



State of the lithosphere-asthenosphere coupling beneath the United Kingdom

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Our knowledge of the lithosphere strength is still sparse in many places. The diversity of the processes involved over many time-scales makes the interpretation of available data sets difficult. We use a combination of techniques ranging from GPS to seismic experiments, including a mantle flow model to show that the coupling between crust and mantle varies across the British Isles. We show that: 1) The British Isles cannot be considered as an area free of any tectonic activity, 2) Scotland and northern Ireland have a different motion with respect to the general motion of Eurasia (relative velocity ~ 2 mm/yr at N270) with the dividing line coinciding with the Iapetus Suture, 3) strike-slip motion along fault/suture zones in Scotland are potentially related to mantle flow features and 4) that in England, where Elastic thickness is high and upper mantle strong, the coupling between crust and mantle lithosphere is lower than in Scotland.