

Marine erosional landforms along the southern coast of Yonaguni Island, Ryukyus

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Yonaguni Island is located at the westernmost of Japan, where marine erosional landform is widely seen. However, high sea cliffs refuse the investigator's approach. We created three-dimensional models by taking photographs from drone. The coastal area of Yonaguni Island is composed of the Middle Miocene sedimentary rocks of the Yaeyama Group and Pleistocene limestone of the Ryukyu Group. We observed characteristic erosional landforms which varies depending on geology along the southern coast of Yonaguni Island.

We surveyed 6 areas where locate the east and south coasts in Yonaguni Island. Photogrammetric surveys were carried out using DJI Phantom 4 Pro. We installed a GCP at accessible places. PhotoScan Professional was used as SfM-MVS software to create terrain models.

Coastal landforms are largely different depending on geological structure. In the limestone coast, collapsed areas of several hundred meters wide are formed. These collapses seem to originate from the unconsolidated layer of unconformity below the limestone or the detrital layer in the limestone. In the coast of sedimentary rocks, coastal landform varies with sedimentary facies. Shore platform is formed at the base of cliff which composed of layers of sandstone and shale. On the other hand, large boulders are distributed at the base of cliff composed of massive sandstone without layers.

Keywords: SfM-MVS, Photogrammetry, Sea cliff, Shore platform, Yaeyama Group, Ryukyu Limestone