

## ERICH C. OSTERBERG

Associate Professor, Department of Earth Sciences  
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Personal Webpage: <http://www.dartmouth.edu/~eosterberg>

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### APPOINTMENTS

2018-PRESENT **Associate Professor**, Dartmouth College Earth Sciences Department  
2012-2018 **Assistant Professor**, Dartmouth College Earth Sciences Department  
2009-2012 **Research Assistant Professor**, Dartmouth College Earth Sciences Department  
2007-2009 **Joseph B. Obering Postdoctoral Fellow**, Dartmouth College Earth Sciences

### EDUCATION

Ph.D., 2007 Earth Sciences and Climate Change Institute, University of Maine, Orono, ME, USA  
M.Sc., 2001 Geology, University of Otago, Dunedin, New Zealand  
B.A., 1999 Geology, Middlebury College, Middlebury, VT, USA

### PEER-REVIEWED PUBLICATIONS

\*\*UNDERGRADUATE STUDENT AUTHOR \*GRADUATE STUDENT AUTHOR

#POSTDOCTORAL MENTEE AUTHOR

42. \*Lilien, D.A., Fudge, T.K., Koutnik, M., Conway, H., **Osterberg, E.C.**, Ferris, D.G., Waddington, E., Stevens, M., 2018. Holocene ice-flow speedup in the vicinity of South Pole. *Geophysical Research Letters* **45**, 6557-6565. doi: 10.1029/2018GL078253.

41. \*Huang, H., Winter, J. M., **Osterberg, E.C.**, 2018. Mechanisms of abrupt extreme precipitation change over the Northeastern United States. *Journal of Geophysical Research, Atmospheres* **123**. doi: 10.1029/2017JD028136.

40. \*McFarlin, J.M, Axford, Y., Osburn, M., Kelly, M., **Osterberg, E.C.**, Farnsworth, L., 2018. Pronounced summer warming in northwest Greenland during the Holocene and Last Interglacial. *Proceedings of the National Academies of Sciences*. doi: 10.1073/pnas.1720420115.

39. \*Farnsworth, L.B., Kelly, M.A., Bromley, G., Axford, Y., **Osterberg, E.C.**, Howley, J.A., \*Jackson, M.S., Zimmerman, S.R., 2018. Holocene history of the Greenland Ice-Sheet margin in Northern Nunatarssuaq, Northwest Greenland. *Arktos Special Issue* **4** (10). doi: 10.1007/s41063-018-0044-0.

38. \*Seo, J., Sharma, M., **Osterberg, E.C.**, Jackson, B., 2018. Determination of osmium concentration and isotope composition at ultra-low level in polar ice and snow. *Analytical Chemistry* **90** (9) 5781-5787. doi: 10.1021/acs.analchem.8b00150.

37. \*\*Polashenski, D.A., **Osterberg, E.C.**, Koffman, B.G., Winski, D.A., Stamieszkin, K., Kreutz, K.J., Wake, C.P., Ferris, D.G., Introne, D., Campbell, S., 2018. Denali ice core methanesulfonic acid records North Pacific marine primary productivity. *Journal of Geophysical Research, Atmospheres* **123** (9), 4642-4653. doi: 10.1029/2017JD028123.

36. \*Graeter, K., **Osterberg, E.C.**, \*Lewis, G., Hawley, R., Marshall, H. P., \*Meehan, T., \*Overly, T., Birkel, S., 2018. Ice core records of West Greenland melt and climate forcing. *Geophysical Research Letters* **45** (7) 3164-3172. doi: 10.1002/2017GL076641.

35. \*Winski, D., **Osterberg, E.C.**, Kreutz, K., Wake, C., Ferris, D., Campbell, S., \*\*Baum, M., Raudzens Baily, A., Birkel, S., Introne, D., Handley, M., 2018. A 400-year ice core melt layer record of summertime warming in the Alaska Range. *Journal of Geophysical Research, Atmospheres* **123** (7), 3594-3611. doi: 10.1002/2017JD027539.
34. \*Partridge, T., Winter, J.M., **Osterberg, E.C.**, 2018. Spatially distinct seasonal patterns and forcings of the U.S. warming hole. *Geophysical Research Letters* **45** (4), 2055-2063. doi: 10.1002/2017GL076463.
33. \*Winski, D., **Osterberg, E.C.**, Ferris, D., Kreutz, K., Wake C., Campbell, S., Hawley, R., Roy, S., Birkel, S., Introne, D., Handley, M., 2017. Industrial-age doubling of snow accumulation in the Alaska Range linked to tropical ocean warming. *Nature Scientific Reports* **7**, 17869. doi: 10.1038/s41598-017-18022-5.
32. **Osterberg, E.C.**, \*Winski, D.A., Kreutz, K.J., Wake, C.P., Ferris, D.G., Campbell, S., Introne, D., Handley, M., Birkel, S., 2017. The 1200 year composite ice core record of Aleutian Low intensification. *Geophysical Research Letters* **44** (14), 7447-7454. doi: 10.1002/2017GL073697 (Selected for an Editor's Highlight).
31. #Koffman, B., \*\*Dowd, E., **Osterberg, E.C.**, Ferris, D., Hartman, L., Wheatley, S., Kurbatov, A., \*Wong, G., \*Markle, B., Dunbar, N., Kreutz, K., Yates, M., 2017. Rapid transport of ash and sulfate from the 2011 Puyehue-Cordon eruption to West Antarctica. *Journal of Geophysical Research, Atmospheres* **122** (16), 8908-8920. doi: 10.1002/2017JD026893.
30. \*Lasher, G.E., Axford, Y., \*McFarlin, J., Kelly, M., **Osterberg, E.C.**, Berkelhammer, M., 2017. Holocene temperatures and isotopes of precipitation in Northwest Greenland recorded in lacustrine organic materials. *Quaternary Science Reviews* **170**, 45-55. doi: 10.1016/j.quascirev.2017.06.016.
29. \*Huang, H., Winter, J.M., **Osterberg, E.C.**, Horton, R., Beckage, B., 2017. Total and extreme precipitation changes over the Northeastern United States. *Journal of Hydrometeorology* **18**, 1783-1798. doi:10.1175/JHM-D-16-0195.1.
28. \*Lewis, G., **Osterberg, E.C.**, Hawley, R., \*\*Whitmore, B., Marshall, H.P., Box, J., 2017. Regional Greenland accumulation variability from Operation IceBridge airborne accumulation radar. *The Cryosphere* **11**, 773-788. doi: 10.5194/tc-11-773-2017.
27. \*Beal, S.A., **Osterberg, E.C.**, Zdanowicz, C. M., Fisher, D.A., 2016. Response to comment on "Ice core perspective on mercury pollution during the past 600 years." *Environmental Science and Technology* **50**, 1068-1069. doi: 10.1021/acs.est.5b05444.
26. **Osterberg, E.C.**, Hawley, R.L., \*Wong, G., \*Kopec, B., Ferris, D., Howley, J., 2015. Coastal ice core record of recent Northwest Greenland temperature and sea ice concentration. *Journal of Glaciology* **61**, 1137-1146, doi: 10.3189/2015JoG15J054.
25. \*Wong, G., **Osterberg, E.C.**, Hawley, R., Courville, Z., Ferris, D., Howley, J., 2015. Coast-to-interior gradient in recent Northwest Greenland precipitation trends (1952-2012). *Environmental Research Letters* **10** (11), 114008. doi: 10.1088/1748-9326/10/11/114008.
24. \*Beal, S.A., **Osterberg, E.C.**, Zdanowicz, C.M., Fisher, D.A., 2015. Ice core perspective on mercury pollution during the past 600 years. *Environmental Science and Technology* **49**, 7641-7647. doi: 10.1021/acs.est.5b01033.

