Elizabeth A. Horne

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Professional Preparation

Academic Background

M.S. Geology, Colorado School of Mines, Golden, CO (December 2016)
Thesis title – Kinematics and Growth of Supra-Salt Fault Systems: A Field and Subsurface Analysis. Advisor – Bruce Trudgill

B.S. Geology, Utah State University, Logan, UT (December 2013)
Thesis title – Textural and Geochemical Analysis of Fault Related Aragonite Veins: Insights into Ancient Fluid Travel. Advisors – James Evans and Dennis Newell

Professional Appointments

Present Position: Research Scientist Associate III, Bureau of Economic Geology, The University of Texas at Austin (December 2017 – Present). Structural geology interpreter for the Center for Integrated Seismicity Research program. Research roles include integrating field and subsurface datasets to generate 3D faulted-framework models that can be used to determine the kinematic evolution of complex structural systems and investigate the fault systems role in modern seismicity, both natural and induced.

Associate Instructor, Field Geology in the Rocky Mountains: Indiana University (2017), Department of Earth and Environmental Sciences, Cardwell, MT. Assisted in the preparation and execution of the 7.5 weeklong summer session of Field Geology in the Rocky Mountains at the Indiana University Geologic Field Station.

Laboratory Instructor, The University of Houston, Department of Earth and Atmospheric Sciences, Houston, TX (2016-2017). Responsible for the development and instruction of the laboratory portion of two undergraduate courses, 'Structural Geology' and 'Principles of Stratigraphy'.

Associate Instructor, Field Geology in the Rocky Mountains: Indiana University (2016), Department of Earth and Environmental Sciences, Cardwell, MT. Assisted in the preparation and execution of the 7.5 weeklong summer session of Field Geology in the Rocky Mountains at the Indiana University Geologic Field Station.

Teaching Assistant, Geology Field Camp: Colorado School of Mines, Department of Geology and Geological Engineering, Moab, UT (2016 & 2015).

Geophysics Intern, Deepwater Gulf of Mexico – Prospect Maturation and Exploration: ConocoPhillips, Houston, TX (May-August 2015). Conducted 2D seismic balancing, phase rotation, and well-to-seismic ties to build a geophysically-consistent seismic database that enabled the regional GOM team to map lithologic and sequence-stratigraphic surfaces regionally throughout the Gulf of Mexico. Updated gross depositional environment maps for Mesozoic units of interest throughout the eastern Gulf of Mexico to aid in ongoing prospect maturation, assist in future lease sale efforts, and identify potential farm-in opportunities.

Geology Intern, Subsurface Technology – Structural Interpretation and Geomechanics: ConocoPhillips, Houston, TX (January-August 2014). Integrated subsurface and published data to build a subsurface database which was used to construct a 3D faulted framework model that would be used to conduct a 3D palinspastic restoration for the northern Laramide Rockies crystalline basement.

University Courses Taught

Associate Instructor, GEO660B: Field Geology, Department of Geological Sciences, Jackson School of Geosciences, the University of Texas at Austin (Summer Session 2022).

Teaching Assistant, Seismic Structural Analysis (GEO 391): University of Texas at Austin, Jackson School of Geosciences, Austin, TX (Spring Sessions 2019 & 2021). Worked alongside lead instructor, Dr. Peter Hennings, in working with students to develop both 2D and 3D seismic structural interpretation skills.

Associate Instructor, Field Geology in the Rocky Mountains: Indiana University, Department of Earth and Environmental Sciences, Cardwell, MT (Summer Sessions 2016-2017). Assisted in the preparation and execution of two 7.5 weeklong summer sessions of Field Geology in the Rocky Mountains at the Indiana University Geologic Field Station (IUGFS). During the two summer sessions, I had the opportunity to work alongside a team of geoscience faculty and associate instructors to teach over 90 undergraduate students from a variety of universities across the country. IUGFS is a long-standing field camp which teaches undergraduate students how to conduct field-based studies in structural geology, stratigraphy, geophysics, petrology, hydrogeology, and geochemistry.

Laboratory Instructor, Structural Geology (Spring 2017), The University of Houston, Department of Earth and Atmospheric Sciences, Houston, TX. Responsible for the development and instruction of the laboratory portion of the Structural Geology undergraduate course.

Laboratory Instructor, Principles of Stratigraphy (Fall 2016), The University of Houston, Department of Earth and Atmospheric Sciences, Houston, TX. Responsible for the development and instruction of the laboratory portion of the Principals of Stratigraphy undergraduate course.

Teaching Assistant, Geology Field Camp: Colorado School of Mines, Department of Geology and Geological Engineering, Moab, UT (Summer Sessions 2015 & 2016). Worked alongside CSM Faculty and fellow teaching assistants to teach over 40 students how to conduct field-based studies in structural geology and stratigraphy.

