NO$_Y$ FROM MIPAS/ENVISAT IN THE SOUTH HEMISPHERE VORTEX SPLIT-UP EVENT IN SEPTEMBER/OCTOBER 2002

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HNO$_3$, NO$_2$, and N$_2$O$_5$ are derived from analysis of High resolution atmospheric limb emission spectra measured by MIPAS/ENVISAT (Michelson Interferometer for Passive Atmospheric Sounding) during the split-up of the southern polar vortex in September/October 2002. HNO$_3$, NO$_2$, and N$_2$O$_5$ can be derived using standard retrieval methods while the retrieval of N$_2$O$_5$ is hindered by its continuum-like emission features covering wide spectral window. A method for isolating mapping of continuum signal onto N$_2$O$_5$ volume mixing ratio is proposed and implemented to retrieve reliable N$_2$O$_5$ distribution during the southern polar vortex breakdown event.

The retrieved HNO$_3$, NO$_2$ and ozone are used to study NOy partitioning and correlations between HNO$_3$ and O$_3$ in the upper troposphere, lower stratosphere and tropopause region. The pattern of correlations across the latitudinal cross-section of the vortex will be investigated to understand the photochemistry and transport process of the UT/LS during this event.