23. **Osterberg, E.C.**, Mayewski, P. A., Fisher, D.A., Kreutz, K.J., Maasch, K.A., Sneed, S.B., \*Kelsey, E., 2014. Mount Logan ice core record of tropical and solar influences on Aleutian Low variability: 500–1998 A.D. *Journal of Geophysical Research, Atmospheres* **119** (19), 11,189-11,204. doi: 10.1002/2014JD021847.
22. Hawley, R.L., Courville, Z., \*Kehrl, L.M., #Lutz, E.R, **Osterberg, E.C.**, \*Overly, T.B., \*Wong, G.J., 2014. Recent Accumulation Variability in Northwest Greenland from GPR and Shallow Cores Along the Greenland Inland Traverse. *Journal of Glaciology* **60** (220), 365-372. doi: 10.3189/2014JoG13J141
21. \*Koffman, B., Handley, M., **Osterberg, E.C.**, Wells, M., Kreutz, K., 2014. Dependence of ice-core relative trace-element concentration on acidification. *Journal of Glaciology* **60** (219), 103-112. doi: 10.3189/2014JoG13J137.
20. \*\*Kehrl, L.M., Hawley, R.L., **Osterberg, E.C.**, Winski, D.A., and \*\*Lee A.P., 2014. 25 years of volumetric change on lower Peyto Glacier, Alberta, Canada. *Journal of Glaciology* **60** (219), 51-56. doi: 10.3189/2014JoG13J039.
19. Zdanowicz, C., Fisher, D., Bourgeois, J., Demuth, M., Zheng, J., Mayewski, P., Kreutz, K., **Osterberg, E.C.**, Yalcin, K., Wake, C., Steig, E.J., Froese, D., Goto-Azuma, K., 2014. Ice cores from the St. Elias Mountains, Yukon Territory, Canada: Their significance for climate, atmospheric composition and volcanism in the North Pacific region. *Arctic* **67** (5), 35-57. doi: 10.14430/arctic4352
18. Gorman, A., Hill, M., Orpin, A., Koons, P., Norris, R., Landis, C., Allan, T., Johnstone, T., Gray, F., Wilson, D., **Osterberg, E.C.**, 2013. Quaternary shelf structures SE of the South Island, imaged by high-resolution seismic profiling. *New Zealand Journal of Geology and Geophysics* **56** (2), 68-82. doi: 10.1080/00288306.2013.772906.
17. \*Campbell, S., \*Roy, S., Kreutz, K., Arcone, S., **Osterberg, E.C.**, Koons, P., 2013. Strain Rate Estimates for Crevasse formation at an Alpine Ice Divide: Mount Hunter, Alaska. *Annals of Glaciology* **54** (63), 200-208. doi: 10.3189/2013AoG63A266.
16. \*Wong, G.J., Hawley, R.H., #Lutz, E. R., and **Osterberg, E.C.**, 2013. Trace element and physical response to melt percolation in Summit, Greenland snow. *Annals of Glaciology* **54** (63), 52-62. doi: 10.3189/2013AoG63A602.
15. \*Winski, D., Kreutz, K., **Osterberg, E.C.**, \*Campbell, S., Wake, C., 2012. High Frequency Observations of Melt Effects on Snowpack Stratigraphy, Kahiltna Glacier, Central Alaska Range. *Hydrological Processes* **26** (17), 2573-2582. doi: 10.1002/hyp.9348.
14. \*Gross, B., Kreutz, K., **Osterberg, E.C.**, Handley, M., Wake, C., Yalcin, K., 2012. Tracing North Pacific pollutant sources using ice core stable lead isotopes. *Journal of Geophysical Research, Atmospheres* **117**, D16307. doi:10.1029/2011JD017270.
13. \*Campbell, S.W., Kreutz, K. J., **Osterberg, E.C.**, Arcone, S.A., Wake, C., Introne, D., \*\*Volkening, K., Winski, D., 2012a. Melt regimes, internal stratigraphy, and flow dynamics of three glaciers in the Alaska Range. *Journal of Glaciology* **58** (207), 99-109. doi: 10.3189/2012JoG10J238.
12. \*Campbell, S.W., Kreutz, K.J., **Osterberg, E.C.**, Arcone, S.A., Wake, C., \*\*Volkening, K., Winski, D., 2012b. Flow dynamics of an accumulation basin: a case study of the Upper Kahiltna Glacier on Mount McKinley. Alaska. *Journal of Glaciology* **58** (207), 185-195. doi: 10.3189/2012JoG10J233.

11. \*Kelsey, E., Wake, C., Kreutz, K., **Osterberg, E.C.**, 2010. Ice layers as an indicator of summer warmth and atmospheric blocking in Alaska. *Journal of Glaciology* **56**, 715-722. doi: 10.3189/002214310793146214.
10. Kaspari, S., Mayewski, P.A., Handley, M.J., **Osterberg, E.C.** et al., 2009. Recent increases in atmospheric concentrations of Bi, U, Cs, S and Ca from a 350-year Mount Everest ice core record. *Journal of Geophysical Research, Atmospheres* **114**, D04302. doi: 10.1029/2008JD011088.
9. **Osterberg, E.C.**, Mayewski, P.A., Kreutz, K.J., et al., 2008. Ice core record of rising lead pollution in the North Pacific atmosphere. *Geophysical Research Letters* **35** (5), L05810. doi: 10.1029/2007GL032680. (Selected for an Editor's Highlight).
8. Fisher, D. A, **Osterberg, E.C.**, Dyke, A. et al., 2008. The Mt. Logan Holocene-Late Wisconsin isotope record: tropical Pacific – Yukon connections. *The Holocene* **18**, 667-677. doi: 10.1177/0959683608092236.
7. Upton, P. and \***Osterberg, E.C.**, 2007. Paleoseismicity and mass movements interpreted from seismic-reflection data, Lake Tekapo, South Canterbury, New Zealand. *New Zealand Journal of Geology and Geophysics* **50**, 343-356. doi: 10.1080/00288300709509841.
6. Norton, S. A., Wilson, T., Handley, M.J., \***Osterberg, E.C.**, 2007. Atmospheric deposition of cadmium in the northeastern USA. *Applied Geochemistry* **22**, 1217-1222. doi: 10.1016/j.apgeochem.2007.03.014.
5. \***Osterberg, E.C.**, Handley, M.J., Sneed, S.B., Mayewski, P.A., Kreutz, K.J., 2006. A continuous ice core melter system with discrete sampling for major ion, trace element and stable isotope analyses. *Environmental Science and Technology* **40** (10), 3355-3361. doi: 10.1021/es052536w.
4. \***Osterberg, E.C.**, 2006. Late Quaternary (Marine Isotope Stages 6-1) seismic sequence stratigraphic evolution of the Otago Continental Shelf, New Zealand. *Marine Geology* **229**, 159-178. doi: 10.1016/j.margeo.2006.03.005.
3. Mayewski, P.A., Maasch, K.A., Yan, Y.P., Kang, S.C., Meyerson, E.A., Sneed, S.B., Kaspari, S.D., Dixon, D.A., \***Osterberg, E.C.**, Morgan, V.I., Van Ommen, T., Curran, M.A.J., 2005. Solar forcing of the polar atmosphere. *Annals of Glaciology* **41**, 147-154. doi: 10.3189/172756405781813375.
2. Bertler, N., Mayewski, P.A., 52 authors listed alphabetically including \***Osterberg, E.C.**, 2005. Snow chemistry across Antarctica. *Annals of Glaciology* **41**, 167-179. doi: 10.3189/172756405781813320.
1. Fisher, D., Wake, C., Kreutz, K., and 18 others including \***Osterberg, E.C.**, 2004. Stable isotope records from Mt. Logan, Eclipse ice cores and nearby Jellybean Lake. Water cycle of the North Pacific over 2000 years and over five vertical kilometers: sudden shifts and tropical connections. *Geograph. Physiq. Et Quatern.* **58**, 337-352. doi: 10.7202/013147ar.

