

# Alice M. Doughty, Ph.D.

Department of Geology, Bates College

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## ACADEMIC APPOINTMENTS

2017-Present. Visiting Assistant Professor of Geology, Bates College, Lewiston, ME

2018-Present. Research Associate, Dartmouth College, Hanover, NH

2014-2017. Neukom Postdoctoral Fellow, Dartmouth College, Hanover, NH

2013-2014. Visiting Assistant Professor of Geology, Bates College, Lewiston, ME

## EDUCATION

Ph.D. **Victoria University of Wellington**, New Zealand, Physical Geography, 2013

M.Sc. **University of Maine**, Earth Sciences, 2008

B.Sc. **University of Maine**, Earth Sciences, 2006

## GRANTS

2018-2020. National Science Foundation (NSF), Paleo-Perspectives on Climate Change (P2C2): *Collaborative Research: Assessing the response of tropical temperature to global forcings since the Last Glacial Maximum*. \$376,997. I serve as Co-PI with Lead PI Meredith Kelly of Dartmouth College and PI James Russell of Brown University.

2018. Bates Faculty Development Fund, Schmutz Fund for Research. \$637.18. Funds helped cover travel for my invited GSA conference presentation in Seattle, WA.

2018. Science Fellows program, Bates College. \$588 + \$3,520 student wages. STEM projects with first generation undergraduates, Alondra Guzman modeled glaciers in Colombia.

2018. Sherman-Fairchild Foundation, Bates College. \$4,435.59. For student research in STEM. Deandra Hyman modeled glaciers in Uganda.

2017. National Institute of Water and Atmospheric Research (NIWA) of New Zealand. \$5,000. For travel to Hawea, New Zealand to digitize and catalog over 1000 historical (1960-2000) photographic slides of New Zealand glaciers for the Chinn Archive online database.

2015. Undergraduate Advising and Research Grant: John Lindsley Fund, Dartmouth College. \$4,300. Funds for David Cavagnaro's travel to Uganda for field work.

2014. Neukom Postdoctoral Fellowship Research Funding, Dartmouth College. \$8,000. For computer modeling supplies and fieldwork in Uganda.

2014. Neukom Scholar, Dartmouth College. \$1,000. Funds for undergraduate research assistant in computation-driven science. David Cavagnaro modeled precipitation transport in Uganda.

2012. Victoria Faculty Strategic Research Grant at Victoria University of Wellington in New Zealand. NZD\$3,000. For New Zealand fieldwork and international conference travel.

2012. Victoria University of Wellington Ph.D. Submission Scholarship. NZD\$6,250. For a three-month stipend.

2012. S.T. Lee travel exchange grant, Victoria University of Wellington. Included travel, lodging, and food costs for three weeks at the University of Alaska at Fairbanks Department of Geosciences.

## FELLOWSHIPS

2014-2017. Neukom Postdoctoral Fellowship provided by the Neukom Institute at Dartmouth College, \$180,000.

2009-2012. New Zealand International Doctoral Research Scholarship provided by the New Zealand Government, NZD\$75,000.

2006-2008. Comer Science and Education Foundation Fellowship through the University of Maine.

## PEER-REVIEWED PUBLICATIONS

### Manuscripts In Review

Anderson, B., Mackintosh, A.N., Oerlemans, J., Zammit, C., Sood, A., Mullan, B., **Doughty, A.**, Dadic, R. (in review) Modeled response of debris-covered and lake-calving glaciers to warming, Ka Tiritiri o Te Moana/Southern Alps, New Zealand. *Earth and Planetary Science Letters*.

**Doughty, A.M.**, Kelly, M.A., Russell, J.M., Jackson, M.S., Anderson, B.M., Chipman, J., Nakileza, B. (in review) Elevation-dependent cooling drove glacial advances during the last glacial maximum in tropical East Africa. *Proceedings of the National Academy of Sciences*.

**Doughty, A.M.**, Kaplan, M.R., Peltier, C., Barker, S. (invited) Marine Isotope Stage 4 moraine chronologies. *Quaternary Science Reviews*.

Jackson, M.S., Kelly, M.A., Russell, J.M., **Doughty, A.M.**, Howley, J.A., Chipman, J., Cavagnaro, D.A., Baber, M.B., Zimmerman, S.H., Nakileza, R. (in review) Glacier fluctuations in tropical Africa during the last glacial termination and implications for tropical climate following the Last Glacial Maximum. *Quaternary Science Reviews*.

Vickers, A.C., Shakun, J.D., Goehring, B.M., Kelly, M.A., Jackson, M.S., Gorin, A., **Doughty, A.M.**, Russell, J.M. (in review) Similar Holocene glaciation histories in tropical South America and Africa. *Geology*.

