

Full List of Publications

2020 (submitted)

209. Seidel S, Wallach D, Palosuo T, ... et. mult. (2020). How well do crop modeling groups predict wheat phenology, given calibration data from the target population? *European Journal of Agronomy* (submitted).

2020

208. **Wöhling T**, Burbery L (2020). Eigenmodels to forecast groundwater levels in unconfined river-fed aquifers during flow recession. *Science of the Total Environment*, 747, 141220, doi: 10.1016/j.scitotenv.2020.141220.
207. **Wöhling T**, Wilson SR, Wadsworth V, Davidson P. (2020). Detecting the cause of change using uncertain data: Natural and anthropogenic factors contributing to declining groundwater levels and flows of the Wairau Plain Aquifer, New Zealand. *Journal of Hydrology: Regional Studies*, 31, 100715, doi: 10.1016/j.ejrh.2020.100715.
206. Gosses M, **Wöhling T** (2020). Robust data worth analysis with surrogate models in groundwater. *Geophysical Research Abstracts*, Vol. 21, EGU2020-10774, EGU General Assembly 2020, 3–8 May 2020, Vienna, Austria, doi: 10.5194/egusphere-egu2020-10774.
205. Rommel L, **Wöhling T** (2020). Hydrological analysis of runoff formation in a small forested mountain catchment using $\delta^2\text{H}$ and $\delta^{18}\text{O}$ ratios. *Geophysical Research Abstracts*, Vol. 21, EGU2020-10309, EGU General Assembly 2020, 3–8 May 2020, Vienna, Austria, doi: 10.5194/egusphere-egu2020-10309.
204. Mietrach R, **Wöhling T**, Schütze N (2020). A robust solution to Richards' equation for complex soil hydraulic models using the Method Of Lines. *Geophysical Research Abstracts*, Vol. 21, EGU2020-7663, EGU General Assembly 2020, 3–8 May 2020, Vienna, Austria, doi: 10.5194/egusphere-egu2020-7663.
203. **Wöhling T**, Davidson P (2020). AQUIFERWATCH: Operational prediction of groundwater heads and storage during river flow recession in the Wairau Aquifer, New Zealand. *Geophysical Research Abstracts*, Vol. 21, EGU2020-4568, EGU General Assembly 2020, 3–8 May 2020, Vienna, Austria, doi: 10.5194/egusphere-egu2020-4568.
202. Hsueh HF, Guthke A, **Wöhling T**, Nowak W (2020). Diagnosing model-structural errors with a sliding time window Bayesian analysis. *Geophysical Research Abstracts*, Vol. 21, EGU2020-2991, EGU General Assembly 2020, 3–8 May 2020, Vienna, Austria, doi: 10.5194/egusphere-egu2020-2991.
201. Ejaz, F, **Wöhling T**, Nowak W (2020). Lumped hydrological model for reasonable, long- term predictions of groundwater storage and depletion. *Geophysical Research Abstracts*, Vol. 21, EGU2020-1310, EGU General Assembly 2020, 3–8 May 2020, Vienna, Austria, doi: 10.5194/egusphere-egu2020-1310.
200. Rommel L, Blaurock K, da Silva MP, Baker N, Beudert B, Fleckenstein J, Gilfedder B, Haase P, Hopp L, Lechtenfeld O, Peiffer S, Reetsma T, Schütze N, Schwarze R, **Wöhling T** (2020). Einfluss natürräumlicher Faktoren auf Konzentration, Qualität und Auswirkung des gelösten organischen Kohlenstoffs im Nationalpark Bayerischer Wald. Workshop DOC Einträge in Oberflächengewässer, 3 March, 2020, Technische Universität Dresden, Tharandt, Germany.

2019

199. **Wöhling, T.**, Burbery, L., Peesel, A., Elbashir, M., Wadsworth, V., Davidson, P. (2019). Predicting Wairau Plain Groundwater Storage – Progress on the AquiferWatch Tool(box). *New Zealand Hydrological Society Annual Conference*, 3 - 6 December 2019, Rotorua, New Zealand.
198. Stenger, R., Friedel, M.J., Wilson, S.R., Rivas A., Journeaux, P., Barkle, G.F., Clague, J.C., Fuller, R., **Wöhling, T.**, Moorhead, B., Eger, A. , Lilburne, L. , McDowell, R.W. , Morgenstern, U. , Kusabs, I., Woodward, S.J.R. , Miller, B. (2019). Critical Pathways: Unravelling sub-catchment scale nitrogen delivery to waterways. *Land Use and Water Quality, Agriculture and the Environment*, 3-6 June 2019, Aarhus, Denmark.

197. **Wöhling, T.**, Gosses, M. (2019). Model-based data worth analysis in multi-purpose groundwater monitoring networks. *Geophysical Research Abstracts*, Vol. 21, EGU2019-3293, EGU General Assembly 2019, 7–14 April 2019, Vienna, Austria.
196. Chow, R., Bennet, J., Dugge, J, **Wöhling, T.**, Nowak, W. (2019). Evaluating subsurface parameterization to simulate hyporheic exchange: The Steinlach River Test Site. *Groundwater*, 58(1), 93-109, doi: 10.1111/gwat.12884.
195. **Wöhling, T.** (2019). Natürliche und anthropogene Einflussfaktoren auf das hydrologische Regime des Wairau Plain Aquifer in Neuseeland. *Hydrologie und Wasserbewirtschaftung*. 63(3), 147-157, doi: 10.5675/HyWa_2019.3_2.
194. Loschko, M., **Wöhling, T.**, Rudolph, D.L., Cirpka, O.A. (2019). An electron-balance based approach to predict the decreasing denitrification potential of an aquifer. *Groundwater*, 57(6), 925-939, doi: 10.1111/gwat.12876.
193. Stenger, R., Rivas, A., Wilson, S., Friedel, M., Barkle, G., Clague, J., **Wöhling, T.**, Moorhead, B., Lilburne, L., Eger, A., McDowell, R., Morgenstern, U., Fuller, R., Journeaux, P., Kusabs, I. (2019). Unravelling sub-catchment scale nitrogen delivery to waterways: Critical Pathways Programme (CPP). 32nd Annual FLRC Workshop, 12-14 February 2019, Massey University, Palmerston North, New Zealand.
192. Gosses, M. & **Wöhling, T.** (2019). Simplification error analysis for groundwater predictions with reduced order models. *Advances in Water Research*, 125, 41-56, doi: 10.1016/j.advwatres.2019.01.006.

2018

191. Cirpka, O.A., Loschko, M., **Wöhling, T.**, Rudolph, D. (2018). Primary controls on the natural denitrification potential of aquifers. *AGU Fall Meeting*, 10-14 Dec 2018, Washington D.C., USA.
190. Chow, R., Wu, H., Bennet, J., Dugge, J, **Wöhling, T.**, Nowak, W. (2018). Sensitivity of simulated meander-scale hyporheic exchange to river bathymetry and flow. *AGU Fall Meeting*, 10-14 Dec 2018, Washington D.C., USA.
189. **Wöhling, T.**, Gosses, M., Davidson, P. (2018). AquiferWatch - towards an operational tool to predict Wairau Plain aquifer depletion. *New Zealand Hydrological Society Annual Conference*, 4-7 Dec 2018, Christchurch, New Zealand.
188. **Wöhling, T.**, Gosses, M. (2018). The challenge of multi-purpose groundwater modelling networks - illustrated on the Wairau Plain aquifer. *New Zealand Hydrological Society Annual Conference*, 4-7 Dec 2018, Christchurch, New Zealand.
187. Gosses, M., **Wöhling, T.** (2018). Assessing the utility of reduced order models (ROMs) as surrogates for the Wairau Plain groundwater model. *New Zealand Hydrological Society Annual Conference*, 4-7 Dec 2018, Christchurch, New Zealand.
186. Burbery, L., **Wöhling, T.** (2018). GDA-MC² - Estimating uncertainty bounds in the groundwater data analysis tool. *New Zealand Hydrological Society Annual Conference*, 4-7 Dec 2018, Christchurch, New Zealand.
185. Chow, R., Wu, H., Bennet, J., Dugge, J, **Wöhling, T.**, Nowak, W. (2018). Sensitivity of simulated hyporheic exchange to river bathymetry: The Steinlach River Test Site. *Groundwater*, 57(3), 378-391, doi: 10.1111/gwat.12816.
184. Höge, M., **Wöhling, T.**, Nowak, W. (2018). The decisive role of model complexity in model selection. *Geophysical Research Abstracts* Vol. 20, EGU2018-6499, EGU General Assembly 2018, Vienna, Austria.
183. Chow, R., Wu, H., Bennet, J., Dugge, J, **Wöhling, T.**, Nowak, W. (2018). Sensitivity of simulated hyporheic exchange to river bathymetry. *Geophysical Research Abstracts* Vol. 20, EGU2018-10900, EGU General Assembly 2018, Vienna, Austria.
182. Gosses, M., **Wöhling, T.** (2018). Effective predictive uncertainty analysis using reduced order models. *Geophysical Research Abstracts* Vol. 20, EGU2018-6933, EGU General Assembly 2018, Vienna, Austria.

