

Curriculum Vitae
Daniel A. Jaffe

University of Washington-Bothell
18115 Campus Way NE
Bothell, WA 98011-8246
Tel: 425-352-5357
Fax: 425-352-5233
Email: djaffe@uw.edu
<http://www.atmos.washington.edu/jaffegroup>

Education

Ph.D. Chemistry, June 1987, University of Washington; graduate work in inorganic, analytical and atmospheric chemistry, atmospheric sciences, environmental sciences and policy.
M.S. Chemistry, December 1983, University of Washington
B.S. Chemistry, February 1979, Massachusetts Institute of Technology

Professional Experience

Professor, Science and Technology, University of Washington-Bothell, Sept 1987-current.
Professor, Atmospheric Sciences, University of Washington-Seattle, Sept 2010-current.
Professor of Chemistry--University of Alaska Fairbanks, Department of Chemistry/Geophysical Institute, Sept. 1987 – Sept.1997
Teaching Assistant/Instructor, University of Washington, September 1982 – March 1987.
Teacher, North Andover High School, North Andover, MA, September 1979 - June 1981.

Research

The main themes of my research are on global and regional air pollution and long range transport of pollution (especially ozone, nitrogen oxides, CO, aerosols, and mercury). I am also interested in science and environmental education.

Honors and awards

Selected for National Academy of Sciences panel on "The Significance of International Transport of Air Pollutants" BASC-U-07-01-A, National Academy of Sciences/National Research Council. June 2008. Chapter lead for chapters on ozone and mercury for UNEP-HTAP 2007 report. Numerous invited presentations at Universities and government agencies around the world.

Peer-Reviewed Publications

1. Lyman S.N. and Jaffe D.A. Formation and fate of oxidized mercury in the upper troposphere and lower stratosphere. *Nature Geosciences*, DOI: 10.1038/NGEO1353, 2011.
2. McDonald-Buller E.C. Allen D.T., Brown N., Jacob D.J., Jaffe D., Kolb C.E., Lefohn A.S., Oltmans S., Parrish D.D., Yarwood G., and Zhang L. [Establishing Policy Relevant Background \(PRB\) Ozone Concentrations in the United States](#). *Envir.Sci. Tech.* DOI: 10.1021/es2022818, 2011.

3. Andrews E. et al. Climatology of aerosol radiative properties in the free troposphere. *Atmospheric Research*, doi:10.1016/j.atmosres.2011.08.017, 2011.
4. Fischer E.V., K. D. Perry, and D. A. Jaffe. Optical and chemical properties of aerosols transported to Mount Bachelor during spring 2010, *J. Geophys. Res.*, 116, D18202, doi:10.1029/2011JD015932, 2011.
5. Smith D.J., Griffin D.W., and Jaffe D.A. The high life: Transport of microbes in the atmosphere. *EOS, Transactions American Geophysical Union*, 92 NO. 30, P. 249-250, doi:10.1029/2011EO300001, 2011.
6. Ambrose, J.L., et al., Causes of high O₃ in the lower free troposphere over the Pacific Northwest as observed at the Mt. Bachelor Observatory, *Atmospheric Environment*. doi:10.1016/j.atmosenv.2011.06.056, 2011.
7. Leon J.D., Jaffe D.A., Kaspar J., Knecht A., Miller M.L., Robertson R.G.H. and Schubert A.G. Arrival time and magnitude of airborne fission products from the Fukushima, Japan, reactor incident as measured in Seattle, WA, USA. *J. Environ. Radioactivity*. 102, 1032e1038, 2011.
8. Fischer, E. V., Jaffe, D. A., and Weatherhead, E. C.: Free tropospheric peroxyacetyl nitrate (PAN) and ozone at Mount Bachelor: potential causes of variability and timescale for trend detection, *Atmos. Chem. Phys.*, 11, 5641-5654, doi:10.5194/acp-11-5641-2011, 2011.
9. Fiore, A. M., Levy II, H., and Jaffe, D. A.: North American isoprene influence on intercontinental ozone pollution, *Atmos. Chem. Phys.*, 11, 1697-1710, doi:10.5194/acp-11-1697-2011, 2011.
10. McKendry, I., Strawbridge, K., Karumudi, M. L., O'Neill, N., Macdonald, A. M., Leaitch, R., Jaffe, D., Cottle, P., Sharma, S., Sheridan, P., and Ogren, J.: Californian forest fire plumes over Southwestern British Columbia: lidar, sunphotometry, and mountaintop chemistry observations, *Atmos. Chem. Phys.*, 11, 465-477, doi:10.5194/acp-11-465-2011, 2011.
11. Jaffe D.A. Relationship between Surface and Free Tropospheric Ozone in the Western U.S. *Environ. Sci. Technol.*, 45, 432–438 DOI: 10.1021/es1028102, 2011.
12. Lyman, S. N., Jaffe, D. A., and Gustin, M. S.: Release of mercury halides from KCl denuders in the presence of ozone, *Atmos. Chem. Phys.*, 10, 8197-8204, doi:10.5194/acp-10-8197-2010, 2010.
13. Fischer, E. V., D. A. Jaffe, N. A. Marley, J. S. Gaffney, and A. Marchany-Rivera. Optical properties of aged Asian aerosols observed over the U.S. Pacific Northwest, *J. Geophys. Res.*, 115, D20209, doi:10.1029/2010JD013943, 2010.
14. Hageman, K. J.; Hafner, W. D.; Campbell, D. H.; Jaffe, D. A.; Landers, D. H.; Simonich, S. L., Variability in Pesticide Deposition and Source Contributions to Snowpack in Western U.S. National Parks. *Environ. Sci. & Tech.* 44, 4452-4458, 2010.
15. Gustin M. and Jaffe D. Reducing the Uncertainty in Measurement and Understanding of Mercury in the Atmosphere. *Environ. Sci. Tech.* 44, 2222-2227, 2010.
16. Reidmiller, D. R., Jaffe, D. A., Fischer, E. V., and Finley, B.: Nitrogen oxides in the boundary layer and free troposphere at the Mt. Bachelor Observatory, *Atmos. Chem. Phys.*, 10, 6043-6062, doi:10.5194/acp-10-6043-2010, 2010.
17. Cooper O.R., et al. [Increasing springtime ozone mixing ratios in the free troposphere over western North America](#). *Nature* 463, 344-348 doi:10.1038/nature08708, 2010.

