

Interactive comment on “The CM SAF SSM/I-based total column water vapour climate data record: methods and evaluation against re-analyses and satellite” by M. Schröder et al.

Anonymous Referee #3

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This paper provides information on how the long term daily and monthly column integrated water vapor data were produced through homogenization of DMSP SSM/I brightness temperature measurements and by kriging objective analysis method to fill the gap, and validation results against other SSM/I product and reanalysis products. Considering that long-term water vapor data have been valuable and important for climate analysis; for example water vapor trend analysis has been a core of water vapor feedback and circulation changes under the global warming condition. It is true that there is no absolute standard or true value of water vapor amongst data sets used in this study. However, it is always valuable to add independent data set, in addition

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to existing data sets, not only because of quality assurance but also benefits to understand retrieval characteristics and to have different views on the derived scientific implications. I am sure that this type of data set will bring in much benefit to the science community, especially in climate science area. For the given importance and impact, I recommend the paper to be published in Atmos. Meas. Tech. Nonetheless I request to improve manuscript by clarifying some places which the reviewer thought are somewhat confusing. My minor comments are following:

Title: against satellite does not sound all right. It would be other SSM/I product.

6424.5: WVPA – I am not sure about what it is. It doesn't seem to be linked to total column water vapor.

6424.23: Since there is no standard value, the absolute bias misleads the meaning. How about relative bias?

6427.1-7: This paragraph appears not to be finished. Make the paragraph more complete.

6430 Eq. (1): The equation is expressed with perturbations because variables were then treated to produce variance and covariance. Please say so.

6430 Eq. (2) In the parenthesis, sign should be positive, consistent with in Eq. (1).

6430. 16: $\Delta x_i / \Delta x_j$; i should not be same as in (2) because $i=1, \dots, n$. You cannot simply use i, and j here. Better find another notation, and $i = \text{dummy}$, $j = \text{dummy}$ too. Please clarify this.

5430. 18: Is the second assumption spatial correlation?

6432. 8: What is 'there intermediate means'? Is it gridded data in different times? Better to describe it.

6434. 2: How did you obtain the climatological averages here?

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6433. 6: Provide some reasoning of high standard deviation near the edge of high humidity area. It may be related to seasonal progress of the humid area.

6433. 10: I cannot understand what the time series average is? It needs to be clarified.

Typos

6434. 4: A comparison is made to he WVPA....

6434. 22: radio →radiosonde

6435. 2: precursor →previous

6441. 15: where →when

6442. 4: a another→another

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 6423, 2012.