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Influence of the structural dichotomy of Antarctic lithosphere on regional glacial-isostatic adjustment

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The strong lithospheric dichotomy between eastern and western Antarctica origins from the West Antarctic Rift. The rheological implications are therefore a reduction of elastic-lithosphere thickness by more than a factor of 2 from East to West Antarctica, and strongly reduced mantle viscosities below West Antarctica and the Antarctic Peninsula. We apply a spectral finite element model which enables the consideration of lateral viscosity variations in the upper mantle. Variations in seismic velocity are transformed to viscosity variations applying scaling laws, and the glaciation model IJ05 (Ivins & James, 2005, Ant. Sci.) is used for parameterizing the deglaciation of Antarctica. Considering different parameterizations of lithosphere structure we study the implications of lateral variability on the glacial-isostatic adjustment of Antarctica.