

SCLS IHBB & IGB CLUB

ANTARCTICA

GEOGRAPHICAL DISTRIBUTIONS



ICY
COLD
WINDY
DESERT



Antarctic Peninsula
East Antarctica
West Antarctica
Transantarctic Mountains

Much of the Antarctica
was icy and covered with
kms thick of ice sheets.



GEOGRAPHICAL QUIZ: MATCH THE TERMS

Word Bank:

Ice Sheet

Ice Berg

Subglacial Mountains

Ice Shelves

Calving

Crevasse

Massifs

Nunataks

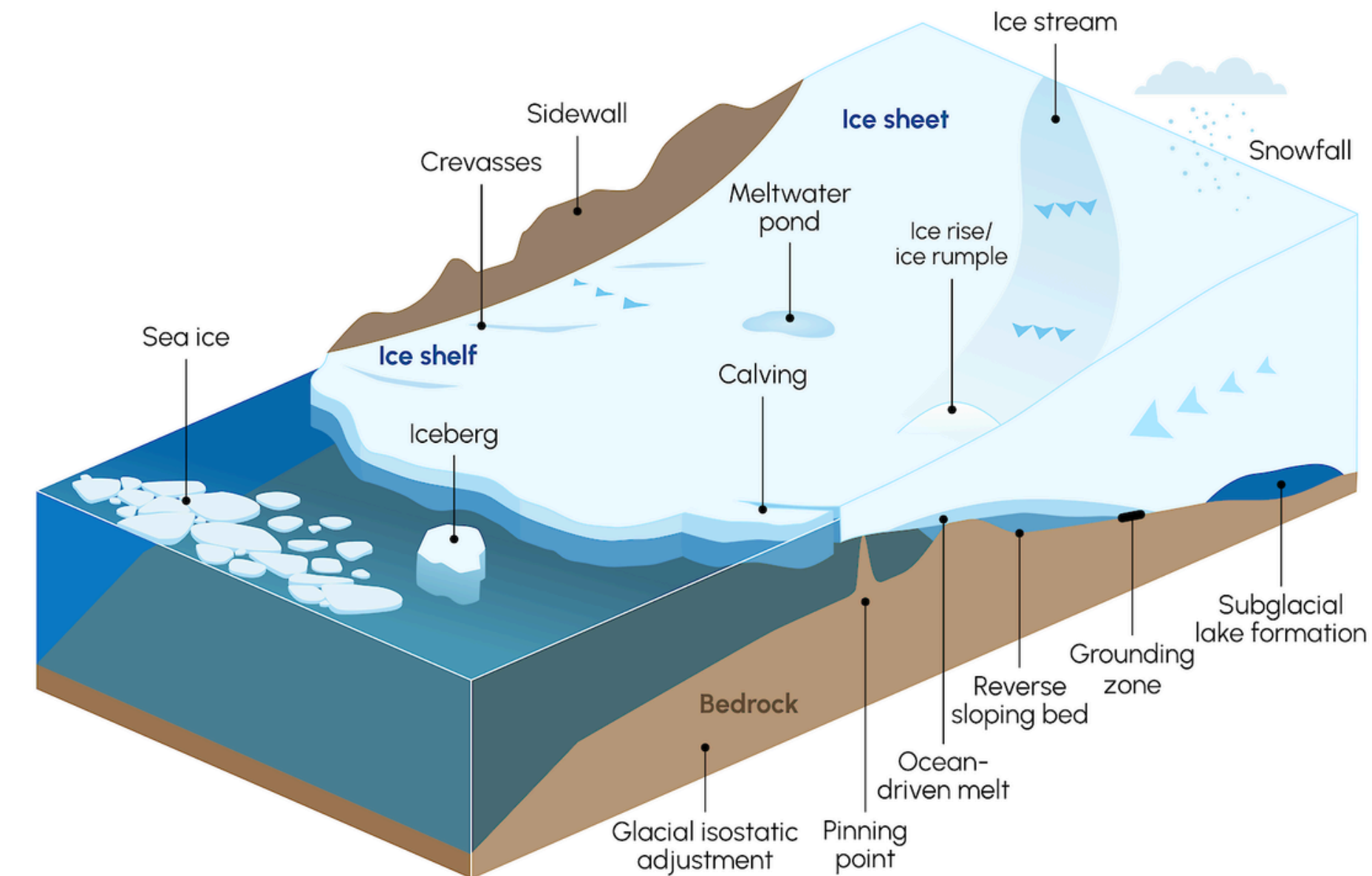
Dry Valleys



GEOGRAPHICAL FEATURES

Ice Sheets: The ice mass is divided into two major regions: East Antarctica and West Antarctica, separated by the Transantarctic Mountains. The ice is kilometers thick across much of the continent.