Continuing Education Courses Taken

Indiana University Field Geology in the Rocky Mountains: Cardwell, MT (2013)
Reservoir Geomechanics: Stanford University, online (2018)
Bighorn Basin Wyoming Field Course: ExxonMobil, Billings, MT and Cody, WY (2014)
Integrated Basin Analysis: ExxonMobil, Salt Lake City, UT (2013)

Publications

Google Scholar Profile:

https://scholar.google.com/citations?user=KGIxDgcAAAAJ&hl=en

Peer Reviewed Journal Articles

1. Hennings, P.H., Staniewicz, S., Smye, K.M., Chen, J., **Horne, E.A.**, Nicot, J.-P., Ge, J., Reedy, R., and Scanlon, B. 2023, Development of complex patterns of anthropogenic uplift and subsidence in the Delaware Basin of West Texas and southeast New Mexico, USA: Science of the Total Environment, v. 903, no. 166367, 16 p., https://doi.org/10.1016/j.scitotenv.2023.166367.
2. **Horne, E.A.**, Hennings, P.H., Smye, K.M., Staniewicz, S., Chen, J., and Savvaidis, A., 2022, Structural characteristics of shallow faults in the Delaware Basin: Interpretation, v. 10, no. 4, p. T807–T835, http://doi.org/10.1190/INT-2022-0005.1. **(AAPG-Petroleum Structure and Geomechanics Division Award for Best Recent Paper 2023)**

3. **Horne, E.A.**, Smye, K.M., and Hennings, P.H., 2022, Structure and characteristics of the basement in the Fort Worth Basin, in O. A. Callahan, and P. Eichhubl, eds., The Geologic Basement of Texas: A Volume in Honor of Peter T. Flawn: The University of Texas at Austin, Bureau of Economic Geology Report of Investigations No. 286, http://doi.org/10.23867/RI0286C7.
4. McKeighan, C., Hennings, P. **Horne, E.A.**, Smye, K.M., and Morris, A.P., 2022, Understanding Anthropogenic Fault Rupture in the Eagle Ford Region, South-Central Texas: Bulletin of the Seismological Society of America,112(6), 2870-2889, http://doi.org/10.1785/0120220074.
5. Huang, G. D., **Horne, E.A.**, Kavoura, F., and Savvaidis, A., 2022, Characteristics of Seismogenic Structures and 3D Stress State of the Delaware Basin of West Texas as Constrained by Earthquake Source Mechanisms: Seismological Research Letters, http://doi.org/10.1785/0220220054.
6. **Horne, E.A.**, Hennings, P.H., and Smye, K.M., *2022*, Structure and characteristics of the basement in the Fort Worth Basin, in Callahan, O. A., and Eichhubl, Peter, eds., *in press*, The Geologic Basement of Texas: A Volume in Honor of Peter T. Flawn: The University of Texas at Austin, Bureau of Economic Geology Report of Investigations No. 286. http://doi.org/10.23867/RI0286C7.
7. **Horne, E.A.**, Hennings, P.H., and Zahm, C.K., 2021, Basement-rooted faults of the Delaware Basin and Central Basin Platform, Permian Basin, West Texas and southeastern New Mexico, in Callahan, O. A., and Eichhubl, Peter, eds., 2021, The Geologic Basement of Texas: A Volume in Honor of Peter T. Flawn: The University of Texas at Austin, Bureau of Economic Geology Report of Investigations No. 286. http://doi.org/10.23867/RI0286C6.
8. Hennings, P.H., Dvory, N., **Horne, E.A.**, Li, P., Savvaidis, A., Zoback, M., 2021, Stability of the Fault Systems that Host Induced Earthquakes in the Delaware Basin of West Texas and Southeast New Mexico: The Seismic Record, 1 (2): p. 96–106, https://doi.org/10.1785/0320210020.
9. Morris, A.P., Hennings, P.H., **Horne, E.A.**, and Smye, K.M., 2021, Stability of basement-rooted faults in the Delaware Basin of Texas and New Mexico, USA: Journal of Structural Geology, v. 149, 18 p., http://doi.org/10.1016/j.jsg.2021.104360.
10. Smye, K., Hennings, P.H., **Horne, E.A.**, 2021, Variations in Vertical Stress in the Permian Basin Region, AAPG Bulletin: Geologic Note, http://doi.org/10.1306/10092019189
11. McKeighan, C., Hennings, P.H., **Horne, E.A.**, and Smye, K.M., 2021, 3D Interpretation, Structural Characterization, and Seismogenic Association of Faults in the Eagle Ford Region, South-Central Texas: GCAGS Transactions, v. 71, p. 185–191.
12. Hennings, P.H., Nicot, J.-P., Gao, R.S., DeShon, H.R., Lund Snee, J.-E., Morris, A.P., Brudzinski, M.R., **Horne, E.A.**, and Breton, C., 2021, Pore Pressure Threshold and Fault Slip Potential for Induced Earthquakes in the Dallas-Fort Worth Area of North Central Texas: Geophysical Research Letters, v. 48, no. 15, p. 32, http://doi.org/10.1029/2021GL093564.
13. Gao, R., Nicot, J.-P., Hennings, P. H., La Pointe, P., Smye, K.M., **Horne, E.A.**, Dommisse, R., 2021, Low pressure build-up with large disposal volumes of oilfield water: A comprehensive hydrogeologic model of pore pressure changes in the Ellenburger Group, Fort Worth Basin, North-Central Texas: AAPG Bulletin, BLTN20-159, http://doi.org/10.1306/03252120159.
14. Frohlich, C., Hayward, C., Rosenblit, J., Aiken, C., Hennings, P., Savvaidis, A., Lemons, C., **Horne, E.A.**, Walter, J.I., and DeShon, H.R., 2020, Onset and cause of increased seismic activity near Pecos, West Texas, USA from observations at the Lajitas TXAR Seismic Array: Journal of Geophysical Research: Solid Earth, v. 125, no. 1, 14 p., http://doi.org/10.1029/2019JB017737.

