

Yunsoo Choi

Updated on March 24, 2021

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Total funding and peer-reviewed publication during my tenure-track/tenured at UH:

\$3.084 million (about \$2.684 million as sole PI)

54 peer-reviewed research papers (50 papers with my students and postdocs) among 71 peer-reviewed research papers

Editorships:

Editorial Board of Scientific Reports – Nature
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
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:

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 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 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. 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 = 4.0)
2. 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 Networks, Atmospheric Environment, doi:10.1016/j.atmosenv.2021.118376 (IF=4.0)
3. 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=4.7)
4. 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=3.8)
5. Song, S., **Choi, Y.**, Choi, Y., Flynn, J., Sadeghi, B*., 2021, Charactersitic 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=4.0)
6. 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 = 6.6)
7. Pan, S., Jung*, J., Li, Z., Hou, X., Roy, A., **Choi, Y.**, and Gao, H.O., 2020, Air quality implcations of COVID-19 in California, Sustainability, 12(17), 10.3390/su12177067 (IF=2.6)
8. 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 = 4.1)
9. 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=5.8)
10. 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, GMD, <https://doi.org/10.5194/gmd-2019-346> (IF=5.2)
11. 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), GMD, 13, 3489, <https://doi.org/10.5194/gmd-2019-366> (IF=5.2)
12. 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=8.2)
13. 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=5.7)
14. 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 PM_{2.5} predictions in CMAQ v5.2.1 over East Asia, doi:10.5194/gmd-2020-116 (IF=5.2)
 15. 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=4.7)
 16. 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=2.4)
 17. Jung*, J., Souri*, 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=3.63)
 18. 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=7.9)
 19. 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=4.7)
 20. 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, accepted in *Atmospheric Environment* (IF=3.7)
 21. Kotsakis*, A., **Choi, Y.**, Souri*, 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 = 2.5)
 22. 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=4.7)
 23. 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=3.7)
 24. 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=1.7)
 25. 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=3.5)
 26. 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 = 4.9)
 27. Souri*, A.H., **Choi, Y.**, Jeon*, W., Kochanski, A., Diao*, L., Mandel, J., Bhawe, P.V., Pan*, S., 2017, Quantifying the Impact of Biomass Burning Emissions on Major Inorganic Aerosols and

