

# Daphne (Dede) Chapline - (dec285@nau.edu)

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## EDUCATION

[Northern Arizona University](#) — Flagstaff, AZ Aug. 2023 - Present

Ph.D. student in Astronomy & Planetary Science

- Fall 2023: Graduate Research Assistant for Dr. Christopher Edwards

[Pomona College](#) — Claremont, CA Aug. 2018 - May 2023

B.A. in Geology

- GPA: 3.98/4.00 unweighted; Major GPA: 4.00/4.00
- Senior research thesis: Geochemical and Petrographic Analysis of Selected Samples from the Ronald N. Hartman Meteorite Collection

## AWARDS AND HONORS

Phi Beta Kappa (inducted May 2023)

D.B. McIntyre - H. Stanton Hill Award (given by the Pomona College Geology Dep., 2023)

Nominated to Sigma Xi (by the Pomona College Geology Dep., 2022)

Isabel F. Smith & Donald H. Zenger Award: Awarded to students who demonstrate patience, humor, kindness, and generosity of spirit (chosen by the faculty of the Pomona College Geology Dep., received in 2020 and 2022)

First Year CRC Chemistry Award (chosen by the Pomona College Chemistry Dep., 2019)

Jaeger Mathematics Prize (chosen by the Mathematics faculty at Pomona College, 2019)

## RESEARCH EXPERIENCE

[Yale University](#) — Research Fellowship - New Haven, CT June 2022 - Aug. 2022

- Analyzed single-station and beamformed seismic data from Japan to infer deep mantle seismic anisotropy via the differential splitting of the seismic wave phases SKS and SKKS
- Learned how to use the SplitRacer interface in MATLAB; used Python and Generic Mapping Tools to produce figures
- Presented poster at the Leadership Alliance Conference

[NAU](#) — Astronomy & Planetary Science REU - Flagstaff, AZ May 2021 - Aug. 2021

- Investigated the role of salt crystallization in the ongoing erosion of Grand Falls, AZ (an early Mars analog)
- Took remote sensing data via drone and analyzed it with ArcGIS Pro
- Collected and prepared samples of salts and sediments for XRD analysis, interpreted results
- Collected Schmidt Hammer measurements on rock surfaces in the field
- Presented results at GSA Connects 2021 via an in-person talk

[NAU](#) — Independent project with Dr. Salvatore - Remote Aug. 2020 - Mar. 2021

- Studied CRISM images of Eridania Basin on Mars to understand hydrated mineralogy
- Examined the geomorphology of potential coastal features
- Analyzed topographic profiles of paleolake margins
- Conducted extensive literature research surrounding Eridania Basin
- Created a poster to present work at the Lunar and Planetary Science Conference

[Pomona College](#) — RAISE project with Dr. Grosfils - Remote May 2020 - June 2020

- Studied literature on caldera ring faulting and how to model failure processes

- Learned about how to simulate stress conditions in host rock
- Created models to compare location and type of ring faulting with those predicted by analogue models
- Created a poster to communicate project results to RAISE donors

**AstraZeneca** — Bioscience Intern - *Waltham, MA* June 2019 - July 2019

- Treated cells with inhibitors and siRNA and harvested at various time points for an experiment on the breast cancer protein KMT2D
- Ran Western blots with harvested cells to study histone modification
- Created poster and PowerPoint presentation to summarize my findings; presented to the senior scientists in my lab

## LEADERSHIP EXPERIENCE

**Pomona College** — EcoRep - *Claremont, CA* Sep. 2021 - May 2023

- Work for the Sustainability Office managing student resources such as the Walker Book Room and Free Room
- Organize and host engaging sustainability events and initiatives for students

**Pomona College** — Tour Guide - *Claremont, CA* Jan. 2020 - May 2023

- Lead groups of tours around campus to inform visitors about the Pomona College student experience

**Pomona College** — Teaching Assistant - *Claremont, CA* Sep. 2019 - May 2021

- Held weekly mentor sessions to help with homework and exams
- Graded problems sets and papers
- Met with students individually for extra help
- Courses include General Chemistry, Calculus II, Environmental Geology, and Geohazards

**Pomona College** — Student Liaison - *Claremont, CA* Jan. 2021 - Jan. 2022

- Organized social events to build community in the Geology Department
- Worked with faculty to create an inclusive and supportive environment

## CONFERENCE ABSTRACTS AND POSTERS

**Chapline, D.E., Wolf, J., Long, M.D., Frost, D.A., and Aderoju, A.O., 2022, Inferring deep mantle seismic anisotropy below Japan from differential splitting of SKS and SKKS phases: The Leadership Alliance Conference, <https://doi.org/10.26300/sdaz-2f48>.**

**Chapline, D.E. and Salvatore, M.R., 2021, Characterizing geomorphic and mineralogical features in the Eridania Basin and their implications for the geologic history of Mars: 52nd Lunar and Planetary Science Conference, abstract 1269.**

**Chapline, D.E., Salvatore, M.R., Sankey, J.B., and Caster, J., 2021, Investigating the role of salt weathering at Grand Falls, AZ: Geological Society of America Abstracts with Programs, vol. 53, no. 6, <https://doi.org/10.1130/abs/2021AM-370091>.**

**Salvatore, M.R., Sankey, J.B., Dean, D.J., Goudge, T., Titus, T., Unema, J., Chapline, D.E., and Caster, J., 2021, Grand Falls, Arizona as an analog for fluvial erosion on Mars: Geological Society of America Abstracts with Programs, vol. 53, no. 6, <https://doi.org/10.1130/abs/2021AM-369696>.**

## SKILLS

- XRD/XRF preparation and analysis
- ArcGIS Pro, ArcMap analysis
- Petrography
- COMSOL Multiphysics
- JMAR