

Curriculum vitae

Univ.-Prof. Dr.-Ing. Dirk Muschalla

Institute of Urban Water Management
and Landscape Water Engineering
Graz University of Technology
Stremayrgasse 10/I
8010 Graz, Austria

Personal data

Date of Birth: 20.02.1970
Place of Birth: Offenbach am Main (Germany)

Education

1990 General qualification for university entrance
1994 State examination as paramedic
1995 Instructor authorization for paramedics
2001 Diploma in civil engineering
2006 Dissertation (passed with distinction)

Career History

Since 2020 Head Coordination Team of the Doctoral School of Civil Engineer Sciences,
Graz University of Technology, Austria
Since 2016 Chair for Urban Water Management and Landscape Water Engineering,
Graz University of Technology, Austria
Since 2012 Head of the Institute of Urban Water Management and Landscape Water
Engineering, Graz University of Technology, Austria
2017 Visiting Professor, Université Laval, Québec (QC), Canada
2012 – 2015 Chair for Urban Water Management, Graz University of Technology, Austria
2010 – 2011 Senior Technical Development Manager at itwh GmbH Hannover, Germany
2008 – 2010 Postdoctoral Research Fellow at the Canada Research Chair in Water Quality
Modelling (Prof. P.A. Vanrolleghem), Université Laval, Québec (QC), Canada
2007 – 2011 Adjunct professor at Graz University of Technology, Austria
2006 – 2008 Lecturer at the Institute of Hydraulic and Water Resources Management,
Darmstadt University of Technology, Germany
2001 – 2005 Researcher at the Institute of Hydraulic and Water Resources Management,
Darmstadt University of Technology, Germany

Overall Research Interests

Research interests are focused on modelling and optimization as well as integrated assessment of urban water systems. All aspects of measurement and analysis of hydrological, hydraulic and quality processes and the management of water resources systems are included. Fields of research are model development, mathematical optimization methods, sensitivity and uncertainty analysis, IT-aspects, measurement of flow and water quality, surrogate measurements, data management, real time control of integrated systems, pluvial flooding as well as green-blue infrastructure and low impact development strategies.

Engagement in Professional Organizations and Working Groups

Working group / Institution	Organization	Period
ÖWAV Leitungsausschuss der Fachgruppe "Abwassertechnik und Gewässerschutz" (ÖWAV Steering Committee of the Division "Wastewater Engineering and Water Protection")	ÖWAV	Since 2020
Sewer Systems and Processes Working Group (Vice-Chair)	IWA-IAHR Joint Committee on Urban Drainage	Since 2019
Österreichische Akademie der Wissenschaften (Austrian Academy of Sciences), Member of the National Committee „Global Change“	ÖAW	Since 2018
Working Group "Modelling of Integrated Urban Water Systems" – Member of the Management Committee (Vice-Chair since 2016)	IWA	Since 2012
DWA AG ES 2.4 „Integrale Abflusssteuerung“ (Working Group "Integrated Real Time Control")	DWA	Since 2012
Working group "Real Time Control of Urban Drainage Systems" – Member of the Management Committee (Chair from 2012 – 2018)	IWA-IAHR Joint Committee on Urban Drainage	Since 2008
ÖWAV-Arbeitsausschuss "Energie aus Abwasser" (ÖWAV Working Committee „Energy from Waste Water“)	ÖWAV	2018 - 2021
ÖWAV-Arbeitsausschuss "Leitfaden zur Umsetzung des ÖWAV-Regelblattes 19: Richtlinien für die Bemessung von Mischwasserentlastungen" (ÖWAV Working Committee "Guideline for the Implementation of the ÖWAV Rule Sheet 19: Guidelines for the Design of Combined Sewer Overflows".	ÖWAV	2016 - 2019
HSG – „Hochschulgruppe Simulation“ (HSG – "University Group Simulation")	-	2004-2014
AG „Leitfaden zum Erkennen ökologisch kritischer Gewässerbelastungen durch Abwassereinleitungen“ (Working Group „Guideline for the identification of ecologically critical water pollution caused by wastewater discharges“)	HMULV	2007-2008
AG „Integrierte transdisziplinäre Modellierung als Grundlage des Wasserqualitätsmanagements“ (Working Group „Integrated transdisciplinary modelling as a basis for water quality management“)	DWA	2006-2008
SMUSI Arbeitskreis (SMUSI Working Group)	HMULV	2002-2008

