

Vamsi Ganti

Department of Geography, 4810 Ellison Hall
 University of California, Santa Barbara, Santa Barbara CA 93106
 +1 805-893-5991 (O), <https://geomorph.geog.ucsb.edu> (web), **Email:** vganti@ucsb.edu

EDUCATION

University of Minnesota, Twin Cities

Ph.D., Department of Civil Engineering, 2012

Dissertation title: *Non-local theories of geomorphic transport: From hillslopes to rivers to deltas to the stratigraphic record*

Advisor: Efi Foufoula-Georgiou

Indian Institute of Technology, Madras

B.Tech., Civil and Environmental Engineering, 2007

EMPLOYMENT

Assistant Professor Department of Geography University of California, Santa Barbara	March 2018 – present
---	----------------------

Junior Research Fellow Department of Earth Science and Engineering Imperial College London	Jan. 2015 – Jan. 2018
--	-----------------------

Postdoctoral Scholar in Geology Division of Geological and Planetary Sciences California Institute of Technology Advisor: Michael P. Lamb	Sept. 2012 - Dec. 2014
--	------------------------

Graduate Research Assistant St. Anthony Falls Laboratory, National Center for Earth-surface Dynamics University of Minnesota	Sept. 2007 - Aug. 2012
--	------------------------

RESEARCH INTERESTS

Stochastic modeling of Earth-surface evolution, Coastal river dynamics, Sedimentary processes and stratigraphy, Multi-scale dynamics and non-local transport theories in hydro-geomorphic systems, Dispersal and sediment transport in the environment.

HONORS AND AWARDS

- 1) Luna B. Leopold Young Scientist Award, American Geophysical Union, 2015.
- 2) Robert P. Sharp Capstone Lecture, American Geophysical Union, 2015.
- 3) Junior Research Fellowship, Imperial College London (2015–2017).
- 4) NCED2 Synthesis Postdoctoral Fellowship (2013–2014).
- 5) California Institute of Technology, Geology Option Postdoctoral Fellowship (2012–2013).
- 6) Horton Research Grant, American Geophysical Union (AGU), 2011-12.

- 7) Interdisciplinary Doctoral Fellowship, Graduate school of the University of Minnesota and the Institute on Environment, 2009-2010.
- 8) Edward Silberman Fellowship, St. Anthony Falls Laboratory, University of Minnesota, 2009.
- 9) Prathiba scholarship, Government of Andhra Pradesh, India, 2003-2007.
- 10) 0.1% certificate, All India Secondary School Examination (AISSE) conducted by the Central Board of Secondary Education (CBSE), India, 2001.

REFEREED JOURNAL PUBLICATIONS

under review

- 23) Sweeney, J., N. H. Warner, **V. Ganti**, M. P. Golombek, R. Fergason, R. Kirk, and F. Calef, Degradation of One-Hundred-Meter-Scale Impact Craters on Mars and Implications for Surface Process Rates in the Hesperian and Amazonian, *Journal of Geophysical Research – Planets*, under review.
- 22) Trower, E. **V. Ganti**, W. W. Fischer, and M. P. Lamb, Erosional surfaces in the Late Cretaceous Castlegate Sandstone: Sequence boundaries or autogenic scour from backwater hydrodynamics?, *Geology*, in revision.

published/in press articles

- 21) Paola, C., **V. Ganti**, D. Mohrig, A. C. Runkel, and K. M. Straub (2018), Time not our time: physical controls on the preservation and measurement of geologic time, *Annual Review of Earth and Planetary Sciences*, 46(1), 409–438, doi:10.1146/annurev-earth-082517-010129.
- 20) Torres, M., A. Limaye, **V. Ganti**, M. P. Lamb, W. W. Fischer, and A. J. West (2017), Model predictions of long-lived storage of organic carbon in river deposits, *Earth Surf. Dynam. Discuss.*, 5, 711–730, doi:10.5194/esurf-2017-29.
- 19) DiBiase, R. A., M. P. Lamb, **V. Ganti**, and A. M. Booth (2017), Slope, grain size, and roughness controls on on dry sediment transport and storage on steep hillslopes, *J. Geophys. Res. - Earth Surf.*, 122, DOI: 10.1002/2016JF003970.
- 18) **Ganti, V.**, C. von Hagke, D. Scherler, M. P. Lamb, W. W. Fischer, and J.-P. Avouac (2016), Timescale bias in erosion rates of glaciated landscapes, *Science Advances*, 2, e1600204, doi: 10.1126/sciadv.1600204.
- 17) **Ganti, V.**, *A. J. Chadwick, *H. J. Hassenruck-Gudipati, and M. P. Lamb (2016), Avulsion cycles and their stratigraphic signature on an experimental backwater-controlled delta, *J. Geophys. Res. - Earth Surf.*, 112, doi:10.1002/2016JF003915.
- 16) **Ganti, V.**, *A. J. Chadwick, *H. J. Hassenruck-Gudipati, B. M. Fuller, and M. P. Lamb (2016), Experimental river delta size set by multiple floods and backwater hydrodynamics, *Science Advances*, 2, e1501768, doi: 10.1126/sciadv.1501768.
- 15) Golombek, M. P., N. H. Warner, **V. Ganti**, M. P. Lamb, T. J. Parker, R. L. Fergason, and R. Sullivan (2014), Small crater modification on Meridiani Planum and implications for erosion rates and climate change on Mars, *J. Geophys. Res. - Planets*, 119, 2522–2547, doi: 10.1002/2014JE004658.
- 14) **Ganti, V.**, Z. Chu, M. P. Lamb, J. A. Nittrover, and G. Parker (2014), Testing morphodynamic controls on the location and frequency of river avulsions on fans versus deltas: Huanghe (Yellow River), China, *Geophys. Res. Lett.*, 41, 7882–7890, doi:10.1002/2014GL061918.

