Yunsoo Choi

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Total funding and peer-reviewed publications:

99 papers authored by me or with my students and postdocs at the University of Houston out of a total of 125 peer-reviewed research papers
$6.2M as PI, co-PI, or co-I ($4.3M as sole PI)
My 14 former students have earned their Ph.D. degrees, and my research group currently includes 15 Ph.D. students and one postdoc researcher.

Editorships:

Editor of Asia-Pacific Journal of Atmospheric Sciences

Areas of Expertise:

AI Deep Learning (Machine Learning) modeling, Atmospheric Chemistry, Air quality modeling, Regional chemical transport modeling, Satellite remote sensing

Teaching Subjects:
Big data in Environmental science (undergraduate)
Deep learning for big data analytics (undergraduate/graduate)
Introduction to climate change (undergraduate course): Over the fall semesters of 2021, 2022, 2023, and 2024, approximately 3,000 students have registered for this class)
Principles of Atmospheric Science (undergraduate)
Numerical modeling in atmospheric modeling (undergraduate)
Atmospheric modeling (graduate)
Dynamic meteorology (undergraduate)
Atmospheric fluid dynamics (graduate)
Mesoscale meteorology (undergraduate)
Mesoscale meteorology forecasting (graduate)

Academic and Research Positions:

Professor (September 2023 – present) the University of Houston, Department of Earth and Atmospheric Sciences, Houston, TX
Associate Professor (September 2018 – present) the University of Houston, Department of Earth and Atmospheric Sciences, Houston, TX
     Leading University of Houston Air Quality Forecasting (UH-AQF) and Machine Learning Group

Assistant Professor (September 2012 – August 2018) the University of Houston, Department of Earth and Atmospheric Sciences, Houston, TX
     Leading University of Houston Air Quality Forecasting (UH-AQF) Group

Research Scientist (April 2012 – August 2012) NASA GSFC, US Aura OMI Science Team, Greenbelt, MD

      Evaluated OMI satellite NO_2 and SO_2 retrieval products with CTM

Senior Research Associate (June 2010 – April 2012) NOAA/ARL, Air Quality Forecasting Group, Silver Springs, MD

      Maintained and updated the National Air Quality Forecasting Capability (NAQFC) Forecasting System at NOAA ARL

Senior Scientific Data Analyst (February 2010 – May 2010) NOAA/ARL, Air Quality Forecasting Group, Silver Spring, MD

      Analyzed the simulation products of the National Air Quality Forecasting Capability (NAQFC) Forecasting System

Postdoctoral Research Scientist (September 2007 – February 2010) California Institute of Technology, Jet Propulsion Laboratory, Tropospheric Emission Spectrometer (TES) team, Pasadena, California

      Evaluated satellite retrieval products with a regional chemical transport model

ACDR Seminar Chair, September 2008 – February 2010
California Institute of Technology, Jet Propulsion Laboratory, Pasadena, California

      Coordinated ACDR seminar at JPL/Caltech

Graduate School Researcher, September 2002 – June 2007
Georgia Institute of Technology, School of Earth and Atmospheric Sciences, Atlanta, Georgia

      Developed/evaluated the 0D, 1D, and 3D Regional chEmical trAnsport Model (REAM)

Graduate School Researcher (Atmospheric Chemistry), September 2000 – June 2002
University of California, Irvine, Department of Chemistry, Irvine, California

      Measured VOC components using gas chromatography/mass spectrometry

Laboratory Engineer (Analytical Chemistry), September 1999 – June 2000
Department of Chemistry, the University of California at Irvine, California

      Managed the VOC measurement system at the Donald/Rowland Group

Graduate School Researcher (Biophysical Chemistry), September 1997 – June 1999
Department of Chemistry, University of California, Irvine, California

      Designed a biopolymer using molecular dynamics simulation

Graduate School Researcher (Physical Chemistry), 1994-1996
Hanyang University, Department of Chemistry, Seoul, Korea:

      Designed a biopolymer using molecular dynamics simulation

Education:

Ph.D., Atmospheric Chemistry and Remote Sensing, School of Earth and Atmospheric Sciences
Georgia Institute of Technology, Atlanta, Georgia (June 2007). Supervised by Dr. Yuhang Wang
Thesis Title: "Spring to Summer Transitions of Ozone and Its Precursors over North America and Photochemistry Over Antarctica."

M.S., Biophysical Chemistry/Atmospheric Chemistry, Department of Chemistry, University of California, Irvine, California (June 1999).

M.S., Physical Chemistry, Department of Chemistry, Hanyang University, Seoul, Korea (1996)
Thesis Title: "Solvent modified structure of BPTI."

B. S., Chemistry, Department of Chemistry, Hanyang University, Seoul, Korea (1994)

Research, Scholarship, and Other Creative Productivity:

1. **Scholarly/Creative Work: Publications (* with my graduate students and postdocs):**

   1. Shahriar, S.A.*, **Choi, Y.**, Islam, R.*, 2025, Advanced Deep Learning Approaches for Forecasting High-Resolution Fire Weather Index (FWI) over CONUS: Integration of GNN-LSTM, GNN-TCNN, and GNN_DeepAR, Remote Sensing, https://doi.org/10.3390/rs17030515
   2. Salman, A.K.*, **Choi, Y**., Singh, D.*, Kayastha, S.G.*, Dimri, R.*, and Park, J.*, 2024, Temporal CNN-based 72-h ozone forecasting in South Korea: Explainability and uncertainty quantification, Atmospheric Environment, https://doi.org/10.1016/j.atmosenv.2024.120987
   3. Park, J.*, **Choi, Y.**, Jung, J., Lee, K., and Yeganeh, A.K.*, 2024, First top-down diurnal adjustment to NOx emissions inventory in Asia informed by the Geostationary Environment Monitoring Spectrometer (GEMS) tropospheric NO2 columns, Scientific Reports, DOI: 10.1038/s41598-024-76223-1
   4. Kayastha, S.G.*, Ghahremanloo, M.*, Park, J.*, Singh, D.*, Westenbarger, D., **Choi, Y.**, 2024, A deep learning framework for satellite-derived surface PM2.5 estimation: Enhancing spatial analysis in the United States, Artificial Intelligence for the Earth Systems, https://doi.org/10.1175/AIES-D-24-0028.1
   5. Khorshidian, N.*, **Choi, Y**., Mousavinezhad, S.*, Pouyaei, A., Park, J.*, and Fan, J., 2024, Comparing the interactions between particulate matter and cloud properties over two populated cities in Texas using WRF-Chem fine-resolution modeling, Atmospheric Environment, https://doi.org/10.1016/j.atmosenv.2024.120795
   6. Dimri, R.*, **Choi, Y**., Salman, A.K.*, Park, J.*, and Singh, D.*, 2024, AGATNet: An Adaptive Graph Attention Network for bias correction of CMAQ-forecasting PM2.5 concentrations over South Korea, JGR-Machine learning and computation, https://doi.org/10.1029/2024JH000244
   7. Shams, S.R.*, **Choi, Y**., Singh, D.*, Ghahremanloo, M.*, Momeni, M.*, Park, J.*, 2024, Innovative approaches for accurate ozone prediction and health risk analysis in South Korea: The combined effectiveness of deep learning and AirQ+, Science of The Total Environment, https://doi.org/10.1016/j.scitotenv.2024.174158
   8. Ghahremanloo, M.*, **Choi, Y**., Singh, D.*, 2024, Deep learning bias correction of GEMS tropospheric NO2: A comparative validation of NO2 from GEMS and TROPOMI using Pandora observations, Environment International, https://doi.org/10.1016/j.envint.2024.108818
   9. Yeganeh, A.K.*, Momeni, M.*, **Choi, Y**., Park, J.*, and Jung, J., A case study of surface ozone source contributions in the Seoul metropolitan area using the adjoint of CMAQ, Journal of the Air & Waste Management Association, https://doi.org/10.1080/10962247.2024.2361021
   10. Moon, J., **Choi, Y**., Jeon, W., Kim, H.C., Pouyaei, A., Jung, J., Pan, S., Kim, S., Kim, C-H., Bak, J., Yoo, J-W., Park, J., and Kim, D., 2024, Hybrid IFDMB/4D-Var inverse modeling to constrain the spatiotemporal distribution of CO and NO2 emissions using the CMAQ adjoint model, Atmospheric Environment, https://doi.org/10.1016/j.atmosenv.2024.120490
   11. Payami, M.*, **Choi, Y**., Salman, A.K.*, Mousavinezhad, S.*, Park, J.*, and Pouyaei, A.*, 2024, A 1D CNN-based emulator of CMAQ: predicting NO2 concentration over the most populated

urban region in Texas, Artificial Intelligence for the Earth Systems,
https://doi.org/10.1175/AIES-D-23-0055.1

12. Kim, D., **Choi, Y**., Jeon W., Mun, J., Park, J., Kim, C-H., Yoo, J-W., 2024, Quantitative analysis of sulfate formation from crop burning in Northeast China: Unveiling the primary processes and transboundary transport to South Korea, Atmospheric Research, https://doi.org/10.1016/j.atmosres.2024.107303

13. Mousavinezhad, S.*, **Choi, Y.**, Khorshidian, N.*, Ghahremanloo, M.*, and Momeni, M.*, 2024, Air quality and health co-benefits of vehicle electrification and emission controls in the most populated United States urban hubs: Insights from New York, Los Angeles, Chicago and Houston, Science of the Total Enviornment, https://doi.org/10.1016/j.scitotenv.2023.169577 (IF = 9.8)

14. Momeni, M.*, **Choi, Y**., Yeganeh, A.K.*, Poyaei, A.*, Jung, J.*, Park, J.*, 2024, Constraining East Asia ammonia emissions through satellite observations and iterative Finite Difference Mass Balance (iFDMB) and investigating its impact on inorganic fine particulate matter, Environment International, https://doi.org/10.1016/j.envint.2024.108473 (IF = 11.8)

15. Singh, D.*, **Choi, Y**., Park, J.*, Salman, A.K.*, Sayeed, A.*, Song, C.H., 2024, Deep-BCSI: A deep learning-based framework for bias correction and spatial imputation of PM2.5 concentrations in South Korea, 2024, Atmospheric Research, https://doi.org/10.1016/j.atmosres.2024.107283 (IF = 5.5)

