

# Shuai Yan

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## Education

Ph.D. in Geophysics	University of Texas at Austin	2016-2023
<ul style="list-style-type: none"><li>• Advisor: Dr. Donald D. Blankenship</li><li>• Dissertation title: Geophysical Investigation of Subglacial Lake Snow Eagle, East Antarctica</li></ul>		
B.Sc. in Geophysics	University of Science and Technology of China	2012-2016

## Professional Appointments

Postdoctoral Fellow	University of Washington	2024-present
Postdoctoral Fellow	University of Texas Institute of Geophysics	2023-2024
Graduate Research Assistant	University of Texas Institute of Geophysics	2016-2023
Undergraduate Research Assistant	University of Science and Technology of China	2014-2016

## Peer-reviewed Journal Articles

6. **Yan, S.**, Koutnik, M., Blankenship, D.D., Greenbaum, J.S., Young, D.A., Roberts, J., van Ommen, T., Sun, B., Siegert, M., accepted. Holocene hydrological evolution of subglacial Lake Snow Eagle, East Antarctica implied by englacial radio-stratigraphy. *Journal of Glaciology*.
5. Killingbeck, S.F., Unsworth, M., Young, D.A., Rutishauser, A., **Yan, S.**, Beam, L., Ritcher, T.G., Blankenship, D.D., Dubnick, A., Sara, A., Vestrum, Z., Greenbaum, J.S., Dow, C.F., 2025. Integrating gravity, magnetic and magnetotelluric data over Devon Ice Cap, Canadian Arctic, to investigate the subglacial geology. *Journal of Geophysical Research: Solid Earth*, 130, e2024JB028929.
4. Bingham, R.G., Bodart, J.A., Cavitte, M.G.P., Chung, A., Sanderson, R.J., Sutter, J.C.R., Eisen, O., Karlsson, N.B., MacGregor, J.A., Ross, N., Young, D.A., Ashmore, D.W., Born, A., Chu, W., Cui, X., Drews, R., Franke, S., Goel, V., Goodge, J.W., Henry, A.C.J., Hermant, A., Hills, B.H., Holschuh, N., Koutnik, M.R., Vieli, G.J.M.C.L., Mackie, E.J., Mantelli, E., Martín, C., Ng, F.S.L., Oraschewski, F.M., Napoleoni, F., Parrenin, F., Popov, S.V., Rieckh, T., Schlegel, R., Schroeder, D.M., Siegert, M.J., Tang, X., Teisberg, T.O., Winter, K., **Yan, S.**, Davis, H., Dow, C.F., Fudge, T.J., Jordan, T.A., Kulesa, B., Matsuoka, K., Nyqvist, C.J., Rahnmooonfar, M., Siegfried, M.R., Singh, S., Višnjević, V., Zamora, R., and Zühr, A., 2024. Antarctica's internal architecture: Towards a radiostratigraphically-informed age–depth model of the Antarctic ice sheets. *EGU sphere*, 2024, pp.1-66.
3. Jamieson, S.S., Ross, N., Paxman, G.J., Clubb, F.J., Young, D.A., **Yan, S.**, Greenbaum, J.S., Blankenship, D.D. and Siegert, M.J., 2023. An ancient river landscape preserved beneath the East Antarctic Ice Sheet. *Nature Communications*, 14(1), p.6507.
2. **Yan, S.**, Blankenship, D.D., Greenbaum, J.S., Young, D.A., Li, L., Rutishauser, A., Guo, J., Roberts, J.L., van Ommen, T.D., Siegert, M.J. and Sun, B., 2022. A newly discovered subglacial lake in East Antarctica likely hosts a valuable sedimentary record of ice and climate change. *Geology*, 50(8), pp.949-953.
1. Sun, N., Mao, Z., **Yan, S.**, Wu, X., Prakapenka, V.B. and Lin, J.F., 2016. Confirming a pyroclitic lower mantle using self-consistent pressure scales and new constraints on CaSiO<sub>3</sub> perovskite. *Journal of Geophysical Research: Solid Earth*, 121(7), pp.4876-4894.

## Manuscripts in Progress

2. Young, D.A., Paden, J.D., **Yan, S.**, Kerr, M.E., Singh, S., Vega-Gonzalez, A., Kaundinya, S.R., Greenbaum, J.S., Blankenship, D.D., in review. Dome A basal ice truncated at an extensive geologic dichotomy in the South Pole Basin of East Antarctica. *Geophysical Research Letters*.
1. **Yan, S.**, Young, D.A., Blankenship, D.D., Koutnik, M., Fudge, T.J., Singh, S., Vega-Gonzalez, A., Kerr, M.E., Elnitiarta, T., Li, D., Reeves, H., Booth, J., Wilbur, E.. Radar characteristics analysis of the basal ice unit at the southern flank of Dome A, East Antarctica. For submission to *Earth System Science Data* in Spring 2025.

