

Lorena Moscardelli

Curriculum Vitae

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Bureau of Economic Geology
The University of Texas at Austin

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Summary

- Ph.D. in Geological Sciences with over 20 years of experience in academia and industry on various fields of geology, including O&G and emerging energy opportunities. Experience in research, exploration, field development, and technical management.
- Currently Research Scientist and Principal Investigator of the State of Texas Advanced Resource Recovery Program (STARR) at The Bureau of Economic Geology, Jackson School of Geosciences, managing a team of 24 researchers and a budget of \$2.3 million/year.
- Published over 30 peer-reviewed papers and presented over 50 talks at national and international conferences and workshops on topics related to O&G and emerging energy opportunities, including oil and gas exploration and hydrogen storage. Google Scholar Citations: 1552, h-index: 15, i10-index: 20
- Experienced leader and mentor, supervisor of postdoctoral researchers and graduate students, serving on scientific advisory committees and boards.
- Effective communicator, engaging and collaborating with internal and external stakeholders, including Texas small operators, and multinational energy companies. Featured in several media outlets, podcasts, and videos.

Academic Background

Ph.D. Geological Sciences, The University of Texas at Austin, May 2007

Dissertation: Mass transport processes and deposits, and their role in continental margin development

B.Sc. Geological Sciences, Universidad Central de Venezuela, Caracas, 2000

Thesis: Seismostratigraphic study of a Miocene-Pleistocene subsurface interval, northern Monagas, eastern Venezuelan Basin.

Professional Work Experience

Present Positions

1. Research Scientist and Principal Investigator of the State of Texas Advanced Resource Recovery Program (STARR) at The Bureau of Economic Geology, Jackson School of Geosciences – The University of Texas at Austin
Austin, Texas (April 2021 – Present)

- Manage STARR program with a budget of \$2.3 million and a team of 24 researchers, delivering high-quality research on O&G and emerging energy opportunities.
- Lead emerging energy and resource opportunities project for University Lands.
- Lead research on hydrogen storage in salt caverns in collaboration with GeoH2.
- Lead Texas effort as part of the “Northern Gulf of Mexico Basin Stratigraphic Reconciliation Initiative” in collaboration with state geologists from Alabama, Arkansas, Louisiana, and Tennessee.
- Advise graduate student research as a member of the JSG Graduate Student Committee (GSC).
- Publish and present research results in peer-review journals and conferences.
- Engage and collaborate with internal and external stakeholders.
- Pursue additional funding opportunities via emerging energies (DOE and NSF proposals)
- Coordinate research activities, fund raising, and personnel supervision.

2. Scientific Advisory Committee Member - National Centre for Sustainable Subsurface Utilization of the Norwegian Continental Shelf at University of Stavanger
Stavanger, Norway (March 2023 – Present)

- Provide advice to the Centre Directorate regarding program conceptualization, strategy development and research design with emphasis on emerging energy opportunities and optimization of resources in the Norwegian Continental Shelf.

Past Positions

1. Advisory Board Venezuelan American Petroleum Association
Houston, Texas (2021- 2022)

- Provide advice to the board on matters related to emerging energy opportunities, liaison with academic institution in the United States and abroad. Mentoring and advising of early career professionals and students in the United States and Venezuela.

2. Board of the Directors Venezuelan American Petroleum Association

Houston, Texas (2020 – 2021)

- Plan association activities with emphasis in the mentoring and advising of young professionals and students. Contribute to strategic vision of the association and planning of future activities and engagements.

3. *Principal Researcher Equinor (June 2013 – April 2021)*

***a. Principal Researcher Exploration, Equinor Exploration Canada
Austin, Texas / Calgary, Canada (November 2020 – March 2021)***

- Exploration geologist working on prospect maturation and regional geology in the Flemish Pass, Newfoundland
- Participated in Leadership Academy (corporate leadership succession program)

***b. Principal Researcher Exploration, Equinor Shale, Oil and Gas
Bergen, Norway (October 2019 – October 2020)***

- Global Development Program (corporate leadership succession program) in assignment to Field Development in Drilling and Production Norway (DPN) Bergen.
- Coordinated overburden management activities in the Garantiana field development project, Tampen-Spur area.
- Updated the geological concept of the Asterix field development project in the Vøring Basin. Interfaced with geomodeler and petroleum engineer to build static and dynamic models of the field.

***c. Principal Researcher Exploration, Equinor Exploration Technology
Austin, Texas (June 2013 – October 2019)***

- Generated depositional models in the Frøya High (Norwegian Continental Shelf) using seismic geomorphological and seismic stratigraphic techniques as part of the Basin Highs Project (2013-2014). Results were submitted to the Norwegian Petroleum Directorate as part of the successful “Awards of Predefined Areas” (APA) 2014 application.
- Regional Evaluation Technology Project (RET) (2014-2017): Contributed to the development of technologies associated with regional evaluation workflows. Developed regional depositional models in offshore Nova Scotia (Shelburne Sub-basin) (Moscardelli et al., 2019). Results were used as part of the decision-making process to acquire 6,000 sq km of exploration acreage in offshore Nova Scotia in 2015.
- GoM Exploration (2016): Input to Mexico access team as a specialist on deepwater stratigraphy. Generated depositional model to risk presence of Cantarell like facies in the Campeche region.

- Task Manager Tectonostratigraphy of Source Rocks (HC2SR) Research Project (2018 - 2019): Conceptualization, design and implementation of a research project to incorporate innovative biogeochemistry tools (aka. diamondoids) as a tool to reconstruct depositional environments and to fingerprint oils/condensates. GOM and NCS case studies.
- University Liaison: Followed up external consortia with different universities. Followed up the UT/Equinor Fellowship program.

4. Adjunct Professor Central University of Venezuela (UCV) - Geology Department (Ad Hoc)

Distance Education Graduate Program (Spring 2018 – Spring 2019)

- Graduate level course offering: Advance Stratigraphy (Spring) and a Special Topic on Petroleum Geology (Fall)
- Provided advise to graduate students and the UCV Geology department.

