

CV Leon van Paassen

Leon van Paassen is Associate Professor at Arizona State University (ASU) and Senior Investigator at the NSF Engineering Research Centre for Bio-mediated and Bio-inspired Geotechnics (CBBG). He received an MSc in Applied Earth Sciences in 2002 from Delft University of Technology with a specialisation in Engineering Geology. During and after his graduation he worked several years as a geotechnical engineering consultant at IFCO Foundation Expertise and at research institute Deltares. In 2009 he obtained his PhD from the Department of Biotechnology of Delft University of Technology. His PhD research on 'Biogrout, Microbially induced carbonate precipitation as ground improvement method' resulted in several publications, patents and was awarded with several national and international awards. In his current research he integrates the fields of environmental biotechnology and geotechnical engineering. He investigates how natural or human-induced biochemical processes affect soil behaviour and aims to develop sustainable solutions, which improve efficient use of resources and energy and reduce the environmental impact of civil and mining engineering industry.

Personalia

First Names : Leon Andreas
Name : van Paassen
Date of Birth : 28 January 1976
Nationality : Netherlands
Languages : Dutch, English, (French, German)

Education

2005-2009 PhD Applied Sciences, Environmental Biotechnology, Delft University of Technology.
1994-2002 MSc Applied Earth Sciences, Engineering Geology, Delft University of Technology.
1988-1994 Gymnasium, St Stanislas College, Delft

Current affiliation

Associate Professor
School of Sustainable Engineering and the Built Environment (SSEBE)
Center for Bio-mediated and Bio-inspired Geotechnics (CBBG)
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Google Scholar Research statistics

Nr of publications: 62
Nr of Citations: 1758
H-index: 13

Scopus Research statistics

Nr of publications: 24
Nr of Citations: 982
H-index: 8

Employment record

2017-present Associate Professor, School for Sustainable Engineering and the Built Environment (SSEBE), Center for Bio-mediated and Bio-inspired Geotechnics (CBBG), Arizona State University
2009-2016 Assistant Professor, Geo-Engineering, Department of Geotechnology, Delft University of Technology
2007-2009 Consultant/Researcher, SmartSoils®, Unit Geo-Engineering, Deltares.
2005-2009 PhD researcher Applied Sciences, Department of Biotechnology, Delft University of Technology
2002-2007 Geotechnical Consultant, department of foundations and underground constructions. GeoDelft,
2001-2002 Junior Geotechnical Engineer, IFCO Foundation Expertise BV.
1998-2000 Delft University of Technology, Applied Earth Sciences, Engineering Geology: Teaching Assistant: Site Investigation.
1996-1998 Delft University of Technology, Applied Earth Sciences, Geology: Teaching Assistant: Geological mapping and Geological constructions.
1995-2000 Kleyweg's Stadskoffyhuys, Delft: Kitchen assistant preparing salads, sandwiches and pancakes.

Projects

2017-present Senior Investigator on several NSF funded research projects within the CBBG
2013-2015 Principal Investigator Civil Engineering Applications for Marine Sediments (CEAMaS), funded by the EU INTERREG IVB programme and financed through

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| 2012-2016 | the European Regional Development Fund (ERDF) Principal Investigator STW project Lift up Lowlands: Research on Reusing dredging sludge, organic material and additives for sustainable lift up of low lying polder areas. |
| 2012-2016 | Principal Investigator STW Project Biofix: Research on Bio-mediated ground improvement to mitigate liquefaction and piping of granular sediments |
| 2011-2015 | Principal Investigator for several industrial research projects on Liquefaction of Iron Ore Cargo in Bulk Carriers |
| 2005-2009 | PhD Research: BioGrout: ground improvement by microbial induced carbonate precipitation. |
| 2004 | Client representative for geotechnical/geophysical survey for trenched pipeline, Caspian Sea, Kazakhstan. |
| 2002-2004 | Numerous geotechnical consultancy projects, including slope stability, sheet piled walls, pile and raft foundations, directional drilling, settlement prediction. |
| 2002 | Dike failure investigation and restoration, Maasbree/Venlo. |
| 2001-2002 | MSc thesis project: Research on influence of pore fluid salinity on compressive behaviour of clays from Caspian Sea. |
| 2000-2002 | Field measurements and consulting: Pile Integrity Testing, Vibration Monitoring. |
| 1999 | Multidisciplinary project: Feasibility study for new public transport system |
| 1998 | Engineering Geological Fieldwork, Northern Spain; mapping, rock and soil classification, rock and soil laboratory testing. |

Affiliations

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| 2017-present | American Society for Civil Engineers (ASCE), Geo-Institute |
| 2014-present | Geochemical Society (GS) |
| 2014-present | European GeoSciences Union (EGU) |
| 2000-present | Ingeokring (Dutch department of IAEG and ISRM) |
| 2007-present | International Society for Rock Mechanics (ISRM) |
| 2007-present | International Association for Engineering Geology and the Environment (IAEG) |
| 1996-present | Koninklijk Nederlands Genootschap voor Mijnbouwkunde en Geowetenschappen (KNGMG) (Royal Dutch society for mining engineering and geosciences) |
| 1998-present | Kivi-Niria: Geotechniek and Mijnbouwkunde (Dutch department of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)) |

Committees/Boards

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| 2016 | Organizing committee and host ETH Global E4D Summerschool 'Sand, an (in-)finite resource. |
| 2015 | Chair Lift up Lowlands workshop 10 December 2015 |
| 2015 | Chair BioGeoCivil Summit 2015 17-19-November 2015 |
| 2013 | Session Convenor at EGU 2013, Vienna |
| 2011 | Organizing committee, Bio-Soils workshop, Cambridge |
| 2011 | Organizing/Scientific Committee European Young Geotechnical Engineering Conference, Rotterdam |
| 2009-present | Communication Committee Applied Earth Sciences |
| 2009-present | Editor Ingeokring Newsletter (Dutch department of the IAEG and ISRM) |
| 2009 | Session Chairman, conference on Frontiers in Shallow subsurface technologies, Delft |
| 2008 | Chairman, BioGeoCivil, Bodembreed, Ede |
| 2008 | Organizing committee, 1st international conference on BioGeoCivil Engineering, 23-25 June 2008, Delft |
| 2013 | Captain Roparun: team Georunners |
| 2004-2008 | Treasurer of Ingeokring (Dutch department of the IAEG and ISRM) |
| 2000-2001 | Treasurer of student rugby club SRC Thor |
| 1999-2001 | Team captain student rugby club SRC Thor |
| 1999-2001 | Treasurer student athletics club (DSAV De Delters) |

