

JOSÉ MIGUEL GOROSABEL ARAUS

Senior Researcher | Basin Analysis & Petroleum Systems

University of Houston, Earth & Atmospheric Sciences Dept.
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RESEARCH EXPERTISE

- Integration of geological, geophysical, and geochemical datasets for basin analysis, tectonic reconstruction, and crustal modeling.
- Processing and interpretation of seismic reflection, gravity, magnetic, and well-log data, with applications to lithospheric structure and sedimentary basin evolution.
- 3D basin modeling, source rock characterization, and thermal maturity analysis for regional petroleum systems assessment.
- Synthesis of large, multidisciplinary datasets into coherent tectono-stratigraphic frameworks and conceptual models.
- Scientific writing, data visualization, and academic presentation to diverse technical and non-technical audiences.
- Collaborative research in international, multidisciplinary projects involving academic institutions and industry partners.

EDUCATION

Ph.D. in Geology

Sep 2016 – Dec 2020

Complutense University of Madrid (UCM), Spain — Passed with Honours (Cum Laude)

Thesis: "Tectono-Sedimentary Evolution of the San Pedro Basin (Dominican Republic) and Its Hydrocarbon Potential"

Supervisor: Dr. José Luis Granja Bruña. Methods: seismic reflection processing and interpretation, well correlation, reservoir petrophysics, source rock evaluation, potential fields modeling, and basin modeling.

M.Sc. in Geological Processes and Resources

Jul 2015

Complutense University of Madrid (UCM), Spain — Specialization: Sedimentary Basins and Energetic Resources (Passed with Honours)

M.Sc. in Physics (5-year degree)

Jul 2013

University of Salamanca, Spain. This degree consisted of five years of study of physics.

RESEARCH EXPERIENCE

Senior Researcher in Natural & Physical Sciences

Mar 2025 – Present

Conjugate Basins, Tectonics and Hydrocarbons (CBTH) Group, University of Houston

Research focus: tectono-sedimentary evolution of Equatorial Atlantic passive margins, source rock characterization, and 2D/3D basin modeling.

Main Research Activities:

- Basin Analysis: interpretation of 2D/3D seismic data, integration of potential fields (gravity and magnetic) modeling, and well-log correlation to define basin architecture and tectono-stratigraphic evolution.

- Basin Modeling: development of crustal-scale and full-physics 2D/3D transient basin models; thermal calibration using well and geochemical data to reconstruct burial and maturation histories of petroleum systems.
- Source Rock Characterization: assessment of source rock quality from Rock-Eval pyrolysis data; construction of paleodepositional environment and source rock quality maps (UEP methodology); oil-to-source correlations.

Study Areas:

- Equatorial Margins: Brazilian Equatorial Margin (Barreirinhas, Ceará, Potiguar Basins), Liberia, Niger Delta, and offshore Equatorial Guinea — crustal structure, tectono-stratigraphy, source rock potential, and 3D basin modeling.
- Central Atlantic Margins: Tarfaya, Agadir, Safi, and Rharrb Basins (Morocco) — margin segmentation, depositional systems, and petroleum potential; Morocco–Nova Scotia conjugate margins source rock characterization. Source rock characterization of the Newfoundland and Labrador margins (Canada).
- South Atlantic Margin: Pelotas Basin structural and stratigraphic interpretation; collaboration in other projects on Brazilian Campos and Santos oil provinces.

Additional Academic Duties:

- Teaching Assistant for graduate-level courses "Basin Analysis for Petroleum Exploration" and "Rifted Passive Margins" (laboratory coordination, student supervision, course material preparation).
- GIS database management: maintenance of CBTH GIS database; creation of deliverables for industry sponsors.

Research Associate (Levels 1 & 2)

May 2019 – Mar 2025

Conjugate Basins, Tectonics and Hydrocarbons (CBTH) Group, University of Houston — PI: Dr. Paul Mann
Post-doctoral research on the tectono-sedimentary evolution of the Central, Equatorial, and South Atlantic passive margins, source rock characterization, and basin modeling.

Specialist Advisor

Sep 2018 – Jul 2021

Department of Geodynamics, Stratigraphy and Paleontology, Complutense University of Madrid

Project: "Tectono-sedimentary model of Mesozoic and Cenozoic basins of the south and south-eastern Dominican Republic: Identification of the main elements of the petroleum system" (UCM – Dominican Geological Survey).

