

Short time variations in nitric acid and aerosol extinction as observed by ILAS-II in the 2003 Antarctic stratosphere

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We have searched for the significant permanent denitrification that could be occurred within five days, as was suggested by a model (Fueglistaler et al. 2002), based on observations (e.g., Fahey et al. 2001). The Match technique was applied to the ILAS-II Version 1.4 HNO₃ and AEC data to examine the short time (five days at the longest) variations of those concentrations for the 2003 Antarctic winter stratosphere. In June and July (65-71 degree S), temporary denitrification was seen, but significant permanent denitrification was not seen within the short time from this limited case study. In August, because the ILAS-II looked deep inside the polar vortex at 71-82 degree S, the measured HNO₃ values were already decreased (only 2 ppbv or less remained) with the background AEC levels, suggesting that significant permanent denitrification completed, at the latest, in this period for these latitudes.