

scientific traverse year-round station summer station
Numbers by station symbols refer to table on Plate 10.

1954-1955

By 1954, planning for the International Geophysical Year (IGY) was well advanced. Under the auspices of the International Council of Scientific Unions, more than 60 nations were to participate in a worldwide program. From July 1, 1957 to December 31, 1958, there would be some 30,000 scientists manning more than 1000 stations and research vessels throughout the world. They would collect meteorological, oceanographical, and glaciological data, study the physics of the upper atmosphere, and measure changes in the earth's magnetic and gravitational fields. A special international committee was set up for the Antarctic, and twelve nations agreed to participate in the Antarctic program. They were Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the Soviet Union, the United Kingdom, and the United States. Most of these countries had previous polar experience to guide them in planning their expeditions. In 1954, however, only four countries had stations in Antarctica. They were Argentina, Australia, Chile, and the United Kingdom. All stations but one, Australia's Mawson, were on the Antarctic Peninsula. During the 1954-1955 season the United Kingdom established two new stations: Base N, at Anvers Island, and Base Y, on Horseshoe Island. During the summer, Argentine ships serviced their previously established light and navigation beacons and set up several new ones. New refuge huts were set up to augment the numerous ones previously established.

In order to have the proposed Antarctic IGY stations operational by July 1, 1957, preparations had to be made well in advance. The United States began its operations by sending an icebreaker to the Antarctic in the latter part of 1954, to locate sites for stations. The reconnaissance party found that Little America IV, Admiral Byrd's last camp on the Ross Ice Shelf, had been buried in snow, and parts of it had been carried to sea when pieces of the ice shelf broke off. A site nearby was chosen for Little

America V, to be set up the following year.

In December 1954, the newly launched Argentine icebreaker, General San Martin, left Buenos Aires with personnel and equipment for a new station on the Filchner Ice Shelf. The mission was successful and the new station, called General Belgrano, was established in January 1955.

1955-1956

Many of the Antarctic IGY expeditions got under way in the austral summer of 1955-1956. An early start was especially necessary for the countries that planned to have inland stations. Building materials, equipment, and supplies had to be shipped this year and stored for the following spring when they would be transported to the inland sites by aircraft or tractor train.

During the summer of 1955-1956, the U.S. Navy's 'Operation Deep Freeze I' established Little America V, which was to be the headquarters of the United States research program. Materials to be used the following spring and summer for building Byrd Station on the inland ice sheet were stored at Little America V. Deep Freeze I also set up Williams Air Operation Facility on Ross Island, near the site of the station later known as McMurdo. The materials for building a station at the South Pole were stockpiled at the Air Operation Facility.

In January 1956, United States aircraft made a number of long-distance flights over the continent, including a round trip from Ross Island toward the Weddell Sea and back, a distance of 6000 km.

The U.S.S.R. established its first station in Jaunary 1956 on the coast of Queen Mary Land. This was the first Russian expedition to the Antarctic since that of Bellingshausen in 1820–1821. The new station was named Mirnyy, after one of Bellingshausen's ships. A tractor-train party went out from Mirnyy to explore the route over which next year's party would travel on its way to the site of the proposed Vostok Station (also named for one of

Bellingshausen's ships). In May 1956, at a site 375 km south of Mirnyy and at an elevation of almost 2750 m, the exploratory party set up a wintering station, called Pionerskaya. The four men who remained at the station were the first to spend a winter on the ice sheet of interior Antarctica.

The expeditions of other nations were also under way. France completed the occupation of its Dumont d'Urville station by the end of March 1956. The main hut of the British Royal Society base at Halley Bay was completed. An advance party of the British Transantarctic Expedition—planned for 1957–1958—established its main base, Shackleton, on the Filchner Ice Shelf. The Transantarctic Expedition was to be financed by the governments of the United Kingdom, New Zealand, Australia, and South Africa, and by public subscription.

A British aerial survey of the South Shetland Islands and parts of the northern Antarctic Peninsula was begun; operations were based at Deception Island. Britain also established two new stations on the Antarctic Peninsula this year: Base O on the Danco Coast and Base W on Detaille Island.

Chile enlarged its stations this year, during its tenth Antarctic expedition.

1956-1957

During the summer of 1956-1957, fourteen new stations were set up in Antarctica in preparation for the IGY.

