

Field Report
Antarctic Automatic Weather Stations
AS 1983/84

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Itinerary for Austral Summer (AS) 83/84

15 Nov 1983 George Weidner and Ed Eloranta leave Madison.

21 Nov 1983 Arrive McMurdo.

25 Nov 1983 Remove AWS 8908 (Nancy Site) for future redeployment with new UW version of AWS.

26 Nov 1983 Go to Siple Station to install AWS 8910B to run on batteries and remove AWS 8909 for redeployment at Dome C.

3 Dec 1983 Finally leave Siple station and stop to check out Byrd station.

6 Dec 1983 Calibrate AWS 8909 and AWS 8910 (old version electronics) and install new READ ONLY MEMORY (ROM'S) with a station ID of 8904.

8 Dec 1983 Visit Laurie Site (AWS 8911) and Windless Bight (AWS 8918). Both stations brought in for repair. Tower raised at Laurie Site.

9 Dec 1983 Visit Ferrel Site to raise RTG and tower. Station electronics brought in for repair.

12 Dec 1983 Redeploy AWS units 8907, 8911, and 8918 to respective sites. Multiple site visits ~~were~~ were possible due to beacon transmitters.

16 Dec 1983 Arrive back in Madison, Wisconsin.

28 Dec 1983 Charles Stearns, Mike Savage, Greg Vetter, and Chris Breckinridge leave Madison.

4 Jan 1984 Arrive McMurdo.

5 Jan 1984 Begin calibration and conversion of old AWS stations to new UW format.

13 Jan 1984 Install old 8909 at Dome C with new 8904 ID.

14 Jan 1984 Visit Laurie site to install AWS 8908B.

16 Jan 1984 Deploy AWS 8921B at Marilyn site near Byrd Glacier.

17 Jan 1984 Visit Manning site to raise tower and put RTG on platform.

18 Jan 1984	Visit Franklin Island site via Glacier.
23 Jan 1984	Install AWS 8911B at Tiffany site near White Island.
24 Jan 1984	Install AWS 8909B at Arrival Heights.
28 Jan 1983	Charles Stearns et. al. return Madison.
2 Feb 1984	AWS 8923B installed at 172.5 W longitude at edge of Ross Ice Shelf.
6 Feb 1984	AWS 8922B installed on Inexpressible Island.

AWS units 8922B and 8923B were deployed by Jay Ardie of the Lamont-Doherty Geophysical Observatory of Columbia University.

As a summary of the field season for AS 83/84 Table 1 gives the list of AWS units along with their present location and status. At present 21 of the 27 stations are deployed. Of those, 19 are transmitting data back to the ARGOS system. AWS 8900 stopped transmitting data on October 20, 1983. AWS 8912 is transmitting but no useful data can be recovered. The units AWS 8902B, 8912B, 8917B, 8919B, 8920B, and 8926B were held in Madison because of inadequate testing time for this season. AWS units 8924B and 8925B will be built up from the old AWS units 8901 and 8916 to be returned to Madison. They will be deployed on the Ross Ice Shelf next season. Figures 1 through 3 give the locations or proposed locations of the 27 AWS.

Table 1. Automatic Weather Station identification number, location, start date and status as of 13 February 1984 as a result of AS 83-84 field activities.

AWS ID	Geographic Location	Latitude deg	Longitude deg	Elevation meters	Start Date	Status
8900	D-80	70.02 S	134.72 E	2500 m	14/1/83	4
8901	D-10	66.70 S	139.80 E	240 m	15/1/84	7
8902	Rothera					1
8903	Byrd	80.00 S	120.00 W	1530 m	2/80	7
8904	Dome C	74.50 S	123.00 E	3280 m	13/1/84	7
8905	Minna Bl.	78.77 S	166.85 E	74 m	25/11/80	7
8906	Marble Pt.	77.43 S	163.75 E	121 m	2/80	7
8907	Ross Ice	78.02 S	170.80 E	44 m	10/12/80	7
8908B	Cape Croz.	77.55 S	170.09 E	27 m	14/1/84	7,8
8909B	Arrival Ht.	77.90 S	166.72 E	200 m?	24/1/84	7,8
8910B	Siple	75.90 S	84.30 W	900 m	26/11/83	7
8911B	White Is.	77.95 S	166.17 E	25 m?	23/1/84	7,8
8912	Larsen Ice	67.00 S	60.47 W	50 m?	7/2/83	5
8913	Franklin Is.	76.24 S	168.66 E	274 m	23/1/82	7
8914B	D-47	67.38 S	138.72 E	1560 m	10/1/84	2,7
8915	Ross Ice	78.52 S	170.18 E	52 m	4/12/80	7
8916B	D-57	68.18 S	137.52 E	2103 m	6/1/84	2,7
8917	Rothera					1
8918	Windless B.	77.75 S	167.67 E	39 m	9/2/83	7
8919	Spine	67.65 S	66.07 W	1540 m	9/3/83	6,7
8920	Madison					3
8921B	Byrd Glac.	79.98 S	165.03 E	75 m?	16/1/84	7,8
8922B	Inex. Is.	74.92 S	163.60 E	80 m?	6/2/84	7
8923B	Ross Ice	78.31 S	172.50 W	42 m	1/2/84	7
8924B						2
8925B						2
8926B	Madison					3

1. AWS 8902 and 8917 are to be returned to Madison for repairs and deployment in AS 84-85 by the BAS.
2. AWS 8914 and 8916 were completely replaced in AS 83-84 and the returned parts will be used for AWS 8924 and 8925.
3. AWS 8920 and 8926 are ready for deployment in AS 84-85 by the BAS.
4. AWS 8900 has not been received for some time thus the ID can be used for another unit.
5. AWS 8912 is transmitting incorrect data.
6. AWS 8919 data are good, but the wind speed is zero and the wind direction is constant.
7. AWS units that are operating satisfactorily (19).
8. AWS units with relative humidity and delta T.

