

Antarctic Automatic Weather Stations Field Report for 2008-2009

**George A. Weidner^{1,2}
Jonathan Thom¹
Matthew Lazzara¹
Shelley Knuth¹
John Cassano³
Melissa Richards³**

¹Space Science and Engineering Center

**²Department of Atmospheric and Oceanic Sciences
University of Wisconsin - Madison**

**³Department of Atmospheric Science
University of Colorado - Boulder**

The National Science Foundation's Office of Polar Programs funds the placement of automatic weather station (AWS) units in remote areas in Antarctica in support of meteorological research, applications and operations. The basic AWS units measure air temperature, wind speed and direction at a nominal height of 3 meters above the surface. Air pressure is measured at the height of the AWS electronic enclosure. Some units measure relative humidity at 3 meters above the surface and the air temperature difference between .5 and 3 meters above the surface at the time of installation. A small, but increasing number of AWS sites measure snow accumulation. The data are collected by the ARGOS Data Collection System (DCS) on board the National Oceanic and Atmospheric Administration (NOAA) and MetOp (EUMETSAT) series of polar-orbiting satellites.

The AWS units are located in arrays for specific research activities and also used for operational purposes. Any one AWS may support several experiments and all support operational meteorological services - especially support for weather forecasts for aircraft flights.

Research areas supported over the years include:

- Barrier wind flow along the Antarctic Peninsula and the Transantarctic Mountains
- Katabatic wind flow down the Byrd and Beardmore Glaciers, the Siple and Adelie Coast
- Mesoscale circulation and sensible and latent heat fluxes on the Ross Ice Shelf
- The Ross Ice Shelf Air Stream.
- Climatology of long operating AWS sites in particular, Byrd and Dome C sites.
- Meteorological support for the West Antarctic Ice Sheet Initiative
- Long Term Ecological Research (LTER) along the Antarctic Peninsula
- Meteorological support for United States Antarctic Program flight operations

The following are a sampling of historically supported principal investigators funded by NSF-OPP.

- Dr. Douglas R. MacAyeal: Iceberg Drift in the Near-Shelf Environment, Ross Ice Shelf, Antarctica.
- Dr. Ray Smith, Long Term Ecological Research: Racer Rock, Bonaparte Point, and Santa Claus Island.

- West Antarctic Ice Sheet Initiative: Siple Dome and West Antarctic Divide drilling sites.
- Dr. John Cassano: The Ross Ice Shelf Air Stream
- Aircraft Operation: All AWS sites in Antarctic.
- The Antarctic AWS units support many investigators outside of NSF-OPP.

AMRC collaboration:

- Climatological analysis from the AWS, and other stations (complimenting the activities in the SCAR READER project).
- Continued data collection, archival and distribution of AWS data.
- Continued educational outreach activities (as outlined in the above section and in the following outreach section).
- Utilities developed to generate climatological analyses from AWS observations.

Field work completed for 2008-2009

For the AS 2008-2009 field season, the field team consisted of Matthew Lazzara (O-283, O-202) and Jonathan Thom (O-283), and Shelley Knuth (O-283) all from the University of Wisconsin – Madison and John Cassano (O-283) and Melissa Richards (O-283) from the University of Colorado - Boulder, with assistance from the personnel at McMurdo Station, Ken Borek Twin Otter pilots, and station personnel at WAIS divide field camp. Fieldwork was also done through cooperative programs with personnel from the the French Antarctic program, **Institut Polaire Français - Paul Emile Victor (IPEV)** and the **British Antarctic Survey (BAS)**. Additional assistance was received from **the Mawson's Huts Foundation's** field personnel of Chris Henderson and Pete McCabe.

Mr. Jonathan Thom arrived in McMurdo on October 19, 2008 as the only member of O-283 to deploy for the early season part of the 2008/2009 field season. He departed McMurdo on 17 November for return to Madison. George Weidner did not deploy as planned due to a back problem and remotely assisted field personnel in McMurdo from Madison. The remaining field team members deployed at the end December with varied departure dates from late January to early February 2009.

In addition to the normal servicing of AWS sites, we retrieved two AWS set up for testing at the Williams Field AWS site. The first test AWS use an Iridium modem rather than n Argos transmitter for data telemetry. The second test AWS was recording data from various temperature sensors to determine the effect of differing radiation shields and sampling protocols that are being introduced with the new AWS based on Campbell Scientific Inc.'s, (CSI) CR1000 data logger. Jonathan Thom serviced the two test AWS in late October 2008.

For the Iridium test AWS we are using a NAL Research A3LA-D modem to send SBD binary messages from a Campbell-Scientific CR1000 datalogger. The messages were sent to an email address provided by Jonathan Thom to the Iridium network. Anecdotal evidence from other attempts at using Iridium modems in cold climates indicated they did not function a very cold temperatures. We experienced similar results. When the ambient temperature at Williams Field AWS site went below –20C, SBD messages became sporadic. Finally all messages ceased near

the start of the Austral Winter in April. Data was successfully stored on the compact flash cards installed with the CR1000 datalogger.

The AWS us to test the radiation shields was also a CR1000 based AWS using a Telonics ST-20A transmitter for data telemetry. There was also a compact flash card installed with the CR1000. The data was complete on the flash card. We tested our traditional temperature sensor (a PRT fabricated with a WEED Inc. 1000 ohm platinum element) with both our own radiation shield and with a RM Young radiation shield that is now standard with CSI temperature sensors. In addition a RM Young RTD temperature sensors were installed with one sensor ventilated and another not ventilated.

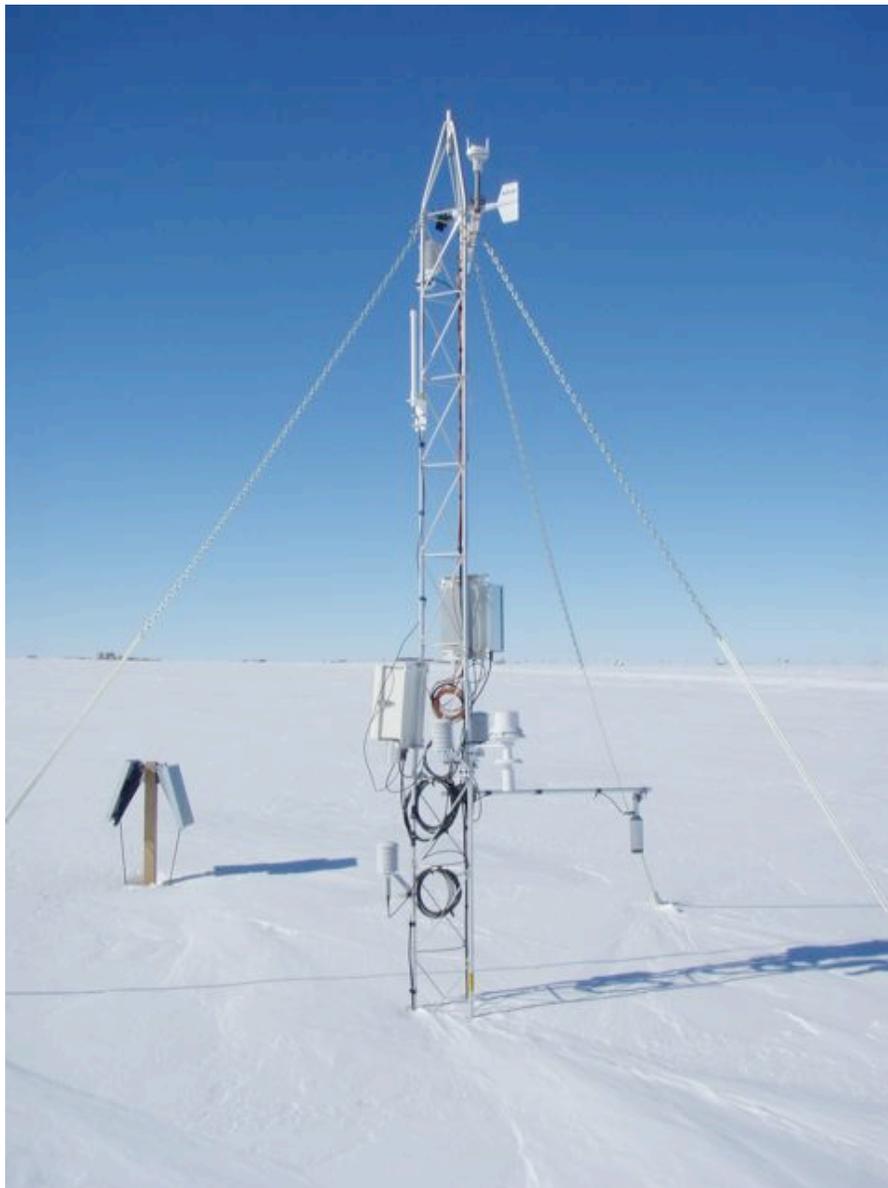


Figure 1. AWS test tower at Williams Field AWS site for 2008/2009.

We had intended to move this test AWS platform to the South Pole for use in comparing data with the South Pole temperature sensors, but we significantly modified the test platform and decided to operate the system at Williams Field for one more year. The new temperature sensor mounting system is shown below in Figure 2. We anticipate that the radiation shields/temperature sensors will have a more uniform exposure to the sun and wind with this platform.



Figure 2. Mounting platform for radiation shield/temperature sensor testing.

With the introduction of the new AWS based on the CR1000, the measurement protocols available compared with the traditional AWS2 version of our automatic weather station will be quite different. The AWS2 model essentially took instantaneous temperature readings every 10 minutes. The CR1000 based AWS can record temperature data for almost varying lengths of time for whatever sampling interval one chooses. As more of our traditional AWS are retired, we wish to document any differences in temperature statistic due to the new radiation shields and various sampling schemes. Many analyses of long-term temperature records imply temperature trends on the order of 0.1C per decade are important. We wish to insure that the temperature data between the various AWS is rigorously compared and checked for consistency. Final analyses of the temperature data from the test AWS site will be available before the next field season.

The remainder of this report documents the fieldwork accomplished during the 2008/2009 season. The deploy members of the January field team deserve recognition for completing much of the planned work despite limited electronics knowledge due George Weidner's absence. This work could not have been done without the Internet and digital photography. We have come a long way in 30 years of Antarctic AWS.

George Weidner (May , 2009)

Table 1: AWS for 2009. An '@' in the 'Altitude' column indicates a location obtained from UNAVCO GPS. Red print is site service in 2008/2009. Blue print is new site established.

