## Late Quaternary Clay Mineralogy in the Southeastern Arabian Sea: Implication for Monsoonal Variations.

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Sediment samples of gravity core (SK-221) collected from south-eastern Arabian Sea near Laksha Dweep Islands (latitude N  $8^{\circ}$  7.12', longitude 73° 16.38') were studied for their clay mineralogical variations corresponding to monsoonal change during the late Quaternary (32ky). The terrigenous matter content (av. 23 %) shows antithetic relationship with the bulk carbonate content (av. 76.5 %). It shows significant higher values during 28 ka, 23 and 16-11 ka and lower values during 20-18Ka. Grain-size variation of terrigenous matter content shows that the mud is more dominant than the sand sized particles. Illite, chlorite and kaolinite are major clay minerals ( $<2\mu$ m) with minor amounts of smectite in these samples. Non-clay detrital minerals include quartz, feldspar and gibbsite. The variation of clay minerals, particularly kaolinite and illite, humidity proxies (ratios of kao/ill and kao/chl), illite chemistry are well correlated to the variations of monsoons for the last 32ka. The relatively higher values of humidity proxies along with lower values of illite and higher values of kaolinite indicate high monsoonal activities in the sediment source regions during 29-15ka and 11-5ka. The carbonate content varies similarly with Kaolinite content indicating that its abundance related to intensity of monsoon and productivity of organisms. The illite chemistry also indicates that the illites are more Al-rich during the periods when monsoonal activity was high. The relatively drier period during 16-11ka were responsible for major contribution of terrigenous material to the Arabian sea. The relatively lower hydrolysis of illite (Fe-Mg rich illite) during the same period also indicating source area aridity. The Holocene monsoon precipitation intensified after 9ka and continued till 5ka.