Samuel Courville

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SCIENTIFIC GOAL

Advance our understanding of how planets evolved and search for habitable extra-terrestrial environments.

EDUCATION

PH.D. ARIZONA STATE UNIVERSITY School of Earth and Space Exploration

Tempe, Az | Exp May 2025

- Advisors: Dr. Joseph G. O'Rourke and Linda T. Elkins-Tanton
- Thesis Topic: Thermal and compositional evolution of outer solar system asteroids, moons, and dwarf planets.
- GPA: 4.0 / 4.0

M.S. COLORADO SCHOOL OF MINES Center for Wave Phenomena, Geophysics

Golden, CO | Dec 2019

- Advisor: Dr. Paul Sava
- Thesis Title: Toward Orbital Seismology: Theory for speckle noise reduction in laser Doppler vibrometer measurements on distant rough surfaces
- GPA: 4.0 / 4.0 – summa cum laude

B.S. COLORADO SCHOOL OF MINES Geophysical Engineering

Golden, CO | May 2017

- Senior Thesis: Autonomous roving exploration system, a Mars active source seismic acquisition concept
- Minor in Computer Science
- Dean's List (All Semesters)
  GPA: 4.0 / 4.0 – summa cum laude

RESEARCH EXPERIENCE

NASA JET PROPULSION LABORATORY | Intern

June 2022 - | Pasadena, CA

- Studying the dynamical habitability of mid-sized icy bodies in the outer solar system, like Ceres and the Uranian moons.
- Key result: since mid-sized icy bodies are the most prevalent candidate ocean worlds, they may represent the most common type of object in the universe that could support life.

PLANETARY SCIENCE INSTITUTE | Research Associate

May 2019 - | Lakewood, CO

- Bayesian inversion group leader for the "SWIM" team, a project to globally map subsurface water ice on Mars. See https://swim.psi.edu/

- Assisting the MRO SHARAD operations team by using numerical modeling to link geologic models to data returned from MRO's SHARAD instrument. See https://www.psi.edu/SHARAD
- Designing instrumentation and methodology for active source seismic surveying on the Moon and Mars via a concept called ARES, the autonomous roving exploration system.

CENTER FOR WAVE PHENOMENA | Research Assistant
August 2017 – Dec 2019 | Golden, CO

- Studyied the application of laser Doppler vibrometry to detect seismic signals remotely on asteroid and planetary surfaces from orbit.
- Research assistant to Dr. Paul Sava at the Colorado School of Mines
- Funded by NASA PICASSO grant

LUNAR AND PLANETARY INSTITUTE | Summer Intern
Summer 2017 | Houston, TX

- Determined the density of Schrodinger Basin's peak ring of mountains on the Moon using GRAIL gravity data
- Worked with planetary scientists at LPI and NASA's Johnson Space Center
- Selected as one of 14 summer interns from hundreds around the world

NASA'S PLANETARY GEOLOGY AND GEOPHYSICS UNDERGRADUATE RESEARCH PROGRAM | Summer Intern
Summer 2016 | Golden, CO

- Studied the thermal properties of 171 dune fields on Mars in search of water ice using thermal emission spectrometer data from the Mars Odyssey Mission
- Worked with scientists from the Planetary Science Institute and Southwest Research Institute
- Funded by NASA grant

UNDERGRADUATE RESEARCH FELLOWSHIP | App Developer
Spring 2016 - Spring 2017 | Golden, CO

- Began development on a virtual reality mobile app to aid in the viewing of 3D geophysical data
- Developed in Android Studio using Java and OpenGL
- Shared my knowledge with a junior undergraduate student who took over the project following my graduation

COLORADO SPACE GRANT CONSORTIUM DEMOSAT PROGRAM, PIKES PEAK COMMUNITY COLLEGE | Team Member
Spring 2014 | Colorado Springs, CO

- Worked on a team to test the effect of high altitude radiation on skin cells using a high altitude weather balloon
- Required the construction of a size limited module and sensors programmed using Arduino
- Participated while taking community college courses as a high school student

TEACHING EXPERIENCE

GUEST LECTURER | Fundamentals of Planetary Geology, GLG404 – Arizona State University

September 2024 | Tempe, AZ

Guest lectured on the fundamentals of asteroids, meteorites, and comets.

