



REPUBLIC OF ITALY

MINISTRY FOR EDUCATION, UNIVERSITIES AND RESEARCH

REPORT TO SCAR

No. 17 - 2005

Record of Activities July 1, 2004 - June 30, 2005
Planned Activities July 1, 2005 - June 30, 2006

**Prepared on behalf of
The Italian National Scientific Commission
for Antarctic Research**



ANT 05/14

INTERNATIONAL COUNCIL FOR SCIENCE
SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

**2005 ANNUAL SCAR REPORT ON
NATIONAL ANTARCTIC SCIENTIFIC ACTIVITIES**
1 July, 2004 – 30 June, 2005 Record of Activities
1 July, 2005 – 30 June, 2006 Planned Activities

Member Country: **ITALY**

National SCAR Committee:

Title: Commissione Scientifica Nazionale per l'Antartide
Ministero dell'Istruzione, dell'Università e della Ricerca (MIUR)
Address: Piazzale Kennedy, 20
00144 Roma, Italy (*)
Telephone: +39-06-58497779
Fax: +39-06-58497587

Chairman/President: C.A. Ricci

(*) National Committees are kindly requested to send copies of their national SCAR Reports to Italy using the following address:

Commissione Scientifica Nazionale per l'Antartide c/o PNRA S.C.r.l.
c/o C.R. Casaccia (SP 123) – Via Anguillarese, 301 – 00060 Roma (Italy)

Representatives: to SCAR	Name	Address
Permanent Delegate	A. Meloni	34.c
Alternate Delegate	C.A. Ricci	25.c
to SCAR Scientific Standing Groups(*)		
Geoscience	A. Capra(°)	10.a
	R. Cervellati	1.a
	C. Ghezzi	25.c
	A. Morelli	34.a
Life Sciences	G. di Prisco(°)	4.a
	P. Luporini	12.a
	A. Peri	1.a
	S. Pillon	31.a
Physical Sciences	M. Candidi(°)	38.a
	M. Colacino	6.a
	M. Frezzotti	9.a
	G. Spezie	21.a

(*) Delegation at the XXVIII SCAR, Bremen

(°) Voting Member

National Operating Agency:

Title: PNRA S.C.r.l.
Address: c/o C.R. Casaccia (SP 123)
 Via Anguillarese, 301
 00060 Roma (Italy)
Telephone: +39-06-30484939
Fax: +39-06-30484893
E-mail: direzione@consorzio.pnra.it

Director/Manager: A. Cucinotta

	Name	Address
COMNAP Representative	A. Cucinotta	1.a
SCALOP Representative	G. De Rossi	1.a

Member Country: ITALY

Wintering Stations:

Name	Location	Co-ordinates
Concordia (French-Italian Station)	Dome C	75°06'S, 123°24'E

Summer-only Stations:

Name	Location	Co-ordinates
Mario Zucchelli Station (MZS) ex TNB	Terra Nova Bay, Ross Sea	74°42'S, 164°07'E
Dome C French-Italian Field Camp	Dome C	75° 06'S, 123° 24'E

Automatic Recording Stations/Observatories:

Name,identifier,location	Co-ordinates	Elevation (m)	Parameters Recorded
Station MZS	74°42'S – 164°06'E	73	Geodetic GPS observation
----	74°42'S – 164°06'E	10	Geomagnetic field
----	74°42'S – 164°06'E	20	Tilt, temperature
----	74°42'S – 164°06'E	---	Sea level
----	74°42'S – 164°06'E	20	Relative Ionosphere Opacity
----	74°42'S – 164°06'E	20	Ionospheric electron density
----	74°42'S – 164°06'E	30	Seismic ground motion
Alessandra, 7351, Cape King	73°35'S – 166°37'E	160	P, T, Rh, w, r
Arelis, 7357, Cape Ross	76°43'S – 162°58'E	150	P, T, Rh, w
Concordia, -, Dome C	75°06'S – 123°24'E	3233	P, T, Rh, w
Eneide, 7353, Campo Meteo, MZS	74°42'S – 164°06'E	92	P, T, Rh, w, r, radio sounding
Giulia, 1627, Mid-Point	75°32'S – 145°51'E	2.509	P, T, Rh, w, s
Irene, 1218, Sirty Point	71°39'S – 148°39'E	2094	P, T, Rh, w, s, r
Jennica, -, Mario Zucchelli Station	74°42'S – 164°06'E	20	P, T, Rh, w
Lola, 7356, Tourmaline Plateau	74°08'S – 163°26'E	1.621	P, T, Rh, w
Maria, Point Charlie	74°38'S – 164°01'E	355	P, T, Rh, w
Modesta, 7355, Priestley Névé	73°38'S – 160°39'E	1.924	P, T, Rh, w, s
Paola, -, Talos Dome	72°46'S – 159°02'E	2.315	P, T, Rh, w, s
Penguin, -, Edmonson Point	74°20'S – 165°08'E	30	P, T, Rh, w
Rita, 7354, Enigma Lake	74°43'S – 164°02'E	268	P, T, Rh, w
Silvia, 7379, Cape Phillips	73°31'S – 169°45'E	568	P, T, Rh, w
Sofia-B, 7350, David Glacier	75°37'S – 158°35'E	1.552	P, T, Rh, w
Zoraida, 7352, Priestley Glacier	74°15'S – 163°10'E	644	P, T, Rh, w