SITE	ARGOS ID /	Action 08/09	Lat.	Long.	Alt.(m)	Date	WMO#
	AWS_type					STARTED	
	Adelie Coast						
D-10	30374 CR10X	Repair wiring	66.71°S	139.83°E	243	Jan-80	89832
D-47	8947 2B		67.397°S	138.726°E	1560	Nov-82	89834
E-66 NEW	8912 2B	Service	68.912°S	134.655°E		Dec 07	
D-85 NEW	8986 2B	Installed	70.426°S	134.146°E		Dec 07	
Dome C II	8989 2B		75.121°S	123.374°E	3250	Dec-95	89828
Port Martin	8909 2HWS		66.82°S	141.40°E	39	Jan-90	
Cape Denison	8988 2HWS	Serviced	67.009°S	142.664°E	31	Jan-90	
Penguin Point	Not active		67.617°S	146.180°E	30	Dec-93	89847
Not active	8914	Spare at DDU					
	West Antarctica						
Byrd Station	8903 2B		80.007°S	119.404°W	1530	Feb-80	89324
Brianna	8931 2B		83.889°S	134.154°W	@525	Nov-94	
Elizabeth	21361 2B		82.607°S	137.078°W	@519	Nov-94	89332
J.C.	Not active		85.070°S	135.516°W	549	Nov-94	
Erin	21363 2B		84.904°S	128.828°W	@990	Nov-94	
Harry	8900 2B		83.003°S	121.393°W	945	Nov-94	
Theresa	21358 2B		84.599°S	115.811°W	1463	Nov-94	89314
Doug	Not active		82.315°S	113.240°W	1433	Nov-94	
Mount Siple	8981 2B		73.198°S	127.052°W	230	Feb-92	89327
Siple Dome	8938 2C		81.656°S	148.773°W	@668	Jan-97	89345
Swithinbank	8927 2B		81.201°S	126.177°W	@959	Jan-97	
WAIS K-S	21364 2B	Installed	79.468°S	112.086°W	@1833	Jan-06	
	Ross Island Region						
Marble Point	8906 2B		77.439°S	163.754°E	@108	Feb-80	89866
Ferrell	8929 2B	Serviced	77.865°S	170.819°E	@45	Dec-80	89872
Pegasus North	8923 2B	Installed	77.952°S	166.500°E	@8	Jan-90	89667
Pegasus South	Not active	AWS removed	77.990°S	166.568°E	@5	Jan-91	
Minna Bluff	8939 2B	Serviced	78.555°S	166.691°E	@47	Jan-91	89769
Mullock	8907 2HWS		79.018°S	170.819°E	@378	Oct-06	
Willie Field	30477 CR1000	Installed	77.866°S	166.983°E	@14	Jan-92	
Willie Field	Iridium AWS	Removed	77.866°S	166.983°E	@14	Jan-92	
Willie Field	Test	Serviced	77.866°S	166.983°E	@14	Jan-92	

Windless Bight	8982 CR10X	Serviced	77.728°S	167.703°E	61	Nov-98	
Cape Bird	8901 2B		77.224oS	166.440oE	@42	Jan-99	
Laurie II	21360 2B		77.509oS	170.797oE	@37	Jan-00	
Linda	21362 2B	Serviced	78.439oS	168.406oE	@43	Jan-91	89769
Lorne	21356 2B	Serviced	78.250oS	170.000oE	@45	Jan-07	
Mt Friis	28339 CR10X		77.747oS	161.516 E	@1581	Jan-07	
Mt Fleming	30393 CR10X		77.533oS	160.276 E	@1868	Nov-06	
Cape Hallet	28338 CR10X		72.190 S	170.160 E	@14	Nov-07	
	Ocean Islands						
Whitlock	8935 2HWS		76.144°S	168.392°E	(275)@206	Jan-82	89865
Scott Island	No AWS		67.37°S	179.97°W	30	Dec-87	89371
Young Island	No AWS		66.229°S	162.275°E	30	Jan-91	89660
Possession Is.	8984 2DH		71.891°S	171.210°E	30	Dec-92	89879
Manuela	8905 2B		74.946°S	163.687°E	80	Feb-84	89864
Peter I	8933 2B		68.769°S	90.670°E	90	Feb-06	
	Ross Ice Shelf						
Marilyn	8934 2B	Serviced	79.954°S	165.130°E	(72)@64	Jan-84	89869
Schwerdtfeger	8913 2B		79.875°S	170.105°E	@54	Jan-85	89868
Gill	8911 2B		79.985°S	178.611°W	@54	Jan-85	89376
Elaine	21357 2B	Installed	83.134°S	174.169°E	@59	Jan-86	89873
Lettau	8928 2B	Serviced	82.518°S	174.452°W	55	Jan-86	89377
Vito	8695 2B	Serviced	78.509°S	177.746°E	@+52	4-Feb	
Emilia	8980 CR10X	Serviced	78.509°S	173.114°E	@+50	4-Feb	
Carolyn	8722 2B	Serviced	79.964°S	175.842°E	@+52		
Mary	8983 CR10X		79.303°S	162.968°E	@+58		
Nascent	28336 CR10X		78.127°S	178.497°E	30		
Eric	8697 2B		81.504°S	163.940°E	@+45		
Roosevelt Island	8910 CR1000	Installed	80.00°S	165.00°W		Jan 09	
South Ross Ice Shelf	8915 CR1000	Installed	84.25°S	170.00°W		Nov 08	
	Antarctic Peninsula						
Larsen Ice	8926 CR1000	BAS	66.949°S	60.897°W	17	Oct-85	89262
Butler Island	8902 CR1000	BAS	72.207°S	60.160°W	91	Mar-86	89266
Fossil Bluff	8920 CR1000	BAS	71.33°S	68.283°W	63	Dec-01	89065
Limbert	8925 CR1000	BAS	75.422°S	59.851°W	40	Dec-95	89257
Ski-Hi	8917 CR1000	BAS	74.792°S	70.488°W	1395	Feb-94	89272
Bonaparte Point	8921 CR10X	Serviced	64.778°S	64.067°W	8	Jan-92	89269
Hugo Is	8935 CR1000	Installed	64.964°S	65.670°W	25	Dec-94	
Racer Rock	Not active		64.067°S	61.613°W	17	Nov-89	89261
Kirkwood Island	8930 CR10X	Off	68.340°S	69.007°W	30	May-01	
Dismal Island	8932 CR10X	Works summer	68.087°S	68.825°W	10	May-01	
	High Polar Plateau						

Henry	8985 2B		89.011°S	1.025°W	2755	Jan-93	89108
Nico	8924 2B		89.000°S	89.669°E	2935	Jan-93	89799
Relay Station	8918 2B		74.017°S	43.062°E	3353	Feb-95	89744
Dome Fuji	8904 2B		77.31°S	39.70°E	3810	Feb-95	89734
Mizuho	21359 2B		70.70°S	44.29°E	2260	Oct-00	
JARE 2008	30305 2B		77.000°S	20.000°E	3400	Dec-07	
Megadunes	2769 (CR10X)		80.775°S	124.526°E	2881	Jan-04	
Panda South	30416 2B		82.246°S	75.989°E	4027	Jan-08	
Baldrick (BAS)	9116 (CR1000)	BAS	82.774°S	13.054°W	1968	Jan-08	
	Iceberg AWS stations						
B15J Mother 1	30504 (CR10X)	Transmitting					
B15J Mother 2	30580 (CR10X)	Transmitting					
B15K	9116 (CR10X)	Off ID reused					
B15A Wanderer	30477 (CR10X)	Off ID reused					
C16	15930 (CR10X)	Transmitting					
Drygalski Fountain	30416 (CR10X)	Off ID reused					

Table 2. AWS unit not deployed for 2009

AWS not deployed		AWS type
Madison	8908	AWS2B
Madison	8916	AWS2B
Madison	8919	AWS2B
Madison	8936	AWS2D
Madison	21355	AWS2D
Madison-CR10X	8922	CSI /Seimac
Madison-CR10X	30423	CSI /Seimac
Madison-CR1000	*8901	CSI/ST-20
Madison-CR1000	*8903	CSI/ST-20
Madison-CR1000	*8927	CSI/ST-20
Madison-CR1000	*8937	CSI/ST-20
Madison-CR1000	*8987	CSI/ST-20
* Replacement AWS ID's for 2009		
For Telonics ST-20's with CR1000		

Table 3. GPS data for 2008/2009. Horizontal accuracy is +/- 10 cm and vertical accuracy +/- 20 cm. The horizontal position does not refer to the exact AWS location, but rather a position approximately 10 (~meters) paces north of the AWS.

GPS data	For 2008/2009			
Name	Latitude	Longitude	Elevation	Start Time (UTC)
Pegaus S	77.9903768°S	166.5600761°E	4.839	1/7/2009 2:49
Willy Field	77.8669724°S	166.9565529°E	12.581	1/12/2009 0:43
Linda	78.4262044°S	168.4178687°E	42.484	1/16/2009 6:50
Ferrell	77.8459259°S	170.8190210°E	45.06	1/16/2009 8:21
Carolyn	79.9391445°S	175.88395625°E	52.017	1/22/2009 21:58
Marilyn	79.9258367°S	165.49386925°E	62.899	1/23/2009 1:29
Vito	78.4661465°S	177.78168453°E	49.55	1/23/2009 21:48
Emelia	78.4736640°S	173.14581275°E	51.494	1/24/2009 0:31
K-S WAIS	79.4656911°S	112.10623369°W	1801.095	1/26/2009 21:31
Elaine	83.0972223°S	174.2912160°E	61.587	1/28/2009 1:35
Sabrina	84.2503706°S	169.98718025°W	88.072	2/2/2009 0:43
Lettau	82.4805819°S	174.57042869°W	38.804	2/2/2009 4:01
Minna Bluff	78.5546910°S	166.69081022°E	894.872	10/31/2008 23:32
Linda	78.4271355°S	168.41696764°E	42.277	11/1/2008 0:09
Linda	78.4271357°S	168.41696232°E	42.253	11/1/2008 0:09
Ferrell	77.8473396°S	170.81911836°E	45.536	11/3/2008 21:29
Ferrell	77.8473389°S	170.81913969°E	45.693	11/3/2008 21:29
Lorne	78.2394977°S	170.00577011°E	45.262	11/4/2008 22:15
Margaret (RI)	79.9999052°S	165.00039361°W	67.419	11/12/2008 23:05
Margaret(RI)	79.9999039°S	165.00040228°W	67.554	11/13/2008 0:00
Bases				
DEVI	81.47672111°S	161.9770776°E	114.353	1/21/2009 23:59
MCMD	77.838349719°S	166.669330152°E	151.452	1/6/2009 23:59
MIN0	78.6503084°S	167.163793652°E	729.568	1/15/2009 23:59
RAMG	84.338425444°S	178.047113444°E	1103.681	1/27/2009 23:59
WAIS	79.467499966°S	112.053987572°W	1802.972	1/25/2009 23:59

New Installation Site: Margaret AWS site near Roosevelt Island

Jonathan Thom with assistance from Ken Borek Twin Otter pilots, and Bill Vandiver (SPAWAR Office of Polar Programs), installed a new AWS site near Roosevelt Island on November 12, 2008.

