PUBLICATIONS:

Refereed Journal Publications

1. Bell, J. B., Dawson, C., and Shubin, G. R., "An unsplit, higher-order Godunov method for scalar conservation laws in two dimensions," *J. of Comput. Phys.*, Vol. 74, pp. 1-24, 1988.
2. Dawson, C., Russell, T. F., and Wheeler, M. F., "Some improved error estimates for the modified method of characteristics," *SIAM J. Numer. Anal.*, Vol. 26, pp. 1487-1512, 1989.
3. Dawson, C., "Godunov-mixed methods for immiscible displacement," *International Journal for Numerical Methods in Fluids*, Vol. 11, pp. 835-847, 1990.
4. Dawson, C., Du , Q., and Dupont, T. F., "A finite difference domain decomposition method for numerical solution of the heat equation," *Math. Comp.,* Vol. 57, pp. 63-71, 1991.
5. Dawson, C., "Godunov-mixed methods for advective flow problems in one space dimension," *SIAM J. Numer. Anal.*, Vol. 28, pp. 1282-1309, 1991.
6. Chiang, C. Y., Dawson, C., and Wheeler, M. F., "Modeling of *in situ* biorestoration of organic compounds in groundwater," *Transport in Porous Media*, Vol. 6, pp. 667-702, 1991.
7. Dawson, C., Dupont, T. F., "Explicit/implicit, conservative Galerkin domain decomposition procedures for parabolic equations," *Math. Comp.*, Vol. 58, pp. 21-34, 1992.
8. Chellum, S, Wiesner, M., and Dawson, C., "Slip at a uniformly porous boundary: Effect on fluid flow and mass transfer," *J. Eng. Math.,* Vol. 26, pp. 481-492, 1992.
9. Dawson, C., "Godunov-mixed methods for advection-diffusion equations in multidimensions," *SIAM J. Numer. Anal.*, Vol. 30, pp. 1315-1332, 1993.
10. Grundy, R. E., van Duijn, C. J., and Dawson, C., "Asymptotic profiles with finite mass in one-dimensional contaminant transport through porous media: the fast reaction case," *Quarterly Journal of Mechanics and Applied Math,* Vol. 47, Pt. 1, pp. 69-106, 1994.
11. Wood, B., Dawson, C., Streile, G., and Szecsody, J., "Modeling contaminant transport and biodegradation in a layered porous media system," *Water Resources Research*, Vol. 30, pp. 1833-1845, 1994.
12. Dawson, C., and Dupont, T. F., "Explicit/implicit, conservative domain decomposition procedures for parabolic problems based on block centered finite differences," *SIAM J. Numer. Anal.,* Vol. 31, pp. 1045-1061, 1994.
13. Dawson, C., van Duijn, C. J. and Wheeler, M. F., "Characteristic-Galerkin methods for contaminant transport with non-equilibrium adsorption kinetics," *SIAM J. Numer. Anal.*, Vol. 31, pp. 982-999, 1994.
14. Shaw, S., Warby, M. K., Whiteman, J. R., Dawson, C., and Wheeler, M. F., "Numerical techniques for the treatment of quasistatic viscoelastic stress problems in linear isotropic solids," *Comp. Meth. in Appl. Mech. and Eng.*, Vol. 118, pp. 211-237, 1994.
15. Dawson, C., "High-resolution upwind-mixed finite element methods for advection-diffusion equations with variable time stepping," *Numerical Methods for Partial Differential Equations*, Vol. 11, pp. 525-538, 1995.
16. Chellam, S., Wiesner, M. R., and Dawson, C., "Laminar flow in porous ducts," *Reviews in Chemical Engineering*, Vol. 11, pp. 52-99, 1995.
17. Wood, B., Ginn, T., and Dawson, C., "Effects of microbial metabolic lag in contaminant transport and biodegradation modeling," *Water Resources Research*, Vol. 31, pp. 553-563, 1995.
18. Chiang, C. Y., Raven, G., and Dawson, C., "The relationship between monitoring well and aquifer solute concentrations," *Ground Water*, Vol. 33, pp. 718-726, 1995.
19. Dawson, C., van Duijn, C. J., and Grundy, R. E., "Large time asymptotics in contaminant transport in porous media," *SIAM J. Appl. Math.,* Vol. 56, pp. 965-993, 1996.
20. Hamed, M., Bedient, P. B., and Dawson, C., "Probablistic modeling of aquifer heterogeneity using reliability methods," *Advances in Water Resources*, Vol. 19, pp. 277-295, 1996.
21. Arbogast, T., Bryant, S., Dawson, C., Saaf, F., Wang, C. and Wheeler, M. F., "Computational methods for multiphase flow and reactive transport problems arising in subsurface contaminant remediation," *J. Comp. Appl. Math.* 74, pp. 19-32, 1996.
22. van Duijn C. J., Grundy, R. E., and Dawson, C., "Large time profiles in reactive solute transport," *Transport in Porous Media,* Vol. 27, pp. 57-84, 1997.
23. Dawson, C. N., Klie, H., Wheeler, M. F., and Woodward, C. S., "A parallel, implicit, cell-centered method for two-phase flow with a preconditioned Newton-Krylov solver," *Computational Geosciences*, Vol. 1, pp. 215-249, 1997.

24. Arbogast, T., Dawson, C. N., Keenan, P. T., Wheeler, M. F., and Yotov, I., "Enhanced cell-centered finite differences for elliptic equations on general geometry," *SIAM J. Scientific Computing*, Vol. 19, pp. 404-425, 1998.

25. Dawson, C. N., Wheeler, M. F., and Woodward, C. S., "A two-grid finite difference scheme for nonlinear parabolic equations," *SIAM J. Numerical Analysis*, Vol. 35, pp. 435-452, 1998.

