Antarctic Automatic Weather Stations
Field Report for 2005-2006

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

AMRC collaboration:

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

Field work completed for 2005-2006

For the AS 2005-2006 field season, the field team consisted of George Weidner (O-283) and Jonathan Thom (O-283, I-190), and Shelley Knuth ()-202, also with O-283), with assistance from the personnel at Mcmurdo Station, Ken Borek Twin Otter pilots, and station personnel at WAIS divide field camp. Fieldwork was also done through cooperative programs with personnel from the Polar Stern, the French Antarctic program **Institut Polaire Français - Paul Emile Victor (IPEV)** and the **British Antarctic Survey (BAS).**

Summary of University of Wisconsin – Madison fieldwork follows:

A. McMurdo based operations (See full report of January Field team below)

Site	ARGOS ID	Service performed at site
Willie Field	21364	Rebooted ADG sensor, snow pit
Windless Bight	8982	Snow pit dug, samples collected
Linda	21362	Rebooted AWS, snow pit
Laurie II	21360	Rebooted AWS, snow pit
Ferrell	8929	Rebooted ADG sensor, snow pit
Nascent	28336	AWS serviced
Fountain	30416	AWS Installed

B. West Antarctic based operation

Site	ARGOS ID	Service performed at site
Byrd Station	8903	Rebooted AWS 8903
Swithinbank	21355	Station raised, electronics returned for repair
Harry Site	8900	Station raised
Kominko-Slade (WAIS)	8936	AWS with snow temperature sensors installed

C. South Pole

No fieldwork required

D. Field work in Adelie Land

French Antarctic Program (IPEV) serviced D10 and D47.

E. Field work by the Japanese Antarctic Research Expedition

No fieldwork required

F. Service performed on AWS located near Palmer Station

AWS 8933 returned for repair and upgrading to CR10X based AWS.
New wind system installed on AWS 8923 at Bonaparte Point site.

G. AWS for deployment on Peter I island or at PIG under cooperative arrangement with Dr. Stan Jacobs.

Detailed AWS fieldwork (part I) including the Iceberg AWS work.

o Deployment on October 20, 2005 of an AWS/iceberg tracking station (Argos ID 30416) on the tip of Drygalski Ice Tongue (DIT), Figure 1, (the tip subsequently broke off, forming C25, during a collision with C16, and this is the first success of "pre deploying" an iceberg station on land-fast ice shelf or ice tongue). First data received via Argos follows:

```
00088 30416 17 32 M 2005-10-20 03:41:59 1
2D           5C           8C           CC
EC           66           63           33
99           8C           CE           7B
31           81           C6           23
F2           78           D2           70
0F           C0           1E           3A
F9           03           F0           4C
66           07           04           FB
```

o Revision and repair of the C16 AWS and snow temperature sensor array (Figure 2). As of November 17,2005, C16 was back on-line. We pulled the station a few days ago and brought it back to McMurdo for repairs. I have to update the calibration file for the station. I'll do that when I get back to Madison. The Internet has been very slow so far this season. It has gotten a little bit better since this past weekend, but it is just too many people on too small of a connection. First data received via Argos following repairs.

```
00088 15930 17 32 M 2005-11-02 19:02:50 1
29           60           13           D5
03           4B           0F           7E
03           9A           48           0F
48           3D           4B           D1
2E           5C           60           00
47           FF           60           00
55           EA           60           00
47           E8           09           FA
```

Two trips to the Nascent AWS . One was to install GPS stations on the south side of the rift. The second was to recover the webcam and seismometer, and install a GPS station. These tations were recovered in late November by other members of 190.

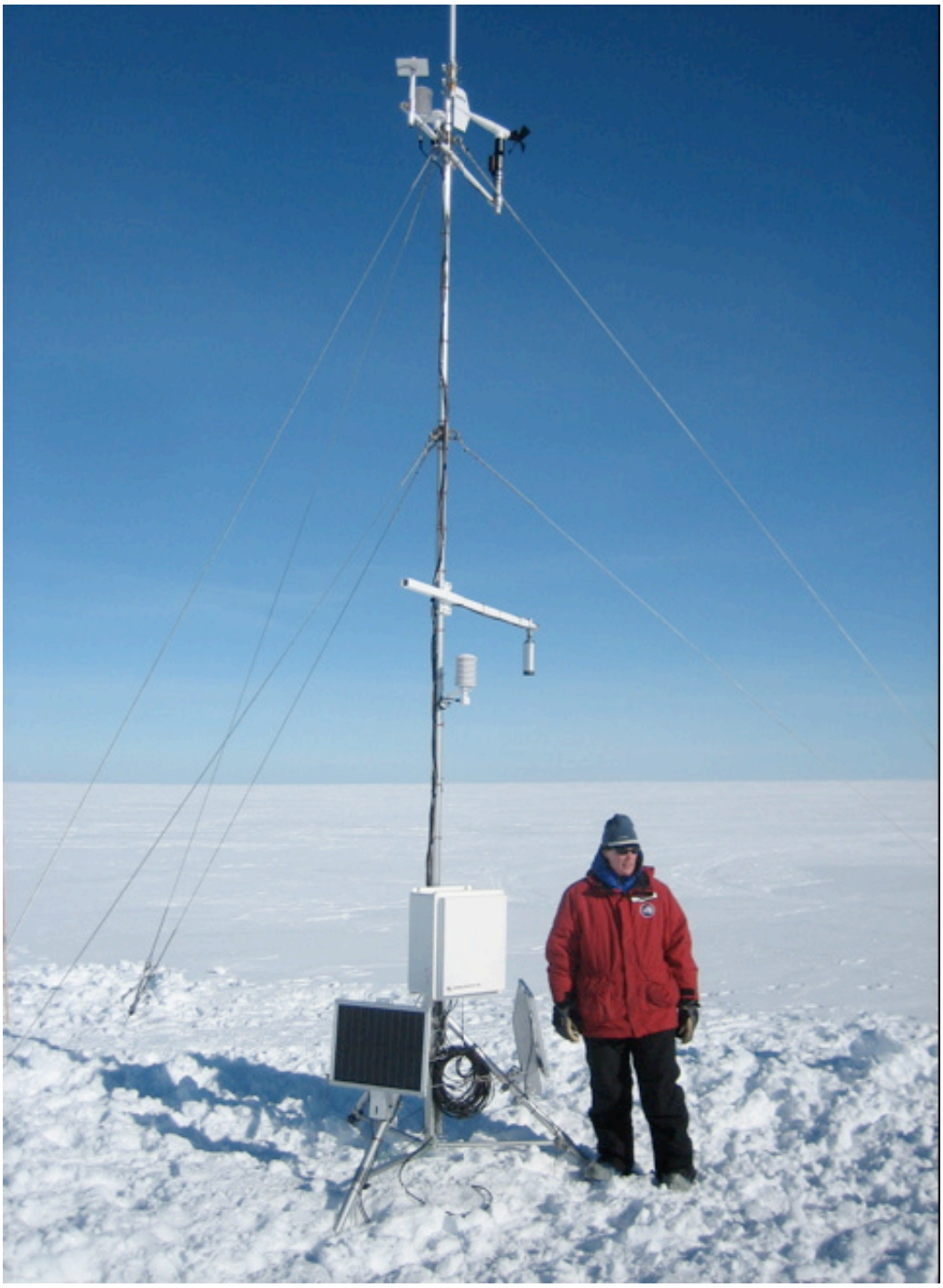


Figure 1: Drygalski AWS (Fountain) with Jonathan Thom.

Figure 2: C-16 AWS - Mark II after repair of AWS.

Cooperative AWS fieldwork with Mike Willis and Terry Wilson via the TAMDEF project.

For the 2004/2005 field season we assisted Mike Willis with deploying recording AWS at two sites in the Transantarctic Mountains – the Lone Wolf Nunatack (LNW) and Mount Fleming (FLM) site.

