

**KERSTIN STAHL**, Research Scientist at the Chair of Hydrology, University of Freiburg, Germany

### Contact

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### University Degrees

2001 *PhD* in Hydrology, University of Freiburg, Hydrological Drought – a study across Europe.  
1997 *MSc* in Hydrology, University of Freiburg, Impact of large-scale weather patterns on low flows.

### Positions

Since 2008 *Research Scientist*, Institute of Hydrology, University of Freiburg  
2007-2010 *Research Scientist*, Dept of Geosciences, University of Oslo, Norway  
2004-2007 *Postdoctoral Fellow*, Dept of Geography, University of British Columbia, Canada  
2002-2003 *German Research Foundation Scholar*, Dept Geosciences, Oregon State University, USA  
1998-2001 *PhD Student/Research Assistant*, Institute of Hydrology, University of Freiburg, Germany

### Advising and Teaching

#### PhD students:

Current: Michael Stölzle, Freiburg, Maria Staudinger, Zürich, Veit Blauhut, Freiburg, Daphné Freudiger, Freiburg/Zürich.  
Graduated: José Agustín Breña Naranjo, Freiburg (defended June 2012): Past and future changes in forest ecosystems: connections between watersheds characteristics, forests and low flows.  
Lukas Gudmundsson, Oslo (defended Sep 2011): Large-scale hydrology in Europe – observed patterns and model performance.

#### MSc/Diplom in Hydrology (main supervisor):

4 currently ongoing  
12 theses supervised and students graduated (six resulting in conference or published papers)

#### Courses:

MSc courses, regularly since 2008: Statistics and Regionalisation, Global Hydrology, 10-day Field Trip  
BSc courses, since 2012: Current Topics in Hydrology (Seminar; incl. Introduction to presentation skills)  
PhD student workshops, regularly since 2009: Scientific presentation, Paper review, Abstract writing  
International Summer Schools on Hydroclimatology and Hydrological Change: ITCP Trieste Italy (EU-WATCH, 2008), Rabat Morocco (EU TEMPUS, 2006), Wageningen NL (EU Accompan. Measure, 2003).

### Publication Record (Summary)

H-Index=20 (Google Scholar), 13 (Thomson Reuters, Researcher ID I-8138-2012)  
Peer reviewed articles in ISI listed journals: 32 published, 2 in review/revision  
Articles in National Journals with minor or only editorial review: 6  
Conference proceedings papers: 13  
Chapters in edited volumes: 6 (incl. one textbook)  
Project reports: 14 (10 published on-line or in print)

### Conference Presentations and Organisation (Summary)

>40 oral and poster presentations at international conferences since 2001 (6 invited)  
>20 oral or poster presentations as a co-author  
Session convener: Regional streamflow analysis. American Geophysical Union (AGU) Fall Meeting: 2011 (36 contributions) and 2012 (40 contributions).  
Scientific Committees: Leonardo Conference EGU 2014; GDIS (Global Drought Information System) workshop 2014/15; German Hydrology Days 2012  
Organisation Committees: German Hydrology Days 2012 (>200 participants), various smaller workshops and intl. project or network meetings (10-20 participants), Weekly colloquium at University of British Columbia and University of Freiburg

**Editor** Hydrology and Earth System Sciences (since 2013)

### Reviewer

Journal articles: Nature, Nature–Geosciences, Environ. Research Letters, Geophysical Research Letters,

Hydrological Sciences Journal, Water Resources Research, Journal of Hydrology, Hydrology and Earth System Sciences, Hydrological Processes, Nordic Hydrology, Water International, International Journal of Climatology, Atmosphere – Ocean, Journal of Climate, Journal of Applied Meteorology and Climatology, Journal of Hydrometeorology, Theoretical and Appl. Climatology, Journal of Applied Ecology, International Journal of Wildland Fire, International Negotiation

*Research proposals* from NERC (UK), NSERC (Canada), BC Forest Science Programme (Canada)

*Positions*: Professor of Hydrology at the University of Oslo, Norway; Canada Research Chair Tier 1

### Current Research Networks

*FRIEND: Flow Regimes from International Experimental and Network Data*, UNESCO IHP, active member

*EDC: European Drought Centre*, founding and core group member

### Current Grants

*Climate Change impacts on groundwater and low flows*. Bundesamt für Umwelt (BAFU). **Project Partner**. With PIs J. Seibert, Uni Zürich, Philipp Brunner, Uni Neuchatel (SFR 145K to Freiburg, SFR 650K total, 10/2013-9/2016).

*DrIVER Drought Impacts: Vulnerability thresholds in monitoring and Early-warning Research*. Belmont Forum/G8HORCs, **Lead PI**, Partners CEH Wallingford, The Open University, US National Drought Mitigation Centre USA, CSIRO AU (EUR 385K for Freiburg, total EUR 1.6M, 9/2013-8/2016).

*ASG Rhein: glacier and snow runoff contributions to streamflow along the River Rhine*, The International Commission on the Hydrology of the Rhine Basin (KHR/CHR), **PI and coordinator**, Partners J. Seibert, Univ. Zürich; K.Gerlinger HYDRON GmbH (EUR 300K total, 12/2012-11/2015).

*DROUGHT-R&SPI Fostering European Drought Research and Policy Interfacing*, EU FP-7 Project, **Partner and WP3 lead** (EUR 312K for Freiburg, Total EUR 3.5M, 10/2011- 9/2014).

*DROUGHT-CH Early Recognition of Drought in Switzerland*, NFP61 Swiss National Fund, **Co-PI**, Partners ETH Zürich, Uni Zürich, WSL Zürich (CHF 200K for Freiburg, total CHF 1M, 1/2010-12/2014).

### Past Grants and Project Experience

2012 *Das hydrologische Extremjahr 2011: Dokumentation, Einordnung, Ursachen und Zusammenhänge*. Bundesanstalt für Gewässerkunde.

2009-2010 *Wirkungsbezogene Analyse von Klimadaten: Hitze und Dürre in der Regio*, MWK BaWü startup Projekt, Partner: Meteorologisches Institut Freiburg.