26. Chippada, S., Dawson, C. N., Martinez, M. L., and Wheeler, M. F., "Finite element approximations to the system of shallow water equations I: Continuous-time a priori error estimates," *SIAM J. Numerical Analysis*, Vol. 35, pp. 692-711, 1998.

27. Dawson, C. N., "Analysis of an upwind-mixed finite element method for nonlinear contaminant transport equations," *SIAM J. Numerical Analysis*, Vol. 35, pp. 1709-1724, 1998.

28. Chippada, S., Dawson, C. N., Martinez-Canales, M. L., and Wheeler, M. F., "Finite element approximations to the system of shallow water equations II: Discrete-time a priori error estimates," *SIAM J. Numerical Analysis*, Vol. 36, pp. 226-250, 1998.

29. Abate, J., Wang, P., Sepehrnoori, K., and Dawson, C., "Application of an automatic differentiation tool in the development of a compositional reservoir simulator," *Commun. Numer. Meth. Engrg.*, Vol. 15, pp. 423-434, 1999.

30. Dawson, C. and Kirby, R., "Solution of parabolic equations by backward Euler-mixed finite element methods on a dynamically changing mesh," *SIAM J. Numer. Anal.*, Vol. 37, pp. 423-442, 1999.

31. Dawson, C. and Aizinger, V., "Upwind-mixed methods for transport equations," *Computational Geosciences*, Vol. 3, pp. 93-110, 1999.

32. Dawson, C., "Conservative, shock-capturing transport methods with nonconservative velocity approximations," *Computational Geosciences*, Vol. 3, pp. 205-227, 2000.

33. Holder, A.W., Bedient, P.B., and Dawson, C.N., "FLOTRAN: a three-dimensional ground water model, with comparisons to analytical solutions and other models," *Advances in Water Resources*, Vol. 23, pp. 517-530, 2000.

34. Woodward, C.S. and Dawson, C.N., "Analysis of expanded mixed finite element methods for a nonlinear parabolic equation modeling flow into variably saturated porous media," *Siam J. Numer. Anal.*, Vol. 37, pp. 701-724, 2000.

35. Dawson, C. and Martinez-Canales, M., "A characteristic-Galerkin approximation to a system of shallow water equations," *Numerische Mathematik*, Vol. 86, pp. 239-256, 2000.

36. Aizinger, V., Dawson, C., Cockburn B. and Castillo, P., "Local discontinuous Galerkin methods for contaminant transport," *Advances in Water Resources,* Vol. 24, pp. 73-87, 2000.

37. Bryant, S., Dawson, C. and van Duijn, C. J., "Dispersion-induced chromatographic waves," *Ind. Eng. Chem. Res.*, Vol. 39, pp. 2682-2691, 2000.

38. Dawson, C. and Martinez-Canales, M., "Finite element approximations to the system of shallow water equations, Part III: On the treatment of boundary conditions,'' *SIAM J. Numer. Anal.*, Vol., 38, pp. 149-159, 2001.

39. Dawson, C. and Kirby, R., "High resolution schemes for conservation laws with locally varying time-steps," in *SIAM J. Sci. Comp.*, Vol. 22, pp. 2256-2284, 2001.

40. Dawson, C. and Proft, J., "A priori error estimates for interior penalty versions of the local discontinuous Galerkin method applied to transport equations,'' *Numerical Methods for Partial Differential Equations,* Vol. 17, pp. 545-561, 2001.

41. Aizinger, V. and Dawson, C., "A discontinuous Galerkin method for two-dimensional flow and transport in shallow water,'' *Advances in Water Resources*, Vol. 25, pp. 67-84, 2002.

42. Cockburn, B. and Dawson, C., "Approximation of the velocity by coupling discontinuous Galerkin and mixed finite element methods for flow problems," *Computational Geosciences*, Vol. 6, pp. 505-522, 2002.

43. Mazzia, A., Bergamaschi, L., Dawson, C. and Putti, M., "Godunov mixed methods on triangular grids for advection dispersion equations," *Computational Geosciences*, Vol. 6, pp. 123-139, 2002.

44. Dawson, C. and Proft, J., "Coupling of continuous and discontinuous Galerkin methods for transport problems," *Comp. Meth., Appl. Mech. Eng.*, Vol. 191, pp. 3213-3231, 2002.

45. Dawson, C. and Proft, J., "Discontinuous and coupled continuous/discontinuous Galerkin methods for the shallow water equations," *Comp. Meth. Appli. Mech. Eng.*, Vol. 191, pp. 4721-4746, 2002.

46. Dawson, C. and Proft J., "Discontinuous/continuous Galerkin methods for coupling the primitive and wave continuity equations of shallow water," *Comp. Meth. Appl. Mech. Engr.*, Vol. 192, pp. 5123-5145, 2003.

47. Dawson, C., "The $p^{k+1} - s^k$ Discontinuous Galerkin Method for Elliptic Equations," SIAM J. Numer. Anal., Vol. 40, pp. 2151 – 2170, 2003.

