

Curriculum Vitae for Jon D. Pelletier

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Education

- 1997 Ph.D., Geological Sciences, Cornell University, Ithaca, NY
Research advisor: Donald L. Turcotte
- 1992 B.S. with honors, Physics, California Institute of Technology, Pasadena, CA
Research advisor: Thomas A. Tombrello

Employment

- 2010-present Professor, Geosciences Department, University of Arizona
- 2005-2010 Associate Professor, Geosciences Department, University of Arizona
- 1999-2005 Assistant Professor, Geosciences Department, University of Arizona
- 1997-1999 O.K. Earl Prize Postdoctoral Scholar, California Institute of Technology
- 1995-1997 Graduate Research Assistant, Geosciences Department, Cornell University
- 1993-1995 Graduate Teaching Assistant, Physics Department, Cornell University
- 1992-1993 Research Scientist, Nuclear Physics Department, Schlumberger-Doll Research

Additional Professional Activities and Affiliations

- 2014-present Associate editor, AGU journal *Journal of Geophysical Research – Earth Surface*
- 2012-present Associate editor, GSA journal *Geological Society of America Bulletin*
- 2005-present Associate editor, Elsevier journal *Geomorphology*
- 2008-2012 Coeditor, GSA journal *Lithosphere*
- 2007-present Adjunct faculty member, Planetary Sciences Department, University of Arizona.
- 2004-2007 Consulting geomorphologist, Yucca Mountain Project, Department of Energy.
- 2002-present Affiliate faculty member, Applied Mathematics Program, University of Arizona
- 2001-present Affiliate faculty member, Institute for the Study of Planet Earth, University of Arizona

Honors/Awards

- 2015 Geological Society of America Fellow
- 2011 Galileo Circle Fellow, College of Science, University of Arizona

Brief synopsis of research expertise

The primary goal of my research is to combine field measurements, analyses of digital data, and mathematical modeling to understand landform evolution. My work includes all major landform types (hillslope, fluvial, aeolian, glacial, coastal) and spans a wide range of spatial and temporal scales from microtopographic ($\sim 10^{-3}$ m) to global ($\sim 10^7$ m) and time scales of individual events (e.g. rainstorms, i.e. $\sim 10^{-4}$ y) to mountain building and decay (10^8 y).

Books and Volumes

- Pelletier, J.D., et al. (in review), How to build an erosionally resistant hillslope, Geological Society of America Special Paper.
- Pelletier, J.D. (2008), Quantitative Modeling of Earth Surface Processes, Cambridge University Press.

