



Earth
Cryosphere
Institute

Russian Academy
of Sciences,
Siberian Branch

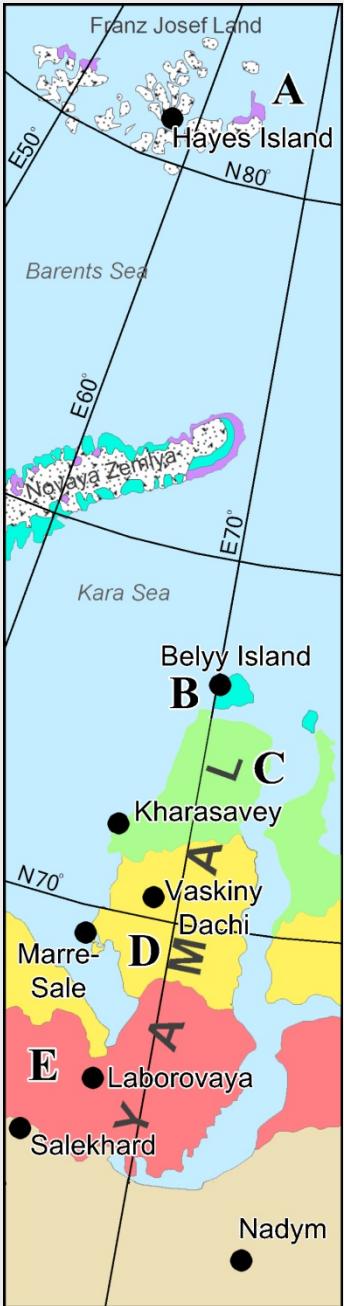
Third Yamal Land-Cover Land-Use
Change Workshop
Arctic Centre, Rovaniemi, Finland
19-21 May 2012



Database of **EAT permafrost** information

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Earth Cryosphere Institute SB RAS, Tyumen, Russia

Database includes:



Locations:

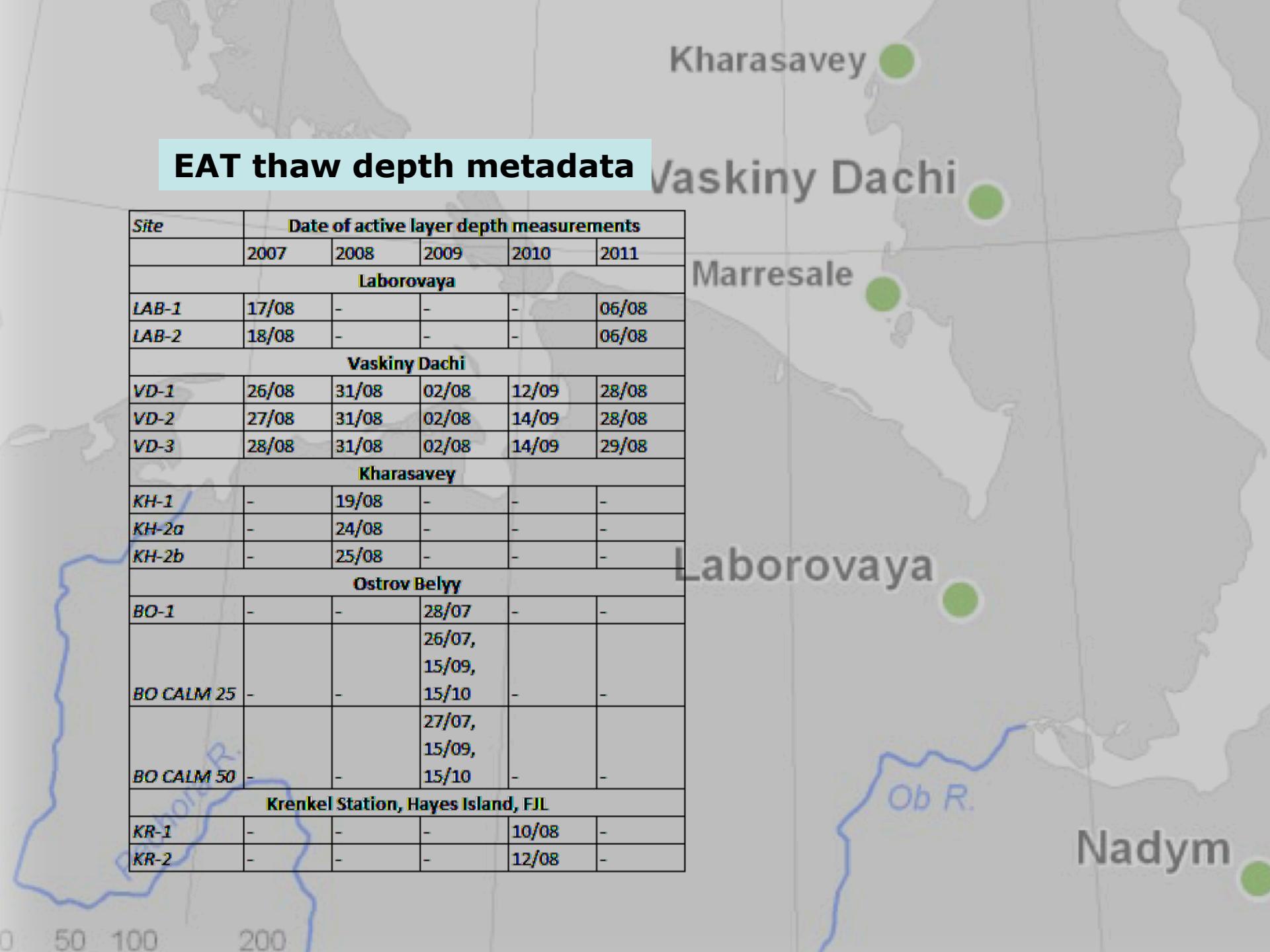
- Nadym
- Laborovaya
- Vaskiny Dachi
- Kharasavey
- Belyy Island
- Hayes Island (FJL)

Datasets:

- Thaw depths on EAT sites
- Thaw depth on CALM sites
- Active layer temperature boreholes
- Cryogenic landslides
- Landscape-based maps

EAT thaw depth metadata

Site	Date of active layer depth measurements				
	2007	2008	2009	2010	2011
Laborovaya					
LAB-1	17/08	-	-	-	06/08
LAB-2	18/08	-	-	-	06/08
Vaskiny Dachi					
VD-1	26/08	31/08	02/08	12/09	28/08
VD-2	27/08	31/08	02/08	14/09	28/08
VD-3	28/08	31/08	02/08	14/09	29/08
Kharasavey					
KH-1	-	19/08	-	-	-
KH-2a	-	24/08	-	-	-
KH-2b	-	25/08	-	-	-
Ostrov Belyy					
BO-1	-	-	28/07	-	-
BO CALM 25	-	-	26/07, 15/09, 15/10	-	-
BO CALM 50	-	-	27/07, 15/09, 15/10	-	-
Krenkel Station, Hayes Island, FJL					
KR-1	-	-	-	10/08	-
KR-2	-	-	-	12/08	-

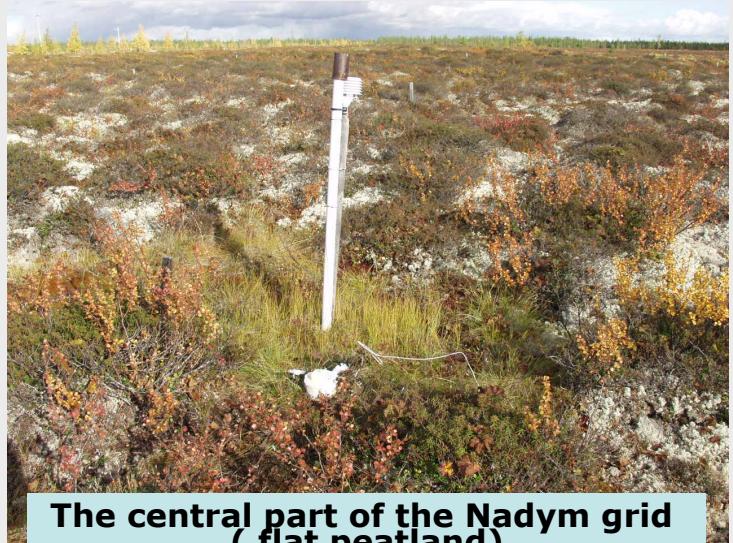
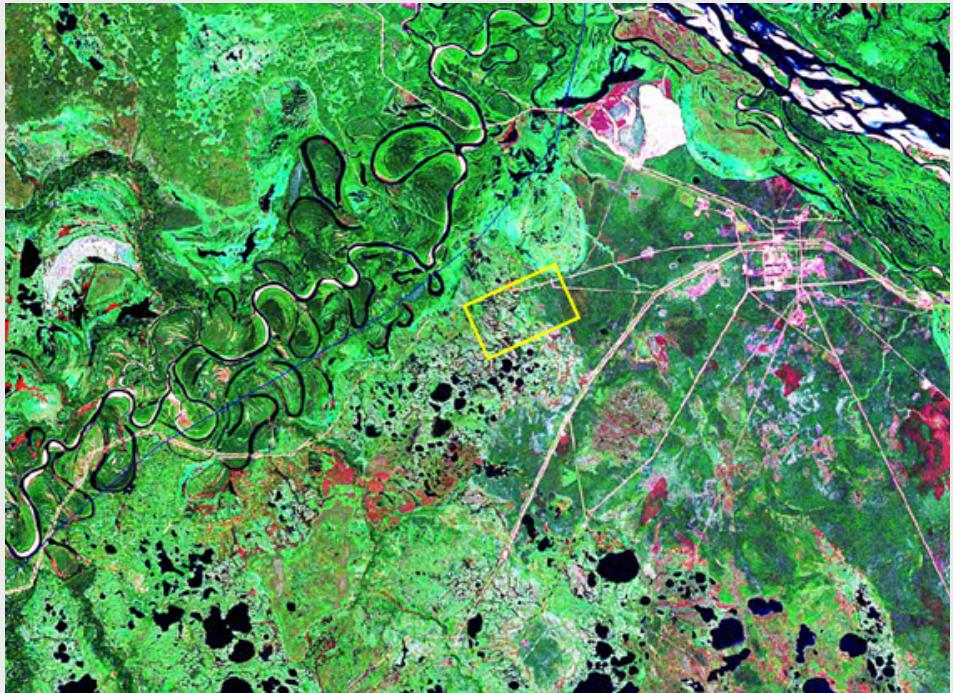


EAT boreholes metadata

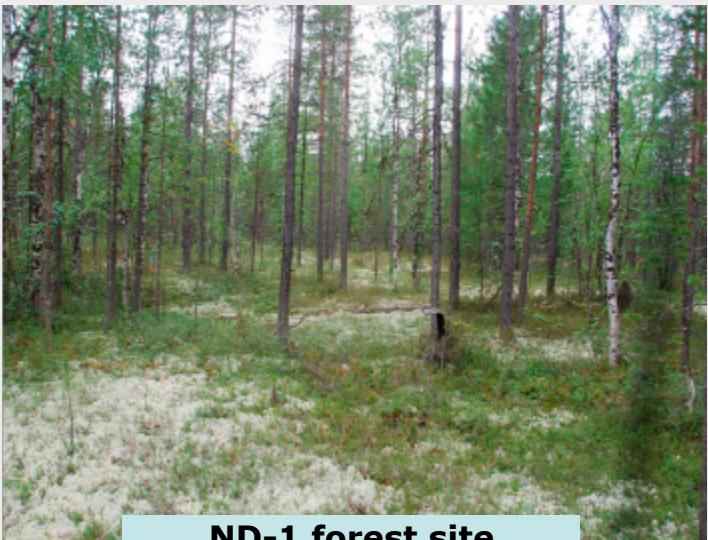
Research Locations	Transect Coordinates	HOBO #	Depths, cm	Coordinates
ND2-1,2,3	Forest grid (Skip)	1039818 1061042 1061037	Surface (0.01.m), Air 25, 50 100, 150	
ND3-1,2,3	Center of the CALM grid	1039821 1061053 1061049	Surface (0.01.m), Air 25, 50 100, 150	
ND3-4	CALM grid, D10	1061045	92, 142	
ND PiCla	2 nd terrace, lichen field	1039819 1061046	Surface (0.01.m), 50 100, 150	N65°18'19.8" E72°53'31.3"
ND Pingo	Residual surface	1039814	Surface (0.01.m), 59	N65°17'57.0" E72°53'04.2"
ND hole#11	3 rd terrace	1039817	Surface (0.01.m), 59	N65°18'54.5" E72°52'28.3"
ND hole#THA	3 rd terrace	1093624	Surface (0.01.m), 54	N65°18'59.9" E72°51'43.2"
ND hole#23a	3 rd terrace	1061041	Surface (0.01.m), 129	N65°18'52.9" E72°51'40.4"
ND hole#1	3 rd terrace	1061048	Surface (0.01.m), 150	N65°18'31.1" E72°49'26.3"
LB 1/1	T09-28	1061043 1061038	0, 8 (under organic) 50, 90	N 67° 42' 24.4" E 67° 59' 57.3"
LB1/2	T13-45	1061051 1061039	0, 8 (under organic) 50, 99	N 67° 42' 23.7" E 68° 00' 01.3"
LB 2	T16-25	1061036 1061040	0, 8 (under organic) 50, 100	N 67° 41' 41.9" E 68° 02' 17.0"
VD 1	T23-28	1039816 1061050	6 (under dead moss), 25 50, 90	N 70° 16' 31.8" E 68° 53' 29.9"
VD 2	T24-02	1039812 1061047	3.5 (under organic), 25 50, 100	N 70° 17' 43.8" E 68° 53' 00.5"

