Curriculum Vitae

Prof. Dr. Philipp Blum

Personal Details

Luisenstraße 90, 76137 Karlsruhe, Germany
Email: blum@kit.edu
Date of birth: 22.11.1972
Place of birth: Ulm (Germany)
Marital status: married, 2 children

Employment History

07/2014	*Full Professor* (W3) for Engineering Geology at the Karlsruhe Institute of Technology (KIT).
04/2010	*Juniorprofessor* (W1) for Engineering Geology at the Karlsruhe Institute of Technology (KIT).
2006-2010	*Assistant Professor* at the Center for Applied Geosciences (ZAG), University of Tübingen, Germany; Head of the research group ”Hydrogeothermics“.
2003-2005	*Project leader* and manager at URS (now AECOM), Hanover, Germany.
2000-2003	*Research associate* at the University of Birmingham, School of Geography, Earth and Environmental Sciences, UK.
1995-1999	*Research assistant* at the Institute for Applied Geology, Technical University of Karlsruhe (TH), Germany.
1997-1998	*Freelance journalist* for the BBC Wales in Cardiff, UK;
1995-1997	*Field geologists* in various environmental and engineering consultancies.

Education

03/2010	*Habilitation* (*venia legendi*) in Applied Geology at the University of Tübingen, Germany. Topic: „Thermo-hydro-mechanical and chemical processes in porous and fractured rock“
2004	*PhD in Earth Sciences* at the University of Birmingham, School of Geography, Earth and Environmental Sciences, UK. PhD-Thesis: Upscaling of hydro-mechanical processes in fractured rock
2000	*MSc in Hydrogeology und Engineering Geology* at the Institute for Applied Geology, Technical University of Karlsruhe (TH). (Grade: 1.6) MSc-Thesis: Sorption and diffusion behaviour of organic compounds in Israelian and European Chalk (Grade: 1.0)
1997-1998	*Erasmus-Exchange* in the School of Earth Sciences at Cardiff University, Wales (BSc Environmental Geology).
1996	*BSc in Geology* at the Geological Institute of the Karl Ruprechts Universität Heidelberg (Grade: 1.3).

1992-1993	*Military service* as a surveyor at the Topography Unit 850 in Ulm and in Sondershausen (Germany).
1992	*A-level* (Mathematics and Geography), Grammar School, Ulm, Germany.

Analytical Skills (selection)

- Hg-porosimetry, nitrogen adsorption, BET method and various permeameters such as TinyPerm
- Field and laboratory fluorometers
- HT/HP autoclave system (ICARE), micro X-ray computed tomography
- UV-VIS-spectroscopy and ion chromatography (IC)
- Atomic absorption spectroscopy (AAS) and TOC analyser
- GC/MS with SPME, ICP-OES/MS

Computer Skills (selection)

- General software: MS Office, Citavi, Origin, Corel Draw, Grapher, Surfer, Tecplot, Overleaf;
- Geological software: HydroGeoAnalyst, Geomodeller, Petrel/ECLIPSE, SKUA/GOCAD;
- Hydrogeological software: AQTESOLV Pro, HydroTec, ConSim, LandSim (Golder Associates), GIS, Processing MODFLOW, Groundwater Vistas, PMWin, MODFLOW-2000, MIN3P, Groundwater Modeling System (GMS), Visual MODFLOW (PHT3D), PHREEQC, GEMS, MT3DMS, SHEMAT, FEFLOW, OpenGeoSys, FRAC3DVS, NAPSAC (now ConnectFlow), FracMan;
- Hydraulic software: STANET (hydraulic network calculations), GeoDict for solving Navier–Stokes–Brinkman equations;
- Risk and statistical software: @Risk, Crystal Ball, SPSS;
- Programming: UNIX, Visual Basic Studio, VBA Excel, FORTRAN, Salford (Compiler), Lahey ED Developer, MATLAB, Python;
- Geomechanical software: OpenGeoSys, UDEC-BB, FLAC and Irazu;
- Proprietary developed and contributed software: FAT3D (3D flow and transport code), FracFrac (Fracture network generator), FraNEP (Fracture network evaluation program) and FRAC2D (2D fracture flow code).

