PETER F. DECARLO
AAAS Science and Technology Policy Fellow
Hosted at the US EPA Office of the Science Advisor
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EDUCATION

B.S., Biochemistry, Cum Laude, University of Notre Dame, 2001.
Ph.D. Atmospheric Science, University of Colorado, 2002-2007.

EXPERIENCE

AAAS Science and Technology Policy Fellow (2010-current)

- Developing testing protocols for laboratory and field testing of cookstoves
- Development and deployment of idea-sharing collaborative website for the Air, Climate, Energy Research program at the US Environmental Protection Agency

Post Doctoral Researcher at the Paul Scherrer Institute, Switzerland (2008-2010)

- Smog chamber studies of the oxidation of gas and particle phase products from the ozonolysis of a-pinene
- Smog chamber studies of diesel and wood burning emissions
- Supervised students and participated in field measurement campaigns in:
    - Paris, France – MEGAPOLI July 2009, Jan 2010, Ground and mobile platforms
    - Barcelona, Spain – DAURE campaign, Ground and mobile platforms
    - Zurich, Switzerland – EMEP
    - Rheintal valley (Switzerland, Liechtenstein, Austria) – mobile platform
    - Jungfraujoch, High Alpine research station, Switzerland, CLACE-8
- Conducted flow tube studies of biogenic SOA under different conditions
- Conducted flow tube studies of photosensitized aerosol aging experiments

Graduate Research Assistant at the University of Colorado (2003-2007)

- Participated in particulate characterization measurements for field campaigns in:
    - Mexico City, Mexico MCMA-2002
    - New York, New York PMTACS-2 Jan. 2004
    - Nova Scotia, Canada ICARTT-2004
    - Riverside, CA SOAR-1
    - Veracruz, Mexico (measurements made onboard NCAR C-130 aircraft) MIRAGE
    - Seattle, WA (measurements made onboard NCAR C-130 aircraft) IMPEX/INTEX-B
- Developed and supported data acquisition control and display software for the Aerodyne Time-of-Flight Aerosol Mass Spectrometers (ToF-AMS)
- Derived a rigorous mathematical formulation for interpretation of serial or parallel DMA and AMS sizing data in terms of particle shape and density.

Teaching Assistant at the University of Colorado (2002)

Undergraduate Research Assistant, University of Notre Dame, 2000-2001

- Coded Molecular Dynamics simulation in C programming language
- Used MD simulation to study diffusion in a binary liquid

HONORS AND AWARDS

- AAAS Science Policy Fellowship, 2010-2011
- Sheldon K. Friedlander Award for Outstanding Doctoral Dissertation from American Association for Aerosol Research, 2009
- NSF International Research Postdoctoral Fellowship, 2008-2010
- Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS) IX participant, August 2007
- EPA STAR Graduate Research Fellowship, 2005-2007.
- University of Colorado Program in Atmospheric and Oceanic Sciences Fellowship, 2002.
- Bausch and Lomb Honorary Science Award 1997

PROFESSIONAL ASSOCIATION MEMBERSHIPS

- American Association for Aerosol Research (AAAR)
- American Association for the Advancement of Science (AAAS)
- American Geophysical Union (AGU)
- American Chemical Society (ACS)
- European Geophysical Union (EGU)

PROFESSIONAL SERVICE

- Referee of Journal papers for Aerosol Science and Technology, Atmospheric Chemistry and Physics, and Journal of Geophysical Research – Atmospheres, Environmental Science and Technology
- Co-chair Aerosol Chemistry session of the 2009 American Association for Aerosol Research annual conference
- Co-chaired Aerosol Mass Spectrometry session at the 2006 Int. Aerosol Conference
- Chaired session of the Second online Aerosol Mass Spectrometry Workshop, 2008
- Member of Climate workgroup for Global Alliance for Clean Cookstoves
- Member of Standards and Testing workgroup for Global Alliance for Clean Cookstoves

INVITED TALKS AT CONFERENCES AND WORKSHOPS

- Second Online Aerosol Mass Spectrometry Workshop, Leeds, U.K. Apr. 9, 2008
- Summer School on Organic Aerosols, Gothenburg, Sweden, June 2008