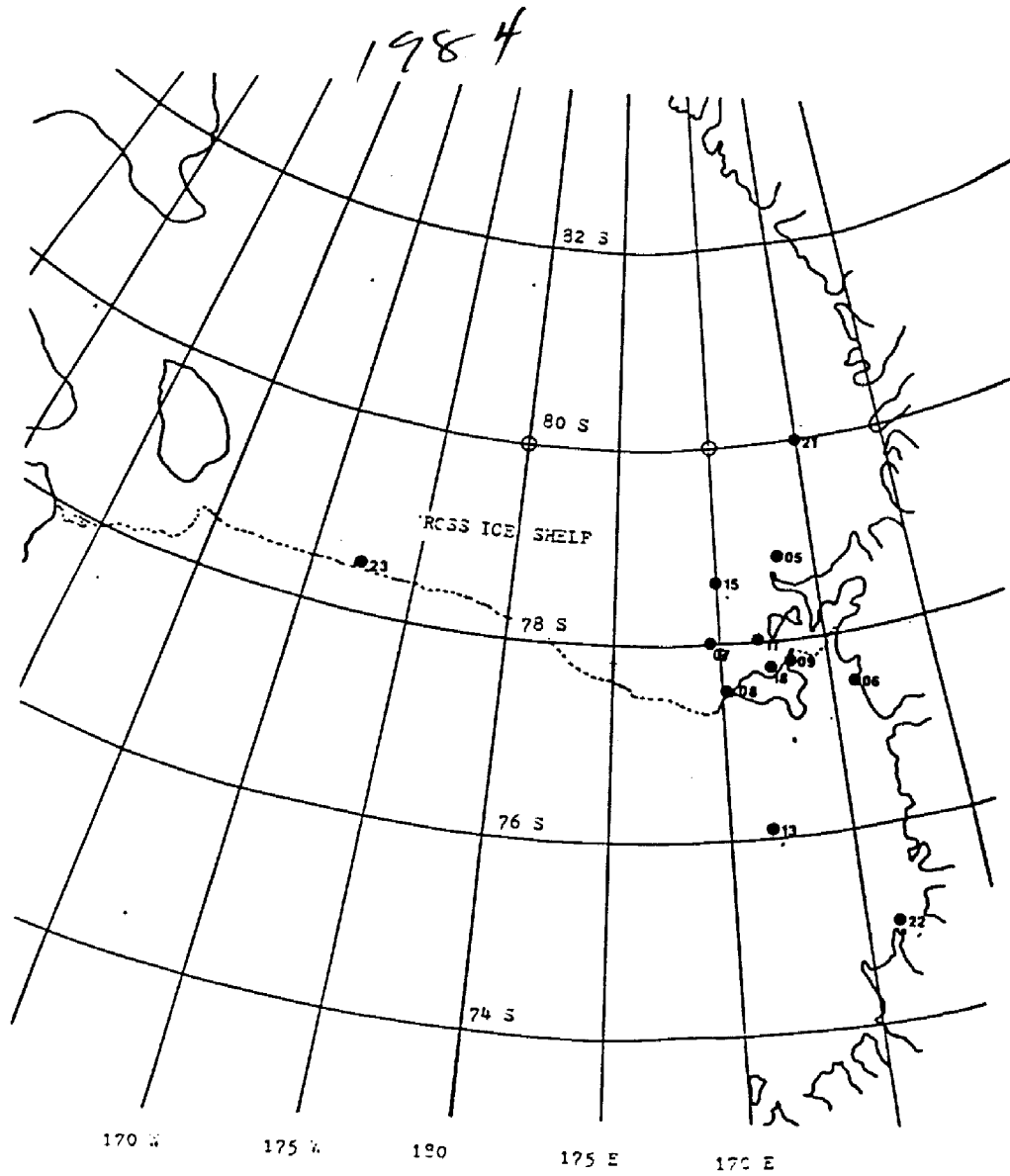


Figure. 1. Locations of the AWS near Ross Island and the Ross Ice Shelf as March 22, 1984.

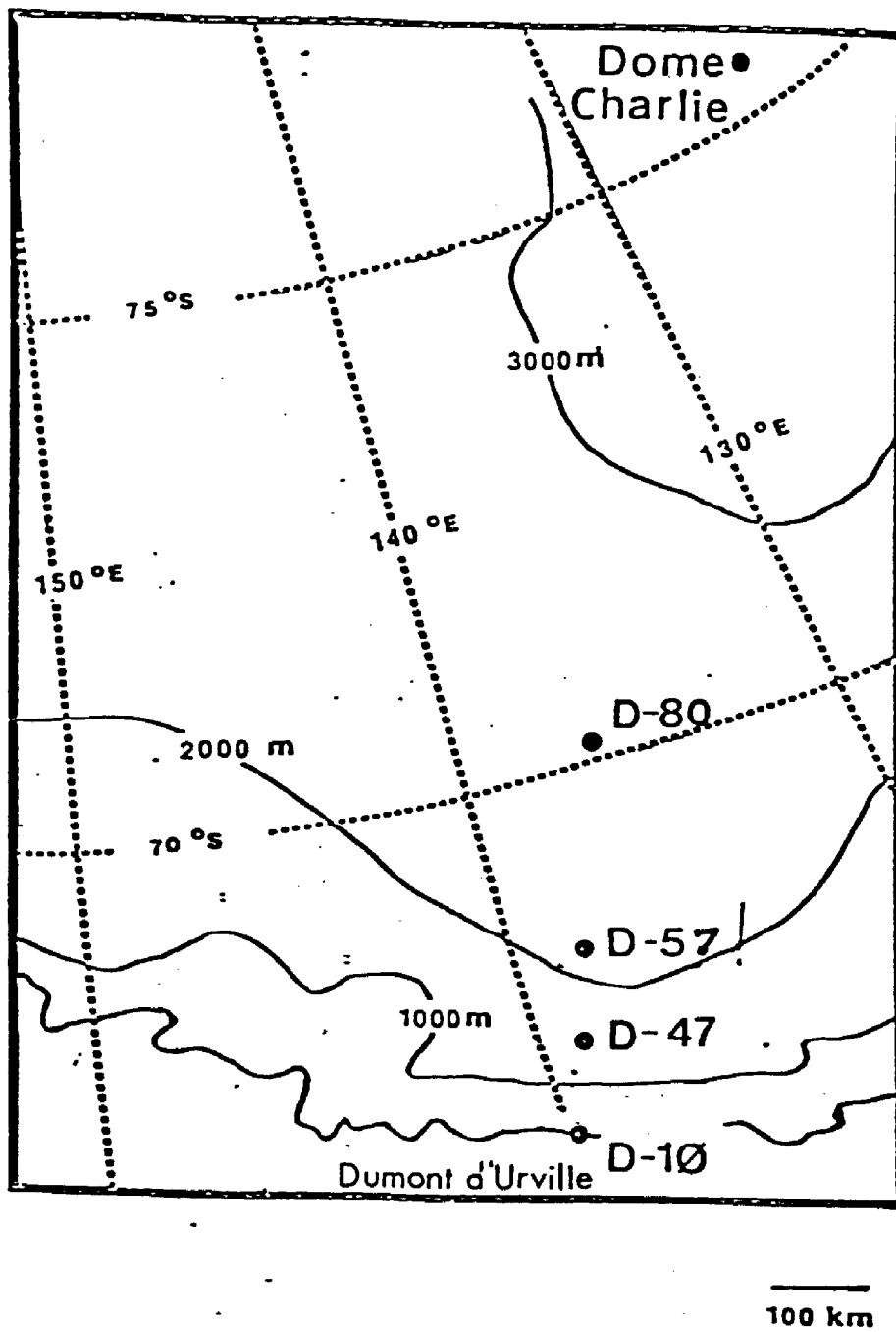
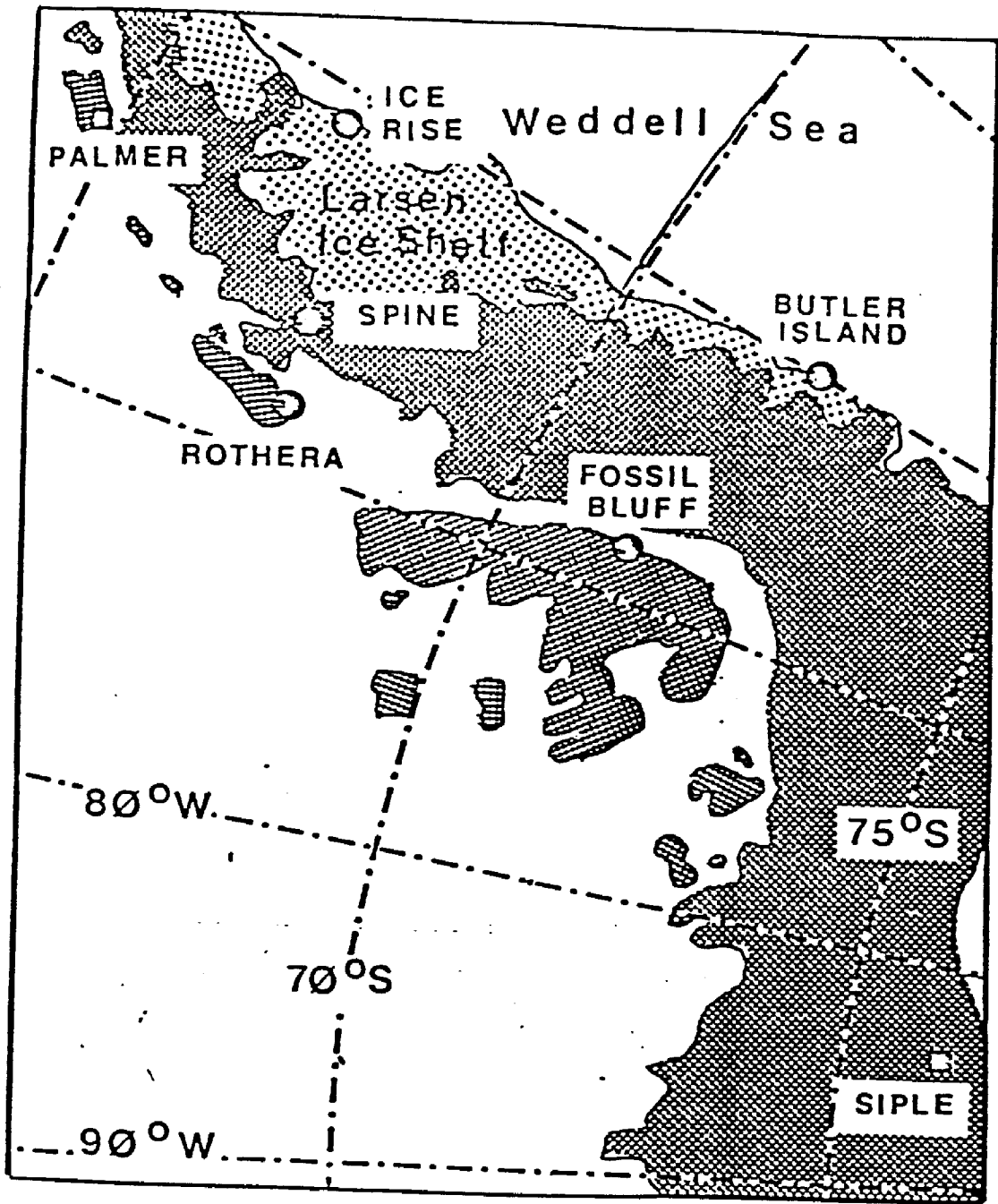


