Meteo-climatological Observatory

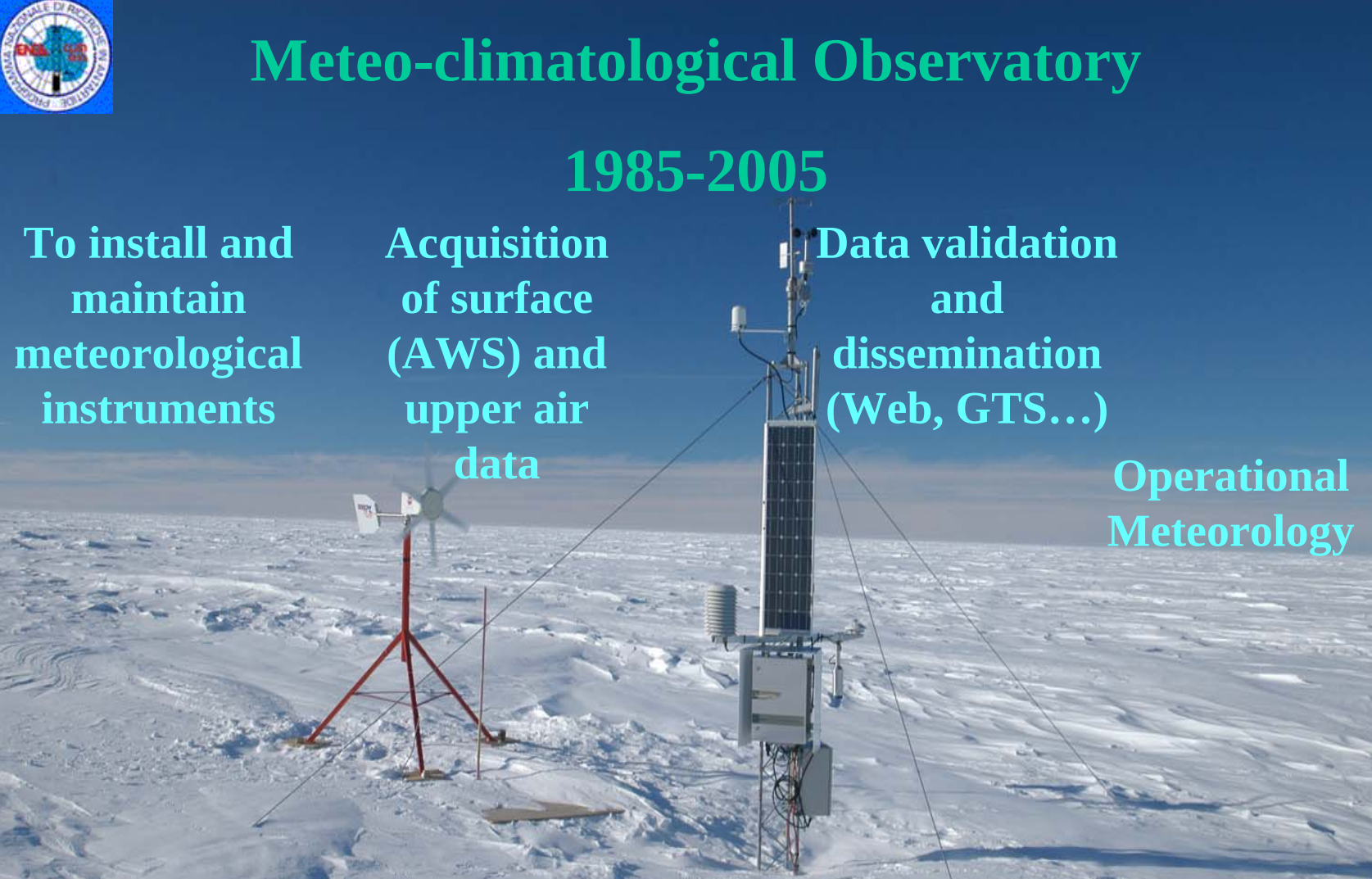
1985-2005

To install and maintain meteorological instruments

Acquisition of surface (AWS) and upper air data

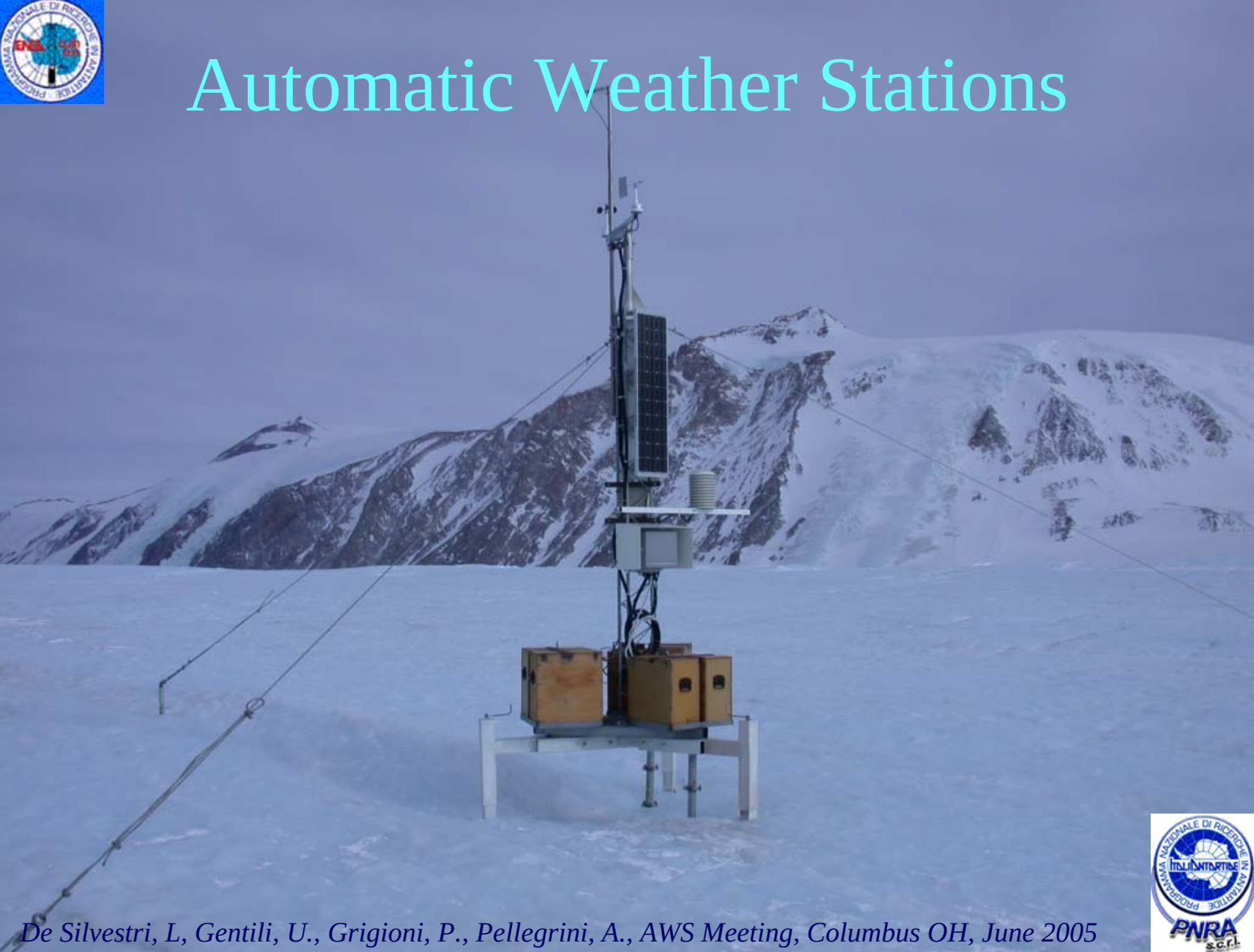
Data validation and dissemination (Web, GTS…)

Operational Meteorology



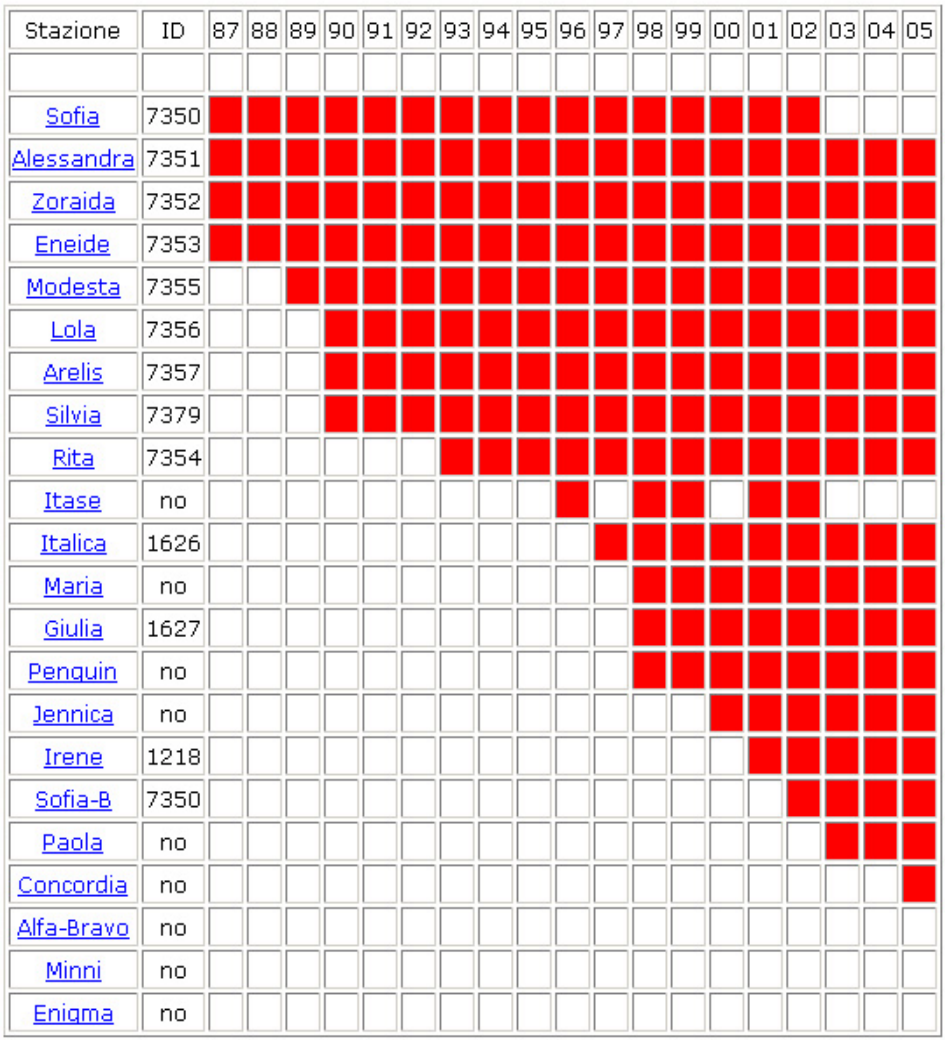
De Silvestri, L., Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Automatic Weather Stations



