

BIOGRAPHICAL INFORMATION: SEAN CARL SOLOMON

Born: Los Angeles, California; October 24, 1945

Citizenship: U.S.A.

Business Address: Department of Terrestrial Magnetism
Carnegie Institution of Washington
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EDUCATION

B.S. in geophysics (with honor), California Institute of Technology June 1966
Ph.D. in geophysics, Massachusetts Institute of Technology (M.I.T.) February 1971

EMPLOYMENT

Assistant Professor of Geophysics, M.I.T. January 1972-June 1977
Associate Professor of Geophysics, M.I.T. July 1977-June 1983
Professor of Geophysics, M.I.T. July 1983-August 1992
Director, Department of Terrestrial Magnetism, Carnegie Institution of Washington September 1992-present

VISITING APPOINTMENTS

Visiting Scientist, Lunar Science Institute January 1975
Physicist (temporary), Lawrence Livermore Laboratory July-August 1978
Guest Investigator, Woods Hole Oceanographic Institution Summers, 1979-1992
Visiting Faculty, Institute of Geophysics and Planetary Physics and Department of Earth and Space Sciences, University of California, Los Angeles September 1982-June 1983
Visiting Scientist, Jet Propulsion Laboratory September 1982-June 1983
Roland and Jane Blumberg Visiting Professor of Planetary Sciences, University of Texas at Austin November 1988
Visiting Associate, Division of Geological and Planetary Sciences, California Institute of Technology September 1990-May 1991
Japan Society for the Promotion of Science Fellow, University of Tokyo, Hokkaido University, and Kyushu University September-October 1998

HONORS AND AWARDS

Tau Beta Pi 1965
National Science Foundation Graduate Fellow 1966-1968
Fannie and John Hertz Foundation Fellow 1968-1971
National Science Foundation Postdoctoral Fellow 1971-1972
Alfred P. Sloan Research Fellow 1977-1981
Fellow, American Geophysical Union 1980
Fellow, John Simon Guggenheim Memorial Foundation 1982-1983
Fellow, American Academy of Arts and Sciences 1995
Fellow, American Association for the Advancement of Science 1995
President, American Geophysical Union 1996-1998
Fellow, Geological Society of America 1997
Arthur L. Day Prize and Lectureship, National Academy of Sciences 1999
Grove Karl Gilbert Award, Geological Society of America 1999
Member, National Academy of Sciences 2000
Public Service Medal, National Aeronautics and Space Administration 2004
Harry H. Hess Medal, American Geophysical Union 2005
Distinguished Alumni Award, California Institute of Technology 2006
Nelson P. Jackson Aerospace Award, National Space Club 2009

HONORARY LECTURESHIPS

Robert H. Lommen Distinguished Lecturer, St. Louis University	1986
W. C. Crumbein Lecturer, Northwestern University and University of Chicago	1992
W. S. Jardetsky Lecturer, Lamont-Doherty Earth Observatory, Columbia University	1994
S. Thomas Crough Memorial Lecturer, Purdue University	1996
J. Tuzo Wilson Lecturer, University of Toronto	1997
Harold Masursky Lecturer, 32 nd Lunar and Planetary Science Conference	2001
A. O. C. Nier Memorial Lecturer, University of Minnesota	2003
McDonnell Lecturer, Washington University	2007
Thomas A. Mutch Memorial Lecturer, Brown University	2007
Wilmot Hyde Bradley Lecturer, Geological Society of Washington	2008

OCEANOGRAPHIC EXPEDITIONS

R/V Argo, Nova Expedition (Southwest Pacific Ocean)	August-October 1967
R/V Atlantis II, Cruise 93 (Southwest Indian Ocean Ridge)	February-March 1976
F/S Meteor, Cruise 45 (Reykjanes Ridge Iceland Seismic Project)	June-July 1977
R/V Robert Conrad, Cruise RC 22 (Rivera Ocean Seismic Experiment)	January-February 1979
R/V Endeavor, Cruise EN-051 (Oceanographer Fracture Zone)	May-June 1980
R/V Knorr, Cruise KN-92 (Mid-Atlantic Ridge, 23°N)	January-March 1982
R/V Knorr, Cruise KN-115 (Mid-Atlantic Ridge, 26°N)	June-July 1985
R/V Oceanus, Cruise OC-180 (Kane Fracture Zone)	December 1986-January 1987
R/V Thomas Washington, RAITT Expedition (East Pacific Rise, 9°30'N)	January-February 1988

SPACECRAFT MISSION EXPERIENCE

Magellan (previously Venus Orbiting Imaging Radar and Venus Radar Mapper) Project Science Group	1982-1994
Radar Investigation Group	1982-1994
Mars Global Surveyor (previously Mars Observer) Mars Orbiter Laser Altimeter Team	1986-2005
Principal Investigator, MESSENGER (MERcury Surface, Space ENvironment, GEOchemistry, and Ranging)	1999-present
Co-Investigator, GRAIL (Gravity Recovery and Interior Laboratory)	2007-present

EDITORIAL EXPERIENCE

Associate Editor, <i>Proceedings of the Lunar and Planetary Science Conference</i>	1976, 1978
Associate Editor, <i>Journal of Geophysical Research</i>	1976-1978
Associate Editor, Proceedings of the Conference on Comparisons of Mercury and the Moon (<i>Physics of the Earth and Planetary Interiors</i> , 15, 2/3)	1977
Associate Editor, <i>Eos, Transactions of the American Geophysical Union</i>	1979-1981
Editor, Proceedings of the Symposium on Quantitative Methods of Assessing Plate Motions (<i>Tectonophysics</i> , 74, 1/2)	1981
Editorial Board, <i>Physics and Chemistry of the Earth</i>	1981-1985
Geophysical Monograph Board, American Geophysical Union Chairman	1982-1984 1983-1984
Associate Editor, <i>Geophysical Research Letters</i>	1986-1988
Editorial Committee, <i>Annual Review of Earth and Planetary Sciences</i>	1993-1997
Board of Advisory Editors, <i>Earth and Planetary Science Letters</i>	2001-2007
Editorial Board, <i>Astrobiology</i>	2001-present

STUDENT SUPERVISION

Ph.D. theses supervised (1977-1996):	21
S.M. theses supervised (1973-1987):	5

PROFESSIONAL SOCIETIES

American Geophysical Union	1967-present
American Association for the Advancement of Science	1968-present
Seismological Society of America	1969-present
Geological Society of America	1983-present
Division for Planetary Sciences, American Astronomical Society	1990-present

PROFESSIONAL COMMITTEES**National Aeronautics and Space Administration**

Lunar Sample Analysis Planning Team	1974-76
Basaltic Volcanism Project, Lunar and Planetary Institute, Team leader for thermal histories of the terrestrial planets	1976-79
Venus Orbital Imaging Radar Science Working Group	1977-78
Lunar and Planetary Review Panel	1980-82
Crustal Dynamics Project Proposal Evaluation Panel	1981
Planetary Geology Working Group	1982-84
Crustal Dynamics Project Working Group	1982-91
Geopotential Research Mission Science Steering Group	1982-87
Planetary Geology Review Panel	1983-84
Chairman, Planetary Geology and Geophysics Working Group	1984-86
Lunar and Planetary Geosciences Review Panel	1984-85, 1986-88
Chairman	1986-88
Space and Earth Science Advisory Committee	1984-87
Solid Earth Geophysics Working Group, Earth Systems Science Committee	1984-85
Mars Rover Sample Return Science Working Group	1987-89
Chairman, Project Steering Committee, Mars: Evolution of Volcanism, Tectonics, and Volatiles	1987-90
Magellan Guest Investigator Review Panel	1990
MESUR (Mars Environmental Survey) Mission Science Definition Team	1991-93
Chairman, Venus Data Analysis Program Review Panel	1992
Planetary Geology and Geophysics Management and Operations Working Group	1992-97, 2000-05
Chairman	1994-97
Terrestrial Planetary Bodies Science Working Group	1994-96
Rosetta Orbiter Review Panel	1995
Mars Microprobe Science Advisory Team, New Millennium Program	1995-97
Solar System Exploration Roadmap Development Team	1996
Solar System Exploration Subcommittee, Space Science Advisory Committee	1996-2000
Task Force on MO&DA and R&A, Space Science Advisory Committee	1997-98
Earth System Science and Applications Advisory Committee	1998-2002
Executive Council, NASA Astrobiology Institute	1998-2008
Chair, Solid Earth Science Working Group	2000-02
Chair, Review Panel for NASA Specialized Centers of Research and Training in Astrobiology	2001-02
Strategic Roadmap Committee for Earth Science and Applications from Space	2004-05
Chair, Planetary Science Subcommittee, NASA Advisory Council	2006-09
Chair, MESSENGER Participating Scientist Review Panel	2006

U. S. Geological Survey

Earthquake Hazards Reduction Program Peer Review Panel	1975, 1985
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National Academy of Sciences/National Research Council

Committee on Planetary and Lunar Exploration, Space Science Board	1976-79
Space Science Board	1978-82
Chairman, Committee on Earth Sciences, Space Science Board	1979-82
Joint U.S.-European Working Group on Cooperation in Planetary Exploration	1982-83

Board on Earth Sciences	1985-88
Steering Committee, RIDGE (Ridge Inter-Disciplinary Global Experiments) Project	1987-90
Committee on Cooperative Mars Exploration and Sample Return, Space Science Board	1987-88
Nominating Committee	2002-03, 2004-05
Class I Membership Committee	2003, 2006-08
Chair, Selection Committee, 2005 Arthur L. Day Prize and Lectureship	2004
Chair, Section 16 (Geophysics)	2005-08
Committee on Grand Research Questions in the Solid-Earth Sciences	2006-07
Auditing Committee	2008-09
Secretary, Class I (Physical and Mathematical Sciences)	2009-12
Chair, Class I (Physical and Mathematical Sciences)	2012-15

Universities Space Research Association

Lunar and Planetary Science Council	1978-80, 1991-93
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International Union of Geodesy and Geophysics

Convener, Interdisciplinary Symposium on Quantitative Methods of Assessing Plate Motions, XVII General Assembly	1979
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Inter-Union Commission on the Lithosphere

Working Group 1: Recent Plate Movements and Deformation	1981-83
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Department of Defense

Technical Review Panel on Nuclear Test Ban Treaty Verification, DARPA	1981-86
Geophysics Review Panel, Air Force Office of Scientific Research	1984
Board of Visitors, Ocean Sciences Directorate, Office of Naval Research	1993

Association of American Universities

Steering Committee, Space Science Working Group	1984-91
Chairman	1987-89

American Geophysical Union

President-Elect and President, Planetology Section	1984-88
Council	1984-88, 1994-2000
Chairman, Editor Search Committee, <i>Journal of Geophysical Research -Solid Earth and Planets</i>	1986, 1988
Harry H. Hess Medal Committee	1990-92
Chairman, Edward A. Flinn Award Committee	1990-92
Fellows Committee	1992-94
President-Elect	1994-96
Executive Committee	1994-98
Past-President	1998-2000
Chairman, Nominations Committee	2000-02
William Bowie Medal Committee	2006-10

National Science Foundation

Review Panel for IRIS Program Plan	1986
Review Panel for Ocean Drilling Program	1988
Screening Panel, Earth Sciences Division Director	1995
Graduate Fellowship Review Panel	1996
Co-Chair, Solid Earth Working Group, Future of Marine Geosciences Workshop	1996-97
Screening Panel, Ocean Sciences Division Director	2001
Search Committee, Assistant Director for Geosciences	2003
Search Committee, Earth Sciences Division Director	2006
Chair, Review Committee, Ocean Observatories Initiative Scientific Objectives and Network Design	2006, 2007

Advisory Committee for Geosciences	2006-08
GEO Vision Working Group	2006-08
Chair, Committee of Visitors, Deep Earth Processes Section	2008

Department of Energy

Geosciences Research Council	1986-87
Physical Sciences Advisory Committee, Lawrence Livermore National Laboratory (LLNL)	1993-94
Environmental Programs Scientific Advisory Committee, LLNL	1995-98
Chair, Earth and Environmental Sciences Directorate Advisory Committee, LLNL	1998-2000
Energy and Environment Directorate Scientific Advisory Committee, LLNL	2001