Figure 2. Location of AWS for the katabatic wind study.



○ Proposed AWS sites

100 km

Figure 3. Location of the AWS for the barrier wind study around the Antarctic Peninsula and the AWS at Siple Station.

UNIVERSITY OF WISCONSIN AUTOMATIC WEATHER STATION VERSION B

As was discussed last year, the Department of Meteorology at the University of Wisconsin produced a new version of the Stanford AWS station. The new version, to be referred to as UW version B, essentially followed the original design of the AWS station but was modified in a few important ways. First, using newer manufacturing processes that are now available, new electronics boards were constructed with a coating that is less susceptible to corrosion than the previous boards were. Second, the new stations were to be able to record humidity measurements and the temperature difference between two heights on the AWS tower. Also, the format of the transmitted data was changed to allow for more past values of wind data and to accommodate the humidity and temperature difference data to be recorded. Table 2. gives a comparison of the old and new data formats. The above changes meant the operating software for the 1802 microprocessor had to be rewritten and coded into the ROM's. A total of 8 complete new stations were constructed and an additional 8 stations were built which required the use of the hardware (e.g. transmitters, pressure gauges, etc.,) from the stations they were to replace. Basic station calibration was done in Madison for complete AWS.

OLD DATA WORD FORMAT

Air temperature	Press. Gauge Temp.		Checksum	
Pressure	P -10		Checksum	
Wind Speed	Wind Dir	R. H.	Checksum	
IA -10	IA -20	IA -30	IA -40	Checksum
II -10	II -20	II -30	II -40	Checksum
P -20	P -30	P -40	Checksum	
Wind-mean	Dir vect	Cycle	Checksum	
Battery	Zener	Heater	Checksum	
0	8	16	24	32 bits

NEW DATA WORD—designated in Table 1 by B at end of ID

Air Temperature	Press. Gauge. Temp.	Delta T	
Pressure	P -10	Rel. Hum.	
Wind Speed	Wind Dir	WS -10	WD -10
I -10	I -20	I -30	I -40
WS -20	WD -20	WS -30	WS -40
P -20	P -30	P -40	RH -20
WS -40	WS -40	Cycle	RH -40
DT -20	DT -40	Battery Volt	Checksum
0	8	16	24
			32 bits

Table 2. Data format of AWS transmissions.

WS -20 means the wind speed reading 20 minutes before the last cycle number 1.

TI is the pressure gauge temperature, TA is the air temperature, delta-T is the temperature difference between two levels on tower, WS is the wind speed, WD is the wind direction.

AS 83/84 AWS CALIBRATIONS

1. Temperature

In order to calibrate each AWS for temperature (both internal and external) known resistances (to .05 %) are used in place of the platinum resistance probes which have a resistance of 1000 ohms at 0 C (Celsius) and change 4 ohms per degree Celsius. Because the other resistances in the temperature circuit are known only to 1 %, the temperature computation done by the 1802 software will vary from station to station. Thus a correction factor has to be computed and programmed into the ROM's for each AWS. Since the precision of the AWS is .125 C, the correction factors were only determined to this degree of accuracy. Also, 0 C was used as the value at which the correction was determined since it is an important temperature in determining the nature of atmospheric processes involving H₂O.

After the correction factors have been programmed into the AWS ROM's, a calibration box with precision resistors was used in the field to check the temperature calibration again. The internal temperature is determined to the same degree of accuracy in programming in the correction term, but can only be checked in the field against a standard thermometer since the platinum resistance thermometer is wired in place. The internal temperature is used in computation of the pressure. A 1 C error in the internal temperature would result in .1 millibar error in the pressure.

2. Pressure

Atmospheric pressure is measured using a Paroscientific pressure transducer whose frequency changes from 40 KHz at 0 millibar to about 36 KHz at 1000 millibar. A counter circuit in the AWS determines the frequency output of the transducer. Variations in the clock frequency are determined by measuring the number of counts from a 1 MHz oscillator that is good to 5 parts in a million. This correction for clock frequency drift is then taken into account in determining the final count of the pressure transducer. This raw count is converted to pressure units when the data is processed in Madison. The precision of the pressure measurement is about .05 mb.

Calibration of the AWS pressure measurement is done with precision aneroid barometers which have themselves been calibrated against a mercury barometer. It was learned this year that the aneroid barometers are affected by changes in temperature. If they were calibrated at room temperature (20 C), then they would be in error if they were taken outside where the temperature was - 20 C. Each barometer had a different correction term for temperature variation. These were noted and were taken into account when field calibrations were done. However, there is no certainty that the corrections were linear with the erature temprature change as was assumed.

Most pressure calibrations showed the pressure to be within 1 mb of the readings of the aneroid barometers. We determined that unless consistant differences occurred between aneroid barometers and AWS pressure readings no corrections would be made to the readings.

3. Wind Direction

The wind direction is determined from the Bendix Aerovane output. A continuous rotation potentiometer is used and the fraction of full scale contacted by the wiper determines the wind direction. The wind direction is calibrated by positioning the Aerovane in what would be the North, East, South, and West directions and observing the output of the AWS. This procedure can easily be done in the field as well. North is determined by taking bearings on the sun, and aligning the boom along a North-South line.

4. Wind Speed

Wind speed is determined from the output of the Aerovane generator. Bendix gives a calibration value of 0.1056 volt output per mile per hour of wind speed. The Aerovanes are tested by spinning them at a known rate and checking the output voltage against the calibration value (9.22 volts at 1800 rpm). We assume the calibration value for wind speed is correct so that to calibrate the AWS we applied a series of known voltages and observed the output which was a number between 0 and 256. This represents the number of bits output in response to the input voltage. There results then a calibration constant given as meters per second (m/s) per bit (B).

5. Humidity

Humidity was measured using a Vaisala humidity probe which outputs a voltage that varies linearly with the humidity. This voltage was then amplified before being read by the AWS. The calibration was performed by placing the probe over salt solutions yielding known relative humidities. Sodium chloride (NaCl) with a relative humidity of 75 % and Lithium chloride (LiCl) with a relative humidity of 12 % were used. Final calibration relations were in the form of $\text{humidity} = (\text{constant} * \text{number of bits}) - \text{constant}$. Precision of the humidity reading is less than 1 percent well below the accuracy to which we know the humidity.

6. Temperature Difference (Delta-T)

A one junction thermocouple was used to measure the temperature difference between two heights on the AWS tower. The junction gives 40 microvolts output for every degree Celsius difference between the two probes. This output is also amplified before being read by the AWS. By feeding in known voltages, a calibration relation of the form $\text{constant1} * (\text{number of bits} - \text{constant2}) = \text{temperature difference}$. The precision of about .1 C is obtained .

The field calibration summaries for the stations are given in the following pages.

