

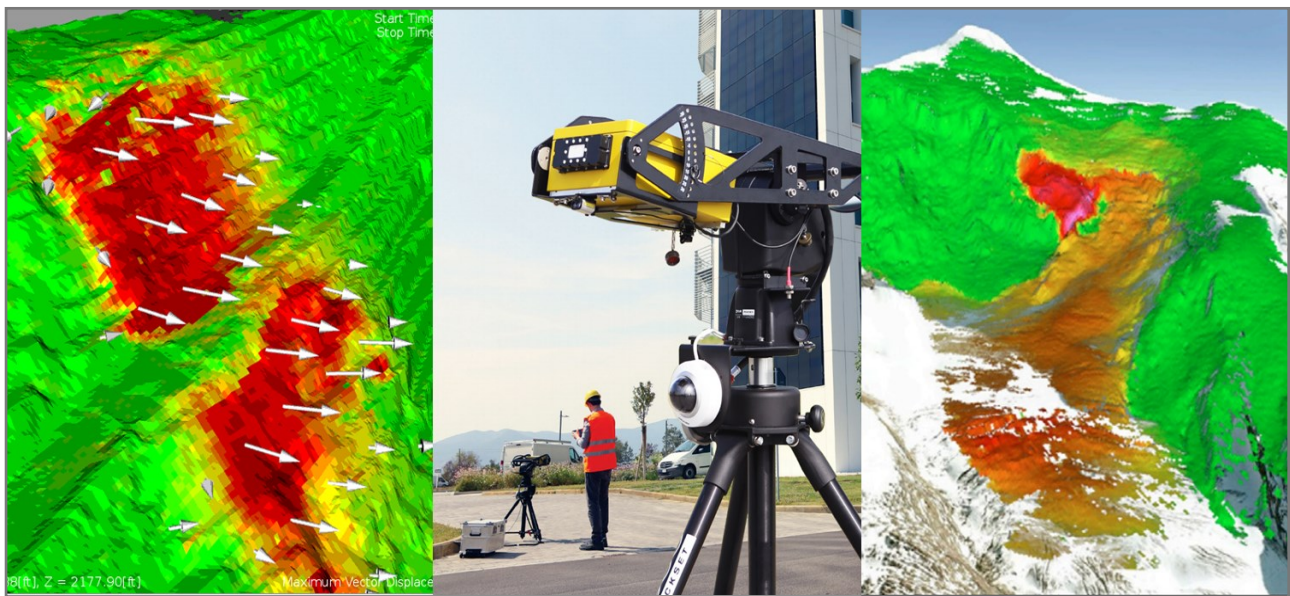
Seminario

Ground-based radar interferometry Principles, applications and future developments

Giovedì, 13 Novembre 2025 – ore 16:30 Aula Arduino

Relatore: **Dr. Michellini Alberto**

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Ground-based radar interferometry (GBRI) is a remote sensing imaging technique based on coherent radar systems, which can measure not only the amplitude, but also the phase of the microwave signals. The phase measurements can then be exploited to derive information on the deformation and topography of the measured scene.

In the last decade GBRI has gained an increasing interest as a deformation measurement and monitoring tool, and currently is a well-established technology, usually exploited by geophysicists, engineers and geotechnicians. Thanks to its high sensitivity to small deformations, its long range of measurements, and its imaging capability, GBRI is complementary to many other existing deformation measurement techniques.

In the first part of this lecture the working principles of the GBRI technique are presented: starting from the radar and interferometry basics, we will discuss the fundamental steps of data acquisition, processing and analysis, then we will finish presenting the different systems and technologies currently available.

The second part of this lesson will provide an overview of the various applications of the GBRI: starting from the classic monitoring of landslides, glaciers and structures, up to the most recent developments such as integrations with other measurement systems, displacement vector reconstruction, rockfall tracking and Artificial Intelligence applications.

Proponente: **Giorgio Cassiani**