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PROFILE

Physical oceanographer with research interests in ocean dynamics and the ocean's role as a carbon (natural and anthropogenic) sink, focused on the interplay between physical processes and biogeochemical cycles, and on understanding the mechanisms driving their spatio-temporal variability.

Keywords: anthropogenic carbon, Azores Current, Deep Western Boundary Current, Gulf Stream, inorganic nutrient transport, Mediterranean Water, meridional overturning circulation, North Atlantic Current, North Atlantic Ocean, ocean acidification, ocean carbon cycle, ocean climate, ocean deoxygenation, water masses.

EMPLOYMENT

Dec 2019 – present	Researcher – Principal Scientist	IFREMER (Brest, France)
Feb 2018 – Nov 2018	Carbon Budget Scientist	National Oceanography Centre (Southampton, UK)
Aug 2015 – Jan 2018	Postdoctoral Research Position	University of Vigo
Jan 2014 – Dec 2014	Research Associate	Spanish National Research Council (IIM-CSIC)
Jul 2009 – Jul 2013	PhD Fellow	IIM-CSIC
Dec 2008 – Jul 2009	Departmental Collaboration Grant	University of Málaga
Jul 2008 – Aug 2008	Scientific outreach monitor	Galician Oceanographers Association
Sep 2007 – Jun 2008	Departmental Collaboration Grant	University of Vigo
Jul 2007 – Aug 2007	Internship	IIM-CSIC

EDUCATION / RESEARCH STAYS

Feb – Jul 2017	IFREMER/LOPS (France). Dr. Mercier. Nutrient fluxes across OVIDE section and nutrient budgets in the subtropical gyre.
Sep 2015 – Jan 2017	NOC/MPOC (UK). Dr. McDonagh. Nutrient fluxes across RAPID section.
Sep – Dec 2014	IFREMER/LOPS (France). Dr. Mercier. Heat fluxes across OVIDE section.
Jul 2013	PhD. (Hons.) Oceanography by University of Vigo. Grade Cum Laude.
Sep – Dec 2011	IFREMER/LOP (France). Dr. Mercier. Water masses mixing in the subpolar gyre.
Sep – Oct 2010	IFREMER/LOPS (France). Dr. Mercier. Box inverse model applied to the NE Atlantic.
Jun 2008	MSc. Applied Physics by University of Vigo. Grade A (90.4)
Jun 2008	BSc. Marine Science by University of Vigo. Grade B (77.9)
Jun 2002	Certificate of Education (Hons.), A Coruña. Grade <i>Cum Laude</i> .

FUNDING / GRANTS / AWARDS / RECOGNITION

- 2025 **ENTRAIN** project awarded by ARED and Ifremer (48 k€) to fund a 3-yr PhD doctorate.
- 2023 **OVIDE 2026** cruise time granted by CNFH (Appel à projets scientifiques relatif aux navires hauturiers pour une programmation à partir de l'année 2025: ranked priority 1).
- 2022 **CARING** project (EUROFLEETS Co-PI, LEFE, ISblue, Ifremer; 150 k€).
- 2021 ISblue grant: Gratification de stage to host M2 student (6 k€).
- 2021 **OCCEAN2s** project awarded by Region Bretagne Loire (48 k€) and ODE/IFREMER department (48 k€) to fund a 3-yr PhD doctorate.
- 2020 **CANAIMOC** project awarded by ISblue 'Appel à projet, workshops, écoles thématiques 2020' (2.6 k€) and LOPS 'Appel à mini-projets 2020' (4.2 k€)
- 2018 Ocean Science Meeting Early Career Scientist Travel Grant, American Geophysical Union.
- 2015 **CAVINA** (Carbon Variability in the North Atlantic) Postdoctoral Project. 110 k€ awarded by the Regional Government of Galicia (Xunta de Galicia, Plan I2C) to L.I. Carracedo.
- 2014 Mobility of researchers Regional Government grant.
- 2009 FPU (Training of University Teachers) Predoctoral Spanish Grant.

- 2008 Grant for linguistic (English) immersion, Spanish Ministry of Education and Science.
- 2008 Departmental Collaboration Grant, University of Malaga.
- 2007 Departmental Collaboration Grant, Spanish Ministry of Education and Science.
- 2008 Grant for MSc. studies, Spanish Ministry of Education and Science.
- 2007 Grant for English studies abroad, Spanish Ministry of Education and Science.
- 2007 Awarded "Graduation Prize Winner", Oceanographic Centre of Vigo, University of Vigo.
- 02/06 Yearly Granted for BSc. studies, Spanish Ministry of Education and Science.
- 2002 Awarded Honour Distinction (Completion of High School Studies recognition).

