

Space-Time Dynamics of Extreme Floods

S^PA^TE

Edition 2

Coordinator:

Prof. Dr. Andreas Schumann

Ruhr-University Bochum
Institute of Hydrology, Water Resources
Management and Environmental
Engineering
D – 44801 Bochum

Phone:

+49 (0)234 / 3224693

Fax:

+49 (0)234 / 3214153

E-Mail:

andreas.schumann@rub.de

Newsletter

www.spate-floods.com

First anniversary of the SPATE-project

Dear followers of the SPATE research group,

Actually, one year has passed since our research group SPATE started working on the spatial and temporal dynamics of extreme events and aims to get insights on the many processes leading to these events. Although this time span does not feel like it has been year, much research has been done in our project and many new results have been shared. We are very happy about the diversity of research topics that have been studied and published in many journals and presented at so many conferences. But we can be even more proud of the extraordinary joint work in our project that combines different fields of research in a unique way. And also the junior researchers of our group profit directly from this large expertise, for example by the first qualification workshops held this February.

To strengthen the inter-project work, many future meetings are planned, the next meeting being in October 2018 in Frankfurt. Moreover, new sessions and symposia with the background of the research topics in SPATE are planned at future conferences like the EGU General Assembly or the IUGG General Assembly. This will help us share our results and get new impact from researchers all over the world.

The extraordinary quality of the researchers of our project has been noted by commissions, too. It has been a great honour for the whole research group that our speaker, Professor Andreas Schumann, has been awarded by the IAHS and WMO with the Volker medal for outstanding work in the field of hydrology. Also one of our subproject coordinators, András Bárdossy, has been awarded with the German Hydrology Prize. More details on this and an insight and overview of the results of SPATE are given in this issue of the newsletter. We hope you enjoy reading and will follow our work in future.

On behalf of the whole SPATE-project, with kind regards,

Svenja Fischer and Andreas Schumann

Members of the SPATE-project

Prof. Dr. Andreas Schumann, Dr. Svenja Fischer, Philipp Bühler
Subproject 1 (Ruhr-University Bochum)

Prof. Dr. Bodo Ahrens, Dr. Cristina Primo Ramos, Amelie Krug
Subproject 2 (Goethe-University Frankfurt)

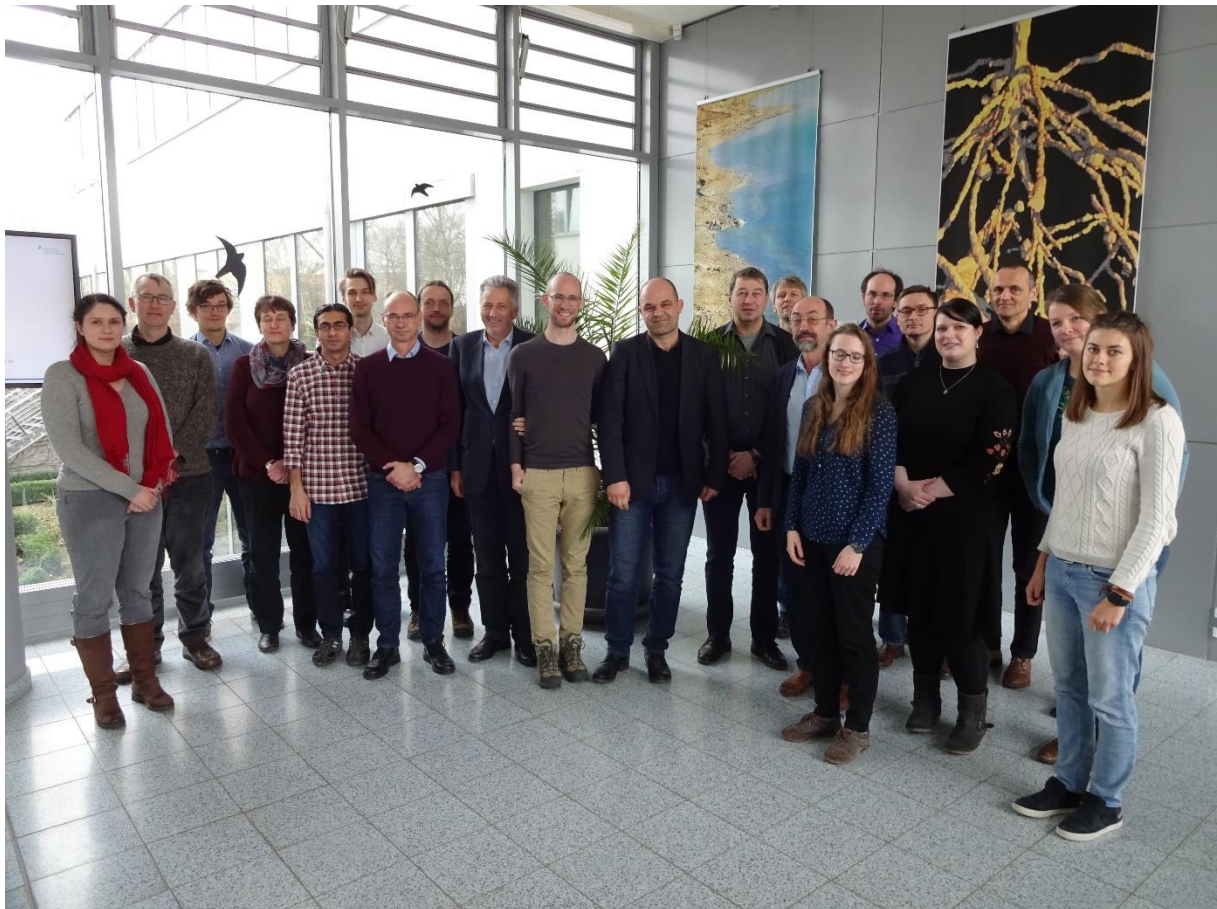
Prof. Dr. Bruno Merz, Dr. Heidi Kreibich, Dr. Sergiy Vorogushyn, Dr. Björn Guse, Luzie Wietzke
Subproject 3 (GFZ Potsdam)

