

## Dallmann Laboratory

King George Island, Antarctic Peninsula,  
position 62°14'S, 58°40'W,  
Inauguration on 20 January 1994

AWI operates the Dallmann Laboratory at the Argentinian station Jubany on King George Island jointly with Instituto Antártico Argentino (IAA). It is the first research facility used by several nations in the Antarctic. On its opening an agreement on cooperation between Germany, the Netherlands and Argentina was signed. It is named after Eduard Dallmann, the polar explorer from Bremen who undertook the first German voyage to the Antarctic Peninsula in 1873.

The Dallmann Laboratory is used from October to April. It offers the opportunity for 14 persons to conduct biological and geoscientific field research in ice-free regions and shallow coastal waters. It is equipped with four laboratories, a workshop and store, an aquarium container as well as a diving base, including decompression chamber. It is supported by Argentinian logistics.

Research divers examine algal and faunal communities in open water and in sediment. Findings about the ecology and physiology of certain species enable scientists to draw conclusions on the development of polar biotic communities in view of global environmental changes.



▲ Divers from the Dallmann Laboratory examining living communities in shallow water (photo: K. Zacher)



▲ The Kohnen Station (photo: S. Kipfstuhl)

## Kohnen Station

Dronning Maud Land  
75°00'S, 00°04'E, 2892 metres above sea level  
Established March 11th, 2001

Kohnen Station is located on the Antarctic inland ice plateau, approx. 750 kilometres from Neumayer Station III. It was established as a logistic base for drilling ice cores and is named after the former head of AWI's Logistics Department, Dr. Heinz Kohnen (1938 - 1997).

The containers with accommodations, radio station, snowmelter, workshop and power supply are supported by a steel platform that has to be raised at intervals of 2 to 3 years. Communication with the outside world is possible via radio and satellite. Tracked vehicles from Neumayer Station III travel for around ten days to bring supplies. Due to the extremely low temperatures, scientists and technicians can work usually at the station only from mid November to early February. They are taken to the station by small aircraft.

Cover photo: Aerial view of Neumayer Station III ►  
(photo: U. Cieluch)



## Research stations in the Antarctic

Alfred Wegener Institute  
for Polar and Marine Research  
in the Helmholtz Association



**Further information:**  
**Alfred Wegener Institute  
for Polar and Marine Research  
Communications and Media Relations  
Am Handelshafen 12  
D-27570 Bremerhaven**  
**Phone: +49 471/48 31-11 12, Fax: -13 89**  
**E-Mail: [info@awi.de](mailto:info@awi.de), <http://www.awi.de>**

## Neumayer Station III

*Ekström Ice Shelf, Atka Bay,  
position 70° 40' S - 008° 16' W,  
Inauguration on 20 February 2009*

The Alfred Wegener Institute for Polar and Marine Research has been operating a research station on the Ekström Ice Shelf in the Antarctic all year round since 1981. It is named after the patron of German Antarctic research, Georg von Neumayer (1826-1909). The first facility, the "Georg von Neumayer Station" went into operation in 1981. In 1992 it was replaced by the Neumayer Station, which like its predecessor was a tubular structure.

Neumayer Station III became operational in 2009. It is the central German research facility in the Antarctic and is one of the most modern research platforms. The building consists of a section below the snow surface and a platform at a height of six metres above the surface. The two-storey section on the platform contains all technical equipment, the accommodations and scientific laboratories. The 8.2 metre deep garage is accessible via a 26 metre long ramp, which can be closed to protect against snow drift by means of a hydraulically controlled cover.

The heart of the innovative structural concept is a flexible support system with intelligently controlled hydraulic jacks. The entire building can thus be raised regularly to be level with at the constantly growing snow surface.

The power supply system is based on state-of-the-art standards. A cogeneration unit with three diesel generators ensures stable energy supply in alternate operation. One additional generator is on standby for emergencies. The thermal energy is utilised for heating, melting snow and hot water supply. The cogeneration unit is linked to a wind turbine. Infeed takes place via a control system so as to maintain an optimal operating regime for the cogeneration unit and minimise fuel consumption.

Local networks, data processing systems and communication equipment, including a permanent satellite link, guarantee processing and transmission of the scientific and technical data to the Alfred Wegener Institute and the worldwide networks. Furthermore, scientists can

communicate via e-mail and telephone and have access to the Internet.

Total weight of the construction:	2,350 t
Height above snow surface:	21 m
Platform dimensions:	68 x 26 m
Enclosed utilisable space:	4,890 m <sup>2</sup> , of that 2,118 m <sup>2</sup> with air conditioning

Accommodations:	15 rooms, 40 beds
Laboratories and offices:	15 rooms
1 wind turbine:	30 kW
4 cogeneration units, each with a capacity of 160 kW electrical and 190 kW thermal energy	

The focus of the scientific work is on long-term observations. The data collected are relayed to global networks on a regular basis.

The meteorological observatory records relevant data for climate research and serves as a weather forecast centre for the entire Dronning Maud Land during summer.

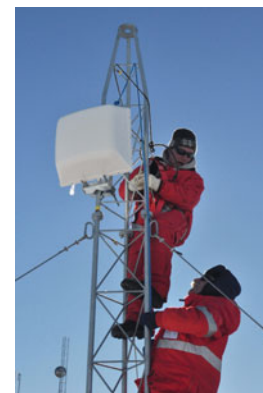


▲ Start of a radiosonde from the roof of Neumayer Station III (photo: U. Cieluch)

The long-term variations in the Earth's magnetic field as well as local and global seismicity are continuously recorded at the geophysical observatory.

The atmospheric chemistry observatory serves the purpose of continuously measuring gases that have an impact on the climate, such as water vapour, carbon dioxide, methane and ozone, as well as investigating aerosol flux and its optical and chemical properties.

The I27DE infrasound system is one of the 60 stations of a worldwide network for monitoring the nuclear test ban treaty.



◀ Scientists are installing an antenna on the roof of Neumayer Station III to receive data from the geophysical observatories (photo: U. Cieluch)

The hydroacoustic observatory on the edge of the ice shelf continuously records the acoustic repertoire of seals and whales.

Neumayer Station III is the technical and logistics base for large-scale field experiments and to supply Kohnen Station on the inland ice, 750 kilometres south of Atka Bay. Tracked vehicles, sledges and mobile accommodations are maintained at the station. It is also set up for polar aircraft operations. The station maintains a landing strip on which ski equipped aircraft can land and at which scientific flight missions can be prepared.

Four scientists are responsible for the operation of the observatories, two engineers for the technical equipment and one engineer for operation of the IT systems. A cook looks after the team's well-being while the physician is responsible for medical care and station management. During the summer months additional technicians and scientists carry out maintenance work as well as scientific projects. The station can accommodate up to 40 persons.



▲ The new laboratory for atmospheric chemistry is located one kilometre south of Neumayer Station III (photo: U. Cieluch)