

Stratigraphic variations in sediment-gravity flow deposits in varved sediments in Hiruzenbara Formation

Yasunori Sasaki^{1*}, Mayuko Yumi¹, Megumi Saito-Kato³, Hajime Naruse², Yoshiro Ishihara¹

¹Fukuoka Univ., ²Chiba Univ., ³National Museum of Nature and Science

The Hiruzenbara Formation, distributed in the northern part of Okayama Prefecture, contains lacustrine deposits of varved diatomites, which were deposited in the paleolake formed in the Hiruzen basin. These diatomites are composed of couplets of 1-3 mm thick dark green and light green laminae and sediment-gravity flow deposits. The sediment-gravity flow deposits in the diatomites are well exposed in the mining pit of the Showa Chemical Industry Co., Ltd. Therefore, the lateral and stratigraphic variations in these deposits can be easily investigated. In this study, we elucidated the changes in the environment of the paleolake Hiruzenbara on the basis of sedimentary facies and stratigraphic variations in the sediment-gravity flow deposits.

The sediment-gravity flow deposits are classified as follows. (i) Type C, called choco band, is composed of black silt deposits. The beds of this type are relatively thin (2-10 mm). This type of deposits contains the stream diatom *Tabellaria fenestrata*. (ii) Type B is composed of light gray deposits including blocks of broken diatomites. The beds of this type of deposits are relatively thick (10-30 mm). This type shows poor continuity in the pits. Type B and Type C deposits are believed to have deposited from the avalanche at the lake floor and from the hyperpycnal flow from rivers around the basin, respectively. In stratigraphically both types of the deposits tend to be thicker and more frequent. These results show that the paleolake Hiruzenbara became shallower and the source of sediment-gravity flow shifted closer to the study area.

Keywords: diatomite, varve, sediment-gravity flow, hyperpycnal flow, Hiruzenbara, Okayama Prefecture