

PETER B. FLEMINGS

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EDUCATION

Ph.D. 1990 Geology, Cornell University: minors in structural mechanics and geodynamics
M.S. 1987 Geology, Cornell University
B.A. 1984 Geology, Dartmouth College

PROFESSIONAL EXPERIENCE

2020-present Leonidas T. Barrow Centennial Chair in Mineral Resources, The University of Texas at Austin
2015-2020 John A. and Katherine G. Jackson Chair in Energy and Mineral Resources, The University of Texas at Austin
2013-2015 Visiting Research Scientist, Woods Hole Oceanographic Institute (June-August)
2007-present Professor, Department of Geological Sciences, The University of Texas at Austin
2007-2015 Jackson Chair of GeoSystems, The University of Texas at Austin
2007-2015 Research Professor, Texas Institute of Geophysics and Bureau of Economic Geology, The University of Texas at Austin
2009-2012 Graduate Adviser, Department of Geological Sciences, The University of Texas at Austin
2003-2007 Professor of Geosciences, Pennsylvania State University
2002-2003 Visiting Scientist, Massachusetts Institute of Technology, Department of Civil and Environmental Engineering
1998-2007 Co-Director of the Petroleum GeoSystems Initiative, Pennsylvania State University
1997-2003 Associate Professor of Geosciences, Pennsylvania State University
1993-1997 Assistant Professor of Geosciences, Pennsylvania State University
1992-1993 Research Scientist and Crosby Lecturer, Massachusetts Institute of Technology
1991-1992 Associate Research Scientist, Lamont-Doherty Geological Observatory
1991 Visiting Scientist, Exxon Production Research Company
1990-1991 Post-Doc. Associate, Lamont-Doherty Geological Observatory
1983 Geologist, Comp. Minera Autlan, Otongo Hgo., México
1982-1983 Geologist, Refinadora Costarricense De Petróleo, San Juan, Costa Rica

HONORS

2021 Director's Circle of Excellence
2016 Jackson School of Geosciences Joseph C. Walter Jr. Excellence Award
2015-2016 American Geophysical Union, Chair of the Asahiko Taira International Scientific Ocean Drilling Research Prize Committee
2011-2016 UT Institute for Geophysics Director's Circle of Excellence Award
2015 Tinker Family BEG Publication Award
2014 UT Institute for Geophysics Outstanding Researcher Award
2014 Marine and Petroleum Geology Certificate for Reviewing Excellence
2014 Bureau of Economic Geology Author Achievement Award
2015-2017 Methane Hydrate Advisory Comm. (Advisory Committee to the Secretary of Energy) (Member)
2014-2015 Methane Hydrate Advisory Comm. (Advisory Committee to the Secretary of Energy (Chair)
2013 Methane Hydrate Advisory Comm. (Advisory Comm. to the Secretary of Energy) (Co-chair)
2012 Chair: 2nd Gordon Research Conference on Hydrates, March 18-23, 2012, Ventura, CA
2010 Adviser to Energy Secretary S. Chu's BP Macondo Well Integrity Team
2010 Vice Chair: 1st Gordon Research Conference on Hydrates
2008 Bureau of Economic Geology Author Achievement Award

2007-2008	JOI-USSAC Distinguished Lecturer
2006	National Academy of Sciences Kavli Frontiers of Science Fellow and Speaker
2006	AAPG Distinguished Lecturer
2005	Co-Chief Scientist, IODP Expedition 308 – Gulf of Mexico, Hydrogeology
2003	Penn State EMS College Mitchell Award for Innovation in Teaching
2001	Best Paper Award, Cookman and Flemings, <i>STORMSED. Computers and Geosciences</i> 27 (6): 647-674.
1997-present	Geological Society of America Fellow
1996	Penn State EMS College Wilson Teaching Award
1995	Best Paper, J.C. Cam Sproule Memorial Award, Alexander and Flemings, 1995, <i>Geologic Evolution of a Plio-Pleistocene Salt Withdrawal Mini-basin: Block 330, Eugene Island, South Addition, offshore Louisiana</i> , AAPG Bulletin 79 (12): 1737-1756.
1994-1997	Shell Faculty Fellow
1992	Crosby Distinguished Lecturer at MIT
1991	Best Paper Award, Mountain Geologist – Flemings, P.B., Nelson, S. N., 1991, <i>Paleogeography of the Paleocene Wind River Basin</i>
1986	John McMullen Graduate Fellowship for academic record
1983-1984	Member Casque and Gauntlet Honor Society, Dartmouth College

PUBLICATIONS

h-index: 41 (Google Scholar)

i10-index: 137, since 2016: 95 (Google Scholar)

* indicates graduate student advisee

+ indicates post-doc advisee or supervised staff

° indicates undergrad advisee

³ indicates graduate student co-advisee

Books

Flemings, Peter B., 2021, *A Concise Guide to Geopressure: Origin, Prediction, and Applications*, Cambridge University Press. University Printing House, Cambridge CB2 8BS, United Kingdom, DOI: 10.1017/9781107326309.

Papers in Refereed Journals

1. Daigle, H., Fang, Y., Phillips, S.C., **Flemings, P. B.**, (in press), Pore structure of sediments from Green Canyon 955 determined by mercury intrusion. *AAPG Bulletin*
2. ⁺Fang, Y., **Flemings, P. B.**, Daigle, H., Phillips, S.C., O'Connell, J., (in press), Permeability of methane hydrate-bearing sandy silts in the deepwater Gulf of Mexico (Green Canyon Block 955). *AAPG Bulletin*
3. ⁺Fang, Y., **Flemings, P. B.**, Germaine, J.T, Daigle, H., Phillips, S.C., O'Connell, J., (in press), Compression behavior of hydrate-bearing sediments. *AAPG Bulletin*
4. Phillips, S.C., **Flemings, P. B.**, You, K., Waite, W., (in press), Thermodynamic insights into the production of methane hydrate reservoirs from depressurization of pressure cores. *AAPG Bulletin*
5. ⁺Santra, S., **Flemings, P. B.**, Heidari, M., You, K., (in press), Occurrence of High-Saturation Gas Hydrate in a Fault-Compartmentalized Anticline and the Role of Seal, Green Canyon, Abyssal Northern Gulf of Mexico. *AAPG Bulletin*
6. Yoneda, J., Jin, Y., Muraoka, M., Oshima, M., Waite, W., Suzuki, K., **Flemings, P. B.**, (in press), Comprehensive pressure core analysis for hydrate-bearing sediments from Gulf of Mexico, including assessments of geomechanical viscous behavior and NMR permeability. *AAPG Bulletin* Preliminary version published online 7 July 2021: Ahead of Print. DOI:10.1306/04272120204
7. ⁺You, K., **Flemings, P. B.**, 2021, Methane hydrate formation and evolution during sedimentation. *Journal of Geophysical Research: Solid Earth*, 126, e2020JB021235. <https://doi.org/10.1029/2020JB021235>

