

Shane P. Grigsby [he/him]

CONTACT INFORMATION	Shane Grigsby 1190 Ocean Ave Unit A Emeryville, CA 94608	720.837.0809 (Cell) refuge@rocktalus.com (Email) https://espg.github.io (Website) https://github.com/espg (GitHub)
EDUCATION	PhD in Geography Cooperative Institute for Research in Environmental Sciences University of Colorado, Boulder, CO Dissertation: <i>Greenland Surface Roughness Retrieval and Status</i> Adviser: Dr. Waleed Abdalati	August 2019
	Master of Arts in Geography Department of Geography University of California, Santa Barbara, CA <i>Improved Surface Temperature Estimates with MASTER/AVIRIS sensor fusion</i> Adviser: Dr. Dar Roberts	September 2014
	Bachelor of Arts in Geography and Philosophy University of Colorado, Boulder, CO <i>Magna cum Laude</i> Senior Thesis for High Honors: <i>Derivation of Solar Insolation Estimates from LiDAR</i>	August 2011
CURRENT	Open Science Infrastructure Engineer Astera Institute Role: <i>Support cryosphere open science, develop open source tools, manage awards</i> Englacial team lead: Thomas Tiesburg	July 2025 - May 2026
FEDERAL SERVICE	Research & Development Scientist National Geospatial-Intelligence Agency, Research Directorate Role: <i>Technical expert for machine learning and remote sensing systems at scale</i>	November 2021 - January 2023
	Program Manager, AMOB Program National Geospatial-Intelligence Agency, Advanced Technologies Office Role: <i>Manage program strategy, development, & implementation</i> Office Director: Mr. Phil Sage	April 2022 - January 2023
RESEARCH APPOINTMENTS	Senior Research Engineer Byrd Polar and Climate Research Center School of Earth Sciences Ohio State University Role: <i>Machine learning and remote sensing application development for earth science</i>	Dec 2023 - Dec 2024
	Visiting Assistant Scientist NASA Goddard Cryospheric Sciences Laboratory (Section 615) ICESat-2 Project Office Earth System Science Interdisciplinary Center, University of Maryland Role: <i>Cloud computing applications for the ICESat-2 mission</i>	January 2021 to November 2021

ACADEMIC APPOINTMENTS	<p>Postdoctoral Researcher August 2019 to January 2021 Mines Glaciology Laboratory Department of Geophysics Colorado School of Mines Mentor: Dr. Matthew R. Siegfried</p> <p>Postdoctoral Associate August 2019 to January 2021 Cooperative Institute for Research in Environmental Sciences University of Colorado, Boulder Mentor: Dr. Waleed Abdalati</p> <p>Research Assistant May 2014 to August 2019 Cooperative Institute for Research in Environmental Sciences University of Colorado, Boulder Mentor: Dr. Waleed Abdalati</p>
TECHNICAL APPOINTMENTS	<p>Team Lead and Data Architect June 2018 - February 2019 Orbital Micro Systems Role: <i>Design team lead for the data ingest system</i></p> <p>Research Analyst September 2013 - August 2014 Intel, 'BigData' Science and Technology Center Role: <i>Schema design for petabyte scale remote sensing array databases</i></p> <p>Linux Systems Administrator October 2009 - September 2011 Research Computing, CU-Boulder (UnixOps) Role: <i>Developed and maintained custom software builds for HPC systems and clusters</i></p>
MANUSCRIPTS IN REVIEW	<p>[1] Tasha Snow, Andrew Harris, Shane Grigsby, Ellianna Abrahams, Elena Savidge, Ted Scambos, Fernando Pérez, Christopher Shuman, Waleed Abdalati, and Matthew Siegfried. Polar application of a new Landsat sea surface temperature algorithm to the Amundsen Sea, West Antarctica. <i>IEEE Transactions on Geoscience and Remote Sensing</i>, in review.</p>
REFEREED JOURNAL PUBLICATIONS	<p style="text-align: right;">* indicates student</p> <p>[7] Shane P Grigsby and Demián D Gómez. Efficient clustering of gnss stations for processing using double differences. <i>GPS Solutions</i>, 30(1):60, 2026. doi:10.1007/s10291-025-02020-6.</p> <p>2026</p> <p>[6] Tasha Snow, Fiamma Straneo, James Holte, Shane Grigsby, Waleed Abdalati, and Ted Scambos. More than skin deep: sea surface temperature as a means of inferring atlantic water variability on the southeast greenland continental shelf near helheim glacier. <i>Journal of Geophysical Research: Oceans</i>, 2021. doi:10.1029/2020JC016509.</p> <p>2021</p> <p>[5] Poul Christoffersen, Marion Bougamont, Alun Hubbard, Samuel H. Doyle, Shane P. Grigsby, and Rickard Pettersson. Cascading lake drainage on the Greenland Ice Sheet triggered by tensile shock and fracture. <i>Nature Communications</i>, 9(1), mar 2018. doi:10.1038/s41467-018-03420-8.</p> <p>2018</p> <p>[4] Mahsa S. Moussavi, Waleed Abdalati, Allen Pope, Ted Scambos, Marco Tedesco, Michael MacFerrin, and Shane P. Grigsby. Derivation and validation of supraglacial</p>

