Cecilia Lopez-Gamundi

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Education

University of Miami | Ph.D., Marine Geoscience — May 2024
Rosenstiel School of Marine, Atmospheric, and Earth Science — Miami, FL
The Sediment Budget of the Great Bahama Bank – Insights from Simulations, Satellites, and Seismic

The University of Oklahoma | M.S., Geology — May 2019
School of Geosciences, Mewbourne College of Earth and Energy — Norman, OK
Integrated Geochemistry and Sedimentology of the Wolfcamp B3 & B2 Intervals, Midland Basin, TX

The University of Texas at Austin | B.S., Geology — Aug 2014
Jackson School of Geosciences, College Scholar — Austin, TX

Academic Appointments

University of South Carolina | Assistant Professor — Mar 2026 — Columbia, SC
- Coastal and carbonate geoscientist at the School of the Earth, Ocean, and Environment

Jet Propulsion Laboratory, NASA / Caltech | JPL Affiliate Scientist — Jan 2026 — Pasadena, CA
- Continued research in coastal hydrodynamic modeling and radar data applications

Jet Propulsion Laboratory, NASA / Caltech | JPL Postdoctoral Fellow (M. Simard) — April 2025 – Dec 2025 — Pasadena, CA
- Creating hydrodynamic models of coastal wetlands to simulate carbon export
- Using radar satellite products to quantify forest biomass, ocean altimetry, and hydroperiod

University of Miami, RSMAS | Research Assistant (S. Purkis) — Jan 2019 – Dec 2023 — Miami, FL
- Quantified carbonate sediment transport during fair- and storm-weather conditions
- Calibrated hydrodynamic model (SLIM) using remote sensing observations (MODIS)
- Applied machine learning to large earth observation datasets (climate reanalysis)

University of Miami, RSMAS | Teaching Assistant (S. Purkis, A. Oehlert, & G. Eberli) — Aug 2020 – Dec 2022 — Miami, FL
- Evolution of the Biosphere (2022) – non major Earth history (>100 students)
- Earth System History (2021) – lower division Earth history and geology (50 students)
- Depositional and Diagenetic Systems (2020) – upper division sedimentology (15 students)

Phillips and Patricia Frost Science Museum | IMPACT Lab Coach — Jun 2019 – Aug 2019 — Miami, FL
- Mentored local high school seniors in designing earth science research projects
- Helped students develop petrographic, remote sensing, and field method skills
- Aided students in their reconstruction of Pleistocene and Holocene sea level

The University of Oklahoma | Research Assistant (R.P. Philp) — Aug 2014 – May 2016 — Norman, OK
- Calibrated and maintained HPLC & LECO TOC for daily lab operations
- Geochemically analyzed biomarkers (GC & GC-MS) for paleoceanographic reconstructions

The University of Oklahoma | Teaching Assistant (G. Holloway & K. Marfurt) — Aug 2015 – May 2016 — Norman, OK
- Introduction to Geology (2016) – non major introductory geoscience lab (>150 students)
- Geology & Geophysics for Petroleum Engineers (2015) – senior Petrel lab (40 students)

The University of Texas at Austin | Research Assistant (G. Kocurek, D. Mohrig, & D. Breeker) — Feb 2012 – May 2014 — Austin, TX
- Collected wind data for aeolian accumulation analysis in 3D printed Jurassic basin
- Used $\delta^{18}O$ and $\delta^{2}H$ values for paleotopographic reconstruction of Western Cordillera

Policy Experience

Department of Energy | Research Experience in Carbon Sequestration (RECS) Participant — Dec 2020 — Remote
- Gained an in-depth understanding of CCUS technology, industry, and policy
- Applied geologic and geochemical techniques to real world sequestration challenges

The American Geosciences Institute | Geoscience Policy Intern — Jan 2018 – April 2018, Washington DC

- Attended congressional hearings regarding energy and the environment on Capitol Hill
- Provided the Congressional Hazards Caucus (Senate) with critical geohazards information

Industry Experience

Chevron | R&D Earth Scientist, Reservoir Modeling Chapter — March 2024 – March 2025, Houston, TX

- Forward modeled carbonate formation, hydrodynamic transport, and diagenesis
- Extracted geostatistics from forward models and satellite data and applied to subsurface
- Simulated the effects of ancient sea level and climate on carbonate chemistry and growth

