

**Antarctic Automatic Weather Station Data
for the calendar year
1994**

by
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George A. Weidner
Charles R. Stearns
Matthew T. Whittaker
Robert E. Holmes**

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1. INTRODUCTION

A network of automatic weather station (AWS) units is deployed to collect Antarctic surface weather observations in support of specific meteorological research projects as well as operational activities at McMurdo. The 1994 network consisted of 45 installed AWS units providing observations on the Ross Ice Shelf, east of the Transantarctic Mountains and north of McMurdo to the Adelie Coast, along the Antarctic Peninsula and climatological locations such as the South Pole. Each unit measures air temperature, wind speed, and wind direction normally at the top of the unit's tower at a nominal height of three meters and air pressure at the electronics enclosure (Figure 1). Some AWS units also measure the relative humidity at three meters and vertical air temperature difference between 0.5 and 3 meters. Measurement heights relative to the actual surface at the site are nominal due to snow accumulation around the AWS unit.

2. DATA TRANSMISSION

The transmitted AWS data are received and stored by the ARGOS data collection system on the NOAA series of polar orbiting satellites. The data are retransmitted by the satellite for reception by a local user terminal (LUT) as at McMurdo, Antarctica. The data are processed into scientific units and are available for local use. The complete data set is received daily at Madison, Wisconsin, from Service ARGOS, Toulouse, France, for processing and distribution to the users.

3. AWS IDENTIFICATION AND LOCATION

Site location is defined by the latitude and longitude which is determined by various methods: sun shots, angles to geographical features, aircraft data, ice breaker data, the platform location system of Service ARGOS, and the Global Positioning System. AWS elevation is obtained by barometry and should be correct to within +/- 5 meters. Site names were introduced for convenience. Table 3.1 lists the site name, ARGOS identification number, latitude, longitude, elevation, start date for the site, and the World Meteorological Organization (WMO) number for the site. Figures 2, 3, 4, and 5 show the locations of the AWS units in the Antarctic for 1994.

The ARGOS identification number (ID) is used to identify the data sets distributed to the users. AWS units are sometimes moved from one location to another, and as a result, the ID at a given site may change from year to year. Table 3.2 lists the site name with the ARGOS ID, the site start date, and the ID start and stop dates.

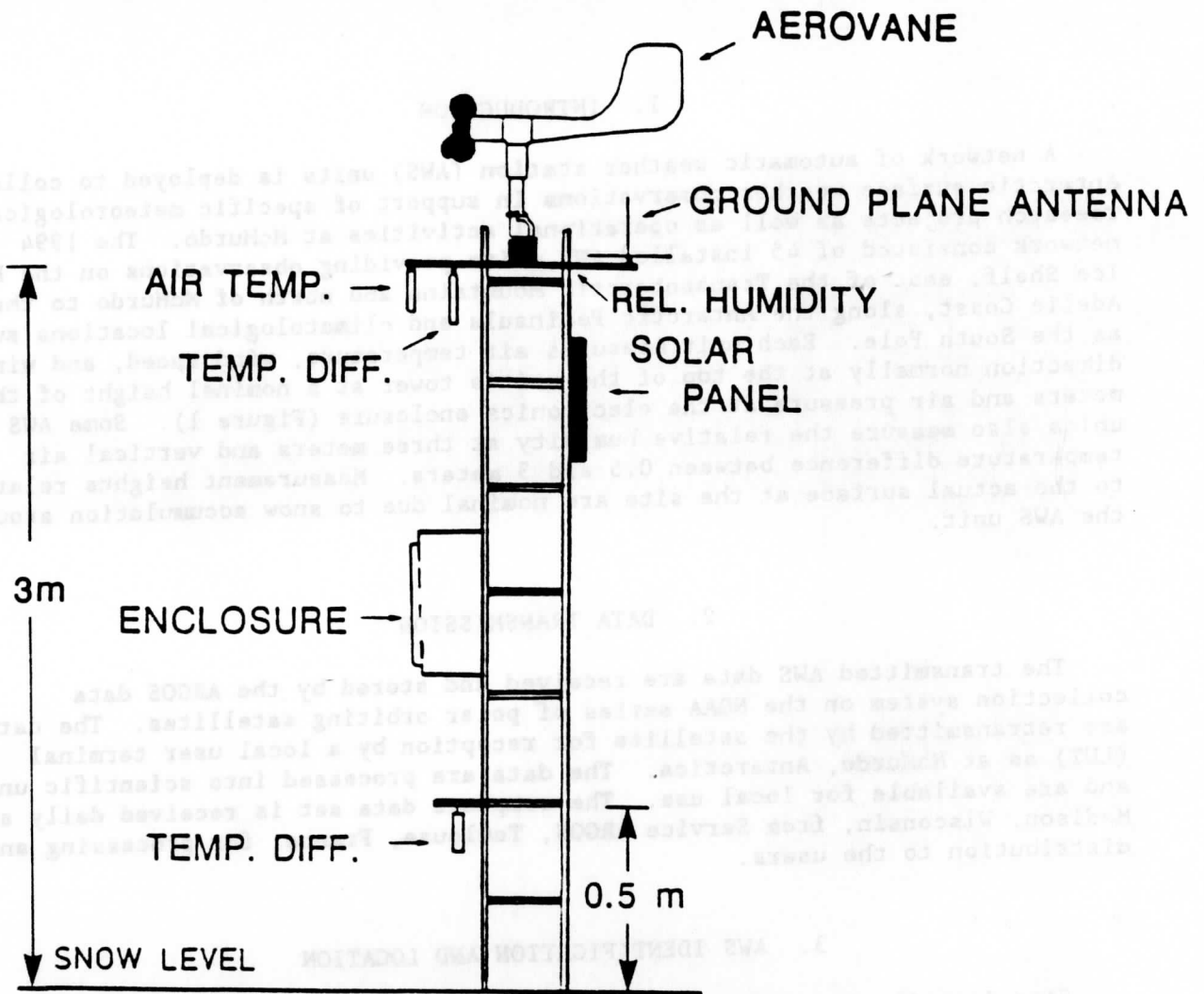


Figure 1. Layout of the AWS unit used in the Antarctic. The installed AWS unit has a 3-meter tower with a horizontal boom supporting the antenna, aerovane for measuring wind speed and direction, air temperature resistance thermometer, upper thermopile for measuring vertical air temperature difference, and the relative humidity sensor. The electronics enclosure is mounted at the mid point of the tower. The gel cell batteries are placed at the tower base. The solar panel, located near the tower top, faces north.

Table 3.1

AWS site name, geographic location and elevation, site start date, and WMO number for 1994.

Site name	ARGOS ID	Lat. deg	Long. deg	Elev. m	Site Start Date	WMO No.
Adelie Land						
D-10	8914	66.71°S	139.83°E	243	8 Jan 80	89832
D-47	8916	67.40°S	138.73°E	1560	24 Nov 82	89834
D-80	8919	70.04°S	134.88°E	2500	14 Jan 83	89836
Dome C	8904	74.50°S	123.00°E	3280	05 Feb 80	89828
Port Martin	8930	66.82°S	141.40°E	39	19 Jan 90	
Cape Denison	8933	67.01°S	142.66°E	31	20 Jan 90	
Penguin Point	8929	67.62°S	146.18°E	30	24 Dec 92	89847
Sutton#	8939	67.08°S	141.37°E	871	26 Dec 94	
Cape Webb#	8933	67.93°S	146.82°E	37	28 Dec 94	
West Antarctica						
Byrd Station	8903	80.00°S	119.40°W	1530	05 Feb 80	89324
Mount Siple	8981	73.20°S	127.05°W	230	20 Feb 92	89327
Harry#	21355	83.00°S	121.39°W	945	29 Nov 94	
J.C.#	21357	85.07°S	135.52°W	549	29 Nov 94	
Theresa#	21358	84.60°S	115.81°W	1463	29 Nov 94	89314
Doug#	21359	82.32°S	113.24°W	1433	29 Nov 94	
Elizabeth#	21356	82.61°S	137.08°W	549	30 Nov 94	89332
Brianna#	21362	83.89°S	134.15°W	549	30 Nov 94	
Erin#	21361	84.90°S	128.81°W	1006	29 Nov 94	
Ross Island Region						
Marble Point	8906	77.44°S	163.69°E	84	05 Feb 80	89866
Ferrell	8934	77.93°S	170.82°E	45	10 Dec 80	89872
Pegasus North	8927	77.95°S	166.51°E	10	23 Jan 90	89667
Pegasus South	8937	77.99°S	166.58°E	10	14 Jan 91	
Minna Bluff	8988	78.55°S	166.66°E	920	22 Jan 91	89768
Linda	8915	78.48°S	168.38°E	50	21 Jan 91	89769
Willie Field	8901	77.87°S	167.02°E	40	25 Jan 92	
Ocean Islands						
Whitlock	8921	76.14°S	168.39°E	274	23 Jan 82	89865
Scott Island	8983	67.37°S	179.97°W	30	25 Dec 87	89371
Young Island	8980	66.23°S	162.28°E	30	01 Jan 91	89660
Possession Is.	8984	71.89°S	171.21°E	30	29 Dec 92	89879
Ross Ice Shelf						
Marilyn	8931	79.95°S	165.13°E	75	16 Jan 84	89869
Schwerdtfeger	8913	79.90°S	169.97°E	60	24 Jan 85	89868
Gill	8911	79.99°S	178.61°W	55	24 Jan 85	89376
Lettau	8908	82.52°S	174.45°W	55	29 Jan 86	89377
Elaine	8900	83.13°S	174.17°E	60	28 Jan 86	89873

Site name	ARGOS ID	Lat. deg	Long. deg	Elev. m	Site Start Date	WMO No.
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Reeves Glacier

Manuela	8905	74.95°S	163.69°E	80	06 Feb 84	89864
Sandra	8923	74.48°S	160.48°E	1525	19 Jan 88	89861
Lynn	8935	74.21°S	160.41°E	1772	19 Jan 88	89860

Antarctic Peninsula

Larsen Ice	8926	66.95°S	60.91°W	17	21 Oct 85	89262
Butler Island	8902	72.21°S	60.17°W	91	01 Mar 86	89266
Uranus Glacier	8920	71.43°S	68.93°W	780	06 Mar 86	89264
Racer Rock	8947	64.07°S	61.61°W	17	15 Oct 89	89261
Bonaparte Pt.	8912	64.78°S	64.07°W	8	05 Jan 92	89269
AGO-A81	8932	81.50°S	3.74°E	2410	08 Jan 93	
Recovery Glcr.#	8932	80.82°S	22.26°W	1220	18 Jan 94	
Ski-Hi#	8917	74.98°S	70.77°W	1395	21 Feb 94	
Santa Claus Is#	8910	64.96°S	65.67°W	25	10 Dec 94	

High Polar Plateau

Clean Air	8987	90.00°S		2835	29 Jan 86	89208
Kelly	8921	89.00°S	179.61°W	2950	27 Jan 93	
Nico	8924	89.00°S	89.67°E	2935	26 Jan 93	
Henry	8985	89.01°S	1.30°W	2755	26 Jan 93	
Lindsay	8986	89.00°S	89.85°W	2815	26 Jan 93	

New sites started during 1994

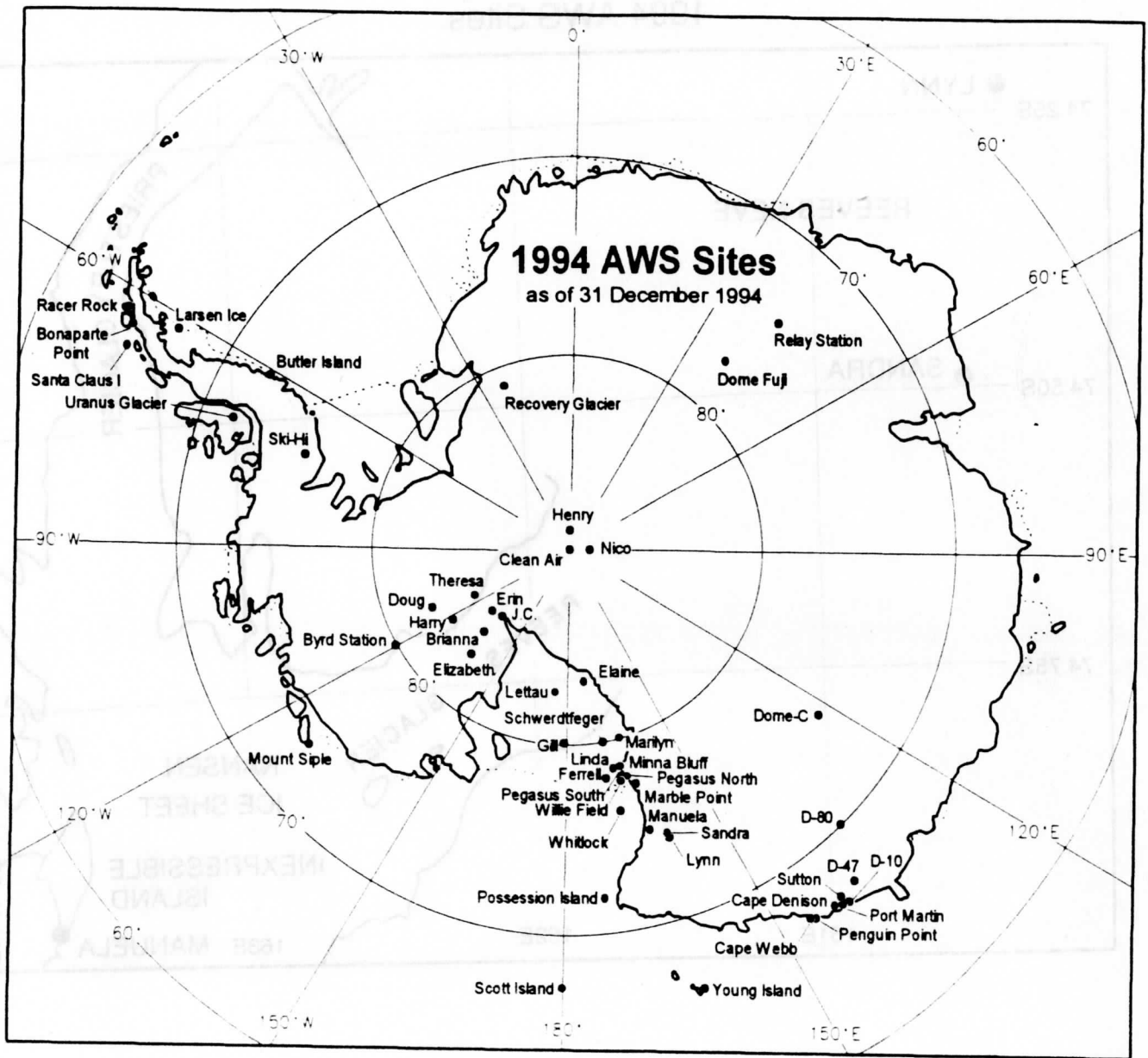


Figure 2. Antarctic automatic weather station locations during 1994 identified by the site name. Area around Manuela Site is shown in Figure 3. Area around Ross Island is shown in Figure 4. Adelie Coast area is shown in Figure 5.

