

Interannual Variability in Minimum Temperatures Within the North Polar Winter Vortex

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Meteorological conditions thought to be necessary for significant ozone loss due to **heterogeneous** photochemistry involving active chlorine include relative isolation within the polar vortex and temperatures cold enough to form polar stratospheric clouds. A thirteen-year record of NMC stratospheric analyses reveals a **three-year** pattern in daily minimum temperatures within the north polar winter vortex. In this pattern, a year with the lowest temperatures is followed by a warm year and then by a year in which the (minimum) temperatures are low again, but not quite as low or as persistent y low, as in the coldest year to follow. The last two northern winters, which have been extensively observed by the Upper Atmosphere Research Satellite, continue this long-term variation. Whether or not this pattern extends to years before 1979 is being investigated using radiosonde data. This **interannual** variability suggests that ozone loss due to activated chlorine may be highly variable in the north polar vortex during the next decade, despite high values of stratospheric chlorine.

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