Contact information

Name: Madleen Grohganz
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Education

Since 09/2020	University of Bristol, School of Earth Sciences, Palaeobiology Research Group, UK PhD Geology (expected end date: 06/2024) Thesis title: "The evolutionary origin of teeth" (supervisors: Philip Donoghue, Davide Pisani, Emily Rayfield, Humberto Ferron, Zerina Johanson, Gareth Fraser)
10/2018-08/2020	Friedrich-Alexander Universität Erlangen-Nürnberg, Germany M.Sc. Geoscience (final grade: 1.0 – passed with distinction) Majors: Palaeobiology and Earth Systems Research Lab Thesis title: "Strontium isotope records of Pennsylvanian epicontinental seas" (supervisor: Michael Joachimski)
10/2015-09/2018	Friedrich-Alexander Universität Erlangen-Nürnberg, Germany B.Sc. Geoscience (final grade: 1.4) Majors: Palaeontology, Sedimentology, Petrology Thesis title: "Geochemical composition of conodonts as the record of their growth dynamics" (supervisor: Emilia Jarochowska)

Publications

Hetzinger, S., Grohganz, M., Halfar, J., Hathorne, E., Ballesteros, E., & Kersting, D. K. (2023). Elemental cycles in the coralline alga Neogoniolithon hauckii as a recorder of temperature variability in the Mediterranean Sea. *Frontiers in Marine Science*, *10*, 1151592.

Contributions: Age model development, data analysis, interpretation of the data, writing parts oft he methods section of the paper

Jarochowska, E., Nohl, T., Grohganz, M., Hohmann, N., Vandenbroucke, T. R. A., & Munnecke, A. (2020). Reconstructing depositional rates and their effect on paleoenvironmental proxies: The case of the Lau Carbon Isotope Excursion in Gotland, Sweden. *Paleoceanography and Paleoclimatology*, 35, e2020PA003979.

Contributions: preparation of thin sections, bulk rock isotope and trace element sample preparation and measurement, data analysis, writing parts of the methods section of the paper

Mayr, C., Stojakowits, P., Lempe, B., Blaauw, M., Diersche, V., Grohganz, M., ... & Zolitschka, B. (2019). High-resolution geochemical record of environmental changes during MIS 3 from the northern Alps (Nesseltalgraben, Germany). *Quaternary Science Reviews*, *218*, 122-136.

Contributions: preparation of thin sections, EDX analyses, interpretation of the data, writing parts of the methods section of the paper

Shirley, B., Grohganz, M., Bestmann, M., & Jarochowska, E. (2018). Wear, tear and systematic repair: testing models of growth dynamics in conodonts with high-resolution imaging. *Proceedings of the Royal Society B: Biological Sciences*, *285*(1886), 20181614.

Contributions: preparation of histological sections, EDX analyses, interpretation of the data

Awards and Honours

01/2023 Bristol PLUS Award, University of Bristol
Employability award for professional skills developed through work experience (volunteering for the Climate Action Bristol project, working as a demonstrator for undergraduate courses, organising lab group meetings) and participation in activities outside the curriculum (workshops and courses on project management, effective communication and career development)

07/2021 Best Student Poster Silver Award at the 18th European Association of Vertebrate Palaeontologists (EAVP) Conference

Conferences

09/2023 Talk at the 67th Palaeontological Association (PalAss) Annual Meeting in Cambridge ("Testing hypotheses on heterostracan feeding")

06/2023 Talk at the 20th European Association of Vertebrate Palaeontologists (EAVP) Conference in Sabadell (Barcelona) ("Testing hypotheses on heterostracan feeding")
Poster presentation at NHM Student Conference 2023 in London ("Testing hypotheses on heterostracan feeding using computational fluid dynamics (CFD) and finite element analysis (FEA)")

09/2022 Talk at the 1st European Conodont Conference (ECOS) in Utrecht ("Investigating "tooth" development, function and feeding in early jawless vertebrates")

07/2022 Poster presentation at the 66th Palaeontological Association (PalAss) Annual Meeting in Cork ("Testing hypotheses on heterostracan feeding using computational fluid dynamics (CFD) and finite element analysis (FEA)")

