Reconstruction of bottom water oxygenation condition in the Japan Sea during the last 150 ka

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Organic-rich dark sediments called black shales are thought to indicate anoxic ocean bottom water oxygenation conditons. However, causes of their formation is controvercial between ocean stratification hypothesis and increase in surface productivity hypothesis. To examine change of past ocean environment, it is important to compare and differenciate the dark layers deposited by these two mechanisms. Quaternary the Japan Sea sediments are characterized by repeated deposition of organic-rich dark layers. The thick dark layer deposited during the last glacial maximum when global sea level was the lowest, are thought to have been deposited under stratification condition. Whereas other thinner dark layers deposited during the last glacial periods when the seal level was moderately low are thought to have been deposited under the influence of increased productivity caused by inflow of nutrient from the East China Sea. Thus, the Japan Sea sediment contained dark layers formed by the two different causes. In this study, I examined sedimentary structures, especially ichnofabrics to reconstruct the past fluctuation in redox condition of the bottom water in the Japan Sea and compared the characteristic differences in dark layers fromed by these two causes, using core sediments collected at different water depth in the Japan Sea.