Jee-Hoon Jeong

Department of Environment and Energy,
Sejong University

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Education and Degrees

· Ph.D. in Atmospheric Sciences, Seoul National University, 2005
· M.S. in Atmospheric Sciences, Seoul National University, 2001
· B.S. in Atmospheric Sciences, Seoul National University, 1999

Employments

- 2024-present: Professor, Sejong University
- 2012-2024: Professor, Chonnam National University, Korea
- 2008-2012: Assistant professor: University of Gothenburg, Sweden
- 2005-2008: Postdoc (military service): RIBS, Seoul National University

Research Fields

- Climate dynamics and modelling of weather/climate extremes and climate change
- Dynamical seasonal climate and environmental forecasting

Professional Activities

- *Director, KMA-SJU drought research center* (2018~)
- *Board member, APEC climate center* (2021–24)
- *Member, WCRP Working Group on Seasonal to Interannual Prediction* (2014-2018)
- *Associate Editor: Geografiska Annaler - Series A* (2019–), *Asia-Pacific Journal of Atmospheric Sciences* (2020–), *Korean Society for Atmospheric Environment* (KOSAE, 2024–)
- *Expert Member*, Climate Change Adaptation Subcommittee Presidential Commission on Carbon Neutrality and Green Growth, Republic of Korea (2025–)
- *Civilian Expert Member*, Climate Crisis Disaster Response Reform Committee, Ministry of the Interior and Safety, Korea (2023–25)
- *Advisory Member*, Technical Support Group for Forest Disaster Prevention Policy Korea Forest Service (KFS), Republic of Korea (2024–26)

Awards and qualifications

- 2023: 기후과학상, 한국기상학회
- 2021: 용봉학술상, 전남대학교 총장
- 2020: 우수학술연구자, 이달의 전남대인, 전남대학교 총장
- 2019: 기후변화대응 대표기술 10 선, 과기부 장관상
- 2018: 한국과학기술단체총연합회 – 28 회 과학기술 우수논문상
- 2015: 세계 기상의 날 정부포상, 환경부장관 표창

- 2012: 국가연구개발사업 우수성과 50 선, 교육부장관상
- 2012: *Docent* in Earth Science at University of Gothenburg (qualification for associate professor in Swedish education system)

All Publications (peer-reviewed)

2025

Kyuseok Shim et al. (2025), East Asian dust source region restructuring linked to recent extreme drying, ***Science of The Total Environment***, 1006

A new phase of land–atmosphere interactions in the East Asian Jet variability during summer, J Nam, SYS Wang, JH Jeong, H Kim, JH Yoon, ***Environmental Research: Climate*** 4 (4), 045010

Divergent trends of Tmax-based and Tw-based heat extremes across Asia's climatic divide, J Park, SY Simon Wang, H Kim, JH Jeong, N Utsumi, S Moon, JH Yoon, ***Climatic Change*** 178 (10), 1-11

Concurrent increases in winter precipitation and summer wildfire risk in a warming Alaska, J Lee, SYS Wang, SW Son, D Kim, JH Jeong, H Kim, JH Yoon, ***Environmental Research Letters*** 20 (10), 104059

Long-Term Characteristics and Influences of Synoptic Circulation on PM2.5 and PM10 in Seoul, Wooseok Jang et al. ***Atmospheric Pollution Research (accepted)***

Kim, M.-S., M. Fuentes, H. W. Linderholm, F. Lidman, Y. Koh, C. Choi, and **J.-H. Jeong*** (2025), Tree growth responses to summer temperature on the Korean Peninsula detected by tree-ring blue intensity, ***Dendrochronologia***, 92, 126345, https://doi.org/10.1016/j.dendro.2025.126345.

Aerosol-induced surface cooling elevates relative humidity on the Indo-Gangetic Plain, Jina Park et al., ***Communications Earth & Environment***

On the Indo-Gangetic Plain Humidity Trends and the Role of Aerosols, Jina Park et al. ***Communications Earth & Environment***

Ryu, J., Wang, S.-Y., **Jeong, J.-H.,** Kim, H., & Yoon, J.-H. *Time of emergence (TOE) of potential aridification in the western United States*. ***Journal of Hydrology***, 656, 129075 (2025). https://doi.org/10.1016/j.jhydrol.2024.129075

Jeong, J.-H.*, Kim, M.-S., Yoon, J.-H., Kim, H., Wang, S.-Y. S., Woo, S.-H., & Linderholm, H. W. Emerging trans-Eurasian heatwave-drought train in a warming climate. ***Science Advances***, 11(18), eadr7320 (2025). https://doi.org/10.1126/sciadv.adr7320