## PUBLICATIONS UNDER PEER REVIEW

\*\*UNDERGRADUATE STUDENT AUTHOR \*GRADUATE STUDENT AUTHOR

Axford, Y., Pfeiffer, A., **Osterberg, E.C.**, Lasher, G.E., Kelly, M., Landis, J., Francis, D., \*\*Thompson, E., Schellinger, G., *under review*. Holocene temperature history of northwest Greenland – with new ice cap constraints and chironomid assemblages from Deltasø. *Quaternary Science Reviews*.

Wallace, D.I., Kodali, A., Winter, J.M., Ayres, M.P., Chipman, J.W., Aoki, C.F., **Osterberg, E.C.**, Silvanic, C.G., Pedicini, M.M., \*Partridge, T.F., Dekker, E.R., \*\*Webb, M.J., Carrese, D.D., *under review*. Diluting Lyme disease: Modeling the effects of incompetent hosts on *Borrelia burgdorferi* transmission. *Parasites and Vectors*.

## PUBLICATIONS UNDER PREPARATION

\*\* UNDERGRADUATE STUDENT AUTHOR \* GRADUATE STUDENT AUTHOR

**Osterberg, E.C.**, \*\*Jongebloed, U., \*Winski, D., Kreutz, K., Wake, C., Ferris, D., Handley, M., Introne, D., *in preparation*. Denali ice core record of Trans-Pacific Metal Pollution. *Nature Scientific Reports*.

\*\*Burzynski, A., **Osterberg, E.C.**, Winski, D., Wake, C.P., Kreutz, K.J., Ferris, D., Campbell, S.W., *in preparation*. Relationships between atmospheric aerosols and snow chemistry at Denali, Alaska. *Atmospheric Environment*.

\*Wong, G., **Osterberg, E.C.**, Hawley, R.L., Courville, Z., Ferris, D., Howley, J., *in preparation*. Dynamic controls on recent increases in northwest Greenland coastal precipitation, *International Journal of Climatology*.

\*\*Saylor, P., **Osterberg, E.C.**, Koffman, B., Winski, D., Kreutz, K., Wake, C. P., Campbell, S., Handley, M., Introne, D., *in preparation*. Trans-Pacific dust flux and climate controls over the Common Era recorded in North Pacific ice cores. *Journal of Geophysical Research, Atmospheres*.

\*Winski, D., **Osterberg, E.C.**, Ferris, D., Fudge, T.J., Kreutz, K., Cole-Dai, J., *in preparation*. Bipolar signature of thermohaline circulation slowdown at the onset of Holocene neoglaciation. *Climate of the Past*.

\*Lewis, G., **Osterberg, E.C.**, Hawley, R., Marshall, H. P., \*Meehan, T., Birkel, S., *in preparation*. Snow accumulation variability in the Western Greenland percolation zone from *in situ* ice core and radar data. *The Cryosphere*.

## AWARDED RESEARCH GRANTS

2016 Dartmouth Neukom CompX: *Expansion of Lyme Disease in the Northeast: Climate, Land Use and Ticks*. J. Winter Lead PI (Dartmouth), **E. Osterberg**, D. Wallace (Dartmouth), J. Chipman (Dartmouth), M. Ayres (Dartmouth).

2015 NSF Antarctic Glaciology: OPP-1443336. *Collaborative Research: SPICE Core Chronology and Climate Records using Chemical and Microparticle Measurements*. **E. Osterberg Lead PI**, J. Cole-Dai (PI, SDSU), K. Kreutz (PI, UMaine), M. Wells (Co-PI, UMaine).

- 2015 NSF Antarctic Glaciology: OPP-1443341. *Collaborative Research: Characteristics of Upstream Ice and Firn Dynamics Affecting the South Pole Ice Core (SPICE)*. M. Koutnik Lead PI (UW), H. Conway (Co-PI, UW), E. Waddington (Co-PI, UW), R. Hawley (PI, Dartmouth), **E. Osterberg** (Co-PI).
- 2014 NSF Arctic Natural Sciences: ARC-1417678. *Collaborative Research: GreenTrACS: a Greenland Traverse for Accumulation and Climate Studies*. **E. Osterberg Lead PI**, R. Hawley (Co-PI, Dartmouth), H. P. Marshall (PI, BSU), S. Birkel (PI, UMaine).
- 2014 NSF Arctic Natural Sciences: ARC-1417395. *Collaborative Research: Investigating geochemical signatures in Greenland ice of a possible extraterrestrial impact during the Younger Dryas climate event*. M. Sharma Lead PI (Dartmouth), **E. Osterberg (Co-PI)**, P. Mayewski (PI, UMaine), A. Kurbatov (Co-PI, UMaine).
- 2012 NSF Paleoclimate Program (P2C2): AGS-1204035. *P2C2: Collaborative Research: Reconstructing Central Alaskan Precipitation Variability and Atmospheric Circulation over the Past Millennium*. **E. Osterberg Lead PI**, C. Wake (PI, UNH), K. Kreutz (PI, UMaine), S. Birkel (Co-PI, UMaine).
- 2012 NSF Geography and Spatial Sciences: BCS-1232844. *Doctoral Dissertation Research: Reconstructing Atmospheric Mercury Deposition to Mt. Logan, Yukon Territory, Over the Holocene*. **E. Osterberg Lead PI**, S. Beal (graduate student Co-PI, Dartmouth).
- 2011 NSF Arctic Natural Sciences: ARC-1107411. *Collaborative Research: Response of the Northwest Greenland Cryosphere to Holocene Climate Change*. **E. Osterberg Lead PI**, M. Kelly (Co-PI, Dartmouth), Y. Axford (PI, Northwestern), S. Birkel (PI, UMaine).
- 2011 NSF Arctic Natural Sciences: ARC-1140098. *RAPID: Tracking Radioactive Fallout from the Fukushima Dai-ichi Disaster in Arctic Snow*. **E. Osterberg Lead PI**.
- 2009 NSF Arctic Natural Sciences: ARC-0909265 *Understanding the physical properties of Northern Greenland near-surface snow: A spatial variability study*. R. Hawley (Lead PI, Dartmouth), **E. Osterberg Senior Personnel**, Z. Courville (Senior Personnel, UNH/CRREL).
- 2006 NSF Arctic Natural Sciences, ARC-0714004. *Drillsite Reconnaissance and Snow Chemistry in Denali National Park*. C. Wake (Lead PI, UNH), K. Kreutz (PI, UMaine), **E. Osterberg Post-Doctoral Fellow**.
- 2006 NSF Arctic Natural Sciences, ARC-0612400. Wrote proposal to fund 2 years of additional analysis on the Mt. Logan ice core, P. Mayewski (Lead PI), **E. Osterberg Graduate Student**.

TEACHING EXPERIENCE

- 2011-2018     **EARS 2, *Evolution of Earth and Life***. An introductory course on the evolution of Earth's biosphere and geosphere, their processes and interactions.
- 2011, '13, '15, '17     **EARS 3, *Elementary Oceanography***. An introductory course surveying marine geology, chemistry, biology, and physical oceanography.
- 2010, '12, '14 '18     **EARS 14, *Meteorology***. An introductory course focused on understanding weather processes, weather forecasting, and weather analysis (lab).
- 2010           **EARS 18, *Environmental Geology***. An introductory course on Earth's terrestrial, hydrological, and atmospheric environments, and their human impacts (lab).
- 2009           **EARS/GEOG 33, *Earth's Surface Processes and Landforms***. An intermediate-level course exploring the processes that shape the Earth's landscape (lab).
- 2008, '10, '13, '14     **EARS 37, *Marine Geology***. An intermediate-level course investigating the geology, processes, and paleoarchives hidden beneath the world's oceans.
- 2008-2011, '17     **EARS 46, *STRETCH Field Methods***. A two-week glaciology and paleoclimatology undergraduate field course in Banff National Parks, co-taught with Bob Hawley.
- 2015, 2018     **EARS 78, *Climate Dynamics***. An advanced undergraduate and graduate course exploring the physics that govern the circulation of the atmosphere and ocean.
- 2009           **EARS 86, *Earth's Climate: Past, Present and Future***. An upper-level paleoclimatology course exploring climate change over the full range of timescales.
- 2018           **EARS 203, *Scientific Writing***. A graduate course to develop skills in writing scientific proposals and publications.

