Antarctic Automatic Weather Stations
Field Report for 2001-2002

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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
- Southern Ocean Global Ocean Ecosystems Dynamics
- Meteorlogical 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 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. 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.

Table 1. The 2002 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#
			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	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	77.910°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	78.555°S	166.691°E	@+895	Jan 91	89768
Linda	8919	78.464°S	168.382°E	@47	Jan 91	89769
Willie Field	21364	77.865°S	167.017°E	40	Jan 92	
Windless Bight	8927	77.728°S	167.703°E	61	Nov 98	
Cape Spencer*	#8695	77.97°S	167.55°E	30?	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	77.549 °S	170.817 °E	30	Jan 00	
			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	79.904°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	
Kirkwood Isand	#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	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
Mizuho	21359	70.70 °S	44.29°E	2260	Oct 00	

New ARGOS ID at the site for 2002: @UNAVCO GPS Location: and Elevation. ,@+updated this year

Table 3. The 2002 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	8987	90.00°S		2835	Jan 86	89208
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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
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Relay Station	8918	74.017°S	43.062°E	3353	Feb 95	89744
Minna Bluff	8935	78.554°S	166.656°E	@+895	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
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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 2001: @UNAVCO GPS Location: and Elevation: @+ New location this year

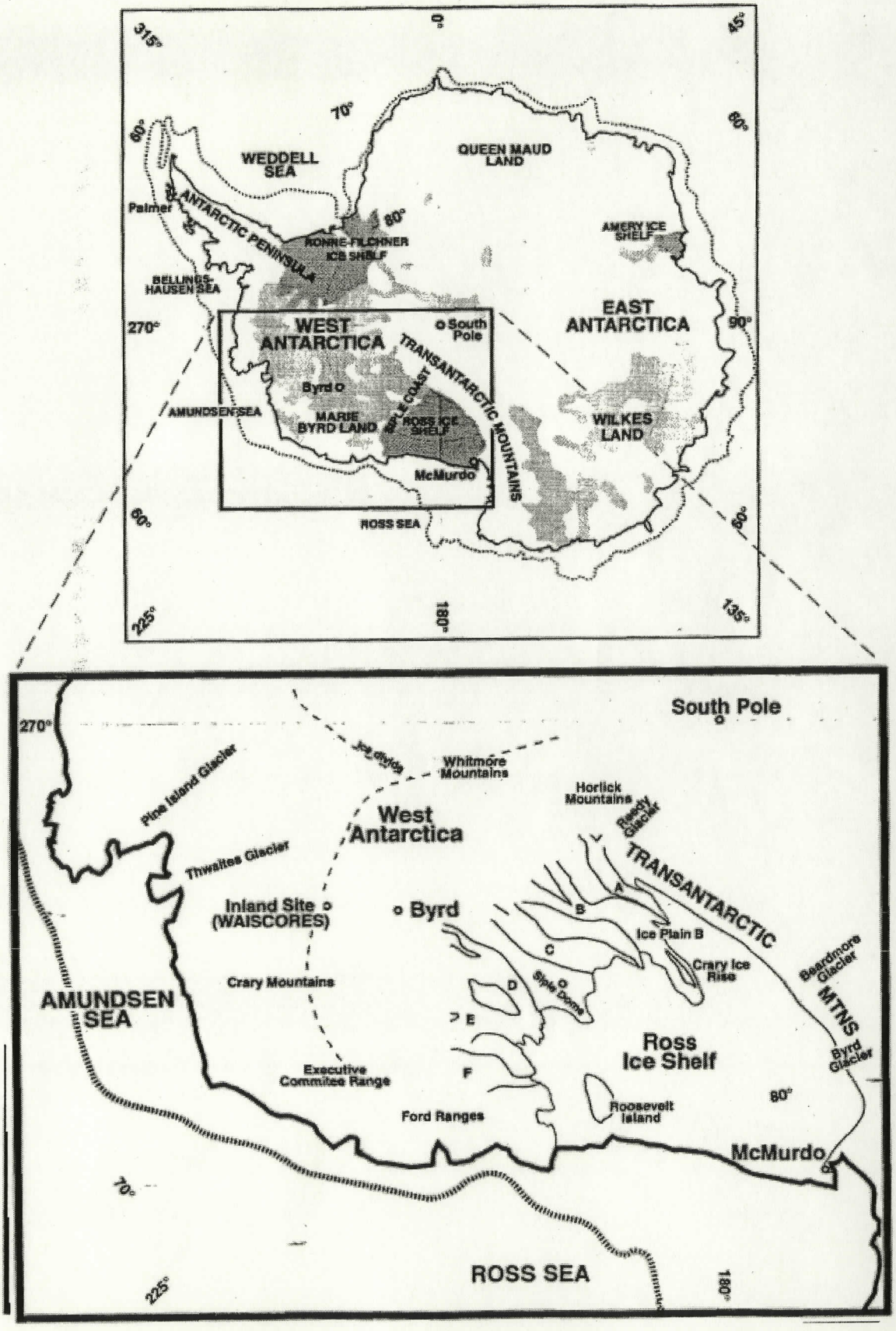
2. AWS Operations over the next grant cycle from 1 July 2002 to 1 July 2004.

