

Martin Crapper
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Mechanical and Construction Engineering
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Research interests

Heritage Engineering; Asset Management; Water and Sanitation; Multiphase Flow

Qualifications

Diploma, Permanent Way Institution
Award Date: 6 Mar 2019

PhD, University of Liverpool
Award Date: 1 Jul 1996

Chartered Engineer, CEng

Chartered Permanent Way Engineer

Chartered Water and Environmental Manager, CWEM

Fellow in the Institution of Civil Engineers, FICE

Fellow of the Higher Education Academy, FHEA

Member of the Chartered Institution of Water and Environmental Managers, MCIWEM

Member of the Permanent Way Institution, MPWI

Employment

Professor

Mechanical and Construction Engineering
Northumbria University
1 Jun 2016 → present

Research outputs

The hydraulic characteristics of Roman lead water pipes: an experimental investigation

Crapper, M., Motta, D., Sinclair, C., Cole, D., Monteleone, M., Cosheril, A., Tree, J. & Parkin, A., 11 Apr 2022, (E-pub ahead of print) In: *International Journal for the History of Engineering and Technology*. p. 1-16 16 p.

Hydraulic engineering analysis of Roman water infrastructure: a review of practice and possibilities

Crapper, M., Motta, D., Keenan-Jones, D. & Monteleone, M., 8 Nov 2021, (E-pub ahead of print) In: *Water History*. p. 1-15 15 p.

Laboratory Investigation of Geobag Revetment Performance in Rivers

Khajenoori, L., Wright, G. & Crapper, M., 22 Jul 2021, In: *Geosciences (Switzerland)*. 11, 8, 17 p., 304.

The supply of the public lacus of Pompeii, estimated from the discharge of their overflow channels

Monteleone, M., Crapper, M. & Motta, D., 1 Jul 2021, In: *Water History*. 13, 2, p. 189-216 28 p.

Using the byzantine water supply of Constantinople to examine modern concepts of sustainability

Ward, K., Smith, S. D. & Crapper, M., 3 Dec 2020, *Sustainable Water Engineering*. Charlesworth, S., Booth, C. A. & Adeyeye, K. (eds.). Elsevier, p. 13-30

The Valens Aqueduct of Constantinople: Hydrology and Hydraulics

Crapper, M., 1 Dec 2020, In: *Water History*. 12, 4, p. 427-448 22 p.

Self-propelled nanofluids: a coolant inspired from nature with enhanced thermal transport properties

El Hasadi, Y. & Crapper, M., 1 Sep 2020, In: *Journal of Molecular Liquids*. 313, 8 p., 113548.

Evaluating the performance of geobag revetments in rivers

Khajenoori, L., Wright, G. & Crapper, M., 2020, *River Flow 2020: 7-10 July 2020, Delft, The Netherlands*. London: Taylor & Francis

'Keeping up to date with the Old Way of Doing Things': Competence Management in the UK Heritage Railway Industry

Baughan, R., Smith, S. D., Crapper, M. & Sherratt, F., 4 Jul 2019. 9 p.

Agent-Based Modelling for Simulation-Based Design of Sustainable Faecal Sludge Management Systems

Mallory, A., Crapper, M. & Holm, R., 28 Mar 2019, In: *International Journal of Environmental Research and Public Health*. 16, 7, 19 p., 1125.

When faecal sludge reuse doesn't work: a look at access for the poorest and people with disabilities in urban Malawi

Mallory, A., Crapper, M. & Holm, R., 9 Jul 2018. 6 p.

Self – Propelled Nanofluids a Path to a highly Effective Coolant

El Hasadi, Y. & Crapper, M., 25 Dec 2017, In: *Applied Thermal Engineering*. 127, p. 857-869

The Byzantine Cisterns of Constantinople

Ward, K., Crapper, M., Altuğ, K. & Crow, J., Dec 2017, In: *Water Science and Technology : Water Supply*. 17, 6, p. 1499-1506

Water supply infrastructure of Byzantine Constantinople

Ward, K., Crow, J. & Crapper, M., 15 Nov 2017, In: *Journal of Roman Archaeology*. 30, p. 175-195

Simulating Geobag Revement Failure Processes

Khajenoori, L., Wright, G. & Crapper, M., 13 Aug 2017, p. 139-145. 7 p.

