik Airport	01TC2 (Trees)	84	68.32	133.44	Fluted till plain, glacial (>10Ka)	Taiga open black spruce, heath ground cover	Ground	12/08/2011
		01TC3 (bog)	68	68.32	133.43	Bog between ridges on fluted till plain, glacial (>10Ka)	Taiga open bog, scattered shrub, heath ground cover (forest tundra)	Air / Ground	12/08/2011 (No data, cable malfunction)
Gwich'in	Norris Creek	NC-01	15	68.41	133.29	Thick organic material over moraine plain	Shrub tundra	None	12/08/2011
Gwich'in	Navy Channel	03TC1	5	68.42	133.79	Surface of Holocene Mackenzie delta adjacent to eastern edge rising 10s of meters to till plain	Riparian high willow shrub, open, incomplete ground cover of forbs and sedge (forest tundra)	Air / Ground	15/08/2011
Gwich'in	Navy Road	01TC1	60	68.40	133.76	Fine grained colluvium sloping toward river, post glacial (~10Ka)	Taiga post fire succession, scattered birch and alder, open dwarf birch, heath ground cover	Ground	17/08/2011

Table 2. Thermal monitoring sites in the Inuvialuit Settlement Region. Note there are no data loggers connected to the temperature cables.

Settlement region	Site name	Bore hole name	Elevation (m a.s.l.)	Latitude (°N)	Longitude (°W)	Landform	Vegetation Cover	Air/ ground surface temperature record	Site visited 2011
Inuvialuit	Taglu	C4	15	69.37	134.96	Surface of Holocene Mackenzie delta	Low willow shrub	Air / Ground No data	Not visited
Inuvialuit	Lousy Point	1/91GSC6 (Wolf Lake)	115	69.24	134.44	Ice cored ice contact complex, may be late glacial (>10Ka) or much older (early Wisconsinan)	Tundra	None	Not visited
		2/91GSC13	118	69.22	134.29	Ice cored ice contact ridge, may be late glacial (>10Ka) or much older (early Wisconsinan)	Shrub tundra	None	13/08/2011
		216-86-SO5	118	69.22	134.29	Ice cored ice contact ridge, may be late glacial (>10Ka) or much older (early Wisconsinan)	Shrub tundra	None	Not visited
Inuvialuit	Involuted Hill	IH88-02	209	69.47	132.64	Ice cored collapsing hill, may be postglacial (10Ka) or much older (early Wisconsinan)	Shrub tundra	Air / Ground	Not visited
		IH88-03	n/a	69.47	132.64	Ice cored collapsing hill, may be postglacial (10Ka) or much older (early Wisconsinan)	Shrub tundra	None	Not visited
		IH88-04	217	69.47	132.64	Ice cored collapsing hill, may be postglacial (10Ka) or much older (early Wisconsinan)	Tundra	None	Not visited

Table 3. Active layer thickness in 2010 for active layer monitoring sites throughout the Mackenzie Corridor. Note: Site IDs that include "AG" are only air and ground surface temperature sites and do not have a thaw tube. Probed active layer depths are taken on day of visit and are for the 2011 thaw season.

Site Name	Site ID	Lat (°N)	Long (°W)	2010 Active Layer (m)	Air / Ground Temperature	Date Visited
North Head shore	90TT13	69.72	134.46	0.54 (probe)	Air (failed)/ Ground	14/08/2011
North Head ridge	90TT01	69.71	134.49	n/a	Abandoned	Not visited
North Point summit	90TT02	69.66	134.39	0.51	None	14/08/2011
North Point mid-slope	90TT11	69.66	134.38	0.61	None	14/08/2011
North Point shore	90TT12	69.65	134.39	0.49	None	14/08/2011
Mason Bay high	90TT08	69.52	134.02	0.83	None	14/08/2011
Mason Bay shore	90TT09	69.52	134.01	0.64	None	14/08/2011
Mason Bay inlet	90TT10	69.52	134.04	0.90 (probe)	None	14/08/2011
Illasarvik	94TT01	69.48	134.57	0.55	None	14/08/2011
Harry Channel mouth	91TTA	69.47	134.82	n/a	None	13/08/2011
Involuted Hill top	92TT01	69.47	132.63	n/a	None	Not visited
Involuted Hill flat	92TT02	69.47	132.64	n/a	Air / Ground	Not visited
Kendall Island Meadow	91TTF	69.45	135.34	0.97	None	13/08/2011
Taglu	91TTC	69.37	134.95	n/a	Air (failed) / Ground (failed)	13/08/2011
Lousy Point hollow	91TT09	69.22	134.30	0.32	None	13/08/2011
Lousy Point ridge	90TT05	69.22	134.29	0.74	Air / Ground	13/08/2011
Lousy Point low terrace	90TT06	69.22	134.28	0.45	Air (failed) / Ground (failed)	13/08/2011
Lousy Point flood plain	90TT07	69.22	134.27	n/a	None	Not visited
YaYa Lake high	90TT03	69.14	134.72	0.98	None	13/08/2011
YaYa Lake low	90TT04	69.14	134.70	0.92	Air (failed) / Ground	13/08/2011
Swimming Point slope	91TT01	69.11	134.40	0.59	None	14/08/2011
Swimming Point shore	91TT02	69.11	134.39	thawed	None	14/08/2011
Swimming Point Holmes	91TT03	69.11	134.35	n/a	None	Not visited
Trail Valley Creek	91TT11	68.74	133.49	0.64	None	15/08/2011
Reindeer Station plateau	91TT12	68.69	134.11	0.75	Air / Ground	15/08/2011
Reindeer Depot (Williams Island)	91TT13	68.68	134.15	1.37	Air / Ground (failed)	15/08/2011
Navy Channel (Rat Channel)	90TT17	68.42	133.79	1.81	None	15/08/2011
Inuvik Airport	01TT02	68.32	133.43	0.72	None	12/08/2011
Upper Air	90TT16	68.32	133.50	0.81	None	12/08/2011
Havikpak Creek	93TT02	68.32	133.51	0.66	None	12/08/2011
Caribou Creek	93TT01	68.11	133.48	0.66	None	11/08/2011
Rengleng River mouth	91TT14	67.80	134.13	1.12 (probe)	Air / Ground	16/08/2011
Tsiigehtchic	91TT16	67.48	133.77	n/a	Air / Ground	Not visited
Ochre River cabin	92TT10	63.47	123.69	n/a	None	Not visited
Ochre River	92TT09	63.46	123.69	n/a	None	Not visited
River between two mountains	92TT08	62.95	123.20	0.79 (probe)	Air / Ground	22/08/2011
Willlow Lake River	92TT7	62.70	123.06	0.84	Air / Ground	24/08/2011
Willow Lake burn	93AG4	62.70	123.06	0.79 (probe)	Air / Ground	24/08/2011
Wrigley Pines	94AG2	62.32	122.69	n/a	Air / Ground	22/08/2011
FS bog	93AG2	61.98	122.88	0.50 (probe)	Air / Ground	20/08/2011
Spruce cutline	93AG3	61.97	121.82	1.22 (probe)	Air / Ground	20/08/2011
FS aspen dune	94AG3	61.89	121.52	n/a	Air / Ground	20/08/2011
Martin River	92TT6	61.89	121.60	>1.32 (probe)	Air / Ground	24/08/2011
FS deep	94AG1	61.83	121.34	0.56 (probe)	Air / Ground	24/08/2011

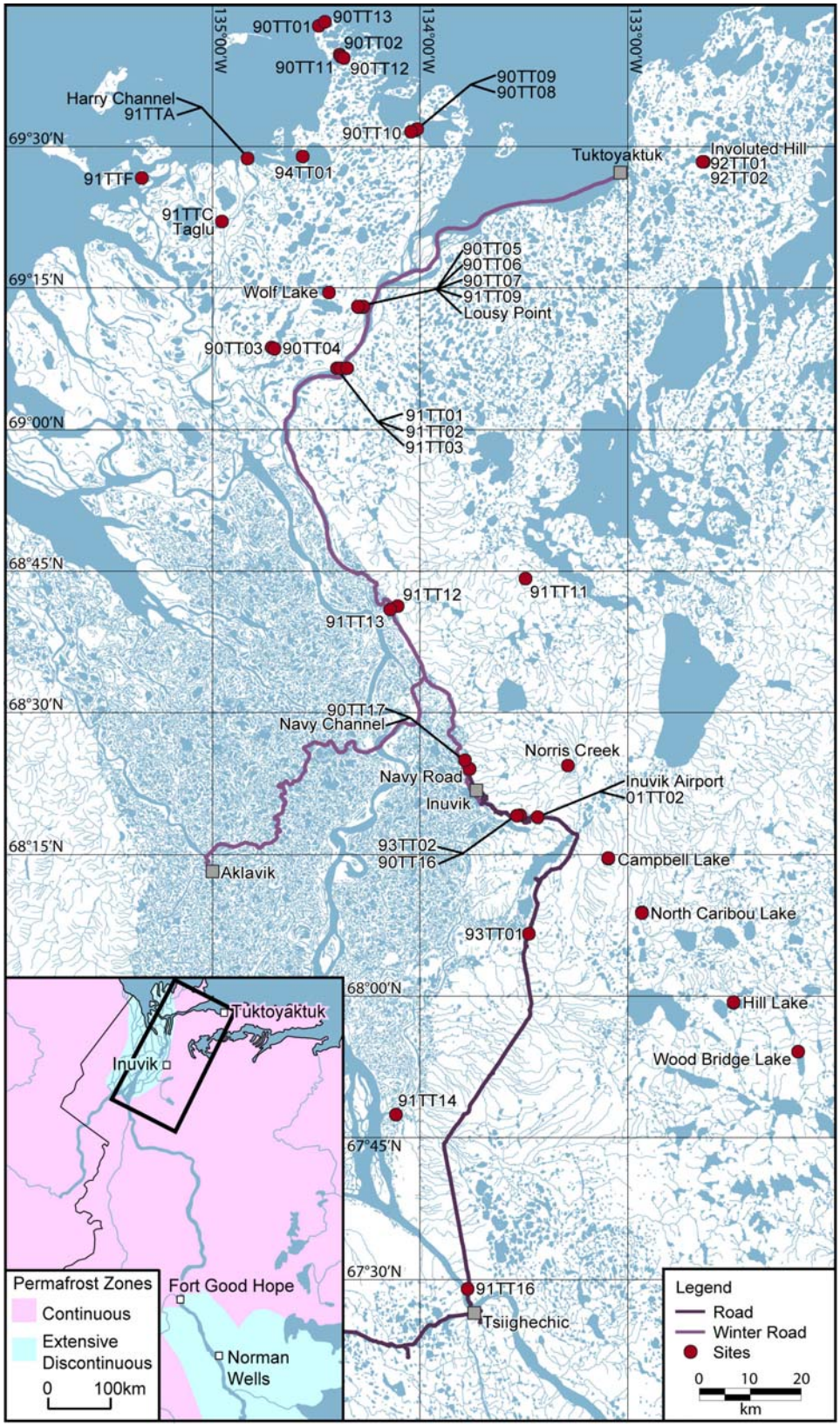


Figure 1. Permafrost and active layer monitoring sites north and south of Inuvik.

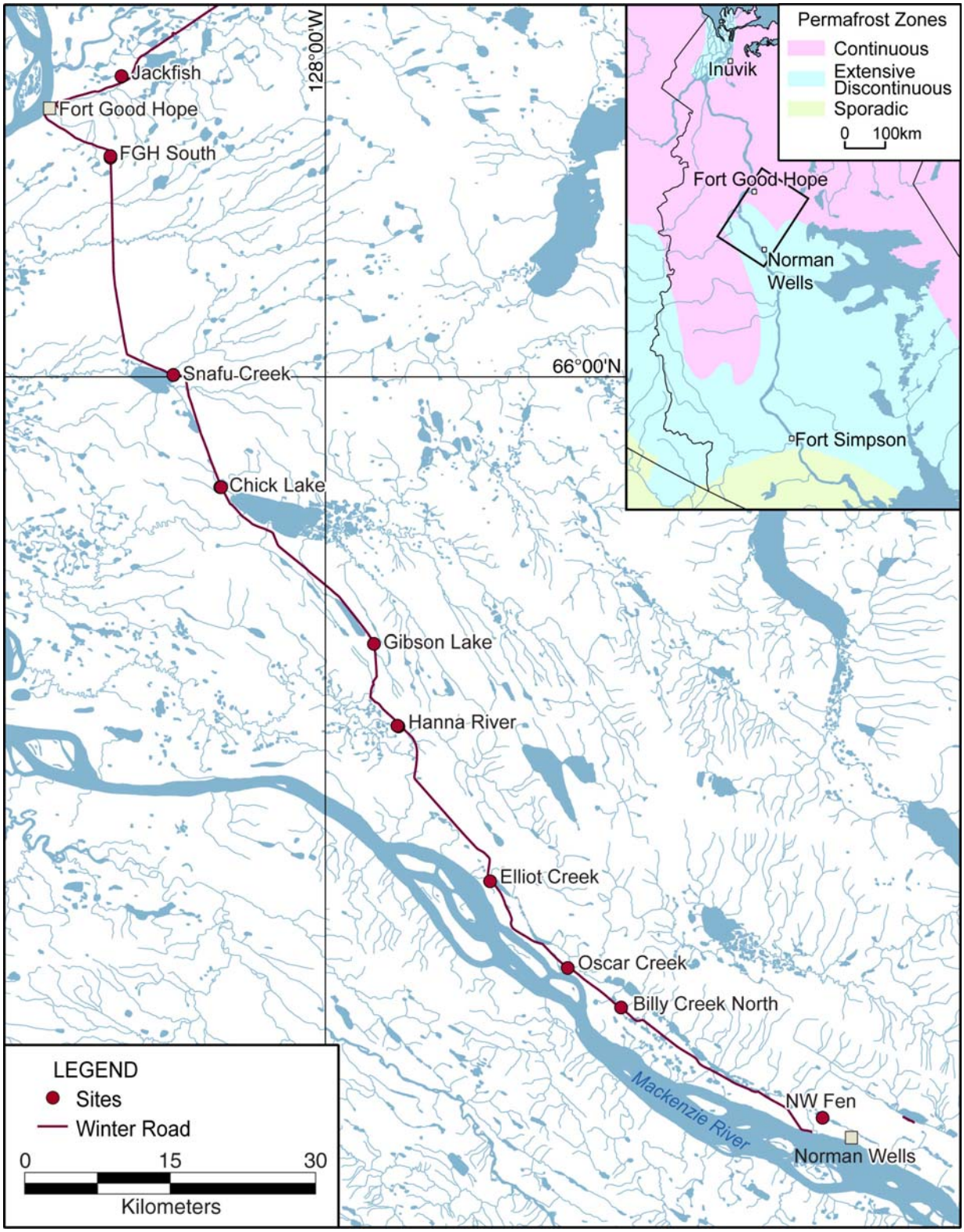


Figure 2. Permafrost monitoring sites between Fort Good Hope and Norman Wells in the Sahtu Settlement Region.

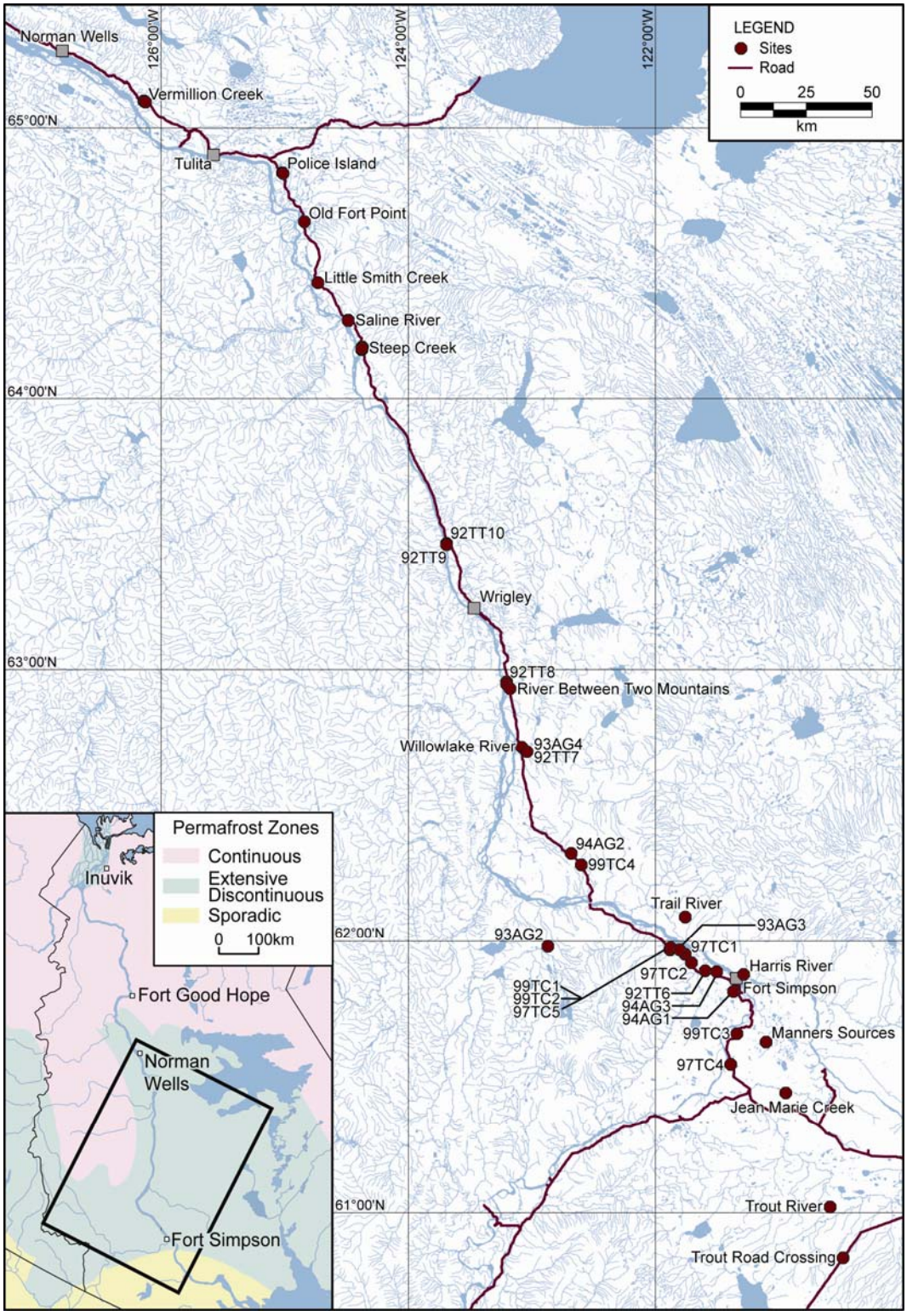


Figure 3. Permafrost monitoring sites south of Norman Wells in the Sahtu (sites north of Wrigley) and Deh Cho (sites south of Wrigley) Settlement Regions.

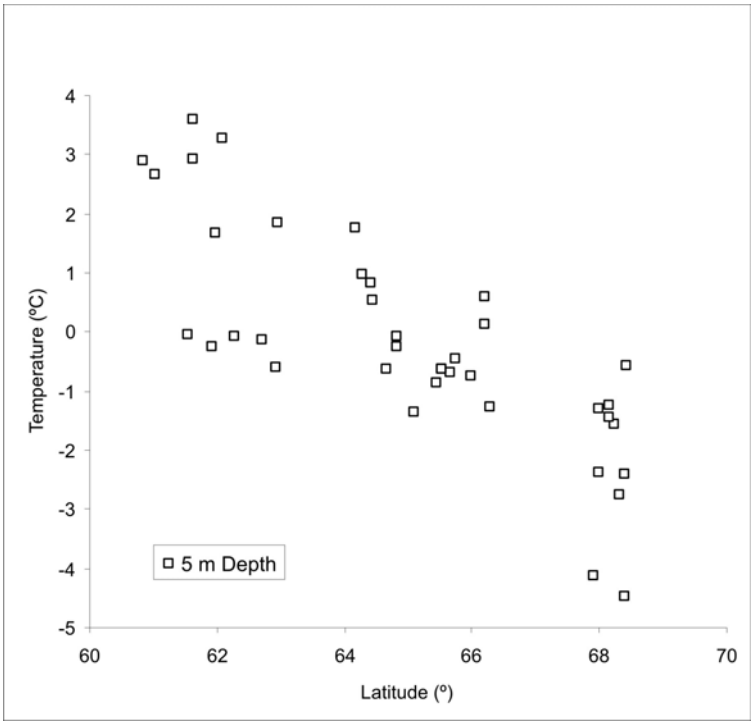


Figure 4. Mean ground temperature for 2010-11 at 5 m depth for the Mackenzie Corridor.

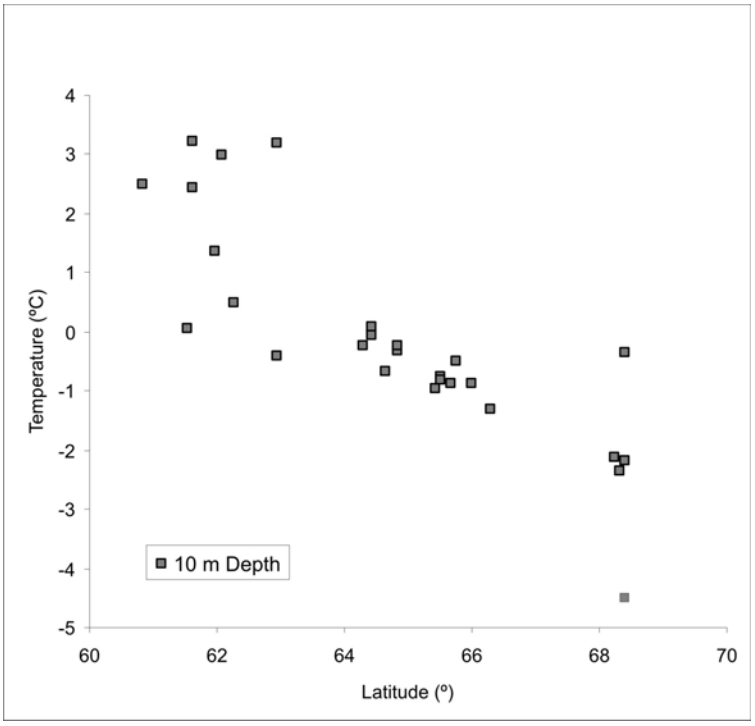


Figure 5. Mean ground temperature for 2010-11 at 10 m depth for the Mackenzie Corridor.

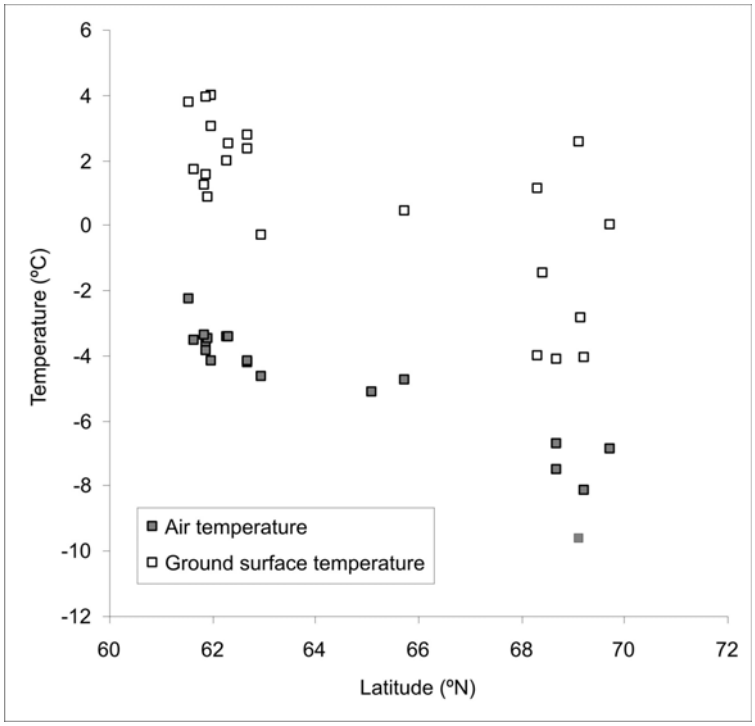


Figure 6. Mean air and ground surface temperature for 2010-11 for the Mackenzie Corridor.

