

ANNA GANNET HALLAR

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Director, Storm Peak Laboratory
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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

2022	Professor, Department of Atmospheric Sciences, University of Utah, Salt Lake City, UT.
2016 – 2022	Associate Professor, Department of Atmospheric Sciences, University of Utah, Salt Lake City, UT.
2006 – Present	Director, Storm Peak Laboratory, Steamboat Springs, CO.
2016 – Present	Affiliate Research Professor, Division of Atmospheric Sciences, Desert Research Institute, Reno, NV.
2014 – 2016	Research Professor, Division of Atmospheric Sciences, Desert Research Institute, Reno, NV.
2012 – 2014	Program Director, Physical and Dynamic Meteorology (PDM), Div. of Atmospheric & Geospace Sciences (AGS), National Science Foundation, Arlington, VA.
2012 – 2014	Associate Research Professor, Division of Atmospheric Sciences, Desert Research Institute Reno, NV.
2006 – 2012	Assistant Research Professor, Division of Atmospheric Sciences, Desert Research Institute Reno, NV.
2006 – 2016	Adjunct Faculty, Atmospheric Science Program, Department of Physics, University of Nevada, Reno.
2004 – 2006	National Research Council Fellow, Postdoctoral Research Associate, NASA Ames Research Center, Moffett Field, CA.; Advisor: Dr. Anthony Strawa.
2006 – 2006	Adjunct Professor, Environmental Studies, Santa Clara University, CA.
1999 – 2003	Graduate Research Assistant, Laboratory for Atmospheric and Space Physics; University of Colorado at Boulder, CO.; Advisor: Dr. Linnea Avallone.
2003	Graduate Teaching Assistant, Program in Atmospheric and Oceanic Studies, University of Colorado at Boulder, CO.

1996 – 1999	Undergraduate Teacher's Assistant, Multidisciplinary course titled "Physics for Poets", Department of Physics, Truman State University, Kirksville, MO. Advisor: Dr. Ken Hahn.
1999	Undergraduate Research Assistant Truman State, University Physics Department, Kirksville, MO; Advisor: Dr. David Chyba.
1998	Student Volunteer for National Weather Service, Weather Forecasting Office in Pleasant Hill, MO.

AWARDS/HONORS RECEIVED

- Awardee, 2019, Outstanding Teacher of the College of Mines and Earth Science, University of Utah
- Awardee, 2012 Regents' Rising Research Award from the Nevada System of Higher Education Board of Regents.
- Awardee, Peter B. Wagner 2011 Medal of Excellence for DRI Scholars in the Early Stages of Career Development.
- 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
- University of Colorado at Boulder, Program in Atmospheric and Oceanic Science, Graduate Student Travel Grant for European Geophysical Society Meeting -2003
- National Aeronautics and Space Administration, Group Achievement Award – CRYSTAL-FACE – 2003
- Truman State University, President's Combined Ability Scholarship – 1995 to 1999
- Truman State University, Eugene Smith Physics Scholarship – 1997

FUNDED PROJECTS as Principal Investigator (PI):

Title: ARM Data to Understand the Impact of New Particle Formation on Cloud Condensation Nuclei Concentration in Different Environments

Sponsor: DOE ARM

Funding: \$719,194 Duration 8/22 – 7/25

Title: CIF: Storm Peak Laboratory – Facility for Research and Research Training in Atmospheric Sciences

Sponsor: NSF

Funding: \$468,135 Duration 8/21 – 8/26

Title: Collaborative Research: Mercury oxidations pathways in a continental atmosphere: High temporal resolution measurements of mercury and oxidants at Storm Peak Laboratory

Sponsor: NSF

Funding: \$231,462 Duration: 3/20 – 2/23

Title: REU Site: An Inclusive Research Experience in ALpine Meteorology (REALM)

Sponsor: NSF

Funding: \$395,992 Duration: 10/19-9/23

Title: Collaborative Research: An in situ Closure Study of Mixed Phase Clouds at Storm Peak

