

CURRICULUM VITAE OF NATHANIEL A. LIFTON

EDUCATION

- 1997 Ph.D., Geosciences, University of Arizona
Dissertation Title: A new extraction technique and production rate estimate for *in situ* cosmogenic ^{14}C in quartz
Advisor: William B. Bull
- 1985 B.A., Geological Sciences, University of California at Santa Barbara
(with highest honors)

PROFESSIONAL EXPERIENCE

- 2018 - present Associate Head, Department of Earth, Atmospheric, and Planetary Sciences, Purdue University
- 2016 - present Associate Professor, Department of Earth, Atmospheric, and Planetary Sciences, Department of Physics and Astronomy, Purdue University
- 2010 - 2016 Assistant Professor, Department of Earth, Atmospheric, and Planetary Sciences, Department of Physics and Astronomy, Purdue University
- 2002–2010 Associate Research Scientist, Department of Geosciences, University of Arizona, and Arizona Accelerator Mass Spectrometry Facility
- 1997–2002 Research Associate, Department of Geosciences, University of Arizona, and NSF-Arizona Accelerator Mass Spectrometry Facility
- 1990–1997 Research Assistant, Department of Geosciences, University of Arizona
- 1985–1990 Geologist, Dames & Moore (acquired by URS Corporation, now part of AECOM), Santa Barbara, CA, Irvine, CA, and Tucson, AZ

PROFESSIONAL AFFILIATIONS

Purdue University

Purdue Institute for a Sustainable Future

External

American Geophysical Union, member since 1987

Geological Society of America, member since 1987

Geochemical Society, member since 2013

HONORS AND AWARDS

External

Fellow, Geological Society of America, 2022

Kirk Bryan Award – Geological Society of America, Quaternary Geology and Geomorphology Division, 2023, for a paper with a high impact on the field (Pendleton et al., 2019. *Nature Communications* **10**(1), 445-452. doi:10.1038/s41467-019-08307-w)

PUBLICATIONS

- Lifton, N. and Schaefer, J.M., *in press*. Cosmogenic Nuclide Exposure Dating | Section 00308: Methods, *Encyclopedia of Quaternary Science*. 3rd ed. Elsevier, Oxford.

- Lifton, N., Wilson, J., Koester, A., 2023. Technical note: Studying Li-metaborate fluxes and extraction protocols with a new, fully automated *in situ* cosmogenic ^{14}C processing system at PRIME Lab. *Geochronology* **5**, 361-375. <https://doi.org/10.5194/gchron-5-361-2023>.
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- Andersen, J.L., Newall, J.C., Fredin, O., Glasser, N.F., Lifton, N.A., Stuart, F.M., Fabel, D., Caffee, M., Pedersen, V.K., Koester, A.K., Suganuma, Y., Harbor, J.M., Stroeven, A.P., 2023. A topographic hinge-zone divides coastal and inland ice dynamic regimes in East Antarctica. *Communications Earth & Environment*, **4**(1), 9. <https://doi.org/10.1038/s43247-022-00673-6>
- Koester, A.J., Lifton, N.A., 2023. Technical note: A software framework for calculating compositionally dependent *in situ* ^{14}C production rates. *Geochronology*, **5**(1), 21–33. <https://doi.org/10.5194/gchron-5-21-2023>
- Slosson, J.R., Hoke, G.D., Lifton, N., 2022. Non-steady-state ^{14}C - ^{10}Be and transient hillslope dynamics in steep high mountain catchments. *Geophysical Research Letters*, **49**(24). <https://doi.org/10.1029/2022gl100365>
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- Mas e Braga, M., Jones, R.S., Newall, J.C.H., Rogozhina, I., Andersen, J.L., Lifton, N.A., and Stroeven, A.P., 2021. Nunataks as barriers to ice flow: implications for palaeo ice sheet reconstructions. *The Cryosphere* **15**, 4929–4947. <https://doi.org/10.5194/tc-15-4929-2021>
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- Schweinsberg, A.D., Briner, J.P., Licciardi, J.M., Bennike, O., Lifton, N.A., Graham, B.L., Young, N.E., Schaefer, J.M., Zimmerman, S.H., 2019. Multiple independent records of local glacier variability on Nuussuaq, West Greenland, during the Holocene. *Quaternary Science Reviews* **215**, 253–271. doi:10.1016/j.quascirev.2019.05.007
- Pendleton, S.L., Miller, G.H., Lifton, N., Lehman, S.J., Southon, J., Crump, S.E., Anderson, R.S., 2019. Rapidly receding Arctic Canada glaciers revealing landscapes continuously ice-covered for more than 40,000 years. *Nature Communications* **10**(1), 445-452. doi:10.1038/s41467-019-08307-w
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Lifton, N.A. and Chase, C.G., 1992. Tectonic, climatic and lithologic influences on landscape fractal dimension and hypsometry: Implications for landscape evolution in the San Gabriel Mountains, California, in, R.S. Snow and L. Mayer (Editors), *Fractals in Geomorphology*. *Geomorphology*, **5**: 77-114.

INVITED PRESENTATIONS

Lifton, N.A., 2022. Exposing the potential for *in situ* cosmogenic ^{14}C (*Invited*). University College Dublin, School of Earth Sciences seminar, 21 September.

Lifton, N.A., 2022. Advances in cosmogenic nuclide production rate scaling: how we got here and potential opportunities ahead (*Invited*). COSMO 2022 conference, Edinburgh, Scotland, 7-10 June.

