



Eocene-Oligocene climatic transition: a record from the Tibetan Plateau

G. Dupont-Nivet (1), W. Krijgsman (1), C.G. Langereis (1), Dai S. (2) and Fang X. (2,3)

(1) Utrecht University Paleomagnetic Laboratory "Fort Hoofddijk", The Netherlands, (2) Lanzhou University Key Laboratory of Western China's Environmental Systems, China, (3) Institute of Tibetan Plateau Research, Chinese Academy of Science, China (gdn@geo.uu.nl)

The Eocene-Oligocene boundary is marked by a major climatic change - a rapid switch from so-called "greenhouse" to "icehouse" conditions - recognized in the marine record as the Oi-1 isotopic shift at 33.9 ± 0.1 Ma. Despite the clear shift in the marine record, existing continental records are scarce and indicate slow to no climatic transition, suggesting that the Oi-1 glaciation is linked to changes in Antarctic ice volume and not to global temperature change or, more radically, that the paradigm of major global cooling at the Eocene-Oligocene transition is largely false. We report magnetostratigraphic and lithostratigraphic analyses from Northeastern Tibet at two sections showing an abrupt disappearance of cyclic gypsum deposits previously interpreted to result from Oligocene plateau uplift and monsoon initiation. Our results indicate that this lithostratigraphic change is coeval at both sections and marks the Eocene-Oligocene transition estimated at 33.8 ± 0.2 Ma. The inhibition of cyclic gypsum deposition in our records is interpreted to result from a change in depositional environment to colder and/or wetter conditions, thus supporting global cooling at the Eocene-Oligocene transition.