P = atmospheric pressure
T = temperature
Rh = relative humidity

r = global solar radiation
s = snow surface height
w = wind speed and direction

NOTES

1. Only highlights of the Italian Programme - XX (past) and XXI (next) Antarctic Expeditions - are reported.
2. Most of the scientific research is interdisciplinary. Consequently an activity may be mentioned in the section of a particular SCAR SSG (Physical Sciences, Life Sciences, Geoscience) but it may be of interest for more than one Group. Please go through the entire document in order to have a complete overview of the activities in progress.
3. Many Italian scientific programs are developed in co-operation with one or more countries. An international programme is mentioned here whenever there is a substantial Italian contribution to it.
4. Technology represents a sizeable part of, and an important support to, the research in Antarctica. However, technological research, such as robotics and remote control of equipments, is not listed here, because it does not fall under the scope of any specific SCAR SSG.
5. The Report refers mainly to activities in Antarctica. Activities developed in Italy for data retrieval, sample analyses or the preparation of the next campaign is not listed in the following tables. Also activities relevant to the SCAR goals - such as the Composite Gazetteer of Antarctica or the Sample Sorting Center – not developed in Antarctica are not mentioned in the following tables.
6. Italian activities in Antarctica are organized in the framework of the national programme PNRA and are identified by a reference code. In the following tables the code of the activity (Ref.) should allow an easy recognition of the project and access to further details.
7. Abbreviations/Acronyms:
 - (S):** Summer activity
 - (W):** Winter activity
 - AESB** Antarctic Environmental Specimen Bank
 - AOD:** Aerosol Optical Depth
 - ASAIN** Antarctic Seismographic Argentinean-Italian Network
 - ASPA** Antarctic Specially Protected Area
 - BSRN:** Baseline Surface Radiation Network
 - CCAMLR** Convention on the Conservation of Antarctic Marine Living Resources
 - CEMP** CCAMLR Ecosystem Monitoring Programme
 - CLIMA** Climatic Long Term Interaction of the Mass Balance in Antarctica
 - DdU:** Dumont d'Urville (French Station)
 - EM:** electromagnetic
 - EPICA** European Programme for Ice Coring in Antarctica
 - Hb:** Hemoglobin
 - MZS:** Mario Zucchelli Station
 - NDSC:** Network for the Detection of Stratospheric Changes
 - NVL:** Northern Victoria Land
 - R/V:** Research Vessel
 - RES:** Radio Echo Sounding
 - RiSCC:** Regional Sensitivity to Climate Change in Antarctic terrestrial and limnetic ecosystems
 - S.O.:** Southern Ocean
 - SBP:** Sub Bottom Profiler
 - SE:** South East
 - sg:** subglacial
 - SuperDARN:** Super Dual Auroral Radar Network
 - TAM:** Trans-Antarctic Mountains
 - TNB:** Terra Nova Bay (the site of the Italian Station MZS)
 - ULF:** Ultra Low Frequency
 - UV:** Ultra Violet
 - VL:** Victoria Land
 - VLF:** Very Low Frequency
 - VLNDEF:** Victoria Land Network for DEFormation control
 - WMO** World Meteorological Organization

Member Country: **ITALY**

National Programmes/Projects by Scientific Standing Group

Geoscience

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Seismology	Implementation of automatic station (solar and wind powered) as prototype for a future network.	Skinner Ridge	2003-2005 (S)	A. Caserta	2003/2.1	34.c
Volcanology	Refurbishing and development of the monitoring instrumentation (tiltmeters, seismometers, GPS).	Mt Melbourne (NVL)	2004-2006 (S+W)	A. Bonaccorso	2004/2.1	34.b
Geodesy	Repetition of the regional network VLNDEF. SCAR GPS Epoch. New geodetic stations (Cape Hallett, Cape Adare). Tide gauges.	NVL, MZS	2004-2006 (S+W) (long term)	A. Capra	2004/2.3	10.a
Seismology	Observatory activities, broadband seismometry, local seismicity.	MZS, Concordia Station	2004-2006 (S+W) (long term)	A. Morelli	2004/2.5	34.a
Geomagnetism	Observatory activities.	MZS (siting only at Concordia Station)	2004-2006 (S+W) (long term)	A. Morelli	2004/2.5	34.a
Seismology	Broadband monitoring of the Scotia Sea region.	Jubany, Esperanza, Orcadas, Ushuaia, Estancia Despedida	2002-2005 (S+W) (long term)	M. Russi	2004/2.7	35.a
Cainozoic magmatism	Geodynamics and past climate. Sampling of xenoliths and hydro-thermalized rocks.	NVL	2004-2006 (S)	P. Armienti	2004/4.1	24.a
Geomorphology	Survey, sampling, mapping of relic forms and glacial deposits. Exposure-age determination.	NVL	2004-2006 (S)	C. Baroni	2004/4.2	24.a
Ross Orogen	Survey and sampling aimed at zoning and chronology.	VL	2004-2006 (S)	S. Rocchi	2004/4.6	24.a

follows: **Geoscience**

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Zeolites	Collection and study of natural zeolites.	Mt Adamson	2004-2006 (S)	M.G. Vezzalini	2004/4.7	20.a
Bottom water in the late Quaternary	Sea sediment sampling aimed at benthic foraminifera and productivity parameters.	Drygalski Basin offshore NVL	2004-2006 (S)	A. Asioli	2004/4.8	5.a
Climatic changes in Quaternary period	Sampling of sedimentary sequences. High resolution seismics, SBP, Sparker, box corer, etc.	Central Trough, Joides Basin, Wood Bay, Cape Hallett, Cape Adare	2004-2006 (S)	G. Fierro / F. Finocchiaro	2004/4.10	14.a 28.a
Marine geology	Hydrology and chemistry of the water column, relationship with sediments and past climate.	S.O., Ross Sea	2004-2006 (S)	M. Ravaioli	2004/8.6	2.c