AWS ID: 8900

SITE NAME: D-80
LOCATION : LAT 70.02 S LONG 134.72
HEIGHT : 2500 M (ESTIMATED)

DATE ACTIVATED: 14 JAN 1983
LAST VISITED : 14 JAN 1983

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (XX-XX-XX)		INSTALLED
PRESSURE GAUGE (4730)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	718.1	781.7 MB	.6 MB		
TEMP EXT	-29.0	-29.0 C	.0 C		
TEMP INT	-	-	-		
WIND SPD	-	-	-		
WIND DIR	160	163 DEG	OK		

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-		
TEMP EXT	-24.0	-24.25 C	-.25 C		
TEMP INT	12.0	11.5 C	-.50 C		
WIND SPD	.243	M/S/BIT	.0		
WIND DIR	271	270 DEG	OK		
HUMIDITY	NONE	NONE	NONE		
DELTA T	NONE	NONE	NONE		

COMMENTS: AWS 8900 TRANSMISSIONS WERE NO LONGER BEING RECIEVED
AS OF 20 OCT 1983. NO SITE VISIT WAS POSSIBLE FOR AS 83/84.

AWS ID: 8901

SITE NAME: D-10
LOCATION :LAT 66.70 S LONG 139.80 E
HEIGHT : 240 M (ESTIMATED)

DATE ACTIVATED: 07 JAN 1984
LAST VISITED : 07 JAN 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (XX-XX-XX)		CHECKED
PRESSURE GAUGE (2928)		INSTALLED
TEMP PROBE EXT		CHECKED
TEMP PROBE INT		REPLACED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION					
VARIABLE	CALIBRATION		AS 83/84	DIFFERENCE	
	AWS	MEASURED		AS 82/83	AS 81/82
PRESSURE	UNK	UNK	UNK		
TEMP EXT	UNK	UNK	UNK		
TEMP INT	UNK	UNK	UNK		
WIND SPD	UNK	UNK	UNK		
WIND DIR	UNK	UNK	UNK		

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		AS 83/84	DIFFERENCE	
	AWS	MEASURED		AS 82/83	AS 81/82
PRESSURE	-	-	-		
TEMP EXT	-	-	-		
TEMP INT	-	-	-		
WIND SPD	-	-	-		
WIND DIR	-	-	-		
HUMIDITY	NONE	NONE	NONE		
DELTA T	NONE	NONE	NONE		

COMMENTS: AWS 8901 WAS REACTIVATED BY DIDIER SIMON OF EXPEDITIONS POLAIRES FRANCAISES. THE ELECTRONICS WERE BADLY CORRODED. THEREFORE, THE ELECTRONICS FROM AWS 8914 WERE USED WITH THE ROM'S FROM THE 8901 UNIT. THUS A NEW PRESSURE GAUGE IS NOW ASSOCIATED WITH ID 8901 AND NEW CALIBRATION VALUES APPLY. THEY SHOULD BE AVAILABLE FROM DIDIER IN THE NEAR FUTURE.

AWS ID: 8902

SITE NAME: NOT DEPLOYED
LOCATION :
HEIGHT :

DATE ACTIVATED:
LAST VISITED :

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE		
PRESSURE GAUGE		
TEMP PROBE EXT		
TEMP PROBE INT		
HUMIDITY PROBE		
DELTA-T PROBE		

VARIABLE	FIELD CALIBRATION		DIFFERENCE		
	CALIBRATION AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-		
TEMP EXT	-	-	-		
TEMP INT	-	-	-		
WIND SPD	-	-	-		
WIND DIR	-	-	-		

VARIABLE	LABORATORY CALIBRATION		DIFFERENCE		
	CALIBRATION AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-		
TEMP EXT	-	-	-		
TEMP INT	-	-	-		
WIND SPD	-	-	-		
WIND DIR	-	-	-		
HUMIDITY	-	-	-		
DELTA T	-	-	-		

COMMENTS: AWS 8902 HAS BEEN INACTIVE AT ROTHERA DUE TO A FAILURE OF THE ELECTRONICS. IT IS TO BE RETURNED TO WISCONSIN WHERE IT IS TO BE REBUILT USING THE NEW STATION FORMAT AND ELECTRONICS. IT WILL BE DEPLOYED IN AS 84/85.

AWS ID: 8903

SITE NAME: BYRD
LOCATION : LAT 80.00 S LONG 120.00 W
HEIGHT : 1530 M

DATE ACTIVATED: FEBRUARY 1980
LAST VISITED : 3 DEC 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE(00-00-01)		CHECKED
PRESSURE GAUGE(4735)		CHECKED
TEMP PROBE EXT		CHECKED
TEMP PROBE INT		CHECKED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	4.1 MB
TEMP EXT	-	-	-	-	.0 C
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	.229 M/S/BIT
WIND DIR	-	-	-	-	OK

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: AWS 8903 HAS BEEN AT BYRD STATION FOR 4 YEARS.
THE WIND SPEED CALIBRATION .229 (M/S)/BITS FOLLOWS FROM
THE CALIBRATION PROCEDURE DISCUSSED EARLIER. THE TOWER
REMAINS AT ABOUT 3.5 METERS ABOVE THE SNOW SURFACE.

AWS ID: 8904

SITE NAME: DOME - C
LOCATION : LAT 74.50 S LONG 123.00 E
HEIGHT : 3280 M

DATE ACTIVATED: 12 FEB 1984
LAST VISITED : 12 FEB 1984

Jan

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (11-80-07)		INSTALLED
PRESSURE GAUGE (3178)		INSTALLED
TEMP PROBE EXT		REPLACED
TEMP PROBE INT		REPLACED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

VARIABLE	CALIBRATION		FIELD CALIBRATION		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	658.7	655.5 MB	-3.2 MB	-	-
TEMP EXT	-25.0	-25.75 C	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	4.0	3.0 M/S	-	-	-
WIND DIR	220 DEG	SOUTH	-	-	-

VARIABLE	CALIBRATION		LABORATORY CALIBRATION		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	994.5	994.8 MB	.3 MB		
TEMP EXT	-20.12	-20.25 C	-.12 C		
TEMP INT	19.50	20.00 C	.5 C		
WIND SPD	.234	M/S/BIT	.0		
WIND DIR	OK	OK	OK		
HUMIDITY	-	-	-		
DELTA T	-	-	-		

COMMENTS: AWS 8904 HAD CEASED OPERATING IN JANUARY OF 1983. THE STATION FORMERLY AT SIPLE (AWS 8909) WAS PLACED AT DOME C WITH A NEW SET OF ROM'S TO MAINTAIN THE SAME ID, NAMELY, 8904. A NEW BOOM WITH NEW SENSORS AND ANTENNA WAS ALSO INSTALLED. THE OLD STATION HAD FAILED DUE TO A FAILURE IN ONE OF THE ROM CHIPS WHICH PREVENTED THE INTERNAL PROGRAM FROM CYCLING.

AWS ID: 8905

SITE NAME: MANNING
LOCATION : LAT 78.77 S LONG 166.85 E (MINNA BLUFF)
HEIGHT : 75 M

DATE ACTIVATED: 25 NOV 1980
LAST VISITED : 18 JAN 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (12-78-09)		CHECKED
PRESSURE GAUGE (4865)		
TEMP PROBE EXT		CHECKED
TEMP PROBE INT		
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

VARIABLE	FIELD CALIBRATION		DIFFERENCE		
	CALIBRATION AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	0.0 MB	-0.5 MB
TEMP EXT	-	-	-	0.7 C	-0.6 C
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	.240 M/S/B	-
WIND DIR	-	-	-	OK	OK

VARIABLE	LABORATORY CALIBRATION		DIFFERENCE		
	CALIBRATION AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-
HUMIDITY	NONE	NONE	-	-	-
DELTA T	NONE	NONE	-	-	-

COMMENTS: AWS 8905 HAS OPERATED WELL FOR OVER 3 YEARS. THIS YEAR IT WAS NECESSARY TO DIG OUT THE RTG AND RAISE IT TO THE SURFACE. NO FIELD CALIBRATIONS WERE DONE THIS YEAR.

