

## Pliocene paleoceanographic reconstruction off the Kumano based on planktonic foraminiferal modern analogs

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The Modern Analog Technique (MAT) is a powerful method to reconstruct paleoenvironment by means of a modern dataset (Hutson, 1979; Overpeck et al., 1985; Prell, 1985). In this method, a paleoenvironmental property for a fossil assemblage is calibrated by nearest modern assemblages. Therefore, this method is completely rely on the size and coverage of the modern dataset. According to previous multi-technique studies, the MAT is more sensitive than the Imbrie-Kipp transfer function method.

A global modern database of planktonic foraminifera has been well established by international projects. However, the global dataset is based on specimens in different test size (>150 micrometers) from that of Japanese workers (>125 micrometers). As a Japanese regional dataset, Imbrie-Kipp factor loadings were presented for 81 surface sediment samples along the Pacific coast of Japanese Islands (Takemoto and Oda, 1997). We newly developed a FORTRAN program of the MAT using the square chord distance (SCD) based on Imbrie-Kipp factor loadings of a given sample and the modern 81 samples of Takemoto and Oda (1997). We applied this program to Pleistocene 147 samples obtained from IODP Sites C0001 and C0002 drilled off the Kumano region, northwestern Pacific. As a result of this, vertical temperature changes (0-300 m in depth) of both winter and summer seasons for the last 1.8 million years were reconstructed successfully with low SCD values (less than 0.25). The depth gradient of the summer water temperature in the reconstructed profile indicates stepwise increases around 1.59 Ma (MIS 54) and 1.01 Ma (MIS 28).

Keywords: Planktonic foraminifera, Pleistocene, Modern Analog Technique, Kumano, IODP