18. Adhikary, B. et al. A regional scale modeling analysis of aerosol and trace gas distributions over the eastern Pacific during the INTEX-B field campaign, *Atmos. Chem. Phys.*, 10, 2091-2115, 2010.
19. Landers D.H. et al. The Western Airborne Contaminant Assessment Project (WACAP): An Interdisciplinary Evaluation of the Impacts of Airborne Contaminants in Western U.S. National Parks. *Envir. Sci. Tech.* 44, 855-859, 2010.
20. Fischer, E.V., D.A. Jaffe, D.R. Reidmiller, and L. Jaeglé. Meteorological Controls on Observed Peroxyacetyl Nitrate (PAN) at Mount Bachelor during the spring of 2008, *J. Geophys. Res.*, doi:10.1029/2009JD012776, 2009.
21. Finley B. Swartzendruber P. and Jaffe D. Particulate mercury emissions in regional wildfire plumes observed at the Mount Bachelor Observatory. *Atmos. Environ.* 43, 6074-6083, doi:10.1016/j.atmosenv.2009.08.046, 2009.
22. Casper S.A., J. J. West, A.M. Fiore, D. A. Jaffe et al. Intercontinental Impacts of Ozone Pollution on Human Mortality. *Environ. Sci. Technol.* 43, 6482–6487, DOI: 10.1021/es900518z, 2009.
23. Swartzendruber P.C., D.A. Jaffe and B. Finley Development and first results of an aircraft based, high time resolution technique for gaseous elemental and reactive (oxidized) gaseous mercury. *Environ. Sci. Technol.* 43 (19), 7484–7489 DOI: 10.1021/es901390t, 2009.
24. Jaffe D.A. and Reidmiller D.R. Now you see it, now you don't: Impact of temporary closures of a coal-fired power plant on air quality in the Columbia River Gorge National Scenic Area. *Atmos. Chem. Phys.*, 9, 7997-8005, 2009.
25. Holmes C.D., D. J. Jacob, R.P. Mason and D. A. Jaffe [Sources and deposition of reactive gaseous mercury in the marine atmosphere](#), *Atmos. Environ.* 43, 2278-2285, doi:10.1016/j.atmosenv.2009.01.051, 2009.
26. Zhang, L., D. J. Jacob, M. Kopacz, D. K. Henze, K. Singh, and D. A. Jaffe. Intercontinental source attribution of ozone pollution at western U.S. sites using an adjoint method, *Geophys. Res. Lett.*, 36, L11810, doi:10.1029/2009GL037950, 2009.
27. Swartzendruber, P., D.A. Jaffe, B. Finley, Improved fluorescence peak integration in the Tekran 2537 for applications with sub-optimal sample loadings, *Atmos. Environ.* 43, 3648-3651, doi:10.1016/j.atmosenv.2009.02.063, 2009.
28. Reidmiller, D. R., Fiore, A. M., Jaffe, D. A., Bergmann, D., Cuvelier, C., Dentener, F. J., Duncan, B. N., Folberth, G., Gauss, M., Gong, S., Hess, P., Jonson, J. E., Keating, T., Lupu, A., Marmor, E., Park, R., Schultz, M. G., Shindell, D. T., Szopa, S., Vivanco, M. G., Wild, O., and Zuber, A.: The influence of foreign vs. North American emissions on surface ozone in the US, *Atmos. Chem. Phys.*, 9, 5027-5042, 2009.
29. Fischer, E. V., N. C. Hsu, D. A. Jaffe, M.-J. Jeong, and S. L. Gong. A decade of dust: Asian dust and springtime aerosol load in the U.S. Pacific northwest, *Geophys. Res. Lett.*, 36, L03821, doi:10.1029/2008GL036467, 2009.
30. Reidmiller, D. R., D. A. Jaffe, D. Chand, P. Swartzendruber, S. Strode, G. M. Wolfe and J. A. Thornton. Interannual variability of long-range transport as seen at the Mt. Bachelor Observatory. *Atmos. Chem. Phys.*, 9, 557 – 572, 2009.
31. Zhang L., et al. Transpacific transport of ozone pollution and the effect of recent Asian emission increases on air quality in North America: an integrated analysis using satellite, aircraft, ozonesonde, and surface observations. *Atmos. Chem. Phys.*, 8, 6117-6136, 2008.

