Stephen Thomas Lancaster

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EDUCATION

Massachusetts Institute of Technology	Ph.D., Hydrology	1998
Harvard University	B.A., Physics	1990

THESIS

A Nonlinear River Meandering Model and its Incorporation in a Landscape Evolution Model
Rafael L. Bras and Kelin X Whipple, co-supervisors (abstract and thesis available online at *http://geo.oregonstate.edu/~lancasts/thesis_abstract.pdf* and *.../thesis.pdf*)

PROFESSIONAL EXPERIENCE

Assistant Professor in Geology, Oregon State University	2001-present
Research Associate, Dept. of Geosciences, Oregon State University	1998-2001
Research Assistant, Dept. of Civil and Environmental Engineering, MIT	1992-1998
Volunteer for Science, U.S. Geological Survey and **Volunteer in the Parks, Buffalo National River**	1992
Laboratory Aid, High Energy Physics Laboratory, Harvard University	1990-1991
Teaching Fellow, Physics Department, Harvard University	1990

AWARDS AND HONORS

GE Fund Junior Faculty Coupon ($15,000 start-up funds upon faculty appointment)	1998
American Geophysical Union Outstanding Student Paper Award, Hydrology section	1996
National Science Foundation Minority Graduate Research Honorable Mention	1993
MIT Minority Graduate Fellowship	1992-93
Parsons Fellowship, MIT	1992-93
Graduated Cum Laude in General Studies, Harvard University	1990
Harvard College Scholarship for academic achievement of high distinction	1988-89
National Merit Scholarship	1985-86

GRANTS

"Geomorphic response to changing water and sediment regimes," USDA Forest Service, $89,950, 2004-2009.

"Enhanced Classroom for the Department of Geosciences," OSU Technology Resource Fee grant, $10,565, 2004.

Difference, Power, and Discrimination Curriculum Development Grant, $3,000, 2003.

"Simulating landscape evolution in the classroom with the Channel-Hillslope Integrated Landscape Development (CHILD) model," Northwest Academic Computing Consortium (NWACC), Proof of Concept award, $10,000, 2003-2004.

"Impacts of removing Marmot Dam," PGE, $124,000, 2002-2004.

RECENT COLLABORATORS

Rafael Bras (MIT), John Bolte (OSU), Nathan Casebeer (OSU), Quintijn Clevis (Oxford), Roger Denlinger (USGS CVO), Arnaud Desitter (Oxford), Nicole Gasparini (MIT), Gordon Grant (USDA PNW), Shannon Hayes, Gary Lock (Oxford), Scott Rybarczyk, Gregory Tucker (UC-Boulder), Rose Wallick (OSU), Kelin Whipple (MIT).

STUDENTS

Jonathan Pennington, M.S., Geology and Bioengineering	2003-present
Nathan Casebeer, M.S., Geology	2002-present (expected finish, 8/2004)
J. Rose Wallick, M.S., Geology and Bioengineering	2001-present (expected finish, 6/2004)

RECENT INVITED PRESENTATIONS AND WORKSHOPS

Special seminar, Dept. Civil Engineering, University of Idaho, Moscow, Idaho, May 12, 2004.

Special seminar, College of Engineering, University of Idaho–Boise, Boise, Idaho, May 11, 2004.

Earth Surface Processes Research Institute, University of Arizona and U.S. Geological Survey, Science Plan Development Meeting on Quantitative Geomorphology, Tucson, Arizona, June 26-27, 2003.

North American Forest Ecology Workshop, Oregon State University, Corvallis, Oregon, June 19, 2003.

Workshop to Discuss the National Center for Airborne Laser Mapping (NCALM), sponsored by the National Science Foundation, University of Florida, Gainesville, Florida, April 24-26, 2003.

PROFESSIONAL ORGANIZATIONS

American Geophysical Union	1993-present
Society for the Advancement of Chicanos and Native Americans in Science	2003-present
American Indian Science and Engineering Society	1993-1994

SYNERGISTIC ACTIVITIES

Developer, Channel-Hillslope Integrated Landscape Development (CHILD) Model 1996-present
One of the original group of four scientists (others, R.L. Bras, N.M. Gasparini, G.E. Tucker) that designed and programmed this modeling "toolbox" for landscape evolution at MIT and, subsequently, elsewhere. Designed and implemented algorithms for meandering over geologic time, movement of points with dynamic remeshing, debris-flow runout, and incorporation of vegetation, among others. Presently directing the development of a graphical user interface that will allow classroom use of the CHILD model.

