

Petra ZAHAJSKÁ

Advanced Postdoc in Paleolimnology

 https://www.researchgate.net/profile/Petra_Zahajska

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I'm an early-career researcher using advanced biogeochemical methods (HPLC-DAD, ICP-MS, MC-ICP-MS, GC-IRMS), non-destructive methods (hyperspectral imaging, XRF) and statistical techniques to reconstruct past environments from sediments. By unlocking these chemical signatures, I decipher how lakes and ecosystems responded to changing climates. My research bridges the gap between elemental cycles, plant adaptations, and sedimentary archives, ultimately aiming to understand ecosystem responses to environmental changes. I collaborate with data scientists to explore the full potential of high-resolution data.

EDUCATION

- 2016–2021** PhD in Geobiosphere Sciences, Lund University, Sweden, *main supervisor: Daniel Conley*
- 2014–2016** MSc in Geobiology, Charles University, Czechia, *main supervisor: Jiří Kvaček*
- 2014–2015** Erasmus+ exchange in Geology, University in Tromsø, Norway
- 2011–2014** BSc in Applied Geobiology, Charles University, Czechia

CURRENT AND PAST ACADEMIC POSITIONS

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| now | Early/Advanced Postdoc, INSTITUTE OF GEOGRAPHY & OESCHGER CENTRE FOR CLIMATE CHANGE RESEARCH, UNIVERSITY OF BERN, Switzerland |
| March 2022 | SNF project: Biochemical responses of lakes to rapid climate transitions across space and time, Localities: Eifel Maar region (DE), Swiss Plateau (CH), Longwang Volcanic park (China)
Lake sediments Hyperspectral imaging HPLC Pigments Anoxia Chemical feedbacks Tipping points |
| March 2022
April 2021 | Postdoctoral researcher, DEPARTMENT OF GEOLOGY, LUND UNIVERSITY, Sweden
Investigation of lacustrine Si cycling during the Holocene, Localities: Yellowstone National Park (USA)
Silicon isotopes Biogenic silica Ge/Si ratios Mass balance Si balance |
| March 2021
October 2016 | PhD student, DEPARTMENT OF GEOLOGY, LUND UNIVERSITY, Sweden
Diatom-rich sediment formation in lakes, Localities: Abisko (SE), Yellowstone National Park (USA), Svalbard (NO)
Diatoms Si isotopes Diatomaceous sediment Yellowstone Lake Subarctic lakes Hydrothermal activity |

EXTERNAL FUNDING

- THE KEY TO UNDERSTANDING PAST, RECENT, AND FUTURE IMPACT OF CLIMATE CHANGE ON LAKE ECOSYSTEMS: AN OPEN-SOURCE SOLUTION FOR HYPERSPECTRAL IMAGE DATA PROCESSING IN GEOSCIENCES** 2024
Collaborative Data Science Pilot Project Proposals Swiss Data Science Center and University of Bern
25000 CHF (~ 25 000 €)
- COMET CAREER PROGRAMME, INCLUDING LEADERSHIP PROGRAMME** 2023-2024
Promotion of early career female researchers, University of Bern
3000 CHF (~ 3 000 €)
- THE IMPORTANCE OF GROUNDWATER AS A SOURCE OF WATER, NUTRIENTS, AND GREENHOUSE GASSES EMISSION IN LAKES: COMMUNITY REVIEW AND PROTOCOL** 2023
Fund for the Promotion of Young Researchers, University of Bern
5000 CHF (~ 5 000 €)
- WATER AND SILICA MASS BALANCE OF LAKE YELLOWSTONE, US AND LAKE 850, SWEDEN** 2019–2020
The Royal Physiographic Society of Lund
90 000 SEK (~ 9 000 €)
- PHYSICAL LIMNOLOGY OF YELLOWSTONE LAKE AND ITS ROLE IN BIOGENIC SILICA FLUXES** 2019–2020
The Royal Physiographic Society of Lund, travel grant
15 840 SEK (~ 1 500 €)
- INVESTIGATION OF DIATOM-RICH SEDIMENT FORMATION** 2018–2019
The Royal Physiographic Society of Lund
150 000 SEK (~ 15 000 €)
- INVESTIGATION OF DIATOMITE FORMATION** 2017–2018
The Royal Physiographic Society of Lund
140 000 SEK (~ 14 000 €)