INVITED SEMINARS

- European Joint Research Center, Ispra, Italy, Inst. for Environment and Sustainability, Dec. 3, 2009
- Department of Atmospheric Sciences Seminar Series, Univ. of Wyoming, Nov. 11, 2004

COPYRIGHTED SOFTWARE

- Ion Time-of-Flight-Based Aerodyne Aerosol Mass Spectrometer (ToF-AMS) Control, Data Acquisition, Analysis, and Display Software, ©2004- 2011, **P. DeCarlo**, J.R. Kimmel, J.L. Jimenez, M. Gonin, M.R. Canagaratna, and D.R. Worsnop.
- High-Resolution Time-of-Flight Aerosol Mass Spectrometer (HR-ToF-AMS) Data Analysis Program (PIKA). D. Sueper, **P.F. DeCarlo**, A. Aiken, and J.L. Jimenez, © 2006-2011.

PEER REVIWED JOURNAL PUBLICATIONS
Citation Metrics can be found at: http://www.researcherid.com/rid/B-2118-2008

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46.) Chirico, R., Prevot, A.S., **DeCarlo, P.F.**, Heringa, M.F., Richter, R., Weingartner, E., Baltensperger, U. Aerosol and trace gas vehicle emission factors measured in a tunnel using an Aerosol Mass Spectrometer and other on-line Instrumentation, Atmospheric Environment, doi: 10.1016/j.atmosenv.2011.01.069, 2011.

45.) Adam, T.W., Chirico, R., Clairotte, M., Elsasser, M., Manfredi, U., Martini, G., Sklorz, M., Streibel, T., Heringa, M.F., **DeCarlo, P.F.,** Baltensperger, U., De Santi, G., Krasenbrink, A., Zimmermann, R., Prevot, A.S.H., and Astorga C. Application of Modern Online Instrumentation for Chemical Analysis of Gas and Particulate Phases of Exhaust at the European Commission Heavy-Duty Vehicle Emission Laboratory. *Analytical Chemistry*, 83(1), 67-76, doi: 10.1021/ac101859u, 2011.

44.) Lee, B. H., Kostenidou, E., Hildebrandt, L., Riipinen, I., Engelhart, G. J., Mohr, C., **DeCarlo, P. F.**, Mihalopoulos, N., Prevot, A. S. H., Baltensperger, U., and Pandis, S. N.: Measurement of the ambient organic aerosol volatility distribution: application during the Finokalia Aerosol Measurement Experiment (FAME-2008), Atmos. Chem. Phys., 10, 12149-12160, doi:10.5194/acp-10-12149-2010, 2010.

43.) Chirico, R., **DeCarlo, P.F.**, Heringa, M.F., Tritscher, T., Richter, R., Prevot, A.S.H., Dommen, J., Weingartner, E., Wehrle, G., Gysel, M., Laborde, M., and Baltensperger U. Impact of Aftertreatment Devices on Primary Emissions and Secondary Organic Aerosol Formation Potential from In-use Diesel Vehicles: Results from Smog Chamber Experiments. *Atmospheric Chemistry and Physics*, 10(23), 11545-11563, doi:10.5194/acp-10-11545-2010, 2010.

42.) Lanz, V.A., Prevot, A.S.H., Alfarra, M.R., Weimer, S., Mohr, C., **DeCarlo, P.F.**, Gianini, M.F.D, Hueglin, C., Schneider, J., Favez, O., D'Anna, B., George, C., and Baltensperger U. Characterization of Aerosol Chemical Composition with Aerosol Mass Spectrometry in Central Europe: an Overview. Atmospheric Chemistry and Physics, 10(21), 10453-10471, doi:10.5194/acp-10-10453-2010, 2010.

41.) Miljevic, B., Heringa, M.F., Keller, A., Meyer, N.K., Good, J., Lauber, A., **DeCarlo, P.F.**, Fairfull-Smith, K.E., Nussbaumer, T., Burtscher, H., Prevot, A.S.H., Baltensperger, U., Bottle, S.E., Ristovski, Z.D.: Oxidative potential of logwood and pellet burning particles assessed by a novel profluorescent nitroxide probe, *Environmental Science and Technology*, 44 (17), pp 6601–6607 doi: 10.1021/es100963y, 2010.

