PROF. DR. ALEXANDER BRENNING – CURRICULUM VITAE

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ACADEMIC POSITIONS

10/2014 –	**Full Professor (W3) of Geographic Information Science**, Department of Geography, Friedrich Schiller University Jena, Germany
10/2017 – 09/2020	**Dean of the Faculty of Chemistry and Earth Sciences**, Friedrich Schiller University Jena, Germany
07/2012 – 08/2015	**Associate Professor (tenured)**, Department of Geography and Environmental Management, University of Waterloo, Ontario, Canada
01/2007 – 06/2012	**Assistant Professor (tenure track)**, Department of Geography and Environmental Management, University of Waterloo, Ontario, Canada
02/2006 – 10/2006	**Research Associate in Geostatistics**, Department of Soil Landscape Research, Leibniz Centre for Agricultural Landscape Research, Müncheberg, Germany
03/2005 – 01/2006	**Research Associate in Biometry**, Department of Medical Informatics, Biometry, Epidemiology, University of Erlangen-Nuremberg, Germany
09/2002 – 02/2005	**Research and Teaching Assistant, Geomorphology and Geovisualization**, Geographical Institute, Humboldt-Universität zu Berlin
08/2001 – 08/2002	**Research Assistant, Geovisualization**, Department of Geography, University of Erlangen-Nuremberg, Germany

EDUCATION

10/2005	**Doctor rerum naturalium in Geography (*magna cum laude*)**, Humboldt-Universität zu Berlin on rock glaciers in the Andes
06/2001	**Diplom-Mathematiker**, Technical University of Freiberg, Germany on non-stationary geostatistics
11/1995 – 06/2001	**Studied Mathematics with a Minor in Physical Geography**, Technical University of Freiberg, Germany, Catholic University of Chile (**DAAD scholarship**), and University of Erlangen-Nuremberg, Germany

VISITING PROFESSORSHIPS AND SELECTED RESEARCH VISITS

Since 09/2015	**Adjunct Professor**, Department of Geography and Environmental Management, University of Waterloo
02/2014 – 08/2014	**Humboldt Research Fellow (sabbatical)**, Department of Geography, University of Heidelberg, Germany
04/2013 – 06/2013	**Visiting Professor**, Department of Geography and Regional Research, University of Vienna, Austria
01/2011 – 04/2011	**Distinguished Visiting Professor (sabbatical)**, Dept. of Geography, Pontificia Universidad Católica de Chile

AWARDS

2021	**LiP Award** for outstanding dedication to teaching during the pandemic, Friedrich Schiller University Jena, Germany

EXTERNAL FUNDING HELD AS PRINCIPAL INVESTIGATOR

2018 – 2021	**German Aerospace Center (DLR)**, "Multiscale data analysis", PI, within the Visual Analytics group of the DLR Institute of Data Science
2019 – 2020	**CETAQUA Chile**, "Mass movement processes in the upper Maipo basin", PI
2019	**German Academic Exchange Service (DAAD)**, international summer school on Geospatial Analysis and Modeling
2017 – 2019	**German Ministry of Education and Research**, "Network for environmental modeling of Earth surface processes," PI
2015 – 2019	**LIFE Environment and Resource Efficiency Project**, EU, "Early detection and advanced management systems to reduce forest decline caused by invasive and pathogenic agents" (LIFE14 ENV/ES/000179), Co-PI
2015 – 2018	**German Scholars Organization / Carl Zeiss Foundation**, program to support German researchers abroad returning to Germany
2013 – 2015	**NSERC Discovery Grant – Individual**, "Statistical Geocomputing"
2014	**Humboldt Fellowship for Experienced Researchers**, sabbatical at the University of Heidelberg, Germany
2014	**Contract Research**, Aguas Andinas, "Potential effects of dust on glaciers"
2008 – 2013	**NSERC Discovery Grant – Individual**, "Improved Spatial Classification in Mountain Geomorphology"

RECENT TEACHING

2014/15 –	**Graduate student seminar** for GIScience M.Sc. and Ph.D. students
2014/15 –	**Advanced Statistics + Machine Learning for Geospatial Modeling** (~10-15 students each, M.Sc. level)
2014/15 –	**Intro. + Advanced Statistics** for Geographers (~30-50 students, B.Sc.)
2014/15 –	Various **GIScience** courses at different levels (~20-110 students, B.Sc.)
2012 - 2014	**Advanced Environmental Research Methods** (~300 students, B.Sc.)
2010 – 2013	**On Becoming a Geographer** (~100 students, B.Sc. year 1)
2008 – 2013	**Spatial Statistics** (~10-20 Master's/PhD students)
2007 – 2013	**Spatial Analysis** (~10-45 students, year 3 B.Sc.)