2008-2009 *Vulnerability of water allocation treaties in intl. river basins*, World Bank Project, research contract with Oregon State University)

2008-2009 *A low flow hazard model for British Columbia, Canada*, Natural Resources Canada Mountain Pine Beetle Project

2007-2010 *Water and climate change (WATCH)*, FP6 integrated EU-Project (employment in Oslo, Work Block 4: Extremes)

2007-2008 *Detection and attribution of streamflow changes in British Columbia*, Collaboration with UNBC and Environment Canada (without funding)

2007 *Bark beetle response to climate change: a landscape-level stochastic risk model for British Columbia*, Forest Science BC Project (employment at UBC/UNBC)

2005-2006 *Climate change and low flows: influence of glaciers and groundwater*, Climate Action Fund Project. (employment at UBC)

2004-2005 *Mountain pine beetle outbreaks in Western Canada: coupled influences of climate variability and stand development*, Climate Action Fund Project. (employment at UBC)

2002-2003 *Conflict and cooperation in international river basins: influence of hydroclimate*, DFG Forschungsstipendium carried out at OSU (USA).

1997-2001 *Assessment of the regional impact of drought in Europe (ARIDE)*, FP4 EU-Project. (employment in Freiburg)

### Awards and Scholarships

2002 DFG Research Scholarship (EUR 50K) to Oregon State University, USA for a study on *Conflict and cooperation in international river basins: influence of hydroclimate*.

2000 European Geophysical Society (now EGU) travel grant

1994 Scholarship within the University Freiburg – Brock University Exchange Program

## Publications and Presentations

### 1) Journal articles

- Hannaford, J., Buys, G., **Stahl, K.**, and Tallaksen, L. M. (2013) The influence of decadal-scale variability on trends in long European streamflow records, *Hydrol. Earth Syst. Sci.*, 17, 2717-2733, doi:10.5194/hess-17-2717-2013.
- Stoelzle, M., **Stahl, K.**, and Weiler, M., (2013) Are streamflow recession characteristics really characteristic?, *Hydrol. Earth Syst. Sci.*, 17, 817-828, doi:10.5194/hess-17-817-2013.
- Breña Naranjo, J.A., **Stahl, K.**, Weiler, M., (2012) Evapotranspiration and land cover transitions: long term watershed response in recovering forested ecosystems. *Ecohydrology* 5(6): 721–732. doi:10.1002/eco.256.
- Stahl, K.**, Tallaksen, L. M., Hannaford, J., and van Lanen, H. A. J.: Filling the white space on maps of European runoff trends: estimates from a multi-model ensemble, *Hydrol. Earth Syst. Sci.*, 16, 2035-2047, doi:10.5194/hess-16-2035-2012, 2012.
- Gudmundsson, L., Tallaksen, L. M., **Stahl, K.**, Clark, D. B., Dumont, E., Hagemann, S., Bertrand, N., Gerten, D., Heinke, J., Hanasaki, N, Voß, F. and Koirala, S. (2012) Comparing Large-scale Hydrological Model Simulations to Observed Runoff Percentiles in Europe, *J. Hydrometeorol*, 13: 604-620, doi:10.1175/JHM-D-11-083.1.
- Sambaraju K.R., Carroll A.L., Zhu J., **Stahl K.**, Moore R.D. and Aukema B. (2012) Climate change could alter the distribution of mountain pine beetle outbreaks in western Canada. *Ecography* 35(3): 211-223, doi:10.1111/j.1600-0587.2011.06847.x
- de Stefano, L., Duncan, J., Dinar, S., **Stahl, K.**, Strzepek, K.M. and Wolf, A.T. (2012) Climate change and the institutional resilience of international river basins. *Journal of Peace Research*. 49(1), 193–209, DOI: 10.1177/0022343311427416.
- Breña Naranjo, J. A., Weiler, M., and **Stahl, K.** (2011) Sensitivity of a data-driven soil water balance model to estimate summer evapotranspiration along a forest chronosequence, *Hydrol. Earth Syst. Sci.*, 15, 3461-3473, doi:10.5194/hess-15-3461-2011.
- Staudinger, M., **Stahl, K.**, Seibert, J., Clark, M. P., and Tallaksen, L. M. (2011) Comparison of hydrological model structures based on recession and low flow simulations, *Hydrol. Earth Syst. Sci.*, 15, 3447-3459, doi:10.5194/hess-15-3447-2011.
- Stahl, K.** Tallaksen, L.M., Gudmundsson, L., Christensen, J.H. (2011) Streamflow data from small basins: a challenging test to high resolution regional climate modeling. *Journal of Hydrometeorology* 12, 900-912. doi: 10.1175/2011JHM1356.1
- Gudmundsson, L., Tallaksen, L. M., **Stahl, K.**, and Fleig, A. K. (2011) Low-frequency variability of European runoff. *Hydrol. Earth Syst. Sci.*, 15, 2853-2869, doi:10.5194/hess-15-2853-2011.
- Gudmundsson, L., Tallaksen, L.M., **Stahl, K.** (2011) Comparing spatial cross-correlation patterns to investigate the coupling of annual low, mean and high flows across Europe. *Hydrological Processes*. 25, 1034–1045. Doi:10.1002/hyp.7807
- Stahl, K.**, Hisdal, H., Hannaford, J., Tallaksen, L.M., van Lanen, H.A.J., Sauquet, E., Fendekova, M., Jordar, J. (2010) Streamflow trends in Europe: evidence from a dataset of near-natural catchments. *Hydrology and Earth System Sciences*. 14, 2367–2382. doi:10.5194/hess-14-2367-2010.
- Fleig, A.K., Tallaksen, L.M. Hisdal, H., **Stahl, K.**, Hannah, D.M. (2010) Inter-comparison of weather and circulation type classifications for hydrological drought. *Physics and Chemistry of the Earth*, 35, 507–515. doi:10.1016/j.pce.2009.11.005.
- Déry, S. J., **Stahl, K.**, Moore, R. D., Whitfield, P. H., Menounos, B. and Burfords, J.E. (2009) Detection of runoff timing changes in pluvial, nival and glacial rivers of Western Canada. *Water Resour. Res.*, 45, W04426, doi:10.1029/2008WR006975.
- Shea, J., Moore, R.D., **Stahl, K.** (2009) Melt Factors for regional modeling of glacier Mass Balance. *Journal of Glaciology* 55(189): 123-130.
- Moore R.D., Fleming S.W., Menounos B., Wheate R., Fountain A., **Stahl K.**, Holm K., and Jakob M. (2009) Glacier Change in Western North America: Influences on Hydrology, Geomorphic Hazards and Water Quality. *Hydrological Processes* 23, 42 – 61. DOI: 10.1002/hyp.7162
- Burn D., Buttle J., McCollough G., Spence, C, **Stahl, K.** (2008) The processes, patterns and impacts of low flows across Canada. *Canadian Water Resources Journal*. 33: 107-122.
- Aukema, B.H., Carroll, A.L., Zheng, Y., Zhu, J., Raffa, K.F., Moore, R.D., **Stahl, K.**, and Taylor, S.W. (2008) Movement of outbreak populations of mountain pine beetle: influences of spatiotemporal patterns and climate. *Ecography* 31: 348-358. doi: 10.1111/j.2006.0906-7590.04445.x
- Stahl, K.**, R. D. Moore, J. M. Shea, D. Hutchinson, and A. J. Cannon (2008), Coupled modelling of glacier and streamflow response to future climate scenarios, *Water Resour. Res.*, 44, W02422, doi:10.1029/2007WR005956.

