

Dawn Y. Sumner

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Academic Experience and Awards

2006-present	Professor of Geology, University of California, Davis
2008-present	Complexity Sciences Center Faculty, University of California, Davis
2012-present	Microbiology Graduate Group Faculty, University of California, Davis
2012-present	Board Member and Secretary, Art and Science Laboratory, Santa Fe
2013-present	Visiting Associate, Geological and Planetary Sciences, California Institute of Technology
2013-present	Chair, Earth and Planetary Sciences (on leave until October 2014)
2003-2008	Chancellor's Fellow, University of California, Davis
2002-2006	Associate Professor of Geology, University of California, Davis
2004	Visiting Associate, California Institute of Technology
1996-2002	Assistant Professor of Geology, University of California, Davis
1995-1996	O.K. Earl Postdoctoral Scholar in Geology, California Institute of Technology
1989-1995	Massachusetts Institute of Technology: Ph.D. 9/1995, Geology
1989-1992	National Science Foundation Graduate Fellowship
1991	Gretchen L. Blechschmidt Research Grant, Geological Society of America
1985-1989	California Institute of Technology: B.S. with Honor 6/1989, Geology
1988-1989	Chevron Undergraduate Scholarship, California Institute of Technology
1987-1988	Carnation Scholarship Merit Award, California Institute of Technology

Ongoing Research Projects

Mars Sedimentology and Stratigraphy: Using the rover Curiosity, remote sensing images, terrestrial analog sites, and modeling to constrain sedimentary processes on Mars and to interpret the geological history of Gale Crater.

Co-I on the NASA Mars Science Laboratory (Curiosity) with the following specific responsibilities:

- Long Term Planner for operations (2012-present)
- Gale Mapping Working Group, chair (2012-present)
- Landing Location Working Group, member (2012)
- Gale Imaging Working Group, member (2011-2012)
- Gale Ascent Team Working Group, member (2011)
- Landing Site Working Group, co-chair (2010-2011)

Modern Microbialite Growth: Field evaluation, morphological, molecular, and geochemical characterization, experimental manipulation, and computer modeling of microbial communities to study processes of self-organization and implications for complex microbialite morphology. Includes field work in perennially ice-covered lakes, Antarctica.

Ancient Microbial Communities: Evaluation of the morphology and geochemistry of Archean to recent fossil microbial communities to constrain the evolution of microbial life.

Neoproterozoic Depositional Environments and Geochemistry: Characterization of Neoproterozoic ocean chemistry, elemental cycling, and microbial processes using carbonate stratigraphy, sedimentology, and geochemistry.

Scientific Data Visualization: Development of techniques to create and interpret 3D data, including collaborative development of software tools through the UCD Keck Center for Active Visualization in Earth Sciences.

Professional Service

National Research Council & NASA Service:

- Mars 2020 Mission Concept Review Board (2013)
- Planetary Science Subcommittee, Advisory Committee to NASA, member (2009-2012)
- Committee on Planetary and Lunar Exploration, National Research Council, member (2007-2008)
- Colloquium on Astrobiology and Mars Exploration, invited participant (2007)
- Reviewer for three Mars-related National Research Council reports.

Mars Exploration Program Analysis Group (MEPAG):

- Mars Sample Return Desirable Analogs Working Group (2013)
- Next Decade Science Analysis Group (2007-2008)
- Mars Sample Return Science Steering Groups (2002, 2004-2005)
- Committee to Revise the Scientific Goals, Objectives, Investigations and Priorities document for the Mars Exploration Program (2002-2004)
- Life Detection Workshop Participant and Break-out Group Leader (2003)
- Astrobiology Science Steering Group (2002)

Editorial Service and Reviews:

- Editorial Board Member, *Geobiology* (2011-present)
- Editorial Board Member, *Astrobiology* (2001-present)
- Associate Editor, *Palaios* (1998-2004)
- Reviewer for various journals, including *African Journal of Earth Science*, *Astrobiology*, *Geobiology*, *Geochimica et Cosmochimica Acta*, *Geology*, *GSA Bulletin*, *Icarus*, *Journal of Geophysical Research*, *Journal of Sedimentary Research*, *Nature*, *Palaios*, *Precambrian Research*, *Science*, *Sedimentology*, and *Terra Nova*.
- Reviewer for various funding agencies, including NSF under both Earth and Biological sciences directorates, NASA programs representing Astrobiology and Mars exploration, Geological Society of America, National Geographic, and the American Chemical Society Petroleum Research Fund.
- NASA Astrobiology: Exobiology Proposal Review Panel (member two years; Sub-panel leader one year)
- NASA Astrobiology Institute Proposal Review Panel (one year)
- NASA Mars Fundamental Research Review Panel (one year)

Other:

- Geological Society of America Research Committee (2010-2013)
- 8th International Mars Conference Science Organizing Committee (2013, postponed to 2014)
- Astrobiology Science Conference student poster judge (2006, 2010, 2012)
- First Mars Sedimentology and Stratigraphy Conference Organizing Committee (2009-2010)
- NIST Center for Neutron Research Beam Time Allocation Committee (2007-2009)
- Astrobiology Science Conference 2008 Organizing Committee (2007-2008)
- NASA Astrobiology Institute Biomarkers in Archean Rocks Workshop Participant and Instructor (2007)
- SEPM (Society for Sedimentary Geology) Paleontology Councilor (2003)

University Service

- Executive Committee, W.M. Keck Center for Active Visualization in the Earth Sciences (2004-present)
- Executive Committee, Complexity Sciences Center (2008-present)
- UC Davis Foundation Trustees Board Meeting, Faculty Panel Member (2013)
- Ernest E. Hill Fellowship Committee (2009-2012)
- E-access Faculty Hub (2009-2010)
- NSF ADVANCE proposal coordinator (2009)

Arboretum Waterway Task Force (2009)
 Campus Council for Information Technology (CCFIT), Steering Committee (2008-2009)
 Educational Technology Subcommittee, CCFIT, Co-Chair (2008-2009)
 Geology Garden Design Committee (2009)
 New Building Design Focus Group and Building Committee - Geology Representative (2003-2009)
 Faculty Ideas Committee for Provost Hinshaw (2006-2007)
 Academic Senate Undergraduate Instruction & Program Review Committee (2004-2006; chair 2005-2006)
 Academic Senate Program Review Task Force (2005-2006)
 Academic Senate Undergraduate Council (2005-2006)
 Academic Senate Representative Assembly (2005-2006)
 Faculty FTE Advisory Group for Provost Hinshaw (2005)
 Mathematical and Physical Sciences Summer Research Fellowship Selection Committee (2001-2003, chair in 2003)
 Mathematical and Physical Sciences Faculty Advisory Committee (2000-2003)
 Letters and Sciences Faculty Assembly, Geology Representative or Alternate (1998-2003, 2005-present)
 Academic Senate Second Alternate Geology Representative (2002-2003)
 Ad Hoc Review Panel, Consortium for Women and Research (2001)
 Ad Hoc Review Panel, Academic Senate Faculty Research Grants, one year
 Library Representative, Geology Department (1997-1998)

Department Service

Chair, Earth and Planetary Sciences (2013-present; on leave July 2013 to October 2014)
 Geology Department Space Committee (2002-2009; chair 2010-2013)
 Geology Club Faculty Advisor (2001-2003, 2004-2010)
 Geology Major Undergraduate Advisor (2004-2010)
 American Association of Petroleum Geologists, Geology Department Contact (1997-2006)
 Geology Department Faculty Search Committees (2) and Ad Hoc Committee to Review Bodega Marine Laboratory Applicants (2001-2003)

University Community Service

UCD Welcome Center Video segment (6/3/2013)
 UCD College of Letters and Sciences Dean's Distinguished Lecture - Curiosity on Mars (5/31/2013)
 Capstone Lectures in Honor of Winston Ko - Curiosity on Mars Presentation (5/11/2013)
 UCD First Year Quarterly Seminar - Curiosity on Mars Presentation (5/9/2013)
 College of Letters and Sciences private alumni reception - Presentation (3/16/2013)
 New student welcome video presentation from the Jet Propulsion Laboratory (9/2012)
 Donors to the Geology Department - Presentation (2012)
 MNRC Workshop - Presentation (2011)
 UCD Young Scholars Program - Presentation (2011)
 Mathematical and Physical Sciences Dean's Advisory Committee - Presentation (2009)
 Teaching Resources Center - Presentations on YouTube and del.icio.us in teaching (3 presentations 2007-2008)
 University Writing Program - Writing samples and interview on techniques for scientific writing (2008)
 UCDavis Chancellor's Club - Presentation (2004)
 Participation in numerous campus events and groups, including those promoting participation and retention of women in science and improving faculty-student interactions.

Public Service
Press Interviews

Video/Audio on the Mars Science Laboratory:

2013

- Australian Broadcasting Corporation (5/29/2013)
- Capitol Public Radio Insight (2/7/2013 [Interview](#), 6/3/2013 [Interview](#); 9/27/2013 [Interview](#))
- CBS 13 Television, Sacramento (5/30/2013)
- Davis Access Media, In the Studio (1/24/13 [Video Interview](#))
- National Geographic and PBS documentary on maps and mapping (upcoming mini-series, filmed 8/7 & 8/14/2013)
- Universidad Internacional Menéndez Pelayo Summer School Press Briefing, Spain (6/27/2013 [Written Press Release](#))
- Voice of America's Science World (5/30/2013 picked up globally [Blog](#))

2012

- Capitol Public Radio Insight ([Interview](#))
- NASA Mars Science Laboratory Press Conferences ([Recording](#))
- BBC News ([Interview 1](#), [Interview 2](#))
- BBC World Service Discovery Radio Program ([Interview 1](#))
- Capitol Public Radio News Interviews ([Interview 1](#), [Interview 2](#))
- Charolotte Talks, NPR and GSA ([Interview](#))
- Fox 11 Television, Los Angeles
- KCRW Radio, Which Way L.A.? ([Interview](#))
- KFBK Radio, Clear Channel ([Interview](#))
- Radio New Zealand
- University of California, Davis, News ([Video](#))

2011

- Capitol Public Radio Insight ([Interview](#))
- NASA Mars Science Laboratory Press Conference - Landing Site Selection ([Recording](#))

Print Media on the Mars Science Laboratory:

2013

- Astrobiology Magazine ([Article](#))
- BBC News ([Article](#))
- Nature News ([Article](#), 2nd interview)
- News at Princeton ([Article](#))
- Sacramento Bee ([Article](#))
- Science News (8/20/2013)
- US News and World Report ([Article](#))

2012

- Astrobiology Magazine ([Article 1](#), [Article 2](#))
- Australian Broadcasting Corporation
- Discovery Channel Magazine ([Article](#))
- Martinez Gazette
- National Geographic
- Nature News ([Article](#))

New Yorker
Sacramento Bee ([Article](#))
Science News
Washington Post

Audio on Antarctic Research:

Insight on Capitol Public Radio NPR (2009, 2011, 10/14/2013 [Interview](#))
Take Two on KPCC NPR (10/10/2013 [Interview](#))
Radio Parallax on KDVS and KZFR (2011)
Soundings on KMVR (2011)

Other

Ongoing

Mars Science Laboratory Blog: <http://DawnOnMars.blogspot.com> (2012-present)
Sedimentology and Stratigraphy Videos on YouTube: <http://youtube.com/summerd> (>250,000 views, 875 subscribers; 2007-present)
Sedimentology and Stratigraphy Blog: <http://DawnsSedStrat.blogspot.com> (2010-present)
Antarctica Adventure Science Blog: <http://DawnInAntarctica.blogspot.com> (2009-present)
UCD Picnic Day Public Lectures (1999, 2002-2007, 2009-2012, 4/20/2013)

2013

Capitol Public Radio Insight on US government shutdown of Antarctic field season (10/14/2013 [Interview](#))
Davis Enterprise newspaper interview on US government shutdown of Antarctic field season (10/11/2013)
[Macroscope](#) at Maker Faire, Bay Area, Co-coordinator and booth presenter (5/18-19/2013)
Mars Exploration Presentations to 1) 150 2nd and 3rd graders and 2) 175 4th and 5th graders at Emilia Earhard Grade School (5/21/2013)
Mars Exploration Presentations to 1) the sophomore English class and 2) 75 junior and senior science students at Golden Sierra High School; dinner with science teachers (4/29/2013)
Dinner with a Scientist for underserved high school students, Sacramento area (5/2/2013)
Nature News interview on government shutdown of Antarctic field season (10/8/2013)
Onward California Videos, University of California, Office of the President (3/2013: [Video 1](#), [Video 2](#))

