



NORWEGIAN ANTARCTIC RESEARCH EXPEDITIONS

Norway in Antarctica

Norway is the only country that has dependencies both in the Arctic and the Antarctic, and polar issues have therefore naturally played an important role for the nation over the last century. In the Antarctic context it is Norway's aim to be an active partner in the cooperative management of the continent, and thereby contribute to maintaining Antarctica as a nature reserve dedicated to peace and science.



From the Maudheim Expedition (1949-52) Photo: NPI archives

Norwegian research in Antarctica

Following traditions....

During the period of exploration at the end of the 19th century Norwegians partook in both the first landing on the Antarctic continent in 1895 and the first over-winterings in 1897-99 and 1898-1900. In 1911 a team of Norwegian men, lead by Roald Amundsen, were the first people to reach the South Pole.

Norwegian research in Antarctica consequently has long traditions, based on a solid foundation of geographic exploration and discovery. As early as the 1920s and 1930s Norwegians were carrying out extensive research in Antarctica, most often on expeditions that combined whaling and research activity. Two of the post-war milestones in Norway's Antarctic research were the joint Norwegian-British-Swedish Maudheim Expedition (1949-52) and the establishment of 'Norway Station' in Dronning Maud Land in 1956. Norway Station was manned from 1956 to 1960 in connection with the International Geophysical Year. Norway was an active participant in the establishment of the Scientific Committee on Antarctic Research (SCAR) and the adoption of the Antarctic Treaty subsequent to the International Geophysical Year.

In the years following the International Geophysical Year Norwegian researchers were only able to conduct research in Antarctica by joining expeditions arranged by other nations. The first regular Norwegian Antarctic Research Expedition (NARE) took place in 1976-77 under the leadership of the Norwegian Polar Institute.

The Norwegian Antarctic Research Expeditions today

From 1991 Norway has been part of the Nordic logistics cooperation, in which the responsibility for the logistical arrangements circulates between the national operators of Finland, Sweden and Norway. NARE activities consequently peak those years that Norway is responsible for the logistical arrangements, while smaller expeditions normally take place in the intermittent years.

The principle objective of the Norwegian Antarctic Research Expeditions is to acquire knowledge to help improve our understanding of the natural and anthropogenic changes in the global environment. The NARE research focuses primarily on studies in biology, glaciology, paleoclimatology, physical oceanography, surveying and monitoring activities.

Some major on-going NARE research projects include:

- research related to Norwegian participation in the 'European Project for Ice Coring in Antarctica' (EPICA);
- monitoring of the fur seal and penguin colonies at Bouvetøya as part of CCAMLR's Ecosystem Monitoring Program (CEMP);
- studies of general current patterns and the processes that lead to deep convection, including the interaction between sea, ice and atmosphere in King Haakon VII's Sea;
- monitoring of the seasonal distribution, demography and food habits of seabirds, in particular Antarctic petrel at Svarthamaren Site of Special Scientific Interest.

The majority of the NARE activities take place in the South Atlantic sector of Antarctica, specifically Bouvetøya, the eastern Weddell Sea region and Dronning Maud Land. These areas have been designated as the main focus areas for Norwegian Antarctic research.

The NARE logistical framework

National operator

The Norwegian Polar Institute has been appointed the national operator for Norwegian Antarctic research activities, and is as such responsible for the practical aspects of the Norwegian expeditions, such as ensuring proper transportation and accommodation for the participating scientists during their travel to and stay in Antarctica.

Stations

The Norwegian Polar Institute operates one small summer station in Antarctica. Troll station (1990) is the logistical 'hub' for NARE operations and from where most of the research activities start. Troll has limited laboratory and science support facilities, as most of the NARE activity is field based. Troll is likely to become a key location for the logistical operations for all of Western Dronning Maud Land as air operations become a primary mode of transport for the operators in the area.

In addition to Troll the Institute also operates two small field stations: the Bouvetøya station (1996) on the sub-Antarctic island Bouvetøya and Tor station (1985) at the Svarthamaren Site of Special Scientific Interest.

The Norwegian Antarctic Research Expeditions have a relatively high scientist to support personnel ratio. During a normal operating season Troll station is staffed only with a small core support staff, ensuring necessary support for e.g. communication, equipment maintenance and medical emergencies.



Troll station Photo: Jan-Gunnar Winter

Transportation

.... by boat

The areas of interest for the Norwegian Antarctic research activities are not easily reached. NARE operations have traditionally been based on ship transportation where both the marine based research parties and terrestrial based research parties were transported to Antarctica by boat. An increased reliance on air operations has, however, shifted the focus, and boats are now normally only used for transport of supplies to the stations and as platform for marine research. The vessels used during NARE operations are cargo/research vessels, classified for operations in ice. The Norwegian Polar Institute has on several occasions used its own Arctic research vessel *R/V Lance* in its Antarctic operations.



