David A. Lilien

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Education:

University of Washington, Seattle, WA. 2013- 2019.

PhD in Earth and Space Sciences.
Dissertation title: Understanding Antarctic ice-stream flow using ice-flow models and geophysical observations
Advisor: Ian Joughin
Committee: Kyle Armour, Knut Christianson, Michelle Koutnik, and Benjamin Smith

Yale University, New Haven, CT. 2009-2013.

B.S. Physics (Intensive) and Mathematics.
Undergraduate thesis title: Structural Color in Genus bicyclus
Undergraduate thesis advisor: Hui Cao

Appointments:

2019-2021 Postdoctoral researcher, Physics of Ice, Climate, and Earth, Niels Bohr Institute, University of Copenhagen

Honors and Awards:

Nasa Earth and Space Sciences Fellow: 2015 (3 years stipend, portion of tuition)

University of Washington Program on Climate Change Fellow: 2013 (9 months stipend)

Publications:

Fudge, TJ, **DA Lilien**, M Koutnik, H Conway, CM Stevens, ED Waddington, EJ Steig, and AJ Schauer. Advection (non climate) impact on the South Pole Ice Core. *Climate of the Past Discussions,* in review.

Lilien, DA, I Joughin, B Smith, and N Gourmelen. Melt at grounding line controls observed and future retreat of Smith, Pope, and Kohler Glaciers, *The Cryosphere Discussions*, in review.

Holschuh, N, **DA Lilien**, and K Christianson, (2019). Thermal Weakening, Convergent Flow, and Vertical Heat Transport in the Northeast Greenland Ice Stream Shear Margins. *Geophysical Research Letters.* In press.

Lilien, DA, TJ Fudge, MR Koutnik, H Conway, EC Osterberg, DG Ferris, ED Waddington, and CM Stevens (2018). Holocene Ice-Flow Speedup in the Vicinity of the South Pole. *Geophysical Research Letters*.

Lilien, DA, I Joughin, B Smith, and DE Shean (2018). Changes in flow of Crosson and Dotson ice shelves, West Antarctica, in response to elevated melt. *The Cryosphere* 12, 4.

Poinar, K, I Joughin, **D Lilien**, L Brucker, L Kehrl, and S Nowicki, (2017). Drainage of Southeast Greenland firn aquifer water through crevasses to the bed. *Frontiers in Earth Science*, *5*, 5.

Wasik, BR, SF Liew, **DA Lilien**, A. Dinwiddie, H Noh, H Cao, & A Monteiro, (2014). Artificial selection for structural color on butterfly wings and comparison with natural evolution. *PNAS*, 1402770111

Selected Presentations:

"ImpDAR: An Open-Source Impulse Radar Processor in Python." Poster. *Five decades of radioglaciology (IGS meeting).* Stanford, CA. July 2019. *Presented by UW undergraduate student Joshua Driscol

"Modeled temperature and basal shear stress of NEGIS and implications for surge mechanics of Storstrømmen." Talk. *EastGRIP Steering Committee Meeting*. Copenhagen, DK. November 2018.

"Elevated melt causes varied response of Crosson and Dotson Ice Shelves." Talk. West Antarctic Ice Sheet Workshop. Camp Casey, WA. October 2017.

"Acceleration of Crosson and Dotson Ice Shelves controlled by melt and rifting." Talk. *Meeting of Northwest Glaciologists.* October 2016.

"Modeling the influence of melt and buttressing on the recent speedup of Smith Glacier." Talk. *International Symposium on the Interaction of Glaciers and Ice Sheets with the Ocean.* 74A2011. La Jolla, CA. July 2016.

"Quantifying uncertainty in inferred viscosity and basal shear stress over ice streams." Poster. 2015 AGU Fall Meeting. C51C-0730. San Francisco, CA. December 2015.

"Modeling ocean-forced changes in Smith Glacier, West Antarctica." Poster. *2014 AGU Fall Meeting*. C23C-0417. San Francisco, CA. December 2014.

Teaching Experience:

Teaching assistant UW ESS 451: *Principles of glaciology* (Fall 2015)

Was responsible for grading all homework and a portion of each exam. Led class field trip to Easton Glacier on Mt. Baker. Led weekly discussion/homework sections.

Tutor Yale Quantitative Reasoning Center (Winter 2012 to Spring 2013)

Tutored students struggling in physics and math courses. Tutored introductory physics, multivariable calculus, advanced classical mechanics, and quantum mechanics.

Course Grader Yale University Mathematics Department (Spring 2011 and Fall 2012)

Was responsible for grading all homework assignments in Math 262b, Wavelet Analysis, during second semester 2011 and for Math 222a, Linear Algebra, first semester 2012.

Field Experience:

South Pole, Antarctica (Austral summer 2016/17, 2017/18, and 2018/19)

Worked on an NSF-sponsored project to characterize ice upstream of the South Pole Ice Core involving two weeks at the South Pole Station and three weeks in the deep field. Led extensive high frequency radar survey. Co-led distributed shallow core surveying of upstream ice and GPS surveying of ice flow and surface elevation. Assisted in shallow drilling operations and firn densification instrument installation at the field camp.

Computer Skills:

Proficient: Python, Bash, PBS, Matlab, Elmer/Ice

Familiar: Fortran, C, Latex

Professional Affiliations:

International Glaciological Society

American Geophysical Union

European Geophysical Union