Antarctic Automatic Weather Stations
Field Report for 1999-2000

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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 electronic's 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. The data are collected by the ARGOS Data Collection System (DCS) on board the National Oceanic and Atmospheric Administration (NOAA) series of polar-orbiting satellites.

The AWS units are located in arrays for specific proposals and at other sites 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 include

- Barrier wind flow along the Antarctic Peninsula and the Transantarctic Mountains
- Katabatic wind flow down the Reeves, Byrd and Beardmor Glaciers, the Siple and Adelie Coast
- Mesoscale circulation and sensible and latent heat fluxes on the Ross Ice Shelf
- Climatology of Byrd and Dome C sites
- Meteorological support around the South Pole
- Meteorological support for the West Antarctic Ice Sheet Initiative and the International Trans-Antarctic Scientific Expedition
- Long Term Ecological Research (LTER) along the Antarctic Peninsula
- Meteorlogical support for United States Antarctic Program flight operations

The following sites support specific principal investigators funded by NSF-OPP.

Dr. Gerd Wendler, Katabatic Winds: D-10, D-47, D-57, D-80, Dome C II, Port Martin, Cape Denison, Penguin Point, Sutton, and Cape Webb.

Dr. David Bromwich, Siple Coast Katabatic Winds: Byrd Station, Brianna, Elizabeth, J.C., Erin, Harry, Theresa, Doug, and Swithinbank.

Dr. Ray Smith, Long Term Ecological Research: Racer Rock, Bonaparte Point, and Santa Claus Island.

Dr. David Bromwich, Research on Ocean-Atmosphere Variability and Ecosystem Response in the Ross Sea: Marble Point, Whitlock, Manuela, Scott Island, Young Island, Possession Island.

Dr. David Bromwich, The Antarctic First Regional Observing Study of the Troposphere: All the OPP Antarctic AWS sites were used.

Dr. David Braaten, Snow Accumulation Dynamics at Low Wind and Moderate Katabatic Wind Locations in Antarctica: Willie Field with acoustic depth gauge, Ferrell, and Marilyn.

West Antarctic Ice Sheet Initiative and International Trans Antarctic Scientific Expedition: Siple Dome and Noel, installed in 1999/2000 field season. Siple Dome and Noel site will be equipped with snow temperature profiles .

Drs. Neff and Carroll, Observational and Model Studies of Episodic Events in the South Polar Atmospheric boundary Layer: Henry, Nico, Clean Air, and two other sites that were moved when the observation program was completed.

Aircraft Operation: All AWS sites in Antarctic.

The Antarctic AWS units support many investigators outside of NSF-OPP.

Field work completed for 1999-2000

A. McMurdo based operations

1. For the 1999-2000 field season, our November field team consisted of Robert E. Holmes from the University of Wisconsin . The following sites were visited during the November to December period.

Site	ARGOS ID	Service performed at site
Linda	8919	Restarted AWS
Pegasus North	8928	Removed AWS unit for repair
Cape Bird	8901	replaced sensor boom

2. For January 2000 the field team consisted of Dr. John Cassano from the Byrd Polar Research Center and Jason Vandervest, a graduate student from the University of Wisconsin. The following sites were visited with the listed actions taken.

Site	ARGOS ID	Service performed at site
Pegasus North	21357	Installed new AWS
Pegasus South	8937	Replaced Aerovane
Ferrell	21355	Installed new AWS
Laurie II	21364	New site established

A day by day summary of field work is given in appendix A.

B. Field work based in West Antarctica

3. For January 2000 the field team consisted of Dr. John Cassano from the Byrd Polar Research Center at Ohio State University and Jason Vandervest, a graduate student from the Department of Atrmospheric, Oceanic and Space Sciences at the University of Wisconsin and Dr. Chris Shuman with the Earth System Science Interdisciplinary Center at the University of Maryland. The following sites were visited with the listed actions taken. Note: Byrd AWS was serivced by ASA personnel at our request. Thanks to Kristin Scott and Robbie Score for coordinating our request with the ASA field personnel.

Site	ARGOS ID	Service performed at site
Byrd Station	8903	AWS restarted
Brianna	21362	Installed new batteries
Elizabeth	21361	Installed new batteries
J.C	21357	Removed AWS
Erin	21363	Installed new batteries and aerovane
Noel	8936	New AWS site

C. Field work from the icebreaker.

AWS work based from the icebreaker

Site	ARGOS ID	Service performed at site
Port Martin	8930	AWS removed
Port Martin	8909	AWS installed with new batteries and high wind system
Cape Denison	8907	AWS removed
Cape Denison	8988	AWS installed with new batteries and high wind system
Sutton	8939	Site not located
Cape Webb		No action due to limited resources
Whitlock	8921	Install new batteries and high wind and raise station with new towers

Summary reports of work done along the Adelie Coast are given Appendix A

D. Field work in Adelie Land

No field work was accomplished in Adelie Land due to a lack of resources available from the University of Wisconsin.

E. Field work by the Japanese Antarctic Research Expedition at Dome Fuji

Site	ARGOS ID	Service performed at site
To be dtermined	21359	To be installed

F. Field work accomplished by the British Antarctic Survey

Site	ARGOS ID	Service performed at site
Butler	8902	Raised one tower section
Larsen Ice Shelf	8926	Raised tower, location now 17km
Limbert	8925	Repaired electronics ,new boom
Ski High	8917	Replace batteries raised tower
Uranus Glacier	8920	Tower raised

G. Service performed by Long Term Ecological Research group and Palmer Staion personnel.

Site	ARGOS ID	Service performed at site
Santa Claus I	21364	AWS removed
Santa Claus I	8933	New AWS installed

Plans for June 1, 2000 through July 31, 2001

A. AWS Operations based from McMurdo

1. Installations

No new installations are planned at this time.

2. AWS servicing

AWS sites will be serviced as needed

B. AWS operations from the icebreaker.

1. The following AWS sites will be visited for upgrading to high wind speed and direction units from HydroTech Inc.

Site	ARGOS ID	Lat.	Long	Elev (M)
Sutton	8939	67.08°S	141.37°E	871
Cape Webb	8933	67.934°S	146.824°E	37

C. AWS operations in West Antarctica

1. The following AWS sites will be serviced as necessary

Site	ARGOS ID	LAT	LONG	ELEV (M)
Byrd Station	8903	80.007°S	119.404°W	1530
Brianna	21362	83.887°S	134.145°W	549
Elizabeth	21361	82.606°S	137.082°W	549
Erin	21363	84.901°S	128.810°W	1005
Harry	21355	83.003°S	121.393°W	945
Theresa	21358	84.599°S	115.811°W	1460
Doug	8922	82.315°S	113.240°W	1433
Mount Siple	8981	73.198°S	127.052°W	230
Siple Dome	8900	81.656°S	148.773°W	620
Swithinbank	21356	81.200°S	126.174°W	945

D. Tentative field work by the Institut Francais Pour la Recherche et la Technologie Polaires (IFRTP) at Dumont D'Urville.