Incorporated Research Institutions for Seismology

Standing Committee for the Global Seismic Network	1987-90
Chairman	1988-90
Science Task Force	1995

Geological Society of America

G. K. Gilbert Award Committee	2002-03
Arthur L. Day Medal Committee	2003-04

Academic and Institutional Review Committees

Committee to Visit the Department of Earth and Planetary Sciences, Harvard University	1993-99, 2002-05
Review Team, Laboratory for Terrestrial Physics, NASA Goddard Space Flight Center	1993
Visiting Committee, National Astronomy and Ionosphere Center, Arecibo Observatory, Cornell University	1995-98
Visiting Committee, School of Earth and Atmospheric Sciences, Georgia Institute of Technology	1996, 2003
Geoscience Evaluation Panel, Danish National Research Foundation	1997
Chair, Academic Review Committee, Department of Geosciences, Princeton University	1998
External Review Committee, MIT/WHOI Joint Program in Oceanography and Applied Ocean Science and Engineering	1998, 2004, 2009
Chair	1998
Institutional Review Committee, Scripps Institution of Oceanography	1999
Physical and Mathematical Sciences and Environmental Studies Cluster Review Committee, Brown University	1999
Chair, External Advisory Committee for Geology and Geophysics, Rice University	2000
Advisory Committee, Institute of Earth Sciences, Academia Sinica, Taiwan	2000-05
Chair	2002-05
Academic Program Review Committee, Department of Geosciences, University of Arizona	2001
External Assessment Team, Department of Earth and Environmental Sciences, Columbia University	2001
Scientific Advisory Board, Max Planck Institute for Chemistry	2001-09
Advisory Committee, Center for Integrative Planetary Science, University of California, Berkeley	2003-06
Advisory Council, Southern California Earthquake Center	2003-07
Chair	2004-07
Visiting Committee, Earth Sciences Directorate, NASA Goddard Space Flight Center	2003
External Review Committee, Department of Geology, University of Maryland	2003
Visiting Committee, Harvard-Smithsonian Center for Astrophysics	2004, 2007
External Advisory Board, The Earth Institute, Columbia University	2004-09
External Review Committee, School of Earth and Environmental Sciences, Seoul National University	2005
Visiting Committee, Berkeley Geochronology Center	2005
Chair, External Review Committee, Department of the Geophysical Sciences, University of Chicago	2005
Chair, External Advisory Committee, Department of Earth Science, Rice University	2005
Chair, External Review Committee, Department of Earth and Planetary Sciences, Washington University	2007

PUBLICATIONS

Refereed Papers

- Solomon, S. C., and M. N. Toksöz, On the density distribution in the Moon, *Phys. Earth Planet. Inter.*, 1, 475-484, 1968.
- Solomon, S. C., and S. Biehler, Crustal structure from gravity anomalies in the southwest Pacific, *J. Geophys. Res.*, 74, 6696-6701, 1969.
- Solomon, S. C., and M. N. Toksöz, Lateral variation of attenuation of P and S waves beneath the United States, *Bull. Seismol. Soc. Am.*, 60, 819-838, 1970.
- Solomon, S. C., Seismic-wave attenuation and partial melting in the upper mantle of North America, *J. Geophys. Res.*, 77, 1483-1502, 1972.
- Toksöz, M. N., S. C. Solomon, J. W. Minear, and D. H. Johnston, Thermal evolution of the Moon, *The Moon*, 4, 190-213, 1972.
- Solomon, S. C., On Q and seismic discrimination, *Geophys. J. Roy. Astron. Soc.*, 31, 163-177, 1972.
- Solomon, S. C., and M. N. Toksöz, Internal constitution and evolution of the Moon, *Phys. Earth Planet. Inter.*, 7, 15-38, 1973.
- Toksöz, M. N., and S. C. Solomon, Thermal history and evolution of the Moon, *The Moon*, 7, 251-278, 1973.
- Solomon, S. C., Shear-wave attenuation and melting beneath the Mid-Atlantic Ridge, *J. Geophys. Res.*, 78, 6044-6059, 1973.
- Toksöz, M. N., A. M. Dainty, S. C. Solomon, and K. R. Anderson, Velocity structure and evolution of the Moon, *Proc. Lunar Sci. Conf. 4th, Geochim. Cosmochim. Acta, Suppl. 4*, 2529-2547, 1973.
- Solomon, S. C., Density within the Moon and implications for lunar composition, *The Moon*, 9, 147-166, 1974.
- Solomon, S. C., and R. G. Butler, Prospecting for dead slabs, *Earth Planet. Sci. Lett.*, 21, 421-430, 1974.
- Solomon, S. C., and N. H. Sleep, Some simple physical models for absolute plate motions, *J. Geophys. Res.*, 79, 2557-2567, 1974.
- Ambuter, B. P., and S. C. Solomon, An event recording system for monitoring small earthquakes, *Bull. Seismol. Soc. Am.*, 64, 1181-1188, 1974.
- Solomon, S. C., and B. R. Julian, Seismic constraints on ocean-ridge mantle structure: Anomalous fault-plane solutions from first motions, *Geophys. J. Roy. Astron. Soc.*, 38, 265-285, 1974.
- Siegfried, R. W., II, and S. C. Solomon, Mercury: Internal structure and thermal evolution, *Icarus*, 23, 192-205, 1974.
- Toksöz, M. N., A. M. Dainty, S. C. Solomon, and K. R. Anderson, Structure of the Moon, *Rev. Geophys. Space Phys.*, 12, 539-567, 1974.
- Dainty, A. M., M. N. Toksöz, S. C. Solomon, K. R. Anderson, and N. R. Goins, Constraints on lunar structure, *Proc. Lunar Sci. Conf. 5th, Geochim. Cosmochim. Acta, Suppl. 5*, 3091-3114, 1974.
- Solomon, S. C., N. H. Sleep, and R. M. Richardson, On the forces driving plate tectonics: Inferences from absolute plate velocities and intraplate stress, *Geophys. J. Roy. Astron. Soc.*, 42, 769-801, 1975.
- Lee, W. B., and S. C. Solomon, Inversion schemes for surface wave attenuation and Q in the crust and the mantle, *Geophys. J. Roy. Astron. Soc.*, 43, 47-71, 1975.
- Solomon, S. C., Mare volcanism and lunar crustal structure, *Proc. Lunar Sci. Conf. 6th, Geochim. Cosmochim. Acta, Suppl. 6*, 1021-1042, 1975.
- Solomon, S. C., and K. T. Paw U, Elevation of the olivine-spinel transition in subducted lithosphere: Seismic evidence, *Phys. Earth Planet. Inter.*, 11, 97-108, 1975.

- Chapman, M. E., and S. C. Solomon, North American-Eurasian plate boundary in northeast Asia, *J. Geophys. Res.*, *81*, 921-930, 1976.
- Richardson, R. M., S. C. Solomon, and N. H. Sleep, Intraplate stress as an indicator of plate tectonic driving forces, *J. Geophys. Res.*, *81*, 1847-1856, 1976.
- Solomon, S. C., Some aspects of core formation in Mercury, *Icarus*, *28*, 509-521, 1976.
- Solomon, S. C., Geophysical constraints on radial and lateral temperature variations in the upper mantle, *Amer. Mineral.*, *61*, 788-803, 1976.
- Solomon, S. C., and J. Chaiken, Thermal expansion and thermal stress in the Moon and terrestrial planets: Clues to early thermal history, *Proc. Lunar Sci. Conf. 7th, Geochim. Cosmochim. Acta, Suppl. 7*, 3229-3243, 1976.
- Solomon, S. C., N. H. Sleep, and R. M. Richardson, Implications of absolute plate motions and intraplate stress for mantle rheology, *Tectonophysics*, *37*, 219-231, 1977.
- Mattaboni, P. J., and S. C. Solomon, MITOBS: A seismometer system for ocean-bottom earthquake studies, *Mar. Geophys. Res.*, *3*, 87-102, 1977.
- Solomon, S. C., N. H. Sleep, and D. M. Jurdy, Mechanical models for absolute plate motions in the early Tertiary, *J. Geophys. Res.*, *82*, 203-212, 1977.
- Richardson, R. M., and S. C. Solomon, Apparent stress and stress drop for intraplate earthquakes and tectonic stress in the plates, *Pure Appl. Geophys.*, *115*, 317-331, 1977.
- Duschenes, J. D., and S. C. Solomon, Shear wave travel time residuals from oceanic earthquakes and the evolution of oceanic lithosphere, *J. Geophys. Res.*, *82*, 1985-2000, 1977.
- Solomon, S. C., The relationship between crustal tectonics and internal evolution in the Moon and Mercury, *Phys. Earth Planet. Inter.*, *15*, 135-145, 1977.
- Solomon, S. C., and J. Longhi, Magma oceanography: 1. Thermal evolution, *Proc. Lunar Sci. Conf. 8th, Geochim. Cosmochim. Acta, Suppl. 8*, 589-599, 1977.
- Solomon, S. C., P. J. Mattaboni, and R. J. Hester, Microseismicity near the Indian Ocean triple junction, *Geophys. Res. Lett.*, *4*, 597-600, 1977.
- Burr, N. C., and S. C. Solomon, The relationship of source parameters of oceanic transform earthquakes to plate velocity and transform length, *J. Geophys. Res.*, *83*, 1193-1205, 1978.
- Lee, W. B., and S. C. Solomon, Simultaneous inversion of surface wave phase velocity and attenuation: Love waves in western North America, *J. Geophys. Res.*, *83*, 3389-3400, 1978.
- Solomon, S. C., On volcanism and thermal tectonics on one-plate planets, *Geophys. Res. Lett.*, *5*, 461-464, 1978.
- Thurber, C. H., and S. C. Solomon, An assessment of crustal thickness variations on the lunar nearside: Models, uncertainties, and implications for crustal differentiation, *Proc. Lunar Planet. Sci. Conf. 9th, Geochim. Cosmochim. Acta, Suppl. 9*, 3481-3497, 1978.
- Solomon, S. C., The nature of isostasy on the Moon: How big a Pratt-fall for Airy models?, *Proc. Lunar Planet. Sci. Conf. 9th, Geochim. Cosmochim. Acta, Suppl. 9*, 3499-3511, 1978.
- Solomon, S. C., and N. C. Burr, The relationship of source parameters of ridge-crest and transform earthquakes to the thermal structure of oceanic lithosphere, *Tectonophysics*, *55*, 107-126, 1979.
- Lee, W. B., and S. C. Solomon, Simultaneous inversion of surface wave phase velocity and attenuation: Rayleigh and Love waves over continental and oceanic paths, *Bull. Seismol. Soc. Am.*, *69*, 165-195, 1979.
- Solomon, S. C., Formation, history and energetics of cores in the terrestrial planets, *Phys. Earth Planet. Inter.*, *19*, 168-182, 1979.
- Solomon, S. C., and J. W. Head, Vertical movement in mare basins: Relation to mare emplacement, basin tectonics, and lunar thermal history, *J. Geophys. Res.*, *84*, 1667-1682, 1979.

