# Jong-Hoon Jeong

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## Research Interests

Radar meteorology, Cloud physics and microphysics, Mesoscale meteorology, Weather and climate extreme, cloud-resolving modeling

## Education

**Ph.D. Atmospheric Sciences** 2011– 2014

Department of Environmental Atmospheric Science, Pukyong National University, Busan, South Korea

•Dissertation Title: Development Mechanism for Extreme Rainfall-Producing Quasi-Stationary Mesoscale Convective System over Southeastern Korea

•Advisor: Prof. Dong-In Lee (Pukyong National University, South Korea)

•Co-advisor: Prof. Chung-Chieh Wang (National Taiwan Normal University, Taiwan)

**M.S. Atmospheric Sciences** 2009 – 2011

Department of Environmental Atmospheric Science, Pukyong National University, Busan, South Korea

**B.S. Atmospheric Sciences** 2004 – 2009

Department of Environmental Atmospheric Science, Pukyong National University, Busan, South Korea

## Research experience

**Post-Doctoral Scholar** 2020–present

UCLA JIFRESSE, affiliated with Jet Propulsion Laboratory, Pasadena, CA

•Project: Evaluation of boundary layer cloud processes in an advanced parameterization for global models (DOE ARM ASR)

**Post Doctorate Research Associate** 2018–2020

Pacific Northwest National Laboratory, Richland, WA

•Project: Understanding factors impacting past and future severe storms in the central United States (DOE Early Career)

**Researcher** 2015–2018

Radar Analysis Division, Weather Radar Center, Korea Meteorological Administration, Seoul, South Korea

Numerical Data Application Division, National Institute of Meteorological Sciences, Korea Meteorological Administration, Seoul, South Korea

## Publications


[23] **Jeong, J.-H.**, M. K. Witte, I. B. Glenn, M. Smally, M. D. Lebsock, K. Lamer, and Z. Zhu, 2022: Distinct dynamical and structural properties of marine stratocumulus and shallow cumulus clouds in the Eastern North Atlantic, *Journal of Geophysical Research: Atmosphere*, 127, e2022JD037021. doi.org/10.1029/2022JD037021.

[22] Fan, J., Y. Zhang, J. Wang, **J.-H. Jeong**, X. Chen, S. Zhang, Y. Lin, Z. Feng, and A.-S. Rebecca, 2022: Contrasting Responses of Hailstorms to Anthropogenic Climate Change in Different Synoptic Weather Systems, *Earth's Future*, 10, e2022EF002768, doi.org/10.1029/2022EF002768.

[21] Lin, Y., J. Fan, P. Li, L.-Y. Leung, P. J. DeMott, L. Goldberger, J. Comstock, Y. Liu, **J.-H. Jeong**, and J. Tomlinson, 2022: Modeling impacts of ice-nucleating particles from marine aerosols on mixed-phase orographic clouds during 2015 ACAPEX field campaign, *Atmospheric Chemistry and Physics*, 22, 6749–6771, doi.org/10.5194/acp-22-6749-2022.

[20] **Jeong, J.-H.**, J. Fan, and C. R. Homeyer, 2021: Spatial and temporal variabilities of hailstones in the United States Northern Great Plains and their possible attributions, *Journal of Climate*, 34(16), 6819–6840, doi.org/10.1175/JCLI-D-20-0245.1.

[19] Kang, Y., **J.-H., Jeong**, D.-I. Lee, 2021: Influence of sea surface temperature on mesoscale convective system producing extreme rainfall over the Yellow Sea, *Monthly Weather Review*, 149(8), 2613–2632, doi.org/10.1175/MWR-D-20-0335.1.

[18] Lin, Y., J. Fan, J.-H., Jeong, Y. Zhang, C. R. Homeyer, and J. Wang, 2021: Urbanization-induced land and aerosol impacts on storm propagation and hail characteristics, *Journal of the Atmospheric Sciences*, 78(3), 925–947, doi.org/10.1175/JAS-D-20-0106.1.

[17] **Jeong, J.-H.**, J. Fan, C. R. Homeyer, and Z. Hou, 2020: Understanding hailstone temporal variability and contributing factors over the U.S. Southern Great Plains, *Journal of Climate*, 33, 3947–3966, doi.org/10.1175/JCLI-D-19-0606.1.

