

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 Climate Change Research Center
Purdue Center for the Environment

External

American Geophysical Union, member
Geological Society of America, member
Geochemical Society, member
Institute of Arctic and Alpine Research, research affiliate

PUBLICATIONS

Andersen, J.L., Newall, J.C., Blomdin, R., Sams, S.E., Fabel, D.G., Koester, A.J., Stuart, F.M., Lifton, N.A., Fredin, O., Caffee, M.W., Glasser, N.F., Rogozhina, I., Suganuma, Y., Harbor, J.M., Stroeven, A.P., 2020. Ice surface changes during recent glacial cycles along the Jutulstraumen and Penck Trough ice streams in western Dronning Maud Land, East

- Antarctica. *Quaternary Science Reviews* **249**, 106636.
doi:10.1016/j.quascirev.2020.106636
- Graham, B.L., Briner, J.P., Schweinsberg, A.D., Lifton, N.A., Bennike, O., 2019. New in situ ¹⁴C data indicate the absence of nunataks in West Greenland during the Last Glacial Maximum. *Quaternary Science Reviews* **225**, 105981. doi: 10.1016/j.quascirev.2019.105981
- Pendleton, S., Miller, G., Lifton, N., Young, N., 2019. Cryosphere response resolves conflicting evidence for the timing of peak Holocene warmth on Baffin Island, Arctic Canada. *Quaternary Science Reviews* **216**, 107–115. doi:10.1016/j.quascirev.2019.05.015
- 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
- Schweinsberg, A.D., Briner, J.P., Miller, G.H., Lifton, N.A., Bennike, O., Graham, B.L., 2018. Holocene mountain glacier history in the Sukkertoppen Iskappe area, southwest Greenland. *Quaternary Science Reviews* **197**, 142-161. ISSN 0277-3791,
<https://doi.org/10.1016/j.quascirev.2018.06.014>.
- 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., 2018. Timing and dynamics of glaciation in the Ikh Turgen Mountains, Altai region, High Asia. *Quaternary Geochronology* **47**, 54-71. ISSN 1871-1014, <https://doi.org/10.1016/j.quageo.2018.05.008>.
- Goehring, B.M., Muzikar, P., Lifton, N., 2018, Establishing a Bayesian approach to determining cosmogenic nuclide reference production rates using He-3. *Earth and Planetary Science Letters* **481**, 91-100.
- Gribenski, N., Jansson, K.N., Preusser, F., Harbor, J.M., Stroeven, A.P., Trauerstein, M., Blomdin, R., Heyman, J., Caffee, M.W., Lifton, N.A., Zhang, W., 2017. Re-evaluation of MIS 3 glaciation using cosmogenic radionuclide and single grain luminescence ages, Kanas Valley, Chinese Altai. *Journal of Quaternary Science* **25**, 1080–13.
doi:10.1002/jqs.2998
- Philipps, W., Briner, J.P., Bennike, O., Schweinsberg, A., Beel, C., and Lifton, N., 2017. Earliest Holocene deglaciation of the central Ummannaq Fjord system, West Greenland, *Boreas*.
<https://doi.org/10.1111/bor.12270>. ISSN 0300-9483.
- Muzikar, P., Goehring, B., Lifton, N., 2017, Handling overdispersion in CRONUS-Earth intercomparison measurements: A Bayesian approach. *Radiocarbon* **59**(4), 1133-1145.
doi:10.1017/RDC.2017.16
- Corbett, L.B., Bierman, P.R., Rood, D.H., Caffee, M.W., Lifton, N.A., and Woodruff, T.E., 2017. Cosmogenic ²⁶Al/¹⁰Be surface production ratio in Greenland, *Geophys. Res. Lett.* **44**, 1350–1359, doi:10.1002/2016GL071276.
- Martin, L.C.P., Blard, P.-H., Balco, G., Lavé, J., Delunel, R., Lifton, N., Laurent, V., 2017. The CREp program and the ICE-D production rate calibration database: A fully parameterizable

