ANNA GANNET HALLAR
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Assistant Research Professor
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EDUCATION

B.A.	1999	Physics	Truman State University
M.S.	2001	Atmospheric and Oceanic Sciences	University of Colorado at Boulder
Ph.D.	2003	Atmospheric and Oceanic Sciences	University of Colorado at Boulder

Title of dissertation: *"Use of Tunable Diode Laser Closed Path Hygrometer for the Measurement of Total Water in Tropopause Cirrus"*

PROFESSIONAL EXPERIENCE

Aug 2006 – Present
Director, Storm Peak Laboratory, Steamboat Springs, CO;
Assistant Research Professor, Desert Research Institute, Division of Atmospheric Sciences, Reno, NV.

Feb 2004 – Jul 2006
Postdoctoral Research Associate, NASA Ames Research Center, Moffett Field, CA; Advisor: Dr. Anthony Strawa.

- Research with Atmospheric Aerosol Optical Instrument using Cavity-Ring-Down Optical Sensing Technique
- Extensive Data Analysis with IGOR
- Prepared proposals for research funding from NASA, NSF, ARM, and NOAA
- Solely responsible for instrument during several field projects
- Created Calibration System Design and Procedure
- Supervised two research assistants
- Presented at National and International Research Conferences

April 2006 – Jun 2006
Adjunct Professor, Santa Clara University, Environmental Studies.

- Designed multi-disciplinary Undergraduate Course titled "Environmental Technology"
- Received excellent student reviews

Aug 1999 – Dec 2003
Graduate Research Assistant, University of Colorado at Boulder, Laboratory for Atmospheric and Space Physics; Advisor: Dr. Linnea Avallone.

- Research with Tunable Diode Laser Atmospheric Trace Gas Instruments
- Analysis of sub-isokinetic inlet system for airborne total water measurements
- Created new data analysis process from raw pp2f laser signal for in situ measurements based calibration data
- Conducted study of Stratosphere/Troposphere Exchange in the Sub-Tropics
- Analyze data with Interactive Data Language (IDL) and Origin
- Prepared proposals for research funding from NSF, NASA, and EPA
- Experienced over six months of field research
- Presented at National and International Research Conferences

Dec 2003 – May 2003
Graduate Teaching Assistant - University of Colorado at Boulder, Program in Atmospheric and Oceanic Studies; Supervised by Dr. Tom Warner.

- Solely responsible for several lectures, proctored exams, graded exams

Aug 1996 – May 1999	Undergraduate Teacher's Assistant multidisciplinary course titled "Physics for Poets"; Department of Physics at Truman State University, Kirksville, MO; Supervised by Dr. Ken Hahn. • Organized and conducted recitations, graded homework, tests, and lab reports each week
May – Aug 1999	Undergraduate Research Assistant Truman State, University Physics Department, Kirksville, MO; Mentor: Dr. David Chyba. • Researched the Theory of Chaos as it applies to Diode Lasers.
Jun – Aug 1998	Student Volunteer for National Weather Service, Weather Forecasting Office in Pleasant Hill, MO; Supervised by Peter Browning – Science and Operations Office • Exposed to AWIPS, ASOS, NOAA Weather Radio (CRS) and Doppler Radar • Visited a Kansas City Television Meteorologist, a Skywarn Educational Seminar, and an ASOS site • Created a Severe Weather Climatology Web-Page

FIELD STUDIES

Storm Peak Aerosol and Cloud Characterization (SPACC) – Storm Peak Laboratory: March-April 2007

Multiple disciplinary investigations of organic aerosols in the free troposphere

MArine Stratus Radiation Aerosol and Drizzle (MASRAD) – Point Reyes, CA: July-August 2005

In situ measurements to study relationship between aerosol particles and cloud droplet properties

Atmospheric Brown Cloud - Post Monsoon EXperiment (APMEX) – Maldives, Indian Ocean: Oct-Nov 2004

Ground site in situ measurements of aerosol optical properties to study pollution transport

