## Stochastic sediment transport modeling annotated bibliography

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## References

[1] S. Abbott and S. Francis, "Saltation and suspension trajectories of solid grains in a water stream," Royal Transations of the Royal Society of London A., vol. 294, no. 1321, pp. 225–254, 1977.

need to write the annote 4 dis

[2] C. Ancey, P. Bohorquez, and E. Bardou, "Sediment Transport in Mountain Rivers," *ERCOFTAC Bulletin.*, vol. 100, pp. 37–52, 2014.

need to write the annote 4 dis

[3] C. Ancey, P. Bohorquez, and J. Heyman, "Stochastic interpretation of the advection-diffusion," *Journal of Geophysical Research : Earth Surface*, vol. 120, pp. 325–345, 2015.

need to write the annote 4 dis

[4] C. Ancey, A. C. Davison, T. Böhm, M. Jodeau, and P. Frey, "Entrainment and motion of coarse particles in a shallow water stream down a steep slope," *Journal of Fluid Mechanics*, vol. 595, no. 2008, pp. 83–114, 2008.

need to write the annote 4 dis

[5] C. Ancey and J. Heyman, "A microstructural approach to bed load transport: mean behaviour and fluctuations of particle transport rates," *Journal of Fluid Mechanics*, vol. 744, no. 2014, pp. 129–168, 2014.

[6] C. Ancey, "Stochastic modeling in sediment dynamics: Exner equation for planar bed incipient bed load transport conditions," *Journal of Geophysical Research: Earth Surface*, vol. 115, no. F2, pp. n/a–n/a, 2010.

need to write the annote 4 dis

[7] C. Ancey, T. Böhm, M. Jodeau, and P. Frey, "Statistical description of sediment transport experiments," *Physical Review E - Statistical*, *Nonlinear*, and *Soft Matter Physics*, vol. 74, no. 1, pp. 1–14, 2006.

need to write the annote 4 dis

[8] Anderson P.W., "More is Different," pp. 393–396, 1972.

need to write the annote 4 dis

[9] F. Ballio, D. Pokrajac, A. Radice, and S. Hosseini Sadabadi, "Lagrangian and Eulerian Description of Bed Load Transport," *Journal of Geophysical Research: Earth Surface*, pp. 384–408, 2018.

need to write the annote 4 dis

[10] F. Ballio, V. Nikora, and S. E. Coleman, "On the definition of solid discharge in hydro-environment research and applications," *Journal of Hydraulic Research*, vol. 52, no. 2, pp. 173–184, 2014.

need to write the annote 4 dis

[11] T. Böhm, C. Ancey, P. Frey, J. L. Reboud, and C. Ducottet, "Fluctuations of the solid discharge of gravity-driven particle flows in a turbulent stream," *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, vol. 69, no. 61, pp. 1–13, 2004.

need to write the annote 4 dis

[12] J. Campagnol, A. Radice, R. Nokes, V. Bulankina, A. Lescova, and F. Ballio, "Lagrangian analysis of bed-load sediment motion: Database contribution," *Journal of Hydraulic Research*, vol. 51, no. 5, pp. 589– 596, 2013.

need to write the annote 4 dis

[13] E. Cand'es and J. Romberg, "Practical Signal Recovery from Random Projections," *IS&T/SPIE's 17th Annual Symposium on Electronic Imaging*, vol. 2291, no. 626, p. 18, 2005.

need to write the annote 4 dis

[14] F. Charru, H. Mouilleron, and O. Eiff, "Erosion and deposition of particles on a bed sheared by a viscous flow," *Journal of Fluid Mechanics*, vol. 519, no. 2004, pp. 55–80, 2004.

need to write the annote 4 dis

[15] J. Crocker and D. Grier, "Methods of Digital Video Microscopy for Colloidal Studies," *Journal of Colloid and Interface Science*, vol. 179, no. 1, pp. 298–310, 1996.

need to write the annote 4 dis

[16] T. G. Drake, R. L. Shreve, W. E. Dietrich, P. J. Whiting, and L. B. Leopold, "Bedload transport of fine gravel observed by motion-picture photography," *Journal of Fluid Mechanics*, vol. 192, no. 1988, p. 193, 1988.

need to write the annote 4 dis

[17] H. A. Einstein, "Bedload transport as a probability problem," Ph.D. dissertation, Wasserbau Eidg. Tech., Hoschsch, Zurich, 1937.

need to write the annote 4 dis

[18] R. Ettema and C. F. Mutel, "Hans Albert Einstein: Innovation and Compromise in Formulating Sediment Transport by Rivers," *Journal of Hydraulic Engineering*, vol. 130, no. 6, pp. 477–487, 2004.

need to write the annote 4 dis

[19] S. Fathel, D. Furbish, and M. Schmeeckle, "Parsing anomalous versus normal diffusive behavior of bedload sediment particles," *Earth Surface Processes and Landforms*, vol. 41, no. 12, pp. 1797–1803, 2016.

need to write the annote 4 dis

[20] S. L. Fathel, D. J. Furbish, and M. W. Schmeeckle, "Experimental evidence of statistical ensemble behavior in bed load sediment transport," *Journal of Geophysical Research F: Earth Surface*, vol. 120, no. 11, pp. 2298–2317, 2015.

