Saber E. Brasher, PhD

Technical Writer & Science Communicator

National Snow and Ice Data Center, University of Colorado

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saberbrasher.github.io

EDUCATION

2025 (expected) — **PMP** — **Project Management Professional**
Project Management Institute
Completed all education requirements (35+ PMI credits); application accepted and exam is planned for Fall

May 2022 — **PhD** — **Climatology**
Department of Geography and Spatial Sciences, University of Delaware, Newark, DE
Dissertation: Climatology and Spatial Distribution of Northern Hemisphere Cryo-Cover, Advisor: Dr. Daniel J. Leathers

May 2017 — **MS** — **Geography**
Department of Geography, Texas State University, San Marcos, TX
Thesis: Trends and Characteristics of North Atlantic Tropical Cyclones, Advisor: Dr. Richard W. Dixon

May 2015 — **BS** — **Physical Geography**
Department of Geography, Texas State University, San Marcos, TX

EMPLOYMENT HISTORY

Dec 2024 – *present* — **Technical Writer & Science Communicator / Associate Scientist III**

National Snow and Ice Data Center, University of Colorado

Leads technical writing for NASA's Soil Moisture Active Passive (SMAP) and NOAA's Special Sensor Microwave Imager/Sounder (SSMI/SSMIS) satellite data. Writes, revises, and manages user guides and metadata records for ~120 satellite, airborne, and ground-based Earth science datasets. Tests and validates new data products for quality and consistency using R, Python, Panoply / HDFView and ensures compliance with evolving data standards. Collaborates closely with scientists, data operations specialists, and software engineers to manage data and ensure timely and accurate publication of datasets. Works within project/data management systems such as Trello, Jira, Confluence, Bitbucket, and NSIDC/ NASA internal systems. Conducts workshops and trainings to enhance data visibility, improve data access / analysis, and expand access to NSIDC's data products for broader audiences (including scientists, stakeholders, and students). Maintains data access software (i.e. the *earthaccess* Python library), creates code-based tutorials/ webpages, and works within Open Science teams (i.e. Openscapes) to create reproducible workflows utilizing NASA data.

Dec 2024 – *present* — **Affiliate Faculty, Oklahoma State University, Department of Geography**

Engages in research and service via supervising and mentoring students as an advisor and committee member. Collaborates with faculty from various departments and programs to conduct and guide research heavily impacted by climate and climate change.

Aug 2022 – Dec 2024 **Assistant Professor, Oklahoma State University**

Affiliate Faculty, Environmental Science Interdisciplinary Graduate Program

Tenure-track appointment in the Department of Geography in Stillwater, OK. Taught and designed two courses per semester, lead independent studies, conducted scholarly research (via peer-reviewed publications and technical reports) in Climatology and Environmental Science with collaborators across the country, wrote successful grant proposals, managed externally funded research projects, recruited and supervised employees, mentored students as an advisor and committee member, and contributed service and leadership through multiple committee appointments that also included matters of hiring and promotion.

May 2022 – Aug 2022 **Postdoctoral Researcher, University of Delaware**

Funded by the Center for Environmental Monitoring and Analysis (CEMA) to analyze CMIP6 climate model output and other data products to create an updated Delaware Climate Change Impact Assessment. Oversaw graduate students who were working on the project and made recommendations to the state climate office as to which downscaled modelled products were most appropriate (and accessible) for the assessment. Guidance was implemented in the final product.

Aug 2021 – May 2022 **Doctoral Fellow and Teaching Instructor, University of Delaware**

Competitive fellowship from the Graduate College to support the completion of PhD dissertation research, which centered on climate-cryosphere dynamics utilizing multiple observed and remotely sensed climate data products, statistical methods, and ML-based techniques. Received faculty endorsement letters from within the department before the larger university-wide competition. Wrote a proposal for the project which included a clear timeline to completion and a closing report at the project's end. Competed for additional funding/ experience again via a course proposal to be the instructor of record for the lower-division Climate course– designed it and taught it during the winter session (online during COVID-19).

Jan 2019 – Jul 2021 **Research Assistant and Teaching Instructor, University of Delaware**

NSF funded grant (Grant Number: 1757353) with EPSCoR to evaluate environmental big data, with a focus on water quantity and availability for the state of Delaware. Contributed to the development of online decision support systems using insight from those datasets. Oversaw master's students also working on the project and frequently led the data science team meetings. Competed for additional funding/ experience via a course proposal to be the instructor of record for a lover-division undergraduate Climate course– designed it and taught it during the winter session (in-person).