- Stahl K.** and Moore, R.D. (2006) Influence of watershed glacier coverage on summer streamflow in British Columbia, Canada. *Water Resources Research* 42, W06201, doi:10.1029/2006WR005022.
- Stahl, K.**, Moore, R.D., Floyer, J.A., Asplin, M.G, and McKendry, I. G. (2006) Comparison of approaches for spatial interpolation of daily air temperature in a large region with complex topography and highly variable station density. *Agricultural and Forest Meteorology* 139: 224-236. doi: 10.1016/j.agrformet.2006.07.004.
- McKendry, I., **Stahl, K.**, Moore, R.D. (2006) Validation of surface synoptic types generated by a general circulation model: implications for downscaling. *International Journal of Climatology* 26: 1727–1736. doi: 10.1002/joc.1337.
- Stahl, K.**, Moore, R.D., and McKendry, I.G. (2006) Climatology of winter cold spells in relation to Mountain Pine Beetle outbreaks in British Columbia, Canada. *Climate Research* 32: 13-23.
- Stahl, K.**, Moore, R.D., McKendry, I.G. (2006) The role of synoptic climatology in the linkage between large-scale ocean-atmosphere indices and winter surface climate in British Columbia, Canada. *International Journal of Climatology* 26: 541-560. doi: 10.1002/joc.1268.
- Stahl, K.** (2005) Influence of hydroclimatology and socio-economic conditions on water-related international relations. *Water International*. 30 (3), 270-282.
- Yoffe, S., Fiske, G., Giordano, M., Giordano, M., Larson, K., **Stahl, K.**, Wolf, A.T. (2004) The geography of international water conflict and cooperation: datasets and applications. *Water Resources Research* 40, W05S04, doi:10.1029/2003WR002530.
- Hisdal, H., **Stahl, K.**, Tallaksen, L.M. & Demuth, S. (2001) Have streamflow droughts in Europe become more severe or frequent? *International Journal of Climatology* 21:317-333.
- Stahl, K.** & Demuth, S. (1999) Linking streamflow drought to the occurrence of atmospheric circulation patterns. *Hydrological Sciences Journal* 44(3): 467-482.

#### **In review/revision**

- Tallaksen, L.M. and Stahl, K. High model variability in reproducing large-scale hydrological droughts in Europe. *Geophysical Research Letters*. (in re-review)
- D.M. Allen, K. Stahl, and P.H. Whitfield, R.D. Moore. Trends in Groundwater Levels in British Columbia. *Canadian Water Resources Journal*. (in revision)
- Kohn I., Rosin K., Freudiger D., Belz J.U., Stahl K., Weiler M. Niedrigwasser in Deutschland 2011. Low flow in Germany in 2011. *Hydrologie und Wasserbewirtschaftung*. (in revision)
- Freudiger D., I. Kohn, K. Stahl, and M. Weiler. Large scale analysis of changing frequencies of rain-on-snow events and their impact on floods. (submitted to *Hydrology and Earth System Sciences Discussion*)

#### **2) Book chapters**

- Pinkswar, Iwona; Kundzewicz, Zbigniew W.; Peduzzi, Pascal; Brakenridge, G. Robert; Stahl, Kerstin; Hannaford, Jamie. 2012 Changing floods in Europe. In: Kundzewicz, Zbigniew W., (ed.) Changes in flood risk in Europe. Wallingford, IAHS Press, 83-96. (IAHS Special Publication, 10).
- Moore, R.D., Spittlehouse, D., Whitfield, P.H., Stahl, K. (2010) Chapter 2. Weather and Climate. In: Pike, R.G., T.E. Redding, R.D. Moore, R.D. Winker and K.D. Bladon (editors). Compendium of forest hydrology and geomorphology in British Columbia. B.C. Min. For. Range, For. Sci. Prog., Victoria, B.C. and FORREX Forum for Research and Extension in Natural Resources, Kamloops, B.C. Land Manag. Handb. 66. Available online: [www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh66.htm](http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh66.htm)
- Stahl, K., van Lanen, H.A.J, Uhlenbrook, S.. 2008. Chapter 4: Processes and Regimes. p.36-42. In: Manual on low flow estimation and prediction. (ed. by Gustard, A. and Demuth, S.) WMO publication, WMO-no.1029, Operational Hydrology Report No. 50, 136pp.
- Stahl, K.. 2008. Chapter 13.4: Transboundary Rivers. In: Manual on low flow estimation and prediction. (ed. by Gustard, A. and Demuth, S.) World Meteorological Organization WMO publication, WMO-no.1029, Operational Hydrology Report No. 50, 136pp.
- Stahl, K. & Hisdal, H. (2004) Drought Hydroclimatology. p.19-51. In: HYDROLOGICAL DROUGHT – Processes and Estimation Methods for Streamflow and Groundwater (edited by Tallaksen, L.M. and van Lanen, H.A.J. Development in Water Sciences no. 48. Elsevier Publ. The Netherlands.
- Demuth, S., Lehner, B., Stahl, K. (2000) Assessment of the vulnerability of a river system to drought, p.209-219. In: Drought and Drought Mitigation in Europe (ed. by J.V. Vogt and F. Somma), 209-219. Kluwer Academic Publishers, Dordrecht, The Netherlands.

