



## **The Joint ESA-NASA Multi-Mission Algorithm and Analysis Platform (MAAP): Enabling Open Science for the Global Aboveground Terrestrial Carbon Dynamics Research Community**

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Open science practices are essential to expanding the impact of scientific research and to enabling collaborations across organizations and disciplines. The benefits of open science practices are numerous and include advantages such as more efficient teamwork, more accurate and accountable results, increased reuse of data and software, and less wasted effort.

Recognizing the numerous advantages of open, reproducible science, NASA and ESA are working together to create the Joint ESA-NASA Multi-Mission Algorithm and Analysis Platform (MAAP). The MAAP brings together relevant data and algorithms in a common virtual environment in order to support the global aboveground terrestrial carbon dynamics research community.

The MAAP supports open science by providing a community-based platform that ensures biomass relevant data, software, algorithms, and workflows are openly available and reusable. In addition, the MAAP encourages collaboration and community engagement by allowing scientists to more easily work together on the development of algorithms and software. The MAAP achieves these goals by:

—Developing tools that facilitate repeatable, sharable science within a version controlled science algorithm environment that supports algorithms, software, tools and notebooks which leverage co-located data and computing resources. These algorithms, software, tools and notebooks can be shared within the MAAP to encourage transparency and reuse.

—Continuing and reinforcing ESA's and NASA's commitment to open data from all Earth observations sources, including satellite, airborne and in-situ platforms, by requiring that all endorsed data within the MAAP be open. In addition, MAAP users are required to openly share data within the platform.

In this presentation, we share the MAAP's efforts to support open science practices including the development of the MAAP's open data and open source policies. Since the MAAP is dedicated to addressing issues from the scientific community related to open access to data, computing power and processing needs, interoperability, open source software and algorithms, and intellectual property issues, we are especially interested in receiving community feedback on additional best practices and solutions to encourage open science.