

# LEIGH A. STEARNS

University of Kansas, Department of Geology

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## PROFESSIONAL POSITIONS HELD

- 2009 – present** Assistant Professor, Department of Geology, University of Kansas  
**2009 – present** Research Scientist, Center for Remote Sensing of Ice Sheets (CRISIS), University of Kansas  
**2007 – 2008** Postdoctoral Researcher, Climate Change Institute, University of Maine  
**2002 – 2007** Graduate Research Assistant, Department of Earth Sciences, University of Maine  
**2005 – 2007** NASA Earth Systems Science Graduate Fellow  
**2004 – 2005** NSF GK – 12 Teaching Fellow  
**1999 – 2002** Graduate Research and Teaching Assistant, Geological Sciences, The Ohio State University

## EDUCATION

- 2007** UNIVERSITY OF MAINE, Orono, ME  
*Ph.D. Earth Sciences*  
*Committee: Gordon Hamilton (Advisor), Roger Hooke, Peter Koons, Paul Mayewski, Ted Scambos*  
*Dissertation: Outlet Glacier Dynamics in East Greenland and East Antarctica*
- 2002** THE OHIO STATE UNIVERSITY, Columbus, Ohio  
*M.Sc. Geology*  
*Committee: Ian Whillans (Advisor), Ken Jezek (Advisor), C.J. van der Veen*  
*Thesis: The Dynamic State of Whillans Ice Stream, West Antarctica*
- 1999** CARLETON COLLEGE, Northfield, MN  
*B.A. Geology; Minor in Environmental Sciences*  
*Advisor: Mary Savina*  
*Thesis: Water Flow through the Firn Area of Storglaciären, northern Sweden*

## PUBLICATIONS

\* indicates KU graduate student advisee

29. Byers, L. C.\*, **L. A. Stearns**, C. J. van der Veen. The initiation of crevasses in glazed surfaces of the East Antarctic Plateau. *Journal of Glaciology*, submitted October 2014.
28. Rezvanbehbahani, S.\*, **L. A. Stearns**, C. J. van der Veen. Basal melt of the Greenland Ice Sheet: comparison of models, deep ice cores, and radar observations. *Journal of Glaciology*, submitted November 2014.
27. **Stearns, L. A.**, G. S. Hamilton, D. C. Finnegan, D. E. Lawson, S. O'Neel, J. Scheick and C. J. van der Veen. Seasonal and long-term flow behavior of Hubbard Glacier, Alaska: 1972 – 2012. *Journal of Geophysical Research – Earth Surface*, submitted August 2014.
26. **Stearns, L. A.**, C. Hamilton and E. C. Osterberg. Glaciers in the classroom: using flubber to learn about glacier dynamics in a changing climate. *Journal of Geoscience Education*, submitted October 2014.
25. Sutherland, D. A., G. O. Roth, G. S. Hamilton, S. Mernild, **L. A. Stearns**, F. Straneo. Using iceberg drifters as proxies for ice mélange movement, fjord circulation, and shelf flow near Sermilik Fjord, East Greenland. *Geophysical Research Letters*, submitted September 2014.

24. Foga, S.\* , **L. A. Stearns**, C. J. van der Veen. 2014. Using satellite remote sensing data to determine terminus and ice mélange variability at Helheim Glacier, East Greenland. *Marine Technology Society Journal (Polar Instruments and Methods)*, doi:10.4013/MTSJ.48.5.3.
23. Van der Veen, C. J., **L. A. Stearns**, J. V. Johnson and B. Csatho. 2014. Flow dynamics of Byrd Glacier, East Antarctica. *Journal of Glaciology*, doi: 10.3189/2014JoG14J052.
22. Khan, S. A., K. H. Kjær, M. Bevis, J. L. Bamber, J. Wahr, K. K. Kjeldsen, A. A. Bjørk, N. J. Korsgaard, **L. A. Stearns**, M. R. van den Broeke, L. Liu, N. K. Larsen, and I. S. Muresan. 2014. Sustained mass loss of the Northeast Greenland ice sheet triggered by regional warming. *Nature Climate Change*, doi:10.1038/NCLIMATE2161.
21. Khan, S. A., N. J. Korsgaard, J. Wahr, I. Joughin, L. Timm, J. Bamber, M. van den Broeke, **L. A. Stearns**, G. S. Hamilton, B. Csatho, K. Nielsen, R. Hurkmans, G. Babonis. 2013. Recurring dynamically-induced thinning during 1985 – 2010 on Upernavik Isstrøm, West Greenland, *Journal of Geophysical Research – Earth Surface*, 118, doi:10.1029/2012JF002481.
20. Jeelani, G., J. J. Feddema, C. J. van der Veen and **L. A. Stearns**. 2012. Role of snow and glacier melt in controlling river hydrology in the western Himalaya under current and future climate. *Water Resources Research*, 48(12), doi:10.1029/2011WR011590.
19. Nielsen, K., S. A. Khan, N. J. Korsgaard, K. H. Kjær, M. Bevis, **L. A. Stearns** and L. H. Timm. 2012. Crustal uplift due to ice mass variability on Upernavik Isstrøm, West Greenland. *Earth and Planetary Science Letters*, 353-354, 182 – 189.
18. Andersen, M. L., M. Nettles, P. Elósegui, T. B. Larsen, G. S. Hamilton and **L. A. Stearns**. 2011. Quantitative estimates of velocity sensitivity to surface melt variations at a large Greenland outlet glacier. *Journal of Glaciology*, 57:204, 609 – 620.
17. **Stearns, L. A.** 2011. Mass balance of four East Antarctic outlet glaciers. *Annals of Glaciology*, 41, 71 – 76.
16. Straneo, F., R. G. Curry, D. A. Sutherland, G. S. Hamilton, C. Cenedese, K. Våge and **L. A. Stearns**. 2011. Impact of ocean stratification on submarine melting of Helheim Glacier in Greenland, *Nature Geoscience*, doi:10.1038/ngeo1109.
15. Van der Veen, C. J., J. C. Plummer, and **L. A. Stearns**. 2011. Controls in the recent speed-up of Jakobshavn Isbræ. *Journal of Glaciology*, 57:204, 770–782.
14. Andersen, M. L., T. B. Larsen, M. Nettles, P. Elósegui, D. van As, G. S. Hamilton, **L. A. Stearns**, J. L. Davis, A. P. Ahlstrøm, J. de Juan, G. Ekstrøm, L. Stenseng, S. A. Khan, R. Forsberg and D. Dahl-Jensen. 2010. Spatial and temporal melt variability at Helheim Glacier, East Greenland, and its effect on ice dynamics, *Journal of Geophysical Research*, doi:10.1029/2010JF001760.
13. De Juan, J., P. Elósegui, M. Nettles, T. B. Larsen, J. L. Davis, G. S. Hamilton, **L. A. Stearns**, M. L. Andersen, G. Ekstrøm, A. P. Ahlstrøm, S. A. Khan and R. Forsberg. 2010. Sudden increase in tidal response linked to calving and acceleration at a large Greenland outlet glacier. *Geophysical Research Letters*, 37, L12501, doi:10.1029/2010GL043289.
12. Straneo, F., G. S. Hamilton, D. A. Sutherland, **L. A. Stearns**, F. Davidson and A. Rosing-Asvid. 2010. Wind-Forced Circulation of Subtropical Waters in a large, East Greenland Glacial Fjord. *Nature Geoscience*, doi:10.1038/ngeo764.
11. Nettles, M., T. B. Larsen, P. Elósegui, G. S. Hamilton, **L. A. Stearns**, A. P. Ahlstrøm, J. L. Davis, M. L. Andersen, J. de Juan, S. A. Khan, L. Stenseng, G. Ekstrøm and R. Forsberg. 2008. Step-wise changes in glacier flow speed coincide with calving and glacial earthquakes at Helheim Glacier, Greenland. *Geophysical Research Letters*, 35, L24503, doi:10.1029/2008GL036127.
10. **Stearns, L. A.**, B. L. Smith and G. S. Hamilton. 2008. Subglacial floods cause rapid increase in flow speed of a major East Antarctic outlet glacier. *Nature Geoscience*, doi:10.1038/ngeo0356.
9. Khan, S. A., J. Wahr, **L. A. Stearns**, G. S. Hamilton, T. van Dam, K. M. Larson and O. Francis. 2007. Elastic uplift in southeast Greenland due to rapid ice mass loss. *Geophysical Research Letters*, 34, L21701, doi:10.1029/2007GL031468.

