Curriculum Vitae

Dr. Michael Dietze
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Dr. rer. nat. Michael Dietze

Post Doctoral Researcher
Section 5.1 Geomorphology
German Research Centre for Geosciences GFZ Potsdam

Born 16.11.1979, Annaberg, Germany
Married, two children

Telegrafenberg Haus F 427
D-14473 Potsdam, Germany
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APPOINTMENTS AND TRAINING

2016	**NIOZ, Texel** Visiting scientist (6 months)
2013–2020	**GFZ Potsdam** Post Doctoral project on advancing Environmental Seismology Project Manager des Horizon 2020 ITN SUBITOP
2008	**CICISE Ensenada** Research stay (3 months)
2007–2013	**Technische Universität Dresden** Teaching and Post doctoral research position PhD thesis (Dietze, M. 2012. Stone pavements, vesicular structures and soil development – tackling evolution and dynamics of arid environments. Cumulative dissertation), summa cum laude Study of relevant parts of B.Sc. Physics Conceptualisation/implementation of a luminescence laboratory Scientific assistant, Lehrstuhl für Physische Geographie/ Regionale Geographie Mitteleuropas
2000–2007	**Technische Universität Dresden** Study of Geography (minors: Appl. geology, Soil science), Sehr gut Diploma thesis (Dietze, M. 2007. Untersuchung sedimentpetrographisch-mineralogischer Eigenschaften quartärer Lagen und Modellierung ihrer Verbreitungsmuster) Internship Deutsches GeoForschungsZentrum (2005) Saharan dust flux reconstructions off Africa Internship Sächsische Akademie der Wissenschaften (2004) Erosionsmodellierung (Erosion3D) nach dem Vb-Ereignis 2003

AWARDS

2013	Best PhD thesis award, German Working Group on Geomorphology
2017	Research Highlight Article: Seismic monitoring of small alpine rockfalls – validity, precision and limitations

SERVICE

Review, journals	Earth Surface Processes and Landforms, Earth Surface Dynamics, Annals of Geomorphology, Catena, Nature Scientific Reports, Journal of Arid Lands, Quaternary International, Quaternary Geochronology.
Editor, journals	Earth Surface Processes and Landforms, Earth Surface Dynamics
Review, theses	1 Doctoral thesis, 10 M.Sc. theses, > 100 B.Sc. and study theses
Supervision	12 M.Sc., 19 B.Sc. theses, > 45 study theses, 14 internships
Organisation	European Geosciences GM Early Career Scientists speaker (since 2017) Coordinator seismic devices GFZ-Section 5.1 (since 2013) Speaker/Advisory board Young Geomorphologists (2011-2015) Coordinator Scientific Colloquium Geography, TU Dresden (2010-2013)
Conferences	First EGU Galileo Conference on Environmental Seismology (2017) EGU Annual Meeting, Sessions about concepts in geosciences, R software, Modelling & Experiments, Arid zone landscape dynamics, (since 2012) SUBITOP Conferences, Workshops & Short Course (2016, 17)

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FUNDING

2018	Helmholtz Expedition Fund, (8000 €)
2016	DFG Research Unit AlpPred, submitted 2016, as partner
2014–2017	DFG Wissenschaftsnetzwerk, as partner (24105 €)
2013	Helmholtz Expedition Fund, Exploration of Alpine seismology (6000 €)
2008	DFG Travel Grant, GSA Annual Meeting, Houston (990 €)

EXPERTISE

Numeric models
Languages: R, (Matlab, C++, FORTRAN, Python)
Landscape evolution modelling (CHILD, CAESAR, own models)
Monte Carlo methods (error propagation, age models, proxy uncertainty)
Wind field modelling, Soil erosion modelling
Spatial data analysis (seismic source location, solar radiation modelling)
Modelling of sediment sections, propagation of analytic uncertainty

Statistic models
Descriptive statistics (circular Data, multivariate data)
Geodata management und analysis, signal processing
Eigen space-, frequency- and phase space analysis
Measurement data handling, homogenisation and integration
Luminescence data modelling and visualisation

Experiments
Experiment design, set-up, conduction and evaluation
Run-off experiments, sediment structure formation, analogue models
Natural scale projects for seismics, hydrology, meteorology, soils physics

