



Modeling Cenozoic Antarctic ice sheet variations with restored West Antarctic topography

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The growth and subsequent variations of large-scale Antarctic ice cover across the Eocene-Oligocene transition is examined with a 3-D numerical ice-sheet/shelf model. Hysteresis between climate and ice volume is investigated, and whether ice volume can retreat significantly after the first threshold growth to full continental size; these questions are important given proxy data implying substantial sea-level variations through the late Oligocene and Miocene. Model results are compared using modern rebounded topography versus a restored West Antarctic topographic reconstruction at the Eocene-Oligocene boundary (D. Wilson and B. Luyendyk, 2009, *Geophys Res Lett*). We also describe the sensitivity to (i) horizontal resolution of the ice-sheet model, and (ii) climate forcing by GCM look-up table versus simple parameterizations.