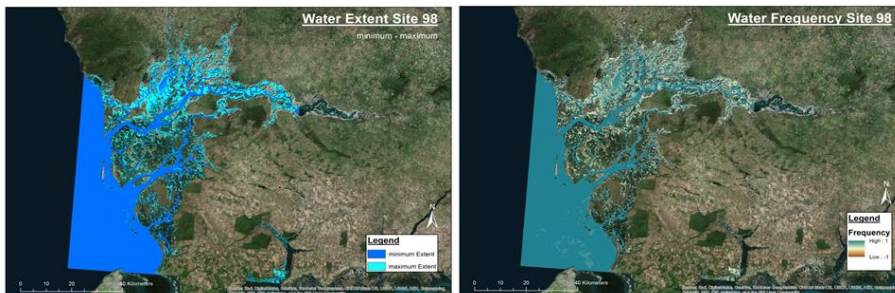


Water Cycle Regime



Description: The water cycle regime (WCR) product contains a detailed mapping of the annual variations of the surface water extent (minimum and maximum water extent) inside and around a wetland site. The creation of the WCR is based on a multi-temporal classification approach using optical and radar data (if available in sufficient quantity). Water frequency parameters are separately derived for both datasets and fused in the end to give an accurate delineation of the wetlands. In the optical approach, Sentinel-2 MSI imagery is used to derive water probabilities from combining spectral indices and dynamic thresholding techniques. The resulting multi-temporal classifications are then aggregated to derive the water frequency and the minimum and maximum water extents. The radar-based algorithm builds on geophysical parameters derived from historical Envisat ASAR and Sentinel-1 backscatter time series to identify flooded areas. In addition, it is possible to identify flooded vegetation according to the double-bounce scattering principle in densely vegetated wetlands. Processing of the radar data cannot be done within the toolbox, due to the heavy data load necessary to create the information layers. After the separate processing of the optical and radar imagery, the data is fused to derive a comprehensive representation of the water cycle regime making use of the advantages of both sensor systems.



Product : Water Cycle Regime (Minimum and Maximum Water Extent, Water Frequency)

Location: Delta du Saloum, Senegal

Input imagery: Sentinel-1/Sentinel-2

Time period: 2015/2016

Spatial resolution: 20 meters

Accuracy: +85% overall and individual class accuracy

