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Atmospheric Measurement Techniques Discussions

Interactive comment on "Effect of OH radiance on the temperature and wind measurements derived from limb viewing observations of the 1.27 µm O_2 dayglow" *by* Kuijun Wu et al.

Anonymous Referee #1

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This article reports on the effect of OH atmospheric emissions on the retrievals of wind and temperature from the 1.27âĂĽmicron O2 dayglow. The topic is very interesting and would deserve publication. However, I have some concern that the authors would need to consider before publishing:

MAIN CONCERNS: (1) It is written that "The OH radiance will surely affect the spectral integral intensity of the O2 mission line near 7823 cm-1 especially for altitudes between 80 to 90 km where the OH radiance is relatively strong." Given the relative lines intensities, it is difficult to believe that OH contaminate the 1.27âĂĽμm O2 dayglow. Figures 1 and 2 show that OH is not very strong. Therefore, the author should bring more

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convincing arguments about the need to consider OH.

(2) The method to compute errors, with and without the knowledge of OH, is not explained in details. It could be useful to describe the method in annex.

MINOR CONCERNS:

(1) P2L33 two sets of three emission lines. What are the 2 sets exactly?

(2) Section 2.1 : Is there any auroral excitation of molecular oxygen which can lead to the 1.27 micron emission?

(3) Caption Fig 1: Should not be "Photons" instead of "Photos"?

(4) Figure 2: The caption should say what are the panels a) and b). I assume that a) is O2 while b) is OH. The caption should explain what the zoom in panel a) is. The X axis of a) and b) should be aligned, such that we see where the overlap between the lines is.

(5) It would be useful to add a plot with: Y axis: Altitude X axis: Ratio between OH and O2 VER (or radiance), in log scale. In order to see the importance (or not) of the OH lines.

(6) Figures 6/7: The errors with and without the knowledge of the OH radiance should be drawn in one plot. That will be easier to compare. It is weird not to see the full curve, i.e. around 85 km the scale is too small.

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