PUBLICATIONS

19. López-Mozos, M., Pérez, F. F., **Carracedo, L. I.**, Gebbie, G., & Velo, A. (2025). A novel back-calculation approach to estimate ocean anthropogenic carbon using carbon-based data and a total matrix intercomparison method. *Journal of Advances in Modeling Earth Systems*, 17, e2024MS004330. <https://doi.org/10.1029/2024MS004330>
18. PREPRINT: R. Asselot, V. Thierry, **L. I. Carracedo**, et al. Temporal evolution of anthropogenic carbon in the subpolar North Atlantic gyre between 2011 - 2021. *ESS Open Archive*. October 15, 2024. DOI: [10.22541/essoar.172901267.76656819/v1](https://doi.org/10.22541/essoar.172901267.76656819/v1), Open Access version :
17. Hoerstmann, C., Aguiar-González, B., Barrillon, S., Carpaneto Bastos, C., Grosso, O., Pérez-Hernández, M. D., Doglioli, A.M., Petrenko, A.A., **Carracedo, L.I.**, Benavides, M. Nitrogen fixation in the North Atlantic supported by Gulf Stream eddy-borne diazotrophs. *Nat. Geosci.* 17, 1141–1147 (2024). <https://doi.org/10.1038/s41561-024-01567-2>
16. PREPRINT: **Carracedo L.I.**, McDonagh E., Sanders R., Moore C. M., Mercier H., Brown P., Torres-Valdés S., Mawji E., Baringer M., Smeed D., Rosón G. (2024). Direct observation of North Atlantic nutrient transport and biological pump variability linked to the Meridional Overturning Circulation. Preprint, 65p. Publisher's official version: <https://doi.org/10.21203/rs.3.rs-4186952/v1>, Open Access version : <https://archimer.ifremer.fr/doc/00887/99842/>
15. Mercier, H., Desbruyères, D., Lherminier, P., Velo, A., **Carracedo, L.**, Fontela, M., and Pérez, F. F.: New insights into the eastern Subpolar North Atlantic meridional overturning circulation from OVIDE, EGU sphere [preprint], <https://doi.org/10.5194/egusphere-2024-388>, 2024.
14. Asselot, R., **Carracedo, L.I.**, Thierry, V. et al. Anthropogenic carbon pathways towards the North Atlantic interior revealed by Argo-O₂, neural networks and back-calculations. *Nat Commun* 15, 1630 (2024). <https://doi.org/10.1038/s41467-024-46074-5>
13. **Carracedo, L. I.**, Mercier, H., McDonagh, E., Rosón, G., Sanders, R., Moore, C. M., et al. (2021). Counteracting contributions of the upper and lower meridional overturning limbs to the North Atlantic nutrient budgets: Enhanced imbalance in 2010. *Global Biogeochemical Cycles*, 35, e2020GB006898. <https://doi.org/10.1029/2020GB006898>
12. Fontela M., Perez F.F., **Carracedo L.I.**, Padín X.A., Velo A., García-Ibañez M.I., Lherminier P. (2020). The Northeast Atlantic is running out of excess carbonate in the horizon of cold-water corals communities. *Scientific Reports*, 10(1), 14174 (10p.). <https://doi.org/10.1038/s41598-020-71793-2>
11. Sarthou, G., et al. (2018) Introduction to the French GEOTRACES North Atlantic Transect (GA01): GEOVIDE cruise, *Biogeosciences*, 15, 7097-7109 (doi: <https://doi.org/10.5194/bg-15-7097-2018>).
10. **Carracedo, L.I.**, Pérez, F.F., M. Gilcoto, A. Velo, A. Padín, Rosón, G. (2018) Role of the circulation in the anthropogenic carbon inventory in the Azores- Gibraltar region: a climatological analysis, *Progress in Oceanography*, 161, 78-86 (doi: <https://doi.org/10.1016/j.pocean.2018.01.009>).
9. García-Ibañez, M. I., Zunino, P., Fröb, F., **Carracedo, L. I.**, Ríos, A. F., Mercier, H., Olsen, A., and Pérez, F. F. (2016), *Biogeosciences*, 13, 3701-3715 (doi: <https://doi.org/10.5194/bg-13-3701-2016>).
8. **Carracedo, L.I.**, Pardo, P. Flecha, S., Pérez, F. (2016) On the Mediterranean Water Composition, *Journal of Physical Oceanography*, 46, 1339–1358 (doi: <http://dx.doi.org/10.1175/JPO-D-15-0095.1>).
7. García-Ibañez, M.I., Pardo, P.C., **Carracedo, L.I.**, Mercier, H., Lherminier, P., Ríos, A.F., Pérez F.F. (2015) Structure, transports and transformations of the water masses in the Atlantic Subpolar Gyre, *Progress in Oceanography*, 135, 18-36, ISSN 0079-6611 (doi: <http://dx.doi.org/10.1016/j.pocean.2015.03.009>).
6. **Carracedo, L.I.**, Gilcoto, M., Mercier, H., Pérez, F.F. (2015) Quasi-synoptic transport, budgets and water mass transformation in the Azores–Gibraltar Strait region during summer 2009, *Progress in*

Oceanography, 130, 47-64 (doi: <http://dx.doi.org/10.1016/j.pocean.2014.09.006>).

5. **Carracedo, L.I.**, Gilcoto, M. Mercier, H., Pérez, F.F. (2014) Seasonal dynamics in the Azores-Gibraltar Strait region: a climatologically-based study, *Progress in Oceanography*, 122, 116-130 (doi: <http://dx.doi.org/10.1016/j.pocean.2013.12.005>).
4. Ribas-Ribas, M., **Carracedo, L.I.**, Anfuso, E., and Forja, J. M. (2012) Tidal and seasonal carbon and nutrient dynamics of the Guadalquivir estuary and the Bay of Cádiz (SW Iberian Peninsula). *Biogeosciences Discussion*, 9 (10), 14537-14558 (doi: [10.5194/bgd-9-14537-2012](https://doi.org/10.5194/bgd-9-14537-2012)).
3. Fajar, N., Pardo, P., **Carracedo, L.**, Vázquez-Rodríguez, M., Ríos, A., Pérez, F. (2012) Trends of anthropogenic CO₂ along 20° W in the Iberian Basin, *Ciencias Marinas*, 38(1B), 287-306 (doi: <https://doi.org/10.7773/cm.v38i1B.1810>).
2. **Carracedo, L.**, Pardo, P., Villaceros-Robineau, N., De la Granda, F., Gilcoto, M., Pérez, F. (2012) Temporal changes in the water mass distribution and transports along the 20° W CAIBOX section (NE Atlantic), *Ciencias Marinas*, 38(1B), 263-286 (doi: <https://doi.org/10.7773/cm.v38i1B.1793>).
1. García-Lafuente, J., Delgado, J. Sánchez-Román, A. Soto, J., **Carracedo, L.**, Díaz del Río, G. (2009) Interannual variability of the Mediterranean outflow observed in Espartel sill, western Strait of Gibraltar, *Journal of Geophysical Research*, 114, C10018 (doi: <https://doi.org/10.1029/2009JC005496>).