ADVISOR | Undergraduate student research – Arizona State University

Spring 2024 – present| Tempe, AZ

Project advisor for Elizabeth Higgens. Helping guide research to determine if magnetic field signatures could be recorded on Venus from atmospheric balloons.

TEACHING ASSISTANT | Geophysical Inversion – Colorado School of Mines

Spring 2019 & Fall 2019| Golden, CO

Teaching assistant to Dr. Paul Sava for a geophsyical inversion course, GPGN409. Responsibilities include: teaching class when Dr. Sava is away, holding office hours, tutoring students, creating assignments, and grading.

CO-ADVISOR | Jeffco Executive Internship Program – Planetary Science Institute

Summer 2019| Lakewood, CO

Co-advised Blake Maly and Daniel Havlat on Radar data analysis projects, which led to AGU abstract submissions.

TUTOR | Programming Concepts – Colorado School of Mines

Spring 2016 | Golden, CO

Tutored students for an introduction to programming class (C++): CSCI261

RESEARCH PROPOSALS

2020-2021	Awarded	SESE First Year Fellowship – Arizona State University Journey to a magnetized metal-silicate world? Predicting the plausible magnetization of the asteroid 16 Psyche.
2016-2017	Awarded	Undergraduate Research Fellowship – Colorado School of Mines Virtual reality geophysical data viewer for mobile phones

INVITED TALKS

September 2024	Psyche Fall Team Meeting	Ferrovolcanism on (16) Psyche
July 2024	Dawn Quarterly Science Meeting	Dynamic habitability of Ceres
October 2022	JPL AMA science lecture	Magnetization of carbonaceous asteroids
June 2021	UCLA Meteorite Gallery Lecture	Of Magnets and Meteorites: What magnetized meteorites tell us about the formation of asteroids
Feb 2020	Joint HiRISE/SHARAD team meeting	1D n-layer SHARAD forward modelling program

AWARDS AND HONORS

2022 Ninninger Student Travel Award – Arizona State University
2019 Career Development Award - Lunar and Planetary Institute.
2017 Outstanding Graduating Senior – Colorado School of Mines Geophysics
2017 Presenter Travel Grant – Colorado School of Mines Graduate Student Government
2015 Chevron Petrotechnical Support Scholarship
2012 Mayor's 100 teens, for community service and academic achievement – Colorado Springs, CO

PROFESSIONAL SERVICE

2024	Session chair	LPSC
2023	Session chair	LPSC
2023	External Reviewer	NASA ROSES review panel
2024	External Reviewer	UK Space Agency
2024	Reviewer	IEEE, Icarus
2023	Reviewer	JGR Planets, Science Advances
2022	Reviewer	The leading edge, Geophysical Research Letters
2020	Executive Secretary	NASA ROSES review panel

SOCIETIES

2018	National	Geological Society of America
2017	National	Society of Exploration Geophysicists
2016	top 12%ile	Tau Beta Pi Engineering Honor Society
2016	National	American Geophysical Union
2016	National	European Association of Geochemistry
2012	3.5 GPA+	Phi Theta Kappa Honor Society

WORKSHOPS/SEMINARS/FIELD EXPERIENCE

NETWORK FOR OCEAN WORLDS, 1ST ANNUAL RETREAT | Attendee

Oct 2022 | Wrigley Marine Science Center, Catalina Island, California

- Mixture of geologists, biologists, geophysicists, and geochemists gathered to assess the multidisciplinary challenge of how to identify and explore habitable environments on ocean words.
- Provided insight on the composition of icy world interiors.

OCEAN WORLD ANALOG FIELD SITE ASSESSMENT WORKSHOP | Attendee

Oct 2022 | Denver, Colorado

- Developed guidelines to assess the similarity of a field site on Earth to ocean worlds in the solar system
- Made recommendations for future analog field studies
- Wrote a white paper summarizing findings

YELLOWSTONE NATIONAL PARK FIELD WORK | Hot Spring Water Sampling

July 2021 & July 2023 | Yellowstone National Park, Wyoming

- Collected water samples from hot springs as part of the Group Exploring Organic Processes in Geochemisty (GEOPIG) from Arizona State University.
- Worked with a team of 10 graduate students on a month-long expedition to sample hot springs throughout Yellowstone national park
- Used water samples combined with biological, soil, and gas samples to assess the chemical energy available for life in Yellowstone hot springs.

