Camsdorfer Str. 22
07749 Jena
Germany

(+49 911) 4784411
jannes.muenchow@uni-jena.de
http://www.geographie.uni-jena.de/en/Muenchow.html

Dr. Jannes Muenchow

born in Dresden, Germany, on 09/29/1981.

Employment

GIScience department, University of Jena

2016–present. Postdoctoral research and teaching associate.
My work strongly focuses on quantitative analysis of geo-ecosystems, (tropical) ecology and automatized statistical geocomputing.

1. Geocomputation with R and integrating R with GIS (e.g., RQGIS).
2. Predictive modeling and mapping of the impact of ENSO in the tropics.
3. Predicting forest disease in Spanish pine forests using machine learning.
4. Reviewing and developing software for qualitative GIS.
5. Natural hazards modeling and susceptibility prediction.

GfK Geomarketing, Nuremberg

2013–2015. Geographic data scientist.
Market Data & Research, Team Geostatistics.
My tasks included the development and enhancement of methods and products using innovative (geo-)statistical and visualization methods. Furthermore, I was in charge of developing non-standard GIS solutions and the maintenance and development of internal R packages.

Institute of Geography, University of Erlangen-Nuremberg

2010–2013. PhD studies on the impact of ENSO on the vegetation formations of Peruvian arid environments.

GeoForschungsZentrum Potsdam

10/2008–02/2009. Fixed-term work contract within GITEWS (German Indonesian Tsunami Early Warning System) including a six week field trip to Indonesia.

Nursery school „Kulleberga“ Berlin (Germany)

2002–2003. Civilian service.

Education

2010–2013. Doctor rerum naturalium in Geography. University of Erlangen-Nuremberg.
2007–2008. Foreign student exchange. Catholic University of Chile, Santiago de Chile. Studies of Geography.
2004–2010. Diplom-Geograph (comparable to a MSc Geography). University of Erlangen-Nuremberg, Germany and Catholic University of Chile. Studies of Geography with a minor in Geology and Biology.

2003–2004. Studies of German literature and Philosophy. University of Erlangen-Nuremberg.

1989–2001. General qualification for university entrance. Several schools in Dresden and Dachau.

Research visits

04/2010–04/2013. Various research field trips to South America. Piura, Peru.

06/2009–10/2009. Visiting scientist. Department of Geography and Environmental Management, University of Waterloo, Ontario, Canada.

03/2007–03/2008. Academic student exchange. Chile, Ecuador, Peru.

Grants

2019. International Summer School on Geospatial Analysis and Modelling using R, DAAD. Submitted in September 2018. Co-author (€20,000).

2017–2018. Monitoring of the highly endangered and unique ecosystems of northern Peru in times of increased climatic variability due to climate change and El Niño, FSU programme to support junior researchers in obtaining third-party funding. PI (€8,878).

2016–2017. Employment funds, FSU Jena, Department of GIScience. PI (€7,500).

2011–2013. Extreme thunderstorms as cause for catastropic mass movemens in Chiapas, Mexico, DFG (Sachbeihilfe). Co-author (€6,780 (own share: €1,500)).

2007–2008. Student exchange, German Federal Training Assistance Act for Foreign Studies. Stipend (€12,500).

Service

Academic

2017–present. Study advisor for the M.Sc. program in GIScience.

2017–2017. Co-Organizer of the MSCJ LIFE Spring School on the statistical analysis of hyperspectral and high-dimensional remote sensing data.

Consultancy

2015–present. GfK Geomarketing.

Guest Editor

Plos One (https://doi.org/10.1371/journal.pone.0190572).

Journal Reviewer

Applied Vegetation Science, Ecological Modelling, Erdkunde, Forests, Natural Hazards, Plos One, Sensors, Sustainability.

Teaching

2017–present. GEO241/GEO247 Applied Environmental Statistics (co-taught). 2nd year B.Sc. Geography, 20-30 students (lecture and lab class).

2016–present. GEO111 GIScience A - Introduction to GIScience. 1st year B.Sc. Geography, 40-50 students (lecture and lab class).