1. Two installations are planned with other sites to be serviced as necessary.

AWS Site		ARGOS ID	Lat. (deg)	Long. (deg)	Alt (m)
D-57	Install	AWS 8912	68.199°S	137.538°E	2105
D-80	Install	AWS 8916	70.040°S	134.878°E	2500

E. Tentative Field work by the Japanese Antarctic Expedition from Dome Fuji

1. Install AWS 21359 at Mizhou Site

F. AWS field work to be done by the British Antarctic Survey at Rothera Station.

1. Possible Installation of AWS at Thurston Island ~72S, 103W

G. AWS operations based at Palmer Station for LTER support

1. Provide spare AWS for LTER (or new site)

AWS Operations over the next three year grant cycle from 1 July 2001 to 1 July 2004.

1. West Antarctica sector

The plans are to install additional AWS units at sites in West Antarctica during the three years of our new proposal. After sufficient data from the array of 8 AWS sites on the Siple Coast, 4 to 5 of the AWS units will be removed and reinstalled at other sites in West Antarctica in support of WAIS and ITASE. The selection of the sites to remain on the Siple Coast will depend upon their value for research and forecasting events related to aircraft operations.

The region of the Earth from the South Pole to 30^{o}S along 85^{o}W then to 175^{o}W then to the South Pole remains the largest meteorological void for surface observations by manned stations. A dog house AWS unit should be installed on Peter I island (69^{o}S, 91^{o}E) to provide pressure and temperature data. Past experience has shown that wind systems on islands like Peter I will last only a few weeks. The dog house AWS has the batteries, AWS electronics and pressure guage, and antenna located inside a small dog house that weighs about 300 kg. The dog house can be carried as a sling load by the Coast Guard helicopters and deposited at locations where the helicopter cannot land. Dog house AWS units are currently installed at Young, Possession, and Scott Islands and at Mt. Siple. The batteries will operate the unit for several years and a solar panel is installed to charge the batteries. The installation at Peter I island is dependent on the availability of the Coast Guard helicopter to make the installation. The dog house AWS box is at McMurdo, Antarctica waiting for the opportunity.

A Pine Island Bay AWS unit could be either a dog house or a conventional AWS unit. The choice will depend upon conditions at Pine Island Bay such as the annual snow accumulation, the build up of ice or hoar on objects, and the softness of the snow. From sequences of satellite images (Stearns, et al., 1997a) it is known that synoptic systems frequently move into West Antarctica from the north along 120^{o}W and may bring sufficient moisture to cause icing of wind systems in the Pine Island Bay area.

Meteorological support for WAIS (Bindschadler, 1996) and ITASE (Mayewski, 1996) in West Antarctica has already begun with the installation of an AWS unit at a possible ice core drilling site at West Antarctic Dome, Table 1, Figure 2. Additional sites will be selected partly based on observed accumulation differences around the dome. The differences in annual snow accumulation may reflect differences in the wind fields and associated moisture advection at each site. The Greenland Crest showed significant differences in the wind field around the crest (Stearns et al., 1997b). The monthly resultant wind direction on the west side of the Greenland Crest was from the south and along the contours while on the east side of the crest the monthly resultant wind direction was from the northwest and across the contours downslope. The annual resultant wind direction at Byrd Station is from the north while the Siple Station annual resultant wind direction is from the south. The three AWS sites around South Pole show annual resultant wind directions along 120^{o}W to 150^{o}W essentially towards Byrd Station. There are significant differences in the annual resultant wind direction over distance of approximately 1000 km. Sufficient AWS units need to be installed in West Antarctica to determine the areas where the wind regimes change. The traverses planned by ITASE will help determine the location and timing of additional AWS units.

2. AWS proposed for Queen Maud Land

The similar arrangement of sites is planned for Dome Fuji. An AWS unit at the crest and four other AWS units approximately 100 km away from the crest. These will provide meteorological data in support of ice coreing at Dome Fuji.

3. AWS in support of LTER at Palmer Station

Data from the AWS units installed at Bonaparte Point, Santa Claus Island, and Racer Rock are being used by the LTER Program with Dr. Ray Smith as one of the PIs. These units are subject to considerable damage by salt water as the AWS units were designed for cold dry locations. We will continue to upgrade the units within our available resources to withstand the effects of salt spray on the structures and equipment. Replacement equipment will be sent to Palmer Station so that any necessary repairs can be made using the research vessels or other means to reach the 3 AWS sites.

4. Other Requests

Table 1. The 2000 Antarctic automatic weather station site name, ARGOS identification number, latitude, longitude, altitude above sea level, site start date and WMO number for the Global Telecommunications System. Sites with three digits after the decimal point in the latitude and longitude were located using the ARGOS positions for a three day period, aircraft GPS, or hand held GPS.

Site	ARGOS ID	Lat. (deg)	Long. (deg)	Alt. (m)	Date Start	WMO#
			Adelie Coast			
D-10	8914	66.71°S	139.83°E	243	Jan 80	89832
D-47	8986	67.397°S	138.726°E	1560	Nov 82	89834
D-57		68.199°S	137.538°E	2105	Jan 96	
D-80		70.040°S	134.878°E	2500	Jan 83	89836
Dome C II	8989	75.121°S	123.374°E	3250	Dec 95	89828
Port Martin	#8909	66.82°S	141.40°E	39	Jan 90	
Cape Denison	#8988	67.009°S	142.664°E	31	Jan 90	
Penguin Point	8910	67.617°S	146.180°E	30	Dec 93	89847
Sutton	8939	67.08°S	141.37°E	871	Dec 94	
Cape Webb		67.943°S	146.812°E	60?	Dec 94	
			West Antarctica			
Byrd Station	8903	80.007°S	119.404°W	1530	Feb 80	89324
Brianna	21362	83.889°S	134.150°W	@526	Nov 94	
Elizabeth	21361	82.607°S	137.078°W	@519	Nov 94	89332
J.C.		85.070°S	135.516°W	549	Nov 94	
Erin	21363	84.904°S	128.828°W	@990	Nov 94	
Harry	8900	83.003°S	121.393°W	945	Nov 94	
Theresa	21358	84.599°S	115.811°W	1463	Nov 94	89314
Doug	8922	82.315°S	113.240°W	1433	Nov 94	
Mount Siple	8981	73.198°S	127.052°W	230	Feb 92	89327
Siple Dome	8938	81.656°S	148.773°W	@668	Jan 97	89345
Swithinbank	21356	81.200°S	126.174°W	945	Jan 97	
Noel/ITASE*	#8936	79.334°S	111.077°W	@1833	Jan 00	
			Ross Island Region			
Marble Point	8906	77.439°S	163.754°E	@108	Feb 80	89866
Ferrell	#21355	77.910°S	170.817°E	45	Dec 80	89872
Pegasus North	#21357	77.952°S	166.500°E	@8	Jan 90	89667
Pegasus South	8937	77.990°S	166.576°E	10	Jan 91	
Minna Bluff	8935	78.554°S	166.656°E	920	Jan 91	89768
Linda	8919	78.464°S	168.382°E	@47	Jan 91	89769
Willie Field	8929	77.865°S	167.017°E	40	Jan 92	
Windless Bight	8927	77.728°S	167.703°E	61	Nov 98	
Cape Spencer*	#8697	77.97°S	167.55°E	30?	Jan 99	
Herbie Alley*	#8722	78.10°S	166.67°E	30?	Jan 99	
Cape Bird	8901	77.224°S	166.440°E	@42	Jan 99	
Laurie II*	#21364	77.549 °S	170.817 °E	30	Jan 00	
			Ocean Islands			
Whitlock	8921	76.144°S	168.392°E	274	Jan 82	89865
Scott Island		67.37°S	179.97°W	30	Dec 87	89371
Young Island		66.229°S	162.275°E	30	Jan 91	89660
Possession Is.	8984	71.891°S	171.210°E	30	Dec 92	89879
Manuela	8905	74.946°S	163.687°E	80	Feb 84	89864
			Ross Ice Shelf			
Marilyn	8931	79.954°S	165.130°E	75	Jan 84	89869
Schwerdtfeger	8913	79.904°S	169.973°E	60	Jan 85	89868
Gill	8911	79.985°S	178.611°W	55	Jan 85	89376
Elaine	8915	83.134°S	174.169°E	60	Jan 86	89873
Lettau	8908	82.518°S	174.452°W	55	Jan 86	89377
			Antarctic Peninsula			
Larsen Ice	8926	66.949°S	60.897°W	17	Oct 85	89262
Butler Island	8902	72.207°S	60.160°W	91	Mar 86	89266
Uranus	8920	71.43°S	68.93°W	780	Mar 86	89264
Limbert	8925	75.422°S	59.851°W	40	Dec 95	89257
Racer Rock	8947	64.067°S	61.613°W	17	Nov 89	89261
Bonaparte Point	8923	64.778°S	64.067°W	8	Jan 92	89269
Ski-Hi	8917	74.792°S	70.488°W	1395	Feb 94	89272
Santa Claus I	#8933	64.964°S	65.670°W	25	Dec 94	
			High Polar Plateau			
Clean Air	8987	90.00°S		2835	Jan 86	89208
Henry	8985	89.011°S	1.025°W	2755	Jan 93	89108
Nico	8924	89.000°S	89.669°E	2935	Jan 93	89799
Relay Station	8918	74.017°S	43.062°E	3353	Feb 95	89744
Dome Fuji	#8904	77.31°S	39.70°E	3810	Feb 95	89734

