

## APPLICATION OF USV TO OBTAIN HIGH-QUALITY BATHYMETRIY: CASE STUDY OF COASTLINE SURVEY OF THE TRIANGLE ISLAND SITUATED SOUTH OF CHINA

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### Abstract

USVs (Unmanned Surface Vehicles) have been placed in the industries and applied from hydrographic surveying and coastal oceanographic surveying to open sea areas. Improved efficiency and safety will be the driving factor behind the acceptance of USVs for this application. This paper discusses the application of the OceanAlpha M80 long endurance multi-functional USV platform deploying a Reson T20P MBES to conduct an underwater topography survey around a triangle island. With a large capacity for oceanographic survey instruments, the USV is able to conduct multi-purposed hydrographic surveys on the deep sea. The surveying process includes navigating the survey area, confining the survey area, setting up survey lines, autonomous surveying, recording data and returning, and the total survey range of this project is 41 km. The case and its result demonstrated in this paper prove that USV is an efficient and developed platform for off-island bathymetric and topographic surveys, and the data quality can reach IHO-44 Premiere Standard. USV can be adopted to obtain bathymetric data from the extremely shallow area around island reefs, providing necessary data support for marine navigation and island development.

**Keywords:** *Unmanned Surface Vehicles (USV), Hydrography, Bathymetry, Automation*