

Atmos. Meas. Tech. Discuss., community comment CC1  
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## Comment on amt-2021-6

L.E.C. Christensen

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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

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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 O<sub>3</sub> 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?