

**GEOCHEMICAL CHARACTERISTICS OF ORGANIC MATTERS AND
SEDIMENTS IN UPPER QUATERNARY SEDIMENTS OF THE ULLEUNG BASIN,
EAST SEA**

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Except for the tephra layers, the cores consist predominantly of muddy sediments containing > 0.5% TOC (Total Organic Carbon). The atomic TOC/N ratios and $\delta^{13}\text{C}_{\text{org}}$ in the sediments suggest that the organic matters are originated from the marine algae rather than the land vascular plants, whereas the Rock-Eval pyrolysis means that the organic matters are derived from the land vascular plants (Type III) and located in the thermally immature stage. These discrepancies are likely to be caused by the heavy oxidization of marine algal organic matter when they are sank down to the sea floor or post-deposited. TOC contents do not show the spatial variation according to sampling location. However, TOC contents have a vertical variation with the MIS (Marine Isotope Stages); they have the lowest and narrowest range at the MIS II whereas the highest and widest range at the MIS I. This indicates that the limiting factor for the TOC content in the sediments is the primary productivity in sea surface rather than organic matter preservation by the sea-level change of the East Sea.

According to the XRF data of bulk sediments, Si/Al ratio is higher than normal value of terrigenous silicate, around three, which is likely to be caused by the variable preservation of biogenic silica via diagenetic effects. The intervals showing an abrupt change of chemical compositions are in a good agreement with the tephra layers such as the Ulleung-Okii (ca. 10.1 cal. ka), Aira-Tanzawa (ca. 23 cal. ka), and Ulleung-Yamato (ca. 30.8 cal. ka). And CaO contents have higher values at these intervals except the foraminiferal oozes. These results indicate that tephra layers not only strongly influence on the chemical compositions of bulk sediments in the cores, but also there should be a strong relationship between the volcanic eruption and marine environment/ecology. One of the possible explanations of the relationship between tephra layers and foraminifera is that the volcanic eruption could be caused the catastrophic change of the marine environment and ecology, a number of planktonic foraminifera consequently died in comparison with benthic foraminifera because they did not rapidly adapt to the catastrophic marine environmental and ecological change.

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