Coastal Landscape Analysis and Modeling Study (CLAMS) 1998-present

Participate as a "PI" in this project uniting foresters, ecologists, economists, sociologists, and geomorphologists and funded by the Oregon Department of Forestry and the U.S. Forest Service's Northwest Forest Plan. Adapted CHILD model to problems of forest-geomorphology interactions influencing aquatic habitat. Make presentations to and attend meetings with participants from federal and state agencies, local watershed councils, forest industry, and non-governmental organizations.

Difference, Power and Discrimination (DPD) Program, OSU 2001-present
Attended two workshop series for pedagogical development and incorporation of curricular materials for teaching issues of difference, power, and discrimination in the classroom. Awarded a DPD Curriculum Development Grant for the development of a "DPD" course on environmental justice in the Department of Geosciences. Developing course, GEO 309 Environmental Justice, which will meet the DPD requirement in OSU's Baccalaureate Core Curriculum.

Faculty Advisor, American Indian Science and Engineering Society, OSU Chapter 2002-present
Attend weekly meetings. Supervise and assist activities including retreats, pow-wows, and regional and national meetings.

Society for the Advancement of Chicanos and Native Americans in Science October 2-5, 2003
Attended National Meeting in Albuquerque to recruit prospective graduate students for the College of Science at OSU. The trip resulted in at least one recent application to the Geology Program.

PUBLICATIONS

Lancaster, S.T., and G.E. Grant, 2004. Debris dams and the relief of headwater streams, *Geomorphology*, invited paper for special issue on bedrock streams, edited by P.A. Carling, submitted manuscript.

Lancaster, S.T., S.K. Hayes, and G.E. Grant, 2003. Effects of wood on debris flow runout in small mountain watersheds, *Water Resources Research*, *39*(6), 1168, doi:10.1029/2001WR001227, 2003. (available online at *http://geo.oregonstate.edu/~lancasts/EffWoodDF5_s.pdf*)

Lancaster, S.T., and G.E. Grant, 2003. You want me to predict what? in *Prediction in Geomorphology*, edited by P.R. Wilcock and R.M. Iverson, pp. 41-50 (DOI: 10.1029/135GM04), American Geophysical Union, Washington. (available online at *http://geo.oregonstate.edu/~lancasts/CH4_Layout.pdf*)

Lancaster, S.T., and R.L. Bras, 2002. A simple model of river meandering and its comparison to natural channels, *Hydrological Processes*, *16*(1), 1-26. (available online at *http://geo.oregonstate.edu/~lancasts/LancasterBras2002_fmtd.pdf*)

Tucker, G.E., S.T. Lancaster, N.M. Gasparini, and R.L. Bras, 2001b. The channel-hillslope integrated landscape development (CHILD) model, *Landscape Erosion and Evolution Modeling*, ed. by R.S. Harmon and W.W. Doe, III, pp. 349-388, Kluwer Academic/Plenum Publishers, New York. (available online at *http://geode.colorado.edu/~gtucker/preprints/child01nofigs.doc* and *http://geode.colorado.edu/~gtucker/preprints/child01caps+figs.pdf*)

Tucker, G.E., S.T. Lancaster, N.M. Gasparini, R.L. Bras, and S.M. Rybarczyk, 2001a. An object-oriented framework for hydrologic and geomorphic modeling using triangulated irregular networks, *Computers and Geosciences*, 27(8), 959-973. (available online at *http://geo.oregonstate.edu/~lancasts/TuckerEtAlgeocomp00.pdf*)

Lancaster, S.T., S.K. Hayes, and G.E. Grant, 2001. Modeling sediment and wood storage and dynamics in small mountainous watersheds, *Geomorphic Processes and Riverine Habitat*, ed. by J.M. Dorava, D.R. Montgomery, B.B. Palcsak, and F.A. Fitzpatrick, pp. 85-102, American Geophysical Union, Washington. (available online at *http://geo.oregonstate.edu/~lancasts/SedWoodDynStor_fin.pdf*)

Tucker, G.E., N.M. Gasparini, R.L. Bras, and S.T. Lancaster, 1999. *A 3D Computer Simulation Model of*

Drainage Basin and Floodplain Evolution: Theory and Applications, Technical Report prepared for U.S. Army Construction Engineering Research Laboratories, April, 1999. (available online at *http://platte.mit.edu/~child/Lit/report99.html*)

ABSTRACTS

Tucker, G.E., Q. Clevis, G. Lock, S. Lancaster, and A. Desitter, Modeling the stratigraphy and preservation potential of meandering stream deposits, *Eos. Trans. AGU, 84*(46), Fall Meet. Suppl., Abstract H42C-1093, 2003.

