Atmos. Chem. Phys. Discuss., 13, C8552–C8553, 2013
www.atmos-chem-phys-discuss.net/13/C8552/2013/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Changes in atmospheric aerosol loading retrieved from space based measurements during the past decade" *by* J. Yoon et al.

N.A.J. Schutgens

schutgens@physics.ox.ac.uk

Received and published: 9 December 2013

This is an interesting paper but the authors seem rather optimistic concerning the accuracy of space-borne aerosol retrievals. E.g., about MODIS they write:

p 26005, line 13: "Their data yield aerosol products having high accuracy (±0.05 or ±15 % over land and ±5 % over ocean for AOT) (Kaufman et al., 1997; Remer et al., 2005, 2008; Levy et al., 2010) suitable for trend analysis."

First, over ocean the official MODIS error estimate is 0.03 or ±5%, not 5% so there is considerable uncertainty regarding low values.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

Second, several papers have shown that MODIS accuracy for AOT>0.1 over ocean is worse than 5%, e.g. Zhang & Reid JGR 2006, Shi et al 2011, Schutgens et al. 2013 (see our Fig 20 for a comparison of error estimates). For land, see Hyer et al ACP 2011.

The same papers have shown that MODIS AOT over ocean has biases due to e.g. windspeed or cloud fraction. In a changing climate, such biases could potentially cause artificial AOT trends.

This is not to say MODIS data is bad. A comparative study, Breon et al, Rem Sens Environ 2011, showed that MODIS AOT was on par or outperformed other sensors (MISR,POLDER).

Do the authors think these larger random errors and biases will impact their trend analyses?

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 26001, 2013.