Languages

German (mother tongue), English (fluent in written and spoken English), Spanish (good) und French (basic).

Hobbies

Hung Gar Kung Fu, badminton, biking, rambling, diving and traveling.

Book

Stauffer, F., Bayer, P., **Blum, P.**, Molina-Giraldo, N., Kinzelbach W. (2013): Thermal Use of Shallow Groundwater. 287 pages, CRC Press.

Peer-reviewed publications (only): Graduate students are highlighted in ***italics***

1. Fleuchaus, P., Godschalk, B., Stober, I., **Blum, P.** (2018): Worldwide application of aquifer thermal energy storage–A review. *Renewable and Sustainable Energy Reviews*, 94, 861-876.
2. Benz, S.A., Bayer, P., **Blum, P.**, Hamamoto, H., Arimoto, H., Taniguchi, M. (2018): Comparing anthropogenic heat input and heat accumulation in the subsurface of Osaka, Japan. *Science of the Total Environment*, 643, 1127-1136.
3. Schweizer, D., Prommer, H., **Blum, P.**, Siade, A.J., Butscher, C. (2018): Reactive Transport Modeling of Swelling Processes in Clay-Sulfate Rocks. *Water Resources Research*, 54 (9), 6543-6565.
4. Aranzabal, N., Martos, J., Steger, H., **Blum, P.**, Soret, J. (2018): Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *IEEE Transactions on Instrumentation and Measurement*, 1-9.
5. ***Pophillat, W.***, Attard, G., Bayer, P., Hecht-Méndez, J., **Blum, P.** (2018): Analytical solutions for predicting thermal plumes of groundwater heat pump systems. *Renewable Energy*, In Press.
6. Benz, S.A., Bayer, P., Winkler, G., **Blum, P.** (2018): Recent trends of groundwater temperatures in Austria. *Hydrology and Earth System Sciences*, 22 (6), 3143-3154.
7. Butscher, C., Wunderle, M., ***Künemund, L.***, **Blum, P.** (2018): Prognose und Bewertung von Karstrisiken am Tunnel Albabstieg. *Geotechnik*, 41 (2), 124-138.
8. Butscher, C., ***Breuer, S.***, **Blum, P.** (2018): Swelling laws for clay-sulfate rocks revisited. *Bulletin of Engineering Geology and the Environment*, 77 (1), 399-408.
9. Kling, T., Vogler, D., Pastewka, L., Amann, F., **Blum, P.** (2018): Numerical Simulations and Validation of Contact Mechanics in a Granodiorite Fracture. *Rock Mechanics and Rock Engineering*, 1-20.
10. ***Fleuchaus, P.***, **Blum, P.** (2018): Damage event analysis of vertical ground source heat pump systems in Germany. *Geothermal Energy*, 5 (1), 10.
11. Kling, T., Schwarz, J.O., Wendler, F., Enzmann, F., **Blum, P.** (2017): Fracture flow due to hydrothermally induced quartz growth. *Advances in Water Resources* 107, 93-107.
12. Meller, C., Bremer, J., Baur, S., Bergfeldt, T., **Blum, P.**, Canic, T., Eiche, E. et al. (2017): Integrated research as key to the development of a sustainable geothermal energy technology. *Energy Technology*, 5 (7), 965-1006.
13. ***Storz, K.***, Steger, H., Wagner, V., Bayer, P., **Blum, P.** (2017): Methodenvergleich zur Bestimmung der hydraulischen Durchlässigkeit. *Grundwasser*, 22 (2), 103-111.
14. Rivera, J.A., **Blum, P.**, Bayer, P. (2017): Increased ground temperatures in urban areas: Estimation of the technical geothermal potential. *Renewable Energy*, 103, 388-400.
15. Benz, S.A., Bayer, P., **Blum, P.** (2017): Identifying anthropogenic anomalies in air, surface and groundwater temperatures in Germany. *Science of the Total Environment*, 584, 145-153.
16. Luo, J., Zhao, H., Jia, J., Xiang, W., Rohn, J., **Blum, P.** (2017): Study on operation management of borehole heat exchangers for a large-scale hybrid ground source heat pump system in China. *Energy*, 123, 340-352.

