Review of **Non-stationary analysis of water level extremes in Latvian waters, Baltic Sea, during 1961–2018.**

The authors have improved the previous manuscript by adding a section on climate indices, which partially explains the temporal variability of the GEV parameters. This provides additional value to the initial work, also offering a first approach to understanding the sources of this variation in the study area. However, I still have some concerns related to the criterion of the level of statistical significance, which appears to be arbitrary. The importance of this relies on the fact that one of the main results (the linear trend in the GEV parameters) is based on the definition of this level of statistical significance.

In addition to this, minor comments and erratum are included in this second revision. Also, according to the previous review, I recommend improving the overall quality of the figures.

- **Abstract, lines 19-20.** It states that significant linear trends in location and scale parameters are found in Liepāja and Kolka, however, the linear trend in the scale parameter is not significant at Kolka but in the shape (info in paragraph 409).
- In the same sense, the third highlight is incorrect (**line 30**).
- **Line 111.** In this context "observed" and "measured" mean the same thing since they are tide gauge records. I would avoid redundancies.
- **Line 119.** You mention here that data from Parnü have been analyzed in a previous study. It seems this information is better placed in line 173, where you again speak about previous studies that analyzed data from tide gauges in the area.
- **Line 221.** The same information about particular cases of GEV distribution is mentioned two lines above.
- **Line 254.** The brackets seem to be misplaced. Similar comment in line 291 about quotes.
- **Line 321 (page 14).** You mention that the location parameter doesn't show significant changes, I would include here which significance level is considered.
- **Line 339.** The sentence "*some locations and spatially variable pattern of its variations*" sounds confusing.
- **Paragraph starting in line 409**. If I understood correctly, the linear trends are not statistically significant (>95%) in any of the GEV parameters anywhere. You use the 95%

criteria of statistical significance in section 3.4. However, you lower your significance criterion to 80% here, so the linear trends in two parameters in Liepaja and Kolka becomes statistically significant. This fact allows you to highlight the differences in water level extremes between the sites inside and outside the inner area of the Gulf. Therefore, the 80% statistical significance criterion appear to ne non- objective.

In the same vine, the paragraph ends stating that "*the presented features indicate an intrinsic difference in the behavior of the water levels extremes in the inner area of the Gulf of Riga compared to the stations that reflect water level in the Baltic proper*", which is not correct since the trends are not statistically significant. If the 80% significance criterion is accepted, you might include a table showing the significance level found for all other sites, so that the reader can actually make a comparison between those sites in the inner area and those outside it.

It would also be interesting to see the values of the linear trends when significant. For instance, one might expect the linear trend in the location parameter in Kolka to be very small, but this is not shown in the paper.

- **Line 450.** In Figure 6, it is included the 50-yr return levels for all sites. However, this is not discussed in the main text (neither in methods or in results sections).
- **Line 531.** Add the statistical level you are using.

- **Figures.**

1) You are using "Fig." and "Figure" indistinctly (line 161). I also wonder if you have to use the same nomenclature as in the figure legends (when you always use "Figure").
2) The numbering of the figures is incorrect from Figure 3 onwards. There is no agreement between the legend in the figures and the main text.
3) I strongly encourage you to improve the quality of the figures, including (using the numbering of the figures):
    3.1)   the overall quality of the graphics (sometimes they seem blurry, Figures 3 and 4 are an example);
    3.2)   matching the font size of the figures with the main text as much as possible and also the font name. Figure 3 is an example of different font sizes that makes it

a bit messy. Also, the labels on the y-axis as well as the legends are so small that are difficult to read.

3.3)   Figure 3 can perhaps be improved by trying a combination of horizontal and vertical positions of the subplots so you can make them bigger.

3.4)   same layout for figures when possible. For instance, the cases of Figure 3 to Figure 5.