16. Salman, A.K.*, **Choi, Y**., Park, J.*, Mousavinezhad, S.*, Payami, M.*, Momeni, M.*, Ghahremanloo, M.*, 2024, Deep learning based emulator for simulating CMAQ surface NO2 levels over the CONUS, Atmospheric Environment, https://doi.org/10.1016/j.atmosenv.2023.120192 (IF= 5.0)

17. Koo, Y-S., **Choi, Y**., Ho, C-H., 2023, Air Quality forecasting using big data and machine learning algorithms, APJAS, https://doi.org/10.1007/s13143-023-00347-z (IF = 2.3)

18. Shams, S.R.*, Kalantary, S., Jahani, A., Shams, S.M.P., Kalantari, B., Singh, D.*, Moeinnadini, M., **Choi, Y**., 2023, Assessing the effectiveness of artificial neural networks (ANN) and multiple linear regression (MLR) in forecasting AQI and PM10 and evaluating health impact through AirQ+ (case study: Tehran), Environmental Pollution, https://doi.org/10.1016/j.envpol.2023.122623 (IF = 8.9)

19. 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, https://doi.org/10.1016/j.envpol.2023.122223 (IF=8.9)

20. Pouyaei, A.*, Mizzi, A.P., **Choi, Y**., Mousavinezhad, S*., Khorshidian, N.*, 2023, Downwind ozone changes of the 2019 Williams Flats wildfire: Insights from WRF-Chem/DART assimilation of OMI NO2, HCHO, and MODIS AOD retrievals, Journal of Geophysical Research, https://doi.org/10.1029/2022JD038019 (IF = 5.3)

21. Kia, H.Z.*, **Choi, Y**., Nelson, D.*, Park, J.*, Pouyaei, A.*, 2023, Large eddy simulation of sneeze plumes and particles in a poorly ventilated outdoor air condition: A case study of the University of Houston main campus, Science of the Total Environment, https://doi.org/10.1016/j.scitotenv.2023.164694 (IF=9.8)

22. Singh, D.*, **Choi, Y**., Dimri, R.*, Ghahremanloo, M.*, Pouyaei, A.*, 2023, An intercomparison of Dee-Learning method for super-resolution bias-correction (SRBC) of Indian Summer monsoon rainfall (ISMR) using CORDEX-SA simulations, APJAS, https://doi.org/10.1007/s13143-023-00330-8 (IF=2.3)

23. Park. J.*, Jung, J.*, **Choi, Y**., Lim, H., Kim, M., Lee, K., Lee, Y.G., Kim, J., 2023, Satellite-based, top-down approach for the adjustment of aerosol precursor emissions over East Asia: the TROPOspheric Monitoring Instrument (TROPOMI) NO2 product and the Geostationary

Environment Monitoring Spectrometer (GEMS) aerosol optical depth (AOD) data fusion product and its proxy, AMT, https://doi.org/10.5194/amt-16-3039-2023 (IF = 4.2)

24. Lops, Y.*, Ghahremanloo, M.*, Pouyaei, A.*, **Choi, Y**., Jung, J.*, Mousavinezhad, S.*, Salman, A.K.*, Hammond, D., 2023, Spatiotemporal estimation of TROPOMI NO2 column with depthwise partial convolutional neural network, Neural Comput & Appli, https://doi.org/10.1007/s00521-023-08558-1 (IF = 6.0)

25. Ghahremanloo, M.*, **Choi, Y**., Lops, Y.*, 2023, Deep learning mapping of surface MDA8 ozone: The impact of predictor variables on ozone levels over the contiguous United States, Environmental Pollution, https://doi.org/10.1016/j.envpol.2023.121508 (IF = 10.0)

26. Pan, S., Gan, L., Jung, J.*, Yu, W., Roy, A., Diao, L., Jeon, W., Souri, A.H., Gao, H.O., and **Choi, Y**., 2023, Quantifying the premature mortality and economic loss from wildfire-induced PM2.5 in the contiguous U.S., Science of The Total Environment, DOI://doi.org/10.1016/j.scitotenv.2023.162614 (IF= 10.8)

27. Mousavinezhad, S.*, Ghahremanloo, M.*, **Choi, Y**., Pouyaei, A.*, Khorshidian, N.*, and 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, https://doi.org/10.1016/j.atmosenv.2023.119693 (IF = 5.8)

28. Pan, S., Yu, W., Fulton, L.M., Jung, J.*, **Choi, Y**., Gao, H.O., 2023, Impacts of the large-scale use of passenger electric vehicles on public health in 30 US. Metropolitan areas, Renewable and sustainable energy reviews, http://doi.org/10.1016/j.rser.2022.113100 (IF = 16.8)

29. Sayeed, A.*, **Choi, Y**., Jung, J.*, Lops, Y.*, 2023, A deep convolutional neural network model for improving WRF simulations, IEEE Transactions on Neural Networks and Learning Systems, doi:10.1109/tnnls.2021.3100902

30. Lops, Y.*, Choi, Y., Mousavinezhad, S., Salman, A.K., Nelson, D., and Singh, Dev., 2023, Development of deep convolutional neural network ensemble models for 36-month ENSO forecsasts, Asia-Pacific Journal of Atmospheric Sciences, https://doi.org/10.1007/s13143-023-00319-3 (IF=6.6)

31. Ghahremanlo, M.*, Lops, Y.*, **Choi, Y**., Mousavinezhad, S.*, and Jung, J., 2023, A coupled deep learning model for estimating surface NO2 levels from remote sensing data: 15-year study over the contiguous United States, Journal of Geophysical Research: Atmosphere, https://doi.org/10.1029/2022JD037010 (IF = 5.2)

32. Mun, J., **Choi, Y**., Jeon, W., Lee, H.W., Kim, C-H., Park, S-Y., Bak, J., Jung, J., Oh, I., Park, J., and Kim, D., 2023, Assessing mass balance-based inverse modeling methods via a pseudo-observation test to constrain NOx emissions over South Korea, Atmospheric Environment, https://doi.org/10.1016/j.atmosenv.2022.119429 (IF=5.8)

33. Lee, K., Kim, M., Choi, M., Kim, J., **Choi, Y**., Jeong, J., Moon, K-J., Lee, S., 2022, Fast and operational gas filling in satellite-derived aerosol optical depths using statistical techniques, Journal of Applied Remote Sensing, https://doi.org/10.1117/1.JRS.16.044507 (IF = 1.5)

34. Salman, A.K.*, Pouyaei, A.*, **Choi, Y.,** Lops, Y.*, and Sayeed A.*, 2022, Deep learning solver for solving advection-diffusion equation in comparison to finite difference methods, Communications in Nonlinear Science and Numerical simulation, https://doi.org/10.1016/j.cnsns.2022.106780 (IF=4.2)

35. Sayeed*, A., **Choi, Y**., Pouyaei*, A., Lops*, Y., Jung*, J., Salman*, A.K., 2022, CNN-based model for the spatial imputation (CMSI version 1.0) of in-situ ozone and PM2.5 measurements, Atmospheric Environment, https://doi.org/10.1016/j.atmosenv.2022.119348 (IF=5.8)

36. Sadeghi*, B., Ghahremanloo*, M., Mousavinezhad*, A., Lops*, Y., Pouyaei*, A., and **Choi, Y**., 2022, Contributions of meteorology to ozone variations: Application of deep learning and the Kolmogorov-Zurbenko filter, Environmental Pollution, DOI: 10.1016/j.envpol.2022.119863 (IF=10.0)

37. Park*, J., Jung*, J., **Choi, Y**., Mousavinezhad*, S., Pouyaei*, A., 2022, The sensitivities of ozone and PM2.5 concentrations to the satellite-derived lead area index over East Asia and its neighboring seas in the WRF-CMAQ modeling system, Environmental Pollution, 306, 119419, https://doi.org/10.1016/j.envpol.2022.119419 (IF=10.0)
38. Pouyaei*, A., **Choi, Y.,** Jung*, J., Mousavinezhad*, S., Momeni*, M., Song, C.H., 2022, Investigating the long-range transport of particulate matter in East Asia: Introducing a new Lagrangian diagnostic tool, Atmospheric Environment, doi:10.106/j.atmosenv.2022.119096 (IF=5.8)
39. Sadeghi, B.*, Pouyaei*, A., **Choi, Y**., and Rappengluck, B., 2022, Influence of seasonal variability on source characteristics of VOCs at Houston industrial area, Atmospheric Environment, DOI: 10.1016/j.atmosenv.2022.119077 (IF = 5.8)
40. Jung*, J., **Choi, Y**., Souri, A.H., Mousavinezhad*, A., Sayeed*, A., Lee, K., 2022, The impact of springtime-transported air pollutants on local air quality with satellite-constrained NOx emission adjustments over East Asia, Journal of Geophysical Research-Atmosphere, DOI: 10.1016/j.atmosenv.2022.119077 (IF = 5.2)
41. Jung, J.*, **Choi, Y**., Mousavinezhad, A.*, Kang, D., Park, J.*, Pouyaei, A.*, Ghahremanloo, M.*, Momeni, M.*, Kim, H., 2022, Changes in the ozone chemical regime over the contiguous United States inferred by the inversion of NOx and VOC emissions using satellite observation, Atmospheric Research, DOI: 10.1016/j.atmosenv.2022.119077 (IF = 6.0)
42. Sayeed, A.*, Eslami, E., Lops, Y.*, and **Choi, Y.,** 2022, CMAQ-CNN: a new-generation of post-processing techniques for chemical transport using deep neural networsks, Atmospheric Environment, DOI: 10.1016/j.atmosenv.2022.119077 (IF=5.8)
43. Ghahremanloo, M.*, Lops, Y.*, **Choi, Y**., Jung, J.*, Mousavinezhad, A.*, Hammond, D., 2022, A comprehensive study of the COVID-19 impact on PM2.5 levels over the contiguous United States: a deep learning approach, Atmospheric Environment, DOI: 10.1016/j.atmosenv.2022.119077 (IF=5.8)
44. Lee, S.*, Song, C.H., Han, K.M., Henze, D.K., Lee, K., Yu, J., Woo, J-H., Jung, J.*, **Choi, Y**., Saide, P.E., Carmichael, G.R., 2022, Impact of uncertainties in emissions on aerosol data assimilation and short-term PM2.5 predictions over Northeast Asia, Atmospheric Environment, https://doi.org/10.1016/j.atmosenv.2021.118921 (IF=5.8)
45. Ghahremanloo, M.*, Lops, Y.*, **Choi, Y.,** and Yeganeh, B., 2021, Deep learning estimation of daily ground-level NO_2 concentrations from remote sensing data, Journal of Geophysical Research-Atmospheres, https://doi.org/10.1029/2021JD034925 (IF=5.2)
46. Yeo, I.*, **Choi, Y.,** Lops, Y.*, and Sayeed, A., 2021, Efficient PM2.5 forecasting using geographical correlation based on integrated deep learning algorithms, Neural Computing and Applications, https://doi.org/10.1007/s00521-021-06082-8 (IF = 5.6)
47. Yeo, I.*, **Choi, Y**., 2021, An efficient method for capturing the high peak concentrations of PM2.5 using Gaussian-filtered deep learning, Sustainability, DOI: 10.3390/su132111889 (IF=3.9)
48. Sayeed, A.*, **Choi, Y**., Jung, J.*, Lops, Y.*, Eslami, E*., Salman, A.*, 2021, A deep neural network model for improving WRF simulations, IEEE Transactions on Neural Networks and learning Systems, doi:10.1109/TNNLS.2021.3100902 (IF=14.3)
49. Lops, Y.*, Pouyaei, A.**, Choi, Y**., Jung, J.*, Salman, A.*, Sayeed, A.*, 2021, Application of a partial convolutional neural network for estimating geostationary aerosol optical depth data, Geophysical Research Letters, doi:10.1029/2021GL093096 (IF=5.2)
50. Jeon*, W., Park, **Choi, Y**., Mun, J., Kim, D., Kim, C., Lee, H., Bak, J., Jo, H., 2021, The mechanism of the formation of high sulfate concentrations over the Yellow Sea during the KORUS-AQ period: the effect of transport/atmospheric chemistry and ocean emissions, Atmospheric Research, https://doi.org/10.1016/j.atmosres.2021.105756 (IF=6.0)

