

**Event name: Third event in series “Joint seminars for inter-calibrations at multiple sites AERONET-OC - field campaign in R/V Aranda (Finnish Environmental Institute) 11-17 of July 2012 Baltic Sea carried out SYKE**

Actual Delivery Date: 01.08.2012

Responsible partner and person: SYKE (Stefan Simis ER4)

Participants:

Jasmin Geissler (during secondment BC->SYKE)

Semhar Ghezehegn (during secondment WI->SYKE)

Martin Ligi Tartu Observatory, Estonia

Philipp Groetsch Water Insight, The Netherlands

John Olsson SYKE (recruited WaterS fellow at SYKE)

## **Event description**

The Research Vessel *Aranda* owned by SYKE has been a meeting venue of sorts for aspiring researchers in the WaterS network. During four cruises dedicated to a better understanding of bio-optical processes in the open Baltic Sea, the ship welcomed four WaterS participants either recruited (1) and seconded (3) at SYKE at the time of the cruise, as well as 2 WaterS participants who did not have a working relationship with the host institute.

The cruises were all part of the SUPREMO series of research cruises, which stands for Support for Remote Sensing and Ecosystem Modelling. These cruises were used to collect in situ data for development, calibration, and validation of remote sensing algorithms, ecosystem models, and bio-optical studies. The most important physical parameters measured were 3D salinity, temperature, up- and downwelling light, water leaving radiance, and light absorption and scattering partitioned into particulate and dissolved fractions. Additional biological parameters included proxies for phytoplankton community composition and functional groups: pigmentation, in vivo fluorescence, and particle imaging.

New instrumentation, intended for autonomous use on merchant vessels ('ferryboxes') were also taken along for testing.

a) Research programme contribution (WP2, T2.1; WP3, T3.1 )

### **Water samples**

During the cruise we collected and filtered water samples from different depths and also prepared them for further analyses for particulate absorption, HPLC pigments, CDOM, chlorophyll-a and particulate nutrients (nitrogen, carbon, and phosphorus).

### **Optical measurements**

#### **Above water**

During the entire cruise measurements with the 3 TriOS RAMSES setup was conducted. It was automated to measure at favourable angles from the sun and only when the sun was high enough. WISP-3 measurements were taken at regular intervals during daytime plus at the stations.

#### **Profile measurements**

Profiles were measured in each station with 2 TriOS RAMSES setup for K<sub>d</sub> and Reflectance and IOPs using a frame which included ACS (Attenuation and absorption), VSF (volume scattering function) and BB3 (backscattering). Secchi depth was also measured in every station plus the water and sky images were taken as background information for optical measurements.

Data

**All the data is currently held by SYKE, but TO has a copy of IOP frame RAW data that will go to the common database.**

b) Knowledge transfer programme contribution (link to WP2 T.2.2; WP3, M3.1, WP4, D4.1; D.6.3)

None of the WaterS fellows had worked on *Aranda* before and most had not set foot on a research vessel before these journeys. Their activities ranged from the simplest tasks (concentrating large volumes of sea water onto glass fibre filters) to deploying costly research equipment for in-water measurements, while incubation experiments were carried out on deck.

Dedicated, thematic research cruises tend to be popular with scientists in the respective field. There is little time spent waiting for other teams to conclude their activities, so data collection is very efficient. Therefore, the bio-optical cruises hosted not only SYKE researchers and WaterS fellows, but a variety of visiting scientists operating their own equipment. As a result, the WaterS fellows while contributing their own labour could meet and discuss with fellow scientists and learn of their work in a personal manner – and it does not get much more personal than sharing a sauna while sailing at 12 knots.

M.3.1, Second event in series “Joint seminars for inter-calibrations at multiple sites AERONET-OC - field campaign in Baltic Sea