17. Schweizer, D., **Blum, P.**, Butscher, C. (2017): Uncertainty assessment in 3-D geological models of increasing complexity. *Solid Earth*, 8 (2).
18. Benz, S.A., Bayer, P., **Blum, P.** (2017): Global patterns of shallow groundwater temperatures. *Environmental Research Letters*, 12 (3), 034005.
19. Fenton, O., Mellander, P.-E., Daly, K., Wall, D.P., Jahangir, M.M.R., Jordan, P., Hennessey, D., Huebsch, M., **Blum, P.**, Vero, S., Richards, K.G. (2017): Integrated assessment of agricultural nutrient pressures and legacies in karst landscapes. *Agriculture, Ecosystems & Environment*, 239, 246-256.
20. Haque, U., **Blum, P.**, et al. (2017): Fatal landslides in Europe. *Landslides*, 13 (6), 1545-1554.
21. Bayer, P., Rivera, J.A., Schweizer, D., Schärli, U., **Blum, P.**, Rybach, L. (2016): Extracting past atmospheric warming and urban heating effects from borehole temperature profiles. *Geothermics*, 64, 289-299.
22. Rivera, J.A., **Blum, P.**, Bayer, P. (2016): Influence of spatially variable ground heat flux on closed-loop geothermal systems: Line source model with nonhomogeneous Cauchy-type top boundary conditions. *Applied Energy*, 180, 572-585.
23. Luo, J., Zhao, H., Gui, H., Xiang, W., Rohn, J., **Blum, P.** (2016): Thermo-economic analysis of four different types of ground heat exchangers in energy piles. *Applied Thermal Engineering*, 108, 11-19.
24. Luo, J., Jia, J., Zhao, H., Zhu, Y., Guo, Q., Cheng, C., Tan, L., Xiang, W., Rohn, J., **Blum, P.** (2016): Determination of the thermal conductivity of sandstones from laboratory to field scale. *Environmental Earth Sciences*, 75 (16), 1158.
25. Kling, T., Huo, D., Schwarz, J.O., Enzmann, F., Benson, S., **Blum, P.** (2016): Simulating stress-dependent fluid flow in a fractured core sample using real-time X-ray CT data. *Solid Earth*, 7 (4).
26. Butscher, C., Mutschler, T., **Blum, P.** (2016): Swelling of clay-sulfate rocks: a review of processes and controls. *Rock Mechanics and Rock Engineering*, 49 (4), 1533-1549.
27. Luo, J., Rohn, J., Xiang, W., Bertermann, D., **Blum, P.** (2016): A review of ground investigations for ground source heat pump (GSHP) systems. *Energy and Buildings*, 117, 160-175.
28. Rivera, J.A., **Blum, P.**, Bayer, P. (2016): A finite line source model with Cauchy-type top boundary conditions for simulating near surface effects on borehole heat exchangers. *Energy*, 98, 50-63.
29. Menberg, K., Pfister, S., **Blum, P.**, Bayer, P. (2016): A matter of meters: state of the art in the life cycle assessment of enhanced geothermal systems. *Energy & Environmental Science*, 9 (9), 2720-2743.
30. Benz, S.A., Bayer, P., Goettsche, F.M., Olesen, F.S., **Blum, P.** (2015): Linking surface urban heat islands with groundwater temperatures. *Environmental Science & Technology*, 50 (1), 70-78.
31. Wendler, F., Okamoto, A., **Blum, P.** (2015): Phase-field modeling of epitaxial growth of poly-crystalline quartz veins in hydrothermal experiments. *Geofluids*, 16 (2), 211-230.
32. Benz, S., Bayer, P., Menberg. K., ***Jung, S.***, **Blum P.** (2015): Spatial resolution of anthropogenic heat fluxes into urban aquifers. *Science of the Total Environment*, 524, 427-439.
33. Huq, F., Haderlein, S.B., Cirpka, O.A., Nowak, M., **Blum, P.**, Grathwohl, P. (2015): Flow-through experiments on water-rock interactions in a sandstone caused by CO_2 injection at pressures and temperatures mimicking reservoir conditions. *Applied Geochemistry*, 58, 136-146.

