

Personal Data

Name Wei Yang
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Education

- Oct, 2002-2007 Ph.D of “Discrete-continuous downscaling model for generating daily rainfall series” at the *Chair of Hydrology and Geohydrology, Institute of Hydraulic Engineering, University of Stuttgart, Germany*
- October 2000 Master of Science in Water Resources Engineering and Management, entitled as “Optimization of the Operation of a SBR Plant with Submerged Hollow Fibre Membranes”, at the *Chair of Sewage Technology, Institute for Sanitary Engineering, Water Quality and Solid Waste Management, University of Stuttgart, Germany*

Working experiences

- May.2007 to present **Researcher**
Department of hydrology, Swedish Meteorological and Hydrological Institute (SMHI), Sweden
- Developing bias-correction method to scale GCM/RCM output for hydrological uses
 - Application of large-scale circulation patterns to hydrological seasonal forecasting system
 - Forest fire risk assessment
 - Extreme rainfall analysis
 - Multivariate analysis in bias-correction field
 - Climate change impact studies in hydrology and forest fire risk
- Jan.2004 to April.2007 **Research assistant for EU project “RIVERTWIN” - a Regional Model for Integrated Water Management in Twinned River Basins**
Chair of hydrology and geology at institute of hydraulic engineering, University of Stuttgart, Germany
- Applying fuzzy-logic method to classify atmospheric circulation patterns
 - Downscaling time series of meteorological variables for selected catchments, Neckar basin in Germany, Western Europe; Chirchik basin in Uzbekistan, Central Asia, and Oueme basin in Benin, Western Africa.
 - Set up a new copula-based multivariate precipitation downscaling model
- Dec.2002 to Jul.2005 **Research assistant for EU project “STADEX “Statistical and Regional dynamical Downscaling of Extremes for European regions**
Department of Structure, Applied Science University of Stuttgart, Germany
- Analyzing time series of critical circulation patterns due to the climate changes
 - Focusing on the impact of atmospheric circulation patterns on the extreme events in the past decades
 - Setting up a new discrete-continuous stochastic downscaling model to generate daily rainfall

Teaching experiences

- 2010 Supervisor for thesis work, "Improving the Distribution Based Scaling Method for Bias Correction of Precipitation from climate models" by Södling, J., Linköping university (LiTH – AT – EX - - 2010/22 - - SE)
- 2003 to 2006 Teaching assistant at the Chair of hydrology and geology at institute of hydraulic engineering, University of Stuttgart, Germany

SCIENTIFIC JOURNALS (REVIEWED)

- Berg, P., Bosshard, T., **Yang, W.**, and Zimmermann, K., MIdASv0.2.1 – Multi-scale bias AdjuStment (2022): Geosci. Model Dev., Vol.15, Issue 15, p. 6165–6180, <https://doi.org/10.5194/gmd-15-6165-2022>.
- Médus, E., Thomassen, E.D., Belusic, D., Lind, P., Berg, P., Christensen, J.H., Christensen, O.B., Dobler, A., Kjellström, E., Olsson, J., **Yang, W.** (2022): Characteristics of precipitation extremes over the Nordic region: added value of convection-permitting modelling. Nat. Hazards Earth Syst. Sci. 22, 693–711. <https://doi.org/10.5194/nhess-22-693-2022>. Mehran, A., AghaKouchak, A., Phillips, T.
- Berg, P., Christensen, O.B., Klehmet, K., Lenderink, G., Olsson, J., Teichmann, C. and **Yang, W.** (2019): Summertime precipitation extremes in a EURO-CORDEX 0.11° ensemble at an hourly resolution, Nat. Hazards Earth Syst. Sci., 19, 957-971, <https://doi.org/10.5194/nhess-19-957-2019>.
- Olsson, J., Arheimer, B., Borris, M., Donnelly, C., Foster, K., Nikulin, G., Persson, M., Perttu, A-M., Uvo, C.B., Viklander, M. and **Yang, W.** (2016): Hydrological Climate Change Impact Assessment at Small and Large Scales: Key Messages from Recent Progress in Sweden, Climate 2016, 4(3), 39, doi:10.3390/cli4030039
- Olsson, J., Uvo, C. B., Foster, K., and **Yang, W.** (2016): Technical Note: Initial assessment of a multi-method approach to spring-flood forecasting in Sweden, Hydrol. Earth Syst. Sci., 20, 659-667, doi:10.5194/hess-20-659-2016
- Yang, W.**, Gardelin, M., Olsson, J., and Bosshard, T. (2015): Multi-variable bias correction: application of forest fire risk in present and future climate in Sweden, Nat. Hazards Earth Syst. Sci., 15, 2037-2057, doi:10.5194/nhess-15-2037-2015
- Berg, P., Bosshard, T. and **Yang, W.** (2015): Model consistent pseudo-observations of precipitation for bias correcting regional climate models. Climate, 3, 118-132. DOI:10.3390/cli3010118.
- Wilk, J., Hjerpe, M., **Yang, W.** and Fan, H. (2014): Farm-scale adaptation under extreme climate and rapid economic transition. Environment, Development and Sustainability. DOI10.1007/s10668-014-9549-2.
- Pisinaras, V., **Yang, W.**, Barring L. and Gemitzi, A. (2014): Conceptualizing and assessing the effects of installation and operation of photovoltaic power plants on major hydrologic budget constituents. Science of the Total Environment. DOI: 10.1016/j.scitotenv.2014.05.132.
- Donnelly, C., **Yang, W.** and Dahné, J. (2014): River discharge to the Baltic Sea in a future climate. Climatic Change, 122:157-170.
- Olsson, J., **Yang, W.** and Bosshard, T. (2013): Climate model precipitation in hydrological impact studies: limitations and possibilities. Journal of Water Management and Research 69: 221-230.