Chevron | Earth Science Intern, Carbonate Stratigraphy and Reservoir Quality Prediction — May 2021 – Aug 2021, Remote

- Enhanced computational stratigraphic forward model for carbonates using Python
- Implemented bioturbation index to assess distribution and sand connectivity
- Parameterized biologic responses to environmental stressors to estimate sediment production

Shell | Geoscience Intern, Shallow Water Campeche Mexico Exploration — June 2020 – Aug 2020, Remote

- Created comprehensive pressure database for drilling and exploration purposes
- Identified areas of reservoir connectivity and delineated regional pressure zones
- Contextualized pressure zones with structural regimes and sedimentation rates

BHP Billiton Petroleum | Geoscience Intern, Trion Production/ Mexico Exploration — May 2018 – Aug 2018, Houston, TX

- Conducted oil-source rock correlations between Perdido Fold Belt and Campeche Basin
- Utilized kinetics data to create 1D basin models and UEP logs of Mesozoic source rocks
- Identified areas of increased source rock thickness due to underlying paleotopography

BHP Billiton Petroleum | Geoscience Intern, Gulf of Mexico Production Unit — May 2017 – Aug 2017, Houston, TX

- Utilized multidisciplinary core data and well logs to investigate low resistivity pay signature
- Created turbidite core database comparing static geologic and dynamic reservoir properties
- Related paleotopographically induced sediment gravity flow deceleration to poorer sorting

BHP Billiton Petroleum | Geoscience Intern, Eagle Ford Fields Study Team — May 2016 – Aug 2016, Houston, TX

- Characterized Eagle Ford facies sedimentary for production variability investigation
- Utilized seismic attributes and well logs to identify interbedding heterogeneities
- Identified areas of syndepostional faulting and reservoir compartmentalization

Pioneer Natural Resources | Geoscience Intern, Shale Technology — May 2015 – Aug 2015, Dallas, TX

- Described and collected XRF and Bambino UCS data from Wolfcamp Formation core
- Compared major element distribution with respect to competent / incompetent bedding
- Utilized trace metal and TOC data to refine sequence stratigraphic interpretation

TPS Enterprises | Thin Section Preparation Intern — Jun 2011 – Aug 2011, Houston, TX

- Prepared and stained petrographic thin sections
- Translated technical papers into Spanish for PEMEX

Professional Development and Workshops

Society for Sedimentary Geology (SEPM) – Stratigraphic Forward Modeling Workshop Participant — April 2024
Integrated Ocean Drilling Program – Early-Career Scientific Ocean Drilling Workshop Participant — Aug 2023
Software Carpentry + University of Miami – Python Instructor / R Workshop Helper — 2022 – 2023
ExxonMobil – Plates to Pores Geophysical Course Participant — April 2018
American Association of Petroleum Geologists – Imperial Barrel Award Team Member — May 2015
ExxonMobil – Bighorn Basin Field Course Participant — July 2014

Applicable Skills and Selected Coursework

Programming: Python, HPC, Unix (advanced); R (intermediate); MATLAB, FORTRAN, Cloud Computing (beginner)
Selected Packages: Python - dask, rasterio, GDAL, xarray, uxarray, rioxarray, rasterio, geopandas, pyTMD, holoviews, plotly, matplotlib, numpy, pandas, scikit-learn, seaborn, arrow, h5py; R - RandomForestSRC, parallel, dplyr, corrplot
Satellites & Models: Landsat 7-8, Sentinel-2, MODIS, VIIRS, SWOT, ICESat-2, ERA5, SWAN, TPXO, Telemac, SLIM
Software: ArcGIS, QGIS, ENVI, GlobalMapper, OpenFlow Dionisos, Trinity, Kinex, Petrel, Kingdom, Spotfire, PowerBI

Analytical: IRMS, GC, GC-MS, MS-MS, MSSV-GC, HPLC, XRF, XRD, SEM-EDS, & Bambino UCS Hammer

Selected Coursework: Geophysical Fluid Dynamics, Stable Isotopes in Biogeochemical Cycles, Geomicrobiology, Environmental Isotope Geochemistry, Global Warming, Hydrogeology, Sediment Gravity Flows, Morphodynamics, Carbonate Petrophysics, Seismic Interpretation of Carbonates, 3D Reservoir Modeling, Petroleum Geochemistry, 3D Seismic Interpretation, High-Temperature Geochemistry, Organic Chemistry I-II, & Inorganic Chemistry