Caldecott Tunnel – Black Carbon Investigation: Oakland, CA: June 2004

In situ measurements of the aerosol optical properties of vehicle emission inside traffic tunnel

Extended – MODIS – λ Validation Experiment, Marina, CA: April – May 2004

In situ measurement of extinction and scattering at 675 and 1550 nm aboard CIRPAS Twin Otter

Winter Fly-in (Winfly) 2002, McMurdo, Antarctica: August-November 2002

Ground-based in situ measurements of ClO, BrO, NO, NO2, and O3 to study boundary layer ozone depletion

Cirrus Regional Study of Tropical Anvils and Layers Experiment (CRYSTAL-FACE), Key West, Fl: July 2002

In situ measurements of cirrus cloud total water from NASA WB-57 aircraft

Instrumentation Development and Education in Airborne Science (IDEAS), Broomfield, CO: April 2002

In situ measurements of H2O - Counter Flow Virtual Impactor from NCAR C-130 aircraft mentored by Dr. Cynthia Twohy

AWARDS/HONORS RECEIVED

- Principal Investigator of NSF Awards GEO #0703801 and 0914705; $71,913 and $198,216 titled "Geoscience Research at Storm Peak Laboratory (GRASP)". These awards create field research experiences for a diverse group of undergraduate students at Storm Peak Laboratory (SPL).

- Principal Investigator of NSF Award ATM #0931431; $347,253 titled "Collaborative Research: Hygroscopic Properties of Aerosol Organics". This study will address several important questions regarding aerosol hygroscopicity through field measurements, laboratory experiments, and modeling.

- Principal Investigator of NSF Award ATM #939021; $55,581 titled "Collaborative Research: RAPID-- Investigating Potential Secondary Organic Aerosol (SOA) Increases Due to Beetle Infestation Across the Western United States". This RAPID project is in collaboration with Dr. Huff- Hartz at the University of Southern Illinois, Carbondale and is a study of changes in volatile organic carbon (VOC) emissions from Lodgepole pine trees as a result of the rapidly expanding infestation of pine bark beetles.

- Principal Investigator for NSF Award HRD-0820267ADVANCE; $278,851 titled "Atmospheric Science Collaborations and Enriching Networks (ASCENT)". This award supports a discipline-specific program focusing on women in atmospheric science and meteorology with a goal of creating leaders for advancement.

- CO- Principal Investigator for Proposal titled “Climatic Studies of Thin Cirrus coupled with the Validation of Aura
    - Detection of Upper Tropospheric and Stratospheric Clouds using Solar Occultation Data” funded
    - by National Aeronautics and Space Administration Aura Validation Research Announcement

- National Academy of Sciences Postdoctoral Research Fellowship; February 2004 – July 2006

- University of Colorado at Boulder, Program in Atmospheric and Oceanic Science
    - Graduate Student Research Fellowship – August 1999 to December 2003
    - Graduate Student Travel Grant for European Geophysical Society Meeting in France – February 2003

- National Aeronautics and Space Administration Group Achievement Award – CRYSTAL-FACE – 2003

- Truman State University
    - President’s Combined Ability Scholarship – 1995 to 1999
    - Dean’s List - four semesters (Overall GPA = 3.5)

- Truman State University Alumni Department
    - Details of Award: Eugene Smith Physics Scholarship – 1997

MEMBERSHIPS

• 2000-2008 Member, American Geophysical Union

• 2001-2008 Member, American Meteorological Society

SYNERGISTIC ACTIVITES

- Current Member of NSF’s Observing Facilities Assessment Panel (OFAP) providing technical and operational assessment of requests associated with the use of NSF’s Lower Atmospheric Observing Facilities in the field.
- Current University Cooperative for Atmospheric Research Representative for Nevada System of Higher Education.
- Current Chair of the Wagner Memorial Award for Women in Atmospheric Sciences.
- 2007-2009, Commonly review NSF and NASA proposals in atmospheric science and education.
- 2006-2009 Featured on CNN, History Channel, and nightly news nationally representing Storm Peak Laboratory
- 2007 Assisted Timothy R. Gaffney on a chapter for his upcoming children’s book titled “Extreme Weather Scientists”. The chapter will feature my experiences in science and the research of Storm Peak Laboratory

