EXPEDITION PROGRAM ANTARCTICA

(ANT – Land 2010/2011)

STATIONS AND FLIGHT MISSIONS

NEUMAYER STATION III

KOHNEN STATION

Flight Missions

DALLMANN LABORATORY

Other Activities

Coordination

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October 2010

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1. NEUMAYER STATION III

1.1 Summary

The season ANT-Land 2010/2011 is scheduled for the period from 02 November 2010 until 24 February 2011.
Most of personnel will be flown into the Antarctic and back via the air link from Cape Town within the frame of Dronning Maud Land Air Network (DROMLAN). Ship calls are scheduled for RV POLARSTERN end of December 2010, to supply the majority of freight and fuel for NEUMAYER STATION III and aircraft operations, furthermore for SA AGULHAS end of December 2010 and beginning of February 2011, for supply of additional fuel.

NEUMAYER STATION III has successfully run its wintering period.
The main logistic objectives of the season 2010/2011 on the Ekström Ice Shelf will be the technical operation of NEUMAYER STATION III. Logistics will focus on two periods of lifting of the station. Furthermore a construction team will be onsite for maintenance of the station facilities.

In parallel station facilities will be used to support LIMPICS field party and traverse to KOHNEN STATION, furthermore to operate the Basler BT-67 aircraft POLAR 5 for about one week. The regular weather forecast service (AWI/DWD) will be provided to all aircraft operations within the Dronning Maud Land region, in particular as a contribution to DROMLAN.

LIMPICS field party (6 scientists) performing reflection seismic measurements will take place in the region of Halfvarryggen and NEUMAYER STATION during the season 2010/2011.
Medical studies of the Berlin Centre for Space Medicine (ZWMB) will be continued and extended by the station staff during the winter period.

KOHNEN STATION will be visited (8 technicians) for maintenance work such as lifting up the station. The station will be reached by traverse, including supply goods.

In cooperation with AWI our South African colleagues set up a new seasonal platform by using i.a. modules of the decommissioned NEUMAYER STATION II. The SANAP SUMMER STATION (SSS) will be in use as a accommodation platform for participants travelling from Atka Bay to station SANAE, furthermore is ready to work as emergency accommodation for NEUMAYER STATION III.

In total 60 scientists, engineers, technicians and visitors will be working or temporarily staying at NEUMAYER STATION III.

- Construction works (6)
- Logistic operations (10)
- Operation of scientific observatories (3)
- AWI scientific projects – field parties (7)
- AWI wintering staff (20)
- DWD weather forecast service (2)
- Maintenance of KOHNEN STATION (8)
- Public relations (4)

1.2 Operation of observatories

1.2.1 Meteorological observatory

Gert König-Langlo (AWI), Jölund Asseng (AWI), Holger Schmithuesen (AWI)

The meteorological observatory programme at Neumayer is ongoing. It includes:

- 3-hourly routine synoptic observations,
- daily upper-air soundings,
- weekly ozone soundings,
- continuous surface radiation and mast measurements,
- satellite picture reception (HRPT).
- training of the winterer staff.
- preparation of the wintering period 2011.

During the summer season 2010/11 an automatic weather station (AWS) will be installed in the vicinity of the meteorological tower close to NEUMAYER STATION III. It is planned to run the AWS one year parallel to the met-tower to quantify the data quality of the AWS.

1.2.2 Operational weather forecast service for DROMLAN

Christian Paulmann (DWD), Harald Rentsch (DWD)

Since 2002/03 the meteorological observatory of the German Antarctic station Neumayer offers a detailed and individual weather forecast service for all activities in Dronning Maud Land. This service is performed in close cooperation between the Alfred-Wegener-Institute for Polar and Marine Research (AWI) and the German Weather Service (DWD).
During the summer season 2010/2011 several thousand forecasts will be performed for field parties, ships, stations and especially aircrafts. It is obvious, that this service will increase the safeness of the ambiguous projects in the Dronning Maud Land. Furthermore, it will help to reduce weather induced idle times of expensive flight operations to a minimum

1.2.3 Geophysical observatory

Alfons Eckstaller (AWI), Tanja Fromm (AWI), Sarah Huber (AWI), Marketa Pokorna (AWI), Antje Schlömer (AWI)

The main activities in geophysics during austral season 2010/2011 focus on the remote stations of the local seismographic network at NEUMAYER STATION III and the temporary autonomous broadband stations deployed at KOHNEN STATION, SVEA, NOVOLAZAREVSKAYA and TROLL.

At station VNA2 on Halfvarryggen ice rise all 15 array seismometers should be recovered again, if possible. The seismometers are installed at the bottom of 150 mm KG tubes and are now at a depth of approx. 9 meters below the surface. They should be installed again for the first time at a near surface level. These seismometers had been slightly frozen in at the bottom of the tubes and must therefore be molten loose either with hot water or by using a steam jet. If a recovery should not be possible the seismometers will be left in place. However, then the tubes have to be extended by some other KG tubes to enable further access to the sensors and the preamplifier units, thus compensating the annual snow accumulation. The power supply of the central container, housing all recording units, must be further improved. A suitable battery heating system should be installed which should heat the batteries using excess power from both solar panels and wind generators. By this it should be achieved that batteries should not cool down too much which will result in a substantial derating of netto battery capacity. This will be important for less interruption in operation, especially during winter.
At station VNA3 on Søråsen ice rise, which has no additional wind generator, a further pack of $LiSO_2$ primary batteries should be installed. In a pilot operation during 2011 it should be tested if this combination of rechargeable and non-rechargeable batteries can guarantee an almost uninterrupted year around recording and will also proof economically justifiable.
At KOHNEN STATION it is intended to reinstall the STS-2 seismometer in its original wooden recording box. This box is thermally well insulated with 50 cm thick PUR foam and will shelter the sensor better against the extreme cold. This box should then remain for several years in the snow without being recovered in regular intervals. For this the seismometer cable must be modified in situ, because the former clean chemistry container which houses the data acquisition unit and the power supply systems has to be moved to another site. The data acquisition inside the container must be thermally better insulated. The traverse group traveling to KOHNEN STATION will deploy another temporary seismographic broadband station when passing Weigel Nunatak.
Annual service work has also to be done at SVEA Station. Here the cf cards of the Reftek recorder have to be changed. Besides this it should be already tested at SVEA if the recordings are of good quality and recording period and if all devices worked without malfunction. In case of any problem devices not working properly will be exchanged immediately. For this a flight with POLAR 5 is planned.
In January and February 2010 two more temporary seismic broadband stations had been deployed at NOVOLAZAREVSKAYA and TROLL for a first one-year recording period. These stations have been operated without any service from winter staff members, only the power supply is based on the stations' 230 V mains power line. If there will be permission for another year of operation these stations should remain there also in 2011. Then they have only to be checked for operational readiness and the cf cards have to be exchanged. In the other case they will be removed again.
At the base itself all involved geophysicists should be engaged in getting further familiar with the new Antelope software package which is now the standard software for analyzing and archiving data from the local seismographic network. If it could not be done before this coming summer season the newest Antelope 5.0 version should be installed. This version enables online array processing and it will

demand some intense training on this feature to use it for event localization. Concerning geomagnetism some more scripts have to be written or adopted and routine processing of geomagnetic should be brought to its final state. In the geomagnetic observatory some more technical works has to be done, mainly removing some ice and snow inside the entrance shaft.

1.2.4 Air chemistry observatory

Rolf Weller (AWI), I. Levin (IUPH), D. Wagenbach (IUPH), U. Frieß (IUP-HD), Holger Tülp (AWI), Lisa Kattner (AWI)

During the forthcoming summer campaign our activities at NEUMAYER STATION III will focus on Multiple Axis Differential Optical Absorption Spectroscopy (MAX-DOAS) measurements to detect reactive halogen compounds in the boundary layer as well as firn air. Principle investigator (PI) of this project is Dr. Udo Frieß from Institut für Umweltphysik of the University of Heidelberg (IUP-HD). In addition there will be some maintenance operation at the air chemistry observatory at NEUMAYER STATION III, especially concerning our data acquisition system (implementation of a new particle counter and a nephelometer from the Finnish Meteorological Institute, FMI) as well as training of the new air chemistry winterer Lisa Kattner.

1.3 Scientific projects

1.3.1 Reflection seismic measurements at Halfvarryggen (LIMPICS)

Dr. Olaf Eisen (AWI), Dr. Coen Hofstede (AWI)

The expedition aims at performing a seismic reflection survey from the surface at the Halfvarryggen ice dome, a candidate for the upcoming IPICS 2k/40k ice cores. At ice domes the internal structure imaged with radar data often indicates upwarping internal layers, so-called isochrone arches or Raymond bumps. Modeling studies indicate that the crystal orientation fabric (COF) at larger depths at ice domes should be highly anisotropic. As changes in COF also change the impedance contrast such changes are also detectable with seismic methods, as shown during the LIMPICS ANT 2009/10 expedition. Scientific goals therefore are to map internal seismic reflection horizons in a 2D grid centered on Halfvarryggen, which will later be compared to radar reflection horizons map the ice-bed interface and image the upper tens of meters of the underlying bedrock. In addition to these scientific goals the expedition will test improved drilling devices and the operational application of a vibroseis truck, in preparation for a seismic study at KOHNEN STATION in 2011/12.

