VITA

John Bryant Drake

Computational Earth Sciences Group Leader
Computer Science and Mathematics Division
P.O. Box 2008, MS 6016
Oak Ridge National Laboratory
Oak Ridge, TN 37831-6016
Phone: (865) 574-8670 Fax: (865) 576-5491
drakejb@ornl.gov http://www.csm.ornl.gov/~bbd

EDUCATION:

- Ph.D. Mathematics, University of Tennessee, Knoxville, 1991.
- M.S. Applied Mathematics, Purdue University, West Lafayette, IN, 1979.
- B.A. Mathematics, University of Kentucky Lexington, 1977.

EMPLOYMENT:

2006-present:	Computational Earth Sciences Group Leader Computer Science & Mathematics Division, ORNL
1999-2006:	Climate Dynamics Group Leader Computer Science & Mathematics Division, ORNL
1984-1999:	Mathematics Group Mathematical Sciences Section Computer Science & Mathematics Division, ORNL
1979-1984:	Engineering Mechanics Section of Technical Applications Department, Computer Science Division, ORNL
1977-1979:	Graduate Teaching Assistant, Purdue University
1973-1977:	Computer Graphics Laboratory, University of Kentucky College of Architecture

PROFESSIONAL INTERESTS: Climate change and earth system dynamics including the carbon cycle. Mathematical methods for climate prediction and atmospheric dynamics. Parallel computation and algorithms for climate simulation. Numerical solution of partial differential equations and integral equations with particular regard to supercomputing applications. Multiresolution approximation and "fast" numerical algorithms. Biofuels, land use change and sustainable energy. Philosophical issues of mathematics and technology.

PROFESSIONAL ACTIVITIES:

- Member of the LMES Computer User Advisory Committee and the UAC Steering Committee, 1987-1990,
- Member of the DOE Energy Sciences Network Steering Committee, 1995-1997
- Member of the DOE OBER/CHAMMP Executive Committee, 1991-1997
- Member of the DOE OBER/ACPI Planning team, 1998-2000
- Organizing Committee - *PDE's on the Sphere*, 1991-present, next meeting Fields Institute, Toronto, August 12-15
- Organizing Committee - *SIAM* Computational Science and Engineering, San Diego, February 10-13, 2003.
- Host - *PDE's on the Sphere*, April 29 - May 1, 1998, Gatlinburg
- Member - CCSM Advisory Board (CAB), 2001-2007
- Member of the DOE OBER/CCPP Executive Committee, 2003-present
- Project mentor University of Tennessee grad students and post-docs at ORNL
- Project mentor for Research Experience for Undergraduates (REU) program at UT-ORNL
- Project mentor for Oak Ridge High School senior math thesis projects
- Guest editor International Journal of High Performance Computing and Applicatons, August 2005 issue.
- Contributing editor, SciDAC Journal, American Institute of Physics (2006-2007)
- Editorial Board, Journal of Computational Geosciences (COMG), Springer (2006 - present)
- Adjuct Professor, University of Tennessee, Math Department and Civil and Environmental Engineering, 2008-
- member of the UTK - Institute for a Secure and Sustainable Environment (ISSE)

PUBLICATIONS:

1. B. R. Bass, J. B. Drake, L. J. Ott, ORMDIN: A finite element program for two-dimensional nonlinear inverse heat conduction analysis,
   Union Carbide Report ORNL/NUREG/CSD/TM-17, December 1980.
2. J. B. Drake, ARIES: A computer program for the solution of first kind integral equations with noisy data, Union Carbide Report K/CSD/TM-43, October 1983.

3. B. R. Becker and J. B. Drake, Finite element simulation of viscous incompressible flows, Union Carbide Report K/CSD-18, November 1983.

4. H. W. Blake, J. B. Drake, Variable Speed Bernoulli-Euler Rotor Model (U), K/TS-11,160, Union Carbide Corp., Nuclear Div. ORGDP, November 1983.

5. J. E. Park, J. B. Drake, Ekman boundary conditions for numerical models of centrifuge flows, Martin Marietta Report K/CSD/TM-52, April 1984.

6. D. G. Ball, B. R. Bass, J. W. Bryson, R. D. Cheverton, J. B. Drake, Stress-Intensity-Factor influence coefficients for surface flaws in pressure vessels, Martin Marietta Report ORNL/CSD/TM-216, August 1984.

7. *A. D. Solomon, V. Alexiades, D. G. Wilson, J. B. Drake, On the formulation of hyperbolic Stefan problems, Martin Marietta Report ORNL-6065, October 1984. [Also published in Quart. Appl. Math., Vol. 43(3), October 1985, pp. 295-304 (refereed)].

8. *B. R. Becker, J. B. Drake, "An implicit mixed interpolation finite element algorithm for time dependent viscous flows utilizing a frontal solution technique", accepted by International Journal of Mathematical Modelling (Oct. 1985) also to appear in "Mathematical Modelling in Science and Technology, Proceeding og the Fifth ICMM, July 29-31, 1985, Univ. of Berkeley", Pergamon Press, New York, 1986. [referred]

9. J. B. Drake, An extension to complex valued functions of an algorithm for numerically inverting the Laplace Transform, Martin Marietta Report K/CSD/TM-49 , March 1985.

