

Sarah Rose Worden

NASA Postdoctoral Program Fellow, Jet Propulsion Laboratory

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Experience

NASA Postdoctoral Program Fellow, Jet Propulsion Laboratory	2024-Present
Graduate Student Researcher, University of California Los Angeles	2019-2024
Undergraduate Student Researcher, University of California Los Angeles	2017-2019
Joint Institute for Regional Earth System Science and Engineering Intern	2017

Education

Ph.D in Atmospheric and Oceanic Science	2024
University of California Los Angeles	
M.S. in Atmospheric and Oceanic Sciences	2021
University of California Los Angeles	
B.S. in Physics, Cum Laude	2019
University of California Los Angeles	
B.A. in Music Performance	2019
University of California Los Angeles	

Research Fellowships

NASA Postdoctoral Program Fellow	2024-Present
Jet Propulsion Laboratory, California Institute of Technology <i>“Carbon and Water Coupling and Ecosystem Resilience Across Tropical Rainforests”</i>	
Richard P. and Linda S. Turco Endowed Graduate Fellowship	2022
Future Investigators in NASA Earth and Space Science and Technology	2019-2024
University of California, Los Angeles <i>“Identifying the Changing Moisture Sources Behind the Early Onset and Demise of the Congo Spring Rainy Season”</i>	

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Curriculum Vitae

Awards

AGU Edmond M. Dewan Young Scientist Scholarship	2023
Brian Bosart Award for Departmental Service and Academic Excellence, UCLA	2021
AGU Remote Sensing Technical Committee Student Award	2021
UCLA Alumni Scholarship	2019-2020
Dean's List, UCLA	2014-2019

Publications

Worden, S., Bloom, A. A., Worden, J., Levine, P., Shi, M., & Fu, R. (2024). Congo Basin water balance and terrestrial fluxes inferred from satellite observations of the isotopic composition of water vapor. *Water Resources Research*, 60(7), e2023WR035092.

<https://doi.org/10.1029/2023WR035092>

Fu, R., **Worden, S.**, Chakraborty, S., Worden, J., & Dickinson, R. E. (2022). Water Cycle over the Congo Basin, Oxford Research Encyclopedia of Climate Science, Climate of Africa.

Shi, M., Worden, J.R., Bailey, A., Noone, D., Risi, C., Fu, R., **Worden, S.**, Herman, R., Payne, V., Pagano, T. & Bowman, K., (2022). Amazonian terrestrial water balance inferred from satellite-observed water vapor isotopes. *Nature communications*, 13, 2686.

<https://doi.org/10.1038/s41467-022-30317-4>

Worden, S., Fu, R., Chakraborty, S., Liu, J., & Worden, J. (2021). Where does moisture come from over the Congo Basin? *Journal of Geophysical Research: Biogeosciences*, 126, e2020JG006024. <https://doi.org/10.1029/2020JG006024>

Worden, J., Saatchi, S., Keller, S., **Worden, S.**, et al. (2021). Satellite Observations of the Tropical Terrestrial Carbon Balance and Interactions with the Water Cycle During the 21st Century. *Reviews of Geophysics*, 59(1), p.e2020RG000711

<https://doi.org/10.1029/2020RG000711>

In Revision

Worden, S., & Fu., R. (2024). On the Mechanisms Controlling the Rainy Season Transition Period in the Southern Congo Basin. *Climate Dynamics*. <https://doi.org/10.21203/rs.3.rs-3851954/v1>

Submitted or In Preparation

Worden, S., & Fu, R. On the Mechanisms Controlling the Rainy Season Transition Periods in the Equatorial Congo Basin. [In Preparation]

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Worden, S., Ordway, E., Saatchi, S., Fu, R., Bloom, A.A., Smith, T., & Levine, P. Five Key Factors Affecting the Equatorial African Carbon Cycle in the 21st century. [In Preparation]

Worden, S., Saatchi, S., Madani, N., & Yang, Y. Weak Carbon and Water Flux Coupling of the Amazonian Rainforests. [In Preparation]

Presentations

Oral

Worden, S., and Saatchi, S. *Weak Carbon and Water Flux Coupling of Amazonian Rainforests*. (2024). 11th International Carbon Dioxide Conference, Manaus, Brazil.