40.) Jurányi, Z., Gysel, M., Weingartner, E., **DeCarlo, P. F.**, Kammermann, L., and Baltensperger, U.: Measured and modelled cloud condensation nuclei concentration at the high alpine site Jungfraujoch, *Atmospheric Chemistry and Physics*, 10, 7891-7906, doi:10.5194/acp-10-7891-2010, 2010.

39.) Giechaskiel, B., Chirico, R., **DeCarlo, P.F.**, Clairotte, M., Adam, T., Martini, G., Heringa, M.F., Richter, R., Prevot, A.S.H., Baltensperger, U., Astorga, C.: Evaluation of the particle measurement programme (PMP) protocol to remove the vehicles' exhaust aerosol volatile phase, *Science of the Total Environment*, 408 (21), 5106-5116, doi: 10.1016/j.scitotenv.2010.07.010, 2010.

38.) Wood, E. C., Canagaratna, M. R., Herndon, S. C., Kroll, J. H., Onasch, T. B., Kolb, C. E., Worsnop, D. R., Knighton, W. B., Seila, R., Zavala, M., Molina, L. T., **DeCarlo, P. F.**, Jimenez, J. L., Weinheimer, A. J., Knapp, D. J., Jobson, B. T., Stutz, J., Kuster, W. C., and Williams, E. J.: Investigation of the correlation between odd oxygen and secondary organic aerosol in Mexico City and Houston, *Atmospheric Chemistry and Physics*, 10, 8947-8968, doi:10.5194/acp-10-8947-2010, 2010.

37.) Emmons, L. K., Apel, E. C., Lamarque, J.-F., Hess, P. G., Avery, M., Blake, D., Brune, W., Campos, T., Crawford, J., **DeCarlo, P. F.**, Hall, S., Heikes, B., Holloway, J., Jimenez, J. L., Knapp, D. J., Kok, G., Mena-Carrasco, M., Olson, J., O'Sullivan, D., Sachse, G., Walega, J., Weibring, P., Weinheimer, A., and Wiedinmyer, C.: Impact of Mexico City emissions on regional air quality from MOZART-4 simulations, *Atmospheric Chemistry and Physics*, 10, 6195-6212, doi:10.5194/acp-10-6195-2010, 2010.

36.) Hodzic, A., Jimenez, J. L., Madronich, S., Canagaratna, M. R., **DeCarlo, P. F.**, Kleinman, L., and Fast, J.: Modeling organic aerosols in a megacity: potential contribution of semi-volatile and intermediate volatility primary organic compounds to secondary organic aerosol formation, *Atmospheric Chemistry and Physics*., 10, 5491-5514, doi:10.5194/acp-10-5491-2010, 2010.

35.) Aiken, A. C., de Foy, B., Wiedinmyer, C., **DeCarlo, P. F.**, Ulbrich, I. M., Wehrli, M. N., Szidat, S., Prevot, A. S. H., Noda, J., Wacker, L., Volkamer, R., Fortner, E., Wang, J., Laskin, A., Shutthanandan, V., Zheng, J., Zhang, R., Paredes-Miranda, G., Arnott, W. P., Molina, L. T., Sosa, G., Querol, X., and Jimenez, J. L.: Mexico city aerosol analysis during MILAGRO using high resolution aerosol mass spectrometry at the urban supersite (T0) – Part 2: Analysis of the biomass burning contribution and the non-fossil carbon fraction, *Atmospheric Chemistry and Physics*, 10, 5315-5341, doi:10.5194/acp-10-5315-2010, 2010.

34.) **DeCarlo, P. F.**, Ulbrich, I. M., Crounse, J., de Foy, B., Dunlea, E. J., Aiken, A. C., Knapp, D., Weinheimer, A. J., Campos, T., Wennberg, P. O., and Jimenez, J. L.: Investigation of the sources and processing of organic aerosol over the Central Mexican Plateau from aircraft measurements during MILAGRO, *Atmospheric Chemistry and Physics*, 10, 5257-5280, doi:10.5194/acp-10-5257-2010, 2010.