[16] Oh, S.-B., P. Kollias, J.-S. Lee, Y.H. Lee, and **J.-H. Jeong***, 2020: Rain-rate estimation algorithm using signal attenuation of Ka-band cloud radar, *Meteorological Application*, **25**, 423–434, doi.org/10.1002/met.1825. (* corresponding author)

[15] Kim, Y., M., Maki, D.-I. Lee, **J.-H. Jeong**, C.-H. You, 2019: Three-dimensional analysis of the initial stage of convective precipitation using an operational X-band polarimetric radar network, *Atmospheric Research*, **225**, 45–57, doi.org/10.1016/j.atmosres.2019.03.015.

[14] Kang, Y., **J.-H. Jeong**, C.-H. You, and D.-I. Lee, 2018: Structure and evolution of convective system with bow echo associated with terrain on Jeju Island, Korea *J. Meteor. Soc. Japan*, 96 (5), 447–460, doi.org/10.2151/jmsj.2018-050.

[13] Oh, S.-B., Y.-H. Lee, **J.-H. Jeong***, Y.-H. Kim, and S. Joo, 2018: Estimation of the liquid water content and Z-LWC relationship using Ka-band cloud radar in Boseong, Korea, *Meteorological Application*, 25, 423–434, doi.org/10.1002/met.1710 (* corresponding author)

[12] **Jeong, J.-H.**, D.-I., Lee, and C. C. Wang, 2016: Impact of cold pool on mesoscale convective system produced extreme rainfall over southeastern South Korea: 7 July 2009, *Monthly Weather Review*, 144, 3985–4006, doi.org/10.1175/MWR-D-16-0131.1.

[11] **Jeong, J.-H.**, D.-I., Lee, C. C. Wang, and I.-S. Han, 2016: Characteristics of mesoscale-convective-system-produced extreme rainfall over southeastern South Korea: 7 July 2009, *Natural Hazards and Earth System Sciences*, 16, 927–939, doi.org/10.5194/nhess-16-927-2016.

[10] **Jeong, J.-H.**, Y-H. Kim, S.-B. Oh, E. Lim, and S. Joo., 2016: Investigation of Goyang tornado outbreak using X-band polarimetric radar: 10 June 2014, *Atmosphere*, **26(1)**, 47–58 (in Korean).

[9] **Jeong, J.-H.**, D.-I. Lee, C. C. Wang, S.-M. Jang S.-H. Park, and S.A. Jung, 2014: Structure and evolution of line-shaped convective systems associated with Changma front during GRL PHONE-09: 6 July 2009 case. *Meteorological Application*, 21, 786–794, doi.org/10.1002/met.1418.

[8] Jang, S.-M., D.-I. Lee, **J.-H. Jeong**, S.-H. Park, S. Shimizu, H. Uyeda, and Y.-S. Suh, 2014: Radar reflectivity and wind fields analysis by using two X-band Doppler radars at Okinawa, Japan from 11 to 12 June 2007. *Meteorological Application*, **21**, 898–909, doi.org/10.1002/met.1427.

[7] Panicker, A.S., S.H. Park, D.I. Lee, D.C. Kim, W.S. Jung, S.M. Jang, **J.-H. Jeong**, D.S. Kim, J. Yu, and H. Jeong, 2013: Observations of black carbon characteristics and radiative forcing over a global atmosphere watch supersite in Korea. *Atmospheric Environment*, 77, 98–104, doi.org/10.1016/j.atmosenv.2013.04.020.

[6] **Jeong, J.-H.**, D.-I. Lee, C. C. Wang, S.-M. Jang, C.-H. You, and M. Jang, 2012: Environment and morphology of mesoscale convective systems associated with the Changma front during 9–10 July 2007. *Annales Geophysics*, 30, 1235–1248, doi.org/10.5194/angeo-30-1235-2012.

[5] Jang, M., D.-I. Lee, C.-H. You, D.-S. Kim, M. Maki, **J.-H. Jeong**, and H. Uyeda, 2012: Quantitative precipitation estimates from radar reflectivity corrected by the SMA method, *Atmospheric Research*, 104–105, 111–118, doi.org/10.1016/j.atmosres.2011.08.004.

[4] Park, S.-H., S.-M. Jang, D.-I. Lee, W.-S. Jung, **J.-H. Jeong**, S.-A. Jung, C. H. Jung, K.S. Kim, and K.-E. Kim, 2012: The variation of aerosol number concentrations in relation with 3D wind Components in the Ieodo ocean research station. *Atmosphere*, 22(1), 97–107 (in Korean).