5. Project Leader UNESCO/IGCP 640 - Significance of Modern and Ancient Subaqueous Slope Landslides www.s4slide.com

Austin, Texas (2015 - 2020)

- The IGCP-640 project focused on facilitating the interaction of scientists, engineers, industry and government representatives, and other parties interested in understanding subaqueous mass movements and their anthropogenic significance. The project concentrated in developing and fostering scientific interchange among students and early career professionals with special emphasis on those individuals from historically underrepresented countries. This project was part of an initiative by the International Geoscience Programme (IGCP) and Unesco.
- Responsible for project proposal and management. Defining strategies to increase the collective interchange of information and knowledge among project participants, as well as the definition of research direction.
- Coordinating yearly activities including publication of special issues, and organization of workshops, and special sessions as part of major scientific meetings. Management of student grants and organization of the highly successful bi-annual subaqueous landslide symposia.

6. Research Associate, Bureau of Economic Geology (UT)

Austin, Texas (June 2007 – June 2013)

- a. **Seismic Interpreter for State of Texas Advanced Resource Recovery Program (STARR)** (June 2007 – June 2009)
Principal seismic interpreter for Pearl project - Copano Bay, South Texas

(MPG Petroleum). Development of subsurface geological model. Prospect identification and mapping.

b. Co-Founder and Co-Principal Investigator of the Quantitative Clastic Laboratory Industrial Associates Program (QCL) (June 2009 – June 2013)

Responsible for the deep-water component of the research program. Supervisor and co-supervisor of graduate students working for JSG/QCL. Core geographic areas: offshore Trinidad, Venezuela, New Zealand, Morocco, GoM (USA and Mexico) and Norwegian Continental Shelf.

7. Lecturer, Jackson School of Geosciences (UT)
Austin, Texas (August 2009 – December 2015)

Responsible for designing and teaching “GEO 384G Mapping and Petroleum Workstations” for graduate students and upper division undergraduates. The course familiarized students with the use of specialized software for subsurface mapping of stratigraphic and structural features within a Petroleum Geology context. The course was designed as a combination of lectures and hands-on exercises that covered the entire spectrum from regional to reservoir scale evaluations and the process of defining exploration prospects.

8. Graduate Research Assistant, Bureau of Economic Geology (UT)
Austin, Texas (Fall 2003 – Spring 2007).

Conducting research on the broader topic of gravity-driven deposition within continental margins around the world as part of PhD work at QCL

9. Summer Intern, BHP Billiton
Houston, Texas (Summer 2006)

Seismic geomorphological analysis of depositional systems in the Atlantis Field (GoM) with emphasis on a Pleistocene gas opportunity. New potential targets were identified within the Pleistocene based on the seismic geomorphological interpretation that was performed as part of this study.

10. Summer Intern, OXY Occidental Oil and Gas
Houston, Texas (Summer 2005)

Application of quantitative seismic geomorphological techniques using 3D seismic data and well control to better understand productive units associated with the Morrow and Chester fluvial systems, Hugoton Embayment (Kansas). The analysis was used to predict areas of better reservoir development and to identify additional drillable prospects.

11. Exploration Geologist, Petróleos de Venezuela PDVSA

Caracas, Venezuela (August 2001 - January 2003)

Provided stratigraphic support in projects in the Eastern Venezuela Basin. Seismic-stratigraphic interpretation (North of Monagas and La Blanquilla projects) Generation of new prospects in onshore and offshore Eastern Venezuela (Plataforma Deltana - north of Liza discovery in offshore Guyana).

12. Exploration Geologist, RICE & AVENDANOS

Caracas, Venezuela (October 2000 - June 2001)

Performed biostratigraphic, electrofacies and seismic stratigraphic interpretations that resulted in the generation of paleoenvironmental maps for the Plataforma Deltana region in the offshore area of the Orinoco Delta (Atlantic margin).

13. Teaching Assistant, Universidad Central de Venezuela

Caracas, Venezuela (July 1997 - October 2000).

TA Physical Geology. Responsible for laboratory activities with undergraduate students.

Service to Professional Associations

American Association of Petroleum Geologists (AAPG) (1996 – present)

- Panel Chair *Exploring the Hydrogen Rainbow: from Source to Market* (Energy Opportunities 2023 Mexico City, Mexico)
- Theme Chair *Exploring the Potential of Hydrogen Energy in Latin America and the Caribbean* (Hydrogen 2022 Virtual Technical Symposium)
- Panel Chair *Sustainability in Energy Panel: The Role of the Energy Transition in Latin America and Caribbean Region* (ICE 2021 Cartagena, Colombia)
- Theme Chair *Energy, Society and Environment* (ICE 2021 Cartagena, Colombia)
- Theme Chair *Brazil Atlantic Margin E&P* (ICE 2021 Cartagena, Colombia)
- Panel Chair *Potential for Carbon Use and Storage and Hydrogen Generation in Latin America and the Caribbean* (Energy Opportunities 2021, Virtual)
- General Chair *Annual Conference and Exhibition* (ACE 2019 San Antonio, Texas)
- Theme Chair *Deep-Water* (ACE 2017 Houston, Texas)
- Session Chair *Mass Movements and Their Consequences for Deepwater Exploration and Production* (ACE 2010 New Orleans, Louisiana)
- Session Chair *Recent Advances in Deepwater and Shelf Siliciclastic Facies Models: Implications for Reservoir Characterization* (ACE 2006 Houston, Texas)

UNESCO International Geoscience Program

- Project Leader IGCP-640 (2015-2020) Significance of Modern and Ancient

- Submarined Landslides (S4SLIDE www.s4slide.com)
 - Project Participant IGCP-585 (2010-2015) Earth's Continental Margins: Assessing the Geohazard from Submarine Landslides
 - General Chair 4th International Symposium on Submarine Mass Movements and Their Consequences (IGCP-511 2009 Austin, Texas)
 - Project Participant IGCP-511 (2007-2009) Earth's Continental Margins: Assessing the Geohazard from Submarine Landslides
- American Geophysical Union (2004 - present)
- Session Chair *Submarine Landslides and Their Consequences: A Multidisciplinary and Integrative Approach* (AGU 2010 Fall Meeting San Francisco, California)
- Gulf Coast Association of Geological Societies
- Panel Chair *Creating a stronger workforce through diversity, equity, and inclusion (DE&I)* (GeoGulf2021 Austin, Texas)
 - Session Chair *Gulf of Mexico – East to West* (2012 GCAGS/GCSSEPM 62nd Annual Convention and Exhibition Austin, Texas)
- International Association of Sedimentologists (IAS)
- Session Chair *Effects of Mass Movements on the Sedimentological Environment* (2018 20th International Sedimentological Congress Quebec, Canada)
 - Session Chair *Mass Wasting Events and Related Sediments* (2010 18th International Sedimentological Congress Mendoza, Argentina)