### Publications

**Doughty, A.M.**, Kelly, M.A., Russell, J.M., Jackson, M.S., Anderson, B.M., Chipman, J., Nakileza, B., Dee, S.G. (in press) The dynamics of Equilibrium Line Altitudes over the past 31,000 years in the Rwenzori Mountains, East Africa. *GSA Special Paper on Quaternary Science in honor of Prof. Stephen C. Porter*.

Jackson, M.S., Kelly, M.A., Russell, J.M., **Doughty, A.M.**, Howley, J.A., Chipman, J.W., Cavagnaro, D., Nakileza, R., Zimmerman, S.H. (in press) Synchronous low- and high-latitude warming at the onset of the last deglaciation. *Science Advances*.

Eaves, S.R., Winckler, G., Mackintosh, A.N., Schaefer, J.M., Townsend, D.B., **Doughty, A.M.**, Jones, R.S., Leonard, G.S. (2019) Late-glacial and Holocene glacier fluctuations in North Island, New Zealand. *Quaternary Science Reviews* 223, 105914.

Malone, A.G.O., **Doughty, A.M.**, MacAyeal, D.R. (2019) Interannual climate variability helps define the mean state of glaciers. *Journal of Glaciology* 65, 508-517.

- Doughty, A.M.**, Mackintosh, A.N., Anderson, B.M., Dadic, R., Putnam, A.E., Barrell, D.J.A., Denton, G.H., Chinn, T.J.H., Schaefer, J.M. (2017) An exercise in glacier length modeling: Interannual climatic variability alone cannot explain Holocene glacier fluctuations in New Zealand. *Earth and Planetary Science Letters* 470, 48-53.
- Eaves, S.R., Mackintosh, A.N., Anderson, B.M., **Doughty, A.M.**, Townsend, D.B., Conway, C. E., Winckler, G., Schaefer, J. M., Leonard, G. S., Calvert, A.T. (2016) The Last Glacial Maximum in central North Island, New Zealand: palaeoclimate inferences from glacier modelling. *Climate of the Past Discussions*, doi:10.5194/cp-2016-1.
- Doughty, A.M.**, Schaefer, J.M., Putnam, A.E., Denton, G.H., Kaplan, M.R., Barrell, D.J.A., Andersen, B.G., Kelley, S.E., Finkel, R.C., Schwartz, R. (2015) Mismatch of glacier extent and summer insolation in Southern Hemisphere mid-latitudes. *Geology* 43, 407-410.
- Schaefer, J.M., Putnam, A.E., Denton, G.H., Kaplan, M.R., Birkel, S., **Doughty, A.M.**, Kelley, S.E., Barrell, D.J.A., Finkel, R.C., Winckler, G., Anderson, R.F., Ninneman, U.S., Barker, S., Schwartz, R., Andersen, B.G., Schluechter, C. (2015) The Southern Glacial Maximum 65,000 years ago and its Unfinished Termination. *Quaternary Science Reviews* 114, 52-60.
- Kelley, S.E., Kaplan, M.R., Schaefer, J.M., Andersen, B.G., Barrell, D.J.A., Putnam, A.E., Denton, G.H., Schwartz, R., Finkel, R.C., **Doughty, A.M.** (2014) High-precision <sup>10</sup>Be chronology of moraines in the Southern Alps indicates synchronous cooling in Antarctica and New Zealand 42,000 years ago. *Earth and Planetary Science Letters* 405, 194-206.
- Doughty, A.M.**, Anderson, B.M., Mackintosh, A.N., Kaplan, M.R., Vandergoes, M.J., Barrell, D.J.A., Denton, G.H., Schaefer, J.M., Chinn, T.J.H., Putnam, A.E. (2013) Evaluation of Lateglacial temperatures in the Southern Alps of New Zealand based on glacier modelling at Irishman Stream, Ben Ohau Range. *Quaternary Science Reviews* 74, 160-169.
- Kaplan, M.R., Schaefer, J.M., Denton, G.H., **Doughty, A.M.**, Barrell, D.J.A., Chinn, T.J.H., Putnam, A.E., Andersen, B.G., Mackintosh, A., Finkel, R.C., Schwartz, R. and Anderson, B. (2013) The anatomy of long-term warming since 15 ka in New Zealand based on net glacier snowline rise. *Geology* 41, 887-890.
- Putnam, A.E., Schaefer, J.M., Denton, G.H., Barrell, D.J.A., Birkel, S.D., Andersen, B.G., Kaplan, M.R., Finkel, R.C., Schwartz, R., **Doughty, A.M.** (2013) The Last Glacial Maximum at 44°S documented by a <sup>10</sup>Be moraine chronology at Lake Ohau, Southern Alps of New Zealand. *Quaternary Science Reviews* 62, 114-141.
- Golledge, N.R., Mackintosh, A.N. Anderson, B.M., Buckley, K.M., **Doughty, A.M.**, Barrell, D.J.A., Denton, G.H., Vandergoes, M.J., Andersen, B.G., Schaefer, J.M. (2012) Last Glacial Maximum climate in New Zealand inferred from a modelled Southern Alps icefield. *Quaternary Science Reviews* 46, 30-45.
- Putnam, A.E., Schaefer, J.M., Denton, G.H., Barrell, D.J.A., Finkel, R.C., Anderson, B.G., Schwartz, R., Chinn, T.J.H., **Doughty, A.M.** (2012) Regional climate control of glaciers in New Zealand and Europe during the pre-industrial Holocene. *Nature Geoscience* 5, 627-630.
- Kaplan, M.R., Schaefer, J.M., Denton, G.H., Barrell, D.J.A., Chinn, T.J.H., Putnam, A.E., Andersen, B.G., Finkel, R.C., Schwartz, R., **Doughty, A.M.** (2010) Glacier retreat in New Zealand during the Younger Dryas stadial. *Nature* 467, 194-197.
- Putnam, A.E., Denton, G.H., Schaefer, J.M., Barrell, D.J.A., Andersen, B.G., Finkel, R.C., Schwartz, R., **Doughty, A.M.**, Kaplan, M.R., Schluechter, C. (2010) Glacier advance in

