

A new view of Antarctica for the IPY: the Landsat-7 mosaic

WHO ?

Robert Bindshadler NASA Goddard Space Flight Center, Greenbelt, Maryland, U.S.A.
Jerry Mullins and others U.S. Geological Survey in Reston, Virginia, U.S.A.
many at the EROS Data Center U.S. Geological Survey in Sioux Falls, South Dakota, U.S.A.
Ted Scambos National Snow and Ice Data Center, Boulder, Colorado, U.S.A.
Patricia Vornberger and Hyeungu Choi Science Applications International Corporation, Beltsville, Maryland, U.S.A.

WHAT ?

- a digital mosaic of Antarctica composed of Landsat-7 Enhanced Thematic Mapper Plus (ETM+) images
- multiple product levels including:
 - 15-meter resolution panchromatic band
 - 30-meter resolution true-color composite (Bands 3,2,1)
 - 125-meter resolution for compatibility with MOA and RAMP mosaics
 - probably others yet to be determined
- radiometrically balanced to make the final products as seamless as possible
- coverage gap around the South Pole may be filled by blending in MODIS imagery from MOA (MODIS Mosaic of Antarctica)
- original scenes are expected to become a special collection, available for purchase for a small fee

WHEN ?

Completion is planned for March 2007, the beginning of the International Polar Year.

HOW ?

- NSF-supported scene selection is underway at NASA Goddard Space Flight Center. Approximately 2000 scenes will be required. The full collection currently contains about 20,000 images. Additional acquisitions may be required.
- The U.S. Geological Survey will perform the image orthorectification, mosaicking, and radiometric balancing. Post-processing with satellite ephemerides results in geolocation precision of +/- 50 meters (J. Storey, NASA, pers. comm.). Additional ground control will be used where available, for example that used for the Radarsat-1 SAR Mosaic of Antarctica.
- The U.S. Geological Survey and/or National Snow and Ice Data Center likely will be responsible for distribution of products.

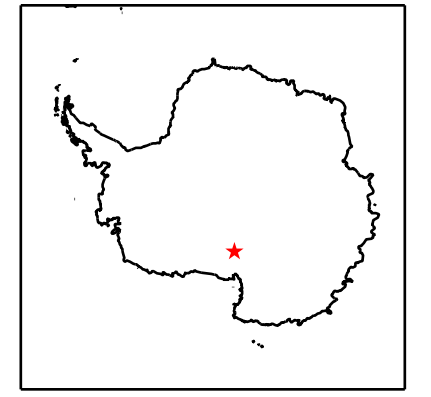
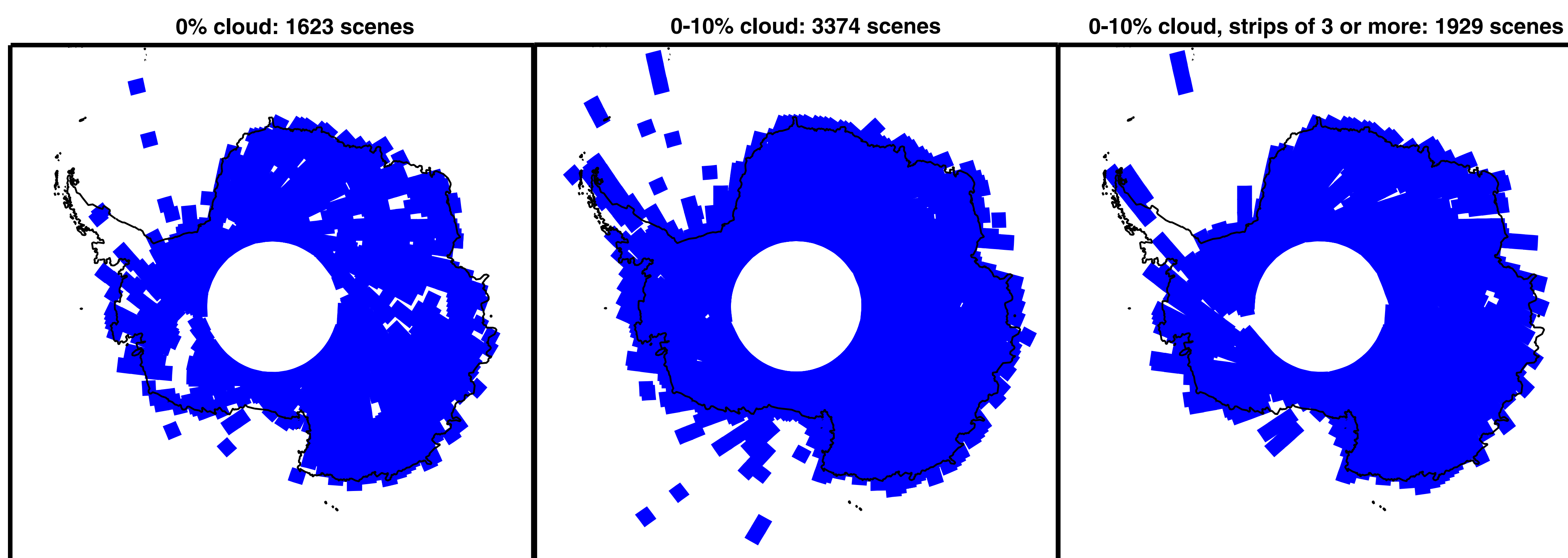
WHY ?

