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Implications of new data for late Cretaceous marine transgressions in central peninsular India

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The Son-Narmada valley of central peninsular India has long been known to preserve a record of late Cretaceous sea-level changes, but recent data has revived the debate concerning the age and geographic extent of these sea-level changes. The first major marine transgression in the Narmada valley of central India, which occurred near the Turonian- Coniacian, is documented by the recent discovery of nannofossil assemblages from horizons representing the top of the generally unfossiliferous Nimar Sandstone and the base of the overlying Nodular Limestone unit of the well-known Bagh Group. The latter sequence is a dominantly calcareous unit containing a prolific marine fauna including ammonoids. The youngest unit in the Narmada valley (Lameta Formation), consisting dominantly of dinosaur-bearing cherty limestones and sandstones, is generally considered to be a continental deposit. Significantly, a late Campanian assemblage of nannofossils has been discovered from a horizon that possibly represents the base of the Lameta Formation.

In the upper Narmada valley, the well known Deccan Traps continental lava flows caps the Nimar-Bagh-Lameta sequence. The Deccan volcanics, with thin sedimentary intercalations (Deccan Intertrappean) range in age from the late Maastrichtian to early Paleocene, with most of the volcanic activity occurring during the Cretaceous-Paleogene (K-Pg) boundary. Recently, three major groups of marine microfossils (planktic foraminifers, nannofossils and dinoflagellate cysts) have found in Deccan Intertrappean localities near Manawar (District Dhar) and Jhilmili (District Chhindwara). These assemblages clearly document a major marine transgressive event around the K-Pg boundary in Central India.

Summing up, in contrast to the traditional belief that marine transgressions in central India were restricted to the Turonian interval, recent and new data point to multiple, intermittent transgressions along the Narmada valley during the late Turonian–Coniacian–Campanian-late Maastrichtian-early Paleocene interval.