The Norwegian Polar Institute's research vessel *R/V Lance* Photo: Bård Bergesen

.....by air

NARE operations entered a new era with the arrival of the new millennium. To make the research expeditions more flexible and in order to better accommodate the needs of the scientists, air transport was first utilized in the 2000/01 season and is now fast becoming the main mode of transportation for the terrestrial part of the Norwegian Antarctic Research Expeditions. Cape Town, South Africa, serves as the starting point for air operations to Dronning Maud Land. A number of national programmes operating in Dronning Maud Land are currently discussing various options with regard to potential landing locations and internal link services. The results of these deliberations are likely to have significant consequences for the form and intensity of the Norwegian operations in Dronning Maud Land.

.....on land

Once on the continent, helicopters, bandwagons and snowmobiles are utilized for transport purposes. Currently there are three bandwagons of type BV 206 Hägglunds and ten snowmobiles at the stations, available for use in the Norwegian Antarctic Research Expeditions. Helicopters are transported to the area on a need basis.

NARE and the environment

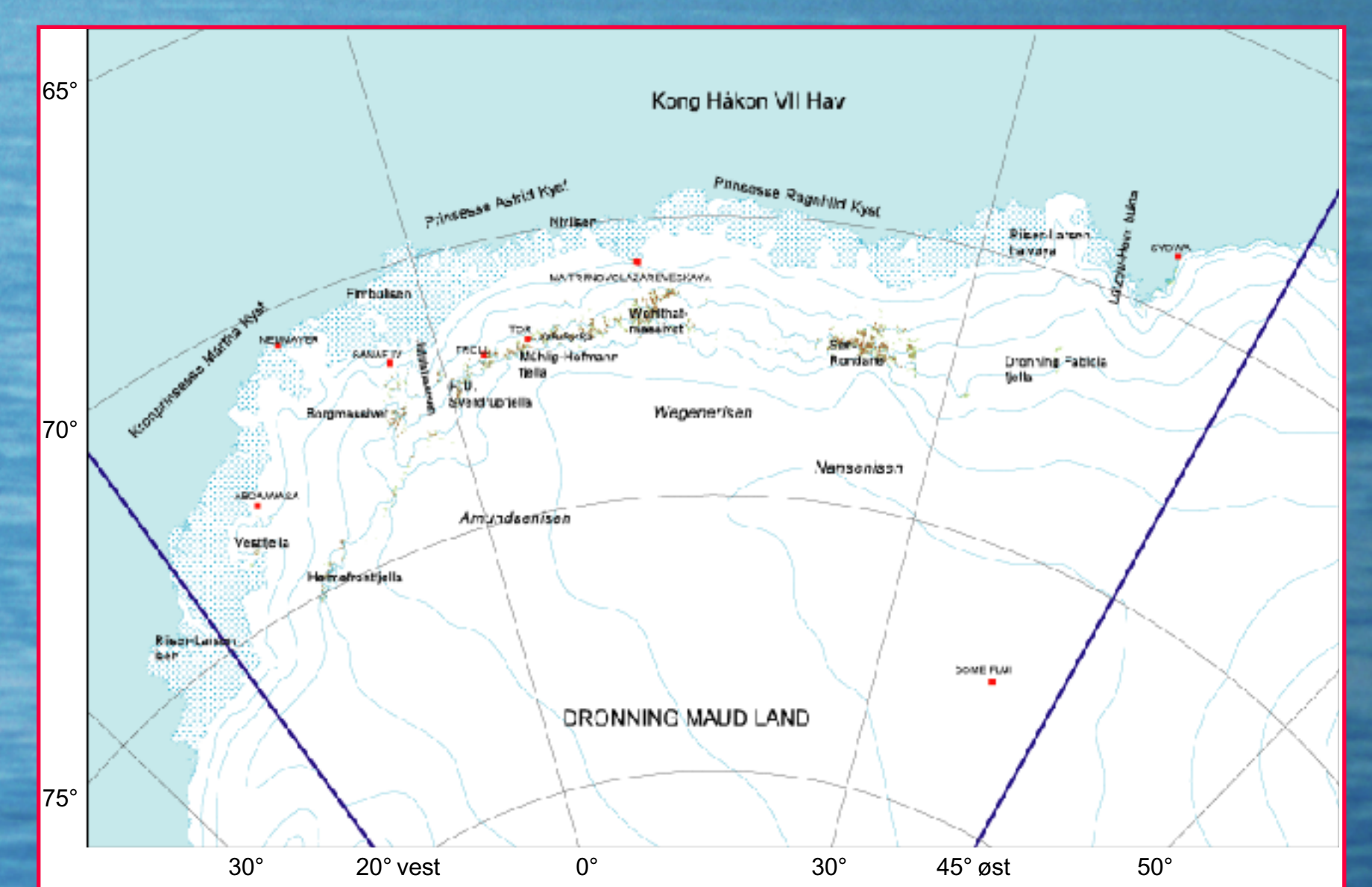
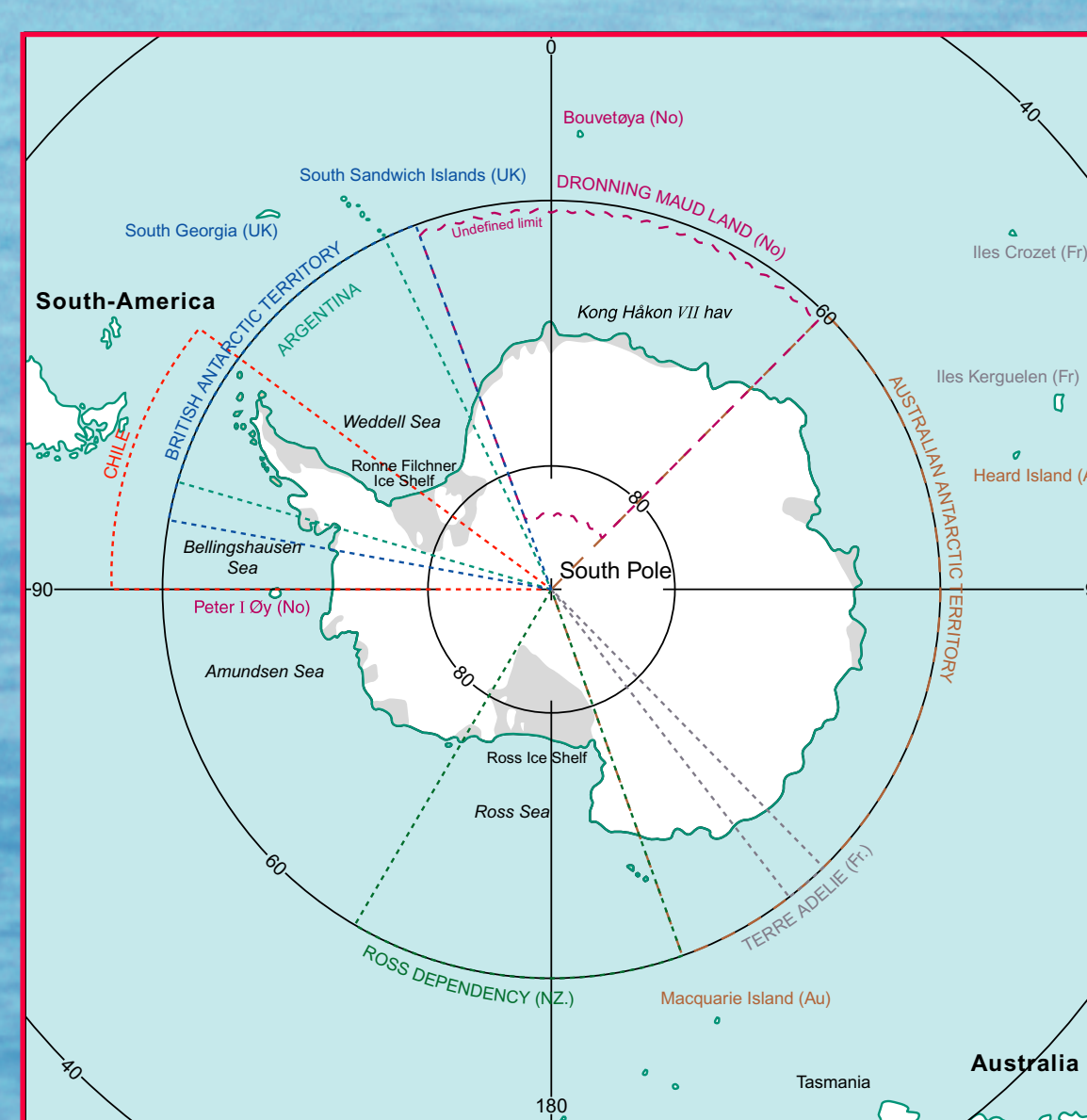
NARE operations are conducted within an environmental framework shaped by the provisions and regulations stemming from the Protocol on Environmental Protection to the Antarctic Treaty and the Norwegian Regulations Relating to the Protection of the Environment in Antarctica.

In cooperation with Finnish and Swedish counterparts, the Norwegian Polar Institute has developed practical environmental guidelines and plans for its operations in Antarctica. All guidelines and strategies currently in force can be found in the Nordic Environmental Handbook for Antarctic Operations, developed by the Nordic Antarctic Environmental Officers Network (NAEON). The following guidelines/plans are among those currently found in the Nordic Environmental Handbook:

- Handbook and guidelines for waste management
- Guidelines for transport, storage and handling of fuel
- Oil spill contingency plan
- Environmental guidelines for use of helicopters and small aircraft
- General environmental guidelines (Code of Conduct)

As national operator in Antarctica the Norwegian Polar Institute will continue to find ways to improve its operations in Antarctica in order to achieve a logistical framework that is practically feasible, economically viable and environmentally sound.

Background: Air operations in Dronning Maud Land Photo: Lars Karlöf



Norwegian research activities are mainly conducted in Dronning Maud Land and the eastern Weddell Sea region. Maps: NPI