* New site for 2000: # New ARGOS ID at the site for 2000: @UNAVCO GPS Location: and Elevation: CRS, 16 MARCH 2000

Table 2. The 2000 Antarctic automatic weather station site name, ARGOS identification number, latitude, longitude, altitude above sea level, site start date and WMO number for the Global Telecommunications System. Sites with three digits after the decimal point in the latitude and longitude were located using the ARGOS positions for a three day period, aircraft GPS, or hand held GPS.

Site	ARGOS ID	Lat. (deg)	Long. (deg)	Alt. (m)	Date Start	WMO#
	8695					
Cape Spencer*	#8697	77.971°S	167.160°E	30?	Jan 99	
Herbie Alley*	#8722	78.10°S	166.67°E	30?	Jan 99	
Harry	8900	83.003°S	121.393°W	945	Nov 94	
Cape Bird	8901	77.224°S	166.440°E	@42	Jan 99	
Butler Island	8902	72.207°S	60.160°W	91	Mar 86	89266
Byrd Station	8903	80.007°S	119.404°W	1530	Feb 80	89324
Dome Fuji	#8904	77.31°S	39.70°E	3810	Feb 95	89734
Manuela	8905	74.946°S	163.687°E	80	Feb 84	89864
Marble Point	8906	77.439°S	163.759°E	@120	Feb 80	89866
	8907					
Lettau	8908	82.518°S	174.452°W	55	Jan 86	89377
Port Martin	#8909	66.82°S	141.40°E	39	Jan 90	
Penguin Point	8910	67.617°S	146.180°E	30	Dec 93	89847
Gill	8911	79.985°S	178.611°W	55	Jan 85	89376
	8912					
Schwerdtfeger	8913	79.904°S	169.973°E	60	Jan 85	89868
D-10	8914	66.71°S	139.83°E	243	Jan 80	89832
Elaine	8915	83.134°S	174.169°E	60	Jan 86	89873
	8916					
Ski-Hi	8917	74.972°S	70.488°W	1395	Feb 94	89272
Relay Station	8918	74.017°S	43.062°E	3353	Feb 95	89744
Linda	8919	78.480°S	168.375°E	50	Jan 91	89769
Uranus	8920	71.43°S	68.93°W	780	Mar 86	89264
Whitlock	8921	76.144°S	168.392°E	274	Jan 82	89865
Doug	8922	82.315°S	113.240°W	1433	Nov 94	
Bonaparte Point	8923	64.778°S	64.067°W	8	Jan 92	89269
Nico	8924	89.000°S	89.669°E	2935	Jan 93	89799
Limbert	8925	75.422°S	59.948°W	40	Dec 95	89257
Larsen Ice	8926	66.949°S	60.897°W	17	Oct 85	89262
Windless Bight	8927	77.728°S	167.703°E	61	Nov 98	
	8928					
Willie Field	8929	77.865°S	167.017°E	40	Jan 92	
	8930					
Marilyn	8931	79.954°S	165.130°E	75	Jan 84	89869
	8932					
Santa Claus I	#8933	64.964°S	65.670°W	25	Dec 94	
	8934					
Minna Bluff	8935	78.554°S	166.656°E	920	Jan 91	89768
Noel/ITASE*	#8936	79.334°S	111.077°W	@1833	Jan 00	
Pegasus South	8937	77.990°S	166.576°E	10	Jan 91	
Siple Dome	8938	81.656°S	148.773°W	620	Jan 97	89345
Sutton	8939	67.08°S	141.37°E	871	Dec 94	
Racer Rock	8947	64.067°S	61.613°W	17	Nov 89	89261
Young Island	8980	66.229°S	162.275°E	30	Jan 91	89660
Mount Siple	8981	73.198°S	127.052°W	230	Feb 92	89327
	8982					
Scott Island	8983	67.37°S	179.97°W	30	Dec 87	89371
Possession Is.	8984	71.891°S	171.210°E	30	Dec 92	89879
Henry	8985	89.011°S	1.025°W	2755	Jan 93	89108
D-47	8986	67.397°S	138.726°E	1560	Nov 82	89834
Clean Air	8987	90.00°S		2835	Jan 86	89208
Cape Denison	#8988	67.009°S	142.664°E	31	Jan 90	
Dome C II	8989	75.121°S	123.374°E	3250	Dec 95	89828
Test USA	9116					
Ferrell	#21355	77.910°S	170.817°E	45	Dec 80	89872
Swithinbank	21356	81.200°S	126.174°W	945	Jan 97	
Pegasus North	#21357	77.952°S	166.500°E	@8	Jan 90	89667
Theresa	21358	84.599°S	115.811°W	1463	Nov 94	89314
	21359					
	21360					
Elizabeth	21361	82.606°S	137.082°W	549	Nov 94	89332Brianna
	21362	83.887°S	134.145°W	549	Nov 94	
Erin	21363	84.901°S	128.810°W	1006	Nov 94	
Laurie II*	#21364	77.549 °S	170.817 °E	30	Jan 00	

* New site for 2000: # New ARGOS ID at the site for 2000: @UNAVCO GPS Location: and Elevation: CRS, 16 MARCH 2000