8. *Hooghvorst, JJ, Nikolinakou, MA, Harrold, TWD, Fernandez, O, **Flemings, P.B.**, Marcuello, A., 2021, Geologically constrained evolutionary geomechanical modelling of diapir and basin evolution: A case study from the Tarfaya basin, West African coast. *Basin Res.*; 33: 2049– 2068. <https://doi.org/10.1111/bre.12547>
9. +Heidari, M., Nikolinakou, M. A., Hudec, M.R, **Flemings, P.B.**, 2021, Impacts of vertical salt welding on pore pressure, stresses, and deformation near the weld. *Marine and Petroleum Geology*, 133: 105259. <https://doi.org/10.1016/j.marpetgeo.2021.105259>
10. +Bhandari, A., **Flemings, P.B.**, Hofmann, R., 2021, The dependence of shale permeability on confining stress and pore pressure. *Journal of Natural Gas Science and Engineering*, 92: 104008. <https://doi.org/10.1016/j.jngse.2021.104008>
11. Daigle, H., Cook, A., Fang, Y., Bihani, A., Song, W., **Flemings, P. B.**, 2020, Gas-driven tensile fracturing in shallow marine sediments. *Journal of Geophysical Research: Solid Earth*, 125, e2020JB020835. <https://doi.org/10.1029/2020JB020835>
12. +Heidari, M., Nikolinakou, M. A., & **Flemings, P. B.** ,2020, Modified Cam-Clay Model for Large Stress Ranges and Its Predictions for Geological and Drilling Processes. *Journal of Geophysical Research: Solid Earth*, 125, e2020JB019500. <https://doi.org/10.1029/2020JB019500>
13. *Meazell, K.P., **Flemings, P.B.**, Santra, M., Johnson, J.E., 2020, Sedimentology and stratigraphy of a deep-water gas hydrate reservoir in the northern Gulf of Mexico. *AAPG Bulletin* ; 104 (9): 1945–1969. doi: <https://doi.org/10.1306/05212019027>
14. +Santra, M., **Flemings, P.B.**, Scott, E., Meazell, K.P., 2020, Evolution of gas hydrate-bearing deep-water channel-levee system in abyssal Gulf of Mexico: Levee growth and deformation. *AAPG Bulletin* ; 104 (9): 1921–1944. <https://doi.org/10.1306/04251918177>
15. +Thomas, C., Phillips, S.C, **Flemings, P.B.**, Santra, M., Hammon, H., et al., 2020, Pressure coring operations during The University of Texas-Gulf of Mexico 2-1 (UT-GOM2-1) Hydrate Pressure Coring Expedition in Green Canyon Block 955, northern Gulf of Mexico. *AAPG Bulletin* ; 104 (9): 1877–1901. <https://doi.org/10.1306/02262019036>
16. Boswell, R., Collett, T.S., Cook, A., **Flemings, P.B.**, 2020, Introduction to Special Issue: Gas Hydrates in Green Canyon Block 955, deep-water Gulf of Mexico: Part I. *AAPG Bulletin* ; 104 (9): 1843–1846. <https://doi.org/10.1306/bltnintro062320>
17. +Fang, Y., **Flemings, P. B.**, Daigle, H., Phillips, S.C, Meazell, K.P., You, K., 2020, Petrophysical properties of the Green Canyon Block 955 hydrate reservoir inferred from reconstituted sediments: Implications for hydrate formation and production. *AAPG Bulletin* ; 104 (9): 1997-2028. <https://doi.org/10.1306/01062019165>
18. **Flemings, P. B.**, Phillips, S.C., Boswell, R., Collett, T.S., Cook, A., et al., 2020, Pressure coring a Gulf of Mexico deep-water turbidite gas hydrate reservoir: Initial results from The University of Texas–Gulf of Mexico 2-1 (UT-GOM2-1) Hydrate Pressure Coring Expedition. *AAPG Bulletin* ; 104 (9): 1847–1876. <https://doi.org/10.1306/05212019052>
19. *Murphy, Z. W., DiCarlo, D. A., **Flemings, P. B.**, & Daigle, H., 2020, Hydrate is a nonwetting phase in porous media. *Geophysical Research Letters*, 47, e2020GL089289. <https://doi.org/10.1029/2020GL089289>
20. Chen, X.J., Espinoza, D.N., **Flemings, P.B.**, Luo, J., Tisato, N., 2020, Pore-Scale Evidence of Ion Exclusion during Methane Hydrate Growth and Evolution of Hydrate Pore-Habit in Sandy Sediments, *Marine and Petroleum Geology.*, Volume.117, 104340 <https://doi.org/10.1016/j.marpetgeo.2020.104340>
21. Daigle, H., Reece, J. S, **Flemings, P.B.**, 2020, A modified Swanson method to determine permeability from mercury intrusion data in marine muds, *Marine and Petroleum Geology*, Volume 113, article no. 104155, <https://www.sciencedirect.com/science/article/pii/S0264817219306075>
22. *Meyer, D.W., **Flemings, P.B.**, You, K., DiCarlo, D., 2020, Gas flow by invasion percolation through the hydrate stability zone, *Geophysical Research Letters*. <https://doi.org/10.1029/2019GL084380>
23. +Phillips, S.C., **Flemings, P.B.**, Holland, M.E., Schultheiss, P.J., Waite, W.F., Jang, J., Petrou, E.G., and Hammon, H., 2020. High concentration methane hydrate in a silt reservoir from the deepwater Gulf of Mexico, *AAPG Bulletin*, doi:10.1306/01062018280
24. *Darnell, K.N., **Flemings, P.B.**, DiCarlo, D., 2019, Nitrogen-Driven Chromatographic Separation During Gas Injection Into Hydrate-Bearing Sediments, *Water Resources Research*, online. doi:10.1029/2018WR023414