Lee, J., Wang, S.-Y. S., Son, S.-W., Kim, D., **Jeong, J.-H.,** Kim, H., & Yoon, J.-H. *Amplification of Northern Hemisphere winter stationary waves in a warming world*. ***npj Climate and Atmospheric Science***, 8, Article 20 (2025). https://doi.org/10.1038/s41612-025-00898-0

2024

Statistical seasonal prediction of Arctic sea ice concentration based on spatiotemporal anomaly

persistent method, Gyu-Ri Lee, Sung-Ho Woo, Eun-Hyuk Baek, Joo-Hong Kim, Baek-Min Kim, **Jee-Hoon Jeong***, ***Environmental Research Letters,* 19** (11), 114060

Improving the Seasonal Forecast by Utilizing the Observed Relationship between the Arctic Oscillation and Northern Hemisphere Surface Air Temperature, Ji-Han Sim *et al* 2024 ***Environ. Res. Lett.* 19** 074039

Precipitation-induced abrupt decrease of Siberian wildfire in summer 2022 under continued warming, Yeonsoo Cho *et al* 2024 ***Environ. Res. Lett.* 19** 074037

Yeh, SW., Sohn, BJ., Oh, SY., **Jeong, JH.**, et al. Siberian vegetation growth intensifies monsoon precipitation in southern East Asia in late spring and early summer. ***npj Clim Atmos Sci*** 7, 98 (2024). https://doi.org/10.1038/s41612-024-00650-0

Dynamical-statistical Method for Seasonal Forecasting of Wintertime Fine Particulate Matter in South Korea using Multi-Model Ensemble Climate Forecasts, Jahyun Choi, Sung-Ho Woo, Jin-Ho Yoon, Jinyoung Choi, Daegyun Lee, **Jee-Hoon Jeong***, ***Environmental Research Letters,*** DOI 10.1088/1748-9326/ad5030

Sub-seasonal prediction skill: Is the mean state a good model evaluation metric?, Jihun Ryu; Shih-Yu Simon Wang; **Jee-Hoon Jeong**; Jin-Ho Yoon, ***Climate Dynamics***, accepted

Lee, J., J.-H. Yoon, including **J.-H. Jeong** et al. (2024), Evolving winter atmospheric teleconnection patterns and their potential triggers across western North America", ***npj Climate and Atmospheric Science***, 7(1), 63

Hong, Y., J.-H. Yoon, including **J.-H. Jeong** et al. (2024), From Peak to Plummet: On the Impending Decline of the Warm Arctic-Cold Continents Phenomenon, ***npj Climate and Atmospheric Science****, 7(1)*, 66

2023

Moon S., N. Utsumi, **J.-H., Jeong** J.-H. Yoon, S.Y.S. Wang, H. Hideo, H. Kim, Anthropogenic warming induced intensification of summer monsoon frontal precipitation over East Asia. ***Science Advances*** (2023). DOI:10.1126/sciadv.adh4195

Hong, Y., Wang, SY.S., Son, SW., …, **Jeong JH.,** et al. Arctic-associated increased fluctuations of midlatitude winter temperature in the 1.5° and 2.0° warmer world**.** ***npj Clim Atmos Sci*** 6, 26 (2023). https://doi.org/10.1038/s41612-023-00345-y

Koo, MS., Song, K., Kim, JE.E., ..., **Jeong JH.**, et al. The Global/Regional Integrated Model System (GRIMs): an Update and Seasonal Evaluation. ***Asia-Pac J Atmos Sci*** 59, 113–132 (2023). https://doi.org/10.1007/s13143-022-00297-y

2022

Lee, D., Kim, H. C., **Jeong, J.-H.,** Kim, B.-M., Lee, D., Choi, J.-Y., et al. (2022). Relationship between synoptic weather pattern and surface particulate matter (PM) concentration during winter and spring seasons over South Korea. ***Journal of Geophysical Research: Atmospheres***, 127(24), e2022JD037517.

Son, R., Ma, P.-L., Wang, H., Rasch, P. J., (Simon) Wang, S.-Y., Kim, H., …, **J.-H. Jeong,** et al. (2022). Deep learning provides substantial improvements to county-level fire weather

forecasting over the western United States. ***Journal of Advances in Modeling Earth Systems***, 14(10), e2022MS002995. https://doi.org/10.1029/2022MS002995

Jeong, J.-H.*, Choi, J., Jeong, J.-Y., Woo, S.-H., Kim, S.-W., Lee, D., …, Yoon, J.-H. (2022). A novel statistical-dynamical method for a seasonal forecast of particular matter in South Korea. ***Science of The Total Environment***, 848, 157699.

