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Characteristics of the ozone variability over the high latitudes of the Northern Hemisphere during winter/spring for the period 1979-2016

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In this study we examine the day-to-day variability of total ozone over the high latitudes of the Northern Hemisphere during winter-spring for the period 1979-2016 based on the Multi Sensor Reanalysis (MSR) and assimilated GOME-2 total ozone data. The variability is examined separately inside the polar vortex and distinct patterns between different years are identified, taking into account the position of the vortex relative to the pole, as well as the existence of major warming or Canadian warming events. The observed patterns of the day-to-day variability are examined also against the corresponding variability of the stratospheric temperatures, while the possible effect of the El-Nino/Southern Oscillation and the Arctic Oscillation on the observed patterns is investigated. It also examined whether the identified patterns are also evident in the interannual variability of the ozone loss. Emphasis is given on the daily ozone evolution over the Arctic during winter-spring 2016, where extreme low and extreme high values have been observed within the same season.