

Interactive comment on “A semi-empirical potential energy surface and line list for H₂¹⁶O extending into the near-ultraviolet” by Eamon K. Conway et al.

Anonymous Referee #3

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The manuscript 'A semi-empirical potential energy surface and line list for H₂¹⁶O extending into the near-ultraviolet' is well and concisely written and is suitable for publication on ACP, as it also contributed to bridging the gap between the theoretical spectroscopic calculations, which are often published elsewhere and a large number of observations of atmospheric trace gases and their implications which can be found on ACP, which often lack a thorough discussion of errors in used literature cross-sections and/or missing absorbers. This manuscript may help to remind the scientists working on different fields that the spectroscopic analysis of absorption spectra measured in the atmosphere is by far not perfect and various small, but often yet important effects need to be considered to be able to present reliable and precise measurements from

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which then conclusions regarding atmospheric chemistry might be drawn.

The cited literature is extensive, well chosen and mostly quite representative for the current state of research. However, literature about water vapour retrievals from other (older) satellites such as GOME, GOME2 and SCIAMACHY comes a bit short, at least Wagner et al AMT 2013 and references therein could be mentioned.

Figure 3 could be extended by the upper limits on water vapour absorption cross-section values inferred from measurements by Lampel et al 2017 ACP, shown there in Table 4. The data from the publication which is reduced to a spectral resolution of 1nm could be sampled better, it seems to be quite coarse at the moment.

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