Honorary Lecturer & Master's Thesis Tutor

Sep 2018 – Jul 2021

Department of Geodynamics, Stratigraphy and Paleontology, Complutense University of Madrid

Supervised three M.Sc. theses for the program "Hydrocarbon Exploration and Mineral Resources".

Ph.D. Researcher

Sep 2016 – Dec 2020

Faculty of Geology, Complutense University of Madrid

Tectonic and stratigraphic evolution of the San Pedro Basin (offshore Dominican Republic): seismic data processing and interpretation, potential fields analysis, geological mapping, well-log integration, source rock evaluation, reservoir petrophysics, and traps identification.

PARTICIPATION IN RESEARCH PROJECTS

Conjugate Basins, Tectonics and Hydrocarbons Consortium (CBTH)

Mar 2023 – Present

University of Houston — Led by Dr. Paul Mann

Basin analysis of Atlantic passive margins, source rock characterization, and 3D basin modeling.

Tectono-sedimentary model of the Mesozoic and Cenozoic basins at the south – southeast margin of The Dominican Republic

Nov 2013 – May 2014

Complutense University of Madrid & Dominican Geological Survey

Application to the identification and characterization of the elements of the petroleum system onshore and offshore. Evaluation of the petroleum potential.

NORCARIBE — Geodynamics of the northern Caribbean: Dominican Republic – Haiti sector

Jan 2011 – Dec 2014

Complutense University of Madrid

Interpretation of geophysical results from the offshore NORCARIBE survey (San Pedro Basin).

OTHER WORK EXPERIENCE

SAR Data Analyst and Geological Advisor

Aug 2022 – Present

COTESA, Spain

Development of SAR-based products, including PSI interferometry, change detection, machine learning for land classification, and geological services. Project Manager, Sep 2022 – Mar 2023.

Independent Geological Advisor

Sep 2016 – Mar 2023

Self-employed — Dominican Republic / Spain

Geological and geophysical consulting for oil companies on the petroleum potential of Caribbean basins, including fieldwork for Apache Corporation and the Dominican Ministry of Energy and Mines.

Geophysicist Intern — Survey Design & QA

Nov 2015 – May 2016

REPSOL, Madrid, Spain

Feasibility studies for 2D/3D seismic surveys: ray tracing, critical ray evaluations, resolution analysis, and MATLAB applications for seismic design and quality control.

Summer Intern — 3D Seismic Modeling and Design

Jul – Sep 2015

CEPSA E&P, Madrid, Spain

3D survey design and subsurface coverage analysis: CRP-folds, CMP-to-CRP displacement, azimuth, geological models, ray tracing, and illumination analysis of complex structures.

Geophysicist and Oceanographic Technician

Aug – Sep 2016

GEOMYTSA, Spain

QA and on-board processing of reflection seismic, sonar, and bathymetry data.

RESEARCH STAYS

Research Vessel "Sarmiento de Gamboa" — CSIC

Nov – Dec 2013

Spanish National Research Council (CSIC), Atlantic Ocean / Caribbean Sea

Data acquisition, quality control, and on-board processing of bathymetry and multi-channel seismic data (NORCARIBE project, Hispaniola – Dominican Republic/Haiti).

INVITED TALKS & KEYNOTE LECTURES

Invited Speaker — NAPE North America Chapter Quarterly Technical Session

May 2026

Nigerian Association of Petroleum Explorationists (NAPE), Online Webinar

Talk: "Unlocking the Equatorial Atlantic: How Early Cretaceous Rifting and the First Marine Transgression Shaped Today's Petroleum Systems."

Invited Speaker — SOVG Monthly Technical Conference Series

Jun 2026

Sociedad Venezolana de Ingenieros Geofísicos (SOVG), Online

Invited to present a technical lecture to an audience of students and geoscience professionals from Venezuela and other countries. Talk: "Source rock evaluation of the Brazilian Equatorial margin based on the integration of geological and geophysical data."

Invited Speaker — AAPG ICE Conference 2026

Oct 2025

American Association of Petroleum Geologists – International Conference and Exhibition. Rio de Janeiro, Brazil

Talk: "Hydrocarbon exploration of Guyana: past, present, and future" (30-minute invited lecture). Co-author of the talk together with Kenneth Shipper and Dr. Paul Mann.

