<p style="text-align:center">CURRICULUM VITAE</p>

Myungje Choi

Present position: Postdoctoral researcher
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Research interests

- Quantification of the information contents and uncertainty characteristics of aerosol microphysical and optical properties, and the vertical distribution of aerosols using hyperspectral remote sensing measurement
- Retrieval of aerosol optical properties using a multi-channel ocean color sensor onboard a geostationary satellite
- Validation and uncertainty estimation of aerosol optical properties from geostationary satellite using ground-based and other satellite-based observations
- Analysis of aerosol optical properties diurnal variation and long-range transport using a geostationary satellite
- Data assimilation of geostationary satellite aerosol optical properties with air quality modeling
- Relevance between satellite-retrieved aerosol optical properties and ground in-situ particulate matter
- Radiative transfer model calculation

Professional Records

- 2018-present, Postdoctoral researcher, Jet Propulsion Laboratory, USA
- 2017-2018, Postdoctoral researcher, Department of Atmospheric Sciences, Yonsei University, Korea, Science advisor: *Prof. Jhoon Kim,* (http://atrad.yonsei.ac.kr/)
- 2011-2017, Graduate Research and Teaching Assistant, Atmospheric Radiation Laboratory, Yonsei University, Korea (http://atrad.yonsei.ac.kr/)

Education

- Ph.D., Department of Atmospheric sciences, Yonsei University, Korea, Aug 2017.
  Supervisor: *Prof. Dr. Jhoon Kim* (jkim2@yonsei.ac.kr)
  Ph. D thesis title: Retrieval of Aerosol Optical Properties from GOCI: Algorithm Improvement, Analysis and Application to PM
  (Awarded Certificate of Merit from Yonsei University with the Doctoral thesis)
- B.S., Department of Atmospheric sciences, Yonsei University, Korea, Aug 2011.
  (Graduated with High Honors)

Awards and Scholarship

- Certificate of Merit Award from Yonsei University with the Doctoral thesis, 2018.
- NASA Group Achievement Award for "KORUS-AQ: An International Cooperative Air Quality Field Study in Korea" project, 2017.
- Best Paper Award from BK21-plus research team (Institute of Earth, Atmosphere, and Astronomy), 2017.
- Outstanding Researcher Award for "KORUS-AQ pre-campaign" from the National Institute of Environ Research (NIER), Korea, 2016.
- Graduated with High Honors Award, Yonsei University, 2011.
- Honors Award, Yonsei University, Aug 2008, Aug 2009, Aug 2010, Feb 2011, and Aug 2011.
- BK21 Plus Participation Scholarship (Graduate), Sep 2013-Feb 2017.
- Lotte Scholarship (Graduate), the Lotte Scholarship Foundation, Mar 2012-Feb 2013.
- Lotte Scholarship (Undergraduate), the Lotte Scholarship Foundation, Sep 2009-Aug 2011.

Visiting experiences and Campaign participations

- Apr 2018, Visiting researcher
  NASA Jet Propulsion Laboratory, USA
  Host: Dr. Dejian Fu (dejian.fu@jpl.nasa.gov)
- Apr 2018, Visiting researcher
  Department of Atmospheric and Oceanic Sciences, University of California,
  Los Angeles (UCLA), USA
  Host: Prof. Pablo Saide (saide@atmos.ucla.edu;
  https://dept.atmos.ucla.edu/saide)
- 2015- 2016, KORUS-AQ campaign (2016) and MAPS-Seoul campaign (2015)
  Steering group: *J. Al-Saadi, G. Carmichael, J. Crawford, L. Emmons, S. Kim, C.K. Song, L.S. Chang, G. Lee, J. Kim, and R. Park*
  Task 1: AERONET Korean sites manager
  Task 2: Near-real-time GOCI aerosol optical properties retrieval to support air quality forecasting groups
  https://espo.nasa.gov/home/korus-aq/content/KORUS-AQ
  http://aeronet.gsfc.nasa.gov/new_web/DRAGON-KORUS-AQ_2016.html
- Jul-Aug 2014, Visiting researcher
  MMM Division, NCAR Earth System Laboratory, Boulder, CO, USA.
  Supervisor: *Dr. Zhiquan Liu*
  Topic: Collaboration in the data assimilation section on the algorithm to improve the accuracy using geostationary satellite-derived aerosol observation
- Jul-Aug 2013, Visiting student
  SSAI and GSFC/NASA, Greenbelt, MD, USA.
  Supervisors: *Dr. P.K. Bhartia, Dr. Omar Torres, Dr. Changwoo Ahn*
  Topic: Improvement of GOCI aerosol retrieval algorithm
- Mar-May 2012, DRAGON-Asia 2012 campaign
  P.I.: *Brent N. Holben*, Korean P.I.: *Jhoon Kim*
  Task: AERONET management