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38. Zhao, T. L., Gong, S. L., Zhang, X. Y., and Jaffe, D. A.: Asian dust storm influence on North American ambient PM levels: observational evidence and controlling factors, *Atmos. Chem. Phys.*, 8, 2717-2728, 2008.
39. Suthawaree J., Kato S., Takami A., Hatakeyama S., Kadana H., Togushi M., Tomoyose N., Yogi K., Jaffe D., Swartzendruber P., Prestbo E., and Kajii Y. Influence from long-range transport of Asian outflow on O₃, CO and VOC concentrations during an intensive measurement campaign at Cape Hedo, Okinawa, in spring 2004. *J. Jpn Soc. Atmos. Environ.* 42 (6), 350-361, 2007.
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93. Jaffe, D. A., T. Berntsen, and I. S. A. Isaksen. A Global 3D Chemical Transport Model; 2. Nitrogen Oxides and Non Methane Hydrocarbon Results. *J. Geophys. Res.* 102, 21281-21296, 1997.
94. Beine, H. J., D. A. Jaffe, D. R. Blake, E. Atlas, and J. Harris. Measurements of PAN, Alkyl nitrates, ozone and hydrocarbons during spring in Interior Alaska. *J. Geophys. Res.* 101, 12613-12619, 1996.
95. Beine, H. J., M. Engardt, D. A. Jaffe, Ø, Hov, K. Holmen, and F. Stordal. Measurements of NO_x and aerosol particles at the Ny Ålesund Zeppelin Mountain station on Svalbard: Influence of regional and local pollution sources. *Atmos. Environ.* 7, 1067-1079, 1996.
96. Akimoto, H., H. Mukai, N. Masataka, C.-M. Liv, M. Buhr, K. T. Hsu, D. A. Jaffe, L. Zhang, R. Honrath, J. T. Merrill, and R. E. Newell. Long Range Transport of Ozone in the East Asian Pacific Rim Region. *J. Geophys. Res.* 101, 1999-2010, 1996.
97. Jaffe, D. A., R. E. Honrath, L. Zhang, H. Akimoto, A. Shimizu, H. Mukai, K. Murano, S. Hatakeyama, and J. Merrill. Measurements of NO, NO_y, CO and O₃ and Estimation of the Ozone Production Rate at Oki Island, Japan during PEM-West. *J. Geophys. Res.* 101, 2037-2048, 1996.
98. Jaffe, D. A. and S. Herndon. The Measurement of Carbon Monoxide in Auto Exhaust by Gas Chromatography. *J. Chem. Ed.* 72, 364-366, 1995.
99. Jaffe, D. A., R. E. Honrath, D. Furness, T. J. Conway, E. Dlugokencky, and L. P. Steele. A Determination of the CH₄, NO_x, and CO₂ Emissions from the Prudhoe Bay, Alaska Oil Development. *J. Atmos. Chem.* 20, 213-227, 1995.
100. Kelley, J. A., D. A. Jaffe, A. Baklanov, and A. Mahura. Heavy Metals on the Kola Peninsula: Aerosol Size Distribution. *Sci. Total Environ.* 160/161, 135-138, 1995.
101. Jaffe, D. A., B. Cerundolo, J. Rickers, R. Stolzberg, and A. Baklanov. Deposition of Sulfate and Heavy Metals on the Kola Peninsula. *Sci. Total Environ.* 160/161, 127-134, 1995.

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104. Jaffe, D. A., B. M. Cerundolo, and J. A. Kelley. The Influence of Redoubt Volcano Emissions on Snow Chemistry. *J. Volcanology and Geophys. Res.* 62, 359-367, 1994.
105. Jaffe, D. A. and M. D. Zukowski. Nitrate Deposition to the Alaskan Snowpack. *Atmos. Environ.* 27A, 2935-2941, 1993.
106. Honrath, R. E. and D. A. Jaffe. The Seasonal Cycle of Nitrogen Oxides in the Arctic Troposphere at Barrow, Alaska. *J. Geophys. Res.* 97, 20615-20630, 1992.
107. Jaffe, D. A., R. E. Honrath, J. A. Herring, S. M. Li, and J. D. Kahl. Measurements of Nitrogen Oxides at Barrow, Alaska during spring: Evidence for Regional and Northern Hemispheric Sources of Pollution. *J. Geophys. Res.* 96, 7395-7405, 1991.
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109. Honrath, R. E. and D. A. Jaffe. Measurements of Nitrogen Oxides in the Arctic. *Geophys. Res. Lett.* 17, 611-614, 1990.
110. Jaffe, D. A. Accuracy of Measured Ammonium Nitrate Equilibrium Values. *Atmos. Environ.* 22, 2329, 1988.
111. Jaffe, D. A. An FT-IR Study of Acetic Acid and Deuterated Analogues in the Monomer O-H, and O-D Stretching Regions. *Spectrochimica Acta* 43A, 1393-1396, 1987.
112. Weiner, R. F. and D. A. Jaffe. A Study of the PSD Permitting Process in EPA Region X. *J. Air Pollut. Control Assoc.* 33(8), 797, 1983.

Book Chapters, Technical Reports, Assessments and Other Publications

1. Sources, Transport and Fate of Mercury: A Global Problem, Jaffe D. and Swartzendruber P. In: Ed. M. Bank, Mercury in the Environment: Pattern and Process. University of California Press, 2011.
2. National Research Council-Board on Atmospheric Sciences and Climate. [Global Sources of Local Pollution: An Assessment of Long-Range Transport of Key Air Pollutants to and from the United States](#), 2009. (Lead author for chapters 2 and 4).
3. [Ebinghaus R., Catharine Banic, Steve Beauchamp, Dan Jaffe, Hans Herbert Kock, Nicola Pirrone, Laurier Poissant, Francesca Sprovieri and Peter S. Weiss-Penzias . Spatial coverage and temporal trends of land-based atmospheric mercury measurements in the Northern and Southern Hemispheres.](#) In Pirrone, Nicola; Mason, Robert (Eds.) Mercury Fate and Transport in the Global Atmosphere Emissions, Measurements and Models, Springer US, ISBN 978-0-387-93957-5, 2009.
4. Jaffe et al. Findings and recommendations from a workshop on "Reducing the uncertainty in measurements of atmospheric Hg" held at the University of Washington (Oct 2008). (available at: <http://research.uwb.edu/jaffegroup/modules/uncertainty/>)
5. Keating et al. UN ECE Task Force on Hemispheric Transport of Air Pollutants 2007 Interim Report. Coordinating lead author for Chapter 3 (available at: http://www.htap.org/activities/2007_Interim_Report.htm).

