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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Geophysical validation of temperature retrieved by the ESA processor from MIPAS/ENVISAT atmospheric limb-emission measurements" *by* M. Ridolfi et al.

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Here are the replies to the specific comments from Luis Millan-Valle (Atmos. Chem. Phys. Discuss., 7, S2505 - S2506, 2007).

1. **P.5441, L.4**. We agree, in the revised version of the manuscript we will specify that the spectral resolution is given in terms of the FWHM of the unapodized Instrument Line Shape.

2. **P.5441, L.9**. Ok, in the revised version of the manuscript we will specify that pressures at the tangent points are also included in the MIPAS Level 2 products.

3. **P.5447, L.18**. Giving the operational range of radiosondes in °C and the er-

ror specifications in K is a well established usage among meteorologists and manufacturers. Therefore, since this comment seems only a question of "personal feeling" we prefer to keep using the original terminology also in the revised manuscript.

4. **P.5453, L.14 and L.16**. Ok, to add the units (km) after "10.5" in both lines.

5. **P.5503 and 5504 Fig.s 6 and 7**. The largest differences are observed in the Northern winter period (edges of the plots). This behavior is in agreement with the predicted horizontal smoothing error (see the solid red curve in the plots and the discussion at P.5461, L.2 to 9). Both the horizontal smoothing of MIPAS and the coincidence error are largest in winter time because the horizontal variability is also largest due to planetary waves that can propagate during winter. This is mainly due to the larger meridional circulation but large temperature grandients can be found in both directions. During summer, due to the wind direction, planetary waves can not propagate and therefore the atmosphere is dynamically more quite (see Salby, M.L., Survey of planetary scale travelling waves, the state of theory and observations, Rev. Geophys., 22, 209-236, 1984). In the revised version of the manuscript we will include this explanation as well as the above cited reference.

6. **P.5462, L.4 to 6**. We checked very carefully here. The statements in these text lines clearly refer to Fig.s 8 and 9. The captions and the labels of Fig.s 8 and 9 are consistent with the statements reported in the text.

7. **P.5462, L.18**. This comment is in error, all SPIRALE measurements are in-situ measurements. As stated at lines 21 to 23 of page 5462, SPIRALE measures the absorption of mid-infrared laser beams that takes place in an air-open Herriott cell, between two mirrors. Hence, the air mass absorbing the radiation of the laser is only the air within the mirrors of the spectrometer, therefore SPIRALE performs only in-situ measurements.

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8. **P.5513, Fig.16**. The behavior of the discrepancies versus altitude is mostly constant versus time because, most likely, the discrepancies are due to a problem in the ECMWF model. This is explained in the manuscript: see page 5485, lines 5 to 16.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 5439, 2007.