Sams, S., Lifton, N.A., Andersen, J., Newall, J., Blomdin, R., Fabel, D., Fredin, O., Glasser, N., Harbor, J., Koester, A.J., Stroeven, A., Caffee, M., Goehring, B., and Nichols, K., 2020, Applications of *in situ* ^{14}C to ice thickness changes in western Dronning Maud Land, East Antarctica (*Invited*), C024-11 presented at 2020 Online Fall Meeting, AGU, 9-13 Dec.

Pendleton, S.L., Miller, G.H., Lifton, N.A., Young, N.E., Lehman, S., Anderson, R., Southon, J. 2020, Deciphering glacier activity on Baffin Island during deglaciation with radiocarbon archives (*Invited*), 242-2 presented at 2020 Online National Meeting, GSA.

Pendleton, S.L., Miller, G.H., Lifton, N.A., Young, N.E., Anderson, R.S., 2019, Just how unprecedented is modern warming in the Arctic? (*Invited*), PP33A-08 presented at 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec.

Pendleton, S.L., Miller, G.H., Lifton, N.A., Young, N.E., 2018, New radiocarbon constraints for an earlier Holocene Thermal Maximum on Baffin Island (*Invited*), U13B-03 presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec.

Lifton, N.A., 2018. Exposing the potential for *in situ* cosmogenic ^{14}C (*Invited*), Technical and Scientific Presentation, 29th National Ocean Sciences AMS Advisory and Planning Meeting, Woods Hole Oceanographic Institution, Sept. 20-21.

Lifton N., 2017. The Long and the Short of it: Exploring complex late Quaternary Arctic ice cover histories using *in situ* cosmogenic nuclides and traditional radiocarbon (*Invited*), Colloquium talk, Department of Earth and Environmental Sciences, Tulane University, Nov. 17.

Miller, G.H., Pendleton, S.L., Lifton, N.A., Lehman, S., Southon, J., 2017. The dead speak: Tracking the cryospheric response to contemporary warming in Arctic Canada with entombed vegetation and *in situ* ^{14}C in adjacent rocks (*Invited*), Geological Society of America Abstracts with Programs **49**(6), doi: 10.1130/abs/2017AM-301977

Lifton, N., 2017. Exploring time-dependent reference-level and atmospheric effects on cosmogenic nuclide production-rate scaling (*Invited*), 14th Accelerator Mass Spectrometry Conference (AMS-14), Ottawa, Ontario, Canada, 12-18 August.

Lifton, N.A., 2017. Exposing the potential for *in situ* cosmogenic ^{14}C in geochronology (*Invited*), Colloquium talk, Department of Geological Sciences, New Mexico State University, April 25.

- Lifton, N., 2015. Exploring time-dependent geomagnetic and atmospheric effects on cosmogenic nuclide production rate scaling (*Invited*), Paper 23-11, Geological Society of America *Abstracts with Programs* **47**(7), 77.
- Briner, J., Schweinsberg, A., Miller, G., Lifton, N., Beel, C., Bennike, O., 2014. Peeking under the ice... literally: Records of Arctic climate change from radiocarbon dating moss emerging from beneath retreating glaciers (*Invited*), Abstract C51C-03, Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec.
- Lifton, N.A., 2014. Exposing the potential for *in situ* cosmogenic ^{14}C in geochronology (*Invited*), Colloquium talk, Department of Earth Sciences, Northwestern University, Nov.7.
- Lifton, N.A., 2014. Recent developments in cosmogenic nuclide production rate scaling (*invited*), 13th Accelerator Mass Spectrometry Conference (AMS-13) pre-conference workshop, Barcelonnette, France. 21-24 August.
- Lifton, N.A., 2013. Standing on Lal's shoulders: A look back and ahead at *in situ* cosmogenic nuclide production rate scaling (*invited keynote*). Goldschmidt Conference, 25-30 August, Florence, Italy. *Mineralogical Magazine*, **77**(5) 1609.
- Lifton, N.A., 2013. Exposing the potential for *in situ* cosmogenic ^{14}C in geochronology (*Invited*), Colloquium talk, Department of Earth Sciences, Indiana University Purdue University at Indianapolis, Mar. 4.
- Lifton, N.A., 2013. Adventures with *in situ* ^{14}C and other stuff (IUPUI) (*Invited*), Guest lecture – isotope geochemistry/geochronology, Department of Earth Sciences, IUPUI, Mar. 4.
- Lifton, N.A., 2011. Emerging applications for *in situ* cosmogenic ^{14}C in geochronology (*invited*), *Geol. Soc. Am. Abstracts with Programs*, **43**(5), p. 37.
- Lifton, N.A., 2011. Scaling factors for cosmogenic nuclide production - status and outlook (*Invited*). ESF Research Conference on Cosmogenic Nuclides, 8-13 August, Obergurgl, Austria.
- Lifton, N.A., 2009. *In situ* cosmogenic nuclide production rates: Where do we stand? (*Invited*). Climate-Glaciers-Society Mini-conference, Lamont-Doherty Earth Observatory, 11-13 Nov., Palisades, N.Y.
- Goehring, B.M., Schaefer, J.M., Schlüchter, C., Lifton, N.A., Finkel, R.C., Jull, A.T., Alley, R.B., 2009. Deciphering the Holocene duration of a small Rhone Glacier, Switzerland, using *in situ* ^{10}Be and ^{14}C (*Invited*), *Eos. Trans. AGU*, **90**(52), Fall Meet. Suppl., Abstract PP34A-03.
- Lifton, N.A., 2008. *In situ* cosmogenic ^{14}C from surfaces at secular equilibrium. (*Invited Keynote*) 11th International Conference on Accelerator Mass Spectrometry, Rome, Italy. September 14-19.
- Lifton, N.A., 2007. Can millennial-scale geomagnetic field models improve time-integrated predictions of cosmogenic nuclide production rate scaling models? Preliminary results using *in situ* cosmogenic C-14. (*Invited*) 2007 Goldschmidt Conference, Cologne, Germany. *Geochim. Cosmochim. Acta.* **71**(15), A580 Suppl. S.
- Lifton, N., 2005. Toward using millennial-scale geomagnetic field models to constrain *in situ* cosmogenic nuclide production rate variations (*Invited*), *Eos. Trans. AGU*, **86**(52), Fall Meet. Suppl., Abstract GP24A-05.
- Lifton, N., 2005. Can models of millennial-scale geomagnetic field variations be improved for *in situ* cosmogenic nuclide applications? (*Invited*), 10th Scientific Assembly of the International Association of Geomagnetism and Aeronomy, Toulouse, France, July 18-29, Abstract IAGA2005-A-01167.