15. **Horne, E.A.**, Hennings, P.H., Osmond, J.L., and DeShon, H.R., 2020, Structural characterization of potentially seismogenic faults in the Fort Worth Basin: Interpretation, v. 8, no. 2, p. T323–T347, http://doi.org/10.1190/INT-2019-0188.1. **(AAPG-Petroleum Structure and Geomechanics Division Award for Best Recent Paper 2023)**
16. Hennings, P.H., Lund Snee, J.-E., Osmond, J.L., DeShon, H.R., Dommisse, R., **Horne, E.A.**, Lemons, C., and Zoback, M.D., 2019, Injection-induced seismicity and fault-slip potential in the Fort Worth Basin, Texas: Bulletin of the Seismological Society of America, v. 109, no. 5, p. 1615–1634, http://doi.org/10.1785/0120190017.

Journal Articles in Review

1. **Horne, E.A.**, Calle, A.Z., Smye, K.M., Morris, A.P., and Hennings, P.H., *in review*, Structural characterization and rupture hazard assessment of faults in the Midland Basin, West Texas: submitted to the Bulletin of the American Association of Petroleum Geologists (09/2023).

Journal Articles in Preparation

2. Calle, A.Z., Smye, K.M., **Horne, E.A.**, Eastwood, R., Hennings, P.H., and Reedy, R., *in prep*, Paleozoic Stratigraphic Record and its Reservoir Potential for Saltwater Disposal in the Midland Basin, West Texas, USA: to submit to the Bulletin of the American Association of Petroleum Geologists.
3. Ge, J., Nicot, J.-P., Smye, K.M. Calle, A.Z., Hennings, P.H., **Horne, E.A.**, and Leng, J., *in* prep, Modeling the Evolution of Pore Pressure from Deep Wastewater Injection in the Midland Basin, West Texas, USA: to submit to the Bulletin of the American Association of Petroleum Geologists.
4. Hennings, P.H., Ge, J., **Horne, E.A.**, Smye, K.M., and Nicot, J.-P., *in prep*, Pore Pressure Thresholds from Injection Associated with Seismogenic Fault Rupture in the Midland Basin, West Texas, USA: to submit to the Bulletin of the American Association of Petroleum Geologists.
5. **Horne, E.A.,** Callahan, O.A., Smye, K.M., Barnes, M., Eichhubl, P., Breton, C., and Hennings, P.H., *in prep*, The Structure of the Geologic Basement in Texas, in Callahan, O. A., Eichhubl, P., eds., The Geologic Basement of Texas: a volume in honor of Peter Flawn: The University of Texas at Austin, Bureau of Economic Geology Report of Investigations.
6. Savvaidis, A., Hennings, P.H., Frohlich, C., Eichhubl, P., **Horne, E.A.**, Huang, G.-C.D., and Callahan, O.A., *in prep*, Texas basement and the Earthquake Habitat, in Callahan, O. A., Eichhubl, P., eds., The Geologic Basement of Texas: a volume in honor of Peter Flawn: The University of Texas at Austin, Bureau of Economic Geology Report of Investigations.

Published Abstracts

1. **Horne, E.A.**, Hennings, P.H., Smye, K.M., Calle, A.Z., and Morris, A.P., 2023, Structural Characterization, Kinematic Analysis, and Rupture Hazard Assessment of Faults in the Permian Basin, Texas and New Mexico, in Third International Meeting for Applied Geoscience & Energy: Society of Exploration Geophysicists and American Association of Petroleum Geologists.
2. Calle, A.Z., **Horne, E.A.**, Smye, K.M., and Hennings, P.H., 2023, Paleozoic Stratigraphic Record and Reservoir Potential for Saltwater Disposal in the Midland Basin, West Texas, in Third International Meeting for Applied Geoscience & Energy: Society of Exploration Geophysicists and American Association of Petroleum Geologists.
3. Hennings, P.H., Smye, K.M., Ge, J., **Horne, E.A.**, and Nicot, J.-P., 2023, Pore pressure Thresholds from Injection Associated with Seismogenic Fault Rupture in the Midland

Basin in Third International Meeting for Applied Geoscience & Energy: Society of Exploration Geophysicists and American Association of Petroleum Geologists.