10. H. W. Blake, J. B. Drake, Transfer Matrix Based Continuous Timoshenko Beam Rotor Models (U), K/TS-11,711, 1985

11. J. B. Drake, Elastic and Viscoelastic P3 Modeling: Results and Development, KTS-11,710, 1985

12. V. Alexiades, J. B. Drake, G. A. Geist, G. E. Giles, A. D. Solomon and R. F. Wood, Mathematical Modeling of laser-induced ultrarapid melting and solidification, Martin Marietta Report ORNL-6129, March 1986

13. B. R. Becker, J. B. Drake, "Finite Element Analysis of Time Dependent Viscous Flows Utilizing an Implicit Mixed Interpolation Algorithm with a Frontal Solution Technique", Mathematical Modelling, Vol.7, pp.469-482, 1986 J. B. Drake, G. A. Geist, J. F. Martin, M. D. Morris, A. D. Solomon, J. J. Tomlinson, "Design of PCM Enhanced Passive Solar Structures", ORNL Report 6281 (March 1987)

14. J. B. Drake, G. A. Geist, J. F. Martin, A. D. Solomon, J. J. Tomlinson, "PCMSOL-Simulation Code for a Passive Solar Structure Incorporating Phase Change Materials", ORNL 6359 (January 1987)

15. J. B. Drake, "A Study of the Optimal Transition Temperature of PCM Wallboard for Solar Energy Storage", ORNL Report ORNL TM-10210, September 1987

16. J. B. Drake, W. F. Lawkins, B. A Carreras, H. R. Hicks, V. Lynch, "Implementation of a 3-D Nonlinear MHD Caclulation on the Intel Hypercube", ORNL Report 6335, August 1987 .bp

17. *J. B.Drake, A. K. Hudson, E. Johnson, D. W. Noid, G. A. Pfeffer, S. Thompson, "Molecular Dynamics of a Model Polymer on a Hypercube Parallel Computer", Comput. Chem. Vol 12, No. 1, pp. 15-20, 1988

18. R. P. Wichner, A. D. Solomon, J.B. Drake, P. T. Williams, "Thermal Analysis of Heat Storage Canisters for a Solar Dynamic Space Power System", ORNL Report ORNL TM-10665

19. *R. P. Wichner, A. D. Solomon, J. B. Drake, P. T. Williams, "Thermal Analysis of Heat Storage Canisters for a Solar Dynamic Space Power System", ASME Solar Energy Division Conference Proceedings April 10, 1988

20. J. B. Drake, L. J. Gray, "Implementation of the Boundary Element Method on the iPSC2 Hypercube", in Vector and Parallel Computing: Issues in Applied Research and Development, ed. Jack Dongarra, Iain Duff, Patrick Gaffney and Sean McKee, Ellis Horwood Ltd., Chichester, 1989.

21. J.B. Drake, P.H. Worley, "Parallel Computers for Research", ORNL Review, May 1989

22. J.B. Drake, Mitch Olszewski, Alan Solomon, Mike Taylor, John Tomlinson, "Preliminary TES Design Optimization Study for a Simple Periodic Brick Plant", in Proceedings of the 1989 DOE Thermal Energy Storage Research Activities Review, CONF-890351, March 1989.

23. H.N. Narang and J.B. Drake, "Parallel Solutions of a 2-D Phase Change Problem on a Hypercube", ORNL Report ORNL-6504, April 1989

24. J.B. Drake, "Modeling Convective Marangoni Flows with Void Movement in the Presence of SolidLiquid Phase Change", ORNL Report 6516, January 1990

25. B.A. Carreras, L.A. Charlton, N. Dominguez, J.B. Drake, L.Garcia, J.A. Holmes, J.N. Leboeuf, D.K. Lee, and V.E. Lynch, "Plasma Turbulence Calculations on Supercomputers", ORNLP-900675, March 1990.

26. H.N. Narang, R.E. Flanery, J.B. Drake, "Design of a Simulation Interface for a Parallel Computing Environment", Proceedings ACM Southeastern Region, April 1990

27. V.E. Lynch, B.A. Carreras, J.B. Drake, J.N. Leboeuf, "Plasma Turbulence Calculations on the Intel iPSC860 (RX) Hypercube", in Proceedings of the Sherwood Theory Meeting, Williamsburg, VA, April 23-25, 1990

28. V. Alexiades and J.B. Drake, "A Weak Formulation for Phase-Change Problems with Bulk Movement due to Unequal Densities", in Free Boundary Problems: Theory and Applications, proceedings of conference held at CRM, Montreal, June 13-22, 1990.

