

Virginia Claire Gulick, Ph.D.
SETI Institute Senior Research Scientist
Science Council member; chair of the Remote Scientists
vgulick@seti.org

EDUCATION:

PhD in Geosciences, Planetary Sciences joint program; Hydrology minor; Univ. of AZ
Thesis: “Magmatic Intrusions and Hydrothermal Systems on Mars”
(Grad advisor: Victor R. Baker; co-advisor: Robert G. Strom)

MS in Geosciences, Planetary Sciences joint program, Univ. of Arizona
Thesis: “Origin and Evolution of Valleys on the Martian Volcanoes: The Hawaiian Analog”
(Grad advisor: Victor R. Baker; co-advisor: Robert G. Strom)

BA in Geosciences, minors in Geography and German Rutgers University-New Brunswick
Thesis: “The Coral Sea Sediment Study” (Advisors: Gail S. Ashley (Rutgers), Floyd W. McCoy
(Dir. New Core Lab, Lamont-Doherty))

PROFESSIONAL POSITIONS:

Research Professor, Lunar and Planetary Lab, University of AZ	August 2021- present
SETI Institute Chair of the Remote Scientists group	2024-present
SETI Institute Chair of the Planetary Exploration group	2015– 2024
SETI Institute Science Council member	2015– present
SETI Inst. Senior Research Scientist (grantee/contractor at NASA Ames)	2011– present
SETI Inst. Research Scientist (grantee/contractor at NASA Ames)	1996 – 2011
NRC Postdoctoral Research Fellow, NASA Ames	1993 – 1996
NASA’s Planetary Geology/Geophysics Grad. Research Fellow, UArizona	1990 – 1993
Grad. Research Assistant/Associate, UArizona, Geosciences	1984 – 1990
NASA’s Planetary Geology/Geophysics Undergrad Res. Fellow, U. AZ.	Summer 1983
Undergrad. Research Assist., New Core Lab, Lamont-Doherty Geol. Obs.	1982– 1983
Undergrad. Research Assistant, Geosciences, Rutgers University	Summer 1982

RESEARCH INTERESTS:

Fluvial and hydrothermal studies on Mars and Earth, including 3-D Digital Terrain Model (DTM) morphological and morphometric comparative studies of gully, channel, and valley systems
Paleo-environmental and paleoclimatic change studies on Earth and Mars
Raman spectroscopy
Building a Raman spectral and image database of over 2000 rocks, minerals, and sediments from our sample library (that we have been collecting for the past 20 years) to support planetary surface missions to Mars, the Moon, and other rocky solar system bodies. These samples contain many Mars and lunar analog type samples collected from various terrestrial analog sites and elsewhere. Many of these samples also contain biosignatures.
Developing automated spectral and image classifiers and reasoning layers for planetary exploration and terrestrial applications using AI and machine learning techniques
Geomorphologic, hydrologic, hydrogeologic, and terrestrial analog studies

Automated science analysis tool development for online use
Collaborative interdisciplinary studies
Mentoring and working collaboratively with junior and senior undergrads, graduate students, and post-doctoral researchers
Collaborating with colleagues in several science and engineering disciplines

PLANETARY MISSION PARTICIPATION:

NASA Mars Science Lab Landing Site Selection Steering group member	2007 – 2010
NASA MSL Landing site selection website (Marsoweb) Science Lead	2007 – 2010
NASA MRO HiRISE Science Co-I Fluvial/Hydrothermal Science Leads	2001 – present
NASA MRO HiRISE HiWeb Image Suggestion Web Development Lead	2001 – 2015
NASA MRO HiRISE Education and Public Outreach Lead	2001 – 2010
NASA MER Landing Site Selection Steering Group Member	2001 – 2004
NASA MER Landing Site Selection Workshop Organizer	2000 – 2004
NASA MER L.S. Selection Website (Marsoweb) Science Lead	2000 – 2004
NASA Mars Surveyor Landing Site Selection Steering Group member	1998 – 2000
NASA Mars Surveyor Landing Site Selection Workshop Organizer	1998 – 2000
NASA Mars Surveyor Landing Site Selection MS Marsoweb lead	1998 – 2000
NASA Magellan (Venus) Mission team, Radar Investigation group	1990 – 1993