southern middle-latitudes during the Antarctic Cold Reversal. *Nature Geoscience* 3, 700-704.

### **Field Guides**

**Conference Field Guide** for New England Intercollegiate Geological Conference (NEIGC). 'Grafton Notch State Park: Glacial gorges and streams under pressure in the Mahoosic Range, Maine', 2017.

**Conference Field Guide** for IGS symposium post-conference field excursion with Heather Purdie to Mt. Cook National Park, New Zealand, 2017.

### **TEACHING**

#### **Bates College**

2018, 2019. Instructor - **GEO 103**: Earth Surface Processes and Environmental Change.

Taught two class sections and three lab sections and managed six undergraduate teaching assistants, 2019. Taught lab and managed two undergraduate teaching assistants, 2018.

2018. Instructor - **GEO 210**: Sedimentary Processes and Environments. Taught class and field-intensive methods lab.

2018, 2019. Designer and Instructor - **GEO s20**: Lost Beaches of Maine. Taught class, GIS lab, and multiple overnight fieldtrips.

2013, 2017. Instructor - **GEO 104**: Plate Tectonics and Tectonic Hazards. Taught class and two lab sections and managed two undergraduate teaching assistants, 2013. Taught two class sections and two lab sections and managed four undergraduate teaching assistants, 2017.

2014. Instructor - **ES/GE 217**: Introduction to GIS. Taught combined class and lab and managed one undergraduate teaching assistant.

#### **Dartmouth College**

2017. Designer and Instructor - **EARS 67/167**: Environmental Geomechanics: Introduction to MATLAB with Earth Science applications. Included both undergraduate and graduate students.

2015, 2016. Instructor - **EARS 15**: Earth's Climate: Past, Present, and Future. Taught class and lab with one graduate teaching assistant.

#### **Victoria University of Wellington**

2009, 2010, 2011. Teaching assistant - **ESCI 132**: Antarctica: Unfreezing the Continent.

2010, 2011. Teaching assistant - **GEOG 220**: Hydrology and Climate.

2009, 2010, 2011. Part-time teaching assistant - **ESCI 301**: Global Change: Earth Processes and History.

2010. Field course teaching assistant - **ESCI 409**: VUW week-long Field Techniques on Mt. Ruapehu, New Zealand.

2010. Field course logistics support - **ESCI 241**: VUW week-long Geology field camp in Onekaka, New Zealand.

2009, 2010. Teaching assistant - **ESCI 201**: Climate Change and New Zealand's Future.

#### **University of Maine**

2008. Instructor - **ERS 101**: Introduction to Earth Sciences. Taught class and lab in this evening course catered to the continuing education community.

## **ADVISING AND MENTORING**

### **Committee Member**

2014-2019. Margaret Jackson, *Glacial History of the Rwenzori Mountains, Uganda*. Dartmouth College, PhD.

2018. Mariah Radue, *Glacial History of the Tsagaan Gol- Potanin Glacier Valley, Altai Mountains, Mongolia*. University of Maine, MSc.

### **Undergraduate Research Advisor**

2018. Alondra Guzman, Bates B.A. class of '21, modeled glacier extents for Colombian glaciers with funding from the Bates College Science Fellows program.

