THE SHUTTLE RADAR TOPOGRAPHY MISSION: INTRODUCTION TO SPECIAL SESSION

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The Shuttle Radar Topography Mission (SRTM), which flew successfully aboard Endeavour in February 2000, is a cooperative project between NASA, the National Imagery and Mapping Agency, and the German and Italian Space Agencies. The mission was designed to use a single-pass radar interferometer to produce a digital elevation model of the Earth's land surface between about 60° north and 56° south latitude. The DEM has 30 m horizontal resolution and better than 15 m vertical errors. Two ortho-rectified C-band image mosaics are also produced.

SRTM used a modification of the radar instrument that comprised the Spaceborne Radar Laboratory that flew twice on the Shuttle Endeavour in 1994. To collect the interferometric data, a 60 m mast, additional C-band antenna, and improved tracking and navigation devices were added. A second X-band antenna was also added by the German Space Agency, and produced higher resolution topographic measurements in strips nested within the full, C-band coverage.

First results indicate that the radars and ancillary instruments worked very well. Data played back to the ground during the flight were processed to DEMs and preliminary products released hours after acquisition. Precision processing of the C-band data was completed at the end of 2002. An extensive program for calibration and verification of the SRTM data is now underway. Data have been released so far for the US and a few test areas for scientific analysis. Public release of the data will occur in stages throughout 2003. Products are being transferred to the US Geological Survey's EROS Data Center for civilian archive and distribution. NIMA will handle Department of Defense distribution. X-band data are being processed at the German and Italian Space Agencies. As of late 2002, Europe and Africa had been completed and the remaining continents were on schedule to be completed by the end of 2003.

This special session will highlight applications of this new high-resolution view of the topography of the Earth.

More information on the project can be found at the JPL and DLR SRTM Web sites:
http://www.jpl.nasa.gov/srtm/ and http://www.dfd.dlr.de/srtm/index_en.htm

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