

Abstract Submitted  
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**Trapping and hopping of a large “continent” over a thermally convecting fluid** JUN ZHANG, Dept. of Physics and Courant Institute, New York University, JIN-QIANG ZHONG, Dept. of Geology and Geophysics, Yale University, BIN LIU, Courant Institute, New York University — In an annular geometry, we study the interactions between a freely moving, floating boundary and a thermally convective fluid underneath. This experiment aims to investigate the essentials of interplay between large continents and a convective mantle. We find that the continent, depending on its relative size, can be trapped over a convergent or divergent flow at the continent-mantle interface. Such trapped states are regularly interrupted as the continent hops from one trapping position to the other. This rich dynamics can be understood by the heat buildup beneath the continent, a phenomenon referred to as the “thermal blanket” effect in geophysics.

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