GEOLOGICAL SURVEY OF CANADA
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Report on 2010 Field Activities and Collection of Ground Thermal and Active Layer Data in the Mackenzie Corridor Completed Under N.W.T. Science Licence #14686

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ABSTRACT

A summary of field activities conducted in 2010 in the Mackenzie Corridor under NWT Science License #14686 is presented. Ground thermal and active layer data acquired from permafrost monitoring sites visited in 2010 throughout the corridor are presented in graphical and tabular format. This report will be distributed to community organizations and stakeholders in the 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 in the region 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 has provided 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 potential for increased hydrocarbon resource development and other related activity resulted in a recent need for improved information on ground thermal conditions throughout the Mackenzie Corridor. The information collected from these monitoring sites is being utilized to provide an improved characterization of baseline ground thermal conditions throughout the corridor.

The purpose of this report is to provide a summary of the 2010 field activities conducted under N.W.T. Science License #14686 in order to inform the various community organizations, regulatory boards and other stakeholders in the region of our activities. In addition, this report provides a summary of the ground temperature and active layer data collected during August and September 2010. Although the primary objective of this report is to update stakeholders in the region of 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 or September 2010. The location and brief description of each site visited in 2010 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. 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 sites in August or September 2010, some sites were not visited due to accessibility, weather or other issues. Sites that were not visited in 2010 are included in both the Table 1 and 2 and Figures 1, 2 and 3 but not in the figures in appendix A.

The Geological Survey of Canada 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 2010 site visits therefore allows the determination of the active layer thickness for 2009. Table 3 provides a list of sites from which data were obtained in August 2010. Further details on site establishment, instrumentation and site characteristics can be found in Nixon and Taylor (1994), Nixon et al. (1995) and Smith et al. (2009b).

3. DATA COLLECTION AND PRESENTATION

Permafrost thermal monitoring sites were visited in August or September 2010 in order to acquire ground temperature data from the data loggers, make manual temperature measurements and to service instrumentation. Data were automatically collected at eight hour intervals to provide a continuous record of ground temperature throughout the year. 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 2009-2010 period. These data are presented in graphical and tabular format for each site in Appendix A. The maximum thaw depth (TD) 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, and are included with each temperature envelope in Appendix A.

At some sites the data logger malfunctioned or was damaged so that a continuous record could not be acquired for the 2009-10 period. For these sites the August or September manual temperature measurements will be presented in Appendix A. For sites, such as those in the Inuvialuit Settlement regions, which do not have data loggers connected to the cables, only a ground temperature profile for August 2010 is provided in Appendix A.

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

The 2009 active layer thickness data are presented in Table 3 for all active layer monitoring sites that were visited in August 2010. Data collected prior to 2009 have been published in Smith et al. (2009b, 2010a).

4. SUMMARY

This report has provided a summary of 2010 field activities in the Mackenzie corridor conducted under NWT Science License #14686. A summary of the ground thermal data collected at permafrost thermal monitoring sites in August and September 2010 for the previous one year period has been presented in graphical and tabular format. The 2009 active layer thickness for active layer monitoring sites visited in 2010 has also been 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 time-series and also improves the quality of the baseline against which change may be measured.

5. ACKNOWLEDGEMENTS

Support for the field project has been provided by Natural Resources Canada, the Northern Energy Development Initiative, the Program for Energy Research and Development, the Federal International Polar Year Program. Logistical support has been provided by the Polar Continental Shelf Program and the Aurora Research Institute. We are also grateful for the continuing support for this project from the various community organizations and stakeholders in the region. Caroline Duchesne reviewed the manuscript and provided helpful comments.

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

Settlement region	Site name	BH name	Elevation (m a.s.l.)	Latitude	Longitude	Landform	Vegetation Cover	Site visited 2010
Deh cho	Trout Road Crossing	TRC	420	60°50'03"N	120°29'05"W	Bog-dominated moraine plain	Dry peatland vegetation consisting of black spruce, tamarack, and feathermoss	20/09/2010
Deh cho	Trout River	Trout R	350	61°01'10"N	120°35'19"W	Organic terrain	Peatland with scattered spruce and sphagnum ground cover	19/09/2010
Deh cho	Jean-Marie Creek	JMC-01	198	61°26'21"N	120°56'52"W	Transition alluvial flood plain to organic (fen) over lacustrine plain	Poorly drained shrub fen	20/09/2010
		JMC-02	198	61°26'24"N	120°56'54"W	Transition alluvial flood plain to organic (fen) over lacustrine plain	Sandy ridge with spruce, pine forest	20/09/2010
Deh cho	Liard Spruce	97TC4	180	61°32'43"N	121°23'37"W	Surface of glaciolacustrine delta, late glacial (>10Ka)	Boreal, wetland shrub and sedge	
Deh cho	Manners Sources	MS-01 (Fen)	182	61°37'35"N	121°06'20"W	Eolian interdune	Thermokarsted shrub fen	20/09/2010
		MS-02 (Crest)	182	61°37'35"N	121°06'15"W	Eolian dune crest	Pine forest	20/09/2010
Deh cho	Wrigley Highway (Open black spruce)	99TC3	183	61°39'36"N	121°20'24"W	Surface of glaciolacustrine delta, post glacial (>10Ka)	Small black spruce thicket with willow shrub, 100% cover of moss with lichen and boreal heath (coniferous)	Not visited
Deh cho	Harris River	HAR-01	146	61°52'37"N	121°17'23"W	Moraine	Predominantly birch	Not visited
Deh cho	Wrigley Highway (Mature black spruce)	97TC2	165	61°54'58"N	121°42'44"W	Surface of glaciolacustrine delta, post glacial (>10Ka)	Boreal, black spruce (coniferous forest)	Not visited

Settlement region	Site name	BH name	Elevation (m a.s.l.)	Latitude	Longitude	Landform	Vegetation Cover	Site visited 2010
Deh cho	Wrigley Highway (Aspen)	97TC1	165	61°57’12”N	121°45’38”W	Surface of glaciolacustrine delta, post glacial (>10Ka)	Boreal, aspen grove (deciduous forest)	Not visited
Deh cho	Wrigley ferryTransition	97TC5	165	61°58’37’’N	121°52’53’’W	Surface of glaciolacustrine delta, post glacial (>10Ka)	Boreal, open spruce (coniferous forest)	Not visited
Deh cho	Wrigley Highway (Fort Simpson bog)	99TC1	165	61°58’32’’N	121°52’42’’W	Peat plateau on surface of glaciolacustrine delta, post glacial (>10Ka)	Boreal, open black spruce (coniferous forest)	Not visited
		99TC2	165	61°58’32’’N	121°52’42’’W	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	Not visited
Deh cho	Trail River	TR-01	181	62°05’21”N	121°45’36”W	Lacustrine plain and eolian landforms	Black spruce and tamarack forest with sphagnum and feathermoss ground cover	17/09/2010
Deh cho	Wrigley Highway (Liard Spruce)	99TC4		62°16’31’’N	122°36’05’’W	Organic terrain on till plain, post glacial (>10Ka)	Boreal burn, scattered small spruce, pine and aspen, heath ground cover	Not visited
Deh cho	Willow Lake River	WLR-01	122	62°42’48”N	123°05’04”W	Alluvial fan	Open mixed forest	Not visited
Deh cho	River Between Two Mountains	RBTM-01	120	62°56’49”N	123°12’17”W	Transition lacustrine to alluvial to moraine terrain	Dense black spruce forest	Not visited
Deh cho		RBTM-02	150	62°55’52”N	123°10’47”W	Transition lacustrine to alluvial to moraine terrain	Dense black spruce forest	Not visited

Settlement region	Site name	BH name	Elevation (m a.s.l.)	Latitude	Longitude	Landform	Vegetation Cover	Site visited 2010
Sahtu	Steep Creek	Steep-01	62	64°11’25”N	124°22’27”W	Alluvial and colluvial, north facing slope of stream valley (site at edge of right-of-way)	Mixed, white spruce, jackpine, aspen, birch	24/09/2010
		Steep-02	134	64°10’52”N	124°22’29”W	Alluvial and colluvial, north facing slope of stream valley (site at edge of cleared right-of-way)	Mixed, white spruce, jackpine, aspen, birch	24/09/2010
		Steep-03	N/A	64°11’07”N	124°22’29”W	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	24/09/2010
Sahtu	Saline River	SR-02	140	64°17’17”N	124°29’07”W	Glaciofluvial veneer over lacustrine	Burnt black spruce forest	21/09/2010
Sahtu	Little Smith Creek	LS-01	80	64°25’54”N	124°44’23”W	Alluvial flood plain	Open mature black spruce forest	21/09/2010
		LS-02	112	64°25’39”N	124°43’56”W	Glaciofluvial outwash plain	Tamarack, birch, poplar, and pine forest transition to spruce	21/09/2010
Sahtu	Old Fort Point	OFP-01	112	64°39’08”N	124°50’16”W	Lacustrine plain	Open mixed spruce, pine deciduous forest adjacent to open, low-lying fen	21/09/2010

Settlement region	Site name	BH name	Elevation (m a.s.l.)	Latitude	Longitude	Landform	Vegetation Cover	Site visited 2010
Sahtu	Police Island	PI-01	113	64°50'02"N	125°00'52"W	Lacustrine plain	Recovering burn (burnt black spruce forest)	21/09/2010
		PI-02	113	64°49'59"N	125°00'49"W	Lacustrine plain	Unburnt, black spruce forest with moss and lichen ground cover	21/09/2010
Sahtu	Vermillion Creek	VC-01	92	65°05'53"N	126°08'14"W	Moraine plain (site at approach to water crossing)	NW side of creek, on top of ridge in black spruce forest	23/09/2010
		VC-02	92	65°05'44"N	126°07'36"W	Moraine plain (site at approach to water crossing)	SE side of creek on plateau in area of burnt black spruce	23/09/2010
Sahtu	NW Fen	99TC5	n/a	65°17'56"N	126°51'38.5"W	Thermokarst surface of glaciolacustrine plain (near small fen)	Large white and black spruce with smaller birch closed canopy, moss with lichen ground cover	Not visited
Sahtu	Billy Creek North	BCN-01	90	65°24'10"N	127°19'05"E	Alluvial and eolian sediments overlying low-lying lacustrine plain	Peat cover with dense-forested black spruce and mixed shrub	18/09/2010
Sahtu	Oscar Creek	OC-01	64	65°26'11"N	127°26'17"W	Undulating glacio-lacustrine terrain overlain by alluvial sediments	Peat cover with dense-forested birch and black spruce	18/09/2010

Settlement region	Site name	BH name	Elevation (m a.s.l.)	Latitude	Longitude	Landform	Vegetation Cover	Site visited 2010
Sahtu	Elliot Creek	EC-01	54	65°31'13"N	127°37'17"W	Lacustrine undulating plain, well drained elevated area	Peat cover on edge of open, mature black spruce forest	18/09/2010
		EC-02	54	65°31'21"N	127°37'18"W	Lacustrine plain overlain by alluvial sediments	Peat cover on edge of dense, mature black spruce forest	18/09/2010
Sahtu	Hanna River	HR-01	104	65°40'11"N	127°50'00"W	Lacustrine plain	Boggy burnt area	18/09/2010
Sahtu	Gibson Lake	GL-01	228	65°44'50"N	127°53'17"W	Hummocky moraine plain	Recovering burnt area with peat and shrubs	17/09/2010
Sahtu	Chick Lake	CAL-01	122	65°53'44"N	128°17'02"W	Moraine plain	Peat and organic soil with open black spruce forest and shrubs	18/09/2010
Sahtu	Snafu Creek	SC-01	100	66°00'06"N	128°21'01"W	Moraine plain	Peat bog, open black spruce forest, and lichen cover	18/09/2010

Settlement region	Site name	BH name	Elevation (m a.s.l.)	Latitude	Longitude	Landform	Vegetation Cover	Site visited 2010
Sahtu	Fort Good Hope South	FGHS-01	134	66°12’35”N	128°29’45”W	Hummocky peatland	Dense shrub and open black spruce	18/09/2010
		FGHS-02	134	66°12’33”N	128°29’44”W	Hummocky peatland	Peat plateau, lichen, open black spruce	18/09/2010
Sahtu	Jackfish Creek	JF-02	90	66°17’05”N	128°28’09”W	Eolian dune on moraine plain, well drained, elevated area	Black spruce forest and moss cover	18/09/2010
Gwich’in	Wood Bridge Lake	WBL-01	204	67°54'08"N	132°10'41"W	Alluvial Plain	Black spruce forest	15/08/2010
Gwich’in	Hill Lake	HL-01	229	67°59'21"N	132°29'26" W	Moraine plain	Tundra	15/08/2010
		HL-02	234	67°59'19"N	132°29'24" W	Moraine plain	Shrub tundra	15/08/2010
Gwich’in	North Caribou Lake	NCL-01	209	68°08'51" N	132°55'58"W	Moraine plain	Peatland	15/08/2010
		NCL-02	217	68°08'49" N	132°55'55"W	Moraine plain	Stunted black spruce forest	15/08/2010

Settlement region	Site name	BH name	Elevation (m a.s.l.)	Latitude	Longitude	Landform	Vegetation Cover	Site visited 2010
Gwich'in	Campbell Lake	CaL-01	115	68°14'35"N	133°05'44"W	Moraine plain	Peatland	15/08/2010
		CaL-02	118	68°14'35"N	133°05'40"W	Moraine plain	Cutline	15/08/2010
		CaL-03	118	68°14'37"N	133°05'44"W	Moraine plain	Black spruce forest	15/08/2010
Gwich'in	Inuvik Airport	01TC2 (Trees)	84	68°18'58"N	133°26'08"W	Fluted till plain, glacial (>10Ka)	Taiga open black spruce, heath ground cover	14/08/2010
		01TC3 (bog)	68	68°18'57"N	133°25'51"W	Bog between ridges on fluted till plain, glacial (>10Ka)	Taiga open bog, scattered shrub, heath ground cover (forest tundra)	14/08/2010 (No data, problem with cable)
Gwich'in	Norris Creek	NC-01	15	68°24'23"N	133°17'24" W	Thick organic material over moraine plain	Shrub tundra	15/08/2010
Gwich'in	Navy Channel	03TC1	5	68°25'00"N	133°47'13"W	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)	14/08/2010
Gwich'in	Navy Road	01TC1	60	68°28'53"N	133°49'43"W	Fine grained colluvium sloping toward river, post glacial (~10Ka)	Taiga post fire succession, scattered birch and alder, open dwarf birch, heath ground cover	19/08/2010

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	BH name	Elevation (m a.s.l.)	Latitude	Longitude	Landform	Vegetation Cover	Site visited 2010
Inuvialuit	Taglu	C4	15	69°22'03"N	134°57'18" W	Surface of Holocene Mackenzie delta	Low willow shrub	18/08/2010
Inuvialuit	Lousy Point	1/91GSC6 (Wolf Lake)	115	69°14'38"N	134°26'29"W	Ice cored ice contact complex, may be late glacial (>10Ka) or much older (early Wisconsinan)	Tundra	Not visited
		2/91GSC13	118	69°13'03"N	134°17'47"W	Ice cored ice contact ridge, may be late glacial (>10Ka) or much older (early Wisconsinan)	Shrub tundra	16/08/2010
		216-86-SO5	118	69°13'06"N	134°17'05"W	Ice cored ice contact ridge, may be late glacial (>10Ka) or much older (early Wisconsinan)	Shrub tundra	Not visited
Inuvialuit	Involuted Hill	IH88-02	209	69°28' N	132°38'W	Ice cored collapsing hill, may be postglacial (10Ka) or much older (early Wisconsinan)	Shrub tundra	16/08/2010 (no data problem with cable)
		IH88-03		69°28' N	132°38'W	Ice cored collapsing hill, may be postglacial (10Ka) or much older (early Wisconsinan)	Shrub tundra	16/08/2010 (no data problem with cable)

Settlement region	Site name	BH name	Elevation (m a.s.l.)	Latitude	Longitude	Landform	Vegetation Cover	Site visited 2010
		IH88-04	217	69°28' N	132°38'W	Ice cored collapsing hill, may be postglacial (10Ka) or much older (early Wisconsinan)	Tundra	16/08/2010
Inuvialuit	Harry Channel	91TTA	229	69°28'53"N	134°49'43"W	Surface of Holocene Mackenzie delta	Grass tundra	18/08/2010

Table 3. Active layer thickness in 2009 for active layer monitoring sites throughout the Mackenzie Corridor.

