



The upwelling event in the southern Gulf of Finland in August 2006 on satellite images and in the numerical model results.

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Easterly winds in August 2006 generated strong upwelling event along the Estonian coast of the Gulf of Finland, which lasted almost entire month. The water with temperature of 5 °C from below the thermocline was brought to the surface while the surrounding water temperature was 20 °C. Simultaneous downwelling was observed at the Finnish coast. During upwelling period the cloudiness was rare, which enabled to obtain several satellite images from MODIS instrument installed on satellites Terra and Aqua. Sea surface temperature (SST), chlorophyll a and turbidity distributions were analyzed simultaneously. The SST was low at Estonian coast and rather homogeneous outside the upwelling area. Opposite to the SST distribution a stripe of high chl a values was detected at the Finnish coast during the first decade of August but by the end of August the chlorophyll a concentration is distributed uniformly over the Gulf of Finland. There was no remarkable difference in turbidity values in the upwelling and downwelling regions and in the open Gulf.

The Regional Ocean Modeling System (ROMS) was used for simulation of the particular upwelling event. Our calculations indicate the generation of upwelling zone at the Estonian coast. The upwelling zone broadened in time due to upwelling favorable winds. Weak upwelling filaments started to form that were observed also on satellite images.