Research Locations	Transect Coordinates	HOBO #	Depths, cm	Coordinates
VD 3	T29-05	1093629 1039827 1039823	0, 25 25, 50 25, 100	N 70° 18' 05.0" E 68° 50' 28.7"
VD	CALM	877745, II C, II D 877746, III E, III F	3 50 100 150	N70°17'01.0" E68°54'25.9"
VD	AG19/3	1039825 1039822 1039826	10, 150 0 (coin willow), 50 0 (shrubs), 100	N70°16'57.2" E68°54'32.7"
Kh 1-1	T36+3	1186474 1237172	1 (intern), 20 (extem) 50 (chan 2), 59 (chan 1)	N71°10'43.2" E66°58'45.2"
Kh 1-2	T36+46	1186472 1237157	1 (extem), 20 (intern) 50 (chan 2), 77 (chan 1)	N71°10'44.6" E66°58'46.1"
Kh 3	T50+4,2	1186470 1237178	1 (extem), 20 (intern) 50 (chan 2), 95 (chan 1)	N71°11'39.9" E66°55'44.1"
OB 1			Surface (0.01 m), 100, 200, 300	N73°19" 55.1" E70" 03' 37.7"
OB 2	CALM 50 clayey		100, 300, 500, 1000	N73°19" 39.8" E70" 05' 03.8"
OB 3	CALM 25 sandy		100, 300, 500, 1000	N73°19" 43.9" E70" 05' 14.0"
OB 4	Stream hollow		100, 300, 500, 1000	N73°19" 45.4" E70" 05' 10.6"
KR 1	Near KR-1 sandy loam site		0, 30, 50, 100	N80°35" 35.0" E57" 54' 22.2"
KR 2	Near KR-1 sandy loam site		0, 35, 50, 100, 200, 300	N80°35" 38.2" E57" 54' 19.3"
KR 3	Near KR-2 sandy site		0, 35, 50, 100, 150, 300, 500, 1000	N80°36" 23.3" E57" 54' 35.2"

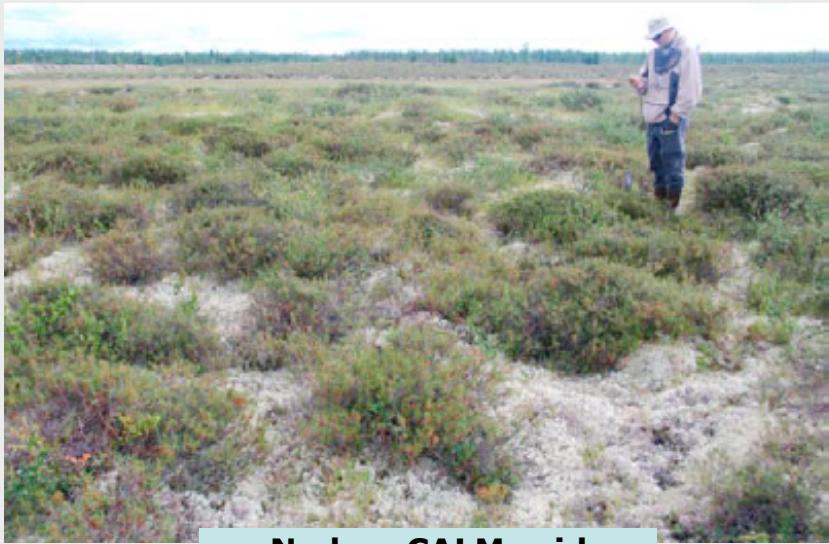
Nadym



**The central part of the Nadym grid
(flat peatland)**



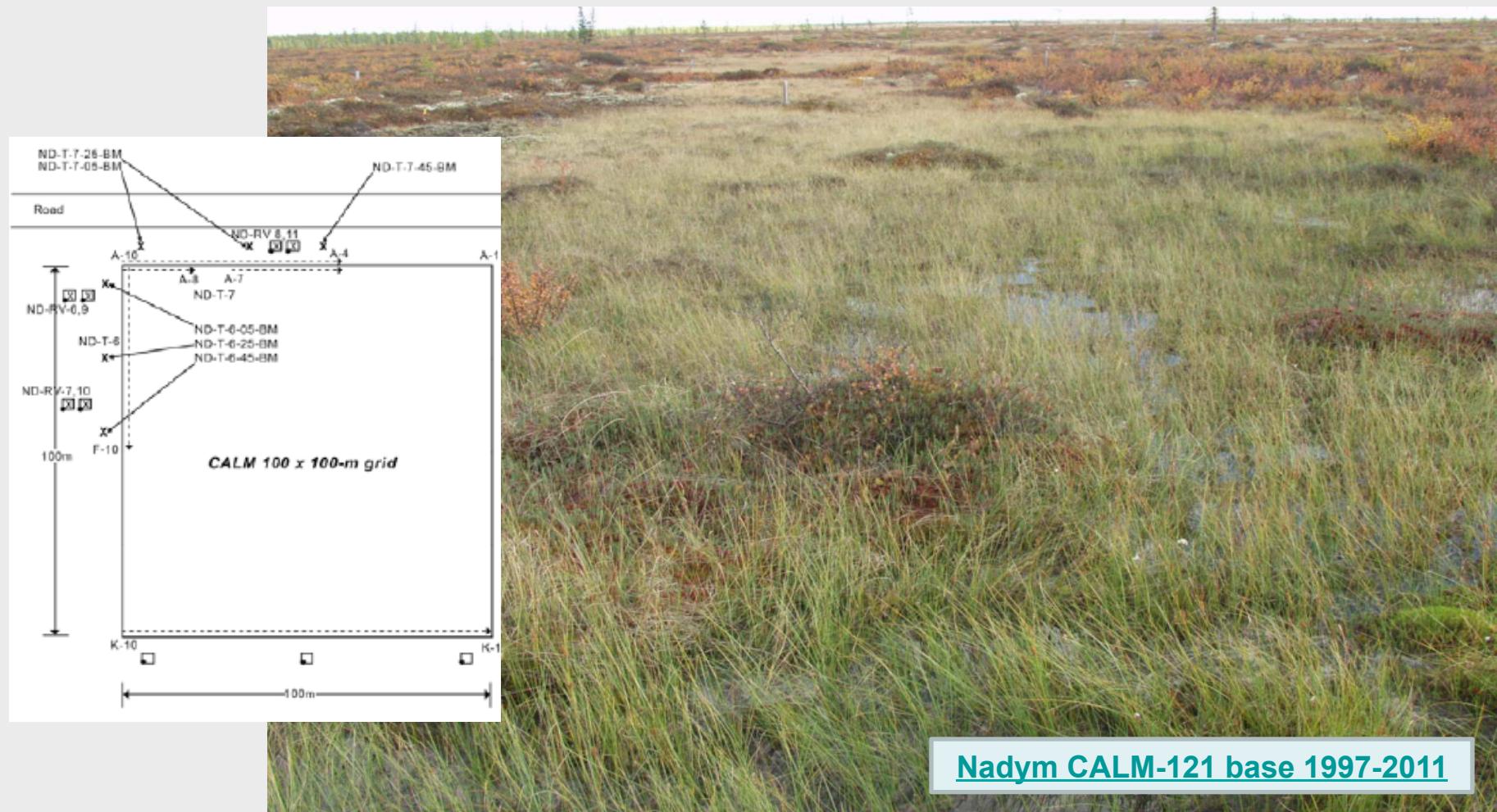
ND-1 forest site



Nadym CALM grid

Nadym

Thaw depths on CALM grid



Laborovaya



LAB-1 site (clayey)



LAB-2 site (sandy)

Laborovaya

Thaw depths

2007

Laborovaya-1											
Transect/ Relevé #	T09	T10	T11	T12	T13	RV15	RV16	RV17	RV18	RV19	Lab-1
N	31	8	11	8	8	1	1	1	1	1	66
Max	104	87	95	100	108						108
Min	56	66	75	70	66						56
Aver	80,1	77,4	83,4	80,0	77,0	89	70	91	74	82	79,9
St Dev	11,19	8,05	5,66	10,58	13,88						10,50

Laborovaya-2											
Transect/ Relevé #	T14	T15	T16	T17	T18	RV20	RV21	RV22	RV23	RV24	Lab-2
N	11	11	10	11	10	1	1	1	1	1	53
Max	119	136	134	133	140						83
Min	83	95	87	104	113						140
Aver	100,6	117,6	113,8	115,2	124,8	118	114	128	109	106	114,4
St Dev	10,21	13,35	14,08	9,35	12,80						14,09

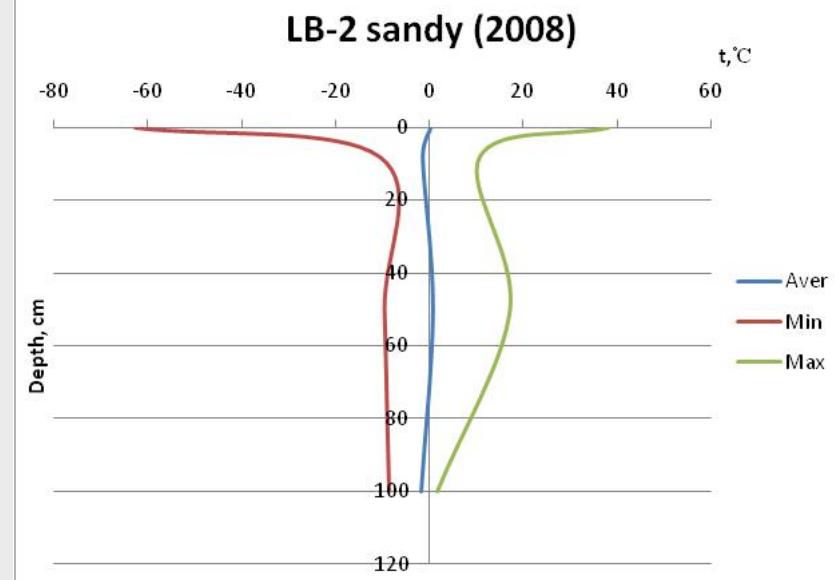
2011

Laborovaya-1											
Transect/ Relevé #	T09	T10	T11	T12	T13	RV15	RV16	RV17	RV18	RV19	Lab-1
N	7	8	11	8	8	1	1	1	1	1	42
Max	82	75	82	82	85						85
Min	48	57	63	61	56						48
Aver	68,4	67,1	75,2	67,1	65,1	66	70	72	79	66	69,1
St Dev	12,27	5,69	6,74	8,36	9,67						9,01