1.4 Scientific projects during wintering

1.4.1 Change of body weight, body composition and adaptation of the cardiovascular system during wintering in Antarctica

H.-C. Gunga (ZWMB, Berlin) and E. Kohlberg (AWI), Participants: wintering team 2011

During summer season 2004/2005 a medical study started at NEUMAYER STATION in cooperation with the Berlin Centre for Space Medicine (ZWMB) and the Alfred Wegener Institute. Data collection has been continued the complete wintering periods from 2005 to 2010. The 31st wintering team should resume the project in 2011. Measurements will be made during the whole wintering period focused on the nine months lasting phase of isolation. All members of the wintering team will be involved on a voluntary basis.

The project derives from space medicine which made it possible to study the impacts of extreme environments referring to the human organism. In the same way Antarctica presents the opportunity to do research on change of body weight, body composition and adaptation of the cardiovascular system under isolated conditions. It is intended to record the body composition of the wintering personnel with the non-invasive body impedance analysis. Conditional on dehydration of the organism in Antarctic climate there is an increased loss of water through respiratory tract and skin. This potential dehydration can be recorded by the measurement of the impedance. Additional monthly taken blood samples should give information about possible correlation between changes of the autonomous nervous system and some metabolic parameters.

The autonomous nervous system is always involved in adaptation to extreme environments. That may become apparent in sleeplessness, loss of appetite, nausea and heart trouble. Early symptoms can be found in changes of the variability of heartbeat. This variability should produce knowledge about influence on the autonomous nervous system during isolation. There is a direct correlation between variability of heart frequency and actual state of reaction of the autonomous nervous system. All members of the wintering team will be introduced to the method and record an electrocardiogram weekly before getting up in the morning. The data are saved on a data logger; the medical officer of NEUMAYER STATION will transmit the data via computer and internet to the Berlin Centre for Space Medicine (ZWMB). Due to these periodical checkups the state of health of the personnel can be followed. The data loggers are developed by the Berlin Centre for Space Medicine. They record the beat-to-beat intervals of the heart to find out the variability.

Additionally we intend to start a program in summer season 2010/2011 to record the circadian system. Most remarkable, recent studies in Antarctica indicated that the rest-activity or sleep-wake rhythm was strongly influenced by social schedule, whereas the circadian rhythms in core temperatures (rectal) and plasma melatonin were much more affected by environmental light conditions (Yoneyama et al. 1999). On the other hand, it has been suggested by different authors that sleep deprivation might be related to such disruptions of the circadian organization (Manzey 2001). Therefore, we propose to investigate this question in humans wintering in Antarctica and to compare later on those results with data from astronauts during a simulated (Mars500) and real spaceflight (ISS).

For recordings about the circadian rhythm of body core temperature we request continuous measurements for 36 hours (start at 07.00 pm and stop at 07.00 am the day after) with the Thermolab equipment. In the starting phase, - presumable January 2011 – the principal investigator will equip the subjects with the Thermolab device and perform those measurement on a weekly basis. After three weeks the subjects will be asked to perform those experiments once a month until the end of the overwintering. In addition, routine monthly blood samples will be analysed for melatonin concentrations as well.

Linked to this subject we will monitor changes of cognitive function during confinement and isolation. By measuring the cognitive performance and by blood samples measuring different key neuro-chemicals.

Another program to be started during the summer season 2010/2011 is focused on the immune situation of people living in isolation. In comparison to a previous study performed at Dome Concordia we want to see the consequences of confinement stress and hypoxic stress on immune-modulation/suppression in the different environments of normobaric versus hypobaric conditions.

2. AWI FLIGHT MISSIONS AND DROMLAN

2.1 Summary

In 2010/11 AWI's research aircraft POLAR 5, a Basler BT-67 on skis, will be used for up to four different geophysical and glaciological projects. Furthermore logistic flights are planned within Dronning Maud Land Air Network (DROMLAN) and for the support of the maintenance of the remote observatories of the NEUMAYER STATION III. In total nearly 350 flight hours are planned within a period of 105 days from end of October 2010 until beginning of February 2011, including the ferry to and from Antarctica.

Beginning of the forthcoming season POLAR 5 will be based at the at NOVO airfield for logistic reasons and during the season move to NEUMAYER, respectively KOHNEN STATION. The team for CryoVEx ANT consists of 1 scientist, respectively 2 for GEEA, WEGAS, DoCo, 2 engineers for the scientific system, and a complete flight crew of 2 pilots and an engineer

The scientific equipment for the four missions will be flown in from Cape Town, South Africa, on two different DROMLAN Iljushin flights. A preliminary schedule of the season is given in table aero.tab1.

In addition to the airborne measurements glaciological studies are also planned in the vicinity of KOHNEN and NEUMAYER STATION III station. The fieldwork comprises shallow firn core drillings and snow pit sampling as well as GPS and tilt meter measurements. These activities are related to the CryoVEx ANT project. Furthermore 2 automatic weather station of the University Utrecht will be maintained.
The preliminary schedule is given in table 2.1.

Table 2.1: Preliminary schedule of POLAR 5.

Begin	End	ETA at NOVO runway
02/11/2010	13/11/2010	Ferry Toulouse – NOVO airbase
		DROMLAN or logistic support NM III observatories
21/11/2010	08/12/2010	CryoVEx ANT (NOVO, NEUMAYER, CASEY)
		DROMLAN or logistic support NM III observatories or GEEA
14/12/2010	10/01/2011	WEGAS (KOHNEN, NEUMAYER) ETA at KOHNEN: 20/12/2010
10/01/2011	29/01/2011	DoCo (NEUMAYER, PROGRESS/ZHONGSHAN, NOVO, PRINCESS ELISABETH)
		DROMLAN or logistic support NM III observatories
01/02/2011	09/02/2011	Ferry NEUMAYER - Calgary

AWI has coordinated the air transport of personnel and freight to NEUMAYER STATION III within the frame of DROMLAN, which is organized by 11 national operators. DROMLAN performs 12 flights from Cape Town to NOVO Airbase (Russia) / TROLL (Norway) and back with aircraft Iljushin IL-76TD. Feeder flights to the NEUMAYER STATION will be performed with Basler (BT-67) aircraft. Feeder flights activities in the frame of the DROMLAN cooperation will be supported by POLAR 5.

2.2 Dronning Maud Land Air Network (DROMLAN)

The aim of DROMLAN is to provide an intercontinental air-link from Cape Town to destinations within Dronning Maud Land (DML) to any member country of COMNAP and SCAR in science related activities, including logistics. This regularly operated air-link improves the accessibility and extends the time period for summer season activities. DROMLAN has been established as an international project by Belgium, Finland, Germany, India, Japan, Norway, Russia, South Africa, Sweden, The Netherlands, and UK.

Each summer season runways are prepared at NOVO Airbase close to the Russian station NOVOLAZAREVSKAYA and at the Norwegian station TROLL for landing of heavy aircraft. The runway at NOVO Airbase consists of compacted snow and is elevated about 500 m a.s.l. Because of surface melting this runway cannot be used for intercontinental flights from mid December until mid January. The runway at TROLL STATION consists of blue ice at an elevation of about 1300 m a.s.l. Because of higher altitude this runway is operational for greater aircraft during the whole summer period. NOVO Airbase is operated by Antarctic Logistics Centre International (ALCI, Cape Town) in charge of the Russian Antarctic expedition (RAE).

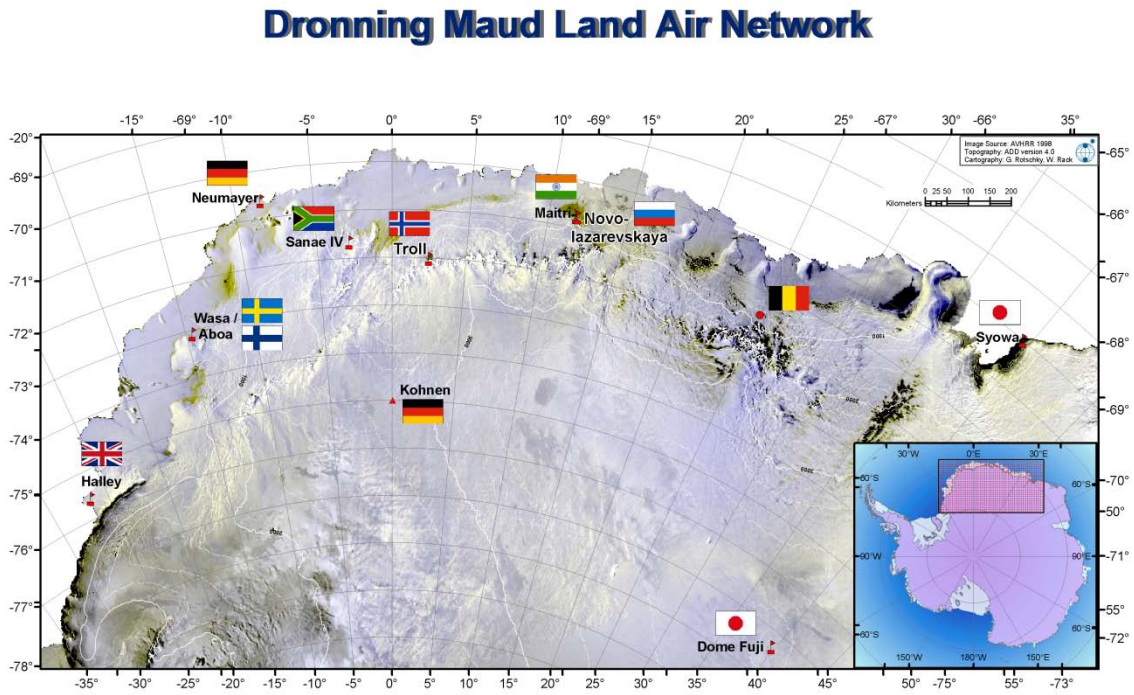

Figure 2-1: Overview map of Dronning Maud Land Air Network.