2016–present. GEO213 GIScience II - Geodata and Geodatabases. 2nd year B.Sc. Geography, 20-30 students (lecture and lab class).

2015–present. GEO404 Applied GIScience. 1st year M.Sc. GIScience, 15-20 students (lecture and lab class).
2013–2013. Climate geography. 3rd year B.Sc. Geography, 15-20 students (lecture).
2011–2013. Multivariate statistics and statistical modeling with R. 2nd year M.Sc. Geography, 15-20 students (lecture and lab class).
2010–2010. Advanced field methods in physical geography with a field trip to Egypt. 1st year M.Sc. Geography, 20-30 students (lecture and lab class).
2009–2013. Introduction to field methods in physical geography, Franconian Jura. 1st year B.Sc. Geography, 40-50 students.

Supervision

PhD

2016–present. Patrick Schratz, *Spatial prediction of tree desease using topography, climate and multi- and hyperspectral images in Northern Spain* (Informal Co-supervisor).

Master's level

2017–2018. Fabian Polakowski, *Evaluating the performance and accuracy of selected spatial analysis tools in GIS software* (Co-supervisor).
2017–2018. Simon Mürter, *Small-area population estimation using downscaling algorithms* (Co-supervisor).
2017–2017. Daniel Cebulla, *Räumliche Ertragsanalyse in der teilflächenspezfischen Bewirtschaftung* (Co-supervisor).
2016–2017. Jonas Gütter, *Modellierung deutscher Niederspannungsverteilnetze auf Grundlage von OpenStreetMap-Daten.*
2016–2016. Patrick Schratz, *A weather-radar based hail climatology of northern Spain* (Co-supervisor).
2011–2012. Simon Hauenstein, *Einfluss des Bodens auf die Entwicklung der Vegetation von Nebelbergen (lomas) in verschiedenen Höhenstufen, Nordperu* (Informal co-supervisor).
2010–2011. Michael Schwinn, *GIS-gestützte Modellierung von Gefahrenzonen durch gravitative Massenbewegungen an den Verkehrswegen um Loja, Südecuador* (Informal co-supervisor).

Undergraduate

2017–2018. Victor Schurade, *Räumliche Modellierung von Murgängen in den zentralchilenischen Anden - ein GIS-basierter Ansatz* (Co-supervisor).
2017–2017. Dennis Kehl, *Räumliche Analyse von socal media Daten am Beispiel des Elbehochwassers 2013* (Co-supervisor).
2017–2017. Clemens Paulmann, *Vergleich viel genutzter Fotoplattformen zum automatisierten download am Beispiel von geoheritage-Bildern in Thüringen.*
2017–2017. Susann Purucker, *Lösungsansätze von mikroskalischen Routingproblemen am Beispiel eines Logistikunternehmens.*

2017–2017. Eric Krüger, *Eine Literaturreview zur Anwendung von GIS in der qualitativen Forschung. Potenzial, Trends und die Perspektive von qualitativen Geoinformationssystemen.*

2016–2016. Benjamin Harnisch, *Möglichkeiten zur Anwendung von R als CAQ-GIS.*

2016–2016. Theresa Möller, *Analyse räumlich-zeitlicher Muster in georeferenzierten Twitter-Daten* (Co-supervisor).

2016–2016. Daphne Linnéa Meyreiß, *Nichtlineare Regressionsmodellierung landwirtschaftlicher Ertragsdaten im On-Farm Research* (Co-supervisor).

2016–2016. Paul Müller, *Entwicklung und Trends der Geoinformatik* (Co-supervisor).

Publications

So far, I have published 11 peer-reviewed journal articles which were cited times (times excluding self-citations) according to the Web of Science and 124 times when consulting Google Scholar. The h-index is 7.

