

Emma Haxen

MSC IN GEOLOGY-GEOSCIENCE · PHD STUDENT

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Education

University of Copenhagen

Copenhagen, Denmark

MSC IN GEOLOGY-GEOSCIENCE

Sep. 2014 – Jan. 2017

- Wrote Master's thesis on the Xiamaling Formation, North China Craton, analyzing depositional environment based on (redox) geochemistry and sedimentology.
- Became conversant with a range of methods used in experimental geochemistry, including Fe speciation, hand-held X-ray fluorescence spectrometry (HHXRF), and flame atomic absorption spectroscopy (AAS).
- Studied geological thin sections under the microscope (plane- and cross-polarized light).
- Took elective courses on radiogenic isotopes, biogeochemical cycles, paleoclimate, programming, and method calibration.

University of Copenhagen

Copenhagen, Denmark

BSC IN GEOLOGY-GEOSCIENCE

Sep. 2011 – Jun. 2014

- Wrote Bachelor's project on the redox geochemistry and depositional environments of two Neoproterozoic iron formations.
- Became fascinated with the potential of geochemical redox proxies in tracking the oxygenation of the atmosphere-hydrosphere system.
- Studied the interpretation of depositional redox conditions based on the content of trace elements (including rare earth elements and yttrium) and isotopes in sedimentary rocks.
- Took elective courses on classical mechanics and inorganic chemistry.

Skills

Laboratory	HHXRF, AAS, Fe speciation, Decarbonization, Carbon/sulfide analysis, SEM intro, ICP-MS theory
Programming	Matlab, R, Python, Unix shell, LATEX, SQL, Tableau, Alteryx
Languages	Danish (native speaker), English (full professional proficiency), French and German (elementary proficiency)

Research experience

Method evaluation and calibration

Copenhagen, Denmark

UNIVERSITY OF COPENHAGEN

2017–2018

- Researched how to optimize HHXRF data quality for geological cuttings and core samples – see "Work Experience".

Statistical analysis

Copenhagen, Denmark

UNIVERSITY OF COPENHAGEN

2017

- Performed multivariate data reduction (PCA) and cluster analysis during the review process for Wang et al. (2017) – see "Publications".

Geological fieldwork

Xiahuayuan, China

HOSTED BY PETROCHINA

2016

- Studied the Xiamaling Formation in outcrop and core, collected samples, assisted in revising existing sedimentological logs, and participated in discussions on depositional environment.

Method evaluation and calibration

Odense, Denmark

UNIVERSITY OF SOUTHERN DENMARK

2015–2016

- Assisted in establishing HHXRF protocol, explored instrumental drift, and compared Fe-speciation protocols between labs.

Work Experience

Lund University

Lund, Sweden

PHD STUDENT

Feb 2021 – present

- Works as part of a transdisciplinary research group seeking to advance current knowledge on evolutionary dynamics by combining insights from the medical and geological sciences.

EY Denmark

Frederiksberg, Denmark

DATA ANALYST

May 2018 – Jan 2021

- Worked with data analytics and business intelligence software such as SQL, R, Tableau, and Alteryx in fraud investigations.
- Gained experience with the entire data analysis process from data extraction, cleaning, and transformation to statistical analysis and advanced data visualization using e.g. interactive dashboards.
- Developed analytical apps for risk scoring financial data entries.

University of Copenhagen

Copenhagen, Denmark

RESEARCH AND TEACHING ASSISTANT

Oct. 2017 – Mar. 2018

- Worked as a research assistant on a project aimed at optimizing HHXRF data quality for cuttings and core samples.
- Analyzed data sets for trends indicative of instrumental drift or matrix effects, researched how to quantify the influence of sample composition on instrument response, and helped establish empirical calibration curves.
- Assisted in teaching (sequence) stratigraphy to undergraduates.

University of Copenhagen

Copenhagen, Denmark

TEACHING ASSISTANT

May 2017 – Jun. 2017

- Instructed undergraduate students in weekly exercises during a course on paleoclimate and the Earth system. Assisted in teaching basic modeling and data visualization, climate-sensitive proxies/archives, paleoceanography, and the coupled feedback mechanisms of the atmosphere-hydrosphere system.

Geological Survey of Denmark and Greenland (GEUS)

Copenhagen, Denmark

LABORATORY ASSISTANT

Jan. 2013 – Dec. 2016

- Prepared samples for LA-ICP-MS and CCSEM analysis and became responsible for instructing and supervising new employees.

Communication

Poster

Kolding, Denmark

DHRTC TECHNOLOGY CONFERENCE 2017

Nov. 2017

- Presented my work on optimizing HHXRF data quality during a poster session.

Homework help volunteer

Copenhagen, Denmark

DANISH REFUGEE COUNCIL

Mar. – Oct. 2017

- Was a volunteer tutor assisting high school students with science homework.

Poster

Copenhagen, Denmark

ANNUAL MEETING OF THE GEOLOGICAL SOCIETY OF DENMARK

Mar. 2017

- Created a poster illustrating the findings of my Master's project.

Presentation

Beijing, China

CHINA NATIONAL PETROLEUM CORPORATION TEST CENTER

May 2016

- Presented my Master's project and study techniques to graduate and doctoral students.

Awards & Grants

2016 **Grants** administered by the University of Copenhagen

2016 **Grant** - Hotel-owner Månsson's and spouse's grant

2016 **Grant** of the Geological Society of Denmark

2008 **Award** - Knud Valdemar Iversen's and spouse Ellen Veis Iversen's award to diligent students

Publications

Hypoxia generated by avian embryo growth induces the HIF- α response and critical vascularization

C. Carroll, N. Engström, P. F. Nilsson, E. R. Haxen, S. Mohlin, P. Berg, R. N. Glud, E. U. Hammarlund

Frontiers in Ecology and Evolution 9 (2021), p. 329

Paleoenvironmental proxies and what the Xiamaling Formation tells us about the mid-Proterozoic ocean

S. Zhang, X. Wang, H. Wang, C. J. Bjerrum, E. U. Hammarlund, E. R. Haxen, H. Wen, Y. Ye, D. E. Canfield

Geobiology 17.3 (2019), pp. 225–246

A Mesoproterozoic iron formation

D. E. Canfield, S. Zhang, H. Wang, X. Wang, W. Zhao, J. Su, C. J. Bjerrum, E. R. Haxen, E. U. Hammarlund

Proceedings of the National Academy of Sciences 115.17 (2018), E3895–E3904

Oxygen, climate and the chemical evolution of a 1400 million year old tropical marine setting

X. Wang, S. Zhang, H. Wang, C. J. Bjerrum, E. U. Hammarlund, E. R. Haxen, J. Su, Y. Wang, D. E. Canfield

American Journal of Science 317.8 (2017), pp. 861–900