Site Name	Site ID	Lat (°N)	Long (°W)	2009 Active Layer (m)
North Head shore	90TT13	69.72	134.46	n/a
North Head ridge	90TT01	69.71	134.49	0.43
North Point summit	90TT02	69.66	134.39	0.44
North Point mid-slope	90TT11	69.66	134.38	0.61
North Point shore	90TT12	69.65	134.39	0.46
Mason Bay high	90TT08	69.52	134.02	0.73
Mason Bay shore	90TT09	69.52	134.01	0.59
Mason Bay inlet	90TT10	69.52	134.04	0.86
Illasarvik	94TT01	69.48	134.57	0.59
Harry Channel mouth	91TTA	69.47	134.82	0.74
Involuted Hill top	92TT01	69.47	132.63	0.50
Involuted Hill flat	92TT02	69.47	132.64	0.54
Kendall Island Meadow	91TTF	69.45	135.34	1.01
Taglu	91TTC	69.37	134.95	1.38
Lousy Point hollow	91TT09	69.22	134.30	0.31
Lousy Point ridge	90TT05	69.22	134.29	0.67
Lousy Point low terrace	90TT06	69.22	134.28	0.41
Lousy Point flood plain	90TT07	69.22	134.27	0.70
YaYa Lake high	90TT03	69.14	134.72	0.97
YaYa Lake low	90TT04	69.14	134.70	0.81
Swimming Point slope	91TT01	69.11	134.40	0.59
Swimming Point shore	91TT02	69.11	134.39	n/a
Swimming Point Holmes	91TT03	69.11	134.35	0.39
Trail Valley Creek	91TT11	68.74	133.49	0.66
Reindeer Station plateau	91TT12	68.69	134.11	0.73
Reindeer Depot (Williams Island)	91TT13	68.68	134.15	1.29
Navy Channel (Rat Channel)	90TT17	68.42	133.79	1.63
Inuvik Airport	01TT02	68.32	133.43	0.72
Havikpak Creek	93TT02	68.32	133.51	0.71
Caribou Creek	93TT01	68.11	133.48	0.68
Rengleng River mouth	91TT14	67.80	134.13	n/a
Tsiigehtchic	91TT16	67.48	133.77	n/a
Ochre River cabin	92TT10	63.47	123.69	n/a
Ochre River	92TT09	63.46	123.69	n/a
River between two mountains	92TT08	62.95	123.20	n/a

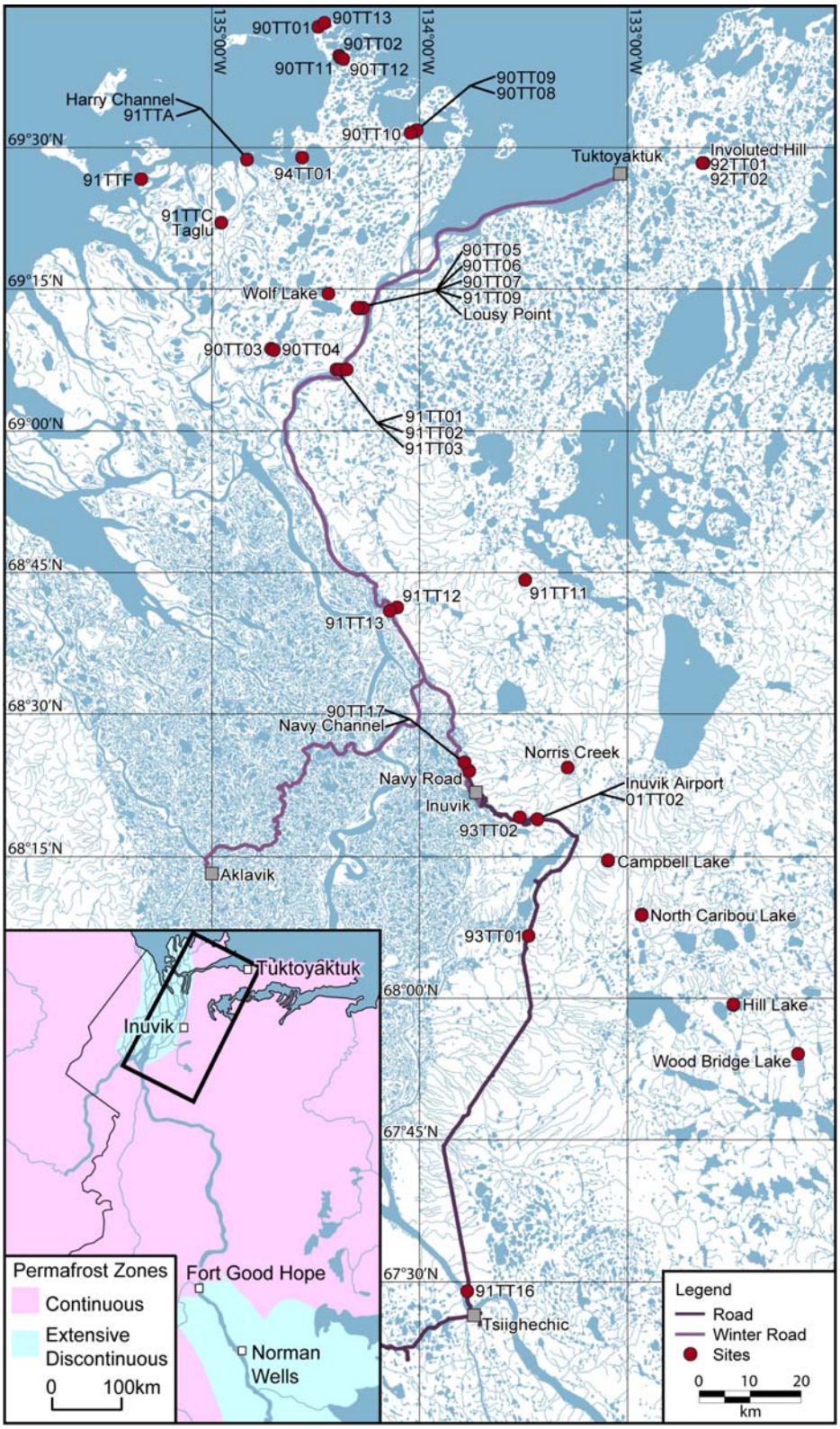


Figure 1. Permafrost and active layer monitoring sites north and south of Inuvik.

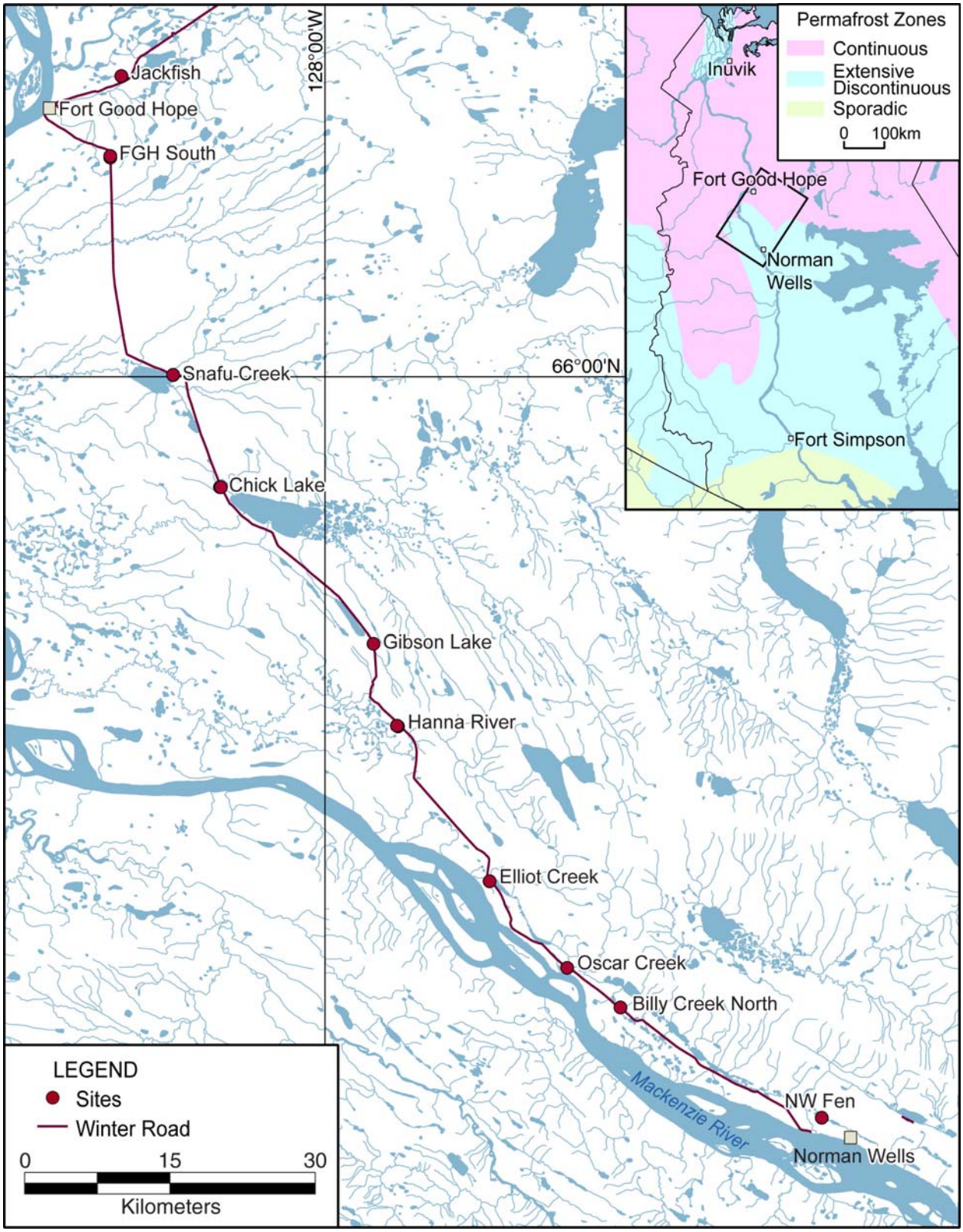


Figure 2. Permafrost monitoring sites between Fort Good Hope and Norman Wells in the Sahtu Settlement Region.

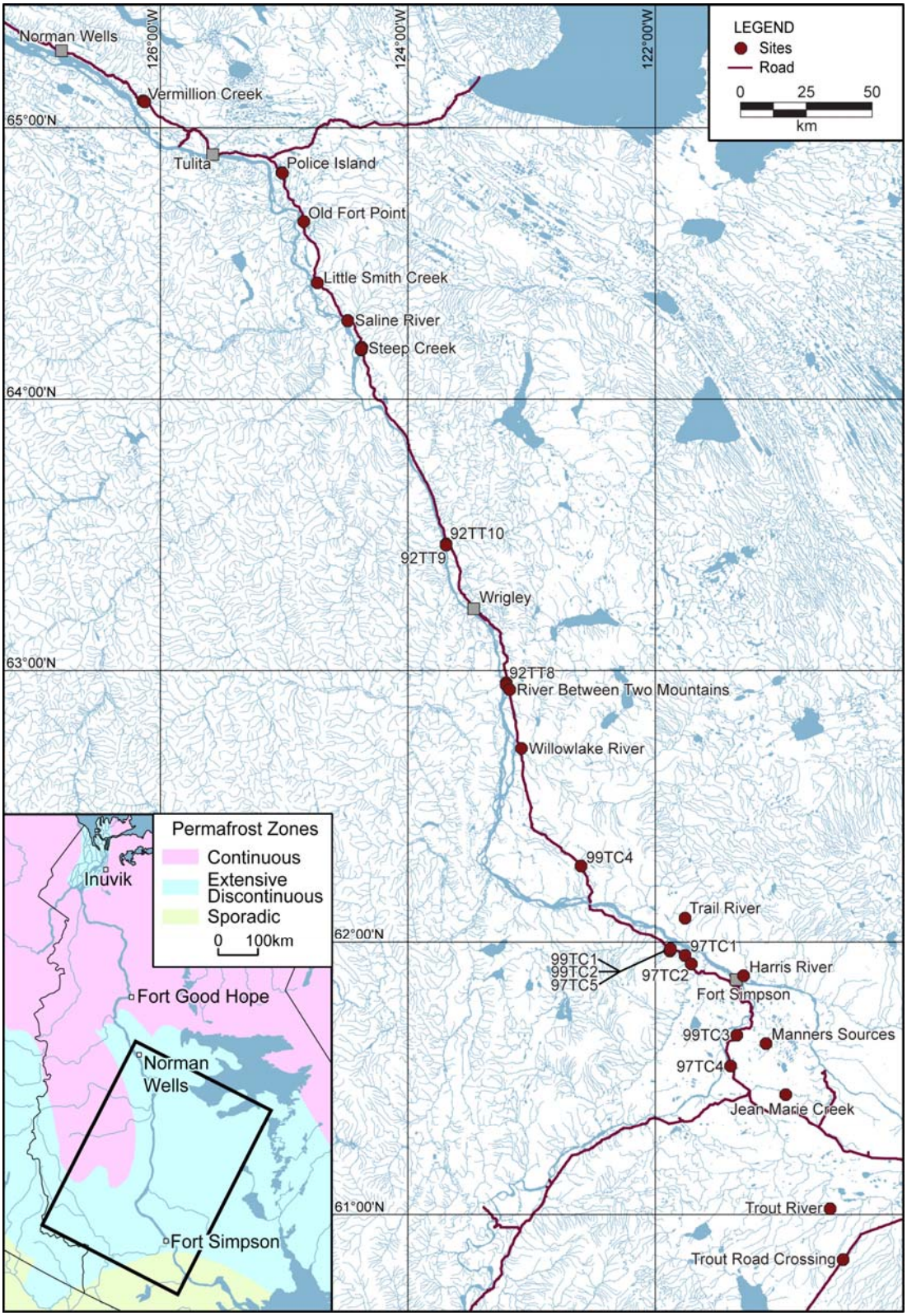


Figure 3.Permafrost monitoring sites south of Norman Wells in the Sahtu (sites north of Wrigley) and Deh Cho (sites south of Wrigley) Settlement Regions.

APPENDIX A

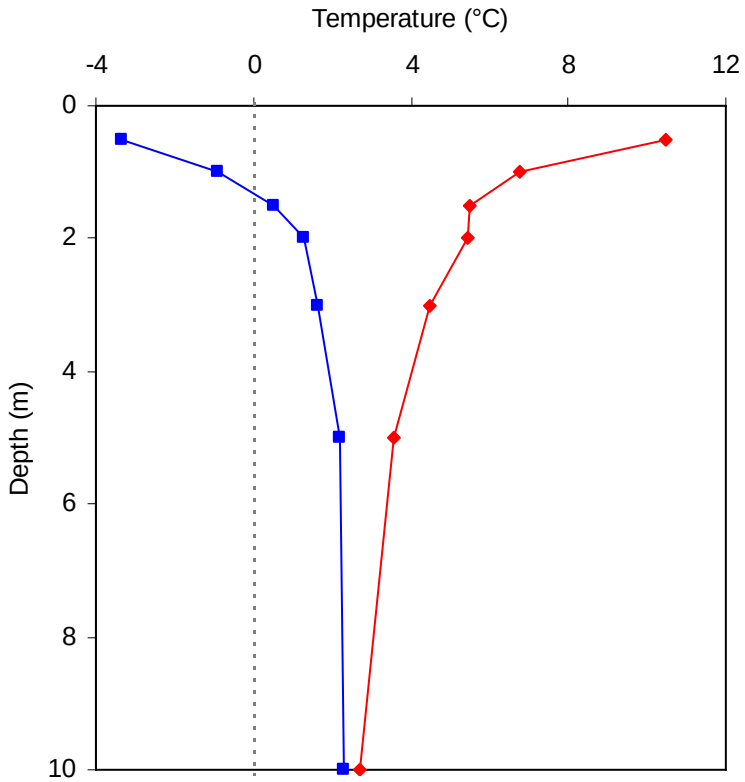
GRAPHICAL AND TABULAR PRESENTATION OF GROUND TEMPERATURE DATA FOR THE PERIOD 2009-10

The maximum and minimum annual temperature profile is provided for each site for which a continuous 2009-10 record of ground temperature is available. For sites that do not have a continuous record for 2009-10, the ground temperature profile based on a single manual measurement during the 2010 site visit (in August or September) is provided (green line). The thaw depth is provided for each site and is based on interpolation of temperature profiles (unless note indicates determined by probing). 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.

Trout Road Crossing — TRC

Deh Cho Settlement Region

Latitude: 60°50.053'N Longitude: 120°29.079'W
Elevation: 420 m a.s.l.
Landform: Bog-dominated moraine plain.
Vegetation cover: Dry peatland vegetation consisting of black spruce, tamarack, and feathermoss.
Site visit: September 20, 2010

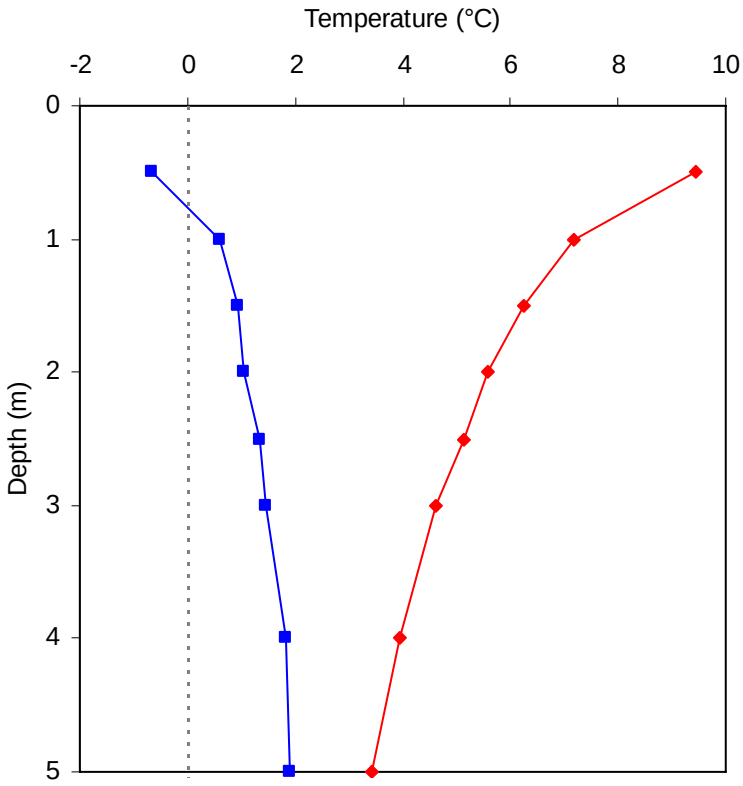


Depth (m)	Max (°C)	Min (°C)
0.5	10.48	-3.33
1	6.75	-0.90
1.5	5.49	0.54
2	5.46	1.28
3	4.47	1.64
5	3.59	2.19
10	2.70	2.31

Trout River — Trout R

Deh Cho Settlement Region

Latitude: 61°01.167'N Longitude: 120°35.312'W
Elevation: 350 m a.s.l.
Landform: Organic terrain.
Vegetation cover: Peatland with scattered spruce and sphagnum ground cover.
Site visit: September 19, 2010