Analytics
Coordination/implementation sediment laboratory, GFZ Potsdam
XRD, DTA/DTG, Electron micro probe analysis, thin section microscopy
Grain-size analysis (laser diffraction, image processing, Köhn, Aräometer)
Implementation Luminescence laboratory, TU Dresden
Luminescence dating, pedology, petrology

Solutions
Real time data measurement and transmission stations (Taiwan, Rügen)
Web-based early warning and rapid response systems

COLLABORATIONS AND NETWORK

Global
NIOZ Texel (NL), Desert Research Institute Reno (US), WSL Zürich (CH), Ben Gurion University (IL), Fundacion Cambugán (EC), National University of Taiwan (TW), INRS Quebec (CA), Uni Lausanne (CH), Inversité Grenoble Alpes (FR), Observatoire de Paris (FR), CICESE Ensenada (MX), Turku University (FI), Umea University (SE)

Germany
GFZ Potsdam (landscape evolution, hydrology, remote sensing, Earth System modelling, seismology, geophysics and further sections), Universities in Munich (rock mechanics group), Dresden (Geodesy), Gießen, Leipzig, Aachen, Bayreuth, Trier, Augsburg, Köln, Tübingen, HZDR Freiberg, SNSD Klotzsche, National Parks Jasmund, Müritz, Sächsische Schweiz

MANAGEMENT

Management of the Horizon 2020 ITN SUBITOP
Organisation of conferences, workshops, short courses
Coordination of interaction between institutions and private sector partners
Finance- and human resources management
Outreach and committee engagements
Interaction with the European Commission

During earlier positions
Representation of students and early career scientists
Conception, implementation and evaluation of courses
Active memberships in institutional panels

Record of projects

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ENVIRONMENTAL SEISMOLOGY

A library of the seismic signatures of Earth surface dynamics (since 2014)

Central scientific objective. Open reference base of collectively contributed seismic and independently measured data for validation and statistic investigation of seismic properties of Earth surface processes.

Expected outcomes: open online web-based service, technical article, application article (2018/19)

Funded by Helmholtz-internal financing mechanisms

Free & open software tailored to environmental seismology (since 2013)

Development during PostDoc position. Free and open package to run the complete workflow of seismic data preparation and analysis in R.

Outcomes: R-package eseis, research article (in review)

Funded by Helmholtz-internal financing mechanisms

River flow dynamics under frozen streams in high latitude regions (since 2018)

Combined in situ discharge, sediment flux and seismic monitoring of frozen rivers and catchment properties in Sweden.

In collaboration with Christoph Sens-Schönfelder (GFZ), Eliisa Lotsari (Univ. of Turku) and Lina Polvi Sjöberg (Univ. of Umea).

Expected outcomes: follow-up proposal for PhD position, research article (autumn 2018)

Funded by Helmholtz Expedition Funds (8000 €)

Unmixing fluvial turbulence and bedload flux from seismic data (2016-2017)

Application of End-member modelling analysis to seismic spectral data from natural-scale experiments and instrumented observatories.

In collaboration with Danica Roth (Univ. of California), Florent Gimbert (CNRS, Grenoble), Johnathan Laronne (Ben Gurion Univ., Be'er Sheba).

Expected outcomes: research article (2018)

Funded by Helmholtz-internal financing mechanisms

Sea cliff evolution and collapse susceptibility, Jasmund/Rügen (since 2017)

Seismic detection, location and description of collapse events with real-time data transmission and rapid response issuing. Seismic precursor activity screening, meteorologic and marine trigger monitoring.

In collaboration with NP Jasmund staff, GFZ seismology groups.

Expected outcomes: research articles, PhD project proposal, fully operating network to be delivered to Geological Survey authorities

Funded by Helmholtz-internal financing mechanisms

Patterns and drivers of Alpine rockfall activity, Lauterbrunnen Valley (2014–2017)

First independent validation and exploration of seismic capabilities to resolve rockfalls < 1 m^3 under natural conditions. Season-integrating instrumentation and periodic lidar scans yield spatially and time-resolved patterns of rockfall activity and their trigger mechanisms.

In collaboration with Todd Ehlers (Tübingen).

Outcomes: two articles in 2017

Funded by Helmholtz Expedition Funds (6000 €)

Energetic coupling of atmosphere and Earth surface by vegetation (since 2014)

Seismic data inversion, sap-flow and tree diameter monitoring and modelling of tree motion modi to quantify the amount and pathways of energy transferred from the atmosphere to the ground.

