

***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 C6086: ‘Haven’t we already approached Eemian Temperatures?’,  
Kenneth Towe, 20 Aug 2015

The question posed in the title of this entry is a good one. A number of years ago it was believed that the Eemian was several degrees warmer than today, based mainly on interpretation of polar ice core data. As the ice core data have become better understood, the estimated temperatures on the polar ice sheets have become cooler.

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Also we do not know accurately the altitude of the ice sheet surface at that time – it was lower, accounting for some of the temperature difference. Based on all data there seems to be a developing consensus that the Eemian was less than 1°C warmer than today. However, the way to estimate the temperature change relative to today is to use consistent data from the two periods, measured in the same places. We can’t very usefully compare an absolute global mean temperature estimated from meteorological stations, e.g., with Eemian climate proxies. We can’t even get a very accurate absolute temperature for today – it is necessary to average over every hill and dale on the planet.

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