1994 AWS Sites

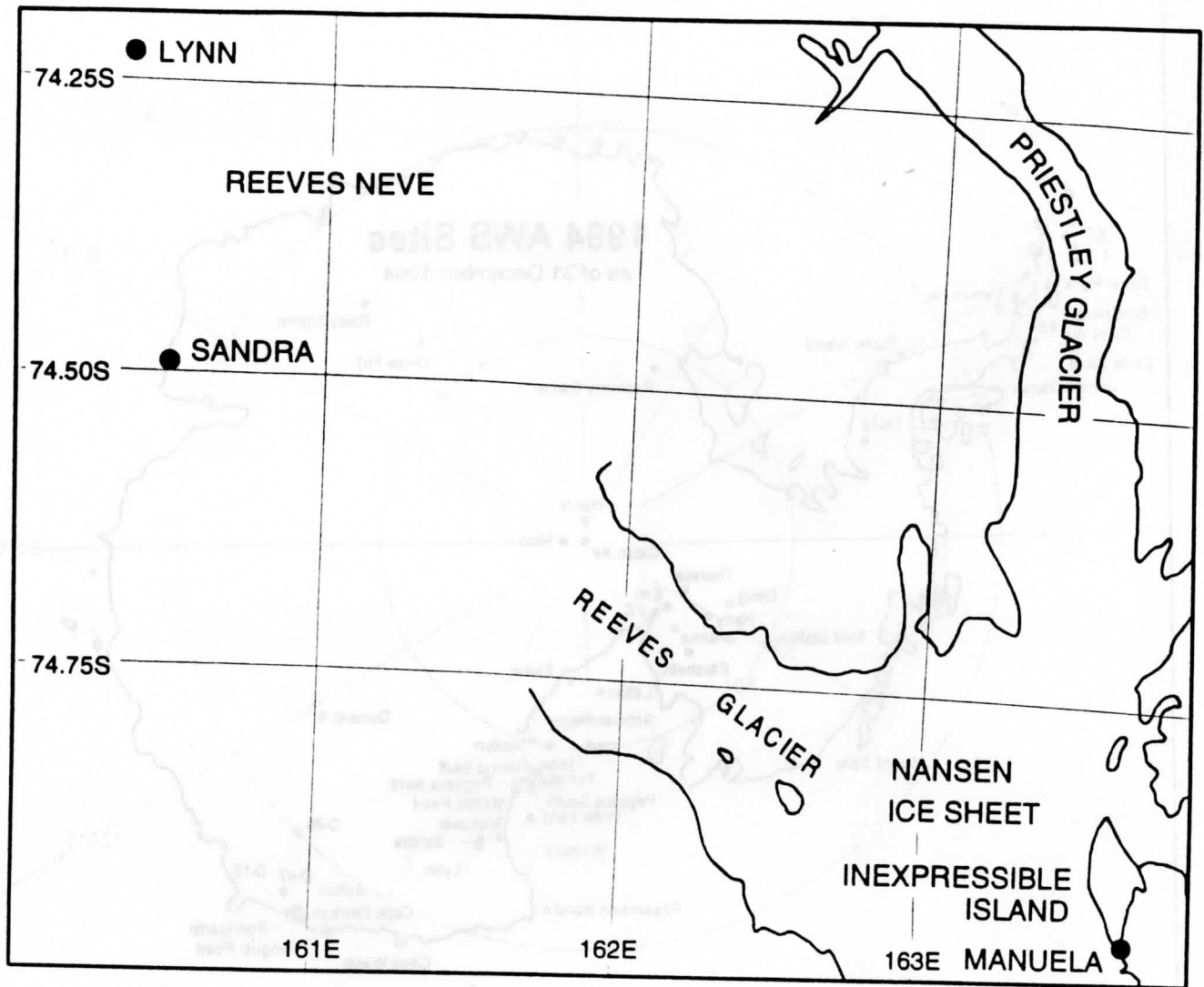


Figure 3. Location of Antarctic automatic weather stations on the Reeves Glacier and Reeves Neve during 1994.

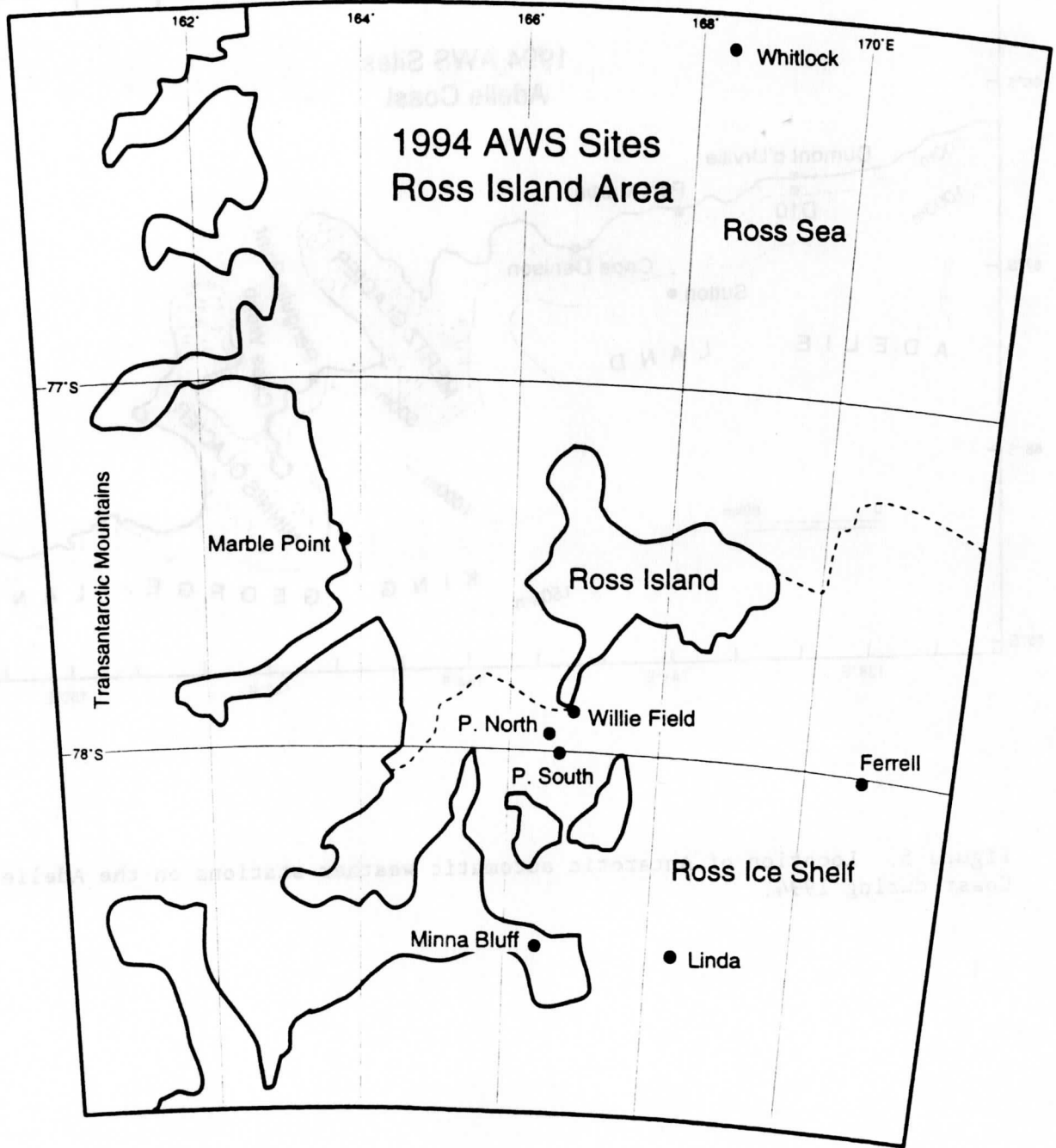


Figure 4. Location of Antarctic automatic weather stations in the vicinity of Ross Island, Antarctica during 1994.

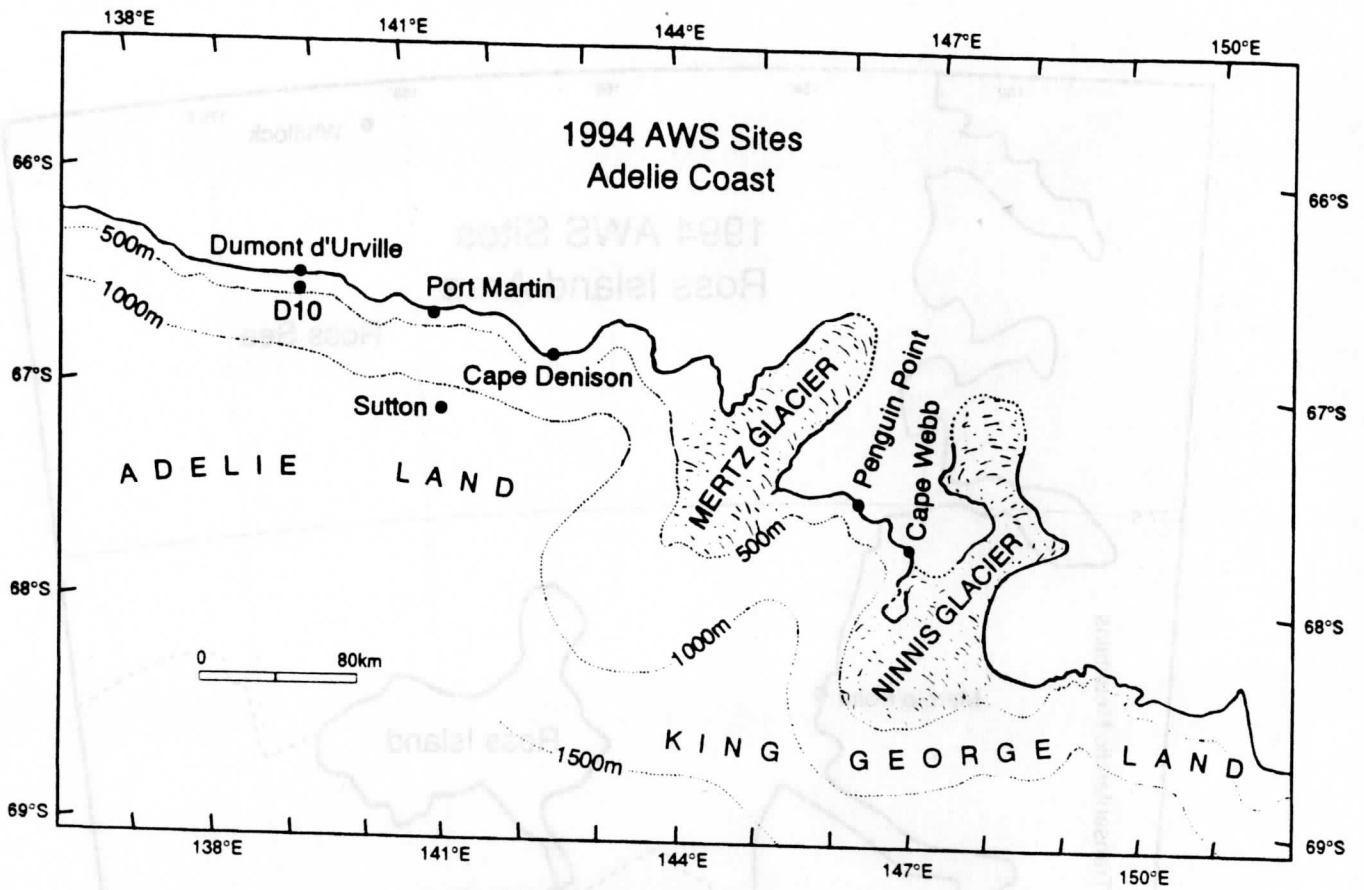


Figure 5. Location of Antarctic automatic weather stations on the Adelie Coast during 1994.

