

**Shane P. Grigsby** [he/him]

CONTACT INFORMATION	Shane Grigsby	720.837.0809 ( Cell )
	1916 17th Street NW	refuge@rocktalus.com (Email)
	Unit 103	https://espg.github.io (Website)
	Washington, DC 20009	https://github.com/espg (GitHub)
EDUCATION	<b>PhD in Geography</b>	August 2019
	Cooperative Institute for Research in Environmental Sciences	
	University of Colorado, Boulder, CO	
	Dissertation: <i>Greenland Surface Roughness Retrieval and Status</i>	
	Adviser: <a href="#">Dr. Waleed Abdalati</a>	
	<b>Master of Arts in Geography</b>	September 2014
	Department of Geography	
	University of California, Santa Barbara, CA	
	Thesis: <i>Improved Surface Temperature Estimates with MASTER/AVIRIS sensor fusion</i>	
	Adviser: <a href="#">Dr. Dar Roberts</a>	
	<b>Bachelor of Arts in Geography and Philosophy</b>	August 2011
MANAGEMENT APPOINTMENTS	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: <a href="#">Dr. Waleed Abdalati</a>	
	<b>Program Manager, AMOB Program</b>	April 2022 - January 2023
	National Geospatial Intelligence Agency, Research Directorate	
	Role: <i>Manage strategy, development, &amp; implementation of a cloud native classified machine learning R&amp;D program</i>	
	<b>Research &amp; Development Scientist</b>	November 2021 - January 2023
	National Geospatial Intelligence Agency, Advanced Technologies Office	
	Role: <i>Technical expert for machine learning and remote sensing systems at scale</i>	
TECHNICAL APPOINTMENTS	Office Director: <a href="#">Mr. Phil Sage</a>	
	<b>Team Lead and Data Architect</b>	June 2018 - February 2019
	Orbital Micro Systems	
	Role: <i>Design team lead for the data ingest system</i>	
	Supervisor: <a href="#">Dr. Richard McAllister, CIO</a>	
	<b>Research Analyst</b>	September 2013 - August 2014
	Intel, 'BigData' Science and Technology Center	
	Role: <i>Schema design for petabyte scale remote sensing array databases</i>	
	Supervisor: <a href="#">Dr. James Frew</a>	
	<b>Linux Systems Administrator</b>	October 2009 - September 2011
	Research Computing, CU-Boulder (UnixOps)	
	Role: <i>Developed and maintained custom software builds for HPC systems and clusters</i>	
	Supervisor: <a href="#">Orrie Gartner</a>	

ACADEMIC APPOINTMENTS	<b>Visiting Assistant Scientist</b>	January 2021 to November 2021
	NASA Goddard Cryospheric Sciences Laboratory ICESat-2 Project Office Earth System Science Interdisciplinary Center Mentor: Dr. Thomas Neumann	
	<b>Postdoctoral Researcher</b>	August 2019 to January 2021
	Mines Glaciology Laboratory Department of Geophysics Colorado School of Mines Mentor: Dr. Matthew R. Siegfried	
	<b>Postdoctoral Associate</b>	August 2019 to January 2021
	Cooperative Institute for Research in Environmental Sciences University of Colorado, Boulder Mentor: Dr. Waleed Abdalati	
	<b>Research Assistant</b>	May 2014 to August 2019
	Cooperative Institute for Research in Environmental Sciences University of Colorado, Boulder Mentor: Dr. Waleed Abdalati	

REFEREED JOURNAL PUBLICATIONS	* indicates student	
	[6]	Tasha Snow, Fiamma Straneo, James Holte, <b>Shane Grigsby</b> , 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.
2021	[5]	Poul Christoffersen, Marion Bougamont, Alun Hubbard, Samuel H. Doyle, <b>Shane P. Grigsby</b> , 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.
2018	[4]	Mahsa S. Moussavi, Waleed Abdalati, Allen Pope, Ted Scambos, Marco Tedesco, Michael MacFerrin, and <b>Shane P. Grigsby</b> . Derivation and validation of supraglacial lake volumes on the Greenland Ice Sheet from high-resolution satellite imagery. <i>Remote Sensing of Environment</i> , 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 <b>S. P. Grigsby</b> . Estimating supraglacial lake depth in West Greenland using Landsat 8 and comparison with other multispectral methods. <i>The Cryosphere</i> , 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 <b>Shane P. Grigsby</b> . Glacier crevasses: Observations, models, and mass balance implications. <i>Reviews of Geophysics</i> , 54(1):119–161, feb 2016. doi:10.1002/2015rg000504.
2016	[1]	<b>Shane P. Grigsby</b> , Glynn C. Hulley, Dar A. Roberts, *Christopher Scheele, Susan L. Ustin, and Maria Mar Alsina. Improved surface temperature estimates with MASTER/AVIRIS sensor fusion. <i>Remote Sensing of Environment</i> , 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 Southwest Greenland. *Journal of Glaciology*, in revision.

SOFTWARE  
CONTRIBUTIONS

<sup>†</sup> indicates major new feature, \* indicates enhancement

**Shane Grigsby**, Adrin Jalali, Erich Schubert, and Hanmin Qin. <sup>†</sup>*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.

