

Interactive comment on “Constructing Precipitable Water Vapor Map from Regional GNSS Network Observations without Collocated Meteorological Data” by Biyan Chen et al.

Anonymous Referee #2

Received and published: 14 June 2018

Dear Authors, This is a very interesting manuscript which applies well-used methods to the GNSS-derived ZTD from Hunan, China. I have no major comments on the scientific contents. It is well written with minor grammatical and spelling mistakes. However, they are a few of which some I have pointed out in the annotated manuscript I have uploaded (amt-2018-083-supplement.pdf).

General comments:

1) You do not mention how the GNSS data have been processed or where the solution is from. Clearly GNSS-derived ZTD are not raw observations and a couple of sentences on this step or a reference pointing to details of the GNSS processing strategy

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are required.

2) Figure 1. Change the colour scheme of this figure to something more commonly used for the presentation of topography. For example, low lying areas should be in green and high areas in brown (green-orange-yellow-red-brown). Also, I did not notice the legend at first. It might be useful for other readers if you box it in and make the background of the legend white.

3) You have only employed the GPT2 model. It is well known that this model can only reflect the annual variation in p and t and not the daily fluctuations. For this the values from the VMF1 model (although derived from ECMWF) would be more adequate for the comparison. As there is a VMF1 model for forecasts, you could also employ this in near-real-time.

4) Section 4.2. You mention the wet/dry biases between the PWVs from GNSS and radiosonde data. There are references out there and you should mention that other authors have found similar biases, linking your work more to previously published work. Where do the biases come from?

5) Additional reference, place as indicated. Guerova, G., J. Jones, J. Dousa, G. Dick, S. de Haan, E. Pottiaux, O. Bock, R. Pacione, G. Elgered, H. Vedel and M. Bender (2016). "Review of the state-of-the-art and future prospects of the ground-based GNSS meteorology in Europe." Atmos. Meas. Tech., 9, 5385-5406, <https://doi.org/10.5194/amt-9-5385-2016>, 2016.

6) minor comment: often when you talk about ECMWF you actually mean the ERA-Interim reanalysis, hence ERA-I would be a better abbreviation.

Please also note the supplement to this comment:

<https://www.atmos-meas-tech-discuss.net/amt-2018-83/amt-2018-83-RC2-supplement.pdf>

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