Table 3.2
 1994 Antarctic AWS site name, ARGOS identification number (ID), site start date, ID start date, and ID stop date if occurring in 1994.

Site	ARGOS ID	Site Start Date	ID Start Date	ID Stop Date
D-10	8914	08 Jan 80	01 Jan 91	
D-47	8916	24 Nov 82	12 Jan 89	
D-80	8919	14 Jan 83	11 Dec 85	
Dome C	8904	05 Feb 80	05 Feb 80	
Port Martin	8930	19 Jan 90	23 Dec 92	
Cape Denison	8933	20 Jan 90	20 Jan 90	26 Dec 94
	8907		27 Dec 94	
Penguin Point	8929	24 Dec 92	24 Dec 92	
Sutton	8939	26 Dec 94	26 Dec 94	
Cape Webb	8933	28 Dec 94	28 Dec 94	
Byrd Station	8903	05 Feb 80	05 Feb 80	
Mount Siple	8981	20 Feb 92	20 Feb 92	
Harry	21355	29 Nov 94	29 Nov 94	
J.C.	21357	29 Nov 94	29 Nov 94	
Theresa	21358	29 Nov 94	29 Nov 94	
Doug	21359	29 Nov 94	29 Nov 94	
Elizabeth	21356	30 Nov 94	30 Nov 94	
Brianna	21362	30 Nov 94	30 Nov 94	
Erin	21361	29 Nov 94	29 Nov 94	
Marble Point	8906	05 Feb 80	05 Feb 80	
Ferrell	8934	10 Dec 80	13 Jan 93	
Pegasus North	8927	23 Jan 90	23 Jan 90	
Pegasus South	8937	14 Jan 91	14 Jan 91	
Minna Bluff	8915	22 Jan 91	15 Jan 92	8 Jan 94
	8988		12 Jan 94	
Linda	8909	21 Jan 91	13 Jan 93	10 Jan 94
	8915		10 Jan 94	
Willie Field	8901	25 Jan 92	25 Jan 92	
Whitlock	8925	23 Jan 82	01 Jan 93	23 Feb 94
	8921		23 Feb 94	
Scott Island	8983	25 Dec 87	27 Dec 92	
Young Island	8980	01 Jan 91	01 Jan 91	
Possession Island	8984	29 Dec 92	29 Dec 92	
Marilyn	8931	16 Jan 84	18 Jan 91	
Schwerdtfeger	8913	24 Jan 85	22 Jan 93	
Gill	8911	24 Jan 85	25 Jan 91	
Elaine	8900	28 Jan 86	23 Jan 93	
Lettau	8908	29 Jan 86	29 Jan 86	
Manuela	8905	06 Feb 84	15 Feb 87	
Sandra	8923	19 Jan 88	19 Jan 88	
Lynn	8935	19 Jan 88	23 Jan 92	
Larsen Ice	8926	21 Oct 85	01 Jan 86	
Butler Island	8902	01 Mar 86	01 Mar 86	
Uranus Glacier	8920	06 Mar 86	24 Jan 92	

Site	ARGOS ID	Site Start Date	ID Start Date	ID Stop Date
Racer Rock	8947	15 Oct 89	08 Dec 91	
Bonaparte Point	8912	05 Jan 92	05 Jan 92	
AGO-A81	8932	08 Jan 93	08 Jan 93	16 Jan 94
Recovery Glacier	8932	18 Jan 94	18 Jan 94	
Ski-Hi	8917	21 Feb 94	21 Feb 94	
Santa Claus Is.	8910	10 Dec 94	10 Dec 94	
Clean Air	8987	29 Jan 86	25 Jan 94	
Mount Howe	8907	11 Jan 92	27 Jan 93	22 Jan 94
Kelly	8921	27 Jan 93	27 Jan 93	22 Jan 94
Nico	8924	26 Jan 93	26 Jan 93	
Henry	8985	26 Jan 93	26 Jan 93	
Lindsay	8986	26 Jan 93	26 Jan 93	22 Jan 94

4. AWS DATA SUMMARIES

The data received by the University of Wisconsin, Department of Atmospheric and Oceanic Sciences, contain all the information received by the ARGOS system including duplicate and erroneous transmissions. Invalid data are eliminated during a quality check, and the valid data are converted to scientific units producing the complete data set. Data selected at three hourly intervals, plus or minus one hour, produce a three hourly data set for each AWS unit month. Section 6.1, AWS Performance, provides some explanations for missing and invalid data.

Use of the 1994 Antarctic AWS data for publication should acknowledge the support of NSF-DPP Grant 93-03569 or reference this publication.

4.1 Monthly Data Summaries

The monthly summaries consist of the monthly means, from the three hourly data set, and the extremes, from the complete data set. For monthly values to be included, 25% of the three hourly observations must be available. Months with 50-75% of data missing occur most often when a station is started or stopped in the middle of the month. This can cause a bias in the monthly mean, especially during seasons when parameters such as temperature change rapidly. Annual means are calculated only when twelve months of data are available. The data are presented in the same order as the sites listed in Table 3.1. Definitions of the monthly data summary headings are listed below.

Heading	Definition
Mean air temperature, °C.	Mean value for the month.
Percent of monthly data missing.	Ratio of the number of missing observations to the number of possible observations X 100.
Maximum air temperature, °C.	Maximum value for the month.
Minimum air temperature, °C.	Minimum value for the month.
Mean wind speed, m/s.	Mean value for the month.
Percent of monthly data missing.	Ratio of the number of missing observations to the number of possible observations X 100.
Resultant wind speed, dir/vv.	Resultant speed and direction for the month.
Constancy.	Ratio of the monthly resultant to the monthly mean wind speed.
Maximum wind speed, dir/vv.	Maximum wind speed and direction for the month.

Mean air pressure,
mb.

Mean value for the month.

Percent of monthly data
missing.

Ratio of the number of missing obser-
vations to the number of possible
observations X 100.

Maximum air pressure,
mb.

Maximum value for the month.

Minimum air pressure,
mb.

Minimum value for the month.

The use of the 1958 Antarctic AWS data for publication should acknowledge the support of NSF-DW Grant 53-01559 or reference this publication.

A.1. Monthly Data Summary

The monthly summary consists of the monthly means, from the three hourly data sets, and the extremes, from the complete data set. For monthly values to be included, 50% of the three hourly observations must be available. Months with 50-75% of data missing occur often when a station is started or stopped in the middle of the month. This can cause a bias in the monthly mean, especially during seasons when parameters such as temperature change rapidly. Annual means are calculated only when twelve months of data are available. The data are presented in the same order as the sites listed in Table 1.1. Definitions of the monthly data summary headings are listed below.

Definition	Heading
Mean value for the month.	Mean air temperature
Ratio of the number of missing observations to the number of possible observations X 100.	Percent of monthly data missing
Maximum value for the month.	Maximum air temperature
Minimum value for the month.	Minimum air temperature
Mean value for the month.	Mean wind speed
Ratio of the number of missing observations to the number of possible observations X 100.	Percent of monthly data missing
Resultant speed and direction for the month.	Resultant wind speed
Ratio of the monthly resultant to the monthly mean wind speed.	Direction
Maximum wind speed and direction for the month.	Maximum wind speed

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir vv)	Con	Max Wind (dir vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)		
D-10 (8914)			66.70S			139.80E			240 M						
Jan	-3.4	09	3.3	-10.0	7.7	09	150	7.2	0.93	125	29	952.2	09	966.3	931.4
Feb	-7.5	09	1.1	-15.9	9.3	08	154	8.6	0.93	167	31	951.3	08	968.3	938.1
Mar	-12.7	12	-4.8	-24.5	11.1	57	160	10.3	0.92	136	26	948.5	12	962.6	928.7
Apr	-15.8	10	-9.0	-22.8	10.9	10	155	10.4	0.95	146	27	950.8	10	967.1	931.5
May	-21.6	10	-2.9	-30.8	9.5	14	163	8.6	0.91	109	34	954.2	10	987.3	931.9
Jun	-16.1	60	-6.5	-23.4	7.7	64	151	6.3	0.82	180	24	965.2	60	983.1	952.9
Jul															
Aug															
Sep	-14.7	20	-3.2	-25.0	12.3	57	159	11.5	0.93	161	34	956.5	20	982.7	915.8
Oct	-13.6	12	-2.2	-24.5	9.7	45	152	9.0	0.93	153	27	949.0	12	971.4	935.1
Nov	-8.6	13	1.9	-16.0	8.7	13	150	8.1	0.93	160	24	951.9	13	962.1	938.7
Dec	-4.2	14	2.9	-15.5	6.2	13	150	5.2	0.84	142	22	948.6	13	964.7	930.8
D-47 (8916)			67.38S			138.72E			1560 M						
Jul	-28.5	58	-13.8	-41.1	10.6	58	153	9.8	0.93	154	20	808.5	58	819.7	796.5
Aug	-34.5	10	-22.5	-44.8	10.4	16	171	9.9	0.96	156	20	796.5	10	815.9	778.7
Sep	-25.8	10	-10.0	-36.8	11.0	10	158	10.5	0.95	154	23	808.4	10	832.3	776.7
Oct	-25.6	17	-11.0	-37.8	9.6	17	161	9.3	0.96	149	19	802.5	17	824.7	787.5
D-80 (8919)			70.02S			134.72E			2500 M						
Feb	-35.1	0	-21.5	-46.2	3.5	0	159	3.3	0.93	137	18	713.0	0	725.1	703.4
Mar	-42.4	3	-28.6	-56.4	5.6	3	173	5.1	0.91	139	15	707.0	3	715.4	694.7
Apr	-49.4	1	-38.5	-58.5	7.3	1	168	7.1	0.97	153	16	708.0	1	721.8	697.8
May	-53.6	0	-20.9	-65.5	5.9	0	182	5.6	0.94	180	14	705.7	0	735.7	687.8
Jun	-48.0	1	-25.6	-62.9	3.7	1	183	3.4	0.92	177	18	722.4	1	735.6	707.3
Jul	-44.0	0	-23.4	-61.8	3.2	9	161	2.7	0.84	163	11	692.6	0	703.6	679.5
Aug	-55.7	3	-38.9	-64.4	3.5	3	182	3.4	0.98	181	9	698.9	3	716.5	682.7
Sep	-45.3	2	-19.5	-60.1	3.0	2	175	2.5	0.83	170	9	712.3	2	736.2	690.1
Oct	-41.3	2	-18.6	-55.4	3.1	2	167	2.6	0.83	153	11	687.3	2	709.3	669.7
Nov	-33.8	5	-18.9	-46.6	6.8	5	163	6.5	0.96	170	19	712.5	5	719.1	707.6
Dec	-25.5	4	-9.0	-40.9	5.1	4	141	4.6	0.90	130	15	710.7	4	721.1	702.8
Dome C (8904)			74.50S			123.00E			3280 M						
Jan	-28.6	4	-16.0	-45.0	3.0	6	178	2.3	0.77	212	8	653.9	4	666.1	646.9
Feb	-41.8	2	-17.0	-57.9	1.9	5	227	1.3	0.69	273	6	646.5	2	653.9	640.4
Mar	-55.7	2	-29.6	-69.0	2.4	4	234	1.6	0.67	242	9	639.3	2	647.8	627.5
Apr	-60.7	0	-44.0	-71.0	2.4	2	180	1.6	0.65	187	9	642.9	0	658.7	629.6
May	-65.2	1	-31.2	-80.0	2.9	2	239	1.8	0.64	322	12	638.3	1	663.4	626.7
Jun	-61.0	1	-41.9	-77.9	3.1	2	200	2.4	0.78	181	11	656.4	1	669.8	631.4
Jul	-60.7	0	-37.8	-73.2	2.6	1	183	1.3	0.51	179	10	645.4	2	659.8	634.3
Aug	-67.8	0	-46.0	-80.0	1.8	1	192	1.5	0.83	188	7	633.1	0	647.5	616.9
Sep	-56.5	0	-29.6	-75.6	2.5	1	191	0.8	0.33	181	10	644.6	0	669.3	626.5
Oct	-50.6	2	-31.4	-67.1	2.8	2	179	1.5	0.55	148	12	639.4	2	660.9	628.8
Nov	-38.2	1	-13.4	-62.0	2.3	3	189	1.7	0.74	198	10	648.1	1	656.1	640.1
Dec	-31.3	1	-17.0	-44.5	2.2	2	169	0.8	0.38	165	8	645.9	1	655.5	639.3
MEAN	-51.5				2.5		197	1.4	0.63		8	644.5			

