RASTOOL-DoS

Welcome!!!

Anna Barra & all the consortium

Online Information Day

06/06/2025

Please note that the webinar is being recorded

Project co-funded by the European Union, Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO)

UCPM-2024-KAPP-PP - 101193210

Presentations

ORGANIZATION TEAM

Anna Barra
Researcher at the Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Geomatics Research Unit, she is the Project Coordinator of RASTOOL-DoS.

Marta Béjar Pizarro
Senior Researcher at the Geological and Mining Institute of Spain (IGME-CSIC), she leads the work package on User Needs, Assessment and Engagement within the RASTOOL-DoS project.

ORGANIZATION TEAM

María Cuevas González

María Cuevas is a researcher at CTTC's Geomatics Research Unit. Her work involves processing and analyzing spaceborne remote sensing data using both active and passive sensors. She contributes to several research areas, with a focus on terrain deformation detection and monitoring through DInSAR, as well as satellite-based forest biomass estimation.

Mónica Martínez

Mónica Martínez is a senior technician with more than 15 years of professional experience. She is based in the Department of Geological Hazards and Climate Change, at CN IGME within the GEOsmART research group. Her work involves supporting a broad range of multidisciplinary activities related to geological hazards caused by ground movements, with a particular focus on rockfalls and landslides. Her expertise includes the geotechnical characterization of these phenomena and the application of remote sensing techniques for their analysis

MODERATORS

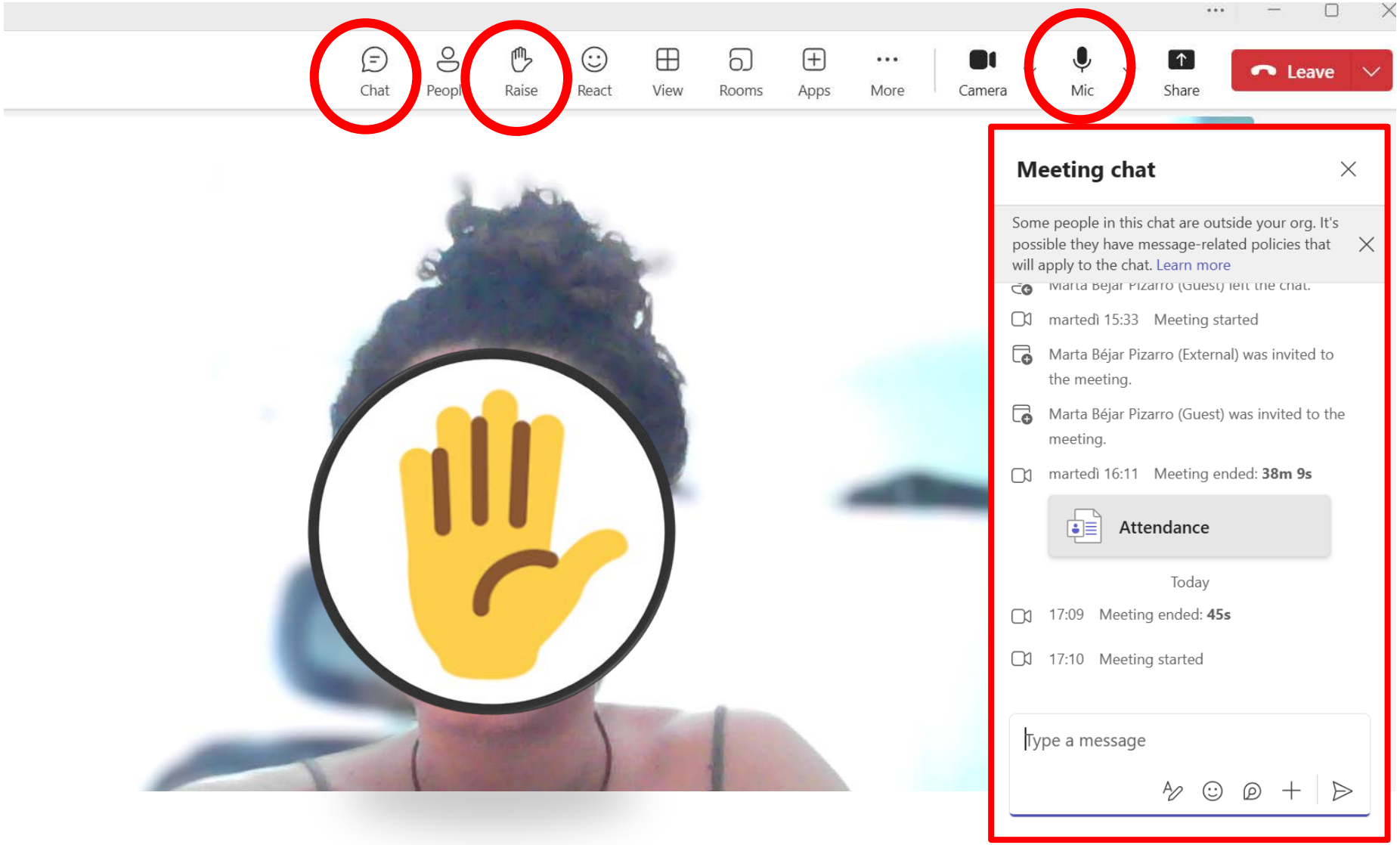
Oriol Monserrat

Oriol Monserrat leads the Remote Sensing Group of the Geomatics Research Units at CTTC, where he develops cutting-edge applications using active sensors like SAR and laser scanners. His research focus on detecting and monitoring ground deformation through advanced InSAR and DInSAR techniques and its application to geohazard management, with a strong focus on landslides and subsidence.

Guadalupe Bru

She is a postdoctoral researcher based in the Department of Geological Hazards and Climate Change, at CN IGME. Her research focuses on the study of ground movements related to geohazards using InSAR and modelling techniques

Technical aspects: active participation is welcome!



Mónica

María

Technical aspects: active participation is welcome!

