

# Jon Harbor

Senior Advisor to the Provost and Emeritus Professor  
Purdue University

## PROFESSIONAL POSITIONS

Purdue University:

Senior Advisor to the Provost, 2024-present

Emeritus Professor, Department of Earth, Atmospheric, and Planetary Sciences, 2018-present

Purdue University Global, Provost, 2020-2024

University of Montana:

Executive Vice President and Provost, 2018-2020

Professor, joint appointment in the Department of Geography and the Geosciences Department, 2018-2020

Purdue University:

Executive Director of Digital Education and Associate Vice Provost for Teaching and Learning, 2015-18

Founding and Interim Director, Purdue Global Sustainability Institute, 2009-13

Head, Dept. Earth, Atmospheric, and Planetary Sciences, 2010-13, 2005-06; Associate Head, 2001-03

Interim Dean, College of Science, 2008-09

Associate Vice President for Research for Centers and Institutes, 2007-08

Founding Co-Director, Discovery Learning Research Center, 2003-05, and Interim Director, 2007-08

Associate Dean for Research & Interim Associate Dean for Graduate Education, College of Science, 2003-04

Professor (2007-2018 and 2001-06) and Associate Professor (1994-2001) of Environmental Geosciences

American Council on Education Fellow, 2014-15. Host Institution, North Carolina State University.

Marie Curie International Incoming Fellow, Stockholm University, Department of Physical Geography, 2013-14

Dean, College of Liberal Arts and Sciences, and Geography Professor, University of Colorado Denver, 2006-07

Fulbright Senior Scholar, Department of Geography, University of Canterbury, New Zealand, 2000-01

Assistant Professor, Department of Geology, Kent State University, 1990-94

Senior Associate Scientist, Ebasco Environmental, Bellevue, Washington, 1989-90

Honorary/Adjunct:

Honorary Professor, School of Geographical Sciences, University of Nottingham Ningbo Campus, China, and

School of Geography, University of Nottingham UK Campus, 2017-present

Honorary Professor, Graduate School, Qinghai Normal University, China, and Chief Scientist of China-US Joint

Laboratory for Natural Resources and Environmental modeling, 2017-present

Affiliated Professor, Department of Physical Geography, Stockholm University, 2014-present

Adjunct Professor, Department of Geography, University of Tennessee, 2012-present

Journal and Professional Society:

Editor for Earth Surface Processes, *Earth Science Reviews* (2002-11); Associate Editor, *Anthropocene* (2012-15);

Editorial Board member: *Geomorphology* (1999-2007); *Journal of Mountain Science* (2006-15); *Physical*

*Geography* (2008-15); *The Geographical Journal (U.K.)* (2010-15); *Anthropocene* (2015-2019).

Member: *Healthy Departments Committee, Association of American Geographers*, 2015-present

Executive Committee: *American Geophysical Union Heads and Chairs Board*, 2010-12

Chair: *Geomorphology Specialty Group, Association of American Geographers*, 2007-08; *Fellows Selection Committee, Association of American Geographers*, 2019-2022

## EDUCATION

Ph.D. 1990, University of Washington (Seattle). Department of Geological Sciences.

M.A. 1984, University of Colorado (Boulder). Department of Geography.

B.A. 1982, University of Cambridge (U.K.). Department of Geography and Girton College.

## AWARDS AND HONORS

### External:

Distinguished Career Award, Geomorphology Specialty Group, American Association of Geographers, 2022  
Fellow, American Association of Geographers, 2019  
Fellow, American Council on Education, 2014  
Fellow, American Association for the Advancement of Science, 2010  
Fellow, Royal Geographical Society (U.K.), 2010  
Honorary Doctorate, Stockholm University, Sweden, 2015  
Antarctica Service Medal, US Armed Forces, 2019  
Scientific Excellence Prize, Department of Science and Technology, Gansu Province, China, 2017, for the book *Glaciers and Glacial Landscapes in China*, by Liu, Zhao, Pu, Deng, Su, and Harbor.  
Marie Curie International Incoming Fellow, European Commission, Stockholm University, 2013-14  
Distinguished Overseas Visitor, 2003-4, Department of Geography, University of Durham, U.K.  
Fulbright Senior Scholar, 2000-2001, New Zealand  
Conservation Educator of the Year, Summit Soil and Water Conservation District, Ohio, 1992

### Purdue University:

Provost's Award for Outstanding Graduate Faculty Mentor, 2013 (top university award for graduate education)  
Faculty Fellow of the Year Award, Windsor Residence Halls, Purdue University, 2013  
Inducted into Purdue University's "Book of Great Teachers", 2008  
Outstanding Graduate Student Advisor, Department of Earth and Atmospheric Sciences, 2005  
Murphy Teaching Award, 2000 (top university award for undergraduate education)  
Fellow of the Purdue Teaching Academy, 2000 - 2018  
Outstanding Teacher Award, Department of Earth and Atmospheric Sciences, Purdue University, 1998

Student awards: George Goodspeed Scholarship, 1986, Faculty Fellowship, 1987, and Shell Companies Fellowship, 1988, Department of Geological Sciences, University of Washington. Hoover-Mackin Research Award (MS Level), Geological Society of America, 1983. Therese Montefiore Prize, 1982, Mary Sparke Exhibitioner, 1980-1982, and Margaret Anderson Prize, 1980, 1982, Girton College, Cambridge University.

## PROFESSIONAL AFFILIATIONS

American Association of Geographers  
American Association for the Advancement of Science  
Royal Geographical Society, United Kingdom  
Bolin Center for Climate Research, Stockholm University

## RESEARCH AND TEACHING INTERESTS

Geomorphology: New insights into chronology, erosion patterns, and thermal regimes of former glaciers and ice sheets using modeling, field observations, and cosmogenic radionuclide approaches.

Environment: Modeling, assessment, and management of impacts of land use and climate change on water resources and nonpoint source pollution.