Project grants

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| 2017 | CBBG Internal Research Proposal, Biogenic Gas Production to improve the efficiency of compaction methods, 10k\$ |
| 2015 | Marie Curie fellowship for 2 months research/industry collaboration at UMS- GMBh Munich (within FP7 MAGIC project) |
| 2013-2014 | JSPS fellowship for Short term Research Visit to Japan (6 weeks), with Motohei Kanayama and Akiko Nakano at Kyushu University, Fukuoka, Japan. |
| 2013 | CEAMaS: Civil Engineering Applications for Marine Sediments, FP7 INTERREG IVB (total 4.8 ME of which 550 k€ TUD) for postdoc position, equipment, travel, and dissemination, (valorization of STW Lift up Lowlands project) with CD2E, Port of Dunkerque (GPMD), Ecole Centrale de Lille, Universite Lille, University College Cork, Cork Institute of Technology, BRGM, BBRI. |
| 2010 | BioCopro: Engineering of bio-based substrates on buildings and infrastructure as a basis for natural protection (750 k€ funded by STW for 2 PhD students and a postdoc in collaboration with Utrecht University and NIOO Wageningen) |
| 2010 | Lift up Lowlands: Upgrading of natural materials and methods for sustainable lift up of low lying polder areas, (750 k€ funded by STW for 2 PhD students in collaboration with Wageningen University) |
| 2010 | Biofix: Bio-mediated ground improvement to mitigate liquefaction and piping of granular sediments, (750 k€ funded by STW for 2 PhD students in collaboration with department of Biotechnology, Delft University of Technology) |

2004 BiogROUT: ground improvement by microbially induced carbonate precipitation (2ME funded by Senter Novem, Dutch Ministry of Economic affairs)

Prizes and nominations

2009 Young Member Award 2009 of International Society for Soil mechanics and Geotechnical Engineering (ISSMGE)
2008 Leo Petrus Innovation Trophy: From sand to sandstone with waste as cement (100 kE)

Teaching activities

2018-present ASU – CEE494 Engineering Geology
2017-present ASU – CEE598 Biogeotechnical Engineering
2015-2016 Postacademic education (CGF) "Handen aan de Grond" Soil characterization
2012-2016 TUD - CIE5320 Site investigation and physical modeling (lecturer)
2010-2016 TUD - TA1009/AESB1240 Introduction Applied Earth Sciences (lecturer)
2010-2016 TUD - AESB3440 Field development; Geotechnical and Environmental aspects in Resource extraction (lecturer)
2010-2016 TUD - AESM1630 Engineering properties of soils and rock (lecturer)
2010, 2012 Deltares Geoacademy: Dike Safety (guest lecture)
2009-2016 TUD - AESM2901 Engineering Geological Fieldwork (course manager)
2010-2013 TUD - AESM1750 Geology for Engineers (course manager)
2010 PAO course: Ingenieursgeologie in het buitenland
2011-2012 AESM1720 Rock Mechanics Applications (lecturer)
2010-2013 TA2230 Introduction to Geo- and Resource Engineering (course manager)
2009-2011 AESM1660 Subsidence
2010-2013 TA3690 Special topics in Geo-Engineering (guest lecture)
2010-2013 CIE4780 Special topics in Underground Space Technology (guest lecture)

Supervised BSc thesis research projects

- 1) Tycho Klessens (2017), Flood protection with dynamic internal erosion tackling zones (DIETZ), BSc thesis Applied Earth Sciences, 20 January 2017
- 2) Roy Meinen (2017), Beachrock: MICP by denitrification, BSc thesis Applied Earth Sciences, 20 January 2017
- 3) Wouter van Adrichem (2016), Optimal sand-clay mixture for sand sculptures - An experimental investigation, BSc thesis Civil Engineering, 22 June 2016
- 4) Manon Ligeon (2016), Preventing coastal erosion by biological denitrification, BSc thesis Civil Engineering, 22 June 2016
- 5) Jarco de Jong (2016), Degradation of CoRncrete in a Wet Environment, BSc thesis Applied Earth Sciences, 22 June 2016.
- 6) Niels Overbosch (2016), Sand Binders, A Cost and Strength Analysis, BSc thesis Applied Earth Sciences, 22 June 2016.
- 7) Joep Lamberti (2016) Assessing slope stability for blended iron ores stockpiles with Arcelor Mittal, BSc thesis Civil Engineering, 21 January 2016
- 8) Sara Essam (2015-failed), Crack development in clay BSc thesis Civil Engineering
- 9) Kaj van der Waal (2014), Processing Analysis & Market Analysis Bentonite for Sivomatic Bentonite, BSc thesis Applied Earth Sciences, 9 October 2014
- 10) Michiel Ooms (2014), Characterization and applications of bentonite, BSc thesis Applied Earth Sciences, 24 June 2014
- 11) Aron Noordam (2014), Het ontwateren van ijzererts, BSc thesis Civil Engineering, 23 June 2014
- 12) Bas Druif (2014), Dewatering Bulk Cargo, BSc thesis Civil Engineering, 23 June 2014
- 13) Kamilla Guijt (2014), Reclaiming Pantai Mutiara BSc thesis Civil Engineering, 23 June 2014
- 14) Michiel Ooms, (2013), The Effect of Flocculants on the Dewatering of Clay Slurries: an experimental study, BSc research minor project Applied Earth Sciences, 20 June 2013
- 15) Stephen Cam (2013), Water Retention Research of Iron Ore Fines, BSc thesis Civil Engineering, 1 November 2013
- 16) Melvin Koote (2013), Het droogproces van slib uit de Delftse Hout, BSc thesis Applied Earth Sciences, 5 July 2013
- 17) Alex Greeuw (2013) The Condensation and Evaporation of Water in Iron Ore, BSc thesis Civil Engineering, 13 June 2013.
- 18) Omer Kilic (2013), Characteristics of iron ore, BSc thesis Civil Engineering, 9 January 2013
- 19) Eline Heemskerk (2012), L-vormige keermuren BSc thesis Applied Earth Sciences, 15 October 2012
- 20) Roman Hijman (2012), The effect of flocculant on the sedimentation and consolidation of fine tailings, BSc thesis Applied Earth Sciences, 24 August 2012
- 21) Wynze Meier, (2012) The influence of introduced air bubbles on the flow of water in a porous medium, BSc research minor project Applied Earth Sciences, 9 July 2012.
- 22) Els Wijermars (2011), Sedimentation of Oil Sands Tailings, BSc thesis Applied Earth Sciences, 26 april 2011
- 23) Mathijs Bootsma (2010), Shear strength of the Bremanger Sandstone: "Determining the basic friction angle using a Golder Direct Shear Box", BSc thesis Applied Earth Sciences, 3 September 2010
- 24) Mathijs Janzen (2010), Specific Cementing of Reservoir Rock with Dual Permeability, BSc thesis Applied Earth Sciences, 06 August 2010
- 25) Miranda Pieron (2009) Strength and deformation of biologically cemented sandstone, BSc thesis Applied Earth Sciences, 16 June 2009
- 26) Bram van den Eijnden (2008), Reinforcement of calcarenite room and pillar mines by microbially induced calcite precipitation, BSc thesis Applied Earth Sciences, 24 July 2008.
- 27) Wiebe van Vuure (2006), Kinetics of urea hydrolysis by *Sporosarcina pasteurii* with calcium carbonate precipitation, BSc thesis Biotechnology, 14 October 2006.