48. Dawson, C., and Proft, J., "Coupled discontinuous and continuous Galerkin finite element methods for the depth-integrated shallow water equations," *Comp. Mech. Appli. Mech. Eng.,* Vol. 193, pp. 289-318, 2004.
49. Dawson, C., Sun, S., and Wheeler, M. F., "Compatible Algorithms for Coupled Flow and Transport," *Comp. Meth. Appl. Mech. Eng.*, Vol. 193, pp. 2565-2580, 2004.
50. Dawson, C. and Aizinger, V., "A Discontinuous Galerkin Method for Three-dimensional Shallow Water Equations," *J. Scientific Computing*, vol. 22-23, pp. 245-267, 2005.
51. Dawson, C., "Coupling Local Discontinuous and Continuous Galerkin Methods for Flow Problems," *Advances in Water Resources*, vol. 28, pp. 729-744, 2005.
52. Kubatko, E., Westerink, J., and Dawson, C., "An Unstructured Grid Morphodynamic Model with a Discontinuous Galerkin Method for Bed Evolution," *Ocean Modeling*, Vol. 15, pp. 71-89, 2006.
53. Dawson, C. and Baird, J., "The Representer Method for Data Assimilation in Single-phase Darcy Flow in Porous Media," *Computational Geosciences*, Vol. 9, pp. 247-271, 2005.
54. Dawson, C.N., Editor, *Special Issue on Discontinuous Galerkin Methods, Comp. Meth. Appl. Mech. Eng.*, Vol. 195, 2006.
55. Dawson, C., Westerink J., Pothina, D. and Feyen, J., "Continuous, Discontinuous, and Coupled Discontinuous-Continuous Galerkin Finite Element Methods for the Shallow Water Equations," *Int. J. Num. Meth. Fluids*, 52, pp. 63-88, 2006.
56. Dawson, C., "Analysis of discontinuous finite element methods for ground water/surface water coupling", *SIAM J. Numer. Anal*, 44, pp. 1375-1404, 2006.
57. Li, H., Farthing, M., Dawson, C., and Miller, C.T., "Local discontinuous Galerkin approximations to Richards' equation," *Advances in Water Resources*, 30, pp. 555-575, 2007.
58. Kubatko, E.J., Westerink, J.J., and Dawson, C., "hp Discontinuous Galerkin methods for advection-dominated problems in shallow water," *Comp. Meth. Appl. Mech. Eng.*, 196, pp. 437-451, 2006.
59. Baird, J., and Dawson, C., "A Posteriori Error Estimation of the Representer Method for Single Phase Darcy Flow," *Comp. Meth. Appl. Mech. Eng.,* 196, pp. 1623-1632, 2007.
60. Aizinger, V., and Dawson, C., "The Local Discontinuous Galerkin Method for Three Dimensional Shallow Water Flow," *Comp. Meth. Appl. Mech. Eng.,* 196, pp. 734-746, 2007.
61. Kubatko, E. J., Westerink, J. J., and Dawson, C., "Semi-Discrete Discontinuous Galerkin Methods and Stage Exceeding Order Strong Stability Preserving Runge-Kutta Time Discretizations," *J. Comp. Phys.,* Vol 222, pp. 832-848, 2007.
62. Westerink, J. J., Luettich, R. A., Feyen, J. C., Atkinson, J. H., Dawson, C. N., Roberts, H. J., Powell, M. D., Dunion, J. P., Kubatko, E. J., and Pourtaheri, H., "A Basin to Channel Scale Unstructured Grid Hurricane Storm Surge Model applied to Southern Louisiana," *Monthly Weather Review*, Vol 136, pp. 833-864, 2008.
63. Baird, J. and Dawson, C., "The representer method for two-phase flow in porous media," *Computational Geosciences*, Vol 11, 2007.
64. Iglesias, M. and Dawson, C., "The representer method for state and parameter estimation in single-phase Darcy flow," *Comp. Meth. Appl. Mech. Eng*., , Vol 196, pp 4577-4596, 2007.
65. Dawson, C. , "A continuous/discontinuous Galerkin framework for modeling coupled subsurface and surface water flow," *Computational Geosciences*, 12, pp. 451-472, 2008.
66. Alonso, R. J., Santillana, M. and Dawson, C., "Analysis of the diffusive wave approximation of the Shallow Water equations," *European Journal of Applied Mathematics,* 19, pp. 575-606, 2008.
67. Kees, C.E., Farthing, M.W. and Dawson, C.N., "Locally conservative, stabilized finite element methods for variably saturated flow," *Computer Methods in Applied Mechanics and Engineering*, 197, pp. 4610-4625, 2008.
68. Kubatko, E.J., Dawson, C. and Westerink, J.J., "Time step restrictions for Runge-Kutta discontinuous Galerkin methods on triangular grids," *Journal of Computational Physics,* 227, pp. 9697-9710, 2008.
69. Kubatko, E.J., Bunya, S., Dawson, C. and Westerink J.J., "Dynamic p-adaptive Runge-Kutta discontinuous Galerkin methods for the shallow water equations, " *Computer Methods in Applied Mechanics and Engineering*, 198, pp. 1766-1774, 2009.
70. Kubatko, E.J., Bunya, S., Dawson, C., Westerink, J.J. and Mirabito, C., "A performance comparison of continuous and discontinuous finite element shallow water models," *Journal of Scientific Computing,* 40, pp. 315-339, 2009.
71. Bunya, S., Kubatko, E.J., Westerink, J.J. and Dawson, C., "A wetting and drying treatment for the Runge-Kutta discontinuous Galerkin solution to the shallow water equations," *Computer Methods in Applied Mechanics and Engineering,* 198, 1548-1562, 2009.

72. Liu, R., Wheeler, M.F., Dawson, C.N. and Dean, R.H., " Modeling of convection-dominated thermoporomechanics problems using incomplete interior penalty Galerkin method," *Computer Methods in Applied Mechanics and Engineering,* 198, pp. 919-919, 2009.

73. Liu, R., Wheeler, M.F., and Dawson, C.N., "A three-dimensional nodal-based implementation of a family of discontinuous Galerkin methods for elasticity problems," *Computers and Structures,* 87, pp. 141-150, 2009.

74. Iglesias, M. and Dawson, C., "An iterative representer-based scheme for data inversion in reservoir modeling," *Inverse Problems,* 25, Issue, 3, 34pp., 2009.

75. Liu, R., Wheeler, M.F., Dawson, C.N. and Dean, R.H., "On a coupled discontinuous/continuous Galerkin framework and an adaptive penalty scheme for poroelasticity problems,"*Computer Methods in Applied Mechanics and Enginering,* 198, pp. 3499-3510, 2009.

