

# **Mapping of aquatic systems using hyperspectral airborne data and a physically based process chain**

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## **POSTER ABSTRACT**

The Modular Inversion Program (MIP) is a processing and development tool designed for the recovery of hydro-biological parameters from multi- and hyperspectral remote sensing data. The architecture of the program consists of general and transferable algorithms based on physical inversion schemes that derive bio-physical parameters from the measured radiance signal at the sensor. Therefore, the coherence and validation of each processing level is traceable by optical measurements. Program modules exist for the retrieval of aerosols, sun glitter correction, atmospheric and water surface corrections, retrieval of water constituents among others. Mapping the bottom coverage in optically shallow waters is performed using program modules, which calculate the bottom depth, the bottom coverage and the macrophyte species probabilities in an iterative manner. The processing system has been tested using data collected with the airborne scanners HyMap, Daedalus and Rosis at Lake Constance, Lake Starnberg and Rottneist Island/Australia. For the purposes of validation, subsurface reflectance spectra measured with Ramses radiometers, in situ probes of water constituent concentrations and extensive in situ observations were used.