

## ***Interactive comment on “Short-term variations of thermohaline structure in the Gulf of Finland” by T. Liblik and U. Lips***

**J. Piechura (Referee)**

PIECHURA@IOPAN.GDA.PL

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1. General comments: Paper describe some mesoscale and submesoscale processes in the upper and intermediate layers of the Gulf of Finland. Description is based on time series of measurements with moored CTD and ADCP. It's interesting, good, needed piece of work. It contributes to scientific progress in oceanographic sciences, since those processes are not well understood and described, its the first such paper at least as far as the Baltic Sea is concerned. The Baltic Sea, because of its strong vertical density gradients and layering on one hand and no tidal movement on author is very good to learn and describe such phenomenas and processes like upwelling, mixing, complicated water circulation, heat fluxes and so on.

Specific comments

C230

Authors used the right data and methods, given description and discussion are presented in appropriate way and in details, some time too detailed analyze makes paper to difficult to follow. Specific remarks: Æ Division of the observed record is not convincing, one could make it slightly different e.g. according to temperature and salinity picture (fig. 2) upwelling started already July the 1st. After wind data do not agree with the described processes in the water column. But I think that authors have right to choose the periods they call quasi stationary as they did according to their knowledge and experience. Æ Term “water masses” has been wrongly used at least 5 time (pp.888,891,892), instead of just “water”. Water masses in oceanography have precise definition and description usually by at least temperature, salinity and quite often place of origin.

Technical corrections Page 891 line 9 there is “oscillations”; of “currents” should be added. Figures are difficult to read. Marking the basic lines: UML depth, BT, CIL depth would help to follow discussion.

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