Prof. Dr. Ralf Merz, Larisa Tarasova
Subproject 4 (UFZ Halle/Saale)

Prof. Dr. András Bárdossy, Dr. Jochen Seidel, Faizan Anwar
Subproject 5 (University of Stuttgart)

Prof. Dr. Günter Blöschl, Dr. Alberto Viglione, Dr. Andrea Kiss, David Lun
Subproject 6 (Technical University of Vienna)

Prof. Dr. Uwe Haberlandt, Stefan Plötner, Ross Pidoto
Subproject 7 (Leibniz University Hannover)



Members of the research unit SPATE at the first SPATE-symposium in Halle

February 2018: First SPATE symposium in Halle

In February 2018 the first symposium of the SPATE research group with the topic “flood typology” took place at the Helmholtz Umweltforschungszentrum in Halle. The aim of this symposium was the presentation of the results of the first six month of the project and the forcing of connections between the subprojects. Moreover, a common typology and classification for flood events had to be found within the research group.

At the first day all subprojects gave a short overview of their work so far. There has been considerable progress in all subprojects and also an intensive exchange between the projects has started. Again, the many common research questions and methodologies in the projects



became obvious, for example the need of classified storm paths belonging to the flood events or a spatial characterization of the event precipitation.

These questions were discussed further in the cluster group meetings. In the four cluster groups of the research group the main expertise and responsibilities concerning the topics event analysis, spatial patterns, temporal patterns and uncertainty are concentrated. At the symposium each of these clusters

discussed the challenges for their cluster that arise within the project. The event analysis cluster focused on the distinction of “extreme” and “normal” floods and aims to combine the many theoretical results on this topic in the research group so far. Here, the event separation of SP4 is combined with a classification of SP1 and the resulting events are analysed according to their characteristics derived e.g. by the Re-analysis data of SP2 and the SWIM-model results of SP3. The spatial pattern cluster group discussed several methodological possibilities to analyse spatial patterns of precipitation. The basis will form the storm path data of SP2, while entropy measures as used by SP5 will detect spatial coherences. In the temporal pattern cluster group the temporal variability (flood poor - flood rich periods) lies in the focus. Under the leadership of SP6 the temporal variability of floods is compared to the meteorological variability provided by SP2 and the patterns of precipitation detected by SP5. For the uncertainty cluster the main interest at this first meeting was the large scale weather patterns that are needed by almost all subprojects. Here, two different approaches have been stated that will be validated by the subprojects. The expertise of SP2 is used to derive a meteorological classification while SP5 and SP7 develop a classification according to the weather generator. All cluster groups decided to write a publication on these research topics.

The second day of the symposium was dedicated solely to the main topic of flood typology. After a short introduction to the problem, SP4 gave an overview of the many existing classifications for flood events and compared these to their novel approach. Afterwards, each subproject gave critical comments and described the problems and needs in their own work concerning a classification. These comments then were used to extend the classification of SP4 so that the challenges of each subproject can be faced.