51. Pan*, S., Fultion, L.W., Roy, A., Jung, J.*, **Choi, Y**., Gao, H.O., 2021, Shared use of electric autonomous vehicles: Air quality and health impacts of future mobility in the United States, Renewable and Sustainable Energy Reviews, 149, 111380, https://doi.org/10.1016/j.rser.2021.111380 (IF=16.8)

52. Pouyaei, A.*, Sadeghi, B.*, **Choi, Y.,** Jung, J.*, Souri, A.H., Zhao, C., and Song, C.H., 2021, Development and implementation of physics-based convective mixing scheme in the CMAQ modeling framework, Journal of Advances in Modeling Earth system, doi:https://doi.org/10.1029/2021MS002475 (IF=8.5)

53. Yeo*, I., **Choi, Y.,** Lops, Y.*, and Sayeed, A.*, 2021, Efficient PM2.5 forecasting using geographical correlation based on integrated deep learning algorithms, Neural Computing and Applications, doi://https://doi.org/10.1007/s00521-021-06082-8 (IF=5.6)

54. Sayeed, A.*, **Choi, Y**., Eslami, E., Jung, J.*, Lops, Y.*, Salman, A.K.*, Lee, J., Park, H., Choi, M., 2021, A novel CMAQ-CNN hybrid model to forecast surface-ozone concentrations 14 days in advance, Scientific Reports, doi: https://doi.org/10.10138/s41598-021-90446-6 (IF=5.0)

55. Ghahremanloo*, M., **Choi, Y**., Sayeed*, A., Salman*, A.H., Pan, S., Amani, M., 2021, Estimating daily high-resolution PM2.5 concentrations over Texas: Machine Learning approach, Atmospheric Environment, https://doi.org/10.1016/j.atmosenv.2021.118209 (IF = 5.8)

56. Sayeed, A.*, Lops, Y.*, **Choi, Y**., Jung, J.*, and Salman, A.*, 2021, Bias correcting and extending the PM forecast by CMAQ up to 7 days using Deep Convolutional Neural Network, Atmospheric Environment, doi:10.1016/j.atmosenv.2021.118376 (IF=5.8)

57. Msousavinezhad, A.*, **Choi, Y**., Pouyaei, A.*, Ghahremanloo, M.*, and Nelson, D.*, 2021, A comprehensive investigation of surface ozone pollution in China, 2015-2019: Separating the contributions from meteorology and precursors emissions, Atmospheric Research, doi:10.1016/j.atmosres.2021.105599 (IF=6.0)

58. Jung*, J., **Choi, Y**., Wong, D., Nelson*, D., and Lee*, S., 2021, Role of sea fog over the Yellow Sea on air quality with the direct effect of aerosols, Journal of Geophysical Research, https://doi.org/10.1029/2020JD033498 (IF=5.2)

59. Song, S., **Choi, Y**., 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 (IF=5.8)

60. Ghahremanloo*, M., Lops*, Y.**, Choi, Y**. and Mousavinezhad*, S., 2020, Impact of the COVID-19 outbreak on air pollution levels in East Asia, Science of the Total Enviornment, https://doi.org/10.1016/j.scitotenv.2020.142226 (IF = 10.8)

61. Pan, S., Jung*, J., Li, Z., Hou, X., Roy, A., **Choi, Y.,** and Gao, H.O., 2020, Air quality implications of COVID-19 in California, Sustainability, 12(17), 10.3390/su12177067 (IF=3.9)

62. Souri,* A., **Choi, Y**., Kodros, J., Jung*, J., Shpund, J., Pierce, J., Lynn, B., Khain, A., and Chance, K., 2020, Response to Hurricane Harvey's rainfall to anthropogenic aerosols: a sensitivity study based on spectral bin microphysics with simulated aerosols, Atmospheric Research, 242, 104965 (IF = 6.0)

63. Sayeed*, A., **Choi, Y**., Eslami* E., Lops*, Y., Roy*, A., Jung*, J., 2020, Using a deep convolutional neural network to predict 2017 ozone concentrations, 24 hours in advance, Neural Networks, 121, 396-408, doi.org/10.1016/j.enunet.2019.09.033 (IF=9.7)

64. Eslami*, E., **Choi, Y**., Lops*, Y., Sayeed*, A., 2020, Using wavelet transform and dynamic time warping to identify the limitations of the CNN model as an air quality forecasting system, Geoscientific Model Development, https://doi.org/10.5194/gmd-2019-346 (IF=6.9)

65. Pouyaei*, A., **Choi, Y.,** Jung*, J., Sadeghi*, B., and 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 modeling (CMAQ model v5.2), Geoscientific Model Development, 13, 3489, https://doi.org/10.5194/gmd-2019-366 (IF=6.9)

66. Kim, J. et al., **Choi, Y.**, 2020, New Era of Air Quality Monitoring from space: Geostationary Environment Monitoring Spectrometer (GEMS), Bulletin of the American Meteorological Society, doi:10.1175/BAMS-D-18-0013.1 (IF:9.1)

67. 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, doi.org/10.1016/j.envpol.2020.114345 (IF=10.0)

68. Lee, S., Song, C.H., Han, K.M., Henze, D.K., Lee, K., Yu, J., Woo, J-H., Jung*, J., **Choi, Y.**, Saide, P.E., and Carmichael, G.R., 2022, Impacts of uncertainties in emissions on aerosol data assimilation and short-term PM2.5 predictions over Northeast Asia, Atmospheric Environment, https://doi.org/10.1016/j.atmosenv.2021.118921 (IF=4.2)

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2. Books and Technical Reports

1. Roy*, A., **Choi**, Y., Souri*, A.H., Jeon*, W., Diao*, L., Pan*, S., Westenbarger, D., Effects of Biomass Burning Emissions on Air Quality Over the Continental USA: A three-year comprehensive evaluation accounting for sensitivity due to boundary conditions and plume rise height, January 2018, Environmental Contaminants, doi:10.1007/978-981-10-7332-8_12

2. **Choi, Y**. et al., Inverse modeling using Aura OMI and AI deep learning approach to investigate NOx, HCHO, and ozone sensitivity for a historical period over the continental United States, February 2024, yearly report to the NASA Goddard institute

3. **Choi, Y**. et al., Development of convection and advection schemes and deep-learning based artificial intelligence technique for accurate forecasting, December 2024, yearly report to the GIST institute

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40. **Choi, Y**. et al., Evaluation of the air quality impacts of increased freight traffic in the Houston Metropolitan Area in a future year, June 2017, final report submitted to the HPCC institute in Texas

41. **Choi, Y.** et al., Effects of temperature on gasoline exhaust VOC speciation with implications to air quality modeling, July 2017, final report submitted to the TARC institute in Texas

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49. **Choi, Y.,** Czader, B., Li, X., Kim, H., Diao, L., and Rodriguez, J., Development of chemistry and transport modules in numerical weather prediction, December 16, 2013, final report submitted to the KIAPS institute

3. Other indicators of Scholarly Contributions (Invited (Plenary) & Conference Presentations)

Invited talks:

1. Choi, Y. et al., Deep learning application in Atmospheric Science, May 30, 2023, Seoul National University, Seoul, Korea
2. Choi, Y., et al., Digital twin studies in Atmospheric Science, May 31, 2023, Konkuk University, Seoul, Korea
3. Choi, Y. et al., Deep learning-based air quality forecasting and digital twin modeling, March 31, 2023, the 40th anniversary of the Korean Society for Atmospheric Environment (KOSAE), Seoul, Korea
4. Choi, Y. et al., Integrating deep neural network with numerical models to have better weather and air quality forecast spatially and temporally, February 22, 2023, Seoul National University, Seoul, Korea
5. Choi, Y. et al., A novel CMAQ-CNN hybrid model to forecast hourly surface-ozone concentrations 14 days in advance, August 12, 2022, Anyang University, Anyang, Korea
6. Choi, Y. et al., Deep Neural Network - Generative Adversarial Network and its application, June 7, 2022, Yonsei University, Seoul, Korea
7. Choi, Y. et al., Creating real-like Hurricane using Deep Neural Network - Generative Adversarial Network, June 8, 2022, Seoul National University, Seoul, Korea
8. Choi, Y. et al., Deep Neural Network - Convolutional Neural Network and its application for air quality science, June 9, 2022, Ehwa Women's University, Seoul, Korea
9. Choi, Y. et al., When atmospheric scientist meets deep learning, June 10, 2022, Ehwa Women's University, Seoul, Korea
10. Choi, Y. et al., Convolutional Neural Network and its application for air quality and hurricane sciences, June 13, 2022, Seoul National University, Seoul, Korea
11. Choi, Y. et al., Deep Neural Network based air quality forecasting system, June 14, 2022, National Institute of Environmental Research (NIER), Incheon, Korea
12. Choi, Y. et al., Convolutional Neural Network and its application for climate studies, June 15, 2022, Seoul National University, Seoul, Korea
13. Choi, Y. et al., The principle and application of Deep Neural Network – Convolutional Neural Network (CNN) for atmospheric science, June 20, 2022, Ulsan Institute of Science and Technology, Ulsan, Korea
14. Choi, Y. et al., The application of Convolutional Neural Network for air pollution studies, June 21th, 2022, Pusan National University, Pusan, Korea
15. Choi, Y., et al., The application of Convolutional Neural Network and Partial Convolutional Neural Network for atmospheric chemistry and climate change, June 22th, 2022, Pohang Institute of Science and Technology, Pohang, Korea
16. Choi, Y. et al., The application of Deep Neural Network for atmospheric and planetary sciences, June 27, 2022, Korean Aerospace Research Institute, Daejeon, Korea
17. Choi, Y. et al., The application of Convolutional Neural Network for aerosol science, June 29, Samsung Particulate Matter Research Institute (SAIT), Suwon, Korea
18. Choi, Y. et al., Convolutional Neural Network and its application for atmospheric science, July 1, Yonsei University, Seoul, Korea

19. Choi, Y. et al., Deep Learning for Air Quality Forecasting, Houston-Galveston Area Council of Governments, January 30, 2020
20. Choi, Y. et al., When an atmospheric scientist meets Artificial intelligence deep learning, December 18, 2019, the 1st Artificial Intelligence Fusion and Application Conference, Jeju, Korea (Plenary talk)
21. Choi, Y. et al., When Artificial Intelligence deep learning meets atmospheric science, December 20, 2019, the 1st Artificial Intelligence Fusion and Application Conference, Jeju, Korea
22. Choi, Y. et al., Application of deep learning for atmospheric science, November 19, 2019, the 3rd KOEA conference, Houston, TX
23. Choi, Y. et al., Deep learning for air quality and weather, August 2019, the Korea Environment Institute, Daejeon, Korea
24. Choi, Y. et al., Deep learning imputation and inverse modeling, August 2019, the National Institute of Environmental Research, Incheon, Korea
25. Choi, Y. et al., AI deep learning for air quality, weather, and remote sensed AOD forecasting, July 2019, NASA Ames Research Center, California
26. Choi, Y. et al., AI deep learning for air quality, weather, and remote sensed AOD forecasting, July 2019, Jet Propulsion Laboratory, California
27. Choi, Y. et al., An optimization of emission inventory using remote sensing data based on a top-down approach, April 2019, National Institute of Environmental Research, Incheon, Korea
28. Choi, Y. et al., A deep-learning driven improved ensemble approach for hurricane forecasting, January 16, 2019, 2019 ESIP Winter Meeting, Bethesda, Maryland
29. Choi, Y. et al., Data Assimilation case study: Remote-sensing evidence of decadal changes in tropospheric NOx over East Asia, May 11, 2017, National Institute of Meteorological Sciences, Jeju Korea
30. Choi, Y. et al., Use of Deep Learning for weather and air quality forecasting: a case study of forecasting wind fields and ozone in Houston, May 11, 2017, National Institute of Meteorological Sciences, Jeju Korea
31. Choi, Y. et al., Data assimilation using remote sensing data, April 4, 2017, Ewha Woman's University, Seoul, Korea
32. Choi, Y. et al., Remote sensing and data assimilation, April 3, 2017, Gwangju Institute of Science and Technology, Gwangju, Korea
33. Choi, Y. et al., Deep learning weather forecasting, April 4, 2017, KIAPS, Seoul, Korea
34. Choi, Y. et al., Deep learning air quality forecasting system, April 4, 2017, KIST, Seoul, Korea
35. Choi, Y. et al., Data assimilation using remote sensing data, April 5, 2017, Incheon, Korea
36. Choi, Y. et al., Remote-sensing evidence of decadal changes in major tropospheric ozone precursors over East Asia, December 8, 2016, Ewha Woman's University, Seoul, Korea
37. Choi, Y. et al., A hybrid Eulerian/Lagrangian model, STOPS, June 17, 2016, Pusan National University, Pusan Korea
38. Choi, Y. Et al., Bayesian inverse modeling applications using remote sensing data, June 17, 2016, Pusan National University, Pusan Korea
39. Choi, Y. et al., Chemical condition and surface ozone in urban cities of Texas during the last decade: observational evidence from OMI, CAMS, and model analysis, April 2015, HGAC, Houston, TX
40. Choi, Y. et al., modeling the uncertainty of several VOC and its impact on simulated VOC and ozone in Houston, Texas, October 2015, HGAC, Houston, TX
41. Choi, Y., Climate change from Air Quality Forecasting Modeler, February 2016, Incheon, Korea
42. Choi, Y., UH Air Quality Forecasting and its application, February 2015, University of Texas Health Science Center at Houston, Houston, TX
43. Choi, Y., The impact of observational nudging and nesting on the simulated meteorology and ozone concentrations from WRF-CMAQ during the DISCOVER-AQ 2013 Texas Campaign, July

21, 2014, Southeast Texas Photochemical Modeling Technical Committee meeting, Houston-Galveston Area Council, Houston, TX

44. Choi, Y., UH Air Quality Forecasting: Today and tomorrow, March 7, 2014, The University of Texas Health Science Center at Houston, Houston, TX

45. Choi, Y., Automatic daily evaluation of UH AQF system, February 27, 2014, Southeast Texas Photochemical Modeling Technical Committee meeting, Houston-Galveston Area Council, Houston, TX

46. Choi, Y., UH Air Quality Forecasting: DISCOVER-AQ Houston, January 23, 2014, Department of Civil and Environmental Engineering, Department regular seminar, University of Houston, Houston, TX

47. Choi, Y., Comparison of CMAQ surface PM2.5 with AIRNow measurements, November 21, 2013, Regional Air Quality Planning Advisory Committee meeting, H-GAC, Houston, TX

48. Choi, Y., UH Air Quality Forecasting: What happened last month?, November 7, 2013, Monthly meeting for DISCOVER-AQ team project, Houston, TX

49. Choi, Y., UH air quality forecasting, October 13, 2013, Department of Earth and Atmospheric Sciences, Department regular seminar, University of Houston, Houston, TX

50. Choi, Y., Tropospheric O_3 & UH air quality forecasting, July 9, 2013, Texas Commission on Environmental Quality, Austin, TX

51. Choi, Y., Human and Lightning tropospheric/surface O_3 & UH air quality forecasting system, June 18, 2013, Ewha Women's University, Seoul, Korea

52. Choi, Y., Air Quality Forecasting system and its application, March 26, 2013, Southeast Texas Photochemical Modeling Technical Committee Meeting, Houston-Galveston Area Council, Houston, TX

53. Choi, Y., Human and Lightning tropospheric/surface O_3 & UH air quality and climate forecasting system, March 1, 2013, Texas Commission on Environmental Quality, Austin, TX

54. Choi, Y., Human and Lightning contribution to tropospheric O_3: The view from Space, January 18, 2013, Lecture series of Civil and Environmental Engineering, Rice University, Houston, TX

55. Choi, Y., The human and lightning contribution to tropospheric O_3 and surface O_3 sensitivity over chemical regimes: view from space to ground, March 26, 2012, University of Houston, Houston, TX

56. Choi, Y., Summertime National Air Quality Forecasting Capability (NAQFC) O_3 predictions overt the United States, October 6, 2011, NOAA Air Resources Laboratory, Silver Springs, MD

57. Choi, Y., Improving summertime CMAQ O_3 predictions over satellite-derived chemical regimes, September 9, 2011, Department of Atmospheric and Oceanic Science, University of Maryland, Silver Springs, MD

58. Choi, Y., Weather and Remote Sensing on Air Quality Forecasting, April 22, 2011, Korean-American Scientist and Engineer Association (KSEA) Southeastern Regional Conference 2011, Atlanta, Georgia.

59. Choi, Y., VOC/NO_x ratio change and convection footprint of CO call for GEMS: Perspective from OMI and TES, August 24, 2010, International GEMS Workshop, Yonsei University, Seoul, Korea.

60. Choi, Y., Lightning and anthropogenic NO_x sources over the US and the Atlantic: Impact on tropospheric O_3 and radiative effects, Oct 2009, California State University at Fullerton, Fullerton, California.

61. Choi, Y., Lightning and anthropogenic NO_x sources over the United States and the western North Atlantic Ocean: Impact on OLR and radiative forcing, May 2009, California Institute of Technology, Pasadena, California.

62. Choi, Y., Enhancements in tropospheric CO over North America and the western Atlantic Ocean observed by TES and MOPITT: Biogenic and anthropogenic sources, Feb 2009, National Center for Atmospheric Research, Boulder, Colorado.

63. Choi, Y., Remote sensing-based atmospheric chemistry perspective on summertime features: Summer' heat and cloud convection with lightning, 2009, April, ACDR seminar, Jet Propulsion Laboratory, Pasadena, California.
64. Choi, Y., Upper and lower tropospheric perturbations on O_3 and its precursors from space: Lightning NO_X and biogenic-derived CO, 2008, Yuk L. Yung Lunch Seminar, California Institute of Technology, Pasadena, California.
65. Choi, Y., Tropospheric perturbations on O_3 and its precursors from remote sensing measurements, June 2008, Yonsei University, Seoul, Korea.
66. Choi, Y., Modeling analysis of lightning NO_X production and biogenic VOC emissions in the troposphere from space-borne measurements, June 2008, Hanyang University, Seoul, Korea.
67. Choi, Y., Modeling analysis of upper and lower tropospheric perturbations on O_3 and its precursors in the troposphere: Enhanced lightning activity and high surface temperature, June 2008, Seoul National University, Seoul, Korea.
68. Choi, Y., Upper and lower tropospheric enhancements of O_3 and its precursors in the troposphere: Lightning NO_X production and biogenic VOC emissions, June 2008, Busan National University, Busan, Korea.
69. Choi, Y., Convection, and surface temperature derived upper and lower tropospheric perturbations on O_3 and its precursors, June 2008, Kwangju Institute of Technology, Kwangju, Korea.
70. Choi, Y., NO_2, CO, and O_3 over North America on the basis of in situ and satellite measurements, February 2007, Jet Propulsion Laboratory, Pasadena, California.

