

Metadata EMI Measurements Ny Ålesund / Svalbard – 08/2023

Device: EM38-MK2 Geonics, Serial Number 090250 (Manual available:

http://www.geonics.com/pdfs/documentation/em38-mk2_manuals/em38mk2_archer-mx.pdf)

Operator: C. Schuetze (claudia.schuetze@ufz.de) / U.Koedel (uta.koedel@ufz.de; Helmholtz Centre for Environmental Research GmbH - UFZ)

Operation: in Vertical dipole mode

Calibration: before measurements (see below)

Survey Setup: Readings/s : 5

Dipole Mode: vertical

Survey Line: 3

Line Increment: 1

Sequence: one way

GPS port disabled

File format: txt (ascii)

File names: e.g. 20230803_01.txt (date_number of file.txt)

GPS_20230803_Part1(GPS_date_additional characterisation.txt)

File structure EM38MK2 data:

- Character vertical mode
- Station_NB
- Point (if point measurements)
- Conductivity_1m[mSm-1]
- Inphase_1m[ppt]
- Conductivity_0.5m[mSm-1]
- Inphase_0.5m[ppt]
- Temperatur_1m[°C]
- Temperatur_0.5m[°C]
- Time_UTC
- Comments (if required)

File structure GPS data:

- X: longitude (°E)
- Y: latitude (°N)
- track_seg_point_id
- ele: elevation [m above sea level]
- time (local time)
- time (UTC)
- **magvar: magnetic variation**
- hdop: horizontal dilution of precision
- vdop: vertical dilution of precision

- speed: speed of movement [ms-1](only for August 6, 2023)

Important locations:

- **TMPT@CNR_NYA**, RiS ID: 11760, PI: Mariasilvia Giamberini permafrost profile
- AWIPEV Permafrost Observatory Bayelva/Svalbard

Date: 3.08.2023

Weather: sunny, no clouds, 11°C, 2 m/s wind speed

Calibration: 03.08.2023 9:35 (UCT) at FTIR location, Pos.1 (11.8693°E; 78.9209°N)



Map (<https://toposvalbard.npolar.no>)

Other environmental variables for August 3, 2023 (from <https://dashboard.awi.de/?dashboard=6190>)

Reference: doi.org/10.5194/essd-10-355-2018

	Time UTC						
	9:00	10:00	11:00	12:00	13:00	14:00	15:00
Wind Speed_300cm (m/s)	1.145	2.100	1.080	1.804	1.864	1.230	1.284
RH_200cm (%)	73.720	76.205	69.140	70.685	67.670	68.215	69.010
Temp_200cm (°C)	10.22	10.22	11.660	11.020	10.95	11.090	11.910

	Soil temperature from borehole temperature in °C						
	9:00	10:00	11:00	12:00	13:00	14:00	15:00
1mm	9.870	11.1	12.430	14.060	14.36	14.370	14.450
11mm	8.250	8.6	9.070	9.670	10.280	10.690	10.980

21mm	7.714	7.783	7.909	8.090	8.34	8.600	8.840
37mm	6.974	6.958	6.957	6.978	7.007	7.055	7.120
55mm	6.202	6.2	6.199	6.200	6.201	6.204	6.211
71mm	5.317	5.325	5.335	5.336	5.343	5.352	5.357
89mm	3.957	3.956	3.961	3.974	3.97	3.978	3.992

Soil Temperature (borehole temperatures in °C)							
	9:00	10:00	11:00	12:00	13:00	14:00	15:00
0mm	10.511	11.117		7.058			12.737
50mm	6.892	6.904		6.895			7.111
55mm	-2.644	-2.644		-2.644			-2.644
100mm	4.862	4.862		4.865			4.864
150mm	1.279	1.280		1.276			1.283
250mm	-2.080	-2.079		-2.086			-2.073
900mm	-2.527	-2.527		-2.527			-2.528



Files for August 3, 2023:

File Name	Time (UTC)	Description
20230803_01:	9:42	FTIR location (see above) to T-Mosaic Permafrost Thaw, MPT@CNR_NYA , RIS ID: 11760, PI: Mariasilvia Giamberini permafrost profile Start: 11.8693°E; 78.9209°N
	9:52	Coal heap
	10:01	TMPT@CNR_NYA permafrost profile point 1
20230803_02:	10:03-10:13	1 minute measurements at each point of TMPT@CNR_NYA permafrost profile Point column indicates which point of profile
20230803_03:	10:29-10:49	2 minutes measurements at each point of TMPT@CNR_NYA permafrost profile
	10:50:02 – 10:50:17	Walk along TMPT@CNR_NYA permafrost profile N→S
	10:51:32-10:51:46	Walk along TMPT@CNR_NYA permafrost profile S→N
	10:52:41-10:53:20	Measurement at Point 1 TMPT@CNR_NYA (90° to profile)
	10:53:20- end of file	Measurement at Point 1 TMPT@CNR_NYA (90° to profile)
20230803_04:	10:57	Long profile along TMPT@CNR_NYA permafrost profile (362m length) Start: RIS ID 11795 borehole (11.856615704173°E;78.920971974902 °N) Direction: S