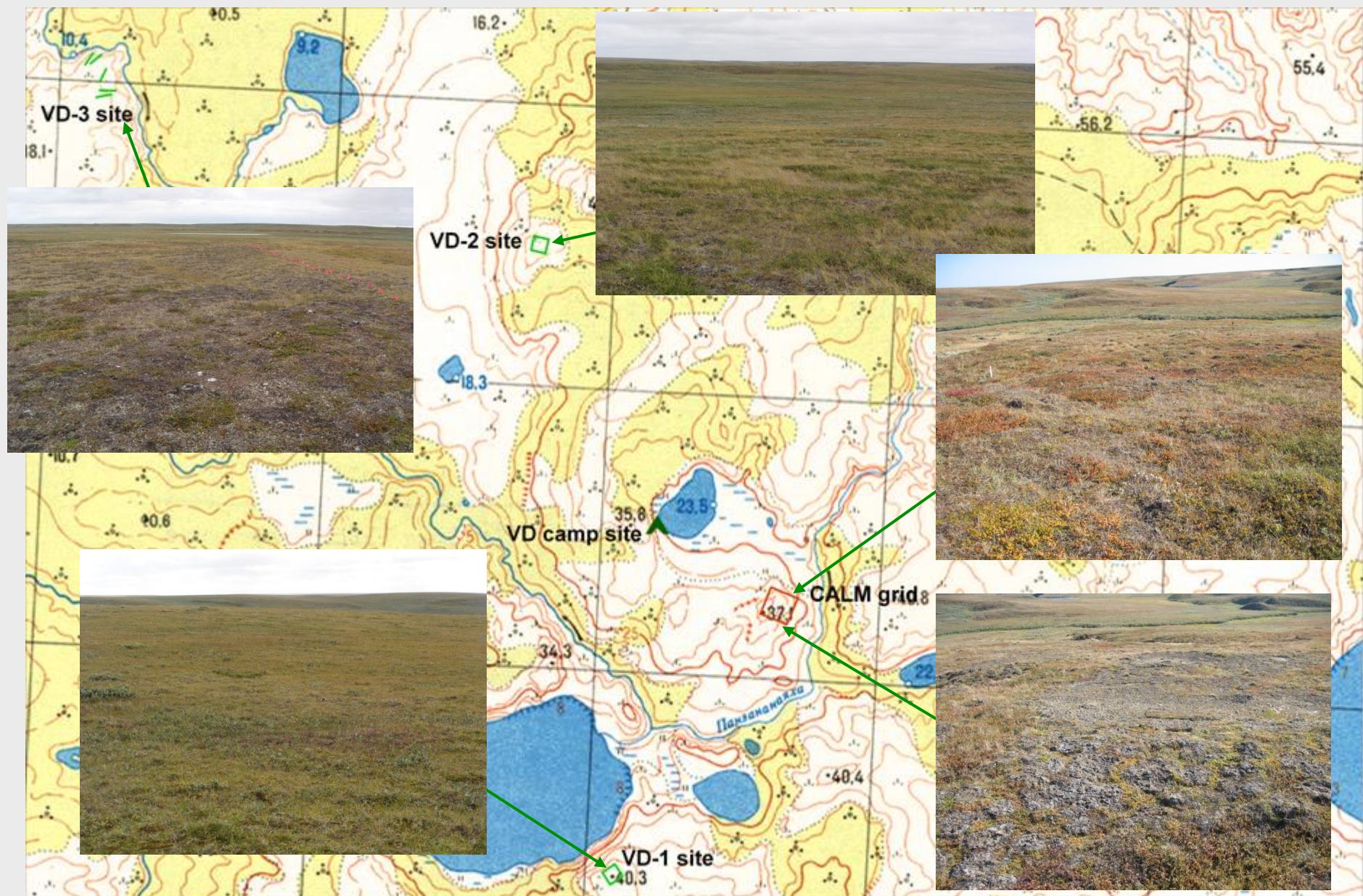
Laborovaya-2											
Transect/ Relevé #	T14	T15	T16	T17	T18	RV20	RV21	RV22	RV23	RV24	Lab-2
N	11	11	10	11	10	1	1	1	1	1	53
Max	94	>100	>100	>100	>100						>100
Min	63	81	72	81	89						63
Aver	77,0	95,1	92,8	93,9	98,0	98	94	>100	89	80	91,2
St Dev	10,06	7,63	10,35	5,80	3,74						10,72

Active layer temperature boreholes

LB 1/1	T09-28	1061043 1061038	0, 8 (under organic) 50, 90	N 67° 42' 24.4° E 67° 59' 57.3"
LB1/2	T13-45	1061051 1061039	0, 8 (under organic) 50, 99	N 67° 42' 23.7° E 68° 00' 01.3"
LB 2	T16-25	1061036 1061040	0, 8 (under organic) 50, 100	N 67° 41' 41.9° E 68° 02' 17.0"



Vaskiny Dachi



Vaskiny Dachi

Thaw depths

2007

Vaskiny Dachi-1											VD-1	
Transect/	Relevé #	T19	T20	T21	T22	T23	RV25	RV26	RV27	RV28	RV29	VD-1
N	11	11	11	11	11	11	1	1	1	1	1	55
Max	83	80	76	84	95							95
Min	57	55	61	63	74							55
Aver	66,9	69,1	68,6	72,9	81,5	71	66	76	66	79	71,8	
St Dev	7,54	7,40	4,34	7,35	6,22							8,31

Vaskiny Dachi-2											VD-2	
Transect/	Relevé #	T24	T25	T26	T27	T28	RV-30	RV-31	RV-32	RV-33	RV-34	VD-2
N	11	11	11	11	11	11	1	1	1	1	1	55
Max	93	85	89	91	90							75
Min	40	60	50	56	57							30
Aver	68,5	70,5	74,2	73,2	71,5							46,9
St Dev	17,41	8,26	12,66	11,12	8,19							9,52

Vaskiny Dachi-3											VD-3
Transect/	Relevé #	T29	T30	T31	T32	T33	RV-35	RV-36	RV-37	RV-38	VD-3
N	11	11	11	11	11	11	1	1	1	1	55
Max	78	71	75	72	100						100
Min	48	54	55	58	66						48
Aver	62,3	62,7	65,1	65,2	77,3						66,5
St Dev	9,17	6,31	5,26	5,17	9,43						8,97

Vaskiny Dachi-4											VD-2	
Transect/	Relevé #	T24	T25	T26	T27	T28	RV-30	RV-31	RV-32	RV-33	RV-34	VD-2
N	11	11	11	11	11	11	1	1	1	1	1	55
Max	87	76	83	82	82							87
Min	41	49	44	54	58							41
Aver	63,1	63,0	66,8	67,1	65,0	78	78	75	53	49	65,0	
St Dev	15,05	9,58	14,06	9,54	6,74							11,13

Vaskiny Dachi-5											VD-3
Transect/	Relevé #	T29	T30	T31	T32	T33	RV-35	RV-36	RV-37	RV-38	VD-3
N	11	11	11	11	11	11	1	1	1	1	55
Max	85	81	80	87	102						100
Min	60	60	64	65	79						49
Aver	70,0	72,0	72,9	74,7	84,6						67,2
St Dev	6,91	6,16	4,70	7,27	6,74						8,55

Vaskiny Dachi-6											VD-2
Transect/	Relevé #	T24	T25	T26	T27	T28	RV-30	RV-31	RV-32	RV-33	VD-2
N	11	11	11	11	11	11	1	1	1	1	55
Max	92	89	88	92	86						88
Min	46	60	48	59	64						42
Aver	70,8	74,6	73,6	74,5	71,5	79	76	79	62	50	73,0
St Dev	15,93	10,24	14,30	11,22	6,44						11,13

Vaskiny Dachi-7											VD-3
Transect/	Relevé #	T29	T30	T31	T32	T33	RV-35	RV-36	RV-37	RV-38	VD-3
N	11	11	11	11	11	11	1	1	1	1	55
Max	117	126		125							126
Min	84	103		111							79
Aver	103,6	117,3		118,7	106	113	125	107	121	113,2	105,9
St Dev	11,20	8,38		5,31							12,38

2009

Vaskiny Dachi-1											VD-1
Transect/	Relevé #	T19	T20	T21	T22	T23	RV25	RV26	RV27	RV28	VD-1
N	11	11	11	11	11	11	1	1	1	1	55
Max	55	55	55	59	75						75
Min	34	30	31	33	42						30
Aver	44,4	41,7	45,7	46,6	55,8						46,9
St Dev	6,14	8,34	8,27	8,61	10,67						9,52

Vaskiny Dachi-2											VD-2
Transect/	Relevé #	T24	T25	T26	T27	T28	RV-30	RV-31	RV-32	RV-33	VD-2
N	11	11	11	11	11	11	1	1	1	1	55
Max	77	67	71	81	75						81
Min	36	44	35	34	40						34
Aver	58	63	38	49	57						56,9
St Dev											12,06

Vaskiny Dachi-3											VD-3
Transect/	Relevé #	T29	T30	T31	T32	T33	RV-35	RV-36	RV-37	RV-38	VD-3
N	11	11	11	11	11	11	1	1	1	1	55
Max	116	116	131	130	137						137
Min	95	82	87	110	110						82
Aver	105,7	99,1	117,6	119,5	127,0						113,8
St Dev	7,60	10,52	14,26	6,22	9,66						13,99

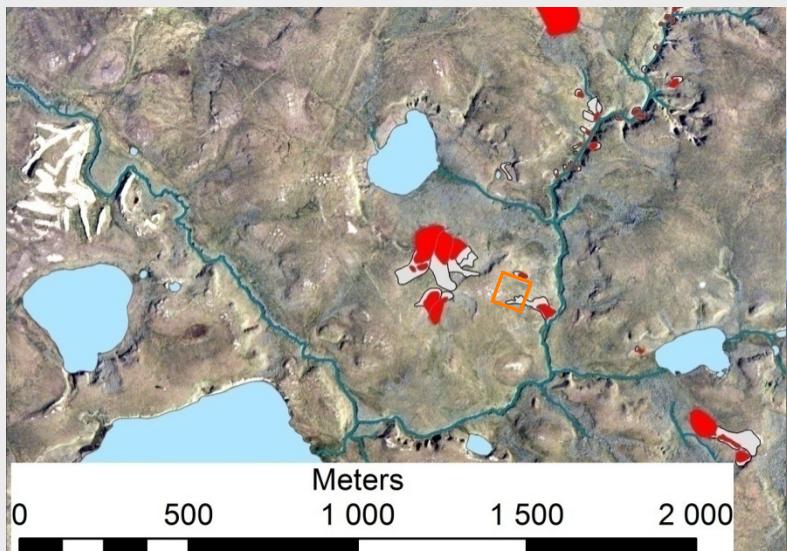
Vaskiny Dachi-4											VD-2
Transect/	Relevé #	T24	T25	T26	T27	T28	RV-30	RV-31	RV-32	RV-33	VD-2
N	11	11	11	11	11	11	1	1	1	1	55
Max	79	76	80	88	80						88
Min	42	49	45	49	56						42
Aver	60,1	64,5	68,8	67,5	65,8	NM	61	68	53	27	65,3
St Dev	12,48	10,41	11,66	13,11	6,90						11,13

Vaskiny Dachi-5											VD-3
Transect/	Relevé #	T29	T30	T31	T32	T33	RV-35	RV-36	RV-37	RV-38	VD-3
N	11	11	11	11	11	11	1	1	1	1	55
Max	111	106	119	124	126						126
Min	82	79	93	103	111						79
Aver	96,4	94,3	104,8	115,5	118,7	67	NM	74	NM	96	105,9
St Dev	7,81	9,68	8,05	7,03	5,00						12,38

