Anthony Michael Gargano

Postdoctoral Researcher,
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A) Education

08/2022	Ph.D. University of New Mexico, Department of Earth & Planetary Science Halogen and non-traditional isotope geochemistry of planetary and terrestrial materials Supervisor: Dr. Zachary Sharp
05/2016	B.S. University of North Carolina at Charlotte, Department of Geography and Earth Sciences

B) Appointments

2023-present	Postdoctoral Researcher Center for Isotope Cosmochemistry and Geochronology, NASA ARES, Johnson Space Center
2023-2023	Postdoctoral Researcher Earth and Planetary Sciences, University of New Mexico
2022-2023	Postdoctoral Researcher Scripps Institution of Oceanography, University of California San Diego
2020-2022	Graduate Teaching Assistant Earth and Planetary Sciences, University of New Mexico
2017-2020	Graduate Research Assistant Earth and Planetary Sciences, University of New Mexico
2017-2020	Graduate Fellow at the Center for Isotope Cosmochemistry and Geochronology NASA Johnson Space Center ARES
2016-2017	Graduate Research Assistant Earth and Planetary Sciences, University of New Mexico

C) Publications

1. Gargano AM, Sharp ZD, and Simon JI (Invited Review, In Prep). Halogen and Chlorine Isotope Geochemistry of Marine Sediments. Chemical Geology.
2. Gargano AM, Simon JI, Sharp ZD (submitted). The Cl and K Isotope Compositions of non-carbonaceous chondrites: evidence for vapor distillation during asteroidal metamorphism. Proceedings to the National Academy of Sciences.
3. Gargano AM, Dottin J, Hopkins S, Sharp ZD, Shearer CK, Halliday A, and Farquhar J (2022). The Zn, S, and Cl isotope compositions of mare basalts: implications for the effects of eruption style and pressure on volatile element stable isotope fractionation on the Moon. American Mineralogist. 107:1985-1994
4. Gargano AM, Sharp ZD, Shearer CK, Simon JI, Halliday A, and Buckley W (2020). Chlorine isotope compositions and halogen contents of Apollo-return samples. Proceedings of the National Academy of Sciences. 117:23418-23425
5. Li Y, Li Q, Tang G, Gargano AM, Sharp ZD, Pitwala A, Zhao L, Zhai M, and Li X (2020). Eppwala-AP, Sri Lanka, an apatite reference material for high precision chlorine isotope analysis. Atomic Spectroscopy 41:51-56
6. Gargano AM, and Sharp ZD (2019). The chlorine isotope composition of iron meteorites: Evidence for the Cl isotope composition of the solar nebula and implications for extensive volatilization during planet formation. Meteoritics and Planetary Science. 54:1619-1631

D) Contributed Conference Papers

1. Gargano AM, Sharp Z, Simon J, and Shearer C. (2024). The Isotopic Composition of Endogenous Molecular Water on the Moon. Lunar and Planetary Science Conference.
2. Gargano AM, Cano E, Ziegler K, Sharp Z, and Shearer C. (2022). Stable Isotope Geochemistry (H, Cl, O) of ANGSA Soils. Presented talk. ANGSA & Apollo 17 Workshop. Lunar and Planetary Science Institute, Houston, TX.
3. Gargano AM, Day J, and Simon J. (2022). The Effects of Impact Processing on Lunar Volatile Element Isotope Geochemistry of Apollo 17 Soils. Presented talk. ANGSA & Apollo 17 Workshop. Lunar and Planetary Science Institute, Houston, TX.
4. Gargano AM, Wostbrock J, Sharp Z, and Simon J. (2022). Exploring the Halogen Geochemistry of Marine Sediments. Presented talk. Geological Society of America Meeting, Denver, CO.

5. Worthington L, Myers C, Weissmann G, Gargano AM, Mackey T, Schmandt B, Crossey L, Elliott Smith EA, Lindsey E, Moore J, and OConnor B. (2021). Opportunities, Challenges and Progress in Unlearning Racism in Geosciences (URGE) at the University of New Mexico. Poster Presentation. AGU Fall Meeting, San Francisco, CA.
6. Gargano AM., Sharp Z and Shearer CK. (2020) Water-soluble chlorine with distinct isotopic compositions in lunar materials with application to volatiles in A17 core 73001/73002. Presented Talk. AGU Fall Meeting, San Francisco, CA.
7. Gargano AM, Sharp ZD, and Taylor LA. (2017). Further Constraining the Chlorine Isotope Composition of the Solar Nebula: Main Group Iron Meteorites. Presented Talk. Meteoritical Society Annual Meeting, Santa Fe, NM.

E) Professional Service

1. Apollo Next Generation Sample Analysis Team – member of the UNM group (2019 – present)
2. CASA Moon NASA SSERVI – member of the UNM and NASA CICG group (2023 – present)
3. Peer reviewer for Chemical Geology, Geochemica et Cosmochimica Acta, Meteoritics and Planetary Science

F) Synergistic Activities

1. Group leader for the University of New Mexico, Center for Stable Isotopes IsoCamp (2022-present)
2. Co-PI of Research Expedition to Catalina Crater, Borderlands CA, Sally Ride 2303 (2023)
3. Geosciences Education & Mentorship Support (GEMs) (2022 – present) – Mentor to two early stage graduate students.
4. Undergraduate mentor (2019 – 2022) – Mentored and trained UNM undergraduate in performing high precision stable isotope analysis (O, H, N, C, Cl) and basic wet-laboratory preparation procedures.
5. Unlearning Racism in Geoscience (URGE) – Member of the UNM EPS Pod (2021).
6. NASA ARES Intern mentor (2018, 2019, 2023) – Mentored NASA undergraduate interns on analytical techniques (electron microscopy instrumentation) and how to develop and critically assess research questions in cosmochemistry.

G) Instrumentation

1. Gas-source mass spectrometry:
    - Experience independently performing and maintaining high precision stable isotope measurements for H, C, N, O, Cl.
2. Inductively Coupled Plasma Mass Spectrometry (solution & laser ablation)
    - Experience with laser ablation systems for silicates, carbonates, and sulfides for trace chalcophile and platinum group element abundances.
    - Experience with solution inlet systems for halogens, alongside major and trace elements.
3. Electron Microscopes:
    - Experience independently performing qualitative imaging on Scanning Electron Microscopes.
    - Experience performing quantitative analyses on Electron Microprobes.
    - Non-independent user of Transmission Electron Microscopes.
4. Wet-laboratory experience:
    - Silicate rock dissolutions for major and trace element analyses.
    - Use and maintenance of vacuum-line apparatuses for chemical reactions and solid/gas sample preparation.
    - Custom glassblowing of vacuum apparatuses.

H) Coding Competency

1. Experienced user of the Python, Mathematica and R programming languages in data and planetary science applications.