Internal Service and Committee Responsibilities

- **Chair** (2023), STARR Search Committee Geospatial and Geoprocessing Analyst (two open positions)
- **Chair** (2022), STARR Search Committee Low Carbon and Petroleum Engineer (hire Dr. Leopoldo Ruiz Maraggi)
- **Chair** (2022), STARR Search Committee Research Scientist Associate GIS Support and Economic Geologist (hire Dr. Mert Ugurhan)
- **Chair** (2023), STARR Search Committee Research Scientist Numerical Modeler (hire Dr. Xuesong Ding)
- **Chair** (2022), STARR Search Committee Postdoctoral Fellow Geophysical Applications and Structural Geology (hire Dr. Nur Schuba / transitioned to Research Associate in 2023 after 1 year postdoc)
- **Chair** (2022), STARR Search Committee Postdoctoral Fellow Sedimentology, Stratigraphy and Low Carbon Applications (hire Dr. Ander Martínez-Doñate)
- **Chair** (2022), STARR Search Committee Postdoctoral Fellow Sedimentology and Stratigraphy of the Wilcox Group (hire Dr. Nikhil Sharma / start date fall 23')
- **Chair** (2022), STARR Search Committee Postdoctoral Fellow Sedimentology and Stratigraphy Cisco Group Research (hire Dr. Fritz Palacios / start date fall 23')
- **Member** (2022), STARR Search Committee Postdoctoral Fellow Petrophysical Applications (hire Dr. Leandro Hartleben Melani)
- **Member** (2021-2026), Graduate Student Council, Jackson School of Geosciences

- **Member** (2021-2024), GAAC-Grants, Appointments, and Awards Committee, Bureau of Economic Geology
- **Member** (2022-2023), Earth and Planetary Faculty Search, Jackson School of Geosciences
- **Member** (2021-2022), Structural Faculty Search, Jackson School of Geosciences
- **Member** (2022), Postdoctoral Search, Jackson School of Geosciences
- **Member** (2021- 2022), Energy Research Scientist Search, Bureau of Economic Geology
- **Member** (2021), Administrative Assistant Search, Bureau of Economic Geology
- **Member** (2021), Steering Committee Equinor/UT Fellowships, JSG/PGE
- **Member** (2011-2013), Graduate Student Council, Jackson School of Geosciences
- **Member** (2009 - 2013), Alumni Council, Jackson School of Geosciences
- **Member** (2007-2008), Energy Search Committee, Jackson School of Geosciences

Fundraising Current and Pending

- Department of Energy / Hydrogen Storage in Bedded Salt Formations (***Decision Pending 2 yr. working plan***) A geological assessment of hydrogen storage potential in bedded salt formations of the Permian Basin of West Texas **\$1,875,000**
- National Science Foundation Global Centers / The Energy Transition and Subsurface Salt Formation (***Decision Pending 5 yr. working plan***) A geological assessment of halokinetic sequences in North America and Australia **\$5,000,000**
- State of Texas Advanced Resource Recovery (STARR) program (2021 – present) STARR conducts geoscience and engineering research to increase the production and profitability of earth resources within the State of Texas while encouraging responsible economic development and supporting education and the environmental stewardship **~\$2.3 million/year**.
- Emerging energy and resource opportunities for University Lands (2022 – 2024) Assessment of emerging energy and resource opportunities and their fiscal and environmental impacts on University Lands acreage in West Texas **\$750,000**
- BEG GeoH2 Industrial Associate Program (2021-2022) **\$141,250**
- Northern Gulf of Mexico Basin Stratigraphic Reconciliation Initiative (2023 – 2024) Development of a consistent regional stratigraphic nomenclatural framework for the Northern Gulf of Mexico Basin in collaboration with the state geological surveys of Alabama, Arkansas, Louisiana, and Tennessee **\$75,000**
- UNESCO/IGCP-640 Subaqueous Mass Movements and Their Consequences (2015-2020) **\$60,000**
- Shell Sponsored Project Shelf-edge deltas along structurally complex margins (2011-2012) **\$191,681**
- BEG/Chevron Gift for Workstation Classroom at Pickle Research Center (2010) **\$155,000**
- UNESCO/IGCP-511 Submarine Mass Movements and Their Consequences (2009) **\$87,664**
- BEG Quantitative Clastic Laboratory Industrial Associate Program (2007-2013)

\$730,000

Awards, Fellowships and Scholarships

- Medal of Merit for Best Paper Related to Canadian Petroleum Geology (2020) by Canada Society of Petroleum Geologists
- Grit Award Individual Category by ALLY (2020), The Community for the energy workforce of the future
- Publication Award (2010), Bureau of Economic Geology (exemplary publication of scientific impact)
- Ed Picou Full Fellowship Grant (2007), Gulf Coast Section of SEPM
- AAPG Grant-in-Aid (2007), American Association of Petroleum Geologists Foundation
- Graduate Student Research Grant (2005), Geological Society of America
- Thomas R. Banks Memorial Scholarship (2004), San Antonio Area Foundation
- Outstanding Student Paper Award (2004), Hydrology Section AGU
- L. Austin Weeks Grant (2004), American Association of Petroleum Geologists Foundation
- Exxon-Mobil Student Grant Participation Award (2001), AAPG/SEPM Annual Convention
- Graduated with distinction (2000) – Universidad Central de Venezuela
- Best Undergraduate Thesis Award (2000), Universidad Central de Venezuela

