

## Landsat Update

Volume 7 Issue 1, 2013

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Count down to LDCM Launch: **13** Days (February 11, 2013)

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*Note: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.*

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### Landsat Mission News

#### Landsat 5 Decommissioning Plans

After 29 years of continually collecting data, the Landsat 5 satellite is being decommissioned. The USGS Flight Operations Team started the process required to safely lower Landsat 5 from its operational orbit.

Landsat 5 has recorded the impact of natural hazards, climate variability and change, land use practices, development and urbanization, ecosystem evolution, increasing demand for water and energy resources, and changing agricultural requirements worldwide.

Since 2008, when the USGS made the Landsat archive accessible to on-line users at no cost, nearly 10 million images, each covering over 12,000 square miles, have been downloaded in 190 countries.

#### Landsat 5 Tribute Page

Normal operations for the Landsat 5 Thematic Mapper (TM) ceased in November 2011. After failing to recover the electronics that led to its suspension, acquisitions were initiated with the Multi-Spectral Scanner (MSS). With continued issues onboard this aging spacecraft, Dr. Marcia McNutt, Director of the USGS, determined it was time to decommission this workhorse of the Landsat program.

After the TM was suspended in November 2011, the Landsat Project received numerous comments relating to the importance and value of Landsat 5. The satellite has, after all, documented nearly every major event since March 1984. Landsat 5 has documented droughts, floods, volcanic eruptions, the clearing of rainforests, the greening of agricultural fields, and the influence of a human population that grew from less than 5 billion to over 7 billion.

What do you think is the most significant contribution from Landsat 5? Do you have a favorite image or a favorite set of images? Please share your thoughts! <http://landsat.usgs.gov/Landsat5Tribute.php>

### **Landsat 7 Status**

Landsat 7 continues to collect 250 scenes per day, over the land masses of the world. The SLC-off anomaly, which started in 2003, has not stopped the satellite from acquiring high-quality continuous imagery useful for emergency operations, urban growth studies, deforestation and ecological exploration.

### **LDCM Launch Readiness**

The NASA and USGS teams have successfully completed the Flight Operations Review and Operations Readiness Review for the LDCM satellite. All plans are continuing for a February 11, 2013 launch, from Vandenberg Air Force Base in California. Launch time is scheduled for 10:02 a.m. Pacific Standard Time and can be viewed on NASA TV stations. For more information visit <http://www.nasa.gov/multimedia/nasatv/index.html>.

### **LDCM Spacecraft Attached to Payload Adapter**

With its February 11 launch date approaching, NASA's [and USGS's] Landsat Data Continuity Mission spacecraft, or LDCM, was attached to its payload adapter on January 17 at Vandenberg Air Force Base in California. The adapter serves as the satellite's interface with the United Launch Alliance Atlas V launch vehicle. Encapsulation of the spacecraft into the payload fairing is scheduled for next week on Jan. 23. The payload will then be transported to the pad at Space Launch Complex 3 and hoisted atop the rocket. Source: [http://www.nasa.gov/mission\\_pages/landsat/launch/](http://www.nasa.gov/mission_pages/landsat/launch/)



LDCM Observatory positioned on its processing cart in the high bay at ASO. Credit – Daniel Liberotti-USAF 30SW.jpg

## **LDCM Spacecraft in Payload Fairing**

KSC-2013-1158 (01/23/2013) --- VANDENBERG AFB, Calif. -- Technicians encapsulate the NASA's Landsat Data Continuity Mission, or LDCM, satellite in its payload fairing at the Astrotech processing facility at Vandenberg Air Force Base, Calif.



PHOTO CREDIT: NASA

## **Recent Headlines from USGS Landsat Website**

### **January 17, 2013 - Web-Enabled Landsat Data (WELD)**

The 2012 Web-Enabled Landsat Data (WELD) GeoTIFF data products are now available from <http://weld.cr.usgs.gov>. HDF tiled data can be downloaded from <ftp://weldftp.cr.usgs.gov>.

### **January 14, 2013 – LDCM Media Briefing Held**

NASA recently held a media briefing about the upcoming launch of the Landsat Data Continuity Mission (LDCM), which is scheduled to launch February 11, 2013. Watch the video!

