

Soil_logs_June2011 - Soil descriptions from pits and auger holes near Twelvemile and Buddy Lake, Yukon Flats, Alaska, June 18-24, 2011.

[ARI, auger rejection by ice; cm, centimeters; deg, degrees; DF, did not find; ID, identification]

[INR, ice at maximum depth but auger not rejected; mm/dd/yyyy, month/day/year; NI, ice not observed at maximum depth]

[% , percent by volume; --, data not available]

Plot ID	27
Date (mm/dd/yyyy)	06/18/11
Maximum depth observation (cm)	61
Bottom condition	INR
Depth water table (cm)	DF
Comments	Pit/auger hole; soil saturated to surface

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	Oe	0	15						
2	Oa	15	34						
3	C ₁	34	51	39	14	2	30	15	
4	C _r	51		63	22	5	10	0	

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[% , percent by volume; --, data not available]

Plot ID	29
Date (mm/dd/yyyy)	06/18/11
Maximum depth observation (cm)	221
Bottom condition	NI
Depth water table (cm)	160
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	Oi	0	13						
2	Oe	13	16						
3	Oa	16	26						
4	A	26	33	65	31	4	0	0	
5	C ₁	33	70	75	20	5	0	0	
6	C _f	70	124	--	--	--	0	0	
7	C ₂	124	187	90	9	1	0	0	
8	C ₃	187		30	0	0	0	70	

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
1	20.6
16	5.2
70	0.2
130	0.4
186	0.6

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[% , percent by volume; --, data not available]

Plot ID	30
Date (mm/dd/yyyy)	06/18/11
Maximum depth observation (cm)	495
Bottom condition	NI
Depth water table (cm)	410
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	Oe	0	18						
2	Oa	18	22						
3	A	22	28	45	46	9			
4	C ₁	28	89	60	33	7			
5	C _f	89	101	60	34	6			
6	C ₂	101	300	75	22	3			ice nodules observed at 152 cm
7	C ₃	300		--	--	--	25	5	mostly sand and gravel; gravel increases below 400 cm

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
1	18.3
17	5.9
87	-0.1
101	0.3
353	0.9
409	0.5

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[% , percent by volume; --, data not available]

Plot ID	32
Date (mm/dd/yyyy)	06/19/11
Maximum depth observation (cm)	89
Bottom condition	ARI
Depth water table (cm)	DF
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	O _i	0	7						feather moss
2	C	7	53	75	23	2	0	0	
3	C _f	53	78	--	--	--	0	0	probably seasonal ice; too frozen to hand texture
4	P _f	78							interpreted as permafrost

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
1	16.4
7	7.0
35	1.6
51	0.0
64	-0.3
89	-0.4

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Plot ID	33
Date (mm/dd/yyyy)	06/19/11
Maximum depth observation (cm)	156
Bottom condition	ARI
Depth water table (cm)	DF
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	O _e	0	7						
2	L	7	31	--	--	--	0	0	
3	C ₁	31	48	55	39	6	0	0	
4	C _r	48		55	39	6	0	0	gleyed within 10 cm of maximum augered depth

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
1	12.9
7	6.7
48	0.0
68	0.1

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[% , percent by volume; --, data not available]

Plot ID	34
Date (mm/dd/yyyy)	06/19/11
Maximum depth observation (cm)	169
Bottom condition	INR
Depth water table (cm)	DF
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	O _{ae}	0	9						
2	C ₁	9	95	35	56	9	0	0	
3	C _{r1}	95	130	35	56	9	0	0	
4	C _{r2}	130		95	4	1	0	0	medium-grained; extremely dry, difficult to keep sample in auger bucket

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
95	0.0
159	-1.1

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[% , percent by volume; --, data not available]

Plot ID	39
Date (mm/dd/yyyy)	06/20/11
Maximum depth observation (cm)	67
Bottom condition	INR
Depth water table (cm)	11
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	O _i	0	17						moss
2	C ₁	17	47	5	80	15	0	0	
3	C _r	47		--	--	--	0	0	grain sizes probably same as C ₁ ; harder to penetrate with increasing depth; stopped augering because of difficulty in getting through ice with some plasticity

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
1	15.0
17	3.9
47	-0.2

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[% , percent by volume; --, data not available]

Plot ID	42
Date (mm/dd/yyyy)	06/20/11
Maximum depth observation (cm)	51
Bottom condition	INR
Depth water table (cm)	DF
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	O _i	0	10						moss
2	C ₁	10	32	35	62	3	0	0	stratified; alternating 1- to 6-cm thick layers of sand and organic material containing wood, moss and charcoal fragments
3	C _f	32		--	--	--	0	0	stratified; alternating 1- to 6-cm thick layers of sand and organic material containing wood, moss and charcoal fragments

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[% , percent by volume; --, data not available]

Plot ID	46
Date (mm/dd/yyyy)	06/21/11
Maximum depth observation (cm)	330
Bottom condition	NI
Depth water table (cm)	310
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	O _i	0	1						
2	L	1	63	45	49	6	0	0	
3	C _r	63	145	45	49	6	0	0	
4	C ₁	145	178	45	49	6	0	0	
5	C ₂	178	290	45	49	6	0	0	gleyed; C ₂ and C ₃ separated because of color differences
6	C ₃	290	330	34	36	5	25	0	gleyed
7	C ₄	330		9	1	0	85	5	gleyed

