

Juliane Mai, PhD

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Research Interests

In my research, I use my mathematical background to contribute to improvements in computational models to better understand environmental issues, with specific focus on hydrologic and land-surface models applied across scales. I have made contributions in the field of model calibration, sensitivity analysis, and uncertainty analysis which are methods assisting model development and application. I am also interested in improving the realism of the processes implemented in these models through the development of novel models and modeling guided by data-driven models. My vision is to make data available to everyone. Therefore, I focus on creating tools that facilitate the distribution of data through end-user focused portals. I created the data dissemination platforms [CaSPAr](#) and [HydroHub](#).

Personal Information

Place of Birth Eilenburg, Germany
Citizenship German
Country of Residence Canada
Languages German (native), English (fluent)

Education

<i>Degree</i>	<i>University</i>	<i>Faculty</i>	<i>Year</i>
PhD	Friedrich-Schiller University Jena, Germany	Chemistry and Earth Sciences	2011
M. Sc.	Leipzig University of Applied Science, Germany	Comp. Science, Mathem., & Nat. Science	2007
Diploma (FH)	Leipzig University of Applied Science, Germany	Comp. Science, Mathem., & Nat. Science	2005

Professional Appointments

Team Lead and Research Scientist (Center for Scalable Data Analytics and Artificial Intelligence – ScaDS.AI & Computational Hydrosystems, Helmholtz Centre for Environmental Research – UFZ)	<i>Dec 2022 - present</i>
Research Assistant Professor (Civil and Environmental Engineering, University of Waterloo)	<i>Mar 2019 - Nov 2022</i>
Post-Doctoral Fellow (Civil and Environmental Engineering, University of Waterloo)	<i>Sep 2016 - Feb 2019</i>
Post-Doctoral Fellow (Computational Hydrosystems, Helmholtz Centre for Environmental Research – UFZ)	<i>May 2011 - Aug 2016</i>

Key Awards

- ASCE-EWRI Best Case Study Award in Journal of Hydrologic Engineering 2023 for Mai et al. (2021)
One publication is selected as Best Case Study per year
- Highlight paper in Hydrology and Earth System Sciences (HESS) journal for Mai et al. (2022)
About 1-2 publications per month are selected as Highlight papers
- EOS Editors' Highlight for Water Resources Research paper by Shen et al. (2022)
Editors' Highlights are summaries of recent papers by AGU's journal editors; in total, 10-20 papers across all AGU journals are highlighted each month
- EOS Research Spotlight for Water Resources Research paper by Mai and Tolson (2019)
Research Spotlight are summary articles of recent papers drawing attention to groundbreaking research that is of interest to the geophysics community; in total, 10-20 papers across all AGU journals are spotlighted each month
- UFZ Research Award as member of the mHM developer team (2017)
Each year one project is awarded within the Helmholtz Centre for Environmental Research (UFZ)
- Award of the Society of Friends of the University of Applied Science Leipzig for best Master thesis of the year (2007)
One of this year's Master theses published in the Department of Mathematics is selected for this award