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Site	ARGOS ID	Lat. (deg)	Long. (deg)	Alt. (m)	Date Start	WMO#
Henry	8985	89.011°S	1.025°W	2755	Jan 93	89108
Clean Air	8987	90.00°S		2835	Jan 86	89208
Limbert	8925	75.422°S	59.948°W	40	Dec 95	89257
Racer Rock	8947	64.067°S	61.613°W	17	Nov 89	89261
Larsen Ice	8926	66.949°S	60.897°W	17	Oct 85	89262
Uranus	8920	71.43°S	68.93°W	780	Mar 86	89264
Butler Island	8902	72.207°S	60.160°W	91	Mar 86	89266
Bonaparte Point	8923	64.778°S	64.067°W	8	Jan 92	89269
Ski-Hi	8917	74.972°S	70.488°W	1395	Feb 94	89272
Theresa	21358	84.599°S	115.811°W	1463	Nov 94	89314
Byrd Station	8903	80.007°S	119.404°W	1530	Feb 80	89324
Mount Siple	8981	73.198°S	127.052°W	230	Feb 92	89327
Elizabeth	21361	82.607°S	137.078°W	@519	Nov 94	89332
Siple Dome	8938	81.656°S	148.773°W	@608	Jan 97	89345
Scott Island	8983	67.37°S	179.97°W	30	Dec 87	89371
Gill	8911	79.985°S	178.611°W	55	Jan 85	89376
Lettau	8908	82.518°S	174.452°W	55	Jan 86	89377
Young Island	8980	66.229°S	162.275°E	30	Jan 91	89660
Pegasus North	#21357	77.952°S	166.505°E	@8	Jan 90	89667
Dome Fuji	#8904	77.31°S	39.70°E	3810	Feb 95	89734
Relay Station	8918	74.017°S	43.062°E	3353	Feb 95	89744
Minna Bluff	8935	78.554°S	166.656°E	920	Jan 91	89768
Linda	8919	78.480°S	168.375°E	50	Jan 91	89769
Nico	8924	89.000°S	89.669°E	2935	Jan 93	89799
Dome C II	8989	75.121°S	123.374°E	3250	Dec 95	89828
D-10	8914	66.71°S	139.83°E	243	Jan 80	89832
D-47	8986	67.397°S	138.726°E	1560	Nov 82	89834
D-80		70.040°S	134.878°E	2500	Jan 83	89836
Penguin Point	8910	67.617°S	146.180°E	30	Dec 93	89847
Manuela	8905	74.946°S	163.687°E	80	Feb 84	89864
Whitlock	8921	76.144°S	168.392°E	274	Jan 82	89865
Marble Point	8906	77.439°S	163.759°E	08	Feb 80	89866
Schwerdtfeger	8913	79.904°S	169.973°E	60	Jan 85	89868
Marilyn	8931	79.954°S	165.130°E	75	Jan 84	89869
Ferrell	#21355	77.910°S	170.817°E	45	Dec 80	89872
Elaine	8915	83.134°S	174.169°E	60	Jan 86	89873
Possession Is.	8984	71.891°S	171.210°E	30	Dec 92	89879

#* New site for 2000: # New ARGOS ID at the site for 2000: @UNAVCO GPS Location: and Elevation: CRS, 16 MARCH 2000

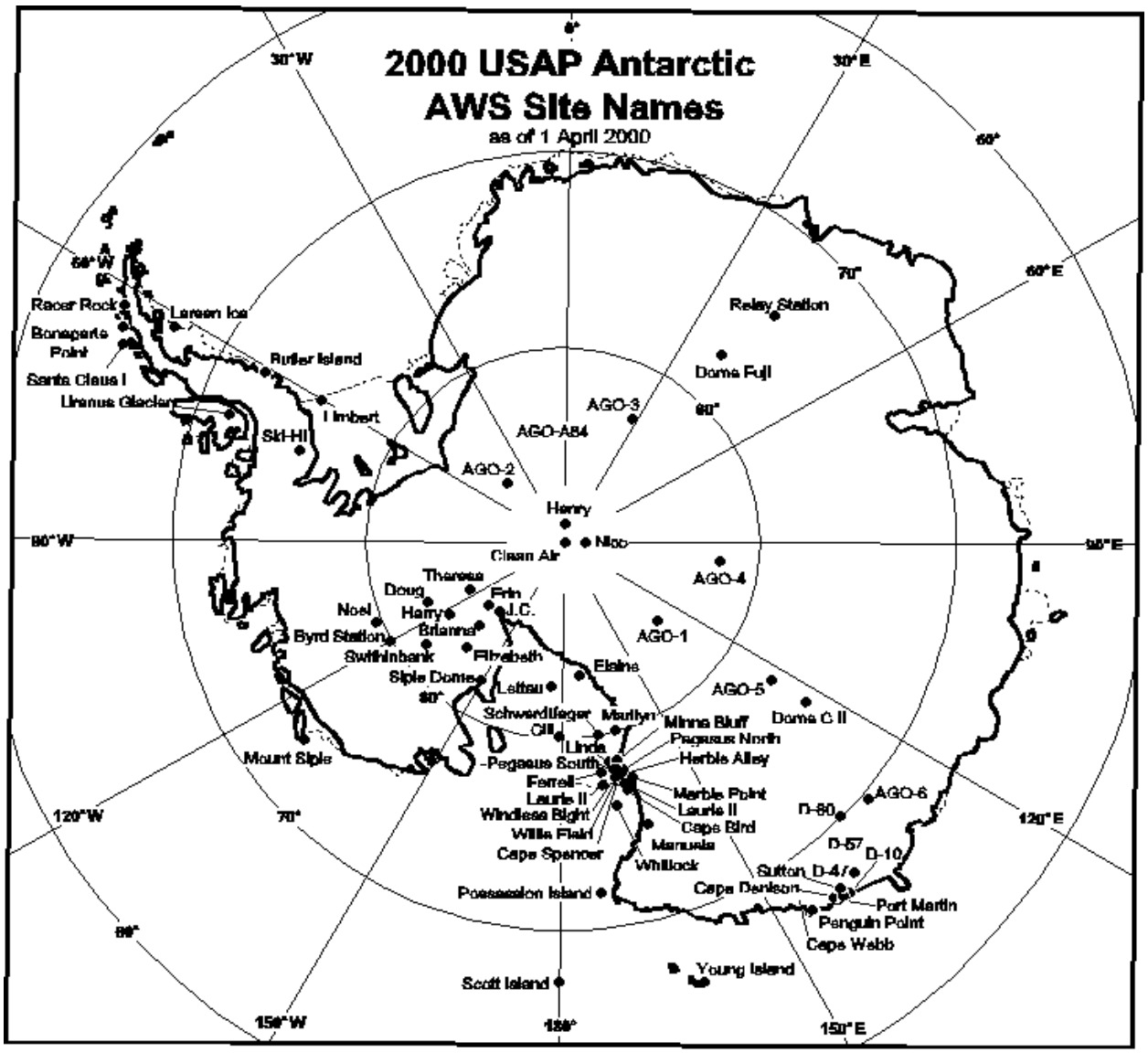

Figure 1. Map of Antarctica showing the locations of widely spaced automatic weather stations for 2000. Identification of the sites is by the site name. The locations of the AGO sites are included but are not a part of the AAWS program.

