

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS  
SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

**ANNUAL SCAR REPORT ON  
NATIONAL ANTARCTIC SCIENTIFIC ACTIVITIES  
1 JULY 2003 - 30 JUNE 2004**

**No. 25**

**GERMANY**

Bremerhaven, December 2004



Physical Science	Dr. Hans Oerter	1
	Dr. Roland Neuber	1a
	Dr. Christian Spiering	12
	Dr. Eberhard Fahrbach	1

*Members of SCAR Groups of Specialists*

Seals	Dr. Joachim Plötz	1
Evolution of Cenozoic Palaeo-environments of the Southern High Latitudes	Prof. Dr. Dieter Fütterer	1
Antarctic Environmental Affairs and Conservation (GOSEAC)	Prof. Dr. Heinz Miller	1
Global Change and the Antarctic (GLOCHANT)	Dr. Gerd Hubold	6

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COMNAP Representative	Prof. Dr. H. Miller	1
SCALOP Representative	Dr. H. Gernandt	1

*Member Country*                      Germany

### **Wintering Stations**

<i>Name</i>	<i>Location</i>	<i>Coordinates</i>
Neumayer Station	Ekström Ice Shelf/northeastern Weddell Sea	70°39'S/08°15'W

### **Summer-only Stations**

<i>Name</i>	<i>Location</i>	<i>Coordinates</i>
Dallmann Laboratory	Annex Station to "Jubany" (Argentina) King George Island	62°14'S/58°40'W
GARS (German Antarctic Receiving Station) (temporary campaigns only)	Annex to Station "General Bernado O'Higgins" (Chile)	63°19'S/57°54'W
Kohnen Station	Amundsenisen/Dronning Maud Land	75°00'S/00°04'E

### Currently not used:

Lillie Marleen Hut	Mt. Dockery, Victoria Land	71°12'S/164°31'E
Gondwana Station	Mt. Melbourne, Victoria Land	74°38'S/164°13'E

### **Automatic Recording Stations/Observatories**

<i>Name/Identifier</i>	<i>Coordinates</i>	<i>Parameters Recorded</i>
Air Chemistry Observatory (at Neumayer Station)	70°39'S/08°15'W	atmospheric trace compounds like near surface and stratospheric ozone, PAH,black carbon, aerosols including analysis of their constituents; Aitken nuclei, CO <sub>2</sub> , <sup>13</sup> CO <sub>2</sub> , <sup>14</sup> CO <sub>2</sub> , CH <sub>4</sub> , <sup>85</sup> Kr, <sup>7</sup> Be, <sup>10</sup> Be, <sup>210</sup> Pb, SF <sub>6</sub> , and other trace compounds in air and snow
Meteorological Observatory (at Neumayer Station)	70°39'S/08°15'W	synoptic observations, radiation measurements, columnar aerosol concentrations, upper air soundings, ozone soundings, receiving of current satellite pictures (NOAA, DMSP),

Weather Forecasting Center for  
Dronning Maud Land during summer

Geophysical Observatory (at Neumayer Station)	70°39'S/08°15'W	Earth magnetic field measurements, seismology, gravity measurements,
CTBT station IS27 (at Neumayer Station)	70°39'S/08°15'W	Infrasound measurements
Aerosol sampler (at Kohlen Station)	75°00'S/00°04'E	Chemical (ionic) composition of the aerosol

Automatic Weather Stations:

at O'Higgins Station, 63°19'S/57°54'W  
Chile:

PRARE weather station	air temperature, pressure, humidity
Permanent GPS tracker TURBO ROGUE	to receive data from NAVSTAR-GPS- satellites
Permanent GPS tracker	to receive data from NAVSTAR-GPS- satellites and GLONASS-satellites
PRARE Ground Unit No. 3	tracking of satellite orbits (ERS 2)
Tide Gauge Sensor assembly	observations of sea surface changes

**Member Country            Germany**

*National Programmes/Projects by Working Group*

*(All activities and projects which were or will be carried out during the period July 2003 to June 2004)*

