

2019 PUBLICATIONS

Amoroso, S., Rollins, K.M., Andersen, P., Gottardi, G., Tonni, L., Garcia Martinez, M.F., Wissmann, K., and Minarelli, L. (2019). "Full-scale testing of liquefaction mitigation using rammed aggregate piers in silty sands." *Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions*, Procs. 7th Intl. Conf. on Earthquake Geotechnical Engineering, Taylor and Francis, p. 656-663.

Amoroso, S., Rollins, K.M., Andersen, P., Gottardi, G. Tonni, L., García Martínez, M.F., Wissmann, K., Minarelli, L., Comina, C., Fontana, D., De Martini, P.M., Monaco, P., Pesci, A., Sapia, V., Vassallo, M., Anzidei, M., Carpena, A., Cinti, F., Civico, R., Coco, C., Conforti, D., Doumaz, F., Giannattasio, F., Di Giulio, G., Foti, S., Loddo, F., Lugli, S., Manuel, M., Marchetti, D., Mariotti, M., Materni, V., Metcalfe, B., Milana, G., Pantosti, D., Pesce, A., Salocchi, A.C., Smedile, A., Stefani, M., Tarabusi, G., Teza, G., (2019). "Blast-induced liquefaction in silty sands for full-scale testing of ground improvement methods: Insights from a multidisciplinary study." *Engineering Geology*, Elsevier, <https://doi.org/10.1016/j.enggeo.2019.105437>.

Athanasopoulos-Zekkos, A., Zekkos, D., Rollins, K.M., Hubler, J., Higbee, J., Platis, A. (2019). "Earthquake performance and characterization of gravel-size earthfills in the ports of Cephalonia, Greece, following the 2014 Earthquakes." *Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions*, Procs. 7th Intl. Conf. on Earthquake Geotechnical Engineering, Taylor and Francis, p. 1212-1219.

Badham, J., Elswah, S., Guillaume, J.H.A., Hamilton, S.H., Hunt, R.J., Jakeman, A.J., Pierce, S.A., Snow, V.O., Babbar-Sebens, M., Fu, B., Gober, P., Hill, M., Iwanaga, T., Loucks, D.P., Merritt, W.S., Peckham, S.D., Richmond, A., Zare, F., Ames, D.P., Bammer, G. 2019. Effective Modeling for Integrated Water Resource Management: A Guide to Contextual Practices by Phases and Steps and Future Opportunities. *Environmental Modelling & Software*, vol 116, pp 40-56. DOI: 10.1016/j.envsoft.2019.02.013.

Barton, J. J. Baxter, W. S. Guthrie, and B. A. Mazzeo. Large-Area Electrode Design for Vertical Electrical Impedance Scanning of Concrete Bridge Decks. *Review of Scientific Instruments*, Vol. 90, No. 025101, February 2019, pp. 1-10, doi.org/10.1063/1.5058152.

Barton, J. J. Baxter, W. S. Guthrie, and B. A. Mazzeo. Vertical Electrical Impedance Scanner for Nondestructive Concrete Bridge Deck Assessment without a Direct Rebar Connection. *Materials Evaluation*, Vol. 77, No. 10, October 2019, pp. 1258-1266.

Bullock, Z., Dashti, S., Karimi, Z., Liel, A., Porter, K., and Franke, K.W. (2019). Probabilistic Models for Residual and Peak Transient Tilt of Mat-Founded Structures on Liquefiable Soils, *Journal Geotechnical and Geoenvironmental Engineering*, ASCE, 145(2): 04018108.

Bullock, Z., Karimi, Z., Dashti, S., Porter, K., Liel, A., and Franke, K.W. (2019). A Physics-Informed Semi-Empirical Probabilistic Model for the Settlement of Shallow-Founded Structures on Liquefiable Ground, accepted for publication in *Géotechnique*, ICE, 69(5), 406-419.