Technical experiences
- Radiative transfer model
  - User of VLIDORT, libRadtran, 6SV
- Programming language
  - IDL, Fortran, Shell, Perl, Matlab, Python, etc.
- Retrieval experiences
  - Aerosol optical properties retrieval using multi-channel from geostationary satellite
  - Retrieval products: aerosol optical depth, fine-mode fraction, Angstrom exponent, single scattering albedo, dust aerosol index.
- Satellite data
  - GOCI (Geostationary Ocean Color Imager), MODIS, VIIRS, CALIOP, AHI, CAI/GOSAT, etc.
- Ground-based remote sensing data
  - AERONET Cimel sunphotometer, SONET Cimel sunphotometer, SKYNET Skyradiometer, Pandora Spectrophotometer, Dobson Spectrophotometer, Brewer Spectrophotometer

Volunteered activities
- Reviewer of publications
  - Atmospheric Measurement Techniques, Atmospheric Chemistry and Physics, Remote Sensing-MDPI, Atmospheric Environment, Meteorology and Atmospheric Physics
- Speaker of the Training series titled "High Temporal Resolution Air Quality Observations from Space", Applied Remote Sensing Training (ARSET) program organized by NASA GSFC, 2018.
  - https://arset.gsfc.nasa.gov/airquality/webinars/2018-geospatial

Manuscripts submitted, in review, or in preparation
Choi, M. et al., Validation, comparison, and integration of GOCI, AHI, MODIS, MISR, and VIIRS aerosol optical depth over East Asia during 2016 KORUS-AQ campaign, *in prep*.

Park, S., Shin, M., Im, J., Song, C.-K., **Choi, M.**, Kim, J., Lee, S., Park, R., Kim, J., Lee, D.-W., and Kim, S.-K.: Estimation of ground level particulate matter concentrations through the synergistic use of satellite observations and process-based models over South Korea, *Atmos. Chem. Phys. Discuss.*, doi:10.5194/acp-2018-647, *in review*.

She, Q., **Choi, M.**, Belle, J., Xiao, Q., Bi, J., Huang, K., Meng, X., Geng, G., Kim, J., He, K., Liu, M., and Liu, Y.: Satellite-based estimation of hourly PM2.5 levels 1 during heavy winter pollution episodes in the Yangtze River Delta, China, *in review*.

Lee, S., Kim, J., **Choi, M.**, Hong, J., Lim, H., Eck, T. E., Holben, B. N., Ahn, J.-Y., Kim, J., and Koo, J.-H.: Analysis of long-range transboundary transport (LRTT) effect on Korean aerosol pollution during the KORUS-AQ campaign, *submitted*.

Publications in peer-reviewed international journal

[14] Goto, D., Kikuchi, M., Suzuki, K., Hayasaki, M., Yoshida, M., Nagao, T. M., **Choi, M.**, Kim, J., Sugimoto, N., Shimizu, A., Oikawa, E., and Nakajima, T.: Aerosol model evaluation using two geostationary satellites over East Asia in May 2016, *Atmospheric Research*, 217, 93-113, doi:10.1016/j.atmosres.2018.10.016, 2019.

