

Part A. PERSONAL INFORMATION

CV date 07/06/2023

First and Family name	Ricardo García Herrera		
Social Security, Passport, ID number	██████████	Age	██
Researcher numbers	Researcher ID		
	Orcid code		orcid.org/0000-0002-3845-7458

A.1. Current position

Name of University/Institution	Universidad Complutense de Madrid		
Department	Física de la Tierra y Astrofísica		
Address and Country	Facultad CC. Físicas, Ciudad Universitaria, Universidad Complutense, 28040 Madrid		
Phone number	██████████	E-mail	rgarciah@ucm.es
Current position	Full Professor	From	01/06/2011
Espec. cód. UNESCO	2501, 2502		
Palabras clave	Climatology, Meteorology		

A.2. Education

PhD	University	Year
Physics	Universidad Complutense	1982

A.3. JCR articles, h Index, thesis supervised...

Sexenios de investigación: **5** (the last one granted on 13/06/2019).

Quinquenios de docencia: **6**

PhD theses supervised in the last 10 years: **9**

In the last 5 years: **4**

Jose Manuel Garrido Pérez Airr Staganation in the Euro-Mediterranean Region: Spatiotemporal variability and Impact on air quality. 2022. Sobresaliente CumLaude. Mención Internacional

Fernando Jaume Santero Past climate studies with optimized networks using artificial intelligence. 2021 Sobresaliente Cum Laude. Mención Internacional

Salcedo Sanz Sancho: New soft Computing algorithms is Atmospheric Physics. 2019. Sobresaliente Cum Laude

Sánchez Benítez Antonio: Análisis de Olas de calor desde una perspectiva Lagrangiana. 2020. Sobresaliente Cum Laude Mención Internacional

Total number of cites: **8420*** (1261 in google scholar). Average number of cites per year: **855***

Number of papers published in the first quartile: **192***

H index: **45*** (53 in google scholar)

*. Data from SCOPUS.

Part B. CV SUMMARY (max. 3500 characters, including spaces)

Full professor in Atmospheric Physics with more than 25 years of teaching experience. Currently director of the research group STREAM (<http://stream-ucm.es>), rated as 'Excellent' by Universidad Complutense de Madrid (UCM). President of the Atmosphere and Ocean specialized group, Spanish Royal Society of Physics. My research activity has been focused on the following lines: climate reconstruction of the last 500 years,

climate and weather extremes, tropospheric climate variability, middle atmosphere dynamics and impact of atmospheric circulation on air quality.

The analysis of documentary sources has been the main tool for the reconstruction of the past climate. We have worked in different archives of Europe and Latin America, producing new databases of early observations (mostly from ship's logbooks) and proxies. This has allowed the analysis of extremes from a long term perspective, including past secular changes and the projected variability along the 21st century. The analysis of extremes has been mostly focused on heatwaves and droughts. We have paid attention to the statistical analysis as well as to the dynamical mechanisms and synoptic patterns leading to such extremes. This has been possible through the development of objective tools for the identification of patterns such as atmospheric blocks or ridges. On this basis, I have studied extensively their impact on the surface climate, and their relationship with the main teleconnection patterns, such as the NAO (North Atlantic Oscillation) or ENSO (El Niño-Southern Oscillation). I have also analyzed different sources of interannual predictability, such as the impact of the spring-summer Northern Hemisphere snow cover on the occurrence of blocking and the NAM (Northern Annular Mode). The influence of the 11yr solar cycle and the intensity of the stratospheric polar vortex on tropospheric weather has also been studied. I have also coauthored papers analyzing the role of ENSO, QBO (Quasi-Biennial Oscillation) or solar variability in stratospheric dynamics, including the impact of climate change on this atmospheric layer.

Recently I have driven my attention to the impact of atmospheric circulation and air stagnation on air quality, with special attention to the role of blocking. Jointly with experts in softcomputing, I have explored the applications of these techniques for atmospheric pattern recognition and short term forecasting.

This research has mainly been supported by stable funding through competitive projects from Spain, the European Commission and the USA NSF. I have coordinated one EU project and acted as research line coordinator in another one.

I have been advisor of 15 PhD students. I have represented Spain in the Steering Committee of the ESF-MedCLIVAR project. Currently member of MedCLIVAR steering Committee. Member of the editorial board and guest editor for several journals. Convener of different sessions at international meetings. Evaluator of the Austrian Climate and Energy Fund, 2007-present. President of the AEMET (Spanish Agency for Meteorology) (2010-2012) and member of the Executive Committee of the World Meteorological Organization (2010-2012).

Part C. RELEVANT MERITS

C.1. 10 selected publications (in the last 5 years)

Ordóñez C., Garrido-Perez J.M., García-Herrera R. (2020): Early spring near-surface ozone in Europe during the COVID-19 shutdown: Meteorological effects outweigh emission changes. *Science of The Total Environment*, 747, 141322. doi: 10.1016/j.scitotenv.2020.141322.

García-Herrera R., Garrido-Perez J.M., Barriopedro D., Ordóñez C., Vicente-Serrano S.M., Nieto R., Gimeno L., Sori R., Yiou P. (2019): The European 2016/2017 drought, *Journal of Climate*. doi: 10.1175/JCLI-D-18-0331.1.