APPENDIX A

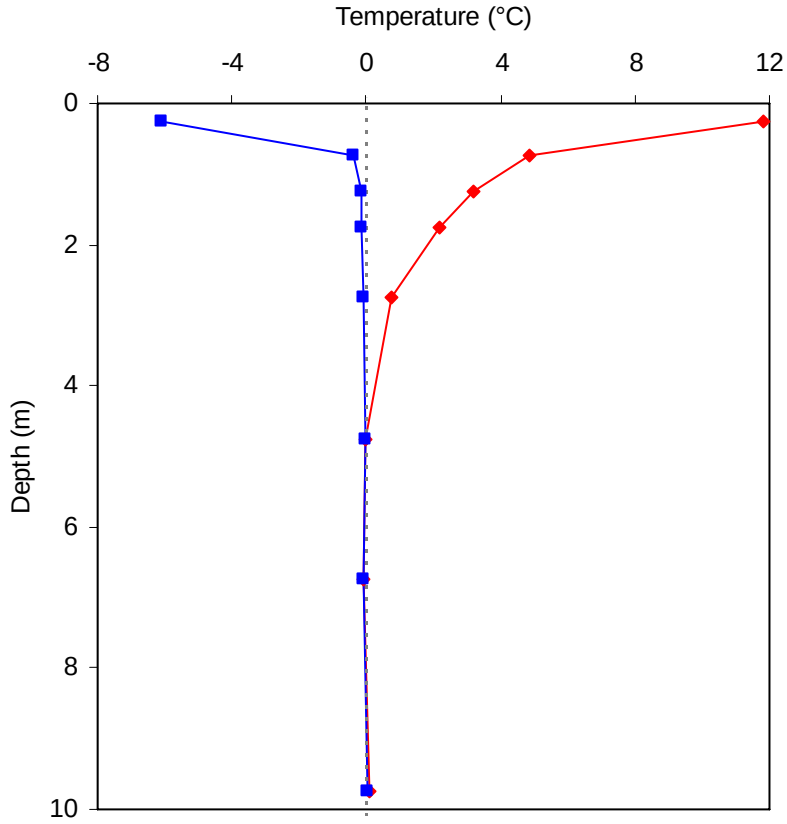
GRAPHICAL AND TABULAR PRESENTATION OF GROUND TEMPERATURE DATA FOR THE PERIOD 2010-11

The maximum (red line) and minimum (blue line) annual temperature profile is provided for each site for which a continuous 2010-11 record of ground temperature is available. For sites that do not have a continuous record for 2010-11, the ground temperature profile based on a single manual measurement during the 2011 site visit (in August or September) is provided (green line). Ground temperature profiles for boreholes that were not visited in 2010 will have a continuous record from 2009 to 2011. The thaw depth is provided for each site and is based on interpolation of temperature profiles unless otherwise noted. Where insufficient temperature data are available to determine the thaw depth, the measurement obtained through probing on the day of the site visit is provided. Mean monthly air and ground surface temperature (5 cm depth) graphs and tables are either from August 2010 to July 2011 or from September 2010 to August 2011, depending on when the data was downloaded from the data logger.

Liard Spruce — 97TC4

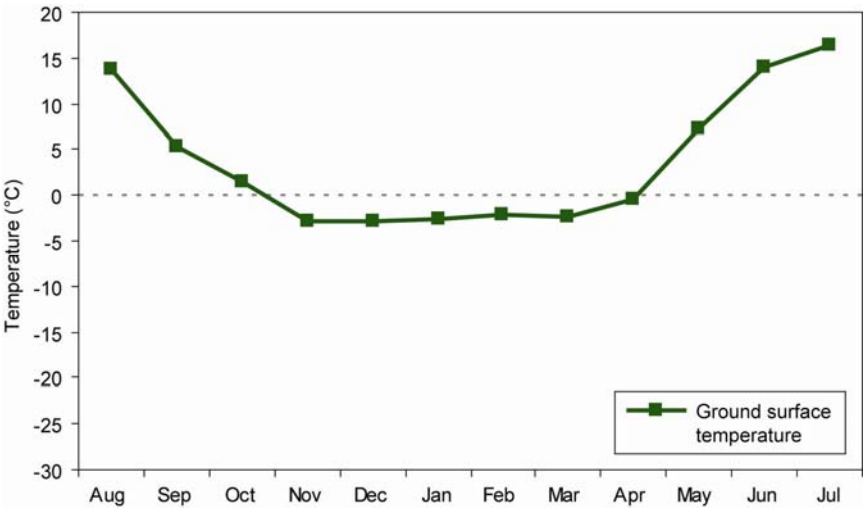
Deh cho Settlement Region

Latitude: 61.55 N Longitude: 121.39 W
Elevation: 180 m a.s.l.
Landform: Surface of glaciolacustrine delta, late glacial (>10Ka)
Vegetation: Boreal, wetland shrub and sedge
Thaw Depth: 4.68 m
Site visit: August 21, 2011



Depth (m)	Max (°C)	Min (°C)
0.25	11.83	-6.12
0.75	4.83	-0.35
1.25	3.20	-0.15
1.75	2.20	-0.14
2.75	0.78	-0.09
4.75	-0.03	-0.04
6.75	-0.06	-0.06
9.75	0.10	0.02

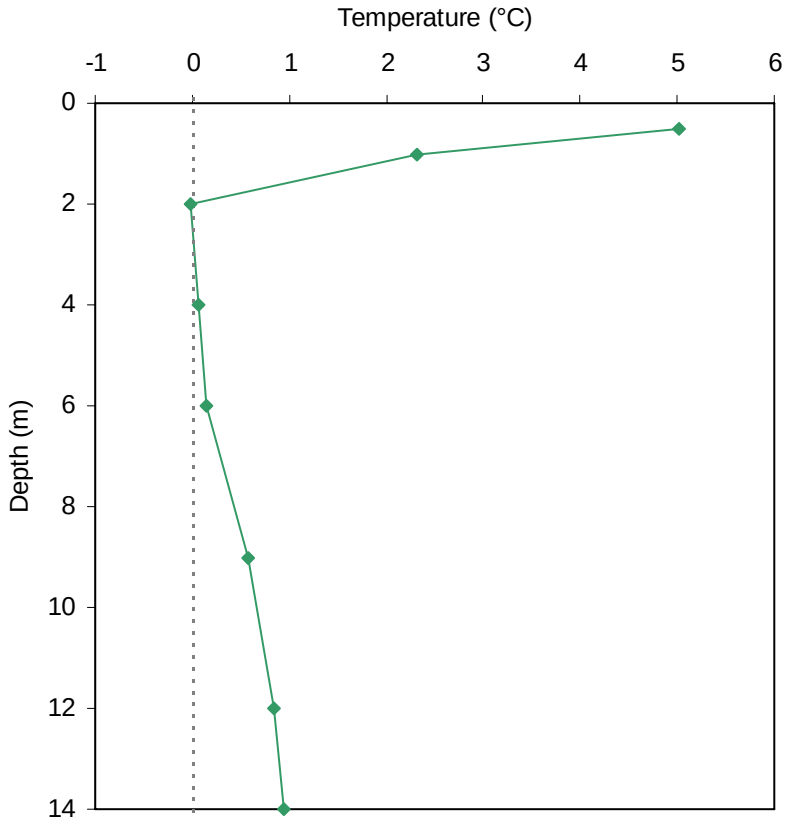
	Temperature (°C)	
Month / Year	Air	Surface
Aug / 2010	n/a	13.71
Sept / 2010	n/a	5.39
Oct / 2010	n/a	1.37
Nov / 2010	n/a	-2.80
Dec / 2010	n/a	-2.88
Jan / 2011	n/a	-2.60
Feb / 2011	n/a	-2.06
Mar / 2011	n/a	-2.47
Apr / 2011	n/a	-0.53
May / 2011	n/a	7.15
Jun / 2011	n/a	13.95
Jul / 2011	n/a	16.43



Wrigley Highway — 99TC3

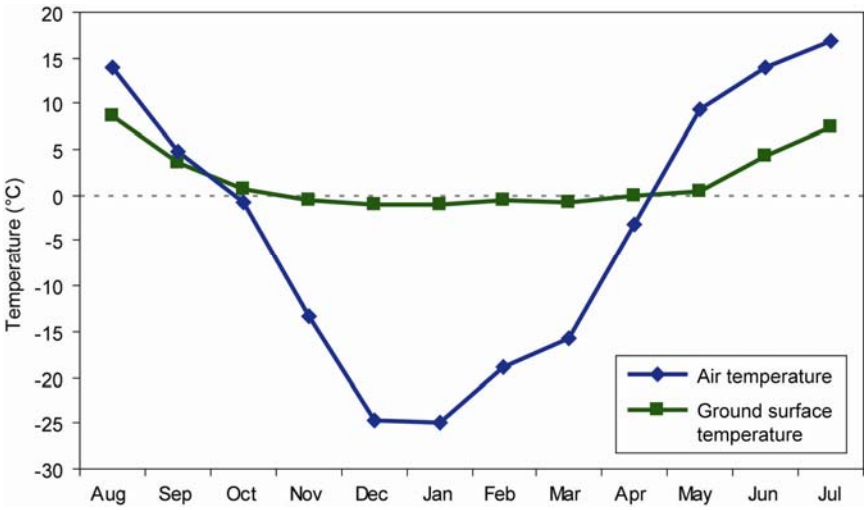
Deh cho Settlement Region

Latitude: 61.66 N Longitude: 121. 34 W
Elevation: 183 m a.s.l.
Landform: Surface of glaciolacustrine delta, post glacial (>10Ka)
Vegetation: Small black spruce thicket with willow shrub, 100% cover of moss with lichen and boreal heath (coniferous)
Thaw Depth: 2.00 m
Site visit: August 21, 2011



Depth (m)	Manual reading (°C)
0.5	5.01
1	2.32
2	-0.01
4	0.07
6	0.15
9	0.57
12	0.85
14	0.94

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	13.87	8.59
Sept / 2010	4.81	3.57
Oct / 2010	-0.83	0.79
Nov / 2010	-13.43	-0.63
Dec / 2010	-24.74	-0.95
Jan / 2011	-24.88	-1.05
Feb / 2011	-18.94	-0.57
Mar / 2011	-15.82	-0.83
Apr / 2011	-3.19	-0.15
May / 2011	9.38	0.49
Jun / 2011	13.91	4.38
Jul / 2011	16.78	7.47

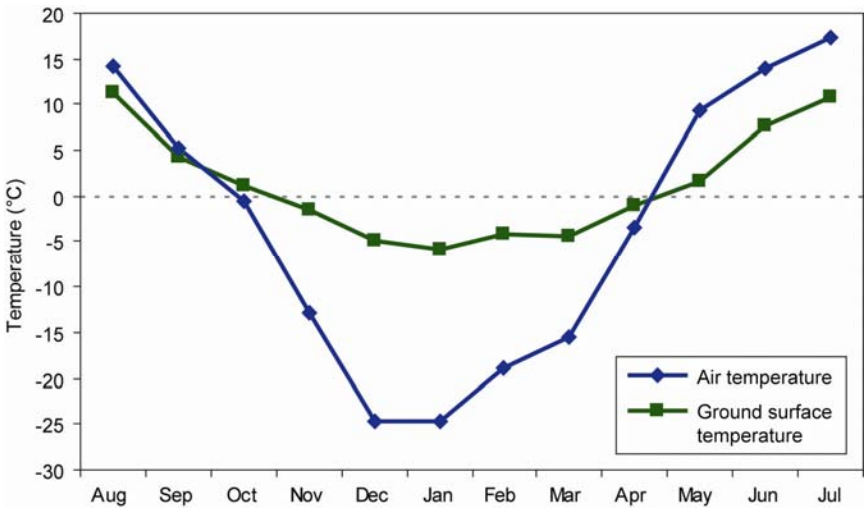


Fort Simpson deep — 94AG1

Deh cho Settlement Region

Latitude: 61. 83 N Longitude: 121.34 W
Elevation: 178 m a.s.l
Landform: Aeolian surface formed on lacustrine delta surface
Vegetation: Black spruce forest with scattered hardwood and shrub
Thaw Depth: 0.56 m (probed)
Site visit: August 25, 2011

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	14.26	11.39
Sept / 2010	5.25	4.39
Oct / 2010	-0.51	1.11
Nov / 2010	-12.95	-1.60
Dec / 2010	-24.69	-4.95
Jan / 2011	-24.77	-5.94
Feb / 2011	-18.90	-4.08
Mar / 2011	-15.49	-4.29
Apr / 2011	-3.48	-0.93
May / 2011	9.47	1.63
Jun / 2011	14.07	7.68
Jul / 2011	17.24	10.92

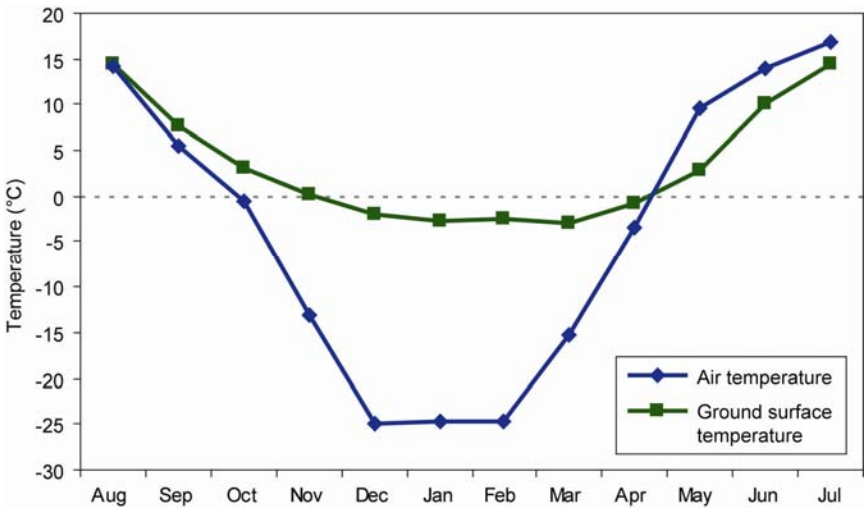


FS Aspen Dune — 94AG3

Deh cho Settlement Region

Latitude: 61. 89 N Longitude: 121.52 W
Elevation: 184 m a.s.l
Landform: Aeolian modified surface of glacio-lacustrine delta
Vegetation: Black spruce forest with scattered hardwood and shrub
Thaw Depth: n/a
Site visit: August 20, 2011

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	14.31	14.48
Sept / 2010	5.52	7.80
Oct / 2010	-0.55	3.11
Nov / 2010	-13.10	0.08
Dec / 2010	-24.90	-1.97
Jan / 2011	-24.74	-2.68
Feb / 2011	-24.74	-2.56
Mar / 2011	-15.17	-2.97
Apr / 2011	-3.41	-0.79
May / 2011	9.57	2.80
Jun / 2011	13.91	10.11
Jul / 2011	16.85	14.47

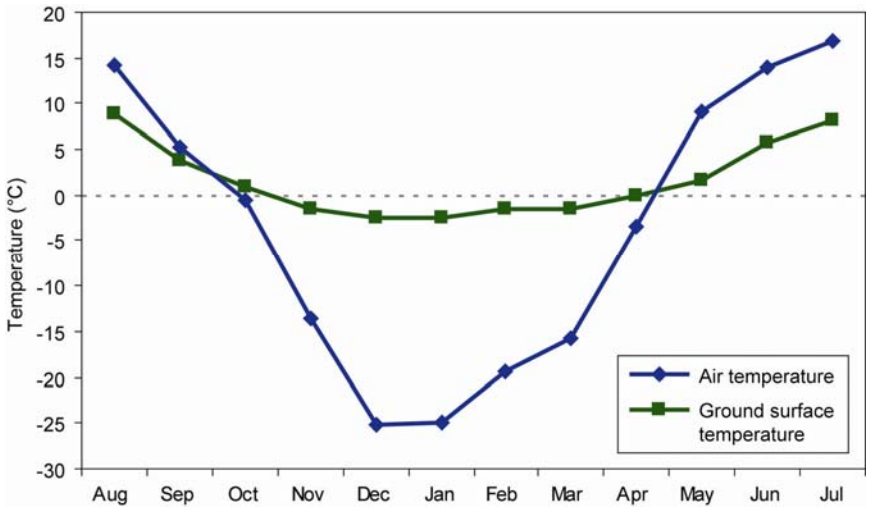


Martin River — 92TT6

Deh cho Settlement Region

Latitude: 61. 89 N Longitude: 121.60 W
Elevation: 165 m a.s.l.
Landform: Surface of glaciolacustrine plain
Vegetation: Boreal, mixed spruce (coniferous forest)
Thaw Depth: >1.32 m (probed)
Site visit: August 25, 2011

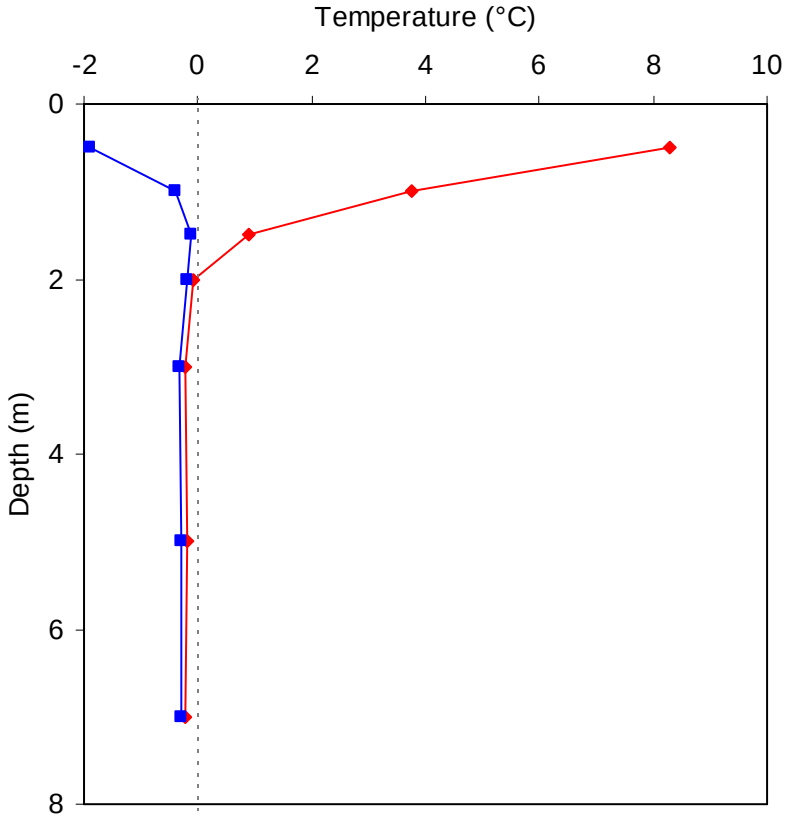
Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	14.09	8.98
Sept / 2010	5.19	3.85
Oct / 2010	-0.59	0.86
Nov / 2010	-13.64	-1.53
Dec / 2010	-25.10	-2.40
Jan / 2011	-24.86	-2.50
Feb / 2011	-19.29	-1.40
Mar / 2011	-15.69	-1.60
Apr / 2011	-3.53	-0.13
May / 2011	9.18	1.69
Jun / 2011	13.88	5.68
Jul / 2011	16.94	8.17



Wrigley Highway — 97TC2

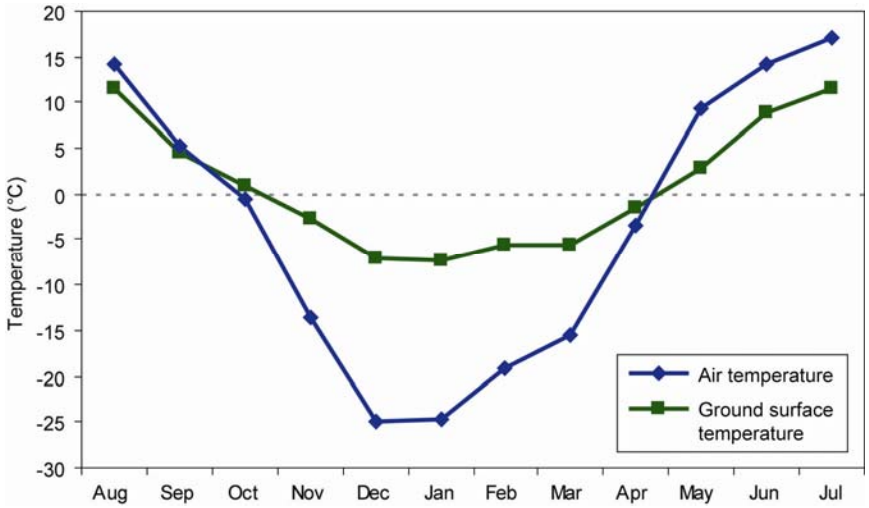
Deh cho Settlement Region

Latitude: 61. 92 N Longitude: 121.71 W
Elevation: 165 m a.s.l.
Landform: Surface of glaciolacustrine delta, post glacial (>10Ka)
Vegetation: Boreal, black spruce (coniferous forest)
Thaw Depth: 1.96 m
Site visit: August 20, 2011



Depth (m)	Max (°C)	Min (°C)
0.5	8.28	-1.91
1	3.77	-0.41
1.5	0.91	-0.11
2	-0.07	-0.19
3	-0.21	-0.34
5	-0.91	-0.30
7	-0.21	-0.30

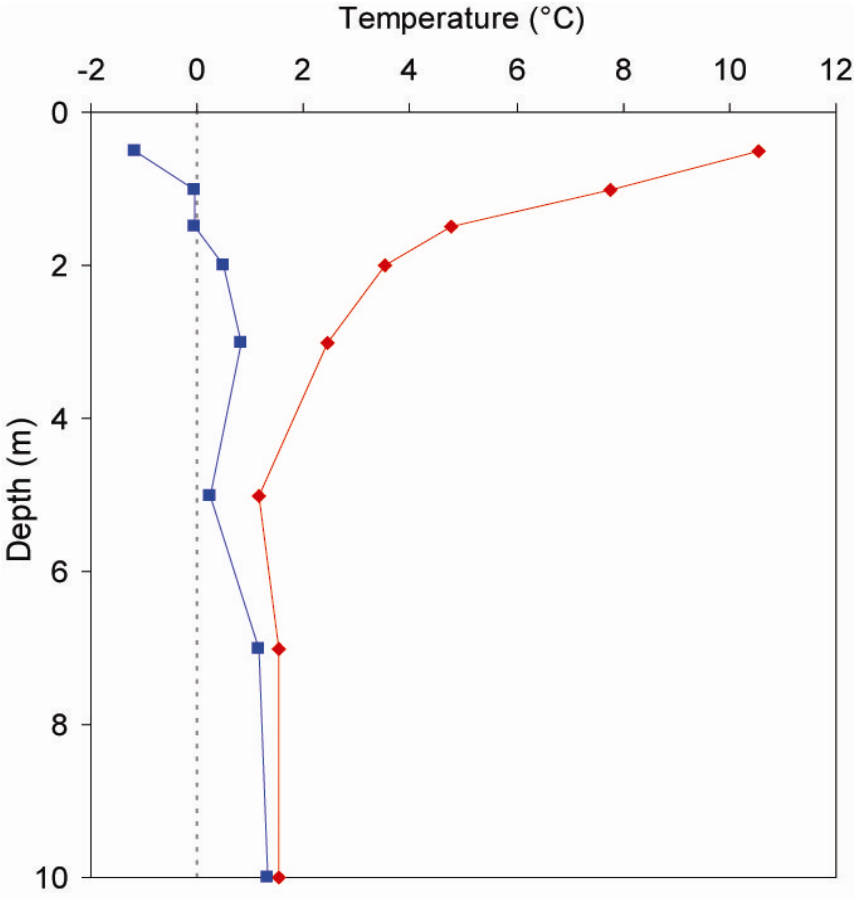
Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	14.21	11.44
Sept / 2010	5.15	4.57
Oct / 2010	-0.63	0.95
Nov / 2010	-13.69	-2.60
Dec / 2010	-25.01	-6.94
Jan / 2011	-24.75	-7.25
Feb / 2011	-19.13	-5.56
Mar / 2011	-15.54	-5.68
Apr / 2011	-3.37	-1.46
May / 2011	9.27	2.94
Jun / 2011	14.14	9.01
Jul / 2011	17.05	11.54



Wrigley Highway (aspen)— 97TC1

Deh cho Settlement Region

Latitude: 61. 95 N Longitude: 121.76 W
Elevation: 165 m a.s.l.
Landform: Surface of glaciolacustrine delta, post glacial (>10Ka)
Vegetation: Boreal, aspen grove (deciduous forest)
Thaw Depth: >1.32 m (probed)
Site visit: August 20, 2011



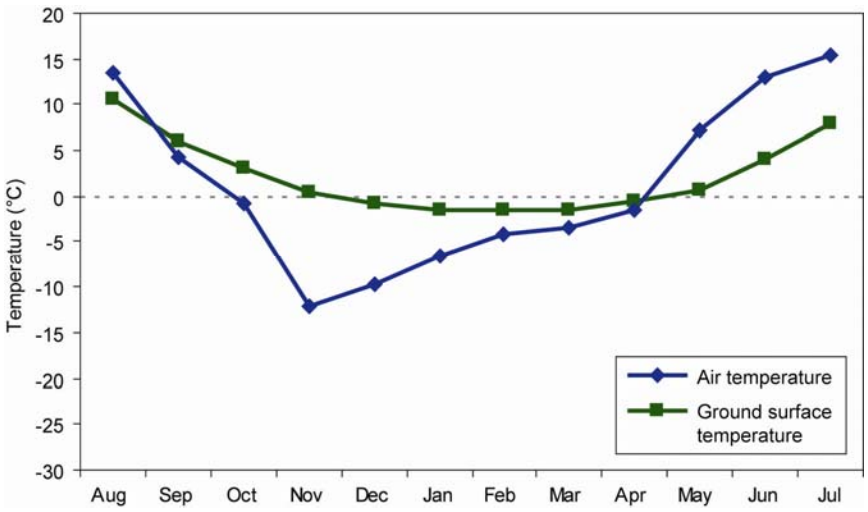
Depth (m)	Max (°C)	Min (°C)
0.5	10.55	-1.17
1	7.77	-0.07
1.5	4.76	-0.07
2	3.52	0.49
3	2.44	0.83
5	1.17	0.23
7	1.55	1.17
10	1.52	1.33

