

February 28, 2009: 10 - 14:00 PST

High clouds, light wind

Total depth (cm) 338
 Air Temp (C) 4
 tare (g) 715 1-Liter

<i>0 is the soil surface</i>	Field Measurements				rBC		Soluble Ions				
Depth Interval (cm)	Temp (C)	Mass (g)	Density (g/cm ³)	Notes:	BC conc (ng/g)	Error	SWE (cm)	Cumulative SWE (cm)	Nitrate (um/L)	Ammonium (um/L)	Chloride (um/L)
0-10	-1	424	0.424	w/ tare	4.07	5.18%	4.24	4.24	6.25	0.94	26.12
10-20	-1	462	0.462	w/ tare	5.77	5.18%	4.62	8.86	13.22	6.28	69.98
20-30	-1.5	403	0.403	w/ tare	5.82	5.18%	4.03	12.89	12.33	4.99	24.99
30-40	-1	433	0.433	w/ tare	4.71	5.18%	4.33	17.22	6.02	4.12	19.08
40-50	-1	427	0.427	w/ tare	2.00	5.18%	4.27	21.49	9.42	2.18	17.45
50-60	-1.5	1158	0.443		4.63	5.18%	4.43	25.92	7.16	1.49	41.46
60-70	-2	430	0.43	w/ tare	4.50	5.18%	4.3	30.22	10.35	0.05	78.10
70-80	-2	410	0.41	w/ tare	2.64	5.18%	4.1	34.32	9.30	7.20	12.12
80-90	-2	1147	0.432		3.03	5.18%	4.32	38.64	14.45	2.20	45.13
90-100	-2	1097	0.382		0.96	5.18%	3.82	42.46	4.49	0.58	9.77
100-110	-2.5	1103	0.388		7.99	5.18%	3.88	46.34	11.28	2.45	24.21
110-120	-3	396	0.396	w/ tare	6.82	5.18%	3.96	50.3	11.24	1.52	23.48
120-130	-3	1090	0.375		1.25	5.18%	3.75	54.05	6.09	0.30	7.13
130-140	-3.5	1091	0.376		3.41	5.18%	3.76	57.81	7.94	1.01	13.12
140-150	-4	1067	0.352		3.03	5.18%	3.52	61.33	10.52	1.37	8.79
150-160	-4	914	0.199		8.42	5.18%	1.99	63.32	11.53	2.77	28.56
160-170	-4	1071	0.356		19.24	5.18%	3.56	66.88	16.56	10.13	22.19
170-180	-4.5	1034	0.319		11.41	5.18%	3.19	70.07	10.64	1.60	17.78
180-190	-5	1034	0.319		12.51	5.18%	3.19	73.26	9.36	2.16	13.72
190-200	-5	1051	0.336		13.24	5.18%	3.36	76.62	12.55	9.63	13.39
200-210	-4.5	1031	0.316		2.99	5.18%	3.16	79.78	8.97	2.89	17.42
210-220	-4.5	1029	0.314		3.64	5.18%	3.14	82.92	11.96	2.62	20.97
220-230	-5	1029	0.314		7.46	5.18%	3.14	86.06	8.31	2.93	33.33
230-240	-4.5	966	0.251		1.48	5.18%	2.51	88.57	8.45	7.20	21.24
240-250	-4.5	977	0.262		1.34	5.18%	2.62	91.19	3.20	1.28	23.82
250-260	-4.5	1048	0.333		1.55	5.18%	3.33	94.52	7.33	1.91	10.05
260-270	-4.5	1029	0.314		2.07	5.18%	3.14	97.66	7.33	2.56	13.66
270-280	-5	968	0.253		2.44	5.18%	2.53	100.19	11.22	1.09	25.94
280-290	-4.5	938	0.223		2.18	5.18%	2.23	102.42	9.56	0.54	14.34
290-300	-4.5	952	0.237		11.61	5.18%	2.37	104.79	10.83	1.24	12.36
300-310	-5	989	0.274		5.35	5.18%	2.74	107.53	7.64	0.60	12.89
310-320	-5.5	1031	0.316		6.62	5.18%	3.16	110.69	8.21	1.48	16.43
320-330	-5.5	1077	0.362		6.43	5.18%	3.62	114.31	3.77	2.59	19.34
328-338	-5	1077	0.362		11.05	5.18%	3.62	117.93	7.87	1.68	25.57

Surface Sample ID	BC conc (ng/g)	Error
east pit 1	50.44	5.18%
east pit 2	52.06	5.18%
surface #1 snowcat refuel	3.10	5.18%
surface #2 snowcat	11.86	5.18%
surface #3	5.78	5.18%
surface #4	3.35	5.18%

