



## Landsat Update

Volume 11 Issue 3 2017

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### Landsat Level-1 Collection 1 Status

**October 1, 2017: An Important Date!**

Landsat MSS processing plans

### Watch Landsat Acquisitions Live

A new look for EarthNow!

### Landsat Missions Status

Landsat 7, Landsat 8

Landsat 9 Development

Request for Information for Future Landsat Missions

### Landsat Higher-Level Science Data Products Information

#### New Pages on Landsat Missions Website

#### New Landsat Science Team Request for Proposals Notice

#### Landsat Technical Working Group (LTWG) Meeting #26 Held

#### Upcoming Meetings of Interest and User Conferences

Joint Agency Commercial Imagery Evaluation (JACIE) Workshop

Pecora 20

### Recently Promoted Landsat Images

### Connect/Interact/Contact!

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### Landsat Level-1 Collection 1 Status

Collection 1 processing for Landsat 4-5 Thematic Mapper (TM), Landsat 7 Enhanced Thematic Mapper Plus (ETM+), and Landsat 8 Operational Land Imager (OLI) and Thermal Infrared Sensor (TIRS) scenes is complete, with the data available for download from EarthExplorer (<https://earthexplorer.usgs.gov>).

**As of October 1, 2017, the Landsat 4-5 TM, Landsat 7 ETM+, and Landsat 8 OLI/TIRS "Pre-Collection" datasets on EarthExplorer will no longer be available.** Until this date, users downloading Pre-Collection data may experience longer than expected download times. [Users are strongly encouraged to transition to Landsat Collection 1 data.](#)

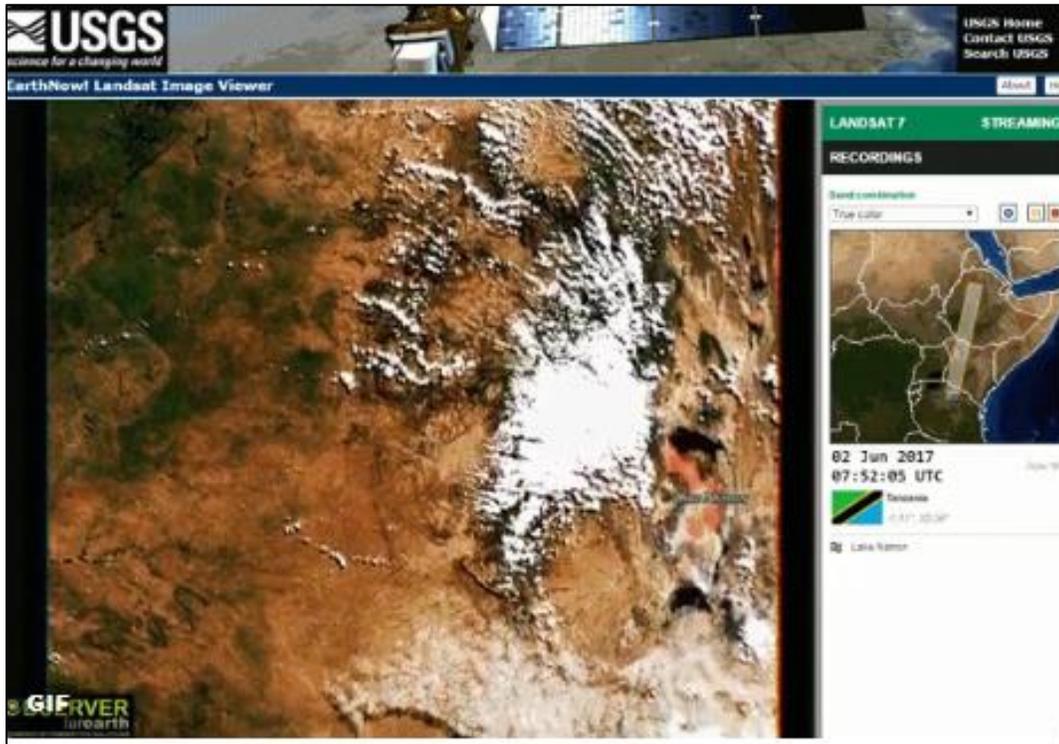
Landsat 1-5 Multispectral Scanner (MSS) data will be processed into the Collection 1 Level-1 inventory format after data quality analysis and processing level investigations have been completed, which is anticipated to occur by December 2017. The Landsat 1-5 MSS "Pre-Collection" dataset will remain on EarthExplorer until the dataset is processed into the Collection 1 archive structure.