Supervised MSc thesis research projects

- 1) Stephen Chin a Moel (2016), Effects of Organic Matter on Shrinkage and Water Retention Behaviour of Organic Dredged Sediments, MSc thesis Geo-Engineering, 14 December 2016
- 2) Barend van de Bosch (2016), The effect of initial concentration on the consolidation behaviour of mud, MSc thesis Hydraulic Engineering, 01 December 2016
- 3) Bas Drujff (2016), The use of additives to stabilise dredged material, MSc thesis Resource Engineering, 31 October 2016
- 4) Kaj Althuis (2016), Predicting the breaching production of a slope during a wet mining process, MSc thesis Resource Engineering, 28 September 2016
- 5) Marcella Schoenmakers, (2016), Remediation measures for solid bulk cargoes: Moisture content reduction inside a ship's cargo hold, MSc thesis Geo-Engineering
- 6) Nadine van Dijk (2016), Experimental investigation to the settling and consolidation of dredged Upper Till, MSc Geo-Engineering, January 2016
- 7) Ewoud Volbeda (2016), GeoWall – A challenging Quay wall, MSc thesis Hydraulic Engineering, 29 January 2016
- 8) Erik Hendriks, ongoing, Building with soft soils: The effect of pore water chemistry on the mechanical behaviour of cohesive sediment (MSc HE)
- 9) Katja Smoor, 17 December 2015, The impact of overburden pressure on unsaturated shrinkage behaviour of fine-grained soils (MSc GE)
- 10) Remco Vis, 31 August 2015, Control of Subsurface Flow: The Effect of AI-OM Interactions on Hydraulic Conductivity (MSc RE)
- 11) Yask Kulshreshtha, 30 July 2015, CoRncrete: A bio-based construction material (MSc GE)
- 12) Michiel Ensing, 5 September 2014, In-pit co-disposal of tailings in an onshore dredge mine (MSc RE)
- 13) Geert van de Weg 26 August 2014, Liquefaction of iron ore; with a focus on the determination of the soil water retention curve (MSc GE),
- 14) Konstantinos Petropoulos, 16 December 2013, Earthquake induced liquefaction susceptibility of Carbonate sands (MSc GE)
- 15) Barend Ubbink 8 November 2013, Controlled Precipitation of Calcium Carbonate in Spatial Dimension with Multiple Calcium Chloride and Sodium Carbonate Pulses (MSc PE)
- 16) Liu Xu, 26 August 2013, Development and Evaluation of a Numerical Model being able to Simulate Soil Pore Size Change and Geosciences (MSc GE)
- 17) Thomas Nijssen, 5 July 2013 Modelling of cyclic drying/rewetting behaviour of Albian oil sand tailings (MSc GE)
- 18) Joelle Langeveld, 23 April 2013, The influence of biofilm development on the effective gas permeability in hydraulic fractures (MSc PE)
- 19) Gert-Jan Meier, 24 October 2012 "Reconstitution of sensitive clays" MSc thesis Geo-Engineering
- 20) Andrina Drost, 24 August 2012, "Geomechanical properties of a backfill material suitable for stabilising salt caverns in Twente" MSc thesis Resource Engineering
- 21) Stijn Biemans, 21 August 2012, "Prevention of pipeline floatation during dredge-based backfilling", MSc Geo-Engineering
- 22) Vinh Pham, 6 July 2012, "Utilization of Rice husk ash in GeoTechnology: Applicability and effect of the burning conditions", MSc thesis Geo-Engineering
- 23) Sandra Leurs, MSc Civil Engineering and Geosciences, 8 April 2012, Frost salt scaling of blast furnace slag concrete.
- 24) Mathijs Mol, MSc Civil Engineering and Geosciences, 6 March 2012, The design and development of CaveCad : A state of the art integrated cave management system
- 25) Dianne den Hamer, MSc Geochemistry, Utrecht University, 17 February 2012, Stabilization of Peat by Infiltration of Reactants A feasibility study: infiltration of silica biopolymer suspension in peat
- 26) Dimitrios Baltoukas, MSc Civil Engineering and Geosciences, 15 February 2012, 1-D Approximation for the simulation of preferential flow in heterogeneous landfill conditions
- 27) Jochem van der Meulen, MSc Civil Engineering and Geosciences, 30 jan 2012, Modeling of Ripening Behaviour of Albian Oil Sand Tailings in Canada
- 28) Shantie Kapoershan, MSc Civil Engineering and Geosciences, 12 jan 2012, Visual studies of counter-current imbibition in newly constructed glass micromodels and Hele Shaw cells.
- 29) Werner van Hemert, MSc Civil Engineering and Geosciences, 31 August 2011, A study on monitoring the first field applications of Biogrout in gravel.
- 30) Effrosyni Boufidou, MSc Civil Engineering and Geosciences, 30 aug 2011, Towards understanding the DOQ Priorat terroirs: A multivariate GIS analysis
- 31) Bert Lietaert, MSc Civil Engineering and Geosciences, 30 June 2011, Design and development of a hazard map for the positioning and siting of large jack-up rigs at the geologically complex areas of the Gulf of Suez.
- 32) Nienke Bruinsma, MSc Biotechnology, 23 June 2011, Model for the formation of phosphate minerals inside granular sludge to describe segregation in a granular sludge reactor
- 33) Nick Russell, MSc Mining Engineering, 17 June 2011, Optimization of mining and processing for an Albanian Nickel-Laterite mine.
- 34) Andre van Turnhout, MSc Biotechnology, 9 June 2011, One- and two-dimensional numerical modelling of enamel caries formation and microbial conversions in dental plaque
- 35) Linda de Vries, MSc Geo-Engineering, 1 June 2011, The deviating interpretation of Almere to the NEN-6743: The result of a heterogeneous soil profile, or a result of misinterpreted overconsolidation?
- 36) Arjan Kochx, MSc Geo-Engineering, 22 March 2011, The effect of filter jacket clogging on the performance of prefabricated vertical drains in soft soils
- 37) Esther Rozenbrand, MSc Geo-Engineering, 1 February 2011, Investigation into quantitative visualisation of suffusion, MSc Geo-Engineering