Cao, Z, Rollins, K.M., Yuan, X., Youd, T.L., Talbot, M., Roy, J., Amoroso, S., (2019). "Applicability and reliability of CYF formula based on Chinese Dynamic Penetration Test for liquefaction evaluation of gravelly soils." *Chinese Journal of Geotechnical Engineering*, 41(9): 1628-1635, DOI: 10.11779/CJGE201909006.

Dillon, Patrick B. and Fonseca, Fernando S. (Eds.) (2019). *Proceedings of the Thirteenth North American Conference*. The Masonry Society (TMS), Longmont, CO, ISBN 978-1-929081-62-2.

Fonseca, F. S., E. S. Fortes, G. A. Parsekian, and J. S. Camacho. Compressive strength of high-strength concrete masonry grouted prisms. *Construction and Building Materials Journal*, 202 (30 March 2019): 861-876.

Franke, K.W., Candia, G., Mayoral, J., Wood, C.M., Montgomery, J., Hutchinson, T., Morales-Velez, A.C., and Dashti, S. (2019). Observed Building Damage Patterns and Foundation Performance in Mexico City following the 2017 M7.1 Puebla-Mexico City Earthquake. *Soil Dynamics and Earthquake Engineering*, Elsevier, Volume 125, October 2019, 105708.

Franke, K.W., Lingwall, B.N., Youd, T.L., Blonquist, J., and He-Liang, J. (2019). Overestimation of Liquefaction Hazard in Areas of Low to Moderate Seismicity due to Improper Characterization of Probabilistic Seismic Loading, *Soil Dynamics and Earthquake Engineering*, Elsevier, Volume 116, January 2019, 681-691.

Freeman, M., Vernon, C., Berrett, B., Hastings, N., Derricott, J., Pace, J., Horne, B., Hammond, J., Janson, J., Chiabrande, F., Hedengren, J., and Franke, K.W. (2019). Sequential Earthquake Damage Assessment Incorporating Optimized sUAV Remote Sensing at Pescara del Tronto. *Geosciences*, Elsevier. 9(8), 332; <https://doi.org/10.3390/geosciences9080332>.

Gibbons, J. D., G. G. Schultz, and M. Saito. A Methodology for Analyzing Intersection Safety. *International Conference on Transportation & Development 2019: Innovation and Sustainability in Smart Mobility and Smart Cities*, American Society of Civil Engineers, Alexandria, VA, Edited by D. A. Noyce, 2019, pp. 143-153 (ISBN 978-0-7844-8257-5 (PDF)).

Guthrie, W. S., J. L. Larsen, J. S. Baxter, and B. A. Mazzeo. Automated Air-Coupled Impact-Echo Testing of a Concrete Bridge Deck from a Continuously Moving Platform. *Journal of Nondestructive Evaluation*, Vol. 38, Article No. 32, March 2019, pp. 1-8, <https://doi.org/10.1007/s10921-019-0566-9>.

Guthrie, W. S., E. A. Roper, and D. P. Bentz. Chloride Concentration Analysis for Concrete Bridge Decks Rehabilitated Using Partial-Depth Hydrodemolition. In *Proceedings of the Bridge Engineering Institute Conference*, July 2019.

Guthrie, W. S., T. Waters, J. S. Baxter, L. Hendricks, and B. A. Mazzeo. New Tools for Evaluating Concrete Bridge Decks: High-Speed Acoustic Impact-Echo and Vertical Electrical Impedance Testing of Utah's Longest Bridge Deck. In *Proceedings of the Bridge Engineering Institute Conference*, July 2019.

Hamilton, S.H., Fu, B., Guillaume, J.H., Badham, J., Elsayah, S., Gober, P., Hunt, R.J., Iwanaga, T., Jakeman, A.J., Ames, D.P. and Curtis, A., 2019. A Framework for Characterising and Evaluating the Effectiveness of Environmental Modelling. *Environmental Modelling & Software*, vol 118, pp 83-98. DOI: 10.1016/j.envsoft.2019.04.008.