The U.S. Navy's Operation Deep Freeze II, with assistance from U.S. Army personnel who had experience in Greenland, transported materials for a new station by tractor train from Little America V to 79° 59′ S, 120° 00′ W; by the end of January Byrd Station was in operation. The first aircraft landing at the South Pole was made on October 31, 1956, and the first construction party was landed near the Pole on November 20. Supplies and build-

ing materials were flown in from the airstrip on the ice of McMurdo Sound. U.S. Air Force planes dropped supplies from the air, and Amundsen-Scott Station was set up before winter began. On the Knox Coast, first seen by Wilkes in 1840, the United States Wilkes Station was set up in February with materials and equipment transported by ice-breaker-escorted ships. Ellsworth Station was established in a similar manner on the Filchner Ice Shelf.

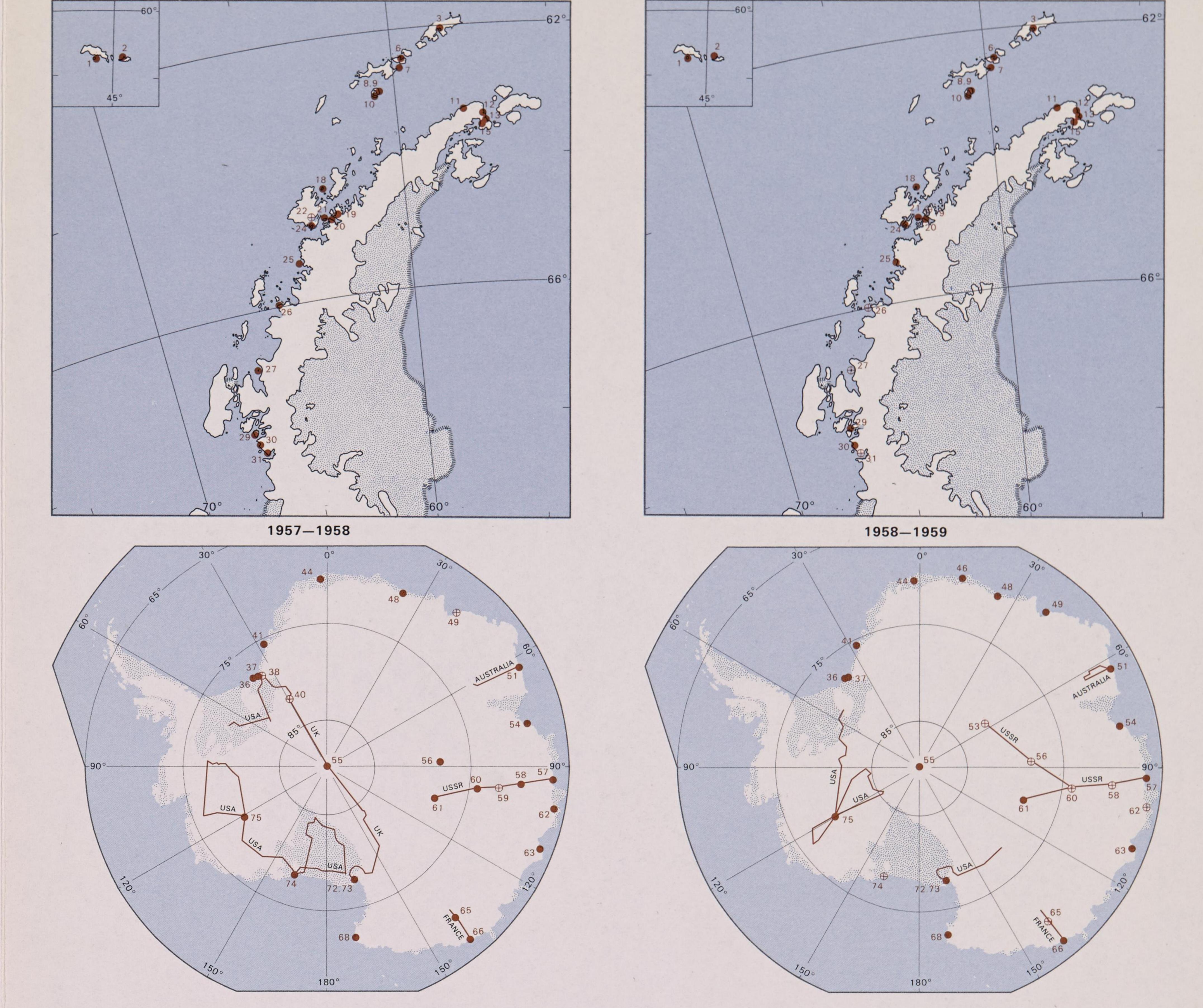
The United States and New Zealand established a station at Cape Hallett, which they operated jointly. New Zealand set up Scott Base at Pram Point on Ross Island.

