

# PAUL T SUMMERS

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## EDUCATION

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**Stanford University, Stanford California**  
PhD Candidate in Geophysics

*September 2018 - Present*  
GPA: 3.94

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

*September 2010 - June 2014*  
GPA: 3.81  
GPA: 3.89

## TEACHING AND MENTORING

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### **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)

## PUBLICATIONS

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**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, doi.org/10.1029/2022JF006958

Siegfried, M.; Venturelli, R.; Patterson, M.; Arnuik, 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, 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, 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, doi.org/10.1109/IGARSS47720.2021.9554535

## AWARDS

### ARCS Scholar

2022-2023

Northern California Chapter of the Achievement Rewards for College Scientists

## PROFESSIONAL DEVELOPMENT

### Preparing Future Professors

November 2022 - Jan 2023

*Mentee*

*West Valley College, Saratoga, CA*

Shadowing program offers graduate students 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 2021- Jan 2022

*Field Scientist*

*Thwaites Glacier, West Antarctica*

Completed 5 km offset bistatic, polarimetric radar survey. Deployed and recovered seismic nodes in 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, 2 guides.

### Near-Surface Geophysics: Imaging Groundwater Systems

May 2022

*Teaching Assistant*

*Coyote Valley, California*

Co-lead class of 20 undergraduates to completed 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.

## PROFESSIONAL AND RESEARCH EXPERIENCE

### Stanford University Department of Geophysics

September 2018 - Summer 2024(planned)

*PhD Candidate*

*Stanford, CA*

- Physical Processes controlling Antarctic Shear Margin Locations, applied to Thwaites Glacier and other Ice Streams
- Ice flow modeling and ice sounding radar processing techniques.
- Physical modeling using finite element analysis in Matlab. Worked with satellite, atmospheric, radar sounding data sets.

### Dropbox Inc.

August 2014 - July 2018

*Salesforce Developer*

*San Francisco, CA*

- Designed, Built and Tested custom solutions with Sales, Finance and Product to meet business requirements.
- APEX Class/Trigger development, Custom REST APIs, Custom and Standard Objects/Fields, Configuration.
- Support Business in maintaining Salesforce Database with Bulk Loads, De-Duplication, and Data Validation.

### Stanford University Department of Geophysics

June 2013 - June 2014

*Researcher, M.S. Candidate*

*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

June 2012 - September 2012

*Research Intern*

*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 Outdoor Education

September 2011 - June 2012

*Student Instructor*

*Stanford, CA*

- Volunteer Instructor for an introductory course for undergraduate and graduate students.
- Lead lectures and weekend trips backpacking, snow camping, backcountry skiing.

### Stanford Stem Cell Institute

June 2011 - September 2011

*Research Intern*

*Stanford, CA*

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

## TECHNICAL STRENGTHS

### Languages

English (Fluent), German (Basic), Spanish (Basic)

### Computer Languages

MATLAB, Python, JAVA, SQL, APEX, SOQL, Javascript

### Tools

Git, vim, Eclipse, L<sup>A</sup>T<sub>E</sub>X, Sublime IDE, Demand Tools, SFDC Workbench

### Field Skills

ApRES, Seismic Surveying (Ice and Land), ERT, GPS, Digging in Snow

### First Aid

Roped Travel, Snowmobiling, Crevasse Rescue

Red Cross AED, CPR, Basic First Aid Certified (exp March 2024)