Ice Shelves: Large, floating extensions of the ice sheet that jut out over the surrounding Southern Ocean. The Ross Ice Shelf is the largest, followed by the Ronne Ice Shelf and Filchner Ice Shelf. They are mostly submerged, with only about 10% of their thickness visible above the water.



Subglacial Lakes: Hidden beneath the vast ice cover are hundreds of liquid water bodies, known as subglacial lakes. Subglacial Lake Vostok is the most famous example.

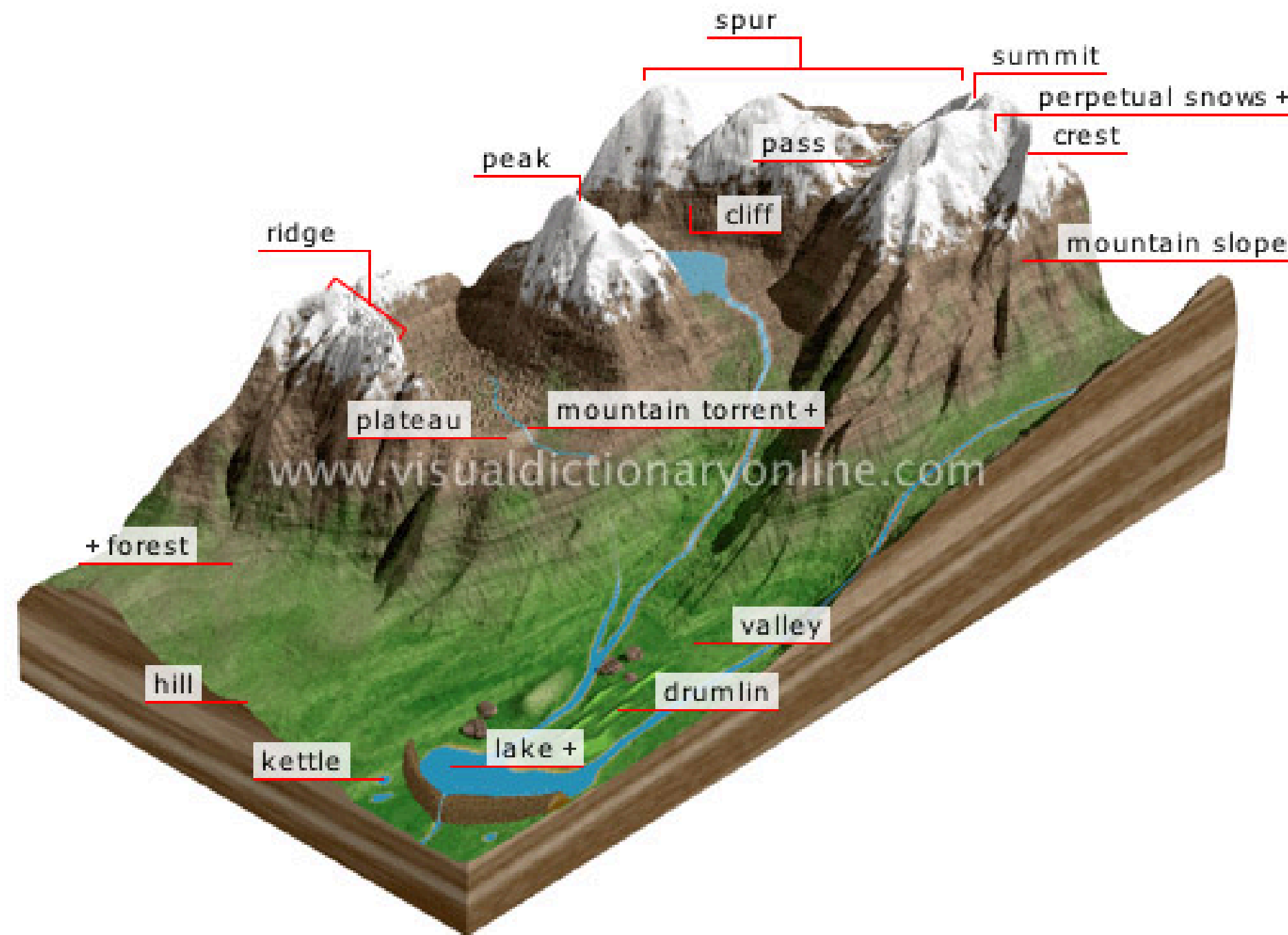
Subglacial Mountains: Major mountain ranges, such as the Gamburtsev Subglacial Mountains in East Antarctica, are completely buried beneath the ice sheet, their topography preserved under the thick ice.