[21] D. J. Furbish, A. E. Ball, and M. W. Schmeeckle, "A probabilistic description of the bed load sediment flux: 4. Fickian diffusion at low transport rates," *Journal of Geophysical Research: Earth Surface*, vol. 117, no. 3, pp. 1–13, 2012.

need to write the annote 4 dis

[22] D. J. Furbish, S. L. Fathel, and M. W. Schmeeckle, "Particle Motions and Bed Load Theory: The Entrainment Forms of the Flux and the Exner Equation," in *Gravel-Bed Rivers: Processes and Disasters*, 1st ed., D. Tsutsumi and J. B. Laronne, Eds. John Wiley & Sons Ltd., 2017, ch. 4, pp. 97–120.

need to write the annote 4 dis

[23] D. J. Furbish, S. L. Fathel, M. W. Schmeeckle, D. J. Jerolmack, and R. Schumer, "The elements and richness of particle diffusion during sediment transport at small timescales," *Earth Surface Processes and Landforms*, vol. 42, no. 1, pp. 214–237, 2017.

need to write the annote 4 dis

[24] D. J. Furbish, P. K. Haff, J. C. Roseberry, and M. W. Schmeeckle, "A probabilistic description of the bed load sediment flux: 1. Theory," *Journal of Geophysical Research: Earth Surface*, vol. 117, no. 3, 2012.

need to write the annote 4 dis

[25] D. J. Furbish, J. C. Roseberry, and M. W. Schmeeckle, "A probabilistic description of the bed load sediment flux: 3. the particle velocity distribution and the diffusive flux," *Journal of Geophysical Research: Earth Surface*, vol. 117, no. 3, 2012.

need to write the annote 4 dis

[26] D. J. Furbish and M. W. Schmeeckle, "A probabilistic derivation of the exponential-like distribution of bed load particle velocities," *Water Resources Research*, vol. 49, no. 3, pp. 1537–1551, 2013.

need to write the annote 4 dis

[27] D. J. Furbish, M. W. Schmeeckle, R. Schumer, and S. L. Fathel, "Probability distributions of bed load particle velocities, accelerations, hop distances, and travel times informed by Jaynes's principle of maximum entropy," *Journal of Geophysical Research: Earth Surface*, vol. 121, no. 7, pp. 1373–1390, 2016.

need to write the annote 4 dis

[28] M. A. Hassan and D. N. Bradley, "Geomorphic controls on tracer particle dispersion in gravel bed rivers," Gravel-Bed Rivers 8, vol. 30, no. September, pp. 3–9, 2015.

need to write the annote 4 dis

[29] M. A. Hassan, M. Church, and A. P. Schick, "Distance of movement of coarse particles in gravel bed streams," *Water Resources Research*, vol. 27, no. 4, pp. 503–511, 1991.

need to write the annote 4 dis

[30] J. Heyman, P. Bohórquez, and C. Ancey, "Exploring the physics of sediment transport in non-uniform super-critical flows through a large dataset of particle trajectories," *J. Geophys. Res:Earth Surf.*, vol. submitted, 2015.

need to write the annote 4 dis

[31] J. Heyman, P. Bohorquez, and C. Ancey, "Entrainment, motion, and deposition of coarse particles transported by water over a sloping mobile bed," *Journal of Geophysical Research: Earth Surface*, vol. 121, no. 10, pp. 1931–1952, 2016.

need to write the annote 4 dis

[32] J. Heyman, H. B. Ma, F. Mettra, and C. Ancey, "Spatial correlations in bed load transport: Evidence, importance, and modeling," *Journal of Geophysical Research: Earth Surface*, vol. 119, no. 8, pp. 1751–1767, 2014. [Online]. Available: http://doi.wiley.com/10.1002/2013JF003003

need to write the annote 4 dis

[33] —, "Spatial correlations in bed load transport: Evidence, importance, and modeling," *Journal of Geophysical Research: Earth Surface*, pp. 1751–1767, 2014.

