CURRICULUM VITAE
PENG GAO

Department of Geography and the Environment
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EDUCATION

Ph.D. 2003 **Physical Geography**, University of Buffalo, State University of New York, USA
Dissertation: *Mechanics of bedload transport in the saltation and sheetflow regimes.*
M.S. 1993 **Physical Geography**, Lanzhou University, P.R. China
Thesis: *Fractal analysis on small channel networks*
B.S. 1990 **Solid Mechanics**, Lanzhou University, P.R. China
Thesis: *Mechanism of the development of vertical joints in loess areas.*

PROFESSIONAL EMPLOYMENT

Professor, 2017- present
Associate Professor, 2011 – 2017
Department of Geography, Syracuse University
Assistant Professor, 2005 - 2011
Department of Geography, Syracuse University
Postdoctoral Fellow, 2003 - 2005
Department of Land, Air, and Water Resources, California University, Davis, California
Assistant Researcher, 1993 - 1997
Institute of Mountain Hazards and Environment, Chinese Academy of Science, Chengdu, Sichuan, P.R. China

RESEARCH INTERESTS AND CURRENT RESEARCH FOCUS

Research interest

- River dynamics and fluvial systems
- Geospatial-based urban studies

Current research focus

- Morphdynamic processes controlling braided rivers in the Qinghai-Tibet Plateau, China
- Mechanisms of short- and long-term evolution of meandering rivers in the Qinghai-Tibet Plateau, China
- Understanding socioeconomic equality in various urban managements (flood damage, snowplow, and green infrastructure)

PUBLICATIONS

Refereed Articles

2021 **Gao, P**, Gao, W., and Nan, K. Assessing the impact of flood inundation dynamics on an urban environment. *Natural Hazards*, https://doi.org/10.1007/s11069-021-04868-6.

2021 **Gao, P**, Li, Z.W., and Yang, H.Y. Variable discharges control composite bank erosion in Zoige meandering rivers. *Cate*na, 204, 105384, https://doi.org/10.1016/j.catena.2021.105384

2021 Guo, X.W., **Gao, P***. and Li, Z.W., Morphological characteristics and changes of two meandering rivers in the Qinghai-Tibet Plateau, China. *Geomorphology*, 379, 107626. https://doi.org/10.1016/j.geomorph.2021.107626 (***corresponding author)**.

2020 Zhu, H.L., **Gao, P***., Li, Z.W., Fu, J.T., Li, G.R., Liu, Y.B., Li, X.L., Hu, X.S.,. Impacts of the Degraded Alpine Swamp Meadow on Tensile Strength of Riverbank: A Case Study of the Upper Yellow River. *Water*, 12(9), 2348. (***corresponding author)**.

2020 LI, Z. and **Gao, P.***, Characterizing spatially variable water table depths in a disturbed Zoige peatland watershed, *Journal of Hydro-environment Research*, 29, 70-79. **(*corresponding author).**

2020 Li, Z. Lu, H., **Gao, P.***, You, Y., and Hu, X., Characterizing braided rivers in two nested watersheds in the Source Region of the Yangtze River on the Qinghai-Tibet Plateau, *Geomorphology*, 351 **(*corresponding author).**

2019 Li, Z., **Gao, P.***, Hu, X., Yi, Y., Pan, B., and You, Y., Coupled impact of decadal precipitation and evapotranspiration on peatland degradation in the Zoige basin, China, *Physical Geography*, DOI: 10.1080/02723646.2019.1620579 **(*corresponding author)**.

2019 Li, Z., **Gao, P.***, and Lu, H., Dynamic changes of groundwater storage and flows in a disturbed alpine peatland under variable climatic conditions, *Journal of Hydrology*, 575, 557-568 **(*corresponding author)**.

2019 **Gao, P.**, Cooper, J., and Wainwright, J., Toward understanding complexity of sediment dynamics in geomorphic systems, *Geomorphology*, 330, 129-132.