A GIS-based assessment of the Byzantine water supply system of Constantinople

Ruggeri, F., Crapper, M., Snyder, R. & Crow, J., 8 Apr 2017, (E-pub ahead of print) In: *Water Science and Technology : Water Supply*.

CFD-DEM Simulation of Turbulence Modulation in Horizontal Pneumatic Conveying

Ebrahimi, M. & Crapper, M., Apr 2017, In: *Particuology*. 31, p. 15-24 10 p.

Competence management in the UK heritage railway industry

Baughan, R. & Crapper, M., 31 Dec 2016, *Proceedings of the 32nd Annual ARCOM Conference*. Chan, P. W. & Neilson, C. J. (eds.). Manchester: ARCOM, Vol. 1. p. 519-528 10 p.

Simulating the Hydrodynamics of Self-Propelled Colloidal Clusters using Stokesian Dynamics

El Hasadi, Y. & Crapper, M., 15 Dec 2016, In: *Biomicrofluidics*. 10, 6

A socio-economic analysis of different approaches to faecal sludge treatment in Sunyani, Ghana

Mallory, A., Crapper, M., Gyasi, S. & Boamah, B., Jul 2016.

Numerical and experimental study of horizontal pneumatic transportation of spherical and low-aspect-ratio cylindrical particles

Ebrahimi, M., Crapper, M. & Ooi, J., May 2016, In: *Powder Technology*. 293, p. 48-59

Breakage Functions of Particles of Four Different Materials Subjected to Uniaxial Compression

Singh, D., McGlinchey, D. & Crapper, M., 2016, In: *Particulate Science and Technology*. 34, 4, p. 494-501

Breakage Functions of Particles of Four Different Materials Subjected to Uniaxial Compression

Singh, D., McGlinchey, D. & Crapper, M., 4 May 2015.

Safety and volunteer construction workers

Sherratt, F., Crapper, M., Foster-Smith, L. & Walsh, S., 8 Apr 2015, (E-pub ahead of print) In: *Construction Management and Economics*. 33, 5-6, p. 361-374

Safety and volunteer construction workers

Foster-Smith, L., Walsh, S., Crapper, M. & Sherratt, F., Sep 2014, *Proceedings 30th Annual ARCOM Conference*. Raiden, A. & Aboagye-Nimo, E. (eds.). Association of Researchers in Construction Management

Teaching Skills for Conceptual Design - A New Approach

Gillie, M., Stratford, T., Crapper, M. & Furber, A., Sep 2014.

Earthworks risk assessment on a heritage railway

Crapper, M., Fell, M. & Gammoh, I., Aug 2014, In: *Proceedings of the ICE - Geotechnical Engineering*. 167, 4, p. 344-356

Using the DEM-CFD method to predict Brownian particle deposition in a constricted tube

Chaumeil, F. & Crapper, M., Aug 2014, In: *Particology*. 15, p. 94-106

Wastewater Management in Third World Cities: Case Study of Cotonou, Benin

Hounkpe, S. P., Adjovi, E. C., Crapper, M. & Awuah, E., 18 Apr 2014, (E-pub ahead of print) In: *Journal of Environmental Protection*. 05, 05, p. 387-399

Innovative learning at the University of Edinburgh

Furber, A., Gillie, M., Bisby, L., Stratford, T., Crapper, M., White, D. & Blackford, J., 1 Feb 2014, In: *Proceedings of the ICE - Management, Procurement and Law*. 167, 1, p. 13-24

Experimental and Simulation Studies of Dilute Horizontal Pneumatic Conveying

Ebrahimi, M., Crapper, M. & Ooi, J., 2014, In: *Particulate Science and Technology*. 32, 2, p. 206-213

Influence of Salinity on Duckweed Growth and Duckweed Based Wastewater Treatment System

Wendeou, S. P. H., Aina, M. P., Crapper, M., Adjovi, E. & Mama, D., Oct 2013, In: *Journal of Water Resource and Protection*. 5, 10, p. 993-999

DEM simulations of initial deposition of colloidal particles around non-woven membrane spacers

Chaumeil, F. & Crapper, M., 1 Sep 2013, In: *Journal of Membrane Science*. 442, p. 254-263

Comparison of coupled DEM-CFD and SPH-DEM methods in single and multiple particle sedimentation test cases

Ebrahimi, M., Gupta, P., Robinson, M., Crapper, M., Ramaioli, M. & Ooi, J., Sep 2013.

