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Antarctica is a place of extremes. It is the coldest, highest, driest and windiest continent on Earth. This factsheet gives fascinating details of Antarctica's geographical statistics its area, length, height, ice thickness and many others.Antarctic factsheetAntarctica is a continent capped by an inland ice sheet up to 4.8km thick, containing approximately 90% of the worlds total surface fresh water (and 60% of the worlds total fresh water). The ice sheet is so heavy that it has pushed the land below sea level in places. Because of the thickness of the ice sheet, Antarctica has the highest average altitude of all of the continents. The South Pole is 1235km from the closest coastline and is situated high on the polar plateau (height 2800 m). Here it may be as cold as -75C, but the world's record lowest temperature is from an even more remote Antarctic station, Vostok, which logged -69C.Antarctica is a cold desert, with snowfall equivalent to only 150mm of water each year. This snow builds up gradually and ice flows towards the coast as huge glaciers. In many places, these extend out over the sea as massive ice shelves.Only about 0.4% of the surface of Antarctica is free of snow and ice. The tops of mountain chains stick up through the ice the highest is Mount Vinson, 4900 m above sea level.The Southern Ocean is a continuous belt of sea surrounding Antarctica. In winter, over half of the Southern Ocean freezes over. Although this seawater ice is only about one metre thick, it has a significant effect on ocean and atmospheric circulation. Nearly all of the sea-ice melts in summer.Poles apart whereas Antarctica is an ice-covered continent surrounded by ocean, the Arctic is an ocean covered by thick sea-ice and surrounded by the northern continents.Britain has played a major role in the exploration and study of Antarctica. Captain James Cook was the first person to circumnavigate the continent in the 1770s. Later expeditions were searching for commercial opportunities, usually hunting for seals or whales. At the start of the twentieth century, Scott and Shackleton undertook purely scientific expeditions, a tradition which continues to the present.The early Greeks suggested that there was a southern landmass. However, this remained unknown for several centuries, although Terra Incongnita Australis unknown southern land appears as an immense but quite fanciful continent on a map published in 1531. Even 100 years ago, only small parts of Antarctica had been mapped, and there were several inaccuracies. Only recently have satellite pictures allowed us to build up a complete map of the continent.There are no native peoples in Antarctica. Eighteen countries operate year-round scientific research stations on the continent and the surrounding islands and during summer (the UKs winter) as many as 10,000 scientists and support staff work there, but only about 1000 in winter. Tourists also visit Antarctica during the summer to enjoy the spectacular scenery and abundant wildlife up to around 40,000 visitors each year.Antarctica is a continent for science. All countries working in Antarctica carry out scientific research in a surprising range of physical and biological sciences from the vastness of space to the minute scale of micro-organisms. Activities are regulated by the Antarctic Treaty, which has been in force since 1959 and is signed by all countries operating there. The Treaty reserves the continent for peaceful purposes, and all military and industrial activities are banned.Download Factsheet PDFQuick factsAntarctica is the coldest, windiest and most remote continent on EarthThere are no native peoples in AntarcticaThere are no polar bears in AntarcticaThere are about 5 million penguins in AntarcticaEighteen countries operate year-round scientific research stationsDuring the Antarctic summer as many as 10,000 scientists and support staff work there but only about 1000 in winterEach year around 40,000 tourists visit the icy continentAntarctica is a continent for scienceThe Antarctic Treaty designates the continent as a natural reserve, devoted to peace and scienceCaptain Cook was the first person to circumnavigate the continent in the 1770sScott and Shackleton undertook purely scientific expeditions a tradition which continues to the presentBritish Antarctic Survey has carried out most of the UKs Antarctic research for over seventy yearsThe discovery of the spring-time Antarctic ozone hole in 1985 changed the world when the Montreal Protocol ban CFCs and halons in 1987By 1993 most of the ozone over Antarctica had disappearedScientists expect the hole to disappear in about 100 years if the world complies with the Montreal ProtocolThe scale of Antarctic science is immense from insects and microbes studied under the microscope to the continent-sized ice sheet best appreciated from satellite imageryAntarctic science is crucial for understanding how the Earth operates as a global systemAntarctica is a significant driver of global climateAntarctic marine and lake sediments reveal the regional pattern that is a key to unravelling global changes.The continent contains unique ice core records that have unprecedented detail about the causes and results of