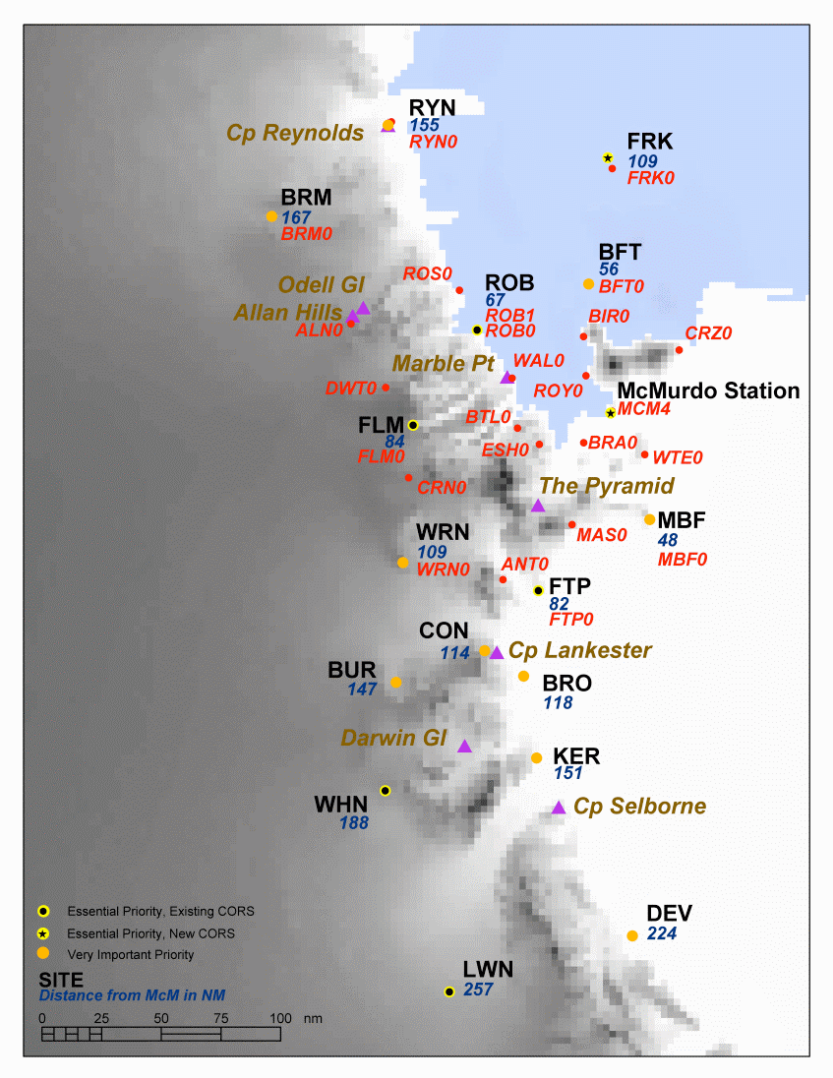


Figure 3. TAMDEF sites

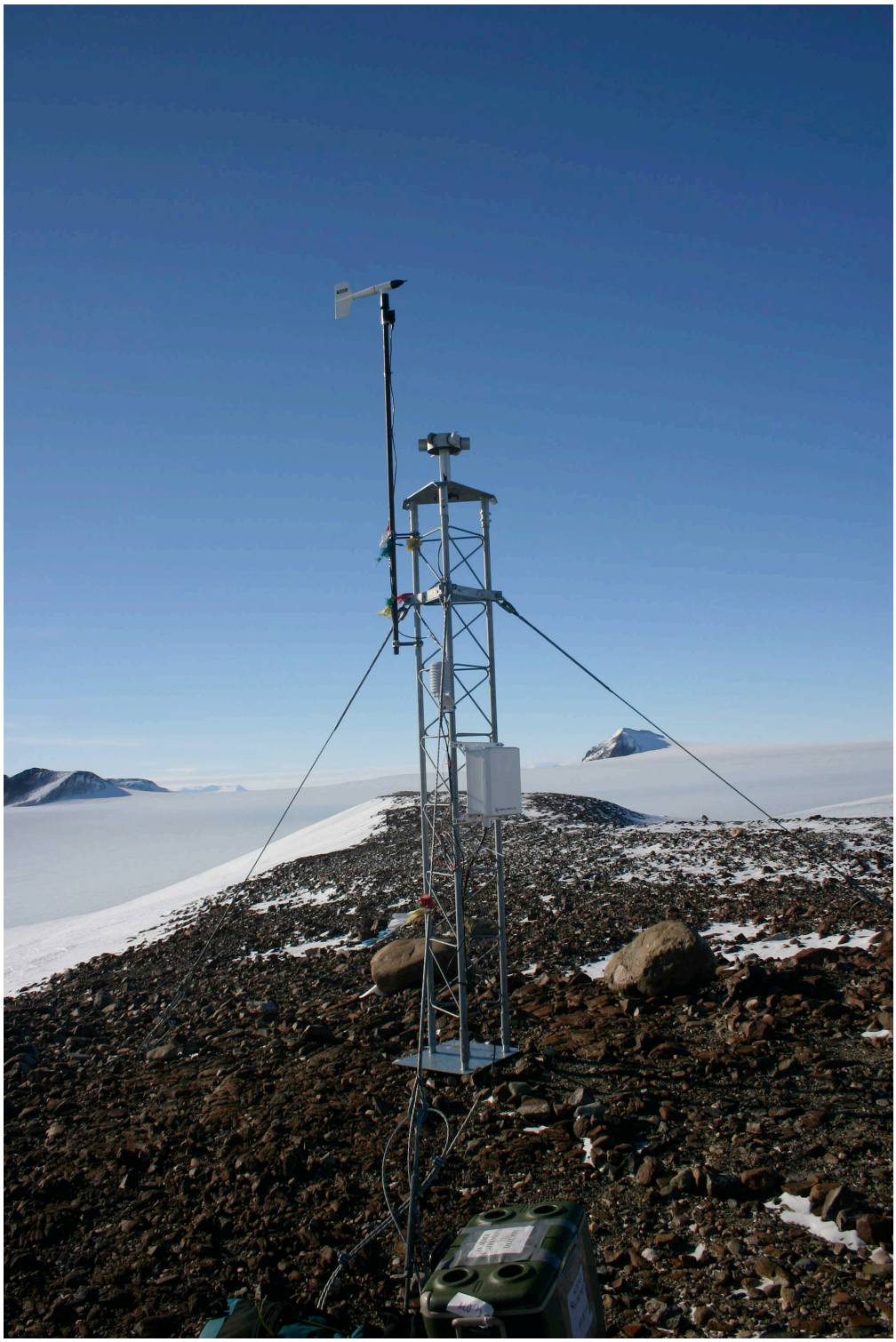


Figure 4. Lone Wolf Nunatack AWS

Figure 5. Mount Fleming (FLM2) AWS after one year.

Jonathan Thom's report from November 2005
I talked to Mike regarding LNW. He recovered the enclosure. The RM Young did not survive, but the high wind speed system they installed (wind speed only?) was spinning fine. I'm in a class all day today, but will check with him this morning or tomorrow to figure out what to do about the recovered enclosure.

Mike Willis's report
All gear from Lonewolf – LNW has been returned to your lab in the Crary
High Wind Speed Monitor.
RMYoung 503 sans fins (damaged over the winter).
Vaisala Barometer.
Vaisala Temp and Humidity sensor and associated shield.
Platinum Resistance Thermometer.
External Temp Reference Thermocouple.
CR10X-XT and Storage Module

in lab 238. The high speed wind sensor (speed only) was gently
turning in the "breeze" when we got to Lonewolf.

The Mt. Fleming gear was a little worse for wear when we got there.
We will definitely still be going to Fleming in Jan to install a new antenna monument, this will take a good 2-3 hours. Is that long enough to install an aws on an existing tower? Is Lonewolf a definite no go, or a possibly maybe? Again we absolutely definitely have work to do there in January.
Heres a picture of fleming - unfortunately. I have all the gear back from the site, but am on a new computer (old one fried) and don't have any of the documentation on how to retrieve all the data from the campbell storage module.
Mike Willis

With our (O-283) assistance Mike Willis retrieved the data from the Mt Fleming AWS (see plot of data0 for the length of time that it operated. Sensors began to malfunction on August 8, 2005. Also, the wind direction was not recorded due to a wiring error.

Date and time	Air temp 1	Air temp 2	Humidity	WS	WS peak	Pressure	Battery
8/8/05 17:00	-36.96	-37.77	26.81	18.83	25.28	746.7	12.1
8/8/05 17:10	-35.01	-35.68	31.29	22.13	27.17	748.5	12.1
8/8/05 17:20	-32.94	-32.8	18.16	25.46	28.15	745.4	12.09
8/8/05 17:30	-31.77	-31.39	16.18	24.62	27.56	744.4	12.08
8/8/05 17:40	-31.91	-31.49	15.41	25.21	28.73	743.7	12.09
8/8/05 17:50	-36.44	-38.41	Vaisala off	20.84	24.77	746.2	12.08
8/8/05 18:00	-39.78	-45.49		22.51	25.11	747.9	12.1
8/8/05 18:10	-39.8	-45.31		24.5	26.68	747.7	12.1
8/8/05 18:20	-38.22	-41.42		21.75	27.27	746.8	12.09
8/8/05 18:30	-35.49	-35.48		23.16	27.31	746.6	12.09
8/8/05 18:40	-36.83	-37.09		23.5	26.73	745.1	12.09
8/8/05 18:50	-36.6	-37.04		23.75	25.68	745.3	12.09
8/8/05 19:00	-36.1	-36.37		24.05	26.7	745.2	12.09
8/8/05 19:10	-35.67	-35.76		25.33	28	744.4	12.08
8/8/05 19:20	-34.58	-34.5		26.21	28.62	744.1	12.09
8/8/05 19:30	-33.64	-33.31		25.58	27.41	745.1	12.09
8/8/05 19:40	-33.53	-33.23		25.24	28.68	744.1	12.08

January AWS (O-283) field season

The 2005-06 Antarctic Field Season (Part II) was conducted between December 29, 2005 and January 31, 2006. George Weidner and Shelley Knuth of the University of Wisconsin - Madison, carried out the fieldwork. They were assisted in the field by Jessica Staude (University of Wisconsin) and Ryan Fogt (The Ohio State University).