AWARDS AND HONORS

- 2018           C. Troy Shaver 1969 Fellow
- 2018           John M. Manley Huntington Award for Newly Tenured Faculty
- 2018           Dartmouth Arts and Sciences Graduate Faculty Mentoring Award
- 2017           Dartmouth Dean of Faculty Mentoring Award
- 2015           Dartmouth Class of 1962 Junior Faculty Fellow
- 2014           Selected by the Dean of Faculty to lead the First Lecture for the incoming class of 2018
- 2014           Invited by the graduating class of 2014 to present one of five "Last Lectures" during Senior Week (declined due to conflicting Greenland fieldwork)
- 2014           Nominated for the Dartmouth Arts and Sciences Graduate Faculty Mentor Award
- 2013           Named one of Dartmouth's "Top 10 Professors" by the graduating Class of 2013
- 2002           University of Maine Provost Graduate Fellowship
- 2000           Geological Society of New Zealand Student Research Award
- 1999           J. William Fulbright Graduate Fellowship for M.Sc. Studies in New Zealand
- 1999           Highest Honors from Middlebury Geology Department
- 1999           Hazeltine-Klevenow Memorial Award for combining athletic ability (swimming All-American) and excellence in scholarship at Middlebury College
- 1999           Charles Doll Award for best student presentation at Vermont Geological Society Meeting

**POSTDOCTORAL RESEARCHER MENTORING**

Bess Koffman                      Dartmouth Society of Fellows (9/15 to 8/17; now faculty at Colby College)

**GRADUATE STUDENT MENTORING**

ALL STUDENTS AT DARTMOUTH

**Active Students 2018-2019**

Gabe Lewis                      Ph.D. Advisor, graduation expected 6/19  
 Huanping Huang                Ph.D. Co-Advisor with Dr. Winter, graduation expected 6/20  
 Trevor Partridge                Ph.D. Co-Advisor with Dr. Winter, graduation expected 6/20  
 Katherine Anderson            M.Sc. Advisor, graduation expected 6/20

**Previous Students**

Dominic Winski                Ph.D. Advisor, graduated 6/18  
 Karina Graeter                M.Sc. Advisor, graduated 8/17  
 Gifford Wong                 Ph.D. Co-Advisor with Dr. Hawley, graduated 8/15  
 Sam Beal                        Ph.D. DDRI Grant advisor (Dr. Kelly primary Ph.D. advisor), graduated 5/14  
 Ashley Corbett                Ph.D. Co-Advisor with Dr. Kelly, transferred to UVM 9/13

**GRADUATE STUDENT COMMITTEE MEMBERSHIP**

STUDENTS AT DARTMOUTH UNLESS OTHERWISE INDICATED

**Active Graduate Students 2018-2019**

Margaret Jackson              Ph.D. Committee Member, graduation expected 6/19  
 Ji-Hye Seo                      Ph.D. Committee Member, graduation expected 6/20  
    M.Sc. Committee Member, graduated 8/15  
 Ian Lee                         M.Sc. Committee Member, graduation expected 8/18  
 Lina Taenzer                  M.Sc. Committee Member, graduation expected 6/19  
 Austin Lines                  Ph.D. Committee Member (Thayer), graduation expected 6/21  
 Josh Landis                    Ph.D. Committee Member, graduation expected 6/22

**Previous Graduate Students**

Thomas Overly                Ph.D. Committee Member, graduated 6/18  
 Carolyn Stwertka              Ph.D. Committee Member (Thayer), graduated 8/17  
 Lauren Farnsworth            M.Sc. Committee Member, graduated 6/16  
 Naixan Fan                    M.Sc. Committee Member, graduated 12/15  
 Andrea Tuohy                 Ph.D. External Examiner (U. Victoria, New Zealand), graduated 9/2015  
 Justin Stroup                 Ph.D. Committee Member, graduated 8/15  
 Sam Beal                      Ph.D. Committee Member, graduated 6/15  
 Seth Campbell                Ph.D. Committee Member (UMaine), graduated 5/14  
 Eric Kelsey                    Ph.D. Committee Member (UNH), graduated 5/14  
 Annie Putman                M.Sc. Committee Member, graduated 8/13  
 Matthew Bigl                 M.Sc. Committee Member, graduated 8/13  
 Margaret Baber                M.Sc. Committee Member, graduated 6/13  
 James Menking                M.Sc. Committee Member (C. Washington University), graduated 5/13  
 Kelly Landau                 M.Sc. Committee Member, graduated 6/12  
 Hannah Hallock                M.Sc. Committee Member, graduated 6/12  
 Dominic Winski                M.Sc. Committee Member (UMaine), graduated 6/11  
 Seth Campbell                M.Sc. Committee Member (UMaine), graduated 6/10  
 Matthew Siegfried            M.Sc. Committee Member, graduated 8/10  
 Benjamin Gross                M.Sc. Committee Member (UMaine), graduated 12/08



**UNDERGRADUATE STUDENT ADVISING**

ALL STUDENTS AT DARTMOUTH \* INDICATES PARTICIPATION ON FIELD EXPEDITION(S)

† INDICATES PRESENTATION(S) AT AMERICAN GEOPHYSICAL UNION FALL MEETING AS FIRST AUTHOR

**2018-2019 Undergraduate Student Advisees (Total Number of Terms Advised All Years):**

†*Eleanor Dowd	WISP Researcher, UGAR Researcher, Lab Research Assistant, Junior Scholar (7 terms), graduating 6/19
*Julianne DeAngelo	Presidential Scholar, UGAR Researcher, Lab Research Assistant (7 terms), graduating 6/19
*Victor Cabrera	UGAR Researcher, Lab Research Assistant (8 terms), graduating 6/19
*Kevin Gross	Lab Research Assistant, Stefansson Fellow, UGAR Researcher (5 terms), graduating 6/19
Isabel Boettcher	Sophomore Science Scholar (4 terms), graduating 6/20
Maxwell Bond	Sophomore Science Scholar (4 terms), graduating 6/20
Anna Whitney	Lab Research Assistant (3 terms), graduating 6/21
Matthew Magann	Lab Research Assistant (2 terms), graduating 6/21
Davis Brief	Lab Research Assistant (1 term), graduating 6/20