climate changeThe inland Antarctic ice sheet is up to 4 km thickThe Antarctic is the ultimate icy wildernessOnly 0.6% of Antarctica is free of iceThe ocean surrounding Antarctica provides a virtually impenetrable barrier of sea ice which in winter covers an area around one and half times the area of the continentIn global terms 90% of the worlds ice is located in the AntarcticThe purity of Antarctic ice is unmatched anywhere else in the worldThe Antarctic has not always been totally icyWhen dinosaurs roamed and inhabited through the long polar winter there was enough vegetation to sustain themWhilst the Antarctic landmass is icy-covered and barren, the surrounding ocean is biologically richWhales seals and sea birds are important parts of the ecosystem Estimated reading time: 3 minutesGeographical situationAntarctica is located south of the Antarctic convergence, a region between approximately 55 and 58 south latitude, which surrounds the Antarctic continent.Antarctic convergence can be defined as the contact zone between the Antarctic waters and the less cold and less dense waters of the sub-Antarctic zone. This limit constitutes an important frontier from the biological and oceanographic point of view and has its equivalent in the atmosphere, where an atmospheric polar front separates cold air masses of the Antarctic region from warmer ones of the sub-Antarctic region. Antarctica covers the territories south of the 60 S parallel, which is the region specified in the Antarctic Treaty. With the exception of the north of the Antarctic Peninsula, practically the entire Antarctic continent lies south of the Antarctic polar circle (66 33 S).Antarctica, an icy continentThe Antarctic continent has an almost circular shape, from which the Antarctic Peninsula penetrates in the south-north direction. It has a diameter of about 4500 km and an area of around 14 million km and less than 1% is free of ice. It is the coldest, driest, windiest continent with the highest average height (more than 2000 m above sea level) of the planet. Its size is superior than Australia and somewhat smaller than South America. It is separated from the latter by the Passage Drake or Sea of Suckles, of almost 1000 km, while the distance to Africa and Australia is 3800 and 2500 km, respectively. It is a continent surrounded by oceans, unlike the Arctic, which is, in essence, an ocean surrounded by continents.The Transantarctic mountains, an elevated alignment of about 4000 km in length, divide the continent into two unequal parts: west Antarctica and east Antarctica. This last one is constituted, mainly, by very old rocks, in its majority of more than 550 million years, and covered by a layer of ice that, in some zones, gets to surpass 4500 m of thickness. Does not happen the same in west Antarctica, a sector located in southern South America that includes the Antarctic Peninsula, where the rocks are more recent, the ice cover is thinner and, in addition, there is the highest mountain in the continent, Mount Vinson (4897 m above sea level). In this portion of the continent, in recent decades there has been an increase in temperature and a loss of ice more intense than in east Antarctica.In Antarctica there are some active volcanoes, such as Deception Island in the northern sector of the Antarctic Peninsula, and Mount Erebus, 3794 m high, on Ross Island (east Antarctica), which dominates the ice barrier of Ross.There are more than 150 lakes hidden under the Antarctic ice, in some cases more than 3600 m below the surface, such as Lake Vostok, which with a size of 14,000 km2 is similar in size to Lake Maracaibo (Venezuela).In this continent, more than three-quarters of the fresh water existing on Earth is stored, in the form of ice, since the average thickness of the ice layer exceeds 2000 m. If all this volume of ice changed to the liquid state, there would be an increase in sea level of 65 m, although this scenario is not likely in the usual time scales for humans.Polar days and nightsThe duration of the Antarctic day and night is a consequence of the polar location of the continent and the inclination of the terrestrial axis. On the day of the summer solstice (December 21), the date on which starts from the astronomical point of view this season in the south hemisphere), at any south point of the Antarctic polar circle, the day has 24 hours of light; oppositely, at the winter solstice (June 21), it has 24 hours of darkness. The extreme situation occurs in the geographical South Pole, where the sun remains six months without hiding on the horizon and another six months below it. During the transition between winter and summer, when the sun is already close to the horizon, the day passes with gloom. Between the Antarctic polar circle and South Pole, the variations in the duration of day and night are gradual, and the area has summers of long days and winters of long nights.If you want to find out some interesting facts about Antarctica, check out our article on this topic: 10 surprising facts about Antarctica.