2019 Li, Z. and **Gao, P.***, Impact of natural gullies on groundwater hydrology in the Zoige peatland, China, *Journal of Hydrology: Regional Studies*, 21, 25-39 **(*corresponding author)**.

2019 Li, Z., Wu, X., and **Gao, P.***, Experimental study on the process of neck cutoff and channel adjustment in a highly sinuous meander under constant discharges, *Geomorphology*, 327, 215-229 **(*corresponding author)**.

2019 Li, Z. and **Gao, P.***, Channel adjustment after artificial neck cutoffs in a meandering river of the Zoige basin within the Qinghai-Tibet Plateau, China, *Catena*, 172, 255-265 **(*corresponding author).**

2018 Li, Z., **Gao, P.***, You, Y., Characterizing hydrological connectivity of artificial ditches in Zoige peatlands of Qinghai-Tibet plateau, *Water*, 10, 1364; https://doi.org/10.3390/w10101364 **(*corresponding author).**

2018 Wu, X., Li, Z., **Gao, P.***, Cao, H., Hu, T., Response of the downstream Braided Channel to Zhikong Reservoir on Lhasa River, *Water*, 10, 1144; doi:10.3390/w10091144 **(*corresponding author).**

2018 Bao, Y., He, X, Wen, A. **Gao, P.***, P., Tang, Q., Yana, D., Long, Y., Dynamic changes of soil erosion in a typical disturbance zone of China's Three Gorges Reservoir, *Catena*, 169, 128-139 **(*corresponding author)**.

2016 **Gao, P.** and Zhang, Z.R., Spatial patterns of sediment dynamics within a medium-sized watershed over an extreme storm event, *Geomorphology*, 267, 25-36.

2016 **Gao, P**. and Hartnett, J.J., Exploring the Causes of an Extreme Flood Event in Central New York, USA. *Physical Geography*, 37(1), 38-55.

2016 **Gao, P.** and Zhang, L., Determining spurious correlation between two variables with common elements: event area-weighted suspended sediment yield and event mean runoff depth. *The Professional Geographer* 68(2), 261-270 DOI: 10.1080/00330124.2015.1065548.

2015 Wainwright, J., Parsons, A.J., Cooper, J.R., **Gao, P.**, Gillies, J.A., Mao, L., Orford, J.D., and Knight, P.G. The concept of transport capacity in Geomorphology. *Reviews of Geophysics* 53, doi:10.1002/2014RG000474.

2015 **Gao, P**. Wang, Z-Y, and Siegel, D. Spatial and temporal changes of sedimentation in Three Gorges Reservoir of China. *Lakes and Reservoirs: Research and Management* 20, 1-10.

2015 **Gao, P.**, Borah, D., and Yi, C., Storm Event Flow and Sediment Simulations in a Central New York Watershed: Model Testing and Parameter Analyses. *Transactions of American Society of Agricultural and Biological Engineers* 58(5), 1241-1252.

2015 Bao, Y.H., **Gao, P.***, and He, X.B., The water-level fluctuation zone of Three Gorges Reservoir — A unique geomorphological unit. *Earth-Science Reviews*, 150, 14-24. (* **corresponding author**).

2014 Tang, Q., Bao, Y., He, X., Zhou, X., Cao, Z., **Gao, P.**, Zhong, R., Hu, Y., Zhang, X., Sedimentation and associated trace metal enrichment in the riparian zone of the Three Gorges Reservoir, China. *Science of the Total Environment*, 479-480, 258-266.

2013 **Gao P.**, Nearing, M., and Commons, M. Suspended sediment transport at the instantaneous and event time scales in semi-arid watersheds of southeastern Arizona, USA. *Water Resources Research*, 49, 1-14, doi: 10.1002/wrcr.20549.

2013 **Gao P.**, Borah, D.K., and Josefson, M. Evaluation of the storm event model DWSM on a medium-sized watershed in central New York, USA. *Journal of Urban and Environmental Engineering*, **7**: 1-7.

