

Antarctic Automatic Weather Stations
Field Report for 2003-2004

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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 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. 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 Beardmore 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
- Southern Ocean Global Ocean Ecosystems Dynamics
- Meteorological support for United States Antarctic Program flight operations

The following are supported principal investigators funded by NSF-OPP.

Dr. Douglas R. MacAyeal: Iceberg Drift in the Near-Shelf Environment, Ross Ice Shelf, Antarctica.

Dr. Gerd Wandler, 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. Robert C. Beardsley, Southern Ocean GLOBEC: Marguerite Bay and the Islands in the area.

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.

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

Aircraft Operation: All AWS sites in Antarctic.

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

Field work completed for 2003-2004

For the AS ¾ field season, the field team consisted of George Weidner and Jonathan Thom (O-283), and John Cassano (also with O-283) with assistance from the Italian Antarctic Program personnel, station personnel at South Pole Station,

A. McMurdo based operations

<u>Site</u>	<u>ARGOS ID</u>	<u>Service performed at site</u>
Minna Bluff	8939	AWS replaced , new power cord

B. West Antarctic based operation

<u>Site</u>	<u>ARGOS ID</u>	<u>Service performed at site</u>
Byrd Station	8903	Replaced aerovane AWS (ITASE)

C. South Pole

<u>Site</u>	<u>ARGOS ID</u>	<u>Service performed at site</u>
Nico	8924	AWS located and raised

D. Field work in Adelie Land No fieldwork

E. Field work by the Japanese Antarctic Research Expedition

No fieldwork required

F. Service performed by Long Term Ecological Research group

AWS serviced by Palmer Science Tech (Jeff Otten)
Ongoing problems

G. Wisconsin Automatic Weather Station Servicing by BAS for Summer 2003/2004

BAS report

Uranus Glacier

Visited on 21/12/2003

The AWS was buried up to the electronic box. The entire mast was dug up; this involved digging a 2.5 m hole around the base that took about 2 hours. The mast was then re-erected at its original site after filling in the whole. The battery cables did not need to be extended but are now at maximum reach.

The orientation of the boom seemed incorrect when the aircraft arrived as it was pointing towards 131° true. When the mast was re-erected it was realigned as best could be done but because of complications it was only possible to realign it to 60° True.

New boom height after raise: 3.5 m

Butler Island

Visited on 22/12/03

The mast was not raised but the old solar panel and charging box were removed. The new solar panel was mounted on the mast. The new battery box was placed at the bottom of the mast in a hole that just buried it on the western side of the mast. A flag was placed on top of the box so it could easily be located.

The wind vane was replaced with a repaired one. New cables were connected and the AWS started up without any trouble.

Boom Height 295 cm

Ski Blu

Visited on 28/12/2003

The AWS looked to be in good condition. A 1m extension was added to the mast.

New boom height: 397 cm.

Limbert

Visited 19/1/04 to 20/1/04

The AWS was moved to a new location away from the ice edge. A new battery box and solar panel were installed along with a new aerovane. The boom was aligned to true North.

Boom Height: 420 cm

Larsen Ice Shelf

Date: 2/1/2004

The AWS was dismantled and moved to a new site approximately 15 km inland. A new battery box and solar panel were installed.

New Boom Height: 460 cm

Summary of positions and height

Butler Island	S 72 12.38	W 060 10.18	205m
Sky Blu	S 74 47.53	W 071 29.31	1510m
Uranus Glacier	S 71 21.67	W 068 47.83	753m
Limbert	S 75 54.85	W 059 15.86	40m
Larsen Ice Shelf	S 67 00.70	W 061 32.97	17m

There is a concern that the pressure data from both Butler Island and Sky Blu is getting incorrectly converted before being transmitted onto the GTS. The pressure at Butler Island was measured as 989.2hPa during the servicing visit but a value of 974.3hPa was received via the GTS. At Sky Blu the measured pressure was 862.8hPa but a value of 814.3hPa was received via the GTS. The pressure data from these AWS are not currently been included in the models.

New battery boxes were also installed on the 3 of the units this season, the battery boxes were designed in-house at BAS and consist of 2 100HA batteries, a 40W solar panel and associated electronics, it is planned the 2 more battery boxes are constructed and installed in the 2004/05 season.

H. AWS operations by GLOBEC group

<u>Site</u>	<u>ARGOS ID</u>	<u>Service performed at site</u>
Kirkwood	8930	Serviced as needed
Dismal Island	8932	Serviced as needed

The current list of AWS (not including AWS currently deployed on B-15A and C-16) is given in the Table 1, by geographic area, Table 2, by Argos ID, and Table 3, by GTS number. Figure 1 shows the AWS locations on a map prepared by Kelly Brunt.

Table 1. The 2003 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.

