WESTERN STATES WATER COUNCIL

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USGS Update on Landsat Next

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Landsat Next – “Superspectral Triplets”

Designed to provide more frequent and finer-resolution science-quality earth observation data of the changing surface of the Earth, complementing commercial and international datasets and meeting user needs of the 2030s

Based directly on user needs collected from across Fed/Civ community

- **3 smaller satellites**, launched together, delivering combined **6-day revisit time** supporting more frequent coverage of changing processes such as crop growth and coastal change and hazards.
- **“Super-spectral”** with **15 new bands** (5 thermal infrared bands in all) supporting water use/quality, soil conservation, and mineral mapping.
- **Improved spatial resolution** (from 30 to **10-20 meters multispectral** and from 100 to **60 meters thermal infrared**) for finer targets of farm fields, forest disturbance, urbanization, inland lakes and streams.
- **Sustained radiometric quality** supporting science and commercial users.

NASA “Landsat’s Next Chapter” Video
https://svs.gsfc.nasa.gov/14262.

The Landsat Next mission will result in the largest collection of new Landsat data in the history of the program, estimated at 15 times the data volume of Landsat 9.

President's FY26 Budget proposes a restructure of Landsat Next *"...while NASA studies more affordable ways to maintain the continuity of Landsat imagery, which is used by natural resource managers, States, and industry."* **Details of this restructure, including impacts to users, are TBD.**

USGS

Landsat Continuity Evolves

Since 1972, Landsat satellites have continuously acquired images of the Earth's land surface, providing uninterrupted data to help land managers and policymakers make informed decisions about natural resources and the environment.

Landsat Continuity has always been central to the program's success. This includes:

(1) maintaining historic sensor compatibility to support long-term time series analyses
(2) ensuring consistent image quality to reduce uncertainties in land surface measurements
(3) evolving satellite observations and data products to meet changing priorities and national needs

The NASA/Interior Sustainable Land Imaging (SLI) program initiated in 2015 ensures a multi-tiered "sustainable" program with on-ramps for new technology refresh designed to meet evolving observational requirements and emerging applications.

The world of the 2030s will be different, requiring improved Earth observations – Landsat Next will maintain Landsat's historic radiometric quality while supporting the monitoring of smaller agricultural fields and forests; more rapid clear views of crop health and productivity, water quality, snow/ice state and wildfire; and support emerging applications in mineral exploration, water quality, snow hydrology and soil mapping.

Landsat history shows that "continuity evolves" – each new mission is enhanced with improved technology to meet evolving user needs and emerging applications.

Impacts of Landsat Next on Agency Needs

Legend

0% User Needs Met — 50% User Needs Met — 100% User Needs Met

Application Area & Agency Needs	Critical Measures	Landsat Heritage		Landsat Next
		Landsat 8 & 9		Triplets
		16-day Revisit	8-day Revisit	6-day Revisit
Energy & Minerals – NOAA, NASA, OSMRE, USGS	BABS, OSE, LULC, ST			
Agriculture & Forestry – ARS, FSA, FAS, FWS, NASA, NASS, NPS, NRCS, USBR, USFS, USGS	CT, CY, LAI, VC, ET			
Emergency/Disasters – EPA, FAS, FEMA, NASS, NOAA, USBR, USFS, USGS	AF, VA, SWE, OSE			
Public Health – ARS, DOE, EPA, NASA, NGA, NOAA, USGS	UHI, WQWC			
Water – Army, ARS, EPA, FWS, NASA, NOAA, USBR, USFS, USGS	ET, SWE, WQWC, SCE			
Wildland Fire Response and Assessment – NPS, USBR, USFS, FWS, USGS	BABS, VC, LULC			
Cryosphere – Army, ARS, DOE, NASA, NPS, USGS	GLI, SCE, SGS			
Land Use/Ecosystems – Army, BLM, DOE, EPA, FWS, NASA, NOAA, NPS, NRCS, OSMRE, USGS	fPAR, LULC, VC			

CT – Crop Type
CY – Crop Yield
LAI – Leaf Area Index
VC – Vegetation Condition
BABS – Burned Area/Burn Severity
AF - Active Fires

VA – Volcanic Activity
SWE – Surface Water Extent
OSE – Oil Spill Extent
UHI – Urban Heat Island
WQWC – Water Quality/Water Chemistry
ET – Evapotranspiration

LULC – Land Use/Land Cover
SCE – Snow Cover Extent
SGS – Snow Grain Size
fPAR - Photosynthetically Active Radiation
ST – Surface Temperature
GLI – Glacier & Ice Sheets

The chart reflects nearly 500 user needs and satisfaction levels by mission temporal, spectral, spatial capabilities.