Baek, E.-H., Bae, J., Sung, H.-J., Jung, E., Kim, B.-M., & **Jeong, J.-H.*** (2022). Characteristics of High-Latitude Climate and Cloud Simulation in Community Atmospheric Model Version 6 (CAM6). ***Atmosphere***, 13(6), 936.

Yeo, H., M.-H. Kim, S.-W. Son, **J.-H. Jeong**, J.-H. Yoon, B.-M. Kim and S.-W. Kim (2022). "Arctic cloud properties and associated radiative effects in the three newer reanalysis datasets (ERA5, MERRA-2, JRA-55): Discrepancies and possible causes." ***Atmospheric Research*** 270: 106080.

Yoo-Geun Ham; Seon-Yu Kang; Yerim Jeong; **Jee-Hoon Jeong**; Tim Li, Large-scale sea surface temperature forcing contributed to the 2013–2017 record-breaking meteorological drought in Korea, ***J Climate*** *35.12 (2022):3767-3783.*

Kim, JS., Kug, JS., Jeong, S., **Jeong, JH**, et al. Arctic warming-induced cold damage to East Asian terrestrial ecosystems. ***Commun Earth Environ*** 3, 16 (2022). https://doi.org/10.1038/s43247-022-00343-7

2021

Son, R., et al. including **Jeong, J.-H.** (2021). "Recurrent pattern of extreme fire weather in California." ***Environmental Research Letters*** 16(9): 094031.

Ho-Young Ku, et al. including **Jeong, J.-H.** (2021), Classification of large-scale circulation patterns and their spatio-temporal variability during High-PM10 events over the Korean Peninsula. ***Atmospheric environment,*** 262: 118632.

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Zhang, P., **Jeong, J.-H.* (corresponding),** Yoon, J.-H., Kim, H., Wang, S.-Y. S., Linderholm, H. W., . . . Chen, D. (2020). Abrupt shift to hotter and drier climate over inner East Asia beyond the tipping point. ***Science***, 370(6520), 1095-1099. doi:10.1126/science.abb3368.

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Park, J., H. Kim, S. Y. Simon Wang, **J.-H. Jeong**, K.-S. Lim, M. LaPlante, and J.-H. Yoon (2020), Intensification of the East Asian summer monsoon lifecycle based on observation and CMIP6, ***Environmental Research Letters***, 15(9), 0940b0949, doi:10.1088/1748-9326/ab9b3f.

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Korea. ***Atmosphere***, *11(9)*, 950.

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Zhang, P., **J.-H. Jeong***, H. W. Linderholm, J.-Y. Jeong, R. Salo, B.-M. Kim, and M.-S. Kim (2019), The Potential of Using Tree-Ring Data from Jeju Island to Reconstruct Climate in Subtropical Korea and the Western North Pacific, ***Asia-Pacific Journal of Atmospheric Sciences***, **55**(3), 293-301, doi:10.1007/s13143-018-0089-9.

Seo, E., Lee, M., **Jeong, J.** et al. (2019) Impact of soil moisture initialization on boreal summer subseasonal forecasts: mid-latitude surface air temperature and heat wave events, ***Climate Dynamics***, **52**, 1695–1709 https://doi.org/10.1007/s00382-018-4221-4

Yeo, H., and Coauthors including **J.-H. Jeong** (2018). The observed relationship of cloud to surface longwave radiation and air temperature at Ny-Ålesund, Svalbard. ***Tellus B: Chemical and Physical Meteorology***, 70(1), 1450589. doi:10.1080/16000889.2018.1450589

Heo, J.-W., Ho, C.-H., Park, T.-W., Choi, W., **Jeong, J.-H.,** & Kim, J. (2018). Changes in Cold Surge Occurrence over East Asia in the Future: Role of Thermal Structure. ***Atmosphere***, 9(6), 222.

