Automatic Weather Station Field Report 2019-2020
Field Team: Lee Welhouse, Josh Thorsland, and Taylor Norton

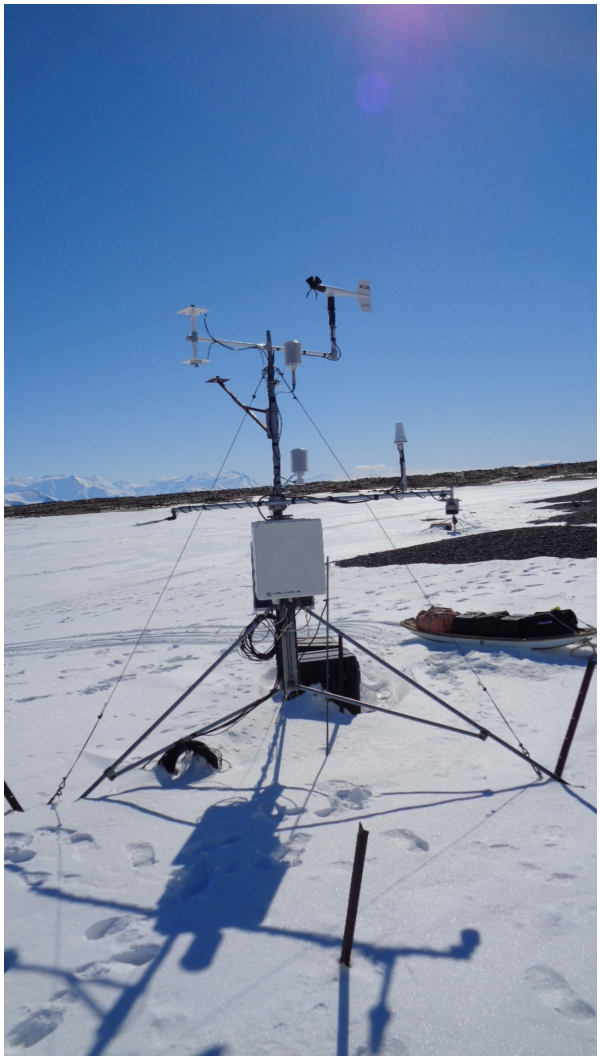
1. November 21: **Cape Hallett** replace iridium modem and site inspection
2. November 24: **Alexander Tall Tower** raise tower section and work with film crew
3. November 27: **Alexander Tall Tower** work with film crew and raise the lowest level
4. December 7: **Alexander Tall Tower** replace GPS antenna and cabling
5. December 13: **White Island** Replace power system and site inspection
6. December 13: **Minna Bluff** Repair iridium antenna cable and site inspection
7. December 16: **Marble Point** remove freewave directional antennas and site inspection
8. December 18: **Kominko-Slade** replace power system and raise instrumentation
9. December 22: **Lorne** raise lowest level instruments and power system
10. December 26: **Linda** raise lowest level instruments and power system
11. December 29: **Phoenix** replace internal cabling to reestablish communications
12. December 30: **Sarah PCWS** retrieve enclosure
13. January 10: **Windless Bight** Remove guy wires and raise lowest instruments and power system
14. January 6: **Cape Bird** site inspection and repair antenna mount
15. January 12: **Windless Bight** Repair iridium communication
16. January 13: **Willie Field and Sarah** install PCWS and site inspection
17. January 20: **AGO-5** install AWS

November 21: Twin Otter flight to Cape Hallett
Purpose: Replace iridium modem and reestablish communications with the site
replace iridium modem and site inspection
Coordinates: 72.322 degrees South 170.225 degrees East
Team: Lee Welhouse, Josh Thorsland, Mark Seefeldt, Scott Landolt

Conditions: At the site the weather was warm and calm, ideal situation to do the internal work on the enclosure. The return trip was very turbulent as high winds moved into the McMurdo area. This resulted in a longer return trip

Work performed: Due to unknown reasons the A3LA-X modem buffers were failing to clear properly. This resulted in the modem not transmitting successfully. A new modem was installed and successfully transmitted.