- and updated online tool to compute cosmic-ray exposure ages, *Quaternary Geochronology* **38**, 25-49, ISSN 1871-1014, <https://doi.org/10.1016/j.quageo.2016.11.006>.
- Gribenski, N., Lukas, S., Stroeven, A.P., Jansson, K.N., Harbor, J.M., Blomdin, R., Ivanov, M.N., Heyman, J., Petrakov, D.A., Rudoy, A., Clifton, T., Lifton, N.A., Caffee, M.W., 2017. Reply to comment received from J. Herget et al. regarding “Complex patterns of glacier advances during the late glacial in the Chagan Uzun Valley, Russian Altai by Gribenski et al. (2016), *Quaternary Science Reviews* **149**, 288–305”, *Quaternary Science Reviews* **168**, 219-221, ISSN 0277-3791, <https://doi.org/10.1016/j.quascirev.2017.04.013>.
- Blomdin, R., Stroeven, A.P., Harbor, J.M., Lifton, N.A., Heyman, J., Gribenski, N., Petrakov, D.A., Caffee, M.W., Ivanov, M.N., Hättestrand, C., Rogozhina, I., Usubaliev, R., 2017. Evaluating the timing of former glacier expansions in the Tian Shan: A key step towards robust spatial correlations. *Quaternary Science Reviews* **153**, 78-96, ISSN 0277-3791, <https://doi.org/10.1016/j.quascirev.2016.07.029>.
- Beel, C.R., Lifton, N.A., Briner, J.P., Goehring, B.M., 2016. Quaternary evolution and ice sheet history of contrasting landscapes in Uummanaq and Sukkertoppen, western Greenland, *Quaternary Science Reviews* **149**, 248-258, ISSN 0277-3791, <https://doi.org/10.1016/j.quascirev.2016.05.033>.
- 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, *Quaternary Science Reviews* **149**, 288-305, ISSN 0277-3791, <https://doi.org/10.1016/j.quascirev.2016.07.032>.
- Lifton, N.A., Phillips, F.M., Cerling, T.E., 2016, Using Lake Bonneville features to calibrate *in situ* cosmogenic nuclide production rates, in Oviatt, C.G. and Schroder, J.F. (eds.) *Lake Bonneville: A Scientific Update*. Developments in Earth Surface Processes v. 20, Elsevier. <http://dx.doi.org/10.1016/B978-0-444-63590-7.00009-3>.
- Lifton, N.A., 2016. Implications of two Holocene time-dependent geomagnetic models for cosmogenic nuclide production rate scaling. *Earth and Planetary Science Letters* **433**, 257-268.
- Marrero, S., Phillips, F.M., Borchers, B., Lifton, N., Aumer, R., Balco, G., 2016. Cosmogenic nuclide systematics and the CRONUScalc Program. *Quaternary Geochronology* **31**, 160-187.
- Phillips, F.M., Argento, D.C., Balco, G., Caffee, M.W., Clem, J., Dunai, T., Finkel, R., Goehring, B., Gosse, J.C., Hudson, A., Jull, A.J.T., Kelly, M., Kurz, M., Lal, D., Lifton, N., Marrero, S.M., Nishiizumi, K., Reedy, R., Schaefer, J., Stone, J.O.H., Swanson, T., Zreda, M.G., 2016. The CRONUS-Earth Project: A Synthesis. *Quaternary Geochronology* **31**, 119-154.
- Phillips, F.M., Argento, D.C., Bourlès, D.L., Caffee, M.W., Dunai, T.J., Goehring, B., Gosse, J., Hudson, A.M., Jull, A.J.T., Kelly, M., Lifton, N., Marrero, S.M., Nishiizumi, K., Reedy, R.C., Stone, J.O., 2016. Where now? Reflections on future directions for cosmogenic nuclide research from the CRONUS Projects. *Quaternary Geochronology* **31**, 155-159. doi:10.1016/j.quageo.2015.04.010.
- Borchers, B., Marrero, S.M., Balco, G., Caffee, M., Goehring, B., Gosse, J., Kurz, M., Lifton, N., Nishiizumi, K., Phillips, F., Schaefer, J., Stone, J., 2016. Geological calibration of

- spallation production rates in the CRONUS-Earth Project. *Quaternary Geochronology* **31**, 188-198. <http://dx.doi.org/10.1016/j.quageo.2015.01.009>.
- Shakun, J.D., Clark, P.U., Marcott, S.A., Brook, E.J., Lifton, N.A., Caffee, M., Shakun, W.R., 2015. Cosmogenic dating of Late-Pleistocene glaciation, southern tropical Andes, Peru. *Journal of Quaternary Science* **30**(8), 841-847.
- Bierman, P.R., Davis, P.T., Corbett, L.B., Lifton, N.A., Finkel, R.C., 2015. Cold-based, Laurentide ice covered New England's highest summits during the Last Glacial Maximum. *Geology* **43**(12), 1059-1062.
- Shakun, J.D., Clark, P.U., He, F., Lifton, N., Liu, Z., Otto-Bleisner, B.L., 2015. Regional and global forcing of glacier retreat during the last deglaciation. *Nature Communications* **6**: 8059. doi:10.1038/ncomms9059
- Beel, C.R., Goehring, B.M., Lifton, N.A., 2015. How many and from where? Assessing the sensitivity of exposure durations calculated from paired bedrock $^{14}\text{C}/^{10}\text{Be}$ measurements in glacial troughs. *Quaternary Geochronology* **29**, 1-5. doi:10.1016/j.quageo.2015.05.016
- Wang F., Michalski, G., Seo, J.-H., Granger, D.E., Lifton, N., Caffee, M., 2015. Beryllium-10 concentrations in the hyper-arid soils in the Atacama Desert, Chile: Implications for arid soil formation rates and El Nino driven changes in Pliocene precipitation. *Geochimica et Cosmochimica Acta* **160**, 227-242. <http://dx.doi.org/10.1016/j.gca.2015.03.008>.
- Lifton, N.A., Goehring, B.M., Wilson, J., Kubley, T., Caffee, M., 2015. Progress in automated extraction and purification of in situ ^{14}C from quartz: Results from the Purdue in situ ^{14}C laboratory, *Nuclear Instruments and Methods in Physics Research B* **361**, 381-386. <http://dx.doi.org/10.1016/j.nimb.2015.03.028>.
- Lifton, N., Caffee, M., Finkel, R., Marrero, S., Nishiizumi, K., Phillips, F.M., Goehring, B., Gosse, J., Stone, J., Schaefer, J., Theriault, B., Jull, A.J.T., Fifield, K., 2015. In situ cosmogenic nuclide production rate calibration for the CRONUS-Earth project from Lake Bonneville, Utah, shoreline features. *Quaternary Geochronology* **26**, 55-69. doi:10.1016/j.quageo.2014.11.002.
- Mahan, S.A., Gray H.J., Pigati J., Wilson, J., Lifton N., Paces J., Blaauw, M., 2014. A geochronologic framework for the Ziegler Reservoir fossil site, Snowmass Village, Colorado. *Quaternary Research* **82**, 490–503. doi:10.1016/j.yqres.2014.03.004.
- Miller, I.M., Pigati, J.S., Anderson, R.S., Johnson, K.R., Mahan, S.A., Ager, T.A., Baker, R.G., Blaauw, M., Bright, J., Brown, P.M., Bryant, B., Calamari, Z.T., Carrara, P.E., Cherney, M.D., Demboski, J.R., Elias, S.A., Fisher, D.C., Gray, H.J., Haskett, D.R., Honke, J.S., Jackson, S.T., Jiménez-Moreno, G., Kline, D., Leonard, E.M., Lifton, N.A., Lucking, C., McDonald, H.G., Miller, D.M., Muhs, D.R., Nash, S.E., Newton, C., Paces, J.B., Petrie, L., Plummer, M.A., Porinchu, D.F., Rountrey, A.N., Scott, E., Sertich, J.J.W., Sharpe, S.E., Skipp, G.L., Strickland, L.E., Stucky, R.K., Thompson, R.S., Wilson, J., 2014. Summary of the Snowmastodon Project Special Volume. *Quaternary Research* **82**, 618–634. doi:10.1016/j.yqres.2014.07.004
- Johnson, K.R., Miller, I.M., Pigati, J.S., The Snowmastodon Project Science Team, 2014. Introduction to the Snowmastodon Project Special Volume. *Quaternary Research* **82**, 473–476. doi:10.1016/j.yqres.2013.12.010
- Hippe, K., Lifton, N., 2014. Calculating isotope ratios and nuclide concentrations for *in situ* cosmogenic ^{14}C analyses. *Radiocarbon* **56**(3) 1167–1174.