- To provide an easily obtained, accurate, high-resolution, high-quality map from optical imagery, suitable for many purposes, that can serve as a common database for future Antarctic research.

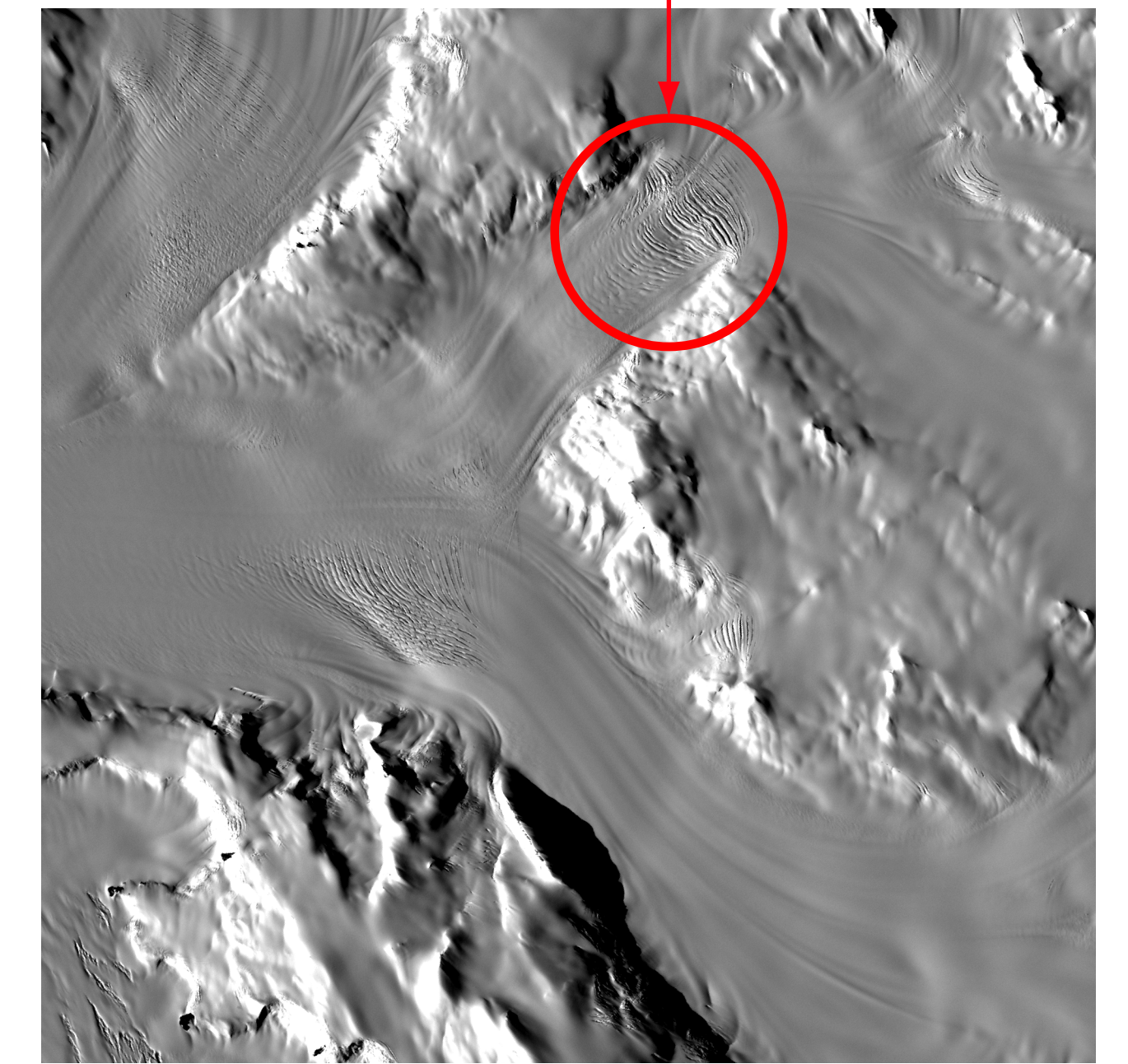
SUGGESTIONS ?

