

World Wetlands Day
Tuesday, 2 February 2016



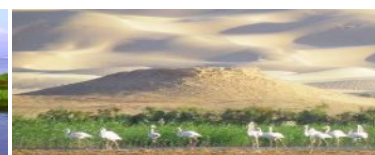
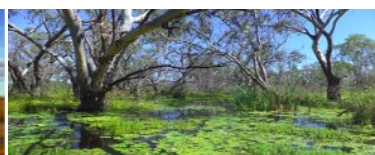
Wetlands for our Future
Sustainable Livelihoods



Implementing Sustainable Earth Observation Based Wetland Monitoring Capacity in Africa



www.globwetland-africa.org



BACKGROUND

GlobWetland Africa (GW-A) is a large Earth Observation application project initiated to facilitate the exploitation of satellite observations for the conservation, wise-use and effective management of wetlands in Africa and to provide African stakeholders with the necessary Earth Observation (EO) methods and tools to better fulfil their commitments and obligations towards the Ramsar Convention on Wetlands.

As a principal objective GlobWetland Africa will be developing and demonstrating an open source and free-of-charge software toolbox for the end-to-end processing of a large portfolio of EO products and the subsequent derivation of spatial and temporal indicators on wetland status and trends, from local to basin scales.

GlobWetland Africa will help African authorities to make the best use of satellite-based information on wetland extent and condition for better measuring the ecological state of wetlands and hence their capacity to support biodiversity and provide ecosystem services. As an ultimate objective GlobWetland Africa will aim to enhance the capacity of the African stakeholders to develop their own national and regional wetland observatories.

THE TOOLBOX

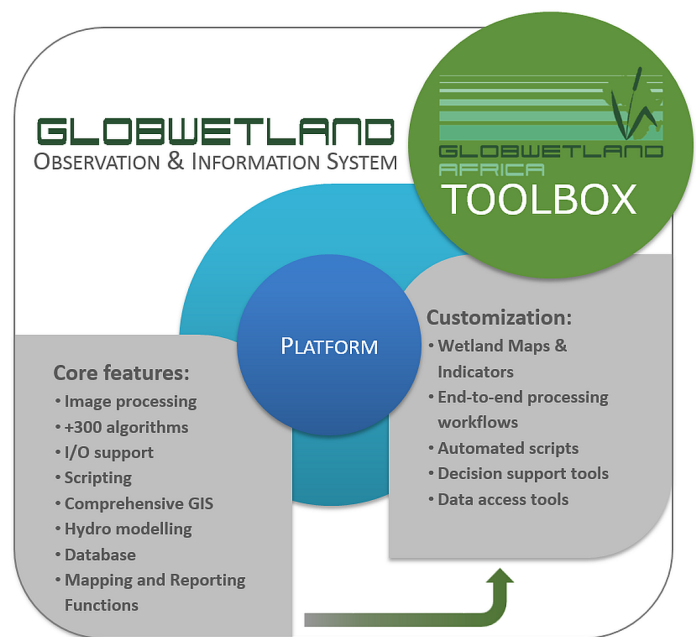
The GW-A toolbox unifies proven and stable open source software into a single graphical user interface that will enable the users to access and exploit the increasing capabilities of new and freely available satellite observations primarily from the Sentinel missions of the European Copernicus initiative

GW-A toolbox advantages

- Cost and license free
- Open source i.e. easy to transfer, modify and integrate with existing user systems
- User friendly and easy to operate

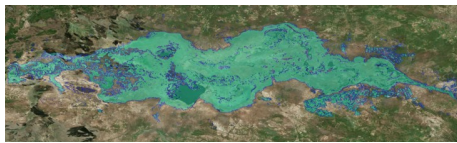
Key capabilities

- Retrieve, store and process EO data as well as integrate in-situ data
- Produce wetland information products and indicators
- Integration of hydrological modelling functions
- Supporting decisions based on full GIS framework with extensive mapping and reporting functionality
- Scaling up for future applications and demands

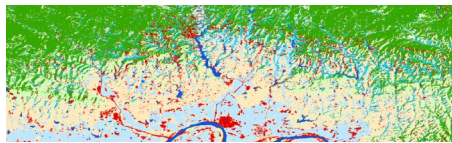


The GW-A Toolbox will be developed as a customisation of the 'Platform' which is a complete suite of open source software for managing, processing and analysing Earth Observation data and building customised workflows to cover multiple needs, from those of wetland specialists and engineers to managers and policy makers.

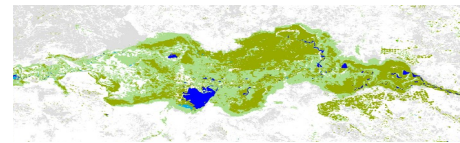
THE PRODUCTS



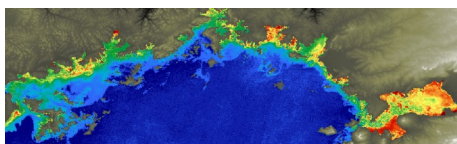
Wetland inventory to identify and delineate wetland areas as a support to wetland inventories. It will be derived from time series of satellite images to cope with the high temporal variability of hydrological conditions. It will further serve the needs of national/regional agencies interested in exploring the possibilities to reduce costs associated to large wetland inventorying exercises.