29. B.A. Carreras, N. Dominguez, J.B. Drake, J.N. Leboeuf, L.A. Charlton, J.A. Holmes, D.K. Lee, and V.E. Lynch, L. Garcia, "Plasma Turbulence Calculations on Supercomputers", Int. J. Supercomputer Applications, Vol 4. No. 3, pp. 97-110, (1990)

30. J.B. Drake, Applied Mathematics Ph.D. Thesis, "Convection in the Melt", University of Tennessee - Knoxville, 1991

31. M.T. Heath, G.A. Geist, J.B. Drake, "Early Experience with the Intel iPSC860 at Oak Ridge National Laboratory", Int. J. Supercomputer Applications, Vol. 5, No. 2 (1991)

32. P. Worley and J.B. Drake, "Parallelization of the Spectral Transform Method - Part 1.", ORNL TM 11747, March 1991

33. D.W. Walker, P. Worley and J.B. Drake, "Parallelizing the Spectral Transform Method - Part II.", ORNL TM 11855, July 1991

34. D.L. Williamson, J.B. Drake, J.J. Hack, R. Jakob and P.N. Swarztrauber, "A Standard Test Set for Numerical Approximations to the Shallow Water Equations on the Sphere", ORNL TM-11895, August 1991

35. V.E. Lynch, B.A. Carreras, J.B. Drake, L.N. Leboeuf and J.R. Ruiter, "Plasma Turbulence Calculations on the Intel iPSC860 (RX) Hypercube", Computing Systems in Engineering, Vol. 2. No. 2/3, pp. 299-305, 1991

36. J.B. Drake, **Convection in the Melt**, Ph.D. dissertation, University of Tennessee, December 1991.

37. P.H. Worley and J.B. Drake, "Parallelization of the Spectral Transform Method", Concurrency: Practice and Experience, Vol 4(4), p.269-291 (June 1992)

38. D.L. Williamson, J.B. Drake, J.J. Hack, R. Jakob and P.N. Swarztrauber, "A Standard Test Set for Numerical Approximations to the Shallow Water Equations on the Sphere", J. Comp. Phys. (102), p. 211-224, 1992

39. V. Alexiades and J.B. Drake, "A Weak Formulation for Phase Change Problems with Bulk Movement Due to Unequal Densities", in **Free Boundary Problems: Theory and Applications, Vol. 4,** J. Chadam and H. Rasmussen, editors, Longman, New York, 1992

40. D.W. Walker, P.H. Worley and J.B. Drake, "Parallelization of the Spectral Transform Method. Part II", Concurrency: Practice and Experience, Vol 4(7), p.509-531 (Oct. 1992)

41. V.E. Lynch, B.A. Carreras, J.B. Drake, J.N. Leboeuf, P. Liewer, "Performance of a Plasma Fluid Code on the Intel Parallel Computers", Proceedings of Supercomputing 92, IEEE Computer Society Press, Los Alamitos, CA November 16-20, 1992, pp. 286-293.

42. V. Alexiades and J.B. Drake, "A weak formulation for phase change problems with bulk movement due to unequal densities", pp. 82-87 in **Free Boundary Problems Involving Solids,** J. M. Chadam and H. Rasmussen, editors, Pitman Research Notes vol. 281, Longman, New York, 1993.

43. J.B. Drake, G.A. Geist, H.R. Hicks, K.L. Kliewer, G.M. Stocks, L.E. Toran, and P.H. Worley, "The Center for Computational Sciences at Oak Ridge National Laboratory", International Journal of Supercomputer Applications, Vol. 7, No. 1, pp. 3-14, (1993)

44. R.E. Flanery, L.J. Gray, J.B. Drake, "Boundary Elements on Distributed Memory Architectures", Int. J. Num. Meth. Engineering, submitted.

45. J.B. Drake, "Grand Challenge Computing: Status and Prospects for Climate Modeling", in Proceedings of the Intel Supercomputer User's Group, St. Louis, MO, Oct. 1993

46. J.C. Wells, A.S. Umar, V.E. Oberacker, C. Bottcher, M.R. Strayer, J.S. Wu, J.B. Drake, R.E. Flanery, "A Numerical Implementation of the Dirac Equation on a Hypercube Multicomputer", Int. J. Modern Physics C, Vol. 4, No. 3, pp.459-492, 1993

47. J.B. Drake, "Meeting Summary of the Third CHAMMP Workshop for the Numerical Solution of PDE's in Spherical Geometry", ORNLM-3219, December 1993

48. Drake.J.B. R.E. Flanery, D.W. Walker, P.H. Worley, I.T. Foster, J.G. Michalakes, R.L. Stevens, J.J. Hack, D.L. Williamson, "The Message Passing Version of the Parallel Community Climate Model", in proceedings of Fifth Workshop on Use of Parallel Processors in Meteorology, Reading, UK, Nov 23-27, 1992

49. J.B. Drake, I. Foster, J.J. Hack, J. Michalakes, B.D. Semeraro, B. Toonen, D.L. Williamson, P.T Worley, "PCCM2: A GCM Adapted for Scalable Parallel Computers", in Proceedings of the 5'th Symposium on Global Climate Change of the AMS, Nashville, TN, Jan. 1994

50. J.N. Leboeuf, B.A. Carreras, L.A. Charlton, J.B. Drake, V.E. Lynch, D.E. Newman, K.L. Sidikman and D.A. Spong, "Parallel Plasma Fluid Turbulence Calculations", in proceedings of Energy Research Power User's Symposium II, July 12, 1994.

51. "A Scalable Parallel Strassen's Matrix Multiply Algorithm for Distributed Memory Computers", ORNL TM-12818, Qingshan Luo and J.B. Drake

52. Qingshan Luo and J.B. Drake, "A Scalable Parallel Strassen's Matrix Multiply Algorithm for Distributed Memory Computers", in proceedings of the Symposium on Applied Computing, SAC'95, Nashville, TN. Feb 26-28, ACM Press, 1995

53. J.B. Drake and I.T. Foster and J.G. Michalakes and P.H. Worley, "Parallel Algorithms for Semi-Lagrangian Transport in Global Atmospheric Circulation Models", in Parallel Processing for Scientific Computing, SIAM, Feb. 1995, pp. 119-124.