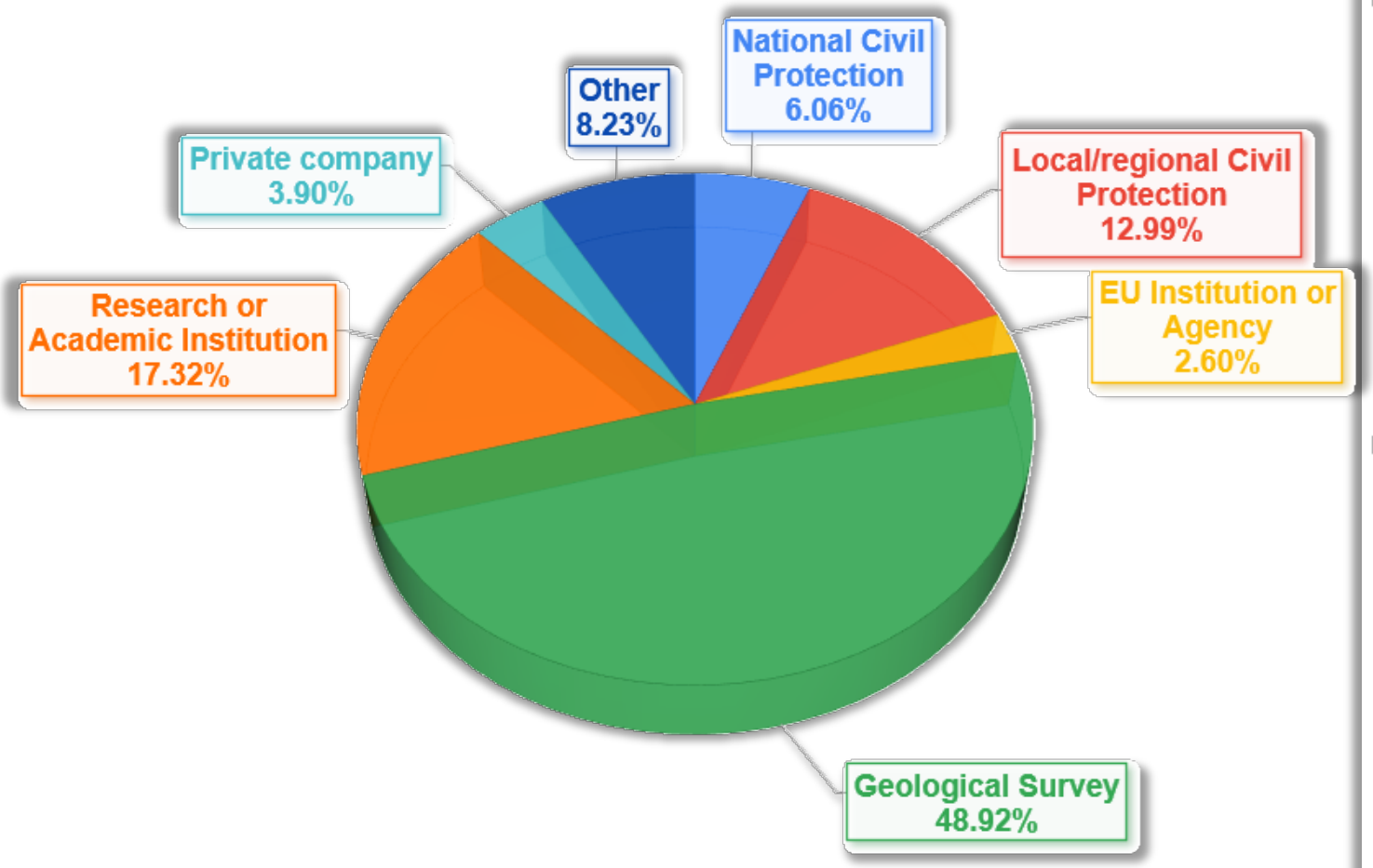
📊 **We'll be using a few quick interactive polls during the event!**

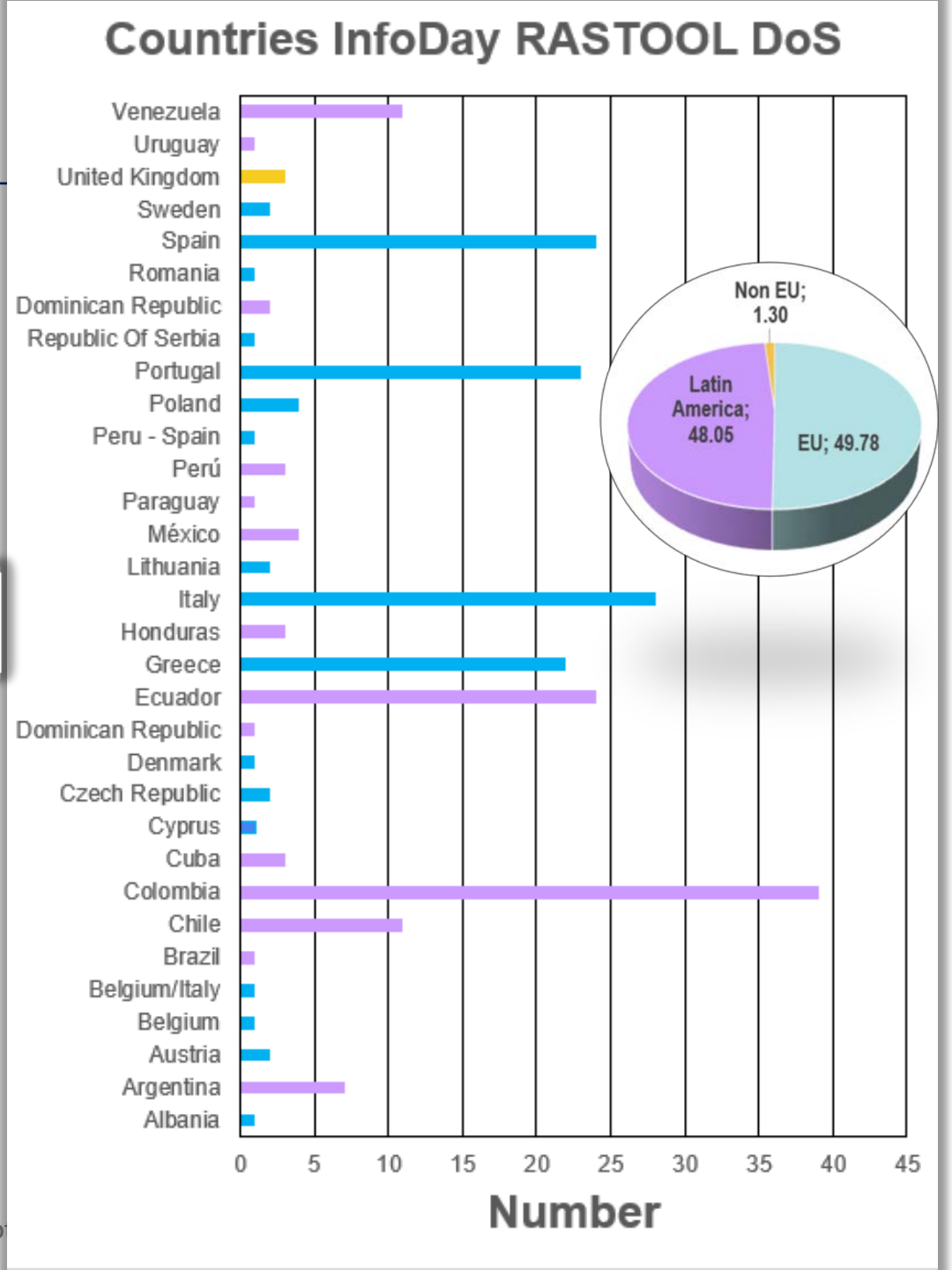
👉 **Please take a moment to participate whenever a poll pops up.**

