ZHAO NING

Ph.D., Researcher
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Education

Oct 2014-Sep 2017	**Ph.D.**, *Earth System Science and Technology*, Kyushu University, Japan Advised by: Prof. Atsuhiko Isobe
Sep 2010-July 2013	**M.Sc.**, *Environmental Sciences*, Shanghai Ocean University, China Advised by: Prof. Zhen Han
Sep 2006-July 2010	**B.Eng.**, *Marine Fisheries Science and Technology*, Shanghai Ocean University, China Supervised by: Prof. Zhen Han

Research Experience

Apr 2019-Present	*Researcher (Tenured)*, Center for Coupled Ocean-Atmosphere Research, Japan Agency for Marine-Earth Science and Technology, Japan Center Director: Dr. Kunio Yoneyama Research Keywords: Air-Sea Interactions, Extreme Precipitation Events
Oct 2017-Mar 2019	*Post-doctoral Fellow*, Research Institute for Applied Mechanics, Kyushu University, Japan Advisor: Prof. Naoki Hirose Theme: The atmospheric responses to a diurnally-varying SST
Oct 2014-Sep 2017	*Research Assistant*, Kyushu University, Japan Supervisor: Prof. Atsuhiko Isobe Theme: Sub-weekly scale interactions between extratropical cyclones and the Sea of Japan based on numerical experiments
Mar 2012-Feb 2013	*Special Research Student*, Nagasaki University, Japan Supervisor: Prof. Atsuyoshi Manda Theme: Seasonal variation of the Subpoloar Front in the Sea of Japan and its mechanisms
Sep 2010-July 2013	*Graduate Research Assistant*, Shanghai Ocean University, China Supervisor: Prof. Zhen Han Theme: Reconstruction of three-dimensional sea water temperature structures in the Northwestern Pacific using Argo and satellite-based datasets
Sep 2009-July 2010	*Undergraduate Research Assistant*, Shanghai Ocean University, China Supervisor: Prof. Zhen Han Theme: Bio-energy flow of the ecosystems in the East China Sea based on the 'Ecopath' Model

Fundings & Scholarships

2023-2025	JSPS Kakenhi・Grant-in-Aid for Scientific Research(C)・Collaborator 日本近海の温暖化は九州地方の豪雨を強化するか
2020-2023	JSPS Kakenhi・Grant-in-Aid for Early-Career Scientists・PI Role of the sub-daily air-sea interaction on the convection over the Maritime Continent (¥4,320,000)
2014-2017	Kuma Toshimi International Scholarship (¥1,800,000)

Collaborations

2019-Now	Years of the Maritime Continent
2019-2024	新学術領域研究「中緯度大気海洋」 A01 台風・爆弾低気圧の予測可能性とスケール間大気海洋相互作用
2019-2022	九州大学応用力学研究所特定研究 「東アジア縁辺海が暖候期における集中豪雨に及ぼす影響」
2019-2024	北太平洋亜熱帯海面水温偏差に関する共同研究 (JAMSTEC & University of Hawai'i)

Publications

Peer-reviewed

*: As Corresponding Author.