[Photo from Unsplash]To provide the best experiences, we use technologies like cookies to enhance and customize our navigation by storing and accessing device information. Consenting to these technologies will allow us to process data such as browsing behaviour or unique IDs on this site. Not consenting or withdrawing consent, may adversely affect certain features and functions. Functional Functional Always active The technical storage or access is strictly necessary for the legitimate purpose of enabling the use of a specific service explicitly requested by the subscriber or user, or for the sole purpose of carrying out the transmission of a communication over an electronic communications network. Preferences Preferences The technical storage or access is necessary for the legitimate purpose of storing preferences that are not requested by the subscriber or user. Statistics Statistics The technical storage or access that is used exclusively for statistical purposes. The technical storage or access that is used exclusively for anonymous statistical purposes. Without a subpoena, voluntary compliance on the part of your Internet Service Provider, or additional records from a third party, information stored or retrieved for this purpose alone cannot usually be used to identify you. Marketing Marketing The technical storage or access is required to create user profiles to send advertising, or to track the user on a website or across several websites for similar marketing purposes. Geography & Travel Physical Geography of Land Antarctica, the worlds southernmost and fifth largest continent. Its landmass is almost wholly covered by a vast ice sheet.Often described as a continent of superlatives, Antarctica is not only the worlds southernmost continent. It is also the worlds highest, driest, windiest, coldest, and iciest continent. Antarctica is about 5.5 million square miles (14.2 million square km) in size, and thick ice covers about 98 percent of the land. The continent is divided into East Antarctica (which is largely composed of a high ice-covered plateau) and West Antarctica (which is largely an ice sheet covering an archipelago of mountainous islands).Lying almost concentrically around the South Pole, Antarctica's name means opposite to the Arctic. It would be essentially circular except for the outlying Antarctic Peninsula, which reaches toward the southern tip of South America (some 600 miles (970 km) away), and for two principal embayments, the Ross Sea and the Weddell Sea. These deep embayments of the Southern Ocean make the continent somewhat pear-shaped, dividing it into two unequal-sized parts: East Antarctica lies mostly in the east longitudes and is larger than West Antarctica, which lies wholly in the west longitudes. East and West Antarctica are separated by the approximately 2,100-mile- (about 3,400-km-) long Transantarctic Mountains.Antarcticiceberg in the waters off Antarctica.The continental ice sheet contains approximately 7 million cubic miles (about 29 million cubic km) of ice, representing about 90 percent of the worlds ice and 80 percent of its fresh water. Its average thickness is about 5,900 feet (1,800 meters). Ice shelves, or ice sheets floating on the sea, cover many parts of the Ross and Weddell seas. These shelveset the Ross Ice Shelf and the Filchner-Ronne Ice Shelftogether with other shelves around the continental margins, fringe about 45 percent of Antarctica. Around the Antarctic coast, shelves, glaciers, and ice sheets continually calve, or discharge, icebergs into the seas.The continent is a cold dry desert where access to water determines the abundance of life. While the terrestrial ecosystem contains more than a thousand known species of organisms, most of these are microorganisms. Maritime Antarcticthe islands and coastsupports more life than inland Antarctica, and the surrounding ocean is as rich in life as the land is barren. Largest, Tallest, and SmallestAround the Globe Quiz From the late 18th to the mid-20th century, whalers and sealers led the rich seas that surround the continent. Science then replaced whaling and sealing as the primary year-round human activity in Antarctica. In addition, krill harvesting and other types of commercial fishing in the Southern Ocean expanded from the 1960s onwards. The new millennium saw tourism and (to a lesser extent) biological prospecting (the search for useful chemical compounds and genes in local species) become established sectors of the Antarctic economic landscape.Governments mandated many early expeditionswhether ostensibly economic, scientific, or exploratory in charactereto make territorial claims. With the International Geophysical Year (IGY) in 1957/58, the present scale of scientific investigation of Antarctica began, and on December 1, 1959, the twelve countries that were active in Antarctica during the IGY signed the Antarctic Treaty. This treaty, which was an unprecedented landmark in diplomacy, preserves the continent for nonmilitary scientific pursuits and placed Antarctica under an international regime that, for the treaty's duration, holds all territorial claims in place. The treaty bound its members indefinitely, with a review of its provisions possible after 30 years. A subsequent treaty, called the Madrid Protocol (adopted in 1991), prohibited mining, required environmental impact assessments for new activities, and designated the continent as a natural reserve. Knowledge about Antarctica has increased