Spruce Cutline — 93AG3

Deh cho Settlement Area

Latitude: 61.97 N Longitude: 121.82 W
Elevation: n/a
Landform: Lacustrine plain
Vegetation cover: Mixed spruce and hardwood
Thaw depth: 1.22 m (probed)
Site visit: August 20, 2011

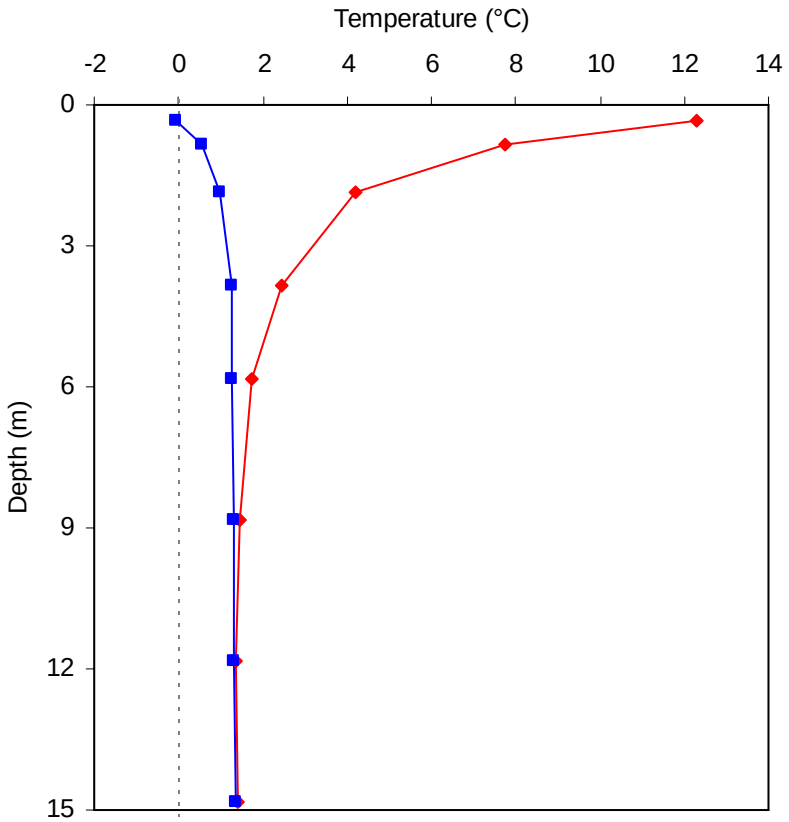
Month / Year	Air temperature (°C)	Surface temperature (°C)
Aug / 2010	13.46	10.62
Sept / 2010	4.27	5.99
Oct / 2010	-0.85	3.01
Nov / 2010	-12.08	0.38
Dec / 2010	-9.79	-0.76
Jan / 2011	-6.61	-1.41
Feb / 2011	-4.09	-1.38
Mar / 2011	-3.53	-1.59
Apr / 2011	-1.54	-0.49
May / 2011	7.09	0.72
Jun / 2011	13.01	4.12
Jul / 2011	15.31	7.84



Wrigley Highway (Fort Simpson bog) — 99TC2

Deh cho Settlement Area

Latitude: 61.98 N Longitude: 121.88 W
Elevation: 165 m a.s.l.
Landform: Thermokarst depression in the surface of glaciolacustrine delta, post glacial (>10Ka)
Vegetation cover: Boreal, sedge and sphagnum in depression surrounded by black spruce on raised peat rim
Thaw depth: >1.35 (probed)
Site visit: August 20, 2011

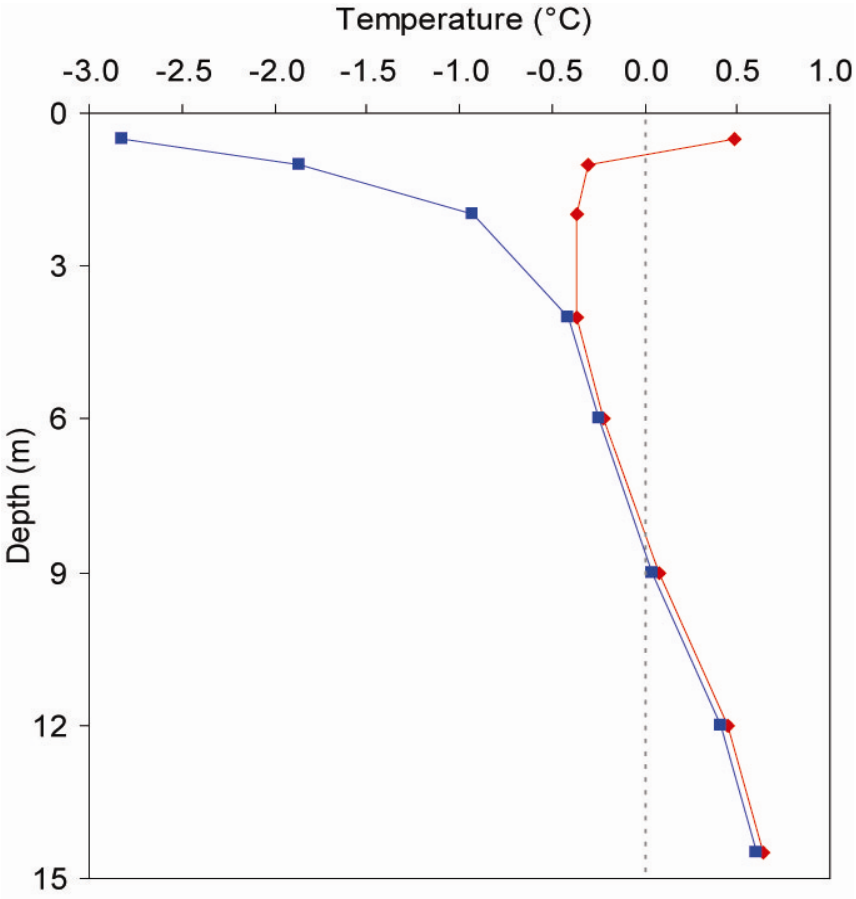


Depth (m)	Max (°C)	Min (°C)
0.35	12.29	-0.06
0.85	7.73	0.57
1.85	4.18	0.99
3.85	2.47	1.28
5.85	1.75	1.27
8.85	1.44	1.30
11.85	1.37	1.31
14.85	1.42	1.37

Wrigley Highway (Fort Simpson bog) — 99TC1

Deh cho Settlement Area

Latitude: 61.98 N Longitude: 121.88 W
Elevation: 165 m a.s.l.
Landform: Peat plateau on surface of glaciolacustrine delta, post glacial (>10Ka)
Vegetation cover: Boreal, open black spruce (coniferous forest)
Thaw depth: n/a
Site visit: August 20, 2011



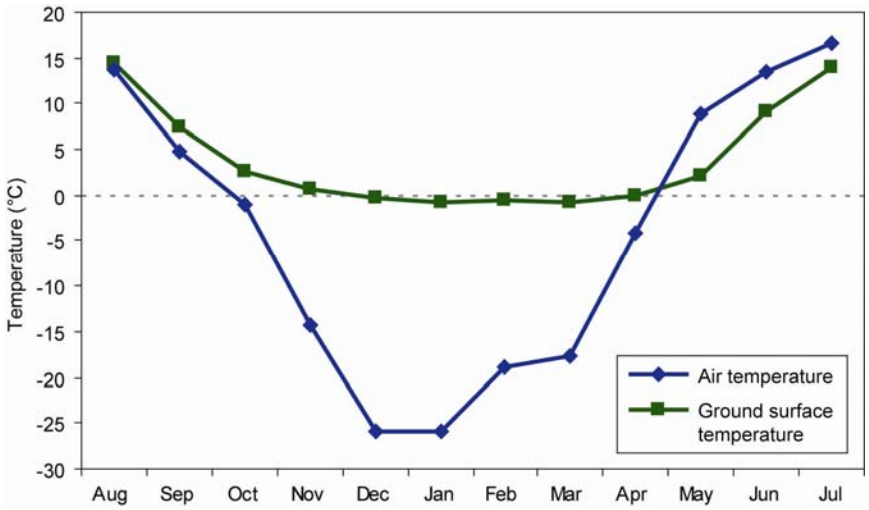
Depth (m)	Max (°C)	Min (°C)
0.5	0.49	-2.82
1	-0.30	-1.86
2	-0.37	-0.93
4	-0.37	-0.41
6	-0.22	-0.25
9	0.08	0.04
12	0.45	0.41
14.5	0.64	0.60

Wrigley Highway (Fort Simpson bog) — 93AG2

Deh cho Settlement Area

Latitude: 61.98 N Longitude: 121.88 W
Elevation: 165 m a.s.l.
Landform: Thermokarst depression in the surface of glaciolacustrine delta, post glacial (>10Ka)
Vegetation cover: Boreal, open black spruce (coniferous forest)
Thaw depth: 0.50 m (probed)
Site visit: August 20, 2011

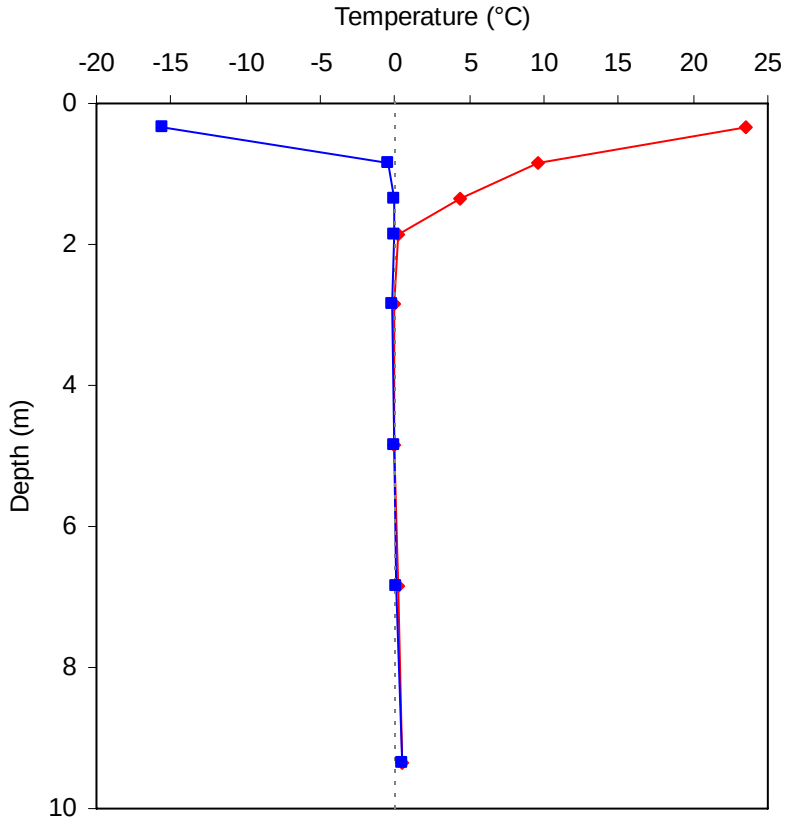
Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	13.80	14.56
Sept / 2010	4.80	7.40
Oct / 2010	-1.09	2.54
Nov / 2010	-14.19	0.63
Dec / 2010	-25.85	-0.23
Jan / 2011	-25.81	-0.69
Feb / 2011	-18.96	-0.60
Mar / 2011	-17.60	-0.72
Apr / 2011	-4.04	0.00
May / 2011	8.87	2.08
Jun / 2011	13.57	9.20
Jul / 2011	16.50	13.97



Wrigley Highway (Liard Spruce) — 99TC4

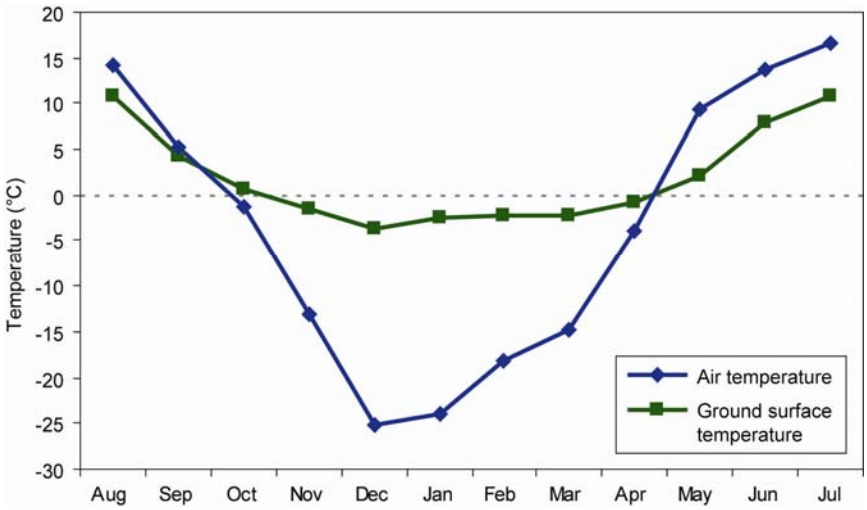
Deh cho Settlement Area

Latitude: 62.28 N Longitude: 122.60 W
Elevation: n/a
Landform: Organic terrain on till plain, post glacial (>10Ka)
Vegetation cover: Boreal burn, scattered small spruce, pine and aspen, heath ground cover
Thaw Depth: 2.57 m
Site visit: August 22, 2011



Depth (m)	Max (°C)	Min (°C)
0.35	23.464	-15.594
0.85	9.623	-0.500
1.35	4.405	-0.056
1.85	0.280	-0.076
2.85	-0.111	-0.114
4.85	-0.081	-0.084
6.85	0.171	0.098
9.35	0.538	0.442

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	14.3	10.9
Sept / 2010	5.2	4.3
Oct / 2010	-1.2	0.6
Nov / 2010	-13.0	-1.5
Dec / 2010	-25.1	-3.6
Jan / 2011	-23.9	-2.4
Feb / 2011	-18.2	-2.1
Mar / 2011	-14.7	-2.3
Apr / 2011	-3.9	-0.7
May / 2011	9.3	2.2
Jun / 2011	13.6	8.0
Jul / 2011	16.5	10.9

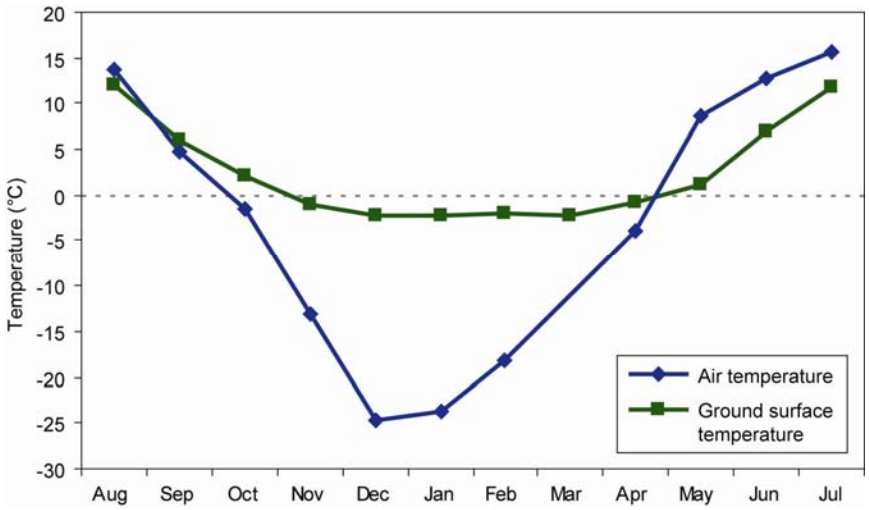


Wrigley Pines — 94AG2

Deh cho Settlement Region

Latitude: 62.32 N Longitude: 122.69 W
Elevation: n/a
Landform: Upland till plain
Vegetation: Dense canopy of pure small pine succession after fire
Thaw Depth: n/a
Site visit: August 22, 2011

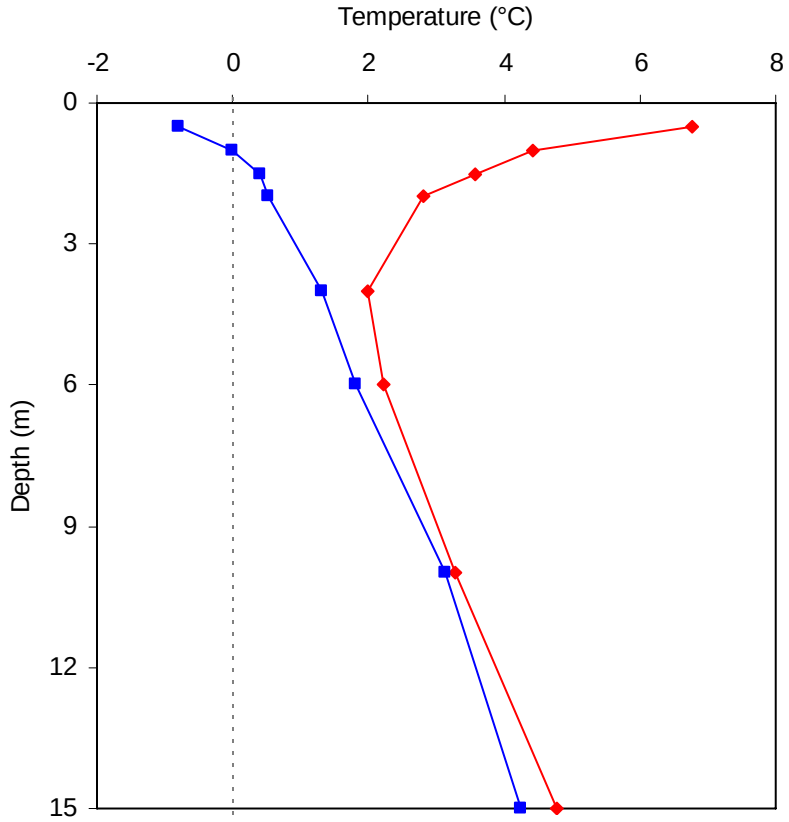
Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	13.68	11.99
Sept / 2010	4.79	5.98
Oct / 2010	-1.39	2.24
Nov / 2010	-13.12	-1.06
Dec / 2010	-24.76	-2.23
Jan / 2011	-23.67	-2.17
Feb / 2011	-18.27	-1.99
Mar / 2011	n/a	-2.23
Apr / 2011	-3.89	-0.78
May / 2011	8.61	1.14
Jun / 2011	12.65	6.90
Jul / 2011	15.71	11.87



River Between Two Mountains — RBTM-01

Deh cho Settlement Area

Latitude: 62.95 N Longitude: 123.20 W
Elevation: 120 m a.s.l.
Landform: Transition lacustrine to alluvial to moraine terrain
Vegetation cover: Dense black spruce forest
Thaw Depth: Unfrozen
Site visit: August 22, 2011

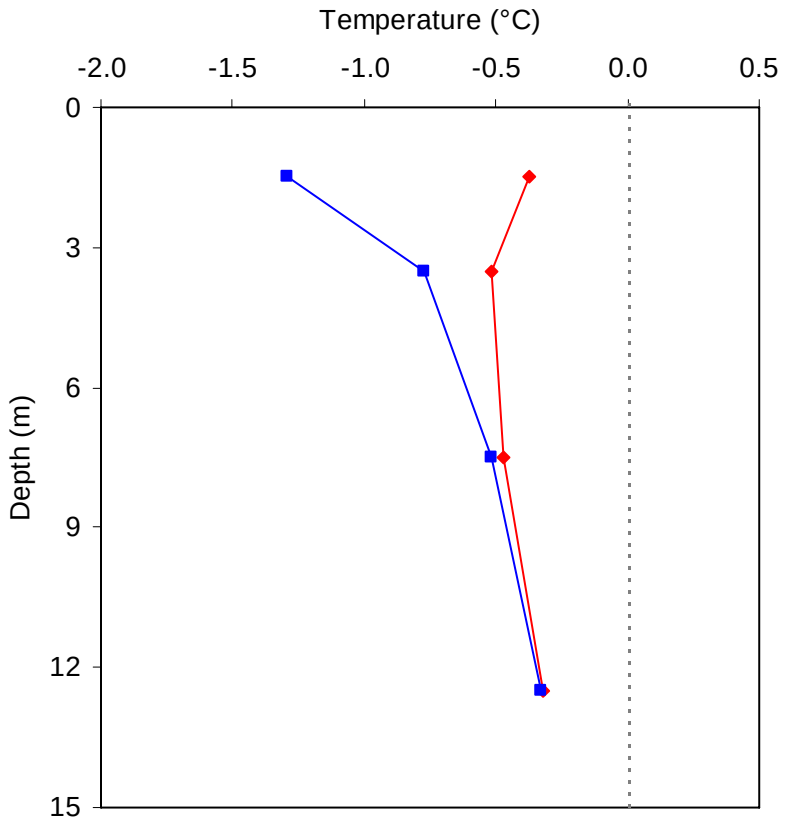


Depth (m)	Max (°C)	Min (°C)
0.5	6.77	-0.78
1	4.43	-0.01
1.5	3.57	0.40
2	2.82	0.53
4	1.99	1.31
6	2.22	1.82
10	3.27	3.14
15	4.79	4.25

River Between Two Mountains — RBTM-02

Deh cho Settlement Area

Latitude: 62.93 N Longitude: 123.18 W
Elevation: 150 m a.s.l.
Landform: Transition lacustrine to alluvial to moraine terrain
Vegetation cover: Dense black spruce forest
Thaw Depth: >1.35 m (probed)
Site visit: August 22, 2011



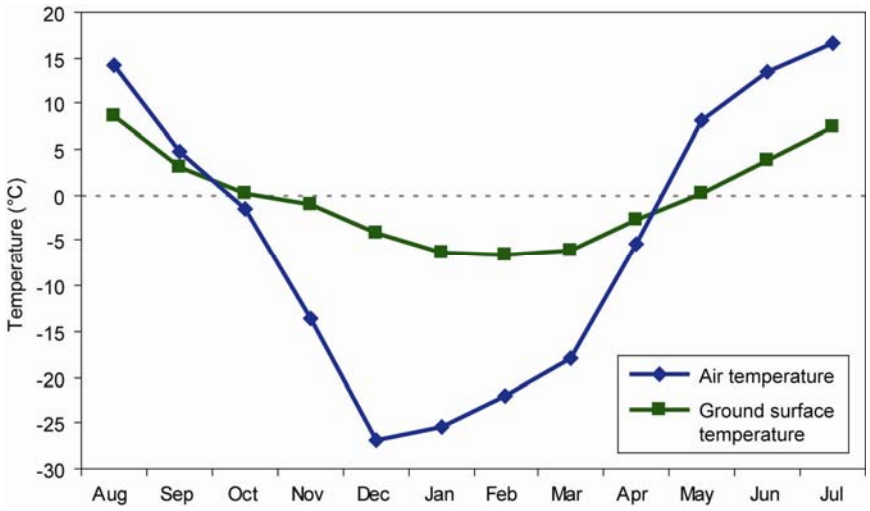
Depth (m)	Max (°C)	Min (°C)
1.5	-0.38	-1.29
3.5	-0.52	-0.77
7.5	-0.47	-0.52
12.5	-0.32	-0.33

River Between Two Mountains — 92TT8

Deh cho Settlement Area

Latitude: 62.95 N Longitude: 123.20 W
Elevation: 99 m a.s.l.
Landform: Alluvial terrace in silt (6 m above river)
Vegetation cover: Tall mixed shrub forest
Thaw Depth: 0.73 m (probed)
Site visit: August 22, 2011