- Their Precursors in the U.S., *Journal of Geophysical Research-Atmospheres*, doi:10.1002/2017JD026788 (IF=3.5)
28. 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=3.6)
 29. Jeon*, W., **Choi, Y.**, Roy*, A., Pan*, S., Price, D., Hwang, M-K., Kim, K.R., Oh, I., 2017, 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*, 53(4):1-9, doi.10.1007/s13143-017-0057-9 (IF = 1.7)
 30. Kotsakis*, A., Morris, G.A., Lefer, B., Jeon*, W., Roy*, A., Minschwaner, K., Thompson, A.M., **Choi, Y.**, 2017, Ozone production by corona discharges during a convective event in DISCOVER-AQ Houston, *Atmospheric Environment*, doi.10.1016/j.atmosenv.2017.04.018 (IF = 3.5)
 31. Leong, Y., Sanchez, N., Wallace, H., Karakurt Cevik, B., Hernandez, C., Han, Y., Flynn, J., Massoli, P., Floerchinger, C., Fortner, E., Herndon, S., Bean, J., Hildebrandt Ruiz, L., Jeon*, W., **Choi, Y.**, Lefer, B., Griffin, R., 2017, Overview of Surface measurements and Spatial Characterization of Submicron Particulate matter during the DISCOVER-AQ 2013 Campaign in Houston, *Journal of Air & Waste Management Association*, doi:10.1080/10962247.2017.1296502 (IF=1.6)
 32. Souri*, A. H., **Choi, Y.**, Jeon*, W., Woo, J-H., Zhang, Q., Kurokawa, J-I., 2017, Remote-sensing evidence of decadal changes in major tropospheric ozone precursors over East Asia, *Journal of Geophysical Research-Atmosphere*, doi:10.1002/2016JD025663 (IF=3.5)
 33. Pan*, S., **Choi, Y.**, Jeon*, W., Roy*, A., Westenbarger, D., and Kim, H., 2017, Impact of high-resolution sea surface temperature, emission spikes and wind on simulated surface ozone in Houston, Texas during a high ozone episode, *Atmospheric Environment*, doi:10.1016/j.atmosenv.2016.12.030 (IF=3.5)
 34. Roy*, A. and **Choi, Y.**, 2017, Effect of ambient temperature on species lumping for total organic gases in gasoline exhaust emissions, *Atmospheric Environment*, doi:10.1016/j.atmosenv.2016.11.057 (IF=3.5)
 35. Jeon*, W., **Choi, Y.**, Percell, P., Souri*, A.H., Song, C., Kim, S., and Kim, J., 2016, Computationally efficient air quality forecasting tool: Implementation of STOPS v1.5 model into CMAQ v5.0.2 for a prediction of Asian dust, *Geoscientific Model Development*, 9(10), 3671-3684 (IF=3.5)
 36. Diao*, L., **Choi, Y.**, Czader*, B., Li*, X., Roy*, A., Jeon*, W., 2016, Discrepancies between modeled and observed nocturnal isoprene in an urban environment and the possible causes: A case study in Houston, *Atmospheric Research*, 181, 257-264 (IF=3.4)
 37. Roy*, A., Soontag, D., Cook, R., Yanca, C., Schenk, C., and **Choi, Y.**, 2016, Effect of Ambient Temperature on Total Organic Gas Speciation Profiles from Light-Duty Gasoline Vehicle Exhaust, *Environmental Science and Technology*, 50(12), 6565-6573 (IF= 5.4)
 38. Li*, X., **Choi, Y.**, Czader*, B., Roy*, A., Kim, H., Lefer, B., and Pan*, S., 2016, The impact of observation nudging on simulated meteorology and ozone concentrations during DISCOVER-AQ 2013 Texas campaign, *Atmospheric Chemistry and Physics*, 16, 3127-3144 (IF = 5.2)
 39. Diao*, L., Roy*, A., Czader*, B., Pan*, S., Jeon*, W., Souri*, A.H., **Choi, Y.**, 2016, Modeling the effect of relative humidity on nitrous acid formation in the Houston area, *Atmospheric Environment*, 131, 78-82 (IF=3.5)
 40. Souri*, A.H., **Choi, Y.**, Jeon*, W., Li*, X., Pan*, S., Diao*, L., Westenbarger, D., 2016, Constraining NO_x emissions using satellite NO₂ measurements during 2013 DISCOVER-AQ Texas campaign, in *Atmospheric Environment*, 131, 371-381 (IF=3.5)

