

Yunsoo Choi

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Total funding and peer-reviewed publications during my tenure-track/tenured at the UH since 2012:

94 papers authored by me or with my students and postdocs at the University of Houston, out of a total of 112 peer-reviewed research papers
\$5.66M as PI, co-PI or Sr. Personnel (\$3.794M as sole PI)
12 students were awarded their Ph.D. degrees under me (at UH)
14 Ph.D. students and 2 postdoc are in the group (today)

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:

Deep learning for big data analytics
Introduction to climate change (The number of students registered for the fall of 2021, 2022, and 2023 is approximately 2,500)
Principles of atmospheric science
Numerical modeling in atmospheric modeling
Atmospheric modeling
Dynamic meteorology
Geophysical fluid dynamics
Mesoscale meteorology
Mesoscale meteorology forecasting

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) SSAI, NASA GSFC, US Aura OMI Science Team, Greenbelt, MD

Evaluated OMI satellite NO₂ and SO₂ retrieval products with CTM

Senior Research Associate (June 2010 – April 2012) ERT, 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) STC, 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). Completed coursework and passed the advanced exam

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. 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 Environment*, <https://doi.org/10.1016/j.scitotenv.2023.169577> (IF = 9.8)
2. 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)
3. 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)
4. 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)
5. 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)
6. 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)
7. 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)
8. 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)
9. 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)

10. 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)
11. 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)
12. 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)
13. 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)
14. 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 PM_{2.5} in the contiguous U.S., Science of The Total Environment, DOI://doi.org/10.1016/j.scitotenv.2023.162614 (IF= 10.8)
15. 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)
16. 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)
17. 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 forecasts, Asia-Pacific Journal of Atmospheric Sciences, <https://doi.org/10.1007/s13143-023-00319-3> (IF=6.6)
18. 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)
19. 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 NO_x emissions over South Korea, Atmospheric Environment, <https://doi.org/10.1016/j.atmosenv.2022.119429> (IF=5.8)
20. 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)
21. 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)
22. 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 PM_{2.5} measurements, Atmospheric Environment, <https://doi.org/10.1016/j.atmosenv.2022.119348> (IF=5.8)

23. 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)
24. Park*, J., Jung*, J., **Choi, Y.**, Mousavinezhad*, S., Pouyaei*, A., 2022, The sensitivities of ozone and PM_{2.5} 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)
25. 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)
26. 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)
27. 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 NO_x emission adjustments over East Asia, *Journal of Geophysical Research-Atmosphere*, DOI: 10.1016/j.atmosenv.2022.119077 (IF = 5.2)
28. 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 NO_x and VOC emissions using satellite observation, *Atmospheric Research*, DOI: 10.1016/j.atmosenv.2022.119077 (IF = 6.0)
29. 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 networks, *Atmospheric Environment*, DOI: 10.1016/j.atmosenv.2022.119077 (IF=5.8)
30. Ghahremanloo, M.*, Lops, Y.*, **Choi, Y.**, Jung, J.*, Mousavinezhad, A.*, Hammond, D., 2022, A comprehensive study of the COVID-19 impact on PM_{2.5} levels over the contiguous United States: a deep learning approach, *Atmospheric Environment*, DOI: 10.1016/j.atmosenv.2022.119077 (IF=5.8)
31. Lee, S.*, Song, C.H., Han, K.M., Henze, D.K., Lee, K., Yu, J., Woo, J-H., Jung, J.*, and **Choi, Y.**, 2021, Impact of uncertainties in emissions on aerosol data assimilation and short-term PM_{2.5} predictions over Northeast Asia, *Atmospheric Environment*, DOI: 10.1016/j.atmosenv.2022.119077 (IF=5.8)
32. Ghahremanloo, M.*, Lops, Y.*, **Choi, Y.**, and Yeganeh, B., 2021, Deep learning estimation of daily ground-level NO₂ concentrations from remote sensing data, *Journal of Geophysical Research-Atmospheres*, DOI: 10.1016/j.atmosenv.2022.119077 (IF=5.2)
33. Yeo, I.*, **Choi, Y.**, Lops, Y.*, and Sayeed, A., 2021, Efficient PM_{2.5} forecasting using geographical correlation based on integrated deep learning algorithms, *Neural Computing and Applications*, DOI: 10.1016/j.atmosenv.2022.119077 (IF = 5.6)
34. Yeo, I.*, **Choi, Y.**, 2021, An efficient method for capturing the high peak concentrations of PM_{2.5} using Gaussian-filtered deep learning, *Sustainability*, DOI: 10.1016/j.atmosenv.2022.119077 (IF=3.9)
35. 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)
36. 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)