greatly since the IGY. Geologists, geophysicists, glaciologists, biologists, and other scientists have mapped and visited all of the continents mountain regions. Until the 1970s, scientists relied on ground-based geophysical techniques such as seismic surveys of the Antarctic ice sheets to reveal hidden mountain ranges and peaks. Advances in radar technology since then have resulted in airborne radio-echo sounding systems that can measure ice-thickness, which has enabled scientific teams to make systematic remote surveys of ice-buried terrains. Satellites and other remote-sensing technologies have become key tools in providing mapping data.The ice-choked and stormy seas around Antarctica long hindered exploration by wooden-hulled ships. No lands break the relentless force of the prevailing west winds as they race clockwise around the continent, dragging westerly ocean currents along beneath. The southernmost parts of the Atlantic, Pacific, and Indian oceans meet the Southern (or Antarctic) Ocean, the cold oceanic water mass below 60 S with unique biological and physical characteristics. Early penetration of this Southern Ocean in the search for fur seals led in 1820 to the discovery of the continent. Icebreakers and aircraft now make access relatively easy, although still not without hazard in inclement conditions. In addition, many tourists have visited Antarctica, which has underscored the value of scenic resources in the continents economic development.The term Antarctic region refers to all araeoceanic, island, and continentallytied in the cold Antarctic climatic zone south of the Antarctic Convergence, an important boundary around 55 S, with little seasonal variability, where warm subtropical waters meet and mix with cold polar waters (see also polar ecosystem). For legal purposes of the Antarctic Treaty, the arbitrary boundary of latitude 60 S is used, south of which lies the Antarctic Treaty Area. The familiar map boundaries of the continent known as Antarctica, defined as the South Polar landmass and all its nonfloating grounded ice, are subject to change with current and future climate change. The continent was ice-free during most of its lengthy geologic history, and there is no reason to believe it will not become so again. Antarctica is a unique continent in that it does not have a native human population. Biology, Earth Science, Geology, Oceanography, Geography, Human Geography, Physical GeographyThe Antarctic continent of Antarctica makes up most of the Antarctic region. The Antarctic is a cold, remote area in the Southern Hemisphere encompassed by the Antarctic Convergence. The Antarctic Convergence is an uneven line of latitude where cold, northward-flowing Antarctic waters meet the warmer waters of the worlds oceans. The Antarctic covers approximately 20 percent of the Southern Hemisphere.Antarctica is the fifth-largest continent in terms of total area. (It is larger than both Oceania and Europe.) Antarctica is a unique continent in that it does not have a native human population. There are no countries in Antarctica. Seven countries made defined claims to Antarctic territory prior to the Antarctic Treaty of 1959. The treaty does not legally recognize any claims.The Antarctic also includes island territories within the Antarctic Convergence. The islands of the Antarctic region are: South Orkney Islands and South Shetland Islands, claimed by the United Kingdom; South Georgia and the South Sandwich Islands, administered by the United Kingdom and claimed by Argentina; Peter I Island and Bouvet Island, claimed by Norway; Heard and McDonald islands, claimed by Australia; and Scott Island and the Balleny Islands, claimed by New Zealand.Physical GeographyPhysical FeaturesThe Antarctic Ice Sheet dominates the region. It is the largest single piece of ice on Earth. This ice sheet even extends beyond the continent when snow and ice are at their most extreme.The ice surface dramatically grows in size from about three million square kilometers (1.2 million square miles) at the end of summer to about 19 million square kilometers (7.3 million square miles) by winter. Ice sheet growth mainly occurs at the coastal ice shelves, primarily the Ross Ice Shelf and the Ronne Ice Shelf. Ice shelves are floating sheets of ice that are connected to the continent. Glacial ice moves from the continents interior to these lower-elevation ice shelves at rates of 10 to 1,000 meters (33 to 32,808 feet) per year.Antarctica has a number of mountain summits, including the Transantarctic Mountains, which divide the continent into eastern and western regions. A few of these summits reach altitudes of more than 4,500 meters (14,764 feet). The elevation of the Antarctic Ice Sheet itself is about 2,000 meters (6,562 feet) and reaches 4,000 meters (13,123 feet) above sea level near the center of the continent.Without any ice, Antarctica would emerge as a giant peninsula andarchipelago of mountainous islands, known as Lesser Antarctica, and a single large landmass about the size of Australia, known as Greater Antarctica. These regions have different geologies.Greater Antarctica, or East Antarctica, is composed of old, igneous and metamorphic rocks. Lesser Antarctica, or West Antarctica, is made up of