Hansen, Carly Hyatt, Steven J. Burian, Philip E. Dennison, and Gustavious P. Williams, (2019) "Evaluating historical trends and influences of meteorological and seasonal climate conditions on lake chlorophyll a using remote sensing" *Lakes and Reservoir Management*, July, 2019 DOI: 10.1080/10402381.2019.1632397.

Jackson, E.K., Roberts, W., Nelson, B., Williams, G., Nelson, E.J., and Ames, D.P., 2019. Introductory Overview: Error Metrics for Hydrologic Modelling – A Review of Common Practices and an Open Source Library to Facilitate Use and Adoption. *Environmental Modelling & Software*, vol 119, pp 32-48. DOI: 10.1016/j.envsoft.2019.05.001.

J. Maestre, J. Pallares, I. Cuesta, M. A. Scott, "Dynamics of a capsule flowing in a tube under pulsatile flow," *Journal of the Mechanical Behavior of Biomedical Materials*, Vol. 90, 441-450, 2019.

Johnson, Kyla, Lindsay E. Waite, Suzanne K. Monk, Russell Rader, Rollin H. Hotchkiss, and Mark C. Belk. 2019. Effects of substrate on movement patterns and behavior of stream fish through culverts: an experimental approach. *Sustainability* 11(470): doi: 10.3390/su1020470; https://www.mdpi.com/journal/sustainability/special_issues/River_Restoration#published.

Kevan, L.I., Rollins, K.M., Coffmann, R.A., and Ishimwe, E., (2019). "Full-scale blast liquefaction testing in Arkansas USA to evaluate pile downdrag and neutral plane concepts." *Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions*, Procs. 7th Intl. Conf. on Earthquake Geotechnical Engineering, Taylor and Francis, p. 648-655.

Lübeck, A., Mohamad, G., Fonseca, F. S., Milani, A. S., and Roman, H. R. Numerical analyses of mortar incorporating the variation in Poisson's ratio with increasing axial load. *Masonry International*, Vol 32. No1, 2019:15-22.

Mayoral, J.M., Asimaki, D., Tepalcapa, S., Wood, C.M., Roman-de la Sancha, A., Hutchinson, T., Franke, K.W., and Montalva, G. (2019). Site Effects in the Mexico City Basin: Past and Present. *Soil Dynamics and Earthquake Engineering*, Elsevier, Volume 121, June 2019, 369-382.

Mayoral, J.M., Franke, K.W., and Hutchinson, T. (2019). The September 19, 2017 Mw 7.1 Puebla-Mexico City Earthquake: Important Findings from the Field – Overview of Special Edition. *Soil Dynamics and Earthquake Engineering*, Elsevier, Volume 123, August 2019, 520-524.

Mcdonald, Spencer, Ibrahim Nourein Mohammed, John D. Bolten, Sarva T. Pulla, Chinaporn Meechaiya, Amanda Weigel Markert, E. James Nelson, Raghavan, Srinivasan, Venkataramn Lakshmi "A web-based decision support system tools: The Soil and Water Assessment Tool Online visualization and analyses (SWATOnline) and NASA earth observation data downloading and reformatting tool (NASAaccess)" *Environmental Modelling & Software*, Vol. 120, October 2019, <https://doi.org/10.1016/j.envsoft.2019.104499>.

M. Taus, G. J. Rodin, T. J. R. Hughes, M. A. Scott, "Isogeometric boundary element methods and patch tests for linear elastic problems: formulation, numerical integration, and applications," *Computer Methods in Applied Mechanics and Engineering*, Vol. 357, 2019.

Nascimento, M. R, H. R. Roman, and F. S. Fonseca. Testing and Analysis of Masonry Hollow Clay Block Prisms Filled with Mortar. *Int. J. Masonry Research and Innovation*, Vol. 4, No. 4, 2019:312-333.

