Jong-Jin Baik

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Education

Ph.D. in Atmospheric Science, 1989, Department of Marine, Earth and Atmospheric Sciences, North Carolina State University, U.S.A. (minor: Mathematics)
Thesis title: Tropical cyclone simulations with the Betts convective adjustment scheme
(advisors: Mark DeMaria and Sethu Raman)

M.S. in Meteorology, 1986, Department of Meteorology, Seoul National University, Korea
Thesis title: Evaporation associated with polar air outbreaks over the Yellow Sea
(advisor: Sung Sam Kim)

B.S. in Earth Science Education, 1984, Department of Earth Science Education, Seoul National University, Korea

Professional Careers

2007 –	Professor, School of Earth and Environmental Sciences, Seoul National University, Korea Also affiliated with Interdisciplinary Program of Computational Science and Technology, Seoul National University, Korea since 2017
2011	Visiting Professor, Graduate School of Wind Energy, Pohang University of Science and Technology (POSTECH), Korea
2003 – 2007	Associate Professor, School of Earth and Environmental Sciences, Seoul National University, Korea
2001 – 2003	BK21 Research Associate Professor, School of Earth and Environmental Sciences, Seoul National University, Korea
1995 – 2001	Associate Professor, Department of Environmental Science and Engineering, Gwangju Institute of Science and Technology, Korea
2000	Senior Visitor, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, U.K.
1994 – 1995	Visiting Associate Professor, Center for Climate System Research, University of Tokyo, Japan
1993 – 1994	Senior Scientist, Global Environment Laboratory, Yonsei University, Korea
1991 – 1993	USRA Research Scientist, Severe Storms Branch, NASA/Goddard Space Flight Center, U.S.A.
1990 – 1991	Postdoctoral Fellow, Department of Marine, Earth and Atmospheric Sciences, North Carolina State University, U.S.A.

1990 Visiting Scientist, Hurricane Research Division, Atlantic Oceanographic and Meteorological Laboratory/NOAA, U.S.A.

Teaching Courses

Atmospheric thermodynamics (undergraduate course)
Atmospheric prediction and lab. (undergraduate course)
Atmospheric physics 2 (undergraduate course)
Mesoscale meteorology (graduate course)
Cloud physics (graduate course)

Current Students

advising one M.S. student, one Ph.D. student, and two postdocs

Ph.D. Graduates Supervised

Jae-Jin Kim, 2001, Gwangju Institute of Science and Technology
Thesis title: Flow and pollutant dispersion in urban street canyons
Affiliation: Professor, Department of Environmental Atmospheric Sciences, Pukyong National University, Korea
Sang-Hyun Lee, 2008, Seoul National University
Thesis title: Development of a vegetated urban canopy model and its application to urban heat island simulations
Affiliation: Professor, Department of Atmospheric Science, Kongju National University, Korea
Ji-Young Han, 2010, Seoul National University
Thesis title: Convectively forced mesoscale flows and aerosol-cloud interactions
Affiliation: Senior research scientist, Korea Institute of Atmospheric Prediction Systems, Korea
Young-Hee Ryu, 2012, Seoul National University
Thesis title: Urban impacts on local circulation and air quality
Affiliation: Associate professor, Department of Atmospheric Sciences, Yonsei University, Korea
Seung-Bu Park, 2013, Seoul National University
Thesis title: Turbulence coherent structures and scalar dispersion over heated urban surfaces
Affiliation: Associate professor, Department of Environmental Engineering, University of Seoul, Korea
Kyung-Hwan Kwak, 2014, Seoul National University
Thesis title: Microscale flow, gas-phase chemistry, and dispersion in urban areas
Affiliation: Associate professor, School of Natural Resources and Environmental Science, Kangwon National University, Korea
Gantuya Ganbat, 2015, Seoul National University
Thesis title: Local circulations in mountainous urban areas

Affiliation: Assistant professor, Faculty of Raw Materials and Environmental Engineering, German-Mongolia Institute for Resources and Technology, Mongolia

Hyunho Lee, 2016, Seoul National University

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

Affiliation: Associate professor, Department of Atmospheric Science, Kongju National University, Korea

Jaemyeong Mango Seo, 2018, Seoul National University

Thesis title: Dynamics and modeling of thermally and orographically forced flows and convection

Affiliation: Postdoctoral fellow, Los Alamos National Laboratory, U.S.A.

