

ICECAPS-ACE Weekly Report

July 29 – August 4, 2019

Heather Guy



The late July melt event was characterized by high winds, low visibility and drifting/ blowing snow. 7-29.



Icicles and water droplets around the MSF on 7-29.



When the skies finally cleared, the melt layer was apparent as an icy sheen on the snow surface, 7-31

General Notes:

July 30th 2019 saw the highest ever recorded 1 minute average temperature of 1.2C, with temperatures sustained at 1C or above for over 4 hours. The warm weather was accompanied by high winds, low visibility and drifting/ blowing snow. In other news the station has been busy packing away for winter and preparing for FP5. For science technicians, this has included raising cables and flags were necessary and moving equipment to winter storage locations.

General Weather Observations:

Date	Time (Z)	Wind	Weather	Visibility	Sky	Temp	Notes
7-29	12	130°, 25 kn	SN BLSN	1600	OVC024	-2	
7-30	12	134°, 17 kn		4800	BKN026	0	Peak temp: 1.22 C
7-31	12	152°, 12 kn		4800	OVC005	0	
8-01	12	168°, 5 kn		9999	SCT100	-8	FZFG overnight
8-02	12	150°, 4 kn		9999	FEW	-10	FZFG overnight
8-03	12	126°, 6 kn		9999	FEW	-10	
8-04	12	153°, 7 kn		9999	FEW	-10	FZFG overnight

Significant Weather Observations:

- 7-30: Highest ever recorded 1-minute average temperature of 1.2C.
- 8-01 0815-0830z: Fog bow.
- 8-02 0530-0900z: Fog bow.
- 8-02 1215-2100z: Clear skies for checking CAPABL.
- 8-03 0900-2000z: Clear skies for checking CAPABL.
- 8-04 0715-0830z: Fog bow.
- 8-04 0900-2000z: Clear skies for checking CAPABL.

MSF

- 7-30 ICECAPS-ACE cables and Zarges cases moved to permanent science storage in SMG, inventory updated.
- 7-31: I dug out the MSF power feed cable that was buried in drifts in the front of the MSF. This cable may need maintenance that would require an MSF power outage – more information to come.

ICECAPS-ACE Data Management:

- 7-29: Data transfer completed at 0512z
- 7-29: The ICECAPS back up hard drive was swapped out for a new one. The full drive will travel back to the US with Sam Dorsi in FP5.
- 7-30: Data transfer completed at 0539z
- 7-31: Data transfer completed at 0512z
- 8-01: Data transfer completed at 0513z
- 8-02: Data transfer completed at 0516z
- 8-03: Data transfer completed at 0515z
- 8-04: Data transfer completed at 0514z

MWR:

- Operating normally.

SODAR:

- Operating normally.

POSS:

- Operating normally.

MMCR:

- Operating normally.
- Red 'added loss' light on TWTA continues to flash.
- 5V#1 and 5V#2 remain out of tolerance.

CAPABL:

- Operating normally.

MPL:

- Operating normally

VCEIL:

- 8-01 0930z: Ceilometer data does not look good.
- 8-01 1237z: Ceilometer data collection restarted – no improvement.
- 8-02: Ceilometer laser needs replacing, a new laser will be shipped up in FP5.

IceCAM:

- Operating normally

PAERI:

- Regular CBB temperature yellow and red flags this week associated with warm outdoor temps.
- Operating normally

TSI:

- Operating normally

IcePIC:

- 7-31 1245z: IcePics attempted but flakes melted instantly. No photos uploaded. Flakes were well defined needles.

Radiosonde:

- Twice daily launches.

MASC:

- 8-01 1115z: Heavy rime cleared from camera flash lamps.
- 8-02: Cable and electronics enclosure raised for winter. Data collection continued normally throughout.
- Operating normally.

MSF - OPC:

- 7-29 1900: Brought inside to defrost.
- 7-30 1200z: Run inside MSF – data looks good.
- 7-30 1830z: Back online on MSF roof.
- 8-02 1100z: The fan is blocked with a chunk of ice and has stopped spinning – responsible for near zero counts.
- 8-04: Near zero counts again during riming – possibly fan blocked with ice again?
- Operating normally.

TAWO – OPC:

- 8-01: TAWO OPC stopped logging, manually restarted. Port changed.
- 8-02: TAWO OPC stopped logging, manually restarted. Port changed.
- 8-03 1715z: TAWO OPC taken down and brought inside to defrost and debug.

SKYOPC:

- 7-30: Quicklook plots no longer update at midnight, have to be restarted manually.
- 8-03: Issue with quicklook plots fixed.
- Operating normally.

CLASP:

- 7-30: I took apart the CLASP-G scatter cell and found it full of fine white powder – the same thing that happened last October. I cleaned the scatter cell with Milli-Q water and stored a sample of the white powder in Milli-Q water in the freezer, I will bring the sample back to Leeds in October for further analysis. It's possible that this could be ash from Arctic forest fires.
- CLASP-F is operating normally, but I'm not convinced that the data is good.

CPC:

- 7-29: Butanol refilled.
- Operating normally

Fluxtower instrument suite:

- Operating normally
- 7-31: HOBO temperature logger collected. Enclosure internal temperatures ranged between 10C and 43C over the last 15 days.
- 8-01: HOBO temperature logger reinstalled in ACE enclosure.

INP Freezing assay:

- 7-29 1600-2000: Weekly freezing assay completed; data transferred.
- A new temperature ramp provided by Bethany was used, initially it had an incorrect rate of change, this was corrected and filter 3 was run twice (once with the incorrect ramp and once with the corrected one).
- Two blanks were run, the second was successful.
- Filter 2 was highly discolored.

Aerosol vertical profiler:

- 7-31 1220-1236z: Successful profile
- 8-01 1300z: Attempt unsuccessful – drone fails to connect to computer.
- 8-02 1230z: Attempt unsuccessful – drone fails to connect to computer.
- 8-02 1906z: Attempt unsuccessful – drone fails to connect to computer.

- 8-03 1124z: Attempt unsuccessful – drone fails to connect to computer.
- 8-04 1337z: Attempt unsuccessful – drone fails to connect to computer.