

## ***Interactive comment on “Removing spurious inertial instability signals from gravity wave temperature perturbations using spectral filtering methods” by Cornelia Strube et al.***

### **Anonymous Referee #1**

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This article presents an organised, informative, and well written study on the important topic of separating inertial instability signals from gravity waves. I recommend this study for publication in AMT after minor revisions.

General Comments: Please go through the text, captions, and figure axis labels including the word ‘perturbation’ and consider replacing the word or adding language to be more explicit. At different times in the article ‘perturbation’ can refer to difference, standard deviation, or variance. I found myself as a reader having to go back in the text and remind myself what type of perturbation was being discussed.

Specific Comments: P3L130-135: Uncertainty estimates of pointing jitter found in

C1

Remsberg et al. (2008) may be underestimated. A French lidar study Wing et al. (2018) showed larger than expected variations in SABER temperatures when compared to co-located lidar at OHP. Variations were partially attributed to pointing jitter. The same study also reported a seasonally evolving geopotential bias which had a complex altitude dependence. It might be worth mentioning in Section 4.1 the minimum precision of SABER temperatures may not account for any additional uncertainty coming from inaccuracy in the altitude.

P7L192: Please add a brief justification for the critical wavelength of 15 km. Maybe introduce some of the information from P11L314 here or indicate that the choice will be discussed later. It was not perfectly clear on the first read through.

P14L413: please add the word variance somewhere in this sentence for clarity

Technical Corrections: P10L276: “squared”

Figure 1 Caption “positive”

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