8. **Stearns, L. A.** and G. S. Hamilton. 2007. Rapid volume loss from two East Greenland outlet glaciers quantified using repeat stereo satellite imagery. *Geophysical Research Letters*, 34, L05503, doi:10.1029/2006GL028982.
7. Van der Veen, C. J., K. C. Jezek and **L. A. Stearns**. 2007. Shear measurements across the northern margin of Whillans Ice Stream. *Journal of Glaciology*, 53:180, 17 – 29.
6. Hamilton, G. S., V B. Spikes and **L. A. Stearns**. 2005. Spatial patterns in mass balance of the Siple Coast and Amundsen Sea sectors of the West Antarctic Ice Sheet. *Annals of Glaciology*, 41, 105 – 110.
5. Kargel, J. S., M. J. Abrams, M. P. Bishop, A. Bush, G. S. Hamilton, H. Jiskoot, A. Kääb, H. H. Kieffer, E. M. Lee, F. Paul, B. Raup, J. F. Shroder, D. Soltesz, D. Stainforth, **L. A. Stearns**, and R. Wessels. 2005. Multispectral imaging contributions to global land ice measurements from space. *Remote Sensing of the Environment*, 99:1-2, 187 – 219.
4. **Stearns, L. A.** and G. S. Hamilton. 2005. A new velocity map for Byrd Glacier, East Antarctica, derived from high-resolution satellite imagery. *Annals of Glaciology*, 41, 71 – 76.
3. **Stearns, L. A.**, G. S. Hamilton and N. Reeh. 2005. Multi-decadal record of ice dynamics on Daugaard-Jensen Gletscher, East Greenland, from satellite imagery and terrestrial measurements. *Annals of Glaciology*, 42, 53 – 58.
2. **Stearns, L. A.**, K. C. Jezek and C. J. van der Veen. 2005. Decadal-scale variations in ice flow along Whillans Ice Stream and its tributaries, West Antarctica. *Journal of Glaciology*, 51:172, 147 – 157.

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**RESEARCH FUNDING**  
\$2.34M to KU; \$7.12M total

**1. Current Funding**

**National Aeronautics and Space Administration, Earth Science/Cryosphere: 2014 – 2017**

*Understanding Dynamic Outlet Glacier Behavior in Greenland: Synthesizing Altimetry Record and Numerical Modeling*

Principal Investigator: Beate Csatho (SUNY - Buffalo); Co-Is: Leigh A. Stearns, C.J. van der Veen (U. Kansas), Anton Schenk (SUNY - Buffalo)

Total Award: \$397,667; KU portion: \$153,751

**National Science Foundation, CAREER: 2013 – 2018**

*CAREER: Improving Understanding of Antarctic Glacier Dynamics Through an Interactive Numerical Flowline Model*

Principal Investigator: Leigh A. Stearns

Total Award: \$662,516

**National Oceanic and Atmospheric Administration, MAPP: 2013 – 2016**

*Collaborative Research: Representing calving and iceberg dynamics in global climate models*

Principal Investigator: Olga Sergienko (Princeton); Co-PIs: Alistair Adcroft (Princeton), Jason Amundson (U. Alaska, SE), Jeremy Bassis (U. Michigan), Robert Hallberg (NOAA GFDL), David Pollard (Penn State Univ.), Leigh A. Stearns.

Total Award: \$1,447,958; KU portion: \$162,078

**National Aeronautics and Space Administration, Earth Science/Cryosphere: 2012 – 2015**

*Physical controls on ocean-terminating glacier variability in Central West Greenland*

Principal Investigator: Ginny Catania (U. Texas); Co-PIs: Leigh A. Stearns, David Sutherland (U. Oregon), Emily Shroyer (Oregon State), Jonathan Nash (Oregon State), Ryan Walker (Penn. State)

Total award: \$1,524,256; KU portion: \$200,527

**National Aeronautics and Space Administration, Earth Science/Cryosphere: 2011 – 2014**

*Beyond Backstress: data driven assessment of outlet glacier dynamics*

Principal Investigator: Leigh A. Stearns; Co-PIs: Beate Csatho (SUNY - Buffalo), Anton Schenk (SUNY - Buffalo), Jesse Johnson (U. Montana), C. J. van der Veen (U. Kansas)

Total award: \$826,301; KU portion: \$318,299

**2. Expired Grants**

**National Science Foundation, Antarctic Glaciology: 2010 – 2013**

*Collaborative Research: Byrd Glacier Flow Dynamics*

Principal Investigator: Leigh A. Stearns; Co-PIs: Gordon S. Hamilton (U. Maine), C. J. van der Veen (U. Kansas)

