

GLACIERS AND ICE CAPS

Tasermiut Fjord, Greenland, Earth

Approximately 85% of Greenland is buried beneath a thick ice cap that averages 1500 meters thick but is up to 4300 meters thick in some places. The Greenland ice cap represents roughly 10% of the world's total freshwater supply and is the second largest accumulation of ice other than on Antarctica. This view, looking northwest, features the coastline at the southern tip of Greenland and was obtained at 11,000 meters elevation from a commercial aircraft in 1992.

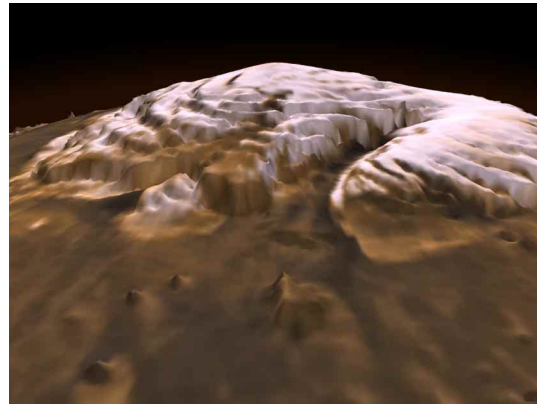
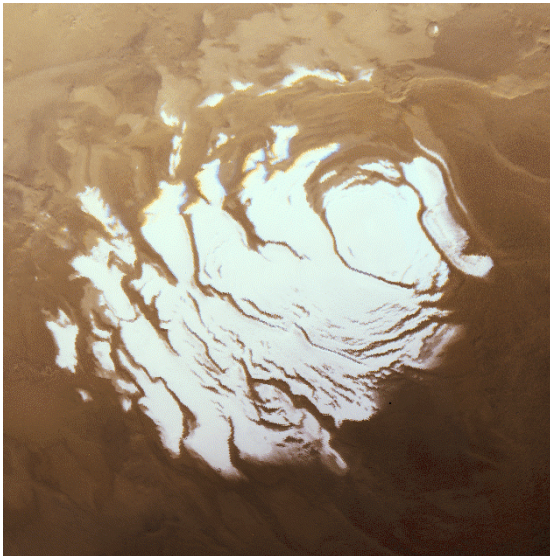
Greenland is 2700 × 1200 kilometers across and is the largest island in the world, with an area of over 2 million square kilometers. Glaciers and ice streams flowing out from the ice cap have carved many deep U-shaped valleys along the coast of Greenland, in some cases to below sea level. Together with rising sea levels, some of these valleys have been drowned with seawater, creating fjords. The sharp ridges separating these valleys are of glacial erosion. Greenland glaciers are the source for thousands of Atlantic icebergs, one of which was struck by the *Titanic* in 1912.

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use 3-D glasses to view image

South Polar Cap, Mars

This image shows the south polar cap of Mars as it appears near its minimum size of about 400 kilometers (249 miles). It consists mainly of frozen carbon dioxide. This carbon dioxide cap never melts completely. The ice appears reddish due to dust that has been incorporated into the cap.



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North Polar Cap, Mars

This dramatic three-dimensional visualization of Mars' north pole is based on elevation measurements made by an orbiting laser. During the spring and summer of 1998, the Mars Orbiter Laser Altimeter (MOLA) flashed laser pulses toward the martian surface from the *Global Surveyor* spacecraft and recorded the time it took to detect the reflection. This timing data now has been translated to a detailed topographic map of Mars' north polar terrain. The map indicates that the ice cap is about 1200 kilometers across and a maximum of 3 kilometers thick, and is cut by canyons and troughs up to 1 kilometer deep. The measurements also indicate that the cap is composed primarily of water ice with a total volume of only about 4% of Earth's Antarctic ice sheet. In all it represents at most a tenth of the amount of water some scientists believe once existed on ancient Mars.

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