National Aeronautics and
Space Administration

# NASA Satellite Laser Altimetry for Coastal and Near-Shore Bathymetry

December 2 & 4, 2025

10:00-11:30 or 14:00-15:30 EST (UTC-5)

This two-part training focuses on NASA data providing near global coverage of coastal and near-shore satellite-derived bathymetry (SDB) measurements from the Advanced Topographic Laser Altimeter System (ATLAS) instrument – a space-based lidar instrument flying on the Ice, Cloud, and land Elevation Satellite 2 (ICESat-2) mission. ATLAS's green wavelength, photon-counting lidar signal can reach depths of up to 40 meters in regions with adequate water clarity to provide shallow, near-shore bathymetric data for a range of applications, including coastal and marine science management, nearshore habitat research, marine navigation, and engineering applications. The ATL24 product provides near global along-track coastal and nearshore SDB, consisting of refraction-corrected seafloor and sea surface heights, as well as associated uncertainties. This training will improve user's knowledge of the ICESat-2 mission, the ATL24 product, and how to access, plot, and analyze ICESat-2 bathymetry data.

**Part 1: NASA ATL24 Bathymetric Data for Coastal and Near-Shore Applications**

ARSET Instructor: Sean McCartney

Guest Instructors: Lori Magruder, Diane Fritz, and Joseph-Paul Swinski

- ICESat-2 mission overview
- ICESat-2 data products
- Operational coastal and nearshore bathymetry product
- National Snow and Ice Data Center (NSIDC) – Resources and data access
- SlideRule Web Service for plotting and downloading ATL24 data
- Summary and Q&A

**Part 2: Techniques for Plotting and Analyzing ATL24 Coastal Bathymetry**

ARSET Instructor: Sean McCartney

Guest Instructors: Christopher Parrish, Joseph-Paul Swinski, Gretchen Imahori, and Keana Kief

- Review of Part 1
- Demonstration: SlideRule Web Client & QGIS
- Generate SDB from multispectral satellite imagery and ATL24
- Demonstration: SlideRule Python Client
- NOAA's SatBathy tool and integration of NASA's ATL24
- Summary and Q&A

ARSET empowers the global community through remote sensing training.