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Atmospheric Chemistry and Physics Discussions

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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Archer's comment shows how lax the climate science community has become about it's 'Facts'. Archer, a Hansen paper reviewer, says the Eemian showed abrupt SLR the way Hansen models for the Holocene with CAGW, which gives the paper strong support. And then goes on about further support from WAIS observations such as Hansen co-author Rignot's recent findings.

Archer is sadly and quite provably mistaken on both counts.

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Interactive Discussion

Discussion Paper

All credible papers on the Eemian SLR (a double blip) above present sea levels show the first rise to ∼6.5 meters higher took about 3 millennia. The refreeze to present levels took 4 millennia. The second rise to ∼4 meters (there is more uncertainty) took about another 3 millennia. The cooling into the Wurm glacial (from which we emerged in the Holocene) was quite abrupt, present SLR reached in perhaps just 2 millennia on its way to about 120 meters below present. See, e.g., Kopp et. al., Probabalistic assessment. . ., Nature 462:863-868 (2009). The two papers finding abrupt Eemian SLR are both geologically flawed. The Australian (O'Leary et.al.) paper that Archer refers to and which Hansen discusses extensively is so flawed it comprises a fairly clear case of academic misconduct. The flaws and the probable misconduct in the misrepresentation of its figure 3 are exposed in illustrated detail with references in essay By Land or By Sea in ebook Blowing Smoke. Incorporated herein by reference

Second, Greenland and EIAS geology say nothing abrupt could ever happen. The ice would have to melt, and most of it is nowhere near oceans. NEEM core says Greenland did melt a bit with temperatures 5-8C above present during the Eemian. About 130 meters off the top of ice that is now 2537 meters thick. EAIS is accumulating ice mass, not melting. That leaves WAIS (plus the Ronne shelf which is located on the western half of Antarctica, but on the east side of the continental divide). Ronne is stable to accumulating ice. The ANDRILL program showed not only that ROSS is stable to slightly accumulating, there was no abrupt 'collapse' or 'drastic underwater melting' in previous interglacials. That leaves the Amundsen Embayment, where Pine Island Glacier is by far the largest of 6 flowing into the sea. Rignot's much touted 2014 paper on PIG estimated ice loss nearly 4x the next two estimates, from 2011 and 2012. As yet unverified. Rignot had previously published that the entire Amundsen Embayment catchment basin–if all its ice were lost– would cause SLR of 1.2 meters. PIG is <20% of that area. And Rignot's plus other papers show the interior of the catchment basin is stable, and some of it is gaining ice mass. Even if Hansen and Rignot were right about PIG, it would only be a few centimeters by 2100. Essay Tipping Points in the ebook Blowing Smoke provides a meta analysis of Greenland, EAIS, and WAIS potential for

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SLR. Again illustrated and with extensive references, and incorporated herein.

There is absolutely nothing in the credible scientific literature to support either Archer's comment or Hansen's speculative models paper. Fearful fantasies should not be published in any scientific journal. Especially not when supported by papers evidencing academic misconduct (misrepresentation of data in the key figure supporting the result).

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