Calving is the glaciological term for the mechanical breaking off of ice chunks from the edge (terminus) of ice body.

Crevasse is a deep crack that forms in the brittle surface layer of a glacier or ice sheet.



GEOGRAPHICAL FEATURES



Transantarctic Mountains (TAM): The continent's major mountain system, dividing East and West Antarctica and stretching across the entire landmass.

Massifs and High Peaks: The highest elevations are found on mountain massifs, or principal mountain clusters that contain several summits. Usually high peaks of mountain ranges lay on a tall summit.

Glaciers: Large glaciers, such as the Beardmore Glacier and Axel Heiberg Glacier, act as huge frozen rivers, carving their way through the mountains to carry ice from the interior to the coast.

Ice-Free Areas (Dry Valleys and Nunataks): While most mountains are covered in snow, areas like the McMurdo Dry Valleys are kept largely ice-free by extreme cold and strong winds. **Nunataks** are simply the rocky peaks of mountains that project above the surrounding ice sheet.



MOUNT VINSON & VINSON MASSIF (1958)

FAR FROM POLES

Located 1200 km away from South Pole, Vinson Massif sits within the Ellsworth Mountains and overlooks the Ronnie Ice Shelf.

GRAND HEIGHT

Mount Vinson of Vinson Massif, with 4892 meters, is the tallest peak of Antarctica.

REACHABLE

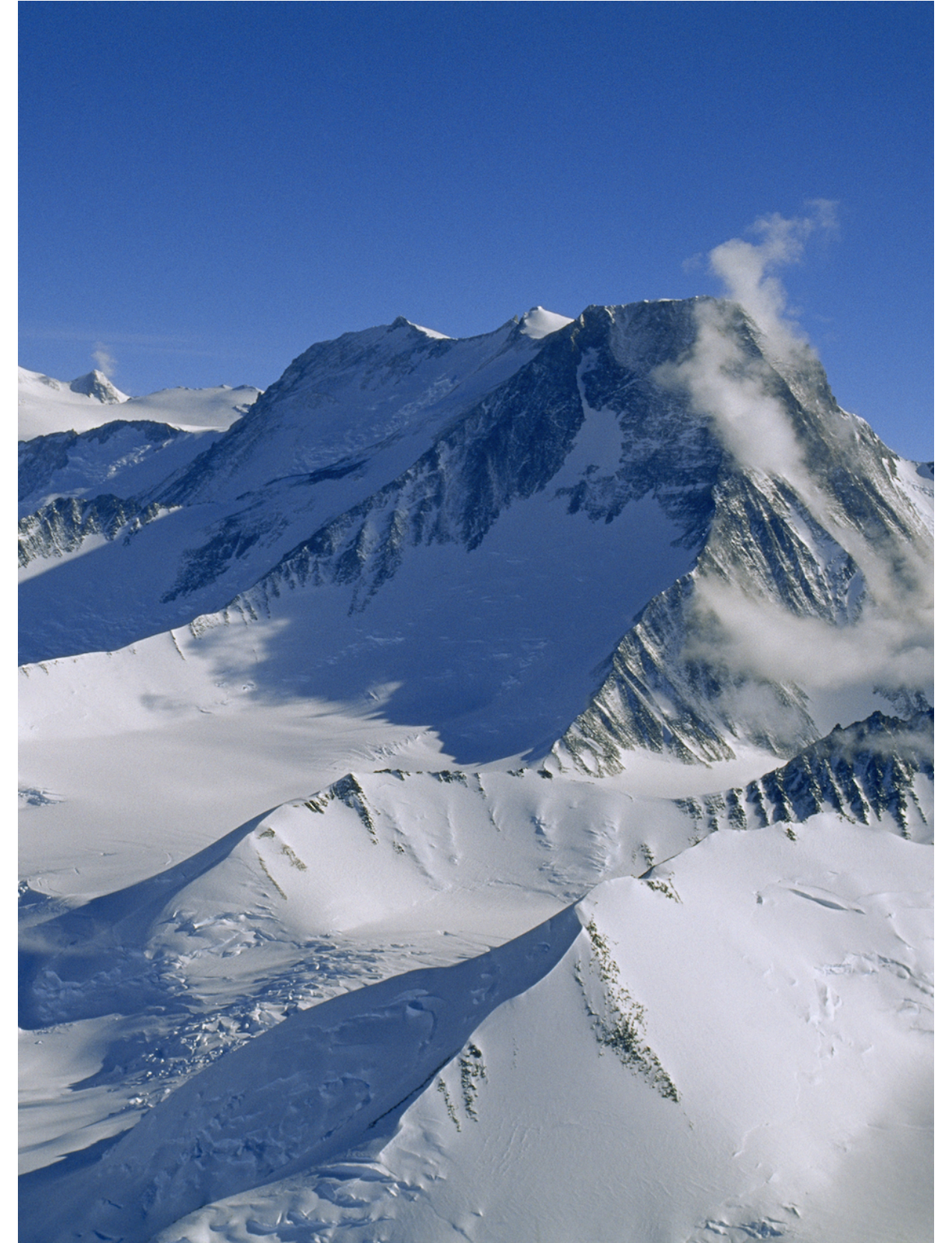
Was first climbed in 1966 by team led by Nicholas Clinch. By 2010, 1400 climbers have attempted to pass over its summit.