HONORS AND AWARDS:

Awarded **the *Frontiers in Astronomy and Space Sciences 2023* Editor's choice award in Astrobiology for the paper entitled:** “Surface Morphologies in a Mars-Analog Ca-Sulfate Salar, High Andes, Northern Chile.” The award citation reads, "[Hinman et al. \(2022\)](#): For the exquisitely detailed description of a field study in a Mars analog that records a unique history of hydrological changes, reflected in geomorphological and geochemical transitions, and proposing that these transitions should be used to better understand the global changes that occurred on Mars when liquid water disappeared from its surface.”

NASA Group Achievement Award: MRO HiRISE Science Team	2011
Certificate of Appreciation for Outstanding Contribution Towards the Success of the NASA Ames Exploration Center	2004
NASA JSC Group Achievement Award: Astronaut-Rover Interaction Remote Field Test Project Team	1999
NASA Ames-JSC Certificate of Appreciation in Recognition of Dedication During Astronaut-Rover Interaction (ASRO) Field Experiment	1999
Certificate of Recognition from Office of External Affairs, Ames Research Center, for Providing Valuable Contributions to the Mars Virtual Exploration CD-ROM and Curriculum Supplement	1998
NASA-appointed member of the Mars Landing Site Selection Steering Group	1998 – 2010
NASA-appointed science consultant for the Mars Surveyor Geodesy & Cartography working group	1998 – 1999

Award for Contributions to the Atacama Desert Trek Field Experiment, The Robotics Institute, Carnegie Mellon University Invited formal debate: Was the Early Martian Climate Warm or Cold? 1997 Conference on Early Mars, LPI, Houston, Debaters: Gulick (Cold) vs. Jakosky (Warm)	1997
Certificate of Achievement for Tireless Enthusiasm, Dedication, and Hard Work in the NASA Ames Space Sciences Division	1996

COMMUNITY ACTIVITIES:

Reviewer of several journal papers for: Icarus, PSS, JGR-Planets, GSL, Astrobiology, American Mineralogy, Nature, etc.

Co-organizer of a special topical session for Geological Society of America Meeting, October 19-22, 2025, San Antonio, Texas. **“Philosophy of Extreme Events and Landscape Evolution on Earth and Other Planets: Thinking Geologically in the Spirit of Victor Baker”**.

Organized and chaired the LPSC Oral session on Mars Paleohydrology, along with both in-person and virtual poster sessions on Mars Paleohydrology and Geomorphology, 3/13 - 3/14/2023

Member, LPSC Program and Organizing Committee,	1/17 – 1/19/2023
Member, LPSC Program and Organizing Committee,	1/24-1/27/2022

