

## The summary of Choshi geopark project and introduction of geological education program for junior high school students

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Choshi, located at the east end of the Boso peninsula, 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, protection blocks were constructed in 1966. Consequently, Bioubugaura coastal cliff vegetates, the surface color of the cliff turns to green to grow many kinds of vegetation. 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", are composed of Jurassic greywacke, mud stones, and conglomerates that includes calcareous coarse fragments with fusulina fossils.

Study of Choshi geopark in terms of geological, geographical, and climatological characteristics shall provide understanding of not only the geological framework of Choshi area but also land utilization. Land in Choshi is used for producing some special local products as follows, cabbage cultivation, wind power generation, and fisheries industry. This area is considered to be the country's best among these special local products. Using the concepts of "construction process", corresponding to the geological framework, "land utilization process", corresponding to the production of special local products, and "conservation process", corresponding to Choshi geopark activities, we define the "life cycle thinking method" of local environment. Using this thought process, we are currently implementing ESD (Education for Sustainable Development) at local elementary, junior high, and high schools.

Keywords: Geopark, Choshi, Life cycle thinking, ESD, local products