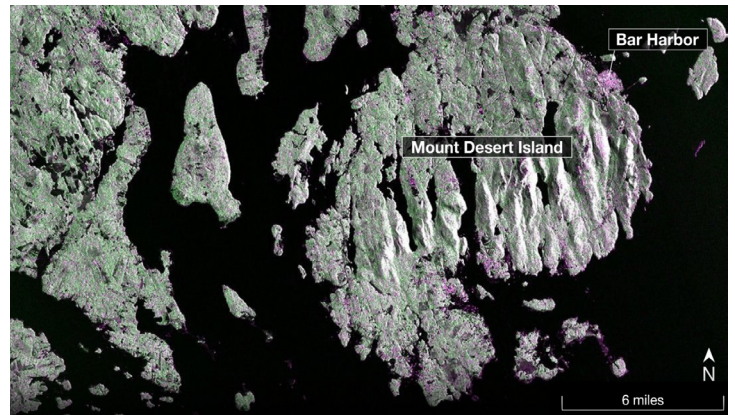


High-Resolution North America NISAR Data

Satellite Needs Working Group - Solution Fact Sheet

The NASA/Indian Space Research Organization (ISRO) Synthetic Aperture Radar (NISAR) is the first satellite mission to collect dual-frequency SAR (L-band at 24 cm wavelength and S-band at 9 cm) capturing highly detailed measurements of changes in Earth's movements as small as a centimeter. NISAR monitors the Earth's changing ecosystems, dynamic surfaces, and ice masses using advanced radar imaging, providing critical information about biomass, natural hazards, sea level rise, and groundwater, which are paramount for monitoring broad environmental challenges. The Satellite Needs Working Group (SNWG) enabled the NISAR mission to increase the data collection volume by 9 Tbits/day with the installation of a new downlink station at NASA's Wallops Flight Facility in Virginia. The new downlink station, provided by NASA's SNWG Implementation Team (NSITE), will increase NISAR's image resolution from 6.25 m x 5 m to 3.12 m x 5 m over North America (Alaska and Canada to Panama), Hawaii and U.S. Territories, and expand the NISAR coverage area to include ocean data offshore the U.S. and Hawaii, and soil moisture data over the Sahara.



Sample imagery over Mount Desert Island, Maine captured on August 21, 2025, with NISAR's L-band radar. L-band SAR can discern land cover types such as vegetation, bare soil, and human structures. Green regions indicate forest while magenta represents hard or regular surfaces, such as bare earth or buildings.

Credit: NASA Scientific Visualization Studio, Nathan Marder (Global Science and Technology, Inc.)

Scientific & Societal Benefit

- Measures movements in the Earth's surface associated with natural hazards to inform response decisions
- Tracks changes in the Earth's surface associated with groundwater withdrawal and hydrocarbon production to inform on subsidence and sea level rise
- Enables high-resolution, cloud-penetrating imaging to better support monitoring of environmental observables including biomass, surface water extent, and various ecosystem disturbances
- Collects data over coastal areas for monitoring ocean winds and waves associated with hurricanes and atmospheric rivers to aid in weather forecasting and understanding marine hazards
- Enables the production of high-resolution soil moisture products to inform on crop yields and hazards, food demands, forest fire prediction, water supply management, and other natural resource activities

NASA's SNWG Implementation Team (NSITE)

High-Resolution North America NISAR Data

Data Characteristics		
Platform	NASA-ISRO Synthetic Aperture Radar (NISAR)	
Instrument	24 cm wavelength L-band Synthetic Aperture Radar (L-SAR)	
Sensor Type	Synthetic Aperture Radar (SAR)	
Temporal Coverage	Based on NISAR availability	
Temporal Frequency	12 days	
Latency	72 hours	
Spatial Coverage	North America (Canada to Panama, Hawaii and U.S. Territories)	Western U.S.
Spatial Resolution	3.12 m x 5 m	
Data Format	HDF5	

How do I access this data?

High-resolution North America NISAR data is not yet available. Sample NISAR data products are available and can be downloaded through NASA's ESDIS archive, where the official products will later be distributed.



NASA's ESDIS
Archive



Sample NISAR
Products

Where can I find more information?

More information on the high-resolution North America NISAR data is available on this solution's webpage and the official NISAR website.



High-Resolution
NISAR Webpage



NISAR Project
Website

Background Image Credit: USFS

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