2018. Deandra Hyman, Bates B.A. class of '21, modeled glacier extents for Ugandan glaciers with funding from the Bates College Sherman Fairchild Fund.

2016. David Cavagnaro, Dartmouth B.A. class of '17, traveled to Uganda where he collected rock samples for his senior thesis with funding from the Dartmouth John Lindsley Fund.

2015. David Cavagnaro, Dartmouth B.A. class of '17, compiled and analyzed precipitation data for Uganda and the Rwenzori Mountains with funding from the Neukom Scholars Program.

2015. Catherine Granville, Dartmouth B.A. class of '17, compiled and digitized Ugandan precipitation data with funding from the Comer Science and Education Foundation.

## **ACADEMIC SERVICE**

### **Departmental Service**

2019. Search Committee Member for the Assistant in Instruction position and the Visiting Assistant Professorship in Geology at Bates College.

2019. Co-author for the Bates College Geology Department self review.

2018. Organizer for Bates College Geology Department GeoLunch Speaker Series.

2009-2011. Graduate student representative for the Geography Department at Victoria University of Wellington.

### **Institutional Service**

2018. Co-chair (co-designer and co-organizer) for the Bates College climate activism workshop series with Raj Saha (Physics and Geology) and Francis Eanes (Environmental Studies).

2017. Co-organizer for a Bates College workshop "Achieving Excellence in STEM as a Student of Color" with Dean Jessica Perez.

2015-2016. Career Development Program Coordinator for the Dartmouth College Post-doctoral Association.

2009-2012. Graduate student representative for the Snow and Ice Research Group (New Zealand branch of the International Glaciological Society).

2011. Chair of the Organizing Committee for the national Snow and Ice Research Group annual meeting at Fox Glacier, New Zealand hosted by Victoria University of Wellington.

## Scientific Community Service

### Panel Organizer

2019. **Doughty, A.**, Peltier, C. 'The Big MIS 4: Records of worldwide Marine Isotope Stage 4 glacial, climatic, and environmental changes' International Quaternary Association, Dublin, Ireland.
2016. **Doughty, A.**, Jackson, M. 'Tropical climate and paleoclimate' Northeast Geologic Society of America, Albany, NY.
2015. **Doughty, A.**, Jackson, M., Kelly, M. 'New perspectives on paleoclimate from advances in glacial geology' Northeast Geologic Society of America, Bretton Woods, NH.

### Reviewer

- Ongoing. Peer reviewer for journal articles in: *Nature*; *Earth and Planetary Science Letters*; *Geology*; *Quaternary Science Reviews*; *Quaternary Research*; *The Holocene*; *Journal of Quaternary Science*; *GSA Bulletin*; *Palaeogeography*, *Palaeoclimatology*, *Palaeoecology*; *Boreas*.
- 2015, 2016, 2019. National Science Foundation proposals.
2018. Chilean National Science and Technology Commission proposal (CONICYT - Chile).

## INVITED TALKS

2018. **University of Maine**, Orono, ME, Paleoclimate Research Group Seminar: 'Steeper tropical lapse rates during the LGM'.
2016. **Cold Regions Research and Engineering Laboratory (CRREL)**, Hanover, NH: 'Inferring LGM climate in equatorial East Africa using glacier models'.
2016. **University of Massachusetts**, Amherst, MA, Geosciences Guest Lecture Series: 'Modeling East African tropical glaciers during the Last Glacial Maximum'.
2016. **University of Glasgow**, Glasgow, Scotland, Earth Systems Research Group Seminar: 'Inferring past climate in equatorial East Africa using glacier models'.
2016. **Maine Lakes Science Center**, Bridgton, ME: 'Maine lakes and the underlying glacial geology'.
2016. **Bates College**, Lewiston, ME, Geolunch Speaker Series: 'Ice age glaciers in Uganda'.
2016. **North Dakota State University**, Fargo, ND: 'Reconstructing Last Glacial Maximum glaciers in the Rwenzori Mountains, Uganda'.
2016. **Harvard University**, Cambridge, MA, Earth & Planetary Sciences BiSEPPS Speaker: 'Reconstructing LGM glaciers in the Rwenzori Mountains, Uganda'.
2014. **Dartmouth College**, Hanover, NH, Thayer School of Engineering Ice and Climate Group: 'The strange and illusive glaciers of Uganda'.
2013. **College of the Atlantic**, Bar Harbor, ME: 'Exploding rocks, avoiding avalanches and postdicting climate change'.

