

Response to SC C6715: ‘questioning Greenland “rapid nonlinear growth of ice melt is not likely,”’, Jason Box, 09 Sep 2015

Jason Box is correct in pointing out that our statement “The Greenland ice sheet does not have as much ice subject to rapid nonlinear disintegration...” in comparing Greenland and Antarctica is possibly misleading, even though it is technically correct. The characteristic time for nonlinear response of the Greenland ice sheet is probably longer than the response time of the most vulnerable part of the Antarctic ice sheet, and our paper adds some reason for believing that via the amplifying feedbacks we have identified. On the other hand, there are amplifying feedbacks on the surface of the Greenland ice sheet that are already well underway. Suffice it to say that there are good reasons to be concerned about potentially rapid response of both ice sheets. So far the mass loss on both ice sheets is not inconsistent with doubling times as short as the decadal time scale. See the quantitative comparisons in the mini-paper that we wrote in response to SC C6361 (‘Predictions Implicit in “Ice Melt” Paper and Global Implications’ written by James Hansen and Makiko Sato), which is also available at http://www.columbia.edu/~jeh1/mailings/2015/20151012_IceMeltPredictions.pdf.