Please visit the Landsat Collections webpage (<https://landsat.usgs.gov/landsat-collections>) for the many important details on the Collection 1 effort. Contact Landsat User Services ([custserv@usgs.gov](mailto:custserv@usgs.gov)) with any questions about Landsat Collections.

## Watch Landsat Acquisitions Live

A recent release of the EarthNow! Landsat Image Viewer (<https://earthnow.usgs.gov/>) displays imagery in near-realtime as Landsat 7 and Landsat 8 orbit the Earth. Along with the near-real time video stream, EarthNow! also replays acquisition recordings from a list of previous Landsat overpasses.

When Landsat 7 or Landsat 8 are out of viewing range of a ground station, recent overpasses are displayed. EarthNow! also displays current satellite positions and footprints.



**Figure 1. EarthNow! Landsat Image Viewer**

EarthNow! is based on the FarEarth Global Observer tool (developed by Pinkmatter Solutions, <http://www.pinkmatter.com/Products/products.html>) to help visualize incoming data for Landsat's International Ground Stations (<https://landsat.usgs.gov/igs-network>), including the USGS-acquired imagery shown on EarthNow!. (For EarthNow! web browser compatibility visit: <https://landsat.usgs.gov/watch-landsat-live>.)

## Landsat Missions Status

### Landsat 7

The ETM+ instrument onboard Landsat 7 (<https://landsat.usgs.gov/landsat-7>) continues to acquire about 450 scenes per day, following the continental landmass model that was established in 2013 (see <https://landsat.usgs.gov/LTAP7> for more information).

In February 2017, the final inclination maneuver (which keeps the spacecraft in the correct 705-kilometer orbit) took place. Now the satellite will begin to drift in its inclination over the next four years and by early 2020, will be at a lower orbit. This will allow Landsat 9 to move into the orbit currently occupied by Landsat 7. It is expected that by the end of 2020, Landsat 7 will be decommissioned after 21 years of Earth observation.

Landsat 7 is a candidate for the NASA Restore\_L Robotic Servicing Mission (<https://www.nasa.gov/feature/nasa-s-restore-l-mission-to-refuel-landsat-7-demonstrate-crosscutting-technologies>).

## **Landsat 8**

As Landsat 8 moves into its fourth year of operation, and reaching a recent milestone of adding over 1 million scenes to the USGS Landsat archive, the OLI and TIRS sensors continue to acquire about 730 high-quality medium-resolution scenes of the Earth's surface every day.

## **Landsat 9**

Development of the OLI-2 and TIRS-2 instruments is progressing, and both are on target for integration with the spacecraft in mid-2019. The instruments are rebuilds of those onboard Landsat 8; however, TIRS-2 has improved stray light performance through improved telescope baffling and improved position encoder for the scene select mechanism, both issues on the Landsat 8 TIRS instrument. The Landsat 9 ground system and Mission Operations Center (MOC) are progressing through their respective milestones. Landsat 9 remains on schedule for a December 2020 launch from Vandenberg Air Force Base, CA. This continuation of the Landsat Program will enable USGS and NASA to help the world observe, understand, and manage natural systems by archiving long-term records of the Earth's surface.

Upcoming Landsat 9 milestones include:

July 11-13, 2017: Landsat Science Team Meeting  
July 18-20, 2017: Spacecraft Preliminary Design Review  
Summer 2017: Mission Operations Center (MOC) System Requirements Review (SRR)  
September 12-14, 2017: Landsat 9 Mission Preliminary Design Review

## **Request for Information for Future Landsat Missions**

The U.S. Geological Survey (USGS) is requesting information from the land imaging community for user requirements for future Landsat systems. The USGS Land Remote Sensing Program has collected a diverse set of U.S. Federal civil user measurement needs for moderate-resolution land imaging to help formulate future Landsat missions.