Selected Referee and Editorial Activities in Journals

- Journal of Water Management Modeling (Senior Editor)
- ÖWAW – Österreichische Wasser- und Abfallwirtschaft (Member Scientific Advisory Board, Editor)
- Urban Water Journal (Guest Editor)
- Water (Guest Editor)
- Journal Advances in Engineering Software
- Journal of Environmental Management
- Journal of Environmental Modelling and Software
- Journal of Hydroinformatics
- Journal of Hydrology
- Mathematical Methods of Operations Research
- Water Research
- Water, Science & Technology

Organisation of Conferences and Workshops

- International Conference on Sewer Processes and Networks – SPN10, 2022, Graz, Austria, Conference Host and Organizer
- 12th Urban Drainage Modeling Conference 2022 (UDM 2022), 10-12. January 2022, Costa Mesa, CA, USA, Reviewer
- International Conference on Urban Drainage (ICUD), 24.-29. October 2021, Melbourne, Australia, Reviewer
- Aqua Urbanica 2020, 13.-14. September 2021, Innsbruck, Austria, Member Scientific Board
- 2nd International Joint Conference in Water Distribution Systems Analysis & Computing and Control in the Water Industry - WDSA / CCWI, 1.-4. September 2020, Beijing, China, Member Scientific Committee (canceled)
- Aqua Urbanica 2019, 9.-10. September 2019, Rigi Kaltbad, Switzerland, Member Scientific Board
- 17th International Computing & Control for the Water Industry Conference- CCWI 2019, 1.-4. September 2019, Exeter, Great Britain, Member Scientific Committee
- Workshop Sewer Sediments: Sampling, Characterization and Modelling at the 9th International Conference on Sewer Processes and Networks – SPN9, 27.-30. August 2019, Workshop organizer
- 11th International Conference on Urban Drainage Modelling – UDM 2018, 23.–26. September 2018, Palermo, Italy, Member Scientific Committee
- 1st International Joint Conference in Water Distribution Systems Analysis & Computing and Control in the Water Industry - WDSA / CCWI, 23.-25. July 2018, Kingston, Ontario, Canada, Member Scientific Committee
- Aqua Urbanica 2018, 18. June, Landau, Germany, Member Scientific Board
- 14th International Conference on Urban Drainage – ICUD 2017, 10.-15. September 2017, Prague, Czech Republic, Member Scientific Committee
- 15th International Computing & Control for the Water Industry Conference – CCWI 2017, 5.-7. September 2017, Sheffield, United Kingdom, Member Scientific Committee