In collaboration with Andreas Güntner (GFZ) and Martin Wilmking (Greifswald)

Expected outcomes: article (summer 2018)

Funded by Helmholtz-internal financing mechanisms

Record of projects

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END-MEMBER MODELLING

The R-package EMMAgeo – Introduction and workflow explanation (2013–2016)

End-member modelling analysis is an eigenspace-based approach to unmix multivariate, compositional data. The R-package EMMAgeo is the only free and open software that allows robust EMMA and has received broad success across disciplines and applications (~ 10000 downloads from the official R Archive Network CRAN).

In collaboration with Elisabeth Dietze (GFZ).

Outcomes: article with technical emphasis, application examples and a tutorial (submitted)

Validation and application exploration of end-member modelling (since 2015)

Based on “real world” sedimentological process end-members that were mixed in the laboratory and measured by laser diffraction, this project holds all information for the first realistic validation of any sediment unmixing approach and is used to explore the potential and limitations of EMMA as well as further scientific hypotheses.

In collaboration with Philipp Schulte (RWTH Aachen) and Elisabeth Dietze (GFZ).

Expected outcome: article (spring 2018)

Continuous down-core end-member modelling of marine sediments (2015)

SEM-based single-grain diameter information is used to generate quasi-continuous grain-size distributions at submicroscopic level, which are unmixed by EMMA to reveal the previously neglected action of internal waves in marine environments.

In collaboration with Pierre Francus and Alexandre Normandeau (both INRS Quebec).

Expected outcomes: extension of EMMAgeo and article (2018)

Suspended sediment yield unmixing in Central Asia (2017)

Catchment systems in Tadjikistan show distinct but mixed suspended yields that were unmixed by EMMA to decipher four different runoff regimes.

In collaboration with Eric Pohl (Gif-sur-Yvette Cedex), Richard Gloaguen (TU Freiberg) and Christoff Andermann (GFZ).

Expected outcome: research article (to be submitted in spring 2018)

EMMA and Palaeozoic delta sediment depositional facies (2015-2017)

A large amount of grain-size measurements from lithofacies types and associations from the North-German Basin were unmixed with EMMA to identify persistent spatial and temporal patterns of depositional regimes for the first time.

In collaboration with Jens Zimmermann and Mathias Franz (both TU Freiberg)

Expected outcome: research article (submitted)

LUMINESCENCE SERVICE & MODELLING

The R-package sandbox – probabilistic sediment section modelling (since 2016)

The first model framework that touches the idea of building a rule-based, probabilistic sediment section that can be virtually sampled prepared and measured to explore scientific hypothesis and to invert real data for unknown input parameters, also beyond OSL dating.

In collaboration with Sebastian Kreutzer (IRAMAT Bordeaux) and Margret Fuchs (HIF Freiberg).

Expected outcomes: R-package sandbox, technical and applied articles.

Record of projects

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LUMINESCENCE SERVICE & MODELLING

Assessing systematic & random uncertainty by Bayesian age-depth models (2016)

The accuracy of OSL age-depth-relationships and their combination with other ages is predominantly limited by the unknown amount of systematic errors. An inverse Bayesian approach tackles this lack and provides a ready to use function to be applied by other scientists.

In collaboration with Christian Zeeden (Paris) and Sebastian Kreutzer (IRAMAT Bordeaux).

Outcomes: research article (2017), international network initative (2018).

Funded by DFG Networking Initiative (24105 €).

The abanico plot – holistic visualisation of data with individual errors (2014-16)

Many geochronologic data contain individual standard errors that ask for dedicated plots. We merged such a plot with other, more intuitive visualisation techniques to the abanico plot, a new standard plot type.

In collaboration with scientists from Freiberg, Bayreuth, Cologne and Bordeaux.

Outcomes: research article (2016).

Funded by DFG Networking Initiative (24105 €).

DESERT ENVIRONMENTS

A new diffusive process that shapes stone-covered desert surfaces (since 2014)

Current mechanisms cannot fully explain the “healing” of disturbed stone pavement surfaces. Laboratory-scale experiments with instrumented equipment quantify the boundary conditions and effectivity of rain-induced soil degassing as driving force for diffusive downslope clast movement and alignment.

Expected outcomes: research article in (2018)

Environmental history recorded in aeolian dust under stone pavements (2012-16)

Dust is trapped by stone pavements and forms a thickening deposit that can be exploited to quantitatively constrain the environmental conditions under which the layers were formed throughout the Quaternary.