Life Sciences

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Terrestrial ecosystem	Taxonomy and climate change. Sampling of mosses and lichens (SCAR-RiSCC).	MZS	2004-2006 (S)	R. Bargagli	2004/1.1	25.b
Ecophysiology / ecotoxicology	Study of biomarkers in different biosystems. Monitoring of Adelie penguin colony (CEMP).	NVL, Edmonson Point	2004-2006 (S)	S. Focardi	2004/1.2	25.b
Fish physiology	Biochemistry, cytogenetics, molecular biology techniques for Hb, oxygen and NO transport.	MZS, Palmer Station	2004-2006 (S)	E. Cocca	2004/1.3	4.a
Molecular biology and phylogeny	Sampling and study of ciliophora, mollusks, krill and tunicata. Application of biological molecules.	MZS	2004-2006 (S)	P. Luporini	2004/1.4	12.a
Fish physiology	Low temperature adaptation of respiration and osmotic regulation.	MZS	2004-2006 (S)	M. Maffia	2004/1.5	17.a
Bacterial biodiversity	Search for metabolic products of practical application in eterotrophic bacteria and cyanobacteria.	MZS	2004-2006 (S)	V. Bruni	2004/1.6	18.a

follows: **Life Sciences**

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Psychology	Social dynamics and adaptation in an isolated multicultural expedition party.	Concordia Station	2004-2006 (S+W)	A. Peri	2004/1.10	1.a
Human physiology	Remote monitoring and diagnosis of respiratory function.	Concordia Station and MZS	2004-2006 (S)	S. Pillon	2004/1.11	31.a
Ecology of sea-ice zone	Primary and secondary production. Trophic chain. Traps and sea-ice coring. Comparison with the Weddell Sea.	MZS	2003-2005 (S)	L. Guglielmo	2003/8.1	18.a
Marine ecology	Long term monitoring activities in the local marine ASPA and surroundings.	MZS	2004-2006 (S)	P. Povero	2004/8.5	14.a
Polar and environmental chemistry	Micropollutants and microchemicals in the environment: cycling and relationships with climate changes.	MZS, Talos Dome, Ross Sea o/b Italica	2004-2006 (S)	G. Capodaglio	2004/9.1	30.a
Environment and pollutants	Search for the optimum pollution indicator in a given matrix. Sampling for the AESB.	MZS	2004-2006 (S)	S. Caroli	2004/9.2	36.a

Physical Sciences

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Upper atmosphere, space weather	Installation of a ionosonde. Continuous monitoring of the ionosphere. RIOMeter.	MZS	2003-2005 (S)	G. De Franceschi	2003/2.2	34.c
Geomagnetism	Broadband radiometry (0,001Hz to 100kHz) of the EM noise.	MZS	2003-2005 (S)	P. Palangio	2003/2.3	34.d
Atmospheric composition	Ozone, carbon dioxide, aerosols, radiometry, transport processes.	MZS	2004-2006 (S) (since 2001)	P. Bonasoni	2004/2.2	2.b
Meteorology / Climatology	Meteorological observatory, Raduisounding, automatic weather stations. Data exchange with WMO.	NVL, MZS and Concordia Station	2004-2006 (S+W) (since 1987)	A. Pellegrini	2004/2.6	1.a

follows **Physical Sciences**

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Stratosphere	Operation of two LIDAR for stratospheric sounding, in the framework of the NDSC.	McMurdo, DdU	2004-2006 (S+W) (since '90)	F. Cairo	2004/2.9	6.c
Remote sensing	Calibration and validation of satellite data (ground truth), in the optical and microwave ranges.	Dome C	2004-2006 (S)	G. Macelloni	2004/3.1	3.a
Glaciology/Last climatic cycles	Chemical, physical, isotopic analysis of ice cores 900.000 years old (EPICA). New drilling.	Dome C, Talos Dome	2004-2006 (S)	R. Udisti	2004/5.1	13.a
Ice sheet mass balance	Submerge velocity by GPS, snow sampling and snow-radar survey. Modelling.	Dome C draining area, DdU-Dome C track	2004-2006 (S)	M. Frezzotti	2004/5.2	9.a
Global change	Study of permafrost and vegetation. Monitoring stations. (SCAR RiSCC).	C. Ross, C. King, Boulder Clay, Simpson Crags	2004-2006 (S)	M. Guglielmin	2004/5.3	15.a
Atmospheric composition	Spectrophotometry. Columnar content of O ₃ , NO ₂ , BrO, OCIO. Greenhouse gases over the ocean.	MZS, Ross Sea	2002-2005 (S)	G. Giovanelli	2002/6.4	2.b
Tropospheric aerosols	Sampling and analysis mainly aimed at the nitrogen chemistry.	MZS	2003-2005 (S)	A. Ianniello	2003/6.2	6.b
Troposphere chemistry	Interaction between snow surface and nitrogen oxides.	MZS	2002-2005 (S)	A. Ianniello	2003/6.4	6.b
Tropospheric composition	Sampling and analysis of halocarbons (according to Scripps Institution standard).	MZS	2003-2005 (S) (since 1988)	M. Maione	2003/6.5	29.a
Atmospheric aerosols	International co-operation on aerosol climatic effects. Spectrophotometry, radiometry, AOD.	MZS	2003-2005 (S)	C. Tomasi	2003/6.7	2.b
Planetary boundary layer	Measurement of wind and temperature profiles, heat and momentum fluxes, radiation, ice crystals, modelling.	Concordia Station	2004-2006 (S+W)	S. Argentini	2004/6.1	6.c
Global change	Influence of snow / atmosphere interactions. Photochemistry of NO,NO ₂ ,HONO,HNO ₃ .	MZS	2004-2006 (S)	H.J. Beine	2004/6.2	6.b

