



Sediment provenance change in the central Bay of Bengal since 40 ka

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As the biggest submarine fan in the world, the Bangal fan receives huge amounts of terrestrial materials from adjacent coastal areas, which record abundant information of environmental evolution and sedimentary system change. Based on data of Sr-Nd isotopes and clay minerals in the sediments of a gravity core BoB-56 in the central Bay of Bengal, sediment provenance and sedimentary process responding to sea level and Indian Monsoon change was studied. The results show that clay minerals and Sr-Nd isotopes compositions are obviously different during Holocene and the last glacial period. The content of smectite has increased significantly since Holocene, while illite content has decreased. The Nd isotope shows a more negative composition during Holocene than that during the last glacial period, and Sr isotope shows lower values during Holocene with a short increase at the end of Holocene. The sea level mainly controls the sedimentary pattern through the transfer of deposition centers (located in the Bengal Fan during lower sea level stand, and in the shelf and delta during the Holocene higher sea level stand), while Indian Monsoon mainly plays an important role in sediment generation, transport and circulation by controlling the production of erosion materials, precipitation, runoff and monsoon surface current. Indian summer monsoon intensity has increased significantly during Holocene, which strengthens the southwest monsoon current, thus more of the Indian Peninsula material is transported to the study area, while the contribution from Indo-Burman Ridge and Irrawaddy River material transported by the northeast monsoon current has decreased.

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