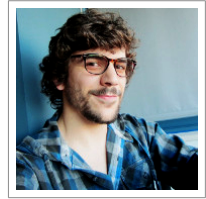


Carlos Rocha

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*Remember that all models are wrong; the practical question
is how wrong do they have to be to not be useful.*

George E.P. Box

Education

2006–2009 **(BSc) Marine Sciences**, *University of Aveiro*, 14/20.

2009–2011 **(MSc) Meteorology and Physical Oceanography**, *University of Aveiro*, 15/20.

Master thesis (18/20)

title *Biogeochemical Modeling of the NW Iberian Margin*

supervisors Prof.Dr. Jesús Dubert, Dra. Rita Nolasco

description An overview on the incorporation of a nitrogen-based (NPZD) biogeochemical module into a regional oceanic circulation model (ROMS) for the NW Iberian Margin. The study focused especially in both empirical and objective model performance assessments through comparison of chlorophyll-a model outputs with an extensive satellite dataset produced by Ifremer/CERSAT and in the verification of the model ability to reproduce theoretically expected phenomena. The model validation has shown that despite some flaws, as a general underestimation of chlorophyll-a surface values and an anticipation in the starting of the spring bloom, the model response was satisfactory. The thesis thus resulted in the availability of a fully-functional and reliable coupled (NPZD-ocean circulation) model for the NW Iberian Margin, running at the inter-annual scale.

Experience

Vocational

Oct 2009–present **Research Fellow**, *CESAM/Physics Department*,
University of Aveiro.

Use of a numerical ocean model as a research tool in interdisciplinary areas.

Detailed achievements:

- RAIA (Oceanic Observatory of the Iberian Margin) project:
 - Implementation and validation of a NPZD biogeochemical module in a ROMS configuration;
 - Implementation and validation of a Lagrangian particle tracking module in a ROMS configuration;
 - Research on biogeochemical processes (with special attention to seasonal behaviour) and dispersal patterns on the NW Iberian Margin;
 - Implementation of both (NPZD and Lagrangian) modules into a semi-operational structure;
 - Mooring and recovery of estuarine and offshore oceanographic equipment;
- RAIA.CO (Marine and coastal observatory of Iberian Margin) project:
 - NPZD parameters optimization;
 - Transition from the semi-operational structure to a fully operational one (responsible for the NPZD part);
 - Creation of the Ocean Modelling Group (University of Aveiro) website - <http://gmo.web.ua.pt> - and implementation of a Processing applet for 3-days surface particle tracking (forecast and hindcast) with an user-friendly interface (SPIRAL);
 - Diverse Lagrangian particles experiments for studying Harmful Algal Blooms advection on the NW Iberian Margin;
 - Recovery of offshore oceanographic equipment;

Miscellaneous

2009 **Technical specialist**, *Chemistry Department*,
University of Aveiro.

Impact assessment of aquaculture wastewaters in coastal water quality.

2013 **Technical specialist**, *Pascoal & Filhos, S.A.*,
University of Aveiro.

Assessment on the use of the historical Tall Ship "Santa Maria Manuela" as a research training vessel.

Languages

Portuguese **Mother Tongue**

English **Advanced** *Preliminary English Test (2003) and Level 1 Certificate in English (2004) by the University of Cambridge*

Spanish **Basic**

Computer skills

Unix Everyday use

Matlab Advanced

ROMS-Agrif	Advanced	ROMS Tools	Advanced
HTML	Advanced	CSS	Advanced
Processing	Intermediate	Fortran	Intermediate
Ferret	Basic	LaTeX	Basic
ArcGIS	Basic	SeaDAS	Basic
Surfer	Basic	SIMSYS2D	Basic

- I am proficient with common tools (word processing, spreadsheets, etc.) and confident in quickly learning any new program/language.

Research Interests

- Use of numerical ocean models as research tools in interdisciplinary areas;
- Eastern boundary current systems;
- Coastal circulation patterns and biogeochemical dynamics on the NW Iberian Margin;
- Open-ocean circulation dynamics;
- Remote sensing;
- Climate change;
- Harmful algal blooms.