January 5th was the first flying day of the season, with the first station visited being Linda site. Flying to the site were Barry Hawkins (pilot), Weidner, and Knuth by A-Star helicopter. The general location of Linda AWS was found by GPS, and then upon arrival, a scan of the horizon by the helicopter was made and the AWS was found by sight. Linda site was off the air, which necessitated a system checkout. The system was rebooted and came back online. At this site, a snow pit was dug, and measurements of the weight of the snow were taken for the past two years of layers. The site itself was in good shape and should not need to be raised next year.

The night of January 5th the first attempt at Williams Field was made by Knuth and Jessica Staude, scientist with the Antarctic Meteorological Research Center. The trip was made to look over the site and to collect data from the acoustic depth gauge (ADG) located on board the system. Using the Williams Field shuttle, and then acquiring a second shuttle from Williams Field to the AWS site, the AWS site was reached. ADG data was collected from the computer, and it was determined that the site needed to be revisited later in the season to raise instruments on the tower and to troubleshoot the ADG program.

January 6th was the second flying day of the season, with intentions to visit Laurie II, Ferrell, and Windless Bight sites. Hawkins, Weidner, and Knuth were on board, with Laurie II being the first site visited. The site had been offline for several months so the purpose of visiting this site was to bring the site back online. As with Linda site, the system merely needed to be rebooted. Another snow pit was dug and measurements of the weights of the snow were taken for the past two years. The site did not need to be raised this year.

The next site to visit that day was Ferrell site. The purpose of visiting this site was to collect data from the ADG and to dig a snow pit. Upon arrival, the ADG site was .629 m from the surface. The ADG boom was raised so that the ADG was 1.08 m from the surface. Data was collected from the CR-10X, but data had stopped being collected partway through the year. It was thought that more research on the CR-10X program would need to be done in McMurdo and a second visit would be required. A snow pit was also dug at this site, and measurements of the snow weight as well as visual stratigraphy was performed to determine the snow layers for the past two years.

Windless Bight was also intended to be a target that day, but due to limitations on time visiting the site was postponed for that day.

January 8th was the first attempt that was to be made to fly to the WAIS site in West Antarctica. Weidner and Knuth were to fly to this location by C-130 flight. However, the flight was cancelled due to a medevac. The second attempt was on January 9th, but the flight was cancelled due to weather. Weather delayed the flight again on January 10th, but finally the team was able to make it out on 11 January. Weidner and Knuth took a C-130 to WAIS site via Patriot Hills, where the team was on site for approximately an hour. The night of January 11th was spent getting adjusted to the altitude, setting up tents, and sorting through cargo. On January 12th, the two Twin Otter pilots to be assisting us, Chuck Slade and John Kominko, thought the weather to be good to fly out in the field. Weidner and Knuth decided that given the weather conditions and priorities that it would be best to fly to Byrd, Swithinbank, and Harry sites, and to not visit Erin site, due to the fact that it was still online and was quite a bit of distance from the other sites.

The first site visited on January 12th, was Byrd site. This site had been offline for several months, and was in need of a visit. The team consisted of Slade (pilot), Kominko (pilot), Weidner, and Knuth. The AWS hardware had been placed in the enclosure upside down so that a reset button had been pushed in by foam insulation, and once released, the station began transmitting. Measurements of the weight of the snow from a snow pit were again taken.

The second site visited that was Swithinbank. Swithinbank AWS had been off the air for some time. The station also needed to be raised. Weidner again rebooted the station and the station was found to be transmitting. Consequently, the team raised the station tower, and afterward again tested the station to make sure that it was transmitting. However,

the team couldn't get the station to come back online so the electronics box was removed and brought back to McMurdo Station for repair. This station will need to be visited again to replace the box.

The last site visited for that day was Harry site. Upon arrival, it was clear that the station needed to be raised as only the wind propeller was above the surface. The station was online so all that needed to be done was raise the tower. Slade and Kominko were very helpful with this task as Weidner and Knuth were beginning feel the effect of working at elevation all day. The station was raised so that the bottom of the electronics box was about one meter above the surface. Measurements of the weight of the snow were taken from a snow pit.

On January 13th, Weidner and Knuth installed the new AWS station at the WAIS site. The station was put up approximately a mile from the station to the east of the main station, just past the drilling area. The station was put up with the assistance of Slade and Kominko, and for their efforts, the new station was named Kominko-Slade AWS site. The new station consisted of a wind propeller, and pressure, temperature, and relative humidity sensors. A temperature string was also put into the snow at a depth of 5 meters from the top of the 2-meter hole dug, or approximately 7 meters for the entire string. The temperature string was put in with a Pico drill. Measurements of the snow weight were also taken from a snow pit.

On January 14th, Weidner and Knuth left WAIS, being flown first to Siple Dome camp (with pilots Slade and Kominko). At Siple Dome camp, Weidner and Knuth raised the tower at the AWS located on site. The station was otherwise functioning properly. Measurements of the weight of the snow were taken from a snow pit.

An attempt was to be made for Lettau site that day but weather conditions at the site were poor so that part of the trip was cancelled. Weidner, Knuth, Slade, and Kominko then returned to McMurdo Station, arriving in the early evening.

The next attempt at visiting an AWS site was made on January 17th. Weidner, Knuth, and Staude attempted to visit Ferrell and Windless Bight sites by A-Star helicopter. Ferrell was unattainable due to fog on the ground, so the helicopter diverted to Windless Bight. The weather was good at Windless Bight, so a landing was attempted. However, the snow was too soft at this location for the helicopter to land, so the mission was cancelled for the day. It was decided to visit Windless Bight another day by land vehicle. A second attempt was made to reach Ferrell by Weidner and Knuth on January 18th, and again on January 19th, but fog and poor surface definition did not allow the mission to be completed.

On January 20th, Weidner and Knuth visited Williams Field by Pisten Bulley, a tracked vehicle. Upon arrival, measurements of the snow weight were taken. Also, the ADG program was re-downloaded onto the CR-10X system and appeared to be working well. The instruments were also raised on the tower, including the ADG boom, which was raised from .2 meters to 1.21 meters.

On 23 January 23rd, another attempt was made to go to Windless Bight, this time via a Pisten Bulley. The team consisted of Knuth, Ryan Fogt, a graduate student at The Ohio State University, and Emily Stone, a reporter for *The Antarctic Sun*. The team stopped every five miles on the 15-mile trip to Windless Bight AWS site to collect measurements of the weight of the snow from snow pits and to perform visual stratigraphy. The Windless Bight AWS site was located further north of the Windless Bight camp, and was difficult to spot visually. A GPS was used but the horizon still had to be scanned until Fogt picked out the AWS tower in the distance. At the site, another snow pit was dug (at 1.45 m) and visual stratigraphy performed along with measurements taken of the weight of the snow. Also, the ADG boom was raised from .41 to .86 m and moved to the other side of the tower. The enclosure box was measured at .79 m, the bottom of the solar panel at 1.46 m, and the top of the temperature probe at 1.83 m. The station was not raised, but will have to be next year.

The rest of the season consisted of numerous delays, and eventually the end of the season. Three attempts were made to go to Mulock Glacier and Mary AWS between January 24th and January 30th, but those attempts were cancelled either due to weather or logistical issues. Another attempt was made to visit Lettau site by Twin Otter on January 27th but that trip was also cancelled. The AWS field season concluded on January 31st with Weidner and Knuth leaving McMurdo.

Field work by crew of the German icebreaker Polar Stern

Parts list (not a packing list)

1. Six Gel Cell batteries - Powersonic PS12400NB
2. One gray Hardig case - to be battery enclosure.
   Set up to house the six batteries with power cord and diode board.
3. One solar panel with mounts
4. One junction box
5. One AWS enclosure containing AWS 8933 with four mounting bars....
6. One sensor boom.
7. One antenna with antenna mounting arms and cable.
8. One RM Young 05103 with spare prop and prop nut
9. One tower base (tilting).
10. Two tower sections (7 ft.) they can have a choice of using one or two sections.
11. Guying - standard chain and rope. with deadmen.
12 Guying - Alternate wire rope.
13. Rock drills check to see if they have a rock drill. 14. Tools
15. Instructions (I will put something to gether and Jonathan can edit and add).