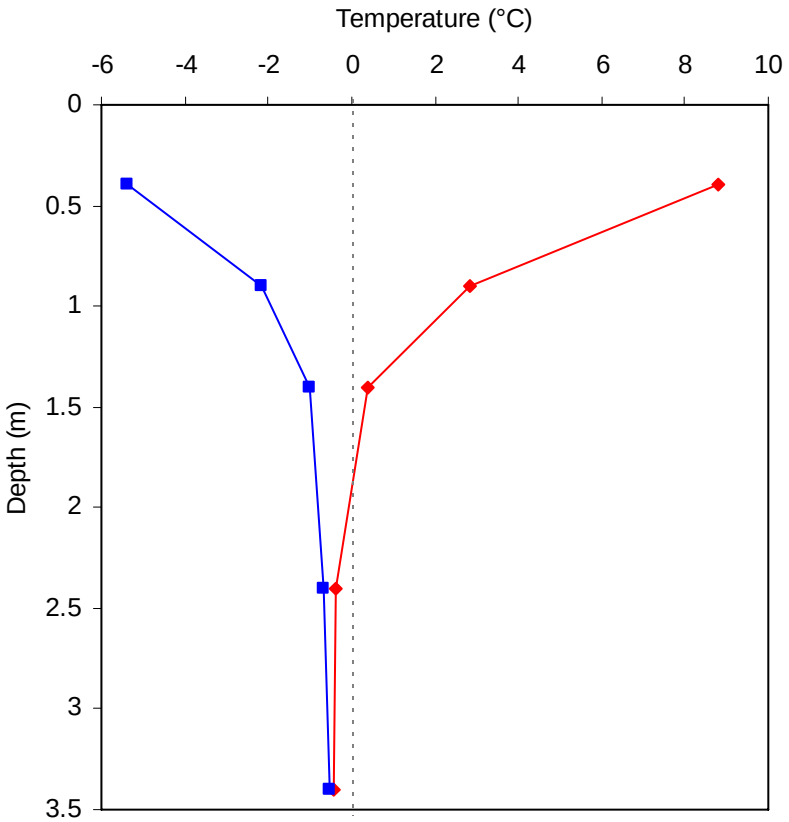
Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	14.23	8.75
Sept / 2010	4.86	3.21
Oct / 2010	-1.41	0.28
Nov / 2010	-13.67	-0.95
Dec / 2010	-26.79	-4.07
Jan / 2011	-25.46	-6.24
Feb / 2011	-22.06	-6.60
Mar / 2011	-18.03	-6.03
Apr / 2011	-5.38	-2.59
May / 2011	8.09	0.18
Jun / 2011	13.37	3.85
Jul / 2011	16.54	7.32



Willow Lake River — WLR-01

Deh cho Settlement Region

Latitude: 62.71 N Longitude: 123.08 W
Elevation: 122 m a.s.l.
Landform: Alluvial fan
Vegetation cover: Open mixed forest
Thaw Depth: 1.88 m
Site visit: August 22, 2011



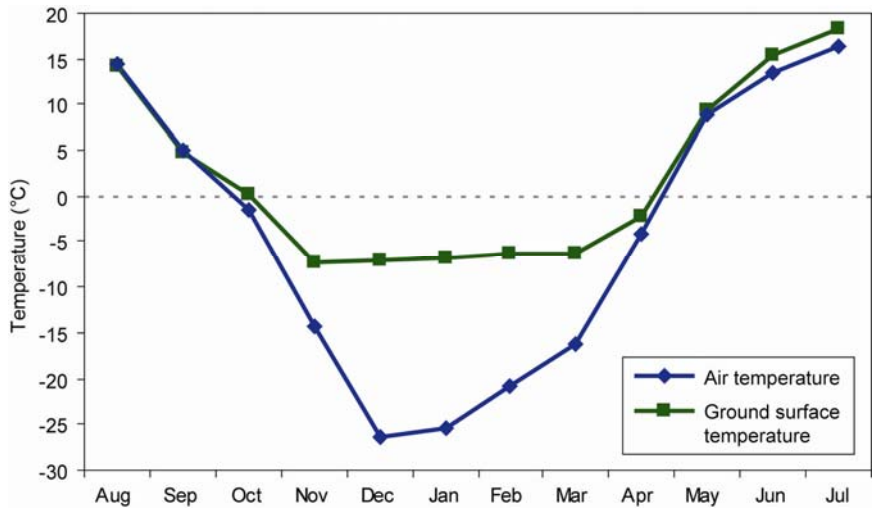
Depth (m)	Max (°C)	Min (°C)
0.4	8.79	-5.39
0.9	2.82	-2.14
1.4	0.37	-1.01
2.4	-0.40	-0.65
3.4	-0.42	-0.52

Willow Lake River — 92TT7

Deh cho Settlement Area

Latitude: 62.70 N Longitude: 123.06 W
Elevation: 103 m a.s.l.
Landform: Inactive fluvial bar
Vegetation cover: Dense white spruce forest
Thaw Depth: 0.84 m (probed)
Site visit: August 24, 2011

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	14.37	14.27
Sept / 2010	4.99	4.83
Oct / 2010	-1.41	0.20
Nov / 2010	-14.22	-7.41
Dec / 2010	-26.43	-7.04
Jan / 2011	-25.40	-6.91
Feb / 2011	-20.92	-6.28
Mar / 2011	-16.19	-6.35
Apr / 2011	-4.14	-2.11
May / 2011	8.85	9.39
Jun / 2011	13.53	15.37
Jul / 2011	16.47	18.26

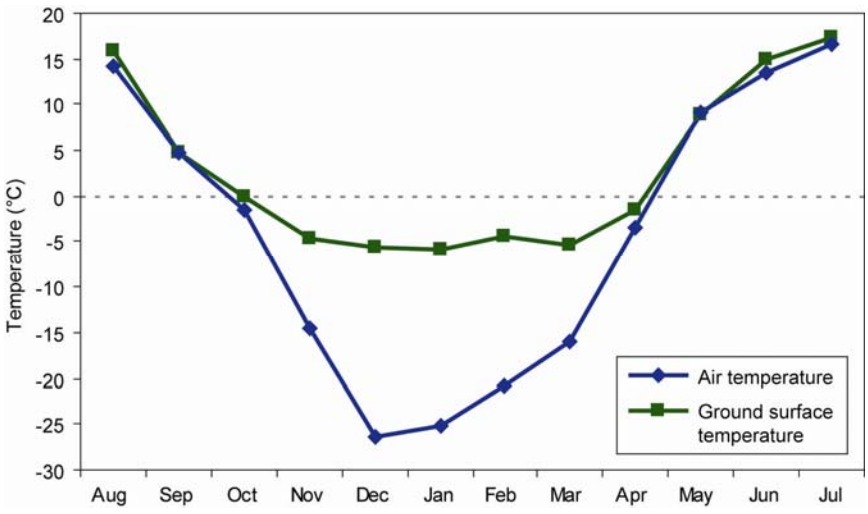


Willow Lake River burn — 93AG4

Deh cho Settlement Area

Latitude: 62.70 N Longitude: 123.06 W
Elevation: 150 m a.s.l.
Landform: Abandoned fluvial bar
Vegetation cover: Post-burn succession of small spruce and hardwood
Thaw Depth: 0.79 m (probed)
Site visit: August 24, 2011

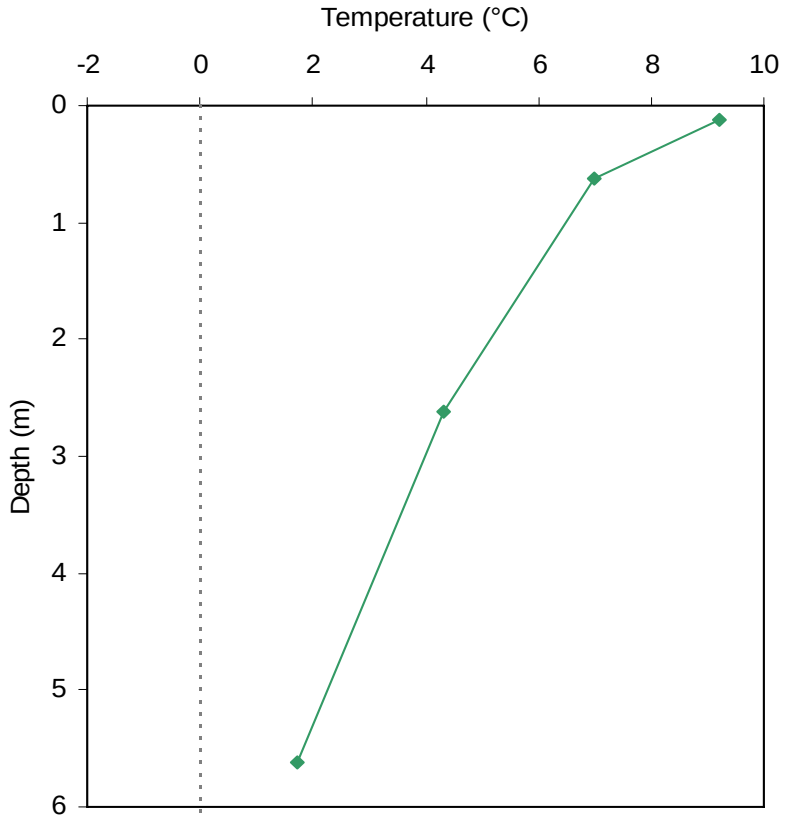
Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	14.31	15.85
Sept / 2010	4.84	4.76
Oct / 2010	-1.43	-0.07
Nov / 2010	-14.43	-4.70
Dec / 2010	-26.36	-5.52
Jan / 2011	-25.25	-5.80
Feb / 2011	-20.83	-4.46
Mar / 2011	-16.08	-5.33
Apr / 2011	-3.55	-1.48
May / 2011	9.21	8.96
Jun / 2011	13.56	15.00
Jul / 2011	16.56	17.28



Steep Creek Base — Steep-01

Sahtu Settlement Region

Latitude: 64.19 N Longitude: 124.37 W
Elevation: 62 m a.s.l.
Landform: Alluvial and colluvial, north facing slope of stream valley (site at edge of right-of-way)
Vegetation cover: Mixed, white spruce, jackpine, aspen, birch
Thaw Depth: n/a
Site visit: September 14, 2011

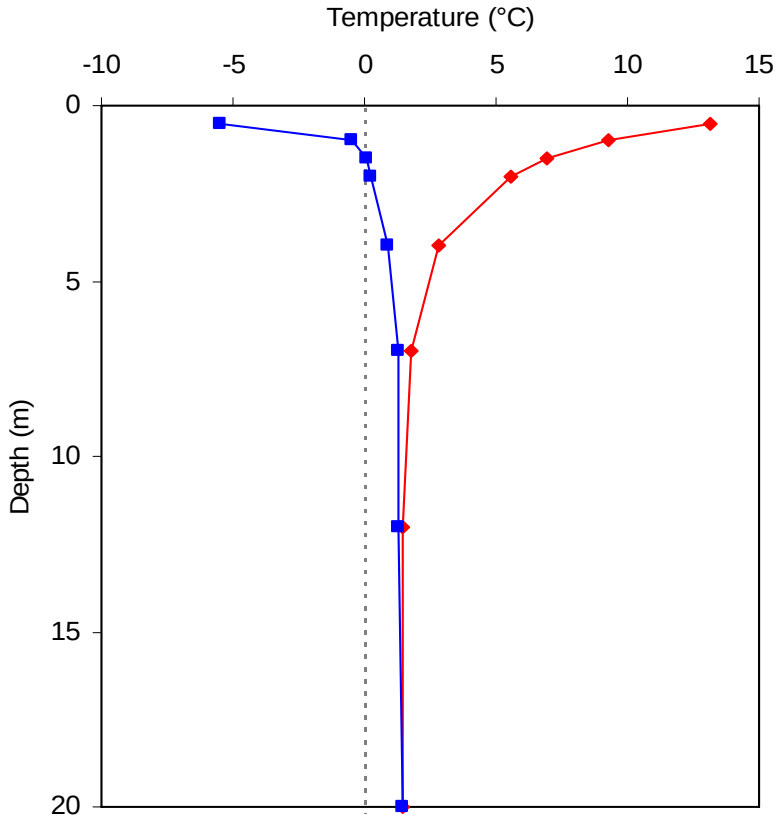


Depth (m)	Temp (°C)
0.12	9.2
0.62	6.98
2.62	4.31
5.62	1.74

Steep Creek Top — Steep-02

Sahtu Settlement Region

Latitude: 64.18 N Longitude: 124.38 W
Elevation: 134 m a.s.l.
Landform: Alluvial and colluvial, north facing slope of stream valley (site at edge of cleared right-of-way)
Vegetation cover: Mixed, white spruce, jackpine, aspen, birch
Thaw Depth: n/a
Site visit: September 14, 2011

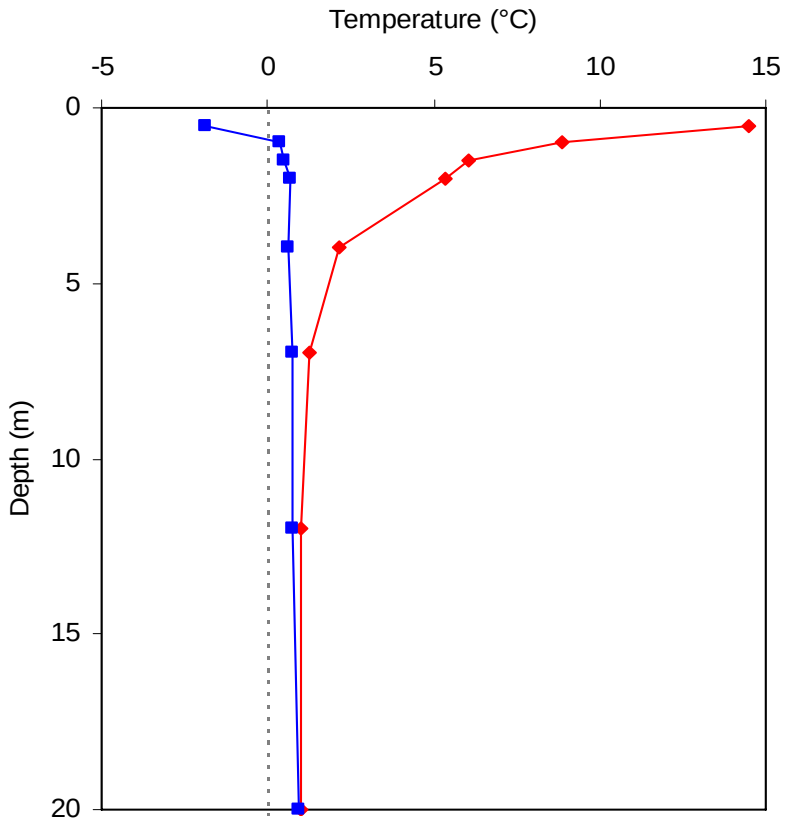


Depth (m)	Max (°C)	Min (°C)
0.5	13.11	-5.51
1	9.24	-0.46
1.5	6.94	0.05
2	5.55	0.22
4	2.85	0.88
7	1.79	1.25
12	1.46	1.31
20	1.45	1.42

Steep Creek Mid — Steep-03

Sahtu Settlement Region

Latitude: 64.19 N Longitude: 124.38 W
Elevation: n/a
Landform: Alluvial and colluvial, north facing slope of stream valley (site on edge of wood chip insulated right-of-way)
Vegetation cover: Mixed, white spruce, jackpine, aspen, birch
Thaw Depth: n/a
Site visit: September 14, 2011

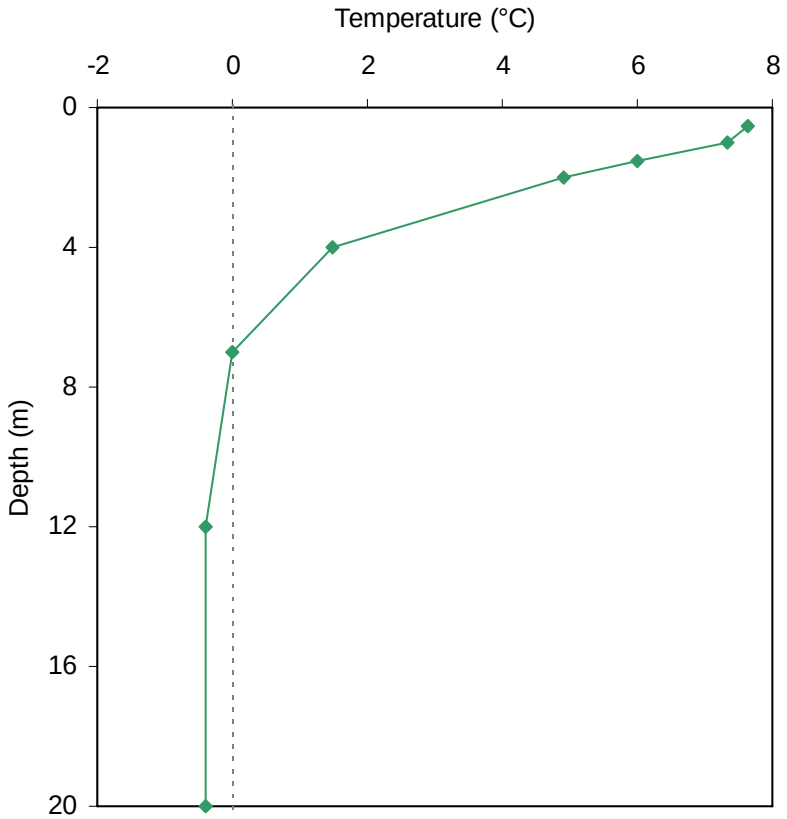


Depth (m)	Max (°C)	Min (°C)
0.5	14.49	-1.90
1	8.87	0.38
1.5	6.07	0.52
2	5.34	0.71
4	2.14	0.65
7	1.29	0.72
12	0.98	0.78
20	0.98	0.94

Saline River — SR-02

Sahtu Settlement Region

Latitude: 64.29 N Longitude: 124.49 W
Elevation: 140 m a.s.l.
Landform: Glaciofluvial veneer over lacustrine
Vegetation cover: Burnt black spruce forest
Thaw Depth: 6.98 m
Site visit: September 14, 2011

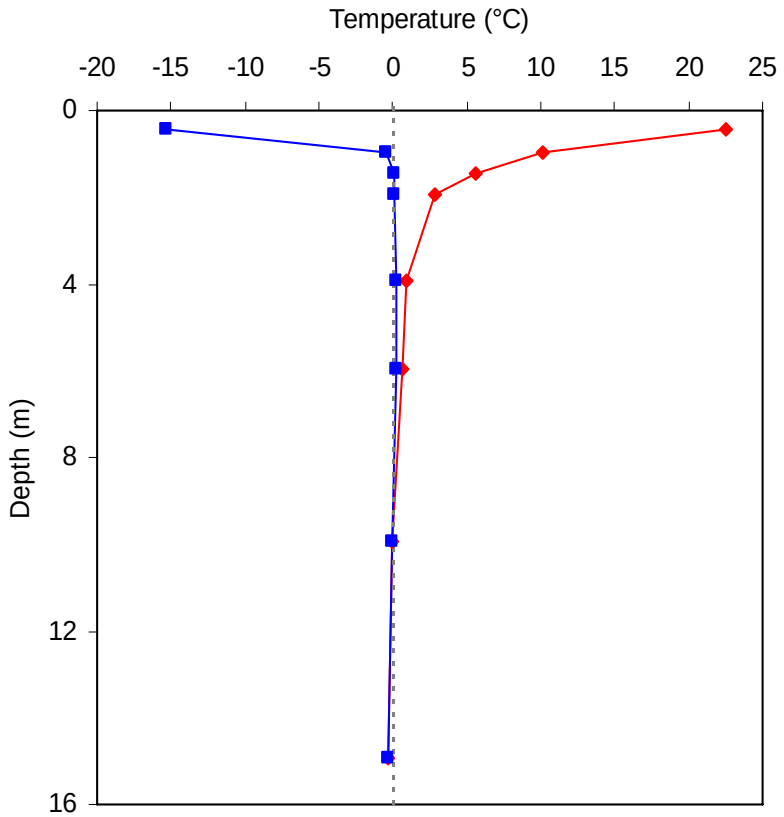


Depth (m)	Max (°C)
0.5	7.64
1	7.33
1.5	5.99
2	4.91
4	1.48
7	-0.01
12	-0.4
20	-0.38

Little Smith Creek — LS-01

Sahtu Settlement Region

Latitude: 64.43 N Longitude: 124.74 W
Elevation: 80 m a.s.l.
Landform: Alluvial flood plain
Vegetation cover: Open mature black spruce forest
Thaw Depth: 9.78 m
Site visit: September 13, 2011

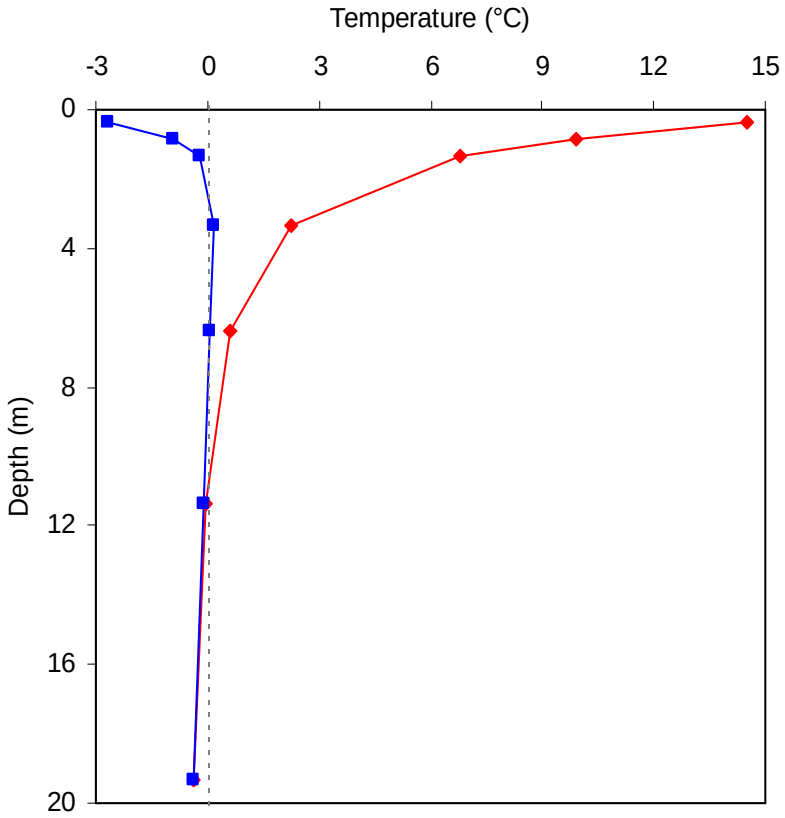


Depth (m)	Max (°C)	Min (°C)
0.45	22.52	-15.34
0.95	10.19	-0.42
1.45	5.53	0.09
1.95	2.80	0.09
3.95	0.93	0.25
5.95	0.67	0.27
9.95	-0.03	-0.10
14.95	-0.27	-0.30

Little Smith Creek — LS-02

Sahtu Settlement Region

Latitude: 64.43 N Longitude: 124.74 W
Elevation: 112 m a.s.l.
Landform: Glacio-fluvial outwash plain
Vegetation cover: Tamarack, birch, poplar, and pine forest transition to spruce
Thaw Depth: 10.98 m
Site visit: September 13, 2011

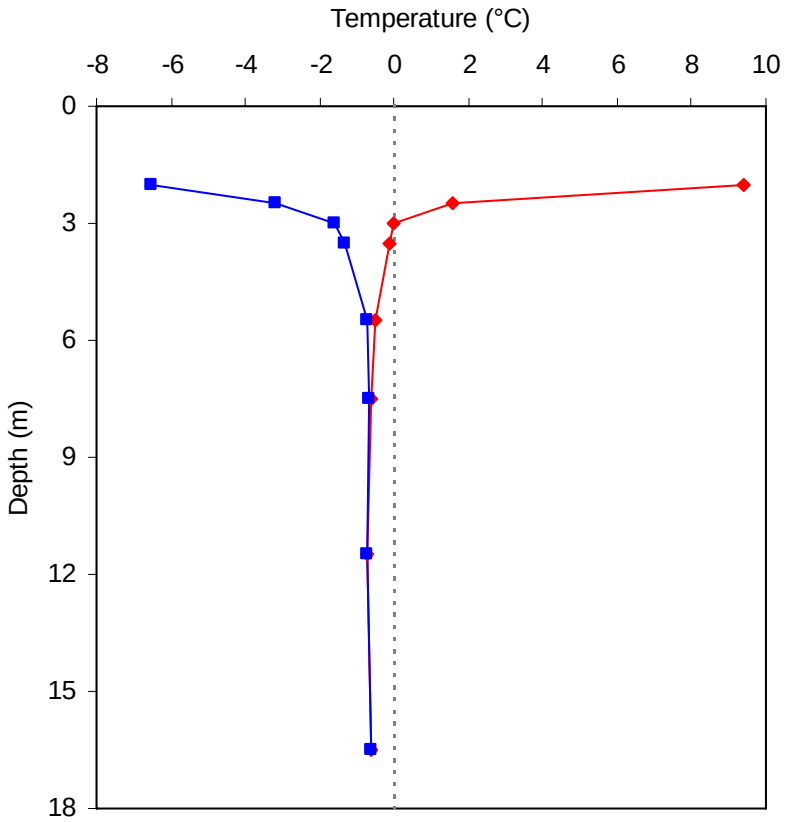


Depth (m)	Max (°C)	Min (°C)
0.36	12.89	-3.17
0.86	8.43	-1.24
1.36	6.40	-0.21
3.36	2.39	0.21
6.36	0.74	0.09
11.36	-0.06	-0.07
19.36	-0.36	-0.37