Additional Information

- Participation in the Sea Itinerant University (UIM), aboard NRP Creoula, 2008.
- Elected Marine Sciences representative of students at the University of Aveiro, 2006-2007, 2007-2008, 2008-2009.
- Elected NBIUA's (University of Aveiro Research Fellow Association) board member 2009-2010, 2010-2011, 2011-2012, 2012-2013.

Academic Referees

	Institution	Contact
Jesús Dubert	CESAM/University of Aveiro	jdubert@ua.pt
Paulo Oliveira	IPMA	pboliveira@ipma.pt

Publications

- ISI Papers **Rocha C.**, Cordeiro N., Nolasco R., Dubert J. (2013). Numerical modelling of the phytoplankton patterns in an upwelling event off the NW Iberian Margin. *Journal of Coastal Research*. SI 65, 117-122.
- Marta-Almeida M., Reboreda R., **Rocha C.**, Dubert J., Nolasco R., et al. (2012) Towards Operational Modeling and Forecasting of the Iberian Shelves Ecosystem. *PLoS ONE* 7(5): e37343.
- Thesis Biogeochemical Modelling of the NW Iberian Margin (2011). Meteorology and Physical Oceanography MSc, University of Aveiro.
- Others Moita T., Pazos Y., **Rocha C.**, Oliveira P. (2014) Towards forecasting Dinophysis blooms off NW Iberia: a decade of events. ICES ASC 2014. 15-19 September, Coruna, Spain.
- Rocha C.**, Nolasco R., Otero P., Dubert J. (2014) SPIRAL - [S]urface [P]articles [I]n a [R]OMS-based [A]pp[L]et. APOCEAN Meeting. 21-22 March, Nazare, Portugal.
- Mendes R., **Rocha C.**, da Silva J.C.B., Gomez-Gesteira M., deCastro M., Vaz N., Dias J.M. (2013) Observation of the Douro estuary turbid plume using high-resolution MODIS ocean color images. 6th Workshop on Remote Sensing of the Coastal Zone. 6-7 June, University of Basilicata, Matera, Italy.
- Rocha C.**, Cordeiro, N., Nolasco R., Dubert J. (2013). Numerical modelling of the phytoplankton patterns in an upwelling event off the NW Iberian Margin. International Coastal Symposium, 8-12 April 2013, Plymouth, England.
- Mendes R., **Rocha C.**, da Silva J.C.B., Gomez-Gesteira M., deCastro M., Vaz N., Dias J.M. (2013) Observation of the Douro Estuary Turbid Plume Using High-Resolution MODIS Ocean Colour Images. APMG 8th Meteorology and Geophysics Symposium. 18-20 March, Ericeira, Portugal.
- Marta-Almeida M., Reboreda R., **Rocha C.**, Dubert J., Nolasco R., Cordeiro N., Luna T., Rocha A., Lencart e Silva J.D., Queiroga H., Peliz A., Ruiz-Villarreal M. (2012) Operational modelling and forecasting of the Iberian shelves ecosystem. European Geosciences Union General Assembly, 22-27 April. Vienna, Austria.
- Rocha C.**, Cordeiro N., Nolasco R., Dubert J. (2012) Biogeochemical Modelling of the NW Iberian Margin. 1st Oceanography Meeting, Quiaios, Portugal.
- Rocha C.**, Cordeiro, N., Nolasco R., Dubert J. (2012) Biogeochemical Modelling of the NW Iberian Margin. 2nd Hydrographic Engineering Journeys, Lisbon, Portugal.
- Reboreda R., **Rocha C.**, Cordeiro N., Nolasco R., Dubert J. (2011) Three-dimensional Modelling of Phytoplankton and Zooplankton Seasonal Distribution in the Iberian Upwelling System. European Geosciences Union General Assembly. 03-08 April, Vienna, Austria.
- Reboreda R., **Rocha C.**, Cordeiro N., Nolasco R., Dubert J. (2011) Three-dimensional Modeling of the Seasonal Variation of Phytoplankton and Zooplankton. Jornadas do Mar, Lisbon, Portugal.