Mellado-Cano J., Barriopedro D., García-Herrera R., Trigo R., Hernández A., (2019): Examining the North Atlantic Oscillation, East Atlantic Pattern, and Jet Variability since 1685, *Journal of Climate*, 32, 6285–6298, doi: <https://doi.org/10.1175/JCLI-D-19-0135.1>

Garrido-Perez J.M., Ordóñez C., García-Herrera R., Barriopedro D. (2018): Air stagnation in Europe: spatiotemporal variability and impact on air quality, *Science of the Total Environment*, 645, 1238-1252.

Sánchez-Benitez, A., García-Herrera R., Barriopedro D., Sousa P.M., Trigo R.M. (2018): June 2017: The Earliest European Summer Mega-heatwave of Reanalysis Period. *Geophys. Res. Lett.* doi:10.1002/2018GL077253.

Garrido-Perez J.M., Ordóñez C., García-Herrera R. (2017): Strong signatures of high-latitude blocks and subtropical ridges in winter PM10 over Europe. *Atmospheric Environment*, 167, 49-60. doi:10.1016/j.atmosenv.2017.08.004.

Carro-Calvo L., Ordóñez C., García-Herrera R., Schnell J.L. (2017): Spatial clustering and meteorological drivers of summer ozone in Europe. *Atmospheric Environment*, doi:10.1016/j.atmosenv.2017.08.050.

Ordóñez, C., Barriopedro D., García-Herrera R., Sousa, P. M., Schnell, J. L. (2017): Regional responses of surface ozone in Europe to the location of high-latitude blocks and subtropical ridges. *Atmos. Chem. Phys.* 17, 3111-3131, doi:10.5194/acp-17-3111-2017.

Chiodo G., Garcia-Herrera R., Calvo N., Vaquero J., Barriopedro D., Cabanelas J. and Matthes K. (2016): The impact of a future solar minimum on climate change projections in the Northern Hemisphere. *Environmental Research Letters*, 11, doi:10.1088/1748-9326/11/3/034015.

C.2. Research projects and grants (last 5 years)

- SAFETE (Forecast of South American Extreme Temperature Events). Contract no. UNA4CAREER-2021-ATL4000069418. Funding agency: Unión Europea - UNA4CAREER. PI: R. García Herrera, Co-PI: S. Collazo. 2023-2026

- MALONE (Meteorological drivers and uncertainties in climate projections of ground-level Ozone episodes). Contract no. PID2021-122252OB-I00. Funding agency: Ministerio de Ciencia e Innovación. Proyectos de Generación de Conocimiento 2021. PIs: C. Ordóñez & R. García-Herrera. 2022-2025.

- CLINT: CLimate INTelligence: Extreme events detection, attribution and adaptation design using machine learning. No. 101003876. Funding Agency: European Commission, H2020-LC-CLA-2020-2. PI: Andrea Castalotti (POLIMI). 2021-2025

- JEDIE: Dinámica del Jet y Extremos RTI2018-096402-B-I00. Ministerio de Ciencia, Investigación y Universidades. PIs Ricardo García Herrera y Blanca Ayarzagüena. 2019-2021.

- ISIPEDIA: Enciclopedia Libre de los impactos climáticos intersectoriales. JPI Climate. PCIN-2017-046. Researcher. 75,200€. 15/09/2017-14/09/2020

- Determinación del upwelling costero en NW Africa a partir de diarios de navegación (1700-actualidad), CGL2015-72164-EXP. PI: Ricardo García-Herrera. 2017-2019.

- PALEOSTRAT (PALEOmodelización desde una perspectiva eSTRATosférica). CGL2015-69699. 115.000 €. Researcher.

- StratoClim (STRATOspheric and upper tropospheric processes for better CLIMate predictions) Ref. 603557. European Commission, FP7: 145.352 €. Researcher. 2014-2019.

C.3. Contracts

- Estancamiento atmosférico y situaciones meteorológicas relacionadas con baja producción eólica. Researcher. "IBERDROLA RENOVABLES ENERGÍA, S.A.U. 2077-2019

C.4. Patents

C.5. Others

Director of Fundación General UCM December 2015- June 2019.

President of Agencia Estatal de Meteorología, AEMET (February 2010-March 2012).

Member of the Executive committee of the World Meteorological Organization (April 2010-March 2012).

Spanish Representative at the Steering Committee of the ESF-MedCLIVAR project (May 2006-2010).

Director of Fundación General de la Universidad Complutense de Madrid (January 2016-June 2019).

Contributing author of the IPCC's Fourth Assessment Report.

Co-director of Master in Geophysics and Meteorology 2006-2010.

Member of the editorial board of the Springer series 'Advances in Global Change Research' since 2005.

Guest editor of Climatic Change's special issue 'The CLIWOC Project'.

Guest editor of Ann. N.Y. Acad. Sci.'s special issue 'Trend and directions in climate research'.

Guest editor of Natural Hazards and Earth System Science's issue 'Understanding dynamics and current developments of climate extremes in the Mediterranean region'.

Evaluator of the Austrian Climate and Energy Fund, from 2007 to present.

Co-Convener. Session 'Documentary and natural proxy data for the study of climate anomalies and hydro-meteorological extremes' at EMS Annual Meeting, 28 Sept- 2 Oct 2009, Toulouse, France.

Co-convener. Session 'Historical climatology' at EMS Annual Meeting & European Conference on Applications of Meteorology, 9 - 13 September 2013, Reading, UK

Co-Convener. Session 'Climate reconstructions and historical climatology' at EMS Annual Meeting, 29 September – 3 October 2008, Amsterdam, The Netherlands.

