DAVID J. DES MARAIS - NASA AMES RESEARCH CENTER
Exobiology Branch, Mail Stop 239-4, Moffett Field, CA 94035-1000
Phone: 650-604-3220 Fax: 650-604-1088 Email: David.J.DesMarais@nasa.gov

Related Experience Summary

2008-present	Member, LPI Science Council
2007-present	Co-chair, Next Decade Science Analysis Group (Mars Sample Return), MEPAG
2007-present	Co-Chair, NASA Astrobiology Roadmap revision team
2004-present	Member, Mars Science Laboratory 2009, CheMin science team
2002-present	Member, Geobiology Editorial Board
2002-present	Councilor, International Society for the Study of the Origins of Life
2001-present	Member, Mars Reconnaissance Orbiter 2005, CRISM science team
2000-present	Member, Astrobiology Editorial Board
1998-present	Principal Investigator, Ames Research Ctr. Team of NASA Astrobiology Institute
1997-present	Long-Term Planning Lead, Spirit rover, Mars Exploration Rover mission
1976-present	Principal Investigator, NASA Exobiology Program
2003	Chair, NASA Astrobiology Roadmap team
2000-2002	Member, Terrestrial Planet Finder Science Working Group
1997-2003	Member, TERC Advisory Board (astrobiology curriculum development)
1997-2000	Member, NASA Space Science Advisory Council (SSAC)
1983-2000	Member, Biogeochemistry Editorial Board
1992-1999	Associate Editor, Geochimica et Cosmochimica Acta
1999	Co-Chair, Pale Blue Dot II Conference
1997	Chair, Pale Blue Dot Conference
1996-1998	Associate Editor, Journal of Geophysical Research – Planets
1994	Chair, Gordon Research Conference on the Origins of Life
1979	Assoc. Editor, Proceedings of the 10th Lunar and Planetary Science Conference

Employment History

1976-present	Research Scientist, NASA Ames Research Center, Moffett Field, CA
1975-1976	Postdoctoral Research Fellow, Institute of Geophysics, UCLA
1974-1975	Postdoctoral Research Associate, Indiana University

Education

Ph.D. Geochemistry, 1974, Indiana University
M.S. Geology, 1972, Indiana University
B.S. Chemistry, 1969, Purdue University

Professional Societies

American Geophysical Union, Geochemical Society, International Society for the Study of the Origins of Life, Planetary Society, Sigma Xi

Awards and Honors

Fellow, American Geophysical Union, 2008; Fellow, California Academy of Sciences, 2004
NASA Outstanding Leadership Medal, 2003; Ames Associate Fellow, 2003
Fellow, Geochemical Society, 2002; Fellow, European Assoc. of Geochemists, 2002
Fellow, International Society for the Study of the Origins of Life, 2002
NASA Group Achievement Award, Astrobiology, 2000
NASA Exceptional Scientific Achievement Medal, 1988

Selected Relevant Publications

Des Marais, D.J., B.M. Jakosky and B.M. Hynek (2008) Astrobiological implications of Mars surface composition and properties. In The Martian Surface: Composition, Mineralogy and Physical Properties, J. A. Bell, editor, Cambridge Planetary Science (No. 9), in press.

Jahnke, L.L., V.J. Orphan, T. Embaye, K.A. Turk, M. Kubo, R.E. Summons, and D.J. Des Marais, (2008) Lipid biomarkers and phylogenetic analyses to reveal Archeal biodiversity and distribution in hypersaline microbial mat and underlying sediment. Geobiology, in press.

Fishbaugh, K.E., P. Lognonné, F. Raulin, D.J. Des Marais, O.Korablev (Eds.) (2007) Geology and Habitability of Terrestrial Planets. Space Science Series of ISSI, Vol. 24, V1, Springer, 306 pp. ISBN: 978-0-387-74287-8.

Bertaux, J-L., M. Carr, D.J. Des Marais, E. Gaidos (2007) Conversations on the habitability of worlds: the importance of volatiles. Space Sci. Rev. 129 (1-3): 123-165.

Fishbaugh, K.E., D.J. Des Marais, O. Korablev, P. Lognonné, and F. Raulin (2007) Introduction: A Multidisciplinary approach to habitability. Space Sci. Rev. 129 (1-3): 1-5.

Arvidson, R.E., S.W. Squyres, R.C. Anderson, J.F. Bell III, J. Brückner, N.A. Cabrol, W.M. Calvin, M.H. Carr, P.R. Christensen, B.C. Clark, L. Crumpler, D.J. Des Marais, 49 others (2006) Overview of the Spirit Mars Exploration Rover Mission to Gusev Crater: Landing site to the Methuselah outcrop in the Columbia Hills. J. Geophys. Res. 111 (E2): E02501.

