

## FRANK J. MARIK

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### **Education**

PhD	University of Michigan	Atmospheric & Space Sciences	1995
MS	University of Michigan	Atmospheric & Space Sciences	1991
BS	University of Michigan	Atmospheric, Oceanic & Space Sciences	1984

### **Professional Experience**

Faculty Director of First-Year Student Engagement in Undergraduate Engineering, College of Engineering, University of Michigan, Ann Arbor, MI (July 2019-Present)

Associate Research Scientist/Lecturer, Dept. of Climate and Space Sciences and Engineering, University of Michigan, Ann Arbor, MI (September 2005-Present). Research areas: (1) the measurement and modeling of the transport, transformation and fate of mercury, trace metals and trace gases in the environment, (2) climate integrated assessment and adaptation planning, and (3) approaches to engineering education. Promoted to Lecturer III (2012), then Lecturer IV (2018).

Assistant Research Scientist/Supplemental Lecturer, Dept. of Atmospheric, Oceanic and Space Sciences and the University of Michigan Air Quality Laboratory, University of Michigan, Ann Arbor, MI (July 1999-September 2005)

Post-Doctoral Research Fellow, Department of Environmental and Industrial Health, University of Michigan, Ann Arbor, MI (July 1995- July 1999)

### **Academic Teaching Activities**

Dept. of Climate and Space Sciences and Engineering, University of Michigan, Ann Arbor, Michigan

CLIMATE 102: Extreme Weather, CLIMATE 105: Our Changing Atmosphere, CLIMATE 320: Earth and Space System Evolution, CLIMATE 414: Weather Systems, CLIMATE 440: Meteorological Analysis Laboratory, CLIMATE 462: Instrumentation for Atmospheric and Space Sciences, CLIMATE 463: Air Pollution Meteorology, ENGR 110: Design Your Engineering Experience, ENGR 290: Professional Skills for Engineers

### **PhD Committees**

Masako Morishita, Emily White, Lynn Gratz, Evan Oswald, Douglass Halleaux, Naima Hall

### **Awards**

University of Michigan Golden Apple Award Nominee (2014, 2015, 2018)

University of Michigan College of Engineering Kennedy Team Excellence Award (2016)

University of Michigan College of Engineering Thomas M. Sawyer, Jr. Teaching Award (2008)

### **Manuscript Peer Reviewer for the Following Professional Journals**

Atmospheric Environment; Journal of Applied Meteorology; Journal of Geophysical Research – Atmospheres; Water, Air and Soil Pollution; Environmental Toxicology and Chemistry; Science of the Total Environment; Journal of Environmental Quality; Journal of Atmospheric and Oceanic Technology; Atmospheric Chemistry and Physics Discussions

## **Proposal Peer Reviewer for the Following Organizations**

National Science Foundation, National Aeronautics and Space Administration, Electric Power Research Institute, Hudson River Foundation

## **NASA Project Advisory Panel**

Mission Earth: Fusing GLOBE with NASA Assets to Build Systemic Innovation in STEM Education

## **Peer-Reviewed Publications**

Edington, S., Cameratti-Baeza, C. G., Knudsen, R., & Marsik, F. J. (2020). *Choose Your Own Adventure: Introducing Student Choice into a First-year Experience Course*. Paper presented at 2020 ASEE Virtual Annual Conference Content Access, Virtual On line. <https://peer.asee.org/34282>

Hall, N. L., Dvonch, J. T., Marsik, F. J., Barres, J. A., & Landis, M. S. (2017). An artificial turf-based surrogate surface collector for the direct measurement of atmospheric mercury dry deposition. *International Journal of Environmental Research and Public Health*, 14(2), [173]. DOI: 10.3390/ijerph1402017

Wright, L.P., Zhang, L. & Marsik, F.J. (2016). Overview of mercury dry-deposition, litterfall and throughfall. *Atmospheric Chemistry and Physics*, 16, 13399-13416, DOI: 10.5194/acp-16-13399- 2016.