4. Casey, B.J., Hoffman, D., Carr, D.L., Bhattacharya, S., and **Horne, E.A.**, 2023, How well do you know your Midland Basin: Expanded mapping and 3D modeling of the Midland Basin, Southeast New Mexico and West Texas, 2023, in Third International Meeting for Applied Geoscience & Energy: Society of Exploration Geophysicists and American Association of Petroleum Geologists.
5. Hoffman, D., Bhattacharya, S., Carr, D.L., Casey, B.J., Eastwood, R., **Horne, E.A.**, and Smye, K.M., 2023, Integrated 3D Geocellular Model of the Wolfcamp-Bone Spring Interval in the Delaware Basin, United States: Challenges, Expectations, and Utilization for Regional Evaluation, 2023, in Third International Meeting for Applied Geoscience & Energy: Society of Exploration Geophysicists and American Association of Petroleum Geologists.
6. Hennings, P.H., Staniewicz, S., Chen, J., Smye, K.M., **Horne, E.A.**, Nicot, J.-P., Reedy, R., and Scanlon, B., 2022, Combining InSAR and Comprehensive Subsurface Data to Understand Regional Anthropogenic Uplift, Subsidence, Faulting and Earthquakes in the Delaware Basin, West Texas, American Geophysical Union, Fall Meeting 2022, Chicago, IL, USA. Abstract #GC42G-0777.
7. Ge., J., Nicot, J.-P., Smye, K. M., Calle, A., **Horne, E.A.**, and Hennings, P.H., 2022, Hydrogeological Modeling and Pore Pressure Characterization of Deep Formations in the Northern Delaware Basin, Texas and New Mexico, American Geophysical Union, Fall Meeting 2022, Chicago, IL, USA. Abstract #S41A-09.
8. **Horne, E.A.,** Hennings, P.H., Smye, K.M., Calle, A.Z., Huang, D., and Savvaidis, A., 2022, Structural characterization and rupture hazard assessment of faults in the Midland Basin, west Texas, in Second International Meeting for Applied Geoscience & Energy: Society of Exploration Geophysicists and American Association of Petroleum Geologists, p. 3170–3173, doi:10.1190/image2022-3745325.1.
9. **Horne, E.A.**, Hennings, P.H., Morris, A.P., and Savvaidis, A., 2021, 3D Structural Characterization and Seismogenic Association of Faults in the Delaware Basin, Texas and New Mexico, International Meeting for Applied Geoscience and Energy (IMAGE) 2021, Denver, CO, USA.
10. Hennings, P.H., Dvory, N., **Horne, E.A.**, and Zoback, M.D., 2021, Slip Potential of Faults in the Induced Earthquake-Prone Delaware Basin of West Texas and Southeast New Mexico, International Meeting for Applied Geoscience and Energy (IMAGE) 2021, Denver, CO, USA.
11. McKeighan, C., Hennings, P.H., and **Horne, E.A.**, 2021, Fault Slip Analysis for Induced Seismicity Hazard Assessment in the Western Midland Basin, International Meeting for Applied Geoscience and Energy (IMAGE) 2021, Denver, CO, USA.
12. McKeighan, C., Hennings, P., and **Horne, E.A.**, 2021, Fault Slip Analysis for Induced Seismicity Hazard Assessment in the Western Midland Basin, AGU Fall Meeting, 2021, New Orleans, LA, USA.
13. **Horne, E.A.**, Hennings, P.H., Morris, A., and Savvaidis, A., 2020, Structural Characterization and Seismogenic Association of Basement-Rooted Faults of the Delaware Basin, West Texas, GSA 2020 Annual Meeting, Montreal, Quebec, CA (Virtual).
14. Callahan, O.A., Smye, K.M., **Horne, E.A.**, Barnes, M.A., Eichhubl, P., Breton, C., and Hennings, P.H., 2020, The Geologic Basement in Texas: Results of a New State-Wide Synthesis, GSA 2020 Annual Meeting, Montreal, Quebec, CA (Virtual).
15. **Horne, E.A.**, Hennings, P.H., Savvaidis, A., Morris, A., Staniewicz, S., and Chen, J.A., 2020, 3D Structural Analysis and Seismogenic Association in the Central Delaware Basin, West Texas, American Geophysical Union, Fall Meeting 2020, San Francisco, CA, USA (Virtual).