2013 **Gao P.** Rill and Gully Development Processes. In: John F. Shroder (ed.) Treatise on Geomorphology, Volume 7, pp. 122-131. San Diego: Academic Press.

2012 **Gao**, **P.** Validation and implications of an energy-based bedload transport equation. *Sedimentology*, **59**, 1926-1935.

2012 **Gao, P.** and Chen, C. Investigating the Periodicities of Step-Pool Sequences in Alluvial Mountain Streams. *Geographic Analysis*, 44, 258-277.

2012 **Gao, P.** and Josefson, M. Temporal variations of suspended sediment transport in Oneida Creek watershed, Central New York. *Journal of Hydrology*, 426-427, 17-27.

2012 **Gao, P.**, Puckett, J. A new approach for linking event-based upland sediment sources to downstream suspended sediment transport. *Earth Surface Processes and Landforms*, 37, 169-179 DOI: 10.1002/esp.2229.

2012 **Gao, P**. and Josefson, M. Event-based suspended sediment dynamics in a central New York watershed. *Geomorphology*, 139-140, 425-437 doi:10.1016/j.geomorph.2011.11.007.

2011 **Gao, P.** An equation for bed-load transport capacities in gravel-bed rivers. *Journal of Hydrology,* 402, 297-305.

2010 **Gao, P.** Surface water pollution. Encyclopedia of Geography, SAGE Reference publication.

2010 **Gao, P.** Closure to "Transition between two bed-load transport regimes: saltation and sheet flow" by Peng Gao. *Journal of Hydraulic Engineering*, 136, 76-77.

2008 **Gao, P.** Understanding watershed suspended sediment transport. *Progress in Physical Geography*, 32, 243-263.

2008 **Gao, P.**, Pasternack, G. B., Bali, K. M., Wallender, W. W. Estimating suspended sediment concentration using turbidity in an irrigation-dominated southeastern California watershed, *Journal of Irrigation & Drainage Engineering* 134, 250-259.

2008 **Gao, P**. The transition between two bedload transport regimes: Saltation and Sheetflow. *Journal of Hydraulic Engineering* 134, 340-349.

2007 **Gao, P.** and Pasternack, G. B., Dynamics of suspended sediment transport at field-scale drain channels of irrigation-dominated watersheds in the Sonoran Desert, southeastern California. *Hydrological Processes* 21, 2081-2092.

2007 **Gao, P.**, Pasternack, G. B., Bali, K. M., Wallender, W. W., Suspended sediment transport in an intensively cultivated watershed in southeastern California. *Catena* 69, 239-252.

2006 Bali, K., **Gao, P.**, Pasternack, G. B., and Wallender, W. Calibration and use of in situ turbidity sensors for estimating sediment load in drainage waters. In (Burt, C.M. and Anderson, S.S., Eds.) *SCADA and Related Technologies for irrigation District Modernization*. US Committee on Irrigation and Drainage, Vancouver, Washington, p. 257-270.

2006 Abrahams, A.D. and **Gao, P**., Bedload transport model for rough turbulent open-channel flows over plane beds, *Earth Surface Process and Landform* 31, 910-928.

2005 **Gao, P.**, Pasternack, G. B., Bali, K., and Wallender, W. Impact of agricultural practices on soil erosion at the field-scale in the Salton Sea watershed. In (M. Svendsen, D. Wichelns, S. S. Anderson, Eds) *Water District Management and Governance- Third International Conference on Irrigation and Drainage*. US Committee on Irrigation and Drainage, Denver, p. 571-580.

2004 **Gao, P.** and Abrahams, A.D., Bedload transport resistance in rough open-channel flows, *Earth Surface Process and Landform*, 29, 423-435.

2000 Abrahams, A.D., **Gao, P.** and Aebly, F.A., Relation of sediment transport capacity to stone cover and size in rain-impacted interrill overland flow, *Earth Surface Processes and Landforms*, 25, 497-504.

1996 **Gao, P.**, Nonlinear dynamic features and methods in landslides, *Journal of Basic Science and Engineering*, 4(3), 280-287 (in Chinese).