- We welcome your suggestions. What product attributes would you find useful? Now is the time to speak up!

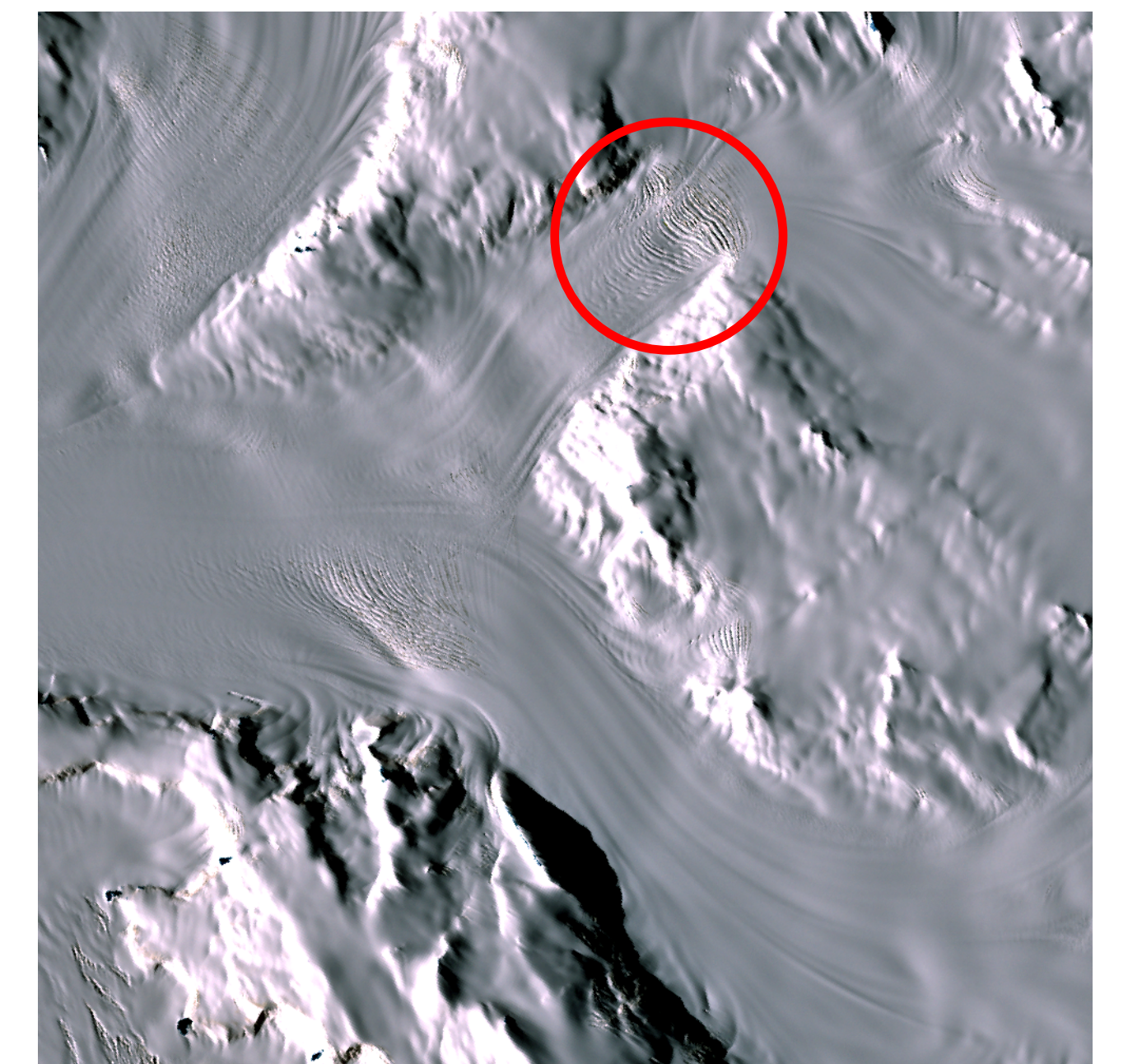
WHAT COVERAGE DO WE HAVE TO WORK WITH ?