The symposium was completed by again emphasizing the tasks of the subprojects for the next six month until the next meeting in October.

Qualification Workshops for Early Career Scientists

A very important topic of the SPATE research group is the promotion and support of the early career scientists. With 9 PhD-students and many post-doctoral researchers the amount of researchers at the beginning of their academic careers is rather high in the project. It is the aim of the research group to give them an impression of the broad perspectives they have with their work in the project. The diversity of disciplines of the collaborators and PhD-students in the projects is very high, starting by hydrology over civil engineering or meteorology up to statistics. To make an interchange between all associates possible, a common base of knowledge is important. Hence, the research group offers qualification courses focusing on the main methodological topics of the project. With these, the PhD-students can obtain a certificate that can also be used for their doctoral study program. In the forefield of the SPATE-symposium in Halle two qualification workshops took place with the topics “Extreme Value Statistics” and “Spatial Dependencies”.



These courses were lectured by Prof. Dr. Andreas Schumann, Dr. Svenja Fischer (both SP1), Dr. Alberto Viglione (SP6) and Prof. András Bárdossy (SP5). Besides the basics of flood statistics also the concepts of peak-over-threshold, robust statistics and Bayesian statistics were introduced, while the spatial dependency lecture focused on the concepts of copulas and clustering. We are very happy that all of our PhD-students and

also PhD-students of the UFZ in Halle seized this opportunity and participated at the workshops.

Offered professorships, honours, awards

The speaker of our SPATE-project, Professor Andreas Schumann of the Ruhr-University Bochum, is this year's Volker medalist. The award of IAHS, UNESCO and WMO is given to people who have made an outstanding contribution to hydrological science. Andreas Schumann's "pioneering contributions to water resources research for the benefit of society" and his many contributions to the hydrological sciences have been emphasised by the laudator and SPATE-colleague Günter Blöschl.



Left to right: Günter Blöschl (President IAHS), Andreas Schumann (Volker Medal Recipient), Christophe Cudennec (Secretary General IAHS). Photos courtesy of WMO.

Professor András Bárdossy of the University of Stuttgart (project coordinator of SP5) has been awarded with the German Hydrology Prize. It is given to him by the *Deutsche Hydrologische Gesellschaft* for his outstanding work in the field of hydrology and water management.

The whole SPATE-project congratulates the award winners!

Publications

1) Publications in journals

Accepted:

Fischer, S., and Schumann, A. (SP1) (2018): Berücksichtigung von Starkregen in der Niederschlagsstatistik/ Consideration of heavy rain events in precipitation statistics. *Hydrologie und Wasserwirtschaft*.

Kiss, A. (SP6) (2017): Droughts and low water levels in late medieval Hungary II: 1361, 1439, 1443-4, 1455, 1473, 1480, 1482(?) 1502-3, 1506: documentary versus tree-ring (OWDA) evidence. *Journal of Environmental Geography* 10/3-4, 43-56.

Viglione, A. (SP6), Rogger, M., Pirkl, H., Parajka, J., and **Blöschl, G. (SP6)** (2018): Conceptual model building inspired by field-mapped runoff generation mechanisms, *Journal of Hydrology and Hydromechanics*, 66, doi:10.2478/johh-2018-0010.

Published since last newsletter:

Aerts, J. C. J. H., Botzen, W. J., Clarke, K. C., Cutter, S. L., Hall, J. W., **Merz, B. (SP3)**, Michel-Kerjan, E., Mysiak, J., Surminski, S., and Kunreuther, H. (2018): Integrating human behaviour dynamics into flood disaster risk assessment. - *Nature Climate Change*, 8, 3,193-199. DOI: <http://doi.org/10.1038/s41558-018-0085-1>

Barendrecht, M.H., **Viglione, A. (SP6)**, **Kreibich, H. (SP3)**, **Vorogushyn, S. (SP3)**, **Merz, B. (SP3)** and **Blöschl, G. (SP6)** (2018): Estimating parameter values of a socio-hydrological flood model, *Proc. IAHS*, 95, 1-6, doi:10.5194/piahs-95-1-2018.

Callau Poduje, A. C., and Haberlandt U. (both SP7), (2017): Short time step continuous rainfall modeling and simulation of extreme events - *Journal of Hydrology*, 552: 182-197.