06/2022 Talk at NHM Student Conference 2022 in London ("Testing hypotheses on heterostracan feeding using computational fluid dynamics (CFD) and finite element analysis (FEA)")
Poster presentation at the Progressive Palaeontology (ProgPal) Conference 2022 online ("Testing hypotheses on heterostracan feeding using computational fluid dynamics (CFD) and finite element analysis (FEA)")
Poster presentation at the 16th International Symposium on Early and Lower Vertebrates (ISELV) in Valencia ("Testing hypotheses on heterostracan feeding using computational fluid dynamics (CFD) and finite element analysis (FEA)")

12/2021	Poster presentation at the 65th Palaeontological Association (PalAss) Annual Meeting online ("Testing hypotheses on heterostracan feeding using computational fluid dynamics")
11/2021	Poster presentation at the Society of Vertebrate Paleontology (SVP) Annual Meeting 2021 online ("Testing hypotheses on heterostracan feeding using computational fluid dynamics")
09/2021	Poster presentation at the 69th Symposium on Vertebrate Palaeontology and Comparative Anatomy (SVPCA) online ("Testing hypotheses on heterostracan feeding using computational fluid dynamics")
07/2021	Poster presentation at the 18th European Association of Vertebrate Palaeontologists (EAVP) Conference online ("Testing hypotheses on heterostracan feeding using computational fluid dynamics")
06/2021	Poster presentation at the Progressive Palaeontology (ProgPal) Conference 2021 online ("Testing hypotheses on heterostracan feeding using computational fluid dynamics") Poster presentation at the NHM Student Conference 2021 online ("Testing hypotheses on heterostracan feeding using computational fluid dynamics")
06/2019	Talk at the 5th International Sclerochronology Conference in Split ("Unravelling the biology of conodonts (early vertebrates) through sclerochronology of their skeletal tissues")
12/2018	Poster presentation at the 62nd Palaeontological Association (PalAss) Annual Meeting in Bristol ("Geochemical composition of conodonts as the record of their growth dynamics") Video presentation at the 1st Palaeontological Virtual Congress ("Geochemical composition of conodonts as the record of their growth dynamics")

Research experience

01/2023	3-month research internship at the Museum für Naturkunde (MfN) Berlin Activities: histological sections and staining, in-situ hybridisation, work in the fossil fish collection
06/2022	Fossil fish collection visits at the Natural History Museum London (NHM) for data collection (light microscope photography)
11/2022, 04/2022 and 08/2021	Research visits at Paul Scherrer Institute Swiss Light Source (Villigen, Switzerland) to collect synchrotron tomography scan data
Since 09/2020	PhD thesis research ("The evolutionary origin of teeth") Activities: palaeohistological growth dynamics analysis of 3D CT and synchrotron scan data with Avizo, model preparation with Blender, computational fluid dynamics (CFD) with ANSYS, finite element

	analysis (FEA) with ABAQUS, range of motion (ROM) simulations with Maya, transcriptomics (wet chemistry and bioinformatics)
03/2020-07/2020	Master thesis research ("Strontium isotope records of Pennsylvanian epicontinental seas") Activities: Sample preparation for Sr isotope measurements in the clean lab, geochemical analysis (TIMS), analysis and interpretation of Sr isotope data
02/2019-04/2019	Internship at GEOMAR Helmholtz Centre for Ocean Research Kiel, research group palaeoceanography (supervisor: Dr Steffen Hetzinger) Activities: high-resolution climate reconstruction based on marine climate archives (coralline red algae and hermatypic corals) including analysis of density banding for growth rate determination, trace element analysis with LA-ICP-MS, construction of age models based on geochemical data and statistical analysis of climate time series
11/2018	Research visit at Paul Scherrer Institute Swiss Light Source (Villigen, Switzerland) to get training on conducting synchrotron tomography scans
10/2018-08/2019	Participation in the courses "Research project design" and "Research project implementation" including the planning and implementation of a research project Project title: "Can strontium patterns in fossil scales provide geochemical evidence for diadromy in thelodonts (jawless fish)?" (supervisors: Emilia Jarochowska and Carlos Martinez-Perez) Tasks: writing a research proposal according to DFG guidelines, production of thin sections, geochemical analysis with EDX, microprobe and LA-ICP-MS
04/2018-06/2018	Bachelor thesis research ("Geochemical composition of conodonts as the record of their growth dynamics") Activities: production of conodont thin sections, geochemical analysis (EDX), analysis and interpretation of the Sr data in relation to conodont growth dynamics
12/2015-07/2020	Internship/student research assistant, Friedrich-Alexander Universität Erlangen-Nürnberg, research group palaeontology (supervisor: Emilia Jarochowska) Activities: extraction of fossils, photographic documentation (LM and SEM), production of thin sections, geochemical analysis (EDX), sodium polytungstate density separation, EBSD analyses of fossils