Jambajamts Lkhamjav, 2018, Seoul National University

Thesis title: A quasi-stochastic collection model and cloud and precipitation modeling

Affiliation: Associate professor, Department of Applied Mathematics, National University of Mongolia, Mongolia

Beom-Soon Han, 2019, Seoul National University

Thesis title: Large-eddy simulations of urban turbulence, boundary layer, and air quality

Affiliation: Assistant professor, Department of Environmental Engineering, Inha University, Korea

Han-Gyul Jin, 2021, Seoul National University

Thesis title: Development of new accretion parameterizations and their applications to cloud and precipitation modeling

Affiliation: Assistant professor, Department of Atmospheric Sciences, Pusan National University, Korea

Sungju Moon, 2021, Seoul National University

Thesis title: High-dimensional Lorenz systems, atmospheric predictability, and data Assimilation

Affiliation: Assistant professor, Department of Data, Media, and Design, Nevada State University, U.S.A.

Tanvir Ahmed, 2021, Seoul National University

Thesis title: Observed characteristics and modeling of monsoonal precipitation in Bangladesh and northeast India

Affiliation: Associate professor, Department of Physics, Shahjalal University of Science and Technology, Bangladesh

Jihoon Shin, 2023, Seoul National University

Thesis title: Development of a stochastic convection parameterization and its application to climate modeling

Affiliation: Assistant professor, Department of Environmental Atmospheric Sciences, Pukyong National University, Korea

Joohyun Lee, 2023, Seoul National University

Thesis title: Cloud and precipitation studies using disdrometer observations and models

Affiliation: Postdoctoral fellow, Department of Atmospheric Science, Kongju National University, Korea

Seong-Ho Hong, 2025, Seoul National University

Thesis title: Observed characteristics and numerical modeling of precipitation in urban areas

Affiliation: Postdoctoral fellow, Research Institute of Basic Sciences, Seoul National University, Korea

Abeda Tabassum, 2025, Seoul National University

Thesis title: Exploring urban heat islands, local winds, and urban heat mitigation in Dhaka, Bangladesh

Affiliation: Postdoctoral fellow, Research Institute of Basic Sciences, Seoul National University, Korea

Research Interest

Cloud microphysics
Numerical precipitation prediction
Thermally forced mesoscale flows
Urban heat islands
Urban flow, convection, and dispersion
Urban impacts on weather and air quality
Nonlinear dynamics and chaos of thermal convection

Honors and Awards

Woonjai Award, Korea Meteorological Society, 2024
Teaching Award, College of Natural Sciences, Seoul National University, 2008, 2016
Max Eaton Prize, American Meteorological Society, 1989
Top honor graduate, Department of Earth Science Education, Seoul National University, 1984

Professional Activities and Services (some listed)

Director of Atmospheric Environment Research Institute, Seoul National University, 2014-2016
Chair of Atmospheric Sciences Program, School of Earth and Environmental Sciences, Seoul National University, 2009-2011
Associate Director of School of Earth and Environmental Sciences BK21 Program, Seoul National University, 2009-2011
Organizer of Workshop on Local Meteorology, Korea, 2008, 2010
Co-organizer of The University Allied Workshop on Climate and Environmental Changes, Korea, 2009
Co-convenor of International Workshop on Climate Environment System, Korea, 2008
Executive Director of Climate Environment System Research Center (CES), Seoul National University, 2003-2009
Co-convenor of Typhoons and Mesoscale Weather Session, Asia Oceania Geosciences Society, Singapore, 2004, 2005
Co-organizer of The University Allied Workshop on Climate and Environmental Modeling, Korea, 2005