Conticello, F., Cioffi, F., **Merz, B. (SP3)**, and Lall, U. (2018): An event synchronization method to link heavy rainfall events and large-scale atmospheric circulation features. - *International Journal of Climatology*, 38, 3, 1421-1437. DOI: <http://doi.org/10.1002/joc.5255>

Figueiredo, R. P. C., Schröter, K., Weiss-Motz, A., Martina, M. L. V., and **Kreibich, H. (SP3)** (2018): Multi-model ensembles for assessment of flood losses and associated uncertainty. - *Natural Hazards and Earth System Sciences (NHES)*, 18, 1297-1314. DOI: <http://doi.org/10.5194/nhess-18-1297-2018>

Fischer, S. (SP1) (2018): A seasonal mixed-POT model to estimate high flood quantiles from different event types and seasons. *Journal of Applied Statistics*, DOI: [10.1080/02664763.2018.1441385](https://doi.org/10.1080/02664763.2018.1441385).

Carr, G., Loucks, D.P., and **Blöschl, G. (SP6)** (2018): Gaining insight into interdisciplinary research and education programmes: A framework for evaluation. *Research Policy* 47.1 (2018), DOI: <https://doi.org/10.1016/j.respol.2017.09.010>

Mangini, W., **Viglione, A. (SP6)**, Hall, J., Hundecha, Y., Ceola, S., Montanari, A., Rogger, M., Salinas, J.L., Borzì, I., and Parajka, J., (2018): Detection of trends in magnitude and frequency of flood peaks across Europe, *Hydrological Sciences Journal*, 63:493-512, doi:10.1080/02626667.2018.1444766.

Merz, B. (SP3), Nguyen, D., Apel, H., Gerlitz, L., Schröter, K., Steirou, E., and **Vorogushyn, S. (SP3)** (2018): Spatial coherence of flood-rich and flood-poor periods across Germany. -*Journal of Hydrology*, 559, 813-826. DOI: <http://doi.org/10.1016/j.jhydrol.2018.02.082>

Mewes, B., and **Schumann, A. (SP1)** (2018): IPA(V1): A framework for agent-based modelling of soil water movement. *Geosci. Model Dev.*, 11, 2175-2187, DOI: <https://doi.org/10.5194/gmd-11-2175-2018>.

Murawski, A., **Vorogushyn, S. (SP3)**, Bürger, G., Gerlitz, L., and **Merz, B. (SP3)** (2018): Do Changing Weather Types Explain Observed Climatic Trends in the Rhine Basin? An Analysis of Within- and Between-Type Changes. - *Journal of Geophysical Research*, 123, 3, 1562-1584. DOI: <http://doi.org/10.1002/2017JD026654>

Schröter, K., Molinari, D., Kunz, M., and **Kreibich, H. (SP3)** (2018): Preface: Natural hazard event analysis for risk reduction and adaptation. - *Natural Hazards and Earth System Sciences (NHES)*, 18, 963-968. DOI: <http://doi.org/10.5194/nhess-18-963-2018>

Schröter, K., Lüdtkke, S., Redweik, R., Meier, J., Bochow, M., Ross, L., Nagel, C., and **Kreibich, H. (SP3)** (2018): Flood loss estimation using 3D city models and remote sensing data. - *Environmental Modelling and Software*, 105, 118-131. DOI: <http://doi.org/10.1016/j.envsoft.2018.03.032>

Vorogushyn, S. (SP3), Bates, P. D., de Bruijn, K., Castellarin, A., **Kreibich, H. (SP3)**, Priest, S., Schröter, K., Bagli, S., **Blöschl, G. (SP6)**, Domeneghetti, A., Gouldby, B., Klijn, F., Lammersen, R., Neal, J. C., Ridder, N., Terink, W., Viavattene, C., **Viglione, A. (SP6)**, Zanardo, S., and **Merz, B. (SP3)** (2018): Evolutionary leap in large-scale flood risk assessment needed. - *Wiley Interdisciplinary Reviews: Water*, 5, 2. DOI: <http://doi.org/10.1002/wat2.1266>

2) Publications in anthologies, book contributions and chapters

Carr, G., **Viglione, A. (SP6)**, and Rogger, M., (2018): Floods, Chapter 5.8 in: N. Castree, M. Hulme and J. Proctor (eds) *Companion to Environment Science*. Routledge, London, ISBN:9781138192201.