Invited Speaker and Session Panelist — SBGf Workshop on the South America Equatorial Margin

Jul 2024

Brazilian Geophysical Society (SBGf), Petrobras-CENPES, Rio de Janeiro, Brazil

Talk: "Evaluating the Deepwater Hydrocarbon Potential of the Equatorial Margin of Brazil from Regional-Scale Characterization of Early and Late Cretaceous Source Rocks and Basin Modeling." (30-minute invited lecture)

Invited Keynote Speaker — 2nd EAGE/HGS Conference on Latin America, Caribbean Session

Jun 2020

European Association of Geoscientists & Engineers (EAGE), Cartagena, Colombia

Invited by EAGE President Michael Poppelreiter to deliver a Keynote Speech on the Caribbean Special Session.

TEACHING

Teaching Assistant — Basin Analysis for Petroleum Exploration

Mar 2023 – Present

Graduate-level course, University of Houston

Teaching Assistant — Rifted Passive Margins

Mar 2023 – Present

Graduate-level course, University of Houston

STUDENT MENTORSHIP & ADVISING

Graduate Student Mentor, CBTH Group

Mar 2023 – Present

University of Houston

Mentoring M.S. and Ph.D. students in basin analysis and petroleum systems modeling: geological interpretation, geochemical analysis, 2D/3D basin modeling workflows, research design, scientific writing, and conference presentations.

Advisor — UH EAGE & AAPG Wildcatters Student Chapters

Jan 2024 – Present

University of Houston

Academic and professional guidance; support for technical events, industry engagement, and professional development in the Earth sciences community.

Advisor — UH AAPG Imperial Barrel Award (IBA) Team

Dec 2023 – Present

University of Houston

Mentoring graduate students participating in the AAPG Imperial Barrel Award competition: technical guidance in petroleum exploration, geological interpretation, prospect evaluation, and presentation preparation.

SERVICE TO THE PROFESSION

Technical Committee Member

Dec 2025 – Nov 2026

1st EAGE Conference on Basin and Petroleum Systems Modeling, Houston, Texas

Topic selection, abstract review, conference overview, and promotion.

Technical Committee Member

Feb – Jul 2026

9th EAGE Conference on Conjugate Margins, St. John, Canada

Topic selection, abstract review, and promotion.

Ph.D. Dissertation Committee Member

Jan 2026

Complutense University of Madrid

Evaluation committee for the doctoral defense of Miguel Ángel de la Fuente Oliver. Thesis: "Structure of the Northwestern Iberian Margin: Influence of Tectonic Inheritance on Alpine Extension and Inversion."

PEER REVIEW & CONFERENCE SERVICE

Journal Reviewer:

- Marine and Petroleum Geology — 3 reviews
- CATENA — 1 review
- Natural Resources Research — 2 reviews

Conference Abstract Reviewer:

- AAPG-SEG IMAGE 2025, Houston, Texas
- AAPG-SEG IMAGE 2026, Houston, Texas

Session Chair:

- Session Chair, AAPG-SEG IMAGE 2024, Houston, Texas.

Session: *Suriname Exploration 1.*

- Session Chair (2 sessions), AAPG-SEG IMAGE 2026, Houston, Texas.

Sessions: *Petroleum systems. New Methods and New Insights.*

Conference Panelist:

- Panelist, SBGf Workshop on the South America Equatorial Margin, Petrobras-CENPES, Rio de Janeiro, July 2024

PUBLICATIONS

Peer-Reviewed Journal Articles

- [J6] Gorosabel-Araus J.M., Granja-Bruña J.L., Mann P., Gallego-Mingo A. (2026). "Forearc deformation driven by the Beata Ridge indentation in southern Hispaniola: Insights from the offshore San Pedro Basin." *Geochemistry, Geophysics, Geosystems*. DOI: 10.1029/2026GC012935

