East Antarctica

Getting to this extremely isolated part of Antarctica requires a long voyage, so it is visited by just one tourist ship (or occasionally, two) each year. For this reason, it is sometimes nicknamed the 'far side' of Antarctica. Greater Antarctica is another name for this region, because it's the larger of the two parts of the continent separated by the Transantarctic Mountains. East Antarctica, as US Antarctic historian Edwin Swift Balch first called it in 1904, is the name now most often used, since almost all of East Antarctica lies in the eastern hemisphere.

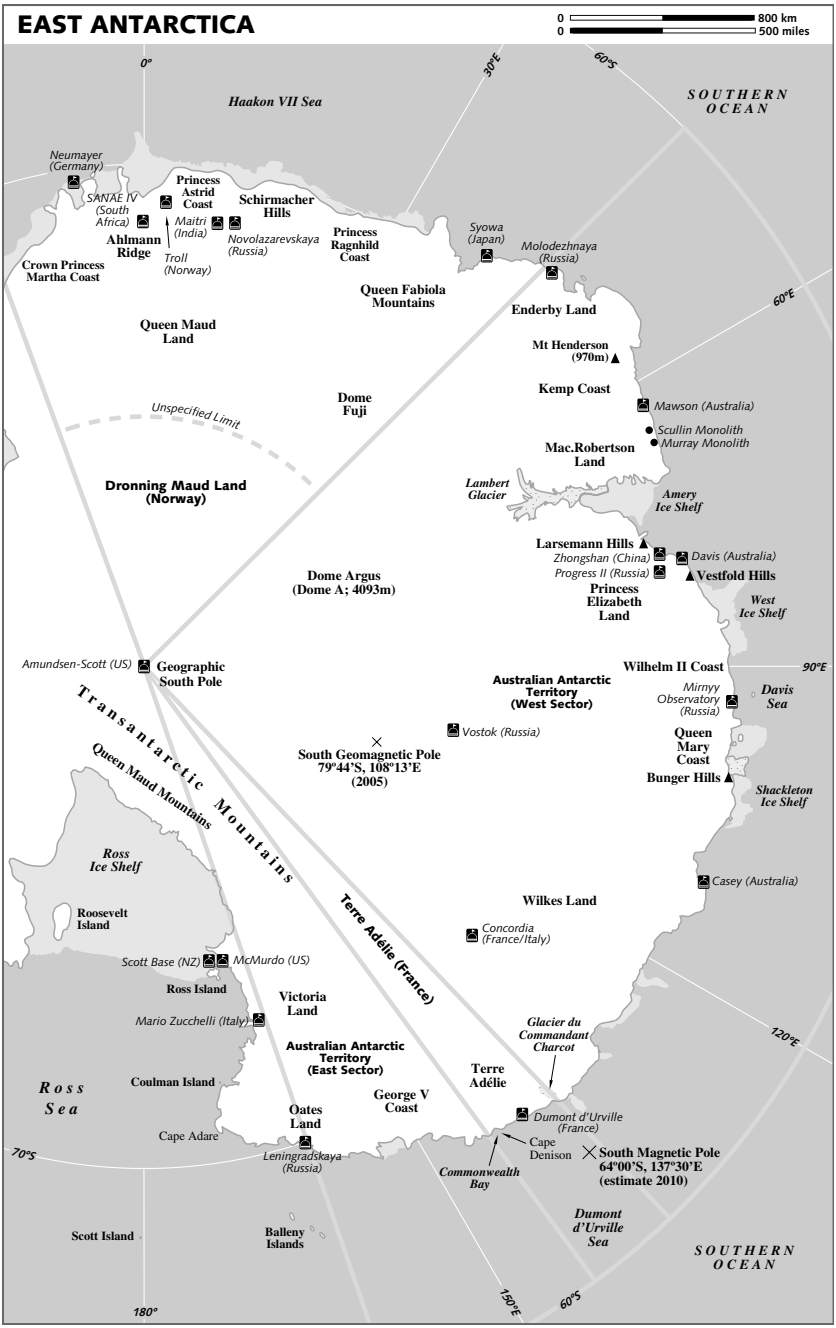
East Antarctica is quite unlike the Antarctic Peninsula, for it is home to much colder temperatures, massive tabular icebergs, teeming emperor penguin colonies, enormous concentrations of seabirds, and thousands of kilometers of icebound coast.