**Former Undergraduate Student Advisees (Total Number of Terms Advised):**

†Melissa Dunham	B.A. Senior Thesis, Lab Research Assistant (9 terms), graduated 6/18
†Catherine Granville	B.A. Senior Thesis, Lab Research Assistant (7 terms), graduating 6/19
†*Ursula Jongebloed	B.A. Senior Thesis, Presidential Scholar, Stefansson Fellow, Mentor for USGS research internship, (10 terms), graduated 6/18
†Mariana Webb	B.A. Senior Thesis co-advisor (w. Prof. Winter), Lab Research Assistant, Presidential Scholar (7 terms), graduated 6/18
*Zayta Thundercloud	Lab Research Assistant, UGAR and Stefansson Researcher, B.A. Senior project (10 terms) graduated 6/18
Emma Rieb	Lab Research Assistant (1 term), graduated 6/18
Julia Liu	Lab Research Assistant (6 terms), graduated 6/18
†*David Polashenski	B.A. Senior Thesis, Lab Research Assistant, UGAR and Stefansson Researcher, (10 terms) graduated 6/17
*Erin McConnell	B.A. Senior Thesis, Lab Research Assistant, UGAR and Stefansson Researcher, (7 terms), graduated 6/17
†*Patrick Saylor	B.A. Senior Thesis and Stamps Fellow, UGAR and Stefansson Researcher, (12 terms) graduated 6/17
Tyler Kelsall	Sophomore Science Scholar (2 terms), graduated 6/17
Bradley Garczynski	B.A. Senior Thesis (3 terms), graduated 6/16
Scott Whitmore	Lab Research Assistant (2 term), graduated 6/16
*Fredrik Eriksson	Stefansson Fellowship (1 term), graduated 6/16
Katherine Salamido	Lab Research Assistant (1 term), graduating 6/19
Charles Levy	Lab Research Assistant (1 term), graduating 6/19
Keshia Naurana Badalge	Lab Research Assistant (2 terms), graduated 6/16
Sarah Caughey	UGAR summer research and Sophomore Sci. Scholar (4 terms), graduated 6/15
Mark Baum	Lab research assistant, (1 term) graduated 6/15
*Samuel Streeter	B.A. Senior Thesis and ENGS 89/90 project (4 terms), graduated 6/14
Nikolas Ortman	ENGS 89/90 Project (Thayer), (2 terms) graduated 6/14
Alfredo Velasco	ENGS 89/90 Project (Thayer), (2 terms) graduated 6/14
Kristen Colwell	ENGS 89/90 Project (Thayer), (2 terms) graduated 6/14
†*Hazel Shapiro	B.A. Senior Thesis and UGAR, (4 terms) graduated 6/13
*John Thompson	B.A. Senior Thesis, Presidential Scholar and UGAR (6 terms), graduated 6/13

Aryeh Drager	B.A. Senior Project (2 terms), graduated 1/13
Elle Anderson	B.A. Senior Thesis (3 terms), graduated 6/11
<sup>+</sup> Amy Burzynski	B.A. Senior Thesis (3 terms), graduated 6/11
*Thomas Callahan	B.A. Senior Thesis (4 terms), graduated 6/10
Anna Lugosch-Ecker	B.A. Senior Thesis (3 terms), graduated 6/10
Joy Campbell	B.A. Senior Project (2 terms), graduated 6/10
Alexander Lee	B.A. Senior Project Co-Advisor (w/Hawley; 2 terms), graduated 6/10
*Tina Praprotnik	B.A. Senior Thesis (4 terms), graduated 6/09
*Dominic Winski	B.A. Senior Thesis Co-Advisor (w/Hawley; 3 terms), graduated 6/09
Sarah Stern	B.A. Senior Project (2 terms), graduated 6/08

### MENTORS AND ADVISERS

PhD: Paul Andrew Mayewski, University of Maine

MSc: Peter Koons, University of Otago (Now at the University of Maine)

BA: Patricia Manley and Thomas Manley, Middlebury College

### INVITED LECTURES

- Franklin Pierce College (April 2018), *Why are extreme storms increasing in the Northeast?*
- Colby College (April 2018), *Dramatic Increases in Regional Precipitation with Climate Change.*
- New Hampshire Association of Natural Resource Scientists (January 2018), *What is driving the extreme precipitation increase in the northeastern U.S.?*
- University of Vermont at Burlington (October 2017), *Ice core records of unprecedented winter storm activity in the North Pacific.*
- University of Maine at Orono (April 2014), *Recent climate change and cryospheric response in NW Greenland.* Invited keynote lecturer to the annual Harold Borns Symposium.
- State University of New York at Albany (January 2012), *The cryosphere's record of, and response to, climate change.*
- Dartmouth College (January 2012), *High latitude climate dynamics over seasonal to millennial timescales.*
- Iowa State University (September 2009), *Late Holocene record of climate variability and pollution: perspectives from a Mt. Logan ice core.*
- Amherst College (February 2009), *Ice core record of El Niño variability and lead pollution.*
- Institute of Geological and Nuclear Sciences, New Zealand (September, 2008), *Ice core record of trans-Pacific pollution and El Niño teleconnections.*
- Middlebury College (April 2008), *Ice core records of Asian metal pollution and dust in the North Pacific atmosphere.*
- Dartmouth College (April 2007), *Ice core record of trans-Pacific pollution and Holocene climate.*
- State University of New York at Albany (April 2006), *An ice core record of Holocene climate change, trans-Pacific dust flux, and anthropogenic pollution in the North Pacific.*
- Middlebury College (March 2002), *Late Quaternary evolution of the Otago continental shelf and submarine canyons.*

## FIELD RESEARCH EXPEDITIONS

- 2018 Collaborators and three undergraduate student mentees collected snow samples and meteorological data from Kahiltna Glacier in Denali National Park, AK.
- 2017 Led expedition to collect snow samples and meteorological data from Mt. Hunter in Denali National Park, AK, with three undergraduate students.
- 2017 Collaborators and two graduate student mentees collected ground-based radar and ice cores along a 1500 km snowmobile traverse of the western Greenland ice sheet.
- 2016 Led expedition to collect ground-based radar and ice cores along a 1000 km snowmobile traverse of the western Greenland ice sheet, with three graduate students.
- 2016 Postdoctoral fellow, graduate student, and four undergraduate student mentees collected snow samples and meteorological data on Kahiltna Glacier in Denali National Park, AK.
- 2016 Graduate student and undergraduate student mentees collected ice core samples from Eclipse Icefield, Yukon Territory, Canada with collaborators.
- 2015-16 Graduate student mentee assisted with drilling the South Pole Ice Core.
- 2015 Led expedition to collect shallow ice cores and meteorological data from Mt. Hunter in Denali National Park, AK, with two grad students and three undergraduate students.
- 2014 Led expedition to collect ice cores, ice geophysical data, and lake sediment cores from Thule, Greenland. Team included one undergraduate student.
- 2013 Co-Led expedition to collect two ice cores to bedrock from the summit plateau of Mt. Hunter in Denali National Park, AK, with four grad students and one undergraduate student.
- 2013 PhD student mentee collected lake sediment core and rock samples in Thule, Greenland.
- 2012 Co-Led expedition to collect ice core, ice geophysical data, lake sediment cores, and rock samples in Thule, Greenland. Team included two undergraduate and two graduate students.
- 2011 Led expedition to collect ice core and ice geophysical data on the Northwestern Greenland Ice Sheet with two graduate students and a post-doctoral fellow.
- 2011 Undergraduate mentee joined collaborators in Denali to collect snow samples of Fukushima radiation fallout.
- 2009 Co-led expedition to collect ice geophysical data on Athabasca Glacier, Alberta, Canada.
- 2009 Led expedition to Denali, AK with four students to sample snow and collect meteorology and ice geophysical data.
- 2008 Led expedition in Banff, Canada with three students to collect snow samples and ice geophysical data for undergraduate thesis projects.
- 2008 Co-led expedition to Denali, AK with three students to collect ice cores, meteorological and ice geophysical data.
- 2005 Ice core and meteorological data collection on Mt. Logan, Yukon, Canada.
- 2005 Ice core and glaciological data collection in the Cordillera Darwin, Chile.
- 2003 Ice core and glaciological data collection in the Dry Valleys, Antarctica.
- 2003 Ice core and meteorological data collection in the St. Elias Mountains, Canada.
- 2001 2 research cruises collecting seismic reflection data in Lake Tekapo, NZ.
- 2000 14 research cruises collecting marine geophysical data offshore New Zealand.

