

GRETA E. M. SHUM
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EDUCATION

Ph.D., University of Washington, Seattle Atmospheric Sciences, Advisor: Abigail Swann; Graduate Certificate in Astrobiology	2021 – 2024
M.A., University of Washington, Seattle Atmospheric Sciences, Advisor: Abigail Swann	2018 – 2021
B.A., Princeton University with High Honors Comparative Literature, Advisor: Peter Brooks; Minor in Planets and Life (Astrobiology)	2010 – 2014

RESEARCH PROJECTS

- **Assessing carbon cycle uncertainty in simple models, July 2023 - May 2024 (current)**
Assessing structural uncertainty and global carbon budgets by (1) coordinating inter-model comparison project (MIP) of net-zero pathways across simple climate models and emulators of the carbon cycle and (2) progressively increasing model complexity within one model, FaIR (funded by UW PCC).
- **Modeled nearly-enclosed bays as refugia on Snowball Earth, July 2021 - January 2024**
Simulated influence of land surface albedo and CO₂ on Snowball Earth refugia using CESM2 (CAM5, SLIM, CICE5) (funded by NSF).
 - Publication: **Shum, G. E. M.**, M. M. Laguë, A. L. S. Swann, C. M. Bitz, E. D. Waddington, S. G. Warren: Ocean bays surrounded by desert land could support life on Snowball Earth. *Submitted*.
Preprint: doi:10.22541/au.171156551.19606238/v1.
- **Modeled impact of forest-atmosphere interactions on forest expansion, Aug 2018 - June 2021**
Developed novel, idealized experimental design in CESM2 to test influence of forest establishment on forest expansion (funded by NSF).
 - Publication: **Shum, G. E. M.**, M. M. Laguë, S. S. Rushley, and A. L. S. Swann (2023): Beautiful Days in the Neighborhood: Land–Atmosphere Interactions as Drivers of Forest Expansion. *Earth Interact.*, 27, e220017, doi:10.1175/EI-D-22-0017.1.

PROFESSIONAL EXPERIENCE

Graduate Research Assistant University of Washington	2018 –
Graduate Student Volunteer ACORN, University of Washington	2020
Communications Strategist School of Engineering, Princeton University	2017 – 2018
Research Analyst/Multimedia Journalist Climate Central	2016 – 2017
Multimedia Journalism Fellow Climate Central	2014 – 2016
Media Services Student Technician Princeton University	2010 – 2014
Scientific Affairs Intern AAMC	2013

SKILLS

- Proficiency with coding languages and tools Python, R, FORTRAN, MATLAB, Git, and GitHub.
- Experience with scientific research principles, statistical data analysis.
- Experience with securing funding, proposal writing, project management, teaching, and mentoring.
- Experience with running climate models in custom configurations (CESM, SLIM, FaIR, and HECTOR).
- Strong science communication (e.g. Shum Show); proficiency in French and German languages.

AWARDS & FELLOWSHIPS

PCC Climate Research Accelerator Award	University of Washington	2023 –
High Meadows Fellowship	High Meadows Foundation	2014 – 2016
ThinkSwiss Fellowship	Swiss Embassy	2014
Dale Award	Princeton University	2012
German Book Award	Princeton University	2011, 2012, 2013
Scheide Scholarship	Princeton University	2010 – 2014
Helzberg Kansas City Symphony Scholarship	Shirley and Barnett Helzberg Foundation	2007 – 2014

CONFERENCE PRESENTATIONS

CESM Land Model & BGC Working Group Meeting	Boulder, CO (remote oral)	2024
AGU 2023 Fall Meeting	San Francisco, CA (poster)	2023
CESM Working Group Meeting 2023	Boulder, CO (oral)	2023
AbSciCon 2022	Atlanta, GA (virtual poster)	2022
AGU 2022 Fall Meeting	Chicago, IL (oral)	2022
CESM Paleoclimate Working Group Meeting	Virtual (oral)	2022
CESM Land Model Working Group Meeting	Virtual (oral)	2021
Graduate Climate Conference	Virtual (poster)	2021
Graduate Climate Conference	Virtual (oral)	2020
Ocean Observers Workshop	Brest, France (oral, <i>invited speaker</i>)	2017

NON-ACADEMIC PUBLICATIONS

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- Sean O’Leary, **Greta Shum**, Logan Arnold, Tyler Cox & Ben Hunkler (2021): Destined to Fail: Why the Appalachian Natural Gas Boom Failed to Deliver Jobs & Prosperity and What It Teaches Us *Ohio River Valley Institute* URL
 - **Greta Shum** & Tamara Pico (2016): Does English Have to Be the Dominant Language of Science? *Scientific American Blog* URL

TEACHING EXPERIENCE

Graduate Teaching Assistant	University of Washington	Autumn 2019, Winter 2024
Grader	Atmospheric Sciences, University of Washington	2022
Lead Teaching Assistant	University of Washington	2020 – 2021
Astrophysics Instructor	Prison Teaching Initiative, Princeton University	2014 – 2015

RESEARCH ADVISING

Esmeralda Chavelas	co-advised CICOES Summer Internship at University of Washington	2020
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SERVICE ACTIVITIES

Peer reviewer	<i>Geophysical Research Letters</i> and <i>Journal of Climate</i>	2022 –
Session convener	AGU 2021 Fall Meeting	2021
Co-Founder, Co-Lead	PCC ACORN Program on co-production of science	2020
Co-Chair	Graduate Climate Conference	2020
Co-Organizer	Graduate Climate Conference	2019, 2020, 2021
Graduate Student Representative (elected)	Program on Climate Change, UW	2019 – 2021
Graduate Steering Committee Member	Program on Climate Change, UW	2019 – 2021

REFERENCES

1. **Dr. Abigail L. S. Swann** (aswann@uw.edu)
Professor of Atmospheric Sciences & Biology, University of Washington (Ph.D. advisor)
2. **Dr. Stephen G. Warren** (sgw@uw.edu)
Professor of Atmospheric Sciences & Earth and Space Sciences, University of Washington (Collaborator)
3. **Dr. Dargan M. W. Frierson** (dargan@uw.edu)
Professor of Atmospheric Sciences, University of Washington (Collaborator)
4. **Dr. Cecilia M. Bitz** (bitz@uw.edu)
Professor of Atmospheric Sciences, University of Washington (Collaborator)
5. **Dr. Marysa M. Laguë** (marysa.lague@utah.edu)
Professor of Atmospheric Sciences, University of Utah (Collaborator)

Last Updated August 27, 2024.