

A second MODIS Mosaic of Antarctica: MOA-2009

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We are assembling a new resolution-enhanced MODIS mosaic of the Antarctic continent, using a series of images from both Terra and Aqua. The mosaic will be built from images acquired between November 20, 2008 and February 28, 2009. Image selection, de-striping, precise geolocation, cloud masking, image edge feathering, filtering, and image stacking will be conducted in an identical fashion to the previous mosaic (detailed in Scambos et al., 2007). As before, the final image resolution will be 125m, and a grain-size mosaic will be prepared as well as a surface feature image map.

We will present preliminary views of the partially assembled mosaic and some test areas of image differencing. We anticipate that comparison of the two mosaics (when completed) will reveal changes in the ice extent and coastline, for example where large calving events have occurred in the interim between the two mosaics. Image differencing of the mosaics may also reveal sub-glacial lake activity, ongoing flow direction changes on ice shelves, dune movement, and new crevassing. We will also attempt to map ice velocity in heavily-crevassed outlet glaciers and ice shelves continent-wide using the two mosaics (with an expected accuracy of better than +/- 50 m/yr).