Installation information:

Sensor Boom height: 514 cm
Top of enclosure: 325 cm
Lower Temperature: 210 cm
ADG height: 215 cm

The boom is about 8 degrees west of North.

Note: this requires a correction for the wind direction of negative 8 degrees (-8 deg)

The station is installed at 80 S and 165 W.

The snow surface there was nice, no sastrugi at all.



Figure 3. Margaret AWS - installed near Roosevelt Island on the eastern Ross Ice Shelf

New Installation Site: Sabrina site at southern end of the Ross Ice Shelf

Sabrina AWS installed on 2/2/2009 1:30 pm (approximate ground time was 2.5 hours).
Field Team: Shelley Knuth, Melissa Richards, Kevin Emery (FSTP)
Pilots: Lexi and Rory (Ken Borek):

The UNAVCO GPS was up from 1:30-4 pm.

Heights to surface:

ADG:	066 cm
Junction box:	112 cm
ADG Temp:	116 cm
Electronics box:	146 cm
Solar Panel:	201 cm
Sensor Boom:	288 cm

Field notes: Beautiful day on the field, and a beautiful location with the mountains in the background. Temperature was fairly warm and there was no wind. The area is crevasse free so it's pretty safe. The South Pole traverse was very nearby - we could see their tracks and flags. We stopped at Moody Glacier on the way out and back to refuel. Took about 4.5 hours to get out to Sabrina from McMurdo.

Site was a new install. Put one 5' base and one 7' tower section on top. Then we added a solar panel, temperature/RH sensor, RM Young, junction box, CR1000, ADG, and lower temperature sensor for ADG. Also added white wand antenna. Added two battery boxes measured at 12.7 volts each.

Once the tower was up, we could not get a transmission for about 20 minutes. We began troubleshooting by rebooting the system, unplugging and re-plugging the antenna in, but nothing happened. We had just pulled out the toughbook laptop computer and an extra antenna and suddenly got a transmission. We verified three transmissions before we left.

We did not have a handheld gps with us. The one we had was packed in our WAIS cargo, and we could not retrieve another one before we left in the morning despite various attempts. While we talked to the pilots and know where true north was so that the boom is facing that direction, the RM Young could easily be off by several degrees, and we had no way of verifying how far off it was.



Figure 4. Sabrina AWS after installation in January 2009.

Table 4. AWS Activities planned this season (2009-2010) by U. Wisconsin field team¹

AWS Site	Latitude	Longitude	Elevation	Status	Field Season Activity	Comments
Tall Tower	78.82° S	173.33°E	Unknown	Not installed – new AWS site	First installation	Site to be renamed, Put-in by traverse and twin otter
Elaine	83.097°S	174.29°E	62 m	Installed Off air	Servicing	Twin Otter
Carolyn	79.939°S	175.884°E	52 m	Installed Off air	Servicing	Twin Otter
Lettau Gill Byrd	82.481°S	174.57°E	39 m	Installed	Servicing	Twin Otter
	79.922°S	178.586°W	54 m	Installed	Servicing	Twin Otter
	80.007°S	119.404°W	1530 m	Installed	Servicing	Twin Otter or LC130 to camp
Siple Dome	81.656°S	148.773°W	668 m	Installed	Servicing	Twin Otter or LC130 to camp
Kominko-Slade (WAIS Divide)	79.466°S	112.106°W	1801 m	Installed	Servicing	Twin Otter or LC130 to camp
Elizabeth	82.607°S	137.078°W	519 m	Installed	Servicing	Twin Otter
Harry	83.003°S	121.393°W	945 m	Installed	Servicing	Twin Otter
Erin	84.904°S	128.828°W	990 m	Installed	Servicing	Twin Otter
South Pole	-90°S		Unknown	Not installed	Install of test AWS (non-transmitting)	LC130 day trip. One year test - only
Cape Bird	77.21°S	166.439°E	38 m	Installed	Servicing	Helicopter
Ferrell	77.846°S	170.819°E	45 m	Installed	Servicing	Helicopter
Laurie II	77.517°S	170.801°E	37 m	Installed	Servicing	Helicopter
Linda	78.426°S	168.418°E	43 m	Installed	Servicing	Helicopter
Marble Point	77.439°S	163.754°E	108 m	Installed	Servicing	Helicopter
Minna Bluff	78.554°S	166.69°E	895 m	Installed	Servicing	Helicopter

¹ This list is subject to modification based on any AWS failures that may occur before the start of the field season. Some sites may not be visited due to limited logistics or weather. This list is not in priority order.

Table 5. AWS Activities planned this season (2009-2010) by U. Wisconsin collaborators ²

AWS Site	Latitude	Longitude	Elevation	Status	Collaborator	Comments
Pegasus North	77.952oS	166.5oE	10 m	Installed – needs servicing	John Cassano	USAP - O-400-M
PIG Helo Camp (Site C)	75.6°S	99.917°W	Unknown	Not installed – new AWS site	David Holland field team (includes UNAVCO)	USAP - WAP
Thurston Island	72.53°S	97.56°W	Unknown	Not installed – new AWS site	David Holland field team (includes UNAVCO)	USAP - WAP - POLENET
Bear Peninsula	74.546°S	111.88°W	Unknown	Not installed – new AWS site	David Holland field team (includes UNAVCO)	USAP - WAP - POLENET
E-66	68.912°S	134.655°E	2485 m	Installed – needs repair	Christophe Genthon	France - IPEV
Port Martin	66.82°S	141.39°E	39 m	Installed – needs repair	Christophe Genthon	France - IPEV
Dome Fuji	77.31oS	39.7°E	3810 m	Installed – needs repair	Takao Kameda	Japan - JARE
Relay Station	74.017°S	43.062°E	3353 m	Installed – needs repair	Takao Kameda	Japan - JARE
Cape Denison	67.009°S	142.664°E	31 m	Installed – needs servicing	Rob Easterher	Mawson's Huts Foundation
Panda South	82.325°S	75.989°E	4027 m	Installed – needs repair	Bian Ligen, Cunde Xiao	China - CHINARE

²This list is not in priority order and is subject modification.

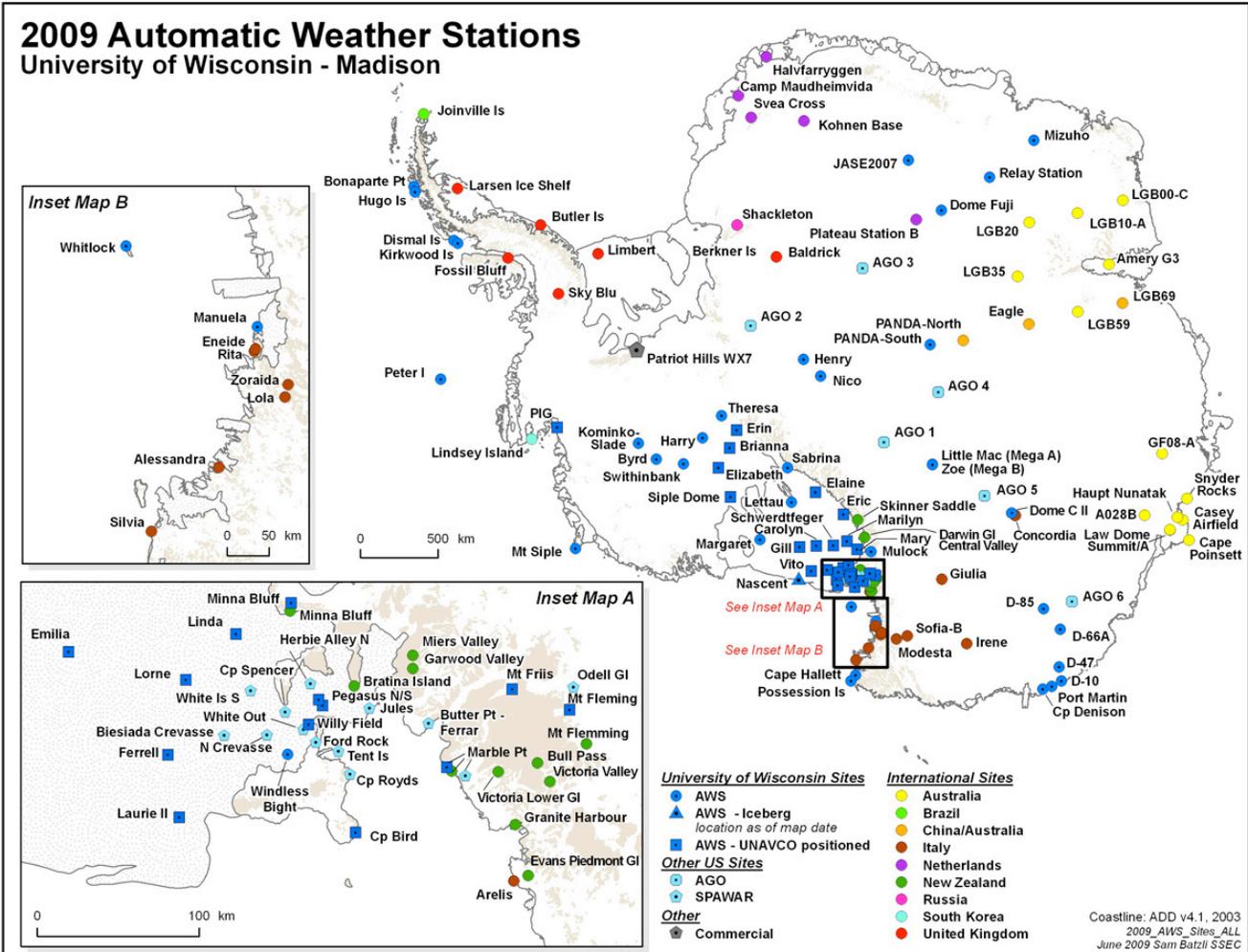


Figure 5. Map of Antarctic automatic weather stations (AWS) for 2009.