The Norwegian Antarctic Research Expedition (NARE) maintains the runway at TROLL. The weather forecast for intercontinental and internal flight operations is organized at NEUMAYER STATION (AWI, DWD). This service covers the region between HALLEY and SYOWA for all intercontinental and internal flights in the scope of DROMLAN.
Since the establishment of DROMLAN, the Antarctic Logistics Centre International (ALCI) as the logistic operator of the Russian Antarctic Expedition (RAE) organises and performs intercontinental flights with cargo aircraft Iljushin (IL-76TD) between Cape Town and NOVO Airbase every summer season. Internal feeder flights are performed with ski-equipped aircraft Basler (BT-67). The map shows destinations within Dronning Maud Land. DROMLAN members coordinate the feeder flights with ALCI and provide necessary services, fuel and facilities at their stations.
The number of flight missions depends on logistic and scientific requirements of the national programs. Every season DROMLAN generally aims to perform 10 - 14 intercontinental flights with connecting flights to various destinations.

In season 2010/2011, for DROMLAN altogether 12 intercontinental flights are scheduled with IL-76TD, between 2 Nov. 2010 and 24 Feb 2011.
The IL-76TD flights running via Novo Airbase and Troll are arranged by ALCI.
At TROLL runway flight management is arranged by NARE. Pre-flight assistance in Cape Town will be provided by ALCI for all DROMLAN intercontinental flights.
This season scientists, technicians and other personnel from 11 DROMLAN members are going to join the intercontinental flights. In total - including support personnel, pilots and others for NOVO Airbase - 312 persons will fly into Antarctica and 236 persons back. About 33 tons of airfreight have to be carried in and about 16 tons out.

Table 2.2: DROMLAN intercontinental flight activities and AWI share.

DROMLAN intercontinental transport			**AWI share**	
Aircraft – number of flights	Persons in / out	Cargo (ton) in / out	Persons in / out	Cargo (ton) in / out
IL-76TD – 12 flights	312 / 236	33 / 16	58 / 60	10.5 / 7.2

The three BT-67 POLAR 5 (cs C-GAWI), LIDIA (cs C-GEAI), and MIA (cs C-GEAJ) will carry out the feeder flights in Dronning Maud Land. ALCI coordinates and performs feeder flights according to the requirements for DROMLAN as well as for RAE activities at the Russian stations PROGRESS and VOSTOK.

2.3 DROMLAN for AWI activities

Altogether 58 scientists and technicians with about 10.5 tons of cargo will be carried from Cape Town to NEUMAYER STATION III, and 60 persons with about 7.2 tons of cargo back to Cape Town.

The following aircraft will perform logistic tasks of AWI personnel and cargo:

Iljushin (IL-76-TD) operated by ALCI for DROMLAN

Basler (BT-67) 2 operated by ALCI (LIDIA and MIA) for feeder flights in the scope of DROMLAN and 1 (POLAR 5, AWI) for scientific and logistic tasks

The detailed flight schedules are shown in chapter 5.

2.4 Logistic flight missions of POLAR 5

In the forthcoming season POLAR 5 will be used for the logistic support of various projects in East Antarctica. Flights are scheduled for AWI's own activities as well as for international partners. Logistic flights (approximately 30 flight hours) are planned only for the support of the maintenance of the external observatories of the NEUMAYER STATION III and within the DROMLAN project. The schedule for the feeder flights does not exist yet, as the planning for the flights between Cape Town and NOVO airfield, respectively TROLL Station has not been completed.

2.5 Scientific surveys with POLAR 5

In 2010/11 AWI's research aircraft POLAR 5, will be used for up to four different geophysical and glaciological projects. The team for CryoVEx ANT consists of 1 scientist, respectively 2 for GEEA, WEGAS, and DoCo, 2 engineers for the scientific system, and a complete flight crew of 2 pilots and 1 engineer

2.5.1 CryoVEx ANT

(approximately 65 flight hours)

Aim of CryoVEx ANT is to perform altimeter measurement above designated test areas in the vicinity of the Schirmacher Oasis, Law Dome, near KOHNEN and NEUMAYER. Parallel to the airborne survey a ground-based survey by the Institute for Planetary Geodesy of the Technical University Dresden is carried out in the blue ice area near the Schirmacher Oasis and by the University of Tasmania (Australia) on Law Dome. These activities are part of the CryoSat Cal/Val programme and the focus is on surface roughness and morphology of blue ice areas, high and law accumulation regions in order to derive information, which will help to evaluate CryoSat-2 data. The flight pattern comprises single flight tracks along survey profiles of the team of the TU Dresden as well as small grids above planned crossover points of CryoSat-2. The areas of interest are shown as dark grey shaded area in figure 2-2. This is a joint activity between AWI, ESA, TU Dresden, and U Tasmania.

Figure 2-2: Map showing the areas of interest of the CryoVEx ANT project as grey circles near NEUMAYER STATION III, KOHNEN STATION, NOVO airfield, and CASEY.

2.5.2 DoCo East Antarctica

(approximately 30 flight hours)

The project Dome Connections in East Antarctica (DoCo) aims for radar sections connecting deep ice core drill sites in East Antarctica mainly following the ice divides between them (DOME FUJI, DOME A REGION, VOSTOK, DOME C, TALOS DOME, see also figure 2-2) supporting interpretation of the deep ice cores. The ice divides between KOHNEN and DOME FUJI with POLAR 2 as well as between TALOS DOME – DOME – VOSTOK – DOME A with POLAR 5 have been mapped in the past. The larger endurance of POLAR 5 compared to POALR 2 and the possibility to refuel at the former AGAP-N camp allows now to complete the survey and map the ice divide between DOME A and DOME F. The profiles will allow for the first time an independent correlation of the cores by tracing internal layers, isochrones, along the ice divides between the deep ice core drill sites. This survey will be conducted within 4-5 days in January 2011. The map in figure 2-3 shows the planned profile and those already flown.

Figure 2-3: Map of the Dome Connection East Antarctica project, bold line between DOME A AND DOME F. The grey stars indicate the deep ice core drill sites (DOME FUJI, DOME A (in preparation), VOSTOK, DOME C, AND TALOS DOME) in East Antarctica. The straight grey lines indicate flight tracks towards, respectively from the dome line.

2.5.3 GEEA

(up to 28 flight hours)

The intension of this short mission is to map small scale magnetic anomalies of the western Sør Rondane in support of future geological mapping activities of BGR in this region. The survey shall link the geological studies and future planned overview mapping activities. The line spacing will be 5 km and the length of the lines 150 km. It is planned to operate POLAR 5 for this mission from NOVO airfield and to set up a magnetic and GPS reference station at the Belgian PRINCESS ELISABETH STATION.

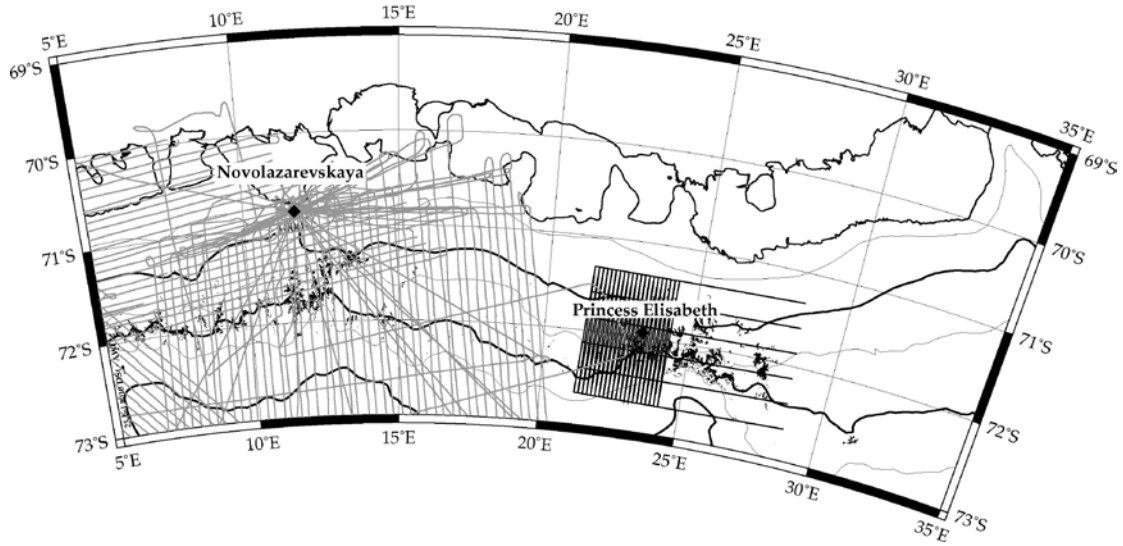

Figure 2-4: Possible flights, bold black lines, for the joint project GEEA with BGR. The grey lines indicate profiles of AWI's earlier VISA and WEGAS surveys.

2.5.4 WEGAS

(up to 130 flight hours)

On ground several GPS reference and magnetic base stations will be set up during the surveys near the station from which POLAR 5 will be operated and during WEGAS also on the polar plateau.

