

Interactive comment on “A Theory of Pleistocene Glacial Rhythmicity” by Mikhail Y. Verbitsky et al.

Mikhail Y. Verbitsky et al.

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We thank the reviewer for the insightful comment and practical suggestions. We present the reviewer's comment and our answer is given in bold blue.

In the study, the authors want to use a non-linear model to highlight the importance of ocean feedbacks in the shift of glacial-interglacial cycle periods. It is valuable to see that feedbacks are clearly defined in this non-linear model.

However, the definition of ocean temperature (w) is quite misleading in the study, although the authors have clarified w is in fact a cumulative proxy of outside-of-glacier climate. The authors suggest linking w with deep ocean temperature, but why do they compare simulated w with tropical SST in Figure 4.

To improve the paper, I suggest the authors 1) not emphasize ocean temperature or ocean feedback in the paper, but simply call w temperature, and temperature feedback (or other better words), 2) add one discussion section to show the possible linkage between w and ocean temperature, and V with ocean feedback. In this way, although the importance of ocean is not highlighted, the current study is still meaningful to show that temperature feedback is more important than orbital variations for the shift of the periods. Then the paper becomes understandable.

We appreciate the reviewer's suggestions. To better articulate our message in the revised version of the manuscript: (a) we will introduce variable ω as “characteristic temperature of outside-of-glacier climate” and use “climate temperature feedback” instead of “ocean feedback” throughout the text; (b) paragraph 3.3 will be renamed accordingly as “3.3 Characteristic temperature of outside-of-glacier climate”, (c) we will emphasize that ocean, and particularly deep ocean, is an important part of the outside-of-glacier climate.