Ruete, A., **Yang, W.**, Barring, L., Stenseth, N.C., and Snäll, T. (2012): Disentangling effects of uncertainties on population projections: climate change impact on an epixylic bryophyte. *Proceedings of the Royal Society*, 279 (1740): 3098-105. Doi: 10.1098/rspb.2012.0428.

Graham, L.P., Andersson, L., Horan, M., Kunz, R., Lumsden, T., Schulze, R., Warburton, M., Wilk, J. and **Yang, W.** (2011): Using multiple climate projections for assessing hydrological response to climate change in the Thukela River Basin, South Africa. *Physics & Chemistry of the Earth, Parts A/B/C*, doi:10.1016/j.pce.2011.07.084.

Wetterhall, W., Graham, L.P., Andréasson, J., Rosberg, J. and **Yang, W.** (2011): Using ensemble climate projections to assess probabilistic hydrological change in the Nordic region. *Nat. Hazards Earth Syst. Sci.*, 11, 2295-2306, doi:10.5194/nhess-11-2295-2011.

Olsson, J., **Yang, W.**, Graham, L.P., Rosberg, J. and Andréasson, J. (2010): Using an ensemble of climate projections for simulating recent and near-future hydrological change to lake Vänern in Sweden. *Tellus A*, Vol. 63, issue 1, pp. 126-137.

Yang, W., Andréasson, J., Graham, L. P., Olsson, J., Rosberg, J. and Wetterhall, F. (2010): Distribution based scaling to improve usability of regional climate model projections for hydrological climate change impacts studies. *Hydrol. Res.*, 41.3-4.

Yang, W., Bárdossy, A., and Caspary, H-J. (2010): Downscaling daily precipitation time series using a combined circulation- and regression-based approach. *Theoretical and Applied Climatology* Vol. 102, Numbers 3-4, 439-454, DOI: 10.1007/s00704-010-0272-0.

Conference proceedings:

Yang, W., Berg, P., Hutjes, R., McKnight, U., Nauta, L., and Paparrizos, S. (2023): A pan-European service for hydrological seasonal forecasts at C3S, EGU General Assembly 2023, Vienna, Austria, 23–28 Apr 2023, EGU23-13170, <https://doi.org/10.5194/egusphere-egu23-13170>.

Berg, P., Bosshard, T., Barring, L., Södling, J., Wilcke, R., **Yang, W.**, and Zimmermann, K. (2023): Reducing negative impacts of bias adjustment on the distribution tail and extreme climate indicators in MIdAS, EGU General Assembly 2023, Vienna, Austria, 24–28 Apr 2023, EGU23-11124, <https://doi.org/10.5194/egusphere-egu23-11124>.

Toivonen, E., Belušić, D., Thomassen, E.D., Berg, P., Christensen, O.B., Dobler, A., Dyrddal, A.V., Haugen, J.E., Jylhä, K., Kjellström, E., Landgren, O., Lind, P., Lindstedt, D., Matte, D., Mäkelä, A., Olsson, J., Pedersen, R.A., Wang, F., and **Yang, W.** (2020) Evaluation of extreme precipitation over the Nordic region using a convection-permitting regional climate model, EGU General Assembly, online.

