

ORCID 0000-0002-6369-8536WoS Researcher-ID: AAA-3314-2022**Personal data**

Name	Axel Bronstert, Prof. Dr.-Ing.
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Nationality	German
Date of birth	October 23, 1959

Education

1988 - 1993	PhD in Hydrology at Karlsruhe Institute of Technology (<i>summa cum laude</i>); "Ehrensator Huber Prize 1995" for an excellent dissertation
10/1986 - 3/1988	Research Scholar, Japanese Ministry for Res. & Education, Kyoto Univ., Japan
1980 (6 months)	Internship: 'HydroPlan' Hydro-Engineering Consultant, Herdecke, Germany
1981 (6 months)	Internship: German Agency for Technical Co-operation (GTZ), Germany (member of an international advisory group in the Republic of Zambia)
1979 - 1986	Studies of Civil Eng. and Water Resources at Karlsruhe Inst. of Technology
<i>Language skills</i>	<i>German (mother tongue); English (fluent), French (intermediate), Spanish (intermediate)</i>

Professional Career (incl. side- and conjunct appointments)

2002 – today	Professor (W3) for Hydrology & Climatology at the University of Potsdam
2003 – today:	co-chair, Hydrology Group, Potsdam-Inst. for Climate Impact Research (PIK)
09/05 - 02/06	Visiting Professor, Dept. for Geosc. & Geoeng. TU Catalunya, Barcelona, Spain
02/00 - 10/02	Professor (C3) at the Institute for Geoecology, University of Potsdam
1995 - 2000	Research assistant at the Potsdam Inst. for Climate Impact Research (PIK)
1995 - 1999	Conjunct lecturer at the Technical Univ. Berlin and the Free Univ. of Berlin
01/95 - 02/95	Guest Scientist and Lecturer: CSIRO for Land and Water; Canberra, Australia
10/91 - 01/92	Visiting Lecturer at the Asian Institute of Technolgy (AIT), Bangkok, Thailand
1988 - 1995	Research assistant at the Institute for Hydrology and Water Resources Management, University of Karlsruhe (hydrological modelling; water resources management)

Supervised PhD-Thesis (2001 – 2023)

- 34 accomplished and 6 ongoing PhD-Thesis as main supervisor
- 62 accomplished PhD-Thesis and 3 ongoing as 2nd supervisor or reviewer

Positions in scientific committees and academic units (selection)

Since 10/2021	Vice-President of the German Hydrological Society (DHG)
10/2020 – 09/2021	Director Inst. for Environmental Sciences & Geography, Univ. of Potsdam
since 2019	Scientific Advisory Board (SAB) of the Research Field “Earth and Environment” at Karlsruhe Institute of Technology (KIT)
2015 – 2023	Scientific Advisory Board of the German Weather Service (DWD)
2015 – 2020	Speaker of the DFG-Research and Training Group Natural Hazards and Risks in a Changing World (NatRiskChange)
since 05/2012 – 04/2020	Member of the water science review board (FK 318) of the German Science Foundation (DFG)
10/2014-09/2015	Director of the Inst. for Earth & Environmental Sciences, Univ. of Potsdam
since 02/2013	Member of the governing board of the Water Science Alliance (WSA)
2011 - 2019	Member of the Commission on Water Research (KOWA) of German Science Foundation (DFG)
since 05/2010	Vice-Chair, Potsdam-Berlin Consortium for Geo-Sciences Research ‘Geo.X’
09/2011– 09/2014	President of the German Hydrological Society (DHG)
1999 – 2005	Chairman of the International Working Group on Development and Calibration of Coupled Hydro-Ecological/Atmospheric Models of IHP/UNESCO
1997 – 2004	Chairman of the Working Group Runoff of DVWK (German Water Society)
1996 – 2000	Steering Committee for Flood Mitigation of the European Commission

Resume

Prof. Axel Bronstert holds the Chair of Hydrology and Climatology at University of Potsdam, and has 29 years of professional experience with a methodological focus in hydrological modelling and forecasting, hydrological field investigations, integrated modelling and hydraulic modelling. He has jointly worked in comprehensive research and applied projects, both nationally and internationally. He has published extensively over the past years on hydrological, hydro-climatological and interdisciplinary hydro-scientific issues. He is associated editor of two leading international hydrological journals. He was Visiting Professor at the Technical Univ. of Catalonia (Barcelona), Appl. Geosciences Dept. in 2005 and has won three academic prizes. He is member of the water science review board of the German Science Foundation (DFG) and was president of the German Hydrological Society (DHG) 2011 - 2014. His teaching activities comprise Basic Hydrology, Introduction in Climatology, Advanced Surface Hydrology, Hydrological and Geoecological Modelling; Open Channel Hydraulics; Water Management; Global Water Resources; Hydrological Processes.