Total award: \$651,902; KU portion: \$412,381

**National Aeronautics and Space Administration, New Investigator Program: 2010 – 2013**

*Subglacial Water and Antarctic Ice Dynamics*

Principal Investigator: Leigh A. Stearns

Total award: \$277,783

**National Science Foundation, Arctic Natural Sciences: 2010 – 2013**

*Collaborative Research: Glacier-Ocean Coupling in a Large East Greenland Fjord*

Principal Investigator: Gordon S. Hamilton; Co-PIs: Leigh A. Stearns, Fiammetta Straneo (WHOI), David A. Sutherland (U. Oregon)

Total award: \$1,331,068; KU portion: \$164,542

**3. Pending Proposals**

**National Science Foundation, Arctic Natural Sciences: 2015 – 2018**

*Collaborative Research: Mechanical controls on glacier flow through modeling analysis of glacier categories identified by machine learning*

Principal Investigator: C.J. van der Veen (U. Kansas); Co-PIs: Leigh A. Stearns, Beate Csatho (SUNY - Buffalo), Jesse Johnson (U. Montana),

Total Award: \$827,528; KU portion: \$322,888

**National Science Foundation, Antarctic Glaciology: 2015 – 2018**

*Collaborative Research: Stability and Dynamics of Antarctic marine outlet glaciers*

Principal Investigator: C.J. van der Veen (U. Kansas); Co-PIs: Leigh A. Stearns, Olga Sergienko (Princeton)

Total Award: \$562,528; KU portion: \$474,826

**4. Internal Competitions**

**UNAVCO - Geodesy Tools for Societal Issues (GETSI), curriculum development, 2013-2015**

*GETSI develops teaching materials for engaging undergraduate students in addressing societally important Earth science questions through the use of geodetic data.*

Principal Investigator: Leigh A. Stearns

Total award: \$7500 stipend

**University of Kansas, New Faculty Grant for Research Funding (NFGRF)**

*Short-term variability on a large East Greenland outlet glacier: pilot-test of a Terrestrial Laser Scanner*

Principal Investigator: Leigh A. Stearns

Total award: \$8000

**5. Grants for Data Access**

**National Aeronautics and Space Administration, Alaska SAR Facility (ASF)**

*Glacier Calving Investigated with the aid of SAR Data Products*

Principal Investigator: Leigh A. Stearns

Total award: Grant for imagery (no-cost data access)

**European Space Administration, (Envisat SAR imagery)**

*Greenland glacier dynamics with SAR imagery*

Principal Investigator: Leigh A. Stearns

Total award: Grant for imagery (no-cost data access)

**National Aeronautics and Space Administration, American ALOS Data Node (AADM)**

*Polar Glaciology with ALOS Data Products*

Principal Investigator: Leigh A. Stearns; Collaborator: Gordon S. Hamilton (U. Maine)

Total award: Grant for imagery (no-cost data access)

**National Aeronautics and Space Administration, (ASTER imagery)**

*Polar Glaciology with ASTER imagery*

Principal Investigator: Leigh A. Stearns

Total award: Grant for imagery (no-cost data access)

**PROFESSIONAL SERVICE**

**Internal Service (University of Kansas)**

Geology Website Producer, <i>Dept. of Geology</i>	09/12 - present
Undergraduate Curriculum Committee, <i>Dept. of Geology</i>	09/12 - present
Graduate Admissions Committee, <i>Dept. of Geology</i>	09/12 - present
Education Team Member, <i>CReSIS</i>	09/09 - present
UNAVCO Institutional Representative, <i>Dept. of Geology</i>	09/09 - present
Fieldwork Logistics Coordinator, <i>CReSIS</i>	05/10 - present
Graduate Admissions Committee, <i>Dept. of Geology</i>	09/10 - present
Campus Sustainability - Curriculum and Research Working Group	09/11 - present
Center for Teaching Excellence, <i>Dept. of Geology</i>	09/09 - 09/12
Weekly Seminar Coordinator, <i>Dept. of Geology</i>	09/10 - 09/12
Hydrogeology Search Committee, <i>Dept. of Geology</i>	11/10 - 04/11

**External Service: Committees**

UNAVCO Geodetic Infrastructure Advisory Committee (GI-AC)	2011 – present
UNAVCO Science Workshop Organizer	2011 – present
UNAVCO/IRIS Polar Network Science Committee Member	2011 – present
NSF McMurdo Users Area Group – Glaciology Representative	2011 – present
NSF Antarctica Deep-Field Planning Workshop Organizer	2011 – present
NASA Operation IceBridge Science Working Group Member	2010 – present
NSIDC Polar Data Users Working Group (PoDAG) Member	2010 – present
AGU Climate Media Q&A Member	2009 – 2011
AGU Session convener (San Francisco, CA)	2008, 2009, 2010, 2012, 2013
NSF Autonomous Polar Observing Systems Workshop Organizer	September 2011
NSF West Antarctic Ice Sheet meeting – external reviewer	September 2010
International Glaciology Society meeting organizer	August 2010
Associate Editor for <i>Annals of Glaciology</i>	August 2010

**External Service: Referee**

(Average 4-5 manuscripts/year, 1-3 proposals/year, 0-1 panels requested/year)

**Journals:** Annals of Glaciology, Earth and Planetary Science Letters, Geophysical Research Letters, Journal of Geophysical Research, Journal of Glaciology, Nature Geoscience, Quaternary Science Reviews, Remote Sensing of the Environment, The Cryosphere, Tectonics

**Proposals:** NASA (Cryosphere, EV-2 Satellite), NOAA, NSF OPP (Antarctic and Arctic Sciences), NERC, Instituto Antártico Chileno

**Panel Member:** NASA Cryosphere (2010, 2011), NSF Antarctic Glaciology (2008, 2012).

### PROFESSIONAL MEMBERSHIPS

**1999 – present** American Association for the Advancement of Science  
**1999 – present** International Glaciological Society  
**2001 – present** American Geophysical Union  
**2004 – present** National Association of Geoscience Teachers