- Aqua Urbanica 2017, 28.-29. June 2017, Graz, Austria, Organizer and Head Scientific Board
- 12th IWA Specialized Conference on Instrumentation, Control and Automation - ICA 2017, 11.-14. June 2017, Québec, Canada, Member Scientific Committee
- Aqua Urbanica 2016, 26.-27. September 2016, Rigi Kaltbad, Switzerland, Member Scientific Board
- 8th International Conference on Sewer Processes & Network – SPN8, 31. August – 2. September 2016, Rotterdam, Netherland, Member Scientific Committee
- Aqua Urbanica 2015, 7.-8. October 2015, Stuttgart, Germany, Member Scientific Board
- 10th International Urban Drainage Modelling Conference - UDM 2015, 20.-23. September 2015, Mont-Sainte Anne, Québec, Canada, Member Scientific Committee
- 9th IWA Symposium on Systems Analysis and Integrated Assessment - Watermatex 2015, 14.-17. June 2015, Gold Coast, Australia, Member Scientific Committee.
- 1st International Academic Conference Climate Change and Sustainable Heritage 2015 – CSH15, 18-20 February 2015, Graz, Austria, Member Scientific Committee
- Aqua Urbanica 2014, 23.-24. October 2014, Innsbruck, Austria, Member Scientific Board.
- 8th International Workshop on Real Time Control of Sewer Systems at Novatech 2013, 23. June 2013, Lyon, France, Chair and Organization
- INTERURBA III, 16.-18. June 2013, Obergurgl, Austria, Workshop organizer
- 20th European Junior Scientist Workshop on Sewer Processes and Networks: On-line Monitoring, Uncertainties in Modelling and New Pollutants, Graz, 9.-12. April 2013, Organizer
- Aqua Urbanica 2013, 29.-30. September 2013, Zurich, Switzerland, Member Scientific Board
- 6th International Congress on Environmental Modelling and Software - iEMSs2012, 1.-5. July 2012, Leipzig, Germany - Session „Use of models for integrated management of urban water systems”, Member Scientific Committee
- Aqua Urbanica 2012, 8. May 2012, Munich, Germany, Member Scientific Board.
- 4th IWA Conference on Automation in Water Quality Monitoring, 18.-21. September 2011, Queretaro, Mexico, Member Scientific Committee
- Watermatex 2011, 8th IWA Symposium on System Analysis and Integrated Assessment, 20.-22. June 2011, San Sebastian, Spain, Member Scientific Committee
- 5th International Congress on Environmental Modelling and Software - iEMSs2010, 5.-8. July 2010, Ottawa, Canada - Session „Modelling and support tools for management and optimization of the integrated wastewater system”, Member Scientific Committee
- 14th IWA Conference on Diffuse Pollution and Eutrophication, 12.-17. September 2010, Mont Sainte-Anne, Canada, Member Scientific Committee
- 7th International Workshop on Real Time Control of Sewer Systems at Novatech 2010, 27. June 2010, Lyon, France, Organization committee
- 2nd IWA/WEF Wastewater Treatment Modelling Seminar, 28.-30. March 2010, Mont-Sainte-Anne, Canada, Member Scientific Committee
- International OpenMI Workshop for consortium independent simulation software developer, 27. February 2009, Frankfurt, Germany, Organization
- 1st IWA/WEF Wastewater Treatment Modelling Seminar, 1.-3. June 2008, Mont-Sainte-Anne, Québec, Canada, Member Scientific Committee

Teaching activities

Since 2017	Lecture and practice „Kläranlagenmodellierung“ (Modeling of Waster Water Treatment Plants), Graz University of Technology, Austria
Since 2016	Lecture and practice „Modelling of Networks“, Graz University of Technology, Austria
Since 2016	Lecture „Städtische Wasserinfrastruktur“ (Urban Water Infrastructure), Graz University of Technology, Austria
Since 2016	Lecture and practice „Siedlungswasserbau GL1“ (Urban Water Engineering Basics 1), Graz University of Technology, Austria
Since 2016	Lecture and practice „Siedlungswasserbau GL2“ (Urban Water Engineering Basics 2), Graz University of Technology, Austria
Since 2015	Lecture “Einführung in das Bauwesen” (Introduction to Civil Engineering), Graz University of Technology, Austria
Since 2015	Lecture “Hydrology” (Module II and III), Graz University of Technology, Austria
Since 2015	Lecture “Hydrology” (Module I – Basics), Graz University of Technology, Austria
Since 2013	Seminar „Publikationspraxis“ (Scientific Writing Seminar), Graz University of Technology, Austria
Since 2012	Mentoring the elective course catalogue „Wasserressourcen“ (Water Resources) within the master’s program „Umweltsystemwissenschaften / Naturwissenschaft-Technologie“ (Environmental Systems / Natural Science-Technology), Karl-Franzens University Graz and Graz University of Technology, Austria
Since 2012	Seminar „Infrastruktur“ (Infrastructure), Graz University of Technology, Austria
Since 2012	Exclusive tutorial „Siedlungswasserwirtschaft FS“ (Urban Water Management), Graz University of Technology, Austria
Since 2007	Lecture and practice „Modellierung in der Siedlungswasserwirtschaft“ (Modeling in Urban Water Management), Graz University of Technology, Austria
2012 – 2016	Lecture “Hydrologie” (Hydrology), Graz University of Technology, Austria
2012 – 2015	Lecture „Landschaftswasserbau“ (Landscape Water Engineering), Graz University of Technology, Austria
2012 – 2015	Lecture „Siedlungswasser und Abfallwirtschaft“ (Urban Water and Waste Management), Graz University of Technology, Austria
2012 – 2015	Lecture „Wasser- und Abwasserbehandlung“ (Water and Wastewater Treatment), Graz University of Technology, Austria
2012 – 2015	Lecture and practice „Siedlungswasserbau“ (Urban Water Engineering), Graz University of Technology, Austria
2014	Seminar „Anleitung zum wissenschaftliches Arbeiten“ (Training in academic writing), Continuing Education Center, Vienna University of Technology, Austria
2012 – 2013	Seminar „Wissenschaftliches Arbeiten“ (Introduction to academic research and writing), Graz University of Technology, Austria
2006 – 2008	Lecture and practice „Ingenieurhydrologie III“ (Engineering Hydrology III),

