

TRISTAN BALLARD

Statistician & Climate Scientist

SUMMARY

- Passion for developing data-driven solutions to global challenges
- Experience managing large geospatial and time series datasets
- Startup experience working on a small team for big impact
- Selected for Spotlight talk at NeurIPS 2020 workshop

EXPERIENCE

DATA SCIENCE FELLOW

Sust Global / 6/20 - Present

- Built a novel image super-resolution neural network enhancing spatial resolutions 8-fold in wildfire risk assessments
- Developed scalable models for asset-level risk assessments from climate hazards like droughts and cyclones
- Wrangled 100s of GBs of diverse data streams

PHD RESEARCHER

Stanford University / 9/15 - 8/21

- Developed recurrent neural network for river temperature and quantified distributional shifts using quantile regression
- Challenged a prominent Gulf of Mexico water quality model in *Science* on statistical grounds
- Quantified climate influences on U.S. nitrogen runoff

RESEARCH ASSISTANT

Duke University / 1/14 - 5/15

- Evaluated a Bayesian model averaging method for combining multiple climate model predictions
- Forecast Ethiopian precipitation shifts using climate models
- Designed validation metrics for wind power simulations

RESEARCH ASSISTANT

Columbia University / 6/13 - 8/13

- Modeled the relationship between drought and duck populations in the Great Plains

CONTACTS

 tballard@stanford.edu

 [LinkedIn](#)

 [Website](#)

 [GitHub](#)

SOFTWARE

R (5 years)

Python (2 years)

Keras

Dask

Unix

SQL

GCP

Git

EDUCATION

PhD / Earth Systems

Stanford University

2015 - 2021

MS / Statistics

Stanford University

2018 - 2020

BS / Statistics

Duke University

2011 - 2015

PUBLICATIONS

- **Ballard, T.** and Michalak, M., 2021: Detecting the changing shape of U.S. river temperature distributions using quantile regression. *In Prep.*
- **Ballard, T.** and Michalak, M., 2021: River heatwaves under climate change. *In Prep.*
- **Ballard, T.** and Erinjippurath, G., 2020: FireSRnet: Geoscience-Driven Super-Resolution of Future Fire Risk from Climate Change. *Tackling Climate Change with Machine Learning Workshop at NeurIPS 2020.*
- **Ballard, T.,** A. Michalak, G. McIsaac, N. Rabalais, and R. Turner, 2019: Comment on "Legacy nitrogen may prevent water quality goals in the Gulf of Mexico." *Science.*
- **Ballard, T.,** E. Sinha, and A. Michalak, 2019: Long-term changes in precipitation and temperature have already impacted nitrogen loading. *Environmental Science and Technology.*
- Swain, D.L., D. Singh, D.E. Horton, J.S. Mankin, **T. Ballard,** and N. Diffenbaugh, 2017: Remote linkages to anomalous winter atmospheric ridging over the northeastern Pacific. *JGR-Atmospheres.*
- Li, L., W. Li, **T. Ballard,** G. Sun, M. Jeuland, 2015: CMIP5 model simulations of Ethiopian Kiremt-season precipitation: Current climate and future changes. *Climate Dynamics.*
- **Ballard, T.,** R. Seager, J.E. Smerdon, B.I. Cook, A.J. Ray, B. Rajagopalan, Y. Kushnir, J. Nakamura, and N. Henderson, 2014: Hydroclimate variability and change in the Prairie Pothole Region, the "Duck Factory" of North America. *Earth Interactions.*

ACTIVITIES

Stanford Datathon
2nd Place (2020)

Reviewer
Climate Change AI
ICML workshop;
Climate Dynamics

Cycling
Collegiate Nationals
(2018)