

ICECAPS-ACE Weekly Report

September 16 – September 22, 2019

Heather Guy



We spent a couple of afternoons working on the tower this week as we replaced the fluxtower aspirated shields with the Summit Station 'upgraded' versions. The new shields (lower right) have a longer, wider inlet, and a base plate to mitigate heating from solar reflection. It is hoped the new shields will not get 'plugged' with ice like the original versions (upper right).

General Notes:

The first half of this week saw some of the coldest temperatures of the season so far with a low of -46C. Towards the end of the week a storm moved in bringing warmer temperatures, higher winds and some blowing snow. Big projects this week included installing upgraded aspirated shields on the flux tower, switching out empty helium canisters in the SMG so that the winter crew have enough for the season, and powering down the TSI for the winter.

General Weather Observations:

Date	Time (Z)	Wind	Weather	Visibility	Sky	Temp	Notes
9-16	12	081°, 14 kn	FZFG	3600	FEW	-33	PM BLSN.
9-17	12	107°, 16 kn	BLSN	3600	SCT164	-27	AM IC.
9-18	12	128°, 13 kn	FZFG	1000	SKC	-34	
9-19	12	094°, 14 kn		3600	SKC	-39	FZFG in distance.
9-20	12	194°, 15 kn		9999	FEW	-33	
9-21	12	196°, 15 kn	FZFG	1000	VV003	-15	
9-22	12	156°, 11 kn	-SN	4800	OVC011	-14	PM BLSN

Significant Weather Observations:

- 9-16 1630-1900z: Halo, sundogs, parahelic circle and circumzenithal arc.
- 9-17: Sporadic halos and sundogs all day.
- 9-18 0930-1400z: Fog bow.
- 9-20 1100-1700z: Clear skies for checking CAPABL.
- 9-21 1300-1800z: Fog bow.
- 9-22 1530-1630z: Heavy diamond dust event.
- 9-22 1630-1730z: Double fog bow.
- 9-22 1800-2000z: Sundogs, blowing snow.

MSF

- Operating normally.

ICECAPS-ACE Data Management:

- 9-16: Data transfer completed at 0530z.
- 9-17: Data transfer completed at 0526z.
- 9-18: Data transfer completed at 0527z.
- 9-19: Data transfer completed at 0546z.
- 9-20: Data transfer completed at 0520z.
- 9-21: Data transfer completed at 0526z.
- 9-22: Data transfer completed at 0523z.

MWR:

- 9-17: 150-90 small fan not turning despite being frost free.
- Operating normally.

SODAR:

- 9-21 1151-1200z: Sodar cleaned and levelled.
- Operating normally.

POSS:

- POSS has recorded a couple of errors I've not seen before over the last week: DC Offset, Max noise limit. Seems to have recovered OK.
- Operating normally.

MMCR:

- Temporary MMCR spectra backup drive formatted and ready for use.
- Operating normally.

CAPABL:

- Operating normally.

MPL:

- Operating normally

VCEIL:

- Ceilometer appears to be operating normally. We need to make a decision about what to do with the spare ceilometer laser as the flight period approaches.

IceCAM:

- Operating normally

PAERI:

- Operating normally

TSI:

- 9-16 1640Z: Data collection stopped. TSI removed from roof and packed away for the winter season.

IcePIC:

- 9-22 1245-1300z: Dendrites and plates, 20 photos uploaded.

Radiosonde:

- Twice daily launches.
- 9-22: Temporary 'face mask' filter replaced. See photo below. We have enough face masks to replace this filter once a week until the flight period.
- See plot below for temperature inside the enclosure over the last week. The temperature reached 35C on 9-21 coinciding with unusually warm temperatures inside the SMG.



MASC:

- 9-18 1132z: Computer rebooted due to frozen trackpad.
- 9-20 1718-1756z: MASC powered down while computer is relocated.
- Operating normally.

MSF - OPC:

- 9-21 1102z: Offline, taken inside to defrost.
- 9-22 1240z: OPC back online.
- Operating normally.

TAWO – OPC:

- Operating normally.

SKYOPC:

- Operating normally.

CLASP:

- Operating normally.

CPC:

- Operating normally.

Fluxtower instrument suite:

- 9-16: Computer rebooted.
- 9-17: Aspirated shields 1 & 2 replaced with upgraded versions.
- 9-18: Aspirated shield 3 replaced with upgraded version, aspirated shield 4 (and temperature sensor) taken offline.
- 9-20: Aspirated shield 4 upgraded and back online. Grounding wire on top of tower fixed.
- 9-22: Enclosure internal temperature ranged between -1C and 30C in the last two weeks.

INP Freezing assay:

- 9-16: Clean hood pre-filters inspected; they look as good as new.
- 9-17: Three filter samples collected.
- 9-18 1220-1430z: Weekly sample assay run.
- 9-21: INP spare plumbing supplies collected off winter berm so they're available for any maintenance necessary in the winter season.