

Daniela Belén Risaro

dbrisar@gmail.com | danielarisaro.ar

Italian and Argentine citizenship

SUMMARY

Climate scientist with 10+ years in research and applied climate risk, leading a team that turns Earth observation into parametric insurance products. My expertise includes satellite pipelines (MODIS, VIIRS, Sentinel, SAR), deep learning segmentation, catastrophe modelling and portfolio optimisation. Strong background in Python and large-scale geospatial data processing, and experience defending model design to reinsurers and development banks.

EDUCATION

Master of Public Policy (MPP), Universidad Torcuato Di Tella 2021 to 2025

Thesis: The Argentine fishing industry and its relationship with climate variability and change, covering environmental, economic and institutional perspectives. Selected among the best final dissertations of 2025.

PhD in Atmospheric and Oceanic Sciences, University of Buenos Aires 2015 to 2020

Thesis: Long-term sea surface temperature trends around South America and their ecological impact.

Licenciatura in Physical Oceanography (equivalent to MSc), University of Buenos Aires 2009 to 2015

Thesis: Sea surface temperature trends on the Patagonian Shelf of the Argentine Sea.

EXPERIENCE

Principal Climate Scientist January 2025 to present

Suyana Climate Insurance, US

- Lead a team of data scientists and Harvard MPA interns, setting hazard index design (trigger definition, threshold calibration, basis risk validation) across all parametric products.
- Design and build a satellite sargassum monitoring system, combining **optical and infrared imagery (MODIS, VIIRS, Sentinel-2, Landsat)** with **SeaDAS atmospheric** correction and **deep learning segmentation (U-Net, ResUNet)**.
- Forecast sargassum coastal arrival daily in production, driving **Lagrangian drift modelling** with **GLORYS12 currents** and **scatterometer windage** to warn tourism clients of probable landfall.
- Designed the **portfolio construction methodology** enabling Suyana's move to Managing General Agent, benchmarking **minimum-variance, semivariance and CVaR** optimisation across country, peril and exposure.
- Delivered a multi-hazard climate risk and infrastructure loss assessment for CAF (Development Bank of Latin America and the Caribbean), combining **catastrophe modelling (CLIMADA, IBTrACS, physrisk)** with **ERA5** and **CHIRPS** hazard layers.
- Cut quotation turnaround from two weeks to one day by building a **pricing automation tool** in **Python**, now used across the team for every client.

Senior Climate Scientist January 2024 to December 2024

Suyana Climate Insurance, US (part time)

- Built the first five **parametric products** end to end (storm surge, heatwaves, cold spells, drought and sea surface temperature anomalies), implemented in Peru, Bolivia, Argentina and Colombia.
- Configured and ran numerical **wave and storm surge simulations (SWAN)** for 89 ports along 3,000 km of the Peruvian coast, underpinning a parametric trigger based on port closures.

- Co-developed the detection method for a new flood product, training a CNN on MODIS and VIIRS optical and IMERG precipitation to predict sub-pixel water fraction with **Sentinel-1** SAR-derived labels as supervision, tested across Argentina, Bolivia and Brazil.
- Defended model design and assumptions to reinsurers, securing up to USD 5 million in risk capital from the Natural Disaster Fund for the first programme placed.

Senior Data Scientist

June 2022 to December 2024

Fundar (Foundation for Argentine Development), Argentina

- Delivered Argendata, the national climate change indicator database, combining **ERA5 reanalysis** with **AVHRR satellite** records, now an open public resource.
- Produced a report on the Argentine fishing sector and its exposure to climate variability, linking **MODIS sea surface temperature and chlorophyll** with **CMIP6 SSP projections** to 35 years of landings, for policymakers, industry and civil society.
- Built two subnational composite indices on gender inequality in work and income and in political representation, published with open source code and data on GitHub.
- Wrote for national press on climate, fisheries and planetary boundaries, translating technical work for a general audience.