Nelson, E. James, Sarva T. Pulla, Mir A. Matin, Kiran Shakya, Norman L. Jones, Daniel P. Ames, Lee Ellenburg, Kel. N. Markert, Cedric H. David, Benjamin F. Zaitchik, Patrick Gatlin, Riley Hales, "Enabling Stakeholder Decision-Making with Earth Observation and Modeling Data Across the SERVIR Hubs using Tethys Platform" *Frontiers in Environmental Science: Freshwater Science*, October 2019, doi:[10.3389/fenvs.2019.00148](https://doi.org/10.3389/fenvs.2019.00148).

Nelson, William R. and Gustavious P. Williams (2019) "Bounding of Flow and Transport Analysis in Heterogeneous Saturated Porous Media: A Minimum Energy Dissipation Principle for the Bounding and Scale-Up", *Hydrology*, April 25, 2019.

Nelson, R. Williams and Gustavious P. Williams, "Mathematical Treatment of Saturated Macroscopic Flow in Heterogeneous Porous Medium: Evaluating Darcy's Law" *Hydrology*, (7(1) 4, December 31, 2019, doi.org/10.3390/hydrology7010004.

Okeson, T.J., Barrett, B.J., Arce, S., Vernon, C.A., Franke, K.W., and Hedengren, J.D. (2019). Achieving Tiered Model Quality in 3D Structure from Motion Models using a Multi-Scale View-Planning Algorithm for Automated Targeted Inspection. *Sensors*, MDPI. 19(12), 2703, doi:10.3390/s19122703.

Purdy, A. J., David, C. H., Sikder, M. S., Reager, J. T., Chandanpurkar, H. A., Jones, N. L., & Matin, M. A. (2019). An Open-Source Tool to Facilitate the Processing of GRACE Observations and GLDAS Outputs: An Evaluation in Bangladesh. *Frontiers in Environmental Science*, 7. <https://doi.org/10.3389/fenvs.2019.00155>.

Qiao, X., Li, Z., Ames, D.P., Nelson, J., Swain, N.R., 2019. Simplifying the deployment of OGC web processing services (WPS) for environmental modelling – Introducing Tethys WPS Server, *Environmental Modelling & Software*, vol. 115, pp 38-50. DOI: 10.1016/j.envsoft.2019.01.021.

Qiao, Xiaohui, Zhiyu Li, Daniel P. Ames, E. James Nelson, Nathan R. Swain, "Enabling Web Processing Services for Environmental Modelling Web Apps: Introducing Tethys WPS Server" *Environmental Modeling and Software*, January 2019.

Rollins, K.M. and Amoroso, S. (2019). "Evaluation of dynamic cone penetration test for liquefaction assessment of gravels from case histories in Italy." *Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions*, Procs. 7th Intl. Conf. on Earthquake Geotechnical Engineering, Taylor and Francis, p. 4744-4751.

Rollins, K.M., Black, R., Schwicht, D.E., Shamsabadi, A. (2019). "Passive force-deflection curves for transition zone backfills for high-speed rail bridge abutments." *Procs.*, 17th European Conference on Soil Mechanics and Geotechnical Engineering, Iceland Geotechnical Society, 8 p. doi: 10.32075/17ECMGE-2019-0112.

Rollins, K.M., Fredrickson, A., Scott, E. (2019). "Effect of Interface Friction on Passive Force on Bridge Abutments." *Procs. 7th Intl. Conf. on Ground Deformation Characteristics of Geomaterials (IS-Glasgow 2019)*, E3S Web of Conferences 92, EDP Sciences, Les Ulis, France, Article No. 13013, 5 p. <https://doi.org/10.1051/e3sconf/20199213013>.

Rollins, K.M., Oakes, C., Meservy, T. (2019). "Liquefaction Mitigation Potential of Prefabricated Vertical Drains from Large-Scale Laminar Shear Box Testing." *Procs. 16th Pan American Conference on Geotechnical Engineering & Soil Mechanics*, IOS Press, Amsterdam, Netherlands, p. 2104-2115. <https://doi:10.3233/STAL190272>.

Rollins, K.M., Wagstaff, K.B., Black, R., (2019). "Passive Force-Deflection Curves for Controlled Low-Strength Material (CLSM) and Lightweight Cellular Concrete (LCC)." *GeoCongress 2019: Earth Retaining Structures and Geosynthetics* <https://doi.org/10.1061/9780784482087.011> (GSP 306), ASCE, 10 p.