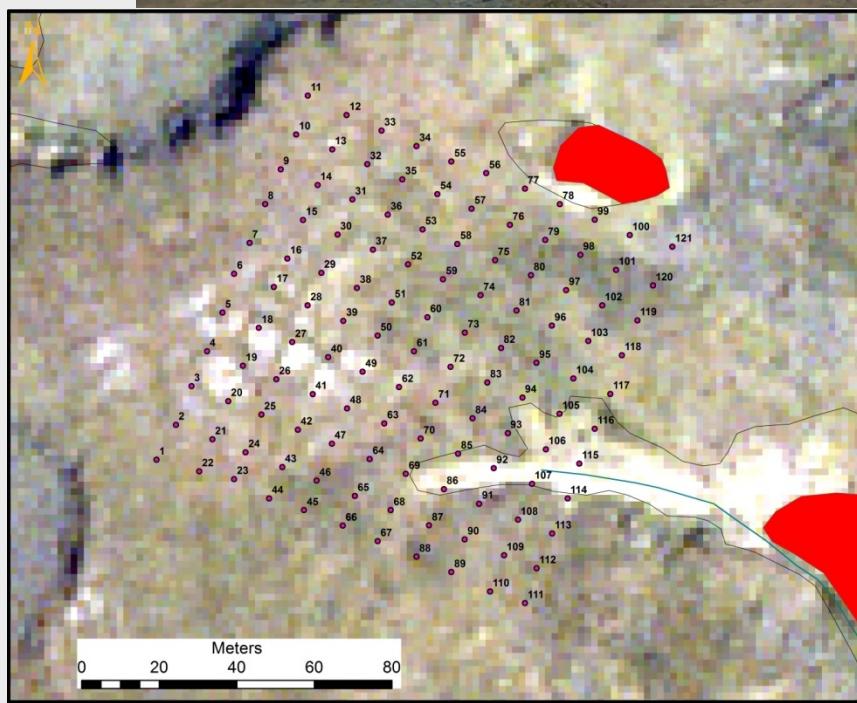
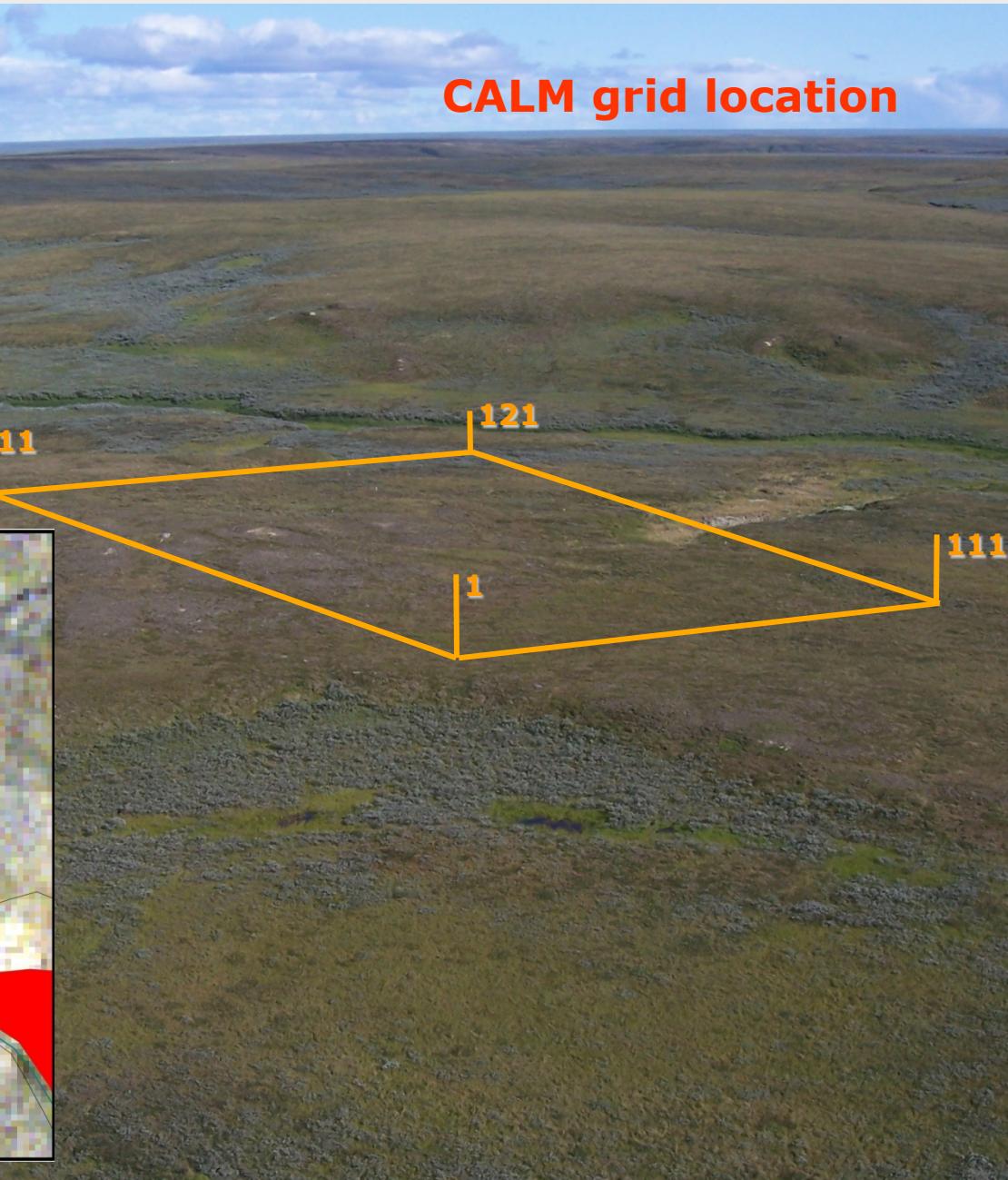
2010

Vaskiny Dachi-1											
Transect/	Relevé #	T24	T25	T26	T27	T28	RV-30	RV-31	RV-32	RV-33	VD-1

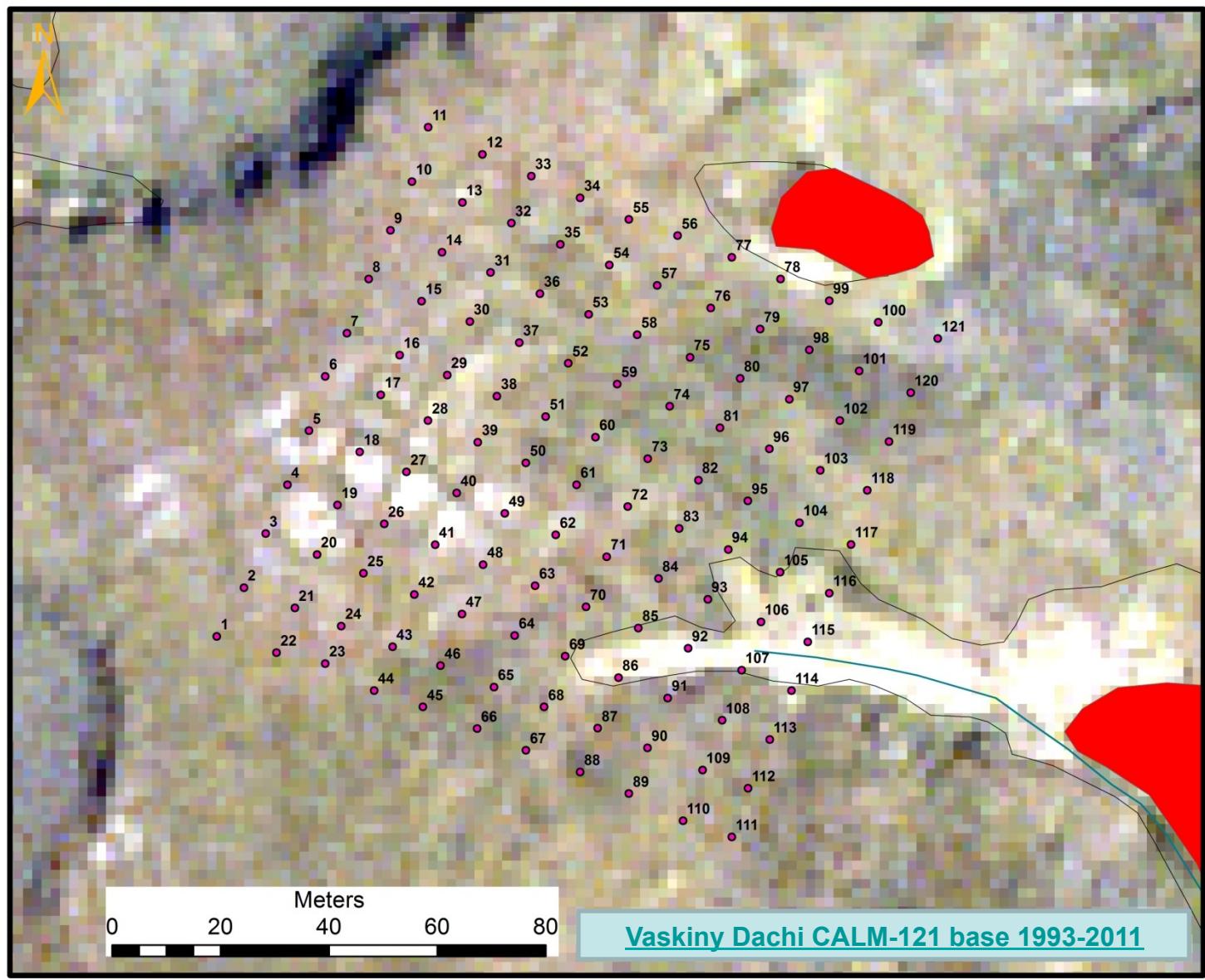
CALM dataset



CALM grid location



CALM dataset

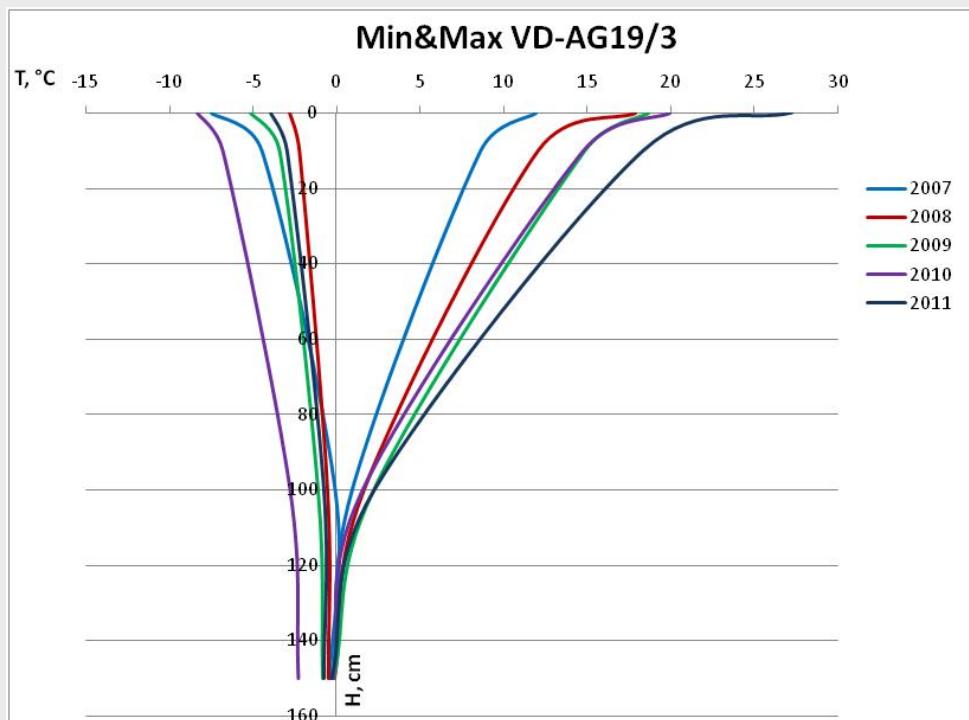
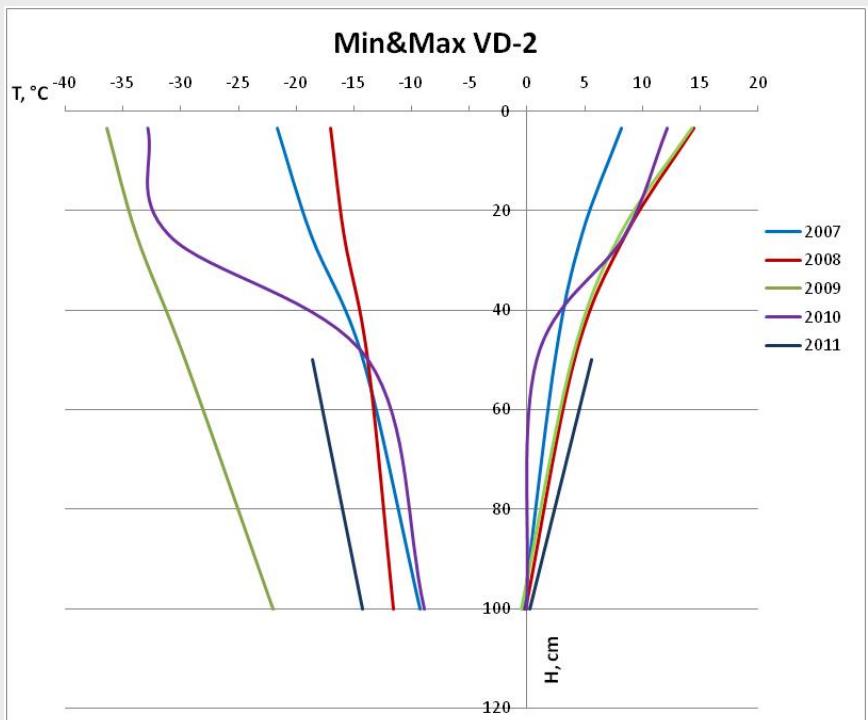


