



Landsat Update

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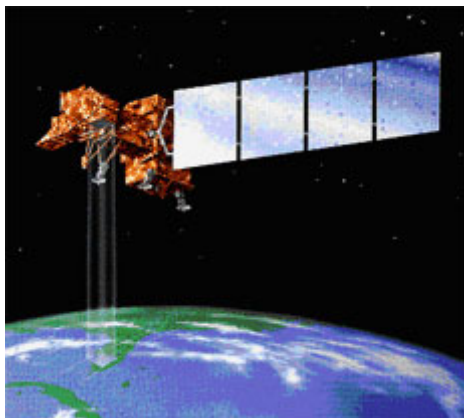
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Landsat 7 to reach 100,000 orbits



On February 1, 2018 at 7:12 a.m. CST, Landsat 7 will begin its 100,000th orbit around the earth. This equates to over 2.7 billion miles traveled since 1999!

Since its launch on April 15, 1999, the Enhanced Thematic Mapper Plus (ETM+) instrument has acquired nearly 2.5 million scenes.

Follow USGS Landsat on Twitter (@USGSLandsat <https://twitter.com/USGSLandsat>) as we share some of the acquisitions from this historic milestone.

Five Years of Landsat 8 Acquisitions

February 11 will mark the 5th anniversary of the launch of Landsat 8!

Since 2013, over 1.1 million scenes have been acquired, adding to the Landsat archive which started almost 45 years ago, and continue to help support studies in agriculture, forest and water quality/use/management, natural disasters, and land change.



Re-live the launch of Landsat 8:

<https://www.youtube.com/embed/2pngFHxoA1c>. Follow USGS Landsat on Twitter (@USGSLandsat - <https://twitter.com/USGSLandsat>) starting February 1 for interesting facts and stats about Landsat 8!

2018: Celebrating a Decade of the Landsat Open Data Policy

This year marks the 10-year anniversary of Landsat data becoming available for download for all users, at no charge. On April 21, 2008, the USGS made the official announcement: https://landsat.usgs.gov/sites/default/files/documents/USGS_Landsat_Imagery_Release.pdf; and October 1 of that year, Landsat 7 ETM+ scenes were made available for download from EarthExplorer (<https://earthexplorer.usgs.gov>) or Glovis (<http://glovis.usgs.gov>). Landsat 4-5 Thematic Mapper (TM) data followed shortly after, and Landsat 1-5 MSS data became available in early 2009.

Throughout this year, we will be showcasing the important benefits the Open Data Policy (https://landsat.usgs.gov/sites/default/files/documents/Landsat_Data_Policy.pdf) brought to researchers around the world.

Landsat 9 Mission Status

The Landsat 9 (<https://landsat.usgs.gov/landsat-9-mission>) Ground Network Element (GNE) Preliminary Design Review (PDR) took place at the USGS EROS Center on November 30, 2017. The GNE will provide reliable communication services with the Landsat 9 spacecraft and route data appropriately within the Landsat 9 Ground System (GS). The GNE began preliminary design work last spring, and the GNE PDR demonstrated progress toward a final design.

The Landsat 9 Data Processing and Archive System (DPAS) PDR will take place in February, at the USGS EROS Center. The DPAS component will ingest, process, distribute, and archive all Landsat 9 mission data. This meeting will provide statuses on the systems and subsystems required for data ingest, storage and archive, image processing, and access and distribution, in relation to keeping the entire mission on track for a launch readiness date of December 2020 from Vandenberg Air Force Base, California.

Landsat Collection 1 Level-1 Processing Status: Landsat 1-5 Multispectral Scanner (MSS)

Plans for processing Landsat 1-5 MSS data into Collection 1 are being finalized. It is expected that these data will become available spring 2018. As a more definitive timeline for public availability is established, it will be shared on the Landsat Headlines and Landsat social media outlets.

Landsat Collection 1 Level-1 Processing Status: Remaining Landsat 5 Thematic Mapper (TM) Scenes

Over 250,000 Landsat 5 Thematic Mapper (TM) scenes were not initially processed into Collection 1, due to missing Payload Correction Data (PCD). PCD is critical when correcting for geometric disturbances that occur during data acquisition, as it contains information on spacecraft ephemeris and other important ancillary information.

In 2018, these scenes will be processed into Collection 1, and when available, technical information and caveats about these data will be available on the Landsat Collections page: <https://landsat.usgs.gov/landsat-collections>.

As the USGS continues to receive and ingest data from international cooperators in support of the Landsat Global Archive Consolidation (LGAC- <https://landsat.usgs.gov/landsat-global-archive-consolidation-lgac>) effort, more TM scenes may be identified, categorized, and processed as no-PCD.

Landsat Analysis Ready Data

Landsat Analysis Ready Data (ARD- <https://landsat.usgs.gov/ard>) became available for the US in 2017, and since October 30, 2017 over 1.8 million ARD tiles have been downloaded from EarthExplorer (<https://earthexplorer.usgs.gov>). Global Landsat ARD specifications are currently being developed. Further information will become available through the Landsat Missions Website and social media outlets later in the year.

