Bavand Sadeghi

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Education

PhD, Atmospheric Science, University of Houston, Houston, 2022

Master of Science, Environmental Engineering, Texas A&M University, 2017

Master of Science, Environmental Engineering- Air Pollution Studies, University of Tehran, 2013

Bachelor of Science, Civil Engineering, Iran University of Science and Technology, Iran, 2005 – 2011

Publications

Nelson, D., Choi, Y., **Sadeghi, B.**, Yeganeh, A. K., Ghahremanloo, M., & Park, J. (2023). A comprehensive approach combining positive matrix factorization modeling, meteorology, and machine learning for source apportionment of surface ozone precursors: Underlying factors contributing to ozone formation in Houston, Texas. *Environmental Pollution*, *334*, 1222233. https://doi.org/10.1016/j.envpol.2023.122223

Mousavinezhad, S., Ghahremanloo, M., Choi, Y., Pouyaei, A., Khorshidian, N., & **Sadeghi, B.** (2023). Surface ozone trends and related mortality across the climate regions of the contiguous United States during the most recent climate period, 1991–2020. *Atmospheric Environment*, *300*, 119693. https://doi.org/10.1016/j.atmosenv.2023.119693

Sadeghi, B., Ghahremanloo, M., Mousavinezhad, S., Lops, Y., Pouyaei, A., & Choi, Y. (2022). Contributions of meteorology to ozone variations: Application of deep learning and the Kolmogorov-Zurbenko filter. *Environmental Pollution*, *310*, 119863. https://doi.org/10.1016/j.envpol.2022.119863

Sadeghi, B., Pouyaei, A., Choi, Y., & Rappenglueck, B. (2022). Influence of seasonal variability on source characteristics of VOCs at Houston industrial area. *Atmospheric Environment*, *277*, 119077. https://doi.org/10.1016/j.atmosenv.2022.119077

Sadeghi, B., Choi, Y., Yoon, S., Flynn, J., Kotsakis, A., & Lee, S. (2020) | The characterization of fine particulate matter downwind of Houston: Using integrated factor analysis to identify anthropogenic and natural sources. | Environmental Pollution, 262, 114345. https://doi.org/10.1016/j.envpol.2020.114345

Pouyaei, A., **Sadeghi, B.**, Choi, Y., Jung, J., Souri, A. H., Zhao, C., & Song, C. H. (2021) | Development and Implementation of a Physics-Based Convective Mixing Scheme in the Community Multiscale Air Quality Modeling Framework. | Journal of Advances in Modeling Earth Systems, https://doi.org/10.1029/2021MS002475

Song, S. K., Choi, Y. N., Choi, Y., Flynn, J., & **Sadeghi, B.** (2021) | Characteristics of aerosol chemical components and their impacts on direct radiative forcing at urban and suburban locations in Southeast Texas. | Atmospheric Environment, 246, 118151. https://doi.org/10.1016/j.atmosenv.2020.118151

Pouyaei, A., Choi, Y., Jung, J., **Sadeghi, B.**, & Song, C. H. (2020) | Concentration Trajectory Route of Air pollution with an Integrated Lagrangian model (C-TRAIL Model v1. 0) derived from the Community Multiscale Air Quality Model (CMAQ Model v5. 2). | Geoscientific Model Development, 13(8), 3489-3505. https://doi.org/10.5194/gmd-13-3489-2020

Conference Papers

Sadeghi, B., Crawford, A. M., Chai, T., Cohen, M. D., Seiglaff, J., Pavolonis, M. J., ... & Morris, G. (2024, January). Enhancing Volcanic Emission Forecasting Through Data Fusion and Trajectory Analysis: A Case Study of 2022 Hunga Tonga Eruption. In *104th AMS Annual Meeting*. AMS.

Crawford, A. M., Chai, T., Pavolonis, M. J., Seiglaff, J., Kibler, J., **Sadeghi, B.**, ... & Cohen, M. D. (2024, January). Quantitative and Probabilistic Volcanic Ash Forecasting for Aviation. In *104th AMS Annual Meeting*. AMS.

Sadeghi, B., Pouyaei, A., Choi, Y., & Rappenglück, B. (2021, December). Summertime and wintertime VOCs in Houston: Source apportionment and spatial distribution of source origins. In *AGU Fall Meeting Abstracts* (Vol. 2021, pp. A15N-1874).

Sadeghi, B., Choi, Y., Yoon, S., Flynn, J., Kotsakis, A., & Lee, S. (2020, December). Source Apportionment of Fine Particulate Matter near Houston: Implications for Emission Sources and Back Trajectory Analysis. In *AGU Fall Meeting Abstracts* (Vol. 2020, pp. A004-0017).

Presentations

B. Sadeghi, | **"Implementation of a convection scheme in CMAQ ideal/real case over the East Asia"** | Texas air quality symposium, University of Texas Austin, Austin, TX, USA. April 6th, 2018.

B. Sadeghi, | **"Characterization of fine particulate matter downwind of Houston: Identification of anthropogenic and natural sources using integrated factor analysis"** | EAS Student Research Conference, University of Houston department of Earth and Atmospheric Sciences, Houston, TX, USA. April 26th, 2019.

Sadeghi, B., | **Assessment of Air Pollutant Emissions from Fossil Fuel Power Plants Over U.S. Using 2014 eGRID and 2014 NEI** | Research Project presented to the Department of Environmental Engineering, Texas A&M University Kingsville, Kingsville, TX, USA. Mar 2017.

Academic Experiences

Graduate Teaching Assistant (Department of Earth and Atmospheric Sciences), University of Houston, Houston **2020 to 2021**

As the leading TA of the graduate course 'environmental data analysis' in spring 2020 and fall 2021, I have thought R programming to the students of the department of earth and atmospheric sciences. In fall 2020, I taught undergraduate students the introduction to modern climate science. I also prepared and facilitated delivery of lectures on 'atmospheric chemistry modeling', an introduction to systems of atmospheric modeling/visualization in spring 2020.

Graduate Teaching Assisting (Department of Environmental Engineering), Texas A&M University, Kingsville **fall 2016**

Provided support in teaching environmental system modeling along with guidance to students. Evaluated students' performance and resolved issues with attention to detail.