Magnus Hovind Rognhaug (Ed.)

NORWAY IN THE ANTARCTIC

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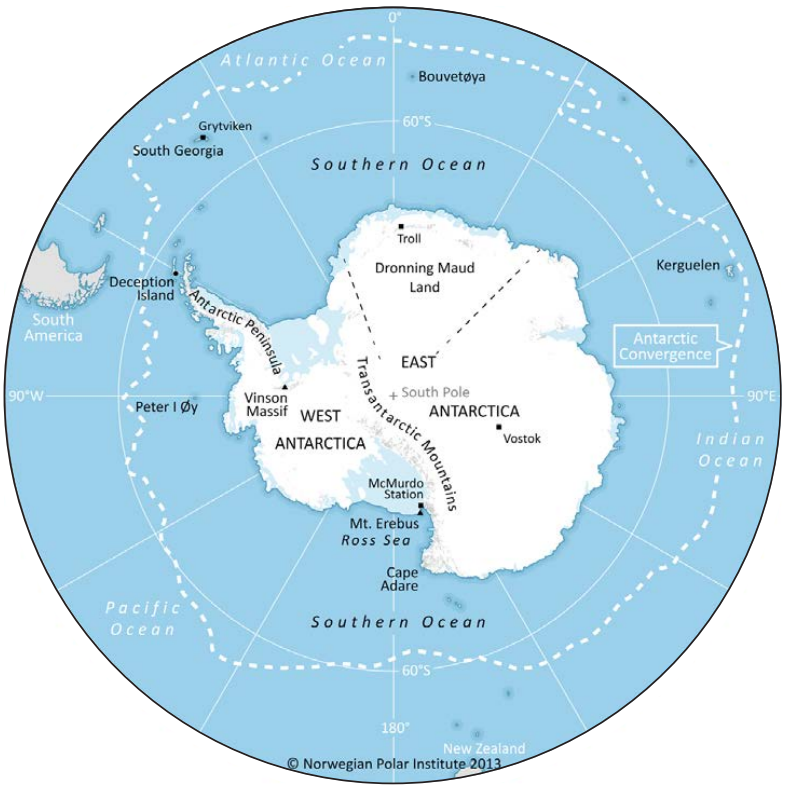

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Abbreviations

CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources
CCAS	Convention for the Conservation of Antarctic Seals
DROMLAN	Dronning Maud Land Air Network
DROMSHIP	Dronning Maud Land Shipping Network
UN	United Nations
ICSU	International Council for Science
IGY	International Geophysical Year
IPY	International Polar Year
IWC	International Whaling Commission
SCAR	Scientific Committee on Antarctic Research
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization

1. This is Antarctica

Antarctica is the coldest, driest, windiest, iciest and most inaccessible continent in the world. Yet the magnificent Antarctic landscape can also provide a unique experience of peace and serenity.

Antarctica is 14 million square kilometres in area, about 40 times larger than Norway. The floating ice shelves around the continent account for an estimated 1.5 million km² of this area, while the rest is mainland. In winter the ocean freezes around the continent to form an ice sheet equal in size to the inland ice. All but two per cent of the continent is covered by ice and snow. At its thickest, the ice sheet has been measured at 4,776 metres deep; it represents over 90 per cent of all the ice in the world. The Antarctic ice contains more than three quarters of all fresh water in the world.

One of the largest mountain ranges in the world, the Transantarctic Mountains, divides the continent into two areas, called East and West Antarctica. The peak of Mount Vinson, reaching 4,892 metres above sea level, is the highest point in Antarctica.

Antarctica is a cold continent due to geographic location and elevation. It is significantly colder there than in the northern polar areas. On the Antarctic continent itself, the average annual temperature varies from about -60 °C in the highest elevations to about -10 °C in coastal areas. The lowest temperature ever directly measured at ground level on earth, -89.2 °C, was recorded in 1983 at Russia's Vostok research station in Antarctica. In recent years, satellite-based measuring systems have detected even lower temperatures in the continental interior. At Troll, the Norwegian station in Dronning Maud Land, the mean temperature is -18 °C. It snows about one metre per year there, while inside the continent only a few centimetres of snow fall annually, making that region drier than the Sahara.

Despite extreme climatic conditions, there is life here – mainly at the edge of the continent where ice and land meet the open sea. Penguins live along the entire coast, and in some colonies there may be more than 100,000 pairs. The albatross, with a wingspan of up to 3.5 metres, is the most impressive bird in the Southern Ocean. Bird life also teems in the mountains, where the most common species are the Antarctic petrel, the snow petrel and the south polar skua. The only land animals in Antarctica are microscopic mites and wingless insects that live under rocks and where moss or lichen grow.

Several seal and whale species that feed on fish and krill roam the waters off Antarctica. Because of its high protein content, krill is an especially valuable food. Members of certain whale species can eat several tonnes of krill per day. Almost all Antarctic fauna depend on food from the ocean.

Ulvetanna peak in Dronning Maud Land. Photo: J. Hustadnes, Norwegian Polar Institute

In this harsh climate, the vegetation consists of only a few species of lichen and moss as well as algal vegetation in small lakes. Some lichen species are found on mountaintops only 260 km from the South Pole. Most species are dark, but reds and yellows also brighten the icy, rocky landscape.

Because the Antarctic covers a vast and inaccessible area, the amount of data we possess on climate change is limited, making it hard to say anything general about developments over time. On the Antarctic Peninsula, air temperatures have increased by 2.5 °C over the last 50 years, about five times faster than the global average. Antarctica has also lost ice mass the past two decades, contributing to the ongoing rise in global sea level. The loss of Antarctic coastal ice (melting and calving of the inland ice) is expected to continue adding to the sea-level rise.

Antarctica is still the part of the world we know least about. Some 30 nations now take engage in researching the vast continent, in part to gain knowledge and understanding of global climate processes and the changes under way. The Antarctic ice contains data on climatic evolution over several hundred thousand years. The continent is therefore crucial to international climate research.

2. Norway in Antarctic

Earley presence

European geographers hypothesized Antarctica's existence for hundreds of years before it was confirmed.

Iceberg in the Antarctic. Photo: J.-G. Winther, Norwegian Polar Institute

The reception committee in Antarctica often consists of penguins, like these emperor penguins. Photo: T. I. Karlsen, Norwegian Polar Institute

The simple assumption was that there had to be a large continent to the south for the earth to remain in balance. On a world map from 1595, Terra Australis Incognita is plotted as a giant white continent, with South America and Australia as border areas.

Many seafaring nations sent expeditions to find the world's seventh continent. In January 1820 the Russian naval commander Fabian Gottlieb von Bellingshausen was in all likelihood among the first to lay eyes on the Antarctic continent – the Antarctic Peninsula, to be exact. The British naval captain James Clark Ross later explored the Ross Sea, and in January 1841 discovered the central Antarctic continent. After four days spent penetrating the pack ice, Ross could fix his gaze on the majestic rock formations of Victoria Land and the almost 4,000-metre-high Mount Erebus.

Norwegian activity in the southern polar regions began in 1892 with ship owner Lars Christensen's Jason expedition led by Captain C. A. Larsen. In the years to come, Larsen's name would become inextricably linked with Norway's exploration and whaling activities in the Southern Ocean. From 1898 to1900 another Norwegian, Carsten Borchgrevink, led the British Southern Cross Expedition, which was the first to overwinter in Antarctica, at Cape Adare. The station buildings, prefabricated at Strømmen Trævarefabrik in Norway, are still standing, making this is the only place in the world where the first buildings erected on a continent remain intact. The station is maintained under the auspices of the New Zealand Antarctic Heritage Trust, in part with financial support from the Norwegian government.

Expeditions by the *Jason* opened a prolonged period of Norwegian hunting of Antarctic sea mammals. At first, sealing was seen as the most promising activity, but it quickly became apparent that whales were the most valuable resource. Large-scale whaling in the early years

South Pole expedition in 1911. The conquest of the South Pole fortified Norway's role in Antarctica. Photo: O. Bjaaland

Grytviken on the island of South Georgia, in the Southern Ocean, was a Norwegian whaling station for a number of years. As many as 300 workers were employed here. Photo: Norwegian Polar Institute

was an almost entirely a Norwegian industry. The first vessels were relatively simple in design, so that efficient operations required bases ashore where the whales could be delivered for flensing and processing. In 1904 C. A. Larsen established, on behalf of Compania Argentina de Pesca, the first station in Grytviken on South Georgia, an island in the Southern Ocean. The industry built large production facilities on South Georgia and Deception Island, near the Antarctic Peninsula. In 1914, 21 factory ships and six land stations were in operation in the Southern Ocean. They served a fleet of some 62 whaling vessels.

