

Interactive comment on “Estimation of background gas concentration from differential absorption lidar measurements” by P. Harris et al.

Anonymous Referee #1

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The authors compare in their manuscript different approaches for the estimation of the background concentration, when using the DIAL technique for the detection of pollutant plumes. They propose and investigate two approaches that aim to reduce the uncertainties in the retrieval of the background gas concentration. The paper is well written, well organized and very detailed concerning the methodologies proposed, which allows the reader and potential user to follow all the details of their methodology. Eventually, in order to make it easier for the reader to follow the concept, many mathematical details could be removed to an Appendix, otherwise the paper should be accepted for publication in AMT with only few minor technical comments:

The authors should consider to have the same axis limits for similar figures (see Fig16 versus Figures 10, 12,14).

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In Figures 4 and 6 are the units and labels of x-axis correct? Are the limits -1500 to 1500 km or m? Please check and correct accordingly.

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