Prof. Bronstert has been active in several technical and applied consulting projects regarding water management and hydrological risk assessment, mainly in international context, i.e. in Australia, Brazil, Chile, Congo, Mali, Netherlands, Philippines, Spain, Thailand, Zambia. In addition, he has ongoing collaborations with the Potsdam-Institute for Climate Impact Research (PIK), where he is involved in regional hydrological modelling and hydrological impact assessments.

Areas of scientific and technical expertise

River-catchment interactions,
 Phenomena of environmental change (such as climate and land-use changes)
 Assessment and forecasting of hydrological hazards / extremes
 Integrated flood-risk analysis
 Climate Change Impacts on Hydro-systems
 Climate – Water Interactions

Conducted Projects

Funding organisation and duration	Project – Title and subject	Position
<i>BMBF (2023 – 2025)</i>	<i>Development and transfer of a Seamless Prediction System for decision support in transboundary water management of the Blue Nile (SPS-Blue Nile): “Hydro-sedimentological component of a seamless prediction system for the Blue Nile area”</i>	<i>PI</i>
<i>DFG 10/2015 – 09/2024</i>	<i>Research and Training Group on “Natural Hazards and Risks in a Changing World”, (NatRiskChange): including 3 PhD-Projects: - Transient merging of Rhine flow regimes from climate change (09/2017 -10/22) - Altered hydrological and sediment dynamics in high-alpine areas (10/2018 - 6/23) - Changing water and energy conditions and their relevance for water and sediment pulses in Alpine areas (since 10/2021)</i>	<i>Speaker (2015-2020) & Co-Speaker (2020 – 2024)</i>
<i>Worldbank (01/2022 – 06 2023)</i>	<i>Support the improvement of water security and the strengthening of smart public water management in the State of Ceará</i>	<i>PI</i>
<i>BMBF (04/2021 – 03/2024)</i>	<i>Innovative Instrumente zum Management des Urbanen Starkregenisikos (Inno_MAUS)</i>	<i>PI</i>
<i>DAAD (10/2022-09/2025)</i>	<i>Impacts of reservoir networks on rivers in the Ballans</i>	<i>Co_PI</i>
<i>VW-Foundation (10/2022 – 09/2023)</i>	<i>Analysis of the availability of water resources in Ukraine taking into account climate variability for the reconstruction of the destroyed water sector in the postwar period</i>	<i>PI, jointly with Prof. Snizhko</i>
<i>DAAD (12/2021-11/2024)</i>	<i>Understanding spatiotemporal variability of meteorological and hydrological droughts and seasonal forecasting over Peruvian Andes</i>	<i>PI</i>
<i>Geo.X 06/2022 – 12/2022</i>	<i>Warming Water Towers – The Leaking Roof of the World</i>	<i>PI</i>
<i>DAAD & UGC, India (2020 – 2024)</i>	<i>Co-PREPARE: Collaborative Indo-German PROject on Estimating and Predicting NATural Hazards in the Himalayan REgion</i>	<i>PI (German side)</i>
<i>DAAD (10/2019-09/2023)</i>	<i>Flash Flood Forecasting in urban areas</i>	<i>PI</i>
<i>BMBF (03/2017 – 12/2020)</i>	<i>SAWAM: Seasonal water resources management in dryland regions: Application-oriented transfer of regionalized global information; Sub-project: Regional modeling of water management and hydro-sedimentological processes and statistical downscaling for seasonal predictions</i>	<i>PI for Potsdam-Part</i>
<i>DFG (01/2015 – 12/2020)</i>	<i>Seamless hydrological prediction of the East-Indian Summer monsoon including the Analysis of its Variance</i>	<i>PI</i>
<i>DFG (01/2015 – 6/2020)</i>	<i>A Drought Forecast and Water Management System for semi- arid regions, taking the state of Ceará, Brazil as an example</i>	<i>PI</i>
<i>DAAD (04/2017- 05/2021)</i>	<i>Seamless integration of data and models for flash flood forecasting in Brazil</i>	<i>Co-PI</i>
<i>HGF, Uni Potsdam, FU Berlin (04/17-02/2020)</i>	<i>‘Geo.X: Geo Data Science-Project: Assimilation of Rainfall Radar Data for flood forecasting</i>	<i>Co-PI</i>
<i>University of Potsdam (07/2017-08/2020)</i>	<i>Regional environmental change effects on water resources availability and hydro-power generation in an African environment. The case of the Shire River Basin and Lake Malawi Region, Malawi</i>	<i>PI</i>
<i>DAAD (10/2015-05/2019)</i>	<i>Enhancing the effectiveness of flood early warnings in the Philippines</i>	<i>Co-PI</i>
<i>EU (09/2015 - 09/2017)</i>	<i>Effects of global change on hydro-geomorphological hazards in Mediterranean rivers (Floodhazards)</i>	<i>Co-PI</i>
<i>BMBF (10/2014 - 06/2018)</i>	<i>RiscHid: Uncertainties in modelling hydrological extremes and sediment transport in semi-arid regions with an application in NE Brazil</i>	<i>PI</i>
<i>DAAD (10/2014 – 09/2015)</i>	<i>Assessment of climate change impact on water runoff in selected catchments of the Ukraine</i>	<i>PI</i>

