

Dr. Patrick R. Veres | Curriculum Vitae

NOAA Chemical Sciences Laboratory
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<https://csl.noaa.gov/staff/patrick.veres>

Education

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| Ph.D. Atmospheric Chemistry University of Colorado Thesis Advisor: Joost de Gouw Thesis Title: <i>Development and Use of Negative-Ion Proton-Transfer Chemical-Ionization Mass Spectrometry for the Measurement of Gas-Phase Acids.</i> | 2005 - 2011 Boulder, CO |
| B.S. Chemistry, <i>magna cum laude</i> with Honors and Distinction The Ohio State University Thesis Advisor: Heather Allen Thesis Title: <i>FTIR Analysis of Particulate Matter Collected on Teflon Filters in Columbus, OH</i> | 2001 - 2005 Columbus, OH |

Professional Appointments

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| Research Chemist NOAA ESRL/CSL Tropospheric Chemistry Group | 2018 – present Boulder, CO |
| Research Scientist NOAA ESRL/CSD & CIRES Tropospheric Chemistry Group | 2013 – 2018 Boulder, CO |
| Postdoctoral Research Max-Planck-Institute for Chemistry Post-Doctoral Advisor: Jonathan Williams | 2011-2013 Mainz, Germany |

Honors and Awards

- 2020 NOAA Office of Atmospheric Research, Employee of the Year Award - *Research Scientist*
- 2020 NOAA Office of Atmospheric Research, Administrator's Award - *Research Scientist*
- 2019 NASA, Group Achievement Award - FIREX-AQ - *Research Scientist*
- 2019 NASA, Group Achievement Award - ATom - *Research Scientist*
- 2018 CIRES, Outstanding Performance Award - *Research Scientist*
- 2016 NOAA Office of Atmospheric Research, Outstanding Paper Award - *Research Scientist*
- 2014 Colorado Governor's Award for High-Impact Research - *Research Scientist*
- 2014 CIRES Innovative Research Program Award - *Research Scientist*
- 2011 Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS) Participant - *Graduate*
- 2009 AGU (American Geophysical Union) Fall meeting outstanding student paper award - *Graduate*

- 2004 Gary G. Marconi Scholarship Fund in Chemistry - *Undergraduate*
- 2001 Maximus Scholarship Competition Tradition Scholarship – *Undergraduate*

Professional Affiliations

American Geophysical Union (AGU)

European Geophysical Union (EGU)

American Chemical Society (ACS)

Field Study

Aircraft Deployments:

Fire Influence on Regional to Global Environments and Air Quality (FIREX-AQ, 2019)

- Deployment of an Iodide Ion Time-of-Flight Chemical Ionization Mass Spectrometer for the measurement of organic and inorganic gases from wildfire and agricultural burning across the US.
URL: <https://csl.noaa.gov/projects/firex-aq>

Atmospheric Tomography Mission (ATom, 2017-2018)

- Instrument development and deployment of an Iodide Ion Time-of-Flight Chemical Ionization Mass Spectrometer for the measurement of halogen species and trace gases on a global-scale, profiling continuously from 0.2 km to 14 km altitude.
URL: <https://espo.nasa.gov/atom>

Studying the Atmospheric Effects of Changing Energy Use in the U.S. at the Nexus of Air Quality and Climate Change (SONGNEX, 2015)

- Deployment of a Thermal Desorption Chemical Ionization Mass Spectrometer for the measurement of peroxyacyl nitrates (PANs) from several tight oil and shale gas basins in the western U.S.
URL: <https://csl.noaa.gov/projects/songnex/>

Wintertime Investigation of Transport, Emission, and Reactivity (WINTER, 2015)

- Instrument development and deployment of an Acetate Ion Time-of-Flight Chemical Ionization Mass Spectrometer for the measurement of organic acids in the Eastern US during wintertime aboard the NCAR C130 aircraft.
URL: http://www.eol.ucar.edu/field_projects/winter

Southeast Atmosphere Study / Southeast Nexus (SAS/SENEX, 2013)

- Deployment of a Thermal Desorption Chemical Ionization Mass Spectrometer for the measurement of peroxyacyl nitrates (PANs) across the Southeastern US aboard the NOAA P3 aircraft.
URL: <http://www.esrl.noaa.gov/csd/projects/senex>

Aerosol, Radiation, and Cloud Processes affecting Arctic Climate (ARCPAC, 2008)

- Laboratory instrument conversion and method development for an airborne field deployment of a Particle-into-Liquid Sampler (PILS) for the measurement of aerosol composition in the Arctic region aboard the NOAA P3 aircraft.
URL: <http://www.esrl.noaa.gov/csd/projects/arcpac>