37. 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)
38. 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)
39. 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)
40. 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)
41. 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)
42. 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)
43. 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)
44. 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)
45. 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)
46. 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)
47. 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 Environment*, <https://doi.org/10.1016/j.scitotenv.2020.14226> (IF = 10.8)
48. 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)
49. 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)
50. 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)
51. 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)

52. 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)
53. 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)
54. 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)
55. 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., 2020, The impacts of uncertainties in emissions on aerosol data assimilation and short-term PM2.5 predictions in CMAQ v5.2.1 over East Asia, *Geoscientific Model Development*, doi:10.5194/gmd-2020-116 (IF=6.9)
56. Lops*, Y., **Choi, Y.**, Eslami*, E., and Sayeed*, A., 2019, Real-time 7-Day Forecast of Pollen Counts Using a Deep Convolutional Neural Network, *Neural Computing and Applications*, doi:10.1007/s00521-019-04665-0 (IF=5.1)
57. Jeon*, W., Lee, H.W., Lee, T-J., Yoo, J-W., Mun, J., Lee, S-H., **Choi, Y.**, 2019, Impact of varying wind patterns on PM10 concentrations in the Seoul Metropolitan Area in South Korea from 2012 to 2016, *Journal of Applied Meteorology and Climatology*, doi:10.1175/JAMC-D-19-0102.1 (IF=3.6)
58. Jung*, J., Sourì*, A.H., Wong, D. C., Lee, S., Jeon*, W., Kim, J., and **Choi, Y.**, 2019, The impact of the direct effect of aerosols on meteorology and air quality using aerosol optical depth assimilation during the KORUS-AQ campaign, *Journal of Geophysical Research-Atmosphere*, doi:10.1029/2019JD030641 (IF=5.2)
59. Pan*, S., Roy*, A., **Choi, Y.**, Sun, S., and Gao, H.O., 2019, The air quality and health impacts of projected long-haul truck and rail freight transportation in the United States in 2050, *Environment International*, 130, 104922, doi:10.1016/j.envint.2019.104922 (IF=13.3)
60. Eslami*, E., Salman*, A.K., **Choi, Y.**, Sayeed*, A., Lops*, Y., 2019, A data ensemble approach for real-time air quality forecasting using extremely randomized trees and deep neural networks, in *Neural Computing and Application*, doi:10.1007/s00521-019-04287-6 (IF=5.1)
61. Pan*, S., Roy*, A., **Choi, Y.**, Eslami*, E., Thomas, S., Jiang, X., Gao, H.O., 2019, Potential impacts of electric vehicles on air quality and health endpoints in the Greater Houston Area in 2040, *Atmospheric Environment*, <https://doi.org/10.1016/j.atmosenv.2019.03.022> (IF=5.8)
62. Kotsakis*, A., **Choi, Y.**, Sourì*, A.H., Jeon*, W., Flynn, J., 2019, Characterization of Regional Wind Patterns Using Self-Organizing Maps: Impact on Dallas-Fort Worth Long-Term Ozone Trends, <https://doi.org/10.1175/JAMC-D-18-0045.1>, *Journal of Applied Meteorology and Climatology* (IF = 3.6)
63. Eslami*, E., **Choi, Y.**, Lops*, Y., Sayeed*, A., 2019, A real-time hourly ozone prediction system using deep convolutional neural network, <https://doi.org/10.1007/s00521-019-04282-x>, *Neural Computing and Applications* (IF=5.1)
64. Jeon*, W., **Choi, Y.**, Mun, J., Lee, S., Choi, H., Yoo, J., Lee, H., Lee, H., 2018, Behavior of sulfate on the sea surface during its transport from Eastern China to South Korea, in *Atmospheric Environment*, 186, 102-112 (IF=5.8)
65. Jeon*, W., **Choi, Y.**, Roy*, A., Pan*, S., Price, D., Hwang, M., Kim, R., Oh, I., 2018, Investigation of Primary Factors affecting the variation of modeled oak pollen concentrations: A case study for southeast Texas in 2010, *Asia-Pacific Journal of Atmospheric Sciences*, 54(1), 33-41 (IF=6.6)