Monographs, reports, datasets and non-peer-reviewed proceedings

17. **Carracedo L.I.**, Bates N., López-Mozos M., Le Bihan C., Fajar N.M., Cariou T., Enright M.P., Álvarez M.J. (2022). CARING cruise biogeochemical data (nutrients, pH, total alkalinity, pCO₂). <https://doi.org/10.17882/96728>
16. Benavides M., **Carracedo L.I.** (2022). Cruise report FIGURE-CARING, RV/Atlantic Explorer, Cruise No. 2215, 21/7/2022 – 30/7/2022. <https://doi.org/10.13155/96692>
15. **Carracedo L.I.**, Bates Nick, Enright Matt P. (2022). CARING pCO₂ Data Report. FIGURE-CARING cruise 21-30 Jul 2022. <https://doi.org/10.13155/96776>
14. Fajar N.M., **Carracedo L.I.**, López-Mozos Marta, Álvarez Maria-Jesús (2022). CARING pH and Total Alkalinity Data Report. FIGURE-CARING cruise 21-30 Jul 2022. <https://doi.org/10.13155/96775>
13. Testor, Pierre, Wagener, Thibaut, Bosse, Anthony, Asselot, Remy, Thierry, Virginie, Karstensen, Johannes , Thomsen, Soeren, **Carracedo, Lidia**, von Schnuckmann, Karina and Telszewski, Maciej (2022) Estimate of magnitude and drivers of regional carbon variability for both regions. EuroSea Deliverable, D7.3 . EuroSea, 37 pp. DOI 10.3289/eurosea_d7.3.
12. **Carracedo, L.I.** (2020) Discrete chemical sampling, Satlantic SeapHOx sensors, Remote Access Samplers (RAS), in JC174 cruise report (Smeed, D.).
11. **Carracedo, L.I.** (2018) Winkler oxygen, in JC174 cruise report (Smeed, D.).
10. **Carracedo, L.I.** (2016, 2017, 2018) Nutrient transports across RAPID, in ABC Fluxes report (McDonagh)
9. **Carracedo, L.I.** (2016) SADCP, in DY040 cruise report (King, B., eds. **Carracedo, L.I.**, Kent E.).
8. Gilcoto, M., F. Perez, A. Rios, N. Fajar, P.C. Pardo, **L. Carracedo**, V. Vieitez, M. de la Paz. (2015). Carbon Data Obtained During the R/V Sarmiento de Gamboa CAIBOX-2009 Cruise in the Atlantic Ocean (25 July - 13 August, 2009). CDIAC, Oak Ridge National Laboratory, US Department of Energy, Oak Ridge, Tennessee (doi: [10.3334/CDIAC/OTG.CLIVAR_CAIBOX_2009](https://doi.org/10.3334/CDIAC/OTG.CLIVAR_CAIBOX_2009)).
7. F.F. Pérez., F. Alonso, **L.I. Carracedo**, M. I. García-Ibáñez (2014) Biogeochemistry, in GEOVIDE 2014 cruise report (Sartou, G., Lherminier, P.).
6. **Carracedo, L.I.** (2013) Subtropical North-East Atlantic water masses and transports: broadening the knowledge of the overturning circulation in the Azores-Gibraltar region. PhD. Thesis. Supervisors: Pérez, F.F., Gilcoto, M., University of Vigo, Spain, 293p (URI: <http://hdl.handle.net/10261/90453>).
5. Ribas-Ribas, M., **Carracedo, L.I.**, Gomez-Parra, A., Forja, J. M. (2012) Influence of the Bay of Cádiz and the Guadalquivir Estuary on the Carbon Distribution in the North Eastern Shelf of the Gulf of Cádiz (SW Iberian Peninsula). Proceedings of the ESA, SOLAS & EGU Joint Conference Earth Observation for Ocean-Atmosphere Interactions Science, held on 29 November - 2 December 2011 at Frascati in Italy. Edited by L. Ouwehand. ESA-SP Vol. 703, id.29 (2012ESASP.703E..29R).
4. Rosón, G., **Carracedo, L.I.** (2012) Salinity, in CATARINA 2012 cruise report (Ríos, A.F.).
3. Barton, Eric D., **Carracedo, L.**, Granda Grandoso, F., Paz, M., Fajar, N.M, Fernández Bastero, S., Pérez, F.F., Ríos, A.F., Gilcoto, M., Lonborg, C., Vázquez Rodríguez, M, Vieitez dos Santos, V., Villaceros, N.

(2009) CAIBOX 2009 cruise report, 2nd CAIBEX leg: Shelf-ocean exchanges in the Canaries-Iberia Large Marine Ecosystem.

2. Delgado J., **Carracedo L.I.**, García-Lafuente J. (2009) Methodological proposal to diagnose and predict the consequences of human activities on the Guadalquivir Estuary. Exchange of properties between Guadalquivir River and Gulf of Cádiz Shelf: Description and analysis of one-year observations in the river mouth. Report to Seville (Spain) Port Authority, University of Malaga.
1. **Carracedo L.I.** (2008) Correlation between upwelling index, sea level and thermohaline variables in Rande Strait, Ría of Vigo. MSc Thesis. Supervisors: Herrera J., Varela R., Rosón G., Department of Physical Oceanography, University of Vigo, 25p.