181. **Wöhling, T.**, Gosses, M. (2018). Prioritizing uncertainty sources in modelling surface water – groundwater interactions of gravel-bed rivers. *Geophysical Research Abstracts Vol. 20, EGU2018-8708, EGU General Assembly 2018, 8–13 April 2018, Vienna, Austria.*
180. **Wöhling, T.**, Gosses, M., Wilson, S., Davidson, P. (2018). Drivers of groundwater storage in gravel-bed rivers. *Geophysical Research Abstracts Vol. 20, EGU2018-8660, EGU General Assembly 2018, 8–13 April 2018, Vienna, Austria.*
179. Höge, M., **Wöhling, T.**, Nowak, W. (2018). Model selection: play-it-safe vs. no-risk-no-fun. *Integrated Hydrosystem Modelling 2018 Conference, 3-6 April 2018, Tübingen, Germany.*
178. Loschko, M., Cirpka, O.A., **Wöhling, T.**, Rudolph, D. (2018). Accounting for the decreasing reaction potential of aquifers in travel-time based reactive-transport models. *Integrated Hydrosystem Modelling 2018 Conference, 3-6 April 2018, Tübingen, Germany.*
177. Cow, R., **Wöhling, T.**, Parker, B., Nowak, W. (2018). Evaluating predictive uncertainty of simulated hyporheic exchange. *Integrated Hydrosystem Modelling 2018 Conference, 3-6 April 2018, Tübingen, Germany.*
176. Gosses, M., **Wöhling, T.** (2018). Effective predictive uncertainty analysis using reduced order models. *Integrated Hydrosystem Modelling 2018 Conference, 3-6 April 2018, Tübingen, Germany.*
175. Loschko, M., Cirpka, O.A., **Wöhling, T.**, Rudolph, D. (2018). Berücksichtigung des transienten Reaktionspotentials von Grundwasserleitern in fließzeitbasierten reaktiven Stofftransportmodellen. *26. Symposium of FH-DGGV, 21.-24.03.2018, Bochum, Germany.*
174. Gosses, M., **Wöhling, T.** (2018). Inversion-based upscaling für das Wairau Aquifer Modell. *Tag der Hydrologie, 22.-23.03.2018, Technische Universität Dresden, Germany.*
173. **Wöhling, T.**, Gosses, M., Wilson, S., Davidson, P. (2018). M³ von Fluss-Grundwasserinteraktionen im Wairau River, Neuseeland. *Tag der Hydrologie, 22.-23.03.2018, Technische Universität Dresden, Germany (Poster Award Winner).*
172. Gosses, M., Nowak, W., **Wöhling, T.** (2018). Explicit treatment for Dirichlet, Neumann and Cauchy boundary conditions in POD-based reduction of groundwater models. *Advances in Water Research, 115, 160-171, doi: 10.1016/j.advwatres.2018.03.011.*
171. Höge, M., **Wöhling, T.**, Nowak, W. (2018). A primer for model selection: The decisive role of model complexity. *Water Resources Research, 54, 3, 1688-1715, doi: 10.1002/2017WR021902.*
170. Loschko, M., **Wöhling, T.**, Rudolph, D., Cirpka, O.A. (2018). Accounting for the decreasing reaction potential of heterogeneous aquifers in a stochastic framework of aquifer-scale reactive transport. *Water Resources Research, 54, 442–463, doi: 10.1002/2017WR021645.*

2017

169. Cirpka, O.A., Loschko, M., **Wöhling, T.**, Rudolph, D. (2017). Accounting for the decreasing denitrification potential of aquifers in travel-time based reactive-transport models of nitrate. *AGU Fall Meeting, 11-15 Dec. 2017, New Orleans, USA.*
168. Chow. R., Bennett, J., Dugge, J., **Wöhling, T.** and Nowak, W. (2017). Evaluating predictive uncertainty of hyporheic exchange modelling. *AGU Fall Meeting, 11-15 Dec. 2017, New Orleans, USA.*
167. **Wöhling, T.**, Gosses, M., Wilson, S., Davidson, P. (2017). What Drives the Storage Dynamics of the Upper Wairau Plains Aquifer? *New Zealand Hydrological Society Annual Conference, 28 November - 1 December 2017, Napier, New Zealand.*
166. **Wöhling T.**, Gosses, M., Wilson, S., Davidson, P. (2018). Quantifying river-groundwater interactions of New Zealand’s gravel-bed rivers: The Wairau Plain. *Groundwater, 56(4), 647-666, doi:10.1111/gwat.12625.*
165. Woodward, S.J.R., **Wöhling T.**, Rode, M., Stenger, R. (2017). Predicting nitrate discharge dynamics in mesoscale catchments using the lumped StreamGEM model and Bayesian parameter inference. *Journal of Hydrology, 552(9), 684-703, doi: 10.1016/j.jhydrol.2017.07.021.*

164. **Wöhling, T.**, Gosses, M., Wilson, S., Wadsworth, V., Davidson, P. (2017). The hydrological regime of the Wairau River Aquifer, New Zealand: Detecting change using uncertain data. *Geophysical Research Abstracts* Vol. 19, EGU2017-3714-1, EGU General Assembly 2017, 23-28 April 2017, Vienna, Austria.
163. Brunetti, G., Šimůnek, J., **Wöhling, T.**, Piro, P. (2017). Model reduction of the numerical analysis of Low Impact Developments techniques. *Geophysical Research Abstracts* Vol. 19, EGU2017-7925, EGU General Assembly 2017.
162. Gosses, M., Nowak, W., **Wöhling, T.** (2017). Comparing and improving proper orthogonal decomposition (POD) to reduce the complexity of groundwater models. *Geophysical Research Abstracts* Vol. 19, EGU2017-1270, EGU General Assembly 2017.
161. Chow, R., Bennet, J., Dugge, J, McLaughlin, E., **Wöhling, T.**, Nowak, W. (2017). Evaluating uncertainty in estimating groundwater residence time through a river bend –An integrated hydro-geologic modelling study. *Geophysical Research Abstracts* Vol. 19, EGU2017-1881, EGU General Assembly 2017.
160. Brunetti, G., Šimůnek, J., **Wöhling, T.**, Turco, M., and Piro, P. (2017). A computationally efficient pseudo-2D model for the numerical analysis of permeable pavements. 5th International HYDRUS Conference, March 30-31 2017, Prague, Czech Republic.
159. **Wöhling, T.**, Gosses, M., Wilson, S., Davidson, P. (2017). Veränderungen im hydrologischen Regime des Wairau River, Neuseeland. Tag der Hydrologie, 23.-24.03.2017, Universität Trier, Germany.
158. Chow, R., Bennet, J., Dugge, J, McLaughlin, E., **Wöhling, T.**, Nowak, W. (2017). Evaluating hyporheic exchange transit time through a river bend. 4th International HGS User Conference, Bayreuth, 6-8 March, 2017.