Berg, P., Christensen, O.B., Klehmet, K., Lenderink, G., Olsson, J., Teichmann, C., and **Yang, W.** (2019) Summertime sub-daily precipitation extremes in a EURO-CORDEX 12-km ensemble: evaluation and future projections, EMS Annual Meeting, 9-13 September, Copenhagen, Denmark.

Olsson, J., Berg, P., Eronn, A., Simonsson, L., Södling, J., Wern, L., and **Yang, W.** (2017) Extreme rainfall in present and future climate, SMHI Climatology No 47, SMHI, 601 76 Norrköping, 82 pp (in Swedish).

Berg, P., **Yang, W.**, Olsson, J., Simonsson, L., and T. Bosshard (2016) Sub-hourly precipitation extremes in EUR-11 RCA4: evaluation and projected changes, International Conference on Regional Climate - CORDEX 2016, 17-20 May, Stockholm, Sweden.

- Olsson, J., Foster, K., Uvo, C.B., and **Yang, W.** (2016) Spring flood forecasting in Sweden: a multi-method approach, 7th International Conference on Water Resources and Environment Research, 5-9 June, Kyoto, Japan.
- Donnelly C., Andersson J., Arheimer B., Berg P., Bosshard T., Hundecha Y., Olsson J., Pechlivanidis I.G., **Yang W.** (2016), 'Lessons learnt from top-down large-scale and bottom-up small-scale impact studies', International Conference, presented on the European Geosciences Union General Assembly, 17-22 April, Vienna, Austria
- Donnelly, C., Andersson, J., Olsson, J., Bosshard, T., **Yang, W.**, Berg, P, and B. Arheimer (2015) Robust Impacts of Climate Change in Europe: Why Study Scale is Important for Adaptation, AGU Fall Meeting, 14-18 December, San Francisco, USA.
- Berg, P., Bosshard, T and **Yang, W.** (2015): Construction of high-resolution model consistent pseudo-observations of precipitation and their use for bias correction. European Geosciences Union General Assembly, Vienna, 12 – 17 April 2015
- Nikulin, G., Bosshard, T., **Yang, W.**, Bärring, L., Wilcke, R., Vrac, M., Vautard, R., Noel, T., Gutiérrez, JM., Herrera, S., Fernández, J., Haugen, JF., Benestad, R., Landgren, OA., Grillakis, M., Ioannis, T., Koutroulis, A., Dosio, A., Ferrone, A and Switanek, M. (2015): Bias Correction Intercomparison Project (BCIP): an introduction and the first results. European Geosciences Union General Assembly, Vienna, 12 – 17 April 2015
- Nikulin, G., Bosshard, T., Wilcke, R., **Yang, W.**, Kjellström, E. and Bärring, L. (2015): Uncertainties in projected climate changes of the rainy season over West Africa related to bias adjustment. European Geosciences Union General Assembly, Vienna, 12 – 17 April 2015.
- Yang, W.**, Olsson, J., Bosshard, T., Berg, P. and Arheimer, B. (2014): Multi-variable bias correction of RCMs for Climate Change Impact Studies. European Geosciences Union General Assembly, Vienna, 27 April – 02 May 2014.
- Bosshard, T., **Yang, W.**, Sjökvist, E., Arheimer, B. and Graham, LP. (2014): Bias-correction of CORDEX-MENA projections using the Distribution Based Scaling method. European Geosciences Union General Assembly, Vienna, 27 April – 02 May 2014.
- Foster, K., Olsson, J., Uvo, C.B., **Yang W.** and J. Södling (2012) A comparison of different approaches for forecasting spring floods in Sweden and the feasibility of a multi-model forecast system, Proceedings of XXVII Nordic Hydrological Conference (Nordic Water), 13-15 August, Oulu, Finland.
- Graham, LP., Andersson, L., Horan, M., Kunz, R., Lumsden, T., Schulze, R., Warburton, M., Wilk, J. and **Yang, W.** (2010): Using multiple climate projections for assessing hydrological response to climate change in the Thukela River Basin, South Africa. Physics & Chemistry of the Earth for the 11th WATERNET/WARFSA/GWP-SA symposium 2010 in Victoria Falls.
- Donnelly, C., Dahne, J., Rosberg, J., Strömqvist, J., **Yang, W.**, and Arheimer, B. (2010): High-resolution, large-scale hydrological modelling tools for Europe. Global change: Facing Risks and Threats to Water Resources (Proc. of the Sixth World FRIEND Conference, Fez, Morocco, October 2010). IAHS Publ. 340, 2010, 553-560.
- Donnelly, C., Dahne, J., Lindström, G., Rosberg, J., Strömqvist, J., Pers, C., **Yang, W.** and Arheimer, B. (2009): An evaluation of multi-basin hydrological modelling for predictions in ungauged basins. New Approaches to Hydrological Prediction in Data-sparse Regions (Proc. of Symposium HS.2 at the Joint IAHS & IAH Convention, Hyderabad, India, September 2009). IAHS Publ. 333, 2009, 112-120.