## COMMUNITY BUILDING

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

## ABSTRACTS

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<b>AGU 2022 Meeting</b>	Dec 13, 2022
<b>Summers, P. T.</b> ; et. al. (2022, Dec). Response of Thwaites Glacier's Shear Margins to Ice Sheet Thinning and Surface-Slope Steepening. In AGU Fall Meeting Abstracts.	
<b>AGU 2022 Meeting</b>	Dec 13, 2022
Cheng, C. <b>et. al.</b> (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.	
<b>AGU 2022 Meeting</b>	Dec 13, 2022
Teisberg, T. <b>et. al.</b> (2022, Dec). Methods for Constraining Englacial Velocity Fields using Airborne Ice-penetrating Radar Data. In AGU Fall Meeting Abstracts.	
<b>WAIS 2022 Meeting</b>	Sep 27, 2022
<b>Summers, P. T.</b> ; Schroeder, D (2022, Sep). Evidence for Temperate Ice in Shear Margins of Antarctic Ice Streams from Airborne Radar Surveys.	
<b>AGU 2021 Meeting</b>	Dec 14, 2021
Siegfried, M. R.; <b>et. al.</b> (2021, Dec). The life and death of a subglacial lake in West Antarctica. In AGU Fall Meeting Abstracts.	
<b>AGU 2021 Meeting</b>	Dec 14, 2021
Sandra, R.; <b>et. al.</b> (2021, Dec). Informing Bistatic Radar Experiments at Thwaites Glacier Using Bistatic Data from Greenland and West Antarctica. In AGU Fall Meeting Abstracts.	
<b>WAIS Workshop 2021</b>	Sep 22, 2021
<b>Summers, P.T.</b> ; Elseworth, C.W.; Suckale, J.; TIME Science Team (2021, Sep). Inward Migration of the Shear Margins at Thwaites Glacier in Response to Thinning.	
<b>WAIS Workshop 2021</b>	Sep 23, 2021
<b>Summers, P.T.</b> ; Schroeder, D ;Suckale, J(2021, Sep). Evidence for Temperate Ice in Shear Margins of Antarctic Ice Streams from Airborne Radar Surveys.	
<b>IEEE International Geoscience and Remote Sensing Symposium 2021</b>	July 11, 2021
<b>Summers, P.T.</b> ; Schroeder, D.; Siegfried, M.R. (2021, July). Constraining Ice Sheet Basal Sliding and Horizontal Velocity Profiles Using A Stationary Phase Sensitive Radar Sounder.	
<b>AGU 2020 Meeting</b>	Dec 16, 2020
<b>Summers, P.T.</b> ; 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.	
<b>WAIS Workshop 2020</b>	Sep 29, 2020
<b>Summers, P.T.</b> ; 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 <a href="https://waisworkshop.org">waisworkshop.org</a>	
<b>AGU 2019 Meeting</b>	Dec 13, 2019
<b>Summers, P.T.</b> ; Elseworth, C.W.; Suckale, J (2019, Dec). Potential Formation of a New Shear Margin at Thwaites Glacier. In AGU Fall Meeting Abstracts.	
<b>AGU 2019 Meeting</b>	Dec 13, 2019
Liu, W.; Räss, L.; <b>Summers, P.</b> ; 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.	
<b>SSA 2014 Meeting</b>	May 2, 2014
<b>Summers, P.T.</b> & 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.	
<b>AGU 2013 Fall Meeting</b>	Dec 2013
<b>Summers, P.</b> & Dunham, E. M. (2013, December). Conduit Processes Driving Pre-explosive Harmonic Tremor in the 2009 Redoubt Volcano Eruption. In AGU Fall Meeting Abstracts.	

## INTERESTS

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<b>Stanford Climbing Wall</b>	June 2022 - Present
· Route Setter, set boulders, top rope, and lead climbs (4 hours a week)	
<b>Stanford Club Cycling</b>	July 2011 - June 2014
· Recruitment Officer, Equipment Manager, Mountain Bike Captain	

**Outdoor Activities**

- Cycling, Road and MTB
- Running, Road and Trail
- Backpacking and Camping, Rock/Alpine Climbing
- Skiing, Resort, Backcountry Touring

**Other Interests**

- Ceramics, Tea Pots, Bowls, Mugs, Some display art
- Photography, Digital, Landscapes
- Sewing, Tents, Packs, Clothing, Accessories.