



The Earth Observation Time Series Analysis Toolbox (EOTSA) - An R package with WPS, Web-Client and Spark integration

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We present an implementation of a time series analysis toolbox for remote sensing imagery in R which has been largely funded by the European Space Agency within the PROBA-V MEP Third Party Services project. The toolbox is developed according to the needs of the time series analysis community. The data is provided by the PROBA-V mission exploitation platform (MEP) at VITO. The toolbox largely builds on existing specialized R packages and functions for raster and time series analysis combining these in a common framework.

In order to ease access and usage of the toolbox, it has been deployed in the MEP Spark Cluster to bring the algorithm to the data. All functions are also wrapped in a Web Processing Service (WPS) using 52°North's WPS4R extension for interoperability across web platforms. The WPS can be orchestrated in the Automatic Service Builder (ASB) developed by Space Applications. Hence, the space-time analytics developed in R can be integrated into a larger workflow potentially integrating external data and services. The WPS provides a Webclient including a preview of the results in a map window for usage within the MEP. Results are offered for download or through Web Mapping and Web Coverage Services (WMS, WCS) provided through a Geoserver instance.

Through its interoperability features the EOTSA toolbox provides a contribution towards collaborative science.