16. Hennings, P.H., Dvory, N., **Horne, E.A.**, and Zoback, M., 2020, Slip Potential and Seismogenic Association of Basement-Rooted Faults in the Delaware Basin, West Texas, American Geophysical Union, Fall Meeting 2020, San Francisco, CA, USA (Virtual).
17. Gao, R., Nicot, J.-P., Hennings, P.H., Smye, K.M., Pelletier, I., and **Horne, E.A.**, 2020, Preliminary Hydrogeological Modeling of Deep Injection in the Delaware Basin for Pore Pressure Characterization with Application to Induced Seismicity, American Geophysical Union, Fall Meeting 2020, San Francisco, CA, USA (Virtual).
18. **Horne, E.A.**, Hennings, P.H., and Zahm, C.K., 2019, A New 3-D Structural Model and Characterization of Basement-Rooted Faults of the Delaware Basin and Central Basin Platform for Application in Understanding Recent Seismicity, American Association of Petroleum Geologists 2020 Annual Convention and Exhibition, Houston, TX, USA (Virtual).
19. Calle, A.Z., **Horne, E.A.**, Hamlin, H.S., and Carr, D., 2019, Pennsylvanian-Leonardian Stratigraphic Architecture and Deformation History During and Post Late Paleozoic Orogenesis, East Delaware Basin, West Texas, American Association of Petroleum Geologists 2020 Annual Convention and Exhibition, Houston, TX, USA (Virtual).
20. Casey, B.J., Hamlin, S., **Horne, E.A.**, Silva, L., Dommisse, R. and Gherbati, A., 2019, Continuous Development of Geologic Models for the Wolfcamp and Spraberry Formations, Southern Midland Basin, West Texas, American Association of Petroleum Geologists 2020 Annual Convention and Exhibition, Houston, TX, USA (Virtual).
21. **Horne, E.A.** and Hennings, P.H., 2019, New 3D Structural Model of the Delaware Basin with Application to Understanding Recent Earthquakes, SPE/SEG Workshop: Injection Induced Seismicity - The Next Chapter, 2019, Dallas, TX, USA.
22. Hennings, P.H., Gao, R.S., Nicot, J.-P., **Horne, E.A.**, Smye, K., and DeShon, H., 2019, Analysis of Seismogenic Pore Pressure Thresholds in the Fort Worth Basin from Comprehensive Hydrogeologic Modeling, SPE/SEG Workshop: Injection Induced Seismicity - The Next Chapter, 2019, Dallas, TX, USA.
23. Gao, R., Pelletier, I., **Horne, E.A.**, Nicot, J.-P., and Hennings, P.H., 2019, Basin-Scale Hydrogeological Modeling of the Fort Worth Basin Ellenburger Group for Pore Pressure Characterization, American Geophysical Union, Fall Meeting 2019, San Francisco, CA, USA. Abstract #H53C-01.
24. Quinones, L., DeShon, H., Hennings, P.H., **Horne, E.A.**, and Gao, R., 2019, Modeling Injection Induced Stress Changes in the Fort Worth Basin, American Geophysical Union, Fall Meeting 2019, San Francisco, CA, USA. Abstract #S12A-06.
25. Callahan, O.A., Eichhubl, P., Hennings, P.H., Smye, K., **Horne, E.A.**, Breton, C., Dommisse, R., Savvaidis, A., and Lemons, C., 2019, Texas Basement Synthesis Project: Understanding Geological Risk Factors of Basement-Involved Seismicity, American Association of Petroleum Geologists 2019 Annual Convention and Exhibition, San Antonio, TX, USA.
26. **Horne, E.A.**, Hennings, P.H., and Zahm, C.K., 2019, 3D Structural and Kinematic Model of the Delaware Basin and Surrounding Structural Blocks for Application in Understanding Recent Seismicity, American Association of Petroleum Geologists 2019 Annual Convention and Exhibition, San Antonio, TX, USA.
27. **Horne, E.A.**, Hennings, P.H., and Osmond, J.L., 2019, Characteristics of Potentially Seismogenic Faults in the Greater Fort Worth Basin, American Association of Petroleum Geologists 2019 Annual Convention and Exhibition, San Antonio, TX, USA.
28. Smye, K.M., **Horne, E.A.**, and Hennings, P.H., 2019, Development of a Three-Dimensional Vertical Stress Model for the Greater Permian Basin Region, American Association of Petroleum Geologists 2019 Annual Convention and Exhibition, San Antonio, TX, USA.
29. Haddad, M., Eichhubl, P., **Horne, E.A.**, Hennings, P.H. and Lemons, C.R., 2019, Poroelastic Models for Fault Reactivation in Response to Injection and Production:

Application to an Earthquake Sequence Near Venus, Johnson County, Texas, American Association of Petroleum Geologists 2019 Annual Convention and Exhibition, San Antonio, TX, USA.