54. J.B. Drake and I.T. Foster and J.G. Michalakes and Brian Toonen and P.H. Worley, "Design and Performance of a Scalable Parallel Community Climate Model", Parallel Computing, Vol 21, No.10, pp. 1571-1591, October 1995

55. J.B. Drake and I.T. Foster, "Parallel Computing Special Issue: Introduction to Weather and Climate Modeling", Parallel Computing, Vol 21, No.10, pp. 1537-1544, October 1995

56. J.B. Drake, "Modeling Climate Change", ORNL Review , Vol. 28, No. 2, pp. 6-13, (1995)

57. J.B. Drake and R.E. Flannery and B.D. Semeraro and P.H. Worley and I.T. Foster and J.G. Michalakes and J.J. Hack and D.L. Williamson, "Parallel Community Climate Model: Description and User's Guide", ORNL TM-13271, July 1996

58. "A Fast Multpole Transformation for Global Climate Calculations", ORNL TM-13135, J.A. Holmes, Z. Wang, J.B. Drake, B.F. Lyon, W.-T.Chen, January 1996

59. "A Parallel Peformance Study for the Cartesian Method on a Sphere", ORNL TM-13304, Matthew P. Coddington, J.B. Drake, February 1997

60. The Cartesian Method for solving partial differential equations, in spherical geometry, P.N. Swarztrauber, D.L. Williamson, J.B. Drake. Dynamics of Oceans and Atmospheres, Vol. 27, pp. 679-706, 1997.

61. Performance Tuning and Evaluation of a Parallel Community Climate Model, J.B. Drake, Steve Hammond, Rodney James, Patrick Worley, in the proceedings of IEEE SC99 Conference, Portland, OR, November 1999.

62. Cartesian Methods for the Shallow Water Equations on a Sphere, J.B. Drake, P.N. Swarztrauber, and D.L. Williamson ORNL TM-13430, December 1999

63. Statistical Downscaling of the United States Regional Climate from Transient GCM Scenarios, William M. Putman, J.B. Drake and G. Ostrouchov, in the proceedings of the AMS 12th Conference on Applied Climatology, May 2000

64. A Vorticity-Divergence Global Semi-Lagrangian Spectral Model for the Shallow Water Equations, J.B. Drake, D.X. Guo, ORNL/TM-2001/216, November 2001

65. A Global Semi-Lagrangian Spectral Model for the Reformulated Shallow Water Equations, D.X. Guo, J.B. Drake, in Proceedings of the Fourth International Conference on Dynamical Systems and Differential Equations, May 24-27, 2002, special issue of Descrete and Continuous Dynamical Systems published by American Institute of Mathematical Science

66. A Global Semi-Lagrangian Spectral Model of the Shallow-Water Equations with Variable Resolution, Daniel X. Guo, J.B. Drake, J. Comp. Phys., Vol. 206 (2005), pp. 559-577.

67. J.B. Drake, P.H. Worley, I. Carpenter, M. Cordery, Experience with the Full CCSM, in Proc of the 46th Cray User Group Conference, Knoxville, TN , May 2004

68. F.M. Hoffman, M. Vertenstein, H. Kitabata, J.B. White, P.H. Worley, J.B. Drake, M. Cordery, Adventures in Vectorizing the Community Land Model, in Proc of the 46th Cray User Group Conference, Knoxville, TN , May 2004

69. Larson, J. W., E.T. Ong, B . Norris, D.E. Bernholdt, J.B. Drake, W.R. El Wasif, M.W. Ham, C.E. Rasmussen, G. Kumfert, D.S. Katz, S. Zhou, C. Deluca, and N.S. Collins 2004: "Components, the Common Component Architecture and the Climate/Ocean/Weather Community," Proceedings of the Twentieth International Conference on Interactive Information Processing Systems for Meteorology, Oceanography, and Hydrology, 84th Annual Meeting of the American Meteorological Society.

70. G. R. Carr, M. Cordery, J. B. Drake, M. W. Ham, F. M. Hoffman and P. H. Worley, "Porting and Performance of the Community Climate System Model (CCSM3) on th e Cray X1," in Proceedings of the 47th Cray User Group Conference, Albuquerque, NM, May 16 -20, 2005.

71. G. R. Carr, I. L. Carpenter, M. J. Cordery, J. B. Drake, M. W. Ham, F. M. Hoffman, and P. H. Worley, Porting and Performance of the Community Climate System Model (CCSM3) on the Cray X1, in Proceedings of the 11th Workshop on High Performance Computing in Meteorology, Reading, UK, October 25-29, 2004, eds. W. Zwieflhofer and G. Mozdzynski, World Scientific, Fall 2005.

72. J.B. Drake, P.W. Jones, G.R. Carr, Overview of the Software Desing and Parallell Algorithms of the CCSM, 2005, Int. J. High Perf. Comput. Appl., Vol 19, No. 3, pp.177–186.

73. P. H. Worley, J.B. Drake, Performance Portability in the Physical Parameterizations of the Community Atmosphere Model, 2005, Int. J. High Perf. Comput. Appl., Vol 19, No. 3, pp.187–201.