In collaboration with Stephen Wells (New Mexico Tech), scientists from Gießen and Dresden.

Outcomes: research article (2016).

Progressive drying of Sahara inferred from Lake Yoa (Chad) sediments (2011-13)

Annually laminated lake sediments from Ounianga Kebir allow high-resolution and precise reconstruction of environmental conditions and progressive climatic change in an African key environment.

In collaboration with scientists from Quebec, Cologne, Leipzig, Ghent and Potsdam.

Outcomes: research article (2013).

Formation mechanisms of a key ecological soil horizon in deserts (2010-12)

Vesicular horizons are widespread in deserts worldwide with strong controls on hydrology, dust flux, biomats and vegetation density. Laboratory and field experiments fully constrained their formation mechanisms and boundary conditions for the first time.

Outcomes: research article (2012).

Formation mechanisms of a sensitive dynamic surface type in deserts (2008-12)

Stone pavements are ubiquitous surface features of deserts but could not be fully explained until experiments and numeric & statistic models shed quantitative light onto important mechanisms and the environmental conditions under which these act.

Outcomes: research articles (2011, 2012, 2012).

Publications & Outreach

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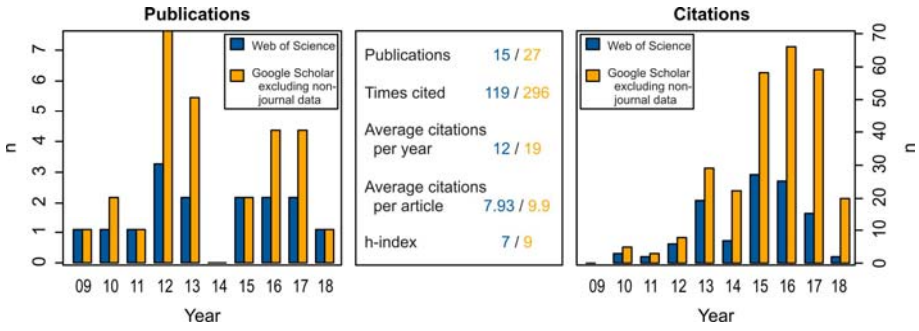
OVERVIEW

The publication record contains 30 articles, of which 22 appeared or are to appear in international, peer-reviewed journals. For the Science Citation Index 15 publications are included.



DETAILS

References in orange are highlighted as key articles

Submitted or Accepted

30 | Dietze, E, M **Dietze** (2018). Robust grain-size distribution unmixing with the R package EMMAgeo. Earth Surface Processes and Landforms, in review.

29 | **Dietze**, M (2018). The R package "eseis" – a comprehensive software toolbox for environmental seismology. Earth Surface Dynamics Discussions. https://doi.org/10.5194/esurf-2017-75, in review.

28 | Zimmermann, J, M **Dietze**, M Franz (2017). The Toarcian-Bajocian deltaic system in the North German Basin: quantification of bedload and suspension load of deltaic sediments. The Depositional Record, in review.

Published

27 | Zeeden, C, M **Dietze**, S Kreutzer. (2018). Discriminating luminescence age uncertainty composition for a robust Bayesian modelling. Quaternary Geochronology 43. 30-39.

26 | **Dietze**, M, JM Turowski, KL Cook, N Hovius (2017). Spatiotemporal patterns, triggers and anatomies of seismically detected rockfalls. Earth Surface Dynamics 5. 757-779.

25 | **Dietze**, M, S Mohadjer, JM Turowski, TA Ehlers, N Hovius (2017). Seismic monitoring of small alpine rockfalls – validity, precision and limitations, Earth Surface Dynamics 5. 653-668.

24 | Kreutzer, S, C Burow, M **Dietze**, MC Fuchs, M Fischer, C Schmid. (2017). Software in the context of luminescence dating: status, concepts and suggestions exemplified by the R package `Luminescence'. Ancient TL 35. 1-11.

23 | Burow, C, S Kreutzer, M **Dietze**, MC Fuchs, M Fischer, C Schmid, H Brückner. (2016). A graphical user interface for the R Package 'Luminescence'. Ancient TL 34. 22-32.