30. Hennings, P.H., Lund Snee, J., Nicot, J., **Horne, E.A.**, and Zoback, M.D., 2019, Impact of Varied Approaches for Fault Slip Potential Analysis in the Fort Worth Basin, Texas, American Association of Petroleum Geologists 2019 Annual Convention and Exhibition, San Antonio, TX, USA.
31. Hennings, P.H., Savvaidis, A., Nicot, J., Eichhubl, P., Lemons, C.R., Smye, K.M., **Horne, E.A.**, Dommisse, R.D., and Callahan, O., 2019, The Geology of Active Earthquake Sequences in Texas, American Association of Petroleum Geologists 2019 Annual Convention and Exhibition, San Antonio, TX, USA. **(AAPG-DEG Award for Best Paper)**
32. Callahan, O.A., Eichhubl, P., Hennings, P.H., Smye, K., **Horne, E.A.**, Savvaidis, A., Huang, G.-C.D., Li, P., Lemons, C., Breton, C., and Dommisse, R., 2019, Texas Basement Synthesis Project: Characterizing Geological Risk Factors of Basement-Involved Seismicity, 2019 GSA South-Central/North-Central/Rocky Mountain Section Meeting, Manhattan, KS, USA.
33. **Horne, E.A.**, Hennings, P.H., and Zahm, C.K., 2018, 3D Structural and Kinematic Model of the Delaware Basin and Surrounding Structural Blocks for Application in Understanding Recent Seismicity, American Geophysical Union, Fall Meeting 2018, Washington, D.C., USA. Abstract #T13I-2890.
34. **Horne, E.A.**, Zahm, C. and Hennings, P.H., 2018, Development of a 3D Geometric and Kinematic Model of the Delaware Basin and Surrounding Blocks, American Association of Petroleum Geologists 2018 SWS Convention, El Paso, TX, USA.
35. **Horne, E.A.** and Trudgill, B., 2017, Kinematics and Growth of Supra-Salt Fault Systems: A Field and Subsurface Analysis, Paradox Basin, American Association of Petroleum Geologists 2017 Annual Convention and Exhibition, Houston, TX, USA. Abstract #90291.
36. **Horne, E.A.** and Hennings, P., 2015, Using a New 3-D Structural Model of the Wyoming Laramide Rockies Basement for Static Characterization and Kinematic Reconstruction, American Association of Petroleum Geologists 2015 Annual Convention and Exhibition, Denver, CO, USA. Abstract #90216.
37. **Horne, E.A.**, Evans, J.P., Petrie, E.S., Newell, D. and Nelson, S.T., 2013, Field Observations and Stable Isotopic Analysis of Laterally Continuous Travertine Veins Associated with Fault Zones: Insight into Ancient Fluid Travel, 2013 GSA Annual Meeting, Denver, CO, USA.
38. **Horne, E.A.**, Evans, J.P., Newell, D., Kampman, N., Nelson, S.T., and Petrie, E.S., 2013, Field Observations and Geochemical Analysis of Laterally Continuous Aragonite Veins: Insight into Ancient Fluid Travel, American Association of Petroleum Geologists 2013 RMS Convention, Salt Lake City, UT, USA. Abstract #50887. **(AAPG-DEG Award for Best Presentation)**

Areas of Expertise

Structural Geology

- Field mapping
- Field & subsurface integrated projects
- 3D faulted-framework modeling
- 2D & 3D kinematic modeling and restoration
- Experience working in extensional, contractional, and salt-influenced systems

Interpretation Geophysics

- Seismic structural analysis
- Seismic conditioning
- Seismic geomorphology

Awards

Awards and Honorary Societies

Best Recent Paper Award: AAPG Division of Petroleum Structure and Geomechanics (PSGD), 2023

Best Paper Award: AAPG Division of Environmental Geology (DEG), 2020

Jackson School Outstanding Research Award: TexNet-CISR Team, 2019

AAPG Grant in Aid: John and Erika Lockridge Grant, Colorado School of Mines, 2016

BP Graduate Research Scholarship: Colorado School of Mines, 2015-2016

AAPG Grant in Aid: John and Erika Lockridge Grant, Colorado School of Mines, 2015

ConocoPhillips Graduate Research Fellowship: Colorado School of Mines, 2014-2016

Best Presentation Award: AAPG Division of Environmental Geology (DEG), 2013

ConocoPhillips Field Camp Scholarship: Indiana University, 2013

Donald W. Fiesinger Citizenship Award: Utah State University, 2013

AAPG Imperial Barrel Award: 3rd Place in the Rocky Mountain Section, 2013

Undergraduate Research and Creative Opportunities Grant: Utah State University, 2012

