

Curriculum Vitae

Name: PARK, Mijeong

A. Contact information

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B. Educational history

- B.S. in Earth Science Education, Ewha Womans University, Seoul, South Korea, 1995
- M.S. in Atmospheric Sciences, Seoul National University, Seoul, South Korea, 1997
- Ph.D. in Atmospheric Sciences, Seoul National University, Seoul, South Korea, 2004

C. Scientific work experience

- Research and teaching assistant, Seoul National University, 1997-June 2004
- Student visitor in ACD (host – Bill Randel), November 2001 – February 2002
- Postdoctoral fellow in ACD, July 2004 – March 2007
- Project scientist I in ACD, April 2007 – March 2014
- Project scientist II in ACOM, April 2014 – Present

D. Scientific Experience

- The first area of scientific expertise includes transport and dynamics studies of the Asian summer monsoon anticyclone using various satellite and *in-situ* measurements data and outputs from the global chemistry model simulations.
- The second area of scientific expertise includes transport studies in the troposphere and upper troposphere and lower stratosphere using tracers emitted during wildfires and anthropogenic sources.
- Comprehensive data analyses using the long-term measurements of chemical constituents, such as, carbon monoxide, water vapor, ozone, and aerosol optical depth (AOD) from various satellite instruments were used in my research.
- The list of satellites includes, HALOE, AIRS, MLS, ACE-FTS, CALIPSO, IASI, MOPITT, MODIS, TES, SAGE II, SAGE III/ISS, OMI, TROPOMI, GPS, and OSIRIS. *In-situ* measurements data from the various field campaigns led by NCAR (*e.g.*, START08, HIPPO, DC-3, SEAC4RS, and CONTRAST) are analyzed in exploring atmospheric transport processes as well.
- Global chemistry model validation studies are also part of my scientific expertise, which include both long-lived and short-lived chemical species from CESM2, CAM-chem, MOZART-4, WACCM4 simulations.

E. Awards

- AAS (Advances in Atmospheric Sciences) Editor's Award, Advances in Atmospheric Sciences (2016)

- Group Achievement Award for SEAC4RS campaign 2013, NASA (2015)
- Nominated for Outstanding Publication, NCAR (2011)

F. Mentoring

- Wandu Yu (ASP summer program, April-September, 2019) – PhD student from Texas A&M University (Advisor – Prof. Andrew Dessler)

