

Late-Quaternary biogenic carbonate deposits of Kachchh, western India and associated aeolian dynamics and sea-level changes.

**DURGA PRASAD ADAPA AND FALGUNI
BHATTACHARYA**

Institute of Seismological Research

Presenting Author: prasad007.adapa@gmail.com

The large scale distribution of the Quaternary carbonate deposits popularly known as “miliolites” in parts of Kachchh in the western India have been studied to understand their suitability to reconstruct aeolian activities and associated sea-level fluctuations. Field-based detail documentation of the nature and distribution of miliolites supported by sedimentology and scanning electron microscopy (SEM) microtextural studies indicates that the miliolites were primarily deposited by wind as aeolinites. The miliolites were dominantly deposited between 28 ka to 16 ka largely clustering around the Last Glacial Maxima (LGM) indicating the phase of enhanced aridity. The phase is correlated with the regional/global aridity during the lowered sea level that was conducive for huge distribution of biogenic carbonates in the mid-latitudinal belt. Based on the grain size and wind velocities, it is inferred that the aeolian activities leading to the deposition of the miliolites in Kachchh had high shear velocity ranging from 23 to 48 cm/s and transport rates of < 0.1 to 0.2 g/cm s. The short average flying distance implies that the biogenic sands were transported in multiple pulses (from coast to inland parts of Kachchh) at rates varying from 200 m/h to 1 km/h. Subsequent reworking of the miliolites by the episodic strengthening of the Indian Summer Monsoon led to the deposition of fluviually reworked miliolites during 23 ka to 10 ka. Furthermore, in Kachchh, sporadic occurrences of dunes indicate a short spell of aeolian activity between 5 ka – 4 ka and during the last 1ka.