

USING SAR TO STUDY THE ENVIRONMENT OF SPRATLY ISLANDS

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Spratly Islands are located in the southern part of the South China Sea. It consist more than one hundred of small islands, coral reefs and banks. Remote sensing is the only way to get a synoptic view of all islands. It had been demonstrated that satellite Synthetic Aperture Radar (SAR) imagery is a very powerful tool to obtain meso-scale and small-scale ocean processes in a large area. In this study, SAR images are used to study ocean, atmosphere and bathymetry features, such as ship wake, surface waves, oil spill, rain cell, coral reefs, bottom topography and small islands in the Spratly Islands. The goal is to understand the capability of satellite remote sensing to monitor the ocean environment and to provide information for future field studies. Two sets of high resolution ERS-2 SAR images over the entire Spratly Islands area have been collected on 2005 April and the other on 2005 December. Then, the ocean features are identified/extracted from the SAR images to overlay with the bathymetry map for comparison. A case study of Tai-Ping Island (the largest island in Spartly Islands) shift in map (at least 20-years old) will be demonstrated. It is based on comparison of GPS survey, navigation bathymetry map, and SAR image overlay. Applications of satellite remote sensing for navigation charts will be discussed.