It is planned to carry out 15-18 survey flights for the WEGAS project operating from KOHNEN STATION. The aim is to extent the investigated area of the earlier VISA and WEGAS surveys further south. The line spacing will be 10 km and the flight level 11500 ft. The WEGAS data set will serve as a reference for satellite based magnetic and gravity field measurements, e.g. GRACE.

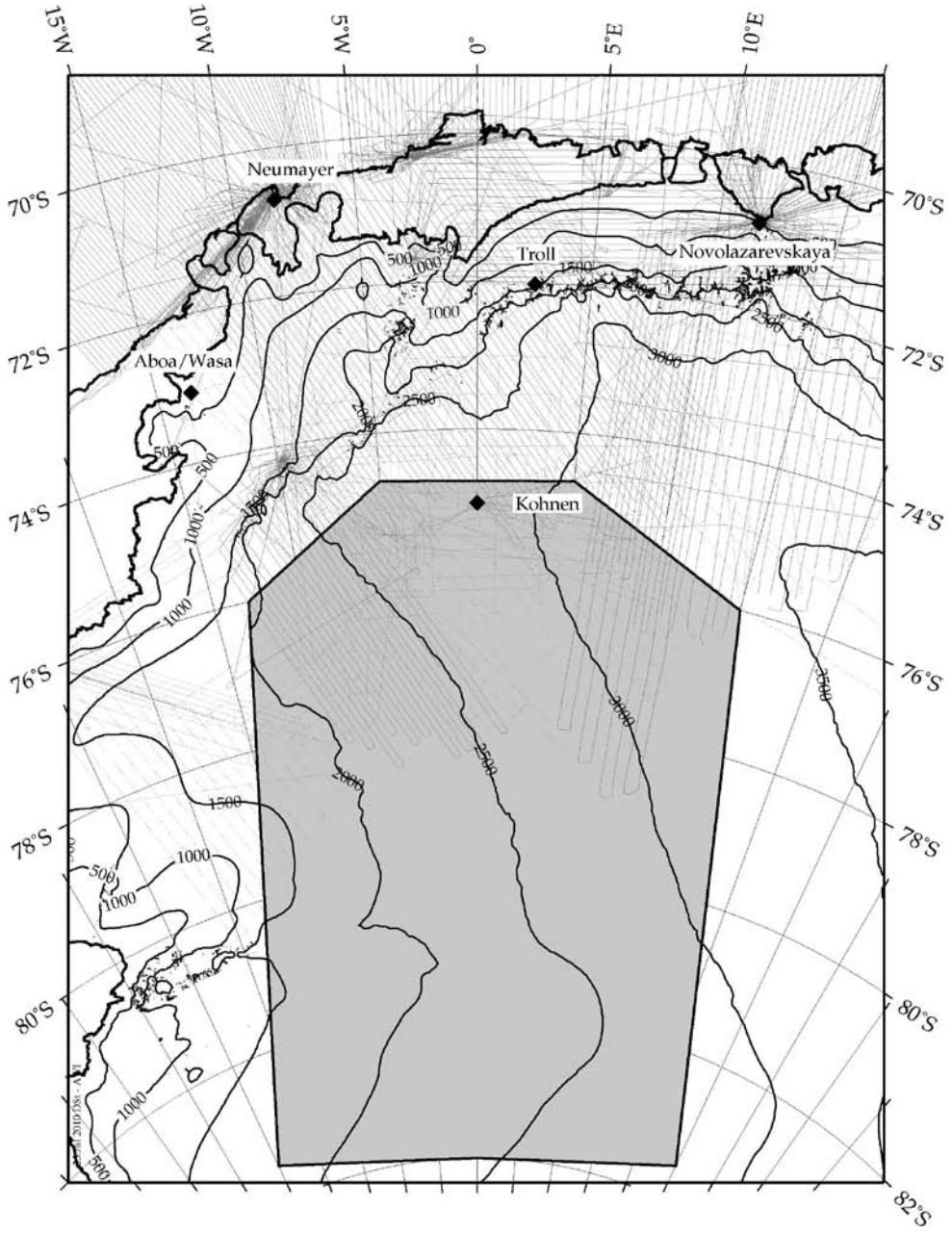

Figure 2-5: The proposed flights for WEGAS will be conducted in the grey shaded area south of KOHNEN. The line spacing will be 10 km, the orientation of the lines 0°. Test and calibration flights will be carried out in the grey shaded area around NEUMAYER STATION III The tracks of the earlier surveys VISA and WEGAS are shown as thin grey lines.

3. KING GEORGE ISLAND

3.1 Summary

The transport of personnel and cargo to King Georg Island (KGI) needs close coordination and assistance by various national programs and commercial operators. That includes aircraft and ship transportation. Transport is organised by Dirección National del Antártico (DNA) and performed by Argentinean aircraft and vessels.
Furthermore, main cargo from AWI will be transported by the support of MV Polar Pioneer, from Poland directly to Potter Cove. Back transport of cargo will be carried out by RV POLARSTERN on 20 February 2011.

3.2 DALLMANN Laboratory

The DALLMANN Laboratory at Base Jubany (Argentina) will be opened at the end of November 2010. It is operated in cooperation with the Instituto Antártico Argentino (IAA) and placed at the Argentinean station Jubany. During the season 2010/11 up to 16 German scientists (7 scientific groups) will work at the Potter Cove and the station area. The planned scientific activities of AWI focus coastal biological projects, furthermore glaciological and sedimentological projects.
In order to perform all planned scientific works up to 5.3 tons of cargo have to be shipped by sea.
On 30 October MV Polar Pioneer will call for King George Island deliver cargo and to drop the first 7 scientists. Station will be closed end of March 2011.

3.2.1 Planned scientific projects

3.2.1.1 Glacier mass balance measurements on KGI

Ulrike Falk, Matthias Braun und Hilke Gieseke (Center for Remote Sensing of Land Surfaces – University Bonn)

Our main objectives are the quantification of hydrological and geophysical processes of Potter Cove Glacier, its energy and water exchange with the atmospheric boundary layer as well as melt water production and glacier mass balance. In the context of the ESF IMCOAST project we intend to start an extensive field programme on Potter Glacier in addition to previous observations on Bellingshausen Dome and the main ice cap of King George Island. The observations on Potter glacier shall be run over three years and comprise the installation of an automatic weather station (AWS) including direct measurements of surface energy fluxes on the glacier. Additionally snow courses and mass balance stakes will be placed on the glacier. The data from this instrumentation will form the base for point and spatially distributed melt and glacier surface mass balance modelling. Applied methods include

assimilation of remote sensing products into a glacier mass balance and melt modelling. TerraSAR-X satellite data will be used to map glacier retreat, i.e. changes in glacier extent and snow covered areas. The remote sensing data serves as a platform to spatially validate the glacier melt modelling. Different weather patterns will be analyzed with regard to their impact on glacier melt rates. The snow courses and modelling activities shall also cover Potter Peninsula in order to link them to the hydrological and sedimentological measurements and other research works within IMCOAST or any other colleagues.

3.2.1.2 Geochemical characterization and fate of the dissolved and particulate load of glacial melt waters of the Potter Cove watershed, King George Island (Western Antarctic Pensinsula)

Donata Monien (Uni Oldenburg), Hans-Jürgen. Brumsack (Uni Oldenburg),

The Western Antarctic Peninsula (WAP) belongs to those regions, which are characterized by rapid regional warming and gradual glacier retreat. Since the late 1960s a reduction of sea ice and a dramatic retreat of glaciers are reported at the WAP that has even accelerated in the last decade. First biological and geophysical investigations at Potter Cove and Maxwell Bay (King George Island) showed that these changes directly affect the coastal ecosystem by the increasing amounts of turbid melt waters. However, the chemistry of the dissolved and particulate load of melt waters draining from retreating glaciers into Potter Cove is still poorly known. It has been suggested that the input of nutrients (N, P, Si), micro-nutrients (e.g. Fe, Cu, Ni, Zn) and suspended matter into Potter Cove may have an impact on biological processes in this semi-enclosed bay and even on the fertility of the whole Southern Ocean. Goals of this project are the geochemical characterization, quantification and transformation of the dissolved nutrient, major and minor ion composition as well as the particulate matter of glacial melt water draining into Potter Cove. Furthermore, besides the quantification of the particle flux and the nutrients, major element and trace metal input on different time scales into the cove, we intend to get assessment of the transfer of geochemical proxies from glacier retreat into sedimentary archives. The results of this research may contribute to the better understanding of the impact of global climate change on marine ecosystems at the WAP in future.

3.2.1.3 The Coastal Depositional Environment in KGI Fjord and Bay Systems

Christian Hass (AWI), Nina. Wittenberg (AWI), Anne Wölfl (AWI); Sebastian Lindhorst, Ilona Schutter (Uni Hamburg)

Objectives

Goal of the proposed project is to assess the impact of recent and subrecent climate change on the coastal depositional environment of Potter Cove and Maxwell Bay (King George Island, West Antarctic Peninsula, WAP). Specifically, we want to assess the impact of climate-change controlled glacier-melting processes on the near-shore (Potter Cove) and shallow-coastal (Maxwell Bay) marine

depositional environments during the Late Holocene (using long sediment cores and shallow seismic), at present (via the compilation of thematic maps on e.g. sediment distribution and bed forms), and in the near future (interpreting the project results). The second goal is to reconstruct the late Holocene climate development of the WAP on the basis of sediment cores obtained from marine areas off King George Island outside the ice scouring zone since the immediate glacier-affected zones rarely carry undisturbed sedimentary records. A pilot study revealed high temporal resolution (up to 1cm/y) in a sediment core from Maxwell Bay. Special emphasis is placed upon the warm phases of the past millennium (in particular the Medieval Warm Period) as analogues to the present one. Course and characteristics of warm phases of the past are instrumental in evaluating the significance of the present climate trend and will aid in establishing a prognosis for the near future environmental development.

