

Isabella Chiaravalloti

(she/her)

Yale University Department of Earth and Planetary Sciences

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Education

Yale University

Ph.D. in Earth and Planetary Sciences

PI: Dr. Noah J. Planavsky

New Haven, CT

2021 - Present

University of California, Santa Cruz

Bachelor of Science in Chemistry with Honors

Santa Cruz, CA

2016 – 2020

- Thesis: A Study of Solvent Efficacy for Removing Contaminants from Mummified Keratinous Remains from High Latitudes
PI: Dr. Paul L. Koch

Current Projects

Enhanced Mineral Weathering and Greenhouse Gases

PI: Dr. Noah J. Planavsky

- *In situ* analysis of effects of basalt additions on nitrous oxide fluxes in agricultural settings

Paleoclimate

PI: Dr. Ruth Blake and Dr. Jordan Wostbrock

- Developing methods for triple oxygen isotope analysis of silver phosphate
- Triple oxygen isotope applications to paleohumidity in phytoliths of C3 and C4 grasses

Geochemical Paleontology

PI: Dr. Noah J. Planavsky

- Exploring dissolution taphonomic biases in the shark fossil record with saturation state modelling

Research Experience

Lab Assistant:

April 2019 - Sept 2020

UCSC Vertebrate Paleontology Laboratory; PI: Dr. Paul L. Koch

- CN-EA-iRMS analysis of mummified elephant seal fur samples to determine effects of environmental changes on migratory patterns, nutritional data, and habitat
- Performed and designed acid/base and organic solvent tests to cleave unidentified lipid contaminants from keratin

Lab Assistant:

June 2018 - Jan 2019

UCSC Cosmochemistry Laboratory; PI: Dr. Myriam Telus

- Radioisotope dating with Sensitive High Resolution Ion Microprobe (SHRIMP) on meteorites
- Performed data analysis on U-Pb and Pb-Pb radioisotope dating and relative phosphoritic grain abundances in ordinary chondrites
- Analyzed specimens on Scanning Electron Microscope (SEM) with Energy Dispersive X-Ray Spectroscopy (EDS)

Student Intern:

Jan 2016 - May 2016, June 2017 - Sept 2017

UC Davis Equine Analytical Chemistry Laboratory; PI: Dr. Scott Stanley

- Prepared ovine samples for chaperone protein analysis
- Tested performance horse samples for EPO using Enzyme-linked immunosorbent assay technique (ELISA)
- Prepared equine samples for LCMS and GCMS analysis using sterile technique

Skills and Expertise**Organochemical and Biochemical Methods**

- Raman Spectroscopy
- Liquid Chromatography Mass Spectrometry (LCMS)
- Aglient 68/90 GC 59/75 MS with Chem Station Software (GCMS)
- UV- Vis Spectroscopy
- Nuclear Magnetic Resonance (NMR)
- Enzyme-linked immune-sorbent assay technique (ELISA)
- IR Spectroscopy
- Sterile Technique

Natural Product Extraction

- Gel Electrophoresis
- Thin-layer Chromatography (TLC)

Geochemical and Mineralogical Methods

- Powder X-ray Diffraction (PXRD)
- Scanning Electron Microscopy (SEM) with Energy Dispersive X-ray Spectroscopy (EDS)
- Sensitive High Resolution Ion Microprobe (SHRIMP)

Software and Data Visualization

- Microsoft Office
- Chem Station Software

Certifications and Languages

- NAUI Certified Advanced and Rescue Open Water Diver

- CPR, First Aid, and Basic Life Support
- Emergency Oxygen Provider
- 5 Years of French Language Courses

Presentations

- **Chiaravalloti, I.**, Koch, P. L., Mummified Elephant Seals and Isotope Ecology, *CHEM 282 Proseminar: Synthetic Methods, Singaram Lab*, Santa Cruz, California, 12 March 2020 (invited talk at campus seminar course)
- **Chiaravalloti, I.**, Telus, M., Abu-Hashmeh, N., Coble, M., Meteorites: Radioisotope Dating and Trace Element Analysis of Phosphate Grains in Ordinary Chondrites, *University of California: Santa Cruz 9th Annual Physical and Biological Sciences Summer Research Symposium*, Santa Cruz, California, 17 August 2018 (poster)

Teaching Experience

Teaching Fellow

Yale Earth and Planetary Sciences Department

September 2021 - December 2021

EPS 110: Dynamic Earth

- Held office hours to assist undergraduate students with their studies and assignments
- Graded assignments
- Organized portfolio assignments and contributed to creating over 250 individualized maps for students' assignments