Aug 2017 – Dec 2018 **Research and Teaching Assistant, University of Delaware**

Funded by the Delaware Environmental Observing System (DEOS) to investigate changes in extreme precipitation and to compile snowfall statistics for Delaware, oversaw/ mentored an undergraduate student who was also working on the project. Taught and designed labs in Physical Climatology and served as a Teaching Assistant in both upper and lower-division Environmental Science courses that emphasized technical writing. Taught the students skills in writing for diverse audiences.

Aug 2015 – May 2017 **Research and Teaching Assistant, Texas State University**

Funded by the Geography Department to compile and analyze climate and environmental datasets using R and to investigate sea ice extent changes near Greenland. Also taught labs in Physical Geography and assisted in refreshing the department's Meteorology course assignments.

GRANTS AND FUNDING

Funding Granted (Total: $4,190,764.54, Brasher's: $517,501.54)

External Awards

2024 – *27* USGS (Total: $410,294; Brasher's: $103,530). "Optimizing Invasive Plant Management in Grasslands: Integrating Remote Sensing and Climate Sciences"- a proposal submitted to the South-Central Climate Adaptation Science Center. **Role: co-PI**, Lead-PI: H. Gholizadeh, Oklahoma State University.

- *This work is in partnership with the Nature Conservancy to understand invasive plant behavior in threatened native tallgrass prairies. By utilizing both remote sensing and climatological techniques, deeper understanding of plant dynamics and future spread can inform the efficient management strategies under tight budgetary constraints. After leaving fulltime employment with OSU, funds were transferred to another co-PI. Brasher stays affiliated with work through assisting with graduate student supervision. Brasher was a co-PI from 2023 (writing stage) – 2024.*

2023 – *27* NSF (Total: $3,716,507; Brasher's: $350,008). "Collaborative Research: RII Track-2 FEC: RURAL CONFLUENCE: Communities and Academic Partners Uniting to Drive Discovery and Build Capacity for Climate Resilience"- a proposal submitted to the National Science Foundation EPSCoR Infrastructure Improvement Program. **Role: co-PI**, Lead-PI: T. Ochsner, Oklahoma State University.

- *This work is a partnership with multiple universities as well as community members and leaders in Oklahoma, Nebraska, and Louisiana. Through development of communities of practice and regular meetings with leaders in climate-impacted areas, the team is developing community-specific models to inform place-specific climate resilience strategies in rural places. After leaving fulltime employment with OSU, funds were transferred to another co-PI. Brasher was a co-PI from 2022 (writing stage) – 2024.*

Internal Awards

2022 – 24 OSU CAS (~$8,000). Research project proposal for funds to hire and support an undergraduate student as a research assistant (~10hrs/ week for two academic years) as part of the Advancing Undergraduate Research and Creative Activity (AURCA) program- submitted to the OSU College of Arts and Sciences. **Role: PI**.

2023 OSU ASR ($8,111). "Oklahoma's Summer Hydroclimate and Linkages with Water Availability"- a proposal submitted to the OSU College of Arts and Sciences Research (ASR) Program. **Role: PI**.

2023 OSU CAS ($15,052.54). Technology Fee Proposal for Classroom Improvement in Meteorology and Physical Geography- submitted to the OSU College of Arts and Sciences to purchase multiple instrumentation upgrades. **Role: co-Lead**.

2021 – 22 Mather Fellowship ($1,300), Department of Geography and Spatial Sciences, University of Delaware (by faculty nomination). **Role: Fellow**.

2021 – 22 Competitive Dissertation Fellowship ($28,000), Graduate College, University of Delaware (by faculty nomination and then a university-wide competition). **Role: Fellow**.

2016 George D. Battle Memorial Scholarship ($500) Supporting Research in Climatology, Geography Department, Texas State University (by department-wide competition). **Role: Recipient**.

2015 – 16 Graduate Merit Fellowship ($3,000), Graduate College, Texas State University (by faculty nomination). **Role: Fellow**.

Declined

2023 – 26 NOAA (Total: $499,776; Brasher's: $199,553). "Development and Analysis of a Rain-on-Snow Precipitation Event Database: Improved Understanding of Global Forcings through Synoptic Weather Typing"- a proposal submitted to the National Oceanic and Atmospheric Administration Climate Program Office. **Role: co-PI**, Lead-PI: Z. Suriano, Western Kentucky University.