McSween, H.Y., M.B. Wyatt, R. Gellert, J.F. Bell III, R.V. Morris, K.E. Herkenhoff, L.S. Crumpler, K.A. Milam, K.R. Stockstill, L. Tornabene, R.E. Arvidson, P. Bartlett, D. Blaney, N.A. Cabrol, P.R. Christensen, B.C. Clark, J.A. Crisp, D.J. Des Marais, 19 others (2006) Characterization and petrologic interpretation of olivine-rich basalts at Gusev Crater, Mars. J. Geophy. Res., 111: E02S10.

Beaty, D.W., S.M. Clifford, L.E. Borg, D. Catling, R.A. Craddock, D.J. Des Marais, J.D. Farmer, T. Segura and K.L. Tanaka (2005) Key Science Questions from the Second Conference on Early Mars: Geologic, Hydrologic, and Climatic Evolution and the Implications for Life. Astrobiology 5 (6): 663-689.

Des Marais, D.J., (2005) Sea change in sediments. Nature, Vol. 437, Number 7060, 826-827.

Knoll, A.H., M. Carr, B. Clark, D.J. Des Marais, 10 others (2005) An astrobiological perspective on Meridiani Planum. Earth Planet. Sci. Lett. 240: 179-189.

Crumpler, L.S., S.W. Squyres, R.E. Arvidson, J.F. Bell III, D. Blaney, N.A. Cabrol, P.R. Christensen, D.J. Des Marais, 26 others (2005) MER geologic traverse science by the Spirit rover in the plains of Gusev Crater, Mars. Geology 33 (10): 809-812.

Yen, A.S., R. Gellert, C. Schröder, R.V. Morris, J.F. Bell III, A.T. Knudson, B.C. Clark, D.W. Ming, J.A. Crisp, R.E. Arvidson, D. Blaney, J. Brückner, P.R. Christensen, D.J. Des Marais, 22 others (2005) An integrated view of the chemistry and mineralogy of Martian soils. Nature 436 (7047): 49-54.

Li, R., B.A. Archinal, R.E. Arvidson, J. Bell, P. Christensen, L. Crumpler, D.J. Des Marais, 16 others (2006) Rover localization and topographic mapping at the landing side of Gusev Crater, Mars. J. Geophys. Res. 111: E02S06.

Grant, J.A., R. Arvidson, J.F. Bell III, N.A. Cabrol, M.H. Carr, P. Christensen, L. Crumpler, D.J. Des Marais, 16 others (2004) Surfical deposits at Gusev Crater along Spirit rover traverses. Science 305 (5685): 807-810.

Jahnke, L.L., T. Embaye, J. Hope, K.A. Turk, M. Van Zuilen, D.J. Des Marais, J.D. Farmer, R.E. Summons (2004) Lipid biomarker and carbon isotopic signatures for stromatolite-forming, microbial mat communities and Phormidium cultures from Yellowstone National Park. Geobiology 2 (1): 31-47.

Londry, K.L., L.L. Jahnke and D.J. Des Marais (2004) Stable carbon isotope ratios of lipid biomarkers of sulfate-reducing bacteria. Appl. Environ. Microbiol. 70 (3): 745-751.

Bebout, B.M., T.M. Hoehler, B. Thamdrup, D. Albert, S.P. Carpenter, M. Hogan, K. Turk, D.J. Des Marais (2004) Methane production by microbial mats under low sulfate concentrations. Geobiology 2 (2): 87-96.

Des Marais, D.J., L.J. Allamandola, S.A. Benner, A.P. Boss, D. Deamer, P.G. Falkowski, J.D. Farmer, S.B. Hedges, B.M. Jakosky, A.H. Knoll, D.R. Liskowsky, V.S. Meadows, M.A. Meyer, C.B. Pilcher, K.H. Nealson, A.M. Spormann, J.D. Trent, W.W. Turner, N.J. Woolf, H.W. Yorke (2003) The NASA Astrobiology Roadmap. Astrobiology 3: 219-235.

Des Marais, D.J. (2003) The biogeochemistry of hypersaline microbial mats illustrates the dynamics of modern microbial ecosystems and the early evolution of the biosphere. Biol. Bull. 204: 160-167.

