



## **Seismic discontinuities beneath southern Ireland from Ps and Sp receiver functions**

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The recent Irish Seismological Lithospheric Experiment (ISLE 2002/3) is the first teleseismic experiment conducted in Ireland. It has been designed to investigate the deep lithospheric and asthenospheric structure across the late-Caledonian Iapetus suture zone in southern Ireland. The significance of this suture zone was revealed by a large anomaly in the variation of P-wave travel time residuals recorded during the VARNET 1996 controlled source experiment in SW Ireland.

From early November 2002 until July 2003 teleseismic data have been continuously recorded by a temporary network which consisted of 15 broadband and 8 short-period instruments, and a permanent network of 5 instruments which belong to the Irish Seismic Network and the GEOFON network. Stations of the temporary network were distributed on a nearly regular grid with an average spacing of about 30-50 km. Its axes were aligned parallel and perpendicular to the proposed Iapetus suture zone. One of the aims of ISLE 2002/3, beside studying the shear-wave splitting of S- and SKS phases, is the computation of receiver functions which allows to characterize major seismic discontinuities at depth.

Receiver functions for P to S conversions were calculated for the entire network in southern Ireland. Laterally continuous P to S conversions from the Moho at delay times of about 3.8-4.1 s, which correspond to Moho depths of about 29.5-32 km, are clearly observed. Furthermore, P to S conversions from the 660 km discontinuity are well determined at the stations. In comparison, the conversion from the 410 km discontinuity is considerably weaker. An attempt was made at identifying the lithosphere-asthenosphere boundary using S to P receiver functions.