2012

JPL Museum Alliance Lecture
[Macroscope](#) at Maker Faire, Bay Area, Co-coordinator and booth presenter (5/18-19/2012)
Martinez Rotary Club Lecture
News Day video at Armando's, Martinez
Science in the River City Guest Lecture for science teachers

2010 and Older

McMurdo Station, Antarctica, community science presentation (2009, 2010)
Science in the River City Guest Lecture and Workshop on Edible Missions to Mars for teachers (2009)
3D Video Recording and Narration for the UC Davis Pavilion, California State Fair (2008)
Modesto Area Partners in Science, Monthly Lecture (2006)
ExplorIt Science Museum, Expert Scientist for Corporate Challenge fundraiser (2004)
ExplorIt Science Museum Science Lecture (2004)
Davis Rotary Club Lecture (2004)
Letters and Web Page on Local Seismic Hazards in the City of Martinez, CA, Relevant to Development (2004-2005)

Arts Collaborations

- Scientific Delirium Madness, Djerassi Resident Artist Program - Invited to participate in the July 2014 month long residency.
- Dream Vortex - A collaboration with M. Tromble (San Francisco Art Institute) and Complexity Sciences Center members to interactively and immersively explore 3D networks of dreams; <http://vimeo.com/44626359>. Sumner is the main scientific contributor. (2012-present; 3/4/2013: [Art, Technology, and Culture Presentation](#), UC Berkeley; 4/25/2013: Art Practice Seminar, UC Davis)
- Expressing the CAVES - An art-science collaboration focused on exploring new modes of experiencing 3D immersive environments with a focus on creative interactions among artists, scientists, and virtual objects. Sumner is Co-PI, coordinator, and participant. (2010-2012)
- Presentation to TWEAK! Modding disciplines through inventive tools; a workshop at UC Davis. ([2011](#))
- COLLAPSE (suddenly falling down) – Performance by the Sideshow Physical Theater with choreographer Della Davidson, Mondavi Center for Performing Arts; Sumner was facilitator and collaborator for integration of 3D visualization of earth science data in performance; <http://YouTube.com/CollapseUCD> The project won the Isadora Duncan Award in Dance for Visual Design. ([2007](#))

Teaching Experience

- Undergraduate:** Basin Analysis (Fall 1999, 2001, 2003, 2005; Spring 2007, 2010)
 Davis Honors Challenge Seminar – Mars Exploration (Spring 2003)
 Field Exercises (Spring, Summer 2008)
 Freshman Seminar – Mars Exploration (Spring 2003, 2013; Fall 2004, 2007; Winter 2011)
 Geology of Campus Waterways (Fall 2005 to Winter 2008, every quarter)
 The Oceans (Fall 1997, 1998, 2000, Spring 2011, 2012)
 Sedimentary Petrography (Fall 1997)
 Sediments and Strata (Winter 2000-2003, 2005-2013)
 3 Day Field Excursions (Fall 2003, Winter 2002, 2003, 2008, Spring 2002, 2007, 2009)
 Virtual Field Trip to Mars (Winter 2004)
- Graduate:** Advanced Field Stratigraphy (Spring 1998, 1999, 2000)
 Carbonate Geochemistry and Precipitation Kinetics (Winter 1999)
 Carbonate Platforms Through Time (Winter 2005)
 Geobiology / Microbial Mineralization (Winter 1997. Spring 2001, 2003, 2012)
 Geochemistry (Spring 1997)
 Sedimentology and Stratigraphy of Mars (Spring 2013)
 Neoproterozoic Environmental Change (Winter 1998)
 Sequence Stratigraphy (Fall 2008, Winter 2011)
 6 Day Field Excursion (Spring 2002)
 3D Imaging and Computed Tomography (Fall 2004)

Undergraduate Theses Supervised

- Juarez Rivera, Marisol, 2013. Unraveling the three dimensional morphology of Archean microbialites. Currently a graduate student at UC Davis.
- Dolezal, Lauren, 2009. 2D and 3D Analysis of Thrombolites: Stromatolite Diagenesis or Originally Clotted Texture.
- Stevens, Eric, 2009. Microbialites in 2D and 3D. Completed a M.S. at University of Minnesota.
- Stork, Natalie, 2008. CaCO₃ Precipitation in Freshwater Biofilms Dominated by *Oscillatoria* sp. Completed a M.S. at University of Connecticut. Currently working in the environmental consulting industry.

- Senge, Patrick, B. S. 2006. Development of the Late Archean Microbialite Support and Drap Structures of the Gamohaam Formation, Transvaal Supergroup, South Africa. Currently working in the mining industry.
- Chavdarian, Gregory V., B.S. 2005. Cracks and Razorbacks: Pieces of Mars at White Sands National Monument, New Mexico. Completed a M.S. in Geology with Sumner in 2008. Currently working as an environmental tour guide.
- Alexander, Kathryn, B.S. 2005. "MISS" in a Laboratory Setting: Observations and Mechanisms of Formation. Completed a M.S. in Geobiology at Arizona State University.
- Huerta, Nicolas, B.S. 2003. Neutron Computed Tomography: A Characterization of the System at McClellan Nuclear Radiation Center and Presentation of Groundwork Research for Use by Sedimentary Geologists. Completed a M.S. in Geology with Sumner in 2007, a M.S.E. in petroleum engineering and Ph.D. in geology at the University of Texas, Austin, and is now working as a geologist at the DOE National Energy Technology Laboratory.
- Lee, Gina, B.S. 2003. Thirty-nine Years of Cache Creek Migration and Embankment Erosion. Completed a M.S. at San Francisco State University after working as an environmental consultant.
- Snyder, Jason, B.S. 2002. Isotope Geochemistry of Egyptian Cave Deposits. Completed a M.S. in Atmospheric Sciences and a Ph.D. in Geography at University of California, Davis.
- Fenger, Tracy L., B.S. 2000. Glacial Interpretation for the Rainstorm Member of the Johnnie Formation, Eastern California. Completed a M.S. in Paleoclimatology at University of North Carolina, Chapel Hill, after working as an environmental consultant.

Graduate Theses Supervised

- Harwood, Cara, Ph.D. 2013. Microbial and Metazoan Influences on Microbialite Growth Structures: Insights from Recent Lacustrine Microbialites in Pavilion Lake, BC, and Cambrian Thrombolites from the Great Basin, CA and NV. Currently working as a Faculty Developer for the Center for Excellence in Teaching and Learning, UC Davis.
- Mackey, Tyler, M.S. 2012. Initiation of branched growth in coniform stromatolites as a response to microbial community and water depth changes in Lake Joyce, Antarctica. Currently pursuing a Ph.D. with Sumner at UC Davis.
- Harwood, Cara, M.S. 2009. Multiple Origins of Diverse Microbial Fabrics in Co-occurring Thrombolitic and Stromatolitic Structures from the Neoproterozoic Beck Spring Dolomite. Currently working as a Faculty Developer for the Center for Excellence in Teaching and Learning, UC Davis.
- Shepard, Rebekah N., Ph.D. 2009. The Significance of Cell Motility to Microbial Community Morphogenesis.
- Bishop, James, Ph.D. 2008. Sedimentation and Diagenesis During the Late Paleozoic Ice Age: Arrow Canyon, Nevada, and the Capitan Backreef, Slaughter Canyon, New Mexico. Currently working as a geologist at Chevron.
- Chavdarian, Gregory V., M.S. 2008. Polygonal Cracks and Mineral-Atmospheric Water Cycling in Hydrous Sulfate Sands: An Analog to Martian Outcrops. Worked in the petroleum industry for several years. Currently working as an environmental tour guide.
- Huerta, Nicolas, M.S. 2007. Neutron Computed Tomography and Porosity in Geologically Relevant Samples. Completed a M.S.E. in petroleum engineering and Ph.D. in geology at the University of Texas, Austin, and is now working as a geologist at the DOE National Energy Technology Laboratory.
- Murphy, Megan, Ph.D. 2006. Variations in Microbialite Morphology with Depositional Environment in a Precambrian Ramp Deposit, Hamersley Group, Western Australia. Worked as a geologist at Chevron for several years.
- Bishop, James, M.S. 2004. A New Model for Molar Tooth Structure, Facies, and Stratigraphy of the Neoproterozoic Monteville Formation, Transvaal Supergroup, South Africa. Currently working as a geologist at Chevron.

Tabor, Maris, M.S. 2004. Applications of Neutron Computed Tomography for 3-D Imaging of Microbial Structures in Archean Carbonates.

Perkins, Katherine, M.S. 2003. Sequence Stratigraphy of a Portion of the Lower Cambrian Grand Cycle C, Southwestern Nevada and Southeastern California. Currently working as an academic advisor at a community college.

Stephens, Nat P., Ph.D. 2002. Late Devonian Stratigraphy, Stable Isotopic Analyses, and Paleoecology in the Napier, Oscar, and Emanuel Ranges, Canning Basin, Western Australia. Currently working as a Senior Geologist at ExxonMobil Exploration Company.

Tourre, Sarah A., M.S. 2000. Cave-Filling Herringbone Calcite: Morphology and Geochemistry of an Unusual Carbonate Cement from Egypt. Currently working in environmental consulting.

Post Doctoral Researchers Supervised

Shepard, Rebekah. Studies of microbialites in a temperate lake, BC, and in a perennially ice-covered lake, Antarctica.

Shiraki, Ryoji. Experimental precipitation of calcite in the presence of reduced iron. Currently working at McClellan Nuclear Radiation Center, UC Davis.

Invited Professional Presentations

- 2013 American Astronomical Society, Annual Meeting Plenary Presentation (6/5/2013)
 Art, Technology, and Culture Colloquium, University of California, Berkeley (3/4/2013 [Video](#))
 Art Practice Special Lecture, University of California, Davis (4/25/2013)
 California State University, Fresno, Environmental Sciences Seminar (4/11/2013)
 California State University, Fresno, University Seminar (4/11/2013)
 Ecology and Evolution Graduate Group, University of California, Davis, Weekly Seminar (1/24/2013)
 Geobiology Gordon Research Conference (1/31/2013)
 Houston Geological Survey Guest Night Lecture (6/8/2013, [Movie](#), [Video](#))
 Physics Department, University of California, Davis, Department Seminar (3/11/2013)
 XI International School of Astrobiology “Josep Comas I Solá” Biosignatures: The Fingerprints of Life, Santander, Spain (NASA Astrobiology Institute and Centro de Astrobiología); 2 lectures, 1 panel discussion (6/24-28/2013)
- 2012 Astrobiology Science Conference, Mars Science Laboratory Plenary Discussion
 Canadian Astrobiology Training Program, Webcast Seminar
 University of Nevada, Las Vegas, Department Seminar
 Geology Department, University of California, Davis, Department Seminar; Brownbag Seminar
- 2011 Geobiology Gordon Research Conference
 Hypoxia Symposium, Guest Speaker for Evening Program
 Mars Analog Workshop, NASA Astrobiology Program
 NASA Astrobiology Institute, Director’s Seminar
 University of Johannesburg, Paleoproterozoic Mineralization Group Annual Meeting
- 2010 California Institute of Technology, Geology Club Seminar
 First Mars Sedimentology and Stratigraphy Conference
 International Society for Microbial Ecology Conference, Keynote Presentation
 MSL Landing Site Workshop
 NASA Headquarters, Research Seminar
 University of Washington, NASA Astrobiology Institute Seminar
- 2009 Processes in Biofilms Conference, Keynote Seminar