CONTRIBUTED PRESENTATIONS

- Jones, A.G., Brooks, J., Lifton, N.A., Gorin, A.L., Schultz, G., Hietpas, E., Bushmaker, S., Caffee, M., Marcott, S.A., 2023. A record of glacier length through the Holocene for a glacier in the Juneau Icefield, Alaska. 2023 Fall Meeting, AGU, 11-15 Dec., Abstract PP22B-07.
- Pendleton, S., Miller, G., Lifton, N., Lehman, S., Southon, J., Crump, S., Anderson, R., 2023. 2023 Kirk Bryan Award: The importance of following the unexpected: Paleoclimate insights from beneath Baffin Island ice. Geological Society of America Abstracts with Programs. Vol. 55, No. 6. doi: 10.1130/abs/2023AM-391612
- Kelley, S.E., Warren, G., Lifton, N., O'Brien, C., Doughty, A., Butler, M., 2023. Deglaciation of the Cairngorm plateau, constrained with *in situ* cosmogenic ^{10}Be and ^{14}C measurements. XXI INQUA Congress, Rome, Italy. July 14-20.
- Suganuma, Y., Kawamata, M., Kusahara, K., Lifton, N.A., Ishiwa, T., Katsuki, K., Fujii, M., Hirabayashi, M., Okuno, J., 2023. Warm water inflow induced Holocene deglaciation in Lützw-Holm Bay, East Antarctica. XXI INQUA Congress, Rome, Italy. July 14-20.
- Goodfellow, B. W., Stroeven, A. P., Lewerentz, A., Hippe, K., Heyman, J., Lifton, N. A., Caffee, M. W., and Näslund, J.-O., 2023. Last ice sheet recession and landscape emergence above sea level in east central Sweden, evaluated using ^{14}C produced *in situ* in quartz. EGU General Assembly 2023, Vienna, Austria, 24–28 Apr 2023, EGU23-6006, <https://doi.org/10.5194/egusphere-egu23-6006>.
- Koester, A.J., Sams, S.E., Lifton, N.A., Andersen, J.L., Mas e Braga, M., Fredin, O., Glasser, N., Suganuma, Y., Caffee, M.W., Harbor, J.M., Stroeven, A.P., 2022, Holocene ice surface lowering in western Dronning Maud Land, East Antarctica. Poster presentation at 2022 Fall Meeting, AGU, 12-16 Dec.
- Lifton, N.A., Koester, A.J., 2022. Studying LiBO_2 fluxes and low-temperature combustion systematics with a fully automated *in situ* cosmogenic ^{14}C processing system at PRIME Lab. 24th Radiocarbon Conference and 10th ^{14}C and Archaeology Conference, Zurich, Switzerland, 11-16 September.
- Koester, A.J., Lifton, N.A., 2022. A software framework for calculating compositionally dependent *in situ* ^{14}C production rates. 24th Radiocarbon Conference and 10th ^{14}C and Archaeology Conference, Zurich, Switzerland, 11-16 September.
- Suganuma, Y., Kaneda, H., Braga, M. M. e, Ishiwa, T., Koyama, T., Newall, J. C., Okuno, J., Obase, T., Saito, F., Rogozhina, I., Andersen, J.L., Kawamata, M., Hirabayashi, M., Lifton, N.A., Fredin, O., Harbor, J.M., Stroeven, A.P., Abe-Ouchi, A., 2021. Synchronous Holocene ice sheet thinning across coastal Dronning Maud Land, East Antarctica. Presented at 2022 Meeting, Japanese Geoscience Union, 22 May - 3 June.
- Slosson, J.R., Hoke, G.D., Lifton, N.A., 2021. Non-steady-state ^{14}C - ^{10}Be and transient hillslope dynamics in steep high mountain catchments. Poster presented at 2021 Fall Meeting, AGU, New Orleans, LA, 13-17 Dec.
- Koester, A.J., Stroeven, A.P., Lifton, N.A., Rosqvist, G.C., 2021. Investigating the deglacial history of a Swedish ice cap using combined *in situ* ^{14}C - ^{10}Be - ^{26}Al . Poster presented at 2021 Fall Meeting, AGU, New Orleans, LA, 13-17 Dec.
- Andersen, J.L., Pedersen, V.K., Palmstrøm, E.L., Newall, J., Koester, A., Sams, S., Blomdin, R., Fredin, O., Glasser, N., Fabel, D., Lifton, N., Caffee, M., Mas e Braga, M., Bernales, J., Rogozhina, I., Harbor, J., Stroeven, A.P., 2021. Constraints on long-term ice-sheet configurations from inverse modelling of cosmogenic nuclides in bedrock. Poster presented at 2021 Fall Meeting, AGU, New Orleans, LA, 13-17 Dec.
- Paige, C., Gosse, J., Wacker, L., Kirby, E., McDonald, E., Margreth, A., and Lifton, N., 2021. Combined soils and *in situ* ^{14}C approach to evaluate erosion of non-lithified landforms. Poster presented at 2021 Fall Meeting, AGU, New Orleans, LA, 13-17 Dec.