76. Santillana, M. and Dawson, C., "A numerical approach to study the properties of solutions of the diffusive wave approximation of the shallow water equations," *Computational Geosciences*, Vol, 14, No., 1, 2010.

77. Bunya, S.,Dietrich, J.C., Westerink, J.J., Ebersole, B.A., Smith, J.M., Atkinson, J.H., Jensen, R., Resio, D.T., Luettich, R.A., Dawson, C., Cardone, V.J., Cox, A.T., Powell, M.D., Westerink, H.J., Roberts, H.J., "A high resolution coupled riverine flow, tide, wind, wind wave and storm surge model for Southern Louisiana and Mississippi: Part I-model development and validation," *Monthly Weather Review,* Vol., 138, No. 2, pp. 345-377, 2010.

78. Dietrich, J.C., Bunya, S., Westerink, J.J., Ebersole, B.A., Smith, J.M., Atkinson, J.H., Jensen, R., Resio, D.T., Luettich, R.A., Dawson, C., Cardone, V.J., Cox, A.T., Powell, M.D., Westerink, H.J. and Roberts, H.J., "A high-resolution coupled riverine flow, tide, wind, wind wave and storm surge model for Southern Louisiana and Mississippi: Part II-synoptic description and analysis of Hurricanes Katrina and Rita," *Monthly Weather Review,* Vol. 138, No. 2, pp. 378-404, 2010.

79. Santillana, M. and Dawson, C., "A local discontinuous Galerkin method for a doubly nonlinear diffusion equation arising in shallow water modeling," *Computer Methods in Applied Mechanics and Engineering*, Vol 199, pp. 1424-1436, 2010.

80. Wirasaet, D., Tanaka, S., Kubatko, E.J., Westerink, J.J. and Dawson, C., "A performance comparison of nodal discontinuous Galerkin methods on triangles and quadrilaterals," *International Journal of Numerical Methods in Fluids,* 64, pp. 1336-1362, 2010.

81. Tanaka, S., Bunya, S., Westerink, J.J., Dawson, C. and Luettich, R.A., "Scalability of an unstructured grid continuous Galerkin based hurricane storm surge model," Journal of Scientific Computing, 46, pp.329-358, 2011.

82. Dietrich, J.C., Zijlema, M., Westerink, J.J., Holtuijsen, L.H., Dawson, C., Luettich, R.A., Jr., Jensen, R., Smith, J.M., Stelling, G.S., and Stone, G.W., "Modeling hurricane wave and storm surge using integrally-coupled, scalable computations," Coastal Engineering, 58, pp. 45-65, 2011.

83. Mirabito, C., Dawson, C., Kubatko, E.J., Westerink, J.J. and Bunya, S., "Implementation of a discontinuous Galerkin morphological model on two-dimensional unstructured meshes," Computer Methods in Applied Mechanics and Engineering, 200, pp. 189-207, 2011.

84. Liu, R., Wheeler, M.F., Dawson, C., and Dean, R., "A fast convergent rate preserving discontinuous Galerkin framework for rate-independent plasticity problems," Computer Methods in Applied Mechanics and Engineering, .199, pp. 3213-3226, 2010.

85. Butler, T., Dawson, C. and Wildey, T., "A posteriori error analysis of stochastic differential equations using polynomial chaos expansions," SIAM J. Sci. Comp., 33, pp. 1207-1291, 2011.

86. Dietrich, J.C., Westerink, J.J., Kennedy, A.B., Smith, J.M., Jensen, R.E., Zijlema, M., Holthuijsen, L.H., Dawson, C., Luettich, R.A., Jr., Powell, M.D., Cardone, V.J., Cox, A.T., Stone, G.W., Pourtaheri, H., Hope, M.E, Tanaka, S., Westerink., L.G., Westerink. H.J. and Cobell, Z., "Hurricane Gustav (2008) Waves and Storm Surge: Hindcast, Synoptic Analysis and Validation in Southern Louisiana," Monthly Weather Review,139, pp. 2488-2522, 2011.

87. Dawson, C., Kubatko, E.J., Westerink, J.J., Trahan, C., Mirabito, C., Michoski, C., and Panda, N., "Discontinuous Galerkin methods for modeling hurricane storm surge," Advances in Water Resources, 34, pp. 1165-1176, 2011.

88. Michoski, C., Mirabito, C., Dawson, C., ., Wirasaet, D., Kubatko, E.J. and Westerink, J.J., "Adaptive hierarchic transformations over dynamic p-enriched schemes applied to generalized DG systems,",J. Computational Physics, 230, pp. 8028-8056, 2011.

89. Michoski, C., Mirabito, C., Dawson, C., Wirasaet, D., Kubatko, E.J. and Westerink, J.J., "Dynamic p-enrichment schemes for multicomponent reactive flows," Advances in Water Resources, 34, pp. 1666-1680, 2011.

90. Dietrich, J.C., Tanaka, S., Westerink, J.J., Dawson, C., Luettich, R.A., Jr., Zijlema, M., Holthuijsen, L.H., Smith, J.M., Westerink, L.G., and Westerink, H.J., "Performance of the unstructured-mesh, SWAN+ADCIRC model in computing hurricane waves and surge," Journal of Scientific Computing, 52, pp. 468-497, 2012.

91. Dietrich, J.C., Trahan, C.J., Howard, M.T., Fleming, J.G., Weaver, R.J., Tanaka, S., Yu, L, Luettich, R.A., Jr., Dawson, C., Wells, G., Westerink, J.J., Lu, A., Vega, K., Kubach, A., Dresback, K.M., Kolar, R.L., Kaiser, C. and Twilley, R.R., "Surface trajectories of oil transport along the northern coastline of the Gulf of Mexico," Continental Shelf Research, 41, pp. 17-47, 2012.