- Space Telescope Science Institute Symposium on “The Search for Life in the Universe”
- 2008 California State University Channel Islands, Symposium on Early Life on the Ancient Earth...and Mars?
- 2007 AWG Bay Area Chapter, Fall Meeting Seminar
 Biomarkers in Archean Rocks, NASA Astrobiology Institute Workshop
 Indiana University, Department Seminar
 Mars Science Laboratory Second Landing Site Workshop, Mars Habitability Introduction
 McGill University, Department Seminar
 Stanford University, Geobiology Seminar
 University of Ottawa, Department Seminar
- 2006 Astrobiology Science Conference, Plenary Speaker
 Agouron Institute O₂ Workshop, Special Meeting
 Massachusetts Institute of Technology, Department Seminar
- 2005 California Institute of Technology, Geology Club Seminar
 Stanford University, Department Seminar
 Stanford University, Geobiology Seminar
- 2004 National Research Council, Committee on the Origin and Evolution of Life
 Arizona State University, Department Seminar
 California Institute of Technology, Department Seminar
 Rosenstiel School of Marine and Atmospheric Science, Department Seminar
 University of Southern California, Geobiology Seminar
- 2002 Central Washington University, Department Seminar
 Oberlin College, Department Seminar
 Scripps Institute of Oceanography, Department Seminar
- 2001 Northern California Geological Society, Monthly Meeting
 University of California, Davis, Department Seminar
 University of Nevada, Los Vegas, Department Seminar
 University of New Mexico, Department Seminar
- 1999 Berkeley Museum of Paleontology, Department Seminar
 Tulane University, Department Seminar
 University of California, Santa Barbara, Department Seminar
- 1998 Central Washington University, Department Seminar
 Harvard University, Department Seminar
 Massachusetts Institute of Technology, Department Seminar
- 1997 McGill University, Department Seminar
 Stanford University, Sedimentology Group Seminar
 Université de Montréal, Department Seminar
 University of California, Santa Cruz, Ocean Sciences Department Seminar
- 1996 California Institute of Technology, Department Seminar
 California Institute of Technology, Geology Club Seminar
 NASA Ames Research Center, Special Seminar
 University of California, Davis, Special Seminars (2)
 University of Maryland, Special Seminar
 University of Southern California, Department Seminar
- 1995 Lamont-Doherty Earth Observatory, Columbia University, Special Seminar

Publications
(*student advisee)

Under Revision:

Juarez Rivera*, Marisol and Dawn Y. **Sumner**, in review. Unraveling the three dimensional morphology of Archean microbialites. *Journal of Paleontology*, special issue: Virtual Paleontology.

Mackey*, Tyler J., Dawn Y. **Sumner**, Ian Hawes, Anne D. Jungblut, and Dale T. Andersen, in review. Branched columnar stromatolites in Lake Joyce, Antarctica. *Geobiology*.

Sumner, Dawn Y., Anne D. Jungblut, Ian Hawes, Dale T. Andersen, Tyler J. Mackey*, and Katherine Wall*, in review. Growth of microbial pinnacles in Lake Vanda, Antarctica. *Geobiology*.

In Review:

Dumit, Joseph, Josef Nguyen, Jordan Carroll, Dawn **Sumner**, Oliver Kreylos, and Colin Milburn, in review. Research presence. *Presence*.

Forte*, Adam M., Dawn Y. **Sumner**, Eric Cowgill, Marius Stoica, Ibrahim Murtuzayev, Talat Kangarli, Mikheil Elashvili, Tea Godoladze, and Zurab Javakhishvili, in review. Lake Miocene to Pliocene stratigraphy of the interior Kura Basin: Implications for the diachroneity of stage boundaries. *Basin Research*.

Forte*, Adam, Dawn **Sumner**, Eric Cowgill, Marius Stoica, Christiaan van Baak, Iuliana Vasiliev, Ibrahim Murtuzayev, and Talat Kangarli, in review. Influence of climatically modulated base-level variation and tectonics on the Plio-Pleistocene stratigraphy of the Greater Caucasus foreland basin. *Basin Research*.

Harwood*, Cara L., Dawn Y. **Sumner**, Tyler J. Mackey*, Allyson L. Brady, Greg Slater, and Darlene S.S. Lim, in review. Microbial community influences on carbonate fabrics in modern lacustrine microbialites, Pavilion Lake, British Columbia. *Geobiology*, special issue: Pavilion Lake Research Project.

Harwood*, Cara L., and Dawn Y. **Sumner**, in review. Influences of microbial-metazoan interactions on growth structures in Cambrian microbialites. *Palaeoceanography, Palaeoclimatology, and Palaeoecology*.

Mangold, N., O. Forni, G. Dromart, O. Gasnault, M. Nachon, P.-Y. Meslin, R.C. Wiens, R., B. Anderson, B. Barraclough, J.F. Bell III, G. Berger, D. L. Blaney, J. C. Bridges, F. Calef, B. Clark, S. M. Clegg, A. Cousin, L. Edgar, K. Edgett, B. Ehlmann, C. Fabre, M. Fisk, J. Grotzinger, S. Gupta, K. E. Herkenhoff, J. Hurowitz, J. R. Johnson, L. C. Kah, N. Lanza, J. Lasue, S. Le Mouélic, R. Léveillé, E. Lewin, M. Malin, S. McLennan, S. Maurice, N. Melikechi, A. Mezzacappa, R. Milliken, H. Newsom, A. Ollila, S.K. Rowland, V. Sautter, M. Schmidt, S. Schröder, K. Stack, D.Y. **Sumner**, C. d'Uston, D. Vaniman, and R. Williams, in review. Chemical variations of Yellowknife Bay formation sediments analyzed by the Curiosity rover on Mars, *Journal of Geophysical Research, Planets*.

Nachon, Marian, Samuel Clegg, Nicolas Mangold, Susanne Schröder, Linda Kah, Gilles Dromart, Ann Ollila, Jeffrey Johnson, Dorothy Oehler, John Bridges, Stéphane LeMouélic, Olivier Forni, Roger Wiens, Ryan Anderson, Diana Blaney, James Bell, Benton Clark, Agnès Cousin, Darby Dyar, Bethany Ehlmann, Cecile Fabre, Olivier Gasnault, John Grotzinger, Jérémie Lasue, Eric Lewin, Richard Leveille, Scott McLennan, Sylvestre Maurice, Pierre-Yves Meslin, Melissa Rice, Steven W. Squyres, Kathryn Stack, Dawn **Sumner**, David Vaniman, and Danika Wellington, in review. Calcium sulfate veins characterized by ChemCam/Curiosity at Gale Crater, Mars. *Journal of Geophysical Research, Planets*.

Palucis, Marisa C., William E. Dietrich, Alexander G. Hayes, Rebecca M. E. Williams, Sanjeev Gupta, Nicholas Mangold, Horton Newsom, Craig Hardgrove, Fred Calef III, and Dawn Y. **Sumner**, in review. The origin and evolution of the Peace Vallis fan system that drains to the Curiosity landing area, Gale Crater, Mars. *Journal of Geophysical Research, Planets*.

Accepted or In Press:

McAdam, A.C., Heather Franz, Brad Sutter, P. Archer, Jr., Caroline Freissinet, Jennifer Eigenbrode, Douglas Ming, Sushil Atreya, David Bish, David F. Blake, Hannah Bower, Anna Brunner, Arnaud Buch, Daniel Glavin, John

Grotzinger, Paul Mahaffy, Scott McLennan, Richard Morris, Rafael Navarro-González, Elizabeth Rampe, Steven Squyres, Andrew Steele, Jennifer Stern, Dawn Y. **Sumner**, and James Wray, in press. Sulfur-bearing phases detected by evolved gas analysis of the Rocknest aeolian deposit, Gale Crater, Mars. *Journal of Geophysical Research, Planets*.

Peer Reviewed Publications:

- Bishop*, J.W., D.A. Osleger, I.P. Montanez and D.Y. **Sumner**, 2013. Meteoric diagenesis and fluid-rock interactions in the Middle Permian Capitan Backreef: Yates Formation, Slaughter Canyon, New Mexico. *AAPG Bulletin*, in press. <http://archives.datapages.com/data/bulletns/aop/20130621/aapgbtln11158aop.html>
- Blake, D. F., R. V. Morris, G. Kocurek, S. M. Morrison, R. T. Downs, D. Bish, D. W. Ming, K. S. Edgett, D. Rubin, W. Goetz, M. B. Madsen, R. Sullivan, R. Gellert, A. H. Treiman, S.M. McLennan, A. S. Yen, J. Grotzinger, D. T. Vaniman, S. J. Chipera, C. N. Achilles, E.B. Rampe, D. **Sumner**, P-Y Meslin, S. Maurice, O. Forni, O. Gasnault, M. Fisk, M. Schmidt, P. Mahaffy, L. A. Leshin, D. Glavin, A. Steele, C. Freissinet, R. Navarro-González, R. A. Yingst, L. C. Kah, N. Bridges, K. W. Lewis, T. F. Bristow, J. D. Farmer, J. A. Crisp, E. M. Stolper, D.J. Des Marais, P. Sarrazin, and the MSL Science Team, 2013. Curiosity at Gale crater, Mars: Characterization and analysis of the Rocknest sand shadow. *Science*, v. 341. DOI: [10.1126/science.1239505](https://doi.org/10.1126/science.1239505)
- Farley, K.A., C. Malespin, P. Mahaffy, J. Grotzinger, P. Vasconcelos, R. Milliken, M. Malin, K. Edgett, A. Pavlov, J. Hurowitz, J. Grant, H. Miller, R. Arvidson, L. Beegle, F. Calef, P. Conrad, W. Dietrich, J. Eigenbrode, R. Gellert, S. Gupta, V. Hamilton, D. Hassler, K. Lewis, S. McLennan, D. Ming, R. Navarro-González, S. Schwenzer, A. Steele, E. Stolper, D.Y. **Sumner**, D. Vaniman, A. Vasavada, K. Williford, R. Wimmer-Schweingruber and the MSL Science Team, 2013. In-situ radiometric and exposure age dating of the Martian surface. *Science*. DOI:[10.1126/science.1247166](https://doi.org/10.1126/science.1247166)
- Grotzinger, J.P., D.Y. **Sumner**, L. Kah, K. Stack, S. Gupta, L. Edgar, D. Rubin, K. Lewis, J. Scheiber, N. Mangold, R. Milliken, P. Conrad, D. DesMarais, J. Farmer, K. Siebach, F. Calef, J. Hurowitz, S. McLennan, D. Ming, D. Vaniman, J. Crisp, A. Vasavada, K. Edgett, M. Malin, D. Blake, R. Gellert, P. Mahaffy, R. Wiens, S. Maurice, J. Grant, S. Purdy, R. Anderson, L. Beegle, R. Arvidson, B. Hallet, R. Sletten, M. Rice, J. Bell, J. Griffes, B. Ehlmann, T. Bristow, M. Palucis, W. Dietrich, G. Dromart, J. Eigenbrode, A. Fraeman, C. Hardgrove, K. Herkenhoff, L. Jandura, G. Kocurek, S. Lee, L. Leshin, R. Leville, D. Limonade, J. Maki, S. McCloskey, M. Meyer, M. Minittie, D. Oehler, A. Okon, H. Newsom, T. Parker, S. Rowland, S. Squyres, A. Steele, E. Stolper, R. Summons, A. Trieman, R. Williams, and A. Yingst, 2013. A habitable fluvio-lacustrine environment at Yellowknife Bay, Gale Crater, Mars. *Science*. DOI:[10.1126/science.1242777](https://doi.org/10.1126/science.1242777)
- Hawes, I., D.Y. **Sumner**, D.T. Andersen, A-D. Jungblut, and T.J. Mackey*, 2013. Timescales of growth response of microbial mats to environmental change in an ice-covered Antarctic lake. *Biology, Special Issue on Polar Microbiology*, v. 2, p. 151-176. DOI: [10.3390/biology2010151](https://doi.org/10.3390/biology2010151)
- Leshin, L.A., P.R. Mahaffy, C.R. Webster, M. Cabane, P. Coll, P.G. Conrad, P.D. Archer, Jr., S.K. Atreya, A.E. Brunner, A. Buch, J.L. Eigenbrode, G.J. Flesch, H.B. Franz, C. Freissinet, D.livepage.apple.comP. Glavin, A.C. McAdam, K.E. Miller, D.W. Ming, R.V. Morris, R. Navarro-González, P.B. Niles, T. Owen, R.O. Pepib, S. Squyres, A. Steele, J.C. Stern, R.E. Summons, D. **Sumner**, B. Sutter, C. Szopa, S. Teinturier, M.G. Trainer, J.J. Wray, and J.P. Grotzinger, 2013. The first volatile, isotope and organic analysis of solid samples with the Mars Curiosity rover: Insights into martian fines. *Science*, v. 341. DOI: [10.1126/science.1238937](https://doi.org/10.1126/science.1238937)
- McLennan, S.M., R.B. Anderson, J.F. Bell III, J.C. Bridges, F. Calef III, J.L. Campbell, B.C. Clark, S. Clegg, P. Conrad, D.J. Des Marais, G. Dromart, M.D. Dyar, L.A. Edgar, B.L. Ehlmann, C. Fabre, O. Forni, O. Gasnault, R. Gellert, S. Gordon, J. A. Grant, J.P. Grotzinger, S. Gupta, K.E. Herkenhoff, J.A. Hurowitz, P.L. King, S. Le Mouélic, L.A. Leshin, R. Léveillé, K.W. Lewis, N. Mangold, S. Maurice, D.W. Ming, R.V. Morris, M. Nachon, H.E. Newsom, A.M. Ollila, G.M. Perrett, M.S. Rice, M.E. Schmidt, S.P. Schwenzer, K. Stack, E.M. Stolper, D.Y. **Sumner**, A.H. Treiman, S. van Bommel, D.T. Vaniman, A. Vasavada, R.C. Wiens, and R.A. Yingst, 2013. Elemental geochemistry of sedimentary rocks in Yellowknife Bay, Gale Crater, Mars. *Science*. DOI:[10.1126/science.1244734](https://doi.org/10.1126/science.1244734)

