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Remote sensing reflectance in optical district areas of South Baltic

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The knowledge about relation between inherent optical properties (for example absorption and attenuation coefficients) and apparent optical properties (for example remote sensing reflectance) is very important to create satellite methods of control for sea and ocean ecosystems. Inherent optical properties are strongly connected with chemical composition of water. They can provide information about concentration and kind of suspended particulate matter. In addition apparent optical properties (definite by conditions of external irradiation, for example: sun position and cloudiness) are closely connected with absorption and attenuation coefficients. Therefore we chose three different types of reservoirs in Baltic Sea to show change in reflectance shape. Here, we want to demonstrate that this apparent optical property strongly depends of absorption and attenuation coefficients. There are date from river mouths (Dziwna and Wisla), Gulf of Gdansk and open Baltic. This three areas have completely different concentration of optical parameters. Samples were collected onboard of the R/V Oceania from April 2008 to March 2010. We calculated remote sensing reflectance, which is one of the apparent optical properties that is often used with remote sensing application for the development of algorithms to retrieve parameter. It was calculated from multi-spectral light meter OCP – 100 (Ocean Colour Profiler) which measured upwelling radiance and downwelling irradiance at seven channels: 412, 443, 490, 510, 555, 670 and 683 nm. We show strong contribution of Baltic water constitutes to remote sensing reflectance. Inherent optical properties (absorption and attenuation coefficients) of sea water were measured in situ with spectral absorption and attenuation meter (ac-9). Water samples for suspended particulate matter (SPM) and concentration of chlorophyll a (Ca) measurements were immediately filtered through GF/F filters.