

LIST OF PUBLICATIONS (PEER-REVIEWED)

Julien Straubhaar / January 2025

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- 2025** • L. Schorpp, **J. Straubhaar**, P. Renard (2025) *A Novel Surface-Based Approach to Represent Aquifer Heterogeneity in Sedimentary Formations*. Water Resources Research, DOI: [10.1029/2024WR038364](https://doi.org/10.1029/2024WR038364)
- 2024** • L. Schorpp, **J. Straubhaar**, P. Renard (2024) *An algorithm for identifying stratigraphic piles from interpreted boreholes*. Frontiers in Earth Science, DOI: [10.3389/feart.2024.1461658](https://doi.org/10.3389/feart.2024.1461658)
- L. Schorpp, **J. Straubhaar**, P. Renard (2024) *From lithological descriptions to geological models: an example from the Upper Aare Valley*. Frontiers in Applied Mathematics and Statistics, DOI: [10.3389/fams.2024.1441596](https://doi.org/10.3389/fams.2024.1441596)
- A. Zhexenbayeva, N. Madani, P. Renard, **J. Straubhaar** (2024) *Using multiple-point geostatistics for geomodeling of a vein-type gold deposit*. Applied Computing and Geosciences, DOI: [10.1016/j.acags.2024.100177](https://doi.org/10.1016/j.acags.2024.100177)
- A. P. Burgoa Tanaka, P. Renard, **J. Straubhaar** (2024) *Fracture density reconstruction using direct sampling multiple-point statistics and extreme value theory*. Applied Computing and Geosciences, DOI: [10.1016/j.acags.2024.100161](https://doi.org/10.1016/j.acags.2024.100161)
- **J. Straubhaar**, P. Renard (2024) *Exploring substitution random functions composed of stationary multi-Gaussian processes*. Stochastic Environmental Research and Risk Assessment, DOI: [10.1007/s00477-024-02662-x](https://doi.org/10.1007/s00477-024-02662-x)
- 2023** • P. Juda, **J. Straubhaar**, P. Renard (2023) *Comparison of three recent discrete stochastic inversion methods and influence of the prior choice*. Comptes Rendus. Géoscience, DOI: [10.5802/crgeos.160](https://doi.org/10.5802/crgeos.160)
- 2022** • P. Juda, P. Renard, **J. Straubhaar** (2022) *A parsimonious parametrization of the Direct Sampling algorithm for multiple-point statistical simulations*. Applied Computing and Geosciences, DOI: [10.1016/j.acags.2022.100091](https://doi.org/10.1016/j.acags.2022.100091)
- L. Schorpp, **J. Straubhaar**, P. Renard (2022) *Automated hierarchical 3D modeling of quaternary aquifers: The ArchPy approach*. Frontiers in Earth Science, DOI: [10.3389/feart.2022.884075](https://doi.org/10.3389/feart.2022.884075)
- 2021** • A. Neven, V. Dall'Alba, P. Juda, **J. Straubhaar**, P. Renard (2021) *Ice volume and basal topography estimation using geostatistical methods and ground-penetrating radar measurements: Application to the Tsanfleuron and Scex Rouge glaciers, Swiss Alps*. The Cryosphere, DOI: [10.5194/tc-15-5169-2021](https://doi.org/10.5194/tc-15-5169-2021)
- M. Sharifzadeh Lari, **J. Straubhaar**, P. Renard (2021) *Efficiency of template matching methods for Multiple-Point Statistics simulations*. Applied Computing and Geosciences, DOI: [10.1016/j.acags.2021.100064](https://doi.org/10.1016/j.acags.2021.100064)
- **J. Straubhaar**, P. Renard (2021) *Conditioning Multiple-Point Statistics Simulation to Inequality Data*. Earth and Space Science, DOI: [10.1029/2020EA001515](https://doi.org/10.1029/2020EA001515)
- 2020** • V. Dall'Alba, P. Renard, **J. Straubhaar**, B. Issautier, C. Duvail, Y. Caballero (2020) *3D multiple-point statistics simulations of the Roussillon Continental Pliocene aquifer using DeeSse*. Hydrology and Earth System Sciences, DOI: [10.5194/hess-24-4997-2020](https://doi.org/10.5194/hess-24-4997-2020)
- P. Juda, P. Renard, **J. Straubhaar** (2020) *A framework for the cross-validation of categorical geostatistical simulations*. Earth and Space Science, DOI: [10.1029/2020EA001152](https://doi.org/10.1029/2020EA001152)
- J. Jiménez-Martínez and A. Alcolea, **J. Straubhaar**, P. Renard (2020) *Impact of phases distribution on mixing and reactions in unsaturated porous media*. Advances in Water Resources, DOI: [10.1016/j.advwatres.2020.103697](https://doi.org/10.1016/j.advwatres.2020.103697)
- D.-T. Lam, P. Renard, **J. Straubhaar**, J. Kerrou (2020) *Multi-resolution approach to condition categorical multiple-point realizations to dynamic data with iterative ensemble smoothing*. Water Resources Research, DOI: [10.1029/2019WR025875](https://doi.org/10.1029/2019WR025875)
- **J. Straubhaar**, P. Renard, T. Chuginova (2020) *Multiple-point statistics using multi-resolution images*. Stochastic Environmental Research and Risk Assessment 20, 251-273, DOI: [10.1007/s00477-020-01770-8](https://doi.org/10.1007/s00477-020-01770-8)