Sponsor: NSF

Funding: \$257,333 Duration: 2/18 – 2/21

Title: Aerosol-Cloud-Precipitation Interactions during StormVEx

Sponsor: Department of Energy Atmospheric Science Research

Funding: \$361,252 Duration: 7/15 – 6/18

Title: Major Research Instrumentation: Acquisition of New Generation of Aerosol, Trace Gas, and Water Isotope Instruments for Storm Peak Laboratory

Sponsor: National Science Foundation

Funding: \$217,880 Duration: 4/11 - 3/13

Title: Collaboration between DRI and NASA GISS - Bioaerosols in Cloud Processing

Sponsor: Nevada NASA EPSCoR program

Funding: \$62,416 Duration: 8/11 – 8/12

Title: Collaborative Research: Colorado Airborne Multi-Phase Cloud Study (CAMPS)

Sponsor: National Science Foundation

Funding: \$117,180 Duration: 01/10 – 12/12

Title: Collaborative Research: Hygroscopic Properties of Aerosol Organics

Sponsor: National Science Foundation

Funding: \$347,253 Duration: 11/09 – 10/12

Title: Track 1 – Geoscience Research at Storm Peak Lab (GRASP)

Sponsor: National Science Foundation

Funding: \$198,216 Duration: 07/09 – 06/12

Title: Upgrades to Storm Peak Laboratory, a High Elevation Atmospheric Research and Education Station

Sponsor: National Science Foundation

Funding: \$601,245 Duration: 03/10 – 02/12

Title: Collaborative Research: ADVANCE Atmospheric Science Collaborations and Enriching Networks (ASCENT)

Sponsor: National Science Foundation

Funding: \$278,850 Duration: 01/09 – 12/11

Title: The Storm Peak Lab Cloud Property Validation Experiment (StormVEx)

Sponsor: Department of Energy

Funding: \$137,841 Duration: 11/09 – 10/11

Title: NASA JPL Airborne Cloud Radar Trailer at Storm Peak Lab Cloud Properties Validation

Sponsor: UCCSN Nevada - EPSCoR

Funding: \$36,520 Duration: 07/09 – 06/10

Title: Collaborative Research: RAPID--Investigating Potential Secondary Organic Aerosol (SOA) Increases Due to Beetle Infestation across the Western United States

Sponsor: National Science Foundation

Funding: \$55,581 Duration: 05/09 – 5/10

Title: Geoscience Research at Storm Peak with Diversity (GRASP)

Sponsor: National Science Foundation

Funding: \$71,913 Duration: 03/07 – 04/08

Title: Climatic Studies of Thin Cirrus
Sponsor: NASA-Ames Research Center
Funding: \$93,028 Duration: 01/07 – 12/07

FUNDED PROJECTS as Co-Principal Investigator (Co-PI):

Title: High Latitude Aerosol-Cloud Interaction during MARCUS, MICRE, and AWARE: The role of CCN variability on Marine Cloud Brightening and links to Precipitation
PI: Jay Mace
Funding: \$526,000 Duration: 8/2021 – 3/2024

Title: Cold Fog Amongst Complex Terrain (CFACT)
PI: Z. Pu
Sponsor: National Science Foundation
Funding: \$1,171,902 Duration: 4/2021 – 3/2024

Title: Collaborative Research: NO₃ Induced Nighttime Air Chemistry
PI: W. Goliff
Sponsor: National Science Foundation
Funding: \$310,008 Duration: 07/07 – 06/11

Title: Local Host and Logistical Support for DOE-ARM AMF2 Deployment to StormVEx
PI: I. McCubbin
Sponsor: DOE - ANL
Funding: \$464,635 Duration: 07/10 – 08/11

Title: MRI: Development of a Cavity Ring-Down Sensor for Real-Time Measurement of Atmospheric Mercury Concentrations and Fluxes
PI: D. Obrist
Sponsor: National Science Foundation
Funding: \$653,473 Duration: 09/09 – 08/12

CLASSES TAUGHT

Santa Clara University

Environmental Technology (ENVS 145)

Spring 2004

University of Nevada, Reno

Field Course in Mountain Meteorology at Storm Peak Lab (ATMS 750)

