

# Dr. David W. Fahey

david.w.fahey@noaa.gov | 303.497.5277

Earth System Research Laboratory / Chemical Sciences Division  
National Oceanic and Atmospheric Administration (NOAA)  
325 Broadway R/CSD | Boulder, Colorado 80305 | United States

## EXPERTISE

- Leadership and management of research teams in the laboratory and in airborne field campaigns.
- Written and oral communication of atmospheric science results to experts and non-experts.
- Evaluation of scientific results for use in national and international assessments of contemporary atmospheric issues, including climate change and stratospheric ozone depletion.
- *In situ* measurements of trace gases and aerosols in the troposphere and stratosphere using airborne instrumentation, with emphases on black carbon aerosol, ozone, water vapor, and reactive nitrogen gases.
- Interpretation of *in situ* observations of gas and aerosol abundances to address climate and air quality issues in the troposphere and stratosphere.

## EXPERIENCE

### Director, Chemical Sciences Division

NOAA Earth System Research Laboratory, Boulder, CO

January 2014 - present

### Research Physicist

Atmospheric Composition and Chemical Processes Group

NOAA Earth System Research Laboratory, Boulder, CO

September 1982 – December 2014

## EDUCATION

Ph.D. in Physics, 1979, University of Missouri, Rolla, Missouri

B.A. in Physics, 1976, University of Wisconsin, Madison, Wisconsin

---

## SELECTED HONORS

2013 Distinguished Alumni Award, Physics Department, University of Wisconsin, Madison, WI, 3 May 2013.  
Co-recipient of the U. S. Department of Commerce Bronze Medal for Superior Federal Service, January 2013, for 'For the successful demonstration of the Global Hawk Unmanned Aircraft Systems for NOAA's Climate Goal.'

Federal Player of the Week. Washington Post and Partnership for Public Service, Washington, DC, 9 March 2010.

Recipient of the 2009 Dr. Daniel L. Albritton Outstanding Science Communicator Award from the NOAA Office of Oceanic and Atmospheric Research.

Co-recipient of the 2008 Stratospheric Ozone Protection Award from the U.S. Environmental Protection Agency (EPA) to the Climate Co-Benefits of the Montreal Protocol Protection Team for 'Motivating action on climate.'

Co-author of the 2007 climate science assessment of the Intergovernmental Panel on Climate Change (IPCC), that shared the 2007 Nobel Peace Prize with Albert Arnold (Al) Gore Jr. 'For their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change.'

---

## SELECTED AIRBORNE SCIENCE RESPONSIBILITIES

Co-Platform Scientist for the NASA Global Hawk Unmanned Aircraft System (UAS) in the NASA Airborne Tropical Tropopause Experiment (ATTREX), 2010 - 2015.

Co-Project Scientist for the NASA Global Hawk Pacific (GloPac) Mission using the NASA Global Hawk Unmanned Aircraft System (UAS), March - April 2010.

---

## SELECTED NATIONAL and INTERNATIONAL ASSESSMENT PARTICIPATION

Coordinating Lead Author, Climate Science Special Report of the 4<sup>th</sup> National Climate Assessment, United States Global Change Research Program, 2016-17.

Lead author of Aviation and Climate: State of the Science (white papers), Impacts and Science Group (ISG) of the Committee on Aviation Environmental Protection (CAEP) of the International Civil Aviation Organization (ICAO), November 2012 and November 2015.

Co-Lead Author of Chapter 3, 'Future ozone and its Impact on Surface UV,' and Co-Coordinating Lead Author of '20 Questions and Answers about the Ozone Layer: 2010 Update, Scientific Assessment of Ozone Depletion: 2010, Global Ozone Research and Monitoring Project – Report No. 52, World Meteorological Organization, Geneva, 2011.

---

**SELECTED INVITED PRESENTATIONS**

- Earth observations & modeling for decision making*, Making Assessments for Policy for Environmental Research Scientist (MAPERS), NERC Advance Training Short course, University of Leeds, Leeds, UK, 18 – 20 September 2017.
- Science Saves: Atmospheric research in support of wildfire management*, House Earth & Space Science Caucus, Rayburn House Office Building, Washington, DC, 14 September 2017.
- Messing with stratospheric chemistry: What's at stake*, Geoengineering Gordon Research Conference, Newry, Maine, 23-27 July 2017.