LNext Triplets are needed to address evolving 2030s Federal Agency user needs across all Application Areas.

Agencies:

- Army
- ARS – Agriculture Research Service
- BLM – Bureau of Land Management
- DOE – Department of Energy
- EPA – US Environmental Protection Agency
- FAS – Foreign Agricultural Service
- FEMA – Federal Emergency Management Agency
- FSA – Farm Service Agency
- FWS – US Fish and Wildlife Service
- NASA - National Aeronautics and Space Administration
- NASS – National Agricultural Statistics Service
- NGA – National Geospatial-Intelligence Agency
- NOAA – National Oceanic and Atmospheric Administration
- NPS – US National Park Service
- NRCS – Natural Resources Conservation Service
- OSMRE – Office of Surface Mining Reclamation and Enforcement
- USBR – US Bureau of Reclamation
- USFS – US Forest Service
- USGS – US Geological Survey

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Thank you

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Notable Landsat Next Endorsements (2025)

"Planet and other commercial companies use Landsat's exquisite sensors and over 50-year record of observations to calibrate our commercial instruments. By combining Landsat's exquisite calibration with Planet's high-resolution and high-temporal observations, we can continue to advance research and applications in agriculture, disasters, water resources, wildfires—and many more."

- Jeff O'Neil, Director of Government Affairs at Planet

"Landsat has provided critical imaging of the planet for over five decades. Continuing this mission via Landsat Next will be essential for measuring and tracking how and where our planet is changing. This mission is valuable for hundreds of applications in agriculture, forest management, and land use planning. Landsat is complementary (not competitive) with remote sensing carried out in the private sector."