RESEARCH PROJECTS

Ongoing projects

- [Euro-Argo ONE](#) (2025-2027): Task 1.1. leader L.I. Carracedo on Deep and oxygen sampling strategy for the Global Ocean with a focus on North-Atlantic Ocean and Nordic.
- FICARAM + (2024-2028): PI Antonio Padin, IIM/CSIC. Project collaborator.
- [Argo2030](#) (2021 – 2029) (PIs institutions: Ifremer, Sorbonne Université, CNRS/INSU, UBO). Project collaborator.
- [ROCCA](#) (2023 – 2026): Role of the Overturning Circulation in Carbon Accumulation (PI Pete Brown, NOC, UK). Project Partner.
- [C-Streams](#) (2023 – 2027): The Gulf Stream control of the North Atlantic carbon sink (NERC-NSF large grant, PI: Ric Williams, University of Liverpool, UK). Role: Project Partner; co-chair Program Advisory Board (oversight panel).
- [OVIDE](#) (2002 – present): Observatoire de la variabilité interannuelle et décennale en Atlantique Nord (OVIDE program PI: H. Mercier). Project collaborator; 2025 cruise co-PI; **Program PI** 2025-onwards.
- [CARING](#) (2022 – 2024, extended 2025): CARbon Irrigation to the North atlantic by the Gulf stream (LEFE, ISBlue, EUOFLEETS project). **Project PI**.
- [OCCEAN2s](#) (2021 – 2024, extended 2025): Overturning Circulation & Carbon storagE in the Atlantic North: Seasonal Signatures (Region Bretagne & Ifremer funded). PhD project PI, PhD co-supervisor Raphaël Bajon.
- [BOCATS2](#) (2020 – 2024, extended 2025): Biennial observation of carbon, acidification, transport and sedimentation in the North Atlantic (Spanish National Project, PI Anton Velo, IIM/CSIC, Spain). Project collaborator; PhD co-supervisor Marta Lopez-Mozos.

Past projects

- [EUROSEA](#) (2019-2023): Improving and integrating the European Ocean Observing and Forecasting System). Ifremer partner collaborator of WP7, Task 7.1 Carbon audit of the European relevant deep convection regions.
- [RAPID-ABC Fluxes](#) (2014 – 2021): Atlantic BiogeoChemical Fluxes (PI Elaine McDonagh, NOC, UK). Project collaborator; Project postdoc May 2018 - Nov 2019.
- CAVINA (2015-2018): Carbon Variability in the North Atlantic. Regional funding (Xunta de Galicia, Plan I2P). **Project PI**. Universidade de Vigo (Spain).
- RAGNARoCC (Radiatively active gases from the North Atlantic Region and Climate Change). PI RAGNARoCC consortium: Prof. Andy Watson.
- GEOTRACES (An International Study of Marine Biogeochemical Cycles of Trace Elements and their Isotopes). International Research Programme. Scientific Steering Committee (SSC) Member: G. Sarthou.
- CARBOCHANGE: Changes in carbon uptake and emissions by oceans in a changing climate. European Collaborative Project, UE FP7-ENV-2010, 264879. Project PARTNER: IIM-CSIC, Scientist in charge: A.F. Ríos.
- CATARINA: Carbon Transport and Acidification Rates in the North Atlantic. Spanish National Project, CTM2010-1714, PI: A. Fernández Ríos. Marine Research Institute (IIM-CSIC), Vigo (Spain).

- CAIBEX: Shelf–ocean exchanges in the Canaries–Iberian Large Marine Ecosystem. Spanish National Project, CTM2007–66408–C02–01/MAR, CTM2007–30809–E/MAR, CTM2008–05305–E/MAR. PI: Eric Desmond Barton. Marine Research Institute (IIM-CSIC) Vigo (Spain).
- INGRES: Exchanges in Gibraltar Strait and response to meteorological and climatic forcing. Spanish National Project, PI: Jesús García-Lafuente, Group of Physical Oceanography, Applied Physics II, University of Malaga (Spain).
- Methodological proposal to diagnose and predict the consequences of human activities on the estuary of the Guadalquivir. Spanish National Project, Department of Ecology and Coastal resources, Marine Research Institute of Andalusia (ICMAN-CSIC) (Spain).
- CODA: Cetacean Offshore Distribution and Abundance in the European Atlantic. French, Irish, Spanish and English Project, WC04016. Spanish chief scientist: S. Lens, Institute of Oceanography (IEO), Vigo (Spain).

CRUISES

Jul 2022	<i>R/V Atlantic explorer</i> , FIGURE-CARING 2022 cruise , Gulf Stream. Tasks: Cruise Co-PI.
May-Jun 2021	<i>R/V Sarmiento de Gamboa</i> , BOCATS2 - OVIDE 2021 cruise , Subpolar North Atlantic. Tasks: CTD casts and cruise data analysis.
March 2020	<i>RSS James Cook</i> , JC192- RAPID cruise , Subtropical North Atlantic. Tasks: BGC responsible (Remote Access Sampler, oxygen sampling and analysis, and ODO-MicroCAT, SeapHOx and Contros pCO ₂ sensor mooring data)
Oct-Nov 2018	<i>RSS James Cook</i> , JC174- RAPID cruise , Subtropical North Atlantic. Tasks: Remote Access Sampler, oxygen sampling and analysis, ODO-MicroCAT mooring data processing.
Dec - Jan 2016	<i>RSS Discovery</i> , DY040 cruise , Subtropical North Atlantic. Tasks: CTD casts and SADC processing.
May - Jun 2014	<i>R/V Pourquoi pas?</i> , GEOVIDE 2014 cruise , Subpolar North Atlantic. Tasks: pH, total alkalinity (TA), nutrients, total carbon, C ¹³ , O ¹⁸ sampling; pH, total alkalinity analysis.
Jun – Jul 2012	<i>R/V Sarmiento de Gamboa</i> , CATARINA 2012 cruise , Subpolar North Atlantic. Tasks: CTD casts and salinity analysis.
Jun –Jul 2010	<i>R/V Thalassa</i> , OVIDE 2010 cruise , Subpolar North Atlantic. Tasks: CTD cast and oxygen sampling.
Jul – Aug 2009	<i>R/V Sarmiento de Gamboa</i> , CAIBOX 2009 cruise , North East Atlantic. Tasks: 1 st half of the cruise: pH, TA, total carbon, oxygen and salinity sampling; pH, total alkalinity and oxygen analysis; 2 nd half: CTD cast and SADC data processing.
Jun 2009	<i>R/V Odón de Buen</i> , INGRES 0609 cruise , Gibraltar Strait. Tasks: CTD-ADCP mooring maintenance- deployment and CTD cast.
Jul 2007	<i>R/V Cornide de Saavedra</i> , CODA-IEO 0707 cruise , Galician shelf. Tasks: Guest student learning whale observing and acoustic techniques.