Fall 2007 2010, 2014, 2017

University of Utah

Physical Meteorology I - Atmospheric Thermodynamics (ATMOS 5130)

Spring 2017, 2018, 2019, 2020

Physical Meteorology II - Atmospheric Radiation (ATMOS 5140)

Spring 2017

Physical Meteorology III – Cloud and Aerosol Physics (ATMOS 5200)

Fall 2017

Atmospheric Chemistry and Air Pollution (ATMOS 3100)

Spring 2018, 2019, 2020, 2021, 2022

Professional Development for Atmospheric Science Students

Fall 2018, 2019, 2020, 2021

Experiential Learning in Atmospheric Sciences

Fall 2020, 2021

FIELD STUDIES

**Cold Fog Amongst Complex Terrain (CFACT): Heber Valley, Utah
January – February 2022**

Investigate cold fog development and environmental condition in complex terrain with the latest observation technology.

Utah Winter Fine Particulate Aircraft Study: University of Utah

January – February 2017

Increase scientific understanding of the complex atmospheric chemistry that drives the formation of unhealthy levels of particulate matter.

Isotopic Fractionation in Snow (IFRACS) – Storm Peak Laboratory:

December 2013 – February 2014

Study to improve understanding of precipitation processes in mixed phase orographic clouds and the variation in the isotopic signature of snowfall associated with aerosol effects on cloud microphysics.

Aerosol Lifecycle Intensive Operating Period – Brookhaven National Laboratory:

June-September 2011

Deployment of the Department of Energy Atmospheric Radiation Measurement Mobile Facility for ground based aerosol field campaign.

Colorado Airborne Multiphase Cloud Study (CAMPS) – Laramie, Wyoming:

December 2010- February 2011

Research aircraft flights using the University of Wyoming King Air over the StormVEx field sites.

Storm Peak Cloud Properties Validation Experiment (StormVEx):

October 2010 - May 2011

Deployment of the Department of Energy Atmospheric Radiation Measurement Mobile Facility.

Hygroscopic Growth of Organic Aerosols - Storm Peak Laboratory:

June - August 2010

In situ aerosol measurements to study relationship between aerosol chemistry and cloud droplet formation.

Inhibition of Snowfall by Pollution Aerosols II (ISPA II) - Storm Peak Laboratory:

January -February 2010

Investigates the relationships among pollution aerosols, snow growth by riming, and snowfall amounts on the ground.

Storm Peak Aerosol and Cloud Characterization (SPACC) – Storm Peak Laboratory:

March-April 2007

Multiple disciplinary investigations of organic aerosols in the free troposphere.

Inhibition of Snowfall by Pollution Aerosols I (ISPA I) - Storm Peak Laboratory:

January -February 2007

Investigates the relationships among pollution aerosols, snow growth by riming, and snowfall amounts on the ground.

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 aerosol extinction and scattering 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.

SYNERGISTIC ACTIVITIES

- Member (2014-2022) and Chair (2019-2022) of President's Advisory Committee on University Relations (PACUR), which builds and reinforces relationships between UCAR management and its membership.
- Member of the Department of Energy's Atmospheric Radiation Measurements (ARM) Aerosols Measurements and Science Group (2016 – 2021) and Chair (2022-present), which reports to ARM and interacts closely with Atmospheric System Research to address aerosol measurements needs.
- Utah Pathways to STEM Initiative (UPSTEM) faculty fellow, training in inclusive teaching and mentoring strategies (2021-2022)
- Member of the Department of Energy Atmospheric Radiation Measurements (ARM) Science Board (2015 – 2018).
- College of Mines and Earth Sciences Representative for the Global Change and Sustainability Executive Committee at the University of Utah (2018-2021).
- Elected to the Department of Energy Atmospheric Radiation Measurements (ARM) User Executive Committee in 2014, an independent body charged with providing objective, timely advice and recommendations to the leadership of the ARM Climate Research Facility.
- Editor for Aerosol and Air Quality Research – Open Access Journal (2019-present).
- Guest editor for Special issues in Aerosol and Air Quality Research on Atmospheric Chemistry and Physics at Mountain Sites (2014-2015) and (2019).
- Hosted the 13th AeroCom workshop in Steamboat Springs, CO, September 29 to October 2, 2014.
- Hosted the 2nd AeroSat workshop in Steamboat Springs, CO, September 27-28, 2014.
- Hosted 2014 Symposium on Atmospheric Chemistry and Physics at Mountain Sites in Steamboat Springs, CO, August 11-15, 2014.
- Session Convener at AGU 2013 Meeting for "Chemical, Physical, and Morphological Properties of Remote Aerosols".
- Session Convener at AAAR 2013 Meeting for "Bioaerosols: Characterization and Environmental Impact".
- Session Convener at AGU 2012 and 2013 Meeting for "Aerosol Observations at High Elevation".
- Chair, NSF's Observing Facilities Assessment Panel (OFAP) provided technical and operational assessment of requests associated with the use of NSF's Lower Atmospheric Observing Facilities in the field (2010 to 2012).
- Panelist, NSF's OFAP provided technical and operational assessment of requests associated with the use of NSF's Lower Atmospheric Observing Facilities in the field (2009-2012).
- Chair, the AMS Mountain Meteorology Meeting, Steamboat Springs, CO, August 2012.

