



Studying luminescent characteristics of the specific surfactants in various regions of the Baltic Sea

V. Drozdowska, M. Darecki, D. Gutowska, P. Makuch, J. Kowalczyk, A. Strzałkowska, T. Petelski, and J. Piskozub

Institute of Oceanology PAS, Physical Oceanography, Sopot, Poland (piskozub@iopan.gda.pl)

The sea surface layer is the interface between the atmosphere and marine environment, where there are a variety of physical, biological and chemical processes that contribute to accumulation and exchange of surface-active-agents (surfactants). At the same time the dynamic properties of the water surface (surface wave spectrum) and fluxes (especially in gas exchange and production of marine aerosol) and even the apparent and real optical properties of seawater are affected by the surfactants gathered on the sea surface. Moreover, the presence of the surface film may restrict the supply of light energy into the depths of the sea.

The study was conducted in different regions of the Baltic Sea which also assessed the impact of external environment (estuaries, vicinity of the ports and shipping routs) on the marine environment. The primary scientific objectives were:

- to investigate the variability of luminescent properties of surfactants and organic matter contained in the surface film and layer of the sea from the results of spectrophotometric studies.
- to find any special surfactants (characterized by luminescent properties) occurring in certain regions of the Baltic.

The practical aim was to answer the question whether and to what extent changes in luminescence properties of organic matter contained in the film and the layer depend on the biological activity of the basin and how they affect the water leaving radiance remotely measured over the surface of the sea.