1. Manda, A., Y. Tachibana, H. Nakamura, T. Takikawa, A. Nishina, Q. Moteki, **N. Zhao**, and S. Iizuka, 2024. Intensive radiosonde observations of environmental conditions on the development of a mesoscale convective system in the Baiu frontal zone. *Earth and Space Science*, 11, 7, e2023EA003486, doi: 10.1029/2023EA003486.
2. Zhang, X., **N. Zhao***, Z. Han, and Z. Dai, 2024. Large spread in marine heatwave assessments for Asia and the Indo-Pacific between sea-surface-temperature products. *Communications Earth & Environment*, 5, 195, doi: 10.1038/s43247-024-01369-9.
3. Wang, B., L. Hua, H. Mei, X. Wu, T. Kang, and **N. Zhao**, 2024. Impact of Climate Change on the Dynamic Processes of Marine Environment and Feedback Mechanisms: An Overview. *Archives of Computational Methods in Engineering*, 251, 1, 118591, doi: .1007/s11831-024-10072-z.
4. Wang, B., L. Hua, A. M. Al-Mohaimeed, and **N. Zhao**, 2024. Ocean carbon emission prediction and management measures based on artificial intelligence remote sensing estimation in the context of carbon neutrality. *Environmental Research*, 251, 1, 118591, doi: 10.1016/j.envres.2024.118591.
5. Guo, X., **N. Zhao**, T. Nasuno, K. Kikuchi, M. Nakano, and H. Annamalai, 2023. Distinct features of atmospheric rivers over the western North Pacific in post-El Niño and non-post-El Niño summers. *Journal of Climate*, 36(24), 8313-8330, doi: 10.1175/JCLI-D-23-0244.1.
6. Seiki, A., A. Nagano, **N. Zhao**, I. Ueki, and S. Yokoi, 2023. Diurnal SST warming and the boreal summer intraseasonal oscillation in the Philippine Sea: contrasts between early and late summer, *SOLA*, doi: 10.2151/sola.2023-038.
7. Wang, B., L. Hua, H. Mei, Y. Kang, and **N. Zhao**, 2023. Monitoring Marine Pollution for Carbon Neutrality through a Deep Learning Method with Multi-Source Data Fusion. *Frontiers in Ecology and Evolution*, 11, 1257542, doi: 10.3389/fevo.2023.1257542.
8. **Zhao, N.***, P. Wu, A. Manda, X. Guo, and B. Wang, 2023. Moisture sources of the Tohoku heavy rainfalls in August 2022 and the influences of tropical storms. *Geophysical Research Letters*, 50(17), e2023GL104166, doi:10.1029/2023GL104166.
9. X. Zhang, **N. Zhao**, and Z. Han, 2023. A modified U-net model for predicting the sea surface salinity over the western Pacific Ocean. *Remote Sensing*, 15(6), 1684, doi:10.3390/rs15061684.
10. **Zhao, N.***, P. Wu, S. Yokoi, and M. Hattori, 2022. Why does eastward propagating convection weaken over Sumatra Island in an active phase of the MJO? *Monthly Weather Review*, 150(4), doi: 10.1175/MWR-D-21-0251.1.
11. **Zhao, N.***, A. Manda, X. Guo, and B. Wang, 2022. Impacts of moisture supply from the subtropical western Pacific on the subtropical High and the atmospheric river during the heavy rain of 2020 in Japan. *Frontiers in Earth Science*, doi:10.3389/feart.2022.1043093.
12. **Zhao, N.***, A. Manda, X. Guo, K. Kikuchi, T. Nasuno, M. Nakano, Y. Zhang, and B. Wang, 2021. A Lagrangian view of moisture transport related to the heavy rainfall of July 2020 in Japan: Importance of the moistening over the subtropical regions. *Geophysical Research Letters*, 48, e2020GL091441, doi:10.1029/2020GL091441. **Top Downloaded Article, Wiley. (Awarded in Feb 2023)**
13. X. Guo, **N. Zhao**, K. Kikuchi, T. Nasuno, M. Nakano, H. Annamalai, 2021. Atmospheric Rivers over the Indo-Pacific and its Associations with Boreal Summer Intraseasonal Oscillation . *Journal of Climate*, 32(24), 9711-9728, doi: 10.1175/JCLI-D-21-0290.
14. B. Wang, L. Wu, **N. Zhao**, T. Liu, and N. Hirose, 2021. Summer Wind Effects on Coastal Upwelling in the Southwestern Yellow Sea. *Journal of Marine Science and Engineering*, 9(9), 1021, doi:10.3390/jmse9091021.
15. **Zhao, N.*** and T. Nasuno, 2020. How does the air-sea coupling frequency affect convection during the MJO passage? *Journal of Advances in Modeling Earth Systems*, 12, e2020MS002058, doi: 10.1029/2020MS002058.
16. **Zhao, N.***, S. Iwasaki, M. Yamamoto, and A. Isobe, 2018. Modulation of Extratropical Cyclones by Previous Cyclones via the Sea Surface Temperature Anomaly over the Sea of Japan in Winter. *Journal of Geophysical*

Research: Atmospheres, 123 (12), 6312-6330, doi: 10.1029/2017JD027503.

