

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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I also find the argument of the displaced boulders in the Bahamas to be less than convincing evidence of “mega-storms” during the Eemian period. Recent developments in high performance computing are enabling multi-decadal simulations of tropical cyclone permitting global atmospheric models. While there are substantial differences in the response of tropical cyclones to warmer ocean surface temperatures, all of the current ~25km models do indeed simulate more intense tropical storms. In our recent

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study, Wehner et al. 2015, we found that Emanuel’s maximum potential intensity index (MPI) performed well in predicting the change in the very highest hurricane winds from our 25km model (see figure 9 and table 2 of our paper). Our model is able to simulate Category 5 storms (on the Saffir-Simpson scale), although the very strongest simulated winds are slightly less than observed (Wehner et al. 2014). In a 2K warmer world (Wehner et al. 2015), both Emanuel’s MPI and the model’s highest wind speeds increase by 5-10%. Given such an increase in maximum wind speed, it is unclear if wave heights would increase enough to move these boulders the distance claimed.

Michael F. Wehner, Kevin Reed, Fuyu Li, Prabhat, Julio Bacmeister, Cheng-Ta Chen, Chris Paciorek, Peter Gleckler, Ken Sperber, William D. Collins, Andrew Gettelman, Christiane Jablonowski (2014) The effect of horizontal resolution on simulation quality in the Community Atmospheric Model, CAM5.1. Journal of Modeling the Earth System 06, 980-997. doi:10.1002/2013MS000276 <http://onlinelibrary.wiley.com/doi/10.1002/2013MS000276/abstract>

Michael Wehner, Prabhat, Kevin Reed, Daithi Stone, William D. Collins, Julio Bacmeister (2015) Resolution dependence of future tropical cyclone projections of CAM5.1 in the US CLIVAR Hurricane Working Group idealized configurations. J. Climate. 28, 3905-3925 DOI:10.1175/JCLI-D-14-00311.1, <http://journals.ametsoc.org/doi/pdf/10.1175/JCLI-D-14-00311.1>

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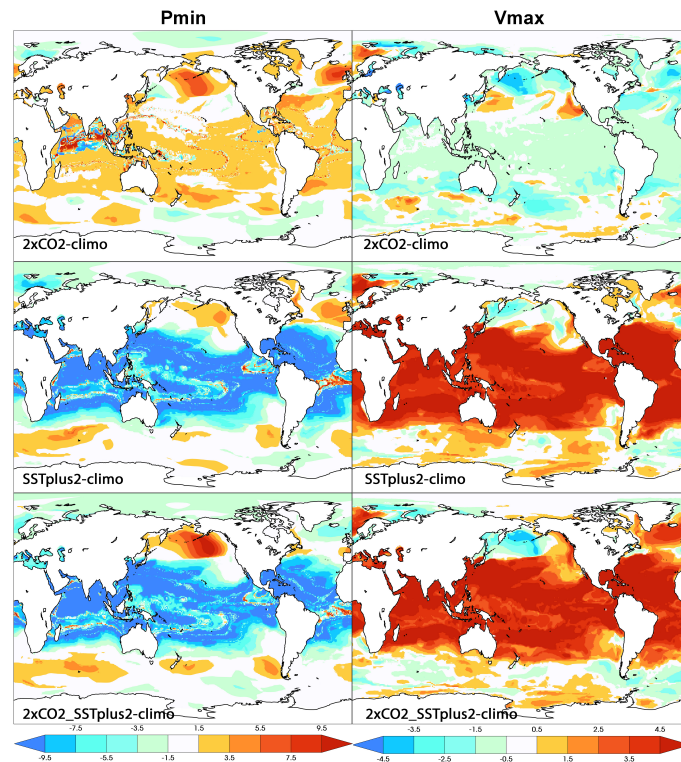


Fig. 1. Figure 9 of Wehner et al. 2015. See the lower left panel for the change in Emanuel's maximum potential intensity in a 2K/2xCO2 warmer world (m/s)

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