Your input is really valuable!

Overview of Inscriptions

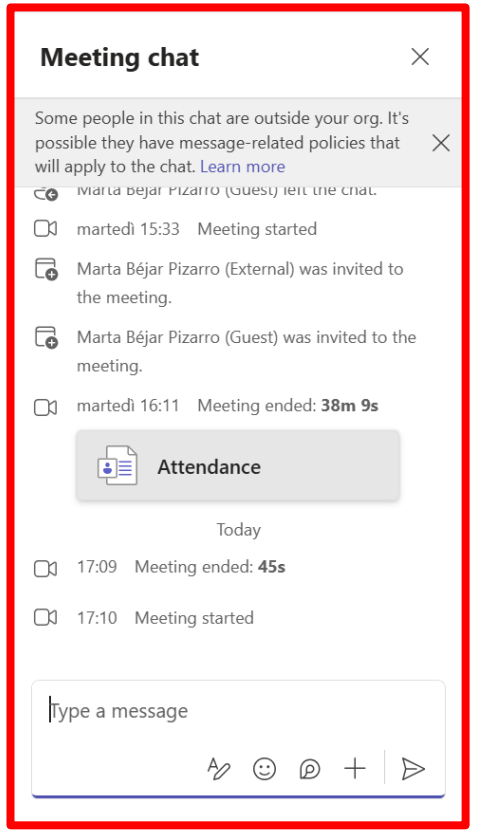
Insights from the registration survey





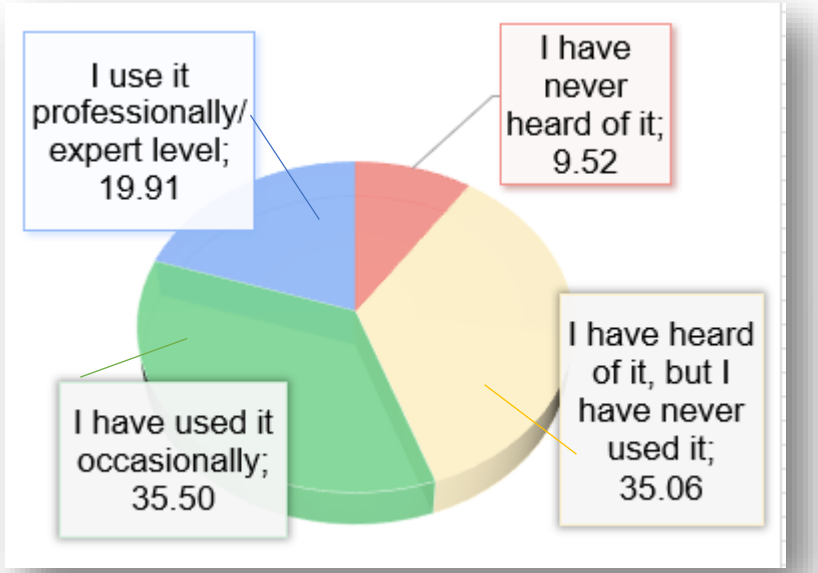
Let’s make a test – polls time!

1. Which of the following best describes the sector of your organisation?
2. Which **type(s) of hazard** does your work primarily address?

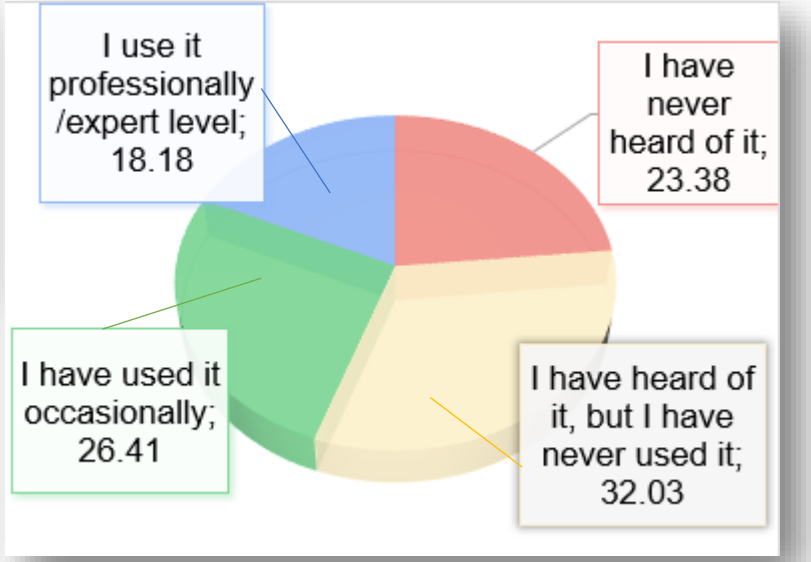


Are you familiar with...

