EGU2020-13422, updated on 27 Oct 2020
https://doi.org/10.5194/egusphere-egu2020-13422
EGU General Assembly 2020

Magnetostratigraphy of the Eocene Jianchuan Basin in southeast Tibet: A preliminary result

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Early Cenozoic continental sediments deposited contemporaneously or soon after the onset of India-Asian collision provide an obvious target for gaining insight into the early stages of the growth of the Tibetan plateau. These continental sequences are generally found in an arcuate belt that extends from the central plateau into the western Yunnan province (e.g. Nangqian-yushu Basin, Gongjo Basin and Jianchuan Basin). With limited exposure and elusive datable horizons except for a few dikes cross-cutting stratigraphy and interbedded lava flows, there were few constraints on absolute time of these Cenozoic sediments, limiting further studies of the tectonic, topographic and environmental evolution in southeast Tibet. Here, we focus on the Jianchuan basin, the age of which was mapped from the Paleocene up to the Pliocene but recently reassigned to the Paleocene/Eocene as a whole. The Xinsong section with 1547 meters in thickness was measured at the meter scale to determine vertical changes through the depositional facies. The lower part of the section consists of 1027 m thick red-colored, massive siltstone with many fine sandstone interlayers, while the upper part of the section is composed by a series of basal-scoured, upward-fining and stacked sand bodies with the thickness of 520 m. A total of 981 standard paleomagnetic oriented samples were collected. Samples were subjected to stepwise thermal demagnetization that revealed either two or three component magnetizations with the high temperature component (HTC) unblocked at □660-680□°C. Our preliminary results show multiple polarity reversals that can be well correlated with the Geomagnetic Polarity Time Scale (GPTS) between ca. 50 and ca. 40 Ma. We interpret that these sediments were deposited in a restricted, narrow basin in the footwalls of thrust fault where the depositional environments were highly related to the compressional deformation. Our new result may be of great significance for understanding the kinematic and dynamic models of the deformation and evolution of the Tibetan plateau.