Conference Presentations (* with my graduate students and postdocs):

1. Shams, S. R.*, **Choi, Y**., Singh, D.*, Ghahremanloo, M.*, Momeni, M.*, and Park, J.*, Innovative approaches for accurate ozone prediction and health risk analysis in South Korea: The combined effectiveness of deep learning and AirQ+, 2024, AGU fall meeting
2. Ghahremanloo, M.*, **Choi, Y**., and Singh, D.*, GEMS tropospheric NO2 bias correction through deep learning: comparative validation with TROPOMI using Pandora observations, 2024, AGU fall meeting
3. Payami, M.*, **Choi, Y**., Salman, A.*, Mousavinezhad, S.*, Park, J.*, and Pouyaei, A.*, A 1D CNN-based emulator of CMAQ: predicting NO2 concentration over the most populated urban regions in Texas, 2024, AGU fall meeting
4. Khorshidian, N.*, **Choi, Y.,** Mousavinezhad, S.*, Pouyaei, A.*, Park, J.*, and Fan, J., Comparing the interactions between particulate matter and cloud properties over two populated cities in Texas using WRF-Chem fine-resolution modeling, 2024, AGU fall meeting
5. Yeganeh, A.K.*, Momeni, M.*, Choi, Y., Park, J.*, and Jung, J., A case study of surface ozone source contributions in the Seoul metropolitan area using the adjoint of CMAQ, 2024, AGU fall meeting
6. Kim, D., **Choi, Y**., Jeon, W., Mun, J., Park, J., Kim, C-H., Yoo, J-W., Transboundary transport characteristics of PM2.5 produced by crop-burning emissions: Focusing on changes in sulfate concentration, 2023, AGU fall meeting
7. Ghahremanloo, M.*, **Choi, Y.,** Lops, Y.*, Deep learning mapping of surface MDA8 ozone: the impact of predictor variables on ozone levels over the contiguous United States, 2023, AGU fall meeting
8. Kia, H.Z.*, **Choi, Y**., Nelson, D.*, Park, J.*, Pouyaei, A.*, Investigating the impact microclimate on airborne particle dispersion, including sneeze pathogens, in a poorly ventilated urban outdoor environment, 2023, AGU fall meeting
9. Momeni, M.S.*, **Choi, Y**., Yeganeh, A.K.*, Pouyaei, A., Jung, J., Park, J.*, Shephard, M., Dammers, E., Cady-Pereira, K.E., Development of Python-based data assimilation framework

(PyDAF): introduction of iterative finite difference mass balance (iFDMB); Test: Constraining East Asia Ammonia, 2023, AGU fall meeting

10. **Choi, Y.,** Salman, A.*, Park, J.*, Mousavenizhad, S.*, Momeni, M.*, Payami, M.*, Ghahremanloo, M.*, Deep learning based digital twin for simulating CMAQ surface NO2 levels over the CONUS, 2023, AGU fall meeting

11. Salman, A.K.*, **Choi, Y**., Park, J.*, Mousavinezhad, S.*, Payami, M.*, Momeni, M.*, Ghahremanloo, M.*, Deep learning based digital twin for simulating CMAQ surface NO2 levels over the CONUS, 2023, 2023 CMAS meeting

12. Salman, A.K.*, **Choi, Y**., Park, J*., Mousavinezhad, S.*, Payami, M.*, Momeni, M.*, Ghahremanloo, M.*, Deep learning based digital twin for simulating CMAQ surface NO2 levels over the CONUS, 2023, 20th IGAC meeting

13. Pouyaei, A.*, Mizzi, A.P., **Choi, Y**., Mousavinezhad, S.*, Dynamics and chemistry of 2019 Williams flats wildfire plume during FIREX-AQ campaign: WRF-Chem/DART data assimilation modeling incorporating OMI/MODIS retrievals, 2022, AGU fall meeting

14. Sadegh, B.*, Mousavinezhad, S.*, Lops, Y.*, Pouyaei, A.*, **Choi, Y.,** Contributions of meteorology to ozone variations: Application of deep learning and the Kolmogorev-Zurbenko filter, 2022, AGU meeting

15. Mun, J., Jeon, W., **Choi, Y**., Kim, C-H., Park, S-Y., Bak, J., Jung, J., Park, J., and Kim, D., Assessing the mass balance-based inverse modeling mehtods to constrain NOx emissions in Seoul Korea, 2022, AGU fall meeting

16. Jung, J.*, **Choi, Y**., Ghahremanlo, M.*, Lops, Y.*, Momeni, M.*, and Feng, S., Estimating NOx emissions with numerical modeling and deep learning estimated complete surface NO2 map, 2022, AGU fall meeting

17. Mousavinezhad, S.*, **Choi, Y.,** Ghahremanloo, M.*, Pouyaei, A.*, Sadeghi, B., Ground level ozone trends across the climate regions of the contiguous United States during the most recent climate period, 1991-2020, 2022, AGU fall meeting

18. Ghahremanloo, M.*, Lops, Y.*, **Choi, Y.,** A coupled deep learning model for estimating surface NO2 levels from remote sensing data: 15-year study over the contiguous United States, 2022, AGU fall meeting

19. Mousavinezhad, S.*, **Choi, Y.,** Pouyaei, A.*, Ghahremanloo, M.*, and Nelson, D.*, Impact of meteorology and precursor emissions on the ozone variations over the most polluted regions of China, 2022, AMS annual meeting

20. Kim, J., et al**., Choi, Y**., First year observations of air quality from geostationary environment monitoring spectrometer (GEMS), 2021, AGU fall meeting

21. Pouyaei, A.*, Sadeghi, B.*, **Choi, Y**., Jung, J.*, Souri, A., Zhao, C., and Song, C.H., Development and implementation of a physics-based convective mixing scheme in the community multiscale air quality (CMAQ) model framework, 2021, AGU fall meeting

22. Lops, Y.*, Pouyaei, A.*, **Choi, Y.,** Jung, J.*, Salman, A.*, and Sayeed, A.*, Application of a partial convolutional neural network for estimating geostationary aerosol optical depth data, 2021, AGU fall meeting

23. Jung, J.*, **Choi, Y.,** Mousavinezhad, S.*, Kang, D., Park, K., and Pouyaei, A.*, Ghahremanloo, M.*, Momeni, M.*, and Kim, H., Changes in the ozone chemical regime over the contiguous United States inferred by the inversion of NOx and VOC emissions using satellite observation, 2021, CMAS annual meeting

24. Pouyaei, A.*, Sadeghi, B.*, **Choi, Y**., Jung, J.*, Souri, A., Zhao, C., Song, C.H., Implementation of Kain-Fritsch convective mixing scheme into CMAQ subgrid cloud modeling, 2021, CMAS annual meeting

25. Sadeghi, B.*, Pouyaei, A.*, **Choi, Y**., and Rappenglueck, B., Summertime and wintertime VOCs in Houston: source apportionment and spatial distribution of source origins, 2021, AGU fall meeting

26. Ghahremanloo, M.*, Lops, Y.*, **Choi, Y**., Yeganeh, B., Deep learning estimation of daily ground-level NO2 concentrations from remote sensing data, 2021, TEMPO Science Team Meeting
27. **Choi, Y.,** Sayeed*, A., Jung*, J., Lops*, Y., Eslami*, E., and Salman*, A., A Deep Conveclutional Neural Network Model for improving WRF forecasts (invited), December 2020, AGU, online virtual meeting
28. Sadeghi*, B., **Choi, Y**., Yoon, S., Flynn, J., Kotsakis, A., and Lee*, S., Source apportionment of fine particulate matter near Houston: implcations for emission sources and back trajectory analysis, December 2020, AGU, virtual online
29. Jung*, J., **Choi, Y**., Wong, D.C., Nelson, D., and Lee, S., Role of sea fog over the Yellow Sea on air quality with the direct effect of aerosols, October 2020, CMAS, Chapel Hill, NC
30. Pouyaei*, A., **Choi, Y**., Jung*, J, Sadeghi, B., and Song, C.H., Concentration trajectory route of air pollution with integrated Lagrangian model (C-TRAIL Model v1.0) deried from CMAQ v5.2, October 2020, CMAS, Chapel Hill, NC
31. Sayeed*, A., **Choi, Y.,** Eslami*, E., Jung*, J., Lops*, Y., Salman*, A.K., Choi, M-H., Park, H-J., and Lee, J-B., A novel CMAQ-CNN hybrid model to forecast hourly surface-ozone concentrations fourteen days in advance, October 2020, CMAS, Chapel Hill, NC
32. **Choi, Y**., Eslami*, E., Sayeed*, A., Lops*, Y., CMAQ-AI: A computationally efficient deep learning model to improve CMAQ preformance over the United States, December 2019, AGU, San Francisco, USA
33. Eslami*, E., Sayeed* A., **Choi, Y**., Lops*, Y., A computationally efficient deep learning model to improve CMAQ performance over the United States, October 2019, CMAS meeting, Chapel Hill, NC
34. Jung*, J., Souri*, A., Wong, D.C., Lee, S., Jeon*, W., Kim, J., and **Choi, Y.,** October 2019, CMAS meeting, Chapel Hill, NC
35. Pouyaei*, A., **Choi, Y**., Jung*, J., Sadeghi*, B., Trajectory Grid: A Lagrangian Advection Algorithm Implemented into CMAQ, September 2019, TACCSTER 2019 Proceedings, Austin, TX
36. Lops*, Y., **Choi, Y**., Eslami*, E., Sayeed*, A., Jung*, J., Deep learning-based emission optimization of CMAQ model using multiple data sources, September 2019, TACCSTER 2019 Proceeding, Austin, TX
37. Eslami*, E**., Choi, Y**., Lops*, Y., and Sayeed*, A., A hybrid AI Hurricane Forecasting system: Deep learning ensemble approach and Kalman filter, September 2019, TACCSTER 2019 Proceeding, Austin, TX
38. **Choi, Y**. et al., Using AI deep learning to predict ozone concentrations 24 hours in advance and chemical sensitivity analysis at UH, May 2019, 14th Annual international symposium on Environment, Athens, Greece
39. **Choi, Y**., Souri*, A., Kodros, J., Jung*, J., Lynn, BH, Pierce, JR, Khain, A., Chance, K., Response of Hurricane Harvey to Anthropogenic Aerosols, December 2018, AGU, DC
40. Jung*, J., **Choi, Y**., Souri*, A., Jeon*, W., Data assimilation of GOCI AOD and surface PM observations on aerosol modeling over the Korean Peninsula during KORUS-AQ campaign, April 2018, EGU, Vene, Austria
41. Jung*, J., **Choi, Y**., Souri*, A., Jeon*, W., Chemical data assimilation of geostationary aerosol optical depth and PM surface observations on regional aerosol modeling over the Korean Peninsula during KORUs-AQ campaign, December 2017, the AGU fall meeting, New Orleans, LA
42. Jeon*, W., Jung*, J., **Choi, Y**., Souri*, A., Long-term variability of wind patterns at hub-height over Texas, December 2017, the AGU fall meeting, New Orleans, LA
43. Sadeghi*, B., Eslami*, E., **Choi, Y**., Health and cost impact of air pollution from biomass burning over the United States, December 2017, the AGU fall meeting, New Orleans, LA