AWS ID: 8906

SITE NAME: MARBLE POINT
LOCATION : LAT 77.43 S LONG 163.75 E
HEIGHT : 120 M

DATE ACTIVATED: 16 FEB 1980
LAST VISITED : 6 JAN 1983

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (03-78-14)		INSTALLED
PRESSURE GAUGE (4736)		
TEMP PROBE EXT		CHECKED
TEMP PROBE INT		
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

VARIABLE	FIELD CALIBRATION		DIFFERENCE		
	CALIBRATION AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	977.4	978.3 MB	-	0.8 MB	0.5 MB
TEMP EXT	-1.0	0.8 C	-	1.8 C	0.5 C
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	.230 M/S/B	-
WIND DIR	-	-	-	OK	OK

VARIABLE	LABORATORY CALIBRATION		DIFFERENCE		
	CALIBRATION AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-
HUMIDITY	NONE	NONE			
DELTA T	NONE	NONE			

COMMENTS: AWS 8906 WAS NOT VISITED IN 1984 SINCE IT HAS HAD AN EXCELLENT RECORD OF OPERATION.

AWS ID: 8907

SITE NAME: FERRELL SITE
LOCATION : LAT 78.02 S LONG 170.80 E
HEIGHT : 44 M

DATE ACTIVATED: 10 DEC 1980
LAST VISITED : 11 DEC 1983

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (12-78-16)		CHECKED
PRESSURE GAUGE (4731)		CHECKED
TEMP PROBE EXT		CHECKED
TEMP PROBE INT		CHECKED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	985.5	984.8 MB	-0.7 MB	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	215	SSW EST	OK	-	-

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	980.6	979.7 MB	-0.9 MB	-	-
TEMP EXT	-22.5	-21.75 C	0.75 C	-	-
TEMP INT	10.75	11.5 C	0.75 C	-	-
WIND SPD	.222	M/S/BIT	.0 M/S	-	-
WIND DIR	177	SOUTH	0 DEG	-	-
HUMIDITY	NONE	NONE			
DELTA T	NONE	NONE			

COMMENTS: AWS 8907 HAD CEASED OPERATING ON AUGUST 22 1983.
INSPECTION SHOWED THAT WATER FROM MELTING SNOW HAD CORRODED
ONE EDGE OF THE CPU BOARD. THE DAMAGE ACTUALLY BROKE ONE OF
THE TRACES ON THE BOARD. THE BOARD WAS CLEANED AND
REPAIRED. ALSO, THE AWS BOX WAS SECURED SO THAT SNOW COULD
NOT AS EASILY GET INTO THE BOX.

AWS ID: 8908B

SITE NAME: LAURIE SITE
LOCATION : LAT 77.55 S LONG 170.09 E CAPE CROZIER
HEIGHT : 25 M (ESTIMATED)

DATE ACTIVATED: 14 JAN 1984
LAST VISITED : 18 JAN 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (12-78-15)		INSTALLED
PRESSURE GAUGE (3132)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		INSTALLED
DELTA-T PROBE		INSTALLED

FIELD CALIBRATION						
VARIABLE	CALIBRATION		AS 83/84	DIFFERENCE		
	AWS	MEASURED		AS 82/83	AS 81/82	
PRESSURE	992.1	993.8 MB	1.7 MB	1.3 MB	-	
TEMP EXT	-6.8	-7.2 C	-.4 C	-.6 C	-	
TEMP INT	-	-	-	-	-	
WIND SPD	-	-	-	-	-	
WIND DIR	OK	N-E-S-W-N	OK	OK	-	

LABORATORY CALIBRATION						
VARIABLE	CALIBRATION		AS 83/84	DIFFERENCE		
	AWS	MEASURED		AS 82/83	AS 81/82	
PRESSURE	993.1	994.6 MB	1.5 MB	1.3 MB	-	
TEMP EXT	.25	.00 C	-0.25 C	-1.0 C	-	
TEMP INT	15.5	16.1 C	.6	-	-	
WIND SPD	.244	M/S/BIT	.0	.230 M/S/B	-	
WIND DIR	OK	N-E-S-W-N	OK	OK	-	
HUMIDITY	.54*BITS-18	%	CAL	-	-	
DELTA T	.12*(BITS-198)	C	CAL	-	-	

COMMENTS: AWS 8908 WAS INSTALLED AT LAURIE SITE REPLACING AWS 8911. THE UW VERSION OF THE AWS WAS USED, THUS THE 8908B DESIGNATION. THE TEMPERATURE DIFFERENCE PROBES WERE PLACED AT 22 AND 97 INCHES ABOVE THE SNOW SURFACE. THE HUMIDITY PROBE WAS AT BOOM HEIGHT (9 FT.).

AWS ID: 8909B

SITE NAME: ARRIVAL HEIGHTS
LOCATION : LAT 77.90 S LONG 166.72 E
HEIGHT : 200 M (ESTIMATED)

DATE ACTIVATED: 24 JAN 1984
LAST VISITED : 24 JAN 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (03-78-05)		INSTALLED
PRESSURE GAUGE (4855)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		INSTALLED
DELTA-T PROBE		INSTALLED

FIELD CALIBRATION					
VARIABLE	CALIBRATION		AS 83/84	DIFFERENCE	
	AWS	MEASURED		AS 82/83	AS 81/82
PRESSURE	973.1	973.4 MB	-.3 MB	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	7.3 M/S	10 M/S (EST)	-	-	-
WIND DIR	91 DEG	EAST (EST)	-	-	-

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		AS 83/84	DIFFERENCE	
	AWS	MEASURED		AS 82/83	AS 81/82
PRESSURE	1003.5	1002.9 MB	-.6 MB	-	-
TEMP EXT	.25	.0 C	-.25 C	-	-
TEMP INT	-	-	-	-	-
WIND SPD	.249 M/S/BIT		CAL	-	-
WIND DIR	OK	N-E-S-W-N	OK	-	-
HUMIDITY	.50*BITS-14	%	CAL	-	-
DELTA T	.135*(BITS-199)	C	CAL	-	-

COMMENTS: AWS 8909B WAS INSTALLED AT ARRIVAL HEIGHTS NEAR THE MCMURDO STATION ON ROSS ISLAND. IT WAS CONSTRUCTED FROM THE NEW AWS STATION ELECTRONICS WITH THE COMPONENTS FROM THE OLD AWS 8904 STATION BROUGHT BACK FROM DOME C. THE DELTA T PROBE WAS LOCATED AT 22 INCHES AND 90 INCHES.

AWS ID: 8910B

SITE NAME: SIPLE
LOCATION : LAT 75.90 S LONG 84.30 W SIPLE STATION
HEIGHT : 900 M (ESTIMATED)

DATE ACTIVATED: 26 NOVEMBER 1983
LAST VISITED : 26 NOVEMBER 1983

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (03-78-10)		INSTALLED
PRESSURE GAUGE (17490)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION						
VARIABLE	CALIBRATION		DIFFERENCE			
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82	
PRESSURE	859.5	859.7 MB	.2 MB	-	-	
TEMP EXT	15.0	13.0 C	-2.0 C	-	-	
TEMP INT	-	-	-	-	-	
WIND SPD	4.0	3.5 M/S	.5 M/S	-	-	
WIND DIR	285	280 DEG	-5 DEG	-	-	

LABORATORY CALIBRATION						
VARIABLE	CALIBRATION		DIFFERENCE			
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82	
PRESSURE	994.7	994.3 MB	.4 MB	-	-	
TEMP EXT	0.12	0.0 C	-.12 C	-	-	
TEMP INT	15.5	16.0 C	.5 C	-	-	
WIND SPD	.249	M/S/BIT	CAL	-	-	
WIND DIR	180	SOUTH	OK	-	-	
HUMIDITY	-	-	-	-	-	
DELTA T	-	-	-	-	-	

COMMENTS: AWS 8910B WAS PLACED IN OPERATION AT SIPLE REPLACING AWS 8909. AWS 8910B IS POWERED BY 3 BOXES OF BATTERIES AS SIPLE STATION WILL BE CLOSED FOR TWO YEARS. THE FIELD CALIBRATION WAS DONE USING STATION READINGS WHICH WERE TAKEN SOME 500 METERS AWAY FROM THE AWS UNIT. THE BOOM WAS PLACED AT ABOUT 4 METERS AND THE ELECTRONICS BOX AT 3 METERS TO ALLOW FOR 2 YEARS OF SNOW ACCUMULATION.