- Darmstadt University of Technology, Germany
- 2001 – 2006 Lecture and practice „Hydraulik und Hydrologie bebauter Gebiete“ (Hydraulic and Hydrology of Urbanized Areas), Darmstadt University of Technology, Germany
- 2011 Presentation „Immissionsorientierte Steuerung von Regenrückhaltebecken“ (Water Quality Oriented Control of Stormwater Basins) as part of the „Kolloquium Wasserwesen“ (Colloquium Water Engineering and Management), Berlin University of Technology, Germany
- 2011 Lecture „Kanalnetzplanung in ArcGIS“ (Urban Drainage Planning using ArcGIS) as part of the lecture series „GIS-Anwendungen im Verkehrs- und Wasserbau“ (Application of GIS in Traffic and Water Engineering), Beuth University, Berlin, Germany
- 2009 – 2010 Lecture “Quality Aspects of Urban and Rural Surface Runoff” as part of the lecture “Interventions Bassin Versant” Université Laval, Québec (Québec), Canada.
- 2008 Lecture „Anwendung Evolutionärer Algorithmen zur Optimierung wasserwirtschaftlicher Systeme“ (Optimization of Water Systems Using Evolutionary Algorithms) as part of the lecture series „Biotechnik“ (Biotechnology), Darmstadt University of Technology, Germany
- 2007 – 2008 Lecture „Der Faktor Wasser: Gewässerschutz“ (Water pollution control) as part of the lecture series „Umweltwissenschaften an der TUD“ (Environmental Sciences at TUD), Darmstadt University of Technology, Germany
- 2004 – 2008 Lecture and practice „Schmutzfrachtmodelle in der Planung von Mischwassernetzen“ (Application of Water Quality Sewer Models for the Design of Combined Sewer Systems) as part of the lecture „EDV in der Siedlungswasserwirtschaft“ (Computing in Urban Water Management), University of Applied Science Mittelhessen, Germany
- 2002 Module “WASP EUTRO-sub model- structure and sensitivity analysis” as part of the internet based course “Water Pollution Control Planning” University of Guelph, Canada, University of Alabama Tuscaloosa, USA, University of Cape Town, South Africa, Darmstadt University of Technology, Germany

Habilitation committees, supervised PhD Students and further committee activities

Habilitation committees (postdoctoral lecture qualification)

2017	Dr. Stephan Fuchs, Karlsruhe Institute of technology, external reviewer
2017	Dr. Josef Schneider, Graz University of Technology, head of habilitation committee
2016	Dr. Daniela Fuchs-Hanusch, Graz University of Technology, member of habilitation committee