younger, volcanic and sedimentary rock. Lesser Antarctica, in fact, is part of the Ring of Fire, a tectonically active area around the Pacific Ocean. Tectonic activity is the interaction of plates on Earths crust, often resulting in earthquakes and volcanoes. Mount Erebus, located on Antarctica's Ross Island, is the southernmost active volcano on Earth.The majority of the islands and archipelagos of Lesser Antarctica are volcanic and heavily glaciated. They are also home to a number of high mountains.The oceans surrounding Antarctica provide an important physical component of the Antarctic region. The waters surrounding Antarctica are relatively deep, reaching 4,000 to 5,000 meters (13,123 to 16,404 feet) in depth.ClimateAntarctica has an extremely cold, dry climate. Winter temperatures along Antarctica coast generally range from -10 to -30C (14 to -22F). During the summer, coastal areas hover around 0C (32F) but can reach temperatures as high as 9C (48F).In the mountainous, interior regions, temperatures are much colder, dropping below -60C (-76F) in winter and -20C (-4F) in summer. In 1963, Russias Vostok Research Station measured the coldest temperature ever recorded on Earth: -89.2C (-128.6F). An even lower temperature was measured using satellite data taken in 2010:-93.2C (-135.8F)Precipitation in the Antarctic is hard to measure. It always falls as snow. Antarctica's interior is believed to receive only 50 to 100 millimeters (two to four inches) of water (in the form of snow) every year. The Antarctic desert is one of the driest deserts in the world.The Antarctic region has an important role in global climate processes. It is an integral part of Earths heat balance. The heat balance, also called the energy balance, is the relationship between the amount of solar heat absorbed by Earths atmosphere and the amount of heat reflected back into space.Antarctica has a larger role than most continents in maintaining Earths heat balance. Ice is more reflective than land or water surfaces. The massive Antarctic Ice Sheet reflects a large amount of solar radiation away from Earths surface. As global ice cover (ice sheets and glaciers) decreases, the reflectivity of Earths surface also decreases. This allows more incoming solar radiation to be absorbed by Earths surface, causing an unequal heat balance linked to global warming, the current period of climate change.Interestingly, NASA scientists have found that climate change has actually caused more ice in some parts of Antarctica. They say this is happening because of new climate patterns caused by climate change. These patterns create a strong wind pattern called the "polar vortex." Polar vortex winds lower temperatures in the Antarctic and have been building in strength in recent decades such as 15 percent since 1980. This effect is not seen throughout the Antarctic, however, and some parts are experiencing ice melt.The waters surrounding Antarctica are a key part of the ocean conveyor belt, a global system in which water circulates around the globe based on density and on currents. The cold waters surrounding Antarctica, known as the Antarctic Bottom Water, are so dense that they push against the ocean floor. The Antarctic Bottom Water causes warmer waters to rise, or upwell.Antarctic upwelling is so strong that it helps move water around the entire planet. This movement is aided by strong winds that circumnavigate Antarctica. Without the aid of the oceans around Antarctica, Earths waters would not circulate in a balanced and efficient manner.Flora and FaunaLichens, mosses, and terrestrial algae are among the few species of vegetation that grow in Antarctica. Mosses of this vegetation grows in the northern and coastal regions of Antarctica, while the interior has little if any vegetation. The ocean, however, teems with fish and other marine life. In fact, the waters surrounding Antarctica are among the most diverse on the planet. Upwelling allows phytoplankton and algae to flourish. Thousands of species, such as krill, feed on the plankton. Fish and a large variety of marine mammals thrive in the cold Antarctic waters. Blue (Balaenoptera musculus), fin (Balaenoptera physalus), humpback (Megaptera novaeangliae), right, minke, sei (Balaenoptera borealis), and sperm whales (Physeter macrocephalus) have healthy populations in Antarctica.One of the apex, or top, predators in Antarctica is the leopard seal (Hydrurga leptonyx). The leopard seal is one of the most aggressive of all marine predators. This three-meter (nine-foot), 400-kilogram (882-pound) animal has unusually long, sharp teeth, which it uses to tear into prey such as penguins and fish.The most familiar animal of Antarctica is probably the penguin. They have adapted to the cold, coastal waters. Their wings serve as flippers as they fly through the water in search of prey such as squid and fish. Their feathers retain a layer of air, helping them keep warm in the freezing water.Cultural GeographyA Culture of ScienceWhile the Antarctic does not have permanent human residents, the region is a busy outpost for a variety of research scientists. These scientists work at government-supported research stations and come from dozens of different countries. The number of scientists conducting research