

The Iapetus's ridge and possible explanation of its origin

L. Czechowski, J. Leliwa-Kopystyński

Institute of Geophysics, University of Warsaw, Pasteura 7, 02-093 Warsaw, Poland.

lczech@fuw.edu.pl jkopyst@mimuw.edu.pl

Recent images from the Cassini mission indicate the existence of a long ridge on Iapetus. The ridge extends at least 1400 km along an arc of the great circle. We discuss a possibility that the ridge is a result of the extensional forces acting above an ascending current of solid-state convection. The two-cell pattern of convection is a reasonable explanation of the observed feature. Three scenarios of the ridge formation are proposed: the spin-orbit resonance scenario, the impact generated flow scenario, and the convection in low-viscosity-interior scenario.