Talks

1) Invited talks:

Ahrens, B.: Hydro--Meteorological Hazards. Kolloquium, University of Natural Resources and Life Sciences, Vienna, 2 Feb. 2018

Ahrens, B.: Coupled Regional Climate Modelling Systems: Pros and Cons. MedCORDEX-Baltic Earth-COST Workshop on Regional Climate System Modelling for the European Sea Regions, Mallorca, 14--16 March 2018

Ahrens, B.: Do we need complex Regional Climate System Model systems? Seminar at LMD, IPSL, Paris, 12. Apr. 2018

Kiss, A. (SP6): Institutional / administrative sources and the vulnerability of society around 1300, "Dantean Anomaly" Workshop. Leipzig, 21-22 March 2018

Schumann, A. (SP1): Science and Practice - A Matter of Combination , Medal Lecture of the International Hydrology Prize 2018, WMO HydroConference: Global Conference for Prosperity through Hydrological Services, Geneva, Switzerland, 7-9 May 2018.

2) Other talks on conferences:

Barendrecht, M., Viglione, A. (SP6), Kreibich, H. (SP3), Vorogushyn, S. (SP3), Merz, B. (SP3), and Blöschl, G. (SP6): A socio-hydrological Flood model for the Elbe. AGU Fall meeting, New Orleans, US, 11-15 Dec. 2017.

Barendrecht, M., Viglione, A. (SP6), Kreibich, H. (SP3), Vorogushyn, S. (SP3), Merz, B. (SP3), and Blöschl, G. (SP6): Socio-hydrological model for the Elbe, *Geophysical Research Abstracts*, Vol. 20, EGU2018-8473, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

Bertola, M., Viglione, A. (SP6), and Blöschl, G. (SP6): Disentangling time scales of drivers of long-term flood variability: a case study in Upper Austria, *Geophysical Research Abstracts*, Vol. 20, EGU2018-5185, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

Castellarin, A., Kreibich, H. (SP3), Vorogushyn, S. (SP3), and Merz, B. (SP3): Heavy Tail behaviour of rainfall extremes across Germany. AGU Fall meeting, New Orleans, US, 11-15 Dec. 2017.

Cesarini, L., Persiano, S., Wietzke, L. (SP3), Guse, B. (SP3), Vorogushyn, S. (SP3), Kreibich, H. (SP3), Merz, B. (SP3), and Castellarin, A.: Flood hazard assessment: Heavy tail behaviour of rainfall extremes across Germany. *Geophysical Research Abstracts*, Vol. 20, EGU2018-7915, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

Fischer, S., and Schumann, A. (both SP1): Regionalisation of a seasonal mixture-model for partial duration series. EGU General Assembly 2018, Vienna, Austria, 9-13 April 2018.

Kreibich, H. (SP3), Blauhut, V., Aerts, J.C.J.H., Bouwer, L., Van Lanen, H.A.J., Mejia, A., Mens, M., and Van Loon, A.F.: What approaches and data are needed to better understand trends in drought and flood impacts? *Geophysical Research Abstracts*, Vol. 20, EGU2018-10871, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

Merz, B. (SP3): How confident can we be in flood risk assessments?, AGU Fall meeting, New Orleans, US, 11-15 Dec. 2017.

Merz, R., and Tarasova, L. (both SP4): Spatio-temporal patterns of rainfall-runoff event characteristics and their potential drivers in Germany, AGU 2017, New Orleans, US, 11-15 Dec. 2017.

Metin, A. D., Apel, H., Nguyen, V. D., Guse, B. (SP3), Kreibich, H. (SP3), Schröter, K., Vorogushyn, S. (SP3), and Merz, B. (SP3): How do changes along the risk chain affect flood risk? Geophysical Research Abstracts, Vol. 20, EGU2018-13032, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

Mewes, B., and Schumann, A. (SP1): Agent-based and object-oriented image analyses of irrigated areas, Remote Sensing & Hydrology Symposium, ICRS-IAHS, Cordoba, Spain, 8-10 May 2018.

Persiano, S., Salinas, J.L., Stedinger, J.R., Viglione, A. (SP6), Castellarin, A., and Blöschl, G. (SP6): The effect of spatial correlation in regional flood frequency analysis: a comparison between Generalized Least Squares and Top-Kriging, Geophysical Research Abstracts, Vol. 20, EGU2018-1280, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

Rözer, V., Kreibich, H. (SP3), Schröter, K., Doss-Gollin, J., Lall, U., and Merz, B. (SP3): BN-FLEMOps pluvial – A probabilistic multi-variable loss estimation model for pluvial floods, AGU Fall meeting, New Orleans, US, 11-15 Dec. 2017.