De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Years of activity



Curiosity:

Minimum Temperture - 69.8

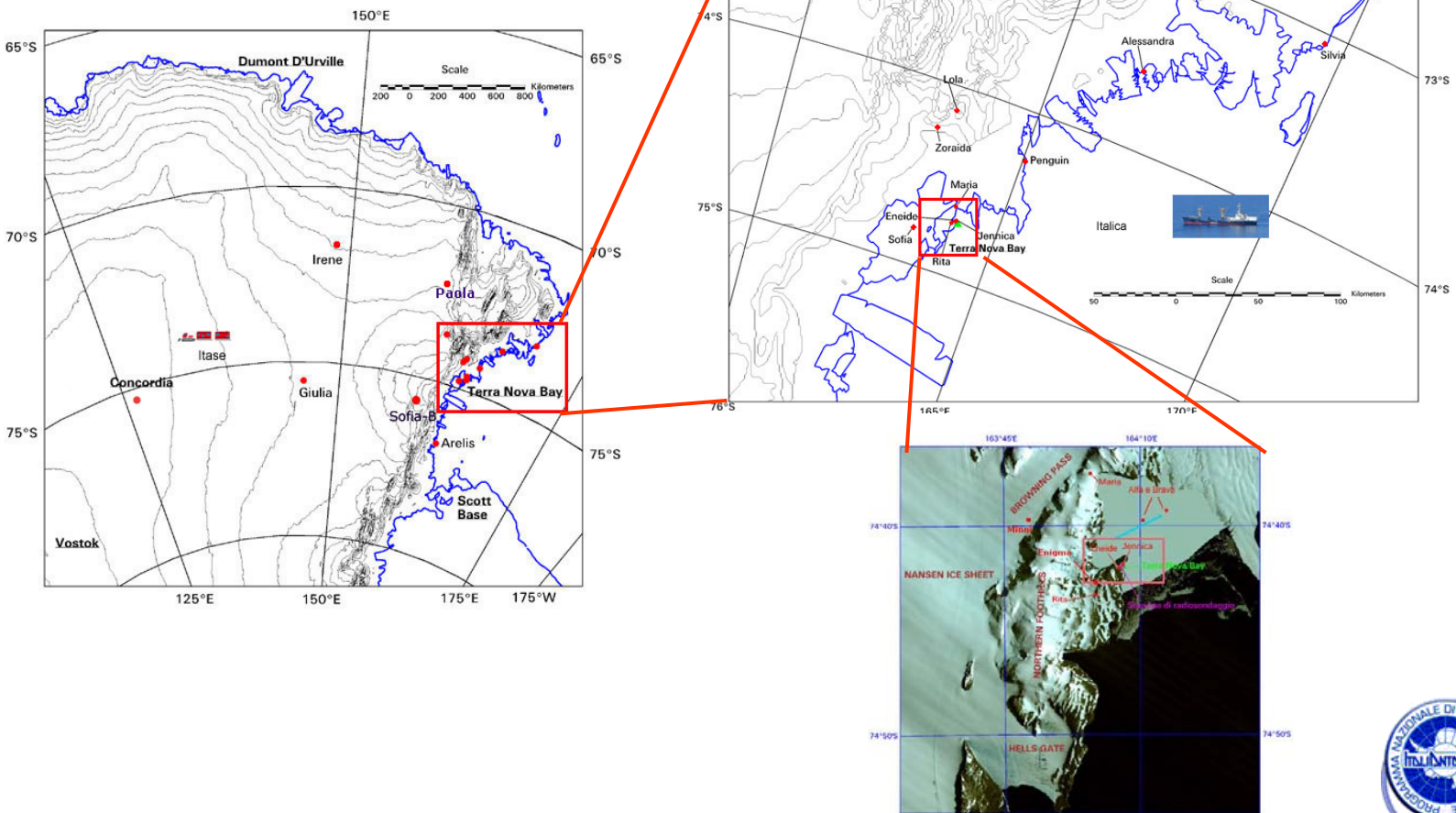
AWS Giulia

Maximun Wind 126 Kts

AWS Rita

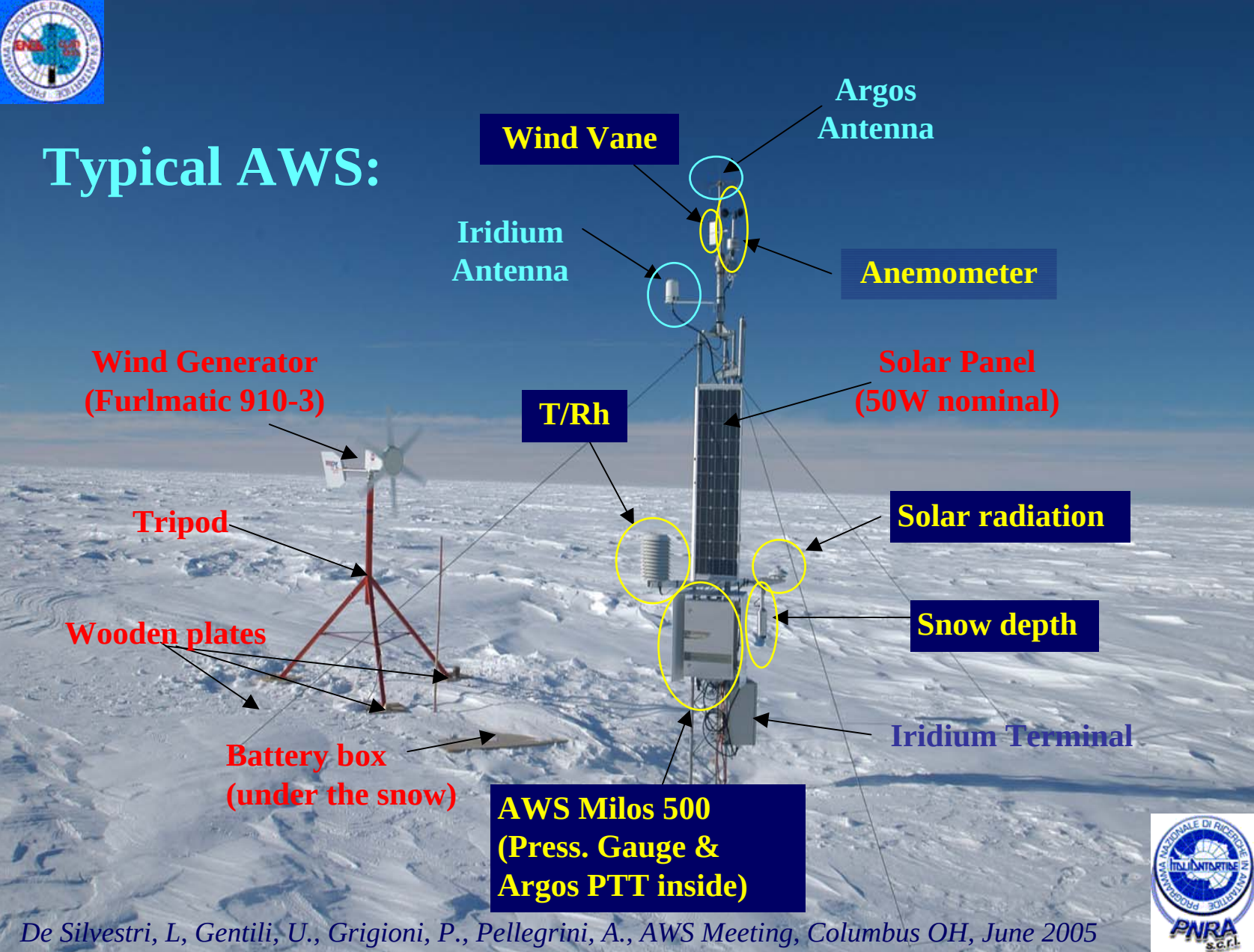
LOCATION OF AWS'S

1987-2005



De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Typical AWS:


Argos Antenna
Wind Vane
Iridium Antenna
Anemometer
Wind Generator (Furlmatic 910-3)
Solar Panel (50W nominal)
T/Rh
Tripod
Solar radiation
Wooden plates
Snow depth
Iridium Terminal
Battery box (under the snow)
AWS Milos 500 (Press. Gauge & Argos PTT inside)

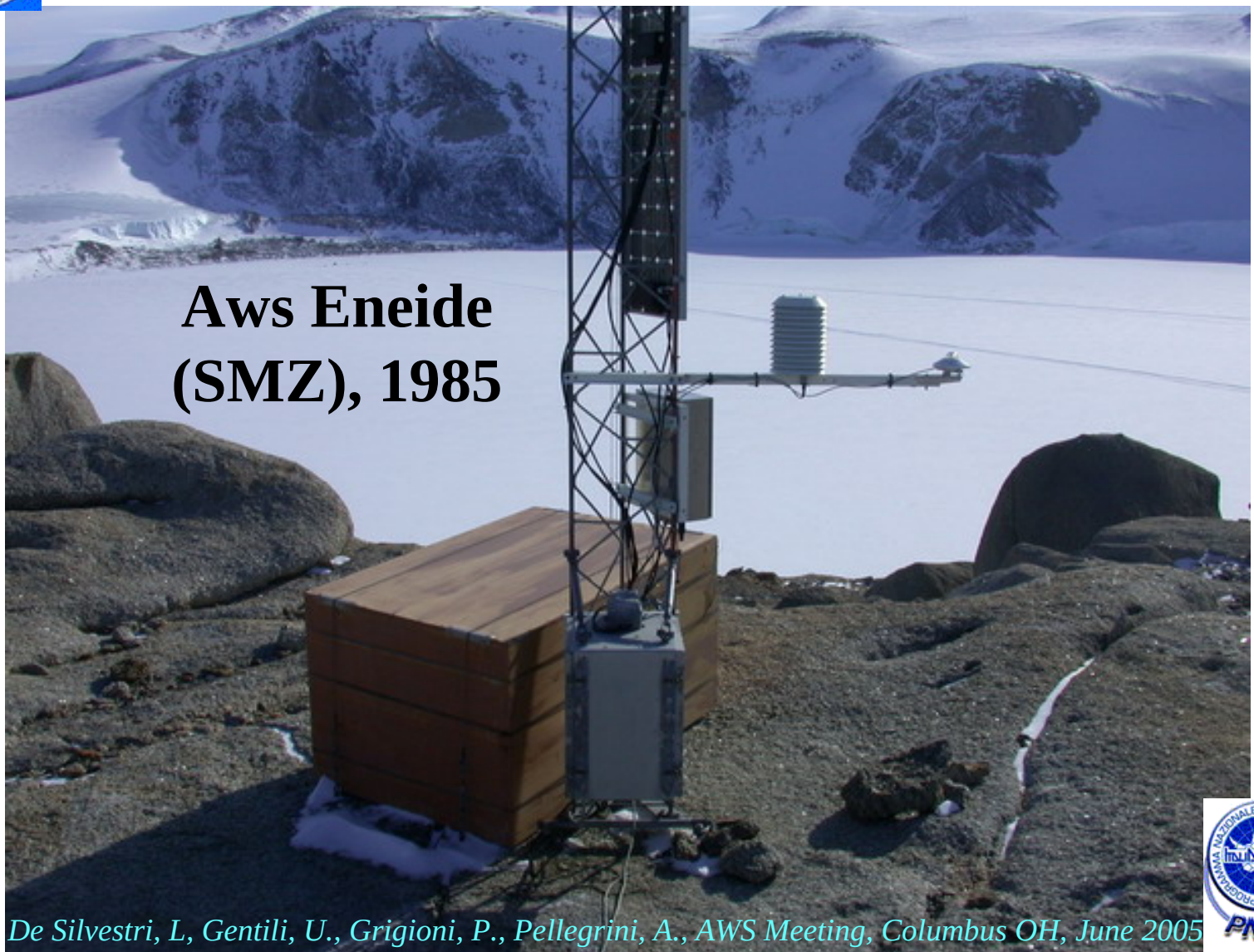
Three Main Technical Issues:

-Substrate for installation
(solid, ice, snow)

-Power Supply

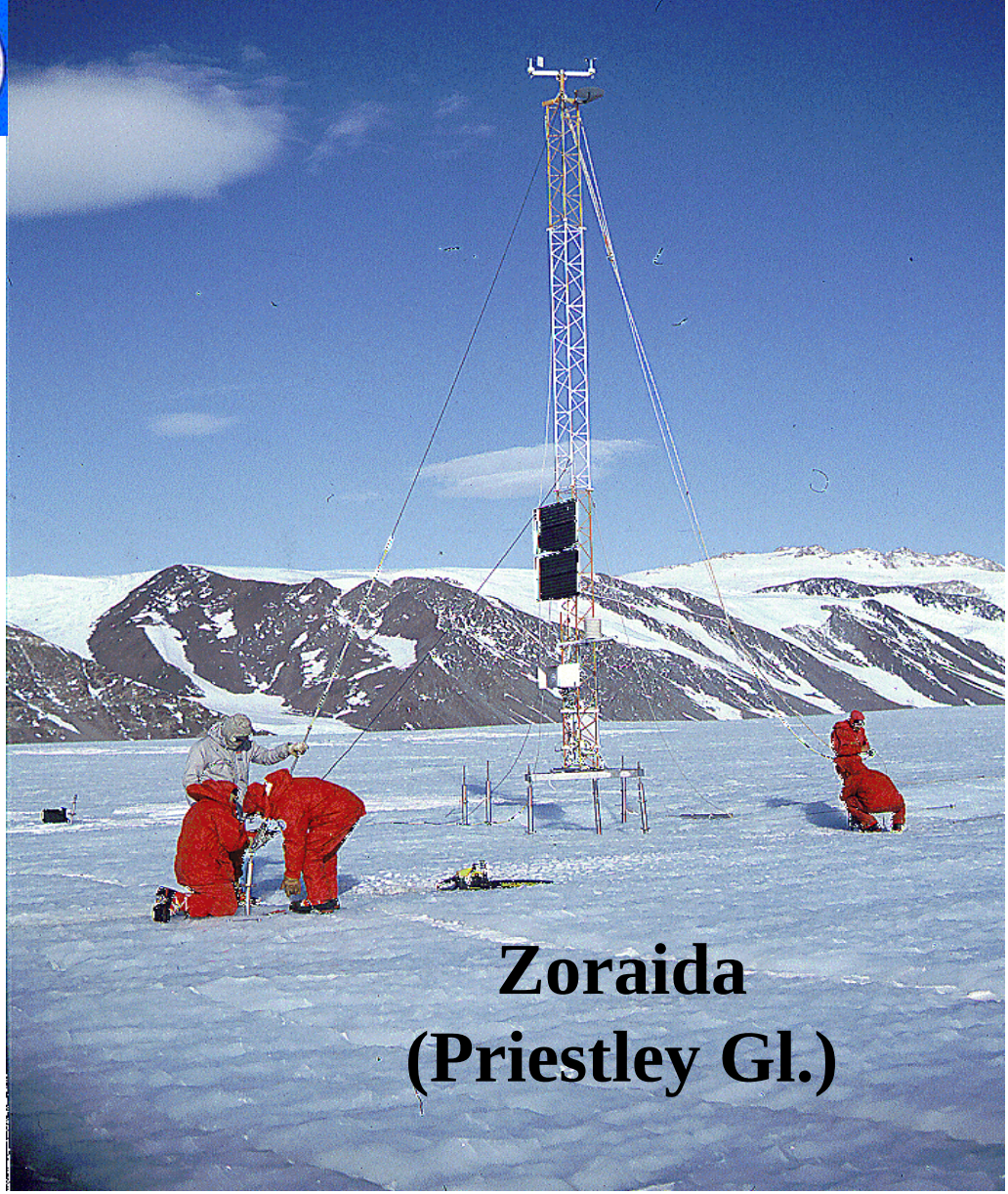
-Data storage & transmission

Substrate for installation: solid rock



De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Substrate for installation: solid rock

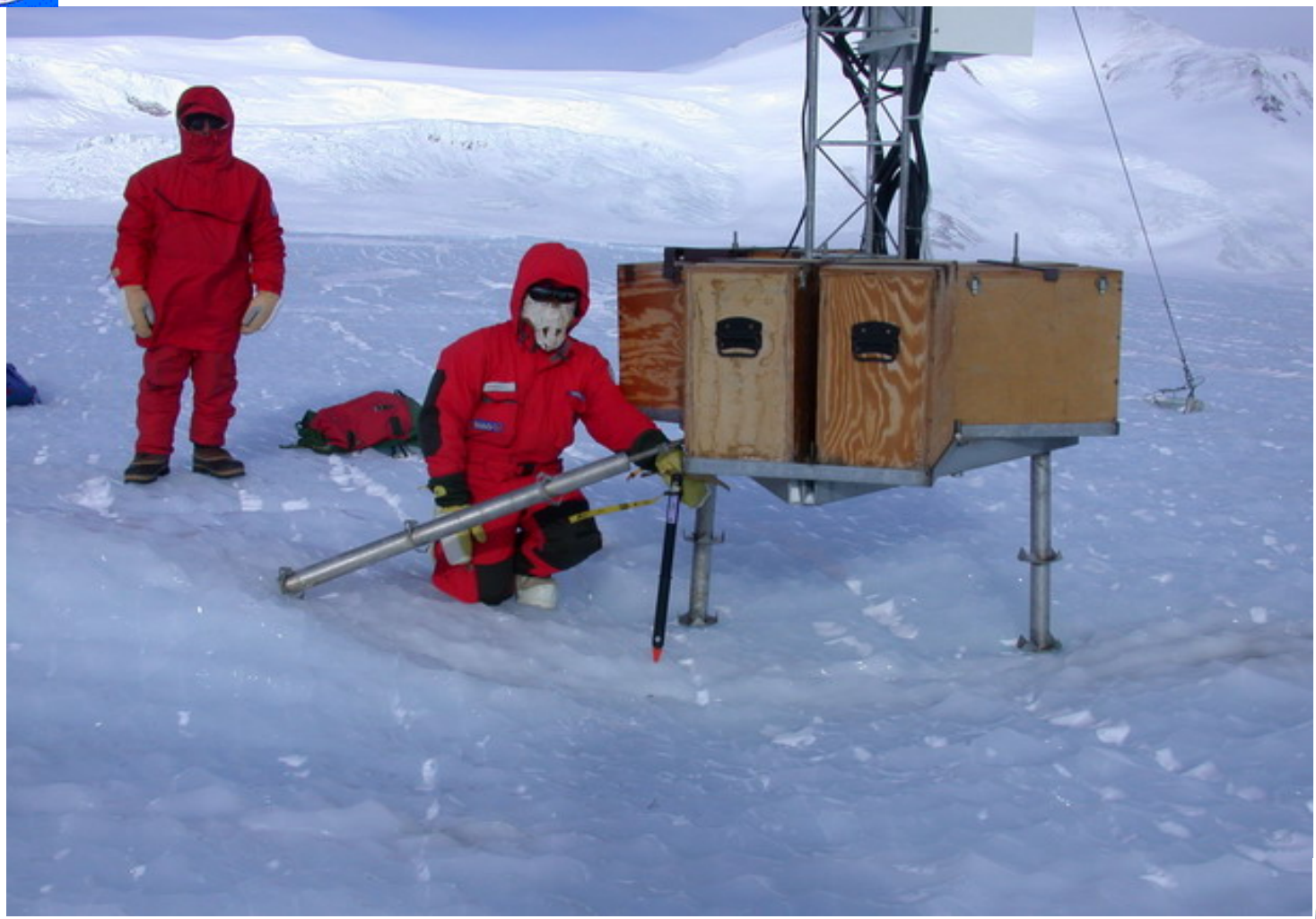


Substrate:

ICE

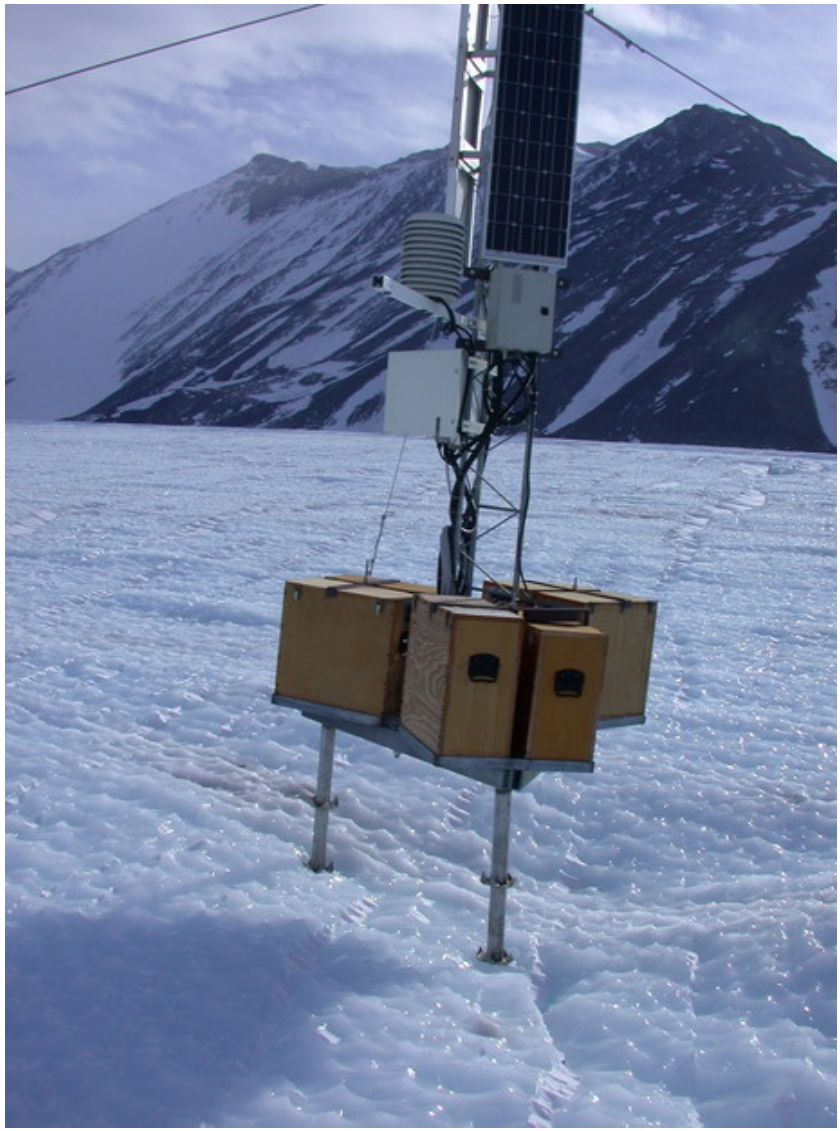
Zoraida
(Priestley Gl.)

Substrate: ICE



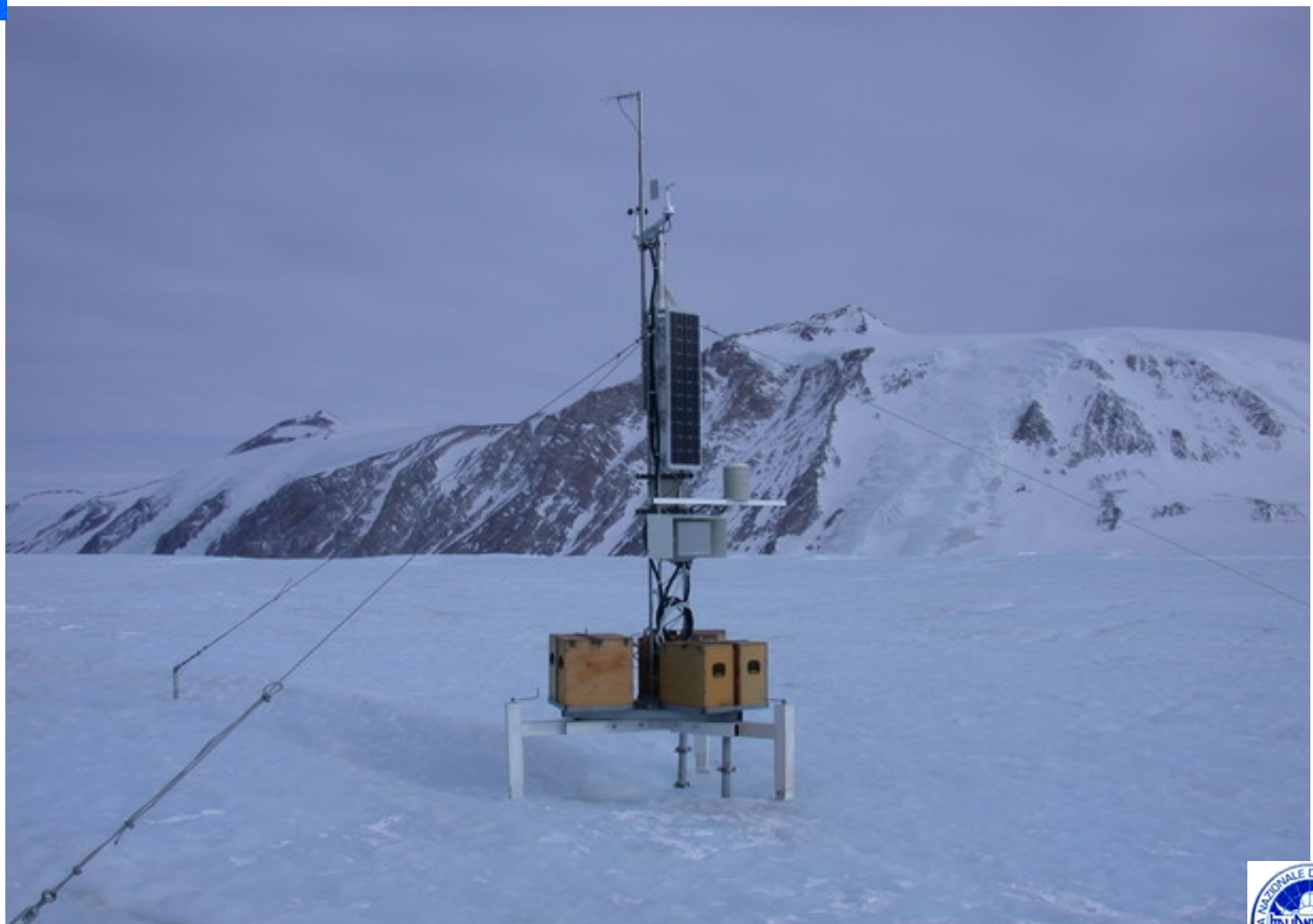
De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Substrate: ICE



De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Substrate: ICE

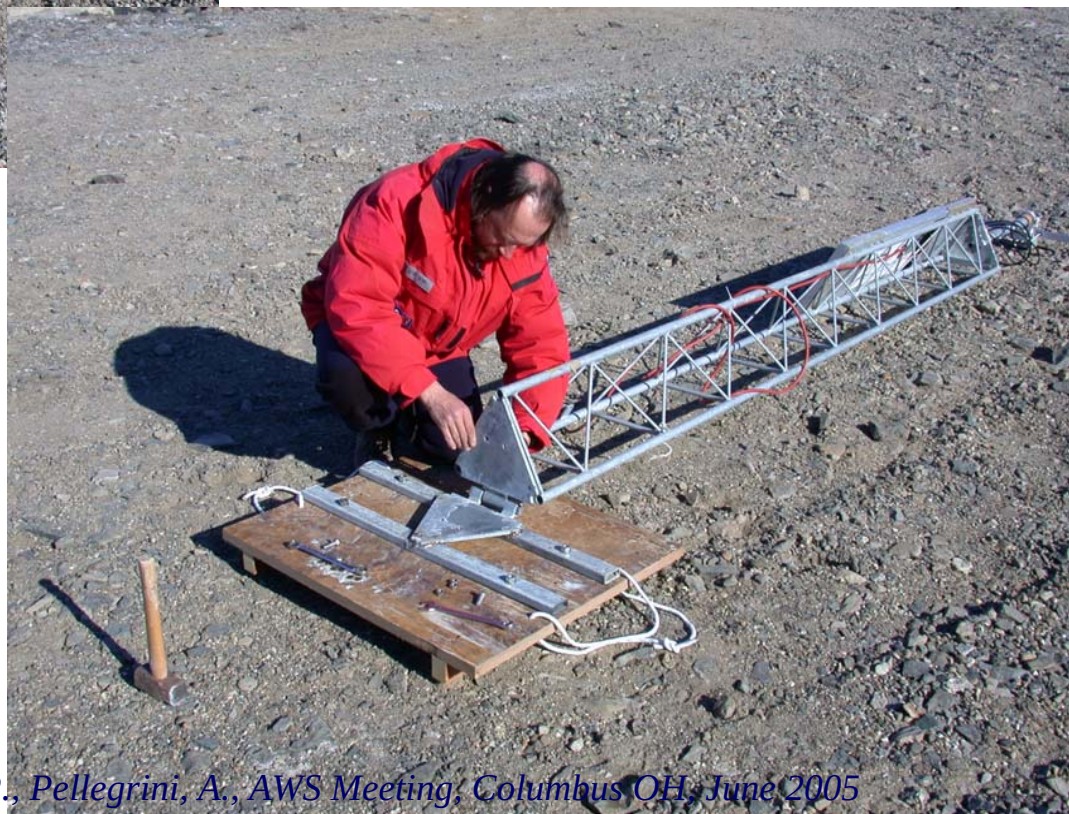


De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Substrate: SNOW

De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Substrate: SNOW



Wooden base plate, used on snow

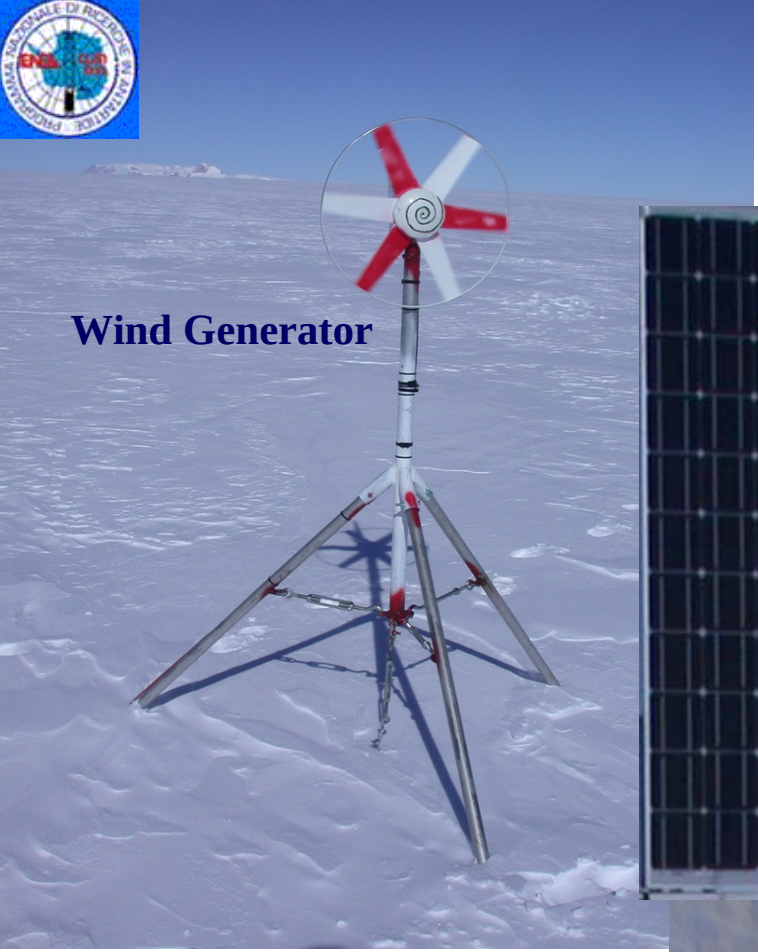
(& incoherent soil)

