UFZ-Seminar

Research Unit

Water Resources and Environment

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will give a talk on:

Synergy between in situ and satellite data towards monitoring optically complex waters

We will give short overview about field measurements we perform to get an information about optical properties in lakes - a “ground truth” for validation and development of remote sensing algorithms. Estonian lakes are seasonally variable, but in general the majority of light is absorbed by coloured dissolved organic matter and phytoplankton.

Then validation activities, specifically for Copernicus satellites Sentinel-2 MSI and Sentinel-3 OLCI data and analyses of their radiometric and water quality products will be demonstrated. As the global products show poor performance on regional scale, work regarding algorithm development for satellite data over eutrophic and absorbing waters, specifically for estimating phytoplankton (chlorophyll a, phytoplankton biomass, cyanobacterial biomass) and transparency (Secchi depth, diffuse attenuation coefficient) related parameters will be shown. We will also introduce the recently published work “Consistency of six in situ, in vitro and satellite-based methods to derive chlorophyll a in two optically different lakes” (Frontiers in Environmental Science, DOI: 10.3389/fenvs.2022.989671).

And last, if we have more time, Alo can give an overview about the high-frequency monitoring in Estonian lakes and how this contributes to the cooperation with satellite-based Earth Observation, and what are our future plans in that line.