- 2007- present; Directs a community program at Storm Peak Laboratory, giving field trips to all 5th grade students in public elementary schools within North-Western Colorado. This program provides a three day lesson on the topics of weather and climate and reaches over 400 elementary students each year
- 2004 Conducted Laboratory Training for students of the Atmospheric Brown Cloud Training School,

  Hanimaadhoo, Maldives, Oct 9-14
- 2005 Reviewer of Proposals for NASA Tropical Cloud Systems and Processes (TCSP) mission
- 2005 Seminar Director for Earth Science Division at NASA Ames Research Center
- 2005 Reviewer of Proposals for Instrument Working Group of NASA Ames Research Center
- 2006 Participated in the UCAR Member Representatives Diversity breakout session

PUBLICATIONS

Peer-Reviewed Journal Articles

de Wekker,S.F.J., A. Ameen, G. Song, B.B. Stephens, A.G. Hallar, and I.B. McCubbin, 2009: A preliminary investigation of boundary layer effects on daytime atmospheric CO2 concentrations at a mountaintop location in the Rocky Mountains. Acta Geophysica, published on-line, doi:10.2478/s11600-009-0033-6.

Wiedinmyer, C., R.M. Bowers, N. Fierer, E. Horanyi, M. Hannigan, A.G. Hallar, I. McCubbin, K. Baustian, 2009: The contribution of biological particles to observed particulate organic carbon at a remote high altitude site. *Atmos. Environ.,* **43,** 4278–4282.

Faïn, X., Obrist, D., Hallar, A. G., McCubbin, I., and Rahn, T., 2009: High levels of reactive gaseous mercury observed at a high elevation research laboratory in the Rocky Mountains, *Atmos. Chem. Phys. Discuss.*, **9,** 15641-156719.

Bowers, R.M., C.L. Lauber, C. Wiedinmyer, M. Hamady, A.G. Hallar, R. Fall, R. Knight, and N. Fierer, 2009: Characterization of Airborne Microbial Communities at a High-Elevation Site and their Potential to Act as Atmospheric Ice Nuclei, *Applied and Environmental Microbiology,* Aug. 2009, p. 1–2 Vol. 75, No. 15, doi:10.1128/AEM.00447-09.

Obrist D., A.G. Hallar, I. McCubbin, B.B. Stephens, and T. Rahn, 2008: Measurements of atmospheric mercury at Storm Peak Laboratory in the Rocky Mountains: Evidence for long-range transport from Asia, boundary layer contributions, and plant mercury uptake. *Atmos. Environ.*, doi:10.1016/j.atmosenv.2008.06.051.

Obrist, D., A. Gannet Hallar, Ian McCubbin, Britton B Stephens, Thom Rahn; Atmospheric mercury concentrations at Storm Peak Laboratory in the Rocky Mountains: Evidence for long-range transport from Asia, boundary layer contributions, and plant mercury uptake, Atmospheric Environment, July 2008, in press.

Davis, S., A. G. Hallar, L. M. Avallone, T. Campos, B. Engblom, 2006: Measurement of total water with a tunable diode laser hygrometer: Inlet analysis calibration procedure, and ice water content determination. Journal of Atmospheric and Oceanic Technology, Vol. 24, No. 3, pages 463–475.

Hallar, A.G., A.W. Strawa, B. Schmid, E. Andrews, J. Ogren, P. Sheridan, R. Ferrare, D. Covert, R. Elleman, H. Jonsson, K. Bokarius, A. Luu, 2005: ARM Aerosol Intensive Operating Period: Comparison of aerosolscattering during coordinated flights. J. Geophys. Res., doi: 2005JD006250RR.