follows: **Physical Sciences**

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Atmospheric composition and climate	Polar vortex and columnar ozone. UV at ground level. Carbon dioxide sampling. Modelling.	MZS, Ushuaia, Jubany	2004-2006 (S)	C. Rafanelli	2004/6.8	6.c
Coastal aerosol	Sampling (by multistage impactors), analysis and modelling.	MZS	2004-2006 (S)	P. Mittner	2004/6.9	22.a
Cosmic Background Radiation	Detection of space distortions and polarisation.	MZS	2002-2005 (S)	G. Dall'Oglio	2002/7.10	27.a
Cosmic Rays	High energy ($>10^{12}$ eV) spectrum and composition (hydrogen to iron) using long life balloons.	McMurdo	2003-2005 (S)	P.S. Marrocchesi	2003/7.1	25.a
Auroras	Observatory activity and upgrading of the instrumentation.	MZS	2004-2006 (S+W)	G. Consolini	2004/7.2	38.a
Ionosphere	Measurements and maintenance of the radar (SuperDARN radar).	Kerguelen I.	2004-2006 (S+W)	M.F. Marcucci	2004/7.4	38.a
Cosmic Rays	Flux of the nucleonic component.	King George I.	2004-2006 (S+W)	M. Storini	2004/7.6	38.a
Magnetosphere	Geomagnetic field in the ULF band by tri-axial induction magnetometer.	MZS, Concordia Station	2004-2006 (S+W)	U. Villante	2004/7.7	16.a
Oceanography	Role of the Atlantic sector of the Southern Ocean in CO ₂ sequestration (Canopo).	South Atlantic, Weddel Sea, o/b A. Irizar	2004-2006 (S)	V. Artale	2004/8.1	9.b
Oceanography Coastal processes	Deep water formation and circulation. Moorings (programmes Clivar-Clic and Anzone).	Ross Sea, o/b N.B. Palmer	2004-2006 (S)	G. Spezie	2004/8.3	21.a



Overwintering at Concordia Station



The research vessel Italica

Member Country: **ITALY**

National Programmes/Projects by Scientific Standing Group

Geoscience

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Volcanology	Refurbishing and development of the monitoring instrumentation (tiltmeters, seismometers, GPS).	Mt Melbourne (NVL)	2004-2006 (S)	A. Bonaccorso	2004/2.1	34.b
Geodesy	Repetition of the regional network VLNDEF. SCAR GPS Epoch. New geodetic stations (Cape Hallett, Cape Adare). Tide gauges.	MZS, NVL	2004-2006 (S+W) (long term)	A. Capra	2004/2.3	10.a
Seismology	Observatory activities, broadband seismometry, local seismicity.	MZS, David Glacier, Concordia Station,	2004-2006 (S+W) (long term)	A. Morelli	2004/2.5	34.a
Geomagnetism	Observatory activities.	MZS, Concordia Station	2004-2006 (S+W) (long term)	A. Morelli	2004/2.5	34.a
Seismology	Broadband seismology of the Scotia Arc (network ASAIN).	Jubany, Esperanza, Estancia Despedida, Orcadas, Ushuaia	2004-2006 (S+W) (long term)	M. Russi	2004/2.7-8	35.a
Aerogeophysics and Neotectonics	Relationship between neotectonics and volcanism, by airborne radar (60MHz).	MZS (Mt Melbourne area)	2002-2005 (S)	E. Armadillo	2002/3.11	14.a
Geophysics	WISE Project: Western Ice Sheet Evolution at the Ross Sea by reflection seismic.	Ross Sea o/b OGS-Explora	2002-2005 (S)	G. Böhm	2002/3.8	35.a
Geophysics	ULISSE: Understanding Larsen Ice Shelf: Seismic Evidence, by reflection seismic.	Antarctic peninsula o/b L.M. Gould	2004-2006 (S)	F. Zgur	2005/3.1	35.a
Glacial geology of the upper Cainozoic	Geomorphology and chronology of the NVL ice system.	MZS	2004-2006 (S)	C. Baroni	2004/4.2	24.a
Geophysical exploration	Structure of the Subglacial Wilkes Basin Eastern Margin. Aerogeophysical survey (WISE).	MZS, Talos Dome, Sitry Point	2004-2006 (S)	E. Bozzo	2004/3.2	14.a
Ross Orogen	Regional correlations. Survey and sampling	MZS, Litell Rocks, Britannia Range	2002-2005 (S)	F. Talarico	2002/4.2	25.c

follows: **Geoscience**

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Cainozoic tectonics of VL/Ross Sea	Ground Surveys. Multibeam and multichannel seismic surveys.	NVL, Ross Sea	2002-2005 (S)	F. Salvini	2002/4.5	27.b
Geology	Geology of the ridge segments (AAR and SWIR) at the boundary of the Antarctic Plate South of the Bouvet Triple Junction.	Bouvet triple junction o/b A.N. Strakhov	1999-2005 (S)	E. Bonatti	1999/4.13	2.c
Geology	The Antarctic plate boundary in the vicinity of the Macquarie Triple Junction.	Macquarie triple junction o/b OGS Explora	1999-2005 (S)	L. Gasperini	1999/4.15	2.c
Geology	Morphology and Geology of Antarctic Margins (MOGAM).	Wilkes Land, Antarctic Peninsula	2002-2005 (S)	L. De Santis	2002/4.11	35.a
Glacial geology of the upper Cainozoic	Geomorphology and chronology of the NVL ice system.	MZS	2004-2006 (S)	C. Baroni	2004/4.2	24.a
Cainozoic magmatism	Geodynamics and past climate. Sampling of xenoliths and hydro-thermalized rocks.	MZS, NVL	2004-2006 (S)	P. Armienti	2004/4.1	24.a
Lithospheric evolution	Geochemistry and chronology of lower Palaeozoic igneous products.	MZS, Littel Rocks	2004-2006 (S)	S. Rocchi	2004/4.6	24.a
Nautical charting	Bathymetric survey.	TNB o/b Italica	2002-2005 (S)	P. Lusiani	//	37.a
Marine geology	Hydrology and chemistry of the water column, relationship with sediments and past climate.	S.O., Ross Sea	2003-2005 (S)	M. Ravaioli	2004/8.6	2.c
Geophysics	WISE Project: Western Ice Sheet Evolution at the Ross Sea by reflection seismic.	Ross Sea o/b OGS-Explora	2002-2005 (S)	G. Böhm	2002/3.8	35.a
Geophysics	ULISSE: Understanding Larsen Ice Shelf: Seismic Evidence, by reflection seismic.	Antarctic peninsula o/b L.M. Gould	2004-2006 (S)	F. Zgur	2005/3.1	35.a