66. Souri*, A.H., **Choi, Y.**, Pan*, S., Curci, G., Nowlan, C., Janz, S.J., Kowalewski, M.G., 2018, First Top-Down Estimates of Anthropogenic NO_x Emissions Using High-Resolution Airborne Remote Sensing Observations, *Journal of Geophysical Research-Atmospheres*, doi:10.1002/2017JD028009 (IF=5.2)
67. Jeon*, W., **Choi, Y.**, Souri*, A.H., Roy*, A., Diao*, L., Pan*, S., Lee, H.W., Lee, S-H., 2018, Identification of chemical fingerprints in long-range transport of burning induced upper tropospheric ozone from Colorado to the North Atlantic Ocean, *Science of The Total Environment*, 613, 820-828, doi:10.1016/j.scitotenv.2017.09.177 (IF = 10.8)
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69. Pan*, S., **Choi, Y.**, Roy*, A., Jeon*, W., 2017, Allocating emissions to 4km and 1km horizontal spatial resolutions and its impact on simulated NO_x and O₃ in Houston, TX, *Atmospheric Environment*, doi:10.1016/j.atmosenv.2017.06.026 (IF=5.8)
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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 NO_x, HCHO, and ozone sensitivity for a historical period over the continental United States, February 2024, yearly report to the NASA Goddard
3. **Choi**, Y. et al., The impacts of fleet electrification on local air quality, greenhouse gas emission, and human health in the most populated cities within the U.S., January 2024, yearly report to CRC
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5. **Choi**, Y. et al., Refining Ammonia emission using inverse modeling and satellite observations over Texas and the Gulf of Mexico and investigating its effect on fine particulate matter, August 2023, final report to the UT Austin
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15. **Choi, Y.** et al., Development of a grid-based medium range ozone forecasting system using machine learning, March 2022, midterm report to the National Institute of Environmental Research (NIER)
16. **Choi, Y.** et al., Inverse modeling using Aura OMI and AI deep learning approach to investigate NO_x, HCHO, and Ozone sensitivity for a historical period over the continental United States, February 2022, yearly report to the NASA headquarter
17. **Choi, Y.** et al., Development of an interactive air quality forecasting system reflecting real-time atmospheric phenomena, December 2021, yearly report to the National Institute of Environmental Research (NIER)
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20. **Choi, Y. et al.**, The AI deep learning air pollution forecasting system, May 2021, yearly report to the National Institute of Environmental Research
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23. **Choi, Y.** et al., The optimization of emissions of precursors of ozone and aerosols for the Community Multiscale Air Quality Modeling System (CMAQ) using artificial intelligence deep neural networks, November 2020, final report to the remote sensing center of the National Institute of Environmental Research (NIER)
24. **Choi, Y.** et al., Development of a hybrid stochastic-deterministic approach for air pollution forecasting, source apportionment and policy formation, July 2020, final report to the GIST
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26. **Choi, Y.** et al., The use of Artificial Intelligence ensemble model to predict short-term and long-term air quality forecasting, August 2020, final report submitted to the air quality forecasting center of the National Institute of Environmental Research (NIER)

