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Interactive comment on "An empirical model of global climate – Part 1: Reduced impact of volcanoes upon consideration of ocean circulation" *by* T. Canty et al.

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Both Canty et al and Robock appear unaware of more recent Douglass-Knox Pinatubo papers. We replied to the comments of both Wigley and Robock and then we published a study of the Pinatubo event using a more complete model in which heat transfer to the ocean is considered explicitly. (References given below.) Wigley et al substantiated their objections, which were based on our omission of this heat transfer in the cited paper, by inappropriately fitting the long-term (equilibrium) climate sensitivity to the short-term Pinatubo phenomenon. To accomplish this a backflow of 2 W/m2 from the ocean at the time of peak forcing had to be assumed. This is an unmeasured quan-

tity. In our subsequent calculations the peak backflow is found to have the more reasonable predicted value of 0.5 W/m2, consistent with our determination of the smaller intermediate-term sensitivity that implies negative feedback. We maintain that this result is correct, not "terribly wrong."

References: Douglass and Knox, reply to Wigley et al, GRL 32, L20710 (2005), doi:10.1029/2005GL023695 Douglass and Knox, reply to Robock, GRL 32, L20712 (2005), doi:10.1029/2005GL023829 Douglass, Knox, Pearson, and Clark, GRL 33, L19711 (2006), doi:10.1029/2006GL026355

– RSK & DHD

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 23829, 2012.