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## MAAP: The Mission Algorithm and Analysis Platform: A New Virtual and Collaborative Environment for the Scientific Community

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The ESA-NASA multi-Mission Algorithm and Analysis Platform (MAAP) is dedicated to the BIOMASS [1], NISAR [2] and GEDI [3] missions. This analysis platform will be a virtual open and collaborative environment. The main goal is to bring together data centres (Earth Observation and non-Earth Observation data), computing resources and hosted processing in order to better address the needs of scientists and federate the scientific community.

The MAAP will provide functions to access data and metadata from different sources such as Earth observation satellites data from science missions; visualisation functions to display the results of the system processing (trends, graphs, maps ...) and results of statistic and analysis tools; collaborative functions to share data, algorithms, ideas between the MAAP users; processing functions including development environments and an orchestration system allowing to create and run processing chains from official algorithms.

Currently, the MAAP is in its pilot phase. The architecture for the MAAP pilot foresees two independent elements, one developed by ESA, one developed by NASA, unified by a common user entry point. Both elements will be deployed on Cloud infrastructures. Interoperability between the elements is envisaged for data discovery, data access and identity and access management.

The ESA element architecture is based on technical solutions including: Microservices, Docker images, Kubernetes; Cloud-based virtual development environments (such as Jupyter or Eclipse CHE) for the MAAP algorithm developers; a framework to create, run and monitor chains of algorithms containerised as docker images. Interoperability between both ESA and NASA elements will be based on CMR (NASA Common Metadata Repository), services bases on OGC standards (such as WMS/WMTS, WCS and WPS) and secured with the OAUTH2 protocol.

This presentation focuses on the pilot platform and how interoperability between the NASA and ESA elements will be achieved. It also gives insight into the architecture of the ESA element and the technical implementation of this virtual environment. Finally, it will present the very first achievements and return of experience of the pilot platform.

## REFERENCES

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