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Postdoctoral Research Associate

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Education:

Ph.D. in Physical Oceanography, Shanghai Jiao Tong University	2024
M.S. in Physical Oceanography, Shanghai Jiao Tong University	2021
B.S. in Oceanography, Tongji University	2018

Professional Positions:

2025–Present	Postdoctoral Research Associate, CEE, Princeton University
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Research Interests:

How does the environment affect tropical cyclones (TCs)?

How can the TC-environment relationship be applied to hazard and risk analysis?

What policies should be developed to improve TCs preparedness?

Research Outputs:

Journal Articles:

1. **Gao, Cong**, Ning Lin. “PepC-Global: A Basin-Tuned Probabilistic Tropical Cyclone Model with Enhanced Out-of-Sample Skill and Climate-Sensitive Over-Land Decay”. Journal of Advances in Modeling Earth Systems (JAMES), under review.

2. **Gao, Cong**, Lei Zhou, I-I. Lin, Chunzai Wang, Shoude Guan, Fei-Fei Jin, and Raghu Murtugudde. "Crucial role of subsurface ocean variability in tropical cyclone genesis." *Nature Communications* 16, no. 1 (2025): 1050.
3. **Gao, Cong**, Lei Zhou, Chunzai Wang, I-I. Lin, and Raghu Murtugudde. "Unexpected limitation of tropical cyclone genesis by subsurface tropical central-north Pacific during El Niño." *Nature Communications* 13, no. 1 (2022): 7746.
4. **Gao, Cong**, and Lei Zhou. "Tropical cyclone genesis over the western North Pacific simulated by Coupled Model Intercomparison Project Phase 6 models." *Acta Oceanologica Sinica* 41, no. 5 (2022): 64–77.
5. Li, Baosheng, Lei Zhou, Chunzai Wang, **Cong Gao**, Jianhuang Qin, and Ze Meng. "Modulation of tropical cyclone genesis in the Bay of Bengal by the central Indian Ocean mode." *Journal of Geophysical Research: Atmospheres* 125, no. 12 (2020): e2020JD032641.

Selected Presentations:

1. The AMS 37th Conference on Hurricanes and Tropical Meteorology, San Diego, USA: "PepC-Global: A Basin-Tuned, Environment-Dependent Probabilistic Tropical Cyclone Model". Oral presentation, April 2026.
2. AGU 2025 Annual Meeting, New Orleans, USA: "PepC-Global: A Basin-Tuned, Environment-Dependent Probabilistic Tropical Cyclone Model". Oral presentation, December 2025.
3. The AMS 24th Conference on Air-Sea Interaction at the 105th AMS Annual Meeting, New Orleans, USA: "Crucial role of subsurface ocean variability in tropical cyclone genesis". Oral presentation, January 2025.
4. 2024 Symposium on Hurricane Risk in a Changing Climate, Honolulu, USA: "Ocean subsurface variability has significant impacts on tropical cyclone genesis". Poster, June 2024.
5. Asia Oceania Geosciences Society (AOGS) 21st Annual Meeting, Pyeongchang, South Korea: "Significant impacts of ocean subsurface variability on tropical cyclone genesis". Oral presentation, June 2024.
6. AGU 2023 Annual Meeting, San Francisco, USA: "Unexpected limitation of tropical cyclone genesis by subsurface tropical central-north Pacific during El Niño". Poster, December 2023.
7. Asia Oceania Geosciences Society (AOGS) 20th Annual Meeting, Singapore: "Unexpected limitation of tropical cyclone genesis by subsurface tropical central-north Pacific during El Niño". Oral presentation, July to August 2023.

8. Asia Oceania Geosciences Society (AOGS) 19th Annual Meeting, Online:
“Suppression of tropical cyclone genesis by subsurface environment in the tropical central North Pacific during El Niño”. Oral presentation, August 2022.
9. AGU 2019 Fall Meeting, San Francisco, USA: “Projections of tropical cyclones in western North Pacific under climate change: Using a new genesis potential index”.
Poster, December 2019.

Professional Services:

Research Leadership:

Lead, Hurricane Analysis: Predictability and Environmental Drivers, Megalopolitan Coastal Transformation Hub (MACH) [[link](#)]

Conference Organization:

Primary Convener, Session OS015: Coastal Climate Risk in a Changing Ocean: Processes, Projections, and Resilience (15 abstracts), AGU Fall Meeting 2026

Convener, Session OS034: The Role of the Ocean in Extreme Weather from Subseasonal to Decadal Timescales (15 abstracts), AGU Fall Meeting 2026

Review Activities:

Journals: *Nature*, *Nature Communications*, *Journal of Climate*, *Journal of Geophysical Research: Oceans*, *Climate Dynamics*, *Environmental Research Letters*, *Environmental Research Communications*, *Machine Learning: Science and Technology*, *Acta Oceanologica Sinica*, *npj Climate and Atmospheric Science*

Reports: Expert Reviewer (FOD via IPCC ECR Group Review), IPCC AR7 WGI Chapter 7: Projections of Regional Climate and Extremes

Professional Affiliations:

Environmental Policy Associate, Center for Policy Research on Energy and the Environment (C-PREE), Princeton University [[link](#)]

American Geophysical Union (AGU)[[link](#)]

American Meteorological Society (AMS)

Asia Oceania Geosciences Society (AOGS)

Institute of Electrical and Electronics Engineers (IEEE)

Honors and Awards:

2026 | Travel Grant, Broadening Earth System Research Across Scales with High-Resolution Modeling Workshop, US CLIVAR, Boulder, CO

2026 | Travel Grant, GO-BGC Float Data and Science Workshop, Seattle, WA

2026 | Travel Grant, Quantum Computing and Sensing for Weather and Climate Applications Workshop, US CLIVAR, Boulder, CO

2026 | Travel Grant, Unifying Innovations in Forecasting Capabilities Workshop (UIFCW26), NOAA/EPIC, College Park, MD

2026 | Travel Grant, URSSI Summer School on Research Software Engineering, Boston, MA

2025 | Travel Grant, URSSI Summer School in Open Science + Research Software Engineering, Fairbanks, AK

2025 | Postdoctoral Fellowship, Gordon and Betty Moore Foundation

2025 | IOP Outstanding Reviewer Award (2024)

2024 | Poster Award (Science Originality), Symposium on Hurricane Risk in a Changing Climate

2023 | National Scholarship, Ministry of Education of the People's Republic of China

2021 | Outstanding Graduate, Shanghai Jiao Tong University

2020 | National Scholarship, Ministry of Education of the People's Republic of China

2019 | Second Prize, National Graduate Student Mathematical Contest in Modeling (China)

2018 | Outstanding Graduate, Tongji University

2015 | Second Prize, National College Student Physics Competition (China)