lake volumes on the Greenland Ice Sheet from high-resolution satellite imagery. *Remote Sensing of Environment*, 183:294–303, sep 2016. doi:10.1016/j.rse.2016.05.024.

- [3] A. Pope, T. A. Scambos, M. Moussavi, M. Tedesco, M. Willis, D. Shean, and **S. P. Grigsby**. Estimating supraglacial lake depth in West Greenland using Landsat 8 and comparison with other multispectral methods. *The Cryosphere*, 10(1):15–27, jan 2016. doi:10.5194/tc-10-15-2016.
- [2] William Colgan, Harihar Rajaram, Waleed Abdalati, Cheryl McCutchan, Ruth Mottram, Mahsa S. Moussavi, and **Shane P. Grigsby**. Glacier crevasses: Observations, models, and mass balance implications. *Reviews of Geophysics*, 54(1):119–161, feb 2016. doi:10.1002/2015rg000504.
- 2016 [1] **Shane P. Grigsby**, Glynn C. Hulley, Dar A. Roberts, *Christopher Scheele, Susan L. Ustin, and Maria Mar Alsina. Improved surface temperature estimates with MASTER/AVIRIS sensor fusion. *Remote Sensing of Environment*, 167:53–63, sep 2015. doi:10.1016/j.rse.2015.05.019.

SOFTWARE
CONTRIBUTIONS

† indicates major new feature, * indicates enhancement

Shane Grigsby, Adrin Jalali, Erich Schubert, and Hanmin Qin. † *Ordering Points to Identify the Clustering Structure (OPTICS)*. Scikit-learn: Machine Learning in Python, available in versions 0.21.0 and later. *via* pull requests 1984, and 11547.

Shane Grigsby, * *Multivariate Normal Speed Enhancements* CuPY: A NumPy-compatible array library accelerated by CUDA, available in versions 8.0.0b and later. *via* pull request 3018.

Shane Grigsby, * *Raster Subset Functionality* georasters: a fast and flexible tool to work with GIS raster files, available in versions 0.5.5 and later. *via* pull requests 2, and 62.

CORE DEV /
MAINTAINER

xopr, Tools for scalable, reproducibly accessing Open Polar Radar data in the Python data ecosystem. <https://github.com/englacial/xopr>

geode, Geodesy Database Engine. <https://github.com/demiangomez/geode>

mortie, Morton numbering for healpix. <https://github.com/espg/mortie>

icechunk-js, Typescript library for access to icechunk and other virtualized zarr data stores. <https://github.com/englacial/icechunk-js>

ismip-viewer, Quarto shortcode extension and JS viewer for ISMIP6 ice sheet model output. <https://github.com/englacial/ismip-viewer>

TUTORIALS AND
DATA SETS

Arendt, Anthony, Scheick, Jessica, Shean, David, Buckley, Ellen, **Grigsby, Shane**, Haley, Charley, ... Sutterly, Tyler. (2020, August 6). *2020 ICESat-2 Hackweek Tutorials (Version 1.0.0)*. Zenodo. doi:10.5281/zenodo.3966463.