Professional Activities

- since 02/2023 **Co-editor** of special issue "Meteorology and hydroclimate observations and models" in Nature's *Scientific Data*
- since 01/2023 **Member** of Scientific Committee for Sensitivity Analysis for Model Output (SAMO)
- since 01/2023 **Associate Editor** for *Journal of Hydrology*
- since 10/2020 **Co-editor** Special Issue "Towards more credible models in catchment hydrology to enhance hydrological process understanding" in *Hydrological Processes*
- since 04/2020 **Primary convener/ co-convener** of EGU session on *Advances in diagnostics, sensitivity, uncertainty analysis, and hypothesis testing of Earth and environmental systems models*
- since 12/2019 **Member** AGU Technical Committee on Hydrological Uncertainty
- since 10/2019 **Reviewer** for *Journal of Hydrometeorology*
- since 12/2017 **Primary convener** AGU session *Diagnostics, Sensitivity, and Uncertainty Analysis of Earth and Environmental Models*
- since 04/2017 **Associate Editor** for *Water Resources Research*
- since 01/2017 **Reviewer** for *Environmental Modeling and Software*
- since 06/2017 **Reviewer** for *Advances in Water Research*
- 04/2016 **Co-convener** EGU session on *Hydroinformatics: computational intelligence, uncertainty, systems analysis, optimization, data science, and data-driven modeling of social-hydrologic systems*
- 12/2015 **Co-convener** AGU session on *Efficient Diagnostics, Sensitivity, and Uncertainty Analysis of Complex Environmental Models*
- 04/2015 **Co-convener** EGU session on *Uncertainty, Sensitivity Analysis and Efficient Diagnostics in Geosciences*
- 02/2015 - 08/2016 **Founding Member** of UFZ's Working group on "Inverse modeling and optimization"
- since 01/2014 **Reviewer** for *Journal of Hydrology*
- since 07/2013 **Reviewer** for *Water Resources Research*
- 12/2012 - 08/2016 **Management** of open-source hydrologic model, developer team and community (mHM, www.ufz.de/mhm)
- 11/2011 - 08/2016 **Management** of UFZ Fortran library and coding standards
- since 2011 **Member** of *American Geophysical Union*
- since 2011 **Member** of *European Geophysical Union*

Skills

- Languages German (native), English (fluent)
 - Platforms Mac¹ (since 2009), Linux¹ (since 2007), Windows³ (until 2007)
 - Programming languages Fortran¹ (since 2007), Bash¹ (since 2009), Python¹ (since 2010), C/C++² (since 2015), Matlab², GnuPlot², Delphi³, GTK³, Visual Basic³, NCL³, JavaScript² (since 2020), HTML² (since 2016)
 - Software Mathematica¹, Matlab², S-Plus³
 - Word Processing L^AT_EX¹, Microsoft Office², OpenOffice², Adobe Acrobat²
 - Others Subversion SVN¹, Git¹, CDO/NCO²
- ¹ = expert, ² = good, ³ = basic

Research funding

Please note that during my time at the University of Waterloo (09/2016 to 11/2022), I was not eligible to apply for NSERC funding which is the main funding agency in Canada. Prior to promotion to Research Assistant Professor in March 2019, I was also not eligible to even be listed as co-investigator in most funding calls. In total, I received C\$318,217 in funding as principal and co-investigator.

- 07/2022 - 03/2024 Principal Investigator (PI)
(C\$144,000 my share) Project title: Setup, deployment, and visualization of Machine-Learning based models to simulate peak streamflows across the Great Lakes/Ottawa River Basin and the Fraser River Basin.
Funding Sources: Environment Canada (G&C)
Total Funding: 160,000 (Canadian dollar; 90% my share, 10% Dr. Bryan Tolson)
- 07/2022 - 03/2024 Principal Applicant (co-I)
(C\$16,000 my share) Project title: Leveraging ECCC runoff products for High Resolution & Locally Relevant Peak Streamflow Estimation in Ungauged Basins in the Great Lakes/Ottawa River and Fraser River (BC) Basins.
Funding Sources: Environment Canada (G&C)
Total Funding: 160,000 (Canadian dollar; 10% my share, 80% Dr. Bryan Tolson, 10% Dr. James Craig)
- 04/2022 - 03/2025 Principal Investigator (PI)
(C\$2,288 my share) Project title: HydroHub - Hydrologic models for everyone.
Funding Sources: Compute Canada; 2021 Research Platforms and Portals
Notes: Full funding of 12 TB storage and 32 core years compute on ComputeCanada systems for year 1. Year 2 and 3 upon reporting.
Total Funding: 2,288 for year 1 (Canadian Dollar; 100% my share)
- 10/2021 - 03/2022 Principal Investigator (PI)
(C\$36,000 my share) Project title: Peak Streamflow Estimation in the Great Lakes/Ottawa River Basin using Machine Learning Models
Funding Sources: Environment Canada (G&C)
Total Funding: 40,000 (Canadian dollar; 90% my share, 10% Dr. Bryan Tolson)
- 07/2021 - 03/2023 Principal Applicant (co-I)
(C\$90,000 my share) Project title: Canadian Surface Prediction Archive (CaSPAr).
Funding Sources: Environment Canada (G&C)
Total Funding: 100,000 (Canadian dollar; 90% my share, 10% Dr. Bryan Tolson)
- 04/2020 - 03/2023 Principal Applicant (co-I)
(C\$29,929 my share) Project title: The Canadian Surface Prediction Archive, CaSPAr.
Funding Sources: Compute Canada; 2020 Research Platforms and Portals
Notes: Full funding of 540 TB storage and 24 core years compute on ComputeCanada systems for year 1. Year 2 and 3 upon reporting.
Total Funding: 33,254 for year 1 (Canadian Dollar; 90% my share, 10% Dr. Bryan Tolson)