[13] Lennartson, E. M., Wang, J., Gu, J., Castro Garcia, L., Ge, C., Gao, M., **Choi, M.**, Saide, P. E., Carmichael, G. R., Kim, J., and Janz, S. J.: Diurnal variation of aerosol optical depth and PM2.5 in South Korea: a synthesis from AERONET, satellite (GOCI), KORUS-AQ observation, and the WRF-Chem model, *Atmos. Chem. Phys.*, 18, 15125-15144, doi:10.5194/acp-18-15125-2018, 2018.

[12] Lee, S., Hong, J., Cho, Y., **Choi, M.**, Kim, J., Park, S. S., Ahn, J. Y., Kim, S. K., Moon, K. J., Eck, T. F., Holben, B. N., and Koo, J. H.: Characteristics of Classified Aerosol Types in South Korea during the MAPS-Seoul Campaign, *Aerosol and Air Quality Research*, 18, 2195-2206, doi:10.4209/aaqr.2017.11.0474, 2018.

[11] Eck, T. F., Holben, B. N., Reid, J. S., Xian, P., Giles, D. M., Sinyuk, A., Smirnov, A., Schafer, J. S., Slutsker, I., Kim, J., Koo, J.-H., **Choi, M.**, Kim, K. C., Sano, I., Arola, A., Sayer, A. M., Levy, R. C., Munchak, L. A., O'Neill, N. T., Lyapustin, A., Hsu, N. C., Randles, C. A., Da Silva, A. M., Buchard, V., Govindaraju, R. C., Hyer, E., Crawford, J. H., Wang, P., and Xia, X.: Observations of the Interaction and Transport of Fine Mode Aerosols With Cloud and/or Fog in Northeast Asia From Aerosol Robotic Network and Satellite Remote Sensing, *J Geophys Res-Atmos*, 123, 5560-5587, doi:10.1029/2018JD028313, 2018.

[10] Lim, H., **Choi, M.**, Kim, J., Kasai, Y., and Chan, P.: AHI/Himawari-8 Yonsei Aerosol Retrieval (YAER): Algorithm, Validation and Merged Products, *Remote Sens-Basel*, 10, 699, doi:10.3390/rs10050699, 2018.

[09] Holben, B. N., Kim, J., Sano, I., Mukai, S., Eck, T. F., Giles, D. M., Schafer, J. S., Sinyuk, A., Slutsker, I., Smirnov, A., Sorokin, M., Anderson, B. E., Che, H., **Choi, M.**, Crawford, J. H., Ferrare, R. A., Garay, M. J., Jeong, U., Kim, M., Kim, W., Knox, N., Li, Z., Lim, H. S., Liu, Y., Maring, H., Nakata, M., Pickering, K. E., Piketh, S., Redemann, J., Reid, J. S., Salinas, S., Seo, S., Tan, F., Tripathi, S. N., Toon, O. B., and Xiao, Q.: An overview of mesoscale aerosol processes, comparisons, and validation studies from DRAGON networks, *Atmos. Chem. Phys.*, 18, 655-671, doi:10.5194/acp-18-655-2018, 2018.

[08] **Choi, M.**, Kim, J., Lee, J., Kim, M., Park, Y.-J., Holben, B., Eck, T. F., Li, Z., and Song, C. H.: GOCI Yonsei aerosol retrieval version 2 products: an improved algorithm and error analysis with uncertainty estimation from 5-year validation over East Asia, *Atmos. Meas. Tech.*, 11, 385-408, doi:10.5194/amt-11385-2018, 2018.

