

Development and application of Japan Sea Paleoenvironmental Database (JSPED)

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The Japan Sea has seen fundamental changes in environmental conditions in response to the glacial-interglacial cycles, particularly the spatiotemporal variations of sea surface temperature (SST) and oceanic redox states. These climatically-driven changes along with geochemical and tectonic variations in boundary conditions such as sea-level, patterns of ocean current and oxygen distribution all would have affected evolution and distributions of diverse species. From this point of view, a comprehensive paleoenvironmental database of the Japan Sea will be a powerful tool for elucidating paleoenvironmental variations in geological past, and will provide useful information for testing hypothesis on relationships between past environmental changes and evolution. Here we develop a new database, Japan Sea Paleoenvironmental Database (JSPED), with the aim of a collaboration of paleoceanography and phylogeography. In this study, we will summarize the temporal variations of SST distributions over the last 20 kyr and its relationship with genetic diversity of several fish species in the Japan Sea, and discuss the future direction toward updates of JSPED.

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