

Meteorological Post Processing Documentation and Task Lists for 2020/2021

McMurdo Dry Valley Long Term Ecological Research (LTER)

This document compiles the steps taken to post-process raw meteorological data files and notes from station visits. Each numbered output value is identified by column header name, unit of measurement, and post-processing instruction. Station notes document datalogger time adjustments, sensor status, sensor and station maintenance, time of storage module changes, equipment and data problems, and other observations. Files are listed alphabetically by file name that begin with the station ID.

Station Reports

Lake Bonney Met Station (BOYM) 4
Lake Brownworth Met Station (BRHM) 6
Canada Glacier Met Station (CAAM) 8
Explorers Cove Met Station (EXEM) 8
Commonwealth Glacier Met Station (COHM) 9
Mt. Fleming Met Station (FLMM) 22
Lake Fryxell Met Station (FRLM) 9
Friis Hills Met Station (FRSM) 11
New Lake Hoare Met Station (HO2M) 12
Howard Glacier Met Station (HODM) 13
Miers Valley Met Station (MISM) 13
Taylor Glacier Met Station (TARM) 19
Lake Vanda Met Station (VAAM) 16
Lake Vida Met Station (VIAM) 17

Appendix

Array I.D. key
Date of Establishment

Sensors:

See below for list of sensors currently used on McMurdo LTER meteorological stations

Sensor Type	Manufacturer	Model Number
Air Temperature	Campbell	107
Relative Humidity	Vaisala	HMP45C
Wind (anemometer)	RM Young	05103
Shortwave radiation (pyranometer)	Licor	LI-200R
Shortwave radiation (pyranometer)	Eppley	SPP
Photosynthetically Active Radiation (PAR)	Licor	LI-190R
Longwave radiation (pyrgeometer)	Eppley	PIR
Soil Temperature	Campbell	107
Ultrasonic Ranger	Campbell	SR-50
Barometer	Vaisala	CS106
Soil moisture	Decagon	ECH20 5TM
Datalogger	Campbell	CR10X

File description and task list for files:

o1=omit from level 1

ok= no changes to get to level 1

rclow= reverse temperatures to mV and apply clow subroutine to mV values using Steinhart-Hart equation

bad= normally would be included in level 1 but number is suspect or know to be incorrect

flag= reasonable number but needs a note attached concerning its collection

Lowe= see note for relative humidity below

Data Flags

Definition	Flags	Post-processing	Data Manager
Out of Range	R	None	Flag as R, except flag as "U" when IceT20cm exceeds 0 degrees and "V" when IceT1m exceeds 0 degrees
Negative values zeroed out	Z	Converted to zero	Flag as Z
Bad Value - Value below zeroing value	T	Value omitted	Flag as F
Bad Value - Value is equal to -6999 or known to be questionable	B	Value omitted (changed 2018)	Flag as B
Bad Value - Raw temp value (-53C and 32.79C) which exceeds the bracketed limited for bisection	F	Value omitted	Flag as B
SwRadOut is greater than a % of SwRadIN	S	None	Flag as S
Wdir and WDirStD zeroed out because WSpd = 0	N	Converted to zero	Flag as N
Value missing	M	None	Flag as M

Relative humidity correction note: All of the relative humidity (RH) values were corrected for a systematic error in the measurement created by an instrument manufacturer error. All RH data with air temperatures below freezing were corrected using the vapor pressure over ice (rather than over water which was used initially). The error became quite large for very cold temperatures (the correction could grow to around 30%). The polynomials used for the correction is based on Lowe (1977).

$$\begin{aligned}
 &= [\text{RH3m}] * (6.107799961 + [\text{AirT3m}] * (0.4436518521 + [\text{AirT3m}] * (0.01428945805 + [\text{AirT3m}] * (0.0002650648471 + \\
 &[\text{AirT3m}] * (0.000003031240396 + [\text{AirT3m}] * (0.0000002034080948 + 0.0000000006136820929 * [\text{AirT3m}])))))) / \\
 &(6.109177956 + [\text{AirT3m}] * (0.503469897 + [\text{AirT3m}] * (0.01886013408 + [\text{AirT3m}] * (0.0004176223716 + [\text{AirT3m}] * \\
 &(0.00000582472028 + [\text{AirT3m}] * (0.0000004838803174 + 0.000000001838826904 * [\text{AirT3m}]))))))
 \end{aligned}$$

Relative Humidity values are capped between 0 to 100%. Any values that fall outside of this range are flagged as 'R'.