PLANETARY SCIENCE SUMMER SEMINAR | Project Manager / Capture Lead

Aug 2019 | Jet Propulsion Laboratory in Pasadena, California

- Created a NASA New Frontiers class spacecraft mission concept for visiting the next interstellar object and answer the questions:
  - do other solar systems have the ingredients for life, and can they be transferred from one star system to another?
  - Do objects from other solar systems resemble objects in our solar system?
  - Can we determine what star system the object originated from?

- Voted to be the project-manager/capture-lead by the class of 18 students. Responsibilities included:
  - Presenting a 70 minute mock proposal pursuant to NASA's New Frontiers announcement of opportunity,
  - Managing and integrating each student's engineering subsystem task into a coherent spacecraft concept,
  - Working with the Principal Investigator to ensure our science payload answers our proposed science objectives.

WORKSHOP IN GEOLOGY AND GEOPHYSICS OF THE SOLAR SYSTEM | Attendee

Summer 2018 | Petnica, Serbia

- A multi-disciplinary workshop covering a wide range of topics related to the formation, structure and dynamics of the Solar System bodies
- Designed for PhD students
- Lectures conducted by planetary scientists from around the world

GEOPHYSICS FIELD CAMP – COLORADO SCHOOL OF MINES | Assistant Student Project Manager

Summer 2016 | Pagosa Springs, CO

- A four week field program designed to give hands on experience with all geophysical methods, focused on studying the geothermal system at Pagosa Springs, CO
- Was voted to be one of two project managers out of the class of 50+ students
- Oversaw the completion of a 200+ page report detailing the camps findings: https://geophysics.mines.edu/field-camp/

NOTABLE COURSEWORK

ARIZONA STATE UNIVERSITY

Special topics: Electron microscopy - SES598
• Final Project: Magnetic mineralogy of carbonaceous meteorites
Special topics: Life on icy moons - SES598
• Final Project: Estimating the oxidant flux in Europa's ocean to quantify available energy for life
Special topics: Astrostatistics - SES598
• Final Project: Planetary geochemical inverse problem using MCMC
Space Business and Entrepreneurship - SES598
• Final Project: HELM, the Human Equivalent Lunar Mapper, a commercial off the shelf camera and navigation computer for autonomous lunar rovers

Special topics: Origins of solar systems - AST598
• Final Project: Magnetization of carbonaceous meteorites

COLORADO SCHOOL OF MINES

Graduate

Space Resource Fundamentals - EGGN598
• Final Project: Asteroid Prospecteing Explorer (APEX) concept
Seismic Wavefield Imaging - GPGN658
• Final Project: Wavefield imaging with moving receivers
Laser Physics - PHGN480
• Final Project: Designing a long range laser vibrometer
Sparse Signal Processing - EENG509
• Final Project: Compressive sensing of seismic data
Parallel Computing - CSCI563
• Final Project: Parallelized wave equation solver

Undergraduate

Overview of Martian Geology and Rock Properties
• Self designed course, independent study
Advanced Electromagnetic Methods - GPGN420
• Projects: Numerical modeling of EM surveys
Advanced Gravity and Magnetic methods - GPGN411
• Projects: Numerical modeling of gravity and magnetics
Cryptograhy - CSCI474
• Final Project: Quantum cryptography
Digital Signal Processing - GPGN404
Algorithms - CSCI406
Geodynamics and Geology - GPGN471

SKILLS

PROGRAMMING & SOFTWARE

- Python
- Matlab
- LaTeX
- C and C++
- Java
- EQ3/6 (geochemical modeling)
- Android Studio
- OpenGL
- MySQL
- ArcGIS
- Linux (command line / bash)

EQUIPMENT FAMILIARITY

- EM sounding instruments
- Ground penetrating radar
- Seismometers and geophones
- Gravimeters
- Magnetometers
- Laser optics
- Laser Doppler vibrometer
- Differential GPS (DGPS)
- Oscilloscopes
- Calorimeters
- Standard chemistry lab equipment
- Scanning and transmission electron microscopy

CERTIFICATIONS

- Private Pilot License
- PADI open water diver
- Wilderness first aid

FIRST-AUTHOR PUBLICATIONS

References

Courville, Samuel W., Julie C. Castillo-Rogez et al. (2024). "Core metamorphism controls dynamical habitability of mid-sized ocean worlds - the case of Ceres". In: Science Advances, in review.