Thornton, B.F., D.W. Toohey, L.M. Avallone, A. G. Hallar, H. Harder, M. Martinez, J. B. Simpas, W. H. Brune, M. Koike, Y. Kondo, N. Takegawa, B. E. Anderson, M. A. Avery 2005: Variability of active chlorine in the lowermost Arctic stratosphere. J. Geophys. Res., 110, D22304, doi:10.1029/2004JD005580.

Strawa, A.W., R. Elleman, A.G. Hallar, D. Covert, K. Ricci, R. Provencal, T. Owano, H. Jonsson, B. Schmid, A. Luu, K. Bokarius, E. Andrews, 2005: In-Situ Measurement of Aerosol Optical Properties Made During the DOE Aerosol IOP: 1. Comparison of Extinction and Scattering Coefficients. J. Geophys. Res., doi: 2005JD006056.

Schmid, B., R. Ferrare, C. Flynn, R. Elleman, D. Covert, A. Strawa, E. Welton, D. Turner, H. Jonsson, J. Redemann, J. Eilers, K. Ricci, A. G. Hallar, M. Clayton, J. Michalsky, A. Smirnov, B. Holben, J. Barnard, 2005: How well can we measure the vertical profile of tropospheric aerosol extinction? J. Geophys. Res., doi: 2005JD005837.

Lopez, J., A. Fridlind, H-J Jost, M. Loewenstein, A. Ackerman, T. Campos, E. Weinstock, D. Sayres, J.B. Smith, J. Pittman, A. Hallar, L. Avallone, S. Davis, R. Herman, 2005: CO signatures in subtropical convective clouds and anvils during CRYSTAL-FACE: Constraining entrainment rates with observations. J. Geophys. Res., doi: 2005JD006104.

Hallar, A.G., L.M. Avallone, R.L. Herman, B.E. Anderson, and A.J. Heymsfield, 2004: Measurements of ice water content in tropopause region arctic cirrus during the SAGE III Ozone Loss and Validation Experiment (SOLVE). J. Geophys. Res., 109 (D17203) doi 10.1029/2003JD004348.

Kondo, Y., O.B. Toon, H. Irie, B. Gamblin, M. Koike, N. Takegawa, M.A. Tolbert, P.K. Hudson, A.A. Viggiano, L.M. Avallone, A.G. Hallar, B.E. Anderson, G.W. Sachse, D.E. Hunton, J.O. Balentine, and T.M. Miller, 2003: Uptake of nitric acid on cirrus cloud particles in the upper troposphere and lowermost stratosphere. Geophys. Res. Lett., 30(4), doi:10.1029/2002GL016539

Other Publications

Strawa, A.W., A.G. Hallar, R. Castaneda, K. Ricci, A. P. Luu, R. Provencal, A. Bucholtz, B. Schmid, D. Covert, R. Elleman, W.P. Arnott, 2004: Cavity Ring Down Measurement of Aerosol Scattering, Extinction, and Absorption during DOE Aerosol Intensive Operating Period. Manuscript presented at Air and Waste Management Conference, April 2004, Research Triangle Park, NC.

Hallar, A.G., and A.W. Strawa, 2004: In situ Measurements of Aerosol Optical Properties With An Emphasis on Spectral Properties of Carbonaceous Aerosols. Proceedings SOFIA Upper Deck Science Opportunities Workshop, NASA Ames Research Center, Moffett Field, CA, June 22-23, 2004.

Invited Talks

Hallar, A.G.: Currently Research Opportunities at Storm Peak Laboratory, NCAR, Boulder, CO, May 2007.

Hallar, A.G., and L.M. Avallone, 2003: What we learned from CRYSTAL-FACE; Measurement of Thin Cirrus via Closed Path Tunable Diode Laser Hygrometer, invited talk NASA AMES Research Center; Moffett Field, CA, August 3, 2003.