Co-convener. Session "Paleoclimatology and historical climatology". EMS Annual Meeting.. 07–11 September 2015 | Sofia, Bulgaria

Co-convener. Session 'Paleoclimatology and historical climatology'. EMS Annual Meeting.12–16 September 2016 | Trieste, Italy

Co-convener. Session 'Paleoclimatology and historical climatology'. EMS Annual Meeting. 4–8 September, 2017, Dublin, Ireland

Co-convener. Session 'Paleoclimatology and historical climatology'. EMS Annual Meeting. 3–7 September, 2018, Budapest, Hungary.

Invited lectures, among others, at: Royal Meteorological Society, University of Oxford, University of Durham, Bermuda Biological Station, NOAA, Bienal de la RSEF.



CURRICULUM VITAE (CVA)

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

Part A. PERSONAL INFORMATION

First name	Luis	CV date	16.01.2023
Family name	Gimeno		
Gender (*)	■	Birth date (dd/mm/yyyy)	■
Social Security, Passport, ID number	■		
e-mail	l.gimeno@uvigo.es	URL Web	https://ephyslab.uvigo.es/en/dr-luis-gimeno-3/
Open Researcher and Contributor ID (ORCID) (*)			https://orcid.org/0000-0002-0778-3605

A.1. Current position

Position	Full Professor of Atmospheric Physics		
Initial date	15th July 2009		
Institution	University of Vigo		
Department/Center	Applied Physics	Faculty of Sciences	
Country	Spain	Teleph. number	■
Key words	Atmospheric Physics, Hydrological Cycle, Climate Diagnosis		

A.2. Previous positions (research activity interruptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
1997-2009	Associate professor/University of Vigo/Spain/Promotion to professor
1991-1997	Meteorologist/Spanish weather Service/Spain/Change of activity

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD	Complutense University	1994
Bachelor	Complutense University	1990

5 sexenios de investigación y 1 de transferencia

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

Professor Gimeno is originally from Madrid, and is 55 years old. He has a PhD in Earth Sciences and is currently a full University Professor. He belongs to Ephyslab, a research group integrated in the CIM (Marine Research Center), a unique research centre located in Galicia. He was the ANEP (Spanish Agency) coordinator of Earth Sciences and President of the Specialist Group focusing on the Physics of the Atmosphere and Ocean for the Royal Spanish Society of Physics. He created the first official Master's and PhD programmes in Spain dedicated to climate science, into which researchers from more than a dozen countries have been installed as professors

Professor Gimeno is well known as a world leader in research on the water cycle and how this is affected by climate change. His pioneering studies on the main sources of moisture for precipitation over the continents serve as the basis for the interpretation of observed and modelled changes for future climates. A principal investigator on more than 30 research projects, he has published more than 250 articles in international high impact scientific journals. The importance of his research has led to invitations from the most prestigious review journals to synthesize advances on the hydrological cycle, as the only researcher in the world to write invited feature articles by all the major journals in the field: Reviews of Geophysics, Annual Reviews of Environment and Resources, Earth Science Reviews, WIRES Climate Change, WIRES Water and Nature Reviews and Environment. He has developed

extensive programmes related to the organization of international conferences and the hosting of international researchers, has been a member of 16 editorial committees of SCI journals, has edited 22 Special Issues for journals, and has supervised 16 doctoral students

Over the last decade, his research has focused on the atmospheric branch of the hydrological cycle, and it is in this area that he has achieved particular international renown. The year 2010 saw the publication in *Geophysical Research Letters* of an article entitled "On the origin of Continental Precipitation", which had an extraordinary impact from the moment it was published – this was highlighted by the journal itself, on the cover of *EOS*, the journal of the American Geophysical Union, and the article is regularly considered as “highly cited” by WoS. Its summary figure is widely used in basic university textbooks on Meteorology and Climatology. This article was followed by a succession of more than 100 outputs that identified the main global and regional sources and sinks of moisture. On the strength of this, the American Geophysical Union invited him to synthesize the existing state of knowledge on moisture sources of continental precipitation in an article published in 2012 in *Reviews of Geophysics* entitled "Oceanic and Terrestrial sources of continental precipitation," which like the previous one is also considered "highly cited" by WoS

A key consideration within these studies is the analysis of the role played by the main mechanisms of moisture transport, such as Atmospheric Rivers and Low level Jets in the genesis and maintenance of extreme precipitation events, mainly through droughts and floods. These discoveries were revealed to the scientific community in specialist journals. These breakthroughs were also seen in the prestigious Annual Reviews series through the Annual Reviews of Environment and Resources, who invited him to publish a review of all these findings in 2016, entitled "Major Mechanisms of Atmospheric Moisture Transport and Their Role in Extreme Precipitation Events", also considered "highly cited" by WoS. In 2016, he organized a major international conference in Ourense in the Leonardo Conference of the EGU, "From Evaporation to precipitation: atmospheric moisture transport", which attracted the world's leading researchers to the city

These days he is engaged in ongoing research on fundamental aspects of the hydrological cycle and its climatic implications, addressing essential questions related to climate change, such as (i) whether climate change implies an increase in oceanic-versus-terrestrial precipitation (article published in 2020 in *Nature npj Climate and Atmospheric Sciences*, entitled "The growing importance of oceanic moisture sources for continental precipitation"), ii) whether atmospheric rivers are transporting increasing amounts of moisture and whether this is congruent with basic thermodynamic principles linked to climate change (article published in 2020 in *Nature Communications* entitled "Significant increase of global anomalous moisture uptake feeding landfalling Atmospheric Rivers") or iii) the role of the residence time of water vapour in the atmosphere as a metric of the global hydrological cycle and its implications in the study of climate change (invited article by *Nature Reviews Earth and Environment* entitled "The Residence Time of Water Vapour in the Atmosphere")