- [J5] Granja-Bruña J.L., Gorosabel-Araus J.M., ten Brink U., et al. (2025). "Seismotectonics and Crustal Structure in the Southern Dominican Republic Offshore Margin: Implications on the Tsunami Potential." *Geochemistry, Geophysics, Geosystems*, 26, e2024GC012092. <https://doi.org/10.1029/2024GC012092>
- [J4] Gorosabel Araus J.M., Granja Bruña J.L., Gallego-Mingo A., Gómez de la Peña L., et al. (2020). "New Constraints on the Tectono-Sedimentary Evolution of the San Pedro Basin (South-Eastern Dominican Republic Offshore Margin): Implications for Its Hydrocarbon Potential." *Geological Society, London, Special Publications*, 504. doi:10.1144/SP504-2019-224
- [J3] Rodríguez Zurrunero A., Granja-Bruña J.L., Muñoz-Martín A., et al. (2020). "Along-strike segmentation in the northern Caribbean plate boundary zone (Hispaniola sector): Tectonic implications." *Tectonophysics*, 776: 228322. doi:10.1016/j.tecto.2020.228322
- [J2] Rodríguez Zurrunero A., Granja-Bruña J.L., Carbó-Gorosabel A., et al. (2019). "Submarine morpho-structure and active processes along the North American-Caribbean plate boundary (Dominican Republic sector)." *Marine Geology*, 407: 121–147. doi:10.1016/j.margeo.2018.10.010
- [J1] Gorosabel Araus J.M., Granja Bruña J.L., Gómez de la Peña L., et al. (2016). "Nueva Interpretación del relleno sedimentario de la Cuenca de San Pedro." *IX Congreso Geológico de España, Geo-Temas*, 16(2): 491–494.

Papers Under Review

- [R1] Gorosabel-Araus J.M., Mann P., Pepper A. "3D Basin modeling and Cretaceous play fairway analysis of the Douala-Rio Muni Basin, offshore Equatorial Guinea." (under review)

Industry / Trade Publications

- [T2] Shipper K., Mann P., Gorosabel-Araus J.M. (2026). "Jurassic Petroleum System confirmed by observed oil front offshore Morocco." *GEO EXPRO 3-2026*, pp. 46–48.
- [T1] Gorosabel-Araus J.M., Mann P., Pepper A. (2025). "New modeling study reveals a petroleum system overlying oceanic crust offshore Equatorial Guinea." *GEO EXPRO 5-2025*, pp. 40–41.

Selected Conference Papers & Abstracts (peer-reviewed)

- [C16] Gorosabel-Araus J.M., Mann P., Leopoldino Oliveira K., Souza A.B., Cerdeira I. "Controls on source rock quality and maturity across the Ceará–Potiguar margin: implications for deepwater exploration." *AAPG-SEG IMAGE, Houston, Aug 2026*. (abstract accepted)
- [C15] Cahill C., Gorosabel-Araus J.M., Mann P. "Source rock variability and hydrocarbon potential across the Nova Scotia and Newfoundland margins: insights from Ultimate Expellable Potential (UEP) reconstruction." *AAPG-SEG IMAGE, Houston, Aug 2026*. (abstract accepted)
- [C14] Shipper K., Gorosabel-Araus J.M., Mann P. "Hydrocarbon exploration of Guyana: past, present, and future." *AAPG ICE, Rio de Janeiro, Oct 2025*.
- [C13] Gorosabel-Araus J.M., Mann P., Leopoldino Oliveira K., Souza A.B., Cerdeira I. "Source Rock Characterization and 3D Basin Modeling of the Deepwater Ceará Basin, Brazilian Equatorial Margin." *AAPG ICE, Rio de Janeiro, Oct 2025*.
- [C12] Gorosabel-Araus J.M., Mann P., Pepper A., et al. "3D basin modeling and geochemical characterization of Early Cretaceous source rocks in the deepwater Ceará Basin." *AAPG-SEG IMAGE, Houston, Aug 2025*.
- [C11] Gorosabel-Araus J.M. "A source rock-based approach to frontier exploration with examples from rifted-passive margins of the South Atlantic." *AAPG-SEG IMAGE, Houston, Aug 2025*.
- [C10] Gorosabel-Araus J.M. and Mann P. "3D Seismic characterization of potential plays in the deepwater Rio Muni Basin, offshore Equatorial Guinea." *AAPG-SEG IMAGE, Houston, Aug 2025*.
- [C9] Gorosabel-Araus J.M. and Mann P. "Hydrocarbon prospectivity of the deepwater Rio Muni Basin, offshore Equatorial Guinea." *HGS-GESGB Africa Conference, Houston, Sep 2024*.
- [C8] Gorosabel-Araus J.M., et al. "Upside hydrocarbon potential of the deepwater Barreirinhas Basin, Equatorial Margin of Brazil." *AAPG-SEG IMAGE, Houston, Aug 2024*.