Lake Bonney Met Station (BOYM)

Filename: BOYM_202021_PROCESSED_noPAR_noLwRad.csv
 Author of this report: Krista Myers
 File Period: 11/12/2019 19:15 to 12/2/2020 11:45
 Sampling Frequency: sonic and prec. every 60 minutes, wind speed every 4 sec, other every 30 sec
 Averaging and Output Interval: every 15 minutes
 Program Name: BOYM_201718_V1.dld

1	array I.D.	o1
2	Year	ok
3	Day	ok
4	Time	ok
5	mean air temp. @ 3 meters (C)	rclow
6	corrected mean R.H. @ 3 meters (%)	Low correction
7	mean air temp. @ 1 meters (C)	rclow
8	mean solar flux; incoming (up-facing) (W/m2) Licor pyranometer; SN: PY25306	ok
9	mean solar flux; outgoing (down-facing) (W/m2) Licor pyranometer; old SN: PY28170, new SN: PY20222	ok
10	mean horizontal wind speed (m/s)	ok
11	resultant mean wind speed (m/s)	o1
12	resultant mean wind direction (degrees from north)	ok
13	standard deviation of wind direction (degrees)	ok
14	maximum wind speed (m/s) RM Young; SN: WM85155	ok
15	minimum wind speed (m/s)	ok
16	mean P.A.R. (micromols/s/m2) Licor quantum; SN: Q11725	Missing calibration sheet for Q11725 – will process data once found
17	mean soil temperature @ 0 cm in soil (C)	rclow
18	mean soil temperature @ 5 cm in soil (C)	rclow
19	mean soil temperature @ 10 cm in soil (C)	rclow
20	sample depth from sensor to surface (cm)	Measured depth * -100
21	mean up-facing pyrgeometer, rad. comp. (W/m2) Eppley data not reliable - removed	Removed
22	mean up-facing pyrgeometer2 (W/m2) Eppley data not reliable - removed	Removed
23	mean down-facing pyrgeometer, rad. comp. (W/m2) Eppley pyrgeometer not working - removed	Removed
24	mean down-facing pyrgeometer2 (W/m2) Eppley pyrgeometer not working - removed	Removed
25	sample precipitation (mm)	ok
26	sample of battery voltage	o1

Notes:

- Station visited on 12/2/2020 by Cray lab staff (Robyn Thomas).
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.
- Power off at 11:42; power on at 11:48
- Sonic ranger not functioning – need to replace
- Replaced Campbell SM4M storage module (P8: BOYM_201718_V1.dld)

Lake Brownworth Met Station (BRHM)

Filename: BRHM_202021_PROCESSED.csv
 Author of this report: Krista Myers
 File Period: 12/29/2019 11:45 to 11/30/2020 11:45
 Sampling Frequency: sonic every 60 minutes, wind speed every 4 sec, other every 30 sec
 Averaging and Output Interval: every 15 minutes
 Program Name: BRHM_201112_v1

1	array I.D.	o1
2	year	ok
3	day	ok
4	time	ok
5	mean air temp. @ 3 meters (C)	rclow
6	corrected mean R.H. @ 3 meters (%)	lowe correction
7	mean solar flux; incoming (up-facing) (W/m ²) Licor pyranometer; SN: PY20567	ok
8	mean solar flux; outgoing (down-facing) (W/m ²) Licor pyranometer; PY28347	ok
9	mean horizontal wind speed (m/s)	ok
10	resultant mean wind speed (m/s)	ok
11	resultant mean wind direction (degrees from north)	o1
12	standard deviation of wind direction (degrees)	ok
13	maximum wind speed (m/s)	ok
14	minimum wind speed (m/s)	ok
15	mean P.A.R. (micromols/s/m ²) – Licor quantum; SN: Q09916	multiply by 1.379690949 (Q09916)
16	mean soil temperature @ 0 cm in soil (C)	rclow
17	mean soil temperature @ 5 cm in soil (C)	rclow
18	mean soil temperature @ 10 cm in soil (C)	rclow
19	sample depth from sensor to surface (cm)	measured depth * -100
20	sample of battery voltage	o1

Notes:

- Station visited on 11/30/2020 by Cray lab staff (Robyn Thomas)
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.
- Power off at 11:45, Power on at 11:52
- Changed first 11 cells of SM4M download from day 362 to 363 (data appeared to be one day off)
- Ultrasonic ranger not working – need to replace
- Wind monitor angle might was not pointing true north. Wind monitor was rotated 30 degrees counter clockwise. Wind direction not included.