Peer-Review Publications (* Denotes student author)

Energy Transition

- Ruiz-Maraggi, L. and **L. Moscardelli**, 2023, Modeling hydrogen storage capacities, injection and withdrawal cycles in salt caverns: Introducing the GeoH₂ salt storage and cycling app: International Journal of Hydrogen Energy, v. 48, no. 69, p. 26921-26936
- Ning, L., Xu, L., and **L. Moscardelli**, in press, Market-based asset valuation of hydrogen geological storage: International Journal of Hydrogen Energy, <https://doi.org/10.1016/j.ijhydene.2023.07.074> (Available Online)
- Duffy, O. B., Hudec, M. R., Peel, F., Apps, G., Bump, A., **Moscardelli, L.**, Dooley, T. P., Fernandez, N., Bhattacharya, S., Wisian, K., and Shuster, M. W., 2023, The role of salt tectonics in the energy transition: an overview and future challenges: Tektonika, v. 1, no. 1, p. 18–48
- Schuba, C.N., and **L. Moscardelli**, accepted, Subsurface storage in the Mississippi salt basin domes: Considerations for the emerging hydrogen economy: AAPG Bulletin
- Ruiz-Maraggi, L. and **L. Moscardelli**, in review, Hydrogen storage potential in Salt Domes, Gulf Coast of the United States: Applied Energy

Subaqueous Landslides and Current Controlled Processes

- *Prieto, M.I., **Moscardelli, L.** and L. Wood, 2021, Deep-water sedimentary bedforms in a

mobile substrate terrain: Examples from the central Gulf of Mexico Basin: Interpretation, v. 9. No. 2, pp. SB33-SB48

*Cardona, S, Wood, L., **Mosccardelli, L.** and D. Dunlap, 2020, Cannibalization and sealing of deepwater reservoirs by mass-transport complexes – The Jubilee Field, Gulf of Mexico: Interpretation, v. 8, no. 4, pp. SV17-SV30

Mosccardelli, L. and Wood, L., 2016, Morphometry of mass-transport deposits as a predictive tool: GSA Bulletin, v. 128, no. 1/2, pp. 47-80

Dunlap, D., Wood, L. and **L. Mosccardelli**, 2013, Seismic geomorphology of early North Atlantic sediment waves, offshore northwest Africa: Interpretation, v.1, issue 1, SA75-SA91.

Mosccardelli, L., and Wood, L. J., 2008, New classification system for mass transport complexes in offshore Trinidad: Basin Research, v. 20, no. 1, p. 73–98.

Mosccardelli, L., Wood, L. J., and P. Mann, 2006, Mass-transport complexes and associated processes in the offshore area of Trinidad and Venezuela: AAPG Bulletin, v. 90, no. 7, p. 1059– 1088.

Continental Margin Evolution and Tectonostratigraphy

Zhang, J., **Mosccardelli, L.**, Dooley, T. and N. Schuba, 2023, Halokinetic induced topographic controls on sediment routing in salt-bearing basins: A combined physical and numerical modeling approach: GSA Today, v. 33, no. 6, pp. 4-9

Mosccardelli, L., Ochoa, J., Lunt, I. and L. Zahm, 2019, Mixed siliciclastic-carbonate systems and their impact for the development of deepwater turbidites in continental margins: A case study from the Late Jurassic to Early Cretaceous Shelburne Sub-basin in offshore Nova Scotia: AAPG Bulletin, v.103, no. 10, p. 2487-2520

*Salazar, M., **Mosccardelli, L.** and L. Wood, 2018, 2D stratigraphic modelling, reconstructing high-relief clinoforms in the northern Taranaki Basin: AAPG Bulletin, v. 102, no. 12, p. 2409-2446

*Salazar, M., **Mosccardelli, L.**, Wood, L. and D. Dunlap, 2016, Utilising clinoform architecture to understand the drivers of basin margin evolution: A case study in the Taranaki Basin, New Zealand: Basin Research, v. 28, pp. 840-865

Mosccardelli, L., *Ramnarine, S. K., Wood, L. and D. Dunlap, 2013, Seismic geomorphological analysis and hydrocarbon potential of the Lower Cretaceous Cromer Knoll Group, Heidrun field, Norway: AAPG Bulletin, v. 97, no. 8, pp. 1227-1248.

Mosccardelli, L., Wood, L., and D. Dunlap, 2012, Shelf-edge deltas along structurally complex margins: A case study from eastern offshore Trinidad, AAPG Bulletin, v. 96, no. 8, p. 1483-1522

*Salazar, M., **Mosccardelli, L.**, Fisher, W. L., and Lorente, M. A., 2011, Tectonostratigraphic evolution of the Morichito piggyback basin, Eastern Venezuelan Basin: Marine and Petroleum Geology, v. 28, p. 109–125.

*Garciacono, E., Escalona, A., Mann, P., Wood, L., **Mosccardelli, L.**, and S. Sullivan, 2011, Structural controls on Quaternary deepwater sedimentation, mud diapirism, and hydrocarbon distribution within the actively evolving Columbus foreland basin, eastern offshore Trinidad: Marine and Petroleum Geology, v.28, p. 149-176.

Parra, M., **Mosccardelli, L.**, and Lorente, M. A., 2003, Late Cretaceous anoxia and lateral

microfacies changes in the Tres Esquinas Member, La Luna Formation, Western Venezuela: *Palaios*, v. 18, no. 4, p. 321–333.