6. Landers, D. H.; Simonich, S. L.; Jaffe, D. A.; Geiser, L. H.; Campbell, D. H.; Schwindt, A. R.; Schreck, C. B.; Kent, M. L.; Hafner, W. D.; Taylor, H. E.; Hageman, K. J.; Usenko, S.; Ackerman, L. K.; Schrlau, J. E.; Rose, N. L.; Blett, T. F.; Erway, M. M., The Fate, Transport, and Ecological Impacts of Airborne Contaminants in Western National Parks (USA). In U.S. Environmental Protection Agency, O. o. R. a. D., Western Ecology Division, Corvallis, OR, Ed. 2008.
7. Jaffe, D. A. and P. S. Weiss-Penzias. Nitrogen Cycle in the Encyclopedia of Atmospheric Sciences. Ed: J.R. Holton, J.A. Pyle and J.A. Curry. Academic Press, N.Y. 2002.
8. Jaffe, D. A. The Nitrogen Cycle in the 3rd Edition of the Encyclopedia of Science and Technology, 3rd Edition. Ed: Paul Crutzen. Academic Press, N.Y. 2001.
9. Jaffe, D.A. The Nitrogen Cycle, in: Earth System Science: From Biogeochemical Cycles to Global Change, eds. M. Jacobson, R. Charlson, H. Rodhe and G. Orians. Academic Press, N.Y., 2000.
10. Jaffe, D. A., J. Herring, and S. Madronich. Impact of Large Solar Zenith Angles, Total Column Ozone and New O¹D Quantum Yields on Atmospheric Chemistry at High Latitudes. IGAC Activities Newsletter. 14, 8-10, 1998.
11. Jaffe, D., A. Mahura, R. Andres, A. Baklanov, L. Thaning, R. Bergman, and S. Morozov. Atmospheric Transport Pathways from the Kola Nuclear Power Plant. Barentsregion Environmental Centres Network, University of Tromso, Norway. ISBN 82-7934-000-9. February 1998.
12. Jaffe, D., A. Mahura, R. Andres, A. Baklanov, A. Thaning, L. Bergman and S. Morozov. Atmospheric Transport from the Kola Nuclear Power Plant. Pilot Study Research Report. UAF-FOA-BECN Joint Report, p.61, 1998.
13. Jaffe, D., A. Mahura, R. Andres. Atmospheric Transport Pathways to Alaska from Potential Radionuclide Sites in the Former Soviet Union. Report to Alaska Department of Environmental Conservation (ADEC) UAF-ADEC Joint Project 96-001, February 1997.
14. Jaffe, D. A. Relationship between Anthropogenic Nitrogen Oxides and Ozone Trends in the Arctic Troposphere, In: (eds.) H. Niki and K.H. Becker, The Tropospheric Chemistry of Ozone in the Polar Regions. NATO ASI Series, Springer-Verlag, N.Y., 1993.
15. Baklanov, A., D. A. Jaffe, and B. M. Cerundolo. Deposition of Air Pollutants on the Kola Peninsula During 1990-1991, In: ed, M. Kozlov, Aerial Pollution in the Kola Peninsula, Univ. of Turku Press, Turku, Finland, 1993.
16. Jaffe, D. A. The Nitrogen Cycle in Global Biogeochemical Cycles, eds. S. Butcher, R. Charlson, G. Orians, and G. Wolfe, Academic Press, NY, 1992.
17. Jaffe, D. A., D. Parris, and P. Goldan. Report on Boulder NO/NO_y Intercomparison. Technical report to the National Science Foundation, May 1991.
18. Jaffe, D. A. Local Sources of Pollution in the Arctic: from Prudhoe Bay to the Taz Peninsula in Pollution of the Arctic Atmosphere, ed. W. Sturges, Elsevier Science Pub. Ltd., NY, 1991.

Funded Projects (with D. Jaffe as the Principal Investigator)

Influence of Free Tropospheric Ozone and PM on Surface Air Quality across the West Coast of the United States. May 2011-2014, three year award total of \$822,406.

Collaborative Research: Reno Atmospheric Mercury Inter-comparison Experiment,

Recommended for funding by NSF. April 2011-April 2012, UW funding of \$198,000.