Figure 3: Peter I AWS. From left to right in the attached picture, they are Raul Guerrero (Argentina), Klaus Buldt (Germany), Frank Nitsche (USA), Terry O'Donovan (UK), and Felix Riess (Germany), NSF's Bernie Lettau helped with the permitting, and RPSC's Karl Newyear et al with shipping arrangements.

All,

As many of you know by now, an Automatic Weather Station was installed on Peter I Island from the Polarstern on 19 Feb 2006. This was a last minute effort that required the assistance of many people, chief among them George Weidner and Matt Lazzara at Wisconsin, who cobbled together the equipment and shipped it to Punta Arenas. Also thanks to Karsten Gohl, Chief Scientist of the Polarstern, and to the international crew who assembled the unit on site. From left to right in the attached picture, they are Raul Guerrero (Argentina), Klaus Buldt (Germany), Frank Nitsche (USA), Terry O'Donovan (UK) and Felix Riess (Germany). NSF's Bernie Lettau helped with the permitting, and RPSC's Karl Newyear et al with shipping arrangements.

The Peter I AWS (Argos ID # 8933) is located near 68°46.2S, 90°30.3W, at a height of ~130m on the 'Radiosletta' Plateau on the NW side of the island. It was revisited on 31 Mar 2006 by Polarstern personnel led by Elke Neubacher, who measured temperature, wind speed and direction, pressure and relative humidity, using calibrated Polarstern instruments. We hope this AWS will be useful for your downstream research along the Antarctic Peninsula, and that resources will also be found for its servicing, as needed.

Stan Jacobs

H. University of Wisconsin Automatic Weather Station Servicing by BAS

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
Limbert	S 75 54.85	W 059 15.86	40m
Larsen Ice Shelf	S 67 00.70	W 061 32.97	17m
Uranus Glacier	S 71 21.67	W 068 47.83	753m - AWS was removed and relocated to Fossil Bluff

Current status

Name	Temperature	Pressure	Wind speed	Wind direction
Larsen	OK	OK	Intermittent	OK
Butler	OK	OK	OK	OK
Sky Blu	OK	OK	OK	OK
Limbert	OK	OK	OK	OK
Fossil Bluff*	OK	OK	OK	OK

*Uranus Glacier AWS moved to Fossil Bluff and updated.

•Limbert

–The whole system was dug up and re-erected on the same site and the boom aligned with magnetic North.

•Ski Blu

–The AWS looked to be in good condition and did not need to be raised.

–The power cable to the battery box was replaced due to incorrect wiring from the previous year

*New Fossil Bluff AWS

•A Campbell CR10X AWS was installed at Fossil Bluff and has the same ARGOS ID as the AWS that was at Uranus Glacier.

•Data are sampled every 10 seconds then averaged every 10 minutes and transmitted.

•The data are downloaded from the ARGOS website every hour then decoded and error checked.

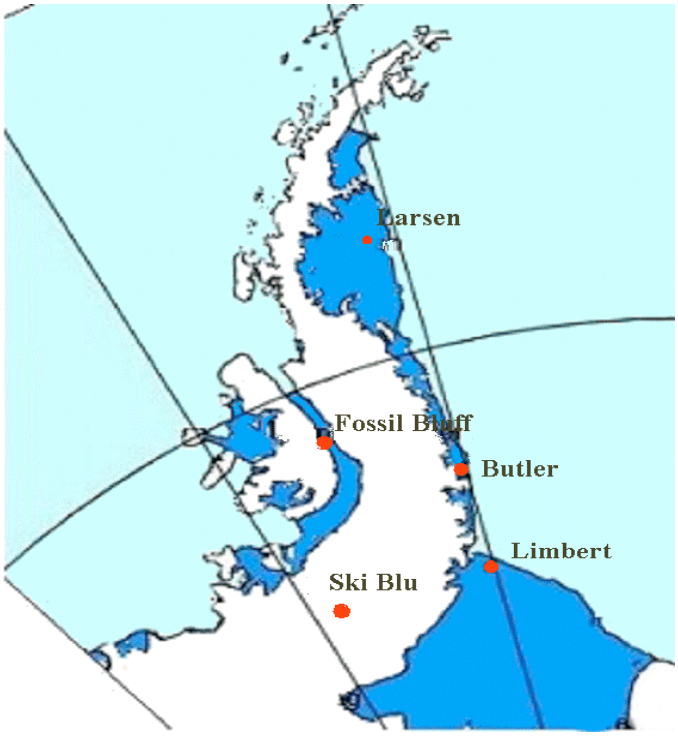


Table 1: AWS for 2006. An '@' in the 'Altitude' column indicates a location obtained from UNAVCO GPS.

SITE	ARGOS ID	ARGOS ID	Lat.	Long.	Alt.(m)	Date	WMO#
	OLD	NEW				STARTED	
	Adelie Coast						
D-10	8986		66.71oS	139.83oE	243	Jan-80	89832
D-47	8947		67.397oS	138.726oE	1560	Nov-82	89834
D-57	N/A		68.199oS	137.538oE	2105	Jan-96	
D-80	N/A		70.040oS	134.878oE	2500	Jan-83	89836
Dome C II	8989		75.121oS	123.374oE	3250	Dec-95	89828
Port Martin	8909		66.82oS	141.40oE	39	Jan-90	
Cape Denison	8988		67.009oS	142.664oE	31	Jan-90	
Penguin Point	8910		67.617oS	146.180oE	30	Dec-93	89847
Cape Webb	N/A		67.943oS	146.812oE	~60	Dec-94	
	West Antarctica						
Byrd Station	8903		80.007oS	119.404oW	1530	Feb-80	89324
Brianna	8931		83.889oS	134.154oW	@525	Nov-94	
Elizabeth	21361		82.607oS	137.078oW	@519	Nov-94	89332
J.C.	N/A		85.070oS	135.516oW	549	Nov-94	
Erin	21363		84.904oS	128.828oW	@990	Nov-94	
Harry	8900		83.003oS	121.393oW	945	Nov-94	
Theresa	21358		84.599oS	115.811oW	1463	Nov-94	89314
Doug	N/A		82.315oS	113.240oW	1433	Nov-94	
Mount Siple	8981		73.198oS	127.052oW	230	Feb-92	89327
Siple Dome	8938		81.656oS	148.773oW	@668	Jan-97	89345
Swithinbank		21355 removed	81.201oS	126.177oW	@959	Jan-97	
WAIS K-S	8936		79.468oS	112.086oW	@1833	Jan-06	
	Ross Island Region						
Marble Point	8906		77.439oS	163.754oE	@108	Feb-80	89866
Ferrell	8929		77.865oS	170.819oE	@45	Dec-80	89872
Pegasus North	21357		77.952oS	166.500oE	@8	Jan-90	89667
Pegasus South	8937		77.990oS	166.568oE	@5	Jan-91	
Minna Bluff	8939		78.555oS	166.691oE	@47	Jan-91	89769
Willie Field	21364		77.866oS	166.983oE	@14	Jan-92	
Windless Bight	8982		77.728oS	167.703oE	61	Nov-98	
Cape Bird	8901		77.224oS	166.440oE	@42	Jan-99	
Laurie II	21360		77.509oS	170.797oE	@37	Jan-00	
Linda	21362		78.439oS	168.406oE	@43	Jan-91	89769
	Ocean Islands						
Whitlock	8907	8935	76.144oS	168.392oE	(275)@206	Jan-82	89865
Scott Island	N/A		67.37oS	179.97oW	30	Dec-87	89371
Young Island	N/A		66.229oS	162.275oE	30	Jan-91	89660
Possession Is.	8984		71.891oS	171.210oE	30	Dec-92	89879
Manuela	8905		74.946oS	163.687oE	80	Feb-84	89864
Peter I	Installed	8933	68.769oS	90.670oE	90	Feb-06	