25. Ruarri, J., Day-Stirrat R.J., Bryndzia, L.T., Schleicher, A.M., Adriaens R., Hofmann, R., **Flemings P.B.** 2019, Hydration behavior by X-ray diffraction profile fitting of smectite-bearing minerals in a Plio-Pleistocene mudrock from Eugene Island, Gulf of Mexico; *Marine and Petroleum Geology*, Volume 102, pages 86-100, <https://dx.doi.org/10.1016/j.marpetgeo.2018.12.008>.
26. Daigle, H., Reece, J. S., **Flemings, P.B.**, 2019, Evolution of the percolation threshold in muds and mudrocks during burial, *Geophysical Research Letters.*, Volume 46, 8064-8073, doi:10.1029/2019GL083723.
27. +You, K., **Flemings, P.B.**, Malinverno, A., Collett, T.S., Darnell, K., 2019, Mechanisms of methane hydrate formation in geological systems, *Reviews of Geophysics*, <https://doi.org/10.1029/2018rg000638>.
28. +Nikolinakou, M.A., **Flemings, P.B.**, Heidari, M., Hudec, M.R, 2019, Stress and deformation in plastic mudrocks overturning in front of advancing salt sheets; Implications for system kinematics and drilling, *Rock Mechanics Rock Engineering*, <https://doi.org/10.1007/s00603-019-11852-2>.
29. +Heidari, M., Nikolinakou, M. A., Hudec, M. R., **Flemings, P. B.**, 2019, Influence of a reservoir bed on diapirism and drilling hazards near a salt diapir: a geomechanical approach. *Petroleum Geoscience*, 25(3), 282–297. doi: <https://doi.org/10.1144/petgeo2018-113>.
30. +Phillips, S.C., **Flemings, P.B.**, You, K., Meyer, D.W., Dong, T., 2019, Investigation of in situ salinity and methane hydrate dissociation in coarse-grained sediments by slow, stepwise depressurization, *Marine and Petroleum Geology*, Volume 109, 2019, Pages 128-144, ISSN 0264-8172, <https://doi.org/10.1016/j.marpetgeo.2019.06.015>.
31. *Pinkston, F.W., **Flemings, P.B.**, 2019, Overpressure at the macondo well and its impact on the deepwater horizon blowout. *Scientific Reports (Nature Publisher Group)*, 9, 1-11. doi:<http://dx.doi.org/10.1038/s41598-019-42496-0>.
32. +Bhandari, A.R., **Flemings, P.B.**, Ramiro-Ramirez, S., Hofmann, R., Polito, P.J., 2019, Gas and liquid permeability measurements in Wolfcamp samples, *Fuel*, Volume 236, Pages 1026-1036, ISSN 0016-2361, <https://doi.org/10.1016/j.fuel.2018.09.038>.
33. Day-Stirrat R.J., Bryndzia L.T., Schleicher A.M., Adriaens R., Hofmann R., **Flemings P.B.** 2019: Hydration behavior by X-ray diffraction profile fitting of smectite-bearing minerals in a Plio-Pleistocene mudrock from Eugene Island, Gulf of Mexico; *Marine and Petroleum Geology*; <https://dx.doi.org/10.1016/j.marpetgeo.2018.12.008>.
34. *Meyer, D.W., **Flemings, P.B.**, DiCarlo, D., 2018, Effect of gas flow rate on hydrate formation within the hydrate stability zone, *Journal of Geophysical Research: Solid Earth*, 123, 6263–6276. <https://doi.org/10.1029/2018JB015878>.
35. Nole, M., Daigle, H., Cook, A.E., Malinverno, A., and **Flemings, P.B.**, Burial-driven methane recycling in marine gas hydrate systems, *Earth and Planetary Science Letters*, Volume 499, pp. 197-204, October 2018.
36. +You, K., **Flemings, P.B.**, 2018. Methane hydrate formation in thick sandstones by free gas flow, *Journal of Geophysical Research: Solid Earth*, 123, 4582–4600. <https://doi.org/10.1029/2018JB015683>.
37. + Nikolinakou, M.A., **Flemings, P.B.**, Heidari, M., Hudec, M.R, 2018, Stress and Pore Pressure in Mudrocks Bounding Salt Systems, *Rock Mechanics Rock Engineering*. <https://doi.org/10.1007/s00603-018-1540-z>.
38. *Gao, B., **Flemings, P.B.**, Nikolinakou, M.A., Saffer, D.M., Heidari, M., 2018, Mechanics of fold-and-thrust belts based on geomechanical modeling, *Journal of Geophysical Research: Solid Earth*, 123, 4454–4474. <https://doi.org/10.1029/2018JB015434>.
39. *Meyer, D.W., **Flemings, P.B.**, DiCarlo, D., You, K., Phillips, S.C., Kneafsey, T.J., 2018, Experimental investigation of gas flow and hydrate formation within the hydrate stability zone, *Journal of Geophysical Research: Solid Earth*, <https://doi.org/10.1029/2018JB015748>.
40. +Heidari, M., Nikolinakou, M.A., **Flemings, P.B.**, 2018 , Coupling geomechanical modeling with seismic pressure prediction, *Geophysics*, 83(5), B253-B267. <https://doi.org/10.1190/geo2017-0359.1>.
41. +Nikolinakou M.A., Heidari M., **Flemings, P.B.**, Hudec M.R., 2018, Geomechanical modeling of pore pressure in evolving salt systems, *Marine and Petroleum Geology*, 93:272-286, doi:<https://doi.org/10.1016/j.marpetgeo.2018.03.013>.
42. +Bhandari, A.R., **Flemings, P.B.**, Hofmann, R., and Polito, P.J., 2018, Stress-dependent In-situ Gas Permeability in the Eagle Ford Shale: Transport in Porous Media. doi: 10.1007/s11242-018-1021-6.
43. **Flemings, P.B.**, Saffer, D.M., 2018, Pressure and Stress Prediction in the Nankai Accretionary Prism: A Critical State Soil Mechanics Porosity-based approach, *Journal of Geophysical Research*, doi:10.1002/2017JB015025.

