Atmos. Meas. Tech. Discuss., 7, C14–C15, 2014
www.atmos-meas-tech-discuss.net/7/C14/2014/

Atmospheric Measurement Techniques Discussions

Interactive comment on "Water vapor retrieval from OMI visible spectra" *by* H. Wang et al.

R. Lindstrot

rasmus.lindstrot@wew.fu-berlin.de

Received and published: 4 February 2014

Dear authors,

I think you present an interesting application of OMI measurements. Nevertheless, I'd like to make a few general comments:

1. It would be beneficial to take a definite decision on which units to use and stick with it throughout the paper. It's hard for the reader to convert from molecules/cm^2 to cm and back again.
2. In the introduction you are giving an almost complete overview of different methods and instruments used for space-borne remote sensing of water vapour. In the near infrared, you shouldn't leave out MERIS which provides well calibrated NIR

channels that are successfully used for the retrieval of columnar water vapour (Lindstrot et al, 2012). What about GNSS radio-occultation?

3. You use the MODIS NIR retrieval to validate your OMI retrieval. I wonder, whether this is a good choice for two reasons:
   (a) Over ocean, the MODIS NIR retrieval generally is not a well suited reference since the dark ocean surface simply inhibits a total column retrieval, resulting in large uncertainties.
   (b) Over land, MODIS data surely is a treasure. However, I am not sure whether the retrieval algorithm has been thoroughly validated, maintained and kept up to date over the course of the past decade.

   We have generated a combined data set of MERIS and SSM/I measurements of water vapour, which is freely available via http://globvapour.info/ (more information available in Lindstrot et al, 2014). Using this dataset will overcome both of the above weaknesses of the MODIS dataset.

References:

1. Lindstrot, R., Preusker, R., Diedrich, H., Doppler, L., Bennartz, R., and Fischer, J., 2012: 1D-Var retrieval of daytime total columnar water vapour from MERIS measurements, Atmos. Meas. Tech., 5, 631-646, doi:10.5194/amt-5-631-2012.
2. Lindstrot, R., Stengel, M., Schröder, M., Fischer, J., Preusker, R., Schneider, N., and Steenbergen, T.: A global climatology of total columnar water vapour from SSM/I and MERIS, Earth Syst. Sci. Data Discuss., 7, 59-88, doi:10.5194/essdd-7-59-2014, 2014.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 541, 2014.