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The European Ground Motion Service: a continental scale map of ground deformation.

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Satellite radar interferometry is widely considered as one of the most robust and reliable techniques for ground motion monitoring at local scale and over wide areas. In the recent years, satellite radar interferometry has undergone a rapid evolution thanks to the launch of the Sentinel-1 constellation, to the refinement of algorithms, and to the increased computational capability offered by cloud computing platforms. All these factors allow for the development of national or regional services based on satellite interferometric data. Italy, Norway, Germany, Denmark, and the Netherlands are the first European countries working to develop their own Ground Motion Service (GMS) at regional or national scale. Each service has its own characteristics, defined by the user needs and by the deformation regimes to be captured: some GMS work at regional scale with a high update frequency while other capture ground motions with e.g. one-year update frequencies over the entire nation. These examples demonstrate the high demand for interferometric products as wide area mapping or monitoring tools which are a direct request from national/regional entities and administrations involved in e.g. geohazard risk management or infrastructures monitoring.

As of November 2016, the European Ground Motion Service (EGMS) Task Force laid the foundation for a new Copernicus service aimed to perform Sentinel-1-based ground motion monitoring which relies on satellite interferometric products at continental scale. The work of the EGMS Task Force led to the creation of the EGMS White Paper (https://land.copernicus.eu/user-corner/technical-library/egms-white-paper), which is considered the conceptual baseline for the EGMS. In 2017, the Copernicus User Forum and the Copernicus Committee unanimously approved the addition of the EGMS to the Copernicus Land Monitoring Service's product portfolio. The European Environment Agency (EEA) was designated to be responsible for the Service implementation. The EGMS will provide consistent, regular, standardized, harmonized and reliable information regarding natural

and anthropogenic ground motion phenomena over Europe. Moreover, the entire product portfolio will be freely available for every private or public user, following the Copernicus data access concept. The EGMS will stimulate a wider use of PSI products all around Europe. As such, it is expected to act as a baseline for those nations already having an operational GMS and as primary data for countries that do not.