44. ⁺You, K., **Flemings, P.B.**, 2018, Methane hydrate formation in thick sand reservoirs: 1. Short-range methane diffusion, *Marine and Petroleum Geology*, 89, 428-442, doi:<http://dx.doi.org/10.1016/j.marpetgeo.2017.10.011>.
45. Deirieh, A., Cook, Chang, I.Y., Whittaker, M.L., Weigand, S., Keane, D., Rix, J., Germaine, J.T., Joester, D., **Flemings, P.B.**, 2018, Particle arrangements in clay slurries: The case against the honeycomb structure, *Applied Clay Science*, doi:<http://dx.doi.org/10.1016/j.clay.2017.11.010>.
46. Hillman, J.I.T., Cook, A., Daigle, H., Nole, M., Malinverno, A., Meazell, K., **Flemings, P.B.**, 2017, Gas hydrate reservoirs and gas migration mechanisms in the Terrebonne Basin, Gulf of Mexico, *Marine and Petroleum Geology*, 86, 1357-1373, doi:<http://dx.doi.org/10.1016/j.marpetgeo.2017.07.029>.
47. ⁺Luo, G., Hudec, M.R., **Flemings, P.B.**, ⁺Nikolinakou, M.A., 2017, Deformation, stress, and pore pressure in an evolving supra-salt basin, *Journal of Geophysical Research: Solid Earth*, 122, doi:10.1002/2016JB013779.
48. ^{*}Darnell, K.N., **Flemings, P.B.**, DiCarlo, D., 2017, Subsurface injection of combustion power plant effluent as a solid-phase carbon dioxide storage strategy, *Geophysical Research Letters*, Volume 44, 5521-5530, doi:10.1002/2017GI073663.
49. ⁺Nikolinakou, M.A., ⁺Heidari, M., Hudec, M.R., **Flemings, P.B.**, 2017, Initiation and growth of salt diapirs in tectonically stable settings: upbuilding and megaflaps, *American Association of Petroleum Geologists Bulletin*, V. 101, No. 6 (June 2017), pp. 887-905, doi:10.1306/09021615245.
50. ^{*}Gao, B., **Flemings, P.B.**, 2017, Pore pressure within dipping reservoirs in overpressured basins, *Marine and Petroleum Geology*, 80, 94-111, doi:<http://dx.doi.org/10.1016/j.marpetgeo.2016.11.014>.
51. Casey, B., Germaine, J.T., **Flemings, P.B.**, Fahy, B.P., 2016, In situ stress state and strength in mudrocks, *Journal of Geophysical Research: Solid Earth*, 121, doi:10.1002/2016JB012855.
52. ⁺Heidari, M., ⁺Nikolinakou, M.A., Hudec, M. R., **Flemings, P.B.**, 2016, Geomechanical analysis of a welding salt layer and its effects on adjacent sediments, *Tectonophysics*, v. 683, p. 172-181, doi:10.1016/j.tecto.2016.06.027.
53. Adams, A.L., Nordquist, T.J., Germaine, J.T., and **Flemings, P.B.**, 2016, Permeability Anisotropy and Resistivity Anisotropy of Mechanically Compressed Mudrocks, *Canadian Geotechnical Journal*, doi:10.1139/cgj-2015-0596.
54. ^{*}Cronin, M., **Flemings, P.B.**, ⁺Bhandari, A., 2016, Dual-permeability microstratigraphy in the Barnett Shale, *Journal of Petroleum Science and Engineering*, Vol. 142, pp. 119-128, doi:10.1016/j.petrol.2016.02.003.
55. ⁺You, K., DiCarlo, D., **Flemings, P.B.**, 2016, Impact of gravity on hydrate saturation in gas-rich environments, *Water Resour. Res.*, Vol. 52, pp. 1265-1285, doi:10.1002/2015WR017975.
56. ⁺Heidari, M., ⁺Nikolinakou, M.A., **Flemings, P.B.**, Hudec, M.R., 2016, A simplified stress analysis of rising salt domes, *Basin Research*, doi:10.1111/bre.12181.
57. ⁺Nikolinakou, M.A., **Flemings, P.B.**, Hudec, M.R., 2016, Modeling of shales in salt-hydrocarbon systems, *Rock Mechanics Rock Engineering*, v. 49, p. 699–705, doi 10.1007/s00603-015-0863-2.
58. ^{*}Darnell, K.N., **Flemings, P.B.**, 2015, Transient seafloor venting on continental slopes from warming-induced methane hydrate dissociation, *Geophysical Research Letters*, Vol. 42, 10,765–10,772, doi:10.1002/2015GL067012.
59. ⁺You, K., DiCarlo, D., **Flemings, P.B.**, 2015, Quantifying hydrate solidification front advancing using method of characteristics, *Journal of Geophysical Research: Solid Earth*, 120, 6681-6697, doi: 10.1002/2015JB011985.
60. ⁺Bhandari, A., **Flemings, P.B.**, ⁺Polito, P.J., ^{*}Cronin, M.B., Bryant, S.L., 2015, Anisotropy and Stress Dependence of Permeability in the Barnett Shale, *Transport in Porous Media*, Vol. 108, Issue 2, pp 393-411, DOI 10.1007/s11242-015-0482-0.

Book Chapters

1. ^{*}Bohn, C.W., **Flemings, P.B.**, and Slingerland, R.L., 2012, Accommodation Change During Bypass Across a Late-Stage Fan in the Shallow Auger Basin, *in* Prather, B.E., Deptuck, M.E., Mohrig, D., Hoorn, B.V., and Wynn, R.B., eds., *Application of the Principles of Seismic Geomorphology to Continental-Slope and Base-of-Slope Systems: Case Studies from Seafloor and Near-Seafloor Analogues*, Volume 99, SEPM (Society for Sedimentary Geology), p. 225-242, doi: 10.2110/pec.12.99.0225.