[34] J. Heyman, F. Mettra, H. B. Ma, and C. Ancey, "Statistics of bedload transport over steep slopes: Separation of time scales and collective motion," *Geophysical Research Letters*, vol. 40, no. 1, pp. 128–133, 2013.

need to write the annote 4 dis

[35] T. B. Hoey, "Temporal variations in bedload transport in rates and sediment storage," *Progress in Physical Geography*, vol. 16, no. 3, pp. 319–338, 1992.

need to write the annote 4 dis

[36] A. A. Kalinske, "Movement of sediment as bed load in rivers," Eos, Transactions American Geophysical Union, vol. 28, no. 4, pp. 615–620, 1947.

need to write the annote 4 dis

[37] H. Kuhn, "The Hungarian Method for the Assignment Problem," Naval Research Logistics Quarterly, vol. 2, no. 1, pp. 83–97, 1955.

need to write the annote 4 dis

[38] E. Lajeunesse, L. Malverti, and F. Charru, "Bed load transport in turbulent flow at the grain scale: Experiments and modeling," *Journal of Geophysical Research: Earth Surface*, vol. 115, no. 4, 2010.

need to write the annote 4 dis

[39] E. Lajeunesse, O. Devauchelle, and F. James, "Advection and dispersion of bedload tracers," no. November, pp. 1–19, 2017.

need to write the annote 4 dis

[40] H. Ma, J. Heyman, X. Fu, F. Mettra, C. Ancey, and G. Parker, "Bed load transport over a broad range of timescales: Determination of three regimes of fluctuations," *Journal of Geophysical Research: Earth Sur*face, vol. 119, no. 12, 2014.

need to write the annote 4 dis

[41] P. A. Nelson, D. Bellugi, and W. E. Dietrich, "Delineation of river bedsurface patches by clustering high-resolution spatial grain size data," *Geomorphology*, vol. 205, pp. 102–119, 2014.

[42] M. Pietikäinen, M. Turk, L. Wang, G. Zhao, and L. Cheng, "Machine learning in motion analysis: New advances," *Image and Vision Com*puting, vol. 31, no. 6-7, pp. 419–420, 2013.

need to write the annote 4 dis

[43] A. Radice, S. Malavasi, and F. Bailio, "Solid transport measurements through image processing," *Experiments in Fluids*, vol. 41, no. 5, pp. 721–734, 2006.

need to write the annote 4 dis

[44] A. Radice, F. Ballio, and V. Nikora, "On statistical properties of bed load sediment concentration," *Water Resources Research*, vol. 45, no. 6, pp. 1–8, 2009.

need to write the annote 4 dis

[45] J. C. Roseberry, M. W. Schmeeckle, and D. J. Furbish, "A probabilistic description of the bed load sediment flux: 2. Particle activity and motions," *Journal of Geophysical Research: Earth Surface*, vol. 117, no. 3, 2012.

need to write the annote 4 dis

[46] M. Saletti, P. Molnar, A. E. Zimmermann, M. A. Hassan, and M. Church, "Temporal variability and memory in sediment transport in an experimental step-pool channel," *Water Resour. Res.*, vol. 51, pp. 1649–1670, 2015.

need to write the annote 4 dis

[47] W. Sayre and D. Hubbell, "Transport and Dispersion of Labeled Bed Material North Loup River, Nebraska," *Transport of Radionuclides by Streams*, 1965.

need to write the annote 4 dis

[48] M. W. Schmeeckle, J. M. Nelson, and R. L. Shreve, "Forces on stationary particles in near-bed turbulent flows," *Journal of Geophysical Research: Earth Surface*, vol. 112, no. 2, pp. 1–21, 2007.

need to write the annote 4 dis

[49] J. Schmidhuber, "Deep Learning in neural networks: An overview," *Neural Networks*, vol. 61, pp. 85–117, 2015.

need to write the annote 4 dis

[50] G. Seizilles, E. Lajeunesse, O. Devauchelle, and M. Bak, "Cross-stream diffusion in bedload transport," *Physics of Fluids*, vol. 26, no. 1, 2014.

need to write the annote 4 dis

[51] A. Singh, K. Fienberg, D. J. Jerolmack, J. Marr, and E. Foufoula-Georgiou, "Experimental evidence for statistical scaling and intermittency in sediment transport rates," *Journal of Geophysical Research: Earth Surface*, vol. 114, no. 1, pp. 1–16, 2009.

need to write the annote 4 dis

[52] B. M. Sumer, L. H. C. Chua, N.-S. Cheng, and J. Fredsøe, "Influence of Turbulence on Bed Load Sediment Transport," *Journal of Hydraulic Engineering*, vol. 129, no. 8, pp. 585–596, 2003.

need to write the annote 4 dis

[53] J. G. Venditti, P. A. Nelson, R. W. Bradley, D. Haught, and A. B. Gitto, "Bedforms, Structures, Patches, and Sediment Supply in Gravel-Bed Rivers," *Gravel-Bed Rivers*, pp. 439–466, 2017.

need to write the annote 4 dis

[54] H. Voepel, R. Schumer, and M. A. Hassan, "Sediment residence time distributions: Theory and application from bed elevation measurements," *Journal of Geophysical Research: Earth Surface*, vol. 118, no. 4, pp. 2557–2567, 2013.

need to write the annote 4 dis

[55] Y. Xue, N. Ray, J. Hugh, and G. Bigras, "A novel framework to integrate convolutional neural network with compressed sensing for cell detection," *IEEE Transations on Image Processing*, pp. 2319–2323, 2017.

need to write the annote 4 dis

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