Abstract

The livelihood of approximately 40% of the world's population is dependent on Indian Summer Monsoon which is one of the largest climate systems on earth. Despite dedicated efforts, a compendious image of monsoon variability has proved evasive primarily due to the deficiency of long term high resolution records and spatial heterogeneity of monsoon precipitation. We present the results of our investigations on the radiocarbon dated core sediments from the continental shelf sediments adjacent to Rushikulya river mouth, Eastern India aimed at reconstructing paleoenvironmental changes in this climatically sensitive region. The retrieved 1.60 m long well dated core spans the past ca. 6800 cal BP. The modern spatial distribution of grain size and geochemistry of the inner-mid shelf sediments has been carried out to understand the seafloor morphology and sedimentary processes. Based on the modern investigations, the proportion of particle size (clay vs sand) and variation in elemental values (TiO_2 vs Al_2O_3) has been used to interpret the changes in terrigenous supply. The grain-size and elemental distribution data from the core sediments indicates a period of enhanced surface water runoff from 6800 to 3100 cal BP followed by a drier condition (3100 cal BP to present) suggesting weakening of monsoon. The weakening of the monsoonal strength is coeval with other records from the Indian sub-continent and suggests response of Indian monsoon to changing solar insolation during late Holocene.