Courville, Samuel W, Julie C Castillo-Rogez et al. (2023). "Timing and Abundance of Clathrate Formation Control Ocean Evolution in Outer Solar System Bodies: Challenges of Maintaining a Thick Ocean within Pluto". In: The Planetary Science Journal 4 (9), p. 179. issn: 2632-3338. doi: 10.3847/PSJ/acf377. url: https://dx.doi.org/10.3847/PSJ/acf377.

Courville, Samuel W, Joseph G O'Rourke et al. (2022). "Acquisition and Preservation of Remanent Magnetization in Carbonaceous Asteroids". In: Nature Astronomy 6 (12), pp. 1387–1397. issn: 2397-3366. doi: 10.1038/s41550-022-01802-z. url: https://doi.org/10.1038/s41550-022-01802-z.

Courville, Samuel W., Matthew R. Perry and Nathaniel E. Putzig (2021). "Lower Bounds on the Thickness and Dust Content of Layers within the North Polar Layered Deposits of Mars from Radar Forward Modeling". In: The Planetary Science Journal 2.1, p. 28. doi: 10.3847/PSJ/abda50. url: https://dx.doi.org/10.3847/PSJ/abda50.

Courville, S.W. and P.C. Sava (2020). "Speckle noise attenuation in orbital laser vibrometer seismology". In: Acta Astronautica 172. issn: 00945765. doi: 10.1016/j.actaastro.2020.03.016.

Courville, Samuel W., Carver J. Bierson et al. (In prep). "On the plausibility of recording remanent magnetization in ferrovolcanic intrusions in the asteroid (16) Psyche". In: Manuscript available upon request.

Courville, Samuel W., Nathaniel Putzig et al. (In prep). "Subsurface Water Ice Mapping on Mars: A Bayesian Approach". In: Manuscript available upon request.

COAUTHOR PUBLICATIONS

References

Bierson, Carver J. et al. (2024). "(16) Psyche's different possible formation scenarios and internal structures: Current constraints and expected mission tests". In: JGR Planets, in revision.

Castillo-Rogez, Julie C. et al. (2024). "Chapter 27: Role of Hydrothermal Processes in the Carbon Cycle of Ocean Worlds". In: AGU books, in review.

Domingue, Deborah, John Weirich, Frank Chuang, Samuel Courville et al. (2024). "Photometric Properties within the Reiner Gamma Swirl: Constraining Formation Mechanisms". In: The Planetary Science Journal 5 (7), p. 161. issn: 2632-3338. doi: 10.3847/PSJ/ad2179. url: https://dx.doi.org/10.3847/PSJ/ad2179.

Stern, Jennifer C. et al. (2024). "A Comprehensive Framework for Assessing Terrestrial Analogue Field Sites for Ocean Worlds". In: JGR Planets, in review.

Domingue, Deborah, John Weirich, Frank Chuang, Amanda Sickafoose et al. (2023). "Spectrophotometric and Topographic Correlations within the Mare Ingenii Swirl Region: Evidence

for a Highly Mobile Lunar Regolith". In: The Planetary Science Journal 4 (12), p. 240. issn: 2632-3338. doi: 10.3847/PSJ/ace433. url: https://dx.doi.org/10.3847/PSJ/ace433.

Elkins-Tanton, Linda T et al. (2022). "Distinguishing the Origin of Asteroid (16) Psyche". In: Space Science Reviews 218 (3), p. 17. issn: 1572-9672. doi: 10.1007/s11214-022-00880-9. url: https://doi.org/10.1007/s11214-022-00880-9.

Bierson, C. J. et al. (2021). "Strong MARSIS Radar Reflections From the Base of Martian South Polar Cap May Be Due to Conductive Ice or Minerals". In: Geophysical Research Letters 48.13. e2021GL093880 2021GL093880, e2021GL093880. doi: https://doi.org/10.1029/2021GL093880.

Moore, K. et al. (2021). "Bridge to the stars: A mission concept to an interstellar object". In: Planetary and Space Science 197. issn: 00320633. doi: 10.1016/j.pss.2020.105137.

WHITE PAPERS, BOOKS, ETC.

References

Putzig, Nathaniel E et al. (2023). "Ice resource mapping on Mars". In: Handbook of space resources. Springer, pp. 583–616.

