

Field Journal – Alaska Permafrost Research Expedition

Site #1 - Hess Creek Unburned (HCU)

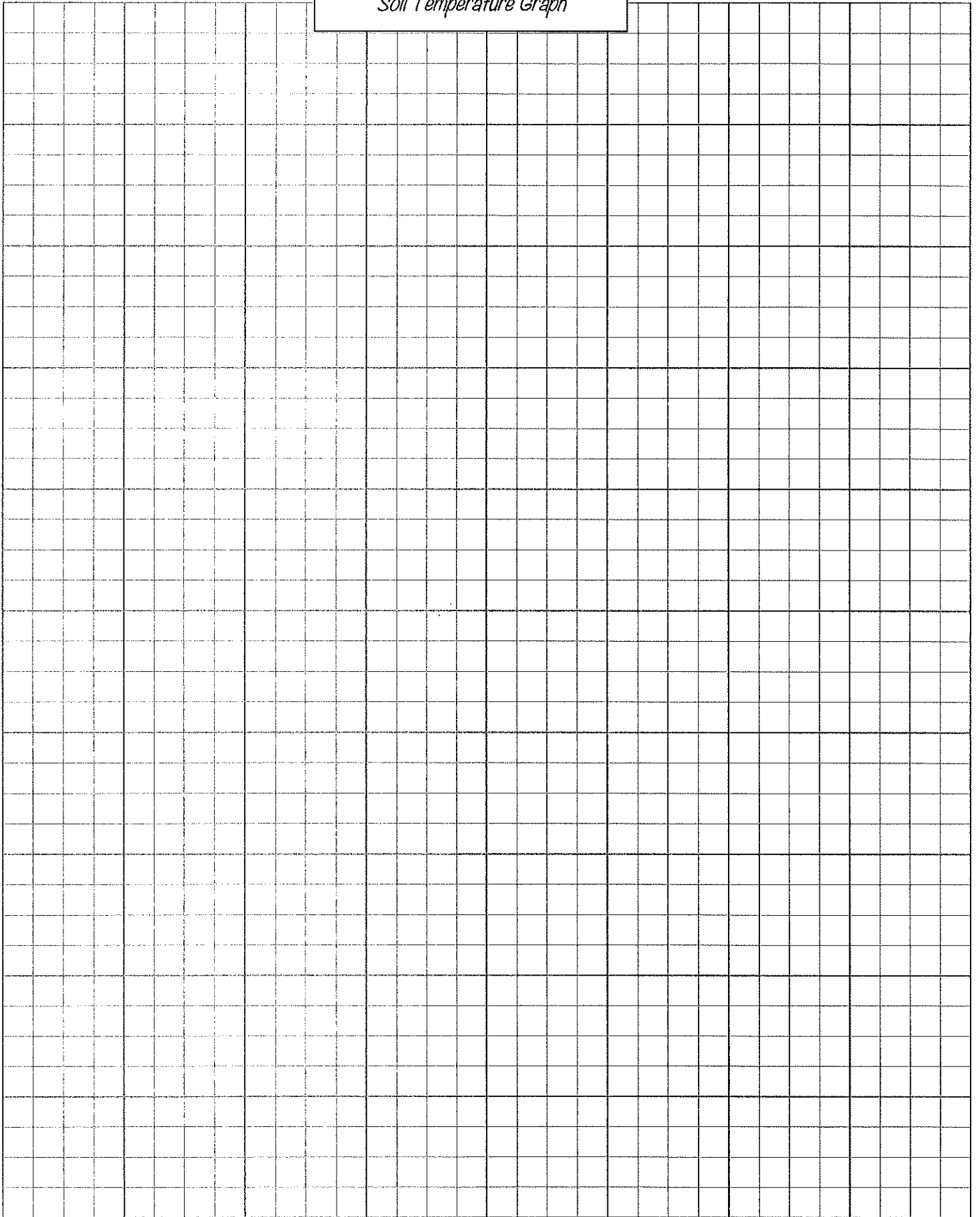
Site #2 - Hess Creek Burned (HCB)

Analysis: Sim/Diff between sites?

Table 1: Soil Temperature at 15 cm depth at the Hess Creek Unburned (HCU) Site, and at the Hess Creek Burned (HCB) Site. Data is provided for both sites at two-week intervals starting on July 15th, 2017 and ending on July 14th, 2018.

RECORD	DATE	HCU Soil Temperature	HCB Soil Temperature
1	15-Jul-2017	5.6	6.4
2	29-Jul-2017	5.2	6.2
3	12-Aug-2017	4.2	6.3
4	26-Aug-2017	3.0	4.8
5	9-Sep-2017	1.6	2.9
6	23-Sep-2017	1.0	2.1
7	7-Oct-2017	0.5	0.8
8	21-Oct-2017	-0.6	0.0
9	4-Nov-2017	-0.4	0.0
10	18-Nov-2017	-1.1	-0.2
11	2-Dec-2017	-1.5	-0.4
12	16-Dec-2017	-1.1	-0.4
13	30-Dec-2017	-3.6	-1.3
14	13-Jan-2018	-4.7	-1.8
15	27-Jan-2018	-5.3	-1.4
16	10-Feb-2018	-8.3	-2.3
17	24-Feb-2018	-5.2	-0.8
18	10-Mar-2018	-5.1	-1.0
19	24-Mar-2018	-5.4	-0.8
20	7-Apr-2018	-5.3	-1.1
21	21-Apr-2018	-4.8	-0.9
22	5-May-2018	-0.1	-0.1
23	19-May-2018	0.4	0.0
24	2-Jun-2018	1.6	0.9
25	16-Jun-2018	2.2	1.8
26	30-Jun-2018	3.6	3.9
27	14-Jul-2018	4.3	5.7

Soil Temperature Graph



What is the minimum and maximum soil temperature at each site?