STABLE WEATHER?

The high pressure system from the ice caps provided a general stable climate for the massif, however large snowfall and fast winds were still possibilities.



In geography, a massif is a principal mountain mass which holds several summits that were closed packed together. In this case, Mount Vinson was only the tallest summit of this 21 by 13 km massif located on the Antarctic Peninsula.



MOUNT EREBUS (1841)

SHORE COAST

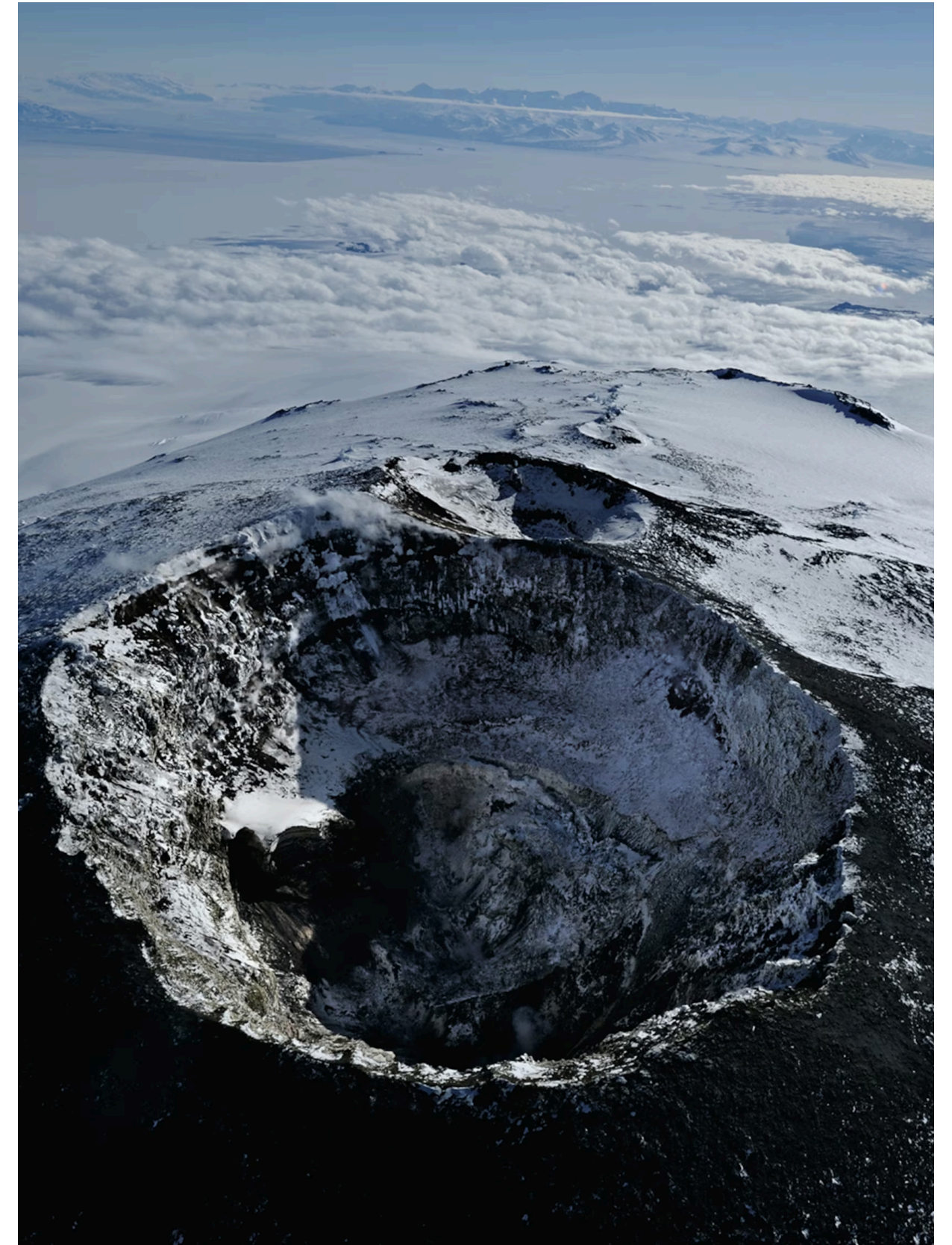
Located in the Ross Island at the edge of Antarctica, it made the island the 6th tallest island on Earth.

HIGH ACTIVITY

Mount Erebus was an active volcano and was discovered during eruption in 1841 by captain James Clark Ross (which named it after his ship HMS Erebus). Its latest eruption was observed in 2020, and it still hosted a permanent lava lake.

STILL TALL

With 3792 meters, Mount Erebus was the ranked the tallest summit on Ross Island and second in Antarctica.



