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## **Analysing ozone variability at northern polar latitude during sudden stratospheric warming events using ground-based microwave radiometer**

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Sudden stratospheric warmings (SSWs) have significant impacts on the Arctic ozone. In this study, MERRA-2 provides the characteristics of the zonal-mean zonal wind and temperature influenced by the planetary waves during major SSWs. We present an analysis of ozone variations in the stratosphere over Ny-Ålesund, Svalbard (79°N, 12°E) based on the ground-based microwave radiometer GROMOS-C during the major SSW events that occurred from 2015 to 2022. The results are compared with Aura-MLS observations and MERRA-2 simulations. GROMOS-C captures the high variability of stratospheric ozone fluctuations during SSWs at polar latitudes very well. The stratospheric ozone dramatically increases after SSW onset day, which lasts up to two months. The polar vortex is disturbed or weakened by SSW resulting in the meridional transport of ozone from the mid-latitude into the polar regions. Therefore, this study assists in understanding the relationship between the interannual variability of stratospheric ozone and the occurrence of SSWs and has significant implications for stratospheric ozone trends in the northern polar regions.