http://meteo.pnra.it : a web access to the meteorological data collected by the Italian Antarctic Program

L. De Silvestri[1], U. Gentili[1], P. Grigioni[1], A. Pellegrini[2]

andrea.pellegrini@casaccia.enea.it

[1] ENEA, CLIM-OSS, Via Anguillarese 301, 00060 S. Maria di Galeria (Roma), Italy
[2] ENEA-ANTAR, Via Anguillarese 301, 00060 S. Maria di Galeria (Roma), Italy

Abstract. The Meteo-Climatological Observatory in Antarctica, is a research project funded by the P.N.R.A. It started an observing programme in 1987: now, it consist of a network of 15 Automatic Weather Stations, a Radiosounding Station and several ancillary instruments; in addition, the Observatory manages all the meteorological instruments used for operational meteorological assistance. Data are acquired according to the WMO/ICAO standards, they are stored, processed, verified, and distributed through appropriate communication means.
A Web site http://meteo.pnra.it was developed in order to give information about the role and activities of the Observatory, and to give public access to the data.

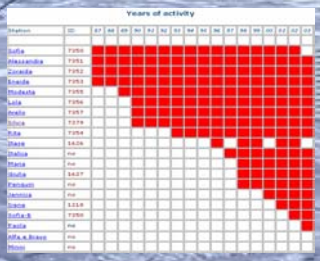
Introduction

Antarctic environment is thought to be particularly sensitive to climatic changes: the mechanisms by which Antarctica might have a considerable importance for global changes include, e.g., the ice-albedo feedback and the modification of the mass balance of the Antarctic ice cap. Numerical climatological models do not simulate correctly these phenomena, it is therefore essential to monitor the effects of climatic variations in Antarctica, on time scales varying from a few years to several decades. This is necessary due to the considerable lack of measurement sites on the mainland and surrounding oceans, while satellite-based measurement need to be calibrated through surface observations. The main goal that the meteorological observatory would like to reach, is the continuity and the accuracy of the measures, in order to produce a data set that might be used for meteo-climatological and atmospheric studies, to the local weather forecasting and for scientific activities using meteorological data as support.

The Web site (above is the home page) was developed to store climatological data from AWS and Radiosounding, and permit to researchers to use them obtaining real time charts; then, with use, all data produced daily in Terra Nova Bay were added: TAF, METAR, SYNOP, Meteo bulletins, Satellite images, etc..
User can view data, download them, obtain charts.

Automatic Weather Stations

Clicking on **AWS Stations** you can have an overlook of Automatic Weather Stations. They were installed in Antarctica during expeditions, starting from 1987. The years of operation and data logging for each of them are reported in red in the table on the right; AWS' names are clickable, redirecting to a page giving details on the selected AWS.

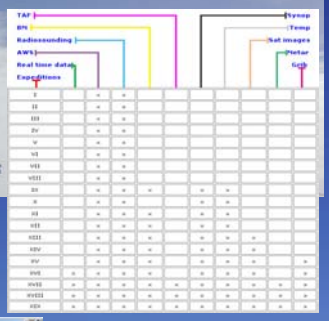


Maps

Figures on the left and below show where AWS are located ("Stations" "Maps" link): they range from the western coast of the Ross Sea to approx. 1200 km inland. Clickable maps show locations at different scales and details.

Radiosounding

An atmospheric radiosounding station was installed on 1987 at the Italian Station "Mario Zucchelli" in Terra Nova Bay. Data are shown in real time during the balloon's ascent and stored locally. Data are also coded in the WMO standard format "TEMP" and sent to the GTS.Two radiosounding/day are done during summer (late October - end of February), at 00.00 and 12.00 UTC.

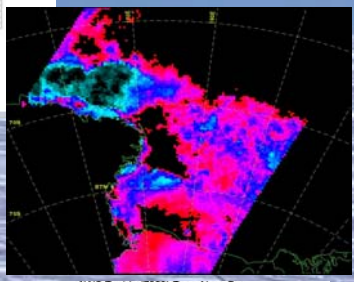


Access to data

The table on the right reports all existing data, sorted by type and Expedition which data are relevant to.
"x" indicates that data exist for subject expedition.
By clicking on the data type, a new page opens (see below) where it is possible to view data or download them.
Data are three-hourly till 1991, and hourly from 1992.

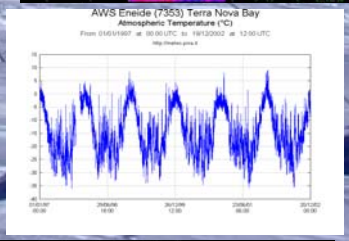
Satellite Images

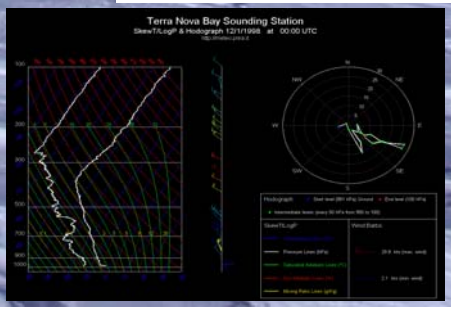
Below: sea-ice concentration map from DMSP passive MW sensor.



AWS and Radiosounding Charts

The site is linked to a complete database containing all data and information (messages, bulletins, maps, etc.) produced by the Observatory. Thanks to the database, several types of AWS and Radiosounding Charts can be generated "on demand" by users, choosing station, parameters and time period to be plotted.
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. When the processing is done, a new window opens. Figures on the right and below report two examples of charts.





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