Worden, S., and Fu, R. *The Mechanisms Controlling the Rainy Season Transition Period in the Southern Congo*. (2024). American Meteorological Society Annual Meeting, Baltimore, MD.

Worden S., and Saatchi, S. *Water and Carbon Fluxes are Weakly Coupled Across Equatorial Africa*. (2023). American Geophysical Union Fall Conference, San Francisco, CA.

Worden S., Ordway, E., Fu, R., Sassan, S., Bloom, A.A., Levine, P., & Smith, T. *Five Key Factors Affecting the Equatorial African Carbon Cycle in the 21st century*. (2023). UCLA Center For Tropical Research Seminar Series. Invited Talk. Los Angeles, CA.

Levine, P., Bilir, E., Bloom, A., Braghieri, R., Famiglietti, C., Konings, A., **Worden, S.**, et al. *Constraining carbon, water, and energy cycling using diverse Earth observations across scales: the CARDAMOM 3.0 approach*. (2023). European Geoscience Union General Assembly, Vienna, Austria.

Worden, S., Bloom, A.A., Levine, P., Shi, M., Worden, J., & Fu, R. *Estimating Evapotranspiration in the Congo Basin Using Water Vapor Isotopes and a Terrestrial Ecosystem Model*. (2023). iLEAPS-OzFlux Conference, Auckland, New Zealand.

Worden, S., Fu, R., Bloom, A.A., Worden, J., & Levine, P. *Estimating Evapotranspiration in the Congo Basin Using Remotely-Sensed Measurements to Constrain a Terrestrial Ecosystem Model*. (2022). American Geophysical Union Fall Conference, Chicago, IL.

Fu, R., **Worden, S.**, & Worden, J. *What is the Main Source of Moisture in the Atmosphere over the Congo Basin?* (2022). American Meteorological Society Annual Meeting, Online.

Worden S., Fu, R., Bloom, A.A., Worden, J., & Levine, P. *Quantifying ET Over the Congo Basin Using a Combination of Remotely-sensed and Surface Measurements*. (2021). American Geophysical Union Fall Conference, New Orleans, LA.

Worden S., Fu, R., Bloom, A.A., Worden, J., & Levine, P. *Quantifying ET Over the Congo Basin*. (2021). Stable Isotopes: From Weather to Climate Workshop, Online.

Worden S., Fu, R., Bloom, A.A., Worden, J., & Levine, P. *Quantifying Evapotranspiration Over the Congo Basin Using Satellite-Based and Ground Measurements*. (2021). GRACE-FO Science Team Meeting, Online.

Bloom, A.A., Au, J., Bowman, K., Famiglietti, C., Dadap, N., Konings, A., Levine, P., Liu, J., Longo, M., **Worden, S.**, et al. *Observing, resolving and predicting the terrestrial carbon cycle and its sensitivity to climate*. (2020). American Geophysical Union Fall Conference, Online.

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Shi, M., Worden, J., Bailey, A., Noone, D., Risi, C., Fu, R., **Worden, S.**, Herman, R., Payne, V., et al. *Variability of Amazon water balance determined by atmospheric isotopic water vapor measurements*. (2020). American Geophysical Union Fall Conference, Online.
Fu, R., **Worden, S.**, Chakraborty, S., Worden, J., & Zhuang, Y. *Could rainforests initiate rainy season over Congo Basin?* (2018). Chapman Conference on Hydrologic Research in the Congo Basin. Chapman Conference on Hydrologic Research in the Congo Basin, Washington, D.C.

Posters

Worden, S., Ordway, E., Saatchi, S., Fu, R., Bloom, A.A, Smith, T., and Levine, P. *Five Key Factors Affecting the Equatorial African Carbon Cycle in the 21st century*. 11th International Carbon Dioxide Conference, Manaus, Brazil.

Worden, S., and Fu, R. *On the Mechanisms Controlling the Rainy Season Transition Period in the Southern Congo*. (2024). American Meteorological Society Annual Meeting, Student Conference. Baltimore, MD.

