



Sedimentary record on the Indian Summer Monsoon since the Last Glacial Maximum: Evidence from the southeastern Andaman Sea

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The Indian Summer Monsoon (ISM) generated by across-equatorial pressure gradient between the Asian continent and the southern Indian Ocean is a major component of the Asian monsoon system and establishes interactions among the ocean, land and atmosphere. Provenance and paleoclimate changes in the Andaman Sea during the last 26 ka were reconstructed from high-resolution records of grain-size, major elements and Sr-Nd isotopes in core ADM-9. The values of $\epsilon\text{Nd}(0)$ and $87\text{Sr}/86\text{Sr}$ were in good agreement with those of Irrawaddy River sediments, indicating a common source of origin. Two sensitive grain-size intervals (3.4-7.5 and 16.8-21.2 μm) were identified; the former was controlled primarily by sea-level change, whereas the latter was related to Irrawaddy River discharge and South-west Current transport driven by the ISM. Proxies of chemical weathering (K/Al) and terrigenous input (Ti/Ca) coupled with sensitive grain-size interval (16.8-21.2 μm population) revealed that the ISM was weak during ~15-26 ka BP and then strengthened gradually to a maximum during ~7-9 ka BP; subsequently, the ISM exhibited a generally declining trend to ~2 ka BP. The variation of the ISM recorded in this work is consistent with ISM variations observed in an open area in the northern Indian Ocean and in adjacent continents, implying the evolution of the Asia summer monsoon since 26 ka.