

We appreciate your review and comments.

We have corrected the two language issues on p. 2 and 7 in the revised version of this manuscript, as you recommended.

Your remark on p. 6 was also a language issue; the word 'noisier' in this sentence was not a good choice. We reworded it to 'have larger standard deviations.' For the longer data averaging times under constant observing conditions the measurement signal-to-noise ratio improves. However, at the same time the average measurement footprint is longer and for these flights over clouds the lumpy cloud tops cause larger variations in the lidar range. This causes the standard deviations of the individual XCO<sub>2</sub> retrievals to increase. The net result of these two competing effects for measurements to cloud tops with longer averaging times was to reduce the standard deviation of the XCO<sub>2</sub> retrievals.