- Ming, D. W., P. D. Archer, Jr., D. P. Glavin, J. L. Eigenbrode, H. B. Franz, B. Sutter, A. E. Brunner, J. C. Stern, C. Freissinet, A. C. McAdam, P. R. Mahaffy, M. Cabane, P. Coll, J. L. Campbell, S. K. Atreya, P. B. Niles, J. F. Bell III, D. L. Bish, W. B. Brinckerhoff, A. Buch, P. G. Conrad, D. J. Des Marais, B. L. Ehlmann, A. G. Fairén, K. Farley, G. J. Flesch, P. Francois, R. Gellert, J. A. Grant, J. P. Grotzinger, S. Gupta, K. E. Herkenhoff, J. A. Hurowitz, L. A. Leshin, K. W. Lewis, S. M. McLennan, K. E. Miller, J. Moersch, R. V. Morris, R. Navarro-González, A. A. Pavlov, G. M. Perrett, I. Pradler, S. W. Squyres, R. E. Summons, A. Steele, E. M. Stolper, D. Y. **Sumner**, C. Szopa, S. Teinturier, M. G. Trainer, A. H. Treiman, D. T. Vaniman, A. R. Vasavada, C. R. Webster, J. J. Wray, R. A. Yingst and the MSL Science Team, 2013. Volatile and organic compositions of sedimentary rocks in Yellowknife Bay, Gale Crater, Mars. *Science*. DOI:10.1126/science.1245267
- Minitti, M.E., L.C Kah, R.A. Yingst, K.S. Edgett, R.C. Anderson, L.W. Beegle, J.L. Carsten, R.G. Deen, W. Goetz, C. Hardgrove, D.E. Harker, K.E. Herkenhoff, J.A. Hurowitz, L. Jandura, M.R. Kennedy, G. Kocurek, G.M. Krezoski, S.R. Kuhn, D. Limonadi, L. Lipkaman, M.B. Madsen, T.S. Olson, M.L. Robinson, S.K. Rowland, D.M. Rubin, C. Seybold, J. Schieber, M. Schmidt, D.Y. **Sumner**, V.V. Tompkins, J.K. Van Beek, and T. Van Beek, 2013. MAHLI (Mars Hand Lens Imager) at the Rocknest Sand Shadow: Science and Science-enabling Activities. *Journal of Geophysical Research - Planets*, Special Issue: Results from the first 100 sols of the Mars Science Laboratory mission: Bradbury landing through Rocknest, v. 118, p. 2388-2360. DOI: [10.1002/2013JE004426](https://doi.org/10.1002/2013JE004426)
- Williams, R.M.E., J.P. Grotzinger, W.E. Dietrich, S. Gupta, D.Y. **Sumner**, R.C. Wiens, N. Mangold, M.C. Malin, K.S. Edgett, S. Maurice, O. Forni, O. Gasnault, A. Ollila, H.E. Newsom, G. Dromart, M.C. Palucis, R.A. Yingst, R.B. Anderson, K.E. Herkenhoff, S. Le Mouélic, W. Goetz, M.B. Madsen, A. Koefoed, J.K. Jensen, J.C. Bridges, S.P. Schwenzer, K.W. Lewis, K.M. Stack, D. Rubin, L.C. Kah, J.F. Bell, J.D. Farmer, R. Sullivan, T. Van Beek, D.L. Blaney, O. Pariser, and R.G. Deen, 2013. Martian fluvial conglomerates at Gale Crater. *Science*, v. 340, p. 1068-1072. DOI:10.1126/science.1237317
- Vaniman, D.T., D.L. Bish, D.W. Ming, T.F. Bristow, R.V. Morris, D. F. Blake, S. J. Chipera, S.M. Morrison, A.H. Treiman, E.B. Rampe, M. Rice, C.N. Achilles, J. Grotzinger, S.M. McLennan, J. Williams, J. Bell III, H. Newsom, R.T. Downs, S. Maurice, P. Sarrazin, A.S. Yen, J.M. Morookian, J.D. Farmer, K. Stack, R.E. Milliken, B. Ehlmann, D.Y. **Sumner**, G. Berger, J.A. Crisp, J.A. Hurowitz, R. Anderson, D. DesMarais, E.M. Stolper, K.S. Edgett, S. Gupta, and N. Spanovich, 2013. Mineralogy of a mudstone at Yellowknife Bay, Gale Crater, Mars, *Science*. DOI:10.1126/science.1243480
- Edgett, K.S., M.A. Ravine, M.A. Caplinger, E.H. Jensen, J.A. Schaffner, R.A. Yingst, J.N. Maki, T.J. Parker, A.J. Sengstacken, J.J. Simmonds, R.G. Willson, F.T. Ghaemi, J.F. Bell III, L.J. Edwards, K.E. Herkenhoff, E. Heydari, L.C. Kah, M.T. Lemmon, M.E. Minitti, T.S. Olson, S.K. Rowland, J. Schieber, R.J. Sullivan, P.C. Thomas, D.Y. **Sumner** and W. Goetz, 2012. Curiosity's Mars Hand Lens Imager (MAHLI) investigation. *Space Science Reviews - Special Issue on Mars Science Laboratory Mission*, v. 170, p. 259-317, DOI: 10.1077/s11214-012-9910-4.
- Harwood*, Cara L., and Dawn Y. **Sumner**, 2012. Origins of microfibrils in the Neoproterozoic Beck Spring Dolomite: Influences of microbial communities and variations in lithification. *Journal of Sedimentary Research*, v. 82, p. 709-722, DOI: 10.2110/jsr.2012.65
- Andersen, Dale T., Dawn Y. **Sumner**, Ian Hawes, Jenny Webster-Brown, and Christopher P. McKay, 2011. Discovery of large conical stromatolites in Lake Untersee, Antarctica. *Geobiology*, v.9. 280-293, DOI: 10.1111/j.1472-4669.2011.00279.x
- Chavdarian*, Gregory V., and Dawn Y. **Sumner**, 2011. Origin and evolution of polygonal cracks in hydrous sulphate sands, White Sands National Monument, New Mexico. *Sedimentology*, v. 58, p. 407-423. DOI: 10.1111/j.1365-3091.2010.01169.x
- Harwood*, Cara L., and Dawn Y. **Sumner**, 2011. Microbialites of the Neoproterozoic Beck Spring Dolomite, southern California. *Sedimentology*, v. 58, p. 1648-1673. DOI: 10.1111/j.1365-3091.2011.01228.x

- Hassler, Scott W., Bruce M. Simonson, Dawn Y. **Sumner**, and Louis Bodin, 2011. Paraburdoo Spherule Layer (Hamersley Basin, Western Australia): distal ejecta from large impact #4 near the Archean-Proterozoic boundary. *Geology*, v. 39, p. 307-310. DOI: 10.1130/G31526.1
- Hawes, Ian, Dawn Y. **Sumner**, Dale T. Andersen, and Tyler Mackey*, 2011. Legacies of recent environmental change in the benthic communities of Lake Joyce, a perennially ice covered, Antarctic lake. *Geobiology*, v. 9, p. 394-410. DOI: 10.1111/j.1472-4669.2011.00289.x
- Lim, Darlene S. S., A. L. Brady, and PLRP Team (59 members including D. Y. **Sumner**), 2011. A historical overview of the Pavilion Lake Research Project - Analog Exploration in an Underwater Environment. *GSA Special Paper*, v. 483, p. 85-115. DOI: 10.1130/2011.2483(07)
- Stevens*, Eric W., Dawn Y. **Sumner**, Cara L. Harwood*, James P. Crutchfield, Bernd Hamann, Oliver Kreylos, Edward Puckett and Patrick Senge*, 2011. Understanding microbialite morphology using a comprehensive suite of three dimensional analysis tools. *Astrobiology*, v. 11, p. 509-518. DOI: 10.1089/ast.2010.0560
- Neff, Michael, Dawn Y. **Sumner**, Gerald W. Bawden, Ellen Bromberg, James P. Crutchfield, Della Davidson, Shelly Gibrade, Louise H. Kellogg, and Oliver Kreylos, 2010. Blending art and science: *Collapse (suddenly falling down)*. *Leonardo*, v. 43, p. 274-281.
- Shepard*, Rebekah N., and Dawn Y. **Sumner**, 2010. Undirected motility of filamentous cyanobacteria produces reticulate mats. *Geobiology*, v. 8, p. 179-190. DOI: 10.1111/j.1472-4669.2010.00235.x
- Ono, Shuhei, Alan J. Kaufman, James Farquhar, Dawn Y. **Sumner**, and Nicolas J. Beukes, 2009. Lithofacies control on multiple-sulfur isotope records and the Neoproterozoic sulfur cycle. *Precambrian Research*, v. 169 p. 58-67. DOI:10.1016/j.precamres.2008.10.013
- Schröder, S., N. J. Beukes, and D. Y. **Sumner**, 2009. Microbialite-sediment interactions on the slope of the Campbellrand carbonate platform (Neoproterozoic, South Africa). *Precambrian Research*, v. 169 p. 68-79. DOI: 10.1016/j.precamres.2008.10.014
- Simonson, Bruce M., Dawn Y. **Sumner**, Nicolas J. Beukes, and Jens Gutzmer, 2009. Correlating multiple Neoproterozoic-Paleoproterozoic impact spherule layers between South Africa and Western Australia. *Precambrian Research*, v. 169 p. 100-111. DOI:10.1016/j.precamres.2008.10.016
- Waldbauer, Jacob R., Laura S. Sherman, Dawn Y. **Sumner**, and Roger E. Summons, 2009. Late Archean molecular fossils from the Transvaal Supergroup record the antiquity of microbial diversity and aerobiosis. *Precambrian Research*, v. 169 p. 28-47. DOI:10.1016/j.precamres.2008.10.011
- Billen, Magali I., Oliver Kreylos, Bernd Hamann, Margarete Jadamec, Louise H. Kellogg, Oliver Staadt, and Dawn Y. **Sumner**, 2008. A geoscience perspective on immersive 3D gridded data visualization. *Computers and Geosciences*, v. 34:9, DOI: 10.1016/j.cageo.2007.11.009
- Kellogg, Louise H., Gerald W. Bawden, Tony Bernardin, Magali Billen, Eric Cowgill, Bernd Hamann, Margaret Jadamec, Oliver Kreylos, Oliver Staadt, and Dawn **Sumner**, 2008. Interactive visualization to advance earthquake simulation. *Pure & Applied Geophysics*, v. 165, p. 621-633.
- Murphy*, Megan, and Dawn Y. **Sumner**, 2008. Variations in Neoproterozoic microbialite morphologies: Clues to controls on microbialite morphologies through time. *Sedimentology*, v. 55, p. 1189-1202. DOI: 10.1111/j.1365-3091.2007.00942.x
- Murphy*, Megan, and Dawn Y. **Sumner**, 2007. Tube structures of probable microbial origin in the Neoproterozoic Carawine Dolomite, Hamersley Basin, Western Australia. *Geobiology*, v. 6, p. 83-93. DOI: 10.1111/j.1472-4669.2007.00114.x
- Andres, Miriam S., Dawn Y. **Sumner**, R. Pamela Reid, and Peter K. Swart, 2006. Carbon isotopic fingerprints of microbial respiration in modern marine stromatolites. *Geology*, v. 34, p. 973-976. DOI: 10.1130/G22859A.1
- Bishop*, James W., and Dawn Y. **Sumner**, 2006. Molar tooth structures of the Neoproterozoic Monteville Formation, Transvaal Supergroup, South Africa: I. Description and constraints on microspar precipitation. *Sedimentology*, v. 53, p. 1049-1068. DOI: 10.1111/j.1365-3091.2006.00801.x