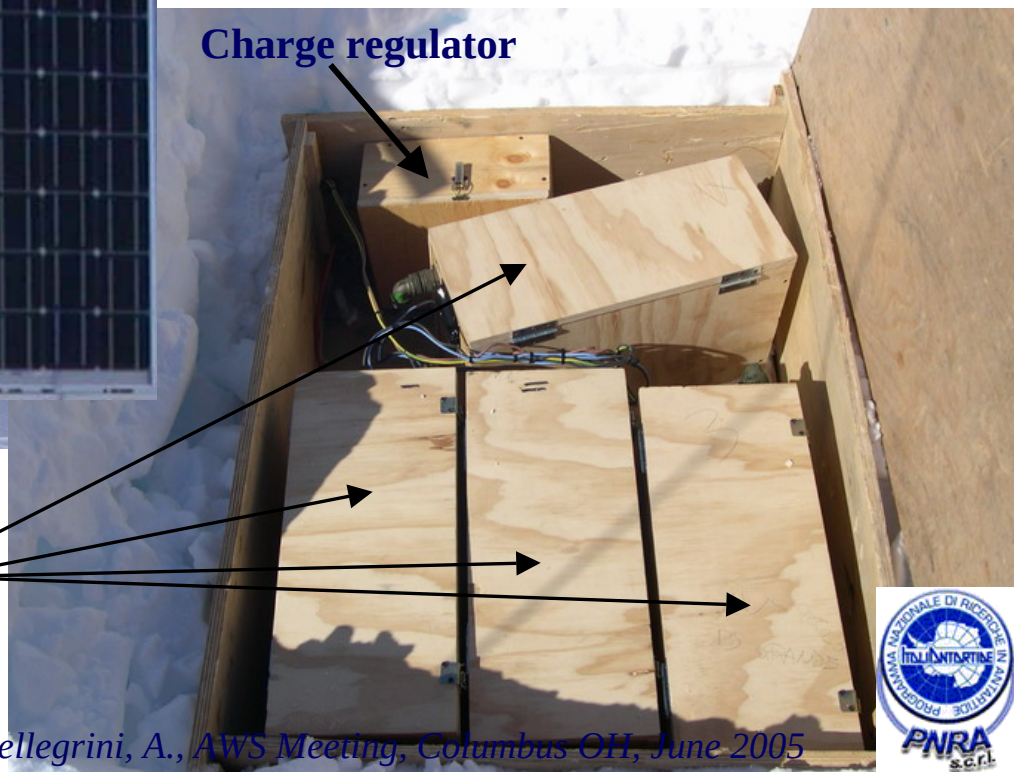
De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Substrate: SNOW

De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Power Supply: typical





Lead-Acid Batteries
(Total Capacity: 600 Ah)
Increased Acid Density
(1.31)

De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Data storage & transmission

-Local storage: flash eprom

-Data trasmission:

-Argos

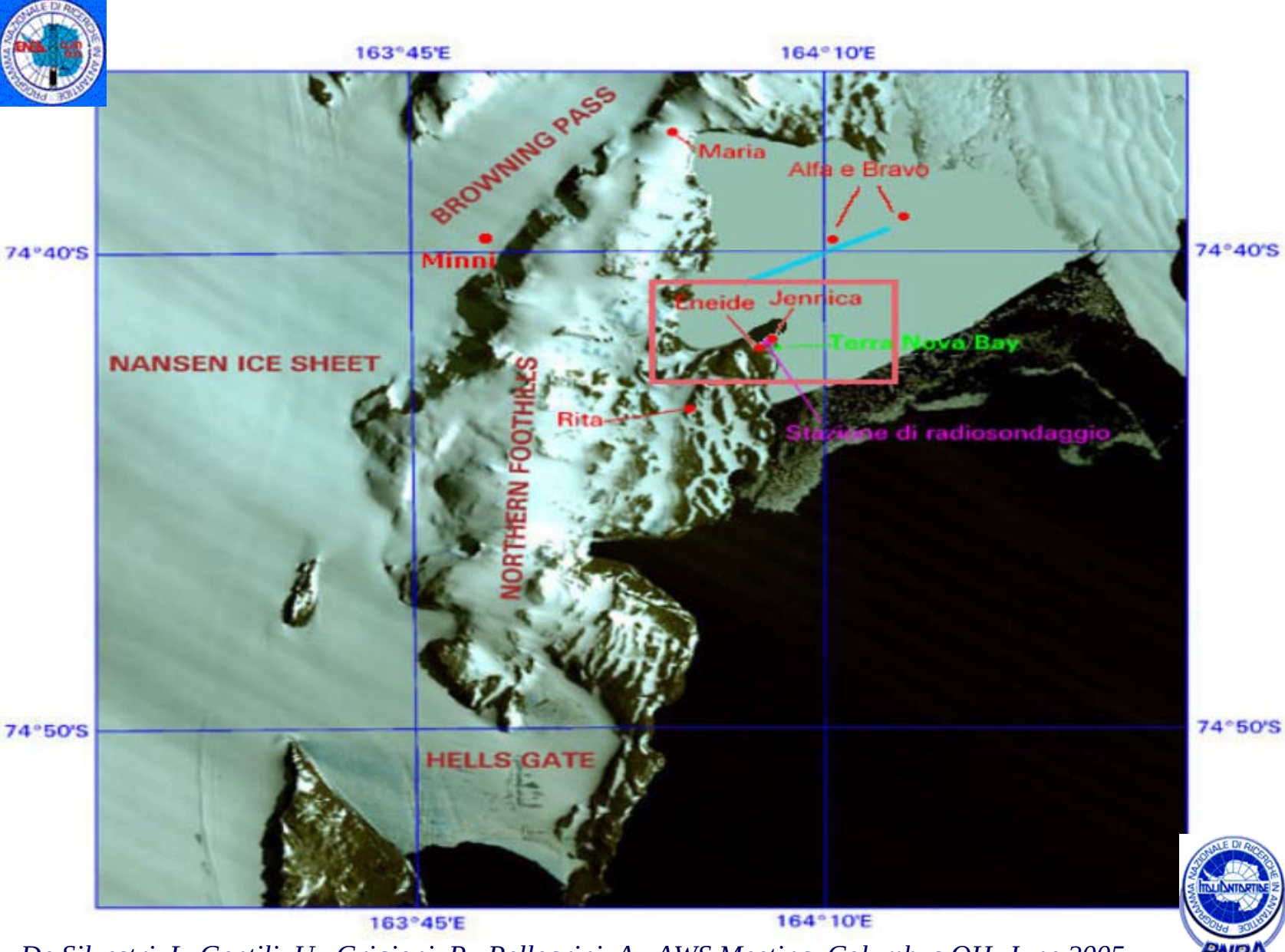
-Radiomodem

-Iridium

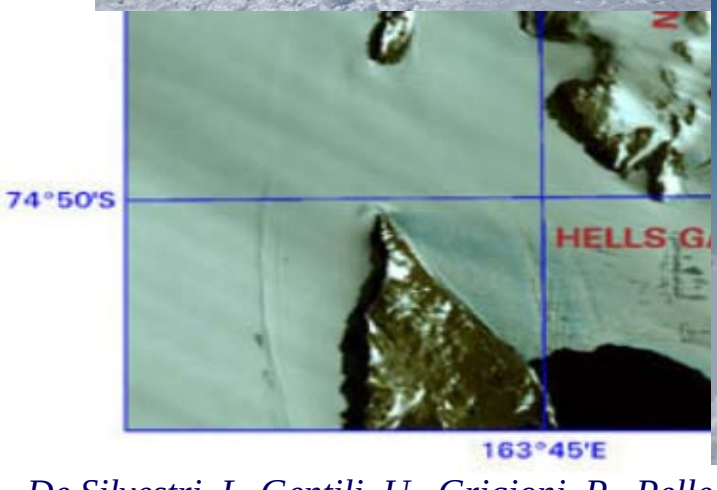
Argos trasmission:

On (almost) all AWS's, provides quasi real-time data and stations' monitoring during winter