March 28, 2009: 11:00 - 16:00 PST

no clouds, no wind

Total depth (cm) 360
 Air Temp (C) 7.5
 tare (g) 160 1/4 Liter

<i>0 is the soil surface</i>	Field Measurements				rBC		Soluble Ions					
Depth Interval (cm)	Temp (C)	Mass (g)	Density (g/cm3)	Notes:	BC conc (ng/g)	Error	SWE (cm)	Cumulative SWE (cm)	Nitrate (um/L)	Ammonium (um/L)	Chloride (um/L)	
0-10	0	254	0.376		4.70	5.18%	3.76	3.76	4.74	1.53	26.26	
10-20	0	259	0.396		4.47	5.18%	3.96	7.72	5.69	1.77	31.45	
20-30	-0.5	247	0.348		2.47	5.18%	3.48	11.20	10.83	2.89	26.13	
30-40	-0.5	274	0.456		16.26	5.18%	4.56	15.76	10.61	6.41	62.61	
40-50	-1	245	0.34		3.89	5.18%	3.40	19.16	5.53	0.54	19.30	
50-60	-1	271	0.444		1.76	5.18%	4.44	23.60	7.28	2.89	71.21	
60-70	-1	262	0.408		4.29	5.18%	4.08	27.68	12.13	1.25	31.20	
70-80	-1	259	0.396		3.36	5.18%	3.96	31.64	7.72	1.80	43.10	
80-90	-1	272	0.448		3.90	5.18%	4.48	36.12	6.71	1.49	72.34	
90-100	-1.5	267	0.428		3.86	5.18%	4.28	40.40	8.03	1.78	64.73	
100-110	-1.5	258	0.392		1.33	5.18%	3.92	44.32	4.27	0.43	59.13	
110-120	-1.5	266	0.424		0.75	5.18%	4.24	48.56	3.04	1.05	70.73	
120-130	-2	263	0.412		1.35	5.18%	4.12	52.68	4.27	0.73	58.62	
130-140	-1.5	259	0.396		1.66	5.18%	3.96	56.64	7.72	4.09	62.02	
140-150	-2	263	0.412		11.05	5.18%	4.12	60.76	10.72	10.87	91.37	
150-160	-2	260	0.4		2.30	5.18%	4.00	64.76	7.87	1.13	64.12	
160-170	-2	253	0.372		13.37	5.18%	3.72	68.48	14.16	6.57	51.61	
170-180	-2.5	261	0.404		4.63	5.18%	4.04	72.52	12.47	1.87	94.75	
180-190	-2	253	0.372		1.64	5.18%	3.72	76.24	5.37	5.13	67.00	
190-200	-2	256	0.384		0.72	5.18%	3.84	80.08	6.48	1.58	65.42	
200-210	-3	257	0.388		2.95	5.18%	3.88	83.96	10.89	1.02	32.73	
210-220	-2	252	0.368		2.09	5.18%	3.68	87.64	7.84	1.87	85.38	
220-230	-2.5	257	0.388		5.80	5.18%	3.88	91.52	6.48	4.27	91.35	
230-240	-2.5	266	0.424		1.92	5.18%	4.24	95.76	6.14	2.59	66.28	
240-250	-2	246	0.344		11.35	5.18%	3.44	99.20	7.39	0.91	45.10	
250-260	-2.5	248	0.352		4.35	5.18%	3.52	102.72	7.11	10.39	48.13	
260-270	-2	262	0.408		5.07	5.18%	4.08	106.80	5.05	1.19	60.20	
270-280	-2	254	0.376		4.75	5.18%	3.76	110.56	7.50	0.71	32.59	
280-290	-2.5	256	0.384		3.50	5.18%	3.84	114.40	6.63	1.88	49.18	
290-300	-2	251	0.364		19.51	5.18%	3.64	118.04	9.53	3.95	51.04	
300-310	-2	263	0.412		39.64	5.18%	4.12	122.16	11.66	16.11	53.88	
310-320	-2	257	0.388		1.99	5.18%	3.88	126.04	7.27	6.47	135.18	
320-330	-2.5	253	0.372		4.63	5.18%	3.72	129.76	5.30	7.36	42.24	
330-340	-2.5	272	0.448		88.99	5.18%	4.48	134.24	36.16	35.64	73.20	
340-350	-3	244	0.336		1.58	5.18%	3.36	137.60	8.66	14.69	41.49	
350-360	-3	235	0.3		9.48	5.18%	3.00	140.60	7.56	2.58	15.92	

Surface Sample ID	BC conc (ng/g)	Error
ss east of pit #1	27.88	5.18%
ss east of pit #2	no data	

