

Research interests

- Coastal hydrodynamics: wave-current interaction and wave transformation
- Transport and mixing processes: plumes, ocean outfalls, sediment transport and pollutant dispersion
- Wave climate: analysis of metocean data, extreme wave conditions and wave spectra

Education

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| Expected 2026 | Ph.D. in Water Resources and Environmental Engineering,
<i>Federal University of Paraná (UFPR), Brazil.</i>
Supervisor: Prof. Dr.-Ing. Tobias Bleninger |
| 2023 | M.Sc. in Water Resources and Environmental Engineering,
<i>Federal University of Paraná (UFPR), Brazil.</i>
Dissertation: "Influence of waves on the transport and fate of sediments from a submarine sewage outfall in shallow coastal waters"
Supervisor: Prof. Dr.-Ing. Tobias Bleninger |
| 2020 | B.Sc. in Civil Engineering, <i>Universidad del Norte, Colombia.</i> |

Professional experience

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| 2021–2022 | Course instructor, <i>Universidad del Magdalena, Colombia.</i>
Course: "Computational Modeling in Coastal Engineering" |
| 2020–2021 | Design engineer, <i>ATE Hydrosystems, Colombia.</i> |
| 2020 | Consulting engineer, <i>Universidad del Norte, Colombia.</i>
Project: "Technical/scientific studies and baseline designs for the feasibility of navigability of the Magdalena River" |

Honors and awards

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| 2013–2017 | Orgullo Caribe Scholarship (Universidad del Norte) |
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Publications

- [1] Diego Andrés Casas Toro. "Influence of waves on the transport and fate of sediments from a submarine sewage outfall in shallow coastal waters". M.Sc. dissertation. Curitiba, Brazil: Federal University of Paraná, 2023. URL: <https://hdl.handle.net/1884/82595>.
- [2] German Rivillas-Ospina, **Diego Casas**, Mauro Antonio Maza-Chamorro, Marianella Bolívar, Gabriel Ruiz, Roberto Guerrero, José M. Horrillo-Caraballo, Milton Guerrero, Karina Díaz, Roberto del Rio, and Erick Campos. "APPMAR 1.0: A Python application for downloading and analyzing of WAVEWATCH III® wave and wind data". In: *Computers & Geosciences* 162 (May 2022), p. 105098. ISSN: 00983004. DOI: 10.1016/j.cageo.2022.105098.
- [3] German Rivillas-Ospina, Mauro Antonio Maza-Chamorro, Sebastián Restrepo, Debora Lithgow, Rodolfo Silva, Augusto Sisa, Andrés Vargas, Juan Pablo Sarmiento, Juan Caes, Marianella Bolivar, Roberto Del Rio, Erick Campo, **Diego Casas**, and Dennis Rudas. "Alternatives for Recovering the Ecosystem Services and Resilience of the Salamanca Island Natural Park, Colombia". In: *Water* 12 (5 May 2020), p. 1513. ISSN: 2073-4441. DOI: 10.3390/w12051513.

Presentations

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| 2023 | "Coupled wave-current modeling of outfall sediment dynamics in shallow coastal waters". 4th International Symposium on Outfall Systems. Buenos Aires, Argentina. |
| 2022 | "Modelagem do transporte de sedimentos oriundos de emissários submarinos sob efeito de ondas". V Simpósio PPGERHA. Federal University of Paraná, Curitiba, Brazil. |

Relevant skills and experience

- Hydrodynamic and wave modeling (Delft3D FLOW and WAVE)
- Proficient in programming for numerical modeling and data analysis (Fortran, C/C++, Go, Python, Julia, R and MATLAB)
- Proficient in geographic information systems (GIS) and geoprocessing, including remote sensing and satellite images
- Linux, shell scripting and cloud computing
- Development of APPMAR: a program for analysis of wave and wind climate (github.com/cemanetwork/appmar)
- Development of GMDApp: an application for ground motion time series selection (github.com/gaaraujo/GMDApp)



Languages

Spanish	Native
English	Fluent (CEFR level C1)
Portuguese	Fluent