33.) Heald, C. L., Kroll, J. H., Jimenez, J. L., Docherty, K. S., **DeCarlo, P. F.**, Aiken, A. C., Chen, Q., Martin, S.T., Farmer, D. K., Artaxo, P., Weinheimer, A. J: A simplified description of the evolution of organic aerosol composition in the atmosphere, *Geophysical Research Letters*, 37, L08803, doi:10.1029/2010GL042737.

32.) Ng, N. L., Canagaratna, M. R., Zhang, Q., Jimenez, J. L., Tian, J., Ulbrich, I. M., Kroll, J. H., Docherty, K. S., Chhabra, P. S., Bahreini, R., Murphy, S. M., Seinfeld, J. H., Hildebrandt, L., Donahue, N. M., **DeCarlo, P. F.**, Lanz, V. A., Prévôt, A. S. H., Dinar, E., Rudich, Y., and Worsnop, D. R.: Organic aerosol components observed in Northern Hemispheric datasets from Aerosol Mass Spectrometry, *Atmospheric Chemistry and Physics*, 10, 4625-4641, doi:10.5194/acp-10-4625-2010, 2010.

31.) Hildebrandt, L., Engelhart, G. J., Mohr, C., Kostenidou, E., Lanz, V. A., Bougiatioti, A., **DeCarlo, P. F**., Prevot, A. S. H., Baltensperger, U., Mihalopoulos, N., Donahue, N. M., and Pandis, S. N.: Aged organic aerosol in the Eastern Mediterranean: the Finokalia Aerosol Measurement Experiment – 2008, *Atmospheric Chemistry and Physics*, 10, 4167-4186, doi:10.5194/acp-10-4167-2010, 2010.

30.) R. Schmidhauser, P. Zieger, M. Gysel, L. Kammermann, **P. F. DeCarlo**, U. Baltensperger, and E. Weingartner. Measured and predicted aerosol light scattering enhancement factors at the high alpine site Jungfraujoch. *Atmospheric Chemistry and Physics*, 10, 2319-2333, 2010.

29.) P.B. Russell, R.W. Bergstrom, Y. Shinozuka, A.D. Clarke, **P.F. DeCarlo**, J.L. Jimenez, J.M. Livingston, J. Redemann, B. Holben, O. Dubovik, and A. Strawa. Absorption Angstrom Exponent in AERONET and Related Data as an Indicator of Aerosol Composition. *Atmospheric Chemistry and Physics*, 10, 1155-1169, 2010.

28.) J. L. Jimenez, M. R. Canagaratna, N. M. Donahue, A. S. H. Prevot, Q. Zhang, J. H. Kroll, **P. F. DeCarlo**, J. D. Allan, H. Coe, N. L. Ng, A. C. Aiken, K. S. Docherty, I. M. Ulbrich, A. P. Grieshop, A. L. Robinson, J. Duplissy, J. D. Smith, K. R. Wilson, V. A. Lanz, C. Hueglin, Y. L. Sun, J. Tian, A. Laaksonen, T. Raatikainen, J. Rautiainen, P. Vaattovaara, M. Ehn, M. Kulmala, J. M. Tomlinson, D. R. Collins, M. J. Cubison, E., J. Dunlea, J. A. Huffman, T. B. Onasch, M. R. Alfarra, P. I. Williams, K. Bower, Y. Kondo, J. Schneider, F. Drewnick, S. Borrmann, S. Weimer, K. Demerjian, D. Salcedo, L. Cottrell, R. Griffin, A. Takami, T. Miyoshi, S. Hatakeyama, A. Shimono, J. Y Sun, Y. M. Zhang, K. Dzepina, J. R. Kimmel, D. Sueper, J. T. Jayne, S. C. Herndon, A. M. Trimborn, L. R. Williams, E. C. Wood, A. M. Middlebrook, C. E. Kolb, U. Baltensperger, and D. R. Worsnop. Evolution of Organic Aerosols in the Atmosphere, *Science*, 326, 1525 - 1529

