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Physical Oceanographer

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Home page: whoi.edu/science/PO/people/mspall/index.html**EDUCATION:**

B.S., Clarkson College of Technology, 1980 (Mechanical Engineering)

M.S., Clarkson College of Technology, 1982 (Mechanical Engineering)

S.M., Harvard University, 1984 (Applied Mathematics)

Ph.D., Harvard University, 1988 (Applied Mathematics)

PROFESSIONAL EXPERIENCE:

Senior Scientist June 2002–present; Associate Scientist, 1993–June 2002; tenure awarded 1997; Assistant Scientist, 1990–1993; Woods Hole Oceanographic Institution

Visiting Scientist, Institut für Meereskunde, Kiel, Germany, 1992

Visiting Scientist, National Center for Atmospheric Research, Boulder, Colorado, 1988–1989

Research Assistant, Harvard University, 1984–1988

Staff Engineer, TRW, Redondo Beach, California, 1982–1983

AWARDS:Citation for Excellence in refereeing, *Journal of Geophysical Research* 2002

Bjerknes Visiting Fellow, Bergen, Norway, November 2011

PROFESSIONAL AFFILIATIONS:Editorial Board Member, *Dynamics of Atmospheres and Oceans*, 1998–2007Associate Editor, *Journal of Geophysical Research: Oceans*, 1999–2004Guest editor, Special Issue on Ocean Fronts, *Dynamics of Atmospheres and Oceans*, 2002Editor, *Journal of Physical Oceanography*, 2002–2016 (Chief Editor 2009–2016)

Member, Ocean Research Priorities Plan Implementation Team for the Atlantic Meridional Overturning Circulation Near Term Priority 2007–2008

Editorial Board Member, *Journal of Marine Science and Engineering*, 2012–2015

Member, American Geophysical Union

Member, American Meteorological Society

RESEARCH INTERESTS:

Dynamics of mid-latitude subtropical and subpolar gyres, frontal dynamics and mesoscale variability, thermohaline circulation, water mass transformation in marginal seas.

PROFESSIONAL ACTIVITIES:**WHOI (Non Education Related):**

Member, Physical Oceanography Department Recruitment Committee, 1992–1993, 1996–2006, 2014–2016 (Chair 2003–2006)

Scientific Advisory Committee on Computing, 1994–1996

Information Systems Council, 1995–1996

CIS Director Search Committee, 1996

WHOI Promotion Committee for Jiayan Yang, 1998

Panel Member, WHOI Independent and Interdisciplinary Study Awards, 2003
Member, Scientific Staff Executive Committee (SSEC), 2004-2006 (Chair 2006-2007)
Member, Tenured Scientist Executive Committee (TenSEC), 2005
UCAR Member Representative for WHOI 1994-2002
Ad hoc promotion committee for Young-Oh Kwon, 2010

Outside WHOI (Other than attendance at Society/National Meetings):

Member, Organizing Committee for NATO workshop on oceanography in the eastern North Atlantic, 1991
WOCE Working Group on Numerical Modeling, 1992-1996
Organizing Committee for OPW93 Workshop, 1993
Visiting Scientist, Cooperative Institute for Marine and Atmospheric Studies, University of Miami, 1995
Co-Chair of the Ocean Modeling Working Group of the NCAR Community Climate System Model, 1996-2000
Panel member, National Science Foundation Physical Oceanography Panel, Spring 1997, Fall 2003, Fall 2012.
Organizing Committee for Ocean Sciences Meeting 2000
Principal lecturer at CKO Climate Summer School, Les Diablerets, Switzerland, October-November 2003
Panel member, National Science Foundation Office of Polar Programs Panel, Spring 2004
Ocean Research Priorities Plan Implementation Team for the AMOC, 2007
Member-at-Large, Scientific Steering Committee, CLIVAR, 2009 -2011
Ad hoc promotion committee for Young-Oh Kwon, 2010
DOE Earth System Modeling Panel, May 2011
External Examiner, PhD defense, Renske Gelderloos, Utrecht University, 2012
Atlantic Meridional Overturning Circulation Program (AMOC) Science Team 2012-2013
NPR radio interview on North Atlantic Jet work 2012
Session Co-Chair, “Boundary currents, eddies, and water mass transformation at high latitudes,” Ocean Sciences Meeting, Honolulu, HI, 2014

PARTICIPATION IN EDUCATION PROGRAM:

Courses Taught:

Steady Circulation of the Ocean and Atmosphere (12.801) (with L. Pratt), Spring 1994, 1995, 1996
Classic Papers in Physical Oceanography (12.758), Spring 2008, 2009, 2012, 2013

Thesis Committee:

Date and Degree:

Huai-Min Zhang	1995, PhD
Keith Alverson	1995, PhD
William Williams	1996, PhD
Paul Robbins	1997, PhD
Christopher Edwards	1997, PhD
Victoria Coles (at U. Miami)	1998, PhD
Mikhail Solovev	1999, PhD
Richard Wardle	1999, PhD
Brian Arbic	2000, PhD
Albert Fischer	2000, PhD.
Juan Botella	2001, PhD
Markus Jochum	2002, PhD
Juli Atherton	2002 PhD
Alison Walker	2002, PhD

Robinson, A. R., M. A. Spall, L. J. Walstad, and W. G. Leslie, 1989. Data assimilation and dynamical interpolation in GULFCASTING experiments. *Dynamics of Atmospheres and Oceans*, **13**, 301–316, doi:10.1016/0377-0265(89)90043-2.