It was Roald Amundsen, however, who by conquering the South Pole would carry Norway's name to all corners of the world. On his first journey south, from 1897 to 1899, he had served as mate on a Belgian expedition. His next trip to Antarctica was at the helm of the Fram expedition of 1910–1912. On 14 December 1911 Amundsen made world history with his four companions – Olaf Bjaaland, Helmer Hanssen, Sverre Hassel and Oscar Wisting – by planting the Norwegian flag at the South Pole. Amundsen's expedition discovered large areas that were named and taken into possession on behalf of the King of Norway. No formal occupation by Norwegian authorities was undertaken, however.

Dronning Maud Land and Peter I Øy

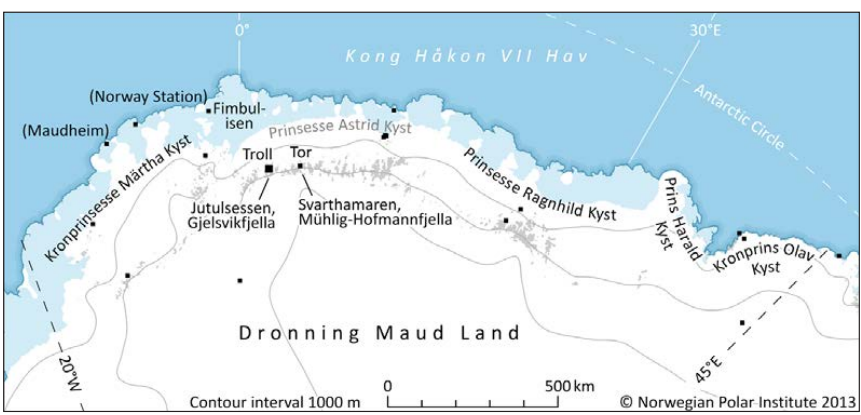
On 14 January 1939 the Norwegian government annexed an area between 20° west and 45° east longitude that was almost seven times the size of Norway and covered more than one-sixth of the Antarctic continent. The area was Dronning Maud Land ("Queen Maud Land"), named in honour of Norway's recently deceased Queen Maud (1869–1938).

Norway's claim to Dronning Maud Land was legitimised in large part by survey work conducted during the Norwegian Norvegia expeditions that whaling ship owner Lars Christensen equipped in the 1926–1937 period. In the third Norvegia expedition, led by Hjalmar Riiser-Larsen in 1929–30, Norwegian researchers used aircraft for the first time during survey work. This made comprehensive mapping possible. Riiser-Larsen flew reconnaissance trips with Finn Lützow-Holm over Dronning Maud Land, discovering and mapping parts of Kronprins Olav Kyst and Kronprinsesse Märtha Kyst.

During the next Norvegia expedition, in 1930–31, Prinsesse Ragnhild Kyst was surveyed by Gunnar Isachsen and Riiser-Larsen, and Norway claimed the coastal area on 17 February 1931. Around the same time, western Dronning Maud Land was discovered and mapped by a variety of Norwegian whaling expeditions. Prins Harald Kyst was discovered, aerially photographed and annexed to Norway by Christensen's expedition in 1936–1937.

The background for Norway's Antarctic annexations was above all a fear that Norwegian whaling interests would be harmed or excluded from the hunting grounds as a consequence of other countries' sovereignty claims on the Antarctic continent and the islands in surrounding waters. This fear was by no means unfounded: the UK in particular and its former colonies, New Zealand and Australia, had conducted an active policy of expansion including territorial claims and licensing fee demands from Norwegian whaling interests. For Norway, a major policy consideration was to achieve the smoothest possible relations with the UK. This policy would be put to the test in connection with Norway's annexation of Bouvetøya, but eventually it laid the foundation for a positive British understanding of Norwegian interests in the Antarctic. From 1933 onward, the UK repeatedly signalled that it would respond agreeably to a potential Norwegian sovereignty claim on the Antarctic mainland, but Norway chose to adopt a policy of restraint on this issue.

Grytøyfjellet, 2,695 m above sea level, in the Mühlig-Hoffmanfjella range, Dronning Maud Land. Photo: S. Tronstad, Norwegian Polar Institute



What directly prompted the annexation of Dronning Maud Land were rumours of German interest in the region. In December 1938 Adolf Hoel, a Norwegian polar explorer and leader of Norges Svalbards- og Ishavs-undersøkelser (later the Norwegian Polar Institute), was travelling in Berlin. By chance he picked up news that a German expedition was on its way to Antarctica. Hoel believed its destination was the same area of the Antarctic continent that Norway had planned to annex, and he advised the Ministry of Foreign Affairs. Things happened quickly after that. Hoel wrote a report on the exploration of the sector that Norway had in mind. On 5 January, Norwegian Prime Minister Johan Nygaardsvold presided over a meeting attended by Hoel, Minister of Foreign Affairs Halvdan Koht, several other ministers, whaling industry representatives, international law experts and scientists. The government then quickly prepared an annexation, which took place on 14 January 1939, a few days before the German expedition arrived in the same areas. The annexation was made known immediately to a variety of countries with which Norway had diplomatic relations. Most states received the Norwegian notification without comment. Other states expressed reservation, including the United States, Chile and the

Soviet Union. Germany rejected the Norwegian claim. The UK approved the annexation on 1 September 1939, the day the Second World War broke out. History as we now know it shows that Norwegian decisiveness in the pre-war days of 1939 would prove helpful in the development of a peaceful Antarctic administrative system.

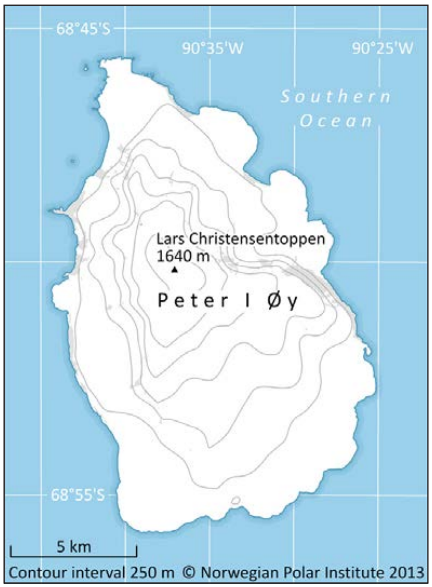
Dronning Maud Land is almost entirely covered by the continental ice cap. At the coast this cap floats out over the ocean, hanging like a shelf with a nearly continuous 30-metre-high ice wall facing outwards. Some 200-300 km inland, mountain ranges poke through the ice cover, which averages 2,000 metres thick. Despite the great distance to open water, these nunatak areas contain many nesting cliffs for seabirds. The largest known Antarctic petrel colony is located in the Mühlig-Hofmannfjella mountains of Dronning Maud Land. The colony includes nearly a million individuals.

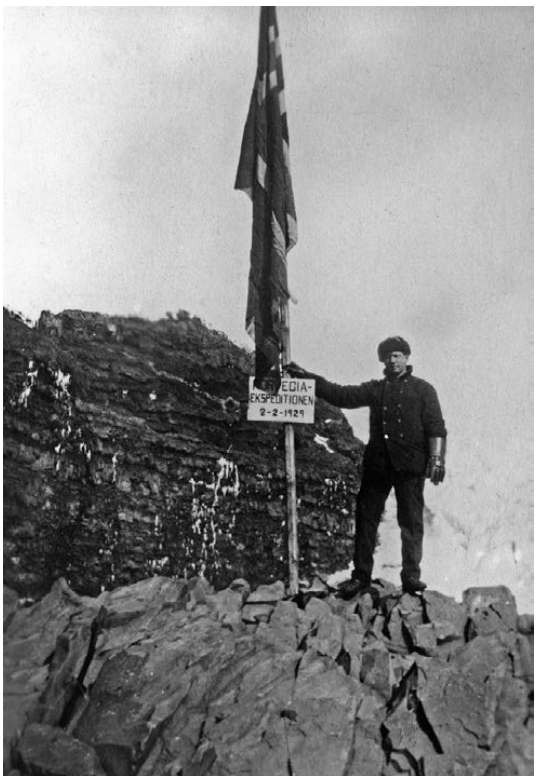
Dronning Maud Land is also home to Norway's Troll research station, which is situated at 1,275 metres' elevation on the mountain Jutulsessen, 235 km from the coast. The Norwegian Polar Institute also operates a smaller field station named Tor in the Svarthamaren area, about 100 km east of Troll. To date, nine other nations have established research stations in Dronning Maud Land: Belgium, Finland, India, Japan, Russia, the UK, Sweden, South Africa and Germany.

The 1939 annexation of Dronning Maud Land was the third and final Norwegian annexation in Antarctica. When Christensen equipped the second Norvegia expedition, in 1928, he was given authority to annex in Norway's name any new lands the expedition would discover. Peter I Øy ("Peter I Island") was annexed by the expedition on 2 February 1929, and became subject to Norwegian sovereignty by royal decree on 1 May 1931. By the Act of 24 March 1933, Peter I Øy became a Norwegian dependency.

