



# UNIVERSITÀ DI PAVIA

## Corso di Dottorato in Scienze della Terra e dell'Ambiente

### Satellite SAR interferometry as a supporting tool for the land subsidence

**Lecturer:** Dr. Roberta Boni (Dept. of Earth and Environmental Sciences, University of Pavia)

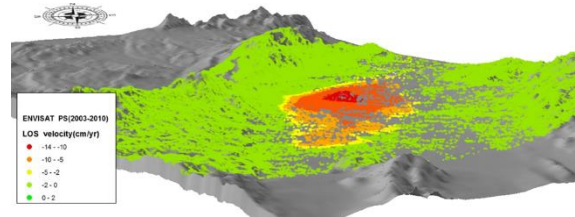
**Credit:** 16 hours, 4 CFU

**Teaching mode:** Online course

**Language:** English

**Date:** 19/10/2020 – 23/10/2020

**Participants:** The course is open to early career scientists, such as Ph.D. students, young post-doctoral scientists, specialized in Earth Science.



**Objectives:** The course aims at presenting the basic concepts of the satellite Synthetic Aperture Radar (SAR) interferometry technology as well as examples of end-user applications of this technique relevant for the land subsidence identification and monitoring. The course consists of lectures to illustrate the theory and practical sessions where the emphasis is on the use of the satellite SAR interferometry for engineering geological problems. Moreover, the course is inserted in the frame of the topics of the sustainability, as defined in the 2030 Agenda for Sustainable Development, in particular in the following goals:

- Goal #6 Ensure availability and sustainable management of water and sanitation for all.
- Goal #13 Take urgent action to combat climate change and its impacts.

The presented technologies are exploited within the project PRIMA H2020 RESERVOIR (Sustainable groundwater resources management by integrating earth observation derived monitoring and flow modelling results) that is a project part of the PRIMA programme and started on March 2020, under grant agreement No 1924 supported by the European Union's. A fully dedicated course will be organized by all partners, that are Università degli Studi di Pavia, Università di Padova, Instituto Geológico y Minero de España, Universidad de Alicante, Dokuz Eylul University, University of Jordan, Consorzio di Bonifica di secondo grado per il Canale Emiliano Romagnolo, Royal Society for the Conservation of Nature - Azraq Wetland Reserve, to describe RESERVOIR products and service.

#### Course program:

1. Presentation of the RESERVOIR project (Prof. Claudia Meisina, 10 minutes)
2. Introduction to satellite radar sensors, SAR missions and basic concepts (2 hours)
3. Satellite SAR interferometry limitations and applicability (2 hours)
4. Integration of satellite-based and in situ measurements (2 hours)
5. Multi-sensor SAR data for detect and monitor land subsidence (2 hours)
6. Overview of possible applications (2 hours)
7. Practical lessons for the post-processing interpretation of satellite-based data (3 hours)
8. Practical lessons for the joint use of satellite-based displacement time series and in situ data (3 hours)

For further information contact Dr. Roberta Boni: [roberta.boni01@universitadipavia.it](mailto:roberta.boni01@universitadipavia.it)



This project is part of the PRIMA Programme supported by the European Union



PRIMA  
IN THE MEDITERRANEAN AREA



RESERVOIR