

JULIAN SPERGEL

REMOTE SENSING/HYDROLOGY/GLACIOLOGY

580 Amsterdam Ave., 3D. New York City, NY. 10024

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SUMMARY

Accomplished scientific data analyst with a strong background in satellite imagery processing, geospatial information analysis, and data visualization. Proven experience managing and troubleshooting complex projects. Excels in mentorship roles: detail-oriented organization, plain-language presentation of complex concepts, and hands-on skill mentorship.

SOCIAL MEDIA

- Twitter: @JulianSpergel
- GitHub: jjspergel
- LinkedIn: <https://www.linkedin.com/in/julian-spergel-803259222/>

EDUCATION

Aug 2016 - May 2022	PHD Department of Earth and Environmental Sciences Columbia University, NYC, NY (MPhil awarded May 2020, MA awarded May 2018) Jan. 2022, Teaching Development Program, Foundational Track
2012 - 2016	BACHELOR OF SCIENCE Department of Geophysical Sciences University of Chicago, Chicago, IL

SKILLS AND LANGUAGES

Advanced geospatial analysis (satellite imagery processing, spatial data extraction)
"Big Data" Analysis (distributed data processing)
Proficient in Graphic Design (Microsoft Office, Adobe Creative Suite)

Computer Programming Languages:

Python: Advanced; **MATLAB:** Advanced; **ArcGIS:** Advanced; **QGIS:** Proficient;
Java/Google Earth Engine: Proficient

Proficient in French

SELECTED EXPERIENCES

2016-present	COLUMBIA UNIVERSITY, NYC, NY Doctoral Researcher <ul style="list-style-type: none">• Processed and analyzed 100s GB altimetry dataset with cluster-distributed data processing (Pangeo, Google Earth Engine)• Modelled Antarctic surface hydrology with Matlab with inputted surface topography and air temperature.• Synthesized optical and radar imagery to develop physical model of Antarctic hydrology system development• Calculated extracted water depth and freeze-through rate with thermal modelling and optical light attenuation.• Authored and co-authored multiple publications in peer-reviewed journals
10/24/17-12/08/17	ROSETTA-ICE 2017 FIELD SEASON, MCMURDO STATION, ANTARCTICA Field assistant <ul style="list-style-type: none">• Conducted data quality checks of ice penetrating radar, GPS positioning, and magnetometer data under tight time pressure and harsh conditions as part of an international collaborative team

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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.
- Earth's Environmental Systems: Solid Earth (UN 2100), Columbia University, Fall 2018.

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

SELECTED PUBLICATIONS AND PRESENTATIONS

- **J.J. Spergel**, Modelling and remote sensing of meltwater drainage on Antarctic ice shelves. Graduate Thesis. Apr 13, 2022. <https://doi.org/10.7916/swez-dp81>
- **J. J. Spergel**, J. Kingslake. Assessment of Antarctic ice shelf surface drainage structure using high-resolution elevation data and cloud computing (Invited). AGU Fall Meeting 2021, Dec 17th 2021. New Orleans, LA.
- **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
- 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