Lucas J. Sterzinger

Curriculum Vitae

Address removed for Public CV
https://github.com/lsterzinger

INTEREST STATEMENT

I am an Atmospheric Science PhD candidate at UC Davis in my final year of studies. My research thus far has focused on numerical modelling of clouds and precipitation processes. I am passionate about open source and open science, and I have recently been involved in the development of Kerchunk, a software package aimed to make existing cloud-hosted datasets more accessible. I found I am most engaged and productive working in the intersection of geoscience, data science, and software development.

EDUCATION

PhD, Atmospheric Science — 2017 - Present
University of California, Davis, Davis, CA
Anticipated Graduation: Fall 2022

Bachelor of Science, Atmospheric Sciences — 2012 - 2017
University of North Dakota, Grand Forks, ND
Minor: Mathematics

Bachelor of Science, Aeronautics — 2012 - 2017
University of North Dakota, Grand Forks, ND

TECHNICAL

Languages & Software: Python, Julia, Fortran
Operating Systems: Unix/Linux, MacOS, Windows
Software Packages:

- PyRAMS (maintainer) - Package for working with RAMS model data
- Kerchunk (contributor) - Cloud performant access to NetCDF4 data

PUBLICATIONS

Do arctic mixed-phase clouds sometimes dissipate due to insufficient aerosol? Evidence from comparisons between observations and idealized simulations — (In Review)
Sterzinger, L. J., Sedlar, J., Guy, H., Neely III, R., & Igel, A. L.
Atmospheric Chemistry and Physics
https://doi.org/10.5194/acp-2022-36

The Effects of Ice Habit on Simulated Orographic Snowfall — 2021
Sterzinger, L. J., & Igel, A. L. - *Journal of Hydrometeorology*
https://doi.org/10.1175/JHM-D-20-0253.1

Models in the Cloud: A Cost Exploration of Cloud Computing for the Atmospheric Sciences — Nov. 2017
News@Unidata Blog
https://www.unidata.ucar.edu/blogs/news/entry/models-in-the-cloud-a

WORK EXPERIENCE

Graduate Student Researcher 2017 - Present
Atmospheric Science Graduate Group, UC Davis
Dr. Adele Igel, Faculty Advisor

- Works on various research related to cloud and precipitation physics. Projects include:
  - Effect of ice crystal habit (shape) on orographic snowfall in the Sierra Nevada Mountains. (Funding: Internal)
  - Examining the relationship between mixed-phase Arctic cloud dissipation and aerosol properties. (Funding: DOE ASR; A. Igel, PI)
  - Assessing relative impacts on aerosol contained within the boundary layer and free troposphere on the microphysics and other properties of Arctic mixed-phase clouds. (Funding: DOE ASR; A. Igel, PI)

Intern Summer 2021
Summer Internship in Parallel Computational Science (SIParCS)
National Center for Atmospheric Research (NCAR), Boulder, CO

- Worked with Chelle Gentemann (Farallon Inst.), Kevin Paul (NCAR), Julia Kent (NCAR), Rich Signell (USGS) and Martin Durant (Anaconda Inc.) on the development of the Kerchunk software library and its applicability and performance accessing cloud-hosted NOAA/NASA satellite data.
- Wrote documentation, blog posts, and example code on how to get started using Kerchunk - published open-source on GitHub.

Undergraduate Research Assistant 2016 - 2017
Dept. of Atmospheric Sciences, University of N. Dakota
Dr. Gretchen Mullendore, Faculty Advisor

- Worked on the "Big Weather Web" project examining potential uses for cloud computing infrastructure for numerical weather prediction.

Undergraduate Teaching Assistant 2015 - 2017
Dept. of Atmospheric Sciences, University of N. Dakota

- Independently taught Introduction to Meteorology lab, complete with weekly lectures and laboratory experiments.

Technical Support Specialist 2012 - 2017
Univ. of N. Dakota School of Medicine and Health Sciences

- Responsible for direct technology support to faculty, staff, and students. Also worked on managing video conference sytems, networks, and servers.

SERVICE

UC Davis Graduate Student Association

- General Assembly Representative 2019-2022
- Elections Committee 2019-2020

UC Davis Academic Senate
Committee on Information Technology
Graduate Student Representative 2020-2021

SELECTED CONFERENCE PRESENTATIONS

Open Science Success Stories *Dec. 2022
Session Co-Convener
American Geophysics Union Fall Meeting 2022 - Chicago, IL

Arctic Mixed-Phase Clouds Sometimes Dissipate Due to Insufficient Aerosol - Evidence from Idealized Large Eddy Simulations May 2022
Oral Presentation
European Geosciences Union General Assembly 2022 - Vienna, Austria

Arctic Mixed-Phase Clouds Sometimes Dissipate due to Insufficient Aerosol: Evidence from Idealized Large Eddy Simulations Apr. 2022
Oral Presentation
2nd QuIESCENT Workshop - Tromsø, Norway

Fake it until you make it — Reading GOES NetCDF4 data on AWS S3 as Zarr for rapid data access Jan. 2022
Oral Presentation and Interactive Workshop
2021 ESIP January Meeting

Cloud-performant reading of NetCDF4/HDF5/Grib2 using the Zarr library Dec. 2021
Oral Presentation
American Geophysics Union Fall Meeting 2021 - Online

Effects of Aerosol Concentration on the Dissipation of Arctic Mixed-Phase Clouds Dec. 2020
eLightning
American Geophysics Union Fall Meeting 2020 - Online

MEMBERSHIPS

American Meteorological Society
American Geophysics Union
European Geosciences Union

LANGUAGES

English
French (Bilingual Fluency)
German (2 years of courses)