Choi, W., Ho, C.-H., Kim, M.-K., Kim, J., Yoo, H.-D., Jhun, J.-G., & **Jeong, J.-H.** (2018). Season-dependent warming characteristics observed at 12 stations in South Korea over the recent 100 years. ***International Journal of Climatology***, 38(11), 4092-4101. doi:doi:10.1002/joc.5554

Seim, A., Schultz, J. A., Beck, C., Bräuning, A., Krusic, P. J., Leland, C., . . . , **Jeong, J.-H.,** Linderholm, H. W. (2018). Evaluation of Tree Growth Relevant Atmospheric Circulation Patterns for Geopotential Height Field Reconstructions for Asia. ***Journal of Climate***, 31(11), 4391-4401. doi:10.1175/jcli-d-17-0164.1

Ok, J., S. Mi-Kyung, S. Kazutoshi, L. Young-Kwon, K. Seong-Joong, B. Eun-Hyuk, **J. Jee-Hoon**, and K. Baek-Min (2017), How does the SST variability over the western North Atlantic Ocean control Arctic warming over the Barents–Kara Seas?, ***Environ Res Lett***, 12(3), 034021.

Jeong, J.-H.*, et al. (2017). "The status and prospect of seasonal climate prediction of climate over Korea and East Asia: A review." ***Asia-Pacific Journal of Atmospheric Sciences***, **53**(1): 149-173.

Yim, B. Y., H. S. Min, B.-M. Kim, **J.-H. Jeong**, and J.-S. Kug (2016), Sensitivity of Arctic warming to sea ice concentration, ***J. Geophys. Res. Atmos.***, **121**, 6927–6942, doi:10.1002/2015JD023953.

Jun, S.-Y., C.-H. Ho, **J.-H. Jeong,** Y.-S. Choi, and B.-M. Kim (2016), Recent changes in winter Arctic clouds and their relationships with sea ice and atmospheric conditions, ***Tellus A***

Kug, J.-S., **J.-H. Jeong*,** Y.-S. Jang, B.-M. Kim, C. K. Folland, S.-K. Min, and S.-W. Son

(2015) Two distinct influences of Arctic warming on cold winters over North America and East Asia. ***Nature Geoscience,*** 8, 759-762. Citation: 493

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T. Ou, D. Chen, **J.-H. Jeong*,** H. W. Linderholm, T. Zhou (2015), Changes in winter cold surges over Southeast China: 1961 to 2012, ***Asia-Pac J Atmos Sci.***, 51(1), 29-37, doi:10.1007/s13143-014-0057-y.

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Jeong, J.-H.*, J.-S. Kug, H. W. Linderholm, D. Chen, B.-M. Kim, and S.-Y. Jun (2014), Intensified Arctic warming under greenhouse warming by vegetation–atmosphere–sea ice interaction**, *Environmental Research Letters,*** 9(9), doi:10.1088/1748-9326/9/9/094007.

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Park, T.-W., Y. Deng, J.-H. Jeong, and M. Cai (2014), A Dissection of the Surface Temperature Biases in the Community Earth System Model, **v**, 43(7-8), 2043-2059, doi: 10.1007/s00382-013-2029-9..

Jun, S.-Y., C.-H. Ho, B.-M. Kim, and **J.-H. Jeong** (2014), Sensitivity of Arctic warming to sea surface temperature distribution over melted sea-ice region in atmospheric general circulation model experiments, ***Climate Dynamics***, 42(3-4), 941-955, doi: 10.1007/s00382-013-1897-3.

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Jeong, J.-H.*, J.-S. Kug, B.-M. Kim, S.-K. Min, H. W. Linderholm, C.-H. Ho, D. Rayner, D. Chen, S.-Y. Jun (2012), Greening in the circumpolar high-latitude may amplify warming in the growing season, ***Climate Dynamics***, 38(7-8), 1421-1431, doi: 10.1007/s00382-011-1142-x.

Jeong, J.-H.*, T. Ou, H. W. Linderholm, B.-M. Kim, S.-J. Kim, J.-S. Kug, D. Chen (2011), Recent recovery of the Siberian High intensity, 116, D23102, ***Journal of Geophysical Research***, doi:10.1029/2011JD015904.

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Koster, R., and 21 co-authors including **J.-H. Jeong** (2011), The Second Phase of the Global Land-Atmosphere Coupling Experiment: Soil Moisture Contributions to Subseasonal Forecast Skill, 12(5), 805-822, ***Journal of Hydrometeorology***, doi: 10.1175/2011JHM1365.1. **Citation:196**

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Book (chapter)

- 알기쉬운 대기과학, 14장 기후변화, 한국기상학회, 시그마프레스, 2020.8.3
- 민기홍 저, 6-7 장, 대기환경과학, 북스힐, 2021.3.5

- (기후과학자가 쓴) 기후역학 교과서:climate dynamics /서경환 외, 12 지면-대기 상호작용과 기후 변동성, 동화기술, 2017

Research projects

[*in progress*]