Peter I Øy is situated 450 km off the west coast of the Antarctic continent, at 68°50'S, 90°35'W. It is an island of volcanic origin that is 180 km2 in size and almost completely covered by ice. Its highest peak, at 1,695 m, is Lars Christensentoppen. The shore consists of ice fronts 40 m in height or steep mountainsides that plunge into the sea, making access difficult. Only at three places is it possible to get ashore by boat, and for most of the year the island is surrounded by dense pack ice. The difficulty of access is reflected in the very low number of expeditions that land on Peter I Øy.

The climate is harsh, with lots of wind, cold temperatures and snow. The vegetation is largely the same as on the continent. However, there are few birds on the island due to the scarcity of ice-free areas. The most abundant species is the southern fulmar, which nests along the coast of the island, and a small penguin colony has been





The second Norvegia expedition annexed Peter I Øy to Norway on 2 February 1929. This was the first known landing on the island. Captain Larsen with flag.

Peter I Øy, photographed by the Norwegian Polar Institute survey expedition in 1987. Photo: T. Eiken, Norwegian Polar Institute

documented. Many seals have also been registered, both on land and in the surrounding sea.

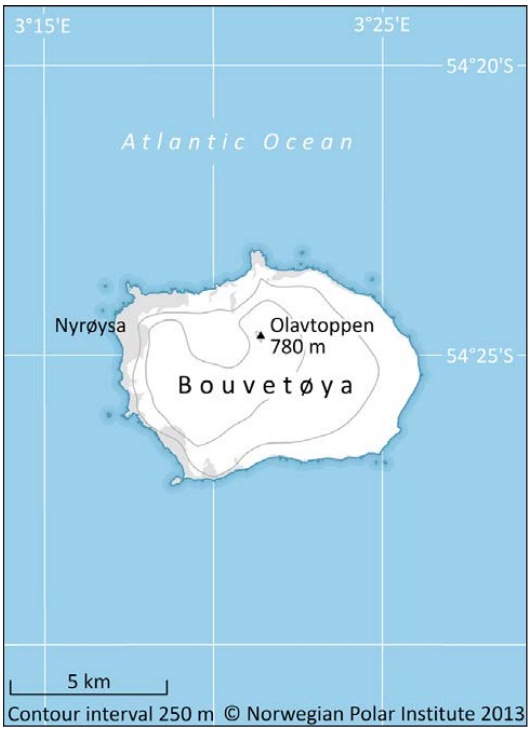
Bouvetøya

The first official Norwegian annexation of land in the Southern Ocean occurred during the first Norvegia expedition, whose members stayed on the island for over a month in 1927. By royal decree 23 January 1928, Bouvetøya ("Bouvet Island") became subject to Norwegian sovereignty. The island became a Norwegian dependency by the Act of 27 February 1930. Unlike Dronning Maud Land and Peter I Øy, Bouvetøya lies outside the Antarctic Treaty area and is thus undisputedly Norwegian.

Located at 54°25'S, 3°21'E, Bouvetøya is the top of a volcano rising out of the Southern Ocean at the southern end of the Mid-Atlantic Ridge. The island is only 50 km^2 in area, and practically speaking it is covered in ice. The steep mountain faces that rise out of the sea make landing very difficult. The highest point, the summit of Olavtoppen, is 780 m above sea level. Bouvetøya has a maritime Antarctic climate with an average temperature of -1 °C. It is often shrouded in clouds or dense fog. The island and its central crater were first surveyed by aircraft in 1929, by Riiser-Larsen during the third Norvegia expedition. Norvegia expedition members also collected the first rock samples ever taken from the island, enabling Professor Olav Holtedahl to determine Bouvetøya's distinctive geological character and publish his findings in 1929. In 1985, members of a Norwegian expedition photographed the whole island for survey purposes.

It's been a long time since there was a volcanic eruption in Bouvetøya's central crater. In 1955–57 a minor eruption was registered near the coast. This formed a new terrace along the northwest coast of the island (Nyrøysa), which as late as 1964 continued to leak volcanic gases. In 1978, it was still possible to measure a temperature of 25 °C at a depth of 30 cm below the surface. The vegetation consists mainly of mosses and lichens. Animal life is dominated by seals, penguins and

Bouvetøya on a very rare clear day, during the Norwegian Polar Institute expedition of 1985. Photo: K. M. Bratlien, Norwegian Polar Institute



seabirds that crowd together in large colonies. Hunting of of Antarctic fur seals on Bouvetøya was banned in 1929. In 1935, all seals in the area were protected, and in 1971 Bouvetøya and its adjacent territorial waters were made into a nature reserve. Complete protection was thus bestowed on the rich, distinctive plant and animal life. After this designation, the population of fur seals rose considerably. Between 1990 and 1997, the Nyrøysa fur seal colony was registered as growing from about 7,900 individuals to about 64,300, but the population has stabilised somewhat since then.

Bouvetøya is part of an international environmental monitoring network, and the Norwegian Polar Institute mounts regular expeditions to the island. Three cabins were set up on the island in 1979 in connection with a research expedition. These cabins later succumbed to the elements. A new research station was established in 1996, but in 2007 it appeared that natural forces on the island had once again claimed a building, and the station was gone. It may have slid into the sea. During the southern summer of 2013–2014, however, the Norwegian Polar Institute opened a new, more robust station on Bouvetøya. The station is equipped with camera and meteorological sensors to transmit data via satellite throughout the year. Wind energy makes it possible to operate measuring equipment during the long periods when the station is unattended.

Norwegian cultural heritage in the Antarctic

A number of heritage sites testify to Norway's activities in the Antarctic, though none of these sites lie within the Norwegian claim areas. The flagpole and a small cabin from the Norwegian annexation of Peter I Øy in 1929 have long since disappeared. The heritage sites consist of remnants such as cabins, graves and cairns. On Paulet Island are the remains of a stone hut that Captain C. A. Larsen and his crew built in 1903 after the sinking of their expedition ship, *Antarctic*.

In 2005 Amundsen's tent, which lies under the ice at the South Pole, was protected against human disturbance. Norwegian cultural heritage authorities also help see to the preservation of Carsten Borchgrevink's cabins at Cape Adare, where the first overwintering on the Antarctic continent occurred. Along with Chile and the UK, Norway also participates in the work of preserving cultural sites left from the Whalers Bay whaling station and the remains of a whalers' graveyard on Deception Island.

Additional cultural sites related to Norwegian activity can be found on sub-Antarctic islands that ring the Antarctic region outside of the Antarctic Treaty area. On the island of South Georgia, extensive traces of Norwegian whaling activity remain, including burial sites and a small church at Grytviken. On the island of Kerguelen are the remnants of a Norwegian whaling station from 1908.

Conservation of the natural environment in Antarctica and protection of the region's cultural heritage sites are central aspects of cooperation under the Antarctic

Borchgrevink's wintering station at Cape Adare, photographed New Year's Eve 1900. The building, prefabricated at Strømmen Trævarefabrik, is the oldest of those still standing on the continent.
Photo: C. Borchgrevink, Norwegian Polar Institute

Wooden boat half-buried in lava sand at Whaler Bay on Deception Island. A variety of Norwegian whale catchers operated from here until the 1930s. Hurtigruten vessel in the background. Photo: B. Fossli Johansen, Norwegian Polar Institute

Treaty. Apart from natural processes of degradation, the greatest impact on cultural sites arises from the increase in travel.

Expeditions in modern time

The era of the early pioneers may be over, but Antarctica continues to exert a pull on new explorers who visit the continent in private expeditions. Among these later adventurers, too, the Norwegians have stood out.

In 1990, the Mørdre brothers undertook the first expedition since Amundsen to cross the Antarctic continent on skis. In 1993, Erling Kagge became the first person in history to ski solo from the coast to the South Pole. The expedition of 49.5 days was conducted without outside support. The feat was followed by that of Liv Arnesen, who became the first woman to ski to the pole alone and unsupported, arriving on Christmas Eve 1994. In 2001 Arnesen and the American Ann Bancroft became the first women to cross Antarctica on skis, traversing 2,747 km in a period of 94 days.

In 1994 a group of Norwegian climbers led by Ivar Tollefsen ascended several peaks in Dronning Maud Land, including the highest one, Jøkulkyrkja (2,965 m). That same year Cato Zahl Pedersen, in the company of two others, became the first to complete a ski expedition to the South Pole with a major physical handicap. The expedition members went from Berkner Island to the South Pole without provisioning from outside.

Børge Ousland became the first person to cross the entire Antarctic continent alone on skis and without support, a feat he accomplished in 1997. In 2001, when the duo of Rolf Bae and Eirik Sønneland crossed Antarctica from the coast of Dronning Maud Land to the South Pole and onward to McMurdo Station, after having wintered at the Troll research station for 11 months in advance, it was the world's longest ski expedition. The journey of 3,800 km took the skiers 105 days. Their record was beaten by Rune Gjeldnes in 2006, when he skied 4,804 km alone across the continent. Three years later, Cecilie Skog became the first to cross Antarctica

Anniversary expedition 2011. Photo: Norwegian Polar Institute

View from Axel Heibergbreen during the 2011 anniversary expedition. Photo: Norwegian Polar Institute

from coast to coast without resupplies or wind assistance. The expedition lasted 70 days and covered 1,800 km.