Appendix A

Summary of site visits for 2008/2009

Event 1: Minna Bluff and Linda AWS site visits by Jonathan Thom

10/31/2008 9:28 PM

Made it to Minna Bluff and Linda today. Minna bluff had one battery cable that was busted and one that was still good. It was pretty well covered in hoar frost. I have a feeling that this station is going to need to be completely reinstalled next year. It was pretty well stabilized by the chains, but tower base is not being held by anything. I think it will probably last for another year, but next year we should probably install a Rohn base. The tower section had at least one broken cross piece. Other than that it seemed that it was in OK shape.

Linda was another issue. I ended up raising the box, delta T and junction box. I tried multiple attempts to get it rebooted, but I did not have any success. I checked the antenna and power and they were both good. I ended up leaving the box there because we were a bit short on time to take everything down. I also forgot to bring caps for the cables. So, it is still there, but everything is raised up so you will just need to replace the box. The boom is a thermocouple delta-T. We can reprogram to read the thermocouple on the CR1000, if we choose to replace it with a CR1000.



Image A1: Minna Bluff AWS October 31 2008.



Image A2: Damaged battery cables from Minna Bluff AWS

Here are the before and after photos of Linda AWS. We raised the box, delta T and junction box. The junction box didn't have much extra battery cable so, we got it up as far as we could. Unfortunately, I couldn't get the station to boot up again. It should be an easy swap when you are down in January. It shouldn't be too difficult to make this a CSI station.

Top of the boom was	350 cm
top of the box was	224 cm
top of the delta-T	108 cm

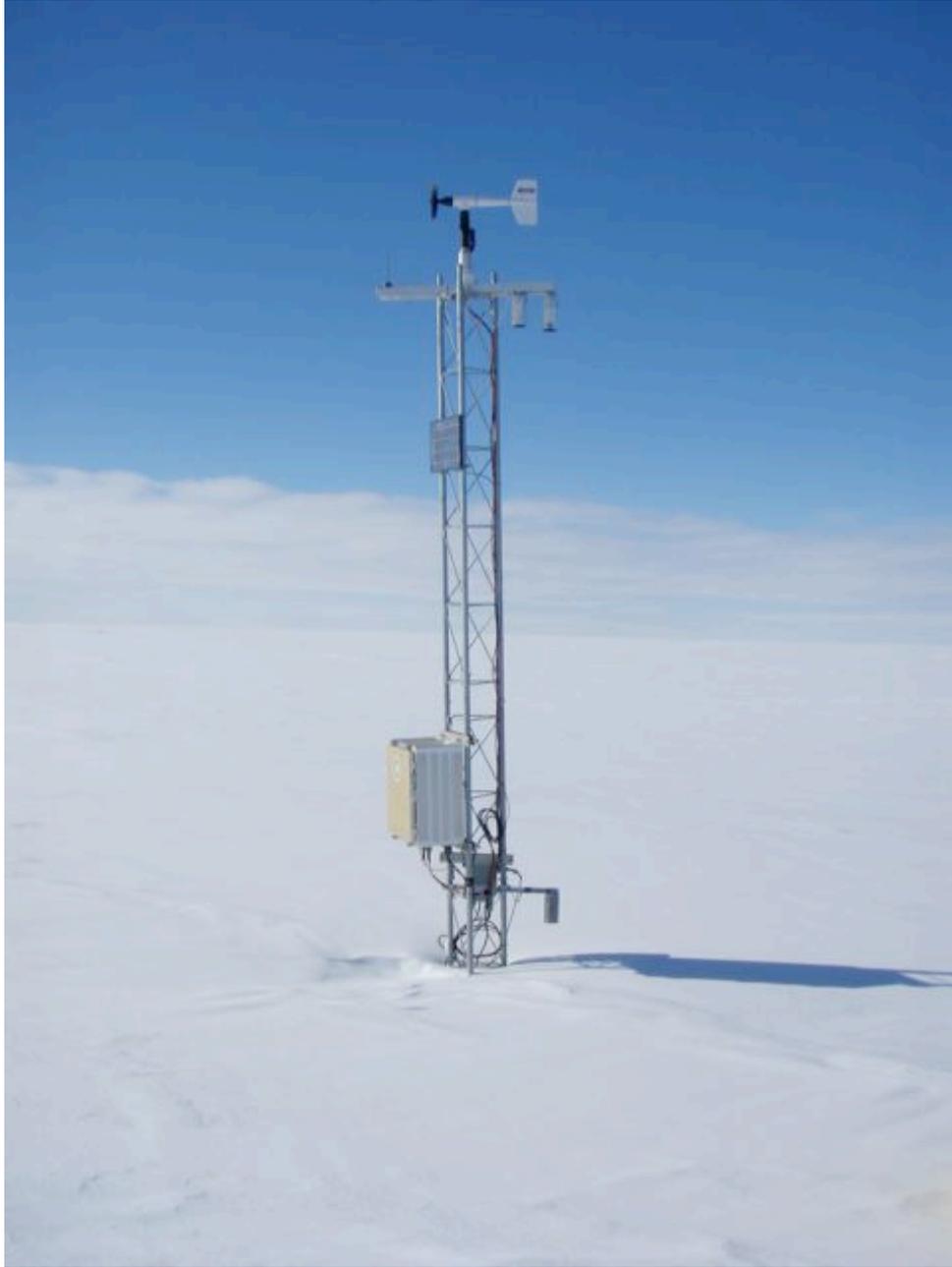


Image A3: Linda AWS before image



Image A4: Linda AWS after field work

Event 2: Ferrell site visit by Jonathan Thom

11/3/2008 4:54 PM

Didn't make it to Lorne today. Conditions were a bit sketchy, with 25 knot winds and -24C. It would have been difficult to get the tower raised. We did stop at Ferrell. I swapped out the memory module and will download the data this afternoon. It looked all right and should be all right for another year. It may need a raise next year. The ADG will definitely need to be raised next year. I'll send the tower measurements with the photos in the next email. I got about 15 minutes of GPS data at Ferrell. Picture from Ferrell AWS. I think I mentioned in the last email, I got about 15 minutes of GPS data. I still need to download the data from the memory module.

Here are the measurements from the site:

Top of boom: 338 cm

top of box: 234 cm

T for ADG: 075 cm

Base of ADG: 090.5 cm



Image A5: Ferrell AWS November 3, 2008 (before)



Image A6: Ferrell AWS on November 3, 2008 (after ADG raise).

Event 3: Visit of Lorne AWS by Jonathan Thom

11/4/2008 7:11 PM

Just got back from Lorne. It was a much, much (dare I say much three times) better day. No wind and temps around -20 or so. We got the station raised and I did get one reception at least on the telonics uplink receiver. I ended up swapping out the antenna for an antennex antenna. There teflon sheathing was broken in a spot. We'll see if it keeps transmitting. It would be an easy swap out, like Linda if it does turn off.

Here are the heights:

Before raise:

Boom	2.38 m
top of box:	0.72 m

After raise:

boom	4.3 m
top of box	2.9 m
top of jnc box was	2.4 m

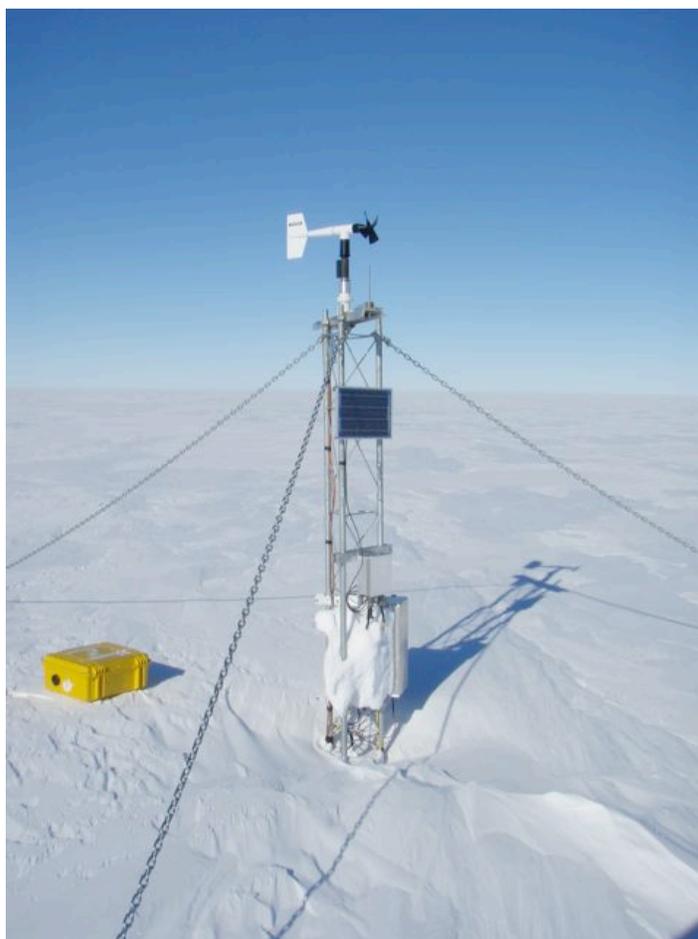


Image A7: Lorne AWS before servicing on November 4, 2008



Image A8: Lorne AWS on November 4, 2008 after servicing

Event 4: Iridium AWS servicing at Williams Field AWS sit by Jonathan Thom.

11/7/2008 12:10 PM

I pulled the radiation shield test and the box with the iridium modem yesterday. I downloaded the data from the radiation shield test compact flash card. The data was perfect. There were none of the crazy points I was seeing in the Argos transmission. I'm a little bit concerned about sending this set up to pole as it is. I would kind of like to get it setup on the rack and run in McM at least until January to try and find out if the Argos TX issue can be resolved. If anyone has any other ideas let me know. The iridium station was completely dead. I haven't tried to fire it up in the lab yet, but I'll do that today. I'll let you know what I find out. That's all for now.

Jonathan

Event 5: Installation of Margaret AWS near Roosevelt Island by Jonathan Thom

11/12/2008 11:48 PM

(See more at the beginning of this report)

Boom height: 514 cm

top of box: 325 cm

lower T: 210 cm

ADG height 215 cm

The boom is about 8 degrees west of North.

I'll update the cal file tomorrow with all of the info.

The station is installed at 80 S and 165 W, I think the TO pilot actually tried to get as close to that location as possible.

The snow surface there was nice, no sastrugi at all.



Image A9: Margaret AWS near Roosevelt Island after installation.