- 38) Fitsum Yemaneab Emha, 31 January 2011, Shear strength of Bremanger sandstone rockfill at low stress, MSc thesis Geo-Engineering.
- 39) Guido Rutten, 12 september 2011, Interactions between beachrock formations and shoreline evolution; Case study: Togo, MSc thesis Geo-Engineering.
- 40) Mesay Mamo, MSc Geo-Engineering, 1 June 2010, Statistical Characterization of Spatial Variability for a Hydraulic Fill Slope
- 41) Maren Katterbach, MSc Engineering Geology, 30 November 2009, Final safety design of the Cumbindanovu dam in Sardina: A combined approach of geotechnical and structural engineering
- 42) Kenneth Lupogo, MSc Geo-Engineering, 25 August 2009, Effects of fines on the mechanical behavior of sandy soils
- 43) Joseph Ogochukwu Isimite, MSc Chemical Engineering, March 2008, Computational model to study hydrodynamics, solute transport, crystal growth and erosion in porous media

Supervised PhD students

- 1) Maria Barciela, Consolidation & strength development of soft mud deposits by horizontal drainage (external advisor 2015 –present)
- 2) Jiani Zhou, Soil sealing by enhanced aluminum and DOM Leaching (daily supervisor 2015 - 2016)
- 3) Nor Hazwani Md Zain, The effect of decomposition on the consolidation behavior of organic soils peat (co-promotor 2013 -present)
- 4) Luke Bergwerff, numerical modeling of biocementation (daily supervisor 2012 -present)
- 5) Michael Afanasyev, Engineering bio-based solutions for corrosion mitigation (daily supervisor 2011-2016)
- 6) Vinh Pham (2017), Bio-based Ground Improvement through Microbial Induced Desaturation and Precipitation (MIDP), 4 July 2017, PhD dissertation, doi: 10.4233/uuid:3997066a-0ad6-4de2-9c79-e5e474bae20f, (co-promotor 2012 - 2017)
- 7) Roderick Tollenaar (2017), Experimental Investigation on the Dessiccation and Fracturing of Clay, 15 June 2017, PhD dissertation, doi: 10.4233/uuid:40f6b033-0e6a-460b-9501-30cf35a99b8d (co-promotor 2012 -2017)
- 8) Bruna Oliveira, Lift up Lowlands, Using and upgrading dredged sediments to mitigate and reverse subsidence in low lying polder areas, 15 February 2017, PhD dissertation, <http://edepot.wur.nl/387316> (external advisor 2012-present)
- 9) Yutian Yao, (2017), Dewatering Behaviour of Fine Oil Sands Tailings: An Experimental Study, 28 November 2016, doi: 10.4233/uuid:1ac8f35b-0738-42b4-8ae2-5a5f68941814 (co-promotor 2010-2016)
- 10) Miranda van Wijngaarden, (2016), Mathematical Modelling and Simulation of BioGrout, 12 January 2016 doi: 10.4233/uuid:3c5fac03-e5ff-4b5c-a68d-7737c227bb09 (external advisor 2009-2016)