April 18, 2009: 13:00 PST

#NUM! outside of limits
Soluble Ions - n/a

sunny, no clouds

Total depth (cm) 368
Air Temp (C) 7
tare (g) 158 1/4 liter 717 1 liter

<i>0 is the soil surface</i>	Field Measurements				rBC			
Depth Interval (cm)	Temp (C)	Mass (g)	Density (g/cm3)	Notes:	BC conc (ng/g)	Error	SWE (cm)	Cumulative SWE (cm)
0-10	-0.5	1130	0.435		3.17	13.1%	4.35	4.35
10-20	-1	1111	0.416		2.73	13.1%	4.16	8.51
20-30	-1	1099	0.404		4.62	13.1%	4.04	12.55
30-40	-1	1093	0.398	ice layer @ 30-30.5	3.04	13.1%	3.98	16.53
40-50	-0.5	574	0.544		11.05	13.1%	5.44	21.97
50-60	-0.5	1111	0.416		1.49	13.1%	4.16	26.13
60-70	-1	1169	0.474		2.95	13.1%	4.74	30.87
70-80	-1	1145	0.45		2.45	13.1%	4.50	35.37
80-90	-1	1110	0.415		1.63	13.1%	4.15	39.52
90-100	-1	1132	0.437		0.60	13.1%	4.37	43.89
100-110	-1	1130	0.435	ice layer @ 101-102	2.44	13.1%	4.35	48.24
110-120	-1	1139	0.444		0.86	13.1%	4.44	52.68
120-130	-1.5	1137	0.442	ice layer @ 122-122.5	1.38	13.1%	4.42	57.10
130-140	-1.5	1113	0.418		2.04	13.1%	4.18	61.28
140-150	-1.5	1170	0.475		6.53	13.1%	4.75	66.03
150-160	-1.5	1123	0.428		5.22	13.1%	4.28	70.31
160-170	-1.5	574	0.544		9.01	13.1%	5.44	75.75
170-180	-1.5	568	0.52		7.51	13.1%	5.20	80.95
180-190	-1.5	558	0.48		8.41	13.1%	4.80	85.75
190-200	-2	563	0.5		3.92	13.1%	5.00	90.75
200-210	-1	259	0.404		3.40	6.5%	4.04	94.79
210-220	-1	268	0.44		0.66	6.5%	4.40	99.19
220-230	-0.5	283	0.5		0.99	6.5%	5.00	104.19
230-240	-0.5	259	0.404		1.13	6.5%	4.04	108.23
240-250	-1	253	0.38	ice layer @ 241-241.5	3.34	6.5%	3.80	112.03
250-260	-0.5	270	0.448		2.81	6.5%	4.48	116.51
260-270	-0.5	259	0.404		2.46	6.5%	4.04	120.55
270-280	-0.5	266	0.432		2.36	6.5%	4.32	124.87
280-290	-1.5	250	0.368		5.93	6.5%	3.68	128.55
290-300	-0.5	247	0.356	small ice layer	13.68	6.5%	3.56	132.11
300-310	-1	281	0.492		12.01	6.5%	4.92	137.03
310-320	-1	285	0.508	ice layer @ 318-320	2.75	6.5%	5.08	142.11
320-330	-1	268	0.44		1.85	6.5%	4.40	146.51
330-340	-0.5	271	0.452	ice layer @ 333-334, 339	17.14	6.5%	4.52	151.03
340-350	-0.5	261	0.412	ice layer @ 347-349	8.40	6.5%	4.12	155.15
350-360	-0.5	278	0.48		2.35	6.5%	4.80	159.95
358-368	-0.5	267	0.436		6.10	6.5%	4.36	164.31

Surface Sample ID	BC conc (ng/g)	Error
next bobcat #1	57.77	6.5%
next bobcat #2	16.96	6.5%
next bobcat #3	80.67	6.5%
near ridge 1	#NUM!	6.5%
near ridge 2	#NUM!	6.5%
near ridge 3	29.10	6.5%
near ridge 4	40.20	6.5%
surf 1	50.04	6.5%
surf 2	54.82	6.5%
surf 3	70.71	6.5%