- 13) **Ganti, V.**, M. P. Lamb, and B. McElroy (2014), Quantitative bounds on morphodynamics and implications for reading the sedimentary record, *Nature Comm.*, 5:3298, doi:10.1038/ncomms4298.
- 12) **Ganti, V.**, C. Paola, and E. Foufoula-Georgiou (2013), Kinematic controls on the geometry of the preserved cross-sets, *J. Geophys. Res. - Earth Surf.*, 118, 1296–1307, doi:10.1002/jgrf.20094.
- 11) Falcini, F., E. Foufoula-Georgiou, **V. Ganti**, C. Paola, and V. R. Voller (2013), A combined non-linear and non-local model for sediment transport in depositional systems, *J. Geophys. Res. - Earth Surf.*, 118, doi:10.1029/2012JF002547.
- 10) Hondzo, M., M. Morris, V. R. Voller, E. Foufoula-Georgiou, J. Finlay, **V. Ganti**, and M. E. Power (2013), Estimating and scaling stream ecosystem metabolism along channels with heterogeneous substrate, *Ecohydrology*, DOI:10.1002/eco.1391.
- 9) Geleynse, N., V. R. Voller, C. Paola, and **V. Ganti** (2012), Characterization of river delta shorelines, *Geophys. Res. Lett.*, 39, L17402, doi:10.1029/2012GL052845.
- 8) Straub, K. M., **V. Ganti**, C. Paola, and E. Foufoula-Georgiou (2012), Prevalence of exponential bed thickness distributions in the stratigraphic record: Experiments and theory, *J. Geophys. Res. - Earth Surf.*, 117, F02003, doi:10.1029/2011JF002034.
- 7) Voller, V. R., **V. Ganti**, C. Paola, and E. Foufoula-Georgiou (2012), Does the flow of information in a landscape have direction?, *Geophys. Res. Lett.*, 39, L01403, doi:10.1029/2011GL050265.
- 6) **Ganti, V.**, P. Passalacqua, and E. Foufoula-Georgiou (2012), A sub-grid scale closure for nonlinear hillslope sediment transport models, *J. Geophys. Res. - Earth Surf.*, 117, F02012, doi:10.1029/2011JF00218.
- 5) **Ganti, V.**, K. M. Straub, E. Foufoula-Georgiou, and C. Paola (2011), Space-time dynamics of depositional systems: Experimental evidence and theoretical modeling of heavy-tailed statistics, *J. Geophys. Res. - Earth Surf.*, 116, F02011, doi:10.1029/2010JF001893.
- 4) **Ganti, V.**, M. M. Meerschaert, E. Foufoula-Georgiou, E. Viparelli, and G. Parker (2010), Normal and anomalous diffusion of gravel tracer particles in rivers, *J. Geophys. Res. - Earth Surf.*, 115, F00A12, doi:10.1029/2008JF001222.
- 3) Foufoula-Georgiou, E., **V. Ganti**, and W. E. Dietrich (2010), A nonlocal theory of sediment transport on hillslopes, *J. Geophys. Res. - Earth Surf.*, 115, F00A16, doi:10.1029/2009JF001280.
- 2) **Ganti, V.**, A. Singh, P. Passalacqua, and E. Foufoula-Georgiou (2009), Subordinated Brownian motion model for sediment transport, *Phys. Rev. E.*, 80(1), DOI: 10.1103/PhysRevE.80.011111.
- 1) Stark, C. P., E. Foufoula-Georgiou, and **V. Ganti** (2009), A nonlocal theory of sediment buffering and bedrock channel evolution, *J. Geophys. Res. - Earth Surf.*, 114, F01029, doi:10.1029/2008JF000981.