Reviewer of papers submitted to: Journal of Applied Meteorology and Climatology, Journal of the Atmospheric Sciences, Atmospheric Environment, Environmental Fluid Mechanics, Physics of Fluids, Theoretical and Applied Climatology, Journal of Wind Engineering and Industrial Aerodynamics, Theoretical and Computational Fluid Mechanics, Computer Methods in Applied Mechanics and Engineering, Wind and Structures, Journal of the Air and Waste Management Association, Journal of Geophysical Research, Bulletin of the American Meteorological Society, Air Quality, Atmosphere and Heath, Journal of Environmental Quality, International Journal of Heat and Fluid Flow, Computers and Fluids, Quarterly Journal of the Royal Meteorological Society, Environment and Planning B, Building Simulation: An International Journal, Journal of Oceanography, Asia-Pacific Journal of Atmospheric Sciences, Advances in Atmospheric Sciences, International Journal of Environmental Technology and Management, Environmental Science and Pollution Research, Atmospheric Chemistry and Physics, Monthly Weather Review, Meteorology and Atmospheric Physics, Boundary-Layer Meteorology, CLEAN - Soil, Air, Water, International Journal of Geosciences, Urban Forestry & Urban Greening, Urban Climate, Remote Sensing, Atmospheric Pollution Research, Environmental Pollution, Advances in Meteorology, Aerosol and Air Quality Research, Scientific Reports, Meteorological Applications, Air Quality, Atmosphere and Health, Journal of Climate

Editorial Board: Asia-Pacific Journal of Atmospheric Sciences, editor, 2011-2015
Atmosphere, Korean Meteorological Society, chief editor, 2009

Publications

210. Park, K., J.-J. Baik, and H.-G. Jin, 2025: Investigation into the causes of surface urban heat islands using an urban canopy model: Comparison between bulk and facet approaches. Theoretical and Applied Climatology, 156, 442.

209. Hong, S.-H., and J.-J. Baik, 2025: Urban impacts on a cold-frontal precipitation system passing over the Seoul metropolitan area: An ensemble simulation study. Atmospheric Research, 325, 108260.

208. Jin, H.-G., and J.-J. Baik, 2025: Impacts of multi-physics ensemble on heavy precipitation prediction in South Korea: Focusing on the performance of ensemble mean. Meteorology and Atmospheric Physics, 137, 35.

207. Tabassum, A., K. Park, S.-H. Hong, J.-J. Baik, and B.-S. Han, 2025: Impacts of cool roofs on urban heat island and air quality in Dhaka, Bangladesh: A case modeling study during a heat wave. Atmospheric Pollution Research, 16, 102549.

206. Kim, D.-H., B.-S. Han, K. Park, S.-H. Hong, and J.-J. Baik, 2025: Large-eddy simulations of the effects of roof surface heat flux on turbulent coherent structure and pollutant dispersion. Journal of Korean Society for Atmospheric Environment, 41, 343–359.

205. Hong, S.-H., J. Lee, and J.-J. Baik, 2025: Microphysical characteristics of snowfall in Seoul, South Korea and their changes with meteorological conditions. Asia-Pacific Journal of Atmospheric Sciences, 61, 3.

204. Shin, J., and J.-J. Baik, 2025: Lagrangian stochastic modeling of unstable atmospheric surface layer. Boundary-Layer Meteorology, 191, 7.

203. Tabassum, A., S.-H. Hong, K. Park, and J.-J. Baik, 2025: Simulating urban heat islands and local winds in the Dhaka metropolitan area, Bangladesh. Urban Climate, 59, 102284.

202. Kim, D.-H., B.-S. Han, K. Park, S.-H. Hong, and J.-J. Baik, 2024: Effects of increase in surface roughness length of building roof, building wall, and road on pollutant dispersion in urban street canyons: Large-eddy simulations. Journal of Korean Society for Atmospheric Environment, 40, 662–679.

201. Park, K., J.-J. Baik, H.-G. Jin, and A. Tabassum, 2024: Changes in urban heat island intensity with background temperature and humidity and their associations with near-surface thermodynamic processes. Urban Climate, 58, 102191.

200. Hong, S.-H., H.-G. Jin, J.-Y. Han, and J.-J. Baik, 2024: Initiation and evolution of urban-induced precipitation under different background wind speeds: Roles of urban breeze circulation and cold pool. Theoretical and Applied Climatology, 155, 9457–9470.

199. Kim, D.-H., B.-S. Han, S.-H. Hong, K. Park, and J.-J. Baik, 2024: Large-eddy simulations of the entrainment and detrainment of pollutants at the roof level of two-dimensional urban street canyons. Journal of Korean Society for Atmospheric Environment, 40, 514–527.