AWS Data Services

The AWS data are distributed over the Internet through the Antarctic Meteorological Research Center. The data can be accessed by anonymous ftp or via the World Wide Web. For 1999 the monthly average number of hosts obtaining data was , the number of files collected was per month, and the amount of data was megabytes per month. The total data sent out in 1999 are megabytes. These data are the equivalent of high density disks. The transfer of data over the Internet is operating smoothly and accounts for 99% of the data transferred to others. Data requests are received from people and organizations which do not have access to the Internet. Data are sent to them on magnetic media or paper.

Prior to 1994 a data book was prepared that contained all of the monthly three hourly data sheets. Last year a monthly data summary was sent out to approximately 300 organizations and individuals which included the description of the AWS units and the sensors, the field report summary at the start of the year, and the monthly means and extremes for each of the sites. The three hourly data are available over the Internet and will be mailed to those who cannot use the Internet and would like the three hourly observations for the year.

Field Notes between Rob Holmes and Geroge Weidner during November/December period

Date: Sat, 27 Nov 1999 16:33:57 -0600
From: Rob Holmes <rbrbrn@ssec.wisc.edu>

1. Linda site should be on the air. The old unplug-plug trick worked. We had a little problem finding the site. It was about a mile off of the previous coords.
2. Check to see if Byrd is on the air. The old unplug-plug trick was performed a couple of days ago.

Response from George Weidner at Madison
Byrd AWS data looks good.

Ferrell is scheduled for Tuesday.

Date: Fri, 3 Dec 1999 21:31:28 -0600
From: Rob Holmes <rbrbrn@ssec.wisc.edu>
Subject: Cape Bird

New boom installed at Cape Bird. No room on Monday's sched for Ferrel...DVs in town tonight through Tuesday. Also, otter still at Siple Dome. they are socked in with weather. Sarah has not got out to Lettau. So, otter trip to Marilyn is a no go.
Rob

Rob Holmes' Summary Report

On 20 November, Sarah Das (Penn St.) visited Siple Dome AWS site via snowmobile from Siple Dome field camp. The site was reported to be in good condition, although hoar frost was removed from the unit. The height of the +50 cm thermocouple (installed on 15 January, 1999) was reported to be 18 cm above the snow surface.

On 23 November, twin otter crew members visited Byrd AWS site via snowmobile from Byrd Surface Camp. The unit was disconnected from power and then reconnected and the unit began to function normally.

On 24 November, a helicopter flight was made to Pegasus North AWS site. The electronics enclosure was removed so that it could be repaired at McMurdo Station. Coordinates of the site were obtained using a differential GPS supplied by University NAVSTAR Consortium (UNAVCO). Those coordinates are as follows: 77.952°S, 166.500°E, 8.4 m elevation of the surface. The helicopter flight continued to Linda AWS site but was unable to land due to weather.

On 26 November, a helicopter flight was made to Linda AWS site. The unit was disconnected from power and then reconnected and the unit began to function normally. The lower delta-T sensor was raised to a height of 33” above the snow surface. Coordinates of the site were obtained using a differential GPS supplied by UNAVCO. Those coordinates are as follows: 78.464°S, 166.382°E, 47.0 m elevation of the surface.

On 4 December, Cape Bird AWS site was visited y helicopter. The unit was in overall good shape. The instrument boom was replaced. Coordinates of the site were obtained using a differential GPS supplied by UNAVCO. Those coordinates are as follows: 77.952°S, 166.439°E, 41.5 elevation of the surface.

Field Notes between January field party and George Weidner

Date: Wed, 19 Jan 2000 16:14:08 -0500
From: John Cassano <cassano@polarmet3.mps.ohio-state.edu>
To: ChuckS@ssec.wisc.edu, georgew@ssec.wisc.edu
Subject: West Antarctic work

Just wanted to let you know that Jason, Chris Shuman,
and myself returned from Siple Dome yesterday. We
are back in McM waiting for info about our schedule
for pole. I will gve you a quick summary of the work
that we completed from Siple:

Brianna - replaced 2 battery boxes, did not raise AWS
Elizabeth - raised AWS with 3' tower section,
installed 2 new battery boxes (did not retrieve
old batteries)
JC - removed AWS, we did not have sufficient gear
to reanchor this site (I forgot the drill and
pipe that George had suggested before we left)
AWS \was standing when we arrived, but very
loosely anchored, antenna was broken
Erin - installed 2 new battery boxes (left old batteries buried)
raised lower delta T boom (did not add new
tower sections)
replaced Bendix/Belfort aerovane
ITASE site - installed new AWS
We confirmed transmission from Brianna, Elizabeth,
Erin, and the new ITASE site with the Telonics.
Could you reconfirm that these sites are being
received by ARGOS? The station ids are: Elizabeth 21361,Brianna 21362,Erin 21363
New ITASE 8936

Response from George Weidner
All AWS received

Here is a copy of my field notes for the work in WA.

Visited Siple Dome AWS on 15 and 16 Jan.
- set up UNAVCO GPS
- handheld GPS coordinates 81 deg 39.390' S,
148 deg 46.343' W
- the antenna end of the boom was not aligned
with north. We measured the alignment with the handheld
GPS. The antenna end of the boom pointed towards 75 deg.
- voltage at jct box (with solar panel covered) 13.07 vdc
- Measured height from snow surface to:
AWS enclosure: 36"
jct. box: 79"
solar panel: 100"
lower delta T boom: 33"
upper boom: 116"
- the top 3 thermocouples of the temp string were
above the snow surface at heights of 4", 14",
and 24.5"

(Note that all measurements are to the bottom of the listed item).

Brianna - visited 9 PM 18 Jan (McM time)
- AWS 21362
- measured location with UNAVCO GPS
- handheld GPS coordinates: 83 deg 53.352' S, 134 deg 09.100' W, 1925 ft elev.
- volatage at jct box (with solar panel covered) 12.44 vdc
- Measured height from snow surface to:
  - lower delta T boom: 33.5"
  - AWS enclosure: 52"
  - jct. box: 78"
  - upper boom: 113"
- we did not add new tower section to this site
- replaced two battery boxes and one battery cable (battery boxes were placed below boom and on opposite side of tower)

Elizabeth - visited 11:30PM 18 Jan (McM time)
- AWS 21361
- measured location with UNAVCO GPS
- handheld GPS coordinates: 82 deg 36.463' S, 137 deg 04.763' W

volatage at jct box (with solar panel covered): 12.38 vdc
- measured height from snow surface to:
  - AWS enclosure: 34.5"
  - jct. box: 58"
  - solar panel: directly above jct. box
  - upper boom: 112"
- added (1) 3' tower section and raised all components
- install (2) new battery boxes and cbles (did not retrieve old boxes or cables).
- battery boxes were located below boom and on opposite side of tower from boom.