Olsson, J., **Yang, W.**, and U. Willén (2009) Application of RCM output for urban hydrological modeling, Proceedings of the 8th IAHS Scientific Assembly & 37th IAH Congress, 6-12 September, Hyderabad, India.

Strömqvist, J., Dahné, J., Donnelly, C., Lindström, G., Rosberg, J., Pers, C., **Yang, W.** & Arheimer, B. (2009) Using recently developed global data sets for hydrological predictions. In: New Approaches to Hydrological Prediction in Data Sparse Regions (Proc. of Symposium HS.2 at the Joint IAHS & IAH Convention, Hyderabad, India, September 2009). IAHS Publ. 333, 2009.

Yang, W., Andréasson, J., Rosberg, J., Wetterhall, F., Olsson, J., and L.P. Graham (2009) Application of RCM to Climate Change Impact Study in Sweden, presented at FREE Workshop on Precipitation Downscaling and Modelling, 28-30 April, Norwich, UK.

Yang, W., Andréasson, J., Graham, L. P., Olsson, J., Rosberg, J and Wetterhall, F. (2008): A scaling method for applying RCM simulations to climate change impact studies in hydrology. In: XXV Nordic Hydrological conference Nordic Association for Hydrology Reykjavik, Iceland, August 11-13, Vol. 1, pp. 256-265.

Yang, W., Bardossy, A., Caspary, H (2005): Downscaling daily precipitation for flood risk estimation using copulas. Presentation of RIVERTWIN project and current research about climate downscaling at the European Geosciences Union General Assembly, Vienna, 24 - 29 April 2005.

Bardossy, A., Caspary, H., **Yang, W.** (2004): Downscaling daily precipitation for flood risk estimation. Presentation of current research about climate downscaling at the European Geosciences Union General Assembly, Nice, 25 - 30 April 2004

Popular scientific articles and Reports:

Yang, W., Olsson, J., Simonsson, L.: Spatio-temporal characterization of warnings and advisories issued by SMHI 2011-2020 with focus on multiple hydrological hazards, SMHI Hydrology No. 23, SMHI, 60176 Norrköping (in English), 2023.

Berg, P., Bosshard, T., **Yang, W.**: Metodutveckling och analyser av klimatscenarier enligt FWI-modellen för framtida brandrisk i vegetation. MSB 2017-23.

Olsson, J., Berg, P., Eronn, A., Simonsson, L., Södling, J., Wern, L. and **Yang, W.**: Extremregn i nuvarande och framtida klimat Analyser av observationer och framtidsscenarier. SMHI Klimatologi Nr 47, 2017.

Granström, A., Amon, F., Sjöström, J. and **Yang, W.**: Klimatpåverkan på skogsbrandrisk i Sverige. -Nulägesanalys, modellutveckling och framtida scenarioutveckling. MSB 1106

Berg, P., Belking, A., Berggren, L., Persson, H. and **Yang, W.**: Förberedelse för operationalisering och testsimuleringar av skogsbrandriskprognosen enligt FWI-modell med en timmes tidssteg. MSB 2016-48.

Olsson, J., Cintia, B.U., Foster, K., **Yang, W.**, Södling, J., German, J. and Johansson, B.: A multi-model system for spring flodd forecasts. Elforsk report 11:72, 2011

Gardelin, M., Andréasson, J., Ohlsson, J., Sahlberg, J., Stensen, B. and **Yang, W.**: Scenarier för framtida skogsbrandriskStudier med två brandriskmodeller. MSB 2011/77

Södling, J. and **Yang, W.**: Improving the Distribution Based Scaling Method for Bias Correction of Precipitation from climate models. LiTH - MAT - EX - - 2010 / 22 - - SE

Gardelin, M., Andréasson, J., Ohlsson, J., Sahlberg, J., Stensen, B. and **Yang, W.**: Klimatscenarier Brandrisk FWI - Delrapport Etapp 1. MSB **2009/729/180**