## CONFERENCE ABSTRACTS (\*indicates student advisee)

- Doughty, A.M.**, Kelly, M.A., Russell, J.M., Jackson, M.S., Anderson, B.M., Chipman, J., Nakileza, B., Dee, S.G. (2019) 'Modeling glacier extents in the Rwenzori Mountains of Uganda over the past 31,000 years'. Comer Climate Conference, Comer Farm, WI. (Oral)
- Doughty, A.M.**, Kelly, M.A., Russell, J.M., Jackson, M.S., Anderson, B.M., Chipman, J.,

- Nakileza, B., Dee, S.G. (2019) 'Modeling glacier extents in the Rwenzori Mountains of Uganda over the past 31,000 years'. International Quaternary Association (INQUA), Dublin, Ireland, Abs#1360. (Oral)
- Doughty, A.M.**, Kaplan, M. (2019) 'A review of Marine Isotope Stage 4 mountain glacier moraine chronologies'. INQUA, Dublin, Ireland, Abs#1349. (Poster)
- \* Jackson, M.S., Kelly, M.A., Russell, J.M., **Doughty, A.M.**, Zimmerman, S.R.H., Nakileza, R. (2017) 'Past glacier fluctuations in the Rwenzori Mountains, Uganda, and implications for tropical temperature during and since the last ice age'. INQUA, Dublin, Ireland, Abs#O-4141.
- Doughty, A.M.** (2018) 'A review of MIS 4 mountain glacier chronologies'. American Geophysical Union Fall Meeting, Washington D.C., Abs#PP31F-1721. (Poster)
- (Invited) Doughty, A.**, Kelly, M., Russell, J., Jackson, M., Anderson, B., Nakileza, R. (2017) 'Tropical lapse rates during the Last Glacial Maximum'. Comer Climate Conference, Soldiers Grove, WI (Oral)
- Doughty, A.**, Lorrey, A., Chinn, T., Willsman, A., Mackintosh, A., Anderson, B. (2017) 'Photographic archive of New Zealand glaciers and the legacy of T.J.H. Chinn'. IGS symposium - The Cryosphere in a Changing Climate, Wellington, NZ, Abs#75A2202. (Oral)
- (Invited) Doughty, A.**, Kelly, M., Russell, J., Anderson, B., Jackson, M. (2017) 'On the paleoclimate of Uganda during the Last Glacial Maximum'. Geological Society of America, Seattle, WA, invited talk in session T192. Mountain Glaciation and Climate Change of the Past and Present in the Western Americas. (Oral)
- \* Jackson, M.S., Kelly, M.A., Russell, J.M., **Doughty, A.M.**, Howley, J.A., Zimmerman, S.R.H. (2017) 'Tropical African Glacier Fluctuations During Termination 1'. American Geophysical Union Fall Meeting, New Orleans, LA.
- \* Cavagnaro, D.B., **Doughty, A.M.**, Hatchett, B. (2016) 'Analysis of diurnal and seasonal climate patterns in the Rwenzori Mountains, East Africa, using satellite data and models'. American Geophysical Union Fall Meeting, San Francisco, CA, Abs#C33B-0826.
- (Invited) Doughty, A.**, Kelly, M., Russell, J., Jackson, M., Anderson, B., Baber, M., Loomis, S., Nakileza, R., Lukaye, J. (2016) 'Modeling East African tropical glaciers during the Last Glacial Maximum - Part 2'. Comer Climate Conference, Soldiers Grove, WI (Oral)
- Doughty, A.M.**, Kelly, M.A., Anderson, B., Russell, J.M., Jackson, M.S. (2016) 'Inferring Past Climate in Equatorial East Africa using glacier models'. American Geophysical Union Fall Meeting, San Francisco, CA, Abs#PP21A-2258. (Oral)
- Doughty, A.M.**, Mackintosh, A., Anderson, B., Putnam, A., Dadic, R., Barrell, D., Denton, G., Chinn, T., Schaefer, J. (2016) 'Interannual variability in temperature and precipitation alone cannot explain Holocene glacier fluctuations in the Southern Alps of New Zealand'. European Geosciences Union, Vienna, Austria, Abs#EGU2016-511. (Oral)
- Doughty, A.M.**, Kelly, M., Russell, J., Jackson, M., Anderson, B., Baber, M., Loomis, S., Nakileza, R., Lukaye, J. (2016) 'Modeling East African tropical glaciers during the Last Glacial Maximum'. Geological Society of America Northeast Section Meeting, Albany, NY, Abs#T3-3-9. (Oral)
- Doughty, A.M.**, Kelly, M., Russell, J., Jackson, M. (2016) 'Modeling East African tropical glaciers during the Last Glacial Maximum'. Northeast GSA, Albany, NY. (Oral)
- Eaves, S., Mackintosh, A., Anderson, B., Winckler, G., Schaefer, J.M., Norton, K.P., **Doughty, A.M.**, Townsend, D., Tims, S. (2016) 'Uniform summertime cooling across New Zealand during the Antarctic Cold Reversal'. AGU, San Francisco, CA, Abs#PP14A-01.
- \* Jackson, M., et al. (2016) 'Late Glacial and Early Holocene glacier fluctuations in the Rwenzori Mountains, Uganda-Democratic Republic of Congo'. Northeast GSA, Albany, NY.

