Dr. Alon Stern

sternalon@gmail.com +27 (064) 170-9883

Education

PRINCETON UNIVERSITY
Postdoctoral Researcher *January 2015 – December 2018*
Department: Geophysical Fluid Dynamics Laboratory
Focus: Numerical iceberg, ocean and climate modeling
Advisor: Professor Alistair Adcroft

NEW YORK UNIVERSITY *September 2009–June 2014*
PhD (Mathematics and Atmosphere-Ocean Science)
Department: Courant Institute of Mathematical Sciences
Thesis: Ocean Heat Delivery Mechanisms Beneath Antarctic Ice Shelves
Advisor: Professor David M. Holland
GPA: 4.00/4.00 (Dean's Dissertation Fellowship Award)

UNIVERSITY OF CAPE TOWN
Honours Degree in Mathematics *January 2008–December 2008*
Bachelor of Science in Mathematics and Applied Mathematics *January 2005–December 2007*
GPA: 4.00/4.00 (Graduation with distinction all majors, both degrees)
Honors: Top academic student 2007 (class medal)
Dean's Merit List 2005, 2006, 2007, 2008

UNIVERSITY OF CALIFORNIA SAN DIEGO
Exchange student in the Mathematics Department *September 2006–December 2006*
GPA: 4.00/4.00

HERZLIA HIGH SCHOOL *January 2000–December 2002*
Honors: Top academic student, 2002 (8 distinctions)

Work Experience

SLIDE FINANCIAL *July 2017 – present*
Role: Director and Cofounder
Industry: Fintech - Peer-2-Peer Payments and Digital Wallet Solutions
Responsibilities include building company strategy, working with clients to design custom tech solutions, designing marketing strategies, enterprise sales, interacting with investors, developing backend payment systems, programing in Python and Angular JS, database design, API design, constructing development timelines, managing and leading development team.

GEOPHYSICAL FLUID DYNAMICS LABORATORY *January 2015 – December 2018*
Role: Numerical Ocean Modeler and Research Scientist (part of postdoctoral research, discussed above)
Industry: Oceanography and climate science
Responsibilities include analysis of large data sets, numerical ocean modeling, developing climate models, discrete element modeling, mathematical modeling, programming in Python, Fortran and Matlab, technical presentation, publishing papers in peer-reviewed journals.

COURANT INSTITUTE OF MATHEMATICAL SCIENCE, NYU *June 2014 - September 2014*
Role: Junior Research Scientist
Industry: Oceanography and climate science
Responsibilities include mentoring student researchers, teaching, observational field work in Greenland, numerical ocean modeling.

Fellowships and Awards

FULBRIGHT SCHOLARSHIP *September 2009– Aug 2014*
Awarded by USA Department of State
Value: Full tuition and $25,000 annually for 5 years.

HENRY MACCRACKEN FELLOWSHIP *September 2010– Aug 2014*
Awarded for excellent performance as a graduate student by NYU
Value: Full tuition plus $26,770 annually for 4 years.

DEANS DISSERTATION FELLOWSHIP *September 2013 - June 2014*
Awarded to promising student to complete PhD dissertation, NYU
Value: Full tuition plus $26,770 for 1 year.

ANTARCTIC SERVICE MEDAL OF THE UNITED STATES OF AMERICA *December 2012*
Award offered by the National Science Foundation for scientific service in Antarctica

COURANT INSTITUTE SUMMER RESEARCH STIPEND AWARD *Summer, 2010 - 2013*
Awarded annually to fund graduate student research and field work
Value: $8,663, re-awarded annually for 4 years.

COUNCIL OF SCIENTIFIC RESEARCH (CSIR) SCHOLARSHIP *Summer, 2010 - 2013*
Scholarship offered to student showing promise in scientific research in South Africa.
Value: R40,000

UCT DEANS MERIT LIST SCHOLARSHIP AWARD *January 2005 - December 2007*
Scholarship offered to top academic students by University of Cape Town
Value: R10,000, re-awarded annually for 3 years.