Spall, M.A., 1989. Regional primitive equation modeling and analysis of the POLYMODE data set. *Dynamics of Atmospheres and Oceans*, **14**(1–2), 125–174, doi:10.1016/0377-0265(89)90060-2.

Spall, M. A., and A. R. Robinson, 1989. A new hybrid coordinate open ocean primitive equation model. *Mathematics and Computers in Simulation*, **31**, 241–269, doi:10.1016/0378-4754(89)90162-6.

Spall, M. A., 1990. Circulation in the Canary Basin: a model/data analysis. *Journal of Geophysical Research*, **95**(C6), 9611–9628, doi: 10.1029/JC095iC06p09611.

Spall, M. A., and A. R. Robinson, 1990. Regional primitive equation studies of the Gulf Stream meander and ring formation region. *Journal of Physical Oceanography*, **20**(7), 985–1016, doi: [http://dx.doi.org/10.1175/1520-0485\(1990\)020<0985:RPESOT>2.0.CO;2](http://dx.doi.org/10.1175/1520-0485(1990)020<0985:RPESOT>2.0.CO;2).

Spall, M. A., 1991. A diagnostic study of the wind and buoyancy driven North Atlantic Circulation. *Journal of Geophysical Research*, **96**(C10), 18,509–18,518, doi: 10.1029/91JC01957.

Spall, M. A., and W. R. Holland, 1991. A nested primitive equation model for oceanic applications. *Journal of Physical Oceanography*, **21**(2), 205–220, doi: [http://dx.doi.org/10.1175/1520-0485\(1991\)021<0205:ANPEMF>2.0.CO;2](http://dx.doi.org/10.1175/1520-0485(1991)021<0205:ANPEMF>2.0.CO;2).

Spall, M.A., 1992. Cooling spirals and recirculation in the subtropical gyre. *Journal of Physical Oceanography*, **22**(5), 564–571, doi: [http://dx.doi.org/10.1175/1520-0485\(1992\)022<0564:CSARIT>2.0.CO;2](http://dx.doi.org/10.1175/1520-0485(1992)022<0564:CSARIT>2.0.CO;2).

Spall, M. A., 1992. Rossby wave radiation in the Cape Verde Frontal Zone. *Journal of Physical Oceanography*, **22**(7), 796–807, doi: [http://dx.doi.org/10.1175/1520-0485\(1992\)022<0796:RWRITC>2.0.CO;2](http://dx.doi.org/10.1175/1520-0485(1992)022<0796:RWRITC>2.0.CO;2).

Spall, M.A., and J. C. McWilliams, 1992. Rotational and gravitational influences on the degree of balance in the shallow water equations. *Geophysical and Astrophysical Fluid Dynamics*, **64**, 1–29, doi: 10.1080/03091929208228083.

Spall, M. A., 1993. Variability of sea surface salinity in stochastically forced systems. *Climate Dynamics*, **8**, 151–160, doi:10.1007/BF00208094.

Spall, M. A., P. L. Richardson, and J. Price, 1993. Advection and eddy mixing in the Mediterranean salt tongue. *Journal of Marine Research*, **51**(4), 797–818, doi:<http://dx.doi.org/10.1357/0022240933223882>.

Polvani, L. M., J. C. McWilliams, M. A. Spall, and R. Ford, 1994. The coherent structures of shallow-water turbulence: Deformation-radius effects, symmetry breaking and gravity-wave generation. *Chaos*, **4**(2), 177–186, <http://dx.doi.org/10.1063/1.166002>.

Spall, M. A., 1994. Mechanism for low frequency variability and salt flux in the Mediterranean salt tongue. *Journal of Geophysical Research*, **99**(C5), 10,121–10,129, doi: 10.1029/93JC03587.