22 | Turowski, JM, M **Dietze**, A Schöpa, A Burtin, N Hovius (2016). Vom Flüstern, Raunen und Grollen der Landschaft. Seismische Methoden in der Geomorphologie. System Earth (GFZ-Journal) 16-1. 56-62.

21 | **Dietze**, M, E Dietze, J Lomax, M Fuchs, A Kleber, SG Wells (2016). Environmental history recorded in aeolian deposits under stone pavements, Mojave Desert, USA. Quaternary Research 85. 4-16.

20 | **Dietze**, M, S Kreutzer, C Burow, MC Fuchs, M Fischer, C Schmidt (2016). The abanico plot: Visualising chronometric data with individual standard errors. Quaternary Geochronology 31. 12-18.

19 | Fuchs, M, M **Dietze**, K Al-Qudah, J Lomax (2015). Dating desert pavements - First results from a challenging archive. Quaternary Geochronology 30. 342-349.

Publications & Outreach

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DETAILS

18 | Fuchs, M, S Kreutzer, C Burow, M **Dietze**, M Fischer, C Schmidt, M Fuchs (2015). Data processing in luminescence dating analysis: An exemplary workflow using the R package 'Luminescence'. Quaternary International 362. 8-13.

17 | **Dietze**, M, S Kreutzer, MC Fuchs, C Burow, M Fischer, C Schmidt (2013). A practical guide to the R package Luminescence. Ancient TL 34. 11-18.

16 | Francus P, H von Suchodoletz, M **Dietze**, R Donner, F Bouchard, AJ Roy, M Fagot, D Verschuren, S Kröpelin (2013). Varved sediments of Lake Yoa (Ounianga Kebir, Chad) reveal progressive drying of the Sahara during the last 6.100 years. Sedimentology. DOI: 10.1111/j.1365-3091.2012.01370.x

15 | **Dietze** M, J Groth, A Kleber (2013). Alignment of stone pavement clasts by unconcentrated overland flow – implications of numerical and physical modelling. Earth Surface Processes and Landforms 38. 1234-1243. DOI: 10.1002/esp.3365.

14 | Kleber, A, B Terhorst, H Bullmann, D Hülle, M Leopold, S Müller, T Raab, D Sauer, T Scholten, M **Dietze**, P Felix-Henningsen, J Heinrich, E-D Spies, H Thiemeyer (2013). Chapter 2 - Subdued Mountains of Central Europe. In: Mid-Latitude Slope Deposits (Cover Beds). Developments in Sedimentology 66. 9-93.

13 | **Dietze** M, S Bartel, M Lindner, A Kleber (2012). Formation mechanisms and control factors of vesicular soil structure. Catena 99. 83-96.

12 | Kreutzer S, C Schmidt, MC Fuchs, M, **Dietze**, M Fischer, M Fuchs (2012). Introducing an R package for luminescence dating analysis. Ancient TL 30. 1-8.

11 | Suchodoletz, H von, H Blanchard, A Hilgers, U Radtke, M Fuchs, M **Dietze**, L Zöller (2012). TL and ESR-dating of Middle Pleistocene lava flows on Lanzarote island, Canary Islands (Spain). Quaternary Geochronology 9. 54-64.

10 | **Dietze** M, A Kleber (2012). Contribution of lateral processes to stone pavement formation in deserts inferred from clast orientation patterns. Geomorphology 139-140. 172-187.

9 | **Dietze** M, S Muhs, E Dietze (2011). Ambiguities of relative age indicators on abandoned surfaces of arid environments. Zeitschrift für Geomorphologie 55 Suppl. 3. 49-75.

8 | **Dietze** M, A Kleber (2010). Characterisation and prediction of thickness and material properties of periglacial cover beds, Tharandter Wald. Geoderma 156. 346-356.

7 | Ullrich B, M **Dietze**, F Haubrich (2010). New results of the bentonitisation of the Wilsdruff-Potschappel Porphyrite near Dresden (Saxony). Geologica Saxonia 56. 115-125.

6 | Suchodoletz H von, P Kühn, U Hambach, M **Dietze**, L Zöller, D Faust (2009). Loess-like and palaeosol sediments from Lanzarote (Canary Islands/Spain) - Indicators of palaeoenvironmental change during the Late Quaternary. Palaeogeography, Palaeoclimatology, Palaeoecology 278. 71-87.