Organizer, MRO HiRISE team meeting at NASA Ames and field trip to the Pinnacles National Park. https://docs.google.com/document/d/1j_Q2bqFHf9b5hL_0boxzZqU5i6LOBzjh7QTGIVEYQbc/edit#heading=h.iszj2sdy29zp	9/9– 11/2019
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Co-organizer, Geological Society of America’s Rocky Mountain Section Session and Fieldtrip on Mega-floods, Paleohydrology, and Fluvial Processes on Earth and Beyond: In Recognition of the Scientific Contributions of Victor R. Baker, May 15-19, 2016.	2016
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Co-organizer, NASA’s Workshop on Martian Gullies: Theories and Tests, LPI Houston	2008
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Co-convener, New Developments in the Study of Fluvial Systems on Mars session, AGU Fall meeting	2008
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NASA Panel proposal review member or sub panel chief on numerous MDAP, MFRP, PGG, PDART, and Mars Technology Reviews	2000-2015
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Organizer, First Landing Site Workshop for the 2003 Mars Exploration Rovers, NASA Ames Research Center, January 24-25, 2001.	2001
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Co-Convener, NASA’s Volcano/Ice Interaction on Earth and Mars Conference and field trips, Reykjavík, Iceland, August 2000, University of Reykjavík Co-Convener, abstract volume preparation and website development	2000
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Organizer, Mars Surveyor Landing Site Selection Workshop (SUNY-Buffalo) abstract volume preparer/editor and website w/ abstracts & presentations	1999
NASA-appointed science consultant for the Mars Surveyor Geodesy & Cartography working group	1998–1999
Organizer, NASA Ames Mars Surveyor Landing Site Selection Workshop abstract volume preparer/editor and website w/ abstracts & presentations	1998
Co-organizer, Mars 2005 Sample Return Workshop, NASA Ames, 3/25-25/1997	1997
Invited formal debate: Was the Early Martian Climate Warm or Cold? Conference on Early Mars, LPI, Houston	1997

University of Arizona Committee Activities:

COS/LPL liaison with the Honors college	1/2026-present
ORP Chair of Career-Track Advancement Committee. 5-year term starts	July 2025.
ORP/Research, Innovation and Impact's (RII) Faculty Assembly Committee,	1/2023 – present.
LPL/PTYs Graduate Curriculum committee member,	8/2022 - present.
COS Career Track Promotion and Review Committee member,	8/2022 – present.
RII Promotion Standing Committee,	8/2022 – present.
LPL/PTYs Graduate Admissions and Advising Committee (GAAC) member,	8/2021 – present
LPL/PTYs New undergraduate major in Planetary Geosciences; joint PTYS/GEOS planning committee member,	8/2021 – present;
Co-lead of the Planetary Geosciences major	2025-present

COURSES TAUGHT:

Career Preparation & Scientific Research for Planetary Geoscience undergrad majors (PTYs 395B) Univ. of AZ	Fall 2025, 2026
Planetary Surface Processes Seminar (PTYs 596A) Univ. of AZ	Spring 2023
The Planets (Astronomy 105G) NMSU	Spring 1997
Planetary Exploration (Astronomy 330G) NMSU	Spring 1998

ADVISING CURRENT /RECENT STUDENTS:

Eric Langstroth: UA Planetary Geoscience undergrad major; research advisor
Rowan Huang: UA LPL 5th year PHD student; research advisor
Orion Hon: UA LPL 5th year PHD student: academic advisor
Dalia Flor Rueda Portillo: UA Hydrology and Atmospheric Sciences Masters student;
research/thesis advisor; graduated Fall 2025
Reed Spurling: UA Aerospace Engineering; PTYS minor; Undergrad; research advisor;
graduated May 2025.
Roy Naor: PHD student, Geosciences, Weizmann Institute, Rehovot, Israel; research advisor;
graduated June 2023
Lin Ji: PhD student, HAS, Univ. of AZ, PhD committee member; graduated May 2024

SETI INSTITUTE SUMMER REU & STAR STUDENTS:

Debra Hernandez	2013
Sarah Bass Ortega (SETI Inst. Stem Researcher and Teacher intern (STAR))	2014
Luis Valenzuela	2014
Paige Morkner	2015
Sean Corrigan	2016
Khanh Luu	2017
Teresa Langenkamp	2018
Rowan Huang	2019
Emma Rogers	2020
Maci Harrell	2021
Reed Spurling	2022
Gisele Tjan	2024
Jordan Baden	2026

NRC/NPP POST-DOCTORAL FELLOWS:

Dr. Mary Urquhart (Associate Professor, Science/Math Education, UT-Dallas)	1999 – 2002
Dr. Alexandra Davatzes (Associate Professor, Earth and Environmental Science, Temple University)	2008 – 2010
Dr. J. Alexis Palmero Rodriguez (senior NPP postdoc; Senior Scientist, Planetary Sciences Institute)	2013 – 2015
Dr. Henrik Hargitai (senior NPP postdoc; Associate Professor, Eötvös Loránd University, Budapest)	2015 – 2017

