

Shuai Yan

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Education

Ph.D. in Geophysics	University of Texas at Austin	2016–2023
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 at Austin	2023–2024
Graduate Research Assistant	University of Texas at Austin	2016–2023
Undergraduate Research Assistant	University of Science and Technology of China	2014–2016

Publications

11. **Yan, S.**, Young, D. A., Blankenship, D. D., Fudge, T. J., Li, D., Lindzey, L., Reeves, H., Vega-Gonzalez, A., Singh, S., Kerr, M., Wilbur, E., Koutnik, M., 2026. Basal Unit Radar Characteristics at the Southern Flank of Dome A, East Antarctica, *The Cryosphere*, 20, 453–465, <https://doi.org/10.5194/tc-20-453-2026>.
10. Fudge, T.J., Koutnik, M., Young, D.A., Singh, S., **Yan, S.**, Blankenship, D.D., Kerr, M.E., Parrenin, F., Chung, A., 2026. Stability of interior East Antarctic wind scour and ice flow for multiple glacial-interglacial cycles. *Journal of Glaciology*, <https://doi.org/10.1017/jog.2026.10171>.
9. Kerr, M., Young, D.A., **Yan, S.**, Pierce, C., 2026. Radar Specularity Content Indicates a Strong Geothermal Heat Flow Gradient in Antarctica's South Pole Basin. *Geophysical Research Letters*. <http://dx.doi.org/10.1029/2025GL120928>
8. **Yan, S.**, Koutnik, M., Blankenship, D.D., Greenbaum, J.S., Young, D.A., Roberts, J., van Ommen, T., Sun, B., Siegert, M., 2025. Holocene hydrological evolution of subglacial Lake Snow Eagle, East Antarctica implied by englacial radiostratigraphy. *Journal of Glaciology*, <https://doi.org/10.1017/jog.2025.15>
7. Young, D.A., Paden, J.D., **Yan, S.**, Kerr, M.E., Singh, S., Vega-Gonzalez, A., Kaundinya, S.R., Greenbaum, J.S., Chan, K., Ng, G., Buhl, D.P., Kempf, S.D., Blankenship, D.D., 2025. Coupled ice sheet structure and bedrock geology in the deep interior of East Antarctica: Results from Dome A and the South Pole Basin. *Geophysical Research Letters*. <https://doi.org/10.1029/2025GL115729>
6. 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., Kullessa, B., Matsuoka, K., Nyqvist, C.J., Rahnemounfar, M., Siegfried, M.R., Singh, S., Višnjević, V., Zamora, R., and Zuhr, A., 2025. Review article: AntArchitecture – building an age–depth model from Antarctica's radiostratigraphy to explore ice-sheet evolution. *The Cryosphere*, 19, 4611–4655, <https://doi.org/10.5194/tc-19-4611-2025>
5. Sailer, M. J., Fudge, T.J., Paden, J.D., **Yan, S.**, Young, D.A., Singh, S., Blankenship, D.D., Kerr, M.E., 2025. Ice core site considerations from modeling CO₂ and O₂/N₂ ratio diffusion in interior East Antarctica. *Climate of the Past*, <https://doi.org/10.5194/cp-21-2389-2025>.
4. Killingbeck, S.F., Unsworth, M., Young, D.A., Rutishauser, A., **Yan, S.**, Beam, L., Richter, 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, <https://doi.org/10.1029/2024JB028929>.
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), 6507. <https://doi.org/10.1038/s41467-023-42152-2>
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. <https://doi.org/10.1130/G50009.1>

1. Sun, N., Mao, Z., **Yan, S.**, Wu, X., Prakapenka, V.B. and Lin, J.F., 2016. Confirming a pyrolitic lower mantle using self-consistent pressure scales and new constraints on CaSiO₃ perovskite. *Journal of Geophysical Research: Solid Earth*, 121(7), pp.4876-4894. <https://doi.org/10.1002/2016JB013062>

Manuscripts in Review

2. **Yan, S.**, Fudge, T.J., Koutnik, M., Blankenship, D.D., Li, D., Singh, S., Young, D.A., submitted. Holocene and late Pleistocene surface accumulation history of the Dome A–South Pole corridor, East Antarctica. *The Cryosphere*.
1. Singh, S., Young, D.A., **Yan, S.**, Cavitte, M.G.P., Kempf, S.D., Blankenship, D.D., Fudge, T.J., Chan, K., in preparation. Nexus of disparate ice flow regimes at the South Pole. *Nature Geoscience*.