SITE	ARGOS ID	Lat.	Long.	Alt.(m)	Date	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
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	8931	83.889°S	134.154°W	@525	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*to	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	21355	81.201°S	126.177°W	@959	Jan 97	
Noel/ITASE		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	8929	77.884°S	170.818°E	@45	Dec 80	89872
Pegasus North	21357	77.952°S	166.500°E	@8	Jan 90	89667
Pegasus South	8937	77.990°S	166.568°E	@5	Jan 91	
Minna Bluff	#8939	78.555°S	166.691°E	@47	Jan 91	89769
Willie Field	21364	77.866°S	166.983°E	@14	Jan 92	
Windless Bight	8927	77.728°S	167.703°E	61	Nov 98	
Cape Spencer	8695	77.967°S	167.531°E	@23	Jan 99	
Herbie Alley	8697	78.10°S	166.67°E	~30	Jan 99	
Cape Bird	8901	77.224°S	166.440°E	@42	Jan 99	
Laurie II	21360	77.529°S	170.807°E	@38	Jan 00	
Linda	21362	78.451°S	168.395°E	@43	Jan 91	89769
Ocean Islands						
Whitlock	8907	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	8934	79.954°S	165.130°E	75	Jan 84	89869
Schwerdtfeger	8913	79.875°S	170.105°E	@54	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
Vito	8722	78.509°S	177.746°E	@+52	Feb 04	
Emilia	8928	78.509°S	173.114°E	@+50	Feb 04	
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
Limbirt	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	
Kirkwood Island	8930	68.340°S	69.007°W	30	May 01	
Dismal Island	8932	68.087°S	68.825°W	10	May 01	
High Polar Plateau						
Clean Air	#21356	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
Mizuho	21359	70.70°S	44.29°E	2260	Oct 00	

New ARGOS ID at the site for 2004: @UNAVCO GPS Location; and Elevation. @+ updated this year

Table 2. The 2003 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.

Site	ARGOS ID	Lat. (deg)	Long. (deg)	Alt. (m)	Date Start	WMO#
Cape Spencer*	8695	77.967°S	167.531°E	@23	Jan 99	
Mcmurdo	8697					
Vito	8722	78.509°S	177.746°E	@+52	Feb 04	
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
Whitlock	8907	76.144°S	168.392°E	274	Jan 82	89865
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
Dumont D'Urville	8912					
Schwerdtfeger	8913	79.875°S	170.105°E	@54	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
Madison	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
Madison	8919					
Uranus	8920	71.43°S	68.93°W	780	Mar 86	89264
Madison	8921					
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
Limbirt	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	
Emelia	8928	78.509°S	173.114°E	@+50	Feb 04	
Ferrell	8929	77.884°S	170.818°E	@45	Dec 80	89872
Kirkwood Island	8930	68.340°S	69.007°W	30	May 01	
Brianna	8931	83.889°S	134.154°W	@525	Nov 94	
Dismal Island	8932	68.087°S	68.825°W	10	May 01	
Santa Claus I	8933	64.964°S	65.670°W	25	Dec 94	
Marilyn	8934	79.954°S	165.130°E	75	Jan 84	89869
Madison	8935					
Madsion	8936					
Pegasus South	8937	77.990°S	166.568°E	@5	Jan 91	
Siple Dome	8938	81.656°S	148.773°W	620	Jan 97	89345
Minna Bluff	8939	78.554°S	166.656°E	@895	Jan 91	89768
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
Madison	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
Madison	8987					
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
SPAWAR	9116					
Swithinbank	21355	81.200°S	126.174°W	@959	Jan 97	
Clean Air	21356	90.00°S		2835	Jan 86	89208
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
Mizuho	21359	70.70°S	44.29°E	2260	Oct 00	
Laurie II*	21360	77.529°S	170.807°E	@+38	Jan 00	
Elizabeth	21361	82.606°S	137.082°W	549	Nov 94	89332
Linda	21362	78.451°S	168.395°E	@+43	Jan 91	89769
Erin	21363	84.901°S	128.810°W	1006	Nov 94	
Willie Field	21364	77.866°S	166.669°E	@+14	Jan 92	

New ARGOS ID at the site for 2003: @UNAVCO GPS Location: and Elevation: @+ GPS updated

Table 3. The 2003 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 in the order of the WMO number. 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#
Henry	8985	89.011°S	1.025°W	2755	Jan 93	89108
Clean Air	#21356	90.00°S		2835	Jan 86	89208
Limbart	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
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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
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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
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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	8939	78.554°S	166.656°E	@895	Jan 91	89768
Linda	#21362	78.480°S	168.375°E	@+43	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	8907	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	@+54	Jan 85	89868
Marilyn	8934	79.954°S	165.130°E	75	Jan 84	89869
Ferrell	8929	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 ARGOS ID at the site for 2003: @UNAVCO GPS Location: and Elevation: @+ New location this year

I. GPS data for current year

Anarctica 03-04 UNAVCO GPS Support

Project: O-283-M_200304

PI: Charles Stearns

Data collected by: Jonathan Thom

Date

collected: 2-Feb

Datum: World Geodetic System 1984

Projection: Default Default

Geoid Model: EGM96 (Global)

Questions: polar@unavco.org

Name	Latitude	Longitude	Ellipsoid H(m)	Sigma (m)	Elevation (m)	Sigma
MCM4	77.8383491920S	166.6693278810E	98	0	151.384	0.1
Emilia	78.5091920480S	173.1141118670E	-1.378	0.036	51.903	0.106
Vito	78.5089229090S	177.7458293610E	-4.743	0.093	49.546	0.893

Notes on errors:

- 1.) Horizontal GPS errors are given in terms of the major and minor axes of an ellipse shown above.
- 2.) These axes are not necessarily oriented N-S or E-W.