2016

157. Guthke, A., Illman, W., **Wöhling, T.**, Nowak, W. (2016). Cumulative Relative Reactivity: Intelligent decisions need intelligent choice of models and data - a Bayesian justifiability analysis for models with vastly different complexity. AGU Fall Meeting, San Francisco, 12-16 December, 2016.
156. Loschko, M., **Wöhling, T.**, Rudolph, D., Cirpka, O.A. (2016). Cumulative Relative Reactivity: A Concept for Modeling Aquifer-Scale Reactive Transport. AGU Fall Meeting, San Francisco, 12-16 December, 2016.
155. Srinivasan, M.S., **Wöhling, T.**, Campbell, D., McMillan, H. (2016). Vertical Hydrology. In: *Advances in New Zealand Freshwater Science*. New Zealand Hydrological Society & New Zealand Limnological Society, Ed. by Jellyman, P.G., Davie, T.J.A., Pearson, C.P., Harding, J.S., ISBN 978-0-473-37603-1.
154. **Wöhling, T.**, Gosses, M. Wilson, S., Wadsworth, V., Davidson, P. (2016). Changes in the hydrological regime of the Wairau Plains Aquifer. 2016 Water Symposium “Water, Infrastructure and the Environment”, 28 November - 2 December 2016, Queenstown, New Zealand.
153. Woodward, S.J.R., **Wöhling, T.**, Rode, M., Stenger, R. (2016). Bayesian calibration of a lumped model to estimate catchment nitrate fluxes from monthly monitoring data. 2016 Water Symposium “Water, Infrastructure and the Environment”, 28 November - 2 December 2016, Queenstown, New Zealand.
152. Wilson, S., **Wöhling, T.**, Davidson, P. (2016). Wairau aquifer recharge pathways. 2016 Water Symposium “Water, Infrastructure and the Environment”, 28 November - 2 December 2016, Queenstown, New Zealand.
151. Loschko, M., **Wöhling, T.**, Rudolph, D., Cirpka, O.A. (2016). Cumulative relative reactivity: A concept for modeling aquifer-scale reactive transport. *Water Resources Research*, 52(10), 8117–8137, doi:10.1002/2016WR019080.
150. von Gunten, D., **Wöhling, T.**, Haslauer, C. Merchán, D., Causape, J., Cirpka, O.A. (2016). Using an integrated hydrological model to estimate the usefulness of meteorological drought indices in a changing climate. *Hydrology and Earth System Sciences*, 20, 4159-4175, doi:10.5194/hess-20-4159-2016.

149. Vereecken H, Schnepf A, Hopmans JW, Javaux M, Or D, Roose T, Vanderborght J, Young M, Amelung W, Aitkenhead M, Allison SD, Assouline S, Baveye P, Berli M, Brüggemann N, Finke P, Flury M, Gaiser T, Govers G, Ghezzehei T, Hallett P, Hendricks Franssen HJ, Heppel J, Horn R, Huisman JA, Jacques D, Jonard F, Kollet S, Lafolie F, Lamorski K, Leitner D, McBratney A, Minasny B, Montzka C, Nowak W, Pachepsky Y, Padarian J, Romano N, Roth K, Rothfuss Y, Rowe EC, Schwen A, Šimůnek J, Van Dam J, van der Zee SEATM, Vogel HJ, Vrugt JA, **Wöhling T**, Young IM (2016). Modelling soil processes: Key challenges and new perspectives. *Vadose Zone Journal*, 15(5), 57p, doi:10.2136/vzj2015.09.0131.
148. Hannes, M., Wollschläger, U. **Wöhling, T.**, Vogel, H.-J. (2016). Revisiting hydraulic hysteresis based on long term monitoring of hydraulic states in lysimeters. *Water Resources Research*. 52, 3847-3865, doi: 10.1002/2015WR018319.
147. Hartmann, A., Šimůnek, J., **Wöhling, T.**, Schütze, N. (2016). Integrated Coupling of Surface and Subsurface Flow with HYDRUS-2D, *Geophysical Research Abstracts Vol. 18, EGU2016-3545, EGU General Assembly 2016.*
146. Wilson, S., **Wöhling, T.**, Davidson, P. (2016). Conceptualisation of groundwater recharge from the Wairau River, New Zealand, *Geophysical Research Abstracts Vol. 18, EGU2016-2727-1, EGU General Assembly 2016.*
145. Schöniger, A., Illman, W., **Wöhling, T.**, Nowak, W. (2016). Which level of model complexity is justified by your data? A Bayesian answer, *Geophysical Research Abstracts Vol. 18, EGU2016-12413, EGU General Assembly 2016.*
144. Gosses, M., **Wöhling, T.**, Moore, C., Nowak, W. (2016). Model reduction in coupled groundwater-surface water systems - potentials and limitations of the applied proper orthogonal decomposition (POD) method, *Geophysical Research Abstracts Vol. 18, EGU2016-6012, EGU General Assembly 2016.*
143. **Wöhling, T.**, Gosses, M., Davidson, P., Wadsworth, V., Wilson, S. (2016). Analysis of long-term groundwater storage trends in the Wairau aquifer, New Zealand, *Geophysical Research Abstracts Vol. 18, EGU2016-5922, EGU General Assembly 2016.*
142. Weller, W., Hannes, M., Wollschläger, U., **Wöhling T.**, Vogel, H.-J. (2016). Te soil water retention curve: a rare beauty that's hard to observe in the field. *Geophysical Research Abstracts Vol. 18, EGU2016-14436, EGU General Assembly 2016.*
141. Loschko, M., **Wöhling, T.**, Rudolph, D., Cirpka, O.A. (2016). Cumulative Relative Reactivity: A Tool for Catchment-Scale Reactive Transport. 25. Tagung der Fachsektion Hydrogeologie in der DGGV 2016, Karlsruher Institut für Technologie (KIT), 13.-17. April 2016.
140. Woodward, S.J.R., **Wöhling, T.**, Stenger, R. (2016) Null Space Monte Carlo modelling of groundwater flow paths. Uncertainty Workshop, Commodore Hotel, Christchurch, 7-8 April 2016.
139. Woodward, S.J.R., Orduña Alegria, M.E., **Wöhling, T.**, Stenger, R. (2016) Markov Chain Monte Carlo calibration of a lumped catchment model (StreamGEM) to monthly stream samples. Uncertainty Workshop, Commodore Hotel, Christchurch, 7-8 April 2016.
138. **Wöhling, T.**, Geiges, A., Nowak, W. (2016). Optimal design of multi-type groundwater monitoring networks using easily accessible tools. *Groundwater*, 54 (6), 861-870, doi: 10.1111/gwat.12430.
137. Woodward, S.J.R., **Wöhling T.**, Stenger, R. (2016). Uncertainty in the modelling of spatial and temporal patterns of shallow groundwater flow paths: the role of geological and hydrological site information. *Journal of Hydrology*, 534, 680-694, doi: 10.1016/j.jhydrol.2016.01.045.

2015

136. von Gunten, D., Haslauer, C., **Wöhling, T.**, Rudolf, D., Cirpka, O.A. (2015). Integrated modeling of climate change impacts in an irrigated, semi-arid catchment (Lerma, Spain). *AGU Fall Meeting, San Francisco, 14-18 December, 2015.*
135. **Wöhling, T.**, Gosses, M. Troyer, J., Ede, M., Davidson, P., Wilson, S. (2015). Towards modelling Wairau river - aquifer exchange flux dynamics: Data integration and upscaling. 2015 NZHS Conference, 1-4 December Waikato University, Hamilton, New Zealand.

