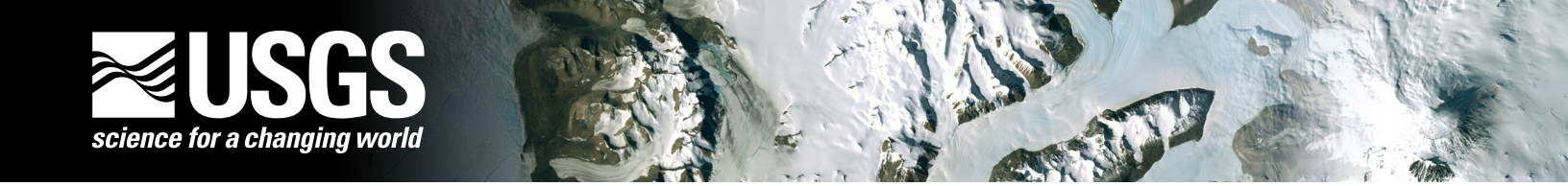
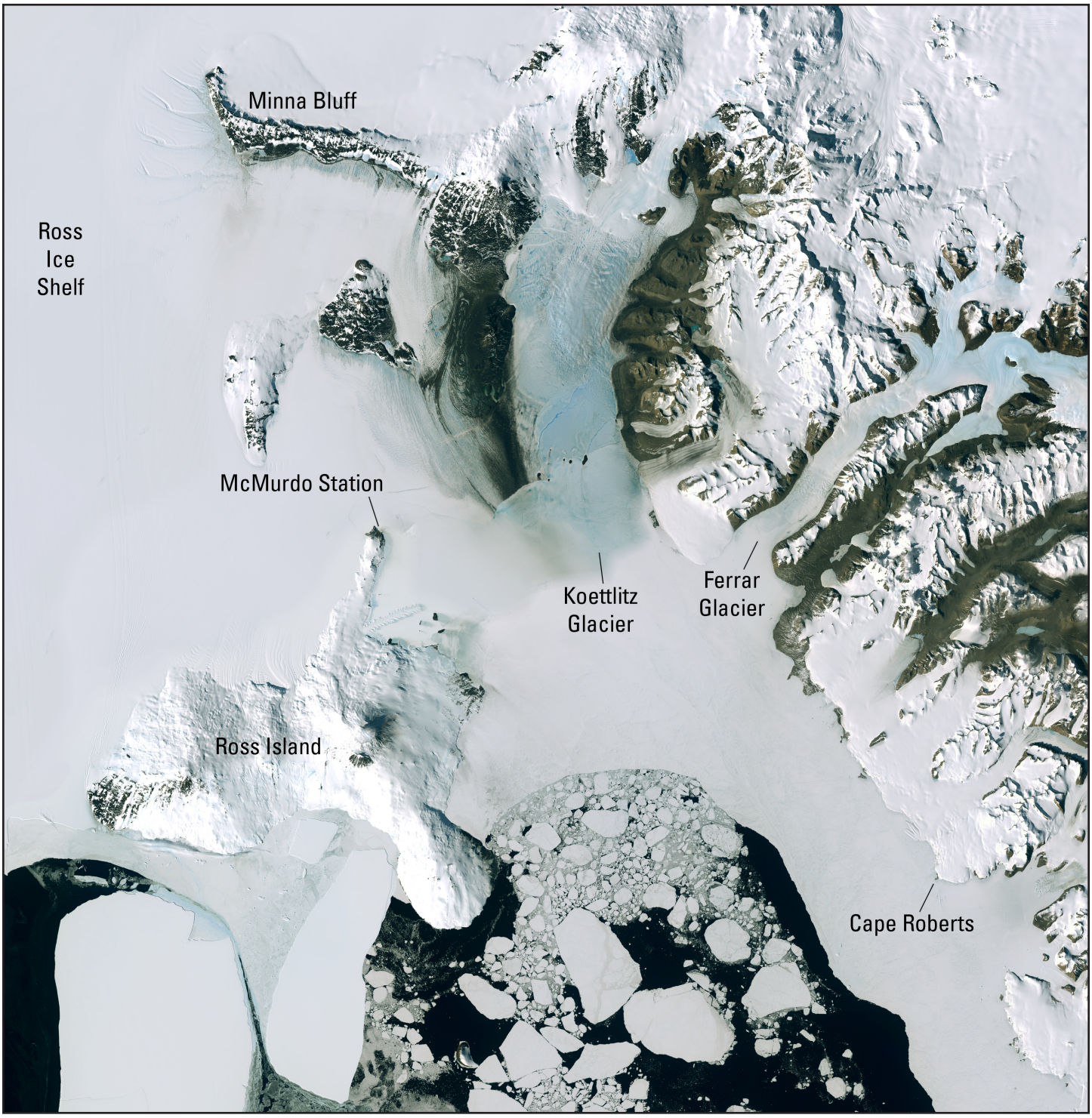


In cooperation with the National Science Foundation (NSF)

Landsat Image Mosaic of Antarctica



Natural color version of a section of the mosaic over McMurdo Station, the largest research base in Antarctica. Ross Island is roughly 45 miles across at its widest point. The flat, white areas are sea ice off the coast of Antarctica.