44. **Choi, Y**., Souri*, A., Jeon*, W., Kochanski, A., Diao*, L., Mandel, J., Bhave, P., Pan*, S., The impact of biomass burning emissions on inorganic aerosols and their precursors in the US: A three-year regional modeling evidence, December 2017, the AGU fall meeting, New Orleans, LA

45. Kotsakis*, A., **Choi, Y**., Souri*, A., Jeon*, W., Flynn, J.H., Characterization of Wind Patterns over Texas Using Self-Organizing Maps: Impact on Dallas-Fort Worth Long term ozone trends, December 2017, the AGU fall meeting, New Orleans, LA

46. Souri*, A., **Choi, Y**., Pan*, S., Curci, G., Janz, S. J., Kowalewski, M.G., Application of high resolution airborne remote sensing observations for monitoring NOx emissions, December 2017, the AGU fall meeting, New Orleans, LA

47. Eslami*, E., **Choi, Y**., Roy*, A., Hourly air pollution concentrations and their important predictors over Houston, Texas using deep neural networks: case study of DISCOVER-AQ time period, December 2017, the AGU fall meeting, New Orleans, LA

48. Souri*, A.H., **Choi, Y**., Jeon*, W., Diao*, L., Pan*, S., Quantifying the impact of biomass burning on major inorganic aerosols in the US: The role of emissions and water released from biomass, September 2017, MAC-MAQ conference at UC Davis, Davis, CA

49. Jeon*, W., **Choi, Y**., Percell, P., Souri*, A.H., Song, C-K., Kim, S-T., Kim, J., Implementation of a hybrid model STOPS into CMAQ, and its application for a prediction of Asian dust, 2017, Proceedings of the Autumn Meeting of KMS, Pusan, Korea

50. Jeon*, W., **Choi, Y.**, Souri*, A.H., Pan*, S., Lee, H-W., Investigation of production and transport mechanisms of biomass burning induced ozone, 2017, Proceeding of the Autumn Meeting of KOSAE, Daegu, Korea

51. Souri*, A., **Choi, Y.**, Jeon*, W., Kochanski, A.K., Diao*, L., Mandel, J., and Pan*, S., Remote-Sensing evidence of decadal changes in major tropospheric ozone precursors over East Asia, October 2016, the 7th GEMS science team meeting, Seoul, Korea

52. Eslami*, E., **Choi, Y.**, Souri*, A.H., Pan*, S., and Roy*, A., Wavelet Transform-based statistical analysis of air quality time-series: an upscaling/downscaling approach, June 2016, 2016 APCC Statistical Downscaling Workshop, Pusan, Korea

53. **Choi, Y**., Climate change from air quality forecasting modeler, February 2016, the 2nd International Workshop on SLCPs in Asia: Chemistry-climate modeling and its application, Incheon, Korea

54. Kotsakis*, A., **Choi, Y.**, Flynn*, J.H., Erickson, M., Souri*, A., Lefer, B., Morris, G., Estes, M., and Westenbarger, D., Impact of Synoptic & Global scale features on the year-to-year variability of ozone exceedances in Houston, January 2016, New Orleans, LA

55. Jeon*, W., **Choi, Y.**, Lee, H-W., Lee, S-H., Yoo, J-W., Park, J., and Lee, H-J., A quantitative analysis of grid nudging effect on each process of PM2.5 production in the Korean Peninsula, October 2015, Chapel Hill, NC

56. Souri*, A.H., **Choi, Y.**, Diao*, L., and Li*, X., Nitrogen Oxide Emissions Constrained by Space-based observations of NO_2 column over Southeast Texas, October 2015, Chapel Hill, NC (oral)

57. Pan*, S., **Choi, Y.**, Roy*, A., Li*, X., Jeon*, W., and Souri*, A.H., Modeling the uncertainty of several VOC and its impact on simulated VOC and ozone in Houston, Texas, 2015, Chapel Hill, NC

58. **Choi, Y.** and Souri*, A.H., Chemical condition and surface ozone in large cities of Texas during the last decade: observational evidence from OMI, CAMS, and model analysis, 2015, Chapel Hill, NC (oral)

59. Czader*, B., Percell, P., Byun, D., and **Choi, Y**., Development and Evaluation of a Hybrid Eulerian-Lagrangian Modeling Approach, December 2014, San Francisco, CA

60. Diao*, L, **Choi, Y.,** Czader*, B., Li*, X., and Estes, M., Underestimation of isoprene emissions in Houston during Texas 2013 DISCOVER-AQ campaign, December 2014, San Francisco, CA

61. Li*, X., **Choi, Y.,** and Czader*, B., The Impact of the observational meteorological nudging and nesting on the simulated meteorology and ozone concentrations from WRF-SMOKE-CMAQ during DISCOVER-AQ 2013 Texas campaign, December 2014, CA

62. Czader*, B., Percell, P., Byun, D., and **Choi, Y**., Development and Evaluation of a Hybrid Eulerian-Lagrangian Modeling Approach, October 2014, Chapel Hill, NC (oral)

63. Diao*, L., **Choi, Y**., Czader*, B., Li*, X., and Estes, M., Underestimation of isoprene emissions in Houston during Texas 2013 DISCOVER-AQ campaign, October 2014, Chapel Hill, NC

64. Li*, X., **Choi, Y.,** and Czader*, B., The Impact of the observational meteorological nudging and nesting on the simulated meteorology and ozone concentrations from WRF-SMOKE-CMAQ during DISCOVER-AQ 2013 Texas campaign, October 2014, Chapel Hill, NC (oral)

65. Czader*, B., **Choi, Y.,** Li*, X., Diao*, L., Lefer, B., Alvarez, S., and Judd, L., Modeling nitrous acid (HONO) for Houston, NASA Air Quality Applied Science Team Meeting, January 2014, Houston, TX

66. Diao*, L., **Choi, Y.,** Czader*, B., Choi, S., Joiner, J., and Kim, H., The evaluation of air quality forecasting system based on WRF-CMAQ and WRF-Chem over Houston during the DISCOVER-AQ Houston: surface O_3, PM2.5 and tropospheric NO_2, NASA Air Quality Applied Science Team Meeting, January 2014, Houston, TX

67. Diao*, L., **Choi, Y.,** and Czader*, B., Lightning and anthropogenic NO_x sources over the United States during the Deep Convective Clouds & Chemistry (DC3) field campaign: impact on tropospheric NO_x, O_3 and outgoing longwave radiation, December 2013, American Geophysical Union Meeting, San Francisco, CA

68. Choi, S., Joiner, J., Krotov, N., **Choi, Y.,** Duncan, B., Celarier, A., Bucsela, E., Vasikov, P., Veefkind, J., Cohen, R., Weinheimer, J., and Pickering K., Estimates of free-tropospheric NO_2 abundance from the Aura Ozone Monitoring Instrument (OMI) using Cloud Slicing Technique, December 2013, American Geophysical Union Meeting, San Francisco, CA

69. **Choi, Y.,** Czader*, B., Diao*, L., Rodriguez*, J., and Jeong, G., The effects of atmospheric chemistry on radiation budget in the Community Earth System Model, December 2013, American Geophysical Union Meeting, San Francisco, CA

70. Diao*, L., **Choi, Y.,** Czader*, B., Choi, S., Joiner, J., and Kim, H., The evaluation of air quality forecasting system based on WRF-CMAQ and WRF-Chem over Houston during the DISCOVER-AQ Houston: surface O_3, PM2.5 and tropospheric NO_2, October 2013, Community Modeling and Analysis meeting, Chapel Hill, NC

71. Czader*, B., **Choi, Y.,** and Diao*, L., Sensitivity to changes in HONO emissions from mobile sources simulated for Houston area, October 2013, CMAS meeting, Chapel Hill, NC (oral)

72. **Yunsoo Choi**, NO_x emissions uncertainty of the EPA NEI 2005 over the Southern US, January 2013, American Meteorological Meeting, Austin, TX (oral)

73. **Yunsoo Choi**, High NOx emissions bias of the EPA NEI2005: two case studies over Los Angeles and Houston, October 2012, Community Modeling and Analysis meeting, Chapel Hill, NC (oral)

74. **Yunsoo Choi**, Rick Saylor, Ariel Stein, Pius Lee, and Hyuncheol Kim, Use of a satellite indicator of ozone production sensitivities to diagnose model bias, December 2011, American Geophysical Union Meeting, San Francisco, CA (oral)

75. **Yunsoo Choi**, Hyuncheol Kim, Daniel Tong, and Pius Lee, Weekly cycles of observed and modeled NO_x and O_3 concentrations as a function of land use type and ozone production sensitivity of the US, December 2011, American Geophysical Union Meeting, San Francisco, CA

76. **Yunsoo Choi**, Rick Saylor, Ariel Stein, Pius Lee, Hyuncheol Kim, Daniel Tong, Yunhee Kim, Youhua Tang, Jeff McQueen, Ivanka Stajner, Use of a satellite-based indicator of ozone production sensitivities to diagnose model bias, October 2011, Community Modeling and Analysis meeting, UNC, Chapel Hill, NC.