*denotes undergraduate or graduate student (co-) advisee

OTHER PUBLICATIONS

- 1) **Ganti, V.** (2012), *Non-local theories of geomorphic transport: From hillslopes to rivers to deltas to the stratigraphic record*, Ph.D. dissertation, University of Minnesota, Minneapolis, Minnesota, 265 pp.

- 2) Fofoula-Georgiou, E., **V. Ganti**, and P. Passalacqua (2008), Geomorphic transport laws: Non-local flux with classical mass balance, *University of Minnesota Supercomputing Institute Research Report*, UMSI 2008/27.

INVITED SEMINARS

- **2017:** University of California Santa Barbara, Department of Geography Colloquium; Pennsylvania State University, Geosciences Colloquium; Georgia Institute of Technology, Earth and Atmospheric Sciences; University of Colorado, Boulder, Geosciences Colloquium; European Geophysical Union Annual Meeting.
- **2016:** University of Chicago, Department of Geophysical Sciences; University of Minnesota, Twin Cities; University of Edinburgh, Hutton Club seminar; Johns Hopkins University, Bromery Lecture.
- **2015:** Robert P. Sharp Capstone Lecture, American Geophysical Union Fall Meeting; Imperial College London, Earth & Planets seminar; University of California Berkeley, EPS.
- **2014:** Harvard University, BiSEPPS seminar; University of Southern California, Earth Sciences.
- **2013:** University of California Berkeley, EPS.
- **2012:** California Institute of Technology, GPS.

STUDENT ADVISEES

- Haoran Shi, Undergraduate Research Opportunities Program, Imperial College London, Summer 2016.
- Robert C. Mahon, CUAHSI pathfinder graduate student fellowship, University of Wyoming, Summer 2015.
- Austin J. Chadwick, Caltech graduate student, Caltech, Summer 2014.
- Hima J. Hassenruck-Gudipati, Summer Undergraduate Research Fellow (SURF), Caltech, Summer 2013 – Spring 2014.

TEACHING EXPERIENCE

Geog 137/237, Quantitative Geomorphology; Upper-level undergraduate and graduate course, Spring 2018 (~ 20 students)

- Basic quantitative understanding of processes shaping Earth's surface. In-depth evaluation of hillslope diffusion, mass wasting, sediment transport, and fluvial processes. Applications of quantitative methods are emphasized throughout class. Laboratory provides understanding of experimental, physical, and remote sensing data.

Academic tutorial, Sedimentology (2nd years); Undergraduate Course, Spring 2016 (~ 20 students)

- Designed and lectured academic tutorials on the mechanics of sediment transport on planetary surfaces.

Stochastic Hydrology, CE8506; Graduate course, Spring 2012 (~20 students)

- Lectured classes on the basics of probability and statistics, flood frequency analysis, time series analysis.

Stochastic processes and wavelet analysis in Geophysics, Graduate course, Spring 2012 (~10 students)

- Short course covering theory and examples of stochastic processes and wavelet analysis with hands-on experience with data analysis and modeling (offered in a group discussion setting).
- Topics covered: Trend analysis and non-stationarity (with applications to precipitation and streamflow); Characterization of extremes in geomorphic transport; Probabilistic modeling of Earth's surface dynamics.

PROFESSIONAL SERVICE

- Publication review: *Nature Geoscience*, *Geology*, *Science Advances*, *JGR-Earth surface*, *Geophysical Research Letters*, *GSA Bulletin*, *Journal of Sedimentary Research*, *Sedimentology*, *Physical Review Letters*, *Physical Review E*, *Advances in Water Resources*, *Hydrology and Earth System Sciences*
- Proposal review: *NSF: Division of Earth Sciences*; *American Chemical Society*, *PRF*
- Session co-convenor: *American Geophysical Union Fall Meeting (2015, 2017)*; *International Conference on Fluvial Sedimentology (2017)*
- Earth and Planets Seminar co-organiser for 2016-2017, Department of Earth Science and Engineering, Imperial College London.
- Member: *American Geophysical Union (2008 – present)*

