JRA-Task 2. Infrastructure

Task description

New functions will be developed related to state-of-the-art information systems such as implementation of new protocols, connecting on-line computations, using EOSC, assigning DOI to datasets or to query results, etc. These efforts are part of Open Science and FAIR data. They will in particular make access to VESPA data services easier for WP focused on analysis of large datasets (JRA4 ML, JRA3 GMAP).

The main deliverable is a "code-on-line" platform (OPUS), adapted from the H2020 ESCAPE programme (ObsParis). A first implementation will run on a local CPU clusters and will rely on IVOA's UWS workflow pattern and on authentication services provided by GEANT consortium. In a second step, the installation of codes on EOSC will be studied, probably in packaged form (Docker), in collaboration with an EOSC-involved partner, CC-IN2P3 in Lyon (related to EGI cloud), with whom contacts have already been. Again, support from GEANT will ensure the secure integration of the VESPA services in EOSC.

First applications will involve atmospheric radiative transfer codes, ExPRES & LESIA-Mag services (both in support to the JUICE mission, the later derived from the FP7 IMPEx programme), ARTEMIS-P (ray tracing in support of JUICE and other space missions, ObsParis), as well as the exoplanet atmospheric composition retrieval system ExoAI (UCL). Results from these applications will be implemented in VA2 VESPA. This infrastructure will also be used by VA1 SPIDER. This task will also study an open source API to integrate VESPA and MongoDB databases, in order to support documents in EPN-TAP (CBK-PAN). Another activity will be to provide on-line analysis methods to users. A first example is the Mulumesc method to extract the characteristics of absorption bands from surface reflectance spectra [Erard, 2017]. This will allow parameter-based comparisons between observations and reference libraries to identify composition of planetary surfaces, and to evaluate the abundance of endmembers (ObsParis).

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Task Pages

- VESPA-Cloud

Issued documents

Relevant links

- EOSC early adopters programme - VESPA cloud