

# Donal Seán O'Leary III

## Curriculum Vitae

May 3, 2019

Ph. D. Student  
Geographical Sciences  
University of Maryland, College Park

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### Career Goals

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My goal is to combine my passion for conservation and the natural world with my skills in leadership and education to serve as a faculty member at an institution of higher learning. Upon completion of my Doctoral Degree I will be applying to assistant professor positions, as well as post-doctoral teaching and research opportunities.

### EDUCATION

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#### **Ph.D. Student, Geographical Sciences, University of Maryland, College Park – 2016-2019 (anticipated)**

**GPA: 4.00** Dissertation Topic: *On-the-ground velocities of plant responses to climatic forcing: the ecological velocity of climate change.*

#### **M.S. Geography, Western Washington University – 2014-2016**

**GPA: 3.97** Thesis Title: *Investigating the spatio-temporal relationships between snowmelt timing and wildfire occurrence in the US Mountain West.*

#### **BS, *Magna Cum Laude*, Watershed Science, minor in Spatial Information Management, Colorado State University – 2011-2013**

**GPA: 3.86** Capstone Title: *A hydrologic feasibility study for the development of a ski resort in the Never Summer Mountains, Colorado.*

## Wilderness Emergency Medical Technician, Wilderness Medicine Institute of the National Outdoor Leadership School – 2009

Nationally Registered Emergency Medical Technician 2009-2015

### RESEARCH INTERESTS

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My research focuses on the impacts of climate change on hydrological, phenological, and disturbance cycles. From a geographic and hydrologic perspective I employ a range of techniques from the fields of hydrology, geology, remote sensing, GIS, ecosystem science, and computer science. I am a frequent contributor to collaborative research as a computer science specialist.

### PUBLICATIONS

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#### Peer-Reviewed Manuscripts

- 6) G. Hurtt, M. Zhao, R. Sahajpal, A. Armstrong, R. Birdsey, E. Campbell, K. Dolan, R. Dubayah, J. Fisk, S. Flanagan, C. Huang, W. Huang, K. Johnson, R. Lamb, L. Ma, R. Marks, **D. O'Leary III**, J. O'Neil-Dunne, A. Swatantran, H. Tang. 2018 "Beyond MRV: High-resolution forest carbon modeling for climate mitigation planning over MD, USA" *Environmental Research Letters* <https://doi.org/10.1088/1748-9326/ab0bbe>
- 5) Notaro, M., Emmett, K., and **O'Leary, D.** (2019). Spatio-Temporal Variability in Remotely Sensed Vegetation Greenness Across Yellowstone National Park. *Remote Sensing* 11, 798. <https://doi:10.3390/rs11070798>
- 4) **O'Leary, Donal III**; Hall, Dorothy; Medler, Michael; Flower, Aquila. 2018. "Investigating The Early Snowmelt Event of 2015 in the Cascade Mountains Using The MODIS-Based Snowmelt Timing Product." *Frontiers of Earth Science* <http://journal.hep.com.cn/fesci/EN/10.1007/s11707-018-0719-7>  
<https://doi.org/10.1007/s11707-018-0719-7>
- 3) **O'Leary, Donal III**; Kellermann, Jherime; Wayne, Chris. 2017. "Snowmelt timing, phenology, and growing season length in conifer forests of Crater Lake National Park, USA" *International Journal of Biometeorology* 62 (2), 273-285  
<https://doi.org/10.1007/s00484-017-1449-3>
- 1) **O'Leary, Donal III**; Trevor Bloom; Molly Smith; Christopher Zempf; and Michael J. Medler. 2016. "A New Method Comparing Snowmelt Timing with Annual Area Burned." *Fire Ecology* 12 (1).  
<http://fireecologyjournal.org/docs/Journal/pdf/Volume12/Issue01/041.pdf>

## Peer-reviewed Dataset:

2) **O’Leary III, D.**, D.K. Hall, M. Medler, R. Matthews, and A. Flower. 2017. Snowmelt Timing Maps Derived from MODIS for North America, 2001-2015. ORNL DAAC, Oak Ridge, Tennessee, USA.  
<https://doi.org/10.3334/ORNLDAAC/1504>