- Representative, University Cooperative for Atmospheric Research, Nevada System of Higher Education (2008 to present).
- Served on External Panel to review NASA Langley Science Directorate, focusing on the atmospheric airborne capabilities (2011).
- Chair, Peter B. Wagner Memorial Award for Women in Atmospheric Sciences (2011–2012).
- Chair, Platform Session, “Aerosol optical depth and other aerosol properties” at the Atmospheric Chemistry and Physics at Mountain Sites Symposium, Interlaken, Switzerland, June 2010.
- Participant, NSF Sponsored Biogenic Secondary Organic Aerosol Nordic program (2008–2010). Program included three visits to Nordic research centers in Denmark, Sweden, and Finland.
- Active member of “Earth Science Women’s Network” (2007 to present).
- Commonly review NSF, DOE, EPA and NASA proposals, both as an adhoc reviewer and via panel service, in atmospheric science and education (2007-present).
- Review for AMS and AGU journals, *Science*, *Atmospheric Environment*, *Environmental Science & Technology* (2007-present).
- Featured on CNN, History Channel, The Weather Channel, and nightly news nationally representing Storm Peak Laboratory (2007-present).
- Assisted Timothy R. Gaffney on a chapter for his children’s book titled “Extreme Weather Scientists”. A chapter features my research experiences at Storm Peak Laboratory (2007-2008).
- Directs a community program at Storm Peak Laboratory, giving field trips middle school students in Northwestern Colorado. This program provides a three-day lesson on the topics of weather and climate and reaches ~ 200 elementary students each year (2007-present).
- Participated in the UCAR Member Representatives Diversity breakout session (2006).
- Seminar Director for Earth Science Division at NASA Ames Research Center (2005).
- Conducted Laboratory Training for students of the Atmospheric Brown Cloud Training School, Hanimaadhoo, Maldives, Oct 9-14, 2004.

MEMBERSHIPS

- 2000-2021 Member, American Geophysical Union
- 2015-2021 Member, American Meteorological Society

PUBLICATIONS

Peer-Reviewed Journal Articles:

- Hirshorn, N. S., Zuromski, L. M., Rapp, C., McCubbin, I., Yu, F., and Hallar, A. G.: Seasonal Significance of New Particle Formation Impacts on Cloud Condensation Nuclei at a Mountaintop Location, *Atmos. Chem. Phys. Discuss.* [preprint], <https://doi.org/10.5194/acp-2022-338>, in review, 2022.
- Hodshire, A. L., Levin, E. J. T., Hallar, A. G., Rapp, C. N., Gilchrist, D. R., McCubbin, I., and McMeeking, G. R.: Technical Note: A High-Resolution Autonomous Record of Ice Nuclei Concentrations for Fall and Winter at Storm Peak Laboratory, *Atmos. Chem. Phys. Discuss.* [preprint], <https://doi.org/10.5194/acp-2022-29>, in review, 2022.
- Shah, J., R. Bares, B. Bowen, G. Bownen, D. Eiriksson, A. G. Hallar, J. Horel, S. Hinnert, L. Jamison, J. Lin, D. Pataki, R. Smith, S. Skiles, M. Wolf, P. Brooks; The Wasatch Environmental Observatory: A mountain to urban research network in the semi- arid Western US, *Hydrological Processes*, 10.1002/hyp.14352, 2021