- Kelly, M., et al., (2016) 'The Last Glacial Maximum in tropical East Africa'. Northeast GSA, Albany, NY.
- \* Jackson, M., et al. (2015) 'Glacier fluctuations in the Rwenzori Mountains, Uganda during late-glacial time'. GSA Annual Meeting, Baltimore, MD.
- Doughty, A.M.,** Kelly, M., Russell, J., Jackson, M., Anderson, B., Baber, M., Loomis, S., Nakileza, R., Lukaye, J. (2015) 'LGM to Holocene glacier fluctuations in Tropical Africa'. Comer Climate Conference, Comer Farm, WI. (Oral)
- Doughty, A.M.,** Kelly, M., Jackson, M., Russell, J., Anderson, B. (2015) 'Hydroclimatic changes in central Africa during the Last Glacial Maximum, Uganda'. Monsoons and ITCZ Workshop, Columbia University, NY. (Poster)
- Doughty, A.M.,** Kelly, M., Russell, J., Jackson, M., Baber, M., Loomis, S., Nakileza, R., Lukaye, J. (2015) 'Modeling tropical glaciers during the LGM in East Africa'. INQUA, Nagoya, Japan, Abs#T00986. (Oral)
- Doughty, A.M.,** Schaefer, J., Putnam, A., Denton, G., Kaplan, M., Barrell, D., Andersen, B., Kelley, S., Finkel, R., Schwartz, R. (2015) 'Mismatch of glacier extent and summer insolation in Southern Hemisphere mid-latitudes'. INQUA, Nagoya, Japan, Abs#T00987. (Oral)
- Doughty, A.M.,** Mackintosh, A., Anderson, B., Kerr, T., Kees, L., Chinn, T. (2015) 'Avalanche-fed glaciers in New Zealand'. New England Glaciology Meeting, Cape Cod, MA. (Oral)
- \* Farnsworth, L., et al. (2015) 'Holocene history of the Greenland Ice Sheet margin in Nunatarssuaq, Northwest Greenland'. NEGSA, Bretton Woods, NH, Abs#253370.
- \* Jackson, M., et al. (2015) 'Climate controls on last glacial maximum to early Holocene glacier extents in the Rwenzori Mountains, Uganda-Democratic Republic of Congo'. NEGSA, Bretton Woods, NH, Abs#253550.
- Doughty, A.M.,** et al. (2015) 'Mismatch of glacier extent and summer insolation in Southern Hemisphere mid-latitudes'. NEGSA, Bretton Woods, NH, Abs#253051. (Oral)
- Doughty, A.M.,** Kelly, M., Russell, J. (2014) 'Past glaciations in the Rwenzori Mountains, Uganda-Democratic Republic of Congo'. Comer Climate Conference, Comer Farm, WI. (Oral)
- Doughty, A.M.,** et al. (2013) 'Holocene moraine sequences and interannual stochastic variability in climate'. NEGSA, Bretton Woods, NH, Abs#S1 1-8. (Oral)
- Kaplan, M., **Doughty, A.M.,** et al. (2013) 'New Zealand Holocene and Lateglacial chronologies'. NEGSA, Bretton Woods, NH, Abs#S1 1-7. (Oral)
- Doughty, A.M.,** et al. (2013) 'Mass balance changes on an avalanche-fed glacier'. Snow and Ice Research Group Annual Meeting, Dunedin, New Zealand. (Oral)
- \***Doughty, A.M.,** Mackintosh, A.N., Anderson, B.A., Putnam, A.E., Barrell, D., Denton, G., Schaefer, J.M. (2012) 'Climatic Significance of Holocene Glacier Fluctuations in New Zealand'. AGU fall meeting, Abs#GC21D-1001. (Oral)
- Kaplan, M., et al. (2012) 'Evolution of glacier snowline since the end of the last ice age in New Zealand'. AGU fall meeting, Abs#GC21-D-1000
- Putnam, A.E., et al. (2012) 'Regional climate control of glaciers in New Zealand and Europe during the pre-industrial Holocene'. AGU fall meeting, Abs#PP21B-2003.
- Doughty, A.M.,** et al. (2012) 'Snow distribution as dependent on slope - evaluation of mass balance patterns on glaciers with accumulation concentration'. Snow and Ice Research Group Annual Meeting (field trip leader), Twizel, New Zealand. (Oral)
- Doughty, A.M.,** et al. (2012) 'Late-glacial climate in the Southern Alps of New Zealand inferred from glacial modelling'. Australasia Quaternary Association biennial meeting, Lake Tekapo, New Zealand. (Oral)