Wallick, J.R., R. Denlinger, S. Lancaster, and J. Bolte, Assessing the role of floods, land conversion and bank materials in determining channel change along the Willamette River, 1850-1996, *Eos. Trans. AGU, 84*(46), Fall Meet. Suppl., Abstract H42E-1121, 2003.

Casebeer, N.E., and S.T. Lancaster, Sediment storage in a headwater tributary of the Oregon Coast Range: A method for determining residence time, *GSA Abstracts with Programs, 35*(6), 81, 2003.

Grant, G.E., S.T. Lancaster, J.O'Connor, S. Lewis, 2002. Dirty snowballs and magic carpets: an ontology of geophysical disturbance, *EOS, Trans. AGU, 83*(47), Fall Meet. Suppl., Abstract No. B22D-01, p. F292.

Lancaster, S.T., S.K. Hayes, and G.E. Grant, 2002. Modeling sediment and wood storage and dynamics in small mountainous watersheds, *Symposium on Small Stream Channels and Their Riparian Zone: Their Form, Function and Ecological Importance in a Watershed Context*, February 19-20, Vancouver, BC.

Lancaster, S.T., S.K. Hayes, and G.E. Grant, 2001. Modeling sediment and wood storage and dynamics in small mountainous watersheds, *EOS, Trans. AGU*, 82(47), suppl., p. F498.

Grant, G.E., S.T. Lancaster, and S.K. Hayes, 2001. Interactions among riparian vegetation, wood, and fluvial processes: a Pacific Northwest drainage basin perspective, *EOS, Trans. AGU*, 82(47), suppl., p. F464.

Lancaster, S.T., S.K. Hayes, and G.E. Grant, 2000. Sediment and wood storage and dynamics in small mountainous watersheds, *EOS, Trans. AGU*, 82(20), suppl., p. S189. (INVITED)

Lancaster, S.T., S.K. Hayes, and G.E. Grant, 2000. The effect of wood on debris flows, *EOS, Trans. AGU*, 81(48), suppl., p. F540.

Lancaster, S.T., S.K. Hayes, and G.E. Grant, 2000. The effect of wood on debris flow runout, *GSA Abstracts with Programs*, 32(7), p. 118.

Lancaster, S.T., S.K. Hayes, and G.E. Grant, 1999. The interaction between trees and the landscape through debris flows, *EOS, Trans. AGU*, 80(46), suppl., p. F425. (full presentation online at *http://geo.orst.edu/~lancasts/agufall99_pages.pdf*)

Lancaster, S.T., and G.E. Grant, 1999. Modeling the interaction of landslides, debris flows, and the channel network, *EOS, Trans. AGU*, 80(17), suppl., p. S127. (full presentation online at *http://geo.orst.edu/~lancasts/agusprin.htm*)

Lancaster, S.T., G.E. Tucker, N.M. Gasparini, R.L. Bras, and K.X Whipple, 1998. River meandering in the landscape: A study with the channel-hillslope integrated landscape development model, *EOS, Trans. AGU*, 79(45), suppl., p. F385.

Gasparini, N.M., G.E. Tucker, S.T. Lancaster, and R.L. Bras, 1998. CHILD: A three-dimensional event-based model of drainage basin evolution, *EOS, Trans. AGU*, 79(45), suppl., p. F306.

Tucker, G.E., S.T. Lancaster, N.M. Gasparini, and R.L. Bras, 1998. Numerical simulation of geomorphic responses to holocene climate change in a central Great Plains watershed, *EOS, Trans. AGU*, 79(17), p.

S99.

Lancaster, S.T., R.L. Bras, and K.X. Whipple (1996), "Implications of a new River Meandering Model for the Evolution of the Alluvial Landscape," American Geophysical Union 1996 Fall Meeting, San Francisco, CA.

Lancaster, S.T., R.L. Bras, and K.X Whipple, 1996. Simulation of river meandering over long distances and times: A physically based model, *EOS, Trans. AGU*, 77(17), suppl., p. S124.

Lancaster, S.T. and R.L. Bras (1995), "Modeling Alluvial Sedimentation With a Landscape Evolution Model," American Geophysical Union 1995 Spring Meeting, Baltimore, MD.