Vaskiny Dachi

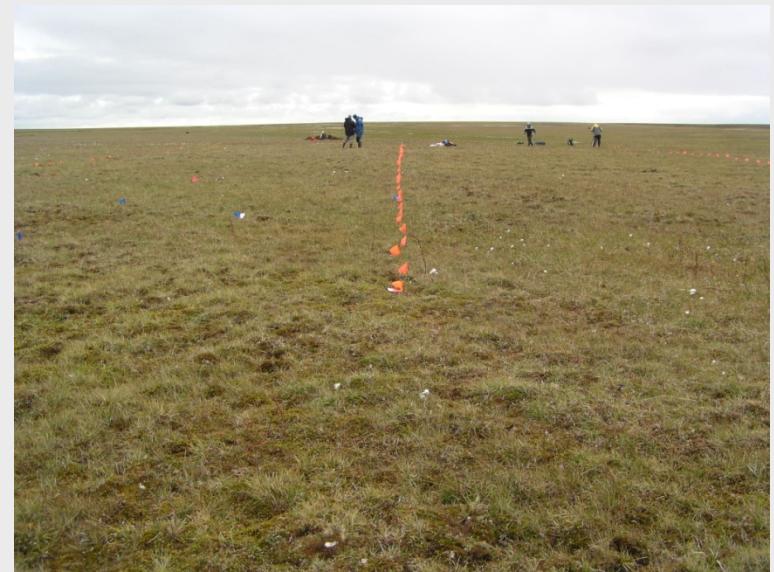
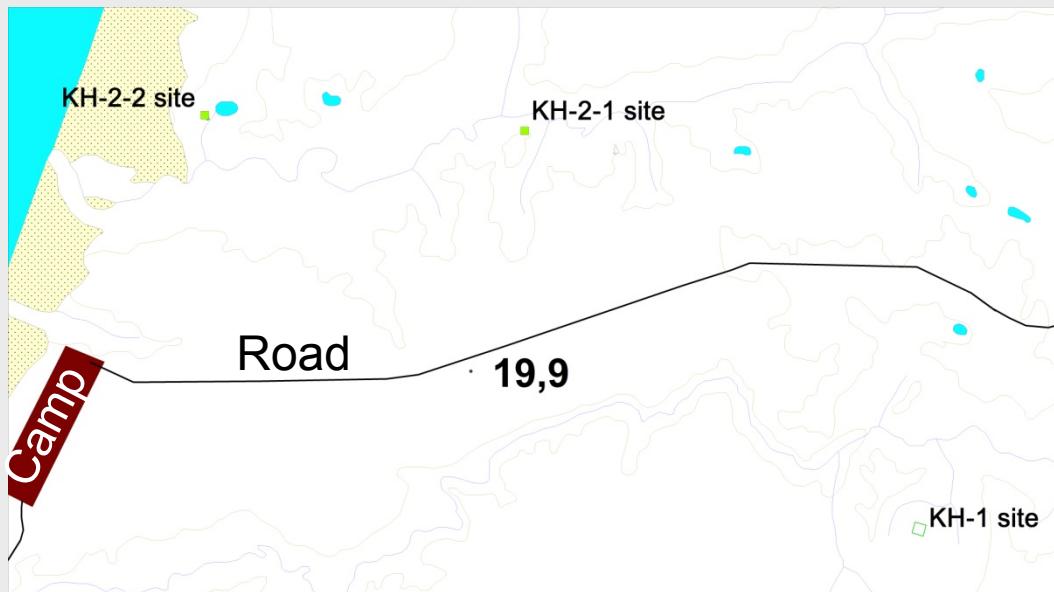
Active layer temperature boreholes

VD 1	T23-28	1039816 1061050	6 (under dead moss), 25 50, 90	N 70° 16' 31.8" E 68° 53' 29.9"
VD 2	T24-02	1039812 1061047	3.5 (under organic), 25 50, 100	N 70° 17' 43.8" E 68° 53' 00.5"
VD 3	T29-05	1093629 1039827 1039823	0, 25 25, 50 25, 100	N 70° 18' 05.0" E 68° 50' 28.7"

VD	CALM	877745, II C, II D 877746, III E, III F	3 50 100 150	N70°17'01.0" E68°54'25.9"
VD	AG19/3	1039825 1039822 1039826	10, 150 0 (coin willow), 50 0 (shrubs), 100	N70°16'57.2" E68°54'32.7"



Kharasavey



KH-1 site (clayey)



KH-2-1 10x10m (sandy)



KH-2-2 10x10m (sandy)

Kharasavey

Thaw depths

2008

Kharasavey-1

Transect/ Relevé #	T-46	T-47	T-48	T-49	T-50	RV-47	RV-48	RV-49			KH-1
N	6	6	6	6	6	1	1	1			30
Max	84	85	85	93	86						80
Min	68	70	78	64	60						52
Aver	77	77	81,7	73,2	73,8	71	60	76,5			61,3
St Dev	8,75	5,47	3,77	3,87	4,53						5,61

Kharasavey-2a

Transect/ Relevé #	T-41	T-42	T-43	T-44	T-45	RV-45	RV-46				KH-2a
N	6	6	6	6	6	1	1				30
Max	84	83	82	85	84						85
Min	69	62	58	68	70						58
Aver	74,8	72,7	73,2	78,2	78,5	67	77				75,5
St Dev	5,42	8,50	8,52	6,40	5,28						6,94

Kharasavey-2b

Transect/ Relevé #	T-46	T-47	T-48	T-49	T-50	RV-47	RV-48	RV-49*			KH-2b
N	6	6	6	6	6	1	1	1			30
Max	93	86	91	92	98						98
Min	66	64	60	64	64						60
Aver	77,7	73,8	76,3	79,2	85,8	71	60	76,5			78,4
St Dev	10,42	8,93	11,00	9,79	12,04						10,57

Active layer temperature boreholes

3 boreholes:

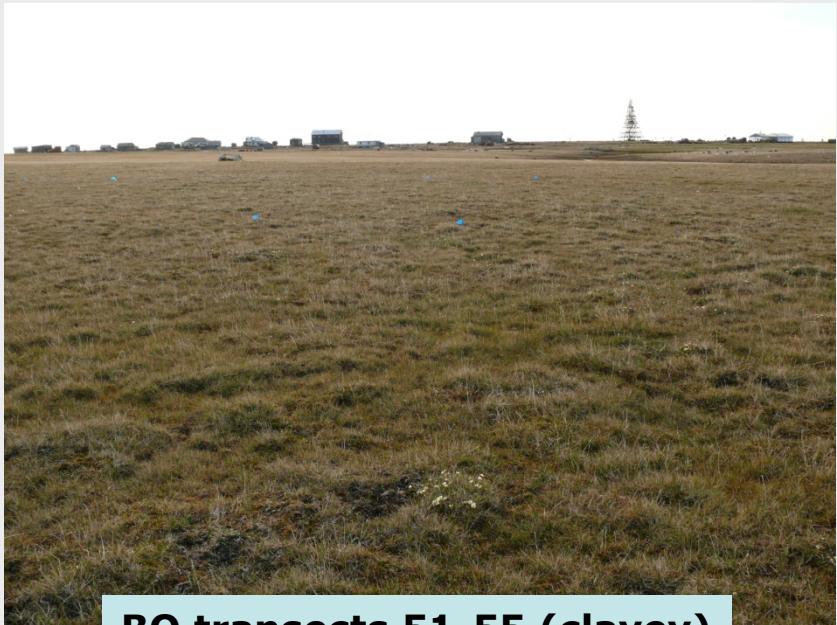
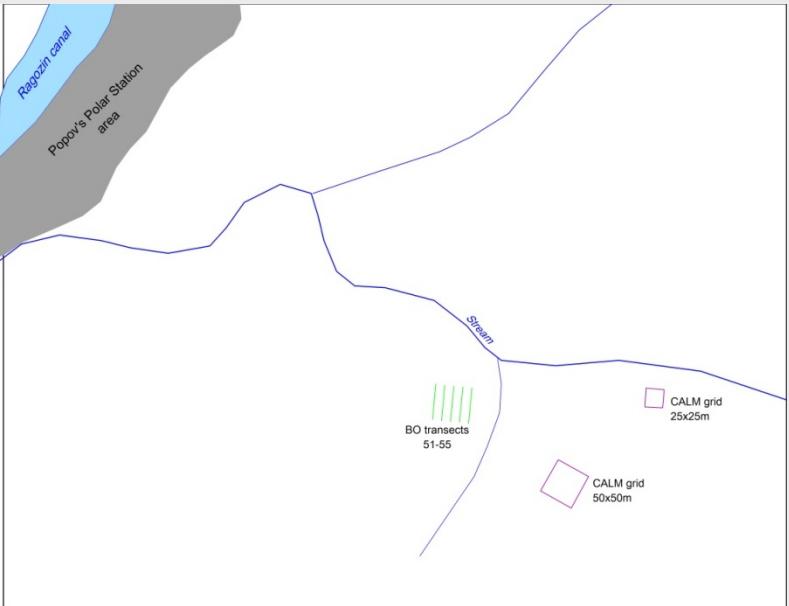
KH 1-1 59 cm

KH 1-2 77 cm

KH 3 95 cm

NO DATA YET

Belyy Island



BO transects 51-55 (clayey)



CALM grid 25x25m (sandy)



CALM grid 50x50m (clayey)

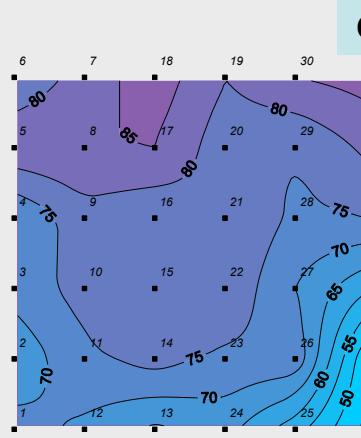
Belyy Island

Thaw depths

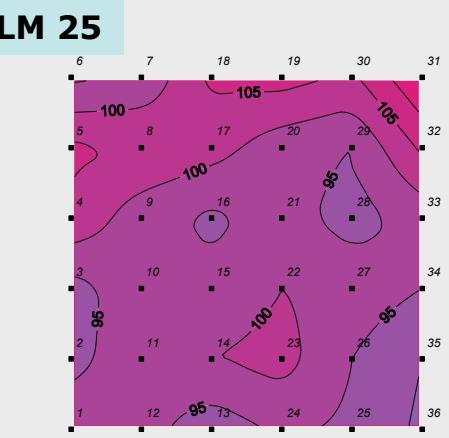
2009

Ostrov Belyy-1											
Transect/	T-51	T-52	T-53	T-54	T-55	RV-49 boil	RV-50 boil	RV-51 boil	RV-52 boil	RV-53 boil	OB-1
Relevé #	N	26	26	26	26	3	3	3	3	3	130
	Max	57	59	68	55	60	56	57	51	55	68
	Min	41	41	42	42	43	50	53	55	48	41
	Aver	48,8	48,8	52,5	49,8	52,1	53	54,7	55,7	49,7	52,3
	St Dev	4,68	4,53	5,56	3,25	4,16	3,00	1,53	1,15	1,53	3,79
Transect/	RV-49 interboil					RV-50 interboil	RV-51 interboil	RV-52 interboil	RV-53 interboil		
Relevé #	N	3	3	3	4	4	4	4	4		
	Max	52	52	49	50	50	50	50	49		
	Min	50	45	45	40	40	45	40	43		
	Aver	51,3	49	47,7	44	44	47	44	45,7		
	St Dev	1,15	3,61	2,31	4,55	4,55	3,79	3,79	3,06		
Ostrov Belyy-2											
Transect/	T-56	T-57	T-58	T-59	T-60	RV-54 polygon	RV-55 polygon	RV-56 polygon	RV-57 polygon	RV-58 polygon	OB-2
Relevé #	N	-	-	-	-	3	3	3	3	3	0
	Max	-	-	-	-	100	90	84	71	71	
	Min	-	-	-	-	97	73	74	57	57	
	Aver	-	-	-	-	89	98	81	79,7	65,3	
	St Dev	-	-	-	-	1,73	8,54	5,13	7,37	7,37	
Transect/	No measurements					RV-54 trough	RV-55 trough	RV-56 trough	RV-57 trough	RV-58 trough	
Relevé #	N	-	-	-	-	3	3	3	3	3	
	Max	-	-	-	-	97	82	86	77	77	
	Min	-	-	-	-	86	55	67	60	60	
	Aver	-	-	-	-	81	92	71,7	75	68,3	
	St Dev	-	-	-	-	5,57	14,57	9,85	8,50	8,50	
Ostrov Belyy CALM											
Transect/	CALM 25 july	CALM 50 july	CALM 25 sept	CALM 50 sept	CALM 25 oct	CALM 50 oct					
Relevé #	N	36	121	36	121	36	121				
	Max	88	52	115	73	115	71				
	Min	44	18	89	35	89	38				
	Aver	73,9	32,0	99,8	54,4	98,3	53,8				
	St Dev	10,04	7,43	5,63	6,91	5,51	6,69				

