



ANNOUNCEMENT

AGS (HK) Technical Seminar

supported by Geological Society of London – Hong Kong Regional Group

Sissterra: A 3D Passive Imaging Solution For Subsoil Exploration In Urban Context

by

Maria Saadé and Clément Mogenier

(Geophysics Group of Sixense Engineering Ltd, France)

Date : 13 January 2023

Time : 18:30 – 19:30 (Hong Kong Time)

Venue : The webinar will be conducted through Zoom.

Successful applicants will be informed by emails with a Zoom's link to the webinar. Participants should arrange for their own device with a stable network environment to join the webinar.

Enquiry : Haydn Chan (email: haydn.chan@arup.com)

Fee : Free of charge

Registration : <https://forms.gle/XkdgVDEHtBxB6kKm8>

Please register not later than 9 January 2023. Successful applicants will receive webinar details on 10 January 2023. CPD certificate will be sent to the attendees after the webinar.

Book Prize : The youth professionals under 35 years old are encouraged to submit their reports (max. 500 words) in quality on this event. Please refer to the AGS HK's website "The AGS Book Prize Reports–Assessment Framework" for details before the submission. The successful candidate will be awarded with the Book Prize that comprises of a book "Geology of Site Investigation Boreholes in Hong Kong" that written by Chris Fletcher, and a gift coupon of HK\$500 from Eslite Spectrum (誠品生活). The awarded report will further be uploaded to the website of AGSHK. Please send your report to Mr. Haydn Chan by email: haydn.chan@arup.com.



Synopsis:

SISSTERRA® is a 3D passive tomography solution for imaging the subsoil at high resolution. The measurements require the deployment of a network of autonomous, non-intrusive and easy to deploy, seismic nodes on the surface of the study area. The network does not have to be regular and can be adapted to the area of study. Its design can be defined relatively to the depth of investigation (depends on the dimensions of the network) and the lateral resolution needed (equal to the spacing between nodes) and can allow to investigate deep and shallow depths without requiring any active source such as explosives or truck-mounted vibrators.

The Rayleigh waves hidden in the noise signal are extracted by the computation of a cross-correlation between each pair of receivers. This procedure multiplies the number of measurements since we consider pairs of receivers and not individual ones. Dispersion curves obtained from the cross-correlations are inverted into shear velocity variations with depths. The resulting 3D Vs model can allow the highlight of the main geological features in the area, the different seismic horizons, and contrasts that can be interpreted as heterogeneities, weathered soil, cavities, etc.

About the Speaker:

Dr. Maria Saadé is currently Expert in Seismic method and mainly the SISSTERRA solution for Sixense Group in Nanterre, France. She did her PhD in Seismology, specialized in passive monitoring at Institut de Physique du Globe de Paris in 2016. She held then 2 postdocs at the university, the 1st one in the seismology team working on passive imaging and monitoring for earthquakes in Japan and the 2nd one in the planetology team working with the scientific team of the NASA InSight mission. At Sixense, she worked on several projects including: extensions to Paris metro lines, construction sites, dams and seismic risk analysis with different entities such as the CEA (French Alternative and Atomic Energies Agency) and EDF (Electricity of France), tunneling projects in France and Luxembourg, deep underground storage facilities in Morocco, the NEOM project in Saudi Arabia.

Mr. Clement Mogenier is currently Senior Project Manager for Sixense Group in Lyon, France. He received his MSc in Applied Geosciences in 2006 from Université Savoie Mont Blanc, France. He spent his whole career as an Engineering Geophysicist for Sixense Group in Europe and in Hong Kong SAR. He has been involved in large scale geophysical surveys for several major construction projects in France: the Eastern High Speed railway, extensions to Paris and Lyon metro networks, Lyon-Turin Base Tunnel (TELIT) and also overseas in Africa, Western Europe, Asia, Middle East, Oceania for large infrastructures projects like the West Island and South Island Lines, the Shatin to Central Link in Hong Kong, the Nam Theun 2 dam in Lao, the Metro Tunnel Project in Melbourne, or more recently the NEOM project in Saudi Arabia.