Service

External Committees Participation

- Guest Editor: Special section Imaging Faults and Fractures – Special section of *The Leading* Edge, a SEG Journal.
- Co-Organizer: the Petroleum Structure and Geomechanics Division (PSGD) for the 2024 International Meeting for Applied Geoscience and Energy (IMAGE).
- Co-Organizer: the Petroleum Structure and Geomechanics Division (PSGD) for the 2023 International Meeting for Applied Geoscience and Energy (IMAGE).
- Lead Principal Investigator: Regional Induced Seismicity Collaborative: BEG, University of Texas at Austin (2021 – 2022).
- Co-Chair, Technical Planning Committee – Field Trips: 2022 AAPG Rocky Mountain Section Annual Meeting in Denver, CO, USA (2022).
- Co-Chair, Technical Session, The Geology of Induced Seismicity: 2020 GSA Annual Meeting in Montréal, Québec, CA (2020).
- Abstract Reviewer, AAPG ACE 2019, Houston, TX. Reviewed over 120 abstracts for two technical sessions within Theme 4 - Structure Tectonics, and Geomechanics, 'Petroleum system tectonics and structural styles: lithosphere to thin section' and 'Salt-involved systems: deposition to diapirism to dissolution'.
- Scientific Contributor, Texas GeoSign Project – Geology of Pecos County: Texas Department of Transportation & Bureau of Economic Geology, The University of Texas at Austin (2018).
- Secretary, Association of Women Geoscientists, Laramide Chapter (2015-2016).
- Treasurer, Association of Women Geoscientists, Laramide Chapter (2015).
- President, Geology Club: Utah State University (2012-2013).

Activities of a Professional Nature

Professional Societies

American Association of Petroleum Geologists (AAPG)
American Geophysical Union (AGU)

Geologic Society of America (GSA)
Rocky Mountain Association of Geologists (RMAG)
Society of Exploration Geophysicists (SEG)

Presentations

Invited Presentations

1. *Fault Characterization and Tectonic Synthesis of the Greater Permian Basin – Implications for Injection-Induced Seismicity.* Presented at Oklahoma State University's Boon Pickens School of Geology Fall Colloquium (09/2023), virtual.
2. *Fault Characterization and Tectonic Synthesis of the Greater Permian Basin – Implications for Injection-Induced Seismicity.* Presented at the University of Texas Permian Basin 6th Annual Geoscience Symposium (05/2023), Midland, TX, USA.
3. *Interpretation, Characterization, and Rupture Hazard Assessment of Faults in the Permian Basin.* Presented at the Rocky Mountain Association of Geologists (RMAG) Monthly Luncheon (03/2023), Denver, CO, USA.
4. *The Mechanics of Induced Seismicity and the System Characterization Challenge.* Presented at the Denver Geophysical Societies 28th annual 3D Seismic Symposium (3/2023), Denver, CO, USA.
5. *Characterization and Tectonic Synthesis of the Greater Permian Basin: implications for fault mapping and hazard assessment in the Midland Basin.* Presented at the Denver Geophysical Society (DGS) Monthly Luncheon Talk (04/2022), Denver, CO, USA.
6. *Regional Induced Seismicity Collaborative (RISC) Induced Seismicity Workshop – Induced Seismicity: What Has Changed and What Is Important for Decision Making?* Presented at the 2022 Ground Water Protection Councils 2022 UIC and Annual Forum, Salt Lake City, UT, USA.
7. *Understanding Causal Factors of Induced Seismicity: Integrated Geological Modeling of the Delaware Basin, TX and NM*. Presented to the American Association of Petroleum Geologists Women's Network, presented at the 2020 AAPG ACE, Houston, TX, USA.

Presentations

1. Oral: Structural Characterization, Kinematic Analysis, and Rupture Hazard Assessment of Faults in the Permian Basin, Texas and New Mexico, in the Third International Meeting for Applied Geoscience & Energy (IMAGE 2023): Society of Exploration Geophysicists and American Association of Petroleum Geologists, Houston, TX, USA.
2. Oral: Structural characterization and rupture hazard assessment of faults in the Midland Basin, West Texas, in the Second International Meeting for Applied Geoscience & Energy (IMAGE 2022): Society of Exploration Geophysicists and American Association of Petroleum Geologists, Houston, TX, USA.
3. Oral: 3D Structural Characterization and Seismogenic Association of Faults in the Delaware Basin, Texas and New Mexico, in the Second International Meeting for Applied Geoscience & Energy (IMAGE 2022): Society of Exploration Geophysicists and American Association of Petroleum Geologists, Denver, CO, USA.
4. Poster: 3D Structural Analysis and Seismogenic Association in the Central Delaware Basin, West Texas: presented at the AGU Fall Meeting 2020, San Francisco, CA, USA.
5. Poster: Slip Potential and Seismogenic Association of Basement-Rooted Faults in the Delaware Basin, West Texas: presented at the AGU Fall Meeting 2020, San Francisco, CA, USA.