CONFERENCES/WORKSHOPS

Oral communications

2024 EGU General Assembly 14–19 Apr 2024, Vienna (Austria) & Online

Carracedo, L. I., McDonagh, E., Sanders, R., Moore, M., Mercier, H., Brown, P., Torres-Valdés, S., Mawji, E. W., Baringer, M., Smeed, D., and Rosón, G.: Atlantic meridional nutrient transport 2004–2018 timeseries: insights into inorganic nutrient pool reorganization by the AMOC , , EGU24-17617, <https://doi.org/10.5194/egusphere-egu24-17617>, 2024. Oral presentation.

Brown, P., McDonagh, E., Sanders, R., Moat, B., Frajka-Williams, E., King, B., **Carracedo, L.**, Watson, A., Schuster, U., Flohr, A., Johns, W., and Baringer, M.: Enhanced northward ocean transport of

anthropogenic carbon through recovery of overturning circulation may be affecting North Atlantic CO₂ uptake efficiency, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-15696, <https://doi.org/10.5194/egusphere-egu24-15696>, 2024. Oral presentation.

2024 *AGU Oceans Sciences Meeting, 18-23 February, New Orleans (US) & Online*

Carracedo, L.I., López-Mozos, M., Le Bihan, C., Álvarez, M.J., Fajar N. M., Asselot, R., Bates, N., Fast acidification conveyed by the Gulf Stream to the North Atlantic.

2023 *ASLO meeting, 4–9 June, Palma (Spain)*

Hörstmann, C.; Barrillon, S.; Grosso, Olivier; Carpaneto Bastos, C.; Le Bihan, C.; Aguiar-González, B.; Pérez-Hernández, M. D.; **Carracedo, L.**; Benavides, M. Fine-scale diazotroph connectomics across the Gulf Stream and its eddies.

2023 *EGU General Assembly, 23–28 April, Vienna (Austria) & Online*

Bajon, R., **Carracedo, L.**, Mercier, H., Pérez, F., Velo, A., Asselot, R., Thierry, V., Intra-annual variability of carbon signature and transport in the North Atlantic Ocean, <https://doi.org/10.5194/egusphere-egu23-7805>

López Mozos, M., Pérez, F. F., **Carracedo, L.**, Gebbie, G., and Velo, A., A new approach for estimating anthropogenic carbon relying on an observational back-calculation method, <https://doi.org/10.5194/egusphere-egu23-15146>.

2022 *7th Argo Science Workshop – 11-13 October, Brussels (Belgium)*

Asselot, R., **Carracedo, L.I.**, Thierry, V., Mercier, H., Bajon, R., Pérez, F.F. Argo floats reveal the mechanisms controlling the deep transport of anthropogenic carbon in the North Atlantic.

2022 *EGU General Assembly, 23–27 May 2022, Vienna (Austria) & Online*

Asselot, R., Bajon, R., López Mozos, M., Thierry, V., Mercier, H., Pérez, F., and **Carracedo, L.**: Mechanisms controlling the abyssal transport of anthropogenic carbon in the North Atlantic, <https://doi.org/10.5194/egusphere-egu22-1206>, 2022

López Mozos, M., Velo, A., Fontela, M., de la Paz, M., **Carracedo, L.**, Fajar, N., García-Ibáñez, M. I., Padín, X. A., Desbruyères, D., Mercier, H., Lherminier, P., and Pérez, F. F.: North Atlantic CO₂ sink variability revealed by the Go-Ship A25-OVIDE section, <https://doi.org/10.5194/egusphere-egu22-11978>, 2022.

Lherminier, P., Mercier, H., **Carracedo, L.**, Pérez, F. F., Velo, A., Desbruyères, D., Lopez-Mozos, M., and Fontela, M.: Variability of the AMOC and water mass properties at the GO-SHIP OVIDE section over 2002-2018, <https://doi.org/10.5194/egusphere-egu22-10730>, 2022.

2022 *AGU Oceans Sciences Meeting, 28 February-4 March 2022, virtual event*

Velo, A., Fontela, M., Paz, M.; Fajar, N., García-Ibáñez, M.I., López-Mozos, M.; Padín, X. A., **Carracedo, L.I.**, Lherminier, P., Pérez, F.F. Reactivation of the subpolar North Atlantic CO₂ sink revealed by the GO-SHIP A25-OVIDE section.

2021 *CANAIMOC Workshop, 23-25 Feb 2021, virtual event*

Carracedo, L.I., E. McDonagh, E. Mawji, S. Torres-Valdés, M. Baringer, R. Sanders, H. Mercier, V. Thierry. Nutrient variability across the Florida Straits.

Carracedo, L.I., E. McDonagh, H. Mercier, R. Sanders, C.M. Moore, P. Lherminier, P.J. Brown, E. Mawji, S. Torres-Valdés, D. Smeed, G. Rosón, M. Baringer, F.F. Pérez. MOC regulation of nutrient inventories in the North Atlantic.