GRADUATE RESEARCH ASSISTANTS/INTERNS:

Dr. Susan Lederer (PhD astronomy NMSU; now at NASA JSC)	Summer 1994
Robert L. Morris (MS in EE NMSU; now at SETI Institute)	1998 – 2003
Dr. Mark Ruzon (PhD Computer Sciences Stanford, now at Google, Inc.)	1998 – 2001
Dr. Esfandiar Bandari (PhD in C.S., CMU, MBA Stanford; now CEO/founder of Textnomics, Inc.)	1999 – 2000
Dr. Xiaojin Shi (PhD student in C.S.- UC Santa Cruz, now at Apple, Inc.)	2003 – 2004
Shawn Hart (B.S., M.S. Geosciences, UCSC; Now a web designer/developer at ENGIN Creative)	2003 – 2010
Sascha Ishikawa (C.S. Engineer at UCSC, now research software engineer at RAND Corp.)	2003 – 2013
Dr. Kathrine Auld (Univ. of AR geology; now Science Dept. Chair, NW AR Community College)	Spring 2010
Patrick Freeman (M.S. Physics, UCSC; Particle Physics PhD student at Univ. of Birmingham, UK)	2012– 2017
Genesis Berlanga (PhD student in Earth & Planetary Sciences at UCSC)	2017– 2018

Natalie Glines (PhD. Student at UCSC and working with me at SETI Inst.)	2013 – present
Dr. Tim Johnsen (NASA Intern; SETI Inst. R.A.; UA; PhD UC-Irvine; 6/2026)	2015-present
Rowan Huang (LPL PHD Graduate Student)	2021-present
Dalia Portillo (M.S. Hydrology, University of Arizona)	Spring 2022-present

UNDERGRADUATE RESEARCH ASSISTANTS/INTERNS:

Dr. Kevin Hand (Dartmouth Physics undergrad., Physics & Mech. Eng., Stanford, now at JPL)	1999 – 2000
Alicia Horton (B.S. Geosciences UC-Santa Barbara)	2002 – 2003
Addison Huegel (BA Physics, UC- Berkeley; now Principal at Block Group)	2003 – 2004
Vickie Siegel (Geosciences grad student UCSC, now Field Ops Director at Stone Aerospace)	2003 – 2004
Carly Narlesky (B.S. Environmental Engineering, MIT; now at MBK Engineers, Sacramento)	2012 – 2014
Debra Hernandez (B.S. and M.S., Cal Poly Geology; now Geologist at Stantec)	2013 – 2014
Sarah Bass Ortega (SETI Inst. Stem Researcher and Teacher intern (STAR) (SJSU Amador high school math teacher 2014-present))	Summer 2014
Luis Valenzuela (B.S.EE CalPoly); Currently PhD student in EE at UCSB	2014 – 2015
Jason Angell (B.S. Physics, NYU; Apple, Inc.)	2015 – 2016
Sean Corrigan (B.S. Astrogeophysics, Colgate Univ.; M.S. Earth & Environmental Sciences, Wesleyan Univ.)	2016 – 2017
Paige Morkner (B.S. Geology CalPoly, M.S. Geology at W. WA Univ., now Geologist at Leidos)	2015 – 2017
Dr. Tyler Paladino (B.S. UCSC Earth Science; now PhD student, Geology at ID State U.)	2017 – 2018
Khanh Luu (CalPoly Geoscience)	Summer 2017
Richard Nelson (UCSC Earth Science; now CA State Water Resources Control Board)	Summer 2017
Saira Hamid (GA State U. Geosciences, now Ph.D. Student at ASU)	2017 – 2018
Teresa Langenkamp (Miami Univ. Geology, now Ph.D. Student at CO State University)	2018 – 2019
Rowan Huang (Geosciences, BYU; now LPL PhD grad student at U. AZ)	2018 – present
Emma Rogers (Geosciences, Purdue U.; now PhD student at Dartmouth)	Summer 2020
Tim Johnsen (B.S. Physics, UC Irvine, M.S. Data Analytics, SJSU; Now PhD student at UC-Irvine)	2015 – present
Natalie Glines (B.S. Astronomy and Geology, Mt Holyoke; now PhD student at UCSC)	2013 – present
Maci Harrell (Earth and Atmospheric Sciences, GA Tech)	Summer 2021
Reed Spurling (Aerospace Engineer, PTYS minor, Univ. of AZ)	Fall 2021- Spring 2025