Mars

Moscardelli, L., 2014, Boulders of the Vastitas Borealis Formation: Potential origin and implications for an ancient martian ocean: *GSA Today*, v.24, no. 2, pp. 4-10

Moscardelli, L., Dooley, T., Dunlap, D., Jackson, M. and L. Wood, 2012, Deep-water polygonal fault systems as terrestrial analogs for large-scale Martian polygonal terrains, *GSA Today*, v. 22, no. 8, p. 4-6

Moscardelli, L. and L. Wood, 2011, Deep-water erosional remnants in eastern offshore Trinidad as terrestrial analogs for teardrop-shaped islands on Mars: Implications for outflow channel formation: *Geology*, v.39, no.7, p. 699-702

Books (editor)

Lintern, D.G., Mosher, D.C., **Moscardelli, L.**, Bobrowsky, L.P.T., Campbell, C., Chaytor, J.D., Clague, J.J., Georgiopoulou, A., Lajeunesse, P., Normandeau, A., Piper, D.J.W., Scherwath, M., Stacey, C. and Turmel, D., 2018, Subaqueous mass movements and their consequences: Assessing geohazards, environmental implications and economic significance: 8th International Symposium: *GSL Special Publication*, SP477

Lamarche, G., Mountjoy, G., Bull, S., Hubble, T., Krastel, S., Lane, E., Micallef, A., **Moscardelli, L.**, Mueller, C., Pecher, I., Woelz, S., 2016, Submarine mass movements and their consequences: 7th International Symposium: Springer, v. 41, DOI 10.1007/978-3-319-20979-1

Mosher, D. C., Shipp, C., **Moscardelli, L.**, Chaytor, J. D., Baxter, C. D. P., Lee, H. J., and Urgeles, R., 2010, Submarine mass movements and their consequences: 4th International Symposium: Springer, v. 28, DOI 10.1007/978-90-481-3071-9, 775 p.

Book Chapters and Sections (* denotes student author)

Clare, M., Chaytor, J., Dabson, O., Gamboa, D., Georgiopoulou, A., Eady, H., Hunt, J., Jackson, C., Katz, O., Krastel, S., León, R., Micallef, A., Moernaut, J., Moriconi, R., **Moscardelli, L.**, Mueller, C., Normandeau, A., Patacci, M., Steventon, M., Urlaub, M., Völker, D., Wood, L. and J. Zane, 2018, A consistent approach for the morphometric characterization of subaqueous landslides, *in* Lintern, D.G. et al., eds., Subaqueous mass movements and their consequences: Assessing geohazards, environmental implications and economic significance: 8th International Symposium: *GSL*, SP477, p.

*Cardona, S., Wood, L., Day-Stirrat, R. and **L. Moscardelli**, 2016, Sealing capacity of mass transport deposits: Depositional model for a deepwater reservoir in the jubilee gas field, eastern Gulf of Mexico, *in* Lamarche, G. et al., eds., Submarine mass movements and their consequences: 7th International Symposium: Springer, v. 41, p. 27-37.

*Prieto, M.I., **Moscardelli, L.** and L. Wood, 2016, Exploring the influence of deepwater currents as potential triggers for slope instability, *in* Lamarche, G. et al., eds.,

Submarine mass movements and their consequences: 7th International Symposium: Springer, v. 41, p. 331-338.

Mosher, D. C., **Moscardelli, L.**, Shipp, C., Chaytor, J. D., Baxter, C. D. P., Lee, H. J., and Urgeles, R., 2010, Submarine mass movements and their consequences, *in* Mosher, D. C. et al., eds., Submarine mass movements and their consequences: 4th International Symposium: Springer, v. 28, p. 1–8.

Moscardelli, L., Hornbach, M., and Wood, L. J., 2010, Tsunamigenic risk associated with mass transport complexes in offshore Trinidad and Venezuela, *in* Mosher, D. C., Shipp, R. C., Moscardelli, L., Chaytor, J. D., Baxter, C. D. P., Lee, H. J. and Urgeles, R., eds., Submarine mass movements and their consequences: 4th International Symposium: Springer, v. 28, p. 733–744.

Conference Abstracts (* Denotes student author)

Moscardelli, L., Smith, V., Hessler, A., Olariu, I., Lorente, M.A., Sivil, E., and X. Liu, 2023, Revisiting the onshore Lower Wilcox Group: Implications for the development of subsurface low carbon energy solutions in the Gulf Coast Region (abs.): The International Meeting for Applied Geoscience & Energy (IMAGE), Houston, Texas

*Garcia, K., Flaig, P., Denison, C., Demchuk, T., Adatte, T., Spangenberg, J., Castellort, S., and **L. Moscardelli**, 2023, A multidisciplinary study of the Paleocene-Eocene thermal maximum (PETM) at the Sabinetown-Carrizo transition near Bastrop, Texas (abs.): The International Meeting for Applied Geoscience & Energy (IMAGE), Houston, Texas

Olariu, I., **Moscardelli, L.**, Lorente, M.A., Hessler, A., Smith, V. and X. Liu, 2023, High-resolution stratigraphy of Lower Wilcox Guadalupe C Delta: Implications for CO2 sequestration (abs.): The International Meeting for Applied Geoscience & Energy (IMAGE), Houston, Texas

Hessler, A., Sivil, E., Olariu, I., Liu, X., Smith, V., Lorente, M.A., and **L. Moscardelli**, 2023, Geochemical fingerprinting of facies and environments across 106-year delta cycle in the Paleocene Lower Wilcox Group (abs.): The International Meeting for Applied Geoscience & Energy (IMAGE), Houston, Texas

Smith, V., Olariu, I., Bord, D., **Moscardelli, L.**, Sivil, E., Hessler, A. and X. Liu, 2023, Palynostratigraphy of the Lower Wilcox Group, onshore Texas (abs.): The International Meeting for Applied Geoscience & Energy (IMAGE), Houston, Texas

Martinez-Doñate, A., **Moscardelli, L.**, Schuba, N., Ko, L., Bhattacharya, S., and L. Melani, 2023, The stratigraphic record of the Castile Formation in the northern Delaware Basin (Texas and New Mexico): Updating sedimentary processes governing deep-water evaporite sequences (abs.): The International Meeting for Applied Geoscience & Energy (IMAGE), Houston, Texas

Schuba, N., **Moscardelli, L.**, Dooley, T. and K. Hattori, 2023, Bedded salt formations of the Delaware Basin and their significance for salt cavern placement (abs.): The International Meeting for Applied Geoscience & Energy (IMAGE), Houston, Texas

Ruiz-Maraggi, L. and **L. Moscardelli**, 2023, Hydrogen storage potential of U.S. salt domes in Texas, Louisiana, and Mississippi (abs.): The International Meeting for Applied Geoscience & Energy (IMAGE), Houston, Texas