Standridge, C., Zeitler, D., Nordman, E., Boezaart, T. A., Edmonson, J., Nieves, Y, Turnage, T.J., Phillips, R., Howe, G., Meadows, G., Cotel, A. & Marsik, F. (2015). A Case Study of Laser Wind Sensor Performance Validation by Comparison to an Existing Gage. *International Journal of Renewable Energy Research*, 5(2) (<http://www.ijrer.org/ijrer/index.php/ijrer/article/view/2167/6607>).

Barbehenn, R.V., Knister, J., Marsik, F, Jahant-Miller, C. & Nham, W. (2015). Nutrients are assimilated efficiently by *Lymantria dispar* caterpillars from the mature leaves of trees in the Salicaceae. *Physical Entomology*, DOI: 10.1111/phen.12087.

Demers, J.D., Sherman, L.S., Blum, J.D., Marsik, F.J., & Dvonch, J.T. (2015). Coupling atmospheric mercury isotope ratios and meteorology to identify sources of mercury impacting a coastal urban-industrial region near Pensacola, Florida, USA. *Global Biogeochemical Cycles*, 29, DOI:10.1002/2015GB005146.

Gratz, L.E., Keeler, G.J., Marsik, F.J., Barres, J.A., & Dvonch, J.T. (2012). Atmospheric transport of speciated mercury across southern Lake Michigan: Influence from emission sources in the Chicago/Gary urban area. *Science of the Total Environment*, 448, 84-95.

Liu, B., Keeler, G.J., Dvonch, J.T., Barres, J.A., Lynam, M.M., Marsik, F.J. and Taylor-Morgan, J. (2010). Urban-rural differences in atmospheric mercury speciation. *Atmospheric Environment*, 44 (16), 2013-2023.

Sillman S., Marsik, F.J., Al-Wali, K.I., Keeler, G.J., & Landis, M.S. (2007). Reactive mercury in the troposphere: Model formation and results for Florida, the northeastern United States, and the Atlantic Ocean. *Journal of Geophysical Research*, 112, D23305, DOI:10.1029/2006JD008227.

Lyman, S.N., Gustin, M.S., Prestbo, E.M., & Marsik, F.J. (2007). Estimation of Dry Deposition

of Atmospheric Mercury in Nevada by Direct and Indirect Methods. *Environmental Science & Technology*, 41(6), 1970- 1976.

Marsik, F.J., Keeler, G.J., & Landis, M.S. (2007). The dry deposition of speciated mercury to the Florida Everglades: measurements and modeling. *Atmospheric Environment*, 41, 136-149.

Marsik, F.J., Keeler, G.J., Lindberg, S.E., & Zhang, H. (2005). The air-surface exchange of gaseous mercury over a mixed sawgrass-cattail stand within the Florida Everglades. *Environmental Science & Technology*, 39(13); 4739-4746.

Dvonch, J.T., Keeler, G.J., & Marsik, F.J. (2005). The influence of meteorological conditions on the wet deposition of mercury in Southern Florida. *Journal of Applied Meteorology*, 44(9); 1421-1435.

Morishita, M., Keeler, G.J., Wagner, J.G., Marsik, F.J., Timm, E.J., Dvonch, J.T. & Harkema, J.R. (2004). An investigation of anthropogenic urban particulate matter in lung samples from inhalation exposure study in Detroit, Michigan. *Journal of Inhalation Toxicology*, 16, 663-674.

Harkema, J.R., Keeler, G.J., Wagner, J.G., Marsik, F.J. & Barr, E.B. (2002). Effects of concentrated airborne particles on the lungs of rats with allergic airway disease: inhalation toxicology studies in a Detroit community using a mobile air research laboratory. *American Journal of Respiratory and Critical Care Medicine*, 165(8), p. A69.

Keeler, G.J., Dvonch, J.T., Yip, F.Y., Parker, E.A., Israel, B.A., Marsik, F.J., Morishita, M., Barres, J.A., Robins, T.G., Brakefield-Caldwell, W., Sam, M. (2002). Assessment of Personal and Community-level Exposures to Particulate Matter Among Children with Asthma in Detroit, Michigan, as part of Community Action Against Asthma (CAAA). *Environmental Health Perspectives*, 110 (suppl 2), 173-181.

Zhang, H., Lindberg, S.E., Marsik, F.J., & Keeler, G.J. (2001). Mercury air/surface exchange kinetics of background soils of the Tahquamenon River watershed in the Michigan Upper Peninsula. *Water, Air and Soil Pollution*, 126, 151-169.