April 29, 2009: 12:00 PST

#NUM! outside of detection limits

clear sky, windy

Total depth (cm) 380
 Air Temp (C) 3
 tare (g) 431 1/4 liter 687 1 liter

<i>0 is the soil surface</i>	Field Measurements				rBC		Soluble Ions				
Depth Interval (cm)	Temp (C)	Mass (g)	Density (g/cm3)	Notes:	BC conc (ng/g)	Error	SWE (cm)	Cumulative SWE (cm)	Nitrate (um/L)	Ammonium (um/L)	Chloride (um/L)
0-10	-0.5	1065	0.378		1.94	6.45%	3.78	3.78	7.90	2.06	29.14
10-20	0	1093	0.406		1.80	6.45%	4.06	7.84	8.60	2.65	16.43
20-30	-0.5	1090	0.403		2.70	6.45%	4.03	11.87	10.05	3.34	26.12
30-40	-0.5	1084	0.397		4.97	6.45%	3.97	15.84	6.68	1.46	60.54
40-50	-0.5	1163	0.476		7.30	6.45%	4.76	20.6	7.15	5.15	
50-60	-0.5	1123	0.436		1.28	8.81%	4.36	24.96	10.66	2.47	18.05
60-70	-0.5	1181	0.494		2.77	6.45%	4.94	29.9	10.69	0.54	76.26
70-80	-0.5	1160	0.473		0.35	6.45%	4.73	34.63	5.09	0.20	16.44
80-90	-0.5	1155	0.468		1.17	6.45%	4.68	39.31	9.41	1.54	21.47
90-100	-0.5	1147	0.460		0.82	6.45%	4.6	43.91	7.40	0.53	23.91
100-110	-0.5	1168	0.481		0.68	6.45%	4.81	48.72	7.86	0.83	17.96
110-120	-0.5	1120	0.433		0.90	6.45%	4.33	53.05	5.17	1.16	19.40
120-130	-0.5	1182	0.495		1.71	6.45%	4.95	58	13.49	1.97	31.59
130-140	-0.5	1169	0.482		0.60	6.45%	4.82	62.82	36.83	0.46	
140-150	-0.5	1178	0.491		1.21	6.45%	4.91	67.73	7.94	1.02	17.30
150-160	-0.5	575	0.576		1.89	8.81%	5.76	73.49	6.55	5.34	77.38
160-170	-0.5	578	0.588		5.84	8.81%	5.88	79.37	11.01	8.50	126.82
170-180	-0.5	589	0.632	ice layer @ 174-175	4.78	8.81%	6.32	85.69	10.05	6.54	58.34
180-190	-0.5	584	0.612		2.64	8.81%	6.12	91.81	6.70	5.19	46.57
190-200	0	575	0.576		1.59	8.81%	5.76	97.57	6.36	4.66	70.56
200-210	0	576	0.580		2.39	8.81%	5.8	103.37	5.74	5.62	58.52
210-220	-0.5	582	0.604		1.83	8.81%	6.04	109.41	7.24	6.42	37.50
220-230	-0.5	577	0.584		3.72	8.81%	5.84	115.25	7.14	6.84	41.62
230-240	-0.5	569	0.552		2.62	8.81%	5.52	120.77	8.14	2.72	25.36
240-250	-0.5	580	0.596		2.04	8.81%	5.96	126.73	1.80	2.62	21.05
250-260	-0.5	584	0.612		1.97	8.81%	6.12	132.85	11.01	3.15	31.18
260-270	-0.5	579	0.592		1.74	8.81%	5.92	138.77	8.67	3.50	36.90
270-280	-0.5	583	0.608		1.04	8.81%	6.08	144.85	16.51	3.24	55.24
280-290	-0.5	568	0.548	ice layer @ 287-288	2.30	8.81%	5.48	150.33	5.87	3.18	22.79
290-300	-0.5	592	0.644		2.44	8.81%	6.44	156.77	8.74	4.42	29.54
300-310	-0.5	577	0.584	ice layer @ 301-302	4.02	8.81%	5.84	162.61	10.09	3.81	27.48
310-320	-1	569	0.552	ice layer @ 313-315, 320	5.74	8.81%	5.52	168.13	10.40	15.64	78.53
320-330	-0.5	583	0.608		18.71	8.81%	6.08	174.21	10.80	9.36	34.78
330-340	-0.5	547	0.464		5.15	8.81%	4.64	178.85	7.30	15.15	62.19
340-350	-0.5	561	0.520	ice layer @ 350	3.01	8.81%	5.2	184.05	6.86	6.98	37.28
350-360	-0.5	552	0.484		15.83	8.81%	4.84	188.89	43.00	19.92	39.49
360-370	-0.5	550	0.476		15.62	8.81%	4.76	193.65	9.86	13.95	87.96
370-380	-0.5	n/a	0.400	slushy	18.01	8.81%	4	197.65	18.35	19.08	66.93

Surface Sample ID	BC conc (ng/g)	Error
surf 1 near pit	#NUM!	8.81%
surf 2	#NUM!	8.81%
surf 3	#NUM!	8.81%
ridge 1	#NUM!	8.81%
ridge 2	#NUM!	8.81%
ridge 3	#NUM!	8.81%
near sm track 1	#NUM!	8.81%
near sm track 2	#NUM!	8.81%

