

# OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Monday, October 8

Poster Session 1

16:00–18:00

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## Poster 125

### REGIONAL OCEAN COLOR ALGORITHM: ADAPTATION FOR THE INLAND WATERS STUDY

The present work discusses an original bio-optical algorithm allowing to estimate concentration of phytoplankton pigments, absorption of gelbstoff and detritus and backscattering by suspended particulate matter in coastal waters of Black Sea using spectral reflectance data. The algorithm is based on series of field measurements conducted in 2002 – 2004 in coastal waters of Northern Black Sea. The measurements included hyperspectral sea reflectance in range 390 – 700 nm with 5 nm step and volume scattering function in angular range 0.8 – 178°, allowing to calculate seawater backscattering. Water samples were collected in order to measure pigment content and absorption by gelbstoff and detritus in the laboratory. The resulting algorithm uses semi-analytical expression for spectral reflectance and a specially designed optimization procedure to calculate the above-mentioned seawater characteristics. Results show good agreement with data of direct measurements of pigment concentration, absorption and scattering. Results of application of the algorithm to the satellite data (SeaWiFS, MODIS) showed higher correlation with direct measurements than standard satellite products. The distinction of the optimization procedure consists in calculating each seawater characteristic in separate spectral site in iterative way. It allows to adjust the algorithm to different bio-optical conditions by changing these spectral sites. The present work shows an attempt to apply the algorithm to the data obtained at Gorky reservoir on Volga River and indicates the prospects of further research in order to develop a regional bio-optical algorithm for monitoring inland waters with high pigment and nonliving organic content using satellite color scanners.

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