- 2019**
- P.-O. Bruna, **J. Straubhaar**, R. Prabhakaran, G. Bertotti, K. Bisdom, G. Mariethoz, M. Meda (2019) *A new methodology to train fracture network simulation using multiple-point statistics*. *Solid Earth* 10(2), 537-559, DOI: [10.5194/se-10-537-2019](https://doi.org/10.5194/se-10-537-2019)
 - Y. Dagasan, O. Erten, P. Renard, **J. Straubhaar**, E. Topal (2019) *Multiple-point statistical simulation of the ore boundaries for a lateritic bauxite deposit*. *Stochastic Environmental Research and Risk Assessment* 33(3), 865-878, DOI: [10.1007/s00477-019-01660-8](https://doi.org/10.1007/s00477-019-01660-8)
 - Y. Dagasan, P. Renard, **J. Straubhaar**, O. Erten, E. Topal (2019) *Pilot point optimization of mining boundaries for lateritic metal deposits: finding the trade-off between dilution and ore loss*. *Natural Resources Research* 28(1), 153-171, DOI: [10.3390/10.1007/s11053-018-9380-9](https://doi.org/10.3390/10.1007/s11053-018-9380-9)
 - **J. Straubhaar**, P. Renard, G. Mariethoz, T. Chugunova, P. Biver (2019) *Fast and interactive editing tools for spatial models*. *Mathematical Geosciences* 51(1), 109-125, DOI: [10.1007/s11004-018-9766-6](https://doi.org/10.1007/s11004-018-9766-6)
- 2018**
- C. Jäggli, **J. Straubhaar**, P. Renard (2018) *Parallelized adaptive importance sampling for solving inverse problems*. *Frontiers in Earth Science* 6, 203, DOI: [10.3389/feart.2018.00203](https://doi.org/10.3389/feart.2018.00203)
 - A. A. S. Barfod, T. N. Vilhelmsen, F. Jørgensen, A. V. Christiansen, A.-S. Høyer, **J. Straubhaar**, I. Møller (2018) *Contributions to uncertainty related to hydrostratigraphic modeling using multiple-point statistics*. *Hydrology and Earth System Sciences* 22(10), 5485-5508, DOI: [10.5194/hess-22-5485-2018](https://doi.org/10.5194/hess-22-5485-2018)
 - A. A. S. Barfod, I. Møller, A. V. Christiansen, A.-S. Høyer, J. Hoffmann, **J. Straubhaar**, J. Caers (2018) *Hydrostratigraphic modeling using multiple-point statistics and airborne transient electromagnetic methods*. *Hydrology and Earth System Sciences* 22(6), 3351-3373, DOI: [10.5194/hess-22-3351-2018](https://doi.org/10.5194/hess-22-3351-2018)
 - Y. Dagasan, P. Renard, **J. Straubhaar**, O. Erten, E. Topal (2018) *Automatic parameter tuning of multiple-point statistical simulations for lateritic bauxite deposits*. *Minerals*, 8(5), DOI: [10.3390/min8050220](https://doi.org/10.3390/min8050220)
 - F. Oriani, R. Mehrotra, G. Mariethoz, **J. Straubhaar**, A. Sharma, P. Renard (2018) *Simulating rainfall time-series: how to account for statistical variability at multiple scales?*. *Stochastic Environmental Research and Risk Assessment* 32(2), 321-340, DOI: [10.1007/s00477-017-1414-z](https://doi.org/10.1007/s00477-017-1414-z)
- 2017**
- F. Oriani, N. Ohana-Levi, F. Marra, **J. Straubhaar**, G. Mariethoz, P. Renard, A. Karnieli, E. Morin (2017) *Simulating small-scale rainfall fields conditioned by weather state and elevation: a data-driven approach based on rainfall radar images*. *Water Resources Research* 53(10), 8512-8532, DOI: [10.1002/2017WR020876](https://doi.org/10.1002/2017WR020876)
 - C. Jäggli, **J. Straubhaar**, P. Renard (2017) *Posterior population expansion for solving inverse problems*. *Water Resources Research* 53(4), 2902-2916, DOI: [10.1002/2016WR019550](https://doi.org/10.1002/2016WR019550)
- 2016**
- F. Oriani, A. Borghi, **J. Straubhaar**, G. Mariethoz, P. Renard (2016) *Missing data simulation inside flow rate time-series using multiple-point statistics*. *Environmental Modelling & Software* 86, 264-276, DOI: [10.1016/j.envsoft.2016.10.002](https://doi.org/10.1016/j.envsoft.2016.10.002)
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 - **J. Straubhaar**, P. Renard, G. Mariethoz (2016) *Conditioning multiple-point statistics simulations to block data*. *Spatial Statistics* 16, 53-71, DOI: [10.1016/j.spasta.2016.02.005](https://doi.org/10.1016/j.spasta.2016.02.005)
- 2015**
- G. Pirot, **J. Straubhaar**, P. Renard (2015) *A pseudo genetic model of coarse braided-river deposits*. *Water Resources Research* 51(12), 9595-9611, DOI: [10.1002/2015WR017078](https://doi.org/10.1002/2015WR017078)
 - G. Pirot, P. Renard, E. Huber, **J. Straubhaar**, P. Huggenberger (2015) *Influence of conceptual Model uncertainty on contaminant transport forecasting in braided river aquifers*. *Journal of Hydrology* 531(1,SI), 124-141, DOI: [10.1016/j.jhydrol.2015.07.036](https://doi.org/10.1016/j.jhydrol.2015.07.036)
 - G. Mariethoz, **J. Straubhaar**, P. Renard, T. Chugunova, P. Biver (2015) *Constraining distance-based multipoint simulations to proportions and trends*. *Environmental Modelling & Software* 72, 184-197, DOI: [10.1016/j.envsoft.2015.07.007](https://doi.org/10.1016/j.envsoft.2015.07.007)
 - N. Dickson, J.-C. Comte, P. Renard, **J. Straubhaar**, J. McKinley, U. Ofterdinger (2015) *Integrating aerial geophysical data in multiple-point statistics simulations to assist groundwater flow models*. *Hydrogeology Journal* 23(5), 883-900, DOI: [10.1007/s10040-015-1258-x](https://doi.org/10.1007/s10040-015-1258-x)

