

Qiaohong Sun

Personal information

Postdoctoral Scientist

Pacific Climate Impacts Consortium, University of Victoria

Victoria, British Columbia, Canada, V8N 6M2.

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Research Interests

Hydrologic and Climatic Extremes;

Detection and Attribution;

Multivariate Analysis;

ENSO and Precipitation Variability;

Hydrology and water resources

Education

2015/09 - 2018/06 Ph.D., Global Environmental Change, Faculty of Geographical Science, Beijing Normal University, China

2016/09 – 2018/03: Visiting scholar, Department of Civil and Environmental Engineering, University of California, Irvine, USA

2012/09 – 2015/07: M.S., Global Environmental Change, College of Global Change and Earth System Science, Beijing Normal University, China

2008/09 – 2012/07: B.S., Geography, College of Geographical Science, Fujian Normal University, China

Working Experience

2018/07 - *Current*: Postdoctoral Scientist, Pacific Climate Impacts Consortium (PCIC), University of Victoria (UVIC)

Peer-Reviewed Publications

1. **Sun, Q.***, X. Zhang, F. W. Zwiers, S. Westra, and L.V. Alexander, 2021: A global, continental and regional analysis of changes in extreme precipitation, *Journal of Climate*, 34: 243–258; doi: 10.1175/JCLI-D-19-0892.1.
2. **Sun, Q.***, F. W. Zwiers, X. Zhang, and G. Li, 2020: A comparison of intra-annual and long-term trend scaling of extreme precipitation with temperature in a large-ensemble regional climate simulation, *Journal of Climate*, 33 (21): 9233–9245, doi: 10.1175/JCLI-D-19-0920.1.
3. **Sun, Q.**, Miao C.Y., AghaKouchak A., Mallakpour I., Ji D.Y., and Duan Q.Y., 2020: Possible Increased frequency of ENSO-related dry and wet conditions over some major watersheds in a warming climate, *Bulletin of the American Meteorological Society*, 101(4): 409-426, doi:10.1175/BAMS-D-18-0258.1.
4. **Sun, Q.**, Miao C.Y., Hanel M., Borthwick A.G.L., Duan Q.Y., Ji D.Y., Li H., 2019: Global heat stress on health, wildfires, and agricultural crops under different levels of climate warming, *Environment International*, 128: 125-136, doi: 10.1016/j.envint.2019.04.025.
5. **Sun, Q.**, Miao C.Y., Duan Q.Y., Ashouri H., Sorooshian S., Hsu K.L., 2018: A review of global precipitation datasets: data sources, estimation, and intercomparisons. *Reviews of Geophysics*, 56: 79-107, doi: 10.1002/2017RG000574. (ESI, Highly cited paper)