- Spall, M. A., 1994. Wave-induced abyssal recirculations. *Journal of Marine Research*, **52**, 1051–1080, DOI: <http://dx.doi.org/10.1357/0022240943076830>.
- Spall, M.A., 1995. Frontogenesis, subduction, and cross-front exchange at upper ocean fronts. *Journal of Geophysical Research*, **100**(C2), 2543–2557, doi: 10.1029/94JC02860.
- Williams, R. G., M. A. Spall, and J. C. Marshall, 1995. Does Stommel's mixed-layer 'demon' work? *Journal of Physical Oceanography*, **25**(12), 3089–3102, doi: [http://dx.doi.org/10.1175/1520-0485\(1995\)025<3089:DSMLW>2.0.CO;2](http://dx.doi.org/10.1175/1520-0485(1995)025<3089:DSMLW>2.0.CO;2).
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- Spall, M. A., 1997. Baroclinic jets in confluent flow. *Journal of Physical Oceanography*, **27**(6), 1054–1071, doi: [http://dx.doi.org/10.1175/1520-0485\(1997\)027<1054:BJICF>2.0.CO;2](http://dx.doi.org/10.1175/1520-0485(1997)027<1054:BJICF>2.0.CO;2).
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- Spall, M. A., and J. F. Price, 1998. Mesoscale variability in Denmark Strait: The PV outflow hypothesis. *Journal of Physical Oceanography*, **28**(8), 1598–1623, doi: [http://dx.doi.org/10.1175/1520-0485\(1998\)028<1598:MVIDST>2.0.CO;2](http://dx.doi.org/10.1175/1520-0485(1998)028<1598:MVIDST>2.0.CO;2).
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- Spall, M. A., 2002. Wind- and buoyancy-forced upper ocean circulation in two-strait marginal seas with application to the Japan/East Sea. *Journal of Geophysical Research*, **107**(C1), 6-1-6-12, doi: 10.1029/2001JC000966.
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- Pratt, L. J., and M. A. Spall, 2003. A porous-medium theory for barotropic flow through ridges and archipelagos. *Journal of Physical Oceanography*, **33**, 2702–2718, doi: [http://dx.doi.org/10.1175/1520-0485\(2003\)033<2702:APTFBF>2.0.CO;2](http://dx.doi.org/10.1175/1520-0485(2003)033<2702:APTFBF>2.0.CO;2).
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- Spall, M. A., 2003. The thermohaline circulation in flat bottom marginal seas. *Journal of Marine Research*, **61**, 1–25, doi: 10.1357/002224003321586390.
- Spall, M. A., and R. S. Pickart, 2003. Wind-driven recirculations and exchange in the Labrador and Irminger Seas. *Journal of Physical Oceanography*, **33**, 1829–1845, doi: <http://dx.doi.org/10.1175/2384.1>.

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- Spall, M. A., 2004. Boundary currents and watermass transformation in marginal seas. *Journal of Physical Oceanography*, **34**, 1197–1213, doi: [http://dx.doi.org/10.1175/1520-0485\(2004\)034<1197:BCAWTI>2.0.CO;2](http://dx.doi.org/10.1175/1520-0485(2004)034<1197:BCAWTI>2.0.CO;2).
- Weller, R. A., P. W. Furey, M. A. Spall, and R. E. Davis, 2004. The large-scale context for oceanic subduction in the northeast Atlantic. *Deep Sea Research*, **51**, 665–699, doi: 10.1016/j.dsr.2004.01.003.
- Pedlosky, J., and M. A. Spall, 2005. Boundary intensification of vertical velocity in a β -plane basin. *Journal of Physical Oceanography*, **35**, 2487–2500, doi: <http://dx.doi.org/10.1175/JPO2832.1>.
- Spall, M. A., 2005. Buoyancy-forced circulations in shallow marginal seas. *Journal of Marine Research*, **63**, 729–752, doi: <http://dx.doi.org/10.1357/0022240054663204>.
- Spall, M. A., and J. Pedlosky, 2005. Reflection and transmission of equatorial Rossby waves. *Journal of Physical Oceanography*, **35**, 363–373, doi: <http://dx.doi.org/10.1175/JPO-2691.1>.
- Pickart, R. S., and M. A. Spall, 2007. Impact of Labrador Sea Convection on the North Atlantic Meridional Overturning Circulation. *Journal of Physical Oceanography*, **37**(9), 2207–2227, doi: <http://dx.doi.org/10.1175/JPO3178.1>.
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- Spall, M. A., 2007. Effect of sea surface temperature-wind stress coupling on baroclinic instability in the ocean. *Journal of Physical Oceanography*, **37**(4), 1092–1097, doi: <http://dx.doi.org/10.1175/JPO3045.1>.
- Spall, M. A., 2007. Midlatitude wind stress-sea surface temperature coupling in the vicinity of oceanic fronts. *Journal of Climate*, **20**, 3785–3801, doi: <http://dx.doi.org/10.1175/JCLI4234.1>
- Spall, M. A., R. S. Pickart, P. S. Fratantoni, and A. J. Plueddemann, 2008. Western Arctic shelfbreak eddies: Formation and transport. *Journal of Physical Oceanography*, **38**, 1644–1668.
- Small, R. J., S. deSzoeko, S. P. Xie, L. O’Neill, H. Seo, Q. Song, P. Cornillon, M. Spall, and S. Minobe, 2008. Air-sea interaction over ocean fronts and eddies. *Dynamics of Atmospheres and Oceans*, **45**(3), 274–319, doi:10.1016/j.dynatmoce.2008.01.001.
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- Spall, M. A., and J. Pedlosky, 2008. Lateral coupling in baroclinically unstable flows. *Journal of Physical Oceanography*, (**38**), 1267–1277, doi: <http://dx.doi.org/10.1175/2007JPO3906.1>.
- Spall, M. A., R. S. Pickart, P. S. Fratantoni, and A. J. Plueddemann, 2008. Western Arctic shelfbreak eddies: Formation and transport. *Journal of Physical Oceanography*, **38**, 1644–1668, doi: <http://dx.doi.org/10.1175/2007JPO3829.1>.