JC - visited 2AM 19 Jan (McM time)
- found site anchored loosely with broken antenna
- we tried to attach a new antenna, but were unable to get it threaded.
- remove all AWS components, tower, batteries, and anchors
- handheld GPS coordinates: 85 deg 04.289' S, 135 deg 31.311' W

Erin - visited 5AM 19 Jan (McM time)
- AWS 21363
- measure location with UNAVCO GPS
- handheld GPS coordinates: 84 deg 54.212' S, 128 deg 49.777' S
- voltage at jct box (with solar panel covered): 12.17 vdc
- measured height from snow surface to:
  - lower delta T boom: 24:
  - AWS enclosure: 34"
  - jct. box: 88"
  - solar panel: directly above jct box
  - upper boom: 92"

- install (2) new battery boxes and cables (did not retrieve old battery boxes or cables)
- raised lower delta T boom (probe had been covered by snow)
- replaced bendix/belfort aerovane

ITASE site - visited noon 19 Jan (McM time)

- AWS 8936
- measured location with UNAVCO GPS
- handheld GPS coordinates: 79 deg 20.025' S, 111 deg 04.610' W, 1794 m
- volatage at jct box (with solar panel covered): 12.61 vdc
- measured height from snow surface to:
  - lower delta T boom: 41.5"
  - AWS enclosure: 45.5"
  - jct. box: 72"
  - solar panel: 81"
  - upper boom: 116"
- installed new AWS with (2) 6' tower sections (taken from JC site). Buried lowest 2' of tower. Anchored wth three deadmen, rope, and chains
- antenna end of boom aligned with north (based on Twin Otter nav system).
- location of AWS components:
  - boom is on east side of tower, with antenna facing north
  - battery boxes buried on east and west sides of tower
  - AWS enclosure on SW side of tower
  - jct box and solar panel on NW side of tower
  - lower delta T boom located on NW side of tower (note that this boom is not parallel to the upper boom).
  - Anchored from three corners of tower (NE, SE, and W)

Field party:
John Cassano (all sites)
Chris Shuman (all sites)
Jason Vandervest (all sites)

Twin otter crew:
Scott Lippa (Brianna, Elizabeth, JC, and Erin)
Louie (?) (Brianna, Elizabeth, JC, and Erin)
Henry Perk (ITASE)
Jethro (?) (ITASE)
Rob will probably be able to fill in the last names of the otter crew that I am missing.

Let me know if you want, or need, any additional information.

Regards,
John

From: "Vandervest, Jason" <vanderjl@mcmurdo.gov>
To: "'George Weidner'" <georgew@ssec.wisc.edu>,

Thanks to help from Scottie and Louie, I had a sucessful day today. (Feb 1) Farrell was completely reinstalled, and the new site near Cape crozier was installed. We had a beutiful day to do the work and I had a helper from the

Crary lab. Our army got the job done in about two hours at each site. I checked the voltages which came up good and the Telonics received the signal correctly at both sites. Also I retrieved a peice of the old tower section which was like five feet long or so.

Here are the specs.:

	Ferrell	Crozier
GPS (hand held)	77S 54.198' 170E 49.032'	77S 32.925' 170E 49.033'

Heights of:

Lower T probe	38"	42"
AWS encl	45"	60"
Jctn. Box	35"	77"
Solar	86"	88"
Boom	106"	110"

Summary reports of work done along the Adelie Coast

From Ian Allison

>On 9 August this year we installed a new Australian AWS on one of the
>Stillwell Islands, on the George V Coast near Commonwealth Bay. Details
>for this AWS are:

> Argos ID 3627
> WMO No 89644
> Location Stillwell Islands
> Lat 66d 57m 30s south, Lon 143d 56m 24s east
> Elevation approx 52 metres

J. Sheedy (scientist), AWS work day #1

Hello all, here's a brief summary of the day's activities:

- Port Martin: Sheedy and Tallman + 3 flight crew visited. One of the chains of a guy line had corroded and snapped. The glass covering of the solar panel was smashed, but the PV cells seemed intact visually. The original tower section was in good shape, so we re-erected it (with 4 guy lines) and installed the new AWS main electronics box, high wind speed boom, and new battery box. None of us involved in the repair project knew that each station required two battery boxes, so only one was brought to each site. In the case of Pt. Martin, this did not matter, as one of the battery terminals was completely corroded out, and will have to be

replaced. We had very little instruction to go on, so did not orient the boom in any particular direction (for the wind direction). I'm not sure how this will be corrected. The station appeared in good shape when we left, and from my AM radio, seemed to be transmitting.

-Sutton: after much searching, the site was not found. The pilot said the region was a big crevasse field.

- Cape Dennison: Again, only one battery was taken to this site, as this was serviced by a helicopter operating in parallel with my Pt. Martin team so we could not get them to take an extra in time. The new AWS unit and high speed wind boom was installed. The station is operating on one new freshly charged battery + one that was in the field.

- Stillwell Island: Wyatt, Chen, and flight crew visited the site. The aerial photograph was helpful in locating the island, and was appreciated by the flight crew. We replaced the battery box (with vent caps in place), the battery cable, the satellite transmitter (mounted with plastic cable zip ties, no glue available), the fuse on the power regulator board, and the metal sensor wand. The antenna cable was connected, then the pwr/tx lead, and unit was turned on before the box was sealed and replaced. We added a few rocks to the installation to stabilize the pair of boxes. We had no voltmeter or AM radio to confirm that it was operating before we left the site. The instruments appeared to be in good condition, as well as the interior of the AWS box.

J. Sheedy (scientist), AWS work day #2

Last night MST Chen and I went out with 3 flight crew to the site of Cape Webb. We found what appeared to be the site within 1 mile of the coordinates given. Here's what we found at the site:

1 tower section, placed upright in the snow, which I was able to pull out with minimal effort.
1 tower section prone on the ground, with a solar panel + cable attached.
2 battery boxes + two cables
1 length of chain
3 small square pieces of plywood

That's it. We had searched the area by air for approximately 30 minutes, and this is all we found. The battery boxes were labeled Deep Freeze 98. Since our instructions were to replace the sensor boom and the batteries, we were equipped only for that. (the equipment necessary to complete a station at Cape Webb is not on the ship anyhow). The only logical explanation we have from our end is that the _real_ Cape Webb AWS site is elsewhere in the vicinity. After landing at what appeared to be the site, we didn't have the fuel for further searching. We recovered only the solar panel and the battery cables, to prevent them from deteriorating out in the open (the solar panel would have been nice to have at Pt. Martin, sigh..). Weight restrictions on the helicopter made the decision to leave the rest of the gear an easy one. Both the Coast Guard and myself would appreciate further comment on the current situation at Cape Webb.

In addition to Pt. Martin and Cape Denison, I've seen the australian station at Stillwell Island transmitting. So we're batting 3 for 5 so far. The site at Pt. Martin appeared to have been somewhat cleaned up

(by the French?): some of the snapped cables had been coiled, and the circuitry inside the main box had all been removed. The wind sensors of the booms recovered from Pt. Martin and Cape Denison are all in very poor shape. This leaves us with one new high wind speed instrument boom that was to go to Cape Webb remaining. We are scheduled to arrive at Scott Island in 3 days.