Only a small number of research stations are scattered along that coast, and visitors are so rare that they are generally welcomed with open arms by lonely station members eager for outside contact. That is, when pack ice and weather allow the visitors to reach the stations.

Inland East Antarctica is only rarely visited by tourists – but it is home to several important and fascinating research stations built on the vast, thick ice sheet covering this high plateau. Russia's Vostok registered the lowest temperature ever recorded on Earth's surface in 1983, and its inhabitants are admired around the continent for their stoicism in the face of extreme hardship. France and Italy jointly operate Concordia, famed for its very deep and very old ice cores. Norway's Troll, inaugurated by Queen Sonja in 2005, is a major air-transportation hub. China's new facility at Dome A may well break the coldest-temperature record sometime in the next few years.

HIGHLIGHTS

- Visit Mawson's 'Home of the Blizzard' at **Commonwealth Bay** (p315) – if it's not blowing too hard to get ashore
- Honor the dead explorers whose coffins are bolted to the bare rockat the affecting Buromskiy Island cemetery at **Mirnyy Observatory** (p313)
- Gape at **emperor penguins** (p312) brooding their chicks in one of the numerous rookeries on this icebound coast
- Cruise past **Scullin & Murray Monoliths** (p310), site of East Antarctica's greatest concentration of breeding seabird colonies
- Glimpse Antarctica's future in the environmentally responsible wind turbines that generate up to 80% of **Mawson station's** (p310) energy needs


EAST ANTARCTICA
0 800 km
0 500 miles
0°
30°E
60°S
SOUTHERN OCEAN
Haakon VII Sea
Neumayer (Germany)
SANAE IV (South Africa)
Princess Astrid Coast
Schirmacher Hills
Maitri (India)
Novolazarevskaya (Russia)
Ahlmann Ridge
Troll (Norway)
Crown Princess Martha Coast
Princess Ragnhild Coast
Syowa (Japan)
Molodezhnaya (Russia)
Queen Fabiola Mountains
Enderby Land
60°E
Queen Maud Land
Mt Henderson (970m)
Kemp Coast
Mawson (Australia)
Dome Fuji
Unspecified Limit
Scullin Monolith
Murray Monolith
Mac.Robertson Land
Dronning Maud Land (Norway)
Lambert Glacier
Amery Ice Shelf
Larsemann Hills
Zhongshan (China)
Progress II (Russia)
Davis (Australia)
Vestfold Hills
Dome Argus (Dome A; 4093m)
Princess Elizabeth Land
West Ice Shelf
Amundsen-Scott (US)
Geographic South Pole
Wilhelm II Coast
90°E
Australian Antarctic Territory (West Sector)
Mirnyy Observatory (Russia)
Davis Sea
Transantarctic Mountains
Vostok (Russia)
Queen Mary Coast
South Geomagnetic Pole 79°44'S, 108°13'E (2005)
Bunger Hills
Queen Maud Mountains
Shackleton Ice Shelf
Ross Ice Shelf
Casey (Australia)
Terre Adélie (France)
Wilkes Land
Roosevelt Island
Concordia (France/Italy)
Scott Base (NZ)
McMurdo (US)
Ross Island
Victoria Land
Mario Zucchelli (Italy)
Glacier du Commandant Charcot
120°E
Australian Antarctic Territory (East Sector)
Terre Adélie
Ross Sea
Coulman Island
George V Coast
Oates Land
Dumont d'Urville (France)
Cape Adare
Cape Denison
South Magnetic Pole 64°00'S, 137°30'E (estimate 2010)
70°S
Leningradskaya (Russia)
Commonwealth Bay
Dumont d'Urville Sea
Scott Island
Balleny Islands
SOUTHERN OCEAN
180°
150°E
60°S

Orientation

East Antarctica includes regions claimed by Norway, Australia and France. Much of the Norwegian claim, called Queen Maud Land and extending from 20°W to 45°E, was explored by Norwegian whalers.

