

NICOLAS RANDAZZO

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Mars Science Team Profile: <https://mars.nasa.gov/people/profile/index.cfm?id=23451>

LinkedIn: [www.linkedin.com/in/Randazzo- Nicolas](http://www.linkedin.com/in/Randazzo-Nicolas)

EDUCATION

MCMASTER UNIVERSITY – Ph.D. in Earth Science and Environmental Sciences
(Specialization in Astrobiology) 2017 – Present

Thesis: High Resolution Elemental and Stable Isotope Records of the Mancos Shale for
Paleoenvironmental Reconstruction of the Late-Cretaceous

MCMASTER UNIVERSITY – M.Sc. in Earth Science (Geochemistry) 2015- 2016

Thesis: Carbon and Oxygen Isotope Effects in Synthesized Carbonates at 25 °C

MCMASTER UNIVERSITY – H.BSc in Honours Environmental Sciences 2010- 2014

GRADUATED *SUMMA CUM LAUDE*

Thesis: Measuring the Isotopic Compositions of Carbon- 13 and Oxygen- 18 in Synthesized
Calcite Rafts at 25°C

MCMASTER UNIVERSITY – Minor in Religious Studies 2010- 2014

RELEVANT TEACHING AND EMPLOYMENT HISTORY

UNIVERSITY OF ALBERTA 2023, 2024

Position: Sessional Lecturer

- EAS 206- Geology of the Solar System
- Class size of 219 students

UNIVERSITY OF ALBERTA /NASA (National Aeronautical Space Administration)/JPL
(Jet Propulsion Laboratory) 2022-Present

Position: Research Assistant/Postdoctoral Researcher and Collaborator

- Postdoctoral Collaborator on the Mars Return Sample Science (RSS) Participating Scientist team (Sedimentology and Stratigraphy, Biosignatures, Regolith, and Atmosphere) - Leading the deployment and maintenance of fireball observatory stations across Alberta
- Assisting with the coordination of Mars Sample Return (MSR) protocol
- Creating stratigraphic logs for Mars2020 Perseverance Rover samples and contributing to the official NASA Mars 2020 sample report.
- Contributing to the geologic mapping effort of the Jezero crater rim

- Developing advanced curation methods for Mars and cometary nucleus returned samples.
- Conducting petrographic and chemical analyses on Martian analog samples and meteorites.

MCMASTER UNIVERSITY

2022

Position: Laboratory Technician

- Conducted stable isotope analysis of international water samples, natural and synthetic carbonate samples, food products (i.e., honey, molasses, etc.) for adulteration assessments, sediment samples, and biological samples (shark spines, vertebrae, etc.).
- Properly setup, operated, and ran all of the laboratory equipment (recognize and report inaccuracies, faults and technical problems of lab instrumentation and equipment).
- Taught university undergraduate students the principles of stable isotope geochemistry using Continuous Flow- and Dual- Inlet Isotope Ratio Mass Spectrometry (CF- IRMS and DI- IRMS, respectively) and an Elemental Analyzer.
- Taught students how to use CO₂ extraction and purification line for classic stable isotope analysis as well as clumped isotope thermometry.

MCMASTER UNIVERSITY

Position: Teaching Assistant (18 courses)

- Involved in both course and curriculum design on multiple occasions and provided program assessment.
- Presented guest lectures regarding both specialized and foundational concepts and skills.
- Led weekly discussions and managed as well as presented information for both small and large groups ranging from roughly 10 to 90 people.
- Experience teaching both in- person and virtually (synchronous and asynchronous) - Led a number of hands- on laboratories, tutorials, and workshops.
- Motivated groups and individuals to complete projects.
- Coached, tutored, and mentored students.
- Marked assignments and exams, invigilated examinations, managed course websites, uploaded course content, updated grades, and answered emails regarding course content.
- Filled in for professor for two 3rd year university lectures in the Sept 2017 – Dec 2017 term
- Taught 9 hands- on lab for a 4th year university geochemistry courses within a laboratory research facility during the January 2019- April 2019 term
- Taught the principles and use of DI- IRMS, CF- IRMS, and Elemental Analysis for carbon, oxygen, and nitrogen isotopic analysis

