

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

ARTIST PERSONAL INFORMATION			
First name	Alfredo		
Family name	Izquierdo González		
Gender (*)	Male	Birth date (dd/mm/yyyy)	17/11/1969
Social Security, Passport, ID number	34846311T		
e-mail	Alfredo.izquierdo@uca.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-3842-1460	

(*) Mandatory

A.1. Current position

Position	Associate Professor (Profesor Contratado Doctor)		
Initial date	15/11/2006		
Institution	Universidad de Cádiz		
Department/Center	Física Aplicada		
Country	Spain	Teleph. number	961016000
Key words	Physical Oceanography; Climate, Numerical modelling; Ocean processes, Gulf of Cádiz, Strait of Gibraltar, Canary Upwelling		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2009-2011(24 months)	Marie Curie Research Fellow/ Max Planck Institute of Meteorology/ Germany
2001-2006 (60 months)	Contratado Ramón y Cajal/Universidad de Cádiz/España

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Oceanographer	Russian State Hydrometeorological University/Soviet Union-Russian Federation	1994
PhD in Marine Sciences	University of Cádiz/Spain	2000

(Include all the necessary rows)

Part B. CV SUMMARY (max. 5000 characters, including spaces)

I am graduated in Oceanography (Master of Science) at the Russian State University of Hydrometeorology, S. Petersburg, Russian Federation, (1990 - 1994). The subject of the diploma work was the two-dimensional modeling of an oil spill over water, directed by Prof. Boris A. Kagan (P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences). Back in Spain, I started my PhD in the then new research group of Physical Oceanography: Dynamics, at the University of Cádiz (UCA), working fundamentally, but not exclusively, on the barotropic tides of the Strait of Gibraltar, and boosting its performance through the introduction of ocean numerical modelling (at that time an innovation in Spain). The opportunity offered by the multidisciplinary environment of the Faculty of Marine and Environmental Sciences allowed me to use the strong theoretical training Physical Oceanography and the numerical modeling

capabilities acquired in my graduate years to collaborate with other research groups. After my PhD thesis defense (dealing with the dynamics and energetics of surface tides in the Strait of Gibraltar) I received a contract from the Ramón y Cajal Program in 2001. In 2006 was contracted at UCA as associate Professor (Profesor Contratado Doctor). In 2008 I started to collaborate with the Max Planck Institute of Meteorology (MPI), in Hamburg, Germany, through a stay funded the José Castillejo Program. The results of the work done there with Dr. Uwe Mikolajewicz on modeling the effect of tides on the distribution of Mediterranean waters in the Atlantic Ocean were very promising. For this reason, in the following call a Marie Curie Fellowship was requested, which was granted and with which I spent two years working in the Department of Ocean in the Earth System, of the MPI. During that time, I acquired new competencies in the field of large scale and climate modelling, especially in understanding process interactions across scales and downscaling climate scenarios. I brought that experience back to the University of Cádiz, where I established a new research line with three PhD thesis successfully defended and applying downscaled climate data and ocean process analysis to underwater cultural heritage and to the climate of the Mediterranean Sea and the Canary Current Upwelling System. The research papers resulting from these PhD thesis are among the most cited (and with highest field-weighted impact factor) during the last years (see below the contributions first authored by Iván Parras and Rubén Vázquez). I also started collaboration with the Ocean Physics department at CICESE (Baja California, México) through a 6-month research stay funded by the Salvador Madariaga Programme (2018), and last year I spent another 6-month stay at the HIDROTEC research of the University of Algarve, being associated member of the CIMA (2024).

Considering that a large part of my professional career has been spent at the university, and that I joined a young research group, my professional activities have included, from the beginning, the teaching, mentoring and direction of graduate, master, and doctoral students; the management and direction of contracts and projects and the search for competitive financing. I have participated in more than 25 academic, research or contract projects, at a European or national level. I have also been the coordinator or Principal Investigator of 8 projects, including some of European funding.

I have co-supervised 7 doctoral theses (Agueda Vázquez, Emma Reyes, Carlos González, Tomás Fernández-Montblanc and Kiani Harchegani Farkhondeh, Rubén Vázquez Medina and Iván Parras Berrocal), and currently I supervise other one. I have supervised over 20 master theses and diploma (graduate) works.