- Identifying Oxidized Mercury in the Atmosphere using Mass Spectrometry, Funded by Electric Power Research Institute, January 2011-December 2011, Total budget of \$113,000.
- Western Airborne Mercury Observations (WAMO), Funded by the National Science Foundation, October 2008 – September 2011. Total budget \$320,786.
- Understanding the Influence of Global Air Pollution on US Air Quality through Observations at the Mt. Bachelor Observatory (MBO). Funded by the National Science Foundation. Sept. 2007-August 2011. 4-year budget total \$592,358.
- Import of Asian Mercury to the U.S. as Observed at the Mt. Bachelor Observatory. Funded by the Electric Power Research Institute, December 2006- Dec 2011, \$385,939.
- Workshop on Reducing the Uncertainty in Measurements of Atmospheric Mercury. Funded by the National Science Foundation, October 2008 – October 2009, \$32,809.
- Development of Speciated Mercury Measurement Capabilities for use on Future NASA Aircraft Missions. Funded by the National Aeronautics and Space Administration, July 2007-June 2008, \$237,860.
- Western Airborne Contaminants Assessment Project (WACAP). Cooperative agreement with U.S. National Park Service to participate in the WACAP project as the lead atmospheric scientist. Sept. 2002-Oct. 2007, \$264,797.
- Influence of Global Sources on Free Tropospheric O₃ and Aerosols in the Western U.S. August 2004-July 2007, Three year award of \$609,233 funded by the National Science Foundation.
- Inflow, Chemistry and Deposition of Mercury to the West Coast of the U.S. Funded by the U.S. EPA (EPA-STAR program). February 2003- August 2006. Award total of \$756,774.
- Cheeka Peak as a Baseline ITAP Observatory. Funded by the Olympic Region Clean Air Agency, Sept. 2004-June 2006, \$118,535.
- Photochemical Ozone Budget of the Eastern North Pacific Atmosphere-II (PHOBEA-II). National Science Foundation/Atmospheric Chemistry, 3 year award total \$508,000. April 2001-2004.
- Trans-Pacific Transport of Ozone, Carbon monoxide and Particulates. National Oceanic and Atmospheric Administration, Co-PI: Dr. Lyatt Jaeglé, 2 year award total \$204,964., Sept 2001-Sept 2003.
- Transport of Mercury and Other Metals to the West Coast of the U.S. U.S. Environmental Protection Agency. Two year total \$298,251. August 1, 2000-August 2002.
- Photochemical Ozone Budget of the Eastern North Pacific Atmosphere (PHOBEA). National Science Foundation/Atmospheric Chemistry, 4 year total, \$475,000. ATM-9529604 and ATM-9896270 (transferred to UW), June 1996-June 2000.
- Identification of Sources and Long Term Trends for Pollutants in the Arctic. (through UW-JISAO), NOAA Cooperative Institute for Arctic Research (CIFAR). Two year total \$127,667. May 1998-2000.
- Benzene and Carbon Monoxide as Air Pollutants in Fairbanks, Alaska. Partners in Science: with Janet Ricker (West Valley High School). Research Corp, 2 year total, \$14,000. June 1997-June 1999.
- Identification of Sources and Long Term Trends for Pollutants in the Arctic using Clustered Trajectory Analysis. NOAA, Cooperative Institute for Arctic Research (CIFAR). One year total, \$60,000. May 1997-May 1998.

- Atmospheric Transport Pathways to Alaska from Potential Radionuclide Sites in the Former Soviet Union, Sept. 1995-December 1996, \$40,000. PI: Dr. Dan Jaffe, Co-PI: Dr. Robert Andres (UAF-INE), Funded by the State of Alaska.
- A Study of the High Latitude Nitrogen Oxide Reservoir, NSF Division of Atmospheric Sciences/ Atmospheric Chemistry, ATM-9215127, 3 year total \$373,800., Sept. 1992-June 1996
- Impact of East Asian Emissions on CO and O₃ Concentrations in the North Pacific Atmosphere. NOAA Climate and Global Change Program, NA36GPO253, 3 year total \$180,000., May 1993-May 1996.
- Ground-Based Measurements of Nitrogen Oxides as Part of the Pacific Exploratory Mission-West (PEM-West) Program. NSF, ATM-9022004, 2 years grant June 1991-June 1993, 2 year total \$99,000.
- Tropospheric Nitrogen Oxide Chemistry in Central, Alaska. NSF Division of Atmospheric Sciences/ Atmospheric Chemistry, ATM-8814518, Oct. 1988- March 1992. 3 year total \$299,202.

Funded projects (with D. Jaffe as Co-PI)

- Ozone Vertical Profile Measurements at Fairbanks, Alaska in Support of the Polaris Campaigns. NASA, 7 month total \$58,250, April 1, 1997-October 30, 1997. Principal Investigator: Samuel J. Oltmans; Co-Investigators: Daniel Jaffe, Bryan Johnson.
- Soviet Arctic Haze: A study of Pollution in Northern Russia, Earthwatch, \$30,000 (approximate total) + volunteer labor, co-PI with Alexander Baklanov, Kola Science Center, Russia, March 1990-September 1993.
- Gaseous Emissions of Redoubt Volcano. USGS/Alaska Volcano Observatory. 1 year grant, May 1990-May 1991, \$34,143. (This is a multiple PI effort, the funds listed are for the portion on gas and snow chemistry for which D. Jaffe was the sole PI).

Graduate students advised (Major Professor)

Completed:

- Emily Fischer, Ph.D 2010, Atmospheric Sciences-UWS
- David Reidmiller, Ph. D, 2010, Atmospheric Sciences-UWS
- Phil Swartzendruber PhD, 2009, Atmospheric Sciences-UWS
- Heather Price, PhD, 2004, Chemistry-UWS
- Bob Kotchenruther, PhD, 2000, Chemistry-UW
- Alexander Mahura, M.S. 1998, Environmental Chemistry-UAF
- Harry Beine, PhD 1996, Atmospheric Chemistry-UAF
- Zhiyong Zhang, M.S. 1996, Environmental Chemistry-UAF
- Lizhen Zhang, M.S. 1995, Environmental Chemistry-UAF
- Jennifer Kelley, M.S. 1993, Environmental Chemistry-UAF
- Bianca Cerundolo, M.S. 1993, Environmental Chemistry-UAF
- Richard Honrath, PhD 1991, Atmospheric Chemistry-UAF
- Matt Zukowski, M.S. 1988, Geochemistry-UAF

In-Progress:

- Pao Baylon, Ph.D program started 9/2011, Atmospheric Sciences-UWS
- Crystal McClure Ph.D program started 9/2011, Atmospheric Sciences-UWS
- Nicole Widger, Ph.D program started 9/2009, Atmospheric Sciences-UWS