77. **Yunsoo Choi,** Hyuncheol Kim, Daniel Tong, Pius Lee, Rick Saylor, Ariel Stein, Fantine Ngan, Yunhee Kim, Jeff McQueen, Ivanka Stajner, Weekly cycles of observed and modeled NO_x and O_3

concentrations as a function of land use type and ozone production sensitivity, October 2011, Community Modeling and Analysis meeting, UNC, Chapel Hill, NC (oral).

78. **Choi, Y**., Byun, D., Lee, P., Saylor, R., Stein, A., Tong, D., Kim, H., Ngan, F., Chai, T., Tsidulko, M., and Stajner, I., Evaluation of Modeled Ozone Biases using satellite data and surface measurements, October 2010, Community Modeling and Analysis meeting, UNC, Chapel Hill (oral).

79. **Choi, Y.,** Eldering, A., Osterman, G., Byun, D., Kim, J., and Song, C., The change of tropospheric O_3, its radiative impact, and surface O_3 over the US during the North American Monsoon: Perspective from the space, The 3rd Asia Pacific Radiation Symposium, August, 26, 2010, Yonsei University, Seoul, Korea (oral).

80. **Choi, Y.,** Eldering, A., Osterman, G., Wang, Y., Cunnold, D., Yang, Q., Bucsela, E., Pickering, K., Kim, J., Yung Y., Gu, Y., Liou, K.N., TES team, MLS, team, OMI team, and NOAA-16 satellite team, Perspective on atmospheric chemistry over North America and western Atlantic during the summertime using satellite remote sensing data: Cloud convection and lightning, February 2009, NASA Tropospheric Emission Spectrometer science meeting (oral), Colorado.

81. **Choi, Y**., Eldering, A., Osterman, G., Wang, Y., Cunnold, D., Yang, Q., Bucsela, E., and Pickering, K., Lightning and anthropogenic NO_x sources over the U.S. and the western North Atlantic Ocean: Impact on tropospheric O_3 from space-borne observations, January 2009, American Meteorological Society annual meeting (oral).

82. **Choi, Y**., Eldering, A., Osterman, G., Wang, Y., and Edgerton, E., Understanding enhancements in tropospheric CO from biogenic VOC emissions using TES and MOPITT data, January 2009, American Meteorological Society annual meeting (oral).

83. **Choi, Y.,** Kim, J., Eldering, A., Osterman, G., Yung, Y., and Liou, K.N., Lightning and anthropogenic NOx sources over the U.S. and the western North Atlantic Ocean: Impact on radiative forcing and OLR from space-borne observations, January 2009, American Meteorological Society annual meeting.

84. **Choi, Y.,** Eldering, A., Osterman, G., Wang, Y., Cunnold, D., Yang, Q., Bucsela, E., and Pickering, K., Lightning and anthropogenic NO_x sources over the U.S. and the western North Atlantic Ocean: Impact on tropospheric O_3 from space-borne observations, December 2008, American Geophysical Union meeting (oral).

85. Kim, J., **Choi, Y.,** Eldering, A., Osterman, G., Yung, Y., and Liou, K.N., Lightning and anthropogenic NOx sources over the U.S. and the western North Atlantic Ocean: Impact on radiative forcing and OLR from space-borne observations, December 2008, American Geophysical Union fall meeting.

86. Osterman, G., Kim, J**., Choi, Y**., and Eldering, A., Using satellite data for evaluating the coupled WRF-CMAQ modeling system for use in studying the impact of climate change on air quality in the western United States, December 2008, American Geophysical Union fall meeting.

87. Wang, Y., Zhao, C., Yang, Q., Fu, R., and **Choi, Y.,** Impacts of East Asian summer monsoon on air quality over China, December 2008, American Geophysical Union fall meeting.

88. **Choi, Y**., Eldering, A., Osterman, G., Wang, Y., Cunnold, D., Yang, Q., Bucsela, E., Pickering, K., Kim, J., Yung, Y., Gu, Y., Liou, K.N., OMI team, TES team and MLS team, Impact of lightning and anthropogenic NO_x sources on tropospheric O_3 and radiative forcing over the U.S. and the western North Atlantic, October 2008, NASA Aura Science Meeting (oral).

89. **Choi, Y**., Eldering, A., Osterman, G., Wang, Y., Kim, J., Yang, Q., Cunnold, D., Edgerton, E., Bucsela, E., and Pickering, K., Lower and upper tropospheric enhancements in O_3 and its precursors from space-borne observations, October 2008, International Global Atmospheric Chemistry meeting.

90. **Choi, Y**., Eldering, A., Osterman, G., Wang, Y., and Edgerton, E., Understanding enhancements in tropospheric CO from biogenic VOC emissions using TES and MOPITT data, May 2008, American Geophysical Union Spring Meeting (oral).

91. Yang, Q., Cunnold, D., **Choi, Y.,** and Wang, Y., The study of tropospheric ozone column enhancements over North America using a regional model and the current versions of the Aura satellite data, May 2008, American Geophysical Union Spring Meeting.
92. Wang, Y., **Choi, Y.,** Yang, Q., Cunnold, D., Zeng, T., Shim, C., Lau, M., Eldering, A., Bucsela, E., Gleason, J., Spring to summer northward migration of high O_3 over the western North Atlantic, May 2008, American Geophysical Union spring meeting.
93. Zhao, C., Wang, Y., Zeng, T., and **Choi, Y**., Modeling the impacts of convective transport and lightning NO_X production over North America: Dependence on cumulus parameterizations, December 2007, American Geophysical Union fall meeting.
94. **Choi, Y.,** Wang, Y., Yang, Q., Cunnold, D., Zeng, T., Shim, C., Luo, M., Eldering, A., Bucsela, E., and Gleason, J., Spring to summer northward migration of high O_3 over the western North Atlantic, 2007, EOS Aura meeting (oral)
95. Guillas, S., Lefton, L., **Choi, Y**., and Wang, Y., Calibration of an Air Quality Model, 2007, Joint Statistical Meeting (JSM).
96. **Choi, Y**., Wang, Y., Zeng, T., Cunnold, D., Yang, E., Martin, R. V. and Chance, K, Modeling analysis of springtime transitions of O_3, NO_X, and CO over North America on the basis of in situ and satellite measurements, December 2006, American Geophysical Union fall meeting.
97. Wang, Y., T. Zeng, and **Y. Choi**, Boundary layer structure in the polar atmosphere: Its effects on halogen chemistry in the Arctic spring and snow NO_X emissions in Antarctic spring, 2006, Joint CACGP/IGAP/WMO Symposium.
98. Guillas, S., J. Bao, **Y. Choi** and Y.Wang, Evaluation of the RAQAST Model, Statistical Correction and Downscaling of Ozone Forecasts Over Atlanta, 2006, Multivariate Methods in Environmetrics.
99. Wang, Y., **Y. Choi**, and T. Zeng, Regional chemical weather over the United States: Forecast, simulation evaluations, and dependence on Meteorology, 2006, Joint CACGP/IGAC/WMO Symposium.
100. Wang, Y., **Y. Choi**, and T. Zeng, Regional Air Quality Forecast (RAQAST) system: operational forecast and evaluations with satellite measurements, 2006, SPIE Optics & Photonics Conference.
101. Wang, Y., Zeng, T. and **Choi, Y.,** Applications of a regional chemical transport modeling system: Operational air quality forecast, Arctic spring near-surface ozone depletion, and continental outflow from North America, January 2006, American Meteorological Society Forum.
102. **Choi, Y.,** Wang, Y., Zeng, T., Cunnold, D., Yang, E., Martin, R. V. and Chance, K., Modeling analysis of springtime transition of NO_2, CO, and O_3 on the basis of satellite measurements, December 2005, American Geophysical Union fall meeting.
103. Jing, P., Cunnold, D., Wang, Y. and **Choi, Y.,** Summertime Tropospheric Ozone Residuals Derived from OMI/MLS Measurement and their Comparison with Regional Air Quality Forecast (RAQAST) Model Results Over the United States, December 2005, American Geophysical Union fall meeting.
104. Wang, Y., **Choi, Y**. and Zeng, T., Late-spring Increase of TransPacific Pollution Transport in the Upper Troposphere, December 2005, American Geophysical Union fall meeting.
105. **Choi, Y**., Yoshida, Y., Zeng, T and Wang, Y., Regional Air Quality forecAST (RAQAST) Over the U.S., December 2005, American Geophysical Union fall meeting.
106. Y. Wang, T. Zeng, **Y. Choi**, C. Shim, K. Chance, R. Martin, and P. Palmer, Modeling applications of satellite tropospheric chemical measurements: Arctic surface ozone depletion, midlatitude lightning and convective outflow, and global biogenic isoprene, 2005, Gordon Research Conference.
107. **Choi, Y**., Wang, Y., Zeng, T., Martin, R. V., Kurosu, T. P. and Chance, K., Evidence of Lightning NO_X and Convective Transport of Pollutants in Satellite Observations Over North America, December 2004, American Geophysical Union fall meeting.

108. Wang, Y., **Choi, Y.** and Zeng, T., Interannual variability of surface NO_X at the South Pole, 2004, AGU fall meeting. Choi, Y., Y. Wang, R. Martin, T. Kuroso and K, Chance, Active continental outflow of reactive nitrogen, CO, and O_3 from North America during spring, Quadrennial Ozone Symposium, 2004, the International Ozone Commission (IOC) and the European Commission.

109. Shim, C., Wang, Y., **Choi, Y**., Palmer, P. I., Abbot, D. S., Chance, K., Constraining Global Isoprene Emissions with GOME Formaldehyde Column Measurements, December 2004, American Geophysical Union fall meeting.

110. Wang, Y., **Choi, Y**., Zeng, T. and Martin, V., Operational regional air quality forecast over the U. S., December 2003, American Geophysical Union fall meeting.

