

# TCarta Wins Contract to Map Seafloor around Kiribati



TCarta Marine, a global provider of geospatial products and services, has been contracted by the United Kingdom Hydrographic Office (UKHO) to provide a baseline dataset of water depths and seafloor classification around the Republic of Kiribati. Located in the Pacific Ocean, the island nation is threatened by rising sea levels.

“Most of Kiribati’s islands average less than two metres above sea level at present and the country’s 110,000 inhabitants are among the most vulnerable to the effects of sea level rise and the world’s first potential climate change refugees,” said Kyle Goodrich, TCarta President. “We expect to map 5,000 square kilometres in total. Our seafloor maps will be used with other geospatial information by the UKHO to recommend policies that will assist Kiribati in planning for and responding to this situation.”

## Multispectral satellite imagery

TCarta won the open bid for supply of Satellite-derived Bathymetry (SDB) to the UKHO to extract water depth measurements and seafloor classifications, including habitat types, from multispectral satellite imagery. In this project, TCarta is processing eight-band DigitalGlobe WorldView-2 and -3 data predominantly, as well as four-band WorldView-4 and GeoEye-1 data to measure depths down to 30 metres at a resolution of 2 metres.

“The Kiribati project highlights the efficiency and cost-effectiveness of SDB technology in a geographic area too remote and enormous for traditional marine or airborne survey methods,” said Goodrich.

The Kiribati nation is comprised of 33 atoll islands and multiple reefs spread over an area of the Pacific Ocean nearly the size of the Continental USA. Multiple new reefs were discovered by TCarta using this satellite-derived approach at the start of this project. The islands and surrounding environs have not been mapped in their entirety since the late 1800s. Acquiring bathymetric data and habitat classifications using traditional ship-borne sonar or airborne Lidar are prohibitively expensive, logistically challenging and come at a far higher cost and timeframe than a satellite-based solution.

## Efficiency of SDB technology

“We began tasking the DigitalGlobe satellites to capture images in December and will deliver the final products to the UKHO in early March,” said Goodrich, “DigitalGlobe has been a tremendous partner in helping TCarta meet the project deadlines and challenging open ocean conditions with repeat tasking of imagery, collecting more than 300 images in support of the project, despite the loss of WorldView-4.”

A differentiator in TCarta’s winning the UKHO contract was the company’s leadership role in developing more advanced bathymetric measurement technologies using satellite data. Funded by the National Science Foundation SBIR Phase I grant and known as [Project Trident](#), this new technology is being deployed in the Kiribati project to remotely validate the bathymetry results.