

Ziqi Yin

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Education

- 2021–present **PhD, Atmospheric & Oceanic Sciences**, *University of Colorado, Boulder*, Department of Atmospheric and Oceanic Sciences (ATOC), Boulder.
Studying ice sheet and its interaction with climate
Advisor : **Prof. Aneesh Subramanian, Prof. Jan Lenaerts, ATOC**
- 2018–2020 **M.S., Atmospheric Sciences, Oceanography & Climate**, *Stockholm University*, Department of Meteorology (MISU), Stockholm.
- 2019/08–2019/09 **One month student in Arctic Geophysics**, *The University Center in Svalbard*, Svalbard.
- 2014–2018 **B.S., Resources & Environmental Sciences**, *Beijing Normal University (BNU)*, Faculty of Geographical Science, Beijing.

Working experience

- Spring 2022 **Research assistant**, *University of Colorado, Boulder*, ATOC, Boulder.
–present
- Fall 2021 **Teaching assistant**, *University of Colorado, Boulder*, ATOC, Boulder.
- 2020–2021 **Research intern**, *Xiamen University*, State Key Laboratory of Marine Environmental Science (MEL), Xiamen.

Publications

In preparation

Yin, Z., Subramanian, A., Datta, R.T., Janeja, V.P., Vizcaino, M., Emulating Greenland Ice Sheet Surface Melt Using Graph Neural Networks.

Ali, S., **Yin, Z.**, Faruque, O., Kulkarni, C., Huang, Y., Subramanian, A.C., Schlegel, N-J, Gani, M.O., Janeja, V., Wang, J., Causal Inference for analyzing drivers of Greenland Ice Sheet surface melt.

In review

Yin, Z., Subramanian, A., Datta, R.T., Herrington, A., Du, D., Ali, S., Faruque, O., Wang, J., Identifying energy balance drivers and feedbacks of Greenland Ice Sheet surface melt using causal discovery, *Geophysical Research Letters*.

Schneider, D.P., **Yin, Z.**, O'Connor, G.K., Blanchard-Wrigglesworth, E., Cast, Z.I., Datta, R.T., Espinosa, Z.I., Decoded Antarctic snow accumulation history reconciles observed and modeled trends in accumulation and large-scale warming patterns, *Earth System Dynamics* [\[preprint\]](#).

Published

- 2025 Li, Z., Wu, B., **Yin, Z.**, Chen, R., Wang, S., NPPCast: A Compact CNN Integrating Satellite Data for Global Ocean Net Primary Production Forecasts, *Remote Sensing* [\[link\]](#).

Yin, Z., Herrington, A.R., Datta, R.T., Subramanian, A., Lenaerts, J.T.M., and Gettelman, A., Improved Understanding of Multicentury Greenland Ice Sheet Response to Strong Warming in the Coupled CESM2-CISM2 with Regional Grid Refinement, *Journal of Advances in Modeling Earth Systems* [\[link\]](#).

Wille, J.D., Favier, V., Gorodetskaya, I.V., Agosta, C., Baiman, R., Barrett, J.E., Barthelemy, L., Boza, B., Bozkurt, D., Casado, M., Chykhareva, A., Clem, K.R., Codron, F., Datta, R.T., Durán-Alarcón, C., Francis, D., Hoffman, A.O., Kolbe, M., Krakovska, S., Linscott, G., MacLennan, M.L., Mattingly, K.S., Mu, Y., Pohl, B., Santos, C.L., Shields, C.A., Toker, E., Winters, A.C., **Yin, Z.**, Zou, X., Zhang, C., Zhang, Z., Atmospheric rivers in Antarctica, *Nature Reviews Earth & Environment* [\[link\]](#).

2024 Clem, K.R., and Coauthors, State of the Climate in 2023: Antarctica and the Southern Ocean, *Bulletin of the American Meteorological Society* [\[link\]](#).

2023 Datta, R.T., Herrington, A., Lenaerts, J.T.M., Schneider, D.P., Trusel, L., **Yin, Z.**, and Dunmire, D., Evaluating the impact of enhanced horizontal resolution over the Antarctic domain using a variable-resolution Earth system model, *The Cryosphere* [\[link\]](#).

Clem, K.R., and Coauthors, State of the Climate in 2022: Antarctica and the Southern Ocean, *Bulletin of the American Meteorological Society* [\[link\]](#).

Theses

2020 **Yin, Z.**, Ice-ocean interactions in a Greenland fjord, Master thesis, Stockholm University.
Advisor: Prof. Inga Koszalka, Prof. Johan Nilsson

2018 **Yin, Z.**, Evaporation over the lakes on the Tibetan Plateau and its response to climate change, Bachelor thesis, Beijing Normal University.
Advisor: Prof. Xiaoyan Li

Other research experience

University of Colorado, Boulder

2022/01–**Precipitation biases over the Greenland and Antarctic Ice Sheets in CESM2.**
2022/08 Evaluated the ice sheet precipitation using CESM2 with two different dynamical cores, four different grids with different horizontal resolutions, by comparing with reanalysis data and regional climate model outputs
Advisor: Prof. Jan Lenaerts

Stockholm University

2019/05–**Post-processing of measurement data at Lake Tarfala.**
2019/06 Wrote Matlab scripts for analyzing and plotting water temperature and meteorological data.
Advisor: Prof. Nina Kirchner

Presentation

- 2025/11 From Physical Modeling to Machine Learning: Advancing Understanding of Greenland Ice Sheet Surface Melt (talk), *PoIDS Workshop 2025*.
- 2025/06 Emulating Greenland Ice Sheet Surface Melt Using Graph Neural Networks (talk), *CESM Annual Workshop*.
- 2025/04 Emulating Greenland Ice Sheet Surface Melt Using Graph Neural Networks (poster), *EGU General Assembly 2025*.
- 2024/06 Identifying energy balance drivers and feedbacks of Greenland Ice Sheet Surface Melt using Causal Inference (talk), *CESM Annual Workshop*.
- 2023/12 Identifying energy balance drivers and feedbacks of Greenland Ice Sheet Surface Melt using Causal Inference (poster), *AGU Fall Meeting 2023*.