41. Souri*, A.H., **Choi, Y.**, Li*, X., Kotsakis*, A., Jiang, X., 2016, A 15-year climatology of wind pattern impacts on surface ozone in Houston, Texas, in *Atmospheric Research*, 174, 124-134 (IF=3.4)
42. Bella, D., Culpepper, J., Khaimova, J., Ahmed, N., Belkalai, Adam, Arroyo, I., Andrews, J., Gentle, S., Emmanuel, S., Lahmouh, M., Ealy, J., King, Zayna, Jenkins, O., Fu, D., **Choi, Y.**, Osterman, G., Gruszczynski, J., Skeete, D., Blaszcak-Boxe, C.S., 2015, Characterization of pollution transport into Texas using OMI and TES satellite, GIS and in situ data, and HYSPLIT back trajectory analyses: implications for TCEQ State Implementation Plans, in *Air Qual Atmos Health*, Springer Netherlands, p. 1 (IF=2.3)
43. **Choi, Y.**, Souri*, A.H., 2015, Seasonal behavior and long-term trends of tropospheric ozone, its precursors and chemical conditions over Iran: A view from space, in *Atmospheric Environment*, v. 106, p. 232-240 (IF=3.5)
44. **Choi, Y.**, Souri*, A.H., 2015, Chemical condition and surface ozone in large cities of Texas during the last decade: Observational evidence from OMI, CAMS, and model analysis, in *Remote Sensing of Environment*, 168, 90-101 (IF= 6.4)
45. Czader*, B. H., **Choi, Y.**, Li*, X., Alvarez, S., Lefer, B., 2015, Impact of updated traffic emissions on HONO mixing ratios simulated for urban site in Houston, Texas, in *Atmos. Chem. Phys.*, Copernicus Publications, 15(3), 1253-1263 (IF=5.2)
46. Jeon*, W., **Choi, Y.**, Lee, H.W., Lee, S., Yoo, J., Park, J., Lee, H., 2015, A quantitative analysis of grid nudging effect on each process of PM_{2.5} production in the Korean Peninsula, in *Atmospheric Environment*, 122, 763-774 (IF=3.5)
47. Pan*, S., **Choi, Y.**, Roy*, A., Li*, X., Jeon*, W., Souri*, A.H., 2015, Modeling the uncertainty of several VOC and its impact on simulated VOC and ozone in Houston, Texas, in *Atmospheric Environment*, 120, 404-416 (IF=3.5)
48. Roy*, A., **Choi, Y.**, 2015, New Directions: Potential impact of changing the coal-natural gas split in power plants: An emissions inventory perspective for criteria pollutants, in *Atmospheric Environment*, 102, 413-415 (IF=3.5)
49. Roy*, A., **Choi, Y.**, 2015, Temperature dependence of source specific volatility basis sets for motor vehicle exhaust, in *Atmospheric Environment*, 119, 258-261 (IF=3.5)
50. Czader*, B., Percell, P., Byun, D., Kim, S., **Choi, Y.**, 2015, Development and evaluation of the Screening Trajectory Ozone Prediction System (STOPS, version 1.0), in *Geosci. Model Dev.*, 8, 1383-1394 (IF=6.2)
51. Lee, Y., Kim, J., Ho, C., An, S., Cho, H., Mao, R., Tian, B., Wu, D., Lee, J., Kalashnikova, O., **Choi, Y.**, Yeh, S., 2015, The effects of ENSO under negative AO phase on spring dust activity over northern China: an observational investigation, in *International Journal of Climatology*, 35 (6), 935-947 (IF=3.2)
52. Choi, S., Joiner, J., **Choi, Y.**, Duncan, B. N., Vasilkov, A., Krotkov, N., Bucsela, E., 2014, First estimates of global free-tropospheric NO₂ abundances derived using a cloud-slicing technique applied to satellite observations from the Aura Ozone Monitoring Instrument (OMI), in *Atmos. Chem. Phys.*, Copernicus Publications, 14, 19, 10565-10588 (IF=5.2)
53. **Choi, Y.**, 2014, The impact of satellite-adjusted NO_x emissions on simulated NO_x and O₃ discrepancies in the urban and outflow areas of the Pacific and Lower Middle US, in *Atmos. Chem. Phys.*, Copernicus Publications, 14(2), 675-690 (IF=5.2)
54. **Yunsoo Choi**, Hyuncheol Kim, Daniel Tong, and Pius Lee, Summertime weekly cycles of observed and modeled NO_x and O₃ concentrations as a function of satellite-derived ozone production sensitivity and land use types over the Continental United States, 2012, *Atmospheric Chemistry and Physics*, 12, 6291-6307 (IF=5.2)
55. Chun Zhao, Yuhang Wang, Rong Fu, Derek Cunnold, and **Yunsoo Choi**, Impact of East Asia summer monsoon on the air quality over China: The view from space, 2010, *Journal of Geophysical Research*, doi:10.1029/2009JD012745 (IF=3.4)