Ruiz-Maraggi, L. and **L. Moscardelli**, 2023, The GeoH2 Web App: An Integrated

Engineering and Geoscience Tool for Modeling Hydrogen Storage Within Salt Formations (abs.): Solution Mining Research Institute Fall Meeting, San Antonio, Texas

Bhattacharya, S., Melani, L., Martínez-Doñate, A., Schuba, N., and **L. Moscardelli**, 2023, Petrophysical challenges in salt characterization and their implications on hydrogen storage: A case study from the Castile-Salado bedded salt interval in the Permian Basin, United States (abs.): Solution Mining Research Institute Fall Meeting, San Antonio, Texas

Moscardelli, L., O. Duffy, J. Zhang, J. Andrews, M. Shuster, 2022, Subsurface H₂ storage: The role of understanding salt dome caprocks (abs.): American Association of Petroleum Geologists International Conference & Exhibition, Cartagena, Colombia

Duffy, O. B., **Moscardelli, L.**, Hudec, M. R., Loeff, K., Dooley, T. P., Peel, F., Apps, G., and Shuster, M., 2022, Potential controls on the origin, nature, and distribution of shear zones in salt stocks: salt tectonic insights with a solution mining perspective, Solution Mining Research Institute Spring 2022 Technical Conference, 24 p.

Duffy, O.B., **Moscardelli, L.**, Hudec, M. and M.W. Shuster, 2021, Assessing the hydrogen storage potential of onshore Texas salt structures (abs.): GeoGulf2021, Austin, Texas

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Moscardelli, L. and J. Ochoa, 2015, Influence of the Montagnais mass transport event in the Nova Scotia continental margin (abs.): American Association of Petroleum Geologists European Regional Conference & Exhibition, Lisbon, Portugal

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*Salazar, M., **Moscardelli, L.**, Fisher, W. L., and Lorente, M. A., 2010, Tectonostratigraphic evolution of the Morichito piggyback basin, eastern Venezuelan basin (abs.): American Association of Petroleum Geologists Annual Convention & Exhibition, New Orleans, Louisiana

*Davila, A., **Moscardelli, L.**, and Wood, L. J., 2010, Structural domains in the eastern offshore area of Trinidad/Venezuela and their influence on paleo-Orinoco shelf-edge delta architectures (abs.): American Association of Petroleum Geologists Annual Convention & Exhibition, New Orleans, Louisiana

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- Moscardelli, L.**, Woods, D., and Wood, L. J., 2006, Quantitative seismic geomorphology study in fluvial systems—a new approach (abs.): American Association of Petroleum Geologists Annual Convention, Houston, Texas
- Moscardelli, L.**, and Wood, L., 2006, Identification and classification of mass transport complexes in offshore Trinidad/Venezuela and their potential anthropogenic impact as tsunamigenic hazards (abs.), in AGU Proceedings Fall Meeting, San Francisco/California USA.
- Moscardelli, L.**, and Wood, L., 2006, Morphometry of mass transport complexes in offshore Trinidad (abs.), in External controls on deep water depositional systems; climate, sea-level and sediment flux, London, UK.
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- Moscardelli, L.** and M.A. Lorente, 2003, High-impact cycle-stratigraphy (HIC): a method applied in a Miocene-Pleistocene subsurface section, Northern Monagas, Eastern Venezuela Basin: AAPG International Meeting, Barcelona, Spain
- Parra, M., **Moscardelli, L.** and M.A. Lorente, 2001, Tectonic and paleoenvironmental changes at the end of La Luna Formation Sea and its exploration implications: American Association of Petroleum Geologists Annual Convention, Denver, Colorado
- Moscardelli, L.** and M.A. Lorente, 2001, Seismostratigraphic Study of a Miocene-

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Workshops

- Ambrose, B., Loucks, B., Ogiesoba, O., Radjef, E., Reed, R., Sun, X., Zeng, H., Zhang, T. and **L. Moscardelli**, 2023, Cretaceous volcanic reservoirs of Texas: State of Texas Advanced Resource Recovery (STARR) core workshop, 12th May, 2023, Austin, Texas
- Olariu, I., Flaig, P., Garcia, K., Olariu, C., Hessler, A., Sivil, E., Smith, V., Lorente, M.A. and **L. Moscardelli**, 2023, Wilcox Group recent sedimentologic, biostratigraphic, and chemostratigraphic insights: Implications for stratigraphic correlations, depositional trends, paleoclimate, and the exploitation of energy resources in Texas: State of Texas Advanced Resource Recovery (STARR) core workshop, 22nd March, 2023, Austin, Texas
- Fu, Q., Gale, J., Ko, L.T., Loucks, R.G., Reed, R., **Moscardelli, L.**, Dommissie, R., Miliken, K. and H. Rowe, 2021, Barnett Workshop: State of Texas Advanced Resource Recovery (STARR) core workshop, 9th November 2021, Austin, Texas
- Flaig, P., Hattori, K., Ambrose, W., Fu, Q., Dejarnett, B., Ko, L., Radjef, D., Carr, D., Hasiotis, S., Ogiesoba, C. and **L. Moscardelli**, 2021, Mixed carbonate-siliciclastic reservoir systems of the Strawn Group: Focus – Upper Strawn, King and Stonewall counties, Texas: State of Texas Advanced Resource Recovery (STARR) core workshop, 26th October 2021, Austin, Texas