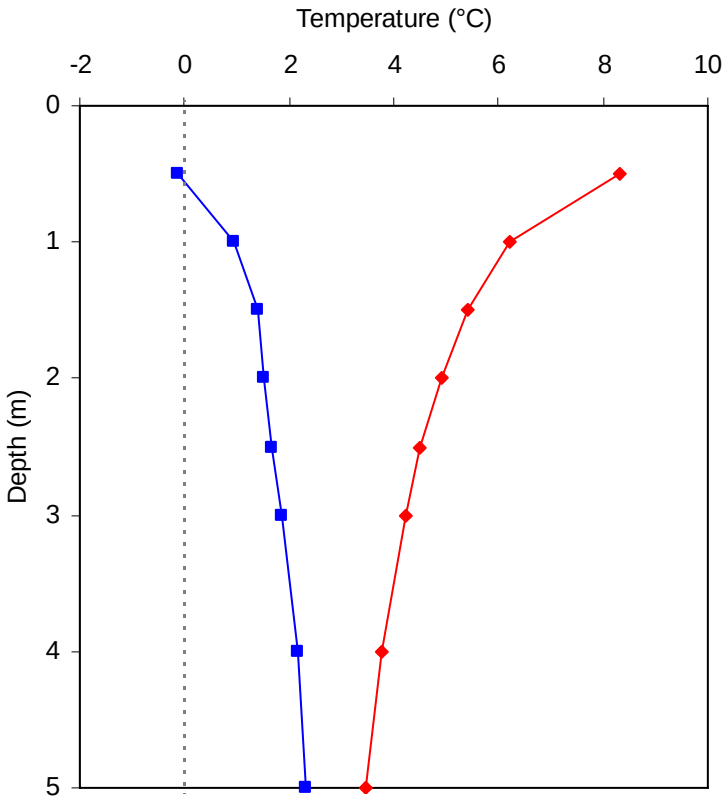


Depth (m)	Max (°C)	Min (°C)
0.5	9.44	-0.67
1	7.17	0.61
1.5	6.25	0.94
2	5.56	1.05
2.5	5.14	1.35
3	4.60	1.47
4	3.94	1.84
5	3.42	1.89

Jean-Marie Creek — JMC-01

Deh Cho Settlement Region

Latitude: 61°26.361'N Longitude: 120°56.869'W
Elevation: 198 m a.s.l.
Landform: Transition alluvial flood plain to organic (fen) over lacustrine plain.
Vegetation cover: Poorly drained shrub fen.
Site visit: September 20, 2010

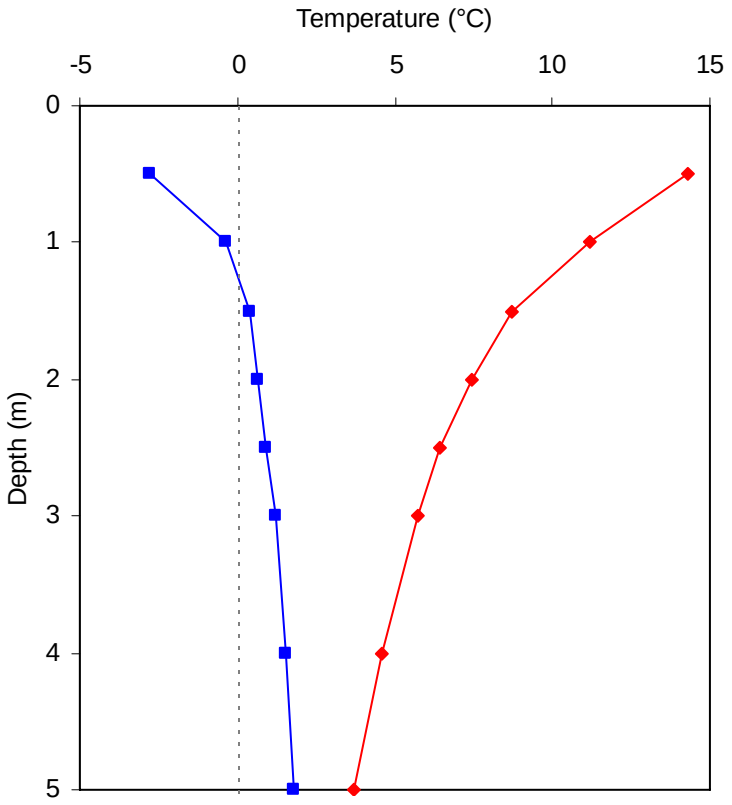


Depth (m)	Max (°C)	Min (°C)
0.5	8.33	-0.14
1	6.21	0.96
1.5	5.43	1.41
2	4.91	1.52
2.5	4.51	1.67
3	4.24	1.88
4	3.78	2.17
5	3.46	2.33

Jean-Marie Creek — JMC-02

Deh Cho Settlement Region

Latitude: 61°26.406'N Longitude: 120°56.908'W
Elevation: 198 m a.s.l.
Landform: Transition alluvial flood plain to organic (fen) over lacustrine plain.
Vegetation cover: Sandy ridge with spruce, pine forest.
Site visit: September 20, 2010

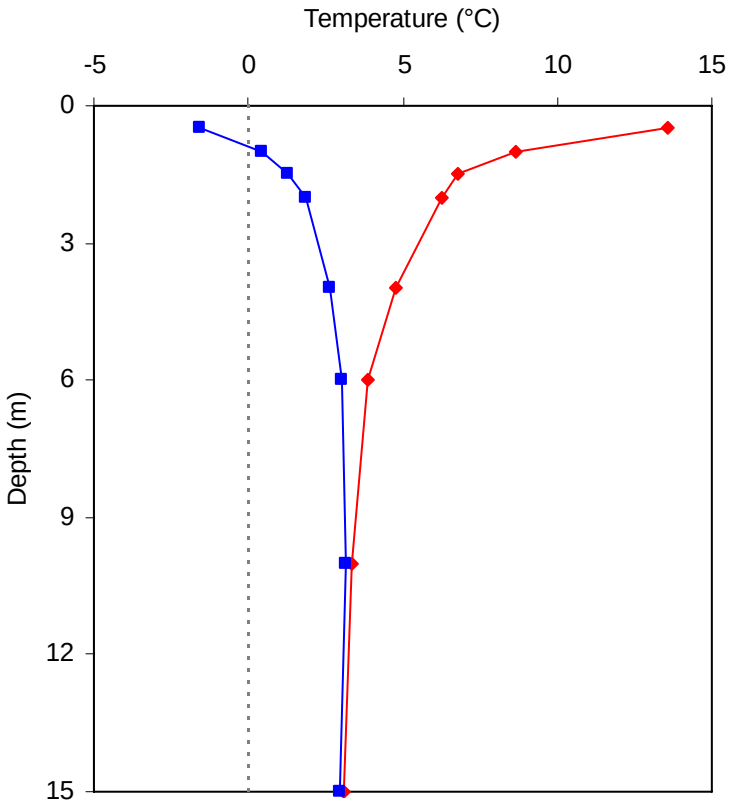


Depth (m)	Max (°C)	Min (°C)
0.5	14.28	-2.79
1	11.20	-0.39
1.5	8.71	0.37
2	7.43	0.66
2.5	6.46	0.90
3	5.75	1.24
4	4.56	1.55
5	3.68	1.81

Manners Sources — MS-01 Fen

Deh Cho Settlement Region

Latitude: 61°37.595'N Longitude: 121°06.347'W
Elevation: 182 m a.s.l.
Landform: Eolian interdune.
Vegetation cover: Thermokarsted shrub fen.
Site visit: September 20, 2010

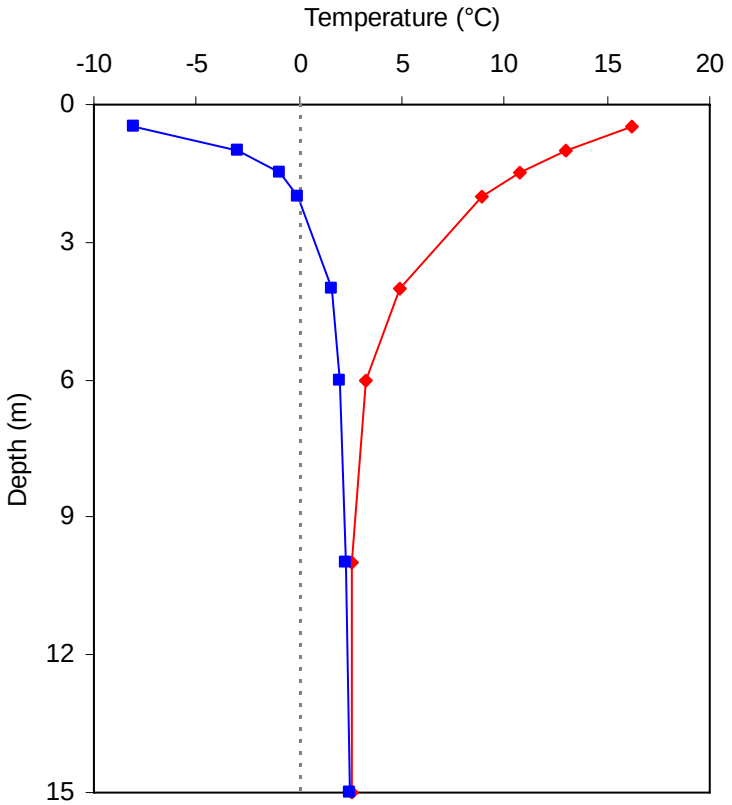


Depth (m)	Max (°C)	Min (°C)
0.5	13.60	-1.55
1	8.66	0.42
1.5	6.79	1.28
2	6.23	1.87
4	4.76	2.66
6	3.90	3.03
10	3.33	3.13
15	3.09	2.98

Manners Sources — MS-02 Crest

Deh Cho Settlement Region

Latitude: 61°37.595'N Longitude: 121°06.266'W
Elevation: 182 m a.s.l.
Landform: Eolian dune crest.
Vegetation cover: Pine forest.
Site visit: September 20, 2010

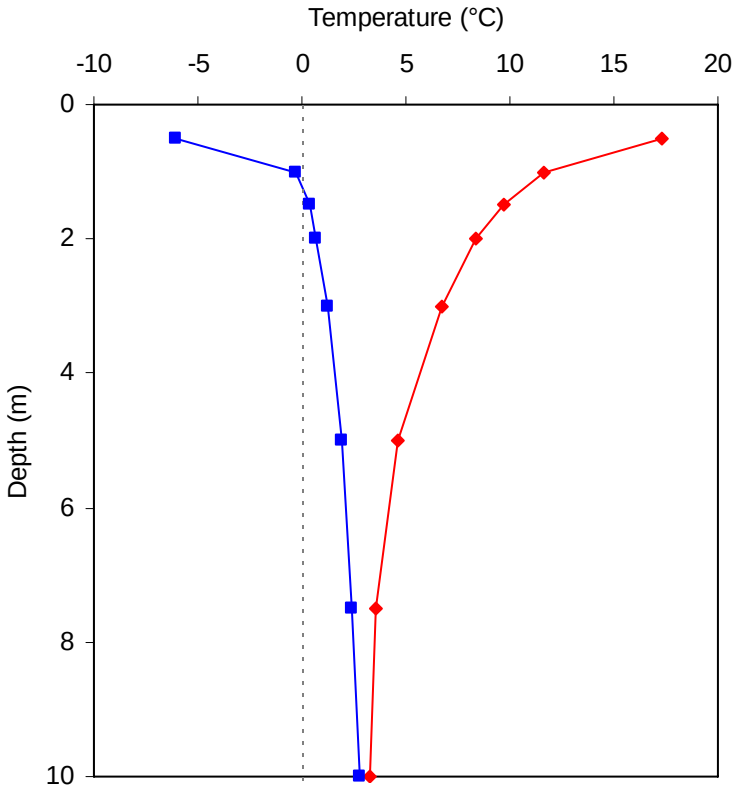


Depth (m)	Max (°C)	Min (°C)
0.5	16.16	-8.01
1	12.99	-3.03
1.5	10.73	-0.98
2	8.91	-0.05
4	4.90	1.54
6	3.22	2.01
10	2.59	2.29
15	2.54	2.47

Trail River — TR-01

Deh Cho Settlement Region

Latitude: 62°05.350'N Longitude: 121°45.600'W
Elevation: 181 m a.s.l.
Landform: Lacustrine plain and eolian landforms.
Vegetation cover: Black spruce and tamarack forest with sphagnum and feathermoss ground cover.
Site visit: September 17, 2010

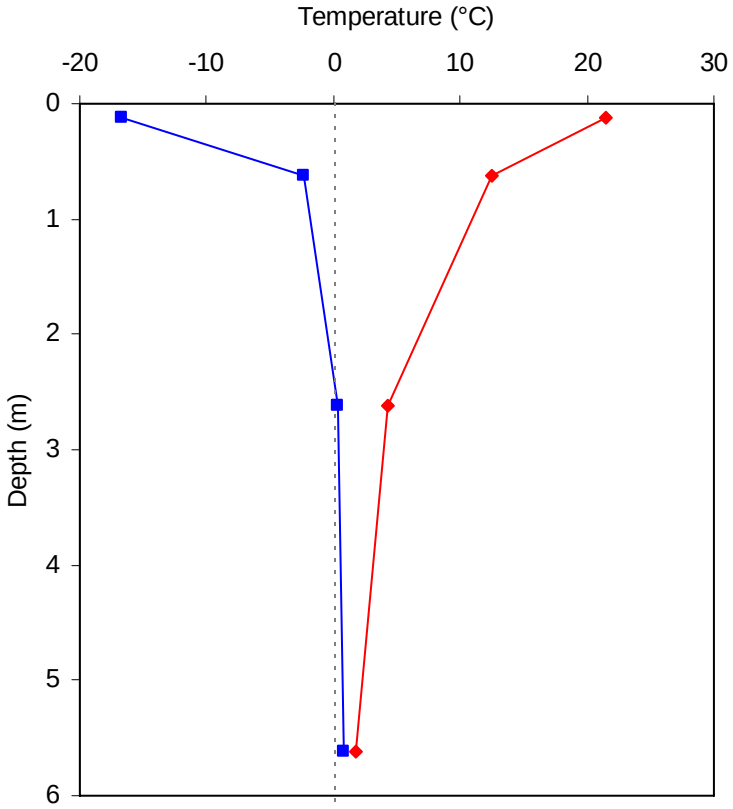


Depth (m)	Max (°C)	Min (°C)
0.5	17.30	-6.07
1	11.63	-0.33
1.5	9.71	0.36
2	8.40	0.69
3	6.71	1.28
5	4.59	1.94
7.5	3.53	2.39
10	3.24	2.75

Steep Creek Base — Steep-01

Sahtu Settlement Region

Latitude: 64°11.007'N Longitude: 124°22.008'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.
Site visit: September 24, 2010

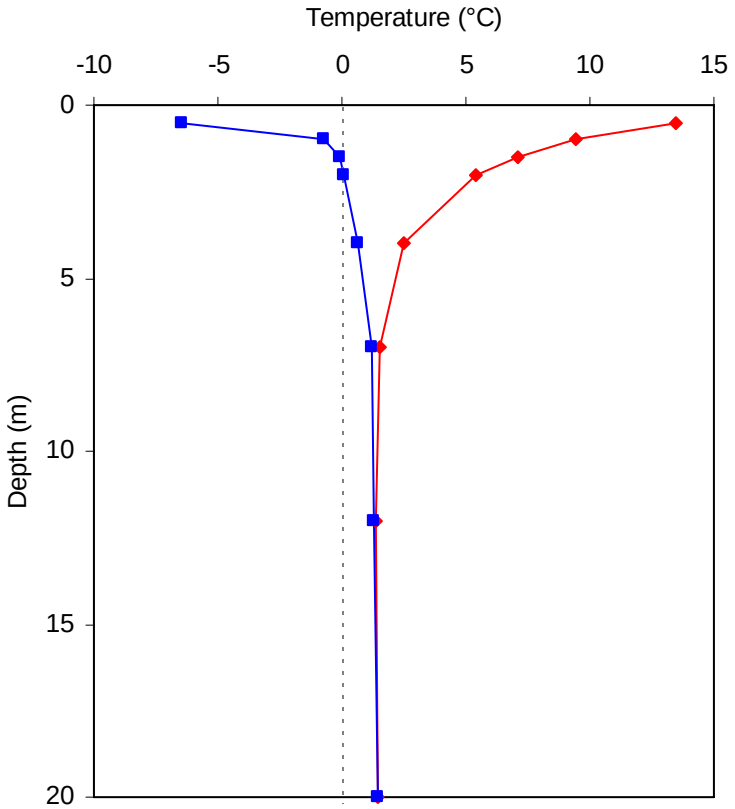


Depth (m)	Max (°C)	Min (°C)
0.12	21.48	-16.68
0.62	12.43	-2.35
2.62	4.28	0.33
5.62	1.81	0.88

Steep Creek Top — Steep-02

Sahtu Settlement Region

Latitude: 64°10.871'N Longitude: 124°22.487'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.
Site visit: September 24, 2010

