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Atmospheric Measurement Techniques Discussions

Interactive comment on "Validation of the CrIS Fast Physical NH_3 Retrieval with ground-based FTIR" *by* Enrico Dammers et al.

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Author comment

We made a number of small edits to the text to improve the readability of the manuscript. The changes made are the following;

Added a figure to the appendix to improve comparability of the results of the IASI and CrIS retrievals.

Line 366: added "To put the results of this study into perspective of the IASI-LUT and IASI-NN products we added Figure A1 to the Appendix, which shows the total column comparison for both products."

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Inserted caption:

“Figure A1. Correlation between the FTIR and the IASI-LUT (left, blue) and IASI-NN (right, red) total columns using the coincident data from all measurement sites. The horizontal and vertical bars show the total estimated error on each FTIR and CrIS observation. A three sigma outlier filter was applied to the IASI-LUT dataset and the same observations were removed from the IASI-NN set. Contrary to the earlier study by Dammers et al., (2016a) no thermal contrast filter was applied to the dataset.”

We changed the numbering of the other appendix figures to match the new order.

Shortened and slightly edited the abstract for readability.

Line 44: Added “(<1.0x1016 molecules cm-2)”.

Line 45: Removed “and the FTIR total columns are smaller than 1.0x1016 molecules cm-2,”.

Line 46: Removed “are small with CrIS showing”.

Line 47: Added “show”.

Line 47: Removed “around +2.4 x 1015 (standard deviation = $\pm$5.5 x 1015) molecules cm-2, which corresponds to a relative difference of $\sim$+50% (std = $\pm$100 %).”

Line 48: Added “The CrIS and FTIR profile comparisons differences are mostly within the range of the estimated retrieval uncertainties single level retrieved profile values showing average difference in the range of $\sim$20 to 40%”

Line 50: Removed “for these comparisons”

Line 51: Added “into the boundary layer that typically peaks at”

Line 51: Removed “to”

Line 52: Added “($\sim$1.5 km)”

Line 52: Removed “and”

Line 52: Removed “retrieved profiles also compare well with the”

Line 53: Added “is”

Line 53: Removed “of”

Line 53: Added “std =”

Line 53 Added “,”

Line 53 Removed “and a”

Line 53: Added “%”

Line 53: Added “std =”

Line 54: Removed “Most of the absolute and relative profile comparison differences are in the range of the estimated retrieval uncertainties. However, t”

Line 56: Added “At the surface, where CrIS typically has lower sensitivity,”

Line 55: Removed “he CrIS retrieval does”

Line 55: Added “it”

Line 56: Added “s” to “tends”

Line 56: Removed “the concentrations in the levels near the surface at”

Line 56: Added “under”

Line 56: Added “conditions, and underestimate under higher atmospheric concentration conditions.”

Line 58: Removed “, most probably due to the detection limit of the instrument, and at higher concentrations shows more of an underestimation of”

Further small edits readability in main text

Line 25: Edited the email address as the old one is no longer viable (change of institute)

Line 71: Added “,”

Line 97: Added “can”

Line 97: Removed “and”

Line 107: Added “,”

Line 110: Added “,”

Line 192: Changed pseudo-lines to Cross-sections

Line 442: Removed “which”

Line 443: Added ”,”

Line 445: Added “,”

Line 462: Removed “.”

Line 463: Removed “Because of”

Line 463: Added “Due to”

Line 608: Removed “and Jacob Siemons (ECCC)”

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2017-38, 2017.

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