Language: English – native / fluent; Spanish – conversationally fluent, technically proficient

Awards, Scholarships, and Certifications

NSF Student Travel Fund (SEPM – ISGC)	2024
Software Carpentry Certified Instructor	2023
UMiami Institute of Data Science and Computing Early Career Award	2023
SEPM Student Travel Fund Recipient	2023
UMiami Student Travel Fund Recipient: International Meeting	2023
Glenn Eugene Laskey Memorial Fellowship Fund Recipient	2015 – 2016
AAPG Imperial Barrel Award: Mid-Continent Section – 1st Place	2015
Apache Corporation Scholars Program Scholarship Recipient	2014
David Scott Holland, Sr. Student Excellence Fund in the Geosciences Recipient, UT Austin	2011 – 2014
College Scholars Honors, UT Austin	2011 – 2014
PADI Open Water Diver	2005

Professional Organizations, Outreach, and Leadership Roles

Associate Editor, *Sedimentologika*	2025 – cont.
Geo-Marine Letters (Reviewer)	2025
Frost Science MUVE Dune Restoration Volunteer	2023 – 2024
UMiami Marine Geosciences Outreach Representative	2020 – 2024
International Association of Sedimentologists (IAS)	2019 – cont.
Reviewer for *The Depositional Record*	2024
Society for Sedimentary Geology (SEPM)	2019 – cont.
SEPM Nominations Committee	2024 – cont.
SEPM Carbonate Research Group Committee Organizer	2020 – 2023
Conference Chair for ISGC (Carbonates as a Record of Climate Change)	2024
American Geosciences Institute (AGI)	2016 – cont.
Geologic Society of America (GSA)	2013 – cont.
GSA Membership and Fellowship Committee Student Representative	2023
Society of Exploration Geophysicists (SEG)	2018 – cont.
Reviewer for *Interpretation*	2019 – 2020
American Association of Petroleum Geologists (AAPG)	2013 – cont.
Abstract reviewer for IMAGE – AAPG & SEG Joint Meeting	2023
Conference Chair for IMAGE – Carbonate Depositional Systems Section	2021 – 2023
AAPG University of Oklahoma Student Chapter Secretary	2015 – 2016

Field Experience

Eleuthera, Bahamas | led by **C. Lopez-Gamundi** — Jun 2022

- Led group of UMiami students on a six-day trip to various marine and coastal field sites

Eleuthera, Bahamas | led by IAS instructors P. Swart, M. Arienzo, & G. Eberli — May 2022

- Conducted benthic surveys, measured current velocities, & collected sediment samples
- Presented synthesis project of sediment distributions in modern carbonate environments

New Providence & Exumas, Bahamas | led by C. Roelfsema — Mar 2020

- Part of multidisciplinary team joining University of Queensland researchers for 14 days at sea
- Surveyed benthic habitats to ground truth the global Allen Coral Atlas (Paul Allen Foundation)

Delaware Basin, New Mexico | led by J.D. Pigott — Nov 2015

- Analyzed El Capitan Reef outcrops & interpreted changes in Permian carbonate environments

Key West, Florida | led by J.D. Pigott — Oct 2015

- Conducted benthic surveys of local fauna and biota
- Investigated modern carbonate geometries and special distributions

Hollywood Quarry, Arkansas | led by R. Slatt — Sept 2014

- Measured section and sedimentary features of ancient deltaic and marine sequences

Bighorn Basin, Wyoming | led by ExxonMobil — July 2014

- Collected field data to evaluate reservoir properties and develop play concepts
- Presented team findings and potential prospects to various industry experts

Field Camp, Western United States | led by UT Austin professors — May 2014 Jun 2014

- Capstone six-week field camp as part of BS degree
- Measured sections, made maps, & created cross sections across TX, NM, UT, CO, WY, & MT

White Rim Canyon, Moab, Utah | led by G. Kocurek — Aug 2013

- Aerially photographed paleo-dune field
- Took sedimentological measurements capturing dune interactions

Uspallata, Argentina | led by G. Cisterna, A. Sterren, & O. Lopez-Gamundi — May 2013

- Assisted in field work of glacially influence sequences in Calingasta-Uspallata Basin
- Studied lithofacies and measured paleocurrents for paleogeographic reconstructions