[07] Lee, S., Kim, M., **Choi, M.**, Go, S., Kim, J., Kim, J.-H., Lim, H.-K., Jeong, U., Goo, T.-Y., Kuze, A., Shiomi, K., and Tatsuya, Y.: Aerosol Property Retrieval Algorithm over Northeast Asia from TANSOCAI Measurements Onboard GOSAT, *Remote Sens.*, 9, 687, doi:10.3390/rs9070687, 2017.

[06] Go, S., Kim, M., Kim, J., Park, S., Jeong, U., and **Choi, M.**: Detection of Absorbing Aerosol Using Single Near-UV Radiance Measurements from a Cloud and Aerosol Imager, *Remote Sens.*, 9, 378, doi:10.3390/rs9040378, 2017.

[05] **Choi, M.**, Kim, J., Lee, J., Kim, M., Park, Y.-J., Jeong, U., Kim, W., Hong, H., Holben, B., Eck, T. F., Song, C. H., Lim, J.-H., and Song, C.-K.: GOCI Yonsei Aerosol Retrieval (YAER) algorithm and

validation during the DRAGON-NE Asia 2012 campaign, *Atmos. Meas. Tech.*, 9, 1377-1398, doi:10.5194/amt-9-1377-2016, 2016.

[04] Xiao, Q., Zhang, H., **Choi, M.**, Li, S., Kondragunta, S., Kim, J., Holben, B., Levy, R. C., and Liu, Y.: Evaluation of VIIRS, GOCI, and MODIS Collection 6 AOD retrievals against ground sunphotometer observations over East Asia, *Atmos. Chem. Phys.*, 16, 1255-1269, doi:10.5194/acp-16-1255-2016, 2016.

[03] Lee, S., Song, C. H., Park, R. S., Park, M. E., Han, K. M., Kim, J., **Choi, M.**, Ghim, Y. S., and Woo, J.-H.: GIST-PM-Asia v1: development of a numerical system to improve particulate matter forecasts in South Korea using geostationary satellite-retrieved aerosol optical data over Northeast Asia, *Geosci. Model Dev.*, 9, 17-39, doi:10.5194/gmd-9-17-2016, 2016.

[02] Xu, J.-W., Martin, R. V., van Donkelaar, A., Kim, J., **Choi, M.**, Zhang, Q., Geng, G., Liu, Y., Ma, Z., Huang, L., Wang, Y., Chen, H., Che, H., Lin, P., and Lin, N.: Estimating ground-level PM2.5 in eastern China using aerosol optical depth determined from the GOCI satellite instrument, *Atmos. Chem. Phys.*, 15, 13133-13144, doi:10.5194/acp-15-13133-2015, 2015.

[01] Saide, P. E., Kim, J., Song, C. H., **Choi, M.**, Cheng, Y., and Carmichael, G. R.: Assimilation of next generation geostationary aerosol optical depth retrievals to improve air quality simulations, *Geophys. Res. Lett.*, 41, 9188-9196, doi:10.1002/2014GL062089, 2014.

Publications in peer-reviewed Korean domestic journal (*in Korean with English abstract*)

[4] Lee, S., **Choi, M.**, Kim, J., Kim, M., and Lim, H.: Retrieval of Aerosol Optical Depth with High Spatial Resolution using GOCI Data, *Korean J. Remote Sens.*, 33, 961-970, doi:10.7780/kjrs.2017.33.6.1.5, 2017.

[3] Kim, D.-R., Choi, W.-J., **Choi, M.**, Kim, J., Cho, A., Kim, S.-K., Kim, J., and Moon, K.-J.: Analysis of Aerosol Optical Properties for High Particulate Matters and Light Asian Dust in Seoul Using GOCI, *J. Korean Soc. Atmos. Environ.*, 33, 233-240, doi:10.5572/KOSAE.2017.33.3.233, 2017.

[2] Lim, H., **Choi, M.**, Kim, M., Kim, J., and Chan, P. W.: Retrieval and Validation of Aerosol Optical Properties Using Japanese Next Generation Meteorological Satellite, Himawari-8, *Korean J. Remote Sens.*, 32, 681-691, doi:10.7780/kjrs.2016.32.6.12, 2016.