**SELECTED PEER-REVIEWED PUBLICATIONS**

Over 264 peer-reviewed publications with 14500 citations and Hirsch index of 66 (Web of Science, Researcher ID: G-4499-2013, October 2017)

- The role of sulfur dioxide in stratospheric aerosol formation evaluated using in-situ measurements in the tropical lower stratosphere  
A. W. Rollins, T. D. Thornberry, L. A. Watts, P. Yu, K. H. Rosenlof, M. Mills, E. Baumann, F. R. Giorgett, T. V. Bui, M. Höpfner, K. A. Walker, C. Boone, P. F. Bernath, P. R. Colarco, P. A. Newman, D. W. Fahey, and R. S. Gao  
*Geophysical Research Letters*, 44, DOI: 10.1002/2017GL072754, 2017.
- Aviation and climate change: A scientific perspective  
David W. Fahey and David S. Lee  
*Carbon and Climate Law Review*, 2, 97-104, 2016.
- The spectroscopic foundation of radiative forcing of climate by carbon dioxide  
Martin G. Mlynczak, Taumi S. Daniels, David P. Kratz, Daniel R. Feldman, William D. Collins, Eli J. Mlawer, Matthew J. Alvarado, James E. Lawler, L. W. Anderson, David W. Fahey, Linda A. Hunt, and Jeffrey C. Mast  
*Geophysical Research Letters*, 43, doi:10.1002/2016GL068837, 2016.
- A persistent water-nitric acid condensate with saturation water vapor pressure greater than hexagonal ice  
Ru-Shan Gao, Tomasz Gierczak, Troy D. Thornberry, Andrew W. Rollins, James B. Burkholder, Hagen Telg, Christiane Voigt, Thomas Peter, and David W. Fahey  
*Journal of Physical Chemistry A*, 120, 1431–1440, DOI: 10.1021/acs.jpca.5b06357, 2015.
- Future atmospheric abundances and climate forcings from scenarios of global and regional hydrofluorocarbon (HFCs) emissions  
Guus J.M. Velders, David W. Fahey, John S. Daniel, Stephen O. Andersen, Mack McFarland  
*Atmospheric Environment*, doi number: 10.1016/j.atmosenv.2015.10.071, 2015
- Airborne observations of regional variation in fluorescent aerosol across the United States  
A. E. Perring, J. P. Schwarz, D. Baumgardner, M. T. Hernandez, D. V. Spracklen, C. L. Heald, R. S. Gao, G. Kok, G. R. McMeeking, J. B. McQuaid, and D. W. Fahey  
*J. Geophys. Res. Atmos.*, 120, 1153–1170, doi:10.1002/2014JD022495, 2015.
- Challenges of a lowered U.S. ozone standard  
O. R. Cooper, A. O. Langford, D.D. Parrish, D. W. Fahey  
*Science*, 348, 1096-1097, 2015.
- Twenty Questions and Answers About the Ozone Layer: 2014 Update  
Michaela I. Hegglin, David W. Fahey, Mack McFarland, Stephen A. Montzka, Eric R. Nash  
Scientific Assessment of Ozone Depletion: 2014, Report No. 55, World Meteorological Organization, Geneva, Switzerland, 2015.
- Recent trends in global emissions of hydrochlorofluorocarbons and hydrofluorocarbons—Reflecting on the 2007 adjustments to the Montreal Protocol  
Stephen A. Montzka, Mack McFarland, Stephen O. Andersen, Benjamin R Miller, David W. Fahey, Bradley D. Hall, Lei Hu, Carolina Siso, and James W. Elkins  
*Journal of Physical Chemistry A*, accepted, November 2014.  
*Mario Molina Festschrift Special Issue*
- Bounding the role of black carbon in the climate system: A scientific assessment  
Bond, T. C., S. J. Doherty, D. W. Fahey, et al.  
*Journal of Geophysical Research*, 118, DOI: 10.1002/jgrd.50171, 2013.