High School Interns:

Laura Smith (Los Gatos high school intern; UCLA geology) Summer 1994
Evan Coleman (H.S. intern; Currently a PhD student in Physics, Summer 2013
Stanford, NSF Fellow)
Anuj Desai (B.S., Engineering Mathematics and Statistics, UC Berkeley; Summer 2014
now working at Microsoft AI)

SUMMARY OF PUBLICATIONS:

PEER-REVIEWED JOURNAL and BOOK CHAPTER PUBLICATIONS:

Gulick, Virginia C., Deardorff, Glenn, and Angell, Jason. HiRISE Image Suggestion Facility: HiWeb and HiMap, (in prep.).

Gulick Virginia C. and Glines, Natalie H. Gully Formation on the Central Peak of Lyot Crater: Implications for a Late Paleo Microclimate. (in prep.).

Gulick Virginia C. and Glines, Natalie H., Huang, Rowan I. Characterizing Martian Gully Morphologies, Slopes, and Morphometries Using HiRISE DTMs. (in prep.).

Glines, Natalie H. and **Virginia C. Gulick**. Paleolakes and Channels on the Floor of Lyot Crater. Icarus, in revision.

Naor, Roy, **Gulick Virginia C.**, Spurling Reed, Amit Mushkin, Itay Halevy. Flood-related surface collapse at Osuga Valles: Subsurface salt dissolution on Mars? Nature Communications Earth & Environment, accepted June 2026.

Huang, Rowan I. and **Gulick Virginia C.** 2025. Examining the role of water in Martian lowland gully formation, Icarus vol. 437. <https://doi.org/10.1016/j.icarus.2025.116612>

Johnsen, T. K.; **Gulick, V. C.** 2025. Single and Multi-Mineral Classification using Dual-Band Raman Spectroscopy for Planetary Surface Missions. American Mineralogist. DOI: [10.2138/am-2023-9072](https://doi.org/10.2138/am-2023-9072)

McEwen Alfred S, Shane Byrne, C Hansen, Ingrid J Daubar, Sarah Sutton, Colin M Dundas, Nicole Bardabelias, Nicole Baugh, J Bergstrom, R Beyer, Kristin M Block, VJ Bray, John C Bridges, Matthew Chojnacki, Susan J Conway, W Alan Delamere, T Ebben, A Espinosa, Audrie Fennema, John Grant, **Virginia C Gulick**, Kenneth E Herkenhoff, Rodney Heyd, Richard Leis, Lujendra Ojha, Singleton Pappendick, Christian Schaller, Nicolas Thomas, Livio L Tornabene, C Weitz, Sharon A Wilson. 2024. [The high-resolution imaging science experiment \(HiRISE\) in the MRO extended science phases \(2009–2023\)](https://doi.org/10.1016/j.icarus.2023.115795), Icarus, 419, 115795. <https://doi.org/10.1016/j.icarus.2023.115795>

Hargitai, Henrik I. and **Virginia C. Gulick**. 2022. The Channels East of Olympus Mons, Mars. Journal of Maps, pgs.1-5. <https://doi.org/10.1080/17445647.2022.2076622>