134. Stenger, R., Wilson, S.R., Barkle, G.F., Close, M.E., Woodward, S.J.R., Burbery, L.F., Pang, L., Rekker, J., **Wöhling, T.**, Clague, J.C., McDowell, R., Tomas, S., Clothier, B., Lilburne, L., Miller, B. (2015). Transfer pathways - New research to improve contaminant transfer understanding. 2015 NZHS Conference, 1-4 December Waikato University, Hamilton, New Zealand.
133. Woodward, S.J.R., Orduña Alegría, M.E., **Wöhling, T.**, Stenger, R. (2015). Uncertainty of catchment nitrate flux estimated calculated using the “StreamGem” approach using monthly monitoring data. 2015 NZHS Conference, 1-4 December Waikato University, Hamilton, New Zealand.
132. Woodward, S.J.R., **Wöhling, T.**, Stenger, R. (2015). Uncertainty in modelling groundwater flow paths based on head data alone: Te Waihora hillslope, Taupo. 2015 NZHS Conference, 1-4 December Waikato University, Hamilton, New Zealand.
131. Wilson, S., **Wöhling, T.**, Davidson, P. (2015). Conceptualisation of groundwater recharge from a braided river: Te Wairau Fan. 5th Alluvial Fans Conference, 30 Nov - 4 Dec 2015 University of Canterbury, Christchurch, New Zealand.
130. Schöniger, A., **Wöhling, T.**, Nowak, W. (2015). A statistical concept to assess the uncertainty in Bayesian model weights and its impact on model ranking. *Water Resources Research*, 51(7), 7524–7546, doi: 10.1002/2015WR016918.
129. von Gunten, D., **Wöhling, T.**, Haslauer, C. Merchán, D., Causape, J., Cirpka, O.A. (2015). Estimating climate-change effects on a Mediterranean catchment under various irrigation conditions. *Journal of Hydrology Regional Studies*, 4, 550-570, doi: 10.1016/j.ejrh.2015.08.001.
128. Schöniger, A., Illman, W., **Wöhling, T.**, Nowak, W. (2015). Finding the right balance between groundwater model complexity and experimental effort via Bayesian Model selection. *Journal of Hydrology*, 531(1), 96-110, doi: 10.1016/j.jhydrol.2015.07.047.
127. **Wöhling, T.**, Geiges, A., Gosses, M., Nowak, W. (2015). Differences between fully Bayesian and pragmatic methods to assess predictive uncertainty and optimal monitoring designs. *Geophysical Research Abstracts Vol. 17, EGU2015-4056, EGU General Assembly 2015.*
126. Nowak, W., **Wöhling, T.**, Schöniger, A. (2015). Lessons Learned from a Past Series of Bayesian Model Averaging studies for Soil/Plant Models. *Geophysical Research Abstracts Vol. 17, EGU2015-10293-1, EGU General Assembly 2015.*
125. Schöniger, A., **Wöhling, T.**, Samaniego, L., Nowak, W. (2015). On the Various (Good and Bad) Ways to Evaluate Bayesian Model Weights. *Geophysical Research Abstracts Vol. 17, EGU2015-2084-2, EGU General Assembly 2015.*
124. **Wöhling, T.**, Gosses, M., Wilson, S., Davidson, P. (2015). Modelling perched river recharge to the Wairau aquifer, New Zealand. *Geophysical Research Abstracts Vol. 17, EGU2015-4051, EGU General Assembly 2015.*
123. von Gunten, D., **Wöhling, T.**, Haslauer, C., Cirpka, O. (2015). Effects of climate and irrigation changes on the water balance of a Mediterranean catchment. *Geophysical Research Abstracts Vol. 17, EGU2015-3304, EGU General Assembly 2015.*
122. Gosses, M., **Wöhling, T.**, Wilson, S., Davidson, P. (2015). Investigations of river-groundwater exchange fluxes in the Wairau River. *International Conference on Integrated Hydrosystem Modelling, 7-10 April 2015, Tübingen, Germany.*
121. von Gunten, D., **Wöhling, T.**, Haslauer, C., Cirpka, O. (2015). Integrated modelling of surface-subsurface flow under changing climate and land-use scenarios. *International Conference on Integrated Hydrosystem Modelling, 7-10 April 2015, Tübingen, Germany.*
120. **Wöhling, T.**, Schöniger, A., Gayler, S., Nowak, W. (2015). Bayesian model averaging to explore the worth of data for maximum-confidence soil-plant model selection and prediction. *Water Resources Research*. 51, 2825-2846, doi:10.1002/2014WR016292.
119. Wilson, S., **Wöhling, T.**, (2015). Wairau river-Wairau aquifer interaction. Report 1003-5-R1, Marlborough District Council, Blenheim, New Zealand, 49p. <http://www.envirolink.govt.nz/Envirolink-reports/1-NLCC1/1514-MLDC96>.

118. Schöniger, A., **Wöhling, T.**, Nowak, W. (2014). How to address measurement noise in Bayesian Model Averaging. AGU Fall Meeting, San Francisco, 15-19 December, 2014.
117. **Wöhling, T.**, Geiges, A., Gosses, M., Nowak, W. (2014). Comparing linear and nonlinear methods for more reliable predictive uncertainty quantification and optimal design of experiments. AGU Fall Meeting, San Francisco, 15-19 December, 2014.
116. von Gunten, D., **Wöhling, T.**, Haslauer, C., Cirpka, O.A. (2014). Projected climate change impacts on a Mediterranean catchment under different irrigation scenarios. AGU Fall Meeting, San Francisco, 15-19 December, 2014.
115. Nowak, W., Schöniger, A., Samaniego, L., **Wöhling, T.** (2014). Model selection on solid ground: Comparison of techniques to evaluate Bayesian evidence. AGU Fall Meeting, San Francisco, 15-19 December, 2014.
114. Barkle, G., Stenger, R., **Wöhling, T.**, Clough, T., Clague, J. (2014). Dissolved organic carbon and nitrogen leaching through a volcanic vadose zone. NZ Society of Soil Science Conference "Soil Science for Future Generations", 1 - 4 December 2014, University of Waikato, Hamilton, New Zealand.
113. **Wöhling, T.**, Gosses, M., Wilson, S., Davidson, P. (2014). Modelling Wairau river-groundwater exchange fluxes. 2014 Water Symposium "Integration: the Final Frontier", 24-28 November 2014, Blenheim, New Zealand.
112. Wilson, S., Davidson, P., **Wöhling, T.** (2014). Evidence for perched aquifer recharge from the Wairau river. 2014 Water Symposium "Integration: the Final Frontier", 24-28 November 2014, Blenheim, New Zealand.
111. Schöniger, A., **Wöhling, T.**, Samaniego, L., Nowak, W. (2014). Model selection on solid ground: Rigorous comparison of nine ways to evaluate Bayesian model evidence. *Water Resources Research*, 50(12), 9484–9513, doi:10.1002/2014WR016062.
110. von Gunten, D., **Wöhling, T.**, Haslauer, C. Merchán, D., Causape, J., Cirpka, O.A. (2014). Efficient calibration of a distributed pde-based hydrological model using grid coarsening. *Journal of Hydrology*, 519, 3290-3304.
109. Lemke, D., González-Pinzón, R., Liao, Z., **Wöhling, T.**, Osenbrück, K., Haggerty, R., Cirpka, O.A. (2014). Sorption and transformation of the reactive tracers resazurin and resorufin in natural river sediments. *Hydrology and Earth System Sciences*, 18, 3151–3163.
108. Barkle, G.F., Stenger, R. and **Wöhling, T.** (2014). Fate of urine nitrogen through a volcanic vadose zone and into shallow groundwater. *Soil Research*, 52 (7), 658-670.
107. Schöniger, A., **Wöhling, T.**, Nowak, W. (2014). Model selection on solid ground: Comparison of techniques to evaluate Bayesian evidence. XX. International Conference on Computational Methods on Water Resources (CMWR), 10th - 13th June, 2014, Stuttgart, Germany.
106. von Gunten, D., **Wöhling, T.**, Haslauer, C., Cirpka, O.A. (2014). Grid simplification to accelerate calibration of integrated catchment models: Accuracy vs. efficiency. XX. International Conference on Computational Methods on Water Resources (CMWR), 10th - 13th June, 2014, Stuttgart, Germany.
105. Schöniger, A., **Wöhling, T.**, Nowak, W. (2014). How reliable is Bayesian Model Averaging under noisy data? Statistical assessment and implications for robust model selection. *Geophysical Research Abstracts Vol. 16*, EGU2014-2211, EGU General Assembly 2014.
104. **Wöhling, T.**, Gosses, M., Osenbrück, K. (2014). Increased reliability of mean travel time predictions of river-groundwater exchange fluxes using optimal design techniques. *Geophysical Research Abstracts Vol. 16*, EGU2014-3760, EGU General Assembly 2014.
103. Gayler, S., **Wöhling, T.**, Grzeschik, M., Ingwersen, J., Wizemann, H.-D., Högy, P., Attinger, S., Streck, T., Wulfmeyer, V. (2014). Incorporating dynamic root growth enhances the performance of Noah-MP at two contrasting winter wheat field sites. *Geophysical Research Abstracts Vol. 16*, EGU2014-5887, EGU General Assembly 2014.

102. Wilson, S., **Wöhling, T.**, Davidson, P (2014). Assessing river-groundwater exchange fluxes of the Wairau River, New Zealand. Geophysical Research Abstracts Vol. 16, EGU2014-4421, EGU General Assembly 2014.
101. **Wöhling, T.**, Barkle, G.F., Stenger, R., Moorhead, B., Wall, A., Clague, J. (2014). Accurate measurements of vadose zone fluxes using automated equilibrium tension plate lysimeters: A synopsis of results from the Spydia research facility, New Zealand. Geophysical Research Abstracts Vol. 16, EGU2014-3735, EGU General Assembly 2014.
100. Gayler, S., **Wöhling, T.**, Grzeschik, M., Ingwersen, J., Wizemann, H.-D., Högy, P., Attinger, S., Streck, T., Wulfmeyer, V. (2014). Incorporating dynamic root growth enhances the performance of Noah-MP ensemble simulations at two contrasting winter wheat field sites. Water Resources Research, 50(2), 1337-1356, doi: 10.1002/2013WR014634.
99. Stenger, R., Clague, J., Woodward, S., Moorhead, B., Wilson, S., Shokri, A., **Wöhling, T.** and Canard, H. (2014). Root zone losses are just the beginning. In: Nutrient Management, for the farm, catchment and community. (Eds L.D. Currie and C L. Christensen). Occasional report of the 27th Annual FLRC Workshop. 18-20 February 2014, Fertilizer and Lime Research Centre, Massey University, Palmerston North, New Zealand.
98. Barkle, G.F., **Wöhling, T.** and Stenger, R. (2014). Variability of unsaturated Bromide fluxes as measured through a layered volcanic vadose zone in New Zealand. Hydrological Processes, 28, 6080-6097.