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Pratt, L. J., and M. A. Spall, 2008. Circulation and exchange in choked marginal seas. *Journal of Physical Oceanography*, **38**(12), 2639–2661, doi: <http://dx.doi.org/10.1175/2008JPO3946.1>.

Spall, M. A., 2008. Buoyancy-forced downwelling in boundary currents. *Journal of Physical Oceanography*, **38**(12), 2704–2721, doi: <http://dx.doi.org/10.1175/2008JPO3993.1>.

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Durland, T. S., M. A. Spall, and J. Pedlosky, 2009. Response to a steady poleward outflow, Part II: Oscillations and eddies. *Journal of Physical Oceanography*, **39**(7), 1551-1573 doi: <http://dx.doi.org/10.1175/2008JPO4152.1>.

Deshayes, J., F. Straneo, and M. Spall, 2009. Mechanisms of variability in a convective basin. *Journal of Marine Research*, **67**(3) 273-303, doi: <http://dx.doi.org/10.1357/002224009789954757>.

Spall, M. A., 2010. Non-local topographic influences on deep convection: An idealized model for the Nordic Seas. *Ocean Modeling*, **32**, 72-85, doi:10.1016/j.ocemod.2009.10.009.

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Hristova, H., H. Dijkstra, and M. A. Spall, 2010. Onset of time-dependence in a double-gyre circulation: Barotropic basin modes versus classical baroclinic modes. *Journal of Marine Research*, **68**, 215-236, doi: <http://dx.doi.org/10.1357/002224010793721424>.

Pickart, R. S., M. A. Spall, G. W. K. Moore, T. J. Weingartner, R. A. Woodgate, K. Aagaard, and K. Shimada, 2011. Upwelling in the Alaskan Beaufort Sea: Atmospheric forcing and local versus non-local response. *Progress in Oceanography*, **88**, 78-100, doi:10.1016/j.ocean.2010.11.005.

Våge, K., R. S. Pickart, M. A. Spall, H. Valdimarsson, S. Jónsson, D. J. Torres, S. Osterhus, and T. Eldevik, 2011. Significant role of the North Icelandic Jet in the formation of Denmark Strait overflow water. *Nature Geosciences*, **4**, 723-727, doi:10.1038/NGEO1234.

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Wang, J., M. A. Spall, G. R. Flierl, and P. Malanotte-Rizzoli, 2012. A new mechanism for the generation of quasi-zonal jets in the ocean. *Geophysical Research Letters*, doi:10.1029/2012GL051861.

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Pickart, R. S., M. A. Spall, and J. T. Mathis, 2013. Dynamics of upwelling in the Alaskan Beaufort Sea and associated shelf-basin fluxes. *Deep Sea Research I*, **76**, 35–51, <http://dx.doi.org/10.1016/j.dsr.2013.01.007>.

Spall, M.A., and J. Pedlosky, 2013. Interaction of Ekman layers and islands. *Journal of Physical Oceanography*, **43**, 1028-1041. doi:10.1175/JPO-D-12-0159.1.

Wang, J., M.A. Spall, G.R. Flierl, and P. Malanotte-Rizzoli, 2013. Nonlinear radiating instability of barotropic eastern boundary current. *Journal of Physical Oceanography*, **43**, 1439-1452. <http://dx.doi.org/10.1175/JPO-D-12-0174.1>

Våge, K., R.S. Pickart, M.A. Spall, G.W.K. Moore, H. Valdimarsson, D.J. Torres, S. Y. Erofeeva, J.E. Nilsen. 2013. Revised circulation scheme north of the Denmark Strait. *Deep Sea Research I*. **79**, 20-39, [doi:10.1016/j.dsr.2013.05.007](http://dx.doi.org/10.1016/j.dsr.2013.05.007).

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OTHER PUBLICATIONS:

Non-Refereed Publications

Glenn, S. M., Allan R. Robinson, and Michael A. Spall, 1987. Recent results from the Harvard Gulf Stream forecasting program. *Oceanographic. Monthly Summary*, U.S. Department of Commerce, NOAA, 7(4), 12-13.

Robinson, Allan R., S. M. Glenn, Michael A. Spall, Leonard J. Walstad, G. Gardner, and W. G. Leslie, 1989. Forecasting Gulf Stream meanders and rings. *Eos, Transactions, American Geophysical Union*, 70(45), 1464-1473.

Spall, Michael A., 1990. Model and data analysis in the Canary Basin. Congress on Oceanography and Marine Resources in the Central-East Atlantic, Centro de Tecnologia Pesquera, Excmo. Cabildo Insular de Gran Canaria, Islas Canarias, España.