- Dunai, T., Lifton, N., 2014. The nuts and bolts of nuclide production, *Elements* 10, 347-350, doi: 10.2113/gselements.10.5.347
- Lifton, N.A., Beel, C., Hättestrand, C., Kassab, C., Rogozhina, I., Heermance, R., Oskin, M., Burbank, D., Blomdin, R., Gribenski, N., Caffee, M., Heyman, J., Ivanov, M., Li, Y., Li, Y., Petrakov, D., Usabaliev, R., Codilean, A.T., Chen, Y., Harbor, J., Stroeven, A.P., 2014. Constraints on the late Quaternary glacial history of the Inylchek and Sary-Dzaz valleys from *in situ* cosmogenic ^{10}Be and ^{26}Al , eastern Kyrgyz Tian Shan, *Quaternary Science Reviews* **101**, 77-90, doi:10.1016/j.quascirev.2014.06.032.
- Young, N.E., Schaefer, J.M., Goehring, B., Lifton, N., Schimmelpfennig, I., Briner, J.P., 2014. West Greenland and global *in situ* ^{14}C production rate calibrations, *Journal of Quaternary Science* **29**, 401–406. doi:10.1002/jqs.2717
- Lifton, N., Sato, T., Dunai, T., 2014. Scaling *in situ* cosmogenic nuclide production rates using analytical approximations to atmospheric cosmic-ray fluxes. *Earth and Planetary Science Letters* **386** 149-160
- Briner, J.P., Lifton, N.A., Miller, G.H., Refsnider, K., Anderson, R.K., Finkel, R., 2014. Using *in situ* cosmogenic ^{10}Be , ^{14}C , and ^{26}Al to decipher the history of polythermal ice sheets, *Quaternary Geochronology* **19**, 4-13.
- Granger, D.E., Lifton, N.A., Willenbring, J.K., 2013. A cosmic trip: 25 years of cosmogenic nuclides in geology (*invited contribution*). *Geological Society of America Bulletin* **125**, 1379–1402.
- Schaefer, J.M. and Lifton, N., 2013. Cosmogenic Nuclide Dating | Section 2: Methodologies in cosmogenic nuclide exposure dating, *Encyclopedia of Quaternary Science*. 2nd ed. Elsevier, Oxford, p. 410-417.
- Goehring, B.M., Muzikar, P., and Lifton, N.A., 2013. An *in situ* ^{14}C - ^{10}Be Bayesian isochron approach for interpreting complex glacial histories: *Quaternary Geochronology*, v. 15, p. 61–66.
- Schimmelpfennig, I., Schaefer, J.M., Goehring, B.M., Lifton, N., Putnam, A.E., and Barrell, D.J.A., 2012. Calibration of the *in situ* cosmogenic ^{14}C production rate in New Zealand's Southern Alps: *Journal of Quaternary Science*, v. 27, no. 7, p. 671–674, doi: 10.1002/jqs.2566.
- Buizert, C., Petrenko, V.V., Kavanaugh, J.L., Cuffey, K.M., Lifton, N.A., Brook, E.J., and Severinghaus, J.P., 2012. *In situ* cosmogenic radiocarbon production and 2-D ice flow line modeling for an Antarctic blue ice area: *Journal of Geophysical Research*, v. 117, no. F2, p. F02029, doi: 10.1029/2011JF002086.
- Goehring, B.M., Schaefer, J.M., Schluechter, C., Lifton, N.A., Finkel, R.C., Jull, A.J.T., Akçar, N., and Alley, R.B., 2011. The Rhone Glacier was smaller than today for most of the Holocene: *Geology*, v. 39, no. 7, p. 679–682.
- Pigati, J.S., Lifton, N.A., Jull, A.J.T., and Quade, J., 2010. A simplified *in situ* cosmogenic ^{14}C extraction system, *Radiocarbon*. **52**(2-3), 1236-1243
- Pigati, J.S., Lifton, N.A., Jull, A.J.T., and Quade, J., 2010. Extraction of *in situ* cosmogenic ^{14}C from olivine, *Radiocarbon*. **52**(2-3), 1244-1260
- Goehring, B.M., Kurz, M.D., Balco, G., Schaefer, J.M., Licciardi, J., Lifton, N., 2010. A reevaluation of *in situ* ^3He production rates, *Quat. Geochron.* **5**, 410-418.