Des Marais, D.J., M. Harwit, K. Jucks, J.F. Kasting, J.I. Lunine, D. Lin, S. Seager, J. Schneider, W.Traub, N. Woolf (2002) Remote sensing of planetary properties and biosignatures on

extrasolar terrestrial planets. Astrobiology: 2 (2): 153-181.
Visscher, P.T., L.K. Baumgartner, D.H. Buckley, D.R. Rogers, M. Hogan, C.R. Raleigh, K. Turk and D.J. Des Marais (2003) Dimethyl sulfide and methanethiol formation in microbial mats: potential pathways for biogenic signatures. Environ. Microbiol. 5 (4): 296-308.
Des Marais, D.J., M. Harwit, K. Jucks, J.F. Kasting, J.I. Lunine, D. Lin, S. Seager, J. Schneider, W.Traub, and N. Woolf (2002) Remote sensing of planetary properties and biosignatures on extrasolar terrestrial planets. Astrobiology 2 (2): 153-181.
Bebout, B.M., D.J. Des Marais, M. Discipulo, F. Garcia-Pichel, M. Hogan, L. Jahnke, R.M. Keller, S.R. Miller, L.E. Prufert-Bebout, C. Raleigh, M. Rothrock and K. Turk (2002) Long term manipulations of intact microbial mat communities in a greenhouse collaboratory: simulating Earth's present and past field environments. Astrobiology 2 (4): 383-402.
Hoehler, T.M., B.M. Bebout, D.J. Des Marais (2001) The role of microbial mats in the production of reduced gases on the early Earth. Nature 412: 324-327.
Des Marais, D.J. (2001) Isotopic evolution of the biogeochemical carbon cycle during the Precambrian. In: J.W. Valley and D.R. Cole, Eds. Stable Isotope Geochemistry, Rev. Mineral., Vol. 43, p. 555-578.
Jahnke, L.L., W, Eder, R. Huber, J.M. Hope, K-U. Hinrichs, J.M. Hayes, D.J. Des Marais, S.L. Cady and R.E. Summons (2001) Signature lipids and stable carbon isotope analyses of Octopus Spring hyperthermophilic communities compared with those of Aquificales representatives. Appl. Environ. Microbiol. 67(11): 5179-5189.
Des Marais, D.J. (2000) When did photosynthesis emerge on Earth? Science 289: 1703-1705.
Reid, R.P., P.T. Visscher, A.W. Decho, J, Stolz, B.M. Bebout, I.G. MacIntyre, H.W, Paerl, J.L. Pinckney, L. Prufert-Bebout, T.F. Steppe and D.J. Des Marais (2000) The role of microbes in accretion, lamination and early lithification of modern marine stromatolites. Nature 406: 989-992.
Caroff, L.I., and D.J. Des Marais, Eds. (2000) Pale Blue Dot 2 Workshop: Habitable and inhabited worlds beyond our solar system, NASA/CP--2000-209595, 320 pp.
Farmer, J.D., and D.J. Des Marais (1999) Exploring for a record of ancient Martian life. J. Geophys. Res. 104: 26,977-26,995.
Des Marais, D.J. and M.R. Walter (1999) Astrobiology: exploring the origins, evolution and distribution of life in the universe. Ann. Rev. Ecol. Syst. 30: 397 420.
Jahnke, L.L., R.E. Summons, J.M. Hope and D.J. Des Marais (1999) Carbon isotopic fractionation in lipids from methanotrophic bacteria II: The effects of physiology and environmental parameters on the biosynthesis and isotopic signatures of biomarkers. Geochim. Cosmochim. Acta 63: 79-93.
Fouke, B.W., J.D. Farmer, D.J. Des Marais, L. Pratt, N.C. Sturchio, P.C. Burns and M.K. Discipulo (1999) Depositional facies and aqueous-solid geochemistry of travertine-depositing hot springs (Angel Terrace, Mammoth Hot Springs, Yellowstone National Park, USA). J. Sed. Res. 70: 565-585.
Des Marais, D.J. (1997) Isotopic evolution of the biogeochemical carbon cycle during the Proterozoic Eon. Organic Geochem. 27 (5-6): 185-193.
Des Marais, D.J., ed. (1997) The Blue Dot Workshop: spectroscopic search for life on extrasolar planets. NASA Conference Publication 10154, 42 pp.
Walter, M.R., D.J. Des Marais, J.D. Farmer and N.W. Hinman (1996) Lithofacies and biofacies of Mid-Paleozoic thermal spring deposits in the Drummond Basin, Queensland, Australia. Palaios 11: 497-518.
Des Marais, D.J. (1995) The biogeochemistry of hypersaline microbial mats. In: J. G. Jones, Ed., Advances in Microbial Ecology. Plenum, New York, pp. 251-274.
Buick, R., D.J. Des Marais and A.H. Knoll (1995) Stable isotopic compositions of carbonates from the Mesoproterozoic Bangemall Group, northwestern Australia. Chem. Geol. 123:153-171.
Des Marais, D.J. (1994) The Archean atmosphere: its composition and fate. In: K. Condie, Ed. Archean Crustal Evolution. Elsevier, Amsterdam, pp. 505-523.