



PROJECT DESCRIPTION
This lidar-derived submarine topography map was produced as a collaborative effort between the U.S. Geological Survey (USGS) Coastal and Marine Geology Program, National Park Service (NPS) South Florida/Caribbean Network Inventory and Monitoring Program, and the National Aeronautics and Space Administration (NASA) Wallops Flight Facility. One objective of this research is to develop a lidar system for coastal and marine environments, specifically for bathymetry, elevation, location, and extent assessment (for example: shoaling, barriers, disease outbreaks, and so on). As part of this project, data from an innovative instrument under development at the NASA Wallops Flight Facility, the NASA Experimental Airborne Advanced Research Lidar (EAARL) are being used. This sensor has the potential to make significant contributions in this realm for measuring water depth and conducting cross-environment surveys. High spectral resolution, water-column correction, and low costs were found to be key factors in providing accurate and affordable imagery to managers of coastal tropical habitats.

DATA DESCRIPTION
The laser sounding used to create this map was collected during September 2001 and August 2002 by the NASA EAARL system mounted on a Cessna 172 aircraft. The EAARL system is typically flown at 300 m altitude AGL resulting in a 240 m swath for each flightline. Data collection occurred with approximately 50% overlap between flightlines, resulting in about one laser sounding per square meter. The data were processed by the USGS Center for Coastal and Watershed Studies to produce 1-meter resolution raster images that can be easily ingested into a Geographic Information System (GIS). The data were organized as 2 km by 2 km data tiles in 32-bit floating-point integer GeoTIFF format. Contour line and hillshade layers were generated from these data tiles and incorporated into this map product.

FURTHER READING
Brock, J.C. and Sallenger, Anthony, 2001. Aerial topographic lidar mapping for coastal science and resource management: U.S. Geological Survey Open-File Report 01-46, p. 1-10.
Brock, J.C., Wright, C.W., Nayegandhi, Amar, Claytor, Tonya, Hansen, Mark, Longenecker, John, Goch, Dean, and Crane, Michael, 2002. Initial results from a test of the NASA EAARL lidar in the Tampa Bay Region: Transactions of the Gulf Coast Association of Geological Societies, v. 52, p. 89-98.
Wright, C.W. and Brock, J.C., 2002. EAARL: A lidar for mapping shallow coral reefs and other coastal environments, in: Proceedings of the Seventh International Conference on Remote Sensing for Marine and Coastal Environments, Miami, May 20-22, 2002; Ann Arbor, MI, Veridian International Conferences, 1 computer optical disc.

Biscayne National Park USGS-NPS-NASA EAARL Submarine Topography Map Tile 582000e_281000n

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