

Udo Island: a new potential geosite cluster in Jeju Island Geopark

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Udo Island, which may well be called a “Mini-Jeju Island”, includes a variety of geoheritage sites. Various volcanic landforms were produced by the Late Pleistocene phreatomagmatic eruptions and lava effusion. The essential elements of the island are a tuff cone and an overlying lava shield. Udo Island has been connected to Jeju Island and has become isolated as an island due to sea-level fluctuations during the Pleistocene Epoch. Various coastal landforms are also present. About 6,000 years B.P. when sea-level rose almost to the present position due to deglaciation since Last Glacial Maximum, carbonate sediments were formed and deposited in the shallow marine environment around Udo Island. A very shallow broad shelf, less than 20 m in water depth, between Udo Island and Jeju Island, has provided perfect conditions for the formation of rhodoids. Occasional transport of these rhodoids by typhoons produced the unique beach environment whose sediments are entirely composed of rhodoids. Additional features are the Hagosudong Beach with white carbonate sands, the Geommeolle Beach with black tuffaceous sands and Tolkani Beach with basalt cobbles and boulders. Near the Hagosudong Beach, wind-blown sands in the past produced carbonate sand dunes. On the northern part of the island, special carbonate sediments are present, deposited by complicated processes such as beach-forming process and transportation by typhoons. Several lava tube caves are present on the island and several sea caves are another interesting feature, and they have been formed by wave and typhoon erosion within tuffaceous sedimentary rocks. Especially, one sea cave found at the 10 m deep is very special because it indicates the sea-level fluctuations in the past. Shell mounds in Udo Island may well represent the mixed heritage feature on this island. The high geodiversity make a good condition as an additional geosite cluster (meaning a geographically isolated area with several geosites) in Jeju Island Geopark. However, proper programs for geotourism have been developed and sustainable socio-economic development is necessary to be a good potential geosite cluster.

Presented in Theme 5