

# Geo-data for making better decisions on climate change programs – focus on small islands

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## SUMMARY

Half the world's population lives within 60 kilometres of a coast. Coastal resilience refers to flood risk hazard mitigation and climate adaptation planning of the coastal zone. High quality geo-data is key to building coastal resilience by enabling better decisions on climate change programs.

Through a coastal mapping project in Jamaica and Haiti, where approx. 2000 sq. km. of integrated shallow water and land-based elevation and imagery data were collected, we will show the value of building and managing recurring geo-data programs that enable 3D digital snapshots of entire areas, both onshore and nearshore. Topographic lidar typically uses a near-infrared laser to map the land and onshore features. Bathymetric lidar uses water penetrating green light to measure seafloor and riverbed elevations. When preparing or planning for a Geo-data project like this, we consider things like tide/water level, weather, seafloor reflectance, benthic habitat, marine-wildlife or civilian activities, water clarity, topography variability (terrain type), airspace restrictions, land survey ground control point locations, base station locations, and the operations for onsite monitoring of water clarity. All of these considerations ensure the data we capture will be of good quality, accurate, and complete.

Lidar data can be utilized as the primary data source for monitoring change, and with enough recurring datasets, help perform some predictive analysis. As the data becomes more common, the need for non-GIS users to access the data is critical. Geo-data analysis using clever tools or 3D GIS platforms expands the use of the collected data, provides digital access to hard-to-reach areas at your desktop, assisting with making more informed decisions, which helps safeguard life, our community and natural environment.

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