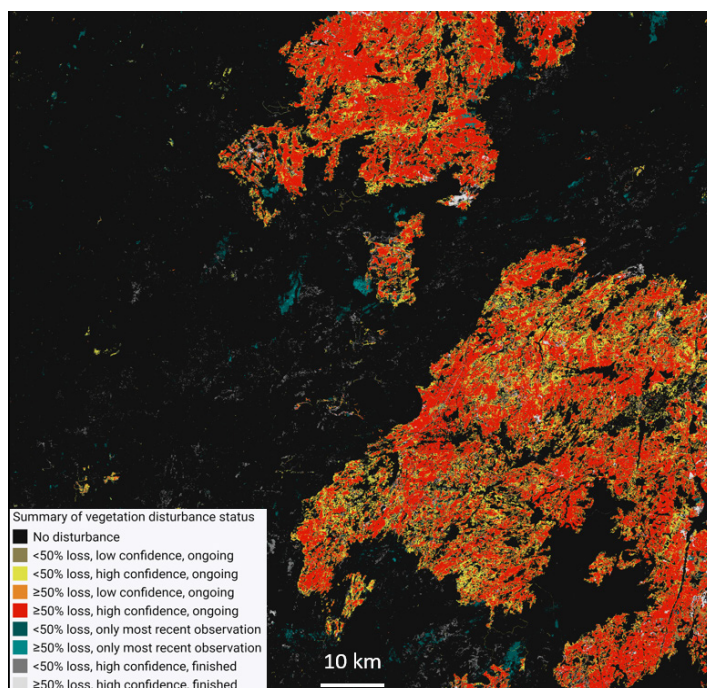


OPERA Surface Disturbance (DIST) Product Suite

Satellite Needs Working Group - Solution Fact Sheet

NASA's Satellite Needs Working Group (SNWG) Implementation Team (NSITE) representatives from the Jet Propulsion Laboratory (JPL) Observational Products for End-Users from Remote Sensing Analysis (OPERA) project are developing a suite of near-global land Surface Disturbance (DIST) products. The suite includes a DIST-ALERT product generated using Harmonized Landsat and Sentinel-2 (HLS) optical imagery to provide expedited land-surface disturbance alerts every 2 to 4 days. The suite will also include a Sentinel-1A/C synthetic aperture radar (SAR) product (DIST-S1) that will provide SAR-based surface disturbance information. OPERA DIST-S1 prototype results are available.



DIST-ALERT disturbance map showing one of the largest fires of 2023 in Quebec, Canada. The disturbance map can track fire extent and monitor fire severity.

Credit: OPERA University of Maryland

Scientific & Societal Benefit

- Provides near-global land-surface disturbance data at 30 m resolution
- Utilizes the high temporal frequency of HLS to provide disturbance data for agile monitoring and operational decision making
- Combines the benefits of optical and SAR imagery to provide surface disturbance maps during cloudy conditions and at any time of day
- Detects land-cover changes at different magnitudes, spatial scales, and temporal scales
- Provides disturbance alerts for events that may require a rapid response
- Advances global ecosystems research by supplying detailed observations of surface disturbances

NASA's SNWG Implementation TEam (NSITE)

OPERA Surface Disturbance (DIST) Product Suite

Data Characteristics		
Products	DIST-ALERT-HLS	DIST-S1
Platform	Harmonized Landsat 8/9 and Sentinel-2A/B/C (HLS)	Sentinel-1A/C
Processing Level	3	
Temporal Coverage	January 2016 - September 2027	January 2026 - September 2027
Temporal Frequency	Sub-weekly	12 day revisit per satellite, 6 days for constellation
Spatial Coverage	Near-Global (all land masses except Antarctica)	
Spatial Resolution	30 m	
Data Format	Cloud-optimized GeoTIFF	

How do I access this data?

OPERA DIST products are distributed by NASA's Earthdata archive along with product documentation. The DIST-S1 product is currently in development with a release set for summer 2026.



NASA's Earthdata
Archive

Where can I find more information?

More information on OPERA DIST products is available on this solution's webpage. The OPERA website provides further information on DIST and other OPERA products.



OPERA DIST
Webpage



OPERA
Website

Background Image Credit: NASA Earth Observatory

Revised July 2026