6. Poster: Preliminary Hydrogeological Modeling of Deep Injection in the Delaware Basin for Pore Pressure Characterization with Application to Induced Seismicity: presented at the AGU Fall Meeting 2020, San Francisco, CA, USA.
7. Oral: Characterization and Seismogenic Association of Basement-Rooted Faults of the Delaware Basin, West Texas: presented at the GSA 2020 Annual Meeting, Montreal, Quebec, CA.
8. Oral: The Geologic Basement in Texas: Results of a New State-Wide Synthesis: presented at the GSA 2020 Annual Meeting, Montreal, Quebec, CA.
9. Poster: A New 3-D Structural Model and Characterization of Basement-Rooted Faults of the Delaware Basin and Central Basin Platform for Application in Understanding Recent Seismicity: presented at the 2020 AAPG ACE, Houston, TX, USA.
10. Oral: Pennsylvanian-Leonardian Stratigraphic Architecture and Deformation History During and Post Late Paleozoic Orogenesis, East Delaware Basin, West Texas: presented at the 2020 AAPG ACE, Houston, TX, USA.
11. Oral: Continuous Development of Geologic Models for the Wolfcamp and Spraberry Formations, Southern Midland Basin, West Texas: presented at the 2020 AAPG ACE, Houston, TX, USA.
12. Poster: New 3D Structural Model of the Delaware Basin with Application to Understanding Recent Earthquakes: presented at the SPE/SEG Workshop: Injection Induced Seismicity - The Next Chapter, 2019, Dallas, TX, USA.
13. Poster: Analysis of Seismogenic Pore Pressure Thresholds in the Fort Worth Basin from Comprehensive Hydrogeologic Modeling: presented at the SPE/SEG Workshop: Injection Induced Seismicity - The Next Chapter, 2019, Dallas, TX, USA.
14. Oral: Basin-Scale Hydrogeological Modeling of the Fort Worth Basin Ellenburger Group for Pore Pressure Characterization: presented at the AGU Fall Meeting 2019, San Francisco, CA, USA.
15. Oral: Modeling Injection Induced Stress Changes in the Fort Worth Basin: presented at the AGU Fall Meeting 2019, San Francisco, CA, USA.
16. Poster: Texas Basement Synthesis Project: Understanding Geological Risk Factors of Basement-Involved Seismicity presented at the 2019 AAPG ACE, San Antonio, TX, USA.
17. Oral: 3D Structural and Kinematic Model of the Delaware Basin and Surrounding Structural Blocks for Application in Understanding Recent Seismicity: presented at the 2019 AAPG ACE, San Antonio, TX, USA.
18. Poster: Characteristics of Potentially Seismogenic Faults in the Greater Fort Worth Basin: presented at the 2019 AAPG ACE, San Antonio, TX, USA.
19. Poster: Development of a Three-Dimensional Vertical Stress Model for the Greater Permian Basin Region: presented at the 2019 AAPG ACE, San Antonio, TX, USA.
20. Oral: Poroelastic Models for Fault Reactivation in Response to Injection and Production: Application to an Earthquake Sequence Near Venus, Johnson County, Texas: presented at the 2019 AAPG ACE, San Antonio, TX, USA.
21. Poster: Impact of Varied Approaches for Fault Slip Potential Analysis in the Fort Worth Basin, Texas: presented at the 2019 AAPG ACE, San Antonio, TX, USA.
22. Oral: The Geology of Active Earthquake Sequences in Texas: presented at the 2019 AAPG ACE, San Antonio, TX, USA. **(AAPG-DEG Award for Best Paper)**
23. Poster: Texas Basement Synthesis Project: Characterizing Geological Risk Factors of Basement-Involved Seismicity: presented at the 2019 GSA SC/NC/RMS Meeting, Manhattan, KS, USA.
24. Poster: 3D Structural and Kinematic Model of the Delaware Basin and Surrounding Structural Blocks for Application in Understanding Recent Seismicity Texas: presented at the AGU Fall Meeting 2018, Washington, D.C., USA, December 2018.

25. Poster: Development of a 3D Geometric and Kinematic Model of the Delaware Basin and Surrounding Blocks Texas: presented at the AAPG 2018 SWS Convention, El Paso, TX, USA, March 2018.
26. Poster: Kinematics and Growth of Supra-Salt Fault Systems: A Field and Subsurface Analysis, Paradox Basin: presented at the 2017 AAPG ACE, Houston, TX, USA.
27. Oral: Using a New 3-D Structural Model of the Wyoming Laramide Rockies Basement for Static Characterization and Kinematic Reconstruction: presented at 2015 AAPG ACE, Denver, CO, USA.
28. Poster: Field Observations and Stable Isotopic Analysis of Laterally Continuous Travertine Veins Associated with Fault Zones: Insight into Ancient Fluid Travel: presented at the 2013 GSA Annual Meeting, Denver, CO, USA.
29. Poster: Field Observations and Geochemical Analysis of Laterally Continuous Aragonite Veins: Insight into Ancient Fluid Travel: presented at the AAPG 2013 RMS Convention, Salt Lake City, UT, USA**. (AAPG-DEG Award for Best Poster Presentation)**