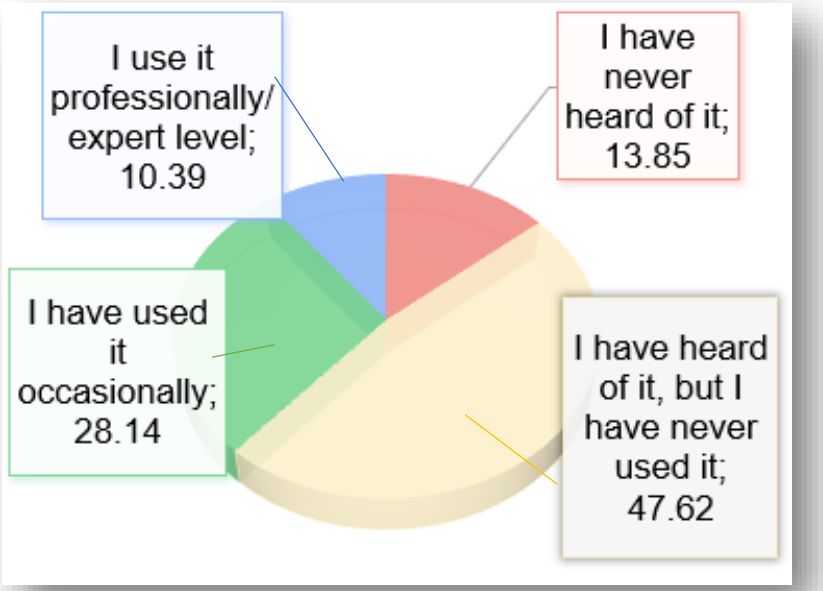
InSAR?



EGMS?



CEMS?



Agenda overview

All presentation time slots include 5 minutes allocated for questions and answers.

10:00 - 10:25 Welcome & Project Introduction

10:25 – 11: 30 *Session 1*

EU Framework for DRM

11:30- 11:40 Ten Minutes Break

11: 40 – 12: 40 *Session 2*

Satellite Interferometry (InSAR) in Disaster Risk Management (DRM): examples

12:40- 13:15 Session 3

RASTOOL-DoS specific session

Project Introduction

Anna Barra

Online Information Day

06/06/2025

Project co-funded by the European Union, Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO)

UCPM-2024-KAPP-PP - 101193210

Presentation Summary

- Project Overview
- Context:
  - Satellite Interferometry (short introduction)
  - The European Ground Motion Service
  - The Copernicus Emergency Management Service
- Project Objectives
- Project Outputs and Strategy

Context: a long story… OF DG-ECHO PROJECTS

Sentinel-1 for Geohazard regional monitoring and forecasting

01/01/2016 - 31/12/2017

Geohazard impact assessment for urban areas

01/01/2018 - 31/12/2019

EGMS RASTOOL: European ground motion risk assessment tool

01/04/2022 - 31/03/2024

European Ground Motion Risk Assessment Tools - Downstream Service

01/03/2025 - 31/04/2027

OPERATIONAL PRODUCTS

FOR NON-EXPERT INSAR USERS

Project Overview

- **Title:** EGMS RASTOOL-DoS: European Ground Motion Risk Assessment Tools - Downstream Service
- **Acronym:** RASTOOL-DoS
- **Number:** 101193210
- **Call:** Knowledge for Action in Prevention and Preparedness (UCPM-2024-KAPP)
- **Topic:** Preparedness (UCPM-2024-KAPP-PP)
- **Duration:** 24 months
- **Start Date:** 01 March 2025
- **Project Cost:** €686,514.14
- **EU Contribution:** €617,862.70

Project Consortium

7 Partners – 4 Countries

Centre Tecnològic de Telecomunicacions de Catalunya

CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

INSTITUTO GEOLÓGICO Y MINERO DE ESPAÑA

UNIVERSITÀ DEGLI STUDI FIRENZE

UNIFI - University Of Florence - **Italy**
Civil Protection Centre (CPA-UNIFI)

Hellenic Survey of Geology & Mineral Exploration (HSGME)