- Lifton, N., Wilson, J., Koester, A., Caffee, M., 2021, Initial results from a new, fully automated in situ cosmogenic ^{14}C extraction, purification, and graphitization system at PRIME Lab. Poster presented at AMS-15 – 15th Conference on Accelerator Mass Spectrometry (virtual)
- M. W. Caffee, G. J. Chmiel, D. E. Granger, G. Jackson, N. A. Lifton, L. Luo, P. Muzikar, and T. Woodruff, 2021. Accelerator Mass Spectrometry at Purdue University PRIME Lab. Poster presented at AMS-15 – 15th Conference on Accelerator Mass Spectrometry (virtual).
- Paige, C., Gosse, J., Wacker, L., Kirby, E., McDonald, E., Margreth, A., and Lifton, N., 2021. Combined soils and in situ ^{14}C approach to evaluate erosion of non-lithified landforms. 2021 Atlantic Geoscience Society Colloquium.
- Burgette, R.J., Reed, M.P., Lifton, N., Scharer, K.M., McPhillips, D., and Scholdt, R. 2020. Resolving the late Quaternary slip rate of the Santa Susana fault with in situ cosmogenic ^{36}Cl profile dating. Poster 096 at 2020 SCEC Annual Meeting, online.
- Andersen, J.L., Newall, J., Blomdin, R., Sams, S., Fabel, D.G., Koester, A.J., Stuart, F., Lifton, N.A., Fredin, O., Caffee, M.W., Glasser, N., Rogozhina, I., Suganuma, Y., Harbor, J., Stroeven, A.P. 2020. New constraints on Plio-Pleistocene East Antarctic Ice Sheet thickness: cosmogenic exposure data from western Dronning Maud Land, EGU General Assembly 2020 Online, 4-8 May, EGU2020-17965, <https://doi.org/10.5194/egusphere-egu2020-17965>.
- Granger, D.E., Caffee, M.W., Lifton, N.A., Moore, A.K., 2019. Precise determination of the $^{26}\text{Al}/^{10}\text{Be}$ production rate ratio. EP33A-08 presented at 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec.
- Reed, M.P., Burgette, R.J., Scharer, K.M., Lifton, N., & McPhillips, D., 2019. Assessment of slip and deformation along the Santa Susana fault, southern California, using high resolution topography. Talk 162-1, Geological Society of America National Meeting, *Geol. Soc. Am. Abstr. Prog.* **51**(5), ISSN 0016-7592. doi: 10.1130/abs/2019AM-336088.
- Burgette, R.J., Ingram, J.J., Reed, M.P., Scharer, K.M., Lifton, N.A., McPhillips, D., 2019, Quaternary slip history of the Santa Susana fault, western Transverse Ranges, California. Paper 16-9, Cordilleran Section Meeting. *Geol. Soc. Am. Abstr. Prog.* **51**(4), ISSN 0016-7592
- Reed, M.P., Burgette, R.J., Scharer, K.M., Lifton, N., & McPhillips, D., 2019. Assessment of slip and deformation along the Santa Susana fault, southern California, using high resolution topography. Poster 096 at 2019 SCEC Annual Meeting, Palm Springs, Calif.
- Mas e Braga, M., Bernales, J., Rogozhina, I., Stroeven, A.P., Prange, M., Andersen, J.L., Blomdin, R., Caffee, M.W., Fabel, D.G., Dymova, T., Eisen, O., Fredin, O., Glasser, N., Harbor, J., Hättestrand, C., Jacobsson, R., Koester, A. G, Lifton, N., Newall, J. G, Sams, S. G, Serra, E. 2019. Response of the Antarctic Ice Sheet to the peak warming during Marine Isotope Stage 11, *Geophysical Research Abstracts* **21**, EGU2019-5706, EGU General Assembly.
- Reed, M.P., Burgette, R.J., Scharer, K.M., Lifton, N., & McPhillips, D., 2018. Geomorphic and structural mapping in pursuit of a slip rate for the Santa Susana Fault, Southern California. EP51D-1860 presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec.
- Burgette, R.J., Scharer, K.M., Lifton, N., Hanson, A., McPhillips, D., & Rittenour, T.M., 2018. Quaternary slip history of the Central Sierra Madre Fault, Southern California. T42B-03 presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 Dec.
- Miller, G.H., Pendleton, S.L., Lehman, S., Lifton, N.A., Southon, J., 2018. Glaciers in Arctic Canada receding at unprecedented melt rates reveal evidence demonstrating contemporary summers warmest in >40,000 years. Abstr. 76-3, *Geol. Soc. Am. Abstr. Prog.* **50**(6), ISSN 0016-759276-3.
- Reed, M.P., Burgette, R.J., Scharer, K.M., Lifton, N., & McPhillips, D., 2018. Geomorphic and structural mapping in pursuit of a slip rate for the Santa Susana Fault, Southern California. Poster Presentation at 2018 SCEC Annual Meeting, Palm Springs, Calif.

