

# Lakes from Space

## weekly monitoring of lakes' superficial size

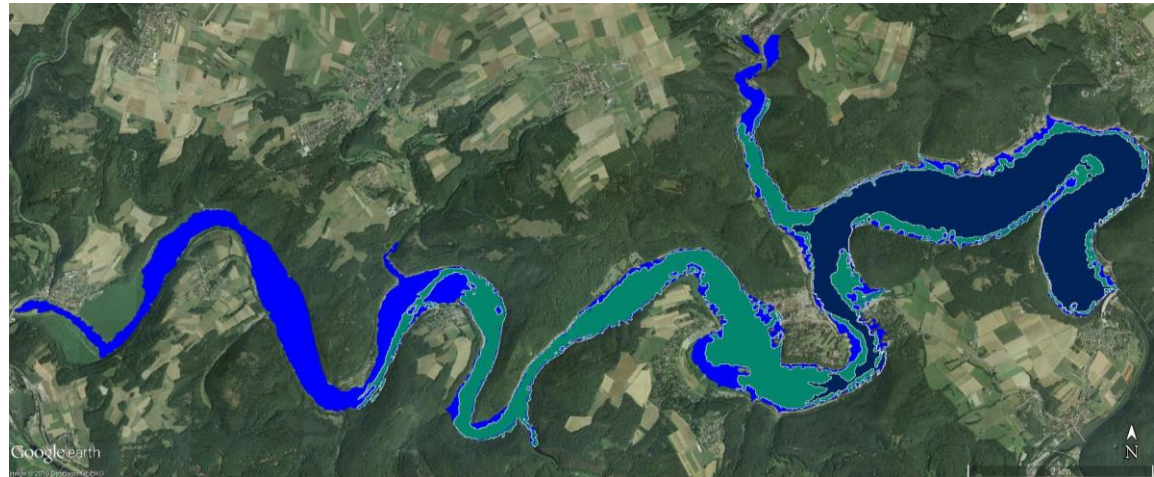
Dr. Sabrina Melchionna

### Background

In the frame of monitoring inland water bodies, tracking the extension of water resources is essential to assist water decision makers for a wise management of lakes and reservoirs. Melchionna – Remote Sensing developed a lake monitoring service which weekly provides the superficial extension of lakes, based on Sentinel-1 data.

### Case Study

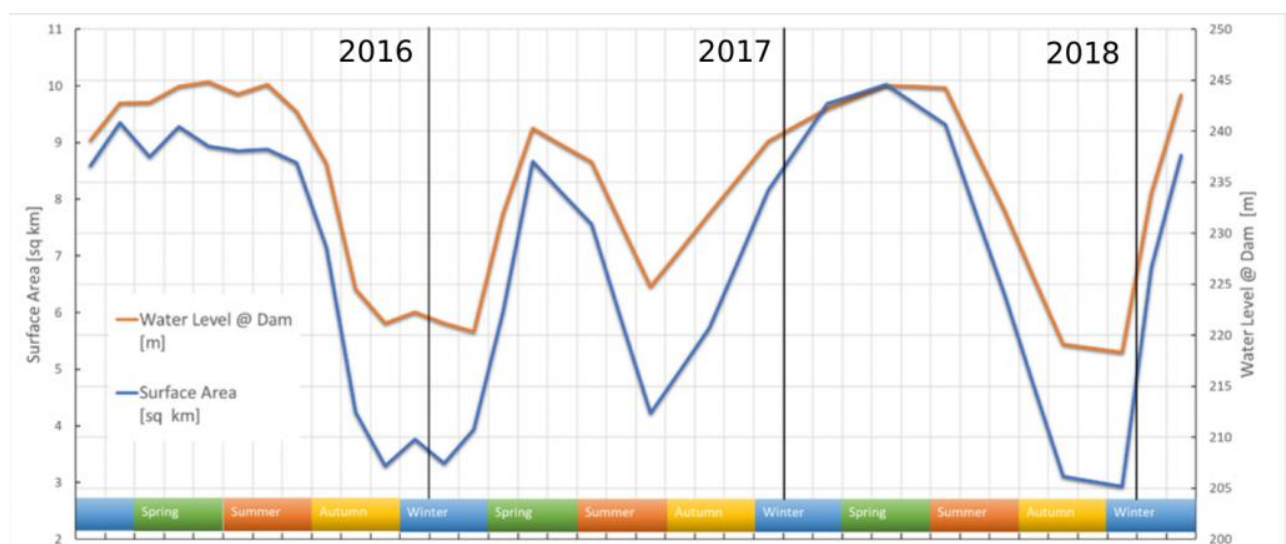
We present a case study for the Edersee lake (Germany), which was drastically affected by the drought Germany experienced during summer 2018: from its nominal 12 km<sup>2</sup> area, it decreased to less than 3 km<sup>2</sup> in November 2018.



In the figure above the thematic map for the Eder reservoir: 02<sup>nd</sup> April 2017 –blue; 03<sup>rd</sup> October 2017 –green; 01<sup>st</sup> October 2018 –dark blue.

### Results

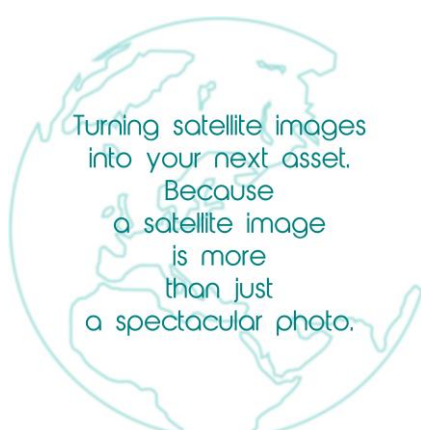
The chart on the right shows the agreement of the historical trend of the surface of the lake Edersee from 2016 to beginning of 2019 - in blue (Melchionna – Remote Sensing), with the measurements of the water level in meters above standard zero at the dam - in red (wasserstand.edersee.de).



### Conclusions

The service Lakes from Space gives information complementary to in situ monitoring systems, such as water gauges, adding the information on the superficial water distribution.

In case of drought, it supports safer navigation by underlining timely where sandbanks are emerging. Moreover, it makes possible to monitor the effect of extreme weather events on lakes in remote areas where in situ measurements systems are not present.



**melchionna**  
remote sensing

Melchionna – Remote Sensing produces land monitoring maps based on satellite Sentinel-1 radar data, provided by the European program Copernicus.

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