Life Sciences

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Terrestrial ecosystem	Taxonomy and climate change. Sampling of mosses and lichens (SCAR-RiSCC).	Edmonson Point, from Cape Hallett to Granite Harbour,	2004-2006 (S)	R. Bargagli	2004/1.1	25.b
Ecology	Bioindicators of natural and anthropic changes.	MZS	2004-2006 (S)	S. Focardi	2004/1.2	25.b
Fish physiology	Biochemistry, cytogenetics, molecular biology techniques for Hb, oxygen and NO transport.	Terra Nova Bay	2004-2006 (S)	E. Cocca	2004/1.3	4.a
Molecular biology and genetics	Sampling and study of ciliophora, mollusks, krill and tunicata. Application of biological molecules.	Terra Nova Bay	2004-2006 (S)	P. Luporini	2004/1.4	12.a
Psychology	Psychodynamics in an isolated expedition group.	Concordia Station	2004-2006 (S)	A. Peri	2004/1.10	1.a
Human physiology	Remote monitoring and diagnosis of respiratory function.	Concordia Station	2004-2006 (S)	S. Pillon	2004/1.11	31.a
Biology and adaptation	Evolutionary adaptation of genes, molecules, and cells involved in the immune response of Antarctic teleosts.	Terra Nova Bay	2004-2006 (S)	U. Oreste	2005/1.2	4.a
Oceanography	Polar deep ocean ventilation variability and its influence on global circulation.	MZS, o/b Itatica (Ross Sea, Terra Nova Bay)	2004-2006 (S)	A. Bergamasco	2004/8.2	7.a
Marine ecology	Ecology and life cycle of coastal fishes of the Ross Sea.	MZS, o/b Yuzhmorgeologiya	2004 -2006 (S)	M. Vacchi	2004/8.4	33.a
Polar and environmental chemistry	Micropollutants and microchemicals in the environment: cycling and relationships with climate changes.	MZS, Dome C, R/V Itatica	2004-2006 (S)	G. Capodaglio	2004/9.1	30.a
Environment and pollutants	Search for the optimum pollution indicator in a given matrix. Sampling for the AESB.	MZS	2004-2006	S. Caroli	2004/9.2	36.a

Physical Sciences

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Upper atmosphere, space weather	Ionospheric and Riometric observatory.	MZS	2003-2005 (W+S) (since 1991)	G. De Franceschi	2003/2.2	34.c
Geomagnetism	Broadband radiometry (0,001Hz to 100kHz) of the EM noise.	MZS	2003-2005 (S+W)	P. Palangio	2003/2.3	34.d
Atmospheric composition	Ozone, carbon dioxide, aerosols, radiometry, transport processes.	MZS, Dome C	2004-2006 (S) (since 2001)	P. Bonasoni	2004/2.2	2.b
Radiation	Implementation of the BSRN station.	Dome C	2004-2006 (S)	T. Georgiadis	2004/2.4	2.a
Meteorology / Climatology	Meteorological observatory, Raduisounding, automatic weather stations. Data exchange with WMO.	NVL	2004-2006 (W+S) (since 1987)	A. Pellegrini	2004/2.6	1.a
Stratosphere	Operation of two LIDAR for stratospheric sounding, in the framework of the NDSC.	McMurdo	2004-2006 (S+W) (since 1990)	F. Cairo	2004/2.9	6.c
Climatology/Glaciology	Ice stratigraphy. Analysis of shallow and deep coring	MZS, Talos Dome	2004-2006 (S)	R. Udisti	2004/5.1	13.a
Ice mass balance	RES. Submerge velocity by GPS. Shallow drilling.	MZS, Mid Point Dome C	2004-2006 (S)	M. Frezzotti	2004/5.2	9.a
Global Change	Study of permafrost (including frost blisters and ice wedges) and vegetation within RiSCC framework.	Boulder Clay, Adelie Cove, Mt Browning, Edmonson Point	2004-2006 (S)	M. Guglielmin	2004/5.3	15.a
Subglacial lakes	RES surveys for Concordia Lake characterisation.	Dome C	2005-2007 (S)	I. Tabacco	2005/12.1	19.a
Tropospheric composition	Sampling and analysis of halocarbons (according to Scripps Institution standard).	Terra Nova Bay	2003-2005 (S)	M. Maione	2003/6.5	29.a
Atmospheric aerosols	International co-operation on aerosol climatic effects. Spectrophotometry, radiometry, AOD.	Terra Nova Bay	2003-2005 (S)	C. Tomasi	2003/6.7	2.b
Planetary boundary layer	Turbulence, temperature, wind and aerosol measurement by fast response sensor, microwave radiometer, sodar and lidar.	Concordia Station	2004-2006 (S+W)	S. Argentini	2004/6.1	6.c