Hallar, A.G. , D. Obrist, I. McCubbin, T.A. Rahn, Research in Transport of Asian Pollution at Storm Peak Laboratory, Empa, Swiss Federal Institute for Materials Testing and Research, Lab 134, Dubendorf, Switzerland, August 2008.

Hallar, A.G., D. Obrist, I. McCubbin, T.A. Rahn, Research in Transport of Asian Pollution at Storm Peak Laboratory, Paul Scherrer Institut (PSI), Labor für Atmosphärenchemie, Switzerland, August 2008.

Hallar, A.G., D. Obrist, I. McCubbin, T.A. Rahn, Research in Transport of Asian Pollution at Storm Peak Laboratory, Department of Chemistry, University of Copenhagen, Denmark, August 2008.

Talks/Meeting Abstracts

Hallar AG, Obrist D, McCubbin IB, Faïn X, Rahn T (2008). Chemical and Aerosol Signatures of Biomass Burning via Long Range Transport observed at Storm Peak Laboratory. Eos Trans AGU 89(53), Fall Meet Suppl Abstract A21B-0137.

Hallar A. G., I B McCubbin, B L Hallar, W Stockwell, J Kittelson, J Lopez (2008) Geoscience Research at Storm Peak (GRASP), a year-long program providing exceptional field research for a diverse group of undergraduate students, Eos Trans AGU 89(53), Fall Meet Suppl Abstract ED53A-0584.

Hallar A.G., I.B. McCubbin, J. Wright; Two Successful Outreach Programs at Storm Peak Laboratory: GRASP for Undergraduates and Partnership for 5th Grade Science Education, Presentation at American Geophysical Union Fall Meeting, San Francisco, CA, December 2007.

Hallar, A G, Obrist, D, McCubbin, I B, Rahn, T. Measurements of atmospheric mercury at Storm Peak Laboratory in the central Rocky Mountains: Evidence for local/ regional emissions and influence of long-range transport from Asia. American Geophysical Union Fall Meeting, December 2007.

Hallar, A.G., Obrist, D. McCubbin, I.B., Storm Peak Laboratory's Research of Long Range Transport and Outreach Activities, Presented at NASA Goddard Institute of Space Technology, New York, New York, October 3, 2007.

Hallar, A.G., I.B. McCubbin, GeoScience Research at Storm Peak; Presented at NSF Opportunities for Enhancing Diversity in GeoScience Principal Investigator Meeting, Washington D.C., October 2007.

Hallar A.G., I.B. McCubbin, Outreach Plans for Storm Peak Laboratory, Presentation at American Geophysical Union Fall Meeting, San Francisco, CA, December 2006.

Hallar A.G., I.B. McCubbin, Research Opportunities at Storm Peak Laboratory, Presentation at American Geophysical Union Fall Meeting, San Francisco, CA, December 2006.

Hallar, A.G., A.W. Strawa, T.W. Kirchstetter, R.A. Harley, and K. Bokarius: In-Situ Measurements of Aerosols from Motor Vehicles in the Caldecott Tunnel, Presentation at American Geophysical Union Fall Meeting, San Francisco, CA, December 2005.

Hallar, A.G., A.W. Strawa, T.W. Kirchstetter, R.A. Harley, and K. Bokarius : In-Situ Measurements of Aerosols from Motor Vehicles in the Caldecott Tunnel. Presentation at American Association for Aerosol Research Conference, Austin, TX, October 2005.

Hallar, A.G., A.W. Strawa, T.W. Kirchstetter, R.A. Harley, R. Castaneda, K. Bokarius, and A.P. Luu: In-Situ Measurements of Aerosols within the Caldecott Traffic Tunnel. Presentation at European Aerosol Conference, Ghent, Belgium, September 2005.

Hallar, A.G., A.W. Strawa, B. Schmid, E. Andrews, J. Ogren, R. Ferrare, D. Covert, and R. Elleman, Comparison Study of Optical Properties During the Aerosol IOP from Multiple Aircraft Platforms. Poster presented at the Atmospheric Radiations Measurement (ARM) Science Team Meeting, Dayton Beach, FL, March 2005.