111. Simpson, I. J., **Choi, Y.,** Blake, D. R. and Rowland, F. S., A Principal Component Analysis of TRACE-P Whole Air Data (Nonmethane Hydrocarbons, Halocarbons, Alkyl Nitrates and Sulfur compounds), December 2002, American Geophysical Union Fall Meeting.

Award, Achievements, and Contributions:

1. Glen Cass Award: April 2007
2. Achievement AwardL Earth Resources Technology on December 30, 2010
3. American Geophysical Union journal highlights: Featured on February 13 2006, for the study "Air from Asia pollutes North America's upper troposphere" published in Geophysical Research Letters, 33, L01811
4. Developed and evaluated 3D Regional chEmical trAnsport Model (REAM) over North America using remote sensing products during my tenure at Georgia Institute of Technology and California Institute of Technology (August 2002 – August 2010)
5. Developed and evaluated 0D, 1D, and 3D regional chemical transport models over the remote region of Antarctica during my tenure at Georgia Institute of Technology (August 2002 – August 2007)
6. Implemented radiative transfer model into a regional chemical transport model over North America at California Institute of Technology, Jet Propulsion Laboratory (August 2007 – February 2010)
7. Setup and evaluated 3D regional chemical transport model over Asia at the California Institute of Technology (August 2007 – February 2010)
8. Maintained and updated the National Air Quality Forecasting Capability (NAQFC) system at the NOAA Air Resources Laboratory (February 2010 – April 2012) as a staff scientist
9. Developed the UH Air Quality Forecasting System for ozone and PM over Texas and nationwide coverage across the entire United States
10. Developed the UH Biomass Burning Query System for the United States
11. Created the UH Artificial Intelligence Air Quality forecasting system for Korea and the United States: The UH AI system has been operational as the official forecasting tool in South Korea since April 2022.

Professional Societies:

1. American Geophysical Union (AGU)
2. American Meteorological Society (AMS)

Service:

- **Department, College, and University**
  1. Principal Advisor for Ph.D. students:
     1) Lijun Diao (January 2013 – December 2016)

2) Shuai Pan (August 2013 – August 2017, current: professor at NUIST)
3) Amir Souri (January 2015 – August 2018, current: scientist at NASA Goddard)
4) Alex Kotsakis (August 2015 – December 2017, current: scientist at NASA Goddard)
5) Ebrahim Eslami (January 2016 – May 2020, current: scientist at HARC center)
6) Alqamah Sayeed (January 2018 – August 2021, current: team lead at NASA SERVIR air quality and health team)
7) Jia Jung (August 2017 – December 2021, current: scientist at NASA Ames)
8) Yannic Lops (August 2017 – December 2021, current: postdoc at LLNL national lab)
9) Bavand Sadeghi (January 2018 – May 2022, current: postdoc at NOAA ARL national lab)
10) Arman Pouyaei (June 2018 – August 2022, current: scientist at NOAA GFDL national lab)
11) Ahmed Khan Salman (January 2020 – December 2024, current: scientist at NASA SERVIR team)
12) Seyedali Mousavinezhad (August 2019 – December 2023, current: team lead of data products team at Texas Water Development Board)
13) Masoud Ghahremanloo (August 2019 – May 2023, current: postdoc at Harvard Smithsonian lab)
14) Jincheol Park (since August 2020 – December 2024, current: postdoc at UH)
15) Mahmoudreza Momeni (since August 2020)
16) Arash Kashfi Yeganeh (since August 2021)
17) Deveshwar Singh (since August 2021)
18) Delaney Nelson (since August 2021)
19) Hadi Zanganeh Kia (since January 2022)
20) Mahsa Payami (since June 2022)
21) Sagun Kayastha (since August 2022)
22) Rijul Dimri (since August 2022)
23) Nima Khorshidian (since August 2022)
24) Reyhaneh Shams (since August 2022)
24) Farah Jeba (January – May 2023)
25) Shihab Shahriar (since January 2023)
26) Saeed Tavakhsh (since January 2024)
27) Rashik Islam (since January 2024)
28) Arman Abdipour (since January 2025)
29) Ensieh Sharafkhani (since January 2025)

2. Principal Supervisor for postdocs:
   1) Dr. Anirban Roy (March 2014 – December 2018, current: the staff scientist at the California Air Resources Board)
   2) Prof. Wonbae Jeon (March 2015 – October 2016, current: professor at the Pusan National University)
   3) Dr. Beata Czader (January 2013 – October 2014, current: team lead of air quality modeling team at the Texas Commission on Environmental Quality)
   4) Dr. Sojin Lee (September 2018 – August 2019, current: the scientist at the Seoul Institute)
   5) Dr. Jia Jung (January 2022 – March 2022, current: the scientist at NASA Ames)
   6) Dr. Yannic Lops (January 2022 – March 2022, current: the postdoc at the LLNL, DOE lab)
   7) Dr. Bavand Sadeghi (June 2022 – August 2022, current: the postdoc at the NOAA ARL lab)
   8) Dr. Arman Pouyaei (September 2022 – February 2023, current: the scientist at NOAA GFDL lab)
   9) Dr. Masoud Ghahremanloo (October 2023 – October 2024, current: the postdoc at Harvard Smithsonian lab)

10) Dr. Seyedali Mousavinezhad (January 2024 – April 2024, current: the team lead of the data products team at Texas Water Development Board)
3. Principal Supervisor for research scientists, research staff, and visitors:
   1) Dr. Xiangshang Li (September 2013 – December 2015, current: University of Houston)
   2) Mr. Ahmed Salman (September 2018 – December 2019, current: the scientist at NASA SERVIR team)
   3) Prof. Sankeun Song (July 2018 – June 2019, current: professor at the Jeju National University)
   4) Prof. Soonwhan Lee (March 2019 – February 2020, current: professor at the Pusan National University)
   5) Prof. Yungon Lee (summer of 2015, current: professor at the Chungnam National University)
   6) Dr. Inchoon Yeo (July of 2020 – April of 2022, current: University of Houston)
4. Committee for Ph.D. students:
   1) Gustavo Cucchiara (2015 graduate)
   2) James Trammell (2015 graduate)
   3) Faith Akdag (2016 graduate, CS at UH)
   4) Laura Judd (2016 graduate)
   5) Angela Kao (2017 graduate)
   6) Vanessa Caicedo (2017 graduate)
   7) Ruixue Lei (2018 graduate
   8) Shuting Yang (2018 graduate)
   9) Abigail Corbett (2018 graduate)
   10) Olabosipo Osibanio (2021 graduate)
   11) Pooya Jafari (2018 graduate, CEE at UH)
   12) Yongli Zhang (2018 graduate, CS at UH)
   13) Ellen Creecy (2022 graduate)
   14) Ron Albright (2023 graduate)
   15) Tanzina Akther (current)
   16) Morshad Ahmed (2024 graduate)
   17) Mateen Ahmad (2024 graduate)
   18) Mohammad Alam (current)
   19) Irfan Karim (current)
   20) Xinyue Wang (current)
   21) Thishan Dharshana Karandana Gamalathge (current)
   22) Mohammad Jahirul Alam (current)
   23) Md Mahin (2024 graduate, CS at UH)
   24) Jahee Kim (current, ES&T at GIST)
   25) Jeeho Kim (current, EA&T at GIST)
   26) Ronin Costello (current)
   27) Junghyuk Moon (2024 graduate, EAS at Pusan National University)
   28) Leo Matak (current, CEE at UH)

5. Committee for M.S. students:
   1) Haesoo Jung (ESE at Ewha University, 2023)
   1) Muhammed Eltahan (Cairo University, 2018)
   2) Justin Brown (CS at UH, 2019)
   3) Aparma Budhavarapu (CS at UH, 2020)
   4) Puja Anchlia (CS at UH, 2015)
   5) Jay Shelton (2016 graduate)

      6) Faith Akdag (CS at UH, 2015)
6. Advisor for undergraduate:
   Attallah Phillips (fall 2015 and spring 2016)
   Delaney Nelson (fall 2019 – summer 2022)
7. Committee and MOU:
   1) Department seminar committee chair (between February 2013 – February 2016)
   2) Department seminar committee (February 2016 - 2018)
   3) Department material Committee (February 2013 - present)
   4) Department undergraduate studies committee (February 2013 - present)
   5) Department graduate atmospheric examining committee (February 2013 - present)
   6) Department faculty merit committee (2017, 2022)
   7) Department student research judge (2013, 2014, 2016, 2017, 2018, 2019, and 2020)
   8) Searching committee for a new faculty (2022)
   9) Personnel, Tenure, and Promotion Committee (2020, 2024)
   10) Establishing a Memorandum of Understanding (MOU) between UH and Ajou University (2017)
   11) Establishing a Memorandum of Understanding (MOU) between UH and USA ESIP (2018)

- **Professional/Academic Discipline**
  1. NOAA climate change-wildfire funding panel (2015)
  2. Southeast Texas Photochemical Modeling Technical Committee: Photochemical issues over southeast Texas, March 2013 – Current
  3. Science Team Member (Atmospheric Modeler) (February 2010–Present), Remote Sensing, Tropospheric Emission Spectrometer Project
     Supporting the scientific activity of the satellite TES project
  4. Science Advisory Committee Member, Geostationary Environment Monitoring Spectrometer (GEMS), November 2009 – Current
     Advising the scientific activity of the geostationary satellite project, GEMS
  5. Advisory Committee of the American Council On Renewable Energy (ACORE), January 2014 – Current
  6. Committee of the Blue Ocean Project between the Korean Institute of Ocean Science & Technology (KIOST) and the National Oceanic and Atmospheric Administration (NOAA), August 2012 – Current
  7. Science Collaborators of the NASA DISCOVER-AQ project, June 2013 – Current
  8. Science Committee of the MICS-Asia Air Quality Study, August 2013 – Current
  9. Science Committee of the Korean-American air pollution forecasting collaboration project, August 2013 – Current
  10. Review of Atmospheric Chemistry and Physics, Atmospheric Environment, Environmental Pollution, Journal of Atmospheric Chemistry, Journal of Geophysical Research, Geophysical Research Letters, Atmospheric Research, Remote Sensing, and Asia-Pacific Journal of Atmospheric Research