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (More than 270 SCI papers, 190 Q1). (in the period 2017-2022, LISTED ABOVE)

10 SELECTED PUBLICATIONS

- L. Gimeno, J. Eiras-Barca, A.M. Durán-Quesada, F. Domínguez, R. van der Ent, H. Sodemann, R. Sánchez-Murillo, R. Nieto, J. W. Kirchner (2021) **The residence time of water vapour in the atmosphere**, *Nature Reviews Earth & Environment*, doi: 10.1038/s43017-021-00181-9 **BY INVITATION**
- Algarra, R. Nieto, A.M. Ramos, J. Eiras-Barca, R.M. Trigo, L. Gimeno (2020) **Significant increase of global anomalous moisture uptake feeding landfalling Atmospheric Rivers**, *Nature Communications*, Vol. 11, 5082 (2020). DOI: <https://doi.org/10.1038/s41467-020-18876-w>
- L. Gimeno, R. Nieto, R. Sorí (2020) **The growing importance of oceanic moisture sources for continental precipitation**, *npj Climate and Atmospheric Science*, Vol. 3, Article number: 27 (2020), DOI: <https://doi.org/10.1038/s41612-020-00133-y>
- L. Gimeno, M. Vázquez, J. Eiras-Barca, R. Sorí, M. Stojanovic, I. Algarra, R. Nieto, A.M. Ramos, A.M. Durán-Quesada, F. Domínguez (2020) **Recent progress on the sources of continental precipitation**

as revealed by moisture transport analysis, *Earth Science Reviews*, Vol. 201, February 2020, 103070; p: 1-25 DOI: <https://doi.org/10.1016/j.earscirev.2019.103070> BY INVITATION

- L. Gimeno, M. Vázquez, J. Eiras-Barca, R. Sorí, I. Algarra, R. Nieto (2019) **Atmospheric moisture transport and the decline in Arctic Sea ice**, *Wiley Interdisciplinary Reviews-Climate Change*, May, Pages 1-12 DOI: <https://doi.org/10.1002/wcc.588> BY INVITATION
- J. A. Collins, M. Prange, T. Caley, L. Gimeno, B. Beckmann, S. Mulitza, C. Skonieczny, D. Roche, E. Schefuß (2017) **Rapid termination of the African Humid Period triggered by northern high-latitude cooling**, *Nature Communications*, 8, doi:10.1038/s41467-017-01454
- L. Gimeno, F. Dominguez, R. Nieto, R.M. Trigo, A. Drumond, C. Reason, A.S. Taschetto, A.M. Ramos, R. Kumar, J. Marengo (2016) **Major Mechanisms of Atmospheric Moisture Transport and Their Role in Extreme Precipitation Events**, *Annual Review of Environment and Resources*, 2016. 41:117–41, doi: 10.1146/annurev-environ-110615-085558 BY INVITATION
- L. Gimeno, R. Nieto, A. Drumond, R. Castillo, R.M. Trigo (2013) **Influence of the intensification of the major oceanic moisture sources on continental precipitation**, *Geophysical Research Letters*, 40, 1443-1450, doi:10.1002/grl.50338
- Peterson T C, et al. including L. Gimeno (2013) **Explaining extreme events of 2012 from a climate perspective** *Bull. Am. Meteorol. Soc.* 94 S1–74 (ISI highly cited article)
- L. Gimeno, A. Stohl, R.M. Trigo, F. Domínguez, K. Yoshimura, L. Yu, A. Drumond, A.M. Durán-Quesada, R. Nieto (2012) **Oceanic Sources of Continental Precipitation**, *Reviews of Geophysics* doi:10.1029/2012RG000389 BY INVITATION (ISI highly cited article)

