

NASA Jet Propulsion Laboratory
California Institute of Technology

SARAH M. MILKOVICH

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In search of a creative, collaborative team-based environment where I can make key contributions to solving unusual problems.

Critical Skills

Science systems engineering, development, and operations for landed and orbital spacecraft; science communication to a variety of technical and non-technical audiences; digesting a range of inputs and boiling them down to succinct, direct, and accessible key findings; geomorphology and planetary science; ability to tackle nebulous problems

Education:

- Ph.D. in Planetary Geology, Brown University, 2005
- M.S. in Planetary Geology, Brown University, 2002
- B.S. in Planetary Science, California Institute of Technology, 2000

Employment:

NASA Jet Propulsion Laboratory:

- Member of the Technical Staff: 2008-present
- Postdoctoral Scholar, 2005-2008

Professional Experience:

Leadership

- Assistant Science Manager, Mars 2020 rover, 2020 – present
 - “Air Traffic Control” for science team members’ questions about *anything* Mars 2020 related. Organization and maintenance of documentation, mailing lists infrastructure, export approval, and operations access status of science team members; review technical documents for export (ITAR and EAR) before distribution to the team; coordinate launch and landing science team-internal events;
- Science Operations Team Chief, Mars 2020 rover, 2017 – 2020
 - Schedule, budget, and risk identification and tracking; interfacing with 400+ scientists and engineers in multiple countries representing 8 instruments; facilitate instrument operations development discussions between instrument teams and JPL technical personnel; science team communication with engineering and software operations teams
- Formal and informal mentoring of college interns and coworkers

Systems Engineering

- Science Systems Engineer, Mars 2020 Rover, 2013 – 2020
 - Development of next generation processes for remote worldwide operations of Mars rovers centering scientific decision-making; requirement development, validation & verification planning, coordination, and participation; represent science customers in software capabilities discussions, from software requirements & design to overall budget priorities.
- Science Operations Systems Engineer, Mars Science Laboratory, 2012 – 2013
 - Maintain role procedures, meeting agendas, and operational interface agreements; requirement validation and verification; assist in transition from co-located operations at JPL to remote operations across multiple countries
- Assorted mission proposals, study teams, internal reviewer of proposals, 2004 - present

Spacecraft Operations

- Member of the Science Operations Team for Mars Phoenix, Cassini Mission to Saturn, Mars Reconnaissance Orbiter, Mars Science Laboratory (Curiosity), Mars 2020 Rover (Perseverance)
 - Work with science and engineering to design and schedule observations and sequences that maximize science return while remaining within spacecraft resources and constraints
- Investigation Scientist, HiRISE (MRO, 2009- 2014), UVIS (Cassini, 2010- 2012)
 - Facilitate communication and information flow between remote instrument PI and operations team, JPL mission management, project science leadership, and spacecraft flight teams.

Technical Communications

- Documentarian and ex-officio member of Mars 2020 Science Definition Team (2013), Mars 2020 Organic Contamination Panel (2014), and the the Joint Science Working Group for the 2018 NASA-ESA Joint Mars Rover Mission (2011-2012)
- Science training coordinator for Mars Science Laboratory, Mars 2020 rovers, including production of training materials and running training sessions.
- Colloquium speaker at many institutions, including Argonne National Laboratory, California Institute of Technology, UC Berkeley, Syracuse University, Michigan State University
- Invited speaker at many scientific conferences, including AGU Fall Meetings, International Conference on Mars Polar Science, Gordon Research Conference for Nuclear Chemistry
- Outreach liaison and content provider to JPL Public Engagement for many spacecraft
- Speaker on planetary science and exploration at schools, astronomy clubs, geology clubs, science fiction conventions, podcasts, news broadcasts, and other public venues

Scientific Research

- Specializing in geomorphology and stratigraphic analysis of the polar deposits of Mars in imaging and radar datasets, utilizing signal-based analysis techniques
- First author of 8 peer-reviewed scientific articles, and co-author on many more. Complete list available upon request
- Served as reviewer for NASA Mars Fundamental Research Program, Mars Data Analysis Program, and Planetary Geology and Geophysics grant programs.

Awards

- *Recipient of the 2018 JPL Bruce Murray Award for Excellence in Education and Public Outreach*
- *JPL Bonus Awards include:*
 - *5 awards for excellence in leadership, technical design, and science support for Mars 2020 (2013-2021)*
 - *15+ awards for excellence in operations on Mars Phoenix, MRO, MSL, and Cassini spacecraft and instrument operations (2008-2014)*
 - *Award for scientific paper, "Stratigraphy of Promethei Lingula, south polar layered deposits, Mars, in radar and imaging datasets" (2009)*
- *NASA Group Achievement Award: "exceptional achievement in the development of innovative simulation techniques that greatly enhance NASA's exploration capabilities for Mars 2020 and future missions." (2018)*
- *Stephen E. Dvornik Planetary Geoscience Student Award for Best Poster Presentation, 36th LPSC, 2005*
- *Elected to Sigma Xi, Brown Chapter, 2005*
- *Caltech Eleanor Searle Prize in Law, Politics, and Institutions, 2000*