



Contribution of the Euro-Med Bulletin to tomography at the Euro-Mediterranean scale

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Travel time tomography relies on seismic bulletins produced by national or worldwide agencies such as the ISC. The Euro-Mediterranean Seismological Center (EMSC) is the first center to dedicate its activities at a regional scale. Thanks to the close relationships established by the EMSC with the network operators, specific data exchanges were developed with new contributing countries of the Euro-Med region. After data merging, the EMSC produces a comprehensive bulletin using the parametric data collected from 69 local agencies.

After a description of the Euro-Med bulletin production and input parameters, such as velocity model, we present a P-wave velocity model for the crust and mantle beneath Europe obtained with the Euro-Med bulletin data. From the 1998-2003 Euro-Med Bulletin, approximately 250,000 P travel times were selected for tomography. To obtain the P-velocity model, we performed a global travel time tomography using an irregular grid parameterization depending on ray density.

In order to assess the quality of the travel times contained in the Euro-Med bulletin and to find out what the contribution of the data set to travel time tomography is, we compare the tomography model obtained from the Euro-Med bulletin to a global tomography model derived from a subset of well located events from the ISC bulletins (EHB data) which consists of 19 million P-wave arrival times. Finally, a tomographic model was created using a combination of ISC and EMSC data.

The tomography results show that the Euro-Med Bulletin data provide additional in-

formation in the crust and uppermost mantle below the whole Euro-Mediterranean region. However, we could relate unexpected velocity features to phase identification problems due either to local agencies mis-readings or to inaccurate reference models used in the event location procedure.