SERVICE AND CONSULTING

Service to the University	**Dean** (2017-2020) and **Vice-Dean** (2016-17) of the Faculty of Chemistry and Earth Sciences, Friedrich Schiller University Jena **Chair of the Examinations Committee**, B.Sc. Geography (2014-17) **Senator**, University of Waterloo (2012-14)
Associate Editor	Remote Sensing (since 2020) Stochastic Environmental Research and Risk Assessment (2016-20) Open Geospatial Data, Software and Standards (since 2018)
Scientific Committees	Geomorphometry, 2009–; Earth Obs. for Global Changes, 2009–2017; Int. Assoc. for Mathematical Geosciences 2015; Ecological Informatics, 2018
Proposal Reviewer	Conicyt (Chile), DFG (Germany), FWF (Austria), Humboldt Foundation (Germany), NSERC (Canada), NSF (USA), among others
Consulting	**Freelance geostatistical consultant** (intermittently since 2006)

ADDITIONAL QUALIFICATIONS

Languages	German: first language; English, Spanish: fluent; French: intermediate

PUBLICATIONS

ORCiD: 0000-0001-6640-679X		ResearcherID: E-6022-2011	
Number of Publications in Web of Science:	88	*h*-index:	28
Times Cited:	3070	Average Citations per Item:	34.89

Peer-Reviewed Publications since 2018

Cortés, J., Mahecha, M.D., Reichstein, M., Myneni, R.B., Chen, C., **Brenning, A.** (2021). Where are global greening and browning trends significant? *Geophysical Research Letters*, 48(6): e2020GL091496.

Estupinan-Suarez, L.M., Gans, F., **Brenning, A.**, Gutierrez–Velez, V.H., Londono, M.C., Pabon–Moreno, D.E., Poveda, G., Reichstein, M., Reu, B., Sierra, C.A., Weber, U., Mahecha, M.D. (2021). A regional Earth system data lab for understanding ecosystem dynamics: An example from tropical South America. *Frontiers in Earth Science*, 9: 613395. https://doi.org/10.3389/feart.2021.613395

Knevels, R., **Brenning, A.**, Gingrich, S., Heiss, G., Lechner, T., Leopold, P., Plutzar, C., Proske, H., Petschko, H. Towards the use of land use legacies in landslide modeling: Current challenges and future perspectives in an Austrian case study. *Land*, 10(9), 954. https://doi.org/10.3390/land10090954

Knevels, R., **Brenning, A.**, Gingrich, S., Gruber, E., Lechner, T., Leopold, P., Petschko, H., Plutzar, C. (2021). Kulturlandschaft im Wandel: Ein indikatorenbasierter Rückblick bis in das 19. Jahrhundert. Fallstudie anhand der Gemeinden Waidhofen/Ybbs und Paldau. *Mitteilungen der Österreichischen Geographischen Gesellschaft*, 162: 255-285. https://doi.org/10.1553/moegg162s255

Urquiza-Munoz, J.D., Magnabosco-Marra, D., Negrón-Juárez, R.I., Tello-Espinoza, R., Alegria-Muñoz, W., Pacheco-Gómez, T., Rifai, S.W., Chambers, J.Q., Jenkins, H.S., **Brenning, A.**, Trumbore, S. (2021). Recovery of forest structure following large-scale windthrows in the Northwestern Amazon. *Forests*, 12(6): 667.

Wang, Z., **Brenning, A.** Active-learning approaches for landslide mapping using support vector machines. *Remote Sensing*, 13(13), 2588.

Brock, J., Schratz, P., Petschko, H., Muenchow, J., Micu, M., **Brenning, A.** (2020). The performance of landslide susceptibility models critically depends on the quality of digital elevations models. *Geomatics Natural Hazards & Risk*, 11: 1075-1092.

Cortés, J., Mahecha, M., Reichstein, M., **Brenning, A.** (2020). Accounting for multiple testing in the analysis of spatio-temporal environmental data. *Environmental and Ecological Statistics*, 27: 293-318.

Knevels, R., Petschko, H., Proske, H., Leopold, P., Maraun, D., **Brenning, A.** (2020). Event-based landslide modeling in the Styrian Basin, Austria: accounting for time-varying rainfall and land cover. *Geosciences*, 10, 217.

Linscheid, N., Estupiñán-Suárez, L.M., **Brenning, A.**, and 7 others (2020). Towards a global understanding of vegetation-climate dynamics at multiple timescales. *Biogeosciences*, 17: 945-962.

Muenchow, J., Dieker, P., Boettcher, T., …, **Brenning, A.** and 12 others (2020). Monitoring and predictive mapping of floristic biodiversity along a climatic gradient in ENSO's terrestrial core region, NW Peru. *Ecography*, 10.1111/ecog.05091

Shen, Y.-J., Shen, Y.J., Guo, Y., Zhang, Y.C., Pei, H.W., **Brenning, A.** (2020). Review of historical and projected future climatic and hydrological changes in mountainous semiarid Xinjiang (northwestern China), central Asia. *Catena*, 187, 104343.

Goetz, J., **Brenning, A.** (2019). Quantifying uncertainties in snow depth mapping from structure from motion photogrammetry in an alpine area. *Water Resources Research*, 55: 7772-7783.

Goetz, J., Fieguth, P., Kasiri, K., Bodin, X., Marcer, M., **Brenning, A.** (2019). Accounting for permafrost creep in high-resolution snow depth mapping by modelling sub-snow ground deformation. *Remote Sensing of Environment*, 231, 111275.