Courses taught:

EARTH SC 3E03- Clastic Sedimentary Environments

2021

EARTH SC 2T03- Geology of Canada

2020

EARTH SC 4CC3- Stable Isotopes in Earth and Environmental Systems (3 times)	2019-2021
LIFE SC 2X03- Environmental Change and Human Health	2018
EARTH SC/ ENVIR SC 3B03- Global Change, Ecosystems and the Earth System	2018
EARTH SC 3CC3- Earth's Changing Climate (5 times)	2017 - 2021
GEOG 1HA3- Society and Culture	2016
HLTHAGE 2HI3- Geographies of Death and Disease	2016
EARTH SC 3RD3- Research Design and Dissemination	2015
EARTH SC/ENVIR SC/GEOG 3MB3- Statistical Analysis	2015
GEOG 1HB3- Human Geographies: City and Economy	2014
ENVIR SC 1A03- Climate and Water	2012

MCMASTER UNIVERSITY

Sept 2017; Nov 2021

Position: Guest Lecturer

- Taught two lectures for each time period about environmental reconstruction using stable isotopes and paleoenvironmental proxies

MCMASTER UNIVERSITY

June- Aug 2013; May- Aug 2014; Feb- May 2017

Position: Research Student

- Analysing the stable isotope composition of synthesized carbonate precipitates
- Helped to design carbonic anhydrase- catalyzed method for rapid isotope equilibrium between CO₂- H₂O between February and May 2017

MCMASTER UNIVERSITY

May- June, 2017

Position: Field Assistant

- Log information about sedimentary cores extracted from New Mexico at the Core Research Center (CRC) in Denver, Colorado
- Examine outcrops in Hanksville, Utah as well as Farmington, Gallup, and Socorro, New Mexico

MCMASTER UNIVERSITY/MOHAWK COLLAGE

April 2017; Feb 2018; Dec 2018
April 2019; Dec 2019

Position: Invigilator

- Distributing and collecting final examinations for students

MCMASTER HOSPITAL

June 2012- May 2018

Position: Standardized patient

- Assisted in teaching program for medical students

MCMASTER UNIVERSITY/UNIVERSITY OF NEW SOUTH WALES

Position: U21 Astrobiology Workshop Co-Creator

Sept 2020- June 2022

- Collaborated with graduate students in Canada, New Zealand, and Australia to create an online origins of life workshop to be used by high school age students and continuing education students worldwide

PUBLICATIONS

Randazzo N., Holt M., Hiltz R., Herd C.D.K., Reiz B., and Whittall R. Quantification of Organosulfur Compounds in Six Specimens of the Tagish Lake Meteorite at the ppb scale using LC-MS. (*Accepted for Meteoritics & Planetary Science*).

Bosak T., Shuster D.L., Scheller E.L., Siljeström S., Zawaski M.J., Mandon L., Simon J.I., Weiss B.P., Stack K.M., Mansbach E.N., Treiman A.H., Benison K.C....**Randazzo N.**, and 26 others. Astrobiological potential of rocks acquired by the Perseverance rover at a sedimentary fan front in Jezero crater, Mars. (*Submitted to AGU Advances*).

Kalucha H., Broz A.P., **Randazzo N.**, Aramendia J., Madariaga J.M., Garczynski B., Lanza N., Mandon L., Fouchet T., Catling D.C., Fairén A.G., Kivrak L., Gasda P.J., and seven others. Probable concretions observed in the Shenandoah Formation of Jezero Crater, Mars and comparison with terrestrial analogs. (*Submitted to Journal of Geophysical Research- Planets*).

Hausrath E. M., Sullivan R., Goreva Y., Zorzano M.P., Vaughan A., Cousin A., Siljeström S., Sharma S., Shumway A., Kizovski T., Van Bommell S., ...**Randazzo N.**, and 43 others as well as the Regolith Working Group. Collection and in situ analyses of regolith samples by the Mars 2020 rover: Implications for their formation and alteration history. (*Submitted to Journal of Geophysical Research- Planets*).