- Burgette, R.J., Scharer, K.M., Lifton, N., Hanson, A., McPhillips, D., & Rittenour, T.M., 2018. Quaternary slip history of the Central Sierra Madre Fault, Southern California. Poster Presentation at 2018 SCEC Annual Meeting, Palm Springs, Calif.
- Lifton, N.A., Sams, S., Newall, J.C., Fredin, O., Glasser, N.F., Bernales, J., Caffee, M.W., Fabel, D., Harbor, J.M., Rogozhina, I., Stroeven, A.P., 2018. *In situ* cosmogenic ^{14}C and ^{36}Cl inform deglacial ice extents in western DML, Abstr. 1397, POLAR2018 Open Science Conference, Davos, Switzerland, 19-23 June.
- Newall, J.C., Fabel, D., Caffee, M.W., Stuart, F., Lifton, N.A., Fredin, O., Glasser, N.F., Harbor, J.M., Bernales, J., Rogozhina, I., Sams, S., Stroeven, A.P., 2018. Plio-Pleistocene nunatak exposure histories from western Dronning Maud Land, Abstr. 1643, POLAR2018 Open Science Conference, Davos, Switzerland, 19-23 June.
- Newall, J.C., Serra, E., Dymova, T., Blomdin, R., Fredin, O., Stroeven, A.P., Glasser, N.F., Lifton, N.A., Sams, S., Harbor, J.M., Fabel, D., Rogozhina, I., Bernales, J., 2018. Remote sensing mapping of western Dronning Maud Land (Antarctica) geomorphology, Abstr. 1675, POLAR2018 Open Science Conference, Davos, Switzerland, 19-23 June.
- Newall, J.C., Olofsson, J.-O., Kinner, I., Spinolo, J., McGrath, M., Goss, G., Judy, L., Sams, S., Wilson, C., Stenberg de Serves, M., Bernales, J., Fabel, D., Fredin, O., Glasser, N., Harbor, J., Lifton, N., Rogozhina, I., Stroeven, A., 2018. Social media outreach coordinated across a multinational polar research project, Abstr. 1668, POLAR2018 Open Science Conference, Davos, Switzerland, 19-23 June.
- Lifton, N., 2018. Exploring time-dependent reference-level and atmospheric effects on cosmogenic nuclide production-rate scaling, *in* Session G12.7/AS4.16/CL5.23/EMRP4.8/HS11.13/PS4.7: Cosmic rays across scales and disciplines: The new frontier in environmental research (*co-convener*), Geophys. Res. Abstr. **20**, EGU2018-9427, European Geosciences Union General Assembly, Vienna, Austria, 8-13 April.
- Fredin, O., Stroeven, A.P., Fabel, D., Lifton, N.A., Bernales, J., Rogozhina, I., Glasser, N.F., Newall, J.C., Harbor, J.M., Andersen, J.L., Blomdin, R., Caffee, M.W., Eisen, O., Hättestrand, C., Prange, M., Sams, S.E., Serra, E., 2018. Changes in vertical ice extent along the East Antarctic Ice Sheet margin in western Dronning Maud Land – initial field and modelling results of the MAGIC-DML collaboration, Geophys. Res. Abstr. **20**, EGU2018-16217, European Geosciences Union General Assembly, Vienna, Austria, 8-13 April.
- Stroeven, A.P., Fredin, O., Fabel, D., Lifton, N.A., Caffee, M.W., Harbor, J.M., Glasser, N.F., Newall, J.C., Andersen, J.L., Bernales, J., Blomdin, R., Eisen, O., Hättestrand, C., Prange, M., Rogozhina, I., Sams, S.E., Serra, E., 2018. Mio-Pleistocene ice sheet fluctuations from cosmogenic nuclide field constraints in western Dronning Maud Land, Antarctica, Geophys. Res. Abstr. **20**, EGU2018-13157-1, European Geosciences Union General Assembly, Vienna, Austria, 8-13 April.
- Lifton, N.A., Newall, J.C., Fredin, O., Glasser, N.F., Fabel, D., Rogozhina, I., Bernales, J., Prange, M., Sams, S., Eisen, O., Hättestrand, C., Harbor, J.M., Stroeven, A.P., 2017. Exploring changes in vertical ice extent along the margin of the East Antarctic Ice Sheet in western Dronning Maud Land – initial results of the MAGIC-DML collaboration. C21E-1162 presented at 2017 Fall Meeting, AGU, New Orleans, LA, 11-15 Dec.
- Pendleton, S., Miller, G., Lifton, N., Young, N., 2017. One isotope, two tales: using plant and cosmogenic ^{14}C to constrain Holocene glacier activity on Baffin Island. C11B-0914 presented at 2017 Fall Meeting, AGU, New Orleans, LA, 11-15 Dec.
- Burgette, R., Scharer, K., Lifton, N., Hanson, A., McPhillips, D., Rittenour, T., 2017. Slip rate variation of the Central Sierra Madre fault, southern California over the past 200 ka. Geological Society of America Abstracts with Programs **49**(6), doi: 10.1130/abs/2017AM-304150.