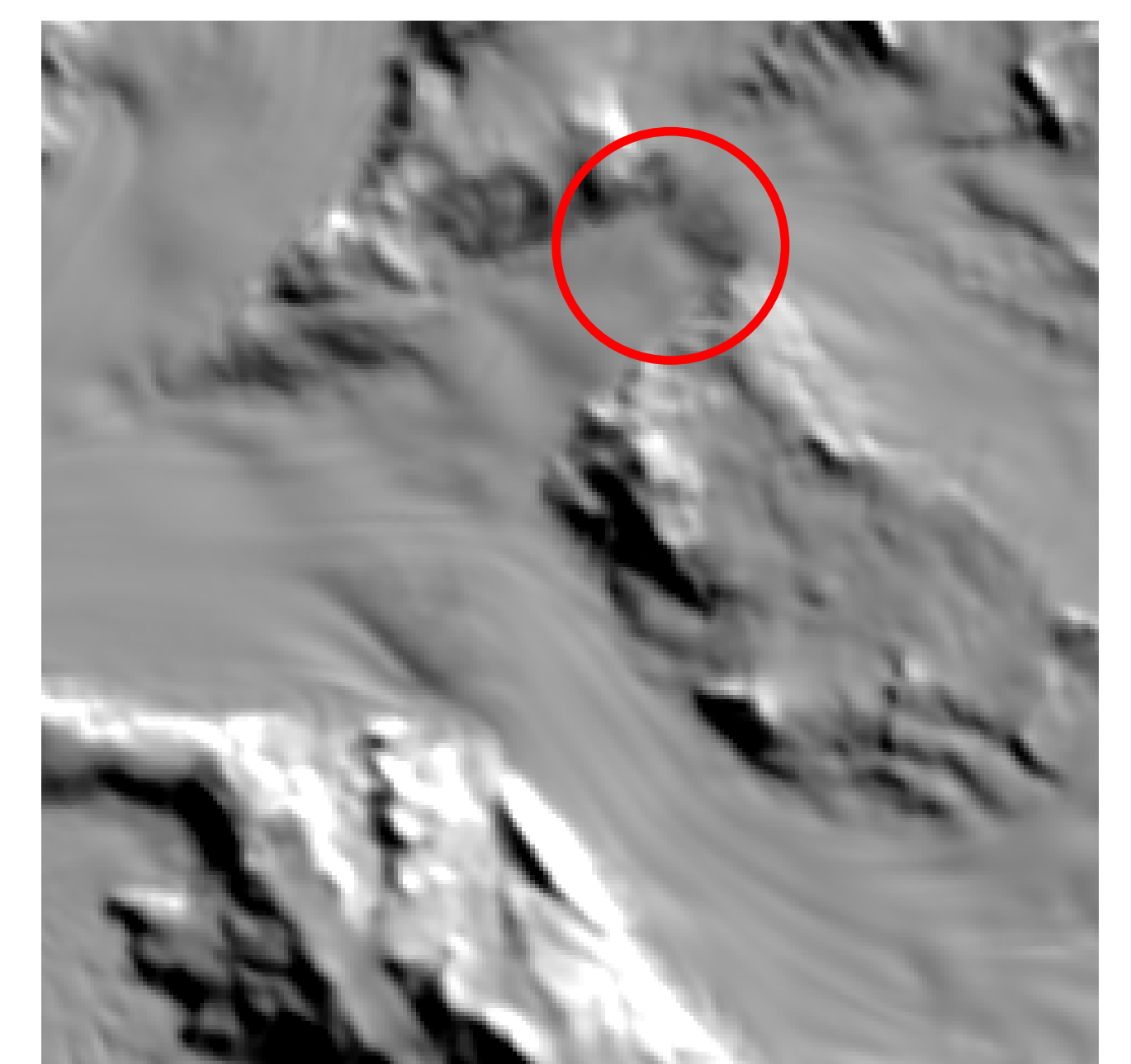
red circle highlights surface features that are viewed optimally by high-resolution optical imagery