Benison K.C., Gill K.K., Allwood A., Bosak T., Broz A.P., Clark B.C., Cloutis E., Czaja A.D., Flannery D., Fornaro T., Gomez F., Hand K., Herd C.D.K., Hurowitz J.,...**Randazzo N.**, and seven others. Depositional and diagenetic sulfates of Hogwallow Flats and Yori Pass, Jezero crater: Evaluating preservation potential of environmental indicators and possible biosignatures from past martian surface waters and groundwaters. (*Submitted to Journal of Geophysical Research- Planets*).

Kathir B.S., Rice M.S., Horgan B., Johnson J.R., Mandon L., Annex A.M., Broz A.P., Garczynski B., Martínez-Frías J., Núñez J.I., **Randazzo N.**, Bell III J.F., Mangold N., Stack K.M., and Weins R. Float Rocks on the Western Jezero Fan Front: Using Multispectral Observations from the Mastcam-Z Instrument on Perseverance to Investigate the Origin of Boulders. (*Submitted to Journal of Geophysical Research- Planets*).

Jodhpurkar M., Bell J.P., Gupta S., Horgan B., Gwizd S., **Randazzo N.**, and Caravaca G.. Mapping and Characterizing the Northern Fan Deposits in Jezero Crater, Mars. (*Submitted to Journal of Geophysical Research- Planets*).

Caravaca G., Dromart G., Mangold N., Gupta S., Tate C., **Randazzo N.**, Williams R.M.E.,

Le Mouélic S., Nuñez J.I., Kah L.C., Rice J., Crumpler L., Williams A., and five others. Depositional Facies and Sequence Stratigraphy of the Kodiak Butte, Western Delta of Jezero Crater, Mars. (*Submitted to Journal of Geophysical Research- Planets*).

Stack K. M., Ives L. R. W., Gupta S., Lamb M. P., Tebolt M., Caravaca G., Grotzinger J.P., Russell P., Shuster D.L., Williams A.J., Amundsen H. E. F., Alwmark S., ... **Randazzo N.**, and 14 others. Sedimentology and Stratigraphy of the Shenandoah Formation, Western Fan, Jezero Crater, Mars. (*Submitted to AGU Advances*).

Broz A.P., Horgan B., Kalucha H., Johnson J.R., Royer C., Dehouck E., Mandon L., Cardarelli E.L., Garczynski B., Haber J.H., Ives L. R. W., Mangold N., ...**Randazzo N.**, and 14 others. Diagenetic history and biosignature preservation potential of fine-grained rocks at Hogwallow Flats, Jezero Crater, Mars. (*Submitted to Journal of Geophysical Research- Planets*).

Siljeström S., Czaja A.D., Corpolongo A., Berger E.L., Li A.Y., Cardarelli E.L., Abbey W., Asher S.A., Beegle L.W., Benison K.C., Bhartia R., Bleefeld B.L., ...**Randazzo N.**, and 18 others. Evidence of Sulfate-Rich Fluid Alteration in Jezero Crater Floor, Mars. (*Submitted to Journal of Geophysical Research- Planets*).

Zorzano M.P., Martínez G., Polkko J., Tamppari L., Newman C., Savijärvi H., Goreva Y., Viudez D., Bertrand T., Smith M., Hausrath E.M., Siljeström S., ...**Randazzo N.**, and three others. Present-day thermal and water activity environment of the Mars Sample Return collection. (*Submitted to Nature Communications*).

Hausrath E. M., Adcock C. T., Bechtold A., Beck P., Benison K., Brown A., Cardarelli E.L., Carman N.A., Chide B., Christian J., Clark B.C., Cloutis E.,...**Randazzo N.**, and thirteen others as well as the Mars 2020 SuperCam team and Regolith Working Group. (2023). An examination of soil crusts on the floor of Jezero crater, Mars. *Journal of Geophysical Research: Planets*, 128, e2022JE007433. <https://doi.org/10.1029/2022JE007433>

Horgan B., Udry A., Rice M., Alwmark S., Amundsen H. E. F., Bell J. F., ...**Randazzo N.** and eight others (2023). Mineralogy, morphology, and emplacement history of the Maaz formation on the Jezero crater floor from orbital and rover observations. *Journal of Geophysical Research: Planets*, 128, e2022JE007612. <https://doi.org/10.1029/2022JE007612>

Lorenz R., Maurice S., Chide B., Mimoun D., Stott A., Murdoch N., Giller M., Jacob X., Wiens R.C., Montmessin F., Grip H., Tzanetos, T., Balaram R., Williams N., ... and **Randazzo N.** The Sounds of a Helicopter on Mars. *Planetary and Space Science*. 230, 105684.

