

PAUL T. SUMMERS

224 Oak Court, Menlo Park, CA 94025 ◊ (650) · 804 · 5998

psummers@stanford.edu ◊ <https://somonesummers.github.io/>

EDUCATION

Stanford University, Stanford California
PhD Candidate in Geophysics

September 2018 - Spring 2024 (*planned*)
GPA: 3.94

Stanford University, Stanford California
B.S in Physics, M.S. in Geophysics

September 2010 - June 2014
GPA: 3.81, 3.89

PUBLICATIONS

Summers, P.T.; Elseworth, C.W.; Dow, C.F.; Suckale, J. "Migration of the Shear Margins at Thwaites Glacier: Dependence on Basal Conditions and Testability Against Field Data," *Journal of Geophysical Research: Earth Surface*, 2023, <https://doi.org/10.1029/2022JF006958>

Siegfried, M.; Venturelli, R; Patterson, M; Arnuk, W.; Campbell, T.; Gustafson, C.; Michaud, A.; Galton-Fenzi, B.; Hausner, M.; Holzschuh, S.; Huber, B.; Mankoff, K.; Schroeder, D.; **Summers, P. T.**; Tyler, S.; Carter, S.; Fricker, H.; Harwood, D.; Leventer, A.; Rosenheim, B.; Skidmore, M.; Priscu, J. and SALSA Science Team. "The life and death of a subglacial lake in West Antarctica," *Geology* , 2023, <https://doi.org/10.1130/G50995.1>

Bienert, N.; Schroeder D. M.; **Summers, P.T.** "Bistatic Radar Tomography of Shear Margins: Simulated Temperature and Basal Material Inversions," *IEEE Transactions on Geoscience and Remote Sensing*, 2022, <https://doi.org/10.1109/TGRS.2022.3213047>

Summers, P.T.; Dustin M. Schroeder, Matthew R. Siegfried. "Constraining Ice Sheet Basal Sliding and Horizontal Velocity Profiles Using a Stationary Phase Sensitive Radar Sounder," *IEEE International Geoscience and Remote Sensing Symposium*, 2021, <https://doi.org/10.1109/IGARSS47720.2021.9554535>

RESEARCH AND PROFESSIONAL EXPERIENCE

Stanford University Department of Geophysics
PhD Candidate

September 2018 - Spring 2024 (*planned*)
Stanford, CA

Physical processes controlling Antarctic Shear margin locations, applied to Thwaites Glacier and other ice streams.
Thermomechanical ice flow modeling and ice sounding radar processing techniques focused on Antarctic shear margins.
Physical modeling using finite element analysis in Matlab. Worked with satellite, atmospheric, radar sounding data sets.

Dropbox Inc.
Salesforce Developer

August 2014 - July 2018
San Francisco, CA

Designed, built and tested custom solutions with Sales, Finance and Product to meet business requirements.

Stanford University Department of Geophysics
Researcher, M.S. Candidate

June 2013 - June 2014
Stanford, CA

Authored article investigating mechanics of pre-explosive harmonic tremor in the 2009 Redoubt Volcano eruption.
Physical modeling using finite element analysis and PDEs in Matlab.

Stanford University Department of Physics
Research Intern

June 2012 - September 2012
Stanford, CA

Investigated magnetic properties of transition metal oxides in search of a new superconductor or novel magnet.
Experience working with strong acids, toxic chemicals, air sensitive materials, worked with vacuum hoods.

Stanford Stem Cell Institute
Research Intern

June 2011 - September 2011
Stanford, CA

Investigated antibody treatment of various forms of cancer both *in vivo* and *in vitro*.

TEACHING AND MENTORING

Mentor Graduate Student

October 2019 - present

Peer Mentor for Stanford 1st year PhD students (1 hours per week)

Tutor Graduate Student

October 2022 - June 2023

1:1 Tutor Master's student for upper level math and engineering courses (2 hours per week)

SESUR Program Assistant

April 2022 - October 2022

Stanford Doerr School of Sustainability

Coordinate Stanford Earth Summer Undergraduate Research Program including field trips, weekly seminars, various social events.
(10 hours per week)

Mentor for Undergraduate Intern

April 2022 - August 2022

Stanford Department of Geophysics

Mentored Stanford undergraduate modeling subglacial meltwater routing at Thwaites Glacier, Antarctica. Student will present work at AGU 2022 (3 hours per week)

Teaching Assistant

April 2022 - June 2022

Stanford University Department of Geophysics

Undergraduate geophysical methods course for imaging and characterizing groundwater systems. Partnership with community decision makers to recharge ground water. (12 hours per week)

Co-Mentor for Undergraduate Intern

June 2021 - August 2021

Stanford University Department of Geophysics

Mentored Stanford undergraduate on processing ice sounding radar film archive. (3 hours per week)