During the 1930–31 whaling season alone, about 265 whaling ships, most of them Norwegian, worked the Southern Ocean in the area between 20°W to 50°E. Although exploration was only their second line of work, these whalers discovered much of the Queen Maud Land coast (also called by its Norwegian name, Dronning Maud Land, even by English speakers), naming sections for members of the Norwegian royal family, including Crown Princess Martha Coast, Princess Astrid Coast and Princess Ragnhild Coast.

Australia's claim, the Australian Antarctic Territory or AAT, extends from 45°E to 160°E, apart from the thin slice of France's Terre Adélie. Australians including Mawson, Wilkins and Phillip G Law (p67) explored much of this area. Reflecting its numerous other discoverers, the region includes Enderby Land, Kemp Coast, Mac.Robertson Land, Princess Elizabeth Land, Wilhelm II Coast, Queen Mary Coast, Wilkes Land and George V Coast.

Terre Adélie, France's Antarctic claim, extends from 136°E to 142°E and is wholly within Australia's claim. This section of the coast is distinguished by its French names, including Cap Bienvenue, Glacier du Commandant Charcot and Glacier du Français.

Tourists rarely visit East Antarctica because of the difficulty of getting to the region. In some years, it goes entirely unvisited by tourist vessels.

Starting near 0°, the following sites are listed by increasing longitude east, with stations located well inland listed last.

NEUMAYER STATION

With only its wind-powered generators, entry towers and several scientific observatories visible on the snow surface, Germany's Neumayer station appears to be a modest facility. But buried 12m beneath the surface of the 200m-thick Ekström Ice Shelf are two parallel galvanized-steel tubes, each 90m long and 8.4m in diameter, connected by two transverse tubes. Inside are shipping containers outfitted as living quarters, a kitchen, a hospital, labs and workshops. About 22 people can be accommodated in the sub-ice station and another 36 during the summer in above-ice huts. Nine people generally winterover.

The first Georg von Neumayer station was built in 1981 and named after one of the promoters of the First International Polar Year in 1882–83. After it was buried by drifting snow, this replacement was completed about 10km away in 1992.

In December 1990 the first all-female group to winter in Antarctica staffed Neumayer. Two meteorologists, two geophysicists, two engineers, a radio operator, a cook, and a doctor who also served as the station's leader, spent 14 months on The Ice, including nine months in complete isolation.

Accumulating ice and snow is starting to destroy Neumayer II, however, and it will soon have to be abandoned. Neumayer III is being built on a platform 6m above the snow, connected to a subsurface garage. The €26 million station, planned to open in early 2009, will combine research, operational and accommodation facilities in a prefabricated double-story building erected on the 68m by 24m platform. Thanks to hydraulic piles, Neumayer III will be able to be raised regularly as snow accumulates beneath, giving it an expected life of 25 years.

SANAE IV

SANAE IV (South African National Antarctic Expedition) sits like a long red-and-white millipede atop a nunatak called **Vesleskarvet** (Norwegian for 'little barren mountain') on the Ahlmann Ridge, 170km from the coast – hence the station's nickname of 'Vesles.' Vesles' vicinity is somewhat barren, with only a few lichens and mites on site, but skuas and snow petrels visit regularly in summer. The station perches just 50m from the edge of a 210m cliff – and on clear days offers dramatic views over the ice sheet and of surrounding nunataks and the Ahlmann Ridge peaks to the south.