198. Park, K., and J.-J. Baik, 2024: Nonlinear changes in urban heat island intensity, urban breeze intensity, and urban air pollutant concentration with roof albedo. Scientific Reports, 14, 24911.

197. Jongen, H. J., M. Lipson, A. J. Teuling, S. Grimmond, J.-J. Baik, M. Best, M. Demuzere, K. Fortuniak, Y. Huang, M. G. De Kauwe, R. Li, J. McNorton, N. Meili, K. Oleson, S.-B. Park, T. Sun, A. Tsiringakis, M. Varentsov, C. Wang, Z.-H. Wang, and G. J. Steeneveld, 2024: The water balance representation in Urban-PLUMBER land surface models. Journal of Advances in Modeling Earth Systems, 16, e2024MS004231.

196. Tabassum, A., S.-H. Hong, K. Park, and J.-J. Baik, 2024: Impacts of changes in soil moisture on urban heat islands and urban breeze circulations: Idealized ensemble simulations. Asia-Pacific Journal of Atmospheric Sciences, 60, 541–553.

195. Tabassum, A., K. Park, J. M. Seo, J.-Y. Han, and J.-J. Baik, 2024: Characteristics of the urban heat island in Dhaka, Bangladesh, and its interaction with heat waves. Asia-Pacific Journal of Atmospheric Sciences, 60, 479–493.

194. Kim, D.-H., K. Park, J.-J. Baik, H.-G. Jin, and B.-S. Han, 2024: Contrasting interactions of urban heat islands with dry and moist heat waves and their implications for urban heat stress. Urban Climate, 56, 102050.

193. Hong, S.-H., H.-G. Jin, and J.-J. Baik, 2024: Impacts of background wind on the interactions between urban breeze circulation and convective cells: Ensemble large-eddy simulations. Quarterly Journal of the Royal Meteorological Society, 150, 1518–1537.

192. Shin, J., and J.-J. Baik, 2024: Lagrangian stochastic modeling of stratified atmospheric boundary layer. Boundary-Layer Meteorology, 190, 18.

191. Lee, J., J.-J. Baik, and H.-G. Jin, 2024: Raindrop size distributions simulated using a bin microphysics scheme: Different biases in stratiform and convective rain from an extratropical cyclone. Journal of Geophysical Research: Atmospheres, 129, e2023JD039667.

190. Tabassum, A., K. Park, J. Shin, H.-G. Jin, and J.-J. Baik, 2024: Long-term changes in temperature, specific humidity, and precipitation in Bangladesh revealed by ERA5 data. Theoretical and Applied Climatology, 155, 1915–1925.

189. Lipson, M. J., S. Grimmond, M. Best, G. Abramowitz, A. Coutts, N. Tapper, J.-J. Baik, M. Beyers, L. Blunn, S. Boussetta, E. Bou-Zeid, M. G. D. Kauwe, C. D. Munck, M. Demuzere, S. Fatichi, K. Fortuniak, B.-S. Han, M. A. Hendry, Y. Kikegawa, H. Kondo, D.-I. Lee, S.-H. Lee, A. Lemonsu, T. Machado, G. Manoli, A. Martilli, V. Masson, J. McNorton, N. Meili, D. Meyer, K. A. Nice, K. W. Oleson, S.-B. Park, M. Roth, R. Schoetter, A. Simón-Moral, G.-J. Steeneveld, T. Sun, Y. Takane, M. Thatcher, A. Tsiringakis, M. Varentsov, C. Wang, Z.-H. Wang, and A. J. Pitman, 2024: Evaluation of 30 urban land surface models in the Urban-PLUMBER project: Phase 1 results. Quarterly Journal of the Royal Meteorological Society, 150, 126-169.

188. Hong, S.-H., H.-G. Jin, and J.-J. Baik, 2024: Detection of urban effects on precipitation in the Seoul metropolitan area, South Korea. Urban Climate, 53, 101773.

187. Shin, J., and J.-J. Baik, 2023: Global simulation of the Madden–Julian oscillation with stochastic unified convection scheme. Journal of Advances in Modeling Earth Systems, 15, e2022MS003578.