In connection with the centenary of Amundsen's 1911 South Pole journey, the director of the Norwegian Polar Institute, Jan-Gunnar Winther, and three others undertook the South Pole 1911–2011 ski expedition. The expedition members followed Amundsen's route and arrived at the world's southernmost point on 14 December 2011, exactly 100 years after Amundsen. The next season, Aleksander Gamme skied to the pole and back, a distance of 2,270 km, in 87 days.

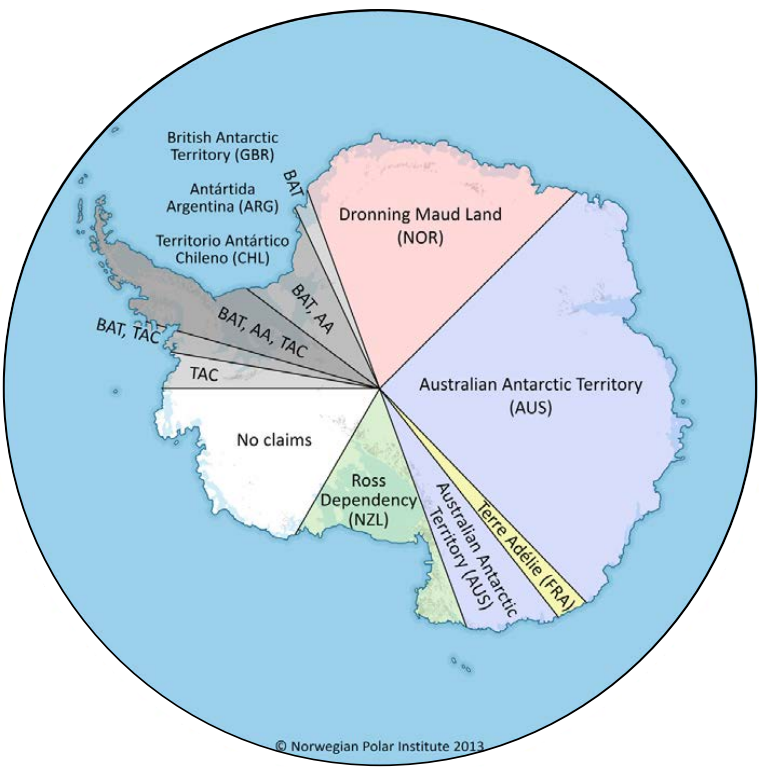
While honouring the great achievements of history, it must be also noted that Antarctica can be a harsh, inhospitable continent, and that some expeditions have ended tragically.

3. Antarctic Treaty

At the end of the Second World War there were seven countries with sovereignty claims in Antarctica (the UK, Australia, France, New Zealand, Norway, Chile and Argentina). The areas claimed by the UK, Chile and Argentina partially overlapped. One area of the continent, Marie Byrd Land, was unclaimed by any state. In addition, without recognising the other claims or asserting claims of their own, the United States and the Soviet Union maintained that they had a basis for Antarctic claims.

After the war, the idea of an international resolution of sovereignty issues in Antarctica was advanced repeatedly, but without gaining traction. Proposals for shared administration failed to win acceptance, as did proposals to put the continent under UN auspices. Given the obvious potential for conflict represented by the countries' opposing views on sovereignty, it was essential to find a solution everyone could get behind.

Research collaboration became the key to a solution. Successful international research activities conducted in Antarctica during the International Geophysical Year (IGY) of 1957–1958 led to the establishment of the Scientific Committee on Antarctic Research (SCAR)



Claim areas in the Antarctic. Map: Norwegian Polar Institute

Adélie penguins on the Fimbulisen shelf, Dronning Maud Land. Photo: E. Ø. Kjartansson

Ice edge in Dronning Maud Land. Photo: T. I. Karlsen, Norwegian Polar Institute

in 1958. That paved the way for the signing of the Antarctic Treaty in 1959. With Antarctica designated a "continent of science", potential conflicts and disagreements were pushed to the background and frameworks were negotiated to permit the collaborative international research to continue undisturbed.

The Antarctic Treaty, formulated by the 12 countries that had participated actively in the IGY-based Antarctic research, came into force on 23 June 1961 (see page 24). Apart from Norway the countries involved were Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, the Soviet Union, the UK, South Africa and the United States. These original signatories received the status of consultative parties under the treaty, entitling them to participate in the establishment of measures designed to advance the treaty's purposes.

The treaty provides that Antarctica shall be a demilitarised zone, free from activity of a military nature as well as nuclear tests and nuclear waste storage. It also grants member states freedom of access to inspect one another's activities and installations. Article IV set aside the controversy over sovereignty issues by stating that neither the treaty itself nor actions taken during its lifetime shall prejudice the position of the various parties on sovereignty matters. One could say that the parties agreed to disagree. This provision is very important because it is the foundation that enables the treaty to function and the parties to cooperate peacefully despite conflicting views.

The Antarctic Treaty did not settle the sovereignty issues in Antarctica, but it has put the latent conflicts on ice. Collaboration under the treaty has worked well. It has held an entire continent outside the vicissitudes of world politics, opened the way for remarkable international scientific cooperation and laid a foundation for cooperation to conserve Antarctica's fragile natural environment. The reason the treaty partnership has been so successful is that all parties have recognised a shared interest in finding harmonious solutions.

All UN member countries can accede to the treaty. Participation in the treaty builds on a distinction between consultative and non-consultative parties. The non-consultative parties have observer status at consultative meetings.

The distinction between consultative and non-consultative parties is made to ensure that it is the countries with interests in Antarctica, and actual knowledge of its affairs, that are responsible for potentially far-reaching decisions about its future. All decisions are arrived at by consensus, a system that ensures that all well-founded proposals receive due consideration. Non-consultative parties may obtain consultative status if, after acceding to the treaty, they demonstrate strong interest in Antarctica by conducting substantial scientific research activity there. Sixteen nations in addition to the original 12 have gained consultative status, so that at the end of 2013 the treaty had 28 consultative parties, including all five permanent members of the UN Security Council. In all, 50 countries (see page 23) representing over 80 per cent of the world's population have become contracting parties to the treaty. Antarctic Treaty meetings take place annually, with responsibility for planning and conducting the meetings rotating among the consultative parties. The Antarctic Treaty has its own secretariat, which was created in 2004; it is located in Buenos Aires, Argentina.

The Antarctic Treaty came into force in 1961. Thirty years later, in 1991, it became possible under treaty Article XII for a consultative party to request a conference to review the operation of the treaty. No nation so far has asked for such a conference or indicated a desire to exit the partnership.

The Antarctic Treaty has meanwhile given rise to several other international agreements, of which the most prominent are the Convention for the Conservation of Antarctic Seals (CCAS, adopted in 1972), the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR, adopted in 1980) and Protocol on Environmental Protection to the Antarctic Treaty (adopted in 1991). These agreements and the treaty itself are referred to collectively as the Antarctic Treaty System.

4. Protecting the Antarctic environment

Environment values

Antarctica stands out as the cleanest and most pristine area on earth. The natural environment in Antarctica represents a massive global asset, and despite the fact that human activity has clearly left its mark on the continent, there is no other place whose natural landscape is similarly untouched. Antarctica is therefore ideal for monitoring such environmental factors as changes in climate, the ozone later and food-chain contaminants. It also has great significance as an intact reference area for monitoring and researching global environmental problems.

Pristine nature also has intrinsic value. Antarctica is the last place in the world where it is still possible to preserve an environment minimally affected by human activity. In the Antarctic, animals and plants live in balance with the earth, air, ice and water as determined by natural processes that have evolved over thousands of years. The primary grounds for protecting the Antarctic environment are to preserve its unique natural and environmental resources.

Despite harsh Antarctic conditions, the Southern Ocean and the Antarctic continent are already marked by human activity. Several whale and seal populations were reduced to near extinction by overexploitation in the last century. Meanwhile, the human presence in Antarctica has increased, along with the risk of adverse effects to the environment. Many nations have established permanent research stations in the region. Tourism has increased significantly and several actors are interested in harvesting krill and fish.