May 10, 2009: 13:00 PST

Soluble Ions - n/a

cirrus clouds, clear skies, breezy

Total depth (cm) 377
 Air Temp (C) 9
 tare (g) 435 1/4 liter 689 1 liter

<i>0 is the soil surface</i>	Field Measurements				rBC			
Depth Interval (cm)	Temp (C)	Mass (g)	Density (g/cm ³)	Notes:	BC conc (ng/g)	Error	SWE (cm)	Cumulative SWE (cm)
0-10	-0.5	1188	0.499		4.60	6.50%	4.99	4.99
10-20	-0.5	1141	0.452		1.82	6.50%	4.52	9.51
20-30	-0.5	1113	0.424		5.04	6.50%	4.24	13.75
30-40	-0.5	568	0.532	ice layer @37-38	6.11	6.50%	5.32	19.07
40-50	-0.5	1202	0.513		4.54	6.50%	5.13	24.20
50-60	-0.5	1160	0.471		1.88	6.50%	4.71	28.91
60-70	-0.5	590	0.62		1.95	6.50%	6.20	35.11
70-80	-0.5	597	0.648		4.81	6.50%	6.48	41.59
80-90	-0.5	600	0.66	dark particles 80-82	3.58	6.50%	6.60	48.19
90-100	-0.5	597	0.648		0.64	6.50%	6.48	54.67
100-110	-0.5	583	0.592		1.42	6.50%	5.92	60.59
110-120	-0.5	579	0.576		0.80	6.50%	5.76	66.35
120-130	-0.5	600	0.66		1.59	6.50%	6.60	72.95
130-140	-0.5	594	0.636		2.30	6.50%	6.36	79.31
140-150	-0.5	598	0.652	"baby" ice layers - 143-144	5.06	6.50%	6.52	85.83
150-160	-0.5	592	0.628		0.86	6.50%	6.28	92.11
160-170	-0.5	594	0.636	ice layer 163-164	1.12	6.50%	6.36	98.47
170-180	-0.5	607	0.688		1.71	6.50%	6.88	105.35
180-190	-0.5	603	0.672		4.01	6.50%	6.72	112.07
190-200	-0.5	595	0.64	ice layer 190-192	2.85	6.50%	6.40	118.47
200-210	-0.5	583	0.592		6.90	6.50%	5.92	124.39
210-220	-0.5	1191	0.502		5.92	6.50%	5.02	129.41
220-230	-1	1183	0.494		8.91	6.50%	4.94	134.35
230-240	-1	588	0.612	ice layer 233-234	5.48	6.50%	6.12	140.47
240-250	-0.5	1212	0.523		5.48	6.50%	5.23	145.70
250-260	-0.5	1213	0.524	ice layer 256-257	2.75	6.50%	5.24	150.94
260-270	-0.5	1121	0.432	ice layer 267.5-268.5	4.08	6.50%	4.32	155.26
270-280	-0.5	1159	0.47		2.44	6.50%	4.70	159.96
280-290	-0.5	1176	0.487	ice layer 285-286	2.39	6.50%	4.87	164.83
290-300	0	1213	0.524		1.41	6.50%	5.24	170.07
300-310	0	1183	0.494	ice layer 305-308	5.16	6.50%	4.94	175.01
310-320	-0.5	1276	0.587		3.76	6.50%	5.87	180.88
320-330	-0.5	1253	0.564		7.31	6.50%	5.64	186.52
330-340	-0.5	1257	0.568		8.12	6.50%	5.68	192.20
340-350	-0.5	1219	0.53	ice layer 342-343	12.86	6.50%	5.30	197.50
350-360	-0.5	1251	0.562	ice layer 351-352	9.52	6.50%	5.62	203.12
360-370	-0.5	1196	0.507	ice layer 360-361	17.02	6.50%	5.07	208.19
367-377	-0.5	1124	0.435		37.13	6.50%	4.35	212.54

Surface Sample ID	BC conc (ng/g)	Error
surf 1	20.49	6.50%
surf 2	56.63	6.50%
surf 3	37.49	6.50%
near track 1	132.88	6.50%
near track 2	120.36	6.50%
near track 3	171.70	6.50%
ridge 1	151.03	6.50%
ridge 2	123.68	6.50%
ridge 3	101.54	6.50%