- Mace, G. G., J. Mascio, S. Benson, M. Gergely, A. G. Hallar, I. McCubbin, and W. D. Mace, Variations in Observed and Derived Snowfall Properties During StormVEx, *Journal of Geophysical Research*, in preparation 2021.
- Hallar, A. G., Brown, S. S., Crosman, E., Barsanti, K. C., Cappa, C. D., Faloona, I., ... & Sullivan, A. (2021). Coupled Air Quality and Boundary-Layer Meteorology in Western US Basins during Winter: Design and Rationale for a Comprehensive Study. *Bulletin of the American Meteorological Society*, 102(10), E2012-E2033.
- Wilmot, T. Y., Hallar, A. G., Lin, J. C., & Mallia, D. V. (2021). Expanding number of Western US urban centers face declining summertime air quality due to enhanced wildland fire activity. *Environmental Research Letters*, 16(5), 054036.
- Rose, C., Collaud Coen, M., Andrews, E., Lin, Y., Bossert, I., Lund Myhre, C., Tuch, T., Wiedensohler, A., Fiebig, M., Aalto, P., Alastuey, A., Alonso-Blanco, E., Andrade, M., Artíñano, B., Arsov, T., Baltensperger, U., Bastian, S., Bath, O., Beukes, J. P., Brem, B. T., Bukowiecki, N., Casquero-Vera, J. A., Conil, S., Eleftheriadis, K., Favez, O., Flentje, H., Gini, M. I., Gómez-Moreno, F. J., Gysel-Beer, M., Hallar, A. G., ...and Laj, P. (2021): Seasonality of the particle number concentration and size distribution: a global analysis retrieved from the network of Global Atmosphere Watch (GAW) near-surface observatories, *Atmospheric Chemistry and Physics*, 21(22), 17185-17223.
- Hrdina, A., Murphy, J. G., Hallar, A. G., Lin, J. C., Moravek, A., Bares, R., Petersen, R. C., Franchin, A., Middlebrook, A. M., Goldberger, L., Lee, B. H., Baasandorj, M., and Brown, S. S. (2021) The Role of Coarse Aerosol Particles as a Sink of HNO₃ in Wintertime Pollution Events in the Salt Lake Valley, *Atmospheric Chemistry and Physics*, 21(10), 8111-8126.
- Koolik, L., Roesch, M., Deloya, L. J. F., Shen, C., Hallar, A. G., McCubbin, I. B., and Cziczko, D. J., 2022; A Phase Separation Inlet for Droplets, Ice Residuals, and Interstitial Aerosols, *Atmos. Meas. Tech. Discuss.*, <https://doi.org/10.5194/amt-2020-42>.
- Lambert, A., A. G. Hallar, M. Garcia, C. Strong, E. Andrews, J. L. Hand, 2020, Dust Impacts of Rapid Agricultural Expansion on the Great Plains, 47.20 (2020): e2020GL090347
