

# Dr Shuai Wang

## CONTACT INFORMATION

Assistant Professor  
Univeristy of Delaware  
Newark, DE 19716, United States

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## EDUCATION

**Imperial College London, UK**  
2013 - 2017 Ph.D. in Atmospheric Science

**Ocean University of China, China**  
2011 - 2013 M.S. in Meteorology

**Ocean University of China, China**  
2007 - 2011 B.S. in Atmospheric Science

## EMPLOYMENT

**University of Delaware - Department of Geography and Spatial Sciences**  
2023 - present Assistant Professor (tenure-track)

**Princeton University - Program in Atmospheric and Oceanic Sciences (AOS)**  
**NOAA - Geophysical Fluid Dynamics Laboratory (GFDL)**  
2022 - 2023 Associate Research Scholar

**Princeton University - Department of Civil and Environmental Engineering**  
2021 Postdoctoral Research Associate

**Imperial College London - Department of Physics**  
2017 - 2020 Postdoctoral Research Associate  
2021 - present Academic Visitor

**SOAS University of London - School of Finance and Management**  
2018 - 2019 Joint Research Fellow

## RESEARCH INTERESTS

Tropical Cyclones, Climate Modeling, Extreme Weather, Climate Service

## FULL PUBLICATION

Google Scholar statistics [link]. Citations: 416. *h*-index: 12.

**2023** (4 peer-reviewed papers)

30. **Wang, S.**, Murakami, H., and Cooke, W.. Anthropogenic forcing changes coastal tropical cyclone frequency. [link]. *npj Climate and Atmospheric Science*.
29. Li, Y., Tang, Y., **Wang, S.**, Toumi, R., Song, X., and Wang, Q.. Recent Increases in Tropical Cyclone Rapid Intensification Events in Global Offshore Regions [link]. *Nature Communications*.
28. Xi, D., **Wang, S.**, and Lin, N.. Relationship Between Tropical Cyclone Intensity and Rain Rate [link]. *Journal of Climate*.
27. Li, Y., Tang, Y., **Wang, S.**, and Li, X.. Rapid growth of tropical cyclone outer size over the western North Pacific [link]. *Remote Sensing*.

**2022** (9 peer-reviewed papers + 1 white paper)

26. **Wang, S.**, Lin, N., and Gori, A.. Investigation of hurricane complete wind models and application in storm surge simulation [link]. *Journal of Geophysical Research - Atmospheres*.
25. Li, Y., Tang, Y., Toumi, R., and **Wang, S.**.. Revisiting the definition of rapid intensification of tropical cyclones by clustering the initial intensity and inner-core size [link]. *Journal of Geophysical Research - Atmospheres*.