Hinman Nancy, Michael H Hofmann, Kimberly Warren-Rhodes, Michael S Phillips, Nora Noffke, Nathalie A Cabrol, Guillermo Chong, Cecilia Demergasso, Cinthya Tebes, Oscar Cabestrero, Janice L Bishop, **Virginia C Gulick**, David Summers, Pablo Sobron, Michael McInenly, Jeffrey Moersch, Constanza Rodriguez, Philippe Sarazzin, Kevin L Rhodes, Victor Parro, 2022. Surface Morphologies in a Mars-analog Ca-sulfate Salar, High Andes, Northern Chile. *Frontiers in Astronomy and Space Sciences* 8:797591, section Astrobiology.
<https://doi.org/10.3389/fspas.2021.797591>

Bishop, Janice L., Merve Yeşilbaş, Nancy W. Hinman, Zachary F. M. Burton, Peter A. J. Englert, Jonathan D. Toner, Alfred S. McEwen, **Virginia C. Gulick**, Everett K. Gibson, Christian Koeberl 2021. Martian Subsurface Cryosalt Expansion and Collapse as Trigger for Landslides in revision. *Science Advances*, 7: abe4459.
<https://advances.sciencemag.org/content/advances/7/6/eabe4459.full.pdf>

Hinman Nancy, Janice Bishop, **Virginia Gulick**, Julia Kotler-Dettmann, Paige Morkner, Genesis Berlanga, Ruth Henneberger, Peter Bergquist, C. Richardson, Malcolm Walter, Lindsay MacKenzie, Roberto Anitori, and Jill Scott. 2021. Targeting Mixtures of Jarosite and Clay Minerals for Mars Exploration. *American MINERALOGIST*, 106 (8), pgs. 1237-1254.
<https://doi.org/10.2138/am-2021-7415>

Cabrol Nathalie, Janice Bishop, Sherry L. Cady, Cecilia Demergasso, Nancy Hinman, Michael Hoffman, Isik Kanik, Jeffrey Moersch, Nora Noffke, Victor Parro, Cynthia Phillips, Michael Phillips, Laura Sánchez Garcia, Pablo Sobron, David Summers, Kimberley Warren-Rhodes, David Wettergreen, Miguel Angel Fernández-Martínez, and **Virginia Gulick**, 2021. Addressing Strategic Knowledge Gaps in the Search for Biosignatures on Mars. *Planetary Science and Astrobiology Decadal Survey 2023-2032 white paper e-id. 223*; *Bulletin of the American Astronomical Society*, Vol. 53, Issue 4, e-id. 223. [10.3847/25c2cfcb.0eed7a57](https://doi.org/10.3847/25c2cfcb.0eed7a57) .

Daubar Ingrid J, Ross A Beyer, Victoria Hamilton, Alfred McEwen, Nicole Bardabelias, Shawn M Brooks, Paul K Byrne, Shane Byrne, Fred Calef III, Julie Castillo-Rogez, Serina Diniega, **Virginia C Gulick**, Christopher W Hamilton, Devanshu Jha, Akos Keresztur, Ceri Nunn, Paul Schenk, Sarah S Sutton, 2021. [Extended Missions in Planetary Science: Impacts to Science and the Workforce](#). *Bulletin of the American Astronomical Society*, 53, 4, 465.

Cabrol Nathalie, Lori K Fenton, Kimberley Warren-Rhodes, John Hines, Nancy Hinman, Jeffrey Moersch, Pablo Sobron, David S Wettergreen, Kris Zacny, Margaret Race, Jesus Martinez-Frias, Flora Paganelli, Jen Blank, Geoffrey Landis, Alberto Fairen, Dale Andersen, Janice Bishop, Richard Cartwright, Anthony Dobrovolskis, Mark Elowitz, Inge Loes ten Kate, Carl Shneider, **Virginia Gulick**, Doug Caldwell, Bill Diamond, Timothy Michaels, 2021. [BIOMARS: A Foundational High-Resolution Environmental Sensor Array](#). *Bulletin of the American Astronomical Society*, 53, 4, 349.