Poggiali, G., Iannini Lelarge, S., Brucato, J.R., Barucci M. A., Masotta, M., Corazzi, M.A., Fornaro, T., Brown, A.J., Mandon, L., and **Randazzo, N.** Laboratory measurements of anhydrous minerals mixed with hyperfine hydrated minerals to support interpretation of infrared reflectance observations of planetary surfaces. *Icarus*. 392, 115449.

Veneranda M., Manrique J.A., Lopez-Reyes G., Julve-Gonzalez S., Rull F., Alvarez Llamas C., Gibbons E., Clave E., Cloutis E., Huidobro J., Castro K., Madariaga J.M., **Randazzo N.**, and four others (2023). Developing tailored data combination strategies to optimize the SuperCam classification of carbonate phases on Mars. *Analytica Chimica Acta*. Icarus 394(8):115449.

Randazzo N., Kim S.- T., and Knyf M. (2019). Enzymatically- catalyzed CO₂- H₂O equilibration for oxygen isotope analyses of aqueous samples. *Rapid Communications in Mass Spectrometry*. 33(44), 1185- 1195.

Bhattacharya J., Miall A., Gabriel J., Ferron. C, **Randazzo N.**, Kynaston D., Jicha B., and Singer B. (2019). Time- stratigraphy in point sourced river deltas: application to sediment budgets, shelf construction, and paleo- storm records. *Earth Science Reviews* 199, 102985.

CURRENT RESEARCH PROJECTS

Distinguishing Tectonic versus Eustatic Controls in Turonian Strata of the Western Interior Seaway (*In Preparation for GSA Bulletin*)

- **Randazzo N.**, Wu T., Bhattacharya J.P., Walecki M., Fries K., Nelson R., Kim S- T., Jicha B.R. and Singer B.S.

The Nature of Prodeltaic Laminated Sediment Deposition and its Relation to Organic Carbon Preservation in the Mancos Shale (*In Preparation for Paleogeography, Paleoclimatology, Paleoecology*)

- **Randazzo N.**, Gabriel J., Lourenço R.B., Reinhardt E.G., Bhattacharya J.P, Kim S- T, and Genovese C.

Environmental Reconstruction of the Turonian Paleoclimate using Organic Carbon and Carbonate Stable Isotope Records from the Mancos Shale (*In Preparation for GSA Bulletin*)

- **Randazzo N.**, Kim S- T., Bhattacharya J.P., and Walecki M.

Effect of Martian- like Radiation Conditions on Carbon and Oxygen Isotope Compositions of Carbonates (*In Preparation for Journal of Geophysical Research- Planets*)

- **Randazzo N.**, Kim S- T., Stalport F., Rheinstäder M.C., Cottin H, and Coll P.

The Influence of Carbonic Anhydrase on the Carbon and Oxygen Isotope Effects in Synthesized Carbonates at 25°C (*In Preparation for Chemical Geology*)

- **Randazzo N.**, Kim S- T., and El- Shenawy M.

Geochemical Fingerprinting of Late Cretaceous Bentonites from the Mancos Shale, Utah and New Mexico, USA (*In preparation for Clays and Clay Minerals*)

- **Randazzo N.**, Gabriel J., Reinhardt E.G., Bhattacharya J.P., Walecki M., and Kim S- T,

Preparing for Analysis of Returned Mars Samples Through Collaborative Analysis of High-Fidelity Analogs (*In progress*).