## In Review:

**O’Leary, Donal III**; Medler, Michael; Flower, Aquila. “Early snowmelt timing leads to divergent wildfire responses in ecosystems of the western USA” *Target journal: International Journal of Wildland Fire*

Ma, Lei; Hurtt, George; Sahajpal, Ritvik; Chini, Louise; **O’Leary, Donal III**; Frolking, Steve. “A global Transition Rule for Translating Land-use Change to Land-cover Change” *Target journal: Geoscientific Model Development*

Teodoro, Jose Daniel; **O’Leary, Donal III**; Kerr, Siobhan; Peskin, Eva; Silva, Julie. “The Relevance of Case Studies to Climate Change Research in the Era of Big Data: A Review of Policy Engagement” *Target Journal: Climate and Development*

## M.S. Thesis

**O’Leary, Donal III**; *Investigating the spatio-temporal relationships between snowmelt timing and wildfire occurrence in the US Mountain West*. Western Washington University. 2016.

## Non-Peer-Reviewed:

NPS Geospatial Insights Newsletter, December 2015

NPS Climate Change Response Program Newsletter, March 2016

## Press Coverage:

1. Davis T (2018) Snowpack in trouble across the West and around the globe, researchers say. **Arizona Daily Star**.  
[https://tucson.com/news/local/snowpack-in-trouble-across-the-west-and-around-the-globe/article\\_c0443567-0d0c-56c7-a472-e273037c64bf.html](https://tucson.com/news/local/snowpack-in-trouble-across-the-west-and-around-the-globe/article_c0443567-0d0c-56c7-a472-e273037c64bf.html)
2. Gill V (2018) Climate change is ‘shrinking winter’. **BBC**.  
<https://www.bbc.com/news/science-environment-46547064>
3. Niiler E (2018) As Snow Disappears, the Sierras and Rockies Are Shrinking. **Wired**. <https://www.wired.com/story/as-snow-disappears-the-sierras-and-rockies-are-shrinking/>
4. Totiyapungprasert P (2018) Wildfires increase with shrinking snowpack, changes in snowmelt timing. **AZcentral**.  
<https://www.azcentral.com/story/news/local/arizona->

[environment/2018/12/12/climate-change-environment-less-snow-earlier-snowmelt-leads-more-wildfires-global-warming/2282994002/](https://www.environment/2018/12/12/climate-change-environment-less-snow-earlier-snowmelt-leads-more-wildfires-global-warming/2282994002/)

## **SELECTED WORK HISTORY**

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### **Wylie Fellow, University of Maryland – Fall 2019**

Research Topic: *On-the-ground velocities of plant responses to climatic forcing: the ecological velocity of climate change.*

University of Maryland, 1149 LeFrak Hall, College Park, MD 20742

Contact: George Hurtt (301) 405-3687

### **Graduate Research Fellow, National Science Foundation – Fall 2016 - Summer 2021**

Research Topic: *On-the-ground velocities of plant responses to climatic forcing: the ecological velocity of climate change.*

University of Maryland, 1149 LeFrak Hall, College Park, MD 20742

Contact: George Hurtt (301) 405-3687

### **Teaching Assistant, GEOG 418, University of Maryland – Fall 2018, 2017**

Course Title: *Field and Laboratory Techniques in Environmental Science*

This course primarily consists of an 11-day field course in the remote “big bend campground” area of West Virginia. I was entirely responsible for planning, buying, cooking, and organizing the food for this trip, including catering to special diets. Academically, I assisted in developing teaching materials, homework, delivering lectures in-person for a class of 13 students, principally in the areas of hydrology, forestry, geology, and orienteering.

University of Maryland, 1149 LeFrak Hall, College Park, MD 20742

Contact: Ralph Dubayah (301) 405-4069

### **GRIP Intern, United States Geological Survey – Summers, 2018, 2019**

Project Title: *Leveraging fine scale observations to improve remote sensing-driven models of plant phenology within the Greater Yellowstone Ecosystem*

The Graduate Research Internship Program is a supplementary grant for the NSF’s graduate research fellowship program.