34. Rivera, J. A., **Blum, P.**, Bayer, P. (2015): Analytical simulation of groundwater flow and land surface effects on thermal plumes of borehole heat exchangers. *Applied Energy*, 146, 421–433.
35. Huebsch, M., Grimmeisen, F., Zemann, M., Fenton, O., Richards, K.G., Jordan, P., Sawarieh, A., **Blum, P.**, Goldscheider, N. (2015): Technical Note: Field experiences using UV/VIS sensors for high-resolution monitoring of nitrate in groundwater. *Hydrology and Earth System Sciences*, 19, 1589–1598.
36. Höyng, D., Prommer, H., **Blum, P.**, Grathwohl, P., D'Affonseca, F.M. (2015): Evolution of carbon isotope signatures during reactive transport of hydrocarbons in heterogeneous aquifers. *Journal of Contaminant Hydrology*, 174, 10–27.
37. Zhu, K., Bayer, P., Grathwohl, P., **Blum, P.** (2015): Groundwater temperature evolution in the subsurface urban heat island of Cologne, Germany. *Hydrological Processes*, 29(6), 965–978.
38. Menberg, K., **Blum, P.**, Kurylyk, B.L., Bayer, P. (2014): Observed groundwater temperature response to recent climate change. *Hydrology and Earth System Sciences*, 18(11), 4453–4466.
39. Huebsch, M., Fenton, O., Horan, B., Hennessy, D., Richards, R.G., Jordan, P., Goldscheider, N., Butscher, C., **Blum, P.** (2014): Mobilisation or dilution? Nitrate responses of karst springs to storm events. *Hydrology and Earth System Sciences*, 18(11), 4423–4435.
40. Gomez-Rivas, E., Bons, P.D., Koehn, D., Urai, J.L., Arndt, M., Virgo, S., Laurich, B., Zeeb, C., ***Stark, L.***, **Blum, P.** (2014): The Jabal Akhdar Dome in the Oman mountains: Evolution of a dynamic fracture system. *American Journal of Science*, 314(7), 1104–1139.
41. Grimm, M., Stober, I., Kohl, T., **Blum, P.** (2014): Schadensfallanalyse von Erdwärmesonden-bohrungen in Baden-Württemberg. *Grundwasser*, 19(4), 275–286.
42. Wagner, V., Bayer, P., Bisch, G., Kübert, M., **Blum, P.** (2014): Hydraulic characterization of aquifers by thermal response testing: Validation by large-scale tank and field experiment. *Water Resources Research*, 50(1), 71–85.
43. Allen, D.M., Bayer, P., Ferguson, G., **Blum, P.** (2014): Preface: Hydrogeology of shallow thermal systems. *Hydrogeology Journal*, 22 (1), 1–6.
44. Wagner, V., ***Li, T.***, Bayer, P., Leven, C., Dietrich, P., **Blum, P.** (2014): Thermal tracer testing in a heterogeneous sedimentary aquifer: Field experiment and numerical simulation. *Hydrogeology Journal*, 22 (1), 175–187.
45. Bons, P.D., van Milligen, B.P., **Blum, P.** (2013): A general unified expression for solute and heat dispersion in homogeneous media. *Water Resources Research*, 49(10), 6166–6178.
46. Menberg, K., **Blum, P.**, ***Schaffitel, A.***, Bayer, P. (2013): Long Term Evolution of Anthropogenic Heat Fluxes into a Subsurface Urban Heat Island. *Environmental Science and Technology*, 47(17), 9747–9755.
47. Huebsch, M., Horan, B., **Blum, P.**, Richards, K.G., Grant, J., Fenton, O. (2013): Impact of agronomic practices of an intensive dairy farm on nitrogen concentrations in a karst aquifer in Ireland. *Agriculture, Ecosystems and Environment*, 179, 187–199.
48. Hähnlein, S., Bayer, P., Ferguson, G., **Blum, P.** (2013): Sustainability and policy for the thermal use of shallow geothermal energy. *Energy Policy*, 59, 914–925.
49. Bayer, P., Rybach, L., **Blum, P.**, Brauchler, R. (2013): Review of life cycle environmental effects of geothermal power generation. *Renewable and Sustainable Energy Reviews*, 26, 446–463.

