

## ***Interactive comment on “Neogene tectonics and climate forcing of carnivora dispersals between Asia and North America” by H. Jiang et al.***

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1. As a paleoclimatologist, it's hard for me to understand the specific relationship between tectonic/climatic forcing and carnivora exchanges. For example, how did tectonic activities around 20 Ma in the margins of Himalaya-Tibetan Plateau (Lines 13-16 of Page 6) result in the migrations of some species from EA to NA (as shown in Figure 1). Similar confusion is also existed in how global cooling during 13-11 Ma (Lines 4-5 of Page 8) and ~4 Ma (Lines 1-3 of Page 13) led to exchanges between EA and NA carnivorans. More detailed explanation regarding the underlying processes is needed, e.g., due to adaptation to changing environments or boundary conditions. Done. Please see lines 35-41 in p.2, lines 154-161 in p.7-8, lines 204-215 in p.10, lines 277-288 in p.13-14, lines 355-363 in p.17.

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2. The tectonic evidence shown in Figs. 2 and 6 can be combined together as panels A and C, and two additional panels should be added to show the tectonic evidence around 13-11 Ma and ~4 Ma as B and C. Once tectonic evidence of these four time intervals were displayed together, the readers can get a distinctive understanding of tectonic evolution over the Tibetan Plateau. Done. Please see our new Fig.2 and relative explanation in the text.

3. I would suggest that a synthesis of global climate (e.g., Fig.5), regional climate (a representative curve from Figs. 3 and 4), regional tectonics (an alternative expression the Figs. 2 and 6) and EA-NA Carnivora exchanges (i.e., Fig.1) should be incorporated together to provide a thorough understanding of the objective of this paper, rather than show these four kind of evidence separately. No, this task seems almost impossible for me to complete at this time. Instead I think the present pattern is good for understanding these four events.

4. Finally, I'm curious about two points shown in Fig. 1: (1) why only carnivoran migrated from EA to NA during early and late Miocene (one-way arrows), whereas the exchanges between EA and NA occurred ~13 Ma and ~4 Ma (two-way arrows); and (2) How was the timing of these migration events determined and what's the age errors? Oh, the first is a very good question. I have provided some explanation in the text this time. Please see lines 157-161 in p.8, lines 210-215 in p.10, lines 284-288 in p.13-14, lines 360-363 in p. 17. About the second question, the timing of these migration events was commonly determined by magnetostratigraphic research and their age errors can't be provided here due to their rough estimation.

Please also note the supplement to this comment:

<http://www.solid-earth-discuss.net/7/C1461/2015/sed-7-C1461-2015-supplement.pdf>

Interactive comment on Solid Earth Discuss., 7, 2445, 2015.

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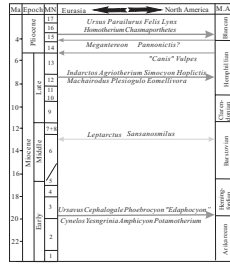


Fig. 1

Fig. 1.

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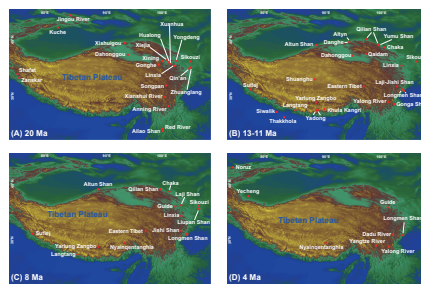


Fig. 2.

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