

**Response to Referee #1's comment on "The Antarctic Ice Sheet response to glacial millennial scale variability" by Javier Blasco et al.**

**This paper is of general interest to the paleoclimatology community because it addresses for the first time the difficult, and interesting question, of how millennial scale climate change impacts the Antarctic Ice Sheet, particularly sea level contributions and grounding.**

We appreciate the positive review from Referee #1 and thank them for their valuable suggestions. Below you can find our response to each comment.

**I have only minor comments:**

**(1) I don't think that the term "offline" forcing is correct, as it implies that two models are being run asynchronously... I would prefer the term "offline" be dropped...**

Indeed, we are not running two models asynchronously. We added the term "offline" to indicate that we use climate-model derived fields and our simulations are driven through a one way forcing. To avoid confusion, the term "offline" was dropped.

**(2) I have made suggestions to the writing (minor) in a marked up PDF attached here.**

We took in consideration all suggestions made by the reviewer and added them in the marked PDF in the new version of the manuscript. We only comment below the two of them which require rephrasing and the two we think that do not need modification.

**P4L25 who used it for (where????), but here for the...**

We have modified this sentence, which now reads:

*"[...] who used it to investigate specifically the past evolution of the glacial NH and Greenland ice sheets, respectively, but here for the Antarctic domain."*

**P5L25 it would help to remind here that alpha is the "orbital climate" index**

We agree with this suggestion and have added the type of forcing to the climatic index.

**P2L14 "Improving our understanding" and P3L9 "hint to"**

We think it is correct the way it is written.