



Step-wise lithofacies changes preluding the Eocene - Oligocene transition at the northeastern margin of the Tibetan Plateau

Hemmo A. Abels (1), Guillaume Dupont-Nivet (1), Guoqiao Xiao (2,3), Roderic Bosboom (1), and Wout Krijgsman (1)

(1) Utrecht University, Earth Sciences, Utrecht, Netherlands (abels@geo.uu.nl), (2) State Key Laboratory of Loess and Quaternary Geology, Institute of Earth Environment, Chinese Academy of Sciences, Xian, China, (3) Graduate University of the Chinese Academy of Sciences, Beijing 100049, China

The late Eocene climate deterioration is of high paleoclimatic interest as this era sets the stage for the major global cooling episode at the Eocene Oligocene climate transition (EOT). Profound terrestrial records are lacking as well as straightforward records that show astronomical forcing of climate. Here, we discuss a long, continuous Late Eocene to Oligocene terrestrial record in the Xining Basin, north-eastern Tibetan Plateau, dated magnetostratigraphically between around 39 Ma to 33 Ma. The record shows two sedimentation rate increases that coincide with gypsum lithofacies changes. Cycle pattern analysis suggest the enhanced sedimentation rates are related to increased siliciclastic input to the basin. Nearly constant sulphur isotope values of gypsum suggest that lithofacies and lithostratigraphic changes were not driven by changing sulphur sources. These two steps might be related to phases of climate deterioration in the prelude to the EOT, possibly in combination with a retreating Paratethys Sea and/or plateau uplift.