PhD Students as Main Supervisor

Since 2021	Albert König "Nature based solutions for integrated urban water systems – Model representation"
Since 2020	Bettina Polgar "Nature based solutions for integrated urban water systems – Quality processes"
Since 2019	Werner Sprung "Integrated Modelling and Real Time Control of Combined Sewer Systems"
Since 2018	Markus Pichler "Hydraulic determined urban drainage structures – from reality to model representation"
Since 2018	Stefan Reinstaller "Integrated modelling and assessment of heavy rain risk in urbanized areas"
Since 2015	Katja Fricke "Pollution based Real Time Control"
Since 2014	Roman Maier „Spatial Rainfall Variability of Storms in Urban Runoff Simulation “
Since 2014	Huizi Sun „Determination of wastewater characteristics“
2012 - 2018	Thomas Hofer „Pollution based modelling and control of urban wastewater systems“
2014 - 2019	Johannes Leimgruber „Economical rehabilitation planning for urban water systems“
2014 - 2018	Dominik Leutnant „Water quality processes and modelling in urban areas“
2012 - 2017	Robert Scheucher „Green infrastructure: Strategies for sustainable sewer management in urban areas“
2012 - 2015	Rosa Sulzbacher „Urban flooding – modelling, risk assessment and vulnerabilities“
2014	Mario Regneri „Fuzzy predictive control of integrated urban wastewater treatment systems with simultaneous aerobic sludge stabilization“

PhD Students as reviewer or co-supervisor

2022	Ditte Marie Reinholdt Jensen "Challenging current practices for management of pollution in separate stormwater discharges", member of PhD examination committee, Technical University of Denmark.
2022	Mathias Riechel "Integrated Modelling of Stormwater Management Strategies and CSO Impacts on an Urban River", member of PhD examination committee, Berlin University of Technology, Germany.
2021	Ico Broekhuizen "Uncertainties in rainfall-runoff modelling of green urban drainage systems: Measurements, data selection and model structure", member of PhD examination committee, Luleå University of Technology, Sweden.

- 2020 Sovanna Tik "Gestion intégrée d'un système d'assainissement urbain : Contrôle basé sur la qualité des eaux, vers des stratégies tolérantes aux fautes", member of PhD examination committee, Université Laval, Québec, Canada.
- 2020 Alex Duinemeijer "On the free-surface vortex driven motion of buoyant particles", member of PhD examination committee, Delft University of Technology, Netherlands.
- 2019 A.K. Thota Radhakrishnan "Domestic Slurry Hydraulics in Transport", member of PhD examination committee, Delft University of Technology, Netherlands.
- 2019 Katharina Teuber "A 3 D two-phase model for flow, transport and mass transfer processes in sewers", member of PhD examination committee, Berlin Technical University of Technology, Germany
- 2019 Antonio Manuel Moreno Rodenas "Propagation of uncertainties in integrated catchment models", member of PhD examination committee, Delft University of Technology, Netherlands.
- 2019 Ly Duy Khiem "Water quality based real time control of combined sewer systems", rapporteur, INSA Lyon, France
- 2018 Christian Scheid "Gesamtkonzept einer GIS-basierten Starkregen-Risikoanalyse unter besonderer Berücksichtigung von Datenerfordernissen und methodisch erzielbaren Aussagefähigkeiten", member of PhD examination committee, Kaiserslautern University of Technology, Germany
- 2018 Marco van Bijnen "The impact of sewer condition on the performance of sewer systems", member of PhD examination committee, Delft University of Technology, Netherlands.
- 2017 Petra van Daal-Rombouts "Performance evaluation of real time control in urban wastewater systems", member of PhD examination committee, Delft University of Technology, Netherlands.
- 2017 Ramesh Saagi "Benchmark Simulation Model for Integrated Urban Wastewater Systems – Model Development and Control Strategy Evaluation", member of PhD examination committee, Lund University, Sweden.
- 2016 Gerald Krebs "A Methodology for Urban Hydrological Modelling to Evaluate Low Impact Development Strategies at the City Scale ", opponent, Aalto University, Finland
- 2016 Michael Mair „DynaVIBe - Dynamic Virtual Infrastructure Benchmarking“, external reviewer and member of PhD committee, University of Innsbruck, Austria
- 2014 Roland Löwe „Probabilistic Forecasting for On-line Operation of Urban Drainage Systems“, Member PhD Evaluation Committee, Technical University of Denmark
- 2014 Christian Urich „Modelling the Coevolution of Cities and their Infrastructure: Towards a virtual playground to test adaptation strategies under deeply uncertain conditions“, external reviewer and member of PhD committee, University of Innsbruck, Austria
- 2014 Gregor Burger „Parallel Computing in Urban Water Management - A Model-Based Parallel Computing Approach to Reduce the Runtime of Applications