**Biology**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Weddell seals	Diving and feeding behaviour	Weddell Sea	12/2003 - 01/2004	J. Plötz H. Bornemann	1 1
Weddell seals	Bioacoustics	Weddell Sea	12/2003 - 01/2004	J. Plötz O. Boebel	1 1
Benthic ecology	ANT XXI/2 BENDEX	SE Weddell Sea Bouvet Isl.	11/2003 - 01/2004	W. Arntz	1
Antarctic krill ( <i>Euphausia superba</i> ) (GLOBEC)	Population dynamics of Antarctic krill (ANT XXI/4)	Lazarev Sea	03-05-/2004	U. Bathmann	1
Krill and Zooplankton	Composition, diversity, biomass distribution, recruitment, demography, long-term variability, sea-ice interactions	Antarctic Peninsula,	ongoing	V. Siegel	6
Cephalopods	Biology, distribution, taxonomy trophic relationships	Antarctic Peninsula, Weddell Sea	ongoing	U. Piatkowski	20
Salps	Biomass, long-term variability	Antarctic Peninsula, Scotia Sea,	ongoing	V. Siegel	6
Fish stocks	Assessment, trophic relationships	Antarctic Peninsula, S-Georgia	ongoing	K.-H. Kock	6
Algae	UV effects on benthic algae	Dallmann-Laboratory	10/2003-3/2004	C. Wiencke	1

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Oceanites Oceanicus, Catharacta spec.	Breeding and population ecology, behaviour	Dallmann- Laboratory, King George Isld.	12/2003 02/2004	H.-U. Peter	14
Breeding birds and seals Cathareacta spec.	Monitoring, population ecology taxonomy	Fildes Peninsula King George Island	2003/04 (S)	H.-U. Peter	14
Protozoa Benthic ciliates	Ecological studies: biology/taxonomy	Dallmann- Laboratory, Potter Cove	02-03/ 2004	N. Wilbert	17

### **Geodesy and Geographic Information**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Long-term landscape evolution	Fission-track thermochronology	southern Prince Charles Mts/ Lambert Graben	07/2003 – 06/2004	Dr. F. Lisker	8
SCAR KGIS	Establishment, maintenance and distribution of a GIS database for multidisciplinary research and management	King George Island, South Shetland Island	2000 - 2006	S. Vogt	10
Geodesy GPS on ice and bedrock (VISA)	Gravity observa- tions and further geodetic measurements	Schirmacher Oasis, Potsdam Glacier/Wolthat Massif/Central Dronning Maud Land	11/2003 - 01/2004	R. Dietrich	7
Environmental Situation	Monitoring	Fildes Peninsula King George Island	2003/04 (S)	H.-U. Peter	14

## Geology

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Climatic and Environmental History	Paleolimnology, paleoclimatology, paleoglaciology	Dry Valleys	08/2002 - 07/2004	M. Melles	9
Magmatic Dykes	Geochemistry, age and structural relations	South Shetland Islands	07/2003 - 06/2004	Hubert Miller	4
Cenozoic paleo-climate & glacial History	Sedimentology, clay mineralogy (cores CRP, CIROS, MSSTS, DVDP)	McMurdo Sound	ongoing	W. Ehrmann	9
Cenozoic glacial sediments	Sedimentology, clay mineralogy (Pagodroma Group)	Prince Charles Mountains	ongoing	W. Ehrmann	9
Geological investigations of shield basement along the central Ross margin	petrological, geochemical investigations	Miller Range	12/2003 - 01/2004	N.W. Roland	5
Paleontology	Upper cretaceous ammonites	James Ross Basin	ongoing	P. Bengtson	19
Paleontology	Lower cretaceous ammonites	Livingston Island	ongoing	P. Bengtson	19

## Glaciology

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Ice core drilling, paleoclimate (EPICA)	Physical and chemical ice-core parameters	Kohnen station, Dronning Maud Land	ongoing	Heinz Miller	1
Paleoatmosphere and carbon cycle	$^{13}\text{C}$ in gases (ice cores), modelling	Kohnen station	ongoing	H. Fischer P. Köhler	1 1

