Kilian Eichenseer

Curriculum Vitae

Date and place of birth: 21/06/1993, Regensburg, Germany

University address: GeoZentrum Nordbayern, Friedrich-Alexander University Erlangen-Nürnberg (FAU), Loewenichstraße 28**,** 91054 Erlangen, Germany

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Education and career:

Assistant researcher, Friedrich-Alexander University Erlangen-Nürnberg (March 2021 –)

PhD Earth Sciences, University of Plymouth, UK (January 2017 – July 2021)

Environmental and ecological drivers of the Phanerozoic evolution of skeletal composition in marine invertebrates. Funded by the School of Geography, Earth and Environmental Sciences, supervised by Dr Uwe Balthasar (University of Plymouth), Prof Wolfgang Kießling (FAU) and Dr Christopher Smart (University of Plymouth).

MSc Palaeobiology and Sedimentology, Friedrich-Alexander Universität Erlangen-Nürnberg (FAU), Germany (October 2014 – November 2016)

Selection of modules: Microfacies analysis and diagenesis of carbonate rocks, Geochemical Proxies in Palaeoenvironmental Analysis, Programming and statistics in Palaeobiology, Analytical Palaeobiology, Oceanography

Master thesis titled *Taphonomical and Ecological Controls on the Pleistocene Rise of Acropora.*

Overall grade: 1.4 (1 = best, 5 = worst)

BSc Geosciences, FAU, Germany (October 2011 – July 2015)

Bachelor thesis on the consequences of taphonomic alteration on quaternary, tropical coral communities: *Taphonomische Beeinträchtigung quartärer, tropischer Korallenfaunen (Sulawesi, Indonesien).*

Overall grade: 1.7 (1 = best, 5 = worst)

Peer-reviewed publications:

Balthasar, U., Kershaw, S., Da Silva, A.-C., Seuss, B., Cusack, M., Eichenseer, K., Chung, P. Palaeozoic stromatoporoids and chaetetids analysed using electron backscatter diffraction (EBSD); implications for original mineralogy and microstructure. *Facies* 67:1-18 (2021).

Eichenseer, K., Balthasar, U., Smart, C. W., Stander, J., Haaga, K. A. & Kiessling, W. Jurassic shift from abiotic to biotic control on marine ecological success. *Nature Geoscience*, *12*(8), 638-642 (2019).

Kemp, D. B., Eichenseer, K. & Kiessling, W. Maximum rates of climate change are systematically underestimated in the geological record. *Nature communications* 6, 8890 (2015).

Publications in review / in preparation:

Jones, L. A., Eichenseer, K., Veillard, C. Uneven spatial sampling distorts reconstructions of Phanerozoic temperature. In review in *Geology.*

Eichenseer, K., Balthasar U., Kiessling, W. Shell mineralogy predicts bivalve thermal range. In preparation for submission to the *Journal of Biogeography.*

Conference contributions:

Eichenseer, K., Balthasar, U., Smart, C., Stander, Haaga, K. A., J., Kiessling, K. Aragonite calcite sea effects on calcifying organisms and reefs. Oral presentation at the Annual Meeting of the Palaeontological Association in Valencia, Spain (2019).

Jones, L. A., Eichenseer, K., Veillard, C. Uneven spatial sampling in Phanerozoic palaeoclimate curves. Poster presentation at the Annual Meeting of the Palaeontological Association in Valencia, Spain (2019).

Eichenseer, K., Balthasar, U., Smart, C., Kiessling, K. Geographic patterns in the skeletal mineralogy of marine bivalves. Poster presentation at the Earth Sciences Research Conference in Plymouth, UK (2019).

Eichenseer, K., Balthasar, U., Smart, C. W., Stander, J., Haaga, K. A., Kiessling, W. Jurassic decline in abiotic controls on marine ecological success. Oral presentation at the 90. Jahrestagung der Paläontologischen Gesellschaft in München, Germany (2019). **– 2nd Place of the Young Scientist Award for the best talk**

Eichenseer, K., Balthasar, U. Does the skeletal composition of marine calcifiers vary with latitude? Poster presentation at the Annual Meeting of the Palaeontological Association in Bristol, UK (2018).

Eichenseer, K., Balthasar, U., Smart, C., Stander, J., Kiessling, K. Decreasing environmental influence on the Phanerozoic success of marine calcifiers. Oral presentation at the 5th International Palaeontological Congress in Paris, France (2018).

Eichenseer, K., Balthasar, U., Smart, C., Kiessling, K. Latitudinal trends in skeletal mineralogy. Oral presentation at the Progressive Palaeontology conference in Manchester, UK (2018).

Eichenseer, K., Balthasar, U., Smart, C., Stander, J., Kiessling, K. A transition from Court Jester to Red Queen in the ecological success of Phanerozoic marine calcifiers. Oral presentation, EGU General Assembly Conference Abstracts. Vol. 20. Vienna, Austria (2018).

Eichenseer, K., Balthasar, U., Smart, C., Stander, J., Kiessling, K. Red Queen ousts Court Jester: Decreasing environmental influence on the Phanerozoic success of marine calcifiers. Poster presentation at the Lyell meeting in London, UK (2018).

Eichenseer, K., Balthasar, U., Smart, C., Stander, J., Kiessling, K. Decreasing influence of calcite – aragonite seas on marine calcifiers in the Phanerozoic. Poster presentation at the Annual Meeting of the Palaeontological Association in London, UK (2017).