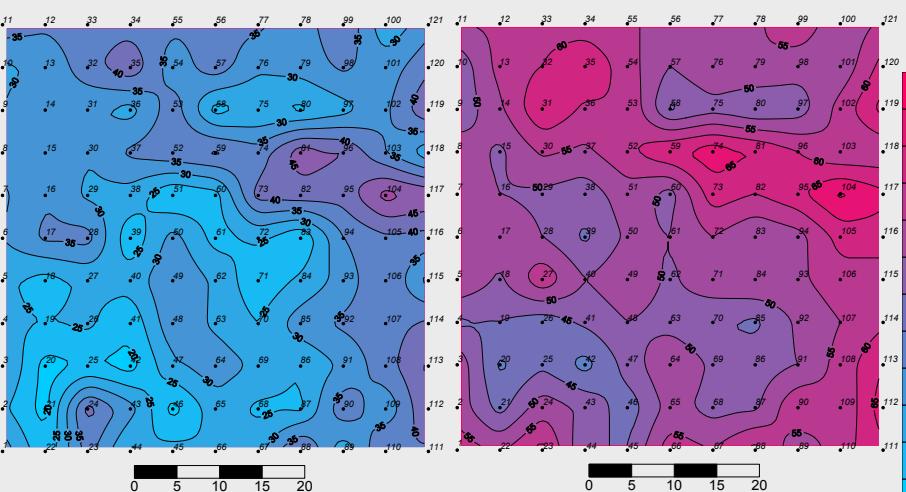
july



october



CALM 50



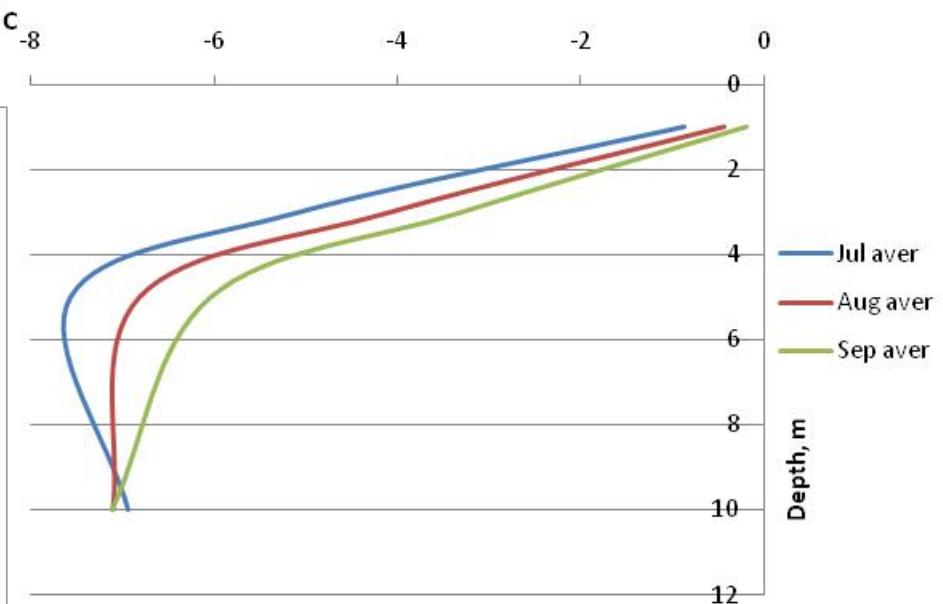
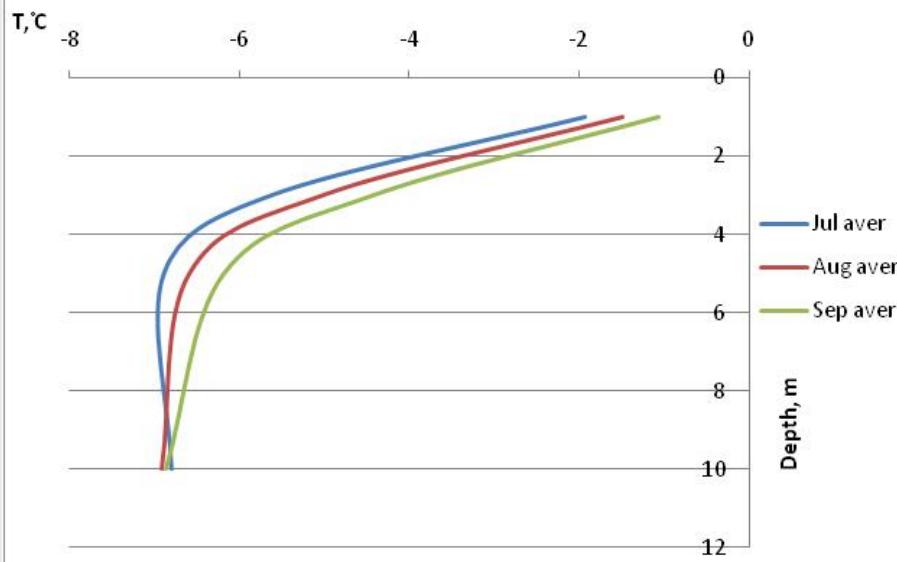
Belyy Island

Active layer temperature boreholes

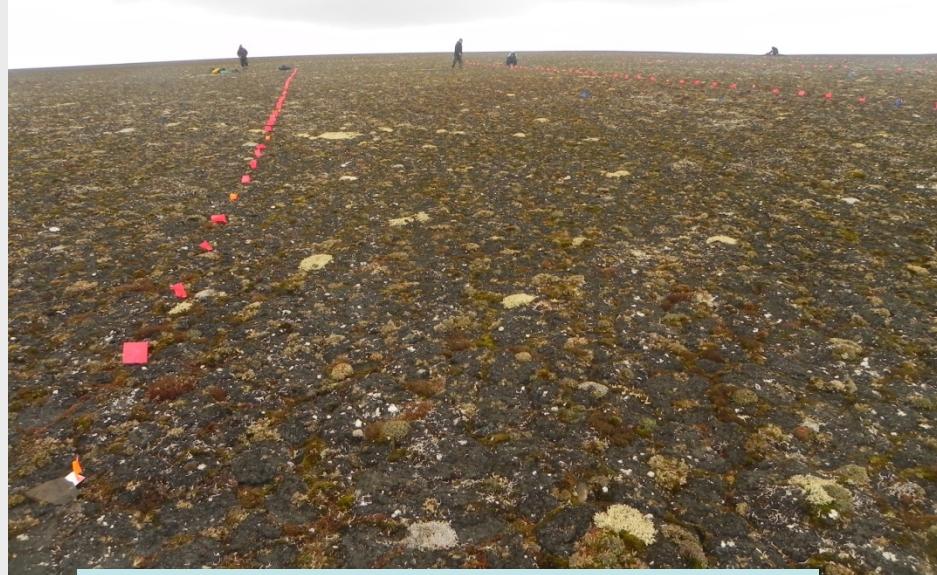
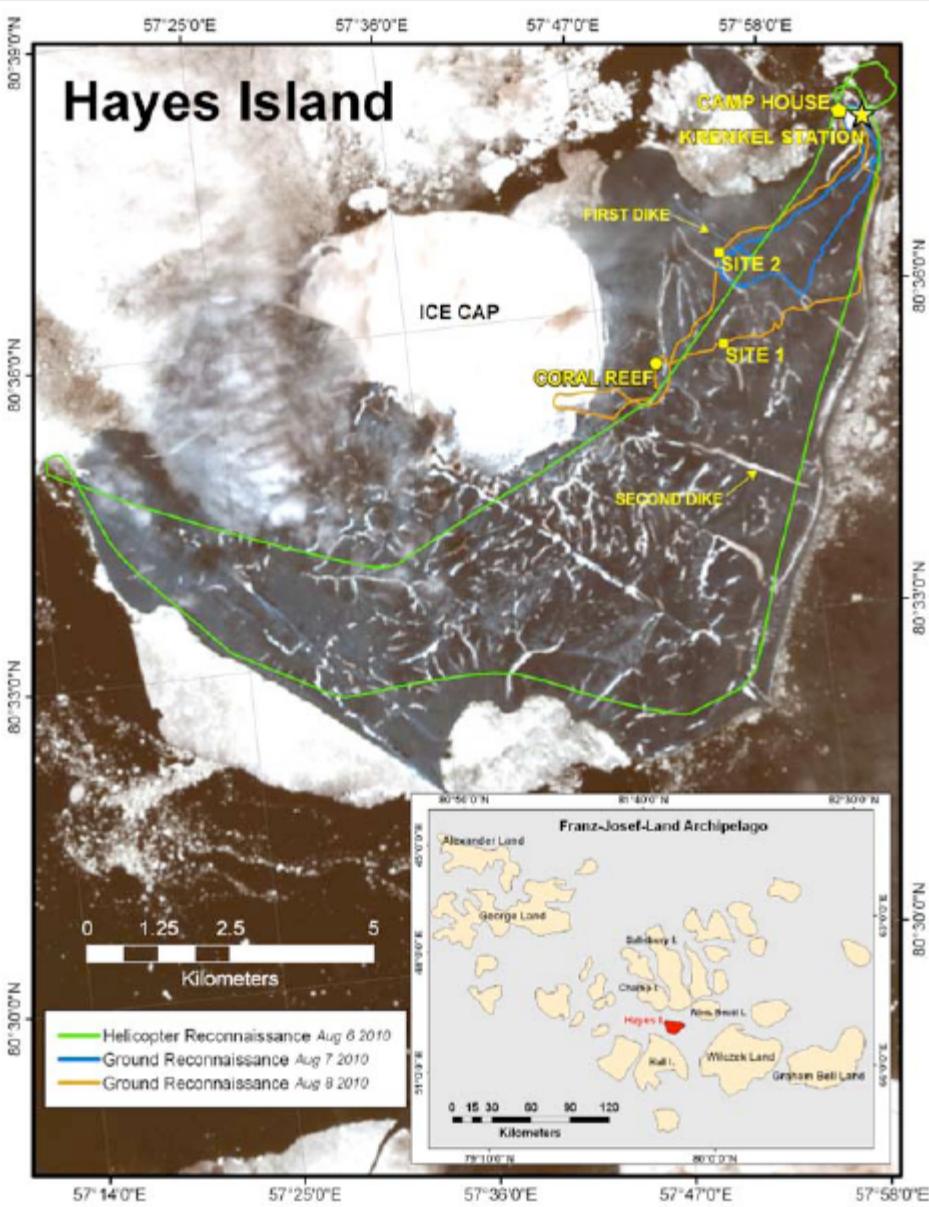
OB 1		Surface (0.01 m), 100, 200, 300	N73°19' 55.1' E70° 03' 37.7"
OB 2	CALM 50 clayey	100, 300, 500, 1000	N73°19' 39.8' E70° 05' 03.8"
OB 3	CALM 25 sandy	100, 300, 500, 1000	N73°19' 43.9' E70° 05' 14.0"
OB 4	Stream hollow	100, 300, 500, 1000	N73°19' 45.4' E70° 05' 10.6"

OB-3 (2009)

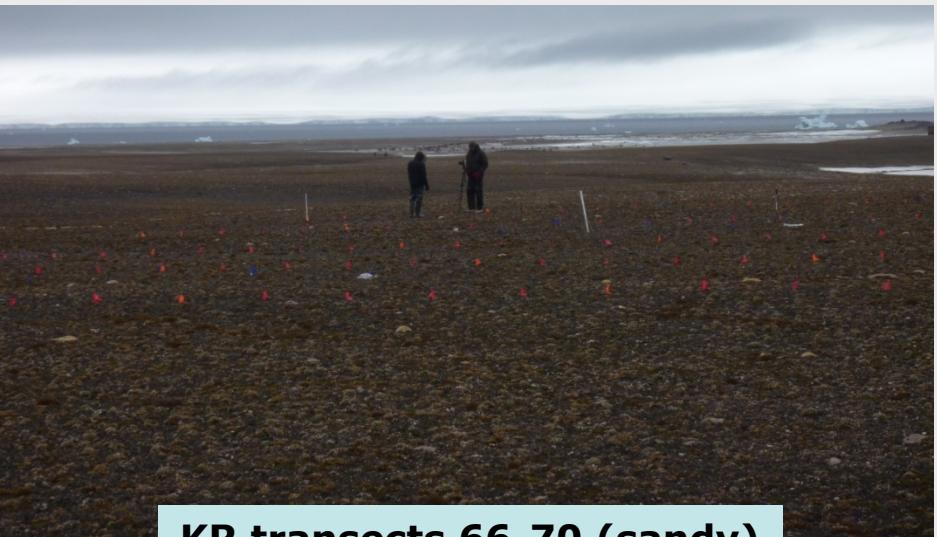
OB-2 (2009)



Hayes Island



KR transects 61-65 (sandy loam)



KR transects 66-70 (sandy)

Hayes Island

Thaw depths

2010

Krenkel Station-1						
Transect/ Relevé #	T-61	T-62	T-63	T-64	T-65	KR-1
N	50	26	26	26	50	178
Max	37	37	36	37	35	37
Min	27	32	33	32	30	27
Aver	31,1	34,8	34,7	34,6	32,9	33,2
St Dev	2,2	1,2	0,9	1,4	1,2	2,13

Krenkel Station-2						
Transect/ Relevé #	T-66	T-67	T-68	T-69	T-70	KR-2
N	26	26	26	26	26	130
Max	36	38	37	35	37	38
Min	30	29	29	27	28	27
Aver	33,1	32,9	32,1	31,1	31,8	32,2
St Dev	1,5	2,5	2,4	2,1	2,0	2,22