May 17, 2009: 11:45 - 13:00 PST

clear sky, warm

Total depth (cm) 312
 Air Temp (C) 6
 tare (g) 431 1/4 liter 689 1 liter

<i>0 is the soil surface</i>	Field Measurements				rBC		Soluble Ions - some values unavailable				
Depth Interval (cm)	Temp (C)	Mass (g)	Density (g/cm3)	Notes:	BC conc (ng/g)	Error	SWE (cm)	Cumulative SWE (cm)	Nitrate (um/L)	Ammonium (um/L)	Chloride (um/L)
0-10	-0.5	1269	0.58	ice layer 4-5	3.01	5.18%	5.8	5.80	7.01	6.42	75.61
10-20	-0.5	1165	0.476		1.95	5.18%	4.76	10.56	8.84	5.66	30.71
20-30	-0.5	1199	0.51		3.93	6.50%	5.1	15.66	11.50	3.10	29.31
30-40	-0.5	1183	0.494	ice layer 37-38	11.73	6.50%	4.94	20.60	10.75	1.91	
40-50	-0.5	1281	0.592	dirty snow 36-43	11.25	6.50%	5.92	26.52	8.95	5.76	102.21
50-60	-0.5	1218	0.529		1.53	5.18%	5.29	31.81	2.79	2.02	49.29
60-70	-0.5	1241	0.552		4.64	5.18%	5.52	37.33	9.92	2.44	109.72
70-80	-0.5	1238	0.549	dirty snow 73-76	1.71	6.50%	5.49	42.82	1.79	0.82	51.40
80-90	-0.5	1242	0.553		1.18	6.50%	5.53	48.35	6.67	7.40	36.47
90-100	-0.5	1165	0.476		1.95	5.18%	4.76	53.11	8.67	1.70	27.14
100-110	-0.5	1198	0.509		0.48	6.50%	5.09	58.20	5.07	0.20	23.34
110-120	-0.5	1229	0.54	ice layer 118-119	1.50	5.18%	5.4	63.60	11.79	1.85	30.04
120-130	-0.5	1250	0.561		3.33	6.50%	5.61	69.21	6.69	0.02	64.37
130-140	-0.5	1259	0.57	ice layer 135-136	4.29	6.50%	5.7	74.91	7.52	2.33	61.40
140-150	-0.5	1197	0.508		1.48	6.50%	5.08	79.99	5.18	4.54	
150-160	-0.5	1229	0.54		1.17	5.18%	5.4	85.39	5.41	1.91	22.58
160-170	-0.5	1228	0.539		4.59	6.50%	5.39	90.78	8.93	3.46	
170-180	-0.5	1252	0.563		9.58	6.50%	5.63	96.41			
180-190	-0.5	1201	0.512	ice layer 181-182	5.63	6.50%	5.12	101.53	7.03	5.05	
190-200	-0.5	1234	0.545		4.99	5.18%	5.45	106.98	8.15	2.49	22.34
200-210	-0.5	1229	0.54		11.70	6.50%	5.4	112.38	11.50	2.65	19.44
210-220	-0.5	1249	0.56		6.89	5.18%	5.6	117.98	7.17	3.18	8.68
220-230	-0.5	1225	0.536		9.15	6.50%	5.36	123.34	0.33	5.04	18.97
230-240	-0.5	1226	0.537	ice layer 236-237	4.05	7.25%	5.37	128.71	5.87	4.66	32.93
240-250	-0.5	1193	0.504		4.04	6.50%	5.04	133.75	6.28	1.74	13.26
250-260	-0.5	1192	0.503		5.37	5.18%	5.03	138.78			
260-270	-0.5	1165	0.476		1.88	5.18%	4.76	143.54	4.73	1.22	41.73
270-280	-0.5	1155	0.466		2.85	5.18%	4.66	148.20	12.25	1.20	33.27
280-290	-0.5	1224	0.535	ice layer 284-285	7.22	6.50%	5.35	153.55	2.54	1.00	24.01
290-300	-0.5	1194	0.505		24.25	5.18%	5.05	158.60	9.23	1.58	36.68
300-310	-0.5	1111	0.422		75.16	6.50%	4.22	162.82	9.63	6.44	

Surface Sample ID	BC conc (ng/g)	Error
ridge 1	185.66	5.18%
ridge 2	300.00	5.18%
ridge 3	209.75	6.50%
surf 1	94.17	6.50%
surf 2	161.20	6.50%
surf 3	183.93	6.50%
tracks 1	220.03	7.25%
tracks 2	429.35	6.50%
tracks 3	255.58	7.25%
36-43 IL	11.62	5.18%
Top Gondola	24.46	6.50%
183-184 IL	4.75	7.25%

