

## ***Observational Products for End-Users from Remote Sensing Analysis***

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Remote sensing satellites are essential tools for observing the Earth's surface globally, however they provide complex data that can be challenging for non-specialists to analyze. The Observational Products for End-Users from Remote Sensing Analysis (OPERA) project, led by the Jet Propulsion Laboratory, with project partners from NASA, USGS, and universities, removes this barrier by producing three analysis ready data products derived from satellite SAR and optical data. Designed to meet the needs of federal agencies as identified by the Satellite Needs Working Group (an initiative of the U.S. Group on Earth Observations), these data products will be derived from ESA's Sentinel-1 and 2, NASA-ISRO NISAR, NASA SWOT, and NASA/USGS Landsat 8 sensors. Specific products include (1) a near-global Surface Water Extent product suite from optical and SAR data, (2) a near-global Surface Disturbance product suite from optical data, and (3) a North America Displacement product suite from SAR data. In addition, OPERA will produce two intermediate SAR products that allow for user-customized product generation: (1) a North America Land Coregistered Single-Look Complex (CSLC) stack product from SAR data, and (2) a near-global land surface Radiometric Terrain Corrected (RTC) product from Sentinel-1 SAR data.

We present OPERA project status updates and product specifications. We also discuss how the free and open data can be accessed through the NASA Distributed Active Archive Centers. We showcase OPERA's near-global Surface Water and Disturbance products derived from Harmonized Landsat Sentinel-2 optical data and demonstrate use-cases for detection and monitoring hazards such as floods, droughts, wildfires, and landslides. We also introduce products of particular relevance to the SAGE/GAGE community including the upcoming Sentinel-1 SAR-based products such as RTC and CSLC, with operational production starting at the end of September 2023, and the future Displacement product with planned production to start in Nov. 2024.