

## **Onset of Aridity in the Tropics Around 3500 Years B.P.: Multy Proxy Evidences**

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Climate changes on the earth during the last 18ka have altered vegetation, ice volume, disappearance of desert lakes and alteration in agriculture, which have changed the course of human history. The southwest monsoon system in the Indian Ocean exerts a strong influence upon the climatic conditions in south and southeast Asia. Strength of southwest monsoon winds, upwelling in the Arabian Sea, and rainfall in south Asia are strongly coupled. High resolution studies were carried on the variability of the SW monsoon covering a time span of 19,000 years

based on upwelling indices and stable isotopes from ODP Site 723 in the Arabian Sea. Upwelling indices data reveal that SW monsoon started its intensification from 12,000 years BP after a weak phase during the last glacial period. During the Holocene period, the weakening of the SW monsoon started from 5000 years BP and the intensity of monsoon returned to glacial strength around 3500 years BP, which coincides with the onset of arid climate elsewhere in the tropics.

Lowest  $\delta^{18}\text{O}$  values in *Pulleniatina obliquiloculata* (-1.1‰) and *Globigerina bulloides* (-2.3‰) were noticed around 3500 years BP indicates weak upwelling and warm sea surface temperature caused by weak monsoon. Furthermore, lacustrine data also suggest that the Asian and African lake levels were lowest during the same period. All these evidences suggest that a drastic climatic shift took place around 3500 years BP in the tropics of Asia.