Supervisory experience

Please note that I was not eligible to supervise students in my previous positions at the Helmholtz Centre for Environmental Research (UFZ) and at the University of Waterloo. I however mentored and trained the following students throughout my career. The publications that are directly associated with this mentoring are listed for each student.

- 09/2020 - 08/2021 **Nicholas Owens**, Co-op student.
Supervision. CaSPAR support and maintenance.
- since 01/2020 **Robert Chlumsky**, PhD student.
Involvement in supervision. Advancing the selection and identifiability of hydrologic model structure.
Papers published: Chlumsky et al. (2021)
- 01/2019 - 04/2020 **Martin Gauch**, Master student.
Involvement in supervision. Cloud-based Cuizinart platform providing access to large environmental datasets.
Papers published: Gauch et al. (2019a, 2019b), Gauch et al. (2020), Gauch et al. (2021)
- since 09/2018 **Michelle Viswanathan**, PhD student.
Co-supervision. Bayesian Multi-Purpose Modelling of Processes in the Soil-Crop-Atmosphere Nexus on the Landscape Scale.
Papers published: Viswanathan et al. (2022)
- 09/2017 - 06/2022 **Ming Han**, PhD student.
Involvement in supervision. Improving hydrological process representation in lake and agriculture dominated watersheds.
Papers published: Han et al. (2020)
- since 09/2017 **Hongren Shen**, PhD student.
Involvement in supervision. Rethinking Hydrologic Model Validation, Outlier Treatment and Runoff Prediction in Ungauged Basins.
Papers published: Shen et al. (2022)
- 05/2014 - 02/2017 **Giovanni Dalmasso**, PhD student.
Supervision. Modeling of regulatory T-cell differentiation by ordinary differential equations.
- 04/2013 - 12/2015 **Stephan Thober**, PhD student.
Involvement in supervision. Development of a multiscale weather generator.
Papers published: Thober et al. (2014), Thober et al. (2015)
- 03/2013 - 04/2013 **Karoline Brehm**, Trainee.
Supervision. Introduction to L^AT_EX and Python.
- 06/2012 - 09/2016 **Matthias Zink**, PhD student.
Involvement in supervision. Development of objectives for the calibration of hydrological models.
Papers published: Zink et al. (2018)
- 11/2011 - 11/2013 **Maren Göhler**, PhD student.
Involvement in supervision. Sensitivity analysis of the Community Land Model CLM.
Papers published: Göhler et al. (2013)

