

CV - Hyunho Lee

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Associate Professor

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Education

Ph.D. in Atmospheric Science, 2016, School of Earth and Environmental Sciences, Seoul National University, Korea.

Thesis title: Effects of in-cloud turbulence on clouds and precipitation

(advisor: Prof. Jong-Jin Baik)

M.S. in Atmospheric Science, 2011, School of Earth and Environmental Sciences, Seoul National University, Korea.

Thesis title: Impacts of vertical wind shear on cloud-aerosol interactions

(advisor: Prof. Jong-Jin Baik)

B.S. in Physics, 2005, Department of Physics, KAIST, Korea.

Careers

2019.9. – current: Assistant/associate professor, Department of Atmospheric Science, Kongju National University, Korea

2017.6. – 2019.7: Postdoctoral research scientist, Center for Climate Systems Research, Columbia University and NASA Goddard Institute for Space Studies, U.S.A. (PI: Dr. Ann M. Fridlind and Dr. Andrew S. Ackerman)

2016.3. – 2017.5.: Postdoctoral researcher, The Research Institute of Basic Sciences, Seoul National University, Korea (PI: Prof. Jong-Jin Baik)

2016.3. – 2016.8.: Part-time lecturer, Kongju National University, Korea

2005.9. – 2008.6.: Weather staff officer, Republic of Korea Air Force

Research Interests

Cloud microphysics modeling

Aerosol and turbulence impacts on clouds and precipitation

Physics and dynamics of stratocumulus and shallow convection

Ice microphysics

Heavy precipitation

Awards

2021.2.4: Excellent lecturer (Kongju National University “students”)

2016.10.31: Award for outstanding dissertation (The Korean Meteorological Society)

Publications (accepted, in press, published)

30. Kim, N. G., S. B. Jeong, H. C. Jin, J. Lee, K.-H. Kim, S. Kim, Y. Park, W. Choi, K.-H. Kwak, H. Lee, G. Kang, C. Kim, S.-H. Woo, S. Lee, W. Kim, K. Ahn, K.-Y. Lee, and S.-B. Lee, 2023: Spatial and PMF analysis of particle size distributions simultaneously measured at four locations at the roadside of highways. *Science of the Total Environment*, **893**, 164892.
29. Lee, H., G. Ganbat, H.-G. Jin, J. M. Seo, S. Moon, H. Bok, and J.-J. Baik, 2023: Effects of Lake Baikal on summertime precipitation climatology over the lake surface. *Geophysical Research Letters*, **50**, e2023GL103426.
28. Jin, H.-G., Lee, H., and J.-J. Baik. 2022: Large-eddy simulations of drizzling stratocumulus clouds using a turbulence-aware autoconversion parameterization. *Quarterly Journal of the Royal Meteorological Society*, **148(749)**, 3885–3900.
27. Jin, H.-G., J.-J. Baik, H. Lee, and T. Ahmed, 2022: A new warm-cloud collection and breakup parameterization scheme for weather and climate models. *Atmospheric Research*, **272**, 106145.
26. Jin, H.-G., H. Lee, and J.-J. Baik, 2022: Characteristics and possible mechanisms of diurnal variation of summertime precipitation in South Korea. *Theoretical and Applied Climatology*, **148(1-2)**, 551–568.
25. Lee, H., A. M. Fridlind, and A. S. Ackerman, 2021: An evaluation of size-resolved cloud microphysics scheme numerics for use with radar observations. Part II: Condensation and evaporation. *Journal of the Atmospheric Sciences*, **78(5)**, 1629–1645.
24. Seo, J. M., H. Lee, S. Moon, and J.-J. Baik, 2020: How mountain geometry affects aerosol-cloud-precipitation interactions: Part I. Shallow convective clouds. *Journal of the Meteorological Society of Japan*, **98(1)**, 43–60.