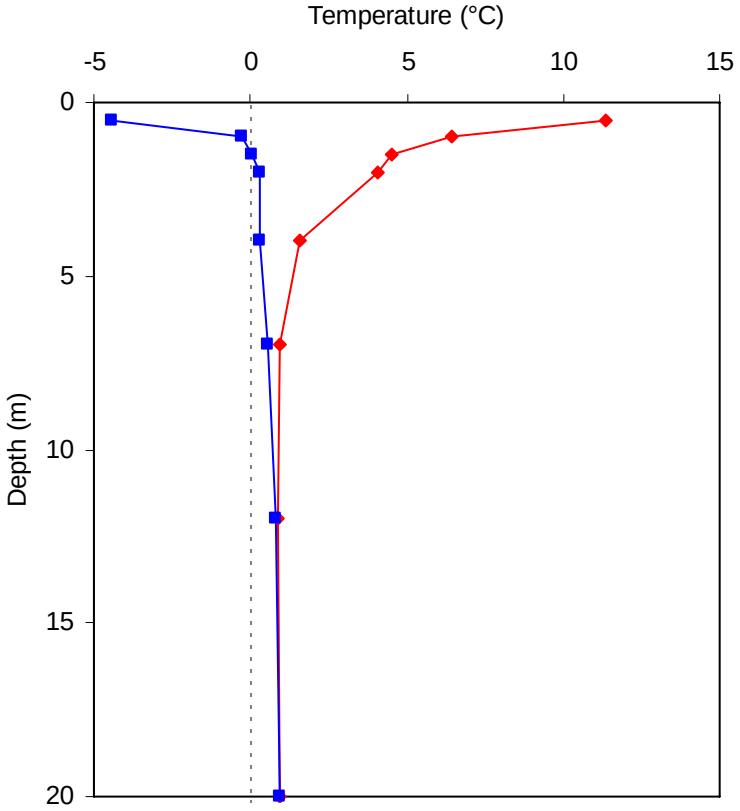


Depth (m)	Max (°C)	Min (°C)
0.5	13.47	-6.48
1	9.45	-0.72
1.5	7.07	-0.06
2	5.42	0.08
4	2.51	0.67
7	1.51	1.20
12	1.38	1.33
20	1.44	1.42

Steep Creek Mid — Steep-03

Sahtu Settlement Region

Latitude: 64°11.002'N Longitude: 124°22.008'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.
Site visit: September 24, 2010

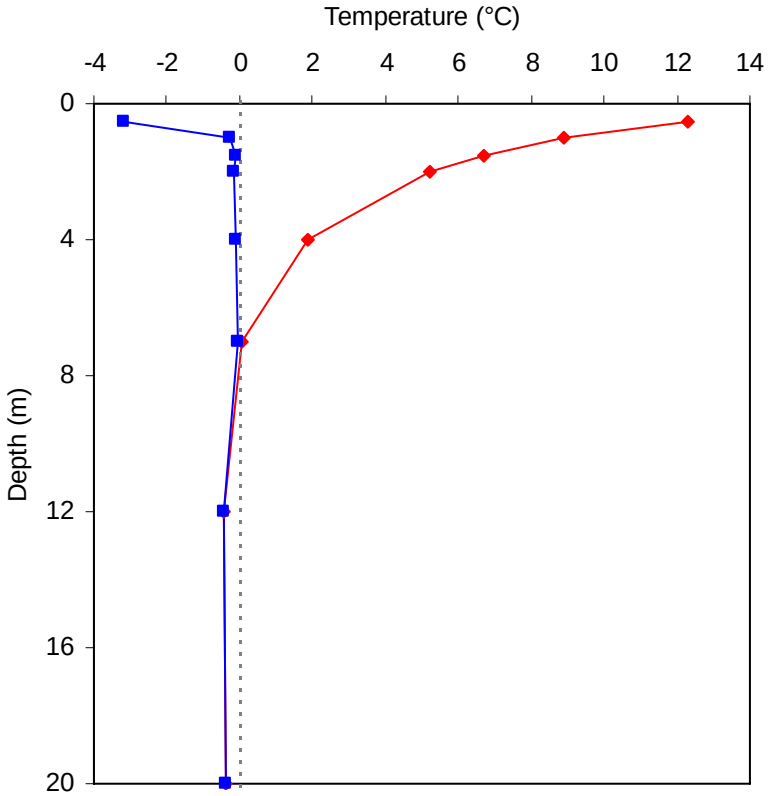


Depth (m)	Max (°C)	Min (°C)
0.5	11.35	-4.41
1	6.45	-0.27
1.5	4.53	0.06
2	4.06	0.29
4	1.60	0.29
7	0.96	0.57
12	0.88	0.79
20	0.96	0.95

Saline River — SR-02

Sahtu Settlement Region

Latitude: 64°17.275'N Longitude: 124°29.116'W
Elevation: 140 m a.s.l.
Landform: Glaciofluvial veneer over lacustrine.
Vegetation cover: Burnt black spruce forest.
Thaw Depth: 7.46 m
Site visit: September 21, 2010

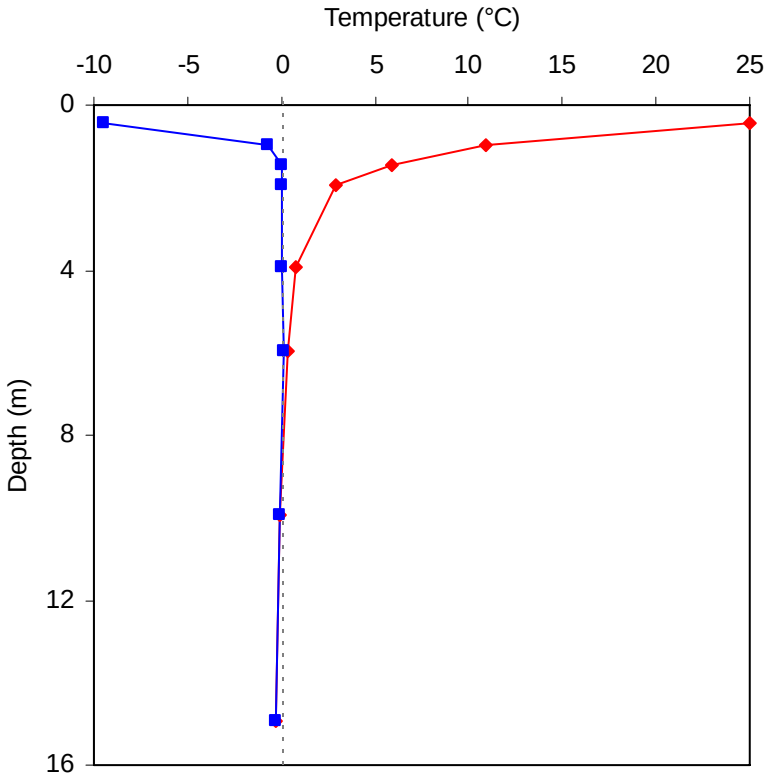


Depth (m)	Max (°C)	Min (°C)
0.5	12.32	-3.16
1	8.90	-0.26
1.5	6.70	-0.09
2	5.20	-0.13
4	1.89	-0.13
7	0.04	-0.06
12	-0.41	-0.42
20	-0.38	-0.39

Little Smith Creek — LS-01

Sahtu Settlement Region

Latitude: 64°25.665'N Longitude: 124°43.948'W
Elevation: 80 m a.s.l.
Landform: Alluvial flood plain.
Vegetation cover: Open mature black spruce forest.
Thaw Depth: 9.11 m
Site visit: September 21, 2010

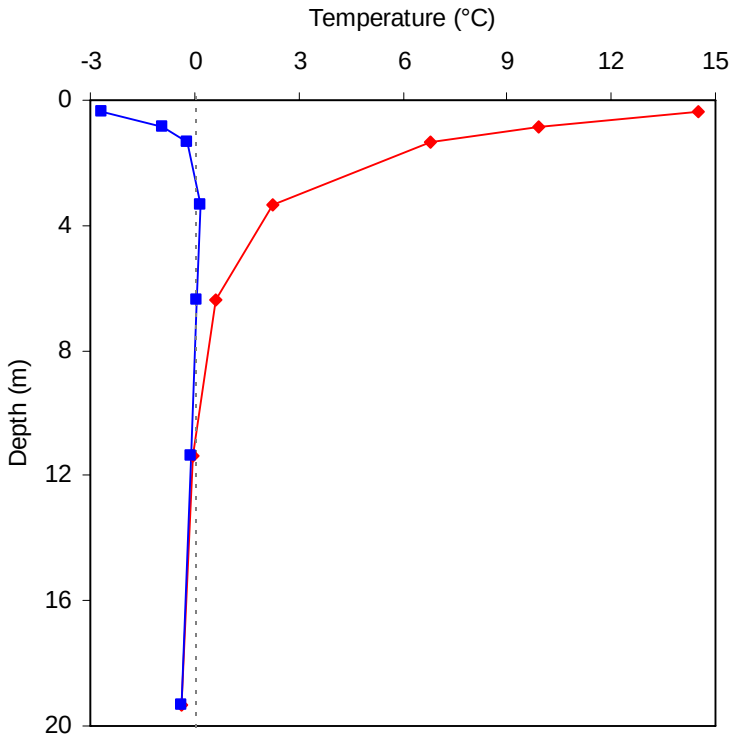


Depth (m)	Max (°C)	Min (°C)
0.45	24.99	-9.47
0.95	10.92	-0.68
1.45	5.85	0.02
1.95	2.91	-0.02
3.95	0.79	0.08
5.95	0.37	0.10
9.95	-0.10	-0.12
14.95	-0.31	-0.32

Little Smith Creek — LS-02

Sahtu Settlement Region

Latitude: 64°25.665'N Longitude: 124°43.948'W
Elevation: 112 m a.s.l.
Landform: Glaciofluvial outwash plain.
Vegetation cover: Tamarack, birch, poplar, and pine forest transition to spruce.
Thaw Depth: 10.84 m
Site visit: September 21, 2010

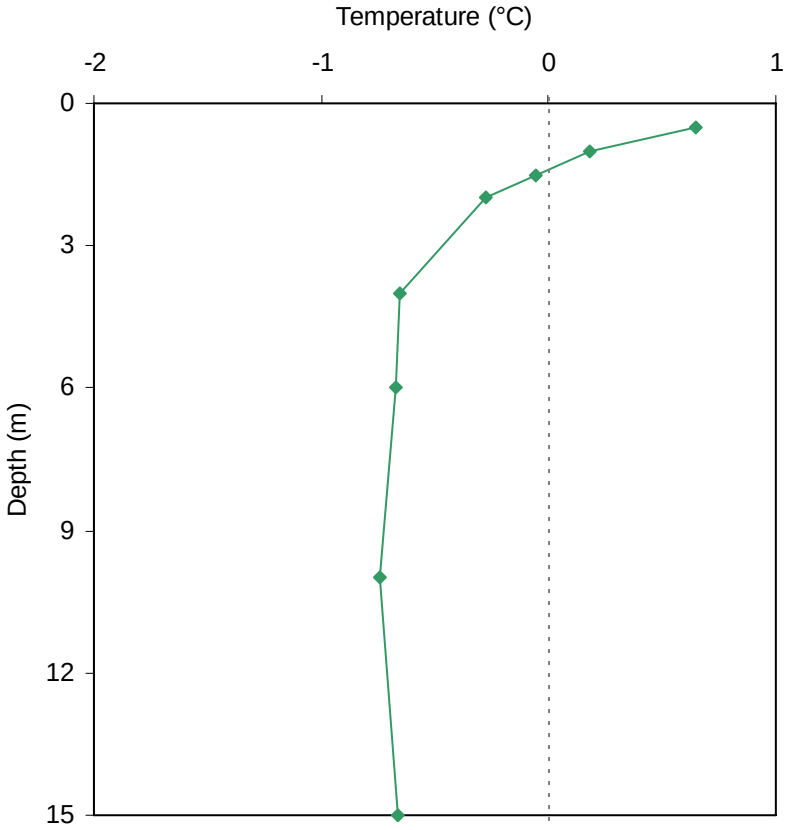


Depth (m)	Max (°C)	Min (°C)
0.36	14.50	-2.67
0.86	9.93	-0.92
1.36	6.77	-0.20
3.36	2.26	0.18
6.36	0.60	0.06
11.36	-0.07	-0.08
19.36	-0.37	-0.37

Old Fort Point — OFP-01

Sahtu Settlement Region

Latitude: 64°39.139'N Longitude: 124°50.267'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: 1.38 m
Site visit: September 21, 2010

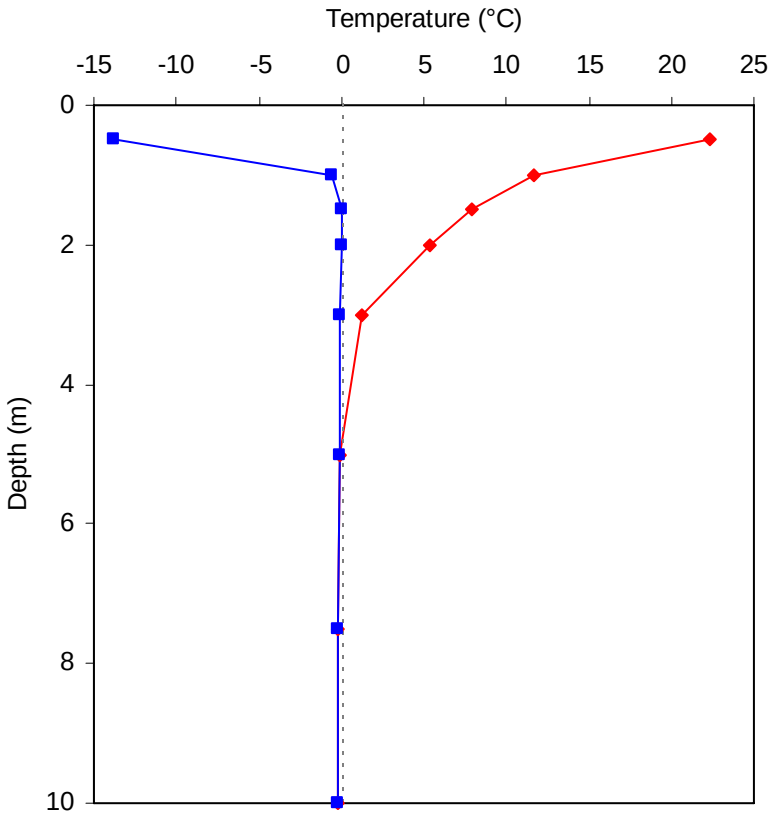


Depth (m)	Mean (°C)
0.5	0.65
1	0.18
1.5	-0.06
2	-0.28
4	-0.65
6	-0.67
10	-0.74
15	-0.66

Police Island — PI-01

Sahtu Settlement Region

Latitude: 64°50.049'N Longitude: 125°00.883'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 21, 2010

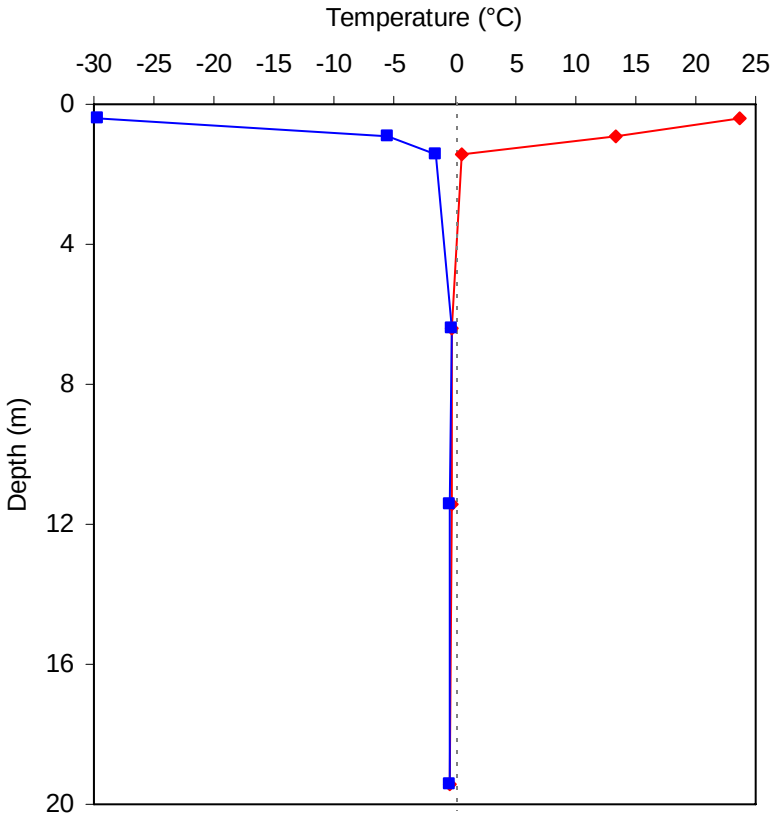


Depth (m)	Max (°C)	Min (°C)
0.5	22.39	-13.83
1	11.67	-0.53
1.5	7.88	0.04
2	5.34	0.02
3	1.26	-0.03
5	-0.05	-0.08
7.5	-0.15	-0.17
10	-0.23	-0.24

Police Island — PI-02

Sahtu Settlement Region

Latitude: 64°49.999'N Longitude: 125°00.832'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 21, 2010

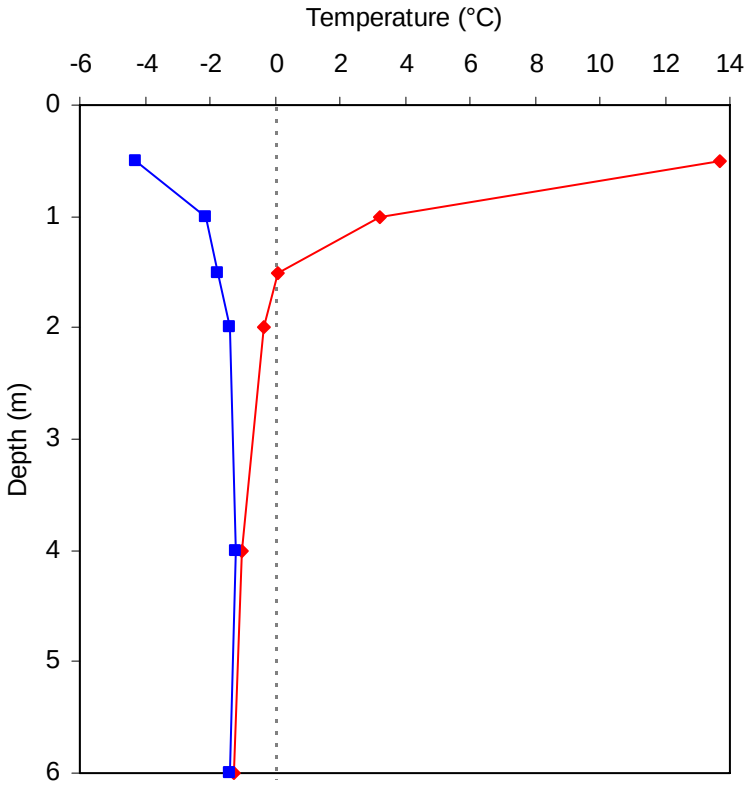


Depth (m)	Max (°C)	Min (°C)
0.4	23.60	-29.64
0.9	13.31	-5.54
1.4	0.55	-1.57
6.4	-0.26	-0.33
11.4	-0.31	-0.35
19.4	-0.35	-0.43

