

Exhibit 7

Antarctic Meltdown

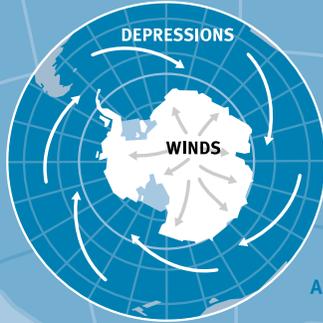
Nine tenths of the world's ice is piled up in Antarctica. If it were to melt, sea level would rise some 200 feet, dramatically altering the shape of the U. S., among other countries. Scientific research has not established either the history of the ice sheet's former fluctuations or its future. The dynamicists infer an ice sheet that may have receded as recently as three million years ago, but the stablists think it has been generally unchanged for the last 10 to 15 million years. This "infographic" by John Grimwade is from the cover story entitled "Antarctic Meltdown," by Beth Livermore, in the February 1997 issue of Popular Science.





THE ICE CAP

A section through the Antarctic ice sheet, which contains 70% of the world's fresh water and 90% of the world's ice. Its average thickness is about a mile, but in some places it is 3 miles thick.



Average annual snowfall Water equivalent
 2 inches
 4 inches
 8 inches
 Over 8 inches

COLDEST AND WINDIEST PLACE ON EARTH

Antarctica is completely surrounded by oceans over which westerly winds blow freely, forming huge depressions that track around the continent and often spiral in toward it. Winds blowing down from the interior plateau to the coast can reach 180 mph.

SNOW DESERT

The interior receives only slightly more annual precipitation than the Sahara Desert.