- **Randazzo N.**, Simon J.I., Tuite M., Flannery D., Herd C.D.K., Fornaro T., Benaroya S., Froese D.G., Eckley S., Harvey J., McCubbin F.M., Pumple J., O’Neal E.W., Regberg A.B., and Zeigler R.A.A.

High-Resolution Biostratigraphy and Chronostratigraphy of the Juana Lopez Member of the Mancos Shale and the Gallup Sandstone Formation, Northwestern New Mexico. (*In progress*)

- *Nelson R., Fries K., Bhattacharya J.P., and **Randazzo N.***

PRESENTATIONS

Randazzo N. Sci-Fi and the Morality of Space Exploration. Space, Philosophy, and Ethics Conference. University of Concordia at Edmonton. Edmonton, Alberta, Canada. *Oral Presentation (In-Person)*.

Randazzo N., Holt M., Hilts R., Herd C.D.K., Reiz B., and Whittal R. Quantification of Organosulfur Compounds in Six Specimens of the Tagish Lake Meteorite at the ppb scale using LC-MS. Met-Soc 2023 Conference. Los Angeles, California, USA. *Oral Presentation (In-Person)*.

Czaja A.D., Herd C.D.K., Bosak T., Farley K.A., Stack K.M., Benison K.C., Brown A.J., Cohen B.A., Debaille V., Goreva Y., Hausrath E.M., ... **Randazzo N.**, and seven others Sampling Mars with NASA’s Perseverance Rover to Search for Ancient Life. ISSOLIAU Astrobiology Meeting. *Oral Presentation (Virtual)*.

Lemmon M., Bell III J.F., Egeland R., and **Randazzo N.** Monitoring hotspots with Mars rovers. June 2023. American Astronomical Society. Albuquerque, New Mexico, USA. Poster Presentation. *Oral Presentation (Virtual)*.

Debaille V., Benison K.C., Bosak T., Cohen B.A., Czaja A.D., Farley K.A., Goreva Y., Hausrath E.M., Herd C.D.K., Hickman-Lewis K., ..., **Randazzo N.**, and eight others. Mars sample return: scientific objectives and implication for the crater floor campaign. Biennial European Astrobiology Conference (BEACON). La Palma Island, Canaries, Spain. *Oral Presentation (Virtual)*.

Fornaro T., Brucato J.R., Poggiali G., Alberini A., Florentino C.G., Jakubek R.S., Fries M., Sharma S., Murphy A.E., Coloma L., Aramendia J., ... **Randazzo N.**, and three others. Inspecting the astrobiological relevance of samples collected at Jezero Crater on Mars by the NASA Mars 2020 Perseverance rover for future return to Earth Biennial European Astrobiology Conference (BEACON). La Palma Island, Canaries, Spain. *Oral Presentation (Virtual)*.

S., Czaja A.D., Bhartia R., Ollila A., Clegg S., Lopez-Reyes G., Manrique J.A., Beyssac O., Bernard, S., Clavé E., Connell S., Brown, A., Wiens R.C., and **Randazzo N.** Inspecting the astrobiological relevance of samples collected at Jezero Crater on Mars by the NASA Mars 2020 Perseverance rover for future return to Earth. Biennial European Astrobiology Conference (BEACON). La Palma Island, Canaries, Spain. *Oral Presentation (Virtual)*.

Randazzo N., Simon J.I., Tuite M., Flannery D., Herd C.D.K., Fornaro T., Benaroya S., Froese D.G., Eckley S., Harvey J., McCubbin F.M., Pumple J., O’Neal E.W., Regberg A.B., and Zeigler R.A.A.. Preparing for analysis of returned mars samples through collaborative analysis of high fidelity analogs. March 2023. Lunar and Planetary Science Conference (LPSC). The Woodlands, Texas, USA. *Poster Presentation (In-Person)*.

Herd C.D.K., Bosak T., Farley K.A., Stack K.M., Benison K.C., Cohen B.A., Czaja A.D., Debaille V., Goreva Y., Hausrath E.M., Hickman-Lewis K., ...and **Randazzo N.** Sampling by the NASA Perseverance rover for mars sample return. March 2023. Lunar and Planetary Science Conference (LPSC). The Woodlands, Texas, USA. *Oral Presentation (In-Person)*.

