

Review of the paper by Wilgan et al: Towards operational multi-GNSS tropospheric products at GFZ Potsdam

The authors compared tropospheric parameters (zenith delays, gradients, slant delays) from different GNSS setups (GPS, GPS+GLONASS, GPS+GLONASS+Galileo) against each other and against parameters derived from numerical weather models (ERA5, ICON). For the first time, the combined all three GNSS and they find good (expected) agreement in their tests. These assessments are carried out globally as well as for GNSS stations in Germany. This is a rigorous comparison, adding new aspects to a long history of studies in that field, which I recommend for publication.

*[KW] Dear reviewer, thank you for your review. We answer to your comments below. The changes in the manuscript are marked in blue.*

I only have minor comments and suggestions:

Please do explain the 24 h sliding window technique with more details. What does it mean to use a 15 min sampling in that case? And a 2.5 min sampling rate for slant total delays?

*[KW] We apologize, but we made a small mistake here. We use the sliding window approach for the operational processing. In this technique, the estimates for each hour are calculated based on the past 24 h of the data and for the next hour we use the previous 23 h plus the new hour, etc. The estimates for this manuscript were post-processed, thus the tropospheric parameters are adjusted using 24 h data intervals (it is more computationally effective and yields similar results). We then removed the information about the sliding window technique from the manuscript. The sampling rates are the same, i.e. 15 minutes for ZTD/IWV/tropospheric gradients and 2.5 minutes for STDs, which means that every hour we calculate 4 values of ZTD/tropospheric gradients and 12 values of STDs.*

I understand that atmosphere non-tidal loading is not applied. Is that correct?

*[KW] Yes, it is correct. Only the tidal loading according to the IERS convention is applied (added in the manuscript).*

Figure caption 3: Average formal error of which parameter? Please add to the caption that this is for ZTD.

*[KW] Added.*

Line 135: I am not sure whether it is correct to say that the ZTD variation is larger close to the equator. I think you can only write that the ZWD is larger. ZHD variations is much larger at higher latitudes.

*[KW] We only left the information that the delays are larger close to the Equator.*

Add to the captions of figure 7 and 8 that these figures are for ZTD.

*[KW] We added the information to all the captions.*