Worden, S., and Fu, R. *The Role of Evapotranspiration in Initiating the Rainy Season in the Southern Congo Basin*. (2023). American Geophysical Union Fall Conference, San Francisco, CA.

Worden, S., Bloom, A.A., Levine, P., Shi, M., Worden, J., & Fu, R. *Congo Basin Water Balance and Evapotranspiration Inferred from Satellite Observations of the Isotopic Composition of Water Vapor*. (2023). NASA Carbon Cycle and Ecosystems Conference, Washington D.C.

Worden, S., Bortnik J., Worden, M., & Fu, R. *Exploring the Potential of Unsupervised Machine Learning and Satellite Measurements to Derive Climate Zones in the USA*. (2021). American Geophysical Union Fall Conference, New Orleans, LA

Worden, S., Fu, R., Liu, J., Chakraborty, S., & Worden, J. *Where does Moisture Come From over the Congo Basin?* (2021). Midwest Student Conference on Atmospheric Research, Online

Worden, S., Fu, R., Liu, J., Chakraborty, S., & Worden, J. *Where does Moisture Come From over the Congo Basin?* (2020). American Geophysical Union Fall Conference, Online

Teaching Experience

Teaching Assistant, Atmospheric and Oceanic Sciences Department, UCLA

AOS 102: Climate Change and Modeling 2021

AOS 102: Climate Change and Modeling 2020

Service Work

Journal Reviews

Geophysical Research Letters (1)

Committees and Leadership

PANGEA White Paper Lead Author	2024
PANGEA Climate Feedbacks and Interactions Working Group Co-Lead	2024
American Meteorological Society Annual Meeting Student Assistant	2024
African Group on Atmospheric Sciences	
American Association for the Advancement of Science Section W Steering Group	2023-present
American Geophysical Union Atmospheric Sciences Early Career Committee	2023-present
Society for Gender Equity in Geoscience, UCLA <i>President</i>	2022-2023
<i>Professional Development Chair</i>	2021-2022
Chi Epsilon Pi (XEP) Honors Meteorological Society, UCLA <i>President</i>	2022-2023
<i>Seminar Chair</i>	2021-2022
<i>Operation Officer</i>	2020-2021
AOS Awards Committee Member, UCLA	2022-2023
AOS Faculty Search Committee Member, UCLA	2022
Student Organizer for AOS Arakawa Symposium, UCLA	2022
AOS Seminar Committee Member, UCLA	2021-2022
AOS Website Committee Member, UCLA	2020-2021

Volunteer Work

Geoscience Education and Mentorship Support (GEMS) Mentor	2024
Invited Talk, Congo Basin Institute Club	2023
Sierra Madre Elementary School STEAM Night Volunteer	2023
Exploring your University Volunteer, UCLA	2020-2023
XEP Graduate-Undergraduate Mentorship Program Mentor	2020-2023
Arroyos and Foothills Conservancy Wildlife Camera Volunteer	2022-2023
Westside String Quartet Ukraine Fundraising Concerts Violinist	2022

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XEP “AOS Buddies” Mentorship Program Mentor	2021-2022
Letters to a Pre-Scientist Mentor	2020-2021
Geoscience Education and Mentorship Support (GEMS) Mentor	2020-2021

Trainings and Workshops

AOS Climate Justice Collective Reading Course, UCLA	2023
ADVANCEGeo Bystander Training and Implicit Bias Workshops, UCLA	2022
UCLA Campus Assault Resources & Education Bystander Training Workshop	2022
Women in STEM (WiSTEM) Conference Participant	2021
UCLA LS 495: Preparation for College-Level Teaching in the Life Sciences	2021
Science and Art Workshop led by Dr. Mika Tosca	2021
Dione Rossiter Scientific Communication Workshop, UCLA	2021
Unlearning Racism in Geoscience (URGE) CA Area Pod Member	2020

Professional Organizations

American Meteorological Society	2023-present
American Association for the Advancement of Science (AAAS)	2023-present
Earth Science Women’s Network	2021-present
American Geophysical Union	2019-present