Publications

- Pelletier, J.D., and N. Abramson, in review, The ecohydrology of Mima mounds, *Journal of Geophysical Research: Earth's Surface*.
- Prescott, A.B., and J.D. Pelletier, in press, Climate-driven changes to suspended sediment yields by the end of the century, *Earth's Future*, <https://doi.org/10.22541/essoar.174051911.13338199/v1>.
- Pelletier, J.D., Hayes, R.G., Hoch, O., Fenerty, B., and McGuire, L.A. (2025), Geometric constraints on tributary fluvial network junction angles, *Earth Surface Dynamics*, 13, 219–238, <https://doi.org/10.5194/esurf-13-219-2025>.
- Prescott, A.B., Pelletier, J.D., Chataut, S., and Ananthanarayan, S. (2025), An evaluation of flow-routing algorithms for calculating contributing area on regular grids, *Earth Surface Dynamics*, 13, 239–256, <https://doi.org/10.5194/esurf-13-239-2025>.
- Pelletier, J.D., N. Abramson, S. Chataut, S. Ananthanarayan, D. Ludwick, and B.P. Roddy (2024), New model for predicting the erosional performance of rehabilitated mine sites, *Mining Engineering*, 75(3), 24-28.
- Zhang, P., D. Sherman, J. Pelletier, J. Ellis, E. Farrell, and B. Li (2022), Quantification and classification of grainflow morphology on natural dunes, *Earth Surface Processes and Landforms*, <https://doi.org/10.1002/esp.5348>.
- Schaefer, E., and J.D. Pelletier (2020). An algorithm to reduce a river network or other graph-like polygon to a set of lines, *Computers & Geosciences*, 145, 104554, <https://doi.org/10.1016/j.cageo.2020.104554>.
- Doane, T.H., J.D. Pelletier, J.D., and M.H. Nichols (2020). How Hack distributions of rill networks contribute to nonlinear slope length–soil loss relationships, *Earth Surface Dynamics*, <https://doi.org/10.5194/esurf-2020-63>.
- Pelletier, J.D., (2020). Controls on the hydraulic geometry of alluvial channels: bank stability to gravitational failure, the critical-flow hypothesis, and conservation of mass and energy, *Earth Surface Dynamics*, <https://doi.org/10.5194/esurf-2020-44>.
- Moravec, B. G., et al. (2020). Resolving deep critical zone architecture in complex volcanic terrain. *Journal of Geophysical Research: Earth Surface*, 125, e2019JF005189. doi: 10.1029/2019JF005189.
- Lawrence, D.M., et al. (2019), The Community Land Model version 5: Description of new features, benchmarking, and impact of forcing uncertainty, *JAMES*, 11, 4245–4287. doi: 10.1029/2018MS001583.
- Williams, Z., J.D. Pelletier, and T. Meixner (2019), Self-affine fractal spatial and temporal variability of the San Pedro River, southern Arizona, *Journal of Geophysical Research, Earth Surface*, 124(6), 1540-1558, doi: 10.1029/2018JF004853.
- Fan, Y, et al. (2019), Hillslope hydrology in global change research and Earth system modeling, *Water Resources Research*, doi: 10.1029/2018WR023903.
- Chang, L.-L., Dwivedi, R., Knowles, J. F., Fang, Y.-H., Niu, G.-Y., Pelletier, J. D., et al. (2018). Why do large-scale land surface models produce a low ratio of transpiration to

- evapotranspiration? *Journal of Geophysical Research: Atmospheres*, 123. doi: 10.1029/2018JD029159
- Shephard, C., J.D. Pelletier, M. Schaap, and C. Rasmussen (2018), Signatures of obliquity and eccentricity in soil chronosequences, *Geophysical Research Letters*, 45(20), 11,147-11,153, doi: 10.1029/2018GL078583
- Perdrial, J., P. Brooks, T. Swetnam, K. Lohse, C. Rasmussen, M. Litvak, A. Harpold, X. Zapata-Rios, P. Broxton, B. Mitra, T. Meixner, K. Condon, D. Huckle, C. Stielstra, A. Vazquez-Ortega, R. Lybrand, M. Holleran, C. Orem, J.D. Pelletier, and J. Chorover (2018), A net ecosystem carbon budget for snow dominated forested headwater catchments: linking water and carbon fluxes to critical zone carbon storage, *Biochemistry*, 138(3), 225-243, doi: 10.1007/s10533-018-0440-3.
- Luo, W., T.D. Smith, K. Whalley, A. Darling, C. Ormand, W.-C. Hung, J.-L. Chiang, J.D. Pelletier K. Duffin (2018), Earth surface modeling for education: How effective is it? Four semesters of classroom tests with WILSIM-GC, *British Journal of Educational Technology*, doi: 10.1111/bjet.12653
- Field, J.P., J.D. Pelletier (2018), Controls on the aerodynamic roughness length and the grain-size dependence of aeolian sediment transport, *Earth Surface Processes and Landforms*, 43(12), 2616-2626, doi: 10.1002/esp.4420.
- Pelletier, J.D., P.A. Kapp, J. Abell, J.P. Field, Z.C. Williams, R.J. Dorsey (2018), Controls on yardang development and morphology I. Field observations and measurements at Ocotillo Wells, California, *Journal of Geophysical Research, Earth Surface*, 123(4), 694-722, doi: 10.1002/2017JF004461
- Pelletier, J.D. (2018), Controls on yardang development and morphology II. Numerical Modeling, *Journal of Geophysical Research, Earth Surface*, 123(4), 723-743, doi: 10.1002/2017JF004462
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