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34. **Choi, Y.** et al., Top-down estimate of yellow dust emission inventories using inverse modeling technique over East Asia, November 2018, the final report submitted to the National Institute of Meteorological Sciences (NIMS)
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38. **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 Public Citizen Foundation/Healthy Port Communities Coalition (HPCC).
39. **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 Texas Air Research Center (TARC)
40. **Choi, Y.** et al., Development and an interactive air quality forecasting system reflecting real-time atmospheric phenomena, December 2016, final report submitted to the National Institute of Environmental Research (NIER)
41. **Choi, Y.**, Jeon, W., Roy, A., Souri, A.H., Diao, L., Pan, S., and Eslami, E., CMAQ modeling archive for exceptional events analyses, September 2016, the final report to the TCEQ
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44. **Choi, Y.**, Li, X., Souri, A.H., Diao, L., Roy, A., and Pan, S., Constraining NO_x emissions using satellite NO₂ column measurements over Southeast Texas, September 2015, final report submitted

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46. Han, J., Hong, Y., Chang, I., Lee, D., Yoo, J., Hong, S., Son, J., Choi, J., Kim, B., Kim, Y., Kim, H., Chang, M., **Choi, Y.**, Heo, K., Korean-American Air Pollution Forecasting Workshop, May 2014, NIER-GP2014-046
47. **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 Korea Institute of Atmospheric Prediction System (KIAPS)

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 21st, 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 NO_x 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 PM_{2.5} 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 O₃ & UH air quality forecasting, July 9, 2013, Texas Commission on Environmental Quality, Austin, TX
51. Choi, Y., Human and Lightning tropospheric/surface O₃ & 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 O₃ & 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 O₃: 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 O₃ and surface O₃ 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) O₃ predictions over the United States, October 6, 2011, NOAA Air Resources Laboratory, Silver Springs, MD
57. Choi, Y., Improving summertime CMAQ O₃ 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 O₃ 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 O₃ 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 O₃ 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 O₃ 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 O₃ 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 O₃ and its precursors, June 2008, Kwangju Institute of Technology, Kwangju, Korea.
70. Choi, Y., NO₂, CO, and O₃ 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. Kim, D., Choi, Y., Jeon, W., Mun, J., Park, J., Kim, C-H., Yoo, J-W., Transboundary transport characteristics of PM_{2.5} produced by crop-burning emissions: Focusing on changes in sulfate concentration, 2023, AGU fall meeting
2. 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
3. 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
4. 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
5. 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

6. 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
7. 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
8. 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
9. 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
10. 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 methods to constrain NO_x emissions in Seoul Korea, 2022, AGU fall meeting
11. Jung, J.*, **Choi, Y.**, Ghahremanloo, M.*, Lops, Y.*, Momeni, M.*, and Feng, S., Estimating NO_x emissions with numerical modeling and deep learning estimated complete surface NO₂ map, 2022, AGU fall meeting
12. 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
13. 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
14. 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
15. Kim, J., et al., **Choi, Y.**, First year observations of air quality from geostationary environment monitoring spectrometer (GEMS), 2021, AGU fall meeting
16. 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
17. 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
18. 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 NO_x and VOC emissions using satellite observation, 2021, CMAS annual meeting
19. 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
20. 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
21. 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

