

***Interactive comment on* “Middle atmospheric water vapour and dynamics in the vicinity of the polar vortex during the Hygrosonde-2 campaign” by S. Lossow et al.**

Anonymous Referee #1

Received and published: 2 April 2009

Review of ACPD paper "Middle Atmospheric Water Vapour...", by Lossow et al:

1. There is some interesting water vapour data presented in this paper - it is certainly worthy of publication.
2. The major problem this reviewer has with this manuscript is the total lack of discussion of the accuracy of the H₂O measurements. Nowhere in the paper are the measurement uncertainties presented; not on the figures nor in the text. The H₂O profiles appear to be of very high quality and a great deal of emphasis is placed upon the fine structure, but no error bars, no standard deviations, no quantitative treatment of errors is presented. The text discusses H₂O data quoted to the nearest one-tenth of a

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ppmv level of detail, but the reader cannot be sure the data is accurate to within 1 or even 2 ppmv.

3. More philosophically, the H₂O profiles presented here are "snap shots" of the atmosphere. The details of these profiles have been identified with specific dynamics, however the time scales over which those details evolved are unknown.

4. The selection of what parts of the descending observations of the Hygrosonde-2 instrument are (or should be) included here, in Figure 1., is not adequately discussed. This issue involves itself with needed information about measurement errors discussed above (in 2.).

5. There are a few typographical errors, as follow:

page 12229, line 4 - "trough" should be "through"

page 12230, line 4 - the year is 1984 not 1994

page 12231, line 5 - "enough" is redundant following "sufficient"

line 16 - "kind of" is redundant following "such"

page 12232, line 8 - "sensitivity" may be ascribed to the instrument as a whole, but "intensity" should be used for the light source

page 12234, line 11 - "slight" should be "slightly"

page 12235, line 13 - "trough" should be "through"

line 21 - replace with "Information about the vortex situation at higher altitudes is not included in the operational..."

page 12237, line 13 - replace "..vortex are range between.." with ".. vortex ranges between.."

page 12239, line 23 - "informations" should be replaced by "information", which is both singular and plural

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 12227, 2008.

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8, S12001–S12003, 2009

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