



## AN IMPROVED IMAGE OF THE SEISMICITY OF PORTUGAL: FIRST RESULTS

Susana CUSTÓDIO<sup>1</sup>, Nuno Dias<sup>2</sup>, Pierre Arroucau<sup>3</sup>, Catarina MATOS<sup>4</sup>, Vânia LIMA<sup>5</sup> and Fernando CARRILHO<sup>6</sup>

Portugal lies on the south-westernmost tip of Europe, next to the boundary between Eurasia and Africa. The slow oblique convergence between Iberia and Nubia is accommodated along a broad region of diffuse deformation rather than along a single plate boundary. Individual faults have slow loading rates, which result in long time intervals between earthquakes. The geographic location of Portugal adds to the challenges that seismological investigations face in the region.

In the period 2010-2012 a dense network of temporary seismic stations was deployed in Portugal, within the scope of project WILAS (West Iberia Lithosphere and Asthenosphere Structure). This deployment, together with permanent stations, yielded a wealth of seismic data that now allow an improved look at the seismotectonics of Portugal.

In this presentation we will review the major findings of project WILAS concerning the seismicity of Portugal, namely: 1) improved earthquake locations, which allow the identification of epicenter lineaments previously absent from seismicity maps; and 2) an improved database of focal mechanisms, resulting both from careful waveform moment tensor inversion and analysis of first motion polarities. We compare the results obtained with regional crustal and lithospheric models and with previous seismo-tectonic models for the region.

We will further report the first results of project QuakeLoc-PT (Precise earthquake locations in mainland Portugal and adjacent offshore). The first stage of this project consisted on gathering seismic data dispersed among different institutions in Portugal and on building a single seismic database that comprised all data. Simultaneously, a database of all crustal and lithospheric models was compiled for the region, from which a reference 3D model was built. The reference 3D lithospheric model and ensemble seismic dataset will be used together to relocate the earthquake catalog with state-of-the-art methodologies. We report results from the first synthetic tests and application to selected clusters of seismic activity.

This work is funded by FCT – Portuguese Foundation for Science and Technology (PTDC/CTE-GIX/116819/2010; PTDC/CTE-GIX/122262/2010; PTDC/GEO-FIQ/3522/2012).

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<sup>1</sup> PhD, FCUL-IDL / CGUC, Lisboa, susanacustodio@campus.ul.pt

<sup>2</sup> PhD, ISEL, Lisboa, ndias@adf.isel.pt

<sup>3</sup> PhD, CGUC / IDL, Coimbra, parroucau@fc.ul.pt

<sup>4</sup> MSc, CGUC / IDL, Coimbra, cpfcmatos@gmail.com

<sup>5</sup> MSc, FCUL-IDL / CGUC, Lisboa, vcalima@gmail.com

<sup>6</sup> MSc, IPMA, Lisboa, fernando.carrilho@ipma.pt