

LESLIE K. TAMPPARI

JET PROPULSION LABORATORY
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Education

Ph.D., Geophysics and Space Physics, University of California, Los Angeles (2000)
M.S., Geophysics and Space Physics, University of California, Los Angeles (1997)
B.S., Mathematics, University of Arizona, (1990)

Research Interests

- Water cycling in the north polar region of Mars
- Water-ice cloud detection and interannual variability on Mars
- Martian dust: interannual variability, diurnal variability, dust devils
- Martian analog studies in the Antarctic Dry Valleys

Professional Experience

Jet Propulsion Laboratory (1990 – present)

Deputy Project Scientist, ExoMars Trace Gas Orbiter Project (2010-present)
Principal Investigator, NASA Mars Data Analysis Program (2010-present)
Co-Investigator, Mars Fundamental Research program (2009-present)
Principal Investigator, NASA International Polar Year (2007-present)
Principal Investigator, JPL R&TD program (2005-2010)
Project Scientist, NASA Phoenix Scout Mission (2003–2009)
Co-Investigator, NASA Phoenix Scout Mission (2002–2009)
Deputy Project Scientist, NASA Mars Science Laboratory (2001-2003)
Principal Investigator, NASA Mars Global Surveyor Data Analysis Program (2001-2004)
Principal Investigator, NASA Mars Data Analysis Program (2000-2003)
Co-Investigator, NASA Jupiter Data Analysis Program (1998-2000)
Science Lead, Team-X, Europa and Titan future missions studies (1999–2001)
Science Coordinator, Galileo Photopolarimeter/Radiometer Experiment (1990–1999)
Deputy Lead, JPL Satellites Working Group (1993-1997)
Deputy Lead, Science Instrument Testbed Team (1996)

Awards

Mariner Outstanding Accomplishment Award (July 2009) – for manuscript “The atmospheric environment expected for the Phoenix landed season and location”
NASA Exceptional Achievement Medal recipient (June 2009)
Stellar Award Nomination (2009)
Explorer Outstanding Accomplishment Award (2009)
Team Bonus Award – Phoenix (2008)
Mariner Outstanding Accomplishment Award (2004, 2005, 2006, 2007)
Ranger Outstanding Accomplishment Award (2002)
NASA Exceptional Achievement Medal recipient (April 1998)
Nova award “Initiative and Excellent Overview” (June 1997)
Multiple NASA Group Achievement awards

Professional Activities

Organizer and co-convener of a Phoenix Special Session at AGU (2008)
Organizer and guest editor for JGR-Planets special issue on Phoenix instruments, landing sites, and operations (2008)

7th International Conference on Mars scientific organizing committee member (2007)
4th Mars Polar Conference scientific organizing committee (Oct. 2006)
JPL Science and Technology Advisory Group (2005-2009)
NASA PG&G Review Panel (2002-2003)
NASA Mars Reconnaissance Orbiter Instrument Review Panel (2001)
American Geophysical Union (AGU) member (since 2000)
American Astronomical Society, Division of Planetary Sciences member (since 1995)

Mentoring Experience

Yolanda Torres, Caltech Summer Undergraduate Research Fellowship, 2003
Project title: Water-ice clouds over Hellas Basin – a Historical Perspective
Dr. Zheng Qu, Caltech Post-doctoral fellow, 2003-2005
Focus area: Water-ice clouds and transport in the north polar region of Mars
Nathan Drake, Caltech Summer Undergraduate Research Fellowship, 2005
Project title: Dust devils in the northern polar region of Mars
Dr. Alexey Pankine, JPL Post-doctoral fellow, 2007-present
Project title: Mars Spring and Summer North Polar Water Vapor Mapping, New Retrievals and Interannual Comparison