Regione Autonoma Valle d'Aosta

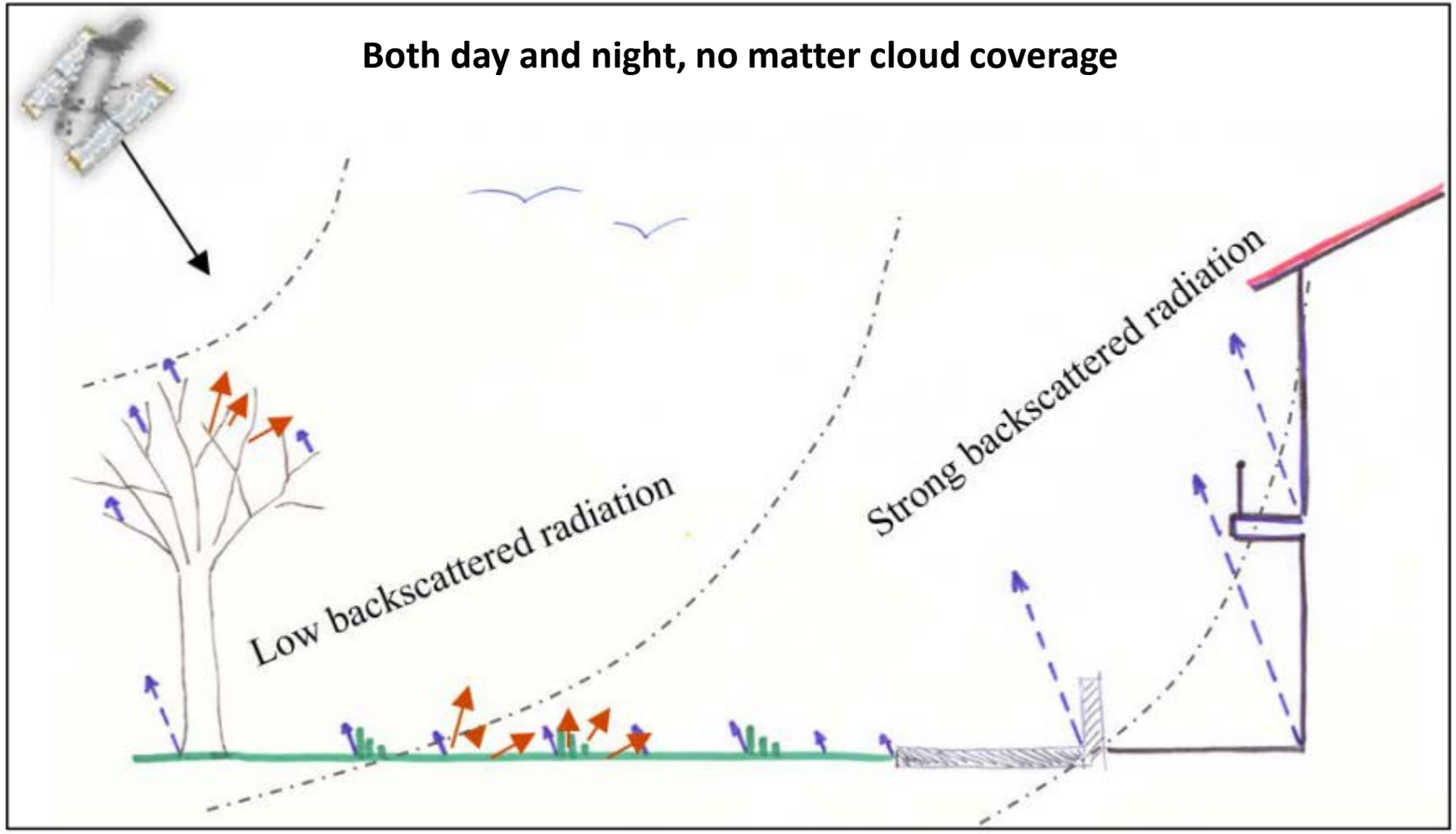
IGOT

IGOT-UL - Instituto de Geografia e Ordenamento do Território da Universidade de Lisboa - **Portugal**

ISPRA
Istituto Superiore per la Protezione e la Ricerca Ambientale

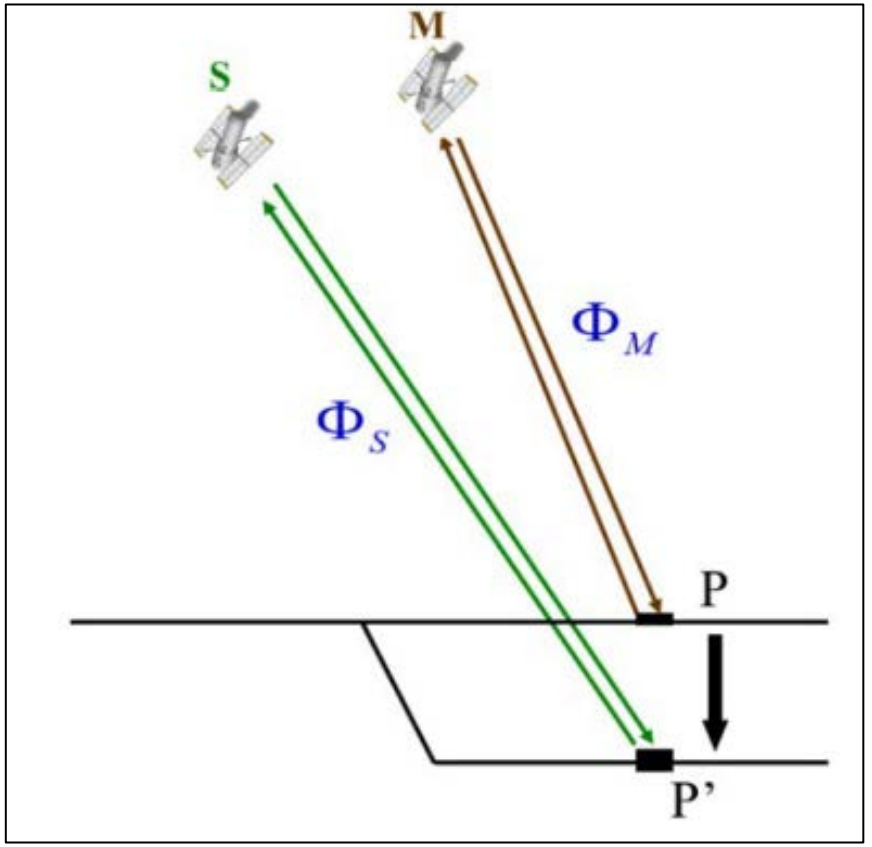
Sistema Nazionale per la Protezione dell'Ambiente