Education Research: Assessing student outcomes in a program engaging graduate students and middle school teacher mentors in developing and teaching middle school lessons based on the graduate students' research; Assessing impacts of a workshop on the scholarship of teaching and learning; Exploring the impact of culturally relevant geoscience education for diverse learners.

Teaching Interests: Include an introductory course in geography (fully online, asynchronous), study abroad to Sweden, a graduate course in K-12 engagement (service learning), and courses in geomorphology, applied hydrology, and a capstone in environmental geoscience.

## PUBLICATIONS

*Superscripts designate authors and co-authors I advised, co-advised, or supervised at the time the published work was performed: a: undergraduate student. b: graduate student. c: post-doc. d: visiting scholar or staff.*

Journal publications are organized by date in four themes:  
Glacial Research - Environmental Science - Teaching and Learning - Administration

### Journal Publications – glacial research

- Andersen, J.L., Newall, J.C., Fredin, O., Glasser, N., Lifton, N., Stuart, F., Fabel, D., Caffee, M., Pedersen, V., Koester, A., Suganuma, Y., Harbor, J., Stroeven, A., 2023. A topographic hinge-zone divides coastal and inland ice dynamic regimes in East Antarctica. *Communications Earth and Environment* 4, 9. <https://doi.org/10.1038/s43247-022-00673-6>
- Braga, M., Jones, R., Bernales, J., Andersen, J., Fredin, O., Morlighem, M., Koester, A., Lifton, N., Harbor, J., Suganuma, Y., Glasser, N., Rogozhina, I., Stroeven, A., 2023. A thicker Antarctic ice stream during the mid-Pliocene warm period. *Communications Earth and Environment* 4, 321. <https://doi.org/10.1038/s43247-023-00983-3>
- Liu, L., Zhang, H., Chai, L., Harbor, J., Xu S., Zhang, W., He, Z., Zhang, J., 2023. Late Quaternary modeling and paleoclimate evolution of the Mount Taibai glacier (Qinling Mountains, China) constrained by cosmogenic radionuclide exposure dating. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 618, 111529. <https://doi.org/10.1016/j.palaeo.2023.111529>.
- Zhao, J., Harbor, J., Qiu, J., Caffee, M., Guo, W., Ji, H., Liu, R., Ma, H., 2023. Glacier fluctuations since the global Last Glacial Maximum in the eastern Tanggula Mountains, China. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 627, 111742. <https://doi.org/10.1016/j.palaeo.2023.111742>
- Zhao, J., Qiu, J., Harbor, J., Guo, W., Caffee, M., Ji, H., Chen, J., He, X., 2023.  $^{10}\text{Be}$  surface exposure dating of glacier fluctuations on the eastern slope of Mount Geladandong, central Tibetan Plateau. *Quaternary International*. <https://doi.org/10.1016/j.quaint.2023.12.004>
- Zhao, J., Qiu, J., Harbor, J., Ji, H., Caffee, M., Guo, W., Zheng, H. 2023. Timing and extent of late Quaternary glaciations on Karlik Mountain, eastern Tianshan range, China. *Quaternary Science Reviews*, 306. <https://doi.org/10.1016/j.quascirev.2023.108038>
- Suganuma, Y., Kaneda, H., Mas e Braga, M., Ishiwa, T., Koyama, T., Newall, J., Okuno, J., Obase, T., Saito, F., Rogozhina, I., Andersen, J., Kawamata, M., Hirabayashi, M., Lifont, N., Fredin, O., Harbor, J., Stroeven, A., Abe-Ouchi, A. 2022. Regional sea-level highstand triggered Holocene ice sheet thinning across coastal Dronning Maud Land, East Antarctica. *Communications Earth and Environment* 3, 273. <https://doi.org/10.1038/s43247-022-00599-z>
- Andersen, J., Newall, J., Blomdin, R., Sams, S., Fabel, D., Koester, A., Lifton, N., Fredin, O., Caffee, M., Glasser, N., Rogozhina, I., Suganuma, Y., Harbor, J., Stroeven, A. 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, <https://doi.org/10.1016/j.quascirev.2020.106636>
- <sup>b</sup>Newall, J., Dymova, T., Serra, E., Blomdin, R., Fredin, O., Glasser, N., Suganuma, Y., Harbor, J., Stroeven, A. 2020 The Glacial Geomorphology of Western Dronning Maud Land, Antarctica. *Journal of Maps*, 16:2, 468-478, <https://doi.org/10.1080/17445647.2020.1761464>
- Yao, P., Wang, J., Harbor, J., Wang, F., Zou, L., Wang, W., Chen, X., 2020, The relative efficiency and influence of glacial and fluvial erosion on Tibetan Plateau landscapes. *Geomorphology*. 352, <https://doi.org/10.1016/j.geomorph.2019.106988>
- Fu, P., Stroeven, A. P., Harbor, J., Heyman, J., Hättestrand, C., Caffee, M., 2019, Ice cap erosion patterns from bedrock  $^{10}\text{Be}$  and  $^{26}\text{Al}$ , southeastern Tibetan Plateau. *Earth Surface Processes and Landforms*, 44, 918-932. <http://dx.doi.org/10.1002/esp.4544>