Field Work

ANTARCTIC FIELD CAMPAIGN *November 2011*
Location: McMurdo Sound, Antactica
Objective: Drilling through the McMurdo Ice shelf in Antarctica, installation of fibre optic cable for distributed temperature sensing.

GREENLAND FIELD CAMPAIGNS *2010 - 2013*
Location: Four field campaigns to Jakobshavn and Helhiem Fjords and Glaciers, Greenland
Objective: Monitoring glacier and fjord system by installing seismic instruments, high precision GSP, phase-sensitive radar imagery, and collecting ocean data in fjord system

OPERATION ICEBERG - BBC TV SHOW *July 2012*
Location: Baffin Bay, near to Nunavut coastline
Objective: Study breakup of giant icebergs by simultaneously collecting ocean data around iceberg, sonar side-scan of iceberg, measuring ocean swell, monitoring iceberg fracture
Expedition was filmed and used to create the BBC television show Operation Iceberg.

Skills, Abilities and Personal

NATIONALITIES: South African, German, Israeli
LANGUAGES: English (native), Afrikaans, Hebrew, Spanish (basic)
PROGRAMMING: Python, Matlab, Fortran, Angular JS (plus Github, Jira)
MATH TOPICS: Calculus, asymptotic methods, linear algebra, differential equations, probability and more
TEACHING: Taught classes at NYU and UCT in calculus, economics, ocean modeling and climate.

VOLUNTEERING: Volunteered with the Treatment Action Campaign (TAC) *2001– 2008*
HOBBY: Creator of the Southern Rights and Wrongs storytelling event and podcast *2018– present*
TRAVEL: Traveled to over 80 countries, on all seven continents.
SUMMITS: Climbed 4 out of 7 continental summits, Kilimanjaro, Aconcagua, Elbrus, Kosciuszko

1. Intrusion of warm surface water beneath the McMurdo Ice Shelf, Antarctica.
Stern, A. A., M. S. Dinniman, V. Zagorodnov, S. W. Tyler, and D. M. Holland.
Journal of Geophysical Research: Oceans 118, no. 12 (2013): 7036-7048.

2. Using distributed temperature sensors to monitor an Antarctic ice shelf and sub-ice-shelf cavity.
Tyler, S. W., D. M. Holland, V. Zagorodnov, A. A. Stern, C. Sladek, S. Kobs, S. White, F. Surez, and J. Bryenton. Journal of Glaciology 59, no. 215 (2013): 583-591.

3. The effect of geometry on ice shelf ocean cavity ventilation: a laboratory experiment.
Stern, A. A., D. M. Holland, P. R. Holland, Adrian Jenkins, and Joel Sommeria.
Experiments in Fluids 55, no. 5 (2014): 1719.

4. New technique for access-borehole drilling in shelf glaciers using lightweight drills. Zagorodnov, V., S. Tyler, D. Holland, A. Stern, L. G. Thompson, C. Sladek, S. Kobs, and J. P. Nicolas.
Journal of Glaciology 60, no. 223 (2014): 935-944.

5. The footloose mechanism: Iceberg decay from hydrostatic stresses.
Wagner, Till JW, Peter Wadhams, Richard Bates, Pedro Elosegui, Alon Stern, Dominic Vella, E. Povl Abrahamsen, Anna Crawford, and Keith W. Nicholls.
Geophysical Research Letters 41, no. 15 (2014): 5522-5529.

6. Novel monitoring of Antarctic ice shelf basal melting using a fiber-optic distributed temperature sensing mooring.
Kobs, Scott, David M. Holland, Victor Zagorodnov, Alon Stern, and Scott W. Tyler.
Geophysical Research Letters 41, no. 19 (2014): 6779-6786.