56. Qing Yang, Derek Cunnold, **Yunsoo Choi**, Yuhang Wang, Ray Wang, Lucien Froidervaux, Anne Thompson, and Pawan Bhartia, A study of tropospheric ozone column enhancements over North America using satellite data and a global chemical model, 2010, *Journal of Geophysical Research*, doi:10.1029/2009JD012616 (IF=3.4)
57. **Yunsoo Choi**, Gregory Osterman, Annmarie Eldering, Yuhang Wang, and Eric Edgerton, Understanding the contributions of anthropogenic and biogenic sources to CO enhancements and outflow observed over North America and the western Atlantic Ocean by TES and MOPITT, 2010, *Atmospheric Environment*, doi:10.1016/j.atmosenv.2010.01.029 (IF=3.5)
58. **Yunsoo Choi**, Jinwon Kim, Annmarie Eldering, Gregory Osterman, Yuk L. Yung, and K. N. Liou, Lightning and anthropogenic NO_x sources over the U.S. and the western North Atlantic Ocean: Impact on OLR and radiative effects, 2009, *Geophysical Research Letters*, 36, L17806, doi:10.1029/2009GL039381 (IF=4.5)
59. Chun Zhao, Yuhang Wang, **Yunsoo Choi**, and Tao Zeng, Summertime impacts of convective transport and lightning NO_x production over North America: modeling dependence on meteorological simulations, 2009, *Atmospheric Chemistry and Physics*, 9, 4315-4327 (IF=5.2)
60. **Yunsoo Choi**, Yuhang Wang, Qing Yang, Derek Cunnold, Tao Zeng, Changsub Shim, Ming Luo, Annmarie Eldering, Eric Bucsela, and James Gleason, Spring to summer northward migration of high O₃ over the western North Atlantic, 2008, *Geophysical Research Letters*, 35, L04818, doi:10.1029/2007GL032276 (IF=4.5)
61. **Yunsoo Choi**, Yuhang Wang, Tao Zeng, Derek Cunnold, Eun-Su Yang, Randall Martin, and Kelly Chance, Valerie Thouret, and Eric Edgerton, Springtime transition of NO₂, CO, and O₃ over North America: Model evaluation and analysis, 2008, *Journal of Geophysical Research*, 113, D20311, doi:10.1029/2007JD009632 (IF=3.4)
62. Burcak Kaynak, Yongtao Hu, Randall V. Martin, Armistead Russell, **Yunsoo Choi**, and Yuhang Wang, The effect of lightning NO_x production on surface ozone in the continental United States, 2008, *Atmospheric Chemistry and Physics*, 8, 5151-5159 (IF=5.2)
63. Serge Guillas, Jinghui Bao, **Yunsoo Choi** and Yuhang Wang, Statistical correction and downscaling of chemistry-transport model ozone forecasts over Atlanta, 2008, *Atmospheric Environments*, 42(6), 1338-1348 (IF=3.2)
64. Yuhang Wang, **Yunsoo Choi**, Tao Zeng, Douglas Davis, Martin Buhr, L. Gregory Huey, and William Neff, Assessing the photochemical impact of snow NO_x emissions over Antarctica during ANTCI 2003, 2007, *Atmospheric Environments*, 41(19), 3944 (IF=3.2)
65. Jing Ping, Derek Cunnold, **Yunsoo Choi** and Yuhang Wang, Summertime tropospheric ozone columns from Aura OMI/MLS measurements versus regional model results over the United States, 2006, *Geophysical Research Letters*, 33(17), L17817 (IF=4.5)
66. Yuhang Wang, **Yunsoo Choi**, Tao Zeng, Brian Ridley, Nicola Blake, Donald Blake and Frank Flocke, Late-spring increase of trans-Pacific pollution transport in the upper troposphere, 2006, *Geophysical Research Letters*, 33, L01811 (IF=4.5)
67. **Yunsoo Choi**, Yuhang Wang, Tao Zeng, Randall Martin, Thomas Kurosu and Kelly Chance, Evidence of lightning NO_x and convective transport of pollutants in satellite observations over North America, 2005, *Geophysical Research Letters*, 32, L02805 (IF=4.5)
68. Changsub Shim, Yuhang Wang, **Yunsoo Choi**, Paul I. Palmer, Dorian S. Abbot and Kelly Chance, Constraining global isoprene emissions with Global Ozone Monitoring Experiment (GOME) formaldehyde column measurements, 2005, *Journal of Geophysical Research*, 110, D24301 (IF=3.4)
69. Yuhang Wang, Changsub Shim, Nicola Blake, Donald Blake, **Yunsoo Choi**, Brian Ridley, Jack Dibb, Anthony Wimmers, Jennie Moody, Frank Flocke, Andrew Weinheimer, Robert Talbot and Elliot Atlas, Intercontinental transport of pollution manifested in the variability and seasonal trend of springtime O₃ at northern middle and high latitudes, 2003, *Journal of Geophysical Research*, 108(D21), 4683 (IF=3.4)

70. **Yunsoo Choi**, Scott Elliott, Isobel J. Simpson, Donald R. Blake, Jonah J. Colman, Manvendra K. Dubey, Simone Meinardi, F. Sherwood Rowland, Tomoko Shirai and Felisa A. Smith, Survey of whole air data from the second airborne Biomass Burning and Lightning Experiment using principal component analysis, 2003, *Journal of Geophysical Research*, 108(D5), 4163 (IF=3.4)
71. J. Alfredo Freites, **Yunsoo Choi**, and Douglas J. Tobias, Molecular Dynamics Simulations of a Pulmonary Surfactant Protein B Peptide in a Lipid Monolayer, 2003, *Biophysical Journal*, 84(4), 2169-2180 (IF=3.8)