G. List of publications

- Park, M., Randel, W. J., Damedeo, R. P., E. Flittner, D. E., Davis, S. M., and Rosenlof, K. H. (2020). Near-global Variability of Stratospheric Water Vapor observed by SAGE III/ISS, in preparation.
- Buchholz R., Worden, H. M., Park, M., Francis, G., Deeter, M. N., Edwards, D. P., Emmons, L. K., Gaubert, B., Gille, J., Martinez-Alonso, S., Tang, W., Kumar, R., Drummond, J. R., Clerbaux, C., George, M., Coheur, P.-F., Hurtmans, D., Bowman, K. W., Luo, M., Payne, V. H., Worden, J. R., Chin, M., Levy, R. C., Warner, J., Wei, Z., Kulawik, S. S. (2020). Air pollution trends measured from Terra: CO and AOD over industrial, fire-prone, and background regions, *Remote Sensing of Environment*, in revision
- Yu, W., Dessler, A., Park, M., and Jensen, E. (2020). Influence of convection on stratospheric water vapor in the North American Monsoon region. *Atmospheric Chemistry and Physics Discussion*, <https://doi.org/10.5194/acp-2020-405>, under review
- Randel, W., and Park, M. (2019). Diagnosing observed stratospheric water vapor relationships to the cold point tropical tropopause. *Journal of Geophysical Research: Atmospheres*, 124, 7018–7033. <https://doi.org/10.1029/2019JD030648>
- Park, M., Worden, H., Gaubert, B., Tilmes, S., Emmons, L. K., Santee, M. L., Froidevaux, L., Kinnison, D., and Boone, C. D. (2018). Fate of pollution emitted during the 2015 Indonesian Fire Season, *Journal of Geophysical Research: Atmospheres*, in revision.
- Park, M., Randel, W. J., Kinnison, D. E., Bourassa, A. E., Degenstein, D. A., Roth, C. Z., McLinden, C. A., Livesey, N. J., and Santee, M. L. (2017). Variability of stratospheric reactive nitrogen and ozone related to the QBO. *Journal of Geophysical Research: Atmospheres*, 122, 10103–10118. <https://doi.org/10.1002/2017JD027061>
- Tweedy, O. V., Kramarova, N. A., Strahan, S. E., Newman, P. A., Coy, L., Randel, W. J., Park, M., Waugh, D. W., and Frith, S. M. (2017). Response of Trace Gases to the Disrupted 2015–2016 Quasi-Biennial Oscillation. *Atmospheric Chemistry and Physics*, 17, 6813–6823. <https://doi.org/10.5194/acp-17-6813-2017>
- Martínez-Alonso, S., et al. (2014). Comparison of upper tropospheric carbon monoxide from MOPITT, ACE-FTS, and HIPPO-QCLS. *Journal of Geophysical Research: Atmospheres*, 119, 14144–14164. <https://doi.org/10.1002/2014JD022397>
- Park, M., Randel, W. J., Kinnison, D. E., Emmons, L. K., Bernath, P. F., Walker, K. A., Boone, C. D., and Livesey, N. J. (2013). Hydrocarbons in the upper troposphere and lower stratosphere observed from ACE-FTS and comparisons with WACCM. *Journal of Geophysical Research: Atmospheres*, 118, 1964–1980. <https://doi.org/10.1029/2012JD018327>
- Terezschuk, K. A., Moore, D. P., Harrison, J. J., Boone, C. D., Park, M., Remedios, J. J., Randel, W. J., and Bernath, P. F. (2013). Observations of peroxyacetyl nitrate (PAN) in the upper troposphere by the Atmospheric Chemistry Experiment Fourier Transform Spectrometer (ACE-FTS). *Atmospheric Chemistry and Physics*, 13, 5601–5613. <https://doi.org/10.5194/acp-13-5601-2013>
- Randel, W. J., Moyer, E., Park, M., Jensen, E., Bernath, P. F., Walker, K. A., and Boone, C. D.

- (2012). Global variations of HDO and HDO/H₂O ratios in the upper troposphere and lower stratosphere derived from ACE-FTS satellite measurements. *Journal of Geophysical Research: Atmospheres*, 117, D06303, <https://doi.org/10.1029/2011JD016632>
- Randel, W. J., Park, M., Emmons, L. K., Kinnison, D. E., Bernath, P. F., Walker, K. A., Boone, C. D., and Pumphrey, H. (2010). Asian monsoon transport of pollution to the stratosphere. *Science*, 328, 611-613. <https://doi.org/10.1126/science.1182274>
- Gettelman, A., Lauritzen, P., Park, M., and Kay, J. E. (2009). Processes regulating short lived species in the tropical tropopause layer. *Journal of Geophysical Research: Atmospheres*, 114, D13303, <https://doi.org/10.1029/2009JD011785>
- Park, M., Randel, W. J., Emmons, L. K., and Livesey, N. J. (2009). Transport pathways of carbon monoxide in the Asian summer monsoon diagnosed from Model of Ozone and Related Tracers (MOZART). *Journal of Geophysical Research: Atmospheres*, 114, D08303, <https://doi.org/10.1029/2008JD010621>
- Park, M., Randel, W. J., Emmons, L. K., Bernath, P. F., Walker, K. A., and Boone, C. D. (2008). Chemical isolation in the Asian monsoon anticyclone observed in Atmospheric Chemistry Experiment (ACE-FTS) data. *Atmospheric Chemistry and Physics*, 8, 757-764. <https://doi.org/10.5194/acp-8-757-2008>
- Randel, W. J., Park, M., Wu, F. and Livesey, N. (2007). A large annual cycle in ozone above the tropical tropopause linked to the Brewer-Dobson circulation. *Journal of the Atmospheric Sciences*, 64, 4479-4488. <https://doi.org/10.1175/2007JAS2409.1>
- Park, M., Randel, W. J., Gettelman, A., Massie, S. T., and Jiang, J. H. (2007). Transport above the Asian summer monsoon anticyclone inferred from Aura Microwave Limb Sounder tracers. *Journal of Geophysical Research: Atmospheres*, 112, D16309, <https://doi.org/10.1029/2006JD008294>
- Randel, W. J., and Park, M. (2006). Deep convective influence on the Asian summer monsoon anticyclone and associated tracer variability observed with Atmospheric Infrared Sounder (AIRS). *Journal of Geophysical Research: Atmospheres*, 111, D12314, <https://doi.org/10.1029/2005JD006490>
- Park, M., Randel, W. J., Kinnison, D. E., Garcia, R. R., and Choi, W. (2004). Seasonal variation of methane, water vapor, and nitrogen oxides near the tropopause: Satellite observations and model simulations. *Journal of Geophysical Research: Atmospheres*, 109, D03302, <https://doi.org/10.1029/2003JD003706>