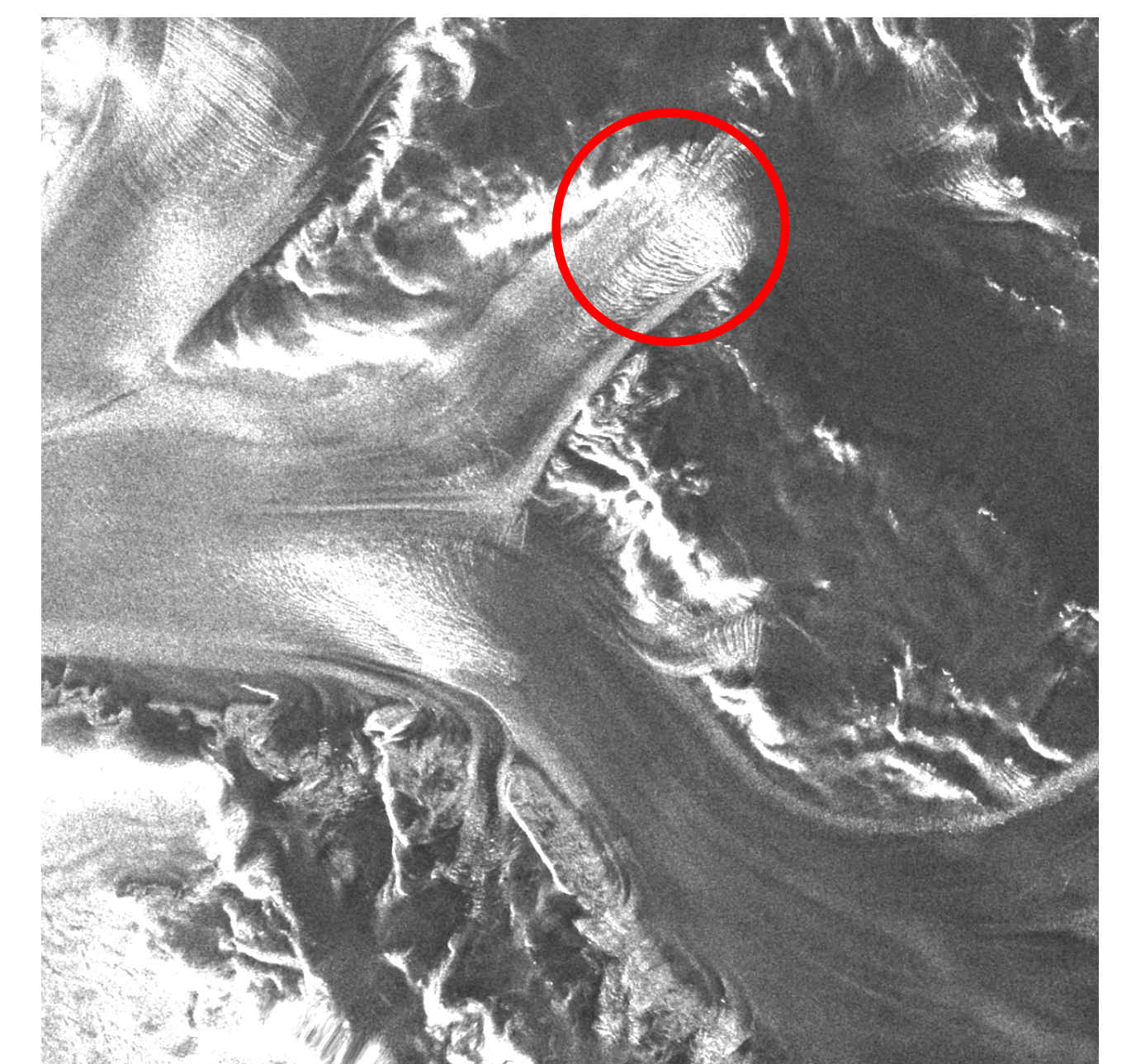
Landsat-7 ETM+
(15 m panchromatic)



