

Kehua You

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RESEARCH INTERESTS

Carbon Cycle, Methane Hydrate, Permafrost, Hydrogeology, Subsurface Fluid Flow and Transport, Numerical and Analytical Modeling

EDUCATION

Ph.D. 2013 Geology, Texas A&M University, College Station, Texas, USA
Dissertation: Influence of atmospheric pressure and water table fluctuations on gas phase flow and transport of volatile organic compounds (VOCs) in unsaturated zone

B.E. 2008 Environmental Science, University of Science and Technology of China, Hefei, China
Thesis: Study of Antimony Pollution in NY-ALESUND, Svalbard archipelago, Arctic

PROFESSIONAL APPOINTMENTS

2015- present *Assistant Research Professor*, Institute for Geophysics, University of Texas at Austin,
2013-2015 *Postdoctoral Fellow*, Institute for Geophysics, University of Texas at Austin, Texas, USA
2011 *Researcher*, Idaho National Laboratory, Idaho Falls, Idaho, USA
2007-2008 *Research Assistant*, Institute of Polar Environment, University of Science and Technology of China, Hefei, China

AWARDS & HONORS

Awards:

2012 Research awards in 5th Annual Texas A&M Geology & Geophysics Research Symposium
2011 Research awards in 4th Annual Texas A&M Geology and Geophysics Research Symposium
2010 Research awards in 3rd Annual Texas A&M Geology and Geophysics Research Symposium
2010 "Best Graduate Student", University of Science and Technology of China
2007 "Excellent Undergraduate Research Program", University of Science and Technology of China

Fellowships:

2012-2013 GEPL GRAD Fellowships, Texas A&M University
2011-2012 Chevron Fellowships, Texas A&M University
2010-2011 ConocoPhillips Fellowships, Texas A&M University
2009-2010 Aramco Fellowships, Texas A&M University
2008-2009 ConocoPhillips Fellowships, Texas A&M University

Scholarships:

2011-2012	Doris & Joe P. Watson 42 Endowed Graduate Scholarship, Texas A&M University
2008-2009	Incentive Scholarship, Texas A&M University
2004-2008	Natural Inspiring Scholarship, University of Science and Technology of China, China,
2005-2006	"Huang Mao Tong" Special Scholarship, University of Science and Technology of China, China
2004-2005	Outstanding Student Scholarship

PUBLICATIONS

* Student **Postdoctoral fellow

Peer-reviewed Journal Publications:

- 1) **You, K.**, and S. Socolofsky (2023), Composition evolution as hydrocarbon parcels migrate from reservoirs to the seafloor, In Preparation.
- 2) Cardona, A., Y. Fang, P.B. Flemings and **K. You** (2023), Dissolution in methane hydrate-bearing sediments: implication for relative permeability, To be submitted.
- 3) **You, K.**, P.B. Flemings and D. DiCarlo (2023), Thermal and hydraulic controls on gas production from methane hydrate reservoirs, To be submitted.
- 4) **You, K.**, C. Thomas, A. Savage, Z. Murphy, J. O'Connell and P. B. Flemings (2023), Dissolved methane diffusion drives hydrate-bearing pressure core degradation during long-term storage in water, Journal of Geophysical Research: Solid Earth, To be submitted.
- 5) *Murphy, Z.W., D. DiCarlo, **K. You** and P.B. Flemings (2023), Gas and water relative permeability of hydrate bearing sediment, To be submitted.
- 6) **You, K.** (2023), Biodegradation of ancient organic carbon fuels seabed methane emission at the Arctic continental shelves, Journal of Geophysical Research: Global Biogeochemical Cycles, Under Review.
- 7) DiCarlo, D., Z. Murphy, **K. You** and P.B. Flemings (2023), Pore Occupancy of gas hydrate, Under Review.
- 8) Portnov, A., P.B. Flemings, K. Meazell, **K. You**, M. Hudec and D. Dunlap (2023), Low temperature and high pressure deepen the gas hydrate stability zone in rapidly formed sedimentary basins, Earth and Planetary Science Letters, Marine and Petroleum Geology, 158(106550).
- 9) Portnov, A., **K. You**, P. B. Flemings, A. E. Cook, M. Heidari, D.E. Sawyer and S. Bünz (2023), Dating submarine landslides using the transient response of gas hydrate stability, Geology, 51(4), 387-391.
- 10) **You, K.**, P.B. Flemings, M. Heidari and A. R. Bhandari (2022), The Role of creep in geopressure development, Petroleum Geosciences, 28(3): petgeo2021-064.
- 11) Phillips, S.C., P. B. Flemings, **K. You** and W. F. Waite (2022), Thermodynamic insights into the production of methane hydrate reservoirs from depressurization of pressure cores, AAPG Bulletin, 106(5), 1025-1049.
- 12) *Wei, L., A. Cook and **K. You** (2022), Methane migration mechanisms for the GC955 gas hydrate reservoir, Northern Gulf of Mexico, AAPG Bulletin, 106(5), 1005-1023.