Deployment of Next-Generation AWS

The current National Science Foundation (NSF) funded Antarctic Automatic Weather Station Program relies on an AWS that was designed 20 years ago. This design has proven to be very reliable, however, critical components are no longer available. The proposed project is intended to deploy replacement AWS designated AWS3A. A separate proposal has entitled ***Design and Fabrication of a Prototype Next-Generation Polar Automatic Weather Station*** has been funded. Specific objectives of the proposal are the design of a new generation automatic weather station (AWS) that will (1) be capable of operating in the harsh polar environment, (2) be capable of transmitting data as an Argos-certified platform terminal transmitter (PTT) to the various polar-orbiting satellites that have the Argos receiver onboard, (3) consume less power than the current AWS and (4) be highly flexible in its ability to interface with many different sensors and (5) be competitive econimically with the commercial data loggers currently available.

The new design will take advantage of the many advances in microprocessors and integrated circuits that have occurred since the current AWS was designed in the 1970's. Major advances include (1) much lower power requirements, (2) greatly reduced component size, (3) more processing power, and (4) many more functions on a single integrated circuit. The new AWS will also anticipate the Argos 3 satellite platform (**Argos newsletter No. 54, 1999**) that will eventually allow for two-way communication between the satellite and the AWS.

The new AWS design will be compatible with all atmospheric sensors used by the current AWS. Flexible data sampling intervals will be selected by the AWS3A's system software as is presently the case for current AWS2B. The first year request is for a prototype of the new AWS3A units to be constructed. The unit costs should be significantly reduced from that of the current AWS, since we will reuse some major components (e.g. the pressure gauge) in the new AWS. The design of the components of the new system is nearly complete. The new AWS's design allows for the upgrading of some of the current AWS platforms by using some of the subsystems of the AWS3A.


315°
0°
45°
70°
60°
60°
WEDDELL SEA
QUEEN MAUD LAND
Palmer
ANTARCTIC PENINSULA
80°
RONNE-FILCHNER ICE SHELF
AMERY ICE SHELF
BELLINGS-HAUSEN SEA
270°
WEST ANTARCTICA
South Pole
EAST ANTARCTICA
90°
TRANSANTARCTIC MOUNTAINS
Byrd
AMUNDSEN SEA
MARIE BYRD LAND
ROSS ICE SHELF
WILKES LAND
McMurdo
ROSS SEA
60°
50°
225°
180°
135°
South Pole
270°
Whitmore Mountains
Horlick Mountains
Pine Island Glacier
West Antarctica
Reedy Glacier
TRANSANTARCTIC
Thwaites Glacier
Inland Site (WAISCORES)
Byrd
A
B
Ice Plain B
C
Crary Ice Rise
Beardmore Glacier
MTNS
Crary Mountains
D
Siple Dome
AMUNDSEN SEA
E
Ross Ice Shelf
Byrd Glacier
Executive Commitee Range
F
80°
Roosevelt Island
Ford Ranges
McMurdo
70°
ROSS SEA
225°
180°

large physical oceanography component that includes deployments of a array of instrumented moorings and satellite-tracked surface drifters and isobaric floats. The moored array will be deployed in austral summer 2001, serviced the next summer, and then recovered in 2003. These Eularian and Lagrangian measurements are designed to investigate seasonal changes in water properties and the regional circulation and complement the ship-board physical and biological measurements made during the broad- scale and process cruises. A detailed description of this component is given below.

The U.S. SO GLOBEC program is funded by the National Science Foundation Office of Polar Programs. The program central planning and data management office website is http://www.ccpo.odu.edu/Research/globec_menu.html, which provides a complete set of program planning reports, descriptions of individual components, planned cruises, and links to related websites. An initial description [add link to the SSC report by hofmann et al] of the U.S. SO GLOBEC field study and related international participation in SO GLOBEC has been prepared by the science steering committee. Additional information on the SO GLOBEC program is available at http://cbl.umces.edu/fogarty/usglobec or http://www.pml.ac.uk/globec.

