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Title: Low-latitude and high-latitude climates and linkages in the Asia Oceania sector in the late Quaternary (OA18)

Abstract:

Holocene variability in Indian monsoon precipitation as recorded in sediments from the eastern Arabian Sea M. Thamban¹, H. Kawahata², Purnachandra Rao³ ¹National Centre for Antarctic and Ocean Research, Headland Sada, Vasco-da-Gama Goa 403 804 ²Institute for Marine and Environmental Research Geological Survey of Japan, AIST Tsukuba-Ikoma 305-8567, Japan ³National Institute of Oceanography Dona Paula, Goa 403 004 High-resolution sediment records from the Indian Ocean provide valuable data on the monsoon oscillations and its societal implications. Climatic reconstructions are made using two AMS ¹⁴C dated sediment records (laminated and non-laminated) from the Oxygen Minimum Zone on the western continental margin of India. The laminated sediment record from the northwestern margin of India reveal exceptionally high sediment accumulation rate (av. 0.6 mm/ year), offering a high-resolution multi-proxy investigation on the short-term fluctuations in the Indian summer monsoons during Holocene. The down core variations in the terrigenous indicators like rock magnetism and inorganic elemental concentration in the core suggest a sustained monsoon precipitation during ~9100-8500 years B.P.. Similar findings are also obtained by the foraminiferal isotope and mineral studies on the non-laminated core from the southwestern margin of India. The monsoonal precipitation began to decrease after the early Holocene intensification with a distinct mid-Holocene deterioration that lasted till ~4700 years B.P., comparable to the several well-dated marine and lacustrine records from the Indian monsoon regime. A partial revival of monsoon activity with high-frequency oscillations are evident during the late Holocene which appears to be synchronous with the waxing and waning of the human civilizations in the Indian subcontinent. The Holocene proxy data reveals cyclicity on various scales that seems to be mainly driven by the solar variability and partly by the oceanic circulation.

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