Jordan Christian

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Education

Ph.D., Meteorology, 2020	University of Oklahoma, Norman, OK
M.S., Atmospheric Science, 2017	University of Wyoming, Laramie, WY
B.S., Meteorology, 2014	University of Oklahoma, Norman, OK

Positions

Assistant Professor, University of North Dakota, August 2024 through present
Postdoctoral Research Associate, University of Oklahoma, January 2021 through June 2024
Graduate Research Assistant, University of Oklahoma, June 2017 through December 2020
Graduate Research Assistant, University of Wyoming, August 2015 through May 2017
Student Research Assistant, University of Oklahoma, June 2015 through August 2015
Student Employee, University of Oklahoma (CIMMS), December 2013 through August 2014

Publications

1. Puxley, B. L., E. R. Martin, J. B. Basara, and **J. I. Christian**, 2024: The wildfire impacts of the 2017-2018 precipitation whiplash event across the Southern Great Plains. *Environmental Research Letters*, **19**, 074029, https://doi.org/10.1088/1748-9326/ad54da.
2. **Christian, J. I.**, and Coauthors, 2024: Flash drought: A state of the science review. *Wiley Interdisciplinary Reviews: Water*, https://doi.org/10.1002/wat2.1714.
3. Lowman, L. E. L., **J. I. Christian**, and E. D. Hunt, 2023: How land surface characteristics influence the development of flash drought through the drivers of soil moisture and vapor pressure deficit. *J. Hydrometeorology*, https://doi.org/10.1175/jhm-d-22-0158.1.
4. **Christian, J. I.**, E. R. Martin, J. B. Basara, J. C. Furtado, J. A. Otkin, L. E. L. Lowman, E. D. Hunt, V. Mishra, and X. Xiao, 2023: Global projections of flash drought show increased risk in a warming climate. *Communications Earth & Environment*, 4, 165, https://doi.org/10.1038/s43247-023-00826-1.
5. Edris, S. G., J. B. Basara, **J. I. Christian**, E. D. Hunt, J. A. Otkin, S. T. Salesky, and B. G. Illston, 2023: Analysis of the critical components of flash drought using the standardized evaporative stress ratio. *Agricultural and Forest Meteorology*, 330, 109288, https://doi.org/10.1016/j.agrformet.2022.109288.
6. **Christian, J. I.**, J. B. Basara, L. E. L. Lowman, X. Xiao, D. Mesheske, and Y. Zhou, 2022: Flash drought identification from satellite-based land surface water index. *Remote Sensing Applications: Society and Environment*, 26, 100770, https://doi.org/10.1016/j.rsase.2022.100770.
7. Hunt, E., F. Femia, C. Werrell, **J. I. Christian**, J. A. Otkin, J. Basara, M. Anderson, T. White, C. Hain, K. McGaughey, R. Randall, 2021: Agricultural and Food Security Impacts from the 2010 Russia flash drought. *Weather and Climate Extremes*, 34, 100383, https://doi.org/10.1016/j.wace.2021.100383.
8. **Christian, J. I.**, J. B. Basara, E. D. Hunt, J. A. Otkin, J. C. Furtado, V. Mishra, X. Xiao, and R. M. Randall, 2021: Global Distribution, Trends, and Drivers of Flash Drought Occurrence. *Nature Communications*, 12, 6330, https://doi.org/10.1038/s41467-021-26692-z.
9. Otkin, J. A., Y. Zhong, E. D. Hunt, **J. I. Christian**, J. B. Basara, H. Nguyen, M. C. Wheeler, T. W. Ford, A. Hoell, M. Svoboda, M. C. Anderson, 2021: Development of a Flash Drought Intensity Index. *Atmosphere*, 12, 741, https://doi.org/10.3390/atmos12060741.