74. Guo, D.X. and J.B. Drake, A global semi-Lagrangian spectral model of the shallow water equations with variable resolution, J. Comp. Phys. Vol. 206 (2005), pp. 559-577.

75. P. Worley, A. Mirin, J. Drake and W. Sawyer, "Performance Engineering in the Community Atmosphere Model," Proc. SciDAC 2006 Conference, Denver (2006), LLNL Report UCRL-CONF-221711.

76. Hoffman, Forrest, Inez Fung, Jim Randerson, Peter Thornton, Jon Foley, Curtis Covey, Jasmin John, Samuel Levis, W. Mac Post, Mariana Vertenstein, Reto Stckli, Steve Running, Faith Ann Heinsch, David Erickson, and John Drake. "Terrestrial Biogeochemistry in the Community Climate System Model (CCSM)." Journal of Physics: Conference Series, 46: 363-369, September 2006, doi:10.1088/1742-6596/46/1/051.

77. Guo, Daniel and John Drake, "A global semi-Lagrangian spectral model of the shallow water equations with time dependent variable resolution", in **Dynamical Systems and Differential Equations**, ed. S. Hu, X Lu and W. Xie, American Institute of Mathematical Sciences, 2005

78. J.B. Drake and P.W. Jones, et al, "SciDAC CCSM Consortium Final Summary Report (2001-2006)", ORNL TM-2006/582, November 2006

79. J.B. Drake and P.H. Jones, "Developing Models for Predictive Climate Science", SciDAC Review, Vol. 3, pp. 44-56, Spring 2007.

80. J. B. Drake, P. W. Jones, M. Vertenstein, J. B. While III, and P. H. Worley, "Software Design for Petascale Climate Science", in **Petascale Computing: Algorithms and Applications**, ed. D. Bader, Chapman & Hall / CRC Press, Taylor and Francis Group, 2008.

81. J.W. Larson, A.P. Craig, J.B. Drake, D.J. Erickson III, M. Branstetter, and M.W. Ham, "A Massively Parallel Dynamical Core for Continental- to Global-Scale River Transport," Proceedings of the International Congress on Modelling and Simulation (ModSim 2007), L. Oxley and D. Kulasiri (eds.), 532-538 (2007).

82. Drake, J.B., P.H. Worley, E. D'Azevedo, "Spherical Harmonic Transform Algorithms," ACM Transactions on Mathematical Software, Vol 35, No.3, 2008

REPORTS/PAPERS IN PROGRESS

- J.B. Drake, "A Vertical Grid Module for Baroclinic Models of the Atmosphere", Oak Ridge National Laboratory Technical Report ORNL/TM-2008/085,

PRESENTATIONS:

- "On trying to differentiate data," at Numerical Analysis Special Interest Group (NASIG) 1980 Meeting, May 14, 1980, Fairfield Glade, TN
- "The numerical Solution of first kind integral equations with noisy data", at SIAM 1981 National Meeting, June 9, 1981, Rensselaer Polytechnic Institute, Troy, NY
- "Rotor Dynamics", to Centrifuge Theory Consultants Group meeting, November 12, 1982, Piketon, OH
- "Moving Grid Solution of a Laser Annealing Problem", at NASIG 1983 meeting, October 12, 1983, Livermore, CA
- "An extension of an algorithm for numerically inverting the Laplace transform", at DOE Software Library Management meeting, October 20, 1983, SLAC, Stanford, CA
- "A solution to the viscoelastic response of a Bernoulli-Euler Shaft", at NASIG 1985 meeting, August 14, 1985, Sandia National Lab.- Albuquerque, NM.
- "Design of PCM Enhanced Passive Solar Structures", at DOE Washington, DC, April 24, 1986
- "ORNL Phase Change Materials Modeling for the Solar Buildings Program", to ASES (American Solar Energy Society) Conference, June 13, 1986, Boulder, CO (*invited lecture)
- "Flow Analysis of a TES Canister", June 12, 1987, NASA Lewis Research Center, Cleveland, OH
- "Modeling void movement with the Navier-Stokes Equations", at Nasa-Lewis, June 12,1987, Cleveland, OH
- "Implementation of a 3-D Nonlinear MHD Calculation on the Intel Hypercube", (*presented by Jeff Holmes) to 12th Conference on the Numerical Simulation of Plasmas, September 20, 1987, San Francisco, CA
- "An Overview of User Advisory Committee Activities", to EPM Section heads 9 Oct. 1987
- "An Overview of EPM Computing Activities", to ORNL User Advisory Committee December 4, 1987
- "A Phase Change Problem Related to Thermal Energy Storage in the Manned Space Station", included in a report documenting the seminar series at the Institute for Mathematics and Its Applications, University of Minnesota, MN, February 1988 (presented by DGW)
- "Computer Program for Thermal and Stress Analysis of TES Materials in Zero - G", Space Station Program Review Meeting, NASA Lewis Research Center, Febuary 22, 1988

