

The Potential of Imaging Spectroscopy Missions for Inland Water Quality Monitoring

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ABSTRACT

The majority of Europe’s inland water bodies cannot be properly monitored with today’s remote sensing systems because the lakes are often small and irregularly shaped and are very diverse from an optical perspective. Current Ocean Colour Sensors such as MODIS do not provide the required spatial and spectral resolution to fulfill the inland water quality monitoring requirements.

Upcoming imaging spectroscopy missions like EnMAP, PRISMA and HypSPIRI with a high spatial resolution of 20-60 m can provide the required spatial resolution for monitoring the small and irregularly shaped lakes. In addition, the high spectral resolution and contiguous spectral bands in the VNIR and SWIR wavelength ranges can better solve problems with atmospheric correction and will lead to new and more accurate inland water quality products than currently obtained from broad band sensors.

The potential of imaging spectroscopy missions for inland water quality monitoring will be demonstrated based on HICO images, airborne imaging spectroscopy APEX data and *in-situ* data acquired of Lake Balaton and wetland system Kis Balaton (Hungary) in July 2014 and based on APEX images and *in-situ* data acquired on Mantua Lakes (Italy) in September 2014. The potential of imaging spectroscopy missions for mapping macrophytes, discrimination of phytoplankton functional types, retrieval of total suspended matter, retrieval of yellow matter and stratification will be shown.

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