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., 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)
3. **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
4. **Choi, Y.** et al., Development of Numerical Development of Prediction Analysis and Application Techniques Based on Machine Learning, November 2020, final report submitted to the Korean Meteorology Administration (KMA)
5. **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)
6. **Choi, Y.** et al., The use of Artificial Intelligence ensemble model to predict short-term and long-term air quality forecasting, March 2020, midterm report submitted to the air quality forecasting center of the National Institute of Environmental Research (NIER)
7. **Choi, Y.** et al., Aerosol and PM emission optimization of the Community Multiscale Air Quality modeling system (CMAQ) with deep neural networks, November 2019, final report submitted to the remote sensing center of the National Institute of Environmental Research (NIER)
8. **Choi, Y.** et al., The use of Artificial Intelligence Deep Learning to predict ozone concentration, April 2019, final report submitted to the air quality forecasting center of National Institute of Environmental Research (NIER)
9. **Choi, Y.** et al., A deep-learning driven improved ensemble approach for hurricane forecasting, January 2019, the final report submitted to the ESIP
10. **Choi, Y.** et al., Development of a hybrid stochastic-deterministic approach for air pollution forecasting, source apportionment and policy formation, January 2019, the 2nd year final report submitted to the GIST
11. **Choi, Y.** et al., The use of Artificial Intelligence Deep Learning to predict ozone concentration, December 2018, the midterm report submitted to the National Institute of Environmental Research (NIER)
12. **Choi, Y.** et al., Long-term simulation and analysis for evaluation of initial field improvement of Optimal interpolation approach, December 2018, the final report submitted to the National Institute of Environmental Research (NIER)
13. **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)

14. **Choi, Y.** et al., Development of a hybrid stochastic-deterministic approach for air pollution forecasting, source apportionment and policy formation, March 2018, the 1st year final report submitted to the GIST
15. **Choi, Y.** et al., Integrating Surface and Satellite Observations to Provide an Optimal Estimate of Surface Distribution of PM, December 2017, final report submitted to the National Institute of Environmental Research (NIER)
16. **Choi, Y.** et al., The use of Artificial Intelligence Deep Learning to predict ozone concentration over Seoul, December 2017, final report submitted to the National Institute of Environmental Research (NIER)
17. **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).
18. **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)
19. **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)
20. **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
21. **Choi, Y.**, Development and Evaluation of a Hybrid Eulerian-Lagrangian air quality model for simulating large air pollution events, November 2015, Final report to National Institute of Environmental Research
22. **Choi, Y.** and Czader, B., Impact of uncertainties in NO₂ and HONO emissions and chemistry on radicals and ozone in southeast Texas, July 2015, final report submitted to the Texas Air Research Center (TARC)
23. **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 to the Air Quality Research Program (AQRP), http://aqrp.ceer.utexas.edu/viewprojectsFY14-15.cfm?Prop_Num=14-014
24. Eick, C., **Choi, Y.**, Gnawali, O., and Shi, W., Network and Computational Infrastructure for collecting and interpreting sensor data with respect to aerosolized chemical and biological threats, July 2015, the final report to the Department of Homeland Security
25. 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
26. **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 for Air Quality Forecasting, Houston-Galveston Area Council of Governments, January 30th, 2020
2. Choi, Y. Et al., When an atmospheric scientist meets Artificial intelligence deep learning, December 18th, 2019, the 1st Artificial Intelligence Fusion and Application Conference, Jeju, Korea (Plenary talk)