Teaching Experience

- 25-27/03/2019 **Environmental models and Bayesian inference**, *D Kavetski, J Mai*, University of Waterloo, Canada.
Workshop
- 16/11/2018 **Automatic calibration software OSTRICH**, *J Mai*, University of Waterloo, Canada.
Crash-course
- 20-22/08/2018 **Principles of Hydrologic Modeling**, *J Craig, J Mai, M Ranjram*, Technical University of Dresden, Germany.
Workshop
- 20-24/02/2017 **Environmental models and Bayesian inference**, *D Kavetski, J Mai*, University of Waterloo, Canada.
Workshop
- 03/2012 - 12/2012 **Linear and Quadratic Optimization**, Wilhelm Büchner University Darmstadt.
Mentoring of correspondence course
- 03/2010 - 08/2016 **Courses on Bayesian Inference, Optimization, Geostatistics, and Systems Biology**, Graduate School HiGrade at Helmholtz Centre for Environmental Research– UFZ Leipzig.
Lectures and seminars for PhD students and PostDocs
- 02/2009 - 08/2013 **Business Mathematics**, University of Applied Science (FOM) Leipzig.
Lectures, seminars, and exam for students of Business Administration (Bachelor)
- 02/2009 - 08/2013 **Analysis**, University of Applied Science (FOM) Leipzig.
Lectures, seminars, and exam for students of Business Administration (Bachelor)
- 01/2007 - 01/2010 **Seminars on Mathematics for Engineers, Seminars on Analysis I & II, Lecture series on Operations Research for Economists, Tutorial on Business Mathematics, Preparation Course Mathematics**, University of Applied Science (HTWK) Leipzig.
Seminars, lectures, and tutorials for Bachelor and Master students of different subjects

Publications

A complete list of publications can be found on [ResearchGate](#), [Google Scholar](#) or my [webpage](#).
H-index: 20 (February 2023).

* = publications of student first authors mentored by me with significant contributions (16 published, 2 submitted)

** = publications where first two authors contributed equally (1 published)

Published articles:

45. *Mei, Y., **J. Mai**, H. Do, A. Gronewold, H. Reeves, S. Eberts, R. Niswonger, S. Regan, R. Hunt: Can hydrological models benefit from using global soil moisture, evapotranspiration, and runoff products as calibration targets? *Water Resources Research*, 59(2), e2022WR032064. Accepted Jan 26, 2023.
44. Arsenault, R., Martel, J.-L., Brunet, F., Brissette, F., and **Mai, J.** (2023): Continuous streamflow prediction in ungauged basins: Long Short-Term Memory Neural Networks clearly outperform hydrological models. *Hydrol. Earth Syst. Sci.*, 27, 139–157. Accepted Jan 9, 2023.
43. **Mai, J.**, Shen, H., Tolson, B. A., Gaborit, É., Arsenault, R., Craig, J. R., Fortin, V., Fry, L. M., Gauch, M., Klotz, D., Kratzert, F., O'Brien, N., Princz, D. G., Rasiya Koya, S., Roy, T., Seglenieks, F., Shrestha, N. K., Temgoua, A. G. T., Vionnet, V., and Waddell, J. W. (2022): The Great Lakes Runoff Intercomparison Project Phase 4: the Great Lakes (GRIP-GL). *Hydrol. Earth Syst. Sci.*, 26, 3537–3572. Accepted Jun 10, 2022. **Highlight paper.**
42. *Viswanathan, M., T. K. D. Weber, S. Gayler, **J. Mai**, and T. Streck (2022): A Bayesian sequential updating approach to predict phenology of silage maize. *Biogeosciences*, 19, 2187–2209. Accepted Mar 8, 2022.
41. *Shen, H., Tolson, B. A., and **Mai, J.** (2022): Time to Update the Split-Sample Approach in Hydrological Model Calibration. *Water Resources Research*, 58(3), e2021WR031523. Accepted Feb 13, 2022. **EOS Editors' Highlight.**
40. **Mai, J.**, Craig, J. R., Tolson, B. A., and Arsenault, R. (2022): The sensitivity of simulated streamflow to individual hydrologic processes across North America. *Nature Communications*, 13, 455. Accepted Jan 3, 2022.
39. **Mai, J.**, Craig, J. R., and Tolson, B. A. (2022): The Pie sharing problem: Unbiased sampling of N+1 summative weights. *Environmental Modelling and Software*, 148, 105282. Accepted Dec 7, 2021.
38. Persaud, B.D., K.A. Dukacz, G. C. Saha, A. Peterson, L. Moradi, S. O'Hearn, E. Clary, **J. Mai**, M. Steeleworthy, J.J. Venkiteswaran, H. Kheyrollah Pour, B.B. Wolfe, S.K. Carey, J.W. Pomeroy, C.M. DeBeer, J.M. Waddington, P. Van Cappellen, J. Lin (2021): Ten Best Practices to Strengthen Stewardship and Sharing of Water Science Data in Canada. *Hydrological Processes*, 35(11), e14385. Accepted Sep 14, 2021.
37. Gasset, N., Fortin, V., Dimitrijevic, M., Carrera, M., Bilodeau, B., Muncaster, R., Gaborit, É., Roy, G., Pentcheva, N., Bulat, M., Wang, X., Pavlovic, R., Lespinas, F., and Khedhaouiria, D., and **Mai, J.** (2021): A 10 km North American Precipitation and Land Surface Reanalysis Based on the GEM Atmospheric Model. *Hydrol. Earth Syst. Sci.*, 25, 4917-4945. Accepted Aug 6, 2021.
36. Loiseau, G., J.-L. Martel, A. Poulin, S. Lachance-Cloutier, R. Turcotte, J. Fournier, **J. Mai**, R. Arsenault (2021): A semi-empirical wind set-up forecasting model for Lake Champlain. *Hydrological Processes*, 35(6), e14240. Accepted May 10, 2021.
35. *Chlumsky, R., **Mai, J.**, Craig, J. R., and Tolson, B. A. (2021): Simultaneous calibration of hydrologic model structure and parameters using a blended model. *Water Resources Research*, 57(5), e2020WR029229. Accepted Apr 14, 2021.
34. **Mai, J.**, B. A. Tolson, H. Shen, É. Gaborit, V. Fortin, N. Gasset, H. Awoye, T. A. Stadnyk, L. M. Fry, E. A. Bradley, F. Seglenieks, A. G. Temgoua, D. G. Princz, S. Gharari, A. Haghnegahdar, M. E. Elshamy, S. Razavi, M. Gauch, J. Lin, X. Ni, Y. Yuan, M. McLeod, N. B. Basu, R. Kumar, O. Rakovec, L. Samaniego, S. Attinger, N. K. Shrestha, P. Daggupati, T. Roy, S. Wi, T. Hunter, J. R. Craig, and A. Pietroniro (2021): The Great Lakes Runoff Intercomparison Project Phase 3: Lake Erie (GRIP-E), *Journal of Hydrologic Engineering*, 26(9), 05021020. Accepted Feb 16, 2021. **ASCE-EWRI Best Case Study Award.**
33. de Rooij, G. H., **J. Mai**, and R. Madi (2021): Sigmoidal water retention function with improved behaviour in dry and wet soils *Hydrol. Earth Syst. Sci.*, 25, 983-1007. Accepted Jan 20, 2021.
32. *Gauch, M., **Mai, J.**, and Lin, J. (2021): The Proper Care and Feeding of CAMELS: How Limited Training Data Affects Streamflow Prediction, *Environmental Modelling & Software*, 135, 104926.
31. **Mai, J.**, Craig, J. R., and Tolson, B. A. (2020): Simultaneously determining global sensitivities of model