May 23, 2009: 13:00 PST

some cumulonimbus clouds, lite breeze, sunny

Total depth (cm) 268
 Air Temp (C) 12.5
 tare (g) 434 1/4 liter 687 1 liter

<i>0 is the soil surface</i>	Field Measurements				rBC		Soluble Ions				
Depth Interval (cm)	Temp (C)	Mass (g)	Density (g/cm ³)	Notes:	BC conc (ng/g)	Error	SWE (cm)	Cumulative SWE (cm)	Nitrate (um/L)	Ammonium (um/L)	Chloride (um/L)
0-10	-0.5	1222	0.535		4.69	7.25%	5.35	5.35	15.37	2.66	36.71
10-20	-0.5	1213	0.526		2.06	7.25%	5.26	10.61	6.43	2.98	15.24
20-30	-0.5	1169	0.482		3.57	7.25%	4.82	15.43	9.37	3.69	21.00
30-40	-0.5	1195	0.508	ice layer 37-38	9.30	6.50%	5.08	20.51	15.10	3.83	52.54
40-50	-0.5	1254	0.567	dirty snow 42-44	10.21	7.25%	5.67	26.18	11.96	4.04	13.89
50-60	-0.5	1245	0.558		3.51	6.50%	5.58	31.76	4.33	2.01	32.94
60-70	-0.5	1268	0.581		1.81	7.25%	5.81	37.57	10.35	3.08	
70-80	-0.5	1262	0.575		2.70	7.25%	5.75	43.32	9.47	0.39	
80-90	-0.5	1210	0.523	dirty snow 70-73	1.75	7.25%	5.23	48.55	8.55	2.00	19.71
90-100	-0.5	1273	0.586		1.69	7.25%	5.86	54.41	7.85	2.89	
100-110	-0.5	1258	0.571		0.72	6.50%	5.71	60.12	8.77	1.49	
110-120	-0.5	1271	0.584		2.86	6.50%	5.84	65.96	14.02	2.14	23.85
120-130	-0.5	1228	0.541		3.10	6.50%	5.41	71.37	12.08	1.29	37.65
130-140	-0.5	1271	0.584	ice layer 132-133	4.05	6.50%	5.84	77.21	12.02	0.83	36.57
140-150	-0.5	1192	0.505		1.11	6.50%	5.05	82.26	9.34	1.33	11.53
150-160	-0.5	1277	0.59	ice layer 150-151	2.06	7.25%	5.90	88.16	5.35	2.34	20.42
160-170	-0.5	1232	0.545		3.19	6.50%	5.45	93.61	10.37	3.86	13.15
170-180	-0.5	1167	0.48	ice layer 174-177	7.20	6.50%	4.80	98.41	11.91	7.02	21.35
180-190	-0.5	1261	0.574	ice layer 183-184	10.12	6.50%	5.74	104.15	9.75	2.13	16.37
190-200	-0.5	1227	0.54		12.00	6.50%	5.40	109.55	10.20	3.48	18.06
200-210	-0.5	1195	0.508		12.11	7.25%	5.08	114.63	9.87	4.27	19.17
210-220	-0.5	1203	0.516		11.12	6.50%	5.16	119.79	17.38	3.25	18.06
220-230	-0.5	1195	0.508		8.70	6.50%	5.08	124.87	12.71	3.13	26.28
230-240	-0.5	1151	0.464		9.73	6.50%	4.64	129.51	11.57	2.35	10.85
240-250	-0.5	1222	0.535		19.58	6.50%	5.35	134.86	8.60	1.25	32.54
250-260	0	1169	0.482		18.24	6.50%	4.82	139.68	11.37	0.81	26.41
258-268	0	1137	0.45		58.04	6.50%	4.50	144.18	10.72	0.73	61.61

Surface Sample ID	BC conc (ng/g)	Error
ridge 1	81.24	6.50%
ridge 2	147.72	7.25%
ridge 3	202.63	7.25%
surf 1	84.18	7.25%
surf 2	305.21	7.25%
surf 3	128.05	7.25%
174-178 Ice Layer	10.10	6.50%

May 30, 2009: 12:00 PST

#NUM! outside of detection limits
ridge dried out, so no ridge samples

overcast, some sun

Total depth (cm) 210
Air Temp (C) 6
tare (g) 441 1/4 liter

<i>0 is the soil surface</i>	Field Measurements				rBC		Soluble Ions				
Depth Interval (cm)	Temp (C)	Mass (g)	Density (g/cm3)	Notes:	BC conc (ng/g)	Error	SWE (cm)	Cumulative SWE (cm)	Nitrate (um/L)	Ammonium (um/L)	Chloride (um/L)
0-10	-0.5	588	0.588		1.20	13.08%	5.88	5.88	2.99	3.39	27.07
10-20	-0.5	571	0.52		1.64	13.08%	5.20	11.08	5.49	1.19	0.00
20-30	-0.5	582	0.564		1.68	13.08%	5.64	16.72	8.16	3.41	21.78
30-40	-0.5	572	0.524		2.80	13.08%	5.24	21.96	8.22	1.86	31.26
40-50	-0.5	590	0.596	41-42 cm IL	6.67	13.08%	5.96	27.92	8.23	3.77	0.00
50-60	-0.5	599	0.632		3.96	13.08%	6.32	34.24	4.69	0.01	20.99
60-70	-0.5	601	0.64		0.84	13.08%	6.40	40.64	6.16	2.26	60.72
70-80	-0.5	610	0.676	77-86 DIRTY SNOW	1.97	13.08%	6.76	47.40	2.68	0.05	28.47
80-90	-0.5	605	0.656		2.87	13.08%	6.56	53.96	0.23	0.02	34.24
90-100	-0.5	600	0.636		0.51	13.08%	6.36	60.32	1.94	0.02	42.68
100-110	-0.5	607	0.664		0.64	13.08%	6.64	66.96	3.55	1.30	21.64
110-120	-0.5	603	0.648		0.83	13.08%	6.48	73.44	3.14	0.08	
120-130	-0.5	606	0.66		0.40	13.08%	6.60	80.04	1.25	1.54	0.00
130-140	-0.5	597	0.624		1.41	13.08%	6.24	86.28	4.10	1.36	24.31
140-150	-0.5	609	0.672		1.29	13.08%	6.72	93.00	4.51	1.25	27.82
150-160	-0.5	611	0.68		3.21	13.08%	6.80	99.80	5.15	0.20	0.00
160-170	-0.5	605	0.656		0.81	13.08%	6.56	106.36	5.36	0.07	40.47
170-180	-0.5	642	0.804	173-175 cm IL	0.74	13.08%	8.04	114.40	2.45	1.22	13.45
180-190	-0.5	596	0.62		0.98	13.08%	6.20	120.60	2.93	3.62	23.79
190-200	-0.5	583	0.568		4.70	13.08%	5.68	126.28	7.35	4.95	71.33
200-210	-0.5	585	0.576	205-206 cm IL	5.75	13.08%	5.76	132.04	4.82	6.19	0.00