Seat, C. J., B. W. Clegg, M. Saito, and G. G. Schultz. Crash Severity Distributions for Life-Cycle Benefit-Cost Analysis of Safety-Related Improvements on Utah Roadways. In *Transportation Research Board 98th Annual Meeting On-line Compendium of Papers*, Transportation Research Board of the National Academies, Washington, DC, 2019.

Seat, M. L., G. G. Schultz, B. W. Clegg, and M. Saito. Analyzing the Safety Impacts of Raised Medians. *International Conference on Transportation & Development 2019: Innovation and Sustainability in Smart Mobility and Smart Cities*, American Society of Civil Engineers, Alexandria, VA, Edited by D. A. Noyce, 2019, pp. 84-95 (ISBN 978-0-7844-8257-5 (PDF)).

Shamsabadi, A., Dasmeh, A., Nojourni, A., Rollins, K.M. and Taciroglu, E. (2019). "Lateral capacity model for backfills reacting against skew-angled abutments under seismic loading" *J. Geotechnical & Geoenvironmental Engrg.*, ASCE, 146(2), [https://doi.org/10.1061/\(ASCE\)GT.1943-5606.0002183](https://doi.org/10.1061/(ASCE)GT.1943-5606.0002183).

Sikder, Safat, Cedric H. David, George H. Allen, Xiaohui, Qiao, E. James Nelson, Mir A. Matin, "Evaluation of Available Global Runoff Datasets through a River Model in Support of Transboundary Water Management in South and Southeast Asia" *Frontiers in Environmental Science: Landsurface Dynamics*, October 2019, <https://doi.org/10.3389/fenvs.2019.00171>.

Smith, A. B., and W. S. Guthrie. Analysis of Lithium Silicate Treatment for Improving Resistance of Aggregates to Polishing. In *Transportation Research Board 98th Annual Meeting Compendium of Papers*, Transportation Research Board of the National Academies, Washington, DC, January 2019.

Souffront Alcantara, M. A., Nelson, E. J., Shakya, K., Edwards, C., Roberts, W., Krewson, C., Ames, D. P., Jones, N. L., Gutierrez, A. (2019). Hydrologic Modeling as a Service (HMaaS): A New Approach to Address Hydroinformatic Challenges in Developing Countries. *Frontiers in Environmental Science*, 7. <https://doi.org/10.3389/fenvs.2019.00158>.

Williams, Gustavious P. and Ashley Walton, "Method for Estimating Sediment Mass Movement from Delta Recutting: A Case Study using Single Beam Sonar in Deer Creek Reservoir" *Water*, Oct 2019.

Xiaohui Qiao, E. James Nelson, Daniel P. Ames, Zhiyu Li, Cédric H. David, Gustavious P. Williams, Wade Roberts, Jorge Luis Sánchez Lozano, Chris Edwards, Michael Souffront, Mir A. Matin, (2019) "A systems approach to routing global gridded runoff through local high-resolution stream networks for flood early warning systems", *Environmental Modeling and Software*, Vol 120, Oct, 2019, doi.org/10.1016/j.envsoft.2019.104501.

Zalewski, A., Sonenklar, D., Cohen, A., Kressner, J., & Macfarlane, G. (2019). *TCRP Synthesis of Transit Practice 138: Public Transit Rider Origin–Destination Survey Methods and Technologies*. *TCRP Synthesis of Transit Practice*. Transportation Research Board. <https://doi.org/10.17226/25428>.

Zhang, F., Chen, M., Ames, D.P., Shen, C., Yue, S., Wen, Y., Lu, G., 2019. Design and Development of a Service-oriented Wrapper System for Sharing and Reusing Distributed Geoanalysis Models on the Web. *Environmental Modelling & Software*, vol. 111, pp 498-509. DOI: 10.1016/j.envsoft.2018.11.002.