Event 6: Removal of AWS at Pegasus South by Shelley Knuth and John Cassano

1/7/2009 1:02 AM

Here are our notes from our trip to Pegasus South:

Shelley and I flew out to Pegasus South AWS this afternoon to remove this site. We retrieved:

AWS electronics

Belfort aerovane

Upper boom attached to lower boom with delta T

solar panel

junction box

3 battery boxes (2 with 3 batteries and 1 with 2 batteries)

2 anchor chains

2 anchor boards

1 AWS base board

2 5' tower sections

We left the following items at the site (as they were encased in ice):

2 anchor boards and chains

1 battery box (at least we assume one was buried as we had to cut the cables)

4 4"x4" wood posts used for anchoring the station

The Unavco GPS was left running at the site from approximately 3:30 to 5:20 PM (Unavco GPS unit 16414)

John



Image A10: Pegasus South AWS before removal on January 7, 2009

Event 7: Removal of Williams Field Iridium test AWS by Shelley Knuth and Melissa Richards

1/8/2009 2:50 AM

Shelley and Melissa visited Willie Field and pulled out the Iridium test AWS only. The radiation shield test AWS is still there, as well as the batteries/tower from the Iridium test AWS.

Event 8: Servicing of Pegasus North AWS by Shelley Knuth and John Cassano

1/11/2009 8:29 PM

Shelley and I visited Pegasus North yesterday. We checked all of the cables, and they appeared to be fine. We unplugged the AWS electronics and then plugged the power back in. The station then began transmitting (we received two transmissions with the Teloniks before removing the power again). We removed the following from this site for redeployment:

AWS electronics
Junction box
Lower delta T boom
Instrument boom
RM Young aerovane

We left the following at the site:

Tower
2 battery boxes
solar panel

John

Event 9: Removal of the AWS2B version of our AWS from Williams Field site by Matthew Lazzara and Melissa Richards

As of 00:30 UTC today, 12 Jan 2009, Wisconsin's Williams Field AWS has been taken off the air. As a note, the Argos ID 21364 will be redeployed to another field location later in this field season. You may want to change processing on the MetApps system so that data will not be misfiled as Williams Field data, when it may indeed be installed at a new location soon.

Here is the information from Melissa and my visit to Willie Field AWS:

Removed 21364 at 00:30 UTC

Height to the boom from the snow surface: 174.5 inches or 443.25 centimeters

Height to bottom of the electronics box from the snow surface: 78.25 inches or 198.75 centimeters

Height to the bottom of the delta-T from the snow surface: 18 inches or 45.75 centimeters

We removed the aerovane (in case that is needed at all) - and capped the based on the boom.

We removed the electronics enclosure.

All loose plugs capped, etc.

We did take UNAVCO GPS measurements.



Image A11 Williams Field Test Site before removal of the Wisconsin AWS IIB. (radiation test site still installed on right).

.....
Event 10: Servicing of Linda AWS and Ferrell AWS by John Cassano

1/16/2009 2:43 PM

- First attempt to get to Linda (new electronics) and Ferrell (ADG fix) didn't work out due to fog. They are flying now - night shift - to try again today....they ***just*** took off as I write this.

Here is my field report from our visit to Linda and Ferrell, to add

Linda

Field team: Shelley, Melissa, John

Replaced AWS electronics with AWS 21355

Unable to confirm transmission with Telonics

One horizontal prong on the antenna is broken off

Dug snow pit (3 years)

Placed UNAVCO GPS at site for approx. 1h (GPS 16414)

Height to bottom of:

Junction box: 23"

Lower delta T boom: 42"

AWS enclosure: 65"

Solar panel: 99"

Upper boom: 137"

Ferrell

Field team: Shelley, Melissa, John

Replaced ADG and confirmed correct operation

Dug snow pit (2 years)

Placed UNAVCO GPS at site for approx. 40 min (GPS 16414)

Height to bottom of:

Junction box: 35"

ADG: 37.5"

AWS enclosure: 74"

Solar panel: 104"

Upper boom: 131"

ADG solar panel: 51"

Campbell enclosure: 28"

GPS coordinates from helo:

77 deg 50.77 min

170 deg 49.15 min

John



Image A12: Linda AWS after servicing on January 16, 2009

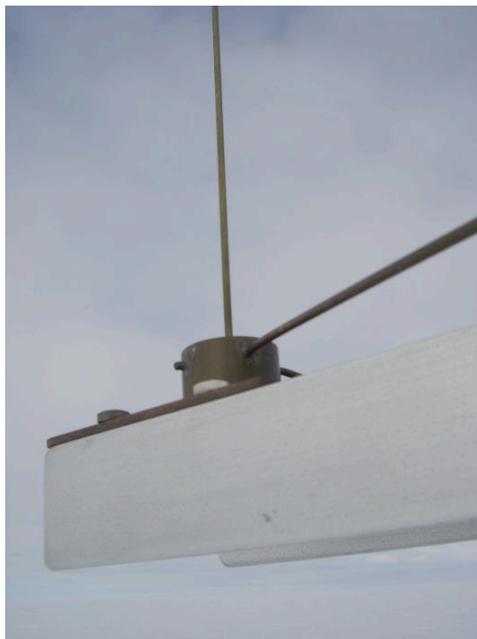


Image A13: Image of damaged antenna at Linda AWS



Image A14: Ferrell AWS on January 16, 2009 after servicing ADG

Event 11: Servicing of Linda AWS by John Cassano and Shelley Knuth

1/21/2009 10:50 PM

Shelley and I visited Linda AWS today and all appears to be working.

Here are my notes for the trip:

Field team: Shelley and John

Reboot existing AWS (21355) at Linda site: No transmission

Check voltage at junction box plug going into AWS: 13.4V

Disconnect solar panel

Note: all of the following voltage measurements were made with power connected to the AWS

Check voltage at jct box: 13.4 V

Disconnect 1 battery box check voltage in jct box from green to black: 0.008 V

Reconnect battery box and disconnect second battery box, check voltage in jct box from green to black: 0.034 V

Check voltage of battery boxes at plugs going into jct box:

Battery box 1: 13.2 V

Battery box 2: 13.3 V

Replace antenna and cable

Replace AWS 21355 with AWS 21362 (original Linda AWS)

Confirmed transmission with Telonics in field

We also see current data on local computer (<http://herbie.usap.gov/~amrc/21362.txt>)

The GPS coordinates from the helo were:

78 deg 25.57 min S

168 deg 25.03 min E

and differ from those we had for the site (78 deg 27.06 min S, 168 deg 23.64 min E)

Shelley and I cannot remember if 21355 transmitted with the new antenna and cable (actually we do remember, but not the same thing).

John

Event 12: Kominko – Slade AWS (WAIS Divide) by Shelley Knuth and Melissa Richards

1/25/2009 7:22 PM

Shelley's report from WAIS.

So as you know we serviced K-S site on Tuesday, and revisited on Wednesday to check to make sure everything was working ok.

Event 13: Servicing Marilyn AWS by John Cassano

1/23/2009 4:30 PM

Marilyn site was visited on 1/23/09 by John Cassano and 3 RPSC personnel on a morale trip (Kris, Marty, and Joel).

The Twin Otter had difficulty locating this site. After circling for approximately 15 minutes we landed at the given lat/long and scanned the horizon for the AWS. We were unable to spot the AWS and then taxied approximately due east until we spotted the AWS. The Twin Otter GPS coordinates at the site were 79 deg 55.551 min S and 165 deg 29.511 min E.

UNAVCO GPS (#16414) deployed at site from 2:30 to 5:00PM

Upon arrival the height to bottom of:

Lower T boom: buried

Junction box: buried

Solar panel: 38"

AWS enclosure: mostly buried (top 7" exposed)

Upper boom: 58"

A new 7' tower section was added to this site. New height to bottom of:

Lower T boom: Not retrieved (had not been connected when we arrived)

Junction box: 76"

Solar panel: 128"

AWS enclosure: 92"

Upper boom: 150"

After reinstalling all equipment transmission from the station was confirmed with Telonics. I've attached a before and after photo.

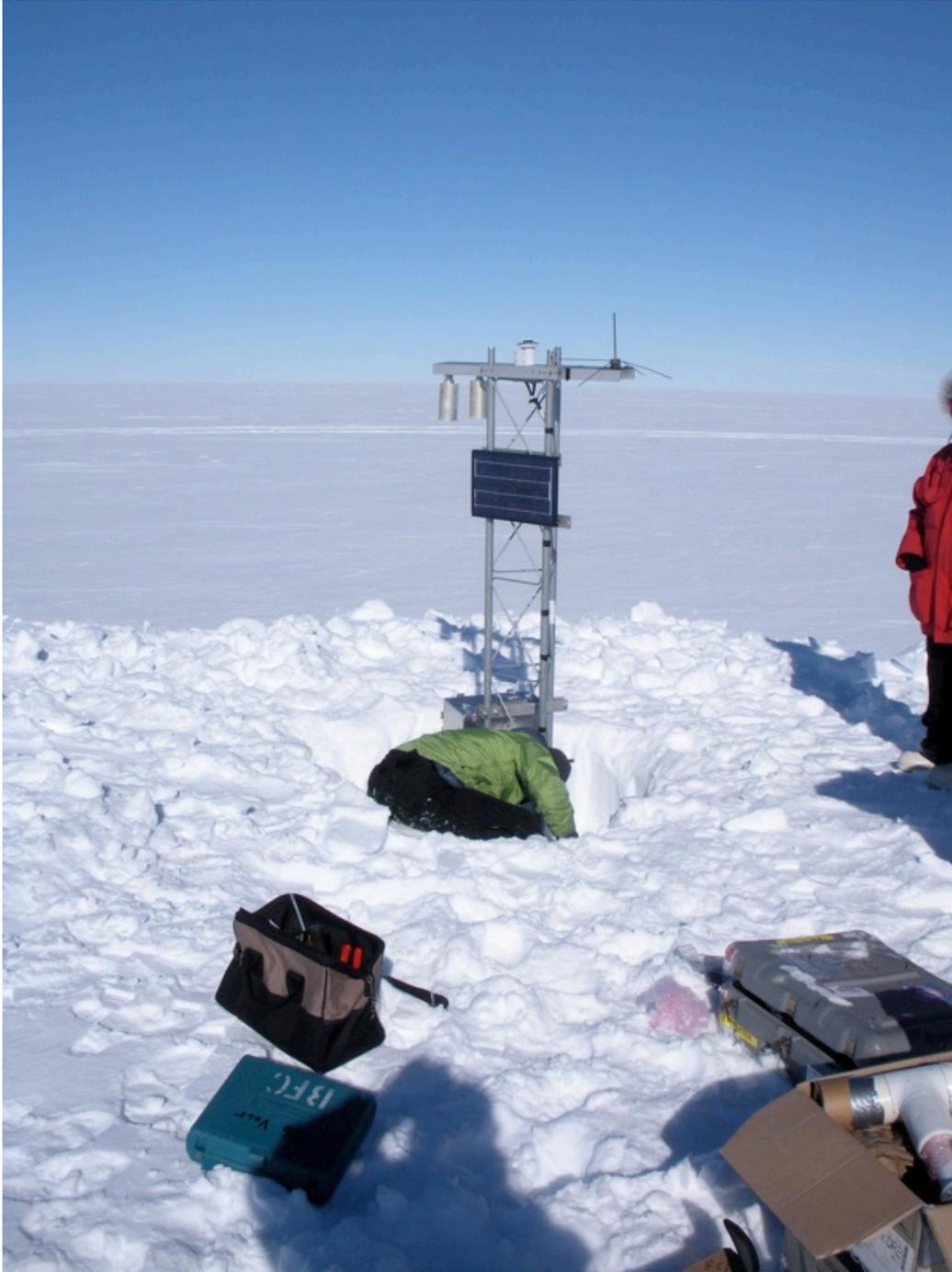


Image A18: Marilyn AWS January 2009 (before raising the tower)