2. Urgeles, R., **Flemings, P.B.**, et al., 2010, History of Pore Pressure Build Up and Slope Instability in Mud-Dominated Sediments of Ursa Basin, Gulf of Mexico Continental Slope, *in* Mosher, D.C., Moscardelli, L., Shipp, R.C., Chaytor, J.D., Baxter, C.D.P., Lee, H.J., and Urgeles, R., eds., *Submarine Mass Movements and Their Consequences*, Volume 28: Advances in Natural and Technological Hazards Research: Dordrecht (The Netherlands), Springer, p. 179-190, doi: 10.1007/978-90-481-3071-9_15.
3. *Dugan, B., and **Flemings, P.B.**, 2003, Measuring pore pressure in marine sediments with penetrometers: comparison of the piezoprobe and DVTP-P tools in ODP Leg 204, *in* Thompson, B.J., ed., *Research Papers of the Link Foundation Fellows*, Volume 3: Rochester, New York, The University of Rochester Press in Association with The Link Foundation p. 179-199. *Research Papers of the Link Foundation Fellows*
4. *Stump, B.B., **Flemings, P.B.**, Feinbeiner, T., and Zoback, M.D., 1998, Pressure differences between overpressured sands and bounding shales of the Eugene Island 330 Field (Offshore Louisiana, USA) with implications for fluid flow induced by sediment loading, *in* Mitchell, A., and Grauls, D., eds., *Overpressures in Petroleum Exploration*, Memoire 22, Elf EP Editions, p. 83-92.
5. **Flemings, P.B.**, *Hoover, A.R., *Burkhart, T., and Nelson, S.E., 1996, A Case Study of Amplitudes in Drained Pay: The EI-330 LF Sand, *in* Thomas A. Mazza, C., and Richard C. Johnson, C., eds., *Stratigraphic Analysis Utilizing Advanced Geophysical, Wireline and Borehole Technology for Petroleum Exploration and Production: 17th Annual*, Volume 17, Society of Economic Paleontologists and Mineralogists, p. 99-109, doi: 10.5724/gcs.96.17.0099.
6. Jordan, T.E., and **Flemings, P.B.**, 1990, From Geodynamic Models to Basin Fill -- A Stratigraphic Perspective, *in* Cross, T., ed., *Quantitative Dynamic Stratigraphy: New Jersey*, Prentice Hall, Inc., p. 149-163.
7. Jordan, T.E., and **Flemings, P.B.**, 1988, Dating Thrust Fault Activity by Use of Foreland Basin Strata, *in* Kleinspehn, K., and Paola, C., eds., *New Perspectives in Basin Analysis: New York*, Springer-Verlag, p. 307-330.

Non-refereed Publications

1. **Flemings, P.B.**, and the IODP Expedition 308 Scientific Party, 2005, Expedition information: Expedition 308 Gulf of Mexico hydrogeology, JOI News, v. Fall/Winter 2005, p. 8-9.
2. **Flemings, P.B.**, Huffman, A.R., Bruce, R., Benoit, J., and Mayne, P., 2000, Geofluids of Passive Margins: At the Interface of the Practical and the Fundamental, JOI/USSAC Newsletter v. 13, p. 10-11.
3. Bishop, B., Wolfe, J., and **Flemings, P.B.**, 1994, Landmark Workstation on Offshore Rig Guides Drilling Decisions, UserNet: The Technical Newsletter for Landmark Users, p. 1-5.
4. Billeaud, L.B., Anderson, R.N., **Flemings, P.B.**, and Austin, J., 1994, Searching for Evidence of Active Gas and Oil Migration within a Growth Fault Zone in the Gulf of Mexico, *Petroleum Engineer International*, p. 17-22.
5. **Flemings, P.B.**, and Nelson, S.N., 1991, Paleogeographic evolution of the latest Cretaceous and Paleocene Wind River basin, *The Mountain Geologist*, v. 28, p. 37-52.

Conference Papers

1. Heidari, M., Nikolinakou, M. A., **Flemings, P. B.**, & Hudec, M. R., 2021, June 18. Prediction of Pore Pressure and the Full Stress Tensor From Seismic Velocity Around a 3D Salt Dome in the Gulf of Mexico. 55th U.S. Rock Mechanics/Geomechanics Symposium, Virtual, 18-25 June 2021.
2. Nikolinakou, M. A., Heidari, M., **Flemings, P. B.**, & Hudec, M. R., 2019, August 28. Geomechanical Modeling of Sediment Stress-Level Dependency With Application to a Salt System. 53rd U.S. Rock Mechanics Association/Geomechanics Symposium, New York City, NY, 23-26 June 2019.
3. Heidari, M., Nikolinakou, M. A., **Flemings, P. B.**, & Hudec, M. R., 2019, August 28. Impacts of Stress-Level Dependency of Mudrock Mechanical Behavior on the Pore Pressure and Structural Style of Critical Tapers. 53rd U.S. Rock Mechanics Association/Geomechanics Symposium, New York City, NY, 23-26 June 2019.
4. Nikolinakou, M.A., Heidari, M., Hudec, M.R., **Flemings, P.B.**, 2018, August 21. Geomechanical Modeling of Stress and Deformation Associated With Salt-Sheet Advance. American Rock Mechanics Association.