	in Urban Water Management”, external reviewer and member of PhD committee, University of Innsbruck, Austria
2013	Majid Galoie “Rainfall-Runoff Modeling in a Small Catchment in Austria”, “, internal reviewer and member of PhD committee, Graz University of Technology, Austria.
2012	Pau Prat "Integrated management of urban wastewater systems: a model-based approach", member of PhD review committee, Universitat de Girona, Spain
2011	Valentin Gamerith „High resolution online data in sewer water quality modelling“, co-supervisor, Graz University of Technology, Austria.
2007	Anne-Marie Solvi „Modelling the sewer-treatment-urban river system in view of the EU Water Framework Directive” member PhD Review Committee, Universiteit Gent, Belgium

Current Research Projects (selection)

- *PeriSponge* - Developing potentials of peri-urban mobility spaces as sponge territories for climate change adaptation and mitigation
- *dNWB 4.0* - Nature-based stormwater management 4.0
- *RETFORST* – Retention, storage and drainage of rainwater in and along forest roads
- *BEJOND* - Stormwater management beyond design storms and planned operating conditions
- *Chianti* - Combining High resolution GCMS and convection permitting downscaling - a new approach to improve the representation of severe future weather
- Real-Time Control of Integrated Stormwater Systems using a Model Predictive Control Approach – MITAC Action
- Ecological and economic stormwater management in urban areas addressing first-flush phenomena - Technological Cooperation AUSTRIA - UKRAINE
- *Fuilo* - Future influent load of the wastewater treatment plant Graz
- *SiWaWi* - Future substances and microbiological challenges for municipal urban water management
- Investigation on Precipitation and Discharge in the Urban Research Basin Graz
- Maintenance and analysis of rain and flow gauges in the urban research basin Graz
- *Poellau* (1979 - running) - Hydrological and meteorological survey and measurement data analysis of Poellau catchment area

Completed Research Projects (selection)

TU Graz

- *CFD Kroisbach* - Detailed hydraulic assessment of the maximum flow capacity
- *TemPest* - Micropollutant and Microplastics emissions of urban catchments out of waste water treatment plants, stormwater discharges and combined sewer overflows
- *CSB-FRAK* - Determination of the fractionated COD content in the inflow to the Graz wastewater treatment plant and model scenario with changed inflow quantity and quality
- *KathEA* – Risk and Potential of thermal energy use in sewer systems – simulation study city of Graz

- *RAINMAN* – Integrated heavy rain risk management
- *FlexAdapt* - Development of flexible adaptation concepts for the future urban water management
- *Model Graz* – Development of a sustainable sewer modelling strategy for the City of Graz
- *iZSKMon* – Accompanying integrated water quality monitoring program for iZSK
- *TKalib* - Temperature based model calibration - field campaign Mariatrost
- *AZM* - Active Condition Monitoring of drinking water systems
- *CLEARWATER* - Wastewater Concept Borealis - Main Project
- *iZSK* - Integrated modelling and control of emissions from a central storage unit and the Graz waste water treatment plant
- *DATMOD* - An efficient way from data to model - renovation and adaptation planning for small and medium size sewer networks
- *AQUAdemia* - Competence based training and internship model for Innovation in Water related HEI educational offer
- *Split-Sewage-Charge-System* - Academic support for preparation introduction of split-sewage-charge-systems
- *EcoStorma* - Ökologische und ökonomische Maßnahmen der Niederschlagswasserbewirtschaftung (ecological and economical stormwater management)
- *SCHTURM* - Micropollutant emissions of urban catchments out of waste water treatment plants, stormwater discharges and combined sewer overflows
- *HouSui* - Hochwasserwasser- und Überflutungsschutz - Modellstudie Bründlbach Strategien für ein integrales Siedlungsentwässerungsmanagement (flood control measures case study Bründlbach (Graz) strategies for an integral urban drainage management)
- *IMW3* - Integrated water body quality assessment based on continuous high-resolution on-line monitoring data

itwh, Hannover

- Further development of the simulators HYSTEM-EXTRAN, HYSTEM-EXTRAN 2D and KOSIM as well as the GIS based information and planning system FOG

