Geophysical Research Abstracts
Vol. 20, EGU2018-11596, 2018
EGU General Assembly 2018

Provenance discrimination of siliciclastic sediments in the central Bay of Bengal and their paleoenvironmental implication since 40.0 ka

Jingrui Li (1), Shengfa Liu (2), Xuefa Shi (3), Xingquan Sun (4), Wenxing Ye (5), Somkiat Khokiattiwong (6), and Narumol Kornkanitnan (7)

(1) Key Laboratory of Marine Sedimentology and Environmental Geology, First Institute of Oceanography, State Oceanic Administration, China (lijingrui@fio.org.cn), (2) Key Laboratory of Marine Sedimentology and Environmental Geology, First Institute of Oceanography, State Oceanic Administration; Laboratory for Marine Geology, Qingdao National Laboratory for Marine Science and Technology, China (liushengfa@fio.org.cn), (3) Key Laboratory of Marine Sedimentology and Environmental Geology, First Institute of Oceanography, State Oceanic Administration; Laboratory for Marine Geology, Qingdao National Laboratory for Marine Science and Technology, China (xfshi@fio.org.cn), (4) Key Laboratory of Marine Sedimentology and Environmental Geology, First Institute of Oceanography, State Oceanic Administration; College of Marine Geosciences, Ocean University of China, China (sunxingquan2010@163.com), (5) Key Laboratory of Marine Sedimentology and Environmental Geology, First Institute of Oceanography, State Oceanic Administration; College of Marine Geosciences, Ocean University of China, China (yewx1021@163.com), (6) Phuket Marine Biological Center, Thailand (skhokiattiwong@gmail.com), (7) Marine and Coastal Resource Research Center, Thailand (triggerfish007@yahoo.com)

Siliciclastic grain-size, major elements and Sr-Nd isotopes of core sediments from the central Bay of Bengal were analyzed for the identification of sediment origins and paleoenvironment evolution reconstruction since 40.0 ka BP. Discrimination plots based on geochemical parameters suggest that the cored sediments are predominately derived from the Himalayan source transported by the Ganges-Brahmaputra (G-B) rivers with minor contributions from the Indian peninsula and Southeast Asia. Based on the major elements and Sr-Nd isotopes compositions, contribution percent of three river end-members including the G-B rivers, Krishina-Godavari (K-G) rivers and the Irrawaddy river were calculated. Sedimentary signals including contribution percent of three provenances, linear sedimentary rate (LSR), Chemical Index Alteration (CIA) and $Al2O_3$ (%) imply that the sea level changes play primary roles in the terrigenous input to the core site areas by controlling the depositional regime between the lowered sea level stands and the high stands of sea level. However, the Indian summer monsoon (ISM) play controlling roles in the terrestrial material input and the chemical weathering intensity (CWI) in the millennial scale. The Dansgaard/Oeschger (D/O) pattern was discovered over the last glacial and deglacial periods. Warmer interstadials correlate with higher contribution percent of the Himalayan source, CIA values and $Al2O_3$ (%) than colder stadials.