5. Heidari, M., Nikolinakou, M.A., Flemings, P., Hudec, M., 2018. Enhancing Modified Cam-Clay model for large stress range. ARMA 18–0790, 52nd U.S. Rock Mechanics/Geomechanics Symposium, Seattle, WA, 17-20 June 2018.
6. Flemings, P.B., Boswell, R., Collett, T. Cook, A., Divins, D, Frye, M., Guerin, G., Goldberg, D., Malinverno, A., Meazell, K., Morisson, J., Pettigrew, T., Philips, S., Santra, M., Sawyer, D.E., Shedd, W., Thomas, C. You, K., 2017, GOM2: Prospecting, Drilling and Sampling Coarse-Grained Hydrate Reservoirs in the Deepwater Gulf of Mexico, 9th International Conference on Gas Hydrates. Denver.
7. Nikolinakou, M.A., Heidari, M., Flemings, P.B., 2017, Pore-Pressure Prediction Beneath Salt Sheets, Presented at *51st US Rock Mechanics / Geomechanics Symposium*: San Francisco, CA, 25-27 June.
8. You, K., Flemings, P.B., 2016, Methane Hydrate Formation in Thick Sand Reservoirs: Long-range Gas Transport or Short-range Methane Diffusion?, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec.
9. You, K., Flemings, P.B., DiCarlo, D., 2016, Quantifying Hydrate Formation in Gas-rich Environments Using the Method of Characteristics, *Gordon Research Conference*, Galveston, TX, Feb 28 – Mar 4.
10. Phillips, S.C., You, K., Borgfeldt, T., Meyer, D.W., Dong, T., Flemings, P.B., 2016, Dissociation of Laboratory-Synthesized Methane Hydrate in Coarse-Grained Sediments by Slow Depressurization, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec.
11. Nikolinakou, M.A., Heidari, M., Hudec, M.R., Flemings, P.B., 2016, Stress, deformation and failure associated with salt-sheet emplacement, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec.
12. Nikolinakou, M.A., Heidari, M., Flemings, P.B., Hudec, M.R., 2016, Coupling flow and deformation in evolving salt basins, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec.
13. Nikolinakou, M.A., Heidari, M., Flemings, P.B., 2016, Pore-pressure prediction based on seismic velocities coupled with geomechanical modeling, *50th US Rock Mechanics/Geomechanics Symposium*, Houston, Texas, USA, 26-29 June.
14. Meyer, D.W., You, K., Phillips, S., Flemings, P.B., DiCarlo, D., and Kneafsey, T., 2016, Methane hydrate formation in a saturated, coarse-grained sample through the induction of a propagating gas front, *Gordon Research Conference*, Feb 28 – Mar 4, Galveston, TX, United States.
15. Meazell, K., Flemings, P.B., 2016, Heat Flux and Fluid Flow in the Terrebonne Basin, Northern Gulf of Mexico, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec.
16. Meazell, K., Flemings, P.B., 2016, New insights into hydrate-bearing clastic sediments in the Terrebonne basin, northern Gulf of Mexico, *Gordon Research Conference*, Feb 28 – Mar 4, Galveston, TX, United States.
17. Lockhart, L.P., Flemings, P.B., Nikolinakou, M.A., Heidari, M., 2016, Pressure prediction in non-uniaxial settings based on field data and geomechanical modeling: a well example, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec.
18. Heidari, M., Peel, F., Nikolinakou, M.A., Hudec, M. R., Flemings, P.B., 2016, Sealing capacity of salt beneath a translating minibasin: the effect of base-salt geometry, *Applied Geodynamics Laboratory Industrial Associates Annual Review Meeting*, Austin, Texas, 10-11 Nov.
19. Heidari, M., Nikolinakou, M.A., Hudec, M. R., Flemings, P.B., 2016, Subsalt overpressure evolution during shortening: deformation, failure and rubble zones, *Applied Geodynamics Laboratory Industrial Associates Annual Review Meeting*, Austin, Texas, 10-11 Nov.
20. Heidari, M., Nikolinakou, M.A., Hudec, M. R., Flemings, P.B., 2016, Pore pressure and stresses around a salt diapir during its vertical welding, *Applied Geodynamics Laboratory Industrial Associates Annual Review Meeting*, Austin, Texas, 10-11 Nov.
21. Heidari, M., Nikolinakou, M.A., Flemings, P.B., 2016, A critical state model for mudrock behavior at high stress levels, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec.
22. Heidari, M., Nikolinakou M.A., Hudec, M. R., and Flemings, P.B., 2016, Geomechanical impacts of a welding salt layer on adjacent sediments, *50th US Rock Mechanics/Geomechanics Symposium*, Houston, Texas, USA, 26-29 June.
23. Gao, B., Flemings, P.B., Saffer, D., Nikolinakou, M.A., Heidari, M., 2016, Mechanics of Fold-and-Thrust Belt Systems Based on Geomechanical Modeling, *Subduction Zone Observatory Workshop*, Boise, Idaho, 29 Sept – 1 Oct.
24. Gao, B., Flemings, P.B., Saffer, D., Nikolinakou, M.A., Heidari, M., 2016, Mechanics of Fold-and-Thrust Belt Systems Based on Geomechanical Modeling, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec

25. Gao, B., Flemings, P.B., Nikolinakou, M.A., 2016, Stress and porosity in fold-and-thrust belt systems, *50th US Rock Mechanics/Geomechanics Symposium*, Houston, Texas, USA, 26-29 June.
26. Flemings, P.B., Saffer, D.M., 2016, Critically Tapered Wedges and Critical State Soil Mechanics: Porosity-based Pressure Prediction in the Nankai Accretionary Prism, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec.
27. Flemings, P.B., Ellis, S.M., Saffer, D.M., Ge, S., 2016, Models and Experiments that couple flow and deformation in the shallow crust, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec.
28. Darnell, K., Flemings, P.B., DiCarlo, D.A., 2016, Nitrogen-assisted Three-phase Equilibrium in Hydrate Systems Composed of Water, Methane, Carbon Dioxide, and Nitrogen, *AGU Annual Meeting*, San Francisco, Calif., 12-16 Dec.
29. You, K., Flemings, P.B., DiCarlo, D., 2015, Quantifying Hydrate Formation in Gas-rich Environments Using the Method of Characteristics, *AGU Annual Meeting*, San Francisco, Calif., 14-18 Dec.
30. Meyer, D., You, K., Borgfeldt, T., Flemings, P.B., DiCarlo, D., Kneafsey, T., 2015, Methane Hydrate Formation in a Saturated, Coarse-Grained Sample through the Induction of a Propagating Gas Front, *AGU Annual Meeting*, San Francisco, Calif., 14- 18 Dec.
31. Meazell, K., Flemings, P.B., 2015, Methane hydrate-bearing sediments in the Terrebonne basin, northern Gulf of Mexico, *AGU Annual Meeting*, San Francisco, Calif., 14-18 Dec.
32. Darnell, K., Flemings, P.B., 2015, Simulations of Carbon Dioxide Storage and Methane Production from Guest Molecule Exchange of Hydrates Using Reactive Transport Modeling and Gibbs Energy Minimization, *AGU Annual Meeting*, San Francisco, Calif., 14-18 Dec.
33. Borgfeldt, T., Flemings, P.B., Meyer, D., You, K., 2015, Experimental Dissociation of Methane Hydrates Through Depressurization, *AGU Annual Meeting*, San Francisco, Calif., 14-18 Dec.
34. *Meyer, D., **Flemings, P.B.**, 2014, Thermodynamic State of Hydrate-Bearing Sediments on Continental Margins around the World, Presented at *2014 Offshore Technology Conference*, Houston, TX, 5-8 May.
35. *Meyer, D.W. and **Flemings, P.B.**, 2014, Thermodynamic Stability of Gas Hydrates in the Krishna-Godavari Basin Inferred From Well Log Analysis, *2014 Offshore Technology Conference: Houston, TX, U.S.A.*, p. 9, May 5-8.