Knevels, R., Petschko, H., Leopold, P., **Brenning, A.** (2019). Geographic Object-Based Image Analysis for Automated Landslide Detection Using Open Source GIS Software. *ISPRS International Journal of Geo-Information*, 8, 551.

Marcer, M., Serrano, C., **Brenning, A.**, Bodin, X., Goetz, J., Schoeneich, P. (2019). Evaluating the destabilization susceptibility of active rock glaciers in the French Alps. *The Cryosphere*, 13: 141-155.

Schratz, P., Muenchow, J., Iturritxa, E., Richter, J., **Brenning, A.** (2019). Hyperparameter tuning and performance assessment of statistical and machine-learning algorithms using spatial data. *Ecological Modelling*, 406: 109-120.

Flach, M., Sippel, S., Gans, F., Bastos, A., **Brenning, A.**, Reichstein, M., Mahecha, M. D. (2018). Contrasting biosphere responses to hydrometeorological extremes: revisiting the 2010 western Russian heatwave. *Biogeosciences*, 15: 6067-6085.

Goetz, J., **Brenning, A.**, Marcer, M., Bodin, X. (2018). Modeling the precision of structure-from-motion multi-view stereo digital elevation models from repeated close-range aerial surveys. *Remote Sensing of Environment*, 210(1): 208-216.

Shen, Y.-J., Shen, Y., Fink, M., Kralisch, S., Chen, Y., **Brenning, A.** (2018). Trends and variability in streamflow and snowmelt runoff timing in the southern Tianshan Mountains. *J. Hydrol.*, 557: 173-181.

Shen, Y.-J., Shen, Y., Fink, M., Kralisch, S., Chen, Y., **Brenning, A.** (2018). Unraveling the hydrology of the glacierized Kaidu basin by integrating multisource data in the Tianshan Mountains, Northwestern China. *Water Resources Research*, 54: 557-580.

Selected Earlier Peer-Reviewed Publications (before 2018)

Azócar, G.F., **Brenning, A.**, Bodin, X. (2017). Permafrost distribution modelling in the semi-arid Chilean Andes. *The Cryosphere*, 11: 877-890.

Flach, M., Gans, F., **Brenning, A.**, Denzler, J., Reichstein, M., Rodner, E., Bathiany, S., Bodesheim, P., Guanche, Y., Sippel, S., Mahecha, M.D. (2017). Multivariate anomaly detection for Earth observations: a comparison of algorithms and feature extraction techniques, *Earth System Dynamics*, 8: 677-696.

Muenchow, J., Schratz, P., **Brenning, A.** (2017). RQGIS: Integrating R with QGIS for statistical geocomputing. *R Journal*, 9: 409-428.

Peña, M.A., Liao, R., **Brenning, A.** (2017). Using spectrotemporal indices to improve the fruit-tree crop classification accuracy. *ISPRS Journal of Photogrammetry and Remote Sensing*, 128: 158-169.

Steger, S., **Brenning, A.**, Bell, R., Glade, T. (2017). The influence of systematically incomplete shallow landslide inventories on statistical susceptibility models and suggestions for improvements. *Landslides*, 14: 1767-1781.

Steger, S., **Brenning, A.**, Bell, R., Petschko, H., Glade, T. (2016). Exploring discrepancies between quantitative validation results and the geomorphic plausibility of statistical landslide susceptibility maps. *Geomorphology*, 262: 8-23.

Albuquerque, J. P., Herfort, B., **Brenning, A.**, Zipf, A. (2015). Geographic approach for combining social media and authoritative data towards improving information extraction for disaster management. *International Journal of Geographic Information Science*, 29(4): 667-689.

Goetz, J.N., **Brenning, A.**, Petschko, H., Leopold, P. (2015). Evaluating machine learning and statistical prediction techniques for landslide susceptibility modeling. *Computers & Geosciences*, 81: 1-11.

Peña, M.A., **Brenning, A.** (2015). Assessing fruit-tree crop classification from Landsat-8 time series for the Maipo Valley, Chile. *Remote Sensing of Environment*, 171: 234-244.

Petschko, H., **Brenning, A.**, Bell, R., Goetz, J., Glade, T. (2014). Assessing the quality of landslide susceptibility maps – case study Lower Austria. *Natural Hazards and Earth System Sci.*, 14: 95-118.

Boeckli, L., **Brenning, A.**, Gruber, S., Noetzli, J. (2012). A statistical approach to modelling permafrost distribution in the European Alps or similar mountain ranges. *The Cryosphere*, 6, 125-140.

Brenning, A. (2012): Spatial cross-validation and bootstrap for the assessment of prediction rules in remote sensing: the R package 'sperrorest'. *Proceedings, 2012 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), 23-27 July 2012*, 5372-5375.

Goetz, J., Guthrie, R., **Brenning, A.** (2011). Integrating physical and empirical landslide susceptibility models using generalized additive models. *Geomorphology*, 129: 376-386.