Context: Satellite Interferometry



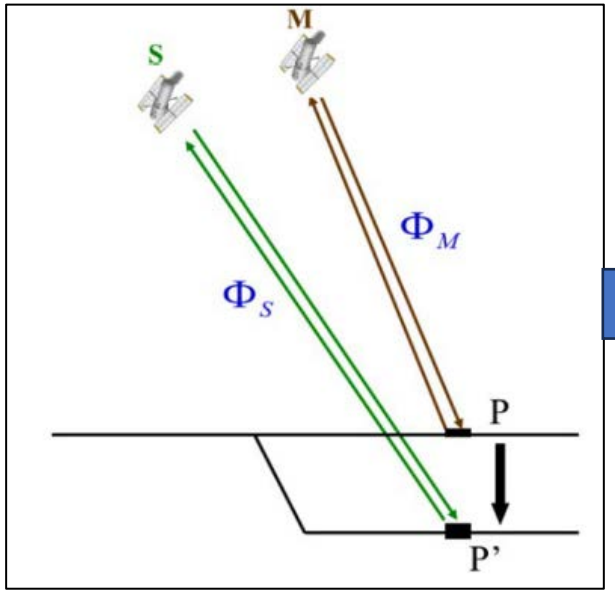
Context: Satellite Interferometry

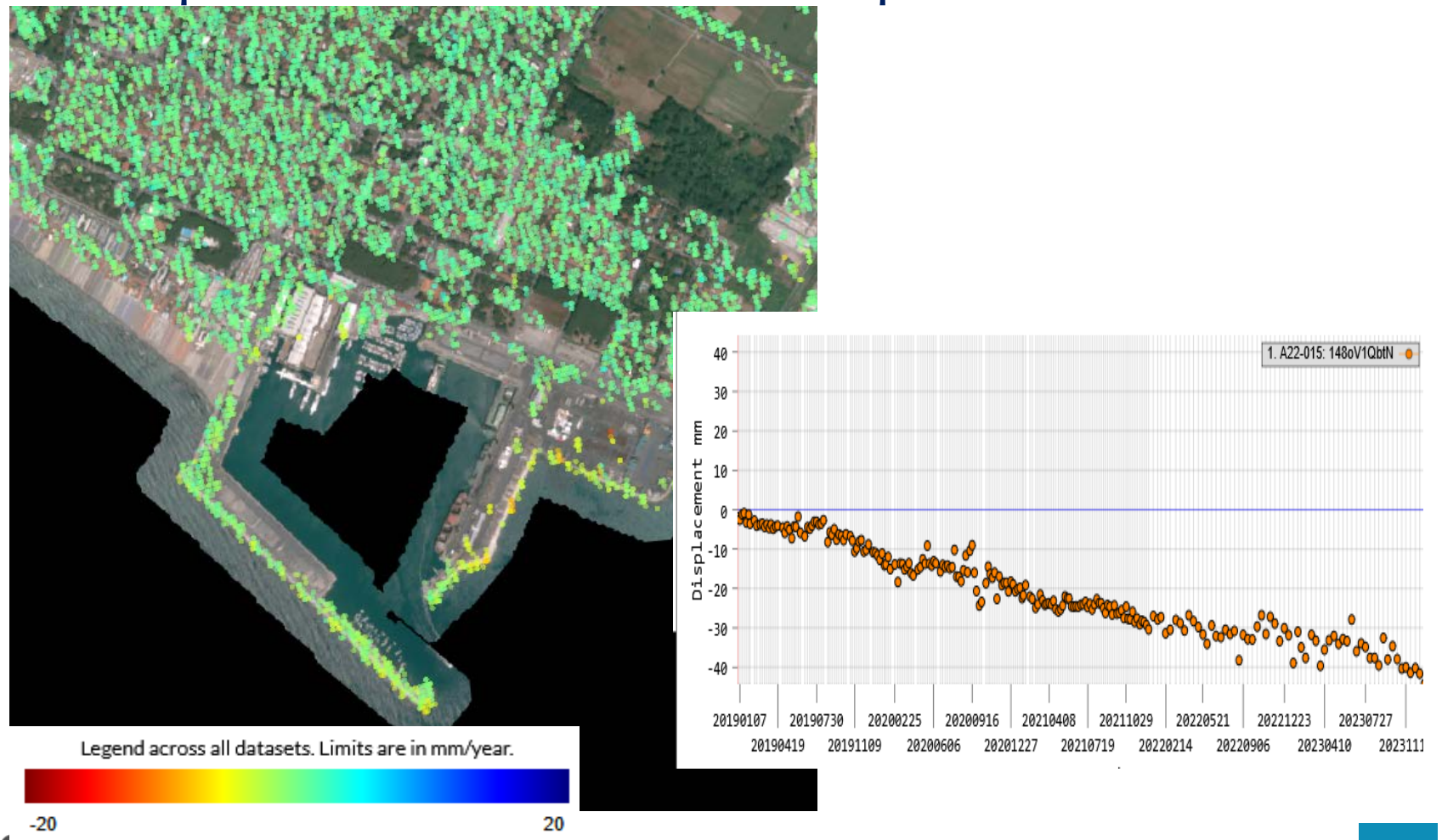
Exploitation of the phase difference between two radar images, in order to derive ground displacements with millimetric precision



Context: Satellite Interferometry

Exploitation of the phase difference between **MULTIPLE** radar images, in order to derive ground displacements with millimetric precision



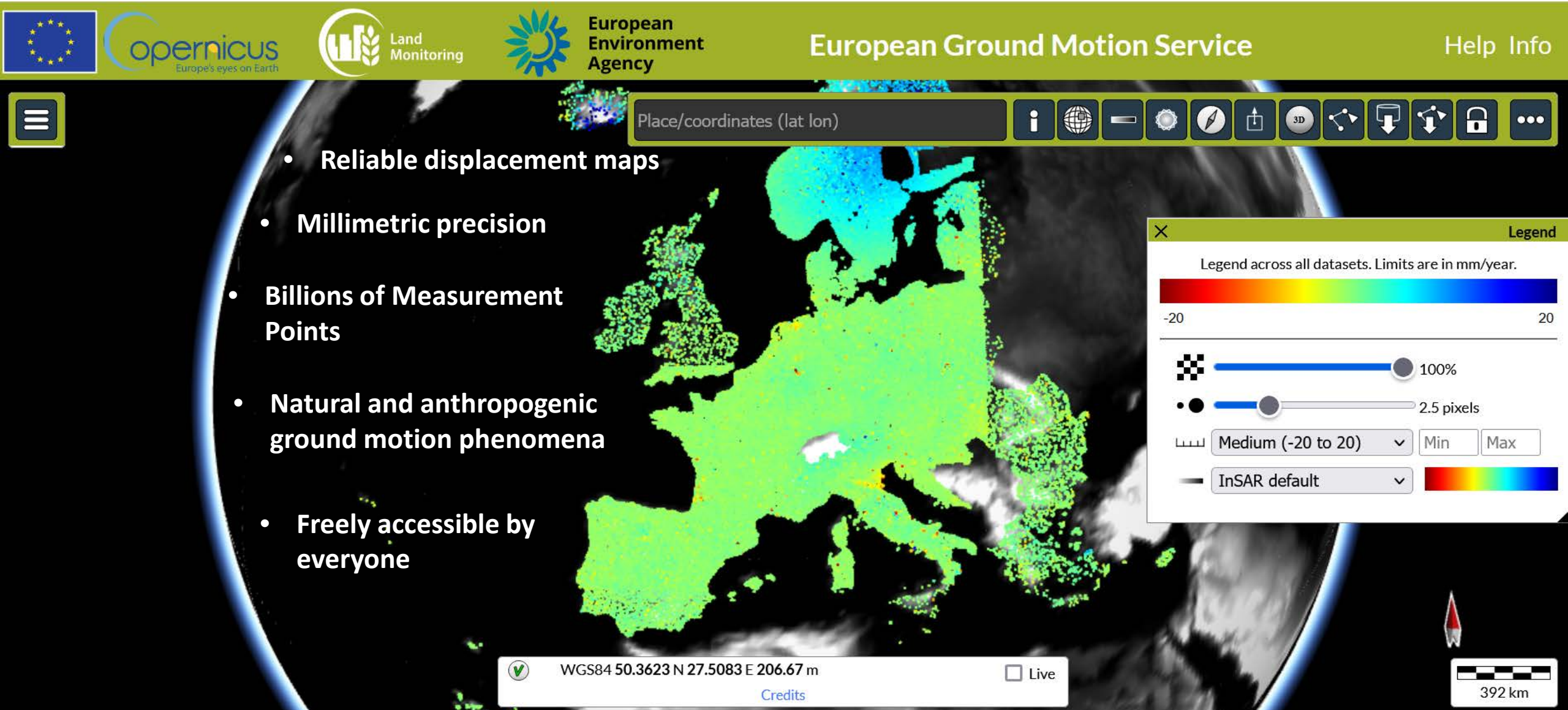


Context: Satellite Interferometry – Sentinel-1

- **Regular worldwide acquisitions**
- **Open data policy**
- Allows **detection, measurement,** and **monitoring** of ground displacement with millimetric precision
- Wide areas
- Good **spatial** and **temporal resolution**

