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Comment

Interactive comment on “Ice melt, sea level rise and superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2 °C global warming is highly dangerous” by J. Hansen et al.

J. Hansen et al.

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Response to SC C5966: ‘Comments on Hansen et al.2015’, Dale Berner, 17 Aug 2015

Thanks for such a comprehensive up-to-date review of the literature! It will be helpful.

Here I just comment on your final paragraph. Actually, I expect when we are able to do new more realistic experiments, we will probably find a larger cooling. As I intimated in my response to SC C5848, my initial motivation in the experiments was an expectation

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that icebergs, via the large heat of fusion of ice, would be a major cause of ocean surface cooling. The initial experiments that we did eight years ago indicted otherwise – the major cooling effect was caused by the effect of low density freshwater on ocean stratification and overturning. Therefore when we did new numerical experiments for the present paper, we did all of them with the same conservative assumption about the thermal effect of ice melt, by giving the meltwater a temperature of -15°C as it is mixed into the upper three layers of the model ocean. Such experiments need to be done again with more detailed and more realistic assumptions. If I can get support for such, I will try to carry out better numerical experiments next year.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 20059, 2015.

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