Bramson, Ali, Chimira Andres, Jonathan Bapst, Patricio Becerra, Samuel W Courville et al. (2021). "Mid-latitude ice on Mars: A science target for planetary climate histories and an exploration target for in situ resources". In: Bulletin of the American Astronomical Society 53.4, p. 115.

Bramson, Ali, Jennifer Heldmann et al. (2021). "Underground Ice on Mars: Characterization Activities, Potential as an In Situ Resource, and Possible Destination for Human Explorers". In: doi: 10.1002/essoar.10509230.1. url: http://dx.doi.org/10.1002/essoar.10509230.1.

Courville, Samuel et al. (2021). "Developing Active Source Seismology for Planetary Science". In: Bulletin of the American Astronomical Society. Vol. 53, p. 398. doi: 10.3847/25c2cfeb.ef2d617d.

Donitz, Benjamin et al. (2021). "New Frontiers Mission Concept Study to Explore Oort Cloud Comets". In: Bulletin of the American Astronomical Society. Vol. 53, p. 344. doi: 10.3847/25c2cfeb.d7cfcc43.

Moore, Kimberly et al. (2021). "Rapid Response Missions to Explore Fast, High-Value Targets such as Interstellar Objects and Long Period Comets". In: Bulletin of the American Astronomical Society. Vol. 53, p. 481. doi: 10.3847/25c2cfeb.1d58e5af.

Courville, Samuel W (2019). Toward orbital seismology: theory for speckle noise reduction in laser doppler vibrometer measurements on distant rough surfaces. Thesis, Colorado School of Mines.

FIRST-AUTHOR CONFERENCE ABSTRACTS

References

Courville, S. W., J. C. Castillo-Rogez and M. Melwani Daswani (2024a). "Dynamic Habitability of Ceres: Accreting Cometary Material Produces a Less-Habitable, Shorter-Lived Ocean". In: AbSciCon. Vol. 501-05.

Courville, S. W., J. C. Castillo-Rogez and M. Melwani Daswani (2024b). "Dynamic Habitability of Ceres: Accreting Cometary Material Produces a Less-Habitable, Shorter-Lived Ocean". In: 55th Lunar and Planetary Science Conference. Vol. 3040. LPI Contributions, p. 1830.

Courville, S. W., J. G. O'Rourke, C. J. Bierson et al. (2024). "The Magnetic Field Signature of a Ferrovolcanic (16) Psyche". In: 55th Lunar and Planetary Science Conference. Vol. 3040. LPI Contributions, p. 1827.

Courville, S. W., J. C. Castillo-Rogez, M. Melwani Daswani et al. (2023). "Timing and Abundance of Clathrate Formation Within Outer Solar System Bodies". In: 54th Lunar and Planetary Science Conference. Vol. 2806. LPI Contributions, p. 1867.

Courville, S. W., J. C. Castillo-Rogez, B. P. Weiss et al. (2023). "Chemical Remanent Magnetization in the Uranian Satellites from Differentiation within the Uranian Magnetosphere". In: Uranus Flagship: Investigations and Instruments for Cross-Discipline Science Workshop. Vol. 2808. LPI Contributions, p. 8043.

Courville, S. W., J. G. O'Rourke, J. C. Castillo-Rogez, R. R. Fu et al. (2022). "Magnetic Field Measurements at 10 Hygiea and 24 Themis Could Constrain Models of Their Formation and Evolution". In: 53rd Lunar and Planetary Science Conference. Vol. 2678. LPI Contributions, p. 1795.

Courville, Samuel Weston et al. (2022). "Did Clathrate Layers Insulate Primordial Oceans in the Outer Solar System?" In: AGU Fall Meeting Abstracts. Vol. 2022, P55G–1655.

Courville, S. W., J. G. O'Rourke, J. C. Castillo-Rogez, R. Oran et al. (2021). "Magnetization of Large C-Type Asteroids: A Detectable Consequence of Pebble Accretion?" In: 52nd Lunar and Planetary Science Conference. Lunar and Planetary Science Conference, p. 2355.

Courville, S. W., K. Moore et al. (2020). "Bridge to the Stars: A Mission Concept to an Interstellar Object". In: 51st Annual Lunar and Planetary Science Conference. Lunar and Planetary Science Conference, p. 1766.

