

Erosional features of seafloor off the rocky coast: based on multibeam echo-sounding and SCUBA surveys around Yonaguni Island, Ryukyus

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In shallow coastal areas, erosion of seafloor occurred by wave and current. However, contemporary erosional features on rocky seafloor has been rarely studied since the 1970s. In this study, we report contemporary erosional features off the rocky coast based on the multibeam echo-sounding and SCUBA diving surveys.

We have conducted bathymetric surveys using wide-band multibeam echo-sounder R2Sonic 2022 since 2017, and observed seafloor geomorphology around Yonaguni Island. We also conducted SCUBA diving surveys at many points around the island, and observed seafloor geomorphology and sediments.

The western and eastern coasts of Yonaguni Island are consisted by alternate layers of sandstone and mudstone. Off these coasts, there are many rectangular plateau-like rocks. They are flat at the top and fringed by cliffs and grooves. On the seafloor, various types of erosional features are observed such as denudation of bedrock, abrasion, production of rounded cobbles and boulders, potholes of various sizes and shapes. On the southeastern coast, rounded boulders around 0.5 to 1m in diameter are covered the seafloor at 31 m depth. We observed the recent traces of movement of the boulders. The sediment movement and abrasion on the seafloor is reached deeper than that was considered the wave base in previous studies.

Keywords: abrasion platform, pothole, denudation, rounded boulder, coral reef, MBES bathymetry