

Utilization of filed observations to improve the reliability of ice sheet model

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The impact of high-resolution bed geometry data through airborne radar on the performance of ice sheet model is investigated targeting the Drygalski Ice Tongue and David Glacier, East Antarctica. The 2-dimensional (2-D) shallow shelf approximation model (MacAyeal, 1989), which is implemented in the Ice Sheet System model (ISSM) (Larour et al., 2012) is used. Sensitivity experiments are conducted to verify the significant differences induced by changes in model. A series of projected simulations are compared to explore the role of improved geometry to the grounding line migration, surface mass balance and sea level contribution based on various forcing scenarios including atmospheric forcing, floating ice melting rate, and ice front position.