RESEARCH PROJECTS, GRANTS AND CONTRACTS

In Progress:

<u>Duration</u>	<u>Title</u>	<u>Source</u>	<u>Amount</u>
2015-2024	Deepwater Methane Hydrate Characterization in the Gulf of Mexico: Scientific Assessment and Production Potential	DOE	\$98,993,151
2013-2029	UT GeoFluids—Industrial Consortium	Industry	\$5,150,854

Completed:

<u>Duration</u>	<u>Title</u>	<u>Source</u>	<u>Amount</u>
2014-2019	SUTUR Task 11: The Effective Stress Law for Permeability During Pore Pressure and Pressure Cycling of Shale	Shell	\$1,572,345
2016-2019	A multi-scale experimental investigation of flow properties in coarse-grained hydrate reservoirs during production	DOE	\$1,499,991
2016-2018	SUTUR: Multi-faceted study of water cut in the Permian Wolfcamp in the Delaware Basin, West Texas	Shell	\$83,000
2012-2015	Controls on Methane Expulsion During Melting of Natural Gas Hydrate Systems: Topic Area 2	DOE	\$1,170,807

2012-2015	SUTUR Task 1: Mechanisms of Gas Flow in Shale	Shell	\$457,127
2012-2015	SUTUR Equipment Grant	BEG	\$180,000
2014	Jackson School of Geosciences Equipment Grant	JSG	\$100,000
2014-2015	Jackson School of Geosciences Seed Grant: Migration of gas in coarse-grained hydrate-bearing sediments	JSG	\$35,000
2013-2014	JSG Equipment Grant	Jackson School of Geosciences	\$124,000
2012-2014	Theory, experiment, and observation of the impact of warming on methane hydrate melting and gas venting in the Arctic.	NASA	\$30,000
2012	UT GeoFluids - Industrial Consortium	Industry	\$556,600
2011-2013	Observing the Transient Temperature and Pressures of the Tohoku Earthquake: Observatory Fabrication	Consortium for Ocean Leadership	\$14,998
2011	UT GeoFluids - Industrial Consortium	Industry	\$535,700
2008-2012	A motion decoupled hydraulic delivery system for the IODP	Integrated Ocean Drilling Program Management International	\$534,000
2009-2012	Geotechnical Characterization of IODP Site C0009 and Petrophysical Analysis of the Megasplay gault at IODP Site C0010	Consortium for Ocean Leadership	\$79,386
2010	UT GeoFluids - Industrial Consortium	Industry	\$561,600
2009-2010	IODP Expedition 319 - NANTROSEIZE Stage 2 Riser/Riserless Observatory aboard the D/V Chikyu	CORE	\$64,386
2009	UT GeoFluids - Industrial Consortium	Industry	\$495,000
2007	G3: GeoMechanics, GeoFluids, & GeoHazards Initiative Support (with Marone, and Elsworth)	Energy Institute, The Pennsylvania State University	\$55,000
2007	Overpressure and Slope Stability in the Deepwater Gulf of Mexico	American Chemical Society, Petroleum Research Fund Supplement for Underrepresented Minority Research	\$5,000
2006-2008	Overpressure and Slope Stability in the Deepwater Gulf of Mexico	American Chemical Society, Petroleum Research Fund	\$80,000
2005-2008	JOI Postcruise – Sawyer	Joint Oceanographic Institute	\$23,467
2005-2008	JOI Postcruise – Long	Joint Oceanographic Institute	\$21,353
2005-2008	JOI Postcruise – Flemings	Joint Oceanographic Institute	\$29,011
2005	JOI Cruise – Flemings	Joint Oceanographic Institute	\$65,762
2004-2009	GeoFluidsIII Consortium	Amerada Hess, Anadarko, BP, BHP Petroleum, Chevron, ConocoPhillips, Devon Energy, Encana (withdrew), ExxonMobil, Shell, Unocal (bought by Chevron)	\$1,081,000

2004-2007	Collaborative Research: Analysis and Development of a New Pressure Probe for the IODP	National Science Foundation	\$199,991
2004	Downhole Tools in the Integrated Ocean Drilling Program: Goals, Techniques, Needs, and Strategies for Development	JOI	\$39,988
2002-2005	Petroleum GeoSystems Initiative	Shell Offshore Inc., The Shell Foundation and ChevronTexaco	\$300,000
9/6/02-7/11/05	ODP Leg 204 Post-Cruise Science: Constraining a soil model for Hydrate Ridge sediments through Triaxial Deformation Experiments, award no. F001698	Texas A&M Research Foundation, JOI/ODP	\$6,600

EDUCATIONAL ACTIVITIES

SUPERVISION OF STUDENT RESEARCH

The University of Texas at Austin

Graduate Thesis Research (As primary advisor)