Hurowitz J.A., Tice M.M., Allwood A.C., Cable M.L., Bosak T., Broz A.P., Caravaca G., Clark B.C., Dehouck E., Fairen A., Gomez F., ... **Randazzo N.**, and twelve others. March 2023. Lunar and Planetary Science Conference (LPSC). The Woodlands, Texas, USA. *Oral Presentation (In-Person)*.

Hausrath E. M., Sullivan R., Goreva Y., Zorzano M.P., Cardarelli E., Vaughan A., Cousin A., Siljeström S., Shumway A., S. VanBommel S., ... and **Randazzo N.** The history of water recorded in the Mars soil samples. March 2023. Lunar and Planetary Science Conference (LPSC). The Woodlands, Texas, USA. *Poster Presentation (In-Person)*.

Stack K. M., Gupta S., Tebolt M., Caravaca G., Ives L. R. W., Russell P., Shuster D., Williams A., Alwmark S., Barnes R., Bell III J.F., Beyssac O.,... **Randazzo N.**, and four others. R.M.E. Sedimentology and stratigraphy of the lower delta sequence, Jezero Crater, Mars. March 2023. Lunar and Planetary Science Conference (LPSC). The Woodlands, Texas, USA. *Oral Presentation (In-Person)*.

Tate C. D., Annex A. M., Wolff M., Hayes A. H., **Randazzo N.**, and Powell K. E. The Metaverse is here – so let’s use it to explore Mars. March 2023. Lunar and Planetary Science Conference (LPSC). The Woodlands, Texas, USA. *Poster Presentation (In-Person)*.

Benison K. C., Gill K., Bosak T., Clark B. C., Czaja A., Fornaro T., Gómez F., Martinez-Frias J., Madsen M. B., Herd C. D. K., and **Randazzo N.** Biosignature potential and possible environmental indicators of sulfate-rich rocks from Hogwallow Flats and Yori Pass, Jezero Crater Delta Front, Mars. March 2023. Lunar and Planetary Science Conference (LPSC). The Woodlands, Texas, USA. *Oral Presentation (In-Person)*.

Randazzo N., Wu T., Bhattacharya J.P., Walecki M., Fries K., Nelson R., Kim S.- T., Jicha B.R., and Singer B.S. Plausibility of Milankovitch- Driven Glaciations under Ultra- Greenhouse Conditions. August 2022. Cretaceous Symposium. Warsaw, Poland. *Oral Presentation (Virtual)*.

Randazzo N., Kim S.- T., Bhattacharya J.P., Rine J., and Walecki M. Environmental reconstruction and intercontinental correlation of the Turonian paleoclimate using stable isotope records from the Mancos Shale. July 2022. Goldschmidt Conference. Honolulu, Hawaii, USA. *Oral Presentation (Virtual)*.

Randazzo N., Gabriel J., Barros Lourenco R., Reinhardt E., Kim S.- T., Bhattacharya J.P., and Genovese C. The utilization of μ XRF to predict carbon and nitrogen isotope trends in the Cretaceous Mancos C Formation, New Mexico. June 2022. Advances in Stable Isotope

Techniques and Applications (ASITA). Montreal, Quebec, Canada. *Oral Presentation (In-Person)*.

Randazzo N., Wu T., Bhattacharya J.P., Kim S.-T., and Walecki M. Plausibility of Milankovitch Cycles in an Ultra Greenhouse World. November 2021. Geological Association of Canada-Mineralogical Association of Canada. London, Ontario, Canada. *Oral Presentation (In-Person)*.

Randazzo N., Kim S.-T., Stalport F., Rheinstäder M.C., Cottin H., and Coll P. Effect of Martian-like Radiation Conditions on Carbon and Oxygen Isotope Compositions of Carbonates. February 2021. Canadian Geophysical Union- Student Conference. Hamilton, Ontario, Canada. *Oral Presentation (Virtual)*.

Randazzo N. and Kim S.-T. Stable Isotopes of Carbonates: A Tool in the Search for Life? Advances in Earth Sciences Research Conference. March, 2019. Toronto, Ontario, Canada. *Poster Presentation (In-Person)*.

