

## ***Interactive comment on “Validation of stratospheric water vapour measurements from the airborne microwave radiometer AMSOS” by S. C. Müller et al.***

**S. C. Müller et al.**

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Thank you for the detailed comments. We will try to address to all your points of criticism except for the minor comments, which We will apply in the final revision.

***...the matching criteria of 10 h and 500km radius can cause some problems in presence of strong PV gradients...***

***p. 1644, l. 17-18. 550 km radius and 10 h for matching criteria***

We agree with that comment and we are aware that this can cause problems in the presence of the vortex edge with strong PV gradients. We applied the criteria everywhere the same for equal treatment. When defining a smaller criteria our number of collocations decreases rapidly. Most of our cases do not deal with the vortex edge. As

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can be seen in Figure 6 only Aura/MLS and MIPAS have collocation pairs within both the polar and the tropical region. That was the reason that only for these two we split in two sections in Figure 9.

**...only 2 coincidence where found...**

As we already pointed out we can not make statistics with SAGE II, HALOE and ODIN/SMR because of the low number of coincidences but nevertheless we think these are important comparisons cases because SAGE II and HALOE have the same characteristics to AMSOS as POAM and MIPAS $>45^{\circ}\text{N}$  and AURA/MLS $>45^{\circ}\text{N}$  and ODIN/SMR has a nice agreement with AMSOS.

**p.1640, l. 15. If I remember correctly, ERA 40...**

H<sub>2</sub>O volume mixing ratio H<sub>2</sub>O<sub>v</sub> was derived from the specific humidity Q according standard conversion equations.

**p. 1640, l. 23. How do you link the US-Standard Atmosphere with the ERA40 profile?...**

The change is at the intersection point of the ERA40 and the US-Std profile in about 45 km altitude. From an earlier study (Feist et al, 2007) we know that ERA40 values at the top in the stratosphere diverge from observations.

**p. 1648 l. 18-20. If I understand well, all the last three cases in figure 11 are in presence of cirrus clouds...**

There is an enhanced uncertainty in and around clouds for the DIAL system. In case of the Microwave instrument ice clouds are not critical. We agree with your suggestion to leave these cases away.

**p.1649, l. 4-5. Looking at figure 12a), it seems that FISH has more measurements points than FLASH...**

That is true because of the fact that FLASH was not operating then.

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