	Ross Ice Shelf						
Marilyn	8934		79.954oS	165.130oE	(72)@64	Jan-84	89869
Schwerdtfeger	8913		79.875oS	170.105oE	@54	Jan-85	89868
Gill	8911		79.985oS	178.611oW	@54	Jan-85	89376
Elaine	8987		83.134oS	174.169oE	@59	Jan-86	89873
Lettau	8908		82.518oS	174.452oW	55	Jan-86	89377
Vito	8695		78.509oS	177.746oE	@+52	4-Feb	
Emilia	8919		78.509oS	173.114oE	@+50	4-Feb	
Carolyn	8722		79.964oS	175.842oE	@+52		
Mary	8983		79.303oS	162.968oE	@+58		
Nascent	28336		78.127oS	178.497oE	30		
Eric	8697		81.504oS	163.940oE	@+45		
	Antarctic Peninsula						
Larsen Ice	8926		66.949oS	60.897oW	17	Oct-85	89262
Butler Island	8902		72.207oS	60.160oW	91	Mar-86	89266
Uranus		8920 removed	71.43oS	68.93oW	780	Mar-86	89264
Fossil Bluff	New install	8920	71.33oS	68.283oW	63	Dec-01	89065
Limbert	8925		75.422oS	59.851oW	40	Dec-95	89257
Racer Rock	8947		64.067oS	61.613oW	17	Nov-89	89261
Bonaparte Point	8923		64.778oS	64.067oW	8	Jan-92	89269
Ski-Hi	8917		74.792oS	70.488oW	1395	Feb-94	89272
Santa Claus I	8933		64.964oS	65.670oW	25	Dec-94	
Kirkwood Isand	8930		68.340oS	69.007oW	30	May-01	
Dismal Island	8932		68.087oS	68.825oW	10	May-01	
	High Polar Plateau						
Henry	8985		89.011oS	1.025oW	2755	Jan-93	89108
Nico	8924		89.000oS	89.669oE	2935	Jan-93	89799
Relay Station	8918		74.017oS	43.062oE	3353	Feb-95	89744
Dome Fuji	8904		77.31oS	39.70oE	3810	Feb-95	89734
Mizuho	21359		70.70oS	44.29oE	2260	Oct-00	
	Iceberg AWS stations						
B15J Mother 1	30504						
B15J Mother 2	30580						
B15J	Site inactive	30305 removed					
B15K	9116						
B15A Wnderer	30477						
C16	15930						
Drygalski	install	30416	75.5399 S	165.604 W	20	Oct-06	

Fountain							

Table 2. AWS unit not deployed for 2006

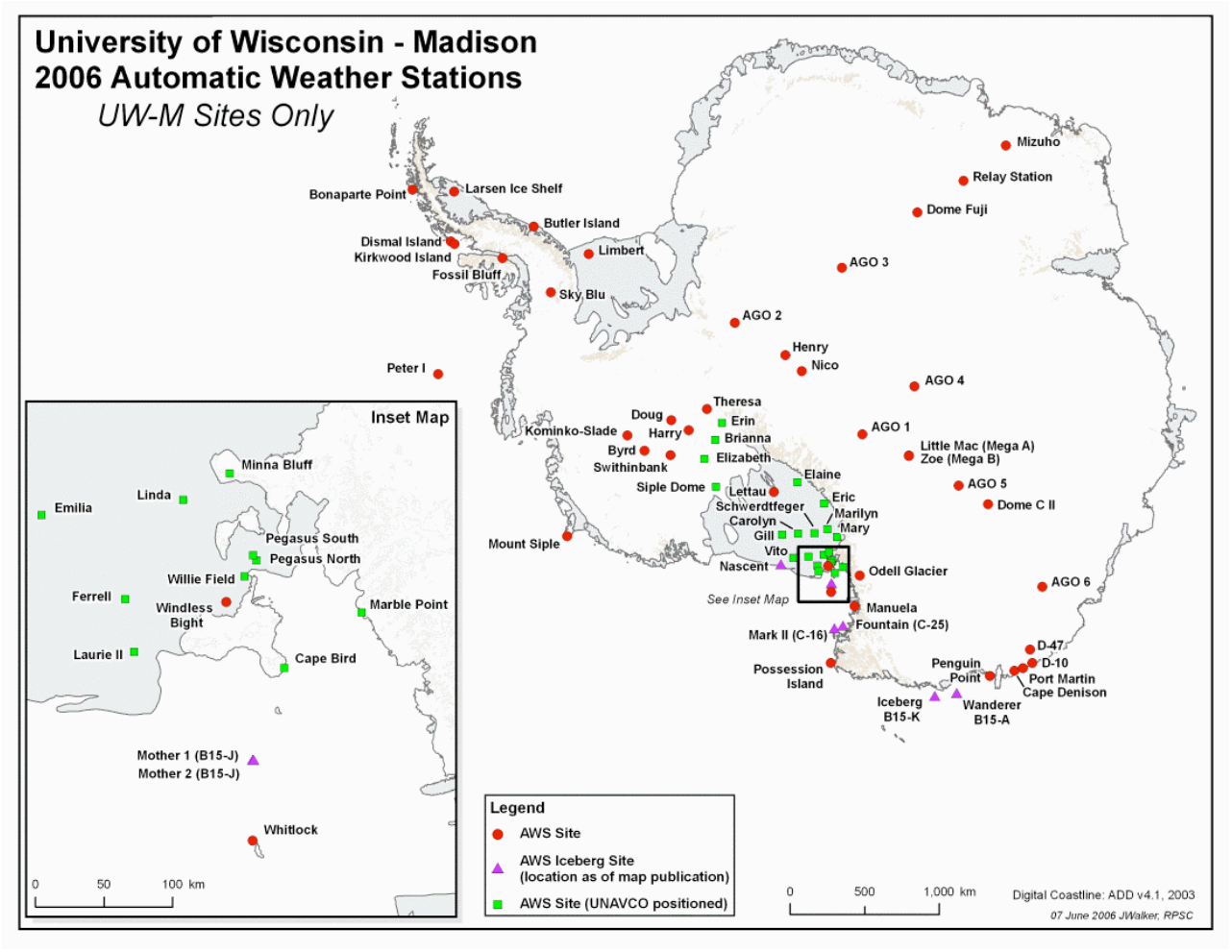
AWS not deployed					
Mcmurdo	21355	AWS2B	Swithinbank 2006/2007		
Mcmurdo	21356	AWS2B	Roosevelt Island		
Mcmurdo	8907	AWS2HWS	Mullock 2006/2007?		
Mcmurdo	8927	AWS2B	Spare		
Mcmurdo (via)	30305	CSI_Seimac	Spare		
	30423				
Madison-IPEV	8912	AWS2D			
Madison-IPEV	8914	AWS2D			
Madison-IPEV	8916	AWS2D			
Madison-LTER	8921	CSI_Seimac			
Madison-LTER	8922	CSI_Seimac			
Madison-CR1000	*8910				
Madison-CR1000	*8915				
Madison-CR1000	*8928				
Madison-SPARE	8980	csi_st-13			
	* Replacement AWS ID's for 2006				

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

Time (UTC)	Point Name	Latitude	Longitude	Elevation (m)
1/20/2005	MCM4	-77.838349192	166.669327881	151.384
1/5/2006		-77.838349192	166.669327881	151.384
1/21/2005	Marilyn	-79.934621417	165.378042268	64.265
1/22/2005	Schwerdtfeger	-79.866705389	170.141637633	54.111
1/22/2005	Vito	-78.500684623	177.753022227	50.438
1/29/2005	Elaine	-83.110647281	174.316209725	58.748
1/29/2005	Eric	-81.504019626	163.939784903	45.264
1/31/2005	Caroline	-79.963945053	175.841755564	52.356
1/31/2005	Mary	-79.302867615	162.968135140	58.237
1/31/2005	Emilia	-78.502159228	173.120731686	52.304
2/2/2005	Gill	-79.922360816	178.585942241	54.1
2/3/2005	Cape Bird	-77.217395796	166.439167594	38.474
2/4/2005	Ferrell	-77.871237429	170.818738812	45.807
1/5/2006	Ferrell	-77.865257305	170.818793165	45.441
1/4/2006	Linda	-78.438856017	168.406300550	42.932

1/5/2006	LaurieII	-77.509374745	170.796776506	36.998

Figure 4. A map of Antarctica showing the locations of the University of Wisconsin's automatic weather stations for 2006. Identification of the sites is by the site name.



Tentative AWS Field Work
2006/2007 Austral Summer

A. AWS servicing based from Mcmurdo

Discussion held at annual AWS meeting

http://www.mmm.ucar.edu/events/antarctic06/presentations

Ross Island Region				
Marble Point	8906	77.439oS	163.754oE	@108
Ferrell	8929	77.865oS	170.819oE	@45
Pegasus North	21357	77.952oS	166.500oE	@8
Pegasus South	8937	77.990oS	166.568oE	@5
Minna Bluff	8939	78.555oS	166.691oE	@47
Willie Field	21364	77.866oS	166.983oE	@14
Windless Bight	8982	77.728oS	167.703oE	61
Cape Bird	8901	77.224oS	166.440oE	@42
Laurie II	21360	77.509oS	170.797oE	@37
Linda	21362	78.439oS	168.406oE	@43
New for 2007				
Mullock Glacier	TBD	~78.900oS	~159.000oE	TBD
New Site (near Meeley)	TBD	~78.50oS	~170.000oE	~45
Mt Fleming (proposed)	TBD	78.55oS	166.250oE	1950

B. **AWS operations from the icebreaker (as a wish list)**.

1. The following AWS sites would be visited for installing a minimal (dog house AWS on an opportunity baisis from a ship, preferably an icebreaker).