Project Reports

- Peel, F., Dooley, T. P., Hudec, M. R., Soto, J., Nikolinakou, M. A., Apps, G., Duffy, O. B., Heidari, M., Tollestrup, A. K., Giles, K., Hardt, J., **Moscardelli, L.**, Schuba, C. N., and Zhang, J., 2022, Applied Geodynamics Laboratory (AGL) annual report to industrial associates (slide set 40, video): The University of Texas at Austin, Bureau of Economic Geology, annual report prepared for BP, Eni, ExxonMobil, Petrobras, and 16 other AGL sponsors.
- Moscardelli, L.**, 2019, IGCP-640 S4SLIDE Significance of modern and ancient Subaqueous slope landslides: Current and future activities 2017/2018: Episodes, v. 42, no. 1, p. 77- 80
- Moscardelli, L.**, 2017, IGCP-640 S4SLIDE Significance of modern and ancient Subaqueous slope landslides: Current and future activities: Episodes, v. 40, no. 4, p. 357-359
- Moscardelli L.**, 2016, IGCP-640 S4SLIDE Significance of modern and ancient Subaqueous slope landslides: Current and future activities: Episodes, v. 39, v. 39, no. 4, p. 614-615
- Cooper B.J., **Moscardelli, L.**, Carron-Freyre, D., Kamagate, B., Kankeu, B., Li, Z-X., Yang, J., and V. Aizen, 2015, News Report: Episodes, v. 38, no. 2, p. 133-136
- Wood, L., **Moscardelli, L.**, Flaig, P., Burton, D., Dunlap, D. and A. Averett, 2013, Quantitative Clastics Laboratory annual report to Industrial Associates for 2013: The University of Texas at Austin, Bureau of Economic Geology, annual report prepared

for bhpbilliton, Anadarko, Statoil, ExxonMobil, Cairn, MarathonOil, Aramco, Ecopetrol, Woodside, Instituto Mexicano del Petroleo, ConocoPhillips, and NobleEnergy, CD-ROM

Wood, L., **Moscardelli, L.**, Dunlap, D., Flaig, P., Beard, P. and A. Averett, 2010, Quantitative Clastics Laboratory annual report to Industrial Associates for 2010: The University of Texas at Austin, Bureau of Economic Geology, annual report prepared for bhpbilliton, Anadarko, Statoil, ExxonMobil, Cairn, MarathonOil, Aramco, Woodside, and YPF, CD-ROM

Hammes, U., Ambrose, W., Loucks, R., Hentz, T.F., Ogiesoba, O., Zeng, H., Hamlin, H.S., Nance, H.S., Brown, F., Gale, J., Wang, F., Bonnaffé, F., Qilong, F., Zhang, T., Zahm, L., Wright, W.R., Reed, R.M., Eastwood, R. and **L. Moscardelli**, 2010, State of Texas Advanced Resource Recovery (STARR) annual report: The University of Texas at Austin, Bureau of Economic Geology, annual report prepared for the State of Texas.

Hudec, M. R., Jackson, M. P. A., Dooley, Tim, Wagner, Bryce, McDonnell, Angela, Pequeno, Monica, Norton, Ian, and **Moscardelli, L.**, 2008, Applied Geodynamics Laboratory annual report to Industrial Associates for 2008: slide set 27: The University of Texas at Austin, Bureau of Economic Geology, annual report prepared for Anadarko, BHP Billiton, BP, CGGVeritas, Chevron, Cobalt, ConocoPhillips, Devon, ENI, ExxonMobil, Fugro, GX Technology, Hess, IMP, Maersk, Marathon, Mariner, Murphy, Nexen, Noble, Pemex, Petrobras, PGS, Repsol-YPF, Samson, Saudi Aramco, Shell, StatoilHydro, TGS-Nopec, Total, WesternGeco, and Woodside, CD-ROM.

Hammes, U., Loucks, R., Ambrose, W., Treviño, R.H., Brown, F.F., Zeng, H., Hentz, T., Gale, J., Wang, F., Bonnaffé, F., Wright, W.R., Eastwood, R., **Moscardelli, L.**, Johnson, B., and S. Ruppel, 2008, State of Texas Advanced Resource Recovery (STARR) annual report: The University of Texas at Austin, Bureau of Economic Geology, annual report prepared for the State of Texas.

Invited Lectures and Panels

- Subsurface H₂ storage in Texas - Opportunities and Challenges: NCS203 Energy Norway, Stavanger, Norway, 14 March 2023
- The State of Texas Advanced Resource Recovery (STARR) program - Updates and Current Projects: American Institute of Professional Geologists (AIPG), online, 21 February 2023
- Subsurface H₂ storage in Texas - Opportunities and Challenges: AAPG OU Student Chapter, Mewbourne College of Earth and Energy, Norman, Oklahoma, 18-21 April 2023
- Panelist Opening Session AAPG IMAGE 2022 The Many Faces of Energy Poverty, Houston, Texas
- H₂ storage in salt formations: A Texas perspective: Oklahoma and the Energy Transition: Oklahoma Geological Society Workshop, Norman, Oklahoma, 17 November 2022
- Salt Formations and Their Role as H₂ Storage Real Estate: Elsevier Webinar, 25 October 2022

- Salt Formations and Their Role as H₂ Storage Real Estate: AAPG Salt Basins Technical Interest Group, online, 2022
- 2020 “A Year of Grief and Resilience” a seminar for GeoWomen of Calgary, 18 May 2021
- Interview with Lorena Moscardelli, Equinor: AAPG Science and Technology Showcase, June 2020
- Deep-water mixed siliciclastic-carbonate systems a lecture for the 2020 AAPG Science and Technology Showcase series
- From mass transport deposits to Mars: 10 years later - the journey: invited speaker, Dallas Geological Society, Dallas, Texas, 2014
- The economics of diversity—competing for and leveraging employee diversity in a global petroleum industry: invited panelist, American Association of Petroleum Geologists Annual Convention, New Orleans, Louisiana, April 14, 2010.
- Cultural differences: people who have been successful at leveraging cultural differences: invited panelist, 2009 Women’s Global Leadership Conference in Energy and Technology, Houston, Texas, November 3–4, 2009.
- Mass transport complexes in offshore Trinidad and worldwide analogs: presented at Houston Geological Society International Dinner, Houston, Texas, March 2006.