- Bishop*, James W., Dawn Y. **Sumner**, and Nicolas J. Huerta*, 2006. Molar tooth structures of the Neoproterozoic Monteville Formation, Transvaal Supergroup, South Africa: II. A Fluid Flow Model. *Sedimentology*, v. 53, p. 1069-1082. DOI: 10.1111/j.1365-3091.2006.00802.x
- Chavdarian*, Gregory V., and Dawn Y. **Sumner**, 2006. Cracks and fins in sulfate sand: Evidence for recent mineral-atmospheric water cycling in Meridiani Planum outcrops? *Geology*, v. 34, p. 229-232. DOI: 10.1130/G22101.1
- Kreylos, Oliver, Tony Bernardin, Magali I. Billen, Eric S. Cowgill, Ryan D. Gold, Bernd Hamann, Margarete Jadamec, Louise Kellogg, Oliver G. Staadt, Dawn Y. **Sumner**, 2006. Enabling scientific workflows in virtual reality, in *Proceedings of ACM SIGGRAPH Conference on Virtual Reality Continuum and Its Applications*: <http://tinyurl.com/3zjxh8>.
- Sumner**, Dawn Y., and Nicolas J. Beukes, 2006. Sequence stratigraphic development of the Neoproterozoic Transvaal carbonate platform, South Africa. *South African Journal of Geology*, v. 109, p. 11-22.
- Hassler, S.W., B.M. Simonson, D. **Sumner**, and M. Murphy*, 2005. Neoproterozoic spherule layers in the Fortescue and Hamersley Groups, Western Australia: stratigraphic and depositional implications of re-correlation, *Australian Journal of Earth Sciences*, v. 52, p. 759-771.
- Sumner**, Dawn Y., 2004. Poor preservational potential of organics in Meridiani Planum hematite-bearing sedimentary rocks, *Journal of Geophysical Research - Planets*, v. 109, E12007. DOI:10.1029/2004JE002321.
- Sumner**, Dawn Y., and John P. Grotzinger, 2004. Implications for Neoproterozoic ocean chemistry from primary carbonate mineralogy of the Campbellrand-Malmani Platform, South Africa, *Sedimentology*, v. 51, p. 1-27, doi: 10.1111/j.1365-3091.2004.00670.x.
- Reid R.P., C. Dupraz, P.T. Visscher, and D.Y. **Sumner**, 2003. Microbial processes forming modern marine stromatolites: Microbe-mineral interactions with a three-billion-year rock record, in *Fossil and Recent Biofilms, a Natural History of Life on Earth*, W. E. Krumbein, D. M. Paterson, and G. A. Zavarzin, editors. Kluwer Academic Publishers, p. 103-118.
- Stephens*, Nat P. and Dawn Y. **Sumner**, 2003. Famennian microbial reef facies, Napier and Oscar Ranges, Canning Basin, Western Australia, *Sedimentology*, v. 50, p. 1283-1302.
- Stephens*, Nat P. and Dawn Y. **Sumner**, 2003. Late Devonian carbon isotope stratigraphy and sea level fluctuations, Canning Basin, Western Australia. *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 191, p. 203-219.
- Stephens*, Nat P. and Dawn Y. **Sumner**, 2002. Renalcids as fossilized biofilm clusters. *Palaios*, v. 17, p. 225-236.
- Sumner**, Dawn Y., 2001. Decimeter-thick encrustations of calcite and aragonite on the sea floor and implications for Neoproterozoic and Neoproterozoic ocean chemistry, in *Precambrian Sedimentary Environments: A Modern Approach to Ancient Depositional Systems*, W. Altermann and P. L. Corcoran, editors. Special Publication #33 of the International Association of Sedimentologists, Blackwell, p. 107-120.
- Sumner**, Dawn Y., 2001. Microbial influences on local carbon isotopic ratios and their preservation in carbonate. *Astrobiology*, v. 1, p. 57-70.
- Sumner**, Dawn Y., 2000. Microbial versus environmental influences on the morphology of Late Archean fenestrate microbialites in *Microbial Sediments*, R. Riding and S. Awramik, editors. p. 307-314.
- Sumner**, Dawn Y. and John P. Grotzinger, 2000. Late Archean aragonite precipitation: Petrography, facies associations, and environmental significance in *Carbonate Sedimentation and Diagenesis in the Evolving Precambrian World*, J. Grotzinger and N. James, editors, S.E.P.M. Special Publication #67, p. 123-144.
- Sumner**, Dawn Y., 1997. Carbonate precipitation and oxygen stratification in Late Archean seawater as deduced from facies and stratigraphy of the Gamohaam and Frisco formations, Transvaal Supergroup, South Africa. *American Journal of Science*, v. 297, p. 455-487.
- Sumner**, Dawn Y., 1997. Late Archean calcite-microbe interactions: Two morphologically distinct microbial communities that affected calcite nucleation differently. *Palaios*, v. 12, p. 300-316.

- Sumner**, Dawn Y. and Samuel A. Bowring, 1996. U-Pb geochronologic constraints on deposition of the Campbellrand Subgroup, Transvaal Supergroup, South Africa. *Precambrian Research*, v. 78, p. 25-35.
- Sumner**, Dawn Y. and John P. Grotzinger, 1996. Were kinetics of Archean calcium carbonate precipitation related to oxygen concentration? *Geology*, v. 24, p. 119-122.
- Sumner**, Dawn Y. and John P. Grotzinger, 1996. Herringbone calcite: Petrography and environmental significance. *Journal of Sedimentary Research*, v. 66, p. 419-429.
- Sumner**, Dawn Y. and John P. Grotzinger, 1993. Numerical modeling of ooid size and the problem of Neoproterozoic giant ooids. *Journal of Sedimentary Petrology*, v. 63, p. 974-982.

Other Scientific Publications:

- Grotzinger, John, David Beaty, Gilles Dromart, Sanjeev Gupta, Mitch Harris, Joel Hurowitz, Gary Kocurek, Scott McLennan, Ralph Milliken, Gian Gabrielle Ori, and Dawn **Sumner**, 2011. The sedimentary record of Mars. *The Sedimentary Record*, v. 9, n. 2, p. 4-8.
- Grotzinger, John, David Beaty, Gilles Dromart, Sanjeev Gupta, Mitch Harris, Joel Hurowitz, Gary Kocurek, Scott McLennan, Ralph Milliken, Gian Gabrielle Ori, and Dawn **Sumner**, 2011. Mars sedimentary geology: Key concepts and outstanding questions. *Astrobiology*, v. 11, p. 77-87, DOI: 10.1089/ast2010.0571.
- Summons, Roger E., Jan P. Amend, David Bish, Roger Buick, George D. Cody, David J. Des Marais, Gilles Dromart, Jennifer L. Eigenbrode, Andrew H. Knoll, and Dawn Y. **Sumner**, 2011. Preservation of martian organic and environmental records. *Astrobiology*, v. 11, p. 157-181. DOI:10.1089/ast.2010.0506.
- Neff, Michael, Dawn Y. **Sumner**, Gerald W. Bawden, Ellen Bromberg, Della Davidson, Shelly Gibride, Louise H. Kellogg, and Oliver Kreylos, 2009. Blending art and science in *Collapse (suddenly falling down)*. Leonardo Transactions. <http://www.leonardo-transactions.com/announcements/>
- Ohmoto, Hiroshi, Bruce Runnegar, Lee R. Kump, Marilyn L. Fogel, Balz Kamber, Ariel D. Anbar, Paul L. Knauth, Donald R. Lowe, Dawn Y. **Sumner**, and Yumiko Watanabe, 2008. Biosignatures in ancient rocks: A summary of discussions at Field Workshop on Biosignatures in Ancient Rocks. *Astrobiology*, v. 8, p. 883-907.
- MEPAG Next Decade Science Analysis Group, 2008. Science priorities for Mars sample return. *Astrobiology*, v. 8, p. 489-535. Appendices available at: <http://mepag.jpl.nasa.gov/reports/ndsag.html> (Sumner was a member of the Next Decade Science Analysis Group.)
- Billen, M. I., O. Kreylos, L. H. Kellogg, B. Hamann, O. Staadt, D. Y. **Sumner**, M. Jadamec, 2006. Study of 3D Visualization Software for Geo-Science Applications, KeckCAVES Tech. Report 06-01. <http://keckcaves.org>
- Taylor, G. Jeffrey, Dawn **Sumner**, Andy Steele, Steve Bougher, Mark Richardson, Dave Paige, Glenn MacPherson, Bruce Banerdt, John Connolly, and Kelly Snook, 2004. Scientific Goals, Objectives, Investigations, and Priorities: 2004. MEPAG (Mars Exploration Program Analysis Group), <http://mepag.jpl.nasa.gov/reports/index.html>
- Sumner**, Dawn Y., 2004. Comment on: Secular variations in Precambrian seawater chemistry and the timing of Precambrian aragonite seas and calcite seas. *Geology*, Online Forum, p. e56. DOI: 10.1130/0091-7613-32.1.e1
- Beukes, Nic, Ken Eriksson, and Dawn **Sumner**, 2002. Archaeal to Proterozoic sedimentological superlatives along the eastern Kaapvaal Craton. Excursion guide, 16th International Sedimentological Conference, Rand Afrikaans University, South Africa, 79 p.
- Beukes, Nic, and Dawn Y. **Sumner**, 2002. Archaeal stromatolitic carbonates of the Transvaal Supergroup and quartzite - iron formation marine shelf deposits of the Witwatersrand Basin. Excursion Guide, 16th International Sedimentological Conference, Rand Afrikaans University, South Africa, 13 p.
- MacPherson, Glenn J. (Chair), and the MSR Science Steering Group, 2002. Groundbreaking MSR: Science requirements and cost estimates for a first Mars surface sample return mission. Unpublished white paper, <http://mepag.jpl.nasa.gov/reports/index.html>.

Sumner, Dawn Y., 2002. Neoproterozoic carbonates - Clues to early life and early ocean chemistry. Excursion guide, 16th International Sedimentological Conference, Rand Afrikaans University, South Africa, 42 p.
<http://www.geology.ucdavis.edu/~sumner/IAS/IAS.html>

Sumner, Dawn Y., 2002. Biology and Geology: A necessary symbiosis. *Palaios*, v. 17, p. 307-308.

Montanez, I., and D. **Sumner**, 1999. Low-temperature isotope geochemistry. *Geotimes*, v. 43, p. 37-38.

Abstracts:

Calef III, F. J., W. E. Dietrich, L. Edgar, J. Farmer, A. Fraeman, J. Grotzinger, M. C. Palucis, T. Parker, M. Rice, S. Rowland, K. M. Stack, D. **Sumner**, J. Williams, and the MSL Science Team, 2013. Geologic mapping of the Mars Science Laboratory Landing Ellipse. 44th Lunar and Planetary Sciences Conference, abstract #2511.