Canada Glacier (CAAM)

Filename: CAAM_202021_PROCESSED
Author of this report: Krista Myers
File Period: 12/28/2019 13:45 to 12/14/2020 10:45
Sampling Frequency: wind speed every 4 sec; all other every 30 sec
Averaging and Output Interval: every 15 minutes
Program Name CAAM_201011.V1

1	array I.D.	o1
2	Year	ok
3	Day	ok
4	Time	ok
5	mean air temp. @ 3m (C)	rclow
6	corrected mean relative humidity (%)	Low correction
7	Aspirated mean air temp @ 3m (C)	rclow
8	mean solar flux; incoming (up-facing) (W/m ²) Licor pyranometer; SN: PY56364	ok
9	mean solar flux; outgoing (down-facing) (W/m ²) Licor pyranometer; SN: PY27929	ok
10	mean horizontal wind speed (m/s) Anemometer; SN: WM15188	ok
11	resultant mean wind speed (m/s)	o1
12	resultant mean wind direction (degrees from north)	ok
13	standard deviation of wind direction (degrees)	ok
14	maximum wind speed (m/s)	ok
15	minimum wind speed (m/s)	ok
16	mV_therm_average	o1
17	mV_tpil_AVG	o1
18	Ice surface temp (C)	ok
19	sample battery voltage	o1

Notes:

- Station visited on 12/14/2020 by Cray lab staff (Shelly Campbell)
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.
- Power off at 10:42, power on at 10:49
- Replaced Campbell SM4M storage module (P8: CAAM_201011_V1.dld)

Commonwealth Glacier Met Station (COHM)

Filename: COHM_202021_PROCESSED_noLWRadOut.csv
 Author of this report: Krista Myers
 File Period: 12/28/2019 15:15 to 12/14/2020 11:15
 Sampling Frequency: sonic every 60 minutes, wind every 4 secs.; other every 30 secs.
 Averaging and Output Interval: every 15 minutes
 Program Name: COHM_201314_v1

1	array I.D.	o1
2	Year	ok
3	Day	ok
4	Time	ok
5	mean air temp. @ 3 meters (C)	rclow
6	mean R.H. @ 3 meters (%) Vaisala HMP45AC; SN: V1110042	lowe correction
7	mean air temp. @ 1 meters (C)	rclow
8	mean solar flux; incoming (up-facing) (W/m ²) Eppley PSP pyranometer; SN: 35071F3	divide by 100; multiply by 135.50
9	mean solar flux; outgoing (down-facing) (W/m ²) Eppley PSP pyranometer; SN: 30853F3	divide by 100; multiply by 132.63
10	mean horizontal wind speed (m/s)	ok
11	resultant mean wind speed (m/s)	o1
12	resultant mean wind direction (degrees from north)	ok
13	standard deviation of wind direction (degrees)	ok
14	maximum wind speed (m/s)	ok
15	minimum wind speed (m/s)	ok
16	mean incoming IR pyrgeometer output (pins A-B) (W/m ²) – Eppley pyrgeometer; SN: 32348F3	divide by 250; multiply by 262.47
17	mean incoming IR pyrgeometer output2 (W/m ²) – Eppley pyrgeometer; SN: 32348F3	Calculated using hemisphere temp (pins A-C), thermophile output (pins F-G), and case temp (pins E-D)
20	mean outgoing IR pyrgeometer output (pins A-B)(W/m ²) – 29786F3	divide by 250; multiply by 276.24
21	mean outgoing IR pyrgeometer output (W/m ²) – 29786F3	Calculated using hemisphere temp (pins F-G), thermophile output (pins A-C), and case temp (pins E-D)
22	ice temperature @ 50cm (original depth, mV*0.01)	No longer recording
23	ice temperature @ 100cm (original depth, mV*0.01)	No longer recording
24	IRT thermistor (mV)	o1
25	IRT raw ice surface temp mV	o1
26	Surface Temperature (C)	ok
27	sample depth from sensor to surface (cm)	measured depth* -100
28	sample of battery voltage (V)	ok