### FIELD ACTIVITIES

Dates	Funding	Location	Role
07/14 - 08/14	NASA	Rink Isbræ, West Greenland	Principal Investigator
08/13 - 09/13	NSF - OPP/ARC	Helheim Glacier, East Greenland	Principal Investigator
07/13 - 08/13	NASA	Rink Isbræ, West Greenland	Principal Investigator
01/13 - 02/13	NSF - OPP/ANT	Byrd Glacier, East Antarctica	Principal Investigator
10/12 - 11/12	NSF - OPP/ANT	Byrd Glacier, East Antarctica	Principal Investigator
09/12 - 09/12	NSF - OPP/ARC	Helheim Glacier, East Greenland	Principal Investigator
01/12 - 02/12	NSF - OPP/ANT	Byrd Glacier, East Antarctica	Principal Investigator
10/11 - 11/11	NSF - OPP/ANT	Byrd Glacier, East Antarctica	Principal Investigator
01/11 - 02/11	NSF - OPP/ANT	Byrd Glacier, East Antarctica	Principal Investigator
10/10 - 11/10	NSF - OPP/ANT	Byrd Glacier, East Antarctica	Principal Investigator
07/10 - 08/10	KU NFGRF	Helheim Glacier, East Greenland	Principal Investigator
08/10 - 09/10	NSF - OPP/ARC	Nioghalvfjerdingsfjorden, North Greenland	Principal Investigator
06/10 - 06/10	N/A	Upervanik Isstrøm, West Greenland	Research Assistant
05/10 - 05/10	(NSF-RAPID)	Hubbard Glacier, Southeast Alaska	Research Assistant
06/09 - 06/09	NSF - OPP/ARC	Helheim Glacier, East Greenland	Principal Investigator
<b>— PRE-KU —</b>			
05/08 - 09/08	(NSF - OPP/ARC)	Helheim Glacier, East Greenland	Postdoctoral Researcher
05/07 - 09/07	(NSF - OPP/ARC)	Helheim Glacier, East Greenland	Research Assistant
01/07 - 01/07	(NSF - OPP/ANT)	West Antarctic Traverse	Research Assistant
06/06 - 09/06	(NSF - OPP/ARC)	Helheim Glacier, East Greenland	Research Assistant
07/05 - 09/05	(NSF - OPP/ARC)	East Greenland outlet glaciers	Research Assistant
12/03 - 01/04	(NSF - OPP/ANT)	Allan Hills, East Antarctica	Research Assistant
11/03 - 12/03	(NSF - OPP/ANT)	Mt. Moulton West Antarctica	Research Assistant
12/02 - 12/02	(NSF - OPP/ANT)	West Antarctic Traverse	Research Assistant
12/00 - 01/01	(NSF - OPP/ANT)	West Antarctic Traverse	Research Assistant
12/99 - 01/00	(NSF - OPP/ANT)	Ice Stream B, West Antarctica	Research Assistant
10/99 - 11/99	(NSF - OPP/ANT)	Allan Hills, East Antarctica	Research Assistant
06/98 - 08/98	N/A	Storglaciären, Sweden	Research Assistant
03/98 - 04/98	N/A	Engabreen Glacier, Norway	Research Assistant

## CURRENT COLLABORATORS

Alistair Adcroft (*Princeton University*), Jason Amundson (*University of Alaska Southeast*), Morten Langer Andersen (*Geological Survey of Denmark and Greenland, GEUS*), Jeremy Bassis (*University of Michigan*), Ginny Catania (*University of Texas at Austin*), Beate Csatho (*SUNY - Buffalo*), James Davis (*Smithsonian Astrophysical Observatory*), Francisco Gomez (*University of Missouri*), Pedro Elósegui (*Spanish Institute for Space Studies*), David Finnegan (*US Army Cold Regions Research and Engineering Lab*), Robert Hallberg (*NOAA GFDL*), Gordon S. Hamilton (*University of Maine*), Ken Jezek (*The Ohio State University*), Jesse Johnson (*University of Montana*), Shfaqat Abbas Kahn (*Danish National Space Center*), Jonathon Nash (*Oregon State University*), Meredith Nettles (*Lamont Doherty Earth Observatory*), Faezeh Nick (*The University Centre in Svalbard*), David Pollard (*Pennsylvania State University*), Olga Sergienko (*Princeton University*), Emily Shroyer (*Oregon State University*), Fiamma Straneo (*Woods Hole Oceanographic Institution*), David Sutherland (*University of Oregon*), C. J. van der Veen (*University of Kansas*), Ryan Walker (*NASA GSFC*).

## NON-PEER REVIEWED PAPERS

**Stearns, L. A.** and H. Jiskoot, 2012. Rapid changes along the margin of the Greenland Ice Sheet, in: *Global Land Ice Measurements from Space (GLIMS)*, J. S. Kargel, G. J. Leonard, M. P. Bishop, A. Kääb and B. Raup (Editors), Praxis-Springer (Publishers), Heidelberg, ISBN: 978-3-540-79817-0.

**Stearns, L. A.** 2010. Book Review: Periglacial and Paraglacial Processes and Environments, in: *Palaios*, J. Knight and S. Harrison (Editors), The Geological Society, London, doi://10.2110/palo.2010.BR60.

Khan, S. A., J. Wahr, **L. A. Stearns**, G. S. Hamilton, T. van Dam, K. M. Larson and O. Francis. 2009. Elastic uplift in southeast Greenland due to rapid ice mass loss. In *Introduction to State of the Cryosphere*, H. Pritchard (Editor), AGU E-book Special Publications, **60**, SP0607314, ISBN: 978-0-87590-731-4.

**Stearns, L. A.** and G. S. Hamilton. 2007. Rapid volume loss from two East Greenland outlet glaciers quantified using repeat stereo satellite imagery. In *Introduction to State of the Cryosphere*, H. Pritchard (Editor), AGU E-book Special Publications, **60**, SP0607314, ISBN: 978-0-87590-731-4.

Landis, C. C. Hamilton and **L. A. Stearns**. 2009. Taking a Glaciers Pulse, in: *Beyond Penguins and Polar Bears* (an online magazine for K – 5 teachers), Issue 15. (<http://beyondpenguins.ehe.osu.edu/issue/icebergs-and-glaciers/taking-a-glaciers-pulse>).

**Stearns, L. A.** 2009. Glacier Dynamics: Why are the world's large glaciers moving more ice, more quickly? *Imagine Magazine*, **17**:1, Johns Hopkins University, Center for Talented Youth, ([www.cty.jhu.edu/imagine](http://www.cty.jhu.edu/imagine)).

## COMMUNITY REPORTS

Nyblade, A., J. Amundson, S. Hansen, E. Ivins, M. Lazzara, M. Nettles, C. Raymond, **Stearns, L. A.** 2012. A Facility Plan for Seismic and Geodetic Science: Meeting Community Needs through IRIS and UNAVCO Polar Services. September 8-9, 2011, Arlington, VA. Report available at: <http://www.passcal.nmt.edu/>.