Simulation and experimental study of cylindrical particle motion in a two-phase flow

Ebrahimi, M., Crapper, M., Edwards, W. & Ooi, J., Aug 2013.

Performance of a Geobag Revetment. II: Numerical Modeling

Akter, A., Crapper, M., Pender, G., Wright, G. & Wong, W., 15 Jul 2013, In: *Journal of Hydraulic Engineering*. 139, 8, p. 877-885

Performance of a Geobag Revetment. I: Quasi-Physical Modeling

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Evaluation of a risk assessment system for heritage railway earthworks

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Limits for acceptable use of worn rails on UK standard gauge heritage railways

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Carbon dioxide accounting: 2014 Commonwealth Games Athletes' Village

Sampson, J., Biesta, M., Crapper, M., Hall, I. & Shepherd, A., Jun 2013, In: Proceedings of the Institution of Civil Engineers - Engineering Sustainability. 166, 3, p. 150-160

Mise au point d'un systeme integre de gestion des eaux usees

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Solid-Fluid flows using a variant of immersed boundary method in Gerris

Shui, P., Popinet, S., Valluri, P., Zaleski, S. & Crapper, M., Nov 2012.

Simulation of dilute horizontal pneumatic conveying with experimental validation (PARDEM Project 8)

Ebrahimi, M. & Crapper, M., Sep 2012.

The health and safety implications of socio-cultural context for community construction projects in developing countries

Furber, A., Duncan, S., Smith, S. D. & Crapper, M., 30 Jul 2012, (E-pub ahead of print) In: Construction Management and Economics. 30, 10, p. 857-867

Modelling the failure modes in geobag revetments

Akter, A., Crapper, M., Pender, G., Wright, G. & Wong, W., Jan 2012, In: Water Science and Technology. 65, 3, p. 418-425

A case study of the impact of cultural differences during a construction project in Ghana

Furber, A., Smith, S. D. & Crapper, M., 2012, *Proceedings 28th Annual ARCOM Conference*. ARCOM, p. 553-562

Predicting the hydrodynamic forces on geobag revetments

Akter, A., Pender, G., Wright, G. & Crapper, M., 7 Aug 2011, (E-pub ahead of print) In: Journal of Flood Risk Management. 4, 4, p. 328-338

Culture in Rural Water and Sanitation Projects: a Case Study

Furber, A. & Crapper, M., Jul 2011.

Education for Sustainable Development and Civil Engineering for Children: Interactive Model Case Study

Jewers, S., Lumsden, S., Crapper, M., French, W., Lothian, A., Donald, R., Hill, D. & Hall, A., Jul 2010, In: Journal of Professional Issues in Engineering Education and Practice. 136, 3, p. 165-174

Modelling the Hydrodynamic Forces on Geobag Revetments using CES

Akter, A., Pender, G., Wright, G. & Crapper, M., May 2010.

Discussion of "Approximation of M -Function for Partially Penetrating Wells" by Sushil K. Singh

Barry, A., Wissmeier, L., Parlange, J-Y. & Crapper, M., Mar 2010, In: Journal of Irrigation and Drainage Engineering. 136, 3, p. 214-217

Improving the case-based reasoning prediction of the compliance of treated effluent from constructed wetlands
Crapper, M., Ellis, R. & Furber, A., 2010, In: Civil Engineering and Environmental Systems. 27, 2, p. 123-132

A computational fluid dynamics based model of the ex-situ remediation of hydrocarbon contaminated soils
Wu, T. & Crapper, M., 15 Nov 2009, In: Desalination. 248, 1-3, p. 262-270

Simulation of biopile processes using a hydraulics approach
Wu, T. & Crapper, M., 15 Nov 2009, In: Journal of Hazardous Materials. 171, 1-3, p. 1103-1111

DEM-CFD Modelling of Voidage and Heat Transfer in Fluidized Beds
Duursma, G., Crapper, M., Whitelaw, S., Wong, W. & McMullan, K., Aug 2009.

Failure Mechanism in Geobag Structure
Akter, A., Wright, G., Crapper, M. & Pender, G., Feb 2009.

Models for teaching sustainable development to children
Crapper, M., Donald, R., Hill, D., Hall, A. & French, W., Dec 2008, In: Proceedings of the Institution of Civil Engineers - Engineering Sustainability. 161, 4, p. 229-236

A CFD Approach to modelling ex-situ bioremediation
Crapper, M. & Wu, T., Sep 2008.