Notes:

- Station visited on 12/14/2020 by Cray lab staff (Shelly Campbell)
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.
- Power off at 11:22, power on at 11:30
- Replaced Campbell SM4M storage module with same program (P8: COHM_201314_V1.dld).
- Outgoing long wave radiation (Eppley pyrgeometer) may actually be a pyranometer installed by mistake. Data left out for now – will need to check model number in upcoming season.

Explorers Cove Met Station (EXEM)

Filename: EXEM_202021_PROCESSED
 Author of this report: Krista Myers
 File Period: 1/7/2020 12:00 to 12/2/2020 12:45
 Sampling Frequency: prec every 60 minutes, wind every 4 secs.; others: every 30 secs.
 Averaging and Output Interval: every 15 minutes
 Program Name: EXE1819V1.dld

1	array I.D.	o1
2	year	ok
3	day	ok
4	time	ok
5	mean air temp. @ 3 meters (C)	rclow
6	mean RH @ 3 meters	lowe correction
	mean solar flux; incoming (up-facing) (W/m ²)	
7	Licor pyranometer; SN: PY23277	ok
	mean solar flux; outgoing (down-facing) (W/m ²)	
8	Licor pyranometer; SN: PY41090	ok
	mean horizontal wind speed (m/s)	
9	RM Young Anemometer; SN: WM15361	ok
10	resultant mean wind speed (m/s)	o1
11	resultant mean wind direction (degrees from north)	ok
12	standard deviation of wind direction (degrees)	ok
13	maximum wind speed (m/s)	ok
14	minimum wind speed (m/s)	ok
	mean P.A.R. (mmols/s/m ²)	
15	Licor quantum; Q33906	divide by 200, multiply by 295.65 (Q33906)
16	mean soil temperature @ 0 cm (C)	rclow
17	mean soil temperature @ 5 cm (C)	rclow
18	mean soil temperature @ 10 cm (C)	rclow
19	sample precipitation (mm)	ok
20	sample battery voltage (V)	ok
21	Soil moisture (volumetric water content, m ³ /m ³)	ok
22	Soil temperature, measured by soil moisture probe (C)	ok

Notes:

- Station visited on 12/2/2020 by Crary lab staff (Robyn Thomas)
- Power off at 12:54, power on at 13:00
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.
- Soil moisture probe not working.
- Wind monitor not working – data flagged as B for ‘bad’

Mt. Fleming Met Station (FLMM)

Station not visited in 2020/21 season. NSF did not approve of helicopter flight for Crary lab staff to visit Mt. Fleming met station. Data will be downloaded the following season.

Lake Fryxell Met Station (FRLM)

Filename: FRLM_202021_PROCESSED_noPAR.csv
 Author of this report: Krista Myers
 File Period: 12/29/2019 14:15 to 11/30/2020 10:15
 Sampling Frequency: sonic every 60 min, wind every 4 sec; others: every 30 sec
 Averaging and Output Interval: every 15 min
 Program Name: FRL_201112_v2

1	array I.D.	o1
2	Year	ok
3	Day	ok
4	Time	ok
5	mean air temp. @ 3 meters (C)	rclow
6	mean RH @ 3 meters Vaisala HMP45AC; SN: U2730007	lowe correction
7	mean solar flux; incoming (up-facing) (W/m ²) Licor pyranometer; SN: PY28170	ok
8	mean solar flux; outgoing (down-facing) (W/m ²) Licor pyranometer; SN: PY20562	ok
9	mean horizontal wind speed (m/s)	ok
10	resultant mean wind speed (m/s)	o1
11	resultant mean wind direction (degrees from north)	ok
12	standard deviation of wind direction (degrees)	ok
13	maximum wind speed (m/s)	ok
14	minimum wind speed (m/s)	ok
15	mean P.A.R. (micromols/s/m ²) Licor quantum; SN unknown	Data temporarily excluded
16	mean soil temperature @ 0 cm in soil (C)	rclow
17	mean soil temperature @ 5 cm in soil (C)	rclow
18	mean soil temperature @ 10 cm in soil (C)	rclow
19	sample depth from sensor to surface (cm)	measurement * -100
20	sample of battery voltage	o1

