

Final project report

Project ID: 2002/2.3
Title: *The Meteo-Climatological Observatory*

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Duration: 2 yrs
Assigned funding: € 52.800,00

Activities and results

The Research Project continued to provide a contribution to the Climatic Monitoring of the Victoria Land and the Antarctic Plateau, by means of a network of Automatic Weather Stations (some of which operate since 1987) and the launch of radiosounding balloons.

All data have been validated and have been made available to the Community through the web site www.climantartide.it. Also, real-time data have been inserted into the operational network GTS of the World Meteorological Organisation.

Attention has been paid to data useful to the assessment of the mass balance of the ice cap in Antarctica: several sites were instrumented to measure the snow accumulation on the Antarctic Plateau, in cooperation with other Research Projects of the PNRA.

At Mario Zucchelli Station, satellite data continued to be acquired from NOAA, DMSP and Orbview-2 satellites. Remotely sensed data have been acquired and stored, producing maps of the sea-ice distribution in the Ross sea and in the Polynya at Terra Nova Bay.

Products

A – papers in scientific magazines

1. Tomasi C., Cacciari A., Vitale V., Lupi A., Lanconelli C., Pellegrini A. And Grigioni P. (2004): Mean vertical profiles of temperature and absolute humidity from a twelve-year radiosounding data set at Terra Nova Bay (Antarctica), *Atmospheric Research, Volume 71, Issue 3, August-September 2004, Pages 139-169.*
Times Cited: n.d.; *Impact Factor* 0.661
2. Bromwich, David H., Monaghan, Andrew J., Powers, Jordan G., Cassano, John J., Wei, He-Lin, Kuo, Ying-Hwa, Pellegrini, Andrea. (2003): Antarctic Mesoscale Prediction System (AMPS): A Case Study from the 2000–01 Field Season. *Monthly Weather Review*: Vol. 131, No. 2, pp. 412–434.
Times Cited: 3; *Impact Factor* 1.886
3. Van Woert M.L., W. Meier, Zou C., Archer A., Pellegrini A., Grigioni P. and Bertoin C.(2001): Satellite Observation of Upper-Ocean Currents in Terra Nova Bay, Antarctica. *Annals of Glaciology*,33, pp.407-412.
Times Cited: 2 ; *Impact Factor* 0.684
4. Pietrella M., Kazimirowsky E.S., De Franceschi G., Grigioni P And Scotto C. (2002): Could We Find Any Signal Of The Stratosphere-Ionosphere Coupling In Antarctica? *Annals of Geophysics Vol. 45*, Ingv Editrice Compositori.
Times Cited: 1; *Impact Factor* n.d.
5. P. Wadhams, F. Parmiggiani and G. De Carolis, The use of SAR to measure ocean wave dispersion by frazil-pancake ice fields, *J. Phys. Oceanogr.*, Vol. 32 (2002), no. 6, 1721-1746.

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6. A. Baraldi and F. Parmiggiani, Classification of sea-ice types in SAR imagery, *Il Nuovo Cimento C*, 2001, vol. 24 C, N.1, 113-121.
7. J. A. Franco, M. Moctezuma, M. E. Barilla, B. Escalante and F. Parmiggiani, SAR Images Filtering and Segmentation: A Multiresolution and Contextual Approach, Proc. IGARSS'01, Sydney, Australia, July 2001.

B – book chapters

1. U. Gentili, P. Grigioni, L. De Silvestri, A. Pellegrini: The meteo-climatological observatory in antarctica: an overview, as browseable on the web. Conference Proceedings, *"Italian Research On Antarctic Atmosphere"* M. Colacino (Ed.) SIF, Bologna, 2003.
2. Tomasi C., Vitale V., Cacciari A., Lupi A, Pellegrini A. and Grigioni P. (2003): Mean vertical distribution features of temperature and absolute humidity from twelveyear radiosoundings measurements taken at Terra Nova Bay. Conference Proceedings Vol. 80 *"Italian Research On Antarctic Atmosphere"* M. Colacino (Ed.) SIF, Bologna, 2002
3. Messeri G., A. Pellegrini, M. Pasqui, M. Rossi, F. Meneguzzo, B. Gozzini and G. Zipoli: Weather Forecast Using RAMS Model. A Case study. Conference Proceedings Vol. 80 *"Italian Research On Antarctic Atmosphere"* M. Colacino (Ed.) SIF, Bologna, 2002

C - proceedings of international conferences

AWS Meeting, Columbus OH, June 2005
De Silvestri, L, Gentili, U., Grigioni, P., Pellegrini, A
"Meteo-climatological Observatory 1985-2005"

2nd European Conference On Permafrost EUCOP 2005 Potsdam Germany
Rossana Raffi, Barbara Stenni, Onelio Flora, Umberto Gentili, Paolo Grigioni
"Thermal and geochemical investigations about some ice wedges of Northern Victoria Land (Antarctica)"

SCAR 2004 Bremen, Germany
De Silvestri L, Gentili U, Grigioni P, Pellegrini A
<http://meteo.pnra.it> : a web access to the meteorological data collected by the Italian Antarctic Program

D – proceedings of national meetings and conferences

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E – thematic maps

1. Frezzotti M., M.C. Salvatore, Vittuari L., P Grigioni and L. De Silvestri(2001): Satellite Image Map: Northern Foothills and Inexpressible Island Area(Victoria Land, Antarctica), Museo Nazionale dell'antartide "Felice Ippolito" Sez. Scienze Della Terra (Siena) *Terra Antarctica Reports N° 6*.

F – patents, prototypes and data bases

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G – exhibits, organization of conferences, editing and similar

<http://www.climantartide.it>

H - formation (PhD thesis, research fellowships, etc.)

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Research units

1) Acquisition of surface and upper air meteorological data.

Head: Paolo Grigioni ENEA - Sezione CLIMA

Staff:

Grigioni Paolo	Researcher, ENEA
DeSilvestri Lorenzo	Technician, ENEA
Gentili Umberto	Researcher, ENEA
Pellegrini Andrea	Researcher, ENEA

2) Telerilevamento

Head: Flavio Parmiggiani – ISAO-CNR

Staff:

Flavio Parmiggiani	Researcher, ISAO-CNR
Elena Arabini	Researcher, ISAO - CNR
Samantha Melani	Researcher, ISAO - CNR

Date: November 11, 2008