- Lifton, N., Smart, D. F., and Shea, M. A., 2008. Scaling time-integrated *in situ* cosmogenic nuclide production rates using a continuous geomagnetic model. *Earth Planet. Sci. Lett.* **268**, 190-201.
- Balco, G., Stone, J.O., Lifton, N., and Dunai, T.J., 2008. A complete and easily accessible means of calculating surface exposure ages or erosion rates from ^{10}Be and ^{26}Al measurements. *Quat. Geochron.* **3**, 174-195.
- Anderson, R.K., Miller, G.H., Briner, J.P., Lifton, N.A., DeVogel, S.B., 2008. A millennial perspective on Arctic warming from ^{14}C in quartz and plants emerging beneath ice caps, *Geophysical Research Letters*, **35**, L01502, doi: 10.1029/2007GL032057.
- Schaefer, J. M. and Lifton, N., 2007. Cosmogenic Nuclide Dating | Methods, *Encyclopedia of Quaternary Science*. Elsevier, Oxford, pp. 412-419.
- Pigati, J.S., Quade, J., Wilson, J., Jull, A.J.T., and Lifton, N., 2007. Development of low-background vacuum extraction and graphitization systems for ^{14}C dating of old (40-60 ka) samples: *Quaternary International*, v. 166, p. 4-14.
- Miller, G.H., Briner, J.P., Lifton, N.A., and Finkel, R.C., 2006. Limited ice-sheet erosion and complex exposure histories derived from *in situ* cosmogenic ^{10}Be , ^{26}Al , and ^{14}C on Baffin Island, Arctic Canada: *Quaternary Geochronology*, **1**, p. 74-85.
- Jull, A.J.T., Burr, G.S., Beck, J.W., Hodgins, G.W.L., Biddulph, D.L., Gann, J., Hatheway, A.L., Lange, T.E., Lifton, N.A., 2006. Application of accelerator mass spectrometry to environmental and paleoclimate studies at the University of Arizona, in: Sanchez-Cabeza, J.A., and Povinec, P.P. (Eds.), *Radioactivity in the Environment*. Elsevier, pp. 3-23.
- Lifton, N.A., Bieber, J.W., Clem, J.M., Duldig, M.L., Evenson, P., Humble, J.E., and Pyle, R., 2005. Addressing solar modulation and long-term uncertainties in scaling *in situ* cosmogenic nuclide production rates: *Earth and Planetary Science Letters*, **239**(1-2), p. 140-161.
- Matmon, A., Shaked, Y., Porat, N., Enzel, Y., Finkel, R., Lifton, N., Boarretto, E., and Agnon, A., 2005. Landscape development in a hyperarid sandstone environment along the margins of the Dead Sea fault: Implications from dated rock falls: *Earth and Planetary Science Letters*, **240**, p. 803-817.
- Pigati, J. S., and Lifton, N. A., 2004. Geomagnetic effects on time-integrated cosmogenic nuclide production with emphasis on in-situ ^{14}C and ^{10}Be : *Earth and Planetary Science Letters*, **226**, p. 193-205.
- Naysmith, P., Cook, G., Phillips, W., Lifton, N., Anderson, R., 2004. Preliminary results for the extraction and measurement of cosmogenic *in situ* C-14 from quartz. *Radiocarbon* **46**, 201-206.
- Jull, A.J.T., Burr, G.S., McHargue, L.R., Lange, T.E., Lifton, N.A., Beck, J.W., Donahue, D.J., and Lal, D., 2004. New frontiers in dating of geological, paleoclimatic and anthropological applications using accelerator mass spectrometric measurements of ^{14}C and ^{10}Be in diverse samples: *Global and Planetary Change*, **41**, p. 309-323.
- Lifton, N.A., Jull, A.J.T., Quade, J., 2001. A new extraction technique and production rate estimate for *in situ* ^{14}C in quartz. *Geochimica et Cosmochimica Acta* **65**(12): 1953-1969.