Conrad, P. G., D. Archer, S. Atreya, D. Blake, P. Coll, M. de la Torre, K. Edgett, J. Eigenbrode, M. Fisk, Freissenet, C., H. Franz, D.P. Glavin, F. Gómez, R. Haberle, V. Hamilton, J. Jones, L. Kah, L. Leshin, P.M. Mahaffy, A. McAdam, C. McKay, R. Navarro-Gonzalez, A. Steele, J. Stern, D. **Sumner**, A. Treiman, M.H. Wong, J. Wray, R.A. Yingst and the MSL Science Team, 2013. Habitability assessment at Gale Crater: Implications from initial results. 44th Lunar and Planetary Sciences Conference, abstract #2185.

Dietrich, W. E., T. Parker, D.Y. **Sumner**, A Hayes, M. C. Palucis, R.M.E. Williams, F. Calef, and the MSL team, 2013. Topographic evidence for lakes in Gale Crater. 44th Lunar and Planetary Sciences Conference, abstract #1844.

Edgar, L. A., D. M. Rubin, J. P. Grotzinger, J. F. Bell III, F. J. Calef III, G. Dromart, S. Gupta, L. C. Kah, K. W. Lewis, N. Mangold, J. Schieber, K. M. Stack, D. Y. **Sumner**, and the MSL Science Team, 2013. Sedimentary facies and bedform analysis observed from the Rocknest outcrop (sols 59-100), Gale Crater, Mars. 44th Lunar and Planetary Sciences Conference, abstract #1628.

Hallet, B., R.S. Sletten, W. Stewart, R. Williams, N. Mangold, J. Schieber, D. **Sumner**, G. Kocurek, and MSL Science Team, 2013. Fracture networks, Gale Crater, Mars. 44th Lunar and Planetary Sciences Conference, abstract #3108.

Harwood*, Cara L., and Dawn Y. **Sumner**, 2013. Clottedness in Cambrian microbialites: Examining textural variations in the defining characteristic of thrombolites. Geological Society of America Cordilleran Section Meeting.

Mahaffy, P.R., M. Cabane, C.R. Webster, P.D. Archer, S.K. Atreya, M. Benna, W.B. Brinckerhoff, A.E. Brunner, A. Buch, P. Coll, P.G. Conrad, D. Coscia, N. Dobson, J.P. Dworkin, J.L. Eigenbrode, K.A. Farley, G. Flesch, H.B. Franz, C. Freissenet, D.P. Glavin, S. Gorevan, J.P. Grotzinger, D.N. Harpold, J. Hengemihle, F. Jaeger, C.S. Johnson, M.S. Johnson, J.H. Jones, M.C. Lefavor, L.A. Leshin, E.I. Lyness, C.A. Malespin, H.L. Manning, D.K. Martin, A.C. McAdam, C.P. McKay, K. Miller, D.W. Ming, R.V. Morris, R. Navarro-González, P.B. Niles, T.J. Nolan, T.C. Owen, A.A. Pavolov, B.D. Prats, R.O. Pepin, E. Raaen, F. Raulin, A. Steele, J.C. Stern, S.W. Squyres, B. Sutter, R. E. Summons, D.Y. **Sumner**, C. Szopa, F.W. Tan, S. Teinturier, M.G. Trainer, M.H. Wong, J.J. Wray, and the MSL Science Team, 2013. Curiosity's Sample Analysis at Mars (SAM) investigation: Overview of results from the first 120 sols on Mars. 44th Lunar and Planetary Sciences Conference, abstract #1395.

Palucis, M. C., W. E. Dietrich, A. Hayes, R.M.E. Williams, F. Calef, D.Y. **Sumner**, S. Gupta, C. Hardgrove, and the MSL Science Team, 2013. Origin and evolution of the the Peace Vallis fan system that drains into the Curiosity landing area, Gale Crater. 44th Lunar and Planetary Sciences Conference, abstract #1607.

Rice, M.S., J.M. Williams, F. Calef, R.B. Anderson, L. Edgar, K. Stack, D.Y. **Sumner**, H.E. Newsom, J.P. Grotzinger, P. King, 2013. Detailed geologic mapping along the Mars Science Laboratory (MSL) Curiosity traverse path from Glenelg to Mount Sharp. 44th Lunar and Planetary Sciences Conference, abstract #2892.

Stack, K. M., J. P. Grotzinger, D. Y. **Sumner**, B. L. Ehlmann, R. E. Milliken, J. L. Eigenbrode, S. Gupta, R. M. E. Williams, L. C. Kah, K. W. Lewis, and the MSL Science Team, 2013. Using outcrop exposures on the road to Yellowknife Bay to build a stratigraphic column, Gale Crater, Mars. 44th Lunar and Planetary Sciences Conference, abstract #1431.

- Sumner**, D.Y., M. Palucis, B. Dietrich, F. Calef, K.M. Stack, B. Ehlmann, J. Bridges, G. Dromart, J. Eigenbrode, J. Farmer, J. Grant, J. Grotzinger, V. Hamilton, C. Hardgrove, L. Kah, R. Leveille, N. Mangold, S. Rowland, R. Williams, and the MSL Science Team, 2013. Preliminary geological map of the Peace Vallis Fan integrated with in situ mosaics from the Curiosity Rover, Gale Crater, Mars. 44th Lunar and Planetary Sciences Conference, abstract #1699.
- Williams*, A. J., D. Y. **Sumner**, 2013. Development and preservation of filamentous mineral biosignatures: implications for detection with the Mars Science Laboratory. 44th Lunar and Planetary Sciences Conference, abstract #1741.
- Williams, R. M. E., W. E. Dietrich, J. P. Grotzinger, S. Gupta, M. C. Malin, M. C. Palucis, D. Rubin, K. Stack, D. Y. **Sumner**, R. A. Yingst, J. C. Bridges, W. Goetz, A. Koefoed, J. K. Jensen, M. B. Madsen, S. P. Schwenzer, R. G. Deen, O. Pariser, and the MSL Science Team, 2013. Curiosity's Mastcam images reveal conglomerate outcrops with water transported pebbles. 44th Lunar and Planetary Sciences Conference, abstract #1617.
- Yingst, R. A., K.S. Edgett, V.E. Hamilton, L.C. Kah, S.K. Rowland, D.Y. **Sumner**, and the MSL Science Team, 2013. A preliminary assessment of sub-mm spherules at Rocknest, Gale Crater, Mars. 44th Lunar and Planetary Sciences Conference, abstract #1257.
- Dietrich, William E., Marisa Palucis, Sanjeev Gupta, Rebecca M.E. Williams, Kevin Lewis, Alexander G. Hawes, Dawn Y. **Sumner**, and the MSL Team, 2012. Alluvial fans near the Curiosity Landing Site. Geological Society of America Annual Meeting.
- Hallet, Bernard, Ronald S. Sletten, Wayne Stewart, Nicolas Mangold, Dawn Y. **Sumner**, and the MSL Team, 2012. Polygonal fracture networks, Gale Crater, Mars. Geological Society of America Annual Meeting.
- Harwood*, C. L., and D. Y. **Sumner**, 2012. Thrombolite variability in Cambrian carbonates, southern Great Basin, USA. American Association of Petroleum Geologists Annual Meeting.
- Juarez Rivera*, M. and D. Y. **Sumner**, 2012. Exploring distributions of tubular structures in fenestrae microbialites. 2012 Astrobiology Science Conference.
- Mackey*, T. J. and D. **Sumner**, 2012. Microbial ecology-driven transitions in stromatolite morphogenesis decoupled from sedimentary processes under ice in modern Lake Joyce, Antarctica. 2012 Astrobiology Science Conference.
- Sumner**, Dawn Y., Fred Calef, John Grant, Ken Herkenhoff, Tim Parker, Scott Roland, Katheyn Stack, Lauren Edgar, Abigail Fraeman, Nicolas Mangold, and the MSL Science Team, 2012. Preliminary geological map of the Curiosity landing Ellipse, Gale Crater, Mars. Geological Society of America Annual Meeting.
- Sumner**, D. Y., J. Crutchfield, J. Dumit, B. Hamann, L. Kellogg, O. Kreylos, T. Mackey*, and E. Stevens*, 2012. Collaborative visual interpretation of large datasets. 2012 Astrobiology Science Conference.
- Sumner**, D. Y., I. Hawes, and D. Andersen, 2012. Growth of conical stromatolites through microbial trapping and binding of sediment. 2012 Astrobiology Science Conference.
- Williams*, A. and D. Y. **Sumner**, 2012. The development and preservation of filamentous fabrics as mineralogic biosignatures, Iron Mountain, California. Lunar and Planetary Science Conference XLII.
- Williams*, A. and D. Y. **Sumner**, 2012. Biogenic cylindrical filament formation as mineralogic biosignatures, Iron Mountain, CA. 2012 Astrobiology Science Conference.
- Harwood*, C. L., D. Y. **Sumner**, T. J. Mackey, A. L. Brady, G. F. Slater, and D. S. S. Lin, 2011. Influences of microbial communities on carbonate fabrics in recent lacustrine microbialites, Pavilion Lake, British Columbia. Geological Society of America Annual Meeting.
- Kellogg, L. H., T. Bernardin*, M. I. Billen, E. Cowgill, J. Crutchfield, A. J. Elliott*, B. Hamann, C. L. Harwood*, O. Kreylos, and D. **Sumner**, 2011. KeckCAVES: Enabling interactive visual exploration in virtual reality for the geosciences. Geological Society of America Annual Meeting.
- Makey*, T. J., D. Y. **Sumner**, I. Hawes, and D. T. Andersen, 2011. Changes in microbial ecology associated with a transition from conophyton to jacutophyton in modern Lake Joyce, Antarctica. Geological Society of America Annual Meeting.

- Stevens*, E. and D. Y. **Sumner**, 2011. Archean plumose microbialites: Three distinct growth morphologies and ecological implications. Geological Society of America Annual Meeting.
- Williams*, A. J., and D. Y. **Sumner**, 2011. Geobiology of acid saline systems: Implications for the development and preservation of mineralogic biosignatures on Mars. Lunar and Planetary Science Conference XLI.
- Lim, D. S. S. and 18 others, including **Sumner**, 2010. Pavilion Lake Research Project: Understanding the conditions for microbialite growth and development in Pavilion Lake, Canada. Astrobiology Science Conference 2010.
- Simonson, B. M., S. W. Hassler, N. J. Beukes, and D. Y. **Sumner**, 2010. Large impacts around the Archean-Proterozoic boundary: An update. Lunar and Planetary Science Conference XL.
- Stevens*, E. W., and D. Y. **Sumner**, 2010. Insight from three-dimensional reconstruction of Neoproterozoic fenestrate microbialites. American Geophysical Union Annual Meeting.
- Sumner**, D. Y., I. Hawes, and D. Andersen, 2010. Microbialite response to environmental change in Lake Joyce, Antarctica. Astrobiology Science Conference 2010.
- Sumner**, D. Y., and G. V. Chavdarian*, 2010. Sediment-atmosphere water exchange and polygonal cracks: Lessons from White Sands National Monument, NM. First International Conference on Mars Sedimentology and Stratigraphy.
- Williams*, A. J., and D. Y. **Sumner**, 2010. Acid Saline Weathering of Massive Sulfide and Gossan formation: Implications for Development and Preservation of Biosignatures on Mars. American Geophysical Union Annual Meeting.
- Brady A., G. Slater, C. Omelon, G. Southam, G. Druschel, D. Andersen, I. Hawes, D. Y. **Sumner**, B. Laval, and D.S.S. Lim, 2009. Biosignatures of photosynthetic influences on carbonate precipitation in surface nodules associated with modern, freshwater microbialites in Pavilion Lake, B.C. American Geophysical Union Annual Meeting.
- Edgett, K. S., M. A. Ravine, M. A. Caplinger, F. T. Ghaemi, J. A. Schaffner, M. C. Malin, J. M. Baker, D. R. DiBiase, J. Laramée, J. N. Maki, R. G. Willson, J. F. Bell III, J. F. Cameron, W. E. Dietrich, L. J. Edwards, B. Hallet, K. E. Herkenhoff, E. Heydari, L. C. Kah, M. T. Lemmon, M. E. Minitti, T. S. Olson, T. J. Parker, S. K. Rowland, J. Schieber, R. J. Sullivan, D. Y. **Sumner**, P. C. Thomas, and R. A. Yingst, 2009. The Mars Hand Lens Imager (MAHLI) aboard the Mars rover, Curiosity. Workshop on the Microstructure of the Martian Surface, Denmark.
- Edgett, K. S., M. A. Ravine, M. A. Caplinger, F. T. Ghaemi, J. A. Schaffner, M. C. Malin, J. M. Baker, D. R. DiBiase, J. Laramée, J. N. Maki, R. G. Willson, J. F. Bell III, J. F. Cameron, W. E. Dietrich, L. J. Edwards, B. Hallet, K. E. Herkenhoff, E. Heydari, L. C. Kah, M. T. Lemmon, M. E. Minitti, T. S. Olson, T. J. Parker, S. K. Rowland, J. Schieber, R. J. Sullivan, D. Y. **Sumner**, P. C. Thomas, and R. A. Yingst, 2009. The Mars Science Laboratory (MSL) Mars Hand Lens Imager (MAHLI) flight instrument. Lunar and Planetary Science Conference XXXX, Abstract 1197.
- Florsheim, J. L., Y.S. Cai, B. F. Di, P. He, C. M. Huang, L. Li, L. M. Kellogg, X. Qiao, D. Y. **Sumner**, S. L. Ustin, H. Xinxin, Y. Tang, M. Zhang, 2009. Geomorphic controls on fluvial travertine morphology. Geological Society of America, Abstract.
- Harwood*, Cara L., and Dawn Y. **Sumner**, 2009. Multiple origins of diverse microbial fabrics in Precambrian thrombolites. Geological Society of America Annual Meeting.
- Hassler, Scott W., Bruce M. Simonson, and Dawn Y. **Sumner**, 2009. Discovery of a new spherule later in the Hamersley Basin (Western Australia) representing a fourth asteroid impact near the Archean/Proterozoic boundary. Geological Society of America Annual Meeting.
- Lim-D.S.S., A. Brady, Z. Cardman, B. Cowie, A. Forrest, M. Marinova, R. Shepard*, B. Laval, G.F. Slater, D. Reid, M.L. Gernhardt⁹, D. Andersen, I. Hawes, D. Y. **Sumner**, A. Trembanis, C.P. McKay, 2009. Pavilion Lake Research Project - using multi-scaled approaches to understanding the provenance, maintenance and morphological characteristics of microbialites. American Geophysical Union Annual Meeting.