Publications

Peer-reviewed journal article

- 1) Tollenaar, R.N., van Paassen, L.A., Jommi, C. (2017) Small Scale Evaporation Tests on a Clay: Influence of Drying Rate on a Clayey Soil Layer, *Canadian Geotechnical Journal*, 0, 0, <https://doi.org/10.1139/cgj-2017-0061>
- 2) Tollenaar, R.N., van Paassen, L.A., Jommi, C. (2017) Observations on the desiccation and cracking of clay layers, *Engineering Geology* 230, 23-31
- 3) Tollenaar, R.N., van Paassen, L.A., Jommi, C. (2017) Experimental evaluation of the effects of pull rate on the tensile behavior of a clay, *Applied Clay Science*, 144, pp. 131-140.
- 4) Pham, VP, Nakano A, Van der Star WRL, Heimovaara TJ, & Van Paassen LA (2017) Applying MICP by denitrification in soils: a process analysis, *Environmental Geotechnics*, Published Online: November 03, 2016, <http://dx.doi.org/10.1680/jenge.15.00078>
- 5) Oliveira, B.R.F., Smit, M.P.J., van Paassen, L.A., Grotenhuis, T.C., Rijnaarts, H.H.M. (2017) Functional properties of soils formed from biochemical ripening of dredged sediments—subsidence mitigation in delta areas, *Journal of Soils and Sediments*, 17 (1), pp. 286-298.
- 6) van Wijngaarden, W.K., van Paassen, L.A., Vermolen, F.J., van Meurs, G.A.M., Vuik, C. (2016) Simulation of Front Instabilities in Density-Driven Flow, Using a Reactive Transport Model for BiogROUT Combined with a Randomly Distributed Permeability Field, *Transport in Porous Media*, 112 (2), pp. 333-359.
- 7) van Wijngaarden, W.K., van Paassen, L.A., Vermolen, F.J., van Meurs, G.A.M., Vuik, C. (2016) A Reactive Transport Model for BiogROUT Compared to Experimental Data, *Transport in Porous Media*, 111 (3), pp. 627-648.
- 8) Kanayama, M, Rohe, A & Van Paassen, LA, 2014, Using and improving neural network models for ground settlement prediction, *Geotechnical and Geological Engineering* 32 (3): 687-697.
- 9) DeJong, JT, Soga, KS, Kavazanjian, E, Burns, S, van Paassen, LA, Fragaszy, R, Al Qabany, A, Aydilek, A, Bang, SS, Burbank, M, Caslake, L, Chen, CY, Cheng, X, Chu, J, Ciurli, S, Fauriel, S, Esnault-Filet, A, Hamdan, N, Hata, T, Inagaki, Y, Jefferis, S, Kuo, M, Larrahondo, J, Manning, D, Martinez, B, Mortensen, B, Nelson, D, Palomino, A, Renforth, P, Santamarina, JC, Seagren, EA, Tanyu, B, Tsesarsky, M, Weaver, T, 2013, "Biogeochemical processes and geotechnical applications: progress, opportunities". *Geotechnique* 63(4): 287-301
- 10) Van Paassen, LA, Ghose, R, Van der Linden, TJM, Van der Star, WRL and Van Loosdrecht, MCM, 2010. "Quantifying bio-mediated ground improvement by ureolysis: a large scale biogROUT experiment", *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, 136(12): 1721–1728
- 11) Van Paassen, L.A., Daza, C.M., Staal, M., Sorokin, D.Y., Van der Zon, W. and Van Loosdrecht, M.C.M. 2010. Potential soil reinforcement by microbial denitrification, *Ecological Engineering* 36(2): 168-175.
- 12) Harkes, M.P., Van Paassen L.A., Booster J.L., Whiffin, V.S. and Van Loosdrecht, M.C.M. 2010. Fixation and distribution of bacterial activity in sand to induce carbonate precipitation for ground reinforcement, *Ecological Engineering* 36(2):112-117.
- 13) Whiffin, VS, Van Paassen, LA, Harkes, MP 2007. Microbial Carbonate Precipitation as a Soil Improvement Technique. *Geomicrobiology Journal*. 24 (5): 417-423.

Editor

- 14) Barends, FBJ, Bredeveld, J. Brinkgreve, RBJ, Korff, M. & Van Paassen, LA. (2011) *Geotechnical Engineering: New Horizons*, Proceedings of the European Young Geotechnical Engineering Conference 2011, IOS Press, 350pp

Book chapters

- 15) Van Paassen LA & Kulshreshtha, Y (2017) Biopolymers: Cement Replacement, in *Cultivated Building Materials, Industrialized Natural Resources for Architecture and Construction*, Eds Hebel, DE & Heisel F.

Article in magazine – proceedings

- 16) Van Paassen LA, Pham V, Mahabadi N, Hall C, Stallings E & Kavazanjian E. (2017) Desaturation via Biogenic Gas Formation as a Ground Improvement Technique, Pan-American conference on Unsaturated Soil Mechanics, Dallas
- 17) Jommi, C., Valimberti, N., Tollenaar, R.N., Della Vecchia, G., Van Paassen, L.A. (2016) Modelling desiccation cracking in a homogenous soil clay layer: Comparison between different hypotheses on constitutive behaviour, *E3S Web of Conferences*, 9, art. no. 08006
- 18) Dijkstra, JW, Laumen, T. and Van Paassen, LA. (2016) Optimizing the relationship between CDC compaction induced settlement data and the average CPT cone resistance after compaction, 19th Southeast Asian Geotechnical Conference & 2nd AGSSEA Conference (19SEAGC & 2AGSSEA) Kuala Lumpur 31 May – 3 June 2016
- 19) Pham, V, Van der Star, WRL, Ye, G & Van Paassen, LA (2016), Rice husk ash with high carbon content proves favourable for soil stabilization, *Jaarboek Mijnbouwkundige Vereniging*, 77e editie 2015-2016, TUDelft 158-173
- 20) Van Paassen LA, Vardon, PJ, Jeffrey, P (2015), Cargo liquefaction in bulk carriers: a review, 76e *Jaarboek Mijnbouwkundige Vereniging*, TUDelft
- 21) Ibanez, M, Chassagne, C, Van Paassen, L, Sittoni, L (2015) Optimizing dewatering and soft tailings consolidation by enhancing tailings' composition
- 22) Vardon, PJ, Yao, Y, Van Paassen, LA, van Tol, AF (2015) The Use of a Large-strain Drying and Consolidation Model to Optimise Multi-lift Tailing Deposits, Tailings and Mine Waste Management for the 21st Century 2015

