

Interactive comment on “Cross-validation of GPS tomography models and methodological improvements using CORS network” by Hugues Brenot et al.

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The answer is in PDF format

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Interactive
comment

Author's Response to RC1 (7 December 2018):

In this author's response, the text (normal style) answers point by point to the comment of the anonymous Referee #2 (text in bold). The text in blue correspond to author's change in the manuscript.

Before starting properly this answer to RC1, we would like to mention this 2 corrections that have been applied to this manuscript:

- 1) the affiliation of Riccardo Biondi has been changed to:

Dipartimento di Geoscienze, Università degli Studi di Padova, Padova, Italy

- 2) The error in the name of one of the author has been corrected: [Damian Tondas](#), not Damian Tondás

RC1 from the anonymous Referee #2:

This paper analyzes a number of variants which influence the quality of tomographic result using five models. Radiosonde and GNSS RO data are also used to validate the tomographic result. Generally speaking, this paper is well-organized and may have some reference significance, but still has some places requires clarified. Based on this, I recommended this paper for a moderate revision.

Specific comments:

P1128-30, I don't think this expression is proper. Yes, more observations can be obtained but with similar paths, which would increase the instability of the design matrix of tomography model.

The expression you speak about is the following: "However, the use of data stacking and pseudo-observations can significantly improve the quality of the retrievals, due to a better geometrical distribution and a better coverage of mid- low-troposphere parts."

I agree with the fact that the use of stacking (5 minutes) brings quite similar paths, but the use of pseudo-slants is different in term of paths, and especially in term of geometric matrix (lower troposphere, with a better scan and more voxels are crossed for other layers). For this reason, no modification of the text is applied. I also agree that stacking will have negative impact on the time resolution, which means that it is assumed that for all stacked observations refractivity is constant.

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Fig. 1.