22. **Choi, Y.**, Sayeed*, A., Jung*, J., Lops*, Y., Eslami*, E., and Salman*, A., A Deep Convolutional Neural Network Model for improving WRF forecasts (invited), December 2020, AGU, online virtual meeting
23. Sadeghi*, B., **Choi, Y.**, Yoon, S., Flynn, J., Kotsakis, A., and Lee*, S., Source apportionment of fine particulate matter near Houston: implications for emission sources and back trajectory analysis, December 2020, AGU, virtual online
24. 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
25. 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) derived from CMAQ v5.2, October 2020, CMAS, Chapel Hill, NC
26. 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
27. **Choi, Y.**, Eslami*, E., Sayeed*, A., Lops*, Y., CMAQ-AI: A computationally efficient deep learning model to improve CMAQ performance over the United States, December 2019, AGU, San Francisco, USA
28. 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
29. Jung*, J., Sourì*, A., Wong, D.C., Lee, S., Jeon*, W., Kim, J., and **Choi, Y.**, October 2019, CMAS meeting, Chapel Hill, NC
30. Pouyaei*, A., **Choi, Y.**, Jung*, J., Sadeghi*, B., Trajectory Grid: A Lagrangian Advection Algorithm Implemented into CMAQ, September 2019, TACCSTER 2019 Proceedings, Austin, TX
31. 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
32. 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
33. **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
34. **Choi, Y.**, Sourì*, A., Kodros, J., Jung*, J., Lynn, BH, Pierce, JR, Khain, A., Chance, K., Response of Hurricane Harvey to Anthropogenic Aerosols, December 2018, AGU, DC
35. Jung*, J., **Choi, Y.**, Sourì*, 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
36. Jung*, J., **Choi, Y.**, Sourì*, 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
37. Jeon*, W., Jung*, J., **Choi, Y.**, Sourì*, A., Long-term variability of wind patterns at hub-height over Texas, December 2017, the AGU fall meeting, New Orleans, LA
38. 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
39. **Choi, Y.**, Sourì*, 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
40. 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
 41. Souri*, A., **Choi, Y.**, Pan*, S., Curci, G., Janz, S. J., Kowalewski, M.G., Application of high resolution airborne remote sensing observations for monitoring NO_x emissions, December 2017, the AGU fall meeting, New Orleans, LA
 42. 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
 43. 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
 44. 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
 45. 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
 46. 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
 47. 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
 48. **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
 49. 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
 50. 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 PM_{2.5} production in the Korean Peninsula, October 2015, Chapel Hill, NC
 51. Souri*, A.H., **Choi, Y.**, Diao*, L., and Li*, X., Nitrogen Oxide Emissions Constrained by Space-based observations of NO₂ column over Southeast Texas, October 2015, Chapel Hill, NC (oral)
 52. 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
 53. **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)
 54. Czader*, B., Percell, P., Byun, D., and **Choi, Y.**, Development and Evaluation of a Hybrid Eulerian-Lagrangian Modeling Approach, December 2014, San Francisco, CA
 55. 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
 56. 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

57. 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)
58. 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
59. 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)
60. 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
61. 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 O₃, PM_{2.5} and tropospheric NO₂, NASA Air Quality Applied Science Team Meeting, January 2014, Houston, TX
62. 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, O₃ and outgoing longwave radiation, December 2013, American Geophysical Union Meeting, San Francisco, CA
63. Choi, S., Joiner, J., Krotov, N., **Choi, Y.**, Duncan, B., Celarier, A., Bucsele, E., Vasikov, P., Veeffkind, J., Cohen, R., Weinheimer, J., and Pickering K., Estimates of free-tropospheric NO₂ abundance from the Aura Ozone Monitoring Instrument (OMI) using Cloud Slicing Technique, December 2013, American Geophysical Union Meeting, San Francisco, CA
64. **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
65. 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 O₃, PM_{2.5} and tropospheric NO₂, October 2013, Community Modeling and Analysis meeting, Chapel Hill, NC
66. 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)
67. **Yunsoo Choi**, NO_x emissions uncertainty of the EPA NEI 2005 over the Southern US, January 2013, American Meteorological Meeting, Austin, TX (oral)
68. **Yunsoo Choi**, High NO_x 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)
69. **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)
70. **Yunsoo Choi**, Hyuncheol Kim, Daniel Tong, and Pius Lee, Weekly cycles of observed and modeled NO_x and O₃ concentrations as a function of land use type and ozone production sensitivity of the US, December 2011, American Geophysical Union Meeting, San Francisco, CA
71. **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.
72. **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 O₃ concentrations as a function of land use type and ozone production sensitivity, October 2011, Community Modeling and Analysis meeting, UNC, Chapel Hill, NC (oral).