Notes:

- Station visited on 11/30/2020 by Crary lab staff (Robyn Thomas)
- Power off at 10:22, power on at 10:32
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.
- Ultrasonic sensor not working. Need to change next year.
- PAR serial number still unknown – data excluded temporarily

Friis Hills Met Station (FRSM)

Filename: FRSM_202021_PROCESSED
Author of this report: Krista Myers
File Period: 12/27/2019 14:45 to 12/2/2020 10:30
Sampling Frequency: wind every 4 sec; others: every 30 sec
Averaging and Output Interval: every 15 min
Program Name: FRSM_201920_V1.dld

1	array I.D.	o1
2	Year	ok
3	Day	ok
4	Time	ok
5	Mean air temp. @ 2.5 m (C)	ok
6	Mean RH @ 2.5m (%)	lowe correction
7	NetRad (W m ⁻²)	ok
8	NetRad (W m ⁻²) Correction	ok
9	Mean horizontal wind speed (m/s)	ok
10	WSpd_U_WVT L	o1
11	Resultant mean wind direction (degrees from north)	ok
12	Standard deviation of wind direction (degrees)	ok
13	Wind Speed Max (m/s)	ok
14	Wind Speed Min (m/s)	ok
15	Pressure (mbar)	ok

Notes:

- Station visited on 12/2/2020 by Crary lab staff (Robyn Thomas)
- Power off at 10:38, power on at 10:45
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.

New Lake Hoare Met Station (HO2M)

Filename: HO2M_202021_PROCESSED
 Author of this report: Krista Myers
 File Period: 12/24/2019 15:00 to 11/30/2020 11:00
 Sampling Frequency: wind every 4 sec.; others: every 30 sec.
 Averaging and Output Interval: every 15 minutes
 Program Name: HOEM_201920v1.dld

1	array I.D.	o1
2	Year	ok
3	Day	ok
4	Time	ok
5	mean air temp. @ 3 meters (C)	rclow
6	corrected mean R.H. @ 3 meters (%)	lowe correction
7	mean air temp. @ 1 meter (C)	rclow
8	mean solar flux; incoming (up-facing) (W/m2) Licor pyranometer; SN: PY28169	ok
9	mean solar flux; outgoing (down-facing) (W/m2) Licor pyranometer; SN: PY28370	ok
10	mean horizontal wind speed (m/s)	ok
11	resultant mean wind speed (m/s)	o1
12	resultant mean wind direction (degrees from north)	ok
13	standard deviation of wind direction (degrees)	ok
14	maximum wind speed (m/s) RM Young Anemometer; SN: WM10365	ok
15	minimum wind speed (m/s)	ok
16	mean P.A.R. (micromols/s/m2) Licor quantum; SN: Q32567	divide by 200, multiply by 285.45 (Q32567)
17	mean soil temperature @ 0 cm in soil (C)	rclow
18	mean soil temperature @ 5 cm in soil (C)	rclow
19	mean soil temperature @ 10 cm in soil (C)	rclow
20	Atmospheric pressure	ok
21	d_Temp_AVG	o1
22	sample depth from sensor to surface (cm)	measurement * -100
23	AccRTNRT_TOT	o1
24	AccNRT_TOT	o1
25	AccTotNRT	o1
26	Precip RT_Average	o1
27	Precip NRT	ok
28	Status	o1
29	sample of battery voltage	o1

Notes:

- Station visited on 11/30/2020 by Crary lab staff (Robyn Thomas)
- Power off at 10:56, power on at 11:05
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.