1996 **Gao, P.**, Multiple time series analysis of ground water dynamics in landslide body. In: Landslides: Research and control, Sichuan Science and Technology Press, Chengdu, China, 130-136 (In Chinese).

1996 **Gao, P.**, Predicting models and analysis of ground water dynamics in landslide body. In: Landslides: Research and control, Sichuan Science and Technology Press, Chengdu, China, 166-176 (In Chinese).

1995 **Gao, P.**, Nonlinear mechanism and methods in landslide process, *Proceedings of the Second Academic Conference of Chinese Young Scientists*, 404-419 (in Chinese).

1995 **Gao, P.**, The approach and application of multifractal to drainage basins, *The Chinese Journal of Geological Hazards and Controls*, 6(2), 31-39 (in Chinese).

1994 **Gao, P.** Exploring nonlinear approaches on landslide study, *Geography*, 7(4), 46-52 (in Chinese).

1994 **Gao, P.**, Fractional Brownian motion and landslide study, *Geography*, 7(4), 56-61 (in Chinese).

1994 **Gao, P.** and Ai, N., Catastrophe model for the damage of soil landslides, *Journal of Engineering Geology*, 2(4), 67-76 (in Chinese).

1993 **Gao, P.**, Ai, N., and Li, H., The fractal study of drainage geomorphology, *Advance in Earth Sciences*, 8(5), 63-68 (in Chinese).

Non-refereed Contribution

Gao, P. and Pasternack, G. B. 2004. Imperial Valley drains silt TMDL modeling studies. Colorado River Basin Regional Water Quality Control Board Final Report. 38pp

CONFERENCE PRESENTATIONS AND INVITED TALKS

2020 'Functional characteristics of a braided river in the Qinghai-Tibet Plateau, China' *American Geophysical Union, December* (online).

2019 River clusters on the Qinghai-Tibet Plateau, China: Definition, distribution, and characteristics, *American Geophysical Union, December 9-13, 2019, San Francisco, USA* (with Zhwei Li).

2019 Morphodynamic analysis of meander migration in the source region of Yellow River, China *American Geophysical Union, December 9-13, 2019, San Francisco, USA* (with Zhwei Li and Tao Tang).

2019 Morphodynamic characteristics of the braided Upper Lancang River, China *American Geophysical Union, December 9-13, 2019, San Francisco, USA* (with Hanyou Lu and Zhwei Li).

2019 Improved UAV Data Processing for Generating Correct High-Resolution Digital Elevation/Terrain Models, *The 50th Binghamton Geomorphology Symposium, October 11-13, Denver, Colorado, USA.*

2019 Braided rivers on the Qinghai-Tibet Plateau, China, *September 26-28, Western Ontario University (invited).*

2019 The Zoige peatlands on the Qinghai-Tibet Plateau and their current status, *June 27, Foshan University, China (invited).*

2019 Does the so-called bedload transport capacity exist in natural rivers? *May 7, Wuhan University (invited).*

2019 "Impacts of riparian vegetation on neck cutoff in an experimental meandering channel " *European Geophysical Union, April 7-13, 2019, Vienna, Austria* (with Zhwei Li and Xinyu Wu).

2019 " Morphodynamic characteristics of the braided Upper Lancang River, China" *European Geophysical Union, April 7-13, 2019, Vienna, Austria* (with Zhwei Li and Yuchi You).

2018 "Fluvial processes controlling bank erosion of meanders in Zoige basin, China" *American Geophysical Union, December 10-14, 2018, Washington DC, USA* (with Zhwei Li and Hanyuan Yang).

2018 "Experimental study on the process of neck cutoff and channel adjustment in a highly sinuous meander under constant discharges" *American Geophysical Union, December 10-14, 2018, Washington DC, USA* (with Zhwei Li and Xinyu Wu).