5 | **Dietze** M, A Kleber, B Ullrich (2008). Investigation and modelling of material properties of periglacial layers (Tharandt Forest, Saxony, Germany). Abhandlungen der Geologischen Bundesanstalt 62. 39-44.

4 | Kleber A, M **Dietze** (2008). Periglaziale Hangsedimente und Kolluvien im Tharandter Wald. DBG-Mitteilungen 111. 355-380.

3 | **Dietze** M, F Haubrich, T Klinger, B Ullrich (2007). Smectite im Porphyrit von Wurgwitz bei Dresden (Sachsen, Deutschland). Geologica Saxonia 52/53. 97-115.

2 | Faust, D, A Kleber, P Schreiber, S Meszner, D Wolf, M **Dietze**, F Haubold, C Hamann (2007). Exkursionsführer zur 26. Jahrestagung des Arbeitskreises Paläopedologie in Dresden. – Deutsche Bodenkundliche Gesellschaft - Arbeitskreis Paläopedologie.

1 | Faust D, A Kleber, C Lorz, P Schreiber, S Meszner, D Wolf, M **Dietze**, F Haubold (2006). Lösse in Sachsen - Exkursionsführer zum 32. Jahrestagung des AKG, Dresden.

Publications & Outreach

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MEDIA & OUTREACH

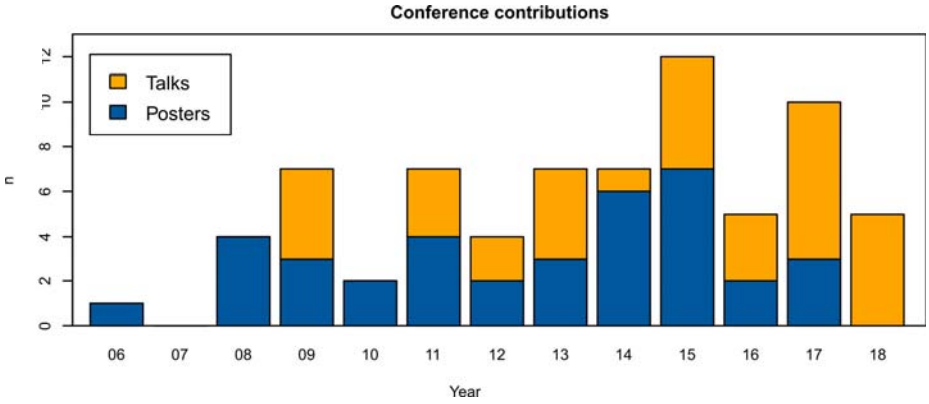
Interviews
Introduction to Geosciences, GFZ outreach (2017)
Rockfall experiment Demmin, Kulturradio (2017)
R package EMMAgeo, GFZ outreach channel (2016)

Movies / television
GFZ Career Day, dual career chair (2017)
Rügen-Cliff-Project, NDR Nordmagazin, GFZ Youtube channel (2017)
Rockfall release experiments, NDR Nordmagazin (2017)

Newspaper articles
Rockfall experiment, FAZ, Welt, BZ (2017)

CONFERENCE CONTRIBUTIONS

(Only first author items)



R PACKAGES

(Sorted by first occurrence date)

7 | **Dietze**, M. 2017. sandbox: Probablistic Numerical Modelling Of Sediment Properties. R package version 0.0.2. Hosted on Github as private repository.

6 | **Dietze**, M. 2016. eseis: Environmental seismology toolbox. R package version 0.4.0. https://github.com/coffeemuggler/eseis/tree/0.3.1

5 | **Dietze**, M. 2015. grainsize: Grain-size data analysis functions. R package version 0.1.1. Hosted on GFZ Server as private repository.

4 | **Dietze**, M. 2013. geomorphometry: Quantitative relief analysis. R package version 0.1.0. Hosted on GFZ Server as private repository.

3 | **Dietze**, M. 2013. RCHILD: Functions for flexible use of the landscape evolution model CHILD. R package version 0.2.3. Hosted on GFZ Server as private repository.

2 | **Dietze**, M, E Dietze. 2016. EMMAgeo: End-Member Modelling of Grain-Size Data. R package version 0.9.6. https://CRAN.R-project.org/package=EMMAgeo

1 | Kreutzer, S, M **Dietze**, C Burow, M C Fuchs, C Schmidt, M Fischer and J Friedrich. 2016. Luminescence: Comprehensive Luminescence Dating Data Analysis. R package version 0.7.0. https://CRAN.R-project.org/package=Luminescence

Publications & Outreach

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INVITED LECTURES AND WORKSHOPS

Dietze, M, A Schöpa, JM Turowski, N Hovius. 2018. Environmental seismology – indispensable tool to constrain drivers, precursors and evolution of mass wasting processes. Seismological Society of America conference, May 2018, Florida.