Spall, Michael A., 1991. Cooling spirals and recirculation in the subtropical gyre. Eighth Conference on Atmospheric and Oceanic Waves and Stability, October 14-18, 1991, Denver, Colorado; American Meteorological Society, Boston, Massachusetts; pp. 3-6.

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Spall, Michael A., 1993. Advection and transport in the Mediterranean salt tongue. Colloquium on modelling of ocean vortices, May 11-14, Amsterdam, The Netherlands; Netherlands Royal Academy of Arts and Sciences.

Spall, Michael A., 1994. Wave induced abyssal recirculations. *Oceanus* 37 (1), 26-28.

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- Pickart, R. S., and M. A. Spall, 1995. Mid-depth ventilation along the western boundary of the sub-polar gyre. *ACCP Notes*, **II**, 9-11.
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- Polvani, L., J. C. McWilliams, M. A. Spall, and R. Ford, 1995. The coherent structures of shallow water turbulence: Deformation radius effects, cyclone/anticyclone asymmetry and gravity-wave generation. Atmospheric Waves and Stability Meeting, June 1995, Big Sky, Montana.
- Spall, M. A., 1995. A low frequency oscillator in the Gulf Stream/Deep Western Boundary Current system. Extended abstract in the NOAA Atlantic Climate Change Program Principal Investigator Meeting, May 2-4, Miami, Florida.
- Spall, M. A., 1995. Low frequency oscillations in the Gulf Stream/Deep Western Boundary Current system. Atmospheric Waves and Stability Meeting, June 1995, Big Sky, Montana.
- Spall, M. A., 1995. Mixing and transport in the Mediterranean salt tongue. *Modelling of Oceanic Vortices*, G. J. F. van Heijst, editor, North-Holland, Amsterdam.
- Weller, R. A., K. Moyer, and M. A. Spall, 1995. Upper ocean response to atmospheric forcing during the subduction experiment: Comparison of observations and 1-D mixed layer models. The XXI General Assembly of the International Association for the Physical Sciences of the Oceans, August 5-12, Honolulu, Hawaii.
- Williams, R. C., M. A. Spall, and J. C. Marshall, 1995. Subduction of water masses and tracers: What is the impact of eddy stirring? The XXI General Assembly of the International Association for the Physical Sciences of the Oceans, August 5-12, Honolulu, Hawaii.
- Lozier, M. S., and M. A. Spall, 1996. Dynamics of mid-latitude interactions between LSW and the Gulf Stream system: Analysis of the modern hydrographic record. Extended abstract in the NOAA Atlantic Climate Change Program Principal Investigator meeting, May 14-17, Woods Hole, Massachusetts.
- Pratt, L., J. Pedlosky, M. A. Spall, and K. Helfrich, 1996. Wind driven circulation around islands. Extended abstract in the AGU Fall Meeting, December 16, 1996, San Francisco, California.
- Spall, M. A., 1996. A low frequency oscillation in the Gulf Stream/DWBC system. *ACCP Notes*, **III**, 1-4.
- Spall, M. A., and M. S. Lozier, 1996. Dynamics of mid-latitude interactions between LSW and the Gulf Stream system: Idealized modeling studies. Extended abstract in the NOAA Atlantic Climate Change Program Principal Investigator meeting, May 14-17, Woods Hole, Massachusetts.
- Spall, M. A., and J. F. Price, 1997. Mesoscale variability in Denmark Strait: The PV outflow hypothesis. European Geophysical Society, April, Vienna, Austria.
- Spall, M. A., 1997. Tracer transport by steady and unstable beta plumes with application to the Mediterranean salt tongue. European Geophysical Society, April, Vienna, Austria.
- Pedlosky, J., and M. A. Spall, 1998. Rossby normal modes in basins with barriers. American Geophysical Union meeting, December, San Francisco, California.

