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NE Monsoon and Palaeo-productivity Changes Since the Younger Dryas: A Study Based on Benthic Foraminifera and AMS Radiocarbon Dates, Off Tuticorin Coast, Tamil Nadu, India.

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Paleo monsoon is an important sub-system of past global climates. It is one of the major controlling factors for understanding environmental change in the tropical and subtropical zones of Asia, Africa and Australia. The northeast monsoon, which is also known as the winter monsoon in India, is an important source of water for south peninsular India and Sri Lanka during October- December, while the summer monsoon accounts for most of the annual rainfall over a large part of India. The southeast peninsular Indian regional falls under a rain-shadow area during this season. Therefore, this region critically depends on the northeast monsoon to supplement the inadequate summer monsoon rainfall. In Tamil Nadu, which is at the core of the NE monsoon region, nearly 50% of the annual rainfall is received during the NE monsoon season. ~14,000 yr BP record of benthic foraminifera was analysed in a sediment core (2.6 m thick) collected at a depth of 1320 m (Lat. 8o19' 94"N and long. 78o 38' 9.52" E), off the Tuticorin Coast, India. AMS 14Cdates on organic carbon rich sediments range in age from 2124-1993 to 14101-13823. The results establish the relationship between benthic foraminifera sp. and AMS radiocarbon dates to understand NE monsoon changes since the younger dryas. AMS radiocarbon dates and the benthic foraminiferal assemblage indicate the age of the core ranging from Younger dryas to the late Holocene period. The percentage of total organic carbon closely follows the faunal trends indicating a distinct environmental variation at a depth interval ~1320.75 m, 1320.55 m, 1321.6 m., and 1321.9m. From this study the early to mid Holocene has been recognised as a period of climate warmth, often referred to as a postglacial hypsithermal may due to the insolation change in the Northern Hemisphere. This paper presents the AMS radiocarbon dating of the core samples and the relative abundance of benthic foraminifera since the younger dryas and the impact of northeast monsoon since the early Holocene period. An effort is made to synthesize the available paleoclimatic records in a time slice mode and discuss their relationship/implications on the northeast paleo-monsoon reconstruction.