Hallar, A.G., A.W. Strawa, D. Covert, H. Jonsson, TW Kirchsteatter, B Schmid, A P Luu, J Redemann, and K Bokarius, In-Situ Measurements of Aerosol Optical Properties using New Cavity Ring Down - Results from Two Recent Field Missions. Talk presented at the American Geophysical Union Meeting, December 2004.

Hallar, A.G., L.M. Avallone, R.L. Herman, and T. Campos, 2003: Measurements of Ice Water Content using closed path tunable diode laser hygrometer. Poster presented at EGS Meeting, Nice, France; April 2003.

Hallar, A.G., L.M. Avallone, R.L. Herman, and T.J. Garrett, Contrast and Comparisons of in situ measurements of IWC, extinction, and size distributions during two cirrus cloud case studies (7/9/2002 and 7/11/2002). Poster presented at Crystal Face Science Team Meeting, Salt Lake City, Utah; February 2003.

Hallar, A.G., L.M. Avallone, R.L. Herman, B.E. Anderson, A.J. Heymsfield, Measurements of Ice Water Content in Tropopause Arctic Cirrus during SOLVE (SAGE III Ozone Loss and Validation Experiment). Talk presented at American Geophysical Union Spring Meeting, San Francisco; December 2002.

Co-Authored Talks

McCubbin, I.B., A G Hallar (2008) Storm Peak Laboratory 5th-6th Grade Climate and Weather Program Eos Trans AGU 89(53), Fall Meet Suppl Abstract ED21B-0622.

Faïn X, Obrist D, Hallar G, McCubbin I, Rahn T (2008). Speciated mercury measured at a high elevation research station, Colorado: in situ conversion and long range transport. Eos Trans AGU 89(53), Fall Meet Suppl Abstract A53D-0323A.

Obrist D, Alewell C, Mc Cubbin I, Faïn X, Gustin M, Fritsche J, Hallar G, Johnson DW, Lindberg S, Luo Y, Luria M, Moosmüller H. (2008) Interactions of atmospheric mercury with terrestrial ecosystems: uptake, storage, and emissions, University of New Hampshire, Climate Change Research Center and NOAA AIRMAP Cooperative Institute Institute for the Study of Earth, Oceans, and Space. Invited Seminar, October 8, 2008.

McCubbin, I.B., A. G. Hallar, D. Obrist, D. Lowenthal, C. Wiedinmyer, T. A. Rahn, and C. Mazzoleni, Storm Peak Laboratory Investigates Air Quality from Regional and Long Range Sources, American Meteorological Society, 13th Conference on Mountain Meteorology, Whistler, BC, Canada, Aug 13, 2008.

McCubbin, I.B., A G Hallar (2008) Storm Peak Laboratory 5th-6th Grade Climate and Weather Program American Meteorological Society, 13th Conference on Applied Climatology, Whistler, BC, Canada, Aug 2008.

Goliff, W.S., M Luria, W R Stockwell, R Valente, A G Hallar (2008) NO3 Induced Nighttime Air Chemistry Eos Trans AGU 89(53), Fall Meet Suppl Abstract A54C-07.

Colton J.D, J.D. Ramey Jr., M.P. Meyers, D. Wesley, I.B. McCubbin, A.Gannet Hallar, Unique Snowfall Distribution over the Park Range and Upper Yampa River Valley during the La Nina Winter of 2007-2008. American Meteorological Society, 13th Conference on Mountain Meteorology, Whistler, BC, Canada, Aug 2008.

Shar Samy, B. Zielinska, A.Gannet Hallar, Water-Soluble Organic Compounds in Mid-Tropospheric Aerosols, Poster Presentation, 9th International Conference on Carbonaceous Particles in the Atmosphere, August 2008, Lawrence Berkeley National Laboratory, Berkeley, California.