## SCIENCE OUTREACH AND PUBLIC EDUCATION

### **Public Outreach about Climate Change and Adaptation**

- Founding Member of the *Upper Valley Climate Adaptation Workgroup (UVAW)*, bringing together business, non-profit, public safety, academic and government interests to develop and implement strategies for climate change adaptation in NH and VT (2012-present). Activities include:

- Partnering Dartmouth students on projects that support UVAW through the **Dartmouth Center for Service** Social Impact Practicum program (January-March 2018).
- Presenter and co-organizer of a forum on Climate Change Impacts on Wildlife and Land Management (November 2017).
- Co-organizer of a public forum on community organization for climate change adaptation (April 2017).
- Co-organizer of a public forum on climate change adaptation strategies (October 2016).
- Presenter and co-organizer of a forum on Climate Change Health Impacts (March 2016).
- Presenter and co-organizer of a joint meeting of NH and VT Regional Planning Commissions to coordinate climate adaptation and mitigation strategies (January 2016).
- Presenter and co-organizer of a workshop on developing climate resilient businesses, attended by over 40 local business owners, in partnership with UVM (February 2015).
- Co-organizer of public forum on flooding impacts and adaptation (April 2014).
- Co-organizer of public forum on NH and VT climate change (September 2013).
- Invited speaker at the *March for Science* in Concord, NH (April 2017).
- Panelist for a discussion following a showing of the climate change documentary “Before the Flood” at the Dartmouth Hopkins Center (January 2017).
- Panelist at the *Upper Valley Science Pub* program coordinated by the Dartmouth College Office of Outreach (November, 2011).
- Presented numerous public lectures on climate change research in Talkeetna, AK (in partnership with the National Parks Service) and Thule, Greenland.

### **K-12 Outreach**

- Developing interactive STEM “Kits” based on our Denali ice core research with education professionals at Colorado State University for K-12 schools in Alaska and New England (2016-2017).
- Co-developed and co-presented an interactive glaciology and climate change display for the *USA Science and Engineering Festival*, in Washington, D.C. (October, 2010; April, 2014).
- Participated in a K-12 teacher workshop at the Montshire Museum of Science in Norwich, VT with the goal of improving weather and climate change curricula in local schools (October, 2012).
- Presented numerous talks to K-12 students about polar research and climate change at local Maine schools and community groups (2002-2007).

### **Continuing Education**

- ***Education Enrichment for Everyone of Vermont*** seminar, “The Melting Greenland Ice Sheet and Sea Level Rise” (February 2017).
- ***Education Enrichment for Everyone of Vermont*** seminar, “Climate Change in New England: What’s Happening and What Should We Expect?” (October 2015).
- ***Institute for Lifelong Education at Dartmouth*** seminar, “Hurricane Sandy: A Sign of Things to Come?” (February 2014).

### **Increasing Diversity in Science**

- Faculty presenter and facilitator at the NSF-funded “School of Ice” at Dartmouth for faculty at minority-serving institutions and historically black colleges and universities (June 2017; July 2018).
- Participated in a July 2012 workshop to develop strategies to increase the participation and retention of under-represented minority (URM) students (as defined by NSF) in the geosciences.

### **Dissemination of Research Results through Media**

- Mass media coverage/appearances in Scientific American (2), Washington Post (2), Washington Times, the Weather Channel, New Hampshire Public Radio (3), SiriusXM The Briefing, Alaska Public Radio, Minnesota Public Radio, KBYR Morning News with Glen Biegel, Huffington Post, Ars Technica, Alaska Dispatch (2), Concord Monitor, Valley News, and WCAX TV.
- Worked with Dartmouth media relations to develop a video about my Greenland research, “Finding Out How Fast Greenland Is Melting”. Video has been viewed >10,000 times on Facebook and Youtube.
- Blog about the Greenland traverse expedition has >33,000 page views.

### **SERVICE AT DARTMOUTH**

#### **Dartmouth Faculty Council Service**

- *Dartmouth Council on Off Campus Activities (COCA)*, 2018-present
- *Dartmouth Athletic Council*, 2013-2015.

#### **Dartmouth Faculty Search Committee Service**

- Earth Sciences faculty search committee member (2018-2019)
- Earth Sciences *Obering Postdoctoral Fellowship* search committee member (2016).
- Earth Sciences *Obering Postdoctoral Fellowship* search committee member (2013).

#### **Enriching the Dartmouth Community**

- *Shared Academic Experience* (First Lecture): Led the shared academic experience for the incoming class of 2018, including selecting a summer reading book and documentary and presenting a seminar on climate change to the entire first-year class (September 2014).
- *Dartmouth First-Year Group Advising*: Introducing first-year Dartmouth students to the curriculum, college practices, and expectations during Orientation (September 2013, 2014, 2015).
- *Dartmouth First-Year Trips*: Nominated by students to be a faculty speaker at the Moosilauke Lodge dinner concluding Trips (September 2015; declined in 2016 due to scheduling conflicts).
- *Dartmouth Living Learning Communities (LLC)*: Panelist for a STEM Collective LLC discussion on climate sustainability and policy (October 2017).
- *Dartmouth House Communities*: Faculty early participant in the East Wheelock House Community, including student-faculty lunch/dinner (April 2013, May 2015) and Founders Day events (February 2016).
- *Greek System Faculty Advisor*: Faculty co-advisor for the Zeta Psi fraternity with Prof. Robyn Millan (January 2015-May 2017).
- *Teach-in*: Facilitated student group discussions about campus culture and events during the April 2013 teach-in. Attended follow-up faculty discussions in subsequent weeks.
- *Parent and Family Welcome*: Faculty speaker to families of incoming first-year students with President Hanlon and Dean Ameer (September 2014).
- *Dartmouth Science Technology and Engineering Policy Society (STEPS)*: Presented a seminar on my climate change research and policy outreach activities (February 2017). Hosted Senator Shaheen’s policy advisor at my ice core laboratory (October 2017).

#### **Dartmouth Alumni and Parent Seminars**

- *Dartmouth Class Reunions*: Seminar to ’58 and ’63 alumni, “Stormy Waters: The Present and Future of Storms under Global Warming” (June 2018).

- **Dartmouth "Family Fellows" Weekend:** Seminar to Family Fellows, "Our Grandchildren's Coastline: The Future of Sea Level Rise from Climate Change" (February 2018).
- **Dartmouth Alumni Travel, "Women of Dartmouth":** Seminar to Iceland trip alumni, "The Impact of Climate Change on Iceland and Greenland Glaciers" (October 2017).
- **Dartmouth "Presidential Summit: A Call to Lead":** Alumni seminar, "Our Grandchildren's Coastline: The Future of Sea Level Rise from Climate Change" (September 2017).
- **Dartmouth Class of 1962:** Alumni presentation, "Climate Change and the Melting of Greenland" (October 2015).
- **Dartmouth "Dimensions":** Seminar to prospective families during admitted student days, "Rising Tides: Climate Change and Sea Level Rise in the 21<sup>st</sup> Century" (April 2015).
- **Dartmouth "Back to Class":** Alumni seminar during Homecoming, "What Frozen Things Do in Summer: Implications for Greenland, Antarctica and Future Sea Level" (October 2014).
- **"Dartmouth On Location":** Alumni seminar in Princeton, NJ, "Hurricane Sandy: A Sign of Things to Come?" (January 2014).

### **Dartmouth Center for the Advancement of Learning (DCAL)**

- **Presenter:** *Teaching Science Seminar:* "Co-teaching and mentoring introductory science courses" (November 2013).
- **Presenter:** *Learning Community for Future Faculty:* "Using information technology effectively in the classroom" (July 2014).
- **Presenter:** *Teaching with Information Technology (TWIT):* "Using LectureTools as a novel interactive classroom tool" (October 2013).

**Dartmouth Graduate School:** Presenter at a workshop to advise Dartmouth Graduate Students about applying for the NSF Graduate Research Fellowship with Prof. Francis Magilligan (October 2016, 2017).

**Dartmouth Conference Organizing Committee Service:** Physics and Chemistry of Ice Conference at Dartmouth College (March 2014).