follows: **Physical Sciences**

Subject	Investigation	Locality	Duration	Principal Investigator	Ref.	Address
Climatology	Climatic effects of aerosol particles and thin clouds over the East Antarctic Plateau.	Dome C	2004-2006 (S)	V. Vitale	2004/6.4	2.b
Marine aerosol	Particle size distribution (lidar, etc.).	Ross Sea o/b Italice	2004-2006 (S)	M. Del Guasta	2004/6.5	3.a
Atmospheric composition and climate	Polar vortex and columnar ozone. UV at ground level. Carbon dioxide sampling. Modelling.	MZS, Ushuaia, Jubany	2004-2006 (S)	C. Rafanelli	2004/6.8	6.c
Cosmic Rays	High energy ($>10^{12}$ eV) spectrum and composition (hydrogen to iron) using long life balloons.	McMurdo	2003-2005 (S)	P.S. Marrocchesi	2003/7.1	25.a
Cosmic background radiation	Bolometric interferometry for the polarisation of the cosmic microwave background.	Concordia Station	2003-2005 (S+W)	S. Masi	2003/7.2	26.a
Ionosphere, magnetosphere	Radar monitoring (SuperDARN network).	Dome C	2004-2006 (S)	E. Amata	2004/7.1	38.a
Auroras	Observatory activity and upgrading of the instrumentation.	MZS	2004-2006 (S)	G. Consolini	2004/7.2	38.a
Cosmic Rays	Flux of the nucleonic component.	King George Island, E. Frei Station	2004-2006 (S+W) (long term)	M. Storini	2004/7.6	38.a
Astrophysics	IRAIT, the Italian Robotic Antarctic Infrared Telescope. Siting and preliminary measurements.	Dome C	2002-2005 (S)	M. Busso	2004/7.8	32.a
Cosmic background radiation	Detection of space distortion and polarization. Site preparation for the new telescope.	MZS	2004-2006 (S)	G. Dall'Oglio	2005/7.1	27.a
Oceanography	Role of the Atlantic sector of the Southern Ocean in CO ₂ sequestration (Canopo).	S.O. Weddel Sea o/b A. Irizar	2004-2006 (S)	V. Artale	2004/8.1	9.b
Oceanography, Coastal processes	Hydrology, biogeochemistry and current measurement. Moorings.	Ross Sea o/b Italice	2004-2006 (S)	G. Spezie	2004/8.3	21.a

For further information please contact R. Cervellati: (roberto.cervellati@consorzio.pnra.it) or C. Ramorino (chiara.ramorino@consorzio.pnra.it)

Member Country

ITALY

Contact Addresses, telephone and facsimile numbers, E-mail addresses

N.	ADDRESS	P.I.	TELEPHONE	FACSIMILE	E-MAIL
1.	<i>Consorzio per l'attuazione del Programma Nazionale di Ricerche in Antartide (PNRA S.C.r.l.)</i>				
a	Consorzio PNRA c/o CR Casaccia Via Anguillarese, 301 00060 Roma	R. Cervellati A. Cucinotta G. De Rossi A. Pellegrini A. Peri M.C. Ramorino	+39-06-30484938 +39-051-6098494 +39-06-30484526 +39-06-30484165 +39-06-30486426 +39-06 30483130	+39-06-30484893 +39-051-6098575 +39-06-30484893 +39-06-30484893 +39-06-30484893 +39-0630484893	roberto.cervellati@consorzio.pnra.it nino.cucinotta@consorzio.pnra.it giuseppe.derossi@consorzio.pnra.it andrea.pellegrini@consorzio.pnra.it antonio.peri@consorzio.pnra.it chiara.ramorino@consorzio.pnra.it
2.	<i>CNR (Bologna)</i>				
a	IBIMET Via P. Gobetti, 101 40129 Bologna	T. Georgiadis	+39-051-6399006	+39-051-6399029	t.georgiadis@ibimet.cnr.it
b	ISAC Via P. Gobetti, 101 40129 Bologna	P. Bonasoni G. Giovanelli C. Tomasi V. Vitale	+39-051-6399590 +39-051-6399591 +39-051-6399594 +39-051-6399595	+39-051-6399652	p.bonasoni@isac.cnr.it g.giovanelli@isac.cnr.it c.tomasi@isac.cnr.it v.vitale@isac.cnr.it
c	ISMAR - Sez. di Geologia Marina di Bologna Via P. Gobetti, 101 40129 Bologna	E. Bonatti L. Gasperini M. Ravaioli	+39-051-6398935 +39-051-6398901 +39-051-6398905	+39-051-6398944 +39-051-6398940 +39-051-6398944	enrico.bonatti@bo.ismar.cnr.it luca.gasperini@bo.ismar.cnr.it mariangela.ravaioli@bo.ismar.cnr.it
3.	<i>CNR (Firenze)</i>				
a	IFAC Via Panciatichi, 64 50127 Firenze	M. Del Guasta G. Macelloni	+39-055-4235207 +39-055-4235284	+39-055-410893	m.delquasta@ifac.cnr.it g.macelloni@ifac.cnr.it
4.	<i>CNR (Napoli)</i>				
a	IBP Via Pietro Castellino, 111 80131 Napoli	E. Cocca G. di Prisco U. Oreste	+39-081-6132552 +39-081-6132710 +39-081-6132565	+39-081-6132248 +39-081-6132710 +39-081-6132248	e.cocca@ibp.cnr.it g.diprisco@ibp.cnr.it u.oreste@ibp.cnr.it
5	<i>CNR (Padova)</i>				
a	IGG – Sez. di Padova, c/o Univ. di Padova Dip. di Geologia, Paleontologia e Geofisica Via Giotto, 1 35137 Padova	A. Asioli	+39-049-8272048	+39-049-8272070	alessandra.asioli@igg.cnr.it

