

Interactive
Comment

Interactive comment on “Springtime Arctic ground-based spectroscopy of O₃ and related trace gases at Eureka, Canada – Part 1: Evaluation of the analysis method and comparison with infrared measurements” by E. Farahani et al.

Anonymous Referee #2

Received and published: 8 April 2009

The paper "Springtime Arctic ground-based spectroscopy of O₃ and related trace gases at Eureka, Canada: Part I - Evaluation of the analysis method and comparison with infrared measurements" by E. Farahani et al. reports on 4 periods of ground-based UV-vis measurements of O₃, NO₂, and in part also OCIO columns in Eureka. The instrument and data analysis are briefly described and results from an old and a new version of the data analysis are compared. The results are then compared with those from O₃-sondes and FTS measurements where available and reasonable agreement is found on many days.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



Interactive
Comment

I have already reviewed an earlier version of this manuscript also submitted to AMT and as the authors have chosen to leave the paper more or less unchanged with the exception of adding a table with uncertainties, I will basically repeat my original statement here.

I can unfortunately not recommend this paper for publication in AMT as it neither reports on a new instrument, nor on a new retrieval method, nor on a new and relevant data set or its validation. The data analysis comparison shown is a necessary exercise for any retrieval group but I don't see what the reader learns from it other than that the code used by the group in the past was not adequate. The comparison with FTS data is more interesting but apart from very general statements "not viewing the same airmass", "not taken at the same time" or "consistent with the NO₂ diurnal cycle and differing spectroscopic parameterization" no discussion is given for the differences observed which in part are quite large. The hemispherical plots of PV and PSC area in my opinion do not help much for the interpretation and should be replaced by the corresponding data over the station integrated in the figures with the time series.

I'd suggest dropping the software comparison part of the paper, including a short but complete discussion of the retrieval and the uncertainties and then focus on the interpretation of the results (currently not part of the paper). It should be made very clear what is new in the paper relative to the current state of the art (e.g. with respect to other similar measurements at northern high latitudes published over the last 15 years) and what we can learn from these data. This could probably be included in the planned second part of this manuscript. Such a paper would then be more appropriate for ACP.

Interactive comment on Atmos. Meas. Tech. Discuss., 2, 343, 2009.

[Full Screen / Esc](#)[Printer-friendly Version](#)[Interactive Discussion](#)[Discussion Paper](#)