**3) National Journals, Conference Proceedings, Commentaries (simplified or only editorial review)**

- Stahl, K.**, Vidal, J.P., Hannaford, J., Prudhomme, C., Laaha, G., Tallaksen, L. Synthesizing changes in low flows from observations and models across scales. IN: Hydrology in a Changing World: Environmental and Human Dimensions. FRIEND-Water 2014, Hanoi, Vietnam, February 2014 (IAHS Publ. 363, in press for 2014)
- Seneviratne S.I., R. Orth, S. Joerg-Hess, S. Kruse, I. Seidl, M. Stähli, M. Zappa, J. Seibert, M. Staudinger, **K. Stahl**, and M. Weiler (2013). Trockenheit in der Schweiz. *Aqua & Gas*, Heft 9/2013
- Stähli, M, Kruse S., Fundel F., Zappa M., **Stahl K.**, Seidel I. (2013) Drought.ch – auf dem Weg zu einer Trockenheits-Informationsplattform für die Schweiz. *Wasser Energie Luft*, 105: 127-132.
- Shlomi Dinar, Lucia De Stefano, James Duncan, **Kerstin Stahl**, Kenneth M. Strzepek, Aaron T. Wolf. No wars for water. *Foreign Affairs*. Snapshot Article. Oct 2012.  
<http://www.foreignaffairs.com/articles/138208/shlomi-dinar-lucia-de-stefano-james-duncan-kerstin-stahl-kenneth/no-wars-for-water>
- Stoelzle, M, Weiler, M. **Stahl, K.** 2012 As simple as possible? Drought recognition based on streamflow recession. Proceedings of the 10th International Conference on Hydroinformatics. HIC 2012, Hamburg, GERMANY. 8 pages.
- Hannah, D. M., Demuth, S., Lanen van, H.A.J., Looser, U., Prudhomme, C., Rees, G., **Stahl, K.**, Tallaksen, L.M. (2011) Large-scale river flow archives: importance, current status and future needs. Invited Commentary. *Hydrological Processes*. 25, 1191–1200. DOI : 10.1002/hyp.7794
- Stölzle, M. and **Stahl, K.** (2011) Wassernutzung und Trockenheitsindikatoren in Baden-Württemberg. Eine Umfrage unter betroffenen Akteuren. *Standort – Zeitschrift für Angewandte Geographie* 35 (3): 94-101. DOI: 10.1007/s00548-011-0169-x.
- Stahl, K.**, Tallaksen, L.M., Hannaford, J., van Lanen, H.A.J. (2011) Abflusstrends in Europa: Vergleich eines Multi-Modell-Experiments mit Beobachtungen. In: Blöschl, G. and Merz, R. (Eds.) Hydrologie und Wasserwirtschaft – von der Theorie zur Praxis. Beiträge zum Tag der Hydrologie am 24./25. März 2011. Wien. 3/2011. Forum für Hydrologie und Wasserbewirtschaftung, Heft 30.11. p. 159-165.
- Nied, M., **Stahl, K.** (2010) Modelling vulnerability of streamflow allocations in International River Basins with open-source gridded climate input. In: Global Change: Facing Risks and Threats to Water Resources (Proc. of the Sixth WorldFRIEND Conference, Fez, Morocco, October 2010). IAHS Publ. 340, 265-272.
- Stahl, K.**, Tallaksen, L.M. (2010) RCM simulated and observed hydrological drought: a comparison of the 1976 and 2003 events in Europe. In: Global Change: Facing Risks and Threats to Water Resources (Proc. of the Sixth WorldFRIEND Conference, Fez, Morocco, October 2010). IAHS Publ. 340, 150-156.
- Hannah, D.M., Demuth, S., Van Lanen, H. A. J., Looser, U., Prudhomme, Ch., Rees, G., **Stahl, K.** and Tallaksen, L.M. (2010) A review of the status, research opportunities and future of large-scale river flow archives. In: Global Change: Facing Risks and Threats to Water Resources (Proc. of the Sixth WorldFRIEND Conference, Fez, Morocco, October 2010). IAHS Publ. 340, 584-590.
- Stahl, K.** (2008) Future Scenarios: the Impact of Climate Change and Droughts on Transboundary Water Dispute and Management. *Water Tribune*, Thematic Week 7, EXPO 2008 Zaragoza, Spain.
- Allen, D.A., **K. Stahl**, R.D. Moore, A. Werner, P.H. Whitfield (2008) Groundwater and Low Flows: Seasonality and Trends in British Columbia. IAH Conference. Edmonton.
- Stahl, K.**, Moore, R.D, Shea., J. M., Hutchinson, D. (2006) Effects of glacier retreat on summer streamflow in British Columbia, Canada. CWRA B.C. Branch Conference. Water under pressure: balancing values, demands and extremes. Vancouver. October 2006.
- Stahl, K.**, Moore, R.D., McKendry I.G. (2005) Lapse rates of climate variables for different atmospheric circulation conditions. *Headwater 2005*. Bergen, Norway. June 2005.
- Stahl, K.** (2005) Einfluss hydrologischer Variabilität und Extreme auf Wasser bezogene politische Konflikte und Zusammenarbeit in internationalen Flussgebieten (The influence of hydrologic variability and extremes on conflict and cooperation in international river basins). GRDC data user colloquium. March, 2005. Global Runoff Data Centre. Koblenz. Germany.
- Wolf, A.T., **Stahl, K.**, Macomber, M.F. (2003) Conflict and Cooperation in International River Basins: the Importance of Institutional Capacity. *Water Resources Update* 125:31-40.
- Stahl, K.** & Wolf, A.T. (2003) Does hydro-climatic variability influence water-related political conflict and cooperation in international river basins? Poster Paper. Proceedings CD of Int. Conference on Hydrology of the Mediterranean and Semi-Arid Regions. 1 – 4 April 2003. Montpellier, France.
- Stahl, K.**, Hassler B. & Demuth, S. (2002) Scenarios assessing the influence of climate variability on drought in Europe. In: (Van Lanen, H. & Demuth, S. eds.) FRIEND 2002 - Regional Hydrology: Bridging the Gap between Research and Practice. IAHS Publication, 274: 93-100.