U.S. Department of the Interior
U.S. Geological Survey

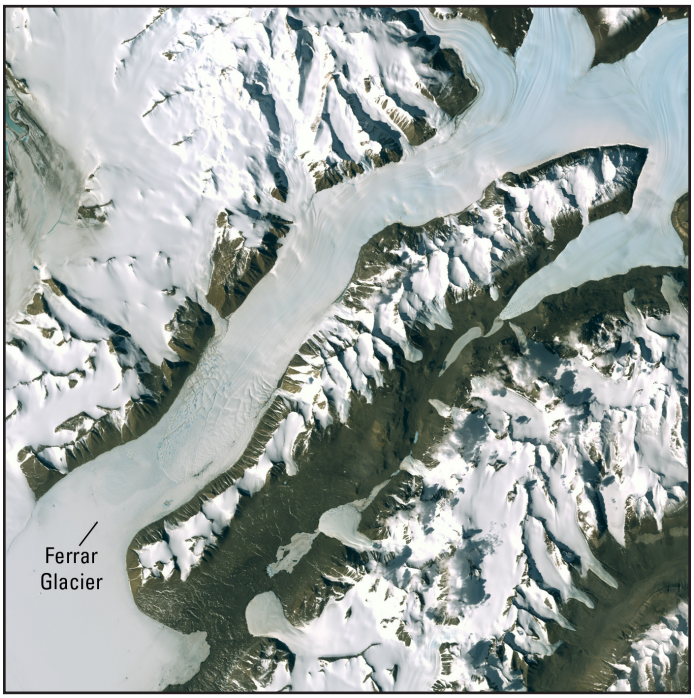
Printed on recycled paper

Fact Sheet 2007–3016
February 2007

Antarctica exists as a frozen dream to most people, yet what is happening in the southernmost environment affects us all. In support of the International Polar Year (2007-2008), the Landsat Image Mosaic of Antarctica (LIMA) brings the coldest continent on Earth alive with a comprehensive view of Antarctica.

The U.S. Geological Survey (USGS), the British Antarctic Survey (BAS), and the National Aeronautics and Space Administration (NASA), with funding from the National Science Foundation (NSF), are developing the new mosaic along with an Antarctic Web portal and online map viewer.

From the Antarctic Web portal, scientists and the general public will be able to download the mosaic and all of the original 1,065 hand-selected Landsat scenes used to create the mosaic. These scenes are some of the more than 8,000 scenes collected from 1999 through 2006 by the Enhanced Thematic Mapper Plus (ETM+) sensor onboard Landsat 7.



Enlargement of Ferrar Glacier area from the LIMA image on the front page. Top left to bottom right--Royal Society Range, Ferrar Glacier, Kukri Hills, Taylor Valley, and Asgard Range.

Choose from Four Versions of LIMA

The mosaic of Antarctica will be available in four versions, each version with a distinctive combination of Landsat ETM+ bands to satisfy different scientific and visual needs.

Natural Color

The natural color version of the mosaic simulates how the human eye sees the terrain, making it valuable for field recognition in Antarctica. This version is created from bands 3, 2, and 1 (red, green, blue) at 30-m spatial resolution. Each pixel represents 30 m by 30 m (98 ft by 98 ft) on the Earth, so scientists can identify features slightly larger than the size of a baseball diamond.

False Color

The false color version of the mosaic incorporates infrared data, allowing scientists to more clearly discriminate between ice and snow. This version is created from bands 4, 3, and 2 (near-infrared, red, green) also at 30-m spatial resolution.

Panchromatic

The panchromatic version of the mosaic does not capture color information but has a higher spatial resolution with each pixel now representing 15 m by 15 m (49 ft by 49 ft) on the Earth. This version is created from band 8 (panchromatic) at 15-m spatial resolution.

Pan-sharpened

The pan-sharpened version of the mosaic maintains the natural color information, but features appear more clearly defined. This version uses special image processing techniques to combine natural color data (bands 3, 2, and 1) with the higher resolution panchromatic data (band 8).

Access LIMA on the Antarctic Web Portal

Viewing, selecting, and downloading the four versions of LIMA and all the component Landsat scenes will be convenient with the new Antarctic Web portal at http://lima.usgs.gov. Scientists and the general public will be able to download the entire seamless mosaic or just the specific areas they need. Individual Landsat scenes will be available as either terrain-corrected or terrain-corrected with sun-angle correction applied. Both types will be compressed, and all downloads will include Federal Geographic Data Committee (FGDC) compliant metadata.

The LIMA online map viewer will display the mosaic and ancillary Geographic Information System (GIS) features, such as location names, in polar stereographic projection. Web Mapping Services (WMS) will be provided for access to the four versions of the mosaic over the Internet with desktop GIS tools.

To support a greater understanding of the scope of Antarctic research, the Web portal will make available a wealth of other resources, such as past USGS Antarctic research, the Atlas of Antarctica, GIS resources, and a digital library of historical and current Antarctic research, including scientific papers, articles, datasets, maps, posters, and information on upcoming events in support of the International Polar Year (IPY).

For more information about the Landsat Image Mosaic of Antarctica and the Antarctic Web portal, please contact:

Customer Services
U.S. Geological Survey
Center for Earth Resources
Observation and Science (EROS)
47914 252nd Street
Sioux Falls, SD 57198-0001

Tel: 800-252-4547
Tel: 605-594-6151
TDD: 605-594-6933
Fax: 605-594-6589
Email: custserv@usgs.gov