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Atmospheric Measurement Techniques Discussions
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Interactive comment on "Benchmark campaign and case study episode in Central Europe for development and assessment of advanced GNSS tropospheric models and products" *by* J. Douša et al.

Anonymous Referee #3

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This work is very interesting for both geodetic and meteorological communities in the framework of the ES1206 COST Action. The description of the data collected is very detailed and the data itself very completed having included radars, WVR data, radiosondes and synoptic data apart of several gnss products.

However, the test of the quality of GOP and GFZ gnss products by the comparison of the ZTD gnss with the three models described and also the subjective comparison of ZWD or horizontal gradients maps against the models could be more complete by using the other observations you already have for any of the case studies you describe. In

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particular, in case of the comparison between the gnss ZTD vs the models, the results are difficult to understand if you don't study first how each model you present here performs in the case study, (if they are too humid or dry etc), because when comparing a product it should be with something you could trust (or if not knowing why).

Maybe not so many explanations and maps describing the weather on these two months are necessary, just a general description of the period and then a detailed explanation of the case study chosen to perform the comparisons.

Very good job anyway, and complicated to accomplish, many data and long period. Differences of hydrometeors sounds very well for nowcasting purposes.

More comments:

2.2. P5,L:18: Numerical Weather Prediction models

2.3. P6, L: 1-5: Not the best words to describe the weather, (Mostly 'quiet', heavy 'raining', larger region instead of large...). And what is Sect 0 ?

3. P7, L2 and L5: Section 0 ?? About this section, probably not so many individual case studies explanations are needed, just the ones you are comparing afterwards, (like 31 may for example)..

3.1. Figure 2: The description on the text do not tell which stations the precipitation belongs to (It is said on the legend of the figure but not on the text). Also X-axis could be clearer. Apart of this, a detailed explanation of the precipitations amounts is given for may and june, and this plot is not very clear to see it.

P7, L21: Typo May 31-31

P7,L25 and 26: Why aren't they inside the next section 3.2 if they are referred to june ?

3.2 P8, L 5-10_ 'Professional 'meteorological stations... are they referred to synop stations? Do the stations give the feeling on a rain episode?..

4.1. Table 1, brief explanation may be needed in the text.

4.3. Table 2, brief explanation may be needed in the text.

4.4. When you describe ALADIN-CZ model you don't explain if it has Data assimilation, what kind of D.A. and which data it assimilates. Better description of the data assimilation (especially sources of humidity) of the models used may be needed, so it may be easier to explain afterwards the biases/SD with one model or other.

5.2 P14, L12, you say Table 1, isn't it 5? It could be interesting doing this comparison also with radiosonde (RS) data and gnss sites collocated with radiosondes: model-RS-gnss.

5.3. P14, L 22; Section 0 again.

Figure 9: It could be interesting compare these figure of ZWD of 31 may with another image, radar, satellite WV, or even accumulated precipitation the day after, that permit to do any other validation of this maps, looking to any correspondence with real data.

6. P16, L23: This part could be inside section 5, and not in the conclusions.

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