



## **Small-scale variability of DOM, chlorophyll and suspended matter in some inland water bodies as inferred from UFL-8 UV fluorescent LIDAR measurements**

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Spatial and temporal variability of dissolved organic matter (DOM), chlorophyll and suspended matter in lakes and inland seas can often serve as a proxy for circulation patterns and characterize the state of shelf ecosystems, in particular, those in estuarine areas and regions exposed to anthropogenic impacts. The small-scale variability spanning in the range of only a few meters to first hundreds of meters is perhaps the least well understood because of lack of instruments and methods capable of achieving such a resolution.

The UFL-8 ultra-violet fluorescent LIDAR developed at the Shirshov Oceanological Institute of the Russian Academy of Sciences measures DOM, chlorophyll and suspended matter concentrations in situ, from a moving boat, so one can obtain very high resolution spatial patterns in real time. An on-line GPS unit provides geo-tagging for all measurements.

In this paper, we report the results of the UV LIDAR measurements taken in coastal areas of the Black Sea, Aral Sea, and Lake Balaton during field campaigns of 2006-2008. We focus on identifying characteristic spatial scales for the variability of the parameters mentioned above. The measurements were carried out from research vessels (Black Sea), inflatable motor boats (Aral Sea), and high speed motorboat (lake Balaton). All expeditions were conducted by Shirshov Institute of Oceanology, Russian Academy of Sciences. The survey of Balaton was conducted jointly with the Balaton Limnological Research Institute of the Hungarian Academy of Sciences (A.Zlinszky). We demonstrate that the characteristic scales of chlorophyll-a variability differ from those for the dissolved organic matter and suspended sediment. We also attempt to identify links between the variability patterns, hydrology, and atmospheric forcing.