

Interactive comment on “On the representation of regional characteristics by hydrographic measurements at central stations in four deep basins of the Baltic Sea” by J. H. Reissmann

Anonymous Referee #2

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Review of the manuscript " On the representation of regional characteristics by hydrographical measurements at a central station in four basins of the Baltic Sea" by J. H. Reissmann.

General comments This is a very technical paper aiming at investigating how representative single monitoring stations in different basins in the Baltic Sea are when used to describe hydrographic parameters of respective basin. It is clearly written and has the relevant figures. However, I do not think that the author reaches all the way. Before publishing the paper I think that the author should: a) Define and discuss "...representation of regional characteristics..." in relation to horizontal length scales, time scales and also in the relation to in which context the data is used. b) In connection with this, discuss what physical mechanisms are likely to be found behind the observed variations

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of the parameters within the boxes. c) Meet with my specific comments below.

Specific comments

Section 2 Data basis In my opinion the author misuses the notation “eddy resolving”. Having a baroclinic Rossby radius of about 5 km and a distance between grid points of 4.6 km baroclinic eddies will not be resolved.

The word “quasi-synoptic” should be defined. The time span ranges from about 4 days to 8 days for surveys over distances of magnitude 10 - 20 Rossby radii. This means that the time span is of the same magnitude as signal time for baroclinic waves, and definitely shorter than local effects related to diurnal variations of the wind.

Section 4 Discussion The author comments on the profiles (AB) in the region of the halocline: “Moreover, the general shape of the profiles at the central station differs from that of the corresponding mean profiles which are more smooth.” This should be obvious to the author. It is certainly an effect of the isobaric averaging of profiles, possibly having the same shape, but with varying depth to the halocline. An inverted averaging of the profiles (isohaline) would probably have indicated how representative the central station was. The effect of the isobaric averaging is not so obvious when applied to the summer profiles since these are much smoother (no density jump formed by erosive effects) and the also due to much weaker internal wave motions.

Following this criticism of the averaging method I am not convinced that the relation between the “vertical root mean squares of the deviations of the profiles at the central stations from the corresponding mean profiles” and “the vertical mean values of the standard deviations” is a good parameter indicating how representative the central station is. Also the observation that ‘the EGB comes out better’ could probably be explained by the much smaller portion the halocline occupies of the much deeper station.

Section 5 Conclusions I suppose that the reason for the ‘best matches’ for the B-V

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frequency could be explained by the general smoothing of the profiles in the process of calculation.

Table 10: change m to km for Rossby radius s

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