- parameters and model structure, *Hydrology and Earth System Sciences*, 24, 5835–5858.
30. **Mai, J.**, Arsenault, R., Tolson, B. A., Latraverse, M., and Demeester, K. (2020): Application of Parameter Screening To Derive Optimal Initial State Adjustments for Streamflow Forecasting, *Water Resources Research*, 56, e2020WR027960.
 29. *Spieler, D., **Mai, J.**, Craig, J. R., Tolson, B. A., and Schütze, N. (2020): Automatic Model Structure Identification for Conceptual Hydrologic Models *Water Resources Research*, 56, e2019WR027009.
 28. *Han, M., **Mai, J.**, Tolson, B. A., Craig, J. R., Gaborit, É., Liu, H., and Lee, K. (2020): Subwatershed-based lake and river routing products for hydrologic and land surface models applied over Canada, *Canadian Water Resources Journal*, 0, 1-15.
 27. Craig, J. R., Brown, G., Chlumsky, R., Jenkinson, R. W., Jost, G., Lee, K., **Mai, J.**, Serrer, M., Sgro, N., Shafii, M., Snowdon, A. P., and Tolson, B. A. (2020): Flexible watershed simulation with the Raven hydrological modelling framework, *Environmental Modelling & Software*, 129, 104728.
 26. *Gauch, M., **Mai, J.**, and Lin, J. (2020): An Open-Source Interface to the Canadian Surface Prediction Archive. *JCDL '20*, August 1–5, 2020, Virtual Event, China.
 25. **Mai, J.**, KC Kornelsen, BA Tolson, V Fortin, N Gasset, D Bouhemhem, D Schaefer, M Leahy, F Ancil, P Coulibaly (2019): The Canadian Surface Prediction Archive (CaSPAR): A Platform to Enhance Environmental Modeling in Canada and Globally, *BAMS*, 101, E341–E356.
 24. *Gauch, M., **Mai, J.**, Gharari, S., and Lin, J. (2019): Data-Driven vs. Physically-Based Streamflow Prediction Models, *Proceedings of the 9th International Workshop on Climate Informatics*, October 2019, Paris, France.
 23. *Gauch, M., **Mai, J.**, Gharari, S., and Lin, J. (2019): Streamflow Prediction with Limited Spatially-Distributed Input Data *Proceedings of the NeurIPS 2019 Workshop on Tackling Climate Change with Machine Learning*, December 2019, Vancouver, BC, Canada.
 22. Thober S, M Cuntz, M Kelbling, R Kumar, **J Mai**, and L Samaniego (2019): The multiscale Routing Model mRM v1.0: simple river routing at resolutions from 1 to 50 km, *Geosci. Model Dev.*, 12, 2501-2521.
 21. **Mai J** and BA Tolson (2019): Model Variable Augmentation (MVA) for Diagnostic Assessment of Sensitivity Analysis Results, *Water Resources Research*, 55, 2631-2651. **EOS Research Spotlight.**
 20. Liu H, A Thiboult, B Tolson, F Ancil, **J Mai** (2019): Efficient treatment of climate data uncertainty in ensemble Kalman filter (EnKF) based on an existing historical climate ensemble dataset, *J of Hydrology*, 568, 985-996.
 19. *Zink M, **J Mai**, M Cuntz, and L Samaniego (2018): Conditioning a Hydrologic Model using Patterns of Remotely Sensed Land Surface Temperature *Water Resources Research*, 54, 2976–2998.
 18. *Jahanpour M, B Tolson, and **J Mai** (2018): PADDs Algorithm Assessment for Bi-objective Water Distribution System Benchmark Design Problems *Journal of Water Resources Planning and Management* 144 (3), 1193-1219.
 17. Demirel MC, **J Mai**, G Mendiguren, J Koch, L Samaniego, and S Stisen (2018): Combining satellite data and appropriate objective functions for improved spatial pattern performance of a distributed hydrologic model *Hydrol. Earth Syst. Sci.* 22 (2), 1299-1315.
 16. *Madi, R, GH de Rooij, H Mielenz, and **J Mai** (2018): Parametric soil water retention models: A critical evaluation of expressions for the full moisture range *Hydrol. Earth Syst. Sci.* 22 (2), 1193-1219.
 15. Schrön M, M Köhli, L Scheffele, J Iwema, HR Bogena, L Lv, E Martini, G Baroni, R Rosolem, J Weimar, **J Mai**, M Cuntz, C Rebmann, SE Oswald, P Dietrich, U Schmidt, and S Zacharias (2017): Improving Calibration and Validation of Cosmic-Ray Neutron Sensors in the Light of Spatial Sensitivity *Hydrol. Earth Syst. Sci.* 21 (10), 5009 - 5030.
 14. Zink, M., L Samaniego, R Kumar, S Thober, **J Mai**, D Schäfer, A Marx (2016): The German drought monitor. *Environ. Res. Lett.* 11 (7), art. 074002.
 13. Zech, A., S Müller, **J Mai**, F Heße, S Attinger (2016): Extending Theis' solution: Using transient pumping tests to estimate parameters of aquifer heterogeneity. *Water Resour. Res.* 52 (8), 6156-6170.
 12. Rakovec O., R Kumar, **J Mai**, D Schaefer, S Attinger, M Cuntz, M Schroen, S Thober, M Zink, and L Samaniego (2016): Multiscale and multivariate evaluation of water fluxes and states over European river basins. *J. of Hydrometeorol.* 17 (1), 287 - 307.
 11. Nijzink, R.C., L Samaniego, **J Mai**, R Kumar, S Thober, M Zink, D Schäfer, HHG Savenije, M Hrachowitz (2016): The importance of topography-controlled sub-grid process heterogeneity and semi-quantitative prior constraints in