92. Mattis, S., Dawson, C., Kees, C.E. and Farthing, M.W., "Numerical modeling of drag for flow through vegetated domains and porous structures," Advances in Water Resources, 39, pp. 44-59, 2012.

93. Trahan, C.J. and Dawson, C., "Local timestepping in Runge-Kutta discontinuous Galerkin finite element methods applied to the shallow water equations," Computer Methods in Applied Mechanics and Engineering, ,v. 217-220, pp. 139-152, 2012.

94. Butler, T., Altaf, M.U., Dawson, C., Hoteit, I., Luo, X. and Mayo T., "Data Assimilation within the Advanced Circulation (ADCIRC) modeling framework for hurricane storm surge forecasting," Monthly Weather Review, 140, pp. 2215-2231, 2012.

95. Kennedy, A.B., Westerink, J.J., Smith, J.M., Hope, M.E., Hartman, M. Taflanidis, A.A., Tanaka, S., Westerink H., Cheung, K.F., Smith, T., Hamann, M., Minamide, M., Ota A. and Dawson, C., "Tropical cyclone inundation potential on the Hawaiian Islands of Oahu and Kauai," Ocean Modelling, 52-53, pp. 54-68, 2012.

96. Miller, C.T., Dawson, C.N., Farthing, M.W., Hou, T.Y., Huang, J., Kees, C.E., Kelley, C.T. and Langtangen, H.P., "Numerical simulation of water resources problems: Models, methods, and trends," Advances in Water Resources, to appear.

97. Zhang, Y., Kennedy, A., Panda, N., Westerink, J.J. and Dawson, C.N., "Boussinesq-Green-Naghdi rotational water wave theory," Coastal Engineering, 73,pp. 13-27, 2013.

98. Aizinger, V., Proft, J, Dawson, C., Pothina, D. and Negusse, S., "A three-dimensional discontinuous Galerkin model applied to the baroclinic simulation of Corpus Christi Bay," Ocean Dynamics, 63, pp. 89-113, 2013.

99. Dietrich, J.C., Zijlema, M., Allier, P.-E., Holthuijsen, L.H., Booij, N., Meixner, J.D., Proft, J.K., Dawson, C.N., Bender, C.J., Naimaster, A., Smith, J.M., and Westerink, J.J., "Limiters for spectral propagation velocities in SWAN," Ocean Modelling, to appear.

100. Povich, T.J., Dawson, C.N., Kees, C.E. and Farthing, M.W., "Finite element methods for variable density flow and solute transport," Computational Geosciences, to appear.

101. Altaf, M.U., Butler T., Luo, X., Dawson, C., Mayo, T. and Hoteit, I., "Improving short range ensemble Kalman storm surge forecasting using robust adaptive inflation," Monthly Weather Review, to appear.

102. Dawson, C. and Videman, J.H., "A streamline diffusion finite element method for the viscous shallow water equations," Journal of Computational and Applied Mathematics, 251, pp. 1-7, 2013.

103. Dawson, C., Trahan, C.J. Kubatko, E.J., Westerink, J.J., "A parallel local timestepping Runge-Kutta discontinuous Galerkin method with applications to coastal ocean modeling," Computer Methods in Applied Mechanics and Engineering, to appear.

Refereed Conference Proceedings

1. Dawson, C., Dupont, T. F., and Wheeler, M. F., "The rate of convergence of the modified method of characteristics for linear advection equations in one dimension," Mathematics for Large-Scale Computation, J. Diaz, ed., Marcel-Dekker, New York, pp. 115-126, 1989.

2. Chippada, S., Dawson, C. N., Martinez, M. L., and Wheeler, M. F., "A Godunov-type finite volume method for the system of shallow water equations," *Comput. Methods Appl. Mech. Engrg.,* Proceedings of the 1997 Symposium on Advances in Computational Mechanics, Vol. 151, pp. 105-129, 1998.

3. Chippada, S., Dawson, C. N., Martinez, M. L., and Wheeler, M. F., "A projection method for constructing a mass conservative velocity field," *Comput. Methods Appl. Mech. Engrg.* , Proceedings of the 1997 Symposium on Advances in Computational Mechanics, Vol. 157, pp. 1-10, 1998.

4. Dawson, C., Aizinger, V. and Cockburn, B., "The local discontinuous Galerkin method for contaminant transport problems," Discontinuous Galerkin Methods, Theory, Computation and Applications, Lecture Notes in Computational Science and Engineering, B. Cockburn, G.E. Karniadakis and C.-W. Shu, eds., Springer, Berlin, pp. 309-314, 2000.

5. Dawson, C. and Aizinger, V., "The local discontinuous Galerkin method for advection-diffusion equations arising in groundwater and surface water applications," Resource Recovery, Confinement and Remediation of Environmental Hazards, Institute for Mathematics and its Applications Volume, J. Chadam, A. Cunningham, R. E. Ewing, P. Ortoleva, and M. F. Wheeler, eds., Springer-Verlag, pp. 231-246, 2002.

6. Dawson, C., "Discontinuous, Continuous and Coupled Finite Element Methods for Shallow Water Flows," CMWR XV, Proceedings, Vol. II. (C. Miller, ed.), John Wiley, pp. 1681-1690, 2004.

7. Aizinger, V., and Dawson, C., "A Discontinuous Galerkin Method for Three-Dimensional Shallow Water Flows with Free Surface," CMWR XV, Proceedings, Vol. II. (C. Miller, ed.), John Wiley, pp. 1691-1702, 2004.

8. Dawson, C., Westerink, J., Kubatko, E., Proft, J., and Mirabito, C., "Parallel Finite Element Models for Hurricane Storm Surges," Proceedings of the Teragrid 2008 Converence, Las Vegas, NV, June 9-13, 2008.