- Kassianov, E. M. Pekour, L. Berg, G. Chirokova, C. Flynn, A. G. Hallar, A. Setyan, D. Zhang, J. Uin, J. Fast: 2019 Aerosol Total Volume Estimation from Wavelength- and Size-resolved Scattering Coefficient Data: A New Method, *Earth and Space Science*, Paper, 7.9 (2020): e2019EA000863.
- Laj, P., A. Bigi, C. Rose, E. Andrews, C. L. Myhre, M. Collaud Coen, A. Wiedensohler, M. Schultz, J. A. Ogren, J. Gliss, A. Mortier, M. Pandolfi, T. Petäjä, M. Kulmala, S-W Kim, W. Aas, J-P Putaud, M. Fiebig, O. Mayol Bracero, N. Prats, K. sellegri, J-M Pichon, J-M Metzger, P. Tulet, P. Villani, S. Conil, A. Alastuey, A. G. Hallar, ... A Global Analysis of Climate-Relevant Aerosol properties retrieved from the network of GAW near-surface observatories, *Atmospheric Measurement Techniques*, 2020.
- Petersen, R.C., A. G. Hallar, I. B. McCubbin, J. A. Ogren, E. Andrews, D. Lowenthal, R. Gorder, R. Purcell, Da. Sleeth & I. Novosselov (2019) Numerical, wind-tunnel, and atmospheric evaluation of a turbulent ground based inlet sampling system, *Aerosol Science and Technology*, DOI: 10.1080/02786826.2019.1602718
- Clegg, S.L., Mazzoleni, L.R., Samburova, V., Taylor, N.F., Collins, D.R., Schum, S.K. and Hallar, A.G., 2019. Modelling the hygroscopic growth factors of aerosol material containing a large water-soluble organic fraction, collected at the Storm Peak Laboratory. *Atmospheric Environment*. DOI: 10.1016/j.atmosenv.2019.05.068
- Japngie-Green, C.M., Andrews, E., McCubbin, I.B., Ogren, J.A. and Hallar, A.G., 2019. Climatology of Aerosol Optical Properties at Storm Peak Laboratory. *Aerosol and Air Quality Research*, 19(6), pp.1205-1213.
- Lowenthal, D. H., Hallar, A. G., David, R. O., McCubbin, I. B., Borys, R. D., and Mace, G. G.: Mixed-phase orographic cloud microphysics during StormVEx and IFRACS, *Atmos. Chem. Phys.*, 19, 5387-5401, <https://doi.org/10.5194/acp-19-5387-2019>, 2019.
- Collaud Coen, M., Andrews, E., Aliaga, D., Andrade, M., Angelov, H., Bukowiecki, N., Ealo, M., Fialho, P., Flentje, H., Hallar, A. G., Hooda, R., Kalapov, I., Krejci, R., Lin, N.-H., Marinoni, A., Ming, J., Nguyen, N. A., Pandolfi, M., Pont, V., Ries, L., Rodríguez, S., Schauer, G., Sellegri, K., Sharma, S., Sun, J., Tunved, P., Velasquez, P., and Ruffieux, D.: Identification of topographic features influencing aerosol observations at