Vermillion Creek — VC-01

Sahtu Settlement Region

Latitude: 65°05.885'N Longitude: 126°08.238'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: 1.62 m
Site visit: September 23, 2010

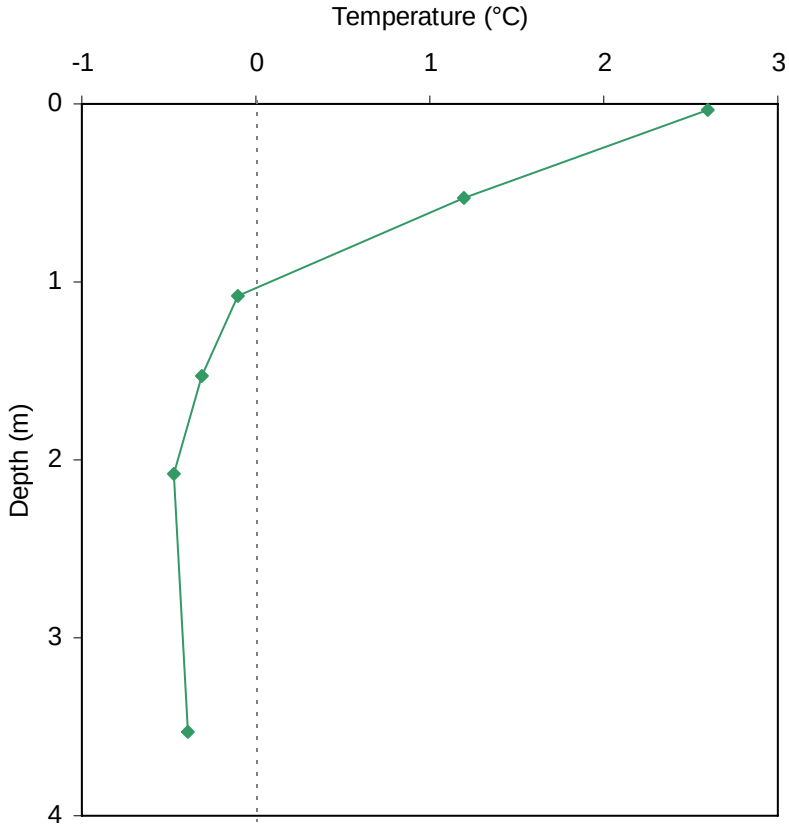


Depth (m)	Max (°C)	Min (°C)
0.5	13.71	-4.28
1	3.25	-2.11
1.5	0.1	-1.75
2	-0.33	-1.36
4	-1	-1.23
6	-1.29	-1.4

Vermillion Creek — VC-02

Sahtu Settlement Region

Latitude: 65°05.726'N Longitude: 126°07.606'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: 1.04 m
Site visit: September 23, 2010

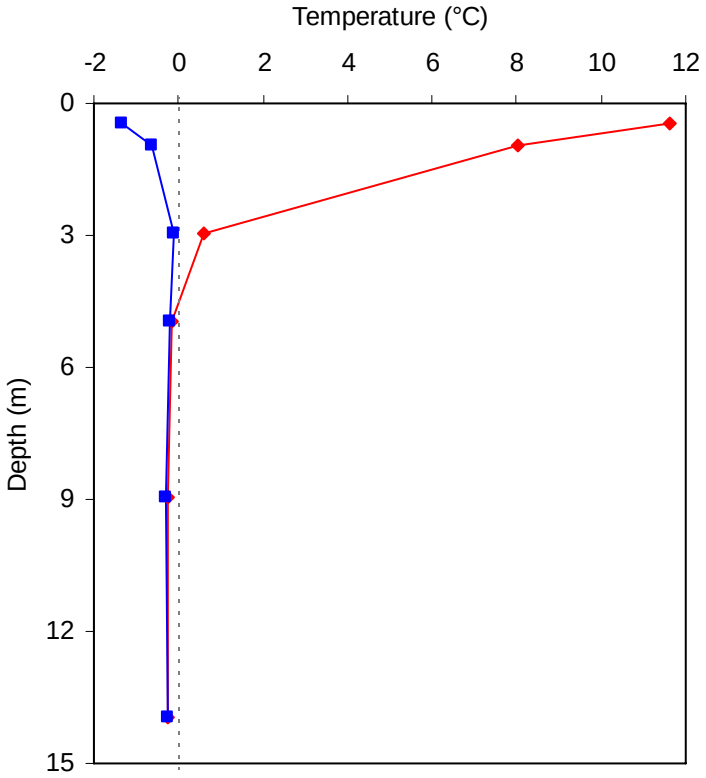


Depth (m)	Mean (°C)
0.03	2.60
0.53	1.20
1.08	-0.10
1.53	-0.31
2.08	-0.47
3.53	-0.39

Billy Creek North — BCN-01

Sahtu Settlement Region

Latitude: 65°24.147'N Longitude: 127°19.111'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: 4.60 m
Site visit: September 18, 2010

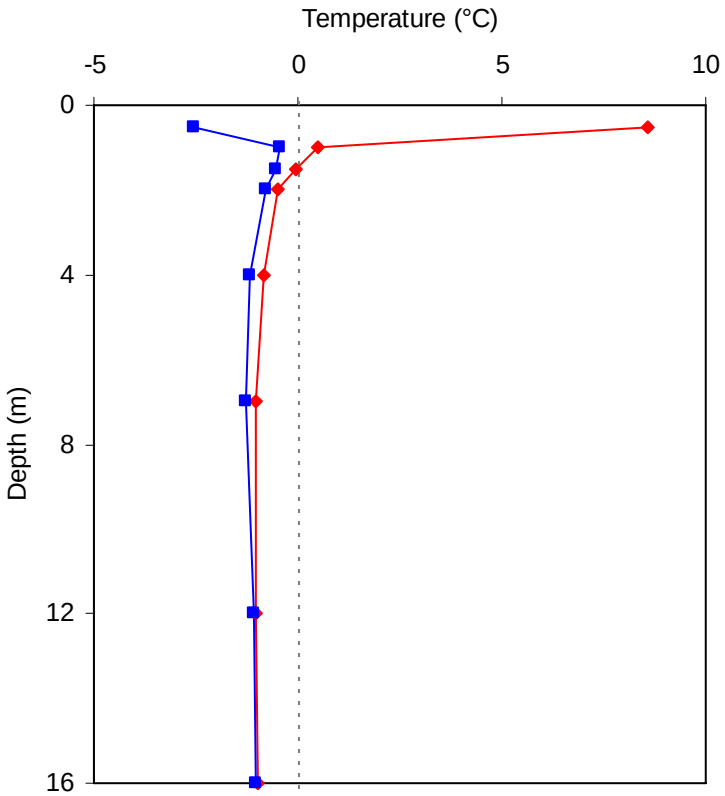


Depth (m)	Max (°C)	Min (°C)
0.47	11.61	-1.35
0.97	8.05	-0.65
2.97	0.61	-0.11
4.97	-0.14	-0.19
8.97	-0.25	-0.32
13.97	-0.26	-0.27

Oscar Creek — OC-01

Sahtu Settlement Region

Latitude: 65°26.194'N Longitude: 127°26.295'W
Elevation: 64 m a.s.l.
Landform: Undulating glacio-lacustrine terrain overlain by alluvial sediments.
Vegetation cover: Peat cover with dense-forested birch and black spruce.
Thaw Depth: 1.47 m
Site visit: September 18, 2010

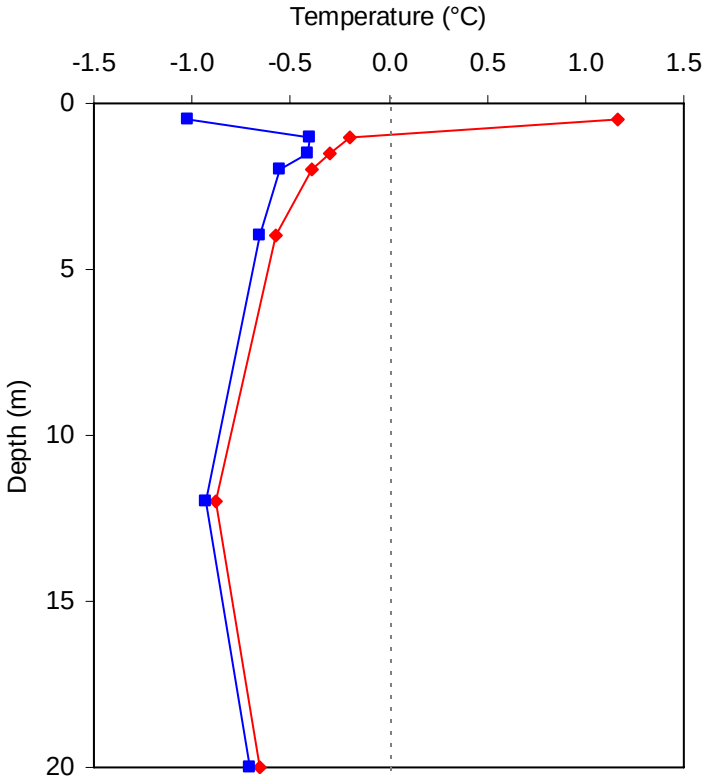


Depth (m)	Max (°C)	Min (°C)
0.5	8.56	-2.56
1	0.48	-0.44
1.5	-0.04	-0.53
2	-0.51	-0.80
4	-0.83	-1.16
7	-1.04	-1.29
12	-1.01	-1.09
16	-0.98	-1.02

Elliot Creek — EC-01

Sahtu Settlement Region

Latitude: 65°31.223'N Longitude: 127°37.285'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: 0.93 m
Site visit: September 18, 2010

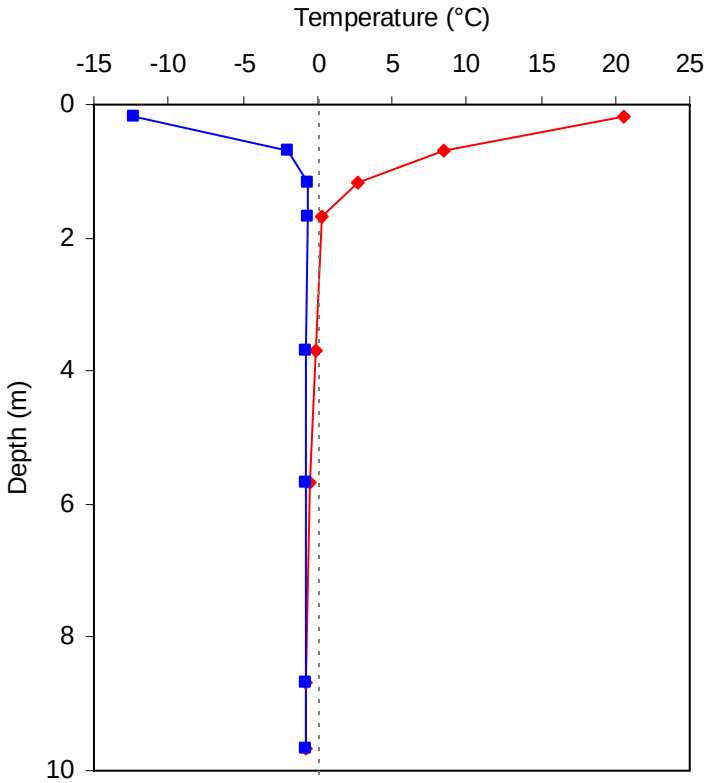


Depth (m)	Max (°C)	Min (°C)
0.5	1.17	-1.02
1	-0.19	-0.40
1.5	-0.30	-0.42
2	-0.39	-0.55
4	-0.57	-0.66
12	-0.88	-0.94
20	-0.66	-0.71

Elliot Creek — EC-02

Sahtu Settlement Region

Latitude: 65°31.360'N Longitude: 127°37.312'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: 3.40 m
Site visit: September 18, 2010

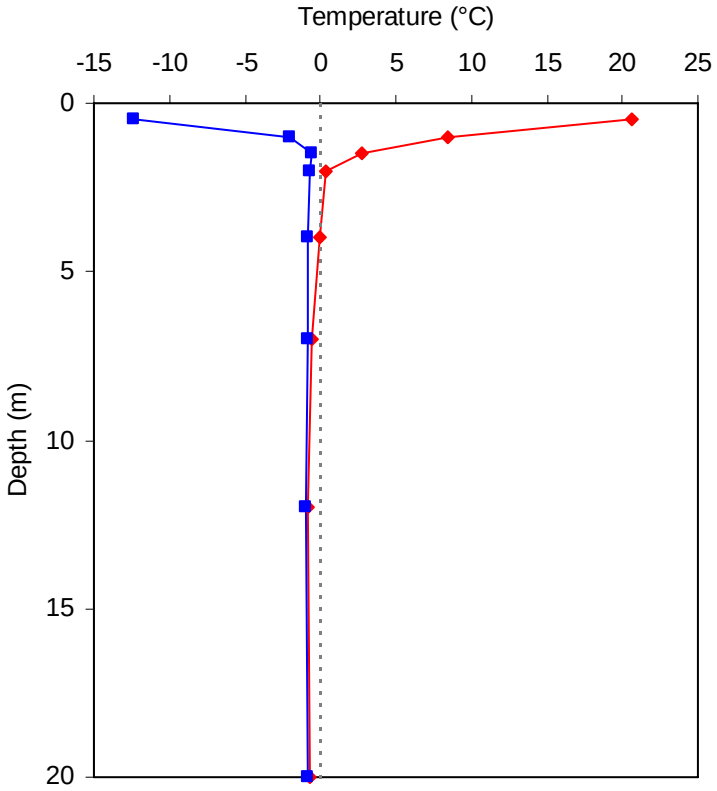


Depth (m)	Max (°C)	Min (°C)
0.18	20.60	-12.37
0.68	8.47	-2.04
1.18	2.68	-0.59
1.68	0.31	-0.63
3.68	-0.05	-0.72
5.68	-0.56	-0.78
8.68	-0.76	-0.82
9.68	-0.77	-0.81

Hanna River — HR-01

Sahtu Settlement Region

Latitude: 65°40.185'N Longitude: 127°50.011'W
Elevation: 104 m a.s.l.
Landform: Lacustrine plain.
Vegetation cover: Boggy burnt area.
Thaw Depth: 3.72 m
Site visit: September 18, 2010

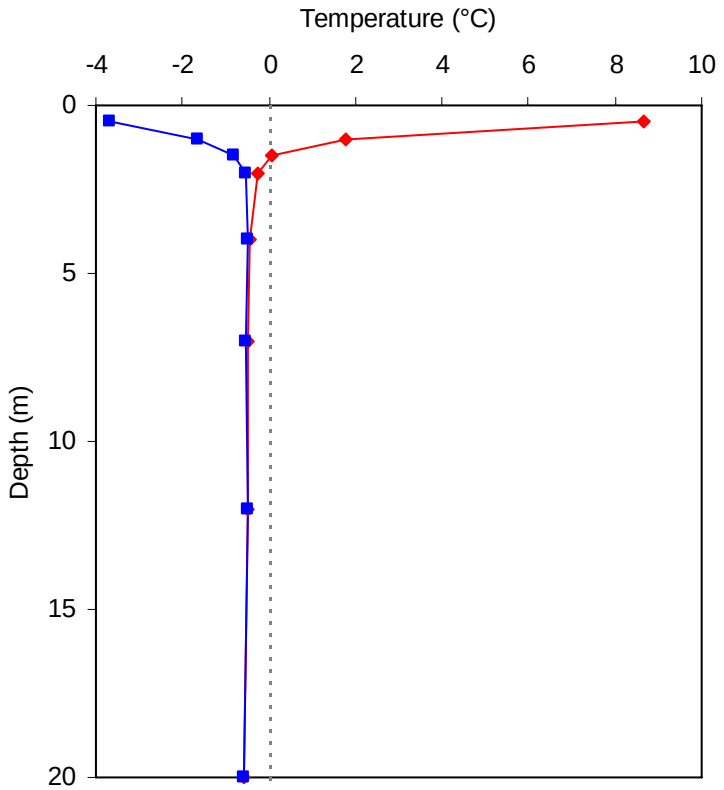


Depth (m)	Max (°C)	Min (°C)
0.5	20.60	-12.37
1	8.47	-2.04
1.5	2.68	-0.59
2	0.31	-0.63
4	-0.05	-0.88
7	-0.56	-0.83
12	-0.77	-0.94
20	-0.76	-0.84

Gibson Lake — GL-01

Sahtu Settlement Region

Latitude: 65°44.838'N Longitude: 127°53.289'W
Elevation: 228 m a.s.l.
Landform: Hummocky moraine plain.
Vegetation cover: Recovering burnt area with peat and shrubs.
Thaw Depth: 1.6 m
Site visit: September 17, 2010