Scott Island	TBD	67.37oS	179.97oW	30
Young Island	TBD	66.229oS	162.275oE	30

C. AWS operations in West Antarctica

1. Service West Antarctic Sites

Byrd Station	Upgrade 8903	80.007oS	119.404oW	1530
Brianna	8931	83.889oS	134.154oW	@525
Elizabeth	21361	82.607oS	137.078oW	@519
Erin	21363	84.904oS	128.828oW	@990
Harry	8900	83.003oS	121.393oW	945
Theresa	21358	84.599oS	115.811oW	1463
Doug		82.315oS	113.240oW	1433
Mount Siple	8981	73.198oS	127.052oW	230
Siple Dome	8938	81.656oS	148.773oW	@668
Swithinbank	Install 21355	81.201oS	126.177oW	@959
WAIS Divide (K-S)	8936	79.334oS	111.077oW	@1833

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.

D-10	8986	66.71oS	139.83oE	243
D-47	8947	67.397oS	138.726oE	1560
D-57 reinstall	TBD	68.199oS	137.538oE	2105
D-80 reinstall	TBD	70.040oS	134.878oE	2500
Dome C II	8989	75.121oS	123.374oE	3250
Port Martin	8909	66.82oS	141.40oE	39
Cape Denison	8988	67.009oS	142.664oE	31
Penguin Point	8910	67.617oS	146.180oE	30

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

1. One new installation is planned at the midpoint between the Japanese Dome Fuji Station and the German Kohnen Station.
2. At this time Relay Station is not transmitting and an updated AWS will be sent to replace the current AWS.

Relay Station	8918	74.017oS	43.062oE	3353
Dome Fuji	8904	77.31oS	39.70oE	3810
Mizuho	21359	70.70oS	44.29oE	2260
New installation	TBD	70.00oS	20.00oE	3400

F. AWS Fieldwork to be done by the British Antarctic Survey based at Rothera Station.

Larsen Ice	8926		66.949oS	60.897oW	17
Butler Island	8902		72.207oS	60.160oW	91
Fossil Bluff	New install	8920	71.33oS	68.283oW	63
Limbert	8925		75.422oS	59.851oW	40
Ski-Hi	8917		74.792oS	70.488oW	1395

Future plans

BAS has purchased 3 more Campbell AWS units.
These are based on CR1000 loggers with ST-20 ARGOS transmitters.
One will be installed at Limbert site.
One will be installed at Butler Island
One will be installed at Larsen Ice Shelf.
The ones already at Fossil Bluff and Ski Blu will be upgraded to CR1000 logger with ST-20 ARGOS transmitters.

G. AWS Fieldwork to be done for LTER/Operations based from Palmer Station.

Racer Rock	8947	64.067oS	61.613oW	17
Bonaparte Point	8923	64.778oS	64.067oW	8
Santa Claus I	8933	64.964oS	65.670oW	25

H. WS Fieldwork in support of GLOBEC AWS.

Kirkwood Isand	8930	68.340oS	69.007oW	30
Dismal Island	8932	68.087oS	68.825oW	10

I. AWS Fieldwork in support of Iceberg Research (IO-190-O)

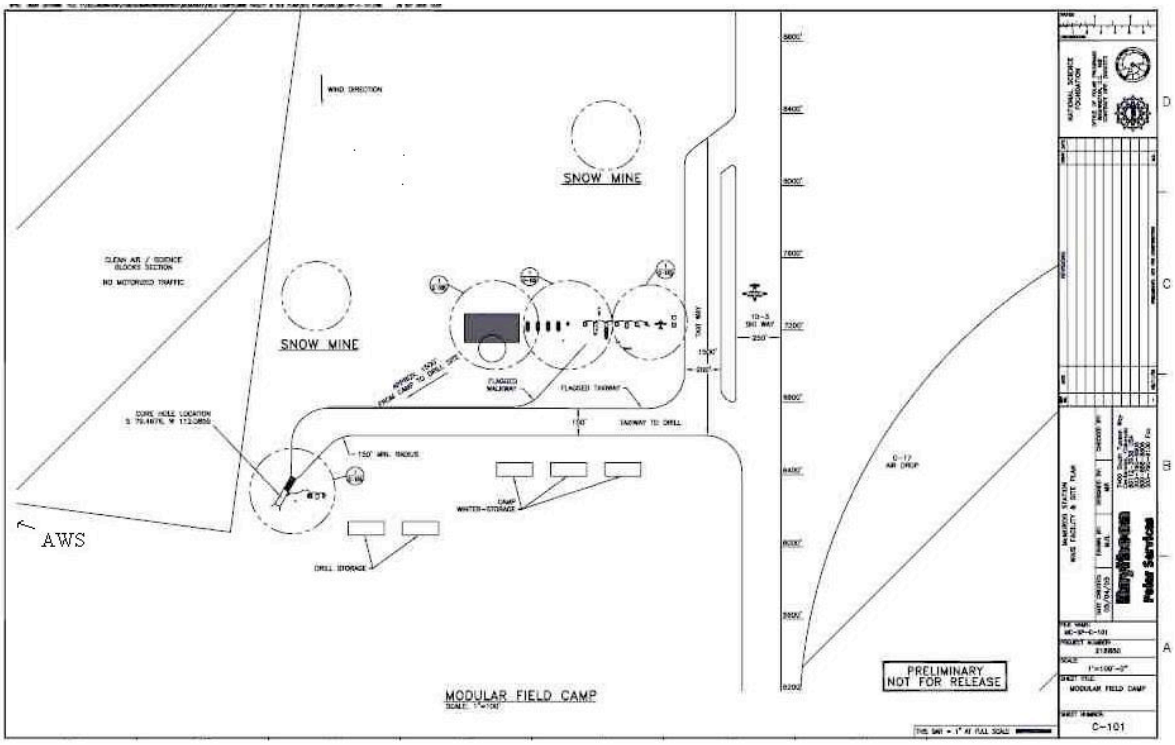
B15J Mother 1	30504			
B15J Mother 2	30580			
B15K	9116			
B15A Wnderer	30477			
C16	15930			

J. Cooperative work with TAMDEF sites

1. The AWS at LNW and Mount Fleming were to be installed on an opportunity basis (using logistics already in place for 2006). The intent was to locate AWS above the Ross Ice Shelf and Ross Sea. These would support the AWS located on the Ross Ice Shelf and around Ross Island.

As was evidenced by the images provided by Mike Willis and previous knowledge of the region above the Dry Valleys, these are windy sites. We intend to place high wind systems at these sites if possible. For the coming year Mt Fleming would be a priority since the site is still there. Lone Wolf will likely have to wait for another year given current logistical support.

Appendix A. Images of AWS sites for 2006



Figur

Figuree A1. Layout of WAIS Divide Camp and location of AWS Kominko-Slade.

Figure A2. View towards WAIS AWS Kominko Slade (small arrow is near top of tower).

Figure A3. AWS Kominko-Slade at WAIS Divide camp January 2006 including the snow profile sensors.

Figure A4. Swithinbank AWS before and after raising the tower.

Figure A5. Byrd AWS January 2006

Figure A6. Harry AWS before (above) and after tower raise (below) in January 2006.

