
Toward a COPERNICUS service for ground displacements from PS/INSAR Sentinel-1 data. Example from a pilot project in South West France

Philippe Durand*¹, Mioara Manda¹, Juliette Lambin¹, Frédéric Adragna¹, Fifame Koudogbo², Daniel Raucoules³, and Michel Diamant⁴

¹CNES – CNES – France

²CLS-TRE-ALTAMIRA – CLS-TRE-ALTAMIRA – France

³BRGM – BRGM – France

⁴IPGP – IPGP – France

Résumé

The purpose of the talk is to present to the InSAR community the initiative for a European ground motion service that was initially presented in November 2016 in BGR Hanover. The service, that is named EU-GMS since July 2017, aims at providing consistent, regular, standardized, harmonized and reliable information regarding natural and anthropogenic ground motion phenomena over Europe and across national borders.

The main objective is to measure, with millimeter accuracy, ground displacements, including landslides and land subsidence, as well as deformation affecting infrastructures. The ground motion measurement is derived from time series analyses of Copernicus Sentinel-1 data using advanced radar interferometry approach called Persistent Scatterer Interferometry, together with Global Navigation Satellite Systems (GNSS) and other in-situ observations. The EU-GMS will also provide tools for visualization, interactive data exploration and user uptake elements (protocols and best practice examples) for further ground investigations, implemented through related-application tools and downstream services.

As a precursor of such a service, the pilot project funded by CNES over the South-West of France will be presented: the project is based on the processing of 2-year ascending and descending Sentinel-1 data; the results show the motion of millions of stable scatterers distributed over a 20000 km² area.

*Intervenant