

Interactive
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 C5885: ‘Boulders show mega-tsunamis and multi-metre sea level rise could result from rapid Arctic warming; both precautionary and preventative actions are required urgently’, John Nissen, 13 Aug 2015

Nissen and some other commenters seem to be taken aback by the notion that large boulders could be moved by a storm. In our revised paper we will try to make clear the fallacy of the notion that a tsunami can move large boulders but a storm cannot.

C7872

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Interactive Discussion

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For the sake of responding to the present Comment it may be sufficient to point out the paper by Cox et al., Boulder ridges on the Aran Islands (Ireland): Recent movements caused by storm waves, not tsunamis, *Journal of Geology*, 120, 249-272, 2012. Repeated field measurements over a period of several years found that boulders up to 10 tons were moved in seasons without exceptional storms. A strong storm in 1991 moved boulders as heavy as 80 tons 11 meters above sea level. The location of these boulders along the Atlantic coast of Ireland's Aran Islands has a key characteristic in common with the embayment where the large boulders have been thrown up on Eleuthera: a steep deepening of the ocean floor at the coast, which allows large waves to nearly reach the shore before breaking.

Nissen further speculates that Greenland shed such large pieces of ice that it created tsunamis that inundated Eleuthera. One fundamental problem with that notion is that Greenland was not losing mass in the late Eemian (see response to SC C5284).

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

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