27.) C.S. McNaughton, Clarke, A.D., Kapustin V., Shinozuka, Y., Howell, S.G., Anderson, B.E., Winstead, E., Dibb, J., Scheuer, E., Cohen, R.C., Wooldridge, P., Perring, A., Huey, L.G., Kim, S., Jimenez, J.L., Dunlea, E.J., **DeCarlo, P.F.**, Wennberg, P.O., Crounse J.D., Weinheimer, A.J., Flocke, F. Observations of heterogeneous reactions between Asian pollution and mineral dust over the Eastern North Pacific during INTEX-B. *Atmospheric Chemistry and Physics*, 9, 8949-8966, 2009.

26.) E.J. Dunlea, **P.F. DeCarlo**, A.C. Aiken, J.R. Kimmel, R.E. Peltier, R.J. Weber, J. Tomlison, D.R. Collins, Y. Shinozuka, C.S. McNaughton, S.G. Howell, A.D. Clarke, L.K. Emmons, E.C. Apel, G.G. Pfister, A. van Donkelaar, R.V. Martin, D.B. Millet, C.L. Heald, and J.L. Jimenez. Evolution of Asian Aerosols during Transpacific Transport in INTEX-B. *Atmospheric Chemistry and Physics*, 9, 7257-7287, 2009.

25.) J.A. Huffman, K.S. Docherty, A.C. Aiken, M.J. Cubison, I.M. Ulbrich, **P.F. DeCarlo**, D. Sueper, J.T. Jayne, D.R. Worsnop, P.J. Ziemann and J.L. Jimenez. Chemically-Resolved Aerosol Volatility Measurements from Two Megacity Field Studies. *Atmospheric Chemistry and Physics*, 9, 7161-7182, 2009.

24.) Y. Shinozuka, A.D. Clarke, **P.F. DeCarlo**, J.L. Jimenez, E.J. Dunlea, G.C. Roberts, J.M. Tomlinson, D.R. Collins, S.G. Howell, V.N. Kapustin, C.S. McNaughton and J. Zhou. Aerosol optical properties relevant to regional remote sensing of CCN activity and links to their organic mass fraction: Airborne observations over Central Mexico and the US West Coast during MILAGRO/INTEX-B. *Atmospheric Chemistry and Physics*, 9, 6727-6742, 2009.

23.) A.C. Aiken, D. Salcedo, M.J. Cubison, J.A. Huffman, **P.F. DeCarlo**, I.M. Ulbrich, K.S. Docherty, D. Sueper, J.R. Kimmel, D.R. Worsnop, A. Trimborn, M. Northway, E.A. Stone, J.J. Schauer, R. Volkamer, E. Fortner, B. de Foy, J. Wang, A. Laskin, V. Shutthanandan, J. Zheng, R. Zhang, J. Gaffney, N. Marley, G. Paredes-Miranda, W.P. Arnott, L.T. Molina, G. Sosa, and J.L. Jimenez. Mexico City Aerosol Analysis during MILAGRO using High Resolution Aerosol Mass Spectrometry at the Urban Supersite (T0). Part 1: Fine Particle Composition and Organic Source Apportionment. *Atmospheric Chemistry and Physics*, 9, 6633-6653, 2009.

22.) J. Fast, A.C. Aiken, L. Alexander, T. Campos, M.R. Canagaratna, E. Chapman, **P.F. DeCarlo,** B. de Foy, J. Gaffney, J. de Gouw, J.C. Doran, L. Emmons, A. Hodzic, S.C. Herndon, G. Huey, J.T. Jayne, J.L. Jimenez, L.Kleinman, W. Kuster, N. Marley, C. Ochoa, T.B. Onasch, M. Pekour, C. Song, I.M. Ulbrich, C. Warneke, D. Welsh-Bon, C. Wiedinmyer, D.R. Worsnop, X.Y. Yu, and R. Zaveri. Evaluating Simulated Primary Anthropogenic and Biomass Burning Organic Aerosols during MILAGRO: Implications for Assessing Treatments of Secondary Organic Aerosols. *Atmospheric Chemistry and Physics*, 9, 6191-6215, 2009.