Université Laval, Québec

- *rivEAU* - Integrating river ecohydraulics in urban stormwater management – ecohydraulic-driven real-time control of stormwater basins

TU Darmstadt

- Leitfaden zur effizienten und sicheren Beurteilung von Schmutzfrachtberechnungen mit dem Modell SMUSI (guideline for the assessment of water quality simulations using the model SMUSI)
- Modifizierung des Leitfadens zum Erkennen kritischer Gewässerbelastungen durch Abwassereinleitungen - Entwicklung einer simulationsgestützten Analyse- und Planungsmethodik (Modification of the hessian guideline for analyzing impacts on water bodies due to waste water discharge – development of a simulation based assessment and design methodology)
- *Odysseus* – Diskret-kontinuierliche Optimierung komplexer wasserwirtschaftlicher Systeme (Discrete-continues optimization of complex water resources systems)

- Tool box BlueM - Coordination of the cross-project model and software development at the section of engineering hydrology and water management, TU Darmstadt
- Umstellung des Schmutzfrachtmodells SMUSI von repräsentativen Regenreihen auf langjährige synthetische Regenreihen nach Bárdossy (resetting the model SMUSI for the use of synthetic long-term rainfall time series instead of representative ones)
- Weiterentwicklung des Schmutzfrachtmodells SMUSI zu einer durchgängigen 32-Bit Anwendung (further development of the sewer hydraulics and water quality simulator SMUSI towards a state-of-the-art 32-bit application)

Publications

Journals

1. Krebs, G., D. Camhy, D. and D. Muschalla (2021). Hydro-Meteorological Trends in an Austrian Low-Mountain Catchment. *Climate*, 9, 122, DOI: 10.3390/cli9080122.
2. Maier, R., S. Reinstaller and D. Muschalla (2021). Begriffe und Modelle der Überflutungsanalyse. *Österreichische Wasser- und Abfallwirtschaft*, 73 (3-4), pp. 76-84, DOI: 10.1007/s00506-021-00748-2.
3. Reinstaller, S. and D. Muschalla (2021). Modellbasierte urbane Überflutungsvorsorge. *Österreichische Wasser- und Abfallwirtschaft*, 73 (3-4), pp. 92-101, DOI: 10.1007/s00506-021-00746-4.
4. Muschalla, D. and S. Achleitner (2021). Pluviale Überflutung und Hangwasser. *Österreichische Wasser- und Abfallwirtschaft*, 73 (3-4), pp. 74-75, DOI: 10.1007/s00506-021-00760-6.
5. Maier, R., G. Krebs, M. Pichler, D. Muschalla and G. Gruber (2020). Spatial rainfall variability in urban environments - high-density precipitation measurements on a cityscale. *Water*, DOI: 10.3390/w12041157.
6. Ledergerber, J. M., L. Pieper, G. Binet, A. Comeau, T. Maruéjols, D. Muschalla and P.A. Vanrolleghem (2019). An efficient and structured procedure to develop conceptual catchment and sewer models from their detailed counterparts. *Water* 11 (10), art. no. 2000, DOI: 10.3390/w11102000.
7. Leimgruber, J., G. Krebs, D. Camhy, D. and D. Muschalla (2019). Model-Based Selection of Cost-Effective Low Impact Development Strategies to Control Water Balance. *Sustainability* 11 (8), art. no. 1838, DOI: 10.3390/su11082440.
8. Leimgruber, J., G. Krebs, G. and D. Muschalla (2019). Die Wasserbilanz im Fokus der Siedlungsentwässerung – Flexible Adaptionskonzepte für die Zukunft. *Wasserland Steiermark*, 1, pp. 15-17.
9. Leimgruber, J., G. Krebs, D. Camhy, D. and D. Muschalla (2018). Sensitivity of model-based water balance to low impact development parameters. *Water* 10 (12), art. no. 1838, DOI: 10.3390/w10121838.
10. Leutnant, D., D. Muschalla, M. Uhl (2018). Distribution-based calibration of a storm-water quality model. *Water* 10 (8), art. no. 1027, DOI: 10.3390/w10081027.
11. Leutnant, D., D. Muschalla and M. Uhl (2018). Statistical distribution of TSS event loads from small urban environments. *Water* 10 (6), art. no. 769; DOI: 10.3390/w10060769.
12. Leimgruber, J., D. B. Steffelbauer, G. Krebs, F. Tscheikner-Gratl and D. Muschalla (2018). Selecting a series of storm events for a model-based assessment of combined sewer overflows. *Urban Water Journal* 15 (5), pp. 453-460, DOI: 10.1080/1573062X.2018.1508601.