- "Implementation of a 3-D MHD Calculation on the Intel Hypercube", Eindhoven University of Technology, Eindhoven, Netherlands, June 2, 1988
- "Implementation of a 3-D MHD Calculation on the Intel Hypercube", FOM Institute for Plasma Physics, Utrecht, Netherlands, June 3, 1988
- "Parallel Implementation of the Boundary Element Method on the iPSC2 Hypercube", Second International Conference on Vector and Parallel Computers, Tromso, Norway, June 10, 1988
- "Massively Parallel Code for Investigating Lepton Pair Production", Second ORNL Workshop on Parallel Computing, January 27, 1989
- "Applications of Parallel Computers to Scientific Problems", to ORAU Work/Study Students, ORNL, February 8, 1989
- "Applications of Parallel Computers to Scientific Problems", to ACM Student Chapter of Tuskegee University, February 22, 1989
- J.B. Drake, "Preliminary TES Design Optimization Study for a Simple Periodic Brick Plant", at the 1989 DOE Thermal Energy Storage Research Activities Review, New Orleans, March 15-17, 1989
- J.B. Drake, "The ORNL CHAMMP Initiative", to ORNL Advisory Board, April 1990.
- H.N. Narang, R.E. Flanery, J.B. Drake, "Design of a Simulation Interface for a Parallel Computing Environment", Proceedings ACM Southeastern Region, April 1990
- V.E. Lynch, B.A. Carreras, J.B. Drake, J.N. Leboeuf, "Plasma Turbulence Calculations on the Intel iPSC/860 (RX) Hypercube", at the Sherwood Theory Meeting, Williamsburg, VA, April 23-25, 1990
- Vasilios Alexiades, J.B. Drake, "A Weak Formulation for Phase-Change Problems with Bulk Movement due to Unequal Densities", at International Colloquia on Free Boundary Problems, Montreal, June 13, 1990
- J.B. Drake, "A Triangular TVD Scheme Applied to the Shallow Water Equations on the Sphere", presented to PDE's on the Sphere, Argonne National Laboratory, August 13-14, 1990
- J.B. Drake, "Experiences with Large Scientific Applications on the Intel Hypercubes", invited talk to workshop Concurrent Computing in the 90's, Lousiana State University, August 17, 1990
- J.B. Drake, "Parallel Computation of Atmospheric Flows", invited talk to Southeastern Atlantic Section of SIAM, Cullowhee, NC, April 12, 1991
- V.E. Lynch, B.A. Carreras, J.B. Drake, J.N. Leboeuf, "Comparison of the Performance of a Fluid Code on Different Machines", at the Sherwood Fusion Theory Conference, Williamsburg, VA, April 23-25, 1991

- J.B. Drake, D.W. Walker, R.E. Flanery, "Parallel Semi-Lagrangian Transport for MIMD Architectures", Workshop on Numerical Solutions of Fluid Flow in Spherical Geometry, October 9-11, 1991, Boulder, CO
- J.B. Drake, P.H. Worley, D.W. Walker, "Parallel Computation of Atmospheric Flows", ORNL EPM Information Meeting, October 21, 1991
- V.E. Lynch, B.A. Carreras, J.B. Drake, J.N. Leboeuf and D.W. Walker, "The Performance of a Fluid Code on a Hypercube and Connection Machine", American Physical Society Division of Plasma Physics, Tampa, FL, Nov. 4-8, 1991.
- J.B. Drake, D.W. Walker and P.H Worley, "Atmospheric Spectral Models on MIMD and SIMD Architectures", Minisymposium on Computing Climate Change: Can we Beat Nature? Supercomputing '91, Albuquerque, NM, Nov. 19, 1991.
- J.B. Drake, "PCCM: A Distributed-Memory Parallel Implementation of the Community Climate Model", Geophysical Fluid Dynamics Laboratory, Princeton, NJ, Jan. 16, 1992
- J.B. Drake, D.L. Williamson, I. Foster, "Parallel Algorithms for the Spectral Transform and Semi-Lagrangian Transport Methods", CHAMMP Science Team Meeting, Las Vegas, NV March 17, 1992,
- J.B. Drake, R.E. Flanery, I. Foster, J. Michalakes, "Progress on PCCM2: Implementation and Performance Issues" CHAMMP Directed Team Meeting, Santa Fe, NM, April 3, 1992
- V. E. Lynch, B. A. Carreras, J. B. Drake, J. N. Leboeuf, P. Liewer, and D. W. Walker "The Performance of a Fluid Code on Massively Parallel Machines", Sherwood Fusion Theory Conference, JPL, April 16-18, 1992.
- R.E. Flanery, J.B. Drake, L.J. Gray, "Boundary Elements on Distributed Memory Architectures", International Association for Boundary Elements Meeting, Boulder, CO, August 2-5, 1992
- J.B. Drake, "The Message Passing Version of the Parallel Community Climate Model", CHAMMP Science Team Meeting, Monterey, CA, 15 March 1993
- J.B. Drake, "Global Climate Modeling on Parallel Computers", for ORNL Executive Committee, Oak Ridge, 9 March 1993
- J.B. Drake "CHAMMP Parallel Atmospheric Modeling Activites", to DOE Office of Planning and Analysis (OPA) Review, 6 April, 1993.
- J.B. Drake, B.D. Semeraro, "A PVM3 Version of the Parallel Community Climate Model", PVM User's Conference, Knoxville, TN, May 10, 1993
- J.B. Drake (Invited) "Grand Challenge Computing: Status and Prospects for Climate Modeling", Intel Supercomputer User's Group, St. Louis, Oct. 3-6, 1993

