Author's Responses

November 5, 2019

Dear Dr. Nisancioglu,

Thank you for your helpful comments and for facilitating the review process. Below is a point by point response to your comments.

Sincerely,
Jacob Downs

Comment

- assess the impact of inflow/outflow of ice along the flowline

Response

After discussions with our co-author Josh Cuzzone, who has done extensive map plane modeling of western Greenland using ISSM, we believe that the flowline model is appropriate for modeling retreat in the Kangerlussuaq region due to the relatively simple modern flow regime, low bedrock relief, and surface mass balance dominated retreat pattern. Generally speaking, there is an absence of strongly convergent / divergent flow during the Holocene. We have added these points to the discussion. We also note that minor discrepencies in precipitation anomalies between flowlines could be due to map plane effects.

Comment

- discuss the impact of uncertainties in the bedrock topography

Response

Good suggestion. Uncertainties in bedrock geometry are secondary to climate uncertainty. Inversions conducted both with or without isostatic uplift yielded similar results. We now mention this in the discussion.

Comment

- compare the estimated enhanced HTM precipitation to simulations of HTM climate

Response

We now include a figure comparing our inverted precipitation history versus precipitation from TraCE21-ka.