Following the first round of reviews of the paper by Na. et al., the authors responded to most of the minor comments and performed an additional statistical analysis in response to some of the major comments. While the tasks of the paper and the results achieved are now clearer, there are still important issues in the methods section to consider.

In response to the authors' comments on the main points.

1. The characteristics of the LOWESS method in the process of removing long-term trends are highly dependent on the specific task. In the cited paper by Li et al. (2024), the authors additionally investigate the cyclical dependencies of trends and their relationships, which led to the choice of smoothing span (f) = 0.25. However, the task addressed by Na et al. does not involve determining the periodicity. The goal is simply to remove the overall trend in data changes within a time window. To achieve this, the window parameters are expected to be different from Li et al. This requires justification and explanation of the choice, which is currently absent. Therefore, it remains unclear why the authors used (f) = 0.25, robustness iterations = 3 for the detrending procedure.

2. In their response to the comment, the authors assert that the results of the sensitivity analysis do not depend on the window length. This could be stated if there are more than two sets of results with different window lengths - very short, medium, and long (it is a required minimum). Furthermore, we cannot ignore the specific characteristics of the LOWESS algorithm, which also uses a sliding window algorithm that could potentially influence the use of similar algorithms in subsequent stages. Therefore, the window length parameters used to determine sensitivity and those used for detrending must be consistent and synchronised. This is currently lacking in the paper, and the authors' response cannot be used as a basis for selecting the time window length.

3. The authors based their response on monotonic behaviour of the sensitivities. This statement causes disagreement. The nature of the behaviour of the sensitivities individually and their relationships does not allow us to conclude that they are monotonic. In addition to this comment see the next comment below.

4. In addition to the authors' response, it should be noted that for "ideal" linear relationships f1 = b1*x + a1 and f2 = b2*x + a2, the ratio of their values when x are equal is defined as b3 = b1/b2. Given the stochastic nature of the relationships, it can be argued that the closer the trends f1 and f2 under study are to linear relationships, the closer the values of the statistically determined ratio are to the "ideal" value, and vice versa: a significant difference between these two parameters indicates nonlinearity or non-monotonicity in the trends f1 and f2. Therefore, it is not possible to determine the characteristics of linear correlation between these trends or to use the corresponding tools of linear correlation analysis. Instead, it becomes necessary to investigate the behaviour of the trends in question and to look for suitable tools.

In response to the authors' comments on the minor points:

3. Unfortunately, the given information does not reveal the content and significance of the improvements the authors have made to the basic method, so the original comment remains relevant.

6. One can agree with this statement if GPP sensitivity varies (in either direction) in a small number of regions. Therefore, to support this claim, authors could provide an estimate of the ratio between

the number of regions where it remains relatively constant and those where it varies. In addition, it would also be useful and interesting to include additional markings on the map indicating the regions where GPP sensitivity has changed.