Publications

1. Lopez-Gamundi, O. and **Lopez-Gamundi, C.** (2026) Basin-scale sequence stratigraphy of the Vivian Formation (Marañón Basin, Peru). *Journal of South American Earth Sciences*, 174, 105999. https://doi.org/10.1016/j.jsames.2026.105999
2. Hupp, B. N., Hashim, M. S., Bryant, R., Kinsley, C. W., Villa, A., Yobo, Lucien, N., and Ajayi, J. O., **Participants of the Establishing Early-Career Scientific Ocean Drilling Learning Communities Workshop** (2025) Perspectives on developing a diverse, knowledgeable and inclusive scientific community in the shifting landscape of US scientific ocean drilling. *Earth Science, Systems and Society*, 5. https://doi.org/10.1144/esss2024-002
3. **Lopez-Gamundi, C.**, Barnes B.B., Betlzer C., Harris P.M., Oehlert, A.M., Eberli, G.P., and Purkis, S.J. (2025) The carbonate sediment budget of Great Bahama Bank – Earth's largest modern platform. *Geology*, 53, 748-752. https://doi.org/10.1130/G52850.1
4. Lopez-Gamundi, O., Cisterna, G.A., Sterren, A. F., and **Lopez-Gamundi, C.** (2024) El Paso Formation: A key unit for the correlation of the Carboniferous glaciation in the Calingasta-Uspallata basin of western Argentina, *Journal of South American Earth Sciences*, 143, 105004. https://doi.org/10.1016/j.jsames.2024.105004
5. **Lopez-Gamundi, C.**, Barnes, B.B., Bakker, A.C., Harris, P.M., Eberli, G., and Purkis, S.J. (2023) Spatial, seasonal, and climatic drivers of suspended sediment atop Great Bahama Bank. *Sedimentology*, 71, 769-792. https://doi.org/10.1111/sed.13151
6. **Lopez-Gamundi, C.**, Dobbelaere, T., Hanert, E., Harris, P.M., Eberli, G., and Purkis, S.J. (2022) Simulating sedimentation on the Great Bahama Bank – Sources, sinks and storms. *Sedimentology*, 69, 2693-2714. https://doi.org/10.1111/sed.13020 – *Selected Editor's Picks 2022*
7. Lopez-Gamundi, O. and **Lopez-Gamundi, C.** (2018) Exhumation of a proximal foredeep and associated wedge-top basin evidenced by porosity versus depth trends: The Upper Cretaceous Vivian sandstones in Northwestern Marañón and Santiago basins (Peru). In: *AAPG Memoir 117: Petroleum Basins and Hydrocarbon Potential of the Andes of Peru and Bolivia* (Ed. G.Z. Valcarce, K.R. McClay, and V.A. Ramos), American Association of Petroleum Geologists, 251-269. https://doi.org/10.1306/13622123M1173531

Thesis and Dissertation

1. **Lopez-Gamundi, C.** (2024) The Sediment Budget of the Great Bahama Bank - Insights from Simulations, Satellites, and Seismic (PhD Dissertation). University of Miami, 108. https://scholarship.miami.edu/esploro/outputs/991032024814502976
2. **Lopez-Gamundi, C.** (2019) Integrated Geochemistry and Sedimentology of the Wolfcamp B3 and B2 Intervals, Midland Basin, TX. (MS Thesis). The University of Oklahoma, 345. https://shareok.org/handle/11244/319736

Conference Extended Abstracts, Posters, and Presentations

1. Simard, M., Christensen, A., Denbina, M., Matte, Pascal; Payandeh, A., and **Lopez-Gamundi, C.** (2025) Using SWOT observations to characterize hydrodynamics and hydroperiod in river deltas and estuaries. SWOT Science Team Meeting. Arcachon, France. October 14-17, 2025.
2. **Lopez-Gamundi, C.**, Harris, P.M., Dobbelaere, T., Hanert, E., Barnes, B. B., Bakker, A. C., Eberli, G. P., and Purkis, S. J. (2024) Elucidating Modern Climate Signals on Great Bahama Bank Using Simulations and Remote Sensing, SEPM International Sedimentary Geosciences Congress. Flagstaff, Arizona. May 5-8, 2024.