Publications

- Tamppari, L. K., et al.**, 2011. Effects of Water Activity in the Limit of Extreme Aridity: Dry Permafrost in the McMurdo Dry Valleys and the Mars Phoenix Landing Site, *in review with Antarctic Science*.
- Tamppari, L. K., et al.**, 2009. Phoenix and MRO Coordinated Atmospheric Measurements, 115, E00E17, doi:10.1029/2009JE003415, 2010
- Tamppari, L. K., et al.**, 2008. The expected atmospheric characteristics during the Phoenix mission, *J. Geophys. Res.*, 113 (E00A20), doi:10.1029/2007JE003034.
- Tamppari, L. K., M. D. Smith, D. S. Bass, A. S. Hale**, 2008. Water-ice clouds and dust in the north polar region of Mars using MGS TES data, *Planetary and Space Sciences* **56**, 227-245.
- Tamppari, L. K., R. W. Zurek, D. A. Paige**, 2002. Viking Era Diurnal Water Ice_Clouds, *J. Geophys. Res.*, 108(E7), p. 5073.
- Tamppari, L. K.**, 2000. Mars Missions, *Space Sciences*, **Vol. 4**, pp. 98-101, Macmillan Reference USA.
- Tamppari, L. K., R. W. Zurek, D. A. Paige**, 2000. Viking Era Water Ice Clouds, *J. Geophys. Res.*, **105 (E2)**, pp. 4087-4107.
- Tamppari, L. K., J. R. Spencer, T. Z. Martin**, 1995. Observing the Icy Jovian Satellites with the Galileo Photopolarimeter Radiometer Instrument, *J. Geophys. Res.*, **100 (E9)**, pp. 18973-18983.
- Hale, A. S., **L. K. Tamppari**, D. S. Bass, M. D. Smith, 2010. Martian Water-ice clouds: A view from MGS-TES, accepted by *J. Geophys. Res.*
- Pankine, A., **L. K. Tamppari**, M. D. Smith, 2009. MGS TES observations of the water vapor above the seasonal and perennial ice caps during northern spring and summer, 2010. *Icarus*, doi:10.1016/j.icarus.2010.06.043.