- <sup>b</sup>Blomdin, R., Stroeven, A. P., Harbor, J., <sup>b</sup>Gribenski, N., Caffee, M., Heyman, J., Rogozhina, I., Ivanov, M., Petrakov, D., Walther, M., Rudoy, A., Zhang, W., Orkhonselenge, A., Hättestrand, C., Lifton, N., Jansson, K., 2018, Timing and dynamics of glaciation in the Ikh Turgen Mountains, Altai Region, High Asia. *Quaternary Geochronology*, 47, 54-71. <https://doi.org/10.1016/j.quageo.2018.05.008>
- Dahms, D., Egli, M., Fabel, D., Harbor, J., Brandova, D., Portes, R., Christl, M., 2018, Revised Quaternary glacial succession and post-LGM recession, southeastern Wind River Range, Wyoming, USA. *Quaternary Science Reviews*, 192, 167-184.
- Wang, J., Yao, P., Yu, B., Zou, L., Wang, F., Harbor, J., 2018, Controls on spatial variations of glacial erosion in the Qilian Shan, northeastern Tibetan Plateau. *Geomorphology*, 318, 128-138. <https://doi.org/10.1016/j.geomorph.2018.06.004>
- <sup>b</sup>Gribenski, N., Jansson, K., Preusser, F., Harbor, J., Stroeven, A.P., Trauerstein, M., <sup>b</sup>Blomdin, R., Heyman, J., Caffee, M., Lifton, N., Zhang, W., 2017. A re-evaluation of MIS 3 glaciation using cosmogenic radionuclide and single grain luminescence ages, Kanas Valley, Chinese Altai. *Journal of Quaternary Science*. <http://dx.doi.org/10.1002/jqs.2998>.
- <sup>b</sup>Gribenski, N., Jansson, K., Lukas, S., Stroeven, A.P., Harbor, J., <sup>b</sup>Blomdin, R., Ivanov, M., Heyman, J., Petrakov, D., Rudoy, A., Clifton, C., Lifton, N., Caffee, M., 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*, <http://dx.doi.org/10.1016/j.quascirev.2017.04.013>
- Heyman, J., Applegate, P., <sup>b</sup>Blomdin, R., <sup>b</sup>Gribenski, N., Harbor, J., and Stroeven, A., 2016, Boulder height - exposure age relationships from a global glacial <sup>10</sup>Be compilation. *Quaternary Geochronology*. <http://dx.doi.org/10.1016/j.quageo.2016.03.002>
- Li, Y.N., Li, Y.K., Lu, X., Harbor, J. 2016, Geomorphometric Controls on Mountain Glacier Changes since the Little Ice Age in the Eastern Tien Shan, Central Asia. *Annals of the Association of American Geographers*. 107, 284-98. <http://dx.doi.org/10.1080/24694452.2016.1248552>
- <sup>b</sup>Blomdin, R., Stroeven, A. P., Harbor, J., Lifton, N., Heyman, J., <sup>b</sup>Gribenski, N., Petrakov, D., Caffee, M., Ivanov, M., Hättestrand, C., Rogozhina, I., Usubaliev, R., 2016, Evaluating the timing of former glacier expansions in the Tian Shan: a key step towards robust spatial correlations. *Quaternary Science Reviews*. 153, 78-96. <http://dx.doi.org/10.1016/j.quascirev.2016.07.029>
- <sup>b</sup>Gribenski, N., Jansson, K., Lukas, S., Stroeven, A.P., Harbor, J., <sup>b</sup>Blomdin, R., Ivanov, M., Heyman, J., Petrakov, D., Rudoy, A., Clifton, C., Lifton, N., Caffee, M., 2016, Complex patterns of glacier advances during the Late Glacial in the Chagan Uzun Valley, Russian Altai. *Quaternary Science Reviews*. 149, 228-305. <http://dx.doi.org/10.1016/j.quascirev.2016.07.032>.
- Li, Y.N., Li, Y.K., Harbor, J., Liu, G., Yi, C., Caffee, M., 2016, Cosmogenic <sup>10</sup>Be constraints on Little Ice Age glacial advances in the eastern Tian Shan, China. *Quaternary Science Reviews*, 138, 105-118. <http://dx.doi.org/10.1016/j.quascirev.2016.02.023>
- Stroeven, A., Hättestrand, C., Kleman, J., Heyman, J., Fabel, D., Fredin, O., Goodfellow, B., Harbor, J., Jansen, J., Olsen, L., Caffee, M., Fink, D., Lundqvist, J., Rosqvist, G., Strömberg, B., Jansson, K., 2016, Deglaciation of Fennoscandia. *Quaternary Science Reviews*, 147, 91-121. <http://dx.doi.org/10.1016/j.quascirev.2015.09.016>
- Zhang, W., Liu, L., Chen, Y., Liu, B., Harbor, J., Cui, Z., Liu, R., Liu, X., Zhao, X., 2016, Late glacial <sup>10</sup>Be ages for glacial landforms in the upper region of the Taibai glaciation in the Qinling Mountain range, China. *Journal of Asian Earth Sciences*, 115, 383-392.
- Stroeven, A., Heyman, J., Fabel, D., Björck, S., Caffee, M., Fredin, O., Harbor, J., 2015, A new Scandinavian reference <sup>10</sup>Be production rate. *Quaternary Geochronology*, 29, 104-115.
- Wang, J., Cui, H., Harbor, J., Zheng, L., Yao, P., 2015, Mid-MIS3 climate inferred from reconstructing the Dalijia Shan ice cap, north-eastern Tibetan Plateau. *Journal of Quaternary Science*, 30, 558-68.
- <sup>d</sup>Zhao, J.D., Wang, J., Harbor, J., Liu, S., Yin, X., Wu, Y., 2015, Quaternary glaciations and glacial landform evolution in the Tailan River Valley, Tianshan Range, China. *Quaternary International*, 358, 2-11. <http://dx.doi.org/10.1016/j.quaint.2014.10.029>
- <sup>b</sup>Blomdin, R., <sup>c</sup>Heyman, J., Stroeven, A., Hättestrand, C., Harbor, J., <sup>b</sup>Gribenski, N., Jansson, K., Petrakov, D., Ivanov, M., Orkhonselenge, A., Rudoy, A., Walther, M., 2014, Glacial geomorphology of the Altai and western Sayan

