

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.

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Response to SC C6300: ‘Reducing the risks from devastating sea level rise through an improved understanding of Earth System operation in past and present’, John Nissen, 28 Aug 2015.

Nissen discusses matters raised in Thorne’s review that we will address in response to the review and in revising the paper. Here I want to note that a statement made by Nissen (and Thorne) is incorrect: it is not true that we only performed “hosing” exper-

C7951

iments in which we widely distributed meltwater in the North Atlantic and/or Southern Ocean. Our numerical experiments included injection of freshwater only at the exit points from the ice sheets. See Figure S15 of our paper for the locations.

We do not assert that near-term sea level rise can be halted solely by reducing emissions. Sometimes discussions of the climate issue seem to imply there is a dichotomy, either we solve the climate change problem or we give up and reap unmitigated disasters. In reality, there is a continuum of possible outcomes and some climate change is already occurring, but we need to minimize the climate forcing driving that continuum because, given the inertia in the systems, we know that the climate forcing is already well into the dangerous range. The immediate emphasis needs to be on reducing that forcing – especially considering that it makes economic sense to make the price of fossil fuels honest. We should stop subsidizing fossil fuels and make them pay their costs to society by adding a gradually rising carbon fee. Economic science shows that this will benefit the economy while slowing climate change.

As for geoengineering to adjust the albedo of the Arctic, that is an attack on a climate feedback. The task now is to address the climate forcing. When you find yourself in a hole, the first rule is “stop digging”.

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