



USGS National Land Imaging Program Update

CEOS WGISS

March 2022



Landsat Operations and Development Status

Active
In Development
Planned

Landsat 8 Flight Operations (2013-)

Collecting up to 740 new scenes per day; frequent night and off-nadir imaging of volcano and fire imaging.

Landsat 7 Flight Operations (1999-)

Collecting about 470 new scenes per day; the science mission will end shortly after L9 becomes operational

Landsat 9 (2021-)

Near-clone of Landsat 8, but with important improvements for accuracy and resiliency, TIRS stray light, 14-bit OLI data.

Landsat Next (~ late 2020s launch)

NASA and USGS have set up formal Projects to pursue Landsat Next; RFIs and Instrument studies have been initiated

Working towards the Mission Concept Review and official project formulation in early CY2022; system architecture and instrument(s) still being studied

Landsat Archive Operations

Over 10 million Landsat scenes available, with 100 million downloads since Landsat data become freely available in 2008

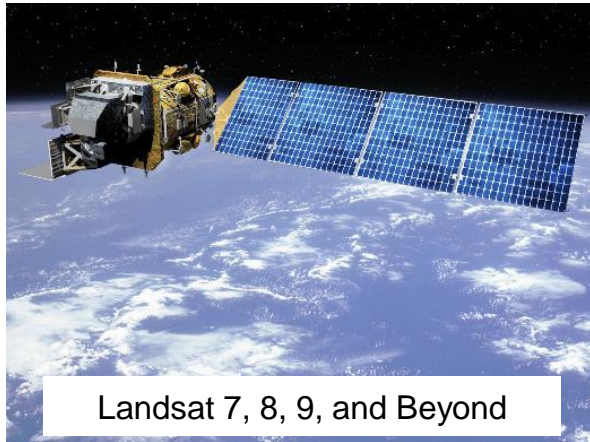
USGS Mission: *Linking Science to Decisions*

The USGS serves the Nation by providing reliable scientific information to:

- describe and understand the Earth.
- minimize loss of life and property from natural disasters.
- manage water, biological, energy, and mineral resources.
- enhance and protect our quality of life.



USGS National Land Imaging (NLI) Program – Mission Overview



Landsat 7, 8, 9, and Beyond

Delivers a national and global capability to ensure broad public and scientific availability of observations of the Earth's land surface

Coordinates and integrates civil Earth observations with other sources of data, including international, commercial and National Security space systems

Supports government policy and decision makers

Guides National decisions to meet Government needs for land science and land observation



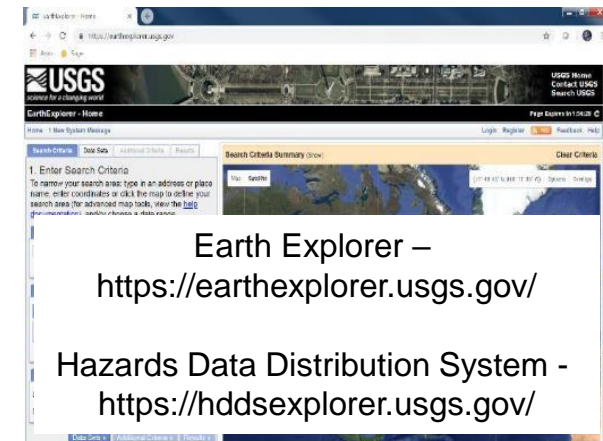
EROS Center



Uncrewed Aerial Systems (UAS)



National Civil Applications Center



Earth Explorer –
<https://earthexplorer.usgs.gov/>

Hazards Data Distribution System -
<https://hddsexplorer.usgs.gov/>

Landsat

The world's longest, most widely used and cited land remote sensing data set, helping us understand and manage natural and human-induced landscape change via a multitude of land, water, and natural resource management applications.