Cape Hallett Before



November 24, 27, and December 7th: **Alexander Tall Tower**
Purpose: Add Tower Section, Raise instrumentation, replace GPS antenna and cabling. Also filming was performed
Teams: Lee Welhouse, Josh Thorsland, Emily Keifer, Sean Tracey, Stevan Beer, Kevin Williams, Michael Lofton, Alice Jones, Toby Strong, Freddie Claire, Oliver Richards

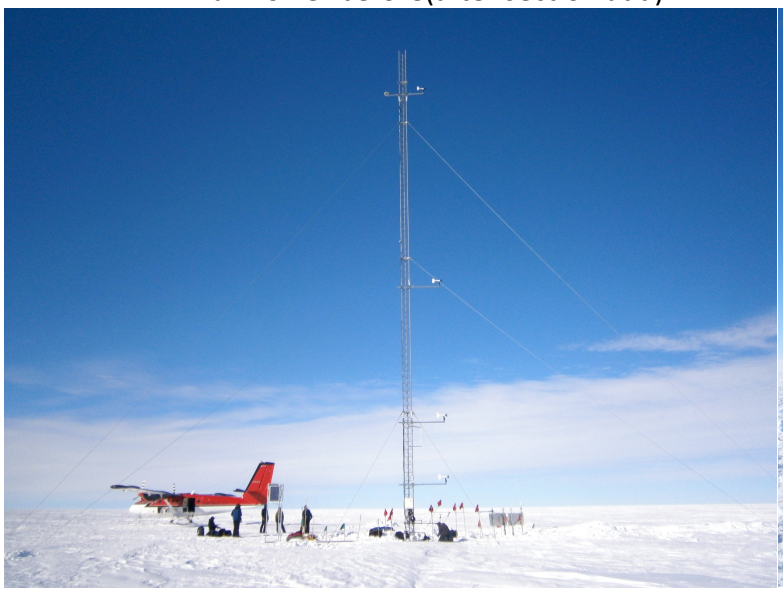
Coordinates: 78.995 S, 170.758E

Conditions: Over the three day trips the conditions were light winds and sunny. Due to the height of the tower and work performed we required sub 15knot winds for safety concerns.

Work performed: Day 1 was primarily spent getting the tower prepped and raising the tower section and securing guy wires to return the tower to nominal height and some filming. Day 2 involved primarily filming and the raising of the lowest instrumentation to keep it from burial. Day 3 involved replacing the GPS sensors.

Heights before		After
Lowest Temperature	6”	41”
Lowest Wind	18”	32”
Acoustic Distance Gauge	10”	63”
2nd level Temperature	52”	97”
2nd Level Wind	41	90”

Tall Tower before(after section add)



Tall Tower after

December 13: White Island
Purpose: Replace batteries at station and check station for damage
Team: Lee Welhouse and Josh Thorsland

Conditions: The site was very windy and had significant riming for the entire length of the tower

Work performed: Upon arrival the batteries were tested and found to be slightly bulged and failing to charge and reporting voltages below 5v. The entire battery system was replaced with new batteries, and the data card was swapped for a new data card.

White Island before

White Island After

December 13: Minna Bluff
Purpose: replace or repair the cable to the iridium antenna
Team: Lee Welhouse and Josh Thorsland

Conditions: We were delayed significantly by fog rolling over Minna Bluff. The tower and system was incredibly rimed.

Work performed: The N connector at the enclosure was kinked and disconnected. We reconnected the connector and recrimped and taped the connector. The cable connection was secure.

Minna Bluff Before

Minna Bluff after

December 16: Marble Point and Marble Point II
Purpose: Remove freewave directional antennas and site inspection
Team: Lee Welhouse and Josh Thorsland

Conditions: Weather was cool and windy.

Work performed: The directional antennas were removed and both sites were inspected for damage. Both systems are in good shape.