Dvonch, J.T., Marsik, F.J., Keeler, G.J., Robins, T.G., Yip, F., & Morishita, M. (2000). Field Comparison of PM<sub>2.5</sub> TEOM and PM<sub>2.5</sub> Manual Filter-Based Measurement Methods in Urban Atmospheres. *Journal of Aerosol Science*, 31 (suppl 1), S190-S191.

Gustin, M.S., Lindberg, S., Marsik, F., Casimir, A., Ebinghaus, R., Edwards, G., Hubble-Fitzgerald, C., Kemp, J., Kock, H.H, Leonard, T, London, J., Majewski, M., Montecinos, C., Owens, J., Pilote, M., Poissant, L., Rasmussen, P., Shaedlich, F., Schneeberger, D., Schroeder, W., Sommar, J., Turner, R., Vette, A., Wallschlaeger, D., Xiao, Z, & Zhang, H. (1999). The Nevada STORMS project: Measurement of mercury emissions from naturally enriched surfaces. *Journal of Geophysical Research, D: Atmospheres*, 104(17), 21831-21844.

Lindberg, S., Zhang, H., Gustin, M., Vette, A., Marsik, F., Owens, J., Casimir, A, Ebinghaus, R., Edwards, G., Fitzgerald, C., Kemp, J., Kock, H.H, London, J., Majewski, M., Poissant, L., Pilote, M., Rasmussen, P., Shaedlich, F., Schneeberger, D, Sommar, J., Turner, R., Wallschlaeger, D., & Xiao, Z. (1999). The response of mercury emissions from desert soils to rainfall and irrigation. *Journal of Geophysical Research, D: Atmospheres*, 104(17), 21879-21888.

Dvonch, J.T., Graney, J.R., Marsik, F.J., Keeler, G.J., & Stevens, R.K. (1998). An investigation

of source-receptor relationships for mercury in South Florida using event precipitation data. *Science of the Total Environment*, 213, 95-108.

Marsik, F.J., Fischer, K.W., McDonald, T.D., & Samson, P.J. (1995): Comparison of methods for estimating mixing height used during the 1992 Atlanta Field Intensive. *Journal of Applied Meteorology*, 34, 1802-1814.

### **Recent Project Reports**

Marsik, F.J. (2018, 2019, 2020). Annual Report for National Science Foundation Research Experience for Undergraduates site "Program in Climate and Space Science Observation (PICASSO)", Project Award # 1659248.

Marsik, F.J., Lemos, M., & Clark, R. (2017). *Workshop to Advance Climate Adaptation Initiatives for Indigenous Tribes within the Great Lakes Region*. Final report submitted to the Graham Sustainability Institute. This project involved collaborative planning of workshop to support climate adaptation planning needs of Inter-Tribal Council of Michigan member Tribes.

Marsik, F.J., Whyte, K.P., Rood., R.B., Masters, E., & Doyle, B. (2016). *Phase I through III Final Reports: Consideration of the impact of Climate Change on Lake Levels in the Management Plan of Tribal Fisheries and Culturally Important Sites*. Final reports submitted for all three phases of project submitted to the Graham Sustainability Institute. This project involved working with natural resources specialists for the following Tribal nations: Grand Traverse Band of Ottawa and Chippewa Indians and the Little Traverse Bay Bands of Odawa Indians.

Marsik, F.J., Whyte, K.P., Rood., R.B., & Masters, E. (2015). *Project Final Report: Inclusion of Climate Change Effects on Lake Levels in Management Plans of Tribal Fisheries*. Submitted to the Graham Sustainability Institute Great Lakes Water Levels Integrated Assessment Grant Program: Planning Grant Phase. This project involved working with natural resources specialists for the following Tribal nations: Grand Traverse Band of Ottawa and Chippewa Indians and the Little Traverse Bay Bands of Odawa Indians.

Marsik, F.J. (2014). *Project Final Report: Deposition Modeling in Support of the Michigan Mercury TMDL*. Submitted to Michigan Department of Environmental Quality and the US EPA Great Lakes Restoration Initiative (Grant Number GL-00E00605).