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Atmospheric Chemistry and Physics Discussions

Interactive comment on "IASI temperature and water vapor retrievals – error assessment and validation" *by* N. Pougatchev et al.

Anonymous Referee #2

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The paper presents the linear statistical Validation Assessment Model (VAM) and its application for the IASI retrievals of temperature and humidity profiles in comparison with the radiosonde data obtained during IASI validation experiment over Lindenberg station in summer of 2007. The theoretical results are based on the solid mathematical background and demonstrate the deep authors' understanding of the validation procedure in general. The most valuable point of the developed approach is to take into account, besides routine retrieval errors, non-coincidence errors too (both spatial and temporal between validated and validating measurements) for accurate estimation of the total error budget. The obtained results consider to be general and of great importance for proper validation on practice.

The figures illustrate well the application of the VAM for IASI validation and are neces-

sary for clear understanding of the results. Overall, the assessment of IASI capability to retrieve the temperature and humidity profiles seems to be reasonable and consistent with the information content of the measurements.

The paper is definitely worthy of publication in Atmospheric Chemistry and Physics. The following minor suggestions aim to improve the paper performance:

1. It is hard to understand relations derived in Section 2.2 without careful reading of referred paper Pougatchev (2008). One may be recommended to discuss the topic in more details.

2. It should be noted that increase of the temperature and humidity errors below 900 mb may be caused not only by undetected clouds, haze, or uncertainty in the surface radiative characteristics, as stated by authors, but also (and mainly!) due to the lack of sensitivity of any satellite sensors at the bottom of the atmosphere.

3. There is a repeating sentence at the paragraph 2 from the top, page 8.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 7971, 2009.