2017 "Morphological changes of a braided river reach in the source of the Yangtze River over thirty years" *American Geophysical Union, December 10-14, 2017, New Orleans, USA*

2017 "Quantifying climatic impacts on peatland in the Zoige basin, China" *American Geophysical Union, December 10-14, 2017, New Orleans, USA.*

2017 "Mechanics of peatland reduction in the Zoige region within the Qinghai-Tibet Plateau, China" " *Association of American Geography, April 5-9, Boston, USA.*

2017 "Fluvial responses of two meandering bends to an artificial neck cutoff in a tributary of the Upper Yellow River of China" *Association of American Geography, April 5-9, Boston, USA* (presented by Zhiwei Li).

2016 "Sedimentation in China's Three Gorges Reservoir: a tamed river dragon" *Association of American Geography, March 27-April 2, San Francisco, USA.*

2015 "Spatial patterns of sediment dynamics within a medium-sized watershed over an extreme storm event" *American Geophysical Union Annual Meeting: December 14- 20, San Francisco, USA.*

2015 "GIS and green building/environment design" The 3rd Green Building and Urban Environment Forum, October 20, Syracuse University, USA (*invited*).

2015 "Geostatistic characteristics of three vegetation representations and their impact on watershed modeling" *The 23rd International Conference on Geoinformatics: June 19-21, Wuhan, China.*

2015 "GIS application for urban planning and architecture design" *Shenzhen Institute of Building Research, Co Ltd. China: June 4 (invited).*

2015 "Dynamics of sediment transport at the watershed scale: how much do we know?" *School of Energy and Hydraulic Engineering, Changsha University of Science and Technology: May 18, Changsha, Hubei, China (invited).*

2014 "Parameterizing a physically-based erosion model at the watershed scale" *Association of American Geographers Annual Meeting, April 8-12, Tampa, FL.*

2013 "A general feature of suspended sediment transport at the event temporal scale " *The 8th IAG International Conference on Geomorphology: August 27 – 31, Paris, France.*

2013 "Modeling event-based sediment transport at the watershed scale" Chengdu Institue of Mountain Hazard and Environment, June 2, Chinese Academy of Science, Chengdu, China (invited).

2013 "Bedload transport capacity in sand- and gravel-bed rivers" Department of Civil Engineering and Engineering Mechanics, University of Arizona, January 25, Tucson, Arizona (invited)

2013 "Identifying general patterns of suspended sediment transport in different climatic zones" US Department of Agriculture, ARS, January 23, Tucson, Arizona (invited).

2012 "The relationship between specific event sediment yields and runoff depth and its significance" *American Geophysical Union Annual Meeting: December 3- 7, San Francisco, USA* (poster with Mark Nearing, Murray Hicks, and Michael Commons).

2012 "Evaluation of the Storm Event Model "DWSM" on a watershed in central New York, USA" *The International Conference Sediment Transport Modeling in Hydrological Watersheds and Rivers, November 14-16, 2012, Istanbul, Turkey* (with Deva Borah and Maria Joesfson).

2011 "Temporal variations of suspended sediment transport in Oneida Creek watershed, Central New York" *American Geophysical Union Annual Meeting: December 5- 9, San Francisco, USA* (poster with Maria Josefson).

2011 "Event-based suspended sediment dynamics in a central New York watershed" *The Geological Society of America Annual Meeting: October 9-12, Minneapolis, Minnesota, USA* (poster with Mario Josefson).

2011 "Uniformitarianism vs. Catastrophism– A Path Illuminating the Development of Geomorphology" Department of Geography, Syracuse University October 10 (Colloquium).

2011 "Philosophy of Geomorphology" Department of Geography, Lanzhou University, August 5 (invited)

2011 "Temporal variations of suspended sediment load in Oneida Creek Upstream watershed, Central New York" *Association of American Geographers Annual Meeting, Seattle, WA, April 12 – 16*.

2010 "Can the complex fluvial system be characterized simply?" Department of Geography, State University of New York, University of Buffalo, October 8 (invited)

2010 "Dynamic link between sediment sources and downstream load of a watershed" *Association of American Geographers Annual Meeting, Washington DC, April 14-18*.