186. Hong, S.-H., J. Lkhamjav, H.-G. Jin, and J.-J. Baik, 2023: Spatiotemporal variations of 100 m wind in Mongolia and implications for wind energy resources. International Journal of Climatology, 43, 3433-3452.

185. 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.

184. Shin, J., and J.-J. Baik, 2023: Optimization and evaluation of stochastic unified convection using single-column model simulations at multiple observation sites. Journal of Advances in Modeling Earth Systems, 15, e2022MS003473.

183. Park, K., H.-G. Jin, and J.-J. Baik, 2023: Do heat waves worsen air quality? A 21-year observational study in Seoul, South Korea. Science of the Total Environment, 884, 163798.

182. Jin, H.-G., and J.-J. Baik, 2023: Do double-moment microphysics schemes make reliable predictions on the raindrop number concentration?: A squall-line case study. Journal of Geophysical Research: Atmospheres, 128, e2022JD038394.

181. Park, K., H.-G. Jin, and J.-J. Baik, 2023: Contrasting interactions between urban heat islands and heat waves in Seoul, South Korea, and their associations with synoptic patterns. Urban Climate, 49, 101524.

180. Lee, J., H.-G. Jin, and J.-J. Baik, 2023: Diagnostic relations for the intercept parameter of exponential raindrop size distribution according to rain types derived from disdrometer data and their impacts on precipitation prediction. Asia-Pacific Journal of Atmospheric Sciences, 59, 219-238.

179. Kim, J.-W., J.-J. Baik, S.-B. Park, and B.-S. Han, 2023: Impacts of building-height variability on turbulent coherent structures and pollutant dispersion: Large-eddy simulations. Atmospheric Pollution Research, 14, 101736.

178. Yum, S. S., K.-T. Lee, J.-J. Baik, G. Lee., S.-W. Kim, and J. Um, 2023: Historical development of research and publications in atmospheric physics field. Atmosphere, KMS, 33, 105-124.

177. Jin, H.-G., H. Lee, and J.-J. Baik, 2022: Large-eddy simulations of drizzling shallow cumuli using a turbulence-aware autoconversion parametrization. Quarterly Journal of the Royal Meteorological Society, 148, 3885-3900.

176. Lee, J., H.-G. Jin, and J.-J. Baik, 2022: Regional differences in raindrop size distribution observed from disdrometers in South Korea and their possible causes. Theoretical and Applied Climatology, 150, 847-862.

175. Moon, S., J.-J. Baik, H.-J. Song, and J.-Y. Han, 2022: Increasing model vertical resolution may not necessarily lead to improved atmospheric predictability. Chaos, 32, 073120.

174. Kim, J.-W., J.-J. Baik, B.-S. Han, J. Lee, H.-G. Jin, K. Park, H. Yang, and S.-B. Park, 2022: Tall-building effects on pedestrian-level flow and pollutant dispersion: Large-eddy simulations. Atmospheric Pollution Research, 13, 101500.

173. Ahmed, T., J. Lee, H.-G. Jin, and J.-J. Baik, 2022: Processes associated with extremely heavy precipitation in the Meghalaya Plateau region: A case modelling study. Quarterly Journal of the Royal Meteorological Society, 148, 1057-1074.

172. Shin, J., and J.-J. Baik, 2022: Parameterization of stochastically entraining convection using machine learning technique. Journal of Advances in Modeling Earth Systems, 14, e2021MS002817.

171. 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.

170. 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, 551-568.

169. Park, S.-B., J.-J. Baik, and B.-S. Han, 2022: Coherent flow structures and pollutant dispersion in a street canyon. Boundary-Layer Meteorology, 182, 363-378.

168. Baik, J.-J., H. Lim, B.-S. Han, and H.-G. Jin, 2022: Cool-roof effects on thermal and wind environments during heat waves: A case modeling study in Seoul, South Korea. Urban Climate, 41, 101044.

167. Moon, S., and J.-J. Baik, 2021: Using the (3N)-dimensional generalized Lorenz systems as a testbed for data assimilation: The ensemble Kalman filter. Monthly Weather Review, 149, 3691-3705.

166. Ahmed, T., S.-H. Hong, H.-G. Jin, J. Lee, and J.-J. Baik, 2021: Evaluation of IMERG data in Bangladesh and surrounding regions and their application to studying diurnal variation of precipitation. Theoretical and Applied Climatology, 146, 395-410.