Error ellipses are given because Northing and Easting errors may not capture the entire magnitude of the error.

- 2.) Horizontal errors are +/- EllMajor and +/- EllMinor.
- 3.) The orientation of the semi-major axis is given in degrees from north.

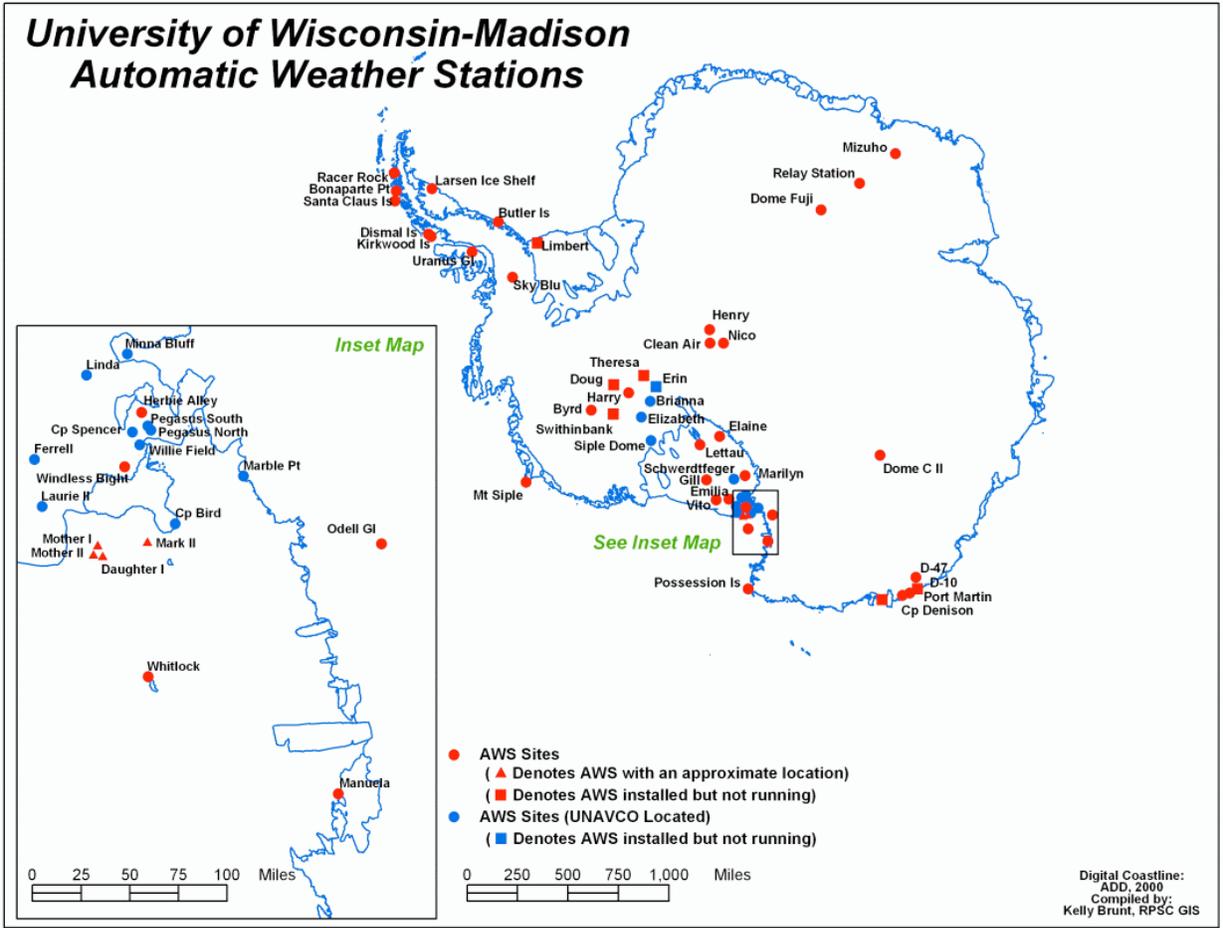


Figure 1. Map of Antarctica showing the locations of USAP-UW automatic weather stations for 2004. Identification of the sites is by the site name.