Rözer, V., Kreibich, H. (SP3), Schröter, K., Doss-Gollin, J., Lall, U., and Merz, B. (SP3): Probabilistic multi-variate loss estimation for pluvial floods Geophysical Research Abstracts, Vol. 20, EGU2018-13130, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

Schumann, A. (SP1): Zur Nutzung von Geoinformationen in der hydrologischen Modellierung und der Wasserbewirtschaftung, RUB GIS-Day 2018, Bochum, Germany, 8th February 2018.

Schumann, A., and Fischer, S. (both SP1): Die Nutzung hydrologischer Standarddaten für eine kausale Informationserweiterung in der Hochwasserregionalisierung, Tag der Hydrologie 2018, Dresden, Germany, 22-23 March 2018.

Sieg, T., Kreibich, H. (SP3), Vogel, K., and Merz, B. (SP3): The consideration of uncertainties in meso-scale flood damage modeling. Geophysical Research Abstracts, Vol. 20, EGU2018-4761, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018

Stedinger, J., Lun, D. (SP6), and Blöschl, G. (SP6): Bias Corrected L-Moment Index Flood Procedure, Geophysical Research Abstracts, Vol. 20, EGU2018-16236, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

Stedinger, J., Lun, D. (SP6), Viglione, A. (SP6), Salinas, J.L., and Blöschl, G. (SP6): Development of Generalized Least Squares Procedures for Estimating Regional Models of Austrian Flood Series, Geophysical Research Abstracts, Vol. 20, EGU2018-15751, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

Viglione, A. (SP6), Merz, B. (SP3), Dung, N.V., Parajka, J., Nester, T., and Blöschl, G. (SP6): Attribution of regional flood changes based on scaling fingerprints. AGU Fall meeting, New Orleans, US, 11-15 Dec. 2017.

3) Poster

Agarwal, A., Marwan, N., Rathinasamy, M., Ozturk, U., Merz, B. (SP3), Kurths, J., 2018: Complex network-based approach for identification of influential and expandable station across rainfall network. Geophysical Research Abstracts, Vol. 20, EGU2018-18281, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Bárdossy, A., Seidel, J., and Anwar, F. (all SP5): Investigating simultaneous occurrences of extreme floods and precipitation events, Tag der Hydrologie 2018, Dresden, Germany, 22-23 March 2018.

Barendrecht, M., Viglione, A. (SP6), Kreibich, H. (SP3), Vorogushyn, S. (SP3), Merz, B. (SP3), Blöschl, G. (SP6), 2018: A socio-hydrological model for the Elbe. Geophysical Research Abstracts, Vol. 20, EGU2018-8473, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Callau Poduje, A. C. (SP7), Leimbach S. (SP7), Haberlandt U. (SP7): Stochastic rainfall synthesis for urban applications using different regionalization methods - AGU Fall Meeting, New Orleans, 11.-15.12.2017.

Ganguli, P., Merz, B. (SP3), 2018: Risk of Compound Flooding from Coastal and Fluvial Floods over Northwestern Europe. Geophysical Research Abstracts, Vol. 20, EGU2018-1929, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Krug, A. (SP2), Liman, J., Akhtar, N., Ahrens, B. (SP2), and Schröder, M.: Comparison of water fluxes in ERA-Interim Reanalysis, HOAPS, and COSMO-CLM data. Deutsche Klimatagung 2018, Frankfurt, Germany, 5-8 March 2018.

Lüdtke, S., Schröter, K., Steinhausen, M., Figueiredo, R., Thielen, A., Cammerer, H., Kreibich, H. (SP3), 2018: Development of the probabilistic European flood loss model BN-FLEMO for residential buildings. Geophysical Research Abstracts, Vol. 20, EGU2018-8949, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Lüdtke, S., Schröter, K., Steinhausen, M., Figueiredo, R., Thielen, A., Cammerer, H., Kreibich, H. (SP3), 2018: Development of the probabilistic European flood loss model BN-FLEMO for residential buildings. Geophysical Research Abstracts, Vol. 20, EGU2018-8949, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Neri, M., Toth, E., Parajka, J., and Viglione, A. (SP6): Semi-distributed regionalisation of the HBV model parameters based on features and similarity of the elevation zones, Geophysical Research Abstracts, Vol. 20, EGU2018-4475, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Neri, M., Toth, E., Parajka, J. and Viglione, A. (SP6): Assessing the impact of nested catchments on the performance of parameter regionalisation techniques, Geophysical Research Abstracts, Vol. 20, EGU2018-4496, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Pidoto R. (SP7), Haberlandt U. (SP7): Spatial consistency of simulated rainfall at various spatial scales using a nested simulated annealing approach - EGU General Assembly, Vienna, Austria, 08.-13.04.2018.