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir vv)	Con	Max Wind (dir vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)		
Port Martin (8930)			66.82S				141.39E			39 M					
Jan	-3.1	29	2.9	-10.1						984.4	29.0	996.3	973.1		
Feb															
Mar															
Apr															
May															
Jun															
Jul															
Aug															
Sep	-14.3	25	-3.5	-25.5						987.4	25	1016.3	942.6		
Oct	-13.5	13	-3.5	-22.4						978.8	13	1003.0	962.2		
Nov	-8.1	13	1.4	-16.9						982.1	13	992.8	962.8		
Dec	-3.4	15	2.1	-13.6						979.3	15	995.9	957.9		
Cape Denison (8933)			67.02S				142.68E			31 M					
Jan	-2.4	8	2.6	-9.1						981.0	8	994.6	946.2		
Feb	-7.6	7	0.9	-15.0						979.2	7	1000.0	959.1		
Mar	-13.3	11	-3.8	-24.2						976.3	11	994.9	948.9		
Apr	-16.5	43	-8.9	-24.2						978.1	43	998.1	957.8		
May															
Jun															
Jul															
Aug															
Sep															
Oct	-13.4	29	-2.2	-21.9						977.2	29	1000.1	958.0		
Nov	-7.3	13	0.8	-15.5						980.8	13	992.7	960.6		
Dec	-2.7	13	3.5	-12.1						978.4	13	995.3	955.9		
Byrd (8903)			80.00S				120.00W			1530 M					
Jan					4.0	32	16	3.2	0.80	32	12	815.0	32	826.3	809.5
Feb	-22.6	0	-11.1	-42.8	4.5	0	8	4.2	0.94	4	12	809.9	0	820.2	800.7
Mar	-30.6	2	-13.1	-43.5	5.9	2	7	5.6	0.95	32	24	804.5	2	828.7	785.2
Apr	-26.8	0	-13.7	-46.6	7.1	38	21	6.5	0.92	14	20	812.6	0	836.6	792.1
May	-30.8	0	-10.5	-59.4	7.5	22	358	5.6	0.75	11	21	809.7	0	834.7	792.7
Jun	-32.8	0	-13.9	-54.7	12.1	69	15	11.8	0.97	349	25	818.6	0	837.3	782.4
Jul	-34.0	0	-14.1	-56.7								812.0	0	835.3	785.8
Aug	-40.0	0	-25.3	-57.7	9.4	41	17	9.1	0.96	28	21	793.7	0	810.8	776.5
Sep	-37.7	0	-17.1	-52.4								806.0	0	823.8	784.2
Oct	-26.2	0	-10.2	-48.5	10.7	75	10	10.2	0.95	4	22	806.0	0	824.2	787.0
Nov	-17.5	0	-7.2	-29.4	7.2	18	12	6.8	0.94	35	20	814.8	0	824.1	805.1
Dec	-12.2	1	-5.5	-21.9	4.0	0	346	2.7	0.67	350	12	815.5	0	822.7	807.5
MEAN										809.9					

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir vv)	Con	Max Wind (dir vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)		
Mt. Siple (8981)			73.20S		127.05W			230 M							
Jan	-3.3	4	0.8	-7.3						956.1	33	966.2	944.8		
Feb	-5.4	3	2.8	-11.2						952.4	23	967.4	939.6		
Mar	-6.9	4	-1.0	-16.2						951.2	16	975.8	934.0		
Apr	-9.0	3	-1.2	-21.6						954.6	18	986.1	920.6		
May	-12.4	4	-1.0	-27.6						961.9	6	1003.0	927.2		
Jun	-16.7	3	-1.1	-32.6						971.0	3	989.6	933.4		
Jul	-17.7	4	-3.4	-28.4						963.8	4	989.8	929.6		
Aug	-24.6	3	-6.4	-39.0						939.1	3	969.5	913.2		
Sep	-19.2	6	-3.8	-32.6						957.2	6	975.8	933.7		
Oct	-10.1	6	-0.5	-21.5						954.1	12	981.3	926.4		
Nov	-6.0	8	2.2	-17.5						956.8	24	968.7	934.0		
Dec	-2.5	9	1.9	-5.6						960.6	50		931.7		
MEAN	-11.2									956.6					
Harry (21355)			83.00S		121.38W			945 M							
Dec	-8.3	0	-1.9	-16.1	5.0	0	14	3.2	0.65	22	15	874.0	11	881.7	865.4
J.C. (21357)			85.07S		135.51W			549 M							
Dec	-6.0	0	-0.8	-11.6	6.0	0	69	4.7	0.78	78	20	921.6	0	931.9	911.3
Theresa (21358)			84.60S		115.82W			1463 M							
Dec	-11.7	0	-5.0	-19.5	5.3	0	81	3.4	0.64	101	13	818.8	0	826.7	811.8
Doug (21359)			82.32S		113.23W			1433 M							
Dec	-10.7	0	-5.2	-18.8	5.4	0	333	3.6	0.67	4	13	818.3	0	824.6	810.9
Brianna (21362)			83.89S		134.14W			549 M							
Dec	-6.6	0	-1.2	-14.1	4.2	0	42	2.6	0.63	66	15	920.1	0	930.9	908.2
Marble Pt. (8906)			77.43S		163.75E			120 M							
Jan	-2.8	3	2.6	-10.8	2.0	2	125	0.9	0.47	149	10	977.3	2	991.6	968.1
Feb	-10.8	0	-1.9	-23.4	4.1	0	153	3.3	0.81	154	15	975.8	0	990.2	966.5
Mar	-20.9	2	-10.8	-29.6	3.4	2	160	2.8	0.80	133	16	971.7	2	986.4	942.8
Apr	-18.4	0	-6.6	-34.4	2.8	0	168	1.9	0.67	157	15	978.9	0	1003.1	963.6
May	-27.9	0	-17.6	-38.5	3.9	0	176	2.5	0.65	187	19	978.3	0	1009.7	945.6
Jun	-22.8	0	-10.8	-35.9	4.0	0	183	2.9	0.72	156	20	992.2	0	1012.9	960.0
Jul															
Aug															
Sep	-27.6	33	-10.2	-37.0	2.6	33	160	1.9	0.73	143	12	984.5	33	1000.5	953.0
Oct	-17.1	0	-6.4	-29.6	4.0	0	160	3.0	0.75	119	16	971.4	0	987.3	949.0
Nov	-9.0	0	-0.5	-14.9	3.6	0	150	2.4	0.68	135	24	977.1	0	991.7	960.9
Dec	-3.6	0	2.5	-10.6	3.3	0	141	1.2	0.36	139	13	973.3	0	985.9	962.4

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir vv)	Con	Max Wind (dir vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)		
Ferrell (8934)			78.02S			170.80E			45 M						
Jan	-7.4	2	2.5	-19.0	4.7	2	215	3.8	0.81	226	15	984.0	2	999.9	974.2
Feb	-15.7	0	-4.1	-34.5	4.3	0	205	3.1	0.73	220	18	982.6	0	997.2	973.3
Mar	-28.0	2	-14.5	-40.6	4.5	2	201	3.1	0.69	223	23	978.5	2	994.0	949.1
Apr	-24.3	0	-10.5	-44.6	5.8	0	211	5.0	0.87	208	19	985.4	0	1009.9	969.2
May	-35.8	0	-17.2	-49.9	6.0	0	222	3.9	0.64	232	28	985.2	0	1017.1	951.4
Jun	-32.5	0	-16.8	-46.0	5.9	0	216	4.7	0.80	208	23	998.7	0	1020.3	964.0
Jul	-32.1	0	-10.2	-48.9	6.6	0	211	5.7	0.87	208	26	989.2	0	1005.5	972.1
Aug	-38.3	0	-15.4	-53.5	5.1	0	227	4.1	0.81	223	22	975.0	0	991.8	960.3
Sep	-38.5	0	-21.6	-51.1	3.7	0	213	2.8	0.76	198	20	989.5	0	1007.8	960.3
Oct	-22.7	0	-9.6	-41.2	6.1	0	214	5.6	0.92	210	24	977.6	0	992.7	953.6
Nov	-13.1	0	-2.5	-23.6	4.8	0	210	3.7	0.78	212	20	983.9	0	998.6	965.7
Dec	-6.3	0	1.4	-17.1	4.6	0	220	3.3	0.71	264	14	980.1	0	992.2	966.7
MEAN	-24.6				5.2		214	4.0	0.78			984.1			
Pegasus North (8927)			77.95S			166.51E			10 M						
Jan	-5.4	42	3.9	-14.3	4.6	42	97	2.6	0.57	181	22	986.3	42	995.3	979.8
Feb	-12.9	0	-1.2	-29.9	4.0	0	83	2.7	0.67	175	16	988.3	0	1003.0	979.8
Mar	-24.5	2	-10.9	-38.2	4.4	2	98	2.6	0.58	195	34	985.0	2	1000.4	956.2
Apr	-22.5	0	-6.6	-40.6	3.7	0	111	1.4	0.38	175	25	992.1	0	1016.5	976.2
May	-32.0	0	-16.1	-47.1	4.2	0	101	1.6	0.37	187	33	992.4	0	1025.1	959.3
Jun	-27.5	0	-8.8	-44.6	4.7	0	127	2.2	0.47	182	25	1006.1	0	1027.4	972.8
Jul	-30.0	0	-7.4	-48.8	4.7	0	110	2.3	0.50	189	30	996.5	0	1013.2	979.0
Aug	-34.2	0	-10.6	-49.1	3.8	0	119	1.9	0.49	192	26	982.6	0	998.4	967.4
Sep	-34.9	0	-12.5	-48.6	3.6	0	69	2.8	0.79	37	13	996.9	0	1015.2	967.7
Oct	-19.5	0	-4.8	-40.8	5.4	0	120	2.5	0.46	189	27	984.8	0	1000.9	960.9
Nov	-10.6	0	-2.1	-20.4	4.8	0	109	1.7	0.36	189	30	990.0	0	1004.9	972.1
Dec	-4.5	0	1.6	-13.9	3.5	0	79	1.4	0.40	172	19	985.1	0	998.8	973.5
MEAN	-21.5				4.3		101	2.0	0.50			990.5			
Pegasus South (8937)			77.99S			166.58E			10 M						
Jan	-5.4	5	1.5	-15.0	2.4	3	122	1.1	0.48	170	12	991.1	3	1006.4	983.2
Feb	-13.8	2	-2.9	-31.8	2.4	0	98	1.3	0.56	143	11	990.4	0	1004.9	981.9
Mar	-25.2	2	-11.2	-39.2	2.6	2	119	1.2	0.46	212	19	986.8	2	1002.4	957.8
Apr	-23.3	0	-6.9	-41.6	2.1	27	119	0.7	0.31	202	17	993.8	0	1018.2	978.0
May	-32.9	0	-16.8	-47.2	1.5	12	92	0.4	0.30	215	17	994.0	0	1026.8	961.1
Jun	-28.4	0	-9.6	-45.4	2.6	11	155	1.3	0.49	206	20	1007.7	0	1028.8	974.3
Jul	-30.9	0	-7.9	-48.5	2.4	0	144	1.0	0.41	203	20	998.1	0	1014.7	980.4
Aug	-35.2	0	-11.6	-50.4	2.4	32	128	1.1	0.46	184	18	984.3	0	999.9	969.0
Sep	-36.3	0	-14.8	-50.0	1.6	30	65	1.3	0.85	53	8	998.5	0	1016.8	969.5
Oct	-20.3	0	-5.5	-42.8	3.9	0	155	1.8	0.45	206	18	986.6	0	1002.7	962.5
Nov	-11.1	0	-2.9	-22.2	3.0	0	146	1.0	0.34	198	20	992.1	0	1006.8	974.7
Dec	-5.2	0	0.6	-15.1	2.1	0	119	0.7	0.34	202	11	987.5	0	1001.1	976.1
MEAN	-22.3				2.4		125	1.0	0.45			992.6			

