Clay mineral records in the Southern Bay of Bengal since 37 Ma: link to evolution of the Bay of Bengal and paleoenvironmental changes

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This study presents a long-time scale clay minerals data from Ocean Drilling Program (ODP) Site 758 in the southernmost reaches of the Bay of Bengal in the north-east Indian Ocean in order to constrain the sediment source to the study core and reconstruct the evolution history of rivers around the bay of bengal since the late Eocene. The clay mineral assemblages are dominated by smectite (14-94%) and illite (1-58%), while kaolinite (1-28%) and chlorite (0-29%) are less abundant. In general, downcore variation of smectite content shows a relatively stable trend between 36.6-7.1 Ma and rapid decreases between 7.1-3.5 Ma and increases since 3.5 Ma. In contrast, the relative content of illite show an opposite tendency. Kaolinite and chlorite content show a irregular variation. Comparison of our results with previous studies of clay mineralogy of surface sediments in and around the Bay of Bengal will help us to constrain the source of the sediment in this study core. We hypothesize that the content change of clay minerals was controlled by major tectonic activity and climatic changes in surrounding area.