3. **Lopez-Gamundi, C.**, Barnes, B.B., Bakker, A.C., Harris, P.M., Eberli, G., and Purkis, S.J. (2023) Deciphering the drivers of suspended sediment – Great Bahama Bank. In: *Advances in the Understanding and Interpretation of Carbonates* (Ed. T.E. Playton and P.M. Harris), SEPM Short Course 57. https://doi.org/10.2110/sepmscn.057

4. **Lopez-Gamundi, C.**, Barnes, B. B., Harris, P. M., Eberli, G. P., and Purkis, S. J. (2023) Deciphering the drivers of suspended sediment atop the Great Bahama Bank, 36th International Meeting of Sedimentology. Dubrovnik, Croatia. June 12-16, 2023.

5. **Lopez-Gamundi, C.**, Dobbelaere, T., Hanert, E., Harris, P. M., and Purkis, S. J. (2021) From Source-to-Sink: Combining Remote Sensing and Hydrodynamic Simulation to Develop a Sediment Budget for Great Bahama Bank, AAPG Annual Convention and Exhibition 2021. Denver, Colorado. May 23-26, 2021.

6. **Lopez-Gamundi, C.**, Philp, R.P., and Slatt, R. (2020) The influence of sea level and sediment gravity flows on the sedimentation and geochemistry of the Wolfcamp Formation B3 and B2 Intervals, Midland Basin, TX, AAPG Annual Convention and Exhibition 2020. Online/Virtual. Sept 29 - Oct 1, 2020.

7. **Lopez-Gamundi, C.**, Purkis, S.J., Harris, P.M., Dobbelaere, T., and Hanert, E. (2020) Sediment Production and Transport atop Great Bahama Bank: Insights from Fair and Storm-Weather Conditions on the Andros Platform, AAPG Annual Convention and Exhibition 2020. Online/Virtual. Sept 29 - Oct 1, 2020.

8. Lopez-Gamundi, O. and **Lopez-Gamundi, C.** (2018) Transgressive Reworking and Its Impact on Sandstone Porosity Improvement: The Vivian Formation, Marañón Basin, Northern Perú. AAPG Annual Convention and Exhibition. Salt Lake City, Utah. May 20 - 23, 2018.

9. Lopez-Gamundi, O., Cisterna, G., Sterren, A.F., **Lopez-Gamundi, C.**, and Vergel, M.D.M. (2018) Key sequence stratigraphic surfaces along a basin margin: the Late Paleozoic successions of the Calingasta-Uspallata basin, west Argentina. In: *Revista del Museo de La Plata: VII Simposio Argentino del Paleozoico Superior*. Universidad National de La Plata, Argentina. March 26-28, 2018.

Other Invited Presentations

1. **Lopez-Gamundi, C.** (2025) Resolving Storm and Climate Signals in the Modern Bahamas Using Satellites and Simulations. Department of Earth Planetary & Space Sciences Colloquium. *University of California Los Angeles*.

2. **Lopez-Gamundi, C.** (2025) Elucidating Modern Climate Signals on Great Bahama Bank Using Satellites and Simulations. School of the Earth, Ocean, and Environment Seminar. *University of South Carolina*.

3. **Lopez-Gamundi, C.** (2024) Suspended Sediment atop Carbonate Platforms – Insights from Satellites and Machine Learning. Exploration Geosciences Network Tech Talk. *Chevron*.

4. **Lopez-Gamundi, C.** (2023) Using New Methods to Solve Old Geologic Problems - What Satellites and Simulations Can Tell Us About Storms and Suspended Sediment. Institute Colloquium (Online). *University of Potsdam*.

5. **Lopez-Gamundi, C.** (2023) Deciphering the Drivers Behind Suspended Sediment – Insights from Long-Term Satellite Monitoring of Great Bahama Bank. Carbonate Café (Online). *Chevron*.

6. True, A., **Lopez-Gamundi, C.**, Elmore, A.G., Chirayath, V., Tárano, A., Jones, N., Johnson, S., Orengo, A., Thornton, M., Best-Otubu, C., Soluri, K., Zuidema, P., McDonald, D., Shay, M., Plotnikova, A., and Isma, L. (2023) Diversity in Marine, Atmospheric, and Earth Science (Online). *University of Miami* | *North Carolina State University*.

7. **Lopez-Gamundi, C.**, Samankassou, E., Matheson, E., and Burgess, P. (2021) Great Debate: Sea Level Rise Drowns Reefs (Online). *Seds Online*.