

Session: S01.05 - Geomatics and volcanic areas monitoring: applications and developments for hazard mitigation

SAFETY as a hazard assessment tool to monitor volcanic deformation

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“Sentinel-1 for Geohazard Prevention and Forecasting” (SAFETY) was a two year project, funded by European Commission (Ref. ECHO/SUB/2015/718679/Prev02-SAFETY) which aims at providing Civil Protection Authorities (CPA) with the capability of periodically evaluating and assessing the potential impact of geohazards on urban areas. It finished in December 2017. Main reached objectives were the creation of useful products and tools, which exploit Sentinel1 data, and the design of a sustainable long-term infrastructure involving CPAs and Public Organizations (PO) responsible for the monitoring of the particular geohazards.

National Geographic Institute of Spain (IGN) is the public institution in charge of volcanic monitoring and alert communication to CPAs. It operates a real time volcanic monitoring system (VMS) based mainly on seismic, geochemical and deformation data. At SAFETY context main task of IGN were the implementation of SAFETY tools into the VMS and the validation of the generated deformation maps, based on Sentinel1 images, using other geodetic techniques.

We show the automatization and implementation of SAFETY tools performed at IGN to generate deformation products, which can be integrated in VMS to reinforce alert generation capabilities to CPAs. We also analyse validation procedures developed and applied to Sentinel1 based deformation maps making use of GNSS data, which showed the methodology involved at SAFETY is suitable to detect milimetric to centimetric deformations likely related to volcanic activity.

Further efforts will be done in the context of “Geohazard Impact Assessment for Urban

Areas” project (U-Geohaz) also funded by the European Commission which will fully exploit the results obtained by SAFETY in the next two years.