Patricia Zunino

PERSONAL INFORMATION

Patricia Zunino

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Sex F | Date of birth 12/11/1983| Nationality Spanish

RESEARCH INTERES

Ocean and climate; heat transport and heat storage; ocean circulation variability; temperature and salinity changes

WORK EXPERIENCE

Since 2023

Scientist Executive in the "In situ & Composites" Department of the Environmental Business Unit, CLS.

Scientist expert and technical operator on a product of surface currents estimated from drifting buoy data in the frame of the Copernicus Marine Service (production, validation, project documentation).

Scientist expert and technical operator in the evolution and development of a multi-observations (satellite and insitu) composite 3D physical ocean product in the frame of the Copernicus Marine Service (upgrade, production, validation, project documentation).

Management leader of the WAVE TAC (Thematic Assembly Center) of Copernicus Marine Service: the products are about wave sea surface height and wave spectral parameter estimated from altimetry and SAR satellites.

From 2018 to 2022

Consultant and Researcher in Altran technologies, and later Capgemini (Brest, France).

Scientist expert and technical operator on a product of insitu data (temperature and atmospheric pressure) measured by drifting buoys. In the framework service contract for services supporting the European Environment Agency's (EEA) cross-cutting coordination of the Copernicus programme's in situ data activities – Observational data (production, validation, project documentation).

Scientist on the research of deep water formation processes in the Subpolar North Atlantic using insitu (Argos floats), reanalysis (ERA5) and satellite data (sea level, sea surface temperature and sea surface salinity).

From 2016 to 2017

Associated Researcher at CNRS(Laboratory of Physical and Spatial Oceanography, Brest, France).

Expertise on analysis and interpretation of insitu data (temperature, salinity, currents), reanalysis data (ERA from ECMWF) and satellite (sea level, SST, SSS).
Research topic: long term variability of water masses and heat transport.
Associated project: AtlantOS (funded by EU Horizon 2020)

From 2015 to 2016

Associated Researcher at IFREMER (Laboratory of Physical and Spatial Oceanography, Brest, France).

Expertise on analysis and interpretation of insitu data (temperature, salinity, current, carbon parameters), reanalysis data (ERA from ECMWF) and satellite (sea level, SST, SSS).
Production of scientific papers and reports.
Presentation of results in international scientific meetings.

Preparation and participation on the BOCATS cruise (Juillet 2016, Vigo – Greenland – Reikjiavic)
Research topic: long term variability on the biogeochemical parameters and the ocean dynamic on the Subpolar North Atlantic.
Associated project: GEOVIDE (funded by the ANR)

In 2014 (6 months)

Associated Researcher at the Institute of Oceanography and climate change (University of Las Palmas de Gran Canaria, Spain).

Expertise on analysis and interpretation of insitu data (carbon parameters, temperature, salinity, current, …).
Production of scientific paper.
Research topic: Variability of transport and storage of both Heat and Carbon in the Subtropical North Atlantic.

From 2012 to 2014

Post-Doctoral Researcher at IFREMER (Laboratory of Physical and Spatial Oceanography, Brest, France). Project CARBOCHANGE. With Dr. P. Lherminier and H. Mercier

Expertise on analysis and interpretation of insitu data (temperature, salinity, current, carbon parameters), reanalysis data (ERA from ECMWF) and satellite (sea level, SST, SSS).
Production of scientific papers and reports.
Presentation of results in international scientific meetings.
Research topic: physical control on the carbon transport and carbon storage in the Subpolar North Atlantic.
Associated project: CARBOCHANGE (funded by European Commission's Seventh Framework Programme)

From 2008 to 2012

Pre-Doctoral at Spanish Institute of Oceanography (Málaga, Spain). With Dr. Manuel Vargas-Yáñez.

Expertise on analysis and interpretation of insitu data (dissolved nutrients, temperature, salinity, current, …).
Production of scientific papers and reports.
Presentation of results in international scientific meetings.
Preparation and participation in many oceanographic surveys in the Spanish Mediterranean in the framework of the RADMED project.
Research topic: long term variability of salinity, temperature (and heat content) and deep water processes in the Western Mediterranean.
Associated project: RADMED (funded by Instituto Español de Oceanografia)

In 2008 (4 months)

Technical Researcher at the University of Málaga (Spain).