- Putnam, A.E., et al. (2011) 'Asynchronous Holocene behavior of mountain glaciers in the European and Southern Alps'. AGU fall meeting Abs#PP43A-1796.
- Doughty, A.M., et al.** (2011) 'Estimation of late-glacial temperatures based on coupled energy balance/ice flow modelling of paleoglaciers in the Ben Ohau Range, Southern Alps, New Zealand'. International Union of Quaternary Research (INQUA), Bern, Switzerland. (Oral)
- Doughty, A.M., et al.** (2011) 'Late-glacial climate in the Southern Alps of New Zealand inferred from glacial modelling'. Snow and Ice Research Group Annual Meeting (lead organizer), Fox Glacier, New Zealand. (Oral)
- Doughty, A.M., et al.** (2010) 'Late-glacial climate in the Southern Alps of New Zealand inferred from glacial modelling'. Graduate Climate Conference, Mt. Rainer, WA. (Oral)
- Doughty, A., Mackintosh, A., Anderson, B.** (2010) 'Using Glacier Models to Reconstruct Climate Change Over the Last 13,000 Years'. Snow and Ice Research Group Annual Meeting, Queenstown, New Zealand. (Awarded runner-up for best student oral presentation).
- Kaplan, M., et al. (2009)  $^{10}\text{Be}$  chronology of moraines deposited in upper Whale Stream, Ben Ohau Range, South Island, New Zealand'. AGU fall meeting Abs#PP31A-1301.
- Putnam, A.E., et al. (2009) 'Timing and duration of the Last Glacial Maximum and Termination in the western United States and Southern Alps, New Zealand'. AGU fall meeting Abs#PP24A-06.
- Doughty, A., et al.** (2009) 'Late-glacial climate in the Southern Alps of New Zealand inferred from glacial modelling'. GeoScience Conference, Oamaru, New Zealand. (Poster)
- Doughty, A., Denton, G., Hall, B., Putnam, A., Schaefer, J., Barrell, D., Andersen, B.** (2009)  $^{10}\text{Be}$  Cosmogenic Exposure-Ages from Late Pleistocene Moraines near Mary Burn, Lake Pukaki, central South Island, New Zealand'. Past Climates Meeting, Wellington, New Zealand (Poster).
- Doughty, A., Denton, G., Hall, B., Hughes, T., Koons, P.** (2009)  $^{10}\text{Be}$  Cosmogenic Exposure Ages of Late Pleistocene Moraines near Maryburn Gap, Pukaki Basin, New Zealand'. Snow and Ice Research Group Annual Meeting, Wanaka, New Zealand. (Oral)
- Doughty, A., Denton, G., Putnam, A., Andersen, B., Barrell, D., Schaefer, J., Finkel, R., Kaplan, M.** (2008) 'Last Glacial Maximum Moraine Chronology from Maryburn Gap, New Zealand'. CC21 Conference, Orono, ME. (Awarded Best Graduate Student Poster)
- Doughty, A., Denton, G., Putnam, A., Schaefer, J., Finkel, R.** (2007)  $^{10}\text{Be}$  exposure dates from Late Pleistocene moraines near Maryburn Gap, Pukaki Basin, New Zealand'. CRONUS Annual Meeting, University of California, Berkeley, CA. (Oral)
- Kaplan, M., et al. (2007) 'Structure of the Last Glacial-Interglacial Transition in New Zealand's Southern Alps'. AGU fall meeting, Abs#PP32A-06.
- Putnam, A.E., et al. (2007)  $^{10}\text{Be}$  surface-exposure chronology of moraines deposited during the Last Glacial Maximum in the New Zealand Southern Alps'. AGU fall meeting, Abs#PP33B-1276.
- Doughty, A., Denton, G., Putnam, A., Andersen, B., Barrell, D.** (2007)  $^{10}\text{Be}$  exposure dates from Late Pleistocene moraines near Maryburn Gap, Pukaki Basin, New Zealand'. Comer Fellows Conference, Palisades, NY. (Oral)

## FIELD EXPEDITIONS

### Uganda

2015, 2016. *Rwenzori Mountains* - Organized and participated in remote expeditions to sample boulders, map moraines, and observe glacial geologic features.