21.) R. Bahreini, B. Ervens, A.M. Middlebrook, C. Warneke, J.A. de Gouw, **P.F. DeCarlo**, J.L. Jimenez, E. Atlas, J. Brioude, C.A. Brock, A. Fried, J.S. Holloway, J. Peischl, D. Richter, T.B. Ryerson, H. Stark, J. Walega, P. Weibring, A.G. Wollny, F.C. Fehsenfeld. Organic Aerosol Formation in Urban and Industrial plumes near Houston and Dallas, TX. Journal of *Geophysical Research-Atmospheres* 114, D00F16, doi:10.1029/2008JD011493, 2009.

20.) R. Yokelson, J.D. Crounse, **P.F. DeCarlo**, T. Karl, S. Urbanski, E. Atlas, T. Campos, Y. Shinozuka, V. Kapustin, A.D. Clarke, A. Weinheimer, D.J. Knapp, D.D. Montzka, J. Holloway, P. Weibring, F. Flocke, W. Zheng, D. Toohey, P.O. Wennberg, C. Wiedinmyer, L. Mauldin, A. Fried, D. Richter, J. Walega, J.L. Jimenez, K. Adachi, P.R. Buseck, S.R. Hall, and R. Shetter. Emissions from biomass burning in the Yucatan. *Atmospheric Chemistry and Physics*, 9, 5785-5812, 2009.

19.) S. Gilardoni, L. Shang, S. Takahama, L.M. Russell, J.D. Allan, R. Steinbrecher, J.L. Jimenez, **P.F. DeCarlo**, E.J. Dunlea, and D. Baumgardner. Characterization of organic ambient aerosol during MIRAGE 2006 on three platforms. *Atmospheric Chemistry and Physics*, 9, 5417-5432, 2009.

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17.) J.E. Shilling, Q. Chen, S.M. King, T. Rosenoern, J.H. Kroll, D.R. Worsnop, **P.F. DeCarlo**, A.C. Aiken, D. Sueper, J.L. Jimenez, and S.T. Martin. Loading-Dependent Elemental Composition of a-Pinene SOA Particles. *Atmospheric Chemistry and Physics*, 9, 771-782, 2009

16.) K.S. Docherty, E.A. Stone, I.M. Ulbrich, **P.F. DeCarlo**, D.C. Snyder, J.J. Schauer, R.E. Peltier, R.J. Weber, S.M. Murphy, J.H. Seinfeld, D.J. Eatough, and J.L. Jimenez. Apportionment of Primary and Secondary Organic Aerosols in Southern California during the 2005 Study of Organic Aerosols in Riverside (SOAR). *Environmental Science and Technology*, 42, 7655–7662, doi: 10.1021/es8008166, 2008.

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11.) A.C. Aiken**, P.F. DeCarlo**, and J.L. Jimenez. Elemental Analysis of Organic Species with Electron Ionization High-Resolution Mass Spectrometry. *Analytical Chemistry*, 79, 8350-8358, doi:10.1021/ac071150w, 2007.

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9.) Q. Zhang, J.L. Jimenez, M.R. Canagaratna, J.D. Allan, H. Coe, I. Ulbrich, M.R. Alfarra, A. Takami, A.M. Middlebrook, Y.L. Sun, K. Dzepina, E. Dunlea, K. Docherty**, P.F. DeCarlo**, D. Salcedo, T. Onasch, J.T. Jayne, T. Miyoshi, A. Shimono, S. Hatakeyama, N. Takegawa, Y. Kondo, J. Schneider, F. Drewnick, S. Weimer, K. Demerjian, P. Williams, K. Bower, R. Bahreini, L. Cottrell, R.J. Griffin, J. Rautiainen, and D.R. Worsnop. Ubiquity and Dominance of Oxygenated Species in Organic Aerosols in Anthropogenically—Influenced Northern Hemisphere Mid-latitudes. *Geophysical Research Letters*, 34, L13801, doi:10.1029/2007GL029979.

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