

Jerico WP4 workshop: Thursday 9th February, 2012 in Helsinki

Topic: *"Calibration and bio fouling prevention of optical sensors & sharing of calibration facilities. "*

Workshop report.

Participants: All participants registered attended the meeting, with exception of George Petihakis who was sick. In addition, David Bowers, from Bangor University, UK, participated in the scientific session

Aim: The objectives of the workshop were to

- discuss how to perform the primary instrument calibration for fluorometers?
- discuss how to perform validation with field samples?
- discuss how to prevent bio fouling?
- discuss if we can identify best practices, harmonize protocols, and disseminate Jerico know-how?
- provide a demonstration of existing fluorometer calibration infrastructure at SYKE

Scientific session: Presentations were taken according to the agenda. The two presentations send by IFREMER were briefly presented by Jukka Seppälä. Presentations of the scientific session can be found as pdf files.



Demonstration of Alg@line-project calibration activities at SYKE:

- 1) *Chl-a & turbidity* (Maunula, Kaitala). The annual calibration of Chl_a fluorometers and turbidity sensors for Alg@line-project was carried out on Febr 8th 2012, and the work carried out was demonstrated to participants.
- 2) *Phycocyanin & CDOM* (Seppälä). Annual check and calibration of Trios phycocyanin and CDOM fluorometers was demonstrated to participants.
- 3) *Recent developments in optical measurements at SYKE* (Simis, Ylöstalo, Olsson). The new reflectance measurement system and flow-through chamber for backscattering measurements were demonstrated to participants.



Outcome of discussions:

Reference materials for Chla calibrations.

Secondary standards:

- Best practice to use solid standard to follow instrument performance
- Traceability of secondary standard (contact manufacturers)

Chemical standards:

- Chla in acetone (or other solvent) may be solution for some instruments but may not be compatible with other
- Should find better chemical standards for primary calibration (artificial Chla proposed by Rajesh)
- Are there special problems with instruments working in low range and thus requiring a stable baseline (stability of standards, offset)
- Intercalibration of chemical standards needed

Calibration of turbidity sensors more straight forward by using Formazin.

- Effect of wavelength on turbidity (some instruments use blue light); seems that there are no experiences on the effect in high absorbing waters.
- TSM values preferred by satellite community.

Conversion from fluorescence to Chla concentration

Many alternatives to estimate Chla concentration from fluorescence:

- Importance of keeping raw data
- Importance of archiving
- Optimal data treatment solutions may be site-specific, time-specific, event specific, user specific ...

New methods may provide new solutions

- measuring light, variable fluorescence, community structure may improve validation

WP4 – WP10 communication