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WORK HISTORY

Project Assistant Professor, Department of Global Health Policy, University of Tokyo

2024.Oct – Now

Lab PI: Masahiro Hashizume, Ph.D.

Project Researcher, Department of Global Health Policy, University of Tokyo

2023.Oct – 2024.Sep

Lab PI: Masahiro Hashizume, Ph.D.

EDUCATION

Ph.D., Civil Engineering, University of Tokyo, Japan, 2020-2023

Research Interests: Regional Climate Modeling, Land Use Change, Heat Stress

Thesis: *Study on the Health Impacts of Urban Humid Heat Stress and the Influence of Surrounding Irrigated Area*

Thesis Advisor: Taikan Oki, Ph.D.

M.E., Hydrology, Wuhan University, China, 2017-2020

Research Interests: Bias Correction, GCM Analysis, Hydrological Modeling

Thesis: *Multivariate bias correction method of climate model outputs and its comparison in hydrological modeling*

Thesis Advisor: Jie Chen, Ph.D.

B.E., Hydrology and Information Engineering, Huazhong University of Science and Technology, China, 2013-2017

JOURNAL PUBLICATIONS

First/Corresponding Author

[6] **Qiang Guo***, Malcolm Mistry, ..., Masahiro Hashizume, Taikan Oki, et al. (2024): Regional Variation in the Role of Humidity on City-level Heat-Related Mortality. *PNAS Nexus*, <https://doi.org/10.1093/pnasnexus/pgae290>

- [5] **Qiang Guo***, Lei Yuan, Chris Ng, Masahiro Hashizume (2024): Evaluating Japan's revised heat-health warning system in the face of recent escalating heat stress. *Environmental Research Letters*, 19, 054002 <https://doi.org/10.1088/1748-9326/ad3a81>
- [4] **Qiang Guo***, and Kenshi Hibino (2023): Physical responses of Baiu extreme precipitation to future warming: examples of the 2018 and 2020 western Japan events, *Weather and Climate Extremes*, Vol. 39, 100547, <https://doi.org/10.1016/j.wace.2022.100547>
- [3] **Qiang Guo***, Xudong Zhou, Yusuke Satoh, and Taikan Oki (2022): Irrigated cropland expansion exacerbates the urban moist heat stress in northern India, *Environmental Research Letters*, 17, 054013, <https://doi.org/10.1088/1748-9326/ac64b6>
- [2] **Qiang Guo**, Jie Chen*, Xunchang John Zhang, Chong-Yu Xu, and Hua Chen (2020): Impacts of Using State-of-the-Art Multivariate Bias Correction Methods on Hydrological Modeling Over North America, *Water Resources Research*, 56(5), e2019WR026659. <https://doi.org/10.1029/2019WR026659>
- [1] **Qiang Guo**, Jie Chen*, Xunchang John Zhang, Mingxi Shen, Hua Chen, and Shenglian Guo (2019): A new two-stage multivariate quantile mapping method for bias correcting climate model outputs, *Climate Dynamics*, 53, 3603-3623. <https://doi.org/10.1007/s00382-019-04729-w>

Co-Author

- [8] Lei Gu*, Ziyue Gu, **Qiang Guo**, Wei Fang, Qianyi Zhang, Huaiwei Sun, Jiabo Yin, and Jianzhong Zhou (2022): Can satellite and atmospheric reanalysis products capture compound moist heat stress-floods?, *Remote Sensing*, 14(18), 4611, <https://doi.org/10.3390/rs14184611>
- [7] Yu Meng, Zengchao Hao*, Sifang Feng, **Qiang Guo**, and Yu Zhang (2022): Multivariate bias corrections of compound dry and hot events in China based on CMIP6 model simulations, *Environmental Research Letters*, 17, 104005, <https://doi.org/10.1088/1748-9326/ac8e86>
- [6] Lei Gu, Jie Chen*, Jiabo Yin*, Louise J. Slater, Hui-Min Wang, **Qiang Guo**, Maoyuan Feng, Hui Qin, and Tongtiegang Zhao (2022): Global Increases in Compound Flood-Hot Extreme Hazards Under Climate Warming, *Geophysical Research Letters*, 49(8), e2022GL097726, <https://doi.org/10.1029/2022GL097726>
- [5] Jie Chen*, Xiangquan Li*, Chong-Yu Xu, Xunchang John Zhang, Lihua Xiong, and **Qiang Guo** (2022): Postprocessing Ensemble Weather Forecasts for Introducing Multisite and Multivariable Correlations Using Rank Shuffle and Copula Theory, *Monthly Weather Review*, 150(3), 551-565, <https://doi.org/10.1175/MWR-D-21-0100.1>
- [4] Yao Feng, Fubao Sun, Wenbin Liu*, Jie Chen, Hong Wang, **Qiang Guo**, Yang Wang, Qiang Zhang, and Yan-Fang Sang (2021): Changes in compound hot and dry day and population exposure across China under climate change, *International Journal of Climatology*, 42(5), 2935-2949, <https://doi.org/10.1002/joc.7399>

