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Landsat 5 Anomaly

On December 18, 2009 Landsat 5 experienced a transmitter failure onboard the spacecraft. The following is a brief summary of the resolution of the anomaly and the return to full operations that occurred on January 10, 2010.

A key component of successful data transmission is the Traveling Wave Tube Amplifier (TWTA). The primary TWTA was in operation when Landsat 5 launched in 1984. After several issues in late 1986 and 1987, the primary TWTA was turned off and the secondary, or redundant, TWTA has been used since. It was this redundant TWTA that failed on December 18, 2009. The TWTA that operated successfully on January 7, 2010 was the primary TWTA, the one that was disabled in 1987. Because of the extensive knowledge that the USGS Flight Operations Team has gained in sustaining the redundant TWTA for such a long time, they were able to apply that information to the primary TWTA for its first successful transmission in over 22 years.

LDCM News – Launch Date Confirmed!

On December 16, 2009, LDCM was **confirmed** for a December 2012 launch. Confirmation is a major event in a project life cycle. It is at this point that NASA commits to Congress to build a satellite.

New Bulk Download Tool Available for Landsat Data

For the first 1.1 million free Landsat scenes, users had to download one scene at a time. The Landsat Project has developed a bulk download tool so users can more easily download entire lists. After uploading a list of Landsat Scene IDs, scenes that are available on-line can be immediately downloaded. For those scenes that need to be processed, a link is provided directly into our EarthExplorer ordering system (there is no charge for processing). GloVis, EarthExplorer, or user-generated Landsat Scene ID lists can be used. Please go to http://landsat.usgs.gov/Landsat_Search_and_Download.php for more information.

Meetings & Conferences – LGSOWG # 38 Held in Berlin

The Landsat Ground Station Operators Working Group (LGSOWG#38) meeting was held in Berlin, Germany, September 28–October 5, 2009. The meeting was jointly organized by the USGS and NASA and was hosted by the German Aerospace Center (DLR). Participants from 11 countries represented 14 international ground stations and discussed a wide range of programmatic and technical topics.

Presentations included Landsat 5 and Landsat 7 mission status, the Landsat Project’s Web-enabled product distribution statistics, Landsat 4 Thematic Mapper (TM) and Landsat 1-5 Multi-Spectral Scanner (MSS) product development progress, the Global Land Survey Projects, the Landsat Global Archive Consolidation initiative, proposed data validation and exchange modifications, and future development plans. LDCM-related presentations included project and ground system status, ground system and downlink overview, data processing flow, and the LDCM Ground System-to-International Cooperator (IC) interface, including the IC Web Portal. Additionally, the USGS Land Remote Sensing Program provided the attendees with an overview of the future land remote sensing satellite data downlink framework agreement, along with the National Land Imaging initiative’s international vision and goals. A Landsat Science Team update was also presented, providing an update on its working group activities and several key research projects.

Each International Cooperator briefed the group on the status of their systems, addressed their future satellite mission(s) and ground system plans, and provided an overview of their data distribution statistics and business model impacts since the introduction of Landsat web-enabled data. Finally, a representative from the Australian Department of Climate Change capped the meeting with a briefing on the Group on Earth Observation (GEO) Forest Carbon Tracking (FCT) initiative.

ICs in attendance included representatives from the following countries and organizations:

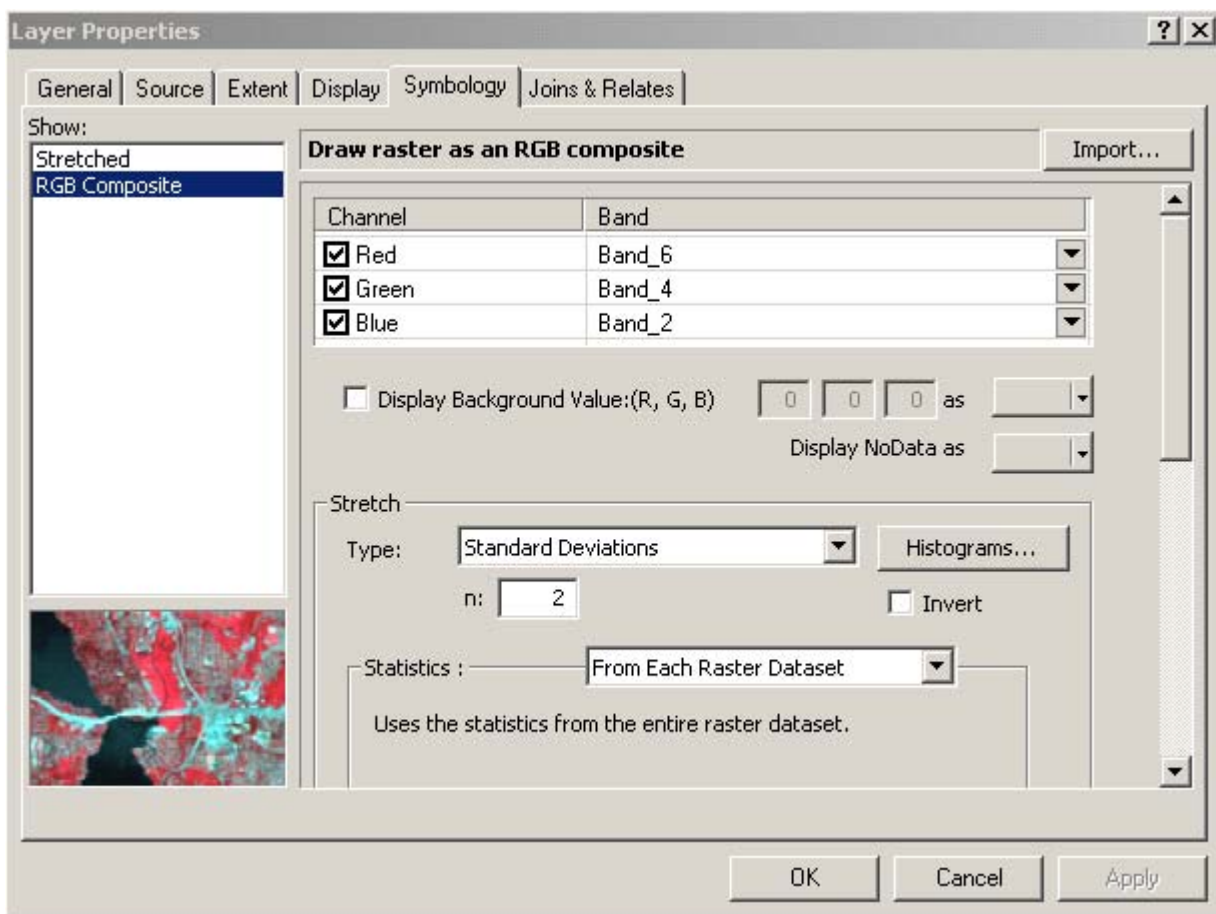
Australia (GA-NEO)	Brazil (INPE)	Canada (CCRS)	China (CEODE)	Europe (ESA)
Germany (DLR)	Indonesia (LAPAN)	Japan (RESTEC)	Mexico (CONABIO)	Sweden (SSC)
Thailand (GISTDA)				



Tips & Tricks –How to create an RGB image using ArcMap and Remove Black Fill

(Please note that this does not signify an endorsement by the USGS EROS)

1. Load all of the bands, or just the three bands you'd like to composite, into ArcMap
(For more information on Landsat band combinations, please refer to:
http://biodiversityinformatics.amnh.org/tool.php?content_id=141)
2. Open the Arc Toolbox
3. Select 'Data Management', then 'Raster', then 'Composite Bands'
4. Within the 'Composite Bands' dialog box, select the three bands you'd like to use
5. Navigate to the location where you would like the composited bands saved and name the output raster
6. Click 'OK'
7. Once the composited dataset has been added as a layer, right click on the layer and select 'Properties'
8. Under the 'Symbology' tab, make sure that 'RGB Composite' is highlighted on the left-hand side
9. Click the check box next to 'Display Background Value: (RGB)' and leave the default display type (this removes the black fill around the image)
10. Click 'OK'



EROS Authors in Recent Publications

Roy, D.P., Ju, J., Kline, K.L., Scaramuzza, P.L., Kovalskyy, V., Hansen, M., Loveland, T.R., Vermote, E., and Zhang, C., 2009, In Press, Web-enabled Landsat Data (WELD)–Landsat ETM+ composited mosaics of the conterminous United States: Remote Sensing of Environment.
<http://dx.doi.org/10.1016/j.rse.2009.08.011>