Invited Presentations

- Uncertainty in Environmental Analysis. Harvard Atmospheric Chemistry Group, October 2011.
- Global Transport of O₃, Aerosols and Hg. Chinese Meteorological Agency, Beijing, Sept 2011.
- Transport of radionuclides from the Japanese nuclear accident: mass hysteria or serious concern?, Pacific Northwest Weather Workshop, May 2011.
- Key Uncertainties in the Global Mercury Cycle. Keynote talk at Taiwan Aerosol Association for Research, September 2010.
- Made in China- Global Influences on Local Air Quality. Invited talk to the UW Board of Regents, March 2009.
- Testimony before the US-China Economic and Security Review Commission, Washington D.C. August 2008.
- Global Transport of Mercury, Ozone and PM: Policy Relevant Results. International Joint Commission, Anchorage, AK, Sept 2008.
- Long-Range Transport of Pollutants: Does it Matter for U.S. Air Quality? UN ECE Hemispheric Transport of Air Pollutants (HTAP) working group. Washington D.C., June 2008.
- Free tropospheric observations at the Mt. Bachelor Observatory in Oregon and the PICO-NARE observatory in the Azores. Presentation at the *Swiss Federal Institute for Materials Science and Technology (EMPA)*, April 2008.
- Influence of Long-Range Transport and Oxidation on the Global and Regions Cycles of Mercury. UNEP/HTAP/LRTAP Joint International Conference on Intercontinental Transport of Atmospheric Mercury and Persistent Organic Pollutants, Rome, Italy, April 2008.
- Influence of Long-Range Transport and Oxidation on the Global Cycle of Mercury in the Atmosphere. Great Basin Mercury Working Group (EPA regions, 8,9,10). Reno, NV, January 2008.
- Influence of Long-Range Transport and Oxidation on the Global Cycle of Mercury in the Atmosphere. Air Quality VI. Washington D.C., Sept. 2007.
- An overview of free tropospheric observations of background air quality at the Mt. Bachelor Observatory in Oregon. Presentation at the annual NOAA-ESRL meeting, Boulder Colo, April 2007.
- Who's polluting the Columbia River Gorge. Presentation to the Gorge Commissions. March 2007.
- Long-Range Transport of Pollutants: Does it Matter for U.S. Air Quality? UN ECE Hemispheric Transport of Air Pollutants (HTAP) working group. Geneva, Switzerland, January 2007.
- Transport and Cycling of Asian Mercury in the Pacific Atmosphere. Invited presentation. Western Pacific Geophysics Meeting. Beijing, China, July 2006.
- Free Troposphere Sampling at the Mt. Bachelor Observatory, Invited presentation given at Harvard University (Atmospheric Modeling Research Group), June 2006.
- Long-Range Transport of Pollutants: Does it Matter for US Air Quality. Annual Meeting of the Health Effects Institute, San Francisco, April 2006.
- Global Influences on Mercury and Local Air Quality. Annual Meeting of the Electric Power Research Institute (EPRI), San Jose, March 2006.
- Carmen San Diego and the Case of the Increasing Regional (and Global?) Ozone, Michigan Technological University, Houghton, MI, February 2006.

- Free Troposphere Sampling at the Mt. Bachelor Observatory, Invited presentation at the Task Force on Hemispheric Transport of Air Pollution Workshop, Washington, DC, January 2006.
- Long-Range Transport of Mercury to the United States, Presented at the EPA Region 10, Air Toxics Summit, Portland, OR, October 2005.
- Fate and transport of atmospheric mercury in Asia. Presented at the First International Symposium by the China, Korea and Japan Meteorological Societies, "Atmospheric Sciences in East Asia," Tokyo, Japan, May 2005.
- "Made in China" Global Influences on Local Air Quality, University of Wyoming, Laramie, March 2005.
- Measurements of mercury in the US and Okinawa Japan. Presented to US EPA-Taiwan bilateral meeting on environmental cooperation. San Francisco, December 2004.
- Use of tracer ratios to identify Asian industrial, biomass burning and strat. influences on the west coast of the US. Atmospheric Chemistry seminar, Harvard University, November, 2004.
- Influence of Asian emissions on mercury and ozone in the U.S.. Presented to US EPA-ICAP meeting, Durham NC, October 2004.
- Transport and Chemical Processing of Mercury During Long-range Transport in the Pacific. Invited presented to USGS-EPA Mercury Roundtable. September 2004.
- Atmospheric chemistry/biogeochemistry linkages between Asia, North America and the North Pacific. Presented at Beijing workshop on Collaborative US-China programs in Arctic and Marine Sciences. Organized by NOAA. Beijing, July 2004.
- Quantifying the contribution from long-range transport to a regional smog episode during the summer of 2003. Frontier Research Institute for Global Change, Tokyo, Japan. March 2004.
- Trans-Pacific Transport of Pollution: Impact on Urban Air Quality in the U.S. Presented at AAAS annual meeting, Seattle, WA. February 2004.
- Influence of global sources on mercury in the Pacific Northwest. EPA-Region X Air Toxics Summit. Seattle, December 2003.
- Long-range transport of pollutants from Asia to the US: Does it matter for US air quality? Invited presentation at USGS, St Petersburg, Florida, September 2003.
- Long-range transport of pollutants from Asia to the US: Does it matter for US air quality? Invited presentation at University of Miami, September 2003.
- Implications of long-range transport on atmospheric deposition to the Pacific Northwest. Invited presentation at EPA deposition workshop. Portland, July 2003.
- Long-range transport of pollutants from Asia to the US: Does it matter for US air quality? Invited presentation to US EPA Office of Air Quality Planning and Standards, RTP, North Carolina. May 2003.
- Long-range transport of pollutants from Asia to the US: Does it matter for US air quality? Invited presentation to Atmospheric modeling group, Harvard University. May 2003.
- Influence of Long-Range Transport on Air Quality in Western North America. Presentation to Environment Canada-MSC, Toronto, Canada, January 2003.
- Influence of Long-Range Transport on Air Quality in the Western U.S. Invited presentation at Society for Environmental Toxicology and Chemistry (SETAC), Salt Lake City, November 2002.