- Desilets, D., Zreda, M., and Lifton, N.A., 2001. Comment on "Scaling factors for production rates of *in situ* produced cosmogenic nuclides: A critical reevaluation" by Tibor J. Dunai. *Earth and Planetary Science Letters* **188**: 283-287.
- Donahue, D.J., Beck, J.W., Biddulph, D., Burr, G.S., Courtney, C., Damon, P.E., Hatheway, A., Hewitt, L., Jull, A., Lange, T., Lifton, N., Maddock, R., McHargue, L., O'Malley, J.M., Toolin, L., 1997. Status of the NSF-Arizona AMS laboratory. *Nuclear Instruments and Methods in Physics Research B* **123**, 51–56.
- Lifton, N.A., Jull, A.J.T., and Quade, J., 1996. Progress in extracting *in situ*-produced cosmogenic ^{14}C from quartz: Implications for integrated late Quaternary production rates. *Radiocarbon*, **38**: 77-78.
- Jull, A.J.T., McHargue, L.R., Lifton, N.A., Phillips, W.M. and Quade, J., 1996. Production of ^{14}C and ^{10}Be in the atmosphere and on the Earth's surface. *Radiocarbon*, **38**: 160-161.
- Jull, A.J.T., Lifton, N., Phillips, W.M. and Quade, J., 1994. Studies of the production rate of cosmic-ray produced ^{14}C in rock surfaces. *Nuclear Instruments and Methods in Physics Research B*, **92**: 308-310.
- 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

- 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

- 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 ³⁶Cl 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 ²⁶Al/¹⁰Be 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 GI2.7/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.
- Corbett, L.B., Bierman, P.R., Rood, D.H., Caffee, M.W., Woodruff, T.E., and Lifton, N.A., 2016. Elevated cosmogenic $^{26}\text{Al}/^{10}\text{Be}$ 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.
- Rogozhina, I., Bernales, J., Newall, J., Stroeven, A., Harbor, J., Glasser, N., Fredin, O., Fabel, D., Hättestrand, C., Lifton, N., 2016. MAGIC-DML: Mapping/Measuring/Modeling Antarctic Geomorphology & Ice Change in Dronning Maud Land. Geophysical Research Abstracts **18**, EGU2016-18514.
- Beel, C.R., Lifton, N.A., Briner, J.P., Goehring, B.M., 2015. Cosmogenic nuclide insights into Quaternary landscape evolution and ice sheet history of Central-West and Southwest Greenland. Paper 283-9, Geological Society of America *Abstracts with Programs* **47**(7), 713.

- Lifton, N., 2015. Exploring time-dependent geomagnetic and atmospheric effects on cosmogenic nuclide production rate scaling, 25th Goldschmidt Conference, Prague, Czech Republic, 16-21 August.
- Blomdin, R., Harbor, J., Stroeven, A., Petrakov, D., Gribenski, N., Heyman, J., Ivanov, M., Caffee, M., Hättestrand, C., Lifton, N., Rogozhina, I., Usabaliev, R., 2015. Late Pliocene to Late Quaternary Apparent Exposure Ages from Glacial Deposits in Ak-Shyrak, Central Kyrgyz Tian Shan, Abstract C53C-0327, Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec.
- Lifton, N., 2014. Comparing time-dependent geomagnetic and atmospheric effects on cosmogenic nuclide production rate scaling, Abstract EP53A-3640, Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec.
- Lifton, N., Goehring, B., Wilson, J., Kubley, T., Caffee, M., 2014. Progress in automated extraction and purification of *in situ* ¹⁴C from quartz: results from the Purdue *in situ* ¹⁴C laboratory. 13th Accelerator Mass Spectrometry Conference (AMS-13), Aix-en-Provence, France. 24-29 August.
- Goehring, B.M., Muzikar, P., Lifton, N.A., 2014. A Bayesian approach to estimating *in situ* cosmogenic nuclide production rates that explicitly considers erosion. 13th Accelerator Mass Spectrometry Conference (AMS-13), Aix-en-Provence, France. 24-29 August.
- Granger, D., Riebe, C., Moore, A., Rogers, H., Lifton, N., 2014. Production rate of ¹⁰Be in magnetite. 13th Accelerator Mass Spectrometry Conference (AMS-13), Aix-en-Provence, France. 24-29 August.
- Caffee M., Balco, G., Borchers, B., Goehring, B., Gosse, J., Kurz, M., Lifton, N., Marrero, S., Nishiizumi, K., Phillips F., Schaefer, J., Stone, J., 2014. CRONUS-Earth : Cosmogenic nuclide calibration. 13th Accelerator Mass Spectrometry Conference (AMS-13), Aix-en-Provence, France. 24-29 August.
- Caffee, M., Granger, D., Jackson, G., Kubley, T., Lifton, N., Miller, T., Muzikar, P., Woodruff, T., 2014. Accelerator Mass Spectrometry at Purdue University : Improvements at PRIME Lab. 13th Accelerator Mass Spectrometry Conference (AMS-13), Aix-en-Provence, France. 24-29 August.
- Casey Beel, Nathaniel Lifton, Jason Briner, Gifford Miller, Brent Goehring. 2014. Concordant ¹⁰Be/²⁶Al ages from high-elevation plateaus, Uummannaq fjord region, western Greenland. INSTAAR 44th International Arctic Workshop, Boulder, Colorado, March
- Schweinsberg, A.D., Briner, J.P., Miller, G.H., Bennike, O., and Lifton, N. 2014. Late Holocene expansion of local cold-based ice caps in west-central Greenland. INSTAAR 44th International Arctic Workshop, Boulder, Colorado, March.
- Harbor, J., Stroeven, A.P., Li, Y., Lifton, N.A., Blomdin, R., Beel, C., Caffee, M.W., Chen, Y., Gribenski, N., Hättestrand, C., Heyman, J., Ivanov, M., Kassab, C., Li, Y., Liu, G., Petrakov, D., Rogozhina, I., Usabaliev, R., Zhang, M., 2013. Spatial and temporal patterns of past mountain glaciation in the Tian Shan, Central Asia, Abstract GC33B-1108, Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.
- Lifton, N.A., 2013. Recent developments in cosmogenic nuclide production rate scaling, Abstract EP53A-0737, Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.
- Beel, C., Goehring, B.M., Lifton, N.A., 2013. Accurate characterization of exposure duration and erosion depth from glacial troughs using paired *in situ* ¹⁴C-¹⁰Be measurements and a

