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Oldest Ice in Antarctica – the 3d continental ice sheet modelling perspective.

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The ongoing quest to find the oldest continuous ice core in Antarctica draws on the expertise of multiple disciplines. Here we present our efforts to inform on the location of potential future drilling sites by 3d continental ice sheet modelling. We present the results of an ensemble of ice sheet model simulations spanning the last 2 million years utilizing a variety of different model setups and boundary conditions including new radar derived bedrock elevation. In our analysis we focus on the physical properties and ice dynamics around the major drill sites such as Dome Fuji and Dome C and discuss the effects of the ice sheets history on the present day flow regime. By using a continental setup and applying a transient forcing created from paleo climate modelling studies and ice core data we are able to take a holistic view of Antarctic Ice Sheet dynamics and its impact on the vertical stratigraphy around the East Antarctic ice domes.