



Propuesta de Trabajo Fin de Grado en Física

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Titulo del Trabajo:

High frequency seismic waves from the 2010 deep Granada earthquake to constrain the geometry of the Alboran slab

Tipología del Trabajo:

(Segun punto 3 de las Directrices del TFG aprobadas por Comisión Docente el 10/12/14)

(Marcar con X)

1. Revisión bibliográfica	x	4. Elaboración de nuevas prácticas de laboratorio	
2. Estudio de casos teórico-prácticos		5. Elaboración de un proyecto	
3. Trabajos experimentales	x	6. Trabajo relacionado con prácticas externas	

Breve descripción del trabajo:

In the westernmost Mediterranean region subduction of oceanic lithosphere beneath the tightly curved Gibraltar arc is imaged by different tomographic studies. These images show an oceanic slab sinking down into the upper mantle. At the edges of a subduction system, tear faults occur that enable the continuation of subduction. These faults are strike-slip transfer faults that produce the tearing of in the subducted plate lithosphere and propagated, approximately, perpendicular to the subduction strike.

The study of variations in the high frequency contents observed in the regional signal of the 2010 Granada deep earthquake may provide an efficient way to detect the structure of this subducted Alboran slab. A continuous slab is needed to conserve the high frequency energy and allow it to propagate to the stations in the forearc. Therefore, if a slab gap is present these characteristic high frequency signals should not be observed.

The 2010 Granada deep earthquake is the best ever recorded deep earthquake with more than 172 regional stations around the Alboran subduction system. We plan to analyse the high frequency signals in the seismic records of this earthquake to infer the propagation characteristics of the seismic wave inside the Alboran slab and its geometry.

Objetivos planteados:

- To study the regional seismic wave propagation of the 2010 Granada deep earthquake
- To relate the high frequency contents in the seismograms with the structure and geometry of the Alboran Slab

Metodología:

- Spectral analysis

Bibliografía:

Daoyuan Sun, Meghan S. Miller, Nicola Piana Agostinetti, Paul D. Asimow, Dunzhu Li, High frequency seismic waves and slab structures beneath Italy, Earth and Planetary Science Letters, Volume 391, 1 April 2014, Pages 212-223, <https://doi.org/10.1016/j.epsl.2014.01.034>.



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A rellenar sólo en el caso que el alumno sea quien realice la propuesta de TFG
Alumno/a propuesto/a:

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Sello del Departamento