Courville, S. W., N. E. Putzig, P. C. Sava, T. D. Mikesell et al. (2020). "ARES and Artemis: The Autonomous Roving Exploration System for Active Source Seismology on the Moon". In: Lunar Surface Science Workshop. Vol. 2241. LPI Contributions, p. 5055.

Courville, S. W., N. E. Putzig, P. C. Sava, M. R. Perry and T. D. Mikesell (2020). "ARES: The Autonomous Roving Exploration System for Active Source Seismology on the Moon and Mars". In: 51st Annual Lunar and Planetary Science Conference. Lunar and Planetary Science Conference, p. 2623.

Courville, S. W., N. E. Putzig, P. C. Sava and M. R. Perry (2019). "Preparing to image the Martian subsurface: planetary active-source seismology vs. radar, and the ARES concept". In: AGU Fall Meeting Abstracts. Vol. 2019, P44B–05.

Courville, S. W. and P. Sava (2019). "Speckle Noise in Orbital Laser Doppler Vibrometry". In: 50th Annual Lunar and Planetary Science Conference. Lunar and Planetary Science Conference, p. 1720.

Courville, S. W., P. B. James and G. Y. Kramer (2018). "Shallow Subsurface Investigations of Schrodinger Basin's Peak Ring Using Grail Gravity Field". In: 49th Annual Lunar and Planetary Science Conference. Lunar and Planetary Science Conference, p. 1567.

Courville, SW et al. (2018). "ARES: An Autonomous Roving Exploration System for Planetary Active-Source Seismic Data Acquisition". In: AGU Fall Meeting Abstracts. Vol. 2018, P54D–02.

Courville, S. W., N. E. Putzig, R. Hoover et al. (2016). "Thermophysical Variation within Dune Fields in the Southern Hemisphere of Mars". In: AGU Fall Meeting Abstracts, P21A–2073.

CO-AUTHOR CONFERENCE ABSTRACTS

References

Castillo, Julie C, Maitrayee Bose et al. (2024). "A Sample Return Mission from Ceres' Evaporites to Test Major Evolutionary Processes and Habitability Potential of Icy Moons and Dwarf Planets". In: AGU24.

Castillo, Julie C, Mohit Melwani Daswani and Samuel W Courville (2024). "Consequences of Large Abundances of Organic Matter on the Habitability Potential of Icy Moons and Dwarf Planets". In: 2024 Astrobiology Science Conference. AGU.

Castillo, Julie C. et al. (2023). "Internal Evolution and Current State of Enceladus Accreted from Cometary Material". In: AGU Fall Meeting Abstracts. Vol. 2023, P43D–3313.

Castillo-Rogez, J. C., S. W. Courville et al. (2023). "Geophysical Implications of Carbon Cycling in Ocean Worlds". In: 54th Lunar and Planetary Science Conference. Vol. 2806. LPI Contributions, p. 1779.

Castillo-Rogez, J. C., M. Melwani Daswani et al. (2023). "Dynamical Habitability Driven by Volatile Cycling in Icy Moons and Dwarf Planets". In: Brines Across the Solar System: Ancient and Future Brines. Vol. 2689. LPI Contributions, p. 2015.

Castillo-Rogez, J. C., B. P. Weiss et al. (2023). "Preservation of Deep Oceans in the Uranian Moons, Predicted Compositions, and Physical Characteristics". In: Uranus Flagship: Investigations and Instruments for Cross-Discipline Science Workshop. Vol. 2808. LPI Contributions, p. 8014.

Castillo-Rogez, Julie et al. (2023). "Internal Evolution and Current State of Enceladus Accreted from Cometary Material". In: AAS/Division for Planetary Sciences Meeting Abstracts. Vol. 55. AAS/Division for Planetary Sciences Meeting Abstracts, p. 313.02.

Putzig, N. E., G. A. Morgan, M. R. Perry et al. (2023). "Lunar Investigation Using Selenophysics (LINUS) to Assess the Age of the Ina Irregular Mare Patch". In: 54th Lunar and Planetary Science Conference. Vol. 2806. LPI Contributions, p. 2946.

Bierson, Carver et al. (2021). "Conductivity Contrasts as the Cause for Strong Radar Reflections from the Base of Martian South Polar Cap". In: AGU Fall Meeting Abstracts. Vol. 2021, P32D–07.