9. Kees, C.E., Farthing, M.W., Mattis, S. and Dawson, C., "Homogenization and upscaling of flow through vegetation," XVIII International Conference on Water Resources, CMWR2010, J. Carrera (ed.), CIMNE, Barcelona, 2010.

10. DuChene, M., Spagnuolo, A.M., Kubatko, E., Westerink, J.J. and Dawson, C., "A framework for running the ADCIRC discontinuous Galerkin storm surge model on a GPU," International Conference on Computational Science, ICCS 2011, to appear in Procedia Computer Science.

Other Major Publications

1. Dawson, C., Wheeler, M. F., and Borden, R. C., "Numerical Simulation of Microbial Biodegradation of Hydrocarbons in Groundwater," Proceedings of 6th International Symposium on Finite Element Methods in Flow Problems," Antibes, France, pp. 353-358, 1986.

2. Dawson, C., Wheeler, M. F., Nguyen, T. M., and Poole, S. W., "Simulation of Hydrocarbon in Groundwater," Cray Channels, Vol. 8, No. 3, pp. 14-19, 1986.

3. Wheeler, M. F., Dawson, C., Bedient, P. B., Chiang, C. Y., Borden, R. C., and Rifai, H. S., "Numerical Simulation of Microbial Biodegradation of Hydrocarbons in Groundwater," Proceedings, Conference on Solving Groundwater Problems with Models," National Water Wells Association, Denver, CO., pp. 92-108, 1987.

4. Dawson, C., Wheeler, M. F., Nguyen, T. M., and Poole, S. W., "Simulation of Subsurface Contaminant Transport with Biodegradation Kinetics," Proceedings 3rd International Symposium on Science and Engineering on Cray Supercomputers, Mendota Heights, MN, pp. 75-86, 1987.

5. Dawson, C., Wheeler, M. F., and Bedient, P. B., "Numerical Modeling of Subsurface Contaminant Transport with Biodegradation Kinetics," Proceedings of the National Water Wells Meeting, National Water Wells Association, Houston, TX, pp. 329-344, 1987.

6. Dawson, C., Wheeler, M. F., and Kinton, W. A., "Time-Splitting for Advection-Dominated Parabolic Problems in One Space Variable," Communications in Applied Numerical Methods, **4**, pp. 413-423, 1988.

7. Dawson, C., Wheeler, M. F. "Characteristic Methods for Modeling Nonlinear Adsorption in Contaminant Transport," Computational Methods in Water Resources VIII, Computational Mechanics Publications, Southampton, UK, pp. 305-314, 1990.

8. Dawson, C., Du, Q., "A Domain Decomposition Procedure for Parabolic Equations Based on Galerkin Finite Elements," Proceedings of the IVth International Symposium on Domain Decomposition Methods for Partial Differential Equations, Society for Industrial and Applied Mathematics, Philadelphia, PA, pp. 255-263, 1991.

9. Dawson, C., "The performance of an explicit/implicit, domain decomposition procedure on an Intel Hypercube," Proceedings, Vth International Symposium on Domain Decomposition Methods for Partial Differential Equations, D. Keyes, et al, eds., Society for Industrial and Applied Mathematics, Philadelphia, pp. 386-393, 1992.

10. Dawson, C., and Wood, B. D., "Effects of Lag and Maximum Growth in Contaminant Transport and Biodegradation Modeling," in Proceedings, 9th International Conference on Computational Methods in Water Resources, T. F. Russell, et al, eds., Computational Mechanics Publications, Elsevier, New York, pp. 317-324, 1992.

11. Dawson, C., Wheeler, M. F., "Time-Splitting Methods for Advection-Diffusion-Reaction Equations Arising in Contaminant Transport," Proceedings, ICIAM '91, R. O'Malley, ed., Society for Industrial and Applied Mathematics, Philadelphia, pp. 71-82, 1992.

12. Dawson, C., and Dupont, T. R., "Non-iterative Domain Decomposition Procedures for Second-Order Hyperbolic Equations," Domain Decomposition Methods in Science and Engineering, A. Quarteroni, J. Periaux, Y. Kuznetsov, O. Widlunds, eds., American Mathematical Society, Providence, R.I., pp. 45-52, 1994.

13. Dawson, C., "Modeling of nonlinear adsorption in contaminant transport," Computational Methods in Water Resources X, eds. A. Peters, G. Wittum, B. Herrling, U. Meissner, C. A. Brebbia, W. G. Gray, and G. F. Pinder, Kluwer, Dordrecht, pp. 233-240, 1994.

14. Arbogast, T., Dawson, C., and Keenan, P., "Efficient mixed methods for groundwater on triangular or tetrahedral meshes," Computational Methods in Water Resources X, eds. A. Peters, G. Wittum, B. Herrling, U. Meissner, C. A. Brebbia, W. G. Gray, and G. F. Pinder, Kluwer, Dordrecht, pp. 3-10, 1994.

15. Arbogast, T., Dawson, C., and Wheeler, M. F., "A parallel multiphase numerical model for subsurface contaminant transport with biodegradation kinetics," Computational Methods in Water Resources X, eds. A. Peters, G. Wittum, B. Herrling, U. Meissner, C. A. Brebbia, W. G. Gray, and G. F. Pinder, Kluwer, Dordrecht, pp. 1499-1506, 1994.

16. Arbogast, T., Dawson, C., and Wheeler, M. F., "A parallel algorithm for two phase multicomponent contaminant transport," Applications of Mathematics, 40, No. 3, pp. 163-174, 1995.

17. Chippada, S., Dawson, C., Martinez, M., and Wheeler, M. F., "Numerical simulation of the shallow water equations," Proceedings of the Fluids Engineering Division Conference, 1996, Vol. 238 No. 3, American Society of Mechanical Engineers, NY, pp. 409-414, 1996.