50. Zeeb, C., Gomez-Rivas, E., Bons, P.D., Virgo, S., **Blum, P.** (2013): Fracture Network Evaluation Program (FraNEP): A software for analyzing 2D fracture trace-line maps. *Computer & Geosciences*, 60, 11–22.

51. Zeeb, C., Gomez-Rivas, E., Bons, P.D., **Blum, P.** (2013): Evaluation of sampling methods for fracture network characterization using outcrops. *AAPG Bulletin*, 97(9), 1545–1566.

52. Wagner, V., **Blum, P.**, Kübert, M., Bayer, P. (2013): Analytical approach to groundwater-influenced thermal response tests of grouted borehole heat exchangers. *Geothermics*, 46, 22–31.

53. Menberg, K., Bayer, P., Zosseder, K., Rumohr, S., **Blum, P.** (2013): Subsurface urban heat islands in German cities. *Science of the Total Environment*, 442, 123–133.

54. ***Menberg, K.***, Steger, H., Zorn, R., Reuß, M., Proell, M., Bayer, P., **Blum, P.** (2013): Bestimmung der Wärmeleitfähigkeit im Untergrund durch Labor- und Feldversuche und anhand theoretischer Modelle. *Grundwasser*, 1–14.

55. Myrttinen, A., Jeandel, E., Ukelis, O., Becker, V., Van Geldern, R., **Blum, P.**, Barth, J.A.C. (2012): Stable carbon isotope techniques to quantify CO_2 trapping under pre-equilibrium conditions and elevated pressures and temperatures. *Chemical Geology*, 320-321, 46–53.

56. Huq, F., **Blum, P.**, Marks, M.A.W., Nowak, M., Haderlein, S.B., Grathwohl, P. (2012): Chemical changes in fluid composition due to CO_2 injection in the Altmark gas field: preliminary results from batch experiments. *Environmental Earth Sciences*, 67(2), 385–394.

57. De Paly, M., Hecht-Méndez, J., Beck, M., **Blum, P.**, Zell, A., Bayer, P. (2012): Optimization of energy extraction for closed shallow geothermal systems using linear programming. *Geothermics*, 43, 57–65.

58. Wagner, V., Bayer, P., Kübert, M., **Blum, P.** (2012): Numerical sensitivity study of thermal response tests. *Renewable Energy*, 41, 245–253.

59. Bayer, P., Saner, D., ***Bolay, S.***, Rybach, L., **Blum, P.** (2011): Greenhouse gas emission savings of ground source heat pump systems in Europe: A review. *Renewable & Sustainable Energy Reviews*. 16(2), 1256–1267.

60. **Blum, P.**, Sagner, A., Tiehm, A., Martus, P., Grathwohl, P. (2011): Importance of heterocyclic aromatic compounds in monitored natural attenuation in coal tar contaminated aquifers. *Journal of Contaminant Hydrology*. 126, 181–194.