- Mountains, Central Asia. *Journal of Maps*. <http://dx.doi.org/10.1080/17445647.2014.992177>
- Jansen, J., Codilean, A., Stroeven, A., <sup>c</sup>Fabel, D., Hätttestrand, C., Kleman, J., Harbor, J., <sup>c</sup>Heyman, J., Kubik, P. and Xu, S., 2014, Rivers under ice: fluvial erosion beneath decaying ice sheets. *Nature Communications*, 5. <http://dx.doi.org/10.1038/ncomms4815>
- Li, Y., Liu, G., Chen, Y., Li, Y.N., Harbor, J., Stroeven, A., Caffee, M., Chang, M. Li, C., Cui, Z., 2014, Timing and extent of Quaternary glaciations in the Tianger Range, eastern Tian Shan, China, investigated using <sup>10</sup>Be surface exposure dating. *Quaternary Science Reviews*, 98, 7-23. <http://dx.doi.org/10.1016/j.quascirev.2014.05.009>
- Li, Y., Li, D., Liu, G., Harbor, J., Caffee, A., Stroeven, A., 2014, Patterns of landscape evolution on the central and northern Tibetan Plateau investigated using *in-situ* produced <sup>10</sup>Be concentrations from river sediments. *Earth and Planetary Science Letters*, 398, 77–89. <http://dx.doi.org/10.1016/j.epsl.2014.04.045>
- Lifton, N., Beel, C., Hätttestrand, C., Kassab, C., Rogozhina, I., Heermance, R., Oskin, M., Burbank, D., <sup>b</sup>Blomdin, R., <sup>b</sup>Gribenski, N., Caffee, M., Goehring, B., <sup>c</sup>Heyman, J., Ivanov, M., Li, Y.N., Li, Y.K., Petrakov, D., Usubaliev, R., Codilean, A., Chen, Y., Harbor, J., Stroeven, P., 2014, Constraints on the late Quaternary glacial history of the Inylchek and Sary-Dzaz valleys from *in situ* cosmogenic <sup>10</sup>Be and <sup>26</sup>Al, eastern Kyrgyz Tian Shan. *Quaternary Science Reviews*, 101, 77-90. <http://dx.doi.org/10.1016/j.quascirev.2014.06.032>
- Zhang, W., Liu, B., Li, Y., Feng, J., Harbor, J. M., Liu, L., Wang, Z. and Li, D., 2014, Late Pleistocene Glaciations on Qianhu Mountain, Northwest Yunnan Province, China. *Geografiska Annaler: Series A, Physical Geography*, 96, 417-29. <http://dx.doi.org/10.1111/geoa.12041>
- <sup>b</sup>Fu, P., Stroeven, A., Harbor J., Hätttestrand, C., <sup>c</sup>Heyman, J., Caffee, M., and Zhou, L., 2013, Paleoglaciation of Shaluli Shan, Tibetan Plateau. *Quaternary Science Reviews*, 64, p.121-135, <http://dx.doi.org/10.1016/j.quascirev.2012.12.009>
- <sup>b</sup>Fu, P., Stroeven, A., Harbor J., Hätttestrand, C., <sup>c</sup>Heyman, J., and Zhou, L., 2013, A complex glacial landform assemblage indicating polythermal ice cap glaciation in Shaluli Shan, southeastern Tibetan Plateau. *Geomorphology*, 182, p.66–78. <http://dx.doi.org/10.1016/j.geomorph.2012.10.030>
- <sup>c</sup>Heyman, J., Heyman, B., Fickert, T., Harbor, J., 2013, Paleo-climate of the central European uplands during the last glacial maximum based on glacier mass balance modeling. *Quaternary Research*, 79, p.49-54. <http://dx.doi.org/10.1016/j.yqres.2012.09.005>
- <sup>b</sup>Kassab, C. and Harbor, J., 2013, Alternative coordinate systems for analyzing cross-section shapes of glaciated valleys: a case study from the Dalijia mountains, China. *Physical Geography*, 34, p.108-123. <http://dx.doi.org/10.1080/02723646.2013.787580>
- <sup>b</sup>Kassab, C., <sup>d</sup>Wang, J. and Harbor, J., 2013, Glacial geomorphology of the Dalijia Shan region, northeastern Tibetan Plateau. *Journal of Maps*, 9, p.98-105. <http://dx.doi.org/10.1080/17445647.2012.754729>
- <sup>d</sup>Wang, J., <sup>b</sup>Kassab, C., Harbor, J., Caffee, M., Cui, H. and Zhang, G., 2013, Terrestrial cosmogenic nuclide constraints on late quaternary glacial chronology on the Dalijia Shan, northeastern Tibetan Plateau. *Quaternary Research*, 79, p.439-451. [10.1016/j.yqres.2013.01.004](http://dx.doi.org/10.1016/j.yqres.2013.01.004)
- Zhao, J., Yin, X., Harbor, J., Lai, Z., Liu, S., and Li, Z., 2013, Quaternary glacial chronology of the Kanas River valley, Altai Mountains, China. *Quaternary International*, 311, p.44-53. [10.1016/j.quaint.2013.07.047](http://dx.doi.org/10.1016/j.quaint.2013.07.047)
- <sup>b</sup>Fu P., <sup>c</sup>Heyman J., Hätttestrand C., Stroeven, A., and Harbor J., 2012. Glacial geomorphology of the Shaluli Shan area, southeastern Tibetan Plateau. *Journal of Maps*, 8 (1), 48-55.
- Stroeven, A., <sup>c</sup>Fabel, D., Harbor, J., Fink, D., Caffee, M. Dahlgren, T., 2011 Importance of sampling across an assemblage of glacial landforms for interpreting cosmogenic ages of deglaciation. *Quaternary Research*, 76(1), 148–156. [10.1016/j.yqres.2011.04.004](http://dx.doi.org/10.1016/j.yqres.2011.04.004)
- Heyman J., Stroeven A., Caffee M., Hätttestrand C., Harbor J., Li Y., Alexanderson H, Zhou L., Hubbard A, 2011. Palaeoglaciology of Bayan Har Shan, NE Tibetan Plateau: exposure ages reveal a missing LGM expansion. *Quaternary Science Reviews*, 30 (15-16), 1988-2001.
- Li, Y., Liu, G., Kong, P., Harbor, J., Chen, Y., and Caffee, M., 2011, Cosmogenic nuclide constraints on glacial landform evolution in the source area of the Urumqi River, Tian Shan, China. *Journal of Quaternary Science*, DOI: [10.1002/jqs.1454](https://doi.org/10.1002/jqs.1454)
- Heyman, J., Stroeven A., Harbor J., Caffee, M., 2011, Too young or too old: evaluating cosmogenic exposure dating based on an analysis of compiled boulder exposure ages. *Earth and Planetary Science Letters*, 302, 71- 80.