- Bayesian isochron analysis, ^[L]Abstract_EP53A-0735, Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.
- Granger, D.E., Rogers, H.E., Riebe, C.S., Lifton, N.A., 2013. Production rate of cosmogenic ¹⁰Be in magnetite, Abstract EP53A-0736, Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.
- Briner, J.P., Schweinsberg, A., Miller, G.H., Bennike, O., Lifton, N.A., 2013. Reconstructing the late Holocene expansion of mountain ice caps in west-central Greenland, Abstract C33A-0654, Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.
- Goehring, B., Muzikar, P., Lifton, N., 2013. Bayesian analysis of paired *in situ* ¹⁴C and ¹⁰Be measurements: Insights into complex exposure histories, Geological Society of America *Abstracts with Programs*. Vol. 45, No. 7, p.414
- Lifton, N., Beel, C., Blomdin, R., Caffee, M., Chen, Y., Codilean, A., Goehring, B., Gribenski, N., Harbor, J., Hättestrand, C., Heyman, J., Ivanov, M., Kassab, C., Li, Y., Petrakov, D., Rogozhina, I., Stroeven, A.P., Usabaliev, R., Wetzel, H.-U., 2012. Glaciation in a tectonically active environment: Preliminary observations from the Inylchek and Sary-Dzaz Valleys, Kyrgyz Tian Shan, Abstract EP51F-03, *Fall Meeting, AGU*, San Francisco, Calif., 3-7 Dec.
- Blomdin, R., Beel, C., Caffee, M.W., Codilean, A., Gribenski, N., Harbor, J., Heyman, J., Hättestrand, C., Ivanov, M., Kassab, C., Lifton, N.A., Petrakov, D., Rogozhina, I., Stroeven, A.P., Usabaliev, R., 2012. Paleoglaciology of the Ala-Archa and Ak-Shyrak areas, Kyrgyz Tian Shan, Abstract EP51F-02, *Fall Meeting, AGU*, San Francisco, Calif., 3-7 Dec.
- Harbor, J., Stroeven, A.P., Beel, C., Blomdin, R., Caffee, M.W., Chen, Y., Codilean, A., Gribenski, N., Hättestrand, C., Heyman, J., Ivanov, M., Kassab, C., Li, Y., Li, Y., Lifton, N.A., Liu, G., Petrakov, D., Rogozhina, I., Usabaliev, R., 2012. Reconstructing spatial and temporal patterns of paleoglaciation along the Tian Shan, EP53D-1059, *Fall Meeting, AGU*, San Francisco, Calif., 3-7 Dec.
- Gribenski, N., Jansson, K., Stroeven, A.P., Harbor, J., Blomdin, R., Zhao, J., Hättestrand, C., Lifton, N.A., Petrakov, D., 2012. Comparison of dating methods for glacier chronology in the Tian Shan, Abstract EP53D-1061, *Fall Meeting, AGU*, San Francisco, Calif., 3-7 Dec. ^[L]^[L]^[SEP]^[SEP]
- Marrero, S.M., Phillips, F.M., Stone, J.O.H., Lifton, N.A., 2012. Chlorine-36 production rate calibration by the CRONUS-Earth Project, Abstract EP13C-0851, *Fall Meeting, AGU*, San Francisco, Calif., 3-7 Dec.
- Schimmelpfennig, I., Schaefer, J.M., Goehring, B.M., Lifton, N., 2011. Calibration of the *in situ* cosmogenic ¹⁴C spallogenic production rate in the Southern Alps, New Zealand, Abstract EP41B-0607, *Fall Meeting, AGU*, San Francisco, Calif., 5-9 Dec.
- Lifton, N.A., 2011. Potential resolution of discrepancies between scaling models for *in situ* cosmogenic nuclide production rates, (XVIII) INQUA Congress, Bern, Switzerland, 20-27 July.
- Caffee, M.W., Jull, A.J.T., Balco, G., Lifton, N., Phillips, F., Schaefer, J., Nishiizumi, K., Borchers, B., Marrero, S., Kurz, M., Reedy, R.C., Stone, J., 2011. Cosmic-Ray Produced Nuclide Systematics on Earth Project: CRONUS-Earth. *12th International Conference on Accelerator Mass Spectrometry*, Wellington, New Zealand, 20-25 March.