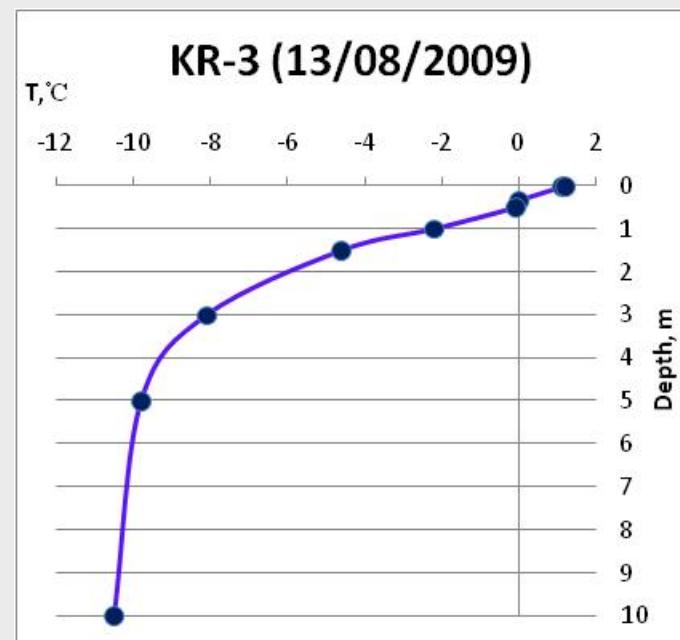
Active layer temperature boreholes

3 boreholes:

KR-1 100 cm

KR-2 288 cm

KR-3 1000 cm

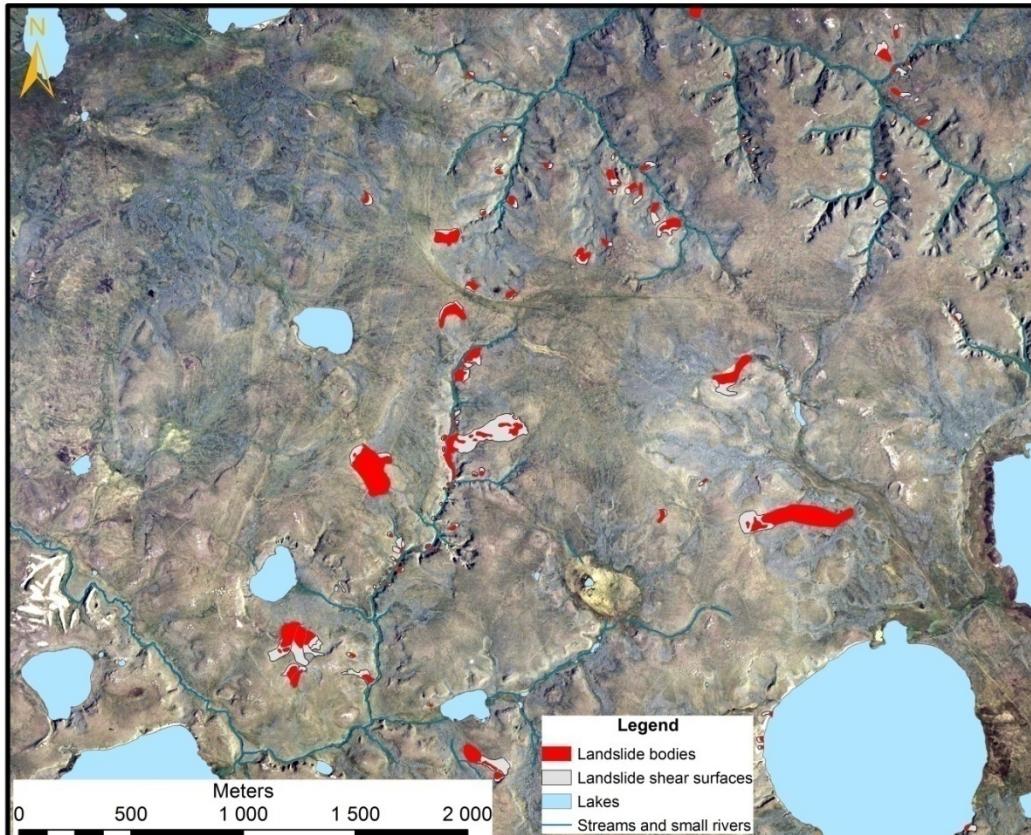


Landslides dataset

Includes:

- Length, m
- Width, m
- Elongation
- Landslide body area, sq.m

- Landslide shear surface area, sq.m
- Configuration of landslide
- Geomorphological level
- Slope inclination and exposition

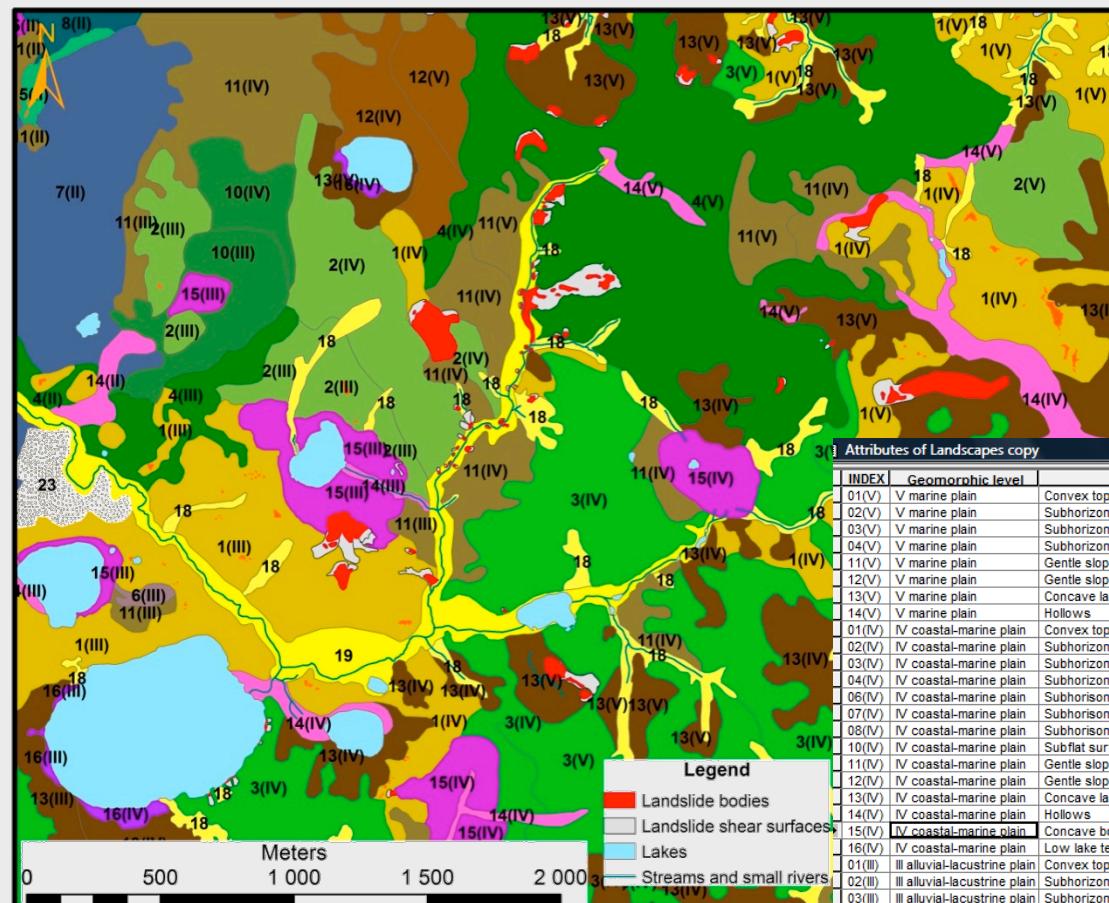


Attributes of Landslide bodies										
ID	Length	Width	Elongati	Landslide body a	Landslide	Configura	Geo	Slope inclin	Slope expo	
94	40	40	1	635,1	473,1	isometric	IV	2-6	S	
95	60	90	0,7	2143	988,2	wide	IV	2-5	WSW	
96	140	50	2,8	6499	996,7	long	IV	1	W	
97	240	70	3,4	7081	2777	long	IV	1	SW	
98	80	80	1	2306	660,6	isometric	V	2	SSW	
99	40	70	0,6	1864	608,3	wide	V	5-7	WSW	
100	55	70	0,8	723,4	205,5	wide	V	2-4	N	
101	40	40	1	544,9	283,5	isometric	V	5	ESE	
102	170	30	5,7	1050,5	6830	long	V	4-19	NW	
104	700	150	4,7	36841	40370	long	V	2-3	NW	
105	300	120	2,5	18997	13890	long	V	3-13	N	
106	150	85	1,8	5654	3975	long	V	1,5	NW	
107	430	100	4,3	39133	5912	long	V	1-5	NW	
108	450	110	4,1	49385	7149	long	V	1-5	NW	
109	100	170	0,6	14650	4710	wide	V	1	SE	
110	100	200	0,5	14550	1861	wide	V	1	SW	
118	50	20	2,5	189,46	144,9	long	IV	2-3	SSW	
119	20	10	2	27,72	25,52	long	IV	3-5	SW	
120	210	30	7	8444	3810	long	IV	1,5-10	WSW	
121	25	8	3,1	64,87	213,6	long	IV	1,5	NE	
123	35	15	2,3	569,6	273,5	long	IV	4-6	SW	
124	30	50	0,6	312,4	374,4	wide	V	4	N	
125	30	25	1,2	526,5	208,5	isometric	V	8	ESE	
126	40	30	1,3	517,6	377,5	long	V	5	NW	
127	160	35	4,6	5658	3139	long	IV	2-6	SW	
128	50	20	2,5	327,7	183,2	long	V	20	SE	
129	70	30	2,3	267,6	196,7	long	V	10	N	
130	50	10	5	228,2	132	long	V	15	W	
131	60	15	4	168,6	157,7	long	V	15	W	
132	60	20	3	310,4	254,5	long	V	18	WSW	
133	50	20	2,5	231,8	161,1	long	V	12	WNW	
134	25	15	1,7	59,53	111,3	long	V	14	WNW	
135	50	30	1,7	698,1	463,1	long	V	8-5	SW	
136	75	75	1	2325	1786	isometric	IV	4	SE	
137	50	15	3,3	319,4	305,3	long	IV	6	N	
138	100	20	5	530,8	1243	long	IV	6	WNW	
139	80	20	4	1110	787,9	long	IV	3	W	
140	40	15	2,7	243,4	345,7	long	V	7-4	NNE	
141	70	15	4,7	1090	481	long	IV	10-7	SW	
142	40	15	2,7	508	312	long	V	9	SW	
143	60	30	2	137	1053	long	V	13-18	NE	
144	50	90	0,6	1645	638,6	wide	IV	1,5-5	W	
145	650	100	6,5	34383	24030	long	V	1,5	S	
146	20	20	1	365,2	368,6	isometric	IV	5	SSE	
147	80	140	0,6	3377,2	3124	wide	V	2	SSE	
148	100	20	2	1000	1000	long	V	10	NE	

Landscapes dataset

Includes:

