

International PhD Course "Civil and Environmental Engineering"



UNIVERSITÀ DEGLI STUDI FIRENZE DIPARTIMENTO DI INGEGNERIA CIVILE E AMBIENTALE

## **Geomatics seminars**

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Friday 8<sup>th</sup> March 2019 Google Earth Engine: a Cloud Computing Platform for Geospatial Analysis

10.00-13.00 14.00-17.00 Sala Caminetto

Friday 15<sup>th</sup> March 2019 GNSS Static and Dynamic Monitoring: Theory and Applications to Ground and

Structures

10.00-13.00 14.00-17.00 Sala Caminetto

Via di S.Marta 3 - Firenze www.dicea.unifi.it The seminar illustrates the main features of Google Earth Engine (GEE), a planetary-scale platform for Earth science data & analysis. Efficient geospatial big data handling, with particular focus on remote sensing data, has a key importance. It is necessary to make them truly available to the wide community of non-experts, who need data to investigate, monitor and model a large and continuously growing variety of Earth system, social and economic processes.

GEE makes it easy to access both to multi-temporal remote sensing big data and to high-performance computing resources for processing these datasets. GEE users can upload their own nonpublic data in reserved areas and process them together the public ones, performing a synergic data fusion and integration.

The seminar, starting from some recalls on GNSS theory, illustrates what is now possible with standard geodetic class and low-cost receivers, both for long-term static monitoring and real-time dynamic monitoring, with some focus on the patented VADASE approach.

The detection and estimation of displacements and related deformation of ground and structures is an evergreen topic, thanks to the continuous technological evolution, improvement and widening of the variety of sensors which can be used for monitoring purposes.

Within the variety of the available sensors, GNSS (Global Navigation Satellite Systems) receivers play a key role for outdoors applications to ground and structures monitoring.

Practical exercises will be developed in the second part of the seminar, and the Students are kindly requested to come with their own portable PC.