

The manuscript presents an interesting study of the water balance of the Baltic Sea. The authors are continuing their previous work defining the dynamic topography of the Baltic Sea and using the gathered information to draw some conclusions on the dynamics of the basin. The study seems to be done rigorously and there are no evident problems with it. The biggest drawback is the logic of the text, as it is organized in somewhat confusing manner, some more explanation below.

The introduction is somewhat hard to follow. The general explanation of Baltic Sea characteristics, previous studies and authors' own previous results are not explained in a very logical order. The "traditional" logic to an introduction is "general description – what has been done before – what has been missed – what are our solutions to the problem".

Also in the following chapters the text jumps between what will be done in the current study and what has been done before, sometimes not really explaining the previous results (e.g. RefBias). There are hints to coming results, general explanations and even discussion on the results in the methods part. Chapter 3 should be renamed to results and discussion, as there is not separate discussion chapter in the manuscript. Some of the figures are a bit too busy, e.g. Figure 2 (see below) as well as time series plots showing different basins and happenings (e.g. Figures 5, 8, 9).

The methods used in the manuscript as well as the results and conclusions drawn from them seem to be rigorous and show no problems. With reorganizing the text and clarifying some details the manuscript should be publishable, although with my expertise I am not comfortable to assess the importance of the results from oceanographical aspect.

Some detailed comments:

Line 30-32, p. 1-2 "(iii) limited vertical mixing, as convection, mechanical mixing, entrainment, and advection are known to occur for tidal amplitudes are more or less small." what does this latter part mean? What "are known"?

Line 62, p. 3 "They" at the beginning of the line. Does this refer to HDMs? Or sea level component, or what?

Line 120, p. 5 "a constant geopotential Was its implicit vertical" ? Typo?

Line 122, reference to RefBias is a bit confusing. The RefBias is not used later in the text, why do you want to introduce this term at all?

Line 153-154, p. 6, Eq. (1) the u and v are not explained. They are the geostrophic current's two components, right?

Line 160, p. 6. The chapter starting with "in this study" is a bit out-of-place, and the whole thing is a bit of a mess, own results, others' work, what?

Figure 2 is very hard to decipher with inset without borders, with "seasonal" = winter, spring, summer, autumn?, too many things, blue and red colours?

Line 215, p. 9, should probably be in the discussion?

Lines 257-260, p. 11, The first two sentences seem to explain the same thing, but not the same thing. It is a bit confusing, please check.

Line 427, p. 18, CTD?

Line 542, p. 23 "...were identified ... that identified..." Not very good language.

Line 546, p. 23 "replenishment" should this be a verb: replenishes?