

## 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

*School of Earth and Ocean Sciences*

SUPERVISOR: Dr. Colin Goldblatt

### University of Victoria

Sept 2017 - Jan 2024

### BACHELOR OF ARTS

MAJOR: *Geology* MINOR: *Astronomy*

ADVISOR: Dr. Karen Harpp

### Colgate University

Sept 2012 - Apr 2016

### 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](https://doi.org/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

Aug 2017 - 2022

Multiple awards to fund graduate research (\$715 - \$9,500)

FACULTY OF GRADUATE STUDIES STUDENT TRAVEL AWARD

Oct 2023

Awarded to attend GSA Connects conference (\$600)

## Fieldwork Experience

### South Dakota School of Mines & Technology

ICELAND VOLCANOLOGIC FIELD MAPPING COURSE

Jul - Aug 2016

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.

### Keck Geology Consortium

NEWBERRY CRATER, OREGON GEOCHEMICAL FIELD STUDY

Jun 2015 - Mar 2016

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.

### Colgate University Geology 420 Extended Study

CHILE VOLCANOLOGY FIELD COURSE

Aug 2015 - Jan 2016

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.

## 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