- Lifton, N., 2017. A new, 170 ka slip rate estimate on the Sierra Madre Fault. Poster Presentation at 2017 SCEC Annual Meeting, Palm Springs, Calif.
- Stroeven, A.P., Blomdin, R., Fu, P., Gribenski, N., Heyman, J., Harbor, J.M., Ivanov, M.N., Li, Y.K., Liu, G., Petrakov, D.A., Zhou, L.P., Caffee, M.W., Chen, Y.X., Codilean, A.T., Cui, Z.J., Hättestrand, C., Jansson, K.N., Li, Y.N., Lifton, N.A., Orkhonselenge, A., Preusser, F., Rogozhina, I., Rudoy, A.N., Usabaliev, R., Walther, M., Zhang, W., Zhao, J.D., 2017. Central Asia Paleoglaciation Project: Assessing the robustness of cosmogenic nuclide dating in reconstructing regional patterns of glaciation. International Symposium on the Cryosphere in a Changing Climate, International Glaciological Society, Wellington, New Zealand, 12-17 February.
- Harbor, J.M., Newall, J.C., Rogozhina, I., Bernales, J., Fredin, O., Glasser, N.F., Lifton, N.A., Stroeven, A.P., Fabel, D., Hättestrand, C., Eisen, O., 2017. Combining modelling and field-based reconstructions of changing vertical ice extent across the Dronning Maud Land sector of the East Antarctic Ice Sheet. International Symposium on the Cryosphere in a Changing Climate, International Glaciological Society, Wellington, New Zealand, 12-17 February.
- Martin, L.C.P., Blard, P.-H., Balco, G., Lavé, J., Delunel, R., Lifton, N., 2017. Taste CREp: the Cosmic-Ray Exposure Program. Geophysical Research Abstracts **19**, EGU2017-12399, EGU General Assembly.
- Blomdin, R., Stroeven, A.P., Harbor, J.M., Gribenski, N., Caffee, M.W., Heyman, J., Rogozhina, I., Ivanov, M.N., Petrakov, D.A., Walther, M., Rudoy, A.N., Zhang, W., Orkhonselenge, A., Hättestrand, C., Lifton, N.A., Jansson, K.N., 2017. Dynamics and timing of paleoglaciation on opposite flanks of the Ikh-Turgen Mountains, Central Asia. Geophysical Research Abstracts **19**, EGU2017-14282, EGU General Assembly.
- Serra, E., Dymova, T., Newall, J.C., Blomdin, R., Fredin, O., Stroeven, A.P., Bernales, J., Eisen, O., Fabel, D., Glasser, N.F., Harbor, J.M., Hättestrand, C., Lifton, N.A., Prange, M., Rogozhina, I., 2017. Paleoglaciological study of Borgmassivet, Dronning Maud Land, East Antarctica, using WorldView imagery. Past Antarctic Ice Sheet Dynamics (PAIS) Conference, Trieste, Italy, September 10-15.
- Scharer, K.M., Burgette, R.J., Hanson, A., Lifton, N., Rittenour, T.M., & McPhillips, D., 2017. Slip rate variation of the Central Sierra Madre fault, southern California over the past 200 ka. Poster Presentation at 2017 SCEC Annual Meeting, Palm Springs, Calif.
- Lifton, N., 2017, Exploring time-dependent reference-level and atmospheric effects on cosmogenic nuclide production-rate scaling. 14th Accelerator Mass Spectrometry Conference (AMS-14), Ottawa, Canada. 12-20 August.
- Corbett, L.B., Bierman, P.R., Rood, D.H., Caffee, M.W., Woodruff, T.E., and Lifton, N.A., 2016. Elevated cosmogenic ²⁶Al/¹⁰Be production ratio at high latitude. C53C-0739 presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 11-15 Dec.
- Pendleton, S.L., Miller, G.H., Lifton, N., Anderson, R.S., 2016. Exposure of last interglacial landscapes, Baffin Island, Arctic Canada: Investigations and Implications. PP13A-2044 presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 11-15 Dec.
- Schweinsberg, A.D., Briner, J.P., Miller, G.H., Lesnek, A.J., Lifton, N.A., Clements, S., 2016. Holocene mountain glacier variability in the Sukkertoppen region, western Greenland. PP13A-2052 presented at 2016 Fall Meeting, AGU, San Francisco, Calif., 11-15 Dec.
- Lifton, N., Heermance, R., Yule, D., Huerta, B., 2016. Isochron burial dating of paleosols within the Whitewater Fan, northern Coachella Valley, California. Poster Presentation at 2016 SCEC Annual Meeting, Palm Springs, Calif.
- Burgette, R. J., Lifton, N., Scharer, K. M., McPhillips, D., & Hanson, A., 2016. Testing for slip rate changes on the Sierra Madre fault: Progress on dating an offset terrace surface of possible middle Pleistocene age. Poster Presentation at 2016 SCEC Annual Meeting, Palm Springs, Calif.