- Kounaves, S. P., S. T. Stroble, R. M. Anderson, Q. Moore, D. C. Catling, S. Douglas, C. P. McKay, D. W. Ming, P. H. Smith, **L. K. Tamppari**, and A. P. Zent, 2010. Discovery of Natural Perchlorate in the Antarctic Dry Valleys and its Global Implications, *Environ. Sci. Technol.*, **44**, pp. 2360-2364.
- Ellehoj, M. D., H. P. Gunnlaugsson, K.M. Bean, B. A. Cantor, L. Drube, D. Fisher, B.T.Gheynani, A-M. Harri, C. Holstein-Rathlou, H. Kahanpää, M.T. Lemmon, M.B. Madsen, M. C. Malin, J. Polkko, P. Smith, **L.K. Tamppari**, P.A.Taylor, W. Weng and J. Whiteway, 2009. Convective vortices and Dust Devils at the Phoenix Mars mission landing site, *J. Geophys. Res.* 115 (E00E16), doi:10.1029/2009JE003413.
- C. Holstein-Rathlou, H. P. Gunnlaugsson, J. P. Merrison, K. M. Bean, B. A. Cantor, J. A. Davis, R. Davy, N. B. Drake, M. D. Ellehoj, W. Goetz, S. F. Hviid, C. F. Lange, S. E. Larsen, M. Lemmon, M. B. Madsen, M. Malin, J. E. Moores, P. Nørnberg, P. Smith, **L. Tamppari**, P. A. Taylor, 2009. Winds at the Phoenix Landing Site, *J. Geophys. Res.*, 115 (E00E18), doi: 10.1029/2009JE003411.
- Ming, D. W., *et al.*, 2009. Mars 2007 Phoenix Scout mission Organic Free Blank: Method to distinguish Mars organics from terrestrial organics, *J. Geophys. Res.*, 113 (E00A21), doi:10.1029/2007JE003061.
- Pankine, A., **L. K. Tamppari**, M. D. Smith, 2009. Water vapor variability in the North Polar Region on Mars from Viking MAWD and MGS TES datasets, *Icarus*, 204, pp. 87-102.
- Smith, P. H., **L. K. Tamppari**, R.E. Arvidson, D. Bass, D. Blaney, W.V. Boynton, A. Carswell, D.C. Catling, B.C. Clark, T. Duck, E. DeJong, D. Fisher, W. Goetz, H.P. Gunnlaugsson, M.H. Hecht, V. Hipkin, J. Hoffman, S.F. Hviid, H.U. Keller, S.P. Kounaves, C.F. Lange, M.T. Lemmon, M.B. Madsen, W.J. Markiewicz, J. Marshall, C.P. McKay, M.T. Mellon, D.W. Ming, R.V. Morris, N. Renno, W.T. Pike, U. Staufer, C. Stoker, P. Taylor, J.A. Whiteway, A.P. Zent, 2009. H₂O at the Phoenix landing site, *Science*, 325 (5936), pp. 58-61.
- Spencer, D. A., *et al.*, 2009. Phoenix Landing Site Selection and Hazard Assessment, *submitted to J. Spacecraft and Rockets*.
- Whiteway, J. A., L. Komguem, C. Dickinson, C. Cook, M. Illnicki, J. Seabrook, V. Popovici, T. J. Duck, R. Davy, P. A. Taylor, J. Pathak, D. Fisher, A. I. Carswell, M. Daly, V. Hipkin, A. P. Zent, T. L. Hudson, **L. Tamppari**, N. Renno, J. Moores, M. T. Lemmon, F. Daerden, P. H. Smith, 2009. Mars water ice clouds and precipitation, *Science*, 325 (5936), pp. 68-70.
- Arvidson, R. *et al.*, 2008. Mars Exploration Program 2007 Phoenix landing site selection and characteristics, *J. Geophys. Res.*, 113 (E00A03), doi: 10.1029/2007JE003021.
- Pathak, J., D. V. Michelangeli, L. Komguem, J. Whiteway, **L. K. Tamppari**, 2008. Simulating Martian boundary layer water ice clouds and the lidar measurements for the Phoenix mission, *J. Geophys. Res.*, 113 (E00A05), doi: 10.1029/2007JE002967.
- Plemmons, D. H., *et al.*, 2008. Effects of the Phoenix Lander descent thruster plume on the Martian surface, *J. Geophys. Res.*, 113 (E003059), doi: 10.1029/2007JE003059.
- Smith, P. H., **L. K. Tamppari**, *et al.*, 2008. Introduction to special section on the Phoenix Mission: Landing Site Characterization Experiments, Mission Overviews, and Expected Science, *J. Geophys. Res.*, 113 (E00A18), doi:10.1029/2007JE003083.
- Golombek, M. P., *et al.* (2008), Size-frequency distributions of rocks on the northern plains of Mars with special reference to Phoenix landing surfaces, *J. Geophys. Res.*, 113, E00A09, doi:10.1029/2007JE003065.
- Tsuyuki, G., **L. Tamppari**, T. Martin, and J. Murphy, 2007. "Development of the Surface Thermal Environment for the Mars Scout Phoenix Mission," Paper Number 2007-01-3239, Proceedings of the

International Conference on Environmental Systems, Society of Automotive Engineers, Chicago, IL, dated July 2007.

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- Hale, A. Snyder, Bass, D.S., **Tamppari, L.K.** 2005. Monitoring the perennial martian northern polar cap with MGS MOC. *Icarus*, **174**, pp. 502-512.
- Rathbun, J. A., J. R. Spencer, **L. K. Tamppari**, T. Z. Martin, L. Barnard, and L. D. Travis, 2004. Mapping of Io's thermal radiation by the Galileo photopolarimeter-radiometer (PPR) instrument, *Icarus* V. 169, No. 1, pp. 127-139.
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