3. Choi, Y. Et al., When Artificial Intelligence deep learning meets atmospheric science, December 20th, 2019, the 1st Artificial Intelligence Fusion and Application Conference, Jeju, Korea
4. Choi, Y. Et al., Application of deep learning for atmospheric science, November 19th, 2019, the 3rd KOEA conference, Houston, TX
5. Choi, Y. Et al., Deep learning for air quality and weather, August 2019, the Korea Environment Institute, Daejeon, Korea
6. Choi, Y. Et al., Deep learning imputation and inverse modeling, August 2019, the National Institute of Environmental Research, Incheon, Korea
7. Choi, Y. Et al., AI deep learning for air quality, weather, and remote sensed AOD forecasting, July 2019, NASA Ames Research Center, California
8. Choi, Y. Et al., AI deep learning for air quality, weather, and remote sensed AOD forecasting, July 2019, Jet Propulsion Laboratory, California
9. 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
10. Choi, Y. Et al., A deep-learning driven improved ensemble approach for hurricane forecasting, January 16, 2019, 2019 ESIP Winter Meeting, Bethesda, Maryland
11. Choi, Y. et al., Data Assimilation case study: Remote-sensing evidence of decadal changes in tropospheric NO_x over East Asia, May 11th, 2017, National Institute of Meteorological Sciences, Jeju Korea
12. 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 11th, 2017, National Institute of Meteorological Sciences, Jeju Korea
13. Choi, Y. et al., Data assimilation using remote sensing data, April 4th, 2017, Ewha Woman's University, Seoul Korea
14. Choi, Y. et al., Remote sensing and data assimilation, April 3rd, 2017, Gwangju Institute of Science and Technology, Gwangju Korea
15. Choi, Y. et al., Deep learning weather forecasting, April 4th, 2017, KIAPS, Seoul Korea
16. Choi, Y. et al., Deep learning air quality forecasting system, April 4th, 2017, KIST, Seoul Korea
17. Choi, Y. et al., Data assimilation using remote sensing data, April 5th, 2017, Incheon Korea
18. Choi, Y. et al., Remote-sensing evidence of decadal changes in major tropospheric ozone precursors over East Asia, December 8th, 2016, Ewha Woman's University, Seoul Korea
19. Choi, Y. et al., A hybrid Eulerian/Lagrangian model, STOPS, June 17th, 2016, Pusan National University, Pusan Korea
20. Choi, Y. Et al., Bayesian inverse modeling applications using remote sensing data, June 17th, 2016, Pusan National University, Pusan Korea
21. 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
22. 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
23. Choi, Y., Climate change from Air Quality Forecasting Modeler, February 2016, Incheon, Korea
24. Choi, Y., UH Air Quality Forecasting and its application, February 2015, University of Texas Health Science Center at Houston, Houston, TX
25. 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
26. Choi, Y., UH Air Quality Forecasting: Today and tomorrow, March 7, 2014, The University of Texas Health Science Center at Houston, Houston, TX

27. 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
28. 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
29. 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
30. Choi, Y., UH Air Quality Forecasting: What happened last month?, November 7, 2013, Monthly meeting for DISCOVER-AQ team project, Houston, TX
31. Choi, Y., UH air quality forecasting, October 13, 2013, Department of Earth and Atmospheric Sciences, Department regular seminar, University of Houston, Houston, TX
32. Choi, Y., Tropospheric O₃ & UH air quality forecasting, July 9, 2013, Texas Commission on Environmental Quality, Austin, TX
33. Choi, Y., Human and Lightning tropospheric/surface O₃ & UH air quality forecasting system, June 18, 2013, Ewha Women's University, Seoul, Korea
34. 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
35. 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
36. 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
37. 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
38. 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
39. 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
40. 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.
41. 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.
42. 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.
43. 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.
44. 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.
45. 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.

46. 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.
47. Choi, Y., Tropospheric perturbations on O₃ and its precursors from remote sensing measurements, June 2008, Yonsei University, Seoul, Korea.
48. 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.
49. 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.
50. 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.
51. 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.
52. 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:

1. **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
2. 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
3. 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
4. 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
5. 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
6. **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
7. 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
8. Jung*, J., Souri*, A., Wong, D.C., Lee, S., Jeon*, W., Kim, J., and **Choi, Y.**, October 2019, CMAS meeting, Chapel Hill, NC
9. Pouyaei*, A., **Choi, Y.**, Jung*, J., Sadeghi*, B., Trajectory Grid: A Lagrangian Advection Algorithm Implemented into CMAQ, September 2019, TACCSTER 2019 Proceedings, Austin, TX
10. 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

11. 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
12. **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
13. **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
14. 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
15. 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
16. 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
17. 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
18. **Choi, Y.**, Souri*, A., Jeon*, W., Kochanski, A., Diao*, L., Mandel, J., Bhawe, 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
19. 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
20. 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
21. 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
22. 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
23. 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
24. 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
25. 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
26. 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
27. **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

28. 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
29. 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
30. 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)
31. 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
32. **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)
33. Czader*, B., Percell, P., Byun, D., and **Choi, Y.**, Development and Evaluation of a Hybrid Eulerian-Lagrangian Modeling Approach, December 2014, San Francisco, CA
34. 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
35. 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
36. 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)
37. 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
38. 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)
39. 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
40. 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, PM2.5 and tropospheric NO₂, NASA Air Quality Applied Science Team Meeting, January 2014, Houston, TX
41. 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
42. Choi, S., Joiner, J., Krotov, N., **Choi, Y.**, Duncan, B., Celarier, A., Bucsel, 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
43. **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
44. 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, PM2.5 and tropospheric NO₂, October 2013, Community Modeling and Analysis meeting, Chapel Hill, NC

