



## Proba-V Mission Exploitation Platform

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VITO and partners developed the Proba-V Mission Exploitation Platform (MEP) as an end-to-end solution to drastically improve the exploitation of the Proba-V (a Copernicus contributing mission) EO-data archive (<http://proba-v.vgt.vito.be/>), the past mission SPOT-VEGETATION and derived vegetation parameters by researchers, service providers and end-users. The analysis of time series of data (+1PB) is addressed, as well as the large scale on-demand processing of near real-time data on a powerful and scalable processing environment. Furthermore data from the Copernicus Global Land Service is in scope of the platform.

From November 2015 an operational Proba-V MEP environment, as an ESA operation service, is gradually deployed at the VITO data center with direct access to the complete data archive. Since autumn 2016 the platform is operational and yet several applications are released to the users, e.g.

- A time series viewer, showing the evolution of Proba-V bands and derived vegetation parameters from the Copernicus Global Land Service for any area of interest.
- Full-resolution viewing services for the complete data archive.
- On-demand processing chains on a powerful Hadoop/Spark backend e.g. for the calculation of N-daily composites.
- Virtual Machines can be provided with access to the data archive and tools to work with this data, e.g. various toolboxes (GDAL, QGIS, GrassGIS, SNAP toolbox, ...) and support for R and Python. This allows users to immediately work with the data without having to install tools or download data, but as well to design, debug and test applications on the platform.
- A prototype of jupyter Notebooks is available with some examples worked out to show the potential of the data.

Today the platform is used by several third party projects to perform R&D activities on the data, and to develop/host data analysis toolboxes. In parallel the platform is further improved and extended. From the MEP PROBA-V, access to Sentinel-2 and landsat data will be available as well soon.

Users can make use of powerful Web based tools and can self-manage virtual machines to perform their work on the infrastructure at VITO with access to the complete data archive. To realise this, private cloud technology (openStack) is used and a distributed processing environment is built based on Hadoop. The Hadoop ecosystem offers a lot of technologies (Spark, Yarn, Accumulo, etc.) which we integrate with several open-source components (e.g. Geotrellis).

The impact of this MEP on the user community will be high and will completely change the way of working with the data and hence open the large time series to a larger community of users. The presentation will address these benefits for the users and discuss on the technical challenges in implementing this MEP. Furthermore demonstrations will be done.

Platform URL: <https://proba-v-mep.esa.int/>