varies throughout the year, from about 1,000 in winter to around 5,000 in summer.Researchers from a variety of scientific backgrounds study the Antarctic not only as a unique environment, but also as an indicator of broader global processes. Geographers map the surface of the worlds coldest and most isolated continent. Meteorologists study climate patterns, including the ozone hole that hovers over the Antarctic. Climatologists track the history of Earths climate using ice cores from Antarctica's pristine ice sheet. Marine biologists study the behavior of whales, seals, and squid. Astronomers make observations from Antarctica's interior because it offers the clearest view of space from Earth. Even astrobiologists, who study the possibility of life on other planets, study materials found in the Antarctic. In 1984, a meteorite from Mars was found in Antarctica. The markings on this meteorite were similar to markings left by bacteria on Earth. If this meteorite, millions of years old, actually has the remains of martian bacteria, it would be the only scientific evidence for life outside Earth.Daily Life at Antarctica's Research StationsAntarctica is a unique cultural place that is best defined by daily life at its diverse research stations. McMurdo Station is a U.S. research center on the southern tip of Ross Island, a territory claimed by New Zealand. McMurdo is the largest station in Antarctica, capable of supporting 1,250 residents. Most of these residents are not scientists, but work to support station operations, construction, maintenance, and daily life. McMurdo has more than 80 buildings and operates like a small city. It has world-class laboratory and research facilities but also a firehouse, dormitories, stores, and the continents only ATM.Like all Antarctic research stations, McMurdo has a specific method of receiving necessary supplies. Once a year, cargo ships bring more than five million kilograms (11 million pounds) of equipment and supplies, ranging from trucks and tractors to dry and frozen foods, to scientific instruments. These cargo ships can only reach Winter Quarters Bay, McMurdos harbor, during summer, when the pack ice can be breached by U.S. Coast Guard icebreakers. Additional supplies and personnel are flown in from Christchurch, New Zealand, when weather permits.Base Esperanza, Argentinas largest Antarctic facility, is located in Hope Bay on the tip of the Antarctic Peninsula. The station is known for a number of Antarctic firsts. It is the birthplace of Emilio Marcos Palma, the first person to be born in Antarctica. Base Esperanza also houses the first Catholic chapel (1976) and first school (1978) built on the continent. In 1979, Base Esperanza became the continents first shortwave radio broadcaster, connecting the research station with Argentinas continental territory.Davis Station is Australias busiest scientific research station. It is located in an ice-free area known as the Vestfold Hills. Like most research stations in Antarctica, food is very important at Davis Station. Residents live and work closely together in facilities and outdoor environments that are often very limited. The food supply for a year at Davis Station is rationed, one person per year. Residents live mostly on frozen and canned food. The chef is often thought of as one of the most important people at Davis Station. He or she must make sure to use all commodities in such a way that is both creative and sustainable. Some of the stations most important events revolve around the chefs creations, such as the Midwinter Dinner, a traditional, sumptuous feast first celebrated during the 1901-04 British Antarctic Expedition.Like many of Antarctica's research facilities, Davis Station has a hydroponic greenhouse. Hydroponics is the practice of growing plants with water and nutrients only. Hydroponics requires excellent gardeners because produce is grown without soil. Fresh produce adds variety and nutrition to Antarctic meals. The greenhouse also serves as a sunroom for sunlight-deprived residents, especially during the long winter months.Political GeographyHistoric IssuesFor many European and North American powers, Antarctica represented the last great frontier for human exploration. Fueled by nationalist pride and supported by advances in science and navigation, many explorers took on the Race for the Antarctic.Explorers first skimmed the boundaries of Antarctica on sea voyages. By the early 20th century, explorers started to traverse the interior of Antarctica. The aim of these expeditions was often more competitive than scientific. Explorers wanted to win the Race to the South Pole more than understand Antarctica's environment. Because early explorers confronted extreme obstacles and debilitating conditions, this period of time became known as the Heroic Age. Roald Amundsen, Robert Falcon Scott, Edward Adrian Wilson, and Ernest Shackleton all competed in the Race to the South Pole.In 1911, Amundsen, of Norway, and Scott, of the United Kingdom, began expeditions with the aim of becoming the first man to reach the South Pole. Amundsens team set out from the Bay of Whales in the Ross Sea on October 19, while Scott set out from Ross Island on November 1. Each team used different methods, with