24. Tian, D., Zhang, H., **Wang, S.**, Zhang, W., Sun, X., Zhou, Y., Yang, S., and Zhou., F. Sea surface wind structure observed by wave gliders during tropical cyclones [link]. *Journal of Geophysical Research - Atmospheres*.
  23. Biffis, E. and **Wang, S.** (2022). Downscaling of physical risks for climate scenario design [link]. *White Paper* published by the Singapore Management University.
  22. Li, Y., Tang, Y. and **Wang, S.**. Rapid growth of outer size of tropical cyclones: A new perspective on their destructive potential [link]. *Geophysical Research Letters*. **Editor's Highlight** on EOS [link].
  21. **Wang, S.** and Toumi, R.. An analytic model of tropical cyclone outer size [link]. *npj Climate and Atmospheric Science*.
  20. Xu, H., Tian, Z., Sun, L., Ragno, E., Bricker, J., Mao, G., Ye, Q., Tan, J., Wang, J., Ke, Q., **Wang, S.** and Toumi, R.. Compound flood impact of water level and rainfall during tropical cyclone period in a coastal city: The case of Shanghai [link]. *Natural Hazards and Earth System Sciences*.
  19. **Wang, S.** and Toumi, R. (2022). More tropical cyclones are striking coasts with major intensities at landfall [link]. *Scientific Reports*.
  18. **Wang, S.** and Toumi, R. (2022). On the intensity decay of tropical cyclones before landfall [link]. *Scientific Reports*.
  17. Meng Q., Zhou F., Ma X., Xuan J., Zhang H., **Wang, S.** et al.. Response Process of Coastal Hypoxia to a Passing Typhoon in the East China Sea [link]. *Frontiers in Marine Science*.
- 2021** (4 peer-reviewed papers)
16. **Wang, S.** and Toumi, R. (2021). Recent Migration of Tropical Cyclones toward Coasts [link]. *Science*.
  15. **Wang, S.** and Toumi, R. (2021). Recent tropical cyclone changes inferred from ocean surface temperature cold wakes [link]. *Scientific Reports*.
  14. **Wang, S.**, Toumi, R., Ye, Q., Ke, Q., Bricker, J., Tian, Z.\* and Sun, L. (2021). Is the tropical cyclone surge in Shanghai more sensitive to landfall location or intensity change? [link] *Atmospheric Science Letters*.
  13. Ke, Q., Yin, J., Bricker, J., Buonomo, E., Ye. Q., Visser, P., Dong, G., **Wang, S.**, Tian, Z., Sun, L., Toumi, R. and Jonkman, S. (2021). An integrated framework of coastal flood modelling under the failures of sea dikes: a case study in Shanghai [link]. *Natural Hazards*.
- 2020** (2 peer-reviewed papers)
12. **Wang, S.**, Rashid, T., Throp, H. and Toumi, R. (2020). A shortening of the intensity life-cycle of major tropical cyclones [link]. *Geophysical Research Letters*.
  11. Bruneau, N., **Wang, S.** and Toumi, R. (2020). Long memory impact of ocean mesoscale temperature anomalies on tropical cyclone size [link]. *Geophysical Research Letters*.
- 2019** (2 peer-reviewed papers)
10. Sparks, N., Hon, K., Chan. P., **Wang, S.**, Chan, J., Lee, T., and Toumi, R. (2019). Aircraft Observations of Tropical Cyclone Boundary Layer Turbulence over the South China Sea [link]. *Journal of the Atmospheric Science*.
  9. **Wang, S.** and Toumi, R. (2019) Impact of dry midlevel air on the tropical cyclone outer circulation [link]. *Journal of the Atmospheric Science*.
- 2018** (3 peer-reviewed papers)
8. **Wang, S.** and Toumi, R. (2018). A historical analysis of the mature stage of tropical cyclones [link]. *International Journal of Climatology*.

7. **Wang, S.** and Toumi, R. (2018). Reduced sensitivity of tropical cyclone intensity and size to sea surface temperature in a radiative-convective equilibrium environment [link]. *Advances in Atmospheric Science*.
6. Bruneau, N., Toumi, R. and **Wang, S.** (2018) Impact of wave white-capping on landfalling tropical cyclones [link]. *Scientific Reports*.

**Before 2017** (5 peer-reviewed papers)

5. **Wang, S.** and Toumi, R. (2016). On the relationship between hurricane cost and the integrated wind profile [link]. *Environmental Research Letters*.
4. **Wang, S.**, Toumi, R., Czaja, A. and Van Kan, A. (2015). An analytic model of tropical cyclone wind profiles [link]. *Quarterly Journal of the Royal Meteorological Society*.
3. Li, P., Fu, G., Lu, C., Fu, D., and **Wang, S.** (2012) The formation mechanism of a spring sea fog event over the yellow sea associated with a low-level jet [link]. *Weather and Forecasting*.
2. **Wang, S.**, Fu, G., and Pang, H. (2017). Structure analyses of the explosive extratropical cyclone: A case study over the Northwestern Pacific in March 2007 [link]. *Oceanic and Coastal Sea Research*.
1. Fu, D., **Wang, S.**, Chen, D., Pang, H. and Li, P. (2012). Comparison study between observation and simulation for sea fog over the Yellow Sea in May 2009 [link]. *Oceanic and Coastal Sea Research*.

INVITED AND  
CONFERENCE  
PRESENTATIONS

Environmental Modeling Center (NOAA/EMC), MD: “Coastal tropical cyclone changes in the past and future”. **Invited Seminar**, July. 2023.

The 35th Conference on Hurricanes and Tropical Meteorology (AMS), New Orleans, USA: “Recent migration of tropical cyclones toward coasts”. **Oral presentation**, May. 2022.

