

Home

Online Library ACP

- ▣ Recent Final Revised Papers
- ▣ [Volumes and Issues](#)
- ▣ Special Issues
- ▣ Library Search
- ▣ Title and Author Search

Online Library ACPD

Alerts & RSS Feeds

General Information

Submission

Review

Production

Subscription

Comment on a Paper

Impact
Factor
4.865

ISI
indexed



▣ [Volumes and Issues](#) ▣ [Contents of Issue 7](#)

Atmos. Chem. Phys., 8, 1949-1962, 2008

www.atmos-chem-phys.net/8/1949/2008/

© Author(s) 2008. This work is distributed under the Creative Commons Attribution 3.0 License.

Optical particle counter measurement of marine aerosol hygroscopic growth

J. R. Snider¹ and M. D. Petters²

¹Department of Atmospheric Science Dept. 3038, University of Wyoming, 1000 East University Avenue, Laramie, WY 82071, USA

²Department of Atmospheric Science 1371, Colorado State University, Campus Delivery Fort Collins, CO 80523-1371, USA

Abstract. A technique is developed for the determination of the hygroscopic growth factor of dry particles with diameter between 0.3 and 0.6 μm and is applied to measurements made during the second Dynamics and Chemistry of Marine Stratocumulus experiment (DYCOMS-II). Two optical particle counters are utilized, one measures the aerosol size spectrum at ambient relative humidity and the other simultaneously dries the aerosol prior to light scattering detection. Growth factors are based on measurements made in the region of the Mie scattering curve where scattered light intensity increases monotonically with dry and wet particle diameter, i.e. $D < 0.9 \mu\text{m}$. Factors influencing the accuracy of the measurement are evaluated, including particle drying, refractive index and shape. Growth factors at $90 \pm 3\%$ ambient relative humidity in marine airmasses 400 km west of San Diego, California range between 1.5 and 1.8. This suggests that a significant fraction of the particle mass, between 40 and 70%, is either non-hygroscopic or weakly hygroscopic.

▣ [Final Revised Paper](#) (PDF, 376 KB) ▣ [Discussion Paper](#) (ACPD)

Citation: Snider, J. R. and Petters, M. D.: Optical particle counter measurement of marine aerosol hygroscopic growth, Atmos. Chem. Phys., 8, 1949-1962, 2008. ▣ [Bibtex](#) ▣ [EndNote](#) ▣ [Reference Manager](#)

Search ACP

Library Search

Author Search

News

- ▣ [Sister Journals AMT & GMD](#)
- ▣ [Financial Support for Authors](#)
- ▣ [Journal Impact Factor](#)
- ▣ [Public Relations & Background Information](#)

Recent Papers

01 | ACPD, 04 Nov 2008: HOCl chemistry in the Antarctic stratospheric vortex 2002, as observed with the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS)

02 | ACPD, 03 Nov 2008: Diurnal evolution of cloud base heights in convective cloud fields from MSG/SEVIRI data

03 | ACPD, 03 Nov 2008: Anthropogenic influence on SOA and the resulting radiative forcing