Old Fort Point — OFP-01

Sahtu Settlement Region

Latitude: 64.65 N Longitude: 124.84 W
Elevation: 112 m a.s.l.
Landform: Lacustrine plain
Vegetation cover: Open mixed spruce, pine deciduous forest adjacent to open, low-lying fen
Thaw Depth: 3.02 m
Site visit: September 14, 2011

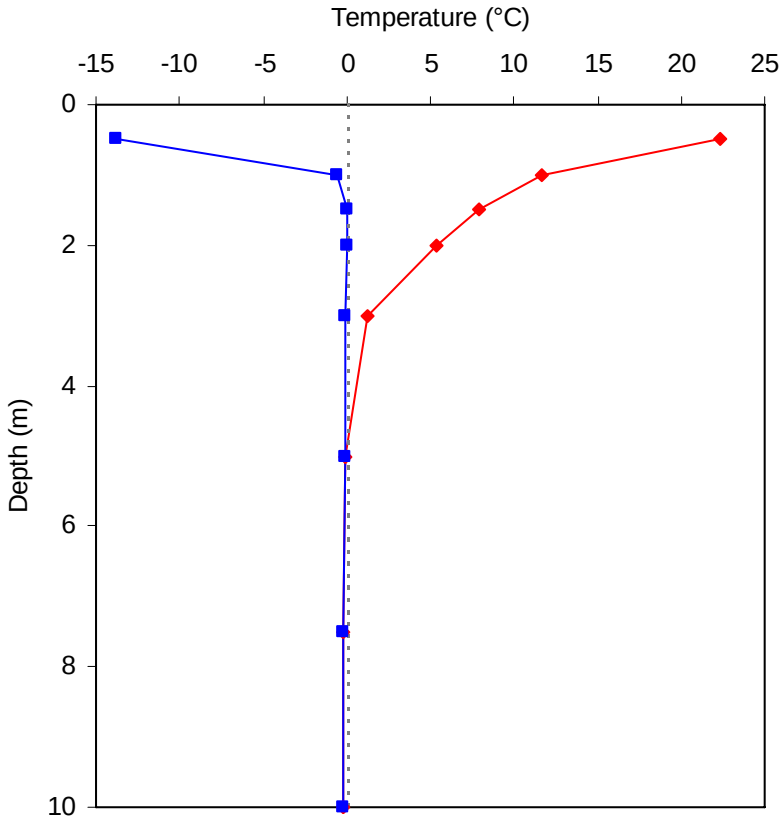


Depth (m)	Max (°C)	Min (°C)
2	9.37	-6.51
2.5	1.56	-3.20
3	0.01	-1.60
3.5	-0.12	-1.35
5.5	-0.51	-0.70
7.5	-0.59	-0.66
11.5	-0.71	-0.72
16.5	-0.62	-0.63

Police Island — PI-01

Sahtu Settlement Region

Latitude: 64.83 N Longitude: 125.02 W
Elevation: 113 m a.s.l.
Landform: Lacustrine plain
Vegetation cover: Recovering burn (burnt black spruce forest)
Thaw Depth: 4.93 m
Site visit: September 14, 2011

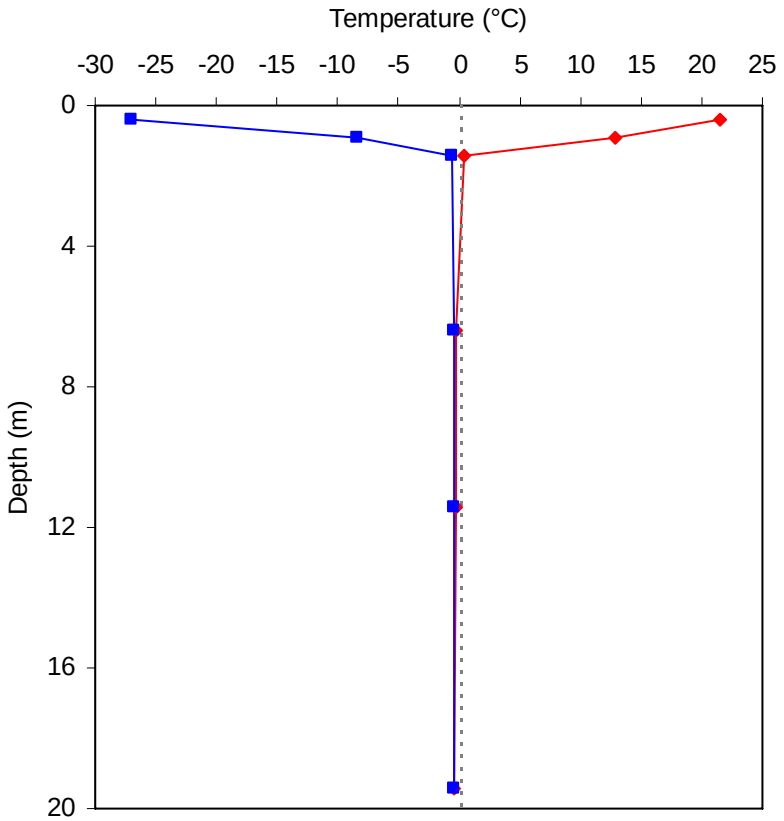


Depth (m)	Max (°C)	Min (°C)
0.5	20.77	-13.71
1	10.83	-0.37
1.5	7.44	0.02
2	5.14	0.00
3	1.83	-0.05
5	-0.06	-0.10
7.5	-0.15	-0.17
10	-0.22	-0.24

Police Island — PI-02

Sahtu Settlement Region

Latitude: 64.83 N Longitude: 125.01 W
Elevation: 113 m a.s.l.
Landform: Lacustrine plain
Vegetation cover: Unburnt, black spruce forest with moss and lichen ground cover
Thaw Depth: 4.81 m
Site visit: September 14, 2011

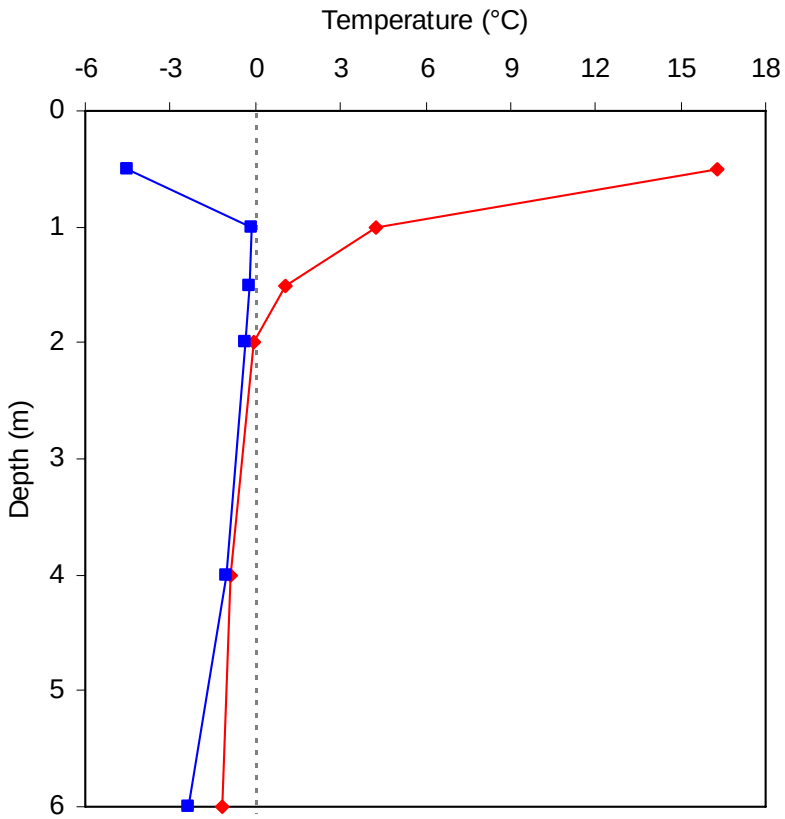


Depth (m)	Max (°C)	Min (°C)
0.4	21.57	-26.97
0.9	12.79	-8.44
1.4	0.49	-0.66
6.4	-0.23	-0.39
11.4	-0.30	-0.40
19.4	-0.36	-0.46

Vermillion Creek — VC-01

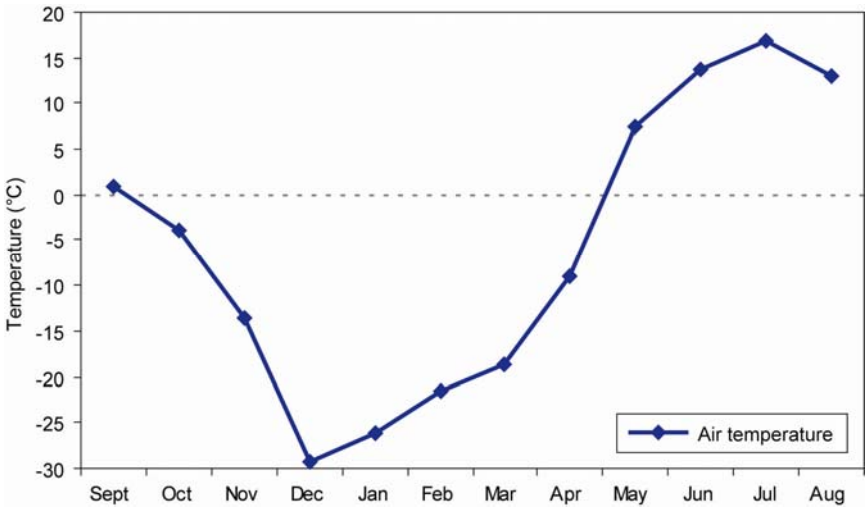
Sahtu Settlement Region

Latitude: 66.10 N Longitude: 126.14 W
Elevation: 92 m a.s.l.
Landform: Moraine plain (site at approach to water crossing)
Vegetation cover: NW side of creek, on top of ridge in black spruce forest
Thaw Depth: 1.97 m
Site visit: September 13, 2011



Depth (m)	Max (°C)	Min (°C)
0.5	16.29	-4.55
1	4.25	-0.14
1.5	1.07	-0.23
2	-0.07	-0.33
4	-0.84	-1.03
6	-1.18	-2.36

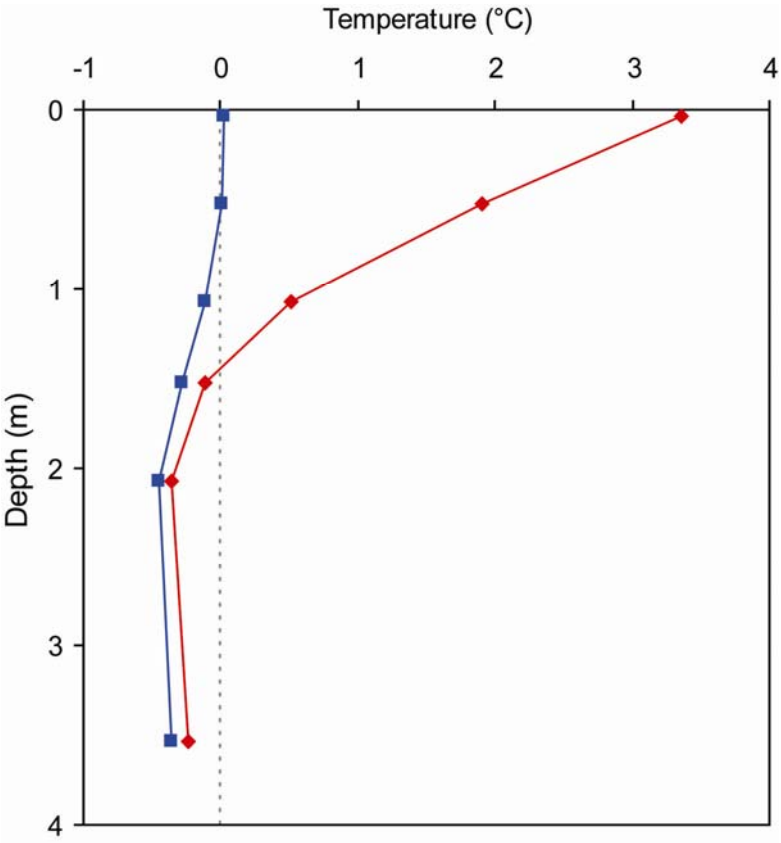
Month / Year	Temperature (°C)	
	Air	Surface
Sept / 2010	1.0	n/a
Oct / 2010	-4.0	n/a
Nov / 2010	-13.7	n/a
Dec / 2010	-29.2	n/a
Jan / 2011	-26.1	n/a
Feb / 2011	-21.5	n/a
Mar / 2011	-18.7	n/a
Apr / 2011	-9.0	n/a
May / 2011	7.5	n/a
Jun / 2011	13.7	n/a
Jul / 2011	16.8	n/a
Aug / 2011	12.9	n/a



Vermillion Creek — VC-02

Sahtu Settlement Region

Latitude: 66.10 N Longitude: 126.13 W
Elevation: 92 m a.s.l.
Landform: Moraine plain (site at approach to water crossing)
Vegetation cover: SE side of creek on plateau in area of burnt black spruce
Thaw Depth: 1.05 m
Site visit: September 13, 2011

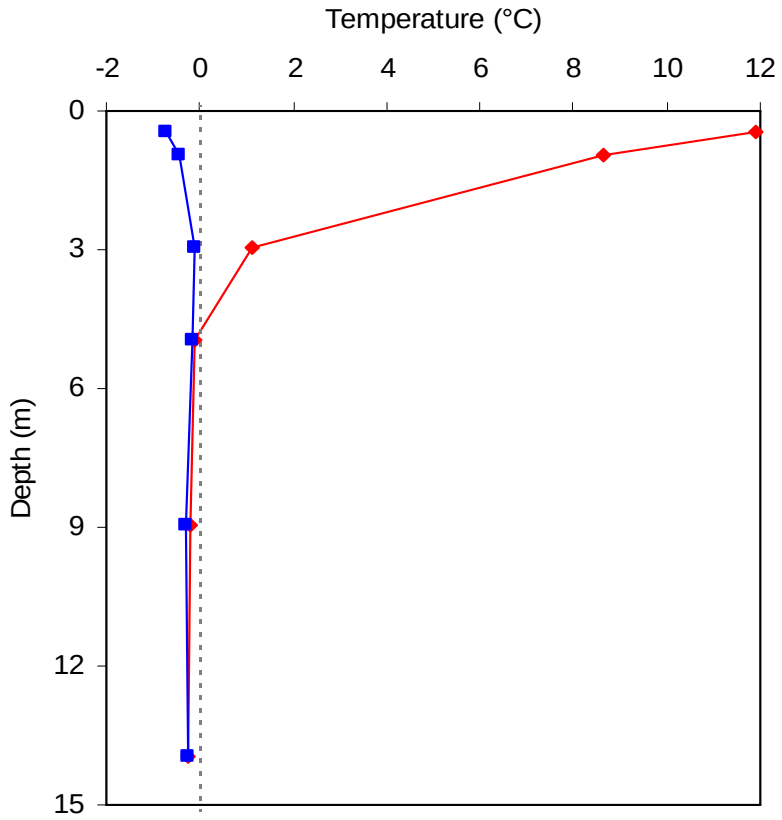


Depth (m)	Max (°C)	Min (°C)
0.03	3.37	0.02
0.53	1.90	0.00
1.08	-0.12	-0.28
1.53	-0.24	-0.36
2.08	-0.36	-0.45
3.53	0.52	-0.11

Billy Creek North — BCN-01

Sahtu Settlement Region

Latitude: 65.40 N Longitude: 127.32 W
Elevation: 90 m a.s.l.
Landform: Alluvial and eolian sediments overlying low-lying lacustrine plain
Vegetation cover: Peat cover with dense-forested black spruce and mixed shrub
Thaw Depth: 4.79 m
Site visit: September 12, 2011

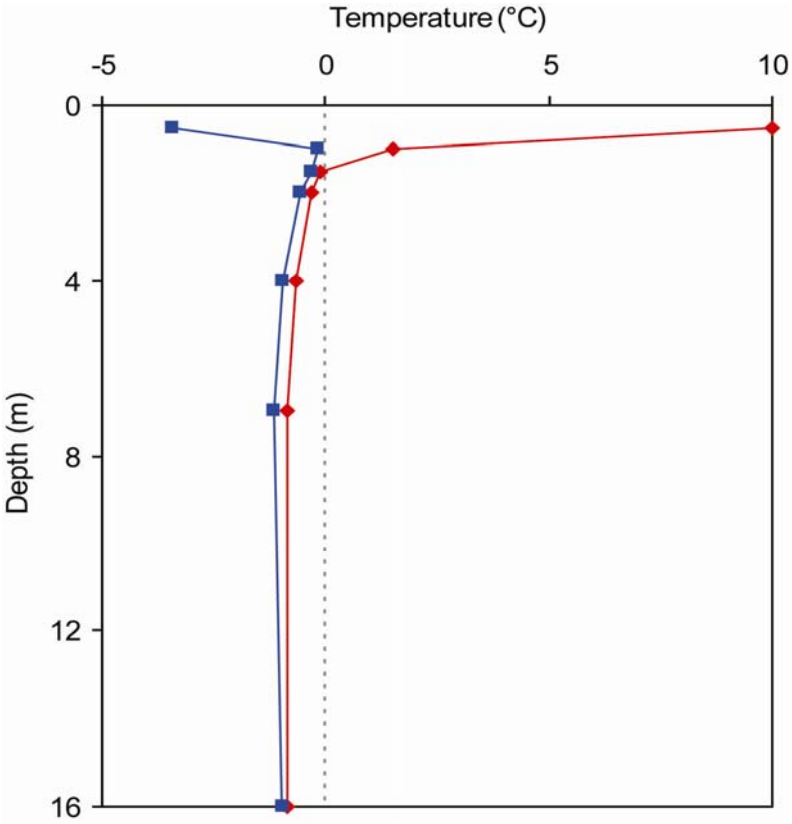


Depth (m)	Max (°C)	Min (°C)
0.47	11.92	-0.73
0.97	8.63	-0.46
2.97	1.12	-0.10
4.97	-0.11	-0.16
8.97	-0.20	-0.27
13.97	-0.26	-0.27

Oscar Creek — OC-01

Sahtu Settlement Region

Latitude: 65.44 N Longitude: 127.44 W
Elevation: 64 m a.s.l.
Landform: Undulating glaciolacustrine terrain overlain by alluvial sediments
Vegetation cover: Peat cover with dense-forested birch and black spruce
Thaw Depth: 1.46 m
Site visit: September 12, 2011

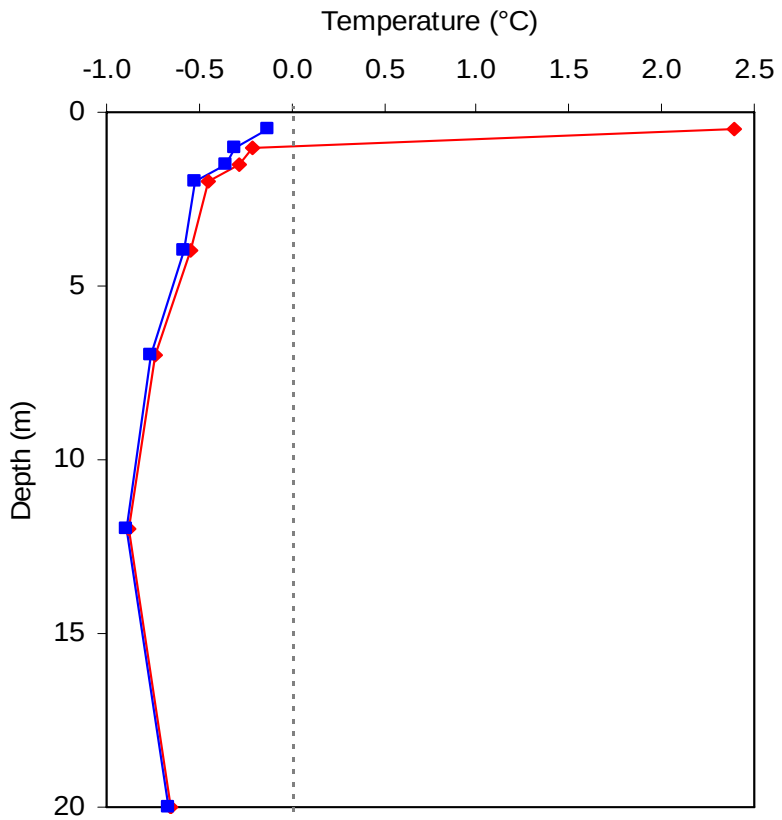


Depth (m)	Max (°C)	Min (°C)
0.5	10.01	-3.43
1	1.52	-0.14
1.5	-0.12	-0.30
2	-0.32	-0.54
4	-0.64	-0.93
7	-0.87	-1.13
12	-2.47	-3.43
16	-0.86	-0.97

Elliot Creek — EC-01

Sahtu Settlement Region

Latitude: 65.52 N Longitude: 127.62 W
Elevation: 54 m a.s.l.
Landform: Lacustrine undulating plain, well-drained elevated area
Vegetation cover: Peat cover on edge of open, mature black spruce forest
Thaw Depth: 0.96 m
Site visit: September 12, 2011

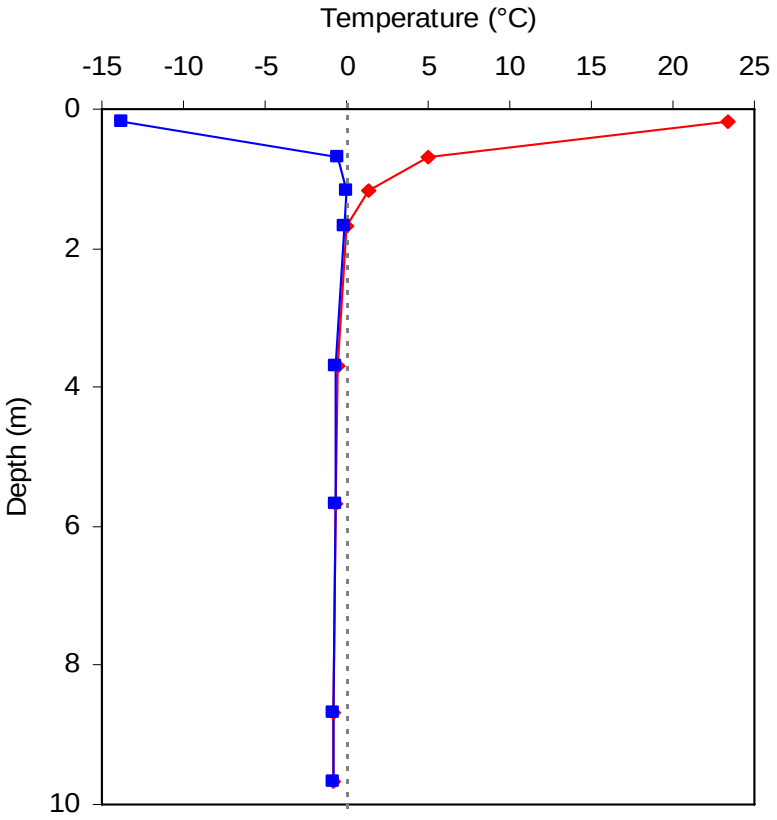


Depth (m)	Max (°C)	Min (°C)
0.5	2.39	-0.12
1	-0.21	-0.30
1.5	-0.28	-0.36
2	-0.45	-0.52
4	-0.55	-0.58
7	-0.74	-0.76
12	-0.88	-0.89
20	-0.66	-0.67

Elliot Creek — EC-02

Sahtu Settlement Region

Latitude: 65.52 N Longitude: 127.62 W
Elevation: 54 m a.s.l.
Landform: Lacustrine plain overlain by alluvial sediments
Vegetation cover: Peat cover on edge of dense, mature black spruce forest
Thaw Depth: 1.67 m
Site visit: September 12, 2011

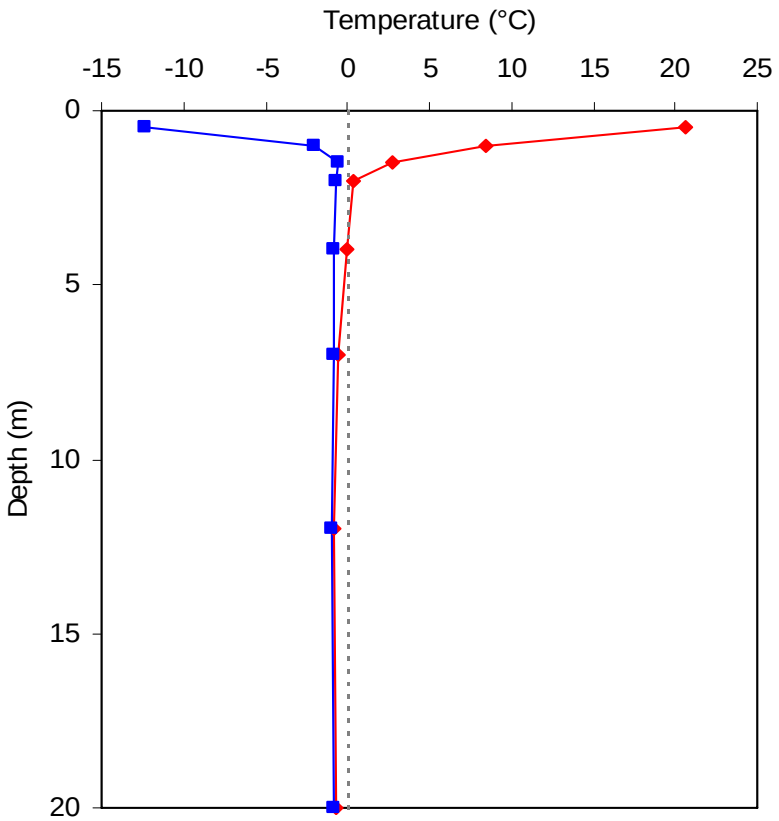


Depth (m)	Max (°C)	Min (°C)
0.18	23.39	-13.80
0.68	4.99	-0.51
1.18	1.34	-0.02
1.68	-0.04	-0.19
3.68	-0.52	-0.62
5.68	-0.64	-0.73
8.68	-0.75	-0.80
9.68	-0.75	-0.80