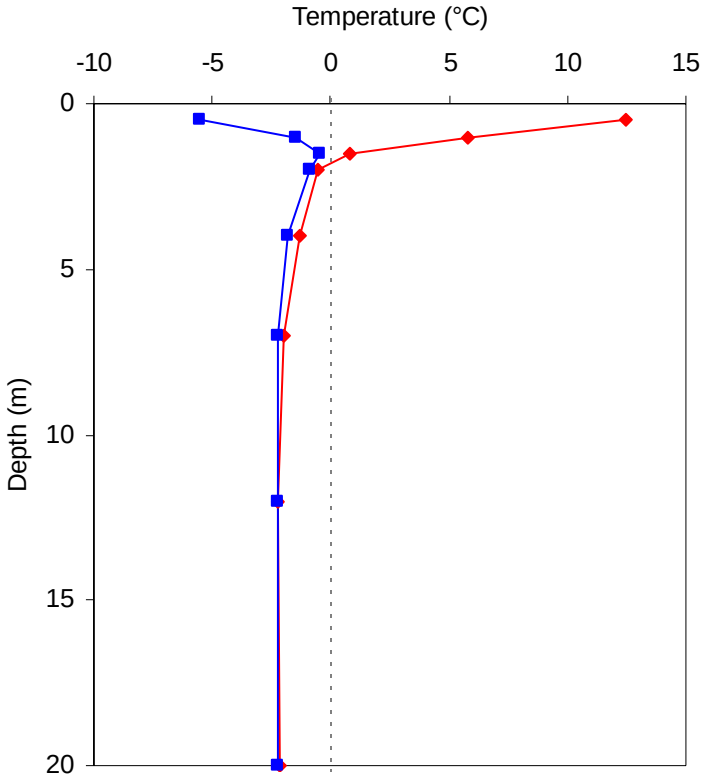


Depth (m)	Max (°C)	Min (°C)
0.5	8.64	-3.69
1	1.78	-1.64
1.5	0.07	-0.80
2	-0.26	-0.53
4	-0.42	-0.50
7	-0.51	-0.54
12	-0.49	-0.50
20	-0.57	-0.58

Chick Lake — CL-01

Sahtu Settlement Region

Latitude: 65°53.748'N Longitude: 128°17.036'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: 1.8 m
Site visit: September 18, 2010

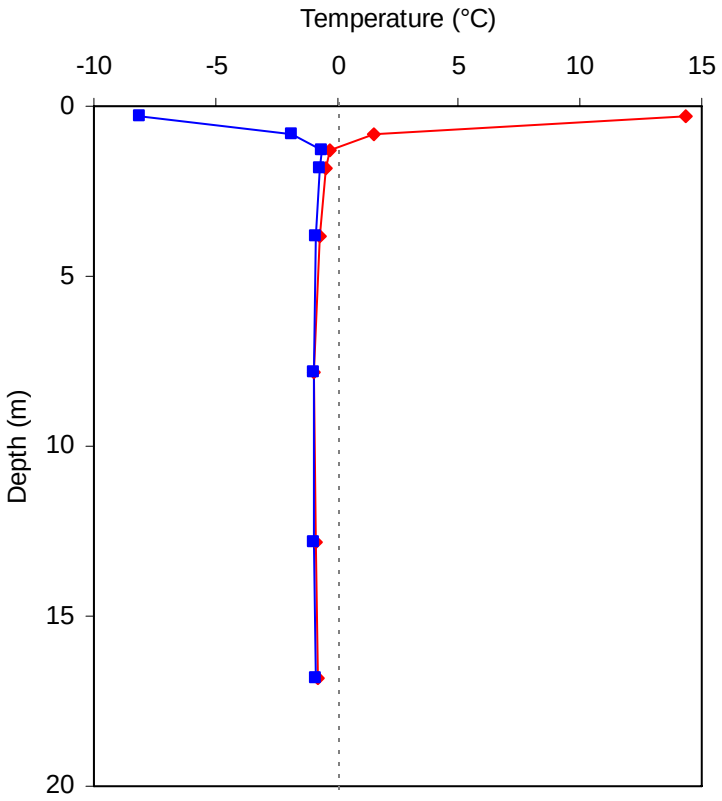


Depth (m)	Max (°C)	Min (°C)
0.5	12.48	-5.54
1	5.83	-1.47
1.5	0.78	-0.42
2	-0.51	-0.84
4	-1.32	-1.79
7	-1.99	-2.21
12	-2.22	-2.26
20	-2.18	-2.20

Snafu Creek — SC-01

Sahtu Settlement Region

Latitude: 66°0.113'N Longitude: 128°21.032'W
Elevation: 100 m a.s.l.
Landform: Moraine plain.
Vegetation cover: Peat bog, open black spruce forest, and lichen cover.
Thaw Depth: 1.24 m
Site visit: September 18, 2010

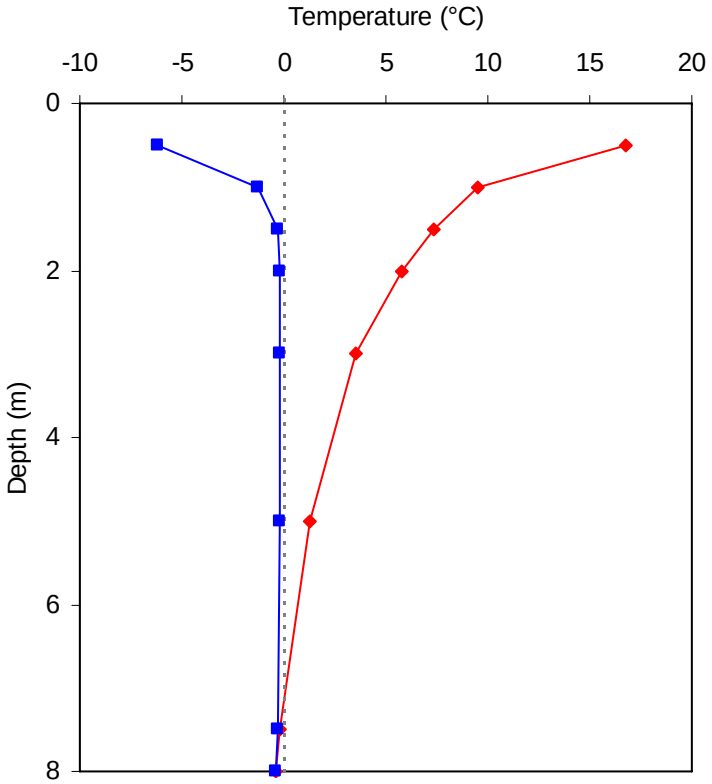


Depth (m)	Max (°C)	Min (°C)
0.32	14.30	-8.09
0.82	1.51	-1.84
1.32	-0.30	-0.63
1.82	-0.44	-0.67
3.82	-0.68	-0.86
7.82	-0.91	-0.97
12.82	-0.90	-0.91
16.82	-0.82	-0.83

Fort Good Hope South — FGHS-01

Sahtu Settlement Region

Latitude: 66°12.5874'N Longitude: 128°29.76'W
Elevation: 134 m a.s.l.
Landform: Hummocky peatland.
Vegetation cover: Dense shrub and open black spruce.
Thaw Depth: 7.11 m
Site visit: September 18, 2010

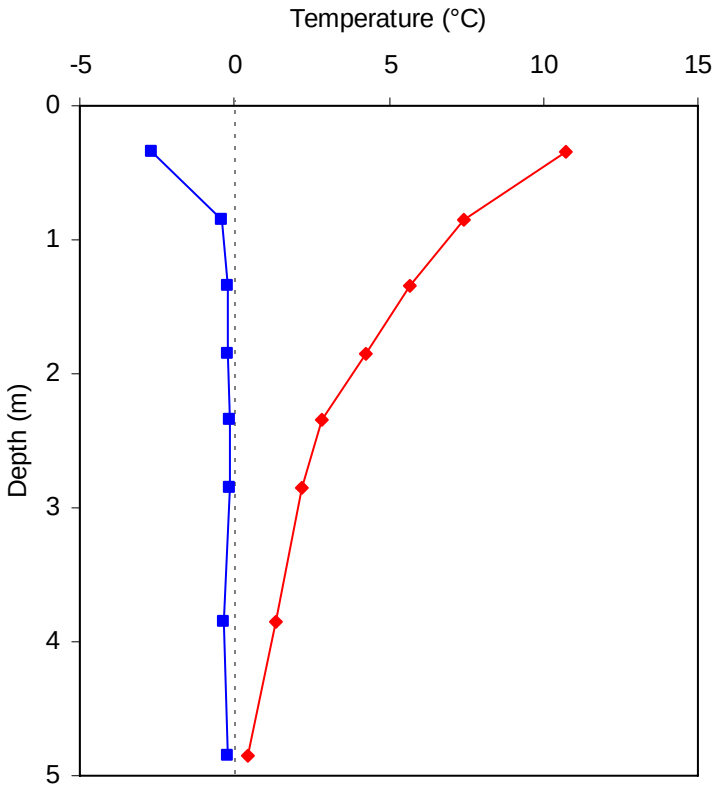


Depth (m)	Max (°C)	Min (°C)
0.5	16.79	-6.22
1	9.55	-1.24
1.5	7.37	-0.26
2	5.82	-0.22
3	3.54	-0.21
5	1.30	-0.20
7.5	-0.24	-0.28
8	-0.41	-0.44

Fort Good Hope South — FGHS-02

Sahtu Settlement Region

Latitude: 66°12.554'N Longitude: 128°29.744'W
Elevation: 134 m a.s.l.
Landform: Hummocky peatland.
Vegetation cover: Peat plateau, lichen, open black spruce.
Thaw Depth: 5.30 m (thaw depth was extrapolated from bottom 2 temperature measurements)
Site visit: September 18, 2010

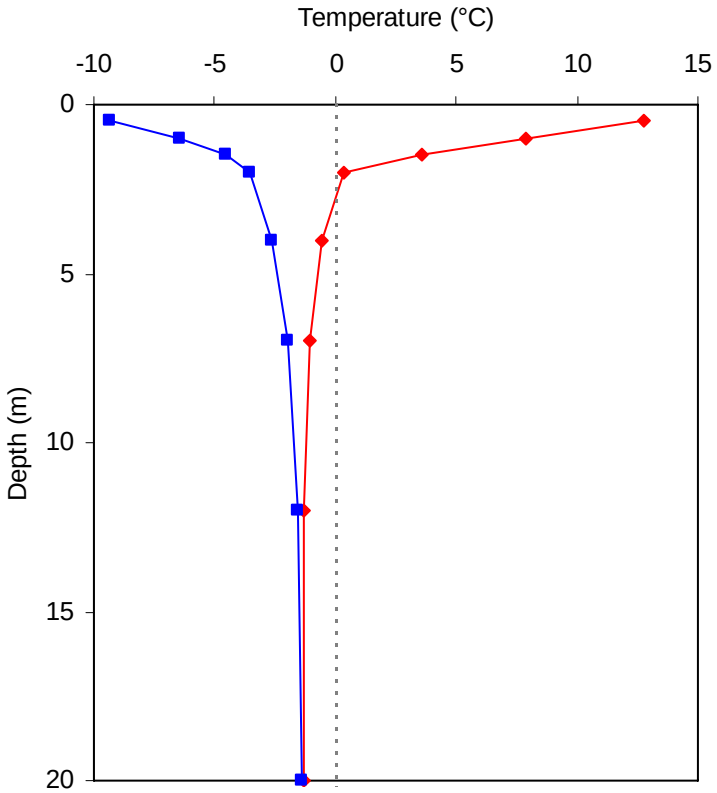


Depth (m)	Max (°C)	Min (°C)
0.35	10.74	-2.70
0.85	7.44	-0.43
1.35	5.66	-0.20
1.85	4.24	-0.18
2.35	2.82	-0.12
2.85	2.19	-0.16
3.85	1.35	-0.32
4.85	0.42	-0.23

Jackfish Creek — JF-02

Sahtu Settlement Region

Latitude: 66°17.0964'N Longitude: 128°28.14'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: 2.8 m
Site visit: September 18, 2010

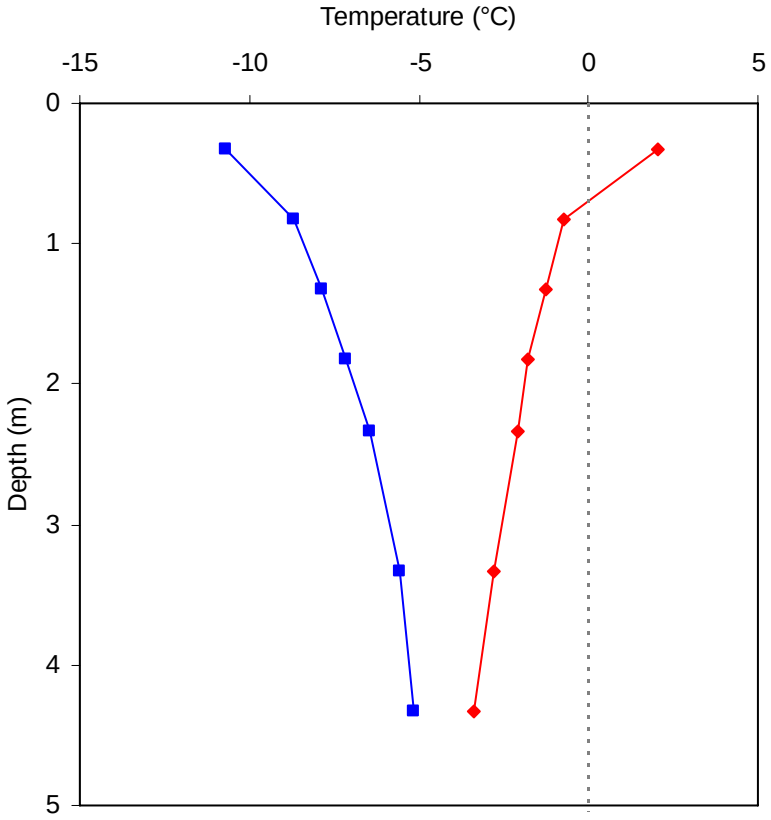


Depth (m)	Max (°C)	Min (°C)
0.5	12.74	-9.34
1	7.89	-6.44
1.5	3.56	-4.55
2	0.36	-3.53
4	-0.55	-2.61
7	-1.04	-1.94
12	-1.28	-1.57
20	-1.32	-1.37

Wood Bridge Lake — WBL-01

Gwich'in Settlement Region

Latitude: 67°54.128'N Longitude: 132°10.679'W
Elevation: 204 m a.s.l.
Landform: Alluvial plain
Vegetation: Black spruce forest
Thaw Depth: 0.70 m
Site visit: August 15, 2010

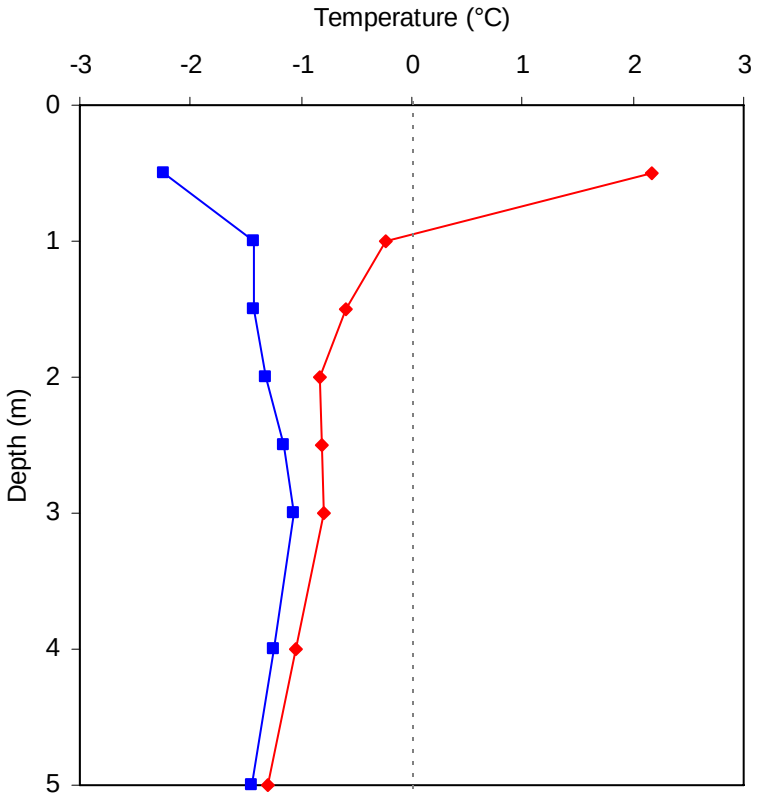


Depth (m)	Max (°C)	Min (°C)
0.33	2.2262	-11.0294
0.83	-0.6944	-8.6929
1.33	-1.268	-7.8844
1.83	-1.7796	-7.1747
2.33	-2.0634	-6.4607
3.33	-2.7999	-5.5645
4.33	-3.3455	-5.1416

Hill Lake — HL-01

Gwich'in Settlement Region

Latitude: 67°59.344'N Longitude: 132°29.438' W
Elevation: 234 m a.s.l.
Landform: Moraine plain
Vegetation cover: Tundra
Thaw Depth : 0.95 m
Site visit: August 15, 2010

