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Comparison of polar stratospheric cloud detection and composition as observed by ground-based lidar and CALIOP at Dome C.

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Polar stratospheric clouds have been observed at Dome C by a ground-based lidar from 2014 up to the present, possibly in coincidence with nearby overpasses of the CALIPSO satellite, with the CALIOP lidar on board.

A thorough study has been made in terms of detection efficiency and composition classification of near coincident lidar observations, with the goal to identify the main biases between the two lidars.

When comparing ground-based lidar observations with nearby CALIOP overpasses, several biases might occur, due to the distance between ground-based lidar and nearest overpass, observation geometry and integration times and different algorithms used for data analysis.

The bias resulting from different data analysis has been reduced by applying an algorithm for PSC detection and composition classification to the ground-based data which is very similar to the V2 algorithm used for CALIOP.

By comparing 5 years of PSC observations at Dome C, considering both detection efficiency and composition of the observed PSCs, the impact of all biases will be discussed and possibly quantified.