## **United States**

2016. *Cedar Pond, Milan, NH* - Sampled surface lake sediments for mercury analysis with Dr. Meredith Kelly and two undergraduate researchers.

## **New Zealand**

2017. *Fox Glacier* - Climbed to site, replaced electronics and downloaded two months of time-lapse photographs with Dr. Brian Anderson.

2012. *Mount Ruapehu* - Sampled boulders for cosmogenic nuclide surface exposure dating.

2009, 2011. *Cameron Glacier* - Led research expedition to the glacier, collected glacier mass balance data, 2011. Led research expedition to the glacier, conducted a Ground Penetrating Radar (GPR) survey to determine snow depth and glacier thickness, measured snow pit density and installed stakes to determine glacier mass balance and flow rates, 2009.

2010. *Franz Josef Glacier* - Measured glacier mass balance and flow rates.

2010. *Rollerston Glacier* - Measured snow density with depth.

2009, 2010. *Brewster Glacier* - Led research expedition to the glacier, sampled bedrock, 2010. Measured position and melt out of ablation stakes, 2009.

2009. *Annette Plateau* - Conducted a Ground-Penetrating Radar survey of the glacier.

2007. *Pukaki* (led), *Ohau* (assisted), *Cameron valleys* (assisted) in *New Zealand* - Co-led research expeditions to these regions, collected boulder samples for cosmogenic nuclide Surface Exposure Dating.

2006. *Irishman Stream, Whale Stream, Cameron, Birch Hill, Pukaki, Ohau, Hooker, Muller, and Tasman valleys in New Zealand* - Collected boulder samples for cosmogenic dating Surface Exposure Dating.

## **Antarctica**

2006. *Victoria Land Coast* - Collected southern elephant seal skin and hair for isotopic and DNA analyses, as well as radiocarbon dating.

## **SELECTED PUBLIC OUTREACH**

### **Blogger**

2013-present. 'RockPaperGlacier.wordpress.com, an appreciation for glacial landscapes'.

### **Speaker**

2019. Scarborough Middle School, Scarborough, ME: Discussed fieldwork, climate, and glaciers with >220 6<sup>th</sup>-grade students in groups of 20-40.

2018. Bear Bones Brewery, Bridgton, ME: Public Q&A about climate.

2018. Lewiston Library, Lewiston, ME: '*Facts and Snacks*', Public discussion and activity about ice ages, glacial deposits, and climate.

2017. Orford Social Library, Orford, NH: '*Glaciers of Uganda*', Public lecture about tropical glaciers and climate change.

2016. Salt Hill Restaurant, Lebanon, NH: '*Boots on the ground, wings in the sky, geology of the Upper Valley*', Public forum on local geology with Meredith Kelly and Justin Strauss of Dartmouth College.

2015. Salt Hill Restaurant, Lebanon, NH: '*Everything you want to know about glaciers*', Public forum on glaciers and climate research with Meredith Kelly and Robert Hawley of Dartmouth College.

2015. Claremont Elementary School, Claremont, NH: '*Plan an expedition*', Guest speaker in two 5<sup>th</sup>-grade classrooms.

2015. Minnesota Public Radio: *'Research in the Rwenzori'*, Interviewed by Kerri Miller.  
2015. Comer Science and Education website: *'Fellows in the Field'*, Interviewed by Medill journalism students at Northwestern University.

### **Organizer and Leader**

2016. Montshire Museum of Science Homeschool Days, Norwich, VT: Museum activities relating to the themes: *'Earth through Time'* (Oct.) and *'Weather and Climate'* (Mar.).  
2015. Dartmouth Science Day for middle school students, Hanover, NH: Presented activity about polar research called *'Trips to Cold Places'*.

### **Scientific Consultant**

2016. Norwich Public Library activities board, Norwich, VT: Planned activities for 100-year anniversary of the Endurance expedition.  
2015. 25Zero climate activist organization (led by Tim Jarvis): Contributed a summary of Rwenzori Mountain geology and past glaciations for a group of mountaineers aimed at hiking all 25 peaks in the tropics that still support glaciers <http://25zero.com>.

### **ADDITIONAL TRAINING AND CERTIFICATIONS**

2019. **Wilderness First Aid** training and certification (exp. 8/2021), Lewiston, ME.  
2019. **Basic CPR / AED-adult** (exp. 8/2021), Lewiston, ME.  
2010. **Karthus Glacier Modeling School** with Hans Oerlemans and others, Karthus, Italy.  
2009. **Alpine Instruction Course** through the New Zealand Alpine Club, practiced mountaineering techniques and glacier travel including crevasse rescue, Mt. Ruapehu, New Zealand.