Special Publications and Datasets

6. Shackleton, S., Goodge, J., Balter-Kennedy, A., **Yan, S.**, Severinghaus, J., and the RAID science community, 2025. The future of deep ice-sheet research in Antarctica with the Rapid Access Ice Drill. In RAID Long-Range Science Plan. <https://ricerca.ogs.it/handle/20.500.14083/44424>
5. Young, D. A., Paden, J. D., **Yan, S.**, Kerr, M. E., Singh, S., Vega Gonzalez, A., Kaundinya, S., Greenbaum, J. S., Chan, K., Blankenship, D. D., 2025, NSF COLDEX Ice Penetrating Radar Derived Grids of the Southern Flank of Dome A, Texas Data Repository. <https://doi.org/10.18738/T8/M77ANK>
4. **Yan, S.**, Blankenship, D. D., Kerr, M., Singh, S., Vega Gonzalez, A., Young, D. A., 2025. Basal Ice Unit Thickness Mapped by the NSF COLDEX MARFA Ice Penetrating Radar, U.S. Antarctic Program (USAP) Data Center. <https://doi.org/10.15784/601912>.
3. **Yan, S.**, Blankenship, D. D., Kerr, M., Li, D., Singh, S., Vega Gonzalez, A., Young, D. A., 2025. Fractional Thickness of Incoherent Scattering Within the Basal Unit Mapped by the NSF COLDEX MARFA Ice-Penetrating Radar, U.S. Antarctic Program (USAP) Data Center. <https://doi.org/10.15784/601972>.
2. Young, D., and **Yan, S.**, 2025, NSF COLDEX Delay Doppler Radar Profiles of Southern Dome A, Antarctica, Texas Data Repository, <https://dataverse.tdl.org/previewurl.xhtml?token=a04c95b4-3d81-404b-a7fa-142f977ef0cd>
1. **Yan, S.**, Koutnik, M., Blankenship, D.D., Greenbaum, J.S., Young, D.A., Roberts, J., van Ommen, T., Sun, B., Siegert, M., 2025. Englacial Radiostratigraphy Dataset for "Holocene hydrological evolution of subglacial Lake Snow Eagle, East Antarctica implied by englacial radio-stratigraphy", Zenodo. <https://doi.org/10.5281/zenodo.17612805>

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).

Mentoring Experiences

• Dapeng Zhao	Graduate student, UT Austin	2025–present
• 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
• Julia Nie	Undergraduate student, University of Washington	2024
• Timothy Elnitiarta	Research Experiences for Undergraduates (REU) student, UT Austin	2024
• Hector Cordova	REU student, UT Austin	2024
• Alejandra Vega-Gonzalez	REU student, UT Austin	2023–2024
• Hoang "Wendy" Chu	REU student, UT Austin	2023

Selected Proceedings at Professional Meetings

Meeting Convening

- Primary Convener and Chair, 2025 AGU Fall Meeting session: “Strange Ice”: Answer Unsettled Glacier and Ice Sheet Questions with Interdisciplinary Research
- 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-convener, 2nd RAID Science Planning Workshop, September 2024, Virginia, USA

Oral Presentations

- 2025 COLDEX Annual Meeting: Basal Unit Radar Characteristics at the Southern Flank of Dome A, East Antarctica.
- 2025 COLDEX Annual Meeting: Holocene and Late Pleistocene Surface Mass Balance History at the Southern Flank of Dome A, East Antarctica.
- IGS Global Seminars, December 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

- 2025 AGU Fall Meeting: Radar Characterization of the Basal Ice Unit and Its Potential Dependence on Englacial Temperature: A Case Study at the Southern Flank of Dome A, East Antarctica. AGU2025FM-C11D-0799
- 2025 AGU Fall Meeting: Holocene and Late Pleistocene Surface Accumulation History at the Southern Flank of Dome A, East Antarctica. AGU2025FM-PP41E-1187
- 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

Fieldwork

- December, 2018 – February, 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

Honors and Awards

- COLDEX Early Career Researcher Scholarship 2024, 2025
- COLDEX Inclusive Leadership Award, honorable mention 2024
- UTIG Outstanding Graduate Student Award 2022
- Vetlesen Fellowship 2020–2023
- Independent Study Fellowship 2018, 2020

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 Preparation Series, UT Austin 2021
- Certificate of the Inclusive Classrooms Seminar Series, UT Austin 2021
- URGE (Unlearning Racism in GEosciences) 2021
- Certificate of the Teaching Preparation 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, UT Austin 2021–2022
- "JSG Around the World" seminar series, co-coordinator 2021