[3] Park, S.-H., S.-M. Jang, W.-S. Jung, **J.-H. Jeong**, and D.-I. Lee, 2012: The fluctuation of marine aerosol number concentrations related with vertical winds. *Jour. Korean Earth Science Society*, 33(3), 259–268 (in Korean).

[2] Jang, S.-M., J.-Y. Gu, D.-I. Lee, **J.-H. Jeong**, and H. Uyeda, 2012: An analysis of precipitation systems developed near Jeju Island in Korea during the summer monsoon. *Jour. Korean Earth Science Society*, 33(5), 377–394.

[1] Jung, S. A., **J.-H. Jung**, D.-I. Lee, J.-W. Jung, K.-H. Chang, D.-H. Ha, S. Y. Kim, and K. Kim, 2010: Dynamical Behaviors in Earthquake Structures, *J. Korean Phys. Soc.* 57, 1877–1879.

## Conferences and Workshops (Presented as the lead author)

**Jeong, J.-H**, M. Witte, I. Glenn, M. Smalley, M. Lebsock, K. Lamer, and Z. Zhu, 2022: Contrasting dynamical structure of marine stratocumulus and shallow cumulus clouds in the Eastern North Atlantic, *Collective Madison AMS meeting*, USA.

**Jeong, J.-H**, M. Witte, I. Glenn, M. Smalley, M. Lebsock, K. Lamer, and Z. Zhu, 2021: Dynamical properties of marine boundary layer clouds derived from ground-based observationsin the Eastern North Atlantic, *AGU*, USA.

**Jeong, J.-H,** J. Fan, and C. R. Homeyer, 2020: Spatial and temporal variability of hailstones in the United States Northern Great Plains and their possible, *AMS annual meeting*, USA.

**Jeong, J.-H,** J. Fan, C. R. Homeyer, and Z. Hou, 2019: Understanding hailstone temporal variability and contributing factors over the United States Southern Great Plains, *AGU*, USA.

**Jeong, J.-H,** J. Fan, C. R. Homeyer, and Z. Hou, 2019: Analysis of hailstone temporal and spatial variabilities over the central United States, *AMS annual meeting*, USA.

**Jeong, J.-H** and J. Fan, C. R. Homeyer, and Z. Hou, 2019: Hailstone temporal and spatial trend and variabilities over the central United States, *DOE PI meeting*, USA.

**Jeong, J.-H.**, S.-H. Jung, M.-K. Suk, S.-M. Lee, and S.-K. Lee, 2017: Improvement and verification of KMA radar-based nowcasting systems, *International Conference on Weather Forecast and Hydrological Applications of Radar*, South Korea.

**Jeong, J.-H.**, S.-H. Jung, M.-K. Suk, and S.-K. Lee, 2017: Sensitivity experiment of radar-based nowcasting system (MAPLE) with different boundary condition and weighting factors, *Asia Oceania Geosciences Society*, Sentosa Island, Singapore.

**Jeong, J.-H.**, S.-H. Jung, M.-K. Suk, and S.-K. Lee, 2017: Experimental study on boundary conditions and weighting factors of radar-based nowcasting system: MAPLE, *AMS radar conference*, Chicago, USA.

**Jeong, J.-H.**, S.-H. Jung, M.-K. Suk, S.-M. Lee, and S.-K. Lee, 2017: Improvement and verification of KMA radar-based nowcasting systems, *Korean Meteorological Society*, South Korea (in Korean).

**Jeong, J.-H.**, W. Jung, D. Choi, S. Lee, M.-K. Suk, K.-Y. Nam, and J.-S Ko, 2016: An appraisal of WRC-KMA nowcasting systems during summer: precipitation forecasting skill, *Conf. Meso-scale convective systems and high-Impact Weather in East Asia (ICMCS-X)*, Busan, South Korea.

**Jeong, J.-H.**, K.-Y. Nam, J.-S. Ko, and D.-I. Lee, 2016: Verification of WRC-KMA nowcasting systems during summer: precipitation forecasting skill, *European Geosciences Union*, Austria.

**Jeong, J.-H.**, Y-H. Kim, S.-B. Oh, E. Lim, and S. Joo., 2015: Investigation of Goyang tornado outbreak using X-band polarimetric radar: 10 June 2014, *Korean Meteorological Society*, South Korea (in Korean).

