PhD Position – Environmental Seismology. University of Seville (Spain)

The Doctoral Network "Studying the Earth's surface with seismic methods" (EnvSeis) is funded by the **European Commission's Marie Skłodowska-Curie Actions**. Bringing together 10 leading research groups from 7 countries, EnvSeis supports 12 early stage researchers in the emerging field of environmental seismology, in which seismic methods are used to study processes at or near the Earth's surface, such as landsliding, river sediment transport, debris flows, and glacial and marine processes. Projects in the network are connected by the common methodology and joint training and networking activities. More information can be found on the project website www.envseis.eu.

We invite you to apply for several ESR positions of your interest and in that case, indicate it in your application with the order of preference. **Applicability** follows the mobility rules of the European Commission's Marie Skłodowska-Curie Actions Doctoral Networks. Candidates must not have resided or carried out their main activity (work, studies, etc.) in the host country for more than 12 months in the 36 months immediately before the recruitment date[1]. In addition, an extended secondment (at least 6 months) abroad is required.
Candidates to ESR positions shall at the date of recruitment, be in the first four years of their research careers and have not been awarded a doctoral degree.

Within this European Project, the University of Seville opens a doctoral position for the ESR10:

Modelling of seismic waves generated by submarine landslides and tsunamis

Description:
Tsunamis are usually caused by earthquakes whose seismic waves help to develop tsunami early warning systems. In addition, tsunamis can also be generated by submarine landslides, becoming a major hazard for infrastructure and population. These landslides can be very large, but they are hardly observable, and many open questions surround their dynamics. In this project, mathematical and numerical models will be developed describing both submarine and the subsequent tsunami activity, and simulating the seismic waves generated by these processes.
This will make it possible to improve hazard assessments and to design more efficient warning systems for submarine landslides and tsunamis, based on seismic detection.

Landsliding will be modelled as a two-phase problem accounting for the influence of the interstitial fluid that play a key role on the evolution of the landslide. Other important attributes are the dispersive effects that are essential for the correct evolution of tsunami waves mainly close to the coastal area. The force generated by submarine landslides will be inverted from seismic data using Bayesian methods. Numerical approximation and computational implementation will be also developed for the proposed mathematical model. The simulations will be compared to low frequency seismic data from available recorded cases in order to validate and calibrate the numerical model.

Host institute: University of Seville, Spain.

[1] Short stays (such as holidays), compulsory national services (such as mandatory military service) and procedures for obtaining refugee status under the Geneva Convention are NOT counted.

Supervisors: Gladys Narbona Reina, Enrique D. Fernández Nieto (U. Seville, Spain).
Co-supervisor: Heidrun Kopp (GEOMAR, Germany).

Collaborations: Instituto Español de Oceanografía, Institute de Physique du Globe de Paris, University Gustave Eiffel.

Candidate background: Master's in mathematics (applied mathematics, computational mathematics), physics (mathematical physics, computational physics).

Duration of the contract: 36 months
Planned date of recruitment: March 1st, 2023.

Deadline for applications: January 10th, 2023.
Applications: go to the EURAXESS portal: https://euraxess.ec.europa.eu/jobs/855318