



Combining remote sensing and in-situ data for water body monitoring

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Due to the advancement of remote sensing technologies, massive amounts of data are available already today and increasing at a rapid pace. Revealing a lot of information on its own, their value can even be leveraged by combining them with in-situ observations. Based on a set of use-cases originating from different research projects, we are developing a technical framework based on (extended) standards to integrate, jointly access and analyse remote sensing and in-situ data.

Applications motivating this work are a globally applicable solution for monitoring water quality in reservoirs where remote sensing data can help to provide proxies and valuable parameters for water management tasks without the need to have massive on-site sensing equipment. Another scenario with a different set of research challenges stems from a regional use-case where the entry of sediments and pollutants shall be modelled and monitored. A third application uses real time in-situ data to preselect flood prone areas and initiates a floodplain detection and delineation based on remote sensing data. Here, the in-situ data sets are not only meant to be typical gauge data, but can also be constituted by on-site taken pictures by volunteers. As the underlying data and infrastructures range from local to cloud based applications, the developed framework will support different design choices.