Thomas A., **Randazzo N.**, Torres- Kulik, Bentley M., Bardell G., and Thierrin C. Eliminating Space Debris: N.A.P.K.I.N. Vehicle & C.L.O.T.H. Act. Queen's Space Conference. February, 2019. Kingston, Ontario, Canada. *Oral Presentation (In-Person)*.

Randazzo N. and Kim S.-T. Stable Isotopes of Carbonates: A Tool in the Search for Life? Science of Early Life Conference. June, 2018. Hamilton, Ontario, Canada. *Poster Presentation (In-Person)*.

Randazzo N. and Kim S.-T. Resources for Future Generations (RFG) Conference June, 2018 Vancouver, British Columbia, Canada. *Poster Presentation (In-Person)*.

Randazzo N. The Coevolution of Life and Environment on Mars: An Ecosystem Perspective on the Robotic Exploration of Biosignatures. SAGANet. March, 2018. Presented Online: Hamilton, Ontario, Canada. *Oral Presentation of a paper by Nathalie Cabrol (In-Person)*.

Randazzo N., Kim S.- T., and El- Shenawy M.. Carbon and Oxygen Isotope Effects in Synthesized Carbonates at 25 °C. AGU Fall Meeting. December, 2016. San Francisco, California, USA *Poster Presentation (In-Person)*.

Kynaston D., Lee R., Kovacs S., **Randazzo N.**, and Islam A. Assessment of Petroleum Systems I Cooper Basin, Australia. AAPG Imperial Barrel Award Competition. March, 2015. Calgary, Alberta, Canada. *Oral Presentation (In-Person)*.

Randazzo N. and Kim S.- T. The Influence of Salinity of Morphology of Calcite Rafts- A New Salinity Indicator? NSERC- USRA Poster Session. November, 2014. Hamilton, Ontario, Canada. *Poster Presentation (In-Person)*.

Randazzo N. Measuring the Isotopic Compositions of Carbon- 13 and Oxygen- 18 in Synthesized Calcite Rafts under Various Conditions. McMaster Research Day. April, 2014. Hamilton, Ontario, Canada. *Poster Presentation (In-Person)*.

PATENTS

“Carbonic anhydrase- catalyzed isotope equilibrium between CO₂- H₂O for oxygen isotope analyses of aqueous samples”. U.S. Provisional Pat. Ser. No. 62/752064. Filed on Oct. 29, 2018.

OUTREACH

NASA Blog Author Sept 2023-Present
McMaster Origins Institute Dec 2021

Origins Expert Panelist

- Answered questions postulated by people from the USA and Canada regarding the origin of life on Earth, natural selection, exoplanets and habitability, and life on other worlds.

Invited Guest Scientist Oct 2021
CFMU 93.3 FM

Invited Guest Scientist July 2021
Planet B612 Podcast

McMaster School of Geography and Earth Sciences (SGES) Social Media Committee
Executive Social Media Student Representative May 2020- August 2022

- Promoted lecture series on departmental social media pages
- Personally organized departmental photo contest

McMaster Alumni Association April 2020

- Participated in “Ask a Scientist” Webinar regarding climate, weather, and natural disasters

McMaster School of Geography and Earth Sciences (SGES) Outreach Oct 2019- 2022

- Lectured and provided hands-on Earth and Environmental Science and Biology workshops to High School Students
- Judged for the 2020 Bay Area Science and Engineering Fair

McMaster School of Geography and Earth Sciences Fall Preview Oct 2017; 2018; 2019

- Promoted the departmental courses and opportunities to upcoming first year university students
- Handled and discussed natural samples to students

“May at Mac” Volunteer May 2015; 2017; 2018; 2019

- Promoted the departmental courses and opportunities to incoming first year university students

McMaster SGES Departmental Graduate Student Representative Sept 2015 -August 2016

- Attended faculty meetings & report relevant issues to the departmental committee