186 000 CZK (~ 7 400 €) in 2017 254 000 CZK (~ 10 000 €) in 2018 234 000 CZK (~ 9 300 €) in 2019

RESPONSIBILITIES

from 2024	Responsibility for the Paleolimnology lab, <i>University of Bern, Institute of Geography</i>
2023-2024	Deputy of the Head of the chemistry Lab, <i>University of Bern, Institute of Geography</i>
from 2022	Responsibility for X-ray fluorescence scanning and data processing, <i>University of Bern, Institute of Geology</i>
from 2022	Responsibility for Hyperspectral imaging and HPLC analyses of pigments, <i>University of Bern, Institute of Geography</i>
2016-2022	Equipping and maintaining set up for extraction of <i>n</i> -alkanes from fossil plants, <i>Charles University, Institute of Geology and Paleontology</i>
2018-2021	Maintenance of spectrophotometer SmartChem 200, AMS System, <i>Lund University, Department of Geology</i>

SUPERVISION AND CO-SUPERVISION OF STUDENTS

PhD students	Co-supervision of Stan J. Schouten and Noé Schmidhauser, <i>University of Bern, 2022-ongoing</i>
MSc students	Co-supervision of Sara L. Ogi, <i>University of Bern, 2022-2023</i>
BSc students	Co-supervision of Kathrin Rüetschli, <i>University of Bern, 2022-2023</i>

TEACHING EXPERIENCE

from 2023	Advanced Laboratory Methods in Physical Geography I+II, MSc. level, 3 & 2.5 ECTS, <i>University of Bern</i> – Theoretical and practical laboratory work with advanced analytical and non-destructive methods used in physical geography studies
from 2023	Seminar in Paleolimnology, MSc. level, 5 ECTS, <i>University of Bern</i> – Seminar and colloquium on the impact of climate change on lake ecosystems
from 2022	Field course in Paleolimnology, MSc. level, 1.5 ECTS, <i>University of Bern</i> – Watershed analysis, gravity coring, sediment description, grain size and shape analysis, hyperspectral imaging, LOI, age-depth models
2017–2021	Teaching exercises in Sedimentology (GEOB22 & GEOB23), BSc. level, 15 ECTS each, <i>Lund University</i> – Grain size analyses, sediment transport, lithofacies identification and description in practice, logging, digitalization of logs, virtual fieldwork to sand dune field
2016–2020	Development of landscape from last glaciation until now and Swedish regional geology (GEOB21), BSc. level, 15 ECTS, <i>Lund University</i> – Russian peat coring, lake sediment description and interpretation
2017	Seminar in Marine geology (part of GEON08), MSc. level, 15 ECTS, <i>Lund University</i> – Literature seminar and discussion on biogeochemical cycles (C, N, P, Si, Fe, O)

EXTRACURRICULAR ACTIVITY

2023	Reviewing for journals – <i>Hydrobiologia, Catena, Helyion, Science of the total environment</i>
2017–2021	JOLK committee member, <i>Lund University</i> – Gender equality board for Geology and Geography (INES). Organizing seminars, workshops and surveys in gender equality topics
2018–2019	Lunds Doktorandkår (LDK) – Communication officer of Lund's Doctoral Student Union. Webmaster, updating social media, graphics for promotion, promotional activities, organizing workshops for PhD students.
summer 2016	Tarfala research station, <i>Stockholm University</i> – Chef and helping out to field assistants – Cooking and helping to take care of the station, helping on the regular measuring of mass balance of the Storglaciaren, water sampling for stable isotope analysis, fluorescent dye tracing etc.
2014–2015	Universitet i Tromsø, Department of Geology – Laboratory staff – Processing samples from marine gravity cores. Sectioning cores, freeze drying, sieving, picking planktic Foraminifera.
from 2010	Pikommat MFF UK, Faculty of Mathematics and Physics, <i>Charles University</i> – Organizer of mathematical correspondence competition. Working with talented kids, teaching, managing programs, trips, summer camps.