Preliminary schedule of actions

Acoustic measurements including RoxAnn seafloor classification system, sidescan sonar, and shallow seismics as well as seafloor surface sampling will be carried out from zodiacs. A 200 m grid will be draped over the working area Potter Cove and the adjacent shallow areas north and south of the fjord mouth (Fig. 3-1).

Profiling work will be on grid lines, sediment sampling will be carried out at grid nodes. Navigation in centimeter precision will be accomplished using a dGPS. All data will be geo-referenced and stored in a GIS database. The actual density of profiling and sampling will be adjusted to the atmospheric conditions during the coming field campaign. In this campaign we aim at taking c. 200 seafloor samples, measuring about 80 nm of RoxAnn/sidescan sonar transects and all of the c. 20 nm of shallow seismic transects during the first of two campaigns. The remaining c. 200 samples and c. 40 nm of RoxAnn/sidescan sonar transects along with supplementary samples and transects that emerge from the results of the previous campaign will be taken/measured during the second campaign (2011/2012 season). We aim at deploying RoxAnn and sidescan sonar synchronously during the campaigns. The shallow seismics must be run separately due to the heavy weight and the power consumption of the instruments. The seafloor samples will be taken separately from the zodiac using the electric winch constructed for this project. All laboratory analyses will be carried out in the home laboratories.

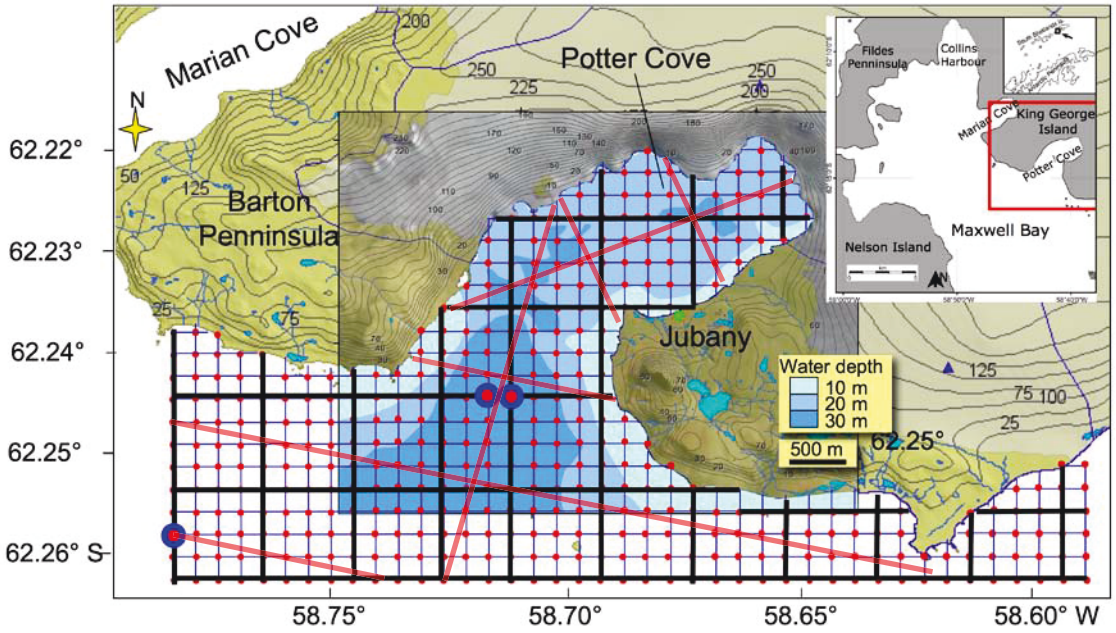

Fig. 3-1: Overview map showing the 200 m grid (light blue lines: potential acoustic transects), the grid nodes (red dots: potential sampling locations), potential shallow seismic transects (bold black and light red lines), and locations of 3 sediment cores taken during RV POLARSTERN Expedition ANTXXIII/4 in 2006. Locations shown here are for two field campaigns. We aim at carrying out as many measurements and samplings as possible during the coming (first) campaign and finish transects and locations during the second campaign.

4. OTHER ACTIVITIES

4.1 AWI activities at other stations and locations

Not performed in this season.

4.2 Activities supported by AWI

4.2.1 The geochemical response of sedimentary archives to rapid recent glacier retreat at the Western Antarctic Peninsula (WAP): from source to sink

Patrick Monien (Uni Oldenburg), Hans-Jürgen Brumsack (Uni Oldenburg),

Since the middle of the 20th century the Western Antarctic Peninsula (WAP) belongs to the regions with the most rapid warming on Earth. During the last six decades a rapid regional warming and a concomitant glacier retreat were observed, affecting the coastal ecosystem by turbid meltwaters and contributing to global sea level rise. Furthermore, the occurrence of new ice-free areas may promote chemical weathering and soil formation on previously ice-covered bedrocks.

The overarching goal of our study is to assess whether the documented temperature increase and associated glacier retreat at WAP is reflected in the sedimentary archives and whether such episodes have occurred within the Holocene before. Therefore, we intend to characterize the particulate load (SPM) of glacial meltwaters draining into Potter Cove, King George Island, by inorganic geochemical methods (major and minor elements). The extent of meltwater drainage and SPM input will be investigated by analyzing surface sediments from Potter Cove on a 500 m grid. Based on provenance analyses we will document whether the material introduced into this bay is evenly distributed and uniform in composition and if specific source areas can be distinguished by their chemical signature. Additionally, it will be studied whether the reported increase in SPM may be quantified by determining sediment accumulation rates with 210Pb. Longer sediment cores from Potter Cove and Maxwell Bay may moreover serve as archives for the climatic and paleo-environmental development of this area during the Late Holocene - the last century in particular - and will be analyzed at high temporal resolution. In cooperation with the British Antarctic Survey sediments from lakes located at Ardley Island and the Fildes Peninsula will further be used as reference sites.

The results of this research may contribute to the better understanding of the impact of global climate change on regional terrestrial and marine ecosystems at the WAP in the past and future.

This study forms part of the project “Rapid Climate Change at the Western Antarctic Peninsula: Chemical Flux Change and Environmental Consequences“, and will be conducted in close cooperation with the project “Fe and Mn in Antarctic bivalves: Indicators of change in near-shore biogeochemistry? “ by Dr. Doris Abele (AWI).

4.2.2 Spectroscopic measurements of halogen radicals in the Antarctic atmosphere

Dr. Udo Frieß (Institute of Environmental Physics University of Heidelberg)

Halogen radicals play an important role in the chemistry of the polar atmosphere. Ozone depletion in the stratosphere by man-made halocarbons is a well known phenomenon. However, the destruction of ozone also occurs close to the ground. This tropospheric ozone hole is caused by bromine radicals emitted from the sea ice (bromine explosion) and occurs every spring both in the Arctic and Antarctic. In recent years, evidence has emerged that iodine radicals also play an important role in the chemistry of the Antarctic troposphere. The phenomena halogen radicals are involved in were investigated at Neumayer for more than 10 years using a permanently operating Multi-Axis DOAS instrument installed on the roof of the trace gas observatory. It observes scattered sunlight from different viewing directions and detects atmospheric trace gases using their absorption structures as individual fingerprints. Using these measurements, it was possible to investigate the dynamics and vertical structure of bromine enhancements in polar spring in detail. A recent finding from our DOAS measurements is the presence of very high concentrations of iodine oxide in the snowpack at Neumayer. Apart from the maintenance of our permanently installed MAX-DOAS instrument, the main focus of our activities during the Antarctic summer campaign 2010/11 will be on field measurements of halogen radicals in the vicinity of NEUMAYER STATION III. Our field activities aim for the measurement of iodine monoxide (IO) in the Antarctic snowpack. Indications for the presence of extremely high IO concentrations in the snowpack at NEUMAYER STATION III came from the long-term MAX-DOAS measurements, but it was so far only possible to roughly estimate the level of IO concentrations. Also, the sources of IO and its impact on atmospheric chemistry is subject of large uncertainties. We will use a newly developed cavity-enhanced DOAS system, equipped with two highly reflective mirrors as an optical resonator, to perform point-like measurements of IO above and inside the snowpack at very high accuracy. We are planning to perform numerous measurements of IO with this portable instrument in the surroundings of NEUMAYER STATION III, and if possible also on the sea ice.