M.S. Students

	Name	Degree Sought	Status
1.	Hilary Strong	M.S.	Completed 2009 (ExxonMobil)
2.	Andrew Smith	M.S.	Completed 2012 (ExxonMobil)
3.	Michael Merrell	M.S.	Completed 2012 (ConocoPhillips)
4.	Baiyuan Gao	M.S.	Completed 2013 (pursuing PhD)
5.	William Betts	M.S.	Completed 2014 (Halliburton)
6.	Michael Cronin	M.S.	Completed 2015 (Anadarko)
7.	Will Pinkston	M.S.	Completed 2017 (Hess)
8.	Landon Lockhart	M.S.	Completed 2018
9.	David Wiggs	M.S.	Completed 2021
10.	Gabrielle (Abby) Varona	M.S.	In Progress
11.	Addison Savage	M.S.	In Progress

PhD Students

	Name	Degree Sought	Status
1.	Derek Sawyer	Ph.D.	Completed 2010 (ExxonMobil)
2.	Julia Schneider	Ph.D.	Completed 2011 (Texas A&M)
3.	Yao You	Ph.D.	Completed 2013 (Hess)
4.	Dylan Meyer	Ph.D.	Completed 2018
5.	Baiyuan Gao	Ph.D.	Completed 2018
6.	Kristopher Darnell	Ph.D.	Completed 2018
7.	Kevin Meazell	Ph.D.	In Progress
8.	Sebastian Ramiro Ramirez	Ph.D.	In Progress
9.	Landon Lockhart	Ph.D.	In Progress
10.	Zachary Murphy	Ph.D.	In Progress

Graduate Thesis Research (As co-advisor)

M.S. Students

	Name	Degree Sought	Status
1.	Lucas Fidler	M.S.	Completed 2011
2.	Michael Braunscheidel	M.S.	Incomplete

PhD Students

	Name	Degree Sought	Status
1.	Kylara Martin	Ph.D.	Completed 2011
2.	Kyung Chang	Ph.D.	Completed 2013

Membership on Graduate Degree Candidates' Committee

	Name	Degree Sought	Status
1.	Kylara Martin	Ph.D.	Completed 2011
2.	Kyung Won Chang	Ph.D.	Completed 2013
3.	Emily Graham	M.S.	Completed 2013
4.	Alexander Urquhart	M.S.	Completed 2013
5.	Yao Peng	Ph.D.	Completed 2011
6.	Yang Xue	Ph.D.	Completed 2014
7.	Brendan Anthony Casey	Ph.D. (MIT)	Completed 2014
8.	Amy Adams	Ph.D. (MIT)	Completed 2014
9.	John Nowinski	Ph.D.	Completed 2014
10.	Amer Dierieh	Ph.D. (MIT)	Completed 2016
12.	Gregory Hurd	Ph.D.	Completed 2016
13.	Andrea Nolting	Ph.D.	Completed 2017
14.	Peter Miller	Ph.D.	In Progress
15.	Cansu Demir	Ph.D.	In Progress
16.	Stephanie Forstner	Ph.D.	In Progress
17.	Artur Davletshin	Ph.D.	In Progress
18.	Xin Liu	Ph.D.	In Progress
19.	Joshua Edgington	Ph.D.	In Progress
20.	Caroline McKeighan	Ph.D.	In Progress

Undergraduate Thesis Research (As primary advisor)

	Name	Degree Sought	Status
1.	Carmen Atkins	B.S. (Geosciences)	Completed 2012 (Berger Geosciences)

COURSES TAUGHT

Semester	Course	CREDITS	Course Title	Approx. Enrollment
Spring 2015	GEO 330K	3	Energy Exploration	27
Fall 2015	GEO 291	2	Fire/Ice: Methane Hydrates Geosystems	6
Spring 2016	GEO 330K	3	Energy Exploration	15
	GEO 382D	3	Crustal GeoFluids	15
Spring 2017	GEO 330K	3	Energy Exploration	15
Spring 2018	GEO 330K	3	Energy Exploration	15
Spring 2018	GEO 391	3	Methane Hydrate	
Spring 2019	GEO 382D	3	Crustal Geofluids	8
Fall 2019	GEO 291	2	Fire/Ice: Methane Hydrates Geosystems	5
Spring 2020	GEO 291	2	Geomechanics and Fluid Flow in Subduction Zones	
Spring 2021	GEO 382D	3	Crustal GeoFluids	
Fall 2021	GEO 382D	3	Crustal GeoFluids	10

SERVICE TO THE UNIVERSITY OF TEXAS**Service to the Department & Jackson School of Geosciences & University**

2021 Member, Graduate Studies Committee

2021 Member, UTIG Awards Committee
 2020-present Member, Graduate Admissions & Support Committee
 2018 UT Libraries Research & Pizza Series, Methane Hydrate Coring Expedition
 2017 UT Energy Institute: Energy Journalism Workshop, Austin, TX, Sep 2017 (invited speaker)
 2017 JSG Friends and Alumni Network Board Meeting Presentation, Methane Hydrates
 2017 JSG Advisory Council Presentation, Methane Hydrates
 2017 UT Energy Institute, Energy Journalism Workshop: The Energy Potential of Fire and Ice
 2015 Member, Consultative Committee for Evaluation of Dean of Jackson School of Geosciences
 2014-2015 Chair, Strategic Planning Committee (Department of Geological Sciences)
 2012-present Member, Graduate Studies Committee (Department of Geological Sciences)
 2013 Chair, Faculty Evaluation Committee (Department of Geological Sciences)
 2010-2012 Chair, Appointments Committee-Jackson School
 2010-August Presented talk on research for Jackson School Reunion
 2009-2011 Member, Endowment Committee (Jackson School)
 2009-2010 Member, Appointments Committee (Jackson School)
 2009-2012 Chair, Graduate Studies Committee (Department of Geological Sciences)
 2009-2009 Member, IT Search Committee (Department of Geological Sciences)
 2009-2009 Chair, Energy Theme Search Committee (Jackson School)
 2009 Chair Sed Erg (Jackson School)
 2008-2012 Graduate Adviser, Dept. of Geological Science (Jackson School)
 2008-2009 Member, UTIG Director Search Committee (UTIG)
 2008-2009 Chair, Schoch Building Move Committee (Department of Geological Sciences)
 2008-2009 Chair, Ad Hoc Department Computing Committee (Department of Geological Sciences)
 2007-2009 Member, Energy Theme Search Committee (Jackson School)
 2007-2009 Member, Departmental Endowed Position Committee (Department of Geological Sciences)