Despite human influence in Antarctica, no other natural landscape in the world is as pristine. Photo: S. Tronstad, Norwegian Polar Institute

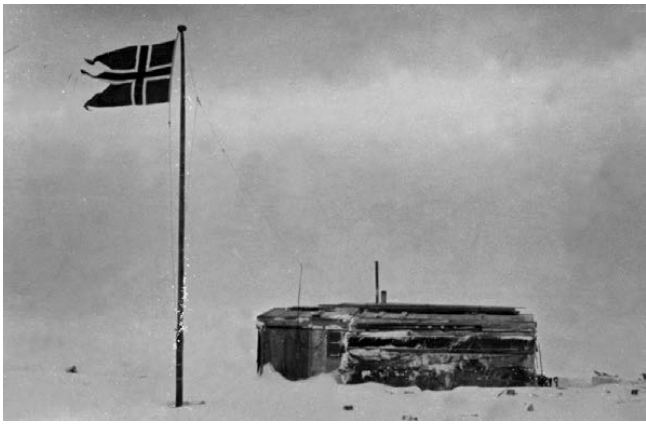
With human presence comes increased danger of pollution and introduction of non-native species. Research has already shown the existence of environmental contaminants in Antarctic wildlife. The greatest impact on Antarctica's natural environment today, however, comes from man-made global climate change.

The Environmental Protocol

Environmental protection has always been of central importance to collaboration within the Antarctic Treaty System. In the second half of the last century, people around the world became increasingly aware of Antarctica's unique value, and a series of agreements were forged for the purpose of managing the area and its environment and resources (see chapter 6). Sustainable management is a key objective of both the Antarctic Treaty itself and the other agreements that provide the management framework for the region (CCAMLR and CCAS). It was not until 1991, however, that detailed regulations were instituted to protect the Antarctic environment.

On 4 October 1991, the treaty parties signed the Protocol on Environmental Protection to the Antarctic Treaty (the Environment Protocol). Norway played an active role in preparation of the protocol. That the negotiations achieved such quick results can be attributed partly to the extensive work on environmental regulations that had been completed during negotiations for an Antarctic mineral convention in the 1980s and partly to the parties' strong desire to get an environmental protocol in place within the 30-year period referred to in the Antarctic Treaty. The Environment Protocol entered into force on 14 January 1998, the same January date that Norway, in 1939, annexed Dronning Maud Land. The Environment Protocol obligates the parties to participate in the comprehensive preservation of the Antarctic environment and related and dependent ecosystems, and it designates Antarctica as a natural reserve that shall be devoted to peace and science. The protocol contains a number of provisions on environmental cooperation in Antarctica.

In connection with the protocol's entry into force, a Committee for Environmental Protection (CEP) was established. It convenes during the annual Antarctic Treaty meetings to provide environmental, scientific and technical advice and to formulate recommendations to the parties with regard to implementing the Environment Protocol. Norway chaired the CEP during its early years and paved the way for the independent role that the committee still plays in Antarctic Treaty cooperation. In addition to the protocol itself, six annexes to date have been created to provide rules on environmental impact assessment, protection of flora and fauna, waste disposal, the fight against marine pollution, habitat protection and management, and liability associated with acute pollution. These annexes constitute an integral part of the protocol and are effectuated in Norway's Antarctic regulatory framework by way of regulations on environmental protection and safety.



Norway Station research outpost in Dronning Maud Land, Antarctic expedition of 1956–1960. Photo: S. Helle, Norwegian Polar Institute

Unloading at the ice's edge, Antarctic expedition of 1956–1960, Norway Station. Photo: S. Helle, Norwegian Polar Institute

The Environment Protocol contributed to a substantial strengthening of cooperative activity under the Antarctic Treaty. Previously, formal collaboration rested on two main pillars – peace and research. Since the Environment Protocol's adoption, international collaboration in the Antarctic has gained a third foundational pillar – protection of the environment.

Meteorological readings, Antarctic expedition of 1956–1960, Norway Station. Photo: S. Helle, Norwegian Polar Institute

5. Norwegian research activity

Members of the earliest Norwegian expeditions to Antarctica conducted extensive scientific research, but their activity also had commercial and political motives. The Maudheim expedition, which overwintered from 1949–52, introduced a new era in Antarctic history through its focus on polar science. The research members engaged in mapping as well as meteorological, glaciological, geological and seismological studies, and an alpine landscape was discovered under 2,700 metres of ice. This pioneering Norwegian-British-Swedish expedition was a forerunner of today's international research collaboration in Antarctica.

The Maudheim expedition also prefigured the International Geophysical Year of 1957–58, a highly active period in Antarctica during which 60 wintering stations were erected on the mainland ice and islands in the Southern Ocean. The establishment of Norway Station in 1956 was a milestone for Norwegian Antarctic research. The station, 32 km inside the Dronning Maud Land ice shelf, housed 14 scientists and 42 Greenland dogs for a period of three years. Significant amounts of research data were collected, and the expedition was rated a major success. The expedition also had large political significance, reinforcing the Dronning Maud Land annexation and securing Norway an important position in negotiations over the Antarctic Treaty, which would be signed in December 1959. Norway also played a pivotal role during the creation of the Scientific Committee on Antarctic Research (SCAR), which for years has been the platform for all research in Antarctica.

From the 1970s to the 1990s, the first NARE expedtions (Norwegian Antarctic Research Expeditions) were conducted by the Norwegian Polar Institute. The expeditions were carried out by ship. From 20 to 40 scientists and engineers from a variety of Norwegian research institutions took part in each of the expeditions, conducting geophysical, geological and biological research in the icy waters. In 1989–90, a permanent Norwegian research station was built at Jutulsessen in Gjelsvikfjella, 235 km from the coast at an elevation of 1,275 m. The station was named Troll. In 1993 a small field station, Tor, was constructed as a base for long-term research on the large Antarctic petrel colony in the Svarthamaren area, which has been declared a special protection area.

The climate project ICE Fimbul Ice Shelf was designed to examine melting underneath Fimbulisen, a floating ice shelf. Photo: S. Tronstad, Norwegian Polar Institute

Troll at sunset. Norway's Troll research station lies 1,275 over sea level at Jutulsessen in Gjelsvikfjella, 235 km from the coast. S. Tronstad, Norwegian Polar Institute

In 1991–1992 a Nordic cooperative arrangement was inaugurated, with Finland, Sweden and Norway alternating responsibility for organising Antarctic scientific expeditions. This led to greater research continuity by enabling each of the countries to send scientists to the continent on an annual basis. This form of logistical collaboration lasted until Troll opened as a year-round station and aircraft emerged as the primary mode of transport in the 2000s.

Lightly constructed and covering only 100 m^2, Troll initially was considered little more than a small summer workplace. Scientists could stay there only in late summer, between November and February. Another challenge was the transportation of people and equipment. All transportation took place by boat from South Africa to the ice's edge, and from there by tracked vehicle on a rugged, time-consuming route ¬235-280 km over the ice, across crevasses and up a rise of nearly 1,300 m before arrival at Troll. In 2003 Norway's government therefore decided that Troll should be expanded and staffed throughout the year. H. M. Queen Sonja opened the year-round station on 11 February 2005. By then a new building with a floor area of about 300 m^2 had arisen at Troll. The old 100 m^2 station building now serves as a storage and accommodation facility during the summer season. The station today can house eight persons during the Antarctic winter and many more in summer. The new building has a bedroom, exercise room, sauna, kitchen, communications centre and office spaces. In addition, several separate buildings have been erected to house laboratories, provisions, generators and vehicles. An emergency station with room for eight people has been erected a safe distance from the main station in case of fire or other mishap.

Also linked to the 2005 expansion came the opening of the 3,000-m-long Troll Airfield. This eased the logistics situation at Troll, making it possible to transport people and equipment to and from the research station faster, cheaper and with less risk. Situated on the blue ice 7 km from the research station, the Troll Airfield is one of

The 3-km-long Troll Airfield is one of the few landing strips on the Antarctic continent that can accommodate large aircraft. Photo: J. Hustadnes, Norwegian Polar Institute

very few established airstrips for larger aircraft on the continent. The runway needs regular maintenance with ice scrapers and snow blowers, but prevailing winds from the east help keep it free of snow most of the year. Troll personnel take care of security and operations at the airfield, which is part of the Dronning Maud Land Air Network (DROMLAN). The network is a cooperative project among 11 nations with activities in and around Dronning Maud Land. The runway is reserved for scientific activity and is not to be used by commercial operators.

Norwegian tracked vehicles and curious Adélie penguins at the unloading point in Dronning Maud Land. Photo: E. Johansen, Norwegian Polar Institute

In 2006, the Norwegian Polar Institute took the initiative to form the Dronning Maud Land Shipping Network (DROMSHIP), for which the institute – on behalf of the national Antarctic operators from Norway, Germany, Belgium, Sweden and Finland – hires ice-class ships to bring in supplies to the countries' stations in Dronning Maud Land.

The earth observation services company Kongsberg Satellite Services (KSAT) began downloading satellite data at Troll in 2007. Its downloading services are freely available on a commercial basis, and the Norwegian Polar Institute is among those receiving data. That same season, the Norwegian Institute for Air Research (NILU) established an observatory at Troll whose main purpose is to survey the atmosphere and measure seasonal and annual variations in the region. There is growing interest in setting up new research programmes at Troll, and strategic efforts are under way to develop the station as a hub for national polar research and international scientific cooperation.