Cabrol Nathalie, Janice Bishop, Sherry L Cady, Cecilia Demergasso, Nancy Hinman, Michael Hoffman, Isik Kanik, Jeffrey Moersch, Nora Noffke, Victor Parro, Cynthia Phillips, Michael Phillips, Laura Sánchez Garcia, Pablo Sobron, David Summers, Kimberley Warren-Rhodes, David Wettergreen, Miguel Angel Fernández-Martínez, Virginia Gulick, 2021. [Addressing](#)

[Strategic Knowledge Gaps in the Search for Biosignatures on Mars](#). Bulletin of the American Astronomical Society 53 (4), 223.

Johnsen, Timothy K; Marley, Mark S; **Gulick, Virginia C**; 2020. A Multilayer Perceptron for Obtaining Quick Parameter Estimations of Cool Exoplanets from Geometric Albedo Spectra Publications of the Astronomical Society of the Pacific 132 1010 44502. <https://iopscience.iop.org/article/10.1088/1538-3873/ab740d>

Gulick Virginia C., Natalie Glines, Shawn Hart and Patrick Freeman 2019. Geomorphological Analysis of Gullies on The Central Peak of Lyot Crater, Mars. Geological Society, London, Special Publications, 467, 233265, 5 December 2018. <http://dx.doi.org/10.1144/SP467.17>

Hargitai HI, **Gulick VC**, Glines NH 2019. Evolution of the Navua Valles region: Implications for Mars' paleoclimatic history. Icarus 330, doi.org/10.1016/j.icarus.2019.04.024

Hargitai, H.I. **Gulick, V.C.**, Glines, N.H. 2018. Paleolakes of Northeast Hellas: Precipitation, Groundwater-fed, and Fluvial Lakes in the Navua–Hadriacus–Ausonia Region. Astrobiology, vol. 18, no. 11. <https://doi.org/10.1089/ast.2018.1816>

Hargitai, H., **Gulick, V.** 2018: Late Amazonian Aged Channel-and-Island Systems East of Olympus Mons, Mars. In: Dynamic Mars, Soare, R.J., Conway, S.J., Gallagher, C.J., Clifford, S.M., eds, Elsevier. ISBN-13: 978-0128130186 (In print).

Hargitai H., **V. Gulick**, N. Glines 2018. The Geology of the Navua Valles Region of Mars. Journal of Maps, <https://doi.org/10.1080/17445647.2018.1496858>

Cady, Sherry L., John R. Skok, **Virginia C. Gulick**, Jeff A. Berger, Nancy W. Hinman 2018. Chapter 7 - Siliceous Hot Spring Deposits: Why They Remain Key Astrobiological Targets. From Habitability to Life on Mars, Pages 179-210. <https://doi.org/10.1016/B978-0-12-809935-3.00007-4> .

Hargitai, H.I., **Gulick, V.C.**, and Glines, N.H. 2017. Discontinuous drainage systems formed by highland precipitation and ground-water outflow in the Navua Valles and southwest Hadriacus Mons regions, Mars. Icarus v. 294, 15 September 2017, Pages 172-200, <https://doi.org/10.1016/j.icarus.2017.03.005>

Rodriguez, J.A.P. et al. +**V. Gulick**. 2016. Tsunami waves extensively resurfaced the shorelines of an early Martian ocean? Scientific Reports, 2016, <https://doi.org/10.1038/srep25106>

Rodriguez, J.A.P., Zarroca, M., Linares, R., **Gulick, V.**, Weitz, C.M., Yan, J., Fairen, A.G., Miyamoto, H., Platz, T., Baker, V. and Kargel, J., Glines, N. and Higuchi, K. 2016. Groundwater flow induced collapse and flooding in Noctis Labyrinthus, Mars. PSS, 124, 1-14. <https://doi.org/10.1016/j.pss.2015.12.009>

