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Dr. Jannes Muenchow

Employment

GIScience department, University of Jena

2016–present. Postdoctoral research and teaching associate.

GfK Geomarketing, Nuremberg

2013–2015. Research specialist.
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.

Education

2013. Doctor rerum naturalium in Geography, University of Erlangen-Nuremberg. *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 phenomenon* (magna cum laude).
2010. Diplom-Geograph (comparable to a MS Geography), University of Erlangen-Nuremberg. *Gravitative Massenbewegungen und ihre Prozessraten auf beiden Andenabdachungen Südecuadors - eine vergleichende geomorphologische Studie mit vegetationsgeographischen Ansätzen* (1.3).
2004–2010. Studied Geography with a minor in Geology and Biology. University of Erlangen-Nuremberg, Germany and Catholic University of Chile.

Research visits

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

Teaching

2017–present. GEO241/GEO247 Applied Environmental Statistics (co-taught).
2016–present. GEO111 GIScience A.
2016–present. GEO213 GIScience II - Geodata and Geodatabases.
2015–present. GEO404 Applied GIScience.
2013–2013. Climate geography.
2011–2013. Multivariate statistics and statistical modeling with R.
2010–2010. Advanced field methods in physical geography, Egypt. In preparation for the field trip, I gave four lectures on GIS and remote sensing.
2009–2013. Introduction to field methods in physical geography, Franconian Jura.

Service

Academic

2017–present. Study counseling GIScience. .

Consultancy

2015–present. GfK Geomarketing

Guest Editor

Plos One

Journal Reviewer

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

Supervision

phd

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

master's level

2017–2018. Fabian Polakowski, *Evaluating the performance and accuracy of selected spatial analysis tools in GIS software* (Secondary supervisor).
2017–2018. Simon Mürter, *Small-area population estimation using downscaling algorithms* (Secondary supervisor).
2017–2017. Daniel Cebulla, *Räumliche Ertragsanalyse in der teilflächenspezfischen Bewirtschaftung* (Zweitgutachter).
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* (Secondary supervisor).
2011–2012. Simon Hauenstein, *Einfluss des Bodens auf die Entwicklung der Vegetation von Nebelbergen (lomas) in verschiedenen Höhenstufen, Nordperu* (Informal co-advisor).
2010–2011. Michael Schwinn, *GIS-gestützte Modellierung von Gefahrenzonen durch gravitative Massenbewegungen an den Verkehrswegen um Loja, Südecuador* (Informal co-advisor).

undergraduate

2017–2018. Victor Schurade, *Räumliche Modellierung von Murgängen in den zentralchilenischen Anden - ein GIS-basierter Ansatz* (Zweitgutachter).
2017–2017. Dennis Kehl, *Räumliche Analyse von socal media Daten am Beispiel des Elbehochwassers 2013* (Zweitgutachter).

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* (Zweitgutachter).

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

2016–2016. Paul Müller, *Entwicklung und Trends der Geoinformatik* (Zweitgutachter).

Publications

Current projects

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

Journal articles

Muenchow, J., 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-Paez, 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., Rodriguez, 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., Rodriguez, 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., Rodriguez, E. F., Bayer, F., Rodriguez, 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., Rodriguez, 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., Rodriguez, E. F., Rodriguez, 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.

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.

Book chapters

Schäfer, S., **Muenchow, J.,** (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.

Software

Muenchow, J., Schratz, P., (2017). *RQGIS: integrating R with QGIS*. R package version 1.0.3. https://github.com/jannes-m/RQGIS.

Brenning, A., Bangs, D., (2016). *RSAGA: SAGA geoprocessing and terrain analysis in R*. With contributions from J. Muenchow. https://github.com/debangs/RSAGA.

Talks and posters

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

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

Muenchow, J. (2017): *GeoStat Summer School*.

1. *R/GIS bridges for statistical geocomputing*
2. *An introduction to RQGIS*
3. *Prediction of species richness using RQGIS*

Lectures and computer practicals. GeoStat Summer School (invited), Split, Croatia.

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 (invited).* Talk at GfK Geomarketing (knowledge exchange), 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): *Introducción al uso y programación del sistema estadística R (invitado).* Workshop, Piura, Peru.

Muenchow, J. (2016): *GIScience applications in geomarketing, geomorphology and biogeography (invited).* 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 (invited).* Talk at GfK Geomarketing, Nuremberg, Germany.

Muenchow, J. (2013): *Modeling floristic patterns in arid but ENSO-affected Peruvian ecosystems (invited).* Research Colloqium, 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. (2012): *Multivariate Datenvisualisierung mit R. Vorstellung des lattice Pakets.* 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 (invited).* Research Colloquium, Waterloo, Canada.

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