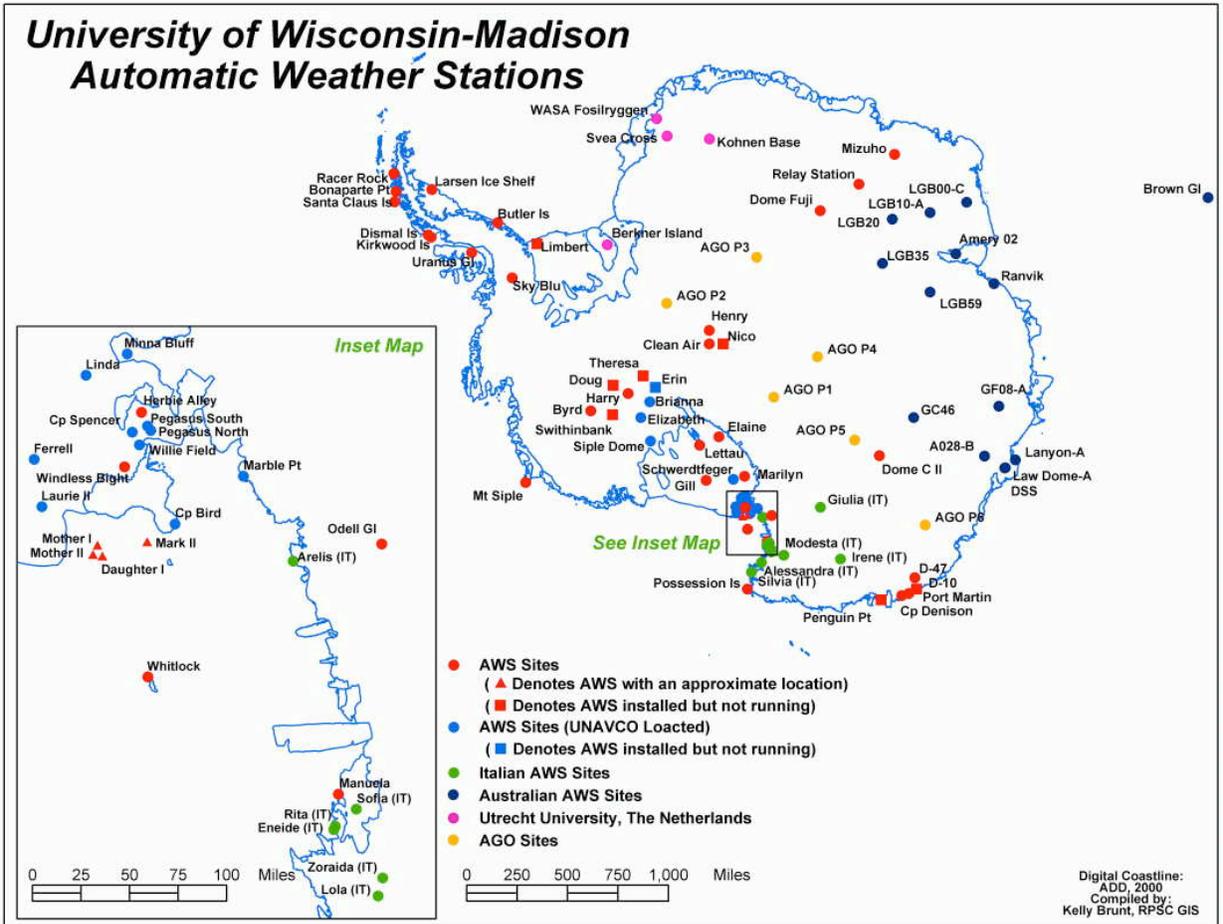


Figure 2. Map of Antarctica showing the locations of known automatic weather stations for 2003. Identification of the sites is by the site name.

Plans for June 1, 2004 through July 31, 2005

A. AWS Operations based from McMurdo

1. Installations for Parish and Cassano



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 installing a minimal AWS on an opportunity basis

Site	ARGOS ID	Lat.	Long
Scott Island	8983	67.37°S	179.97°W
Young Island	8980	66.229°S	162.275°E

C. AWS operations in West Antarctica

1. Installation at Inland Drilling site

Noel	8936	79.334°S	111.077°W	1833
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2. Visit as many other sites as possible

D. Tentative field work supported 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	Lat.	Long.	Alt
		ID	(deg)	(deg)	(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. Service as necessary

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

1. Service AWS - update units?

G. AWS operations based at Palmer Station for LTER support

1. Provide replacement RM Young 05103 AWS for 8923.
2. Provide replacement AWS for Hugo Island AWS 8933

J. Support of GLOBEC AWS

1. Service as necessary

K. Support of Iceberg Research (IO-190-O)

1. AWS Operations through next three years.

Rime and IPY/IGY

AWS Operations (for discussion)

1. *West Antarctica sector*

- The region of the Earth from the South Pole to 30°S along 85°W then to 175°W then to the South Pole remains the largest meteorological void for surface observations by manned stations.
- A minimal AWS unit should be installed on Peter I island (69°S, 91°E) to provide pressure and temperature data.
- An AWS unit proposed for Thurston Island (Pine Island Bay) could be either a minimal AWS or a conventional AWS unit. The choice will depend upon conditions at Pine Island Bay such as the annual snow accumulation and the build up of ice or hoar frost on sensors.
- The minimal AWS on Mt Siple will likely need to be replaced soon.