2013

97. **Wöhling, T.**, Gayler, S., Priesack, E., Ingwersen, J., Wizemann, H.-D., Högy, P., Cuntz, M., Attinger, S., Wulfmeyer, V., Streck, T. (2013). Multiresponse, multiobjective calibration as a diagnostic tool to compare accuracy and structural limitations of five coupled soil-plant models and CLM3.5. Water Resources Research, 49(12), 8200-8221, doi: 10.1002/2013WR014536.
96. **Wöhling, T.**, Schöniger, A., Geiges, A., Nowak, W., Gayler, S. (2013). Evaluating experimental design for soil-plant model selection using a Bootstrap Filter and Bayesian model averaging. AGU Fall Meeting, San Francisco, 9-13 December, 2013.
95. Schöniger, A., Nowak, W., **Wöhling, T.** (2013). Do Bayesian Model Weights Tell the Whole Story? New Analysis and Optimal Design Tools for Maximum-Confidence Model Selection. AGU Fall Meeting, San Francisco, 9-13 December, 2013.
94. Woodward, S., **Wöhling, T.**, Stenger, R., Bidwell, V.J. (2013). How reliable is a model calibration? Markov chain Monte Carlo analysis of a catchment model calibration to stream monitoring data. NZ Hydrological Society Conference, Water & Weather: Solutions for Health, Wealth, & Environment, 19-22 November 2013, Palmerston North, New Zealand.
93. Stenger, R., Clague, J., Woodward, S., Moorhead, B., Wilson, S., Shokri, A., **Wöhling, T.**, Canard, H. (2013). Denitrification - the key component of a groundwater system's assimilative capacity for nitrate. NZ Hydrological Society Conference, 19-22 November 2013, Palmerston North, New Zealand.
92. Barkle, G., Stenger, R., **Wöhling, T.** (2013). Fate of nitrogen from dairy cow urine through a volcanic vadose zone and shallow groundwater. NZ Hydrological Society Conference, 19-22 November 2013, Palmerston North, New Zealand.
91. **Wöhling, T.**, Geiges, A., Nowak, W., Gayler, S., Högy, P. and Wizemann, H.-D. (2013). Towards optimizing experiments for maximum-confidence model selection between different soil-plant models. Four decades of progress in monitoring and modelling of processes in the soil-plant-atmosphere system: Applications and challenges. 19-21 June 2013, Naples, Italy, Procedia Environmental Sciences, 19, 514-523, doi: 10.1016/j.proenv.2013.06.058.
90. Lemke, D., Liao, Z., **Wöhling, T.**, Osenbrück, K., Cirpka, O.A. (2013) Concurrent conservative and reactive tracer tests in a stream undergoing hyporheic exchange. Water Resources Research. 49(5), 3024-3037.

89. **Wöhling, T.**, Samaniego, L., Kumar, R. (2013). Evaluating multiple performance criteria to calibrate the distributed hydrological model of the Upper Neckar catchment. *Environ. Earth Sci.* 69 (2), 453-468, Special Issue on Catchment Research, doi: 10.1007/s12665-013-2306-2.
88. Gayler, S. Ingwersen, J., Priesack, E., **Wöhling, T.**, Wulfmeyer, V., Streck, T. (2013). Assessing the relevance of sub surface processes for the simulation of evapotranspiration and soil moisture dynamics with CLM3.5: Comparison with field data and crop model simulations. *Environmental Earth Sciences*, 69 (2), 415-427, doi: 10.1007/s12665-013-2309-z.
87. Grathwohl, P., Rügner, H., **Wöhling, T.**, Osenbrück, K., Schwientek, M., Gayler, S., Wollschläger, U., Selle, B., Pause, M., Delfs, J.-O., Grzeschik, M., Weller, U., Ivanov, M., Cirpka, O.A., Maier, U., Kuch, B., Nowak, W., Wulfmeyer, V., Warrach-Sagi, K., Streck, T., Attinger, S., Bilke, L., Dietrich, P., Fleckenstein, J.H., Kalbacher, T., Kolditz, O., Rink, K., Samaniego, L., Vogel, H.-J., Werban, U., Teutsch, G. (2013): Catchments as Reactors: A comprehensive approach for water fluxes and solute turn-over. *Environ. Earth Sci.* 69 (2), 317-333, doi: 10.1007/s12665-013-2281-7.
86. Osenbrück, K., **Wöhling, T.**, Lemke, D., Rohrbach, N., Schwientek, M., Leven, C., Castillo Alvarez, C., Taubald, H., Cirpka, O.A. (2013). Assessing hyporheic exchange and associated travel times by hydraulic, chemical, and isotopic monitoring at the Steinlach Test Site, Germany. *Environmental Earth Sciences*, 69 (2), 359-372, doi: 10.1007/s12665-012-2155-4.
85. Caldwell, T.J., **Wöhling, T.**, Young, M.H., Boyle, D.P., McDonald, E.V. (2013). Characterizing disturbed desert soils using multi-objective inverse parameter optimization. *Vadose Zone Journal*, 12(1), 1-23, doi:10.2136/vzj2012.0083.201
84. von Gunten, D., **Wöhling, T.**, Haslauer, C., Cirpka, O.A. (2013). Model grid simplification to accelerate calibration - A catchment-scale case study. 3rd International HydroGeoSphere User Conference, 3-5 April, 2013, University of Neuchâtel, Switzerland.
83. Gayler, S. Ingwersen, J., Priesack, E., **Wöhling, T.**, Wulfmeyer, V., Streck, T. (2013). Assessing the relevance of sub surface processes for the simulation of evapotranspiration and soil moisture dynamics with CLM3.5: Comparison with field data and crop model simulations. TR32-HOBE International Symposium, 11-14 March 2013, Bonn, Germany.
82. Barkle, G.F., Stenger, R., **Wöhling, T.**, Moorhead, B., Wall, A., Clague, J. (2013). Fate of dairy cow urine puls in a layered volcanic vadose zone. In: Accurate and efficient use of nutrients on farms. (Eds L.D. Currie and C L. Christensen). <http://frc.massey.ac.nz/publications.html>. Occasional Report No. 26. Fertilizer and Lime Research Centre, Massey University, Palmerston North, New Zealand. 15 pages.
81. Stenger, R., Clague, J., Woodward, S., Moorhead, B., Wilson, S., Shokri, A., **Wöhling, T.** and Canard, H. (2013). Denitrification - Te key component of a groundwater system's assimilative capacity for nitrate. In: Accurate and efficient use of nutrients on farms. (Eds L.D. Currie and C L. Christensen). Occasional Report No. 26. Fertilizer and Lime Research Centre, Massey University, Palmerston North, New Zealand. 11 pages.
80. Gayler, S., **Wöhling, T.**, Fangmeier, A., Högy, P., Ingwersen, J., Wizemann, H.-D., Wulfmeyer, V., Streck, T. (2013). Evaluating the performance of Noah-MP at contrasting agricultural field sites in South-West Germany. Four decades of progress in monitoring and modelling of processes in the soil-plant-atmosphere system: Applications and challenges. 19-21 June 2013, Naples, Italy.
79. **Wöhling, T.**, Geiges, A., Nowak, W., Gayler, S. (2013). Evaluating experimental design for soil-plant model selection with Bayesian model averaging. *Geophysical Research Abstracts Vol. 15*, EGU2013-3942, EGU General Assembly 2013.
78. **Wöhling, T.**, Gosses, M.J., Leyes Pérez, M., Geiges, A., Moore, C.R., Osenbrück, K., Scott, D.M. (2013). Optimizing monitoring design to increase predictive reliability of groundwater flow models at different scales. *Geophysical Research Abstracts Vol. 15*, EGU2013-3981, EGU General Assembly 2013.
77. Gayler, S., **Wöhling, T.**, Högy, P. Ingwersen, J., Wizemann, H.-D., Wulfmeyer, V., Streck, T. (2013). Comparing Noah-MP simulations of energy and water fluxes in the soil-vegetation-atmosphere continuum with plot scale measurements. *Geophysical Research Abstracts Vol. 15*, EGU2013-6052, EGU General Assembly 2013.

