Mingyu Park

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EDUCATION

08/2016 – 12/2021 **Ph.D. in Meteorology and Atmospheric Science**
Department of Meteorology and Atmospheric Science, Pennsylvania State University
Supervisor: Prof. Sukyoung Lee

03/2010 – 02/2016 **B.Sc. in Atmospheric Science (Summa Cum Laude)**
School of Earth and Environmental Science, Seoul National University, Korea
Supervisor: Prof. Seok-woo Son
(Engaged in the Army for military service Jun 2012 to Mar 2014)

RESEARCH EXPERIENCE

Atmospheric and Oceanic Sciences Program, Princeton University, USA

Postdoctoral Research Associate **Jan 2022 to Present**

- Research topics: Seasonal-to-Decadal variability prediction, Stationary Wave and Storm Track Dynamics, Atmospheric Blocking, Climate modeling, Hydroclimate variability, Climate extremes

Department of Meteorology and Atmospheric Science, Pennsylvania State University, USA

Research Assistant **Aug 2016 to Dec 2021**

- Research topics: Large-scale atmospheric dynamics, Storm track dynamics, Climate modeling, Tropical-extratropical interactions.
- Research interests: 1. Impacts of planetary-scale eddies on storm track intensity and regional extreme events. 2. Investigation of climate model biases in the representation of Northern Hemisphere stationary wave.
- Participated in **Rossbypalooza (**Jun 2018). Climate modeling summer school program at the University of Chicago. Research topic: Barotropic eddy saturation in a two-layer QGPV model

PUBLICATION (Peer-reviewed Journal Article)

- S. Lee, P. R. Bannon, **M. Park**, and J. P. Clark, 2023: Zonal Contrasts of the Tropical Pacific Climate Predicted by a Global Constraint, *submitted.*
- **Park, M.**, N. C. Johnson, T. L. Delworth, 2023: The Driving of North American Climate Extremes by North Pacific Stationary-transient Wave Interference, *submitted.*
- H-C Kim, S. Son, C Jo, Y. Kim, **M. Park**, Y-G Park, and J. Ryu, 2023: Spatio-temporal structures of satellite-derived water quality indicators along the Korean South Coast, *Environment International*, https://doi.org/10.1016/j.envint.2023.108083
- **Park, M.**, and S. Lee, 2022: On the Causes of Synoptic-Scale Eddy Heat Flux Decline, *Geophys. Res. Lett.,* https://doi.org/10.1029/2022GL100963
- **Park, M.**, and S. Lee, 2022: Which is the More Effective Driver of the Poleward Eddy Heat Flux: Zonal Gradient of Tropical Convective Heating or Equator-To-Pole Temperature Gradient? *J. Atmos. Sci.,* https://doi.org/10.1175/JAS-D-21-0262.1
- **Park, M.**, and S. Lee, 2021: The role of planetary-scale eddies on the recent isentropic slope trend during boreal winter. *J. Atmos. Sci.* https://doi.org/10.1175/JAS-D-20-0348.1
- **Park, M.**, and S. Lee, 2021: Is the stationary wave bias in CMIP5 simulations driven by latent heating biases? *Geophys. Res. Lett.,* **48**, e2020GL091678. https://doi.org/10.1029/2020GL091678

- **Park, M.**, and S. Lee, 2020: A mechanism for the midwinter minimum in North Pacific storm-track intensity from a global perspective. *Geophys. Res. Lett.*, **47**, e2019GL086052. https://doi.org/10.1029/2019GL086052
- **Park, M.**, and S. Lee, 2019: Relationship between Tropical and Extratropical Diabatic Heating and their Impact on Stationary-transient Wave Interference, *J. Atmos. Sci*., **76**, 2617-2633. https://doi.org/10.1175/JAS-D-18-0371.1
- **Park, M.**, Choi, Y., and S.-W. Son, 2016: The Impact of Satellite Observations on Large-scale Atmospheric Circulation in the Reanalysis Data: A comparison Between JRA-55 and JRA-55C, *Atmosphere*, **26(4)**, 523-540, Korean Meteorological Society, https://doi.org/10.14191/Atmos.2016.26.4.523

TEACHING EXPERIENCE

Teaching Assistant, *Pennsylvania State University, United States of America*

- 2017 (Fall), 2021 (Fall) METEO 421: Atmospheric Dynamics
- 2019 (Spring) METEO 470: Climate Dynamics