SELECTED FIRST-AUTHORED CONFERENCE PRESENTATIONS

- 17) **Ganti, V.**, M. P. Lamb, A. Chadwick, W. W. Fischer, and E. Trower, *Autogenic erosional scours on backwater-mediated deltas from floods and avulsions*, AGU Fall meeting, San Francisco, CA, 12–16 December, 2016.
- 16) **Ganti, V.**, *Variability matters: New insights into mechanics of river avulsions on deltas and their deposits*, Robert P. Sharp Capstone Lecture, AGU Fall meeting, San Francisco, CA, 14–18 December, 2015.
- 15) **Ganti, V.**, H. J. Hassenruck-Gudipati, A. Chadwick, and M. P. Lamb, *Mechanics of backwater-mediated avulsions on river deltas*, AGU Fall meeting, San Francisco, CA, 15–19 December, 2014.
- 14) **Ganti, V.**, Z. Chu, H. J. Hassenruck-Gudipati, and M. P. Lamb, *Slope-mediated and deltaic avulsions on the Huanghe (Yellow River), China*, AGU Fall meeting, San Francisco, CA, 9–13 December, 2013.
- 13) **Ganti, V.**, M. P. Lamb, and B. McElroy, *Quantitative bounds on environmental signal preservation in the sedimentary record*, Pacific Section AAPG Conference, Monterey, CA, 21–24 April, 2013.
- 12) **Ganti, V.**, C. Paola, and E. Foufoula-Georgiou, *Kinematic controls on the geometrical structure of the preserved cross-sets*, AGU Fall Meeting, San Francisco, CA, 3–7 December, 2012.
- 11) **Ganti, V.**, K. M. Straub, E. Foufoula-Georgiou, and C. Paola, *Relating Earth-surface dynamics to stratigraphy: What is recorded and why?*, William Smith Meeting - Strata and Time, London, U. K., 4–5 September, 2012.
- 10) **Ganti, V.**, C. Paola, and E. Foufoula-Georgiou, *Kinematic controls on the geometrical structure of the preserved cross-sets*, MYRES Conference, Salt Lake City, 8–12 August, 2012.
- 9) **Ganti, V.**, P. Passalacqua, and E. Foufoula-Georgiou, *Physical and statistical diagnostics for verification of hillslope sediment transport models*, AGU Fall Meeting, San Francisco, CA, 4–9 December, 2011.
- 8) **Ganti, V.**, K. M. Straub, E. Foufoula-Georgiou, and C. Paola, *Surface dynamics to preserved stratigraphy: Is the tale in the tails?*, Stochastic Transport and Emergent Scaling in Earth-Surface Processes, Glenbrook, NV, 31 October–2 November, 2011.
- 7) **Ganti, V.**, K. M. Straub, E. Foufoula-Georgiou, and C. Paola, *From experimental basins to deltas: Statistical characterization of surface dynamics in deltaic systems*, GSA Annual Meeting, Minneapolis, MN, 9–12 October, 2011.
- 6) **Ganti, V.**, K. M. Straub, E. Foufoula-Georgiou, and C. Paola, *Space-time dynamics of depositional systems and implications for stratigraphy*, AGU Chapman Conference, Oxnard, CA, 24–27 January, 2011.
- 5) **Ganti, V.**, K. M. Straub, E. Foufoula-Georgiou, and C. Paola, *Space-time dynamics of depositional systems: Experimental evidence for heavy-tailed statistics and theoretical modeling*, AGU Fall Meeting, San Francisco, CA, 13–17 December, 2010.

- 4) **Ganti, V.**, A. Singh, P. Passalacqua, and E. Foufoula-Georgiou, *Complex dynamics and multi-scale structure of sediment transport: Experimental evidence and theoretical insights*, AGU Chapman Conference, Hyderabad, India, 15–19 February, 2010.
- 3) **Ganti, V.**, K. M. Straub, E. Foufoula-Georgiou, and M. M. Meerschaert, *Signature of non-locality in depositional systems: Implications for modeling and interpretation of stratigraphic records*, AGU Fall Meeting, San Francisco, CA, 14–18 December, 2009.
- 2) **Ganti, V.**, K. M. Straub, E. Foufoula-Georgiou, and M. M. Meerschaert, *Signature of non-locality in depositional systems: Implications for modeling and interpretation of stratigraphic records*, Stochastic Transport and Emergent Scaling in Earth-Surface Processes, Incline Village, NV, 04–06 November, 2009.
- 1) **Ganti, V.**, M. M. Meerschaert, E. Foufoula-Georgiou, E. Viparelli, and G. Parker, *Normal and anomalous dispersion of tracers in gravel-bed rivers*, AGU Fall Meeting, San Francisco, CA, 15–19 December, 2008.