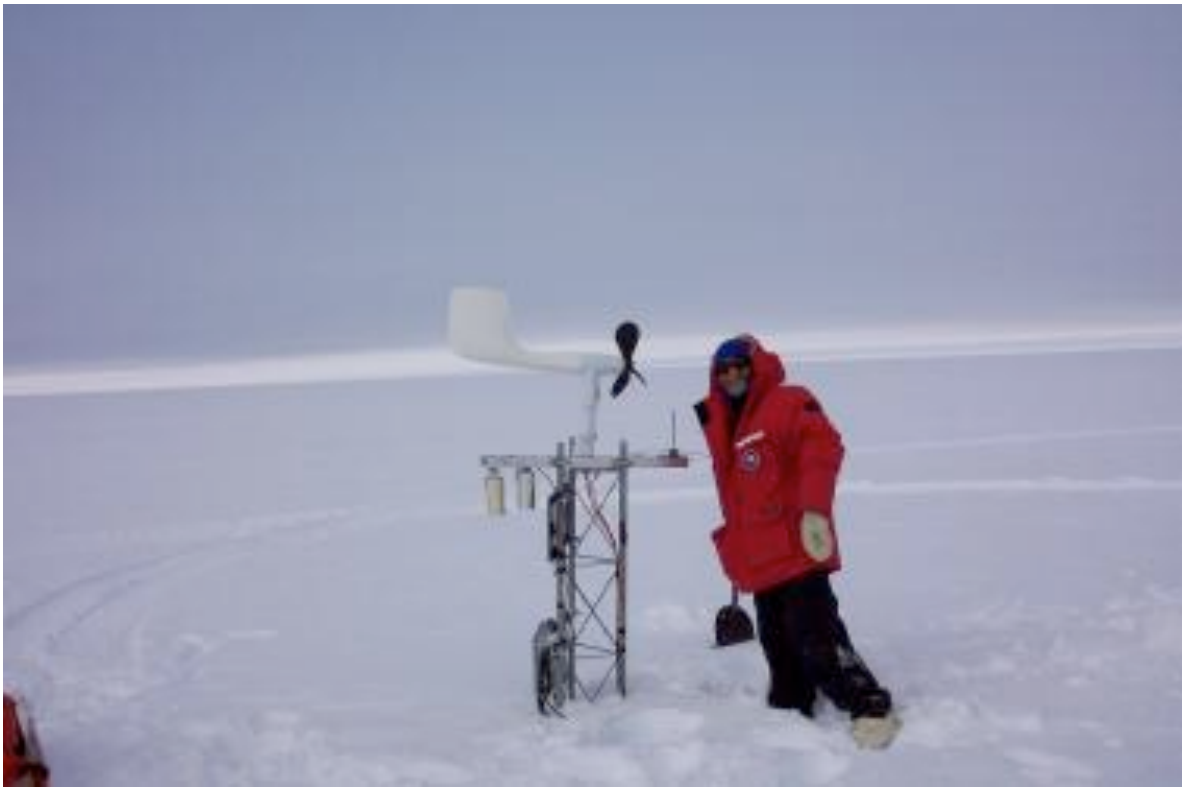


Figure A7. Siple Dome AWS before raising the tower in January 2006.

Figure A8. George Weidner digging out the electronics at Siple Dome in January 2006.

Figure A9. Siple Dome after raising the tower.

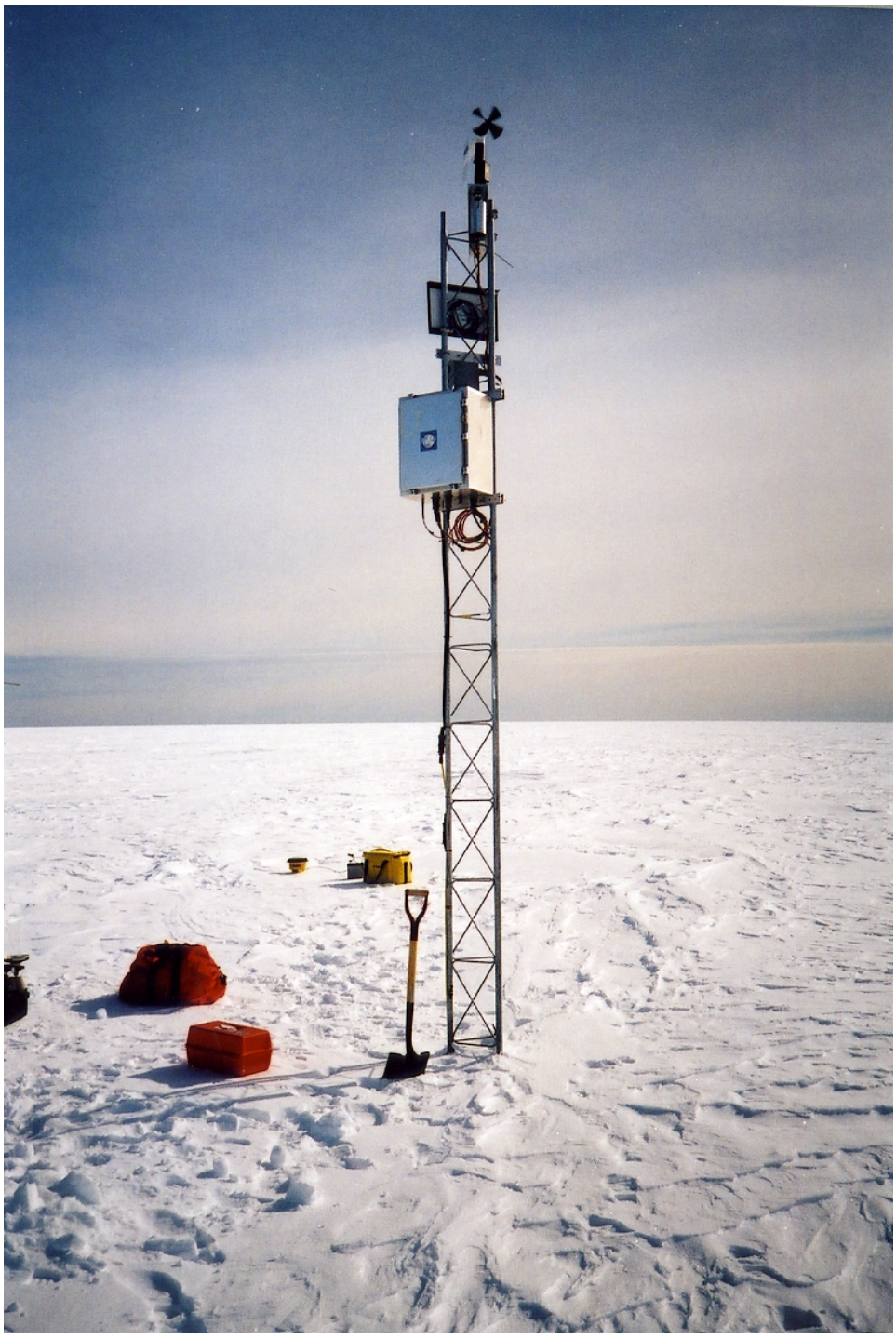


Figure A10. Laurie AWS in January 2006

Figure A11. Linda AWS in January 2006.

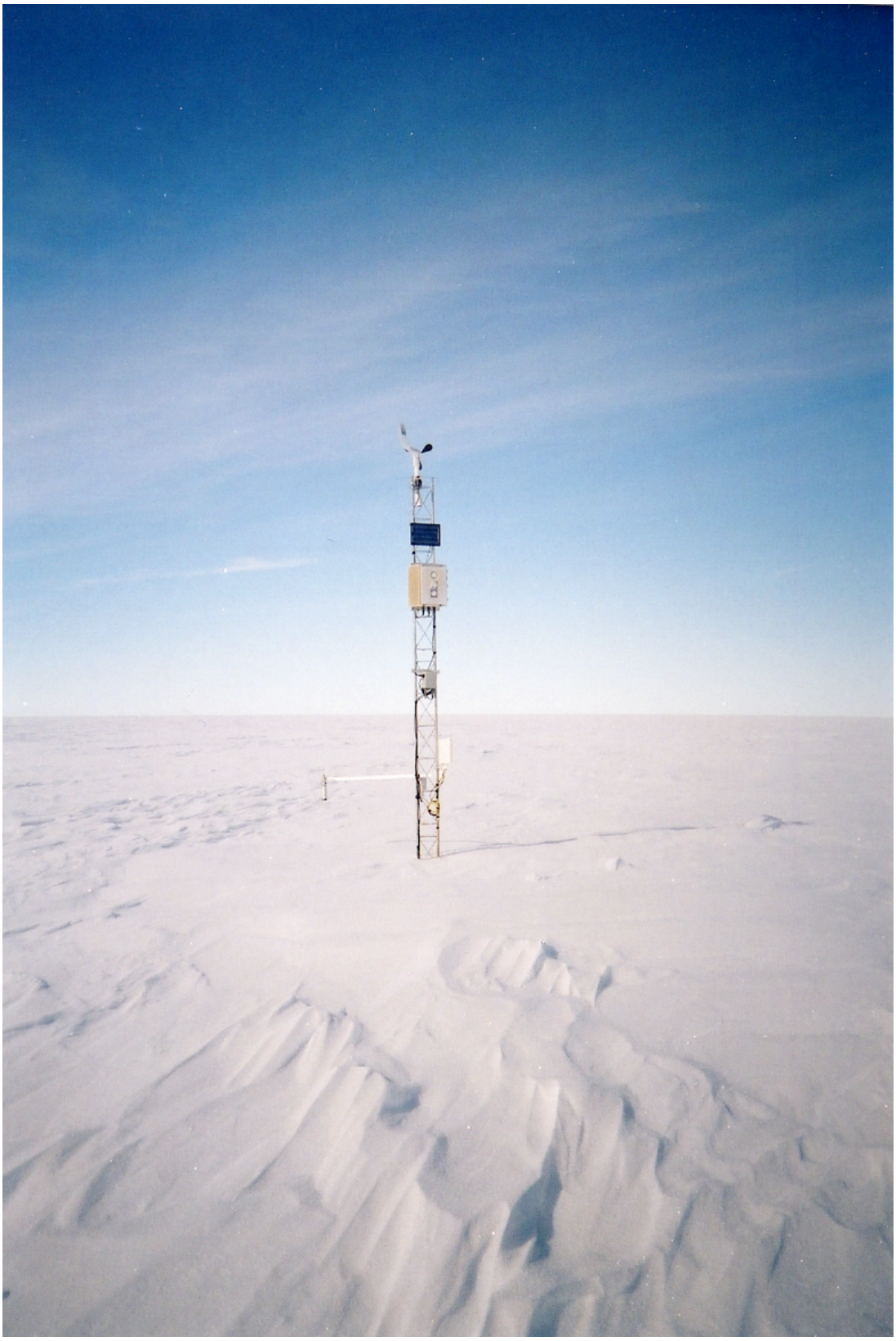


Figure A12. Ferrell AWS in January 2006.