<http://www.youtube.com/watch?v=inxyaiIYEnQ>

# Landsat Product Information

## Phasing Out Historical Landsat Metadata

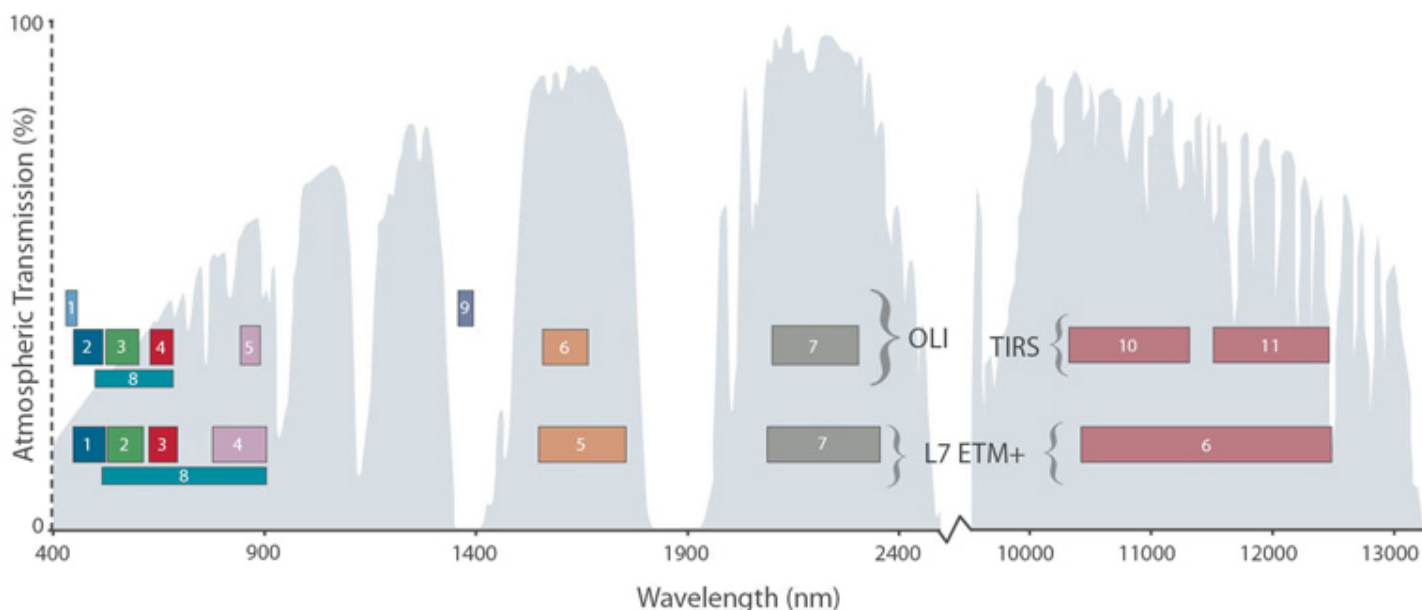
Historical Landsat Metadata will be pulled from .mtl files in the next few months. Please contact us if you have any questions or concerns about migrating to the new fields. The New Metadata fields align all Landsat data (from Landsat 1 through LDCM). More information can be found on the Landsat website: [http://landsat.usgs.gov/Landsat\\_Metadata\\_Changes.php](http://landsat.usgs.gov/Landsat_Metadata_Changes.php)

## Landsat Surface Reflectance Products

The Surface Reflectance data are one of a number of higher-level Landsat data products being created to support land surface change studies. More details about the Landsat Surface Reflectance climate data record (CDR) can be found at <http://landsat.usgs.gov/PLSRP.php>.

## Tips and Tricks - Band passes of the OLI Instrument

The graphic below displays the band passes for LDCM's Operational Land Imager (OLI) instrument. This can be compared to Landsat, Aster, and MODIS response functions by using the Spectral Viewer Tool - ([http://landsat.usgs.gov/tools\\_spectralViewer.php](http://landsat.usgs.gov/tools_spectralViewer.php)).

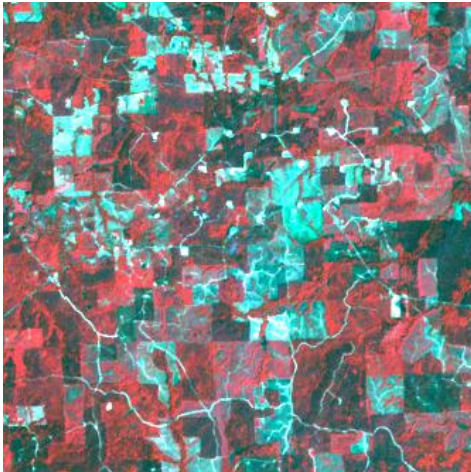


Credit: NASA GSFC

## **Landsat Image of Interest - Contemporary U.S. Society's Energy Needs**

Contemporary U.S. society's energy needs are mostly met with various hydrocarbons; petroleum, coal, and natural gas. The latter fuel is found in many locations across the country but still has geographic concentrations where extraction is possible. The drill pads represented in this Land Cover Trends sample block comprise more than half of the Vernon gas field, located in northern Louisiana. Early exploration of this area was from the late 1960s to the 1980s. Petroleum reserve potential was high, but the technology was not yet developed for hydraulic fracturing (fracking).

Fracking in a well increases production of petroleum by fracturing reservoir rock close to the wellbore, thereby increasing permeability and flow of oil and gas to the well. The same location in northern Louisiana, August 2010 image show wells closely spaced in reservoirs to more efficiently extract and produce oil and gas.



Enhanced Thematic Mapper Plus (ETM+) image from August 30, 2000, shows a few natural gas well pads and some larger clear cuts of forest.



Thematic Mapper (TM) image from August 2, 2010 shows newer natural gas well pads.