H. Proceedings

- Yu, W., Dessler, A., Park, M., and Jensen, E., Influence of convection on stratospheric water vapor in the Northern American monsoon, AUG Fall Meeting, 7-11 December, San Francisco, CA.
- Park, M., Davis, S. M., Randel, W. J., Rosenlof, K. H., Damadeo, R. P., Flittner, D. E., Hurst, D. F., Voemel, H., and Selkirk, H., Recent Variability in Stratospheric Water Vapor observed by the SAGE III/ISS, AUG Fall Meeting, 7-11 December, 2019, San Francisco, CA.
- Park, M., Davis, S. M., Randel, W. J., Rosenlof, K. H., Damadeo, R. P., Flittner, D. E., Hurst, D. F., Voemel, H., and Selkirk, H., SAGE III/ISS water vapor in 2017-2019, 29-30 October, 2019, SAGE III/ISS Science Team Meeting, Hampton, VA.
- Park, M., Worden, H., Emmons, L., Tilmes, S., and Garbert, B., Fate of Pollution Emitted During the 2015 Indonesian Fire Season, AOGS 15th Annual Meeting, 4-8 June, 2018, Honolulu, HI.
- Park, M. and Randel, W. J., Initial evaluations of water vapor retrievals from SAGE III-ISS, SAGE III/ISS Science Team Meeting, 30-31 October, 2018, Hampton, VA.
- Park, M., Worden, H., et al., Fate of pollution emitted during the 2015 Indonesian Fire Season, AGU

- Fall Meeting, 11-15 December, 2017, New Orleans, LA.
- Park, M., Randel, W. J. et al., Variability of Reactive Nitrogen Species and Ozone linked to the Stratospheric QBO, 21st Conference on Atmospheric and Oceanic Fluid Dynamics and the 19th Conference on Middle Atmosphere, 25-29 June, 2017, Portland, OR.
- Park, M., Randel, W. J., Emmons, L. K., Kinnison, D. E., Bernath, P. F., Walker, K. A., Boone, C. D., Santee, M., Wisthaler, A., and Atlas, E., Convective Influence on Short-lived Species in the Tropical Upper Troposphere, AGU Fall Meeting, 12-16 December, 2016, San Francisco, CA.
- Randel, W. J., Park, M., Hitchcock, P., Bourassa, A. E., Degenstein, D. A., and Roth, C. Z., Anomalous QBO behavior in 2016 observed in tropical stratospheric temperature, ozone and water vapor, AGU Fall Meeting, 12-16 December, 2016, San Francisco, CA.
- Park, M., Randel, W. J., Emmons, L. K., Apel, E. C., Kinnison, D. E., and Wisthaler, A., Convective Influence on Methanol (CH₃OH) in the Tropical Upper Troposphere, IGAC 2016, 26-30 September, 2016, Breckenridge, CO.
- Park, M., Randel, W. J., Emmons, L. K., Honomichl, S., Bernath, P. F., Walker, K. A., and Boone, C. D., ACE-FTS observations of short-lived reactive species in the UTLS, Workshop on Dynamics, Transport and Chemistry of the UTLS Asian Monsoon, 7-10 March, 2016, Boulder, CO.
- Park, M., Randel, W. J., Bourassa, A. E., and Roth, C. Z., Variability of Reactive Nitrogen Species linked to the Stratospheric QBO, Joint SCISAT/Odin Science Team Meeting, 19 – 21 October, 2015, Toronto, Canada.
- Park, M., Randel, W. J., Bourassa, A. E., and Roth, C. Z., Variability of Reactive Nitrogen Species linked to the Stratospheric QBO, Noble Seminar Series, University of Toronto, 16 October, 2015, Toronto, Canada (invited).
- Park, M., L. K. Emmons, and C. Wiedinmyer (2015). Comparison and Evaluation of Fire Emissions in a Global Chemistry Model with SEAC4RS Observations, SEAC4RS Science Team Meeting, 28 April-1 May, 2015, Pasadena, CA.
- Park, M. et al., Global Trends of CHClF₂ (HCFC-22) and CCl₃F (CFC-11) estimated from ACE-FTS, HIPPO and WACCM4, SPARC 5th General Assembly, 12-17 January, 2014, Queenstown, New Zealand.
- Park, M. et al., Hydrocarbons in the UTLS from ACE-FTS and WACCM4, ACE /SAGE III-ISS International Workshop, 12-17 October, 2012, Norfolk, VA.
- Park, M. et al., Global variability of hydrocarbons in the UTLS observed from ACE-FTS and comparisons with WACCM, IGAC/SPARC Global Chemistry-Climate Modeling and Evaluation Workshop, 21-24 May, 2012, Davos, Switzerland.
- Park, M. et al., Transport pathways of chemical tracers in the Asian monsoon anticyclone, International Workshop on Asian Summer Monsoon and Its Role in Global Stratosphere-Troposphere Exchange (ASM-STE), 21-23 July, 2010, Lhasa, China (invitation only).
- Park, M., Randel, W. J., Emmons, L. K., and Kinnison, D. E., Seasonal cycles of hydrocarbons in the Tropical UTLS, AGU Fall meeting, 14-18 December, 2009, San Francisco, CA.
- Park, M., Transport and chemistry in the Asian Monsoon Anticyclone, ATOC Seminar, University of Colorado, 24 October, 2008, Boulder, CO (invited).
- Randel, W. J., Park, M., Kinnison, D. E., Emmons, L. K., Using ACE tropospheric hydrocarbons to diagnose circulation in the UTLS, AGU Fall meeting, 15-19 December, 2008, San Francisco, CA (invited).
- Park, M., Randel, W. J., and Emmons, L. K., Transport pathways in the Asian Monsoon Anticyclone diagnosed from Spaceborne Measurements and Model Simulations, 4th SPARC General Assembly, 31 August – 5 September, 2008, Bologna, Italy.