Dietze, M. 2018. R's role in geomorphometry and high resolution data handling. EGU conference, April 2018, Vienna.

Dietze, M. 2017. Building and maintaining R packages. 1-day course GFZ Potsdam.

Dietze, M. 2016. Einführung in die statistische Software R. 3-day course, Kassenärztliche Bundesvereinigung, Berlin.

Dietze, M. 2015. Quantifying Earth surface dynamics. Colloquium, Freie Universität Berlin.

Dietze, M. 2015. Quantitative Geomorphyology. Colloquium, Technische Universität Dresden.

Dietze, M. 2015. Handling noise, uncertainty and their propagation. Department Seminar, GFZ Potsdam.

Dietze, M. 2015. Earth surface dynamics of arid environments. Invited lecture, Desert Research Institute, Reno.

Dietze, M, E Dietze. 2015. Introduction to R | End-Member Modelling Analysis with the R-package EMMAgeo. 2-day course, Universität zu Köln.

Dietze, M, A Burtin, J M Turowski, N Hovius. 2015. Catchment-wide monitoring of Earth surface dynamics with environmental seismology. Invited lecture, FACSIMILE Workshop, Hannover.

Dietze, M, S Kreutzer, C Burow, M C Fuchs, C Schmidt, M Fischer. 2015. OSL data handling using the R-package Luminescence. 1-day course during German Luminescence and ESR-Dating Meeting, Berlin.

Dietze, M. 2014. Earth surface dynamics of arid landscapes - the experiment & model perspective on stone pavement evolution. Colloquium, Universität Potsdam.

Dietze, M. 2014. Formation and environmental significance of stone pavements in deserts. Colloquium, Universität Bayreuth.

Dietze, M. 2013. Stone pavements, vesicular structures and soil development - tackling evolution and dynamics of arid environments. Colloquium, Universität Greifswald.

Dietze, M. 2012. Environmental change in desert environments - the stone pavement perspective. Colloquium, Martin-Luther-Universität Halle.

Dietze, M. 2012. Wüstenpflaster, Vesikularstrukturen und Bodenbildung - Zeugen der Evolution und Dynamik arider Landschaften. Colloquium, Universität Leipzig.

Dietze, M. 2012. Vom Gewöhnlichen zum Ungewöhnlichen | Steinpflaster und Vesikularhorizonte in ariden Gebieten und ihre Bedeutung für die Evolution der Landschaft. Colloquium, Technische Universität Dresden.

Dietze, M, S Kreutzer, C Burow, M C Fuchs, C Schmidt, M Fischer. 2012. Introduction to the R-package Luminescence. 1-day course during German Luminescence and ESR-Dating Meeting, Mannheim.

Dietze, M. 2011. Einführung in die Software R zur geowissenschaftlichen Datenanalyse. Course during Workshop Meeting of the Young Geomorphologists, Freienorla.

Dietze, M. 2011. Landscape evolution in an extreme arid environment: the Valle de Barrancas Blancas, Chile. Colloquium, Technische Universität Dresden.

Dietze, M. 2009. Stone pavements as a dynamic feature in fragile, geomorphologically sensitive environments. Invited lecture, Workshop on Geodynamics in fragile landscape systems of the Mediterranean. Baeza, Spain.

Teaching record

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TEACHING & TRAINING

2009 Course “Grundlagen der Hochschuldidaktik” (TU Dresden, 3 days)

COURSES TOUGHT

(Some courses include assignments to parts of full lectures over a semester.)

Lectures

Mensch-Umwelt-Beziehungen (M.Sc.)
Feld- und Labormethoden in der Geographie (M.Sc., teaching degree)

Seminars

Geomorphologie (Dipl., B.Sc., teaching degree)
Bodengeographie (Dipl., teaching degree)
Landscape sensitivity (M.Sc.)
Datenmanagement (B.Sc.)
Geoinformatik/Datenmodellierung (B.Sc.)
Geodatenanalyse (B.Sc.)
Geoinformationssysteme (B.Sc.)
Umweltinformationssysteme (Dipl.)