City University of Hong Kong, HK: “Too close to comfort”. **Invited talk**, June. 2021.

Met Office, UK: “Landward migration of tropical cyclone activities”. **Invited talk**, Mar. 2021.

Princeton University, GFDL/NOAA, USA: “Tropical cyclone activities in coastal regions”. **Invited talk**, Jan. 2021.

University College London, UK: “Estimating the destructive potential of tropical cyclones”. **Invited talk**, Mar. 2019.

The 34th Conference on Hurricanes and Tropical Meteorology (AMS), virtual, USA: “Midlevel dry air and tropical cyclone structure change”. **Oral presentation**, Apr. 2020.

The 13th Conference on Mesoscale Convective Systems and High-Impact Weather in East Asia (ICMCS), Naha, Japan: “Impact of dry midlevel air on the tropical cyclone outer circulation”. **Oral presentation**, Mar. 2019.

The 33rd Conference on Hurricanes and Tropical Meteorology (AMS), Florida, USA: “A historical analysis of the mature stage of tropical cyclones”. **Oral presentation**, Apr. 2018.

The 33rd Conference on Hurricanes and Tropical Meteorology (AMS), Florida, USA: “Reduced sensitivity of tropical cyclone intensity and size to sea surface temperature in a radiative-convective equilibrium environment”. **Poster presentation**, Apr. 2018.

The 32nd Conference on Hurricanes and Tropical Meteorology (AMS), San Juan, Puerto Rico: “Hurricane cost is largely controlled by the vertical wind shear”. **Oral presentation**, Apr. 2016.

The Climate Science for Service Partnership (CSSP) China-UK Workshop, Nanjing, China: “Tropical cyclone damage and potential environmental factors”. **Oral presentation**, Nov. 2015.

National Basic Research Program Annual Meeting, Guangzhou, China: “Factors on tropical cyclone destructive potential”. **Oral presentation**, Nov. 2015.

European Geosciences Union Annual meeting, Vienna, Austria: “Factors that influence the size of tropical cyclones”. **Oral presentation**, Apr. 2015.

Korea-China Joint Workshop on Marine Environment Forecasting System for the Yellow Sea and East China Sea, Seoul, South Korea: “Explosive Extra-tropical Cyclogenesis over the Yellow Sea”. **Oral presentation**, Apr. 2012.

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PROFESSIONAL  
SERVICE

Membership

American Meteorological Society, American Geophysical Union, Royal Meteorological Society

Peer Review

**The Fifth National Climate Assessment** NOAA internal reviewer

**Journals** *Nature Climate Change*, *Nature Communications*, *Journal of Climate*, *Monthly Weather Review*, *Environmental Research Letters*, *Climate Dynamics*, *Geophysical Research Letters*, *Journal of Geophysical Research*, *Journal of Hydrometeorology*, *International Journal of Climatology*, *Natural Hazards* (among others)

MEDIA COVERAGE

**The Associated Press** (2023) What makes Idalia so potent? [\[link\]](#)

**The Atlantic** (2023) This hurricane season is unprecedented [\[link\]](#)

**The Associated Press** (2021) Tropical cyclones are nearing land more, except in Atlantic [\[link\]](#)

**U.S. News** (2021) Tropical cyclones are nearing land more [\[link\]](#)

**Science Daily** (2021) Hurricanes and typhoons moving 30km closer to coasts every decade [\[link\]](#)

**Carbon Brief** (2021) Recent increase in major Atlantic hurricanes after 1960-1980s lull [\[link\]](#)

**The Independent** (2020) How is the ‘strongest storm of 2020’ linked to the climate crisis? [\[link\]](#)

**Carbon Brief** (2020) Global warming has ‘changed’ spread of tropical cyclones around the world [\[link\]](#)

**Carbon Brief** (2020) Major tropical cyclones have become ‘15% more likely’ over past 40 years [\[link\]](#)

**Carbon Brief** (2018) Global warming is causing tropical storms to slow down and last longer [\[link\]](#)

**BBC** (2017) Furacões estão mais frequentes e destruidores este ano? [\[link\]](#)

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