- Pedlosky, Joseph, and Michael Spall, 1998. Crossing the ridge: Rossby Wave tunneling. Woods Hole Oceanographic Institution 1998 Annual Report, pp. 23–24.
- Price, J. F., and M. A. Spall, 1998. Mesoscale variability in Denmark Strait: The PV outflow hypothesis. Ocean Sciences Meeting, February, San Diego, California.
- Spall, M. A., 1998. A simple model of the large scale circulation of Mediterranean Water and Labrador Sea Water. Ocean Sciences Meeting, February, San Diego, California.
- Spall, M. A., 1999. An overview of ACCE modeling and data assimilation. AGU meeting, May, Boston, Massachusetts.
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- Spall, M. A., 2000. Boundary currents and the thermohaline circulation. Ocean Sciences meeting, January, San Antonio, Texas.
- Spall, M. A., 2000. Generation of strong mesoscale eddies from weak ocean gyres. Ocean Sciences meeting, January, San Antonio, Texas.
- Spall, M. A., and R. S. Pickart, 2000. On the downwelling limb of the thermohaline circulation. *WOCE Implementation Report Number 12*, U.S. WOCE Office, College Station, Texas, pp. 43–46.
- Spall, M. A., 2001. Forward problem in numerical models. In: *Encyclopedia of Ocean Sciences*, John H. Steele, Steve A. Thorpe, and Karl K. Turekian, Editors, Academic Press, San Diego; Vol. 2, pp. 1088–1095.
- Spall, M. A., 2001. On the wind- and buoyancy-forced upper ocean circulation in the Japan/East Sea. Proceedings of the CREAMS 2001 International Symposium, Honolulu, Hawaii.
- Spall, M. A., 2003. Deep convection east of Greenland: Atmospheric forcing and oceanic response. *EGS*, Nice, France, April (abstract).
- Spall, M. A., 2003. Mixing near boundaries and the thermohaline circulation. *EGS*, Nice, France, April (abstract).
- Spall, M. A., 2004. On the thermohaline circulation in marginal seas. *EGS*, Nice, France, April (abstract).
- Pickart, R., and M. A. Spall, 2004. Heat transport in the Labrador Sea. *EGS*, Nice, France, April (abstract).
- Spall, M. A., and J. Pedlosky, 2004. Reflection and transmission of equatorial Rossby waves. Ocean Sciences Meeting, January, Portland, OR (abstract).
- Spall, M. A., 2012. Buoyancy-forced circulation and downwelling in marginal seas. Chapter in: *Buoyancy-Driven Flows*, Cambridge University Press, [dx.doi.org/10.1017/CBO9780511920196.004](https://doi.org/10.1017/CBO9780511920196.004).
- Wang, J., M.A. Spall, J. Pedlosky, I. Kamenkovich. 2014. *Radiating instability and small-scale stochastic wind forcing*. In: *Zonal Jets* (V. Galperin, P. Read, eds.), Cambridge University Press.

Thesis and Technical Reports

- Spall, Michael A., 1988. Regional ocean modeling: primitive equation and quasi-geostrophic studies. Ph.D. Thesis, Harvard University, Cambridge, Massachusetts. *Reports in Meteorology and Oceanography*, No. 24, Harvard University, 282 pp.
- Spall, Michael A., 1988. Users' Guide to the Primitive Equation Energy and Vorticity Analysis Routine. *Reports in Meteorology and Oceanography*, No. 31, Harvard University, 37 pp.
- Spall, Michael A., 1988. Users' Guide to the Regional Primitive Equation Model. *Reports in Meteorology and Oceanography*, No. 30, Harvard University, 71 pp.

PAPERS PRESENTED AT MEETINGS AND INVITED LECTURES:

- Cooling spirals and recirculation in the subtropical gyre
October 1990 – WHOI
December 1990 – URI
May 1991 – MIT
October 1991 – AMS Waves and Stability Meeting, Denver, Colorado
- A nested primitive equation model for oceanic studies
October 1990 – GFDL
March 1991 - MIT
- Circulation in the Canary Basin: A combined model/data analysis
December 1990 – AGU
- Rotational and gravitational influences on the degree of balance in the shallow water equations
March 1991 – Harvard University
October 1991 - WHOI
- Basin scale ocean modeling and regional oceanography: An eastern North Atlantic Ocean example
April 1991 – University of New Hampshire
- Rossby wave radiation in the Cape Verde frontal zone
June 1991 – WHOI
July 1991 – NCAR
November 1992 – Harvard University
- A diagnostic study of the wind- and buoyancy driven North Atlantic circulation
November 1991 – URI
- Variability of sea surface salinity in stochastically forced systems
March 1992 – NOAA ACCP Meeting, University of Miami
- Low frequency variability and salt flux in the Mediterranean salt tongue
August 1992 - NCAR
August 1992 – NRL, St. Louis, Missouri
September 1992 – WHOI
- A mechanism for low frequency variability and salt flux in the Mediterranean salt tongue
October 1992 – URI
- Advection, mixing, and salt transport in the Mediterranean salt tongue
May 1993 – IfM, Kiel, Germany
May 1993 – Modelling of Oceanic Vorticities, Amsterdam, Netherlands
June 1993 – Alfred Wegener Polar Research Institut, Bremerhaven, Germany
- Wave induced abyssal recirculations
August 1993 – IfM, Kiel, Germany
October 1993 – WHOI
- Wave induced abyssal recirculations in the Brazil Basin

