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Interactive comment on "Changes in the marine-terminating glaciers of central east Greenland and potential connections to ocean circulation, 2000–2010" *by* K. M. Walsh et al.

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Walsh et al (2011) provide a detailed and valuable analysis of recent changes in surface elevation, velocity and terminus position of glaciers on the east coast of Greenland. The potential causes are discussed at length including oceanographic forcing. The paper is well written and organized, and provides a detailed and important data set. My comments focus on the explanation for latitudinal difference in behavior in terms of surface elevation and terminus position change that is documented at approximately 70 N. The potential influence of the significant changes in surface mass balance conditions along the transect and the physical oceanographic character of Scoresby Sound must

be discussed.

1) In surface mass balance maps of the Greenland Ice Sheet there is typically a sharp change from 69-71 N on the east coast (Box et al, 2006;Burgess et al, 2010). For example in accumulation from 50-30 cm. In this paper the accumulation rate anomaly is not that different. The decrease in the amount and inland extent of ablation is also notably different (Box et al, 2006; Zwally et al, 2011). This difference in mass balance conditions as a potential contributor requires at least a brief discussion.

2) The potential reduced role of oceanographic forcing north of the Geikie Plateau in the Scoresby Sound drainage, should include some mention of the potential role of Scoresby Sound. This sound is one of the world's larger inlets and its physical oceanographic characteristics could have a role in mitigating the intrusion of warmer water. Even though an answer of its role is not likely possible, the potential requires some discussion.

Box, J.E., et al.: Greenland ice sheet surface mass balance variability (1988-2004) from calibrated Polar MM5 output, Journal of Climate, Vol. 19(12), 2783–2800, 2006.

Burgess, E. W., et al.: A spatially calibrated model of annual accumulation rate on the Greenland Ice Sheet (1958–2007). J. Geophys. Res., 115, doi:10.1029/2009JF001293, 2010.

Zwally, H. J., et al.: Greenland ice sheet mass balance: distribution of increased mass loss with climate warming; 2003–07 versus 1992–2002. J. Glaciol., 57, 88–102, 2011.

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