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Huang, C., Goward, S.N., Masek, J.G., Thomas, N., Zhu, Z., and Vogelmann, J.E., In Press, An automated approach for reconstructing recent forest disturbance history using dense Landsat time series stacks: Remote Sensing of Environment.
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Chander, G., Huang, C., Yang, L., Homer, C.G., and Larson, C. 2009, Developing consistent Landsat data sets for large area applications–the MRLC 2001 Protocol: IEEE Geoscience and Remote Sensing Letters, v. 6, no. 4, p. 777-781
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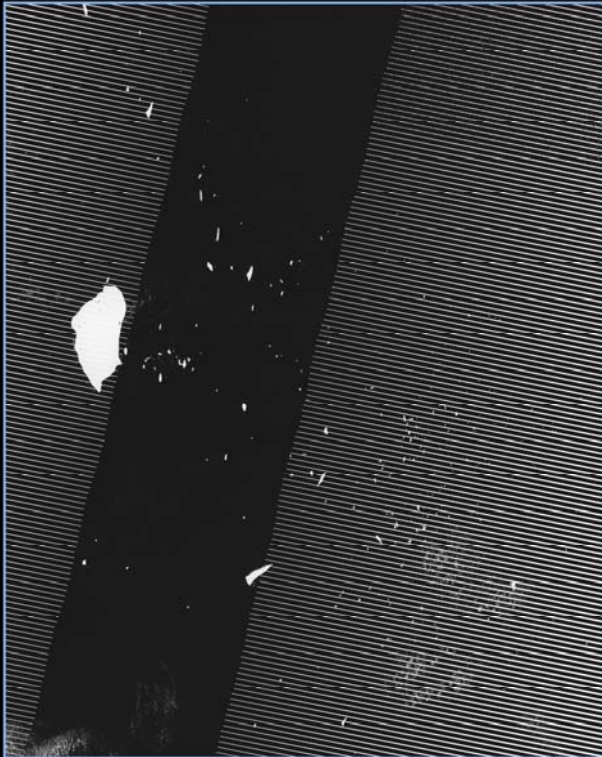
Roy, D.P., Ju, J., Kline, K.L., Scaramuzza, P.L., Kovalskyy, V., Hansen, M., Loveland, T.R., Vermote, E., and Zhang, C., 2010, In Press, Web-enabled Landsat Data (WELD)–Landsat ETM+ composited mosaics of the conterminous United States: Remote Sensing of Environment, va. 114, no. 1, p. 35-49.
<http://dx.doi.org/10.1016/j.rse.2009.08.011>

Chander, G., Xiong, X., Angal, A., Choi, T., and Malla, R., 2009, Cross-comparison of the IRS-P6 AWiFS sensor with the L5 TM, L7 ETM+, & Terra MODIS sensors, *in* Meynart, R., Neeck, S.P., and Shimoda, H., eds., Sensors, Systems, and Next-Generation Satellites XIII, Berlin, Germany, Aug. 31, 2009, Proceedings of SPIE Vol. 7474: Bellingham, WA, Society of Photo-Optical Instrumentation Engineers, p. Article 74740Z.
<http://dx.doi.org/10.1117/12.830502>

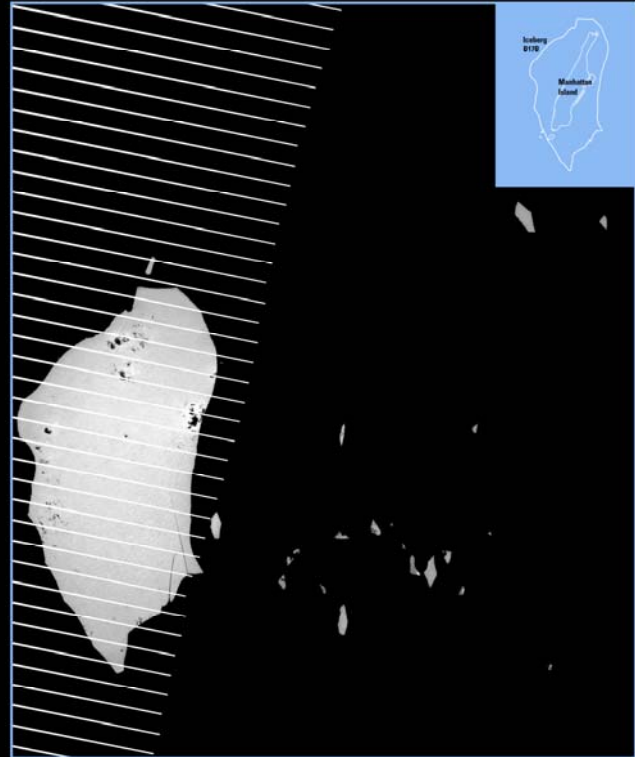
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Landsat Images of Interest – Iceberg B17B



Landsat 7
December 13, 2009.



Landsat 7
December 13, 2009.

Iceberg B17B South of Australia

On December 13 the U.S. Geological Survey's Landsat 7 earth observing satellite imaged a massive iceberg drifting toward Australia. The iceberg, labeled 'B17B' came off the Antarctic ice shelf in 2000 and recently got caught in wind and current patterns that pulled it north. The size of the iceberg (originally 140 X 115 square km), makes this break from the ice shelf a unique event. The iceberg is in the process of breaking up as it drifts north and east into warmer waters. Scientists and navigation experts are tracking the icebergs as they pose risks for shipping in the region.

Portions of a larger Landsat scene illustrate the larger iceberg and the smaller units which have broken off. A sensor problem causes the lines in the image along the off center portions. Nevertheless, the data are valuable as they show the size of the iceberg and the smaller units as they 'calve.' Subsequent images will be used to track the direction and size of the units as they continue to drift into shipping lanes.

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