January 1994 – Ocean Sciences Meeting, San Diego, California
 Frontogenesis and subduction at upper ocean fronts
 January 1994 – University of Miami
 September 1994 - WHOI
 Influence of the Gulf Stream on the DWBC, throughput versus recirculation
 September 1994 – WOCE WGNM Meeting
 Dynamics of the Gulf Stream/DWBC crossover
 October 1994 – MIT
 An internal oscillation in the GS/DWBC system
 November 1994 – NEPO at URI
 June 1995 – AMS Waves and Stability Meeting, Big Sky, Montana
 Frontal subduction and cross front exchange
 November 1994 – WHOI
 Frontal process studies
 February 1995 – NRL NOMP PI Meeting
 A low frequency oscillation in the GS/DWBC System
 February 1995 – NRL DAMEE Meeting, Big Sky, Montana
 Mid-latitude interactions between the wind and thermohaline driven circulations
 June 1995 – NCAR
 July 1995 – WHOI
 March 1996 - RSMAS
 Baroclinic jets in confluent flow
 January 1996 – URI
 January 1996 – Scripps
 January 1996 -UW
 March 1996 – RSMAS
 March 1996 – FSU
 November 1996 – WHOI
 November 1996 – GFDL
 November 1996 – LDGO
 March 1997 – Tokyo University
 Dynamics of mid-latitude interactions between LSW and the Gulf Stream system: idealized modelling studies
 May 1996 - WHOI/ACCP
 Subduction and ventilation of LWS
 June 1996 – O-CLIVAR, San Antonio, Texas
 Dynamics of the GS/DWBC crossover
 September 1996 - WHOI
 Interactions between Labrador Sea water and the Gulf Stream in the North Atlantic
 February 1997 – Tohoku National Marine Fisheries Institute, Shiogama, Japan
 Mesoscale variability in Denmark Strait: The PV outflow hypothesis
 April 1997 – EGS, Vienna, Austria
 On the spread of Labrador Sea water
 November 1997 – MIT
 Large- and frontal-scale subduction in the Northeast Atlantic
 January 1998 – CANIGO Meeting, Lisbon, Portugal (invited)
 A simple model of the large-scale circulation of Mediterranean water and Labrador Sea water
 February 1998 – Ocean Sciences Meeting, San Diego, CA
 Upper ocean heat budget during the subduction experiment
 June 1998 - CSM Workshop, Breckenridge, Colorado

Ocean age tracers and ventilation
 December 1998 – MIT

Modelling the upper ocean heat budget and subduction in the Northeast Atlantic
 January 1999 – NCAR

Boundary convection, meridional overturning, and the structure of the Subpolar gyre
 May 1999 – WHOI

How does dense water sink?
 May 1999 – Marginal Seas Meeting, Stennis, Mississippi
 June 1999 – CSM Workshop, Breckenridge, Colorado

Generation of strong mesoscale eddies by weak ocean gyres
 September 1999 – MIT
 October 1999 – NCAR

Boundary convection and meridional overturning
 June 1999 – AGU

An overview of ACCE modelling and data assimilation
 June 1999 – AGU

Large-scale circulations forced by mixing near topography
 November 1999 – DBE Workshop
 January 2000 – WHOI

Boundary currents and the thermohaline circulation
 January 2000 – Ocean Sciences Meeting, San Antonio, Texas (invited)

Generation of strong mesoscale eddies by weak ocean gyres
 January 2000 – Ocean Sciences Meeting, San Antonio, Texas

Large-scale circulations forced by mixing near boundaries
 February 2000 – CSIRO

Large-scale circulations forced by mixing over topography
 April 2000 - CSIRO

On the baroclinic structure of the Indonesian throughflow
 October 2002 – IAPSO Argentina

Wind- and buoyancy-driven exchange in two strait marginal seas
 October 2002 – IAPSO Argentina

Wind-driven recirculations and exchange in the Labrador and Irminger Seas
 January 2002 – WHOI
 January 2002 – URI

On the thermohaline circulation in semi-enclosed marginal seas
 June 2002 – WHOI

On the thermohaline circulation in marginal seas
 October 2002 – ONR-sponsored workshop on the Aegean Sea, Rhodes, Greece
 October 2002 – Northeast Region ONR Progress Review
 October 2003 – CKO Climate Summer School, Les Diableret, Switzerland
 April 2004 – EGS, Nice, France (invited)

Deep convection east of Greenland: Atmospheric forcing and oceanic response
 March 2003 – University of Maryland (invited)
 April 2003 – EGS, Nice, France

Mixing near boundaries and the thermohaline circulation
 April 2003 – EGS, Nice, France

Boundary currents and the thermohaline circulation in marginal seas
 May 2003 – WHOI
 May 2003 – MIT