France set up a new station, called Charcot, on the inland ice south of Dumont d'Urville. The Japanese built Showa Station on Ongul Island off Prince Harald Coast. The Australians built a second station, called Davis, in the Vestfold Hills of Ingrid Christensen Coast. The Norwegians started to construct their station, to be called Norway, on the ice shelf north of New Schwabenland.

The British finished building Shackleton Station and an auxiliary base, called South Ice, in preparation for the Commonwealth Transantarctic Expedition the following year. The British also established Base J at Prospect Point; this station would contribute meteorological data to the IGY program. The British aerial survey, started the previous year, was continued.

In October 1956 the Soviets set up Oazis Station in an ice-free area on the coast east of Mirnyy; the station was established entirely from the air. In early March, Komsomol'skaya Station was established as a support base for Vostok Station, planned for the following year. The advance party for the establishment of Vostok Station started out from Mirnyy late in the summer. The party, traveling by tractor train, did not quite reach Komsomol'skaya before winter set in, and set up their own winter camp which they called Vostok I.

Antarctica was ready for a major contribution to the IGY.



A year is taken to be a summer and the winter following; for example, 1954–1955 designates summer 1954–1955 and winter 1955.

1957-1958

The IGY program was in full swing in Antarctica this year. All stations were in operation. In December 1957, Belgium became the eleventh nation to participate in the program with the establishment of its base Roi Baudouin. The Norwegians completed Norway Station, which they had started the previous summer. The Soviets established Vostok and Sovetskaya stations.

This season, Britain reoccupied its station at Stonington Island and closed Base W at Anvers Island, because the survey and geological program, which was its primary mission, was completed.

The scientific program at the Antarctic IGY stations included meteorological observations, studies of upper-atmosphere physics, and magnetic measurements. Seismic observatories were set up at several stations and a number of stations initiated, or continued, deep-core drilling in the ice sheet. The cores obtained contributed much to the knowledge of the history of the ice sheet. Snow pits were dug to study the processes active in the gradual conversion of snow to ice.

The United States, the Soviet Union, Australia, and France made scientific traverses over the inland ice sheet. Data were obtained on temperature, density, and thickness of the ice sheet. Magnetic and gravity measurements were made, and ice surface elevations determined.

The most widely publicized traverse was the Commonwealth Transantarctic Expedition, which started out from Shackleton in December, reached the South Pole on January 19, and finally arrived at Scott Base on March 2. This was the first crossing of Antarctica by oversnow traverse.

Though the principal objectives of the IGY program were to contribute to global knowledge, delineation of the geographic features of the continent was also much enhanced. New mountains were discovered and the shape of the coastline more firmly established.

1958-1959

It had originally been planned that most of the Antarctic IGY stations would be closed at the end of the 1958-1959 summer. But at a meeting of the Special Committee for the IGY in August 1958 a recommendation was formulated that worldwide data collecting be continued during 1959 according to the same general plan as in 1957-1958.

By the end of the summer, some stations had been closed, but others had been newly established. The United States closed its Little America V Station, but transferred many of its activities to McMurdo Station. Australia assumed administrative responsibility for the United States Wilkes Station, but U.S. scientists continued their programs jointly with Australian scientists.

The U.S.S.R. closed its stations Sovetskaya and Pionerskaya for the 1959 winter, but set up two new stations: Lazarev, on the coast, and 'Pole of Inaccessibility' at a remote site on the polar plateau.

The French discontinued Charcot Station, but maintained Dumont d'Urville. The Japanese were able to reopen their base, Showa, which had been closed during the 1958 winter, by using a ship-based helicopter to fly in supplies when pack ice prevented the supply ship from tying up near the shore.

An agreement was made on February 2, 1959, that Argentina would take over the operation of Ellsworth Station from the United States.

In the Antarctic Peninsula, Great Britain closed four stations: Base O on the Danco Coast, and Base J at Prospect Point because their survey and geological programs were completed; Base E at Stonington Island and Base W on Detaille Island because severe pack ice conditions made it impossible for supply ships to get in.

The United States, the Soviet Union, Australia, and France again carried out traverses to extend the knowledge of the nature and thickness of the ice sheet and for gravity and geologic observations. A preliminary geological survey in the Horlick Mountains produced evidence of low-grade coal.