18. Chippada, S., Dawson, C., Martinez, M., and Wheeler, M. F., "Parallel computing for finite element models of surface water flow," Computational Methods in Water Resources XI, Vol. 2., A. A. Aldama et al., eds., Computational Mechanics Publications, Southampton, U.K., pp. 63-70, 1996.

19. Wang, P., Yotov, I., Wheeler, M., Arbogast, T., Dawson, C., Parashar, M. and Sepehrnoori, K., "A new generation EOS compositional reservoir simulator: Part I-formulation and discretization," SPE 37979, Proceedings of SPE Reservoir Simulation Symposium, June 8-11, 1997, Dallas, TX, pp. 55-64, 1997.

20. Wheeler, M. F. and Dawson, C., "Multiphase flow and transport in porous media," High Performance Computing, Proceedings of the 1997 Simulation Multiconference, April 6-10, 1997, Atlanta, GA, Society for Computer Simulation International , pp. 58-66.

21. Arbogast, T., Dawson, C., Keenan, P., Wheeler, M. F., and Yotov, I., "The application of mixed methods to subsurface simulation," Modelling and Computation in Environmental Sciences, R. Helmig, W. Jaeger, W. Kinzelbach, P., Knabner, G. Wittum (eds.), Notes on Numerical Fluid Mechanics Vol. 59, Verlag Vieweg, Braunschweig, pp. 1-13, 1997.

22. Dawson, C., Martinez, M., Chippada, S., and Edwards, H.C., "Parallel numerical methods for surface water flow," Mission Earth: Modeling and Simulation for a Sustainable Global System, Proceedings of the 1997 Western Multi-Conference, pp. 66-75, 1997.

23. Dawson, C., Bryant, S., and Kirby, R., "Dynamically adaptive upwind finite volume methods for contaminant transport," Computational Methods in Water Resources XII, Volume 2, V. N. Burganos, G.P. Karatzas, A.C. Payatakes, C.A. Brebbia, W.G. Gray and G. F. Pinder, eds., Computational Mechanics Publications, Southampton, UK, pp. 641-648, 1998.

24. Dawson, C. N., and Chippada, S., "Numerical modeling of shallow water flows with wetting and drying boundaries by a finite volume method," Proceedings of the 1998 Conference on Mission Earth: Modeling and Simulation of the Earth System, A. Sydow and J. Y. Yu, eds., Society for Computer Simulation International, San Diego, CA, pp. 9-14, 1998.

25. Dawson, C., Riviere, B. and Wheeler, M.F., "Discontinuous Galerkin methods for flow and reactive transport," Proceedings of the Department of Defense Users Group Meeting, Albuquerque, N.M., June 5-8 2000 (available on CD-ROM).

26. Wheeler, M.F., Peszynska, M. and Dawson, C., "Multiphysics coupling for environmental problems," Proceedings of the Department of Defense Users Group Meeting, Albuquerque, N.M., June 5-8 2000 (available on CD-ROM).

27. Dawson, C., Parr, V.J., and Wheeler, M.F., "Issues in parallel computation of flow and transport in surface waters," Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications, Vol. 1, H.R. Arabnia, ed., Las Vegas, NV, June 26-29, 2000, CSREA Press, pp. 21-27.

28. Dawson, C. and Proft, J., "Coupling of continuous and discontinuous Galerkin methods for transport problems arising in environmental quality modeling," Proceedings of the Department of Defense Users Group Meeting, Biloxi, MS, June 19-21, 2001.

29. Dawson, C. and Aizinger, V., "Discontinuous Galerkin methods for shallow water flow and transport," to appear in Proceedings, Computational Methods in Water Resources XII, Delft University of Technology, June 23-28, 2002.

30. Dawson, C., Wheeler, M.F. and Pothina D., "Coupling of continuous and discontinuous Galerkin methods for shallow water flow," in Proceedings, Department of Defense High Performance Computing Users Group Meeting, Austin, TX, June 11-14, 2003.
31. Dawson, C. and Aizinger, V., "Shallow water modeling using discontinuous and coupled finite element methods," Proceedings of the 2nd MIT Conference on Computational Fluid and Solid Mechanics, Boston, June 17-20, 2003.
32. Guillot, M. J., Blain, C. A., and Dawson, C. N., "Implementation of a discontinuous Galerkin discretization of the conservation of mass equation in QUODDY," Naval Research Laboratory NFL/FR/7322-03-10,050, Stennis Space Center, MS, 39529-5004, 2003.
33. Usadi, A., and Dawson, C., "50 Years of ADI Methods: Celebrating the Contributions of Jim Douglas, Don Peaceman and Henry Rachford," *SIAM News*, Vol. 39, No. 2, March 2006.

Book Chapters (Authored/Co-Authored, Edited/Co-Edited)

