BioSpace25
Biodiversity insight from Space

WS: Wetland ecosystem workshop

Key workshop outcomes raised to session summaries

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This summary outlines the main points required for upscaling EO products to support wetland inventories, wetland habitat conservation, GHG profiling, and flood regulation

Wetland (and Soil) Inventory Needs

- **Need for higher quality and more quantity of in-situ data for validation and training** in addition to better soil and soil drainage data from both remote sensing (RS) and in-situ sources, especially L-band data for palustrine wetlands.
- **Global standards for defining wetland change**.
- **More showcase projects that demonstrate best practices for EO-based National Wetland Inventories** (NWI), including citizen science and super-site projects combining RS, drones, and in-situ data.
- Development of user-driven EO products on wetland habitats corresponding (in their classification and nomenclature) to national wetland habitat inventories.

This summary outlines the main points required for upscaling EO products to support wetland inventories, wetland habitat conservation, GHG profiling, and flood regulation

Wetland Habitat Conservation

- **Using EO to support wetland conservation requires the right skills**. Therefore building the capacities of EO scientists in wetland hydrogeology is crucial in developing EO based products that are of use to support users in their wetland conservation work.
- **More investment In situ data is key as** EO technologies face challenges in identifying small, fragmented wetlands. In-situ data are vital for improving EO product accuracy, validating remote sensing data, and addressing misrepresentation y under conservation of small range patchy habitats typical in the case of wetland habitat types.
- **Regular release** (seasonal) **of thematic EO driven products to detect wetland hydro-ecological values** (i.e. habitat condition, degradation, and connectivity) . Thematic products shall be co-designed by wetland ecologists and EO technicians and validated by filed practitioners, with transparency in their accuracy and limitations.
- **Improve atmospheric corrections and measurements of Land Surface Temperature (LST) products** are crucial for monitoring wetland health and stress.

Greenhouse gas fluxes and carbon sequestration capacities (GHG Profile) Needs

- **More funding in producing in-situ data on GHG** (CH4 and C) **is needed from key wetland habitats**, including coastal wetlands. This should be collected through towers, chambers, and across various degradation/restoration stages to understand GHG profiles and carbon storage capacity.
- **High spatial and temporal scale EO data** on hydrology, water table depth, habitat boundaries, and changes over time are essential.
- **A harmonized approach to GHG data collection and analysis** should be established to support understanding of emission factors in wetlands.

Flood Regulation Needs

- **Need for Tailored Large scale harmonized Products**, such as terrain roughness and runoff coefficients, are needed for accurate flood modeling.
- **Improvements in temporal resolution for real-time flood monitoring products** are needed, as extreme events have short durations. Drones equipped with radar could provide valuable local-scale flood data.
- **Building capacities by bridging the knowledge gap between radar and optical data experts** helps maximizing the potential of remote sensing data for flood regulation.
- EO solutions to fill the unavailability of in In-situ water quality data during flooding events is crucial for upscaling