AWS for East Antarctic Plateau

There remain some significant meteorological data void areas on the high plateau of East Antarctica. It is proposed to take advantage of a planned ITASE traverses from Dome Concordia station to Dome Fuji through Dome A (Dome A has the highest elevation in Antarctica) by a joint French and Italian team in the near future. This traverse is tentatively planned to begin in the 2002/2003 field season and take up to four years to complete. The AWS will again support the ice coring operations as well as provide valuable surface meteorological data that can provide more data for meteorological analysis and enable better initializations for models used for operational weather forecasting. As noted previously, theseAWS will also serve as"ground truth" for the coming generation of satellite sounders. . It is proposed that if adequate resources are availabel, independent AWS be placed at the AGO sites (Figure) .The AGO platform has not proven reliable enough to ensure the availability of meteorological data. At the recent Antarctic Weather Forecasting workshop, it was noted that the interior of East Antarctica shows much variability in temperature trends and that it is likely that the climate has more local variability than is supposed (Wendler, 2000). Recent work (Neff, 1999) has documented the relation of the ozone hole to the delay in the transistion fro winter to spring (e.g. formation of the tropopause)at the South Pole and other changes in the atmospheric circulation over East Antarctica. A better understanding of the local variablility of the climate of East Antarcitc is necessary before any speculations with resepect to the impact of global climate change on Antarctica are possible.

AWS sites for monitoring climate change

The AWS sites that serve to maintain long term surface meteorological records will continue. In particular are the AWS at Byrd Surface Camp, Dome C, and at Marble Point. In addition, AWS sites located in conjuction with ice coring sites will be maintained in order to document the local climate. The AWS data will serve as a refernce point for possible future ice coring operations.

AWS used to monitor interannual atmoispheric variablility found in meteorological data in Antarctica

It is now well documented that there are significant interannual variabilities observed in the Antarctic atmosphere. There are El Nino-Southern Oscillation (ENSO) signals observed in the instrumented record (Smith and Stearns, 1993) as well an observed ENSO modulation of West Antarctic precipitation (Bromwich et al., 2000). The ENSO siganl is particularlysignificant on the Ross Ice Shelf. This is shwon in the temperature record from the AWS located at Ferrell site (Figure 1) plotted along with the SOI . In addition, a two-wave pattern that propagates around Antarctica with a 4-5 year periiod (referred to as the Antarctic Circompolar wave) has been observed in meteorological date and sea ice extent (White and Peterson, 1996). The temperature record at Dome C plotted along with the SOI indicates a periodicty different from the SOI but more closely related to the ACW. The AWS data from sites that support ice coring work, will serve to provide "calibration" data to relate current atmospheric variablility to that deduced from the glaciochemical data found in the ice cores. Recent work has found evidence of ENSO teleconnections over West Antarcitca in the glaciochemical record of the ice core obtained at Siple Dome (Kreutz et al. 2000).

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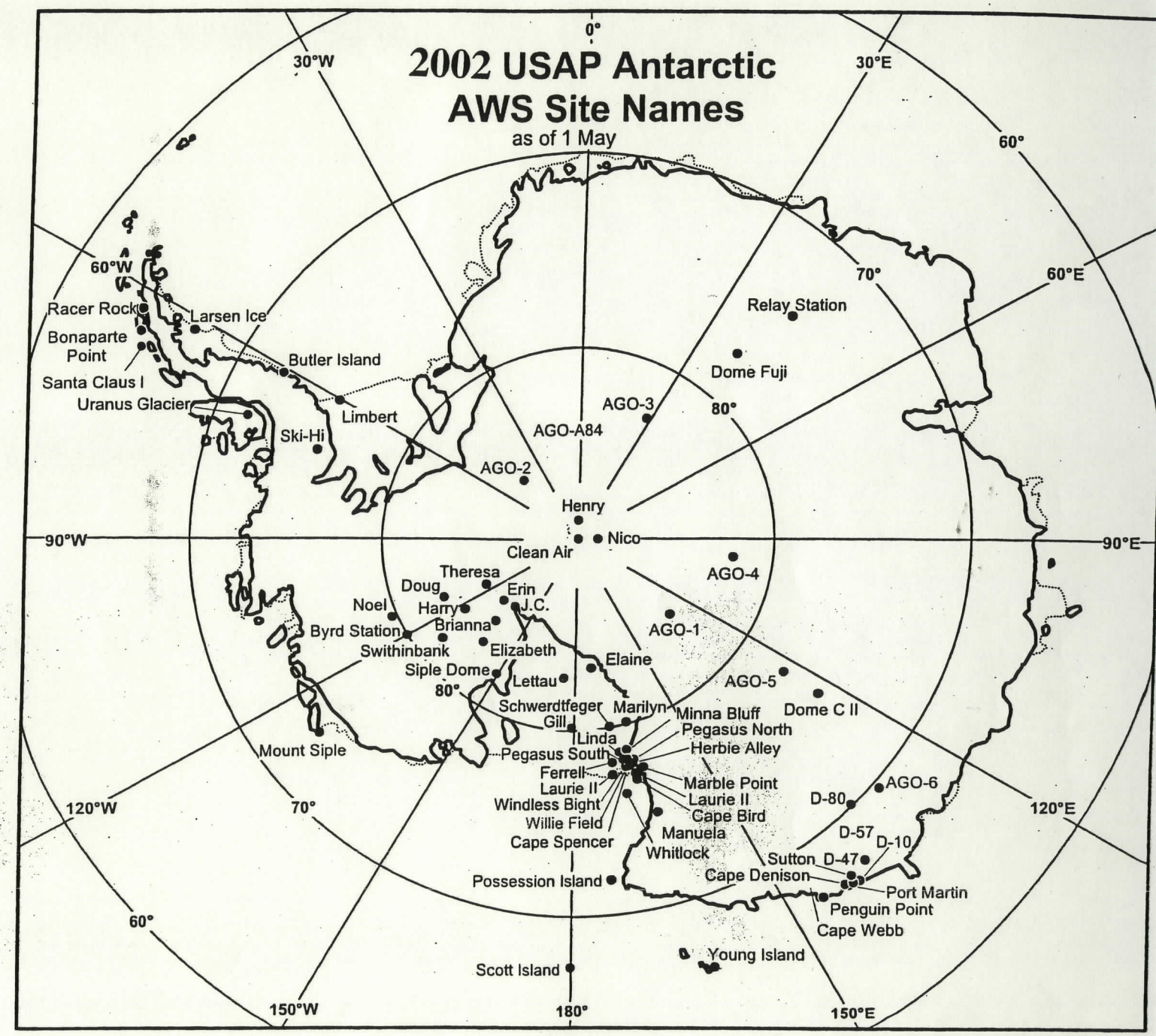