Wiens, D., R. Clauer, M. Lazzara, M. Nettles, **Stearns, L. A.**, A. Weatherwax, T. Wilson. 2011. Autonomous Polar Observing System Workshop Report, September 30 – October 1, 2010. Potomac, MD. Report available at: [www.iris.edu/hq/files/publications/other\\_workshops/](http://www.iris.edu/hq/files/publications/other_workshops/).

## INVITED TALKS

*Observing tidewater glacier variability: progress and challenges*, U.S. CLiVAR International Workshop on "Understanding the Response of Greenland's Marine Terminating Glaciers to Oceanic and Atmospheric Forcing." Beverly, MA, June 2013.

*Are we any closer to understanding the complex interaction of ice-ocean dynamics in Greenland?*, Central Washington University (Department of Geology), Ellensburg, WA, April 2013.

*Are we any closer to understanding the complex interaction of ice-ocean dynamics in Greenland?*, University of Texas at Austin (Institute for Geophysics), Austin, TX, April 2013.

*Outlet glacier response to external forcings, and implications for sea level rise*, Washington University at St. Louis (Department of Earth and Planetary Sciences), St. Louis, MO, April 2012.

*Outlet glacier response to external forcings, and implications for sea level rise*, University of Michigan (Department of Earth and Environmental Sciences), Ann Arbor, MI, March 2012.

*Transformative glaciological applications using Terrestrial Laser Scanning*, UNAVCO Terrestrial Laser Scanning Workshop, Boulder, CO, October 2011.

*The future of glaciological research*, NSF-funded Polar Facilities Workshop, Washington DC, September 2011.

*Interannual and intra-seasonal flow variability of Hubbard Glacier: an advancing tidewater glacier in SE Alaska*, Classrooms for Climate, Anchorage, AK, May 2011.

*The role of water above, below and at the front of fast moving outlet glaciers*, University of Kansas (Ecosystems Research Group), Lawrence, KS, March 2011.

*Quantifying (and understanding?) changes on East Greenland outlet glaciers*, Kansas Geological Society, Wichita, KS, December 2010.

*How and Why is the Greenland Ice Sheet Changing?*, Iowa State University (Department of Geological and Atmospheric Sciences), Ames, IA, October 2010.

*Subglacial drainage events under outlet glacier end-members: Byrd Glacier and Whillans Ice Stream*. AGU Chapman Conference, Baltimore, MD, March 2010.

*Recent changes in East Greenland outlet glaciers: measurements from new field and remote sensing techniques*, Oklahoma University (School of Geology and Geophysics), February 2010.

*The role of water above, below, and at the front of fast-moving outlet glaciers in Greenland and Antarctica*, State University of New York at Buffalo (Geology Department), Buffalo, NY, February 2010.

*Subglacial lake outburst floods and Antarctic ice dynamics*, Eos. Trans. AGU, 90(52), Fall Meet. Suppl., Abstract C34A-08, San Francisco, CA, December 2009.

*Rapid changes of large tidewater glaciers in SE Greenland observed using ASTER satellite imagery*, IGARSS 2006 meeting, Denver, Colorado, Proc. IEEE, November 2006.

*New states of behavior: Current status of outlet glaciers in SE Greenland and will these conditions occur elsewhere?* Eos. Trans. AGU, 88, Fall Meet. Suppl., Abstract C07-9323, San Francisco, CA, December 2007.

*Rapid changes in Greenland outlet glaciers: an opportunity for students to learn about dynamic processes and satellite imagery*. Eos. Trans. AGU, 87, Fall Meet. Suppl., San Francisco, CA, December 2006.



## CONFERENCE PROCEEDINGS:

\* indicates KU graduate advisee

o indicates KU graduate student

† indicates KU REU advisee

### 2014

Bartholomaus, T. C., C. F. Larsen, S. O'Neel, M. E. West, J. M. Amundson, J. I. Walter, G. Catania, **L. A. Stearns**, R. T. Walker, D. A. Sutherland, E. L. Shroyer, and J. D. Nash, 2014. Seismic Tremor Reveals Subglacial Discharge at Tidewater Glaciers, *Eos. Trans. AGU*, 95, Fall Meeting, San Francisco, CA (Abstract: 4985).

Byers, L. C\*, L. A. Stearns, D. C. Finnegan, A. L. LeWinter, P. Gadowski, G. S. Hamilton. 2014. Processing time-series point clouds to reveal strain conditions of the Helheim Glacier terminus and its adjacent mélange, *Eos. Trans. AGU*, 95, Fall Meeting, San Francisco, CA (Abstract: 26316).

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Felikson, D. G. A. Catania, K. H. Kjær, N. J. Korsgaard, **L. A. Stearns**, J. Nash, E. Shroyer, D. A. Sutherland, and R. Walker. 2014. Spatial Variability in Surface Elevation Changes of Central-West Greenland Outlet Glaciers, *Eos. Trans. AGU*, 95, Fall Meeting, San Francisco, CA (Abstract: 11465).

Finnegan, D. C, G. S. Hamilton, **L. A. Stearns**, A. L. LeWinter, H. Farid, H. Renedo. 2014. Tidewater Glacier Velocities from Repeat Ground-Based Terrestrial LiDAR Scanning; Helheim Glacier, Southeast Greenland, *Eos. Trans. AGU*, 95, Fall Meeting, San Francisco, CA (Abstract: 18131).

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Johnson, J. V., E. Cummings, D. Brinerhoff, C. J. van der Veen, **L. A. Stearns**, and B. M. Csatho. 2014. Using data assimilation methods to explore the role of longitudinal stress gradients in Greenland outlet glacier flow. International Glaciological Society meeting: International Symposium on Contribution of Glaciers and Ice Sheets to Sea Level Change (Abstract 70A1036). Chamonix, France.

LeWinter, A. L., D. C. Finnegan, G. S. Hamilton, **L. A. Stearns**, and P. J. Gadowski. 2014. Continuous Monitoring of Greenland Outlet Glaciers Using an Autonomous Terrestrial LiDAR Scanning System: Design, Development and Testing at Helheim Glacier, *Eos. Trans. AGU*, 95, Fall Meeting, San Francisco, CA (Abstract: 17768).

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Rezvanbehbahani, S\*, **L. A. Stearns**, and C. J. van der Veen. 2014. Basal Melt Under the Interior of the Greenland Ice Sheet: Comparison of Models, Deep Ice Cores, and Radar Observations, *Eos. Trans. AGU*, 95, Fall Meeting, San Francisco, CA. (Abstract: 11713).

