Ash L. Gilbert

(they/them/theirs)

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Dept. of Atmospheric & Oceanic Sciences, University of Colorado-Boulder, Boulder, CO 80309

EDUCATION

University of Colorado, Boulder — Boulder, CO
PhD, Atmospheric Sciences — Expected May 2027

University of Michigan — Ann Arbor, MI
BSE with Honors, *summa cum laude* — April 2022
    Major: Climate & Meteorology, concentration in Meteorology
    Minors: Latin & Computer Science

AWARDS & HONORS

National Science Foundation (NSF) Graduate Research Fellowship — 2022

RESEARCH INTERESTS

- polar cloud processes
- cloud radiative properties
- CESM
- complex refractive indices
- surface radiation balance
- meltwater dynamics in Greenland

RESEARCH EXPERIENCE

University of Colorado, Boulder — Boulder, CO
Graduate Research Assistant, Advisor: Jennifer E. Kay — 2022 – Present

- Evaluating the impact of temperature dependent liquid water optical properties on the Arctic climate via a hierarchy of models
- Confirmed case study results that were the basis for this study by using a two-stream radiative transfer model written in Python software
- Identified small but not statistically significant effect of temperature dependent optics in both a single-column CESM case study and a long-term pre-industrial global CESM simulation
- Isolating the signal of the optics change by using a novel technique called wind nudging and by using ensemble members in CESM

University of Michigan — Ann Arbor, MI
Research Assistant, Advisor: Jeremy N. Bassis — 2019 – Present

- Determined the controls on supraglacial lake formation through observational analysis and modeling to further knowledge of ice sheet ablation
- Identified the observed spatio-temporal patterns in supraglacial lake formation and air temperature with ArcGIS
- Modeled how supraglacial lakes drain to replicate observed patterns using Python software and ArcGIS
- Presented poster on work in 2020 and 2021 at national conference for American Geophysical Union
- Participated in weekly lab meetings discussing relevant research papers and professional development topics
- Wrote and submitted a research paper for publication from this project

University of Michigan — Ann Arbor, MI
Research Assistant, Advisor: Christiane Jablonowski — 2021 – 2022
- Analyzed a case study of lake effect snow forecasting for the UFS-SRW model coupled to the FV3COM, a lake dynamics model
- Ran various configurations of the coupled UFS-FV3COM model on the NCAR Cheyenne supercomputer
- Compared model results to reanalysis data and snow accumulation observations to evaluate model skill

NSF Oceanic Sciences (Virtual) REU, NorthWest Research Associates
Research Intern, Advisor: Penny Rowe — 2020
- Worked under a mentor to find the influence of temperature dependence of cloud optical properties on simulated IR flux
- Received anti-discrimation, anti-harassment, DEI, and research ethics training through a series of professional development seminars provided by NSF
- Gave research talk as final part of the REU
- Presented poster on work in 2021 at national conference for American Meteorological Society

University of Michigan — Kangerlussuaq, Greenland
Field Expedition Member, Lead: Perry Samson — 2019
- Gained significant field research experience by working with team of students and professors to conduct multiple experiments involving stream flow, net solar radiation, PIBAL and rawinsonde launches, air quality, and 3D-scanning with drones
- Led and trained sub-team responsible for rawinsonde launches

University of Michigan — Ann Arbor, MI
Research Assistant, Advisor: Perry Samson — 2018 – 2019
- Study titled: *Ensemble Probability Program for Backward Trajectories from the University of Michigan Biological Station (UMBS) based on the Relative Abundance of ^{18}O*
- Wrote Python program that accessed a data bank of HY-SPLIT trajectories and retrieved trajectories corresponding to high or low ^{18}O values, then ran trajectory coordinates through probability function to produce a map that described where air with a high or low ^{18}O likely originated in order to find moisture sources for the UMBS using Python
- Concluded project by writing a summary paper and giving a poster presentation

University of Michigan — Ann Arbor, MI
Research Assistant, Advisor: Phoebe Aron — 2018 – 2019
- Interpolated meteorological, hydrological, and isotopic data with ArcGIS tools
- Developed and evaluated multiple procedures for calculating statistics of watersheds with ArcGIS tools
- Maintained and updated database of meteorological and isotopic information with SQL for Southern Peru
- Performed linear regression analysis on reanalysis datasets and isotope data using MATLAB
- Assisted PhD student relating to their study of hydrology in the Peruvian Andes by completing a variety of small research projects

TEACHING EXPERIENCE

University of Michigan
Instructional Aide, Earth and Space System Evolution — Fall 2021

Collaborator, Melting Ice Rising Seas Teach-Out   Fall 2019 – Spring 2020

SERVICE

University of Colorado, Boulder
Technology Committee   2022 – Present
- Made improvements to department website including removal of old links and addition of photos and personal website links to graduate student pages

Mentorship Committee   2023 – Present
- Participated as a mentor in the Graduate Application Mentorship program in Fall 2022, 2023
    - Mentored several students each year applying to the department by giving advice and reviewing personal statements
- Co-led Graduate Application Mentorship program in Fall 2023
    - Matched mentor graduate students to mentee applying students

Prospective Student Committee   2023 – Present
- Will help organized prospective student visits in the spring

COMPUTER SKILLS

- Python
- C++
- SQL
- MATLAB
- Fortran
- ArcGIS
- Unified Forecast System (UFS)
- Autodesk Inventor
- Adobe Illustrator
- Community Earth System Model (CESM)

LANGUAGES

Latin (reading knowledge)

PROFESSIONAL ASSOCIATIONS

American Geophysical Union
American Meteorological Society
Out in STEM

CONFERENCE PRESENTATIONS

Gilbert, A. and Kay, J.E. Impact of Temperature Dependent Cloud Optical Properties on Modeled Infrared Radiation. Gordon Research Conferences (GRC) 2023 Radiation and Climate. Poster presentation delivered at the GRC Radiation and Climate meeting, Bates College, Lewiston, ME, July, 2023.

Gilbert, L. and Bassis, J. Observing and Modeling Drainage Networks from Supraglacial Lakes on Russell Glacier, West Greenland. American Geophysical Union Abstracts. C151C-0809. Poster presentation delivered virtually at the American Geophysical Union meeting, New Orleans, LA, December, 2021.

Gilbert, L. and Bassis, J. Observing and Modeling Drainage Networks from Supraglacial Lakes on Russell Glacier, West Greenland. American Geophysical Union Abstracts. C061-0011. Poster presentation delivered virtually at the American Geophysical Union meeting, December, 2020.

Gilbert, L., Rowe, P., Fergoda, M., Neshyba, S. Influence of Temperature Dependence of Cloud Optical Properties on Simulated IR Flux at South Pole, Antarctica. American Meteorological Society Abstracts. 136. Poster presentation delivered virtually at the American Meteorological Society meeting, January, 2021.

PUBLICATIONS IN REVIEW

Gilbert, A. and Bassis, J. Observing and Modeling Drainage Networks from Supraglacial Lakes on Russell Glacier, West Greenland. Submitted to Journal of Glaciology.

REFERENCES

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