23. Jin, H.-G., H. Lee, and J.-J. Baik, 2019: A new parameterization of the accretion of cloud water by graupel and its evaluation through cloud and precipitation simulations. *Journal of the Atmospheric Sciences*, **76(2)**, 381–400.
22. Lee, H., A. M. Fridlind, and A. S. Ackerman, 2019: An evaluation of size-resolved cloud microphysics scheme numerics for use with radar observations. Part I: Collision-coalescence. *Journal of the Atmospheric Sciences*, **76(1)**, 247–263.
21. Lee, H., and J.-J. Baik, 2018: A comparative study of bin and bulk microphysics in simulating a heavy precipitation case. *Atmosphere (MDPI)*, **9(12)**, 475.
20. Lkhamjav, J., H. Lee, Y.-L. Jeon, J. M. Seo, and J.-J. Baik, 2018: Impacts of aerosol loading on surface precipitation from deep convective systems over north central Mongolia. *Asia-Pacific Journal of Atmospheric Sciences*, **54(4)**, 587–598.
19. Jeon, Y.-L., S. Moon, H. Lee, J.-J. Baik, and J. Lkhamjav, 2018: Non-monotonic dependencies of cloud microphysics and precipitation on aerosol loading in deep convective clouds: A case study using the WRF model with bin microphysics. *Atmosphere (MDPI)*, **9(11)**, 434.
18. Lee, H., J.-J. Baik, and A. P. Khain, 2018: Turbulence effects on precipitation and cloud radiative properties in shallow cumulus: An investigation using the WRF-LES model coupled with bin microphysics. *Asia-Pacific Journal of Atmospheric Sciences*, **54(3)**, 457–471.
17. Lkhamjav, J., Y.-L. Jeon, H. Lee, J.-J. Baik, and J. M. Seo, 2017: Evaluation of the improved quasi-stochastic collection model through precipitation prediction over north central Mongolia. *Journal of Geophysical Research: Atmospheres*, **122(24)**, 13404–13419.
16. Lkhamjav, J., H.-G. Jin, H. Lee, and J.-J. Baik, 2017: A hail climatology in Mongolia. *Asia-Pacific Journal of Atmospheric Sciences*, **53(4)**, 501–509.
15. Lee, H., and J.-J. Baik, 2017: A physically based autoconversion parameterization. *Journal of the Atmospheric Sciences*, **74(5)**, 1599–1616.
14. Jin, H.-G., H. Lee, J. Lkhamjav, and J.-J. Baik, 2017: A hail climatology in South Korea. *Atmospheric Research*, **188**, 90–99.
13. Lkhamjav, J., H. Lee, Y.-L. Jeon, and J.-J. Baik, 2017: Examination of an improved quasi-stochastic model for the collisional growth of drops. *Journal of Geophysical Research: Atmospheres*, **122(3)**, 1713–1724.
12. Lee, H., and J.-J. Baik, 2016: Effects of turbulence-induced collision enhancement on heavy precipitation: The 21 September 2010 case over the Korean Peninsula. *Journal of Geophysical Research: Atmospheres*, **121(20)**, 12319–12342.

11. Lee, H., and J.-J. Baik, 2016: Effects of uncertainty in graupel terminal velocity on cloud simulation. *Atmosphere* (Korean Meteorological Society), **26(3)**, 435–444. (in Korean with English abstract)
10. Lee, S.-H., H. Lee, S.-B. Park, J.-W. Woo, D.-I. Lee, and J.-J. Baik, 2016: Impacts of in-canyon vegetation and canyon aspect ratio on the thermal environment of street canyons. *Quarterly Journal of the Royal Meteorological Society*, **142(699)**, 2562–2578.
9. Park, J., H. Lee, and J.-J. Baik, 2016: Periodic and chaotic dynamics of the Ehrhard-Müller system. *International Journal of Bifurcation and Chaos*, **26(6)**, 1630015.
8. Park, J., B.-S. Han, H. Lee, Y.-L. Jeon, and J.-J. Baik, 2016: Stability and periodicity of high-order Lorenz-Stenflo equations. *Physica Scripta*, **91(6)**, 065202.
7. Park, J., H. Lee, Y.-L. Jeon, and J.-J. Baik, 2015: Periodicity of the Lorenz-Stenflo equations. *Physica Scripta*, **90(6)**, 065201.
6. Lee, H., J.-J. Baik, and J.-Y. Han, 2015: Effects of turbulence on warm clouds and precipitation with various aerosol concentrations. *Atmospheric Research*, **153**, 19–33.
5. Park, S.-B., K.-H. Kwak, B.-S. Han, G. Ganbat, H. Lee, J. M. Seo, S.-H. Lee, and J.-J. Baik, 2015: Measurements of turbulent flow and ozone at rooftop and sidewalk sites in a high-rise building area. *SOLA*, **11**, 1–4.
4. Lee, H., J.-J. Baik, and J.-Y. Han, 2014: Effects of turbulence on mixed-phase deep convective clouds under different basic-state winds and aerosol concentrations. *Journal of Geophysical Research: Atmospheres*, **119(23)**, 13506–13525.
3. Han, J.-Y., J.-J. Baik, and H. Lee, 2014: Urban impacts on precipitation. *Asia-Pacific Journal of Atmospheric Sciences*, **50(1)**, 17–30.
2. Woo, S., J.-J. Baik, H. Lee, J.-Y. Han, and J. M. Seo, 2013: Nonhydrostatic effects on convectively forced mesoscale flows. *Atmosphere* (Korean Meteorological Society), **23(3)**, 293–305. (in Korean with English abstract)
1. Lee, H., J.-J. Baik, and J.-Y. Han, 2013: Sensitivity of numerical solutions to time step in a nonlinear atmospheric model. *Journal of the Korean Earth Science Society*, **34(1)**, 51–58. (in Korean with English abstract)