Submitted

Muenchow, J., Dieker, P., Brock, J., Didenko, G., Jakubka, D., Jentsch, A., Richter, M., Rodríguez, E. F., Rodríguez, R. A., Rollenbeck, R., Zarsosa, P. S., Brenning, A., (submitted). Same but different: Rethinking the common understanding of ENSO and its impact on biodiversity in its terrestrial core region. *Journal of Biogeography.*

Muenchow, J., Krüger, E., Schäfer, S., (submitted). Reviewing qualitative GIS research — publication trends, research areas, and the role of open source software. *Geography Compass.*

Schratz, P., **Muenchow, J.**, Richter, J., Brenning, A., (2018). Performance evaluation and hyperparameter tuning of statistical and machine-learning models using spatial data. *arXiv.* `https://arxiv.org/abs/1803.11266`.

Current projects

Lovelace, R., Nowosad, J., **Muenchow, J.,** (2019). *Geocomputation with R*. Boca Raton, Florida, United States: CRC Press.

Journal articles

Manzanos, T., Stanosz, G., Smith, D., **Muenchow, J.**, Schratz, P., Brenning, A., Aragonés, A., Iturritxa, E., (2018). Mating type ratios and pathogeny in Diplodia shoot blight fungi populations: comparative analysis. *Forest Pathology.* DOI: `https://doi.org/10.1111/efp.12475`.

Muenchow, J., Dieker, P., Kluge, J., Kessler, M., von Wehrden, H., (2018). A review of ecological gradient research in the tropics: Identifying research gaps, future directions, and conservation priorities. *Biodiversity and Conservation* **28**(2), 273–285. DOI: `10.1007/s10531-017-1465-y`.

Muenchow, J., Schratz, P., Brenning, A., (2017). RQGIS: Integrating R with QGIS for statistical geocomputing. *The R Journal* **9** (2), 409–428.

Brenning, A., Schwinn, M., Ruiz-Páez, A. P., **Muenchow, J.,** (2015). Landslide susceptibility near highways is increased by 1 order of magnitude in the Andes of southern Ecuador, Loja province. *Natural Hazards and Earth System Sciences* **15**(1), 45–57. DOI: 10.5194/nhess-15-45-2015.

Rollenbeck, R., Bayer, F., **Muenchow, J.**, Richter, M., Rodríguez, R., Atarama, N., (2015). Climatic cycles and gradients of the El Nino core region in North Peru. *Advances in Meteorology*. DOI: 10.1155/2015/750181.

Peters, T., Bräuning, A., **Muenchow, J.**, Richter, M., (2014). An ecological paradox: high species diversity and low position of the upper forest line in the Andean Depression. *Ecology and Evolution* **4**(11), 2134–2145. DOI: 10.1002/ece3.1078.

Muenchow, J., Bräuning, A., Rodríguez, E. F., von Wehrden, H., (2013). Predictive mapping of species richness and plant species' distributions of a Peruvian fog oasis along an altitudinal gradient. *Biotropica* **45**(5), 557–566. DOI: 10.1111/btp.12049.

Muenchow, J., Feilhauer, H., Bräuning, A., Rodríguez, E. F., Bayer, F., Rodríguez, R. A., von Wehrden, H., (2013). Coupling ordination techniques and GAM to spatially predict vegetation assemblages along a climatic gradient in an ENSO-affected region of extremely high climate variability. *Journal of Vegetation Science* **24**(6), 1154–1166. DOI: 10.1111/jvs.12038.

Muenchow, J., Hauenstein, S., Bräuning, A., Bäumler, R., Rodríguez, E. F., von Wehrden, H., (2013). Soil texture and altitude, respectively, largely determine the floristic gradient of the most diverse fog oasis in the Peruvian desert. *Journal of Tropical Ecology* **29**, 427–438. DOI: 10.1017/S0266467413000436.

Muenchow, J., von Wehrden, H., Rodríguez, E. F., Rodríguez, R. A., Bayer, F., Richter, M., (2013). Woody vegetation of a Peruvian tropical dry forest along a climatic gradient depends more on soil than annual precipitation. *Erdkunde* **67**(3), 241–248. DOI: 10.3112/erdkunde.2013.03.03.

Muenchow, J., Brenning, A., Richter, M., (2012). Geomorphic process rates of landslides along a humidity gradient in the tropical Andes. *Geomorphology* **139**, 271–284. DOI: 10.1016/j.geomorph.2011.10.029.