Eichenseer, K., Balthasar, U., Smart, C., Stander, J., Kiessling, K. Decreasing influence of calcite – aragonite seas on marine calcifiers in the Phanerozoic. Oral presentation at the Earth Sciences Research Conference in Plymouth, UK (2017).

Balthasar, U., Kershaw, S., Da Silva, A.-C., Seuss, B., Cusack, M., Eichenseer, K., Chung, P. Biomineralisation of Palaeozoic sponges and aragonite-calcite seas. Oral presentation at the Earth Sciences Research Conference in Plymouth, UK (2017).

Eichenseer, K., Balthasar, U. Fickle oceans – the influence of temperature and Mg/Ca ratio on marine calcifiers. Oral short presentation at the Progressive Palaeontology conference in Leicester, UK (2017). **– Best presentation in the category "lightening talks"**

Eichenseer, K., Kiessling, W. The Pleistocene Rise of the reef coral *Acropora*. Poster presentation at the Annual Meeting of the Palaeontological Association in Lyon, France (2016).

Eichenseer, K., Kiessling, W. The Pleistocene Rise of *Acropora*: Ecology beats Taphonomy. Oral presentation at the 87. Jahrestagung der Paläontologischen Gesellschaft in Dresden, Germany (2016).

Eichenseer, K., Kiessling, W. Taphonomic biases in Quaternary reef corals of Indonesia. Poster presentation at the Annual Meeting of the Palaeontological Association in Leeds, UK (2014).

Kiessling, W., Eichenseer, K. The scaling law of climate change and its relevance to assessing (palaeo) biological responses. EGU General Assembly Conference Abstracts. Vol. 16. Vienna, Austria (2014).

Awards, grants and scholarships

- Scholarship of €15,000 from the Emerging Talent Initiative, , Friedrich-Alexander University Erlangen-Nürnberg (2021)
- Second place of the Young Scientist Award (€300) for the best talk at the 90. Jahrestagung der Paläontologischen Gesellschaft in München, Germany (2019)
- IPC5 travel grant of £300 from PALASS for the 5th International Palaeontological Congress in Paris, France (2018)
- ProgPal Travel grant of £100 for the Progressive Palaeontology conference in Manchester, UK (2018)
- Travel reimbursement of £320 from PALASS for their session at the EGU conference in Vienna, Austria (2018)

- Roland Schlich travel support grant of €425 towards the EGU conference in Vienna, Austria (2018)
- Best presentation in the category “lightening talks” at the Progressive Palaeontology conference in Leicester, UK (2017)
- PhD scholarship (£42,888) plus tuition fees (£12,780) plus bench fees (up to £9,000) from the School of Geography, Earth and Environmental Sciences, University of Plymouth, UK (2017)
- PROMOS scholarship of €1,000 from the Deutsche Akademischer Austauschdienst (DAAD) for a five-weeks field course in the Bahamas (2015)

Science communication:

- **Quantamagazine (2019):** How Jurassic Plankton Stole Control of the Ocean’s Chemistry
- **University of Plymouth research communication (2019):** Evolution of life in the ocean changed 170 million years ago
- Science Slam: Tempolimit für den Klimawandel, Nürnberg (2016)
- Science Slam - Klima Special: Tempolimit für den Klimawandel, Erlangen (2015)

Workshops and field work experience:

- Summer school (2 weeks) of the TERSANE project about temperature related stressors in Mass Extinctions at the FAU in Erlangen, Germany (2016)
- Workshop (2 weeks) on Conservation Paleobiology and Historical Ecology at the University of Vienna, Austria (2016)
- International Course on Carbonate Microfacies (1 week), led by Axel Munnecke at the FAU in Erlangen, Germany (2016)
- Field course (5 weeks) on ”Taphonomic and Ecological Processes in Tropical Environments” , led by Michal Kowalewski and Thomas A. Rothfus on San Salvador Island, Bahamas (2015)
- Field work (3 weeks) in Quaternary coral reefs with Wolfgang Kießling on Sulawesi, Indonesia (2014)

Teaching experience:

- Teaching assistant for undergraduate practicals at the University of Plymouth of the modules “Palaeontology and Stratigraphy” and “Stratigraphy and Earth History” (2017 – 2020)
- Teaching assistant at two one-day palaeontological and geological field trips with undergraduate students at the University of Plymouth (coral reefs and tectonics of the Devonian in Devon, UK, 2017 and 2020)

Further academic experience:

- Giving a one hour research seminar at the University of Plymouth (2019): "*Environmental drivers of marine skeletal mineralogy"*
- Organising the Earth Sciences Research Conference in Plymouth, UK (2017)
- Chairing a session at the Earth Sciences Research Conference in Plymouth, UK (2017)
- Student assistant for Prof. Wolfgang Kießling (2013 – 2015), tasks included collecting climate data from the scientific literature and proof-reading

Skills:

- Proficiency in the programming language R for data organisation, statistical analysis and visualisation. Familiar with common packages such as tidyR and ggplot2, and specialist packages on regression, time series and spatial analysis. Some basic knowledge of the programming language Julia.
- Command of various statistical techniques, particularly hypothesis testing, time series analysis and Bayesian statistics
- Creating and implementing Bayesian models using Markov Chain Monte Carlo simulation with the JAGS program
- Planning, execution and analysis of chemical laboratory experiments on calcium carbonate precipitation.
- Strong scientific writing and presentation skills in English and German
- Adept at using text editing software (Latex, Microsoft Office), image processing and design programs (ImageJ, Adobe Photoshop, Adobe Illustrator, Adobe Indesign), and video editing software (Shotcut)