[1] Kang, M., Hong, J.-W, Bong, H., Jang, H. M., **Choi, M.-J.**, Jang, Y. H., Cheon, J. H., and Kim, J.: On estimating interception storage capacity of litter layer at Gwangneung deciduous forest, *Korean J. Agric. For. Meteorol.*, 13, 87-92, doi:10.5532/KJAFM.2011.13.2.087, 2011.

Book chapters

[1] Kim J., Kim M., and **Choi M.**: Monitoring Aerosol Properties in East Asia from Geostationary Orbit: GOCI, MI and GEMS. In: Bouarar I., Wang X., Brasseur G. (eds) Air Pollution in Eastern Asia: An Integrated Perspective. ISSI Scientific Report Series, vol 16. Springer, Cham, doi:10.1007/978-3-319-59489-7_15, 2017.

International conference proceedings

Choi, M., J. Kim, M. Kim, and H. Lim, 2016: Aerosol remote sensing in South Korea using geostationary satellites, *15th CAS-TWAS-WMO Forum / 15th AeroCOM / 4th AeroSAT workshops*, Beijing, China.

Choi, M., J. Kim, and J. Lee, 2016: Aerosol retrieval algorithm using the geostationary ocean color imager and validation during the 2012, 2015, and 2016 Campaigns, *13th Annual Meeting Asia Oceania Geosciences Society*, Beijing, China.

Choi, M. and coauthors, 2016: Geostationary Ocean Color Imager (GOCI) Yonsei aerosol retrieval algorithm (YAER) and validation during DRAGON-NE Asia 2012, *2016 International Radiation Symposium,* Auckland, New Zealand.

Choi, M. and coauthors, 2015: Analysis of aerosol optical properties over Korea during the 2015 MAPS-Seoul campaign using AERONET, GOCI, and MI, *2015 American Geophysical Union Fall Meeting,* San Francisco, CA, USA.

Choi, M., J. Kim, and J. Lee, 2015: GOCI Yonsei aerosol retrievals during 2012 DRAGON-NE Asia and 2015 MAPS-Seoul campaigns, *The 6th Asia/Oceania Meteorological Satellite Users' Conference*, Tokyo, Japan.

Choi, M., J. Kim, and J. Lee, 2015: Diurnal variation of Aerosol optical depth and Angstrom exponent from Geostationary Ocean Color Imager (GOCI) Yonsei Aerosol Retrieval (YAER) algorithm, *2015 European Geosciences Union General Assembly*, Vienna, Austria.

Choi, M., J. Kim, and J. Lee, 2014: Evaluation of GOCI Yonsei aerosol retrieval (YAER) algorithm products over East Asia, *2014 American Geophysical Union Fall Meeting*, San Francisco, CA, USA.

Choi, M., J. Kim, and J. Lee, 2014: Improvement of GOCI Yonsei Aerosol retrieval algorithm and validation during DRAGON campaign: Surface reflectance issue according to land, clear water and turbid water, *The 11th Japan-Korea Workshop on Ocean Color Remote Sensing*, Ansan, Korea.

Choi, M., J. Kim, and J. Lee, 2014: Improvement of AOD retrieval from GOCI over East Asia with obtained from DRAGON-2012 campaign, *2014 International Aerosol Conference*, Busan, Korea.

Choi, M., M. Kim, J. Kim, and J. Lee, 2013: Improvement in AOD retrieval from geostationary measurement over the ASIA with obtained AOP from DRAGON-2012 campaign, *2013 American Geophysical Union Fall Meeting*, San Francisco, CA, USA.

Choi, M., J. Kim, and J. Lee, 2013: Improvement of aerosol retrieval using Geostationary Ocean Color Imager, *2013 European Geosciences Union General Assembly*, Vienna, Austria.