- J.B. Drake (Invited) "The Message Passing Version fo the Parallel Community Climate Model", Office of Naval Research Supercomputing Meeting, Washingtion, D.C., 5 Oct. 1993
- J.B. Drake, I. Foster, J.J. Hack, J. Michalakes, B.D. Semeraro, B. Toonen, D.L. Williamson, P.T Worley, "PCCM2: A GCM Adapted for Scalable Parallel Computers", 5'th Global Climate Symposium of the AMS, Nashville, TN, Jan. 1994
- J.B. Drake, (Required) "Parallel Atmospheric Climate Models", DOE OPA Review of Large Computational Projects, Bethesda, MD, July 14, 1994
- J.B. Drake (Invited) "Communication Strategies for Semi-Lagrangian Transport in Parallel Climate Models", NASA High Performance Computing Semi-Lagrangian Transport Methods Workshop, NASA Goddard Space Flight Center, May 19, 1994.
- J.B. Drake "Communication Strategies for Semi-Lagrangian Transport Methods", 4th CHAMMP PDE's on the Sphere Workshop, Chicago, IL, 25 Aug. 1994
- J.B. Drake "Model Development for the CHAMMP Program at ORNL and ANL", CHAMMP95 Science Team Meeting, Rockville, MD, Oct 4, 1995
- J.B.Drake The Cartesian Method for solving partial differential equations in spherical geometry, with P.N. Swarztrauber, D.L. Williamson, J.B. Drake. Presented at PDE's on the Sphere, Breckenridge, CO, June 1996
- J.B.Drake "Computation of Atmospheric General Circulation Using Massively Parallel Processors", Presented at the JICS Computational Fluid Dynamics Colloquium, Dec 6, 1996.
- J.B. Drake "Advanced Climate Model Development for the CHAMMP Program at ORNL and ANL", Joint ARM/CHAMMP Science Team Meeting, San Antonio, TX, March 3, 1997
- J.B. Drake "Developing a Regional Climate Collaborative Center at ORNL", LDRD Presentations made June 1998.
- J.B. Drake (invited) "The Mathematics and Computation of Climate Change", SIAM / SEAS Conference, March 19, 1999, Knoxville, TN
- J.B. Drake "The Parallel Climate Modeling Program", IBM feature presentation/ SuperComputing99 Conference, November 17, 1999, Portland, OR
- J.B. Drake "ACPI Computer Science and Enabling Technology Needs", Climate Change Prediction Program Advisory Board, Washington, DC, January 2000
- J.B. Drake "The Accelerated Climate Prediction Initiative Avant Garde Model Development Project", CCPP Science Team Meeting, Bethesda, MD, March 27, 2000
- J.B. Drake "Progress report of DOE/NCAR High Performance Atmospheric Model Project", CCSM Workshop, Software Engineering Working Group, Breckenridge, CO, June 28, 2000

- J.B. Drake (invited) "The Development of a modular, performance portable Climate System Model", Scientific Computing Seminar Series, LBNL, Berkeley, CA, July 27, 2000
- J.B. Drake (invited) "A tutorial in atmospheric climate modeling", DOE Computational Science Graduate Fellowship 2000 Conference, NERSC, Berkeley, CA, July 28, 2000
- J.B. Drake (for Thomas Zacharia) "Scientific Computing at Oak Ridge National Laboratory", DOE Computational Science Graduate Fellowship 2000 Conference, Pleasnanton, CA, July 29, 2000
- J.B. Drake (invited) "Development of a modular, performance portable Climate System Model", DOE/OBER Climate Change Prediction Program advisory board, Washington, DC, Aug 1, 2000
- J.B. Drake (invited) 'Software Engineering of a High Performance Atmospheric Model", CCSM Software Engineering Workgroup Meeting, Breckenridge, CO, June 26, 2001
- J.B. Drake "Overview of the Avant Garde Project on a Performance Portable Community Climate System Model", DOE/OBER Climate Change Prediction Program Science Team Meeting, San Diego, July 15, 2001
- J.B. Drake "Software Practices for a Performance Portable Climate System Model", Mission Computing Conference, Washington, D.C., February 4, 2002
- J.B. Drake "Software Practices for a Performance Portable Climate System Model", The 4th (RIST) International Workshop on Next Generation Climate Models, Boulder, Colorado, April 4, 2002
- J.B. Drake "Data Requirements for Climate and Carbon Research", Scientific Data Management Workshop, Gatlinburg, Tennessee, March 26, 2002
- J.B. Drake "Collaborative Design of the Community Climate System Model for Software Performance Portability", Supercomputing 2002, Baltimore, MD, November 20, 2002
- J.B. Drake "Why Climate Prediction is Compute Limited - an Assessment of the Impact of the Japanese Earth Simulator on Climate Science", (invited) Supercomputing 2002, (Earth Simulator Response Panel), November 20, 2002
- J.B. Drake "Climate Change Doesn't Just Happen", (invited) special session honoring Dr. Warren Washington of the Atmospheric Sciences Section of the American Geophysical Union, AGU2002, San Francisco, CA, December 8, 2002.
- J.B. Drake Progress Report on the SciDAC CCSM Consortium Project, to SciDAC PI's meeting, Napa, CA, March 2003
- J.B. Drake Briefing for Dr. Ray Orbach Porting the Community Climate System Model to Vector Computers, March 9, 2003, Napa