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir vv)	Con	Max Wind (dir vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)		
Minna Bluff (8988)			78.56S				166.69E			920 M					
Jan	-10.5	35	0.9	-18.9	8.2	35	208	7.4	0.91	215	30	870.5	35	878.9	863.0
Feb	-16.0	0	-1.9	-24.0	5.7	0	205	4.0	0.70	220	25	869.2	0	881.0	860.3
Mar	-25.3	2	-14.8	-36.2	6.9	2	208	4.4	0.63	236	37	862.5	2	876.1	838.5
Apr	-21.5	0	-12.4	-35.1	7.1	0	204	6.0	0.84	195	24	870.5	0	892.3	855.6
May	-32.1	0	-15.9	-45.1	8.9	0	211	6.7	0.75	202	40	866.0	0	894.9	838.7
Jun	-26.7	0	-14.8	-39.8	10.3	0	207	8.9	0.86	213	38	879.6	0	897.9	846.8
Jul	-26.9	0	-9.6	-43.6	7.2	0	204	5.0	0.69	205	27	871.8	0	888.5	853.1
Aug	-30.0	0	-18.9	-41.0	8.2	10	205	6.7	0.81	189	42	857.1	0	871.9	842.9
Sep	-27.9	0	-11.9	-38.2								870.8	0	887.0	845.2
Oct	-21.4	0	-12.0	-33.4								863.5	0	880.4	844.3
Nov	-14.3	0	-4.5	-21.0								870.9	0	884.5	855.2
Dec	-9.2	0	0.1	-14.5	6.0	33	204	5.3	0.88	225	27	878.9	0	891.4	864.9
MEAN	-21.8											869.3			
Linda (8915)			78.50S				168.35E			50 M					
Jan	-9.6	29	-3.0	-20.1	6.2	29	209	5.4	0.88	198	17	983.2	29	991.6	976.2
Feb	-18.1	0	-8.2	-36.8	5.2	0	204	4.0	0.77	220	22	984.4	0	999.1	975.6
Mar	-29.7	2	-14.8	-42.9	5.5	2	208	4.2	0.75	223	32	980.8	2	997.4	951.1
Apr	-22.6	36	-10.0	-39.1	8.8	36	213	8.1	0.92	216	25	986.0	36	1003.7	970.2
May	-36.4	73	-23.6	-51.8	5.9	73	209	4.3	0.72	215	21	984.0	73	1007.3	966.9
Jun															
Jul															
Aug															
Sep															
Oct															
Nov															
Dec	-7.4	19	-1.4	-15.6	5.5	19	215	3.9	0.70	265	27	978.5	19	992.6	967.8
Willie Field (8901)			77.85S				167.08E			20 M					
Jan	-5.8	33	2.6	-15.0	2.6	33	66	1.3	0.51	168	13	990.6	33	1006.7	982.3
Feb	-13.8	0	-2.0	-30.1	3.5	0	77	2.4	0.69	181	14	989.0	0	1003.1	980.1
Mar	-25.8	2	-11.6	-42.6	3.3	2	89	2.0	0.60	213	25	985.1	2	1000.6	955.8
Apr	-23.1	0	-7.2	-41.9	3.1	0	91	1.3	0.43	185	21	992.0	0	1016.2	975.9
May	-32.9	0	-15.9	-49.4	3.7	0	86	1.4	0.37	199	26	992.0	0	1025.4	957.7
Jun	-28.2	0	-9.8	-47.0	3.8	0	115	1.6	0.43	168	22	1005.8	0	1026.5	973.6
Jul	-31.3	0	-9.2	-50.6	3.4	0	98	1.5	0.44	180	21	996.1	0	1012.8	978.4
Aug	-35.3	0	-12.4	-51.0	2.9	0	102	1.0	0.33	212	18	982.1	0	997.7	966.2
Sep	-35.8	0	-13.5	-50.4	2.9	0	58	2.0	0.70	160	15	996.1	0	1014.7	967.1
Oct	-20.3	0	-7.0	-41.1	4.3	0	99	1.9	0.45	184	21	984.7	0	1003.0	960.9
Nov	-11.6	0	-4.4	-23.0	3.6	0	94	1.6	0.43	178	21	990.7	0	1006.9	973.7
Dec	-5.2	0	3.5	-16.1	2.5	0	65	0.9	0.34	185	13	986.3	0	999.6	973.7
MEAN	-22.4				3.3		86	1.5	0.48			990.9			

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir vv)	Con	Max Wind (dir vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)
Whitlock (8921)			76.24S		168.70E						275 M		
Mar	-19.9	2	-11.4	-29.1	4.3	23	296	0.8	0.19	336	15		
Apr	-19.0	1	-12.1	-30.1	2.8	24	233	0.5	0.19	202	11		
May	-28.0	1	-21.0	-35.2	3.3	14	300	0.8	0.24	331	16		
Jun	-24.6	0	-14.2	-33.9	3.0	40	304	1.1	0.35	254	13		
Jul	-23.9	0	-8.2	-36.0	3.5	8	265	0.6	0.17	182	18		
Aug	-29.2	0	-15.1	-37.5	3.8	45	313	1.4	0.36	153	12		
Sep	-26.1	0	-16.6	-35.0									
Oct	-17.7	0	-9.0	-27.6	4.3	12	240	0.4	0.10	198	18		
Nov	-10.1	0	-4.2	-16.6	3.5	4	190	0.6	0.18	198	13		
Dec	-4.9	0	1.1	-10.9	2.9	0	202	0.8	0.27	189	12		
Scott Island (8983)			67.37S		179.97W						30 M		
Jan	-1.6	7	1.0	-4.5						979.6	7	1001.4	952.7
Feb	-1.6	5	1.4	-4.9						979.3	5	999.1	956.1
Mar	-3.0	11	0.4	-10.4						973.7	11	998.2	945.5
Apr	-7.4	10	-4.2	-11.4						975.4	10	995.2	955.0
May	-8.5	12	-3.2	-16.5						982.3	12	1022.9	940.9
Jun	-10.3	10	-5.4	-16.8						989.8	10	1018.3	965.9
Jul	-14.3	12	-7.9	-21.5						986.5	12	1015.0	965.7
Aug	-15.2	12	-7.6	-20.9						968.6	12	994.3	937.2
Sep	-13.3	13	-5.2	-17.5						980.8	13	1014.0	951.0
Oct	-11.1	12	-6.6	-17.4						974.3	12	1001.2	948.5
Nov	-6.0	47	-2.9	-10.5						974.1	47	991.5	951.9
Dec	-0.6	61	0.4	-1.2						971.5	61	989.1	954.1
MEAN	-7.7									978.0			
Young Island (8980)			66.28S		162.33E						30 M		
Jan	-1.1	15	2.5	-4.6						976.8	15	998.5	957.0
Feb	-1.6	15	2.9	-8.5						978.5	15	997.3	952.8
Mar	-6.9	19	0.8	-22.2						975.1	19	990.3	951.8
Apr	-7.3	20	-0.8	-12.8						975.1	20	992.4	943.9
May	-15.0	17	-0.9	-29.1						982.0	17	1022.2	941.0
Jun	-16.0	18	-3.1	-31.0						996.0	18	1016.2	971.3
Jul	-13.6	20	0.5	-29.4						987.1	20	1012.7	961.6
Aug	-19.8	21	0.0	-31.8						973.4	21	995.7	951.0
Sep	-13.4	21	-0.6	-22.0						984.9	21	1015.5	949.4
Oct	-10.9	27	-1.0	-19.5						976.8	27	996.3	959.7

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir vv)	Con	Max Wind (dir vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)		
Possession Is. (8984)			71.90S		171.13E				30 M						
Jan	0.4	6	5.6	-3.8						978.4	2	994.7	965.0		
Feb	-4.5	2	2.5	-10.5						974.8	2	989.0	960.2		
Mar	-14.0	4	-4.4	-21.6						971.1	5	986.4	946.2		
Apr	-13.7	1	-6.8	-20.9						977.8	1	993.3	966.8		
May	-21.6	2	-12.5	-27.0						978.8	2	1009.8	950.0		
Jun	-20.1	1	-10.4	-28.1						992.7	1	1009.7	964.1		
Jul	-18.4	2	-3.4	-30.2						982.2	2	1001.5	960.4		
Aug	-24.8	0	-13.1	-33.8						969.6	0	988.6	956.8		
Sep	-19.6	2	-8.8	-25.5						981.9	2	1002.6	958.2		
Oct	-12.8	2	-2.5	-21.4						970.5	2	985.6	956.2		
Nov	-5.8	8	1.9	-15.1						975.9	8	988.6	961.4		
Dec	-1.1	11	4.6	-6.9						973.2	8	985.4	962.9		
MEAN	-13.0									977.2					
Marilyn (8931)			79.98S		165.03E				75 M						
Jan	-7.7	2	-0.6	-15.9	3.3	2	213	2.2	0.66	183	15	982.9	2	996.5	975.9
Feb	-17.7	0	-4.2	-35.1	3.7	0	249	2.4	0.66	202	14	981.0	0	994.2	972.3
Mar	-29.0	2	-13.8	-43.2	5.3	2	254	4.0	0.74	186	19	976.8	2	993.6	946.1
Apr	-24.0	0	-8.6	-42.2	7.5	0	246	6.3	0.85	265	22	983.6	0	1009.1	967.0
May	-37.5	0	-11.9	-53.4	6.1	0	244	4.4	0.72	269	26	983.5	0	1019.2	945.4
Jun	-30.6	0	-16.1	-45.9	5.9	0	252	4.7	0.79	244	18	997.5	0	1016.3	967.3
Jul	-31.4	0	-10.8	-52.5	9.5	0	242	8.8	0.93	231	31	987.5	0	1005.8	966.3
Aug	-35.2	0	-14.1	-53.1	6.4	0	246	5.4	0.84	252	19	973.4	0	988.7	954.6
Sep	-35.7	0	-21.6	-54.0	6.6	0	260	6.0	0.91	252	27	986.7	0	1005.1	953.6
Oct	-22.9	0	-10.2	-42.5	6.3	0	255	5.2	0.82	238	20	976.9	0	995.7	953.4
Nov	-13.1	0	-4.0	-21.2	4.4	0	230	2.8	0.64	252	19	982.6	1	998.0	966.9
Dec	-7.2	0	1.1	-18.6	2.9	0	213	1.8	0.63	234	17	978.7	0	993.5	966.1
MEAN	-24.3				5.7		246	4.4	0.77			982.6			
Schwerdtfeger (8913)			79.94S		169.83E				60 M						
Jan	-5.7	2	3.5	-16.3	3.9	39	189	2.6	0.68	185	13	967.3	2	982.7	958.2
Feb	-16.5	1	-3.1	-35.9	3.8	0	217	2.2	0.59	192	14	965.4	0	981.7	957.0
Mar	-29.4	2	-12.4	-43.9	5.1	2	238	3.3	0.66	168	21	960.7	2	978.1	927.9
Apr	-25.4	0	-7.1	-42.1								967.0	0	991.7	948.4
May	-39.2	1	-15.9	-55.4								967.1	0	1002.2	929.0
Jun	-32.7	5	-14.0	-50.0	6.4	38	217	5.2	0.80	189	24	980.6	3	1001.2	945.8
Jul	-33.0	9	-9.1	-55.1								970.8	9	988.9	952.2
Aug															
Sep															
Oct															
Nov	-12.2	70	-5.5	-19.1	2.9	65	218	1.5	0.50	187	19	969.8	68	982.3	958.5
Dec					3.5	73	221	1.0	0.27	210	17				

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir vv)	Con	Max Wind (dir vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)		
Gill (8911)			80.03S			178.63W			55 M						
Jan	-9.9	2	-0.9	-24.5	3.5	2	209	2.9	0.81	212	11	982.7	2	998.9	972.7
Feb	-20.0	0	-1.2	-39.1	2.9	0	242	1.7	0.58	66	11	981.6	0	995.3	971.4
Mar	-33.1	2	-17.1	-47.8	3.8	11	241	1.4	0.37	215	14	977.0	2	996.2	938.0
Apr	-29.4	0	-9.9	-46.1	4.1	31	236	2.4	0.57	216	14	982.5	0	1009.1	959.7
May	-42.3	0	-18.8	-57.8	4.7	2	222	2.0	0.43	236	21	982.8	0	1013.5	945.8
Jun	-40.0	0	-18.2	-54.5								995.7	0	1018.7	957.3
Jul	-35.4	0	-6.6	-58.6								985.4	0	1003.2	967.5
Aug	-48.4	25	-26.1	-59.9								970.9	25	986.2	953.1
Sep															
Oct															
Nov	-15.0	24	-5.5	-25.9	3.3	45	221	2.3	0.71	198	10	984.8	24	1000.0	966.4
Dec	-6.2	1	1.5	-18.5	3.6	0	199	1.3	0.37	18	11	979.5	0	993.0	963.0
Lettau (8908)			82.59S			174.27W			55 M						
Jan	-8.4	2	-0.5	-17.5	4.0	2	157	3.1	0.77	160	15	984.9	2	999.5	976.2
Feb	-17.9	0	-3.0	-33.5	3.6	0	172	2.2	0.62	195	12	982.5	0	994.9	972.3
Mar	-32.3	2	-12.0	-48.1	4.4	2	173	2.0	0.45	158	21	977.8	2	996.8	936.3
Apr	-27.7	0	-10.4	-47.2	4.3	0	157	3.0	0.70	149	17	984.5	0	1011.3	961.7
May	-42.4	0	-18.9	-58.4	4.2	0	154	2.1	0.50	258	21	985.1	0	1020.6	949.4
Jun	-35.4	0	-13.9	-51.0	5.1	0	162	3.6	0.72	149	21	997.3	0	1018.9	960.2
Jul	-34.3	0	-10.6	-56.6	4.2	0	150	2.6	0.61	154	13	987.1	0	1006.4	965.4
Aug	-41.7	0	-17.4	-60.6	5.9	15	158	5.0	0.86	125	19	973.0	0	985.9	953.8
Sep	-45.5	0	-19.0	-60.1	3.4	33	184	2.5	0.74	156	12	987.8	0	1005.5	948.2
Oct	-24.9	0	-8.9	-43.9	6.3	16	151	5.2	0.84	132	22	976.9	0	994.2	953.6
Nov	-14.5	0	-6.0	-24.5	3.4	0	149	2.1	0.62	122	20	984.7	0	1003.3	966.4
Dec	-5.2	1	2.6	-16.5	3.7	0	144	1.7	0.46	139	16	981.4	0	996.0	964.3
MEAN	-27.5				4.4		159	2.9	0.66			983.6			
Elaine (8900)			83.15S			174.46E			60 M						
Jan	-7.7	2	-0.8	-18.6	3.7	2	160	2.4	0.64	120	19	982.9	2	995.8	975.8
Feb	-16.5	0	-6.4	-33.8	3.6	0	180	1.9	0.54	126	14	980.4	0	993.7	970.4
Mar	-27.1	2	-10.1	-41.8	5.3	2	175	2.9	0.55	142	18	975.6	2	993.8	941.7
Apr	-22.3	0	-6.4	-42.9	6.3	10	159	5.1	0.81	136	21	983.3	0	1009.3	966.8
May	-36.3	0	-9.6	-55.6	6.6	48	145	4.5	0.69	130	29	983.0	0	1019.2	947.2
Jun	-30.7	0	-10.5	-49.8								996.4	0	1016.1	965.9
Jul	-32.2	0	-9.6	-54.1								985.7	0	1003.5	964.3
Aug	-34.7	0	-13.0	-59.2								972.4	0	984.9	950.5
Sep	-40.0	0	-16.0	-59.1								985.2	0	1004.1	947.2
Oct	-22.9	0	-8.9	-45.4								976.2	0	995.3	955.3
Nov	-12.2	0	-3.2	-20.6								982.3	0	999.1	968.0
Dec	-6.0	1	1.0	-14.1	3.3	9	147	2.4	0.72	150	17	979.0	0	992.8	966.1
MEAN	-24.1											981.9			

