

Shane P. Grigsby [he/him]

CONTACT INFORMATION	Shane Grigsby 895 N 6th Street Unit 101 Columbus, OH 43201	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> Adviser: Dr. Waleed Abdalati	August 2011
CURRENT POSITION	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 - Present
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> Program Manager, AMOB Program National Geospatial-Intelligence Agency, Advanced Technologies Office Role: <i>Manage program strategy, development, & implementation</i> Office Director: Mr. Phil Sage	November 2021 - January 2023 April 2022 - January 2023
ACADEMIC APPOINTMENTS	Visiting Assistant Scientist NASA Goddard Cryospheric Sciences Laboratory (Section 615) ICESat-2 Project Office Earth System Science Interdisciplinary Center, University of Maryland Mentor: Dr. Thomas Neumann	January 2021 to November 2021
	Postdoctoral Researcher Mines Glaciology Laboratory Department of Geophysics Colorado School of Mines Mentor: Dr. Matthew R. Siegfried	August 2019 to January 2021

Postdoctoral Associate August 2019 to January 2021
 Cooperative Institute for Research in Environmental Sciences
 University of Colorado, Boulder
 Mentor: Dr. Waleed Abdalati

Research Assistant May 2014 to August 2019
 Cooperative Institute for Research in Environmental Sciences
 University of Colorado, Boulder
 Mentor: Dr. Waleed Abdalati

TECHNICAL TEAM LEAD AND DATA ARCHITECT June 2018 - February 2019
APPOINTMENTS Orbital Micro Systems
 Role: *Design team lead for the data ingest system*

Research Analyst September 2013 - August 2014
 Intel, 'BigData' Science and Technology Center
 Role: *Schema design for petabyte scale remote sensing array databases*

Linux Systems Administrator October 2009 - September 2011
 Research Computing, CU-Boulder (UnixOps)
 Role: *Developed and maintained custom software builds for HPC systems and clusters*

REFEREED JOURNAL PUBLICATIONS * indicates student
 [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. *Journal of Geophysical Research: Oceans*, 2021. doi:10.1029/2020JC016509.

2021 [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. *Nature Communications*, 9(1), mar 2018. doi:10.1038/s41467-018-03420-8.

2018 [4] Mahsa S. Moussavi, Waleed Abdalati, Allen Pope, Ted Scambos, Marco Tedesco, Michael MacFerrin, and **Shane P. Grigsby**. Derivation and validation of supraglacial 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.

MANUSCRIPTS IN REVISION	Shane Grigsby , William Colgan, Waleed Abdalati, Hari Rajaram, and Matthew Siegfried. Sub-footprint Surface Extraction & Classification of ICESat Laser Waveforms in South-west Greenland. <i>Journal of Glaciology</i> , in revision.	
SOFTWARE CONTRIBUTIONS	[†] indicates major new feature, * indicates enhancement Shane Grigsby , Adrin Jalali, Erich Schubert, and Hanmin Qin. [†] <i>Ordering Points to Identify the Clustering Structure (OPTICS)</i> . Scikit-learn: Machine Learning in Python, available in versions 0.21.0 and later. <i>via</i> pull requests 1984 , and 11547 . Shane Grigsby , * <i>Multivariate Normal Speed Enhancements</i> CuPY: A NumPy-compatible array library accelerated by CUDA, available in versions 8.0.0b and later. <i>via</i> pull request 3018 . Shane Grigsby , * <i>Raster Subset Functionality</i> georasters: a fast and flexible tool to work with GIS raster files, available in versions 0.5.5 and later. <i>via</i> pull requests 2 , and 62 .	
TUTORIALS AND DATA SETS	Arendt, Anthony, Scheick, Jessica, Shean, David, Buckley, Ellen, Grigsby, Shane , Haley, Charley, ... Sutterly, Tyler. (2020, August 6). <i>2020 ICESat-2 Hackweek Tutorials (Version 1.0.0)</i> . Zenodo. doi: 10.5281/zenodo.3966463 . Grigsby, S. , 2013, <i>Leaf-on lidar point cloud data for solar site assessment of the CU-Boulder campus</i> , Department of Geography, University of Colorado at Boulder, digital media. doi: 10.5069/G9ZC80SR	
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 Observations, Earth and Space Science, Remote Sensing, The Cryosphere</i> 	
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	National Aeronautics and Space Administration	
NASA GRANTS	<ul style="list-style-type: none"> Solicitation: 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 (University of Colorado, Boulder) Funded Amount: \$149,917 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 	
OTHER	<ul style="list-style-type: none"> TGIF Green Grow Lights Project 	
COMPETITIVE	<ul style="list-style-type: none"> Solar Mapping Project (Sustainable CU Grant) 	
AWARDS	<ul style="list-style-type: none"> USGIF Geospatial Intelligence Scholarship GeoEye Fellowship Gilman Scholarship Undergraduate Research Opportunities Program CU Study Abroad Scholarship Dangermond Travel Scholarship 	
TEACHING	NASA Student Airborne Research Program , NASA Armstrong, CA	
EXPERIENCE	<i>Research Mentor / Instructor</i>	
	Land Group	Summer 2015
	Faculty Advisor: Dr. Susan Ustin	Summer 2013
	Supervisor: Dr. Emily Schaller	Summer 2012
	UCSB, Department of Geography , Santa Barbara, CA	
	<i>Teaching Assistant, Remote Sensing Sequence</i>	
	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 • Integrated Pest Management Task Force, Member, June 2010–Dec. 2010 • CU Geography Department Computer Committee, Member, Spring 2009–Fall 2010 	
SIGNIFICANT FIELD EXPERIENCE	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)	
CITIZENSHIP, CLEARANCES	United States Citizen, Registered for Selective Service Current TS/SCI Clearance (Tier 5 Background Check with CI Polygraph)	
REFERENCES	<p>Dr. Waleed Abdalati Professor, University of Colorado (Boulder), Department of Geography Director, Cooperative Institute for Research in Environmental Sciences Chief Scientist, NASA (2011-2012) Co-Chair, Decadal Survey for Earth Science and Applications from Space (2018) e-mail: waleed.abdalati@colorado.edu phone: 240.481.1259</p> <p>Mr. Phil Sage National Geospatial-Intelligence Agency, Research Directorate Senior Executive (SES), Director of the Analytic Technologies Office (2021-2023) e-mail (civilian): philip.sage@jhuapl.edu phone (civilian): 703.597.7743</p> <p>Dr. Matthew Siegfried Professor, Colorado School of Mines, Department of Geophysics Head of the Mines Glaciology Laboratory e-mail : siegfried@mines.edu phone : 847.525.8487</p> <p>Dr. Fernando Perez Professor, University of California (Berkeley), Department of Statistics Founding member of NumFOCUS, 2i2c, and the Jupyter open source ecosystem Recipient Free Software Award (Free Software Foundation, 2012) Recipient ACM Software System Award (2017) e-mail: fernando.perez@berkeley.edu phone: 303.642.5486</p>	