

***Interactive comment on “Comment on “Aerosol radiative forcing and climate sensitivity deduced from the Last Glacial Maximum to Holocene transition”, by P. Chylek and U. Lohmann, Geophys. Res. Lett., 2008” by J. C. Hargreaves and J. D. Annan***

**Anonymous Referee #2**

Received and published: 28 January 2009

Reviewer’s comment to Hargreaves and Annan: Comment on "Aerosol radiative forcing and climate sensitivity deduced from the Last Glacial Maximum to Holocene transition" by P. Chylek and U. Lohmann, Geophys. Res. Lett., 2008

Hargreaves and Annan provide an interesting discussion of a recent study by Chylek and Lohmann (GRL 2008) that tried to estimate climate sensitivity from the Last Glacial Maximum (LGM). They highlight several major shortcomings of the original study and

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



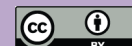
show that the suggested evidence for a low value of climate sensitivity is simply an artefact of picking single points in a dataset that are not representative of the LGM period. The arguments by Annan and Hargreaves are convincing and well presented, and I strongly recommend publication of this comment. It would have been nice if GRL had provided a platform for this exchange, but my impression is that the editors of GRL are sometimes more interested to publish controversial papers than to make sure that the science is right. Some comments to the discussion paper are given below.

1) For a discussion of the current consensus on climate sensitivity, a discussion of the limitations of the concept as well as the problems in a few recent studies finding very low climate sensitivity values, the authors could refer to the review by Knutti and Hegerl, *Nature Geoscience* 2008.

2) The point about picking single points in a noisy time series is well illustrated with the examples. One might think that this should be obvious to any scientists dealing with noisy data, but since it doesn't seem to be, showing this example is helpful.

3) The authors themselves published a very interesting paper recently (Hargreaves et al, 2007, *Climate of the Past*) which showed that the climate sensitivity in LGM can be quite different from the sensitivity in a present day state even in a given model and just for CO<sub>2</sub>. Additionally the sensitivity can differ for various forcings. I would encourage the authors to discuss this a bit more in section 2, because this highlights the limitations of paleoclimate data as constraints for future projections, in particular if one considers climate states that are very different from today.

4) There are other issues with the Chylek and Lohmann study that are not discussed here, for example the fact that the Antarctic warming around 42kyr BP may not be representative for global temperature, but is more likely to be a result of oceanic redistribution of heat (e.g. Ganopolski and Rahmstorf, *Nature* 2001). Some of these points are discussed in another comment to the Chylek and Lohmann paper which is published in the meantime (Ganopolski and Schneider, *GRL* 2008). The authors should at

[Full Screen / Esc](#)[Printer-friendly Version](#)[Interactive Discussion](#)[Discussion Paper](#)

least refer to that to be complete, or give a brief summary of it.

5) Since this is really a comment to a previous paper, I was wondering whether the editor will provide an opportunity to Chylek and Lohmann to respond to the criticism raised here.

---

Interactive comment on Clim. Past Discuss., 4, 1319, 2008.

## CPD

4, S728–S730, 2009

---

Interactive  
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