AWS ID: 8911B

SITE NAME: TIFFANY SITE
LOCATION : LAT 77.95 S LONG 166.17 E WHITE ISLAND
HEIGHT : 40 M (ESTIMATED)

DATE ACTIVATED: 23 JANUARY 1984
LAST VISITED : 23 JANUARY 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (03-78-08)		INSTALLED
PRESSURE GAUGE (3161)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		INSTALLED
DELTA-T PROBE		INSTALLED

FIELD CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	998.8	998.7 MB	-.1 MB	-	-
TEMP EXT	-1.0	-2.0 C	1.0 C	-	-
TEMP INT	-	-	-	-	-
WIND SPD	5.2	5.0 M/S	.2 M/S	-	-
WIND DIR	170	180 DEG	10 DEG	-	-

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	1002.3	1002.3 MB	.0 MB	-	-
TEMP EXT	0.12	0.0 C	-.12 C	-	-
TEMP INT	0.0	0.0 C	.0 C	-	-
WIND SPD	.248 M/S/BIT		CAL	-	-
WIND DIR	OK	N-E-S-W-N	CAL	-	-
HUMIDITY	.53*BITS-18	%	CAL	-	-
DELTA T	.13*(BITS-195)	C	-	-	-

COMMENTS: AWS 8911B WAS INSTALLED NEAR WHITE ISLAND REPLACING
AWS 8908 WHICH HAD TO BE MOVED SINCE IT WAS LOCATED IN THE
NEW WHITE OUT LANDING ZONE FOR WILLIAMS FIELD. HUMIDITY AND
TEMPERATURE DIFFERENCE PROBES (24 INCHES TO 72 INCHES)
WERE INCLUDED WITH THIS UNIT.

AWS ID: 8912

SITE NAME: LASRON ICE RISE
LOCATION : LAT 67.00S LONG 60.47 W
HEIGHT : 50 M (ESTIMATED)

DATE ACTIVATED: 7 FEBRUARY 1983
LAST VISITED : 7 FEBRUARY 1983

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE		INSTALLED
PRESSURE GAUGE (3137)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		
DELTA-T PROBE		

FIELD CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	995.8	995.4 MB	-.4 MB	-	-
TEMP EXT	0.0	0.0 C	.0 C	-	-
TEMP INT	19.0	19.3 C	.3 C	-	-
WIND SPE	.267	M/S/BITS	CAL	-	-
WIND DIR	OK	N-E-S-W-N	CAL	-	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: AWS 8912 WAS PLACED IN OPERATION BY THE BRITISH ANTARCTIC SERVICE. IT REMAINED IN OPERATION UNTIL THE JULY 18, 1983 WHEN THE DATA THAT WAS TRANSMITTED WAS NO GOOD. THIS UNIT WILL BE REPLACED BY A NEW UW VERSION IN AS 84/85.

AWS ID: 8913

SITE NAME: FRANKLIN ISLAND
LOCATION : LAT 76.24 S LONG 168.66 E FRANKLIN ISLAND
HEIGHT : 274 M

DATE ACTIVATED: 23 JANUARY 1982
LAST VISITED : 19 JANUARY 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (XX-XX-XX)		INSTALLED
PRESSURE GAUGE (2931)		CHECKED
TEMP PROBE EXT		CHECKED
TEMP PROBE INT		CHECKED
HUMIDITY PROBE		CHECKED
DELTA-T PROBE		

VARIABLE	CALIBRATION		FIELD CALIBRATION		
	AWS	MEASURED	AS 83/84	DIFFERENCE AS 82/83	AS 81/82
PRESSURE	970.3	971.8 MB	1.5 MB	-.6 MB	-
TEMP EXT	-	-	-	.3 C	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-

VARIABLE	CALIBRATION		LABORATORY CALIBRATION		
	AWS	MEASURED	AS 83/84	DIFFERENCE AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: A NEW BOOM WAS INSTALLED THIS SEASON IN HOPES OF ELIMINATING THE FREQUENT ZERO READINGS FOR WIND SPEED. THE VOLTAGE REGULATOR WAS CORRODED AND HAD FAILED. A NEW ONE WAS INSTALLED. ALSO NEW BATTERIES WERE PUT IN AS THE OLD BATTERIES WERE AT 11.3 VOLTS. THIS UNIT SHOULD BE REPLACED WITHIN TWO YEARS WITH A NEW VERSION AWS.

AWS ID: 8914B

SITE NAME: D-47
LOCATION :LAT 67.38 S LONG 138.72 W
HEIGHT : 1569 M

DATE ACTIVATED: 10 JANUARY 1984
LAST VISITED : 10 JANUARY 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE		CHECKED
PRESSURE GAUGE(17648)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION						
VARIABLE	CALIBRATION		DIFFERENCE			
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82	
PRESSURE	-	-	-	-	-	
TEMP EXT	-	-	-	-	-	
TEMP INT	-	-	-	-	-	
WIND SPD	-	-	-	-	-	
WIND DIR	-	-	-	-	-	

LABORATORY CALIBRATION						
VARIABLE	CALIBRATION		DIFFERENCE			
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82	
PRESSURE	-	-	-	-	-	
TEMP EXT	0.0	0.0 C	0.0 C	-	-	
TEMP INT	0.12	0.0 C	0.0 C	-	-	
WIND SPD	.249	M/S/BIT	CAL	-	-	
WIND DIR	OK	N-E-S-W-N	CAL	-	-	
HUMIDITY	-	-	-	-	-	
DELTA T	-	-	-	-	-	

COMMENTS: THE NEW UW VERSION 8914B REPLACED THE OLD AWS 8914 ON 10 JANUARY. IT WAS INSTALLED BY DIDIER SIMON OF THE EXPEDITIONS POLAIRES FRANCAISES. FIELD CALIBRATIONS SHOULD BE AVAILABLE IN THE NEAR FUTURE.

AWS ID: 8915

SITE NAME: MEELEY
LOCATION : LAT 78.52 S LONG 170.18 E ROSS ICE SHELF
HEIGHT : 50 M (ESTIMATED)

DATE ACTIVATED: 4 DECEMBER 1980
LAST VISITED : 18 JANUARY 1983

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (03-78-09)		INSTALLED
PRESSURE GAUGE (3136)		CHECKED
TEMP PROBE EXT		CHECKED
TEMP PROBE INT		CHECKED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION						
VARIABLE	CALIBRATION		DIFFERENCE			
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82	
PRESSURE	987.9	987.5 MB	-	-.5 MB	-	
TEMP EXT	-3.1	-2.5 C	-	.6 C	-	
TEMP INT	-	-	-	-	-	
WIND SPD	.230	M/S/BITS	-	-	-	
WIND DIR	354	N	-	+6 DEG	-	

LABORATORY CALIBRATION						
VARIABLE	CALIBRATION		DIFFERENCE			
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82	
PRESSURE	-	-	-	-	-	
TEMP EXT	-	-	-	-	-	
TEMP INT	-	-	-	-	-	
WIND SPD	-	-	-	-	-	
WIND DIR	-	-	-	-	-	
HUMIDITY	-	-	-	-	-	
DELTA T	-	-	-	-	-	

COMMENTS: AWS 8915 WAS NOT VISITED IN AS 83/84 DUE TO TIME LIMITATIONS. TWO ATTEMPTS WERE MADE IN DECEMBER BUT FOG PREVENTED LOCATION OF THE UNIT. THIS UNIT WILL BE REPLACED WITH A NEW UW VERSION AWS NEXT YEAR, AS 84/85.