76. **Wöhling, T.**, Bidwell, V.J., Barkle, G.F. (2012). Dual-tracer, non-equilibrium mixing cell modelling and uncertainty analysis for unsaturated bromide and chloride transport. *Journal of Contaminant Hydrology*. 140-141, 150-163, doi: 10.1016/j.jconhyd.2012.08.001.
75. Philipp, A., Liedl, R., **Wöhling, T.** (2012) An analytical model of surface flow on hillslopes based on the zero inertia equations. *Journal of Hydraulic Engineering*, 138 (5), 391-399, doi: 10.1061/(ASCE)HY.1943-7900.0000519.
74. **Wöhling, T.**, Gosses, M.J., Brettschneider, M., Moore, C.R., Geiges, A., Samaniego, L., Kumar, R., Scott, D.M., Close, M., Nowak, W. (2012). Optimization of monitoring networks to reduce predictive uncertainty of a hydrological model and a regional groundwater flow model. NZ Hydrological Society Conference, Water: Know your limits, 27-30 November 2012, Nelson, New Zealand.
73. Barkle, G., **Wöhling, T.**, Stenger, R., Moorhead, B., Wall, A., and Clague, J. (2012). Measuring flow variability in a layered, volcanic vadose zone using a conservative tracer and nitrate isotopic analysis. NZ Hydrological Society Conference, Water: Know your limits, 27-30 November 2012, Nelson, New Zealand.
72. Barkle, G., Stenger, R., **Wöhling, T.**, Moorhead, B., Wall, A., and Clague, J. (2012). Fate of a dairy cow urine pulse in a layered volcanic vadose zone. NZ Hydrological Society Conference, Water: Know your limits, 27-30 November 2012, Nelson, New Zealand.
71. **Wöhling, T.**, Samaniego, L., Kumar, R., Zink, M. (2012). Regional stochastic estimation of the groundwater catchment for distributed hydrological modelling. EGU General Assembly Vienna, Austria, 22 – 27 April 2012. Geophysical Research Abstracts Vol. 14, EGU2012-7494.
70. Gosses, M.J., **Wöhling, T.**, Moore, C., Dann, R., Scott, D.M., Close, M. (2012). Model-based evaluation of subsurface monitoring networks for improved efficiency and predictive certainty of regional groundwater models. EGU General Assembly Vienna, Austria, 22 – 27 April 2012. Geophysical Research Abstracts Vol. 14, EGU2012-7825.
69. Gayler, S., **Wöhling, T.**, Priesack, E., Wizemann, H.-D., Wulfmeyer, V., Ingwersen, J., Sreck, T. (2012). Comparing the performance of coupled soil-vegetation-atmosphere models at two contrasting field sites in South-West Germany. EGU General Assembly Vienna, Austria, 22 – 27 April 2012. Geophysical Research Abstracts Vol. 14, EGU2012-10361.
68. Osenbrück, K., **Wöhling, T.**, Lemke, D., Schwientek, M., Callisto Alvarez, M.C., Cirpka, O.A. (2012). Monitoring of lateral hyporheic exchange fluxes and hyporheic travel times at the newly established Steinlach Test Site, Germany. EGU General Assembly Vienna, Austria, 22 – 27 April 2012. Geophysical Research Abstracts Vol. 14, EGU2012-10405.
67. Gayler, S., **Wöhling, T.**, Priesack, E., Ingwersen, J., Wizemann, H.-D., Högy, P., Fangmeier, A., Wulfmeyer, V., Streck, T. (2012) Multikriterielle Kalibrierung gekoppelter Boden-Pflanze-Atmosphäre Modelle. (in German) Tag der Hydrologie 2012, March 22-23, 2012, Freiburg, Germany.
66. **Wöhling, T.**, Samaniego, L., Kumar, R., Zink, M. (2012). Regional stochastic estimation of the groundwater catchment for distributed hydrological modelling. EGU General Assembly Vienna, Austria, 22 – 27 April 2012. Geophysical Research Abstracts Vol. 14, EGU2012-7494.
65. Gosses, M.J., **Wöhling, T.**, Moore, C.R., Dann, R., Scott, D.M., Close, M. (2012). Model-based evaluation of subsurface monitoring networks for improved efficiency and predictive certainty of regional groundwater models. EGU General Assembly Vienna, Austria, 22 – 27 April 2012. Geophysical Research Abstracts Vol. 14, EGU2012-7825.
64. Gayler, S., **Wöhling, T.**, Priesack, E., Wizemann, H.-D., Wulfmeyer, V., Ingwersen, J., Streck, T. (2012). Comparing the performance of coupled soil-vegetation-atmosphere models at two contrasting field sites in South-West Germany. EGU General Assembly Vienna, Austria, 22 – 27 April 2012. Geophysical Research Abstracts Vol. 14, EGU2012-10361.
63. Osenbrück, K., Lemke, D., Schwientek, M., Callisto Alvarez, M.C., **Wöhling, T.**, Cirpka, O.A. (2012). Monitoring of lateral hyporheic exchange fluxes and hyporheic travel times at the newly established Steinlach Test Site, Germany. EGU General Assembly Vienna, Austria, 22 – 27 April 2012. Geophysical Research Abstracts Vol. 14, EGU2012-10405.

2011

62. Barkle, G.F., **Wöhling, T.**, Stenger, R., Mertens, J., Moorhead, B., Wall, A. and Clague, J. (2011). Automated equilibrium tension lysimeters for measuring water fluxes through a layered, volcanic vadose profile in New Zealand. *Vadose Zone Journal*, 10(2), 747-759, doi: 10.2136/vzj2010.0091.
61. Köhne, J.M., **Wöhling, T.**, Pot, V., Benoit, P., Leguédou, S., Le Bissonnais, Y., Šimůnek, J. (2011) Coupled simulation of surface runoff and soil water flow using multi-objective parameter estimation. *Journal of Hydrology*, 403, 141-156.
60. **Wöhling, T.**, Vrugt, J.A. (2011). Multi-response multi-layer vadose zone model calibration using Markov chain Monte Carlo simulation and field water retention data. *Water Resources Research*, 47, W04510, doi:10.1029/2010WR009265.
59. **Wöhling, T.**, Barkle, G.F., Bidwell, V.J., Dann, R., Wall, A., Moorhead, B., Clague, J., Vrugt, J.A. (2011). Dual-domain mixing cell modelling and uncertainty analysis for unsaturated bromide and chloride transport. *Sustaining Our Future - Proceedings of the MODSIM11 International Congress on Modelling and Simulation*, December 12 - 16 2011, Perth, Australia.
58. Moore, C.R., **Wöhling, T.** and Wolf, L. (2011) Optimisation of monitoring data for increased predictive reliability of regional water allocation models. *Sustaining Our Future - Proceedings of the MODSIM11 International Congress on Modelling and Simulation*, December 12 - 16 2011, Perth, Australia.
57. **Wöhling, T.**, Gayler, S., Ingwersen, J. Streck, T., Vrugt, J.A. & Priesack, E. (2011). Multi-objective calibration of coupled soil-vegetation-atmosphere models. *Models - Repositories of Knowledge, Proceedings ModelCARE2011*, September 19-22, 2011, Leipzig, Germany, IAHS Publ. 355, 2012, pp. 357-363.
56. **Wöhling, T.**, Barkle, G.F., Bidwell, V.J., Dann, R., Wall, A., Moorhead, B., Clague, J., Vrugt, J.A. (2011). Modelling uncertainty of variable bromide and chloride transport in a volcanic vadose zone. *50th Annual Conference of the NZ Hydrological Society, Learning from the past: Creating the future*, 5-9 December 2011, Wellington, New Zealand.
55. Barkle, G.F., **Wöhling, T.**, Moorhead, B., Wall, A., Stenger, R., and Clague, J. (2011). Non-point source pollution: what happens between the root zone and the groundwater? *15th International Conference on Diffuse Pollution & Eutrophication (DIPCON)*, Rotorua, New Zealand: 18 - 23 September 2011.
54. Barkle, G.F., Stenger, R., **Wöhling, T.**, Wall, A., and Bidwell, V. (2011). Understanding flow paths of diffuse pollution by separating stream flow into groundwater and event water contributions. *15th International Conference on Diffuse Pollution & Eutrophication (DIPCON)*, Rotorua, New Zealand: 18 - 23 September 2011.
53. Köhne, J.M., **Wöhling, T.**, Pot, V. and Šimůnek, J. (2011). Inverse coupled simulation of soil water flow and surface runoff. *EGU General Assembly Vienna, Austria*, 03 – 08 April 2011. *Geophysical Research Abstracts Vol. 13*, EGU2011-6138.
52. Caldwell, T.G., **Wöhling, T.**, Flerchinger, G., Young, M.H., McDonald, E.V. and Hardegree, S.P. (2011). Inverse modeling water contents of semiarid soils using multi-objective parameter optimization. *Fundamental for Life: Soil, Crop, & Environmental Sciences. ASA - CSSA - SSSA International Annual Meeting*, Oct. 16-19, 2011, San Antonio, TX.
51. **Wöhling, T.**, Samaniego, L. and Kumar, R. (2011). Evaluation of Different Performance Criteria for Calibrating Conceptual Hydrological Models. *EGU General Assembly Vienna, Austria*, 03 – 08 April 2011. *Geophysical Research Abstracts Vol. 13*, EGU2010-6832.
50. Grzeschik, M., **Wöhling, T.** and Schwitalla, T. (2011). Contribution of different observation types to data assimilation. *EGU General Assembly Vienna, Austria*, 03 – 08 April 2011. *Geophysical Research Abstracts Vol. 13*, EGU2010-13245.