Book chapters

Schäfer, S., **Muenchow, J.**, Harnisch, B., (2018). "Qualitative Forschung und Geographische Informationssysteme". In: *Sozialraum erforschen: Qualitative Methoden in der Geographie*. Ed. by J. Wintzer. Berlin, Heidelberg: Springer. DOI: 10.1007/978-3-662-56277-2_11.

Monographs

Muenchow, J. (2013). "Vegetation dynamics along climatic gradients and under human pressure in the arid north of peru with a special focus on the impact of the ENSO phenomenom". PhD thesis. University of Erlangen-Nuremberg, p. 98.

Muenchow, J. (2009). "Gravitative Massenbewegungen und ihre Prozessraten auf beiden Andenabdachungen Südecuadors. Eine vergleichende geomorphologische Studie mit vegetationsgeographischen Ansätzen". MA thesis. University of Erlangen-Nuremberg, p. 113.

Software

Brenning, A., Bangs, D., Becker, M., (2018). *RSAGA: SAGA geoprocessing and terrain analysis in R*. With contributions from J. Muenchow. `https://github.com/r-spatial/RSAGA`.

Brenning, A., Bangs, D., Becker, M., **Muenchow, J.,** (2018). *RPyGeo: RPyGeo: ArcGIS Geoprocessing in R via Python*. R package version 1.0.0. `https://github.com/fapola/RPyGeo`.

Muenchow, J., Schratz, P., (2018). *RQGIS: integrating R with QGIS*. R package version 1.0.4. `https://github.com/jannes-m/RQGIS`.

Tennekes, M., Gombin, J., Jeworutzki, S., Russell, K., Zijdeman, R., Clouse, J., Lovelace, R., Nowosad, J., **Muenchow, J.,** (2018). *tmap: Thematic maps*. R package version 2.2. `https://github.com/mtennekes/tmap`.

Workshops

Muenchow, J. (2018): *Two lectures and computer lab classes on R/GIS bridges and predictive ecological modeling with the help of machine learning*. Geostat Summer School (**invited**), Prague, Czech Republic.

Muenchow, J., Lovelace, R. (2018): *Workshop on Geocomputation with R*. eRum - European R Users Meeting, Budapest, Hungary.

Muenchow, J. (2017): *Three lectures and computer lab classes on R/GIS bridges for statistical geocomputing*. Geostat Summer School (**invited**), Split, Croatia.

Muenchow, J. (2017): *Using R as a GIS with a special focus on RQGIS*. MSCJ LIFE Spring School on the statistical analysis of hyperspectral and high-dimensional remote sensing data, Jena, Germany.

Muenchow, J. (2017): *Four lectures and computer lab classes on ecological modeling, R/GIS bridges and spatial autocorrelation*. BioMove (**invited**), Berlin, Germany.

Muenchow, J. (2016): *Introducción al uso y programación del sistema estadística R*. Workshop (**invited**), Piura, Peru.

Muenchow, J. (2012): *Multivariate Datenvisualisierung mit R. Vorstellung des lattice Pakets*. Research & Methods Colloqium, Erlangen, Germany.

Muenchow, J. (2012): *GLMs & GAMs in der Ökologie*. Workshop (**invited**), Lüneburg, Germany.

Talks and posters

Schratz, P., **Muenchow, J.**, Richter, J., Iturritxa, E., Brenning, A. (2018): *Performance evaluation and hyperparameter tuning of statistical and machine-learning models using spatial data*. ICEI - International Conference on Ecological Informatics, Jena, Germany.

Schäfer, S., **Muenchow, J.** (2018): *The spatial formation of emerging and growing entrepreneurial ecosystems.* Global Conference on Economic Geography, Cologne, Germany.

Muenchow, J., Mürter, S., Brenning, A. (2018): *Koppelung von "Offenen Geodaten" mit open source Geosoftware: Beispiele aus Wirtschaft und Wissenschaft.* Thüringer GIS Forum (**invited**), Erfurt, Germany.

Muenchow, J. (2017): *(Automatisierte) Geoprozessierung mit Open-Source Software.* GISday 2017, Jena, Germany.