- What Controls Ozone in the Northeast Pacific? Invited presentation at Telluride Summer Research Institute, Workshop on Atmospheric Chemistry. Telluride, CO. August 5-9, 2002.
- What can atmospheric scientists do for WACAP. Invited presentation to National Park Service planning meeting on the Western Air Contaminants Assessment Program. Corvallis, OR. June 2002.
- Influence of Long-Range Transport on Air Quality in the Western U.S. Presentation at Oregon State University, Corvallis, June 2002.
- Presentation on Transboundary Air Pollution in the Pacific to the International Air Quality Advisory Board of the International Joint Commission. E.P.A. Region X, Seattle, January 2002.
- Presentation on Long range atmospheric transport of pollutants across the Pacific: An overview of current knowledge. Presented at the North Pacific Marine Science Organization (PISCES) annual meeting. Victoria, Canada, October 2001.
- Presentation at Pacific Northwest National Laboratory. Observations of Ozone, CO, NO_x, PAN, NMHCs, and Aerosols in the Northeastern Pacific Atmosphere During Spring. September 2000.
- Presentation on Long Range Transport of Asian Air Pollution to North America. Conference on Trans-Pacific Transport of Atmospheric Pollutants. Seattle. July 2000.
- Presentation at IGAC planning meeting on "Intercontinental Transport and Chemistry". Tokyo, Japan, March 2000 (also in Boulder CO July 2001 and Nov. 2001).
- Presentation at Ecological Society of America (ESA) workshop on Atmospheric deposition to the Pacific Coast. Invited talk on tools for assessing long range transport of pollutants, UCLA, February 2000.
- Presentation at international workshop in Nagoya, Japan on Transport of Asian air pollution to the U.S. and results from the 1999 PHOBEA observations". November 1999.
- Presentation at University of British Columbia on Transport of Asian air pollution to North America, October 1999
- Presentation at Portland State University on Transport of Asian air pollution and results from 1999 PHOBEA observations, November 1999.
- Presentation at Washington State University-Vancouver on Transport of Asian air pollution and results from 1999 PHOBEA observations, November 1999.
- Presentation at workshop on Ozone and vegetation impacts. "Transport of Asian air pollution to North America. University of Tokyo, Nov. 1998.
- Presentation at Washington State University on "Transport of Asian pollutants to the U.S. West Coast," Feb. 1998.
- Presentation at workshop on Ozone in the Asia Pacific region. University of Tokyo, Nov 1996.
- Presentation to Lawrence Livermore National Laboratory on Potential Sources of Radionuclides in Alaska from Sources in the Former Soviet Union. Livermore, CA. Oct 1996.
- Presentation at the US-Japan Workshop on Arctic Research. Fairbanks, Alaska, February 1996.
- Presentation to joint Office of Naval Research on Acidification in the Arctic-U.S. EPA workshop on Arctic Contaminants. Fairbanks Alaska, August 1996.
- Presentation to Japanese scientists on Asian pollutants in the Pacific. University of Tokyo- January 1996
- Invited participant on NASA team to evaluate the Hong Kong air monitoring station. Hong Kong, October 1995.

NASA Nitrogen Oxide Evaluation panel. Menlo Park, CA, December 1993.
NATO Advance Research Workshop on "The Tropospheric Chemistry of Ozone in the Polar Regions." Halifax, Nova Scotia, August 1992.
Workshop on Tropospheric Ozone in the Polar Regions, Halifax N.S., August 1992.
NSF Working Group Participant to develop a research plan for an arctic photochemistry experiment (TAPESTRIES). Washington, D.C., May 1992,
Earthwatch Principal Investigators' Meeting. Invited to present an overview of our Earthwatch sponsored research on air pollution in the Kola Peninsula, Russia, Boston, MA, March 1992 and March 1991.
Alaska Clean Seas workshop on "In-Situ Burning." Invited to give luncheon address on putting the air pollution aspects of in-situ burning (the burning of oil after an oil spill) into a global perspective. Anchorage, AK, November 1991.
Symposium on the Tropospheric Chemistry of the Antarctic Region. Invited Participant. June 1991, Boulder, CO.
NASA PEM-West Science Team Meeting. As a participant in the International Global Atmospheric Chemistry Program's experiment (PEM-West), I was an invited attendee at this meeting. PEM-West is an international experiment to document the transport of air pollutants from the Asian continent to remote Pacific atmosphere. Herndon, VA, April 1991.
Invited presentation to Corvallis, OR, office of the EPA on arctic air pollution, January 1991.
Invited presentation to NOAA GMCC lab in Boulder, CO, on the results of our Barrow measurement campaigns. January 1991,
Invited presentation on Arctic Pollution; International Symposium on Environmental Problems of the North. Murmansk, USSR- February 1990