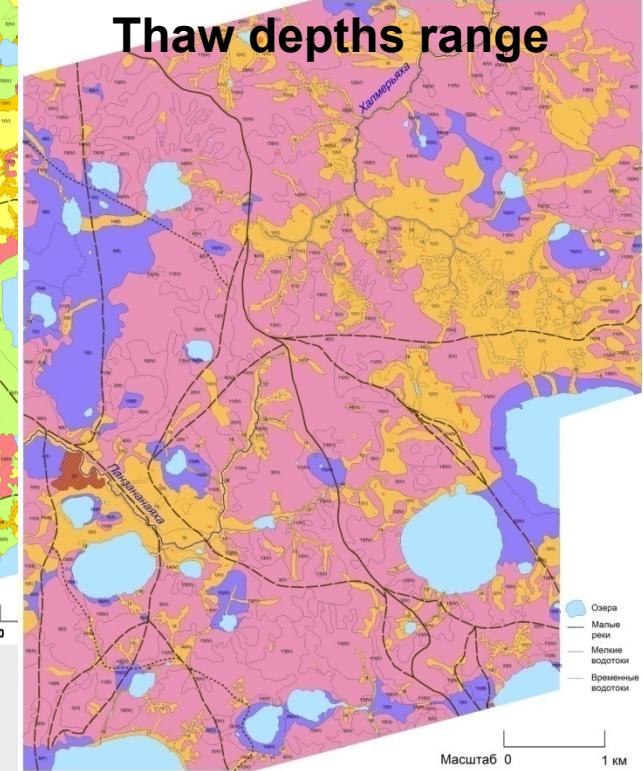
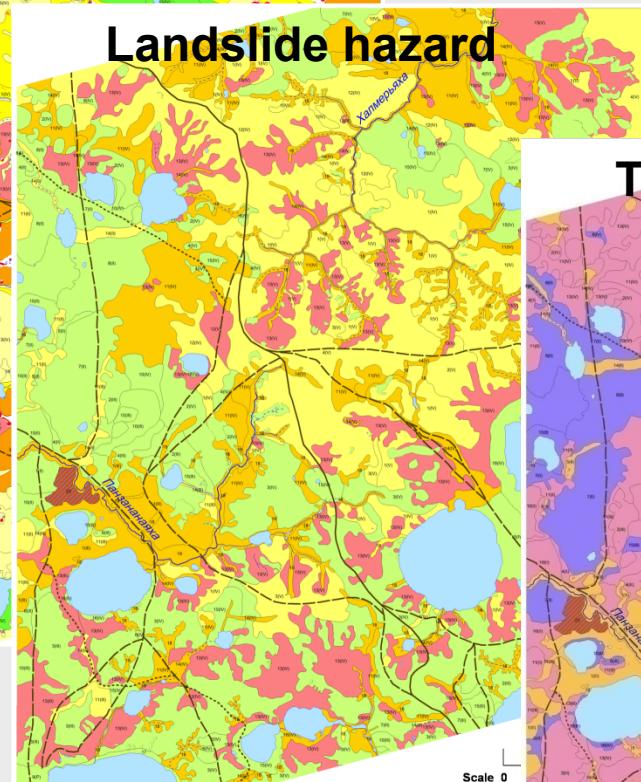
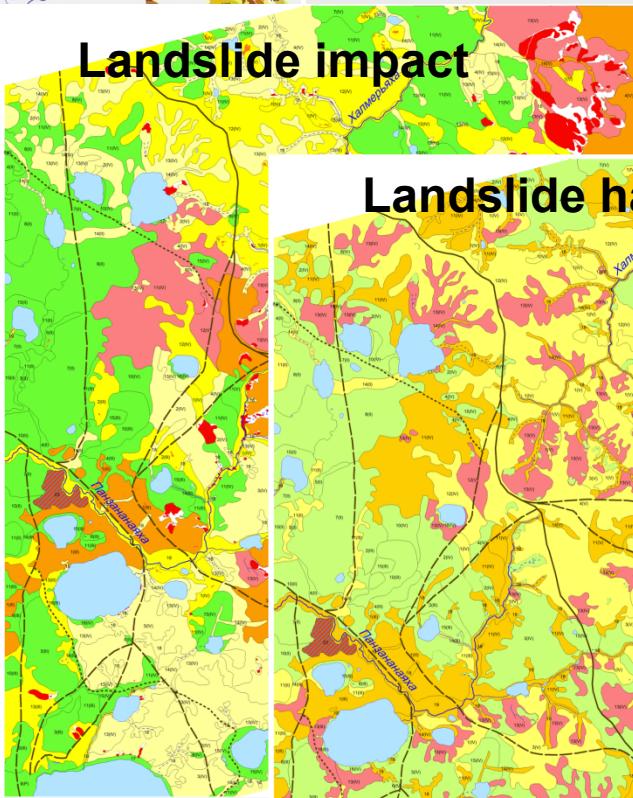
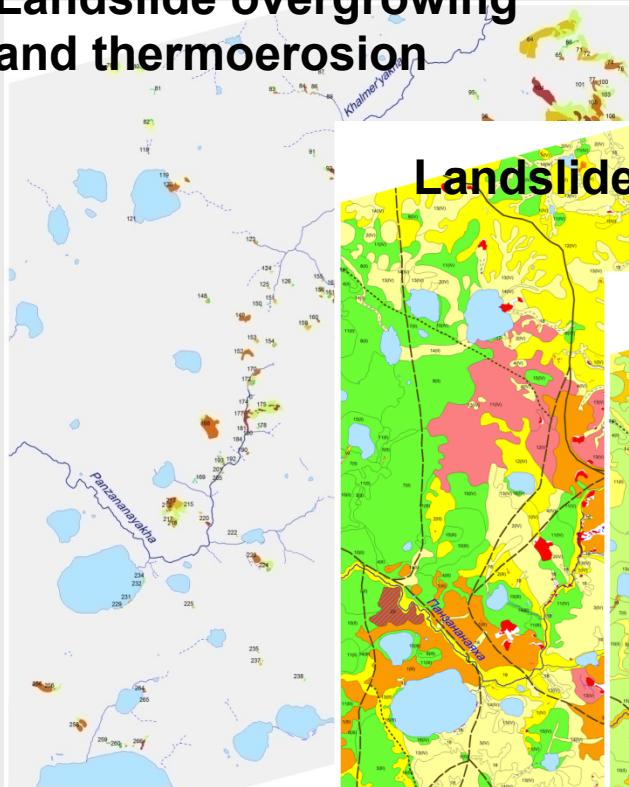
- Geomorphological level
- Relief
- Drainage degree
- Landscape name



Attributes of Landscapes copy				
INDEX	Geomorphic level	RELIEF	Drainage degr	LANDSCAPE NAME
01(V)	V marine plain	Convex tops	Rather drained	Rolling hill tops with polygonal dwarf shrub-herb-lichen tundra with wind-blown sands on s
02(V)	V marine plain	Subhorizontal tops	Rather drained	Subhorizontal hill tops with hummocky herb-dwarf shrub-moss-lichen and tussocky shrub-herb
03(V)	V marine plain	Subhorizontal tops	Rather drained	Subhorizontal hill tops with herb-dwarf shrub-moss tundra on silty and clayey soils, with patc
04(V)	V marine plain	Subhorizontal tops	Rather drained	Subhorizontal slopes adjacent to hill tops with hummocky-tussocky shrub-herb-moss tundra o
11(V)	V marine plain	Gentle slopes	Poorly drained	Gentle slopes with tussocky herb-grass-moss willow beds (dwarf birch presented) on claye
12(V)	V marine plain	Gentle slopes	Poorly drained	Gentle slopes of watersheds with tussocky shrub-sedge-sphagnum communities on silty and c
13(V)	V marine plain	Concave landslides-affected slopes	Poorly drained	Concave slopes with ancient landslide shear surfaces, with herb-grass willow beds on claye
14(V)	V marine plain	Hollows	Periodically wet	Drainage hollows with cottongrass-sedge-moss communities on clayey soils
01(V)	IV coastal-marine plain	Convex tops	Rather drained	Rolling hill tops with polygonal dwarf shrub-herb-lichen tundra with wind-blown sands on s
02(V)	IV coastal-marine plain	Subhorizontal tops	Rather drained	Subhorizontal hill tops with hummocky herb-dwarf shrub-moss-lichen and tussocky shrub-herb
03(V)	IV coastal-marine plain	Subhorizontal tops	Rather drained	Subhorizontal hill tops with herb-dwarf shrub-moss tundra on silty and clayey soils, with patc
04(V)	IV coastal-marine plain	Subhorizontal tops	Rather drained	Subhorizontal slopes adjacent to hill tops with hummocky-tussocky shrub-herb-moss tundra o
06(V)	IV coastal-marine plain	Subhorizontal flat surfaces	Wet	Subhorizontal surfaces with flat-topped polygonal cloudberry-sedge-lichen-sphagnum peatland
07(V)	IV coastal-marine plain	Subhorizontal flat surfaces	Wet	Subhorizontal depressions with dwarf shrub-sedge-sphagnum and cottongrass-sedge-moss b
08(V)	IV coastal-marine plain	Subhorizontal flat surfaces	Wet	Subhorizontal flat surfaces with cottongrass-sedge-moss bogs on silty and clayey soils
10(V)	IV coastal-marine plain	Subflat surfaces	Poorly drained	Slightly sloping flat surfaces with herb-moss-shrub tundra on silty and clayey soils
11(V)	IV coastal-marine plain	Gentle slopes	Poorly drained	Gentle slopes with tussocky herb-grass-moss willow beds (dwarf birch presented) on claye
12(V)	IV coastal-marine plain	Gentle slopes	Poorly drained	Gentle slopes of watersheds with tussocky shrub-sedge-sphagnum communities on silty and c
13(V)	IV coastal-marine plain	Concave landslides-affected slopes	Poorly drained	Concave slopes with ancient landslide shear surfaces, with herb-grass willow beds on claye
14(V)	IV coastal-marine plain	Hollows	Periodically wet	Drainage hollows with cottongrass-sedge-moss communities on clayey soils
15(V)	IV coastal-marine plain	Concave bottoms	Periodically wet	Khasyres with herb-dwarf shrub-moss-lichen communities more drained sites (with peaty
16(V)	IV coastal-marine plain	Low lake terraces	Periodically wet	Low lake terraces with tussocky sedge-moss and sedge-cowberry-moss communities on peat
01(III)	III alluvial-lacustrine plain	Convex tops	Rather drained	Rolling hill tops with polygonal dwarf shrub-herb-lichen tundra with wind-blown sands on s
02(III)	III alluvial-lacustrine plain	Subhorizontal tops	Rather drained	Subhorizontal hill tops with hummocky herb-dwarf shrub-moss-lichen and tussocky shrub-herb
03(III)	III alluvial-lacustrine plain	Subhorizontal tops	Rather drained	Subhorizontal hill tops with herb-dwarf shrub-moss tundra on silty and clayey soils, with patc
04(III)	III alluvial-lacustrine plain	Subhorizontal tops	Rather drained	Subhorizontal slopes adjacent to hill tops with hummocky-tussocky shrub-herb-moss tundra o
06(III)	III alluvial-lacustrine plain	Subhorizontal flat surfaces	Wet	Subhorizontal surfaces with flat-topped polygonal cloudberry-sedge-lichen-sphagnum peatland
07(III)	III alluvial-lacustrine plain	Subhorizontal flat surfaces	Wet	Subhorizontal depressions with dwarf shrub-sedge-sphagnum and cottongrass-sedge-moss b
10(III)	III alluvial-lacustrine plain	Subflat surfaces	Poorly drained	Slightly sloping flat surfaces with herb-moss-shrub tundra on silty and clayey soils
11(III)	III alluvial-lacustrine plain	Gentle slopes	Poorly drained	Gentle slopes with tussocky herb-grass-moss willow beds (dwarf birch presented) on claye
13(III)	III alluvial-lacustrine plain	Concave landslides-affected slopes	Poorly drained	Concave slopes with ancient landslide shear surfaces, with herb-grass willow beds on claye
14(III)	III alluvial-lacustrine plain	Hollows	Periodically wet	Drainage hollows with cottongrass-sedge-moss communities on clayey soils
15(III)	III alluvial-lacustrine plain	Concave bottoms	Periodically wet	Khasyres with herb-dwarf shrub-moss-lichen communities on more drained sites (with peaty
16(III)	III alluvial-lacustrine plain	Low lake terraces	Periodically wet	Low lake terraces with tussocky sedge-moss and sedge-cowberry-moss communities on peat
04(II)	II river terrace	Subhorizontal tops	Rather drained	Subhorizontal slopes adjacent to hill tops with hummocky-tussocky shrub-herb-moss tundra o
05(II)	II river terrace	Subhorizontal tops	Rather drained	Peripheral zone of subhorizontal surfaces with hummocky polygonal herb-dwarf shrub-moss-li
07(II)	II river terrace	Subhorizontal flat surfaces	Wet	Subhorizontal depressions with dwarf shrub-sedge-sphagnum and cottongrass-sedge-moss b
08(II)	II river terrace	Subhorizontal flat surfaces	Wet	Subhorizontal flat surfaces with cottongrass-sedge-moss bogs on silty and clayey soils
10(II)	II river terrace	Subflat surfaces	Poorly drained	Slightly sloping flat surfaces with herb-moss-shrub tundra on silty and clayey soils
11(II)	II river terrace	Gentle slopes	Poorly drained	Gentle slopes with tussocky herb-grass-moss willow beds (dwarf birch presented) on claye
14(II)	II river terrace	Hollows	Periodically wet	Drainage hollows with cottongrass-sedge-moss communities on clayey soils
15(II)	II river terrace	Concave bottoms	Periodically wet	Khasyres with herb-dwarf shrub-moss-lichen communities on more drained sites (with peaty
09(P)	0 River flood plain	Subhorizontal flat surfaces	Periodically wet	Flat rear zone of flood plain with tussocky sedge-moss and sedge-cowberry-moss commun
17	Lake depressions	Subhorizontal flat surfaces	Periodically wet	Lake beaches with fragmentary cottongrass-arctophila communities on sands
18	Ravine and gully system	Subhorizontal flat surfaces	Periodically wet	Ravines and gullies with wet cottongrass-sedge-moss bottom and hummocky-tussocky slopes
19	Valley complex	Subhorizontal flat surfaces	Periodically wet	Small stream valleys with herb-moss willow beds on clayey soils
23	Natural-technogenic disturbances	Subhorizontal flat surfaces	Periodically wet	Sandpit

Thematic maps

Landslide overgrowing and thermoerosion



YAMAL transect



Thank you for your attention