National Elk Refuge, 675 E Broadway, Jackson, WY 83001

Contact: Geneva Chong (307)201-5425

### **Lead Instructor, GEOG 306, University of Maryland – Summers '18, '19**

Course Title: *Introduction to Quantitative Methods for the Geographic Environmental Sciences (online only)*

Developed teaching materials, homework, and exams. Delivered online lab discussions and held online office hours. Communicated with students via email and Canvas page. Graded quizzes/exams and delivered student feedback for a class of 14 students.

University of Maryland, 1149 LeFrak Hall, College Park, MD 20742

Contact: Ronald Luna (301)405-4073

### **Co-Instructor, GEOG 301, University of Maryland – Spring 2016, 2017**

Course Title: *Advanced Earth Systems*

Co-taught with Dr. Ralph Dubayah. Coordinated in developing teaching materials, homework, and exams, delivering lectures, proctoring exams, and hosting office hours in-person and online for a class of ~60 students.

University of Maryland, 1149 LeFrak Hall, College Park, MD 20742

Contact: Ralph Dubayah (301) 405-4069

### **Teaching Assistant, GEOG 306, University of Maryland – Winter 2018**

Course Title: *Spatial Statistics (online only)*

Consulted with lead instructor in developing teaching materials, homework, and exams. Delivered online lab discussions and held online office hours. Communicated with students via email and Canvas page. Graded homework and delivered student feedback for a class of 15 students.

University of Maryland, 1149 LeFrak Hall, College Park, MD 20742

Contact: Ronald Luna (301)405-4073

### **Young Leaders in Climate Change Fellow: Crater Lake National Park – Summer 2015**

Project Title: *Assessing Interannual Snowfall and its Impacts on Vegetation Phenology and Forest Health Using Remote Sensing*

This position is a joint partnership between the National Park Service, the University of Washington, and the George Melendez Wright Foundation. I researched the interactions between snowmelt timing and plant phenology using MODIS imagery. I developed data products, workflows, and documentation for future climate researchers within the National Park Service. I am first author of a manuscript stemming from this work (see publications).

Crater Lake National Park, Crater Lake, Oregon 97604

Contact: Chris Wayne (541) 594-3076

### **Lead Instructor: ENVS 201 Understanding Environmental Data and Information, WWU – Spring 2015**

Instructed, managed, and graded 84 students. Materials included introduction to peer-reviewed literature, analytical writing, interpretation of data visualizations, spatial statistics, Normal statistics, Probability and T-tests. Developed and improved upon existing curriculum. Delivered 1 hour 20 minute lectures. I was appointed to this position when the professor required medical leave.

Western Washington University 516 High St Bellingham WA 98225

Contact: Michael Medler (360)650-3173

### **Teaching Assistant, WWU – 2014-2015**

Assisted: ENVS 420, 421, 422 *Upper Level GIS Series*; ENVS 320 *Introduction to GIS*; ENVS 201 *Understanding Data and Information in environmental Science*.

Western Washington University 516 High St Bellingham WA 98225

Contact: Michael Medler (360)650-3173

### **Lead Guide/IT Manager, Moondance Sea Kayak Adventures – 2014-2016**

Developed website and user interface business solutions. Guiding clients on interpretive ecological, geological, and historical sea kayak tours in the San Juan Islands.

3120 Peabody St Bellingham, WA 98225

Contact: Kristi Kucera (801)440-3789

### **Crew Leader for VIPs, Trail Crew, Rocky Mountain National Park – 2010-2012**

Coordinating 350+ diverse Volunteers In Parks (VIPs) each summer in completion of maintenance and construction projects on Federal infrastructure assets. Assisted in Search and Rescue (SAR) operations. Maintained extensive federal paperwork.

1600 Highway 36 Estes Park, CO 80517

Contact: Kevin Soviak (970)586-1248

### **Dave Cole Scholarship Intern, Big Thompson Watershed Forum – 2011-2012**

Collection of critical water quality metrics in support of the BTWF mission.

800 South Taft Avenue Loveland, CO 80537

Contact: Zack Shelley (970)613-6163

### **AWARDS and ACCOMPLISHMENTS**

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**Outstanding Student Paper, American Geophysical Union – 2017,** Awarded during the 2017 Fall meeting, this recognizes the top 5% of students presenting a paper (in poster or talk form). I gave a talk with slideshow for our paper *“Investigating The Early Snowmelt Event of 2015 in the Cascade Mountains Using The MODIS-Based Snowmelt Timing Product.”*

**Graduate Research Fellowship, National Science Foundation – 2016,** This prestigious award offers full financial support for three years to 2,000 STEM-field graduate students across the USA.