7. Tidally driven ice speed variation at Helheim Glacier, Greenland, observed with terrestrial radar interferometry.
Voytenko, Denis, Alon Stern, David M. Holland, Timothy H. Dixon, Knut Christianson, and Ryan T. Walker.
Journal of Glaciology 61, no. 226 (2015): 301-308.

8. Instability and mixing of zonal jets along an idealized continental shelf break.
Stern, Alon, Louis-Philippe Nadeau, and David Holland.
Journal of Physical Oceanography 45, no. 9 (2015): 2315-2338.

9. Wind?driven upwelling around grounded tabular icebergs. Stern, Alon A., Eric Johnson, David M. Holland, Till JW Wagner, Peter Wadhams, Richard Bates, E. Povl Abrahamsen et al. Journal of Geophysical Research: Oceans 120, no. 8 (2015): 5820-5835.

10. Journey of an Arctic ice island.
Crawford, Anna J., Peter Wadhams, Till JW Wagner, Alon Stern, E. Povl Abrahamsen, Ian Church, Richard Bates, and Keith W. Nicholls.
Oceanography 29, no. 2 (2016): 254-263.

11. The effects of Antarctic iceberg calving?size distribution in a global climate model.
Stern, A. A., A. Adcroft, and O. Sergienko.
Journal of Geophysical Research: Oceans 121, no. 8 (2016): 5773-5788.

12. Modeling tabular icebergs submerged in the ocean.

Stern, A. A., A. Adcroft, O. Sergienko, and G. Marques.
Journal of Advances in Modeling Earth Systems 9, no. 4 (2017): 1948-1972.

13. On the representation of capsizing in iceberg models.

Wagner, Till JW, Alon A. Stern, Rebecca W. Dell, and Ian Eisenman.
Ocean Modelling 117 (2017): 88-96.

14. Glacial Iron Sources Stimulate the Southern Ocean Carbon Cycle.

Laufktter, C., Alon A. Stern, Jasmin G. John, Charles A. Stock, and John P. Dunne.
Geophysical Research Letters 45, no. 24 (2018): 13-377.

15. Parameterizing the basal melt of tabular icebergs.

FitzMaurice, Anna, and Alon Stern.
Ocean Modelling 130 (2018): 66-78.

16. Modeling Ice Shelf Cavities and Tabular Icebergs Using Lagrangian Elements.

Stern, A. A., A. Adcroft, and O. Sergienko.
Journal of Geophysical Research: Oceans 124, no. 5 (2019): 3378-3392.

17. Ice Scallops: A Laboratory Investigation of the Ice-Water Interface.

Bushuk, Mitchell, David M. Holland, Timothy P. Stanton, Alon Stern, and Callum Gray.
Journal of Fluid Mechanics (in press)

Conferences Talks

- Effects of ice shelf geometry on ice shelf ventilation, West Antarctic Ice Sheet (WAIS) meeting, 2013
- The flux of Circumpolar Deep Water (CDW) across the continental shelf break in the Amundsen Sea, Antarctica, Graduate Climate Conference, Seattle, 2012
- A proposed mechanism for iceberg breakup and decay, Greenland Summer School in Tasiilaq, 2012
- Effects of ice shelf geometry on ice shelf ventilation, Atmosphere Ocean Science Day at Princeton University, 2012
- Use of fiber optic cables for Distributed Temperature Sensing (DTS) in ice covered oceans, Greenland Summer School in Ilulissat, 2011

Conferences Posters

- Instability and mixing of ocean jets along idealized continental shelves, Atmosphere Ocean Fluid Dynamics (AOFD), in Minneapolis, 2015
- Warm water intrusions beneath the McMurdo Ice Shelf, Antarctica, American Geophysical Union (AGU), 2013
- Density driving circulation beneath Antarctic ice shelves: a laboratory experiment, West Antarctic Ice Sheet (WAIS) meeting, 2012
- Advanced ice sheet modeling: Incorporating the effects of scalar ice damage in a land ice model, World Climate Research Program in Denver, 2011