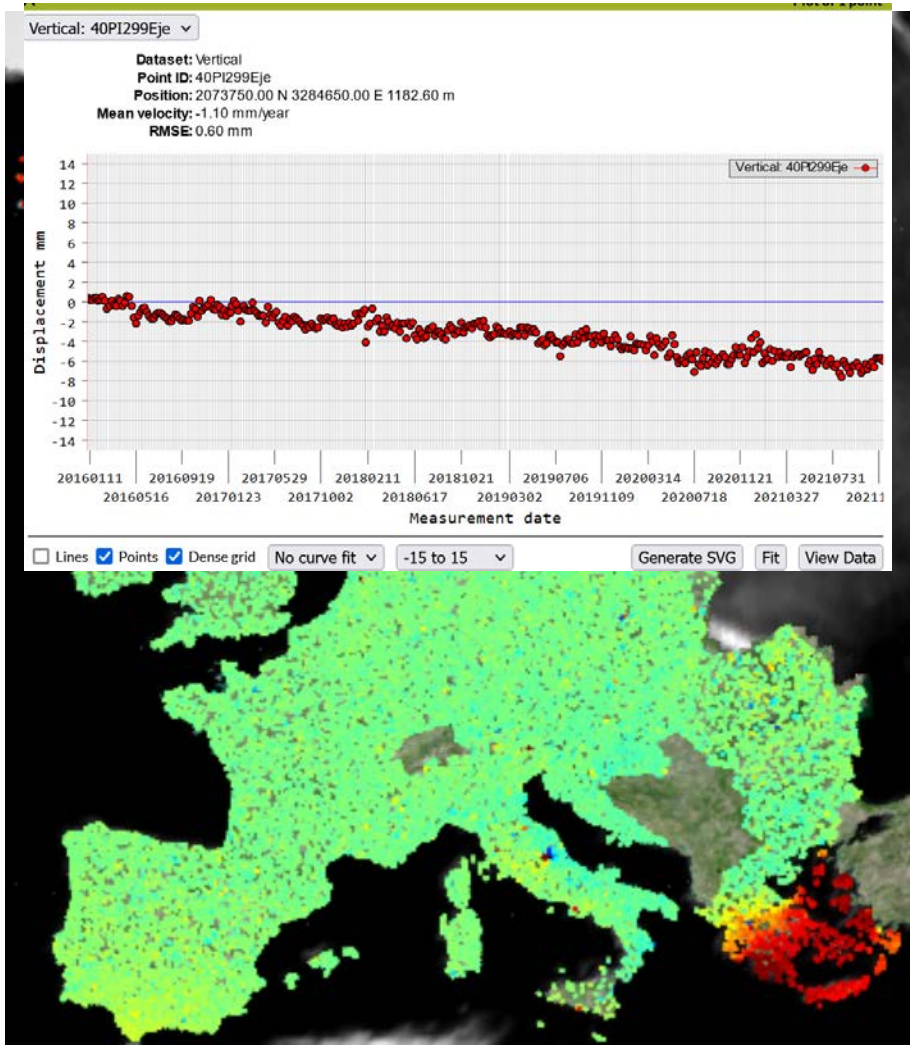
Context: the European Ground Motion Service (EGMS)

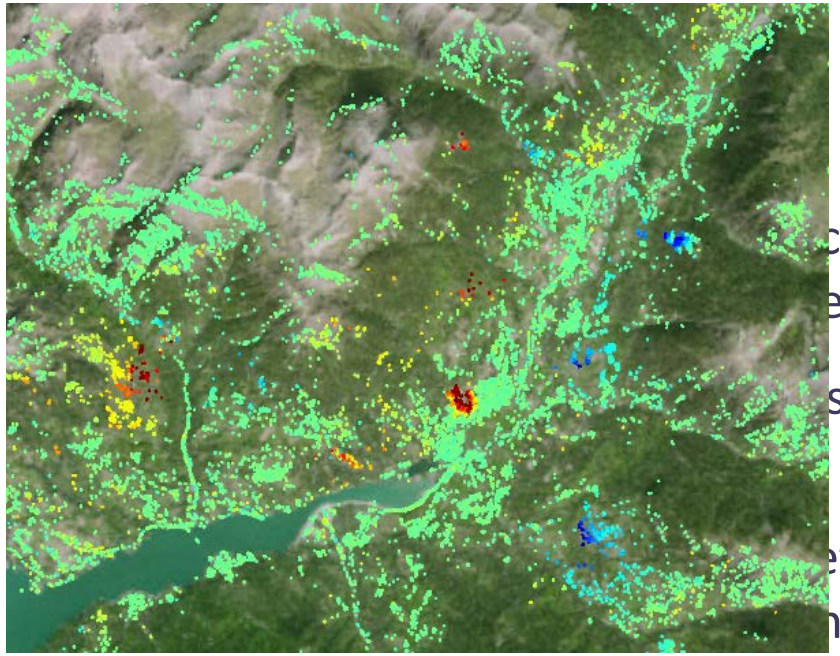
https://egms.land.copernicus.eu/

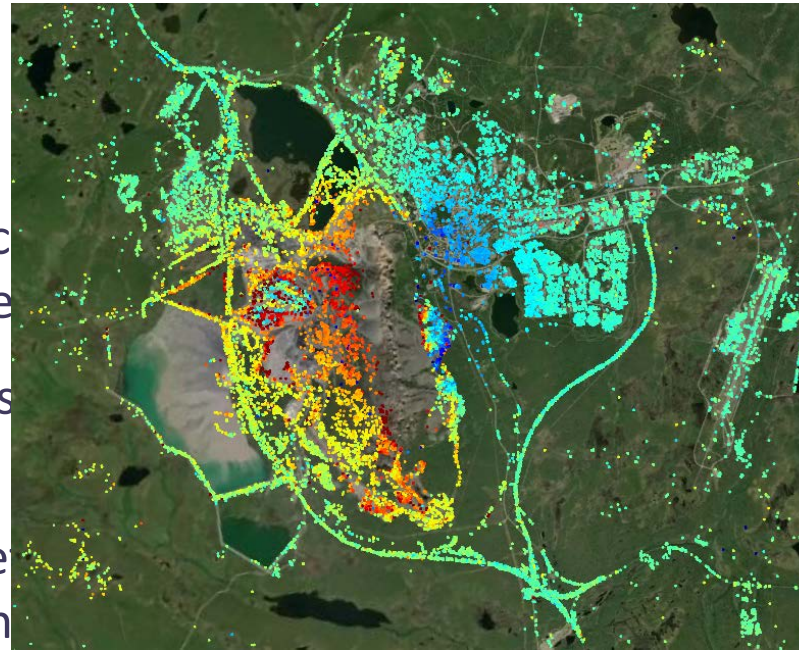


- Reliable displacement maps
- Millimetric precision
- Billions of Measurement Points
- Natural and anthropogenic ground motion phenomena
- Freely accessible by everyone