- Jack Dangermond, CEO of esri

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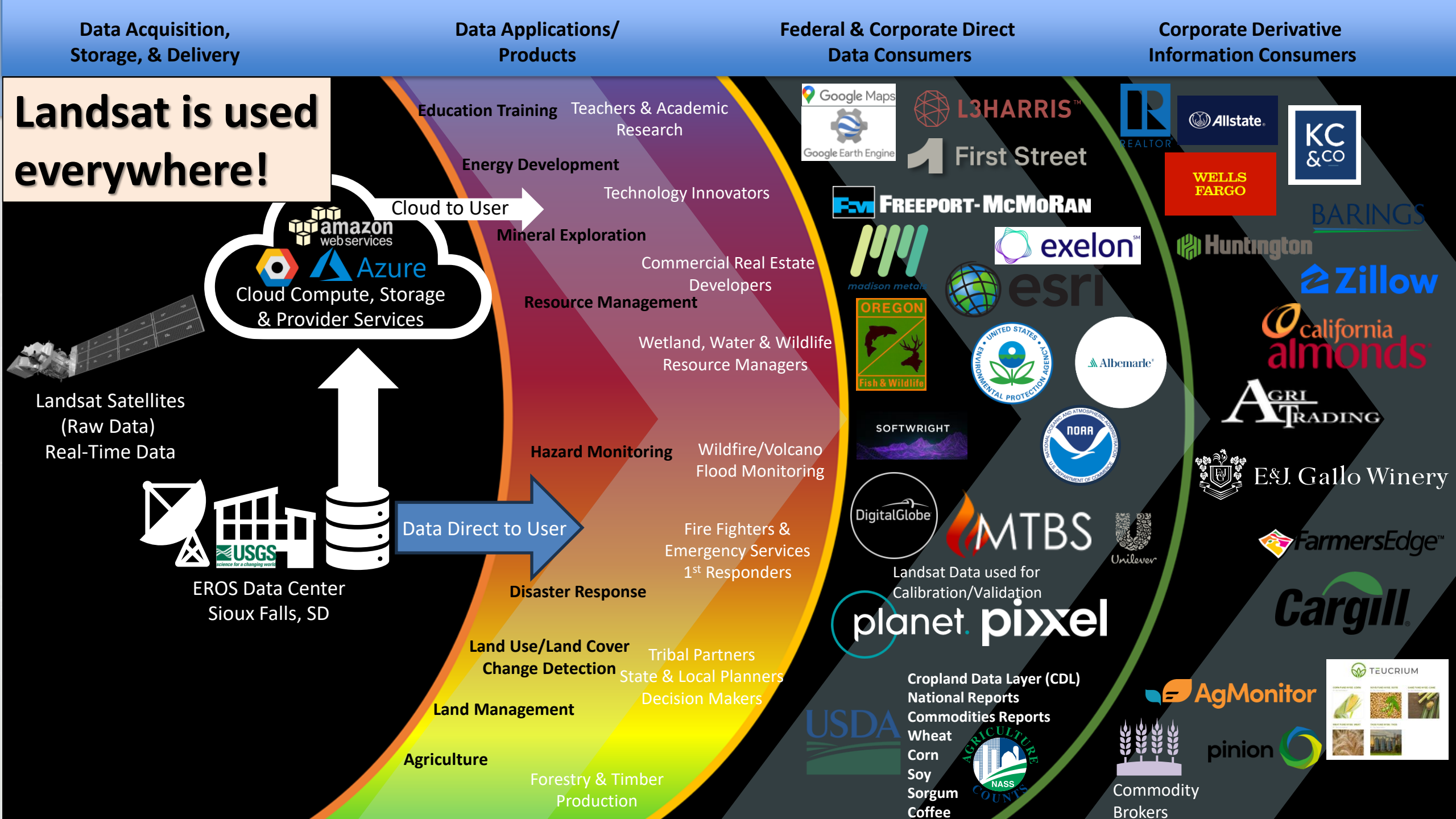
Data Acquisition, Storage, & Delivery
Data Applications/ Products
Federal & Corporate Direct Data Consumers
Corporate Derivative Information Consumers
Landsat is used everywhere!
Cloud to User
amazon web services
Azure
Cloud Compute, Storage & Provider Services
Landsat Satellites (Raw Data) Real-Time Data
USGS
EROS Data Center Sioux Falls, SD
Data Direct to User
Education Training
Teachers & Academic Research
Energy Development
Technology Innovators
Mineral Exploration
Commercial Real Estate Developers
Resource Management
Wetland, Water & Wildlife Resource Managers
Hazard Monitoring
Wildfire/Volcano Flood Monitoring
Fire Fighters & Emergency Services 1st Responders
Disaster Response
Land Use/Land Cover Change Detection
Tribal Partners
State & Local Planners
Decision Makers
Land Management
Agriculture
Forestry & Timber Production
Google Maps
Google Earth Engine
L3HARRIS
First Street
FREEPORT-McMoRan
madison metals
exelon
esri
OREGON Fish & Wildlife
SOFTWRIGHT
DigitalGlobe
MTBS
Landsat Data used for Calibration/Validation
planet.
pixxel
USDA
Cropland Data Layer (CDL)
National Reports
Commodities Reports
Wheat
Corn
Soy
Sorgum
Coffee
NASS
Commodity Brokers
REALTOR
Allstate
KC &CO
WELLS FARGO
BARINGS
Huntington
Zillow
california almonds
Albemarle
AGRI TRADING
E&J Gallo Winery
FarmersEdge
Cargill
Unilever
AgMonitor
pinion
TEUCRIUM

Landsat Ecosystem: Commercial Uses Snapshot

Companies Included:

Amazon
Esri
Google
OpenET
E & J Gallo Winery
AgMonitor
Palantir
Microsoft
Natural Capital Exchange
Unilever
Solve Geosolutions
Albemarle
Exelon
Softwright
James Martin Center for Nonproliferation Studies
Moody's Insurance
Karen & Clark Company
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IBM
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