CURRICULUM VITAE

JULIAN SPERGEL

REMOTE SENSING/HYDROLOGY/GLACIOLOGY

33 11th St. NE, #1507, Atlanta, GA 30309
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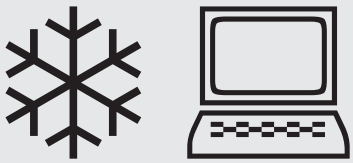

EDUCATION

Aug 2016 - Jan 2022 (expected)
PHD CANDIDATE
Department of Earth and Environmental Sciences
Columbia University, NYC, NY
(MPhil awarded May 2020, MA awarded May 2018)

2012 - 2016
BACHELOR OF SCIENCE
Department of Geophysical Sciences
University of Chicago, Chicago, IL

RESEARCH

2018 - Present
ANALYZING "BIG" GEOSPATIAL DATA FOR GLACIOLOGY APPLICATIONS
Using the cloud-based platforms (Pangeo, Google Earth Engine) to analyze large datasets of surface processes, the Reference Elevation Model of Antarctica and Landsat archive. I have been assessing surface hydrology with a simple water routing model using RACMO2 snow-melt input in order to measure climate versus topographic controls on surface drainage.

2016-present
REMOTE SENSING OF MELTWATER DRAINAGE ON ANTARCTIC ICE SHELVES
Using optical and Synthetic Aperture Radar images, I analyze the multiyear evolution of meltwater lakes on the Amery Ice Shelf, East Antarctica. I theorize mechanisms of ice shelf - meltwater interaction and how these mechanisms may affect ice shelf in a warmer, wetter Antarctica.

10/24/17-12/08/17
ROSETTA-ICE 2017 FIELD SEASON, MCMURDO STATION, ANTARCTICA
Field assistant
Field research assistant, quality control of ice penetrating radar, GPS positioning, and magnetometer data.

09/21/15-09/28/15
MARINE GEOLOGY FIELDWORK ABOARD THE FF HELMER HANSEN (LONGYEARBYEN-BARENTS SEA- LONGYEARBYEN)
Student Trainee
I analyzed gravity and box core samples, created stratigraphic logs of the cores, and performed foraminifera analysis on core samples.

08/23/15-09/01/15
GLACIAL GEOMORPHOLOGY FIELDWORK (NORDENSKIOLDBREEN, SVALBARD)
Student Trainee
I created lithological and stratigraphic logs, mapped glacial structures, measured clast fabric, and collected bulk and clast samples for lab analysis

RESEARCH INTERESTS

I currently study how supraglacial meltwater evolves temporally and spatially using a variety of remote sensing and modelling methods. I am also interested in novel syntheses of physical models, machine learning, and all things remote sensing. I am also passionate about teaching, and spreading the beauty and importance of polar geoscience.

PROGRAMMING SKILLS

Matlab: Advanced
Python: Advanced
ArcGIS: Advanced
QGIS: Proficient
Google Earth Engine: Proficient

SOCIAL MEDIA

- Twitter: @JulianSpergel
- GitHub: jjspergel
- LinkedIn: https://www.linkedin.com/in/julian-spergel-phd/

REFERENCES

Jonathan Kingslake
PhD Advisor, Polar Geophysics
E: jkingslake@columbia.edu

Christopher Small
Remote Sensing
E: csmall@columbia.edu

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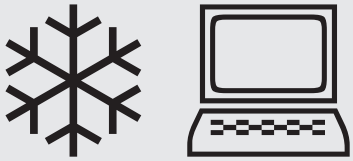

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PUBLICATIONS AND PRESENTATIONS