- 2020 *XX Seminario Ibérico de Química Marina, SIQUIMAR 2020, 1st-3rd Jul, Barcelona (Spain)*
Fontela, M., Pérez, F.F., **Carracedo, L.I.**, Padín, X.A., Velo, A., Lherminier, P., *The Northeast Atlantic is running out of excess carbonate: the fragile future of cold-water coral communities.*
- 2019 *ICOS Symposium on the North Atlantic Carbon Cycle, 19 Mar, Southampton (UK)*
Carracedo, L.I.; McDonagh, E.; Sanders, R.; Moore, C.M.; Brown, P.; Torres-Valdés, S.; Baringer, M.; Smeed D.; Rosón G. Overturning circulation regulates the North Atlantic nutrient pool and biological pump efficiency.
- 2019 *RAPID / OSNAP / ABC Project International Review, 8-10 Jan, London (UK).*
Carracedo, L.I., McDonagh, E., Sanders, R., Moore, M., Brown, P. Nutrient transport across the RAPID section and implications for biological carbon uptake.
- 2018 *2018 International AMOC Science Meeting US CLIVAR, 24-27 July, Coconut Grove (Florida).*
Carracedo, L.I., McDonagh, E., Brown, P., Sanders, R., Mercier, H., Torres-Valdés, S., Moore, M., Baringer, M., Rosón, G., Pérez, F.F. AMOC regulation of the inorganic nutrient content in the North Atlantic.
- 2018 *AGU Ocean Sciences Meeting, 11-16 February, Oregon (US).*
Carracedo, L.I.; McDonagh, E.; Mercier, H.; Brown, P.; Rosón, G.; Sanders, R.; Moore, M.; Torres-Valdés, S.; Pérez, F.F.; Baringer, M. On the variability of the basin-scale nutrient transports and budgets in the North Atlantic.
- 2017 *Conference LEFE-IMAGO: Observing and understanding the AMOC, 3-5 May, Brest (France).*
Carracedo, L.I.; McDonagh, E.; Brown, P. AMOC-driven nutrient flux variability across the RAPID-26N section.
- 2016 *RAGNARoCC/ABC meeting, 5-6 Oct, Exeter (UK).*
Carracedo, L.I.; McDonagh, E.; Brown, P.; Torres-Valdés, S.; Sanders, R.; Moore, M.; Baringer, M.; Smeed, D.; Rosón G. Trends and temporal variability on nutrients fluxes across 26.5°N-RAPID section.
- 2015 *ABC Fluxes Update Meeting, 14 Oct, NOC, Southampton (UK).*
Carracedo, L.I.; McDonagh, E.; Brown, P. Nutrient Fluxes in the North Atlantic: Preliminary results.
- 2013 *III CATARINA Workshop, 25 Feb, IIM-CSIC, Vigo (Spain).*
García-Ibáñez, M.I.; Pérez, F.F.; **Carracedo, L.I.**; Mercier, H.; Pardo, P.C.; Lherminier, P. Water masses distribution and transport along the OVIDE sections: preliminary results.
- 2011 *II CATARINA workshop, 19-21 Dec, ECIMAT, Vigo (Spain).*
Carracedo, L.I.; García, M.; Mercier, H.; Pardo, P.C.; Lherminier, P.; Pérez, FF; Gilcoto, M. Water masses distribution and transport: first approximation in methodology and preliminary results.
- 2010 *CAIBEX Workshop, 29-30 Nov, IIM-CSIC, Vigo (Spain).*
Carracedo, L.I.; Gilcoto, M.; Pérez FF; Mercier, H.; Pardo, P.C.; Kermabon, C.; Lherminier, P. CAIBOX 2009, Box Inverse Model in CAIBOX region.
- 2010 *I Spanish Meeting in Physical Oceanography, 13-15 Oct, Barcelona (Spain).*
Carracedo, L.I.; Gilcoto, M.; Pérez, F.F.; Mercier, H.; Pardo, PC.; Kermabon, C.; Lherminier, P. Water mass transport estimates in the CAIBEX region (NE Atlantic) with inverse model.
- 2010 *XV- Iberian Seminar on Marine Chemistry, 22-24 Feb, Vigo (Spain).*
Fajar, N.M.; **Carracedo, L.I.**; Vázquez-Rodríguez, M.; Ríos, A.F.; Pérez, F.F. Temporal evolution of carbonic system along 20°W Iberian region.
- 2009 *Spain-China Symposium on geophysical and geochemical geosystems, Zaragoza (Spain).*
A. Sanchez Román; J. García-Lafuente; **L. Carracedo**. Tidal currents and associated transports in the Strait of Gibraltar.

- 2009 *4th ESF MedCLIVAR Workshop*, 28-30 Sep, Sesimbra (Portugal).
 Sánchez Román, A.; García Lafuente, J.; Vargas, J.M.; Delgado, J.; Criado-Aldeanueva, F.; Sánchez Garrido, J.C.; Soto Navarro, J.; Calero Quesada, C.; **Carracedo, L.**; Sannino, G. Tidal Five year-long time series of the Mediterranean outflow at the western exit of the Strait of Gibraltar.

