



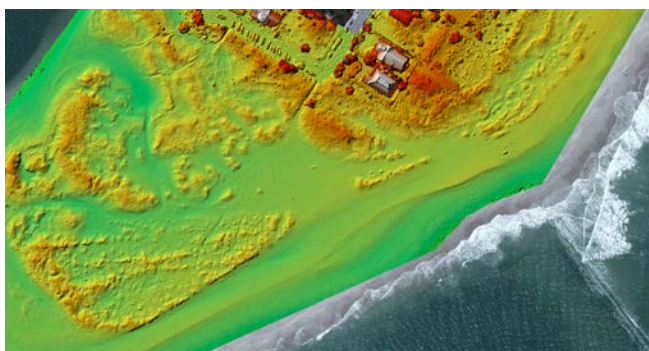
# Identifying Beach Erosion with Drone2Map™ for ArcGIS®

Carolina beaches, among the most popular tourist destinations on the US East Coast, are highly susceptible to erosion. New technology promises to help engineers and government officials who work to combat beach erosion in the Carolinas and other places with similar struggles.

Along the Carolina shores, the US Army Corps of Engineers conducts regularly scheduled beach re-nourishment projects to mitigate the effects of Atlantic storm events. Municipalities must constantly monitor beach conditions to proactively regulate re-nourishment projects.



This high-resolution orthomosaic reveals exacting details.



This color shaded relief, derived from a digital surface model create with Drone2Map, clearly defines the terrain.

In May 2016, people from local, state, and federal agencies gathered on North Carolina's Wrightsville Beach to witness a 'proof of concept' beach mapping project that involved imagery data collection from a drone. Esri partner McKim & Creed Inc., a leading engineering and surveying firm, collected imagery with a Sony R10C camera attached to a quadcopter drone. They quickly processed the imagery using Drone2Map™ for ArcGIS® and created web maps in ArcGIS™ Online.





Drones enable more efficient monitoring of beach erosion.

To ensure the imagery was high quality and stable, the team used a 3DR® Solo™ quadcopter produced by Esri partner 3D Robotics. With the 3DR Solo, the team was able to capture approximately 75 acres of topographic data in one hour at a 1.05-inch resolution.

While on site, Drone2Map provided in-field rapid processing to create a coarse orthorectified photomap and digital elevation model. Within four hours, the first of many high-resolution 2D and 3D image map products was published as a web map in ArcGIS Online.

Drone2Map yielded a resolution of 104 points per square meter. LiDAR data for the same area, previously collected by the US Army Corps of Engineers, yielded only three points per square meter. The 3D mesh created with Drone2Map was able to precisely reveal tire tracks on the beach, which would be impossible with previously collected data.

“This technology will prove critical to local, state, or federal agencies who need to regularly monitor beach erosion,” said Lawrie Jordan, Esri’s director of imagery. “They will be able to quickly identify hot spots and evaluate corrective efforts for each location.”

McKim & Creed Inc. estimates that the use of drones or unmanned aircraft systems along with Drone2Map for this type of survey could result in a time and cost savings of 60 percent compared to conventional techniques.

Learn more at [esri.com/drone2map](https://esri.com/drone2map).



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