6. **Sun, Q.**, C. Miao C., Q. Duan, 2017: Changes in the spatial heterogeneity and annual distribution of observed precipitation across China. *Journal of Climate*, 30(23): 9399-9416, doi:10.1175/JCLI-D-17-0045.1.
7. **Sun, Q.**, C. Miao, 2018: Extreme Rainfall (R20mm, RX5day) in Yangtze-Huai, China, in June–July 2016: The Role of ENSO and Anthropogenic Climate Change. *Bulletin of the American Meteorological Society*, 99(1): S102-S106, doi: 10.1175/BAMS-D-17-0091.1.
8. **Sun, Q.**, C. Miao, A. AghaKouchak, Q. Duan, 2017: Unraveling anthropogenic influence on the changing risk of heat waves in China. *Geophysical Research Letters*, 44(10): 50748-5085, doi: 10.1002/2017GL073531. (AGU highlight)
9. **Sun, Q.**, C. Miao, Y. Qiao, Q. Duan, 2017: The nonstationary impact of local temperature changes and ENSO on extreme precipitation at the global scale, *Climate Dynamics*, 49(11-12): 4281-4292, doi:10.1007/s00382-017-3586-0.
10. **Sun, Q.**, J. Xia, C. Miao, and Q. Duan, 2017: Bayesian multi-model projections of extreme hydroclimatic events under RCPs scenarios. *Advances in Climate Change Research*, 8(2): 80-92, doi: 10.1016/j.accre.2017.06.001.
11. **Sun, Q.**, C. Miao, A. AghaKouchak, Q. Duan, 2016: Century-scale causal relationships between global dry/wet conditions and the state of the Pacific and Atlantic Oceans, *Geophysical Research Letters*, 43(12): 6528-6537, doi: 10.1002/2016GL069628.
12. **Sun, Q.**, C. Miao, Q. Duan, 2016: Extreme climate events and agricultural climate indices in China: CMIP5 model evaluation and projections. *International Journal of Climatology*, 36: 43-61, doi: 10.1002/joc.4328.
13. **Sun, Q.**, C. Miao, Q. Duan, 2015: Comparative analysis of CMIP3 and CMIP5 global climate models for simulating the daily mean, maximum, and minimum temperatures and daily precipitation over China. *Journal of Geophysical Research - Atmospheres*, 120(10): 4806-4824, doi:10.1002/2014JD022994.
14. **Sun, Q.**, C. Miao, Q. Duan, 2015: Assessment of temperature and precipitation changes in Loess Plateau during 1961-2011 based on high density gauge observations. *Global and Planetary Change*, 132, 1-10, doi: 10.1016/j.gloplacha.2015.05.011.
15. **Sun, Q.**, C. Miao, Q. Duan, 2015: Projected changes in temperature and precipitation in ten river basins over China in 21st century. *International Journal of Climatology*, 35(6): 1125-1141, doi: 10.1002/joc.4043.
16. **Sun, Q.**, C. Miao, Q. Duan, et al., 2014: Would the “real” observed dataset stand up? A critical examination of eight observed gridded climate datasets for China. *Environmental Research Letters*, 9: 015001, doi:10.1088/1748-9326/9/1/015001.
17. **Sun, Q.**, and Coauthors, 2014: Variations in global temperature and precipitation for the period of 1948 to 2010. *Environmental Monitoring and Assessment*, 2014, 186(9): 5663-5679, doi: 10.1007/s10661-014-3811-9.
18. Paik S., S. K. Min, X. Zhang, M. G. Donat, A. D. King, and **Q. Sun**, 2020: Determining the anthropogenic greenhouse gas contribution to the observed intensification of extreme precipitation. *Geophysical Research Letters*, 47(12), doi: 10.1029/2019GL086875.
19. Miao, C., Q. Duan, **Q. Sun**, X. Lei, H. Li, 2018: Non-uniform changes in different categories of precipitation intensity across China and the associated large-scale circulations. *Environmental Research Letters*, doi: 10.1088/1748-9326/aaf306.
20. Faiz, M. A., D. Liu, Q. Fu, **Q. Sun**, M. Li, F. Baig., ... S. Cui, 2018: How accurate are the performances of gridded precipitation data products over Northeast China? *Atmospheric Research*, 211, 12-20.
21. Miao, C., **Q. Sun**, D. Kong, Q. Duan, 2016: Record-breaking heat in northwest China in July 2015:

Analysis of the severity and underlying causes, *Bulletin of the American Meteorological Society*, 97(12): 97-101, doi:10.1175/BAMS-D-16-0142.1.

