

Title: Seismicity on Venus associated with mantle flow

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Abstract: Gravitationally inferred mantle flow on Venus imparts significant stresses into Venus's lithosphere. While some of this stress is accommodated through ductile deformation, brittle deformation and associated seismicity likely occurs across the globe. For some rheological profiles, a portion of this seismicity would occur in the upper mantle. Consequently, future characterization of Venus-quakes may constrain the composition and rheology of the crust and mantle.

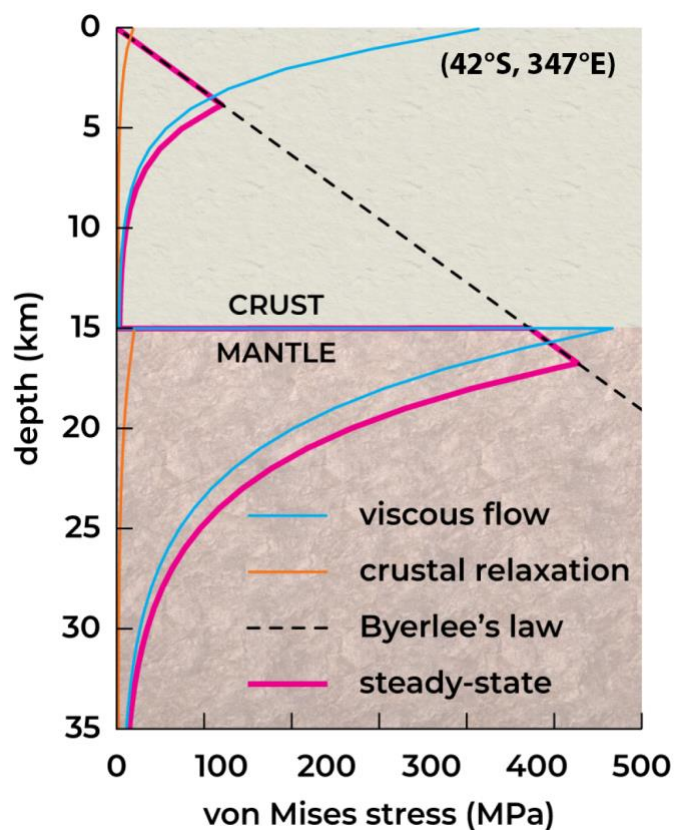


Figure 1: The yield strength envelope predicted for a location on Venus under the assumption of a weak crust. In the upper crust and upper mantle, the steady-state stresses are limited by Byerlee's law (i.e., frictional sliding).