WAIS/ITASE Meteorological Support

The ongoing WAIS/ITASE programs seek to obtain high resolution ice core glaciochemical records from sites in West Antarctica. These records can provide indirect information on past atmospheric circulation patterns over West Antarctica (Mayewski et al., 1997)

Meteorological support for WAIS (Bindschadler, 1996) and ITASE (Mayewski, 1996) in West Antarctica has already begun with the establishment of an AWS site at a possible ice core drilling site at West Antarctic Dome (Noel AWS site Table 1, Figure). The AWS electronics needs to be installed.

US-ITASE Traverse Routes and Core Sites

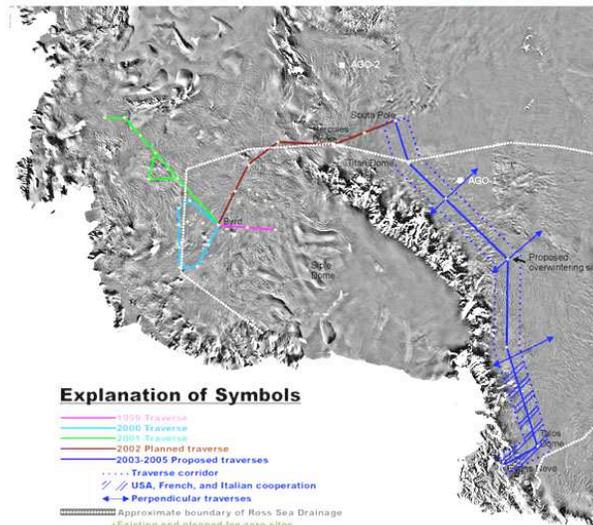


Figure by Gordon Hamilton and Blue Spikes, University of Maine

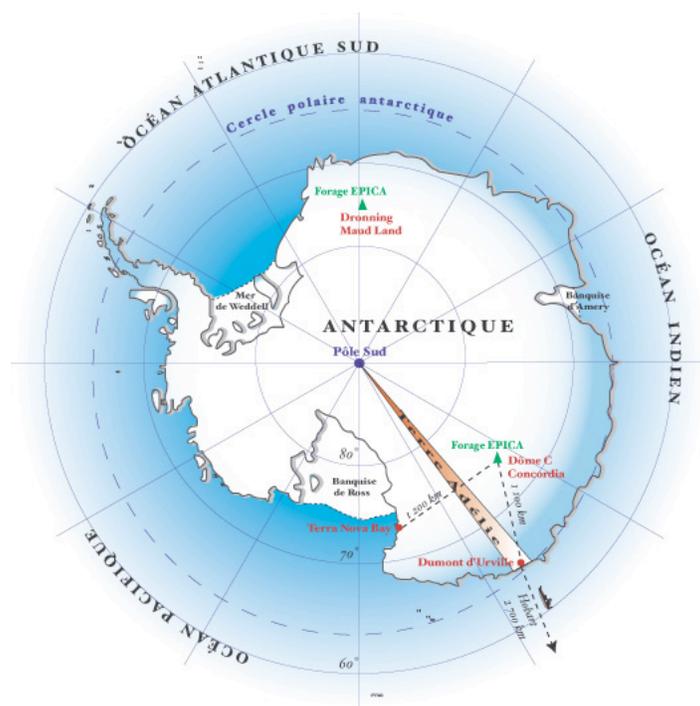
2. East Antarctic Sector

AWS in support of Katabatic wind study

The AWS deployed from Dumont D'Urville to Dome C will be maintained via a cooperative program with the French polar program, (IFTRP).

Since, this proposal reduces the number of personnel from previous years, it is proposed that any NSF-funded project provide personnel to service the AWS along the Adelie Coast. Such personnel could receive training at the Space Science and Engineering Center prior to the annual icebreaker cruise along the Adelie Coast.

Other options include cooperative fieldwork with the Australian Antarctic Division (<http://www.antdiv.gov.au/>).



JARE meteorological support

We will continue to support AWS in east Dronning Maud Land, Antarctica through a cooperative arrangement with Japanese Antarctic Research Expedition (JARE). These AWS are in support of a Deep Ice Coring Project at Demo Fuji (Kameda et al., 1997) and provide data in an area of Antarctica with few routine observations

AWS in support of LTER at Palmer Station

Support the Long Term Ecological Research (LTER) program at Palmer Station by supplying AWS capable of measuring water temperature along with the standard meteorological variables. These AWS are located at Bonaparte Point and on Santa Claus Island and an additional site on Racer Rock (Table 1 and Figure 1) it is proposed that personnel from Palmer Station or a NSF-funded LTER programs service the AWS. If necessary, they could be trained at SSEC prior to the field season.

Southern Ocean GLOBEC

The two stations are as follows:

> AWS # 8930 (Kirkwood Island) Latitude: -68 20.397 S Longitude: -69 00.444 W

> AWS # 8932 (Dismal Island) Latitude: -68 05.243 S Longitude: -68 49.480 W

<http://cbl.umces.edu/fogarty/usglobec> or <http://www.pml.ac.uk/globec>.