- [3] Lei Gu, Jie Chen*, Jiabo Yin, **Qiang Guo**, Huimin Wang, and Jianzhong Zhou (2021): Risk propagation from meteorological to hydrological droughts in a changing climate for main catchments in China, *Advances in Water Science*, Vol.32, No.3, 321-333. <https://doi.org/10.14042/j.cnki.32.1309.2021.03.001> (In Chinese)
- [2] Richard Arsenault, François Brissette, Jie Chen*, **Qiang Guo**, and Gabrielle Dallaire (2020): NAC2H: The North American Climate Change and Hydroclimatology Data Set, *Water Resources Research*, 56(8), e2020WR027097. <https://doi.org/10.1029/2020WR027097>
- [1] Tianhua Su, Jie Chen*, Alex J. Cannon, Ping Xie, and **Qiang Guo** (2020): Multi-site bias correction of climate model outputs for hydro-meteorological impact studies: An application over a watershed in China, *Hydrological Process*, 34(11), 2575-2598. <https://doi.org/10.1002/hyp.13750>

PRESENTATIONS

Conferences

- [8] **Qiang Guo**, Chris F.S. Ng, Yoonhee Kim, and Masahiro Hashizume: Regional Variation in the Role of Humidity on City-level Heat-Related Mortality - What implications can we obtain for Japan?, *The 89th Annual Meeting of the Japanese Society of Health and Human Ecology (JSHHE)*, Tokyo, Japan, Oct. 12-13rd, 2024 (Oral Presentation)
- [7] **Qiang Guo**, Malcolm Mistry, Antonio Gasparrini, Masahiro Hashizume, and Taikan Oki: Regional Variation in the Role of Humidity on City-level Heat-Related Mortality, *AGU 2023*, San Francisco, USA, Dec. 11-17th, 2023 (Lightning Presentation)
- [6] **Qiang Guo**, Malcolm Mistry, Antonio Gasparrini, Masahiro Hashizume, and Taikan Oki: Regional Variation in the Role of Humidity on City-level Heat-Related Mortality, *ISEE 2023*, Kaohsiung, Taiwan, Sep. 17-22nd, 2023 (Poster Presentation)
- [5] **Qiang Guo**, Xudong Zhou, Yusuke Satoh, and Taikan Oki: Irrigation Cropland Expansion Strengthened the Urban Moist Heat Stress in Northern India, *AGU 2022*, Chicago, USA, Dec. 12-16th, 2022 (Oral Presentation)
- [4] **Qiang Guo**, Xudong Zhou, Yusuke Satoh, and Taikan Oki: Irrigation Cropland Expansion Strengthened the Urban Moist Heat Stress in Northern India, *Land Surface Modeling Summit*, Oxford, UK, Sep. 12-15th, 2022 (Poster Presentation)
- [3] **Qiang Guo**, Taikan Oki, Xudong Zhou, and Yusuke Satoh: Irrigation Cropland Expansion Strengthened the Urban Moist Heat Stress in Northern India, *Japan Society of Hydrology and Water Resources/Japanese Association of Hydrological Sciences 2021 Meeting*, Online, Japan, Sep. 15-18th, 2021 (Oral Presentation)
- [2] **Qiang Guo**, Jie Chen, Xunchang John Zhang, Chong-Yu Xu, and Hua Chen: Multivariate Bias Correction of Climate Model Outputs for Hydrological Impact Studies, *AGU 2019*, San Francisco, USA, Dec. 9-13th, 2019 (Poster Presentation)

As of 2024/10

- [1] **Qiang Guo**, and Jie Chen: A Multivariate Bias Correction Method for Climate Model Outputs Based on Distribution-Free Shuffle Approach, *15th China Water Forum*, Shenzhen, China, Nov. 10-12th, 2017 (Oral Presentation)