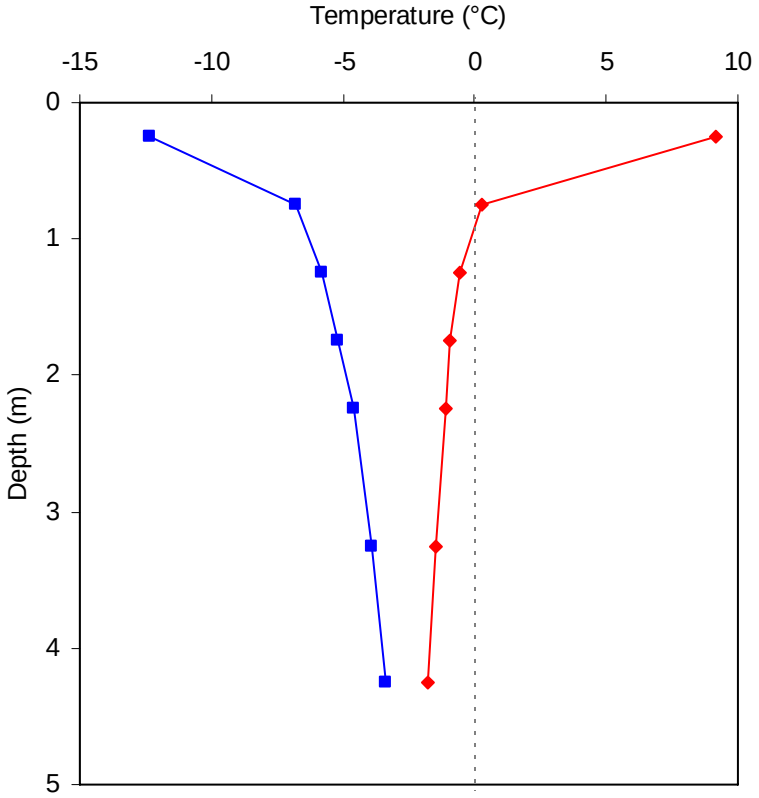


Depth (m)	Max (°C)	Min (°C)
0.5	2.17	-2.24
1	-0.23	-1.43
1.5	-0.60	-1.42
2	-0.84	-1.32
2.5	-0.82	-1.16
3	-0.80	-1.06
4	-1.04	-1.25
5	-1.30	-1.45

Hill Lake — HL-02

Gwich'in Settlement Region

Latitude: 67°59.316'N Longitude: 132°29.410' W
Elevation: 229 m a.s.l.
Landform: Moraine plain
Vegetation cover: Shrub Tundra
Thaw Depth: 0.91 m
Site visit: August 15, 2010

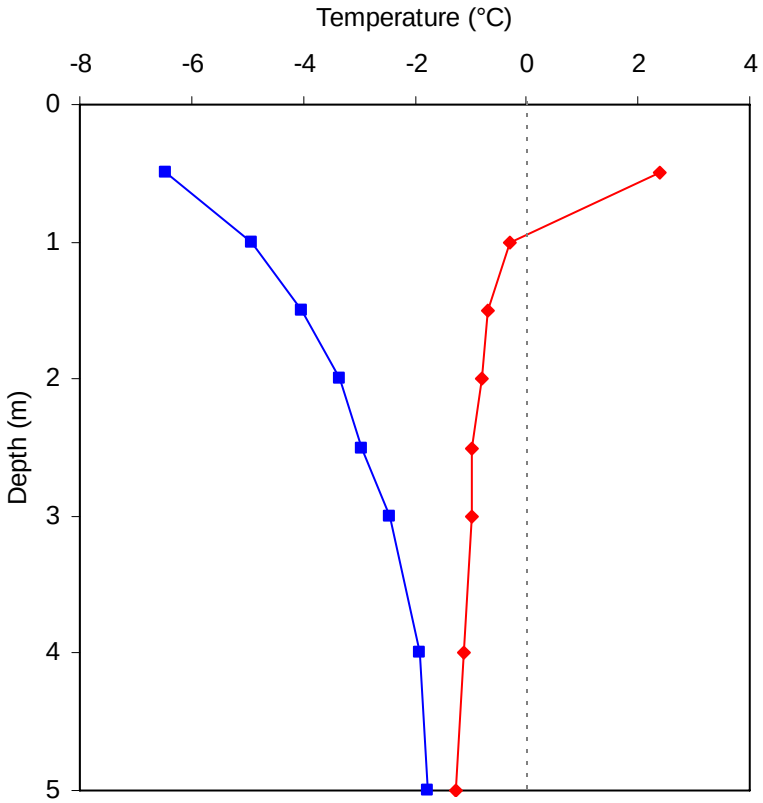


Depth (m)	Max (°C)	Min (°C)
0.25	9.16	-12.37
0.75	0.27	-6.82
1.25	-0.58	-5.78
1.75	-0.91	-5.18
2.25	-1.09	-4.61
3.25	-1.45	-3.90
4.25	-1.75	-3.40

North Caribou Lake — NCL-01

Gwich'in Settlement Region

Latitude: 68° 08.850' N Longitude: 132° 55.969'W
Elevation: 209 m a.s.l.
Landform: Moraine plain
Vegetation cover: Peatland
Thaw Depth: 0.94 m
Site visit: August 15, 2010

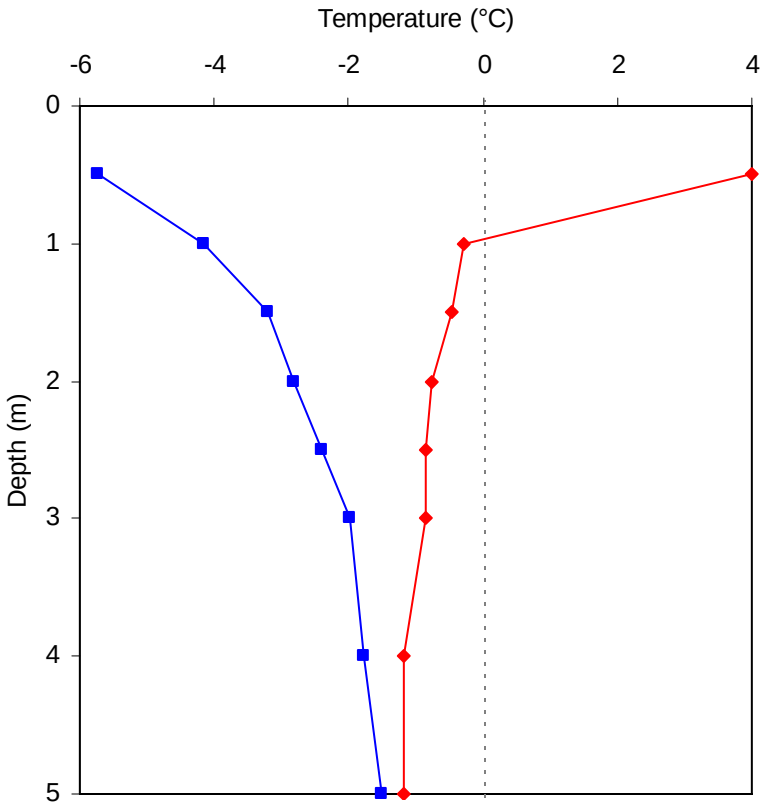


Depth (m)	Max (°C)	Min (°C)
0.5	2.39	-6.44
1	-0.31	-4.93
1.5	-0.69	-4.02
2	-0.79	-3.35
2.5	-0.97	-2.95
3	-1.00	-2.46
4	-1.11	-1.91
5	-1.27	-1.76

North Caribou Lake — NCL-02

Gwich'in Settlement Region

Latitude: 68° 08.823' N Longitude: 132° 55.905'W
Elevation: 217 m a.s.l.
Landform: Moraine plain
Vegetation cover: Stunted black spruce forest
Thaw Depth: 0.97 m
Site visit: August 15, 2010

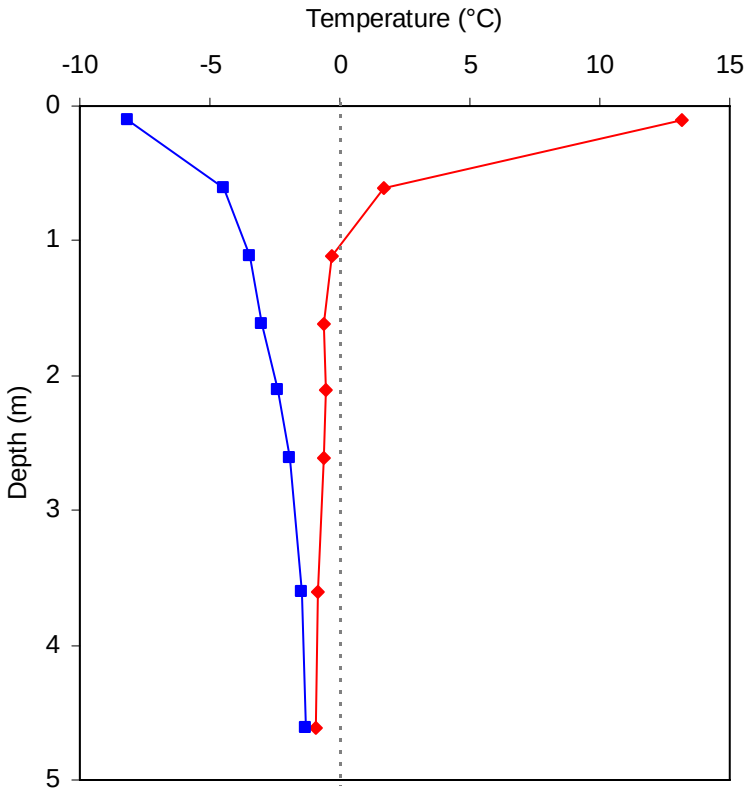


Depth (m)	Max (°C)	Min (°C)
0.5	4.01	-5.72
1	-0.29	-4.14
1.5	-0.46	-3.19
2	-0.75	-2.81
2.5	-0.86	-2.39
3	-0.85	-1.98
4	-1.18	-1.77
5	-1.16	-1.49

Campbell Lake — CaL-01

Gwich'in Settlement Region

Latitude: 68°14.578'N Longitude: 133° 05.662'W
Elevation: 115 m a.s.l.
Landform: Moraine plain
Vegetation cover: Peatland
Thaw Depth: 1.03 m
Site visit: August 15, 2010

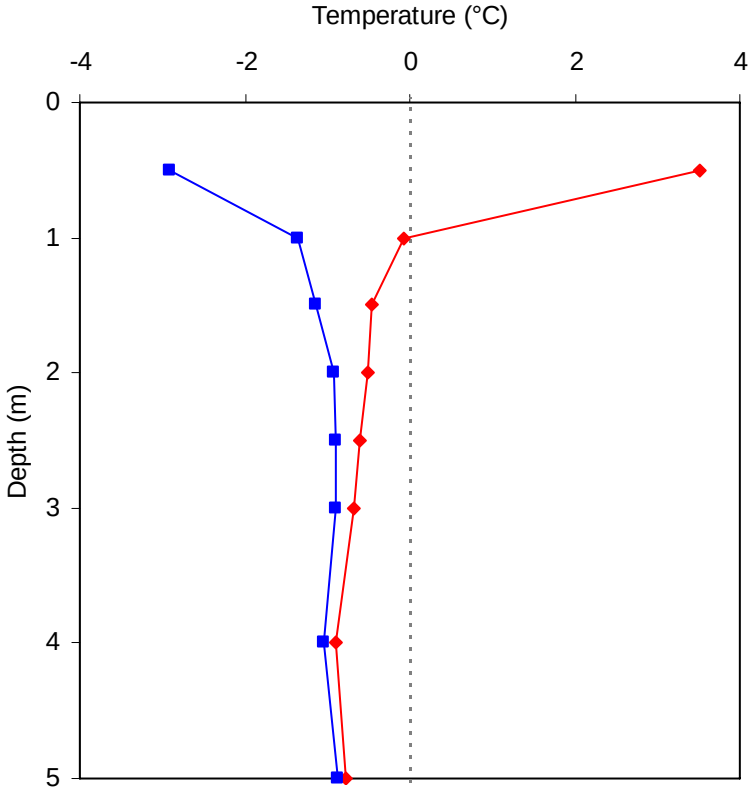


Depth (m)	Max (°C)	Min (°C)
0.11	13.16	-8.13
0.61	1.72	-4.47
1.11	-0.31	-3.46
1.61	-0.59	-2.97
2.11	-0.57	-2.36
2.61	-0.64	-1.94
3.61	-0.81	-1.48
4.61	-0.93	-1.32

Campbell Lake — CaL-02

Gwich'in Settlement Region

Latitude: 68°14.580'N Longitude: 133° 05.737'W
Elevation: 118 m a.s.l.
Landform: Moraine plain
Vegetation cover: Cutline
Thaw Depth: 0.99 m
Site visit: August 15, 2010

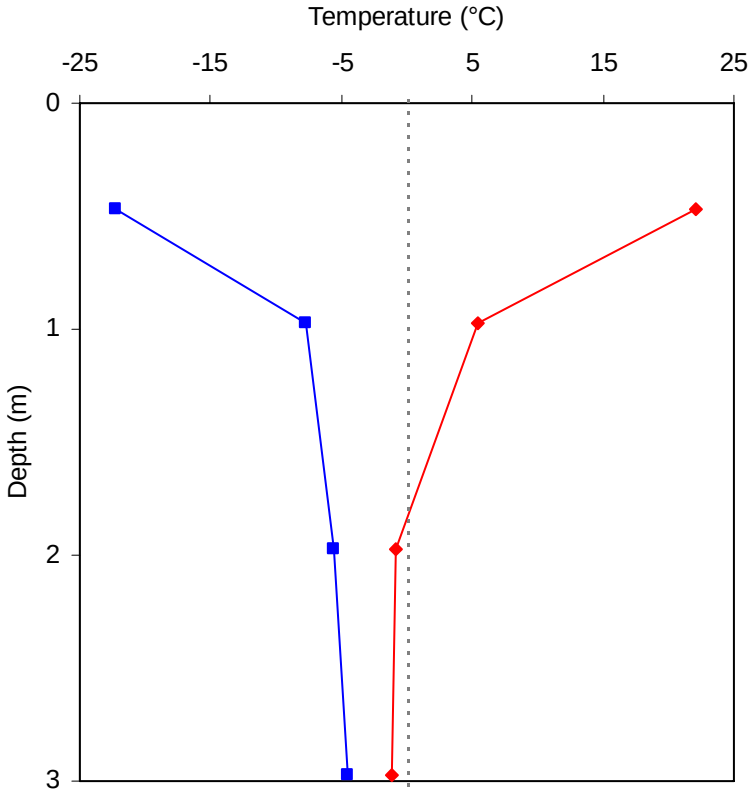


Depth (m)	Max (°C)	Min (°C)
0.5	3.52	-2.92
1	-0.06	-1.35
1.5	-0.45	-1.13
2	-0.51	-0.92
2.5	-0.61	-0.90
3	-0.68	-0.90
4	-0.89	-1.03
5	-0.76	-0.86

Campbell Lake — CaL-03

Gwich'in Settlement Region

Latitude: 68°14.619'N Longitude: 133° 05.737'W
Elevation: 118 m a.s.l.
Landform: Moraine plain
Vegetation cover: Black spruce forest
Thaw Depth: 1.84 m
Site visit: August 15, 2010

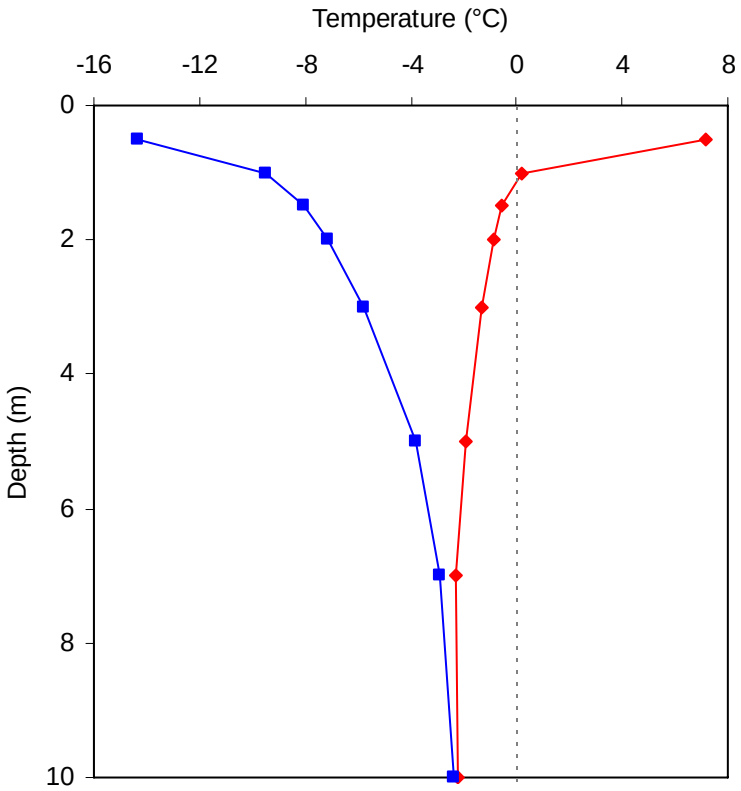


Depth (m)	Max (°C)	Min (°C)
0.47	22.05	-22.32
0.97	5.43	-7.66
1.97	-0.80	-5.62
2.97	-1.19	-4.54

Inuvik Airport (trees) — 01TC2

Gwich'in Settlement Area

Latitude: 68°18.964'N Longitude: 133°26.126'W
Elevation: 84 m a.s.l.
Landform: Fluted till plain, glacial (>10Ka).
Vegetation cover: Taiga open black spruce, heath ground cover.
Thaw Depth: 1.13 m
Site visit: August 14, 2010