Other countries AWS programs

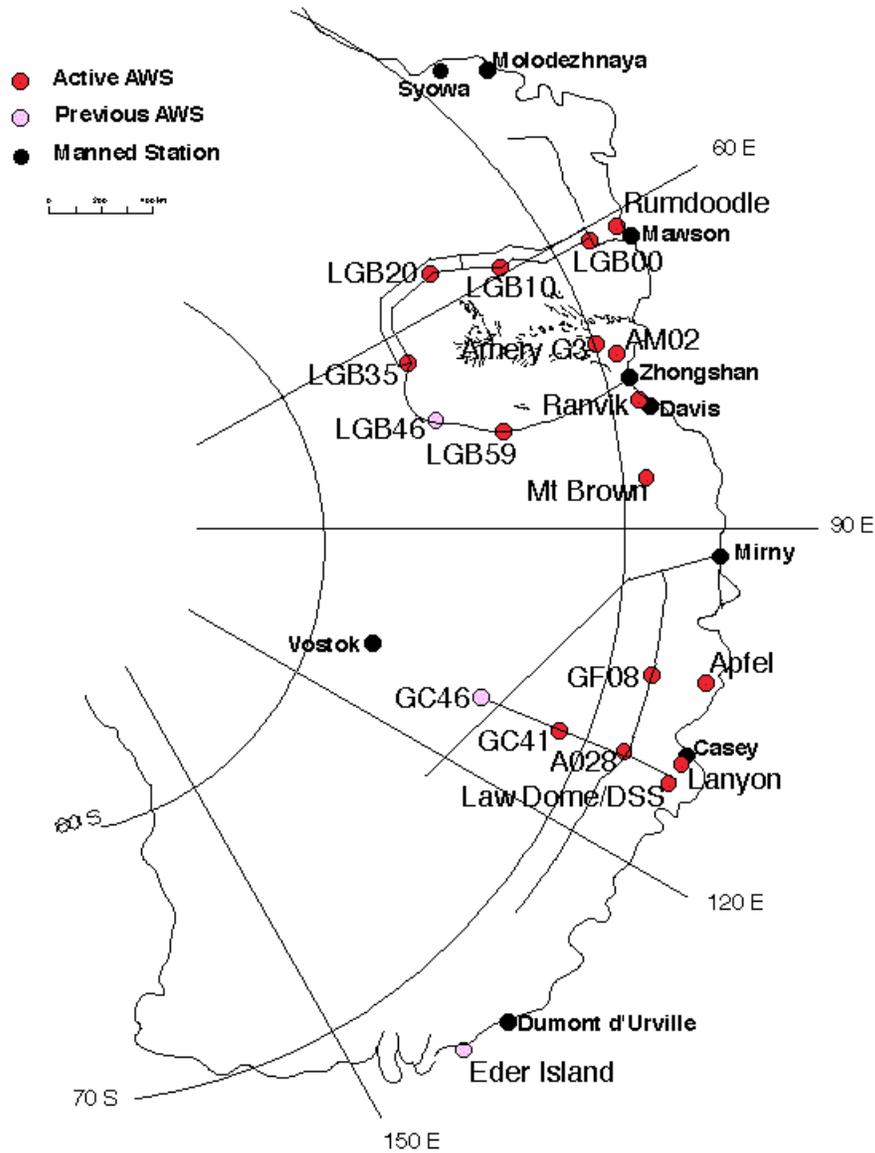
Australian

<http://www.antcrc.utas.edu.au/argos/awswebsite/background.html>

The dataset is current to the end of 2002 and is updated at the beginning of each new year. Stations still in operation in 2003 have years terminated with a hyphen in the *Data available* column.

Station	Latitude	Longitude	Elevation (metres a.s.l.)	Data available
A028 A028-A A028-B	68°24'28"S	112°13'03"E	1622m	1985-1986 1986-1990 1998-
AM02	69°42'48"S	72°38'24"E	47m	2001
Amery G3	70°53'31"S	69°52'21"E	84m	1999-
Apfel	66°20'40"S	100°48'50"E	150m	2000-2001
Brown Glacier, Heard Island	53°05'24"S	73°38'25"E	640m	2000-2002
DSS (Law Dome Summit South)	66°46'09"S	112°48'38"E	1376m	1997-
Eder Island	66°57'30"S	143°56'24"E	52m	1999-2000
GC41	71°36'10"S	111°15'46"E	2791m	1984-
GC46 (limited data)	74°08'15"S	109°50'23"E	3096m	1984-2001
GF08 GF08-A	68°29'36"S	102°10'32"E	2123m	1986-1998 2000-
Lanyon Lanyon-A	66°16'42"S	110°47'48"E	390m	1991-1998 1998-
Law Dome Law Dome-A	66°43'50"S	112°44'40"E	1376m	1986-1998 1997-1998
LGB00 LGB00-A LGB00-B LGB00-C	68°39'19"S	61°06'46"E	1830m	1982-1989 1987-1993 1993-1995 1995-
LGB10 LGB10-A	71°17'15"S	59°12'37"E	2620m	1990-1994 1993-
LGB20	73°49'58"S	55°40'18"E	2741m	1991-
LGB35	76°02'34"S	65°00'00"E	2342m	1993-
LGB46	75°51'08"S	71°29'59"E	2352m	1994-1997
LGB59	73°27'06"S	76°47'21"E	2537m	1994-
LGB69	70°50'07"S	77°04'29"E	1854m	2002-
Mt. Brown	69°07'52"S	85°59'55"E	2064m	1998-2000
Ranvik	68°51'22"S	78°02'21"E	339m	2000-2002
Rumdoodle	67°42'54"S	62°48'18"E	430m	2000-2001