Expertise on analysis and interpretation of insitu data (temperature, salinity, current)
Associated project: INGRES-2 (funded by Spanish Government)

EDUCATION AND TRAINING

From 2008 to 2012

PhD in Physical Oceanography. Thesis: "Detection and quantification of climate change effects in the physical properties of the Western Mediterranean waters".

Instituto Español de Oceanografia and Universidad de Cádiz, Spain

From 2006 to 2007

Master´s Degree in Oceanography.

University of Cádiz, Spain

From 2000 to 2006

Bachelor´s Degree in Marine Sciences

University of Cádiz, Spain

PERSONAL SKILLS

Mother tongue(s)	Spanish
Other language(s)	English: Good Technical level (reading, writing, speaking) French: Good Technical level (reading, writing, speaking)
Technical skills	Windows, Linux Matlab, Python
Other skills	Surf, Dance
Driving licence	B

ADDITIONAL INFORMATION

Publications

21. P. Zunino, H. Mercier and V. Thierry (2020): Why did deep convection persist over four consecutive winters (2015–2018) southeast of Cape Farewell?, Ocean Sciences, https://doi.org/10.5194/os-16-99-2020

20. B. Fernandez-Castro, M. Alvarez, M. Nieto-Cid, P. Zunino, H. Mercier and X. A. Alvarez-Salgado (2019): Dissolved Organic Nitrogen Production and Export by Meridional Overturning in the Eastern Subpolar North Atlantic, Geophysical Research Letter, doi.org/10.1029/2018GL080284

19. G. Sarthou, et al. (2018): Introduction to the French GEOTRACES North Atlantic Transect (GA01): GEOVIDE cruise, Biogeosciences, 15, 7097-7109, https://doi.org/10.5194/bg-15-7097-2018,

18. V. Racapé, Zunino, P., Mercier, H., Lherminier, P., Bopp, L., Pérèz, F. F., and Gehlen, M. (2018): Transport and storage of anthropogenic C in the Subpolar North Atlantic. Biogeosciences, 15, 4661–4682, https://doi.org/10.5194/bg-15-4661-2018

17. M. I., García-Ibáñez, F. F., Pérez, P., Lherminier, P., Zunino, H., Mercier, and P., Tréguer, (2018), Water mass distributions and transports for the 2014 GEOVIDE cruise in the North Atlantic, Biogeosciences, 15, 2075–2090, doi.org/10.5194/bg-15-2075-2018

16. M. C. García-Martínez, M. Vargas-Yáñez, F. Moya, P. Zunino, and B. Bautista (2018), The effects of climate change and rivers damming in the Mediterranean Sea during the twenthieth century, International Journal of Environmental Sciences & Natural Resources. ISSN: 2572-1119.

15. F. F. Pérez, M., Fontela, M. I., García-Ibáñez, H., Mercier, A., Velo, P., Lherminier, P., Zunino, M., de la Paz, F. Alonso-Pérez, E.F., Guallart and X.A. Padin, (2018), Meridional overturning circulation conveys fast acidification to the deep Atlantic Ocean. Nature, doi:10.1038/nature25493

14. P. Zunino, P. Lherminier, H. Mercier, N. Daniault, M. I. García-Ibáñez, and F. F. Pérez, (2017), The GEOVIDE cruise in May–June 2014 reveals an intense Meridional Overturning Circulation over a cold and fresh subpolar North Atlantic. Biogeosciences, 14, 5323–5342, https://doi.org/10.5194/bg-14-5323-2017,

13. M. Vargas-Yáñez, M. C. García-Martínez, F. Moya, R. Balbin, J. L. López-Jurado, M. Serra, P. Zunino, J. Pascual, J. Salat, (2017). Updating temperature and salinity mean values and trends in the Western Mediterranean: RADMED project, Progress in Oceanography 157 (2017) 27–46