4.2.3 Polar beach-ridges as climate archives (Quaternary of King George Island, South Shetland Islands, Antarctica) (PolarBeach)

Sebastian Lindhorst (Uni Hamburg), Christian Hass (AWI), Ilona Schutter (Uni Hamburg)

Objectives

The potential of polar beach-ridges as archives of climate variations will be tested. The new approach of the planned investigations is to decipher the internal beach-ridge architecture using geophysical and sedimentological data in an integrated approach. Controlling factors on beach-ridge development are waves, sea-level, and sediment supply. As all of these react on climatic changes, the sediments of beach ridges bear the potential to host a valuable record of even short climate changes. Ground-penetrating radar (GPR), sedimentological data, geological mapping, GPS levelling, and radiocarbon dating will provide a solid database for our interpretations, and allow for a sequence-stratigraphic

interpretation. A new process-oriented model for the genesis of polar beach ridges will be established that also allows predicting changes under the recent global warming regime. For this purpose, beach-ridge systems along the coasts of Maxwell Bay and adjacent Potter Cove (King George Island, South Shetland Islands, Fig. 1) will be investigated. The focus of the proposed study is on the younger Holocene sediments, but older beach systems will be incorporated for comparison if present.

Preliminary schedule of actions

The backbone of our studies is the GPR survey, which will allow us to document the following features: unconformities, changes in thickness of sediment packages, and depositional geometries such as cross beddings or dipping strata. Subsurface changes in lithology will be mapped by integrated interpretation using core data and the approach of radarfacies interpretation. The GPR data will be instrumental to reveal the sedimentary architecture of the investigated beach ridges and to decipher phases of beach erosion as well pro-gradation. Erosion unconformities, caused by severe storms can be detected, and exact sampling locations can be chosen with regard to stratigraphic position.

Mapping will provide spatial information like changes in ridge orientation, erosion scarps, and the contact between beach and bedrock. These data will be correlated with subsurface geometries and helps to interpret the geometries observed in the GPR data witch regard to lateral changes. Levelling provides information on uplifted beaches and will allow for a stratigraphic correlation between distinct beach-ridges and the different working areas. Furthermore, levelling along the GPR profiles during GPR data collection will provide information on terrain morphology, which are essential to correct geometric distortions in the GPR data.

Sedimentological investigations will provide lithological and granulometrical data on surface and subsurface sediments. These are essential to ground-truth GPR data, to interpret observed beach-ridge architecture, and to provide information on hydrodynamic conditions (e.g. storm vs. fair weather) during deposition. Furthermore, datable material will be provided through shallow coring.

Work will be concentrated on three key areas (figure 4-1), which were identified based on freely available satellite images and with regard to previous studies. Each working area reflects a distinct setting regarding expected alongshore currents, sediment supply, and exposure to storm and wave impact. Correlation between the three working areas will be based on GPS levelling.

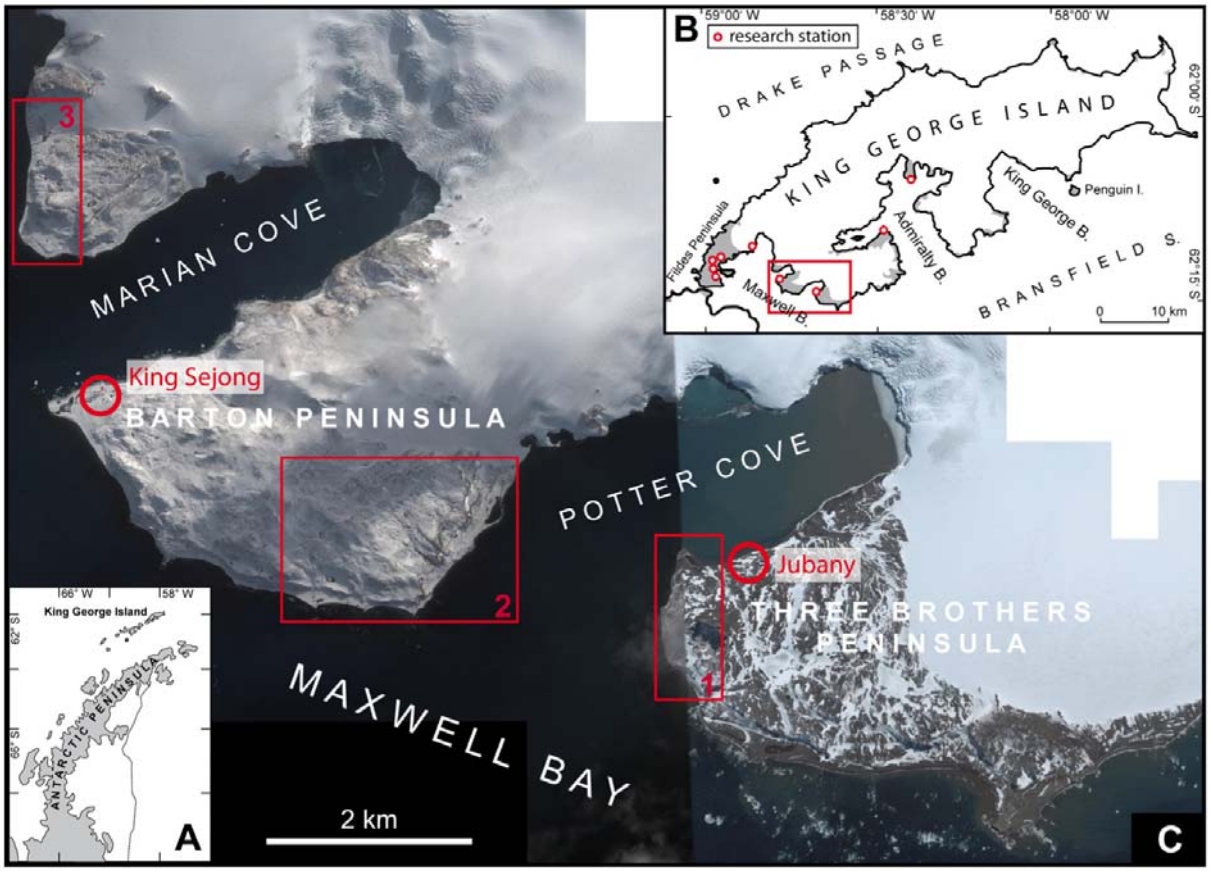

Figure 4-1: Study areas and beach-ridge systems along Potter Cove and Maxwell Bay. Satellite image is from Google Earth and composed of images obtained during different seasons.

5. LOGISTICS, SCHEDULES, PARTICIPANTS

5.1 DROMLAN flight schedules

5.1.1 Feeder flights (planning stage: October 2010)

in / out by	date	ID	route	pax in	pax out
DROMLAN flight - Iljushin 76TD	02-03 Nov 2010	D1	Cape Town - NOVO - Cape Town	0	0
DROMLAN flight - Iljushin 76TD	06-07 Nov 2010	D2	Cape Town - NOVO - Cape Town	9	0
DROMLAN flight - Iljushin 76TD	10-13 Nov 2010	D3	Cape Town - NOVO - Cape Town	2	0
DROMLAN flight - Iljushin 76TD	19-23 Nov 2010	D4	Cape Town - NOVO - Cape Town	5	1
DROMLAN flight - Iljushin 76TD	29-30 Nov 2010	D5	Cape Town - NOVO - Cape Town	10	0
DROMLAN flight - Iljushin 76TD	03-05 Dec 2010	D6	Cape Town - NOVO - Cape Town	4	0
DROMLAN flight - Iljushin 76TD	09-12 Dec 2010	D7	Cape Town – NOVO – Cape Town	4	9
DROMLAN flight - Iljushin 76TD	18-22 Dec 2010	D8	Cape Town - NOVO - Cape Town	13	2
DROMLAN flight - Iljushin 76TD	10-12 Jan 2010	D9	Cape Town – TROLL – Cape Town	11	3
DROMLAN flight - Iljushin 76TD	28 Jan – 01 Feb 2011	D10	Cape Town - NOVO - Cape Town	0	33
DROMLAN flight - Iljushin 76TD	19-21 Feb 2011	D11	Cape Town - NOVO - Cape Town	0	8
DROMLAN flight - Iljushin 76TD	23-24 Feb 2011	D12	Cape Town - NOVO - Cape Town	0	4
POLAR 5 (BT-67)	28 Oct 2010 – 09 Feb 2011	P5	ETA / EDT NOVO	3	3
			DROMLAN Pax in / out:	**58**	**60**
Total number of participants:	**71**		**Total pax movements**	**61**	**63**

5.2 Travel schedule for participants, DML

surname	given name	institute/company	profession	nation	activity	in	out
NEUMAYER STATION III							
Logistic coordination:							
Kohlberg	Eberhard	AWI	Physician	Germany	Coordinator logistics	D6	D12
						Total:	**1**
Observatories NEUMAYER STATION III:							
König-Langlo	Gert	AWI	Scientist	Germany	Meteorological observatory	D9	D11
Eckstaller	Alfons	AWI	scientist	Germany	Geophysical observatory	D7	D11
						Total:	**2**
Construction Team NEUMAYER STATION III:							
Lux	Reinhard	ARGE (J.H.K. / KAEFER)	Technician	Germany	Warranty works	2010	D10
Schreuder	Manfred	ARGE (J.H.K. / KAEFER)	Technician	Germany	Warranty works	2010	D10
Eder	Pitt	ARGE (J.H.K. / KAEFER)	Technician	Germany	Warranty works	D8	D10
						Total:	**3**
KOHNEN STATION – maintenance:							
Drücker	Cord	AWI	Engineer	Germany	Maintenance KOHNEN STATION	D5	D10
Schubert	Holger	AWI, Reederei F. Laeisz	Technician	Germany	Maintenance KOHNEN STATION	D5	D10
Köhler	Jens	AWI, Reederei F. Laeisz	Technician	Germany	Maintenance KOHNEN STATION	D5	D10
Trimborn	Klaus	external company	Technican	Germany	Maintenance KOHNEN STATION	D5	D10