	11:07	River End: 11.841968442166°E;78.919699969465° N
	11:09	Start river N-direction (11.841968442166°E;78.919699969465° N)
	11:16	End RIS ID11795 borehole (11.856615704173°E;78.920971974902° N)
20230803_05:	11:17-11:24	From TMPT@CNR_NYA permafrost profile return to coal heap Start:11.841861369922°E;78.92100866 58°N End: 11.869894612148°E;78.919772766959° N
20230803_06:	11:58-	Profile from coal heap to AWIPEV Permafrost Observatory Bayelva/Svalbard
	12:02	Start: 11.869894612148°E;78.919772766959° N
	12:08	Stop at TMPT@CNR_NYA Permafrost profile
		AWIPEV Permafrost Observatory Bayelva/Svalbard
20230803_07:	13:34-13:57	2 minutes measurements at each point of AWIPEV Permafrost Observatory Bayelva/Svalbard permafrost profile Point column indicates which point of profile
	13:58:15	Walk along profile
	13:58:30	Point 1 at AWIPEV Permafrost Observatory Bayelva/Svalbard permafrost profile
20230803_08:	13:16-13:38	AWIPEV Permafrost Observatory Bayelva/Svalbard Long profile Start: 11.833687111428°E;78.920940783357° N
	13:20-13:22	River (11.829740430281°E;78.919914138507° N)
	13:24	Start point (11.833687111428°E;78.920940783357° N)
	13:26-13:31	Pond (11.837846526269°E;78.923164455777° N)
	13:33	Start Pond

	13:38	Start point (11.833754773102°E;78.920926846549°N)
20230803_09:	13:42-13:56	Return to coal heap from AWIPEV Permafrost Observatory Bayelva/Svalbard station

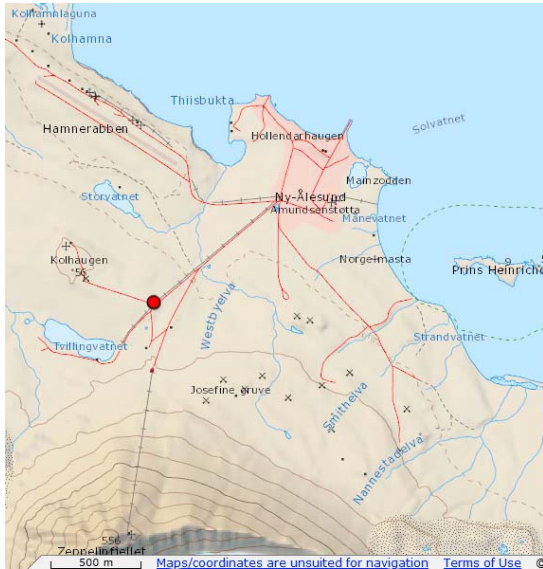
GPS files for August 3, 2023

<p>GPS_20230803_Part1.txt 03.08.2023 10:57 – 03.08.2023 12:20</p>	 <p>AWIPEV Permafrost Observatory Bayelva/Svalbard</p> <p>Permafrost profile TMPT@CNR_NYA</p> <p>Coal heap</p> <p>Related measurement files: 20230803_01 - 20230803_06</p>
<p>GPS_20230803_Part2.txt 03.08.2023 12:59- 03.08.2023 13:58</p>	 <p>AWIPEV Permafrost Observatory Bayelva/Svalbard</p> <p>FTIR place</p> <p>Coal heap</p> <p>Related measurement files: 20230803_07 - 20230803_09</p>

Date: 6.08.2023

Weather: increasingly foggy, 8.5°C, 3 m/s wind speed

Calibration: 06.08.2023 11:05 (UCT) at location crossroad to coal heap, Pos.1 (78.91877°N, 11.88946°E)



<https://toposvalbard.npolar.no>

Other environmental variables for August 6, 2023 (from <https://dashboard.awi.de/?dashboard=6190>)

Reference: doi.org/10.5194/essd-10-355-2018


	Time UTC						
	9:00	10:00	11:00	12:00	13:00	14:00	15:00
Wind Speed_300cm (m/s)	2.790	2.547	2.247	1.391	2.050	3.580	2.575
RH_200cm (%)	95.150	95.200	94.650	91.800	94.00	89.00	98.400
Temp_200cm (°C)	8.605	8.655	8.635	9.125	9.250	9.405	6.271

	Soil temperature from borehole temperature in °C						
	9:00	10:00	11:00	12:00	13:00	14:00	15:00
1mm	9.250		9.250	9.390		9.710	
11mm	9.100		9.080	9.080		9.150	
21mm	8.820		8.780	8.770		8.750	
37mm	8.140		8.100	8.080		8.050	
55mm	7.320		7.311	7.307		7.291	
71mm	6.283		6.304	6.312		6.323	
89mm	4.740		4.765	4.771		4.785	