- Angenheister, G., H. Gebrande, H. Miller, W. Weigel, P. Goldflam, W. Jacoby, G. Palmason, S. Bjornsson, P. Einarsson, S. Zverev, B. Loncarevic, and S. Solomon, First results from the Reykjanes Ridge Iceland Seismic Project 1977, *Nature*, 279, 56-60, 1979.
- Richardson, R. M., S. C. Solomon, and N. H. Sleep, Tectonic stress in the plates, *Rev. Geophys. Space Phys.*, 17, 981-1019, 1979.
- Comer, R. P., S. C. Solomon, and J. W. Head, Elastic lithosphere thickness on the Moon from mare tectonic features: A formal inversion, *Proc. Lunar Planet. Sci. Conf. 10th, Geochim. Cosmochim. Acta, Suppl. 11*, 2441-2463, 1979.
- Solomon, S. C., Differentiation of crusts and cores of the terrestrial planets: Lessons for the early Earth?, *Precambrian Res.*, 10, 177-194, 1980.
- Solomon, S. C., and J. W. Head, Lunar mascon basins: Lava filling, tectonics, and evolution of the lithosphere, *Rev. Geophys. Space Phys.*, 18, 107-141, 1980.
- Angenheister, G., H. Gebrande, H. Miller, P. Goldflam, W. Weigel, W. R. Jacoby, G. Palmason, S. Bjornsson, P. Einarsson, N. I. Pavlenkova, S. M. Zverev, I. V. Litvinenko, B. Loncarevic, and S. C. Solomon, Reykjanes Ridge Iceland Seismic Experiment (RRISP 77), *J. Geophys.*, 47, 228-238, 1980.
- Bergman, E. A., and S. C. Solomon, Oceanic intraplate earthquakes: Implications for local and regional intraplate stress, *J. Geophys. Res.*, 85, 5389-5410, 1980.
- Solomon, S. C., R. M. Richardson, and E. A. Bergman, Tectonic stress: Models and magnitudes, *J. Geophys. Res.*, 85, 6086-6092, 1980.
- Tréhu, A. M., J. L. Nabelek, and S. C. Solomon, Source characterization of two Reykjanes Ridge earthquakes: Surface waves and moment tensors; P waveforms and non-orthogonal nodal planes, *J. Geophys. Res.*, 86, 1701-1724, 1981.
- Davis, D. M., and S. C. Solomon, Variations in the velocities of the major plates since the late Cretaceous, *Tectonophysics*, 74, 189-208, 1981.
- Duschenes, J. D., T. W. Barash, P. J. Mattaboni, and S. C. Solomon, On the use of an externally deployed geophone package on an ocean bottom seismometer, *Mar. Geophys. Res.*, 4, 437-450, 1981.
- Project ROSE Scientists (J. I. Ewing, G. M. Purdy, A. M. Tréhu, S. C. Solomon, T. Ouchi, A. K. Ibrahim, J. F. Gettrust, K. Furukawa, S. P. Nishenko, P. W. Pomeroy, W. A. Prothero, J. D. Garmany, B. T. R. Lewis, S. H. Johnson, and L. D. Bibee), Microearthquake activity on the Orozco Fracture Zone: Preliminary results from Project ROSE, *J. Geophys. Res.*, 86, 3783-3790, 1981.
- Solomon, S. C., T. J. Ahrens, P. Cassen, A. T. Hsui, J. W. Minear, R. T. Reynolds, N. H. Sleep, D. W. Strangway, and D. L. Turcotte, Thermal histories of the terrestrial planets, in *Basaltic Volcanism on the Terrestrial Planets*, Pergamon Press, Elmsford, N.Y., pp. 1129-1234, 1981.
- Head, J. W., and S. C. Solomon, Tectonic evolution of the terrestrial planets, *Science*, 213, 62-76, 1981.
- Hall, J. L., S. C. Solomon, and J. W. Head, Lunar floor-fractured craters: Evidence for viscous relaxation of crater topography, *J. Geophys. Res.*, 86, 9537-9552, 1981.
- Tréhu, A. M., and S. C. Solomon, Coupling parameters of the MIT OBS at two nearshore sites, *Mar. Geophys. Res.*, 5, 69-78, 1981.
- Solomon, S. C., R. P. Comer, and J. W. Head, The evolution of impact basins: Viscous relaxation of topographic relief, *J. Geophys. Res.*, 87, 3975-3992, 1982.
- Solomon, S. C., S. K. Stephens, and J. W. Head, On Venus impact basins: Viscous relaxation of topographic relief, *J. Geophys. Res.*, 87, 7763-7771, 1982.
- Solomon, S. C., and J. W. Head, Mechanisms for lithospheric heat transport on Venus: Implications for tectonic style and volcanism, *J. Geophys. Res.*, 87, 9236-9246, 1982.

- Solomon, S. C., and J. W. Head, Evolution of the Tharsis province of Mars: The importance of heterogeneous lithospheric thickness and volcanic construction, *J. Geophys. Res.*, *87*, 9755-9774, 1982.
- Tréhu, A. M., and S. C. Solomon, Earthquakes in the Orozco transform zone: Seismicity, source mechanisms, and tectonics, *J. Geophys. Res.*, *88*, 8203-8225, 1983.
- Bergman, E. A., J. L. Nabelek, and S. C. Solomon, An extensive region of off-ridge normal-faulting earthquakes in the southern Indian Ocean, *J. Geophys. Res.*, *89*, 2425-2443, 1984.
- Bratt, S. R., and S. C. Solomon, Compressional and shear-wave structure of the East Pacific Rise at 11°20'N: Constraints from three-component ocean-bottom seismometer data, *J. Geophys. Res.*, *89*, 6095-6110, 1984.
- Solomon, S. C., and J. W. Head, Venus banded terrain: Tectonic models for band formation and their relationship to lithospheric thermal structure, *J. Geophys. Res.*, *89*, 6885-6897, 1984.
- Bergman, E. A., and S. C. Solomon, Source mechanisms of earthquakes near mid-ocean ridges from body waveform inversion: Implications for the early evolution of oceanic lithosphere, *J. Geophys. Res.*, *89*, 11,415-11,441, 1984.
- Davis, D. M., and S. C. Solomon, True polar wander and plate-driving forces, *J. Geophys. Res.*, *90*, 1837-1841, 1985.
- Bratt, S. R., S. C. Solomon, J. W. Head, and C. H. Thurber, The deep structure of lunar basins: Implications for basin formation and modification, *J. Geophys. Res.*, *90*, 3049-3064, 1985.
- Comer, R. P., S. C. Solomon, and J. W. Head, Mars: Thickness of the lithosphere from the tectonic response to volcanic loads, *Rev. Geophys.*, *23*, 61-92, 1985.
- Toomey, D. R., S. C. Solomon, G. M. Purdy, and M. H. Murray, Microearthquakes beneath the median valley of the Mid-Atlantic Ridge near 23°N: Hypocenters and focal mechanisms, *J. Geophys. Res.*, *90*, 5443-5458, 1985.
- Bergman, E. A., and S. C. Solomon, Earthquake source mechanisms from body waveform inversion and intraplate tectonics in the northern Indian Ocean, *Phys. Earth Planet. Inter.*, *40*, 1-23, 1985.
- Bratt, S. R., E. A. Bergman, and S. C. Solomon, Thermoelastic stress: How important as a cause of earthquakes in young oceanic lithosphere?, *J. Geophys. Res.*, *90*, 10,249-10,260, 1985.
- Bratt, S. R., S. C. Solomon, and J. W. Head, The evolution of impact basins: Cooling, subsidence and thermal stress, *J. Geophys. Res.*, *90*, 12,415-12,433, 1985.
- Huang, P. Y., S. C. Solomon, E. A. Bergman, and J. L. Nabelek, Focal depths and mechanisms of Mid-Atlantic Ridge earthquakes from body waveform inversion, *J. Geophys. Res.*, *91*, 579-598, 1986.
- Solomon, S. C., On the early thermal state of the Moon, in *Origin of the Moon*, edited by W. K. Hartmann, R. J. Phillips, and G. J. Taylor, Lunar and Planetary Institute, Houston, Tex., pp. 435-452, 1986.
- Grimm, R. E. and S. C. Solomon, Tectonic tests of proposed polar wander paths for Mars and the Moon, *Icarus*, *65*, 110-121, 1986.
- Hall, J. L., S. C. Solomon, and J. W. Head, Elysium region, Mars: Tests of lithospheric loading models for the formation of tectonic features, *J. Geophys. Res.*, *91*, 11,377-11,392, 1986.
- Sauber, J., W. Thatcher, and S. C. Solomon, Geodetic measurement of deformation in the central Mojave Desert, California, *J. Geophys. Res.*, *91*, 12,683-12,693, 1986.
- Jemsek, J. P., E. A. Bergman, J. L. Nabelek, and S. C. Solomon, Focal depths and mechanisms of large earthquakes on the Arctic mid-ocean ridge system, *J. Geophys. Res.*, *91*, 13,993-14,005, 1986.
- Huang, P. Y., and S. C. Solomon, Centroid depths and mechanisms of mid-ocean ridge earthquakes in the Indian Ocean, Gulf of Aden, and Red Sea, *J. Geophys. Res.*, *92*, 1361-1382, 1987.
- Solomon, S. C., and E. D. Duxbury, A test of the longevity of impact-induced faults as preferred sites for later tectonic activity, *Proc. Lunar Planet. Sci. Conf. 17th*, *J. Geophys. Res.*, *92*, E759-E768, 1987.

- Solomon, S. C., Secular cooling of the Earth as a source of intraplate stress, *Earth Planet. Sci. Lett.*, 83, 153-158, 1987.
- Grimm, R. E., and S. C. Solomon, Limits on modes of lithospheric heat transport on Venus from impact crater density, *Geophys. Res. Lett.*, 14, 538-541, 1987.
- Goff, J. A., E. A. Bergman, and S. C. Solomon, Earthquake source mechanisms and transform fault tectonics in the Gulf of California, *J. Geophys. Res.*, 92, 10,485-10,510, 1987.
- Solomon, S. C., P. Y. Huang, and L. Meinke, The seismic moment budget of slowly spreading ridges, *Nature*, 334, 58-61, 1988.
- Bergman, E. A., and S. C. Solomon, Transform fault earthquakes in the north Atlantic: Source mechanisms and depth of faulting, *J. Geophys. Res.*, 93, 9027-9057, 1988.
- Toomey, D. R., S. C. Solomon, and G. M. Purdy, Microearthquakes beneath the median valley of the Mid-Atlantic Ridge near 23°N: Tomography and tectonics, *J. Geophys. Res.*, 93, 9093-9112, 1988.
- Grimm, R. E., and S. C. Solomon, Viscous relaxation of impact crater relief on Venus: Constraints on crustal thickness and thermal gradient, *J. Geophys. Res.*, 93, 11,911-11,929, 1988.
- Huang, P. Y., and S. C. Solomon, Centroid depths of mid-ocean ridge earthquakes: Dependence on spreading rate, *J. Geophys. Res.*, 93, 13,445-13,477, 1988.
- Schubert, G., D. L. Turcotte, S. C. Solomon, and N. H. Sleep, Coupled evolution of the atmospheres and interiors of planets and satellites, in *Origin and Evolution of Planetary and Satellite Atmospheres*, edited by S. K. Atreya, J.B. Pollack, and M.S. Matthews, Univ. Arizona Press, Tucson, pp. 450-483, 1989.
- Sauber, J., M. Lisowski, and S. C. Solomon, Geodetic measurement of deformation east of the San Andreas Fault in central California, in *Slow Deformation and Transmission of Stress in the Earth*, edited by S. Cohen and P. Vanicek, Geophys. Mon. Ser., 49, Amer. Geophys. Un., Washington, D.C., pp. 71-86, 1989.
- Grimm, R. E., and S. C. Solomon, Tests of crustal divergence models for Aphrodite Terra, Venus, *J. Geophys. Res.*, 94, 12,103-12,131, 1989.
- Bergman, E. A., and S. C. Solomon, Earthquake swarms on the Mid-Atlantic Ridge: Products of magmatism or extensional tectonics?, *J. Geophys. Res.*, 95, 4943-4965, 1990.
- Solomon, S. C., and J. W. Head, Heterogeneities in the thickness of the elastic lithosphere of Mars: Constraints on heat flow and internal dynamics, *J. Geophys. Res.*, 95, 11,073-11,083, 1990.
- Solomon, S. C., and J. W. Head, Lithospheric flexure beneath the Freyja Montes foredeep, Venus: Constraints on lithospheric thermal gradient and heat flow, *Geophys. Res. Lett.*, 17, 1393-1396, 1990.
- Wilcock, W. S. D., G. M. Purdy, and S. C. Solomon, Microearthquake evidence for extension across the Kane transform fault, *J. Geophys. Res.*, 95, 15,439-15,462, 1990.
- Toomey, D. R., G. M. Purdy, S. C. Solomon, and W. S. D. Wilcock, The three-dimensional seismic velocity structure of the East Pacific Rise near latitude 9°30'N, *Nature*, 347, 639-645, 1990.
- Zimbelman, J. R., S. C. Solomon, and V. L. Sharpton, The evolution of volcanism, tectonics, and volatiles on Mars: An overview of recent progress, *Proc. Lunar Planet. Sci.*, 21, 613-626, 1991.
- Saunders, R. S., R. E. Arvidson, J. W. Head, III, G. G. Schaber, E. R. Stofan, and S. C. Solomon, An overview of Venus geology, *Science*, 252, 249-252, 1991.
- Solomon, S. C., and J. W. Head, Fundamental issues in the geology and geophysics of Venus, *Science*, 252, 252-260, 1991.
- Solomon, S. C., J. W. Head, W. M. Kaula, D. McKenzie, B. Parsons, R. J. Phillips, G. Schubert, and M. Talwani, Venus tectonics: Initial analysis from Magellan, *Science*, 252, 297-312, 1991.

