The Hydroweb-NG database

River Neretva in Bosnia and Herzeovina

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Effective management of freshwater resources relies on obtaining good data on the water cycle of catchment areas.

That means data on available surface water resources from rivers, lakes and reservoirs, groundwater and the potential contribution of rain and snow.

It also means determining water lost, mainly from evaporation, evapotranspiration, abstraction to supply cities and irrigation for agriculture.

Most of these parameters can be observed by satellites.

The SWOT programme will give scientists and water managers a new database called Hydroweb-NG pooling all satellite data useful to water resource management.
These data will mainly come from:
-nadir-looking satellites like Jason-3 or Sentinel-3, measuring the height of major rivers and lakes;
-SWOT, measuring river height, width, flow and slope, and lake height, surface area and volume;
-SMOS, measuring soil moisture at low resolution at frequent intervals:
and
-Sentinel-1, measuring soil moisture at high resolution.

Snow cover data will come from Pleiades and Sentinel-2 satellite imagery, rain intensity and volume from the Megha-Tropiques satellite, and land cover maps and the location of water bodies from the Sentinel-1 and Sentinel-2 satellites.
Lastly, ocean colour data from a range of satellites such as Sentinel-2 will round off this dataset.

The Hydroweb-NG database will drive a multidisciplinary approach to gain a closer understanding of the water cycle, track it over time and thus help to manage water resources more effectively. Ultimately, it will also incorporate in-situ data and provide a modelling component to be able to predict the status of our planet's water resources.