- 2023/04 High-resolution, fully-coupled simulations of the Greenland Ice Sheet in a future, strong warming scenario (talk), *ATOC Colloquium*.
- 2022/12 High-resolution, fully-coupled simulations of the Greenland Ice Sheet in a future, strong warming scenario (poster), *AGU Fall Meeting 2022*.
- 2022/08 Attribution of precipitation biases over the Greenland and Antarctic Ice Sheets in CESM2 (poster), *AMS Collective Madison Meeting*.

Teaching experience

- 2024/06, **ATOC REU Python Bootcamp**, *Graduate student teacher*.
- 2022/05 Taught lectures and coding exercises to teach undergraduate students basic Python coding tools
- Fall 2021 **ATOC-1060 Our Changing Environment**, *Teaching assistant*.
Led reading sections, exam reviews, and grading, held office hours

Field experience

- 2025/01 **CUAHSI-SINTER snow measurement field school**, *Mammoth Lakes, California*.
Snow safety, basic snow measurements like depth, density, snow water equivalent, grain size and shape, stratigraphy, temperature and hardness, and more advanced measurements such as albedo, specific surface area
- 2019/11/15 **Baltic sea student cruise**, *R/V ELECTRA*, Landsort Deep (Baltic Sea).
CTD, ADCP and related meteorological observations along the profile from Askö to the deepest spot of Baltic Sea
- 2019/08–
2019/09 **Cruise and day trips of Arctic glacier hydrology and landscape**, *Stålbas, Svalbard*.
Carried out ground penetrating radar, proglacial water monitoring and sampling, dye tracing to understand glacier hydrology from a whole-system perspective at selected glaciers
- 2016/08 **Comprehensive field session of Meteorology, Botany and Pedology**, *Beijing*.
Set up a weather station, identified vegetation, observed soil profiles and meteorological variables of different underlying surface and altitude
- 2016/07 **Hydroecology field work**, *Qinghai Lake Basin, Qinghai*.
Assisted with meteorological and eddy covariance measurements, and biomass estimation
- 2015/07 **Hydropedology field work**, *Heihe River Basin, Gansu*.
Assisted with artificial precipitation and stem flow experiments, photosynthesis measurements, and soil and desert vegetation sampling

Workshop & Training

- 2025/06 **CESM Annual Workshop**, *Boulder, CO*.
- 2025/06 **DCMIP Summer School**, *Boulder, CO*.
- 2025/03 **Arctic Science Summit Week**, *Boulder, CO*.
- 2024/06 **CESM Annual Workshop**, *Boulder, CO*.
- 2024/04 **Future of Greenland ice Sheet Science Workshop**, *Moscow, ID*.
- 2024/04 **3rd Annual Colorado Glaciology Workshop**, *Boulder, CO*.
- 2024/01 **Polar Amplification of Climate Change: Causes and Constraints Workshop**, *Boulder, CO*.
- 2023/10 **GeoSMART Hackweek 2023**, *Seattle, WA*.
- 2023/06 **2nd Antarctic Atmospheric River Workshop**, *Boulder, CO*.
- 2023/06 **2nd Annual Colorado Glaciology Workshop**, *Fort Collins, CO*.
- 2022/09 **AntClimNow Workshop on Connecting Models and Observations of the Antarctic Climate System Across Timescales**, *Cambridge, UK*.
- 2022/04 **1st Colorado Glaciology Workshop**, *Golden, CO*.

Fellowships & Awards

- 2025/04 **ATOC University Fellowship travel grant** of CU Boulder
- 2024/01 **The Graduate and Professional Student Government (GPSG) travel grant** of CU Boulder
- 2023/12 **Best poster in the Polar Processes Session** of the 17th Annual ATOC-sponsored Earth System & Space Science (ESSS) Poster Conference
- 2022/12 **Best poster in the Snow, Ice, and Space Session** of the 16th Annual ATOC-sponsored Earth System & Space Science (ESSS) Poster Conference
- 2017/10 **Third-class Scholarship** of Beijing Normal University
- 2016/07 **Volunteer Scholarship** of Beijing Normal University
- 2014/09 **Second-class Freshman Scholarship** of Beijing Normal University

Service

Service to the field

Reviewer for *The Cryosphere*, *Journal of Glaciology*, *Climate Dynamics*

- 2023/05-2023/07 UCAR Significant Opportunities in Atmospheric Research & Science (SOARS) project, co-mentor

Service & Outreach

- Fall 2024 ATOC ESSS poster conference committee, member
–present
- Fall 2022 ATOC colloquium committee, member
–Spring 2024

Volunteer

- 2018/07 Yunnan snub-nosed monkey protection at Baima Snow Mountain National Reserve, China
- 2014/09-2016/06 Campus Energy Saving Project of the Volunteering Association of Beijing Normal University

Skills

- Programming Languages & Operators Python (proficient), Fortran, Matlab, CDO, NCO, Bash
- Operating System Mac OS, Linux, Windows
- Software Models Latex, Jupyter Lab/Notebook, Git/GitHub, Microsoft Office, ArcGIS, Envi, Inkscape
- worked with Languages CESM2, Veros, MPI-ESM, ISSM
- Languages Chinese, English, Swedish (learning)