ROSS ICE SHELF (1841)

LARGE ICE

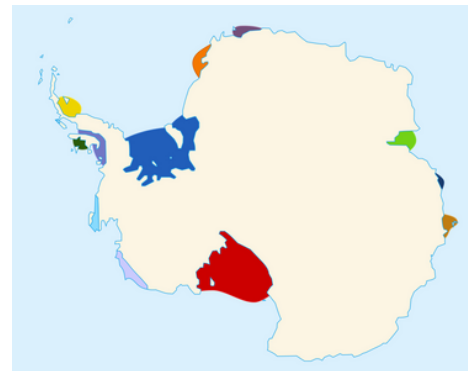
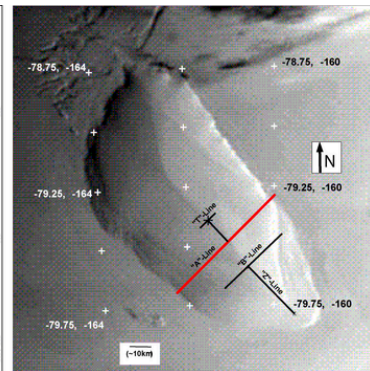
At rough 500 000 squared kilometers, the Ross Ice Shelf is the largest ice shelf in Antarctica. It has hundreds of meters of thick ice, though only 15 to 50 meters or roughly ten percent of ice is above water.

FAKE ISLAND

Ross Ice Shelf covers a small landmass known as Rossevelt Island below its ice. However, research indicates that the it is not an island, because the highest position of the landmass is below sea level.

ICE LOSS

Although having a low basal melting speed (0.3 meters per year), certain regions of the Ross Ice Shelf recieves seasonal melting speed of up to 8 meters per year.



HUMAN EXPEDITION



EARLY PREDICTIONS

Long before the discovery of Antarctica, the continent was already predicted by early world map as Terra Australis. However it was only a prediction, and the name was later given to Australia.