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir)	vv)	Con	Max Wind (dir)	vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)
Manuela (8905)			74.92S			163.60E			80 M						
Jan	-3.2	2	3.0	-11.6	5.7	2	291	4.8	0.85	288	28	981.2	2	996.6	970.3
Feb	-12.5	0	-2.2	-20.9	11.1	15	291	10.9	0.98	295	36	978.9	0	994.7	966.6
Mar	-23.1	2	-12.0	-32.4	15.9	2	293	15.4	0.97	287	39	974.7	2	990.1	942.8
Apr	-21.6	0	-10.9	-35.8	12.4	21	299	12.1	0.98	284	41	982.3	0	1006.7	965.0
May	-29.1	0	-17.2	-38.2	12.3	69	291	12.0	0.97	285	36	981.8	0	1011.4	952.2
Jun	-26.4	0	-17.5	-36.5	16.2	0	296	15.9	0.99	285	37	995.6	0	1016.2	965.1
Jul	-24.8	0	-7.6	-37.0	15.4	0	293	15.0	0.98	290	43	985.0	0	1003.9	962.3
Aug	-30.6	0	-17.9	-40.5	15.3	0	296	15.1	0.99	284	47	971.7	0	988.7	956.2
Sep	-24.5	0	-13.4	-34.4	15.1	0	290	14.8	0.98	285	46	984.8	0	1004.3	953.8
Oct	-19.4	0	-7.9	-29.8	11.5	11	291	11.3	0.98	288	47	974.3	0	992.3	956.3
Nov	-11.0	0	-2.2	-19.9								981.1	0	996.1	964.5
Dec	-4.7	0	2.4	-14.1								977.2	0	990.5	966.4
MEAN	-19.2											980.7			
Sandra (8923)			74.48S			160.48E			1525 M						
Jan	-16.9	2	-6.0	-28.3	5.6	2	274	5.2	0.92	268	15	808.6	2	821.6	798.0
Feb	-27.0	0	-14.8	-36.6	8.7	0	281	8.5	0.97	280	20	803.9	0	815.8	794.6
Mar	-38.5	2	-25.9	-47.5	11.8	2	284	11.7	0.99	284	23	796.4	2	811.1	773.0
Apr	-36.5	0	-22.0	-51.2	9.2	0	283	9.0	0.98	291	24	803.6	0	821.7	787.0
May	-44.1	7	-29.8	-54.5	10.5	13	283	10.1	0.96	270	27	798.3	7	824.2	774.7
Jun	-41.7	0	-30.0	-53.0	11.0	0	282	10.8	0.99	284	23	812.5	0	826.7	787.6
Jul	-39.0	0	-18.8	-51.0	11.7	0	284	11.0	0.94	277	26	805.8	0	826.4	792.1
Aug	-47.5	27	-37.6	-54.5	12.1	27	285	12.0	0.99	267	24	789.1	27	808.0	777.5
Lynn (8935)			74.21S			160.39E			1772 M						
Jan	-18.8	2	-8.8	-31.0								781.5	2	795.0	771.4
Feb	-28.9	0	-15.9	-39.8	8.7	22	275	8.4	0.96	272	17	779.8	0	793.7	769.2
Mar	-40.4	2	-26.6	-49.5	10.1	2	278	9.9	0.98	274	20	775.8	2	790.1	755.1
Apr	-38.8	0	-24.2	-52.6	9.0	2	279	8.3	0.93	288	20	782.7	0	799.4	769.7
May	-46.0	0	-30.9	-57.1	9.9	0	282	8.5	0.86	274	27	779.6	0	805.3	757.5
Jun	-43.8	0	-29.8	-55.4	10.7	3	275	10.4	0.98	264	22	792.7	0	806.4	769.9
Jul	-41.2	0	-19.6	-54.1	11.2	11	278	10.2	0.91	278	22	785.8	0	805.6	772.6
Aug	-49.3	0	-35.1	-56.9	12.2	6	277	11.9	0.98	267	20	772.3	0	791.2	760.4
Sep	-40.9	0	-30.2	-55.0	10.9	3	276	10.6	0.97	257	26	784.9	0	804.6	765.8
Oct	-35.4	0	-20.4	-47.5	9.6	11	274	8.6	0.89	199	29	775.5	0	793.6	758.2
Nov	-25.3	0	-14.8	-39.2	6.4	0	262	5.0	0.78	360	14	779.2	0	789.8	767.1
Dec	-18.6	0	-9.8	-27.0	4.8	0	249	3.0	0.62	130	15	776.6	0	788.3	764.3
MEAN	-35.6											780.5			

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir vv)	Con	Max Wind (dir vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)		
Larsen Ice (8926)			66.97S		60.55W			17 M							
Jan					3.9	6	114	1.0	0.27	61	11	981.1	6	991.6	969.4
Feb					3.3	6	148	0.9	0.26	198	11	982.5	6	998.8	967.8
Mar	-8.5	54			2.5	9	184	0.4	0.15	149	22	987.2	6	1006.9	963.6
Apr	-14.1	22			2.0	29	214	0.7	0.37	189	15	991.8	5	1011.9	969.1
May	-21.8	8	-0.8	-39.1	1.6	58	189	0.9	0.57	122	13	993.8	7	1021.9	970.2
Jun	-24.2	12		-43.4								994.3	5	1016.0	956.2
Jul	-25.1	27	2.9	-53.8	3.4	59	198	2.3	0.66	208	15	990.1	8	1011.6	960.6
Aug	-18.2	35			2.6	5	257	1.4	0.56	274	23	979.0	5	1004.2	945.2
Sep	-17.0	47		-37.1	4.6	7	186	2.9	0.62	348	19	975.7	7	995.7	951.3
Oct	-11.7	74			3.0	8	175	0.9	0.31	129	17	986.0	8	1007.1	963.9
Nov					2.6	8	194	0.5	0.21	142	11	989.0	8	1005.2	968.5
Dec					3.0	7	164	0.7	0.24	178	13	980.5	7	995.7	964.3
MEAN										985.9					
Butler Island (8902)			72.20S		60.34W			91 M							
Feb	-15.1	67	-7.8	-22.4	4.5	67	194	3.7	0.83	196	17	960.2	67	975.4	950.0
Mar	-15.9	49	2.2	-24.9	4.0	49	198	2.5	0.62	184	13	959.2	50	977.6	939.3
Apr	-21.2	18	-3.4	-30.5	3.9	18	206	2.7	0.71	184	15	978.7	18	998.9	958.2
May	-22.4	8	-0.2	-31.2	5.5	6	231	2.7	0.49	177	20	983.2	6	1008.9	963.3
Jun	-21.7	0	-7.6	-31.5	6.0	1	199	4.7	0.78	192	33	985.3	0	1004.2	956.7
Jul	-30.3	0	-11.2	-40.6	6.6	26	209	5.2	0.80	187	24	980.4	0	1000.5	952.0
Aug	-24.9	0	-2.4	-35.1	4.3	0	213	2.5	0.59	188	22	968.2	0	992.7	935.6
Sep	-22.9	0	-4.4	-36.9	8.9	0	190	7.9	0.88	192	32	968.3	0	983.8	948.0
Oct	-21.8	0	-7.6	-31.8	5.9	19	195	4.8	0.82	195	24	976.2	0	995.8	959.9
Nov	-8.0	3	6.6	-19.9	4.8	14	197	3.0	0.62	188	17	979.3	1	995.6	961.0
Dec	-4.3	1	2.9	-11.8	4.7	0	196	2.9	0.61	195	20	971.7	0	988.5	954.2
Uranus Glacier (8920)			71.43S		68.93W			780 M							
Jan	-4.6	9	3.0	-15.4	4.9	9	16	3.8	0.78	26	17	899.5	9	913.8	888.2
Feb															
Mar															
Apr															
May															
Jun															
Jul															
Aug															
Sep															
Oct															
Nov	-3.6	44	3.5	-14.0	5.0	42	32	4.2	0.84	358	19	902.3	42	918.2	888.6
Dec	-4.2	10	4.2	-11.4	5.4	8	359	4.2	0.77	30	23	899.1	8	912.6	885.8

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir)	vv)	Con	Max Wind (dir)	vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)
Racer Rock (8947)			64.16S			61.54W			17 M						
Jan	0.4	29	4.0	-2.0	6.4	29	71	2.8	0.44	74	31	982.2	28	997.9	962.2
Feb	0.5	28	4.5	-2.0	6.1	28	74	1.8	0.30	68	28	982.7	28	1001.4	959.5
Mar	-0.2	60	3.8	-3.2	5.3	60	169	0.4	0.08	178	25	991.1	60	1008.9	968.8
Apr	-1.9	70	1.6	-7.1	6.5	70	56	2.8	0.43	57	27	994.3	70	1015.6	960.9
May															
Jun															
Jul															
Aug															
Sep															
Oct	-5.9	57	0.6	-12.5	6.1	57	180	0.4	0.07	282	19	985.9	57	1008.4	956.5
Nov	-0.6	35	4.2	-4.2	6.7	34	52	4.9	0.73	42	28	989.8	34	1005.8	968.2
Dec	0.6	36	4.5	-2.2	4.4	35	15	1.2	0.27	239	22	986.0	35	1000.5	974.5
Bonaparte Pt. (8912)			64.78S			64.06W			8 M						
Jan	1.6	6	7.3	-2.9	3.7	6	40	0.3	0.07	97	23	981.5	6	999.7	957.1
Feb	1.4	7	6.0	-2.9	4.0	7	31	0.8	0.21	59	26	981.9	7	1001.9	957.0
Mar	0.5	9	6.6	-4.2	4.1	9	344	1.1	0.27	25	22	989.9	9	1009.2	965.9
Apr	0.6	54	6.2	-3.8	3.3	54	12	2.2	0.67	32	24	997.8	54	1013.9	972.4
May															
Jun															
Jul															
Aug															
Sep															
Oct															
Nov															
Dec	1.0	14	7.0	-3.5	4.2	13	4	2.1	0.51	39	22	983.7	13	997.5	967.7
Recovery Gl. (8932)			80.82S			22.26W			1220 M						
Feb	-20.1	60	-10.4	-35.1	5.4	60	43	5.0	0.94	52	14	845.6	60	852.9	834.7
Mar	-32.2	51	-13.6	-45.6	5.2	51	52	4.8	0.92	46	19	843.2	51	856.3	828.1
Apr	-36.3	53	-17.6	-49.2	6.1	53	61	5.7	0.94	45	16	845.4	53	858.4	820.2
May	-37.7	54	-21.4	-60.0	6.1	68	48	4.8	0.79	47	25	847.6	54	862.5	827.1
Jun	-35.1	51	-18.5	-52.0								858.1	51	876.3	844.4
Jul	-40.3	64	-23.5	-51.4								844.4	64	871.0	831.1
Aug	-38.4	60	-14.4	-59.9								838.8	60	862.5	809.9
Sep	-34.5	64	-12.1	-59.5								845.4	64	863.5	826.7
Oct	-31.4	60	-17.6	-44.1								843.1	60	854.7	829.2
Nov	-21.0	63	-8.9	-36.2	4.6	63	50	3.9	0.84	54	14	851.1	63	862.2	834.3
Dec	-14.9	62	-6.0	-23.1	3.6	60	40	3.2	0.87	45	11	843.8	60	855.8	831.2

