

Atmos. Meas. Tech. Discuss., community comment CC1 https://doi.org/10.5194/amt-2021-6-CC1, 2021 © Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.

Comment on amt-2021-6

L.E.C. Christensen

Community comment on "In situ observations of stratospheric HCl using three-mirror integrated cavity output spectroscopy" by Jordan Wilkerson et al., Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2021-6-CC1, 2021

This paper describes an advancement in atmospheric monitoring via a high sensitivity in situ HCl instrument that can play a significant role monitoring and understanding ozone chemistry and should be published after addressing minor comments below.

- * Abstract should be clearer: 26 pptv was demonstrated in lab not flight.
- * Line 92: Add O3 to list of species
- * Line 101: Add instantaneous linewidth and SMSR of ICL laser

* Line 114: You sure this is heating? The main lasing mode can get pulled red from feedback which looks like heating.

* Line 161: What pressure did you regulate the cell to during lab experiments – those expected during balloon flight? Later in the manuscript, you mention no regulation during flight experiment below 60 mbar.

* Do you have any laser spontaneous emission issues?

* Line 285: Did pre- and post- ringdown times agree? Why isn't ringdown time measured periodically during flight – is it needed?

* Line 320: I'm not following the lineshape in Figure 9. Figure shows water is to blue of HCl while the tail in Figure 9 is red. Is this due to instrument function?

* Line 339: Did you have an inlet tube during flight? Did you also Silco coat it? Where was the opening placed – e.g. below the gondola?