

The concerns raised by reviewer 1 have been addressed in full. The major concerns raised by reviewer 2 (me) have been rebutted in most instances. I think more effort could have been made to reach a balanced response to both reviewers. I include some remarks below pertaining to the original concerns I raised that were rebutted. I leave it to the editor to take a decision on whether the authors response is satisfactory.

Marine mass balance

The new term “Marine Mass Balance” confused me in my first review. I was under the impression that it was defined to include submarine melting at the base of ice floating beyond a flux gate, but I realise now that it is in fact the sum of iceberg calving and melting at the calving front. I really think this is adding a layer of confusion to the literature and not clarifying things; ice discharge is a well-understood description and allows for the quantity to occur through either calving or melting at the calving front. In any case, the distinction is somewhat artificial because surface runoff (a component of the Surface Mass Balance) and subglacial runoff (a component of the basal mass balance) are both also discharged into the ocean, and could therefore be reasonably categorised as components of the marine mass balance. Moreover, there is in fact no purpose to the new definition as neither of the component terms (iceberg calving and calving front melting) are separated in this study. My advice is to avoid introducing confusion and revert to the established term “ice discharge”, which is technically correct if one considers the inland side of the flux gate.

Modelled discharge

I raised a query relating to the period chosen to model ice discharge as a function of runoff. The authors have chosen 2000-2012, but this is an epoch when the ice sheet was in a considerable state of imbalance. I suggested checking how sensitive the results were to the choice of period; while the authors declined, I still believe this is a sensible thing to do.

SMB errors

I still find it difficult to believe that the SMB model output should have no time-invariant errors. Even though the authors dataset does not accumulate errors, in presenting an accumulated result in the accompanying paper the authors are implicitly recommended the approach.

Display of Mass Budget Terms

I suggested that the authors display each of the mass budget terms in the paper. The authors have replied that they are not sure how to do this – a response that lacks credibility. In the specific case of the BMB added to Fig. 2 perhaps the authors might consider a separate panel to avoid the problem of scale. In the case of tabulated results, perhaps the authors might consider annual values. The authors also state that at no point in this paper do they separate SMB into inputs and outputs, but in fact they do use runoff to model ice discharge which is what led me to believe that it was included in the study.