

日本近海の海水温変動と北半球気候変動との共時性

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Synchronous Td' -derived SSTs (°C) off Japan with Climatic Events in the Northern Hemisphere

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Abstract

Annual sea-surface temperatures (SSTs) (°C) were derived from a regression analysis between the ratio of warm- and cold-water diatoms (Td' ratio) in 123 surface sediment samples around the Japanese Islands and measured mean annual SSTs (°C) at the core sites. The cross spectra between the atmospheric residual ^{14}C (‰), and annual SSTs (°C) of cores DGC-6 (Japan Sea) and MD01-2421 (off Kashima), respectively, consist of five dominant periods: 6000, 2400, 1600, 950, and 700 years.

The amplitude of fluctuations of annual SSTs (°C) in the millennial time scale during the Holocene after the Younger Dryas is within 6–10°C. Periodic variations of annual SSTs (°C) can be correlated within error to abrupt climatic events reported from different paleoclimatic proxy records in many regions of the Northern Hemisphere. The cooling time of annual SSTs (°C) also corresponds to the triple events of high ^{14}C values in the atmospheric residual ^{14}C records, as well as the Bond events in the North Atlantic.

Key words : sea-surface temperatures, solar activity, Holocene, climatic variations, proxy

キーワード : 表層海水温, 太陽活動, 完新世, 気候変動, 間接指標

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