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- Stroeven, A., Hättestrand, C., Heyman, J., Harbor, J., Li, Y.K., Zhou, L.P., Caffee, M., Alexanderson, H., Kleman, J., Ma, H.Z., Liu, G.N. 2009. Landscape analysis of the Huang He headwaters, NE Tibetan Plateau – patterns of glacial and fluvial erosion. *Geomorphology*, 103, p.212-226. doi:10.1016/j.geomorph.2008.04.024
- Darmody, R., Thorn, C., Seppälä, M., Campbell, S., <sup>c</sup>Li, Y.K. and Harbor, J. 2008. Age and weathering status of granite tors in Arctic Finland (~68 N.) *Geomorphology*, 94, p.10-23.
- <sup>c</sup>Li, Y.K., <sup>c</sup>Fabel, D., Stroeven, A. and Harbor, J. 2008. Unraveling complex exposure-burial histories of bedrock surfaces under ice sheets by integrating cosmogenic nuclide concentrations with climate proxy records. *Geomorphology*, 99, p.139-149.
- <sup>c</sup>Li, Y., <sup>b</sup>Napieralski, J., and Harbor, J. 2008. A revised automated proximity and conformity analysis method to compare predicted and observed spatial boundaries of geologic phenomena. *Computers and Geosciences*, 34, p.1806-1814. doi:10.1016/j.cageo.2008.01.003
- <sup>c</sup>Li, Y.K., <sup>b</sup>Napieralski, J., Harbor, J. and Hubbard, A., 2007. Identifying patterns of correspondence between modeled flow directions and field evidence: an automated flow direction analysis. *Computers and Geosciences*, 33(2), p.141-150. doi:10.1016/j.cageo.2006.06.016.
- <sup>b</sup>Napieralski, J., Harbor, J., and <sup>c</sup>Li, Y.K., 2007. Glacial Geomorphology and Geographic Information Systems. *Earth Science Reviews*, 85, p.1-22.
- <sup>b</sup>Napieralski, J. Hubbard, A., <sup>c</sup>Li, Y.K., Harbor, J., Stroeven, A., Kleman, J, Alm, G. and Jansson, K., 2007. Towards a GIS assessment of numerical ice sheet model performance using geomorphological data. *Journal of Glaciology*, 53 (180), p.71-83.
- <sup>c</sup>Fabel, D., Fink, D., Fredin, O., Harbor, J., Land, M. Stroeven, A. 2006. Cosmogenic exposure ages from relict lateral moraines overridden by the Fennoscandian ice-sheet in northern Sweden. *Quaternary Research*, 65, p.136-46.
- Harbor, J., Stroeven, A., <sup>c</sup>Fabel, D., Clarhäll, A., Kleman, J., <sup>c</sup>Li, Y.K., Elmore, D. and Fink, D. 2006. Cosmogenic nuclide evidence for minimal erosion across two subglacial sliding boundaries of the late glacial Fennoscandian ice sheet. *Geomorphology*, 75, p.90-99.
- <sup>b</sup>Napieralski, J., <sup>c</sup>Li, Y., and Harbor, J. 2006. Comparing predicted and observed spatial boundaries of geologic phenomena: Automated Proximity and Conformity Analysis applied to ice sheet reconstructions. *Computers and Geosciences* 32(1), p.124-134.
- <sup>c</sup>Li, Y.K., Harbor, J., Stroeven, A., <sup>c</sup>Fabel, D., Kleman, J. and Fink D., 2005. Ice sheet erosion patterns in valley systems in northern Sweden investigated using cosmogenic nuclides. *Earth Surface Processes and Landforms*, 30(8), p. 1039-1049.
- <sup>c</sup>Li, Y.K., Harbor, J., Liu, G.N., Zhou, L.P., Cui, Z.J., 2005. Applications and limitations of in-situ cosmogenic nuclides in Earth Sciences. *Research of Soil and Water Conservation* 12(4), 146-152. (In Chinese with English abstract).
- <sup>c</sup>Fabel, D., Harbor, J., Dahms, D., James, A., Elmore, D., <sup>b</sup>Horn, L., <sup>a</sup>Daley, K. and <sup>a</sup>Steele, C., 2004, Spatial patterns of glacial erosion at a valley scale derived from terrestrial cosmogenic <sup>10</sup>Be and <sup>26</sup>Al concentrations in rock. *Annals of the Association of American Geographers*, 94(2), p.241-255.
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- Lake Erie Protection Fund, \$100,000. *Assessment of the effectiveness of retrofitted stormwater basins in reducing nonpoint source pollution in the Cuyahoga watershed*. J. Harbor, R. Carlson, P. Maurice, J. Lee and the Summit, Cuyahoga, Portage and Geauga Soil and Water Conservation Districts, 1995-1997.
- Ohio Environmental Education Fund (Ohio EPA), \$38,962. *Assessing the Impact of Land Use Change on Runoff, Recharge and Wetland Hydrology*. J. Harbor and D. Palmer, 1995-1996.
- National Science Foundation, Division of Polar Programs, \$10,505. *Research Experience for Undergraduates: Evaluation of a General Sliding Law by Flow Simulation, Haut Glacier d'Arolla, Switzerland*. J. Harbor, 1995-1996.
- Woolpert Consultants / City of West Lafayette, Indiana, \$7,400. *Baseline environmental data collection and analysis, Celery Bog, West Lafayette, Indiana*. J. Harbor, D. Leap, S. Fritz and S. King. 1995-1996.
- National Science Foundation, Division of Polar Programs, \$89,834. *Evaluation of a General Sliding Law by Flow Simulation, Haut Glacier d'Arolla, Switzerland*. J. Harbor. 1994-1997.
- Ohio Environmental Education Fund (Ohio EPA), \$11,951. *Development and Dissemination of a Manual for Sedimentation Basin Design*. J. Harbor, D. Palmer, D. Nighman, B. Bhadhuri and J. Snyder, 1994-1996.
- Ohio Nonpoint Source Project - Phosphorous Reduction Program (Ohio EPA), \$20,000. *Phosphorous reduction from construction site erosion control*. Cuyahoga Soil and Water Conservation District, J. Storer, (USDA-Soil Conservation Service), and J. Harbor, 1993.
- Great Lakes Basin Program for Soil Erosion and Sediment Control, \$35,000. *Construction Site Erosion Control: Demonstration of an Alternative Approach*. Cuyahoga Soil and Water Conservation District, Storer, J. (USDA-Soil Conservation Service), Harbor, J., and Mecklenburg, D. (Ohio Department of Natural Resources), 1992-94.
- Ohio Board of Regents, \$64,090. *Ohio Wetlands Research*. Palmer, Cabaniss, Carlson, Cooke, Fisher, Harbor, Havens, Heath, Miller, Smith and Wilson, 1992-1993.
- Ohio Environmental Education Fund (Ohio EPA), \$3,415. *Federal Non-Point Source Pollution Regulations: A Professional Workshop*. J. Harbor and D. Ross (USDA-Soil Conservation Service), 1992.
- Ohio Board of Regents / Northeast Ohio Inter-Institutional Urban Research Consortium, \$14,956. *Managing urban development in wetland watersheds, northern Summit County, Ohio*. J. Harbor, P. Fisher and T. Wilson, 1991-1992.
- Ohio Environmental Education Fund (Ohio EPA), \$4,741. *Development of a College-Level Course in Storm Water Management and Erosion Control*. J. Harbor, 1991-1992.
- National Science Foundation, \$127,450. *Large scale glacial erosion and debris production*. Grant to B. Hallet with J. Harbor as junior author and graduate research assistant.
- Geological Society of America, Quaternary Geology and Geomorphology Division, *J. Hoover-Mackin Research Award (Masters Level)*. J. Harbor.
- Geological Society of America and Sigma Xi, the Scientific Research Society. *Terrestrial and lacustrine evidence for Holocene climatic/geomorphic change in the Blue Lake and Green Lakes Valleys of the Colorado Front Range*. J. Harbor.