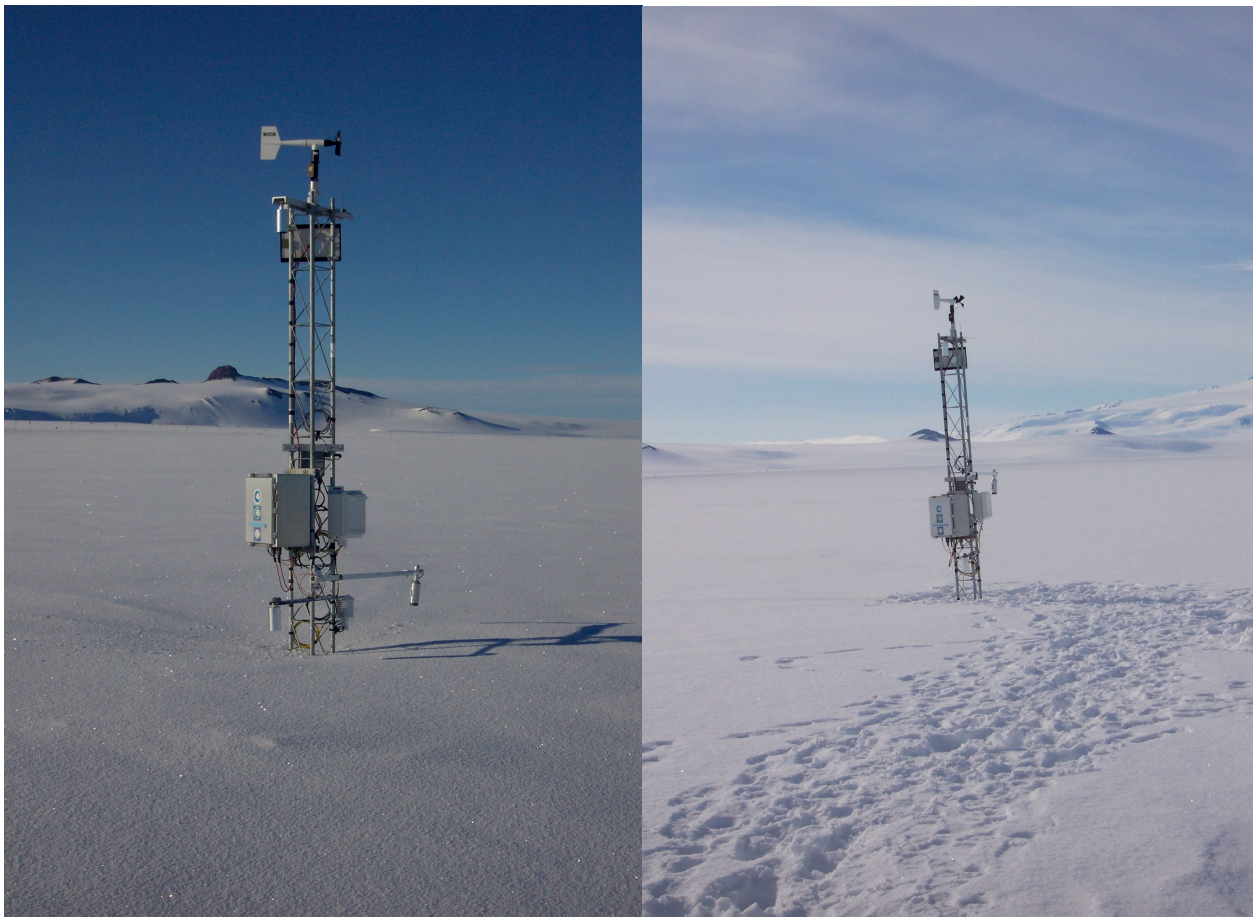


Figure A13. Willie Field AWS before raising the ADG (left image) in January 2006 and after raising the ADG (right image).

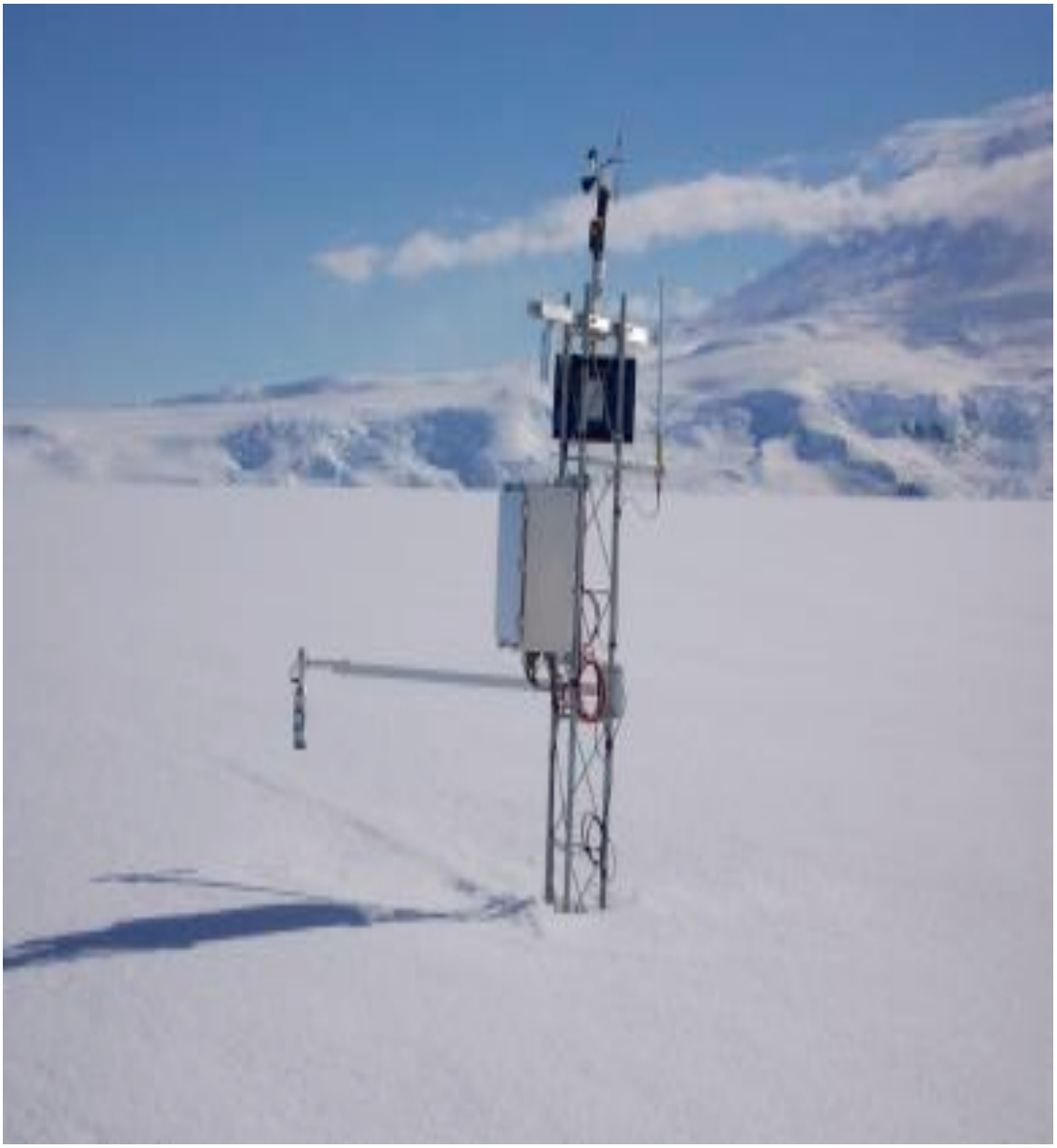


Figure A14. Windless Bight AWS in January 2006.