AWS ID: 8916B

SITE NAME: D-57
LOCATION : LAT 68.18 S LONG 137.52 W
HEIGHT : 2100 M

DATE ACTIVATED: 6 JANUARY 1984
LAST VISITED : 6 JANUARY 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE		CHECKED
PRESSURE GAUGE (17587)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	0.12	0.00 C	-.12 C	-	-
TEMP INT	0.12	0.00 C	-.12 C	-	-
WIND SPD	.249	M/S/BIT	CAL	-	-
WIND DIR	OK	N-E-S-W-N	CAL	-	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: AWS 8916B REPLACED AWS 8916. IT WAS INSTALLED BY DIDIER SIMON OF THE EXPEDITIONS POLAIRES FRANCAIS. FIELD CALIBRAIONS SHOULD BE AVAILABLE IN THE NEAR FUTURE. THE OLD STATION HAD CEASED TRANSMITTING USEFUL DATA MARCH 22, 1983.

AWS ID: 8917

SITE NAME: NOT DEPLOYED
LOCATION :
HEIGHT :

DATE ACTIVATED:
LAST VISITED :

SENSOR	SENSORS SERVICED	ACTION TAKEN
	PROBLEM	
AEROVANE		
PRESSURE GAUGE		
TEMP PROBE EXT		
TEMP PROBE INT		
HUMIDITY PROBE		
DELTA-T PROBE		

VARIABLE	FIELD CALIBRATION		DIFFERENCE		
	CALIBRATION AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-

VARIABLE	LABORATORY CALIBRATION		DIFFERENCE		
	CALIBRATION AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: AWS 8917 WAS TO BE DEPLOYED BY THE BRITISH ANTARCTIC SURVEY BUT THE ELECTRONICS FAILED IN 1982. THIS UNIT IS TO BE REPLACED BY A NEW UW VERSION IN AS 84/85.

AWS ID: 8918

SITE NAME: WINDLESS BIGHT
LOCATION : LAT 77.75 S LONG 167.67 E ROSS ICE SHELF
HEIGHT : 40 M (ESTIMATED)

DATE ACTIVATED: 9 FEBRUARY 1983
LAST VISITED :13 DECEMBER 1983

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (11-80-09)		CHECKED
PRESSURE GAUGE (7876)		CHECKED
TEMP PROBE EXT		CHECKED
TEMP PROBE INT		CHECKED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	978.4	978.6 MB	.2 MB	-	-
TEMP EXT	.12	.0 C	-.12 C	-	-
TEMP INT	11.25	12.00 C	.75 C	-	-
WIND SPD	.240	M/S/BITS	CAL	-	-
WIND DIR	OK	N-E-S-W-N	CAL	-	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: AWS 8918 TRANSMISSIONS HAD STOPPED ON 21 MARCH 1983.
IT WAS DISCOVERED THAT THE TRANSMITTER FREQUENCY HAD SHIFTED
ENOUGH SO THAT THE SATELLITES COULD NO LONGER PICK UP THE
STATION. THE FREQUENCY WAS ADJUSTED AND THE STATION WAS
CALIBRATED AT MCMURDO AND PLACED BACK IN OPERATION.

AWS ID: 8919

SITE NAME: SPINE
LOCATION : LAT 67.65 S LONG 66.07 W ANTARCTIC PENINSULA
HEIGHT : 1540 M (ESTIMATED)

DATE ACTIVATED: 9 MARCH 1983
LAST VISITED : 9 MARCH 1983

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE		INSTALLED
PRESSURE GAUGE(8716)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION					
VARIABLE	CALIBRATION		AS 83/84	DIFFERENCE	
	AWS	MEASURED		AS 82/83	AS 81/82
PRESSURE	812.8	811.4 MB	-	-1.4 MB	-
TEMP EXT	-14.5	-13.5 C	-	1.0 C	-
TEMP INT	-	-	-	-	-
WIND SPD	4.5	4.0 M/S	-	.5 M/S	-
WIND DIR	285	292 DEG	-	7 DEG	-

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		AS 83/84	DIFFERENCE	
	AWS	MEASURED		AS 82/83	AS 81/82
PRESSURE	963.7	966.4 MB	-	2.7 MB	-
TEMP EXT	0.0	0.0 C	-	.0 C	-
TEMP INT	20.0	20.5 C	-	.5 C	-
WIND SPD	.264	M/S/BIT	-	-	-
WIND DIR	OK	N-E-S-W-N	-	OK	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: AWS 8919 WAS PLACED AT THE SPINE SITE ON THE ANTARCTIC PENINSULA JUST EAST OF ROTHERA. ON MARCH 20, 1983 THE STATION WENT OFF THE AIR. IT HAS SINCE RESUMED DATA TRANSMISSION, BUT IT APPEARS AS IF THE TOWER HAS BLOWN OVER. A NEW UW VERSION AWS IS PLANNED FOR AS 84/85. IT WILL BE DEPLOYED BY THE BRITISH ANTARCTIC SURVEY.

AWS ID: 89208

SITE NAME: NOT DEPLOYED
LOCATION :
HEIGHT :

DATE ACTIVATED:
LAST VISITED :

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE		
PRESSURE GAUGE		
TEMP PROBE EXT		
TEMP PROBE INT		
HUMIDITY PROBE		
DELTA-T PROBE		

FIELD CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: AWS 89208 WAS NOT CHECKED OUT IN TIME FOR DEPLOYMENT
IN AS 83/84. IT WIL BE COMMITTED IN AS 84/85 AS NEEDED.

AWS ID: 8921B

SITE NAME: MARILYN
LOCATION : LAT 79.98 S LONG 165.03 E ON RIS FROM BYRD GLACIER
HEIGHT : 75 M (ESTIMATED)

DATE ACTIVATED: 16 JANUARY 1984
LAST VISITED : 16 JANUARY 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE(11-78-06)		INSTALLED
PRESSURE GAUGE(17489)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		INSTALLED
DELTA-T PROBE		INSTALLED

FIELD CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	987.8	987.2 MB	-.6 MB	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	.12	0.0 C	.0 C	-	-
TEMP INT	19.25	19.5 C	.25 C	-	-
WIND SPD	.254	M/S/BIT	CAL	-	-
WIND DIR	OK	N-E-S-W-N	CAL	-	-
HUMIDITY	.55*BITS-22	%	CAL	-	-
DELTA T	.12*(BITS-201)	C	CAL	-	-

COMMENTS: AWS 8921B WAS DEPLOYED SOME 120 KILOMETERS FROM THE
BASE OF THE BYRD GLACIER ON THE ROSS ICE SHELF. HUMIDITY
TEMPERATURE DIFFERENCE PROBES (AT 20 AND 92 INCHES) WERE
INCLUDED.

AWS ID: 8922B

SITE NAME: INEXPRESSIBLE ISLAND
LOCATION : LAT 74.92 S LONG 163.60 E
HEIGHT : 78 M

DATE ACTIVATED: 6 FEBRUARY 1984
LAST VISITED : 6 FEBRUARY 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (XX-XX-XX)		INSTALLED
PRESSURE GAUGE (17485)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION						
VARIABLE	CALIBRATION		AS 83/84	DIFFERENCE		
	AWS	MEASURED		AS 82/83	AS 81/82	
PRESSURE	985.0	984.8 MB	-.2 MB	-	-	
TEMP EXT	-	-	-	-	-	
TEMP INT	-	-	-	-	-	
WIND SPD	-	-	-	-	-	
WIND DIR	65	65	0 DEG	-	-	

LABORATORY CALIBRATION						
VARIABLE	CALIBRATION		AS 83/84	DIFFERENCE		
	AWS	MEASURED		AS 82/83	AS 81/82	
PRESSURE	995.2	994.6 MB	-.6 MB	-	-	
TEMP EXT	.12	0.0 C	-.12 C	-	-	
TEMP INT	.12	0.0 C	-.12 C	-	-	
WIND SPD	.252	M/S/BITS	CAL	-	-	
WIND DIR	OK	N-E-S-W-N	CAL	-	-	
HUMIDITY	-	-	-	-	-	
DELTA T	-	-	-	-	-	

COMMENTS: AWS 8922B WAS PLACED ON INEXPRESSIBLE ISLAND BY
JAY ARDAI. IT WILL SUPPORT THE STUDY OF THE POLYNIA IN
TERRA NOVA BAY.