Teaching Assistant

January 2019 - April 2019

Stanford University Department of Geophysics

Undergraduate and Graduate course. Continuum mechanics applied to ice sheets and glaciers, water waves and tsunamis, and volcanoes. (6 hours per week)

Teaching Assistant

April 2013 - June 2013

Stanford University Department of Physics

Mid-level electricity and magnetism course. (6 hours per week)

Instructor

September 2011 - June 2012

Stanford Outdoor Education Program

Instructor for introductory to intermediate backpacking courses. (4 hours per week)

Assistant Coach

Jan 2011 - June 2011

Gunn High School

Distance Coach for Track & Field (10 hours per week)

PROFESSIONAL DEVELOPMENT**CIRTL@Stanford Teaching Certificate Program**

August 2023

*Associate Level**Stanford, CA*

Recognition of commitment to undergraduate education, demonstrated through independent and collaborative learning at Stanford University and through the multi-institution Center for the Integration of Research, Teaching, and Learning (CIRTL) Network.

Outdoor Leadership Apprenticeship

March 2023 - June 2023

*Apprentice**Stanford, CA*

Apprenticeship in Outdoor Leadership, focused on rock climbing skills through experiential learning. Co-instructed a week long, field-based traditional rock climbing course for 8 students, as well as 3 vertical self-rescue clinics.

Preparing Future Professors

November 2022 - Jan 2023

*Mentee**West Valley College, Saratoga, CA*

10 week shadowing program gave the opportunity to experience faculty life first-hand at a comprehensive, teaching-focused university or community college.

Center for Teaching and Learning Course Design Institute

June 2022 - July 2022

*Student**Stanford, CA*

6 week summer course on drafting curricula using evidence-based frameworks. Developed framework of Glacial Dynamics course focused on Mass Conservation Methods.

FIELD EXPERIENCE**Thwaites Interdisciplinary Margin Evolution**Oct 2023 - Feb 2024 *planned**Field Scientist**Thwaites Glacier, West Antarctica*

2-D and 3-D active seismic survey. Offset bistatic, polarimetric radar survey. Deployed and recovered seismic nodes with GPS, assisted in active seismic explosive sources. 7 weeks in the deep field in a team of 10 scientists and 2 guides.

Near-Surface Geophysics: Imaging Groundwater Systems

May 2022

*Teaching Assistant**Coyote Valley, California*

Co-lead a class of 20 undergraduates to completed a 100 m seismic (hammer and betsy gun), 200 m electrical resistivity tomography, and towed transient electromagnetic survey imaging ground water connectivity in the top 40 meters of the subsurface. Worked with community decision makers to inform development of newly acquired public lands.

Thwaites Interdisciplinary Margin Evolution

Oct 2021 - Jan 2022

*Field Scientist**Thwaites Glacier, West Antarctica*

Completed a 5 km offset bistatic, polarimetric radar survey. Deployed and recovered seismic nodes in an active seismic survey using hammer source. Recovered passive seismic nodes and GPS stations. 3 weeks in the deep field in a team of 4 scientists and 2 guides.

AWARDS

ARCS Scholar	2022 - 2024
Northern California Chapter of the Achievement Rewards for College Scientists, 2x recipient for total of \$101,000	
Best Graduate Poster	May 2023
<i>Research Review Symposium</i>	<i>Stanford Doerr School of Sustainability</i>
Radar Attenuation Signature of Temperate Antarctic Shear Margins	
Stanford Earth Graduate Student Research Grant	Sept 2021
Grant of \$575 for field supplies for 2021-22 Antarctic field work.	

TECHNICAL STRENGTHS

Computer Languages	MATLAB, Python, JAVA, SQL, APEX, SOQL, Javascript
Tools	HPC, Git, vim, MATLAB, L ^A T _E X, Sublime IDE
Field Skills	ApRES, Seismic Surveying (Ice and Land), ERT, GPS, Digging in Snow, Roped Travel, Snowmobiling, Crevasse Rescue, Vertical Rock Rescue
First Aid	Red Cross AED, CPR, Basic First Aid Certified (exp March 2024), WFA (lapsed)

OPEN SOURCE CODE REPOSITORIES

Zenodo	For 2023 JGR Publication
https://zenodo.org/record/7106136	
Github	Ongoing Research and Personal Projects
https://github.com/somonesummers	

COMMUNITY BUILDING

Graduate Student Advisory Council Member	2019 - 2020
Liaison between graduate students in the School of Earth and department and school level administration. (1 hour per week)	
School of Earth Social Czar	2018 - 2019
Host weekly social events for the School of Earth. (2 hours per week)	