10. Osman, M., B. F. Zaitchik, H. S. Badr, **J. I. Christian**, T. Tadesse, J. A. Otkin, and M. C. Anderson, 2021: Flash drought onset over the contiguous United States: sensitivity of inventories and trends to quantitative definitions. *Hydrology & Earth System Sciences*, 25, 565–581, https://doi.org/10.5194/hess-25-565-2021.
11. **Christian, J. I.**, J. B. Basara, E. D. Hunt, J. A. Otkin, and X. Xiao, 2020: Flash drought development and cascading impacts associated with the 2010 Russian heatwave. *Environmental Research Letters*, 15, 094078, https://doi.org/10.1088/1748-9326/ab9faf.
12. Hunt, E. D., **J. I. Christian**, J. B. Basara, L. Lowman, and J. A. Otkin, 2020: The Flash Drought of 1936. *Journal of Applied and Service Climatology*, 2020, 1-15, https://doi.org/10.46275/JOASC.2020.11.001.
13. **Christian, J. I.**, J. B. Basara, J. A. Otkin, and E. D. Hunt, 2019: Regional characteristics of flash droughts across the United States. *Environmental Research Communications*, 1, 125004, https://doi.org/10.1088/2515-7620/ab50ca.
14. Basara, J. B., **J. I. Christian**, R. A. Wakefield, J. A. Otkin, E. H. Hunt, and D. P. Brown, 2019: The evolution, propagation, and spread of flash drought in the Central United States during 2012. *Environmental Research Letters*, 14, 084025, https://doi.org/10.1088/1748-9326/ab2cc0.
15. **Christian, J. I.**, J. B. Basara, J. A. Otkin, E. D. Hunt, R. A. Wakefield, P. X. Flanagan, and X. Xiao, 2019: A Methodology for Flash Drought Identification: Application of Flash Drought Frequency across the United States. *Journal of Hydrometeorology*, 20, 833–846, https://doi.org/10.1175/JHM-D-18-0198.1.
16. Basara, J. B., **J. I. Christian**, 2018: Seasonal and Interannual Variability of Land-Atmosphere Coupling within the Southern Great Plains. *International Journal of Climatology*, 38, 964-978, https://doi.org/10.1002/joc.5223.
17. Geerts, B., **J. I. Christian**, 2017: Radar Kinematic Information as Surrogate for Thermodynamic Information in Stratiform Precipitation Systems. *Monthly Weather Review*, 145, 3763-3774, https://doi.org/10.1175/MWR-D-16-0470.1.
18. Degelia, S. K., **J. I. Christian**, J. B. Basara, T. J. Mitchell, D. F. Gardner, S. E. Jackson, J. C. Ragland, and H. R. Mahan, 2016: An overview of ice storms and their impact in the United States. *International Journal of Climatology*, 36, 2811–2822, https://doi.org/10.1002/joc.4525.
19. **Christian, J.**, K. Christian, and J. B. Basara, 2015: Drought and Pluvial Dipole Events within the Great Plains of the United States. *Journal of Applied Meteorology and Climatology*, 54, 1886-1898, https://doi.org/10.1175/JAMC-D-15-0002.

External Funding

Funded

Enhancing National Security Decision-making Process for Regions Vulnerable to the Impacts of Flash Droughts Through Greater use of NASA Resources, Proposal contributor and funded as PhD student, Project total = $399,940; 2019-2021, 24 months of support.

Awards and Achievements

- OVPRP Postdoc Match Program, University of Oklahoma (2023)
- Research Excellence Award, School of Meteorology, University of Oklahoma (2021)
- David James Shellberg Memorial Scholarship, University of Oklahoma (2020)

- Outstanding Performance as a Graduate Student Award, School of Meteorology, University of Oklahoma (2020)
- Bullard Dissertation Completion Fellowship, University of Oklahoma (2020)
- Provost's Graduate Teaching Assistant Award, University of Oklahoma (2019)
- 1st place student oral presentation in the 32nd Conference on Hydrology in the 98th American Meteorological Society Annual Meeting (2018)

Teaching Experience

University of North Dakota (2024-present)

Course	Course Title	Semester Taught	Enrollment
ATSC 405	Numerical Methods in Meteorology	Fall 2024	10

University of Oklahoma (2014-2023)

Course	Course Title	Semester Taught	Enrollment
METR 5733	Hydroclimatology	Summer 2023	41
METR 5733	Hydroclimatology	Summer 2022	67
METR 5733	Hydroclimatology	Summer 2021	50
METR 5733	Hydroclimatology	Summer 2020	65
METR 1014	Intro to Weather and Climate Lab	Spring 2020	24
METR 1014	Intro to Weather and Climate Lab	Fall 2019	25
METR 5733	Hydroclimatology	Summer 2019	45
METR 1014	Intro to Weather and Climate Lab	Spring 2019	16
METR 2011	Intro to Meteorology I Lab	Fall 2018	15
METR 2021	Intro to Meteorology II Lab	Spring 2015	22
METR 2011	Intro to Meteorology I Lab	Fall 2014	20

Additional Experience

- Co-developed METR 5733 Hydroclimatology, University of Oklahoma
- Lead TA for METR 1014 Intro to Weather and Climate Lab sections (Fall 2019, Spring 2020), University of Oklahoma
- Proctored exams for METR 1014 Intro to Weather and Climate (Spring 2019, Fall 2019, Spring 2020), University of Oklahoma
- Guest lecture for METR 4633 Hydrometeorology (Spring 2018), University of Oklahoma

Leadership Experience

NIDIS Flash Drought Technical Working Group (2022 – present)

- Collaborate with researchers and stakeholders to identify opportunities to improve early warning for flash drought (monitoring, prediction, planning/response) and plan national flash drought workshops

Session co-convener for the European Geosciences Union Annual Meeting

- Moving beyond the hazard: understanding and managing the complex nature of drought risks and impacts (2024)

