

Answer to Reviewer # 1

The authors thank the reviewer for his helpful comments on the paper. The necessary changes to the manuscript have been done according to the suggestions proposed as the following:

Following the suggestion of the reviewer, the CALIOP depolarization data are reported on Fig. R.1 with the attenuated backscatter profile. The results confirm that in the overshooting cell (see cloud region between the white lines on Fig. R.1) the high attenuated backscatter values (up to $0.67 \text{ km}^{-1} \text{ sr}^{-1}$) are observed with high depolarization ratio (up to 0.7) which are expected especially for small ice crystals (Mishchenko and Sassen, 1998). In this way, the in situ observations of the high concentration of small ice particles are further evidenced by the observation of a high depolarisation ratio for this specific deep convection cloud. Furthermore the global survey of CALIOP linear depolarisation ratios by Sassen and Zhu (2009) shows that high depolarisation ratios are found predominantly at low latitudes, a region where deep convection is most frequent.

For editing reasons the CALIOP depolarization data has not been added on Fig. 4 because the prints on diagrams could be very small and difficult to read.

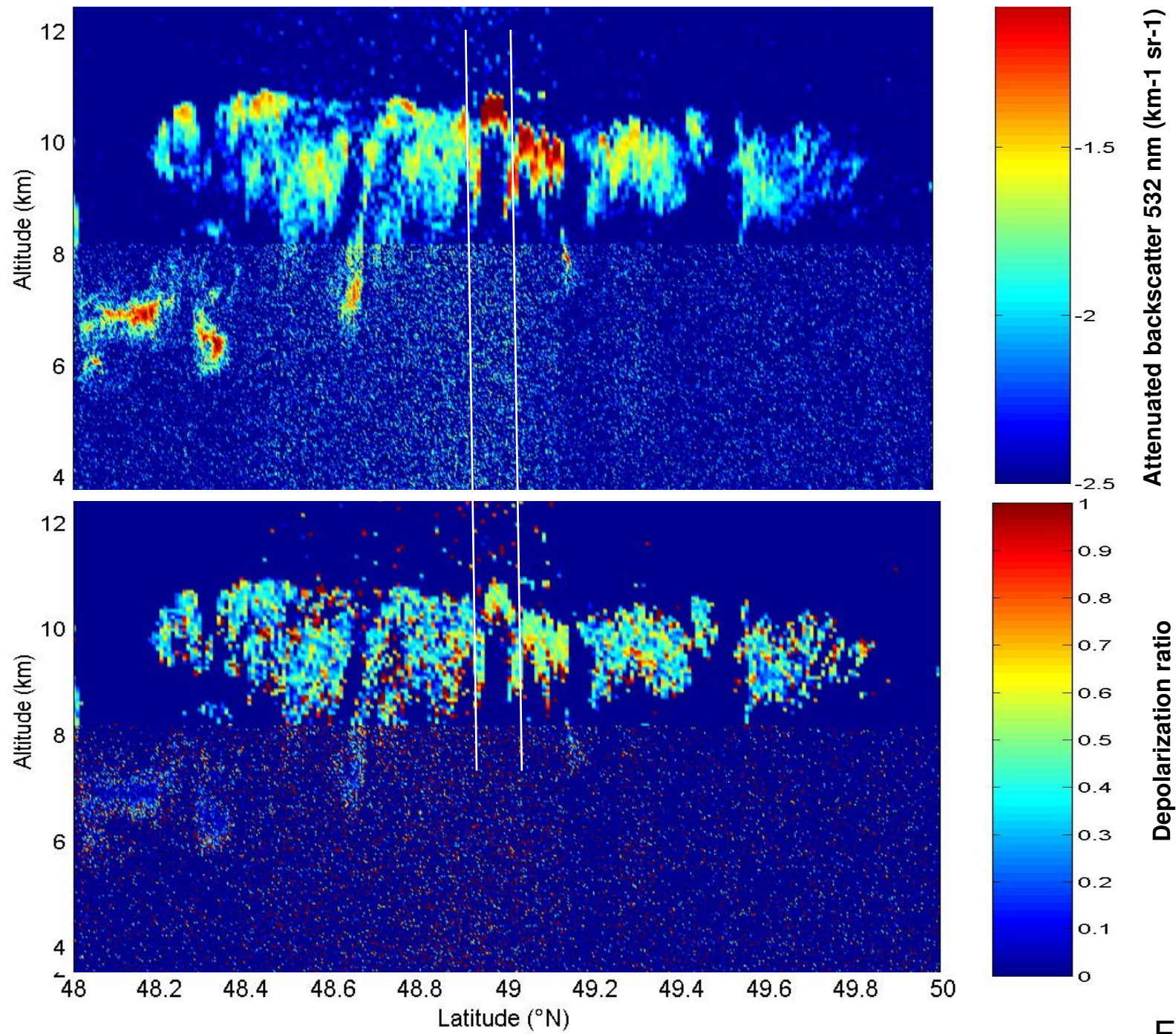


Figure R1