

平成 27 年 7 月

EAGE Education Tour 9 (EET9) 開催のご案内

(公社)物理探査学会
国際委員会



欧州物理探査学会 European Association of Geoscientists & Engineers (EAGE)の主催する教育プログラム EAGE Education Tour (EET) が日本でも開催されることとなりました。このプログラムは、EAGE の著名な講師が世界各地の連携学会を回り、最新の技術トピックスについての講義を行うものです。今回は、ミリ単位の地表変動を宇宙から計測するという InSAR を取り上げます。最先端の技術を知る大変よい機会ですので、本テーマに関心のある方は奮ってご参加ください。

講義の概要は、[EAGE のサイト](#)または[物理探査学会のサイト](#)をご覧ください。

記

テーマ : Satellite InSAR Data: Reservoir Monitoring from Space

講師 : Alessandro Ferretti (Tele-Rilevamento Europa - Milan, Italy)

日時 : 平成 27 年 11 月 17 日 (火) 9:00 - 17:00

会場 : 東京大学伊藤国際学術研究センター

受講料 : 【EAGE 経由】

EAGE 会員 75 ユーロ EAGE 非会員 150 ユーロ

学生割引 25 ユーロ

受講料はテキスト代金(会員価格€55 相当)を含みます。

【物理探査学会経由】

物理探査学会会員 20,000 円 (テキスト代金含む)

※ただし、物理探査学会経由の申し込みは定員 10 名、学生割引はありません。

申込方法 : EAGE 経由 ⇒EAGE のサイト ([こちら](#)) からお申し込みください

物理探査学会経由 ⇒[物理探査学会事務局](#)宛にメールでお申し込みください



ご不明な点は学会事務局までお問い合わせください。

公益社団法人 物理探査学会

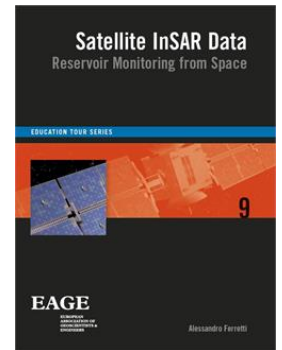
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以上

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Satellite InSAR Data: Reservoir Monitoring from Space

Instructor: Alessandro Ferretti, Tele-Rilevamento Europa - Milan, Italy



Course Description

Satellite radar data for surface deformation monitoring are gaining increasing attention. They provide a powerful tool for remotely measuring small surface displacements that can be applied successfully to many different applications, spanning from sinkhole detection to reservoir optimization. This course provides a step-by-step introduction to satellite radar sensors, SAR imagery, SAR interferometry and advanced InSAR techniques. Rather than a tutorial for remote sensing specialists, the course starts from very basic concepts and explain in plain language the most important ideas related to SAR data processing and why geoscientists and engineers should take a vested interest in this new information source.

Course Objectives:

Upon completion of the course, participants will be able to:

- understand the key interest of InSAR for geoscientists and engineers;
- understand the basic concepts behind Synthetic Aperture Radar (SAR) sensors;
- appreciate the main differences between SAR and optical images;
- understand the basic data requirements, assumptions, limitations and applicability of SAR interferometry (InSAR);
- discover advantages and limitations of advanced InSAR techniques for estimating sub-centimetre surface deformation phenomena from space;
- realize why InSAR data are becoming a standard tool for surface deformation monitoring;
- compare InSAR data with in situ measurements, such as: GPS and tiltmeters.
- understand how surface deformation can be related to geophysical parameters at depth;
- see how InSAR data are an effective tool for monitoring subsidence phenomena;
- understand the importance of surface deformation monitoring in Carbon Capture and Sequestration (CCS) and Underground Gas Storage (UGS) projects;
- understand why InSAR data can be used as a cost-effective tool for reservoir management, as well as a risk mitigation tool;
- start thinking about future applications of satellite radar data, possibly in synergy with other in-situ observations

Participants' Profile

The course is for anyone who would like to understand how satellite sensors can measure surface displacements to a fraction of a centimetre from space. Reservoir engineers, geophysicists, geodesists, geologists should all be interested in this new tool for surface deformation monitoring that is becoming more and more a standard. Radar data are still largely unknown, but their impact on oil& gas and civil protection applications can be huge.

Prerequisites

Rather than a strong background in remote sensing, geophysics and calculus, curiosity is probably the most important prerequisite. The course can be understood by geoscientists and engineers with a moderate mathematical background.

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Satellite InSAR Data: Reservoir Monitoring from Space

Instructor: Alessandro Ferretti, Tele-Rilevamento Europa - Milan, Italy



Alessandro Ferretti graduated in electronic engineering in 1993 at the Politecnico di Milano (POLIMI). He then received his MSc. in information technology from CEFRIEL (1994) and his PhD in electrical engineering from POLIMI (1997). Since 1994 his research efforts have been focused on radar data processing, SAR interferometry and the use of remote sensing information for oil&gas and Civil Protection applications. He is co-inventor of the “Permanent Scatterer Technique” (PSInSAR™) and its advanced version: SqueeSAR™, a technology providing millimetre accuracy surface deformation

measurements from satellite radar data.

In 2000 he founded, together with professors Rocca and Prati the company “Tele-Rilevamento Europa” (TRE), where he is currently CEO. TRE is today the most successful POLIMI spin-off company, offering high-quality surface deformation data for many different applications, from oil/gas reservoir surveillance, to landslide monitoring. Since 2008, he has acted as Chairman of the Board of TRE Canada Inc. He is member of EAGE, SPE and the IEEE Geoscience and Remote Sensing Society. In June 2012, Alessandro Ferretti, together with Prof. Fabio Rocca, was awarded the “ENI Award 2012” for the potential impact of the PSInSAR™ technology on the oil&gas sector