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**Stearns, L. A.**, S. Foga\*, G. S. Hamilton, F. Straneo, D. A. Sutherland, C. J. van der Veen, M. Oltmanns, and K. Schild. 2014. Controls on Helheim Glacier calving rates from 2001-2014. Eos. Trans. AGU, 95, Fall Meeting, San Francisco, CA.

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**Stearns, L. A.**, R. Walker, and B. Pratt-Situala. 2014. GETSI Project: Using geodetic data to teach about changes in ice mass and sea level in introductory courses Eos. Trans. AGU, 95, Fall Meeting, San Francisco, CA. (Abstract: 31343).

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Sutherland, D. A., G. A. Catania, T. Bartholomaeus, J. D. Nash, E. L. Shroyer, **L. A. Stearns**, and R. T. Walker. 2014. The Oceans Role in Outlet Glacier Variability: A Case Study from Uummannaq, Greenland, Eos. Trans. AGU, 95, Fall Meeting, San Francisco, CA (Abstract: 3820).

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Bjørk, K. Kjær, N. Larsen, J. Olsen, S. A. Khan, A. Goldsack, T. Andersen, N. Schreiber, C. Andresen, N. Korsgaard, K. Kjeldsen, and **L. A. Stearns**. 2013. A 14,000-year history of the Helheim Glacier – a record of long-term ice dynamics in relation to climate. EGU General Assembly Conference (Abstract 10223). Vienna, Austria.

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**Stearns, L. A.** 2013. Observing tidewater glacier variability: progress and challenges. U.S. CLiVAR International Workshop on "Understanding the Response of Greenland's Marine Terminating Glaciers to Oceanic and Atmospheric Forcing." Beverly, MA. INVITED.

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Finnegan, D. C., **L. A. Stearns**, G. S. Hamilton and A. Fowler. 2012. A new 1064 nm Ground-based LiDAR instrument for quantifying dynamic glacier processes: first results from Helheim Glacier, Southeast Greenland. *Eos. Trans. AGU*, 93, Fall Meet. Suppl., Abstract C52A-06.

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## 2011

Arnsten, A. E.<sup>†</sup>, T. P. Godaie<sup>†</sup>, G. P. Tsoflias, **L. A. Stearns**, C. J. van der Veen and A. M. Hoch\*. 2011. Internal ice layer mapping and geophysical analysis of Jakobshavn Glacier, Greenland. *Eos. Trans. AGU*, 92, Fall Meet. Suppl., Abstract C11C-0683.

Hoch, A. M.\* , J. A. Vélez\*, G. P. Tsoflias, **L. A. Stearns** and C. J. van der Veen. 2011. Improved characterization of the Jakobshavn Isbræ catchment region through analyses of radar depth sounder data. *Eos. Trans. AGU*, 92, Fall Meet. Suppl., Abstract C11C-0684.

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De Juan, J. P. Elósegui, M. Nettles, J. L. Davis, T. Larsen, G. S. Hamilton and **L. A. Stearns**. 2010. GPS measurements of flow variations at a large Greenland outlet glacier due to ocean tidal forcing. *Eos. Trans. AGU*, 91, Fall Meet. Suppl., Abstract C21A-0516.

Finnegan, D.C., **L. A. Stearns**, G. S. Hamilton and S. O'Neel. 2010. Flow Characteristics of Tidewater Glaciers in Greenland and Alaska using Ground-Based LiDAR. *Eos. Trans. AGU*, 91, Fall Meet. Suppl. Abstract C21A-0515.

Hamilton, G.S., K. M. Schild, **L. A. Stearns**, J. de Juan, P. Elósegui and M. Nettles. 2010. Time-lapse photography yields new insights into Greenland outlet glacier dynamics (Invited). *Eos. Trans. AGU*, 91, Fall Meet. Suppl., Abstract IN33B-1313.

Lawson, D. E., G. S. Hamilton, D. C. Finnegan, **L. A. Stearns**, B. A. Willems, S. O'Neel, J. A. Goff, S. P. Gulick and M. B. Davis. 2010. Damming of Russell Fiord by Tidewater Hubbard Glacier, Alaska: Role of Subglacial Meltwater in Preventing Closure in 2010. *Eos. Trans. AGU*, 91, Fall Meet. Suppl., Abstract C21B-0535.

**Stearns, L. A.**, G. S. Hamilton, D. E. Lawson, D. C. Finnegan and S. O'Neel. 2010. Inter-annual and intra-seasonal flow variability of Hubbard Glacier – an advancing tidewater glacier in SE Alaska. *Eos. Trans. AGU*, 91, Fall Meet. Suppl., Abstract C23A-0583.

Straneo, F., D. A. Sutherland, G. S. Hamilton, C. Cenedese and **L. A. Stearns**. 2010. Glacier melting in a stratified ocean: Observations from outlet glaciers in Greenland (Invited). *Eos. Trans. AGU*, 91, Fall Meet. Suppl., Abstract C32A-02.

Sutherland, D. A., **L. A. Stearns**, G. S. Hamilton and F. Straneo. 2010. Observations of subtidal circulation variability in Sermilik Fjord, Greenland, and its impact on ice-ocean interactions. *Eos. Trans. AGU*, 91, Fall Meet. Suppl., Abstract C12B-06.

**Stearns, L. A.**, and G. S. Hamilton. 2010. Mass balance of the Ross Sea sector of East Antarctica. International Polar Year Oslo Science Conference, Oslo, Norway.

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**Stearns, L. A.** 2010. Subglacial drainage events under outlet glacier end-members: Byrd Glacier and Whillans Ice Stream. AGU Chapman Conference, Baltimore, MD.

**Stearns, L. A.** 2010. Strain rate and force balance results on Helheim Glacier. Workshop on the paleoclimatology, oceanography and glaciology in the Helheim Glacier region, Copenhagen, Denmark.

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Andersen, M. L., M. Nettles, T. Larsen, P. Elósegui, G. S. Hamilton, **L. A. Stearns**, D. Van As, J. de Juan and J. L. Davis. 2009. Surface Melt and its Effect on Helheim Glacier Dynamics, *Eos. Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract C21D-0465.

De Juan, J., P. Elósegui, M. Nettles, J. L. Davis, T. Larsen. A. P. Ahlstrøm, M. L. Andersen. G. Ekström, R. Forsberg, G. S. Hamilton, S. A. Khan, K. M. Schild, **L. A. Stearns** and L. Stenseng. 2009. Ocean tides modulation of flow at Helheim Glacier, East Greenland, observed using GPS, *Eos. Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract C11A-01.