Soil Temperature (borehole temperatures in °C)							
	9:00	10:00	11:00	12:00	13:00	14:00	15:00
0mm	8.298		8.458		8.771	8.458	
50mm	7.872		7.834		7.801	7.834	
55mm	-2.642		-2.642		-2.642	-2.642	
100mm	5.228		5.241		5.254	5.241	
150mm	1.372		1.377		1.382	1.377	
250mm	-2.000		-1.999		-1.996	-1.999	
900mm	-2.531		-2.531		-2.531	-2.531	

EMI Files from August 6, 2023:

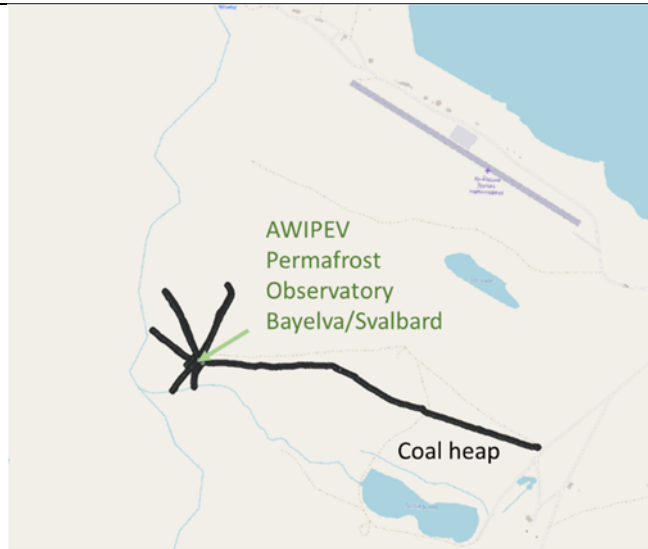
File Name	Time (UTC)	Description
20230806_01:	11:10	Start at crossroad to coal heap (78.91877°N, 11.88946°E)
	11:20	Coal heap (11.869894612148°E;78.919772766959°N)
	11:23	Start at coal heap
	11:29	End TMPT@CNR_NYA permafrost profile (11.85601154°E; 78.92088141°N
20230806_02:	11:31	Start TMPT@CNR_NYA permafrost profile (11.85601154°E;78.92088141°N)
	11:43	Stop Bayevla Permafrost profil (point 1) (11.83338623°E;78.92086833°N)
20230806_03:	11:46-11:52	Profile in the W-direction to the river Start: 11.83338623°E;78.92086833°N End: 11.82605771°E;78.92175275°N
20230806_04:	11:55-11:59	Profile in E- direction back to AWIPEV Permafrost Observatory Bayelva/Svalbard permafrost profile point 1 Start: 11.82605771°E;78.92175275°N End: 11.83338623°E;78.92086833°N
20230806_05:	12:03	Start: 11.83342011°E;78.92087094°N End: 11.8333314°E;78.9205369°N
20230806_06:	12:07	Start AWIPEV Permafrost Observatory Bayelva/Svalbard to river (direction N->S) Start: 11.83337979°E;78.92087491°N End: 11.83320939°E;78.92009092°N
20230806_07:	12:11-12:13	River to AWIPEV Permafrost Observatory Bayelva/Svalbard (direction S->N) Start: 11.83320939°E;78.92009092°N End: 11.83336775°E;78.92087828°N
20230806_08:	12:15	Start AWIPEV Permafrost Observatory Bayelva/Svalbard permafrost profile Point 1 to the pond (direction S->N) (11.83335695°E;78.92087626°N)
	12:21	Pond (11.83769487°E;78.92325672°N)

20230806_09:	12:25	Start Pond-AWIPEV Permafrost Observatory Bayelva/Svalbard (11.83770403°E;78.92326853°N)
	12:32	End: AWIPEV Permafrost Observatory Bayelva/Svalbard Permafrost profile point 1 (11.83346371°E;78.92086759°N)
20230806_10:	13:02-13:16	Start and end at Mr. Mustache/ Start: 11.83340357°E;78.9208531°N
		
20230806_11:	13:22	Fence –end Bayelva river N -> S Start 11.83371081°E;78.92092441°N End: 11.82977919°E;78.91992812°N
20230806_12:	13:27-13:31	AWIPEV Permafrost Observatory Bayelva/Svalbard river – end fence S->N Start: 11.82980085°E;78.91992776°N End: 11.83367848°E;78.92093844°N
20230806_13:	13:33	Start Permafrost profile point 1 to river in W-direction Start: 11.83366245°E;78.92092767°N End: 11.827685693869°E;78.922969041314°N
20230806_14:	13:37	River (11.827685693869°E;78.922969041314°N)
	13:47	Fence AWIPEV Permafrost Observatory Bayelva/Svalbard station (11.83375277°E;78.9209275°N)
20230806_15:	13:50	Start Fence to coal heap No GPS coordinates in GPS_20230806 file, see sensebox GPS coordinates

GPS files from August 6, 2023:

GPS_20230806.txt

06.08.2023 11:08:45 –
06.08.2023 13:47:05



Related measurement files: 20230806_01 - 20230806_14