J. Sheedy (scientist), AWS work day #3
PStar 09:17 PM 12/25/99 +1100 4
AWS update -- Scientist joseph sheedy
This morning was the final day of AWS service for this cruise. We found the Franklin Island station with the help of Lt. Cmd. Jackson and MST Kelley, who was there last year. The station was in the same condition as he remembered it: up to it's neck in snow and ice. We were able to add a new 6 foot tower section on top of the old one (though the towers we brought were made of larger diameter pipe and had a smaller diameter than those of the station. Luckily we brought a drill and enough hardware to secure it by sliding one leg over the existing tower, and bolting the other two in place.). All the components were dug out, and raised to a new position above current snowline (except for the two new batteries, which we placed underneath the surface). One of the new high speed wind sensor units was used in place of the old one, though we used the main electronics box that was already at the site. We were able to remove one of the old battery boxes from the site, but one more remains in the ice a meter below the new ones.

After everything was reassembled I successfully heard the data transfer burst over an AM radio.

Unfortunately, I was unable to convince the command to visit Scott Island a few days ago, it was too far off our projected course.

Thanks again for the opportunity to take part in the deployment, it's been enjoyable!

--joseph sheedy

Date: Wed, 26 Jan 2000 11:44:34 -0600
To: "Cassano, John (South Pole Station)" <cassanjo@spole.gov>,
From: George Weidner <georgew@ssec.wisc.edu>
Subject: Re: Clean air re-installed
At 02:04 AM 1/26/00 +0000, Cassano, John (South Pole Station) wrote:

Chuck, George,

I have just finished installing the clean air AWS. The
new site is between the old clean air facility met tower
and the new 30+ (?) m tower. It is roughly grid west
from the Clean Air building.

I was able to hear an audible signal from the telonics
at a 200 s interval, but did not recieve any digital

output. This may have been caused by the batteries in the telonics being cold (this also happened once while we were working in West Antarctica). Let me know if you are recieving transmissions from this AWS (8987 I believe).

I will be going back to McM tomorrow morning and have a tentative departure from there scheduled for Saturday 29 Jan.

From George Weidner

08987 NO LOCATION 026/0101Z

(1)	02	20	09	7B
	88	8A	89	89
	89	89	89	89
	89	89	89	89
	89	89	89	89
	89	89	89	89
	89	89	02	89
	89	89	D3	08

08987 NO LOCATION 026/0204Z

(1)	02	21	02	57
	AA	F1	91	92
	17	FE	13	F4
	FF	00	00	FF
	15	F9	15	F8
	00	FF	01	00
	8D	86	01	94
	89	89	D1	38

Good work...
It is good to see that the amplifier board is showing a rock solid offset volatge which means what temperature profile data we did get .. will be excellent ..
Note. Bring back the temperature profile string (in what ever shape it is in....
How many towers were brought to Pole by Von ...
Only three need to be left there .. clearly labelled for OO-283-M.
The rest can be returned to Mcmurdo.

George

Field notes from the British Antarctic Survey

To: cmet@pcmail.nerc-bas.ac.uk
Cc: rfom@pcmail.rothera, georgew@ssec.wisc.edu
Subject: OFFICIAL - AWS servicing

Hi Steve, Jon,

So far we have serviced Atoll which is better now with new batteries and went to visit the Shelf unit which stopped transmitting during the winter. Reports to follow shortly.

We bought the Shelf unit back and the fault appears to be on the CPU board. The program is not running and the watchdog timer keeps resetting it. New ROMs didn't fix it. We are still working on it. Might just be an address

line decode chip or similar.

However, can you confirm that we did agree that we could sacrifice the Atoll unit if necessary to keep the Shelf unit working? Just having a working unit back here may be enough to identify the fault but otherwise we will use the boards to repair the shelf unit.

Prompt answer appreciated.
Cheers Russ.

To: cmet@pcmail.nerc-bas.ac.uk, georgew@ssec.wisc.edu
Subject: OFFICIAL - Wisconsin AWS unit 8925

Hi George, Steve and Jon,

As promised, here is the visit report for the Ronne Shelf unit:

Date: 14 Jan 2000
Time: 16:00 UTC
Symptoms: Stopped transmitting 29 Jul 99.
Position: S75 23.24 W059 51.09 var E21.0
Boom height: 248 cm.

This shows the unit moving about 0.7 nautical miles on a bearing of 035 deg True and an accumulation of 1.25m per annum.

Both batteries were well charged (12.6 and 13.25 v) and this was being correctly fed into the elctronics unit. Solar panel operation was also checked. The antenna and cable gave good continuity checks and no cables showed any sign of wear. The unit was reset several times and no transmissions were received even with the antenna cable directly into the Argos test set. There were no transmitter control signals present at the test points so the unit was deemed to have a fault on the CPU board and has therefore been returned to Rothera where it is still under investigation.

The guys and tower were raised by one tower section and the batteries, solar panel and junction box left on site to keep the batteries charged. The boom was returned to Rothera.

As mentioned yesterday we are contemplating replacing this unit with the one from Atoll (8920).

Regards Russ

To: cmet@pcmail.nerc-bas.ac.uk, georgew@ssec.wisc.edu
Subject: OFFICIAL - Wisconsin AWS unit 8925 repair

Hi George, Steve and Jon,

Futher to our recent report, I have traced the fault with unit 8925. It seems that gates C and D on i.c. B9 had failed, blocking both interupts to the CPU and the tx keying pulse. I have replaced the i.c. with a plastic (It was ceramic) 4071 which the data sheet says is good down to -40 deg C. I am about to check the data and take some readings of the pressure transducer whilst we have the chance.

Unit 8920 was returned to Rothera yesterday to aid fault finding. It appears that transmissions are often garbled from this unit and I will check the transmission frequency before this unit is replaced into the field.

Both units will be replaced shortly especially as there won't be many more flights to Ronne shelf this season.

Regards Russ

To: cmet@pcmail.nerc-bas.ac.uk, georgew@ssec.wisc.edu
Subject: OFFICIAL - Wisconsin AWS unit 8920

Hi George, Steve and Jon,

Date: 7 Jan 2000
Serviced by: Giles Wilson(Pilot),George Fell, Robin Goodhand
Position: S71 21.67 W046 17.11
Boom height before raise: 240 cm.
Boom height after raise: 460 cm.
3 New guys & deadmen placed. Two new battery boxes and junction box replaced. Solar panel output measured as 11.5 volts on cloudy evening.

Date: 19 Jan 2000
Personnel: Giles Wilson (Pilot), David Ganiford
Removed Electronics box and returned to Rothera for aiding with fault finding on unit 8925.

As transmissions had been garbled, frequency of Tx was measured as 410.64931 MHz. 50 MHz oscillator retuned to produce 410.65000 MHz output from transmitter.

Transmissions verified to satellite whilst at Rothera.

Date: 24 Jan 2000
Personnel: Robin Goodhand, David Leatherdale
Replaced unit 8920 at Atoll.
Boom Alignment: 316 deg magnetic, var E24 = 340 True.

Regards Russ

To: cmet@pcmail.nerc-bas.ac.uk, georgew@ssec.wisc.edu
Subject: OFFICIAL - Wisconsin AWS unit 8917

Hi George, Steve and Jon,

Date: 19 Nov 99
Position: S74 52.042 W071 34.054
Symptoms: Wind Speed failed.
Electronics box returned to Rothera. Q5 on interface board had blown. Replaced with BC178 for 10.5v power which is used for the Young interface board. 22nd Nov 99 transmissions verified at Rothera.