The Royal Geographical Society, the New York Explorers Club, the David Richards Fund, the Gilchrist Educational Trust and Industry and University contributions: \$5,500 in grants for the Cambridge Lahul Spiti Expedition, including undergraduate thesis research by Harbor on *The glacial deposits and debris transport paths of the Bara Shigri Glacier, Himachal Pradesh, India*. J. Harbor, C. Souch and J. Hughes.

## INTERNAL FUNDING

Purdue University Study Abroad and International Learning Grant, \$9,000. *Glaciation in Sweden, study abroad*. Harbor, 2014

Purdue University Instructional Technology Grant, \$39,919. *Online course development: Introduction to Geography*. Harbor, 2013-14

Purdue University Study Abroad and International Learning Grant, \$7,000. *Glaciation in Sweden and Norway, study abroad*. Harbor, 2013

Purdue University Teaching Academy Educational Grant, \$1,500. *International Greening Education Conference, Germany, November 2013*. Harbor, 2013.

Purdue Research Foundation, International Travel Grant, \$1,000, *Symposium on Science and Monitoring of Glaciers during the 50th Anniversary of Tianshan Glaciological Station in Xinjiang, China, August 8-12, 2011*. Harbor, 2011.

Purdue University, \$8,000, Asian Initiative Grant: *Sino-American Center for Science Education Research and Engagement*. L. Bryan and J. Harbor, 2006.

Purdue University, \$2,000. *Service Learning Development Grant*. J. Harbor, 2006.

Purdue Research Foundation, \$10,200. *The impacts of land use and climate change on changing flood frequency in the Midwest*. J. Harbor, 2005-2006

Purdue University Special Initiatives Fellowship Program, 1 year of graduate student support. *Graduate Research Fellowship for Women in Environmental Geosciences*. J. Harbor, 1995-2002 (annual new competitive grant)

Showalter Trust Fund, \$100,000, *Dam removal science and engineering: A new research thrust*. J. Harbor, R. Mohtar, D. Shepardson, D. Granger, B. Engel, T. West, T. Filley and L. Braile. 2000-2001.

Purdue Research Foundation, \$12,646. *Development and testing of an integrated water pollution assessment tool for analyzing the impacts of urban sprawl*. J. Harbor and S. Muthukrishnan, 2000-2001.

Purdue University, \$11,600. *Development of a capstone environmental science course for elementary education majors*. J. Harbor, 1998-1999.

Purdue University, \$25,000. *Field equipment for earth surface processes courses in Earth and Atmospheric Sciences*. D. Granger, J. Harbor, S. King and C. Clayson, 1998.

Purdue University, Multi-Media Development Center, \$16,000, *A multimedia tool for campus-wide teaching of Geographic Information Systems*. W. Mills, J. Harbor, B. Engel, G. Shao, J. Bethel, D. Shepardson, J. Frankenburger, L. Theller. 1998-1999.

Purdue University, Academic Reinvestment Program, \$225,000. *Advanced applications of Geographic Information Systems (AAGIS) Center: GIS for interdisciplinary education and research*. Turco, Engel, Parker, Lambert and Harbor, 1997-2000.

Purdue University, Faculty Study in a Second Discipline, \$3,500 and 1 semester teaching leave. *Geographic Information Systems*. J. Harbor, 1998.