Figure 1. Map of Antarctica showing the locations of widely spaced automatic weather stations for 2002. Identification of the sites is by the site name. The locations of the AGO sites are included but are not a part of the AAWS program.

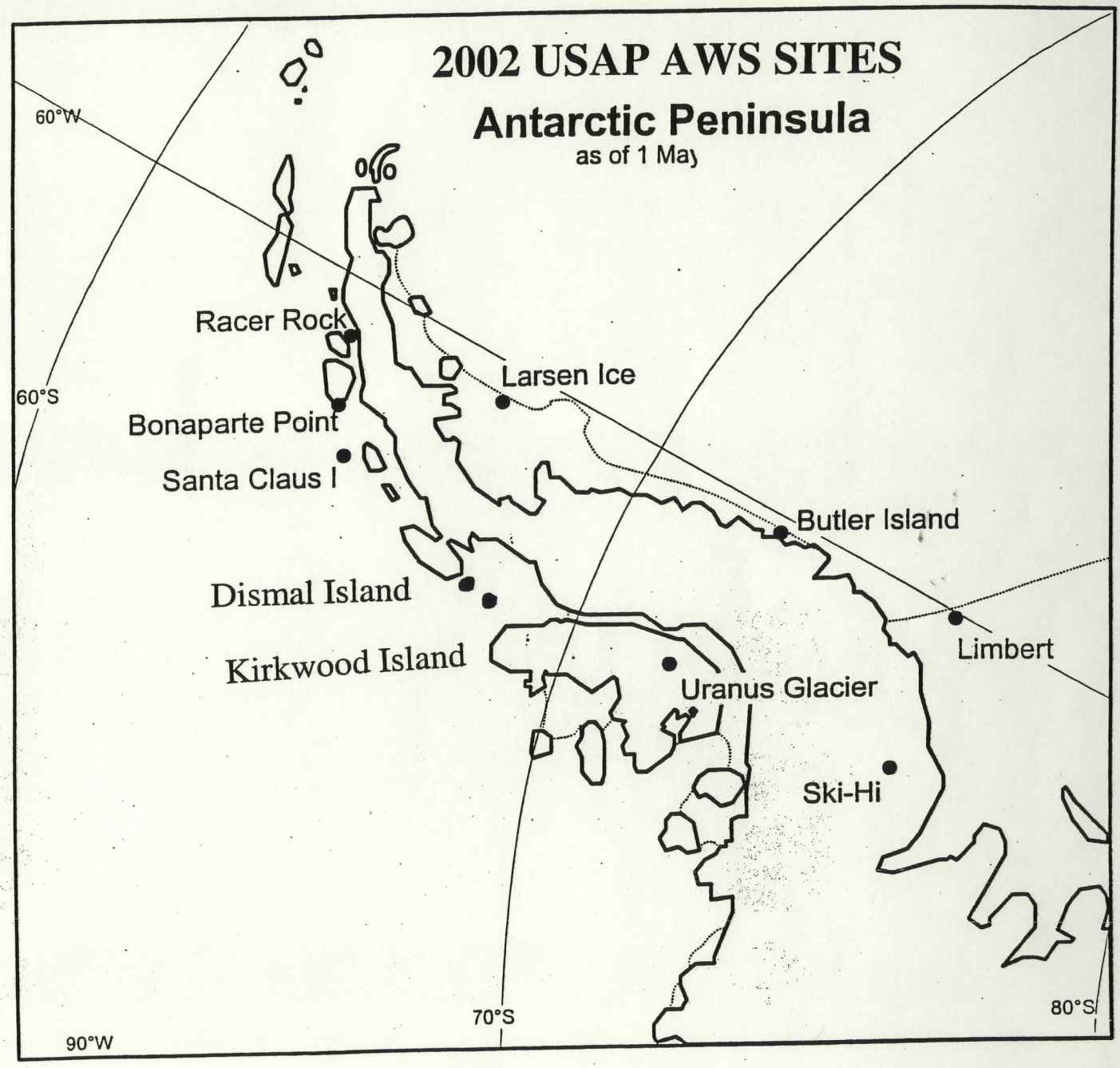

Figure 3. Location of AWS near the Antarctic Peninsula

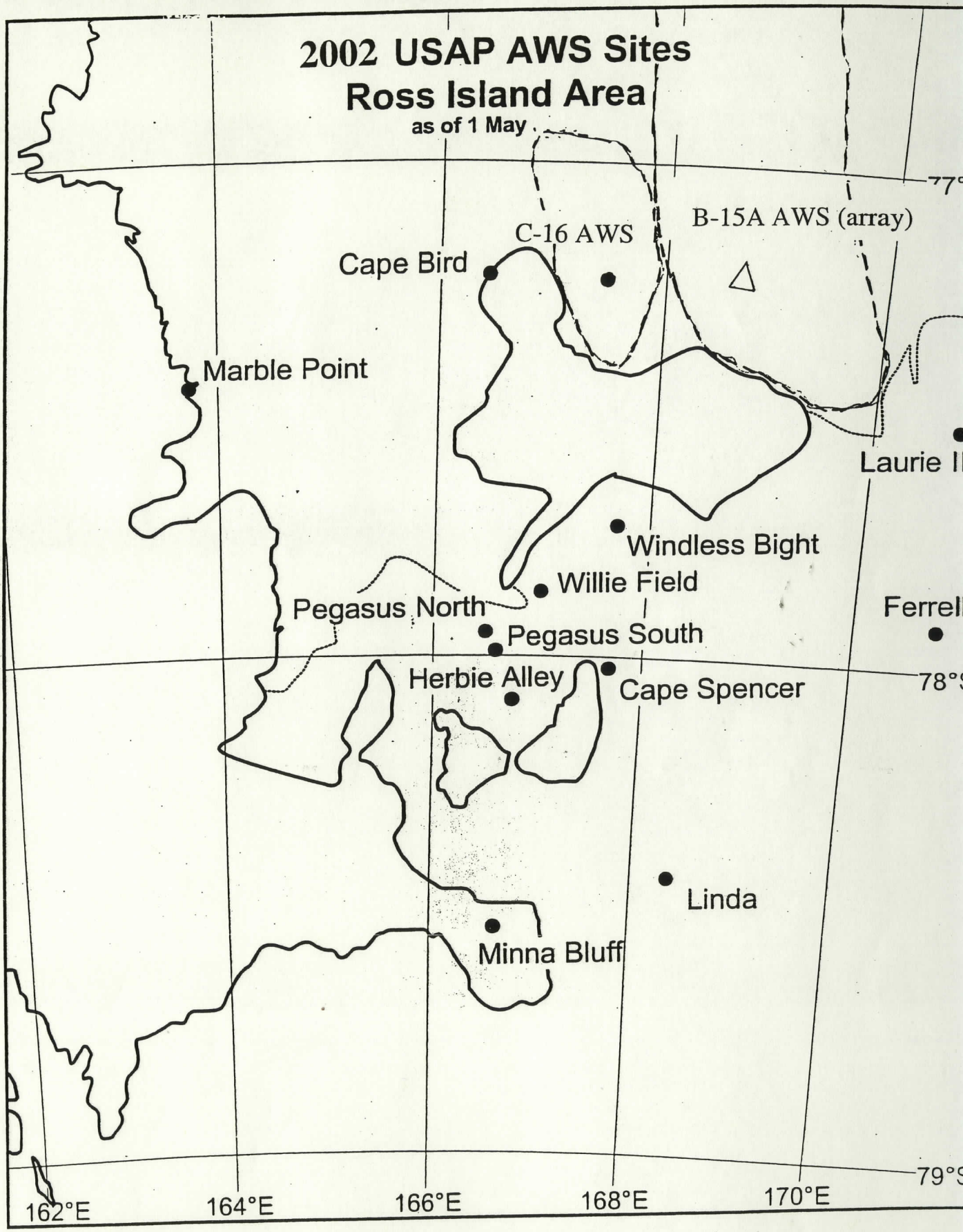

Figure 5. AWS locations near Mcmurdo

Field Reports and Notes

Byrd AWS

Subject: Message from Paul at ITASE/Byrd
Date: Tue, 1 Jan 2002 18:49:45 +1300
From: MacRelay <macrelay@mcmurdo.gov>
To: "Weidner, George -- IO190O, OO283M" <georgew@ssec.wisc.edu>

At 1605, Paul called in to give you the following message:
The AWS is 12.79V with the solar panel covered. The base of the unit that you plug the power into is 164 centimeters from the snow surface.
I tried to call your extension at Crary, but was unable to reach anyone.