Marble Point II before Marble Point II after Mable Point



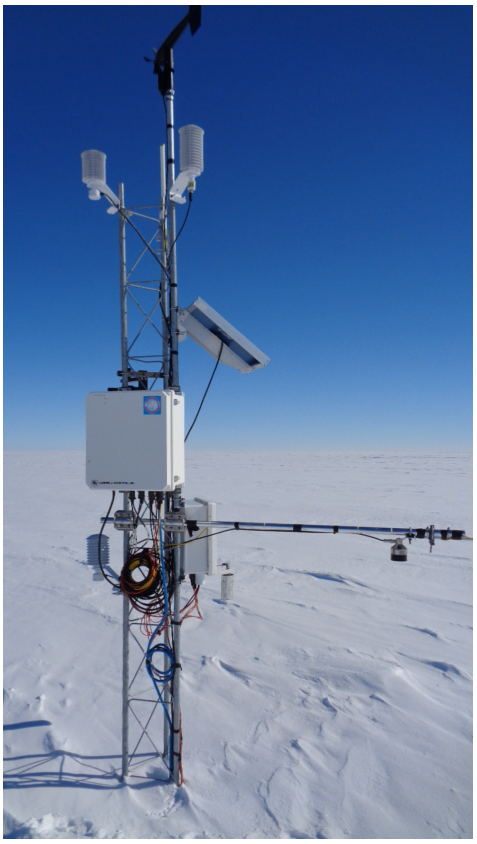
December 18: Kominko-Slade
Purpose: Replace power system and raise instrumentation
Team: Lee Welhouse and Josh Thorsland

Conditions: During the system raise work freezing fog moved through the area. Otherwise winds were low and temperatures cool.

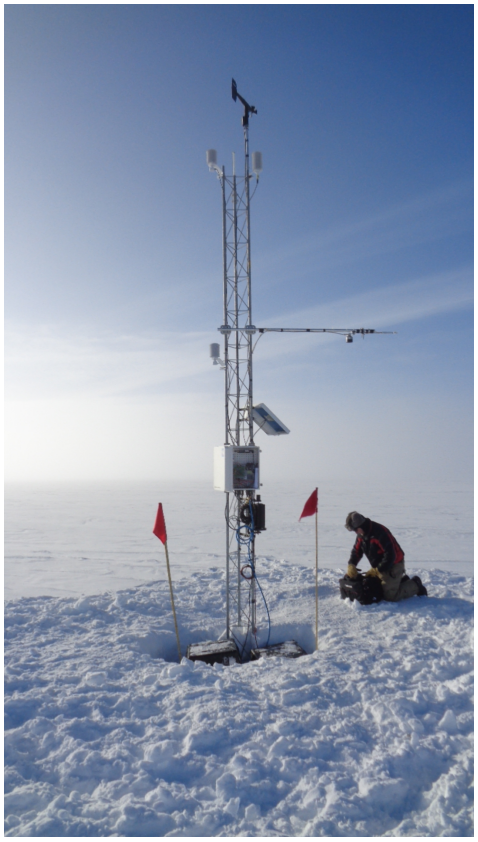
Work performed: The power system batteries were damaged and reporting extremely low voltage. They were replaced. We added a tower section, raised instrumentation, and removed the snow profile string as it could no longer be raised.

	KMS before	KMS after
Lower Temperature:	44”	121”
Upper Temperature:	121”	211”
Wind:	153”	241”
Enclosure:	61”	61”
Net Radiometer:	50”	134”
Acoustic Depth Gauge:	47”	131”