- 13) **Santra, M., P. B. Flemings, M. Heidari and **K. You** (2022), Occurrence of gas hydrate in fault-compartmentalized channel-levee system, Green Canyon, abyssal northern Gulf of Mexico, *AAPG Bulletin.*, 106(5), 981-1003.
- 14) **You, K.**, L. Summa, P. B. Flemings, M. Santra and Y. Fang (2021), Three-dimensional free gas flow focuses basin-wide microbial methane to concentrated methane hydrate reservoirs in geological system, *Journal of Geophysical Research: Solid Earth*, 126, e2021JB022793.
- 15) **You, K.** and P. B. Flemings (2021), Methane hydrate formation and evolution during sedimentation, *Journal of Geophysical Research: Solid Earth*, 126, e2020JB021235.
- 16) White, M.D., T.J. Kneafsey, Y. Seol et al. (2020), An international code comparison study on coupled thermal, hydrologic and geomechanical processes of natural gas hydrate-bearing sediments, *Marine and Petroleum Geology*, 120, 104566.
- 17) *Meyer, D., P. B. Flemings, **K. You**, and D. DiCarlo (2020), Gas flow by invasion percolation through the hydrate stability zone, *Geophysical Research Letter*, 47(3), e2019GL084380.
- 18) Flemings, P.B., S.C. Phillips, R. Boswell, ... and **K. You** (2020), Pressure coring a Gulf of Mexico deepwater turbidite gas hydrate reservoir: initial results from the UT-GOM2-1 hydrate pressure coring expedition, *AAPG Bulletin*, 104(9), 1847-1876.
- 19) **Fang, Y., P.B. Flemings, H. Daigle, S.C. Phillips, P.K. Meazell, and **K. You** (2020), Petrophysical properties of the GC955 hydrate reservoir inferred from reconstituted sediments: Implications for Hydrate Formation and Production, *AAPG Bulletin*, 104(9), 1997-2028.
- 20) **You K.**, P.B. Flemings, A. Malinverno, T.S. Collett, and K. Darnell. (2019), Mechanisms of methane hydrate formation in geological systems, *Reviews of Geophysics*, 57.
- 21) *Wei, L., A. Cook, H. Daigle, A. Malinverno, M. Nole, and **K. You** (2019), Factors controlling short-range methane migration of gas hydrate accumulations in thin coarse-grained layers, *Geochemistry, Geophysics, Geosystems*, 20, 3985-4000.
- 22) **Phillips, S.C., P.B. Flemings, **K. You**, D.W. Meyer, and T. Dong (2019), Investigation of in situ salinity and methane hydrate dissociation in coarse-grained sediments by slow, stepwise depressurization, *Marine and Petroleum Geology*, 109, 128-144.
- 23) **You, K.** and P. B. Flemings (2018), Methane hydrate formation in thick sandstones by free gas flow, *Journal of Geophysical Research: Solid Earth*, 123.
- 24) *Meyer, D.W., P. B. Flemings, D. DiCarlo, **K. You**, S. C. Phillips and T. J. Kneafsey (2018), Experimental investigation of gas flow and hydrate formation within the hydrate stability zone, *Journal of Geophysical Research: Solid Earth*, 123.
- 25) **You, K.** and P. B. Flemings (2017), Methane hydrate formation in thick sand reservoirs: 1. Short-range methane diffusion, *Marine and Petroleum Geology*, 89,428-442.
- 26) **You, K.**, D. DiCarlo and P. B. Flemings (2016), Impact of gravity on hydrate saturation in gas-rich environments, *Water Resources Research*, 52, 1265-1285.
- 27) **You, K.**, D. DiCarlo and P. B. Flemings (2015), Quantifying hydrate solidification front advancing using method of characteristics, *Journal of Geophysical Research: Solid Earth*, 120, 6681-6697.
- 28) **You, K.**, T. Kneafsey, P. B. Flemings, S. Bryant, and P. Polito (2015), Salinity-buffered methane hydrate formation and dissociation in gas-rich systems, *Journal of Geophysical Research: Solid Earth*, 120 (2), 643-661.
- 29) **You, K.**, and H. Zhan (2013), New solutions for solute transport in a finite column with distance