AWS ID: 8923B

SITE NAME: MARTHA
LOCATION : LAT 78.31 S LONG 172.50 W ROSS ICE SHELF
HEIGHT : 42 M

DATE ACTIVATED: 1 FEBRUARY 1984
LAST VISITED : 1 FEBRUARY 1984

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE (XX-XX-XX)		INSTALLED
PRESSURE GAUGE (18058)		INSTALLED
TEMP PROBE EXT		INSTALLED
TEMP PROBE INT		INSTALLED
HUMIDITY PROBE		NONE
DELTA-T PROBE		NONE

FIELD CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	993.8	993.7 MB	-.1 MB	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	64	60 DEG	-4 DEG	-	-

LABORATORY CALIBRATION					
VARIABLE	CALIBRATION		DIFFERENCE		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	995.2	994.6 MB	-.6 MB	-	-
TEMP EXT	.12	0.0 C	-.12 C	-	-
TEMP INT	.12	0.0 C	-.12 C	-	-
WIND SPD	.248	M/S/BIT	CAL	-	-
WIND DIR	OK	N-E-S-W-N	CAL	-	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: AWS 8923B WAS PLACED IN OPERATION BY JAY ARDAI. IT
WILL SUPPORT OCEAN CURRENT STUDIES IN THAT REGION.

AWS ID: 8924B, 8925B

SITE NAME: NOT DEPLOYED
LOCATION :
HEIGHT :

DATE ACTIVATED:
LAST VISITED :

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE		
PRESSURE GAUGE		
TEMP PROBE EXT		
TEMP PROBE INT		
HUMIDITY PROBE		
DELTA-T PROBE		

VARIABLE	CALIBRATION		FIELD CALIBRATION		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-

VARIABLE	CALIBRATION		LABORATORY CALIBRATION		
	AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: THESE AWS ARE TO CONSTRUCTED FOR THE NEXT FIELD SEASON
FROM TWO AWS TO BE RETURNED BY THE FRENCH.

AWS ID: 8926B

SITE NAME: NOT DEPLOYED
LOCATION :
HEIGHT :

DATE ACTIVATED:
LAST VISITED :

SENSOR	SENSORS SERVICED PROBLEM	ACTION TAKEN
AEROVANE		
PRESSURE GAUGE		
TEMP PROBE EXT		
TEMP PROBE INT		
HUMIDITY PROBE		
DELTA-T PROBE		

VARIABLE	FIELD CALIBRATION		DIFFERENCE		
	CALIBRATION AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-

VARIABLE	LABORATORY CALIBRATION		DIFFERENCE		
	CALIBRATION AWS	MEASURED	AS 83/84	AS 82/83	AS 81/82
PRESSURE	-	-	-	-	-
TEMP EXT	-	-	-	-	-
TEMP INT	-	-	-	-	-
WIND SPD	-	-	-	-	-
WIND DIR	-	-	-	-	-
HUMIDITY	-	-	-	-	-
DELTA T	-	-	-	-	-

COMMENTS: THIS AWS IS COMPLETED AND ON THE SHELF AT MADISON. IT WILL BE DEPLOYED NEXT SEASON.

AWS STATION PROBLEMS SUMMARY PRIOR TO AS 83/84

STATION ID	DATE	PROBLEM SUMMARY
8900 (D-10)	2/23/82	Bad antenna connection at base of antenna. Also the regulator failed. Bad 1 MHZ oscillator.
8900 (D-80)	10/20/83	Station ceased TX.
8901 (D-10)	12/25/83	Station corroded by water in electronics box. Old 8914 electronics used.
8902 (BAS)	1/28/83	CPU board defective, likely corrosion problem.
8903 (Byrd)		No problems to date.
8904 (Dome C)	1/31/83	ROM chip became defective preventing program cycle.
8905 (Manning)		Aerovane sometimes freezes up during winter-summer transition.
8906 (Marble Point)		No problems to data.
8907 (Ferrell)	8/22/83	Corrosion due to snow melt stopped program cycle.
8908 (Nancy)	8/21/83	Platinum resistance thermometer fails.
8909 (Siple/Arrival Heights)		No problems to date.
8910 (Laurie)	4/18/82	Failed Multiplexor chip. Bad antenna. Bad 1 MHZ Oscillator.
8911 (Laurie)	1/27/83 12/13/83	Bad antenna connection. Platinum resistance thermometer failed. Bad multiplexor chip.
8912 (BAS)	7/18/83	Stopped transmitting. Now transmits but no data.

8913 (Franklin Island)		Intermittent wind speeds due to bad plug connection?
8914 (D-47)		Transmissions not received for periods of time. Electronics now part of 8901 (1/9/84). Prior to 1/24/83 a bad antenna prevented reception
8915 (Meeley)		Transmissions not received for periods of time.
8916 (D-57)	4/22/83	Transmissions not received after this date.
8917 (BAS)	8/24/82	Corrosion destroys CPU.
8918 Windless	3/21/83	Transmissions stopped due transmitter frequency shifting out of tolerance.
8919 (BAS)	3/20/83	No transmissions until 6/3/83 and then no wind data. Suspect tower down.

LIST OF GENERIC PROBLEMS

1. At the French stations (8900,01,14 and 16), the voltage regulators failed, possibly due to the excessive power delivered by the 30 watt solar panels.
2. The stations sent to the Antarctic Peninsula suffered from corrosion due to the intrusion of water into the electronics box.
3. Various stations have been off the air due to bad antennas. The glue holding the coax cable connecting plate in place fails allowing the plate to oscillate and eventually causes the connection to break.
4. The antenna cable connection also has broken due to stress caused by wind loading on the cable.
5. Electronics hardware problems are rare. Only two stations to date have failed due to CMOS chip failure (8904 and 8910).

PROPOSED WORK FOR AS 84/85

1. AWS for the Antarctic Peninsula.

It is yet to be determined the number of stations to be sent to the British Antarctic Survey for deployment next year. At the present time this number could vary from 4 to 6. We expect to receive 2 AWS back from the BAS which will need to be converted to the new UW version. There remains the task of converting the two stations still in the field. This will have to be done in the field. At the present no one from the University of Wisconsin is planning to go to the Antarctic Peninsula to install the new units.

2. AWS for Barrier Wind Study on the Ross Ice Shelf

The two old AWS that are to be returned to Madison by the French are to be rebuilt into new AWS 8924B and 8925B. The electronics boards are ready but the pressure gauges, oscillators, transmitters, etc., are to be used from the old stations. Some repair work or replacement may be necessary in order to provide a reliable unit.

3 Other work

The above work would complete the 27 AWS platforms that have been allocated. It would be prudent to maintain at least one back up unit for McMurdo area stations and possibly one back up unit for the stations on the Antarctic Peninsula.

At the present there are sufficient parts in Madison for a complete back up station and up to three stations without the hardware (transmitter, pressure gauge, etc.) .

Some sort of schedule should be made up for the maintenance of the AWS . To some extent this will be influenced by their location and how easy it is to service the units. However, significant time and effort (read money) could be saved by planning ahead for AWS deployment, maintenace, and replacement. For example, some estimate can be made for how long batteries last, how often towers need to be raised and whether annual site visits are necessary.

In the near future a technical manual for the AWS will be completed. It is hoped that it will provide all the necessary information for the successful installation and operation of an AWS.

Acknowledgements

The success of the AS 83/84 field season was due to the invaluable help of many people. The construction of the AWS stations was done at the Space Science and Engineering Center at the University of Wisconsin. Those involved from design to soldering in the components were Mr. Tony Wendricks (drafting), Mr. Bob Sutton and staff (construction of AWS housing), Mr. Jim Maynard (electronic design and software), Mr. Doyle Ford (electronic design), Mr. Craig Trewartha (electronic assembly). Special thanks go to Mr. Didier Simon of Expeditions Polaires Francaises for deployment of AWS 8914B and 8916B and Mr. J. Ardai and Mr. Greg Crocker for deploying AWS 8922B and 8923B. Also, as usual, Lt. Dave Fleming gave valuable assistance at McMurdo. The support we received from ITT Antarctic Services, the NSF staff, the VXE-6 pilots and crew, and the Naval Support Force, Antarctica was outstanding.