Posters

- 2023 *EGU General Assembly, 23–28 April, Vienna (Austria) & Online*
 Asselot, R., **Carracedo, L.I.**, Thierry, V., Mercier, H., Velo, A., Bajon, R., and Pérez, F.F. Argo-based anthropogenic carbon concentration and inventory in the Labrador and Irminger Seas over 2011-2021, <https://doi.org/10.5194/egusphere-egu23-5422>
- 2020 *EGU General Assembly: Sharing Geoscience Online*, 4-8 May, Online.
Carracedo, L.I., McDonagh, E., Sanders, R., Mawji, E., Torres-Valdés, S., Baringer, M., Mercier, H. and Thierry, V. Unravelling the North Atlantic 'nutrient stream' variability.
- 2019 *EGU General Assembly*, 7-12 Apr, Vienna (Austria).
 Rayner, D.; Moat, B.; Frajka-Williams, E.; Smeed, D.; Brown, P.; **Carracedo, L.**; McDonagh, E.; Wright, H., Mack, S.; Foden, P.; Walk, J.; Balfour, C. Recent Developments of the RAPID 26N Array.
- 2017 *Understanding Change and Variability in the NA Climate System ACSIS-OSNAP-RAPID Joint Science Meeting*, 19-21 Sep, Oxford (UK).
Carracedo, L.I.; McDonagh, E.; Brown, P.; Torres-Valdés, S.; Sanders, R.; Moore, M.; Baringer, M.; Smeed, D.; Rosón G. 2004-2012 basin-scale nutrient transport across the RAPID-26.5°N section: towards the nutrient budgets in the North Atlantic Subtropical Gyre.
- 2016 *Challenger Society 2016 Conference- OcOeans and Climate*, 5-8 Sep, Liverpool (UK).
Carracedo, L.I., McDonagh, E., Brown, P., Torres-Valdés, S., Sanders, R., Moore, M., Baringer, M., Smeed, D., Rosón G. Impact of the variability of the gyre and meridional overturning circulation on the nutrient transports: extreme event of 2010.
- 2014 *EGU General Assembly*, 27 Apr-2 May, Vienna (Austria).
 García-Ibáñez, M.I., Pardo, P.C., **Carracedo, L.I.**, Mercier H., Lherminier, P., Ríos, A.F., Pérez F.F. The water mass structure and transports in the Atlantic Subpolar Gyre.
- 2012 *EGU General Assembly*, 22-27 Apr, Vienna (Austria).
Carracedo L.I., García M., Mercier H., Conde, P., Lherminier P., Pérez F.F., Gilcoto M. Interannual variability of water masses transports across A25-OVIDE section (subpolar Atlantic gyre).
- 2010 *I Spanish Meeting in Physical Oceanography*, 13-15 Oct, Barcelona (Spain).
 Villaceros-Robineau N., Herrera J.L., Castro C.G., Piedracoba, S., Redondo, W., Graña, R., Alonso-Pérez, F., Barreiro, B., **Carracedo, L.I.**, Gilcoto M., Rosón G. Seasonal characterization of the velocity field of the bottom nepheloid layer in the Ria de Vigo (NW Iberian Peninsula).
- 2010 *XV- Iberian Seminar on Marine Chemistry*, 22-24 Feb, Vigo (Spain).
Carracedo L.I., Pardo, P.C., De la Granda, F., Villaceros-Robineau, N., Gilcoto, M. and Pérez, F.F. Water masses distributions and transports in CAIBOX-20°W section.
 Fajar N.M., **Carracedo L.I.**, Vázquez-Rodríguez M, Ríos A.F., Pérez, F.F. Temporal evolution of carbonic system along 20°W Iberian region.
- 2009 *II International Symposium of Marine Science*, 27-30 Apr, Vigo (Spain).
Carracedo L.I., Herrera J., Varela R., Pérez V., Allen-Perkins S., Montero P., Ayensa G., Rosón G., Delgado J. Correlation between upwelling index, sea level and thermohaline variables in Rande Strait, Ría of Vigo.

- 2009 *EGU General Assembly*, 19-24 Apr, Vienna (Austria).
 J. Soto, F. Criado Aldeanueva, J. García Lafuente, A. Sánchez Román, **L. Carracedo**. Interannual variability of the air-sea heat exchange in the western Mediterranean in relation to the deep-water formation processes.
 A. Sánchez-Román, J. García-Lafuente, J. Delgado, J. Soto, **L. Carracedo**. Transport estimates at the western section of the Strait of Gibraltar.
 F. Criado-Aldeanueva, J. Del Rio-Vera, J. Soto-Navarro, J. García-Lafuente, A. Sánchez-Román, J.C. Sánchez-Garrido, **L. Carracedo**, J. Delgado and J.M. Vargas. A new insight on the decreasing sea level trend over the Ionian basin in the last decades.

Attendance

- 2015 6th Symposium The ocean and the renewable energies, Vigo (Spain).
 2009 Workshop in Hydraulic and Computational Oceanography, Santiago de Compostela (Spain).
 2008 International Symposium Effects of Climate Change on the World's Oceans, Gijón (Spain).
 2006 XXIV Sea Study's Week, Vilagarcía de Arousa (Spain).

MENTORING

Postdocs

- 2021-23 Postdoc supervisor of Remy Asselot (LOPS/IFREMER, France). Project (EuroSea postdoc): "Physical mechanisms involved in deep CO₂ storage variability in the North-Atlantic".

PhD students

- 2021-24 PhD thesis supervisor of Raphaël Bajon (LOPS/IFREMER, France). Thesis (OCCEAN2s PhD student): "Overturning circulation and carbon storage in the Atlantic North: seasonal signatures".
 2021-25 PhD thesis supervisor of Marta López-Mozos (IIM-CSIC, Spain). Thesis (BOCATS2 PhD student): "Evolution of natural and anthropogenic carbon transports in the North Atlantic subpolar gyre".

MSc students

- 2022 MSc2 research stay supervisor of Coralie Moutte (Université Claude Bernard Lyon 1, France). Research stay project: "Circulation and tracer anomalies in the subpolar gyre during the last decade: assessing the biogeochemical imprint of the cascading of dense shelf waters on the deep western boundary current".
 2021 MSc1 research stay supervisor of Coralie Moutte (Université Claude Bernard Lyon 1, France). Research stay project: "Circulation across the OVIDE section: BOCATS2 2021 cruise vs mean-state".