- J.B. Drake Progress Report on the SciDAC CCSM Consortium Project, to DOE CCPP Science Team Meeting, Charlestown, SC, March 2003
- J.B. Drake Briefing for Dr. Dave Nelson, High End Climate Modeling, May 13, 2003, Oak Ridge
- J.B. Drake Progress Report on the SciDAC CCSM Consortium Project, to DOE OBER Office and Ari Patrinos, May 2003
- J.B. Drake to DOE Science Computing Computing Conference, High End Climate Modeling, June 19, 2003, Washington, DC
- J.B. Drake at SuperComputing 2003, Overview of the SciDAC CCSM Consortium Project November 19, 2003, Phoenix, AZ
- J.B. Drake at SuperComputing 2003, BOF on the State of the Art in Climate Ocean and Weather modeling use of HPC. State of the Art November 20, 2003, Phoenix, AZ
- E.F. D'Azevedo Performance of Spherical Harmonic Transform on Modern Architectures, SIAM Conference on Parallel Processing for Scientific Computing, San Francisco, CA, Feb. 2004
- A.S. Bland, Scaling Climate Models for Future Computer Architectures A.S¿ Bland, J.B. Drake, P.H. Worley, J.B. White to ORNL LDRD Committee.
- Branstetter, M. L., D. J. Erickson III, and J.B. Drake, "Interannual variability and continental runoff in the CCSM2 Control simulation," American Meteorological Society Annual Meeting, Long Beach, CA,Feb. 9-13, 2003.
- Branstetter, M. L., D. J. Erickson III, J. Drake and S. J. Ghan, "High resolution river routing in the CCSM2 climate systemmodel" AGU Fall meeting, San Francisco, CA, Dec. 8-12, 2003.
- J.B. Drake Collaborative Design and Development of the Community Climate SYtem Model for Terascale Computing, presented to the Software Engineering Working Group (SEWG) at the 2004 CCSM Workshop in Santa Fe, NM, July 2004
- J.B. Drake Multiscale Interactions in Shallow Water Equation Test Cases, to The 2004 Workshop on the Solution of Partial Differential Equations on the Sphere, Yokohama, Japan, FRSGC, July 2004
- J.B. Drake and Mac Post, Status of Coupled Carbon- Climate Modeling, DOE Briefing to OBER, June 9, 2005
- J.B. Drake, (invited keynote), High End Simulation of the Climate and Development of Earth System Models, Keynote address (invited) of The International Converence on Computational Science, ICCS 2005, Emory University, Atlanta, May 23, 2005
- J.B. Drake, Porting, Optimization and Performance of the CCSM on the CRAY X1, SIAM Annual Meeting, New Orleans, July 14, 2005

- Hoffman, Forrest M., Inez Fung, Jim Randerson, Peter Thornton, Jon Foley, Curtis Covey, Jasmin John, W. Mac Post, Mariana Vertenstein, Reto Stöckli, Steve Running, Faith Ann Heinsch, David Erickson, John Drake. June 27, 2006. "Terrestrial Biogeochemistry in the Community Climate System Model (CCSM)." Scientific Discovery through Advanced Computing (SciDAC) 2006 Conference, Denver, Colorado.

- G. R. Carr, Jr, S. Shende, J. B. Drake, M. W. Ham, F. M. Hoffman, P. Worley, "Portable Performance Characterization of the CCSM withTAU," SC'05 Washington State Convention and Trade Center, Seattle, Washington, November 13, 2005.

- Branstetter, M. L., D. J. Erickson III, and J. B. Drake, "Continental runoff dynamics in the CCSM2.0 control simulation," Community Climate System Model (CCSM) Workshop, Breckenridge, CO, June 25-28, 2005

- Hoffman, Forrest, Pat Worley, George Carr, Michael Ham, John Drake, Trey White, Mariana Vertenstein, and Matthew Cordery. September 12, 2005. "Climate Benchmark Results From High End Computing (HEC) Platforms." Computing in Atmospheric Sciences 2005 Workshop, Annecy, France.

- J.B. Drake,(invited keynote), Simulation of Climate and Development of Earth System Models, Annual Compuational Science and Engienering Research Symposium (CSE2006), U. Illinois, Urbana-Champaign, April 13, 2006.

- Fung, Inez, S. Doney, K. Lindsay, J. John, C. Covey, K. Taylor, D. Bader, C Doutriaux, F. Hoffman, J. Drake, "Coupled Carbon Cycle CLiamte Model Intercomparison Project", plenary talk of the 11th CCSM Meeting, June 2006, Breckenridge, CO.

- J.B. Drake, "High-end Computing for Energy Research", HPC User Forum, Delhi, Feb. 28, 2007

- J.B. Drake, "Tribute to Dr. Warren Washington: The Lure of Computation and Modeling", invited presentation to Conference Celebrating Warren Washington Research Contributions, Boulder, CO, August 8, 2007

- J.B. Drake, "High Performance Computing and Modeling in Climate Change Science", invited presentation to East Tennessee Economic Development Corporation, May 11, 2007

- J.B. Drake, "Science at the Petascale", invited presentation to Computers in Atmospheric Science, Annecy, France, September 9, 2007

- J.B. Drake, "The SciDAC CCSM Consortium Project", at SuperComputing07, Reno, November 10, 2007