Graduate Student Committee Participation

PhD Students (primary supervisor):

- Fritz Palacios Albuja, The University of Texas at Austin, 2023
3D Stratigraphic framework. Sediment routing systems and tectonic influence: Mixed siliciclastic-carbonate Cisco Group, Eastern Shelf of the Permian Basin
- Kiara Gomez, The University of Texas at Austin, 2022
Early to Middle Jurassic redox conditions: Implications from redox-sensitive trace metals, mercury (Hg) and carbon isotope (13dC)
- Maria I. Prieto, The University of Texas at Austin, 2016
Sediment gravity-driven versus bottom-current-controlled processes and interactions in the central GoM and comparison with global systems
- Migdalys Salazar, The University of Texas at Austin, 2014
The impact of shelf margin geometry and tectonics on shelf-to-sink sediment dynamics and resultant basin fill architectures

MSc Students (primary supervisor):

- Sarika Ramnarine, The University of Texas at Austin, 2011
Late Cretaceous turbidites, Heidrun Field, Norwegian Continental Shelf
- Migdalys Salazar, The University of Texas at Austin, 2008
Seismic and stratigraphic interpretation of the Morichito Sub Basin, eastern Venezuelan basin

PhD Students (Committee Member)

- Rachelle Kernen, The University of Texas at El Paso, 2019
The origin of sedimentary inclusions in an allochthonous salt canopy; Patawarta diapir, South Australia
- Lucia Torrado, University of Houston, 2018
Tectonostratigraphic controls on petroleum system elements in passive margin settings: Studies of the eastern Nicaraguan Rise and the deep-water, Foz do Amazonas basin, Brazil.
- Parvaneh Karimi, The University of Texas at Austin, 2015
Seismic interpretation using predictive painting.

MSc Students (co-supervisor (CS)/ committee member (CM)):

- Mario Gutierrez, The University of Texas at Austin, 2018
Systematic lithologic characterization of Pleistocene Mass-Transport Deposits, Mississippi Canyon of the Northern GoM (CM)
- Katherine Shover, The University of Texas at Austin, 2016
Mass balance of martian sedimentary fans valleys (CM)
- Sebastian Cardona, The University of Texas at Austin, 2015
Fabric development and pore-throat reduction in a mass transport deposit in the Jubilee gas field, eastern Gulf of Mexico: consequences for the sealing capacity of MTDs (CM)
- Anmar Davila, The University of Texas at Austin, 2010
Sand distribution along shelf-edge deltaic systems: a case study from eastern offshore Trinidad (CS)
- Kadira Singh, The University of Texas at Austin, 2010
Geometry and nature of modern and ancient mass transport deposits worldwide (CM)

PhD Students (Qualifying Exams / Wild Card)

- Kayla White, The University of Texas at Austin, 2023
The role of the spatial pattern of anthropogenic aerosols and their influence on climate change over the historical period in the presence of greenhouse gases
- Ever “Hoss” Hostettler, The University of Texas at Austin, 2022
Rodongites as recorders of tectonic processes: From seafloor to convergence
- Cassandra Browne, The University of Texas at Austin, 2012
Constraints on fault and fracture mechanics in the upper oceanic crust

Internet/Websites/Podcasts

Henrikson, E. (2023, March 15). *Salt could be key ingredient for clean energy transition, UT Austin researchers say*. Kxan. <https://www.kxan.com/news/science/salt-could-be-key-ingredient-for-clean-energy-transition-ut-austin-researchers-say/>

Tincher, R. (2023, March 7). *UT researchers’ study highlights salt’s future in production of hydrogen, geothermal energy*. The Daily Texan. <https://thedailytexan.com/2023/03/07/ut-researchers-study-highlights-salts-future-in-production-of-hydrogen-geothermal-energy/>

- Max, J. (2023, March 9). New study finds salt deposits could serve as a hydrogen storage tank. *Hydrogen Fuel News*. <https://www.hydrogenfuelnews.com/hydrogen-storage-research-salt/8557599/>
- Jacobs, T. (2023, March 30). Digging Into the US Gulf Coast's 'Salt Real Estate' for Hydrogen Storage. *Journal of Petroleum Technology*. <https://jpt.spe.org/digging-into-the-us-gulf-coasts-salt-real-estate-for-hydrogen-storage>
- Yonick, K. (2023, February 21). *UT researching the role salt has in lower carbon, geothermal energy*. Kvue. <https://www.kvue.com/article/news/education/university-of-texas/university-of-texas-salt-study-energy/269-deae3483-cb0e-4e82-bdab-812ba8a38714>
- [CSPG - Canada's Energy Geoscientists]. (2021, September 9). *2020 Medal of Merit Interview* [Video]. CSPG - Canada's Energy Geoscientists. <https://www.youtube.com/watch?v=ID-LQ7L5zkQ>
- Moscardelli, L., Nwoko, S., & Dunlap, D. (2019, September 1). Passing the Baton. *Explorer*. <https://explorer.aapg.org/story/articleid/54106/passing-the-baton>
- Ervin, B. (2019, July 1). ACE 2019: Memories and Margaritas. *Explorer*. <https://explorer.aapg.org/story/articleid/53244/ace-2019-memories-and-margaritas>
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- [AstroBio.net] (2014, February 17). *New evidence for ancient ocean on Mars*. Phys.org. <https://phys.org/news/2014-02-evidence-ancient-ocean-mars.html>
- [E-Learning Corgi]. (2020, June 10). *Interview with Lorena Moscardelli, Ph.D. On Deep-Water Siliciclastic-Carbonate Systems* [Video]. Science and Technology Showcase. <https://www.youtube.com/watch?v=3z2W0MueHH0>
- [Mini Geology]. (2020, May 10). *Half of the best Geoscientists* [Video]. Mini Geology. <https://www.youtube.com/watch?v=IZdellzgnWk>
- Daley, J. (2019, February 15). Venezuela is unraveling - So is its science. *Scientific American*. <https://www.scientificamerican.com/article/venezuela-is-unraveling-mdash-so-is-its-science/>
- [SpaceRef] (2012, July 29). *Martian polygons and deep-sea polygons on Earth: More evidence for ancient Martian oceans?* <https://spaceref.com/press-release/martian-polygons-and-deep-sea-polygons-on-earth-more-evidence-for-ancient-martian-oceans/>
- Grossman, L. (2011, June 21). Streamlined Islands Could Mean Ancient Oceans on Mars. *Wired*. <https://www.wired.com/2011/06/teardrop-shaped-island/>