- Sheehan, A. F., and S. C. Solomon, Joint inversion of shear wave travel time residuals and geoid and depth anomalies for long-wavelength variations in upper mantle temperature and composition along the Mid-Atlantic Ridge, *J. Geophys. Res.*, *96*, 19,981-20,009, 1991.
- Schubert, G., S. C. Solomon, D. L. Turcotte, M. J. Drake, and N. H. Sleep, Origin and thermal evolution of Mars, in *Mars*, edited by H. H. Kieffer, B. M. Jakosky, C. W. Snyder, and M. S. Matthews, Univ. Arizona Press, Tucson, pp. 147-183, 1992.
- Kong, L. S. L., S. C. Solomon, and G. M. Purdy, Microearthquake characteristics of a mid-ocean ridge along-axis high, *J. Geophys. Res.*, *97*, 1659-1685, 1992.
- Purdy, G. M., L. S. L. Kong, G. L. Christeson, and S. C. Solomon, Relationship between spreading rate and the seismic structure of mid-ocean ridges, *Nature*, *355*, 815-817, 1992.
- Solomon, S. C., and D. R. Toomey, The structure of mid-ocean ridges, *Ann. Rev. Earth Planet. Sci.*, *20*, 329-364, 1992.
- Zuber, M. T., D. E. Smith, S. C. Solomon, D. O. Muhleman, J. W. Head, J. B. Garvin, J. B. Abshire, and J. L. Bufton, Mars Observer laser altimeter investigation, *J. Geophys. Res.*, *97*, 7781-7797, 1992.
- Solomon, S. C., S. E. Smrekar, D. L. Bindschadler, R. E. Grimm, W. M. Kaula, G. E. McGill, R. J. Phillips, R. S. Saunders, G. Schubert, S. W. Squyres, and E. R. Stofan, Venus tectonics: An overview of Magellan observations, *J. Geophys. Res.*, *97*, 13,199-13,255, 1992.
- McKenzie, D., P. G. Ford, C. Johnson, B. Parsons, G. H. Pettengill, D. Sandwell, S. Saunders, and S. C. Solomon, Features on Venus generated by plate boundary processes, *J. Geophys. Res.*, *97*, 13,533-13,544, 1992.
- Squyres, S. W., D. G. Jankowski, M. Simons, S. C. Solomon, B. H. Hager, and G. E. McGill, Plains tectonism on Venus: The deformation belts of Lavinia Planitia, *J. Geophys. Res.*, *97*, 13,579-13,599, 1992.
- Sheehan, A. F., and S. C. Solomon, Differential shear wave attenuation and its lateral variation in the North Atlantic region, *J. Geophys. Res.*, *97*, 15,339-15,350, 1992.
- Bergman, E. A., and S. C. Solomon, On the strength of oceanic fracture zones and their influence on the intraplate stress field, *J. Geophys. Res.*, *97*, 15,365-15,377, 1992.
- Smrekar, S. E., and S. C. Solomon, Gravitational spreading of high terrain in Ishtar Terra, Venus, *J. Geophys. Res.*, *97*, 16,121-16,148, 1992.
- Wilcock, W. S. D., G. M. Purdy, S. C. Solomon, D. L. DuBois, and D. R. Toomey, Microearthquakes on and near the East Pacific Rise, 9°-10°N, *Geophys. Res. Lett.*, *19*, 2131-2134, 1992.
- Wilcock, W. S. D., S. C. Solomon, G. M. Purdy, and D. R. Toomey, The seismic attenuation structure of a fast-spreading mid-ocean ridge, *Science*, *258*, 1470-1474, 1992.
- Wilcock, W. S. D., D. R. Toomey, G. M. Purdy, and S. C. Solomon, The renavigation of Sea Beam bathymetric data between 9°N and 10°N on the East Pacific Rise, *Mar. Geophys. Res.*, *15*, 1-12, 1993.
- Namiki, N., and S. C. Solomon, The gabbro - eclogite phase transition and the elevation of mountain belts on Venus, *J. Geophys. Res.*, *98*, 15,025-15,031, 1993.
- Wolfe, C. J., E. A. Bergman, and S. C. Solomon, Oceanic transform earthquakes with unusual mechanisms or locations: Relation to fault geometry and state of stress in the adjacent lithosphere, *J. Geophys. Res.*, *98*, 16,187-16,211, 1993.
- Wilcock, W. S. D., M. E. Dougherty, S. C. Solomon, G. M. Purdy, and D. R. Toomey, Seismic propagation across the East Pacific Rise: Finite-difference experiments and implications for seismic tomography, *J. Geophys. Res.*, *98*, 19,913-19,932, 1993.
- McGovern, P. J., and S. C. Solomon, State of stress, faulting, and eruption characteristics of large volcanoes on Mars, *J. Geophys. Res.*, *98*, 23,553-23,579, 1993.

- Sauber, J., W. Thatcher, S. C. Solomon, and M. Lisowski, Geodetic slip rate for the eastern California shear zone and the recurrence time of Mojave Desert earthquakes, *Nature*, 367, 284-286, 1994.
- Simons, M., B. H. Hager, and S. C. Solomon, Global variations in the geoid/topography admittance of Venus, *Science*, 264, 798-803, 1994.
- Namiki, N., and S. C. Solomon, Impact crater densities on volcanoes and coronae on Venus: Implications for volcanic resurfacing, *Science*, 265, 929-933, 1994.
- Barash, T. W., C. G. Doll, Jr., J. A. Collins, G. H. Sutton, and S. C. Solomon, Quantitative evaluation of passively leveled ocean bottom seismometers, *Mar. Geophys. Res.*, 16, 347-363, 1994.
- Toomey, D. R., S. C. Solomon, and G. M. Purdy, Tomographic imaging of the shallow crustal structure of the East Pacific Rise at 9°30'N, *J. Geophys. Res.*, 99, 24,135-24,157, 1994.
- Wilcock, W. S. D., S. C. Solomon, G. M. Purdy, and D. R. Toomey, Seismic attenuation structure of the East Pacific Rise near 9°30'N, *J. Geophys. Res.*, 100, 24,147-24,165, 1995.
- Wolfe, C. J., G. M. Purdy, D. R. Toomey, and S. C. Solomon, Microearthquake characteristics and crustal velocity structure at 29°N on the Mid-Atlantic Ridge: The architecture of a slow-spreading segment, *J. Geophys. Res.*, 100, 24,449-24,472, 1995.
- Lee, S.-M., and S. C. Solomon, Constraints from Sea Beam bathymetry on the development of normal faults on the East Pacific Rise, *Geophys. Res. Lett.*, 22, 3135-3138, 1995.
- Bjarnason, I. Th., C. J. Wolfe, S. C. Solomon, and G. Gudmundson, Initial results from the ICEMELT experiment: Body-wave delay times and shear-wave splitting across Iceland, *Geophys. Res. Lett.*, 23, 459-462, 1996.
- Lee, S.-M., S. C. Solomon, and M. A. Tivey, Fine-scale crustal magnetization variations and segmentation of the East Pacific Rise, 9°10'-9°50'N, *J. Geophys. Res.*, 101, 22,033-22,050, 1996.
- Shen, Y., S. C. Solomon, I. Th. Bjarnason, and G. M. Purdy, Hot mantle transition zone beneath Iceland and the adjacent Mid-Atlantic Ridge inferred from P-to-S conversions at the 410- and 660-km discontinuities, *Geophys. Res. Lett.*, 23, 3527-3530, 1996.
- Wolfe, C. J., I. Th. Bjarnason, J. C. VanDecar, and S. C. Solomon, Seismic structure of the Iceland mantle plume, *Nature*, 385, 245-247, 1997.
- McGovern, P. J., and S. C. Solomon, Filling of flexural moats around large volcanoes on Venus: Implications for volcano structure and global magmatic flux, *J. Geophys. Res.*, 102, 16,303-16,318, 1997.
- Simons, M., S. C. Solomon, and B. H. Hager, Localization of gravity and topography: Constraints on the tectonics and mantle dynamics of Venus, *Geophys. J. Int.*, 131, 24-44, 1997.
- Namiki, N., and S. C. Solomon, Volcanic degassing of argon and helium and the history of crustal production on Venus, *J. Geophys. Res.*, 103, 3655-3677, 1998.
- Smith, D. E., M. T. Zuber, H. V. Frey, J. B. Garvin, J. W. Head, D. O. Muhleman, G. H. Pettengill, R. J. Phillips, S. C. Solomon, H. J. Zwally, W. B. Banerdt, and T. C. Duxbury, Topography of the northern hemisphere of Mars from the Mars Orbiter Laser Altimeter, *Science*, 279, 1686-1692, 1998.
- McGovern, P. J., and S. C. Solomon, Growth of large volcanoes on Venus: Mechanical models and implications for structural evolution, *J. Geophys. Res.*, 103, 11,071-11,101, 1998.
- MELT Seismic Team (D. W. Forsyth, D. S. Scheirer, S. C. Webb, L. M. Dorman, J. A. Orcutt, A. J. Harding, D. K. Blackman, J. Phipps Morgan, R. S. Detrick, Y. Shen, C. J. Wolfe, J. P. Canales, D. R. Toomey, A. F. Sheehan, S. C. Solomon, and W. S. D. Wilcock), Imaging the deep structure beneath a mid-ocean ridge: The MELT experiment, *Science*, 280, 1215-1218, 1998.
- Toomey, D. R., W. S. D. Wilcock, S. C. Solomon, W. C. Hammond, and J. A. Orcutt, Mantle seismic structure beneath the MELT region of the East Pacific Rise from P and S wave tomography, *Science*, 280, 1224-1227, 1998.