Common Uses of Landsat data by Federal Agencies, States, and the private sector:

- Agriculture and Forestry
- Regional Land Use Planning
- Land Use/Land Cover
- Fire/Disaster Management
- Energy and Mineral Mapping
- Water Quality and Resources
- Global Change Science
- Flood Management
- National Security
- Ecosystem Monitoring
- Famine Early Warning
- Carbon Assessment
- Drought Monitoring
- Transportation Planning
- Calibration/Validation

Multi-spectral coverage in VNIR-SWIR-TIR

-> to map surface composition & temperature

15 / 30 / 100 meter spatial resolution

-> to resolve human-scale land dynamics

16-day revisit frequency (8-days w/ two satellites)

-> global, seasonal coverage

Broad area collection => 12,000+ square miles per image

-> 1200 images/day = 15 million square miles/day

Highly calibrated “science quality” data

-> to resolve long-term trends & retrieve biophysical variables

Free and Open Data policy since 2008

-> 30 million products distributed by USGS last year

Landsat 9 Operational

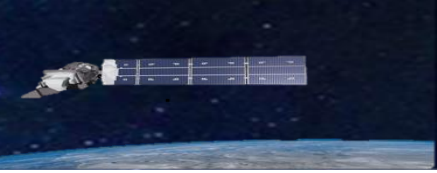


- **Successful launch of Landsat 9**
- **Successfully completed all planned on-orbit commissioning activities**
 - ❑ Outstanding accomplishment by combined NASA/USGS and contractor team
- **Flight and ground system performance is excellent**
- **OLI-2 and TIRS-2 imagery is outstanding**
- **Successful PLAR ushering Landsat 9 into its operational phase**
- **Acquiring science data at nominal operations cadence**
- **USGS performing nominal operations**
- **On-track for a Feb 10th Science Data Release**
- **Mission transfer to USGS is underway**
 - ❑ Completion expected in May 2022

Landsat 9
First Light
image of
Australia's
Kimberley
Coast



**Landsat 9 is operational
and meeting all mission requirements!**



For Additional Information: <https://www.usgs.gov/core-science-systems/nli/landsat/news>

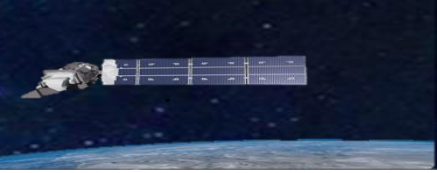


A new science product easily separates snow from vegetation in processed Landsat Collection 2 scenes from 1982 to present.



As of December 1, 2021, the locations and filenames of RSS feeds that alert you to new Calibration Parameter Files (CPF) for Landsat 8 and Landsat 7 data will be changing.

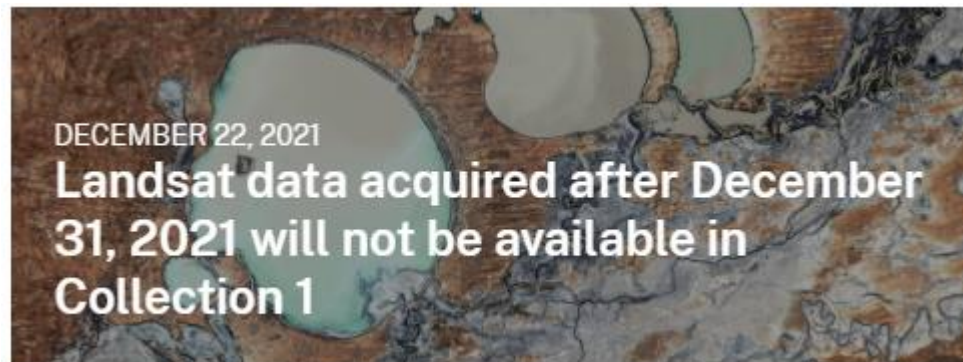
USGS Dataset, Service, & Tool Updates



For Additional Information: <https://www.usgs.gov/core-science-systems/nli/landsat/news>



Since 1972, Landsat satellites have continually acquired data about the Earth's land surface. On November 23, 2021, the Landsat Archive that stores this vital record added its ten millionth scene.



Landsat data acquired after December 31, 2021 will not be available in Collection 1.

USGS Dataset, Service, & Tool Updates



For Additional Information: <https://www.usgs.gov/core-science-systems/nli/landsat/news>



The U.S. Geological Survey will make Landsat 9 data available from the Landsat archive beginning February 10, 2022.

As of February 15, 2022, Landsat 9 Collection 2 Level-1, Level-2, and U.S. Analysis Ready Data (ARD) data are available via the commercial cloud.



The Landsat 9 Data User Handbook is now available for download from the Landsat Missions Web Site.