Bramson, Ali, Chimira Andres, Jonathan Bapst, Patricio Becerra, Samuel W. Courville et al. (2021). "Mid-Latitude Ice on Mars: A Science Target for Planetary Climate Histories and an Exploration Target for In Situ Resources". In: Bulletin of the American Astronomical Society. Vol. 53, p. 115. doi: 10.3847/25c2cfeb.cc90422d.

Morgan, Gareth et al. (2021). "Defining the Equatorial Extent of Subsurface Ice on Mars through Global Geomorphic Mapping". In: AGU Fall Meeting Abstracts. Vol. 2021, EP23C–04.

Putzig, Nathaniel et al. (2021). “Mapping Ice Resources on Mars”. In: AGU Fall Meeting Abstracts. Vol. 2021, P23B–07.

Bain, Z. M. et al. (2020). “Subsurface Water Ice Mapping (SWIM) on Mars: Focused Study Regions”. In: 51st Annual Lunar and Planetary Science Conference. Lunar and Planetary Science Conference, p. 2679.

Morgan, G. A. et al. (2020). “Subsurface Water Ice Mapping (Swim) Project: Characterizing the Inventory of Nonpolar Ice on Mars”. In: AGU Fall Meeting Abstracts. Vol. 2020, P055–0005.

Perry, M. R., S. W. Courville, N. E. Putzig et al. (2020). “Subsurface Water Ice Mapping (SWIM) on Mars: Overview and Methods”. In: 51st Annual Lunar and Planetary Science Conference. Lunar and Planetary Science Conference, p. 2645.

Putzig, N. E., G. A. Morgan, Z. M. Bain, D. M. H. Baker, A. M. Bramson, S. W. Courville, C. M. Dundas, R. H. Hoover et al. (2020). “Subsurface Water Ice Mapping (SWIM) on Mars to Support In Situ Resource Utilization”. In: 51st Annual Lunar and Planetary Science Conference. Lunar and Planetary Science Conference, p. 2648.

Putzig, N. E., G. A. Morgan, Z. M. Bain, D. M. H. Baker, A. M. Bramson, S. W. Courville, C. M. Dundas, R. Hoover et al. (2020). “Subsurface Water Ice Mapping (SWIM) on Mars to Characterize In Situ Resources”. In: AGU Fall Meeting Abstracts. Vol. 2020, P057–06.

Sizemore, H. G. et al. (2020). “Shallow Ice Detection on Mars: Integration of Thermal and Neutron Datasets into the Mars Subsurface Water Ice Mapping (SWIM) Project”. In: AGU Fall Meeting Abstracts. Vol. 2020, P055–0004.

Amos, C. C. et al. (2019). “Fiber Optic Geophones for Use in Planetary Subsurface Exploration”. In: 50th Annual Lunar and Planetary Science Conference. Lunar and Planetary Science Conference, p. 2623.

Havlat, D. et al. (2019). “Martian Dust Cover May Permit More Detailed Subsurface Discovery”. In: AGU Fall Meeting Abstracts. Vol. 2019, P41C–3459.

Maly, B. I. et al. (2019). “The Northern Terminus of Ground-Ice Detections in Arcadia Planitia on Mars May Be Attributable to Surface Effects”. In: AGU Fall Meeting Abstracts. Vol. 2019, P41C–3465.

Perry, M. R., S. W. Courville, Z. M. Bain et al. (2019). “Signatures of Intact Lava Tubes on the Western Flank of Alba Mons in Mars Reconnaissance Orbiter Shallow Radar (SHARAD) Data”. In: AGU Fall Meeting Abstracts. Vol. 2019, P43B–07.

Hoover, R. H. et al. (2018). “Examining Thermal Inertia of Layered Ejecta Craters and Southern Hemisphere Dunes on Mars”. In: 49th Annual Lunar and Planetary Science Conference. Lunar and Planetary Science Conference, p. 1811.

Hoover, Rachael H, Nathaniel E Putzig et al. (2017). “Thermophysical Characterization of Southern Hemisphere Dunes On Mars”. In: Fifth International Planetary Dunes Workshop.

Hoover, Rachael H, Stuart J Robbins et al. (2017). “Analysis of thermal inertia to understand the near-surface properties of layered ejecta craters and southern hemisphere dunes on Mars”. In: 48th Annual Lunar and Planetary Science Conference.