Atmos. Chem. Phys. Discuss., 8, S4611–S4612, 2008
www.atmos-chem-phys-discuss.net/8/S4611/2008/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Nitric acid in the stratosphere based on Odin observations from 2001 to 2007 – Part 2: High-altitude polar enhancements" *by* Y. J. Orsolini et al.

Anonymous Referee #3

Received and published: 9 July 2008

Major Comments:

There is no discussion of the NH winter of 2005-6. It is interesting that there is very little "second stage" HNO3 even though there was a large NOx anomaly transported from the upper mesosphere in the wake of a major SSW, similar to January of 2004. Is the reason for the difference due to a more disturbed vortex in the upper stratosphere in early 2006 compared to 2004? I think it would enhance the paper if the 2005-6 NH winter was discussed.

The summary section should mention why there is difference in the intensity of the second stage HNO3 anomaly between the two hemisphere. The southern hemisphere

vortex funnel is much more pronounced and stable in the mesosphere compared to the northern hemisphere. This increases the chances of EEP produced NOx reaching the upper stratosphere from the MLT.

Minor Comments:

p 9593, l 24: "or low" should be "or lower". It is the high energy part of the electron flux that produces NOx below 90 km, which has the highest chance of reaching the upper stratosphere.

p9593, l 27: "SPE" should be "SPEs" since there was more than one during the Halloween storm.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 9591, 2008.