



Polar Stratospheric Cloud occurrence during the Arctic winter 2008/2009 as observed by CALIPSO

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Although the Arctic winter 2008/2009 was a rather warm winter in the climatological sense, the stratospheric circulation was undisturbed until 8 January 2009 leading to a strong cyclonic vortex during this time period. Temperatures within the vortex cooled sufficiently down to allow the formation of Polar Stratospheric Clouds (PSCs). A major stratospheric warming in January 2009 ended the winter much earlier than usual. This major stratospheric warming was the strongest and most prolonged on record. In this study, we analyse PSC occurrence during the Arctic winter 2008/2009 applying space-borne lidar observations from the CALIOP instrument on board the CALIPSO satellite. PSCs were observed by CALIOP during a period of approximately one month, from 15 December 2008 to 16 January 2009. The highest frequency of PSCs was found at the end of December/begin of January. During that time period temperatures became also sufficiently cold to allow the formation of ice PSCs. Backward trajectories were calculated with the HYSPLIT model to investigate the air parcels history and thus the formation conditions for the different PSC types.