Date: 30 Nov 1999
Unit 8917 replaced by camp staff.

Date: 5 Jan 2000
Personnel: George Fell
Boom Height: 320 cm
Boom alignment: 020 deg magnetic, var E27 = 047 True.

Regards Russ

To: cmet@pcmail.nerc-bas.ac.uk, georgew@ssec.wisc.edu
Subject: OFFICIAL - Wisconsin AWS unit 8917

Hi George, Steve and Jon,

Date: 8 Feb 00
Unit 8917 uplifted.
Dave Leatherdale, Brian Newham.

Date 9 Feb 00
Unit 8917 redeployed.
Location: S74 47.53' W071 29.31' var E29
Boom alignment True North
Two sections used, so boom height approx 350 cm.
Transmissions being received at Rothera.

Regards Russ

To: cmet@pcmail.nerc-bas.ac.uk, georgew@ssec.wisc.edu
Subject: OFFICIAL - Wisconsin AWS unit 8926

Hi George, Steve and Jon,

Date: 09 Feb 00
Position: S66 56.86' W060 52.63' var E16
Personnel:Ant Tuson, Russ Ladkin, Steve Wattam, David Peck
Boom height: 3.50m, alignment 017 deg magnetic = 033 deg True.
Boom not raised. Two new batteries deployed, guys tensioned.
Location still approx 10Nm from coast with no signs of crevassing nearby.
Decoded transmission: -4.3 deg C, 985.0 hPa, 0.69 m/s, 239 deg
Measured parameters:-3.4 deg C, 985.7 hPa, 1 m/s 230 deg
Transmissions being received at Rothera.

Regards Russ
To: cmet@pcmail.nerc-bas.ac.uk, georgew@ssec.wisc.edu
Cc: Jdsh@pcmail.rothera
Subject: OFFICIAL - Wisconsin AWS unit 8925

Hi George, Steve and Jon,

Date: 10 Feb 00
Personnel: George Fell, Robin Goodhand, Les Kitson.
Location: S75 23.24 W059 51.09 var E21.
Repaired electronics box and boom replaced.
Boom height: 14/1/2000 height was 248cm and raised by one section, so
approx
4.4 m - height of boom doesn't seem to have been measured on this visit.
Boom alignment: 340 deg Mag = 001 deg True.
Decoded transmission: -11.4 deg C, 1.25 m/s, 197 deg

Measured values: -10, 6 m/s, 225 deg
Transmissions being received at Rothera.

Regards Russ

To: cmet@pcmail.nerc-bas.ac.uk, georgew@ssec.wisc.edu
Cc: Jdsh@pcmail.rothera
Subject: OFFICIAL - Wisconsin AWS unit 8902

Hi George, Steve and Jon,

Date: 11 Feb 2000
Serviced by: Russ Ladkin, Angus Atkinson, Andy Alsop
Position: S72 12.00 W060 09.60 var E19
Boom height before raise: 225 cm.
Boom height after raise: 448 cm.
Two new battery boxes. Solar panel output measured as 21 volts.
Boom alignment: 334 deg magnetic + var 19 = 353 deg True.
Maintenance: Wind propellor was loose - 3 screws in nose replaced and tightened. There is evidence of salt corrosion at this site.
Calibration measurements: 4kts, 300 deg mag, -5.7 deg C, 978.4 hPa.
Decoded values 16:25 UTC: 4 m/s 339 deg, -6.1 deg C, P didn't match printout.

Regards Russ

From: "Vandervest, Jason" <vanderjl@mcmurdo.gov>
To: "'George Weidner'" <georgew@ssec.wisc.edu>
George,
Here is the list of things off the ice breaker:
4 Battery boxes (most are nearly destroyed)
3 3ft tower sections
1 6ft tower section
1 solar panel
3 antennae (broken)
1 antenna cable
3 booms without delta_T
2 AWS enclosures (This is the weird part, one of them has no electronics in it. That's how the coast guard guys found it. More on that from Matt)
1 collection of pieces of a Bendix aerovane
6 Battery cables (+1 snipped one)
2 Packing crates

2 chargers
1 voltmeter
1 soddering iron
2 High wind system bases without the cups
1 Acrylic tube antenna
Assorted wires, bolts and clips
Rope and cable
Jason

S-283 McMurdo Inventory as of February 10th, 2000

- AWS 21360
- 4 RM Young Areovanes
  - 5 Spare Props
  - 2 Spare Shafts
- 1 RM Young Conversion Kit
- 3 Spare Bendix Props
- Solar panels
- 1 Box with 7 good mounting bars
- 7 Antennae (1 good)
- 1 Acrylic antenna
- 5 Junction Boxes (1 with 4 plugs)
- 5 Extra long booms (2 from Coast Guard Cutter)
- 1 boom with delta-T
- 2 non-delta-T booms
- 2 booms with lower weed probe
- 1 High speed wind system
- Rope Spool from orange box
- 5 reflection tubes for temperature probes
- 3 battery chargers
- 1 Rechargable Screwdriver
- 1 Heat gun
- Soldering Supplies
  - 2 Soldering Irons
  - Solder – Wick
    ½ of 5ft Roll of size #1
    2 halves of 5ft rolls of #2
    1 5ft roll of #3
  - Solder Sponge 5ft of .150in
  - 2 rolls of tin/lead solder .028in 22swg
    total ~ 1.5lbs
- Wiring accessories
  - Uninsulated Terminal (14-16 wire size)
    - 100 #10 rings
    - 100 #12-1/4
  - Insulated terminals (14-16 wire size)
    - 200 # 10rings
    - 200 #4-6 fork
- Wire
  16 AWG
  ~100 ft #10 blk
  ~100 ft #9 wht

  20 AWG

~75 ft #10 blk
~50 ft #9 wht
~75 ft #8 gry
~75 ft #7 vio
~100 ft #6 blu lt
~25 ft #5 Grn
~50 ft #4 yel
~85 ft #3 org
~85 ft #2 red
~15ft #1 brn

22 AWG
~75 ft #9 wht
~75 ft #5 Grn
~75 ft #3 org

- 1 box of 75 Jiffy clips
- 1 AWS –USAP Stamp
- 5 boom brackets
- 15 clevuses
- 25 u-blots with flat metal washers
- Blue metal box filled with bolts under ¼”
- $^{3}/_{8}$” nuts and bolts

Hex Bolts
90 3½”
130 3”
140 2½”
175 2”
50 1½”
550 Hex Nuts
250 Lock Nuts
150 Lock Washers
175 Flat Washers

- $^{5}/_{16}$”
Hex Bolts
150 2½”
200 2”
150 Hex Nuts
225 Lock Nuts
50 Lock Washers
200 Flat Washers

- ¼”
Hex Bolts
100 2½”
100 2”
60 1½”
50 ¾”
50 ½”
250 Hex Nuts
800 Lock Washers

- 15 large eye screws

- Box of 200 Wood Screws
- 5 Rolls of *Super 88* black electrical tape
- 2 Rolls of *Scotch 70* self fusing silicone tape
- Box with baggies
- 4 Cans of RTV silicone sealant
- 8 Battery Box plugs with diode board connections
- 5 battery boxes (no diode boards)
- 11 Empty battery boxes