- Park, M., Randel, W. J., Emmons, L. K., Bernath, P. F., Walker, K. A., and Boone, C. D., Chemical Isolation in the Asian Monsoon Anticyclone observed in Atmospheric Chemistry Experiment (ACE-FTS) data, HIRDLS science team meeting, 30-31 January, 2008, Boulder, CO.
- Park, M., Randel, W. J., Emmons, L. K., Bernath, P. F., Walker, K. A., and Boone, C. D., Chemical Isolation in the Asian Monsoon Anticyclone observed in Atmospheric Chemistry Experiment (ACE-FTS) data, AGU Fall meeting, 10-14 December, 2006, San Francisco, CA.
- Park, M., Randel, W. J., Gettelman, A., and Massie, S. T., Transport Above the Asian Summer Monsoon Anticyclone inferred from Aura MLS Tracers, AGU Fall meeting, 11-15 December, 2006, San Francisco, CA.
- Park, M., Randel, W. J., Gettelman, A., and Massie, S. T., Transport above the Asian summer monsoon anticyclone inferred from Aura MLS tracers, EOS Aura Science Team meeting, 11-15 September, 2006, Boulder, CO.
- Park, M., and Randel, W. J., Deep convective influence on the Asian summer monsoon and associated tracer variability observed with AIRS, CARGESE International School (COST ACTION 723), Upper Troposphere and Lower Stratosphere, 3-15 October, 2005, Institut d'Etudes Scientifiques de Cargese, Corsica, France.
- Park, M., and Randel, W. J., Deep convective influence on the Asian summer monsoon and associated tracer variability observed with AIRS, 13th Conference on Middle Atmosphere, 13-17 June, 2005, Cambridge, MA.
- Park, M. and Randel, W. J., Using AIRS Water Vapor and Ozone Data to Study UTLS Transport in the South Asian Monsoon Region, AGU Fall meeting, 13-17 December, 2004, San Francisco, CA.
- Park, M., Randel, W. J., Kinnison, D. E., Garcia, R. R., and Choi, W., Seasonal variations in chemical tracers in the upper troposphere/lower stratosphere based on HALOE observations and model simulations, IUGG2003, 30 June-11 July, 2003, Sapporo, Japan (invited talk).