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

REFEREE  
SERVICE

- **Proposals:** *NASA Cryospheric Sciences (panel member, ad hoc); NASA Open source software tools, libraries, and frameworks (panel member, ad hoc); NGA Research, AI and Remote Sensing (multiple panels, standing member), Detecting Known Trajectory Manipulations / DKTM (Topic Manager)*
- **NASA Products:** *NASA ICESat-2, Algorithm Theoretical Basis Document (External reviewer, ATL11)*
- **Journals:** *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*

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	<p>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</p>
FUNDED NASA GRANTS	<p><b>National Aeronautics and Space Administration</b></p> <ul style="list-style-type: none"> <li>• 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: <b>Shane Grigsby (Mines)</b>, Gabriel Walton (Mines), Mike Willis (University of Colorado, Boulder)            Funded Amount: \$149,917</li> <li>• 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), <b>Shane Grigsby (Mines)</b>, 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</li> </ul>
OTHER COMPETITIVE AWARDS	<ul style="list-style-type: none"> <li>• TGIF Green Grow Lights Project \$38,785</li> <li>• Solar Mapping Project (Sustainable CU Grant) \$20,000</li> <li>• USGIF Geospatial Intelligence Scholarship \$5,000</li> <li>• GeoEye Fellowship \$5,000</li> <li>• Gilman Scholarship \$4,500</li> <li>• Undergraduate Research Opportunities Program \$2,400</li> <li>• CU Study Abroad Scholarship \$1,700</li> <li>• Dangermond Travel Scholarship \$1,700</li> </ul>
TEACHING EXPERIENCE	<p><b>NASA Student Airborne Research Program</b>, NASA Armstrong, CA</p> <p><i>Research Mentor / Instructor</i></p> <p>Land Group Summer 2015            Faculty Advisor: Dr. Susan Ustin Summer 2013            Supervisor: Dr. Emily Schaller Summer 2012</p> <p><b>UCSB, Department of Geography</b>, Santa Barbara, CA</p> <p><i>Teaching Assistant, Remote Sensing Sequence</i></p> <p>GEOG 115A, Intro to Remote Sensing Fall 2011, 2012            GEOG 115B, Remote Sensing Winter 2012, 2013            GEOG 115C, Advanced Remote Sensing Spring 2012, 2013</p>

COMMITTEE SERVICE	<ul style="list-style-type: none"> <li>• UCSB ASPRS Student Chapter, President, Sept. 2013–May 2014</li> <li>• The Green Initiative Fund, Chair, Aug. 2012–May 2014</li> <li>• Geography Faculty Committee, Graduate Rep., Sept. 2011–2013</li> <li>• Boulder Campus Planning Commission, Board Member, July 2010–Aug. 2011</li> <li>• University of Colorado Environmental Center, Board Member, Mar. 2010–Aug. 2011</li> <li>• Energy and Climate Revolving Fund, Board Member, Mar. 2010–Aug. 2011</li> <li>• Integrated Pest Management Task Force, Member, June 2010–Dec. 2010</li> <li>• CU Geography Department Computer Committee, Member, Spring 2009–Fall 2010</li> </ul>	
SIGNIFICANT FIELD EXPERIENCE	<p>The University Centre in Svalbard (UNIS) <i>Svalbard, 5 weeks</i></p> <p>Firn Cover Project <i>Greenland, 8 weeks</i></p> <p>Boulder Creek CZO Lidar Campaign <i>Niwot Ridge, CO</i></p>	<p>February/March 2016</p> <p>April - June 2015</p> <p>May - September 2010</p>
LANGUAGES	<p>Spanish (Conversational)</p> <p>Python (Fluent)</p>	
CITIZENSHIP, CLEARANCES	<p>United States Citizen, Registered for Selective Service</p> <p>Current TS/SCI Clearance (Tier 5 Background Check with CI Polygraph)</p>	
REFERENCES	<p><b>Dr. Waleed Abdalati</b>  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)  AAAS Fellow (Elected 2019)  e-mail: <a href="mailto:waleed.abdalati@colorado.edu">waleed.abdalati@colorado.edu</a>  phone: 240.481.1259</p> <p><b>Dr. Fernando Perez</b>  Professor, University of California (Berkeley), Department of Statistics  Founding member of NumFOCUS, 2i2c, and the Jupyter open source ecosystem  Fellow, Python Software Foundation (2010)  Recipient Free Software Award (Free Software Foundation, 2012)  Recipient ACM Software System Award (2017)  e-mail: <a href="mailto:fernando.perez@berkeley.edu">fernando.perez@berkeley.edu</a>  phone: 303.642.5486</p> <p><b>Mr. Phil Sage</b>  Senior Executive (SES)  National Geospatial-Intelligence Agency, Research Directorate  Director of the Analytic Technologies Office  e-mail (government): <a href="mailto:philip.a.sage@nga.mil">philip.a.sage@nga.mil</a>  e-mail (civilian): <a href="mailto:philip.sage@gmail.com">philip.sage@gmail.com</a>  phone (government): 571.558.3723  phone (civilian): 703.597.7743</p>	