The thermohaline circulation in marginal seas

May 2003 – Summer Student Fellow Lecture, WHOI
 Small-scale atmospheric forcing of the ocean
 November 2003 – Office of Naval Research, Washington
 Reflection and transmission of equatorial Rossby waves
 January 2004 – Ocean Sciences, Portland, Oregon
 Heat transport in the Labrador Sea
 April 2004 – EGS, Nice, France
 Thermohaline circulation and water mass transformation in marginal seas.
 March 2004 – Harvard University (invited)
 Buoyancy-forced circulations in shallow marginal seas
 September 2004 – MIT (invited)
 September 2004 – WHOI PO seminar
 September 2004 – Courant Institute, NYU (invited)
 December 2004 – URI seminar
 Circulation and water mass transformation in a model of the Chukchi Sea
 October 2005 – University of Washington
 October 2005 – University of Alaska
 October 2005 – WHOI
 February 2006 – Ocean Sciences Meeting, Honolulu, Hawaii
 October 2006 – AOMIP Meeting, Woods Hole, Massachusetts
 Relative influences of mean and eddy heat transport
 October 2005 – MIT
 Impact of convection in the Labrador Sea on the North Atlantic meridional overturning circulation
 May 2006 – Gothenburg University, Sweden
 June 2006 – Stockholm University, Sweden
 Aspects of wind stress/sea surface temperature coupling on the oceanic mesoscale
 August 2006 – Office of Naval Research, Washington
 Aspects of air-sea coupling on the oceanic mesoscale
 October 2006 – WHOI PO seminar
 Regional modeling of the Chukchi Sea and shelfbreak jet
 April 2007- MIT
 Western Arctic shelfbreak eddies: Formation and transport
 April 2007 – WHOI PO seminar
 September 2007- The Netherlands Center for Climate Research Summer School on Physical Oceanography
 November 2007 – University of Rhode Island
 Lateral coupling in baroclinically unstable flows
 August 2007 – WHOI Geophysical Fluid Dynamics
 Low-frequency interaction between horizontal and overturning gyres in the ocean
 September 2008 – WHOI
 November 2008 – Geophysical Fluid Dynamics Laboratory
 December 2008 – AGU, San Francisco, CA (invited)
 Wind-driven circulation and exchange in the western Arctic
 January 2009 – AOMIP PI Meeting, WHOI (invited)
 Eddies and deep ocean convection
 April 2009 – CLIVAR Working Group on Ocean Modeling meeting on mesoscale eddies, Exeter, England (invited)
 Principal lecturer, The Netherlands Center for Climate Research Summer School on Physical Oceanography, September 2007
 Lecturer, Summer School on Buoyancy-Driven Flows, Aosta, Italy, June 2010 (invited)

Non-local topographic influences on deep convection
 March 2010 – University of Bergen, Bergen, Norway (invited)

On the heat transport and overturning circulation in marginal seas
 May 2010 – CLIVAR working group meeting on Western Boundary Currents, Qingdao, China

Shelf/basin exchange
 October 2010 – NSF visit to WHOI
 October 2010- AOMIP Meeting

Mesoscale eddy influences on meridional heat transport and meridional overturning circulation
 December 2010 – WHOI PO seminar

On the role of eddies in meridional heat transport and the meridional overturning circulation
 March 2011 – URI (invited)
 April 2011 – EGU (invited)

Influences of precipitation on water mass transformation and deep convection
 October 2011 – MIT
 November 2011 – University of Bergen, Bergen, Norway (invited)
 November 2011 – THOR meeting, Bergen, Norway (invited)
 November 2011 – University of Oslo, Oslo, Norway
 January 2012 – WHOI
 February 2012 – Ocean Sciences Meeting, Salt Lake City, Utah (invited)
 May 2012 – Utrecht University, The Netherlands (invited)

Dynamics of downwelling
 November 2011 – University of Bergen, Bergen, Norway (invited)

Western Arctic shelfbreak eddies
 September 2012 – ONR briefing at WHOI

On the circulation of Atlantic water in the Arctic Ocean
 March 2013 – WHOI
 April 2013 – MIT
 February 2014 – Ocean Sciences Meeting, Honolulu, HI

A turbulent model of the Arctic Ocean
 July 2013 – WHOI Geophysical Fluid Dynamics (GFD) Summer School

Boundary current instabilities in the Arctic
 October 2013 – IASC Meeting (invited)

A simple model for the halocline and circulation of Atlantic water in the Arctic Ocean
 February 2014 – Ocean Sciences Meeting, Honolulu, HI

Forced Transients in the MOC,
 Sept. 2014 - AMOC PI meeting, Seattle, WA
 Feb. 2015 – Univ of Hawaii, Honolulu, HI

On the construction of conceptual models
 Sept. 2014 – NORTH PI meeting, Univ. of Bergen, Bergen, Norway (invited)

Fate of Atlantic Water in the Arctic Ocean
 Oct. 2014 – IASC Meeting (invited)

Response of the MOC to time-dependent forcing
 Oct. 2014 – WHOI

On the circulation of Atlantic Water and maintenance of the halocline in the Arctic Ocean
 April 2015 – Arctic Science Summit Week, Toyama, Japan (invited)

Downfront winds in a coastal environment
 July 2015 – SYNBIOS PI meeting, Paris, France (invited) 1.

Coupled ocean/atmosphere decay scale of cold SST along upwelling eastern boundaries

Feb. 2016 - Poster Ocean Sciences

March 2016 - Univ. Bergen, Bergen, Norway (invited)

April, 2016 – WHOI PO Seminar

Ocean modeling of the Iceland and Greenland Seas

May 2016 - Iceland/Greenland Sea PI meeting, Reykjavik, Iceland (invited)