Primo, C., and Ahrens, B. (both SP2): Impact of the Reanalyses on Regional Simulated Climates over Europe. ICCARUS 2018, Offenbach, Germany, 26 February - 6 March 2018; Deutsche Klimatagung 2018, Frankfurt, Germany, 5-8 March 2018.

Sairam, N., Schröter, K., Kreibich, H. (SP3), 2018: Hierarchical Bayesian approach for modelling flood losses in private households. Geophysical Research Abstracts, Vol. 20, EGU2018-6676, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Schröter, K., Steinhausen, M., Lüdtke, S., Kreibich, H. (SP3), 2018: Soziale Medien als Informationsquelle für eine schnelle Hochwasserschadensabschätzung, Tag der Hydrologie 2018, Dresden, Germany, 22-23 March 2018.

Schröter, K., Steinhausen, M., Lüdtke, S., Yang, B., Kreibich, H. (SP3): Rapid flood loss estimation driven by social media based inundation maps. Geophysical Research Abstracts, Vol. 20, EGU2018-7968, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Steinhausen, M., Schröter, K., Lüdtke, S., Wortmann, M., Hattermann, F., Kreibich, H. (SP3), 2018: Bayesian Network based meso-scale flood loss modeling with BN-FLEMO in the upper Danube basin. Geophysical Research Abstracts, Vol. 20, EGU2018-14354, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Steinhausen, M., Schröter, K., Lüdtke, S., Wortmann, M., Hattermann, F., Kreibich, H. (SP3), 2018: Bayesian Network based meso-scale flood loss modeling with BN-FLEMO in the upper Danube basin.

Geophysical Research Abstracts, Vol. 20, EGU2018-14354, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Steirou, E., Gerlitz, L., Apel, H., Sun, X., Merz, B. (SP3), 2018: A climate-informed model for frequency analysis of seasonal streamflow extremes in Europe. Geophysical Research Abstracts, Vol. 20, EGU2018-9409, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Sultana, Z., Sieg, T., Kellermann, P., Thieken, A., Müller, M., Kreibich, H. (SP3), 2018: Using Random Forests to assess business interruption in the commercial sector in Germany. Geophysical Research Abstracts, Vol. 20, EGU2018-6860 EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Tarasova, L., Basso, S., and Merz, R. (all SP4): Separation von Niederschlag-Abfluss-Ereignissen in Deutschland und sowie die raumzeitliche Analyse ihrer Ereigniseigenschaften, Tag der Hydrologie 2018, Dresden, Germany, 22-23 March 2018.

Viglione, A. (SP6), Rogger, M., Pirkl, H., Parajka, J., and Blöschl, G. (SP6): Conceptual model building inspired by field-mapped runoff generation mechanisms, Geophysical Research Abstracts, Vol. 20, EGU2018-8791, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Wagenaar, D., Lüdtkke, S., Schröter, K., Bouwer, L., Kreibich, H. (SP3), 2018: Testing the cross-country transfer of multi-variable flood damage models. Geophysical Research Abstracts, Vol. 20, EGU2018-7591, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Wendi, D., Marwan, N., Merz, B. (SP3), 2017: The importance of hydrological signatures and its recurring dynamics. AGU Fall meeting, New Orleans, US, 11-15 Dec. 2017.

Wendi, D., Marwan, N., Merz, B. (SP3), 2018: The recurrence of unseasonable and rare flood dynamics. Geophysical Research Abstracts, Vol. 20, EGU2018-18109, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Wietzke, L. M. (SP3), Guse, B. (SP3), Cesarini, L., Persiano, S., Vorogushyn, S. (SP3), Castellarin, A., Kreibich, H. (SP3), Merz, B. (SP3), 2018: Exploring upper tail estimators to assess the heavy-tail behavior of extreme precipitation in Germany. Geophysical Research Abstracts, Vol. 20, EGU2018-7149, EGU General Assembly 2018, Vienna, Austria, 8-13 April 2018.