PERSONAL INTERESTS

Stanford Climbing Wall	June 2022 - Present
Route Setter, set boulders, top rope, and lead climbs (6 hours per week)	
Stanford Club Cycling	July 2011 - June 2014
Recruitment Officer, Equipment Manager, Mountain Bike Captain	
Outdoor Activities	Other Interests
Cycling, Road and MTB	Ceramics, Tea Pots, Bowls, Mugs, Display art
Running, Trail Ultramarathons	Photography, Digital, Landscapes
Backpacking and Camping, Rock/Alpine Climbing	Sewing, Tents, Packs, Clothing, Accessories.
Skiing, Resort, Backcountry Touring	

CONFERENCE PRESENTATIONS

SDSS 2023 Research Review	May 26, 2023
Summers, P. T.; Schroeder, D.; Suckale, J. (2023, May). Radar Attenuation Signature of Temperate Antarctic Shear Margins.	
AGU 2022 Meeting	Dec 13, 2022
Summers, P. T.; et. al. (2022, Dec). Response of Thwaites Glacier's Shear Margins to Ice Sheet Thinning and Surface-Slope Steepening. In AGU Fall Meeting Abstracts.	
AGU 2022 Meeting	Dec 13, 2022
Cheng, C. et. al.. (2022, Dec). Sensitivity of Subglacial Streams to Bed Topography: Introducing Small-Scale Bed Roughness Suggests Large Water Routing Uncertainties for Thwaites Glacier. In AGU Fall Meeting Abstracts.	
AGU 2022 Meeting	Dec 13, 2022
Teisberg, T. et. al.. (2022, Dec). Methods for Constraining Englacial Velocity Fields using Airborne Ice-penetrating Radar Data. In AGU Fall Meeting Abstracts.	
WAIS 2022 Meeting	Sep 27, 2022
Summers, P. T.; Schroeder, D. (2022, Sep). Evidence for Temperate Ice in Shear Margins of Antarctic Ice Streams from Airborne Radar Surveys.	

AGU 2021 Meeting

Dec 14, 2021

Siegfried, M. R.; **et. al.** (2021, Dec). The life and death of a subglacial lake in West Antarctica. In AGU Fall Meeting Abstracts.

AGU 2021 Meeting

Dec 14, 2021

Sandra, R.; **et. al.** (2021, Dec). Informing Bistatic Radar Experiments at Thwaites Glacier Using Bistatic Data from Greenland and West Antarctica. In AGU Fall Meeting Abstracts.

WAIS Workshop 2021

Sep 22, 2021

Summers, P.T.; Elseworth, C.W.; Suckale, J.; TIME Science Team (2021, Sep). Inward Migration of the Shear Margins at Thwaites Glacier in Response to Thinning.

WAIS Workshop 2021

Sep 23, 2021

Summers, P.T.; Schroeder, D.; Suckale, J. (2021, Sep). Evidence for Temperate Ice in Shear Margins of Antarctic Ice Streams from Airborne Radar Surveys.

IEEE International Geoscience and Remote Sensing Symposium 2021

July 11, 2021

Summers, P.T.; Schroeder, D.; Siegfried, M.R. (2021, July). Constraining Ice Sheet Basal Sliding and Horizontal Velocity Profiles Using A Stationary Phase Sensitive Radar Sounder.

AGU 2020 Meeting

Dec 16, 2020

Summers, P.T.; Elseworth, C.W.; Suckale, J.; TIME Science Team (2020, Dec). Processed-Based Models in the Wild: A Forward Model Approach to Constraining the Processes Governing Basal Strength at Thwaites Glacier. In AGU Fall Meeting Abstracts.

WAIS Workshop 2020

Sep 29, 2020

Summers, P.T.; Elseworth, C.W.; Suckale, J.; TIME Science Team (2020, Sep). Investigating Mechanisms of Basal Strength at Thwaites Glacier using a Forward Model Approach. Recording of talk on [waisworkshop.org](https://www.waisworkshop.org)

AGU 2019 Meeting

Dec 13, 2019

Summers, P.T.; Elseworth, C.W.; Suckale, J. (2019, Dec). Potential Formation of a New Shear Margin at Thwaites Glacier. In AGU Fall Meeting Abstracts.

AGU 2019 Meeting

Dec 13, 2019

Liu, W.; Räss, L.; **Summers, P.**; Papula, A.; Suckale, J. (2019, Dec). Impact of Complex Topography on Thermomechanical Coupled Ice Flow Using the Immersed Boundary Method. In AGU Fall Meeting Abstracts.

SSA 2014 Meeting

May 2, 2014

Summers, P.T. & Dunham, E. M.D. (2014, May). Conduit Processes Driving Pre-explosive Harmonic Tremor in the 2009 Redoubt Volcano Eruption. In SSA 2014 Annual Meeting Announcement.

AGU 2013 Fall Meeting

Dec 2013

Summers, P. & Dunham, E. M. (2013, December). Conduit Processes Driving Pre-explosive Harmonic Tremor in the 2009 Redoubt Volcano Eruption. In AGU Fall Meeting Abstracts.