Hanna River — HR-01

Sahtu Settlement Region

Latitude: 65.67 N Longitude: 127.83 W
Elevation: 104 m a.s.l.
Landform: Lacustrine plain
Vegetation cover: Boggy burnt area
Thaw Depth: 1.37 m
Site visit: September 12, 2011

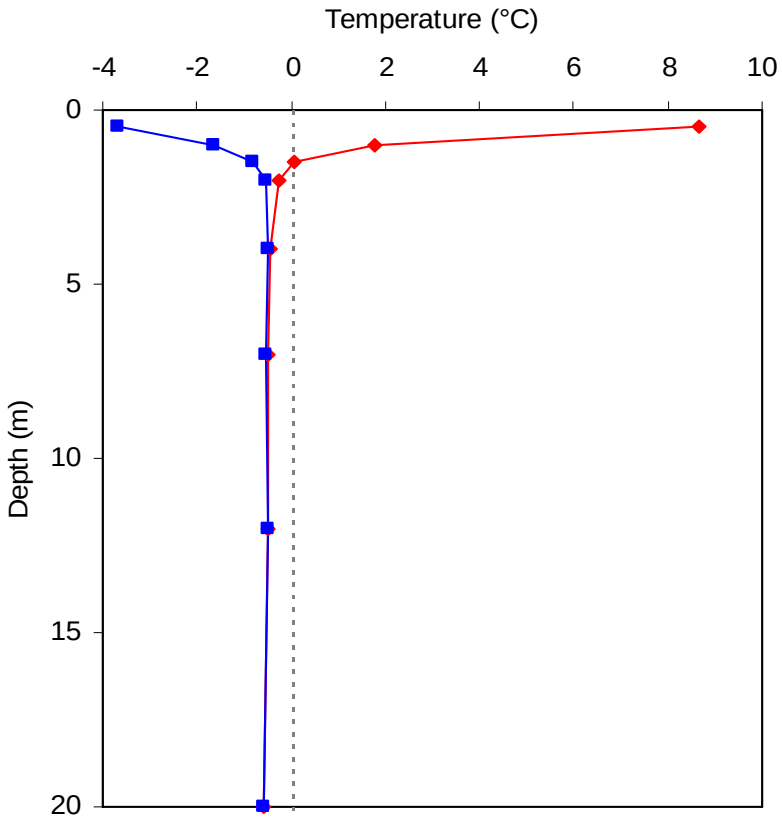


Depth (m)	Max (°C)	Min (°C)
0.5	4.86	-2.61
1	0.32	-0.77
1.5	-0.11	-0.50
2	-0.33	-0.50
4	-0.54	-0.75
7	-0.79	-0.84
12	-0.88	-0.93
20	-0.82	-0.83

Gibson Lake — GL-01

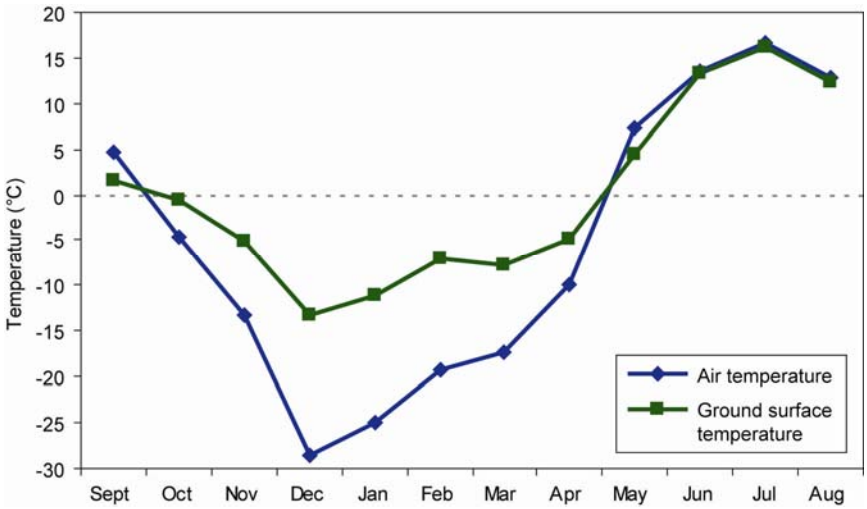
Sahtu Settlement Region

Latitude: 65.75 N Longitude: 127.89 W
Elevation: 228 m a.s.l.
Landform: Hummocky moraine plain
Vegetation cover: Recovering burnt area with peat and shrubs
Thaw Depth: 1.94 m
Site visit: September 12, 2011



Depth (m)	Max (°C)	Min (°C)
0.5	10.78	-1.94
1	3.39	-0.26
1.5	0.89	-0.08
2	-0.11	-0.29
4	-0.38	-0.45
7	-0.52	-0.53
12	-0.49	-0.50
20	-0.58	-0.58

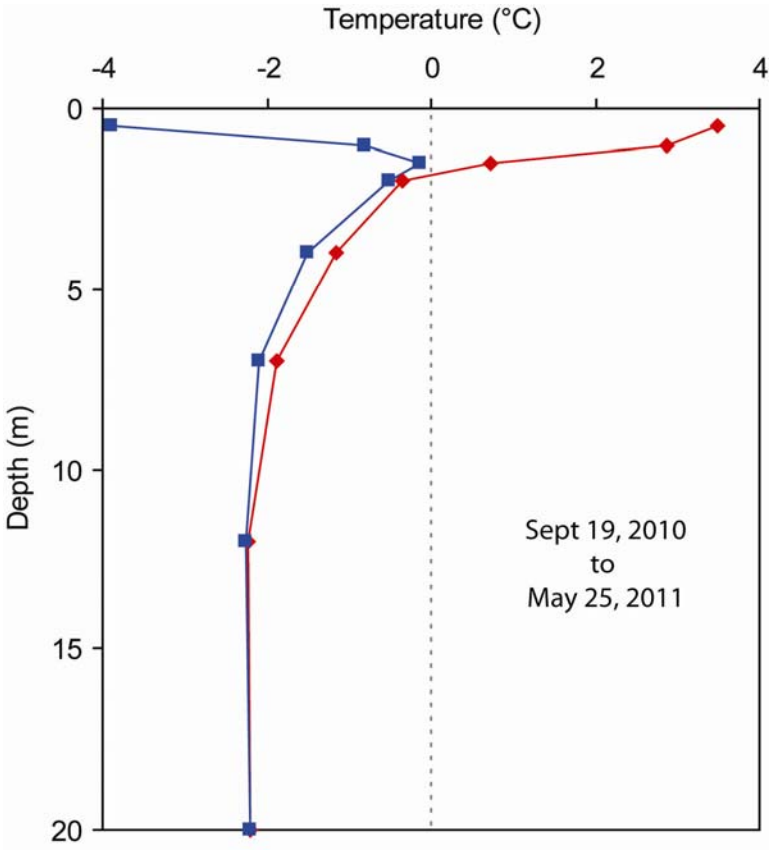
Month / Year	Temperature (°C)	
	Air	Surface
Sept / 2010	4.7	1.6
Oct / 2010	-4.6	-0.5
Nov / 2010	-13.3	-5.1
Dec / 2010	-28.5	-13.3
Jan / 2011	-25.1	-11.1
Feb / 2011	-19.2	-7.1
Mar / 2011	-17.3	-7.6
Apr / 2011	-9.9	-4.8
May / 2011	7.3	4.4
Jun / 2011	13.6	13.3
Jul / 2011	16.6	16.2
Aug / 2011	12.9	12.3



Chick Lake — CL-01

Sahtu Settlement Region

Latitude: 65.90 N Longitude: 128.24 W
Elevation: 122 m a.s.l.
Landform: Moraine plain
Vegetation cover: Peat and organic soil with open black spruce forest and shrubs
Thaw Depth: 1.84 m
Site visit: September 12, 2011

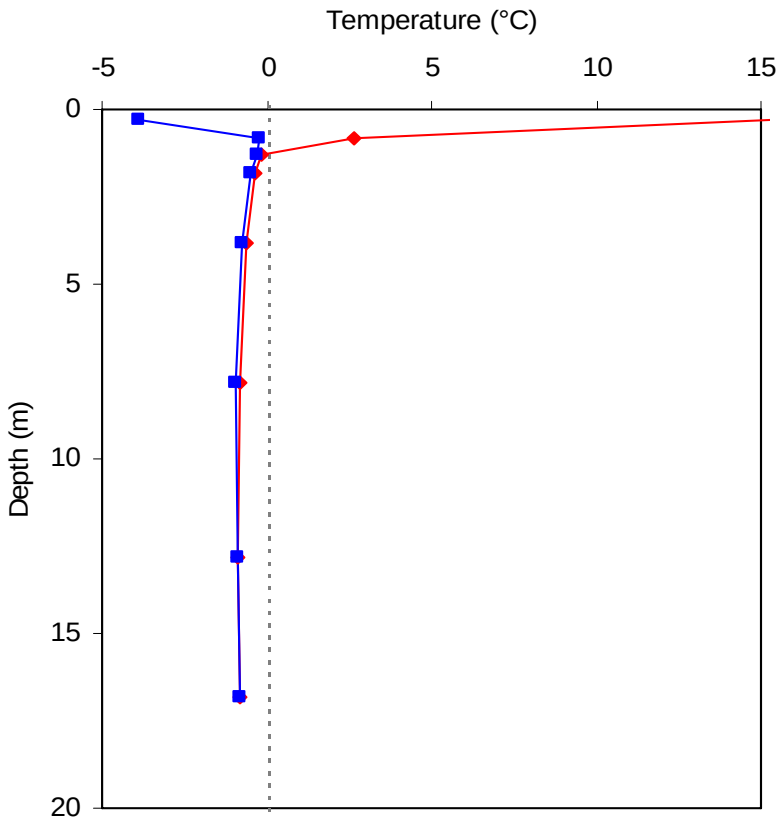


Depth (m)	Max (°C)	Min (°C)
0.5	3.50	-3.89
1	2.86	-0.81
1.5	0.73	-0.12
2	-0.35	-0.50
4	-1.17	-1.51
7	-1.88	-2.09
12	-2.23	-2.25
20	-2.20	-2.21

Snafu Creek — SC-01

Sahtu Settlement Region

Latitude: 66.00 N Longitude: 128.35 W
Elevation: 100 m a.s.l.
Landform: Moraine plain
Vegetation cover: Peat bog, open black spruce forest, and lichen cover
Thaw Depth: 1.29 m
Site visit: September 12, 2011

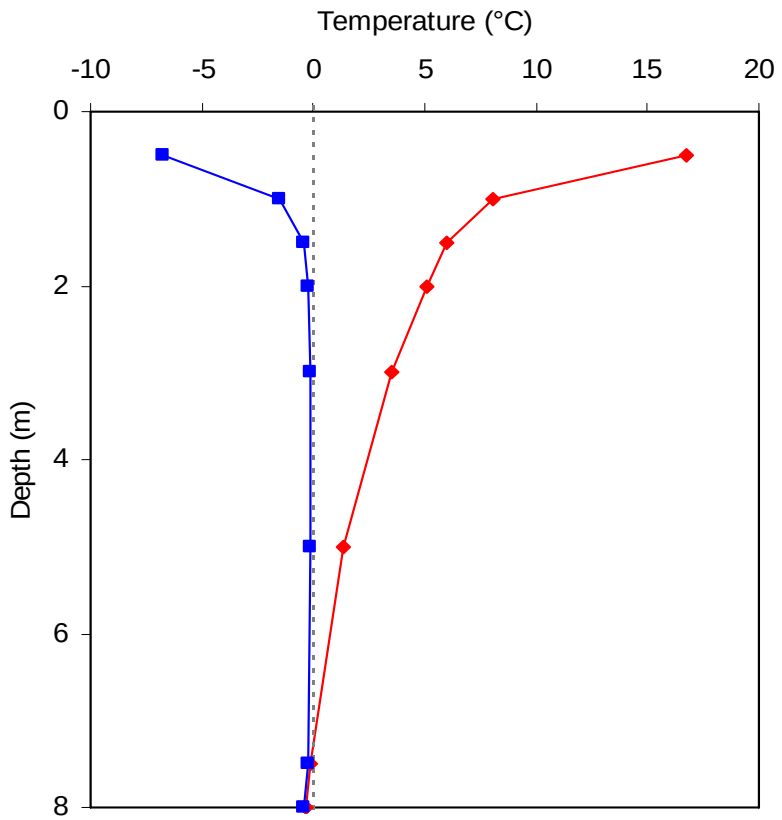


Depth (m)	Max (°C)	Min (°C)
0.32	15.34	-3.87
0.82	2.63	-0.22
1.32	-0.19	-0.32
1.82	-0.36	-0.50
3.82	-0.60	-0.77
7.82	-0.84	-0.93
12.82	-0.89	-0.91
16.82	-0.81	-0.82

Fort Good Hope South — FGHS-01

Sahtu Settlement Region

Latitude: 66.21 N Longitude: 128.50 W
Elevation: 134 m a.s.l.
Landform: Hummocky peatland
Vegetation cover: Dense shrub and open black spruce
Thaw Depth: 7.26 m
Site visit: September 12, 2011

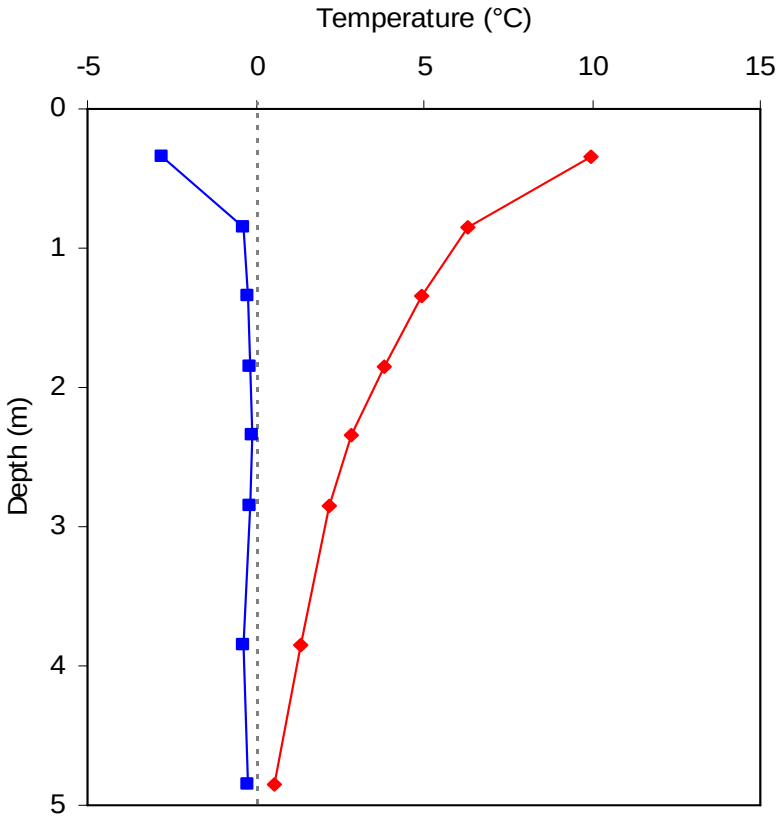


Depth (m)	Max (°C)	Min (°C)
0.5	16.71	-6.76
1	8.06	-1.52
1.5	6.03	-0.38
2	5.14	-0.20
3	3.51	-0.18
5	1.34	-0.16
7.5	-0.14	-0.24
8	-0.34	-0.40

Fort Good Hope South — FGHS-02

Sahtu Settlement Region

Latitude: 66.21 N Longitude: 128.50 W
Elevation: 134 m a.s.l.
Landform: Hummocky peatland
Vegetation cover: Peat plateau, lichen, open black spruce
Thaw Depth: 5.54 m (thaw depth was extrapolated from bottom two temperature measurements)
Site visit: September 12, 2011

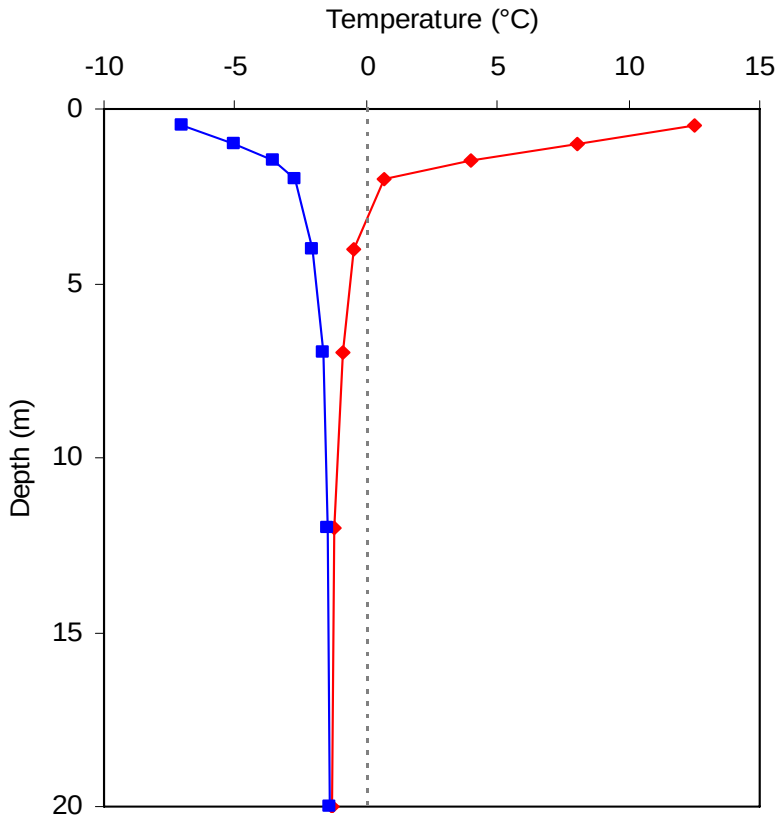


Depth (m)	Max (°C)	Min (°C)
0.35	9.99	-2.80
0.85	6.29	-0.38
1.35	4.94	-0.20
1.85	3.85	-0.18
2.35	2.83	-0.12
2.85	2.20	-0.16
3.85	1.37	-0.35
4.85	0.56	-0.21

Jackfish Creek — JF-02

Sahtu Settlement Region

Latitude: 66.29 N Longitude: 128.47 W
Elevation: 90 m a.s.l.
Landform: Eolian dune on moraine plain, well drained, elevated area
Vegetation cover: Black spruce forest and moss cover
Thaw Depth: 3.2 m
Site visit: September 12, 2011

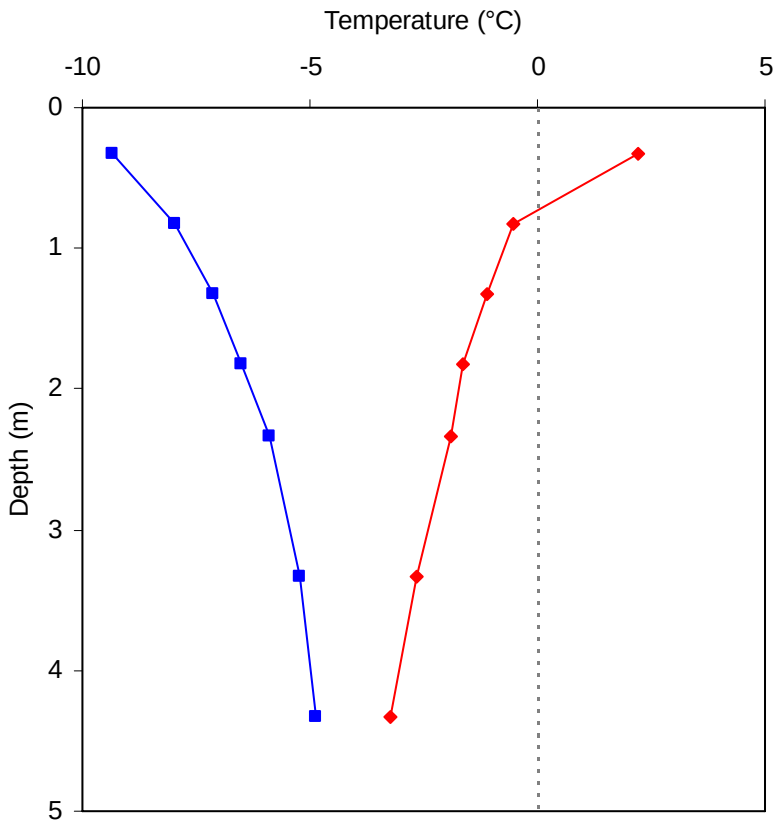


Depth (m)	Max (°C)	Min (°C)
0.5	12.51	-7.04
1	8.06	-5.02
1.5	3.96	-3.51
2	0.71	-2.72
4	-0.48	-2.04
7	-0.93	-1.61
12	-1.19	-1.50
20	-1.30	-1.37

Wood Bridge Lake — WBL-01

Gwich'in Settlement Region

Latitude: 67.90 N Longitude: 132.18 W
Elevation: 204 m a.s.l.
Landform: Alluvial plain
Vegetation: Black spruce forest
Thaw Depth: 0.73 m
Site visit: August 12, 2011



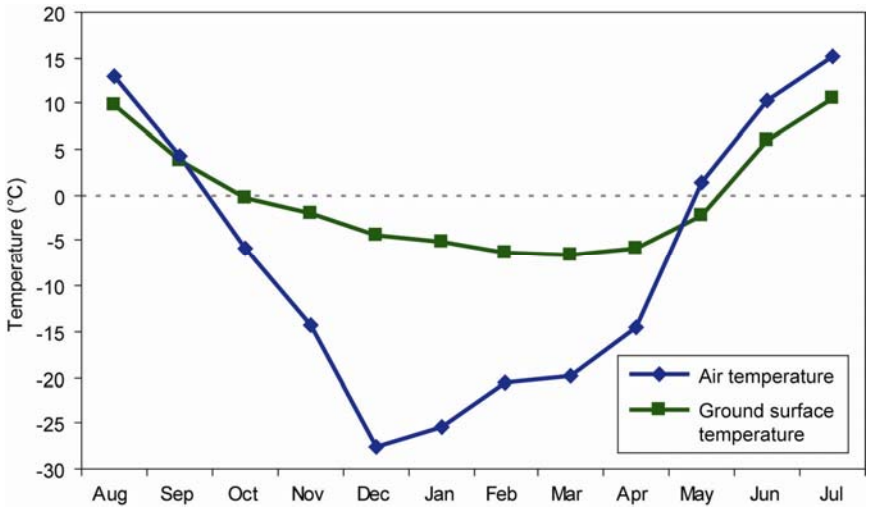
Depth (m)	Max (°C)	Min (°C)
0.33	2.22	-9.35
0.83	-0.52	-7.95
1.33	-1.11	-7.12
1.83	-1.63	-6.49
2.33	-1.89	-5.87
3.33	-2.65	-5.20
4.33	-3.23	-4.88

Rengleng River mouth — 91TT14

Gwich'in Settlement Region

Latitude: 67.80 N Longitude: 134.13 W
Elevation: 8 m a.s.l.
Landform: Alluvial plain
Vegetation cover: Mixed spruce and hardwood forest
Thaw Depth : 1.12 m (probed)
Site visit: August 16, 2011