- 23) Kanayama, M, Okamura Y, Rohe A, van Paassen LA (2014) Examination for Predicting Ground Settlement Based on Measurement Records by Using a Neural Network Model, ISRM International Symposium-8th Asian Rock Mechanics Symposium
- 24) Van Paassen, LA, Vardon, PJ, Mulder, A, Van de Weg, G & Jeffrey, P (2013) 'Investigating the susceptibility of iron ore to liquefaction' Proceedings of the 5th Biot conference on poromechanics, 10-12 June 2013, Vienna
- 25) Van Paassen, LA, Van Hemert WJ Van Der Star WRL Van Zwieten G and Van Baalen L (2012) 'Direct Shear Strength of Biologically Cemented Gravel', in Geocongress 2012 State of the art and practice in geotechnical Engineering, ed. RD Hryciw, A Athanasopoulos-Zekkos and N Yesiller (Oakland: American Society of Civil Engineers, 2012), pp. 968-977.
- 26) Ngan-Tillard, DJM, Paassen, LA van, Maurenbrecher, PM, Concha, A & Gonzalez, M (2012). TU Delft Spain fieldwork and other outdoor activities. In B McCabe, M Pantazidou & D Philips (Eds.), Shaking the foundations of geo-engineering education (pp. 163-168). London: Taylor & Francis Group.
- 27) Lietaert, B, Wal, T van der, Kortekaas, S, Ngan-Tillard, DJM & Paassen, LA van (2012). Early-screening hazard map for jack-up rigs in the Gulf of Suez. In s.n. (Ed.), Offshore Site Investigation and Geotechnics - Integrated Geotechnologies - Present and Future (pp. 629-634). London, UK: Royal Geographical Society.
- 28) Yao, Y, Tol, AF van & Paassen, LA van (2012). The effect of flocculant on the geotechnical properties of mature fine tailings: an experimental study. In D Segó, GW Wilson & N Beier (Eds.), Proceedings 3rd International Oil Sands Tailings Conference (IOSTC'12) (pp. 391-398). Edmonton: University of Alberta.
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- 56) Van Paassen LA, Mulder A (2015) Characterization of Bauxite ore from Guyana related to hopper flow and conveyor belt transfers. TA/IG/15.005, TU Delft, (Report for Oldendorff Carriers GmbH)
- 57) Van Paassen LA, Mulder A, Pham VP & Greeuw G (2015) Cyclic Triaxial Loading and Hydraulic Conductivity tests on Rockwool. TA/IG/15.008, TU Delft, (Report for Rockwool Core Solutions)
- 58) Vardon PJ, Van Paassen LA, Van Tol AF (2015) Sludge depot modelling for self-weight consolidation and atmospheric drying. GE/PJV/15.001 (Report for Boskalis)
- 59) Van Paassen LA, Mulder A (2013) Investigating the TML for two types of ore material. TA/IG/13.021, TU Delft (Report for Deltares)
- 60) Van Paassen, L.A., Vardon, P.J. (2013) Investigating the effect of water-absorbing polymers on the transportable moisture limit (TML) of iron ore. TA/IG/13.010a, TU Delft. (Report for Arcelor Mittal)
- 61) Van Paassen, L.A., Vardon, P.J. (2013) Investigating the susceptibility for liquefaction of ore from Guatemala. TA/IG/13.012, TU Delft. (Report for Oldendorff Carriers)
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- 63) Van Paassen LA, Mulder A (2012) Investigating Susceptibility for liquefaction of Iron Ore – part 2. TA/IG/12.018, TU Delft, (Report for Oldendorff Carriers GmbH)
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- 65) Mulder A & Van Paassen LA, Geotechnical and Geochemical characterization of rock samples from Scunthorpe Iron Quarry. TA/IG/12.004, TU Delft, (Report for Tata Steel)
- 66) Van Paassen LA, Mulder A, (2012) Investigating the susceptibility for liquefaction of iron ore TA/IG/12.003 TU Delft (Report for Deltares)
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Patents

- 68) Paassen, LA van, C. M. Daza, M. C. M. Van Loosdrecht, R. Kleerebezem, W. Van der Star, and W. Van der Zon. (2008). Microbially induced carbonate precipitation as ground improvement technique, patent applicant: Stichting Deltares, EP1798284-A1 (8 October 2008); WO2007069884-A1 (9 October 2008).

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Invited Lectures/Presentations