- Demuth, S. & **Stahl, K.** (2001) The study of pan-European droughts as an example of large scale data requirements. In: Desertification Convention. Data and information requirements for interdisciplinary research (G. Enne, D. Peter, D. Pottier (eds.)). Proceedings of the International Workshop held in Alghero, Italy, 9-11 October 1999: 117-124.
- Demuth, S. & **Stahl, K.** (2002) Climate variability and drought. *Wasser & Boden* 54(10): 36-40.
- Hisdal, H., **Stahl, K.**, Tallaksen, L.M. & Demuth, S. (2000) Forekommer tørke i Europa hyppigere og har tørkene blitt mer alvorlige? Theme article in the Norwegian Hydrological Monthly Report, February 2000, Norwegian Water Resources and Energy Directorate, Oslo: 42-46.
- Stahl, K.** & Demuth, S. (1999) Investigating the influence of atmospheric circulation pattern on streamflow drought in southern Germany. In: L. Gottschalk, J.C. Olivry, D. Reed, D. Rosbjerg (Eds) *Hydrological Extremes: Understanding, Predicting, Mitigating*. IAHS Publication 255: 19-27.

#### 4) Reports (published)

- Kohn I., Freudiger, D., Rosin, K. **Stahl, K.**, Weiler, M., Belz, J. (in press): Das hydrologische Extremjahr 2011: Dokumentation, Einordnung, Ursachen und Zusammenhänge. Mitteilungen Nr. 29, BfG, Koblenz.
- Van Lanen, H.A.J., Alderlieste, M.A.A., Acacio, A., Andreu, J., Garnier, E., Gudmundsson, L., Haro Monteagudo, D., Lekkas, D., Paredes, J., Solera, A., Assimacopoulos, d., Rego, F., Seneviratne, S., **Stahl, K.**, & Tallaksen, L.M. (2013) : Quantitative analysis of historic droughts in selected European case study areas. DROUGHT-R&SPI Technical Report No. 8.
- Stahl, Kerstin**, Veit Blauhut, Irene Kohn, Vanda Acácio, Dionysis Assimacopoulos, Carlo Bifulco, Lucia De Stefano, Susana Dias, Daniel Eilertz, Barbara Frielingsdorf, Trine Jahr Hegdahl, Eleni Kampragou, Vassilis Kourentzis, Lieke Melsen, Henny A.J. van Lanen, Anne F. van Loon, Antonio Massarutto, Dario Musolino, Luigi de Paoli, Lanfranco Senn, James Howard Stagge, Lena M. Tallaksen, Julia Urquijo (2012): A European Drought Impact Report Inventory (EDII): Design and Test for Selected Recent Droughts in Europe. DROUGHT-R&SPI Technical Report No. 3., 23 pages. [<http://www.eu-drought.org/technicalreports>]
- Tallaksen, L.M., **Stahl, K.**, Wong, G. (2011) Space-time characteristics of large-scale droughts in Europe derived from streamflow observations and WATCH multi-model simulations. WATCH Technical Rep. 48 [[www.eu-watch.org/publications/technical-reports](http://www.eu-watch.org/publications/technical-reports)]
- De Stefano, L., Duncan, J., Dinar, S., **Stahl, K.**, Strzepek, K. & Wolf, A.T (2010): Mapping the resilience of international river basins to future climate change-induced water variability. Water Sector Board Discussion Paper Series, Paper No. 15. Published by The World Bank.
- Carver, M., Weiler, M., **Stahl, K.**, Scheffler, C., Schneider, J., Brena Naranjo, J.A. (2009) Development of a low-flow hazard model for the Fraser basin, British Columbia. Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, Victoria, BC. Mountain Pine Beetle Working Paper 2009-14. 25 p. [<http://bookstore.cfs.nrcan.gc.ca/>]
- Stahl K.**, McNally A., De Stefano L., Zentner M., Wolf A.T., (2009) Integrating approaches to model future streamflow change and transboundary water allocation requirements. World Bank Working Paper Series.
- Stahl, K.**, Hisdal, H., Tallaksen, L.M., van Lanen, H.A.J., Hannaford, J. & Sauquet, E. (2008) Trends in low flows and streamflow droughts across Europe. UNESCO Report, Paris, 39 pg.
- Moore, R.D., Allan, D.A., **Stahl, K.** (2008) Climate Change and Low flows: influences of glaciers and groundwater. Final Report to the Government of Canada's Climate Change Impacts and Adaptation Program. available online at <http://adaptation.nrcan.gc.ca/>.
- Stahl K.**, De Stefano L., McNally A., Basist A., Zentner M., Blankespoor B, Wolf A.T. (2008) Past and future streamflow in the Jordan River Basin: case study testing methods to assess water treaty vulnerability. Report to the World Bank.
- Stahl, K.**, (2007) Hydrology of the World's International River basins: hydrological parameters for use in global studies of international water-relations. GRDC Report no. 37. Global Runoff Data Center. Koblenz. Germany. 52pp. [avail. online at [www.bafg.de/grdc](http://www.bafg.de/grdc)]
- Moore, R.D., McKendry, I.G., **Stahl, K.**, Kimmins, H.P., Lo, Y. (2005) Mountain Pine Beetle Outbreaks in Western Canada: Coupled Influences of Climate Variability and Stand Development. Final Report to the Government of Canada's Climate Change Impacts and Adaptation Program, available online at <http://adaptation.nrcan.gc.ca/>.
- Demuth, S & **Stahl, K.** (Eds) (2001) ARIDE – Assessment of the Regional Impact of Droughts in Europe. Final Report to the European Commission. Freiburg, Germany, 170 pp.
- Stahl, K.** & Demuth, S. (1999) Method for Regional Classification of Streamflow Drought Series: Cluster Analysis. ARIDE Technical Report no. 1. Institute of Hydrology, University of Freiburg, Germany. (<http://www.hydrology.uni-freiburg.de/forsch/aride/>)

