

Dr. Nathaniel E. Putzig

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Research Scientist, currently focused on characterizing the global and regional near-surface properties of Mars through modeling and analysis of radar and thermophysical data from spacecraft in orbit around Mars. Twelve years prior petroleum industry experience as an exploration geophysicist with expertise in prospect development and seismic data analysis. Skills include geophysical data analysis, numerical modeling, software applications development, training course design and instruction, and personnel and project management.

PROFESSIONAL EXPERIENCE

Research Scientist

Apr 2007-present

Southwest Research Institute, Department of Space Studies, Boulder, CO

Research: Analysis of the near-surface properties of Mars from spacecraft data, with emphasis on radar and thermal studies.

Postdoctoral Research Associate

Oct 2006-Sep 2007

Washington University, Earth and Planetary Sciences, Saint Louis, MO

Research: Analysis of subsurface radar data from the SHARAD and MARSIS instruments on the Mars Reconnaissance Orbiter and Mars Express. Advisor: Dr. Roger Phillips

Graduate Research Assistant

Aug 2001-Sep 2006

Laboratory for Atmospheric and Space Physics, University of Colorado, Boulder, CO

Research: Computation and analysis of thermal inertia from thermal emission instruments on the Mars Global Surveyor and Mars Odyssey spacecrafts. Advisor: Dr. Michael Mellon

Geophysical Consultant

Nov 1996-Jul 2000

GEOMANCER, Houston, TX

Founded consultancy to provide exploration prospect development for Mid-continent and Gulf of Mexico basins as well as geophysical software training and systems services to clients in the petroleum industry.

Manager, Customer Support

Nov 1995-Oct 1996

CogniSeis Development, Inc., Houston, TX

Managed department of 27 professionals and support staff providing geoscience software support and training for all Western Hemisphere clients.

Manager, Geoscience Support

Nov 1993-Nov 1995

Photon Systems Inc., Houston, TX

Supervised 4 professionals and provided exploration software support and training for all US and Latin America clients.

Exploration Geophysicist

Jun 1988-Oct 1993

Shell Oil Company, Houston, TX

Provided seismic data acquisition design and processing for exploration prospects in Yemen, Texas, and Michigan Basins. Expertise with mixed-source data sets and resolution of near-surface noise problems with refraction statics modeling.

EDUCATION

- PhD Planetary Geophysics**, University of Colorado; GPA 3.9/4.0 Aug 2001-Dec 2006
Dissertation: *Thermal inertia and surface heterogeneity on Mars*. Advisor: Dr. Michael Mellon
- EarthTrip** Aug 2000-July 2001
A one year journey visiting 42 countries on three continents. <http://earthtrip.putzig.com>
- MA Geophysics**, Rice University, Presidential Fellowship; GPA 3.8/4.0 Aug 1986-May 1988
Thesis: *Modeling wide-angle seismic data from the central California margin*. Advisor: Dr. Alan Levander
- BS Geophysical Engineering**, Colorado School of Mines; GPA 3.7/4.0 Aug 1982-May 1986
Minor in geology; six weeks geophysical field course. Advisor: Dr. Cathy Skokan
- Valedictorian**, Berne-Knox-Westerlo High School, Berne, NY Sep 1978-Jun 1982

SELECTED PUBLICATIONS

- Putzig, N. E., Phillips, R. J., Seu, R., Safaeinili, A., Plaut, J. J., Biccari, D., Campbell, B. A., Carter, L. M., Holt, J. W., Leuschen, C. J., Byrne, S., Orosei, R., Picardi, G., Smrekar, S. E., Fois, F., Egan, A. F., Bernardini, F., Nunes, D. C., and the SHARAD Team, 2007. Internal Structure of the North Polar Layered Deposits from Radar Sounding, 7th Int. Mars Con., (abstract).
- Putzig, N. E., Mellon, M. T., 2007. Apparent thermal inertia and the surface heterogeneity of Mars, *Icarus*, in press. doi: 10.1016/j.icarus.2007.05.013
- Putzig, N. E., Mellon, M. T., 2007. Thermal behavior of horizontally mixed surfaces on Mars, *Icarus*, in press. doi: 10.1016/j.icarus.2007.03.022
- Putzig, N. E., 2006. Thermal inertia and surface heterogeneity on Mars, Ph. D. dissertation, University of Colorado, Boulder.
- Putzig, N. E., Mellon, M. T., Golombek, M. P., Arvidson, R. E., 2006. Thermophysical properties of the Phoenix Mars landing site study regions, LPSC XXXVII (2426), (abstract).
- Putzig, N. E., Mellon, M. T., Kretke, K. A., Arvidson, R. E., 2005. Global thermal inertia and surface properties of Mars from the MGS mapping mission, *Icarus* 173, 325-341. doi:10.1016/j.icarus.2004.08.017
- Putzig, N. E., Mellon, M. T., Jakosky, B. M., Pelkey, S. M., Martínez-Alonso, S., Hynek, B. M., Murphy, N. W., 2004. Mars thermal inertia from THEMIS data, LPSC XXXV (1863), (abstract).
- Putzig, N. E., 1988. Modeling wide-angle seismic data from the central California margin, Master of Arts Thesis, Rice University Department of Geology and Geophysics, Houston, Texas, 104 pp.
- Jakosky, B. M., Hynek, B. M., Pelkey, S. M., Mellon, M. T., Martínez-Alonso, S., Putzig, N. E., Murphy, N., Christensen, P. R., 2005. Thermophysical Properties of the MER and Beagle II Landing Site Regions on Mars, *J. Geophys. Res.*, 111, E08008, doi:10.1029/2004JE002320, 20 pp.
- Mellon, M. T., Fergason, R. L., Putzig, N. E., 2007. The Thermal Inertia of the Surface of Mars, in Bell III, J. F. et al., eds., *The Martian Surface: Composition, Mineralogy, and Physical Properties*, Cambridge University Press, in press, 2007.