- Newall, J.C., Then, F., Bernales, J., Rogozhina, I., Stroeven, A.P., Harbor, J.M., Lifton, N., Fredin, O., Glasser, N.F., Fabel, D., Hättestrand, C., 2016. Reconstructing the glacial history of western Dronning Maud Land, Antarctica. SCAR-CONMAP Fellows Symposium, Kuala Lumpur, Malaysia, 20-30 August.
- Newall, J.C., Bernales, J., Then, F., Rogozhina, I., Fredin, O., Glasser, N.F., Hättestrand, C., Stroeven, A.P., Fabel, D., Harbor, J.M., Lifton, N., Eisen, O., 2016. Reconstructing the glacial history of western Dronning Maud Land, Antarctica, using high-resolution numerical ice-sheet modeling and geomorphological mapping. SCAR-CONMAP Fellows Symposium, Kuala Lumpur, Malaysia, 20-30 August.
- Newall, J.C., Bendle, J., Glasser, N., Fredin, O., Hättestrand, C., Stroeven, A.P., Harbor, J.M., Eisen, O., Rogozhina, I., Lifton, N., Fabel, D., 2016. Glacial geomorphological mapping of western Dronning Maud Land, Antarctica. SCAR-CONMAP Fellows Symposium, Kuala Lumpur, Malaysia, 20-30 August.
- Gribenski, N., Jansson, K.N., Lukas, S., Stroeven, A.P., Harbor, J.M., Blomdin, R., Ivanov, M.N., Heyman, J., Petrakov, D.A., Rudoy, A., Clifton, T., Lifton, N.A., Caffee, M.W., 2016. Complex patterns of glacier advances during the late glacial in the Chagan Uzun Valley, Russian Altai. *Geophysical Research Abstracts* **18**, EGU2016-17330.
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Lifton, N.A. and Jull, A.J.T., 1992. Depth distribution of *in situ*-produced cosmogenic ^{14}C in sediments from the Walnut Gulch Experimental Watershed, southern Arizona. *Geological Society of America Abstracts with Program*, **24**: 121.

COLLABORATORS IN THE PREVIOUS 48 MONTHS

Other than Purdue University colleagues: J. Andersen (Stockholm U.), P. Bierman (U. Vermont), J. Briner (U. Buffalo), R. Burgette (New Mexico State U., now Oregon Dept. Geology and Min. Industries), P. Clark (Oregon State U.), L. Corbett (U. Vermont), P.T. Davis (Bentley U.), D. Fabel (SUERC), O. Fredin (Geological Survey of Norway), N. Glasser (Aberystwyth U.), B. Goehring (Tulane U., now Los Alamos Nat'l. Lab), J. Gosse (Dalhousie U.), B. Hall (U. Maine), F. He (U. Wisconsin), R. Heermance (Calif. State U. Northridge), S. Kelley (U. College Dublin), J. Klaminder (Umeå U., Sweden), S. Marcott (U. Wisconsin-Madison), G. Miller (U. Colorado), I. Rogozhina (Norwegian U. Sci. Tech.), T. Sato (Japan Atomic Energy Agency), K. Scharer (USGS), J. Shakun (Boston College), J. Stone (U. Washington), A. Stroeven (Stockholm University), Y. Suganuma (Japan Nat'l. Inst. For Polar Research).

GRADUATE ADVISORS

William B. Bull, Jay Quade, A.J. Timothy Jull, Clement G. Chase, Marek Zreda

GRADUATE STUDENTS AND POSTDOCTORAL SCHOLARS

M.S. and Ph.D. students graduated

William Hart, M.S. University of Arizona, 2002, Committee Member
Jeffrey Pigati, Ph.D., University of Arizona, 2004, Committee Member
Bailey Dugan (now Theirault), M.S., University of Arizona, 2008, Committee Member (de-facto Advisor)

Jana Zech, Ph.D., University of Bern, 2009, External Reviewer on Committee
Adam Hudson, M.S., University of Arizona, 2011, Committee Member (de-facto Advisor)
Christine Kassab, M.S., 2012, Purdue University, Committee Member
Fan Wang, Ph.D., Purdue University, 2013, Committee Member
Casey Beel, Ph.D., Purdue University, Advisor

Conditionally passed Qualifying Exam Fall 2013. Must pass undergraduate introductory courses in Chemistry (2 semesters), Physics-Mechanics (1 semester), and Calculus through Differential Equations (4 semesters). Failed Calculus and Physics Fall 2014 – retook both Spring 2015. Failed both again – graduated in August 2015 with an M.S.

Robin Blomdin, M.S., Purdue University, 2015, Committee Member
Annina Margreth, Ph.D., Dalhousie University, Canada, External Examiner. Graduated Spring 2015
Angus Moore, M.S., 2017, Purdue University, Committee Member
Carolyn Box, M.S., 2018, Purdue University, Committee Member
Mariah Romero, M.S., 2018, Purdue University, Committee Member
Cooper Fasulo, M.S., 2019, Purdue University, Committee Member
Yang Zhang, Ph.D., 2019, Purdue University, Committee Member
Will Odom, Ph.D., 2020, Purdue University, Committee Member
Brandon Keough, M.S., 2020, Purdue University, Committee Member
Jennifer Newall, M.S., 2021, Purdue University, Advisor (took over from J. Harbor)
Jordyn Miller, Ph.D., 2021, Purdue University, Committee Member
Adrian Singleton, M.S., 2021, Purdue University, Advisor
Sarah Sams, M.S., Purdue University, Advisor. Withdrew from graduate school without degree in Summer 2021.