- Wolfe, C. J., and S. C. Solomon, Shear-wave splitting and implications for mantle flow beneath the MELT region of the East Pacific Rise, *Science*, 280, 1230-1232, 1998.
- Barclay, A. H., D. R. Toomey, and S. C. Solomon, Seismic structure and crustal magmatism at the Mid-Atlantic Ridge, 35°N, *J. Geophys. Res.*, 103, 17,827-17,844, 1998.
- Shen, Y., S. C. Solomon, I. Th. Bjarnason, and C. J. Wolfe, Seismic evidence for a lower-mantle origin of the Iceland plume, *Nature*, 395, 62-65, 1998.
- Zuber, M. T., D. E. Smith, S. C. Solomon, J. B. Abshire, R. S. Afzal, O. Aharonson, K. Fishbaugh, P. G. Ford, H. V. Frey, J. B. Garvin, J. W. Head, A. B. Ivanov, C. L. Johnson, D. O. Muhleman, G. A. Neumann, G. H. Pettengill, R. J. Phillips, X. Sun, H. J. Zwally, W. B. Banerdt, and T. C. Duxbury, Observations of the north polar region of Mars from the Mars Orbiter Laser Altimeter, *Science*, 282, 2053-2060, 1998.
- Zuber, M. T., D. E. Smith, R. J. Phillips, S. C. Solomon, W. B. Banerdt, G. A. Neumann, and O. Aharonson, Shape of the northern hemisphere of Mars from the Mars Orbiter Laser Altimeter (MOLA), *Geophys. Res. Lett.*, 25, 4393-4396, 1998.
- Smith, D. E., M. T. Zuber, S. C. Solomon, R. J. Phillips, J. W. Head, J. B. Garvin, W. B. Banerdt, D. O. Muhleman, G. H. Pettengill, G. A. Neumann, F. G. Lemoine, J. B. Abshire, O. Aharonson, C. D. Brown, S. A. Hauck, A. B. Ivanov, P. J. McGovern, H. J. Zwally, and T. C. Duxbury, The global topography of Mars and implications for surface evolution, *Science*, 284, 1495-1503, 1999.
- Solomon, S. C., M. A. Bullock, and D. H. Grinspoon, Climate change as a regulator of tectonics on Venus, *Science*, 286, 87-90, 1999.
- Zuber, M. T., S. C. Solomon, R. J. Phillips, D. E. Smith, G. L. Tyler, O. Aharonson, G. Balmino, W. B. Banerdt, J. W. Head, C. L. Johnson, F. G. Lemoine, P. J. McGovern, G. A. Neumann, D. D. Rowlands, and S. Zhong, Internal structure and early thermal evolution of Mars from Mars Global Surveyor topography and gravity, *Science*, 287, 1788-1793, 2000.
- Johnson, C. L., S. C. Solomon, J. W. Head III, R. J. Phillips, D. E. Smith, and M. T. Zuber, Lithospheric loading by the northern polar cap on Mars, *Icarus*, 144, 313-328, 2000.
- Dunn, R. A., D. R. Toomey, and S. C. Solomon, Three-dimensional seismic structure and physical properties of the crust and shallow mantle beneath the East Pacific Rise at 9°30'N, *J. Geophys. Res.*, 105, 23,537-23,555, 2000.
- Barclay, A. H., D. R. Toomey, and S. C. Solomon, Microearthquake characteristics and crustal Vp/Vs structure at the Mid-Atlantic Ridge, 35°N, *J. Geophys. Res.*, 106, 2017-2034, 2001.
- Phillips, R. J., M. T. Zuber, S. C. Solomon, M. P. Golombek, B. M. Jakosky, W. B. Banerdt, D. E. Smith, R. M. E. Williams, B. M. Hynek, O. Aharonson, and S. A. Hauck, II, Ancient geodynamics and global-scale hydrology on Mars, *Science*, 291, 2587-2591, 2001.
- Freed, A. M., H. J. Melosh, and S. C. Solomon, Tectonics of mascon loading: Resolution of the strike-slip faulting paradox, *J. Geophys. Res.*, 106, 20,603-20,620, 2001.
- Smith, D. E., M. T. Zuber, H. V. Frey, J. B. Garvin, J. W. Head, D. O. Muhleman, G. H. Pettengill, R. J. Phillips, S. C. Solomon, H. J. Zwally, W. B. Banerdt, T. C. Duxbury, M. P. Golombek, F. G. Lemoine, G. A. Neumann, D. D. Rowlands, O. Aharonson, P. G. Ford, A. B. Ivanov, C. L. Johnson, P. J. McGovern, J. B. Abshire, R. S. Afzal, and X. Sun, Mars Orbiter Laser Altimeter: Experiment summary after the first year of global mapping of Mars, *J. Geophys. Res.*, 106, 23,689-23,722, 2001.
- McGovern, P. J., S. C. Solomon, J. W. Head, III, D. E. Smith, and M. T. Zuber, Extension and uplift at Alba Patera, Mars: Insights from MOLA observations and loading models, *J. Geophys. Res.*, 106, 23,769-23,809, 2001.
- Solomon, S. C., R. L. McNutt, Jr., R. E. Gold, M. H. Acuña, D. N. Baker, W. V. Boynton, C. R. Chapman, A. F. Cheng, G. Gloeckler, J. W. Head, III, S. M. Krimigis, W. E. McClintock, S. L. Murchie, S. J. Peale, R. J. Phillips, M. S. Robinson, J. A. Slavin, D. E. Smith, R. G. Strom, J. I. Trombka, and M. T. Zuber, The MESSENGER mission to Mercury: Scientific objectives and implementation, *Planet. Space Sci.*, 49, 1445-1465, 2001.

- Gold, R. E., S. C. Solomon, R. L. McNutt, Jr., A. G. Santo, J. B. Abshire, M. H. Acuña, R. S. Afzal, B. J. Anderson, G. B. Andrews, P. D. Bedini, J. Cain, A. F. Cheng, L. G. Evans, W. C. Feldman, R. B. Follas, G. Gloeckler, J. O. Goldsten, S. E. Hawkins III, N. R. Izenberg, S. E. Jaskulek, E. A. Ketchum, M. R. Lankton, D. A. Lohr, B. H. Mauk, W. E. McClintock, S. L. Murchie, C. E. Schlemm II, D. E. Smith, R. D. Starr, and T. H. Zurbuchen, The MESSENGER mission to Mercury: Scientific payload, *Planet. Space Sci.*, *49*, 1467-1479, 2001.
- Santo, A. G., R. E. Gold, R. L. McNutt, Jr., S. C. Solomon, C. J. Ercol, R. W. Farquhar, T. J. Hartka, J. E. Jenkins, J. V. McAdams, L. E. Mosher, D. F. Persons, D. A. Artis, R. S. Bokulic, R. F. Conde, G. Dakermanji, M. E. Goss, Jr., D. R. Haley, K. J. Heeres, R. H. Maurer, R. C. Moore, E. H. Rodberg, T. G. Stern, S. R. Wiley, B. G. Williams, C. L. Yen, and M. R. Peterson, The MESSENGER mission to Mercury: Spacecraft and mission design, *Planet. Space Sci.*, *49*, 1481-1500, 2001.
- Wolfe, C. J., I. Th. Bjarnason, J. C. VanDecar, and S. C. Solomon, Assessing the depth resolution of tomographic models of upper mantle structure beneath Iceland, *Geophys. Res. Lett.*, *29* (2), 1015, 10.1029/2001GL013657, 2002.
- Shen, Y., S. C. Solomon, I. Th. Bjarnason, G. Nolet, W. J. Morgan, R. M. Allen, K. Vogfjörd, S. Jakobsdóttir, R. Stefánsson, B. R. Julian, and G. R. Foulger, Seismic evidence for a tilted mantle plume and north-south mantle flow beneath Iceland, *Earth Planet. Sci. Lett.*, *197*, 261-272, 2002.
- Wolfe, C. J., S. C. Solomon, P. G. Silver, J. C. VanDecar, and R. M. Russo, Inversion of body-wave delay times for mantle structure beneath the Hawaiian Islands: Results from the PELENET experiment, *Earth Planet. Sci. Lett.*, *198*, 129-145, 2002.
- Niu, F., S. C. Solomon, P. G. Silver, D. Suetsugu, and H. Inoue, Mantle transition-zone structure beneath the South Pacific Superswell and evidence for a mantle plume underlying the Society hotspot, *Earth Planet. Sci. Lett.*, *198*, 371-380, 2002.
- Peale, S. J., R. J. Phillips, S. C. Solomon, D. E. Smith, and M. T. Zuber, A procedure for determining the nature of Mercury's core, *Meteorit. Planet. Sci.*, *37*, 1269-1283, 2002.
- Bjarnason, I. Th., P. G. Silver, G. Rumpker, and S. C. Solomon, Shear wave splitting across the Iceland hot spot: Results from the ICEMELT experiment, *J. Geophys. Res.*, *107* (B12), 2382, 10.1029/2001JB000916, 2002.
- McGovern, P. J., S. C. Solomon, D. E. Smith, M. T. Zuber, M. Simons, M. A. Wieczorek, R. J. Phillips, G. A. Neumann, O. Aharonson, and J. W. Head, Localized gravity/topography admittance and correlation spectra on Mars: Implications for regional and global evolution, *J. Geophys. Res.*, *107* (E12), 5136, 10.1029/2002JE001854, 2002.
- Shen, Y., C. J. Wolfe, and S. C. Solomon, Seismological evidence for a mid-mantle discontinuity beneath Hawaii and Iceland, *Earth Planet. Sci. Lett.*, *214*, 143-151, 2003.
- Hooft, E. E. E., D. R. Toomey, and S. C. Solomon, Anomalously thin transition zone beneath the Galápagos hotspot, *Earth Planet. Sci. Lett.*, *216*, 55-64, 2003.
- Solomon, S. C., Mercury: The enigmatic innermost planet, *Earth Planet. Sci. Lett.*, *216*, 441-455, 2003.
- Aharonson, O., M. T. Zuber, and S. C. Solomon, Crustal remanence in an internally magnetized non-uniform shell: A possible source for Mercury's magnetic field?, *Earth Planet. Sci. Lett.*, *218*, 261-268, 2004.
- Korth, H., B. J. Anderson, R. L. McNutt, Jr., M. H. Acuña, J. A. Slavin, N. A. Tsyganenko, and S. C. Solomon, Determination of the properties of Mercury's magnetic field by the MESSENGER mission, *Planet. Space Sci.*, *52*, 733-746, 2004.
- Hauck, S. A., II, A. J. Dombard, R. J. Phillips, and S. C. Solomon, Internal and tectonic evolution of Mercury, *Earth Planet. Sci. Lett.*, *222*, 713-728, 2004.
- McNutt, R. L., Jr., S. C. Solomon, R. Grard, M. Novara, and T. Mukai, An international program for Mercury exploration: Synergy of MESSENGER and BepiColombo, *Adv. Space Res.*, *33*, 2126-2132, 2004.
- McGovern, P. J., S. C. Solomon, D. E. Smith, M. T. Zuber, M. Simons, M. A. Wieczorek, R. J. Phillips, G. A. Neumann, O. Aharonson, and J. W. Head, Correction to "Localized gravity/topography admittance and