**Field Trip Organizer:** Co-developed and co-led a *Friends of the Pleistocene* field trip (June 2010).

## PROFESSIONAL SERVICE

### **Professional Committee Service**

- **Science Advisory Board of the Ice Drilling Program Office:** Tasked with annually developing the Long Range Science Plan of U.S. ice drilling operations and technology development to NSF (2015-present).
- **Chair of the U.S. Ice Core Working Group:** Tasked with providing guidance to the Ice Drilling Program Office Science Advisory Board on ice core research priorities, sample access, distribution, inventory, and future directions in ice core research (Chairperson 2015-present; member 2014-2015).
- **U.S. Ice Core Sample Allocation Committee:** Tasked with the selective allocation of archive ice cores housed in the National Ice Core Laboratory in Denver, CO (2014 – present).

### **NSF Proposal Review Panel Service**

- Service on NSF panels in 2014 and 2016.

### Conference Session Convener

- 2018 *AGU Fall Meeting*: Co-convening session C22, “Ice core records of environmental change.”
- 2017 *AGU Fall Meeting*: Co-convened session PP34, “Past climate change in the Arctic and sub-Arctic: Lessons for the future.”
- 2015 *NEGSA Meeting*: Co-convened session, “Holocene Paleoclimate Perspectives on Present-day Arctic Change.”
- 2014 *AGU Fall Meeting*: Co-convened session PP13, “Holocene climate archives from across the Arctic: Detailed paleoclimate perspectives on present-day polar change.”
- 2011 *AGU Fall Meeting*: Co-convened session PP24, “Pleistocene-Holocene Climate Variability in the North Pacific Realm.”
- 2009 *AGU Fall Meeting*: Co-convened session PP24, “Paleoclimate Records of North Pacific Climate Variability: Ocean-Atmosphere Interactions.”
- 2008 *AGU Fall Meeting*: Co-convened session PP19, “Paleoproxy-Model Comparison of ENSO-NAO-AAO Dynamics and Forcing over the Last 2000 Years.” Session merged with PP04 to increase oral session slots.

**Manuscript Review:** Regularly review manuscripts for publication in journal including *Nature Scientific Reports*, *Proceedings of the National Academy of the Sciences*, *Geophysical Research Letters*, *Earth and Planetary Science Letters*, *The Cryosphere*, *Quaternary Science Reviews*, *Atmospheric Environment*, *Environmental Science and Technology*, *Journal of Geophysical Research*, *Chimica Acta*, *Journal of Glaciology*, *Chemical Geology*, and *Annals of Glaciology*.

**Proposal Review:** Reviewed proposals for NSF Paleo Perspectives on Climate Change Program, NSF Major Research Instrumentation, NSF Behavioral and Cognitive Studies Program, NSF Arctic Natural Sciences Program, NSF Arctic Observing Network Program, NSF Antarctic Glaciology Program, NSF Chemical Oceanography Program, and Government of Canada International Polar Year.

### CONFERENCE ABSTRACTS AND OTHER PUBLICATIONS

\* GRADUATE STUDENT \*\* UNDERGRADUATE STUDENT

#### 2018:

**Osterberg, E.C.**, \*\*Jongebloed, U.A., Winski, D., Ferris, D.G., Handley, M., Kreutz, K.J., Wake, C.P., Birkel, S., Thundercloud, Z.R., 2018. The North Pacific ice core record of atmospheric pollution. Abstract submitted for presentation at the AGU Fall Meeting (Washington, D.C.).

\*\*DeAngelo, J., **Osterberg, E.C.**, Lewis, G., Ferris, D.G., Hawley, R.L., Marshall, H.-P., Birkel, S., Graeter, K., 2018. Surface melt changes and climate forcing in the Western Greenland percolation zone. Abstract submitted for presentation at the AGU Fall Meeting (Washington, D.C.).

\*Lewis, G., **Osterberg, E.C.**, Hawley, R.L., Marshall, H.-P., Birkel, S., Dibb, J.E., Koffman, B., Ferris, D.G., Tedesco, M., 2018. Effects of mineral dust and black carbon on albedo in the Western Greenland Ice Sheet percolation zone. Abstract submitted for presentation at the AGU Fall Meeting (Washington, D.C.).

\*Partridge, T., Winter, J., **Osterberg, E.C.**, Hyndman, D.W., Basso, B., Kendall, A., 2018. The impacts of the U.S. warming hole on agricultural yields. Abstract submitted for presentation at the AGU Fall Meeting (Washington, D.C.).

\*Chesler, A., Koffman, B., Kreutz, K.J., **Osterberg, E.C.**, Winski, D., Ferris, D.G., Cole-Dai, J., Wells, M., 2018. Holocene fractional trace element concentrations from the South Pole ice core (SPICEcore). Abstract submitted for presentation at the AGU Fall Meeting (Washington, D.C.).

Kreutz, K., Winski, D., **Osterberg, E.C.**, Introne, D., Campbell, S., Wake, C., Ferris, D.G., 2018. The possible influence of shifting North Pacific moisture source on the Mt. Hunter (Alaska) ice core deuterium excess record of the past millennium. Abstract submitted for presentation at the AGU Fall Meeting (Washington, D.C.).

Overly, T.B., Hawley, R.L., **Osterberg, E.C.**, Medley, B., Studinger, M., Meehan, T., Kerby, J., Lewis, G., Marshall, H.-P., McCarthy, F., 2018. Greenland Ice Sheet surface roughness from kite aerial photography and structure-from-motion photogrammetry. Abstract submitted for presentation at the AGU Fall Meeting (Washington, D.C.).

## **2017:**

**Osterberg, E.C.**, \*Graeter, K., Hawley, R., Marshall, H.P., Ferris, D., \*Lewis, G., Birkel, S., \*Meehan, T., McCarthy, F., 2017. Recent rise in West Greenland surface melt and firn density driven by North Atlantic SSTs and Blocking Events. Abstract C24C-08 presented at the AGU Fall Meeting (New Orleans, LA).

\*\*Dunham, M., **Osterberg, E.C.**, Kehrwald, N., Kennedy, J., Ferris, D., 2017. Levoglucosan levels in Alaskan ice cores as a record of past wildfires. Abstract PP31A-1254 presented at the AGU Fall Meeting (New Orleans, LA).

\*\*Granville, C.G., **Osterberg, E.C.**, \*Winski, D., Kreutz, K.J., Wake, C.P., Campbell, S.W., and Ferris, D., 2017. Synoptic conditions and tropical forcing of summer melt events at the Denali Ice Core drill site. Abstract GC53E-945 presented at the AGU Fall Meeting (New Orleans, LA).

\*\*Jongebloed, U., **Osterberg, E.C.**, Kreutz, K., Ferris, D., Campbell, S., \*\*Saylor, P., \*Winski, D., Handley, M., 2017. Elevational and spatial gradients of atmospheric metal pollution in the North Pacific. Abstract A11K-2029 presented at the AGU Fall Meeting (New Orleans, LA).

\*Lewis, G., **Osterberg, E.C.**, Hawley, R., Marshall, H.P., Birkel, S., Meehan, T., \*Graeter, K., \*Overly, T., McCarthy, F., 2017. Spatial variability of accumulation across the Western Greenland Ice Sheet percolation zone from ground-penetrating-radar and shallow firn cores. Abstract C53B-1038 presented at the AGU Fall Meeting (New Orleans, LA).

\*\*Polashenski, D., **Osterberg, E.C.**, \*Winski, D., Kreutz, K., Wake, C., Ferris, D., Introne, D., Campbell, S., 2017. Denali ice core MSA: A record of North Pacific primary productivity. Abstract PP31A-1267 presented at the AGU Fall Meeting (New Orleans, LA).