D. Obrist, A. G. Hallar, I.B. McCubbin, Mercury monitoring at Storm Peak Laboratory in Colorado to determine regional and Asian long-range transport contributions to atmospheric mercury loads, International Conference on Air Quality, Air Quality VI Conference, Arlington, VA, September 2007.

AW. Strawa, AG. Hallar, TW. Kirchstetter ,GA. Ban-Weiss, JP. McLaughlin , RA. Harley, MM. Lunden, , AJ. Kean, ED. Stevenson and GR. Kendall, Measurement of the Optical and Physical Properties of Light-duty and Heavy-Duty Vehicle Particulate Emissions, European Aerosol Conference, Salzburg, Austria, September 2007.

AW. Strawa, AG. Hallar, TW. Kirchstetter ,GA. Ban-Weiss, JP. McLaughlin , RA. Harley, MM. Lunden, , AJ. Kean, ED. Stevenson and GR. Kendall, Measurement of the Optical and Physical Properties of Light-duty and Heavy-Duty Vehicle Particulate Emissions, 17th CRC On-Road Vehicle Emissions Workshop San Diego, California March, 2007

A.W. Strawa, T.W. Kirchstetter, A.G. Hallar, R.A. Harley, T. Le, R. Brill, Aerosol size distributions and optical properties in the Caldecott Tunnel with different traffic patterns, American Geophysical Union Meeting, San Francisco, CA, December 2006.

Schmid, B., R. Ferrare, C. Flynn, R. Elleman, D. Covert, A. Strawa, E. Welton, D. Turner, H. Jonsson, J. Redemann, J. Eilers, K. Ricci, A. G. Hallar, M. Clayton, J. Michalsky, A. Smirnov, B. Holben, J. Barnard, 2005: How well can we measure the vertical profile of tropospheric aerosol extinction? European Aerosol Conference, Ghent, Belgium, Aug 28 - Sept 2, 2005

Schmid, B., R. Ferrare, C. Flynn, R. Elleman, D. Covert, A. Strawa, E. Welton, D. Turner, H. Jonsson, J. Redemann, J. Eilers, K. Ricci, A. G. Hallar, M. Clayton, J. Michalsky, A. Smirnov, B. Holben, and J. Barnard, 2005: How well can we measure the vertical profile of tropospheric aerosol extinction? Talk Presented at ARM Science Team Meeting, Dayton, FL. March 2005

Strawa, A.W., A.G. Hallar, R. Castaneda, K. Ricci, R. Provencal, A. Bucholtz, B. Schmid, D. Covert, R. Elleman, W.P. Arnott, 2005: Cavity Ring Down Measurement of Aerosol Scattering, Extinction, and Absorption during DOE Aerosol Intensive Operating Period. Poster presented at the Aerosol Radiation Measurement Science Team Meeting, Dayton FL. March 2005.

Strawa, A.W., A.G. Hallar, A.P. Arnott, R. Elleman, D. Covert, J. Ogren, B. Schmid, J. Redemann, A. Bucholtz, and H.H. Jonnson, 2005: In-Situ Measurements of Aerosol Optical and Physical Properties. Presented at the European Aerosol Conference, Ghent, Belgium, September 2005.

Strawa, A.W., A.G. Hallar, A.P. Arnott, R. Elleman, D. Covert, J. Ogren, B. Schmid, J. Redemann, A. Bucholtz, H.H. Jonsson, and C. Corrigan, 2005: In-Situ Measurements of Aerosol Optical and Physical Properties. Presented at the AAAR Annual Conference, Austin, Texas, October, 2005

Heymsfield, A.J., A. Bansemer, C. Schmitt, D. Baumgardner, M. Poellot, C. Twohy, E. Weinstock, J. Smith, L.M. Avallone, A.G. Hallar, and R.P. Lawson, 2004: Properties of Tropical Convectively Generated Cirrus. 14th International Conference on Clouds and Precipitation, Bologna, Italy, July 2004.