- Development of vegetation/land surface processes in an integrated climate change/air pollution modeling system and study of vegetation-atmospheric chemistry feedback effects in future climate and air quality changes, 2022-2028, 450M KRW/year, *Korean ministry of environment* [sub-PI]
- Detecting and causing changes in the occurrence of summer Eurasian compounding extreme weather events based on tree ring chronology and climate scenarios, 2021-2026, *Korean NRF,* 150M KRW/year [PI]
- Drought prediction centre (가뭄특이기상연구센터), 2018-2026, 500M KRW/year, *Korean Meteorological Administration* [PI]
- Research on building statistical-dynamical air quality seasonal forecast models 통계-역학기반 대기질 장기예측모델 구축 연구, 2020-2024, National Institute of Environmental Research [sub-PI]

[*completed*]

- Development of a seasonal wildfire forecast model, National Institute of Forest Science, 50M KRW/year, 2019-2022 [PI]
- Arctic sea ice prediction, 2017-2021, 300M KRW/year, *Korea Polar Research Institute – Ministry of Oceans and Fisheries* [sub-PI]
- Interaction between Eurasian land surface conditions and atmospheric circulation, 2018-2020, 100M KRW/year, *Korean Meteorological Administration* [sub-PI]
- Development of extratropical-tropical predictors for winter season, 2015-2018, 400M/year, *Korean Meteorological Administration* [PI]
- Modelling-observational study on vegetation feedback effect on Arctic, high-latitudes climate change, 2015-2016, 60M KRW/year, *Korean NRF – Korea-Sweden collaboration research* [PI]
- Development of land surface initialization scheme for global seasonal forecast system, 2012-2015, 230M/year, *Korean Meteorological Administration* [sub-PI]
- Diagnostics and validation of dynamic vegetation model), 2012-2016, 70M KRW/year *Ministry of Education, science and Technology* [PI]
- Exploring the decadal variability of the Asian monsoon and its impact on regional climate - from the past to the future, 2009-2011.12, 1,800K SEK, *Swedish international development cooperation agency* [co-applicant]

Teaching

- **Sejong University** – Climate Dynamics and Climate Change (기후역학 및 기후변화), Environmental Data Analysis (환경데이터분석)
- **Chonnam National University** - Introduction to marine science (해양과학의 이해), Climate dynamics (기후역학, 고급기후역학), Physical oceanography (물리해양학), Marine meteorology/climatology (해양기상 기후학), Climate modelling and prediction (기후모델링 및 예측), Introduction to Earth sciences (지구의이해), Data processing

for climate/oceanic sciences (기후빅데이터실습), Numerical weather forecasting (일기수치예보), Weather forecasting: analysis and practice (일기분석 및 실습)

- **University of Gothenburg** - Global Change, Earth System Modelling, Atmospheric Sciences

Supervision

[Current members in SJU]

- 2018– : Dr. Sungho Woo (research professor),
- 2013– : Young-Dae Go (MS2015, PhD course)
- 2015– : Jee-Yun Jeong (MS2017, PhD course)
- 2016– : Min-Seok Kim (MS2018, PhD 2025.2, postdoc~ at SJU)
- 2019– : Sang-Hyuk Park (MS2021, PhD course)
- 2020– : Chanhyuk Choi (MS2022, PhD course)
- 2021– : Gyuri Lee (MS2023, PhD course), Miyoung Lee (MS2023, PhD course)

[past members]

- 2008–2012 : Tinghai Ou (PhD in UGot), postdoc in CNU (2013–2015), now at U Gothenburg as a research scientist
- 2010–2011 : Shasha Qiu in U Gothenburg (MS)
- 2011–2012 : Andrea Semi in U Gothenburg (PhD), now at U Freiburg
- 2017-2019 : Peng Zhang (Postdoc), now at Nanjing University as an associate professor.
- 2016-2023 : Euihyun Jeong (MS), now at KIOST as a researcher
- 2015-2019 : Taehyun Shim (PhD), now at 차세대수치모델개발 사업단
- 2017- : Sang-Hyun Kang (MS), Gwangju Climate and Energy Agency
- 2013–2015 : Jee-Hee Na (MS)
- 2012– : Kyung-Min Kim (MS-PhD-), now at Environmental Prediction Lab.
- 2023 : Songyi Baek (MS), Jeehyun Kim (MS), Hanul Kim (MS)
- 2018–2025 : Dr. Eunhyun Baek (research professor)
- 2023–2025 : Minsu Park (MS)
- 2012–2023 : Ja-Hyun Choi (MS, PhD 2023, Postdoc 2024~ at CNU)