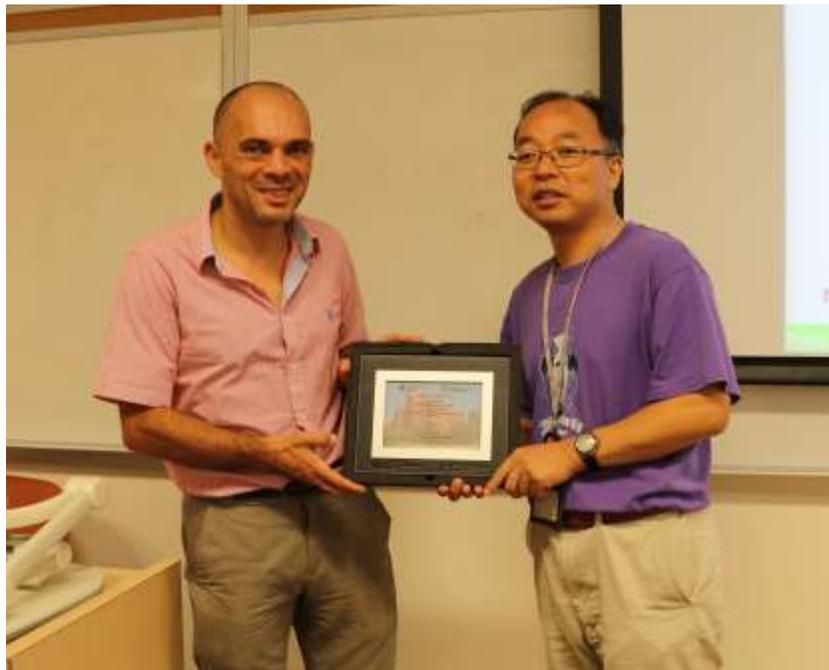


LSGI Public Lecture Series

“Use of GPS for Geophysical Applications:from Secular to Second”

Overview

It was our pleasure to invite Dr. Rui Fernandes, Assistant Professor, Department of Computer Sciences, University of Beira Interior, Portugal, to deliver a seminar of the LSGI Public Lecture Series, to deliver a seminar of the LSGI Public Lecture Series on 26 Oct 2018.



Biography

Prof. Rui Fernandes has a doctoral degree in Earth and Space Sciences by Technical University of Delft (The Netherlands). He is Assistant Professor in the University of Beira Interior (UBI), Covilhã, Portugal and Associated Researcher of Institute Geophysical Infante D. Luíz (IDL), Lisbon, Portugal. He is the Head of SEGAL (Space & Earth Geodetic Analysis Laboratory), a collaborative project between UBI and IDL. He has been an active researcher in the use of GNSS for monitoring geophysical signals and for the definition of reference frames. In this respect, he has published several papers at per-reviewed international journals and he is coordinator of the Working Group Data & of EPOS European Plate Observing System.

Use of GPS for Geophysical Applications:from Secular to Second

The advent of GNSS (Global Navigation Satellite Systems) created an entire revolution on the methodologies for georeferencing. A multitude of new technical and scientific applications are nowadays dependent of this space-based system requiring accuracies from meters (e.g., navigation) to millimeters (e.g., deformation monitoring) level. The focus of this talk will be geodetic applications of GNSS for monitoring geophysical signals. We start by discussing the accurate estimation and interpretation of secular motions due to tectonic and subsidence/uplift processes. A major issue is to separate on the estimated time-series the secular motions due to plate tectonics from other signals like atmosphere effects (ionosphere and troposphere) as well as the effects due

to an environment in the vicinity of the receiver (multipath, soil moisture, snow coverage etc.). Various other phenomena, such as loading effects, local crustal movements, postglacial rebounds etc., additionally affect the time-series of a ground monument position and should be

taken into account. Additionally, we will also focus on issues related with the application of GNSS to evaluate sudden displacements due to seismic events and their applications to Early Warning Systems. Geodetic observations can play a crucial role in TEWS (Tsunami Early Warning Systems). Particularly, if GNSS (Global Navigation Satellite Systems) data are available just after the occurrence of an earthquake, they can be used to model the earthquakes and thus initialize parameters for tsunami modeling.