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A multi-agency solution for coastal surveys - SHOALS in the Pacific

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Abstract

In late boreal summer 2000 and into early spring 2001 an ambitious multi-agency plan was put in motion to survey ten Pacific islands ranging from the Hawaiian Island group to Guam and the Commonwealth of the Northern Mariana Islands (CNMI). Encompassing a span of nearly 4000 miles, approximately 1100 square miles of shallow coastal ocean was mapped from 50 m deep to 50 m above the high water mark. The foundation for this project was an existing partnership between the US Navy and the US Army Corps of Engineers (USACE) that operates the Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS) system through the Joint Airborne Lidar Bathymetry Technical Center of Expertise (JALBTCX). As the only operational lidar bathymetry system in the USA, and one of only four in the world, SHOALS' availability to rapidly and safely survey shallow water areas is at a premium. By including the requirements of the US Geological Survey (USGS) and the National Oceanic and Atmospheric Administration (NOAA) National Ocean Service (NOS), along with those of the Navy and USACE, it became possible for all agencies to benefit from a Navy-sponsored deployment of this highly specialized, but flexible technology. Expanding the project allowed each agency to contribute in its own specific area of expertise. This paper presents the data collected in Hawaii and demonstrates how multi-agency relationships can be optimized through a flexible technology, such as airborne lidar, to concurrently satisfy a wide variety of requirements. These include tactical charting, safety of navigation, coral reef mapping, environmental assessment, shoreline dynamics and coastal engineering