- correlation spectra on Mars: Implications for regional and global evolution,” *J. Geophys. Res.*, *109* (E7), E07007, 10.1029/2004JE002286, 2004.
- Solomon, S. C., O. Aharonson, J. M. Aurnou, W. B. Banerdt, M. H. Carr, A. J. Dombard, H. V. Frey, M. P. Golombek, S. A. Hauck, II, J. W. Head, III, B. M. Jakosky, C. L. Johnson, P. J. McGovern, G. A. Neumann, R. J. Phillips, D. E. Smith, and M. T. Zuber, New perspectives on ancient Mars, *Science*, *307*, 1214-1220, 2005.
- Fontaine, F. R., E. E. E. Hooft, P. G. Burkett, D. R. Toomey, S. C. Solomon, and P. G. Silver, Shear-wave splitting beneath the Galápagos archipelago, *Geophys. Res. Lett.*, *32*, L21308, 10.1029/2005GL024014, 2005.
- McNutt, R. L., Jr., S. C. Solomon, R. E. Gold, J. C. Leary, and the MESSENGER team, The MESSENGER mission to Mercury: Development history and early mission status, *Adv. Space Res.*, *38*, 564-571, 2006.
- Yang, T., Y. Shen, S. van der Lee, S. C. Solomon, and S.-H. Hung, Upper mantle structure beneath the Azores hotspot from finite-frequency seismic tomography, *Earth Planet. Sci. Lett.*, *250*, 11-26, 2006.
- Dombard, A. J., C. L. Johnson, M. A. Richards, and S. C. Solomon, A magmatic loading model for coronae on Venus, *J. Geophys. Res.*, *112*, E04006, 10.1029/2006JE002731, 2007.
- Villagómez, D. R., D. R. Toomey, E. E. E. Hooft, and S. C. Solomon, Upper mantle structure beneath the Galápagos Archipelago from surface wave tomography, *J. Geophys. Res.*, *112*, B07303, 10.1029/2006JB004672, 2007.
- Hauck, S. A., II, S. C. Solomon, and D. A. Smith, Predicted recovery of Mercury’s internal structure by MESSENGER, *Geophys. Res. Lett.*, *34*, L18201, 10.1029/2007GL030793, 2007.
- Solomon, S. C., R. L. McNutt, Jr., R. E. Gold, and D. L. Domingue, MESSENGER mission overview, *Space Sci. Rev.*, *131*, 3-39, 2007.
- Boynton, W. V., A. L. Sprague, S. C. Solomon, R. D. Starr, L. G. Evans, W. C. Feldman, J. I. Trombka, and E. A. Rhodes, MESSENGER and the chemistry of Mercury’s surface, *Space Sci. Rev.*, *131*, 85-104, 2007.
- Zuber, M. T., O. Aharonson, J. M. Aurnou, A. F. Cheng, S. A. Hauck, II, M. H. Heimpel, G. A. Neumann, S. J. Peale, R. J. Phillips, D. E. Smith, S. C. Solomon, and S. Stanley, The geophysics of Mercury: Current status and anticipated insights from the MESSENGER mission, *Space Sci. Rev.*, *131*, 105-132, 2007.
- Slavin, J. A., S. M. Krimigis, M. H. Acuña, B. J. Anderson, D. N. Baker, P. L. Koehn, H. Korth, S. Livi, B. H. Mauk, S. C. Solomon, and T. H. Zurbuchen, MESSENGER: Exploring Mercury’s magnetosphere, *Space Sci. Rev.*, *131*, 133-160, 2007.
- Balogh, A., R. Grard, S. C. Solomon, R. Schulz, Y. Langevin, Y. Kasaba, and M. Fujimoto, Missions to Mercury, *Space Sci. Rev.*, *132*, 611-645, 2007.
- McNutt, R. L., Jr., S. C. Solomon, D. G. Grant, E. J. Finnegan, P. D. Bedini, and the MESSENGER Team, The MESSENGER mission to Mercury: Status after the Venus flybys, *Acta Astronautica*, *63*, 68-73, 2008.
- Solomon, S. C., R. L. McNutt, Jr., T. R. Watters, D. J. Lawrence, W. C. Feldman, J. W. Head, S. M. Krimigis, S. L. Murchie, R. J. Phillips, J. A. Slavin, and M. T. Zuber, Return to Mercury: A global perspective on MESSENGER’s first Mercury flyby, *Science*, *321*, 59-62, 2008.
- McClintock, W. E., N. R. Izenberg, G. M. Holsclaw, D. T. Blewett, D. L. Domingue, J. W. Head, III, J. Helbert, T. J. McCoy, S. L. Murchie, M. S. Robinson, S. C. Solomon, A. L. Sprague, and F. Vilas, Spectroscopic observations of Mercury’s surface reflectance during MESSENGER’s first Mercury flyby, *Science*, *321*, 62-65, 2008.
- Robinson, M. S., S. L. Murchie, D. T. Blewett, D. L. Domingue, S. E. Hawkins, III, J. W. Head, G. M. Holsclaw, W. E. McClintock, T. J. McCoy, R. L. McNutt, Jr., L. M. Prockter, S. C. Solomon, and T. R. Watters, Reflectance and color variations on Mercury: Regolith processes and compositional heterogeneity, *Science*, *321*, 66-69, 2008.
- Head, J. W., S. L. Murchie, L. M. Prockter, M. S. Robinson, S. C. Solomon, R. G. Strom, C. R. Chapman, T. R. Watters, W. E. McClintock, D. T. Blewett, and J. J. Gillis-Davis, Volcanism on Mercury: Evidence from the first MESSENGER flyby, *Science*, *321*, 69-72, 2008.

- Murchie, S. L., T. R. Watters, M. S. Robinson, J. W. Head, R. G. Strom, C. R. Chapman, S. C. Solomon, W. E. McClintock, L. M. Prockter, D. L. Domingue, and D. T. Blewett, Geology of the Caloris basin, Mercury: A view from MESSENGER, *Science*, 321, 73-76, 2008.
- Zuber, M. T., D. E. Smith, S. C. Solomon, R. J. Phillips, S. J. Peale, J. W. Head, III, S. A. Hauck, II, R. L. McNutt, Jr., J. Oberst, G. A. Neumann, F. G. Lemoine, X. Sun, O. Barnouin-Jha, and J. K. Harmon, Laser altimeter observations from MESSENGER's first Mercury flyby, *Science*, 321, 77-79, 2008.
- Strom, R. G., C. R. Chapman, W. J. Merline, S. C. Solomon, and J. W. Head, III, Mercury cratering record viewed from MESSENGER's first flyby, *Science*, 321, 79-81, 2008.
- Anderson, B. J., M. H. Acuña, H. Korth, M. E. Purucker, C. L. Johnson, J. A. Slavin, S. C. Solomon, and R. L. McNutt, Jr., The structure of Mercury's magnetic field from MESSENGER's first flyby, *Science*, 321, 82-85, 2008.
- Slavin, J. A., M. H. Acuña, B. J. Anderson, D. N. Baker, M. Benna, G. Gloeckler, R. E. Gold, G. C. Ho, R. M. Killen, H. Korth, S. M. Krimigis, R. L. McNutt, Jr., L. R. Nittler, J. M. Raines, D. Schriver, S. C. Solomon, R. D. Starr, P. Trávníček, and T. H. Zurbuchen, Mercury's magnetosphere after MESSENGER's first flyby, *Science*, 321, 85-89, 2008.
- Zurbuchen, T. H., J. M. Raines, G. Gloeckler, S. M. Krimigis, J. A. Slavin, P. L. Koehn, R. M. Killen, A. L. Sprague, R. L. McNutt, Jr., and S. C. Solomon, MESSENGER observations of the composition of Mercury's ionized exosphere and plasma environment, *Science*, 321, 90-92, 2008.
- McClintock, W. E., E. T. Bradley, R. J. Vervack, Jr., R. M. Killen, A. L. Sprague, N. R. Izenberg, and S. C. Solomon, Mercury's exosphere: Observations during MESSENGER's first Mercury flyby, *Science*, 321, 92-94, 2008.
- Kennedy, P. J., A. M. Freed, and S. C. Solomon, Mechanisms of faulting in and around Caloris basin, Mercury, *J. Geophys. Res.*, 113, E08004, 10.1029/2007JE002992, 2008.
- Boardsen, S. A., B. J. Anderson, M. H. Acuña, J. A. Slavin, H. Korth, and S. C. Solomon, Narrow-band ultra-low-frequency wave observations by MESSENGER during its January 2008 flyby through Mercury's magnetosphere, *Geophys. Res. Lett.*, 36, L01104, 10.1029/2008GL036034, 2009.
- Slavin, J. A., B. J. Anderson, T. H. Zurbuchen, D. N. Baker, S. M. Krimigis, M. H. Acuña, M. Benna, S. A. Boardsen, G. Gloeckler, R. E. Gold, G. C. Ho, H. Korth, R. L. McNutt, Jr., J. M. Raines, M. Sarantos, D. Schriver, S. C. Solomon, P. Trávníček, MESSENGER observations of Mercury's magnetosphere during northward IMF, *Geophys. Res. Lett.*, 36, L02101, 10.1029/2008GL036158, 2009.
- Benna, M., M. H. Acuña, B. J. Anderson, S. Barabash, S. A. Boardsen, G. Gloeckler, R. E. Gold, G. C. Ho, H. Korth, S. M. Krimigis, R. L. McNutt, Jr., J. M. Raines, M. Sarantos, J. A. Slavin, S. C. Solomon, T.-L. Zhang, and T. H. Zurbuchen, Modeling the response of the induced magnetosphere of Venus to changing IMF direction using MESSENGER and Venus Express observations, *Geophys. Res. Lett.*, 36, L04109, 10.1029/2008GL036718, 2009.
- Slavin, J. A., M. H. Acuña, B. J. Anderson, D. N. Baker, M. Benna, S. A. Boardsen, G. Gloeckler, R. E. Gold, G. C. Ho, H. Korth, S. M. Krimigis, R. L. McNutt, Jr., J. M. Raines, M. Sarantos, D. Schriver, S. C. Solomon, P. Trávníček, and T. H. Zurbuchen, MESSENGER observations of magnetic reconnection in Mercury's magnetosphere, *Science*, 324, 606-610, 2009.
- McClintock, W. E., R. J. Vervack, Jr., E. T. Bradley, R. M. Killen, N. Mouawad, A. L. Sprague, M. H. Burger, S. C. Solomon, and N. R. Izenberg, MESSENGER observations of Mercury's exosphere: Detection of magnesium and distribution of constituents, *Science*, 324, 610-613, 2009.
- Denevi, B. W., M. S. Robinson, S. C. Solomon, S. L. Murchie, D. T. Blewett, D. L. Domingue, T. J. McCoy, C. M. Ernst, J. W. Head, T. R. Watters, and N. L. Chabot, The evolution of Mercury's crust: A global perspective from MESSENGER, *Science*, 324, 613-618, 2009.
- Watters, T. R., J. W. Head, S. C. Solomon, M. S. Robinson, C. R. Chapman, B. W. Denevi, C. I. Fassett, S. L. Murchie, and R. G. Strom, Evolution of the Rembrandt impact basin on Mercury, *Science*, 324, 618-621, 2009.

- Slavin, J. A., M. H. Acuña, B. J. Anderson, S. Barabash, M. Benna, S. A. Boardsen, M. Fraenz, G. Gloeckler, R. E. Gold, G. C. Ho, H. Korth, S. M. Krimigis, R. L. McNutt, Jr., J. M. Raines, M. Sarantos, S. C. Solomon, T.-L. Zhang, and T. H. Zurbuchen, MESSENGER and Venus Express observations of the solar wind interaction with Venus, *Geophys. Res. Lett.*, *36*, L09106, 10.1019/GL2009037876, 2009.
- Solomon, S. C., L. M. Prockter, and D. T. Blewett, MESSENGER at Mercury: An introduction to the special issue of Earth and Planetary Science Letters, *Earth Planet. Sci. Lett.*, *285*, 225-226, 2009.
- Head, J. W., S. L. Murchie, L. M. Prockter, S. C. Solomon, C. R. Chapman, R. G. Strom, T. R. Watters, D. T. Blewett, J. J. Gillis-Davis, C. I. Fassett, J. L. Dickson, G. A. Morgan, and L. Kerber, Volcanism on Mercury: Evidence from the first MESSENGER flyby for extrusive and explosive activity and the volcanic origin of plains, *Earth Planet. Sci. Lett.*, *285*, 227-242, 2009.
- Gillis-Davis, J. J., D. T. Blewett, R. W. Gaskell, B. W. Denevi, M. S. Robinson, R. G. Strom, S. C. Solomon, and A. L. Sprague, Pit-floor craters on Mercury: Evidence of near-surface igneous activity, *Earth Planet. Sci. Lett.*, *285*, 243-250, 2009.
- Head, J. W., S. L. Murchie, L. M. Prockter, S. C. Solomon, R. G. Strom, C. R. Chapman, T. R. Watters, David T. Blewett, J. J. Gillis-Davis, C. I. Fassett, J. L. Dickson, D. M. Hurwitz, and L. R. Ostrach, Evidence for intrusive activity on Mercury from the first MESSENGER flyby, *Earth Planet. Sci. Lett.*, *285*, 251-262, 2009.
- Kerber, L., J. W. Head, S. C. Solomon, S. L. Murchie, D. T. Blewett, and L. Wilson, Explosive volcanic eruptions on Mercury: Eruption conditions, magma volatile content, and implications for interior volatile abundances, *Earth Planet. Sci. Lett.*, *285*, 263-271, 2009.
- Blewett, D. T., M. S. Robinson, B. W. Denevi, J. J. Gillis-Davis, J. W. Head, S. C. Solomon, G. M. Holsclaw, and W. E. McClintock, Multispectral imaging of Mercury from the first MESSENGER flyby: Analysis of global and regional color trends, *Earth Planet. Sci. Lett.*, *285*, 272-282, 2009.
- Watters, T. R., S. C. Solomon, M. S. Robinson, J. W. Head, S. L. André, S. A. Hauck, II, and S. L. Murchie, The tectonics of Mercury: The view after MESSENGER's first flyby, *Earth Planet. Sci. Lett.*, *285*, 283-296, 2009.
- Fassett, C. I., J. W. Head, D. T. Blewett, C. R. Chapman, J. L. Dickson, S. L. Murchie, S. C. Solomon, and T. R. Watters, Caloris impact basin: Exterior geomorphology, stratigraphy, morphometry, radial sculpture, and smooth plains deposits, *Earth Planet. Sci. Lett.*, *285*, 285, 297-308, 2009.
- Watters, T. R., S. M. Murchie, M. S. Robinson, S. C. Solomon, B. W. Denevi, S. L. André, and J. W. Head, Emplacement and tectonic deformation of smooth plains in the Caloris basin, Mercury, *Earth Planet. Sci. Lett.*, *285*, 309-319, 2009.
- Freed, A. M., S. C. Solomon, T. R. Watters, R. J. Phillips, and M. T. Zuber, Could Pantheon Fossae be the result of the Apollodorus crater-forming impact within the Caloris basin, Mercury?, *Earth Planet. Sci. Lett.*, *285*, 320-327, 2009.
- Uno, H., C. L. Johnson, B. J. Anderson, H. Korth, and S. C. Solomon, Modeling Mercury's internal magnetic field with smooth inversions, *Earth Planet. Sci. Lett.*, *285*, 328-339, 2009.
- Purucker, M. E., T. J. Sabaka, S. C. Solomon, B. J. Anderson, H. Korth, M. T. Zuber, and G. A. Neumann, Mercury's internal magnetic field: Constraints on large- and small-scale fields of crustal origin, *Earth Planet. Sci. Lett.*, *285*, 340-346, 2009.
- Mohit, P. S., C. L. Johnson, O. Barnouin-Jha, M. T. Zuber, and S. C. Solomon, Shallow basins on Mercury: Evidence of relaxation?, *Earth Planet. Sci. Lett.*, *285*, 355-363, 2009.
- Boardsen, S. A., J. A. Slavin, B. J. Anderson, H. Korth, and S. C. Solomon, Comparison of ultra-low-frequency waves at Mercury under northward and southward IMF, *Geophys. Res. Lett.*, *36*, L18106, 10.1029/2009GL039525, 2009.
- Baker, D. N., D. Odstrcil, B. J. Anderson, C. N. Arge, M. Benna, G. Gloeckler, J. M. Raines, D. Schriver, J. A. Slavin, S. C. Solomon, R. M. Killen, and T. H. Zurbuchen, Space environment of Mercury at the time of the first