2010

49. Dann, R., Bidwell, V., Tomas, S., **Wöhling, T.**, Close, M. (2010). Modelling of Nonequilibrium Bromide Transport through Alluvial Gravel Vadose Zones. *Vadose Zone Journal*, 9, 731-746.

48. Moore, C., **Wöhling, T.**, Doherty, J. (2010). Efficient regularization and uncertainty-analysis using global optimization methodology. *Water Resources Research*, 46, W08527, doi:10.1029/2009WR008627.
47. Janssen, M., Lennartz, B. and **Wöhling, T.** (2010). Percolation losses in paddy fields with a dynamic soil structure: Model development and applications. *Hydrological Processes*, 24, 813-824.
46. Barkle, G.F., **Wöhling, T.**, Wall, A., Moorhead, B., Clague, J. (2010). Estimating the Nitrate load from the rootzone to groundwater. *Water: Te Blue Gold. Annual Conference of the New Zealand Hydrological Society*, 6 - 10 December 2010, Dunedin, New Zealand.
45. Schütze, N., **Wöhling, T.**, de Paly, M. (2010) A comparative study of three simulation optimization algorithms for solving high dimensional multi-objective optimization problems in water resources. *EGU General Assembly Vienna, Austria*, 02 – 07 May 2010. *Geophysical Research Abstracts Vol. 12*, EGU2010-11269.

2009

44. **Wöhling, T.**, Schütze, N., Heinrich, B., Šimůnek, J. and Barkle, G.F. (2009) Tree-dimensional modeling of multiple Automated Equilibrium Tension Lysimeters to measure vadose zone fluxes. *Vadose Zone Journal*, 8(4), 1051–1063.
43. **Wöhling, T.** (2009). Does vadose zone forecasting depend on the type of calibration data? In Anderssen, R.S., R.D. Braddock and L.T.H. Newham (eds) 18th World IMACS Congress and MODSIM09 International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand and International Association for Mathematics and Computers in Simulation, July 2009, pp. 2377-2383. ISBN: 978-0-9758400-7-8.
42. **Wöhling, T.**, Barkle, G.F., Moorhead, B., Clague, J., Wall, A. (2009). Bromide transport modeling at the Spydia site, New Zealand. *Waters for the Future: Balancing its values. Te New Zealand Hydrological Society and Freshwater Science Society Conference.*, 23 - 27 November 2009, Whangarei, New Zealand.
41. Moore, C., **Wöhling, T.**, Doherty, J. (2009). Efficient regularisation and uncertainty analysis using a global optimisation methodology. *Waters for the Future: Balancing its values. Te New Zealand Hydrological Society and Freshwater Science Society Conference.*, 23 - 27 November 2009, Whangarei, New Zealand.
40. Woodward, S.J.R., **Wöhling, T.**, Rajanayaka, C., Wang, F. (2009). 3D modelling of nitrogen attenuation in coupled vadose zone - groundwater systems. *Waters for the Future: Balancing its values. Te New Zealand Hydrological Society and Freshwater Science Society Conference.*, 23 - 27 November 2009, Whangarei, New Zealand.
39. Barkle, G.F., **Wöhling, T.**, Stenger, R., Clough, T., Moorhead, B., Clague, J., Wall, A. (2009). Investigating the role of the vadose zone in attenuation of contaminants. *Waters for the Future: Balancing its values. Te New Zealand Hydrological Society and Freshwater Science Society Conference.*, 23 - 27 November 2009, Whangarei, New Zealand.

2008

38. **Wöhling, T.**, Vrugt, J.A. (2008). Combining multi-objective optimization and Bayesian model averaging to calibrate forecast ensembles of soil hydraulic models. *Water Resources Research*, 44, W12432, doi:10.1029/2008WR007154.
37. Vrugt, J.A., Stauffer, P.H., **Wöhling, T.**, Robinson, B.A. and Vesselinov, V.V. (2008). Inverse modeling of subsurface flow and transport properties: A review with new developments. *Vadose Zone Journal*, 7(2), 843-864.
36. **Wöhling, T.**, Barkle, G.F., Vrugt, J.A. (2008). Comparison of three multiobjective optimization algorithms for inverse modeling of vadose zone hydraulic properties. *Soil Science Society of America Journal*, 72(2), 305-319.
35. **Wöhling, T.**, Vrugt, J.A. (2008). Uncertainty of Vadose Zone Modelling using Model Ensembles and Bayesian Model Averaging. *Proceedings of Water Down Under 2008 incorporating the 31st Hydrology and Water Resources Symposium and the 4th International Conference on Water Resources and Environmental Research*. 14-17 April 2008, Adelaide, Australia.

34. **Wöhling, T.**, Barkle, G. F., Schütze, N., Wang, F., Schmitz, G.H., Liedl, R. (2008). Interacting Vadose Zone – Groundwater Flow at the Spydia site, Lake Taupo. Soils 2008. 1-5 December 2008, Palmerston North, New Zealand.
33. Barkle, G. F., Stenger, R., **Wöhling, T.**, Clough, T., Wall, A., Clague, J. (2008). Fate of contaminants moving through a Taupo vadose zone. Soils 2008. 1-5 December 2008, Palmerston North, New Zealand.
32. **Wöhling, T.**, Rajanayaka, C., Stenger, R. Barkle, G. F., Wall, A. (2008). Subsurface Hydrology Investigations at the Spydia site, Lake Taupo. Extremes: Joint NZHS and MSHZ Annual Conference. 18-20 November 2008, Shantytown/Greymouth, New Zealand.
31. Heinrich, Ben, **Wöhling, T.**, Schütze, N. (2008). 3D-Modelling of unsaturated waterflow at the SPYDIA site, Lake Taupo. Extremes: Joint NZHS and MSHZ Annual Conference. 18-20 November 2008, Shantytown/Greymouth, New Zealand.
30. Barkle, G. F., **Wöhling, T.**, Stenger, R., Clough, T., Moorhead, B., Clague, J., Wall, A. (2008). Measuring Water, Contaminant Fluxes and Gases through a Taupo Vadose Zone. Extremes: Joint NZHS and MSHZ Annual Conference. 18-20 November 2008, Shantytown/Greymouth, New Zealand.
29. Stenger, R., Barkle, G. F., **Wöhling, T.**, Wall, A., Clague, J., Clough, T. (2008). How important is the vadose zone? Sep-wise exploration of a profile in the Lake Taupo catchment. New Zealand Soil Science Society Conference 2006, November 27-30, 2006, Rotorua, New Zealand.
28. **Wöhling, T.**, Barkle, G.F., Stenger, R., Wang, F., Schütze, N. (2008). Water Flow in the Vadose Zone and Groundwater. WISPAS, A newsletter about water in the soil-plant-atmosphere system, HortResearch, New Zealand, 100, ISSN 1176-2292.

