

## PERSONAL INFORMATION Seyedali (Ali) Mousavinezhad

📍 Room 414, Science and Research 1, University Of Houston, 3507 Cullen Blvd, Houston, TX77204, US

✉ [smousav3@cougar.net.uh.edu](mailto:smousav3@cougar.net.uh.edu) ; [ali.mousavi.nezhad90@gmail.com](mailto:ali.mousavi.nezhad90@gmail.com)

Atmospheric scientist & numerical modeler

I am a PhD Candidate and Teaching Assistant (TA) at the university of Houston, with the extensive experience in atmospheric science and numerical and statistical modeling

## EDUCATION

- 
- |                      |   |
|----------------------|---|
| Aug. 2019- Present   | <b>Ph.D. Student in Atmospheric Science</b><br>Department of Earth and Atmospheric Sciences, University of Houston, Houston, TX, US |
| Sep. 2013- Feb. 2016 | <b>M.Sc. in Civil Engineering-Geotechnics</b><br>Department of Civil and Environmental Engineering, Shiraz University, Shiraz, Iran |
| Sep. 2008- Feb. 2013 | <b>B.Sc. in Civil Engineering</b><br>Department of Civil and Environmental Engineering, Shiraz University, Shiraz, Iran             |

## ADDITIONAL INFORMATION

## Publications

**Selected Publications:**

- Mousavinezhad, S., Choi, Y., Pouyaei, A., Ghahremanloo, M., Nelson, D.L., 2021. A comprehensive investigation of surface ozone pollution in China, 2015–2019: Separating the contributions from meteorology and precursor emissions. *Atmos. Res.* 257, 105599.  
<https://doi.org/10.1016/j.atmosres.2021.105599>
- Ghahremanloo, M., Lops, Y., Choi, Y., Jung, J., Mousavinezhad, S., Hammond, D., 2022. A comprehensive study of the COVID-19 impact on PM<sub>2.5</sub> levels over the contiguous United States: A deep learning approach. *Atmos. Environ.* 272, 118944.  
<https://doi.org/10.1016/j.atmosenv.2022.118944>
- Jung, J., Choi, Y., Souri, A., Mousavinezhad, S., Sayeed, A., Lee, K., 2021. The impact of springtime-transported air pollutants on local air quality with satellite-constrained NO<sub>x</sub> emission adjustments over East Asia. *Journal of Geophysical Research*. <https://doi.org/10.1029/2021JD035251>
- Park, J., Choi, Y., Jung, J., Mousavinezhad, S., Pouyaei, A., 2021. The Sensitivity of Ozone and PM<sub>2.5</sub> Concentrations to the Satellite-Derived Leaf Area Index over East Asia in the WRF-CMAQ Modeling System. *Atmospheric Environment – Under revision*
- Jung, J., Choi, Y., Mousavinezhad, S., Kang, D., Wong, D.C., Park, J., Pouyaei, A., Ghahremanloo, M., Momeni, M., Kim, H., 2021. Changes in ozone chemical regime over the contiguous United States inferred by the inversion of NO<sub>x</sub> and VOC emissions using satellite observation. *Atmospheric Research*. <https://doi.org/10.1016/j.atmosres.2022.106076>

- Pouyaei, A., Choi, Y., Jung, J., Mousavinezhad, S., Momeni, M., Song, C. H., 2021. Investigating the long-range transport of particulate matter in East Asia: Introducing a new Lagrangian diagnostic tool. *Atmospheric Environment*. <https://doi.org/10.1016/j.atmosenv.2022.119096>
- Ghahremanloo, M., Lops, Y., Choi, Y., Jung, J., Mousavinezhad, S., Hammond, D., 2022. A comprehensive study of the COVID-19 impact on PM2.5 levels over the contiguous United States: A deep learning approach. *Atmos. Environ.* 272, 118944. <https://doi.org/10.1016/j.atmosenv.2022.118944>

### Projects and Research Experiences

- Working on a project funded by NASA and titled “Inverse Modeling Using Aura OMI and AI Deep Learning Approach to Investigate NO<sub>x</sub>, HCHO, and Ozone Sensitivity for a Historical Period over the Continental United States”, [Award: Award 80NSSC20K0948 - 19-AURAST19-0043], ongoing project  
Description: Deriving the sensitivity of ozone to its primary sources using the high order direct decoupled method (HDDM) method coupled with the CMAQ model and artificial intelligence (AI)-based HDDM and using this sensitivity for inverse modeling.
- Working on a project supported by National Institute of Environment Research (NIER), funded by the Ministry of Environment (MOE) of the Republic of Korea (NIER-2020-01-02-006) and titled “Estimating top-down emission inventory for gaseous and particulate air pollutants by using satellite retrievals and combined satellite aerosol datasets over East Asia”, ongoing project  
Description: In this research, we aim to build an advanced system for estimating top-down emission inventory by using satellite retrievals and numerical modeling over East Asia for the year 2019. The target species are primary particulate matter and its gaseous precursor species such as nitrogen dioxide and sulfate dioxide since secondary aerosols over East Asia
- Working on a project supported by the FRIEND (Fine Particle Research Initiative in East Asia Considering National Differences) Project through the National Research Foundation of Korea (NRF) funded by the Ministry of Science and ICT (2020M3G1A1114619) and titled “Development of a hybrid stochastic-deterministic approach for air pollution forecasting, source apportionment, and policy formation”, ongoing project  
Description: Developing WRF-MCIP-CMAQ modeling platform to improve its ability to simulate the air constituent behavior to both improve the air quality forecasting and source apportionment for policy purposes

### Work Experience

- Graduate research assistant (RA) at the UH numerical and artificial intelligence modeling group, University of Houston, Houston, TX, US (Part-Time) (2019 – Present)
- Civil Engineer at Shining Copper, Tehran, Iran (Full time) (2018 – 2019)
- Civil Engineer at PRSS (Pishro Raahe Sanate Sahel), Shiraz, Iran (Full-time) (2017 – 2018)

## Software skills

- **Atmospheric Science programs and models:**
  - Sparse Matrix Operator Kernel Emissions (SMOKE) Modeling
  - Weather Research and Forecasting model (WRF)
  - The community Multiscale Air Quality (CMAQ) Modeling
  - Weather Research and Forecasting model coupled with chemistry (WRF-Chem)
  - BenMap model (Human Health investigation)
- **Programming Languages:** MATLAB, Python, R
- **Other:** SAAP2000, Plaxis2D & 3D, Slide2D & 3D, GIS ArcMap, AutoCAD