105 PUBLICATIONS in the period 2017-2022, (LISTED ABOVE)

- J. Cui, X. Lian, C. Huntingford, L. Gimeno, T. Wang, J. Ding, M. He, H. Xu, A. Chen, P. Gentile, S. Piao (2022) Global water availability boosted by vegetation-driven changes in atmospheric moisture transport, *Nature Geoscience*, DOI: 10.1038/s41561-022-01061-7.
- S. A. Te Wierik, J. Keune, D.G. Miralles, J. Gupta, Y. A. Artzy-Randrup, L. Gimeno, R. Nieto, L. H. Cammeraat (2022) The Contribution of Transpiration to Precipitation Over African Watersheds, *Water Resources Research*, Vol. 58, Issue 11; DOI: 10.1029/2021WR031721.
- J. Eiras-Barca, I. Algarra, R. Nieto, M. Schröder, M. I. Hegglin, L. Gimeno (2022) Analysis of the main source regions of moisture transport events with the new ESA CCI/CM-SAF total column water vapour climate data record (v2), *Quarterly Journal of the Royal Meteorological Society*, Vol. XXX ; DOI: 10.1002/qj.4358.
- M. Heydarizad, N. Pumijumnong, R. Sorí, P. Salari, L. Gimeno (2022) Fractional Importance of Various Moisture Sources Influencing Precipitation in Iran Using a Comparative Analysis of Analytical Hierarchy Processes and Machine Learning Techniques, *Atmosphere*, Vol. 13, Issue 12; DOI: 10.3390/atmos13122019.
- J. C. Fernández-Álvarez, A. Pérez-Alarcón, R. Nieto, L. Gimeno (2022) TROVA: TRansport Of water VApour, *SoftwareX*, Vol. 20; DOI: 10.1016/j.softx.2022.101228.
- Pérez-Alarcón, P. Coll-Hidalgo, J. C. Fernández-Álvarez, R. Nieto, L. Gimeno (2022) Estimation of mean water vapour residence time during tropical cyclones using a Lagrangian approach, *Tropical Cyclone Research and Review*, Vol. 11, Issue 2; DOI: 10.1016/j.tcrr.2022.08.001.
- M. Vázquez, R. Nieto, M.L.R. Liberato, L. Gimeno (2022) Influence of teleconnection patterns on global moisture transport during peak precipitation month, *International Journal of Climatology*, DOI: 10.1002/joc.7843.
- S. Bedoya-Valestt, C. Azorin-Molina, L. Gimeno, J. A. Guijarro, V. J. Sanchez-Morcillo, E. Aguilar, M. Brunet (2022) Opposite trends of sea-breeze speeds and gusts in Eastern Spain, 1961–2019, *Climate Dynamics*, DOI: 10.1007/s00382-022-06473-0.
- Pérez-Alarcón, J. C. Fernández-Álvarez, R. Sorí, R. Nieto, L. Gimeno (2022) Moisture source identification for precipitation associated with tropical cyclone development over the Indian Ocean: a Lagrangian approach, *Climate Dynamics*, DOI: 10.1007/s00382-022-06429-4.

- M. Heydarizad, **L. Gimeno**, S. Amiri, M. Minaei, H. Ghalibaf Mohammadabadi (2022) A Comprehensive Overview of the Hydrochemical Characteristics of Precipitation across the Middle East, *Water*, Vol. 14, Issue 17 ; DOI: 10.3390/w14172657.
- **L. Gimeno**, R. Sorí, M. Vázquez, M. Stojanovic, I. Algarra, J. Eiras-Barca, L. Gimeno-Sotelo, R. Nieto (2022) Extreme precipitation events, *Wiley Interdisciplinary Reviews-Water*, Vol. XXXXX DOI: 10.1002/wat2.1611.
- L. Gimeno-Sotelo, **L. Gimeno** (2022) Concurrent extreme events of atmospheric moisture transport and continental precipitation: The role of landfalling atmospheric rivers, *Atmospheric Research*, Vol. 278, 106356: DOI: 10.1016/j.atmosres.2022.106356.
- P. Coll-Hidalgo, A. Pérez-Alarcón, **L. Gimeno** (2022) Origin of Moisture for the Precipitation Produced by the Exceptional Winter Storm Formed over the Gulf of Mexico in March 1993, *Atmosphere*, Vol. 13 Issue 7, 1154 ; DOI: 10.3390/atmos13071154.
- M. Stojanovic, G. Mehabie Mulualem, R. Sorí, M. Vázquez, R. Nieto, **L. Gimeno** (2022) Precipitation Moisture Sources of Ethiopian River Basins and Their Role During Drought Conditions, *Frontiers in Earth Science*, Vol. 10, 929497 ; DOI: 10.3389/feart.2022.929497.
- L. Gimeno-Sotelo, P. de Zea Bermudez, I. Algarra, **L. Gimeno** (2022) Modelling hydrometeorological extremes associated to the moisture transport driven by the Great Plains low-level jet, *Stochastic Environmental Research and Risk Assessment*, DOI: 10.1007/s00477-022-02199-x.
- Pérez-Alarcón, R. Sorí, J. C. Fernández-Álvarez, R. Nieto, **L. Gimeno** (2022) Where Does the Moisture for North Atlantic Tropical Cyclones Come From?, *Journal of Hydrometeorology*, Vol. 23, Issue 3, 457–472 ; DOI: 10.1175/JHM-D-21-0117.1.
- Salvador, A. M. Vicedo-Cabrera, R. Libonati, A. Russo, B. N. Garcia, L. B. C. Belem, **L. Gimeno**, R. Nieto (2022) Effects of Drought on Mortality in Macro Urban Areas of Brazil Between 2000 and 2019, *GeoHealth*, Vol. 6, Issue 3; DOI: 10.1029/2021GH000534.
- R. Sorí, M. Stojanovic, R. Nieto, M.L.R. Liberato, **L. Gimeno** (2022) Spatiotemporal Variability of Droughts in the Congo River Basin, *Book, Congo Basin Hydrology, Climate, and Biogeochemistry: A Foundation for the Future*. DOI: <https://doi.org/10.1002/9781119657002.ch11> ; Chapter 11..
- F. Dominguez, J. Eiras-Barca, Z. Yang, D. Bock, R. Nieto, **L. Gimeno** (2022) Amazonian Moisture Recycling Revisited Using WRF With Water Vapor Tracers, *Journal of Geophysical Research: Atmospheres*, Vol. 127, Issue 4; DOI: 10.1029/2021JD035259.
- Pérez-Alarcón, P. Coll-Hidalgo, J. C. Fernández-Álvarez, R. Sorí, R. Nieto, **L. Gimeno** (2022) Moisture Sources for Precipitation Associated With Major Hurricanes During 2017 in the North Atlantic Basin, *Journal of Geophysical Research: Atmospheres*, Vol. 127, Issue 4 ; DOI: 10.1029/2021JD035554
- Pérez-Alarcón, R. Sorí, J. C. Fernández-Álvarez, R. Nieto, **L. Gimeno** (2022) Dataset of outer tropical cyclone size from a radial wind profile, *Data in Brief*, Vol. 40; DOI: 10.1016/j.dib.2022.107825
- S.M. Vicente-Serrano, R. Garcia-Herrera, D. Peña-Angulo, M. Tomás-Burguera, F. Domínguez-Castro, I. Noguera, N. Calvo, C. Murphy, R. Nieto, **L. Gimeno**, J. M. Gutierrez, C. Azorin-Molina, A. El Kenawy (2021) Do CMIP models capture long-term observed annual precipitation trends?, *Climate Dynamics*, DOI: 10.1007/s00382-021-06034-x.
- **L. Gimeno**, I. Algarra, J. Eiras-Barca, A.M. Ramos, R. Nieto (2021) Atmospheric river, a term encompassing different meteorological patterns, *Wiley Interdisciplinary Reviews-Water*, Vol. XXXXX Issue:DOI: 10.1002/wat2.1558.
- M. Heydarizad, **L. Gimeno**, R. Sorí, F. Minaei, J. Eskandari Mayvan (2021) The Stable Isotope Characteristics of Precipitation in the Middle East Highlighting the Link between the Köppen Climate Classifications and the $\delta^{18}\text{O}$ and $\delta^2\text{H}$ Values of Precipitation, *Water*, Vol. 13, Issue 7, 2397; DOI: 10.3390/w13172397.
- Pérez-Alarcón, R. Sorí, J. C. Fernández-Álvarez, R. Nieto, **L. Gimeno** (2021) Comparative climatology of outer tropical cyclone size using radial wind profiles, *Weather and Climate Extremes*, Vol. 33; 100366. DOI: 10.1016/j.wace.2021.100366.
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C.2. Congress ([More than 300 presentations in international congress](#) -many of them as invited speaker- including annual assemblies of the AMS, AGU, EGU and EMS)