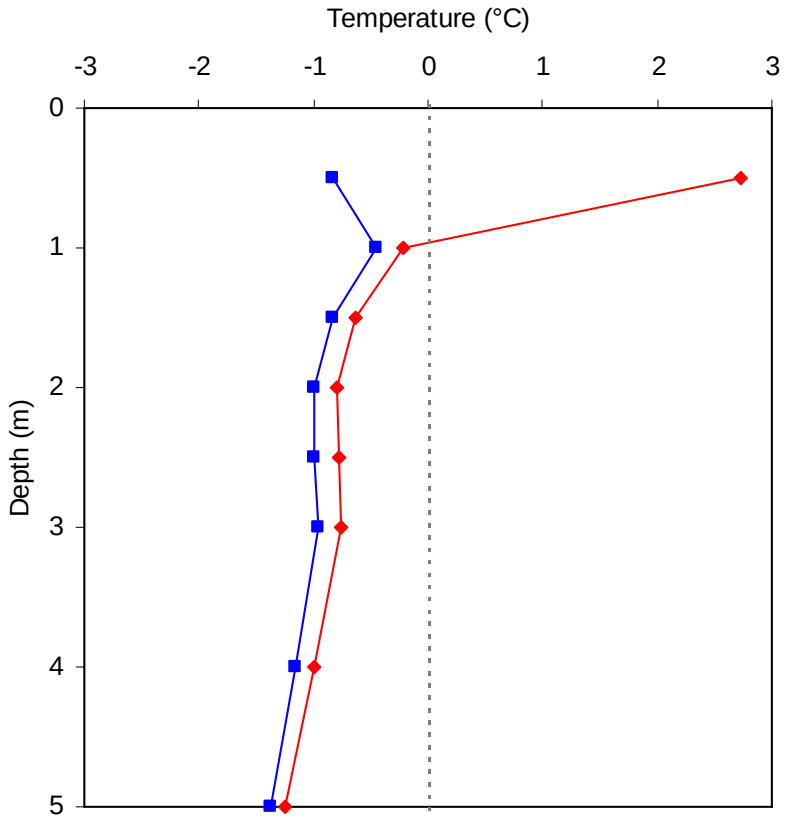
Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	12.92	9.84
Sept / 2010	4.29	3.86
Oct / 2010	-5.79	-0.41
Nov / 2010	-14.25	-1.88
Dec / 2010	-27.53	-4.43
Jan / 2011	-25.34	-5.16
Feb / 2011	-20.65	-6.23
Mar / 2011	-19.75	-6.64
Apr / 2011	-14.55	-5.75
May / 2011	1.32	-2.16
Jun / 2011	10.40	6.11
Jul / 2011	15.06	10.67



Hill Lake — HL-01

Gwich'in Settlement Region

Latitude: 67.99 N Longitude: 132.49 W
Elevation: 229 m a.s.l.
Landform: Moraine plain
Vegetation cover: Tundra
Thaw Depth : 0.96 m
Site visit: August 12, 2011

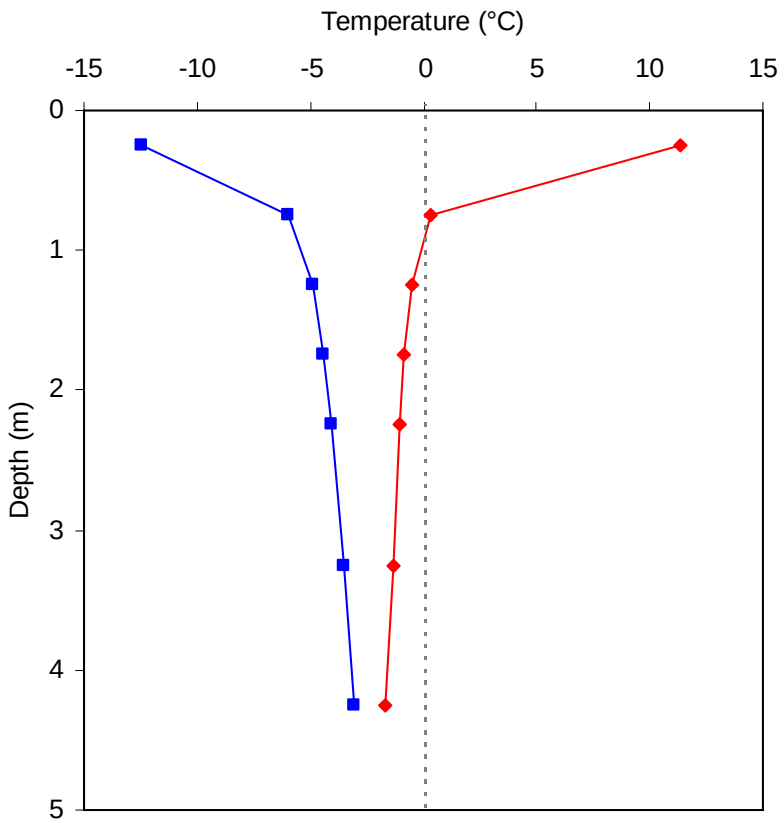


Depth (m)	Max (°C)	Min (°C)
0.5	2.72	-0.84
1	-0.22	-0.44
1.5	-0.64	-0.83
2	-0.80	-1.00
2.5	-0.78	-0.99
3	-0.75	-0.95
4	-1.00	-1.16
5	-1.24	-1.38

Hill Lake — HL-02

Gwich'in Settlement Region

Latitude: 67.99 N Longitude: 132.49 W
Elevation: 234 m a.s.l.
Landform: Moraine plain
Vegetation cover: Shrub Tundra
Thaw Depth: 0.94 m
Site visit: August 12, 2011

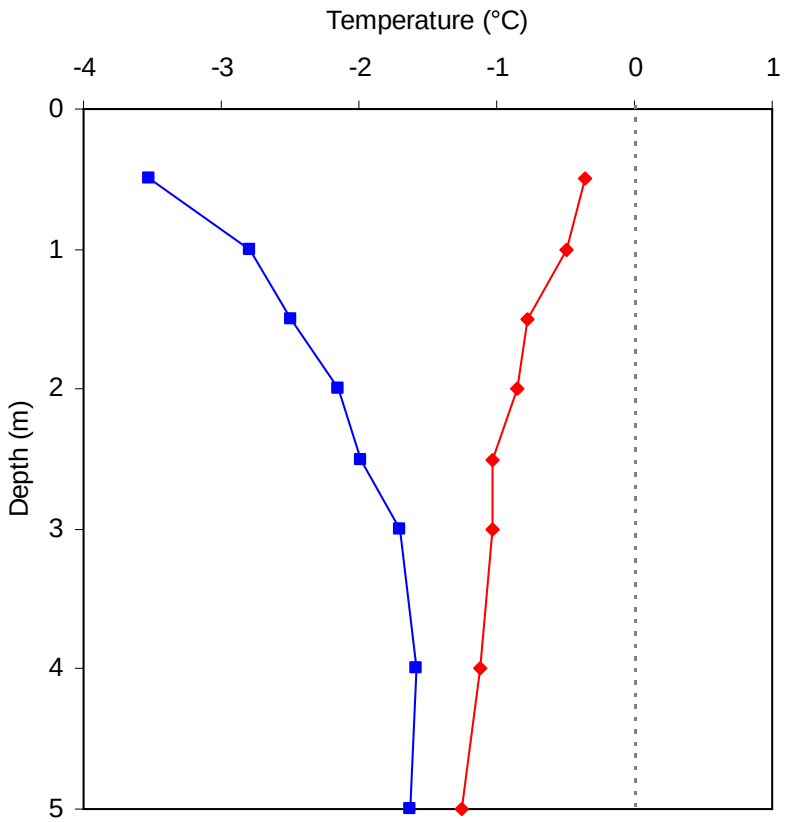


Depth (m)	Max (°C)	Min (°C)
0.25	11.35	-12.43
0.75	0.31	-5.94
1.25	-0.50	-4.87
1.75	-0.84	-4.45
2.25	-1.01	-4.04
3.25	-1.36	-3.47
4.25	-1.68	-3.10

North Caribou Lake — NCL-01

Gwich'in Settlement Region

Latitude: 68.15 N Longitude: 132.93 W
Elevation: 209 m a.s.l.
Landform: Moraine plain
Vegetation cover: Peatland
Thaw Depth: 0.60 m (probed)
Site visit: August 15, 2011

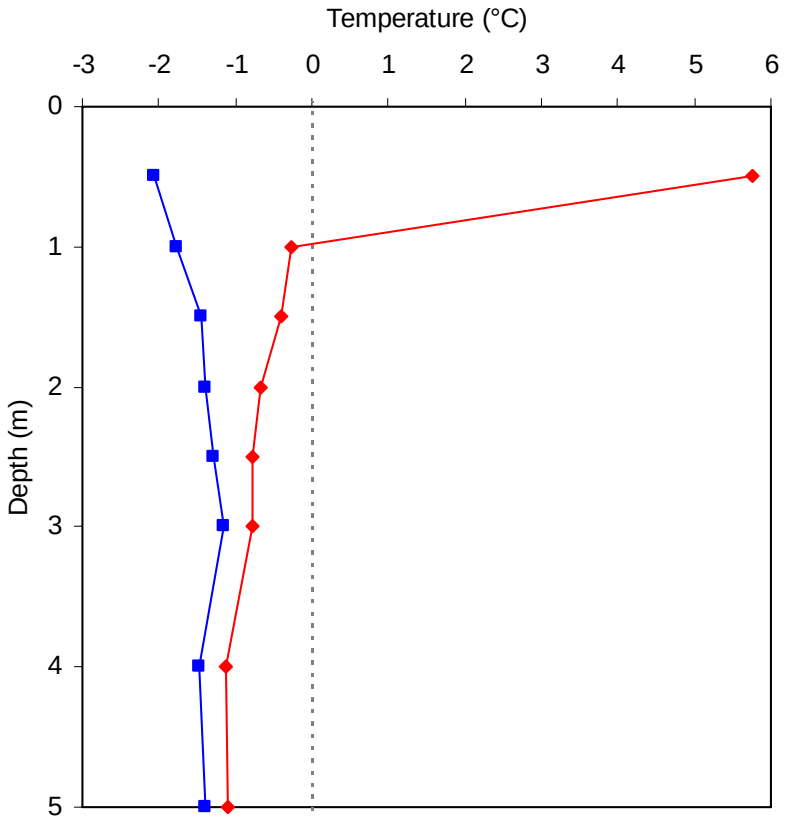


Depth (m)	Max (°C)	Min (°C)
0.5	-0.36	-3.52
1	-0.50	-2.79
1.5	-0.77	-2.49
2	-0.85	-2.15
2.5	-1.03	-1.98
3	-1.03	-1.70
4	-1.13	-1.58
5	-1.26	-1.63

North Caribou Lake — NCL-02

Gwich'in Settlement Region

Latitude: 68.15 N Longitude: 132.93 W
Elevation: 217 m a.s.l.
Landform: Moraine plain
Vegetation cover: Stunted black spruce forest
Thaw Depth: 0.98 m
Site visit: August 15, 2011

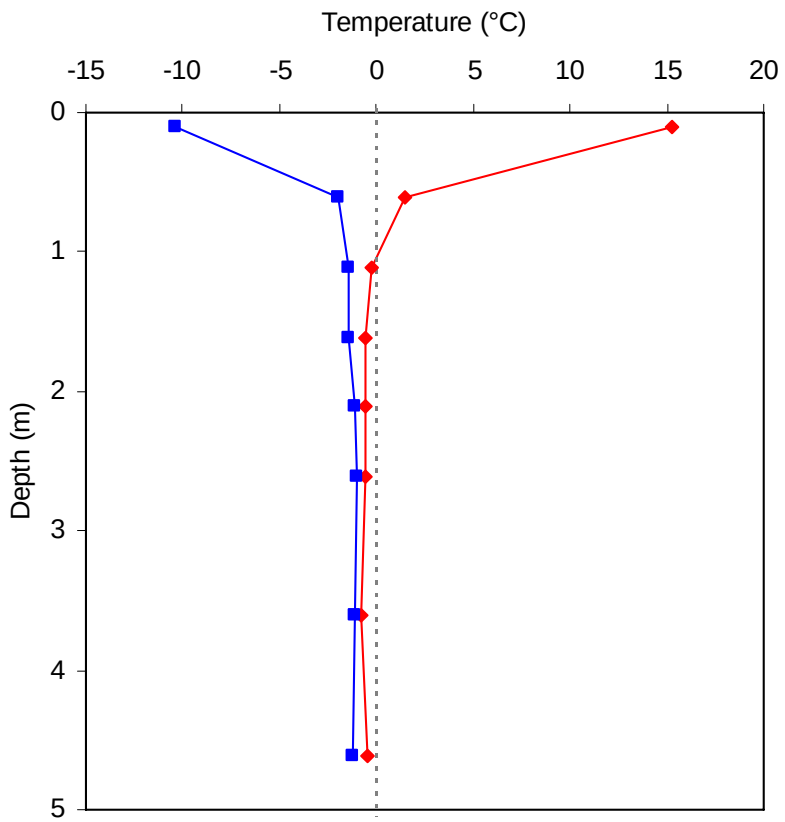


Depth (m)	Max (°C)	Min (°C)
0.5	5.75	-2.07
1	-0.27	-1.77
1.5	-0.40	-1.44
2	-0.68	-1.40
2.5	-0.77	-1.28
3	-0.78	-1.16
4	-1.12	-1.47
5	-1.09	-1.40

Campbell Lake — CaL-01

Gwich'in Settlement Region

Latitude: 68.24 N Longitude: 133.10 W
Elevation: 115 m a.s.l.
Landform: Moraine plain
Vegetation cover: Peatland
Thaw Depth: 1.03 m
Site visit: August 12, 2011

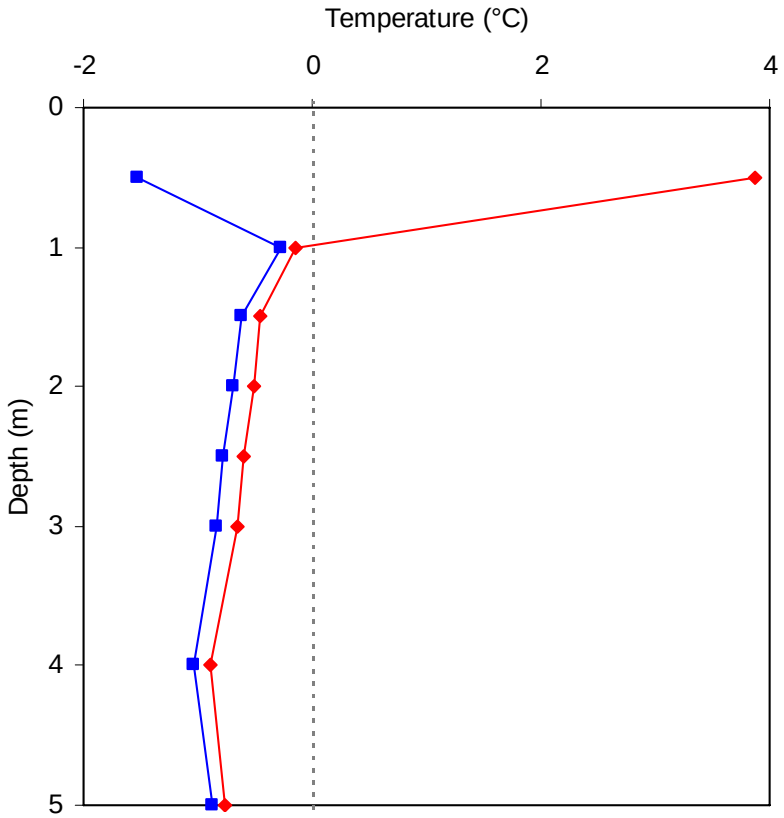


Depth (m)	Max (°C)	Min (°C)
0.11	15.27	-10.39
0.61	1.44	-1.98
1.11	-0.29	-1.48
1.61	-0.54	-1.44
2.11	-0.55	-1.16
2.61	-0.61	-1.03
3.61	-0.79	-1.13
4.61	-0.47	-1.20

Campbell Lake — CaL-02

Gwich'in Settlement Region

Latitude: 68.24 N Longitude: 133.09 W
Elevation: 118 m a.s.l.
Landform: Moraine plain
Vegetation cover: Cutline through Black spruce forest
Thaw Depth: 0.98 m
Site visit: August 12, 2011

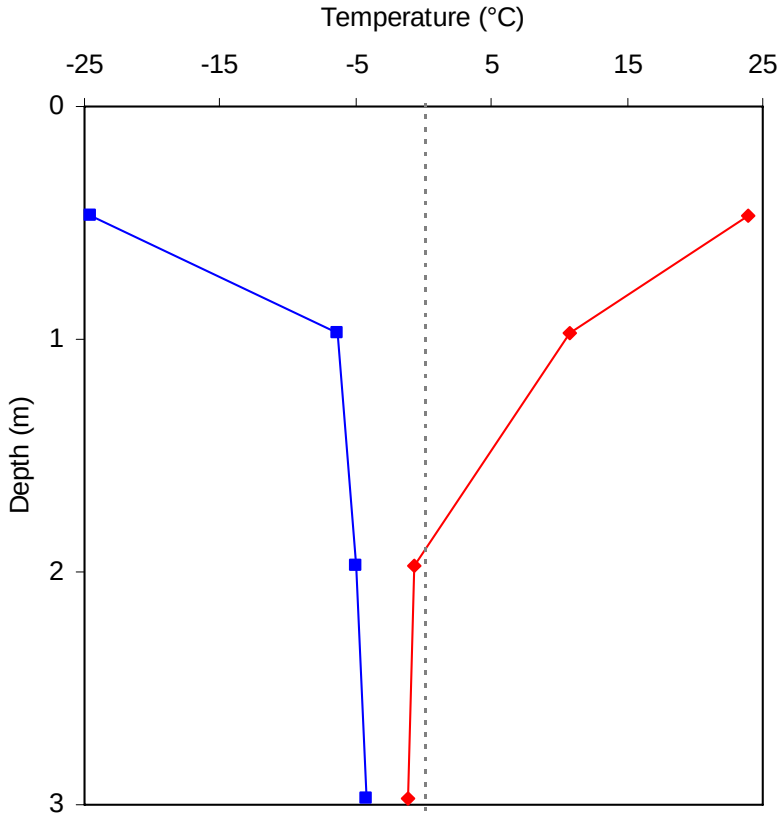


Depth (m)	Max (°C)	Min (°C)
0.5	3.87	-1.52
1	-0.15	-0.27
1.5	-0.45	-0.62
2	-0.51	-0.69
2.5	-0.61	-0.79
3	-0.66	-0.83
4	-0.89	-1.03
5	-0.76	-0.87

Campbell Lake — CaL-03

Gwich'in Settlement Region

Latitude: 68.24 N Longitude: 133.10 W
Elevation: 118 m a.s.l.
Landform: Moraine plain
Vegetation cover: Black spruce forest
Thaw Depth: 1.91 m
Site visit: August 12, 2011

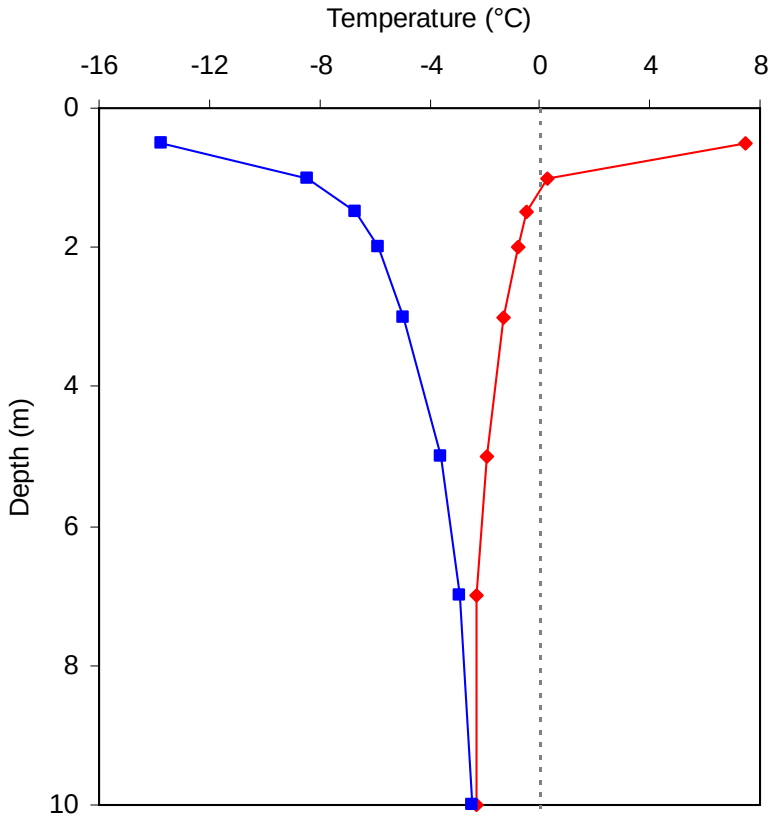


Depth (m)	Max (°C)	Min (°C)
0.47	23.97	-24.60
0.97	10.83	-6.33
1.97	-0.66	-5.02
2.97	-1.07	-4.19

Inuvik Airport (trees) — 01TC2

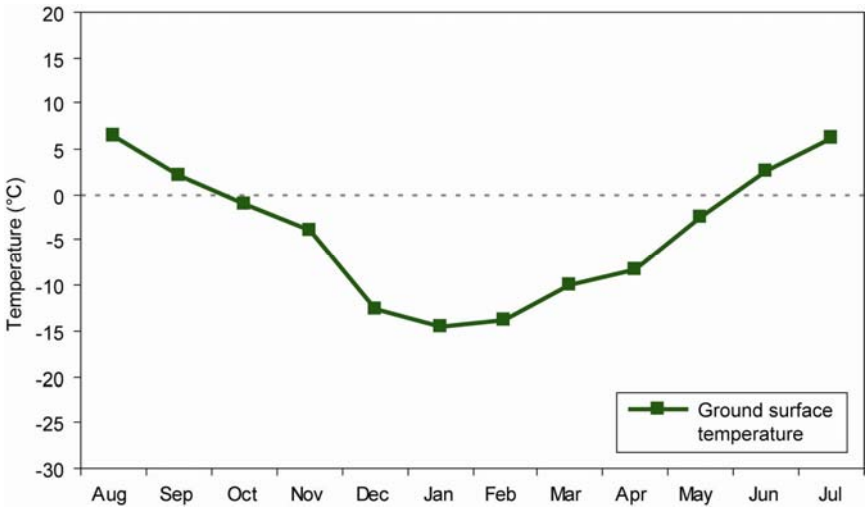
Gwich'in Settlement Area

Latitude: 68.32 N Longitude: 133.44 W
Elevation: 84 m a.s.l.
Landform: Fluted till plain, glacial (>10Ka)
Vegetation cover: Taiga open black spruce, heath ground cover
Thaw Depth: 1.17 m
Site visit: August 12, 2011



Depth (m)	Max (°C)	Min (°C)
0.5	7.46	-13.73
1	0.26	-8.42
1.5	-0.51	-6.71
2	-0.82	-5.87
3	-1.31	-4.95
5	-1.94	-3.60
7	-2.31	-2.90
10	-2.27	-2.42

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	n/a	6.6
Sept / 2010	n/a	2.0
Oct / 2010	n/a	-1.0
Nov / 2010	n/a	-4.0
Dec / 2010	n/a	-12.7
Jan / 2011	n/a	-14.6
Feb / 2011	n/a	-13.9
Mar / 2011	n/a	-9.9
Apr / 2011	n/a	-8.2
May / 2011	n/a	-2.4
Jun / 2011	n/a	2.7
Jul / 2011	n/a	6.3

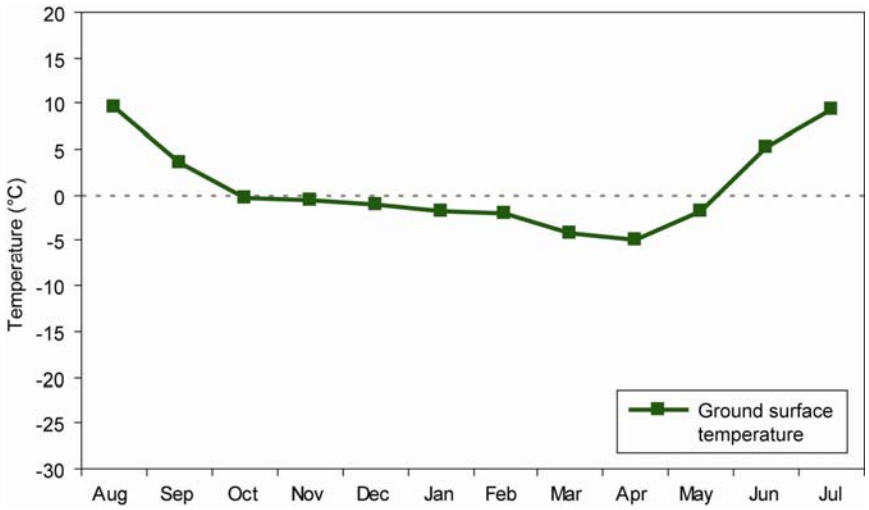


Inuvik Airport (bog) — 01TC3

Gwich'in Settlement Area

Latitude: 68.32 N Longitude: 133.43 W
Elevation: 68 m a.s.l.
Landform: Bog between ridges on fluted till plain, glacial (>10Ka)
Vegetation cover: Taiga open bog, scattered shrub, heath ground cover (forest tundra)
Thaw Depth: 0.58 m (probed)
Site visit: August 12, 2011