distributed hydrological models *Hydrol. Earth Syst. Sci.* 20 (3), 1151 - 1176.

10. Kumar R., JL Musuuza, AF Van Loon, AJ Teuling, R Barthel, JT Broek, **J Mai**, L Samaniego, and S Attinger (2016): Multiscale evaluation of the Standardized Precipitation Index as a groundwater drought indicator. *Hydrol. Earth Syst. Sci.* 20(3), 1117 - 1131.
9. Cuntz M., **J Mai**, L Samaniego, M Clark, V Wulfmeyer, O Branch, S Attinger, S Thober (2016): The impact of standard and hard-coded parameters on the hydrologic fluxes in the Noah-MP land surface model, *J. Geophys. Res. Atmos.*, 121 (18), 10676 - 10700.
8. *Thober S., R Kumar, J Sheffield, **J Mai**, D Schaefer, L Samaniego (2015): Seasonal soil moisture drought prediction over Europe using the North American Multi-Model Ensemble (NMME), *J. Hydrometeorol.* 16 (6), 2329 - 2344.
7. **Cuntz, M., **J Mai**, M Zink, S Thober, R Kumar, D Schaefer, M Schroen, J Craven, O Rakovec, D Spieler, V Prykhodko, G Dalmasso, J Musuuza, B Langenberg, S Attinger, L Samaniego (2015): Computationally inexpensive identification of non-informative model parameters by sequential screening, *Water Resour. Res.* 51 (8), 6417 - 6441
6. *Thober, S., **J Mai**, M Zink, L Samaniego (2014): Stochastic temporal disaggregation of monthly precipitation for regional gridded data sets, *Water Resour. Res.* 50 , 8714-8735.
5. Wehrer, M., **J Mai**, S Attinger, KU Totsche (2013): Kinetic control of contaminant release from NAPLs – Information potential of concentration time profiles, *Environ. Pollut.* 179 , 301- 314.
4. *Göhler, M., **J Mai**, M Cuntz (2013): Use of eigendecomposition in a parameter sensitivity analysis of the Community Land Model, *J. Geophys. Res.*, 118 (2), 904- 921.
3. **Mai, J.**, S Trump, I Lehmann, S Attinger (2013): Parameter importance in FRAP acquisition and analysis: a simulation approach, *Biophys. J.*, 104 (9), 2089- 2097.
2. Michaelson, J., Trump, S., Rudzok, S., Gräbsch, C., Madureira, D.J., Dautel, F., **Mai, J.**, Attinger, S., Schirmer, K., von Bergen, M., Lehmann, I., Beyer, A. (2011): Transcriptional signatures of regulatory and toxic responses to benzo-[a]-pyrene exposure, *BMC Genomics* 12, art. 502
1. **Mai, J.**, S Trump, R Ali, RL Schiltz, G Hager, T Hanke, I Lehmann, S Attinger (2011): Are assumptions about the model type necessary in reaction-diffusion modeling? A FRAP application, *Biophys. J.* 100 (5), 1178- 1188.

Waterloo, ON, Canada
February 26, 2023