I collaborate with researchers from Russia, Germany, United Kingdom, Portugal, Italy, USA, Morocco, Colombia, Mexico, where I have made research stays. Currently my interests are focused on the role of Mediterranean waters in the North Atlantic climate, processes impacting on circulation and mixing of water masses in the North East Atlantic, with emphasis on climate change impact and physical-biological coupling. Although my specialization is numerical modeling, I have ample skills in data analysis and process studies.

A detailed view is offered in <https://produccioncientifica.uca.es/investigadores/112784/detalle>

Part C. RELEVANT MERITS (*sorted by typology*)

C.1. Publications (*see instructions*)

Vázquez, R., Parras-Berrocal, Cabos, W., Sein, D.V., Mañanes, R. Bolado-Penagos, M., **Izquierdo, A.** (2024) Climate change in the Canary/Iberia upwelling region: the role of ocean stratification and wind. *Environmental Research letters*, 19(7), 074064 **Q1**

Vázquez, R., Parras-Berrocal, I.M., Koseki, S., Cabos, W., Sein, D.V., **Izquierdo, A.** (2023) Seasonality of coastal upwelling trends in the Mauritania-Senegalese region under RCP8.5 climate change scenario. *Science of the Total Environment*, 898, 166391 **Q1**

Parras-Berrocal, I.M., Vázquez, R., Cabos, W., ...Bruno, M., **Izquierdo, A.** (2023) Dense water formation in the eastern Mediterranean under a global warming scenario. *Ocean Science*, 19(3), pp. 941–952 **Q1**

Jiménez-Rincón, J.A., Cianca, A., Ferrero-Martín, C., **Izquierdo, A.** (2023) A Glider View of the Spreading and Mixing Processes of Antarctic Intermediate Water in the Northeastern Subtropical Atlantic. *Journal of Marine Science and Engineering*, 11(3), 576 **Q1**

Parras-Berrocal, I. M., Vázquez, R., Cabos, W., Sein, D. V., Álvarez, O., Bruno, M., & **Izquierdo, A.** (2022). Surface and intermediate water changes triggering the future collapse of deep water formation in the North Western Mediterranean. *Geophysical Research Letters*, 49, e2021GL095404. <https://doi.org/10.1029/2021GL095404>. **Q1**

Vazquez, R., Parras-Berrocal, I., Cabos, W., Sein, D.V., Mañanes, R., **Izquierdo, A.** Assessment of the Canary current upwelling system in a regionally coupled climate model (2022) *Climate Dynamics*, 58(1-2), pp. 69–85 DOI: 10.1007/s00382-021-05890-x. **Q1**.

Sein, Dmitry V.; Gröger, Matthias; Cabos, William; Alvarez-Garcia, Francisco J.; Hagemann, Stefan; Pinto, Joaquim G.; **Izquierdo, Alfredo**; Vara, Alba; Koldunov, Nikolay V.; Dvornikov, Anton Yu.; Limareva, Natalia; Alekseeva, Evgenia; Martinez-Lopez, Benjamin; Jacob, Daniela. Regionally coupled atmosphere - ocean - marine biogeochemistry model ROM: 2. Studying the climate change signal in the North Atlantic and Europe. *Journal Of Advances In Modeling Earth Systems*, doi: 10.1029/2019MS001646, 2020. **Q1**.

Parras-Berrocal, I. M., Vazquez, R., Cabos, W., Sein, D., Mañanes, R., Perez-Sanz, J., **Izquierdo, A.:** The climate change signal in the Mediterranean Sea in a regionally coupled atmosphere–ocean model, *Ocean Science*, 16, 743–765, <https://doi.org/10.5194/os-16-743-2020>, 2020. **Q1**.

Izquierdo, A.; Mikolajewicz, U. The role of tides in the spreading of Mediterranean Outflow waters along the southwestern Iberian margin. *Ocean Modelling*. 133, pp. 27 - 43. 2019.**Q1**.