17. **Zhao, N.***, S. Iwasaki, A. Isobe, R.-C. Lien, and B. Wang, 2016. Intensification of the subpolar front in the Sea of Japan during winter cyclones. *Journal of Geophysical Research: Oceans*, 121 (4), 2253-2267, doi: 10.1002/2015JC011565.
18. **Zhao, N.***, Z. Han, and X. Liu, 2016. Preliminary study on the frontogenesis and frontolysis of the oceanic temperature front in the Northwestern Pacific Ocean. *Marine Sciences*, 40 (1), 123-131, doi: 10.11759/hykx20130419002. (in Chinese with English abstract)
19. **Zhao, N.*** and Z. Han, 2015. A simulation model of seawater vertical temperature by using back-propagation neural network. *Polish Maritime Research*, 22 (s1), 82-88, doi: 10.1515/pomr-2015-0037.
20. **Zhao, N.***, Z. Han, and A. Manda, 2014. Frontogenesis and frontolysis of the subpolar front in the surface mixed layer of the Japan Sea. *Journal of Geophysical Research: Oceans*, 119 (2), 1498-1509, doi: 10.1002/2013JC009419.
21. **Zhao, N.***, Z. Han, and S. Wang, 2014. A segment-based seawater temperature model by using the relative gradient method. *Periodical of Ocean University of China*, 44 (9), 25-29. (in Chinese with English abstract)
22. Han, Z., and. **N. Zhao**, 2012. Seawater temperature model from Argo data by LM-BP neural network in the Northwestern Pacific Ocean. *Marine Environmental Science*, 31 (4), 555-560, doi: 10.3969/j.issn.1007-6336.2012.04.021. (in Chinese with English abstract)

Non-peer-reviewed

Thesis

- Sub-weekly scale interactions between the Japan Sea and extratropical cyclones in winter. Ph.D. thesis, 2017, Kyushu University.
- Study on the seawater temperature in the western North Pacific by using Argo data. M.Sc. thesis, 2013, Shanghai Ocean University. (in Chinese with English abstract)

In Preparation & Under Review

- **Zhao*, N.**, P. Wu, S. Moteki, A. Manda, S. Mori, B. Wang. Influences of diurnal air-sea interaction on the heavy rainfalls over Java Island during the Cold-Surge. In preparation.

Conferences & Seminars

Convening

- (Convener) Session: Atmosphere, Ocean, and Land Processes in the Maritime Continent and Indo-Pacific. AGU Fall Meeting 2024, Dec 2024, Washington, D.C., USA & Online
- (Convener) Session: Subtropical Air-Sea Interaction. Ocean Science Meetings 2024, Feb 2024, New Orleans, Louisiana, USA & Online
- (Convener) Session: Atmosphere, Ocean, and Land Processes in the Maritime Continent and Indo-Pacific. AGU Fall Meeting 2023, Dec 2023, San Francisco, California, USA & Online
- (Convener) Session: Atmosphere, Ocean, and Land Processes in the Maritime Continent and Indo-Pacific. AGU Fall Meeting 2022, Dec 2022, Chicago, Illinois, USA & Online
- (Co-Convener) Session: Subtropical Air-Sea Interaction. Ocean Science Meetings 2022, Feb 2022, Honolulu, Hawaii, USA & Online
- (Primary Convener) Session: Atmosphere, Ocean, and Land Processes in the Maritime Continent and Indo-Pacific. AGU Fall Meeting 2021, Dec 2021, New Orleans, LA, USA & Online
- (Co-Convener) Session: Atmosphere, Ocean, and Land Processes in the Maritime Continent and Indo-Pacific. AGU Fall Meeting 2020, Dec 2020, Online, USA

