

# JULIAN SPERGEL

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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.

## Education

### **DOCTORATE (PhD) – May 2022**

Master of Phil. – May 2020, MA – May 2018

**Department of Earth and Environmental Sciences. Columbia University. NYC, NY**

### **BACHELOR OF SCIENCE**

**Department of Geophysical Sciences. University of Chicago, Chicago, IL**

## Awards and Certificates

- 2018    National Science Foundation, Graduate Research Fellowship, Honorable Mention
- 2022    Teaching Development Program Certificate, Center for Teaching and Learning,  
Columbia University

## Selected Work Experiences:

### **Doctoral Researcher / Aug 2016 – Feb 2022**

#### **Columbia University, NYC, NY**

- Processed and analyzed 100s GB altimetry dataset with cluster-distributed data processing (data synthesis and analysis using Python, MATLAB, ArcMap, Google Earth Engine)
- Physical simulations of Antarctic surface hydrology in MATLAB with inputted surface topography and air temperature.
- Cross platform optical and radar imagery synthesis and analysis to develop hypothesis-tested physical model of Antarctic hydrology system development
- Batch processing of hundreds of optical images to extract water depth and freeze-through rate with thermal modelling and optical light attenuation.
- Authored and co-authored multiple publications in peer-reviewed journals
- Presented research at scientific conferences and workshops

## **Quality Control and Assurance, Field Assistant, 10/24/17 – 12/08/17**

### **Rosetta-Ice 2017 Field Season, McMurdo Station, Antarctica**

- 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.

## **Skills and Languages**

Advanced geospatial data analysis (satellite imagery processing, spatial data ETL, “Big Data” distributed data processing)

Advanced GIS and Python coding experience

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

## **Teaching and Volunteer Experiences:**

### **Lead Teaching Fellow, 2019-2020,**

#### **Center for Teaching and Learning, Columbia University, NYC, NY**

Acted as departmental liaison and event organizer for graduate student pedagogy workshops.

### **Teaching Assistant, 2018-2020, Columbia University, NYC, NY**

Developed and lead multiple weekly student lab sessions, review sessions, and discussion sections

### **Guest Lecturer, Various Locations, 2017-2021**

Lectured on climate change, earth climate history, and Antarctica fieldwork for K12 students, college courses, and continuing education programs

“**Antarctic Climate Change: Ripples from the Crystal Desert**” SUNY-Maritime. Nov. 19th, 2019, Bronx, NY

“**Antarctic Climate Change: Ripples from the Crystal Desert**” Osher Lifelong Learning Institute, University of South Carolina -Beaufort. Mar. 18th, 2019, Beaufort, SC

## **Selected Publications**

**J.J Spergel.** Modelling and remote sensing of meltwater drainage on Antarctic ice shelves. Graduate Thesis. Apr 13, 2022. <https://doi.org/10.7916/swesz-dp81>

**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.

A full list of publications and conference presentations can be found [here](#)