TEACHING/ OUTREACH

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| Feb 2020 | Master class. Subject: Large-scale ocean circulation. SML Master's degree M2 Ocean Physics and Climate, IUEM/UBO (Plouzané, France). |
| Jun 2018 | Open Day at National Oceanography Centre (Southampton, UK). |
| Mar 2015 | Master class. Subject: Biogenic gases. MSc Oceanography. University of Vigo (Spain). |
| Sep - Oct 2010 | Divulgarion Workshop "Exper-i-Ciencia 2010", 5th Edition. Pre-school Education and Primary School Pedro Caselles Rollán, Xove (Lugo, Spain), 2010 Divulgar, IIM-CSIC. Monitor. |
| May 2010 | Divulgarion Workshop "Marine Science in the Market", 3rd Edition, Gijón (Asturias, Spain), Divulgar, IIM-CSIC. Monitor. |

Nov 2009	Divulgarion Workshop “Marine Science in the Market”, 2nd Edition, Vigo (Pontevedra, Spain), Divulgamar, IIM-CSIC. Monitor. Honour mention “Science in Action 2010”.
Jul - Aug 2008	Divulgarion Workshop “Effervescence in the Beach”, winner of the Spanish National Prize of Divulgarion “Science in Action 2009”. Oceanographers Association of Galicia. Monitor.

COMMITTEES AND OTHER PROFESSIONAL ACTIVITIES

PhD committee member

Oct 2022	PhD ‘Neural networks and the seawater CO ₂ system: From the global ocean to the Ría de Vigo’. PhD Candidate Daniel Broullón. University of Vigo (Vigo, Spain). Committee president: L. Carracedo.
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Professional membership

2017 – present	European Geophysical Union, EGU.
2017 – present	American Geophysical Union, AGU.
2019 – present	IAPSO Early Career Scientist Network
2016 – 2021	Challenger Society for Marine Science (UK).
2007 – 2021	Galician Oceanographers Association, AOG (Spain).

Service to professional bodies/ chairperson / meeting organization

2023-ongoing	Service National d'Observation Argo-France, Argo-02 expertise.
2023-2026	Substitute member Commission Nationale Flotte Hauturière (CNFH)
Jun 2022	Co-organizer of POGO BGC Best Practices Workshop , SAMS (UK).
Feb 2021	Chair and organizer of CANAIMOC Workshop , Ifremer (France).
Jan 2020 – Jun 2021	LOPS Seminars Organising Committee
Apr 2019 – Jul 2021	Early Career Researcher and Diversity Coordinator, Challenger Society (UK).
Sep 2018 – Sep 2019	Member of the NOC Friday Seminars Organizing Committee.
May 2014 - Aug 2015	Chair of Institutional Relations Commission, AOG, Vigo (Spain).
Feb 2010	Technical office staff, XV Seminar on Marine Chemistry, Vigo (Spain).

Expert reviewer

Journals:	Nature Climate change, Deep Sea Research, Continental Shelf Research, Journal of Marine Systems, Geophysical Research Letters, Journal of Atmospheric and Oceanic Technology, Geosciences-MPDI.
Reports:	Second Order Draft of the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC).
Projects:	Programmes Nationaux en Sciences de la Terre et de l’Univers (CNRS LEFE – AO INSU), Commission Nationale Flotte Hauturière (CNFH)
Conference abstracts:	Physical Oceanography Meeting, EOF 2018.

Invited talks, lectures and seminars

2020	<i>Invited speaker, University of East Anglia (UK), 9 Nov. “North Atlantic nutrient pool reorganization by the Meridional Overturning Circulation”.</i>
2019	<i>Invited speaker at Bjerknes Centre for Climate Research, NORCE, Bergen (Norway), 29 Nov. “Meridional Overturning Circulation and the North Atlantic nutrient pools: a transient response to circulation changes”.</i>
2019	<i>Invited speaker Physical Oceanography and Climate seminars (POC) Seminars at National Oceanography centre, NOC, Southampton (UK), 5 Jun. “Overturning circulation and the North Atlantic nutrient pool: non-steady state behaviour as a transient response to circulation changes”.</i>

FORMATION/TRAINING

Feb 22	Formation encadrer des doctorants, Ifremer (France).
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Nov 21 *Formation Gestion de projet*, Ifremer (France).
 Apr 21 *Améliorer ses écrits professionnels*, Ifremer (France).
 Mar 19 *RAPID-OSNAP Media Spokesperson Training*, National Oceanography Centre (UK).
 Mar 19 *Introduction to Management*, UKSBS Learning, Swindon (UK)
 Dec 18 *Fundamentals of Project Planning and Management*, FutureLearn online course, Uni. of Virginia (USA)
 Apr 14 *Estimation of measurement uncertainty in chemical analysis*. MOOC, Univ. of Tartu (Estonia)
 Sep 13 *FORTTRAN 90*. Galician Supercomputacional Centre, Santiago de Compostela (Spain)
 Sep 12 *Operational Oceanography*. OceanTeacher Academy Course, Oostende (Belgium)
 Apr 13 *Workshop in Scientific Writing*, IIM-CSIC, Vigo (Spain)
 Jul 11 *Matlab applied to oceanography*. IIM-CSIC, Vigo (Spain)
 Jan 11 *Introduction to gvSIG 1.9*. Galicia Oceanographers Association, University of Vigo (Spain)
 Oct 09 *Applied R*. Galicia Oceanographers Association, University of Vigo (Spain)
 May 08 *Introduction to Linux*. New Technology Area Department, Caixanova Social Centre, Vigo (Spain)
 Dec 08 *Nautical title: Fishery Local Skipper*. Marine and Fishing Polytechnic Institute, Vigo (Spain)
 May 08 *Nautical title: Basic Formation*. Marine and Fishing Polytechnic Institute, Vigo (Spain)
 Oct 07 *Nautical title: Sailor Competences*. Marine and Fishing Polytechnic Institute, Vigo (Spain)
 Nov 05 *Open Water Diver*. Buceo Islas Cies, Maritime Authority Registered School, Vigo (Spain)
 Jul 04 *Formation of volunteer Coordinators Course*, University of Vigo (Spain)

LANGUAGES

English: C1 (Advanced English Level, Spanish Official Language School; FCE, Cambridge University)
Spanish: Mother tongue
Galician: Mother tongue
French: B2 (French Intermediate Course)
Signs Language: B1 (Spanish Sign Language Course, University of Vigo)