N.	ADDRESS	P.I.	TELEPHONE	FACSIMILE	E-MAIL
6	CNR (Roma)				
<i>a</i>	Viale dell'Università 11 00185 Roma	M. Colacino	+39-06-49380464 +39-06-49934320	+39-06-44702989 +39-06-20660291	m.colacino@isac.cnr.it michele.colacino@rm.cnr.it
<i>b</i>	IIA Via Salaria km. 29.300 00016 Monterotondo Stazione (Roma)	H. Beine A. Ianniello	+39-06-90675349 +39-06-90672262	+39-06-90672660	harry@iia.cnr.it ianniello@iia.cnr.it
<i>c</i>	ISAC Via del Fosso del Cavaliere, 100 00133 Roma	S. Argentini F. Cairo C. Rafanelli	+39-06-49934350 +39-06-49934427 +39-06-49934284	+39-06-20660291 +39-06-20660291 +39-06-49934291	s.argentini@isac.cnr.it f.cairo@isac.cnr.it c.rafanelli@isac.cnr.it
7.	CNR (Venezia)				
<i>a</i>	ISMAR S. Polo, 1364 30125 Venezia	A. Bergamasco	+39-041-5216836	+39-041-2602340	andrea.bergamasco@ismar.cnr.it
8.	ENEA (Frascati)				
<i>a</i>	CLIM-OSS Via E. Fermi, 45 00044 Frascati (Roma)	G. Di Donfrancesco	+39-06-94005473	+39-06-94005578	didonfrancesco@frascati.enea.it
9.	ENEA (Roma)				
<i>a</i>	CLIM-OSS S.P. Anguillarese, 301 00060 Santa Maria di Galeria (Roma)	M. Frezzotti	+39-06-30483271	+39-06-30486678	frezzotti@casaccia.enea.it
<i>b</i>	CLIM-MOD S.P. Anguillarese, 301 00060 Santa Maria di Galeria (Roma)	V. Artale	+39-06- 30483096	+39-06- 30484264	vincenzo.artale@casaccia.enea.it
10.	Politecnico di Bari				
<i>a</i>	DAU Viale del Turismo, 8 70100 Taranto	A. Capra	+39-099-4733215	+39-099-4733229	a.capra@poliba.it
12	Università di Camerino				
<i>a</i>	Dip. di Biologia Molecolare, Cellulare e Animale Via F. Camerini, 2 62032 Camerino (MC)	P. Luporini	+39-0737-403229	+39-0737-636216	piero.luporini@unicam.it
13.	Università di Firenze				
<i>a</i>	Dip. Chimica Via della Lastruccia, 3 50019 Sesto Fiorentino (FI)	R. Udisti	+39-055-4573252	+39-055-4573385	udisti@unifi.it

N.	ADDRESS	P.I.	TELEPHONE	FACSIMILE	E-MAIL
14. Università di Genova					
a	Dip. per lo Studio del Territorio e delle sue Risorse Corso Europa, 26 16132 Genova	E. Armadillo E. Bozzo G. Fierro P. Povero	+39-010-3538085 +39-010-3538095 +39-010-3538270 +39-010-3538067	+39-010-3538095 +39-010-3538095 +39-010-352169 +39-010-3538140	egidio@dipteris.unige.it bozzo@dipteris.unige.it comett@dipteris.unige.it povero@unige.it
15. Università dell'Insubria					
a	Dip. di Biologia Strutturale e Funzionale Via J.H. Dunant , 3 21100 Varese	M. Guglielmin	+39-0332-421412	+39-0332-421330	mauro.guglielmin@uninsubria.it
16. Università di L'Aquila					
a	Dip. di Fisica Via Vetoio 67010 Coppito (AQ)	U. Villante	+39-0862-433022	+39-0862-433033	umberto.villante@aquila.infn.it
17. Università di Lecce					
a	Dip. di Scienze e Tecnologie Biologiche ed Ambientali Via prov.le Lecce - Monteroni - 73100 Lecce	M. Maffia	+39-0832-298685	+39-0832-298220	m.maffia@fisiologia.unile.it
18. Università di Messina					
a	Dip. di Biologia Animale ed Ecologia Marina Salita Sperone, 31 98166 Messina	V. Bruni L. Guglielmo	+39-090-6765542 +39-090-6765539	+39-090-393409	vivia.bruni@unime.it letterio.guglielmo@unime.it
19. Università di Milano					
a	Dip. di Scienze della Terra Sez. di Geofisica Via Cicognara, 7 20129 Milano	I. Tabacco	+39-02-50318475	+39-02-50318489	ignazio.tabacco@unimi.it
20. Università di Modena e Reggio Emilia					
a	Dip. di Scienze della Terra Largo S. Eufemia, 19 41100 Modena	M.G. Vezzalini	+39-059-2055827	+39-059-2055887	vezzalini.giovanna@unimore.it
21. Università di Napoli "Parthenope"					
a	Dip. di Scienze per l'Ambiente Via De Gasperi, 5 80133 Napoli	G. Spezie	+39-081-5476586	+39-081-5513157	spezie@uniparthenope.it

