

Faculty - Colette L. Heald

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Colette L. Heald

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Education

B.Sc. 2000, Engineering Physics, Queen's University

Ph.D 2005, Earth and Planetary Science, Harvard University

Research Interests

My research interests are global atmospheric composition and chemistry, and interactions of these with the biosphere and climate system. This includes the study of both particles and gases in the troposphere, their sources, sinks, transformations, long range transport and environmental impacts. I work at the intersection of modeling and observational analysis, with a strong emphasis on the integration of the two. This involves using observations of the atmosphere from all scales: from ground stations, aircraft campaigns and satellite sensors with global models of chemistry and climate.

Teaching Interests

1.085/12.336 Air Pollution

1.841/12.817J Atmospheric Composition in the Changing Earth System

1.013 Senior Civil and Environmental Engineering Design

Selected Publications

1. Heald, C.L., J.L. Collett Jr., T. Lee, K.B. Benedict, F.M. Schwandner, Y. Li, L. Clarisse, D.R. Hurtmans, M. Van Damme, C. Clerbaux, P.-F. Coheur, H.O.T. Pye (2012), Atmospheric ammonia and particulate inorganic nitrogen over the United States, *Atmos Chem Phys*, 12,

- 10295-10312.
2. Heald, C.L., et al. (2011), Exploring atmospheric organic aerosol: Comparing 17 aircraft field campaigns with a global model, *ACP*, 11, 12673-12696.
 3. Heald, C.L., D.A. Ridley, S.M. Kreidenweis, E.E. Drury (2010), Satellite observations cap the atmospheric organic aerosol budget, *Geophys. Res. Lett.*, 37, L24808, doi:10.1029/2010GL045095.
 4. Heald, C.L., J.H. Kroll, J.L. Jimenez, K.S. Docherty, P.F. DeCarlo, A.C. Aiken, Q. Chen, S.T. Martin, D.K. Farmer, P. Artaxo (2010), A simplified description of the evolution of organic aerosol composition in the atmosphere, *Geophys. Res. Lett.*, 37, L08803, doi:10.1029/2010GL042737.
 5. Heald, C.L., D.V. Spracklen (2009), Atmospheric budget of primary biological aerosol particles from fungal spores, *Geophysical Research Letters*, 36, L09806, doi:10.1029/2009GL037493.
 6. Heald, C. L., M. J. Wilkinson, R. K. Monson, C. A. Alo, G. Wang, and A. Guenther (2009), Response of isoprene emission to ambient CO₂ changes and implications for global budgets, *Global Change Biology*, 15, 4, 1127-1140.

