**Atmospheric
Measurement
Techniques
Discussions**

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 #1

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This paper presents an improved record of daily and monthly SSM/I TPW over ocean, processed with homogenized brightness temperatures and an improved HOAPS algorithm. It represents an improvement over previous versions of the SSM/I TPW dataset. As water vapor is a principal greenhouse gas, it is important to have high-quality observational datasets to monitor any significant increases in TPW. The presented dataset compares well to other well-known TPW datasets from both observations and re-analyses.

Specific Comments:

Page 6426 Line 24 :A paper was recently published in Geophysical Research Letters describing the NVAP-M dataset and indicates the temporal coverage will be 1988-2009.

Page 6428 Line 2: SSM/I was not included on DMSP F9, and did fail on F12

Page 6428-29 Section 2.1: This section is somewhat confusing as written. You first state that the retrieval algorithm uses only the 19 and 22 GHz channels, then in the last paragraph mention that the algorithm was modified to not use the 85 GHz channel due to its failure on F8. It would be more clear to state up front what channels the algorithm uses, then that it was modified.

Page 6435 Paragraph 2: Was homogenized SSM/I used in HOAPS V3? Could there be differences in the two products due to the use of a homogenized Tb dataset in one and not the other?

Page 6436 Section 3.4: What version of RSS SSM/I TPW was used? V7 had higher TPW at higher values than V6 and could impact your results somewhat.

Section 3: All comparison data include SSM/I in some way. A comparison to a completely independent dataset, such as TOPEX or TRMM-TMI from 1997-2006 would strengthen your argument for successful monitoring of oceanic water vapor trends.

Section 3: Was there any accounting for the kriging error in the comparisons? That is, were areas with high uncertainty values due to interpolation included in the comparisons with other data sets as well as in the trend analysis? If so, how was this high uncertainty accounted for with respect to RMSE, bias, and trend calculations?

Figures 3 and 7: Are somewhat difficult to read without being very close up and could stand to be improved.

Technical Comments

Page 6425 Line 26: No comma needed after "transports"

P 6429 L 21: No comma needed after "Kriging provides both"

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P 6434 L 4: First sentence is not complete. Assuming something like "is performed" is missing from the end.

P 6436 L 26: "are" is needed after "RMSE"

P 6439 L 11: A comma is needed after "information"

P 6440 L 13: "inner" should be "inter"

P 6441 L 8: "than" should be "as". Overall this sentence is not clear.

P 6442 L 4: "a" after "establish" should be removed.

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

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