

Interactive comment on “Methane hydrate stability and anthropogenic climate change” by D. Archer

D. Archer

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I'd like to thank the two reviewers, Ian Fairchild and Ellen Thomas, for thorough, thoughtful, and extremely helpful reviews. Most of their comments were editorial in nature and in most cases I have revised the manuscript following their suggestions. There were two larger-scale suggestions from the reviewers which I did not follow. Dr. Fairchild suggested removing the table of potential methane sources from various types of hydrates, their inventories and vulnerabilities, and incorporating those ideas into the main body of the text. I feel that the information is conveyed more clearly as is. Ellen Thomas wrote of a new idea of hers, that supersaturation of methane within the water column of the Arctic Ocean could have catastrophically de-gassed in a Lake-Nyos style instability. This is an interesting idea, but until it is published I view it as somewhat beyond the scope of this review paper. Also, it is the reviewer's idea, not mine, and I'd feel awkward about inserting it into my manuscript and defending it. Dr. Thomas in general wanted more depth on the paleoceanographic side, and suggested numerous citations I could

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make. Many of these suggestions I took, but some I did not, because I feel the paper is long enough already. The breadth of the manuscript limits its depth to some extent. One could easily write a review paper of comparable length and number of citations just on the topic of hydrates in the PETM and glacial cycles.

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