

Interactive comment on “Synthesizing long-term sea level rise projections – the MAGICC sea level model” by Alexander Nauels et al.

Anonymous Referee #1

Received and published: 10 February 2017

In this paper, the authors describe the first version of the MAGICC sea level model, a set of sea-level emulators linked to versions 6 and 7 of the MAGICC climate model. They provide a clear description of the algorithms for the different sea-level components and of the model calibration. Accordingly, I believe the paper is worth publishing and have only minor comments regarding the paper itself.

I suggest the authors add some discussion placing the MAGICC sea level model in the context of other similar tools, such as the BRICK model, also currently in review at GMD (<http://dx.doi.org/10.5194/gmd-2016-303>). A comparison of the model results to that of other simple sea-level models (e.g., Kopp et al., 2016, and Mengel et al., 2016) under similar forcing would be helpful – prima facie, the projections for 2100 seem to align well with these simpler models.

C1

Line 28: I believe the citation here should be to Levermann et al. (2014), not Levermann et al. (2013).

Line 30: Note that an early semiempirical model was introduced by Gornitz et al. (1982) twenty five years earlier. Gornitz, V., S. Lebedeff, and J. Hansen, 1982: Global sea level trend in the past century. *Science*, 215, 1611–1614, doi:10.1126/science.215.4540.1611.

I also note that the code for the sea level model, while available at the gitlab link provided, does not run without the MAGICC model, for which code is not available. I further note that GMD policy states: "If the authors cannot or do not wish to make the code and/or data public (e.g. copyright or licensing restrictions), the reasons must be clearly stated. Note that, for the purpose of the review, the code and/or data must still be made available to the editor. Access must also be granted to the reviewers whilst preserving their anonymity, if this is legally possible." I am not sure whether the current code availability – dependent upon code that was not available for the review process, and for whose non-availability no explanation was provided – satisfies this policy.

Interactive comment on Geosci. Model Dev. Discuss., doi:10.5194/gmd-2016-233, 2016.

C2