Comments

The developed a new vertical lapse-rate model to enhance the performance of VMF1/VMF3-based ZHD and ZWD interpolation. Generally speaking, the manuscript is well-written, but some minor revisions may improve the quality of the paper.

[1] Since the tropospheric delays should be mitigated in many space observations, "in GNSS applications" can be removed from the article title, as the model's application scope can be broader.

[2] The authors provided a detailed introduction to the accuracy and applications of VMF1/VMF3 ZTD, but does not seem to address the urgency of improving the accuracy in the introduction part. Thus, the authors are encouraged to revise the introduction part.

[3] Is it necessary to introduce Equation (7) if it is not used in the modeling and evaluation?

[4] "Since the horizontal resolution of the reference data coincides with the VMF1 and VMF3 products, temporal interpolation and horizontal geospatial interpolation were not needed to carry out for the model evaluation." Should be corrected to "Since the temporal and horizontal resolution of the reference data coincides with the VMF1 and VMF3 products, temporal interpolation and horizontal geospatial interpolation were not needed to carry out."

[5] The time resolution, accuracy, data availability (percentage of usable data) and quality control of the GNSS ZTD product should be introduced detailly.

[6] What does γ in equation（16） mean, please specify.