

LANDSAT MONTHLY UPDATE

April 2002

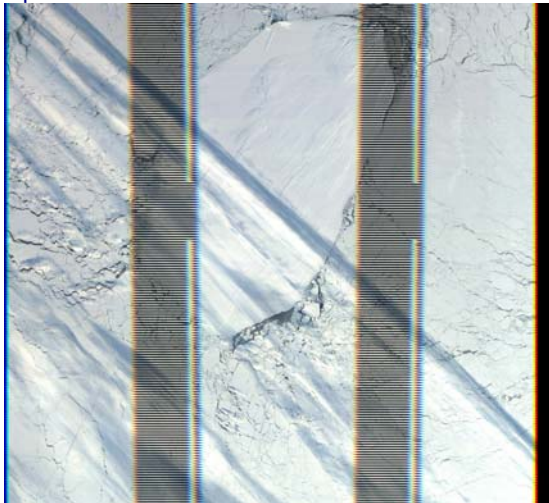
The Landsat 7 Mission, developed by the National Aeronautics and Space Administration, is managed by the U.S. Geological Survey under authority established by Presidential Decision Directive NSTC-3.

Program News

IGS Metadata

IGS metadata from Canada, Australia, South Africa, Japan, China, and Europe continue to be archived successfully. As of April 29, 2002 there were 9,760 L7 IGS subintervals archived for 160,532 Landsat 7 Worldwide Reference System (WRS) scenes. IGS metadata from Argentina (COA) were released to the public on April 19, 2002. Metadata from Brazil (CUB) and Thailand (BKT) are expected to be released soon. The USGS IGS Web pages and the EDG IGS ordering link pages continue to be reviewed and updated.

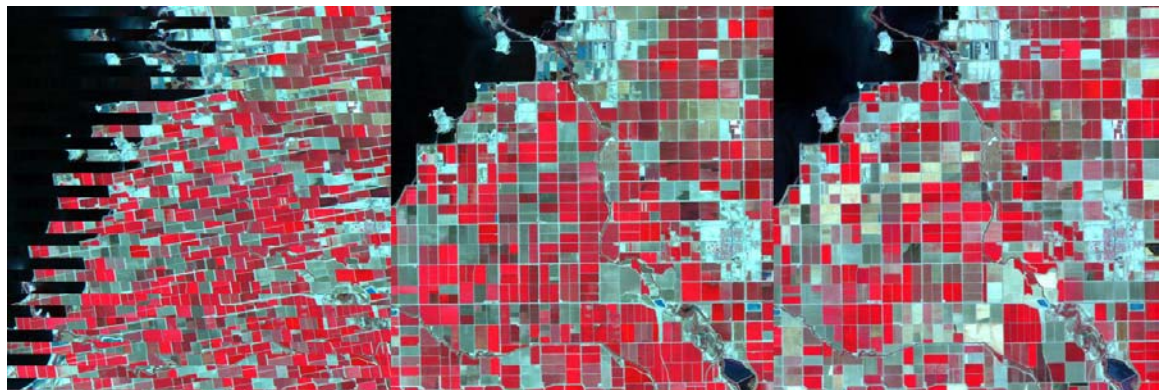
Landsat 5 Status



Path 26 Row 16 acquired on Jan. 30, 2002. Note "Caterpillar Tracks" in the middle of the image.

Based on the last series of experiments Landsat program managers have determined that the Scan Mirror Turn-Around-Time has increased past the point at which synchronization with the calibration shutter can be maintained. That is, the caterpillar tracks from the Landsat 5 data as it is currently being collected using Scan Angle Monitor (SAM) mode cannot be eliminated.

In SAM mode the TM reports three times (active scan start time, scan start to mid-scan time, and mid-scan to scan stop time) as the Scan mirror passes through three precisely located points (scan angles). Feedback mechanisms adjust the speed of the mirror to keep the active scan times within specification. The wear of the scan mirror bumpers over time has increased the time between forward and backward active scans (the mirror turnaround time) so much that the calibration shutter can no longer synchronize with the scan mirror and stay out of the image.



Path 39 Row 37

Fig. 2 (left to right) Uncorrected Bumper mode data acquired on March 30, 2002; the same data after corrections are applied; comparison scene acquired by Landsat 7 on June 4, 2000.

Tests have been done relying on data collected in the "bumper" mode. Initial results are very encouraging. Engineers were able to prototype a new mirror model and successfully correct for the scan-to-scan offsets observed in bumper mode data.

In SAM mode the telemetry reports the time for the first and second halves of each active scan. In bumper mode the telemetry contains values for the total scan mirror travel time between successive bumper impacts. In order to process the bumper mode data it is therefore necessary to infer the active scan time and angle information, explicitly measured and reported in SAM mode, from the bumper mode total scan time measurements and scan mirror calibration parameters. A method is being developed to use the scan times and calibration parameters from bumper mode to calculate SAM mode compatible first half/second half scan error values. It is hoped the bumper mode mirror profile will be sufficiently stable to allow acceptable geometric correction using nominal first half/second half scan error values with appropriate scan mirror model parameters.

Given the technical problem with caterpillar tracks and optimism with regard to creating useful images from bumper mode data, the Landsat program plans to change operation of Landsat 5. Beginning on April 29, 2002 the USGS will acquire all data over the U.S. in bumper mode.

Technical News

Data Validation

The Matera, Italy and Hiroshima, Japan stations have provided the USGS with raw computer compatible (RCC) data for their biannual revalidations. The two Canadian stations, Gatineau and Prince Albert, provided the USGS with LORp data for their biannual revalidation exercises. All four stations have received successful revalidation results.

L1 Product Certification

The USGS has received sample L1 products from various International Ground Stations for initial testing of processes and procedures that will be required to support the product certification efforts.

Meetings

Landsat Technical Working Group Meeting

The USGS and NASA are hosting a joint technical/policy meeting during the week of June 17-21, 2002. The meeting to be held in Denver, Colorado combines the twelfth Landsat Technical Working Group (LTWG) meeting with a special meeting between the Landsat International Cooperators and the recently selected Landsat Data Continuity Mission (LDCM) formulation phase contractors. LTWG-12 will take place during the first half of the week. The balance of the week will be devoted to LDCM.

Business Partners Meeting

Thirty-one Business Partners and Federal 'observers' met in Reston, Virginia on April 19, 2002. The meeting was designed to explore cooperative ventures and to review the Business Partner program. The Business Partners appreciated the cooperation and welcomed information on planned USGS involvement in future satellite missions. A report on the meeting will be posted on the EDC web site in the near future.

Mission Management Meeting

The 17th in a series of Mission Management meetings for the Landsat program was held at EDC on April 30, 2002. The meeting, attended by USGS and NASA representatives, offered an opportunity to review the status of spacecrafts and ground system and the activities of the Mission Office. Special attention was given to the problem of Landsat 5 (see above notes.)

Related News

EO-1 Extended Mission

NASA and USGS completed Phase 1 of the extended mission implementation. All the image tasking, data processing, customer interface, and production generation and distribution are being performed by EROS Data Center (EDC). NASA Goddard Space Flight Center (GSFC) provides EO-1 spacecraft command and control operations and on-board instrument engineering management. Imagery products from the Advanced Land Imager (ALI) multispectral instrument and the Hyperion hyper spectral sensor are being provided to customers across science and academia, U.S. Government defense department and civil agencies, and commercial industry. Mission operations are dependent on customer revenues for continued operation beyond June 30, 2002. (Editor's note: the March Landsat Monthly Update incorrectly stated the mission has been extended through the Northern Hemisphere growing season. At this time, the mission is extended only through June 2002.)

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**