Invited Talks

- [2] **Qiang Guo**: Irrigated cropland expansion exacerbates the urban moist heat stress in northern India, *IAS-FLORES Joint Workshop, United Nation University*, Tokyo, Oct. 6th, 2022 (Oral Presentation)
- [1] **Qiang Guo**: Irrigated cropland expansion exacerbates the urban moist heat stress in northern India, *Yale-NUIST Center on Atmospheric Environment*, Online, Jun. 24th, 2022 (Oral Presentation)

BOOK CHAPTER

- [1] Jie Chen et al. (**Qiang Guo**, Main writer of the 6th Chapter: Multivariate Bias Correction Method), *Statistical Downscaling Methods and Hydrological Applications*, Science Press, 2020 (In Chinese)

TECHNICAL REPORT

- [1] MATSIRO6 Document Writing Team (**Qiang Guo**, et al.), 2021: Description of MATSIRO6, Division of Climate System Research, Atmosphere and Ocean Research Institute, The University of Tokyo. <https://doi.org/10.15083/0002000181>

RESEARCH FUNDS

- Towards modeling high-temporal-spatial-resolution heat stress exposure considering population dynamic: using the Tokyo Metropolitan Area as an example. Supported by JSPS Start Up. 2.86 Million JPY/2 Year, 2024-2025 (**Lead**).
- High-resolution spatiotemporal heat stress exposure assessment in Tokyo Metropolitan Area considering population movement. Supported by Digital Spatial Society (DSS), University of Tokyo. 1.7 Million JPY/Year, 2024 (**Lead**).

GRANTS AND FELLOWSHIPS

- Musha Shugyo International Exchange Grant (School of Engineering, University of Tokyo, 2022)
- Land Surface Modeling Summit (LSMS, Oxford, 2022) Travel Grant (Hydro-JULES, 2022)
- MEXT Ph.D. Scholarship (University Recommendation, Ministry of Education, Culture, Sports, Science and Technology of Japan, 2020 - 2023)

SELECTED AWARDS AND HONORS

- Ph.D. thesis was awarded the Dean's Prize of Graduate School of Engineering, University of Tokyo (東京大学工学系研究科長賞(博士)), 2024
- Elected (voted by all professors) as the Ph.D. student representative to give graduate speech at graduation ceremony, Department of Civil Engineering, The University of Tokyo, 2023
- "Excellent Academic Master's Thesis" in the 3rd National Outstanding Graduate Dissertation Selection for Water Conservancy Majors (3 prize-winners in Wuhan University and 30 prize-winners in China), 2022
- Best Presentation Award of Hydrosphere Science Project (HSP, 2021), The University of Tokyo, 2021
- Excellent graduate, Wuhan University, 2020
- Second prize in 14th "Huawei Cup" National Post-Graduate Mathematical Modeling Contest of China, 2017
- Excellent graduate, Huazhong University of Science and Technology, 2017
- Outstanding student leader, Huazhong University of Science and Technology, 2015
- Outstanding student leader, Huazhong University of Science and Technology, 2014

COMMUNITY SERVICE

- Reviewer of *Nature Communications*, *npj Climate and Atmospheric Science*, *JGR-Atmospheres*, *Environmental Research Letters*, *Environmental Research Communications*, *Climate Dynamics*, *Journal of Hydrometeorology*, *Climatic Change*, *iScience*, *Theoretical and Applied Climatology*
- AGU GeoHealth Early Career Researcher (ECR) Committee Member (2024-2025)
- Convenor of session "GH001: Actionable GeoHealth research for climate and health adaptation and decision-support" of AGU 2024, Washington, D.C., USA, 9-13 December 2024

RELEVANT SKILLS

- Advanced skills in Python, R, MATLAB, Fortran, Bash (Linux), and machine learning
- Experience in conducting numerical simulation using GCM (MIROC, CESM), RCM (MRI-NHRCM, WRF), and LSM (MATSIRO)
- Experience in conducting Environmental Epidemiology (exposure-response, e.g., temperature-mortality) analysis.

LANGUAGE PROFICIENCY

- English: Professional (TOEFL 101, GRE 324)

As of 2024/10

- Japanese: Daily Communication (JLPT N2 Certificate, with N1 Preparing)
- Chinese: Native