Howard Glacier Met Station (HODM)

Filename: HODM_202021_PROCESSED
 Author of this report: Krista Myers
 File Period: 12/28/2019 10:45 to 12/14/2020 11:45
 Sampling Frequency: sonic every 60 min, wind every 4 sec; others: every 30 sec
 Averaging and Output Interval: every 15 minutes
 Program Name: HODM_201314_V1.dld

1	array I.D.	o1
2	Year	ok
3	Day	ok
4	Time	ok
5	mean air temp. @ 3 meters (C)	rclow
6	mean R.H. @ 3 meters (%)	lowe correction
7	mean solar flux; incoming (up-facing) (W/m ²) Eppley pyranometer; SN: 32057F3	divide by 100; multiply by 125.79 (32057F3)
8	mean solar flux; outgoing (down-facing) (W/m ²) Eppley pyranometer; SN: 30884F3	divide by 100; multiply by 130.04 (30884F3)
9	mean horizontal wind speed (m/s)	ok
10	resultant mean wind speed (m/s)	o1
11	resultant mean wind direction (degrees from north)	ok
12	standard deviation of wind direction (degrees)	ok
13	maximum wind speed (m/s)	ok
14	minimum wind speed (m/s)	ok
15	mean air temp @ 1 m (C)	rclow
16	mean rh @ 1 meter (%)	lowe correction
17	sample depth from sensor to surface (cm)	measured depth * -100
18	sample of battery voltage	o1

Notes:

- Station visited on 12/14/2020 by Crary lab staff (Shelly Campbell)
- Power off at 11:56, power on at 12:05
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.

Miers Valley Met Station (MISM)

Filename: MISM_202021_PROCESSED
 Author of this report: Krista Myers
 File Period: 12/2/2019 14:00 to 12/14/2020 15:00
 Sampling Frequency: wind every 4 secs.; ultrasonic every 1 hr; others every 30 secs.
 Averaging and Output Interval: every 15 minutes
 Program Name: MISM_201112_v1.dld

1	array I.D.	o1
2	year	ok
3	day	ok
4	time	ok
5	mean air temp. @ 3 meters (C)	rclow
6	mean R.H. @ 3 meters (%)	lowe correction
7	mean solar flux; incoming (up-facing) (W/m ²) Licor pyranometer; SN: PY18656	ok
8	mean solar flux going up; outgoing (down-facing) (W/m ²) Licor pyranometer; SN: PY28167	ok
9	mean horizontal wind speed (m/s)	ok
10	resultant mean wind speed (m/s)	o1
11	resultant mean wind direction (degrees from north)	ok
12	standard deviation of wind direction (degrees)	ok
13	maximum wind speed (m/s) Anemometer; SN: WM17809	ok
14	minimum wind speed (m/s)	ok
15	mean P.A.R. (micromols/s/m ²) Licor quantum; SN: Q17248	<i>Calibration sheet missing – data excluded for now</i>
16	mean soil temperature @ 0 cm in soil (C)	rclow
17	mean soil temperature @ 10 cm in soil (C)	rclow
18	pressure (mbars)	ok
19	distance to surface (cm)	ok
20	sample of battery voltage	o1

Notes:

- Station visited on 12/14/2020 by Crary lab staff (Shelly Campbell)
- Power off at 15:13, power on at 15:19
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.
- Calibration sheet for quantum PAR sensor (Q17248) still unable to be located. Data excluded until we can find the calibration sheet.

Taylor Glacier Met Station (TARM)

Filename: TARM_202021_PROCESSED
 Author of this report: Krista Myers
 File Period: 12/27/2019 12:30 to 12/14/2020 10:00
 Sampling Frequency: depth every 60 minutes, wind every 4 secs.; others: every 30 secs.
 Averaging and Output Interval: every 15 minutes
 Program Name: TARM_201112_V1

1	array I.D.	o1
2	Year	o1
3	Day	ok
4	Time	ok
5	mean air temp. @ 3 meters (C)	rclow
6	mean R.H. @ 3 meters (%)	lowe correction
7	mean air temp @ 1m (C)	rclow
8	mean RH at 1m (%)	lowe correction
9	mean solar flux; incoming (pointing up) (W/m ²) – Eppley pyranometer; SN: 29763F3	divide by 100; multiply by 128.53 (29763F3)
10	mean solar flux; outgoing (pointing down) (W/m ²) – Eppley pyranometer; SN: 29762F3	divide by 100; multiply by 136.99 (29762F3)
11	mean horizontal wind speed (m/s)	ok
12	resultant mean wind speed (m/s)	o1
13	resultant mean wind direction (degrees from north)	ok
14	standard deviation of wind direction (degrees)	ok
	maximum wind speed (m/s)	
15	Anemometer; SN: WM15249	ok
16	minimum wind speed (m/s)	ok
17	surface temperature internal thermistor output (mV)	o1
18	surface temperature (mV)	o1
19	surface temperature (C)	ok
20	sample depth from sensor to surface (cm)	multiple by -100
21	sample of battery voltage	ok