In connection with the International Polar Year (IPY) of 2007–2008, Norway and the United States undertook a project that was considered the largest and most demanding Norwegian research expedition in modern times – the Norwegian-US Scientific Traverse of East Antarctica. The two-year field expedition consisted of 12 Norwegian and American scientists who crossed East Antarctica with the help of tracked vehicles. Their main objective was to examine changes in the ice mass of Dronning Maud Land in order to understand Antarctica's impact on sea level and global climate. A substantial amount of data was collected along the 3,000-km route, using such techniques as radar measurement, snow and ice sampling and satellite observation. Through ice-core analysis, researchers acquired information on climate variation over the past 1,500 years.

The analysis of data from the expedition provided important climatological insight, but there was much more to be learned about this part of Antarctica. In 2010 and 2013, researchers from Norway, Denmark and the UK got together to conduct airborne geophysical studies at the Recovery Glacier. The data set under analysis describes the glacier's response to global warming and the influence of three lakes, lying beneath 3 km of ice, on the ice dynamics.

During the IPY the Norwegian Polar Institute also led, on Norway's behalf, a bipolar programme called MEOP (Marine Mammals Exploring the Oceans Pole to Pole) in which 10 nations participated. This programme focused on changes in oceanographic conditions and the effects on apex predators. Norwegian researchers placed newly developed satellite transmitters on hooded seals in the Arctic and southern elephant seals in Antarctica, and thereby acquired large amounts of hydrographic data and new information on the distribution and wanderings of these seal species.

In 2009 the Norwegian Polar Institute inaugurated the ICE Fimbul Ice Shelf climate project. The purpose was to investigate melting beneath the floating glacier Fimbulisen in Dronning Maud Land. This was done to assess the interaction between this Antarctic ice shelf and the sea. Oceanographers and glaciologists collaborated on the project, whose execution was considered highly challenging. Scientists drilled through the ice, which is several hundred metres thick, and installed advanced instruments underneath. No such studies had succeeded in this area before, and for the first time, climate scientists gained insight into melting processes below the ice shelf in this important part of Antarctica. These processes had not previously been understood well enough to be included in near-term climate projection models. As a result, the Fimbul project has sparked great international interest and will continue to do so as the analyses are completed.

Another climate project to gain international attention is ICE Ice Rises. It aims to study ice rises, or elevations in

shelf surface, along the Antarctic shelf edge. The goal is to determine whether ice rises affect the speed of a glacier's movement towards the sea, and if so, how. Such knowledge would make it possible to better forecast the melting of the ice and the increase in sea level. The project, to be concluded in 2014, is being carried out over two field seasons in collaboration with a variety of other countries.

Monitoring Antarctic petrel at Svarthamaren in Dronning Maud Land. Photo: S. Descamps, Norwegian Polar Institute

The Norwegian Polar Institute also heads two international research programmes focused on biological science. The ICE Bird and Krill Predators projects focus on the effects of climate change and krill fisheries on krill-dependent predators in the Southern Ocean. In addition, these projects are linked to long-term monitoring programmes at (respectively) Svarthamaren near Troll and the South Orkney Islands (part of the CCAMLR-CEMP programme).

6. Business interests and resource management

There has long been interest in exploiting Antarctic natural resources, both on the continent and in the surrounding seas. Over the years, therefore, international agreements have been necessary to ensure that all resource exploitation occurs in a responsible manner, with care shown for the fragile Antarctic environment. The Southern Ocean, a body of water we have barely begun to explore, is home to large populations of krill, which is a staple for fish, squid, sea birds, penguins, seals and whales.

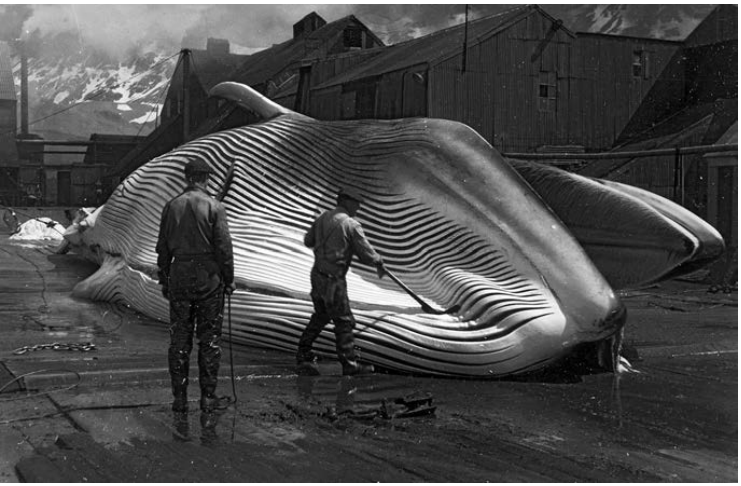
The extensive whaling that took place in the Southern Ocean in the 1920s resulted in a sharp reduction of the whale population, and there arose a need for regulation. In 1931, Norway presented a draft convention to protect whales. It came into force in 1935, introducing a regulatory system that was to apply to all pelagic whaling. In 1949, the International Whaling Commission (IWC) was established. This did not lead to any noticeable reduction in the catch, however, because the Soviet Union and Japan intensified their hunt as other nations scaled back.

In 1946, a combined quota of 16,000 blue whales was taken. Norway tried repeatedly to get the IWC to agree to set lower catch limits, and by 1966 the limit was down to 3,500 animals. At this point, the UK and the Netherlands pulled out of the hunt, and Norway followed in 1967. The management of whale populations is under IWC jurisdiction. In 1982 the IWC adopted a moratorium (zero quotas) on hunting the largest whale species, with effect through 1990. Since then the IWC has been unable to formulate any management resolutions, but no countries are currently engaged in commercial whaling in Antarctica, and most marine mammal populations are in good condition or growing.

The Convention for the Conservation of Antarctic Seals (CCAS) of 1972 deals with the management of seal populations in Antarctica. Due to lack of an economic rationale as well as pressure from international public opinion, sealing is not practiced in the Antarctic today, so the convention does not have practical application. Three seal reserves have been established pursuant to the CCAS convention.

The Convention on the Conservation of Living Marine Resources in Antarctica (CCAMLR) came into force in 1982 and regulates the management of living resources in the Southern Ocean with the exception of seals and whales. The convention is based on an ecosystem principle that regards all living marine resources in Antarctica as a single system. Efforts shall therefore be made to maintain the natural interrelationships among species, including species subjected to hunting or fishing and others that are dependent on those that are hunted or fished. As data and knowledge are assembled over time, further regulations are developed, catch limits are introduced or areas closed to activity. Catch limits are set low to prevent over-exploitation in vulnerable ecosystems where there is little information about stock conditions. The CCAMLR commission also works actively to curb illegal, underreported and unregulated fishing in the Southern Ocean.

So far, 36 countries have acceded to CCAMLR, of which 25 are members of the CCAMLR commission, which makes decisions on such issues as catch limits, regulations and protected marine areas. The CCAMLR secretariat is headquartered in Hobart, Tasmania. A special ecosystem-monitoring programme (CEMP) has also been established under CCAMLR. One way Norway participates is through the Norwegian Polar Institute's work on Bouvetøya. Since the mid-1990s, the institute has researched and monitored seal and penguin colonies there. This monitoring contributes to an understanding of the interaction between land-based predators and commercial fishing, and is utilised in resource man-



Flensing at Husvik in South Georgia in the 1950s. Photo: S. Hjelle, Norwegian Polar Institute

agement by the CCAMLR commission. In 2011, the Institute of Marine Research began a programme to monitor krill around the South Orkney Islands. A commercial fishing vessel equipped with acoustic scientific instrumentation operates there one week per year on a fixed schedule to assess the quantity and composition of the krill stock. These measurements are compared with the results of similar surveys conducted by the UK and the United States in other fishing areas. The studies are performed in collaboration with the fishing industry, which makes a vessel available, and with China and the UK. The monitoring programmes are also an important part of Antarctic environmental management.

In cooperation with the CCAMLR commission, the Institute of Marine Research also conducted the Antarctic Krill and Ecosystem Studies (AKES) expedition using the research vessel G.O. Sars in the Southern Ocean during the IPY in 2008. The voyage covered waters between the Falkland Islands and Cape Town via South Georgia, Bouvetøya and Astridryggen north of Dronning Maud Land. The main purpose was to gather information about the marine environment and its impact on the krill-based ecosystem while further developing the method of measuring krill stocks acoustically. Particular emphasis was given to methodical studies to improve environmental and resource monitoring, including the effects of global climate change. Expedition participants also gathered data for several national and international projects on geology, biology, climate and pollution. Scientists from Norway, the United States, Germany, China and Brazil took part, and the mission was of great importance to the CCAMLR commission. In addition to providing basic knowledge about marine ecosystem dynamics and trends, it provided the commission with useful information on the management of living marine resources.