dependent dispersivities and time-dependent sources, *Journal of Hydrology*, 487, 87-97.

- 30) **You, K.**, and H. Zhan (2013), Comparisons of diffusive and advective fluxes of gas phase volatile organic compounds (VOCs) in unsaturated zones under natural conditions, *Advances in Water Resources*, 52, 221-231.
- 31) **You, K.**, and H. Zhan (2012), Can water table and atmospheric pressure fluctuations be neglected in soil vapor extraction? *Advances in Water Resources*, 35, 41-54.
- 32) *Li, J., **K. You**, H. Zhan, and G. Huang (2012), Analytical solution to airflow of barometric pumping in layered unsaturated zone porous media", *Transport in Porous Media*, 93(3), 461-474.
- 33) *Li, J., H. Zhan, G. Huang, and **K. You (2012)**, "Determining air permeability in reclaimed coastal land based on tidal fluctuations", *Environmental Earth Sciences*, 66(4), 1259-1268.
- 34) **You, K.**, H. Zhan, and J. Li (2011), Analysis of models for induced gas flow in unsaturated zone, *Water Resource Research*, 47, W04515.
- 35) **You, K.**, H. Zhan, and J. Li (2011), Gas flow to a barometric pumping well in a multilayered unsaturated zone, *Water Resources Research*, 47, W05522.
- 36) **You, K.**, H. Zhan, and J. Li (2010), A new solution and data analysis for gas flow to a barometric pumping well, *Advances in Water Resources*, 33(12), 1444-1455.
- 37) *Li, J., H. Zhan, G. Huang, and **K. You (2010)**, Tidal induced airflow in a two-layered coastal land with atmospheric pressure fluctuations, *Advances in Water Resources*, 34, 649-658.
- 38) Sun, L., L. Yuan, N. Jia, **K. You**, X. Wang, and Y. Wang (2010), Sb pollution in the soil, moss and sediments of Ny-Alesund, Svalbard, Arctic, *Sciencepaper Online*.
- 39) *Xu, L., L. Sun, **K. You**, J. Wang, and Y. Wang (2010), Geochemical characteristics of Pb in cultural layers of Yuchisi Site and source tracing of primitive metallurgy in China, *Acta Pedologica Sinica*, 47(2), 193-205.
- 40) *Xu, L., L. Sun, J. Zhang, R. Zhu, **K. You**, and J. Wang (2008), 2500 BC : the beginning of chalcolithic period in China recorded by Hg, *Quaternary Research*, 28(6), 1070-1080.

Conference Publications:

- 41) **You, K.**, and P. B. Flemings (2017), Methane hydrate formation in thick sand reservoirs: Long-range gas transport or short-range methane diffusion?, ICGH9, Denver, Colorado, USA.
- 42) *Meyer, D. W., **K. You**, S. Phillips, Flemings P.B., DiCarlo D. and Kneafsey, T. (2017), Methane hydrate formation in coarse-grained, brine-saturated sample through the induction of a propagating gas front, ICGH9, Denver, Colorado, USA.
- 43) **Phillips, S. C., **K. You**, P.B. Flemings, D.W. Meyer and T. Dong (2017), Dissociation of laboratory-synthesized methane hydrate in coarse-grained sediments by slow depressurization, ICGH9, Denver, Colorado, USA.
- 44) *Wei, L., A.E. Cook, A. Malinverno, H. Daigle, M. Nole, R. Andris, **K. You** and J. M. Frederick (2017), Methane hydrate formation in coarse-grained, brine-saturated sample through the induction of a propagating gas front, ICGH9, Denver, Colorado, USA.
- 45) Flemings, P. B. et al. (2017), GOM2: Prospecting, drilling and sampling coarse-grained hydrate reservoirs in the Deepwater Gulf of Mexico, ICGH9, Denver, Colorado, USA.