13. Hofer, T., A. Montserrat, G. Gruber, V. Gamerith, Ll. Corominas and D. Muschalla (2018). A robust and accurate low-cost method for monitoring the frequency and duration of combined sewer overflows. *Environmental Monitoring and Assessment* 190 (4), art. no. 209, DOI: 10.1007/s10661-018-6589-3.
14. van Daal, P., G. Gruber, J. Langeveld, D. Muschalla and F. Clemens (2017). Performance evaluation of real time control in urban wastewater systems in practice: review and perspective. *Environmental Modelling and Software*, 95, pp. 90-101, DOI: 10.1016/j.envsoft.2017.06.015
15. Krebs, G., Weidemann, S., Fuchs, R. and D. Muschalla (2017). Hydrologisches Versuchsgebiet Pöllau – Hydrometrische Lanzeitbeobachtungen. *Wasserland Steiermark*, 1.1, pp. 22-26.
16. Fricke, K. I., H. Hoppe, S. Kutsch, C. Massing, J. Ante, T. Gigl and D. Muschalla (2017). "Weiterentwicklung einer qualitätsabhängigen Kanalnetzsteuerung in Wuppertal". *KA Korrespondenz Abwasser, Abfall*, 64(6), pp. 507-514.
17. Montserrat, A., T. Hofer, M. Poch, D. Muschalla, Ll. Corominas (2017). Using the duration of combined sewer overflow events for the calibration of sewer hydrodynamic models. *Urban Water Journal* 14 (8), pp. 782-788, DOI: 10.1080/1573062X.2016.1254255.
18. Leutnant, D., D. Muschalla and M. Uhl (2016). Stormwater pollutant process analysis with long-term on-line monitoring data at micro scale sites. *Water*, 8 (7), art. no. 299, DOI: 10.3390/w8070299.
19. Fuchs-Hanusch, D, D. Steffelbauer, M. Günther and D. Muschalla (2016). Systematic failure mode and pipe section specific leakage outflow calculations by means of EPANET2. *Urban Water Journal*, 13 (2), pp. 108-118, DOI: 10.1080/1573062X.2014.994006.
20. Fuchs-Hanusch, D., M. Günther, M. Möderl and D. Muschalla (2015). Cause and effect oriented sewer degradation evaluation to support scheduled inspection planning. *Water, Science & Technology*, 72 (7), pp. 1176-1183, DOI: 10.2166/wst.2015.320.
21. Hauduc, H., M. B. Neumann, D. Muschalla, V. Gamerith, S. Gillot and P.A. Vanrolleghem (2015). Efficiency criteria for environmental model quality assessment: A review and its application to wastewater treatment. *Environmental Modelling & Software*, 68, pp. 196-204, DOI: 10.1016/j.envsoft.2015.02.004.
22. Muschalla, D. (2015). Urbane Überflutung. *Österreichische Wasser- und Abfallwirtschaft*, 67 (5-6), pp. 185-186, DOI: 10.1007/s00506-015-0244-9.
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