Geosci. Model Dev. Discuss., 4, C882–C883, 2011
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Geoscientific
Model Development
Discussions

Interactive comment on "Simulating the mid-Pliocene climate with the MIROC general circulation model: experimental design and initial results" *by* W.-L. Chan et al.

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Received and published: 17 October 2011

This paper provides a description of the MIROC AGCM and AOGCM simulations which are contributing to the Pliocene Modelling Intercomparison Project (PlioMIP).

The paper describes (1) the models used, (2) the boundary conditions used, (3) methods of implementing the boundary conditions and, (4) presents basic outputs from the model experiments themselves with a comparison to sea surface temperature proxy data derived from the PRISM Group.

The paper follows closely the suggested template for model description papers outlined by the PlioMIP Project which was made available to all participating groups.

Overall I think this paper presents a fine contribution to the PlioMIP special issue in GMD and will be very useful when the full intercomparison of model results starts in earnest.

I have only a few suggestions which might improve the paper, which is already at a very high standard.

1) Climatological means were specified at 30 years by PlioMIP. It may be worthwhile stating that there are no significant differences seen between a 100 and 30 year averaging period.

2) Small m in mPWP; also simplfy age range to ∼3.3 to 3 Ma BP

3) Could cite some other more recent papers that have documented Pliocene CO2 levels (e.g. Pagani et al 2010 and Seki et al. 2010).

4) State TOA energy imbalance explicitly for all runs

5) Could include some models plots of surface albedo changes and changes to the total precipitation rate.

6) Same for salinity and AMOC for EXP2.

The above are just suggestions and are not essential by any means.

I really enjoyed reading the paper.

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GMDD

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