PUBLISHED MANUSCRIPTS

6. **Brasher SE**, Leathers DJ, Callahan T, Giesa K. An Analysis of the National Water Model for a Suburban Watershed. (2023) *Physical Geography*, 1-22. https://doi.org/10.1080/02723646.2023.2260546

5. Brinson KR, Leathers DJ, **Brasher SE**. Influence of Synoptic Weather Conditions on Atmometers on the Delmarva Peninsula, USA. (2023). *Agricultural and Forest Meteorology*, 1-9. https://doi.org/10.1016/j.agrformet.2023.109482

4. **Brasher SE**, Leathers DJ. Using Self-Organizing Maps to Detect Northern Hemisphere Cryo-Cover Transformation. (2022). *Climate Dynamics,* 1-17. https://doi.org/10.1007/s00382-022-06394-y

3. **Brasher SE**, Leathers DJ. Climatology of Northern Hemisphere Cryo-Cover. (2021). *International Journal of Climatology,* 1–13. https://doi.org/10.1002/joc.7224

2. Ballinger TJ, Hanna E, Hall RJ, Carr RJ, **Brasher SE**, Osterberg EC, Cappelen J, Tedesco M, Ding Q, Mernild SH. (2020). The role of blocking circulation and emerging open water feedbacks on Greenland cold-season air temperature variability over the last century. *International Journal of Climatology,* 1–23. https://doi.org/ 10.1002/joc.6879

1. Leathers DJ, **Brasher SE,** Brinson KR, Hughes C, Weiskopf S. (2019). A comparison of extreme precipitation event frequency and magnitude using a high-resolution rain gage network and NOAA Atlas 14 across Delaware. *International Journal of Climatology,* 3748–3756. https://doi.org/10. 1002/joc.6425

TEACHING EXPERIENCE

Semester Key: Summer^{+}, Fall$^{\#}$, Spring*, Winter^

Oklahoma State University (*all as Instructor of Record*)

2022 – 24$^{\#}$	Climatology (GEOG 3023, 10 – 20 students)
2022 – 24$^{\#}$	Climate Change and Humanity (GEOG-GEOL 1022, 48 – 54 students)
2024$^{\#}$	Graduate Thesis (GEOG 5000, 2 students)
2024^{+}	Climate Research Seminar (GEOG 6910, 2 students)
2024*	Graduate Seminar in Climate Science (GEOG 5930, 8 students)
2023 – 24*	Meteorology (GEOG 3033, 70 – 90 students)

University of Delaware

2020 – 21^	Instructor of Record, Climate and Life (GEOG 152, 20 – 25 students)
2018*	Lab Instructor, Physical Climatology (GEOG 412)
2018$^{\#}$	Teaching Assistant, Environmental Science (ENSC 101)
2017 – 18$^{\#}$	Teaching Assistant, Environmental Science Proseminar (ENSC 450)

Texas State University

2016 – 17$^{\#*}$	Lab Instructor, Physical Geography (GEO 2410)
2015 – 16$^{\#*}$	Teaching Assistant, Meteorology (GEO 1305)

ADVISING AND SUPERVISION

Doctoral

2022 – *present* Matthew Broadway (Wildlife Ecology), *Role: Committee Member*

2022 – 25 Wenqi Liu (Geography), *Role: Committee Member*

- *Successfully graduated and moved on to a PostDoc position.*

2023 – 24 Holly Todaro (Wildlife Ecology), *Role: Prior Committee Member*

- *Successfully passed proposal defense and into candidacy; committee composition had to change after multiple committee members changed affiliation.*

Master's

2024 – *present* Smriti Shrestha (Geography), *Role: Committee Member / Prior Advisor*

2024 – *present* Daniel Aderotoye (Geography), *Role: Committee Member / Prior Advisor*

2023 – *present* Great Igiekhumhe (Environmental Science), *Role: Research Advisor*

2023 – 25 Farzana Afroz (Geography), *Role: Research Advisor*

- *Successfully graduated and moved on to a PhD program.*

2023 – 24 Kathy Osei (Geography), *Role: Committee Member*

- *Successfully graduated and moved on to a PhD program.*

Undergraduate

2022 – 24 Abby Livingston (Environmental Science), *Role: Research Advisor*

- *Successfully graduated and moved on to an MS program.*

ACADEMIC PRESENTATIONS AND WORKSHOPS

Key: Presenting author[#], Student mentee[*]

2025 Barrett, A[#]., Beig, M[#]., **Brasher SE[#],** Fritz, D[#]., Meier, W[#]. Introduction to NASA Snow and Ice Data Products and Applications for Water Resources Management. *Multiple oral presentations for the NASA Applied Remote Sending Training Program.* Online. July - August 2025.