Based on the soil temperature data, around what date would you classify as the start of winter? What date would you classify as being the end of winter? Why?

Why do you think the soil temperature at HCB is warmer than the soil temperature at HCU between November and May? Explain.

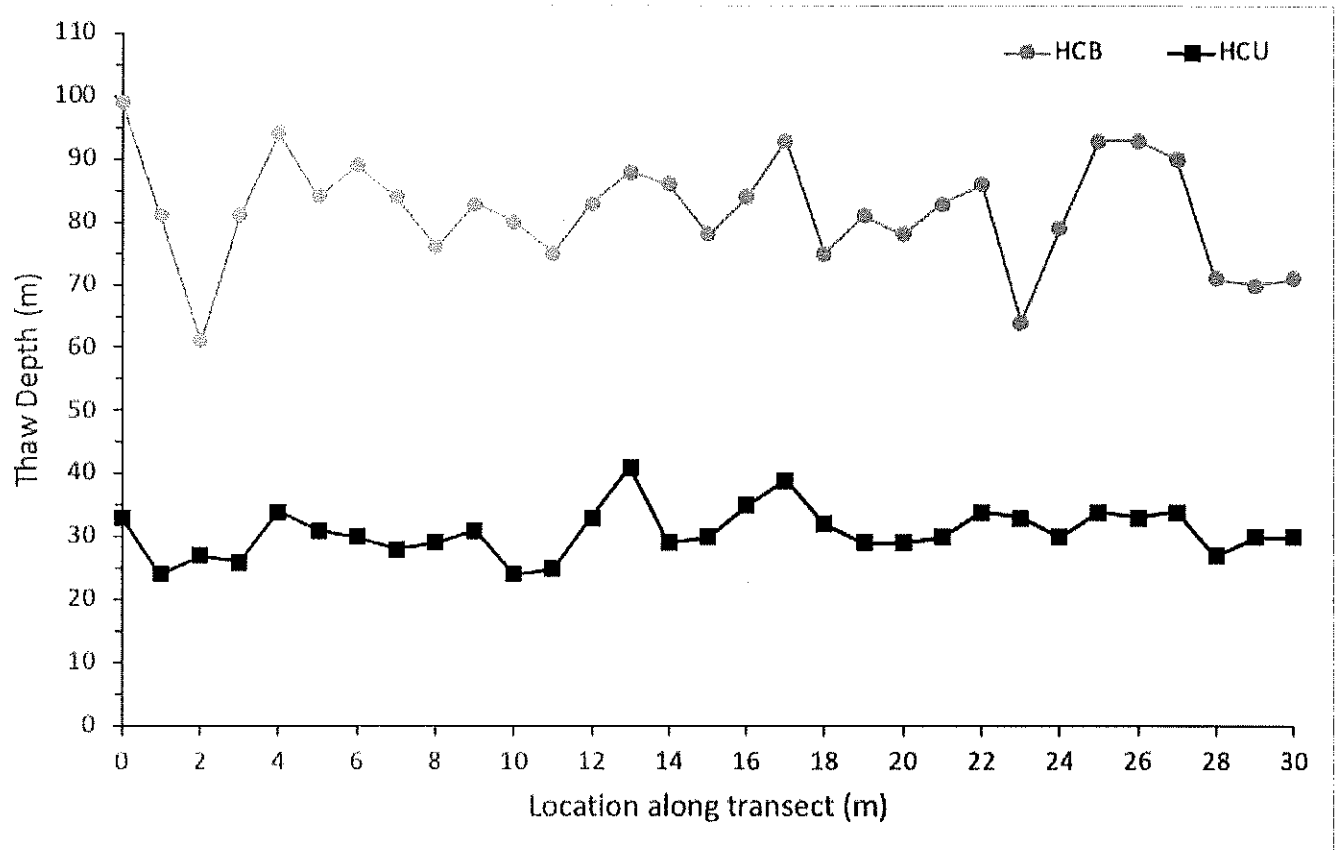


Figure 1: Measurements of thaw depth (m) along a 30-meter transect at Hess Creek Unburned (HCU) Site and at Hess Creek Burned (HCB) Site. Thaw depth was measured at each site in July of 2018.

Examine the graph of thaw depth data from HCB and HCU. What are two significant observations?

If the forest were to recover at the burned site (HCB), what do you think could happen to the permafrost? Why?

After completing the further reading, what might be the implications of your data to the larger boreal forest system in the Arctic and climate change?