Revision of the stratigraphic division of the Neogene in the Sado Island, Niigata Prefecture, Central Japan -Contribution of stratigraphic research to geopark activity-

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Latest Paleogene to Neogene volcanic, volcanoclastic and sedimentary rocks are widely distributed in the Sado Island, central Japan. These rocks are important geoheritages which represent geological history of the Japan Sea. The Sado Geopark utilizes those rocks along with the geohistory recorded in them as major attraction for visitors.
We propose a revised lithostratigraphy for the Neogene sediments in the Sado Island in order to make it more concordant to the geohistory in the area, since our detailed lithostaratigraphic and diatom biostratigraphic studies have revealed some problems about stratigraphy in this area as follows;
1. One of the present stratigraphic boundaries is largely diachronous.
2. Some of the boundaries do not coincide to the timing of the important geological events which was made clear after the establishment of present stratigraphic framework.
Our proposal is;
The Orito Formation is devided into two formations. The boundary between two formations is ravinement surface indicating a rapid transgression, which corresponds to the transgression event widely found in latest Early Miocene along the eastern margin of the Japan Sea.
The Tsurushi Formation is disestablished and included in the redefined Nakayama Formation. The boundary between the two formations is revealed significantly diachronous by our diatom biostratigraphic study. The lithological difference between the two formations was formed by the diagenetic process and is not primary lithological difference. Thus we judged the present boundary is not adequate and the two formations must be combined.
The Nakayama Formation should be divided into two formations at a glauconite sandstone layer in upper part of the formation. The boundary between the two formations corresponds to a widespread hiatus which has been recognized in eastern margin of the Niigata sedimentary Basin.
By this revision, geological events widely found in the eastern margin of the Japan Sea are reasonably recognized in the Neogene stratigraphy of the Sado Island. We believe that this revised stratigraphy helps visitors of the Sado Geopark understand geological history of the island more easily.
In other geopark areas, there are also descrepancies between up-to-date geological history and lithostratigraphy. In general, researchers are not interested in local stratigraphy of geopark areas, and therefore such discrepancies are left unresolved. Cooperation between geologists in such geoparks and researchers in universities or institutes will resolve these problems by establishing a reasonable new stratigraphic framework.

Keywords: Neogene, Stratigraphic division, Diatom biostratigraphy, Geopark, Sado Island

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