Radiomodem: all instruments which continuous data are required from

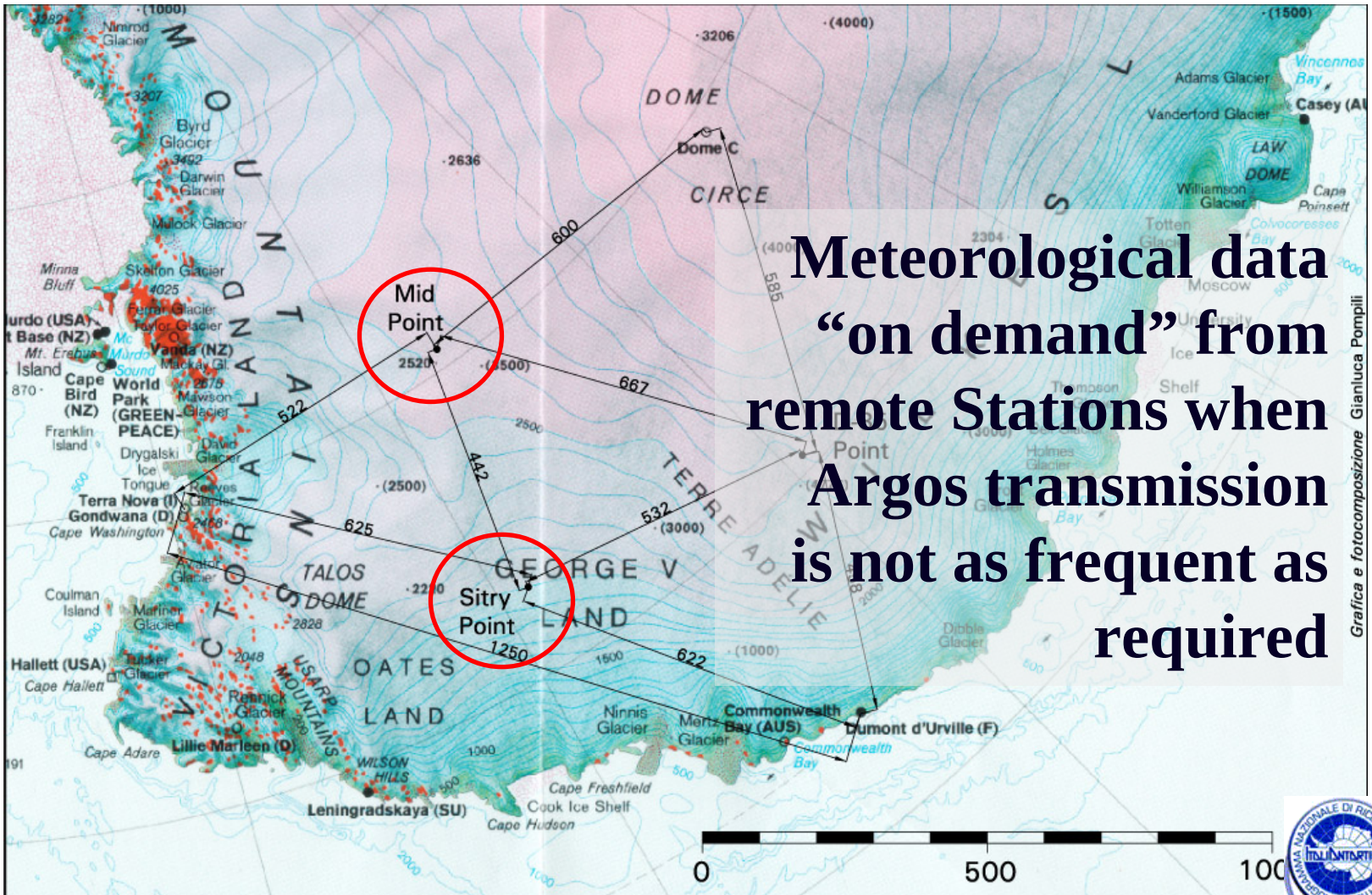


De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005



De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Iridium Terminal:

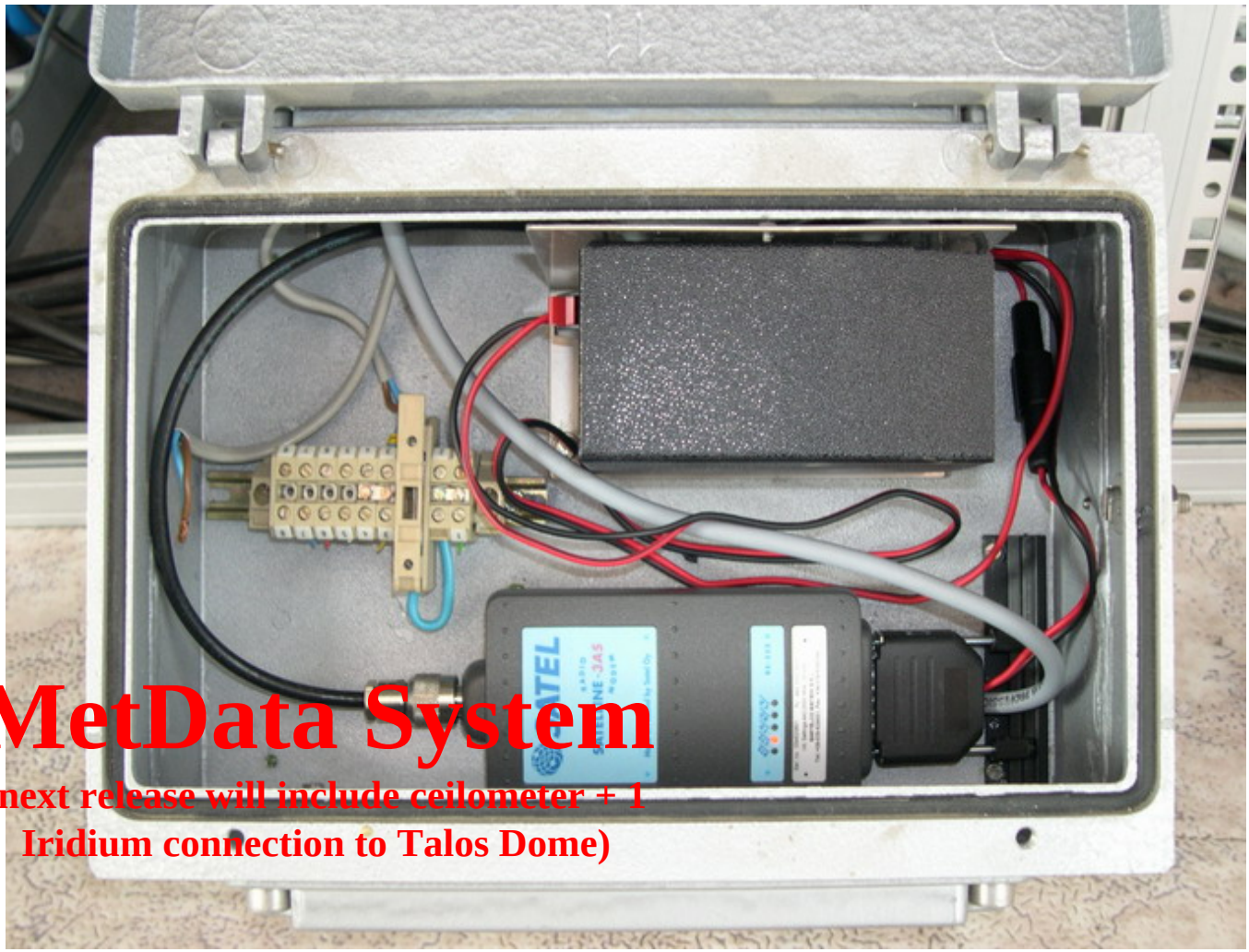


Meteorological data "on demand" from remote Stations when Argos transmission is not as frequent as required

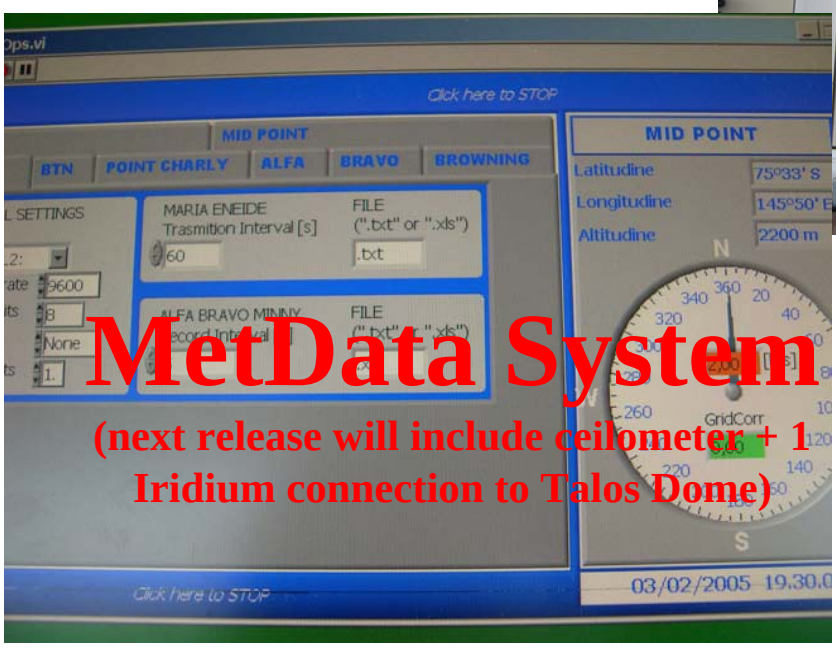
Grafica e fotocomposizione Gianluca Pompili

De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Visualization at OPS room



Visualization at OPS room



MetData System

(next release will include ceilometer + 1 Iridium connection to Talos Dome)

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Finally…

http://www.climantartide.it

De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005

Introduction to the site

- Homepage
- Introduction
- Meteo-climatological Observatory
- Aws stations
- Radiosounding
- Access to data
- Reserved data
- AWS Charts
- Radiosounding Charts
- Contacts
- Link
- Copyright Warning
- Webmaster
- News

Versione Italiana

The Web site

This Web site was initially developed to store climatological data from AWS and Radiosoundings, and allow researchers to access the data and obtain real time charts; over time, all the daily data collected at Mario Zucchelli Station and Terra Nova Bay have been added: TAF, METAR, SYNOP, Weather bulletins, Satellite images, etc.. Users can now view and download data, and obtain charts.

The site map

These pages give introductions and explanations on the topics :
"The Meteo-climatological Observatory"describes the importance of climate measurements and the research undertaken in Antarctica;
"Aws stations" gives an overview of Automatic Weather Stations installed in Antarctica, with technical details and geographic locations;
"Radiosounding" > explains what a radiosounding is, how it works, and how charts can be obtained with archived data;
"Contacts"contains a list of people that can be contacted to obtain more information;
"Access to data"> allows for the viewing and downloading of archived data. The first page allows you to choose the data type, and following pages allow you to choose the period of data etc. Downloads are daily for some data, yearly for others;
"Link" gives a list of relating sites;
"Copyright warning"> contains information about the ownership of the data and images on the site, and how to use them within the copyright;
"Webmaster"> this page thanks and acknowledges all the people that have contributed to creating, maintaining and updating the site;
"News"recent updates;

Reserved data

"Reserved data"contains data that may not be of interest to everyone, for instance maintenance of the AWS in Antarctica, or data received by Argos satellites;
If you would like access to this information, please contact us via the 'Contacts' list, and we

Sunset on Mt Melbourne

Emperor penguins

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Versione Italiana

Access to data

Data description

Stored data are incomplete and not homogeneous for all expeditions both because not all of them were collectedstarting from the firts expeditions, and because they were collected and stored in differentways due to frequent changes of needs and personnel.

In recent years we tried to standardize all data.

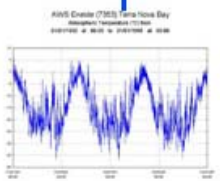
The table which follows reports all existing data divided by type.

'x' indicates that data exist for subject expedition.

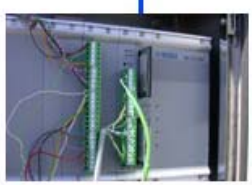
NOTE: During XX° expedition radiosounding was not done, due to Marwin failure. Are not included radiosoundig data, Temp data and Synop data.