Notes:

- Station visited on 12/14/2020 by Crary lab staff (Shelly Campbell)
- Power off at 09:25, power on at 10:03
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded.
- Adjusted time by 7 minutes – the datalogger clock was reading FAST so she changed it using the CR10KD and GPS time
- Telemetry had been down since previous visit. Shelly unplugged / replugged in all of the telemetry cables. Telemetry discovered to be back online 12/18/2020 !!

Lake Vanda Met Station (VAAM)

Filename: VAAM_202021_PROCESSED
 Author of this report: Krista Myers
 File Period: 12/26/2019 11:45 to 11/30/2020 16:15
 Sampling Frequency: wind every 4 secs.; ultrasonic every 1 hr; others every 30 secs.
 Averaging and Output Interval: every 15 minutes
 Program Name: VAAM_201112_v1.dld

1	array I.D.	o1
2	day	ok
3	time	ok
4	mean air temp. @ 3 meters (C)	rclow
5	mean R.H. @ 3 meters (%)	lowe correction
6	mean solar flux; incoming (up-facing) (W/m ²) Licor pyranometer; SN: RMA 27666 Line#22)	ok
7	mean solar flux going up (W/m ²) Licor pyranometer; SN: PY33985	ok
8	mean horizontal wind speed (m/s)	ok
9	resultant mean wind speed (m/s)	o1
10	resultant mean wind direction (degrees from north)	ok
11	standard deviation of wind direction (degrees)	ok
12	maximum wind speed (m/s) Anemometer; SN: WM47080	ok
13	minimum wind speed (m/s)	ok
14	mean P.A.R. (micromols/s/m ²) Licor quantum; SN: Q29766	divide by 200, multiply by 243.475 (Q29766)
15	mean soil temperature @ 0 cm in soil (C)	rclow
16	mean soil temperature @ 5 cm in soil (C)	rclow
17	mean soil temperature @ 10 cm in soil (C)	rclow
18	distance to surface (cm)	measured depth * -100
19	sample of battery voltage	ok

Notes:

- Station visited on 11/30/2021 by Crary lab staff (Robyn Thomas)
- Power off at 16:28, power on at 16:36
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.

Lake Vida Met Station (VIAM)

Filename: VIAM_202021_PROCESSED
 Author of this report: Krista Myers
 File Period: 12/26/2019 14:15 to 12/2/2020 09:30
 Sampling Frequency: wind every 4 secs.; ultrasonic every 1 hr; others every 30 secs.
 Averaging and Output Interval: every 15 minutes
 Program Name: VIA1213V1.dld

1	array I.D.	o1
2	year	ok
3	day	ok
4	time	ok
5	mean air temp. @ 3 meters (C)	Rclow
6	mean R.H. @ 3 meters (%)	Low correction
	mean solar flux; incoming (up-facing) (W/m ²)	
7	Licor pyranometer; SN: PY23250	ok
	mean solar flux; outgoing (down-facing) (W/m ²)	
8	Licor pyranometer; SN: PY25307	ok
9	mean horizontal wind speed (m/s)	ok
10	resultant mean wind speed (m/s)	o1
11	resultant mean wind direction (degrees from north)	ok
12	standard deviation of wind direction (degrees)	ok
	maximum wind speed (m/s)	
13	Anemometer; SN: WM17401	ok
14	minimum wind speed (m/s)	ok
	mean P.A.R. (micromols/s/m ²)	
15	Licor quantum; SN: Q29765	divide by 200, multiply by 156.25 (Q29765)
16	mean soil temperature @ 0 cm in soil (C)	Rclow
17	mean soil temperature @ 5 cm in soil (C)	Rclow
18	mean soil temperature @ 10 cm in soil (C)	Rclow
19	distance to surface (cm)	Measured depth * -100
20	sample of battery voltage	o1

Notes:

- Station visited on 12/2/2020 by Cray lab staff (Robyn Thomas)
- Power off at 09:30, power on at 09:40
- No sensors replaced or recalibrated due to COVID-19 field season cancellation. Data downloaded, but no other maintenance performed.

