

Developing remote sensing algorithms for determining ingredients of water in coastal and inland waters for the EnMAP mission

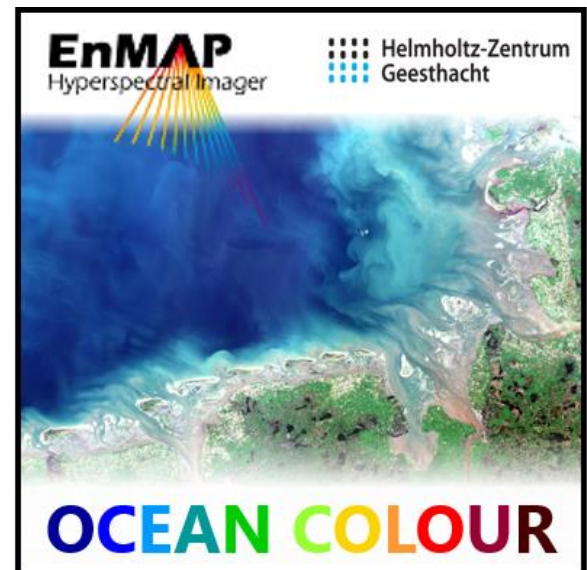
*Helmholtz-Zentrum Geesthacht
Centre for Materials and Coastal Research*

Abstract:

The scope of the project is the scientific preparation of the hyperspectral satellite mission EnMAP (Environmental Mapping and Analysis Program). The scientific lead of the mission lies with the Remote Sensing section at GFZ Potsdam, supported by a Core Science Team (ECST). Tasks of the ECST include (i) updating the EnMAP Science Plan, (ii) organising and conducting workshops and summer schools, (iii) coordinating networking and dissemination activities, and (iv) developing algorithms for processing and analysing hyperspectral data as well as implementing them into the free software package EnMAP-Box, developed in the frame of the EnMAP scientific preparation program.

Within the project "WEnMAP", the focus of the Remote Sensing Team at HZG in the scientific preparation of the EnMAP mission phase III comprises:

- Evolution of the Sentinel-3/OLCI specific Ocean Colour algorithm ONNS (OLCI Neural Network Swarm), which is applicable for oceans, coastal and inland waters
- Development of novel Ocean Colour products and validation with focus on spectral absorption and scattering properties of waters
- Synergetic exploitation of EnMAP and the European Copernicus Programme
- Applicability of the ONNS algorithm for historical, present and future Ocean Colour missions, including MERIS and EnMAP
- Implementation of the water algorithm ONNS into the EnMAP-Box with an application tutorial



ECST Phase III – Coastal and inland waters

Duration: 1.10.2017 – 31.12.2019

EO Data Source: Sentinel-3/OLCI, Sentinel-2/MSI, ENVISAT/MERIS & EnMAP

Support Program: EnMAP Utilization Preparation

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<http://www.enmap.org/>

http://www.hzg.de/institutes_platforms/coastal_research/operational_systems/remote_sensing/projects/index.php.de

EnSAG Phase II: Coastal and inland waters

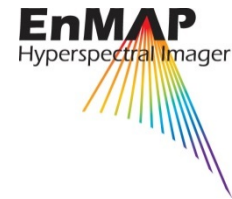
Helmholtz Zentrum Geesthacht Centre for Materials and Coastal Research

Abstract:

The scope of the project is the scientific preparation of the hyperspectral satellite mission EnMAP (Environmental Mapping and Analysis Program). The scientific lead of the mission lies with the Remote Sensing section at GFZ Potsdam, supported by a Science Advisory Group (EnSAG). Tasks of the EnSAG include (i) developing and updating the EnMAP Science Plan, (ii) organising and conducting workshops and summer schools, (iii) coordinating networking and dissemination activities, and (iv) developing algorithms for processing and analysing hyperspectral data as well as implementing them into the free software package EnMAP box, developed in the frame of the EnMAP scientific preparation program.

Within the project "EnSAG Phase II", the successful work of the EnSAG is continued by addressing new scientific challenges in the field of hyperspectral remote sensing. More specifically, the focus of the work at HZG in the scientific preparation of the EnMAP mission phase II comprises:

- Development of methods for hyperspectral data analysis on atmospheric correction above water and derivation of hydro-optical properties to determine water constituents like suspended sediment, phytoplankton, and yellow substance.
- Development of methods to analyse hyperspectral data similar to those from MERIS, and OLCI.
- Usage of neural nets which were trained with simulated reflectance-spectra and are applied like non-linear multiple regression algorithms.
- Validation with in-situ measured data and other remote sensed data



EnSAG – Water

Duration: 1.4.2013 – 31.10.2016

EO Data Source: EnMAP, Sentinel 2, Sentinel-3, HICO

Support Program: EnMAP Utilization Preparation

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