DISCOVERY

1738, French explorer Charles Bouvet discovered the Bouvet island of Antarctica.
1773, British explorer James Cook arrived at the South Shetland Islands.
1840, Wilkes expedition team discovered the continent area.



RACE TO THE POLES

In between 1911 to 1912, Norwegian explorer Roald Amundsen and British explorer Robert Falcon Scott raced towards the pole. Amundsen first arrived at the pole on 14 December 1911. Scott's party was trapped to death in a 1912 March storm.

NATIVE POPULATION

NATURAL
RESIDENTS OF
ANTARCTICA



MARINE LIFE

Krill (*Euphausia superba*): A keystone species, they are the world's most abundant crustacean and the primary food source for most Antarctic predators.

Penguins: Six species breed in the region. The Emperor Penguin is the largest and is the only species found exclusively in Antarctica.

Seals: Include the Weddell Seal, Crabeater Seal (which feeds almost exclusively on krill), Leopard Seal (a top predator), and Elephant Seal.

Whales: The Southern Ocean is a feeding ground for various species, including the largest animals on Earth, the Blue Whale, as well as Humpback Whales and Orcas (Killer Whales).

Birds: Seabirds like Albatrosses (with the largest wingspan of any bird) and Petrels thrive by fishing the rich marine life.



SCIENCE BEYOND BORDERS

Scientists were also part of the temporary population of the continent, which they live in about 50 permanent stations for research:

Amundsen–Scott South Pole Station (United States): Locate in the South Pole

McMurdo Station (United States): The largest station in Antarctica

Vostok Station (Russia): Measurement of the lowest temperature on Earth (-89.2 C)

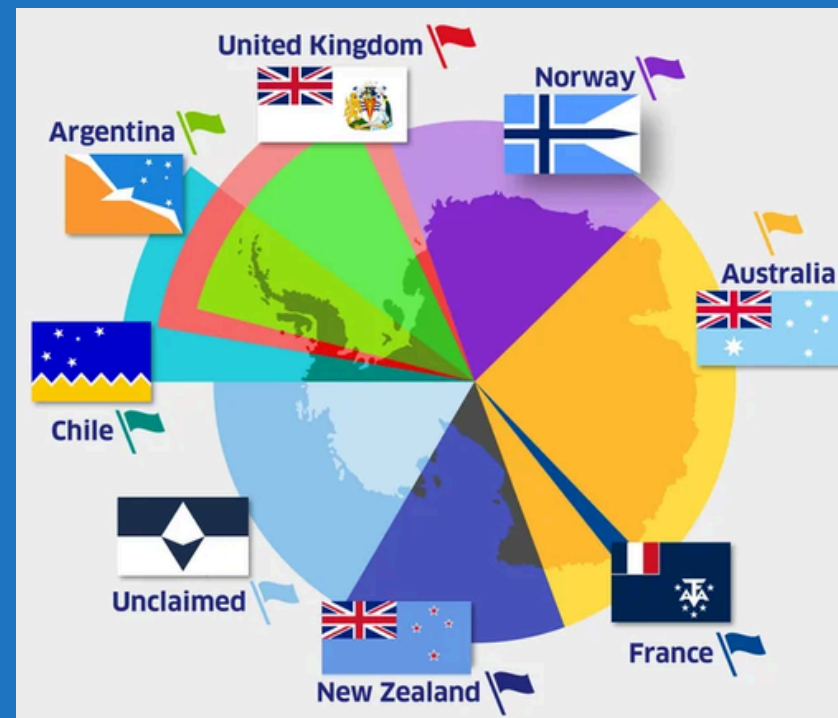
Halley Research Station (United Kingdom): First notice of the Ozone Layer Hole

PERMANENT

RESIDENCE: 0



POLITICS OF ANTARCTICA



ANTARCTIC TREATY SYSTEM

Signed in 1961 by 12 nations to ensure Antarctica is used exclusively for peaceful purposes.

Science and Peace: Guarantees freedom of scientific investigation and promotes international cooperation.

Demilitarization: Prohibits all military activities, including the establishment of bases and weapons testing.

Territorial Claims: Put all existing territorial claims (made by 7 countries) in abeyance, meaning they are not nullified but cannot be asserted in force.