45. 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)
46. **Yunsoo Choi**, NO_x emissions uncertainty of the EPA NEI 2005 over the Southern US, January 2013, American Meteorological Meeting, Austin, TX (oral)
47. **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)
48. **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)
49. **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
50. **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.
51. **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).
52. **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).
53. **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).
54. **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.
55. **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).
56. **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).
57. **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.
58. **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).
59. 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.
60. 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.
 61. 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.
 62. **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).
 63. **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.
 64. **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).
 65. 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.
 66. 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.
 67. 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.
 68. **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)
 69. Guillas, S., Lefton, L., **Choi, Y.**, and Wang, Y., Calibration of an Air Quality Model, 2007, Joint Statistical Meeting (JSM).
 70. **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.
 71. 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.
 72. 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.
 73. 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.
 74. 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.
 75. 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.

76. **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.
77. 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.
78. 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.
79. **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.
80. 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.
81. **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.
82. 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.
83. 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.
84. 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.
85. 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 - 13 February 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 Southeast Texas: June 2013 - Present (<http://spock.geosc.uh.edu>)
11. Developed UH Air Quality Forecasting system over the US: October 2013 - Present (<http://spock.geosc.uh.edu>)
12. Developed UH Biomass burning Query System over the US (spock.geosc.uh.edu/query.html)
13. Developed UH Artificial Intelligence Air Quality forecasting system over Korea and the United States (note: NIER is using UH automatic real-time AI air quality forecasting system from April 2020 for their official forecasting)

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 (September 2013 – August 2017)
 - 3) Amir Souri (January 2015 – August 2018)
 - 4) Alex Kotsakis (September 2015 – December 2017)
 - 5) Ebrahim Eslami (January 2016 – May 2020)
 - 6) Alqamah Sayeed (since January 2018)
 - 7) Jia Jung (since September 2017)
 - 8) Yannic Lops (since September 2017)
 - 9) Bavand Sadeghi (since January 2018)
 - 10) Arman Pouyaei (since June 2018)
 - 11) Ahmed Khan Salman (since January 2020)
 - 12) Ali Mousavinezhad (since September 2019)
 - 13) Masoud Ghahremanloo (since September 2019)
 - 14) Jincheol Park (since September 2020)
 - 15) Mahmoudreza Momeni (since September 2020)
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)
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. Ryan Lee (since July of 2020)
4. Committee for Ph.D. students:
 - 1) Angela Kao (2017 graduate)
 - 2) Vanessa Caicedo (2017 graduate)
 - 3) Ruixue Lei (2018 graduate)
 - 4) Shuting Yang (2018 graduate)
 - 5) Abigail Corbett (2018 graduate)
 - 6) Olabosipo Osibanio (current)
 - 7) Pooya Jafari (Civil and environmental engineering, 2018 graduate)
 - 8) Yongli Zhang (computer science, 2018 graduate)
 - 9) Ellen Creecy (current)
 - 10) Laura Judd (2016 graduate)
 - 11) Gustavo Cucchiara (2015 graduate)
 - 12) James Trammell (2015 graduate)
 - 13) Faith Akdag (computer science, 2016)
5. Committee for M.S. students:
 - 1) Muhammed Eltahan (Cairo University, 2018)
 - 2) Justin Brown (computer science, 2019)
 - 3) Aparma Budhavarapu (computer science, 2020)
 - 4) Puja Anchlia (computer science, 2015)
 - 5) Jay Shelton (2016 graduate)
 - 6) Faith Akdag (computer science, 2015)
6. Advisor for undergraduate:

Attallah Phillips (fall 2015 and spring 2016)

Delaney Nelson (since fall 2019)
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 merit committee (2017)
 - 7) Department student research judge (2013, 2014, 2016, 2017, 2018, and 2019)
 - 8) Establishing Memorandum of Understanding (MOU) between UH and Ajou University (2017)
 - 9) 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, <http://tes.jpl.nasa.gov/team/scienceteam/> 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, Journal of Atmospheric Chemistry, Journal of Geophysical Research, Geophysical Research Letters, Atmospheric Research, Remote Sensing, and Asia-Pacific Journal of Atmospheric Research