GFZ Student Lunch (M.Sc, Ph.D)

Laboratory seminars and practices

Mineralogical analysis techniques (with K. Thalheim)
Petrology and mineralogy (with F. Haubrich)
Pedologic laboratory seminar (with diverse colleagues)

Field seminars

Soil geography (Dipl., B.Sc., teaching degree)
Quaternary slope deposits (Dipl., M.Sc.)
Geomorphologie & Geologie im Gelände (B.Sc., teaching degree)

External teaching

Introduction to R and end-member modelling (with E. Dietze, University of Cologne, 2 days)
Luminescence data analysis with R (Mannheim, Berlin, 1 day)
Introduction to R (Kassenärztliche Bundesvereinigung, Berlin, 3 days)
Introduction to R (Workshop of Young Geomorphologists, 1 day)

Field trips

Ambas Californias (with E. Dietze, Mexico part, 12 days)
Kirgistan (with L. Maerker, 23 days)
From Erzgebirge to Baltic Sea (with C. Roettig, 10 days)

The Reintal seismic observatory (with A. Schöpa, 2 days)
Landscape dynamics Erzgebirge (for GFZ Ph.D. group, 2 days)
Mittleres und West-Erzgebirge (mit L. Maerker, 4 days)
Geologie und Reliefformung Tharandter Wald (1 days)

POTENTIAL COURSES

(Description in German, though courses can/should optionally be given in English)

Numerical Modelling (Vorlesung)

Grundlagenveranstaltung mit aktualistischem Ansatz. Fokus auf physikalisch-quantitativer Beschreibung. Möglichst dichte Verbindung zu anderen Kursen aus den Curricula der Studiengänge an der Fakultät. Ziel ist das Herausbilden eines Wissenslevels, mit dem Studenten eigenständig Fragestellungen in Modellmodule transferieren und bearbeiten können.

Teaching record

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POTENTIAL COURSES

Quantitative Methods (Vorlesung mit Übung/Praktikum)

Grundlagen- und optional Weiterführungsveranstaltung für Bachelor und/oder Masterstudiengänge mit naturwissenschaftlichem Fokus. Methoden der Geländeinstrumentierung, Beprobungs- & Experimentdesign, Datenmanagement, Auswertungsstrategien. Bevorzugt in Kooperation mit anderen Professuren. Alternativ können auch einzelne Bereiche dieses Themenkomplexes in Vertiefungsveranstaltungen separat behandelt werden (z.B., numerische Modellierung, datenfokussiertes Projektmanagement, Instrumentierungskonzepte, Experimentdesign)

Environmental Seismology (Vertiefungsseminar)

Integrative Kernveranstaltung, die neben Geophysik- und Datenverarbeitungsgrundlagen eigene Instrumentierung und Auswertung beinhaltet. Teilnehmer sollen eigene Projekte entwickeln, die in andere Fachbereiche vermitteln (Hydrologie, Meteorologie, Bodenphysik).

Dissemination of scientific research (Masterseminar)

Adäquate Kommunikation wissenschaftlicher Ergebnisse ist heute ein essentieller Bestandteil wissenschaftlicher Arbeit. Die Veranstaltung vermittelt Konzepte und praktische Ansätze für diverse Adressaten. Die Veranstaltung ist fachübergreifend und stellt gerade damit wichtige Synergien und Vernetzungen bei den Teilnehmern her.

Concepts in Earth Sciences (Bachelor- oder Masterseminar)

Einführung in und Konfrontation mit Kritik an wichtigen konzeptuellen Ansätzen aus verschiedenen Bereichen der Geowissenschaften. Die Veranstaltung zielt vor allem auf übergeordnetes Denken und kritische Diskussionskultur ab. Fachübergreifende Zusammensetzung der Teilnehmer ist unbedingt von Vorteil.

Open course on data presentation and discussion (interaktives Masterseminar)

Eine offene Veranstaltung, in der ad hoc Daten (entweder vom Leiter bereitgestellt oder von den Teilnehmern eingebracht) in freier Runde gemeinsam diskutiert, hinterfragt und analysiert werden. Ziel ist die Etablierung einer hierarchiefreien, offenen Diskussionskultur, die Öffnung des Horizonts für wissenschaftliche Arbeiten Anderer und die praktische Anwendung anderweitig erworbener Fähigkeiten.