Investigation of Flow Patterns of Gas-Solid Granular Flow over Horizontal Pipe Cross-sections by FLUENT & EDEM
Lu, Y., Glass, D., Easson, W. & Crapper, M., Sep 2008.

The significance of ambient atmosphere and temperature on ex-situ remediation of hydrocarbon contaminated soil: a computational fluid dynamics modelling approach
Crapper, M. & Wu, T., May 2008.

How Roman engineers could have flooded the Colosseum
Crapper, M., Nov 2007, In: Proceedings of the ICE - Civil Engineering. 160, 4, p. 184-191

EDEM-FLUENT investigation of bubble-tube interactions in gas-fluidized beds
Crapper, M., Duursma, G., Robertson, C. & Wong, S., Jul 2007.

Refining the case-based reasoning model of construction processes
Graham, D., Smith, S. D. & Crapper, M., Sep 2006, *Proceedings 22nd Annual ARCOM Conference*. Boyd, D. (ed.). ARCOM, Vol. 1. p. 135-142

Green-Ampt approximations
Barry, A., Parlange, J-Y., Li, L., Jeng, D-S. & Crapper, M., Oct 2005, In: Advances in Water Resources. 28, 10, p. 1003-1009

An accurate approach to the design of channel hydraulic flocculators
Liu, J., Crapper, M. & McConnachie, G., Feb 2004, In: Water Research. 38, 4, p. 875-886

A robust grade adjustment procedure
Barry, A., Jeng, D-S., Wardlaw, R., Smith, S. D. & Crapper, M., 2004, In: International Journal of Engineering Education. 20, 5, p. 820-833

Improving concrete placement simulation with a case-based reasoning input
Graham, D., Smith, S. D. & Crapper, M., 2004, In: Civil Engineering and Environmental Systems. 21, 2, p. 137-150

An Adaptive Finite Element Solution for Cohesive Sediment Transport

Mayne, D. A., Usmani, A. S. & Crapper, M., 2002, *Fine sediment dynamics in the marine environment: Proceedings in Marine Science*. Winterwerp, J. C. & Kranenburg, C. (eds.). Amsterdam: Elsevier, Vol. 5. p. 627-641 15 p. (Proceedings in Marine Science; vol. 5).

h-adaptivity and "honest" GFEM for advection-dominated transport

Usmani, A., Mayne, D. & Crapper, M., 2002, In: *Numerical Heat Transfer, Part B: Fundamentals*. 41, 3-4, p. 339-359

h-adaptive finite element solution of unsteady thermally driven cavity problem

Mayne, D., Usmani, A. & Crapper, M., 2001, In: *International Journal of Numerical Methods for Heat & Fluid Flow*. 11, 2, p. 172-195

Comparison of split-operator methods for solving coupled chemical non-equilibrium reaction/groundwater transport models

Barry, A., Bajracharya, K., Crapper, M., Prommer, H. & Cunningham, C., 15 Aug 2000, In: *Mathematics and Computers in Simulation*. 53, 1-2, p. 113-127

Flow field visualization of sediment-laden flow using ultrasonic imaging

Crapper, M., Bruce, T. & Gouble, C., Jan 2000, In: *Dynamics of Atmospheres and Oceans*. 31, 1-4, p. 233-245

h-adaptive finite element solution of high Rayleigh number thermally driven cavity problem

Mayne, D., Usmani, A. & Crapper, M., 2000, In: *International Journal of Numerical Methods for Heat & Fluid Flow*. 10, 6, p. 598-615

Approximations for the Hantush M function

Barry, A., Parlange, J. -Y. & Crapper, M., 16 Aug 1999, In: *Journal of Hydrology*. 221, 1-2, p. 91-96

Comment on "Analytical series expressions for Hantush's M and S functions" by Michael G. Trefry

Barry, A., Parlange, J-Y. & Crapper, M., 1 Jul 1999, In: *Water Resources Research*. 35, 7, p. 2279-2280

A Laboratory Study of Cohesive Sediment Transport

Crapper, M. & Ali, K. H., Jul 1997.

Fluid mud transport

Ali, K. H., Crapper, M. & O'Connor, B., Mar 1997, In: *Proceedings of the Institution of Civil Engineers - Water Maritime and Energy*. 124, 1, p. 64-78

Study of Cohesive Sediment using Ultrasound

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