Muenchow, J., Schratz, P., Brenning, A. (2017): *Integrating R with QGIS for Statistical Geocomputing.* UseR!-conference, City of Brussels, Belgium.

Muenchow, J., Schratz, P., Brenning, A. (2017): *Integrating R with GIS for innovative geocomputing – the examples of RQGIS and RSAGA.* EGU General Assembly, Vienna, Austria.

Muenchow, J. (2017): *Using R as a GIS with a special focus on RQGIS.* MSCJ LIFE Spring School on the statistical analysis of hyperspectral and high-dimensional remote sensing data, Jena, Germany.

Muenchow, J. (2016): *RQGIS - Integrating R with QGIS for advanced geocomputing.* Research Colloquium, Jena, Germany.

Schratz, P., **Muenchow, J.**, Brenning, A. (2016): *Modeling the spatial distribution of hail damage in pine plantations of Northern Spain as a major risk factor for forest disease.* First workshop of LIFE Healthy Forest, Vitoria, Spain.

Brenning, A., Goetz, J., **Muenchow, J.**, Petschko, H. (2016): *Regionalskalige Modellierung gravitativer Massenbewegungen mit Hilfe statistischer und physikalisch basierter Modelle.* AK Gemorphologie, Jena, Germany.

Muenchow, J. (2016): *An introduction to the RQGIS package.* Talk at GfK Geomarketing (**invited**), Nuremberg, Germany.

Brenning, A., **Muenchow, J.** (2016): *Uncertainty and quality evaluation in landslide hazard and risk assessment.* EGU General Assembly, Vienna, Austria.

Muenchow, J. (2016): *GIScience applications in geomarketing, geomorphology and biogeography.* Research Colloqium, Jena, Germany.

Muenchow, J. (2013): *Vegetationswandel entlang von Feuchtegradienten im ariden und stark ENSO-beeinflussten Norden Perus.* Doctoral viva, Erlangen, Germany.

Muenchow, J. (2013): *Logistic and Poisson regression in ecology.* Talk at GfK Geomarketing (**invited**), Nuremberg, Germany.

Muenchow, J. (2013): *Modeling floristic patterns in arid but ENSO-affected Peruvian ecosystems.* Research Colloqium (**invited**), Bonn, Germany.

Muenchow, J., Hauenstein, S. (2013): *Modellierung floristischer Gradienten auf Nebelbergen in NW-Peru – eine sanfte Einführung in die Welt der Ordinationen und Modellierungen.* Research & Methods Colloqium, Erlangen, Germany.

Muenchow, J., von Wehrden, H. (2012): *Vegetation changes along a climatic gradient during a drought year in NW-Peru.* Poster at the GFÖ conference, Lüneburg, Germany.

Muenchow, J., Brenning, A., Richter, M. (2012): *Relationship between landslides, landscape evolution and vegetation under human pressure in the tropical Andes.* GTÖ conference, Erlangen, Germany.

Muenchow, J. (2012): *Predictive mapping of plant diversity on a Lomas mountain.* GTÖ conference, Erlangen, Germany.

Muenchow, J., Brenning, A., Richter, M. (2011): *Landslide Prozessraten entlang eines innerandinen O-W Feuchtegradienten.* AK Hochgebirge, Erlangen, Germany.

Muenchow, J., Brenning, A., Richter, M. (2010): *Geomorphologische Prozessraten flachgründiger Hangbewegungen auf beiden Andenabdachungen der tropischen Anden.* AK Geomorphologie, Frankfurt am Main, Germany.

Muenchow, J., Brenning, A., Richter, M. (2010): *Hangbewegungen auf beiden Andenabdachungen Südecuadors –- Typen, Ursachen und Denudationsraten.* AK Hochgebirge & ARGE, Bayreut, Germany.

Muenchow, J. (2009): *Landslides in the Andes of Southern Ecuador.* Research Colloquium (**invited**), Waterloo, Canada.

Muenchow, J. (2009): *Die Hangbewegungen von Masanamaca, Südecuador.* Research Colloquium, Erlangen, Germany.