MESSENGER flyby: Solar wind and interplanetary magnetic field modeling of upstream conditions, *J. Geophys. Res.*, 114, A10101, 10.1029/2009JA014287, 2009.

Laske, G., J. A. Collins, C. J. Wolfe, S. C. Solomon, R. S. Detrick, J. A. Orcutt, D. Bercovici, and E. H. Hauri, Probing the Hawaiian hotspot with new broadband ocean bottom instruments, *Eos Trans. Amer. Geophys. Un.*, 90, 362-363, 2009.

Wolfe, C. J., S. C. Solomon, G. Laske, J. A. Collins, R. S. Detrick, J. A. Orcutt, D. Bercovici, and E. H. Hauri, Mantle shear-wave velocity structure beneath the Hawaiian hot spot, *Science*, 326, 1388-1390, 2009.

Refereed Papers in Press

Anderson, B. J., M. H. Acuña, H. Korth, J. A. Slavin, H. Uno, C. L. Johnson, M. E. Purucker, S. C. Solomon, J. M. Raines, T. H. Zurbuchen, G. Gloeckler, and R. L. McNutt, Jr., The magnetic field of Mercury, *Space Sci. Rev.*, in press, 2009.

Feldman, W. C., D. J. Lawrence, J. O. Goldsten, R. E. Gold, D. N. Baker, D. K. Haggerty, G. C. Ho, S. Krucker, R. P. Lin, R. A. Mewaldt, R. J. Murphy, L. R. Nittler, E. A. Rhodes, J. A. Slavin, S. C. Solomon, R. D. Starr, F. Vilas, and A. Vourlidas, Evidence for extended acceleration of solar-flare ions from 1–8-MeV solar neutrons detected with the MESSENGER Neutron Spectrometer, *J. Geophys. Res.*, in press, 2010.

Benna, M., B. J. Anderson, D. N. Baker, S. A. Boardsen, G. Gloeckler, R. E. Gold, G. C. Ho, R. M. Killen, H. Korth, S. M. Krimigis, M. E. Purucker, R. L. McNutt, Jr., J. M. Raines, W. E. McClintock, M. Sarantos, J. A. Slavin, S. C. Solomon, and T. H. Zurbuchen, Modeling of the magnetosphere of Mercury at the time of the first MESSENGER flyby, *Icarus*, in press, 2010.

Slavin, J. A., R. P. Lepping, C.-C. Wu, B. J. Anderson, D. N. Baker, M. Benna, S. A. Boardsen, R. M. Killen, H. Korth, S. M. Krimigis, W. E. McClintock, R. L. McNutt, Jr., M. Sarantos, D. Schriver, S. C. Solomon, P. Trávníček, and T. H. Zurbuchen, MESSENGER observations of large flux transfer events at Mercury, *Geophys. Res. Lett.*, in press, 2010.

Papers in Review

Leahy, G. M., J. A. Collins, C. J. Wolfe, G. Laske, and S. C. Solomon, Underplating of the Hawaiian Swell: Evidence from teleseismic receiver functions, *Geophys. J. Int.*, submitted, 2009.

Ernst, C. M., S. L. Murchie, O. S. Barnouin-Jha, M. S. Robinson, B. W. Denevi, D. T. Blewett, J. W. Head, N. R. Izenberg, and S. C. Solomon, Exposure of spectrally distinct material by impact craters on Mercury: Implications for global stratigraphy, *Icarus*, submitted, 2009.

Lawrence, D. J., W. C. Feldman, J. O. Goldsten, T. J. McCoy, D. T. Blewett, W. V. Boynton, L. G. Evans, L. R. Nittler, E. A. Rhodes, and S. C. Solomon, Identification and measurement of neutron-absorbing elements on Mercury's surface, *Icarus*, submitted, 2009.

Oberst, J., F. Preusker, R. J. Phillips, T. R. Watters, J. W. Head, M. T. Zuber, and S. C. Solomon, The morphology of Mercury's Caloris basin as seen in MESSENGER stereo topographic models, *Icarus*, submitted, 2009.

Smith, D. E., M. T. Zuber, R. J. Phillips, S. C. Solomon, G. A. Neumann, F. G. Lemoine, S. J. Peale, J.-L. Margot, M. J. Talpe, J. W. Head III, S. A. Hauck II, M. H. Torrence, C. L. Johnson, M. E. Perry, O. S. Barnouin-Jha, R. L. McNutt, Jr., and J. Oberst, The equatorial shape and gravity field of Mercury from MESSENGER flybys 1 and 2, *Icarus*, submitted, 2009.

Zuber, M. T., L. G. Montési, G. T. Farmer, S. A. Hauck II, J. A. Ritzer, R. J. Phillips, S. C. Solomon, D. E. Smith, M. J. Talpe, J. W. Head III, G. A. Neumann, T. R. Watters, and C. L. Johnson, Lithospheric strain accommodation on Mercury from altimetric profiles of ridges and lobate scarps measured during MESSENGER flybys 1 and 2, *Icarus*, submitted 2009.

Ruedas, T., P. J. Tackley, and S. C. Solomon, Thermal and compositional evolution of the Martian mantle: Effects of phase transitions and melting, *Earth Planet. Sci. Lett.*, submitted, 2009.

Other Scientific Articles

- Solomon, S. C., R. W. Ward, and M. N. Toksöz, Earthquake and explosion magnitudes: The effect of lateral variation of seismic attenuation, in *Copies of Papers Presented at Woods Hole Conference on Seismic Discrimination*, Volume 1, Advanced Research Projects Agency, July 20-23, 1970.
- Head, J. W., S. E. Yuter, and S. C. Solomon, A comparison of the topography of Venus and Earth as a test for the presence of plate tectonics, *Amer. Scientist*, 69, 614-623, 1981.
- Bergman, E. A., and S. C. Solomon, Intraplate stress, in *Encyclopedia of Structural Geology and Plate Tectonics*, edited by C. K. Seyfert, Van Nostrand Reinhold, N.Y., pp. 341-346, 1987.
- Delaney, J. R., F. N. Spiess, S. C. Solomon, R. Hessler, J. L. Karsten, J. A. Baross, R. T. Holcomb, D. Norton, R. E. McDuff, F. Sayles, J. Whitehead, D. Abbott, and L. Olsen, Scientific rationale for establishing long-term ocean bottom observatory/laboratory systems, in *Marine Minerals Resource Assessment Strategies*, edited by P. G. Teleki, M. R. Dobson, J. R. Moore, and U. von Stackelberg, Reidel, pp. 389-411, 1987.
- Solomon, S. C., Oceanic earthquakes and the tectonic evolution of oceanic lithosphere, in *IV International Conference on Solid Earth Geophysics: A Mission to Planet Earth*, edited by E. Boschi, D. Giardini, and A. Morelli, Il Cigno Galileo Galilei, Rome, pp. 35-70, 1989.
- Solomon, S. C., D. L. Anderson, W. B. Banerdt, R. G. Butler, P. M. Davis, F. K. Duennebieer, Y. Nakamura, E. A. Okal, and R. J. Phillips, *Scientific Rationale and Requirements for a Global Seismic Network on Mars*, LPI Tech. Rep. 91-02, Lunar and Planetary Institute, Houston, Tex., 51 pp., 1991.
- Solomon, S. C., The geophysics of Venus, *Physics Today*, 46 (7), 48-55, 1993.
- Solomon, S. C., Venus: Geology and geophysics, in *Encyclopedia of Planetary Sciences*, edited by J. H. Shirley and R. W. Fairbridge, pp. 895-904, Chapman & Hall, London, 1997.
- Silver, P. G., Y. Bock, D. C. Agnew, T. Henyey, A. T. Linde, T. V. McEvilly, J. B. Minster, B. A. Romanowicz, I. S. Sacks, R. B. Smith, S. C. Solomon, and S. A. Stein, A plate boundary observatory, *IRIS Newsletter*, 16 (2), 3-9, 1998.
- Solomon, S. C., Return to the iron planet, *New Scientist*, 165 (2223), 32-35, 2000.
- van der Lee, S., F. Marone, M. van der Meijde, D. Giardini, A. Deschamps, L. Margheriti, P. Burkett, S. C. Solomon, P. M. Alves, M. Chouliaras, A. Eshwehdi, A. Suleiman, H. Gashut, M. Herak, R. Ortiz, J. M. Davila, A. Ugalde, J. Vila, and K. Yelles, Eurasia-Africa plate boundary region yields new seismographic data, *Eos Trans. Amer. Geophys. Un.*, 82, 637, 645-646, 2001.
- Silveira, G., S. van der Lee, E. Stutzman, L. Matias, D. James, B. Burkett, M. Miranda, L. Mendes Victor, J. L. Gaspar, L. Senos, S. C. Solomon, J.-P. Montagner, and D. Giardini, Coordinated seismic experiment in the Azores, *ORFEUS Newsletter*, 4 (2), 10, Observatories and Research Facilities for European Seismology, <http://www.orfeus-eu.org/newsletter/vol4no2/cosea.html>, September 2002.
- Santo, A. G., J. C. Leary, M. R. Peterson, R. K. Huebschman, M. E. Goss, R. L. McNutt, Jr., R. E. Gold, R. W. Farquhar, J. V. McAdams, R. F. Conde, C. J. Ercol, S. E. Jaskulek, R. L. Nelson, B. A. Northrop, L. E. Mosher, R. M. Vaughan, D. A. Artis, R. S. Bokulic, R. C. Moore, G. Dakermanji, J. E. Jenkins, T. J. Hartka, D. F. Persons, and S. C. Solomon, MESSENGER: The Discovery-class mission to orbit Mercury, in *53rd International Astronautical Congress of the International Astronautical Federation*, paper IAC-02-U.4.1.04, 11 pp., 2002.
- Gold, R. E., S. C. Solomon, R. L. McNutt, Jr., and A. G. Santo, The MESSENGER spacecraft and payload, in *International Astronautical Congress of the International Astronautical Federation*, paper IAC-02-Q.4.1.02, 9 pp., 2002.
- Solomon, S. C., V. R. Baker, J. Bloxham, J. Booth, A. Donnellan, C. Elachi, D. Evans, E. Rignot, D. Burbank, B. F. Chao, A. Chave, A. Gillespie, T. Herring, R. Jeanloz, J. LaBrecque, B. Minster, W. C. Pitman, III, M. Simons, D. L. Turcotte, and M. L. C. Zoback, Plan for living on a restless planet sets NASA's solid Earth agenda, *Eos, Trans. Amer. Geophys. Un.*, 84, 485, 492, 2003.