Showalter Trust Fund, \$50,000. *The role of artificial wetlands and stormwater basins in controlling surface water pollution in urban watersheds*. J. Harbor. 1996-1997.

Purdue Research Foundation, \$20,400. *Modeling the impact of stormwater basins on nonpoint source pollution in urban/suburban watersheds*. J. Harbor, 1995-1997.

Kent State University Research Council, 1 semester research leave. *Evaluation of a Glacial Sliding Law by Flow Simulation, Haut Glacier d'Arolla, Switzerland.* J. Harbor.

Kent State University - University Research Council, \$6,500. *Numerical modeling of valley development in glaciated mountains.* J. Harbor, 1992.

## TEACHING EXPERIENCE

### Department of Earth, Atmospheric, and Planetary Sciences, Purdue University:

#### *Leadership efforts have included*

- Co-Directed, ENVISION, an NSF-funded institute helping middle school teachers acquire skills and experience in integrating inquiry-based local environmental research into existing classes.
- Undergraduate studies committee, chair.
- Led revision of the Environmental Geosciences major requirements.
- Designed and coordinated the undergraduate recruitment program.
- Designed the capstone science experience for elementary education majors.
- Initiated and taught an undergraduate teaching internship program.
- Teaching Academy peer teaching mentor.
- Horizons program mentor (first generation students).

#### *Undergraduate Courses Taught*

- Introduction to Geography - introductory course, fully online and asynchronous, taught in 4-week and 8-week formats, meets Science, Technology, and Society core requirement.
- Environmental Geology - major and non-major introductory course.
- Applied Geomorphology - mid level undergraduate major course, also taken by graduate students.
- Internship in Environmental Geosciences - junior/senior elective.
- Teaching Internship – mentored introduction to teaching assistant role for undergraduates.
- Capstone Science for Elementary Education - capstone course for elementary education majors.

#### *Combined Undergraduate / Graduate Courses Taught*

- Applications of Environmental Geosciences - capstone course for Environmental Geosciences seniors.
- Study Abroad: Glaciation in Sweden and Norway
- Study Abroad: Paleoglaciation in Sweden

#### *Graduate Courses Taught*

- Created Wetlands (Team taught through the Environmental Science and Engineering Institute).
- Advanced Geomorphology Seminar.
- Urbanization and the Environment.
- Glacial and Quaternary Geology.
- Graduate Student Engagement in K-12 Education

#### *Graduate and Post-Doctoral Students - Advisor/Co-Advisor*

##### Completed Post-Doctoral

- Jakob Heyman (2011-13): Tibetan Plateau catchment erosion rates.
- Nievita Bueno-Watts (2011-12): Geoscience education research on pathways to geoscience careers for Native American students and on free-choice learning in the geosciences.
- Yingkui Li (2002-5): Assessing spatial patterns of glacial erosion using cosmogenic nuclides.
- Jonghee Kim (2002-3): A comparison of high school teaching of earth sciences in USA and Korea.
- Derek Fabel (1997-9, co-advisor). Applications of cosmogenic nuclides to glacial geomorphology.

##### Completed PhD

- Darryl Reano (2019), GEOCONNECTIONS: The impacts of geoscience education informed by indigenous research frameworks. Co-Advisor.
- Feng Yu (2018), Multiscale hydrologic processes modeling using spatiotemporal patterns and hydrologic connectivity.
- Robin Blomdin (2016, co-supervisor, Stockholm University): Paleoglaciology of the Tian Shan and Altai Mountains, Central Asia.

Natacha Gribenski (2016, co-supervisor, Stockholm University): Comparison of dating methods for paleoglacial reconstruction in Central Asia.

Angel Torres-Valcarcel (2013, co-advisor): Impact of land use and climate change on temperature and precipitation in Puerto Rico.

Ping Fu (2013, co-supervisor, Stockholm University): Paleoglaciology of Shaluli Shan, southeastern Tibetan Plateau.

Carrie Davis (2007): Understanding and Managing the Impacts of Climate Change in a Complex Environmental System: The Effects of Increasing Precipitation and Land Use Change on Streamflow.

Debjani Deb (2007): Estimating environmental exposure of emerging agricultural contaminants using spatial data analysis and geographic information systems.

Alison Goss (2007): Evaluating the historical impacts of landscape transformation on hydrologic fluxes for environmental assessment and modeling.

Dibyajoti Tripathy (2007): Development of a decision support tool for assessing impacts of land-use change on groundwater quantity.

Bryan Wee (2007, co-advisor): The development of environmental attitudes of middle school students, and the impacts of classroom activities

Vickie Poole (2006): Hydrologic and pollutant trap performance of constructed wetlands and vegetated channels.

Jacob Napieralski (2005): Ice sheet reconstruction testing using a landform GIS to constrain basal boundary conditions.

Brent Dalzell (2004, co-advisor): Biogeochemistry of wetlands.

Suresh Muthukrishnan (2002): Development of L-THIA for point source pollution.

Martin Doyle (2002): Fluvial responses to urbanization and dam removal.

Budhendra Bhaduri (1999): A GIS-based model to assess the long-term impacts of land use change on hydrology and nonpoint source pollution.

Kirk Gregory (1996, Kent State University, co-advisor): An assessment of spatial aggregation and parameterization in lumped parameter and distributed parameter nonpoint source pollution models.

#### Completed Master of Science

Jennifer Newall (2021): Reconstructing long-term ice sheet change in Queen Maud Land, Antarctica.

Robin Blomdin (2015): Paleoglaciology of the Tian Shan and Altai Mountains, Central Asia.

Ian Pope (2014): Deforestation of Cloud Forest in the Central Highlands of Guatemala: Soil Erosion and Sustainability Implications for Q'eqchi' Maya Communities.

Christine Kassab (2012): Paleoglaciology of the Dalijia Shan, Northeastern Tibetan Plateau.