165. Kwak, K.-H., B.-S. Han, K. Park, S. Moon, H.-G. Jin, and J.-J. Baik, 2021: Inter- and intra-city comparisons of PM2.5 concentration changes under COVID-19 social distancing in seven major cities of South Korea. Air Quality, Atmosphere & Health, 14, 1155-1168.

164. Park, J., S. Moon, J. M. Seo, and J.-J. Baik, 2021: Systematic comparison between the generalized Lorenz equations and DNS in the two-dimensional Rayleigh–Bénard convection. Chaos, 31, 073119.

163. Jwa, M., H.-G. Jin, J. Lee, S. Moon, and J.-J. Baik, 2021: Characteristics of raindrop size distribution in Seoul, South Korea according to rain and weather types. Asia-Pacific Journal of Atmospheric Sciences, 57, 605-617.

162. Moon, S., J.-J. Baik, and S.-H. Hong, 2021: Coexisting attractors in a physically extended Lorenz system. International Journal of Bifurcation and Chaos, 31, 2130016.

161. Shen B.-W., R. A. Pielke Sr., X. Zeng, J.-J. Baik, S. Faghih-Naini, J. Cui, and R. Atlas, 2021: Is weather chaotic?: Coexistence of chaos and order within a generalized Lorenz model. Bulletin of the American Meteorological Society, 102, E148-E158.

160. Moon, S., J.-J. Baik, and J. M. Seo, 2021: Chaos synchronization in generalized Lorenz systems and an application to image encryption. Communications in Nonlinear Science and Numerical Simulation, 96, 105708.

159. Moon, S., J.-J. Baik, J. M. Seo, and B.-S. Han, 2021: Effects of density-affecting scalar on the onset of chaos in a simplified model of thermal convection: A nonlinear dynamical perspective. The European Physical Journal Plus, 136, 92.

158. Ahmed, T., H.-G. Jin, and J.-J. Baik, 2020: A physically based raindrop–cloud droplet accretion parametrization for use in bulk microphysics schemes. Quarterly Journal of the Royal Meteorological Society, 146, 3368-3383.

157. Han, B.-S., K. Park, K.-H. Kwak, S.-B. Park, H.-G. Jin, S. Moon, J.-W. Kim, and J.-J. Baik, 2020: Air quality change in Seoul, South Korea under COVID-19 social distancing: Focusing on $PM_{2.5}$. International Journal of Environmental Research and Public Health, 17, 6208.

156. Jin, H.-G., and J.-J. Baik, 2020: A new parameterization of the accretion of cloud water by snow and its evaluation through simulations of mesoscale convective systems. Journal of the Atmospheric Sciences, 77, 2885–2903.

155. Ahmed, T., H.-G. Jin, and J.-J. Baik, 2020: Spatiotemporal variations of precipitation in Bangladesh revealed by nationwide rain gauge data. Asia-Pacific Journal of Atmospheric Sciences, 56, 593-602.

154. Moon, S., J. M. Seo, and J.-J. Baik, 2020: High-dimensional generalizations of the Lorenz system and implications for predictability. Physica Scripta, 95, 085209.

153. Park, S.-B., J.-J. Baik, and B.-S. Han, 2020: Role of wind shear in the decay of convective boundary layers. Atmosphere, 11, 622.

152. Park, S.-B., and J.-J. Baik, 2020: Characteristics of decaying convective boundary layers revealed by large-eddy simulations. Atmosphere, 11, 434.

151. Lee, J., J. M. Seo, J.-J. Baik, S.-B. Park, and B.-S. Han, 2020: A numerical study of windstorms in the lee of the Taebaek Mountains, South Korea: Characteristics and generation mechanisms. Atmosphere, 11, 431.

150. Han, B.-S., J.-J. Baik, K.-H. Kwak, and S.-B. Park, 2020: Effects of cool roofs on turbulent coherent structures and ozone air quality in Seoul. Atmospheric Environment, 229, 117476.

149. 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, 43-60.

148. Kim, J.-W., B.-S. Han, and J.-J. Baik, 2020: Temporal and spatial variations of workday-holiday particulate matter concentration differences in Seoul. Journal of Korean Society for Atmospheric Environment, 36, 25-31.