- 1) Van Paassen LA (2016), Exhibition in Kurhaus
- 2) Van Paassen LA (2015), Natuurlijke oplossingen voor bouwen op slappe bodem, Symposium 100 jaar Grontmij: Slappe bodem vraagt sterke schouders, Bilthoven, 13 oktober 2015 (invited speaker)
- 3) Van Paassen LA (2015), Bouwen met de natuur: Biologische beïnvloeding van mechanische grondeigenschappen, Bodembreed, Rotterdam 24 november 2015 (invited speaker)
- 4) Van Paassen LA (2015), Industrial applications of biominerals; now and future, EPSRC workshop Prague August 2015 (invited speaker)
- 5) Van Paassen LA (2014), BioGeoCivil: a fertile combination of biology and civil engineering, RWS network hub, 3-12-2014 (invited speaker)
- 6) Van Paassen, LA, Van Wijngaarden, WK, Van der Star, WRL, Van Zwieten, G, van Baalen, L, 2013, Field trials in biocementation: modeling and monitoring, 5th International Conference on Porous Media & Annual Meeting, Interpore 21 - 24 May, 2013, Prague, Czech Republic (invited speaker)
- 7) Pham, V, Van Paassen LA, Nakano, A, Kanayama, M and Heimovaara, T, 2013 Microbially induced carbonate precipitation (MICP) by denitrification as ground improvement method - Process control in sand column experiments, Geophysical Research Abstracts, Vol. 15, European Geosciences Union General Assembly, Vienna, 7-12 april 2013, (oral presentation)
- 8) Bergwerff, L, Van Paassen LA, Picioreanu, C, and van Loosdrecht MCM (2013) Investigation of BiogROUT processes by numerical analysis at pore scale, Geophysical Research Abstracts, Vol. 15, European Geosciences Union General Assembly, Vienna, 7-12 april 2013, (poster presentation)
- 9) Van Paassen, LA, 2013, Bio-based ground improvement methods, Installation effects in geotechnical engineering, Geoinstall, 24-27 March 2013, Rotterdam, The Netherlands (featured speaker)
- 10) Afanasayev M, Heimovaara, TJ and Van Paassen, LA, (2013), Numerical model to simulate biological protection of steel corrosion, Geophysical Research Abstracts, Vol. 15, European Geosciences Union General Assembly, Vienna, 7-12 april 2013, (poster presentation)
- 11) Van Paassen LA, (2012) Liquefaction of Iron ore cargo, Ingeokring symposium 28 September 2012, Delft (invited lecture)
- 12) Van Paassen LA, (2012) Sustainable reuse of dredged sediments in The Netherlands, 4-6 June, Lille, France (invited lecture)
- 13) Van Paassen LA (2012) LimesNet Research Workshop, Theme: Geo-materials 10-11 May 2012, Bath, UK (invited lecture)
- 14) Van Paassen LA & Van Baalen L (2012) Buisleidingenplatform, 26 april 2012, Ridderkerk (invited lecture)
- 15) Van Paassen LA (2012) Bio-mediated ground improvement from concept to field application, 22nd V.M. Goldschmidt conference, Earth in Evolution, 24-29 June 2012, Montreal, Canada (keynote lecture)
- 16) Van Paassen, LA, Van Hemert WJ Van Der Star WRL Van Zwieten G and Van Baalen L (2012) 'Direct Shear Strength of Biologically Cemented Gravel', in Geocongress 2012 State of the art and practice in geotechnical Engineering, (invited lecture)
- 17) Paassen, LA van, Heimovaara, TJ & Jonkers, HM (2011). Bio-based cement for ground improvement applications and self-healing concrete. In R McCaffrey (Ed.), Future cement conference & Exhibition 2011 (pp. 11-1-11-6). Epsom, Surrey, UK: PRo Publications International Ltd. (invited lecture)
- 18) Van Paassen, LA, (2011). Bio-mediated ground improvement: From laboratory experiment to pilot applications, Geofrontiers, 2011, Advances in Geotechnical Engineering, Eds Jie Han Geotechnical Special Publication, (211 GSP), pp. 4099-4108. (oral presentation)
- 19) Van Paassen LA (2010) How to predict the distribution of mechanical properties during biological ground improvement, 21st Alert Workshop and School Programs, Aussois, October 4-9 2010 (oral presentation)
- 20) Van Paassen, LA, Harkes, MP, Van Zwieten, GA, Van der Zon, WH, Van der Star, WRL & Van Loosdrecht, MCM, (2009), Scale up of BioGrout: a biological ground reinforcement method, 17th international conference on soil mechanics and geotechnical engineering, 5-9 october 2009, Alexandria, Egypt (oral presentation)
- 21) Van Paassen, L.A. (2009). Microbes turning sand into sandstone, using waste as cement. 4th International Young Geotechnical Engineering Conference Alexandria, Egypt (oral presentation).
- 22) Van Paassen LA, (2009), 3D modelling of cemented zones in biogROUTed sand, Ingeokring symposium 3 december 2009 (invited lecture)
- 23) Van Paassen LA(2008, 8 January), BiogROUT, bacteria build underground, Lecture international journalist workshop Biotechnology, 2008, Delft.
- 24) Van Paassen LA(2008, 12 June). Smartsoils® grondeigenschappen op bestelling, Lezing Slappe bodemdag,KIVI Niria, 2008, Zoetermeer.
- 25) Van Paassen LA(2008, 25 November), BioGrout, new methods to strengthen soils and rock using micro-organisms. Guest lecture: BSc course Rock Mechanics, Applied Earth Sciences, TU Delft, 2008, Delft.
- 26) Van Paassen LA(2008, 26 November), Smartsoils® grondeigenschappen op bestelling, middagsymposium duurzaam ophogen, Deltares, 2008, Delft.
- 27) Van Paassen LA(2008, 2 December 2008), BiogROUT, bacteriën bouwen in de bodem, Lezing voor journalisten, afdeling Geo-Engineering, TU Delft, , Delft.
- 28) Van Paassen LA(2008, 4 December). Smartsoils® Changing soil properties in situ, Guest lecture: International course on Dike Safety and Flood Protection, Deltares, 2008, Delft.
- 29) Van Paassen LA(2008, 10 December). Smartsoils® grondeigenschappen op bestelling, Gastlezing: studiedag Intelligent gebruik niet geschikte gronden, KVIV - KIVI Niria, 2008, Antwerpen.

- 30) Van Paassen LA(2007, February 1) *Bacteria mediated mineral precipitation in coastal sediments*, workshop "Paulina defaunation experiment: presentation of results" Ghent University, Gent, Belgium 1 February 2007.
- 31) Van Paassen LA(2007, September 6), *BioGrout: microbial carbonate precipitation as soil improvement method*. Eindhoven, The Netherlands, Invited lecture at "Biofilms in porous media" workshop, TU Eindhoven, The Netherlands, 6 September 2007.
- 32) Van Paassen LA(2007, November 12), *BioGrout: microbially induced carbonate precipitation in sand – flow and transport aspects*. Utrecht, The Netherlands, Lecture and abstract at "Marie Curie Workshop on Flow and Transport in Industrial Porous Media", Utrecht University, The Netherlands, 12 - 16 November 2007
- 33) Van Paassen LA(2007, November 30), *BioGrout: new methods to improve properties of soils and rock using micro-organisms*. Delft, The Netherlands, Invited lecture at Ingeokring symposium "And what is the engineering geologist doing today?" Delft, The Netherlands 30 November 2007.
- 34) Van Paassen LA(2007, Oktober 19), *Bacteriën bouwen in de bodem*. Delft, The Netherlands, lezing op open dag LST, TU Delft, The Netherlands, 19 en 22 Oktober 2007.