Ping Fu (2011) Glacial geomorphology of the Haizishan area, SE Tibetan Plateau

Nathan Rice (2002): E.coli in agricultural ditches. (co-advisor)

Dan Getman (2001): Enhancing Precision and Accuracy in Classifying Multispectral Satellite Imagery.

Nick Jokay (2001): Monitoring impacts of land development on sediment loads in Indian Creek, Indianapolis.

Krysten DeBroka (2001): Evaluation of sources of e coli contamination in tributaries to Lake Shafer, Indiana.

Marie Minner (1998): Sensitivity analysis and advanced applications of L-THIA.

Martha Herzog (1997): Reducing erosion problems from land development: An economic incentive for erosion control.

Matt Grove (1997): Development of a GIS model for assessing the long-term hydrologic impact of land use change.

Melanie McQuinn (1996): Refined chronology of Indiana glaciation using cosmogenic radionuclides.

Luke Copland (1996): Numerical modeling of cross-section flow for the Haut Glacier d'Arolla, Switzerland.

Budhendra Bhaduri (1995, Kent State University): An empirical evaluation of the pollutant trapping efficiency of a stormwater retention basin with respect to phosphorus and selected heavy metals.

Dawn Nighman (1994, Kent State University): Empirical and model-based studies of the effectiveness of sedimentation basins in reducing storm water pollution from construction sites.

Keith McClintock (1993, Kent State University): Assessing and managing the impacts of development and land use change on sediment and water supplied to a wetland: Hudson Township, Summit County, Ohio.

Sharen Keattch (1993, Kent State University): A temporal and spatial analysis of the impacts of Holocene fires at the alpine/sub-alpine transition of the Colorado Front Range, using soil and sediment analyses.

#### Other

Christian Renschler (Univ. Bonn, Germany, Ph.D., 2000). Visiting scholar, hydrologic modeling. 1998-2000.

Susan Tatlovitch (Civil Engineering, 1998): Chemical and sediment trap efficiency of a stormwater detention biofiltration pond.

John Teufert (Ph.D., ABD): Applications of remote sensing and GIS to disaster management. Employed by the Western European Union Remote Sensing Centre, Spain.

Richard Middleton (Ph.D.): Glaciology and GIS. Transferred to University of California.

Linda Horn (Ph.D.): Measuring rates of glacial and nonglacial erosion in alpine environments using cosmogenic radionuclides. (Co-Advisor with Dr. Elmore). Deceased.

Andy Selle (MS): Evaluation of alternate approaches to channel restoration. Transferred to Civil Engineering.

Yarice Rodriguez (MS): Environmental policy in atmospheric science. Transferred to University of Illinois.

#### *Undergraduate and Professorial Research Assistants and Research Projects*

Gryphen Goss, 2017-19, Social media for the MAGIC-DML research program.

Mia McGee, 2017-19, Qualitative analysis of infusing cultural contexts into geoscience learning.

Penelope Realff, 2017-19, Qualitative analysis of K-12 outreach on graduate students.

Maddie McGrath and Julia Spinolo, 2016-2017, Social media for the MAGIC-DML research program.

Daniel Moore, 2016-2017, Qualitative analysis of K-12 outreach on graduate students.

Andria Schmitz, 2015. Qualitative analysis of K-12 outreach on graduate students.

Gloria Rong, 2014. Qualitative analysis of K-12 outreach on graduate students.

Justin Orr, 2012-2013. Laboratory analysis for cosmogenic radionuclides.

Haowei Chen, 2011. Pre-service elementary teachers and science literacy.

Nathan Bleeke, 2011-2013. Laboratory analysis for cosmogenic radionuclides.

Sandra Simonis, 2004-2006. *E. coli* volunteer monitoring data analysis.

Hilary Smith, 2000-2004. Water quality field and lab assistant.

Lauren Patterson, 2000-2004. *E. coli* project field assistant and outreach assistant.

John Stofleth, 1999-2003. Water quality and core preparation lab assistant, dam removal studies field assistant.

Jennifer Rilling, 1999-2001. Water quality, web page and digitizing assistant.

Kristen Reinhart, 1999-2001. Long-term hydrologic monitoring of the Cuppy-McClure watershed.

Trisha Swanke, 1998-2001. Evaluation of construction site erosion control inspection programs in Indiana

Erin Creasy, 1998-2000. Grant-funded research assistant in water-quality monitoring, independent research project on pollutant buildup on urban surfaces.

Maggie Sullivan, 1998-2000. Grant-funded research assistant in water-quality monitoring.

Charles Steele, 1998-2000: NSF-funded research assistant, laboratory studies of cosmogenic radionuclide exposure age dating. Independent research on patterns of glacial erosion using cosmogenic radionuclides.

Kelly Daley, 1997-1998: NSF-funded research assistant, field and laboratory studies of cosmogenic radionuclides applied to glacial erosion patterns.

John Hawthorne, 1996-1998: Independent research on the distribution and characteristics of peat in the Celery Bog, West Lafayette, Indiana.

Charles Steele, 1997-8: Laboratory studies of cosmogenic radionuclide exposure age dating.

John Hawthorne, 1995-6: Impact of land use change on the hydrology of the Celery Bog, West Lafayette, Indiana.

Andrew Elmore, 1995-1996: NSF-funded research assistant, computer-modeling work in glaciology based on field data from Haut Glacier d'Arolla, Switzerland.

Marie Minner, 1995: NSF-funded research assistant, fieldwork in glaciology on Haut Glacier d'Arolla, Switzerland.

Marcel Bigger, 1994: Independent research project on input, transport and output processes and their geomorphic impact in high mountain environments.

Rik Hoy (Honor's Thesis), 1992-1993: A study of the origin of fine-grained sediments in the Ohio Caverns.



John Carney, 1992: The extension and development of William Morris Davis' cycle of erosion.

Keith McClintock, 1990-1991: Implications of river meandering for bridge siting along the Chagrin River near Holden Arboretum, Ohio.