- Mahoney*, J., J.P. Crutchfield, D.Y. **Sumner**, 2009. Pattern formation in cyanobacteria. International Water Association, Processes in Biofilms: Fundamentals to Applications, UC Davis, September 13-16.
- Malin, M. C., M. A. Caplinger, K. S. Edgett, F. T. Ghaemi, M. A. Ravine, J. A. Schaffner, J. N. Maki, R. G. Willson, J. F. Bell III, J. F. Cameron, W. E. Dietrich, L. J. Edwards, B. Hallet, K. E. Herkenhoff, E. Heydari, L. C. Kah, M. T. Lemmon, M. E. Minitti, T. S. Olson, T. J. Parker, S. K. Rowland, J. Schieber, R. J. Sullivan, D. Y. **Sumner**, P. C. Thomas, and R. A. Yingst, 2009. The Mars Science Laboratory (MSL) Mars Descent Imager (MARDI) flight instrument. Lunar and Planetary Science Conference XXXX, Abstract 1199.
- Sumner**, D.Y., 2009. Biofilms and their 3.45 billion year history. International Water Association, Processes in Biofilms: Fundamentals to Applications, UC Davis, September 13-16. (invited)
- Sumner**, Dawn Y., 2009. Detecting traces of primitive life on Earth (in the context of solar system exploration). Space Telescope Science Symposium on: The Search for Life in the Universe. (invited)
- Stevens*, Eric W. and Dawn Y. **Sumner**, 2009. Identifying key structural features and spatial relationships in Archean microbialites using 2D and 3D Visualization Methods. American Geophysical Union Annual Meeting.
- Chavdarian*, Gregory V., and Dawn Y. **Sumner**, 2008. Crack geometry and morphology in hydrous sulfate sands. Lunar and Planetary Science Conference XXXIX, Abstract 2285.
- Harwood*, Cara, and Dawn Y. **Sumner**, 2008. Stromatolitic buildups and associated microbial facies of the Neoproterozoic Beck Spring Dolomite, southern California, Geological Society of America, Abstract 304-10.
- Oberstadt*, Amy, Dana Armstrong*, Natalie Stork*, Rebekah Shepard*, and Dawn **Sumner**, 2008. Patterns of motility and morphogenesis in filamentous cyanobacterial biofilms. AbSciCon 2008, Astrobiology, v. 8, Abstract 18-12-P.
- Shepard*, Rebekah, Natalie Stork*, Amy Oberstadt*, Dana Armstrong*, and Dawn **Sumner**, 2008. Random motility creates reticulate morphologies in cyanobacterial biofilms, leaving phototaxis in the dark. AbSciCon 2008, Astrobiology, v. 8, Abstract 18-15-O.
- Stork*, Natalie, Rebekah Shepard*, and Dawn **Sumner**, 2008. CaCO₃ precipitation in freshwater laboratory biofilms dominated by *Oscillatoria* sp. AbSciCon 2008, Astrobiology, v. 8, Abstract 18-16-P.
- Sumner**, Dawn Y., James P. Crutchfield, and Rebekah N. Shepard*, 2008. Microbial motility and morphological biosignatures. AbSciCon 2008, Astrobiology, v. 8, Abstract 24-48-O.
- Bishop*, James W., Dawn Y. **Sumner**, David A. Osleger, Isabel Montañez, and Scott W. Tinker, 2007. $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ enrichment near cycle tops and sequence boundaries in the Capitan backreef, McKittrick and Slaughter Canyons. AAPG Annual Meeting, Abstracts. <http://tinyurl.com/4jg8wz>
- Chavdarian*, Gregory V., and Dawn Y. **Sumner**, 2007. Cracks as evidence for water evaporation and condensation associated with temperature changes in hydrous sulfate sands. Lunar and Planetary Science XXXVIII, Abstract 2246.
- Kreylos, Oliver, Gerald W. Bawden, Magali I. Billen, Eric Cowgill, Bernd Hamann, Margarete A. Jadamec, Louise H. Kellogg, Oliver G. Staadt, and Dawn Y. **Sumner**, 2007. Interactive immersive visualization of geoscience data. Geological Society of America, Geoinformatics Conference, Abstract 2-8.
- Minitti, Michelle E., Kenneth Edgett, and the MSL Mastcam/MAHLI/MARDI Team, 2007. The Mars Science Laboratory Mars Hand Lens Imager (MSL MAHLI). Geological Society of America, Abstract 135-2.
- Stork*, Natalie J., Amy E. Oberstadt*, Dana K. Armstrong*, Rebekah N. Shepard*, and Dawn Y. **Sumner**, 2007. Morphogenesis of laboratory biofilms. Geological Society of America, Abstract 24-12.
- Sumner**, Dawn Y., 2007. Mars Habitability. Second Mars Science Laboratory Landing Site Workshop, Pasadena, CA, October 23-25, 2007. <http://tinyurl.com/5jrybm>
- Sumner**, Dawn Y., 2007. del.icio.us, YouTube, and undergraduate sedimentology students. Geological Society of America, Abstract (invited). http://gsa.confex.com/gsa/2007AM/finalprogram/abstract_130215.htm

- Sumner**, Dawn Y., 2007. Differential dissolution and recrystallization: Microscale clues to precursor mineral solubility. Geological Society of America, Abstract (invited).
http://gsa.confex.com/gsa/2007AM/finalprogram/abstract_128190.htm
- Andres, Miriam S., R. Pamela Reid, Dawn Y. **Sumner**, Pieter T. Visscher, and Peter K. Swart, 2006. Isotopic fingerprinting of modern marine stromatolites. International Sedimentary Congress.
- Bishop*, James W., Nicolas J. Huerta*, and Dawn Y. **Sumner**, 2006. Interconnectivity of molar tooth cracks in the ~2.6 Ga Monteville Formation, Transvaal Supergroup, from neutron-computed tomography. Astrobiology Science Conference, Abstract.
- Bishop*, James, Dawn **Sumner**, Dave Osleger, Isabel Montañez, and Scott Tinker, 2006. Isotopic variability in backreef strata of the Permian Reef Complex, McKittrick Canyon, West Texas. GSA Annual Meeting, Abstract.
- Chavdarian*, Gregory V., and Dawn Y. **Sumner**, 2006. Cracks and fins in sulfate sand: Evidence for recent mineral-atmospheric water cycling in Meridiani Planum outcrops? Lunar and Planetary Science XXXVII and Water on Mars Workshop, NASA Ames.
- Murphy*, M.A., B. Kansara, V. Natarajan, G.H. Weber, B. Hamann, D.Y. **Sumner**, 2006. 2.6 Ga microbial tube structures from the Carawine Fm., Hamersley Basin, Western Australia, Astrobiology Science Conference, Abstract 129.
- Shepard*, Rebekah, Natalie Stork*, Megan Murphy*, and Dawn **Sumner**, 2006. Influence of dissolved inorganic carbon on cyanobacterial biofilm morphogenesis. Astrobiology Science Conference, Abstract 118. (1st place student poster presentation)
- Shepard*, Rebekah, and Dawn Y. Sumner, 2006. Motility and morphogenesis in a cyanobacterial biofilm. GSA Annual Meeting, http://gsa.confex.com/gsa/2006AM/finalprogram/abstract_115848.htm
- Simonson, B.M., D.Y. **Sumner**, N.J. Beukes, J. Gutzmer, I. Kohl, S. Jones-Zimmerlin, S. Johnson, A. Scally, and S. Hassler, 2006. Correlation of multiple Neoproterozoic to Paleoproterozoic impact spherule layers between Western Australia and South Africa. Lunar and Planetary Science XXXVII.
- Sumner**, Dawn Y., 2006. Microbial motility and morphological biomarkers. Astrobiology Science Conference, Invited Plenary Abstract 121.
- Andres, M.S., R.P. Reid, and D.Y. **Sumner**, 2005. Isotopic fingerprinting of modern marine stromatolites. 24th Meeting International Association of Sedimentologists, Abstracts.
- Andres, M.S., D.Y. **Sumner**, P.T. Visscher, P.K. Swart, and R.P. Reid, 2005. Microbe-mineral interactions along biogeochemical gradients in Bahamian stromatolites: Key to lithification and preservation, AGU Fall Meeting. Abstract B31A-0962.
- Chavdarian*, Gregory V. and Dawn Y. **Sumner**, 2005. Cracks and Fins: Pieces of Mars at White Sands National Monument, New Mexico, GSA Annual Meeting, Abstract 249-14.
- Huerta*, N.J., M.A. Murphy*, V. Natarajan, G. Weber, B. Hamann, and D.Y. **Sumner**, 2005. 3D reconstruction of intricate Archean microbial structures using neutron computed tomography and serial sectioning, AGU Fall Meeting, Abstract IN43B-0331.
- Malin, M.C. and 15 others, including D.Y. **Sumner**, 2005. The mast cameras and Mars descent imager (MARDI) for the 2009 Mars Science Laboratory. Lunar and Planetary Science XXXVI, Abstract 1214.
- Murphy*, M.A., R.N. Shepard*, and D.Y. **Sumner**, 2005. A model for vertically oriented surfaces in microbial mats. GSA Earth Systems Processes II, Abstract 42-5.
- Ono, S., N. Beukes, D. **Sumner**, J. Eigenbrode, B. Wing, D. Johnston, J. Farquhar and D. Rumble, 2005. Before the rise of oxygen: Multiple sulfur isotope systematics in the late Archean basins in South Africa and Australia. 15th annual Goldschmidt Conference, Moscow Idaho, Geochimica et Cosmochimica Acta, v.69(10) Suppl., p. 447.

