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GSA Annual Meeting in Phoenix, Arizona, USA - 2019

Paper No. 44-4

Presentation Time: 9:00 AM-5:30 PM

DEPOSITION AND PALEOWEATHERING OF MAASTRICHTIAN (UPPER CRETACEOUS) TERRESTRIAL DEPOSITS AT MAREPALLI QUARRY, CENTRAL INDIA

MURRAY, Bridget¹, **TOBIN, Thomas S.**¹, **WILSON, Gregory P.**², **MOHABEY, Dhananjay**³, **SAMANT, Bandana**³ and **WILSON, Jeffrey A.**⁴, (1)Geological Sciences, University of Alabama, Tuscaloosa, AL 35401, (2)Department of Biology, University of Washington, 24 Kincaid Hall, Box 351800, Seattle, WA 98195-1800, (3)Department of Geology, RTM Nagpur University, Law College Square, Amravati road, Nagpur, 440001, India, (4)Department of Geological Sciences & Museum of Paleontology, University of Michigan, 2534 C.C. Little Bldg, 1100 N. University Ave, Ann Arbor, MI 48109

The Deccan Volcanic Province (DVP) and the Late-Cretaceous mass extinction have been linked on the basis of volcanically-induced environmental destabilization. Sedimentary deposits stratigraphically underlying between basalt flows have yielded diverse fossil assemblages, and their depositional context reveals possible paleoclimatic changes as eruptions transformed regional topography and atmospheric conditions. Recent collections at Marepalli Quarry (Maastrichtian, Upper Cretaceous), Telangana, India have yielded fish, turtle, and crocodilian fossil material. Here we provide depositional and paleoclimatic context for these biotites based on first-hand study of the fossil site. The quarry exposes 12 m of stratigraphic section dominated by clay conglomerates, with clasts ranging from silt-pebble to clay granules. Both matrix and clast clays likely resemble clays found elsewhere in the DVP that have been associated with olivine-rich basalt sources. The clay units of Marepalli are overlain by 1.5 m of limestone and capped by a largely unaltered basalt flow, have a south-trending depositional dip. Further analysis of the sources of the clays and the structure of this site suggest this site to be a lacustrine deltaic environment on the basis of the variable conglomerate size and dip of the beds, interpreted as the result of a topographic low. Major elements were identified, and Chemical Index of Alteration values for each lithologic unit were calculated to characterize paleoclimate as hurricanes. These results are used to test the hypothesis that the clays are basalt-derived and were weathered and deposited under humid conditions.

Session No. 44--Booth# 297

T86. Inverting Source from Sink: Decoding Sedimentary Records of Climate, Erosion, and Vegetation (Posters)

Sunday, 22 September 2019: 9:00 AM-5:30 PM

Hall AB, North Building (Phoenix Convention Center)

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[Back to: T86. Inverting Source from Sink: Decoding Sedimentary Records of Climate, Erosion, and Vegetation \(Posters\)](#)

[<< Previous Abstract](#) | [Next Abstract >>](#)