

F-9 BIOGRAPHICAL SKETCH

Give the following information for professional personnel and consultants beginning with the Principal Investigator. Please do not exceed 2 pages per individual. Copy this page for each additional person.

NAME	TITLE	BIRTH DATE
Julian D. Marshall	Professor	24 January 1975

Education (Begin with baccalaureate training and include postdoctoral training)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Princeton University	B.S.E. (High Honors)	1996	Chemical Engineering
University of California	M.S.	2002	Energy and Resources
University of California	Ph.D.	2005	Energy and Resources
University of British Columbia	Postdoctoral	2005-6	Environmental Health

RESEARCH AND/OR PROFESSIONAL EXPERIENCE:

My expertise is in air pollution exposure assessment. I develop, compare, and apply models and measurements to understand spatial and temporal variability in pollutant concentrations. My education and training provides a background in the chemistry and physics of air pollution (BSE in Chemical Engineering), in exposure modeling (MS and PhD), and in spatial statistical methods for epidemiology (Post-doctoral Fellowship). I have used and implemented standard (e.g., CMAQ; WRF-Chem) and novel chemical transport models for air pollutants incorporating meteorology, atmospheric chemistry, and physics principles. I have developed and compared multiple land-use regression models, including national, continental-scale, and global models. Via those projects, I developed methods for including chemical transport models and satellite data into national and continental-scale models. I also have identified methods for incorporating temporal variability into national models, in ways that are computationally feasible yet preserve important spatiotemporal information in the input data. My experience using mobile monitoring to understand spatial patterns includes bicycle-based monitoring, regression modeling based on mobile monitoring, and analysis of air pollution data collected via Google Street View cars. I collaborate with epidemiological researchers to incorporate these novel approaches in their research.

Appointments

2016-present Professor, University of Washington, Seattle, WA
 2016-present John R. Kiely Professor of Environmental Engineering
 2013-2016 Associate Professor of Environmental Engineering, Univ of Minnesota, Minneapolis, MN
 2007-2013 Assistant Professor of Environmental Engineering, Univ of Minnesota, Minneapolis, MN
 2005-2006 Postdoctoral Research Fellow, Univ of British Columbia, Vancouver, Canada
 2000-2005 Independent Contract Researcher, Berkeley, CA. Conducted research on energy and the environment for the California Air Resources Board (Sacramento, CA), Environmental Defense (Oakland, CA), United Nations University (Tokyo, Japan), and the U.S. Agency for International Development (Jakarta, Indonesia)
 2001-2005 Student Researcher, Lawrence Berkeley National Lab, Berkeley, CA
 1999 Volunteer, Ladakh Ecological Development Group, Kashmir, India
 1998-1999 Lecturer and International Fellow, Temasek Polytechnic, Singapore
 1996-1997 Environmental Consultant, Environ Corporation, Emeryville, CA

Select Publications

MJ Bechle, DB Millet, JD Marshall. National spatiotemporal exposure surface for NO₂: monthly scaling of a satellite-derived land-use regression, 2000 - 2010. *Environmental Science & Technology*. 2015, 49(20), 12297–12305.

MT Young, MJ Bechle, PD Sampson, AA Szpiro, JD Marshall, L Sheppard, JD Kaufman. Satellite-based NO₂ and model validation in a national prediction model based on universal Kriging and land-use regression. *Environmental Science & Technology*. 2016, 50(7), 3686–3694.

D Vienneau, K de Hoogh, MJ Bechle, R Beelen, A van Donkelaar, RV Martin, DB Millet, G Hoek, JD Marshall. Western European land use regression incorporating satellite- and ground-based measurements of NO₂ and PM₁₀. *Environmental Science & Technology*. 2013, 47(23), 13555–13564.

A Saraswat, JS Apte, M Kandlikar, M Brauer, SB Henderson, JD Marshall. Spatiotemporal land use regression models of fine, ultrafine and black carbon particulate matter in New Delhi, India. *Environmental Science & Technology*. 2013, 47(22), 12903–12911.

EV Novotny, MJ Bechle, DB Millet, JD Marshall. National satellite-based land-use regression: NO₂ in the United States. *Environmental Science & Technology*. 2011, 45(10), 4407–4414.

S Hankey, JD Marshall. On-bicycle exposure to particulate air pollution: particle number, black carbon, PM_{2.5}, and particle size. *Atmospheric Environment*. 2015, 122, 65-73.

S Hankey, JD Marshall. Land use regression models of on-road particulate air pollution (particle number, black carbon, PM_{2.5}, particle size) using mobile monitoring. *Environmental Science & Technology*. 2015, 49(15), 9194–9202.

Honors

2000-2003	Graduate Research Fellowship, National Science Foundation (NSF).
2003-2006	Multiple fellowships at UC Berkeley and U British Columbia.
2005	Outstanding Graduate Student Instructor Award, U.C. Berkeley. Award states: “Each year, fewer than 10% of GSIs earn this distinguished award”
2009	Young Engineer of the Year, American Society of Civil Engineers, Minnesota Section.
2009-2011	McKnight Land-Grant Professorship, UMN.
2013	Joan M. Daisey Outstanding Young Scientist Award, Internat’l Society of Exposure Sci.
2014	C. Eugene Allen Award for Innovative International Initiatives
2014	Charles E. Bowers Teaching Award, UMN.
2016-present	Keily Professor of Environmental Engineering, UW.

- Several articles on “most downloaded” and “most read” lists from their journal.