Appendix

Array ID and date of established date

Array ID	ID	Name	Date of Station Establishment
1	HOEM	Lake Hoare	Dec 1, 1993 by Peter Doran, Retired on Nov 7, 2014 by Maciej Obryk
1A	HO2M	Lake Hoare	Dec 27, 2012 by Thomas Nylen
2	FRLM	Lake Fryxell	Jan 6, 1994 by Peter Doran
3	BOYM	Lake Bonney	November 24, 1993 by Peter Doran
4	COHM	Commonwealth Glacier	November 22, 1993 by Peter Doran
5	HODM	Howard Glacier	November 20, 1993 by Peter Doran
6	TARM	Taylor Glacier	November 21, 1994 by Peter Doran
7	VAAM	Lake Vanda	November 24, 1994 by Peter Doran, moved to new location due to lake level rise on 12/8/2016 (new GPS = -77.52567, 161.69129)
8	BRHM	Lake Brownworth	November 13, 1996 by Peter Doran and DJ Osborne
9	EXEM	Explorer's Cove	Nov 21, 1997 by Peter Doran, DJ Osborne and K. Sauter
10	CAAM	Canada Glacier (without Eddy Sensors)	Nov 20, 1995 by Karen Lewis; reinstalled Jan 13, 1998
11	VIAM	Lake Vida	November 24, 1995 by Peter Doran
12	????	RETIRED Hoare Submerged	???
13	????	RETIRED Fryxell Submerged	???
14	????	RETIRED Bonney East Submerged	???
15	????	RETIRED Canada Gl. (w/ Eddy Sensors)	???
16	????	RETIRED Bonney West Submerged	???
17	F6MM	F6 Snow Fence, Met, and Sensit	Changed to F6 Met and F6 Sensit by Hassan Basagic, retired Dec 2016
18	BENM	RETIRED Beacon Valley	Jan 27, 2000 by Susan Kaspari, Thomas Nylen and Adrian Green. Retired in Dec 2012.
19	LHPM	RETIRED Lake Hoare Precipitatio	January 26, 2002 by Thomas Nylen (also Upper Howard)
19	UHDM	RETIRED Upper Howard Met	Temporary station Retired in 2004.
19	BLDM	RETIRED Blood Falls	Temporary station 11/14/2004
20	BRMM	Bonney Snow Fence	Changed to Bonney Riegel Met and Sensit by Hassan Basagic. Removed 2016.
21	FRSM	Friis Hills	Installed by Cuffey et al., ???; absorbed by LTER.
22	FLMM	Mt. Fleming	Installed 10/16/06 by Univ of Wisc AWS
25	GADM	RETIRED Garwood Valley	Installed by Peter Doran; Removed from service in 2011-12
25	MISM	Miers Valley	Installed by Nylen 2011-12
26	GAFM	Garwood Valley Ice Cliff	December 2010 by Thomas Nylen
27	HTDR	Lake Hoare TDR Station	08-09 Season by Hassan Basagic
92	EXSM	RETIRED Explorers Cove Sensit	Installed by Hassan Basagic; Retired Nov 2012
95	F6SM	F6 Snowfence Sensit	Installed by Hassan Basagic; Retired Dec 2016
96		Lake Fryxell Sensit	Installed by Hassan Basagic, Data combined with Fryxell station data
97		RETIRED Lake Hoare Sensit	Installed by Hassan Basagic, Retired 12/2010
98		RETIRED Lake Bonney Sensit	Installed by Hassan Basagic in 2005/06, Retired 12/2010
99	BRSM	Bonney Reigel Sensit	Installed by Hassan Basagic; removed Dec 2016
102	BRSS	Bonney Reigel Soil Station	
103	F6SS	F6 Soil station	Removed Dec 2016
104	LHS3	LH Soil station 2	
105	LHS4	LH Soil station 4	
112	BRTS	Bonney Reigel Theta Station	
113	F6TS	F6 Soil station	
114	LHS1	Lake Hoare Soil station 1 Theta	1/28/2003
115	LHS2	Lake Hoare Soil station 3 Soil	1/28/2003
119	HJHM	RETIRED Hjorth Hill Met	Installed by Peter Doran; Removed from service