The first SANAE base was occupied in 1959, when Norway donated it to South Africa after deciding its work was finished there. SANAE II and SANAE III followed. The latter, closed for wintering in 1994, had over the years been buried by 14m of drifting snow on the surface of the Fimbul Ice Shelf, on which it was built. It became unsafe, as the snow was crushing it.

Built from 1993 to 1997 at a cost of 64 million rand, SANAE IV is one of Antarctica's most modern stations – it even includes a two-helicopter hangar and a bathroom with access for people with disabilities. There's also a sauna, large enough for the whole winter team or more. Consisting of three linked double-story units totaling 176m in length, the station is built on stilts 4m above the rock. Occupied by its first wintering team in 1997 – which included Dr Aithne Rowse, the first South African woman to overwinter in Antarctica – the station accommodates about 10 people in winter and more than 90 in summer.

A wide range of research is conducted at SANAE IV, including invasion biology/ecology, geology, geomorphology and atmospheric sciences. The station expects to install a wind generator in 2009 to feed into the station power grid.

Controversy over the coloring of SANAE erupted in 2001. The station was blue on the bottom to absorb solar energy and help keep the area beneath it snow-free, and the roof was orange for visibility from the air. Because these colors, with the station's white sides, were the colors of the apartheid-era South African flag, politicians demanded change. But since the colors were impregnated into the fiberglass panels during their manufacture, the blue part of the station was painted 'alert red' with a very durable epoxy marine paint. Although snow blasting was an initial concern, the paint has endured well.

SANAE IV has recorded wind speeds as high as 208 km/h, but it blows even harder than that. After an anemometer was ripped from its anchor during a storm in 2006, meteorologists estimated that the wind speed reached 230 km/h. A storm in 2003 blew a Ski-doo over the Vesles cliff.

Static electricity discharge is a problem at many inland stations in Antarctica. It's especially strong at SANAE thanks to the very dry air and high winds. During storms, the base acts like a gigantic battery, storing up a charge. Putting one's hand as far as 10cm from a window causes a mini bolt of 'lightning' to arc across the gap. Fluorescent tubes brought close to windows light up on their own. Station members particularly feel the discharges when they are forced to go outdoors in a storm, getting continuous shocks every time they touch a grounded object. This static can also ruin electronic devices like MP3 players, computer mice, memory sticks and digital cameras.

SANAE is resupplied by trains of tracked vehicles loaded from ships at the ice shelf edge. In 2000 the station lost six large 8.5-tonne fuel tanks after the calving of the section of the ice shelf on which they stood. Fortunately, they were empty.

About 1km from the station is a 1200m smoothed-snow airstrip; most flights connect to the air base at 'Novo' (p307). Thanks to its small but excellent hospital, SANAE IV can serve as a surgical facility for the other research stations in Queen Maud Land if necessary.

TROLL STATION

Norway's Troll station was built as a summer-only facility in 1990 on a low area between two peaks 250 km from the Queen Maud Land coast. In February 2005 Norway's queen – the first queen to visit Antarctica – inaugurated Troll as a year-round station. Troll takes its name from the surrounding jagged mountains, said to resemble the homes of mythical trolls.

Troll accommodates up to eight people during the winter, and 40 in summer in a tent camp.

When Norwegian Prime Minister Jens Stoltenberg visited Troll in early 2008 with 40 officials, scientists and reporters, he impressed Antarcticans by declining a bed in the station, choosing instead to sleep outdoors in a tent.

Troll serves as a major hub of the Dronning Maud Land Air Network Project (DROMLAN), a cooperative transportation agreement between 11 countries with stations in East Antarctica. A 3km blue-ice runway located 7km northwest of Troll (elevation 1270m) allows long-range aircraft to fly between Antarctica and Cape Town, South Africa. DROMLAN's other major hub is Russia's Novolazarevskaya (p307), 350km northeast of Troll.

The 'Novo' runway, however, becomes inoperational in midsummer due to melting at its lower elevation. Passengers fly from Cape Town to either Troll (six hours) or Novolazarevskaya (six hours) before transferring to smaller aircraft for their final destination.