Lochthofen	Norman	AWI	Technican	Germany	Maintenance KOHNEN STATION	D5	D10
Fröhlich	Mike	AWI, Reederei F. Laeisz	Cook	Germany	Maintenance KOHNEN STATION	D5	D10
Blattner	Marc	Kaessbohrer	Technican	Germany	Vehicle maintenance, maint. KOHNEN	D5	D10
Waltner	Karl-Heinz	AWI	Physican	Germany	Maintenance KOHNEN STATION	D5	D10
						Total:	**8**
DROMLAN flight weather service:							
Miller	Max	DWD	Meteorologist	Germany	DROMLAN weather forecast	D2	D9
Rentsch	Harald	DWD	Meteorologist	Germany	DROMLAN weather forecast	D2	D4
Rentsch	Harald	DWD	Meteorologist	Germany	DROMLAN weather forecast	D9	D12
						Total:	**3**
Scientific projects:							
Frieß	Udo	Uni-Heidelberg	Scientist	Germany	MAX-DOAS, air chemistry observatory	D9	D12
Hofstede	Coen	AWI	Scientist	Netherlands	LIMPICS campaign, leader	D8	D10
Diez	Anja	AWI	Scientist	Germany	LIMPICA campaign	D8	D10
Kristoffersen	Yngve	University Bergen	Scientist	Norway	LIMPICS campaign	D8	D10
Blenkner	Rick	University Bergen	Scientist	Norway	LIMPICS campaign	D8	D10
NN	NN	AWI	Technician	Germany	LIMPICS campaign	D8	D10
Gunga	Hanns-Christian	ZWMB	Scientist	Germany	Physiological study	D9	D10
						Total:	**7**
National / International visiting:							
Nixdorf	Uwe	AWI	Head of Logistics	Germany	Visiting NEUMAYER STATION III	D4	D7
Miller	Heinz	AWI	Deputy director	Germany	Visiting NEUMAYER STATION III	D5	D7
						Total:	**2**

Wintering Team 2010:							
Wetegrove	Olaf	AWI	Physician	Germany	Station leader, physician	2010	D11
Heuck	Hinnerk	AWI / Reederei F. Laeisz	Engineer	Germany	Station engineer	2010	D10
Ganter	Armin	AWI / Reederei F. Laeisz	Engineer	Germany	Station electrician	2010	D10
Erdmann	Guido	AWI / Reederei F. Laeisz	Engineer	Germany	IT engineer	2010	D10
Schoon	Paul	AWI / Reederei F. Laeisz	Cook	Germany	Cook	2010	D10
Fromm	Tanja	AWI	Scientist	Germany	Geophysics	2010	D10
Huber	Sarah	AWI	Scientist	Germany	Geophysics	2010	D10
Tülp	Holger	AWI	Scientist	Germany	Air chemistry	2010	D11
Schmidthüsen	Holger	AWI	Scientist	Germany	Meteorology	2010	D11
						Total:	**9**
Wintering Team 2011:							
Geißler	Harald	AWI	Physician	Germany	Physician	D9	2012
Mehl	Hans-Joachim	AWI / Reederei F. Laeisz	Engineer	Germany	Station engineer	D2	2012
Zahnd	Fabian	AWI / Reederei F. Laeisz	Engineer	Germany	Electrician	D2	2012
Göbel	Christian	AWI / Reederei F. Laeisz	Engineer	Germany	Electronic engineer, IT	D9	2012
Hombeck	Dirk	AWI / Reederei F. Laeisz	Cook	Germany	Cook	D8	2012
Schlömer	Antje	AWI	Scientist	Germany	Geophysics	D8	2012
Pokorna	Marketa	AWI	Scientist	Czech Rep.	Geophysics	D8	2012
Kattner	Lisa	AWI	Scientist	Germany	Air chemistry	D9	2012
Asseng	Jölund	AWI	Scientist	Germany	Meteorology	D9	2012
						Total:	**9**
Aircraft POLAR 5 scientific missions:							
Helm	Veit	AWI	Scientist	Germany	CryoVEx ANT – leader -	D4	D7
Gehrmann	Martin	AWI	Scientist	Germany	CryoVEx ANT	D4	D7

Nehring	Franziska	FIELAX	Engineer	Germany	CryoVEx ANT, WEGAS	D4	D9
Steinhage	Daniel	AWI	Scientist	Germany	WEGAS, DoCo – leader -	D7	D10
Petersen	Christoph	AWI	Engineer	Germany	WEGAS, DoCo	D7	D10
Twarloh	Birte	AWI	Scientist	Germany	CryoVEx ground	D8	D10
Mieth	Matthias	AWI	Scientist	Germany	WEGAS	D8	D9
Krueger	Keith	Kenn Borek Ltd.	Chief pilot	Canada	Crew	P5	P5
Sipko	Jon	Kenn Borek Ltd.	Pilot	Canada	Crew	P5	P5
Hudon	Roger	Kenn Borek Ltd.	Engineer	Canada	Crew	P5	P5
						Total:	**9**
Operations & maintenance:							
Matz	Thomas	AWI	Engineer	Germany	Technical supervision	D2	D9
Riess	Felix	Fielax	Engineer	Germany	IT maintenance	D9	D12
Gerchow	Peter	AWI	Engineer	Germany	IT maintenance	D6	D7
NN	NN	External company	Service	Germany	Housekeeping	D2	D11
Grasse	Torsten	BGR	Engineer	Germany	I27DE maintenance	D9	D11
Hoffmann	Mathias	BGR	Engineer	Germany	I27DE maintenance	D9	D11
Bornhöft	Peter	External company	Engineer	Germany	Surveyor, technical inspection	D7	D8
						Total:	**7**
Maintenance & I27DE maintenance:							
Falkenberg	Falk	External company	Technican	Germany	Logistic maintenance team, leader	D2	**D10**
Nittka	Dirk	External company	Technican	Germany	Logistic maintenance team I27DE	D2	**D10**
Lemkau	Sascha	External company	Technican	Germany	Logistic maintenance team I27DE	D2	**D10**
						Total:	**3**

Public relation:							
Studer	Manfred	NDR	Journalist		German TV-team	D5	D7
NN	NN	NDR	Journalist		German TV-team	D5	D7
Seung	Minjung	MBC-TV	Journalist		Korean TV-team	D6	D7
NN	NN	MBC-TV	Journalist		Korean TV-team	D6	D7
						Total:	**4**
None AWI projects / fields parties							
Skidoo campaign TU-Dresden at Novo Airbase							
Schwabe	Joachim	TU-Dresden	Scientist	Germany	Field campaign at Novo Airbase, CryoSAT1-Cal/Val	D3	D10
Balssen	Swantje	TU-Dresden	Scientist	Germany	Field campaign at Novo Airbase, CryoSAT1-Cal/Val	D3	D10
Damaske	Detlef	BGR	Scientist	Germany		D8	D10
Läufer	Andreas	BGR	Scientist	Germany		D8	D10
						Total:	**4**
					Total number of participants:		**71**

5.3 Travel schedule for participants, KGI

Names, Institute	profession	Travel arrangements
Matthias Braun, Uni Bonn	Scientist	November – December 2010
Ulrike Falk, Uni Bonn	Scientist	November – December 2010
Christian Hass, AWI	Scientist	November – December 2010
Sebastian Lindhorst, Uni Hamburg	Scientist	November – December 2010
Ilona Schutter, Uni Hamburg	Student	November – December 2010
Nina Wittenberg, AWI	Scientist	November – December 2010
Anne-Cathrin Wölfl, AWI	Scientist	November – December 2010
Dirk Mengedoht, AWI	Scientist	November – December 2010
Jan Esefeld, FSU Jena	Student	November 2010 – February 2011
Tobias Gütter, FSU Jena	Student	November 2010 – February 2011
Susann Janowski, FSU Jena	Scientist	November 2010 – February 2011
Anke Nordt, FSU Jena	Scientist	November 2010 – February 2011
Hans-Ulrich Peter, FSU Jena	Scientist	November 2010 – February 2011
Donata Monien, Uni Oldenburg	Scientist	December 2010 – February 2011
Patrick Monien, Uni Oldenburg	Scientist	December 2010 – February 2011
Nils Koschnick, AWI	Technician	January – February 2011
Marieke Krikke, Uni Groningen	Student	January – February 2011
Anouk Piquet, Uni Groningen	Scientist	January – February 2011
Doris Abele, AWI	Scientist	January – March 2011
Ulrike Falk, Uni Bonn	Scientist	February – March 2011
Hilke Gieseke, Uni Bonn	Student	February – March 2011
Francesca Pasotti, Uni Ghent	Scientist	February – March 2011