Grigsby, S., 2013, *Leaf-on lidar point cloud data for solar site assessment of the CU-Boulder campus*, Department of Geography, University of Colorado at Boulder, digital media. doi:10.5069/G9ZC80SR

COMPETITIVELY SELECTED TALKS	High Elevation Crevasses Coincide with Low-permeability Ice Slabs <i>Program for Arctic Regional Climate Assessment, NASA Goddard</i>	20 Feb. 2020	
	Tracking Crevasse Extent over the Greenland Ice Sheet using ICESat <i>5th International Symposium on Arctic Research, Tokyo</i>	18 Jan. 2018	
	Crevasse Migration in Southern Greenland as inferred from ICESat Altimetry <i>American Geophysical Union Fall Meeting, New Orleans</i>	15 Dec. 2017	
	Deep Learning with Geospatial Data <i>SciPy 2017, Austin</i>	14 July 2017	
	Surface characteristics and topography of Southwest Greenland during the first 3 years of ICESat (2004 - 2006) <i>Program for Arctic Regional Climate Assessment, NASA Goddard</i>	24 Jan 2017	
	Facilitating comparisons between ICESat waveforms and ICESat-2 point data <i>American Geophysical Union Fall meeting, San Francisco</i>	17 Dec. 2015	
	Open Source LiDAR Visualization Using GRASS GIS <i>Free and Open Source Software for Geospatial 2011, Denver</i>	15 Sept. 2011	
	INVITED SEMINARS	Sub-pixel, sub-footprint, sub-resolution: What machine learning can teach us about the improbable <i>US Army Corps Cold Regions Research and Engineering Laboratory</i>	14 Nov. 2019
		Assessment of Land Surface Temperature Retrieval Accuracy Using a Synthesis of Hyperspectral and Multispectral Data from the HypSPIRI Preparatory Flight Campaign <i>NASA Ames</i>	13 Mar. 2014
LiDAR Integration and Generalization <i>Google, Boulder Campus</i>		9 July 2010	
FUNDED GRANTS	<ul style="list-style-type: none"> • NASA Unsolicited Proposals Title: <i>Long-term validation of ICESat-2 range measurements with ground, air, and satellite surveys of salar de Uyuni, Bolivia</i> Period: 6/2020–5/2021 PI: Matthew Siegfried (Mines) Co-Is: Shane Grigsby (Mines), Gabriel Walton (Mines), Mike Willis (CU-Boulder) Funded Amount: \$149,917 		
	<ul style="list-style-type: none"> • NASA ROSES Solicitation: Interdisciplinary Research in Earth Science Title: <i>Observationally constrained simulations of the evolution of polar snow using a multi-sensor approach</i> Period: 9/2020–5/2023 PI: Brooke Medley (NASA Goddard) Co-Is: Jan Lenarts (University of Colorado), Shane Grigsby (Mines), James Carton (University of Maryland), Matthew Siegfried (Mines), Thomas Overly (NASA Goddard), Jonathan Ryan (Brown), Tyler Sutterley (University of Washington) Funded Amount: \$1,166,497 		
	<ul style="list-style-type: none"> • NASA ROSES Solicitation: Studies with ICESat-2 Title: <i>Leveraging ICESat-2 altimetry for Antarctic subglacial lake identification, evolution, and basal properties</i> Period: 5/2021–4/2024 PI: Matthew Siegfried (Mines) Co-Is: Shane Grigsby (Mines), Timothy Creyts (Columbia) Funded Amount: \$668,180 		