61. Molina-Giraldo, N., **Blum, P.**, Zhu, K., Bayer, P., Fang, Z. (2011): A moving finite line source model to simulate borehole heat exchangers with groundwater advection. *International Journal of Thermal Sciences*, 50 (12), 2506–2513.

62. Becker, V., Myrttinen, A., **Blum, P.**, van Geldern, R., Barth, J.A.C. (2011): Predicting $\delta^{13}C_{DIC}$ dynamics in CCS: A scheme based on a review of inorganic carbon chemistry under elevated pressures and temperatures. *International Journal of Greenhouse Gas Control*, 5 (5), 1250–1258.

63. **Blum, P.**, ***Campillo, G.***, Kölbel, T. (2011): Techno-economic and spatial analysis of vertical ground source heat pump systems in Germany. *Energy*. 36, 3002–3011.

64. Molina-Giraldo, N., Bayer, P., **Blum, P.** (2011): Evaluating the influence of mechanical thermal dispersion on temperature plumes from geothermal systems using analytical solutions. *International Journal of Thermal Sciences*. 50, 1223–1231.

65. Würdemann, H., **Blum, P.** (2011): Oberflächennahe Geothermie: Regelungsbedarf zur Berücksichtigung ökologischer and technischer Aspekte? *Grundwasser*, 16(2), 67–68. (Editorial)

66. Hähnlein, S., **Blum, P.**, Bayer, P. (2011): Oberflächennahe Geothermie – aktuelle rechtliche Situation in Deutschland. *Grundwasser*, 16, 69–75.

67. Brielmann, H., Lueders, T., ***Schreglmann, K.***, Ferraro, F., Avramov, M., Hammerl, V., **Blum, P.**, Bayer, P., Griebler, C. (2011): Oberflächennahe Geothermie und ihre potentiellen Auswirkungen auf Grundwasserökosysteme. *Grundwasser*, 16, 77–91.

68. D'Affonseca, F.M., Prommer, H., Finkel, M., **Blum, P.**, Grathwohl, P. (2011): Modeling the long-term and transient evolution of biogeochemical and isotopic signatures in coal tar contaminated aquifers. *Water Resources Research*, 47, W05518.

69. Zhu, K., **Blum, P.**, Ferguson, G., Balke, K.-D., Bayer, P. (2010): Geothermal potential of urban heat islands. *Environmental Research Letters*, 5, 044002.

70. Beck, M., Hecht-Mendez, J., de Paly, M., Bayer, P., **Blum, P.**, Zell, A. (2010): Optimization of the energy extraction of a shallow geothermal system. IEEE Congress on Evolutionary Computation, doi:10.1109/ CEC.2010. 5585921.

71. Lessoff, S.C., ***Schneidewind, U.***, Leven, C., **Blum, P.**, Dietrich, P., Dagan, G. (2010): Spatial characterization of the hydraulic conductivity using direct-push injection logging. *Water Resources Research*. 46, W12502.

72. Leven, C., Weiß, H., Koschitzky, H.-P., **Blum, P.**, Dietrich, P., Ptak, T. (2010): Direct-Push-Verfahren. *Schriftenreihe Altlastenforum Baden-Württemberg*, Heft 15, Schweizerbart, Stuttgart.

73. Molina-Giraldo, N., Bayer, P., **Blum, P.**, Cirpka, O.A. (2010): Propagation of seasonal temperature signals into an aquifer upon bank filtration. *Ground Water*, 49 (4), 491–502.

74. Myrttinen, A., Becker, V., van Geldern, R., Würdemann, H., Morozova, D., Taubald, H., **Blum, P**., Barth, J. A. C. (2010): Carbon and oxygen isotope indications for CO_2 behaviour after injection: first results from the Ketzin Site (Germany). *International Journal of Greenhouse Gas Control*, 4, 1000–1006.

75. ***Zeeb, C.***, ***Göckus, D.***, Bons, P., Al Ajmi, H., Rausch, R., **Blum, P.** (2010): Fracture flow modelling based on satellite images of the Wajid sandstone, Saudi Arabia. *Hydrogeology Journal*. 18, 1699–1712.