**Outstanding Graduate: Geography – 2016,** Awarded to top graduating student in each department. Western Washington University Graduate School.

**Young Leaders in Climate Change Fellowship – 2015,** Crater Lake National Park, University of Washington, and the George Melendez Wright Foundation.

**Magna Cum Laude – 2013,** Warner College of Natural Resources – Colorado State University.

**International Outreach – 2012,** Through the NPS I lead a daylong training for 30 land managers from protected lands throughout Latin America *100% en español.*

**Outstanding Staff Member in support of the Volunteer Office – 2012,** Rocky Mountain National Park.

**Safety Award – (3x) 2010, 2011, 2012,** Recognized for my perfect safety record for myself, my worksite, and the 350+ volunteers supervised annually. Rocky Mountain National Park.

**Dave Cole Scholarship – 2011,** Big Thompson Watershed Forum.

**Vancouver to Panama by Bike- 2010,** I completed my three-expedition series by riding my bicycle from Vancouver, British Columbia to Penonomé, Panama.

**Physics All American – 2004,** American Physical Society

**Michigan Math Prize, Top 100 – 2004,** Mathematical Association of America.

## Funding, Grants, and Monetary Awards

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Wylie Fellowship	\$19,000
Microsoft AI for Earth – Azure credit grant	\$15,000
Departmental Travel Grant – University of Maryland. 2018	\$555
NSF GRIP Internship. 2018, 2019	\$10,000
Meteorological sensing equipment donation – Conservation International. 2018	\$20,000
Outstanding Student Paper Award – AGU Fall Meeting. 2017	\$200
Goldhaber Travel Grant – University of Maryland. 2017	\$800
NSF Graduate Research Fellowship. 2016	\$134,000
Young Leaders in Climate Change internship – NPS. 2015	\$6,000
Rocky Mountain National Park – Outstanding staff. 2012	\$915
Big Thompson Watershed Forum – Dave Cole Scholarship. 2012	\$1,500
<b>Total:</b>	<b>\$202,970</b>

## SERVICE

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**Reviewer** – Ecosphere (2018), Physical Geography (2018), Biogeosciences (2019)

## ORAL PRESENTATIONS

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**12/2018 American Geophysical Union** *The many ways that snow influences wildfire. (Press conference – Snow).*

**12/2018 American Geophysical Union** *Early snowmelt timing leads to divergent wildfire responses in ecosystems of the western USA.*

**09/2018 MtnClim Conference** *Early snowmelt timing leads to divergent wildfire responses in ecosystems of the western USA.*

**08/2018 University of Maryland** *Panel Member: Advanced TA Panel for Graduate Student Teaching Orientation.*

**12/2017 American Geophysical Union** *Investigating The Early Snowmelt Event of 2015 in the Cascade Mountains Using The MODIS-Based Snowmelt Timing Product.*

**4/2017 George Wright Society Conference:** *Investigating The Early Snowmelt Event of 2015 in the Cascade Mountains Using The MODIS-Based Snowmelt Timing Product.*



**8/2016 National Park Service Headquarters:** *Panel member: Young Professionals Town Hall. A part of the Young Leaders in Climate Change class of 2016 Symposium*

**5/2016 Western Washington University:** *Investigating the spatio-temporal relationships between snowmelt timing and wildfire occurrence in the US Mountain West – Thesis Defense as a part of the North Cascades West Side Fire Symposium*

**5/2016 Western Washington University:** *Investigating the spatio-temporal relationships between snowmelt timing and wildfire occurrence in the US Mountain West – ENV5 302 – Spatial Analysis*

**11/2015 Association for Fire Ecology 6<sup>th</sup> International Fire Congress:** *Investigating the spatio-temporal relationships between snowmelt timing and wildfire occurrence in the US Mountain West.*

