LANDSAT MONTHLY UPDATE

November 2002

The Landsat Program is managed by the U.S. Geological Survey under authority established by Presidential Decision Directive NSTC-3.

Program News

Landsat 7 Team Recognition

The 2001 William T. Pecora Group Award was presented to the Landsat 7 Team at the Pecora 15/Land Satellite IV symposium held in Denver, Colorado. The citation noted: "The Landsat 7 satellite mission is realizing a long-held dream for the entire Landsat program: to have continuing seasonal, global, high-resolution data for a myriad of important science and applications uses." Accepting the award on behalf of the NASA and Department of the Interior teams were Dr. Darrel Williams, NASA and Mr. R. J. Thompson, USGS.

IGS Metadata

EDC began archiving metadata from Matera, Italy (MTI) on November 27, 2002. IGS Metadata from Canada, Australia, South Africa, China, Argentina, Thailand, and Europe continue to be archived successfully. As of November 30, 2002 there were 13,518 L7 IGS subintervals archived for 223,721 Landsat 7 Worldwide Reference System (WRS) scenes. Any IGS interested in submitting browse images electronically (using FTP) has been asked to contact EDC.

100,000 Orbits for Landsat 5

On December 17, 2002, Landsat 5 will have reached 100,000 orbits. Each orbit is nearly 100 minutes, which equates to 19 years, 9 days, 10 hours, and 40 minutes of flight time for this spacecraft. This is a landmark in the program that surpasses even Landsat 4 since quality 30m Remote Sensing data is still being downlinked.

Traversing from orbit 99,999 to orbit 100,000, introduces some engineering challenges, similar to the Y2k scare that was faced going from year 99 to 00. The spacecraft onboard chronometers never exceed 367 days in a calendar year, and, therefore, are unaffected by this milestone. The ground system, however, was designed for a 5 year mission (30,000 orbits) or a maximum 5 digit orbit number. On December 17, 2002, the orbit numbers in all of the ground processing system will roll over from 99,999 to 00,000 which, if left alone, would disable the Landsat 5 Ground System.

Two years prior, Landsat 4 reached this milestone. A major rewrite of the ground system was undertaken at that time which resulted in a smooth transition between the 5 digit and 6 digit orbit. The work done for Landsat 4 was mapped for this eventuality on Landsat 5. The Landsat 5 Flight Operations Team has completed the ground system modifications and is ready for this event.

Technical New

Data Validation

The Matera, Italy ground station provided the USGS with RCC data that were successfully processed and revalidated to be of equivalent quality to the corresponding USGS data. The Cuiaba, Brazil ground station provided the USGS with L0Rp data that were also successfully revalidated to be of equivalent quality to the corresponding USGS data.

Landsat 5 Inclination Maneuver

On December 10, 2002, an inclination maneuver will be performed on Landsat 5. Landsat 5 has a Mean Local Time (MLT) requirement of between 9:30 am and 10:00 am. Current projections show that Landsat 5's MLT will reach 9:30 am in October of 2003. Due to the success of the Thematic Mapper's transition from Scan Angle Monitor Mode to Bumper Mode and a favorable fuel projection analysis, the Landsat 5 mission has been projected out to 2008. The December 10, 2002 maneuver will keep Landsat 5's MLT above 9:30 am until September 2006. It is expected that if Landsat 5 and its Thematic Mapper continue to perform well, another maneuver in 2004 will be necessary to keep Landsat 5 above 9:30 am through 2008.

Due to the intermittency of the Earth Sensors on Landsat 5, they cannot be used to maintain attitude control while the gyros are configured to the high rate for the inclination maneuver. Instead, the gyros will be placed directly into the high rate without any attitude control "safety net". This procedure has

been proven on Landsat 4 but requires additional time for the spacecraft attitude to become stable. Taking this into account, the inclination maneuver will cause a cessation of imaging activities of about 3.5 days surrounding the maneuver.

Since the spacecraft will be down for slightly more than three days, an Outgas of the Thematic Mapper will be performed. Internal heaters will be enabled for approximately 14 hours to burn off contaminants with a 24-hour cool down period. The Outgas procedure will be completed within the inclination window so as not to lengthen this down period.

Meetings

LTWG-13 The Landsat Technical Working Group #13 meeting will be held in Cordoba, Argentina on March 31-April 4, 2003

Related News

"Earth as Art" The Associated Press has released a story on the Landsat images used in an "Earth as Art" exhibit at the U.S. Library of Congress. A number of media outlets carried the story. You can read the piece at http://story.news.yahoo.com/news

ASTER Data Access NASA Distributed Active Archive Center (DAAC) ASTER data, data sets which complement the Landsat coverage in many ways, have been loaded on the USGS GloVis browse system. Browse images can be examined at: http://glovis.usgs.gov

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The Landsat monthly update is an informal communication tool, prepared monthly and distributed electronically to USGS Landsat partners, to provide information about Landsat activities and related topics of interest. If you have any ideas, comments, corrections, or successes you would like to share with the Landsat community, please contact Ronald Beck, USGS Landsat team, at the following e-mail address: beck@usgs.gov.

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