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The Geohazards Exploitation Platform

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The Geohazards Exploitation Platform, or Geohazards TEP (GEP), is an ESA originated R&D activity of the EO ground segment to demonstrate the benefit of new technologies for large scale processing of EO data. This encompasses on-demand processing for specific user needs, systematic processing to address common information needs of the geohazards community, and integration of newly developed processors for scientists and other expert users. The platform supports the geohazards community's objectives as defined in the context of the International Forum on Satellite EO and Geohazards organised by ESA and GEO in Santorini in 2012. The GEP is a follow on to the Supersites Exploitation Platform (SSEP) an ESA initiative to support the Geohazards Supersites & Natural Laboratories initiative (GSNL). Today the GEP allows to exploit 70+ Terabyte of ERS and ENVISAT archive and the Copernicus Sentinel-1 data available on line. The platform has already engaged 22 European early adopters in a validation activity initiated in March 2015. Since September, this validation has reached 29 single user projects. Each project is concerned with either integrating an application, running on demand processing or systematically generating a product collection using an application available in the platform. The users primarily include 15 geoscience centres and universities based in Europe: British Geological Survey (UK), University of Leeds (UK), University College London (UK), ETH University of Zurich (CH), INGV (IT), CNR-IREA and CNR-IRPI (IT), University of L'Aquila (IT), NOA (GR), Univ. Blaise Pascal & CNRS (FR), Ecole Normale Supérieure (FR), ISTERRE / University of Grenoble-Alpes (FR). In addition, there are users from Africa and North America with the University of Rabat (MA) and the University of Miami (US). Furthermore two space agencies and four private companies are involved: the German Space Research Centre DLR (DE), the European Space Agency (ESA), Altamira Information (ES), DEIMOS Space (ES), eGEOS (IT) and SATIM (PL). The GEP is now pursuing these projects with early adopters integrating additional conventional and advanced EO processors. It will also expand its user base to gradually reach a total of 60 separate users in pre-operations in 2017 with 6 new pilot projects being taken on board: photogrammetric processing using Optical EO data with University of Strasbourg (FR); optical based processing method for volcanic hazard monitoring with INGV (IT); systematic generation of Interferometric displacement time series based on the Sentinel-1 data with CNR IREA (IT); systematic processing of Sentinel-1 Interferometric Browse imagery with DLR (DE); precise terrain motion mapping with SPN Persistent Scatterers Interferometric chain of Altamira Information (ES); and a campaign to test and exploit GEP applications with the Corinth Rift Laboratory in which Greek and French experts of seismic hazards are engaged. Following the pre-operations phase starting in 2017 the Geohazards platform is intended to support a broad user community and has already established partnerships with large user networks, a particular example of which being the EPOS research infrastructure. Within EPOS, the GEP is intended to act as the main interface for accessing, processing, analysing and sharing products related to the Satellite Data Thematic Service.