**10/2015 Western Washington University:** *Investigating the spatio-temporal relationships between snowmelt timing and wildfire occurrence in the US Mountain West. – ENV5 497 - Pyrogeography*

**8/2015 Crater Lake National Park:** *Understanding Climate Change using Satellite Imagery – Casual Conversation Series*

**11/2014 Western Washington University:** *Post-fire soil hydrophobicity: Causes and Effects – ENV5 497 - Pyrogeography*

## **OUTDOOR LEADERSHIP EXPERIENCE**

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- Expedition Leader, *Summit of Haystack Mountain via Railroad Tracks route (5.8), Wind River Range, Wyoming – July 2018*
- Expedition Co-Leader, *Summit of Prusik Peak via Stanley-Bergner route (5.9+), Enchantment Mountains, Washington – July 2016*
- Expedition Co-Leader, *Summit of Mt Baker via Coleman Glacier route, North Cascades, Washington – March 2015*
- Superguide, Moondance Sea Kayak Adventures, Bellingham, WA 2014-Present.
- Expedition Co-Leader, *Summit of Pico de Orizaba, Mexico – January 2014.*
- Lead Instructor, *Escuela de la Escalada, La Posada en El Portero Chico, Mexico – 2013.*
- Kayak Guide, Discovery Sea Kayaks, Friday Harbor WA – 2013.
- Trail Crew Leader, Southwest Conservation Corps, Tucson, AZ – 2013.
- Senior Guide, *Backpacking/ Backcountry Ski Touring/ Rock Climbing/ Ice Climbing*, Colorado State University Outdoor Program – 2011 – 2013.
- Crew Leader/Volunteer Coordinator, Rocky Mountain National Park – 2010-2012.
- Expedition Leader, *Bicycle tour from Guatemala City to Penonomé, Panamá – 2010.*
- Lead Medical Personnel, John Muir Trail Crew, Yosemite National Park – 2009.
- Crew Leader, Southwest Conservation Association, Durango, CO – 2009.

- Trail Crew Leader, Student Conservation Association, Quinault, WA – 2008.
- Expedition Leader, *Bicycle tour from Los Angeles, California to Rio Dulce, Guatemala* – 2008.
- Backcountry Crew Leader, Southwest Conservation Corps – 2007.
- Expedition Leader, *Bicycle tour from Vancouver, British Columbia to Tijuana, Baja California* – 2006.
- Captain, Varsity Soccer, The Roeper School, Birmingham, MI - 2003.

## PROFESSIONAL DEVELOPMENT and TRAININGS

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- **TLTC 798 – University Teaching and Learning.** University of Maryland. Spring 2018
- **Advanced Google Earth Engine Workshop.** Google DC. March 2018.
- **Science Communications.** National Science Foundation. November 2017.
- **University Teaching Certification Program** (*in progress*). University of Maryland Teaching and Learning Program. November 2017.
- **Spatio-Temporal Analysis and Bayesian Models Workshop.** National Center for Atmospheric Research and the University of Colorado, Boulder. June 2017.
- **Young Leaders in Climate Change** (general professional development and networking). National Park Service HQ, DC. August 2015.
- **Advanced Trail Design.** Rocky Mountain National Park. July 2012.

## LANGUAGES

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### Human Languages:

- English – Native Language
- Spanish – Moderate verbal, serviceable writing ability
- French – Moderate verbal/reading skills, poor writing ability

### Computer Languages:

- Python – Advanced
- R – Advanced
- Command Line – Moderate
- MatLab - Moderate
- C - Moderate
- Java – Moderate
- HTML – Moderate
- CSS – Moderate
- JavaScript – Moderate

- Visual Basic – Moderate

## REFERENCES

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**George Hurtt** PhD Advisor, University of Maryland, College Park (301) 405-8541  
1149 Lefrak Hall, College Park, MD 20742

**Michael Medler** M.S.Thesis Advisor, Western Washington University (360)650-3173  
516 High St, Bellingham, WA 98225

**Kristi Kucera** Owner, Moondance Sea Kayak Adventures (801)440-3789  
3120 Peabody St, Bellingham, WA 98225

**Kevin Soviak**, Trails Supervisor, Rocky Mountain National Park (970)586-1248  
1600 Highway 36 Estes Park, CO 80517