HGF, Uni Potsdam, FU Berlin (10/2011-12/17)	'GeoSim': Helmholtz Graduate School Explorative Simulation in Earth Science	Co-PI
BMBF (10/2009- 12/2014)	Potsdam Research Cluster for Georisk Analysis, Environmental Change and Sustainability (PROGRESS): „Forecasting of fast responding catchments“ and „Water Availability in the alpine region under climate change“	PI for Sub-Project D2.2 and B1.2
AlpS Innsbruck (4/2010 - 3/2014)	'HoPI II' (Flood Forecasting System for the Inn River in Tirol, Austria)	PI for Potsdam Part
BMBF (2011-2014)	Sustainable Coastal Zone Management: Comparative study of ecosystem services: Part Freshwater Dynamics	PI for fresh-water Part
DFG (2013)	Environmental impacts of water usage and mining in the region of the São Francisco River, Brazil- Pre-study	PI
BMBF (02/2011-07/2011)	Hydrological Optimization of Rice Production Technologies: Evaluation and Decision Support for Efficient Resource Use and Reduced Emissions in India	PI for Potsdam Part
University of Innsbruck (1/2010 -12/2010)	Expanded Downscaling for the Lech Catchment: Software Adaptation, Instruction and Scientific Supervision	PI
BMBF 08/ 2005-03/2010)	Operational Runoff and Flood forecasting in headwater Catchments	Head of proj. consortium
BMBF (2007-2010)	Investigation of land-use change effects in Chilean Forest Areas	PI for Potsdam Part
EU (03/2004-10/2009)	Integrated Flood Risk Analysis and Management Methodologies ('FLOODSITE'), Sub-project. "Lowland range of the Elbe river"	PI for Potsdam Part
Industrieverband Agrar, IVA (2007-2009)	Die Rolle der Hangneigung und Hangform auf Prozesse des Abflusses und der Bodenerosion und deren Bedeutung für den Wasser- und Stofftransport in Fließgewässern	PI
DFG (12/2004-10/2008)	Sediment Export from large Semi-Arid catchments: Measurements and Modelling	Head of project group
BMBF (10/2002 - 02/2005)	Water management options in the Havel region	Head of Consortium
BMBF / International Bureau (02/2003 - 01/2005)	Analyzing the impact of climate change and land-use on flood conditions in Germany and Hungary. Co-operation project with Water Research Institute, Budapest	PI
LfU Baden-Württemb. (12/2003 -12/2004)	Presentation, comparison and climatological evaluation of climate scenarios for South Germany	PI
DFG (06/2001 - 05/2004)	Extreme hydrological scenarios, 2-dimensional downscaling of climate models to daily precipitations rates with hydrological applications	PI
BMBF (10/2003 - 01/2004)	Options for flood risk mitigation through polder use at the Havel and Oder rivers	Head of Consortium
PIK (7/2001 - 03/2002)	Development of a new concept of global water criticality ('GLOKRIT')	PI
GFZ (8/2002 – 02/2003)	Potential Impact of dike break events on flood risk at the Rhine	PI
HSPN-Brandenburg (01/2002 - 12/2002)	Climate, water and society - an integrated approach	PI
Danish Envi. Agency (07/2000 - 12/2002)	Large-Scale Modelling of Water and Nutrient Transport in ungauged and coastal catchments of Denmark	PI
IDNDR (01/ 2000 - 12/2002)	Impacts of climate and land-use change on the Flooding Situation in the Rhine Catchment	Project team member
DFG (08/1998 - 07/2002)	Model based investigation of lateral runoff and the interactions with soil moisture	Project team member
European Union (12/1998 - 12/2001)	Impacts of land cover and river training measures on the flooding conditions of the Rhine	Head of Consortium
German Environment Agency UBA (11/1997 – 12/2001)	Quantification impacts of land surface conditions on flooding conditions, with particular consideration of land-use, vegetation cover and climate change	PI and consortium head
BMBF (1995-2001)	Water Availability and Vulnerability of Ecosystems and Society in North-East Brazil. Sub-Projects 'Integrated Modelling' and 'Hydrological Modelling'	Project team member / PI
European Union (01/1998 - 12/2000)	European River Flood Occurrence and Total Risk Assessment System	PI Germany
European Union (06/1996 – 05/1998)	River Basin Modelling, Management and Flood Mitigation (Concerted Action)	Action Member
BMBF (03/1993-09/1995)	Modelling of water contamination in a small agricultural catchment). Sub-project: Development of the overall model	researcher
BMBF & CSIRO Australia (1994-1995)	distributed and physically based hydrological modelling	researcher
BMBF (10/1989 - 02/1993)	Modelling of water contamination in a small agricultural catchment). Sub-project: development of a hillslope model	researcher

