

OCEAN OPTICS XXIV

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Monday, October 8

Poster Session 1

16:00–18:00

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STUDY OF VARIABILITY OF SUSPENDED PARTICLES PROPERTIES IN WESTERN-ESTONIAN COASTAL AREAS USING IN-SITU AND SATELLITE DATA

The Western-Estonian bays under investigation are shallow areas where suspended particles in water have two provenances, river input and storm resuspension. These complex waters are also dominated by CDOM coming from the rivers. Study with algorithms found in the literature showed that area specific algorithms are needed. The data set is composed of IOPs, reflectance, particle size distribution and water samples laboratory analyses. This data was compared with Sentinel-2 products. IOP data analyzes showed that suspended matter's inherent optical properties are highly variable within a season and location. Even the parameters like backscattering probability (2 – 3 times difference between locations and years) and specific SPM backscattering coefficient (0.4 – 1.7 compared to the yearly averages), that are usually used in algorithms as constants, vary in a large range. The main purpose of this study is to show the variation of particle size distribution and nature and it's correlation with the backscattering coefficients. The bigger the backscattering coefficient, the smaller are the particles. River outflow is composed of aggregated fine clay, whereas sea bottom of sand and mud. Additionally, time-series maps of particle concentration variability within seasons, stormy events and calm periods are analyzed. In order to increase the applicability of the study, the study sites are compared to a region of freshwater influence of a river Têt, which is similar in size but is located in Southern-France where the climate is warmer, river is torrential and sediments are dominant optically active substances.

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