The primary objective of this RFI is to determine if these needs are representative of the broader Landsat user community, including, but not limited to, private sector, government agencies, non-governmental organizations and academia, both domestic and foreign. Responses to this RFI will be considered along with other inputs in future system formulation. To view the RFI go to [www.fedconnect.net](http://www.fedconnect.net), click on "Search Public Opportunities Only", then choose search by "Reference Number" which is G17PS00634. Click on right side of the screen to view RFI document. Response due by 11:00 US/EDT Friday, July 14, 2017.

## **Landsat Higher-Level Science Data Products Information**

As Landsat Collection 1 becomes the standard product, the "Pre-Collection" datasets from EarthExplorer will soon be removed. Users are reminded that only Landsat Collection 1 scenes can be submitted for processing to Higher-Level data products (such as surface reflectance and spectral indices) through the Earth Resources Observation and Science (EROS) Center Science Processing Architecture (ESPA) on-demand interface (<https://espa.cr.usgs.gov/>).

The newly-released [Landsat Quality Assessment \(QA\) ArcGIS Toolbox](#) provides the functionality to classify bit-packed values for Landsat Level-1 and Higher-Level QA bands, which enhances the applications of interpreting, mapping, and applying QA values to Landsat data products.

### **ESPA on-demand interface**

Users are also reminded that orders placed on the ESPA on-demand interface (ODI) (<https://espa.cr.usgs.gov/>) may take longer than expected to process due to the many scenes placed into the queue. Orders are processed as timely as possible.

Enhancements that include user-based order management (such as order cancellation) are being tested, and will be announced on the ESPA ODI when they have been successfully implemented.

## **New Pages on the Landsat Missions Website**

### **Landsat Media Library**

The newly-released Landsat Media Library (<https://landsat.usgs.gov/media-library>) contains recently-published videos and animations, links to Landsat-related fact sheets, and images created using Landsat data.

### **Landsat in Action**

Recently redesigned, the Landsat in Action webpage (<https://landsat.usgs.gov/landsat-in-action>) highlights how Landsat data are being used around the world to help observe, understand, and manage Earth's natural systems. If you have any interesting stories about how you use Landsat, please contact us with details (<https://landsat.usgs.gov/contact>).

## **New Science Team Request for Proposals Notice**

The USGS, in cooperation with NASA, is requesting proposals for membership on the 2018-2023 Landsat Science Team. **Proposals are due on July 24, 2017.** More information can be found on this page: <https://landsat.usgs.gov/may-24-2017-request-proposals-landsat-science-team>.

## **Landsat Technical Working Group (LTWG) Meeting #26 Held**

The 26th meeting of the Landsat Technical Working Group (LTWG #26) was held June 5-9, 2017, at Inuvik in the Northwest Territories of Canada, 120 miles above the Arctic Circle. Briefings on Landsat 7 and Landsat 8 operational performance, mission and ground operations, data processing, and product distribution were presented.

International Cooperators (IC), as well as IC commercial partners and guests, heard about progress on Landsat 9, the Landsat Global Archive Consolidation (LGAC) initiative, the Ground Control Point (GCP) Improvement Plan, and the Landsat Product Roadmap & Collections implementation.

Landsat IC Network station reports, dedicated 1-on-1 meetings, and technical collaboration special topics including real-time data applications and analysis ready data (ARD), were also part of the week's discussions.

Additionally, attendees had the unique opportunity to visit the Aurora Research Institute (ARI), the Inuvik Satellite Station Facility (ISSF), and to provide a remote sensing data demonstration for Aurora College students during the meeting.