**Jeong, J.-H.,** D.-I. Lee, and C. C. Wang, 2014: An extreme rainfall-producing quasi-stationary mesoscale convective system associated with Changma front on 7 July 2009. PartII: numerical modeling study, *Observation and forecast research division, National Institute of Meteorological Sciences*, South Korea (Invited talk).

**Jeong, J.-H.,** D.-I. Lee, and C. C. Wang, 2014: Study on extreme rainfall-producing quasi-stationary mesoscale convective system over southeastern Korea: impact of cold pool, *Korean Meteorological Society*, South Korea (in Korean).

**Jeong, J.-H.,** D.-I. Lee, and C. C. Wang, 2014: An extreme rainfall-producing quasi-stationary mesoscale convective system associated with Changma front on 7 July 2009: numerical simulation, *Conf. Meso-scale convective systems and high-Impact Weather in East Asia (ICMCS-X)*, Colorado, USA.

**Jeong, J.-H.,** D.-I. Lee, and C. C. Wang, 2013: An observational and modeling study of extreme rainfall producing quasi linear convective system associated with Changma front: 7 July 2009 case, *Korean Meteorological Society*, South Korea (in Korean).

**Jeong, J.-H.,** D.-I. Lee, S.-M. Jang, S.-H. Park, C.-H. You, and C. C. Wang, 2013: An observational and modeling study of extreme rainfall producing quasi linear convective system associated with Changma front: 7 July 2009 case, *Conf. Meso-scale convective systems and high-Impact Weather in East Asia (ICMCS-X)*, Beijing, China.

**Jeong, J.-H.,** D.-I. Lee, S.-M. Jang, S.-H. Park, and H. Uyeda, 2012: An observational study of linear convective system observed around southwestern Korean Peninsula on 6 July, 2009, *Korean Meteorological Society*, South Korea (in Korean).

**Jeong, J.-H.,** D.-I. Lee, S.-M. Jang, S.-H. Park, and C. C. Wang, 2012: An observational and modeling study of extreme rainfall producing quasi linear convective system associated with Changma front: 7 July 2009 case, *Asia Oceania Geosciences Society*, Sentosa Island, Singapore.

**Jeong, J.-H.**, D.-I. Lee, S.-M. Jang, C. C. Wang, 2010: Development environment of Mesoscale Convective Systems associated with the Changma front during 9-10 July 2007, *Conf. Meso-scale convective systems and high-Impact Weather in East Asia (ICMCS-X)*, Nagoya, Japan.

**Jeong, J.-H.**, D.-I. Lee, S.-M. Jang, and C. C. Wang, 2010: Development mechanisms of Mesoscale Convective Systems accompanied with the Changma front in 9–10 July 2007, *3th SoWMEX/TiMREX Science Workshop*, Taipei, Taiwan.

**Jeong, J.-H.**, D.-I. Lee, M. Jang, S.-M. Jang, and C. C. Wang, 2010: A case study on development mechanisms of Mesoscale Convective Systems accompanied with the Changma front, *Asia Oceania Geosciences Society*, Hyderabad, India.

## Professional Skills

- Programming language: Python, R, FORTRAN, and shell (perl and C) script in Linux
- Numerical models: WRF, WRF-Chem, CM1, CReSS, KMA LDAPS (MetOffice UKV),
- Graphic software: NCL, GrADS, GMT (general Mapping Tool)

## Honors and Awards

- Outstanding Performance Award, Weather Radar Center, Korea Meteorological Administration (2017)
- Awarded for best student poster presentation, Korean Meteorological Society (2011)
- Awarded for reporting competition, Pukyong National University (2007)

## Research Featured in Media

- PNNL AGU highlight (2019): https://www.pnnl.gov/agu-daily-highlights

## Journal Review

- Editorial board

  Atmosphere, Topic editor (since 2020)

- Reviewer

Journal of Geophysical Research: Atmosphere, Atmospheric Chemistry and Physics, Journal of Applied Meteorology and Climatology, Monthly Weather Review, Asia-Pacific Journal of Atmospheric Sciences, Atmosphere, Remote sensing

## Participating Field Campaigns

- SoWMEX/TiMREX in Taiwan (2008)
- GRL PHONE in South Korea (2009–2015)

## Training

- East Asia WRF workshop and Tutorial (2009), Seoul, South Korea

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