RESEARCH GRANTS

Single PI, "Toward a process understanding of the methane thermodynamics associated with subsea permafrost thaw at the Arctic Continental Shelves", 2023-2026, NSF, \$293,820, Recommended for funding.

Lead PI at UTIG with PI S. Socolofsky at TAMU, "Modeling chemical and thermodynamic transformations of hydrocarbon droplets and bubbles during transport through oceanic sub-bottom geologic features", 2023, Shell, \$77,188 for UTIG.

Co-PI with PI A. Portnov at UTIG, "Magellan hydrate research project", 2023, Woodside, \$60,758.

Lead PI, "Constraints of deep marine sediment compaction on microbial methane production", UTIG Blue Sky, 2022, One semester's support for one graduate student.

Lead PI at UTIG with PI S. Socolofsky at TAMU, "Reactive gas migration and its impact to gas composition through sediments below the seafloor", 2022, Shell, \$48,000 for UTIG.

Lead PI, "Simultaneous natural gas production and CO₂ storage in hydrates: a carbon-neutral strategy for the energy transition", UTIG Blue Sky, 2020-2021, One graduate student Fellowship.

Lead PI at UTIG with PI J. Lin at DGS, "Characterization and Modeling of Methane Hydrate Reservoirs in the Gulf of Mexico", ExxonMobil, Mar. 2017 – Feb., 2020, \$239,703 of \$905,681.

Co-PI with PI P.B. Flemings at UTIG, "Deepwater methane hydrate characterization in the Gulf of Mexico: scientific assessment and production potential", DOE, 2014- 2024, \$98,993,151.

Participant as Postdoctoral fellow, "Controls on methane expulsion during melting of natural gas hydrate systems", DOE, Oct. 2012-Mar. 2015, \$1,170,806.

PRESENTATIONS

Invited Talks:

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| Winter, 2023 | Methane Dynamics Associated with the Thawing Subsea Permafrost at the Arctic Continental Shelves Since the Last Glacial Maximum, Marine Geoscience Forum, China |
| Spring, 2023 | Impact of Global Warming and Related Thawing Permafrost on Gas Hydrates Located in or Beneath Permafrost, Helmholtz Centre Potsdam German Research Centre Geosciences (GFZ), German |
| Spring, 2023 | Formation of Concentrated Methane Hydrate Reservoirs, Guangzhou Marine Geological Survey, China |
| Spring, 2021 | Formation of concentrated methane hydrate in geological system, University of Louisiana |
| Spring, 2020 | Coupled Multiphase Flow and Reactive Transport Processes in Gas Hydrate Systems, Gordon Research Conference, Galveston, Texas |
| Spring, 2019 | Mechanisms of Methane Hydrate Formation in Geological Systems, Chapman Colloquium Series, University of New Hampshire. |

- Fall, 2018 Methane Recycling through Burial of Methane Hydrate-Bearing Sediments, UTIG Brownbag Seminar, the University of Texas at Austin.
- Fall, 2018 Conceptual and Quantitative Models of Hydrate Formation by Microbial Biogenesis at GC-955, GOM2 Workshop, Ohio State University.
- Spring, 2017 Developing Testable Hypotheses for Drilling Expedition of Methane Hydrate-Bearing Thick Sand Reservoirs in Gulf of Mexico, Departmental seminar, Texas A&M University.
- Spring 2016 Methane Hydrate Formation by Long Range Gas Transport, UTIG seminar, the University of Texas at Austin.
- Spring 2015 Hydrate Formation in Gas-Rich Environments, Hydro Brownbag seminar, the University of Texas at Austin.
- Spring 2015 Hydrate Formation in Gas-Rich Environments, UTIG Brownbag Seminar, the University of Texas at Austin.
- Spring 2013 Impact of Atmospheric Pressure and Water Table Fluctuations on Gas Phase Flow and Transport of Volatile Organic Compounds (VOCs) in Unsaturated Zones, Hydro Brownbag Seminar, the University of Texas at Austin.