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Climate since the LGM	stable isotopes (ice)	Kohnen station	07/2003-06/2005	H. Oerter W. Stichler	1 22
Mass balance (VISA)	Accumulation by ground radar and firn cores	Dronning Maud Land	ongoing	U. Nixdorf O. Eisen H. Oerter	1 1 1
Remote sensing	Ice velocity, topography surface characteristic	Dronning Maud Land	ongoing	W. Rack	1
Aerogeophisic	Ice thickness, surface topography, gravity, magnetic	Dronning Maud Land	ongoing	D. Steinhage U. Nixdorf W. Jokat W. Rack	1 1 1 1
Ice sheet Modelling	Ice dynamic, ice age, ice volume	Antarctica	ongoing	H. Huybrechts O. Rybak	1 1

### **Human Biology and Medicine**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
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NONE

### **Physics and Chemistry of the Atmosphere**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Synoptic observations	GCOS Surface Network (GSN)	Neumayer Station	ongoing	G. König-Langlo	1
Upper air soundings	GCOS Upper-air Network	Neumayer Station	ongoing	G. König-Langlo	1
Surface radiation measurements	Baseline Surface Radiation Network Station (BSRN)	Neumayer Station	ongoing	G. König-Langlo	1

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Ozone profiling	Network for the Detection of Stratospheric Change (NDSC)	Neumayer Station	ongoing	G. König-Langlo	1
Monitoring the atmosphere	Global Atmospheric Watch (GAW)	Neumayer Station	ongoing	G. König-Langlo	1
Air chemistry	Atmospheric trace compounds includ. analysis of their constituents; condensation nuclei, aerosol scattering, ionic compounds in aerosol an snow	Neumayer Station	ongoing	R. Weller D. Wagenbach I. Levin	1 13 13
Columnar Aerosol budget in Antarctica	Sun photometer	Neumayer Station	07/2003 - 06/2004	A. Herber	1a
Aerosol sampling	Ionic compounds in aerosol and snow	Kohnen Station	ongoing	R. Weller	1

### **Solid-Earth Geophysics**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Aeromagnetic investigations of shield basement along the central Ross margin	Aeromagnetic survey	Miller Range	11/2003 - 02/2004	D. Damaske	5
Infrasound Station 127DE	Comprehensive nuclear test ban treaty	Neumayer Station	ongoing	M. Henger	5

## Solar-Terrestrial and Astrophysical Research

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Amanda/ IceCube	Neutrino- Astrophysics	South Pole (Am-Scott)	full period 03-04	C. Spiering R. Morse	12 USA

**Member Country      Germany**

*Planned New Programmes/ Projects by Working Group  
(All activities and projects planned to start from mid 2004)*

**Biology**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Marine mammals	Bioacoustics	Weddell Sea	ongoing	O. Boebel J. Plötz	1 1
Emperor penguins	Diving and feeding behaviour	Dumont D'Urville Sea	10-12/ 2004	I. Zimmer J. Plötz A. Ancel (CEPE-France) W. Hagen	1 1 16
Deep-sea biodiversity	ANDEEP III	ANT-XXXII/3	01-04/ 2005	A Brandt.	11
Summer melt processes (ISPOL)	Ice Station Polarstern	Weddell Sea 70°S, 55°W	11/2004 - 01/2005	G. Dieckmann C. Haas H. Hellmer M. Schroeder	1 1 1 1
Algae	UV effects on benthic algae	Dallmann-Laboratory	10/2004- 3/2005	C. Wiencke	1
Oceanites oceanicus Catharacta spec.	Breeding and population ecology	Dallmann-Laboratory King George Island	12/2004 03/2005	H.-U.Peter	14
Breeding birds and seals, vegetation	Monitoring	Fildes Peninsula King George Island	2004/05 (S)	H.-U. Peter	14
Marine botany	Physiology of macroalgae	King George Island	01-03/ 2005	K. Bischof	15
Sea ice biology	Ecology of sea ice fauna	Weddell Sea	11/2004- 01/2005	M. Spindler	15
Krill, salps and other Euphausiacea	LAKRIS, demography, population dynamics	Lazarev Sea	2005-2008	V. Siegel	6