- high altitude stations, *Atmos. Chem. Phys.*, 18, 12289-12313, <https://doi.org/10.5194/acp-18-12289-2018>, 2018.
- Andrews, E., Sheridan, P.J., Ogren, J.A., Hageman, D., Jefferson, A., Wendell, J., Alastuey, A., Alados-Arboledas, L., Bergin, M., Ealo, M. and Hallar, A.G., 2018. Overview of the NOAA/ESRL federated aerosol network. *Bulletin of the American Meteorological Society*, (2018).
- Skiles, S. M., Mallia, D. V., Hallar, A. G., Lin, J. C., Lambert, A., Petersen, R., & Clark, S. (2018). Implications of a shrinking Great Salt Lake for dust on snow deposition in the Wasatch Mountains, UT, as informed by a source to sink case study from the 13–14 April 2017 dust event. *Environmental Research Letters*, 13(12), 124031.
- Hallar, A.G., N. Molotch, J. Hand, B. Livneh, I. McCubbin, R. Petersen, J. Michalsky, and D. Lowenthal, 2017: Impacts of Increasing Aridity and Wildfires on Aerosol Loading in the Intermountain Western U.S., *Environ. Res. Lett.* **12** 014006.
- Taylor, N., D. Collins, D. Lowenthal, B. Zielinska, V. Samburova, N. Kumar, G. Hallar, L. Mazzoleni, and I. McCubbin, 2017: Hygroscopic growth of water soluble organic carbon isolated from atmospheric aerosol collected at U.S. national parks and Storm Peak Laboratory, *Atmospheric Chemistry and Physics*, 17.4, 2555-2571.
- Kassianov, E., M. Pekour, C. Flynn, L. K. Berg, J. Beranek, A. Zelenyuk, C. Zhao, L.R. Leung, P.L. Ma, J. Barnard, A.G. Hallar, I.B. McCubbin, E.W. Eloranta, A. McComiskey, P.J. Rasch, 2017: Large Contribution of Coarse Mode to Aerosol Microphysical and Optical Properties: Evidence from Ground-based Observations of a Trans-Pacific Asian Dust Outbreak at a High-Elevation North American Site, *Journal of Atmospheric Sciences*, 74.5 (2017): 1431-1443.
- Sullivan, R. C., Crippa, P., Hallar A. G., Clarisse, L., Leaitch, W. R., Aneja, V. P., and Pryor S.C., 2016: Using satellite-based measurements to explore spatiotemporal scales and variability of drivers of new particle formation, *J. of Geophysical Research*, 121 (20).
- Hallar, A.G. E. Andrews, N. Bukowiecki, D. A. Jaffe, N-H Lin, 2016: Overview of the Special Issue “Selected Papers from the 2nd Atmospheric Chemistry and Physics at Mountain Sites Symposium” *Aerosol and Air Quality Research*, Volume 16, No. 3, March 2016, Pages 471-477, doi: 10.4209/aaqr.2016.02.0077
- Lowenthal, D., Hallar, A.G., McCubbin, I., David, R., Borys, R., Blossey, P., Muhlbauer, A., Kuang, Z. and Moore, M., 2016. Isotopic Fractionation in Wintertime Orographic Clouds. *Journal of Atmospheric and Oceanic Technology*, 33(12), pp.2663-2678.
- Yu, F., G. Luo, A. G. Hallar: 2016, Vertical profiles and seasonal variations of key parameters controlling particle formation and growth at Storm Peak Laboratory *Aerosol and Air Quality Research*, Volume 16, No. 3, March 2016, Pages 900-908, doi:10.4209/aaqr.2015.05.0341
- Hallar, A.G. R. Petersen, I. B. McCubbin, D. Lowenthal, S. Lee, E. Andrews, F. Yu: 2016, Climatology of New Particle Formation and Corresponding Precursors at Storm Peak Laboratory, *Aerosol and Air Quality Research*, Volume 16, No. 3, March 2016, Pages 816-826, doi: 10.4209/aaqr.2015.05.0341.
- Hallar, A.G., R. Petersen, E. Andrews, J. Michalsky, I. B. McCubbin, J. A. Ogren: 2015, Contributions of Dust and Biomass-burning to Aerosols at a Colorado Mountain-top Site, *Atmos. Chem. Phys.*, 15, 1–15.
- Yu, F., G. Luo, S. C. Pryor, P. R. Pillai, S. H. Lee, J. Ortega, J. J. Schwab, A. G. Hallar, W. R. Leaitch, V. P. Aneja, J. N. Smith, J. T. Walker, O. Hogrefe, and K. L. Demerjian: 2015, Spring and summer contrast in new particle formation over nine forest areas in North America, *Atmospheric Chemistry and Physics*, MS No.: acp-2015-453.
- Goliff, W., M. Luria, D. R. Blake, B. Zielinska, A.G. Hallar, R. J. Valente, C. V. Lawson, W.R. Stockwell, 2015: Nighttime air quality under desert conditions, *Atmospheric Environment*, Volume 114, Pages 102-111, ISSN 1352-2310.
- Kristensen, T.B., L. Du, Q. T. Nguyen, J. K. Nojgaard, C. Bender Koch, O. Faurskov Nielsen, A. G. Hallar, D. H. Lowenthal, B. Nekat, D. van Pinxteren, H. Herrmann, M. Glasius, H. G. Kjaergaard, M. Bilde, 2015: Physico Chemical Properties of HULIS from Different Environments, *Journal of Atmospheric Chemistry*, Volume 72, Issue 1, pp 65-80.