- **J. J. Spergel,** J. Kingslake, T. Creyts, J.M. Van Wessem, H. A. Fricker, (2021). Surface meltwater drainage and ponding on Amery Ice Shelf, East Antarctica, 1973–2019. Journal of Glaciology, 1-14. doi:10.1017/jog.2021.46
- **J. J. Spergel,** J. Kingslake (in prep). Assessing Antarctic Ice Shelf Surface Hydrology with High-Resolution Digital Elevation Models Using Cloud-Based Computation
- **J. J. Spergel,** J. Kingslake (in prep). Categorizing Controls on Surface Drainage with DEM-based Water Routing on Antarctic Ice Shelves
- Warner, R. C., Fricker, H. A., Adusumilli, S., Arndt, P., Kingslake, J., & **Spergel, J. J.** (2021). Rapid formation of an ice doline on Amery Ice Shelf, East Antarctica. Geophysical Research Letters, 48, e2020GL091095. https://doi.org/10.1029/2020GL091095
- Fricker, H. A., Arndt, P., Brunt, K. M., Datta, R. T., Fair, Z., Jasinski, M. F., et al. (2021). ICESat-2 meltwater depth estimates: Application to surface melt on Amery Ice Shelf, East Antarctica. Geophysical Research Letters, 48, e2020GL090550. https://doi.org/10.1029/2020GL090550
- **J. J. Spergel,** Kingslake, J.,"C11a-03: Surface Meltwater Drainage And Ponding On The Amery Ice Shelf, East Antarctica". Agu Fall Meeting 2019, Dec 9th 2019. San Francisco, Ca.
- M. Wearing, **J. Spergel** And J. Kingslake, "C11a-02: Modelling The Development Of Drainage Systems On The Surface Of Antarctic Ice Shelves", Agu Fall Meeting 2019, Dec 9th, 2019. San Francisco, Ca.
- C-Y. Lai, J. Kingslake, M. Wearing, P.-H. Cameron Chen, P. Gentine, H. Li, **J. Spergel,** And M. Van Wessem. "C52b-07: Vulnerability Of Antarctica's Ice Shelves To Meltwater-Driven Fracture", Agu Fall Meeting 2019. Dec 13th, 2019. San Francisco, Ca.
- K. J. Tinto, et al. Ross Ice Shelf Response To Climate Driven By The Tectonic Imprint On Seafloor Bathymetry. Nature Geoscience 12, 441–449 (2019) Doi:10.1038/S41561-019-0370-2
- **J. Spergel** And J. Kingslake. "Surface Meltwater Drainage And Ponding On The Amery Ice Shelf, East Antarctica". Graduate Climate Conference 2019. Nov. 10th, 2019. Woods Hole, Ma

AWARDS

2019 Graduate climate conference travel grant

2018 National Science Foundation, Graduate Research Fellowship, Honorable Mention

2018 International Glaciology Symposium Travel Grant

2017 Polar Science Communication Workshop Travel Support

TEACHING WORK

- Lead Teaching Fellow, 2019-2020, Center for Teaching and Learning, Columbia University
  Departmental liaison and event organizer for grad student pedagogy workshops.
- Earth's Resources and Sustainable Development (EESC1600). Columbia University. Fall 2019
- Earth: Origins, Evolution, Processes, Futures (UN 1011). Columbia University. Spring 2019.
- Earth Systems: Solid Earth (EESC2200). Columbia University. Fall 2018.
- Earth: Origins, Evolution, Processes, Futures (UN 1011). Columbia University. Spring 2019.

VOLUNTEER/OUTREACH WORK

Organizing Committee Member (Speaker Coordinate, Social Media Manager) for the Changing Ice, Changing Coastlines Initiative. Lamont Doherty Earth Observatory, Palisades, NY. 2018 – 2020

I organize climate-focused, interdepartmental events: bi-monthly cross-campus research discussions and monthly invited speaker seminars..

"Human Civilization and "Recent" Climate History" (Invited Lecture), Princeton University. Sept 20th, 2020, Virtual.

"Antarctic Climate Change: Ripples from the Crystal Desert" (Invited Lecture), SUNY-Maritime. Nov. 19th, 2019, Bronx, NY

"Antarctic Climate Change: Ripples from the Crystal Desert" (Invited Public Lecture), Osher Lifelong Learning Institute, University of South Carolina -Beaufort. Mar. 18th, 2019, Beaufort, SC

International Antarctica Week, Lamont Doherty Earth Observatory, (Dec. 2018, Dec. 2019)

Antarctic Science, Engineering Speaks, K12 Classroom visits in NYC, December 2017 - January 2018