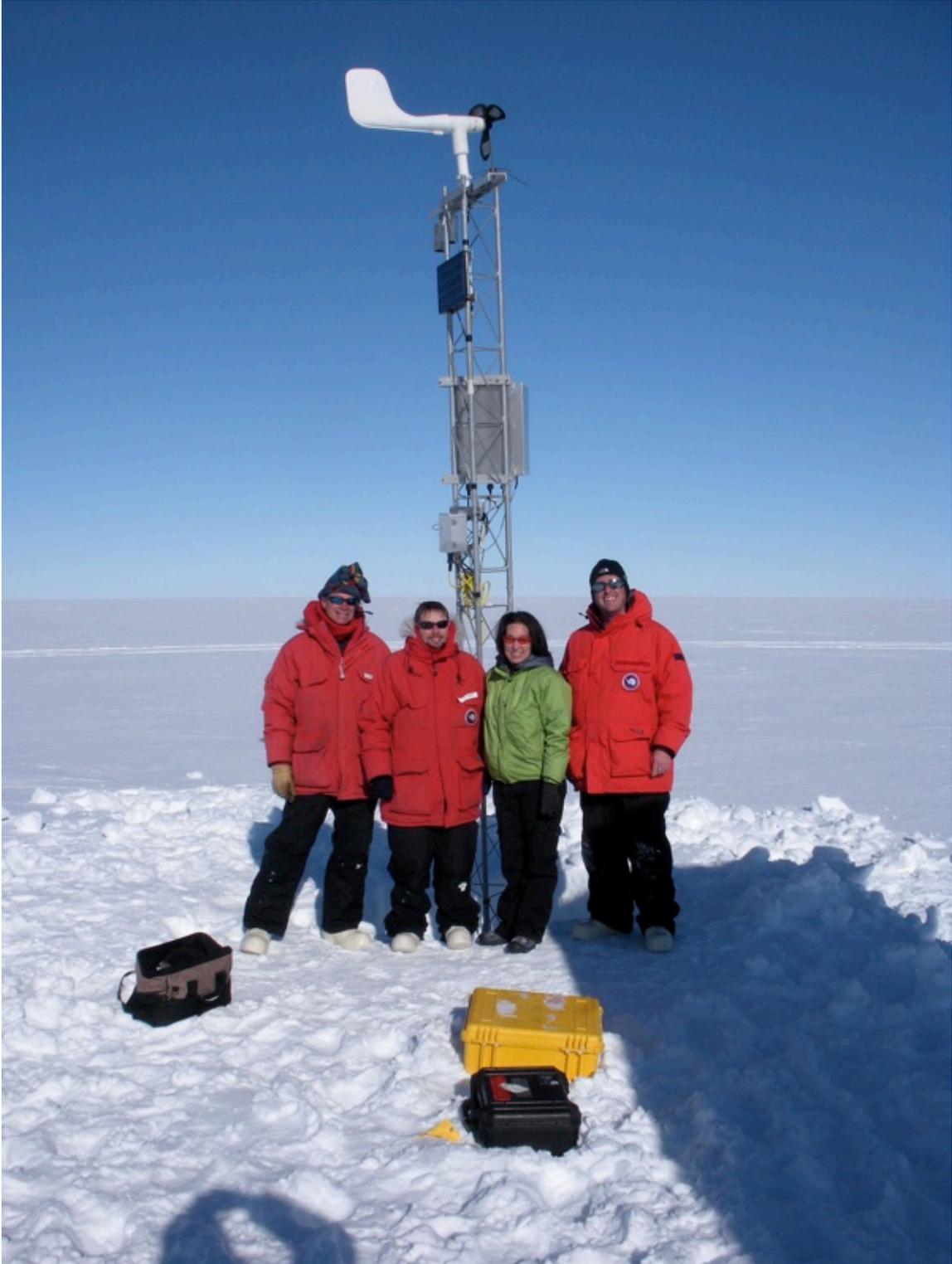


Image A19: Marilyn AWS January 2009 after raising the tower



Event 14: Servicing Carolyn AWS site by John Cassano

Carolyn site was visited on 1/23/09 by John Cassano and 3 RPSC personnel on a morale trip (Kris, Marty, and Joel).

The Twin Otter had difficulty locating this site, and the Twin Otter GPS coordinates at the site were 79 deg 56.368 min S and 175 deg 53.049 min E.

UNAVCO GPS (#16414) deployed at site from 11AM to 12:15PM

ADG data downloaded to Toughbook laptop computer, but data from late 2008 through present was retrieved.

Height to bottom of:

Lower T boom: at snow surface

Junction box: 28"

Solar panel: 65"

AWS enclosure: 12"

Upper boom: 99"

ADG: 25"

ADG temperature: 47"

CR10 enclosure: 40"

Decision was made to not add an additional tower section, but all equipment was repositioned on the tower.

New height to bottom of:

Lower T boom: 25"

Junction box: 53"

Solar panel: 84"

AWS enclosure: 28"

Upper boom: 99"

ADG: 56"

ADG temperature: 74"

CR10 enclosure: 54"

After reinstalling all equipment transmission from the station was confirmed with Telonics.

I've attached a before and after photo.



Image A20: Carolyn AWS site before servicing in January 2009



Image A21: Carolyn AWS site after servicing in January 2009



Event 15: Servicing Vito AWS site by Shelley Knuth and Melissa Richards

Visited Vito AWS on 1/24/2009 at 10:30 am (approximate ground time was 2 hours)

Team: Shelley, Melissa, Jason (RPSC), and LaVonne (RPSC)

Pilots: Josh and Randy

Had a bit of trouble spotting Vito. Site had moved about a half a mile since last visited. Upon arrival, all instruments including junction box were above snow. Measurements to surface were as follows:

Junction box: 13 cm

Electronics box: 22 cm

Solar panel: 34 cm

Boom: 2.3 m

Unfortunately we forgot to get new heights before we left so this is the only information we have.

Noted that tower put on from previous year was simply held on by a cargo strap and was not bolted on (was a base section). Did not rectify because tower seemed solid and cargo strap would soon be buried in snow. Could still see guy lines above surface.

RM Young shaft was loose (ie, it would turn). Was tightened.

Removed all instruments, added a 7 foot tower section on top, then re-mounted all instruments. Station did not come back online at first.

Had to reboot, and then was fine. Got two, possibly three transmissions. A battery was not added as it was determined that there was more than enough battery power. Next time visited will definitely need battery extension cables.

Battery voltages were as follows:

Battery #1: 13.14

Battery #2: 13.15

UNAVCO GPS was put out from approximately 10:30 am - 12:30 pm.

New GPS coordinates from pilots:

78 27.973'S 177 46.854'E

Shelley



Image A22: Vito AWs before raising the tower in January 2009



Image A23: Vito AWS after raising the tower in January 2009



Event 16: Servicing Emilia AWS by Shelley Knuth and Melissa Richards
Visited Emilia AWS on 1/24/2009 at 1:30 pm (approximate ground time was 1.5 hours)

Team: Shelley, Melissa, Jason (RPSC), and LaVonne (RPSC)
Pilots: Josh and Randy

Actually had no trouble spotting Emilia, even though the pilots said it was nearly 2.5 miles from last known coordinates. Upon arrival, all instruments including junction box were above snow. Measurements to surface were as follows:

Junction box: 21 cm
Electronics box: 53 cm
Solar panel: 1.32 m
Boom: 2.05 m

New measurements after raise:

Junction box: 97 cm
Electronics box: 240 cm
Solar panel: 320 cm
Boom: 430 cm

The tower on this station was also not bolted on, even though there were holes in the section to bolt it with. Added bolts in the section to secure.

Removed all instruments, added a 7 foot tower section on top, then re-mounted all instruments. Station came back online right away. Next time visited will definitely need battery extension cables.

We cut the delta T cable which was taped to the tower but wasn't plugged into the electronics box so didn't think was hooked up. Dug down 3 feet but never saw the lower boom.

Battery voltages were as follows:

Battery #1: 12.8
Battery #2: 12.9

UNAVCO GPS was put out from approximately 1:30 pm - 3:00 pm.

New GPS coordinates from pilots:
78 28.37'S 173 08.81'E

Shelley



Image A24: Emilia AWs before raising the tower in January 2009



Image A25: Emilia AWS after raising the tower in January 2009

Event 17: Servicing Elaine AWS site by John Cassano

Elaine site was visited on 1/28/09 by John Cassano, 3 RPSC personnel on a morale trip (Scott, Tanya, and Kat), and 2 Twin Otter pilots (Josh and Randy).

The Twin Otter had difficulty locating this site.

The Twin Otter GPS coordinates at the site were 83 deg 05.84 min S and 174 deg 17.38 min E.

UNAVCO GPS (#16414) deployed at site from 14:35 to 16:50 local time

Upon arrival the height to bottom of:

Lower delta T boom: buried
Junction box: buried
Solar panel: 28"
AWS enclosure: buried to top of enclosure
Upper boom: 61"

Work completed:

A new 7' tower section was added to this site
AWS 8987 was replaced with AWS 21357
Belfort aerovane was replaced with RM Young aerovane

New height to bottom of:

Lower delta T boom: 34"
Junction box: 55"
Solar panel: 117"
AWS enclosure: 89"
Upper boom: 148"

Voltage at AWS power plug: 14.0V (without solar panel)

The next time this site is raised we will need two battery extension cables as there is no more slack left in the existing battery cables.

After reinstalling all equipment transmission from the station was confirmed with Telonics.

I did not remember to take a before photo, but have attached two after photos.



Image A26: Elaine AWS after servicing in January 2009



Event 18: Installation of Sabrina AWS site in southern area of Ross Ice Shelf by Shelley Knuth and Melissa Richards

Installed Sabrina on 2/2/2009 1:30 pm (approximate ground time was 2.5 hours).