- Lifton, N.A., 2010. Potential resolution of discrepancies between scaling models for *in situ* cosmogenic nuclide production rates, Abstract EP32A-03, *Fall Meeting, AGU*, San Francisco, Calif., 13-17 Dec.
- Lifton, N., Caffee, M.W., Finkel, Nishiizumi, K., R., Schaefer, J.M., Stone, J., Goehring, B.M., Phillips, F., Oviatt, C.G., Rood, D., 2009. A new estimate of the spallogenic production rate of *in situ* cosmogenic ^{10}Be from Lake Bonneville shoreline features, Promontory Point, Utah, *Geol. Soc. Am. Abstracts with Programs* **41**(7), p. 229.
- Goehring, B.M., Kurz, M.D., Balco, G., Schaefer, J.M., Licciardi, J., Lifton, N., 2009. A reevaluation of *in situ* ^3He production rates, *Geol. Soc. Am. Abstracts with Programs* **41**(7), p. 649.
- Lifton, N.A., 2009. Sensitivity of cosmogenic nuclide production rate scaling to an updated geomagnetic framework. 2009 Goldschmidt Conference, Davos, Switzerland. *Geochim. Cosmochim. Acta.* **73**(13), A762 Suppl. S1.
- Smart, D.F., Shea, M.A., Lifton, N., 2008. Evolution of geomagnetic cutoff rigidities on short- and long-term time scales, *Eos Trans. AGU*, **89**(23), Jt. Assem. Suppl., Abstract GP53A-03.
- Miller, G.H., Briner, J.P., Lifton, N., Kaplan, M., Refsnider, K.A., 2008, Testing the nunatak refugia hypothesis in the Eastern Canadian Arctic with cosmogenic nuclides ^{14}C , ^{10}Be , and ^{26}Al , *Eos Trans. AGU*, **89**(53), Fall Meet. Suppl., Abstract PP53A-08.
- Lifton, N.A., 2008. *In situ* cosmogenic ^{14}C from surfaces at secular equilibrium. 2008 Goldschmidt Conference, Vancouver, Canada. *Geochim. Cosmochim. Acta.* **72**(12), A552 Suppl. S1.
- Dugan, B., Lifton, N., Jull, A.T., 2008. New production rate estimates for *in situ* cosmogenic ^{14}C , 2008 Goldschmidt Conference, Vancouver, Canada. *Geochim. Cosmochim. Acta.* **72**(12), A231 Suppl. S1.
- Dugan, B., Lifton, N., Jull, A.T., 2007. New production rate estimates for *in situ* cosmogenic ^{14}C from Lake Bonneville, Utah and northwest Scotland, *Eos Trans. AGU*, **88**(52), Fall Meet. Suppl., Abstract PP33B-1286.
- Caffee, M.W., Balco, G., Finkel, R.C., Jull, A.J.T., Kurz, M., Lifton, N., McGee, S., Nishiizumi, K., Phillips, F.M., Schaefer, Y., 2007. Calibration of terrestrial cosmic-ray-produced nuclides: CRONUS. *Geol. Soc. Am. Abstr. Prog.* **39**(6), p. 603.
- Anderson, R.K., Miller, G.H., Briner, J.P., Lifton, N., DeVogel, S.B., 2006. Rapidly Melting Ice Caps of Northern Baffin Island: Insights From Cosmogenic and Conventional Radiocarbon Dating, *Eos Trans. AGU*, **87**(52), Fall Meet. Suppl., Abstract U22A-07.
- Miller, G.H., Briner, J.P., Lifton, N.A., Anderson, R., Finkel, R.C., 2006. Stability of the Laurentide Ice Sheet Since the Middle Pleistocene, *Eos Trans. AGU*, **87**(52), Fall Meet. Suppl., Abstract U24A-04^[SEP].
- Lifton, N., Pigati, J., Jull, A.J.T., Quade, J., 2005. Extracting *In situ* Cosmogenic ^{14}C From Olivine: Significance for the CRONUS-Earth Project, *Eos. Trans. AGU*, **86**(52), Fall Meet. Suppl., Abstract U23B-06.
- Zreda, M., and Lifton, N., 2005. *In-situ* ^{14}C and ^{36}Cl : A tool for analyzing complex exposure and burial histories of glacial landscapes, *Geol. Soc. Am. Abstracts with Programs*, **37**(7), p. 399, Abstract 178-6.