Antarctic Division Automatic Weather Stations



Brazil

89263; -66.0S, -66.13E, 20 m Biscoe Islands Aws (Brazil; 9018; 20m
 89253; -63.18S, -55.4E, 75 m] Joinville Island Aws (Brazil; 32397; 75m)
 89250; -62.083S, -58.4E, 267 m] King George Island Aws (Brazil; 26478; 267m)

Belgain

[http://www.phys.uu.nl/%7Eewwimau/research/ice climate/ENABLE.pdf](http://www.phys.uu.nl/%7Eewwimau/research/ice%20climate/ENABLE.pdf)

Name of location lat lon elevation

Berkner Island 79°33'59.151" S, 45°46'54.959" W, 889 m asl

WASA Fosilryggen 73°06.320'S, 13°09.878'W, 363 m asl

Svea Cross 74°28.89'S, 11°31.01'W 1100 m asl

Kohnen Base 75°00.15'S, 00°00.44'W 2892 m

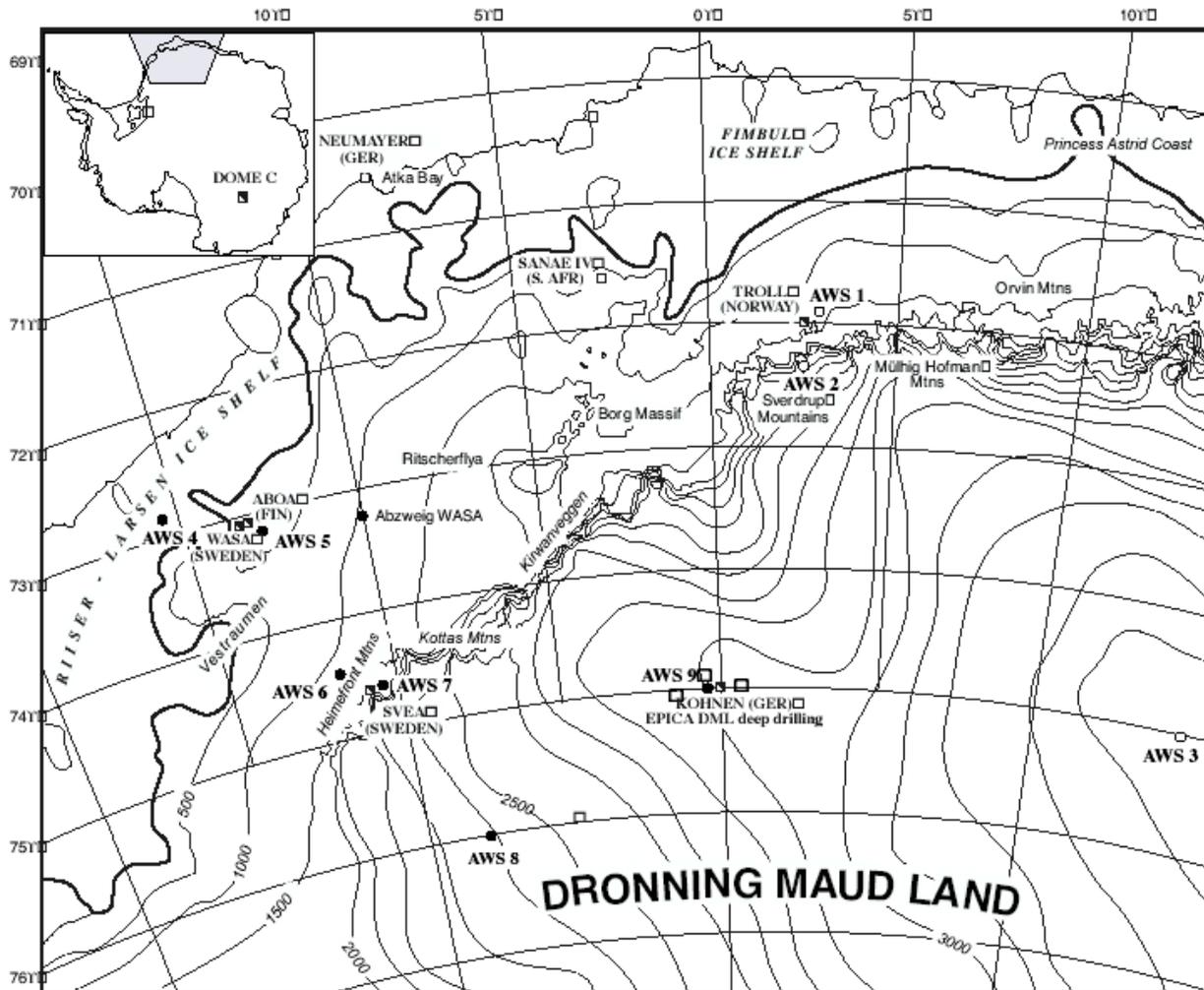


Fig. 1. Dronning Maud Land, East Antarctica, with the locations of summer stations (half-filled squares), year-round stations (open squares), IMAU AWS in operation (black dots), IMAU AWS no longer in operation (white dots; AWS1, AWS2 and AWS 3 were removed in the 2000/2001 season). A new AWS is planned near Troll at the old location of AWS 1.

Mt Erebus array

Thanks to
Phil Kyle
William McIntosh
Nelia Dunbar

And New Mexico Tech web site at

<http://ees.nmt.edu/Geop/mevo/instrumentation/stations2.html>

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**Summary 2002/2003 field season for AWS program
OO-283-M/S**

<u>Date</u>	<u>Activities Planned</u>	<u>Work Completed</u>
January		
7	Arrived Mcmurdo	Inbrief
8	Mandatory Classes	PUSH, Mac Ops, etc
9	Unpack cargo	Set date for South Pole Set for Jan 21
10	Test AWS in Lab	Waste class, HF radio
	Charge batteries	Test AWS, Batteries
11	Contact Helo Ops	Sked flight for 14th
	Prepare Laurie site visit	Completed
12	Complete AWS testing	Completed AWS testing
13	Prepare for Twin Otter	Sked Twin Otter 15th
	Prepare cargo for T/O	Completed
14	Helo to Cape Spencer	CANX due to WX
	Helo to Laurie site	Site serviced
15	Twin Otter to Schwerdtfeger site	Site serviced
16	Prepare Cargo for Pole	Done
17	Helo to Ferrell site	Site serviced
	Helo to Cape Spencer	CANX due to WX
18	Prepare for Pole	Completed
