



The New Centre of German Research in Antarctica - Neumayer Station III

Ekström Shelf Ice, Atka Bay, north-eastern Weddell Sea

Position: 70°40'S, 008°16'W

On February 20th, 2009, the new German Antarctic research base Neumayer Station III was inaugurated.

Neumayer Station III is the first research station to integrate research, operational and accommodation facilities in one building, situated on a platform above the snow surface, and connected to a garage in the snow. Within a protective casing, the platform accommodates 100 containers with living quarters, a kitchen, a mess, a hospital, various laboratories, workshops, a radio operator room, sanitary facilities, the power supply station and a snow-melting plant. The garage underneath the platform contains storage, waste and fuel containers, as well as space for vehicles, ranging from Pistenbullies to motor sleds to a rotary snowplough.



Neumayer Station III and radar dome for the satellite system



A primary feature of the new station is the ability to compensate for adverse effects of snow and ice accumulation by means of hydraulic elevation of the building, without leaving parts of the construction to be swallowed by snow. This satisfies one of the major requirements of the environmental protection protocol. In addition, this construction design is the only technical solution to the complex challenges posed by drifting shelf ice with high accumulation rates of snow. The overall weight of 2,300 tonnes is distributed onto 16 foundation slabs. To compensate for the snow accumulation, the station will be raised at regular intervals by means of hydraulic jacks.

The station's energy supply comes from a block heat and power plant containing four diesel generators of 150 kW each. Three generators are in alternating operation, one generator serves as an emergency power supply. The waste heat from the generators is used for the heating system and for melting snow. A 30 kW wind generator is an eco-friendly source of energy in Antarctica and is directly connected to the energy system of the station. In the near future, additional wind generators will reduce the emission of the power plant to a minimum. When the station was being designed, the requirements laid down in the Protocol on Environmental Protection to the Antarctic Treaty were adhered to, e.g. through the use of environmentally neutral construction materials, catalytic converters for the diesel generators and oil collecting equipment for the oil tanks. Waste is routinely collected and shipped back to Germany once a year.



Wind power plant at the Neumayer Station III. Photo: Ude Cieluch



Normally, nine people live and work at Neumayer Station during the Antarctic winter: A medical doctor who also acts as the head of the station, a meteorologist, an airchemist, two geophysicists, an engineer, an electrician, a radio operator/electronics engineer and a cook.

Each overwintering team stays at the station stays there for 14 to 15 months. For nine months of that time, their only link to the outside world is by radio and internet.