## Ongoing Projects (as lead investigator)

- Numerical modeling of the temporal variations in surface mass balance at the southern flank of Dome A, East Antarctica and implications for old ice preservation. *Funded through NSF COLDEX*
- Numerical modeling of the kinetic properties of the basal ice unit at the southern flank of Dome A, East Antarctica and implications for old ice preservation. *Funded through NSF COLDEX*
- Geophysical and geostatistical investigation of the subglacial topographic, hydrologic, and geologic conditions of Princess Elizabeth Land, East Antarctica. *Funded through the G. Unger Vetlesen Foundation support*
- Aero-geophysical investigation of the geological context of the north-western flank of Aurora Subglacial Basin, East Antarctica. *Funded through the G. Unger Vetlesen Foundation support*

## Grants and Proposals

- Contributor. National Science Foundation, Center for Oldest Ice Exploration (COLDEX), 2nd phase (2026-2031). *In review*
- Co-convenor. National Science Foundation, 2024. Collaborative Research: Conference: Conference support for the 2nd RAID Science Planning Workshop. *Funded*
- Report contributor. The G. Unger Vetlesen Foundation, 2021 - 2024. *Funded*
- Principal Investigator. COLDEX Early Career Researcher Scholarship, 2024. Radar characteristics analysis of the basal ice layer at the southern flank of Dome A, East Antarctica. *Funded*
- Principal Investigator. National Science Foundation, Antarctic Basal Ice Unit Scan via Ice-Penetrating Radar Sounding. *In prep.*
- Principal Investigator. National Science Foundation, Geophysical Investigation of the Geological and Hydrological Controls of Old Ice Preservation in the Dome C region, East Antarctica. *In prep.*
- Principal Investigator. National Science Foundation, Geophysical Reconnaissance to Identify Optimal Sites for Deep Englacial and Subglacial access. *In prep.*

## Fieldwork

- Dec. 2018 – Feb. 2019, Davis Station and Casey Station, East Antarctica, the 10th International Collaborative Exploration of the Cryosphere through Airborne Profiling program (ICECAP) (AAD/UTIG ICP10)
- September 2017, Texas, USA, ground-based hydro-geophysics survey at Commons Ford Ranch
- October, 2015, Chaohu, China, educational field campaign at the Chaohu Lake area
- May, 2015, Beijing, China, educational field campaign at the Badaling area
- November, 2014, Huangshan, China, educational field campaign at Qiyun Mountain area

## Media Impact

- [Lost River Landscape Discovered below East Antarctic Ice](#) Scientific American
- [Why East Antarctica is a 'sleeping giant' of sea level rise](#) BBC Future
- [10 amazing discoveries from Antarctica in 2022](#) Live Science
- [Newly Discovered Lake May Offer a Glimpse into Antarctica's Past](#) AGU EOS
- [Lake the size of PHILADELPHIA discovered under Antarctica contains sediments that could reveal what the continent looked like before it froze over, scientists claim](#) Daily Mail
- [City-size lake found miles below Antarctica's biggest ice sheet](#) Live Science
- [Subglacial Lakes, Antarctic Fieldwork, Polar Geophysics & Human Nature](#) Heights of Humanity podcast
- [Newly Discovered Lake May Hold Secret to Antarctic Ice Sheet's Rise and Fall](#) UT Austin

## Selected Proceedings at Professional Meetings

### Oral Presentations

- IGS Global Seminars, Dec. 4th, 2024: Basal ice unit characterization by aero-geophysical surveying and numerical iceflow modeling at the southern flank of Dome A.
- 2024 COLDEX Annual Meeting: Geophysical characterization of the basal ice layer at the southern flank of Dome A.

- 2024 AntArchitecture Workshop: Using englacial radiostratigraphy to investigate the Holocene evolution of a major subglacial lake in East Antarctica.
- 2024 AntArchitecture Workshop: Geophysical characterization of the basal ice layer at the southern flank of Dome A.
- 2024 US Ice Core Open Science Meeting: Geophysical characterization of the basal ice layer at the southern flank of Dome A.
- 2023 AGU Fall Meeting: Update on the Rapid Access Ice Drill (RAID) technology. Ice Drilling Program (IDP) town hall
- 2023 US Ice Core Open Science Meeting: Constraining past ice flow using englacial radio-stratigraphy and numerical modeling - examples from previous East Antarctic aero-geophysical surveying.
- 2022 COLDEX Annual Meeting: Geologic controls on subglacial thermal condition and old ice preservation – insights from East Antarctic airborne geophysical surveying.
- 2022 US Ice Core Open Science Meeting: Geologic controls on subglacial thermal condition and old ice preservation – insights from East Antarctic airborne geophysical surveying.
- UTIG Discussion Hour Seminar, April 2022: Airborne geophysical survey over a newly discovered subglacial hydrology network in Princess Elizabeth Land, East Antarctica.
- 2021 AGU Fall Meeting: A widespread subglacial hydrology system detected by airborne geophysics survey in Princess Elizabeth Land, East Antarctica. AGU2021FM-NS13A-08
- UTIG Seminar Series, December 2021: A widespread subglacial hydrology system detected by airborne geophysics survey in Princess Elizabeth Land, East Antarctica.
- 2021 EGU General Assembly: A large tectonic-controlled subglacial lake with ocean drainage in Princess Elizabeth Land, East Antarctica. EGU21-1809

