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Late Eocene Myanmar tectonics constrained by magnetostratigraphy of the Yaw Formation, Chidwin Basin, Kalewa

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Sedimentary basins in Myanmar have recorded key events of the India-Asia collision including associated geodynamic movements and paleoclimatic records. In particular, Paleogene deposits provide invaluable insight on the accretion of the Burma terrane, its rotation associated with the alleged extrusion of Indochina and the formation of the Indo-Burman ranges. They also yield unique records of monsoonal intensity during the growth of the Tibetan Plateau and a rich paleontological assemblage including some of the earliest primates. However, understanding the potential relations between these recorded events is strongly hindered by insufficient age control on these deposits. As part of the Myanmar Geodynamic & Paleoclimate Initiative and the ERC “MAGIC” project, our initial focus is to date Paleogene deposits of Myanmar with better accuracy using magnetostratigraphy. We present preliminary results from the Chindwin Basin where we sampled a 400-meter section of the top of the Yaw formation recording a major sedimentological facies transition previously estimated roughly as Eocene to Oligocene in age. Detailed rock magnetic analyses enabled to identify and isolate primary Characteristic Remanent Magnetizations of normal and reversed polarities carried by iron sulfides, iron carbonates and/or iron oxides. A correlation to the Geomagnetic Polarity Time Scale can be proposed suggesting deposition between the base of chrons C16n2n and the base of C13r (36.3 and 34.8 Ma). This age suggests the facies transition may be more likely associated with regional tectonics such as the Indo-Burman uplift rather than sea-level drop linked to ice-sheet formation at the Eocene-Oligocene Transition at 33.9 Ma. In addition, the mean observed paleomagnetic declination (13.3+/-3.7°) is statistically indistinguishable from declinations expected by geodynamic models with limited vertical-axis rotations of the Burma terrane and therefore supports little to no rotational extrusion since 35 Ma.