



## BUILDING AN IMPROVED DATABASE FOR SEISMOLOGY IN PORTUGAL: DATA COLLECTION AND QUALITY CONTROL

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Portuguese seismological data is currently being compiled onto a single database. This database results from efforts undertaken in recent years, backed up by a variety of funding mechanisms including research projects (e.g.: NERA, WILAS, QUAKELC-PT). The database, housed at IPMA – the national agency responsible for seismic monitoring – encompasses strong-motion, short-period and broadband seismic land data, as well as data from temporary deployments of ocean bottom seismometers (OBSs). The database contains all broadband data collected by permanent stations operated by different institutions in Portugal. It also contains broadband data collected by neighbor networks and temporary deployments, exchanged within the scope of bilateral agreements. Short-period data from temporary deployments are also included in the database. Although the current database already encompasses a considerable fraction of the existing strong-motion data, a full integration of strong motion data remains to be accomplished.

A major concern with databases that encompass large volumes of data, collected by different institutions, using a variety of procedures, is whether data quality is homogenous. In order to assess data quality, identify existing problems, and apply data corrections when needed and as possible, we carried out a rigorous quality control. In this presentation we will describe both the data collection and the quality control. Quality control consisted on: 1) assessment of ambient noise recorded at each site via computation of probabilistic power spectral densities (PPSDs), 2) assessment of sensor orientation using teleseismic P waves, and 3) monitoring of PPSD vs time at different periods of ground motion. From the latter, we found time intervals with anomalous instrumental transfer functions, which can affect significantly the amplitudes of long-period ground motions. The onset of intervals with anomalous instrumental transfer functions can be either abrupt or gradual (drifts). Finally, we report on 12-hr cycles of long-period ambient noise, which seem to be related to variations of atmospheric pressure.

Metadata compilation is a valuable contribution for future seismic investigations. The Euro-Mediterranean area has been stage of several Ps and Sp receiver functions, as well as seismic anisotropy studies, using several approaches. Although there is a growing on database on worldwide

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SKS splitting measurements, a similar effort directed at the arrival times of the main inner earth discontinuities still needs to be accomplished. We have developed a set of standards and recommendations regarding metadata publication and results distribution referring particularly to Ps and SP receiver functions and seismic anisotropy studies, including the joint inversion of waveforms of SKS and of P receiver functions to constrain SKS splitting with depth. We will also report on a database of focal mechanisms compiled for Iberia containing solutions inferred both from first-motion polarities and moment tensor inversion, available both from catalogs and individual publications.

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