- Gold, R. E., R. L. McNutt, Jr., S. C. Solomon, and the MESSENGER Team, The MESSENGER science payload, in *Proceedings of the 5th International Academy of Astronautics International Conference on Low-Cost Planetary Missions, Special Publication SP-542*, pp. 399-405, European Space Agency, Noordwijk, The Netherlands, 2003.
- McNutt, R. L., Jr., R. E. Gold, S. C. Solomon, J. C. Leary, and D. G. Grant, MESSENGER: A Discovery mission to Mercury, in *Proceedings of the 6th International Academy of Astronautics International Conference on Low-Cost Planetary Missions*, 6th ICLCPM Secretary Office, Sagamihara, Japan, pp. 71-77, 2005.
- Leary, J. C., R. W. Farquhar, M. E. Holdridge, R. E. Gold, D. G. Grant, C. C. Hall, J. V. McAdams, R. L. McNutt, Jr., and S. C. Solomon, MESSENGER operations and critical events, in *Proceedings of the 25th International Symposium on Space Technology and Science (Selected Papers)*, Japan Society for Aeronautical and Space Sciences, Tokyo, Japan, pp. 1582-1587, 2006.
- Solomon, S. C., and R. L. McNutt, Jr., Looking at Mercury...The MESSENGER mission to Mercury, in *Space Exploration 2007*, edited by B. Harvey, Praxis Publishing, Chichester, U.K., pp. 50-57, 2007.
- McNutt, R. L., Jr., and S. C. Solomon, MESSENGER arrives at Mercury, *The Planetary Report*, 28 (5), pp. 12-17, September/October 2008.
- Solomon, S. C., and R. L. McNutt, Jr., MESSENGER mission, in *McGraw-Hill 2009 Yearbook of Science & Technology*, McGraw-Hill, New York, pp. 208-211, 2009.
- Hawkins, S. E., III, S. L. Murchie, K. J. Becker, C. M. Selby, F. S. Turner, M. W. Noble, N. L. Chabot, T. H. Choo, E. H. Darlington, B. W. Denevi, D. L. Domingue, C. M. Ernst, G. M. Holsclaw, N. R. Laslo, W. E. McClintock, L. M. Prockter, M. S. Robinson, S. C. Solomon, and R. E. Sterner, II, In-flight performance of MESSENGER's Mercury Dual Imaging System, in *Instruments and Methods for Astrobiology and Planetary Missions XII*, edited by R. B. Hoover, G. V. Levin, A. Y. Rozanov, and K. D. Retherford, paper 74410Z, 12 pp., SPIE Proceedings, vol. 7441, SPIE, Bellingham, Wash., 2009.
- McNutt, R. L., Jr., Solomon, S. C., P. D. Bedini, E. J. Finnegan, D. G. Grant, and the MESSENGER Team, The MESSENGER mission: Results from the first two Mercury flybys, in *60th International Astronautical Congress, International Astronautical Federation*, paper IAC-09-A3.6.2, 9 pp., 2009.
- Solomon, S. C., Foreword to the special issue of *Planetary and Space Science* on the BepiColombo mission to Mercury, *Planet. Space Sci.*, 58, 1, 2010.

Scientific Commentaries

- Levy, E. H., and S. C. Solomon, The science of planetary exploration, in *The National Research Council in 1979, Current Issues and Studies*, Nat. Acad. Sci., Washington, D.C., pp. 117-137, 1979.
- Solomon, S. C., The geophysics of Mars: Whence the Tharsis plateau?, *Nature*, 294, 304-305, 1981.
- Solomon, S. C., and R. E. Grimm, Tectonic activity on Venus, *Nature*, 331, 305-306, 1988.
- Solomon, S. C., Lunar geology: Ironing out the wrinkles, *Nature*, 342, 477-478, 1989.
- Solomon, S. C., Oceanic crust: New images for old faults, *Nature*, 344, 816-817, 1990.
- Solomon, S. C., Venus: Keeping that youthful look, *Nature*, 361, 114-115, 1993.
- Solomon, S. C., Plate tectonics: Stirring times for Mars?, *Nature*, 369, 606-607, 1994.
- Solomon, S. C., Solar system: A rougher, tougher Moon, *Nature*, 373, 386-387, 1995.
- Solomon, S. C., Planetary science: An older face for Mars, *Nature*, 418, 27-28, 2002.
- Solomon, S. C., Planetary science: Hot news on Mercury's core, *Science*, 316, 702-703, 2007.

Award Citations and Responses

- Solomon, S. C., G. K. Gilbert Award response, *GSA Today*, 10 (3), 31-32, 2000.

Solomon, S. C., Citation of James W. Head for the 2002 G. K. Gilbert Award, *Planetary Geology Division Newsletter*, 20 (2), 8-9, Geological Society of America, Boulder, Colo., 2003.

Solomon, S. C., Citation of Donald W. Forsyth for the 2005 Arthur L. Day Medal, Geological Society of America, <http://www.geosociety.org/awards/05speeches/day.htm>, 2005.

Solomon, S. C., Harry H. Hess Medal response, *Eos Trans. Amer. Geophys. Un.*, 87, 88, 2006; also posted online at http://www.agu.org/inside/awards/bios/solomon_sean.html.

Solomon, S. C., Citation of Maria T. Zuber for the 2007 G. K. Gilbert Award, Geological Society of America, <http://www.geosociety.org/awards/07speeches/gilbert.htm>, 2007.

Solomon, S. C., Citation of J. Kelly Beatty for the 2009 Robert C. Cowen Award, *Eos Trans. Amer. Geophys. Un.*, 90, 253, 2009; also posted online at http://www.agu.org/inside/awards/bios/beatty_kelly.html.

Meeting Reports

Solomon, S. C., Planetary interiors, *Geotimes*, 22 (5), 16-18, 1977.

Simonds, C. H., P. H. Schultz, and S. C. Solomon, Comparison of Mercury and the Moon: A conference, *Eos Trans. Amer. Geophys. Un.*, 59, 43-48, 1978.

Solomon, S. C., The internal evolution of Venus and the Galilean satellites, *Nature*, 298, 15-16, 1982.

Obituaries

Carlson, R. W., J. E. Chambers, and S. C. Solomon, Obituaries: George West Wetherill, *Physics Today*, 59 (10), 80-81, 2006.

Solomon, S. C., Paul G. Silver: Earth deformation, writ large, *Nature Geoscience*, 2, 679, 2009.

Solomon, S. C., Paul G. Silver (1948-2009), *Eos Trans. Amer. Geophys. Un.*, 90, 412, 2009.

Solomon, S. C., and T. H. Jordan, In Memoriam: Paul G. Silver (1948-2009), *Seismol. Res. Lett.*, 80, 938-939, 2009.

Essays as DTM Director

Solomon, S. C., The Director's introduction, *Year Book 92*, Carnegie Institution of Washington, 105-110, 1993.

Solomon, S. C., The Director's introduction, *Year Book 93*, Carnegie Institution of Washington, 105-109, 1994.

Solomon, S. C., The tectonic evolution of Venus, *Year Book 93*, Carnegie Institution of Washington, 117-126, 1994.

Solomon, S. C., The Director's introduction, *Year Book 94*, Carnegie Institution of Washington, 105-108, 1995.

Solomon, S. C., The Director's introduction, *Year Book 95*, Carnegie Institution of Washington, 47-49, 1996.

Solomon, S. C., The Director's essay: Seismological studies at the Carnegie Institution, *Year Book 96/97*, Carnegie Institution of Washington, 54-61, 1997.

Solomon, S. C., The Director's essay: The stimulus of new ideas and enthusiasms, *Year Book 97/98*, Carnegie Institution of Washington, 58-69, 1999.

Solomon, S. C., The Director's introduction: The ever-whirling wheel of change, *Year Book 98/99*, Carnegie Institution of Washington, 104-107, 2000.

Solomon, S. C., The Director's report: Extending our senses, *Year Book 99/00*, Carnegie Institution of Washington, 60-67, 2001.

Solomon, S. C., The Director's report: The promise of fieldwork, *Year Book 00/01*, Carnegie Institution of Washington, 66-73, 2002.

Solomon, S. C., The Director's report: Worlds beyond the ken of mortal eye, *Year Book 01/02*, Carnegie Institution of Washington, 66-73, 2003.

Solomon, S. C., The Director's report: Real promise of new fruitfulness, *Year Book 02/03*, Carnegie Institution of Washington, 66-73, 2004.

Solomon, S. C., The Director's report: Investigation, research, and discovery, *Year Book 03/04*, Carnegie Institution of Washington, 60-66, 2005.

Essays as AGU President

Solomon, S. C., From the President, *AGU Handbook, Eos, Trans. Amer. Geophys. Un.*, 77 (48), suppl., 1, 1996.

Solomon, S. C., State of the Union, AGU's public outreach programs to expand, *Eos, Trans. Amer. Geophys. Un.*, 79, 45, 1998.

Solomon, S. C., State of the Union, AGU's evolving national meetings, *Eos, Trans. Amer. Geophys. Un.*, 79, 81, 84, 1998.

Book Reviews

Solomon, S. C., Book review of *Geophysics of Mars* by R. A. Wells, *Icarus*, 49, 157-158, 1982.

Solomon, S. C., An inside view: Book review of *Planetary Interiors* by W. B. Hubbard, *Nature*, 314, 203, 1985.

Solomon, S. C., An unusual planet: Book review of *Mercury* by F. Vilas, C. R. Chapman, and M. S. Matthews, *Science*, 245, 82-83, 1989.

Scientific Advisory Committee Strategies

Ocean Science Committee, Ocean Affairs Board, *Understanding the Mid-Atlantic Ridge, A Comprehensive Program*, National Academy of Sciences, 131 pp., 1972.

Committee on Planetary and Lunar Exploration, Space Science Board, *Strategy for Exploration of the Inner Planets: 1977-1987*, National Academy of Sciences, 97 pp., 1978.

Committee on Planetary and Lunar Exploration, Space Science Board, *Strategy for Exploration of Primitive Solar-System Bodies — Asteroids, Comets, and Meteoroids: 1980-1990*, National Academy of Sciences, 83 pp., 1980.

Committee on Earth Sciences, Space Science Board, *A Strategy for Earth Science from Space in the 1980's, Part I: Solid Earth and Oceans*, National Academy of Sciences, 99 pp., 1982.

Joint Working Group on Cooperation in Planetary Exploration, Space Science Board, *United States and Western Europe Cooperation in Planetary Exploration*, National Academy Press, 204 pp., 1986.

RIDGE Steering Committee, Ocean Studies Board, *The Mid-Ocean Ridge — A Dynamic Global System, Proceedings of a Workshop*, National Academy Press, 352 pp., 1988.

Committee on Cooperative Mars Exploration and Sample Return, Space Studies Board, *International Cooperation for Mars Exploration and Sample Return*, National Academy Press, 44 pp., 1990.

The Roadmap Development Team, *Mission to the Solar System: Exploration and Discovery, A Mission and Technology Roadmap*, edited by S. Gulkis, D. S. Stetson, and E. R. Stofan, JPL Publication 97-12, Jet Propulsion Laboratory, 1998.

Solid Earth Science Working Group, *Living on a Restless Planet*, NASA, JPL 400-1040, Jet Propulsion Laboratory, 63 pp., 2002.

Earth Science and Applications from Space Strategic Roadmap Committee, *Exploring Our Planet for the Benefit of Society, NASA Earth Science and Applications from Space Strategic Roadmap*, in *NASA Strategic Roadmap Committees Final Roadmaps*, pp. 2-93, CD, NASA, 2005.

Advisory Committee for Geosciences, *GEO Vision Report: Unraveling Earth's Complexities through the Geosciences*, 44 pp., National Science Foundation, 2009.

Thesis

Solomon, S. C., Seismic-wave attenuation and the state of the upper mantle, Ph.D. thesis, Massachusetts Institute of Technology, Cambridge, Mass., 321 pp., 1971.