73. **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).
74. **Choi, Y.**, Eldering, A., Osterman, G., Byun, D., Kim, J., and Song, C., The change of tropospheric O₃, its radiative impact, and surface O₃ 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).
75. **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.
76. **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 O₃ from space-borne observations, January 2009, American Meteorological Society annual meeting (oral).
77. **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).
78. **Choi, Y.**, Kim, J., Eldering, A., Osterman, G., Yung, Y., and Liou, K.N., Lightning and anthropogenic NO_x 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.
79. **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 O₃ from space-borne observations, December 2008, American Geophysical Union meeting (oral).
80. Kim, J., **Choi, Y.**, Eldering, A., Osterman, G., Yung, Y., and Liou, K.N., Lightning and anthropogenic NO_x 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.
81. 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.
82. 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.
83. **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 O₃ and radiative forcing over the U.S. and the western North Atlantic, October 2008, NASA Aura Science Meeting (oral).
84. **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 O₃ and its precursors from space-borne observations, October 2008, International Global Atmospheric Chemistry meeting.
85. **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).

86. 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.
87. 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 O₃ over the western North Atlantic, May 2008, American Geophysical Union spring meeting.
88. 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.
89. **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 O₃ over the western North Atlantic, 2007, EOS Aura meeting (oral)
90. Guillas, S., Lefton, L., **Choi, Y.**, and Wang, Y., Calibration of an Air Quality Model, 2007, Joint Statistical Meeting (JSM).
91. **Choi, Y.**, Wang, Y., Zeng, T., Cunnold, D., Yang, E., Martin, R. V. and Chance, K., Modeling analysis of springtime transitions of O₃, NO_x, and CO over North America on the basis of in situ and satellite measurements, December 2006, American Geophysical Union fall meeting.
92. 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.
93. 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.
94. 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.
95. 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.
96. 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.
97. **Choi, Y.**, Wang, Y., Zeng, T., Cunnold, D., Yang, E., Martin, R. V. and Chance, K., Modeling analysis of springtime transition of NO₂, CO, and O₃ on the basis of satellite measurements, December 2005, American Geophysical Union fall meeting.
98. 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.
99. 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.
100. **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.
101. 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.
102. **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.

103. 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 O₃ from North America during spring, Quadrennial Ozone Symposium, 2004, the International Ozone Commission (IOC) and the European Commission.
104. 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.
105. 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.
106. 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 and Accomplishments:

1. Glen Cass Award - April 2007
2. Achievement Award from Earth Resources Technology, December 30, 2010
3. American Geophysical Union journal highlights - February 13 2006: Air from Asia pollutes North America's upper troposphere: Yuhang Wang (Ph.D. advisor), Yunsoo Choi, Tao Zeng, Brian Ridley, Nicholas Blake, Donald Blake and Frank Flocke, Late-spring increase of trans-Pacific pollution transport in the upper troposphere, 2006, Geophysical Research Letters, 33, L01811
4. Developed and evaluated 3D Regional chEmical trAnsport Model (REAM) over North America using remote sensing products (Georgia Institute of Technology and California Institute of Technology): with Yuhang Wang (Ph.D. advisor), Tao Zeng (with a colleague), and with Annmarie Eldering (postdoc supervisor): August 2002 – July 2007
5. Developed Regional Air Quality forecAST (RAQAST, at Georgia Institute of Technology): with Yuhang Wang (Ph.D. supervisor) and Tao Zeng (with a colleague): August 2002 – July 2007
6. Developed and evaluated 0D, 1D, and 3D regional chemical transport model over the remote region, Antarctica (at Georgia Institute of Technology): with Yuhang Wang (with Ph.D. advisor) and Tao Zeng (with a colleague): August 2002 – July 2007
7. Implemented radiative transfer model into regional chemical transport model over North America (at California Institute of Technology, Jet Propulsion Laboratory): with Jinwon Kim (with a colleague) and Annmarie Eldering (with a postdoc advisor): August 2007 – February 2010
8. Setup and evaluated 3D regional chemical transport model over Asia (at the California Institute of Technology): August 2007 – February 2010
9. Maintained and updated the National Air Quality Forecasting Capability (NAQFC) system (at the NOAA Air Resources Laboratory) with Daewon Byun (the group lead): February 2010 – April 2012
10. Developed UH Air Quality Forecasting of ozone and PM over Texas
11. Developed UH Air Quality Forecasting system over the entire United States
12. Developed UH Biomass burning query system for the United States
13. Created UH Artificial Intelligence Air Quality forecasting system for Korea and the United States (note: The UH automatic real-time AI air quality forecasting system has been operational since April 2020 as their official forecasting tool)