drastically different levels of success. Amundsens team relied on dog sleds and skiing to reach the pole, covering as much as 64 kilometers (40 miles) per day. Scotts team, on the other hand, pulled their sleighs by hand, collecting geological samples along the way. Amundsens team became the first to reach the South Pole on December 15. The team was healthy, and successfully made the journey out of Antarctica. Scotts team reached the South Pole on January 17, 1912, suffering from malnutrition, snow blindness, exhaustion, and injury. They all died on their journey home.Hoping to one-up his predecessors, Shackleton, of the United Kingdom, attempted the first transcontinental crossing of Antarctica in 1914. Shackleton planned the trip by using two ships, the Aurora and the Endurance, at opposite ends of the continent. Aurora would sail to the Ross Sea and deposit supplies. On the opposite side, Endurance would sail through the Weddell Sea to reach the continent. Once there, the team would march to the pole with dog teams, dispose of extra baggage, and use supplies left by Aurora to reach the other end of the continent.The plan failed. The Endurance became frozen in the pack ice of the Weddell Sea. The pack ice crushed and sunk the ship. Shackletons team survived for roughly four months on the ice by setting up makeshift camps. Their food sources were leopard seals, fish, and, ultimately, their sled dogs. Once the ice floe broke, expedition members used lifeboats to reach safer land and were picked up on Elephant Island 22 months after they'd set out on their journey. Although some of the crew sustained injuries, they all survived.The journey of the Endurance expedition symbolizes the Heroic Age, a time of extreme sacrifice and bravery in the name of exploration and discovery. Apsley George Benet Cherry-Garrard, a polar explorer, summed up the Heroic Age in his book The Worst Journey in the World: "For a joint scientific and geographical piece of organisation, give me Scott; for a Winter Journey, Wilson; for a dash to the Pole and nothing else, Amundsen; and if I am in the devil of a hole and want to get out of it, give me Shackleton every time.Contemporary IssuesThe second half of the 20th century was a time of drastic change in the Antarctic. This change was initially fueled by the Cold War, a period of time defined by the division between the United States and the Soviet Union, and the threat of nuclear war. The International Geophysical Year (IGY) of 1957-58 aimed to end Cold War divisions among the scientific community by promoting global scientific exchange. The IGY prompted an intense period of scientific research in the Antarctic. Many countries conducted their first Antarctic explorations and constructed the first research stations on Antarctica. More than 50 Antarctic stations were established for the IGY by just 12 countries: Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the Soviet Union, the United Kingdom, and the United States.In 1959, these countries signed the Antarctic Treaty, which established that: the region south of 60S latitude remain politically neutral; no nation or group of people can claim any part of the Antarctic as territory; countries cannot use the region for military purposes or to dispose of radioactive waste; and research can only be done for peaceful purposes.The Antarctic Treaty does support territorial claims made before 1959, by New Zealand, Australia, France, Norway, the United Kingdom, Chile, and Argentina. Under the treaty, the size of these claims cannot be changed and new claims cannot be made. Most importantly, the treaty establishes that any treaty-state has free access to the whole region. As such, research stations supported by a variety of treaty-states have been constructed within each of these territorial claims. Today, 47 states have signed the Antarctic Treaty.The Antarctic Treaty was an important geopolitical milestone because it was the first arms control agreement established during the Cold War. Along with the IGY, the Antarctic Treaty symbolized global understanding and exchange during a period of intense division and secrecy.Many important documents have been added to the Antarctic Treaty. Collectively known as the Antarctic Treaty System, they cover such topics as pollution, conservation of animals and other marine life, and protection of natural resources.The yearly Antarctic Treaty Consultative Meeting (ATCM) is a forum for the Antarctic Treaty System and its administration. Only 28 of the 47 treaty-states have decision-making powers during these meetings. These include the 12 original signatories of the Antarctic Treaty, along with 16 other countries that have conducted substantial and consistent scientific research there.Future IssuesTwo important and related issues that concern the Antarctic region are climate change and tourism. The ATCM continues to address both issues.Antarctic tourism has grown substantially in the last decade, with roughly 40,000 visitors coming to the region in 2010. In 2009, the ATCM held meetings in New Zealand to discuss the impact of tourism on the Antarctic environment. Officials worked closely with the International Association of Antarctica Tour Operators (IAATO) to establish better practices that