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Parallel ice sheet model of glacial cycle inception in Greenland

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Greenland has not always been glaciated, and the ice sheet was likely at a minimum—if it existed at all—about one million years ago (Yau, et al, 2016). Here, the aim is to simulate the last million years of the Greenland ice sheet under the assumption that it incepted on bare bedrock. This is accomplished by melting the ice sheet off of present day topography, which allows us to isostatically rebound the bedrock, so we can approximate the conditions during glacial inception (Solgaard, et al, 2013). Then, we model the build-up of a potential ice sheet, varying different parameters, using the Parallel Ice Sheet Model (PISM) . Finally, we compare the model results for inception and dynamics of the ice sheet over the last million years with estimations of extent and timing from several geologic surveys.

Field of study

Earth & Climate Physics

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