**Presentations at conferences and colloquia (since 2005)**

- Stahl, K. (2013) Linking drought indicators and impacts - no "one fits all". Kolloquium. Centre for Environmental Systems Research. Universität Kassel. 7/2013. (invited)
- Stahl, K., Moore, R.D., Hisdal, H., Schuler, T.V. (2013) Signatures of hydrological change in glacierized catchments. EGU General Assembly. Vienna. 4/2013.
- Stahl, K. Observed hydrological changes in partially glacierized catchments. AGU Fall Meeting. San Francisco 12/2012. (poster)
- Stahl, K., Blauhut V., Kohn, I. Low flows in the European Drought Impact report Inventory (EDII). Mid-term meeting of the EURO FRIEND Low Flow and Drought (LFD) Group. Payerbach, Austria. 10/2012.
- Stahl, K. Effects of transient climate and land cover changes on low flows. Second Conference on Modelling Climate, Hydrology and Land Surface Processes, Losby Gods, Norway. 9/2012. (invited)
- Stahl, K., Gundel, A., Staudinger, M., Seibert, J., Weiler, M., The 2011 Drought: Swiss Rivers' Sensitivity. NFP61 Programme Conference, Vitznau, CH, 3/2012. (poster)
- Stahl, K., Tallaksen, L.M., Hannaford, J., van Lanen, H.A.J. Comparing trends in European streamflow records to hydrological change in a large-scale hydrological model intercomparison experiment. AGU. San Francisco 12/2011. (poster)
- Stahl, K., Tallaksen, L.M., Hannaford, J., van Lanen, H.A.J. Observed runoff trends across Europe - a benchmark for land surface and global hydrological model simulations. EGU General Assembly. Vienna. 4/2011.
- Stahl, K., Tallaksen, L.M., Hannaford, J., van Lanen, H.A.J. Abflusstrends in Europa: Vergleich eines Multi-Modell-Experiments mit Beobachtungen. Tag der Hydrologie 2011. Wien. 3/2011.
- Stahl, K., Tallaksen, L.M. Large-scale droughts in Europe: a comparison between streamflow observations and WATCH Multi-Model Analysis of Extremes. WCRP Workshop on Drought Predictability and Prediction in a Changing Climate: Assessing Current Knowledge and Capabilities, User Requirements and Research Priorities, Barcelona, Spain. 3/ 2011.
- Stahl, K., Wong, G., Tallaksen, L.M. (2010) Large-scale historic droughts in Europe: observations and simulations. WATCH General Assembly. Amsterdam. 11/ 2010. (poster)
- Stahl, K. Observed and simulated runoff trends across Europe: towards an explanation for changes in hydrological extremes. WATCH General Assembly. Amsterdam. 11/ 2010.
- Stahl, K., Tallaksen, L.M. RCM simulated and observed hydrological drought: a comparison of the 1976 and 2003 events in Europe. Sixth World FRIEND Conference, Fez, Morocco, 10/2010.
- Stahl, K. Water allocations and hydrological change: assessing institutional resilience in global transboundary rivers, Water and climate change: how to develop an adaptation strategy in transboundary basins. UNECE Workshop, Geneva. 5/2010.
- Stahl, K., Tallaksen, L.M., Gudmundsson, L. Benchmarking large-scale models with observations from unregulated streamflow records across Europe. EGU General Assembly, Vienna, 5/2010.
- Stahl K., Moore R.D., Allen D.M. and Whitfield P. Separation of hydroclimatic and basin controls on late-summer low flow in British Columbia, Canada. AGU General Assembly, San Francisco, 12/2009.
- Stahl, K., Gudmundsson, L., and L.M. Tallaksen. Hydrological drought characteristics in catchments: to what extent are they reproduced by regional climate models? EGU General Assembly, Vienna, 4/2009. (poster)
- Stahl, K. & Weiler, M. Grenzüberschreitende Flüsse: Konflikt und Kooperation im globalen Wandel. Kolloquium zum Tag des Wassers. Freiburg. 3/2009. (invited)
- Stahl, K., H. Hisdal , L.M. Tallaksen, H.A.J. van Lanen, J. Hannaford, E. Sauquet, S. Demuth. Trends in low flows and droughts from streamflow records of an updated European Water Archive. EURO FRIEND meeting, Bratislava, 11/2008.
- Stahl, K., Tallaksen, L.M., van Lanen, H.A.J. Climate change impact on low flow and drought. UNESCO workshop on Adapting to the impact of global change on river basins and aquifer systems. Paris, 9/2008. (invited)
- Stahl, K. Future Scenarios: the Impact of Climate Change and Droughts on Transboundary Water Dispute and Management. Thematic Week 7: Water Markets and Financing. EXPO 2008. 7/2008. Zaragoza, Spain.(invited)
- Stahl K., H. Hisdal, L.M. Tallaksen, H.A.J. van Lanen, J. Hannaford, E. Sauquet, S. Demuth. Trends in low flows and droughts in small undisturbed rivers across Europe. EGU General Assembly, Vienna, 4/2008.
- Stahl, K., R.D Moore, D.M. Allen and P. Whitfield. Hydroclimatic controls on late-summer low flow in British Columbia, Canada. EGU General Assembly, Vienna, 4/2008.
- Stahl, K. European Initiatives on Drought: Research Projects and Networks. Third Drought Research Initiative Workshop. Calgary AB. Canada. 1/2008 (invited).