Abstracts, Interviews and other output

- 1) Chin a Moei, S, Van Paassen LA, Hazwani NMZ, Chassagne, C. Jommi C (2017) The Effect of Organic Matter on Shrinkage and Water Retention Behaviour of Organic Dredged Sediments, SEDNET 2017, Genoa, Italy
- 2) Van de Giessen, P, Van Paassen, LA, Jacobs W, Den Hamer D. (2015) Finalist New Horizons Boskalis Innovation Challenge 2015.
- 3) Debuigne T, Brakni S, Sutton G, El Fgaier F, Harrington J, Masson E, Van Paassen, L Lemiere B, Van Dessel J, Wijdeveld A, (2015) Social, geographical, technical, environmental and economic approaches to strength marine sediment reuse options through CEAMaS project. SedNet Conference, Krakow 2015.
- 4) Wijdeveld A, Van Paassen LA, Chassagne C, Tollenaar R, Oliveira B (2015) Lift up of lowlands, looking at the reuse of sediments on peat meadows by looking at the physical, chemical and biochemical properties in relation to the local situation Sednet, Krakow 2015
- 5) Afanasyev M, Huisman, H, Van Paassen LA and Heimovaara TJ (2015) Studying the past, understanding the present, predicting the future - analysis of corrosion systems in soil surrounding buried ancient metal, BioGeoCivil Summit 2015 17-19 November The Art Centre, Delft ,The Netherlands
- 6) Afanasyev M, Van Paassen LA and Heimovaara TJ (2015) Quantification of soil heterogeneity induced by corroding metal objects, using X-ray computed micro tomography (CMT) , BioGeoCivil Summit 2015 17-19 November The Art Centre, Delft ,The Netherlands
- 7) Kulshreshtha Y, Schlangen E, Jonkers HM, Vardon, PJ, van Paassen LA (2015) CoRncrete: A bio-based construction material, BioGeoCivil Summit 2015 17-19 November The Art Centre, Delft ,The Netherlands
- 8) Nakano A, Van Paassen LA, Van der Star WRL (2015) Microbially induced carbonate precipitation by nitrate reducing bacteria using pulsed flow injections, BioGeoCivil Summit 2015 17-19 November The Art Centre, Delft ,The Netherlands
- 9) Pham VP, Nakano A, Van Paassen LA, Van der Star WRL & Heimovaara, TJ, (2015) Biological Denitrification – Calcium Carbonate Precipitation Combination in geotechnical engineering, BioGeoCivil Summit 2015 17-19 November The Art Centre, Delft ,The Netherlands
- 10) Tollenaar R, Van Paassen LA & Jommi C (2015) New insights on dessication cracks in fine grained sediments, BioGeoCivil Summit 2015 17-19 November The Art Centre, Delft ,The Netherlands
- 11) Zain NHM, Van Paassen LA, Jommi C, Heimovaara TJ (2015),The Effect of Decomposition on Compression Behaviour of Organic Sediments from Wormer & Jisperveld, The Netherlands, BioGeoCivil Summit 2015 17-19 November The Art Centre, Delft ,The Netherlands
- 12) M Afanasyev, T Heimovaara, L van Paassen (2014) Examination for Predicting Ground Settlement Based on Measurement Records by Using a Neural Network Model, EGU General Assembly Conference Abstracts 16, 5122
- 13) Van Paassen LA, Interview voor Delta rubriek Desgevraagd (sinkholes) 18 maart 2013
- 14) Van Paassen LA. 2012. Biogrout; grond verbeteren met bacteriën, *Civiele Techniek* 66(7) pp14-15
- 15) Van Paassen LA. 2010. Vijf jaar onderzoek: eerste veldproeven Biogrout, *Civiele Techniek* 64(7) pp40-43.
- 16) Van Paassen LA, 2009, Bacteriën houden de zandlaag bij elkaar, interview gegeven voor Het Parool
- 17) Van Paassen LA, 2009, Views of Young Geotechnical Engineers, ISSMGE bulletin 6(4)
- 18) Contribution to Dutch TV-science-quiz: Hoe?Zo! 11 augustus 2009 (www.teleac.nl/hoezo)
- 19) Van Paassen LA(2008, 8 January) Radio interview: Microbe World radio (www.microbeworld.org/look/radio.aspx)
- 20) Van Paassen LA(2008) 9 prikkelende en intrigerende kwesties (7 jan; 26 mei, 2,3,4,6 jul, 3 aug, 21 okt, 19 nov) voor de NWT Scheurkalender 2009
- 21) Star, WRL van der, Paassen, LA van, Molendijk, WO & Loosdrecht, MCM van, Winnaar BBasic Leo Petrus Innovation Trophy 2008
- 22) LA van Paassen en WRL van der star. Interview gegeven voor AA van de Graaf. Prijswinnend idee: innovatieve zandfixatie.in *Civiele techniek*. 2008 issue 5/6 (thema milieu). p27-28
- 23) Van Paassen LA(2008) n.a.v. journalisten workshop 8 januari 2008 door R de Jong, (2008) journalisten in het lab, in *C2W life sciences* 2, 2 februari 2008, pp 23-24
- 24) Van Paassen LA(2008). Interview gegeven voor M Blikendaal-van Dorp, (2008) Wat te doen met een miljoen, in *C2W life sciences* 2, 2 februari 2008.
- 25) Van Paassen LA(2008) n.a.v. journalisten workshop 8 januari 2008 door J. Engels, (2008) Het nut van bacteriën, in *Trouw*, 4 maart 2008
- 26) Paassen, LA van, Lambert, J, Hamer D den, (2008, december) Bodemeigenschappen zijn veelzijdige bouwers in de bodem, *Land+Water*

- 27) Van Paassen LA(2008) Poster BSDL symposium
- 28) Van Paassen LA(2008) Poster bij exhibitie n.a.v. 2nd World Scientific Congress Challenges in Botanical Research and Climate Change
- 29) Van Paassen LA(2007). Biogrout: microbial carbonate precipitation as soil improvement method. Abstract in Almanac 2007 Water Research Centre Delft, TU Delft, Pag. 88 + 89: Delft.
- 30) Van Paassen LA(2007). Interview gegeven voor artikel "Permanente zandkastelen". In: Delta, nr 24, 30-08-2007, pp 7. Auteur: Tomas van Dijk: (2007, augustus 30).
- 31) Van Paassen LA(2007, 11 December) BioGrout Microbial carbonate precipitation as soil improvement method, in *De Ondergrondse newsletter*
- 32) Van Paassen LA & Kleerebezem, R (2007, April 11). Imagine schoolproject finalisten 2006-2007: Verest, T, Meer, S van der, Schepers, I, Penterman, R, Rijkers, E "Dijken bouwen met bacteriën voor Bam in Afrika - slimme grond maakt dijk sterker".
www.watisgenomics.nl/genomics/genomics/milieu.html Auteur: Maartje de Gruyter