2009 "Investigating the periodicity of step-pool sequences in alluvial mountain streams" *American Geographical Union Fall meeting, San Francisco, December 14-18,* (Poster with Chung Chen).

2009 "Watershed sediment modeling – from simplicity to complexity" (invited talk) in *College of Hydrodynamics and Hydraulic Engineering, Sichuan University, Chengdu, China*.

2009 "A new index system for modeling suspended sediment in Oneida Creek Watershed, Central New York" *Association of American Geographers Annual Meeting, Las Vegas, NV, March 23-27* (with Jay Puckett).

2008 "Bedload transport capacity." in *British Society for Geomorphology Annual Meeting, University of Exeter, Exeter, UK, July 2008*.

2007 "Watershed suspended sediment monitoring and modeling – Retrospect and Prospect." (invited talk) in *Institute of Mountain Hazards and Environment, Chinese Academy of Science, Chengdu, Sichuan, China, July 7*.

2007 "Modeling step-pool sequences in mountain watersheds." *Association of American Geographers Annual Meeting, San Francisco, CA, April 17-21.* (with and presented by Anne Chin)

2006 "Is the classic bed load prediction puzzle solved." (Invited talk) *The Department of Earth Sciences K. Douglas Nelson Colloquium Series, Syracuse University.*

2006 "Suspended sediment transport in an intensively cultivated watershed in southeastern California." *Association of American Geographers Annual Meeting, Chicago, IL, Mar. 7–16.*

2004 "Suspended sediment dynamics at the Field-scale Channel of an Irrigation-dominated Watershed." *American Geophysical Union Fall Meeting, San Francisco, CA*, *Dec. 13-17* (poster with Pasternack, G.B.).

2003 "Modeling the Erosion Process in Beaded Streams in a Semi-arid Bajada, Southern New Mexico." *American Geophysical Union Fall Meeting, San Francisco, CA*, *Dec. 8-15* (poster).

2003 "Mechanics of bedload transport and its applications." *Association of American Geographers Annual Meeting, New Orleans, LA, Mar. 18 – 24.* (with Abrahams, A.D.).

2002 "Mechanics of bedload transport in open-channel flow." *US - China Joint Workshop on Sediment Transportation and Environmental Studies, Milwaukee, WI, July 21 - 28*.

2002 "Mechanics of bedload transport in open-channel flow." *Association of American Geographers Annual Meeting, Los Angeles, CA, Mar.19 -23* (with Abrahams, A.D.)

2001 Mechanics of bedload transport in open-channel flow, *American Geophysical Union Fall Meeting, San Francisco, CA*, *Dec. 10-14* (poster, with Abrahams, A.D.).

2001 "Bedload and total load sediment transport equations for rough, open-channel flow." *American Geographical Union Fall Meeting, San Francisco, CA*, *Dec. 10-14* (poster, with Abrahams, A.D.).

2001 "Dynamic friction coefficient in open-channel flow." *Association of American Geographers Annual Meeting, New York, NY, Feb. 27 - Mar. 3* (with Abrahams, A.D.).

2000 "Predicting bedload transport resistance in open-channel flow." *Association of American Geographers Annual Meeting, Pittsburgh, PA*, *Apr. 4-8* (with Abrahams, A.D.).

2000 "Predicting bedload transport resistance in open-channel flows." *American Geophysical Union Spring Meeting, Washington, D.C.*, May 30 - June 3 (poster with Abrahams, A.D.).

PROFESSIONAL SERVICE

2013-2018 Chair of the award committee, Secretary, and Chair of Geomorphology Specialty Group of American Association of Geography;

2018 Organizing (with James Cooper and John Wainwright) the 49th Binghamton Geomorphology Symposium (October 5-7) http://community.dur.ac.uk/john.wainwright/Binghamton/

2018 Guest editor of the special issue: Sediment complexity in *Geomorphology*