12. N. Daniault, H. Mercier, P. Lherminier, A. Sarafanov, A. Falina, P. Zunino, F. Pérez, A. Rios, B. Ferron, T. Huck, V. Thierry and S. Gladyshev (2016). The northern North Atlantic Ocean mean circulation in the early 21st Century. Progress

in Oceanography 146 (2016) 142–158,
https://doi.org/10.1016/j.pocean.2016.06.007

11. M. I. García-Ibáñez, P Zunino, F. Fröb, L.I. Carracedo, A. F. Ríos, H. Mercier, A. Olsen and F. F. Pérez (2016), Ocean acidification in the Subpolar North Atlantic: rates and mechanisms controlling pH changes. Biogeosciences, 13, 3701–3715, www.biogeosciences.net/13/3701/2016/

10. P. Zunino, P. Lherminier, H. Mercier, X. A. Padin. A. F. Rios and F. F. Pérez, (2015). Dissolved Inorganic Carbon budgets in the Eastern Subpolar North Atlantic in the 2000s from in situ data. Geophysical Research Letter, 42, doi: 10.1002/2015GL066243

9. P. Zunino, F. F., Pérez, N. Fajar, E. Guallard, A. Rios, J. L. Pelegri, A. Hernández-Guerra, (2015). Transports and budgets of anthropogenic CO2 in the tropical North Atlantic in 1992-1993 and 2010-2011. Global Biogeochemical Cycles. pp. 1075 – 1091, doi : 10.1002/2014GB005075

8. P. Zunino, Garcia-Ibañez, M. I., Lherminier, P., Mercier, H., Rios, A. F., and Pérez, F. F., (2014). Variability of the transport of anthropogenic CO2 at the Greenland–Portugal OVIDE section: controlling mechanisms, Biogeosciences, 11, 2375-2389, doi:10.5194/bg-11-2375-2014, 2014.

7. M. Vargas-Yáñez, P. Zunino, K. Schroeder, J.L. López-Jurado, F. Plaza, M. Serra, C. Castro, M.C. García-Martínez, F. Moya, J. Salat (2012). Extreme Western Intermediate Water formation in winter 2010. J. Mar. Sys., doi: 10.1016/j.jmarsys.2012.05.010

6. M. Vargas-Yáñez, E. Mallard, M. Rixen, P. Zunino, M.C. García-Martínez and F. Moya. (2012). The effect of interpolation methods in temperature and salinity trends in the Western Mediterranean. Medit. Mar. Sci., 13/1, 2012, 118-125

5. P. Zunino, Schroeder K., Vargas-Yáñez M, Gasparini GP., Coppola L., García-Martínez M.C and Moya-Ruiz F. (2012), Effects of the Western Mediterranean Transition on the resident water masses: pure warming, pure freshening and pure heaving. J. Mar. Sys., doi:10.1016/j.jmarsys.2012.01.011

4. Vargas-Yáñez, M., F. Moya, M.C. García-Martínez, E. Tel, P. Zunino, F. Plaza, J. Salat, J. Pascual, J.L. López-Jurado and M. Serra, (2010), Climate change in the Western Mediterranean Sea 1900-2008. J. Mar. Syst., doi: 10.1016/j.jmarsys.2010.04.013

3. Vargas-Yanez, M., P. Zunino, A. Benali, M. Delpy, F. Pastre, F. Moya, M. C. Garcia-Martinez, and E. Tel (2010), “How much is the Western Mediterranean really warming and salting?” J. Geophys. Res., doi:10.1029/2009JC005816.

2. Zunino, P., M. Vargas-Yáñez, F. Moya, M. C. García-Martínez, and F. Plaza (2009), Deep and intermediate layer warming in the western Mediterranean: Water mass changes and heaving, Geophys. Res. Lett., 36, L20608, doi:10.1029/2009GL039578.

1. Vargas-Yáñez M., F. Moya, M. García-Martínez, J. Rey, M. González, P. Zunino (2009), Relationships between Octopus vulgaris landings and environmentals factors in the northern Alboran Sea (Southwestern Mediterranean), Fisheries Research, 99, 159-167.