AWS Eneide's minute data

Expeditions	TAF	BM	Radiosounding	AWS	Real time data	Synop	Temp	Sat images	Metar	Grib
I		x	x							
II		x	x							
III		x	x							
IV		x	x							

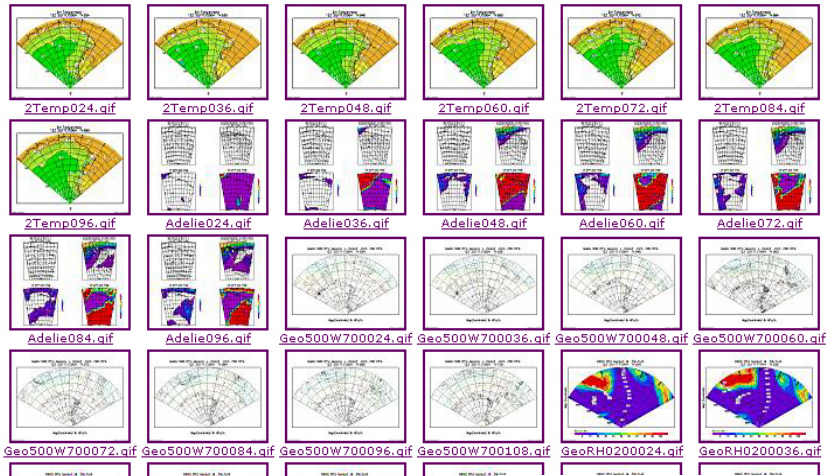


Temperature graph



AWS data storage

20-novembre-2004-november-20



Page: 1 2 3 4 5 6 7 8 9

[Prev] [Next]

```
SMAA01 LIIB 230000
AAXX 23004
89662 41982 32017 10004 21107 39762 49862 56007 70221 80002
      222// ICE 56124=
SMAA01 LIIB 230600
AAXX 23064
89662 41984 02726 10010 21139 39760 49855 55001 222// ICE 56124
      333 11012 21047=
SMAA01 LIIB 231800
AAXX 23184
89662 41984 02933 11017 2117 39757 49852 52004 222// ICE 56124
      333 10010 21022=
```

slp	tist	rh	nsw	eww	heigth	pres	td	mix	dir	vel	azimuth	radius	longi
28186.	-1.6	24.	8.55	-6.92	55.	973.9	-19.6	0.830	321.	11.0	141.000	0.	164.1
28172.	-2.3	23.	6.10	-9.14	82.	970.6	-20.7	0.760	304.	11.0	132.000	200.	164.1
28156.	-2.2	21.	4.54	-10.02	113.	966.8	-21.6	0.700	294.	11.0	126.000	300.	164.1
28138.	-2.3	20.	2.98	-10.63	148.	962.6	-22.3	0.660	286.	11.0	121.000	400.	164.1
28116.	-2.5	20.	1.48	-10.96	191.	957.4	-22.4	0.660	278.	11.1	116.000	500.	164.1
28091.	-2.7	21.	0.13	-10.93	239.	951.6	-22.0	0.680	271.	10.9	112.000	600.	164.1
28066.	-3.0	22.	-0.99	-10.65	287.	945.8	-21.8	0.710	265.	10.7	108.000	700.	164.1
28042.	-3.5	21.	-1.90	-10.31	334.	940.3	-22.7	0.650	260.	10.5	105.000	800.	164.1
28017.	-4.1	22.	-2.65	-10.07	382.	934.6	-22.7	0.660	255.	10.4	102.000	900.	164.1
27990.	-4.6	23.	-3.05	-10.03	434.	928.4	-22.6	0.670	253.	10.5	99.000	1000.	164.1
27963.	-5.1	24.	-3.88	-9.87	485.	922.3	-22.6	0.670	249.	10.6	96.000	1100.	164.1
27935.	-5.5	25.	-5.07	-9.51	539.	916.0	-22.5	0.680	242.	10.8	93.000	1200.	164.1
27905.	-5.9	27.	-5.87	-8.98	596.	909.4	-21.9	0.720	237.	10.7	90.000	1300.	164.1
27871.	-6.4	27.	-6.87	-7.95	661.	901.8	-22.4	0.700	229.	10.5	87.000	1400.	164.1
27836.	-7.0	29.	-8.15	-6.46	728.	894.2	-22.1	0.730	218.	10.4	84.000	1400.	164.1
27802.	-7.6	30.	-9.12	-5.19	793.	886.8	-22.2	0.720	210.	10.5	81.000	1500.	164.1
27769.	-8.1	32.	-9.90	-4.02	855.	879.7	-21.9	0.750	202.	10.7	77.000	1600.	164.1
27739.	-8.2	34.	-10.27	-3.30	912.	873.2	-21.3	0.800	198.	10.8	74.000	1600.	164.1
27711.	-8.5	34.	-10.56	-2.61	965.	867.3	-21.6	0.780	194.	10.9	71.000	1700.	164.1
27685.	-9.0	36.	-10.75	-1.97	1014.	861.8	-21.4	0.800	190.	10.9	68.000	1700.	164.1
27660.	-9.5	37.	-10.83	-1.71	1061.	856.6	-21.5	0.800	189.	11.0	65.000	1800.	164.1
27635.	-9.9	37.	-10.83	-2.10	1109.	851.4	-21.9	0.780	191.	11.0	62.000	1900.	164.1
27610.	-10.5	38.	-11.08	-2.18	1156.	846.2	-22.1	0.770	191.	11.3	59.000	1900.	164.1
27585.	-10.9	39.	-11.38	-1.99	1203.	841.0	-22.2	0.770	190.	11.6	57.000	2000.	164.1
27559.	-11.4	41.	-11.43	-1.64	1251.	835.7	-22.1	0.780	188.	11.5	54.000	2100.	164.2
27534.	-11.9	42.	-11.38	-1.32	1298.	830.6	-22.2	0.770	187.	11.5	52.000	2200.	164.2
27508.	-12.4	43.	-11.37	-1.24	1347.	825.4	-22.4	0.760	186.	11.4	50.000	2200.	164.2
27483.	-12.9	45.	-11.59	-1.29	1393.	820.3	-22.4	0.770	186.	11.7	48.000	2300.	164.2
27459.	-13.4	46.	-11.57	-1.57	1438.	815.5	-22.6	0.760	188.	11.7	46.000	2400.	164.2
27435.	-13.8	48.	-11.58	-1.49	1482.	810.8	-22.5	0.770	187.	11.7	45.000	2500.	164.2
27414.	-14.2	50.	-11.30	-1.02	1521.	806.6	-22.4	0.780	185.	11.3	43.000	2600.	164.2
27393.	-14.5	52.	-10.53	-1.78	1560.	802.5	-22.2	0.800	190.	10.7	42.000	2700.	164.2
27371.	-15.0	53.	-9.63	-2.38	1601.	798.2	-22.5	0.780	194.	9.9	41.000	2800.	164.2
27347.	-15.4	54.	-9.25	-2.08	1645.	793.5	-22.6	0.780	193.	9.5	40.000	2900.	164.2
27324.	-15.9	56.	-9.27	-2.05	1687.	789.1	-22.7	0.780	192.	9.5	39.000	2900.	164.2
27301.	-16.3	58.	-9.12	-2.05	1730.	784.7	-22.7	0.780	193.	9.3	38.000	3000.	164.2
27278.	-16.7	60.	-9.21	-1.91	1772.	780.3	-22.7	0.790	192.	9.4	38.000	3100.	164.2
27255.	-17.1	62.	-9.40	-1.32	1814.	775.9	-22.7	0.790	188.	9.5	37.000	3200.	164.2
27233.	-17.5	64.	-9.71	-0.30	1854.	771.8	-22.7	0.800	182.	9.7	36.000	3300.	164.2
27212.	-17.8	65.	-10.17	0.65	1893.	767.8	-22.8	0.790	176.	10.2	35.000	3400.	164.2
27190.	-18.1	66.	-10.73	1.16	1933.	763.7	-22.9	0.790	174.	10.8	33.000	3400.	164.2
27167.	-18.3	68.	-11.48	1.41	1975.	759.4	-22.8	0.810	173.	11.6	32.000	3500.	164.2
27143.	-18.5	71.	-12.11	1.91	2018.	755.0	-22.8	0.840	170.	12.1	31.000	3600.	164.2
27119.	-18.5	73.	-12.10	2.72	2062.	750.6	-22.2	0.860	167.	12.4	30.000	3700.	164.2

ENEA CLIM-OSS / ANTAR

AWS charts

- Homepage
- Introduction
- Meteo-climatological Observatory
- Aws stations
- Radiosounding
- Access to data
- Reserved data
- AWS Charts
- Radiosounding Charts
- Contacts
- Link
- Copyright Warning
- Webmaster
- News

Versione Italiana

Introduction

First of all, select the station desired from the field 'Automatic Weather Stations'. and click on the name of the station. Stations are indicated by name, Argos number, and geographic site. Only stations working all year long are included: data surveyed by Itase, Italica and Penguin are not present because fragmentary and scarcely indicative.

Secondly, select the chart of the variable desired and the period, giving year, month, and starting and ending hour, and from 'Generate AWS Plot' the chart can be obtained in a new Browser window.

N.B..: the processing of an on-line chart takes from 20 seconds to 2-3 minutes, according to the type of chart and time interval requested. If a slow modem is used, the display time may lengthen.

Charts

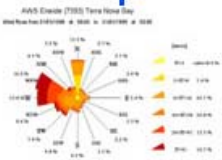
Automatic Weather Stations: Alessandra (7351) Cape King

Graphic: Temperature (Linear Plot)

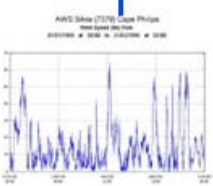
Start Date — Year 1987 Month 01 Day 01 Hour 00