Surface Sample ID	BC conc (ng/g)	Error
surf 1	#NUM!	13.08%
surf 2	#NUM!	13.08%
surf 3	#NUM!	13.08%

Lysimeter collection between 10-May and 17-May samplings

	mL/week	tips/week	depth loss cm/week (1 tip = .01 cm)	flow rate (cm ³ /week)	flow rate (m ³ /day)
Lys 1	9856	99	0.99	9856	1.41E-03
Lys 2	464	5	0.05	464	6.63E-05
Lys 3	23200	232	2.32	23200	3.31E-03
Lys 4	13512	135	1.35	13512	1.93E-03

Mean flux (m ³ /day)	ranges
1.68E-03	3.31E-03
	6.63E-05

Lysimeter collection between 17-May and 23-May samplings

	mL/week	tips/week	depth loss cm/week (1 tip = .01 cm)	flow rate (cm ³ /week)	flow rate (m ³ /day)
Lys 1	15352	154	1.54	15352	2.19E-03
Lys 2	336	3	0.03	336	4.80E-05
Lys 3	29200	292	2.92	29200	4.17E-03
Lys 4	17064	171	1.71	17064	2.44E-03

Mean flux (m ³ /day)	ranges
2.21E-03	4.17E-03
	4.80E-05

Lysimeter collection between 23-May to 30-May samplings

	mL/week	tips/week	depth loss cm/week (1 tip = .01 cm)	flow rate (cm ³ /week)	flow rate (m ³ /day)	flushed rBC mass ng/week	Mean flux (m ³ /day)	ranges
Lys 1	28536	285	2.85	28536	4.08E-03	1271	4.73E-03	9.08E-03
Lys 2	19744	197	1.97	19744	2.82E-03	879		2.82E-03
Lys 3	63528	635	6.35	63528	9.08E-03	2829		
Lys 4	20496	205	2.05	20496	2.93E-03	913		

date	ng rBC mass	% of 23-May
22-May	989	
30-May	255	
loss ng rBC	733	74.2%

in one week's time, almost 75% of rBC ng was lost

Equations and Rationale

Flow rate (cm³/week)* rBC (ppb or ng/g or ng/cm³) = ng rBC mass flushed/week

The flow rate for each lysimeter was multiplied by the average rBC collected for one tip on 23-May, and assumed to be a representative concentration for the entire week. The four southern lysimeters confirmed loss of rBC mass (ng), all value being greater than the loss of rBC found in the snow pit (733.384 ng)

Data to use for Radiative Forcing Calculations - TOP 30 cm (30 cm = snowpack thickness)

	BC (ng)	total dust (ng)	snow mass (g)*	SWE (cm) in top 30 cm snow (computed from density)
28-Feb	125.0	2.83E+06	906	9.52
28-Mar	508.0	1.73E+07	443.2	10.84
29-Apr	325.4	7.94E+07	376	13.60
10-May	403.5	3.11E+07	1569	15.04
17-May	654.0	5.69E+07	1512	14.62
23-May	570.5	6.60E+07	1518	14.67
30-May	8.5	1.05E+06	456	19.92

	geomean BC	geomean dust
ration in top 30		
accumulation	274.41	1.57E+07
melt	189.14	1.87E+07

*28-Mar and 29-Apr samples taken using the 1/4 L cutter, whereas other samples were extracted using 1-L cutter, hence the total snow mass is less in these 2 cases

Geometric mean (range) Dust in Top 30 cm

ENTIRE SAMPLING PERIOD (N=8)

	BC (ng)	total dust (ng)
geomean	222	2.E+07
max	654	8.E+07
min	9	1.E+06

ACCUMULATION (FEB, MAR & APR, N=3)

	BC (ng)	total dust (ng)
geomean	274	2.E+07
max	508	8.E+07
min	125	3.E+06

MELT (MAY, N=4)

	BC (ng)	total dust (ng)
geomean	189	2.E+07
max	654	7.E+07
min	9	1.E+06