2025 Fritz, D[#]., Barrett, A., Beig, M., **Brasher SE,** Meier, W., Lopez, L. Doing Science Faster: Streamlining NSIDC Data Access. *Poster presentation for the CIRES Rendezvous*. Boulder, Colorado. May 2025.

2024 **Brasher SE[#].** Rural Confluence: Communities and Academic Partners Uniting to Drive Discovery and Build Capacity for Climate Resilience. *Oral presentation for the Southwest Division of the American Association of Geographers Annual Meeting*. San Marcos, Texas. October 2024.

2024 Afroz, F[#*] and **Brasher SE**. A Seasonal Assessment of Vegetation Stress and Drought in the Southern Great Plains. *Poster presentation for the Southwest Division of the American Association of Geographers Annual Meeting*. San Marcos, Texas. October 2024.

2024 Igiekhumhe, O[#*] and **Brasher SE**. Rain-on-snow Events and Linkages to Streamflow in New York State. *Poster presentation for the Southwest Division of the American Association of Geographers Annual Meeting*. San Marcos, Texas. October 2024.

2024 Livingston, A[#*] and **Brasher SE**. Oklahoma's Summer Climate and Irrigated Agriculture. *Poster presentation for the Oklahoma Clean Lakes and Watersheds Association Conference.* Stillwater, Oklahoma. April 2024.

2023 Livingston, A[#*] and **Brasher SE**. Linkages Between Oklahoma Water Availability and Irrigated Agriculture. *Poster presentation for the Oklahoma State University Undergraduate Research Symposium*. Stillwater, Oklahoma. April 2023.

2022 **Brasher SE[#].** Hydroclimate and Environmental Change. *Oral presentation for the Southwest Division of the American Association of Geographers Annual Meeting*. Fayetteville, Arkansas. October 2022.

2019 Ballinger TJ[#], Hanna E, Hall RJ, Tedesco M, **Brasher SE**, Ding Q, Carr R, Mernild S, Cappelen J. North Atlantic blocking regulates cold season air temperature variability over Greenland coastal and ice sheet ablation areas. *Poster presentation for the American Geophysical Union Annual Meeting*. San Francisco, California. December 2019.

2019 Ballinger TJ[#], **Brasher SE**, Greene E, Hanna E, Hall RJ, Tedesco M. Atlantic Arctic Ocean, atmosphere, and sea-ice forcing of Greenland air temperature patterns since 1860. *Poster presentation for the American Association of Geographers Annual Meeting*. Washington, D.C. April 2019.

2018 Weiskopf S[#*], Leathers DJ, **Brasher SE,** Brinson K, Hughes C. Estimating Extreme Precipitation in Delaware. *Poster presentation for the University of Delaware Undergraduate Research Symposium*. Newark, Delaware. August 2018.

2017 **Brasher SE**[#] and Dixon R. Trends and Characteristics of North Atlantic Tropical Cyclones. *Oral presentation for the American Association of Geographers Annual Meeting*. Boston, Massachusetts. April 2017.

2017 Gharehchahi S[#], **Brasher SE**, Villa J, Goff P, Butler DR. Traumatic Rows of Resin Ducts as a Result of Geomorphic Processes in Western North America. *Poster presentation for the American Association of Geographers Annual Meeting.* Boston, Massachusetts. April 2017.

2017 Ghaffari Z[#], **Brasher SE**, Hussein M, Jensen J. Gradual Change in Texas Natural Ecosystem Using MODIS EVI. *Poster presentation n for the Imaging and Geospatial Technology Forum Meeting.* Baltimore, Maryland. March 2017.

2016 **Brasher SE**[#] and Dixon R. Trends and Characteristics of North Atlantic Tropical Cyclones. *Oral presentation for the Annual Texas Geography Student Research Symposium*. San Marcos, Texas. March 2016.

2015 **Brasher SE**[#] and Dixon R. Trends and Characteristics of North Atlantic Tropical Cyclones. *Poster presentation for the Southwest Division of the American Association of Geographers*. San Antonio, Texas. November 2015.

GUEST LECTURES AND OUTREACH

2022 – 24 **Guest Lecturer**, presented on "CVs, Cover Letters, and Resumes" and "Successfully Completing Graduate Courses" to a fall graduate level seminar at Oklahoma State University

2023 **Guest Professor** for the OSU "Raise Your Hand" video series that helps kids understand the world by answering their questions, answered "How are Hailstones Formed?"