147. Lee, H., and J.-J. Baik, 2019: Corrigendum to "A physically based autoconversion parameterization". Journal of the Atmospheric Sciences, 76, 3285.

146. Han, B.-S., J.-J. Baik, and K.-H. Kwak, 2019: A preliminary study of turbulent coherent structures and ozone air quality in Seoul using the WRF-CMAQ model at a 50 m grid spacing. Atmospheric Environment, 218, 117012.

145. Moon, S., J. M. Seo, B.-S. Han, J. Park, and J.-J. Baik, 2019: A physically extended Lorenz system. Chaos, 29, 063129.

144. Han, B.-S., J.-J. Baik, S.-B. Park, and K.-H. Kwak, 2019: Large-eddy simulations of reactive pollutant dispersion in the convective boundary layer over flat and urban-like surfaces. Boundary-Layer Meteorology, 172, 271-289.

143. 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, 381-400.

142. Seo, J. M., J.-J. Baik, and H.-Y. Chun, 2018: Theoretical investigation of nonhydrostatic effects on convectively forced flows: Propagating and evanescent gravity-wave modes. Physics of Fluids, 30, 126604.

141. Lee, H., and J.-J. Baik, 2018: A comparative study of bin and bulk cloud microphysics schemes in simulating a heavy precipitation case. Atmosphere, 9, 475.

140. 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, 587-598.

139. 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, 9, 434.

138. 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, 457-471.

137. Seo, J. M., J.-J. Baik, and S. Moon, 2018: Orographic-convective flows, wave reflection, and gravity-wave momentum fluxes in a two-layer hydrostatic atmosphere. Tellus A: Dynamic Meteorology and Oceanography, 70, 1-16.

136. Han, B.-S., J.-J. Baik, K.-H. Kwak, and S.-B. Park, 2018: Large-eddy simulation of reactive pollutant exchange at the top of a street canyon. Atmospheric Environment, 187, 381-389.

135. Kwak, K.-H., S. H. Woo, K. H. Kim, S.-B. Lee, G.-N. Bae, Y.-I. Ma, Y. Sunwoo, and J.-J. Baik, 2018: On-road air quality associated with traffic composition and street-canyon ventilation: Mobile monitoring and CFD modeling. Atmosphere, 9, 92.

134. Park, J., P. Billant, J.-J. Baik, and J. M. Seo, 2018: Competition between the centrifugal and strato-rotational instabilities in the stratified Taylor-Couette flow. Journal of Fluid Mechanics, 840, 5-24.

133. Lkhamjav, J., Y.-L. Jeon, H. Lee, J.-J. Baik, and J. M. Seo, 2017: Evaluation of an improved quasi-stochastic collection model through precipitation prediction over north central Mongolia. Journal of Geophysical Research: Atmospheres, 122, 13404-13419.

132. Han, B.-S., K.-H. Kwak, and J.-J. Baik, 2017: Analysis on vortex streets behind a square cylinder at high Reynolds number using a large-eddy simulation model: Effects of wind direction, speed, and cylinder width. Atmosphere, KMS, 27, 445-453.

131. Lkhamjav, J., H.-G. Jin, H. Lee, and J.-J. Baik, 2017: A hail climatology in Mongolia. Asia-Pacific Journal of Atmospheric Sciences, 53, 501-509.

130. Moon, S., B.-S. Han, J. Park, J. M. Seo, and J.-J. Baik, 2017: Periodicity and chaos of high-order Lorenz systems. International Journal of Bifurcation and Chaos, 27, 1750176.

129. Han, B.-S., S.-B. Park, J.-J. Baik, J. Park, and K.-H. Kwak, 2017: Large-eddy simulation of vortex streets and pollutant dispersion behind high-rise buildings. Quarterly Journal of the Royal Meteorological Society, 143, 2714-2726.

128. Park, J., P. Billant, and J.-J. Baik, 2017: Instabilities and transient growth of the stratified Taylor-Couette flow in a Rayleigh-unstable regime. Journal of Fluid Mechanics, 822, 80-108.

127. Lee, H., and J.-J. Baik, 2017: A physically based autoconversion parameterization. Journal of the Atmospheric Sciences, 74, 1599-1616.

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