Scientific Advisor

August 2020 to May 2022

Secretariat of Science, Technology and Innovation, Buenos Aires, Argentina

- Defined climate and development policy indicators for ORBITA, the province's regional technology and innovation observatory, now a public resource supporting policy design.
- Co-designed FITBA, the provincial technology innovation fund, and evaluated 30 proposals in its first call, scoring technical feasibility and recommending awards. The fund has since run five calls, awarding around USD 2 million a year.
- Worked with the provincial statistics office to develop and publish gender indicators for the science and technology sector, adding them to official statistics.

PhD Researcher, Climate and Ocean Sciences

April 2015 to August 2020

CONICET (Argentine National Scientific and Technical Research Council), Argentina

- Detected and validated long-term regional warming and cooling trends in the South Atlantic using Mann-Kendall testing, spectral analysis (Welch, multitaper) and EOF and PCA decomposition, combining AVHRR and OISSTv2 satellite records, reanalysis and in-situ hydrographic data.
- Isolated coupled ocean and atmosphere modes through singular value decomposition, linking observed trends to ENSO and SAM teleconnections.
- Cross-calibrated satellite chlorophyll products (SeaWiFS against MODIS) and validated reanalysis surface winds against in-situ buoy measurements.
- Developed reproducible Python workflows (xarray, Dask, pandas) with shell scripting, version control and parallel processing on remote Linux servers, collaborating with national and international research teams.
- Participated in three oceanographic cruises aboard FS Meteor and RV Puerto Deseado, deploying CTD and uCTD profilers, microstructure probes and Argo floats.

TEACHING

Universidad Torcuato Di Tella, School of Government. Visiting Professor, 2023 to present, on digitalisation and data use in the state (graduate programmes). Teaching Assistant, 2022, on public policy design.

University of Buenos Aires, Department of Atmospheric and Oceanic Sciences. Head Teaching Assistant, 2018 to 2026, and Teaching Assistant, 2014 to 2017, across general oceanography, atmospheric and oceanic dynamics, and general circulation of the ocean and atmosphere.

SELECTED PUBLICATIONS

- Risaro, D. B. and Artana, C. Revisiting barrier layers at global scale. In preparation, submission October 2026
- Risaro, D. B., et al. Interannual variability and trends of sea surface temperature around southern South America. *Frontiers in Marine Science*, 2022.
- Risaro, D. B., et al. Women in the Argentine science, technology and innovation system, a deceiving equality. *The Public Sphere Journal*, London School of Economics and Political Science, 2022.
- Aprovechar el viento a favor, oportunidades para el desarrollo del sector pesquero y acuícola. *Fundar*, 2024.
- Physical and geochemical changes in the Southwest Atlantic Ocean. Ministry of Agriculture, 2022.

CONFERENCES AND WORKSHOPS

- Lois, N., **Risaro, D. B.**, and Raya Rey, A. Penguin exposure to climate change inferred through CMIP6 projections. Oral presentation, British Ornithologists' Union Conference, 2020.
- **Risaro, D. B.**, Chidichimo, M. P., and Piola, A. R. Trends and variability of sea surface temperature in the Argentine Patagonian Shelf. Oral presentation, X Jornadas Nacionales de Ciencias del Mar, Buenos Aires, 2018.
- Manta, G., **Risaro, D. B.**, Bonelli, G., and Handmann, P. Strong gradients and currents, mixing, blooms and internal waves in the Brazil-Malvinas confluence and Patagonian shelf break. GEOMAR Summer School, Kiel, 2017.
- Coordinated the IFAECI Days, French-Argentine Institute for Climate Studies and its Impacts, Buenos Aires, 2024.
- Coordinated the All Atlantic-Data 2030 Stakeholders Workshop, Buenos Aires, 2022.
- National delegate, All-Atlantic Ocean Research Forum ministerial sessions, Washington DC, 2022, and Brussels, 2020, as Argentine representative to the All-Atlantic Ocean Youth Ambassadors Programme.