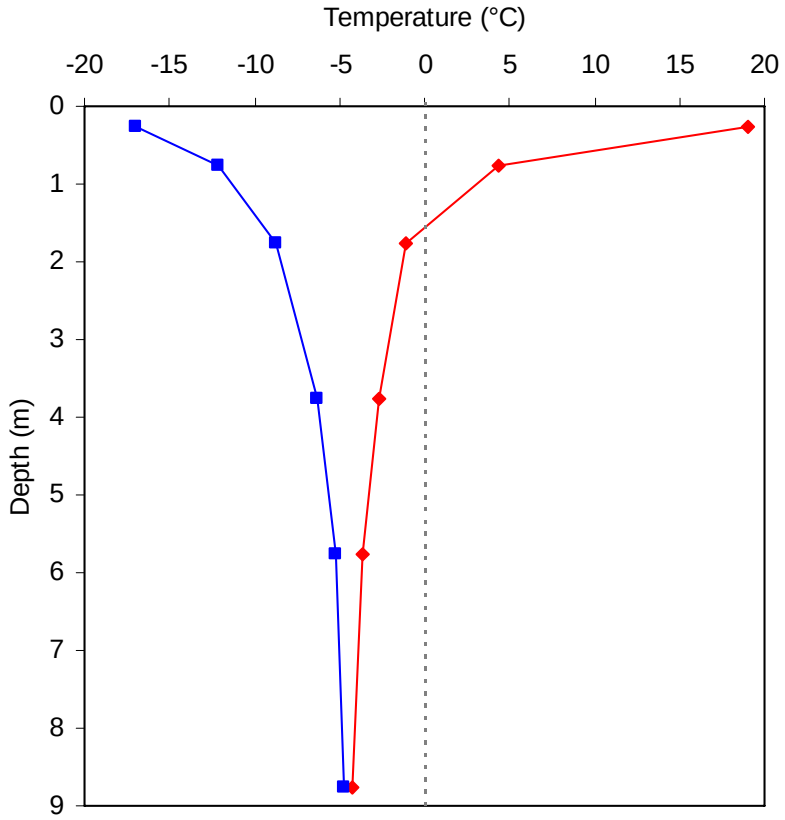
Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	n/a	13.71
Sept / 2010	n/a	5.39
Oct / 2010	n/a	1.37
Nov / 2010	n/a	-2.80
Dec / 2010	n/a	-2.88
Jan / 2011	n/a	-2.60
Feb / 2011	n/a	-2.06
Mar / 2011	n/a	-2.47
Apr / 2011	n/a	-0.53
May / 2011	n/a	7.15
Jun / 2011	n/a	13.95
Jul / 2011	n/a	16.43



Norris Creek — NC-01

Gwich'in Settlement Region

Latitude: 68.41 N Longitude: 133.29 W
Elevation: 15 m a.s.l.
Landform: Thick organic material over moraine plain
Vegetation cover: Shrub Tundra
Thaw Depth: 1.56 m
Site visit: August 12, 2011

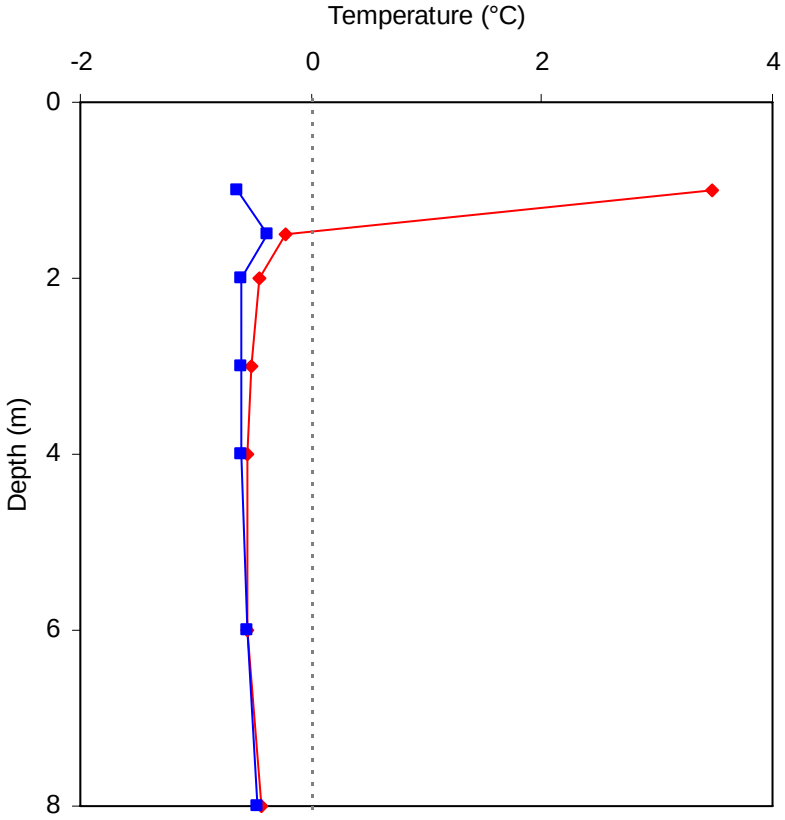


Depth (m)	Max (°C)	Min (°C)
0.25	19.01	-16.95
0.75	4.34	-12.14
1.75	-1.04	-8.76
3.75	-2.71	-6.35
5.75	-3.69	-5.19
8.75	-4.24	-4.74

Navy Channel — 03TC1

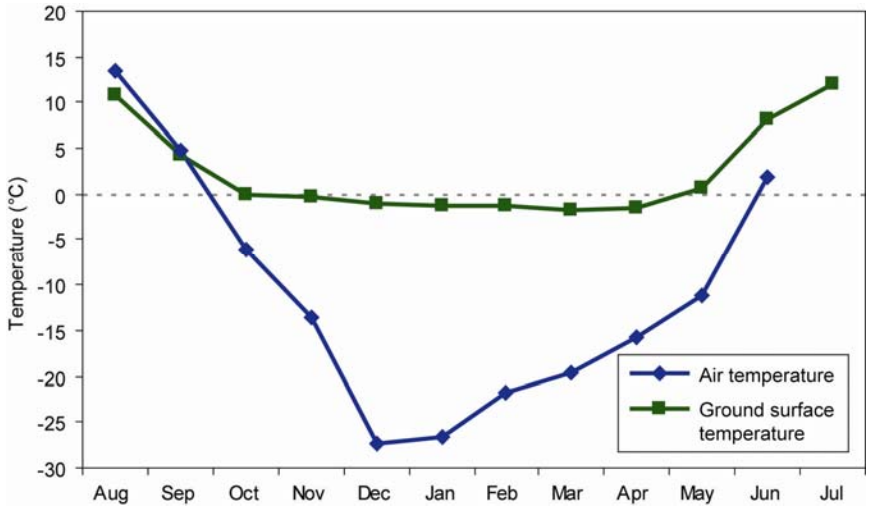
Inuvialuit Settlement Region

Latitude: 68.42 N Longitude: 133.79 W
Elevation: 5 m a.s.l.
Landform: Surface of Holocene Mackenzie delta adjacent to eastern edge rising 10s of meters to till plain
Vegetation cover: Riparian high willow shrub, open, incomplete ground cover of forbs and sedge (forest tundra)
Thaw Depth: 1.47 m
Site visit: August 15, 2011



Depth (m)	Max (°C)	Min (°C)
1	3.47	-0.64
1.5	-0.22	-0.37
2	-0.45	-0.60
3	-0.52	-0.61
4	-0.56	-0.60
6	-0.56	-0.56
8	-0.44	-0.47

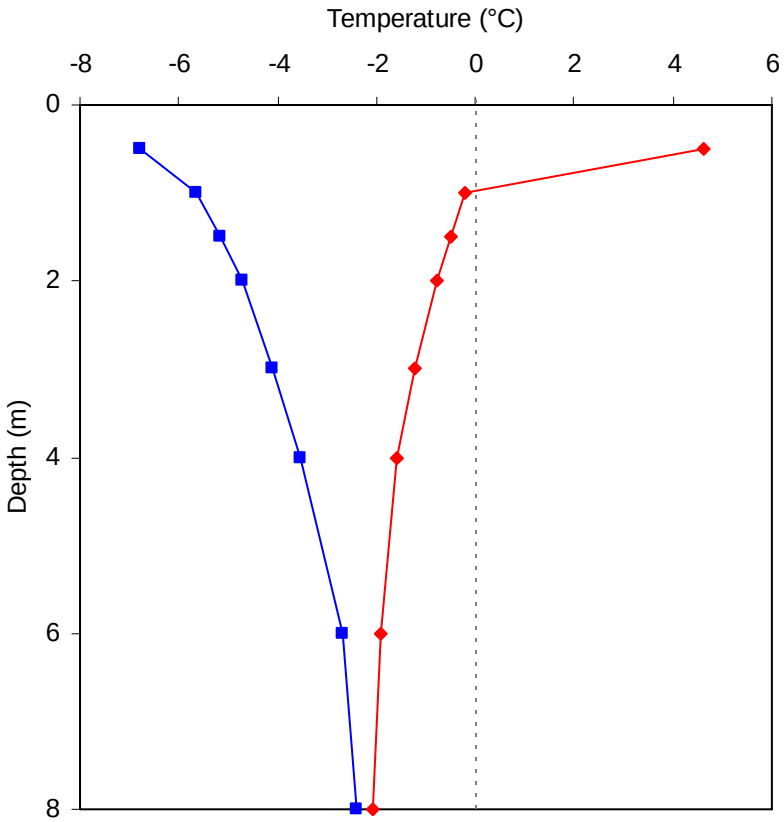
Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	13.49	10.74
Sept / 2010	4.73	4.26
Oct / 2010	-6.18	0.04
Nov / 2010	-13.52	-0.30
Dec / 2010	-27.42	-0.94
Jan / 2011	-26.62	-1.20
Feb / 2011	-21.82	-1.25
Mar / 2011	-19.60	-1.72
Apr / 2011	-15.63	-1.49
May / 2011	-11.27	0.77
Jun / 2011	1.94	8.04
Jul / 2011	n/a	12.12



Navy Road — 01TC1

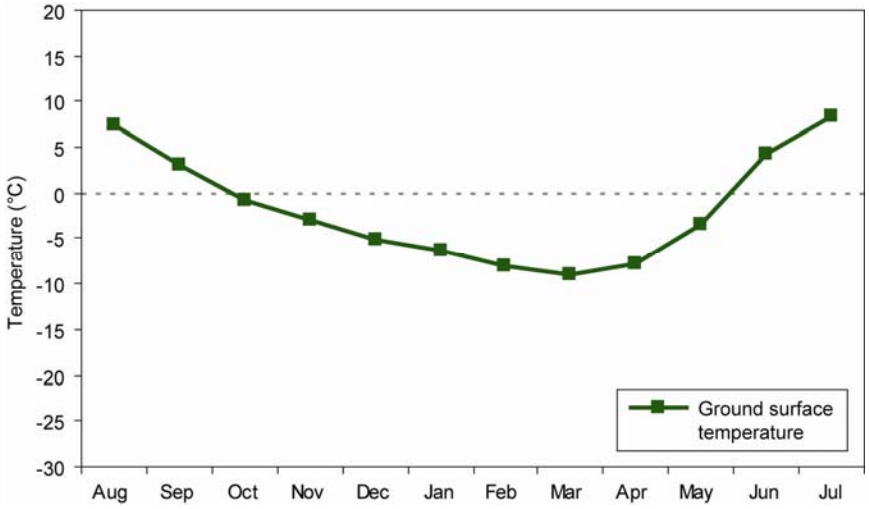
Inuvialuit Settlement Region

Latitude: 68.40 N Longitude: 133.76 W
Elevation: 60 m a.s.l.
Landform: Fine grained colluvium sloping toward river, post glacial (~10Ka)
Vegetation cover: Taiga post fire succession, scattered birch and alder, open dwarf birch, heath ground cover
Thaw Depth: 0.98 m
Site visit: August 17, 2011



Depth (m)	Max (°C)	Min (°C)
0.5	4.64	-6.79
1	-0.19	-5.64
1.5	-0.49	-5.14
2	-0.78	-4.70
3	-1.23	-4.11
4	-1.57	-3.52
6	-1.90	-2.67
8	-2.07	-2.38

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	n/a	7.3
Sept / 2010	n/a	3.0
Oct / 2010	n/a	-0.7
Nov / 2010	n/a	-2.8
Dec / 2010	n/a	-5.2
Jan / 2011	n/a	-6.2
Feb / 2011	n/a	-8.1
Mar / 2011	n/a	-8.9
Apr / 2011	n/a	-7.8
May / 2011	n/a	-3.3
Jun / 2011	n/a	4.3
Jul / 2011	n/a	8.5

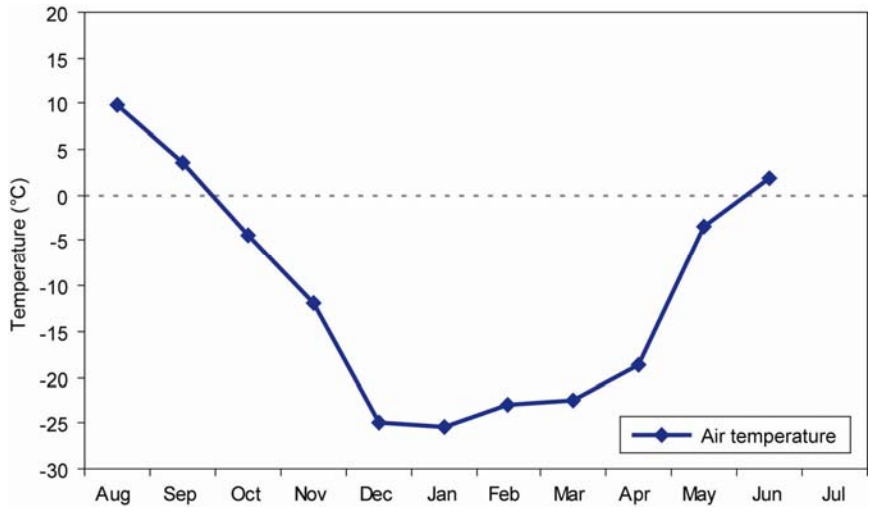


Reindeer Depot (Williams Island) — 91TT13

Inuvialuit Settlement Region

Latitude: 68.68 N Longitude: 134.15 W
Elevation: 5 m a.s.l.
Landform: Surface of bar in Mackenzie Delta
Vegetation cover: Riparian willow and alder shrub
Thaw Depth: 1.37 m
Site visit: August 15, 2011

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	11.37	n/a
Sept / 2010	4.77	n/a
Oct / 2010	-5.35	n/a
Nov / 2010	-13.31	n/a
Dec / 2010	-26.11	n/a
Jan / 2011	-25.20	n/a
Feb / 2011	-21.46	n/a
Mar / 2011	-19.43	n/a
Apr / 2011	-16.13	n/a
May / 2011	1.15	n/a
Jun / 2011	9.68	n/a
Jul / 2011	15.56	n/a

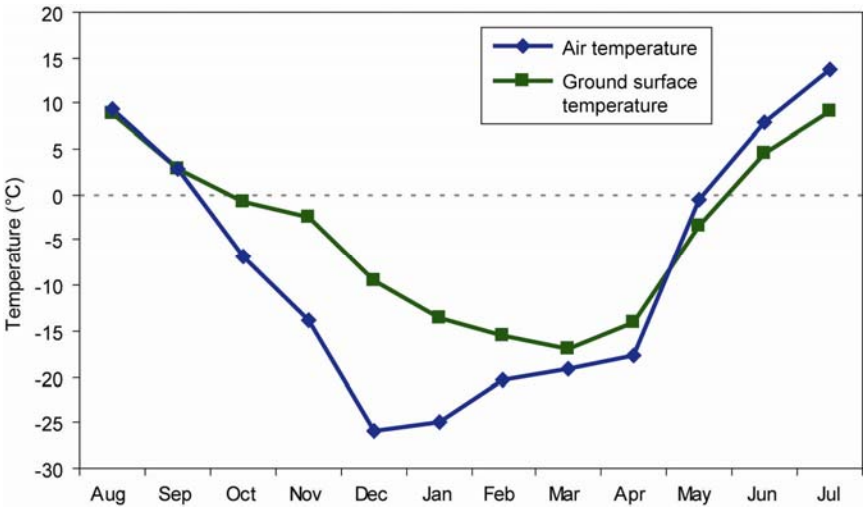


Reindeer Station plateau — 91TT12

Inuvialuit Settlement Region

Latitude: 68.69 N Longitude: 134.11 W
Elevation: 152 m a.s.l.
Landform: Plateau surface, till plain
Vegetation cover: Shrub tundra
Thaw Depth: 0.75 m
Site visit: August 15, 2011

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	9.30	8.89
Sept / 2010	2.91	2.82
Oct / 2010	-6.72	-0.66
Nov / 2010	-13.89	-2.38
Dec / 2010	-25.78	-9.35
Jan / 2011	-24.82	-13.61
Feb / 2011	-20.29	-15.42
Mar / 2011	-19.05	-16.88
Apr / 2011	-17.65	-13.94
May / 2011	-0.44	-3.55
Jun / 2011	7.84	4.55
Jul / 2011	13.71	9.13

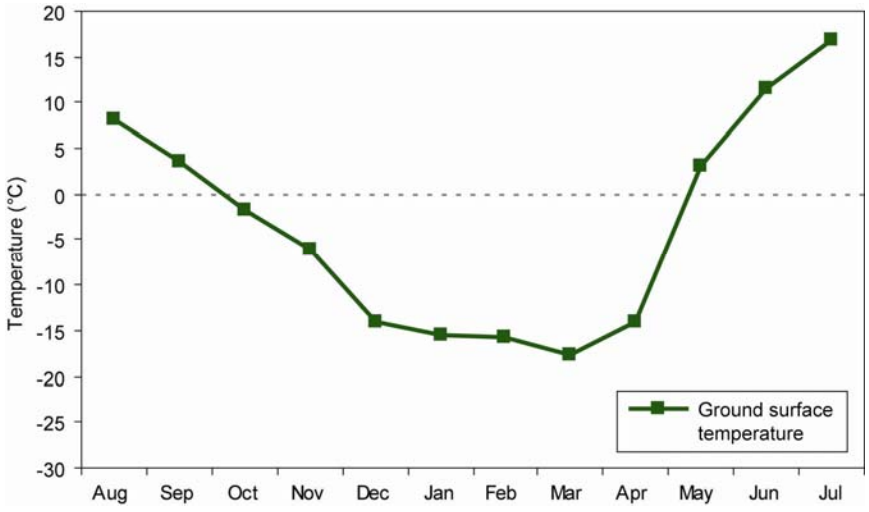


YaYa Lake low — 90TT04

Inuvialuit Settlement Region

Latitude: 69.14 N Longitude: 134.70 W
Elevation: 10 m a.s.l.
Landform: Ice contact complex
Vegetation cover: shrub tundra
Thaw Depth: 0.92 m
Site visit: August 13, 2011

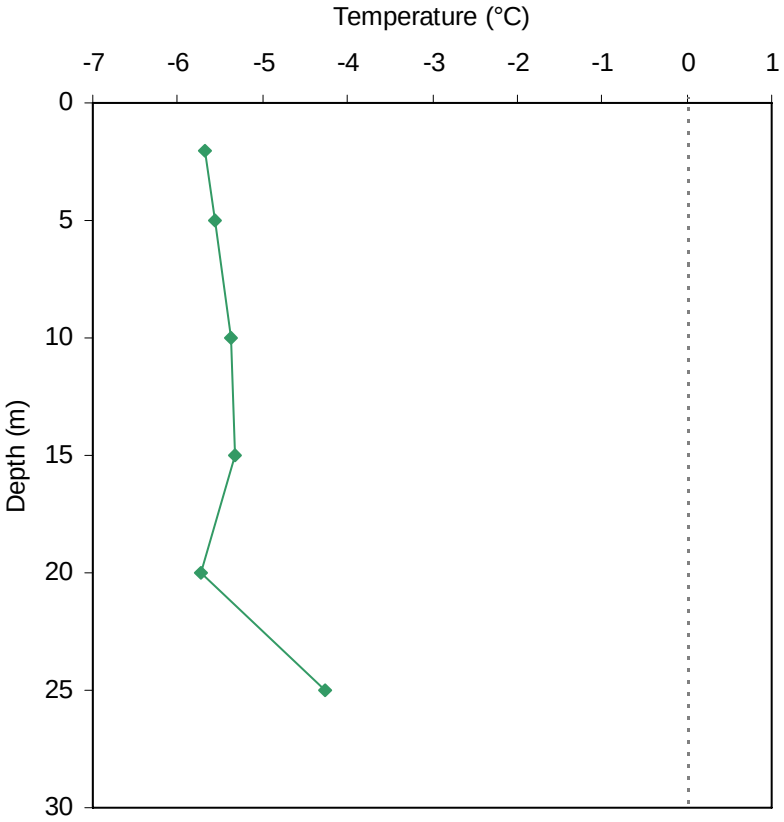
Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	n/a	8.24
Sept / 2010	n/a	3.64
Oct / 2010	n/a	-1.76
Nov / 2010	n/a	-5.98
Dec / 2010	n/a	-14.17
Jan / 2011	n/a	-15.51
Feb / 2011	n/a	-15.84
Mar / 2011	n/a	-17.75
Apr / 2011	n/a	-14.16
May / 2011	n/a	3.12
Jun / 2011	n/a	11.65
Jul / 2011	n/a	16.91



Lousy Point — 2/91GSC13

Inuvialuit Settlement Region

Latitude: 69.22 N Longitude: 134.29 W
Elevation: 118 m a.s.l.
Landform: Ice cored ice contact ridge, may be late glacial (>10Ka) or much older (early Wisconsinan)
Vegetation cover: Shrub tundra
Thaw Depth: n/a
Site visit: August 13, 2011



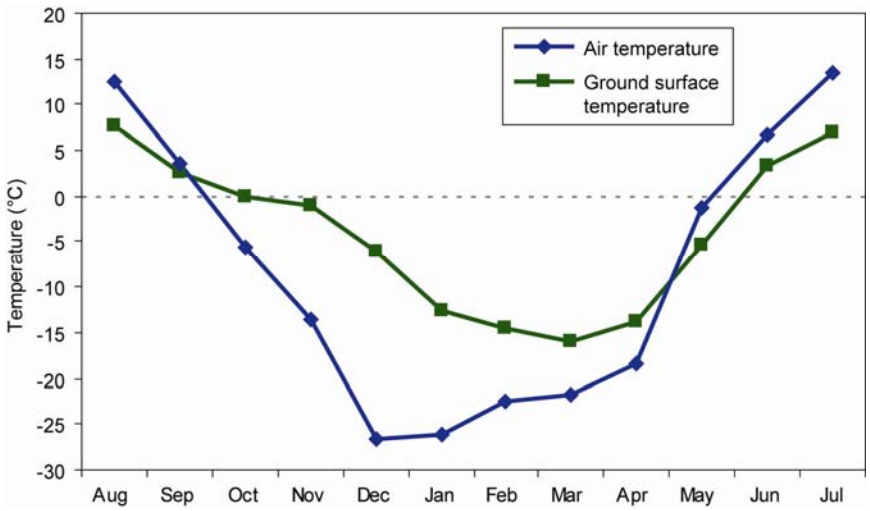
Depth (m)	Max (°C)
2	-5.69
5	-5.57
10	-5.37
15	-5.33
20	-5.72
25	-4.26

Lousy Point ridge — 90TT05

Inuvialuit Settlement Region

Latitude: 69.22 N Longitude: 134.29 W
Elevation: 39 m a.s.l.
Landform: Glaciofluvial ridge
Vegetation cover: Low shrub tundra
Thaw depth: 0.74 m
Site visit: August 13, 2011

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	12.49	7.59
Sept / 2010	3.64	2.68
Oct / 2010	-5.64	-0.04
Nov / 2010	-13.55	-0.96
Dec / 2010	-26.65	-6.00
Jan / 2011	-26.19	-12.55
Feb / 2011	-22.50	-14.63
Mar / 2011	-21.81	-15.88
Apr / 2011	-18.52	-13.90
May / 2011	-1.20	-5.35
Jun / 2011	6.75	3.28
Jul / 2011	13.39	6.85



North Head shore — 90TT13

Inuvialuit Settlement Region

Latitude: 69.72 N Longitude: 134.46 W
Elevation: 3 m a.s.l.
Landform: Thermokarst coastal plain
Vegetation: Tundra
Thaw depth: 0.54 m (probed)
Site visit: August 14, 2011

Month / Year	Temperature (°C)	
	Air	Surface
Aug / 2010	9.77	n/a
Sept / 2010	3.66	n/a
Oct / 2010	-4.44	n/a
Nov / 2010	-11.87	n/a
Dec / 2010	-25.05	n/a
Jan / 2011	-25.29	n/a
Feb / 2011	-23.04	n/a
Mar / 2011	-22.50	n/a
Apr / 2011	-18.76	n/a
May / 2011	-3.45	n/a
Jun / 2011	1.87	n/a
Jul / 2011	n/a	n/a