The interest in Antarctic fishing is due largely to the region's enormous krill stocks and to the highly valuable toothfish. Norway accounts for the majority of Antarctica's krill fishery, followed by South Korea and Japan. Norwegian companies have invested substantial resources in developing the krill industry, but so far the krill fishery and krill markets are limited. Krill today are used in dietary supplements, Omega-3 products, medicine and cosmetics, while the residual products are used in such commodities as aquaculture feed. If the technical and market barriers that currently limit the ability to exploit krill are overcome, krill could become a valuable nutritional source. The fishery is limited today because the most promising krill-fishing areas overlap with important feeding areas for land-based predators such as seals and penguins. A number of countries also fish for toothfish. Norway currently has only one boat active in this fishery.

Krill is a key species in the Southern Ocean ecosystem, and the most important food for penguins, whales, fish and seabirds. In recent years humans, too, have taken an interest in this abundant crustacean. Today krill is commercially fished. Photo: T. I. Karlsen, Norwegian Polar Institute

The largest industry in Antarctica today is cruise tourism. Many more people visit Antarctica now than just a few years ago. While only about 5,000 tourists visited Antarctica during the summer season 20 years ago, today the continent receives just under 40,000 tourists per year. Norwegian tour operators at most have had three cruise ships in Antarctic service, and at that time they represented about 20 per cent of cruise tourism. Norwegian operators still play a significant role in this market. Most disembarkation occurs in areas of special natural or cultural significance around the Antarctic Peninsula, the most accessible area of the continent. Only a small number of tourists visit other parts of Antarctica, but

the tour companies are always finding new attractions to offer, thereby increasing pressure on areas that were previously untouched.

In addition to cruise tourism, private sailing and skiing expeditions to Antarctica have increased in number. Such activity has not yet achieved a large scale, but new forms of tourism are continually arising, and it is safe to assume that this trend will continue. Today, for example, some operators offer commercial flights to the continent.

A number of regulatory measures for tourism have been adopted through the Antarctic Treaty System, but the tourism industry has itself made substantial contributions through guidelines developed by the International Association of Antarctic Tour Operators (IAATO). Tourism in any case remains an important topic of discussion between the treaty states.

The satellite services that KSAT provides at Troll represents a relatively new form of activity in Antarctica. Looking ahead, we are likely to see the development of other types of businesses, including some related to bioprospecting. These are challenges that the treaty system must be prepared to meet.

Flag at Norway Station, Dronning Maud Land, 1950-1960. Photo: S. Helle, Norwegian Polar Institute

7. Norwegian Antarctic policy

The primary purpose of Norwegian Antarctic policy is to ensure that the region's unique natural and environmental riches are preserved for future generations, and as an important reference area for research on global environmental systems. Norway's interests as a claimant must also be safeguarded. Within this framework, there should be room for environmentally sound research, tourism and commercial activity. Norwegian authorities have developed a national body of laws enabling us to carry out our obligations under international law, to safeguard Norwegian interests and to exercise authority in Antarctica.

Norwegian Antarctic policy has remained constant for many years. Successive governments have sought to maintain Norway's sovereignty claims and continue international collaboration under the Antarctic Treaty while ensuring that Norwegian activity in Antarctica is consistent with our international obligations. Through its long-term research efforts and its political and legal ties to Antarctica, Norway has played a major role in Antarctic collaboration and placed great emphasis on preserving solidarity among the treaty parties.

There is a close relationship between influence and physical presence. If Norway is to be able to continue working to keep Antarctica an area of collaboration and low tension, the other parties must have confidence in Norway's expertise and commitment. It is therefore important for Norway to conduct Antarctic research on a sustained basis and to demonstrate a long-term commitment to the continent.

It has become increasingly important to care for the fragile environment and ensure sustainable management of natural resources in the Antarctic. The Environment Protocol and CCAMLR are tangible results of the parties' efforts in these areas. Norway today possesses a substantial amount of polar expertise acknowledged by the international research community. Norway is also one of the few countries in the world with possessions and extensive research activities in both the Arctic and the Antarctic.

The recognition that Antarctica has major significance for the global environment and our common future is an important reason to maintain a busy research agenda there. Norway's natural advantages give us special qualification to engage in polar research – in both the north and the south – and thereby to make important contributions to international science.

NORWEGIAN LAW

A special Norwegian act applies to Bouvetøya, Peter I Øy and Dronning Maud Land: the Act of 27 February 1930 No. 3 relating to dependencies. The act stipulates that these areas are subject to Norwegian sovereignty as dependencies. A legislative amendment in 1957 brought Dronning Maud Land into the act's purview. Dependencies are areas under Norwegian sovereignty, but not formally considered part of the Kingdom of Norway.

Norwegian private law, criminal law and procedural law apply in the dependencies. Other acts and regulations are also applicable if so determined. The dependencies act moreover contains provisions regarding the fulfilment of international legal obligations that Norway has assumed. Particularly important in this context are obligations pursuant to the Antarctic Treaty. For example, the Environment Protocol and its annexes, and measures on safety rules, are carried through in Norwegian regulations specially formulated to address Antarctic environmental protection and safety. Under Norwegian law, all who stay in Norway's Antarctic dependencies must observe various sets of Norwegian acts and regulations. In the other parts of Antarctica, some regulations will apply to Norwegians as well as to foreigners who reside in Norway or who participate in activities organised from Norway. Norway's Antarctic Regulations are particularly relevant in this regard.

The Regulations of 26 April 2013 No. 412 relating to the protection of the environment and safety in Antarctica (Antarctic Regulations) strictly regulate protection of the Antarctic environment and preservation of Antarctica's wilderness character and aesthetic value. The regulations also lay down safety rules for all activity. The commitments that Norway has undertaken under the Environment Protocol are honoured in these regulations, with the Norwegian Polar Institute serving as administrative authority.

The regulations include rules on mandatory notification for all activities to be undertaken in Antarctica. Notice is to be sent to the Norwegian Polar Institute at least one year before the planned activity. Such notice must contain information on who will be travelling, the activity's purpose and scale, environmental clean-up plans and the possible effects of the activity on the Antarctic environment. Before leaving for the Antarctic, whoever is organisationally responsible must post expense guarantees related to potential rescue operations and must have contingency plans to ensure health and safety.

The regulations also lay out contingency planning standards for accommodating the risk of acute pollution and for insurance to cover the financial liability that may arise from any environmental damage. The party responsible for an activity in Antarctica is required to take measures to counteract acute environmental damage that may occur in connection with the activity. If such measures are not taken, the party in question may be held financially responsible.

Antarctic flora and fauna are highly vulnerable, and are protected under provisions of the Environment Protocol. Collecting or otherwise causing damage to plants and animals is therefore prohibited. The regulation does allow for collecting and catching for research purposes. Upon departing for home, waste produced during an expedition must be taken out of Antarctica. Antarctica's status as the world's largest and most pristine wilderness area must be preserved with its unique environmental qualities intact. Travellers to Antarctica are required by the regulations to familiarise themselves with especially sensitive areas of the continent, including cultural and historic sites, and to follow the rules applicable to each area.

MEMBER COUNTRIES, ANTARCTIC TREATY

Original consultative parties:	New consultative parties:	Non-consultative parties:	
Argentina	Brazil	Austria	Slovak Republic
Australia	Bulgaria	Belarus	Switzerland
Belgium	China	Canada	Turkey
Chile	Czech Republic	Colombia	Venezuela
France	Ecuador	Cuba	
Japan	Finland	Denmark	
New Zealand	Germany	Estonia	
Norway	India	Greece	
Russian Federation	Italy	Guatemala	
South Africa	Netherlands	Hungary	
United Kingdom	Peru	Malaysia	
United States	Poland	Monaco	
	South Korea	North Korea	
	Spain	Pakistan	
	Sweden	Papua New Guinea	
	Ukraine	Portugal	
	Uruguay	Romania	

The Antarctic Treaty

The Governments of Argentina, Australia, Belgium, Chile, the French Republic, Japan, New Zealand, Norway, the Union of South Africa, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America,

Recognizing that it is in the interest of all mankind that Antarctica shall continue for ever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord;

Acknowledging the substantial contributions to scientific knowledge resulting from international cooperation in scientific investigation in Antarctica;

Convinced that the establishment of a firm foundation for the continuation and development of such cooperation on the basis of freedom of scientific investigation in Antarctica as applied during the International Geophysical Year accords with the interests of science and the progress of all mankind;

Convinced also that a treaty ensuring the use of Antarctica for peaceful purposes only and the continuance of international harmony in Antarctica will further the purposes and principles embodied in the Charter of the United Nations;

Have agreed as follows:

Article I

1. Antarctica shall be used for peaceful purposes only. There shall be prohibited, inter alia, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any type of weapons.

