

LANDSAT 7 MONTHLY UPDATE

May 2002

The Landsat 7 Mission, developed by the National Aeronautics and Space Administration, is managed by the U.S. Geological Survey under authority established by Presidential Decision Directive NSTC-3.

Program News

IGS Metadata

IGS Metadata from Canada, Australia, South Africa, Japan, China, Argentina, and Europe continue to be archived successfully. As of May 31, 2002, there were 10,945 L7 IGS subintervals archived for 182,398 Landsat 7 Worldwide Reference System (WRS) scenes. IGS metadata from Thailand (BKT) were released to the public on May 20, 2002. Brazil (CUB) metadata and browse are expected to be released soon. The USGS IGS Web pages and the EDG IGS ordering link pages continue to be reviewed and updated. The NASA IGS Web pages are also being revised.

Technical News

Landsat 7 Star Catalog Updates

In April 2002, the Landsat 7 Flight Operations team successfully updated the on-board star catalog to improve the spacecraft's attitude control subsystem performance, representing three years of detailed analysis and planning. After observing a gap in predicted star transits detected by the Celestial Star Assembly, and analyzing over 61,000 star transits using an in-house developed tool, the "Star Logger", the Flight Operations Team (FOT) recommended to USGS management that a star catalog update was in order. The USGS Flight Systems Manager obtained the help of the NASA GSFC Flight Dynamics group who provides the star catalog, to support the FOT in refining the catalog. By swapping out 138 stars in the original catalog with more appropriate stars, the star catalog was fine tuned to produce initial results of a 6% increase in transits with a 40% increase in beneficial transits and an 83% reduction in unwanted transits. The star catalog flight software update included extensive validation through modeling and simulation over a six week period to ensure a seamless transition in catalogs, resulting in no impact to on-going image acquisitions.

	Catalog		
	Old (Last Year)	New (This Year)	Change
Total Transits Observed	444	471	6%
Beneficial (In Catalog)	323	451	40%
Unbeneficial (Total)	120	20	(83%)
Not in Catalog	88	3	
Unpredicted	29	17	
Mis-identified	3	0	

Data Validation

The Hatoyama (Japan), Cuiaba (Brazil) and Hartebeeshoek (South Africa) stations provided the USGS with data for their scheduled validations. The Hatoyama and Cuiaba stations successfully passed the LORp revalidation. The South Africa station provided both Raw CC and LORp for their initial data validation. The Hartebeeshoek station successfully passed the Raw CC data validation but failed the LORp segment of the data validation exercise.

At the upcoming LTWG 12 (June 17-21) meeting in Denver, Colorado, the USGS intends to finalize the media options for data validation and exchange between the USGS and the International Cooperators. Great strides have also been made in support of the L1G Product Validation endeavor. More details will be generated and gained during the LTWG 12 meeting in Denver as well.

Landsat 5 Status Initial analysis of data collected in bumper mode data has been completed and the results are encouraging. A rigorous physical model to gain confidence in understanding of the system has been developed. A more simplified model that could be easily implemented in existing Landsat 5 data processing systems was also developed. Both of these models are described in detail in an Algorithm theoretical basis document that has been posted on the World Wide Web. <http://landsat7.usgs.gov/pdf/ATBD-BumperModel-v1-1.pdf>

Based on these results the two Landsat 5 related systems at the USGS (TMACS and NLAPS) are being modified to implement the bumper mode correction (SAM mode emulation model).

Analysis continues of bumper mode data acquired over geometric test sites in order to understand how often re-issuing of correction parameters will be needed.

Meetings

LTWG-12 Planning continues for the twelfth Landsat Technical Working Group meeting (LTWG-12) to be held in Golden, Colorado during the week of June 17-21, 2002. The agenda includes status reports from the Landsat program and the International Cooperators. There will also be an in depth discussion on the status of Landsat 5.

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. Comments, corrections, and queries may be directed to Ronald Beck, USGS Landsat team, at the following e-mail address: beck@usgs.gov.

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