Contributions to ESA Earth Explorer missions

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Current use cases and references

Werum has been contributing to data archiving and reprocessing of SMOS as one of the first Earth Explorer missions. Using the Multi-mission Facility Infrastructure (MMFI), Werum has been contributing to system design and development of the SMOS Long-Term Archive solution.

Since the launch of the Swarm mission in 2013, the Swarm mission data has been systematically produced up to Level 2 within the ESA Archiving and Payload Data Facility. Werum's processing software is equipped with scalable processing nodes in a cluster that is optimized for high load with parallel processing of the IPFs and allows fast reprocessing of several years of mission data.

The Core Processing Facility (CPF) for the EarthCARE, BIOMASS and the FLEX payload data ground segment is being developed by Werum. The software shares components across the different missions and is based on Werum's scalable, cloud-ready Olib framework. In addition, Werum is providing the processor test bed infrastructure in the EarthCARE science cluster (DISC). Since the EarthCARE launch, Werum supports the CPF operations as a consortium partner.

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Generic Processing Software

Based on the existing Olib framework, Werum is developing a new generic processing orchestration system for the Earth Explorer missions. The new multi-mission system is cloud- ready and provides a rich feature set for operators to control, monitor and analyse the payload data processing.
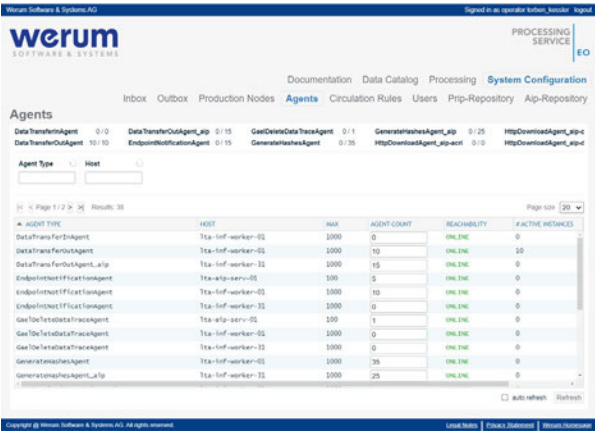

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Interactive Development Testbed

The generic processing framework (Olib) is extended by a testbed mode for interactive development of data processors, data analytics or data and workflow visualization, known from the EarthCARE Level-2 Testbed and ready for use on other missions.

The processor testbed is equipped with a graphical workflow editor and a comprehensive Jupyter Notebook environment with community tools for sharing data and tools.
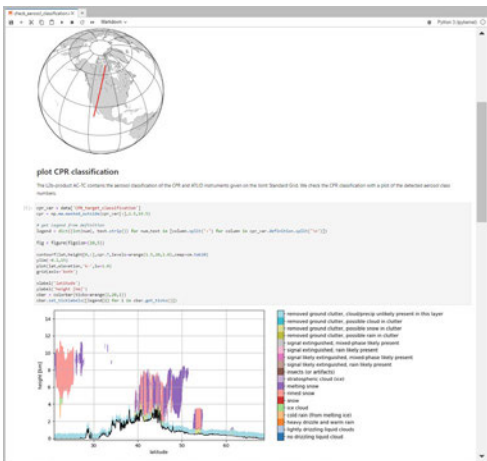
Jupyter Notebooks offer a powerful and flexible environment for interactive computing, code reproducibility, data visualization and collaboration. Their versatility, ease of use and extensive ecosystem make them an indispensable tool for data scientists, researchers, and developers.

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About Werum

With a workforce of over 140, Werum Software & Systems AG is one of the largest independent employers for IT professionals in Germany. For more than 50 years, we have been implementing sophisticated software and systems for customers all over the world, among them many renowned companies from the automotive and aerospace industry as well as scientific institutions and public authorities.

Our activities focus on the support of customer-specific processes in the core areas of test data and information management, Earth Observation, eGovernment and enterprise information management. The software solutions are based on platforms specially developed for these areas.

In the field of Earth Observation, Werum provides solutions for the data processing, archiving and dissemination of, among others, Copernicus Sentinel satellites and ESA Earth Explorer missions like SWARM, EarthCARE, Biomass or FLEX.
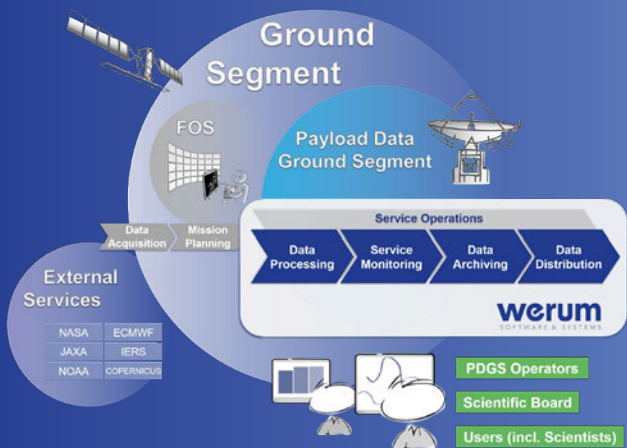
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