2. The present Treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purpose.

Article II

Freedom of scientific investigation in Antarctica and cooperation toward that end, as applied during the International Geophysical Year, shall continue, subject to the provisions of the present Treaty.

Article III

1. In order to promote international cooperation in scientific investigation in Antarctica, as provided for in Article II of the present Treaty, the Contracting Parties agree that, to the greatest extent feasible and practicable:

(a) information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy and efficiency of operations;

(b) scientific personnel shall be exchanged in Antarctica between expeditions and stations;

(c) scientific observations and results from Antarctica shall be exchanged and made freely available.

2. In implementing this Article, every encouragement shall be given to the establishment of cooperative working relations with those Specialized Agencies of the United Nations and other international organizations having a scientific or technical interest in Antarctica.

Article IV

1. Nothing contained in the present Treaty shall be interpreted as:

(a) a renunciation by any Contracting Party of previously asserted rights of or claims to territorial sovereignty in Antarctica;

(b) a renunciation or diminution by any Contracting Party of any basis of claim to territorial sovereignty in Antarctica which it may have whether as a result of its activities or those of its nationals in Antarctica, or otherwise;

(c) prejudicing the position of any Contracting Party as regards its recognition or non-recognition of any other State's right of or claim or basis of claim to territorial sovereignty in Antarctica.

2. No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force.

Article V

1. Any nuclear explosions in Antarctica and the disposal there of radioactive waste material shall be prohibited.

2. In the event of the conclusion of international agreements concerning the use of nuclear energy, including nuclear explosions and the disposal of radioactive waste material, to which all of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX are parties, the rules established under such agreements shall apply in Antarctica.

Article VI

The provisions of the present Treaty shall apply to the area south of 60º South Latitude, including all ice shelves, but nothing in the present Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regard to the high seas within that area.

Article VII

1. In order to promote the objectives and ensure the observance of the provisions of the present Treaty, each Contracting Party whose representatives are entitled to

participate in the meetings referred to in Article IX of the Treaty shall have the right to designate observers to carry out any inspection provided for by the present Article. Observers shall be nationals of the Contracting Parties which designate them. The names of observers shall be communicated to every other Contracting Party having the right to designate observers, and like notice shall be given of the termination of their appointment.

2. Each observer designated in accordance with the provisions of paragraph 1 of this Article shall have complete freedom of access at any time to any or all areas of Antarctica.

3. All areas of Antarctica, including all stations, installations and equipment within those areas, and all ships and aircraft at points of discharging or embarking cargoes or personnel in Antarctica, shall be open at all times to inspection by any observers designated in accordance with paragraph 1 of this Article.

4. Aerial observation may be carried out at any time over any or all areas of Antarctica by any of the Contracting Parties having the right to designate observers.

5. Each Contracting Party shall, at the time when the present Treaty enters into force for it, inform the other Contracting Parties, and thereafter shall give them notice in advance, of

(a) all expeditions to and within Antarctica, on the part of its ships or nationals, and all expeditions to Antarctica organized in or proceeding from its territory;

(b) all stations in Antarctica occupied by its nationals; and

(c) any military personnel or equipment intended to be introduced by it into Antarctica subject to the conditions prescribed in paragraph 2 of Article I of the present Treaty.

Article VIII

1. In order to facilitate the exercise of their functions under the present Treaty, and without prejudice to the respective positions of the Contracting Parties relating to jurisdiction over all other persons in Antarctica, observers designated under paragraph 1 of Article VII and scientific personnel exchanged under subparagraph 1(b) of Article III of the Treaty, and members of the staffs accompanying any such persons, shall be subject only to the jurisdiction of the Contracting Party of which they are nationals in respect of all acts or omissions occurring while they are in Antarctica for the purpose of exercising their functions.

2. Without prejudice to the provisions of paragraph 1 of this Article, and pending the adoption of measures in pursuance of subparagraph 1(e) of Article IX, the Contracting Parties concerned in any case of dispute with regard to the exercise of jurisdiction in Antarctica shall immediately consult together with a view to reaching a mutually acceptable solution.

Article IX

1. Representatives of the Contracting Parties named in the preamble to the present Treaty shall meet at the City of Canberra within two months after the date of entry into force of the Treaty, and thereafter at suitable intervals and places, for the purpose of exchanging information, consulting together on matters of common interest pertaining to Antarctica, and formulating and considering, and recommending to their Governments, measures in furtherance of the principles and objectives of the Treaty, including measures regarding:

(a) use of Antarctica for peaceful purposes only;

(b) facilitation of scientific research in Antarctica;

(c) facilitation of international scientific cooperation in Antarctica;

(d) facilitation of the exercise of the rights of inspection provided for in Article VII of the Treaty;

(e) questions relating to the exercise of jurisdiction in Antarctica;

(f) preservation and conservation of living resources in Antarctica.

2. Each Contracting Party which has become a party to the present Treaty by accession under Article XIII shall be entitled to appoint representatives to participate in the meetings referred to in paragraph 1 of the present Article, during such time as that Contracting Party demonstrates its interest in Antarctica by conducting substantial scientific research activity there, such as the establishment of a scientific station or the despatch of a scientific expedition.

3. Reports from the observers referred to in Article VII of the present Treaty shall be transmitted to the representatives of the Contracting Parties participating in the meetings referred to in paragraph 1 of the present Article.

4. The measures referred to in paragraph 1 of this Article shall become effective when approved by all the Contracting Parties whose representatives were entitled to participate in the meetings held to consider those measures.

5. Any or all of the rights established in the present Treaty may be exercised as from the date of entry into force of the Treaty whether or not any measures facilitating the exercise of such rights have been proposed, considered or approved as provided in this Article.

Article X

Each of the Contracting Parties undertakes to exert appropriate efforts, consistent with the Charter of the United

Nations, to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the present Treaty.

Article XI

1. If any dispute arises between two or more of the Contracting Parties concerning the interpretation or application of the present Treaty, those Contracting Parties shall consult among themselves with a view to having the dispute resolved by negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice.

2. Any dispute of this character not so resolved shall, with the consent, in each case, of all parties to the dispute, be referred to the International Court of Justice for settlement; but failure to reach agreement on reference to the International Court shall not absolve parties to the dispute from the responsibility of continuing to seek to resolve it by any of the various peaceful means referred to in paragraph 1 of this Article.

Article XII

1. (a) The present Treaty may be modified or amended at any time by unanimous agreement of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX. Any such modification or amendment shall enter into force when the depositary Government has received notice from all such Contracting Parties that they have ratified it.

(b) Such modification or amendment shall thereafter enter into force as to any other Contracting Party when notice of ratification by it has been received by the depositary Government. Any such Contracting Party from which no notice of ratification is received within a period of two years from the date of entry into force of the modification or amendment in accordance with the provisions of subparagraph 1(a) of this Article shall be deemed to have withdrawn from the present Treaty on the date of the expiration of such period.

2. (a) If after the expiration of thirty years from the date of entry into force of the present Treaty, any of the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX so requests by a communication addressed to the depositary Government, a Conference of all the Contracting Parties shall be held as soon as practicable to review the operation of the Treaty.

(b) Any modification or amendment to the present Treaty which is approved at such a Conference by a majority of the Contracting Parties there represented, including a majority of those whose representatives are entitled to participate in the meetings provided for under Article IX, shall be communicated by the depositary Government to all the Contracting Parties immediately after the termination of the Conference and shall enter into force in accordance with the provisions of paragraph 1 of the present Article

(c) If any such modification or amendment has not entered into force in accordance with the provisions of subparagraph 1(a) of this Article within a period of two years after the date of its communication to all the Contracting Parties, any Contracting Party may at any time after the expiration of that period give notice to the depositary Government of its withdrawal from the present Treaty; and such withdrawal shall take effect two years after the receipt of the notice by the depositary Government.

Article XIII

1. The present Treaty shall be subject to ratification by the signatory States. It shall be open for accession by any State which is a Member of the United Nations, or by any other State which may be invited to accede to the Treaty with the consent of all the Contracting Parties whose representatives are entitled to participate in the meetings provided for under Article IX of the Treaty.

2. Ratification of or accession to the present Treaty shall be effected by each State in accordance with its constitutional processes.

3. Instruments of ratification and instruments of accession shall be deposited with the Government of the United States of America, hereby designated as the depositary Government.

4. The depositary Government shall inform all signatory and acceding States of the date of each deposit of an instrument of ratification or accession, and the date of entry into force of the Treaty and of any modification or amendment thereto.

5. Upon the deposit of instruments of ratification by all the signatory States, the present Treaty shall enter into force for those States and for States which have deposited instruments of accession. Thereafter the Treaty shall enter into force for any acceding State upon the deposit of its instrument of accession.

6. The present Treaty shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

Article XIV

The present Treaty, done in the English, French, Russian and Spanish languages, each version being equally authentic, shall be deposited in the archives of the Government of the United States of America, which shall transmit duly certified copies thereof to the Governments of the signatory and acceding States.