Wietzke, L. (SP3), Guse, B. (SP3), Vorogushyn, S. (SP3), Kreibich, H. (SP3), Merz, B. (SP3), 2018: Raumzeitliche Analyse von Heavy-Tail-Verhalten von Starkregen und Hochwasser in Deutschland und Österreich, Tag der Hydrologie 2018, Dresden, Germany, 22-23 March 2018.

5) PICO

Callau Poduje, A. C., and Haberlandt U. (both SP7): Bivariate modelling of rainfall events and the relationship with extreme values - EGU General Assembly, Vienna, 08.-13.04.2018.

Guse, B. (SP3), Wietzke, L. (SP3), Tarasova, L. (SP4), Merz, R. (SP4), Vorogushyn, S. (SP3), Kreibich, H. (SP3), Merz, B. (SP3), 2018: Differentiation of flood driving mechanisms between large and small floods for a flood event data set in Germany. Geophysical Research Abstracts, Vol. 20, EGU2018-12208, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

Merz, B. (SP3), Dung, N. V., Apel, H., Gerlitz, L., Schröter, K., Steirou, E., Vorogushyn, S. (SP3), 2018: Are flood-rich and flood-poor periods coherent across Germany? Geophysical Research Abstracts, Vol. 20, EGU2018-12069, EGU General Assembly 2018, Vienna, Austria , 8-13 April 2018.

PhD

Callau Poduje, A. C. (SP7): Spatio-temporal modeling of precipitation in a high temporal resolution for urban hydrological applications - Mitteilungen des Instituts für Hydrologie und Wasserwirtschaft, 107, ISSN 0343-8090, Leibniz Universität Hannover, 20.03.2018.

Other

The following sessions were organised by SPATE-members at the **EGU General Assembly 2018**, 8-13 April 2018 in Vienna, Austria:

HS1.2 Hydrology, society and environmental change, PICO session, Conveners: Di Baldassarre, G., Kreibich, H. (SP3), Krueger, T., Van Loon, A., Caporali, E., Toth, E.

HS2.1.6 Process understanding in models – Improving hydrologic realism and reducing model weaknesses, Conveners: Guse, B. (SP3), Gharari, S., Luce, C., Clark, M.

HS2.4.3 River flood dynamics and risk: processes, controls, consequences, Conveners: Vorogushyn, S. (SP3), Farmer, W., Kreibich, H. (SP3), Mediero, L., Viglione, A. (SP6).

HS5.14 Water infrastructure risks and cascade reservoir operations, Conveners: Lei, X., Xia, J., Wang, M., Sun, X., Han, D., Merz, B. (SP3)

NH9.1 Natural hazard event analysis for risk reduction and adaptation, Conveners: Schröter, K., Kunz, M., Kreibich, H. (SP3), Molinari, D., Daniell, J., Szoenyi, M., Vogel, K.

NH9.2 Costs of Natural Hazards, Conveners: Kreibich, H. (SP3), Bouwer, L., Molinari, D., Thaler, T., de Moel, H.

Visits

David Lun (SP6) visited the subproject 1 in Bochum during 12-15 March 2018 to work on the theoretical distribution of excesses of a quantile within a moving window to detect flood rich and flood poor periods in annual maximum discharge series.

Workshops, Conferences

2nd conference on Improving the theoretical underpinnings of hydrologic models

Björn Guse (SP3) organised this conference in Sopron/Hungary, 15-18.04.2018, together with N. Addor, G. Coxon, G., and L. Melsen.

Joint Workshop on Event Definition and Characterisation, 9-11 July 2018, TU Vienna.

Alberto Viglione (SP6) organizes a joint workshop of both research groups SPATE and System-Risk on the definition and characterization of extreme flood events. The experts of both research groups present their methodologies so far and then will develop a common framework together with the phd-students.

IUGG Montreal, 8-18 July 2019: Joint symposium

During the 27th IUGG-assembly, which takes place in Montreal in July 2019, members of the SPATE-consortium (Svenja Fischer, Bruno Merz, Alberto Viglione, Andreas Schumann) will play a lead role as convenors and Co-Convenors of the Symposium: "Floods: processes, forecasts, probabilities, impact assessments and management". It will be organised by the International Commission of Water Resources Systems (ICWRS) of IAHS in cooperation with the commissions "Statistics in Hydrology" (ICSH) and "Coupled Land-Atmosphere Systems" (ICCLAS).

Discussion Papers

01/2018 Fischer, Svenja (SP1): A seasonal mixed-POT model to estimate high flood quantiles from different event types and seasons

All Discussion Papers are available at:

www.spate-floods.com