The monitoring of shape change of sand cay based on multi-platform remote sensing

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The Hatenohama sand cays located at the eastern end of Kume Island are the largest coral sand cays in Japan, with a total length of about 6 km and a width at the widest point of 300m. The objective of this study was to describe the short-term changes in shorelines along the Hatenohama sand cays based on multi-platform (Satellite and Unmanned Aerial Vehicle : UAV) remote sensing.

Shoreline changes in the sand cays were measured by two datasets from two platforms. Two datasets were as follows; 1) Satellite image (Sentinel-2 L1C, L2A) were taken between 2016 and 2018. 2) Vertical aerial photographs were taken by using UAV in 2018/1/27. Meteorological observation data recorded at the Kume Island Weather Station over the period 2016-2018 were analyzed.

The shape and position of sand cays change frequently in two years. The cay expanded toward the north after typhoons and then gradually migrated to the south while northern shoreline eroded by winter monsoon.

Keywords: Unmanned Aerial Vehicle, Sentinel-2, Shoreline changes, Coral sand cay