Alexandria Koester, Ph.D., 2023, Advisor

Angus Moore, Ph.D., 2023, Purdue University, Committee Member

Current graduate students

None

Postdoctoral Scholars

Brent Goehring, Postdoctoral Fellow 2011-2014, Mentor. Now an Associate Professor at Tulane University (since Fall 2014)

Jane Andersen, Postdoctoral Visiting Scholar 2018-2019, Host

FUNDING HISTORY

a) PAST GRANTS					
Lifton Role	Sponsor Name	Title	Start Date	End Date	\$ Awarded to Lifton / Total
Co-PI	USDA-ARS	Landscape Sensitivity to Late Quaternary Climatic Change: Walnut Gulch Experimental Watershed, Arizona	09/92	09/94	\$60,000 / \$60,000
Co-PI	NASA	Lithologic and Structural Influences on Landscape Fractal Dimension and Hypsometry: Implications for Landscape Evolution in the Central Transverse Ranges, California	08/92	07/94	\$69,174 / \$69,174
Co-PI	NSF	Baseline Studies of <i>In Situ</i> Cosmogenic ¹⁴ C in Terrestrial Materials	06/97	05/99	\$218,661 / \$218,661
Co-PI	NSF	Continuing Studies of <i>In Situ</i> Cosmogenic ¹⁴ C in Terrestrial Materials	08/00	06/04	\$430,990 / \$430,990
Co-PI	NSF	Construction of a Low-Level ¹⁴ C Facility at the University of Arizona	07/04	06/06	\$79,902 / \$79,902
Subcontract	NSF	Collaborative Research: A Holocene Context for Current Arctic Warming Derived from the Vanishing Plateau Ice Caps of North-Central Baffin Island	03/05	02/08	\$45,000 / \$308,102
PI	NSF	Development of Automated <i>In Situ</i> ¹⁴ C Extraction Systems at the University of Arizona	07/07	06/10	\$267,950 / \$267,950
Co-PI/ Subcontract	NSF	Collaborative Research: Detrital Cosmochronology of the Greenland Ice Sheet	01/08	08/12	\$44,080 / \$397,137
PI	NSF	Collaborative Research: A Proposal for the Cosmic-Ray produced NUclide Systematics on Earth (CRONUS-Earth) Project	03/05	08/11	\$1,159,505 / \$6,000,000
Co-PI	National Geographic Society	Spatial patterns of past glacier variations in the Tianshan Mountains, Kyrgyzstan	06/12	04/13	\$12,225 / \$24,450
Co-PI	NSF	Facility Support: Accelerator Mass Spectrometry at PRIME Lab	06/12	05/16	\$539,980 / \$2,699,900
PI	NSF	Collaborative Research: A new reconstruction of the last West Antarctic Ice Sheet deglaciation in the Ross Sea	07/11	06/15, NCE to 6/17	\$55,320 / \$55,320
PI	University of Colorado	Collaborative Research: Arctic sensitivity to climate perturbations and a millennial perspective on current warming derived from shrinking ice caps	09/12	08/15, NCE to 8/17	\$123,251 / \$123,251

PI	University of Southern California	Collaborative Proposal: New applications of cosmogenic burial dating (^{10}Be , ^{26}Al , and ^{36}Cl) on late Pleistocene fan surfaces to constrain long-term San Andreas fault slip rates	02/15	01/16	\$22,500 / 22,500
Co-PI	Purdue University	14-15 Laboratory & University Core Facility Research Equipment Program: PRIME Lab Magnet Upgrade	01/15	05/15	\$23,231 / \$92,925
PI	University of Southern California	Collaborative Research- Testing for slip rate changes on the Sierra Madre Fault	02/16	01/17	\$26,054 / \$26,054
PI	University of Southern California	Additional isochron burial dating of late Pleistocene alluvial surfaces to constrain long-term San Andreas fault slip rates	05/17	04/18	\$35,000 / \$35,000
PI	University of Southern California	Resolving the late Quaternary slip rate of the Santa Susana fault with in situ cosmogenic ^{36}Cl profile dating	02/18	01/19	\$20,000 / \$20,000
Co-PI	Purdue University	Purdue Climate Change Research Center Seed Grant: Quantifying snowpack decline in the Colorado River headwaters beyond the instrumental record using cosmogenic nuclides	01/22	12/22	\$46,228 / \$46,228
Co-PI	NSF	Facility Support: Accelerator Mass Spectrometry at PRIME Lab	07/16	06/21, NCE to 2/23	\$856,091 / \$4,280,453
b) PRESENT GRANTS					
PI	NSF	Magic-DML: Mapping/Measuring/Modeling Antarctic Geomorphology & Ice Change in Dronning Maud Land	04/16	03/20, NCEs to 03/24	\$220,000 / \$550,000; Supplement \$109,874
Co-PI	NSF	Collaborative Research: Research Infrastructure: CFS (Track III): Cosmogenic Nuclides in Earth Science Research: Allied facilities for sample preparation, analysis, and training	07/23	06/28	\$3,793,185
PI	NSF	Collaborative Research: Reconstructing Holocene glacier lengths through time to address climate model-data disagreements	07/23	06/26	\$216,566 / \$505,577