Mon	Mean Air Temp (C)	% of Mon Data Abs	Max Air Temp (C)	Min Air Temp (C)	Mean Wind Speed (m/s)	% of Mon Data Abs	Result Wind (dir)	vv)	Con	Max Wind (dir)	vv)	Mean Air Press (mb)	% of Mon Data Abs	Max Air Press (mb)	Min Air Press (mb)
Ski-Hi (8917)			74.97S			70.77W			1395 M						
Feb	-21.0	74	-11.1	-34.8	5.7	74	23	4.4	0.76	21	19	826.9	74	836.3	812.7
Mar	-15.6	2	-4.4	-28.0	8.6	2	351	7.4	0.86	11	27	827.5	2	843.6	812.0
Apr	-20.1	0	-4.6	-43.5	5.9	0	3	5.2	0.87	215	37	830.4	0	848.6	807.9
May	-21.5	0	-10.0	-41.8	7.9	0	346	5.7	0.72	7	26	832.1	0	859.0	811.4
Jun	-27.6	0	-9.5	-49.0	5.5	0	25	3.2	0.58	7	27	833.6	0	859.4	817.4
Jul	-31.5	0	-8.8	-48.0	6.3	0	5	4.7	0.75	11	25	825.0	0	843.6	794.0
Aug	-28.4	0	-10.4	-52.5	9.1	0	7	8.6	0.94	9	36	814.8	0	834.4	786.5
Sep	-25.3	0	-9.6	-39.5	8.3	0	30	5.9	0.70	74	30	817.0	0	841.3	798.5
Oct	-27.8	0	-10.1	-44.0	4.2	0	358	2.5	0.60	11	25	824.3	0	843.6	810.9
Nov	-10.6	0	2.1	-24.5	5.7	0	358	3.4	0.61	98	21	832.5	0	845.4	812.9
Santa Claus Is (8910)			64.96S			65.67W			25 M						
Dec	0.9	37	3.6	-0.8	9.5	36	16	2.1	0.22	137	29	981.2	36	997.2	965.5
Clean Air (8987)			90.00S						2835 M						
Feb	-43.9	7	-34.6	-56.4	3.1	3	58	2.6	0.85	18	9	680.5	20	687.8	670.0
Mar	-54.5	8	-38.0	-64.1	4.6	3	26	3.8	0.83	2	12	675.2	8	684.5	664.6
Apr	-58.1	5	-38.5	-69.4	3.5	0	67	2.6	0.75	115	11	682.2	7	696.6	666.5
May	-59.8	4	-36.2	-75.4	4.5	1	28	3.6	0.81	15	13	674.4	4	693.0	661.0
Jun	-55.9	8	-37.8	-69.6	4.9	3	42	4.1	0.84	23	15	691.3	25	705.5	677.2
Jul	-63.5	5	-45.9	-73.9	4.0	0	74	3.4	0.85	22	13	676.0	31	696.0	660.5
Aug	-59.7	6	-38.2	-74.2	4.6	2	33	4.0	0.86	25	11	668.9	46	687.3	653.5
Sep	-58.8	6	-31.8	-75.0	5.0	3	38	4.0	0.81	33	14	674.8	37	697.7	650.9
Oct	-51.4	10	-42.2	-63.1	4.3	2	37	3.7	0.86	19	11	679.7	34	693.7	
Nov	-36.8	7	-20.4	-47.6	3.4	4	18	2.6	0.77	316	9	685.7	8	693.8	675.7
Dec	-28.0	5	-19.1	-35.0	2.6	2	72	1.9	0.74	22	8	681.6	5	690.7	672.4
Kelly (8921)			89.00S			179.61W			2950 M						
Jan	-26.5	34	-22.8	-32.3	4.6	34	192	4.0	0.87	175	11				
Nico (8924)			89.00S			90.13E			2935 M						
Jan	-27.4	2	-21.6	-35.8	4.5	2	292	3.8	0.83	261	13	678.9	2	687.7	669.7
Feb	-42.6	0	-34.8	-52.9	3.6	0	323	3.2	0.90	344	9	670.2	0	676.7	660.2
Mar	-52.6	2	-39.4	-61.2	3.9	2	289	3.3	0.86	267	13	664.8	2	672.6	654.0
Apr	-57.1	0	-43.4	-69.1	3.7	0	333	3.0	0.82	14	13	671.6	0	685.9	655.7
May	-57.6	0	-38.8	-76.1	4.9	0	287	4.0	0.82	247	18	663.9	0	682.1	652.1
Jun	-54.3	0	-37.4	-66.0	4.9	2	303	4.5	0.90	281	13	680.8	0	696.3	666.3
Jul	-60.4	0	-45.0	-69.4	5.6	0	320	4.9	0.87	358	19	665.9	0	683.5	650.0
Aug	-58.0	0	-38.0	-72.4	5.1	0	291	4.5	0.89	344	16	660.6	0	676.6	644.6
Sep	-57.1	0	-32.8	-74.1	6.5	3	300	5.5	0.85	275	19	666.2	0	687.7	641.0
Oct	-50.1	0	-41.9	-58.1	4.2	10	299	3.7	0.87	312	10	667.4	0	683.8	653.5
Nov	-36.4	0	-19.8	-47.5	2.7	0	291	2.0	0.76	355	11	675.1	0	682.4	665.8
Dec	-27.2	0	-18.5	-34.2	2.6	0	328	1.8	0.70	23	8	671.2	0	680.4	662.3
MEAN	-48.4				4.4		303	3.6	0.84			669.7			

Mon	Mean	% of	Max Air	Min Air	Mean	% of	Result	Con	Max	Mean	% of	Max Air	Min Air		
	Air	Mon			Temp	Temp					Wind			Mon	Air
	Temp	Data	Temp	Temp	Speed	Data	Wind (dir	vv)	Wind	Air	Data	Press	Press		
	(C)	Abs	(C)	(C)	(m/s)	Abs	(dir	vv)	(dir	(mb)	Abs	(mb)	(mb)		
Henry (8985)			89.00S			0.30W			2755 M						
Jan	-25.8	2	-20.3	-35.5	4.7	2	33	4.0	0.84	11	11	698.0	2	706.9	689.2
Feb	-41.2	0	-33.9	-51.9	4.6	0	54	4.3	0.93	36	9	689.9	0	697.3	679.2
Mar	-51.9	2	-38.1	-61.1	5.4	2	35	4.9	0.91	14	12	685.3	2	693.6	673.2
Apr	-55.7	0	-42.6	-64.1	5.0	0	63	4.4	0.87	39	13	692.1	0	705.5	676.3
May	-56.9	0	-35.9	-70.4	6.0	0	37	5.3	0.88	53	14	684.9	0	703.3	671.2
Jun	-53.1	0	-35.5	-64.9	6.7	0	44	6.1	0.90	28	15	701.1	0	714.8	687.2
Jul	-58.2	0	-43.4	-67.9	6.8	0	60	6.2	0.91	46	13	685.7	0	705.7	670.3
Aug	-57.3	13	-33.8	-69.5	6.1	13	46	5.5	0.90	8	12	679.9	13	697.3	662.8
Sep															
Oct	-47.5	50	-42.8	-53.1	5.6	50	41	5.3	0.95	29	10	687.7	50	699.1	676.5
Nov	-35.7	0	-24.0	-45.6	3.6	0	40	3.0	0.84	40	10	695.3	0	703.4	685.3
Dec	-26.0	0	-17.6	-32.8	3.6	0	61	3.0	0.82	37	9	690.2	0	699.6	681.5
Lindsay (8986)			89.00S			89.85W			2815 M						
Jan	-24.8	33	-20.1	-29.8	4.1	33	112	3.6	0.89	111	11	693.5	33	700.6	687.7

4.2 Three Hourly Data Summaries

The data set for each AWS unit for the month is scanned to pick out the nearest observation within one hour of the UTC hours 00, 03, 06, 09, 12, 15, 18, and 21 to produce the three hourly data set. If valid data are not available within the three hourly time interval, then the entry is left blank to indicate missing data. The means, standard deviations, resultant wind speed and direction, the distribution of temperature, and wind speed with wind direction are determined from the three hourly observations and are presented as a monthly summary at the bottom of each page. A wind direction value of zero indicates a wind speed less than 0.50 m s^{-1} . North is indicated by a value of 360 degrees. The maximum and minimum values are taken from the complete data set, not the three hourly data set. The appropriate monthly data from the three hourly data set are used for the monthly summaries presented in 4.1. In the presence of sunlight the air temperatures are questionable if the wind speed is less than 1 m s^{-1} . These summaries are available by anonymous FTP (see Section 8). If you are unable to access the Internet, we will send the information either on diskettes or paper. Please contact us for further information (the address is at end of Section 8).

5. AWS CALIBRATION

5.1. Temperature

The external and internal temperatures are calibrated using a 1000 ohm 0.05% resistor in place of the platinum resistance thermometers with 1000 ohms resistance at 0°C . Because the other resistances in the temperature circuit are known only to 1%, the temperature calibration will vary from one electronic unit to another. The correction factor determined from the calibration resistor is programmed into the read-only-memories for each unit. After the correction factors have been programmed into the AWS, a calibration box with 0.1% resistors is used in the field to check the temperature calibration.

5.2. Pressure

The atmospheric pressure transducer is a Parascientific model 215 digiquartz pressure gauge. The transducer frequency changes from 40 kHz at zero pressure to about 36 kHz at 1000 hPa. The pressure resolution is about 0.05 hPa.

Paulin aneroid barometers calibrated against a mercury barometer of 10 mm bore are used to check the pressure gauge calibration. Comparisons are made between AWS units, the aneroid barometer at McMurdo Station, and with the mercury barometers at Scott Base, Antarctica. The calibrations should be within ± 0.2 hPa. Two mercury barometers have been purchased for use at McMurdo, Antarctica but are not yet available.

The reference vacuum on the older pressure transducers can degrade with time with a maximum observed 4 hPa shift to lower pressure after five years. Thus, recalibration of each pressure transducer would be desirable every two to three years.

5.3. Wind direction and Speed

The Belfort model 123 aerovane measures wind direction and speed. The aerovane rotates a potentiometer wiper, and the fraction of full scale of the potentiometer is measured. The wind direction is checked by positioning the aerovane to the cardinal directions relative to the boom supporting the aerovane. North or the potentiometer zero is towards the antenna on the boom and has a dead zone of 5°. During the field installation the boom is usually aligned along the north-south line as determined from the sun's azimuth, longitude, and Greenwich Mean Time. In some cases the 180° end of the boom may point in a direction other than south. At Manuela site, the 180° end of the boom points up the glacier and a correction is added to the data during processing. At Byrd site the wind is usually out of the north so the boom was rotated 120° and the correction added during the data processing. The wind speed is determined from the aerovane tachometer voltage output as 0.0472 volt per meter per second. The aerovane tachometers are spun at 1800 rpm with a load of 1071.5 ohms and the output should be 9.20 +/- 0.05 vdc.

Two additional wind sensors were used with AWS units for 1994. These were the Vaisala anemometer model WAA-15 and the R.M. Young wind monitor model 05103. The Vaisala WAA-15 was used as a backup sensor for measuring wind speed in the Adelie Coast area. It is a 3-cup opto-electronic anemometer. When rotating, the anemometer produces a pulsed output that is proportional to the wind speed. Rated accuracy is +/- 2% up to 75 m/s. The pulsed output was input into one of the digital counter channels for 5 seconds. This resulted in a calibration value of .293 m/s/bit.

The R.M. Young monitor 05103 also used a 1000 ohm potentiometer so that the wind direction was recorded identically with the Belfort/Bendix aerovanes. The wind speed was from the range of 0 to 1.0 volt full scale corresponding to 50 m/s. Thus the calibration for wind speed was a nominal .195 m/s/bit for the R.M. Young with +/- 1% up to 50 m/s.

5.4. Relative Humidity

The Vaisala HMP-35A humidity sensor output voltage varies linearly with relative humidity (U). The sensor is calibrated by placing it over saturated salt solutions with known relative humidities at room temperature: sodium chloride (U=75%), and lithium chloride (U=12%) are used. In addition, a dry inert gas, forced past the sensor, gives a 0% U, and the sensor output can be zeroed. Then, the gain setting can be set directly using a salt solution with a high relative humidity, such as sodium chloride. The resolution of the humidity sensor is about 1% and the drift is 2 to 3% per year in the field. The relative humidity data are not included on the summary pages but are included in the 3 hourly data sets.

5.5. Vertical Air Temperature Difference

Two junction thermocouples are used to measure the air temperature difference between 3 m and 0.5 m on the tower. The output is about 78 microvolts for 1.°C temperature difference between the junctions at 0.0°C, dropping to 60 microvolts at -80°C. Zero output is adjusted to 0.4 volts, so that 0 to 1 volt corresponds to a -6°C to +9°C range of air temperature differences between 3 m and 0.5 m. The resolution is 0.05°C. Calibration of

the individual systems is done by applying known voltages to the amplifier input. The vertical temperature difference data are not included on the summary pages but are included in the 3 hourly data sets.

6. AWS OPERATIONS SUMMARY FOR 1994

6.1. AWS Performance

Thirty-eight AWS units were installed at the start of 1994 and 47 were installed by the end of 1994. Based on the installation months the AWS units delivered 84% of the temperature data, 87% of the pressure data and 76% of the wind data during 1994. Complete data sets were received from 12 AWS units and 24 AWS units operated for the installed period. Fourteen AWS units were not received for one month or more during the year or stopped during the year.

The wind system has the poorest performance. If the wind speed is zero or the wind direction is constant for extended periods (days to months) then the data is considered invalid. The reason for this behavior is not known but is believed to be due to the build up of frost on the wind system. This usually occurs in the winter season and at several AWS sites. The wind speed is most frequently zero when the wind direction is constant. Another problem with the wind system involves the tachometer for measuring wind speed. The brushes on the Belfort aerovane quickly wear down and fill the gaps between the contacts with brush material, shorting out the tachometer output. As a result we do not know the calibration. The problem is in the construction of the tachometer, so we have begun to install a new wind system manufactured by R.M. Young. They are currently operating at Kelly, Nico, Henry, and Lindsay sites.