Other Professional Activities

External examiner for doctoral dissertation by Cheung Vincent, Hong Kong Polytechnic University (Hong Kong Sept 2001).
Board member, Seattle's Urban Environmental Institute March 2001-current.
Co-chair of IGAC-Atmospheric Chemistry Education subcommittee (with J. Boonjawat) to develop courses in atmospheric chemistry in developing regions of the world.
Presentations to IGAC Steering committee in Seattle (August 1998), Shonan Village, Japan (May 1999), Bangkok (Jan. 2001).
Member Steering Committee for International Global Atmospheric Chemistry (IGAC) projects on Asia-Pacific (APARE) and Polar regions (PASC). 1995
National Academy of Sciences, Young Investigation Program on Arctic Ecology, US-Russian exchange Program, 1993-1994.
Chosen to attend the National Center for Atmospheric Research's 1986 Summer Colloquium; Boulder, CO. One of 30 international graduate and post-doctoral students selected to meet with NCAR's scientific staff to discuss current topics in atmospheric chemistry. July 1986.
Sabbatical leave during AY 1993-1994 at the University of Oslo working with Dr. Ivar Isaksen on global chemical pollutant modeling.
Formerly certified secondary science teacher, Massachusetts and Washington
Member of the American Chemical Society
Member of the American Geophysical Union

Several Lectures at the University of Oslo and the Norwegian Institute for Air Research during my sabbatical. 1993
 Reviewer for the Journals: Atmospheric Environment, Journal of Geophysical Research; Geophysical Research Letters; Environmental Science and Technology; Journal of Atmospheric Chemistry; Environmental Pollution; and Science of the Total Environment.
 Proposal reviewer for the National Science Foundation, NASA and NOAA.

University Service

University of Washington

Senate Committee on Planning and Budget (SCPB), Sept 2008-present.
 UWB, General Faculty Organization, Executive Committee. Sept. 2007-present.
 UWB, General Faculty Organization, Executive Committee Vice-chair/Chair (Sept 2007-Sept 2009).
 Chancellor Search Committee, AY 06-07.
 Developed and coordinated approval for UWB's first science degree (B.S. in Environmental Science) February 1998-June 2000.
 Coordinator for Science, Technology and the Environment (STE) option within Interdisciplinary Arts and Sciences, September 1997-June 2000.
 Extensive curriculum development for science at UWB (8 new courses proposed), September 1998-current.
 Development of outreach program for community colleges to recruit science students to UWB, January 1998-current.
 Chair of Biology/Ecology search committee, October 1997-February 1998.
 Chair of review committee for several adjunct faculty in science and mathematics. September-December 1997.
 Advisor on science labs for new UWB campus, September 1997-current.
 Advisor for integration of wetlands studies into UWB curriculum, September 1997-current.
 Development of budget request for new UWB science labs, February 1998.
 Coordinate usage of new science labs with Cascadia Community College that will be co-located at the UWB site.
 Member Personnel and Academic affairs sub-committees in IAS

University of Alaska-Fairbanks

Chairman, College of Natural Sciences Curriculum Council, University of Alaska Fairbanks, Sept. 1992-June 1993. Member of committee Sept. 1991-Sept. 1992.
 UAF Chairman of the "Billion Pound Diet", campus-wide educational program on energy conservation, AY 1990-1991.
 UAF member representative to the University Corporation for Atmospheric Research (UCAR), October 1991, 1992.
 Department of Chemistry Search committees: 1991 (2), 1993, 1995.
 Advisor to the University "Climbing Wall Committee"
 Faculty advisor to the Student Conservancy (1992-current).
 Faculty Advisor to the Student Environmental Club, 1991-1993.
 Faculty Advisor for the Student Chapter of the Northern Alaska Environmental Center, 1990-1992.
 Faculty Advisor for the Student "Science Outreach" program, 1992.

Department of Chemistry graduate committee (current).

UAF representative to the University Corporation for Atmospheric Research annual members meeting: 1989, 1992.

UAF representative for negotiations with the Alaska Department of Environmental Conservation on creation of the joint UA-ADEC cooperative agreement, November 1994.

Member of UAF task force on Arctic Pollution issues (Under Dr. DeLaca)

Member UAF Graduate School's working group on development of an Atmospheric Chemistry Interdisciplinary PhD, 1992.

Public Service

Numerous discussions with EPA officials on the implications of long range transport of Asian air pollution to the U.S. 1998-2000.

Volunteer Board member for the Northern Alaska Environmental Center from September 1995-June 1997. Board President from January 1996-June 1997.

Session Chair, Relationship between CO, O₃ and nitrogen oxides, American Geophysical Union Fall Meeting, December 1996.

Lecturer for the second IGAC/WMO/NSF Short course on Atmospheric Chemistry November 4-15, 1996 Salvador, Brazil.

Teacher/Team Leader, First IGAC/WMO/NSF Short course on Instrumentation in Atmospheric Chemistry, Buenos Aires, Argentina, October 30-November 10, 1995.

Session Chair, High Latitude Tropospheric Chemistry, American Geophysical Union Fall Meeting, December 1995.

Member of the U.S. delegation to the Arctic Monitoring and Assessment Program.

Consultation with the Alaska Dept. of Environmental Conservation (ADEC) in Juneau in Nov. 1994 on activities of the Arctic Monitoring and Assessment Program.

International Global Atmospheric Chemistry Program-Committee member for Polar (PASC) and Asia/Pacific (APARE) programs.

U.S. Delegate to the Arctic monitoring and Assessment Task Force, Dec. 1991 (Tromsø) December 1992 (Toronto), Oct. 1993 (Reykjavik), March 1994 (Tromsø), Nov. 1994 (Wash. D.C.).

Facilitator, Non-Radionuclide Contamination Technical Session, the Interagency Arctic Research Policy Committee Workshop on Arctic Contamination. Anchorage, Alaska, May 1993.

Session Chair, Arctic Atmospheric Chemistry Session, Arctic Science Conference, Anchorage, Alaska, Oct. 1990.

Numerous presentations to state and local agencies on urban air quality, ozone depletion, arctic air pollution, and etc.

Numerous presentations to Fairbanks public schools on various environmental chemistry issues including ozone depletion, acid rain, climate change, local air quality, etc.

Judge and mentor for the annual High School Science Symposium (1993-current)

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