76. Müller, C., Siegesmund, S., **Blum, P.** (2010): Evaluation of the representative elementary volume (REV) of a geothermal fractured sandstone reservoir in North Germany. *Environmental Earth Sciences*, 61, 1713–1724.

77. **Blum, P.**, ***Campillo, G.***, Münch, W., Kölbel, T. (2010): CO_2 savings of ground source heat pump systems - a regional analysis. *Renewable Energy*, 35, 122–127.

78. Hähnlein, S., Bayer, P., **Blum, P.** (2010): International legal status of the use of shallow geothermal energy. *Renewable & Sustainable Energy Reviews*, 14, 2611–2625.

79. Saner, D., Juraske, R., Kübert, M., **Blum, P.**, Hellweg, S., Bayer, P. (2010): Is it only CO_2 that matters? A life cycle perspective on shallow geothermal systems. *Renewable & Sustainable Energy Reviews*, 14, 1798–1813.

80. Hecht-Méndez, J., Molina-Giraldo, N., **Blum, P.**, Bayer, P. (2010): Evaluating MT3DMS for heat transport simulation of closed shallow geothermal systems. *Ground Water*, 48(5), 741–756.

81. ***Hähnlein, S.***, Molina-Giraldo, N., **Blum, P.**, Bayer, P., Grathwohl, P. (2010): Ausbreitung von Kältefahnen im Grundwasser bei Erdwärmesonden. *Grundwasser*, 15, 123–133.

82. **Blum, P.**, Hunkeler, D., Weede, M., Beyer, C., Grathwohl, P., Morasch, B. (2009): Quantification of biodegradation for o-xylene and naphthalene using first-order, Michaelis-Menten kinetics and stable carbon isotopes. *Journal of Contaminant Hydrology*, 105, 118–130.

83. **Blum, P.**, Mackay, R., Riley, M.S. (2009): Stochastic simulations of regional scale advective transport in fractured rock masses using block upscaled hydro-mechanical rock property data. *Journal of Hydrology*, 369, 318–325.

84. Kosakowski, G., **Blum, P.**, Kulik, D., Pfingsten, W., Shao, H., ***Singh, A.*** (2009): Evolution of a generic clay/cement interface: first reactive transport calculations utilizing a Gibbs energy minimization based approach for geochemical calculations. *Journal of Environmental Science for Sustainable Society* (JESSS), 3, 41–49.

85. Hähnlein, S., Kübert, M., Walker-Hertkorn, S., Bayer, P., **Blum, P.** (2009): Rechtliche Rahmenbedingungen bei der Grundwasserbewirtschaftung. *bbr - Fachmagazin für Brunnen- und Leitungsbau*, Sonderausgabe Geothermie, 14–20.

86. Kübert, M., Walker-Hertkorn, S., **Blum, P.**, Bayer, P., Hähnlein, S. (2009): Praktische Hinweise zur Genehmigungspraxis der thermischen Nutzung des Untergrundes. *bbr - Fachmagazin für Brunnen- und Leitungsbau*, Sonderausgabe Geothermie, 8–13.

87. Walker-Hertkorn, S., Hähnlein, S., Kübert, M., **Blum, P.**, Bayer, P. (2008): Rechtliche Situation bei der thermischen Grundwassernutzung in Deutschland. *bbr - Fachmagazin für Brunnen- und Leitungsbau*, 10, 46–51.

88. **Blum, P.**, Annable, M.D. (2008): Partial source zone removal. *Journal of Contaminant Hydrology*, 102, 1-2. (Editorial)

89. D'Affonseca, F.M., **Blum, P.**, Finkel, M., Melzer R., Grathwohl, P. (2008): Field scale characterisation and modelling of contaminant release from a coal tar source zone. *Journal of Contaminant Hydrology*, 102, 120–139.