Teaching and mentoring experience

12/2022-09/2023	Co-supervisor of MSc student, University of Bristol, Palaeobiology Research Group (project title: "Taxonomy and phylogeny of Scottish 'cephalaspids' and the evolution of paired fins")

11/2020-05/2021	Demonstrator, University of Bristol Supporting practical exercises of the undergraduate courses Geobiology, Dynamic Interior I and a first-year field trip to Ogmore-by-Sea (Wales, UK)
09/2020	Blended learning and teaching course, University of Bristol Course on learning and teaching for flexible and blended delivery
04/2018-07/2018	Student research assistant, Friedrich-Alexander Universität Erlangen-Nürnberg Teaching assistant in a petrology practical for students with geology as minor subject

Outreach experience

07/2023	Participation in the SciFilmIt Hackathon Bristol 2023 3-day science filmmaking event bringing together scientists with artists, science communicators and filmmakers; produced a short science outreach film and engaged with the public during a cinema viewing event
05/2022	Participation in the workshop "Effective outreach with children" Course on effective engagement, successful session structure, working and interacting with children; practical application of the content during a student panel
06/2019	Student volunteer at Soapbox Science Munich (outreach event for female scientists presenting their research to the general public)
04/2019-09/2019	Participation in the course "Science communication" including the planning and production of a science communication video
01/2019-08/2020	Active member of CCAT (climate change action team), a team of scientists at the research group palaeontology (Friedrich-Alexander Universität Erlangen-Nürnberg) promoting science-inspired climate action Activities: organising and conducting a public information stand about climate change in past and present, representation of the research group palaeontology at "Lange Nacht der Wissenschaften" (science outreach event), writing short climate change related articles for the CCAT website
04/2018	Student research assistant, Friedrich-Alexander Universität Erlangen-Nürnberg Representation of the research group palaeontology at Girls' Day (science outreach event for schoolgirls): engaging the participants in activities involving light microscopy analyses of microfossils and petrographic thin sections

Additional activities

10/2021–05/2022	Volunteering for the Bristol Hub Climate Action Bristol project, University of Bristol Activities: group leader of a team of three students providing sustainability consulting to a local Bristol business, creating a climate action plan for our project partner, setting up a green committee in their organisation, conducting a travel survey
09/2021–09/2022	Co-organiser of MolPal lab group (weekly interdisciplinary meeting of palaeontologists and molecular biologists), University of Bristol Activities: organising the meetings, managing communication and chairing the sessions
05/2020-04/2021	Mentee in the ARIADNETechNat master Programme (Friedrich-Alexander Universität Erlangen-Nürnberg), a mentoring programme supporting female master students in planning their careers One-to-one mentoring by an experienced scientist, participation in workshops and lectures on career relevant topics promoting the development of interdisciplinary and personal skills (scientific publishing, career paths in science, professional networking, presenting online and research presentation at a mini-conference for mentees)

Grants

11/2023	Small Research Grant of the Fisheries Society of the British Isles (£4,850)
09/2023	Travel Grant of the Palaeontological Association to attend the PalAss Annual Meeting 2023 (£70)
06/2023	Postgraduate Travel Fund of the Palaeontological Association to attend EAVP 2023 (£200)
09/2022	Postgraduate Travel Fund of the Palaeontological Association to attend ECOS 2022 (£200)
07/2022	Travel Grant of the Palaeontological Association to attend the PalAss Annual Meeting 2022 (€120)
09/2020	NERC GW4+ DTP grant for PhD project “The evolutionary origin of teeth” (£14,250)

Additional skills

Language skills:	German (native speaker) English (C1, UNIcert) Italian (B1)
Computer skills:	intermediate R skills (univariate and multivariate statistical analysis), basic python skills basic command line and Linux skills Oxford Instruments INCA software (EDX) Avizo software (3D visualisation), Blender (3D graphics) ANSYS Fluent software (CFD), ABAQUS software (FEA), Maya (ROM) MS Office (Word, Power-Point, Excel)