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Chair First electronic conference on the hydrological cycle, 12-16 November, 2017

Organizing Committee The 2nd International Electronic Conference on Atmospheric Sciences, 15-30 July 2017

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Organizing Committee The 1st International Electronic Conference on Atmospheric Sciences, 15-30 July 2016

Organizing Committee 2014 11th International conference on southern hemisphere meteorology and oceanography ICSHMO, Santiago de Chile, 5-9 October, 2015

Organizing Committee 2014 SPARC Regional Workshop, Role of the stratosphere in climate variability and prediction, Granada, Spain, 12-13 January 2015.

Organizing Committee. 10th International conference on southern hemisphere meteorology and oceanography ICSHMO, New Caledonia, FR. 23-23 April, 2013

C.3. Research projects ([principal investigator on 34 research projects](#))

ESMORGA: Probabilidad de riesgo de fenomenos meteorologicos e hidrológicos extremos en España segun las proyecciones futuras del CMIP-6 en alta resolucion espacial. . IP: Luis Gimeno y Raquel Nieto. Funded by M. Ref TED2021-129152B-C43. 01/12/2022-30/10/2024. (126.500 €). Role in the project: IP .

SETESTRELO: Evaluacion en alta resolucion del transporte de humedad en el Atlantico Norte en clima actual y en las proyecciones futuras del CMIP-6. IP: Luis Gimeno y Raquel Nieto. Funded by M. Ref PID2021-122314OB-I00. 01/09/2022-31/08/2025. (163.350 €). Role in the project: IP

LAGRIMA: LAGRangian analysis of the Impact on the global hydrological cycle of the Major Mechanisms of Atmospheric Moisture Transport). IP: Luis Gimeno and Raquel Nieto. Funded by MINECO. RTI2018-095772-B-I00. 01/01/2019 – 31/12/2021. (84.700 €) Role in the project: IP

EVOCAR: The atmosphere moisture transport, the bridge between evaporation and precipitation in the) IP: Luis Gimeno y Raquel Nieto. Funded by MINECO CGL2015-65141-R. 01/01/2016 – 30/09/2019 (146.410,00 €). Role in the project: IP

SETH. Drought and moisture transport. IP: Anita Drumond and Luis Gimeno (advisor). Funded by MINECO CGL2014-60849-JIN. 01/10/2015 – 30/09/2018. (194.810,00 €) Role in the project: Participant

INDROFLOOD: Improving Drought and Flood Early Warning, Forecasting and Mitigation using real-time hydroclimatic indicators. Coordinator Sergio Vicente-Serrano. IP of the Spanish project Luis Gimeno. Funding entity: European Commission EC under Horizon 2020, Water JPI – WaterWorks 2014. Participating entities: CSIC, Coordinator (Spain). Univ. de Lisboa (FFCUL) Partner (Portugal). Univ. of Cape Town Partner (South Africa). National Meteorological Adm. Partner (Romania). Univ. of Tartu Partner (Estonia). Research Institute of Field Crops “Selectia” Partner (Moldova). Farisa Partner (Spain). UVIGO Partner (Spain). 01/05/2016 – 31/12/2019 100.000,00 € (Total: 1.086.190,00 €). Role in the project: IP

THIS: The role of the moisture transport in the extreme precipitation, flooding and droughts in the European Atlantic coasts. IP: Raquel Nieto. Funded by Xunta de Galicia. Conselleria de Educación. EM2014/043. 14/05/2014 – 14/05/2017 (93.000,00 €) Role in the project: Participant