Team: Shelley, Melissa, Kevin Emery (FSTP)

Pilots: Lexi and Rory

Beautiful day on the field, and a beautiful location with the mountains in the background. Temperature was fairly warm and there was no wind. The area is crevasse free so it's pretty safe. The South Pole traverse was very nearby - we could see their tracks and flags. We stopped at Moody Glacier on the way out and back to refuel. Took about 4.5 hours to get out to Sabrina from McMurdo.

Site was a new install. Put one 5' base and 1 7' tower section on top. Added solar panel, temperature/RH sensor, RM Young, junction box, CR1000, ADG, and lower temperature sensor for ADG. Also added white wand antenna. Added 2 battery boxes measured at 12.7 volts each.

Once the tower was up, we could not get a transmission for about 20 minutes. We began troubleshooting by rebooting the system, unplugging and re-plugging the antenna in, but nothing happened. We had just pulled out the toughbook and an extra antenna and suddenly got a transmission. We verified 3 transmissions before we left.

One very important note.

We did not have a handheld gps with us. The one we had was packed in our WAIS cargo, and we could not retrieve another one before we left in the morning despite various attempts. While we talked to the pilots and know where true north was so that the boom is facing that direction, the RM Young could easily be off by several degrees, and we had no way of verifying how far off it was.

The UNAVCO GPS was up from 1:30-4 pm.

Heights to surface:

ADG: 66 cm

Junction box: 112 cm

ADG Temp: 116 cm

Electronics box: 146 cm

Solar Panel: 201 cm

Boom: 288 cm

I've attached photos.

Shelley

P.S. The before picture is just us being funny...the pilots were circling several times and we didn't know what they were doing (they didn't give us a headset) and finally they yelled that they couldn't

find the site. So we informed them it wasn't there. Also, the pilots were a HUGE help with installing the site too, as was Kevin.



Image A27: Area before installation of Sabrina AWS



Image A28: Sabrina AWS after installation in January 2009

Event 19: Servicing of Lettau AWS by Shelley Knuth and Melissa Richards

Visited Lettau on 2/2/2009 at 5 pm. Approximate ground time was 45 minutes.

Team: Shelley, Melissa, Kevin Emery (FSTP)

Pilots: Lexi and Rory

Upon arrival all sensors were above the surface, including the delta T (although barely). Site was off air so we rebooted the electronics box, and it came back online right away. We checked the antenna and antenna cable and everything appeared fine. We moved the electronics box and delta T further up the tower to avoid being buried. We also replaced a battery at the site, although the 2 batteries on site appeared ok (we replaced the battery registering the smallest voltage). We cut off the plug from the battery that was left there. After moving the instruments up the tower we plugged everything back in and got a transmission immediately. Verified with three transmissions.

Heights to surface upon arrival:

Delta T: 22 cm

Electronics box: 55 cm

Junction box: 94 cm

Solar panel: 198 cm

Boom: 258 cm

Heights after raising instruments:

Delta T: 57 cm
Electronics box: 137 cm

Voltages of batteries on site: 13.08 and 12.79
Voltage of power cable coming out of junction box: 13.23



Image A28: Lettau AWS before servicing in February 2009

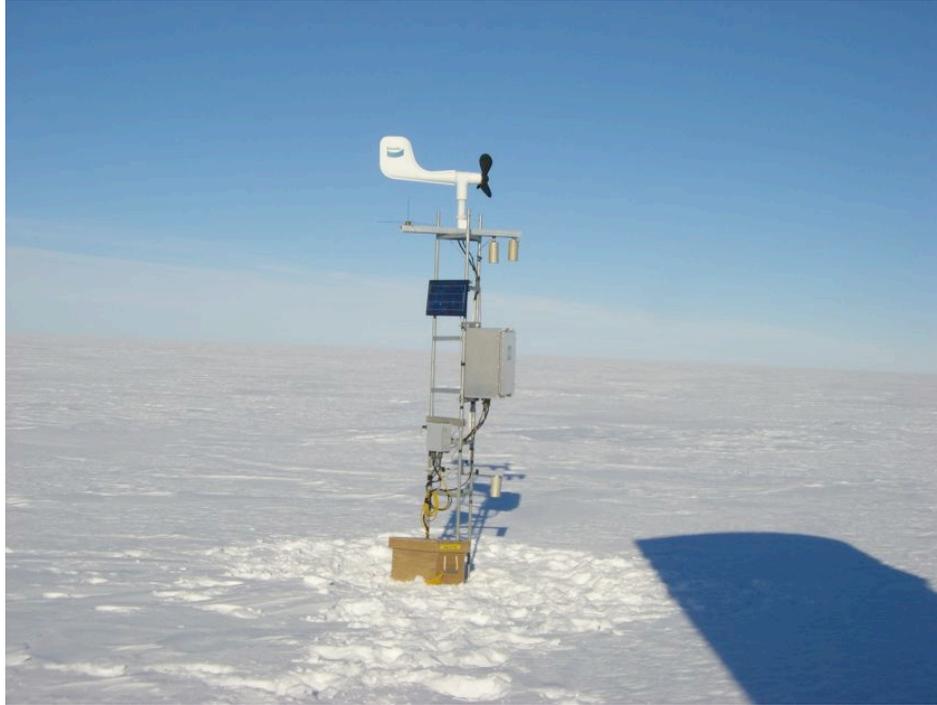


Image A29: Lettau AWS after servicing in February 2009

.....
Event 20a,b,c: Servicing of Pegasus North AWS by John Cassano and Melissa Richards

Here are my field notes for the re-deployment of Pegasus North:

Field team: Melissa and John

Install:

AWS 21355

Junction box

Boom and lower delta T boom

Height to bottom of:

Lower delta T boom: 33"

Junction box: 44"

Solar panel: 86"

AWS enclosure: 61"

Upper boom: 130"

Voltage at:

Battery box 1: 12.8V

Battery box 2: 12.9V

AWS power plug: 12.9V

Confirmed transmission with Telonics. I've attached a photo of the station.

John



Image A30: Pegasus North after servicing in February 2009

Pegasus North site was visited again on 2/5/09 by Melissa Richards and Dan Steinhoff

Work completed:

Removed electronics box 21355

Installed electronics box 8923

Installed lower temperature sensor below the current lower delta-T

Height to lower temperature sensor: 20"

Height to the remaining instruments are the same as the last field report

Received 3 successful transmissions.

Melissa

Event 21: Installation of new AWS at Williams Field AWS site by Melissa Richards

Willie site was visited on 2/5/09 by Melissa Richards and Dan Steinhoff

Work completed:

Installed electronics box 30477

Installed RMY aerovane with Belfort base

Installed Antennax antennae

Removed ADG, ADG radiation shield and ADG enclosure

Installed new ADG to attach to the 30477 electronics box

New height to bottom of:

Lower temperature sensor: 20"

Junction box: 41"

ADG: 43"

Solar panel: 49"

Electronics box: 77"

Solar panel: 154"

Antennae: 164"

Boom: 175"

Received 3 successful transmissions.

A few notes:

- * The old style antennae was left on the boom with the electronics box end of the cable taped off
- * The Antennax antennae was attached directly to the tower as done at Sabrina. This caused close clearance with the aerovane, but it was verified multiple times that there is sufficient clearance.
- * The old ADG enclosure had a battery cable hard wired inside. In order to remove the enclosure, this cable needed to be cut. Dan and I did not have a shovel to try to dig up the battery box. The cut end of the battery cable has been covered with tape and taped to the tower.
- * The cable to the lower solar panel followed the tower down into the snow. Does this go to the battery box that powered the ADG enclosure? If so, is there a problem that this is still connected and the battery box cable has been cut?

I think that is it. Dan, do you have anything to add?

Melissa

The following pictures are of the completed site, the cut battery cable taped to the tower and of the close clearance of the antennae and aerovane.

On Feb 5, 2009, at 9:14 PM, George Weidner wrote:

Melissa,

The Experiment wins one. Evidently my supposition that the problem was with the 10V line to the WS interface and Humidity probe proved incorrect. After your fine work, we still have no WS or Humidity... it is a harsh continent.

Thanks to you and Dan for attempting to correct the problem as assumed..

We will provide a new AWS for John when he is there early next season...

either the RM Young board itself is the issue or there are subtle issues with the A to D circuit...

Thanks again to you and Dan for your efforts and for your work in the field ..

George



Image A31: New AWS 30477 after installation at Williams Field site in February 2009

Event 22: Installation of new AWS on Hugo Island

Field team headed by

W. Kevin Pedigo

Sr. Marine Computer and Instrument Specialist

ARSV Laurence M. Gould

United States Antarctic Program



Image A32: AWS for Hugo Island under test in Punta Arenas

ARSV LAURENCE M. GOULD DAILY SITUATION REPORT

GMT DATE: 2 April 2009

REMARKS: Done and done as they say. Today we installed the second GPS station for C-515-L and the AWS (automatic weather station) for the University of Wisconsin. None of this could have happened in weather other than what we experienced today. Nor could any of this have happened without the very spirited help of all who went ashore including three personnel from Palmer Station who logged a very physical day hauling gear up and down some very rocky inclines. We also hauled out the old AWS, including all rigging and batteries and loaded them aboard the ship. Some feisty fur seals stood guard as well as colonies of gentoo and chinstrap penguins to whom we gave a wide berth. Despite the ideal weather conditions, Zodiac landing sites require a great deal of caution due to the breakers on the rocks with even a minimal swell.

Once again we very much appreciate the incredibly accurate weather forecasts that we are receiving and the help of ECO working the back deck and holding station with the ship. We are now enroute to the final GPS site at Duthier's Point near Paradise Harbor, ETA tomorrow morning early.

I have a lat/lon for Hugo Island, from Kevin on the LMG:

64 57.70 S, 64 40.12 W



**Image A33: W. Kevin Pedigo
(Sr. Marine Computer and Instrument Specialist)
on the ARSV Laurence M. Gould
installing AWS at Hugo Island**

Appendix B

Summary of collaborative site visits for 2008/2009

Event 1: Aerovane servicing at Manuela AWS on Inexpressible Island by PNRA personnel.

November 27, 2008 3:23:02 AM CST

I would like to inform you that we have replaced the Aerovane on the Manuela AWS, as you asked us. Now the AWS is working properly. I would excuse me for the delay of this message, but in the last two weeks we have been very busy. I would appreciate if you can write me the name and the address of the person to whom we can send back the old sensor. In attachment you will find a picture of the repaired Manuela AWS.

