



Beyond Blue Carbon: Mapping Inland Wetland Carbon with Earth Observation

Inland wetland ecosystems, including peatlands, marshes, and floodplains, represent significant yet underrepresented carbon reservoirs in global carbon assessments, which have traditionally focused on Blue Carbon systems. Despite their importance, the spatial distribution, typology, and variability of carbon stored in these inland environments remain insufficiently characterized at regional to global scales.

The objective of this work is to develop an Earth Observation–based framework to map the extent and functional types of inland wetland carbon systems and to assess their contribution to terrestrial carbon storage. The implementation will rely on multi-sensor satellite data, including Sentinel-1 SAR and Sentinel-2 optical imagery, combined with time-series analysis and machine learning classification methods to accurately delineate wetland extent and distinguish between wetland types. These outputs will be integrated with existing carbon-related datasets, such as peatland inventories, to generate spatially explicit estimates of inland wetland carbon pools.

We are looking for a student who is interested in remote sensing, machine learning, and Python/GEE coding.



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