- Yu, F. and A. G. Hallar, 2014: Difference in particle formation at a mountain-top location during the spring and summer: Implications for the role of sulfuric acid and organics in nucleation, *J. of Geophysical Research*, 119, 21, 12,246–12,255.
- Yu, H., A. G. Hallar, Y. You, A. Sedlacek, S. Springston, V. P. Kanawade, Y. N. Lee, J. Wang, C. Kuang, R. L. McGraw, I.B. McCubbin, J. Mikkila and S. H. Lee, 2013: Sub-3 nm Particles Observed at the Coastal and Continental Sites in the United States, *J. of Geophysical Research*, 119, doi:10.1002/2013JD020841.
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Invited Talks:

Hallar A.G., A. Lambert, Dust Impacts of Rapid Agricultural Expansion on the Great Plains, NOAA CSL, April 2, 2021.

Hallar A.G., A., Lambert, Dust Impacts of Rapid Agricultural Expansion on the Great Plains, Energy and Environmental Programs Speaker Series, Johns Hopkins, March 17, 2021.

Hallar, A.G., S. Lance, J. Lin, D. Jaffe, Need for Mountain Observatories for Composition of the Atmosphere (MOCA) Network in U.S., American Geophysical Union Meeting, San Francisco, CA, December, 11, 2019.

Hallar, A.G., Aerosols in the Western U.S., Weber State, Ogden, UT, October 16, 2019.

Hallar, A.G., C. Green-Japngie, E. Andrews, and I. McCubbin, Climatology of Aerosol Optical Properties from Storm Peak Laboratory, NOAA ESRL Global Monitoring Annual Meeting, May 22, 2018.

Hallar, A.G., N. Molotch, E. Andrews, J.J. Michalsky, R. Petersen, B. Livneh, J. Hand, D. Lowenthal, I. McCubbin, Impacts of Increasing Aridity and Wildfires on Aerosol Loading in the Intermountain West, Global Monitoring Annual Meeting, May 24, 2017.

Hallar, A.G., R. Petersen, E. Andrews, J. Michalsky, I.B. McCubbin, and J. Ogren, Measurements of Aerosols at Storm Peak Laboratory, NOAA ESRL Global Monitoring Annual Meeting, May 20, 2015.

Hallar, A.G., Effects of Bark Beetle Infestation on Secondary Organic Aerosol Precursors, presented at the 2014 Biogenic Hydrocarbons & the Atmosphere Gordon Research Conference, Girona, Spain, July 1, 2014.

Hallar, A.G., Chemical, Biological, and Hygroscopic Properties of Aerosol Organics at Storm Peak Laboratory, presented at the Department of Atmospheric and Oceanic Science, University of Wisconsin, Madison, November 18, 2013.

Hallar, A.G., Chemical, Biological, and Hygroscopic Properties of Aerosol Organics at Storm Peak Laboratory, presented at the Department of Atmospheric Science, Colorado State University, Fort Collins, Colorado May 9, 2013.

Hallar, A.G., R. Bowers, I. B. McCubbin, C. Wiedinmyer, V. Samburova, Recent Primary Biological Aerosol Measurements at Storm Peak Laboratory presented at Department of Earth, Atmospheric and Planetary Sciences Massachusetts Institute of Technology, January 28, 2013.

Hallar, A.G., L.M. Avallone; L.M. Edwards; H. Thiry, Mentors, Networks, and Resources for Early Career Female Atmospheric Scientists (Invited), AbstractED21E-06 presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.

Hallar A.G., D. Lowenthal, I. McCubbin, and G. Chirokova, Persistent Daily New Particle Formation at a Mountain-Top Location, Brookhaven National Laboratory Atmospheric Science Division Science Seminar, July 2011.

Hallar, A.G.: ADVANCE Distinguished Lecture Series: Spring 2010: Initiating Positive Professional Relationships among Women in Atmospheric Science via ASCENT, National Science Foundation, March 19, 2010.

Hallar, A.G., 2010: Physics Symposium, Science and Outreach at Storm Peak Laboratory, Michigan Technical University, September 2010.

Hallar, A.G.: Persistent Daily Aerosol Nucleation Events at Mountain-Top Location, AAAR 28th Annual Conference, Minneapolis, MN, October 2009.

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.

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

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

Other Publications:

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