NEWSLETTER

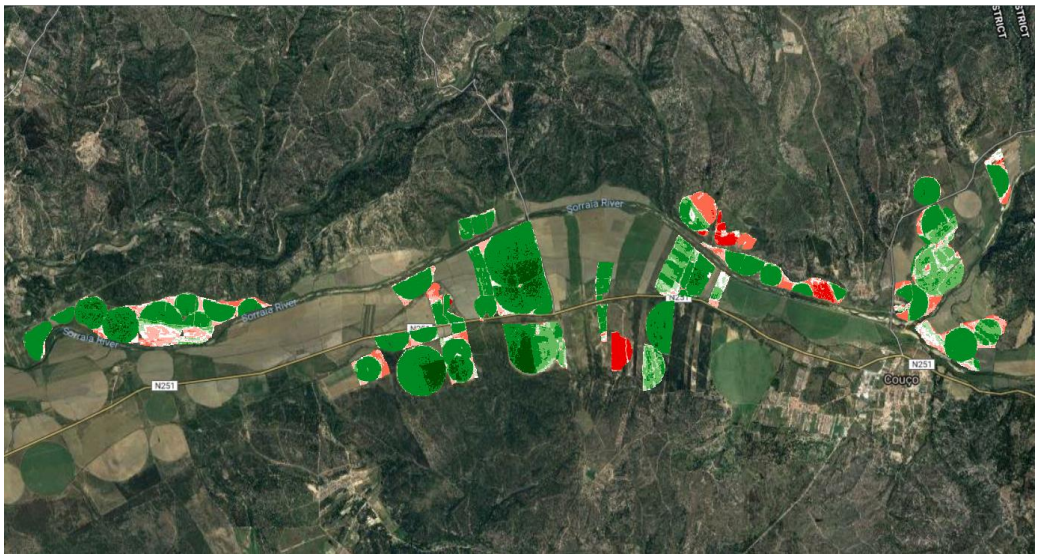
N.º 3

water4ever

December 2018

The third technical meeting was held at isardSAT, Barcelona, Spain, on November 22, 2018.

The partners visited the Catalonian case studies on November 23, 2018. Xavier Petit from Aigües Segarra Garrigues, SA, Advisory Board member of the Project, presented the demonstration fields in the region and the main difficulties of converting regional rainfed agriculture into irrigation.

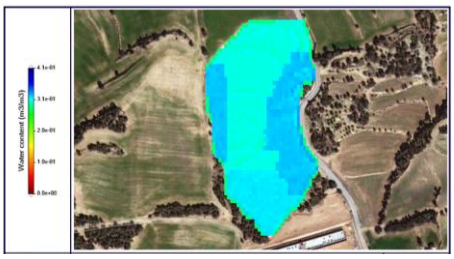


Optimizing water use in agriculture to preserve soil and water resources

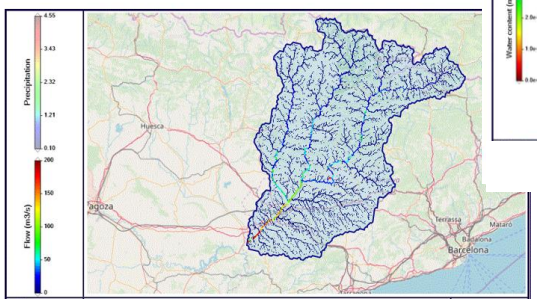
WATER4EVER is dedicated to the protection of water resources and aims to develop innovative tools for precision irrigation by combining modeling and remote sensing methods.

Modeling applications

The MOHID-Land model has already been calibrated/validated for simulating soil water dynamics and crop development at the plot scale in Lezírias (Portugal), Agramut and Foradada (Catalonia). The model has also been implemented in Ametllers (Catalonia) at the field scale.



Ametllers SWC



Segre river basin flow

At the catchment scale, the model is now running for Lezírias and Segre (Catalonia) basins.

Model results will now be compared with remote sensing products to improve the reliability of project outputs.