- Stahl, K. Changes in Summer Streamflow in Glacierized Basins in British Columbia: empirical analysis and coupled modelling. Departmental Seminar. Dept of Geosciences, University of Oslo, Norway, 9/2007. (invited)
- Stahl, K., Moore, R.D., Shea, J., Hutchinson, D. and Cannon, A. Coupled modelling of glacier and streamflow response to future climate scenarios. Conference on glaciers and hydrology. Obergurgl, Austria. 8/2007
- Stahl, K., Moore, R.D., Shea, J., Hutchinson, D. and Cannon, A. Coupled modelling of glacier and streamflow response to future climate scenarios. Canadian Geophysical Union. St. Johns. 6/2007
- Stahl, K. Low flow processes, characteristics, and issues in mountainous regions of Western Canada. PUB Low Flow Workshop. The Canadian Society for Hydrological Sciences. Quebec City. 4/2007. (invited)
- Stahl K., Moore, R.D. and Allan, D. Empirical Analysis of climate influences on late-summer streamflow. Workshop on Climate Change and Low Flows, Vancouver. 3/2007.
- Stahl, K., Moore, R.D., Shea, J., Hutchinson, D. and Cannon, A. Coupled modelling of glacier and streamflow response to future climate scenarios. Workshop on Climate Change and Low Flows, Vancouver. 3/2007.
- Stahl, K. Streamflow Changes in BC: impact of climate change and glacier retreat. A workshop to determine research priority for Eulachon. Richmond, BC. 2/2007 (invited)
- Stahl, K., Moore, R.D., Shea, J. M., Hutchinson, D. Effects of glacier retreat on summer low flow. AGU General Assembly. San Francisco, 12/2006.
- Stahl, K., Moore, R.D., Shea, J. M., Hutchinson, D. (2006) Effects of glacier retreat on summer streamflow in selected basins in British Columbia, Canada. CWRA B.C. Branch Conference. Vancouver. 10/2006.
- Stahl K. and Moore, R.D. (2006) Influence of watershed glacier coverage on summer streamflow in British Columbia, Canada. EGU General Assembly, Vienna, 4/2006. (Poster)
- Stahl, K., Moore, R.D. and McKendry, I.G. (2006) Climatology of winter cold spells in British Columbia, Canada, in relation to Mountain Pine Beetle outbreaks. Colloquium. Dept. of Geography, University of Northern BC, Prince George. 3 Feb 2006 (invited).
- Stahl, K., Moore, R.D., Floyer, J., Asplin, M., and McKendry, I. (2005) Spatial interpolation of daily air temperature in a large region with complex topography and highly variable station density. Hydrology for the Orographically Challenged: workshop on predictions in ungauged basins (PUB) in mountainous regions. Canadian Water Resources Association, Manning Park, BC, 11/2005. (Poster)
- Stahl, K. and R.D. Moore (2005) The influence of glacier coverage on late-summer streamflow in BC watersheds. Northwest Glaciology Meeting. Vancouver. 10/2005.
- Stahl, K., R.D. Moore, I.G. McKendry (2005) Lapse rates of climate variables for different atmospheric circulation conditions. Headwater 2005 Conference. Bergen, Norway, 6/2005. (Poster)
- Stahl, K., R.D. Moore, I.G. McKendry (2005) Variability of winter precipitation and air temperature in British Columbia: interacting influences of large-scale teleconnections and synoptic weather types. Canadian Geophysical Union Conference. Banff, 5/2005.
- Stahl, K. (2005) Influences of climate variability on Mountain Pine Beetle Outbreaks in BC. Colloquium. Department of Geography, UBC. 3/2005.
- Stahl, K., R.D. Moore, I.G. McKendry (2005) Mountain Pine Beetle outbreaks in Western Canada: influences of climate variability and change. Mountain Pine Beetle Workshop, UBC. 3/2005.
- Stahl, K. (2005) Einfluss hydrologischer Variabilität und Extreme auf Wasser bezogene politische Konflikte und Zu-sammenarbeit in internationalen Flussgebieten (The influence of hydrologic variability and extremes on conflict and cooperation in international river basins). GRDC data user colloquium. Global Runoff Data Centre. Koblenz, Germany 3/2005 (invited).

#### **Presentations as a co-author (since 2005)**

- Blauhut V., Stahl K., Gudmundsson L, Seneviratne S. I. (2013): Linking Drought Indices to reported Impacts -Germany 2003, EGU General Assembly, 4/ 2013, Vienna, Austria. (Poster)
- Freudiger, D., Kohn, I., Stahl, K. and Weiler M. Large scale analysis of changing frequencies of rain-on-snow events over Europe and their impact on floods. EGU General Assembly, 4/ 2013, Vienna, Austria. (Poster)
- Stagge, J.H., Tallaksen, L.M., Gudmundsson, L., van Loon, A. & Stahl, K. (2013) Pan-European comparison of candidate distributions for climatological drought indices, SPI and SPEI. EGU General Assembly, 4/ 2013, Vienna, Austria.
- Stoelzle, M., Weiler, M., and Stahl, K. 2013 The role of seasonal recharge and catchment storage concepts for low flow modeling. EGU General Assembly, 4/ 2013, Vienna, Austria. (Poster)