N.	ADDRESS	P.I.	TELEPHONE	FACSIMILE	E-MAIL
22.	Università di Padova				
a	Dip. di Fisica "Galileo Galilei" Via F. Marzolo, 8 35131 Padova	P. Mittner	+39-049-8277290	+39-049-8277282	paolo.mittner@unipd.it
23.	Università di Perugia				
a	Dip. di Fisica Via A. Pascoli 06123 Perugia	M. Busso	+39-075-5852788	+39-075-5852742	maurizio@fisica.unipg.it
24.	Università di Pisa				
a	Dip. di Scienze della Terra Via S. Maria, 53 56126 Pisa	P. Armienti C. Baroni S. Rocchi	+39-050-2215708 +39-050-2215731 +39-050-2215710	+39-050-2215800	armienti@dst.unipi.it baroni@dst.unipi.it rocchi@dst.unipi.it
25.	Università di Siena				
a	Dip. di Fisica Via Roma, 56 53100 Siena	P.S. Marrocchesi	+39-0577-234680	+39-0577-234689	marrocchesi@unisi.it
b	Dip. di Scienze Ambientali "G. Sarfatti" Via P.A. Mattioli, 4 53100 Siena	S. Focardi R. Bargagli	+39-0577-232833 +39-0577-232828	+39-0577-232806 +39-0577-232930	focardi@unisi.it bargagli@unisi.it
c	Dip. di Scienze della Terra Via Laterina, 8 53100 Siena	C. Ghezzeo C.A. Ricci F. Talarico	+39-0577-233928 +39-0577-233818 +39-0577-233812	+39-0577-233938 +39-0577-233817 +39-0577-233938	ghezzeo@unisi.it riccica@unisi.it talarico@unisi.it
26.	Università di Roma "La Sapienza"				
a	Dip. di Fisica P.le Aldo Moro, 2 00185 Roma	S. Masi	+39-06 49914690	+39-06 4957697	silvia.masi@roma1.infn.it
27.	Università di Roma "Tre"				
a	Dip. di Fisica "E. Amaldi" Via della Vasca Navale, 84 00146 Roma	G. Dall'Oglio	+39-06-55177800	+39-06-5579303	dalloglio@fis.uniroma3.it
b	Dip. di Scienze Geologiche Largo S. Leonardo Murialdo, 1 00146 Roma	F. Salvini	+39-06-54888031	+39-06-54888201	salvini@uniroma3.it

N.	ADDRESS	P.I.	TELEPHONE	FACSIMILE	E-MAIL
28.	Università di Trieste				
a	DiSGAM Via E. Weiss, 2 34127 Trieste	F. Finocchiaro	+39-040-5582025	+39-040-5582048	finofu@univ.trieste.it
29.	Università di Urbino "Carlo Bo"				
a	Ist. di Scienze Chimiche "Prof. F. Bruner" Piazza Rinascimento, 6 61029 Urbino (PU)	M. Maione	+39-0722-303316	+39-0722-303311	michela@uniurb.it
30.	Università "Ca Foscari" di Venezia				
a	Dip. di Scienze Ambientali Dorsoduro 2137 30123 Venezia	G. Capodaglio	+39-041-2348542	+39-041-2348549	capoda@unive.it
31.	Azienda Ospedaliera "S. Camillo-Forlanini"				
a	Ospedale S. Camillo Divisione di Angiologia – Reparto "Flaiani" Circ.ne Gianicolense, 87 00152 Roma	S. Pillon	+39-06-58704599	+39-06-62276161	pillon@mclink.it
33.	Istituto Centrale per la Ricerca scientifica e tecnologca Applicata al Mare (ICRAM)				
a	c/o Museo Nazionale dell'Antartide, Sez. di Genova C.so Europa, 26 16132 Genova	M. Vacchi	+39-010-3538328	+39-010-3538102	m.vacchi@unige.it
34.	Istituto Nazionale di Geofisica e Vulcanologia (INGV)				
a	Sez. di Bologna Via Donato Creti, 12 40128 Bologna	A. Morelli	+39-051-4151424	+39-051-4151498	morelli@bo.ingv.it
b	Sez. di Catania Piazza Roma, 2 95123 Catania	A. Bonaccorso	+39-095-7165800	+39-095-435801	bonaccorso@ct.ingv.it
c	Sede di Roma Via di Vigna Murata, 605 00143 Roma	A. Caserta G. De Franceschi A. Meloni	+39-06-51860494 +39-06-51860309 +39-06-51860317	+39-06-51860507 +39-06-51860397 +39-06-51860397	caserta@ingv.it defranceschi@ingv.it meloni@ingv.it
d	Osservatorio Geomagnetico Castello Cinquecentesco 67100 L'Aquila	P. Palangio	+39-0862-25560	+39-0862-25560	palangio@ingv.it

N.	ADDRESS	P.I.	TELEPHONE	FACSIMILE	E-MAIL
35.	<i>Istituto Nazionale di Oceanografia e Geofisica Sperimentale (OGS)</i>				
a	Borgo Grotta Gigante, 42/c 34010 Sgonico (TS)	G. Böhm L. De Santis M. Russi F. Zgur	+39-040-2140259 +39-040 2140358 +39-040-2140256 +39-040-2140333	+39-040-327521 +39-040 327307 +39-040-2140266 +39-040-327307	gbohm@ogs.trieste.it ldesantis@ogs.trieste.it mrussi@ogs.trieste.it fzgur@ogs.trieste.it
36.	<i>Istituto Superiore di Sanità (ISS)</i>				
a	Dip. si Sanità Alimentare e Animale Viale Regina Elena, 299 00161 Roma	S. Caroli	+39-06-49902052	+39-06-49902366	sergio.caroli@iss.it
37.	<i>Ministero Difesa - Marina</i>				
a	Istituto Idrografico della Marina Passo Osservatorio, 4 16134 Genova	P. Lusiani	+39-010-24431	+39-010-261400	iim.sre@marina.difesa.it
38	<i>Istituto Nazionale di Astrofisica (INAF)</i>				
a	IFSI Via del Fosso del Cavaliere, 100 00133 Roma	E. Amata M. Candidi S. Consolini M.F. Marcucci M. Storini	+39-06-49934378 +39-06-49934562 +39-06-49934564 +39-06-49934563 +39-06-49934569	+39-06-49934383	ermanno.amata@ifsi.rm.cnr.it maurizio.candidi@ifsi.rm.cnr.it giuseppe.consolini@ifsi.rm.cnr.it federica.marcucci@ifsi.rm.cnr.it marisa.storini@ifsi.rm.cnr.it