Landsat Science Data Products in Development

In 2018, the USGS will release four new U.S. Landsat Science Products to support land surface change studies: Surface Temperature (ST), Dynamic Surface Water Extent (DSWE), Burned Area (BA), and fractional Snow Covered Area (fSCA). These products are derived from U.S. Landsat Analysis Ready Data (ARD).

The ST Level-2 algorithm produces image files that represent surface temperature in Kelvin (K) units for each pixel in a Landsat scene. This algorithm was created at the Rochester Institute of Technology, NASA Jet Propulsion Laboratory in cooperation with USGS software engineers.

The DSWE Level-3 algorithm produces image files that represent surface water inundation for each pixel in a Landsat scene. This algorithm was created at USGS Eastern Geographic Science Center, in cooperation with USGS EROS software engineers.

The BA Level-3 products include acquisition-based image files as well as annual composites that identify burned areas. Supplemental burned area information, such as burn date, will also be included. The BA algorithm was created by researchers at the USGS Geoscience and Environmental Science Center in Denver, Colorado.

The fSCA Level-3 products contain acquisition-based image files displaying the per-pixel percentage of snow cover. Monthly and annual statistics will also be available for 12 unique time periods. The fSCA algorithm was created by researchers at the USGS Alaska Science Center in Anchorage, Alaska.

Release plans for these data will be announced on the Landsat Missions Website and social media outlets later in the year.

New Landsat Science Team Selected, First Meeting Planned

On December 15, 2017 the USGS, in cooperation with NASA, selected an expert team of national and international land remote sensing leaders to serve as the 2018-2023 Landsat Science Team (LST). The LST provides technical and scientific input to USGS and NASA on issues critical to the success of the Landsat program. The five-year goal of this LST is to ensure that Landsat 9 data, and data from future Landsat missions are completely integrated with past Landsat data for meeting the needs of current users and enabling new applications. In addition, it is increasingly important that data from international sources (e.g., the European Space Agency's Sentinel-2 missions), as well as commercial sources, are synergistically exploited with the Landsat record. The team members, affiliations, and research and applications emphases are listed here: <https://landsat.usgs.gov/2018-2023-science-team>.

The 2018-2023 LST will have their inaugural meeting on February 21-22, 2018, in Sioux Falls, South Dakota. A meeting summary and list of the presentations will be posted to the Team Meetings page after the meeting: <https://landsat.usgs.gov/team-meetings-agendas-and-presentations>.

New Videos Showcase Landsat Team Members

Landsat Science Team Members and featured scientists offer informative insights into how Landsat data, the open data policy, and advancing science techniques influence and impact the work they do in a series of recently published videos: <https://landsat.usgs.gov/landsat-science-team-special-topic-videos>. Other interesting and educational videos about Landsat can be found on the Landsat Media Library page: <https://landsat.usgs.gov/media-library>.

New Spectral Characteristics Viewer

A new Landsat Spectral Characteristics Viewer was recently released, replacing a version dependent on Java applets. The new viewer is accessible from any internet browser and works on mobile devices too! Check it out at <https://landsat.usgs.gov/spectral-characteristics-viewer>, and send any feedback to custserv@usgs.gov.

Meetings of Interest and User Conferences

The **Earth Science Information Partners (ESIP)** meeting was held recently in Bethesda, MD. USGS Landsat representatives attended to provide updates on Landsat Analysis Ready Data and future Landsat science data products. <http://esipfed.org/monday-updates/winter-meeting-recap-edition>

Upcoming Opportunities:

American Society for Photogrammetry & Remote Sensing (ASPRS)/International Lidar Mapping Forum

February 5-7, 2018 Denver, CO
<http://conferences.asprs.org/denver-2018/>

American Association of Geographers

April 10-14, 2018 New Orleans, LA
<http://www.aag.org/>

ESRI

July 9-13, 2018 San Diego, CA
<http://www.esri.com/about/events/uc>

IGARSS

July 23-29, 2018 Valencia, Spain
<https://www.igarss2018.org/>

Ecological Society of America (ESA)

August 5-10, 2018 New Orleans, LA
<https://esa.org/neworleans/>

SPIE Remote Sensing

September 10-13, 2018 Berlin, Germany
<http://spie.org/conferences-and-exhibitions/remote-sensing/conferences?SSO=1>

Recently Promoted Landsat Images

Pine Island Glacier

In September 2017, a new iceberg broke off Pine Island Glacier in Antarctica. Named B-44, the new iceberg covered 71.5 square miles. Landsat 8 acquired imagery of the area before and after this break: <https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#725>. By January 2, 2018, B-44 had broken into further fragments of varying size, visible in the Landsat 8 image shown in this update: <https://remotesensing.usgs.gov/gallery/gallery.php?cat=3#733>.

Southern California Fires

Fires devastated southern California in December 2017. The Landsat 8 satellite acquired imagery mid-month (<https://remotesensing.usgs.gov/gallery/gallery.php?cat=2#731>) and also again before the end of the year: <https://remotesensing.usgs.gov/gallery/gallery.php?cat=2#732>.

These and other interesting images of our changing Earth can be found in the Land Remote Sensing Image Collections Gallery: <https://remotesensing.usgs.gov/gallery/>.

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/>

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