2007

27. **Wöhling, T.**, Schmitz, G.H. (2007). A Physically Based Coupled Model for Simulating 1D Surface - 2D Subsurface Flow and Plant Water Uptake in Irrigation Furrows. I: Model Development. Journal of Irrigation and Drainage Engineering. 133(6), 538-547.
26. **Wöhling, T.**, Mailhol, J.C. (2007). A Physically Based Coupled Model for Simulating 1D Surface - 2D Subsurface Flow and Plant Water Uptake in Irrigation Furrows. II: Model Test and Evaluation. Journal of Irrigation and Drainage Engineering. 133(6), 548-558.
25. Schmitz, G.H., Schütze, N. and **Wöhling, T.** (2007). Irrigation control: towards a new solution of an old problem. Volume 5 of IHP/HWRP-Berichte, International Hydrological Programme (IHP) of UNESCO and Te Hydrology and Water Resources Programme (HWRP) of WMO, Koblenz, Germany, 222 pp.
24. Stenger, R., **Wöhling, T.**, Barkle, G. and Wall, A. (2007) Empirical and semi-empirical dielectric permittivity water content relationships for vadose zone materials of volcanic origin. Australian Journal of Soil Research. 45, 299-309.
23. Schmitz, G.H., **Wöhling, T.**, de Paly, M., and Schütze, N. (2007). GAIN-P: A New Strategy to increase furrow irrigation efficiency. Te Arabian Journal for Science and Engineering. 32 (1C), 103-114.
22. Vrugt, J.A., **Wöhling, T.** (2007). Upscaling Soil Hydraulic Properties Using Field-Scale Inverse Modeling and Bayesian Model Averaging. Invited presentation at the AGU Fall Meeting. 10-14 December 2007, San Francisco, CA, USA.
21. **Wöhling, T.**, Vrugt, J.A. (2007). Multiobjective inverse parameter estimation for modelling vadose zone water movement. MODSIM07 - International Congress on Modelling and Simulation. Land, Water & Environmental Management: Integrated Systems for Sustainability. 10-13 December 2007, Christchurch, New Zealand.
20. **Wöhling, T.**, Barkle, G., Stenger, R. Wall, A., Clague, J. (2007). Vadose zone - groundwater investigations at the Spydia site, Lake Taupo. Water and Land. Annual conference of the New Zealand Hydrological Society. November 20-23, 2007, Rotorua, New Zealand.

19. Barkle, G., Wall, A., Bidwell, V., Stenger, R., **Wöhling, T.**, (2007). Using SiO₂ data to separate groundwater and event water contributions to streamflow in the Pukemanga catchment. Water and Land. Annual conference of the New Zealand Hydrological Society. November 20-23, 2007, Rotorua, New Zealand.

2006

18. **Wöhling, T.**, Fröhner, A., Schmitz, G.H. and Liedl, R. (2006). Efficient solution of interacting 1D surface - 2D subsurface flow during furrow irrigation advance. Journal of Irrigation and Drainage Engineering. 132(4), 380-388.
17. **Wöhling, T.**, Lennartz, F. , Zappa, M. (2006). Real-Time Updating Procedure for Flood Forecasting with conceptual HBV-Type Models. Technical Note, Hydrology and Earth System Sciences, Vol. 10, 7-6-2006, pp 783–788.
16. **Wöhling, T.** (2005). Physically based modeling of furrow irrigation systems during a growing season. Volume 2 of Dresdner Schriften zur Hydrologie, ISBN: 3-86005-481-3, PhD thesis at the Institute of Hydrology and Meteorology, Dresden University of Technology, Dresden Germany.
15. Schütze, N., **Wöhling, T.**, de Paly, M., Schmitz, G.H. (2006). Global optimization of deficit irrigation systems using evolutionary algorithms. CMWR XVI - Computational Methods in Water Resources, International Conference, June 19-22, 2006, Copenhagen, Denmark.
14. **Wöhling, T.**, Barkle, G., Stenger, R. Wall, A., Clague, J. (2006). Estimating vertical vadose zone water transport at the Spysia site in the Lake Tauop catchment. Resource management under stormy skies: Water allocation @ the cross roads? Conference of the New Zealand Hydrological Society, New Zealand Association of Resource Management and the Meteorological Society of New Zealand. November 20-23, 2006, University of Canterbury, Christchurch, New Zealand.
13. **Wöhling, T.**, Barkle, G., Stenger, R. Wall, A., Clague, J. (2006). Estimating vertical vadose zone water transport at the Spysia site in the Lake Tauop catchment. Resource management under stormy skies: Water allocation @ the cross roads? Conference of the New Zealand Hydrological Society, New Zealand Association of Resource Management and the Meteorological Society of New Zealand. November 20-23, 2006, University of Canterbury, Christchurch, New Zealand.
12. Lennartz, B., Manon J. and **Wöhling, T.** (2006). Vertical water losses in irrigated rice landscapes model development. European Geosciences Union, General Assembly 2006, Vienna, Austria, 02-07 April, 2006 Lennartz, B., Manon J. and **Wöhling, T.** (2006). Vertical water losses in irrigated rice landscapes model development. Interurban II: Water and organic matter in anthropogenic soils: dynamics and processes, Berlin, Germany, 29-31 March, 2006

2005

11. **Wöhling, T.**, Schütze, N., Schmitz, G.H. (2005). Development and application of a physically-based seasonal furrow irrigation model. Proceedings of the ICID 21st European Regional Conference 2005, Integrated Land and Water Resources Management Towards Sustainable Rural Development. 15 - 19 May 2005, Frankfurt (Oder), Germany and Slubice, Poland.
10. Schütze, N., de Paly, M., **Wöhling, T.**, Schmitz, G.H. (2005). Global optimization of deficit irrigation systems using evolutionary algorithms and neural networks. Proceedings of the ICID 21st European Regional Conference 2005, Integrated Land and Water Resources Management Towards Sustainable Rural Development. 15 - 19 May 2005, Frankfurt (Oder), Germany and Slubice, Poland.
9. **Wöhling, T.**, Schütze, N., Schmitz, G.H. (2005). Seasonal furrow irrigation modelling with HYDRUS2. Workshop on HYDRUS Applications (Torkzaban, S. and S. M. Hassanizadeh (eds.)), Proc. of Workshop on HYDRUS Applications, October 19, 2005, Department of Earth Sciences, Utrecht University, The Netherlands, ISBN 90-39341125, 2005.
8. **Wöhling, T.** (2005). Physically based modeling of furrow irrigation systems during a growing season. Volume 2 of Dresdner Schriften zur Hydrologie, ISBN: 3-86005-481-3, Institute of Hydrology and Meteorology, Dresden University of Technology, Dresden Germany.

2004

7. **Wöhling, T.**, Singh, R., & Schmitz, G.H. (2004). Physically based modeling of interacting surface-subsurface flow during furrow irrigation advance. *Journal of Irrigation and Drainage Engineering*, 130(5), 296-303.
6. **Wöhling, T.**, Schmitz, G.H., & Mailhol, J.C. (2004). Modeling 2D infiltration from irrigation furrows. *Journal of Irrigation and Drainage Engineering*, 130(4), 349-356.
5. Schmitz, G.H., Schütze, N., **Wöhling, T.** (presenter) (2004). A new strategy to increase furrow irrigation efficiency, Proceedings of the International Conference on Emerging Technologies in Agricultural & Food Engineering (etae), Kharagpur, India, December 14-17, 2004.
4. Bandyopadhyay, A., **Wöhling, T.**, Singh, R., Schmitz, G.H. (2004). Inverse soil hydraulic parameter estimation from laboratory experiments, Proceedings of the International Conference on Emerging Technologies in Agricultural & Food Engineering (etae), Kharagpur, India, December 14-17, 2004.
3. Schütze, Niels, **Wöhling, T.**, Paly, M. de, Schmitz, G.H. (2004). Optimization of Furrow Irrigation using Evolutionary Algorithms. In: Fischer, A. (Hrsg.); Fliege, J. (Hrsg.): Workshop on Applied Optimization, 2004.
2. Schmitz, G. H., **Wöhling, T.**, and Schütze, N. (2004). Optimierung des Bewässerungswirkungsgrades zur Sicherung des wachsenden Nahrungsmittelbedarfes. (in German) Conference on water problems of the 21th Century, 14.05.2004, Dresden.
1. Schütze, N., **Wöhling, T.**, de Paly, M., & Schmitz, G.H. (2004). Meeting challenges of the Blue Revolution: increasing irrigation efficiency with soft-computing optimisation methods. In: Workshop on Integrated Water research and Water Management (pp. 93-95).