PENDING GRANTS	<ul style="list-style-type: none"> • NASA ROSES Solicitation: Remote Sensing Theory Title: <i>Worldwide Aggregated Depth Estimate Retrievals (WADER)</i> PI: Shane Grigsby (University of Colorado) Co-Is: Lori Magruder (UT-Austin), Michael Durand (OSU), Stephen Coss (OSU) Requested Amount: \$692,611 												
FEDERAL MERIT CITATIONS	<ul style="list-style-type: none"> • NASA Group Achievement Award (2019) Citation: <i>For sustained exceptional achievement in training and recruiting the next generation of Earth system scientists and engineers</i> • NGA CORE Award (2022) Citation: <i>For sustained excellence and leadership of the AMOB program</i> 												
REFeree SERVICE	<ul style="list-style-type: none"> • Proposals: <i>Multiple NASA Earth Science panels; NSF panel member for CSSI and GEO Directorates; NGA Research, AI and Remote Sensing (multiple panels, standing member), Detecting Known Trajectory Manipulations / DKTM (Topic Manager)</i> • NASA Products: <i>NASA ICESat-2, Algorithm Theoretical Basis Document (External reviewer, ATL11)</i> • Journals: <i>Remote Sensing of Environment, Ecological Processes, IEEE Transactions on Geoscience and Remote Sensing, IEEE Journal of Selected Topics in Applied Earth Observation, Earth and Space Science, Remote Sensing, The Cryosphere</i> 												
TEACHING EXPERIENCE	<p>NASA Student Airborne Research Program, NASA Armstrong, CA <i>Research Mentor / Instructor</i></p> <table border="0" style="width: 100%;"> <tr> <td style="padding-left: 20px;">Land Group</td> <td style="text-align: right;">Summer 2015</td> </tr> <tr> <td style="padding-left: 20px;">Faculty Advisor: Dr. Susan Ustin</td> <td style="text-align: right;">Summer 2013</td> </tr> <tr> <td style="padding-left: 20px;">Supervisor: Dr. Emily Schaller</td> <td style="text-align: right;">Summer 2012</td> </tr> </table> <p>UCSB, Department of Geography, Santa Barbara, CA <i>Teaching Assistant, Remote Sensing Sequence</i></p> <table border="0" style="width: 100%;"> <tr> <td style="padding-left: 20px;">GEOG 115A, Intro to Remote Sensing</td> <td style="text-align: right;">Fall 2011, 2012</td> </tr> <tr> <td style="padding-left: 20px;">GEOG 115B, Remote Sensing</td> <td style="text-align: right;">Winter 2012, 2013</td> </tr> <tr> <td style="padding-left: 20px;">GEOG 115C, Advanced Remote Sensing</td> <td style="text-align: right;">Spring 2012, 2013</td> </tr> </table>	Land Group	Summer 2015	Faculty Advisor: Dr. Susan Ustin	Summer 2013	Supervisor: Dr. Emily Schaller	Summer 2012	GEOG 115A, Intro to Remote Sensing	Fall 2011, 2012	GEOG 115B, Remote Sensing	Winter 2012, 2013	GEOG 115C, Advanced Remote Sensing	Spring 2012, 2013
Land Group	Summer 2015												
Faculty Advisor: Dr. Susan Ustin	Summer 2013												
Supervisor: Dr. Emily Schaller	Summer 2012												
GEOG 115A, Intro to Remote Sensing	Fall 2011, 2012												
GEOG 115B, Remote Sensing	Winter 2012, 2013												
GEOG 115C, Advanced Remote Sensing	Spring 2012, 2013												
COMMITTEE SERVICE	<ul style="list-style-type: none"> • UCSB ASPRS Student Chapter, President, Sept. 2013–May 2014 • The Green Initiative Fund, Chair, Aug. 2012–May 2014 • Geography Faculty Committee, Graduate Rep., Sept. 2011–2013 • Boulder Campus Planning Commission, Board Member, July 2010–Aug. 2011 • University of Colorado Environmental Center, Board Member, Mar. 2010–Aug. 2011 • Energy and Climate Revolving Fund, Board Member, Mar. 2010–Aug. 2011 												
SIGNIFICANT FIELD EXPERIENCE	<table border="0" style="width: 100%;"> <tr> <td style="padding-left: 20px;">The University Centre in Svalbard (UNIS) <i>Svalbard, 5 weeks</i></td> <td style="text-align: right;">February/March 2016</td> </tr> <tr> <td style="padding-left: 20px;">Firn Cover Project <i>Greenland, 8 weeks</i></td> <td style="text-align: right;">April - June 2015</td> </tr> <tr> <td style="padding-left: 20px;">Boulder Creek CZO Lidar Campaign <i>Niwot Ridge, CO</i></td> <td style="text-align: right;">May - September 2010</td> </tr> </table>	The University Centre in Svalbard (UNIS) <i>Svalbard, 5 weeks</i>	February/March 2016	Firn Cover Project <i>Greenland, 8 weeks</i>	April - June 2015	Boulder Creek CZO Lidar Campaign <i>Niwot Ridge, CO</i>	May - September 2010						
The University Centre in Svalbard (UNIS) <i>Svalbard, 5 weeks</i>	February/March 2016												
Firn Cover Project <i>Greenland, 8 weeks</i>	April - June 2015												
Boulder Creek CZO Lidar Campaign <i>Niwot Ridge, CO</i>	May - September 2010												
LANGUAGES	Spanish (Conversational), Python (Fluent)												
CLEARANCES	TS/SCI Clearance (Tier 5 Background Check with CI Polygraph)												