## Upcoming Meetings of Interest and User Conferences

### Joint Agency Commercial Imagery Evaluation (JACIE) Workshop

September 19-21, 2017 Reston, VA <https://calval.cr.usgs.gov/jacie/>

### Pecora 20 Conference

November 14-16, 2017 Sioux Falls, SD <http://pecora.asprs.org>

Established by the USGS and NASA in the 1970's, the Pecora meetings serve as a forum to foster the exchange of scientific information and results derived from applications of Earth-observing data to a broad range of land-based resources, and to discuss ideas, policies, and strategies concerning land remote sensing. **Abstracts and workshop proposals are due July 1, 2017.**

In association with the Pecora conference, the **William T. Pecora Award** is presented annually to individuals or groups that have made outstanding contributions toward understanding the Earth by means of remote sensing. The Department of the Interior (DOI) and NASA jointly sponsor the award.

**Nominations for the award are due June 15, 2017.**

### Important Dates to remember:

June 15: William T Pecora Award Nominations due (<https://remotesensing.usgs.gov/pecora.php>)  
July 1: Abstracts and workshop proposals due (<http://pecora.asprs.org/submit-abstracts/>)  
July 14: Notice of abstract acceptance  
August 1: Notice of workshop acceptance  
September 15: Speaker registration  
October 13: Paper deadline (for inclusion in proceedings)

## Recently Promoted Landsat Images

**Landsat Monitors Mining at Center of North America near Town of Center.** The North Dakota town of Center is the geographic center of North America. Mining has been part of Center's history for more than a century. <https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#701>

**Fires Burn Farms and Ranches in Oklahoma and Kansas.** Massive wildfires scorched nearly 780,000 acres of farm and ranch land in Oklahoma and Kansas in March 2017. <https://remotesensing.usgs.gov/gallery/gallery.php?cat=2#703>

**The Wildflower Superbloom in California from Landsat's Perspective.** After 5 years of drought, California finally got relief during the winter of 2016–2017 with much needed precipitation. One result of this additional moisture was a springtime abundance of wildflowers. <https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#704>

**Kaskawulsh Glacier, Canada.** Like most glaciers worldwide, Kaskawulsh Glacier in the Kluane National Park and Reserve of southwestern Yukon Territory, Canada, has retreated over the past several decades. However, this glacier's retreat caused a rare instance of river piracy—the diversion of the headwaters of one stream into another one. <https://remotesensing.usgs.gov/gallery/gallery.php?cat=8#705>

**Landsat Views Massive Solar Energy Farms.** Solar energy is booming worldwide. Three large solar energy farms are highlighted. <https://remotesensing.usgs.gov/gallery/gallery.php?cat=7#707>

**Okefenokee Fire Continues to Burn.** A wildfire was ignited by lightning in the Okefenokee National Wildlife Refuge on April 6, 2017. Hot, dry weather and extremely dry fuels made the fire difficult to contain. <https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#708>

**Landsat 8 Scenes Top 1 million.** Landsat 8 acquires images at a rate of about 750 per day, and just a little over 4 years after launch in February 2013, the Earth-observing satellite on May 31, 2017, acquired its 1 millionth scene. <https://remotesensing.usgs.gov/gallery/gallery.php?cat=7#709>

**Monitoring Deforestation in the Amazon.** Large areas within the Amazon rain forest have undergone large-scale deforestation over the past few decades, and Landsat has helped record this widespread land change. <https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#710>

## Connect/Interact/Contact!

**Landsat Missions Website:** <https://landsat.usgs.gov>

**2017 Landsat Headlines:** <https://landsat.usgs.gov/2017>

**Landsat Updates:** <https://landsat.usgs.gov/landsat-updates>



**USGS Landsat: @USGSLandsat**

**NASA Landsat: @NASA\_Landsat**



**USGS:** <https://www.facebook.com/USGeologicalSurvey>

**NASA Landsat:** <https://www.facebook.com/NASA.Landsat>



**USGS:** <https://www.instagram.com/usgs/>

**NASA:** <https://www.instagram.com/nasa/>

## Contact us!

<https://landsat.usgs.gov/contact>

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