Atmospheric
Measurement
Techniques
Discussions

# *Interactive comment on* "An Assessment of the Impact of ATMS and CrIS Data Assimilation on Precipitation Prediction over the Tibetan Plateau" *by* Tong Xue et al.

**Anonymous Referee #2**

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Review of the paper: An assessment of the impact of AMTS and CrIS Data Assimilation on Precipitation Prediction over the Tibetan Plateau. By: Xue T. et al.

General comment

This paper shows a study on the assimilation of two instruments (advanced technology microwave sounder (ATMS) and cross-track infrared sounder (CrIS)) on precipitation prediction over the Tibetan Plateau (TP) in July 2015. The result shows that AMTS data assimilation improves the results, while the assimilation of CrIS doesn't give better results. The paper is interesting and the arguments well fit the aims of AMT, so it deserves publication on the journal. There are however, some flaws that prevents the publication of the paper in the current form. The main problem is that the argument is

not presented very well, with mistakes and sometimes unclear sentences.

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Major points

A thorough review of the English of the paper is needed by a mother tongue. Sentences are sometimes unclear and the language is often not precise. I wrote some errors below (minor points), however I'm sure I missed some of them. The figure caption are often too short and do not explain what it is shown in the figures.

Section 2.1.2 Observation data

Even if there is the reference to a previous study on the performance of the CMORPH dataset for TP (Guo et al., 2014), it is interesting to have some more detail about it, especially about its performance on the TP, considering that the raingauges are sparse over the TP.

Section 4.1 – Lines 255-264

I cannot understand what is shown in Figure 4. If the panels a) and c) are observed values for July they should be the same , while they show different values. Explain.

Section 4.3

Details need to be added on the computations you did in Figure 10, including the mathematical formulation.

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Minor points

Line 36: "hourand" -> "hour and".

Lines 42-45: reformulate the last sentence of the abstract because is not clearly understandable.

Line 75: Put a dot after "2008)".

Line 85: two dots after "2013)".

Line 96: change "has" with "had".

Line 113: "The GFS data are . . ."

Line 173: two dots after "1998)".

Lines 291-294: The two sentences are unclear. Please, rewrite.

Line 314: put a space between events and "(".

Line 316 and after: I would not call a 6 mm/day precipitation as a "heavy rains". Check thorough the paper.

Line 316: "between" is "among".

Line 359: In the figure 10 the period is 3-5 July and not 3-6. Please change.

Line 374: The score shown is FSS not ETS.

Line 383: Figure 10l does not exist.

Line 385: Change "This phenomenon" with "This result".

Line 386: Figure 10 refers to CNTRL and not to DA experiments, likely you would refer Figure 11.

————— Figures

Figure 2: It is unclear what is shown on the right-y axis. The Figure caption must clearly state what is represented.

Figure 4: The Figure 4 caption must be rewritten. It is unclear. "Spatial pattern of the monthly mean precipitation in July 2015". I believe it is the daily precipitation averaged for the month of July 2015.

C3

Figure 8: title is "precipatation".

Figure 10: the period is 3-5 July not 3-6 July. In the caption, "precipitation quantity" is "precipitation".