

Geohazards TEP (GEP) Data Processing Service Pipeline Pack

The Data Processing Services support the geohazards community with on-demand processing for specific user needs or systematic processing to address specific area-of-interest analysis. To exploit the geo-information generated, the Platform leverages Jupyter Notebooks and open APIs for the interactive processing and post-processing services and enables users to exploit and share the processing results. The Data Processing Services can be consumed in a pay-per-use or subscription model.

The Pipeline pack provides access to all Data Processing Services in a pure pay-per-use model. This pack comes with 1TB persistent storage with subscription. Additional storage is available in pay-per-use at €35 per TB/month.

Geohazards TEP (GEP) Community Data Hosting for Exploitation

The Community Data Hosting for Exploitation pack provides a secure environment in the Cloud to host data collections targeted for data access from a community, according to findability, accessibility, interoperability, and reusability (FAIR) principles. The data collections are published in the metadata catalogue for discovery. They are made available for specific combinations of visualization, processing or download tasks (depending on the dataset type).

This pack is targeted for organisations wanting to have a data collection they own hosted on the platform for exploitation or to guarantee the long-term preservation of data processing services results.

This offering includes the provision of the storage space, data ingestion, registry and data discovery and access services via standard API. The catalogue services follow the best practices for search services as defined by the CEOS (Committee on Earth Observation Satellites) using OGC OpenSearch with Geo, Time and EO extensions. Support upgrades are available according to the User Support Services offering.

About the Geohazards Exploitation Platform

The Geohazards Exploitation Platform (GEP) supports the geohazards community with on-demand processing for specific user needs or systematic processing to address specific area-of-interest analysis. The GEP processing services include basic services providing full resolution imagery and change detection imagery for rapid online visualization and advanced services both for Optical & SAR data processing. The advanced services include Classic InSAR diachronic analysis, Advanced InSAR for Persistent Scatterers and Small Baseline time series, Digital surface model generation from satellite optical stereo images and Detection and measurement of horizontal ground motion from Optical imagery.

Geohazards TEP (GEP) Operational Algorithm Hosting

The Operational Algorithm Hosting pack deploys and operates a previously packaged algorithm, delivered as a service in the Geohazards Exploitation Platform and exposed through a Web Service endpoint, compliant with the Open Geospatial Consortium Web Processing Service (OGC WPS) standard interface.

This pack is targeted for service providers who want to deliver an operational processing service in the Geohazards Exploitation Platform to a group of selected end-users, portals and B2B client applications. The authorized users of the service will have access to the Platform and will be able to define processing parameters and trigger data processing jobs or setup systematic processing requests, and to establish the data pipelines for the retrieval of the information produced from radar products from the ERS, ENVISAT, COSMO SkyMed and Copernicus Sentinel-1 products complemented with optical data products such as the Copernicus Sentinel-2, Sentinel-3, SPOT, Pléiades and Landsat 8.

This offering includes the provision of the ICT resources necessary for the planned usage scenario, the operations management for the hosted service and the Web Applications customized for the service execution and monitoring.

This pack provides services in a pure pay-per-use model. This pack comes with 1TB persistent storage with subscription. Additional storage is available in pay-per-use at €35 per TB/month, or you can bring your own data and host it for €40 per TB/month.

Geohazards TEP (GEP) Support to Algorithm Integration

The Support to Algorithm Integration pack provides a dedicated Cloud application integration environment with software tools, libraries and access to distributed Earth Observation data repositories powered by dedicated ICT resources and storage.

This pack is targeted for developers that want to adapt and package their existing algorithms written in a specific language (e.g. Python, R, Java, C++, C#, IDL) to fully exploit the power of distributed computing on a production Cloud.

The support provided is focused on guiding the developer to define the parallelisation strategy, the data management requirements, the tools and libraries necessary, and identify the overall best production plan in a Cloud environment that can be matched by the integrated algorithm. Ultimately, the algorithm is included in an Application Package ready to be deployed and scaled in the Geohazards Exploitation Platform powered by a production Cloud and exposed through a Web Service endpoint, Web Processing Service (OGC WPS).

This pack includes the access to radar products from the ERS, ENVISAT, COSMO SkyMed and Copernicus Sentinel-1 archived products complemented with optical data products such as the Copernicus Sentinel-2, Sentinel-3, SPOT, Pléiades and Landsat 8.

Geohazards TEP (GEP) Interactive Development Environment

The Interactive Development Environment pack provides a secure environment in the Cloud for expert users to prototype and develop Earth Observation applications. The environment is powered by JupyterHub on top of a Kubernetes cluster supported by a distributed storage service.

This pack is targeted for thematic experts that want an environment to interactively develop applications, orchestrate existing deployed services together using ad-hoc software tools and libraries (e.g. SNAP, Orfeo Toolbox, GDAL) or perform data visualisation and analysis tasks. Data access mechanisms to Earth Observation data products from Copernicus Sentinel-1/2/3, ERS, ENVISAT, COSMO SkyMed, Landsat 8 or user-provided datasets are also available from that environment. Other missions (e.g. SPOT, Pléiades) are available on a case by case depending on the agreements with the data providers.

The support provided in this offering includes application templates, thematic examples, documentation and focuses on helping developers to integrate data discovery, access, processing and publishing services directly in their application code. The applications developed can be packaged and made ready for deployment in the Geohazards Exploitation Platform powered production Cloud exposed through a Web Service endpoint, Web Processing Service (OGC WPS).

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The GEP provides also a dedicated Cloud application integration environment with software tools, libraries and access to distributed Earth Observation data repositories powered by dedicated ICT resources and storage. Packaged algorithm can be deployed, operated and delivered as a service in the Geohazards Exploitation Platform.

The GEP Processing Services have access to the 70+ Terabytes of ERS and ENVISAT archive data and the Copernicus Sentinel-1 available online. The optical data such as the Copernicus Sentinel-2 and Sentinel-3 and the third party missions SPOT, Pléiades and Landsat 8 complement the data resources.

GEP Support Services

The User Support Services packs are targeted to all types of users of the Platform. They range from the support provided to the users in accessing the platform functions, in using Data Processing Services and the tools for interpretation of the generated results, up to the support for developers in the integration of their algorithms into the Cloud environment.

The support is provided through documentation (i.e. tutorials, forum, knowledge base) and a dedicated support team that is reachable via the Platform helpdesk instance, email or via specific hands-on training sessions.

About GEP

The Geohazards Exploitation Platform aims to support the exploitation of satellite Earth Observations for geohazards with primary focus on mapping hazard prone land surfaces and monitoring terrain deformation. GEP provides data processing services and support for the community to integrate their own algorithms on the platform.