



Application Propagation Environment (APEx)

Project Goals

Overall objective

Ensure the persistent availability of ESA EOP R&D application results (i.e., algorithms, workflows, value-added products) to the EO community and to facilitate and foster the reuse and integration of existing EO services and solutions.

Project Goals

Specific objectives

- Build the **APEX ESA portal**, enabling the EO community to utilise application project algorithms and resources hosted on existing ESA NoR EO platform services for reuse, i.e.:
 - The value-added data products generated by a project.
 - The algorithms/workflows as callable on-demand processing via API/GUI.
 - The algorithms/workflows ready for reuse in an instantiated working environment.
- Develop and provide a set of APEX “**instantiation services**”, responding to common needs of the EOP R&D activities (and especially the SEFs), and currently not covered by the NoR portfolio, supporting dynamic instantiation, flexible configuration, and seamless integration with existing NoR services. On-board these services to the NoR wherever suitable.
- Develop and provide a set of dedicated APEX “**propagation services**” that facilitate the persistent availability, enhancement and upscaling of R&D application algorithms and increase their utilisation and uptake in the EO domain and community. On-board these services to the NoR wherever suitable.

Project Phases

Phased approach

PHASE IN (6M)

- Focuses on **establishing the fundamentals** of the APEX platform.
- Developing the **Dashboard Service** for legacy dashboards, ensuring it is operational and integrated into the NoR.
- Other services will be brought to an **MVP** level to prove their integration within the platform.

OPERATIONAL PHASE (18M)

- **Onboarding various projects** onto the APEX platform
- **Advancing the APEX platform** capabilities and its services.
- Continued **operationalization of the platform** alongside with the definition of essential operational and business-level procedures

... 3 YEAR EXTENSION ...

Consortium

Introduction



TERRA)UE



inuits
OPEN SOURCE INNOVATORS

Results

OTC Deployment

OTC Achievements

Overview

- Deployment of the software components (aka instantiation services) on OTC cloud infrastructure
<https://apex.esa.int/project-environments>
 - Project Portal
 - Geospatial Explorer
 - Documentation Hub
 - User Forum
 - Product Catalogue
 - IDE
 - User Workspaces
- Deployment of observability components to monitor environments

OTC Achievements

Overview

- Integration of OTC-managed services

- Kubernetes
- Docker image repository
- Managed databases
- Storage

→ Reducing the operational costs of the project

OTC Achievements

Overview

- Dynamic instantiation of the project environments using Terraform for the following ESA Projects:
 - APEx (self): full project environment with all project tools
 - Stakeholder Engagement Facility (SEF) – Food Systems: full project environment with all project tools
 - Stakeholder Engagement Facility (SEF) – Ecosystems and Biodiversity: full project environment with all project tools
 - World Ecosystem Extent Dynamics (WEED): project portal and product catalogue