Ariel L. Morrison

Climate Scientist

Longmont, CO, USA
ariel.morrison@colostate.edu
978-302-7415
www.ariel-morrison.com

Education

PhD - 2016 – 2019
University of Colorado Boulder
Atmospheric and Oceanic Sciences

MSc - 2013 – 2015
University of Colorado Boulder
Atmospheric and Oceanic Sciences

BA - 2006 – 2010
Boston University
Earth Sciences, Marine Sciences

Skills

- Python (xarray, pandas, NumPy, cartopy, sklearn, xclim)
- Shell scripting
- QGIS
- Public speaking
- Explainable AI for geosciences
- Analyzing big datasets from climate models
- Science communication
- Climate research leadership

Academic Statistics

- 13 peer-reviewed papers
- 5 undergraduate/graduate student mentees
- 27 accepted conference abstracts (17 talks/10 posters)
- 3 speaking and teaching awards
- 2 professional development seminars
- 2017 Chateaubriand Fellow

Summary

Climate scientist with a PhD in Atmospheric and Oceanic Sciences and 9+ years of experience assessing current and projected changes to the Arctic climate system. Uses satellite observations, big datasets from global climate models, and AI to address interdisciplinary questions about how geoengineering may affect climate tipping points, biodiversity, and agriculture.

Experience

Research Scientist I - October 2024 – Present

Colorado State University - Fort Collins, CO, USA

- Combining several climate indices to project geographic shifts in suitable growing conditions for grapes, coffee, and cocoa beans under different future climate change scenarios.

Postdoctoral Research Fellow - April 2022 – September 2024

Colorado State University - Fort Collins, CO, USA

- Conducted the first research study on the reduction in Arctic Ocean shipping season length under climate intervention scenarios, providing insights into potential economic impacts of geoengineering.
- Used large ensembles of climate model data and a logistic regression model to complete two concurrent projects on preventing Arctic permafrost tipping points through climate intervention, demonstrating consistent and exceptional project management skills.

Postdoctoral Research Fellow - May 2020 – March 2022

University of Victoria - Victoria, BC, Canada

- Adapted the Intermediate Complexity Atmospheric Research (ICAR) downscaling model for use with global climate model data.
- Collaborated on study on projected snowfall at British Columbia's ski resorts under climate change scenarios, providing valuable evaluation of the feasibility of future winter recreation.
- Led a group in proposing the development of an emissions accounting tracker for travel at the University of Victoria to promote environmentally conscious practices.

Postdoctoral Research Fellow - June – December 2019

University of Colorado Boulder – Boulder, CO, USA

- Awarded the Innovative Research Program grant ($25,000) to develop the first controlled method for using skin sensors to quantify student engagement in climate science education, which has been adopted by several groups using biometrics in education research.
- Created Python library for reading, analyzing, and visualizing Empatica E4 galvanic skin sensor data, improving reproducibility in education research.

Research Assistant - August 2013 – May 2019

University of Colorado Boulder - Boulder, CO, USA

- Integrated the COSP lidar simulator into the Community Earth System Model, enabling a true comparison of simulated clouds with observations.
- Innovated a new Arctic Ocean masking technique using sea ice properties, allowing for the first direct analysis of Arctic cloud-sea ice feedbacks.