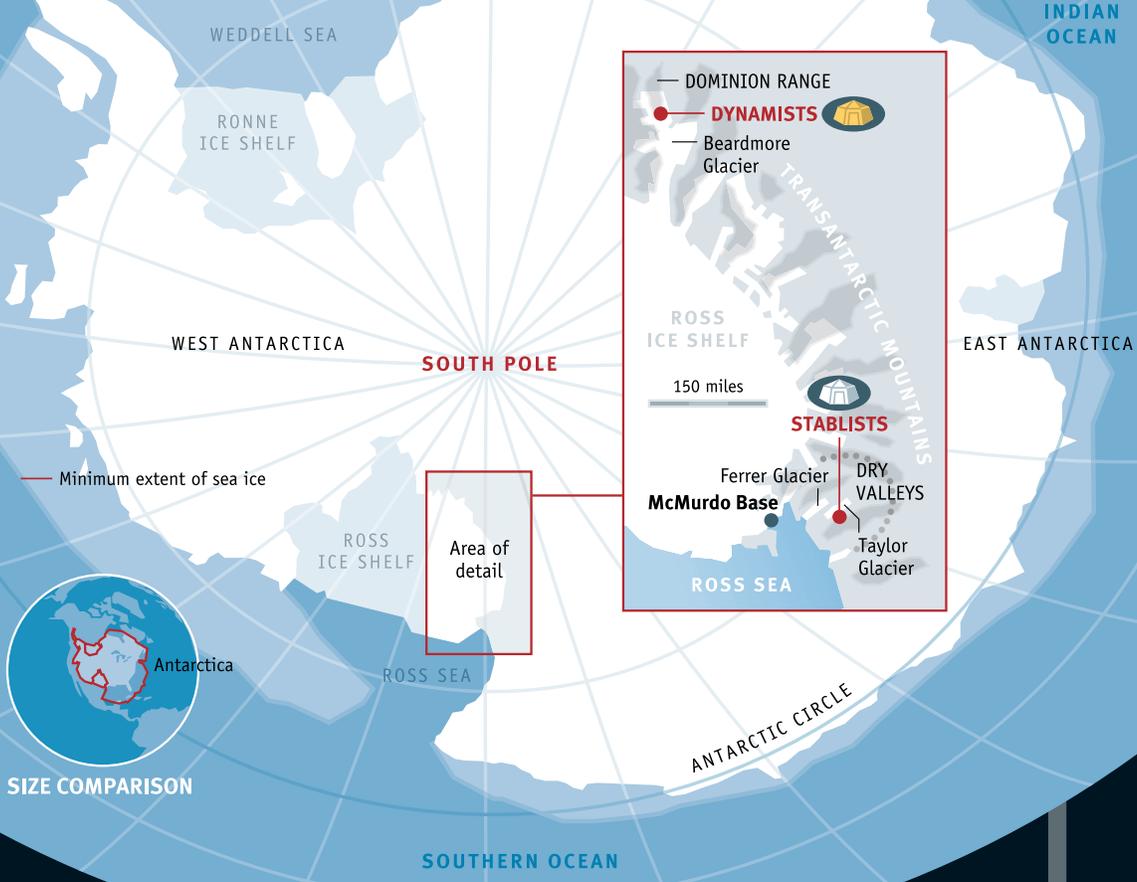




Exhibit 8

South Pole/North Pole. Both of the Earth's polar regions are cold, and they share other characteristics that distinguish them from the planet's temperate and tropical regions. Yet, the two regions also are dramatically different from each other, as this list shows. The map depicts the world 21,000 years ago, when the Ice Age had extended the polar ice sheets, particularly in the north, far beyond their present boundaries. Map furnished by Woods Hole Oceanographic Institution.

Antarctic

Arctic

— NATURAL FEATURES —

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| <ul style="list-style-type: none"> • Continent surrounded by ocean, winds, and circumpolar ocean currents, uninterrupted by land masses. • Icebergs derived from glaciers and shelf ice year-round and may measure in excess of 25 cubic miles. • Sea ice annual, outward growth more than doubles continent size, annual thickness to 8 ft. • 97.6 percent of land ice covered in almost unbroken South Polar ice sheet. • Elevation at South Pole 9,300 ft. above sea level; bedrock only 100 ft. above sea level. • South Pole mean annual temperature — -58°F; permanent meteorological and astrophysical research station. • Beaches rare; narrow deep continental shelf backed by vertical ice cliffs. • Frozen ground mostly limited to ice-free areas. | <ul style="list-style-type: none"> • Ocean surrounded by continents. • Icebergs derived from glaciers, seasonal, measured in cubic yards. • Sea ice multi-year, circulates in polar gyre, annual thickness to 5 ft. • Land ice in limited areas; largest Greenland ice sheet. • Elevation at North Pole 3 ft. of sea ice; bedrock 1,400 ft. below sea level. • North Pole mean annual temperature – 0°F; no research station. • Beaches and shallow extensive continental shelf. • Frozen ground extensive, over 1,500 ft. |
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— PLANTS AND ANIMALS —

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| <ul style="list-style-type: none"> • No tundra, no tree line. Subantarctic zone marked by Antarctic Convergence. • Crustaceous lichens at 82° lat; 2 species of flowering plants at 66°–70° S lat; vegetation primarily lichens and mosses. • Free-living arthropods include insects (2), mites (150), Collembolla (6). • No terrestrial mammals. • Marine mammals limited to whales and porpoises (14) and seals (4). • Bird species (19) 70°–80° S lat. | <ul style="list-style-type: none"> • Tundra well developed, extensive, marked by a tree shrubline. • 90 species of flowering plants at 82° N lat, 450 species at 66°–77°N lat. • Free living arthropods include Arachnids, crustaceans, insects, and myriapods numerous and common. • Terrestrial mammals include musk ox, reindeer, caribou, fox, hare, wolf, lemming, bears, etc. • Marine mammals include whales and porpoises (18), seals (7), amphibious mammals (1). • Bird species (107) at 75°–80° N lat. |
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— HUMANITY —

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| <ul style="list-style-type: none"> • No record of primitive humans; no native groups. • Population south of 60° S sparse, scattered at scientific stations. No exploitation of terrestrial resources. • Crossing of Antarctic Circle by James Cook, January 17, 1773. | <ul style="list-style-type: none"> • Native peoples with long, rich cultural record; ethnic groups circumarctic. • Human population 60° N, in excess of 2 million, modern settlements, widespread exploitation and technological development. • Crossing of Arctic Circle prehistoric. |
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