Rodriguez, J. Alexis P., Jeffrey S. Kargel, Victor R. Baker, **Virginia C. Gulick**, Daniel C. Berman, Alberto G. Fairén, Rogelio Linares, Mario Zarroca, Jianguo Yan, Hideaki Miyamoto & Natalie Glines 2015. Erratum: Martian outflow channels: How did their source aquifers form, and why did they drain so rapidly? Scientific Reports 5, 15092 (2015). <https://doi.org/10.1038/srep15092>

- Rodriguez, J.A.P. et al., (including **V. C. Gulick**) 2015. Martian outflow channels: How did their source aquifers form, and why did they drain so rapidly? *Nature Scientific Reports* 09/2015; 5:13404. <https://doi.org/10.1038/srep13404>
- Baker, V.R., C.W. Hamilton, D. Burr, **V.C. Gulick**, G. Komatsu, W. Luo, J.W. Rice, Jr., J. A. P. Rodriguez 2015. Fluvial Geomorphology of Earth-like Planetary Surfaces: A Review, *Geomorphology* 245, 145-182, <https://doi.org/10.1016/j.geomorph.2015.05.002>
- Rodriguez, J.A.P., Thomas, P., **Gulick, V.**, Baker, V., Fairén, A.G., Kargel, J., Jianguo, Y., Miyamoto, H., Glines, N., 2015. Did the Martian outflow channels mostly form during the Amazonian Period? *Icarus*, <https://doi.org/10.1016/j.icarus.2015.04.024>
- Ishikawa, S.T. and **Gulick, V.C.** 2013. An Automated Mineral Classifier Using Raman Spectra. *Computers & Geosciences* 54, pgs. 259-268. <https://doi.org/10.1016/j.cageo.2013.01.011>
- Rodriguez, J.A.P., Gregory J Leonard, Thomas Platz, Kenneth L Tanaka, Jeffrey S Kargel, Alberto G Fairén, Virginia Gulick, Victor R Baker, Natalie Glines, Hideaki Miyamoto, Yan Jianguo, Midori Oguma 2015. Erratum to “New insights into the Late Amazonian zonal shrinkage of the Martian south polar plateau” [*Icarus* 248 (2015) 407–411], *Icarus*, 252, page 228. <https://www.sciencedirect.com/science/article/pii/S0019103515000159?via%3Dihub>
- Rodriguez, J.A.P., Gregory J Leonard, Thomas Platz, Kenneth L Tanaka, Jeffrey S Kargel, Alberto G Fairén, **Virginia Gulick**, Victor R Baker, Natalie Glines, Hideaki Miyamoto, Yan Jianguo, Midori Oguma 2015. New insights into the Late Amazonian zonal shrinkage of the Martian south polar plateau. *Icarus* 248, 407-411. <https://doi.org/10.1016/j.icarus.2014.08.047>
- Rodriguez, J. P., Platz, T., **Gulick, V.**, Baker, V.R., Fairén, A.G., Kargel, J., Yan, J., Miyamoto, H., Glines, N. 2015. Did the Martian Outflow Channels Mostly Form During the Amazonian Period? *Icarus* 257, p. 387-395. <https://doi.org/10.1016/j.icarus.2015.04.024>
- Rodriguez, J.A.P., **Gulick, V.C.**, Baker, V.R., Platz, T., Fairén, A.G., Miyamoto, H., Kargel, J., Rice, J.W., Glines, N., 2014. Evidence for Middle Amazonian catastrophic flooding and glaciation on Mars. *Icarus* 242, 202–210. <https://doi.org/10.1016/j.icarus.2014.06.008>
- McEwen, A.S., Ojha, L., Dundas, C.M., Mattson, S.S., Byrne, S., Wray, J.J., Cull, S.C., Murchie, S.L., Thomas, N. and **Gulick, V.C.**, 2011. Seasonal Flows on Warm Martian Slopes. *Science*, 333, 740-743.
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