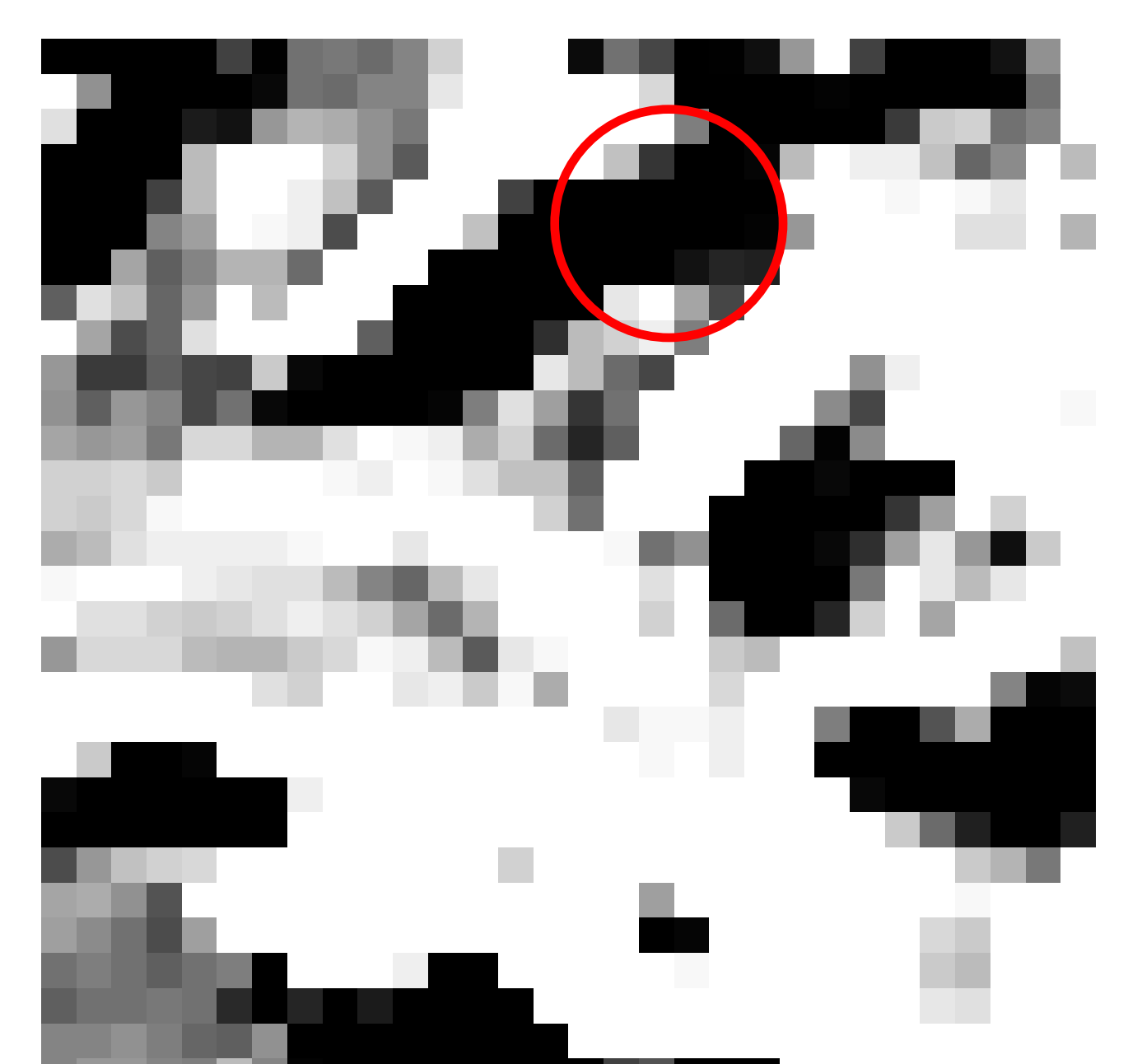
Landsat-7 ETM+
(30 m true-color)



MODIS
(125 m MOA)



Radarsat-1 SAR
(25 m RAMP)



AVHRR
(1 km)