

Recent achievements and future perspectives of paleoenvironmental studies

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Recent progress in geochemical analysis enables reconstruction of a variety of environments using sediment as well as biogenic skeleton/shells. The reconstructed environments range from local conditions such as temperature, salinity and pH to global phenomena including frequency and intensity of El Nino and southern oscillation (ENSO), Indian Ocean Dipole (IOD), and Pacific Decadal Oscillation (PDO). An extraterrestrial effect (solar activity) to earth's climate and ecosystem can be delineated as well. It is possible to detect artificial environmental changes such as the shifts in carbon isotope composition in oceans owing to anthropogenic activities and the spreading of radioactive elements created atmospheric nuclear weapons testing. These indicate that the paleoenvironmental studies using biogenic skeleton/shells and sediment is typical of seamless science. This presentation overviews recent achievements and future perspectives of the paleoenvironmental studies.

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