

Reviewer #1:

We thank the reviewer for constructive comments regarding our paper

1. 1987:5 "very thorough" - I suggest a change of tone here, as it comes across in a way that I do not believe is intended. HITRAN is, of course, very thorough in its handling of data that enters its line database. But it is also a monumental undertaking and it is no surprise that occasionally errors do creep in, which are acknowledged on the HITRAN website at <https://www.cfa.harvard.edu/hitran/>. I suggest something like "we welcome interaction with users where they have good reason to believe that they have identified possible errors in the most recent version of the database", either here or in the conclusions.

We agree that a reader might interpret this in a way we did not intend, so we removed "very thorough"

2. 1994:21. It is strange to find HF in the subsection (3.4) related to HO2. This confused me when I revisited the paper. I suggest adding a new subsection, or changing the sub-section title.

Indeed, having the longer discussion on HF under the subsection on HO2 is illogical. We added an extra section 3.5 to talk about the HF case which is unique by itself. We also now mention it in the Abstract and Introduction.

3. 1996:4-7. This negative comment on a different paper by Byrne and Goldblatt seems inappropriate here, and I suggest it is deleted.

We feel that the citing of the other paper by Byrne and Goldblatt is an important element in our discussion as it is there they mention that they took cross-sections from Virtual Planet Laboratory and not PNNL. Indeed many works that cite the use of standard line lists or lab data sets run into problems such as the ones in the current paper, namely actually acquiring these data from third-party sources rather than the archival data. It is the potential source of many serious modeling errors. We feel it is imperative to mention this in our comment. We did not make any conclusions about the quality of their other paper. We now added a specific statement about it.

4. 1996:13-14. "Unfortunately, the conclusion of this comment is that Fig. 1, Fig. 11 and discussions around them in the BG paper are simply incorrect." Unless I misunderstand, this ought to be toned down. It gives the impression that these figures are "simply incorrect" in their entirety, rather than in connection with the sub-set of gases discussed in the comment.

We agree that we should tone down "simply incorrect" to "incorrect". And now say "Unfortunately, the conclusion of this comment is that for the gases discussed here, Fig. 1, Fig. 11 and discussions around them in the BG paper are incorrect."

5. 1990:24 I could not find the Rothman (2005) paper in the reference list

This was an oversight. We have now included the paper in the list of References: Rothman, L.S., Jacquemart, D., Barbe, A., Chris Benner, D., Birk, M., Brown, L.R., Carleer, M.R., Chackerian Jr., C., Chance, K., Coudert, L.H., Dana, V., Devi, V.M., Flaud, J.-H., Gamache, R.R., Goldman, A., Hartmann, J.-M., Jucks, K.W., Maki, A.G.,

Mandin, J.-Y., Massie, S.T., Orphal, J., Perrin, A., Rinsland, C.P., Smith, M.A.H., Tennyson, J., Tolchenov, R.N., Toth, R.A., Vander Auwera, J., Varanasi, P., Wagner, G., The HITRAN 2004 molecular spectroscopic database, *J. Quant. Spectrosc. Radiat. Trans.*, 96, 139–204, 2005.