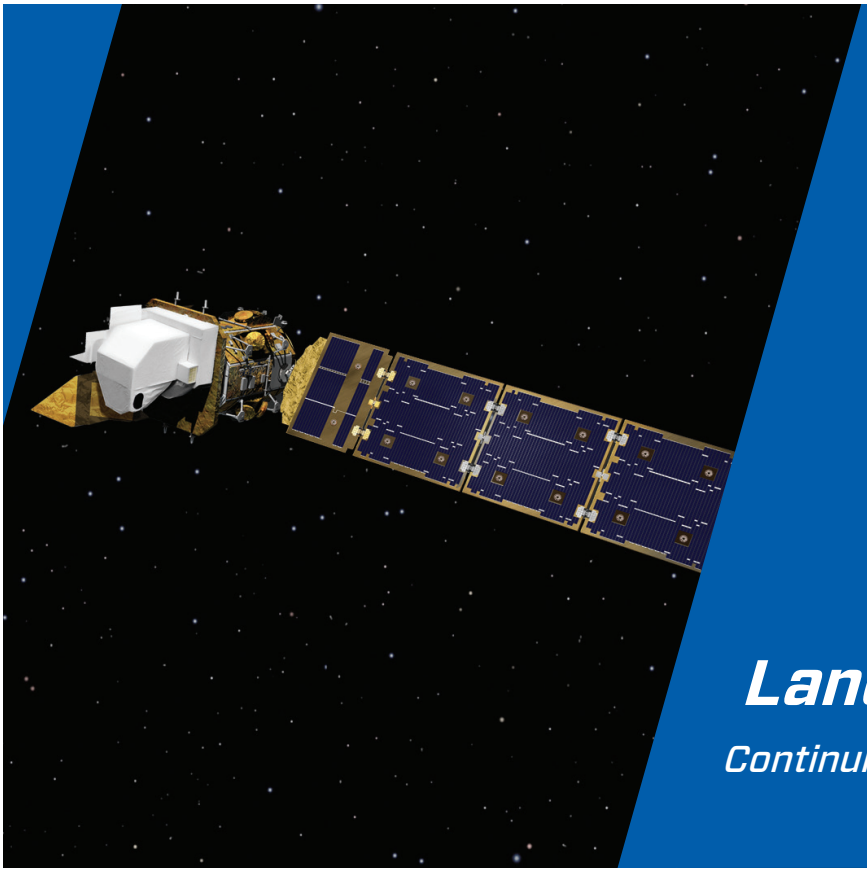

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Landsat 8

Continuing the Landsat Mission

Landsat 8 is a joint mission formulated, implemented, and operated by the National Aeronautics and Space Administration (NASA) and the Department of Interior (DOI) United States Geological Survey (USGS) that builds upon previous Landsat missions. Landsat 8 is a remote sensing satellite mission providing coverage of the Earth's land surfaces, collecting multi-spectral land images, including infrared. Landsat 8 continues the more than 40 years of global data collection and distribution of the Earth's continental surfaces by the Landsat series of satellites to support global change research and applications. This data constitutes the longest continuous record of the Earth's surface as seen from space.

Spacecraft

Northrop Grumman was responsible for the design and manufacture of the Landsat 8 spacecraft bus, the integration of the customer-furnished payload instruments, and full observatory testing, including environmental and EMI/EMC. To meet the performance and schedule challenges, a simple, robust design was utilized based on Northrop Grumman's flight-proven LEOStar-3 standard bus. This ensures that Landsat 8 will continue the Landsat heritage, obtaining unique and valuable data and imagery to be used in agriculture, education, business, science, and government. Northrop Grumman continues to support on-orbit operations providing engineering expertise to USGS/NASA GSFC. Availability since launch is currently measured at nearly 100 percent.

Facts At A Glance

- Landsat 8 provides data continuity following Landsat 5 and 7
- 705 km Low Earth Orbit mission
- Simple, easily integrated design based on Northrop Grumman's flight-proven LEOStar™-3 standard modular spacecraft architecture that reduces assembly and test cycle times
- Moving mechanisms were eliminated to improve reliability, simplify operations, and ensure service to the international cooperators
- Landsat data products are available for free to the general public from the USGS, enabling a broad scope of scientific research and land management applications. Go to: http://landsat.usgs.gov/index.php

Customers

United States Geological Survey

NASA Goddard Space Flight Center

Specifications

Spacecraft

Mass:	3,085 kg (6,801 lb.)
Solar Arrays:	Triple-junction GaAs cells, 3750 W EOL
Orbit:	705 km circular @ 98.2°
Stabilization:	3-axis, zero momentum bias, nadir pointing
Pointing:	16 arcsec control, 10 arcsec knowledge
Data Storage:	4,000 Gbits BOL
Data Downlink:	X-band, 384 Mbps (over two channels)
Propulsion:	395 kg (870 lb.) of blowdown monopropellant hydrazine with eight (8) 22N thrusters
Design Life:	5.25 years, 10 year goal

Launch

Launch Vehicle:	Atlas V – 401
Launch Site:	Vandenberg Air Force Base, CA
Date:	February 11, 2013

Instruments

Operational Land Imager (OLI)
The OLI collects land-surface data in the visible and near-infrared spectra, and features two additional spectral channels: one for coastal and aerosol studies, and another for cirrus cloud detection.

Thermal InfraRed Sensor (TIRS)
TIRS coincidently collects data for two longwave (thermal) spectral bands not imaged by the OLI.

Landsat 8: Continuing the Landsat Legacy

Because of Landsat's long history and unparalleled data record, data continuity with prior Landsat missions is paramount because the two most recent Landsat observatories, Landsat 5 and 7, far exceeded their design. NASA chose Northrop Grumman for Landsat 8 becaus of Northrop Grumman's legacy of exceptional performance and short delivery times.

The Landsat 8 mission is charged with collecting data sufficiently consistent with data from early Landsat satellites to allow comparisons for regional and global change detection. Landsat 8 has two new spectral bands, one tailored for detecting cirrus clouds and the other for coastal zone observation. Landsat 8 will return more than twice as many scenes per day than Landsat 7, increasing the probability of capturing cloud-free scenes of the global landmass.

Mission Partners

NASA Goddard Space Flight Center
Project management, TIRS instrument, OLI instrument management

United States Geological Survey
Data processing and archiving, ground systems management, mission operations

Northrop Grumman
Spacecraft design, integration and test, launch mission operations

Landsat 8 image of Paluweh volcano ash plume, Indonesia

Landsat 8 image of Princess Charlotte Bay, Australia

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