**ZACHARY M. LABE**, Ph.D.  
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**SKILLS & EXPERTISE**

* **Climate Data Science:**
  + 10+ years of experience analyzing physical climate change and extreme weather with high-resolution models (CMIP6), observations, satellites, and data-driven techniques.
* **Machine Learning & Statistics:**
  + Developing predictive AI frameworks for climate extremes, using Python (TensorFlow, scikit-learn, Xarray) and high-performance computing environments (Linux/Unix).
* **Risk & Impact Analysis:**
  + Designing attribution methods and applying future climate scenarios to inform infrastructure vulnerabilities, identify natural hazards, and assess community impacts.
* **Climate Modeling & Tools:** 
  + Extensive work in analyzing and processing large Earth science datasets, using GitHub for version control, and software like CDO, NCO, R, Matlab, Microsoft Office.
* **Public Science Communication:**
  + Engage 100,000+ followers across social media to translate complex climate information through visualization; featured in 100+ media interviews, including major news outlets.
* **Collaboration & Leadership:**
  + Co-led interdisciplinary projects, participated in 3 grant proposal panels, reviewed 50+ journal studies, and organized 6 sessions at major scientific conferences.

**EXPERIENCE**

**Research Physical Scientist (Federal)**

*NOAA Geophysical Fluid Dynamics Laboratory (GFDL) | 2024 – 2025*

* Led new research synthesizing AI and machine learning into climate change risk assessments.
* Evaluated and refined predictions of climate-related hazards (heat, rainfall, drought, wildfires).
* Worked with civil engineers and regional climate services to integrate climate projections into actionable resilience and adaptation strategies for local communities and building design codes.

**Postdoctoral Researcher & Associate Research Scholar**

*Princeton University & NOAA GFDL | 2022 – 2024*

* Facilitated real-time assessments for high-impact climate extremes by combining historical observations, climate models, and statistics to identify regions vulnerable to climate change.
* Coordinated with local/federal stakeholders, providing data-driven insights for decision-making.

**Postdoctoral Researcher**

*Colorado State University | 2020 – 2022*

* Applied explainable AI to distinguish human-caused climate change from natural variability.
* Awarded Sustainability Leadership Fellowship, included training in science policy engagement

**Graduate Research Assistant**

*University of California, Irvine | 2015 – 2020*

* Carried out Ph.D. research and publications on Arctic climate dynamics using numerical models.

**EDUCATION**

**Ph.D. in Earth System Science** – University of California, Irvine

* Awarded National Science Foundation Fellowship (NRT) for data science in climate research

**B.Sc. in Atmospheric Science** – Cornell University

* Distinction in Research | Dyson Business Minor for Life Sciences

**SELECTED IMPACTS**

* **Publications:** 30+ peer-reviewed articles on Earth science topics, including high-impact journals
* **Outreach:** Engage broad audiences in climate science through accessible data visualizations
* **Leadership:** 100+ scientific talks and contribute to high-profile international climate reports