Cabos, W.; Sein, D; Pinto, J.; Fink, A.; Koldunov, N.; Alvarez, F. ;**Izquierdo, A.;** Keenlyside, N.; Jacob, D. The South Atlantic Anticyclone as a key player for the representation of the Tropical Atlantic climate in coupled climate models. *Climate Dynamics* 48 (2017), 4051-4069. **Q1**.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

Adaptación y Consolidación de un Sistema de Oceanografía Operacional de los mares y estuarios del litoral andaluz para la monitorización, observación y transferencia a la sociedad de datos oceanográficos. 2023-071 / PAI / PC-CIEN-MARINAS23 / PR, 23/01/23-30/09/25, Ref: PCM_00032, IP. Oscar Álvarez and Carlos Román, Funding: 211623. Contribution: Support in transferring mnetocean data to society. Support in design of information access structure and data visualization.

VOLICHE: Vulnerabilidad del Patrimonio Cultural litoral frente a agentes ambientales: impacto del Cambio Climático. 2020-059 / PN / PLAN ESTATAL PROYECTOS I+D+I / PR, 01/09/21-31/08/25, Ref: PID2020-117812RB-I00, IP: Tomás Fernández Montblanc. Funding:66550 eur. Contribution: Climate Downscaling. Process study. Wind wave propagation. PhD Thesis cosupervision. AGUAS21: Gestión Del Recurso Agua Ante El Desafío Del Cambio Climático En Andalucía: Una Metodología Y Herramientas Para La Toma De Decisiones En Los Próximos 30 Años. 2018-080 / PV / I+D+I FEDER JUNTA ANDALUCIA/PR , 01/04/20-31/03/23, Ref.: FEDER-UCA18-107890. Investigadora Principal: Maria Luisa Pérez Cayeiro. Cuantía: 69223 eur. Contribution: Downscaling of climate scenarios.

OCASO: Observatorio Costero Ambiental del SurOeste. INTERREG V ESPAÑA-PORTUGAL POCTEP, 01/07/2017-30/06/2020, Ref.:2017-0 41/PE/POCTEP2014/2020/PR. Investigador principal.

Miguel Bruno. Cuantía: 229.472 eur. Contribution: Ocean model transition to operationality. Preparation of model outputs for THREDDS data server. Model output validation.

AGUAMOD: Desarrollo De Una Plataforma De Gestión De Recursos Hídricos Durante El Estiaje En El Territorio Sudoeste. Interreg Europe Sudoeste, 01/07/2016-30/06/2019, Ref.: 2016-049/ PE / IC-INTERREG V SUDOESTE / PR. Investigador principal: Rafael Mañanes. Cuantía 212.392 eur. Contribution: Support to hydrological modelling and output analysis.

ARCOPOLPLATFORM: Platform For Improving Maritime Coastal Pollution

Preparedness And Response In Atlantic Regions. European Regional Development Fund (ERDF), 01/01/2014-30/06/2015, Ref.: 2017-029/ PE / INTERREG IV Arco Atlántico 2013 / PR. Investigador Principal: Óscar Álvarez Cuantía: 64.064 eur. Contribution: Lagrangian oil spill modelling

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any.

- Caracterización de los patrones costeros de circulación en áreas de producción de moluscos bivalvos del litoral gaditano, Departamento de Agricultura y Pesca, Junta de Andalucía OT2015-072, 17061 eur
- Estudio oceanográfico del riesgo de vertidos de hidrocarburos en las zonas del Estrecho y bahías de Cádiz y Algeciras, Junta de Andalucía, OT2009/037, 58.000,00 €
- Caracterización de la dinámica marina y sus efectos sobre las jaulas de cultivo en la instalación acuícola off-shore "Piscifactoría de Aguadulce" (Almería) OT2007/147, Departamento de Agricultura y Pesca, Junta de Andalucía, 6.612,00 €

Registros de la propiedad intelectual

Nº Expediente: CA-2203150725771-2022

Fecha Solicitud: 15/03/22

Denominación: LAGMOD – Software de deriva lagrangiana de objetos flotantes en el mar

Tipo de Obra: Programa de ordenador

Estado: Pendiente

Categoría: Docente UCA

Nº Expediente: CA-04224-1999

Fecha Solicitud: 03/12/98

Denominación: TIDEX -Predicción de corrientes de mareas a corto y largo plazo.

Tipo de Obra: Obra Científica

Estado: Registrada

Categoría: Docente UCA