Presentations

- (Oral by Japanese) Large spread in marine heatwave assessments for Asia and the Indo-Pacific between sea-surface-temperature products. 北大低温研研究集会「環オホーツク陸海結合システムの冠動脈：対馬暖流系の物質循環」, Jun 2024, Hokkaido University, Singapore
- (Oral by English) Moisture sources of the record-breaking heavy rainfalls over Tohoku region in August 2022. AOGS Annual Meeting 2023, Aug 2023, Suntec, Singapore
- (Oral by English) Moisture sources of the record-breaking heavy rainfalls over Tohoku region in August

2022. JpGU Annual Meeting 2023, May 2023, Makuhari Messe, Chiba, Japan

- (Oral by Japanese) Abnormal moisture transport routes for the heavy rainfalls over the Tohoku region, Japan in August 2022, Mar 2023, Kyushu University, Fukuoka, Japan
- (Poster by English) Impact of warm SST in the western Subtropical Pacific on the Heavy Rain of 2020 in Japan. Ocean Sciences Meeting 2022, Feb 2022, Online, USA
- (Poster by English) Why does convection weaken over Sumatra Island in an active phase of the MJO? AGU Fall Meeting 2021, Dec 2021, New Orleans, LA, USA & Online Everywhere
- (Oral by Japanese) Impact of warm SST in the western Subtropical Pacific on the Heavy Rain of 2020 in Japan. The Meteorological Society of Japan 2021 Fall Meeting, Dec 2021, Mie University, Mie, Japan
- (Oral by English) Why does eastward propagating convection weaken over Sumatra Island in an active phase of the MJO? JpGU Annual Meeting 2021, Jun 2021, Online, Japan
- (Poster by English) 粒子追跡で見た令和 2 年 7 月豪雨の水蒸気輸送. 新学術領域研究「中緯度大気海洋」（気候系の Hotspot2）第 1 回領域全体会議, Sep 2020, Online, Japan
- (Poster by English) How does the air-sea coupling frequency affect convection during the MJO passage? Ocean Sciences Meeting 2020, Feb 2020, San Diego Convention Center, San Diego, USA
- (Poster by English) How does the air-sea coupling frequency affect convection during the MJO passage? The Meteorological Society of Japan 2019 Fall Meeting, Oct 2019, Fukuoka International Congress Center, Fukuoka, Japan
- (Poster by English) How does the air-sea coupling frequency affect convection during the MJO passage? The Oceanographic Society of Japan 2019 Fall Meeting, Sep 2019, Toyama International Conference Center, Toyama, Japan
- (Oral by English) Atmospheric Response to a Diurnally Varying Sea Surface Temperature in the Tsushima Strait Area, The 20th Pacific-Asian Marginal Seas (PAMS) Meeting, Mar 2019, International Convention Center Kaohsiung, Kaohsiung, Taiwan
- (Oral by English) 高解像度海面水温に対する対馬海峡域の大気応答, The Oceanographic Society of Japan 2018 Fall Meeting, Sep 2018, Tokyo University of Marine Science and Technology, Tokyo, Japan
- (Oral by English)Local Atmosphere Response to a High-resolution SST Dataset in the Tsushima Strait Area, 15th Japan Korea (Korea-Japan) Joint Seminar in the Ocean and the Atmosphere, Sep 2018, Howard Johnson Hotel Jeju Yeongdong, Jeju, Korea
- (Oral by Japanese) 高解像度海面水温に対する対馬海峡域の大気応答, 海洋モデリング研究会, Jul 2018, Kuju Joint Training Center for National Universities in Kyushu Area, Oita, Japan
- (Oral by Japanese) 高解像度海面水温に対する対馬海峡域の大気応答, 研究集会・宗谷暖流を始めとした対馬暖流系の変動メカニズム, Jul 2018, Hokkaido University, Sapporo, Japan
- (Oral by English) Sub-weekly Scale Interactions between the Sea of Japan and Extra-tropical Cyclones in Winter, 2018 Ocean Sciences Meeting, Feb 2018, Oregon Convention Center, Portland, USA
- (Oral by Japanese) 冬季東アジア周辺の温帯低気圧による海面水温変化・新たな可能性, 2017 年度気候システム研究集会, Sep 2017, Fukuoka University, Fukuoka, Japan
- (Invited/Poster) Effect of SST in the Sea of Japan on the Winter Cyclones, The 1st JpGU-AGU Joint Meeting, May 2017, Makuhari Messe, Chiba, Japan
- (Oral by English) Effect of SST in the Sea of Japan on the Winter Cyclones, The 19th Pacific-Asian Marginal Seas (PAMS) Meeting, Apr 2017, Seogwipo KAL Hotel, Jeju Island, South Korea
- (Oral by Japanese) Effect of SST in the Sea of Japan on the Winter Cyclones, The Meteorological Society of Japan 2016 Fall Meeting, Oct 2016, Nagoya University, Nagoya, Japan
- (Oral by Japanese) Effect of SST in the Sea of Japan on the Winter Cyclones, 激甚化する台風・爆弾低気圧起源の災害ハザード予測研究 Workshop, Oct 2016, Kyushu University, Fukuoka, Japan
- (Oral by Japanese) 温帯低気圧における日本海の海面水温変化, 2016 年度気候システム研究集会, Sep 2016, Nagasaki University, Nagasaki, Japan
- (Oral by English) Effect of SST in the Sea of Japan on the Winter Cyclones, The Oceanographic Society of Japan 2016 Spring Meeting, Mar 2016, The University of Tokyo, Tokyo, Japan
- (Oral by Japanese) Intensification of the subpolar front in the Japan Sea during the winter cyclones, The