Best regards

Lorenzo De Silvestri

Meteo-Climatological Observatory

ITALIAN ANTARCTIC RESEARCH PROGRAMME

Mario Zucchelli Station

E-MAIL: lorenzo.desilvestri_s@mzs.it

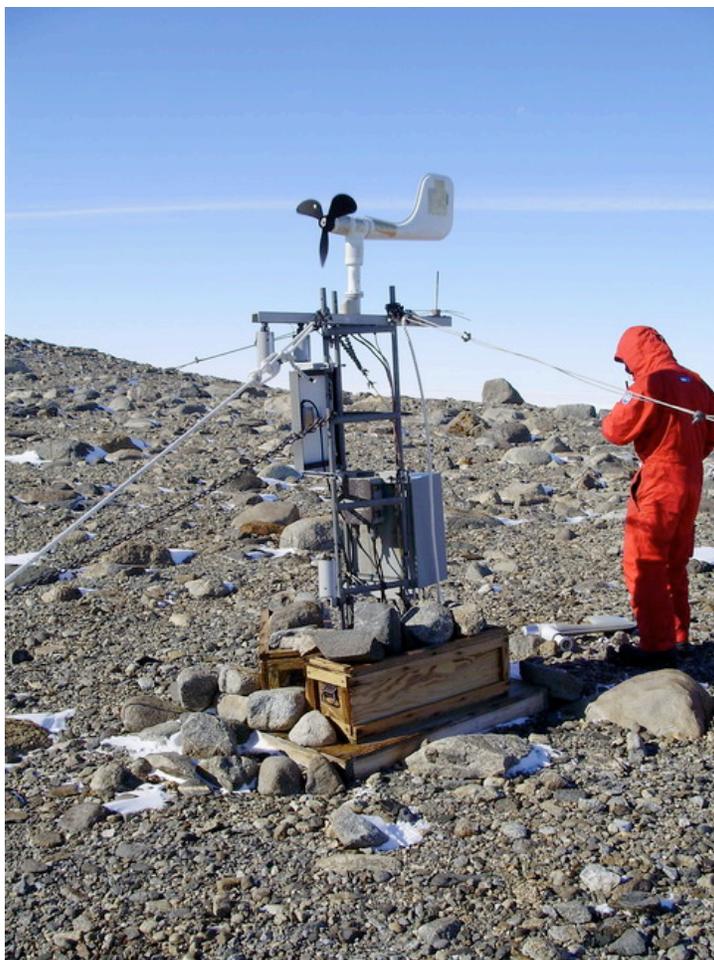


Image B1: Manuela AWS with Bendix Aerovane 2008/2009

Event 2: Servicing of AWS at Cape Denison by Mawson's Hut Foundation personnel

1/11/2009 11:44 PM

I replaced the anemometer today without any problem. The cables all looked in good condition, but the rubber sleeves on the 3 data cables' entry into the small metal box were perishing so I taped them up. I will sent you pictures when I get back.

Regards

Chris Henderson
chris.henderson@mhf.aq
 Mawson's Huts Foundation
 Read our blogs at <http://www.mawsons-huts.org.aq>
 Find us on the web at <http://www.mhf.aq>



B2: AWS at Cape Denison



Event 3: Servicing AWS D-47, E-66, & D-85 along traverse line from Dumont D'Urville to Dome Concordia by IPEV collaborators

Collaborators: Christophe Genthon, Patrice Gordon, Alain Pierre, Bruno Jourdain of the Institut Polaire Français Paul Emile Victor – IPEV

D47 and D85 working; E66 no longer received as of January 19, 2009.

08912	E66			343/0915Z-	
(1)	28	D2	A8	00	
	AB	4F	FF	B5	
	3C	62	35	65	
	00	00	00	03	
	3D	63	2F	65	
	01	FF	00	B5	
	3E	5F	49	B1	
	FF	FF	E2	C5	

08914 NO LOCATION Not deployed (spare unit)

08916	removed from D85 (return to US)	336/1211Z-		
(1)	B5	12	EA	FE
	ED	7D	B1	00
	00	00	00	00
	00	01	FF	00
	00	00	00	00
	E5	35	A6	00
	00	00	24	00
	FB	00	C6	DB

08947	D47		019/0639Z-	
(1)	27	69	30	88
	CD	A8	89	18
	20	54	E7	C6
	4C	64	E3	45
	63	8A	74	03
	42	8C	55	8D
	0F	BC	11	1B
	C1	3D	D1	3F

08986	D85		019/1234Z-	(1)
26	52	93	00	
	A6	22	01	35
	2D	55	30	59
	01	00	03	00
	28	5C	2B	59
	00	00	02	36
	34	59	92	35
	00	00	D3	52

Update on IPEC traverse AWS sites as of 2300 UTC 04 February 2009
E66 and D85 working ok.

	08912	E66		035/2255Z-	
(1)		25	42	5E	00
		AA	21	FF	94
		30	69	31	67
		FD	00	FE	FF
		37	67	36	64
		00	02	01	A2
		34	67	24	A3
		00	FF	DF	7B

	08986	D85		035/2251Z-	
(1)		23	22	5E	00
		A5	51	FF	38
		1F	6E	20	6E
		FE	FE	FE	FF
		1A	6D	1E	71
		00	01	00	37
		1B	6E	92	37
		00	00	DE	28

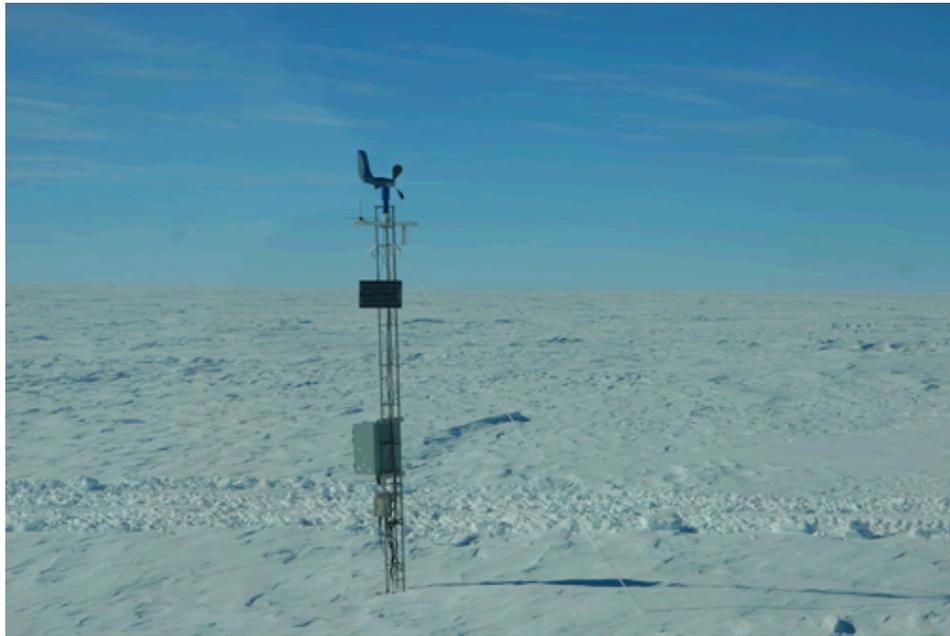


Image B3: D-47 AWS, 2009 (Courtesy of Bruno Jourdain)



Image B4: E-66 AWS, 2009 (Courtesy of Bruno Jourdain)



Image B5: D-85 AWS, 2009 (Courtesy of Bruno Jourdain)

Event 4: Servicing and correcting wiring error for humidity of AWS at D10.

Collaborators: Christophe Genthon, Phillippe Dorhain, and Vincent Favier
January 8-10, 2009

From Christophe:

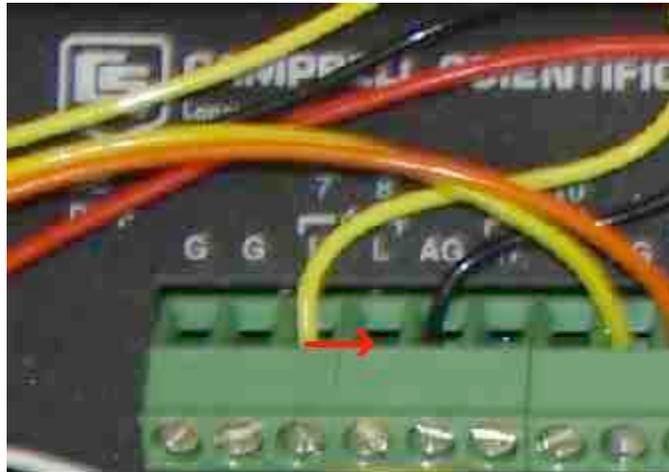
We did raise D10 one mast length today. Philippe Dordhain had an essential contribution here. Vincent Favier also helped. Operation was done at ~15:00 local time. The SR50 height above surface was 96 cm before, is 310 cm after.

From George Weidner:

We have found the source of the error with the humidity data with D10. The input channel on the CR10X for humidity should be 8 and NOT 7. Channel 7 was the temperature sensor in the HMP45 rather than the humidity sensor. The yellow wire should be moved to channel 8 (fourth from the left). Other AWS that use this CR10X program used the temperature data from the HMP45.... The good news is that the data is stored as temperature data in the storage module and can be recomputed as humidity when we get the storage module back after this year. There is enough memory for two years of data and will not need to be replaced until next season. After the wire is moved, the humidity will be stored in its correct field in the storage module, and this should solve the humidity issue for the transmitted data ...

Added sentence in instructions:

"only requires a small slot screwdriver to change the yellow wire channel connection"



Move yellow wire from 7 to 8....

Image B4: Visual instruction for moving the humidity wire to correct input location on CR100

.....
Event 5: Servicing AWS on Dismal Island by the British Antarctic Survey

Subject:
RE: Parts for Dismal Island AWS
From:
"Colwell, Steven R" <src@bas.ac.uk>
Date:
Tue, 17 Mar 2009 16:06:52 +0000
To:
George Weidner <george.weidner@ssec.wisc.edu>

Hi George,

Hope you are well, just to let you know that we will not be able to service the Dismal Island AWS this season, we had planned to do it from the Endurance but it nearly sank in December see <http://www.visitandlearn.co.uk/TrackHMSEndurance/CaptainsBlog/tabid/64/EntryID/21/Default.aspx>

The next plan was to do it from one of our own ships on its way into Rothera but it has not been possible to do that due to bad weather and changes in the ships itinerary. We plan to leave the equipment at Rothera for the winter and then it has been added to the task list for next season so fingers crossed for more success then.

Bye
Steve

Appendix C

SPAWAR Office Of Polar Programs

Automatic Weather Station Locations for 2008/2009

