Polar Thematic Exploitation Platform (P-TEP)

Polar View Earth Observation Limited (Polar View) is developing a Polar Thematic Exploitation Platform (P-TEP) for the European Space Agency (ESA). P-TEP will provide polar researchers with access to computing resources, earth observation (EO) and other data, and software tools in the cloud. This new approach will remove the need to transfer large EO data sets around the world, while increasing the analytical power available to researchers and operational service providers.

Status: CONCEPT

Innovation
Innovation

In the traditional workflow for the analysis of earth observation (EO) data, users download the data to their local site and then process it using their available software and computing resources. With the increasing volume of data available from missions such as Sentinel, and the resulting need for powerful computing resources for processing, the existing methods of working are inefficient and restrict the use of EO data.

ESA's Thematic Exploitation Platform (TEP) concept aims to provide a working environment where users can access algorithms and data remotely, providing them with computing resources and tools that they might not otherwise have, and avoiding the need to download and store large volumes of data. This new way of working will encourage wider exploitation of EO data.

EO is especially import in the polar regions at a time when climate change is having a profound impact and excitement about new economic opportunities is driving increased attention and traffic, resulting in concerns about the state of the region's delicate ecosystems. Developing tools to model, understand and monitor these changes is vitally important in order to better predict and mitigate the resulting global economic and environmental consequences.

Iceberg from Ship (courtesy C-CORE)

Impact
Impact

Polar View Earth Observation Limited is developing a TEP for ESA that will be customized for polar research and operational needs. Polar View brings a team to this project that combines a unique mix of polar domain experts, scientists, operational service providers, ICT experts, and user representatives.

P-TEP will integrate data discovery and access for a rich set of polar themed EO and complimentary datasets, a scalable computing environment, a suite of analytical tools and the ability for users to supply their own models, plus tools to allow sharing of results and promote collaboration. These resources will be accessed through a web portal.

The platform architecture will be open, scalable and independent of any specific IT infrastructure. This approach will allow easy expansion of the platform's capabilities, and encourage the development of a wider network of other thematic exploitation platforms.

Concept
Concept

A P-TEP pilot project will investigate current and future iceberg risk in Baffin Bay. A diverse set of data, processors and models will be deployed and integrated to allow users to investigate linkages between iceberg populations, observed and modelled changes in ice sheet movement and calving rates, ocean circulation, and iceberg trajectories. The integration of these components and toolsets will allow P-TEP users to ask questions about changing iceberg populations as part of, for example, climate change studies, infrastructure design, or ship routing decisions.

Technical details
Technical details

Multi-media
Multi-media

Polar TEP website: http://p-tep.polarview.org/

Reference
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