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Hoch, A.\* , J. A. Velez\* , A. Nardone<sup>†</sup>, **L. A. Stearns** and G. P. Tsoflias. 2009. Three-dimensional Visualization of the Jakobshavn Isbræ Catchment Region, *Eos. Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract C31C-0458.

Nettles, M., P. Elósegui, T. Larsen, J. L. Davis, G. S. Hamilton, **L. A. Stearns**, M. L. Andersen, J. de Juan, E. Malikowski, I. Gonzalez, M. Okal, B. Johns, G. Ekström, A. Ahstrøm, L. Stenseng, S. A. Khan, K. M. Schild, R. Forsberg and S. A. Veitch. 2009. Geodetic observations of short-time-scale changes in glacier flow at Helheim and Kangerdlugssuaq Glaciers, East Greenland, *Eos. Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract C11A-02.

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Schild, K. M, G. S. Hamilton, and **L. A. Stearns**. 2009. Environmental controls on calving events in Greenland, *Eos. Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract C21D-0462.

**Stearns, L. A.**, B. E. Smith, and G. S. Hamilton. 2009. Subglacial lake outburst floods and Antarctic ice dynamics, *Eos. Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract C34A-08, San Francisco, CA. INVITED.

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## As a Graduate Student

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- Csatho, B. M., A. F. Schenk, C. J. van der Veen, **L. A. Stearns** and G. S. Babonis. 2008. Reconstructing the history of major Greenland glaciers since the Little Ice Age, *Eos. Trans. AGU*, 89, Fall Meet. Suppl., C23A-0594.
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- Stearns, L. A.** and G. S. Hamilton. 2004. Relating SAR backscatter variations to ice sheet surface conditions along the US ITASE traverse. Eos. Trans. AGU, 85, Fall Meet. Suppl., Abstract C33C-0358, F351.
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## OUTREACH ACTIVITIES

<i>KU scientist goes for cold, hard climate science data</i>	July 2014
Wichita Eagle: <a href="http://www.kansas.com/2014/07/06/3542073/ku-scientists-greenland-field">www.kansas.com/2014/07/06/3542073/ku-scientists-greenland-field</a>	
<i>My life as a glaciologist (how I found the best job ever)</i>	June 2011
KU Duke TIP Program, Lawrence, KS	
<i>Byrd Glacier flow dynamics: similarities and differences to Greenland glacier behavior</i>	April 2011
Center for Remote Sensing of Ice Sheets, Lawrence, KS	
<i>Measuring Glaciers in Greenland and Antarctica: science and engineering collaborations</i>	March 2011
KU Scholars Day, Lawrence, KS	
<i>Byrd Glacier: Its really, really big...but is it any different from outlet glaciers in Greenland?</i>	February 2011
McMurdo Sunday Science Lecture, Antarctica, McMurdo Station, Antarctica	
<i>Is climate change (in particular sea level rise) a social justice issue?</i>	February 2011
Plymouth Church Sunday lecture Lawrence, KS	
KU News: KU researchers track Antarctic glacier	December 2010
( <a href="http://www.news.ku.edu/2010/december/8/glacier.shtml">http://www.news.ku.edu/2010/december/8/glacier.shtml</a> )	
NSFs Antarctic Sun: Getting into the flow	October 2010
( <a href="http://antarcticsun.usap.gov/science/contenthandler.cfm?id=2286">http://antarcticsun.usap.gov/science/contenthandler.cfm?id=2286</a> )	
<i>Measuring Changes on Greenland Outlet Glaciers</i>	October 2010
National Science Teachers Association Meeting, Kansas City, MO	

Rolling Stone: The Vanishing Ice Sheets September 2010  
 (<http://www.rollingstone.com/politics/news/on-thin-ice-20100922>)  
*Changes in the Greenland Ice Sheet and International Collaboration: Why it matters* September 2010  
 KU International Career Workshop, Lawrence, KS  
 New York Times: Fjords Contribute to Melting of Glaciers February 2010  
 ([www.nytimes.com/2010/02/16/science/16obmelt-in-sci-09-52.html](http://www.nytimes.com/2010/02/16/science/16obmelt-in-sci-09-52.html))  
*Studying Glaciers in Greenland: New techniques and opportunities* February 2010  
 KU IGERT Program, Lawrence, KS  
 CNN: Filming in Greenlands Wilderness September 2009  
 (<http://inthefield.blogs.cnn.com/tag/cnn-cameraman/>)  
 The Guardian: The Sermilik fjord in Greenland: a chilling view of a warming world August 2009  
 (<http://www.guardian.co.uk/environment/2009/sep/01/sermilik-fjord-greenland-global-warming>)  
 A Matter of Degrees: Wild Center IMAX film (Adirondacks, NY) July 2007  
 (<http://www.wildcenter.org/index.php?page=10>)

### HONORS & AWARDS

- 2014** Kavli Fellow (*National Academy of Sciences*)
- 2008** Community Service Award (*University of Maine*)
- 2007** Churchill Exploration Award (*University of Maine*)
- 2006** NASA Student Ambassador (*Valencia, Spain*)
- 2006** Churchill Exploration Award (*University of Maine*)
- 2005** Outstanding Student Paper Award, Fall AGU Meeting (*San Francisco, CA*)
- 2005** Best Student Presentation Award, Climate & Cryosphere Meeting (*Beijing, China*)
- 2004** Oral Presentation Award, Graduate Research Symposium (*University of Maine*)
- 2003** Oral Presentation Award, Graduate Research Symposium (*University of Maine*)
- 1999** First Year Graduate Student Achievement Award (*The Ohio State University*)
- 1999** New Student Fellowship (*The Ohio State University*)

### STUDENT ADVISING

#### Primary Advisees

Name	Status	Supervision Dates	Institution	Degree Saught
Logan Byers	candidate	08/13-present	KU Geology	M.S.
Sarah Child	candidate	09/11-present	KU Geology	Ph.D.
Steven Foga	candidate	09/12-present	KU Geography	M.A.
K. Petrakopoulos	candidate	09/12-present	KU Geology	Ph.D.
S. Rezvanbehbahani	candidate	01/13-present	KU Geology	Ph.D.