Site	Performance
D-10	Station stopped 14 June, resumed mid-August, periods of missing winds, repaired 26 December.
D-47	No data transmission until 17 July, off again after September.
D-80	Repaired on 31 January.
Dome C	OK.
Port Martin	Aerovane not functioning in January, no transmissions until end of August. Aerovane not functioning August to 26 December. Aerovane replaced 27 December.
Cape Denison	Delta-T sensor not installed, intermittent transmission end of April-May, stopped June-July, intermittent transmission August-September, aerovane not functioning until replaced 27 December.
Penguin Point	Station not transmitting until 28 December due to a broken antenna.
Sutton	Installed 26 December.
Cape Webb	Installed 28 December, Hydro Tech wind speed system installed without the impeller, but with the aerovane for wind direction.

Byrd Temperature sensor broken until 30 January when system was repaired and reinstalled. Aerovane not operating last part of April and most of June-October.

Mount Siple Pressure erratic in summer half of year. Site has a "dog house" AWS without wind speed and direction.

Harry Installed 29 November.

J.C. Installed 29 November.

Theresa Installed 29 November.

Doug Installed 29 November.

Erin Installed 29 November, failed same day.

Brianna Installed 30 November.

Elizabeth Installed 30 November, did not operate.

Marble Point Station did not transmit between early July and early September. Aerovane was replaced 22 January. Batteries were replaced 23 November.

Ferrell OK.

Pegasus North Station repaired and reinstalled 14 January.

Pegasus South Wind system operated intermittently August-September.

Minna Bluff Station repaired and reinstalled 12 January. Wind system stopped 28 August after wind speeds around 41 m s^{-1} . Wind sensor was repaired 9 December.

Linda Station replaced 10 January and operated until 20 April. One week of transmissions in May. Station resumed transmitting 7 December after batteries were replaced.

Willie Field Removed 10 January for repair and replaced 18 January.

Whitlock Replaced 23 February, no pressure gauge. Intermittent wind data especially in colder part of year.

Scott Island No transmissions between 19 November and 17 December. Site has a "dog house" AWS without wind speed and direction.

Young Island No transmission for November and December. Site has a "dog house" AWS without wind speed and direction.

Possession Island OK, site has a "dog house" AWS without wind speed and direction.

Marilyn OK.

Schwerdtfeger Aerovane repaired 13 January, wind system operated intermittently April-July. Station not transmitting August-September and then erratically October-December.

Gill Aerovane did not operate during parts of March-April, most of June-August. Few transmissions end of August-October, intermittent in November.

Elaine Aerovane operated intermittently April-May and did not operate most of June-November.

Lettau Aerovane operated intermittently August-October.

Manuela Aerovane destroyed end of October.

Sandra OK.

Lynn	No wind data in January.
Larsen Ice	Temperature sensor not functioning correctly, aerovane operated intermittently April-July.
Butler Island	Station off until 15 February, and again 18 March-5 April. Wind system intermittent July, October-December.
Uranus Glacier	Station off 1 February, received erratically November.
Racer Rock	Intermittent data transmission, very sparse in May and September. No data June-August.
Bonaparte Point	Station stopped 15 April, a few transmissions in October, resumed normal transmissions 2 December. Loose and/or corroded connections are suspected.
Recovery Glacier	AGO-A81 removed 16 January, installed at Recovery Glacier site 18 January, intermittent data transmission most of the year. Aerovane did not operate during winter.
Ski-Hi	Station installed 21 February, transmissions stop end of November.
Santa Claus Island	Station installed 10 December.
Clean Air	Repaired and moved on 24 January, pressure jumps erratically, especially during the colder months.
Mount Howe	Removed 22 January.
Kelly	Removed 22 January.
Nico	OK.
Henry	Most data missing end of August to mid-October.
Lindsay	Removed 22 January.

6.2 AWS Antarctic Field Activities

Personnel from the University of Wisconsin-Madison arrived at McMurdo, Antarctica on 4 January 1994. Plans for an earlier trip to Siple Coast in November and December were rescheduled for the 1994-1995 field season.

A flight was made to Minna Bluff site on 8 January 1994. The aerovane had broken off at the mast and was found on the surface next to the station. The antenna was also damaged. AWS 8915 was removed and the aerovane and antenna were returned to McMurdo for repair.

Willie Field and Pegasus North sites were visited on 10 January 1994. AWS 8927 and the aerovane were removed from Pegasus North, and AWS 8901 was removed from Willie Field. Both stations were returned to McMurdo for repair.

A flight was made to Linda site on 11 January 1994. AWS 8909 was replaced with AWS 8915. A flight was made to Minna Bluff site on 12 January 1994. AWS 8988 was installed with a new antenna and an R.M. Young wind system.

On 13 January 1994, Marilyn and Schwerdtfeger sites were visited using the Twin Otter aircraft. Marilyn site was in good condition. The lower vertical temperature difference sensor was raised to 1 meter above the snow surface, and two boxes of three 40 amp hr batteries were also installed. The malfunctioning aerovane at Schwerdtfeger site was replaced.

AWS 8927 was reinstalled at Pegasus North site on 14 January 1994. The existing 1.8 m boom was replaced with a 0.9 m boom, and an R.M. Young wind system was installed. The solar panel and power junction box were replaced with new components, and the lower vertical temperature difference sensor was raised to a height of 1 meter. One box of three 40 amp hr gel cell batteries was also installed.

A Twin Otter flight was made to Lettau site on 17 January 1994. One 1.5 m tower section was added to the station. A new antenna and another aerovane were also installed. Two new boxes of three 40 amp hr batteries were installed as well.

AWS 8901 was reinstalled at Willie Field on 18 January 1994. A Campbell Scientific CR-10 data logger with an Ultrasonic Depth Gauge was installed in support of S-186. The lower vertical temperature difference sensor was raised to a height of 0.7 m, and an R.M. Young wind system was installed.

An LC-130 flight was taken to Byrd Surface Camp on 21 January 1994. The trip from Byrd Surface Camp to Byrd site was made by snowmobile. The existing 1.8 m boom was replaced with a new 0.9 m boom. The existing antenna was unusable, and another antenna was shipped to Byrd Surface Camp and installed by camp personnel on 30 January 1994.

The wind speed sensor was questionable at Marble Point site. On 22 January, a replacement aerovane was installed, and the wind speed sensor output appeared to be fine.

Mount Howe, Kelly, and Lindsay sites were visited on 22 January. The station at Mount Howe had sustained severe damage from wind, and the ice around the anchors and tower base had ablated so that the tower was no longer anchored sufficiently. Mount Howe site was removed, as were Kelly and Lindsay, which had been installed in support of S-203.

Clean Air site was moved from its previous location to one approximately 30 m from the South Pole Meteorological tower on 24 January, and the station was replaced with a new station. A snow temperature profile was also added.

Crew members of the USGS Polar Sea replaced the station at Whitlock site on 23 February.

Near the Adelie Coast, members of Expeditions Polaires Francaises visited D-80 site on 1 February. Two 1.9 m tower sections were added, as were two boxes of three 40 amp hr batteries. A new sensor boom and aerovane were installed. They replaced the existing electronics with a new unit.

On the Antarctic Peninsula, members of the British Antarctic Survey serviced several AWS units during the austral summer. AGO-A81 site was removed on 16 January and installed at Recovery Glacier on 18 January. Ski-Hi site was installed on 21 February. Butler Island was serviced, and two 1.9 m tower sections were added to Uranus Glacier site.

On 9 March the seawater temperature probe at Bonaparte Point was replaced.

The removed probe was still working, but the protective conduit was broken. The wire and probe appeared to be in good condition.

G.A. Weidner and R.E. Holmes returned to McMurdo on 13 November. Linda site was visited on 18 November. One 1.8 m tower section was installed and the lower delta-T sensor was raised to a height of 1.0 m. The battery voltage was found to be low. The station electronics were removed for repair. On 7 December, the station was replaced, and six 40 amp hr gel cell batteries were installed.

On 23 November Marble Point site was visited. The four 100 amp hr lead-acid batteries were replaced by six 40 amp hr gel cell batteries. A new power junction box was also installed.

On 28 November, R.E. Holmes left McMurdo for the Central West Antarctica (CWA) camp to install AWS sites on the Siple Coast in support of Dr. David Bromwich. Upon arrival, the components for seven AWS units were removed from pallets and prepared for deployment. On 29 November, J.C., Erin, Theresa, Harry, and Doug sites were installed. On 30 November, Brianna and Elizabeth sites were installed.

On 2 December, Byrd AWS site was visited. One 1.5 m tower section was installed as were six 40 amp hr gel cell batteries.

Back in the McMurdo area, Willie Field site was visited on 8 December. The data storage module for the Ultrasonic Depth Gauge (UDG) was removed for shipment back to Madison, WI, and a new module was installed. Minna Bluff site was visited on 9 December. The R.M. Young wind sensor had been severely damaged, and only the vertical shaft remained on the tower. The rest of the wind sensor could not be found. A new R.M. Young wind sensor was installed.

G.A. Weidner and R.E. Holmes returned to Madison, and J.J. Cassano and M.W. Seefeldt left to join the icebreaker in Hobart, Tasmania. The next stage of the field season was the repair of stations along the Adelie Coast.

D-10 was visited on 26 December. The top of the tower was approximately 1.8 m above the snow, and the vertical prong of the antenna had been broken off. One 1.8 m tower section was added, and the antenna was replaced. Sutton AWS site was also installed on 26 December. A third flight was made to Port Martin AWS site. The aerovane impeller was broken, and the tachometer was also malfunctioning. The 0.9 m boom was replaced with a 1.2 m boom, and both an aerovane and a Hydro-Tech high wind system were installed. The electronics were modified for use with the new wind system.

Cape Denison site was visited on 27 December. The aerovane impeller had one blade missing, and one of the prongs of the antenna was missing. The 0.9 m boom was replaced with a 1.2 m boom, and both a replacement aerovane and a Hydro-Tech wind system were installed. A new antenna was also installed.

On 28 December a flight was made to Penguin Point AWS site. The antenna was missing one prong, so a new antenna was installed. Moving down the coast, Cape Webb AWS site was installed.

On 10 December AWS 8910 was installed by Tony Amos, assisted by members of the Long Term Ecological Research Program. The location is in the Hugo Island group, and the site name will be Santa Claus Island. The water temperature sensor was not installed.

7. GLOBAL TELECOMMUNICATIONS SYSTEM

The data from 32 Antarctic AWS units were entered into the Global Telecommunications System (GTS) during 1994. The World Meteorological Organization (WMO) headers are:

SMAA01 KNWC ANTARCTICA
SIAA01 KNWC ANTARCTICA.

Table 3.1 contains the WMO # used by the GTS grouped according to their purpose and proximity where possible.

The data for the GTS are collected by the Fleet Numerical Oceanography Center at Monterey, California by interrogating the ARGOS Timenet file at three or six hour intervals. The data are approximately two hours old at the time of interrogation and are used to generate synoptic maps. The data are also entered in the GTS at the Carswell Automated Digital Weather Switch for routing to the National Weather Service and other international centers. The main reason for getting the AWS data into the GTS is to make sure that the data are available in near real time for all organizations operating in Antarctica. Of all the meteorological data in the GTS received by the Australian Bureau of Meteorology at Hobart, Tasmania, the AWS units provided more surface meteorological data than all the manned stations.

8. DATA AVAILABILITY

The data from our Automatic Weather Stations are available by anonymous FTP. The IP number is 144.92.108.169 (uwaaws.ssec.wisc.edu). The login is "anonymous" (do not use the quotation marks), and the password is your email address. Once you have logged in, change to the pub subdirectory. A listing of our station locations, names, and ARGOS ID numbers is located in the file "biglist" in this subdirectory. It is meant to serve as a guide to our stations as their ID numbers sometimes change.

Our three-hourly interval data for Antarctica are contained in the year subdirectories of pub/antrdr. The data have been corrected, i.e. an effort has been made to remove the bad data points. These data take longer to process, so the data for recent months are not available. Within each of the year subdirectories of pub/antrdr, there are text files named "3hrlist??" (where ?? indicates the last two digits of the year). These files list what station's data are contained in which files.

The directory pub/readthis contains text files detailing the file name construction and format of the three-hourly data. The file "pcfile.doc" contains file name construction information, while "readme.newdata" and

"readme.corrections" provide news of updates and corrections. The file "readme.mailinglist" contains information on joining a mailing list which distributes information on data updates and changes.

The directory pub/summary contains printable text files of the paper data summary sheets. The format of the files can be found in the file "readme.sum" while updates and corrections to the data are located in "readme.sumupdates". The data are located in year subdirectories of pub/summary.

For those users who need more current information, we have created 10 minute interval data for each station. These data are located in year subdirectories of pub/10min/rdr. The data have been calibrated for the individual station instruments, but no other corrections have been made. The data are generally available up to and including the last full month of this year. The year subdirectories also contain a text file named "namelist??" (where ?? indicates the last two digits of the year in question). These files list specifically what station's data are contained in which files.

Several important readme files are located in pub/10min/rdr. The file "readme.10min" contains basic information about the data and the compressed archives of ten-minute data, located in pub/10min/rdr/months. The file "readme.5digit" contains information on the Siple Coast stations which have a different station identification. The file "readme.format" contains information on filename construction of the data, as well as well as file content and is a must for those unfamiliar with the data. The file "readme.updates" contains important information on changes/additions to the data.

Our site is available 24 hours a day, 7 days a week. If you have questions or problems, send email to Matt at front242@uwaaws.ssec.wisc.edu. We can also be reached by phone at (608) 265-4816 or fax at (608) 263-6738. By mail, please contact:

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