ORAL AND POSTER PRESENTATIONS

< Oral >

- **Park, M.**, and N. C. Johnson, 2023, Changes in the North Pacific Stationary-Transient Wave Interference and Downstream Regional Impacts on Subseasonal-to-Seasonal Timescale, Japan Geoscience Union (JpGU), Chiba, Japan.
- **Park, M.**, 2023, Changes in the North Pacific Stationary-Transient Wave Interference and Downstream Impacts on Regional Climate Variability, IBS Center for Climate Physics (ICCP), Busan, Korea.
- **Park, M.**, 2023, The driving of North American climate extremes by North Pacific stationary-transient wave interference (Department seminar), Yonsei University, Seoul, Korea.
- **Park, M.,** and N. C. Johnson**,** 2023, The role of tropical air-sea interactions in modulating North Pacific stationary-transient eddy interaction and North American climate extremes, USCMS9 Topical Workshop on the oceans' role on air – sea coupled climate interactions, GFDL, NJ.
- **Park, M.**, S. B. Feldstein, and N. C. Johnson, 2023, The Role of the North Pacific Latent Heating in Driving the Pacific-North American Teleconnection Pattern and Surface Temperature Anomalies during Boreal Winter, 60th KMS Spring Meeting, Busan, Korea.
- **Park, M.**, 2023, On the cause of synoptic-scale eddy heat flux decline (Invited talk for department colloquium), Stony Brook University, NY.
- **Park, M.**, 2023, AM4 stationary waves and troposphere-stratosphere coupling, Stratosphere subgroup for AM5 development, GFDL.
- **Park, M.**, and N. C. Johnson, 2023, Future changes in winter stationary waves and their regional impacts in the SPEAR model, GFDL internal seminar
- **Park, M.**, and N. C. Johnson, 2023, Changes in the North Pacific Stationary-Transient Wave Interference and Downstream Impacts on Regional Climate Variability, 103rd AMS Annual Meeting, Denver, CO.
- **Park, M.**, and S. B. Feldstein 2023, The Role of the North Pacific Latent Heating in Driving the Pacific-North American Teleconnection Pattern and Surface Temperature Anomalies during Boreal Winter, 103rd AMS Annual Meeting, Denver, CO.
- **Park, M.**, 2022, Impacts of The Heating–Circulation Relay Mechanism on Stationary Wave Dynamics and Teleconnections (Invited talk for department colloquium), Ewha Women University, Seoul, Korea

- **Park, M.**, and S. Lee, 2021, The Role of Equator-To-Pole Temperature Gradients and Tropical Convective Heating in Driving Poleward Eddy Heat Flux, 2021 AGU Fall Meeting, New Orleans, LA.
- **Park, M.**, and S. Lee, 2021, Relationship Between Stationary Wave Bias and Precipitation Bias in CMIP5 Simulations, 101st AMS Annual Meeting, Virtual conference.
- **Park, M.**, and S. Lee, 2021, Impact of planetary-scale eddies on the recent trend of the extratropical isentropic slope and Arctic warming during boreal winter, 101st AMS Annual Meeting, Virtual conference.
- **Park, M.**, 2020, Impact of climate model bias on future projections: old biases die hard, Earth System Science Centre seminar, Pennsylvania State University, PA.
- **Park, M.,** and S. Lee, 2020, Impacts of the Planetary-Scale Eddies on the Midwinter Suppression in North Pacific Storm Track Intensity, 100th AMS Annual Meeting, Boston, MA.
- **Park, M.,** and S. Lee, 2019, Impacts of the Planetary-Scale Eddies on the Midwinter Suppression in North Pacific Storm Track Intensity, 22nd Atmospheric and Oceanic Fluid Dynamics Conference, Portland, Maine.
- **Park, M.,** 2019, Storm track shifts, why so serious?, Department seminar, Pennsylvania State University, PA.
- **Park, M.,** and S. Lee, 2019, Impacts of Tropical and Extratropical Diabatic Heating on Stationary Wave Forcing and Arctic Warming, 99th AMS Annual Meeting, Phoenix, AZ
- **Park, M.,** and S. Lee, 2019, Storm Track Shifts Induced by Regional Stationary Wave Interference, 99th AMS Annual Meeting, Phoenix, AZ

< Poster >

- **Park, M.**, and N. C. Johnson, 2022, Changes in the North Pacific Stationary-Transient Wave Interference and Downstream Impacts on Regional Climate Variability, 23rd Atmospheric and Oceanic Fluid Dynamics Conference, Breckenridge, CO
- **Park, M.**, S. Lee, and N. C. Johnson, 2022, The North Atlantic Storm Track Shifts Induced by Regional Stationary-Transient Wave Interference and Upstream Diabatic Heating, The 2022 Storm-track workshop, Oleron, France
- **Park, M.,** and S. Lee, 2020, Impact of planetary-scale eddies on the recent trend of the extratropical isentropic slope and Arctic warming during boreal winter, 2020 AGU Fall Meeting, Virtual conference.
- **Park, M.,** and S. Lee, 2019, The North Atlantic Storm Track Shifts Induced by Stationary Wave Interference, 22nd Atmospheric and Oceanic Fluid Dynamics Conference, Portland, Maine.
- **Park, M.,** and S. Lee, 2018, Impacts of Tropical and Extratropical Diabatic Heating on Stationary Wave Forcing and Arctic Warming, Centennial AGU Fall Meeting, Washington, D.C.

GRANTS AND AWARDS

- Hans Neuberger Award (Best Teaching Award), Pennsylvania State University, 2022
- Student Travel Grant, 99th AMS Annual Meeting, Phoenix, AZ, 2019

Academic Fellowship

- Dean's list - School of Earth and Environmental Science Spring 2014 to Fall 2015
- Best Academic Performance in School of Earth and Environmental Science Year 2014

Scholarship

- National Science and Engineering Scholarship Spring 2014 to Fall 2015

PROFESSIONAL LEADERSHIP

Session Convener at the AGU Fall Meeting: Jetstream Dynamics, Atmospheric Rossby Waves, and Associated Extreme Events, 2023

REVIEWER FOR INTERNATIONAL JOURNALS

- Science Advances, Journal of Climate, Geophysical Research Letter, Journal of Geophysical Research: Atmospheres, Journal of International Climatology, Advances in Atmospheric Science, Atmospheric Research

OUTREACH AND DIVERSITY

- BCC meets Climate Scientists, Oct 2022, Princeton AOS Outreach at Bronx Community College, Bronx, New York.
- Climate Science Outreach event for Students at University of Maryland Baltimore County, Nov 2022, Virtual.
- 16th Annual Monmouth Junction Elementary School Science Fair, Feb 2023, New Jersey.
- Princeton Plasma Physics Laboratory Young Women's Conference in STEM, Mar 2023, New Jersey.