KMS Before



KMS After

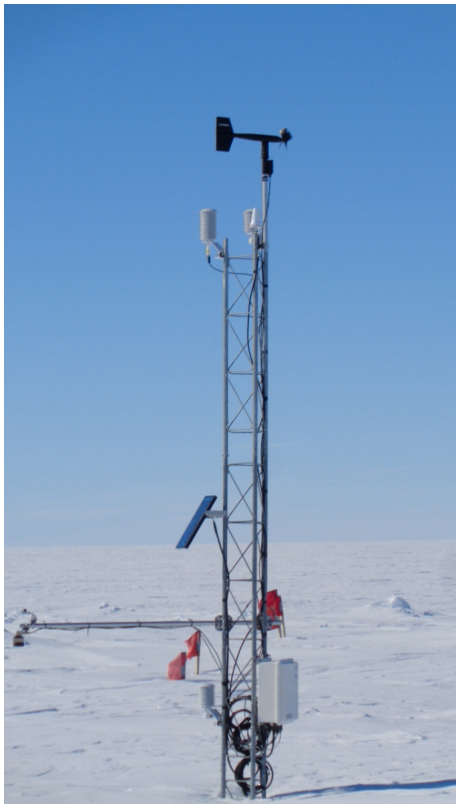


December 22: Lorne
Pupose: Raise lowest level instruments.
Team: Lee Welhouse

Conditions: Weather was clear and calm.
Coordinates: 78.178 S 170.035E
Work performed: The enclosure and lowest instrumentation has been raised. The power system was approximately 12 inches below the snow surface so raising it wasn’t needed.

Lorne height	before	after
Lower temperature	22”	92”
Enclosure	21”	68”
Acoustic Depth Gauge	41”	91”
Pyranometer	50”	100”
Upper Temperature	184”	184”
Humidity	184”	184”
Wind	214”	214”

Lorne Before



Lorne After

December 26: Linda
Purpose: Raise lowest level instruments
Team: Lee Welhouse and Josh Thorsland

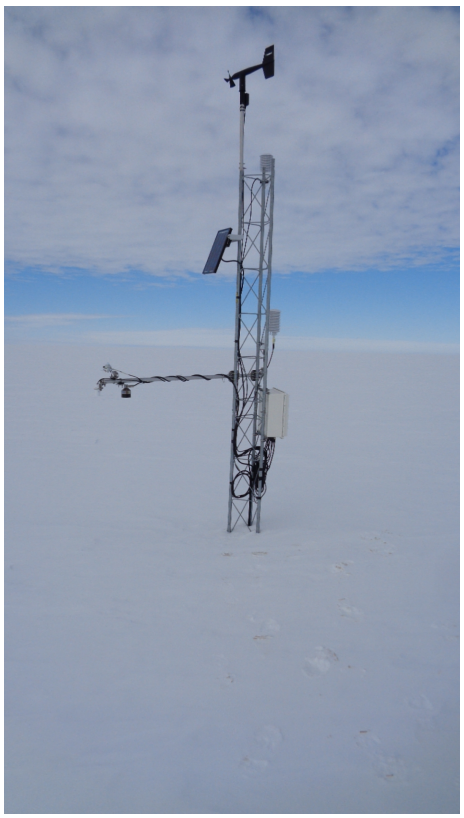
Conditions: Weather was clear

Coordinate: 78 22.91” S 168 27.384”E

Work performed: The lowest instrumentation was raised; the tower was tall enough though approximately 4 degrees off plumb. The power system was close to the surface and doesn't need to be raised.

Linda heights	Before	After
Enclosure	36"	71"
Acoustic Depth Gauge	51"	85"
Pyranometer	62"	96"
Upper Temperature	132"	132"
Humidity	72"	72"
Wind monitor	162"	162"

Linda Before



Linda After

December 29: Phoenix
Purpose: Determine why the system isn't currently transmitting
Team: Lee Welhouse

Conditions: Weather was cool and low winds

Work performed: The system was found running with limited reason for not transmitting. Data was successfully recovered both by data card and by retrieving data

to the laptop. The CR1000 was found to communicate successfully through both the CS I/O port, as well as the RS-232 port. Once rebooted the cable failed to connect. Replacing the internal RS-232 cable successfully reestablished communications between the logger and the argos transceiver.
Phoenix cable shows minor wear and slight rust/scorching