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: NUIST)
 - 3) Amir Souri (January 2015 – August 2018, current: NASA Goddard)
 - 4) Alex Kotsakis (August 2015 – December 2017, current: NASA Goddard)
 - 5) Ebrahim Eslami (January 2016 – May 2020, current: HARC center)
 - 6) Alqamah Sayeed (January 2018 – August 2021, current: NASA Huntsville)
 - 7) Jia Jung (August 2017 – December 2021, current: NASA Ames)
 - 8) Yannic Lops (August 2017 – December 2021, current: LLNL national lab)
 - 9) Bavand Sadeghi (January 2018 – May 2022, current NOAA ARL national lab)
 - 10) Arman Pouyaei (June 2018 – August 2022, current NOAA GFDL national lab)
 - 11) Ahmed Khan Salman (since January 2020)
 - 12) Seyedali Mousavinezhad (August 2019 – December 2023)
 - 13) Masoud Ghahremanloo (August 2019 – May 2023)
 - 14) Jincheol Park (since August 2020)
 - 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)
2. Principal Supervisor for postdocs:
 - 1) Dr. Anirban Roy (March 2014 – December 2018, current: California Air Resources Board)
 - 2) Prof. Wonbae Jeon (March 2015 – October 2016, current: Pusan National University)
 - 3) Dr. Beata Czader (January 2013 – October 2014, current: Texas Commission on Environmental Quality)
 - 4) Dr. Sojin Lee (September 2018 – August 2019, current: Seoul Institute)
 - 5) Dr. Jia Jung (January 2022 – March 2022, current: NASA Ames)
 - 6) Dr. Yannic Lops (January 2022 – March 2022, current: DOE lab, LLNL)
 - 7) Dr. Bavand Sadeghi (June 2022 – August 2022, current: NOAA lab, ARL)
 - 8) Dr. Arman Pouyaei (September 2022 – February 2023, current: NOAA lab, GFDL)
 - 9) Dr. Masoud Ghahremanloo (October 2023 – present, current: UH)
 - 10) Dr. Seyedali Mousavinezhad (January 2024 – present, current: UH)
3. Principal Supervisor for research scientists, research staffs, and visitors:
 - 1) Dr. Xiangshang Li (September 2013 – December 2015, current: University of Houston)
 - 2) Mr. Ahmed Salman (September 2018 – December 2019, current: Ph.D. student at University of Houston)
 - 3) Prof. Sankeun Song (July 2018 – June 2019, current: Jeju National University)
 - 4) Prof. Soonwhan Lee (March 2019 – February 2020, current: Pusan National University)
 - 5) Prof. Yungon Lee (summer of 2015, current: 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 (computer science, 2016)
 - 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 (Civil and environmental engineering, 2018 graduate)
 - 12) Yongli Zhang (computer science, 2018 graduate)
 - 13) Ellen Creecy (2022 graduate)
 - 14) Ron Albright (2023 graduate)
 - 15) Tanzina Akther (current)
 - 16) Marshad Ahmed (current)
 - 17) Mateen Ahmad (current)
 - 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 (current, CS at UH)
 - 24) Jahee Kim (current, ES&T at GIST)
 - 25) Jeeho Kim (current, EA&T at GIST)
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 of a new faculty (2022)
 - 9) Merit review committee (2022)
 - 10) Personnel, Tenure, and Promotion committee (2020)
 - 11) Establishing Memorandum of Understanding (MOU) between UH and Ajou University (2017)

12) Establishing 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