#### **Conference Poster Presentations**

- 2023 AGU Fall Meeting: Investigating the Holocene evolution of a major subglacial lake in East Antarctica. AGU2023FM-C31D-01384
- 2023 AGU Fall Meeting: Characterizing the Subglacial Hydrology of the South Pole Basin, Antarctica Using COLDEX Airborne Geophysics. AGU2023FM-C31D-1369
- 2023 AGU Fall Meeting: Englacial Stratigraphy at the Southern Flank of Dome A, Antarctica Derived Using Airborne Radar-Sounding Surveys: A COLDEX Perspective. AGU2023FM-C33E-1449
- 2022 AGU Fall Meeting: Geologic controls on subglacial thermal condition and old ice preservation from a COLDEX perspective – insights from East Antarctic airborne geophysical surveying. AGU2022FM-C32D-0855
- 2022 AGU Fall Meeting: Aero-geophysical constraints on the crustal structure of the western margin of the Aurora Subglacial Basin, East Antarctica. AGU2022FM-NS45B-0327
- 2022 AGU Fall Meeting: The COLDEX regional aerogeophysical survey for oldest ice core candidate site selection: plans for 2022/23. AGU2022FM-C32D-0856
- 2021 AGU Fall Meeting: Englacial Stratigraphy over a Newly-Discovered Widespread Subglacial Hydrology System in Princess Elizabeth Land, East Antarctica. AGU2021FM-C25C-0839
- 2019 AGU Fall Meeting: Integrated Airborne Geophysics Survey over a Newly-discovered Subglacial Lake in Princess Elizabeth Land, East Antarctica. AGU2019FM-C13C-1311

#### **Meeting Convening**

- Primary Convener and Chair, 2024 AGU Fall Meeting session: “Strange Ice”: Bridging Observation, Sampling and Modeling Efforts to Address the Unsettled Glacier and Ice Sheet Questions
- Co-convenor, 2nd RAID Science Planning Workshop, September 2024, Virginia, USA

#### **Teaching Experiences**

- Fall 2019, UT Austin, graduate-level course “*Modeling Flow and Transport in Porous Media*”, teaching assistant (instructed by Dr. Marc Hesse).
- Summer 2019, UT Austin, graduate-level orientation field trip, teaching assistant.
- Fall 2018, UT Austin, undergraduate-level course “*Introduction to Geology*”, teaching assistant (instructed by Dr. Richard Ketcham and Dr. Timothy Shanahan).

- Fall 2017, UT Austin, undergraduate-level course *"Physical Geology"*, teaching assistant (instructed by Dr. Jaime Barnes and Dr. Daniel Breecker).
- Spring 2017, UT Austin, undergraduate-level course *"Physical Geology"*, teaching assistant (instructed by Dr. Jung-Fu Lin).

## **Honors and Awards**

- COLDEX Early Career Researcher Scholarship 2024
- COLDEX Inclusive Leadership Award, honorable mention 2024
- UTIG Outstanding Graduate Student Award 2022
- Vetlesen Fellowship 2020-2023
- Independent Study Fellowship 2018, 2020
- USTC Talent Program in Earth and Space Sciences, membership 2013 – 2016
- USTC Scholarship for Outstanding Student 2013, 2015, 2016
- USTC Top Plan Scholarship 2014

## **Mentoring Experiences**

- |                           |                                  |              |
|---------------------------|----------------------------------|--------------|
| • Hunter Reeves           | Graduate student, UT Austin      | 2023-present |
| • Jason Bott              | Undergraduate student, UT Austin | 2023-present |
| • Megan Kerr              | Graduate student, UT Austin      | 2022-present |
| • Shivangini Singh        | Graduate student, UT Austin      | 2022-present |
| • Alejandra Vega-Gonzalez | COLDEX REU student, UT Austin    | 2023-2024    |
| • Timothy Elnitiarta      | COLDEX REU student, UT Austin    | 2024         |
| • Hector Cordova          | COLDEX REU student, UT Austin    | 2024         |
| • Hoang "Wendy" Chu       | COLDEX REU student, UT Austin    | 2023         |

## **Professional Training and Workshops**

- Early Career Researcher Leadership Workshop, Oregon State University 2023
- "Inclusion, Diversity, Equity, and Accessibility (IDEA) in the Classroom" workshop, UT Austin 2022
- Advanced Certificate of the Teaching Preparing Series, UT Austin 2021
- Certificate of the Inclusive Classrooms Seminar Series, UT Austin 2021
- URGE (Unlearning Racism in GEosciences), UT Austin 2021
- Certificate of the Teaching Preparing Series, UT Austin 2020
- Glacial Isostatic Adjustment Training School, Lantmäteriet, Sweden 2019

## **Services and Memberships**

- COLDEX Early Career Researchers Executive Committee 2021-2022
- Graduate Student Executive Committee, JSG, UT Austin 2021-2022
- "JSG Around the World" seminar series, co-coordinator 2021
- European Geosciences Union, member 2021-present
- American Geophysical Union, member 2019-present
- International Glaciological Society, member 2019-present