## Geodesy and Geographic Information

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
GLIMS Regional Center	Establishment of the satellite imagery based GLIMS glacier inventory	Antarctic Peninsula	2002 - 2006	F. Rau	10
Geodesy GPS on ice and bedrock (VISA)	Gravity observations and further geodetic measurements	Kottasberge Kirwanveggen/ W. Dronning Maud Land	11/2004 - 01/2005	R. Dietrich	7
Environmental situation	Monitoring	Fildes Peninsula King George. Island	2004/05 (S)	H.-U. Peter	14

## Geology

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Long-term landscape evolution	fission-track thermochronology	Admiralty Mts. N. Victoria Land	07/2004 – 06/2005	F. Lisker	8
Antarctic Permafrost	Permafrost thickness, carbon turnover, microbial activity	Livingston Isld. Bulgarian station St. Kliment	01-02/ 2005	D. Wagner	1a

## Glaciology

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Glacier volume changes, velocity field and ice mass flux	Differential GPS measurements	King George Island Antarctic Peninsula	12/2004 - 01/2005	M. Braun	21

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Ice core drilling, paleoclimate (EPICA, EPICA-MIS)	Physical and chemical ice core parameters	Kohnen station, Dronning Maud Land	ongoing	Heinz Miller	1
Paleoatmosphere and carbon cycle	$\delta^{13}\text{C}$ in gases (ice cores), modeling	Kohnen station	ongoing	H. Fischer P. Köhler	1 1
Climate since the LGM	stable isotopes (ice)	Kohnen station	07/2003-06/2005	H. Oerter W. Stichler	1 20
Mass balance (VISA)	Accumulation by ground radar and firn cores	Dronning Maud Land	ongoing	O. Eisen H. Oerter	1 1
Remote sensing	Ice velocity, topography surface characteristic	Dronning Maud Land	ongoing	W. Rack	1
Aerogeophysical	Ice thickness, surface topography, gravity, magnetic	Dronning Maud Land	ongoing	D. Steinhage W. Jokar W. Rack	1 1 1
Ice sheet Modelling	Ice dynamic, ice age, ice volume	Antarctica	ongoing	H. Huybrechts O. Rybak	1 1

### **Human Biology and Medicine**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
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NONE

### **Physics and Chemistry of the Atmosphere**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Synoptic observations	GCOS Surface Network (GSN)	Neumayer Station	ongoing	G. König-Langlo	1
Upper air soundings	GCOS Upper-air Network	Neumayer Station	ongoing	G. König-Langlo	1

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Surface radiation measurements	Baseline Surface Radiation Network Station (BSRN)	Neumayer Station	ongoing	G. König-Langlo	1
Ozone profiling	Network for the Detection of Stratospheric Change (NDSC)	Neumayer Station	ongoing	G. König-Langlo	1
Monitoring the atmosphere	Global Atmospheric Watch (GAW)	Neumayer Station	ongoing	G. König-Langlo	1
Air chemistry	Atmospheric trace compounds includ. analysis of their constituents; condensation nuclei, aerosol scattering, ionic compounds in aerosol an snow	Neumayer Station	ongoing	R. Weller D. Wagenbach I. Levin	1 13 13
Aerosol sampling	Ionic compounds in aerosol and snow	Kohnen Station	ongoing	R. Weller	1

### **Solid-Earth Geophysics**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Infrasound Station 127DE	Comprehensive nuclear test ban treaty	Neumayer Station	ongoing	M. Henger	5

### **Solar-Terrestrial and Astrophysical Research**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Amanda/ IceCube	Neutrino-Astrophysics	South Pole (Am-Scott)	full period 04-05	C. Spiering R. Morse	12 USA

## **Technology**

<i>Subject</i>	<i>Investigation</i>	<i>Locality</i>	<i>Duration</i>	<i>Principal Investigator</i>	<i>Address</i>
Ice core drilling	drill equipment	Kohnen Station	ongoing	F. Wilhelms	1

## **Member Country    Germany**

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