

## ***Interactive comment on “Correcting atmospheric CO<sub>2</sub> and CH<sub>4</sub> mole fractions obtained with Picarro analyzers for sensitivity of cavity pressure to water vapor” by Friedemann Reum et al.***

### **Anonymous Referee #1**

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In this paper, the authors are presenting results aiming at correction CO<sub>2</sub> and CH<sub>4</sub> mole fractions for sensitivity of the cavity pressure to water vapor that induces an additional bias on top of the sensitivity on both gases to water vapor itself. It allows to correct for this previously observed bias in the low amount of water vapor. They propose methods to estimate the correction for each individual instrument and analyze the different sources of uncertainty. After minor corrections, the paper should be published.

p2 l5 networks

Fig 1 or 2 Please draw one of the set-up for the flight model and one for the other so the differences between the set-up are clearer.

C1

p12 Fig6: why are the the coefficients so different between O<sub>2</sub> line and optical phase length?

p14 Fig7: Why using equation 5 or 6 yields different results?

Table 7 is not fully clear with the text, I'm not sure where the expanded model biases are shown.

p19 l6 where the water vapor mole fraction was selected...

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Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2018-242, 2018.