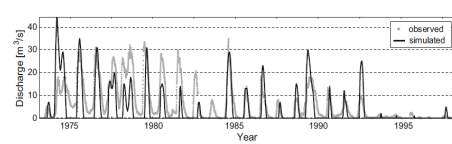
Wetland habitat mapping to provide a detailed classification of the land cover and land use, and in particular of the wetland habitats, within an area of interest that typically includes the wetland site and its surrounding area. Historical analysis of wetland habitat maps allows obtaining a synoptic view of the main changes occurring in the wetland areas, whether natural or anthropogenic changes.



Water cycle regime monitoring to provide an overview of the annual variations of the surface water extent within wetland sites and the surrounding area. Historical analysis will allow characterising the inter- and intra- annual variations of the water tables, to monitor the dynamics of water retention and flow and to assess how these changes of water regimes affect the overall wetland ecosystem.



Water quality parameters (in absolute or relative terms) such as chlorophyll-a concentrations, total suspended sediments, or cyanobacteria blooms. These water quality parameters will allow to monitor wetland ecosystem disturbance and contamination as a results of physical disturbances (e.g. deforestation and soil erosion) and from urban and industrial waste discharge.

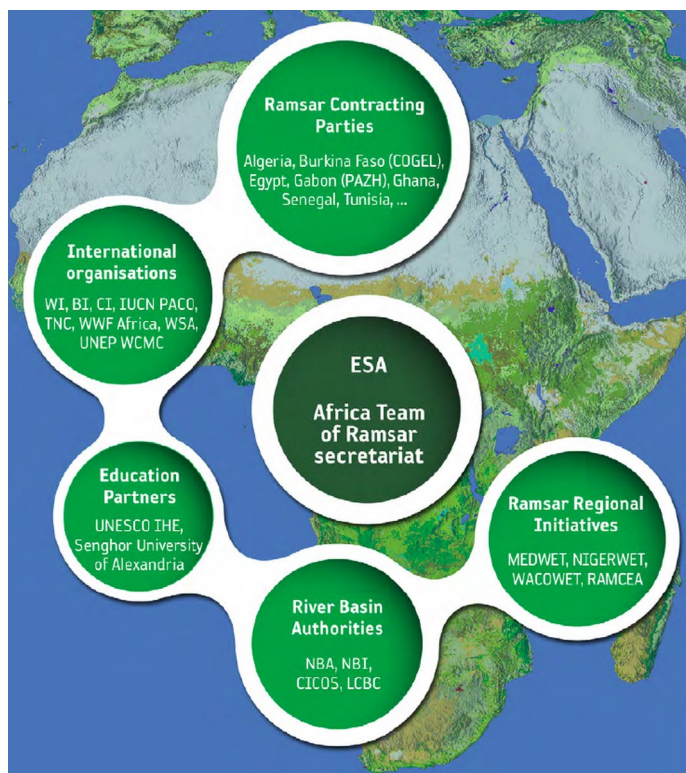


River basin hydrology to assess the water conditions at a river basin level, through the direct observation of important components of the water cycle budget (e.g. surface water extent and soil moisture), as well as through the modelling of the water balance and the underlying hydrological mechanisms for assessing the impact of climate change or human activity (e.g. water pumping for irrigation or urban settlements).



Mangroves mapping to make an inventory of mangrove areas, to map the mangrove extents, to characterise the spatial distribution and the geometrical and structural arrangements of mangroves, and finally to discriminate the major tree species that dominate the mangrove zones.

USER DRIVEN DEVELOPMENT & DEMONSTRATION



Develop an end-to-end open source toolbox for the production of geo-information maps and indicators on the status and trends of wetlands

Demonstrate adequacy of the toolbox for African stakeholders to monitor status and trends of wetlands and fulfil their obligations towards the Ramsar Convention

Advise the African organisations by providing technical assistance during a period long enough for an appropriation of the GW-A methods, tools and products

Deliver a free of charge toolbox with adequate training and education toolkit for transfer of know-how on the use of EO technology for wetland management

PROJECT KEY FACTS

- 1.500.000 EUR budget
- 3 years duration (starting from 1. November 2015)
- More than 25 African and international partners
- Free and open data policy
- Provision of free of charge and open source EO toolbox

DEVELOPMENT TEAM



DHI GRAS, Denmark (PRIME)



GeoVille Information Systems GmbH, Austria



ITC Faculty of Geo-Information Science and Earth Observation, University of Twente, The Netherlands



Brockmann Consult GmbH, Germany

SCIENTIFIC PARTNERS



Department of Environmental Engineering, Technical University of Denmark, Denmark



Institute of Photogrammetry & Remote Sensing, Vienna University of Technology Austria

For more information please visit www.globwetland-africa.org or contact info@globwetland-africa.org



GlobWetland Africa is a project funded by the European Space Agency (ESA) in partnership with the Africa Team of the Ramsar Convention on Wetlands