Please call me if you have any questions,
Robin Krumm
MacRelay x2431

Dome Fuji AWS

Subject: Re: AWS installed at Dome Fuji Station(JARE-UW cooperative program)
Date: Sat, 22 Dec 2001 15:44:57 -0600
From: George Weidner <george.weidner@ssec.wisc.edu>
To: "T.Kameda" <kameda/civil@king.cc.kitami-it.ac.jp>

Good news,

AWS 8904 at Dome Fuji has been received

First transmission received at 0705 UTC 22 Decemeber
Latest transmission received at 2040 UTC 22 December
THIS TIME VERY CLOSE TO AWS TRANSMISSION ALSO RECEIVED FROM RELAY .

I will continue to monitor data for next few hours to confirm operation.

Regards,
George Weidner

"T.Kameda" wrote:

> Re: AWS installed at Dome Fuji Station(JARE-UW cooperative
program
>
> Dear George,
>
> Thank you for your quick answer.
> With your quick answer, I can send your message before Dr. Motoyama leave from Dome Fuji Station.
> He will check the AWS from maybye 17:00 UTC on 22 December to 17:00 UTC 23 December.
> (Local time in Dome Fuji proceed 3hours from UTC.)
>
> If you recieve the data from Dome Fuji, Please tell me. I will send a message to Syowa Station.
> Best Regards,
> Takao Kameda

The GPS coordinates of the Kirkwood site are:

Lat: -68 degrees 20.397 minutes
Long: -69 degrees 00.444 minutes

I don't know the height, but I'd guess it's on the order of 100' above sea level. The station site is on a slab rock shoulder on a ridge heading approximately NW. A ship can approach from the W. A Zodiac was used to transport us around the north end of the ridge, passing between the main island and some low rocky islands, then dropping people and cargo off on the NE side of the ridge. Even with only the slight swell that we had, tying the boat up and leaving it unattended was not an option. Getting out of the boat and up the first 10' of altitude was difficult due to steep, smooth rock walls coated with ice. The rest of the ascent starts out on glacial smoothed bedrock, then turns into permanent snowpack before reaching the rocky shoulder. But if the fur seals can do it, so can we. (I recommend saving this paragraph and passing it on to future landing parties, though their swell direction may be different.)

We hope to install Station 8932 tomorrow (Sunday) on one of the Faure (pronounced "four") islands.

Thanks,
Jeff

Subject: **Faure/Dismal AWS**
Date: Sun, 27 May 2001 23:34:44 +0100
From: ET on NBP <et_nbp@nbp.polar.org>
To: george.weidner@ssec.wisc.edu, chuck.stearns@ssec.wisc.edu
CC: mpc@nbp.polar.org, Beardsley Robert <beardsro@nbp.polar.org>

Hi George,

Station #8932 is installed on a small rocky island just east of Dismal Island in the Faure Island group of Marguerite Bay. It's coordinates are:

68 degrees 05.243' S
68 degrees 49.480' W

With the sensor boom pointing directly at the ship (68 05.429S, 68 48.735W), anemometer "north" was determined to be 124 degrees true.

The height is unknown, but I'd guess about 35' above sea level. The island is on the eastern edge of the Faure Island group and ships can approach it from the east. It's a quick Zodiac ride around the northern end of the island to a landing on the northwest shore. There are possibly several different places to make a landing. We landed along the snout of a permanent snow pack, then trekked to the left with a short climb up a small rock face to get on top of the snow. From there it was an easy walk to a high point on the northern end of the island.
The pressure sensor serial number is 55180 and the windbird is the Belfort. The CS prog is 55180-2 as shown on the paper note left inside the electronics box.

As soon as you can verify that data is being relayed by satellite, and that the data looks good, please let us know. Also, folks here are wondering when their colleagues back home can check your website for the data.

Thanks,Jeff

SPAWAR ODELL GLACIER AWS

Subject: Re: Odell Glacier AWS
Date: Wed, 23 Jan 2002 09:27:03 +1300
From: georgew <georgew@ssec.wisc.edu>
To: "Vehorn, Robert L. [Contractor]" <vehornr@spawar.navy.mil>
CC: "Larry Lainey (E-mail)" <larry.lainey@mcmurdo.gov>

Bob,I am on the ice.
Room 238/233 Crary lab.
Phone 4238/4233

We are out in the field for the most of today.