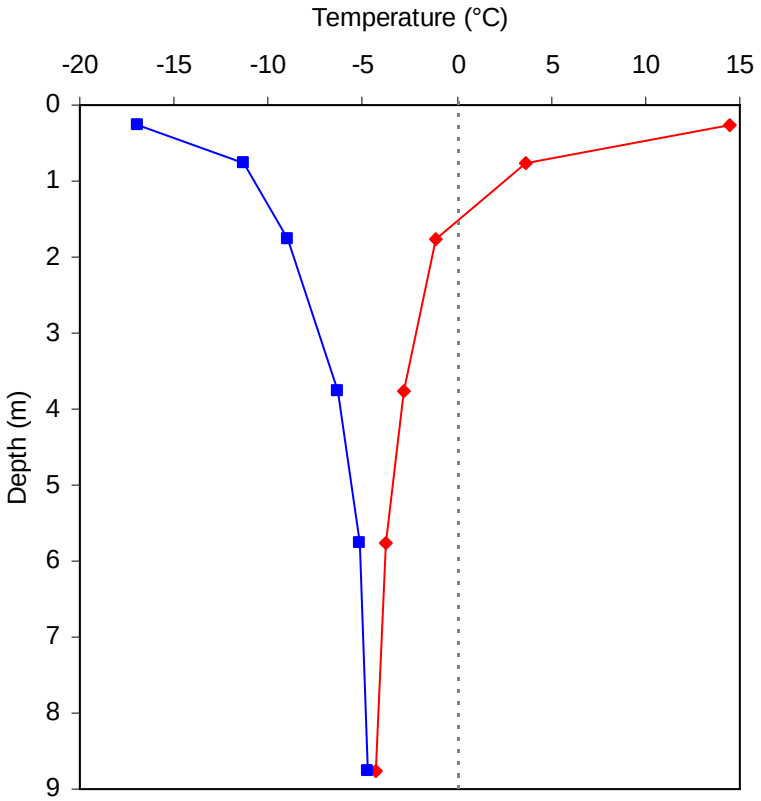


Depth (m)	Max (°C)	Min (°C)
0.5	7.16	-14.34
1	0.19	-9.50
1.5	-0.53	-8.02
2	-0.86	-7.12
3	-1.34	-5.76
5	-1.94	-3.82
7	-2.27	-2.93
10	-2.23	-2.38

Norris Creek — NC-01

Gwich'in Settlement Region

Latitude: 68°24.4002'N Longitude: 133° 17.4' W
Elevation: 15 m a.s.l.
Landform: Thick organic material over moraine plain
Vegetation cover: Shrub Tundra
Thaw Depth: 1.51 m
Site visit: August 15, 2010

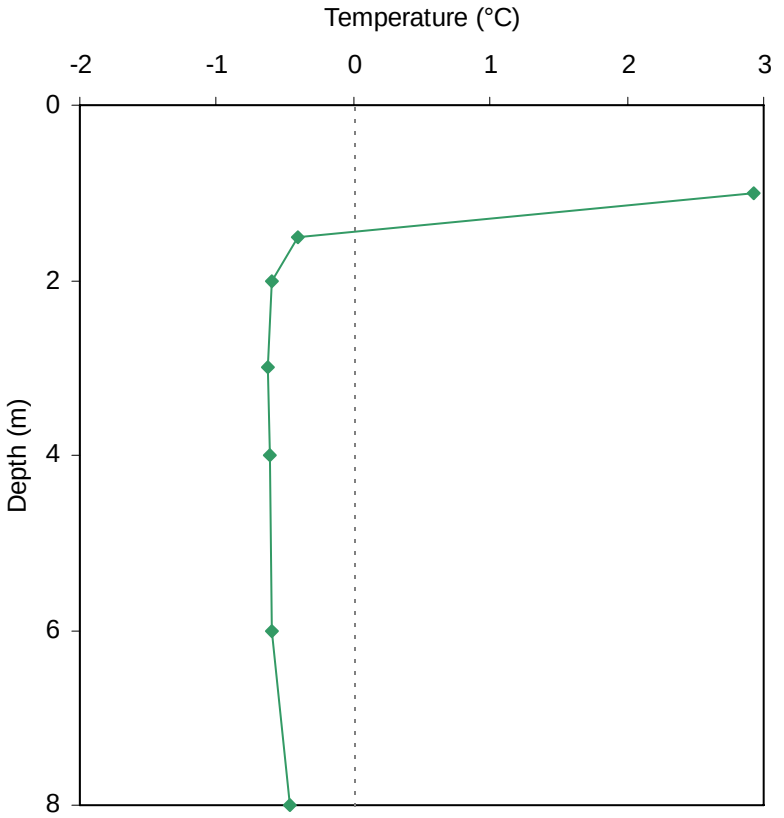


Depth (m)	Max (°C)	Min (°C)
0.25	14.46	-16.92
0.75	3.60	-11.29
1.75	-1.16	-8.94
3.75	-2.84	-6.34
5.75	-3.78	-5.18
8.75	-4.30	-4.74

Navy Channel — 03TC1

Inuvialuit Settlement Region

Latitude: 68°25.00'N Longitude: 133°47.655'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: 1.44 m
Site visit: August 14, 2010

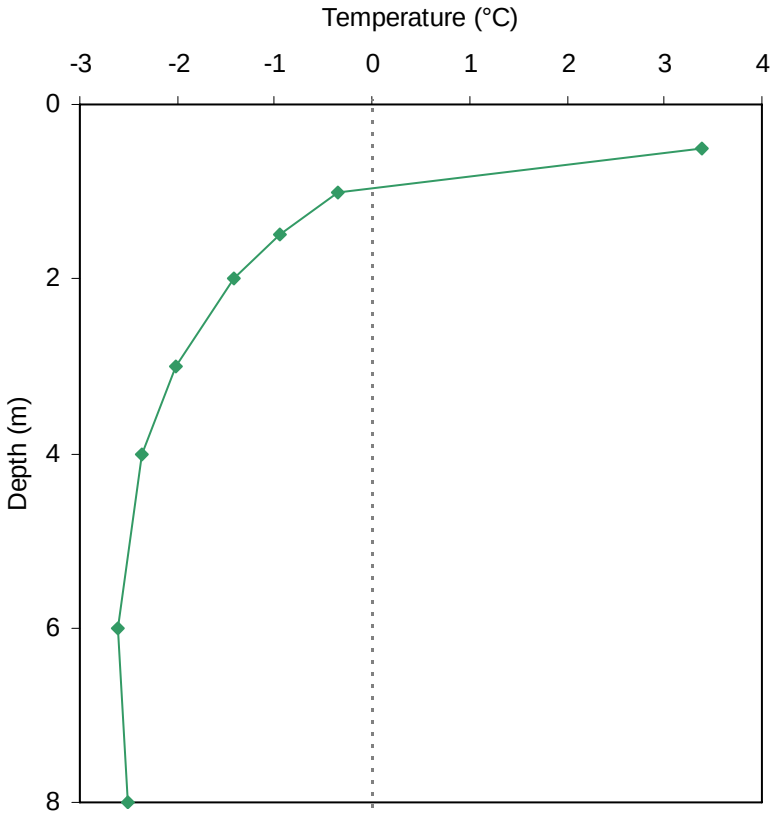


Depth (m)	Temp (°C)
1	2.92
1.5	-0.4
2	-0.6
3	-0.63
4	-0.61
6	-0.59
8	-0.46

Navy Road — 01TC1

Inuvialuit Settlement Region

Latitude: 68°28.883'N Longitude: 133° 49.717' W
Elevation: 60 m a.s.l.
Landform: Fine grained colluvium sloping toward river, post glacial (~10Ka)
Vegetation: Taiga post fire succession, scattered birch and alder, open dwarf birch, heath ground cover
Thaw Depth: 0.95 m
Site visit: August 19, 2010

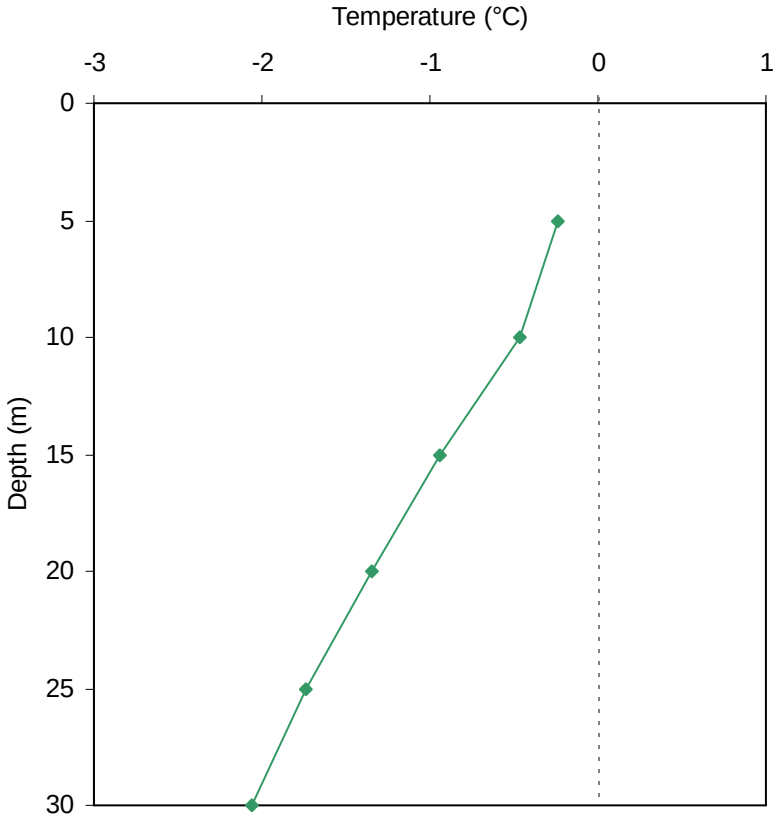


Depth (m)	Temp (°C)
0.5	3.39
1	-0.36
1.5	-0.94
2	-1.42
3	-2.02
4	-2.36
6	-2.6
8	-2.5

Taglu — 91TTC

Inuvialuit Settlement Region

Latitude: 69°22.058'N Longitude: 134°57.460' W
Elevation: 15 m a.s.l.
Landform: Surface of Holocene Mackenzie delta
Vegetation: Low willow shrub
Thaw Depth: >1.30 m (frost probe)
Site visit: August 18, 2010

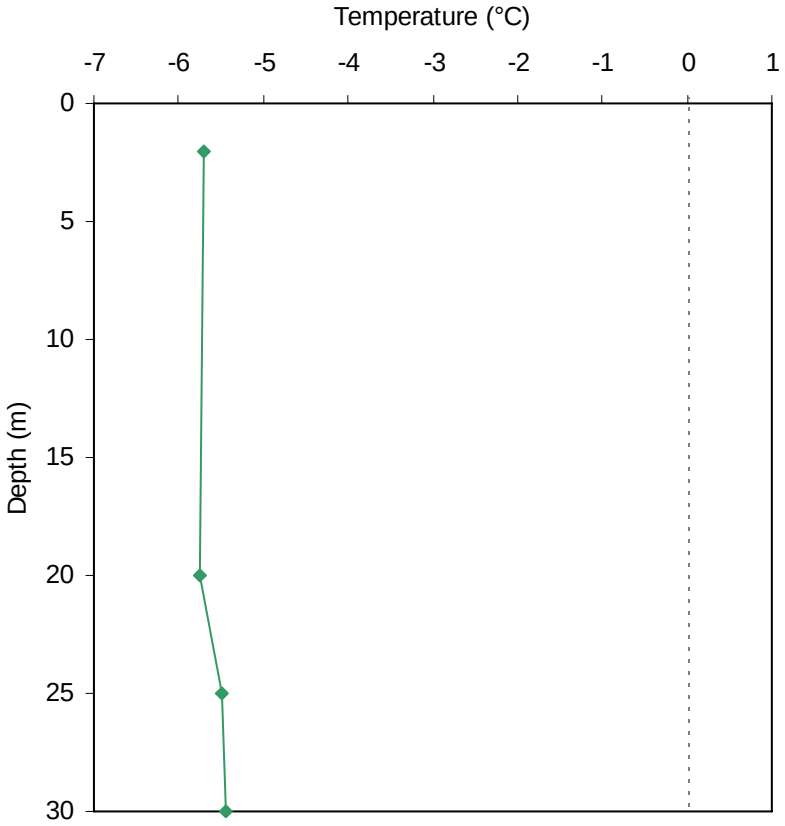


Depth (m)	Temp (°C)
5	-0.24
10	-0.47
15	-0.94
20	-1.34
25	-1.74
30	-2.06

Lousy Point — 2/91GSC13

Inuvialuit Settlement Region

Latitude: 69°12.974'N Longitude: 134°17.842'W
Elevation: 118 m a.s.l.
Landform: Ice cored ice contact ridge, may be late glacial (>10Ka) or much older (early Wisconsinan)
Vegetation: Shrub tundra
Thaw Depth: 0.37 m (frost probe)
Site visit: August 16, 2010

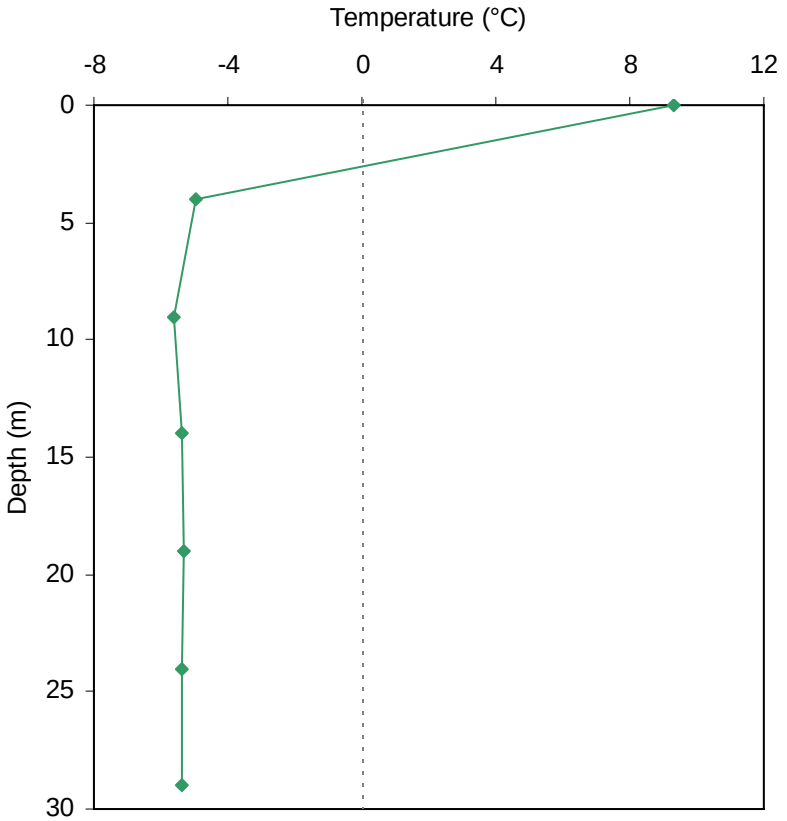


Depth (m)	Temp (°C)
2	-5.7
20	-5.76
25	-5.49
30	-5.44

Involuted Hill — IH88-2

Inuvialuit Settlement Region

Latitude: 69°13.050'N Longitude: 132°28.000'W
Elevation: 209 m a.s.l.
Landform: Ice cored collapsing plateau type hill, may be postglacial (10Ka) or much older (early Wisconsinan)
Vegetation: Shrub tundra
Thaw Depth: 0.47 m (frost probe)
Site visit: August 16, 2010

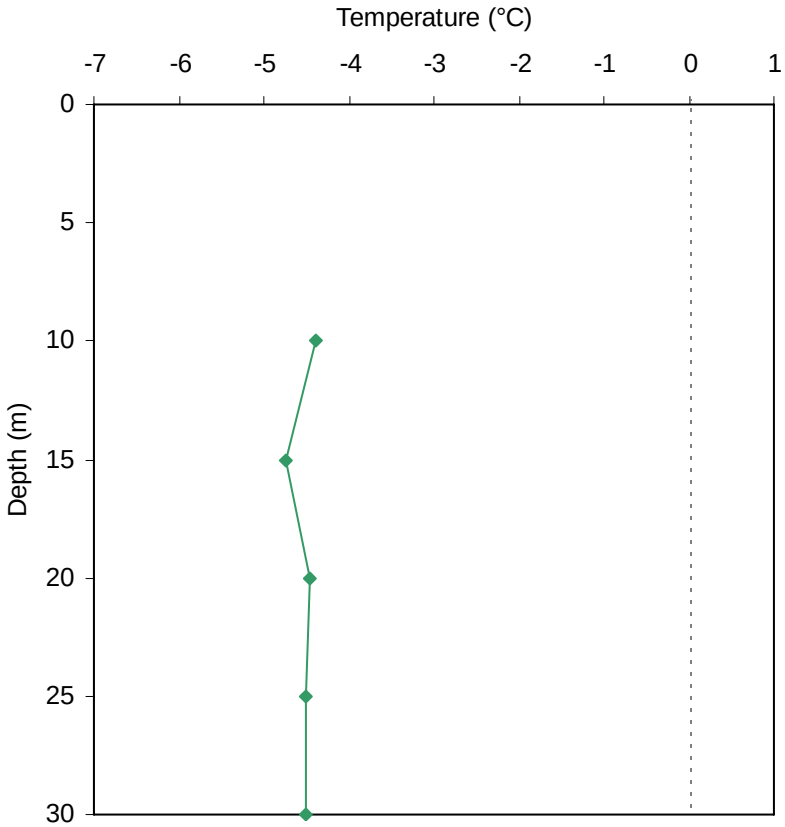


Depth (m)	Temp (°C)
0	9.32
4	-4.93
9	-5.62
14	-5.39
19	-5.32
24	-5.36
29	-5.36

Harry Channel — 91TTA

Inuvialuit Settlement Region

Latitude: 69°28.690'N Longitude: 134°49.95'W
Elevation: 229 m a.s.l.
Landform: Surface of Holocene Mackenzie delta
Vegetation: Grass tundra
Thaw Depth: 0.75 m (frost probe)
Site visit: August 18, 2010



Depth (m)	Temp (°C)
10	-4.39
15	-4.75
20	-4.46
25	-4.51
30	-4.5