

LANDSAT MONTHLY UPDATE

October/November 2003

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

Editor's Note:

The Landsat Monthly Update will be used as one of many mechanisms to keep interested parties informed about the efforts underway to deal with the Landsat data anomaly. Additionally, updated information will also be posted on the Landsat web site at landsat7.usgs.gov.

Scan Line Corrector-off Products Available

The U.S. Geological Survey (USGS) is pleased to announce that Landsat 7 Scan Line Corrector-off (SLC-off) data acquired since July 14, 2003 are now available for purchase. The initial SLC-off product release includes Level 0Rp, Level 1R, and Level 1G data products. The SLC-off data are being distributed as standard Landsat 7 single scene (WRS-2) and multi-scene ("floating scene") products. The feasibility for future additional data products and/or product access is still being determined. The cost of initial SLC-off products is the same as for Landsat 7 data collected prior to the SLC anomaly. As required by public law, the USGS must charge for data products according to the cost of fulfilling user requests. The data are accessible via the EOS Data Gateway (EDG) at: <http://edcimswww.cr.usgs.gov/pub/imswelcome>.

The SLC aboard Landsat 7 malfunctioned on May 31, 2003. The SLC compensates for the forward motion of the satellite during data acquisition. Subsequent efforts to recover the SLC were not successful and the problem appears to be permanent.

In mid-July 2003, Landsat 7 returned to its normal scene acquisition schedule with the SLC turned off. Since that time, Landsat 7 has collected approximately 250 scenes per day for the USGS archive in the SLC-off mode. An SLC-off image will contain alternating bands of missing data along the scene edge, which gradually diminish in width toward the middle of the scene. The middle portion of an SLC-off Level 1G image contains no scan gaps. The radiometric and geometric quality of all of the SLC-off data is the same as previous Landsat 7 image data. For further information on SLC-off data products, please visit: <http://landsat7.usgs.gov>.

Landsat Product Meeting

The USGS Landsat Project and NASA Landsat Project Science Office jointly held a Landsat 7 SLC-off product enhancement workshop in Maryland on October 28-29, 2003. The workshop was intended to identify methods to enhance the use of SLC-off data and new potential SLC-off data products. Scientists from the former Landsat 7 Science Team and technical representatives from USGS and NASA participated and generated many improvements the USGS is pursuing for near-term implementation.

Release schedules for the suggested near term SLC-off improvements are in work and will be announced in an upcoming issue of the monthly update. These improvements include:

1. Enhancements to the current Landsat 7 browse displayed on the various data ordering web interfaces to help users assess the impact of the SLC-off scan gaps on their area of interest.
2. Provide users the option to choose the number of interpolation pixels used during Level 1G processing. Current EDC systems use two pixels of interpolation during processing.
3. A pixel mask file to be included with all Level 1 data products to assist users in identifying the location of the scan gaps in SLC-off Level 1G products.

4. Release of any new Landsat 7 data product that is the result of compositing a Landsat 7 SLC-off image with a Landsat 7 SLC-on image. This would provide users with a complete Landsat 7 image.
5. Enhancements to the current interpolation methods used by the operational EDC Level 1 processing systems.

Beyond these initial improvements, the USGS and NASA are also pursuing new composite data products that combine two or more SLC-off images to produce a current Landsat 7 scene that may eliminate the scan gaps present in a single SLC-off scene. As the USGS has stated in previous communications, the Landsat 7 SLC-off data are of the same radiometric and geometric quality as those collected prior to the SLC failure. The release of these product improvements will enable users to more effectively utilize the L7 SLC-off data into the future.

NLAPS Enhancements

On November 20, 2003, the USGS released enhancements to the National Land Archive Processing System (NLAPS). These enhancements include the addition of a work order report file with Landsat 5 GeoTIFF products that contains the radiometric gains and biases used during processing. Additionally, a significant improvement was made to remove striping in Landsat 5 products using the NASA LUT (Look Up Table) processing method. A late-January NLAPS release is expected to provide the initial Landsat 7 SLC-off products.

Landsat Ground Station Operators Working Group (LGSOWG-32) Meeting

Fifty participants from fifteen different countries gathered in Hiroshima, Japan during the week of October 12, 2003, to attend the 32nd Landsat Ground Station Operators Working Group (LGSOWG-32) meeting. The four Japanese organizations (JAXA, RESTEC, HIT and HEEIC) were extremely gracious hosts to the record number of attendees, and provided an excellent venue for both the meeting and after-hour discussions. Topics such as the Landsat 7 SLC anomaly, the Landsat 5 mission status and recent announcements regarding the Landsat Data Continuity Mission (LDCM) made this LGSOWG an important and productive meeting.

Of primary interest to all participants was the status of the Landsat 7 mission and news as to when the USGS would resume operational downlinks to the International Cooperator (IC) network. The USGS provided a series of presentations on the nature of the scan line corrector (SLC) failure and its impacts to the data and ground processing. Tracy Zeiler, the USGS Landsat Project Chief, announced several programs for re-introducing the ETM+ data to the International Cooperators. Of primary interest were that the USGS would immediately resume downlinks to all ICs at no charge through the end of 2003 and that each IC would be permitted to order up to 10 SLC-off data products from the USGS archive to use in evaluating the utility of the impaired products for their local applications. The USGS will provide additional information to all ICs regarding the cost share fees in early December.

The next LGSOWG meeting for participating International Cooperators will be held in October 2004 in Chiang Mai, Thailand.

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.