Scientific Presentations:

- 1) **You, K.**, C. Thomas, A. Savage, Z. Murphy, J. O’Connel and P. B. Flemings, 2023, Dissolved methane diffusion drives hydrate-bearing pressure core degradation during long-term storage in water, Abstract to be presented at 10th International Conference on Gas Hydrate, July 2023, Singapore.
- 2) **You, K.**, A. Portnov and P. B. Flemings, 2023(ORAL), Methane dynamics associated with the thawing subsea permafrost since the Last Glacial Maximum, Abstract to be presented at 10th International Conference on Gas Hydrate, July 2023, Singapore.
- 3) Portnov, A., **You K.**, and P.B. Flemings, 2023(ORAL), Dating submarine landslides using the transient gas hydrate stability, Abstract to be presented at 10th International Conference on Gas Hydrate, July 2023, Singapore.
- 4) **You, K.**, S. Phillips, P.B. Flemings, F.S. Colwell, and J. Mikucki, 2022(ORAL), Coarse-grained sediments as potential microbial factories for methane generation in marine sediments, Abstract presented at AGU Annual Meeting, 12-16 December, Chicago, IL.
- 5) Flemings, P.B., Y. Fang, **K. You** and A. Cardona, 2022 (ORAL), The water relative permeability behavior of hydrate-bearing sediment, Abstract presented at AGU Annual Meeting, 12-16 December, Chicago, IL.
- 6) Murphy, Z., P.B. Flemings, D.A. DiCarlo and **K. You**, 2022 (ORAL), Simultaneous CH₄ production and CO₂ storage in hydrate reservoirs, Abstract presented at AGU Annual Meeting, 12-16 December, Chicago, IL.
- 7) **You, K.**, A. Portnov, P. B. Flemings and D. Liu, 2022, Methane dynamics associated with the thawing subsea permafrost since the Last Glacial Maximum, Abstract presented at CAGE International Conference on Methane in a Changing Arctic, Sep. 14-16th, Tromsø, Norway.
- 8) Smith, L.D., A. Savage, P.B. Flemings, F. Cowell, J. Mikucki, and **K. You**, 2022, Too much pressure: Effect of sediment compaction on microbial viability, Abstract presented at ABSCICON 2022, Atlanta, AG.
- 9) **You, K.**, and P.B. Flemings, 2021(ORAL), Coarse-grained sediments as potential microbial factories for methane generation in marine sediments, Abstract presented at GSA Annual Meeting, 10-13 Oct, Portland, Oregon.
- 10) Flemings, P.B., **K. You**, L. Summa and M. Santra, 2021 (ORAL), The biogenic gas hydrate hydrocarbon system, Abstract presented at AAPG Annual Convention & Exhibition.