George

"Vehorn, Robert L. [Contractor]" wrote:

> Thanks George! Are you on the ice now? We also have a Telonics receiver in the McMurdo tron shop, but it's now a matter of getting out to the site.
> Larry Lainey, in Ground Electronics, is the POC on the ice
> (larry.lainey@mcmurdo.gov).
>
> I noticed the different error code but don't have any documentation on that transmitter so I can't decipher it (yet!). I'd sure like to know what wentwrong...
>
> Thanks again for the info,
> Bob Vehorn
>
> -----Original Message-----
> From: georgew [mailto:georgew@ssec.wisc.edu]
> Sent: Tuesday, January 22, 2002 2:47 PM
> To: Vehorn, Robert L. [Contractor]
> Cc: 'Jonathan E. Thom'; Matthew Lazzara; Charles R. Stearns
> Subject: Re: Odell Glacier AWS
>
> Bob,
>
> Here is the data from Argos
>
> 02297 01353 2 4 L
> 2002-01-22 05:04:20 16 FF 00 00
> 00
> 02297 01353 2 4 K
> 2002-01-22 06:06:20 12 FF 00 00
> 00
> 02297 01353 3 4 L
> 2002-01-22 06:44:20 15 FF 00 00
> 00
> 2002-01-22 06:45:20 1 FF 00 01
> 00
> 02297 01353 2 4 K
> 2002-01-22 07:49:20 13 FF 00 00
> 00
> 02297 01353 2 4 L
> 2002-01-22 08:14:20 4 FF 00 00
> 00

> Subject: Failsafe Operation ST-13
Date: Thu, 7 Feb 2002 15:11:21 -0700
From: "Stanley M. Tomkiewicz" <stan@telonics.com>
To: "George Weidner" <georgew@ssec.wisc.edu>

Hi George!

-----Original Message-----
From: georgew [mailto:georgew@ssec.wisc.edu]
Sent: Friday, January 25, 2002 3:02 PM
To: General Information
Cc: Vehorn, Robert L. [Contractor]
Subject: [Fwd: FW: FW: Coastal AWS in Antarctica]

I am currently in Antarctica and am attempting to assist a group that support air terminal operations using an array of Coastal Engineering AWS. One unit uses an Argos St-13 opt 101 transmitter that is currently outputting a "default code". Ths AWS supports an important aircraft landing site. The unit was originally bought via an organization called SPAWAR with a contact of Rick Cruz. Currently the entity is ATS with a contact of Matt Rushing. There is little corporate Knowledge here and I am attempting to help them get the unit working.

The origianl default output from the unit PTT 1353 was as follows:

02297 01353 2 4 L
> 2001-10-01 01:35:57 14 FF 02 55 00

**********FF in first byte. This looks like the failsafe mode. Looks like 8 error codes (4bits each) and counts in the last 2 bytes. The 02 looks like the number of times the error was seen. 55= 00110111 binary. Split to 0011 (invalid Argos ID code index)as the first error code 0111 (ST 13 UART detected line noise)as the second error code.

this was transmitted over last winter in Antarctica.
On attempting to reinstall the Zeno/Argos unit, it now transmits the following:

02297 01353 3 4 L
2002-01-22 06:44:20 15 FF 00 00 00
2002-01-22 06:45:20 1 FF 00 01 00

I am not sure if the 01 is something different or a bad tx.

First there appear to be 16 transmissions within the satellite pass. this is on the order of one transmission every 60 seconds

**********01 is probably bad TX and 60 seconds appears to be the failsafe rep rate.

rather than the programmed 200 seconds. This indicates also a default

Subject: Parts received, first report from Bonaparte
Date: Sun, 12 May 2002 13:14:27 -0400
From: Palmer SciTech <scitech@palmer.usap.nsf.gov>
To: georgew@ssec.wisc.edu
CC: chucks@ssec.wisc.edu, karen@icess.ucsb.edu, edwardro@polar.org,
sucherca@polar.org, labman@palmer.usap.nsf.gov,
manager@palmer.usap.nsf.gov

From: John F Booth, Palmer Station Science Technician
Hi George,

Shall I start with the apology or save it for the end? Sorry for the long delay in communications; things have been busy here, to say the least. Here's where we stand at the moment.

The March ship brought in 12 batteries, two battery boxes, a solar panel, and an RM Young piggyback board.

I already had two battery boxes here, although I have not yet put batteries in them to test them out, so I cannot be *sure* that they work. I have no reason to think that they don't, and I'll check them out in the next day or two with the new batteries.

I have proposed to my supervisors that we pass two boxes, filled with new batteries, and the solar panel, into the care of the Electronics Techs on the LMG, so that they are ready and available whenever the opportunity for a stop at RACER (solar panel) or Hugo (??) presents itself. I don't know when that might be, but I see no point in having the items here, since we're certainly not going to be getting to either of those locations *without* a ship.

I visited the unit on Bonaparte Point today:

1) I verified that there is still an AC signal coming from the aerovane, visible across terminals 9 and 6 on the installed piggyback board.

2) I found that there is NOT a DC voltage coming *from* the board across terminals 4 and 1.

3) I found that there is NOT a DC "power" voltage (supposed to be ~10.5 volts, according to the diagram you provided) going to the board across terminals 2 and 1.