End Date — Year 2003 Month 10 Day 28 Hour 21

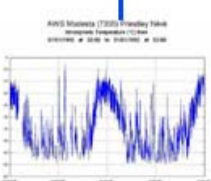
Generate AWS Plot

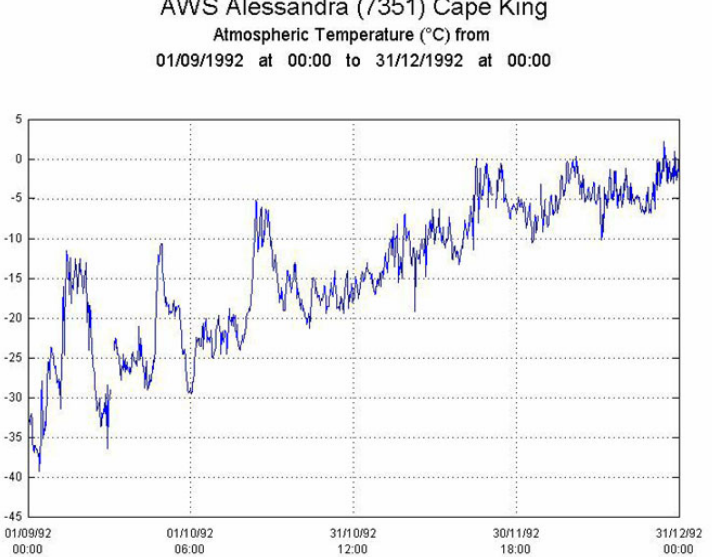


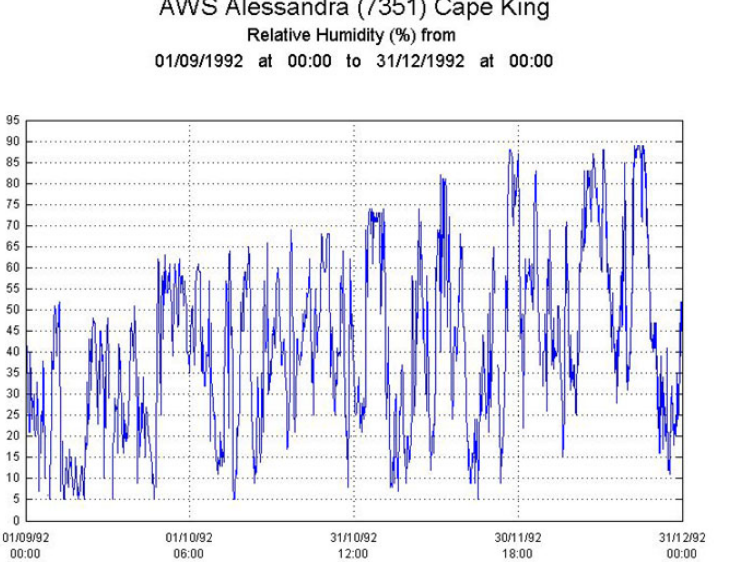
Wind rose

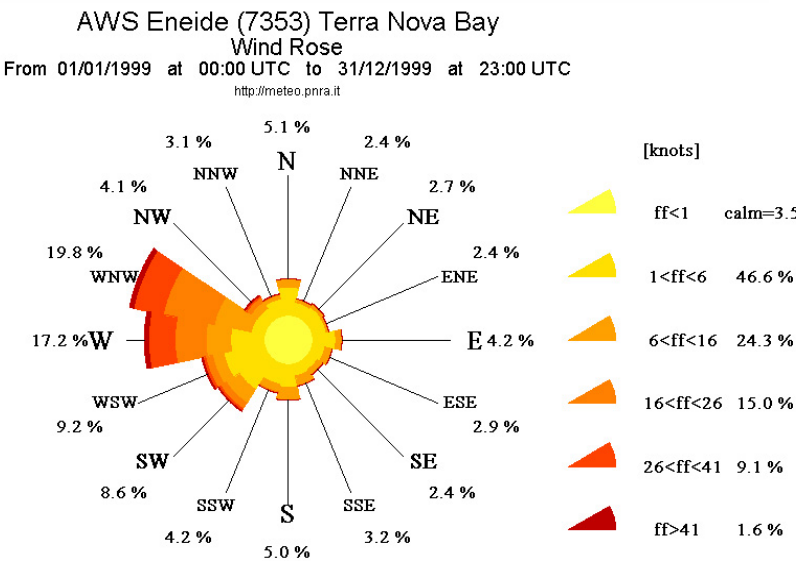


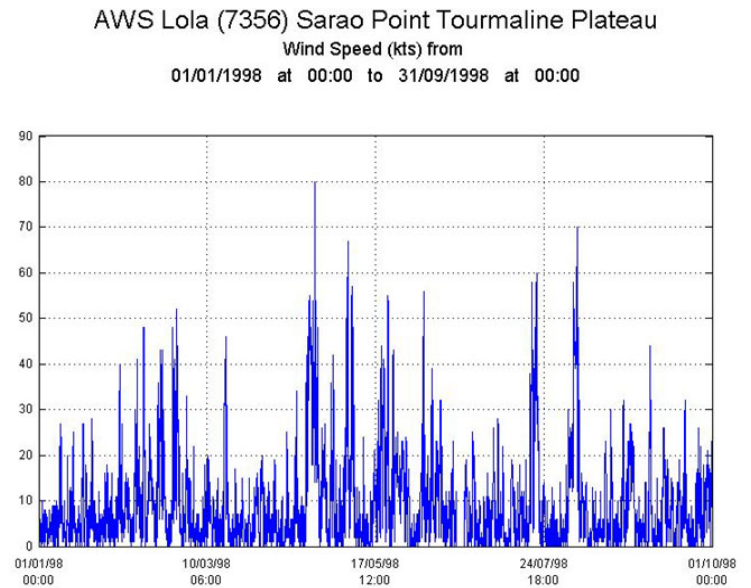
Wind and wind-chill




AWS Alessandra (7351) Cape King
Atmospheric Temperature (°C) from
01/09/1992 at 00:00 to 31/12/1992 at 00:00
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
01/09/92 00:00
01/10/92 06:00
31/10/92 12:00
30/11/92 18:00
31/12/92 00:00


AWS Alessandra (7351) Cape King
Relative Humidity (%) from
01/09/1992 at 00:00 to 31/12/1992 at 00:00
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
01/09/92 00:00
01/10/92 06:00
31/10/92 12:00
30/11/92 18:00
31/12/92 00:00


AWS Eneide (7353) Terra Nova Bay
Wind Rose
From 01/01/1999 at 00:00 UTC to 31/12/1999 at 23:00 UTC
http://meteo.pnra.it
N 5.1 %
NNE 2.4 %
NE 2.7 %
ENE 2.4 %
E 4.2 %
ESE 2.9 %
SE 2.4 %
SSE 3.2 %
S 5.0 %
SSW 4.2 %
SW 8.6 %
WSW 9.2 %
W 17.2 %
WNW 19.8 %
NW 4.1 %
NNW 3.1 %
[knots]
ff<1 calm=3.5
1<ff<6 46.6 %
6<ff<16 24.3 %
16<ff<26 15.0 %
26<ff<41 9.1 %
ff>41 1.6 %


AWS Lola (7356) Sarao Point Tourmaline Plateau
Wind Speed (kts) from
01/01/1998 at 00:00 to 31/09/1998 at 00:00
90
80
70
60
50
40
30
20
10
0
01/01/98 00:00
10/03/98 06:00
17/05/98 12:00
24/07/98 18:00
01/10/98 00:00

Radiosounding Charts

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Versione Italiana

Introduction

In order to obtain a radiosounding chart,select the expedition and the month: choose the type of chart and click on the gray small rectangle in the selected day.

N.B..: the processing of an on-line chart takes from 20 seconds to 2-3 minutes, according to the type of chart. If a slow modem is used, the display time may lengthen.

Charts

Expedition: II Expedition (17 Dec 1986 - 16 Feb 1987)

Month: October

Charts: SkewT & Hodograph

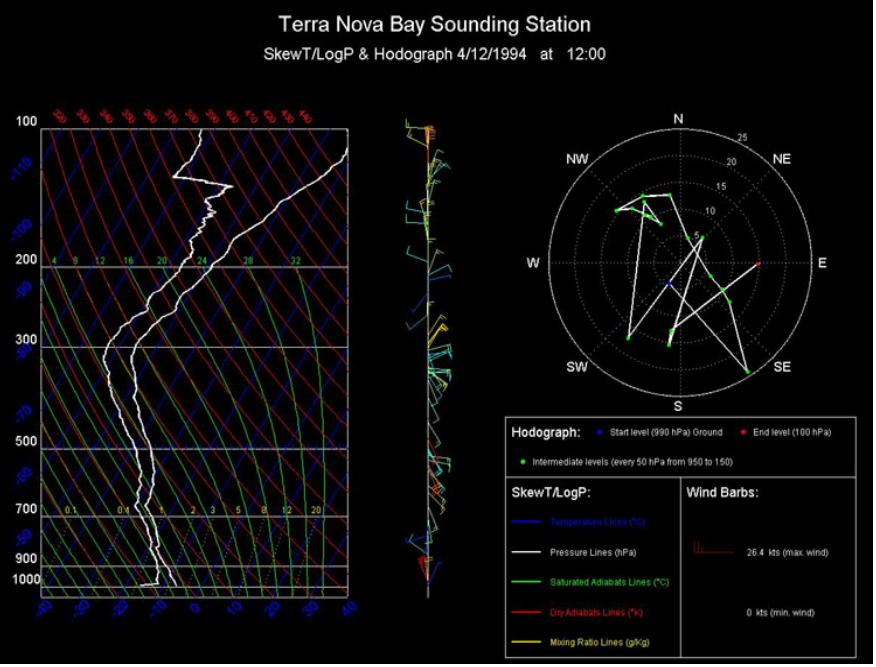
Refresh

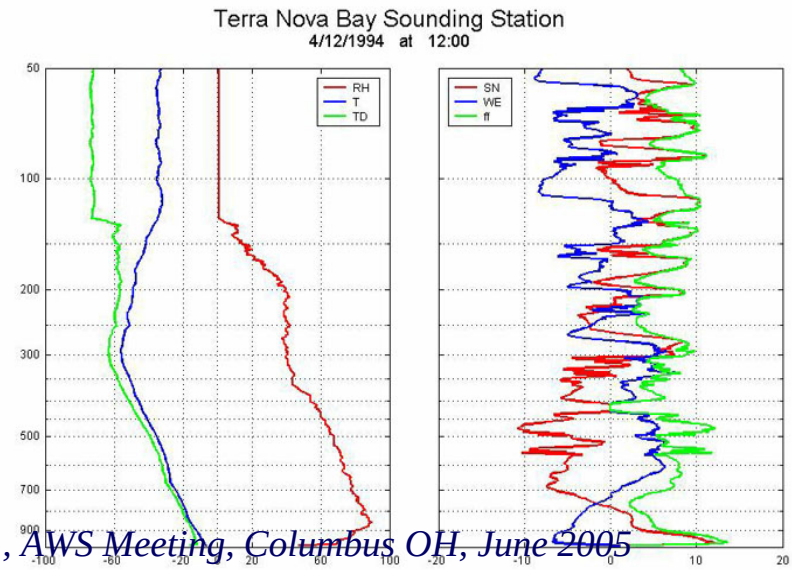
Ottobre 1986						
DOM	LUN	MAR	MER	GIO	VEN	SAB
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Computers and Marwin

Launch sistem

De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A., AWS Meeting, Columbus OH, June 2005


Terra Nova Bay Sounding Station
SkewT/LogP & Hodograph 4/12/1994 at 12:00
N
NE
E
SE
S
SW
W
NW
Hodograph:
Start level (990 hPa) Ground
End level (100 hPa)
Intermediate levels (every 50 hPa from 950 to 150)
SkewT/LogP:
Temperature Lines (°C)
Pressure Lines (hPa)
Saturated Adiabats Lines (°C)
Dry Adiabats Lines (°K)
Mixing Ratio Lines (g/Kg)
Wind Barbs:
26.4 kts (max. wind)
0 kts (min. wind)


Terra Nova Bay Sounding Station
4/12/1994 at 12:00
RH
T
TD
SN
WE
ff