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
85	-0.1
113	0.0
131	0.0
168	0.2
290	0.6

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[% , percent by volume; --, data not available]

Plot ID	48
Date (mm/dd/yyyy)	06/21/11
Maximum depth observation (cm)	209
Bottom condition	ARI
Depth water table (cm)	DF
Comments	Pit/auger hole; stunted aspen forest with willow understory

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	O _i	0	7						
2	C ₁	7	122	30	61	9	0	0	
3	C ₂	122	147	65	34	1	0	0	ice nodules observed at 141 cm
4	C _f	147	209	65	34	1	0	0	
5	P _f	209							

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
1	17.1
7	12.5
50	6.2
95	2.3
147	0.0
209	-0.3

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[% , percent by volume; --, data not available]

Plot ID	54
Date (mm/dd/yyyy)	06/22/11
Maximum depth observation (cm)	41
Bottom condition	NI
Depth water table (cm)	31
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	Oa	0	8						
2	C	8		--	--	--	--	--	sandy gravel coarsening downward to small cobbles; gravel thickness found to be at least 40 cm at location approximately 15 m further east

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[% , percent by volume; --, data not available]

Plot ID	55
Date (mm/dd/yyyy)	06/22/11
Maximum depth observation (cm)	44
Bottom condition	INR
Depth water table (cm)	DF
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	Oi	0	8						
2	Oa	8	31						
3	L _r	31		25	72	3	0	0	frozen limnic deposits; rich in organic material; shells

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
1	21.2
31	-0.1

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[% , percent by volume; --, data not available]

Plot ID	56
Date (mm/dd/yyyy)	06/22/11
Maximum depth observation (cm)	41
Bottom condition	INR
Depth water table (cm)	DF
Comments	Auger hole; this site is very similar to Plot ID 55

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	Oi	0	8						very moist
2	Oa	8	39						very moist
3	L _r	39		--	--	--	0	0	frozen limnic deposits; rich in organic material; shells

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[% , percent by volume; --, data not available]

Plot ID	57
Date (mm/dd/yyyy)	06/22/11
Maximum depth observation (cm)	82
Bottom condition	INR
Depth water table (cm)	27
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	Oi	0	5						
2	Oa	5	12						
3	L ₁	12	15	--	--	--	0	0	rich in silt
4	Ob ₁	15	20						
5	L ₂	20	27	--	--	--	0	0	rich in silt
6	Ob ₂	27	36						
7	L ₃	36	46	--	--	--	0	0	rich in silt
8	C ₁	46	69	75	22	3	0	0	
9	C _f	69		75	22	3	0	0	temperature measured at 69 cm influenced by water flowing from shallower layers

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
1	23.6
12	8.8
15	7.7
27	5.5
36	3.5
69	0.6

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[% , percent by volume; --, data not available]

Plot ID	62
Date (mm/dd/yyyy)	06/22/11
Maximum depth observation (cm)	265
Bottom condition	NI
Depth water table (cm)	265
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	O _i	0	3						
2	C ₁	3	17	15	77	8	0	0	
3	Ob ₁	17	20						
4	C ₂	20	26	15	77	8	0	0	
5	C ₃	26	37	85	14	1	0	0	
6	Ob ₂	37	45						
7	C ₄	45	50	15	77	8	0	0	
8	C ₅	50	52	85	14	1	0	0	
9	C ₆	52	63	15	77	8	0	0	
10	C _{f1}	63	78	15	77	8	0	0	
11	C _{f2}	78	94	50	8	1	40	1	frozen gravel overlying unfrozen sediment was unusual
12	Ob _f	94	135						
13	C _{f3}	135	159	15	79	6	0	0	
14	C ₇	159	192	85	14	1	0	0	gleyed; sand is fine- to medium-grained
15	C ₈	192	209	90	9	1	0	0	sand is medium- to coarse-grained
16	C ₉	209	247	45	51	4	0	0	sand is fine-grained
17	C ₁₀	247		26	4	0	55	15	sand is fine- to medium-grained; water at 265 cm smells highly reduced

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[% , percent by volume; --, data not available]

Plot ID	68
Date (mm/dd/yyyy)	06/23/11
Maximum depth observation (cm)	99
Bottom condition	INR
Depth water table (cm)	DF
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	Oi	0	4						
2	Oe	4	8						
3	C ₁	8	55	15	79	6	0	0	
4	C ₂	55	59	65	32	3	0	0	sand is medium-grained
5	C ₃	59	83	65	32	3	0	0	sand is very fine-grained
6	C _f	83		65	32	3	0	0	sand is fine-grained

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
1	19.0
8	9.8
83	0.0

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[% , percent by volume; --, data not available]

Plot ID	69
Date (mm/dd/yyyy)	06/23/11
Maximum depth observation (cm)	137
Bottom condition	ARI
Depth water table (cm)	DF
Comments	Pit/auger hole

Pedon Horizon

Sequence	Soil horizon designation	Depth top (cm)	Depth bottom (cm)	% sand	% silt	% clay	% fine gravel	% medium- coarse gravel	Comment
1	O _i	0	7						
2	C ₁	7	78	5	91	4	0	0	
3	C ₂	78	93	85	14	1	0	0	sand is fine-grained
4	C _f	93		85	14	1	0	0	sand is fine-grained

Soil Temperature

Depth (cm)	Temperature (deg Celsius)
1	14.3
7	10.9
49	5.1