would reduce the carbon footprint and environmental impact of four ships. These include regulations and restrictions on: numbers of people ashore; planned activities; wildlife watching; pre- and post-visit activity reporting; passenger crew, and staff briefings; and emergency medical-evacuation plans. The ACTM and IAATO hope more sustainable tourism will reduce the environmental impacts of the sensitive Antarctic ecosystem.Tourism is one facet of the ACTMs climate change outline, discussed during meetings in Norway in 2010. Climate change disproportionately affects the Antarctic region, as evidenced by reductions in the size of the Antarctic Ice Sheet and the warming waters off the coast. The ACTM recommended that treaty-states develop energy-efficient practices that reduce the carbon footprint of activities in Antarctica and cut fossil fuel use from research stations, vessels, ground transportation, and aircraft.The Antarctic has become a symbol of climate change. Scientists and policymakers are focusing on changes in this environmentally sensitive region to push for its protection and the sustainable use of its scientific resources.Fast FactPopulation Density of Antarctica0.00078people per square kilometerFast FactHighest Elevation in AntarcticaVinson Massif (4,892 meters/16,050 feet)Fast FactMost Renewable Electricity Produced in Antarcticacontinent-wide (20%: wind, solar)Fast FactAntarctica's Largest Urban AreaMcMurdo Station, operated by the United States Antarctic Program: 1,000 people (summer) or 250 people (winter)Fast FactLargest WatershedAntarctic Ice Sheet (14 million square kilometers/ 5.4 million square miles)The audio, illustrations, photos, and videos are credited beneath the media asset, except for promotional images, which generally link to another page that contains the media credit. 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Antarctica covers the Earths South Pole. Antarctica is the coldest place on Earth. The average temperature in the winter is minus 34.4 Celsius (minus 30 degrees Fahrenheit). The temperature in the center of Antarctica is much lower than the temperature on the coasts. The lowest temperature ever recorded in Antarctica was minus 89.4 C (minus 129 F). The highest temperature ever recorded in Antarctica was 15 C (59 F). Antarctica has just two seasons: summer and winter. Antarctica has six months of daylight in its summer and six months of darkness in its winter. The seasons are caused by the tilt of Earths axis in relation to the sun. The direction of the tilt never changes. But as the Earth orbits the sun, different parts of the planet are exposed to direct sunlight. During summer, Antarctica is on the side of Earth tilted toward the sun and is in constant sunlight. In the winter, Antarctica is on the side of Earth tilted away from the sun, causing the continent to be dark. Antarctica is considered a desert because it receives very little rain or snowfall. The small amount of snow that does fall does not melt but builds up over hundreds and thousands of years to form large, thick ice sheets. Antarctica's terrain is made up of glaciers, ice shelves and icebergs. Antarctica has no trees or bushes. The only plants that can survive the extreme cold are lichens, mosses and algae. Antarctica is too cold for people to live there for a long time. Scientists take teams going there to study the ice. Tourists visit Antarctica in the summers. The oceans surrounding Antarctica are home to many types of whales. Antarctica is also home to seals and penguins. NASA uses satellites to study the ice on Antarctica and how the continent is changing. Scientists want to know how changes in Earths climate are affecting Antarctica's ice sheets. They also want to know how changes in Antarctic ice might affect Earths climate. One tool that NASA uses is the Ice, Cloud, and Land Elevation Satellite, or ICESat. Using ICESat, NASA can measure changes in size of Antarctica's ice sheets. ICESat also helps NASA understand how changes in Earths atmosphere and climate affect polar ice and global sea levels. Melting ice sheets may impact sea levels all over the world. NASA instruments have also helped scientists create detailed maps of the surface of Antarctica. The maps help researchers when planning trips to Antarctica. They also give the public a clearer view of the continent. Antarctica is also a good place to find meteorites, or rocks that fall from space to Earth. The number of meteorites found in Antarctica is equal to the number of meteorites found in the rest of the world combined. This is because meteorites are easier to see on the white ice, and because meteorites that fall to Antarctica become preserved in the ice. NASA scientists have used the Antarctic environment to study Mars. The desert conditions in Antarctica are like the conditions on Mars. NASA tested robots in Antarctica that later landed on Mars. NASA scientists also went to Antarctica to study astronaut nutrition. Like people in Antarctica in the winter, astronauts in space are not in the sunlight. The sun helps the human body make vitamins. Scientists study people that visit Antarctica to learn how to help astronauts in space get enough vitamins.

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