- 11) Portnov, P., **K. You**, P.B. Flemings, A. Cook, M. Heidari and D. Sawyer (ORAL), 2021, Dating submarine landslides using the transient response of gas hydrate stability, Abstract presented at AAPG Annual Convention & Exhibition.
- 12) Li, W., A. Cook, and **K. You** (2021), Methane migration mechanisms for the GC 955 gas hydrate reservoir, Northern Gulf of Mexico, Abstract presented at AAPG Annual Convention & Exhibition.
- 13) Santra M., P.B. Flemings, **K. You** and W. Waite (ORAL), 2021, Occurrence of high-saturation gas hydrate in a fault-compartmentalized anticline and the role of seal, Green Canyon, Abyssal Northern Gulf of Mexico, Abstract presented at AAPG Annual Convention & Exhibition.
- 14) **You, K.**, M. Santra, L. Summa, and P.B. Flemings, 2020, Impact of focused free gas flow and microbial methanogenesis kinetics on the formation and evolution of geological gas hydrate system, Abstract presented at 2020 AGU Fall Meeting, 1-17 Dec, Virtual.
- 15) Wei, L., A. Cook and **K. You**, 2020, Methane migration mechanisms for the GC955 gas hydrate reservoir, Northern Gulf of Mexico, Abstract presented at 2020 AGU Fall Meeting, 1-17 Dec, Virtual.
- 16) **You, K.**, M. Santra, L. Summa, and P.B. Flemings, 2020 (ORAL), Impact of coupled free gas flow and microbial methanogenesis on the formation and evolution of concentrated hydrate deposits, Abstract presented at AAPG Annual Convention & Exhibition, Virtual.
- 17) Santa, M., **K. You**, L. Summa, and P.B. Flemings, 2020 (ORAL), Gas hydrate in a fault-compartmentalized anticline and the role of seal, Green Canyon, Abyssal Northern Gulf of Mexico, Abstract presented at AAPG Annual Convention & Exhibition, 7-10 June, Houston, TX.
- 18) Fang, Y., P.B. Flemings, H. Daigle, S. Phillips, K. Mezell and **K. You** (ORAL), 2019, Petrophysical properties of the GC955 Gulf of Mexico hydrate reservoir inferred from reconstituted sediments: implications for hydrate formation, Abstract presented at 2019 AGU Fall Meeting, 9-13 Dec., San Francisco.
- 19) **You, K.**, P. B. Flemings, and M. Santra, 2018, Heterogeneous hydrate formation controlled by capillary-driven free gas flow, Abstract presented at 2018 AGU Fall Meeting, 10-14 Dec., Washington, D.C..
- 20) Meyer, D., P. B. Flemings, **K. You**, and D. DiCarlo (ORAL), 2018, Gas flow through the hydrate stability zone enabled by methane diffusion-limited hydrate formation, Abstract presented at 2018 AGU Fall Meeting, 10-14 Dec., Washington, D.C..
- 21) **You, K.**, and P. B. Flemings, 2018 (ORAL), Heterogeneous hydrate distribution controlled by capillary pressure in sandstones composed of layers with different qualities, Abstract presented at 2018 Gordon Research Seminar, Natural Gas Hydrate Systems, Galveston, TX, 24-25 Feb.
- 22) **You, K.**, and P. B. Flemings, 2018, Heterogeneous hydrate distribution controlled by capillary pressure in sandstones composed of layers with different qualities, Abstract presented at 2018 Gordon Research Conference, Natural Gas Hydrate Systems, Galveston, TX, 26 Feb-2 March.
- 23) **You, K.**, and P. B. Flemings, 2017 (ORAL), Methane recycling during burial of methane hydrate-bearing sediments? Abstract presented at 2017 AGU Fall Meeting, 11-15 Dec., New Orleans, LA, USA.
- 24) **You, K.**, and P. B. Flemings, 2017 (ORAL), Methane recycling during burial of methane hydrate-bearing sediments? Abstract presented at 25th Hubbert Quorum, 10 Dec., New Orleans, LA, USA.
- 25) **You, K.**, and P. B. Flemings, 2017 (ORAL), Methane hydrate formation in thick sand reservoirs: long-range gas transport or short-range methane diffusion? Abstract presented at 9th International Conference on Gas Hydrates, 25-30 June, Denver, Colorado, USA.
- 26) **You, K.**, and P. B. Flemings, 2016, Methane hydrate formation in thick sand reservoirs: long-range gas transport or short-range methane diffusion?, Abstract presented at 2016 Fall Meeting, AGU, San Francisco, 12-16 Dec.
- 27) **You, K.**, 2016 (ORAL), Methane hydrate formation from gas and liquid water, Thematic School on Dynamic Recrystallization, France, 6-11 Nov.

