Ben Zaitchik

Department of Earth and Planetary Sciences
Johns Hopkins University
Baltimore, Maryland, USA

Employment

Department of Earth and Planetary Sciences, Johns Hopkins University

Department Chair	2024-
Professor	2021-
Associate Professor	2017-2020
Assistant Professor	2008-2016

Office of Global Change, U.S. Department of State

AAAS Diplomacy Fellow	2008-2010

NASA GSFC Hydrological Sciences Branch / University of Maryland

Research Associate	2006-2008

Education

PhD: Yale University, Department of Geology and Geophysics 2006
Dissertation: *Regional drivers of aridity in the Middle East and beyond*

MS: Cornell University, Department of Crop and Soil Sciences 2001
Thesis: *Managing landslide risk in Central Honduras*

AB: Department of Biology, Harvard University 1998

Research Experience

I lead the Johns Hopkins University *Hydroclimate Research Group*. Our research includes fundamental studies of regional climate dynamics and hydrology (with focus areas on land-atmosphere interactions, tropical atmospheric dynamics, and drought), problems of applied climatology (focus on land data assimilation, land surface model development, and subseasonal-to-seasonal forecast) and transdisciplinary work on climate risk and resilience (infectious disease forecast, urban climate resilience, agricultural impacts of climate change, and sustainable development). Through this work we aim to advance understanding of Earth systems and co-develop science-informed strategies for addressing global and local environmental change.

Examples of leadership on large transdisciplinary projects include the *Baltimore Social-Environmental Collaborative* urban integrated field lab (DOE), which is designed to build the science required to enable equity-oriented climate action in Baltimore, *INFEWS/T1: Understanding multi-scale resilience options for climate-vulnerable regions* (NSF), which applied a systems approach to investigate sustainable water and food security paths in Ethiopia and Mali, and *Subseasonal-to-Seasonal Forecast of Hydro-Ecological Extremes in the Amazon Basin* (NASA), which focuses on improved drought, fire, and disease early warning systems. Projects like these present considerable management and communication challenges, as all include significant coordination across fields and institutions and demand close work with decision-makers and other stakeholders. They also offer remarkable opportunity for learning and hold the potential to yield sustained benefit to the quality of our science and to the communities we work with.

Selected Recent Publications (Total: 226, Google Scholar H-index: 55)

Recalde-Coronel, G. C., Zaitchik, B., et al. (2024). Contributions of initial conditions and meteorological forecast to subseasonal-to-seasonal hydrological forecast skill in Western Tropical South America. *Journal of Hydrometeorology*.

Badr, H. S., Zaitchik, B. F., et al. (2023). Unified real-time environmental-epidemiological data for multiscale modeling of the COVID-19 pandemic. *Scientific Data*, 10(1), 367.

Zaitchik, B.F., et al. (2023). Wetting and drying trends under climate change. *Nature Water*. https://doi.org/10.1038/s44221-023-00073-w

Osman, M., Zaitchik, B. F., & Winstead, N. S. (2022). Cascading drought-heat dynamics during the 2021 Southwest United States Heatwave. *GRL*, e2022GL099265.

Zaitchik, B. F., et al. (2022). Planning for compound hazards during the COVID-19 pandemic: the role of climate information systems. *BAMS*, 103(3), E704-E709.

Vashisht, A. & Zaitchik, B. (2021). Modulation of East African boreal fall rainfall: combined effects of the Madden Julian Oscillation (MJO) and El Niño Southern Oscillation (ENSO). *Journal of Climate*, 1-42.

Zaitchik, B. F., & Tuholske, C. (2021). Earth observations of extreme heat events: leveraging current capabilities to enhance heat research and action. *Environmental Research Letters*, 16(11).

Osman, M., Zaitchik, B. F., et al. (2021). Flash drought onset over the Contiguous United States: Sensitivity of inventories and trends to quantitative definitions. *Hydrology and Earth System Sciences*, 25(2), 565-581.

Nie, W., Zaitchik, B. F., et al. (2021) Irrigation water demand sensitivity to climate variability across the Contiguous United States. *Water Resources Research*, e2020WR027738.

Grace, K., Siddiqui, S., & Zaitchik, B. F. (2021). A framework for interdisciplinary research in food systems. *Nature Food*, 2(1), 1-3.

Zaitchik, B. F., et al. (2020). A framework for research linking weather, climate and COVID-19. *Nature Communications*, 11(1), 1-3.

Helman, D., & Zaitchik, B. F. (2020). Temperature anomalies affect violent conflicts in African and Middle Eastern warm regions. *Global Environmental Change*, 63, 102118.

Awards and Honors

AMS Walter Orr Roberts Lecture (2024); AMS Editor's Award, Journal of Hydrometeorology (2017); PopTech Science Fellow (2012); NCAR Early Career Scientist Symposium, Invited Participant (2011); U.S. State Department Superior Honor Award (2010) & Meritorious Service Award (2009); NASA Goddard Space Flight Center Peer award for outstanding Research Associate (2007); DISCCRS III (Dissertation Initiative for the Advancement of Climate Change Research) Invited Participant (2007); NCAR Climate and Global Change Post-doctoral Fellowship selection (2006); Yale University Elias Loomis Prize for excellence in studies of physics of the Earth (2004); AGU Outstanding Student Paper Award in Hydrology (2003); NSF Graduate Student Fellowship (1999); Harvard College Hoopes Prize for Outstanding Undergraduate Research Thesis (1998)

Professional Society Membership

American Geophysical Union, American Meteorological Society, American Association for the Advancement of Science