4) If I'm reading the schematic correctly and following the proper wires, I think this voltage is supposed to be coming from the AWS Interface board, carried by a brown/purple pair of wires. Those source wires hook in to terminals 6 and 7 (I think) on the big strip along the edge of the unit, and from there they appear to be carried off in two directions: one over to the aforementioned power terminals 1 and 2 on the piggyback board, and the other in with a bundle of other wires running to the cable connectors on the bottom of the unit. I am unsure of the destination or purpose of this

Automatic Weather Station Repairs

Swithinbank (ARGOS ID 21356 replaced with ARGOS ID 21355)

Date: 13 January 2002

GPS Location: 81.201°S 126.177°W
Elevation: 959 m

Station Characteristics:

ΔT boom: at snow surface
Enclosure: 112 cm
Junction Box: 198 cm
Solar Panel: 234 cm
Instrument Boom: 274 cm

Station Changes:

ΔT Boom: 91 cm
Enclosure: 119 cm

Field Team: Jonathan Thom

Transport: Kenn Borek Air, Ltd. from Onset D

Swithinbank stopped transmitting during a high wind speed event. The battery voltage checked out okay, therefore new batteries were not added. The antenna and cable were in good shape. The power was cycled; this did not revive the station. The station was replaced with ARGOS ID 21355. In addition to replacing the enclosure, the lower ΔT boom was raised, the upper booms cables were rerouted to aid in future tower raising. Transmission was received by the Telonics Up-link receiver before leaving the site.

LAB report: AWS 21356 started up on return to Madison. It was likely lock-up due to statice charge build up during the high wind event during which it went off (along with the AWS at Doug site).

Doug (ARGOS ID 8922)

Date: 14 January 2002

GPS Location: 82° 18.9'S 113° 14.4'W
Elevation: 1433 m

Field Team: Jonathan Thom
Transport: Kenn Borek Air, Ltd. from Onset D

Doug stopped transmitting during the same high wind speed event that knocked Swithinbank off the air. Doug site was not found at the GPS location above. A search was performed within a five mile radius of the site without locating the AWS. (Comments by Geroge Weinder : The Twin Otter pilot did not use the radar on the Twin Otter. This was due to a lack of experience on his part and my failure to explicitly mention this in the instrucitons to the field team. The radar on the Twin Otter can "pick up" the AWS tower from several miles away).

Willie Field (ARGOS ID 21364)

Date: 25 January 2002

Two new battery boxes were installed at Willie Field. No other changes done on station.

Iceberg C16 and B15-a Automatic Weather/Global Position System Stations

Iceberg C16

Date: 23 January 2002

Transport: Petroleum Helicopters, Inc. Bell 212

Field Team: Doug MacAyeal, Andy Bliss, Chuck Kurnik, Jonathan Thom

In December, Andy Bliss and his team installed an Automatic Weather/GPS station on C16. In addition to the permanent station, three geodetic GPS were installed in an array around the tower, and a tilt meter was installed near the tower. The subsequent trip to C16 was to retrieve the geodetic GPS units and the tilt meter, and to confirm wind direction orientation with respect to a flux gate compass.

Iceberg B15-a

Date: 26 January 2002

Transport: United States Coast Guard

Field Team: Doug MacAyeal, Andy Bliss, Thai Verzone, Jonathan Thom

After the stations were installed on B15-a last year some problems were discovered that affected the wind speed measurement. This year's mission was to raise the stations at Mother 2 and Daughter stations, change the configuration of Mother 2, and to re-program Mother 1. However, the weather did not cooperate and only Mother 2 work was performed as this was deemed most important. The updates to Mother 2 included adding a fluxgate compass, new GPS, a board to convert a pulse count wind speed measurement to voltage, and a new interface for the GPS and fluxgate compass. In addition to the new instrumentation, a new program was uploaded, a storage module was added, and the tower raised by three feet. The Mother 1 re-program was done on 30 January 2002.

Cape Spencer (Argos 8695)

Date: 29 January 2002

GPS Location: 79.97°S 167.55°E
Elevation: 15 m (Estimated)

Station Characteristics

ΔT boom:
Enclosure:
Junction Box:
Solar Panel:
Instrument Boom:
R. M. Young Wind system

Station Changes

Enclosure: AWS 8695 repaced 8722

Field Team: SPAWAR field team

Transport: Helo from Mcmurdo

The SPAWAR field team (POC Larry Lainey) had retruned the no working unit to us for possible repair. It had ceased being received after the big December2001 storm (as did Minna Bluff AWS). After several attempts to diagnoxe a problem , it was determined that given the time constraints, it would be easier to modify a standard AWS to the SPAWAR specs. George Weidner modified AWS 8921 and installed the SPAWAR porgram ROMS with Argos ID 8695. The SPAWAR team then deployed the AWS in the field.

LAB Report: AWS 8722 malfunction due to a failed diode in the -4V supply to the A/D.