5.4 Participants

5.4.1 DML

Name	First Name	Institute	Profession	Nation
Asseng	Jölund	AWI	Scientist	Germany
Balssen	Swantje	TU-Dresden	Scientist	Germany
Blattner	Marc	Kaessbohrer	Technician	Germany
Blenkner	Rick	Bergen University	Scientist	Norway
Bornhöft	Peter	External company	Engineer	Germany
Damaske	Detlef	BGR	Scientist	Germany
Diez	Anja	AWI	Scientist	Germany
Drücker	Cord	AWI	Technician	Germany
Eckstaller	Alfons	AWI	Scientist	Germany
Eder	Pitt	ARGE - J.H.K./KAEFER	Technician	Germany
Erdmann	Guido	AWI / Laeisz	Engineer	Germany
Falkenberg	Falk	External company	Technician	Germany
Frieß	Udo	Uni-Heidelberg	Scientist	Germany
Fröhlich	Mike	Laeisz	Cook	Germany
Fromm	Tanja	AWI	Scientist	Germany
Ganter	Armin	AWI / Laeisz	Engineer	Germany
Gehrmann	Martin	AWI	Engineer	Germany
Geißler	Harald	AWI	Physician	Germany
Gerchow	Peter	AWI	Engineer	Germany
Göbel	Christian	AWI / Laeisz	Engineer	Germany
Grasse	Torsten	BGR	Engineer	Germany
Gunga	Hanns-Christian	ZWMB	Scientist	Germany
Helm	Veit	AWI	Scientist	Germany
Heuck	Hinnerk	AWI / Laeisz	Engineer	Germany
Hoffmann	Mathias	BGR	Engineer	Germany
Hofstede	Coen	AWI	Scientist	Netherlands
Hombeck	Dirk	AWI / Laeisz	Cook	Germany
Huber	Sarah	AWI	Scientist	Switzerland
Hudon	Roger	Kenn Borek Ltd.	Engineer	Canada
Kattner	Lisa	AWI	Scientist	Germany
Kohlberg	Eberhard	AWI	Physician	Germany
Köhler	Jens	Laeisz	Technician	Germany
König-Langlo	Gert	AWI	Scientist	Germany
Kristoffersen	Yngve	Bergen University	Scientist	Norway
Krueger	Keith	Kenn Borek Ltd.	Chief pilot	Canada
Läufer	Andreas	BGR	Scientist	Germany

Name	First Name	Institute	Profession	Nation
Lemkau	Sascha	Time Partner	Technician	Germany
Lochthofen	Normen	Laeisz	Technician	Germany
Lux	Reinhard	ARGE - J.H.K./KAEFER	Technician	Germany
Matz	Thomas	AWI	Engineer	Germany
Mehl	Hans-Joachim	AWI / Laeisz	Engineer	Germany
Mieth	Matthias	AWI	Scientist	Germany
Miller	Max	DWD	Meteorologist	Germany
Miller	Heinz	AWI	Deputy director	Germany
Nehring	Franziska	Fielax	Engineer	Germany
Nittka	Dirk	Time Partner	Technician	Germany
Nixdorf	Uwe	AWI	Head of logistics	Germany
NN	NN	AWI	Technician	Germany
NN	NN	Time Partner	Service	Germany
NN	NN	MBC-TV	Journalist	
NN	NN	NDR	Journalist	
Petersen	Christoph	AWI	Engineer	Germany
Pokorna	Marketa	AWI	Scientist	Czech Rep.
Rentsch	Harald	DWD	Meteorologist	Germany
Riess	Felix	Fielax	Engineer	Germany
Schlömer	Antje	AWI	Scientist	Germany
Schmithüsen	Holger	AWI	Scientist	Germany
Schoon	Paul	AWI / Laeisz	Cook	Netherlands
Schreuder	Manfred	ARGE - J.H.K./KAEFER	Technician	Germany
Schubert	Holger	Laeisz	Technician	Germany
Schwabe	Joachim	TU-Dresden	Scientist	Germany
Seung	Minjung	MBC-TV	Journalist	Korea
Sipko	Jon	Kenn Borek Ltd.	Pilot	Canada
Steinhage	Daniel	AWI	Scientist	Germany
Studer	Manfred	NDR	Journalist	Germany
Trimborn	Klaus	Dienstleister	Technician	Germany
Tülp	Holger	AWI	Scientist	Germany
Twarloh	Birte	AWI	Scientist	Germany
Waltner	Karl-Heinz	AWI	Physician	Germany
Wetegrove	Olaf	AWI	Physician	Germany
Zahnd	Fabian	AWI / Laeisz	Engineer	Germany

5.4.2 KGI and O'Higgins

Name	First Name	Institute	Profession	Nation
Abele	Doris	AWI	Scientist	Germany
Braun	Matthias	Uni Bonn	Scientist	Germany
Esefeld	Jan	FSU Jena	Student	Germany
Falk	Ulrike	Uni Bonn	Scientist	Germany
Gieseke	Hilke	Uni Bonn	Scientist	Germany
Gütter	Tobias	FSU Jena	Student	Germany
Hass	Christian	AWI	Scientist	Germany
Janowski	Susann	FSU Jena	Scientist	Germany
Koschnick	Nils	AWI	Technician	Germany
Krikke	Marieke	Uni Groningen	Student	Netherlands
Lindhorst	Sebastian	Uni Hamburg	Scientist	Germany
Mengedoht	Dirk	AWI	Scientist	Germany
Monien	Donata	Uni Oldenburg	Scientist	Germany
Monien	Patrick	Uni Oldenburg	Scientist	Germany
Nordt	Anke	FSU Jena	Scientist	Germany
Pasotti	Francesca	Uni Ghent	Scientist	Italy
Peter	Hans-Ulrich	FSU Jena	Scientist	Germany
Piquet	Anouk	Uni Groningen	Scientist	Netherlands
Schutter	Ilona	Uni Hamburg	Student	Germany
Wittenberg	Nina	AWI	Scientist	Germany
Wölfl	Anne-Cathrin	AWI	Scientist	Germany

6. PARTICIPATING INSTITUTIONS

6.1 Institute/Company Address

ALCI	Antarctic Logistics Centre Intl. (Pty.) Ltd. 97, Keerom Street Cape Town 8001 Republic of South Africa
ARGE	J.H.K. Engineering GmbH & Co. KG Labradorstr. 5 27572 Bremerhaven Germany KAEFER Isoliertechnik GmbH & Co. KG Riodemannstr. 3 27572 Bremerhaven Germany
AWI	Alfred-Wegener-Institute for Polar and Marine Research Postfach 12 02 61 27515 Bremerhaven Germany
BGR	Federal Institute for Geosciences and Natural Resources Stilleweg 2 30655 Hannover Germany
DNA	Dirección National del Antártico Cerrito 1248 1010 Buenos Aires Argentina
DEA	Department of Environmental Affairs Directorate: Antarctica and Islands P.O. Box 8172, Roggebaai 8012 Cape Town 9012 Republic of South Africa
DWD	Deutscher Wetterdienst Bernhard-Nocht Str. 76 20359 Hamburg Germany

FACH	Fuerza Aero de Chile, División Antártica Tarpaca No. 1129, 2°Piso Santiago de Chile Chile
FAU	Fuerza Aero de Uruguay Av. 8 de Octubre 2958 Montevideo 11600 Uruguay
FIELAX	Fielax Gesellschaft für wissenschaftliche Datenverarbeitung mbH Barkhausenst. 4 27568 Bremerhaven Germany
IAA	Instituto Antártico Argentino Cerrito 1248 1010 Buenos Aires Argentina
IAU	Instituto Antártico Uruguayo Av. 8 de Octubre 2958 Montevideo 11600 Uruguay
ICBM	Institut für Chemie und Biologie des Meeres AG Mikrobiogeochemie Carl-von-Ossietzky-Str. 9-11 Postfach 2503 26111 Oldenburg, Germany
INACH	Instituto Antarctico Chileno Plaza Munoz Gamero 1055 Punta Arenas Chile
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Kenn Borek Air Ltd.	Kenn Borek Air Ltd. 209 McTravish Rd NE Calgary, AB, CA, T2E 7G5 Canada

Laeisz	Reederei F. Laeisz GmbH Brückenstr. 25 27568 Bremerhaven Germany
MBC TV	MBC TV Munhwa Broadcasting Corporation South Corea
NDR	Norddeutscher Rundfunk Rothenbaumchaussee 132-134 20149 Hamburg Germany
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University of Hamburg	University of Hamburg Edmund-Siemers-Allee 1 20146 Hamburg Germany
University of Heidelberg	Ruprecht-Karls-Universität Heidelberg Grabengasse 1 69117 Heidelberg Germany
University of Jena	AG Polar- und Ornithoökologie Institut für Ökologie Dornburger Str. 159 07743 Jena Germany
ZWMB	Zentrum für Weltraummedizin Berlin Arnimallee 22 14195 Berlin Germany

6.2 DROMLAN – Partners

AWI	Alfred Wegener Institute for Polar and Marine Research, Germany
AARI	Arctic and Antarctic Research Institute, Russian Antarctic Expedition, Russia
BAS	British Antarctic Survey, UK
BELARE	Belgian Antarctic Research Expedition, Belgium
FIMR	Finnish Institute of Marine Research, Finland
NCAOR	National Centre for Antarctic and Ocean Research, India
NIPR	National Institute of Polar Research, Japan
NPI	Norwegian Polar Institute, Norway
NWO	Netherlands Organisation for Scientific Research, The Netherlands
AARI	Russian Antarctic Expedition, Russia
DEA	Department of Environmental Affairs, Directorate: Antarctica and Islands, South Africa
SPRS	Swedish Polar Research Secretariat, Sweden

6.3 DROMSHIP – Partners

AWI	Alfred Wegener Institute for Polar and Marine Research, Germany
BELARE	Belgian Antarctic Research Expedition, Belgium
FIMR	Finnish Institute of Marine Research, Finland
NPI	Norwegian Polar Institute, Norway
SPRS	Swedish Polar Research Secretariat, Sweden