

***Interactive comment on “Asian aridification linked to the first step of the Eocene-Oligocene climate Transition (EOT) in obliquity-dominated terrestrial records (Xining Basin, China)” by G. Q. Xiao et al.***

**M. Fuller (Referee)**

mfuller@soest.hawaii.edu

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General comment

A very interesting paper documenting a record from Asia of the Eocene Oligocene transition. A cyclostratigraphic study is reported from an excellent section from 35 to 33 My. The study shows that loss of gypsum reflecting aridification correlates with the first stage of the EOT. It is shown that it is this stage that affected Asia and presumably the rest of the world rather than the build up of ice during the second and major aspect of the EOT. During the first stage the changes appear to be obliquity driven. These are important observations and interpretations. My main area of interest is in magnetics

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and so it is in the comments on that aspect I am most confident in my assessment. That part of the work is clearly well done.

Text comments

Abstract – informative and clear.

Introduction and Geological setting – covers previous work well and provides necessary background geological data.

Magnetostratigraphy. I agree with the interpretation of the thermal demagnetization results. The Zijdervelds are not always of the highest quality, but the ChRM plot and reversal test leave little doubt that the magnetostratigraphy has a reliable paleomagnetic base.

The correlation to the GPTS also looks good. It was interesting to see the feature in 13n.

EOT interval correlation –I found the termination of the gypsum at the EO boundary very convincing

Cyclostratigraphy and Discussion – the evidence for obliquity driven changes is good. However, I am not in expert in this and hesitate to comment further.

Recommendation - the magnetic work is fine, but I leave it to colleagues closer to the climatic studies to assess critically other aspects of the paper.

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