- 28) **You, K.**, P. B. Flemings, and D. DiCarlo, 2016, Quantifying hydrate formation in gas-rich environments using the method of characteristics, Abstract presented at 2016 Gordon Research Conference, Natural Gas Hydrate Systems, Galveston, TX, 28 Feb. - 4 March.
- 29) **You, K.**, P. B. Flemings, and D. DiCarlo, 2016 (ORAL), Quantifying hydrate formation in gas-rich environments using the method of characteristics, Abstract presented at 2016 Gordon Research Seminar, Natural Gas Hydrate Systems, Galveston, TX, 26-27 Feb.
- 30) Meyer, D.W., **K. You**, S. Phillips, P. B. Flemings, D. DiCarlo, and T. Kneafsey, 2016, Methane hydrate formation in a saturated, coarse-grained sample through the induction of a propagating gas front, Abstract presented at 2016 Gordon Research Conference, Natural Gas Hydrate Systems, Galveston, TX, 28 Feb. - 4 March.
- 31) Phillips, S., T. Borgfeldt, **K. You**, D. Meyer and P. B. Flemings, 2016, Dissociation of laboratory-synthesized methane hydrate by depressurization, Abstract presented at 2016 Gordon Research Conference, Natural Gas Hydrate Systems, Galveston, TX, 28 Feb. - 4 March.
- 32) **You, K.**, P. B. Flemings and D. DiCarlo, 2015, Quantifying hydrate solidification front advancing using method of characteristics, Abstract presented at 2015 Fall Meeting, AGU, San Francisco, 14-18 Dec.
- 33) Meyer, D., **K. You**, T. Borgfeldt, P. B. Flemings, D. DiCarlo, and T. Kneafsey, 2015, Methane hydrate formation in a saturated, coarse-grained sample through the Induction of a propagating gas front , Abstract presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec.
- 34) Borgfeldt, T., P. B. Flemings, D. Meyer, and **K. You**, 2015, Experimental dissociation of methane hydrates through depressurization, Abstract presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 14-18 Dec.
- 35) **You, K.**, P. B. Flemings and D. DiCarlo, 2015 (ORAL), Quantifying hydrate solidification front advancing using method of characteristics, Abstract presented at 23rd Hubbert Quorum, San Francisco, 13 Dec.
- 36) **You, K.**, and P. B. Flemings, 2014, Dynamics of permafrost-associated methane hydrate during climate change, Abstract presented at 2014 Fall Meeting, AGU, San Francisco, 15-19 Dec.
- 37) **You, K.**, and P. B. Flemings, 2014, Salinity-buffered methane hydrate formation and dissociation in gas-rich systems, Abstract presented at the Gordon Research Conferences, Natural Gas Hydrate Systems, Galveston, TX, 24-28 March.
- 38) Darnell, K., P. B. Flemings, S. Bryant, and **K. You**, 2014, Simulations of seafloor methane venting from warming-induced hydrate destabilization, Abstract presented at the Gordon Research Conferences, Natural Gas Hydrate Systems, Galveston, TX, 24-28 March.
- 39) **You, K.**, and P. B. Flemings, 2014 (ORAL), Salinity-buffered methane hydrate formation and dissociation in gas-rich systems, Abstract presented at the Gordon Research Seminar, Natural Gas Hydrate Systems, Galveston, TX, 23 March.
- 40) **You, K.**, and P. B. Flemings, 2013, One dimensional advancing solidification front in the hydrate system, Abstract presented at 2013 Fall Meeting, AGU, San Francisco, 9-13 Dec.
- 41) Kneafsey, T., P. B. Flemings, S. Bryant, **K. You**, and P. Polito, 2013, Preliminary experimental examination of controls on methane expulsion during melting of natural gas hydrate systems, Abstract presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.
- 42) **You, K.**, and H. Zhan, 2012, Comparisons of diffusive and advective fluxes of gas phase volatile organic compounds (VOCs) in unsaturated zones under natural conditions, Abstract presented at

2012 Fall Meeting, AGU, San Francisco, 3-7 Dec.

- 43) **You, K.**, and H. Zhan, 2012 (ORAL), Transport mechanisms of gas phase volatile organic compounds (VOCs) in natural attenuation, Abstract presented at 2012 International Groundwater Forum, Baoding, China, 6-7 Jul.
- 44) **You, K.**, and H. Zhan, 2012 (ORAL), Investigation of gas phase volatile organic compounds transport in unsaturated zones under natural conditions, Abstract presented at 2012 IPACES Annual Meeting, Guangzhou, China, 3-4 Jul.
- 45) **You, K.**, and H. Zhan, 2012, Investigation of gas phase volatile organic compounds transport in unsaturated zones under natural conditions, Poster presented at 5th Annual Texas A&M Geology and Geophysics Research Symposium, College Station, Texas, 13 April.
- 46) **You, K.**, and H. Zhan, 2012 (ORAL), Investigation of the gas flow and vapor transport of volatile organic compounds (VOCs) in porous media, Abstract presented at 3rd Annual Berg-Hughes Center Research Conference and Problem Identification Workshop, College Station, Texas, 12 April.
- 47) **You, K.**, and H. Zhan, 2011 (ORAL), Non-Fickian solute transport in a finite column test, Abstract presented at 2011 Fall Meeting, AGU, San Francisco, 5-9 Dec.
- 48) **You, K.**, and H. Zhan, 2011, Analytical investigation of gas flow to a barometric pumping well in a multi-layered unsaturated zone, Poster presented at 4th Annual Texas A&M Geology and Geophysics Research Symposium, College Station, Texas, 19 April.
- 49) **You, K.**, and H. Zhan, 2010, Investigation of gas flow to a barometric pumping well in unsaturated zones, Abstract presented at 2010 Fall Meeting, AGU, San Francisco, 13-17 Dec.
- 50) **You, K.**, and H. Zhan, 2010, Gas flow to a barometric pumping well in unsaturated zones, Abstract presented at 2010 Hydrology Conference, San Diego, 11-13 Oct.
- 51) **You, K.**, and H. Zhan, 2010, Gas flow to a barometric pumping well in a homogeneous unsaturated zone, Poster presented at 3th Annual Texas A&M Geology and Geophysics Research Symposium, College Station, Texas, 19 April.