Session chair/co-chair for the American Meteorological Society Annual Meeting

- Flash Drought Monitoring, Predictability, and Impacts in a Changing Climate (39th Conference on Hydrology, 2025)
- Flash Drought Monitoring, Predictability, and Impacts in a Changing Climate (38th Conference on Hydrology, 2024)
- Advances in Monitoring, Analysis, and Prediction of Flash Drought and Related Heatwaves (35th Conference on Hydrology, 2021)
- Improvements to the Analysis and Prediction of Flash Drought and Long-Term Drought (34th Conference on Hydrology, 2020)
- Integrating water and energy cycle pathways to better understand weather and climate extremes (33rd Conference on Hydrology, 2019)

Student Mentoring

- Ph.D. Committee Member for Taylor Grace, (School of Meteorology, University of Oklahoma, 2021 - present)
- Ph.D. Committee Member for Stuart Edris, (School of Meteorology, University of Oklahoma, 2019 - 2024)
- Ph.D. Committee Member for Daniel Mesheske, (School of Civil Engineering and Environmental Science, University of Oklahoma, 2020 – 2023)
- Mentor for the Research Experiences for Undergraduates program (School of Meteorology, University of Oklahoma, Summer 2019)
- Mentor for undergraduate students in independent research (School of Meteorology, University of Oklahoma, Spring 2019, Spring 2020)

Presentations

Invited

1. "Flash Droughts: A Local to Global Analysis", NASA Global Modeling and Assimilation Office (2024).
2. "A Product for Near Real-Time Flash Drought Monitoring", United States Drought Monitor Forum (2023).
3. "Flash drought climatology: A local to global analysis", Risk KAN: Compound Extremes Webinar (2021).
4. "Flash Drought Climatology: A Local to Global Analysis", American Geophysical Union Annual Meeting (2020).
5. "Flash Drought Identification: Climatological Analysis and Case Studies", NASA Terrestrial Water Cycle Webinar (2020).
6. "Flash Drought Identification", (International) North American Drought Monitor Forum (Calgary, Alberta, Canada; 2018).

Conferences

1. "Projections of Flash Drought in a Warming Climate Across the United States", Flash Drought Workshop, (2023).

2. “Global Projections of Flash Drought in a Warming Climate”, European Geosciences Union (2023).
3. “Global Projections of Flash Drought in a Warming Climate”, American Meteorological Society Annual Meeting (2023).
4. “The 2022 Flash Drought Across the South-Central United States: Drivers, Development, and Impacts”, American Meteorological Society Annual Meeting (2023).
5. “Global Projections of Flash Drought in a Warming Climate”, American Geophysical Union Annual Meeting (2022).
6. “Flash Drought: Current Knowledge, Tools, and Future Opportunities”, Cooperative Institute for Severe and High Impact Weather Research and Operations Workshop (2022).
7. “Flash Drought Identification from Satellite-Based Land Surface Water Index”, American Meteorological Society Annual Meeting (2022).
8. “Flash Drought Development and Cascading Impacts Associated with the 2010 Russian Heat Wave”, American Meteorological Society Annual Meeting (2021).
9. “Flash Drought Occurrence Across the Globe”, American Meteorological Society Annual Meeting (2020).
10. “An Investigation of Flash Drought Development Preceding the 2010 Russian Heatwave”, American Geophysical Union Annual Meeting (2019).
11. “Flash Droughts Across the Southern Great Plains”, Oklahoma Governor’s Water Conference and Research Symposium (2019).
12. “Regional Characteristics of Flash Droughts Across the United States”, University of Oklahoma International Water Conference (2019).
13. “Regional Characteristics of Flash Droughts Across the United States”, American Meteorological Society Annual Meeting (2019).
14. “Flash Droughts Across the Southern Great Plains”, Oklahoma Governor’s Water Conference and Research Symposium (2018).
15. “The Evaporative Stress Index as an Indicator for Flash Drought Across the United States Using Reanalysis Datasets”, American Meteorological Society Annual Meeting (2018).
16. “New Insights Into Flash Droughts”, Great Plains Grazing Webinar (2017).
17. “New Insights Into Flash Droughts”, Department of Defense Webinar (2017).
18. “Seasonal and Interannual Variability of Land-Atmosphere Coupling within the Southern Great Plains”, American Meteorological Society Annual Meeting (2017).

Service

Proposal Review Panels

- NOAA Modeling, Analysis, Predictions, and Projections.
- Oklahoma NSF EPSCoR seed grant.

Reviewer

- Agricultural Water Management
- Bulletin of the American Meteorological Society
- Earth’s Future
- Environmental Research Letters
- Geophysical Research Letters
- International Journal of Climatology
- Journal of Applied Meteorology and Climatology
- Journal of Climate
- Journal of Geophysical Research: Atmospheres
- Journal of Hydrology
- Journal of Hydrometeorology

- Nature Climate Change
- Nature Communications
- npj Climate and Atmospheric Science
- Water Resources Research