Ground Based Measurements:

Utah Basin Winter Ozone Study (UBWOS, 2013/2014)

- Primary investigator responsible for the deployment and operation of an Iodide Ion Chemical Ionization Quadrupole Mass Spectrometer (reactive nitrogen gases), UV Fluorescence spectrometer (gaseous SO₂), and UV absorbance spectrometer (gaseous O₃) during the 2014

deployment. Co-investigator responsible for the operation of the Proton-Transfer-Reaction Time-of-Flight Mass Spectrometer (volatile organic compounds) during the 2013 deployment. The focus of this study was to better understand the the sources and atmospheric fate of pollutants observed in the Uintah basin and the relation to oil and gas operations in the region.

URL: <http://www.esrl.noaa.gov/csd/groups/csd7/measurements/2013ubwos>

California Nexus (CalNex, 2010)

- Principle investigator responsible of the laboratory method development from proof of concept to instrument design and construction, and the first field deployment of an Acetate Ion Time-of-Flight Chemical Ionization Mass Spectrometer for the measurement of organic and inorganic acids in the California basin during summertime pollution events.

URL: <http://www.esrl.noaa.gov/csd/projects/calnex/>

Particles and Radicals: Diel observations of the impact of urban and biogenic Emissions (PARADE, 2011)

- Co-investigator responsible for the preparation, deployment, and operation of a Proton-Transfer-Reaction Time-of-Flight Mass Spectrometer (volatile organic compounds) as a heavily instrumented semi-rural site (Taurus Observatory, summit of the Kleiner Feldberg, Germany). Study was constructed to examine the effects of biogenic and anthropogenic emissions of radical chemistry and impacts on the formation, growth, and composition of atmospheric aerosols.

URL: <http://parade2011.mpich.de>

Smoke Understanding through Regional Fire Simulations (SMURFS, 2009)

- Deployment of a Proton-Transfer-Reaction Time-of-Flight Mass Spectrometer at the Fire Sciences Laboratory in Missoula, MT for the observation of organic gases emitted from biomass burning and secondary oxidation products formed from subsequent OH and O₃ oxidation reactions.

URL: <http://chem.atmos.colostate.edu/FLAME>

Chamber Studies:

Firelab at Missoula Experiment (FLAME IV, 2012)

- Deployment of a Proton-Transfer-Reaction Time-of-Flight Mass Spectrometer at the Fire Sciences Laboratory in Missoula, MT for the observation of organic gases emitted from biomass burning and secondary oxidation products formed from subsequent OH and O₃ oxidation reactions.

URL: <http://chem.atmos.colostate.edu/FLAME>

Chamber Experiments Examining Reactivity and Species (CHEERS, 2011)

- Deployment of a Proton-Transfer-Reaction Time-of-Flight Mass Spectrometer at the European Photoreactor (EUPHORE) chamber in Valencia, Spain for the measurement of OH-initiated isoprene photooxidation products.

Nautical Studies:

Surface Ocean Processes in the Anthropocene (SOPRAN, M91 R/V Meteor, 2012)

- Principle investigator responsible for the preparation, deployment, and operation of a Proton-Transfer-Reaction Time-of-Flight Mass Spectrometer (volatile organic gases) as part of the heavily instrumented Research Vessel Meteor during a one-month cruise off the coast of Peru. This study was designed to develop an improved understanding of the impact of oceanic upwelling events on the partitioning of volatile gases at the surface of the ocean.

URL: <http://sopran.pangaea.de>

Committee and Editorial Service

Journal reviewer within the last 5 years for Earth and Space Review, Environmental Science & Technology, Geophysical Research Letters, Accounts of Chemical Research, Atmospheric Measurement Techniques, Atmospheric Chemistry and Physics, Journal of Geophysical Research, Environmental Research, International Journal of Mass Spectrometry, Atmospheric Environment
Proposal reviewer within the last 5 years for Natural Environmental Research Council (NERC, Great Britain), Cooperative Institute for Research in Environmental Sciences (CIRES), National Oceanic and Atmospheric Administration (NOAA), National Aeronautics and Space Administration (NASA)

Community Service & Outreach Activities

University of Colorado "Wizards" Public Lecture for Elementary Age Children, "The Chemistry of the Atmosphere", December 2016, 2018
Colorado Regional Science Fair Judge, 2018

Publications

An online summary of publications and URLs for access can be found elsewhere:
<https://publons.com/researcher/2833821>