

The effects of experience-based geological education on Byobugaura geosite in Choshi Geopark

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Choshi, located at the east end of the Boso peninsula, 100km east of Tokyo, Chiba prefecture, Japan, has many geological heritages that should be preserved and passed on to future generations. Representative geological features in Choshi are as follows.

First, the Bioubugaura coastal cliff, comprising Pliocene and Pleistocene sedimentary rocks, is approximately 9 km in length and 30?50 m in height and faces the Pacific Ocean. This topography, which is also called "Dover in the East", consists of sharp cliffs formed by land erosion resulting from sea waves. According to a previous report, the speed of erosion is 5?6 m per year. To prevent erosion, seawall was constructed in 1966. The seawall was a necessity for the residents' safety even though it negatively affected the geo-heritage. Second, the Cretaceous shallow sea sediments, designated as a government national monument, are exposed in the Inubouzaki coastal area at the east end of the Choshi peninsula. Third, the "Inuiwa" and "Sengaiwa" rocks, carried on the tradition of the "Yoshitune legend" which is a legend concerning a samurai warrior in the medieval period of Japan, are composed of Jurassic greywacke, mud stones, and conglomerates that includes calcareous coarse fragments with fusulina fossils.

The geological and geographical characteristics of Choshi peninsula have brought honor to the region as Japan's best spring-cabbage-producing area as well as one of the most important fishery bases in the country, and have attracted many of wind turbines, which are considered as leading renewable energy. Choshi geopark project will provide people with understanding of not only the geological formation process of Choshi peninsula but also of the environmental impacts resulting from this land utilization process. That will convince the people of importance of the local environment and prompt their concrete activities toward conservation of the local environment in the future. We define the concept that divides the local environment into three stages - the passed formation process, the present utilization process and the future conservation process - as the "local life cycle thinking". By utilizing this concept, we are providing education for sustainable development, or ESD, at elementary, junior-high and high schools in the region.

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