- Van Lanen HAJ, Van Loon AF, Van Huijgevoort MHJ, Wanders N, Alderlieste MAA, Stahl K, and Tallaksen LM. Past and future hydrological drought in water-scarce European regions. EGU General Assembly, 4/ 2013, Vienna, Austria. (invited)
- Kohn I., Freudiger, D., Rosin, K. Stahl, K., Weiler, M., Belz, J. (2013): 2011- ein Jahr hydrologischer Extreme in Deutschland? Tag der Hydrologie 2013. Bern. 4/2013. (Poster)
- Blauhut V., Stahl K., Gudmundsson L, Seneviratne S. I. (2013): Linking Drought Indices to Impacts of the 2003 drought event. European Climate Change Adaption Conference, Hamburg, 18.- 20. March 2013.
- Blauhut V., Stahl K., Kohn I and EDII-contributers (2013): EDII - A European Drought Impact Report Inventory, European Climate Change Adaption Conference, Hamburg, 18.- 20. March 2013. (Poster)
- Tallaksen, L.M. & Stahl, K. (2012) Historical droughts in Europe as simulated by an ensemble of nine large-scale hydrological models. Presentation at the 2nd Conference on “Modelling Hydrology, Climate and Land Surface Processes”, 10-12 September 2012, Losby Gods, Norway.
- Stoelzle, M, Weiler, M., and Stahl, K. 2012 As simple as possible? Drought recognition based on streamflow recession. The 10th International Conference on Hydroinformatics. HIC 2012, Hamburg, 5/2012
- Tallaksen, L.M. and Stahl, K. Major historical droughts in Europe as simulated by an ensemble of large-scale hydrological models. EGU. Vienna 4/2012. (Poster)
- Stoelzle, M., Weiler, M, Stahl, K. Are streamflow recession characteristics characteristic? EGU. Vienna 4/2012.
- Tallaksen, L.M. and Stahl, K. Spatial and temporal drought characteristics in Europe from a multi-model ensemble of simulated runoff. AGU. San Francisco. 12/2011. (Poster)
- Gudmundsson L., Tallaksen L. M., Stahl, K Projected changes in future runoff variance - a time scale dependent analysis. AGU. San Francisco. 12/2011. (Poster)
- Brena Naranjo A.-J., Weiler, M., Stahl, K. How does forest disturbance and succession affect summer streamflow recession? AGU. San Francisco. 12/2011.
- Gundel, A., Weiler, M., Stahl, K. (2011) Groundwater vulnerability of mountainous catchments under drought conditions in Switzerland. HydroEco, Wien May 2011. (Poster)
- Brena Naranjo A.-J., Weiler, M., Stahl, K. (2011) Predicting evapotranspiration in a successional forest without eddy-covariance measurements. EGU. Vienna 4/2011(Poster)
- Gudmundsson L., Tallaksen L. M., Stahl, K, Fleig A. K. (2011) Low-frequency runoff dynamics: catchment versus climate controls. EGU. Vienna 4/2011
- Tallaksen, L.M., Stahl., K. & Gudmundsson, L. (2012) Drought and Low Flow in Europe: Observations and Multi-model simulations (keynote). Presentation at the Symposium on Climate Impacts on Low Flow and Droughts, BOKU, Vienna 1-2 March 2012.
- Gudmundsson L., Tallaksen L. M., Wagener T., Engeland K., Stahl, K. (2011) Comparative Diagnostic Evaluation of eight Large Scale Hydrological Models Across Europe. EGU. Vienna 4/2011.
- Stölzle, M. und Stahl, K. (2011) Trockenheit im Kontext des Klimawandels: Ergebnisse einer sektorübergreifenden Umfrage. Tag der Hydrologie. Wien, 3/2011. (Poster)
- Nied, M., Stahl, K. (2010) Modelling vulnerability of streamflow allocations in International River Basins with open-source gridded climate input. Sixth WorldFRIEND Conference, Fez, Morocco, October 2010).
- Hannah, D.M., Demuth, S., Van Lanen, H. A. J., Looser, U., Prudhomme, Ch., Rees, G., Stahl, K. and Tallaksen, L.M. (2010) A review of the status, research opportunities and future of large-scale river flow archives. Sixth WorldFRIEND Conference, Fez, Morocco, October 2010).
- Gudmundsson, L. Tallaksen, L.M., Stahl, K., Fleig, A.K. (2010) Patterns of European streamflow on inter-annual time scales. EGU General Assembly. Vienna, 5/2010.
- Brena, A., Weiler, M., Stahl, K. (2010) Inferring long-term water balance dynamics in forested watersheds: Tracing vegetation cover transitions. EGU General Assembly. Vienna, 5/2010. (Poster)
- Staudinger, M., Stahl, K., Tallaksen, L.M., Clark, M.P., Seibert, J. (2010) Performance comparison of hydrological model structures during low flows. EGU General Assembly. Vienna, 5/2010. (Poster)
- Spiegelhalter, K., Stahl, K. Modelling the coupled influence of climate and glacier change on Discharge. EGU General Assembly. Vienna, 5/2010. (Poster)
- Brena, A., Schneider, J., Stahl, K., Weiler, M. (2009) Estimation of low flow sensitivity to climate and land-use changes using a parsimonious water balance model. EGU General Assembly, Vienna, 4/2009. (Poster)
- Gudmundsson, L., Lange, H., Tallaksen, L. M., Stahl, K. (2009) Quantification of Europe-wide streamflow complexity and potential links to atmospheric circulation patterns. EGU General Assembly, Vienna, 4/2009.
- Gudmundsson, L., Tallaksen, L. M., Stahl, K., Lange, H. (2009) Regional synchronisation of hydrological regimes – is the variability of extremes linked to mean conditions? EGU General Assembly, Vienna, 4/2009.

- Tallaksen, L. M., van Lanen, H.A.J., Stahl, K. (2008) Climate change impacts on low flow and drought - an overview. UNESCO EURO FRIEND Int. Workshop on Low Flow and Drought. Bratislava. 11/2008.
- Fleig, A. K., Tallaksen, L. M., Hisdal, H., Hannah, D. M., Stahl, K. (2008) Associations between weather types and hydrological drought in north-western Europe. ADVANCES IN WEATHER AND CIRCULATION TYPE CLASSIFICATIONS & APPLICATIONS. COST 733 Mid-term Conference. Krakow, 10/2008.
- Asplin, M.G., K. Stahl, I.G. McKendry, and R.D. Moore (2006) The synoptic climatology of British Columbia: ENSO and PDO teleconnections as a source of “within-type” precipitation variability. Abstract and Poster. AAG, Chicago, 3/2006.
- Moore, R.D. and Stahl, K. (2005) Glacier recession: implications for late-summer streamflow and water temperature. Hydrology for the Orographically Challenged: workshop on predictions in ungauged basins (PUB) in mountainous regions. CWRA, Manning Park, BC, 11/2005.
- Moore, R.D. and Stahl, K. (2005) Streamflow and water temperature response to late-summer drought: the moderating role of glacier cover. AGU Fall Meeting. San Francisco. 12/2005. (Poster)