Oceanographic Society of Japan 2015 Fall Meeting, Sep 2015, Ehime University, Matsuyama, Japan

- (Oral by Japanese) Intensification of the subpolar front in the Japan Sea during the winter cyclones, 2015 年度気候システム研究集会, Sep 2015, Kagoshima University, Kagoshima, Japan
- (Oral by Japanese) Intensification of the subpolar front in the Japan Sea during the winter cyclones, 2015 年度海洋学会若手会, Aug 2015, The University of Tokyo, Tokyo, Japan
- (Oral by Japanese) Intensification of the subpolar front in the Japan Sea during the winter cyclones, 研究集会・宗谷暖流を始めとした対馬暖流系の変動メカニズム, Jul 2015, Hokkaido University, Sapporo, Japan

Other Professional Activities

Awards:
Reviewer Award, *Journal of Meteorological Research*, Springer (Jul, 2022)
Top Downloaded Article, Wiley (Feb, 2023)

Journal Editor:
Scientific Online Letters on the Atmosphere (2024-Present)

Society Memberships:
The Oceanographic Society of Japan (2014-Present)
The Meteorological Society of Japan (2015-Present)
American Geophysical Union (2017-Present)

Journal Reviewer:
Geophysical Research Letters, Atmospheric Chemistry and Physics, Earth and Space Science, Geoscience Letters, Journal of Climate, Journal of the Atmospheric Sciences, Quarterly Journal of the Royal Meteorological Society, Journal of Hydrology, Atmospheric Research, Journal of Hydrometeorology, Earth's Future, Journal of Geophysical Research: Oceans, Journal of Geophysical Research: Atmospheres, Deep Sea Research: Part I, Climate Dynamics, Remote Sensing, Journal of Meteorological Research, Annals of the New York Academy of Sciences, Atmosphere, Acta Oceanologia Sinica, Journal of Oceanography, Scientific Online Letters on the Atmosphere, Sustainability

Teaching Assistant:

Oct 2014-Mar 2015	*Ocean Modelling II*, Lecturer: Prof. Naoki Hirose Interdisciplinary Graduate School of Engineering Sciences, Kyushu University
Apr 2015-Sep 2015	*Geophysical Fluid Dynamics*, Lecturer: Prof. Atsuhiko Isobe Interdisciplinary Graduate School of Engineering Sciences, Kyushu University

Abilities

Programming Languages	Fortran, Shell Script, Python & Matlab
Figure Plotting	Generic Mapping Tools (GMT), Python, GrADS
Languages	Chinese (native), English, Japanese
Documents Handling	Microsoft Office, LaTeX
OS	Windows, Mac OS, Linux (PC & Super Computer)
Others	Photography