SWOS
Satellite-based Wetland Observation Service

Why focus on wetlands?

Wetlands are hot spots of biodiversity and provide us with invaluable ecosystem services including:

Freshwater supply | **Hydrological buffering against floods and droughts** | **Climate regulation through carbon storage**

Wetlands are also one of the fastest declining ecosystem types worldwide and the threats against them continue to mount. Information on the location of wetlands, their ecological character and their services is often sparse and difficult to find or access. The result is a limited coverage of wetlands in policies and management practices.

What is the Satellite-based Wetland Observation Service (SWOS)?

SWOS is a Horizon 2020 project funded by the European Commission. To assist wetland practitioners (managers, policy-makers, scientists) with wetland monitoring and with reporting obligations for environmental policies at different scales, SWOS will:

- Deliver mapping products and indicators derived from Earth Observation data
- Promote and improve the integration of wetlands across sectoral policies
- Contribute to the development of a Global Wetland Observation System which will support monitoring of the Sustainable Development Goals for both water and biodiversity
- Inform the development of wetland conservation and restoration measures with a focus on maintaining biodiversity and ecosystem services

How does it work?

SWOS will use the new possibilities offered by free satellite data (including Sentinel satellites) to generate mapping products and indicators which will be applicable globally and demonstrated for a range of selected wetlands in Europe, Africa and Asia. SWOS will further develop existing approaches, in particular the GlobWetland II approach. Timely observations will allow for dynamic monitoring of wetland condition and changes (and their drivers) on a large spatial and temporal scale. SWOS will integrate satellite data, mapping products and in-situ databases into a Service Portal and connect the Service Portal with other web-based approaches to environmental monitoring. Via this Portal, SWOS will provide a unique entry point to easily locate, access, process and connect wetlands information.

Project Partners

Wetlands International
SEMIDE EMWIS
UNEP WCMC
IUCN
Tour du Valat
EKBY The Goulandris Natural History Museum Greek Biotope / Wetland Centre
Universidad de Málaga
ETC UMA
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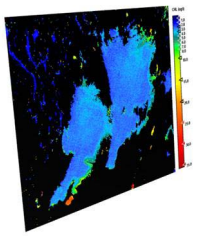
universitätbonn
jenaoptronik
RSS Remote Sensing Solutions GmbH
Brockmann Geomatics Sweden AB
TerraSphere

SWOS Products

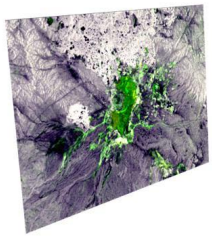
Product	Description
Wetland Inventory	Identification and delineation of wetland areas in support of national wetland inventorying campaigns.
Water Quality (short term status and trends)	Monitoring of aquatic pollution and physical disturbances within wetland ecosystems (within a year/season).
Land Use/Land Cover Mapping and changes	Mapping of wetland habitat and assessment of long-term (up to 40 years) and short-term (within a year/season) changes and trend analyses in and around wetland sites.
Surface temperature change	Long-term (up to 40 years) and short-term (within a year/season) changes and trend analyses in and around wetland sites.
Soil moisture	Relative soil moisture index for wetland delineation.
Surface water dynamics	Analysis of the intra- and inter-annual variations of water tables, in and around wetland areas.

Mapping products (examples):

Land Use Land Cover (LULC) time series (1975-1990-2005) based on Landsat MSS/TM along the river Jordan in Jordan – increase of irrigated agriculture (yellow)



Water Quality example of Lake Vanern, Sweden (Envisat MERIS, Jun'2011)



Multi-temporal color composite of Envisat ASAR radar data of the Azraq oasis in Jordan

SWOS user group

SWOS will provide a user-friendly monitoring and information service for wetland stakeholders.
Several user organisations are represented by the SWOS partners.
Additional users will be involved at different scales to support a multi-level user approach. For example:

- Global (GEO/GEOSS, Ramsar, EU, CBD).
- Regional (NorBalWet, MedWet).
- National (EU Member states, national administrations).
- Local (protected area managers, local administrations, scientists, river basin organisations).

SWOS multi-level user approaches will:

- Demonstrate opportunities for improved wetland management, planning and decision making.
- Supply users with harmonized wetland information to support management and policy reporting.

SWOS is from users for users

- In order to ensure that the final SWOS Service Portal is user friendly, user organisations are vital throughout the project.
- User input is required to build the best possible product, by turning user requirements into system requirements.
- A consultation (questionnaire and interview) will be conducted to understand the needs of users at the local, national, European and global scale.
- This will take into account global, European and national policy frameworks and the corresponding reporting and monitoring obligations.
- Service cases will showcase the usability of SWOS in different policy contexts in cooperation with specific users.
- A dedicated user community will be set-up to share experiences and best practices.

Outlook

SWOS will ensure that the EU takes a leading role in supporting wetland management by contributing to policies through sustainable decision making. Because users are involved throughout its development, the service will be widely used and accepted, harmonized with related activities and will have a long-term impact on wetland management.

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www.swos-service.eu

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