

Interactive comment on “The impact of surface reflectance variability on total column differential absorption LiDAR measurements of atmospheric CO₂” by J. P. Lawrence et al.

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The referee has asked "Could you provide the essential and assumed values of the footprint which is not found in the new version of the paper?"

The footprint diameter is 160 m.

Further, the assumed overlap i.e. that being what the model takes to be correct, and the essential to be the 12 m ambiguity in the overlap which causes the error in the retrieval. Then the essential is 12 m, the assumed is 0 m. The 12 m value is in Table 1.

It may also be worth noting that the 160 m diameter footprints provide a length scale

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on the variability of about 170 m (the parts of the footprints which do not overlap are at opposite ends of the footprint pair). It is the resolution difference between 170 m and 500 m MODIS resolution which has led to the results being a lower bound estimate.

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