- Pigati, J.S., Lifton, N.A., Jull, A.J.T., and Quade, J., 2005. Experimental developments in low level ^{14}C research: *Geol. Soc. Am. Abstracts with Programs*, **37**(7), p. 478, Abstract 216-2.
- Miller, G.H., Briner, J.P., Kaplan, M.R., Lifton, N.A., Davis, P.T., Coulthard, R., Landvik, J., Clarke, B., and Atkinson, R., 2005. Resolving the role of cold-based ice along the NE Laurentide margin: New insights from a decade of cosmogenic exposure dating: *Geol. Soc. Am. Abstracts with Programs*, **37**(7), p. 398, Abstract 178-1
- Lifton, N.A., Bieber, J.W., Clem, J.M., Duldig, M.L., Evenson, P., Humble, J.E., and Pyle, R., 2005. Solar modulation and scaling *in situ* cosmogenic nuclide production rates: *Geochimica et Cosmochimica Acta*, **69**(10), p. A166.
- Pigati, J.S., Lifton, N.A., and Desilets, D., 2005. Integrating geomagnetic records and cosmogenic nuclide production: *Geochimica Et Cosmochimica Acta*, **69**(10), p. A167.
- Schaefer, J.M., Denton, G.H., Lowell, T., Anderson, B., Rinterknecht, V., Ivy-Ochs, S., Kubik, P.W., Schluechter, C., Chinn, T., Barrell, D., Lifton, N., Jull, T., 2004. The glacial record of New Zealand's Southern Alps (*poster*), *EOS Transactions of the American Geophysical Union*, **85**(47), Fall Meeting Supplement, Abstract PP33B-0921.
- Lifton, N.A., Pigati, J., Jull, A.J.T., Quade, J., Bierman, P., Stone, J. and Kober, F., 2003. Testing cosmogenic nuclide production rate scaling models using *in situ* cosmogenic ^{14}C from surfaces at secular equilibrium. *Geochimica et Cosmochimica Acta* **67**(S1): Abstracts of the 13th Annual V.M. Goldschmidt Conference, Kurashiki, Japan, A253.
- Lifton, N.A., Schaefer, J., Jull, A.J.T., Denton, G., and Schluchter, C., 2003. *In situ* cosmogenic ^{14}C and ^{10}Be dating of Holocene glacial advances in New Zealand (abstr), Abstracts of the 18th International Radiocarbon Conference, Wellington, New Zealand, p. 95.
- Lifton, N.A., Pigati, J., Jull, A.J.T., Quade, J., Bierman, P., Kober, F., 2002. Testing cosmogenic nuclide production rate scaling models using *in situ* cosmogenic ^{14}C : Preliminary results. *Eos Trans. AGU*, **83**(47) Fall Meet. Suppl. Abstract V52B-1289.
- Lifton, N.A., Pigati, J., Jull, A.J.T., Quade, J., Bierman, P., 2002. Altitudinal variation of *in situ* ^{14}C production rates: Preliminary results from the southwestern U.S. *Geochim. Cosmochim. Acta*, **66** (S1) Abstracts of the 12th Annual V.M. Goldschmidt Conference, Davos, Switzerland, p. A457.
- Jull, A.J.T., Pigati, J., Lifton, N.A., McHargue, L.R., Burr, G.S., Lal, D., and Waters, M.R., 2002. The potential for using in-situ cosmogenic ^{14}C and ^{10}Be for dating of artifacts and archaeological materials. 9th International Conference on Accelerator Mass Spectrometry, Nagoya, Japan, Sept 2002, p. 42
- Zreda, M., and Lifton, N., 2000. Revealing complex exposure histories of Arctic landforms using in-situ ^{14}C and ^{36}Cl . *Eos, Transactions, American Geophysical Union*. **81**: F24.
- Lifton, N. A., 2000. A robust model for scaling *in situ* cosmogenic nuclide production rates. *Geological Society of America Annual Meeting, Abstracts with Programs*. **32**: A400.
- Lifton, N. A., Jull, A. J. T., and Quade, J., 2000. A new extraction technique and production rate estimate for *in situ* cosmogenic ^{14}C in quartz. *Abstracts of the 17th International Radiocarbon Conference*, Jerusalem.
- Lifton, N.A., Phillips, W., Jull, A.J.T. and Quade, J., 1993. Integrated late Quaternary production rates for *in situ*-produced cosmogenic ^{14}C from Lake Bonneville shoreline features, using

new extraction techniques. *EOS, Transactions of the American Geophysical Union*, **74**: 649.

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: P. Bierman (U. Vermont), J. Briner (U. Buffalo), R. Burgette (New Mexico State U.), 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.), F. He (U. Wisconsin), R. Heermance (Calif. State U. Northridge), J. Klaminder (Umeå U., Sweden), G. Miller (U. Colorado), I. Rogozhina (Norwegian U. Sci. Tech.), T. Sato (Japan Atomic Energy Agency), K. Scharer (USGS), J. Shakun (Boston College), A. Stroeve (Stockholm University), J. Willenbring (Scripps), D. Yule (Calif. State U. Northridge).

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

Current graduate students

Jennifer Newall, M.S., Purdue University, Advisor (take over from J. Harbor) - completed requirements but still needs to deposit thesis by Spring 2021 in order to receive M.S. degree.

Sarah Sams, M.S., Purdue University, Advisor

Jordyn Miller, Ph.D., Purdue University, Committee Member

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

Adrian Singelton, M.S., Advisor

Alexandria Koester, Ph.D., Advisor. Passed Qualifying Exam in Fall 2019. Committee requires passing an undergraduate Differential Equations course.

Postdoctoral Scholars

Brent Goehring, Postdoctoral Fellow 2011-2014, Mentor. Now an Assistant 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
b) PRESENT GRANTS					
PI	NSF	Magic-DML: Mapping/Measuring/Modeling Antarctic Geomorphology & Ice Change in Dronning Maud Land	04/16	03/20, NCEs to 03/22	\$220,000 / \$550,000; Supplement \$109,874
Co-PI	NSF	Facility Support: Accelerator Mass Spectrometry at PRIME Lab	07/16	06/21	\$856,091 / \$4,280,453