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 - G. Pirot, **J. Straubhaar**, P. Renard (2014) *Simulation of braided river elevation model time series with multiple-point statistics*. *Geomorphology* 214, 148-156, DOI: [10.1016/j.geomorph.2014.01.022](https://doi.org/10.1016/j.geomorph.2014.01.022)
 - **J. Straubhaar**, D. Malinverni (2014) *Addressing conditioning data in multiple-point statistics simulation algorithms based on a multiple grid approach*. *Mathematical Geosciences* 46(2), 187-204, DOI: [10.1007/s11004-013-9479-9](https://doi.org/10.1007/s11004-013-9479-9)
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- 2013**
- E. Meerschman, G. Pirot, G. Mariethoz, **J. Straubhaar**, M. Van Meirvenne, P. Renard (2013) *A practical guide to performing multiple-point statistical simulations with the Direct Sampling algorithm*. *Computers & Geosciences* 52, 307-324, DOI: [10.1016/j.cageo.2012.09.019](https://doi.org/10.1016/j.cageo.2012.09.019)
 - **J. Straubhaar**, A. Walgenwitz, P. Renard (2013) *Parallel Multiple-point Statistics Algorithm Based on List and Tree Structures*. *Mathematical Geosciences* 45(2), 131-147, DOI: [10.1007/s11004-012-9437-y](https://doi.org/10.1007/s11004-012-9437-y)
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- A. Comunian, P. Renard, **J. Straubhaar** (2012) *3D multiple-point statistics simulation using 2D training images*. *Computers & Geosciences* 40, 49-65, DOI: [10.1016/j.cageo.2011.07.009](https://doi.org/10.1016/j.cageo.2011.07.009)
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