ACPCA: Arctic Climate Processes Linked through the Circulation of the Atmosphere. IP Luis Gimeno. Funded by ERA-net.RUS" programme within FP7. 01/01/2013 - 30/09/2014. PRI-PIMERU-2011-1429. 01/09/2012 – 01/03/2015 (40.000 €) Role in the project: Participant

TRAMO: Transport of moisture in the Atmosphere. IP: Raquel Nieto. Funded by MINECO. 01/01/2013 - 31/12/2015. CGL2012-35485. 01/01/2013 - 31/12/2015 (93.000 €) Role in the project: Participant

STORMEx: Mid-Latitude North Atlantic Extreme Storms Variability: Diagnosis, Modelling Dynamical Processes and Related Impacts on Iberia. IP Ricardo Trigo. Funded by FCT Portugal. 01/03/2012 – 31/08/2015. (149.000 €) Role in the project: Participant

MSM. Dynamical identification of moisture sources in the Mediterranean and analysis of their variability IP: Luis Gimeno. Funded by MICINN CLI-CGL2008-05968-C02-02. 01/01/09 - 31/12/12 (135.000 €) Role in the project: IP

CIRCE: Climate Change and Impact Research: the Mediterranean Environment Diagnosis and modelling of the moisture sources in the Mediterranean region. IP: Antonio Navarra. Funded by the European Union FP6 (59 Universities or Research centres). 01/04/2007- 30/06/2011 (13.730.066 €). Role in the project: Participant

C.4. Contracts, technological or transfer merits

- A six years ANECA Transfer merit. (2009-2014)
- Name of contract: ESA CCI Project: EUROPEAN SPACE AGENCY, CLIMATE CHANGE INITIATIVE – WATER VAPOR. Code/Reference: AO/1-9041/17/I-NB. IP Luis Gimeno. Funding entity: ESA (European Space Agency) - University of Reading. Participating entities: UVIGO, University of Reading (UK), DWD (Germany), Telespazio VEGA (UK), Brockmann consult (Germany), Spectral Earth (Germany), STFC Rutherford Appleton Laboratory (UK), ECCC (Canada), KIT, Germany), University of Leicester (UK), BIRA-IASB(Belgium), University of Versailles (France). Start-End date: 01/05/2020 – 30/09/2021. Incomes: 36.237,00 €. Role in the contract IP
- 2018 Arquimedes Award, Spanish Science Ministry to the best research advisor, Student Luis Gimeno-Sotelo. Title of the work *A new pattern of the moisture transport for precipitation related to the drastic decline in Arctic sea ice extent*.
- Name of the contract: RISC Floods and Drought risks in the Miño-Limia basins Code/Reference: 0034_RISC_ML_6_E (IINTERREG-POCTEP 2014-2020). IP M. Gómez-Gesteira. Funding entity: EU FEDER. Participating entities: Confederación Hidrográfica del Miño-Sil, Agência Portuguesa do Ambiente, I.P (APA), UVIGO, Universidade do Porto (FEUP). Start-End date: 01/06/2017 – 31/12/2021. Incomes: 449.821,87 € (Total: 1.751.462,56 €). Role in the project: Participant
- Name of the contract: MarRISK: Adaptation to climate change of the coast of Galicia and north of Portugal. Code/Reference: 0262_MARRISK_1_E (IINTERREG-POCTEP 2014-2020). IP: M. Gómez-Gesteira. Funding entity: EU FEDER. Participating entities: Consellería de Medio Ambiente e Ordenación do Territorio. Xunta de Galicia, Centro Tecnológico del Mar Instituto tecnológico para el control del medio marino de Galicia, Agencia Estatal Consejo Superior de Investigaciones Científicas. Instituto de Investigaciones Marinas, Instituto Português do Mar e da Atmosfera, Universidad de Vigo, Centro Interdisciplinar de Investigação Marinha e Ambiental, Universidade do Minho, Instituto Español de Oceanografía, Universidade de Aveiro, Agência Portuguesa do Ambiente, Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência, Instituto Hidrográfico. Start-End date: 01/06/2017 – 30/06/2021. Incomes: 477.290,62 € (Total: 2.217.787,86 €) Role in the project: Participant

Parte A. DATOS PERSONALES

Fecha del CVA	07 06 2023
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Nombre y apellidos	Carlos Yagüe Angüés		
DNI/NIE/pasaporte		Edad	
Núm. identificación del investigador	Researcher ID	G-4498-2011	
	Código Orcid	0000-0002-6086-4877	

A.1. Situación profesional actual

Organismo	Universidad Complutense de Madrid		
Dpto./Centro	Física de la Tierra y Astrofísica		
Dirección	Facultad de Ciencias Físicas. Plaza de Ciencias 1 28040 Madrid		
Teléfono		correo electrónico	carlos@ucm.es
Categoría profesional	Catedrático de Universidad	Fecha inicio	25 10 2019
Espec. cód. UNESCO	2501/2509		
Palabras clave	Micrometeorología, Capa Límite Atmosférica, Turbulencia Atmosférica, Campañas de Campo, Simulación Numérica con WRF, Meteorología de Montaña.		