Kirchstetter, T., A. W. Strawa, A. G. Hallar, R. Harley, G. Kendall, J. Hesson, E. Stevenson, A. Miguel, Characterization of Particle and Gas Phase Pollutant Emissions from Heavy and Light Duty Vehicles in a California Roadway Tunnel, Poster Presented at American Geophysical Union Meeting, December 2004.

Strawa, A.W., A. G. Hallar, D. Coverty, R. Ellleman, R. A. Ferrare, H. Jonsson, A. P. Luu, J. Ogren, K. Ricci, B. Schmid, P. Arnott, R. Castaneda, In-Situ Measurements of Aerosol Optical Properties using new Cavity Ring Down and Photoacoustic Instruments and Comparisons with more Traditional Techniques, Poster presented at the American Geophysical Union Meeting, December 2004.

Schmid., B., R. Ferrare, C. Flynn, R. Elleman, D. Covert, A. Strawa, E. Welton, J. Barnard, M. Bartholomew, M. Clayton, J. Eilers, A.G. Hallar, B. Holben, H. Jonsson, J. Michalsky, J. Redemann, K. Ricci, A. Smirnov, D. Turner. How well can we measure the vertical profile of aerosol extinction? ARM Aerosol IOP and Working Group Meeting , Boulder , CO, December, 2004.

Strawa, A.W., A.G. Hallar, R. Castaneda, K. Ricci, R. Provencal, A. Bucholtz, B. Schmid , D. Covert, R. Elleman, W.P. Arnott. Cavity Ring Down Measurement of Aerosol Scattering, Extinction, and Absorption during DOE Aerosol Intensive Operating Period. ARM Science Team Meeting, March 22 – 26, Albuquerque , New Mexico, 2004 .

Strawa, A.W., P. Arnott, D. Covert, R. Elleman, R. Ferrare , A.G. Hallar, H. Jonsson, T. W. Kirchstetter, A. P. Luu, J. Ogren, K. Ricci , B. Schmid , T. Novakov, In-Situ Measurements of Aerosol Optical Properties Using New Cavity Ring-Down and Photoacoustic Instruments and Comparisons with More Traditional Techniques. International Conference on Carbonaceous Particles in the Atmosphere, Vienna, September 14 -16, 2004.

Strawa, A.W., A.G. Hallar, W.P. Arnott, D. Covert, R. Elleman, J. Ogren, B. Schmid , A. Luu. A Comparison of Aerosol Optical Property Measurements Made During the DOE Aerosol Intensive Operating Period and Their Effects on Regional Climate. 2004 AAAR Annual Conference, Atlanta , Georgia , October 4-8, 2004 .

Avallone, L.M. and A.G. Hallar, 2003: Measurements of ice water content in low latitude cirrus clouds. Poster presented at the American Geophysical Union Meeting, San Francisco, CA. December 2003.

Heymsfield, A.J., D. Baumgardner, M. Poellot, C. Twohy, E. Weinstock, J. Smith, Sayrers, D., L.M. Avallone, A.G. Hallar, 2003: Tropical Anvil Cirrus Microphysics. Talk Presented at American Geophysical Union Meeting, San Francisco, CA, December 2003.

Avallone, L.M., and A.G. Hallar, 2000. Trace gas correlations in the tropopause region as observed from the NASA DC-8 during SOLVE. Talk and poster presented at the SOLVE-THESEO Science Team Meeting, Palermo, Italy; September 2000.

Avallone, L.M., A.M. Gates, and A.G. Hallar, 2001: Trace gas correlations near the high-latitude tropopause with measurements from a new suite of instruments. Talk presented at the Spring American Geophysical Union Meeting, Boston, MA; May 2001.

Avallone, L.M., A.M. Gates, and A.G. Hallar, 2001: Trace gas correlations near the high-latitude tropopause with measurements from a new suite of instruments. Talk presented at the International Association of Meteorology and Atmospheric Sciences (IAMAS) Meeting, Innsbruck, Austria; July 2001.