2017 **Guest Lecturer**, Climatology undergraduate classes at Texas State University

2016 **Guest Speaker**, Presented on the "Wonders of Weather" for NASA's Future Aerospace-engineers and Mathematics Academy explorations workshop to middle-school students in San Marcos, TX

2016 **Guest Lecturer**, Meteorology undergraduate classes at Texas State University

SERVICE AND ADMINISTRATION

2021 – *present*	Regular Peer Reviewer for Scientific Journals, such as the *Annals of the American Association of Geographers*, *Climate Dynamics, Physical Geography, The Journal of Applied and Service Climatology*
2024	Member, Advisory Committee, Department of Geography, Oklahoma State University ▪ *Worked at an as-needed basis for the dept. head to advise on various departmental issues.*
2023 – 24	Member, Personnel Committee, Department of Geography, Oklahoma State University ▪ *Oversaw the reappointment of one individual, and the promotion with tenure of another individual, including reaching out to external evaluators, gathering all documents, and giving recommendations to the dept. head. Oversaw the hiring process for one tenure-track role and one visiting role, including evaluating applications, first and second round interviews, final in-person interviews, and condensing information and rubrics for decision-making by the larger faculty.*
2023 – 24	Member, Awards Committee, Department of Geography, Oklahoma State University ▪ *Evaluated student applications and faculty recommendations to give out merit-based awards to the departmental undergraduate and graduate student body.*
2022 – 24	Member, Undergraduate Committee, Department of Geography, Oklahoma State University ▪ *Evaluated all changes needed to any of the four undergraduate programs and the Environmental Studies certificate in the department. Created degree maps, did five-year evaluations, performance improvement plans, evaluated current trends in Geography programs, made recommendations for modernizing programs, and revised curriculum as necessary.*
2022 – 24	Member, Environmental Science Interdisciplinary Graduate Program Curriculum and Steering Committee, Oklahoma State University ▪ *Met as needed to discuss current program and academic requirements/ challenges/ and trends in student progress and success. Revised program prerequisites as necessary.*
2021 – 22	Lead Mentor, College of Earth, Ocean and Environment EmPOWER Program (Empathetic Peers Offering Wisdom, Encouragement, and Resources – Graduate peer-to-peer mentoring program), Department of Geography and Spatial Sciences, University of Delaware (elected position, 1 year term)
2020 – 21	Mentor, College of Earth, Ocean and Environment EmPOWER Program (Empathetic Peers Offering Wisdom, Encouragement, and Resources – Graduate peer-to-peer mentoring program), Department of Geography and Spatial Sciences, University of Delaware
2020 – 21	Graduate Student Representative to the Faculty, Department of Geography and Spatial Sciences, University of Delaware (elected position, 1 year term)
2019 – 20	Member, Academic Council, College of Earth, Ocean, and Environment, University of Delaware
2016 – 17	Masters Co-President of the Graduate Forum, Department of Geography, Texas State University

2016 – 17	Texas State Park Ambassador at Lost Maples State Natural Area, Texas State Parks and Wildlife Department

AWARDS

2019	Teaching Excellence Award, Department of Geography and Spatial Sciences, University of Delaware (by faculty nomination)
2018	Woman of Promise, Department of Geography and Spatial Sciences, University of Delaware (by faculty nomination)
2017	The Elizabeth Sterry Graduate Award for Teaching, Geography Department, Texas State University (by faculty nomination)
2017	The Graduate Student Award for Outstanding Service, Geography Department, Texas State University (by faculty nomination)

PROFESSIONAL DEVELOPMENT

2025	Project Management Professional (PMP) Coursework: took 35 hours of required educational credits to be approved to take the PMP exam, University of Colorado
2024	Teaching STEM Students How to Learn: Metacognition is Key, Workshop by Saundra McGuire, Oklahoma State University
2023	NSF EPSCoR Track-2 Kickoff Meeting Attendee, by the National Science Foundation for newly funded Track-2 PIs
2023	Teaching with Technology Conference Attendee, Institute for Teaching and Learning Excellence (ITLE), Oklahoma State University
2023	Course (Re)Design in a World of Artificial Intelligence Workshop, Institute for Teaching and Learning Excellence (ITLE), Oklahoma State University
2023	Optimizing Mentoring Relationships Workshop, Center for the Improvement of Mentored Experiences in Research (CIMER), Oklahoma State University
2022	Write Winning Grant Proposals Workshop, Grant Writers' Seminars & Workshops, Oklahoma State University
2021	Scientific Writing Nature Masterclass Course, University of Delaware
2020	SPOT-ON Teaching and Curriculum Development, University of Delaware

MISC. TECHNICAL COMPETENCIES

Research & Proposal Writing / Development – *Advanced*

R Programming & RStudio – *Advanced*

Python Programming & Jupyter – *Beginner*

Git & GitHub Interfaces – *Intermediate*