19	Sunday	Complete battery charge
20	Helo to Cape Spencer	CANX due to WX
21	Flight to Pole	CANX due to WX
22	Flight to Pole	CANX due to WX
23	Flight to Pole	Arrive Pole, Inbrief
24	Twin Otter flight to Nico and Henry site	Nico site not found Henry site serviced
25	Clean air site at Pole	Site Serviced
26	Flight to Mcmurdo	Flight CANX
27	Flight to Mcmurdo	Arrive Mcmurdo
28	Prepare for Helo flights	Completed
29	Helo flights to Cape Spencer site	Site serviced
	Linda Site	Site serviced
	Pegasus South site	Site serviced
30	Pack up cargo for ship	Completed
31	Inventory	Outbrief
February		
1	Service Willy Site	Site serviced
2	Pack orange shed	Completed
3	Email	
4	Depart Mcmurdo	Arrive Chch

O-283-M Season Summary

Date	Event
Jan 10	Jonathan Thom arrives Mcurdo (Events 190, 283)
Jan 16	John Cassano and George Weidner arrive Mcurdo
Jan 17	Science Inbrief meeting , Safety class
Jan 17	George Weidner takes PUSH course
Jan 18	Bring AWS items to Crary from Orange AWS shed
Jan 18	Begin to assemble items from field season
Jan 19	Prepare for field work, send items to Pole for Nico
Jan 20	Last shipment arrives from CHC
Jan 21	Prepare AWS for Minna Bluff - Helo work
Jan 22	Weidner and Cassano service Minna Bluff AWS
Jan 23	Prepare AWS for deployment via Twin Otter on RIS
Jan 24	Send Aerovane for Byrd AWS service by Twit Conway
Jan 24	Prepare items for retro to meet Jan 26 deadline
Jan 25	AWS tests for AWS Twin Otter work
Jan 26	Current retro to Science Cargo
Jan 26	Nico AWS serviced by Meteorologists at Pole, working!
Jan 27	Finish tests of AWS for Twin Otter work.
Jan 28	Meet with FWC on Twin Otter sked
Jan 29	Twin Otter cargo to Williams Field
Jan 30	Twin Otter AWS 1 and AWS 2 Scheduled for Jan 31
Jan 31	Primary sites wx canx , Elaine site not found
Feb 1	Sunday, Service Herbie Alley AWS for deployment In support of Pole traverse route
Feb 2	Twin Otter cancelled due to weather
Feb 3	AWS sites 1 and 2 deployed via Twin Otter
Feb 4	Gill and AWS 3 wx canx , AWS 1 electronics replaced
Feb 5	Prepare AWS for deployment at West Antarctica drilling Site next season