

## ***Interactive comment on “Simultaneous measurements of OCIO, NO<sub>2</sub> and O<sub>3</sub> in the Arctic polar vortex by the GOMOS instrument” by C. Tétard et al.***

### **Anonymous Referee #1**

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The paper has some merit, especially the discussion of novel OCIO measurements from GOMOS. As at the earlier stage before the paper went to ACPD, I still think that the paper has one shortcoming, namely that the GOMOS OCIO product has not been validated. Although the authors indicate that they are aware of this, I think they could do more to remedy this shortcoming. In particular, they could provide in the Introduction (e.g. p. 12710, after l. 21) a summary of why the work on OCIO, although preliminary, is useful and/or important (e.g. capabilities of GOMOS, need to monitor OCIO). Furthermore, the authors could provide more information on what is new in this work. Once this is done, and the specific comments below are addressed, I think the paper should be suitable for publication in ACP.

P. 12708, I. 24: What heights are you referring to when discussing TPSC?

P. 12709, I. 9: Can you provide examples of the chemical models you discuss? Are these chemistry-transport models, box models?

P. 12709, I. 18: Could the authors discuss briefly what is the effect of denoxification of the polar vortex?

P. 12710, I. 3: Indicate that it is EOS Aura.

P. 12710, I. 21: I think this is a good place to introduce a summary of why the work on OCIO is important (see general comments).

P. 12711, I. 3 and I. 19: Sun-synchronous mis-spelt.

P. 12713, I. 23: Could the authors also provide references in the peer-reviewed literature that discuss the winter of 2007/2008?

P. 12714, I.26- 27: Should be “Medium-Range”.

P. 12717, I. 6-7: Could the authors also provide references in the peer-reviewed literature that discuss the winter of 2004/2005?

P. 12718, I. 9-12: It would be helpful if the authors could provide further discussion on the anticorrelation between NO<sub>2</sub> and OCIO SCDs.

P. 12719, I. 2: It would be helpful to summarize here why the work on OCIO is important (see general comments).

P. 12719, I. 4: It would be helpful to comment here on why it is important to validate the OCIO product.

P. 12730, Fig. 8: It would be helpful to mark TPSC in the temperature graphs, e.g., by a horizontal line.

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Interactive comment on Atmos. Chem. Phys. Discuss., 9, 12707, 2009.