McMaster Museum Day

Feb 2015; 2016

- Handled and discussed natural samples to students

SERVICE

Review Committee Member for Vernon Press

2022-Present

Reviewing a book regarding Space, Philosophy, and Ethics before publication

Part-Time Mars 2020 Perseverance Rover Meeting Host

2022-Present

A reoccurring host for the Mars2020 Perseverance Rover Astrobiology/Geochemistry, Geologic Context, and Boulders Working Group meetings. I also participate in Returned Sample Science, Regolith, and Laboratory Working Group Meetings

McKay Award Judge

2023

2023 Meteoritical Society Conference

Dwornik Award Judge

2023

2023 Lunar and Planetary Science Conference

Journal Referee

2022

Journal of Geophysical Research Letters- Planets

School of Earth, Environment, and Society (SEES) Graduate Society

Founder and President

2021- 2022

- Created the first official university-wide club for Earth and Environmental Science and Geography students
- Organized virtual and in-person informal seminar series and local field trips
- Promoted both Academic and Social events for Graduate Students
- Assigned duties to interested Graduate Students

SEES Social Departmental Committee

Executive Social Committee Student Representative

2019- 2022

- Suggested and promoted events for science graduate students
- Personally organized departmental holiday party
- Hosted weekly “Koffee Klatch”
- Organized informal seminar series

Science Graduate Student Association (SciGSA)

School of Geography and Earth Sciences Representative

2019- 2021

- Suggested and helped to organize events for science graduate students
- Organized a Faculty of Science wide photo contest, scavenger hunt, and graduate STEAM events.

Bishop Ryan Catholic Secondary School

2012

- Assisted in various learning curricula, tutoring, and marking reports and exams

- Taught lectures and held exam review sessions

NON-CONFERENCE PRESENTATIONS

10+ Presentations for the Mars 2020 Perseverance Rover Team	July 2022- Present
7 Oral Presentations, McMaster Origins Institute Astrobiology Journal Club McMaster University, Hamilton, ON, Canada	Sept 2017–2022
8 Oral Presentations, School of Geography and Earth Sciences Informal Seminar Series McMaster University, Hamilton, ON, Canada	Sept 2017–2022

GRANTS/BURSARIES

Dr. Denis Shaw Memorial Award	2022
Walter Gibbons Memorial Travel Bursary	2022
Origins Institute Travel Award	2021
Origins Institute Travel Award	2019
Walter Gibbons Memorial Travel Bursary	2018
McMaster Centre for Climate Change Travel Grant	2018
Origins Institute Travel Award	2018
Walter Gibbons Memorial Travel Bursary	2016

SCHOLARSHIPS

D. Keith MacDonald Earth Sciences Scholarship	2022
Bev Bayus Graduate Scholarship	2020
McMaster Graduate Research Scholarship	2014- 2016; 2017- 2022
Joseph and Joanne Lee Ontario Graduate Scholarship	2019
Ontario Graduate Scholarship	2015- 2016; 2017- 2018; 2018- 2019
McMaster Graduate Student Achievement Scholarship	2015
The Charles Murray Ball Scholarships in Earth Sciences	2014- 2015
Natural Sciences and Engineering Research Council of Canada – Undergraduate Student Research Award (NSERC- USRA)	2014
Queen Elizabeth II Aiming for the Top Scholarship	2010- 2014
The Edwin Marvin Dalley Memorial Scholarships	2013
The University (Senate) Scholarships	2012
The McMaster Honour Award, Level 2	2010

HONOURS AND AWARDS

McMaster Graduate Student Association	
Keith Leppmann Teaching Assistant Excellence Award	2015
Festitalia Young Person of Distinction Award (Under 30)	2015

- Awarded to individuals deemed to be a positive role model and an inspiration to others based upon demonstrated leadership, hard work, and initiative within an academic and/or work setting

Dean's Honour List - McMaster University

2010 – 2014

- Every year for all four years of undergraduate degree

RELEVANT SKILLS

Proficiency in:

- Microsoft Office Suite
- RStudio
- Adobe Illustrator and Photoshop
- PHREEQC and Geochemist's Workbench

RELEVANT CERTIFICATIONS

Bear and Cougar Safety	2022
First Aid	2022
Radiation Safety Training	2017
WHMIS 2015	Renewed annually