More information at

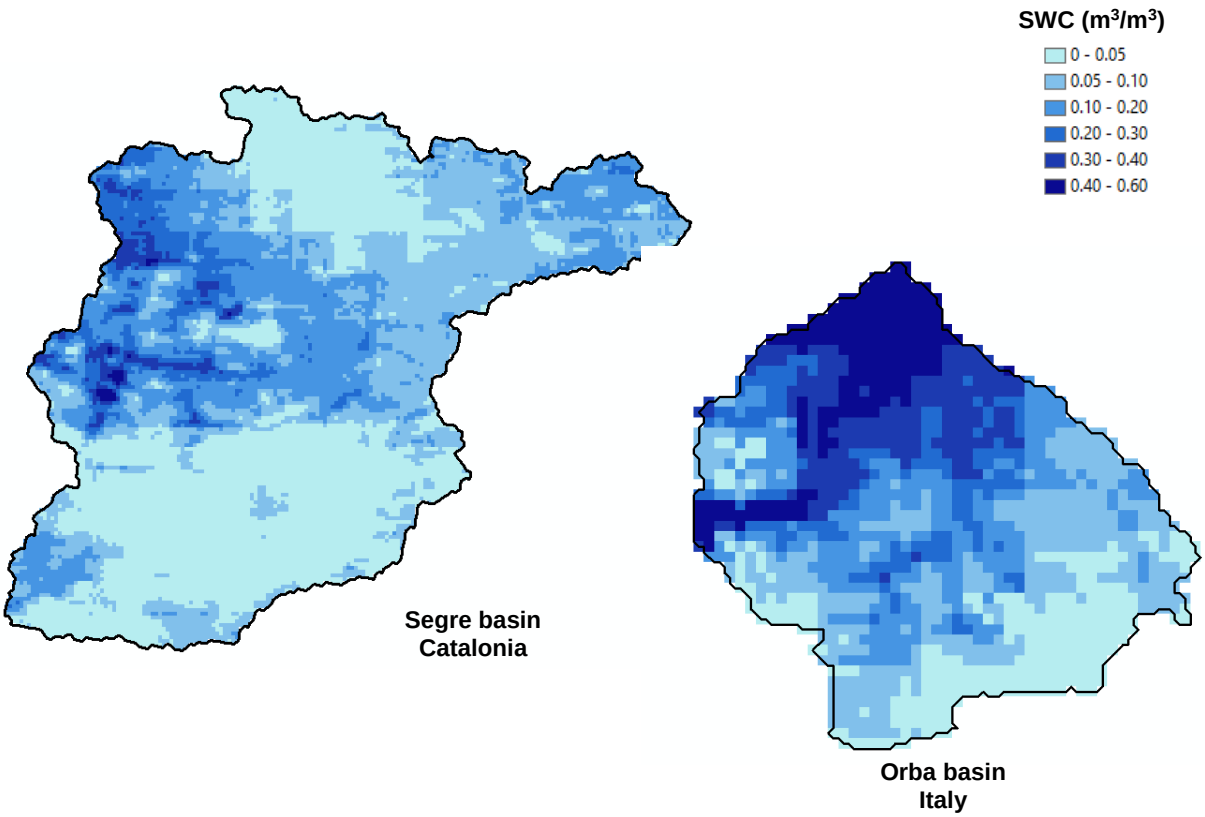
www.water4ever.eu

Remote sensing datasets

WATER4EVER has delivered the first remote sensing products for the study sites. isardSAT has made available soil water content (SWC) maps at 1km resolution scale for each study case and for the reference period (2012-2018).

Amongst existing algorithms for downscaling soil moisture (SM) from remote sensing data, DISPATCH (DISaggregation based on a Physical And Theoretical scale CHange) is an algorithm that downscales the 40 km SMOS (Soil Moisture and Ocean Salinity) SM data by using land surface temperature (LST) and vegetation cover data. It has been shown to accurately improve the resolution of SMOS SM data in various climatic regions such as Catalonia, Central Morocco, South-Eastern Australia and two watersheds in the USA.

The algorithm estimates the SM variability at a 1km resolution within a low (40 km) resolution SMOS pixel by relying on a self-calibrated evaporation model. More specifically, it derives a term, called soil evaporative efficiency (SEE), from LST and vegetation cover data. By taking into account the instantaneous spatial link between SEE and SM, it then distributes the high-resolution SM around the low resolution observed mean values.



Acknowledgements