

Postdoctoral Work Experience

University of Victoria School of Earth and Ocean Sciences

ADVISORS: Colin Goldblatt, Lee Kump

Feb 2024 - Nov 2024

Modelling biosphere effects on the climate, global glaciations, and changing atmospheric chemistry.

Education

DOCTOR OF PHILOSOPHY

University of Victoria

Sept 2017 - Jan 2024

School of Earth and Ocean Sciences

SUPERVISOR: Dr. Colin Goldblatt

BACHELOR OF ARTS

Colgate University

Sept 2012 - Apr 2016

MAJOR: *Geology* MINOR: *Astronomy*

ADVISOR: Dr. Karen Harpp

GRADUATE TEACHING CERTIFICATE

University of Victoria

Sept 2021 - Apr 2023

Educational Psychology and Leadership Studies

Learning and Teaching in Higher Education (LATHE) program

Publications

Horne, J. E. and C. Goldblatt (Mar. 29, 2024). "EONS: A New Biogeochemical Model of Earth's Oxygen, Carbon, Phosphorus, and Nitrogen Systems From the Archean to the Present". In: *Geochemistry, Geophysics, Geosystems* 25.4, e2023GC011252. DOI: 10.1029/2023GC011252

Horne, Julia (Jan. 31, 2024). "EONS: A New Biogeochemical Model of Earth's Longterm Evolution". PhD thesis

Presentations

Geological Society of America Connects Conference

EONS: A model of Earth's biogeochemical evolution since the Archean

Oct 16, 2023

University of Victoria SEOS Seminar Series

EONS: A model of Earth's biogeochemical evolution since the Archean

Oct 24, 2023

Archean Biogeochemistry: ABCs of Earth system modelling

Nov 13, 2018

American Geophysical Union

Archean Atmospheric Ammonia: Biogeochemical feedbacks and Archean Earth's habitability

Dec 13, 2019

Astrobiology Graduate Conference

Archean Biogeochemistry: Investigating environmental controls on Archean Earth's habitability

Jul 24, 2019

Posters

Goldschmidt Conference

OCNAtm: A biogeochemical model of Archean Earth

Jul 6, 2021

American Geophysical Union

Atmospheric Ammonia: Modelling Archean biogeochemistry

Dec 14, 2018

Teaching Experience

University of Victoria, School of Earth and Ocean Sciences

SESSIONAL INSTRUCTOR

Earth System Evolution (EOS 260)

Sept - Dec 2020

Designed and delivered second-year undergraduate lecture course on the evolution of Earth's carbon cycle and climate, spanning the Hadean eon to present day. Developed coursework including problem sets, quizzes, and research paper topics. Lectured, graded student assignments, and advised students in writing scientific literature reviews. Explained dynamic feedback systems and their control over Earth's geochemical evolution. Adapted the course to a fully online delivery format and supported students' transition to online coursework during university closure.

GUEST LECTURER

The Dynamic Earth (EOS 120)

Nov. 23, 2022

The Ocean-Climate System (EOS 261)

Nov. 7, 2022

The Dynamic Earth (EOS 120)

Oct. 4, 2022

The Ocean-Climate System (EOS 261)

Nov. 1, 2021

The Ocean-Climate System (EOS 261)

Oct. 28, 2021

Delivered self-designed, singular lectures as an invited speaker for first and second year Earth science courses. Topics include asteroid impacts, the Cenozoic climate record, volcanic hazards, and Hadean-Archean geology and climate.

TEACHING ASSISTANT

Mineralogy (EOS 205)

Sept - Dec (2023, 2019)

The Ocean-Climate System (EOS 261)

Sept - Dec 2021

Earth Science Field School (EOS 300)

Aug 2021

The Dynamic Earth (EOS 120)

Jan - Apr (2021, 2020)

Quaternary Geology (EOS 450)

Sept 2019

Earth System Science (EOS 460)

Jan - Apr 2019

Oceans and Atmospheres (EOS 110)

Sept - Dec 2018

Advanced Field Geology (EOS 400)

Aug 2018

Structural Geology (EOS 202)

Jan - Apr 2018

Earth System Evolution (EOS 260)

Sept - Dec 2017

Instructed undergraduate students in lab and field activities for several Earth science and geology-focused courses; topics span fundamental geologic concepts, Earth history, computational modelling techniques, and geologic field work.

Teaching & Research Interests

Geology and Earth systems education focus; combining the study of deep time and the geologic record with a forward-looking perspective of human impact on the environment and climate.

- Earth and planetary system evolution
- Modelling biogeochemical systems
- Computational techniques for studying Earth systems
- Geology and Earth history
- Interactions between Earth's surface and interior
- Climate change
- Tectonics
- Volcanology

Professional Service

Nature Communications Earth & Environment MANUSCRIPT REVIEWER	May 2024
AGU Fall Meeting SESSION ORGANIZER: PP33A - EVOLUTION OF THE EARTH	Dec 15-16, 2021

Grants

University of Victoria FACULTY OF GRADUATE STUDIES UVIC GRADUATE AWARD Multiple awards to fund graduate research (\$715 - \$9,500)	Aug 2017 - 2022
FACULTY OF GRADUATE STUDIES STUDENT TRAVEL AWARD Awarded to attend GSA Connects conference (\$600)	Oct 2023

Fieldwork Experience

South Dakota School of Mines & Technology ICELAND VOLCANOLOGIC FIELD MAPPING COURSE Participated in monthlong structural mapping and project-driven course geared towards geology graduates. Investigated geological features of Iceland and created maps of volcanic hazards and glacial geomorphology.	Jul - Aug 2016
Keck Geology Consortium NEWBERRY CRATER, OREGON GEOCHEMICAL FIELD STUDY Compiled water and sediment data from Newberry Crater as member of research team under Johan Varekamp (Wesleyan University). Composed undergraduate thesis from own data and decades-spanning research to categorize volcanic lake geochemistry, presented at Keck Consortium Colloquium in March 2016.	Jun 2015 - Mar 2016
Colgate University Geology 420 Extended Study CHILE VOLCANOLOGY FIELD COURSE Collaborated in small groups in planning project-based excursions. Designed, organized, and led a class of 25 students in an on-site field study of Volcan Villarrica pyroclastic flows. Researched and edited ebook guide as part of final project.	Aug 2015 - Jan 2016

Mentorship Experience

**University of Victoria School of Earth and Ocean Sciences
and Learning and Teaching Support and Innovation**

TEACHING ASSISTANT CONSULTANT

Aug 2022 - Apr 2023

Mentored SEOS departmental graduate teaching assistants; performed teaching observations, giving official written feedback for new laboratory and tutorial TAs.

Organizational Memberships

**National Association of Geoscience Teachers
American Geophysical Union**

2022 - 2024

2018 - 2021