



ÉCOLE DOCTORALE SCIENCES DE LA TERRE



Subject offered for a contract starting october 2014

SUBJECT TITLE: Ionospheric seismology: Use of ionospheric measurements for seismological applications

Advisor: **LOGNONNE Philippe (Pr), lognonne@ipgp.fr**

Second Advisor/ Supervisor:

ASTAFYEVA Elvira (CR), astafyeva@ipgp.fr

Host lab/ Team :

IPGP- Team Planétologie et Sciences Spatiales – UMR7154

Financing: ERC

For more information go to <http://ed109.ipgp.fr>, section: Offres de these (PhD offer), You must apply on the Doctoral School website

The Department of Planetology and Space Sciences of the Institut de Physique du Globe de Paris (IPGP, <http://www.ipgp.fr>) invites applications for a PhD student position in the field of the ionospheric seismology and the fundamental ionospheric studies. The 3-year contract with gross monthly salary ~2200 euros will be funded by the European Research Council (ERC) in the framework of the ERC Starting Grant project “SIREAL”. The expected starting date is 1 September 2014.

Ionospheric seismology is a modern inter-disciplinary branch of geophysics that aims study ionospheric response to large earthquakes, tsunamis, volcanic eruptions and explosions. One of the recent innovational applications of the ionospheric seismology is the use of ionospheric measurements in addition to the “traditional” seismological observations for estimations of parameters of a seismic source (Astafyeva et al., 2011, 2013). The main subject of the proposed work will be the development and the improvement of the existing model of co-seismic ionospheric perturbations, starting from the ground and till the ionosphere. The final aim is the inversion of parameters of seismic source from ionospheric observational data. The work will include both experimental studies and modeling of the ionospheric response to earthquakes. For additional inquiry do not hesitate to contact Dr. Elvira Astafyeva ([astafyeva @ ipgp.fr](mailto:astafyeva@ipgp.fr))

References :

E.Astafyeva, P.Lognonné, L.Rolland. First ionosphere images for the seismic slip on the example of the Tohoku-oki earthquake. Geophys. Res. Lett., **2011**, V.38, L22104, DOI:10.1029/2011GL049623

E.Astafyeva, L. Rolland, P. Lognonné, K. Khelfi, T. Yahagi. Parameters of seismic source as deduced from 1Hz ionospheric GPS data: case-study of the 2011 Tohoku-oki event. J. Geophys. Res. - Space Physics, **2013**, V. 118, N9, 5942-5950. DOI:10.1002/jgra50556.

Requested Profile:

- Master Degree in Geophysics or Physics
- Good background knowledge of ionosphere/atmosphere physics, Earth Sciences, seismology
- Excellent abilities in programming
- Good knowledge of English, both oral and written

Applications (extended CV, a short description of the Master work) should be sent to Dr. Elvira Astafyeva ([astafyeva @ ipgp.fr](mailto:astafyeva@ipgp.fr)). The deadline of application is 30 June 2014.