90. **Blum, P.**, Barker, J.F., Fraser, M., Sagner, A., Tiehm, A., Melzer, R., Grathwohl, P. (2008): Natural attenuation of NSO heterocycles in coal tar contaminated aquifers. *IAHS Publication*, 324, 327–334.

91. D'Affonseca, F.M., ***Sharonne, P.***, Finkel, M., **Blum, P.** (2008): Quantification of natural and technically enhanced NAPL source depletion: analytical models vs. numerical models. *IAHS Publication*, 324, 380–387.

92. D'Affonseca, F.M., **Blum, P.**, Finkel, M., Melzer R., Grathwohl, P. (2008): Modelling the source zone depletion and plume development of a coal-tar contaminated site. *IAHS Publication*, 320, 32, 256–261.

93. Kolditz, O., McDermott, C., ***Worsch, R.***, **Blum, P.**, Grathwohl, P. (2008): Numerical modeling of heat storage in soils. *Journal of Environmental Science for Sustainable Society* (JESSS), 2, 47–56.

94. ***Micic, V.***, Straub, K.L., **Blum, P.**, Kappler, A. (2007): Natural attenuation at a former gasworks site. *Water Science and Technology: Water Supply*, 7 (3), 145–153.

95. **Blum, P.**, ***Kamkar, P.***, Melzer, R. (2007): Sensitivitätsanalyse von Natural Attenuation anhand analytischer Transportmodelle. *altlasten spektrum*, Heft 2, 74–81.

96. **Blum, P.**, Mackay, R., Riley, M.S. (2007): Coupled Hydro-Mechanical Modelling of Flow in Fractured Rock. In: Sharp, J.M. & Krasny, J. (Eds.), Groundwater in Fractured Rocks, *IAH-Selected Paper Series*, Volume 9, 567–574.

97. **Blum, P.**, Mackay, R., Riley, M.S., Knight, J.L. (2007): Hydraulische Modellierung und die Ermittlung des repräsentativen Elementarvolumens (REV) im Kluftgestein. *Grundwasser*, 12 (1), 48–65.
98. **Blum, P.**, Mackay, R., Riley, M.S., Knight, J.L. (2005): Performance assessment of a nuclear waste repository: upscaling coupled hydro-mechanical properties for far-field transport analysis. *International Journal of Rock Mechanics & Mining Sciences*, 42 (5-6), 781–792.
99. **Blum, P.**, Mackay, R. & Riley, M.S. (2004): Development of a methodology to quantify the importance of hydro-mechanical processes in radionuclide migration assessments. In: Stephansson, O., Hudson, J.A., Jing, L. (Eds.), Coupled Thermo-Hydro-Mechanical-Chemical Processes in Geo-Systems, 231–237.
100. **Blum, P.**, Mackay, R., Riley, M.S. (2004): Understanding the impact of hydro-mechanical coupling on performance assessment of deep waste disposal. In: Stephansson, O., Hudson, J.A., Jing, L. (Eds.), Coupled Thermo-Hydro-Mechanical-Chemical Processes in Geo-Systems, 237–242.

Bibliometric Information ([1]Scopus and [2]Google Scholar, 20 May 2019):

103 peer-reviewed publications[1]

2592[1]/3809 citations[2]

h-index[1/2] = 28/33

i10-index[2] = 72

Further information about my publication record can be found here:

- **Web of Science**: ResearcherID: http://www.researcherid.com/rid/D-4317-2014
- **Google Scholar:** https://scholar.google.de/citations?user=4ni1z_EAAAAJ&hl=de
- **ResearchGate:** https://www.researchgate.net/profile/Philipp_Blum/

Conference proceedings and other non-peer-reviewed publications are not listed here.

Media presence

In addition to my scientific publications, I am successfully working on the media presence of our scientific results. Since 2010 we have published several press releases resulting in a huge media response such as numerous national and international newspaper articles, YouTube-videos, podcasts, Radio and TV-appearances.

More information on my media presence can be found here: http://www.agw.kit.edu/english/9780.php