

## ***Interactive comment on “Trend in ice moistening the stratosphere – constraints from isotope data of water and methane” by J. Notholt et al.***

### **Anonymous Referee #2**

Received and published: 19 October 2009

This paper addresses the important question about the trend of water vapour in the stratosphere and gives important input to the problem. This paper is well written, however, I am not totally happy about the outline in the first sections. More about that in the comments below. The paper does address relevant scientific questions within the scope of ACP. I recommend the paper to be published after the following comments have been addressed.

#### Comments.

In the introduction and in section two the delta-notation is used and figure one shows profiles of delta-D values, but the delta notation is not explained until section three. The authors might consider putting section three before section two. In the introduction a reference to the explaining section should be included.

Section 2: What retrieval method is used?

In section two the paragraph starting at line 4, page 16977, and the paragraph starting at line 13, should switch places. First discuss the measured spectra, then the retrievals.

Line 5, page 16979: ...nether methane NOR molecular hydrogen...

Line 7, page 16983: dependant should be dependent

Line 25, page 16983: Section 5.1?

Line 4, page 16984: “The closer the isotopic composition of this additional ice is to that of the average total water entering the stratosphere...” I don’t really understand this sentence. Why would it be, and how sensitive to delta-D of the entering ice is the method?

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Interactive comment on Atmos. Chem. Phys. Discuss., 9, 16973, 2009.

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