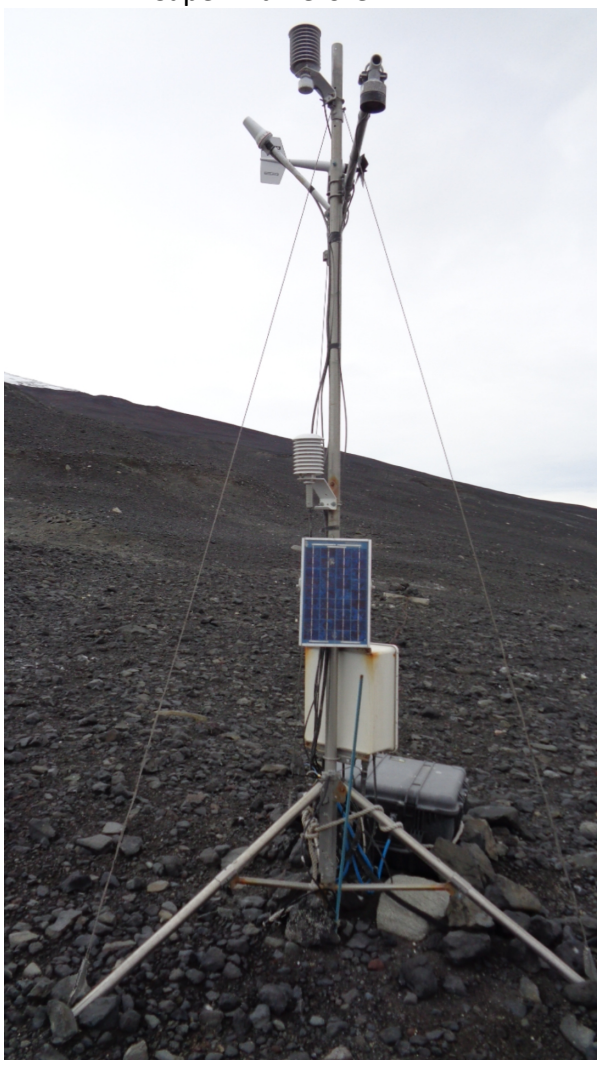
January 6: Cape Bird
Purpose: site inspection and repair antenna mount
Team: Lee Welhouse, Josh Thorsland, and Taylor Norton

Conditions: Slightly windy and cool

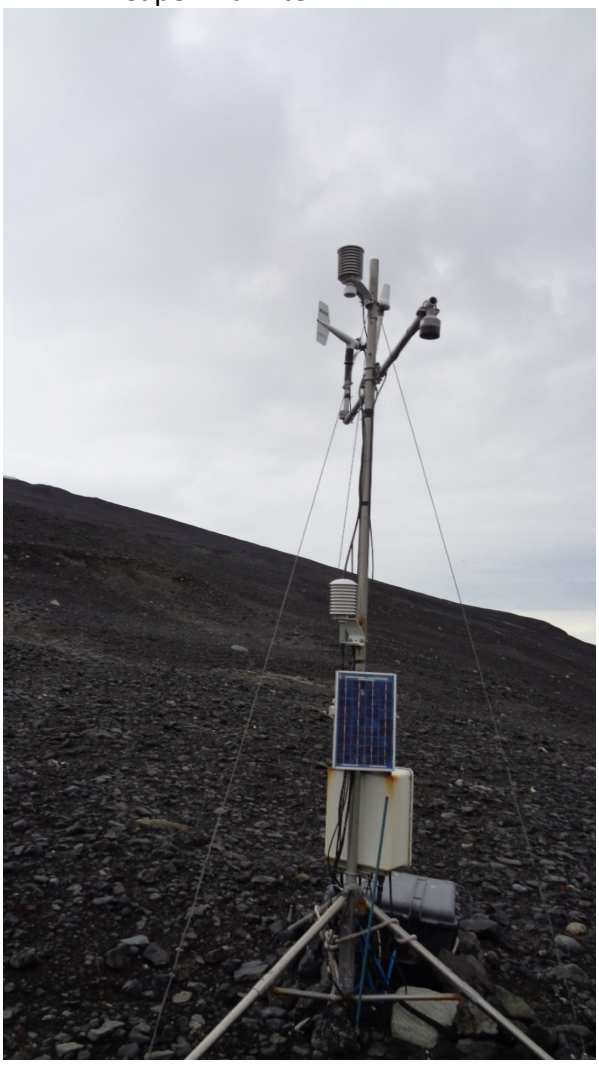
Work performed: The site was inspected and was found to be in good shape, batteries remained at high voltage after solar power was covered. The antenna mount was off

