

EGU21-9994

<https://doi.org/10.5194/egusphere-egu21-9994>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



## **HEIMDALL: a H2020 project aimed at developing a multi-hazard Cooperative Management, Data Exchange, Response Planning and Scenario Building tool: the landslides case.**

**Guido Luzi**<sup>1</sup>, José Antonio Navarro<sup>2</sup>, Anna Barra<sup>3</sup>, Oriol Monserrat<sup>4</sup>, and Michele Crosetto<sup>5</sup>

<sup>1</sup>(guido.luzi@cttc.es) Centre Tecnològic de Telecomunicacions de Catalunya (CTTC) Av. Carl Friedrich Gauss 7 08860 - Castelldefels (Spain)

<sup>2</sup>Centre Tecnològic de Telecomunicacions de Catalunya (CTTC) Av. Carl Friedrich Gauss 7 08860 - Castelldefels (Spain)

<sup>3</sup>Centre Tecnològic de Telecomunicacions de Catalunya (CTTC) Av. Carl Friedrich Gauss 7 08860 - Castelldefels (Spain)

<sup>4</sup>Centre Tecnològic de Telecomunicacions de Catalunya (CTTC) Av. Carl Friedrich Gauss 7 08860 - Castelldefels (Spain)

<sup>5</sup>Centre Tecnològic de Telecomunicacions de Catalunya (CTTC) Av. Carl Friedrich Gauss 7 08860 - Castelldefels (Spain)

This contribution describes the objectives and the tasks carried out within HEIMDALL, a four-years European project (H2020), whose general aim was to assist the management of emergencies related to fires, flooding and land movements. In particular the authors focus on the tools developed in the case of the landslide's scenario, using spaceborne and Ground Based radar interferometry. The core of the architecture of HEIMDALL is a system platform which collects data obtained through simulation, Earth Observation images and in-situ sensors measurements to provide updated information and support the activities of several actors involved in disaster management (preparedness, response, and recovery). A multi-hazard Cooperative Management, for Data Exchange, Response Planning and Scenario Building is the rationale of the final product. Concerning the landslides case, two products are integrated as external data sources. The first one is a map of the Active Deformation Areas (ADA) detected through the DInSAR processing technique, using a set of SAR images acquired every 6 days by the satellite Sentinel-1, this product allows the identification and characterization of potential landslides at a regional scale. The second one operates at a local scale; it includes deformation maps covering single slopes obtained through a Ground Based SAR system installed in-situ. This last tool is proposed to provide both continuous and discontinuous (periodical) monitoring for the assessment and updating of the scenario of risk (together with model based on meteorological parameters and simulations) and supporting the recovery phase. HEIMDALL guarantees an information access and sharing among the involved stakeholders, including the population and the first responders on the field. The possibility to integrate data coming from different techniques improves the real time understanding of the situation and, by using advanced multi-hazard methods, allows to develop realistic multi-disciplinary scenarios of risk, vulnerability assessment, information sharing and emergency response. The main added value of using the HEIMDALL service platform results in a valuable, direct, situation assessment which can strength the decision tools.