#### Postdoctoral Fellows:

Name	Supervision Dates	Department	Project
Nora Weitz	11/14 - present	Geology	NSF CAREER



### Advisor: Undergraduate Students

<b>Name</b>	<b>Status</b>	<b>Supervision Dates</b>	<b>Institution</b>	<b>Role</b>
Alexandra Arnsten	Junior	06/11-07/11	CReSIS	REU Co-Advisor
Logan Byers*	Senior	08/12-08/13	Geology	Advisor
Carolyn Branecky	Junior	06/12-07/12	CReSIS	REU Advisor
Chase Bruckwoldt*	Sophomore	05/14 - present	Geology	Advisor
Christine Butcher	Junior	06/12-07/12	CReSIS	REU Advisor
Justin Corbin*	Senior	09/11- 05/12	UKanTeach	Advisor
Steven Foga	Junior	06/10-06/11	CReSIS	Co-Advisor
Timothy Godaire	Junior	06/11-07/11	CReSIS	REU Co-Advisor
Julia Guard	Senior	09/10-05/11	CReSIS	Co-Advisor
Rose Leone	Junior	06/14-07/14	CReSIS	REU Advisor
Josh Meisel	Senior	09/09-05/10	CReSIS	Co-Advisor
Alexis Moyer	Junior	06/12-07/12	CReSIS	REU Advisor
Reid Niemack*	Senior	09/10-05/11	Geology	Advisor
Annaria Nardone	Junior	06/10-07/10	CReSIS	REU Co-Advisor
Marco Vallotto*	Junior	05/09-09/10	Geology	Advisor
Alicia Reynolds	Junior	06/14-07/14	CReSIS	REU Advisor
Kyle Purdon	Junior	06/10-07/11	CReSIS	Co-Advisor
Yibin Zhang	Junior	06/11-07/11	CReSIS	REU Co-Advisor

### Committee Member: Masters Students

<b>Name</b>	<b>Status</b>	<b>Supervision Dates</b>	<b>Institution</b>	<b>Role</b>
Matthew Baker	candidate	09/12-present	Geology	M.S.
Tyson Berndt	candidate	09/13-present	Geology	M.S.
Samuel Coleman	candidate	02/12-present	Geology	M.S.
Claire Forgacs	candidate	09/12-present	Geography	M.A.
Breanna Huff	graduate	10/10-05/14	Geology	M.S.
Brant Konetchy	graduate	09/12-08/14	Geology	M.S.
Sarah Kreitzer	graduate	05/09-03/11	Geology	M.S.
Maureen Logan	candidate	09/11-present	Geology	M.S.
Molly Long	graduate	09/14-08/14	Geology	M.S.
Andrew McCallister	graduate	03/11-10/12	Geology	M.S.
Josh Miesel	candidate	09/11-06/12	Geography	M.A.
Joe Miller	graduate	11/09-11/12	Geology	M.S.
Kurt Sundell	graduate	12/09-08/11	Geology	M.S.
Mark Villarreal	graduate	12/10-06/12	Geology	M.S.
Ryan Voegerl	graduate	11/12-05/14	Geology	M.S.
Sarah Wildermuth	candidate	03/11-present	Geology	M.S.

### Committee Member: Doctoral Students

<b>Name</b>	<b>Status</b>	<b>Supervision Dates</b>	<b>Institution</b>	<b>Role</b>
Blair Benson	candidate	05/12-present	Geology	Ph.D.
Tandis Bidgoli	graduate	09/11-05/14	Geology	Ph.D.
Christopher Giffords	graduate	09/09-11/09	Elec. Eng.	Ph.D.
José Velez Gonzalez	candidate	09/11-present	Geology	Ph.D.
Anthony Hoch	aspirant	12/10-present	Geology	Ph.D.
Joel Plummer	candidate	01/09-8/11	Geography	Ph.D.
Nicole Spaulding	graduate	06/09-05/11	U. Maine Geol.	Ph.D.
Theresa Stumpf	candidate	01/07-09/08	Elec. Eng.	Ph.D.

## TEACHING EXPERIENCE

### University of Kansas

#### **Environmental Geology**

**Spring 2009 – 2014**

This course serves as an introductory course in Geology covering environmental topics in geology that have an impact on humans, such as natural hazards (earthquakes, volcanoes, floods), resource extraction (mining, fossil fuels, groundwater pumping), and pollution (climate change, water quality). The overarching goal is to make students more informed citizens with the ability to make educated decisions regarding their interaction with the environment. This course is taught as a bi-campus course with video-technology to include KU's Kansas City campus. **Enrollment: ~54 in Lawrence; ~15 in Kansas City**

#### **Glaciology Reading Seminar**

**Spring 2010 – 2014**

This course is intended to familiarize students in the glaciological literature pertaining to subject matters that change each semester. Papers are read and discussed as a group. **(Enrollment: ~6)**

#### **Graduate Glaciology**

**Fall 2009, 2011, 2013**

This course addresses the fundamentals of glacier and ice-sheet dynamics and the key surface and subsurface processes that drive ice to move. Course content includes derivation of glacier mass and energy balance, the material properties and rheology of ice, the basic equations of ice motion (with a review of conservation laws), ice-sheet and -shelf flow, basal processes, glacier hydrology, and unstable modes of flow. This course is intended for graduate-level or senior undergraduate students interested in the deformation of natural materials and ice in the environment. Course topics adjust to new and important findings from recent literature and conference proceedings. **(Enrollment: ~10)**

#### **Geomorphology**

**Fall 2012**

The principles and methods of process geomorphology are introduced in this class, which is offered to upper-level undergraduate and graduate students in the departments of Geology and Geography. We investigate concepts of landscape development, and the processes, types, and evolution of landforms produced under diverse climates. This course has a weekly lab, and two weekend field trips. **(Enrollment: 20)**

#### **Glaciology at CReSIS**

**Fall 2010**

This course was designed to provide CReSIS students with a basic understanding of glaciology processes and terminology. CReSIS graduate and undergraduate students come from a wide range of disciplines. The course provides them with an introduction to glaciological principles, satellite remote sensing techniques, and CReSIS data sets. The objective of CReSIS is to improve the next generation of ice sheet models, so that they accurately represent the physical processes taking place. CReSIS researchers collect and interpret airborne radar data; this course gives them a deeper understanding of the data that they analyze, and its overall importance. Throughout the class, we build a CReSIS web site that summarizes glaciological processes and radar experiments. **(Enrollment: 9)**

#### **Ice and Climate**

**Fall 2009**

This is a freshman honors class in glaciology and climate current events. In class, we review the basics of ice sheet (and glacier) evolution in different climate regimes, and then focus on the changes that are taking place in Greenland, Antarctica, and various mountain glaciers. **(Enrollment: 15)**

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