- [C7] Gorosabel-Araus J.M. and Mann P. "Evaluating the Deepwater hydrocarbon potential of the Equatorial Margin of Brazil from regional-scale source rock characterization and basin modeling." Petrobras-CENPES, Rio de Janeiro, Jul 2024.
- [C6] Gorosabel-Araus J.M., et al. "The deepwater Barreirinhas Basin: refined basin modeling reveals upside hydrocarbon potential." 8th Conjugate Margins Conference, Lisbon, May 2024.
- [C5] Gorosabel-Araus J.M. and Mann P. "Comparison of deepwater marginal rifts and their hydrocarbon potential: Examples from the Gulf of Mexico and Atlantic margin of Morocco." 8th Conjugate Margins Conference, Lisbon, May 2024.
- [C4] Gorosabel-Araus J.M., Mann P., Granja-Bruña J.L. "Structural and stratigraphic response of southern Hispaniola to the northeastward tectonic indentation by the Beata Ridge." AGU, San Francisco, Dec 2023.
- [C3] Gorosabel-Araus J.M., et al. "Hydrocarbon prospectivity in the San Pedro offshore basin." AAPG-SEG IMAGE, Houston, Aug 2023.
- [C2] Gorosabel-Araus J.M., et al. "Hydrocarbon potential of the San Pedro Basin: new insights from source rock sampling." EAGE Annual 83rd Conference, Madrid, Jun 2022.
- [C1] Gorosabel-Araus J.M., et al. "New constraints on the tectono-sedimentary evolution of the San Pedro Basin." AAPG/SEG ICE, Barcelona, May 2016; AAPG Hedberg Conference, Sigüenza, Jul 2018; Geological Society of London, May 2019.

Posters

- [P2] Gorosabel-Araus J.M., et al. "New interpretation of the depositional systems of the San Pedro Basin." AAPG/SEG ICE, Barcelona, 2016.
- [P1] Carbó-Gorosabel A., Granja Bruña J.L., Rodríguez Zurrunero A., Gorosabel-Araus J.M., et al. "New observations of the active deformation along the North American–Caribbean plate boundary." EGU, Vienna, 2015; EAGE Annual, Madrid, 2015.

PROFESSIONAL MEMBERSHIPS

- American Association of Petroleum Geologists (AAPG)
- Houston Geological Society (HGS)
- Asociación de Geólogos y Geofísicos Españoles del Petróleo (AGGEP)

COURSES & PROFESSIONAL DEVELOPMENT

Charge Access: Moving the Phases in Petroleum Systems Sep 2025

University of Houston — Instructor: Andy Pepper (leading expert in source rock characterization and basin modeling)

Basin Modeling Short Course Oct – Nov 2020

University of Houston — Instructor: Andy Pepper

Synthetic Aperture Radar: Hazards Feb – Mar 2019

University of Alaska Fairbanks (AlaskaX online)

Introduction to Reservoir Characterization and 3D Modelling Sep 2015

Schlumberger / Complutense University of Madrid

Seismic and Sequence Stratigraphy for Play Prediction and Basin Analysis Jan – Jun 2013

Nautilus — Instructor: George Bertram (IFP)

TECHNICAL SKILLS

Geophysical & Geological Interpretation:

Petrel, PaleoScan, Oasis Montaj, Kingdom.

Seismic Processing:

ProMax 2D, Vista, GLOBE CLARITAS.

Survey Design:

MESA Survey Design, NORSAR 2D, OMNI Survey Design and Modelling.

Basin Modeling:

PetroMod, Trinity-Genesis, ExCaliber.

GIS:

ArcGIS, QGIS, Global Mapper.

LANGUAGES

- Spanish — Native
- English — Advanced (C1)

REFERENCES

Dr. Paul Mann P.I., CBTH Group, University of Houston pmann@central.uh.edu	Andrew Pepper Senior Basin Modeler, This Is Petroleum Systems asp.tips@mac.com
Dr. José Luis Granja Bruña Professor, Geodynamics Dept., UCM jlgranja@ucm.es	Antonio Gallego Mingo Senior Exploration Geologist agallego1966@gmail.com
Dr. John Castagna Professor, University of Houston jpcastag@central.uh.edu	