Context: the European Ground Motion Service (EGMS)





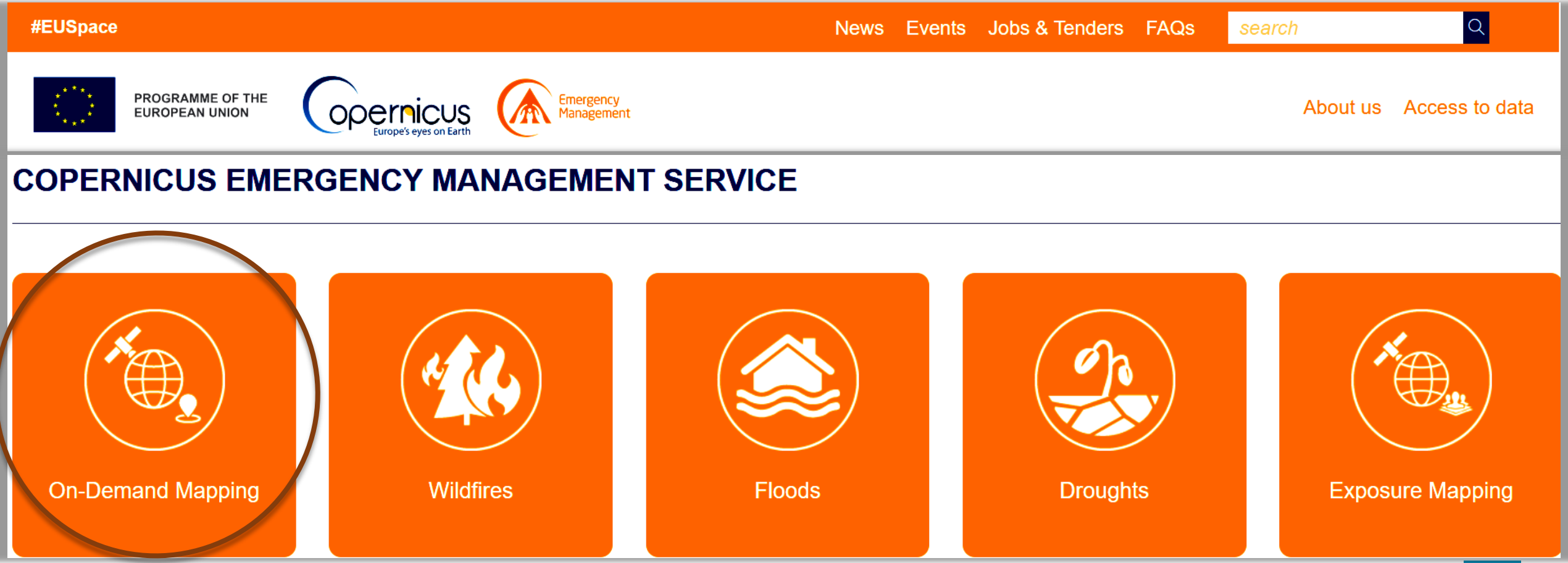


- From a global outlook up to individual structures and buildings.
- EGMS offers an unprecedented volume of information that **must be interpretated and squeezed out**

DIFFICULT AND TIME-CONSUMING
High level of expertise is needed!!

Context: the Copernicus EMS

The Copernicus EMS provides mapping service to support all the actors involved in the management of disasters using satellite imagery and other geospatial data



RASTOOL-DoS Objectives

Facilitating the uptake of European Ground Motion Service (EGMS) and similar displacement maps by civil protection authorities in disaster risk management.

Developing a **prototype of On-Demand Mapping service related with Ground Motion information** for the **Copernicus Emergency Management Service**

Transform EGMS data into actionable and clear maps

Giving information on the localization, characterization, and potential impact on structures and infrastructures of Ground Motions phenomena

RASTOOL-DoS: Outputs and Strategy

Adapting tools developed in the RASTOOL project (UCPM-2021-PP)

Pan-European Scale Service Demonstration

Output:
Pan-European maps derived by the whole **EGMS dataset**

Strategy:
Collaboration with the European Environment Agency

Local scale Service Demonstrations

Output:
Local maps based on real risk scenarios, and specific needs of 4 pilot areas located in **Italy, Spain, Portugal, and Greece**.

Strategy:
Collaboration with the Joint Research Centre- On Demand Mapping
Engagement of the local Authorities (meetings, simulations, questionnaires)

RASTOOL-DoS

Thank you!

Any Question?

Please note that the webinar is being recorded

Project co-funded by the European Union, Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO)

UCPM-2024-KAPP-PP - 101193210

Moderator of the next session

Oriol Monserrat

Oriol Monserrat leads the Remote Sensing Group of the Geomatics Research Units at CTTC, where he develops cutting-edge applications using active sensors like SAR and laser scanners. His research focus on detecting and monitoring ground deformation through advanced InSAR and DInSAR techniques and its application to geohazard management, with a strong focus on landslides and subsidence.

Next Session: *EU Framework for DRM*

All presentation time slots include 5 minutes allocated for questions and answers.

EU Framework for DRM

Moderator: Oriol Monserrat (CTTC)

10:25 - 10:30 Session Introduction

10:30 - 10:50 The European Ground Motion Service (EGMS) - ***Lorenzo Solari*** *(European Environment Agency - EEA)*

10:50 - 11:10 The Copernicus Emergency Management Service (CEMS) - ***Pietro Ceccato*** *(EC Joint Research Centre, CEMS-Rapid Mapping) and* ***Cristina Rosales Sánchez*** *(CEMS-Risk and Recovery Mapping)*

11:10 - 11:30 The European Civil Protection and Humanitarian Aid Operations (ECHO) - ***Auriane Denis Loupot*** *(DG-ECHO)*

11:30 - 11:40 Short Break