plumb so it was returned to plumb. A cable ran through the U bolt and this was corrected. Corrosion on bolts and plugs continues, but doesn't seem to negatively impact the station. The wind generators at the power system are completely disabled.

Cape Bird Before



Cape Bird After



January 10 and 12: Windless Bight
Purpose: Remove guy wires and raise lowest instruments and power system
Team: Lee Welhouse, Josh Thorsland, and Taylor Norton

Conditions: In both trips the weather was cool. The first was sunny and ideal conditions, the second cloudy with a storm system moving in.

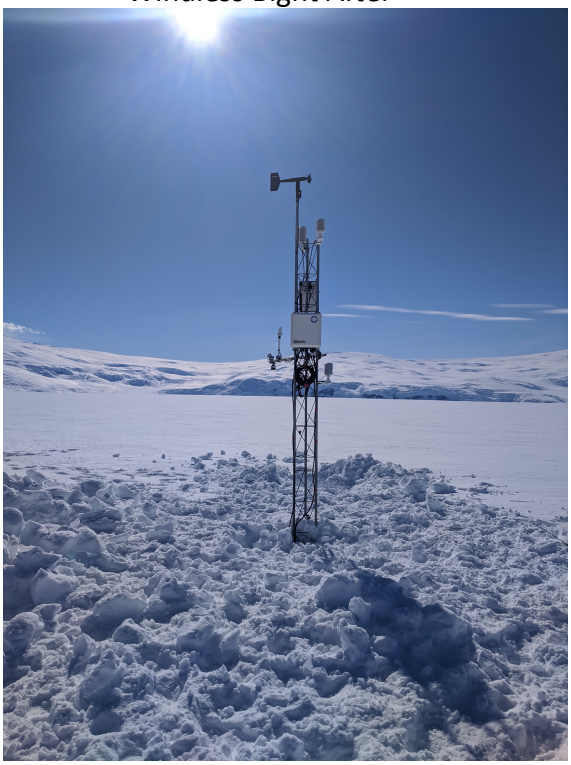
Work performed: The system was checked and tower was found to be nominal height. The guy wires were removed to prevent differential loading from tilting the tower. The power system was raised. The data logger indicated the card peripheral device wasn't detected. Upon removal oxidization was found on the connector on the CR1000 side. This indicates the CR1000 is damaged and should be replaced

Windless Bight Heights	Before	After
Lower Temperature	46"	75"
Enclosure	53"	89"
Acoustic Depth Gauge	81"	81"
Pyranometer	89"	89"
Humidity	146"	146"
Upper Temperature	146"	146"
Wind	177"	177"

Windless Bight After

Windless Bight Peripheral port with damage

Windless Bight After



December 30 and January 13: Sarah PCWS

Purpose: Retrieve enclosure and replace with new system
Teams: Lee Welhouse, Josh Thorsland, and Taylor Norton

Work performed: Over multiple trips the old system was removed and the new one replaced with instrumentation and enclosure.

Sarah heights

Enclosure	38”
Lower Temperature	60”
Upper temperature	131”
Humidity	131”
Wind	162”

Sarah PCWS after

January 20: AGO-5
Purpose: Install AWS
Team: Andy Stillinger, Gil Jeffers, Doug Howe

AGO-5 was installed at 77.240S/ 123.520E, elevation 3519 m. It is an AWS2B, Argos ID 21362.

Per Andy Stillinger: “We oriented the box on the wind bird toward true (GPS) north, not south, since the prevailing wind is very close to south. We figured it would be best to avoid the cross-over/dead band as much as possible.”