1. Dawson, C., and Wheeler, M. F., "An Operator-Splitting Method for Advection-Diffusion-Reaction Problems," MAFELAP VI, J. A. Whiteman, ed., Academic Press, pp. 463-482, 1988.
2. Dawson, C., "Simulation of Nonlinear Contaminant Transport in Groundwater by a Higher Order Godunov-Mixed Finite Element Method," in *Applications of Supercomputers in Engineering II*, C. A. Brebbia, D. Howard, and A. Peters, eds., Computational Mechanics Publications, Southampton, UK, pp. 419-433, 1991.
3. Dawson, C., and Wheeler, M. F., "Two-Grid Method for Mixed Finite Element Approximations of Nonlinear Parabolic Equations," Contemporary Mathematics, 180, American Mathematical Society, pp. 191-203, 1994.
4. Dawson, C., "Contaminant transport with nonlinear, non equilibrium adsorption kinetics," *Finite Element Modeling of Environmental Problems*, G. F. Carey, ed., Wiley, New York, pp. 265-274, 1995.
5. Wheeler, M. F., Arbogast, T., Bryant, S., Dawson, C., Saaf, F. and Wang, C., "New computational approaches for chemically reactive transport in porous media," *Next Generation Environmental Models and Computational Methods,* edited by G. Delic and M.F. Wheeler, Society for Industrial and Applied Mathematics, Philadelphia, pp. 217-226, 1997.
6. Wheeler, M. F. , Dawson, C. N., and Celentano, C., "Multicomponent, multiphase flow and transport in porous media," MAFELAP Highlights 1996, J. A. Whiteman, ed., John Wiley & Sons, Chichester, pp. 223-234, 1997.
7. Cockburn, B. and Dawson, C., "Some extensions of the local discontinuous Galerkin method for convection-diffusion equations in multidimensions," The Mathematics of Finite Elements and Applications X, J. R. Whiteman, ed., Elsevier, Amsterdam, pp. 225-238, 2000.
8. Wheeler, M. F., Lee, W., Dawson, C. N., Arnold, D. C., Kurc, T., and Parashar, M., "Parallel computing in environment and energy," *Sourcebook of Parallel Computing*, J. Dongarra, I. Foster, G. Fox, W. Gropp, K. Kennedy, L. Torczon, and A. White eds. Morgan Kaufman Pubs., Boston. Chapter 6, pp. 145-166, 2003.
9. Dawson, C. and Proft J., "Predicting Storm Surge," *Lessons from Hurricane Ike,* Philip B. Bedient, editor, Chapter 5, pp. 50-65, Texas A&M University Press, College Station, TX, 2012.

Technical Reports

1. Chippada, S. , Dawson, C. N., Martinez, M. and Wheeler, M. F., " A Godunov-type finite volume method for the system of shallow water equations," TICAM Report 96-57, submitted to CMAME.
2. Chippada, S., Dawson, C. N., Martinez, M. and Wheeler, M. F., "Finite element approximations to the system of shallow water equations, part II: Discrete time a priori error estimates," TICAM Report 96-34, submitted to SIAM J. Numer. Anal.
3. Chippada, S., Dawson, C. N., Martinez, M. L., and Wheeler, M. F., "Projection method for constructing a mass conservative velocity field," TICAM Report 97-09, submitted to CMAME.
4. Woodward, C. and Dawson, C. N., " Analysis of expanded mixed finite element methods for a nonlinear parabolic equations modeling flow into variable saturated porous media," Lawrence Livermore National Laboratory Technical Report UCRL-JC-125567, October 1996, submitted to SIAM J. Numer. Anal.
5. Dawson, C., and Martinez-Canales, M., "Finite element approximations to the system of shallow water equations, part III: On the treatment of boundary conditions", TICAM Report 98-15, July 1998.
6. Dawson, C., and Kirby, R., "Solution of parabolic equations by backward Euler-mixed finite element methods on a dynamically changing mesh," TICAM Report 98-17, August 1998.
7. Chippada, S., Dawson, C., Parr, V. J., Wheeler, M. F., Cerco, M. F., Bunch, B., and Noel, M., "PCE-QUAL-ICM: A parallel water quality model based on CE-QUAL-ICM," CEWES MSRC Technical Report 98-10, Waterways Experiment Station, Vicksburg, MS, 1998.

8. Wheeler, M. F., Dawson, C., Chippada, S., Martinez, M., and Parr, V. J., "Progress report: parallelization of ADCIRC3D," CEWES MSRC Technical Report 98-11, Waterways Experiment Station, Vicksburg, MS, 1998.
9. Dawson, C., and Aizinger, V., "Upwind-mixed methods for transport equations," TICAM Report 98-18, August, 1998.
10. Dawson, C. and Martinez-Canales, M.,"A characteristic-Galerkin approximation to a system of shallow water equations," TICAM Report 99-14, April 1999.
11. Dawson, C., and Kirby, R., "Solution of parabolic equations by backward Euler-mixed finite element methods on a dynamically changing mesh," TICAM Report 98-17, August 1998.
12. Chippada, S., Dawson, C., Parr, V. J., Wheeler, M. F., Cerco, M. F., Bunch, B., and Noel, M., "PCE-QUAL-ICM: A parallel water quality model based on CE-QUAL-ICM," CEWES MSRC Technical Report 98-10, Waterways Experiment Station, Vicksburg, MS, 1998.
13. Wheeler, M. F., Dawson, C., Chippada, S., Martinez, M., and Parr, V. J., "Progress report: parallelization of ADCIRC3D," CEWES MSRC Technical Report 98-11, Waterways Experiment Station, Vicksburg, MS, 1998.
14. Dawson, C., and Aizinger, V., "Upwind-mixed methods for transport equations," TICAM Report 98-18, August 1998.
15. Aizinger, V., Dawson, C., Cockburn, B., and Castillo, P., "The Local Discontinuous Galerkin Method for Contaminant Transport," TICAM Report 99-39, November 1999.
16. Bryant, S., Dawson, C., and van Duijn, C.J., "Dispersion-Induced Chromatographic Waves," TICAM Report 99-40, November 1999.
17. Dawson, C., Parr, V.J., and Wheeler, M.F., "Issues in Parallel Computation of Flow and Transport in Surface Waters," TICAM Report 00-13, May 2000.
18. Dawson, C., and Kirby, R., "High Resolution Schemes for Conservation Laws with Locally Varying Time Steps," TICAM Report 00-14, May 2000.
19. Dawson, C. and Proft, J., "A Priori Error Estimates for Interior Penalty Versions of the Local Discontinuous Galerkin Method Applied to Transport Equations," TICAM Report 00-16, June 2000.