22. Miao, C., **Q. Sun**, A. G. L. Borthwick, 2016: Linkage between hourly precipitation events and atmospheric temperature changes over China during the warm season. *Scientific Reports*, doi:10.1038/srep22543.
23. Miao, C., **Q. Sun**, Q. Duan, Y. Wang, 2016: Joint analysis of changes in temperature and precipitation on the Loess Plateau during the period 1961–2011. *Climate Dynamics*, 47(9), 3221-3234, doi: 10.1007/s00382-016-3022-x.
24. Miao, C., L. Su, **Q. Sun**, Q. Duan, 2016: A nonstationary bias-correction technique to remove bias in GCM simulations. *Journal of Geophysical Research*, 121(10):5718-5735, doi: 10.1002/2015JD024159.
25. Kong, D., C. Miao, J. Wu, Q. Duan, **Q. Sun**, A. Ye, Z. Di, W. Gong, 2015: The hydro-environmental response on the lower Yellow River to the water-sediment regulation scheme. *Ecological Engineering*, 79, 69–79.
26. Kong, D., C. Miao, A. G. L. Borthwick, Q. Duan, H. Liu, **Q. Sun**, A. Ye, Z. Di, W. Gong, 2015: Evolution of the Yellow River Delta and its relationship with runoff and sediment load from 1983 to 2011. *Journal of Hydrology*, 520: 157-167. (Highly cited paper)
27. Miao, C., Q. Duan, **Q. Sun**, Y. Huang, D. Kong, T. Yang, A. Ye, Z. Di, W. Gong, 2014: Assessment of CMIP5 climate models and projected temperature changes over Northern Eurasia. *Environmental Research Letters*, 9, doi: 10.1088/1748-9326/9/5/055007.
28. Miao, C., Q. Duan, **Q. Sun**, J. Li, 2013: Evaluation and application of Bayesian Multi-model estimation in temperature simulations. *Progress in physical geography*, 37(6): 727-744.

Awards

Excellent doctoral dissertation [2020], Beijing normal university

National Scholarship [2017, 2016, 2015, 2014], Beijing Normal University

Outstanding Award for Doctoral Freshmen [2015], Beijing Normal University

Honor of Excellent Graduate of Beijing [2015, 2018], Beijing Normal University

Honor of Excellent Graduate of Beijing Normal University [2015, 2018]

Skills

Facility with the professional software grasped include programming language (Matlab, R, NCL, CDAT), graph (Origin, Photoshop, Adobe Illustrator), GIS (ArcView, Arcgis).

Research Experience

2018-current, the Pan-Canadian Global Water Futures (GWF) research program Pillar 1 project entitled “Short-duration precipitation extremes in future climate”. Project participant, Canada.

2013-2014, the rainfall erosivity under climate change, China. Project participant, sponsored by State Key Laboratory of Earth Surface Processes and Resource Ecology

2012-2013, Quantitative hydrological responses to the climate change and human activities and its future scenario in the Yellow River basin. Project participant, sponsored by the National Natural Science Foundation of China

2012-2014, Application of Bayesian multi-model to assess the climate change. Project participant, sponsored by National Key Basic Special Foundation Project of China (973)

2009-2013, Uncertainty quantification and downscaling of climate change projection. Project participant, sponsored by National Key Basic Special Foundation Project of China (973).

Academic Activity

Reviewer for International Journals, such as, Bulletin of the American Meteorological Society, Geophysical Research Letters, Journal of Climate, Journal of Geophysical Research, Journal of Hydrology, Water Resources Research, Remote Sensing of Environment, International Journal of Climatology.

Selected Conference Papers, Presentations and Posters

Sun, Q. F. W. Zwiers, X. Zhang, G. Li, Scaling Relationships between Extreme Precipitation and Local Temperature: Contrasting for Binning Scaling and Trend Scaling, 100th American Meteorological Society Annual Meeting, 2020, Boston, USA. (Poster)

Sun, Q. C. Miao, Q. Duan, Century-scale causal relationships between global drought conditions and the state of the Pacific and Atlantic Oceans, EGU General Assembly Conference, April, 2016, Vienna, Austria. (Poster)

Sun, Q. C. Miao, Q. Duan, Linkages between the alternation of global dry/wet conditions and the state of Pacific and Atlantic Oceans, AOGS 13th Annual Meeting, August, 2016, Beijing, China. (Oral)

Sun, Q. C. Miao, Q. Duan, Changes in Spatial Heterogeneity and Temporal Inequality of Observed Precipitation over China, AGU Fall Meeting, December, 2016, San Francisco, California, USA. (Poster)