TEACHING EXPERIENCES

- 2018 *Guest lecturer* in Energy Exploration, University of Texas at Austin, Austin, Texas
2016 *Guest lecturer* in Energy Exploration, University of Texas at Austin, Austin, Texas
2015 *Guest lecturer* in Energy Exploration, University of Texas at Austin, Austin, Texas
2012 *Guest lecturer* in Hydrogeology, Texas A&M University, College Station, Texas
2010 *Teaching Assistant* in Geology 101, Texas A&M University, College Station, Texas

MENTORING EXPERIENCES

- Tiannong Dong (UTIG master student), Micro-Raman Characterization of pore-scale physics and chemistry of methane hydrate at pressure and temperature conditions relevant to natural reservoirs in the Gulf of Mexico, 2016-2019
Zachary Murphy (UTIG doctoral candidate), 2020-2023

PROFESSIONAL SERVICES

- 2011-Present *Reviewer* for Journal publications such as Nature, Geophysical Research Letter, Water

Resources Research, Journal of Contaminant Hydrology, Marine and Petroleum Geology, Geological Journal, Journal of Engineering Mechanics, Vadose Zone Journal, Journal of Hydrologic Engineering, Journal of Sustainable Development, Hydrology and Earth System Sciences Discussions, Journal of Natural Gas Science & Engineering, Water, Energies

2022-present UTIG Fellowship Committee

2022 *Session Chair* in American Geophysical Union Conference, Chicago IL.

2022 *Session convener* in American Geophysical Union Conference, Chicago IL.

2022 *Judge* for outstanding student poster in American Geophysical Union Conference, Chicago IL.

2021 *Session convener* at the Geological Society of America annual meeting, Portland, Oregon.

2020 *Judge* for the bright stars program of American Geophysical Union Conference, Virtual.

2019-2020 UTIG Postdoctoral Committee

2020 *Discussion leader* for keynote session in Gordon Research Seminar, Galveston, TX.

2020 *Judge* for 9th Annual Jackson School Student Research Symposium, University of Texas at Austin.

2019 Review IODP proposals

2019 Review UT Energy Institute proposals

2019 Review book proposals to ELSEVIER

2018 *Session Chair* in American Geophysical Union Conference, Washington DC.

2018 *Session primary convener* in American Geophysical Union Conference, Washington DC.

2018 *Discussion leader* in Gordon Research Seminar on "Natural Gas Hydrate Systems", Galveston, TX.

2018 *Judge* for 7th Annual Jackson School Student Research Symposium, University of Texas at Austin.

2017 *Session convener* in American Geophysical Union Conference, New Orleans.

2017 *Judge* for outstanding student poster in American Geophysical Union Conference, New Orleans.

2016 *Session chair* in American Geophysical Union Conference, San Francisco.

2016 *Session primary convener* in American Geophysical Union Conference, San Francisco.

2015 *Judge* for outstanding student poster in American Geophysical Union Conference, San Francisco.

2015 *Judge* for 4th Annual Jackson School Student Research Symposium, University of Texas at Austin.

2014 *Discussion leader* in Gordon Research Seminar on "Natural Gas Hydrate Systems", Galveston, TX.

2014 *Judge* for outstanding student poster in American Geophysical Union Conference, San Francisco.

PROFESSIONAL MEMBERSHIPS

2010-Present American Geophysical Union

2021 Geological Society of America