\*Winski, D., **Osterberg, E.C.**, Kreutz, K.J., Wake, C., Ferris, D., Campbell, S., \*\*Baum, M., Raudzens Bailey, A., Birkel, S., Introne, D., Handley, M., 2017. A 400-year ice core melt layer record of summertime warming in the Alaska Range. Abstract PP23E-03 presented at the AGU Fall Meeting (New Orleans, LA).

\*\*Dowd, E., Koffman, B., **Osterberg, E.C.**, Ferris, D., Hartman, L., Wheatley, S., Kurbatov, A., Wong, G., Markle, B., Dunbar, N., Kreutz, K., Yates, M., 2017. Rapid transport of ash and sulfate from the 2011 Puyehue-Cordon Caulle (Chile) eruption to West Antarctica. Abstract V13-396 presented at the AGU Fall Meeting (New Orleans, LA).

\*Huang, H., Winter, J., **Osterberg, E.C.**, 2017. Mechanisms of the extreme precipitation jump in the northeastern United States after 1996. Abstract A41C-2291 presented at the AGU Fall Meeting (New Orleans, LA).

\*Partridge, T., Winter, J., **Osterberg, E.C.**, Magilligan, F., Hyndman, D., Kendall, A., 2017. Characterizing the seasonality and spatiotemporal evolution of the U.S. warming hole. Abstract GC41A-998 presented at the AGU Fall Meeting (New Orleans, LA).

\*Chelser, A., Koffman, B., Kreutz, K., **Osterberg, E.C.**, \*Winski, D., Ferris, D., Cole-Dai, J., Wells, M., Handley, M., 2017. Annually resolved Holocene record of dust deposition and size distribution from the South Pole. Abstract PP21C-1279 presented at the AGU Fall Meeting (New Orleans, LA).



Kreutz, K., Campbell, S., \*Winski, D., **Osterberg, E.C.**, Kochtitzky, W., Copland, L., Dixon, D., Introne, D., Medrzycka, D., Main, B., Bernsen, S., Wake, C., 2017. Sub-annual North Pacific hydroclimate variability since 1450AD from updated St. Elias ice core isotope and accumulation rate records. Abstract PP31A-1265 presented at the AGU Fall Meeting (New Orleans, LA).

\*Meehan, T., Marshall, H.P., Bradford, J., Hawley, R., **Osterberg, E.C.**, McCarthy, F., \*Lewis, G., \*Graeter, K., 2017. Continuous estimates of surface density and annual snow accumulation with multi-channel snow-firn penetrating radar in the percolation zone, western Greenland Ice Sheet. Abstract C53B-1037 presented at the AGU Fall Meeting (New Orleans, LA).

**Osterberg, E.C.**, Hawley, R., \*Graeter, K., \*Lewis, G., Marshall, H.P., Meehan, T., Birkel, S., and McCarthy, F., 2017. GreenTrACS *In Situ* Surface Mass Balance Measurements from the Western Greenland Percolation Zone. Presented at the NSF Workshop: "How Stable is the Greenland Ice Sheet?" (Buffalo, NY).

\*Winski, D., **Osterberg, E.C.**, Kreutz, K., Cole-Dai, J., Ferris, D., Fudge, T.J., Fegyveresi, Koffman, B., 2017. Establishing the annually-resolved timescale in the South Pole ice core using ion and particle data. Presented at the South Pole Ice Core Science Meeting (Seattle, WA).

\*\*Saylor, P., **Osterberg, E.C.**, Koffman, B.G., Mahowald, N.M., Winski, D., Ferris, D.G., Kreutz, K.J., Wake, C.P., Handley, M., and Campbell, S.W., 2017. 1500-Year record of trans-Pacific dust transport from the Denali ice core, Mt. Hunter, Alaska. Presented at the International Conference on High Latitude and Cold Climate Dust (Reykjavik, Iceland).

## **2016:**

**Osterberg, E.C.**, Winski, D., Kreutz, K., Wake, C., Ferris, D., Campbell, S., 2016. An ice core perspective on Aleutian Low variability over the Common Era. Abstract PP52A-04 presented at the AGU Fall Meeting (San Francisco, CA).

\*\*McConnell, E., **Osterberg, E.C.**, Winski, D., Kreutz, K., Wake, C., Campbell, S., Ferris, D., Birkel, S., 2016. Evaluating Precipitation Elevation Gradients in the Alaska Range using Ice Core and Alpine Weather Station Records. Abstract A11N-203 presented at the AGU Fall Meeting (San Francisco, CA).

\*\*Saylor, P., **Osterberg, E.C.**, Koffman, B., Winski, D., Ferris, D., Kreutz, K., Wake, C., Handley, M., Campbell, S., 2016. 1500-year Record of trans-Pacific Dust Flux collected from the Denali Ice Core, Mt. Hunter, Alaska. Abstract A33G-324 presented at the AGU Fall Meeting (San Francisco, CA).

\*\*Polashenski, D., **Osterberg, E.C.**, Kreutz, K., Winski, D., Wake, C., Ferris, D., Introne, D., Campbell, S., 2016. Denali Ice Core Record of North Pacific Sea Surface Temperatures and Marine Primary Productivity. Abstract PP54A-05 presented at the AGU Fall Meeting (San Francisco, CA).

\*\*Dowd, E., Koffman, B., Ferris, D., **Osterberg, E.C.**, Wong, G., Kreutz, K., 2016. Evidence of the 2011 Puyehue-Cordon Caulle eruption in West Antarctica. Abstract V11A-2759 presented at the AGU Fall Meeting (San Francisco, CA).

\*Graeter, K., **Osterberg, E.C.**, Hawley, R., Thundercloud, Z., Marshall, H.P., Ferris, D., Lewis, G., 2016. Surface melt and firn density evolution in the Western Greenland percolation zone over the past 50 years. Abstract C41E-719 presented at the AGU Fall Meeting (San Francisco, CA).

\*Lewis, G., **Osterberg, E.C.**, Hawley, R., Koffman, B., Marshall, H.P., Birkel, S., Dibb, J., 2016. Albedo spatial variability and causes on the western Greenland ice sheet percolation zone. Abstract C41E-717 presented at the AGU Fall Meeting (San Francisco, CA).

\*Winski, D., **Osterberg, E.C.**, Ferris, D., Fudge, T.J., Fegyveresi, J., Cole-Dai, J., Kreutz, K., Koffman, B., 2016. A 5,000 year snow accumulation record from the South Pole ice core. Abstract PP51A-2284 presented at the AGU Fall Meeting (San Francisco, CA).

\*Meehan, T., **Osterberg, E.C.**, Lewis, G., Overly, T., Hawley, R., Bradford, J., Marshall, H.P., 2016. Multi-channel ice penetrating radar traverse for estimates of firn density in the percolation zone, Western Greenland ice sheet. Abstract C53A-693 presented at the AGU Fall Meeting (San Francisco, CA).

Kreutz, K., **Osterberg, E.C.**, Winski, D., Wake, C., Campbell, S., Introne, D., Ferris, D., 2016. Trends in North Pacific Ocean-Atmosphere Variability During the Common Era Inferred From a New Mt. Hunter (Denali, Alaska) 1200-Year Ice Core Stable Isotope Record. Abstract PP53D-02 presented at the AGU Fall Meeting (San Francisco, CA).

\*Huang, H., Winter, J., **Osterberg, E.C.**, Horton, R.M., Beckage, B., 2016. Total and extreme precipitation changes over the Northeastern United States. Abstract GC11B-1127 presented at the AGU Fall Meeting (San Francisco, CA).

\*Kopeck, B., Feng, X., **Osterberg, E.C.**, Posmentier, E., 2016. Slopes of seasonal and annual  $\delta D$ - $\delta^{18}O$  lines of precipitation and ice cores and their climatological significance. Abstract PP31D-2305 presented at the AGU Fall Meeting (San Francisco, CA).

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