Publications

1) Overview

Scientific Publications (journals, book chapters, etc...) see also orcid.org/0000-0002-6369-8536

Axel Bronstert has written the following publications (as of September 2023):

- 130 Articles in ISI-listed, peer reviewed journals (Clarivate core collection: H-Index: 42)
- 72 other peer reviewed articles or book contributions
- 43 books and book chapters etc: books (3), edited books (9), book chapters (8), institute series (13), special issues (4)
- 67 non-peer reviewed articles and other professional contributions

2) *10 most important publications:*

Bronstert, A., Niehoff, D., Schiffler, G.R. (2023): Modelling infiltration and infiltration excess: The importance of fast and local processes. *Hydrological Processes*, 37(4), e14875. DOI:10.1002/hyp.14875.

Vogel, J., Paton, E., Aich, V., **Bronstert, A.** (2021): Increasing compound warm spells and droughts in the Mediterranean Basin. *Weather and Climate Extremes*, 32, 100312. doi.org/10.1016/j.wace.2021.100312.

Rottler, E., Francke, T., Bürger, G., **Bronstert, A.** (2020): Long-term changes in Central European river discharge 1869 - 2016: Impact of changing snow covers, reservoir constructions and an intensified hydrological cycle. *Hydrology and Earth System Sciences*, 24, 1721-1740. doi.org/10.5194/hess-24-1721-2020

Bürger, G., Pfister, A., **Bronstert, A.** (2019): Temperature-driven rise in extreme sub-hourly rainfall. *Journal of Climate*, 32(22), 7597-7609. <https://doi.org/10.1175/JCLI-D-19-0136.1>

Bronstert, A., Agarwal, A., Boessenkool, B., Crisologo, I., Fischer, M., Heistermann, M., Köhn-Reich, L., López-Tarazón, J.A., Moran, T., Ozturk, U., Reinhardt-Imjela, C., Wendi, D. (2018): Forensic hydro-meteorological analysis of an extreme flash flood: The 2016-05-29 event in Braunsbach, SW Germany. *Science of the Total Environment*, 630, 977-991. <https://doi.org/10.1016/j.scitotenv.2018.02.241>

Vormoor, K., Lawrence, D., Heistermann, M., **Bronstert, A.** (2015): Climate change impacts on the seasonality and generation processes of floods: projections and uncertainties for catchments with mixed snowmelt/rainfall regimes. *Hydrology and Earth System Sciences*, 19, 913-931, doi.org/10.5194/hess-19-913-2015

Bronstert, A., de Araújo, J.C., Batalla, J.C., Costa, A.C., Delgado, J.M., Francke, T., Foerster, S., Güntner, A., López-Tarazón, J.A., Mamede, G.L., Medeiros, P.A.H., Müller, E.N., Vericat, D. (2014): Process-based modelling of erosion, sediment transport and reservoir siltation in mesoscale semi-arid catchments. *Journal of Soils and Sediments*, 14(12), 2001-2018. <https://doi.org/10.1007/s11368-014-0994-1>

Güntner, A., **Bronstert, A.** (2004): Representation of landscape variability and lateral redistribution processes for large-scale hydrological modelling in semi-arid areas. *Journal of Hydrology*; 297(1-4), 136-161. <https://doi.org/10.1016/j.jhydrol.2004.04.008>

Niehoff, D., Fritsch, U., **Bronstert, A.** (2002): Land-use impacts on storm-runoff generation: Scenarios of land-use change and simulation of hydrological response in a meso-scale catchment in SW-Germany. *Journal of Hydrology*, 267(1-2), 80-93. [https://doi.org/10.1016/S0022-1694\(02\)00142-7](https://doi.org/10.1016/S0022-1694(02)00142-7)

Bronstert, A., Plate, E.J. (1997): Modelling of Runoff Generation and Soil Moisture Dynamics for Hillslopes and Micro-Catchments. *Journal of Hydrology*, 198, 177-195. doi.org/10.1016/S0022-1694(96)03306-9

3) *complete list of publications: see attachment*