

# OCEAN OPTICS XXIV

Valamar Lacroma Dubrovnik Hotel | Dubrovnik, Croatia | October 7–12, 2018

<https://oceanopticsconference.org>

Thursday, October 11

Poster Session 4

10:30–12:00

## Poster 124

### EXPLOITATION OF THE OLCI OCEAN COLOUR SENSOR IN REMOTE SENSING OF SELECTED OPTICAL WATER PROPERTIES IN THE NORDIC SEAS

The IOP variability in the Nordic Seas depends on large scale circulation patterns and mixing of distinct water masses, phytoplankton dynamics and sea ice melting processes. Considering that in the Arctic climate warming was the most pronounced, the environment has changed drastically in the last decade. The increase of the loads of melted water, the area of ice-free surface exposed to solar irradiance that penetrates the water, along with the expansion of Atlantic Waters in the Nordic Seas resulted in a shift of phytoplankton phenology. Particularly, the northward propagation of the opportunistic coccolithophore species has been observed in the high Arctic. The aim of this study was to develop algorithms for remote sensing of the absorption properties in the area, with a particular focus on the Sentinel-3 Ocean and Land Colour Instrument (OLCI). The analysed database had been collected during three field campaigns conducted in following summer seasons 2013 – 2015 in the Nordic Seas. The possible influence of the shift in phytoplankton communities on particle absorption was examined initially. The empirical formulas between the phytoplankton pigments absorption, the particulate absorption and the total absorption at 443 and 670 nm were investigated. The operational performance of the OLCI sensor was taken into account, so relationships were adjusted to its bands. The developed and validated relationships between absorption properties and the remote sensing reflectances of the new spectrometer constitutes a valuable upgrade in case of the dynamic changes in the area and ensures retrieving reliable satellite information from the Nordic Seas.

**Marta Konik**, The Institute of Oceanology of the Polish Academy of Sciences, [mk@iopan.gda.pl](mailto:mk@iopan.gda.pl), <https://orcid.org/0000-0003-1145-9127>

Mirosław Darecki, Institute of Oceanology of the Polish Academy of Sciences, [darecki@iopan.gda.pl](mailto:darecki@iopan.gda.pl)

Justyna Meler, Institute of Oceanology of the Polish Academy of Sciences, [jmeler@iopan.gda.pl](mailto:jmeler@iopan.gda.pl)

Piotr Kowalczyk, Institute of Oceanology of the Polish Academy of Sciences, [piotr@iopan.gda.pl](mailto:piotr@iopan.gda.pl)