- Schröder, S., N.J. Beukes, and D.Y. **Sumner**, 2005. Detailed sedimentology and stratigraphy of the carbonate-to-BIF transition in the Transvaal Supergroup.. Abstract, South African Geological Society Annual meeting, Durban, South Africa.
- Shepard*, R.N., K. Alexander*, M.A. Murphy*, and D.Y. **Sumner**, 2005. Development of complex morphology in a cyanobacterial laboratory model system: implications for the interpretation of fossil microbialites. GSA Earth System Processes II, Abstract 42-6.
- Sumner**, Dawn Y., and Miriam S. Andres, 2005. Isotopic fingerprints of microbial respiration in aragonite from modern Bahamian stromatolites, GSA Annual Meeting, Abstract 179-12.
- Sumner**, Dawn Y., and Nicolas J. Beukes, 2005. Depth gradients in Neoproterozoic ocean chemistry and microbialite morphology. Astrobiology: Exobiology and Evolutionary Biology PI Symposium.
- Andres, M.S., R.P. Reid, P.T. Visscher, and D.Y. **Sumner**, 2004. Biocomplexity of modern marine stromatolites. Microbialites and Microbial Communities in Sedimentary Systems, Paris, France, Abstracts, p 11-13.
- Beukes, N.J., D.A.D. Evans, J.P. Grotzinger, J.L. Kirschvink, A.H. Knoll, and D.Y. **Sumner**, 2004. Multidisciplinary Study of the Precambrian biosphere and surficial oxygenation, Kaapvaal Craton, South Africa: The Agouron cores. AGU Annual Fall Meeting, Abstracts
- Beukes, N.J., D.A.D. Evans, J.P. Grotzinger, J.L. Kirschvink, A.H. Knoll, and D.Y. **Sumner**, 2004. Multidisciplinary Study of the Precambrian biosphere and surficial oxygenation, Kaapvaal Craton, South Africa: The Agouron cores. Third Astrobiology Science Conference, NASA Ames, Abstracts.
- Bishop*, J.W., N.J. Huerta*, N. Beukes, and D.Y. **Sumner**, 2004, Neutron computed tomography and description of molar tooth structures in the Neoproterozoic Boomplaas and Monteville Formations, and the Paleoproterozoic Hotazel iron-formation, South Africa, GSA Annual Meeting, Abstracts v. 36, p. 251.
- Murphy, Megan, and Dawn Y. **Sumner**, 2004 . Stromatolites and microbialites in subtidal carbonates of the Neoproterozoic Carawine Formation, Hamersley Group, Western Australia. GSA Annual Meeting, Abstracts, v. 36, p. 251.
- Shepard*, R.N., K. Alexander*, and D.Y. **Sumner**, 2004. Promoting processes of peak production in microbial mats. Abstract, GSA Annual Meeting, Abstracts, v. 36.
- Simonson, B.M., and D.Y. **Sumner**, 2004. A newly recognized impact spherule layer in the Reivilo Formation, Griqualand West Basin, South Africa. Lunar and Planetary Science XXXV, Abstracts.
- Sumner**, Dawn Y., 2004. Biofilm Morphology - A Record of Community Behavior? Seventh Annual Chinese-American Beckman Frontiers of Science Symposium.
- Sumner**, Dawn Y., 2004. Poor preservation potential of organics in Meridiani Planum Unit P2 sedimentary rocks, Mars Astrobiology Science and Technology Workshop, <http://astrobiotech.arc.nasa.gov>
- Sumner**, Dawn Y., 2004. Autotrophic Geochemical Signatures in 2.5 Billion-year-old Microbial Communities. Third Astrobiology Science Conference, NASA Ames, Abstracts (CD rom).
- Bishop*, James, and Dawn Y. **Sumner**, 2003. Geochemical constraints on molar tooth structure from the Neoproterozoic Monteville Formation, South Africa. GSA Annual Meeting, v. 35.
- Huerta*, Nicolas, and Dawn Y. **Sumner**, 2003. Developing neutron computed tomography as an efficient, non-invasive tool to image organics in sedimentary rock. AAPG Pacific Section Meeting, Abstracts.
- Murphy*, Megan, and Dawn Y. **Sumner**, 2003. Identification of fenestrate microbialites from the Neoproterozoic Carawine Formation, Western Australia. GSA Annual Meeting, v. 35.
- Sumner**, Dawn Y., 2003. Intuitive sequence stratigraphy: Replacing lectures with inquiry-based computer labs. GSA Annual Meeting, v. 35, p. 383.
- Sumner**, Dawn Y., 2003. Evidence for microbe-environmental interactions: A Neoproterozoic case study spanning scales of kilometers to microns. GSA Annual Meeting, v. 35.

- Bishop*, James W. and Dawn Y. **Sumner**, 2002. Constraints on molar tooth structure from the Neoproterozoic Monteville Formation. GSA Annual Meeting, Abstracts, v. 34, p. A-335.
- Simonson, B.M., S.W. Hassler, J. Smit, and D. **Sumner**, 2002. How many Late Archean impacts are recorded in the Hamersley Basin of Western Australia? Lunar and Planetary Science XXXIII, Abstracts.
- Smit, Jan, Bruce M. Simonson, Scott Hassler, and Dawn **Sumner**, 2002. Large-impact triggered tsunami deposits in the deep sea: Examples from the 65 Ma Chicxulub Crater and 2.5-2.6 Ga Hamersley Basin. GSA Annual Meeting, Abstracts, v. 34, p. A-401.
- Stephens*, Nat P., and Dawn Y. **Sumner**, 2002. Famennian microbial reef facies and paleoecology, Napier and Oscar Ranges, Canning Basin, western Australia. 16th International Sedimentological Congress Abstract Volume, Rand Afrikaans University, South Africa (CD rom).
- Sumner**, Dawn Y., 2002. Microbial behaviour and calcite precipitation as controls on Neoproterozoic microbialite morphology. 16th International Sedimentological Congress Abstract Volume, Rand Afrikaans University, South Africa (CD rom).
- Wilding, M.C., D.Y. **Sumner**, C.E. Leshner, K.E. Shields, and D. Reap, 2002. Neutron computed tomography reconstructions of microbial structures in carbonate and silicate rocks. Second Astrobiology Science Conference, NASA Ames, Abstracts (CD rom).
- Stephens*, Nat P. and Dawn Y. **Sumner**, 2001. A Biofilm Origin of Renalcids. GSA Annual Meeting, Abstracts, v. 33, p. A-238.
- Sumner**, Dawn Y., 2001. Changes in facies distributions as an indicator of stromatolite reef growth in a Neoproterozoic carbonate platform. GSA Annual Meeting, Abstracts, v. 33, p. A-409.
- Fenger*, Tracy L. and Dawn Y. **Sumner**, 2001. Glacial interpretation for the Rainstorm Member of the Johnnie Formation, Eastern California. GSA Cordilleran Section Annual Meeting, Abstracts, v. 33, p. A-48.
- Stephens*, Nat P. and Dawn Y. **Sumner**, 2000. Paleoecology of a Famennian (Late Devonian) microbial reef, Canning Basin, Western Australia. GSA Annual Meeting, Abstracts, v. 32, p. 278.
- Sumner**, Dawn Y., 2000. Autotrophic fixation of HCO_3^- caused calcite precipitation in 2.5 Ga microbial communities. GSA Annual Meeting, Abstracts, v. 32, p. A-257.
- Sumner**, Dawn Y., 2000. Late Archean carbonate facies model. 31st IGC, Rio de Janeiro. Invited
- Sumner**, D.Y., 2000. Metabolic influences on carbonate precipitation in Archean microbial communities. First Astrobiology Science Conference, Abstracts, p. 325.
- Sumner**, Dawn Y. and Sarah A. Tourre*, 2000. Ferrous iron and the crystallographic characteristics of herringbone calcite. 31st IGC, Rio de Janeiro. Invited
- Tourre*, Sarah A. and Dawn Y. **Sumner**, 2000. Geochemistry of herringbone calcite from an ancient Egyptian quarry. GSA Annual Meeting, Abstracts, v. 32, p. A-215.
- Stephens*, Nat P. and Dawn Y. **Sumner**, 1999. Preliminary Late Devonian carbon isotope stratigraphy in the Canning Basin, Western Australia. GSA Annual Meeting, Abstracts, v. 31, p. A-225.
- Sumner**, Dawn Y., 1999. *In situ* calcite and aragonite precipitation as an important Late Archean platform-building process. AAPG Annual Meeting, v. 8, p. A135. Invited
- Sumner**, Dawn Y., Tracy Fenger*, and Sarah A. Tourre*, 1999. Effects of reduced iron on calcite crystal morphology and implications for tracing paleoenvironmental chemistry. AGU Fall Meeting, Abstracts.
- Tourre*, Sarah A. and Dawn Y. **Sumner**, 1999. Cave-filling herringbone calcite from a Middle Eocene carbonate platform, Egypt: Crystal morphology and geochemistry of an unusual carbonate cement. GSA Annual Meeting, Abstracts, v. 31 p. A-280.
- Sumner**, Dawn Y., 1998. Iron-rich Archean oceans and implications for the carbon cycle. AGU Fall Meeting, v 79, p. F403-404. Invited

- Sumner**, Dawn Y., 1998. Peritidal micrite precipitation within Late Archean microbial mats. GSA Annual Meeting, Abstracts, v. 30, p. A-305.
- Sumner**, Dawn Y., 1997. Complex microbial communities preserved in the 2520 Ma Gamohaana Formation affected calcite nucleation but not carbon isotopic composition. GSA Annual Meeting, Abstracts, v. 29, p. A-192.
- Sumner**, Dawn Y., 1997. Carbonate Precipitation in Anoxic Environments: Implications for Atmospheric CO₂ Removal on Early Mars. Conference on Early Mars, Lunar and Planetary Institute, Houston.
- Sumner**, Dawn Y., 1996. Evidence for low Late Archean atmospheric oxygen from oceanic depth gradients in iron concentration. GSA Annual Meeting, Abstracts, v. 28, p. A218. Invited contribution.
- Sumner**, Dawn Y., 1996. Morphological evidence for Archean microbe segregation into distinct communities. International Geological Congress, session A-4, p. 18. Invited contribution.
- Sumner**, Dawn Y. and John P. Grotzinger, 1995. Archean carbonates and supersaturated sea water. SEPM Congress on Sedimentary Geology, Program and Abstracts, v. 1, p. 119.
- Sumner**, Dawn Y. and John P. Grotzinger, 1994. Archean microbialites and carbonate precipitation. Death Valley International Stromatolite Symposium, Laughlin, Nevada, 15-17 October 1994, Abstracts (ed. S. M. Awramik), p. 75.
- Sumner**, Dawn Y. and John P. Grotzinger, 1994. Microbial mats and carbonate precipitation: Nucleation and inhibitory effects in the 2.52 Ga Gamohaana Fm., South Africa. GAC/MAC Annual Meeting, Program with Abstracts, v. 19, p. A108.
- Sumner**, Dawn Y. and John P. Grotzinger, 1994. Herringbone cement: A new marine calcite morphology. GAC/MAC Annual Meeting, Program with Abstracts, v. 19, p. A108.
- Grotzinger, John P., Dawn Y. **Sumner**, and Nic J. Beukes, 1993. Archean carbonate sedimentation in an active extensional basin, Belingwe Greenstone Belt, Zimbabwe. GSA Annual Meeting, Abstracts, v. 25, p. A64.
- Sumner**, Dawn Y., John P. Grotzinger, and Nicolas J. Beukes, 1993. Mat growth and carbonate precipitation in coniform stromatolites, 2.52 Ga Gamohaana Formation, South Africa. GSA Annual Meeting, Abstracts, v. 25, p. A357.
- Sumner**, Dawn Y. and John P. Grotzinger, 1992. Herringbone cement: a new marine cement morphology. GSA Annual Meeting, Abstracts, v. 24, p. A105.
- Sumner**, Dawn Y., Nicolas J. Beukes, and John P. Grotzinger, 1991. Evidence for widespread precipitation of aragonite and calcite in the construction of the ~2.5 Ga Campbellrand-Malmani carbonate platform, South Africa. GSA Annual Meeting, Abstracts, v. 23, p. A65.
- Sumner**, Dawn Y., Nicolas J. Beukes, and John P. Grotzinger, 1991. Massive marine cementation of the Archean Campbellrand-Malmani carbonate platform, South Africa. GAC/MAC Annual Meeting, Program with Abstracts, v. 16, p. A120.
- Sumner**, D.Y., J.L. Kirschvink, and B.N. Runnegar, 1987. Soft-sediment paleomagnetic field test of late Precambrian glaciogenic sediments. AGU Fall Meeting Abstracts, v. 68, p. 1251.