Interactive comment on “Retrieval and validation of carbon dioxide, methane and water vapor for the Canary Islands IR-laser occultation experiment” by V. Proschek et al.

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Here are some comments that I noted down when reading the paper. Figure, page, and line numbers refer to the original submission, so may deviate from the AMTD version.

1. Figures 4 and 5: Near 4772.0 cm⁻¹ there seems to be a quite strong H₂O line in the simulated data that seems to be completely missing in the measurement. Even in the filtered simulated data in Figure 5 this line is still clearly visible. Can this apparent discrepancy be explained?

2. Page 15, line 502: "This would enable to reduce this uncertainty component in a
follow-on experiment to smaller than 0.2%." I think this number needs some justifica-
tion.

Reducing the spectroscopic uncertainty component from now 10% to 0.2% seems
to require a reduction in spectroscopic parameter uncertainty (line intensity and line
broadening) by a factor of 50. It is not self-evident that such a large improvement is
feasible, given the usual systematic errors in laboratory spectroscopy measurements,
particularly for the broadening parameter.

3. Page 15, lines 513-515: "Table 6 (fourth column) shows that this fairly limited knowl-
edge on H2O that we could get during the campaign strongly governs the uncertainty
that we need to conservatively attribute to the H2O retrieval results." I do not under-
stand the logic here. I thought Table 6 lists retrieval errors, not validation data uncer-
tainty. Why does the limited validation data accuracy for H2O lead to a higher retrieval
error?