A.2. Formación académica (título, institución, fecha)

Licenciatura/Grado/Doctorado	Universidad	Año
Licenciado en CC. Físicas	Universidad Complutense de Madrid	1988
Doctor en CC. Físicas	Universidad Complutense de Madrid	1993

A.3. Indicadores generales de calidad de la producción científica (véanse instrucciones)

- 4 sexenios de investigación (último concedido 2014-2019).
- 5 Quinquenios docentes (último 2018-2022).
- 8 Tesis doctorales dirigidas (7 defendidas, 3 con premio extraordinario y 1 en realización).
- 1661/2722 (*Web of Science/Google Scholar*) citas totales.
- 170/248 citas/año en promedio años 2018-22 (5 años: (*Web of Science/Google Scholar*)).
- 56 publicaciones recogidas en Scopus, 44 de ellas de alto impacto.
- Índice h: 22/28 (*Web of Science/Google Scholar*).
- 54 artículos publicados en revistas recogidas en el JCR/SCI con factor de impacto (40 de ellos desde 2010).

Parte B. RESUMEN LIBRE DEL CURRÍCULUM (máximo 3500 caracteres, incluyendo espacios en blanco)

Carlos Yagüe, licenciado en Ciencias Físicas con la especialidad de Física de la Tierra (1988) y Doctor en Ciencias Físicas (1993) por la Universidad Complutense de Madrid es Catedrático de Universidad en el Departamento de Física de la Tierra y Astrofísica de la Universidad Complutense de Madrid desde 2019. Anteriormente trabajó en la Agencia Estatal de Meteorología (1997-2002) en diferentes puestos relacionados con la predicción meteorológica operativa, desarrollando asimismo tareas investigadoras en el campo de la capa límite atmosférica estable. Ha participado y dirigido diferentes campañas de medidas micrometeorológicas, tanto de ámbito nacional como internacional. Ha desarrollado estancias de investigación en la Universidad de Cambridge (Gran Bretaña), la Universidad Paul Sabatier (Francia), la Universidad de Oregon (USA), o en el *National Centre for Atmospheric Research*, NCAR (USA). Sus líneas de investigación más activas se han centrado en el estudio de los procesos físicos en la baja atmósfera, tanto en situaciones de estabilidad como en las transiciones de la capa límite, habiendo trabajado también en Meteorología Urbana y en Meteorología de Montaña, habiendo dirigido tesis doctorales en cada uno de estos campos respectivos (en total 7 más 1 en progreso). Ha publicado más de 80 trabajos de investigación, con alrededor de 50 recogidos en revistas internacionales del JCR/SCI. Ha presentado más de 180 trabajos en diferentes congresos y workshops (la mayoría internacionales) y ha sido desde 2003 Investigador Principal de 10 proyectos de investigación financiados por el MINECO (o sus antecesores) y la Comunidad de Madrid. En

cuanto a su experiencia docente, esta abarca más de 30 años, desde que comienza en el año 1989 como becario FPU, pasando por los puestos de Profesor Ayudante, Profesor Asociado, Profesor Titular de Universidad en 2003 y finalmente Catedrático de Universidad en 2019. Ha impartido más de 2500 horas de docencia en la UCM, tanto de asignaturas de Licenciatura de primer y segundo ciclo (principalmente en Ciencias Físicas, pero también en Ciencias Químicas y Geológicas), como de asignaturas de Máster y de Doctorado en el ámbito de la Meteorología. Asimismo, ha impartido cursos de formación en la Agencia Estatal de Meteorología. Tiene reconocidos 5 quinquenios docentes (último 2022). Sus evaluaciones docentes son mayoritariamente ‘Muy Positivas’ o ‘Excelentes’, habiendo recibido el Diploma de ‘Excelencia Docente’ en 2 cursos académicos. Ha sido durante 5 años Coordinador del Máster en Meteorología y Geofísica, Secretario Académico y Director de Departamento en la Universidad Complutense, Vicepresidente de la Asociación Meteorológica Española, y es responsable y director del Grupo de Investigación consolidado UCM “Micrometeorología y Variabilidad Climática”. También ha realizado diferentes tareas de gestión investigadora internacional como miembro del Comité de Premios de la *European Meteorological Society* desde 2011, o *Convener* en la Asamblea General de la *European Geosciences Union* (organizando durante los últimos 16 años sesiones de Turbulencia Atmosférica).

Parte C. MÉRITOS MÁS RELEVANTES (ordenados por tipología)

C.1. Publicaciones (Selección artículos alto impacto desde 2014):

1. Cicuéndez, V., Litago, J., Sánchez-Girón, V., Román-Cascón, C., Recuero, L., Saénz, C., **Yagüe, C.** & Palacios-Orueta, A. (2023): Dynamic relationships between gross primary production and energy partitioning in three different ecosystems based on eddy covariance time series analysis. *Frontiers in Forests and Global Change*, **6**.
2. Martilli, A., Sánchez, B., Santiago, J.L., Rasilla, D., Pappaccogli, G., Allende, F., Martín, F., Roman-Cascón, C., **Yagüe, C.** & Fernández, F. (2022): Simulating the pollutant dispersion during persistent Wintertime thermal Inversions over urban areas. The case of Madrid. *Atmospheric Research*, **270**, 106058.
3. Martilli, A., Sanchez, B., Rasilla, D., Pappaccogli, G., Allende, F., Martin, F., Roman, C., **Yagüe, C.** & Fernandez, F. (2021): Simulating the meteorology during persistent Wintertime thermal Inversions over urban areas. The case of Madrid. . *Atmospheric Research*, **263**, 105789.
4. Román-Cascón, C., Lothon, M., Lohou, F., Hartogensis, O., Vila-Guerau de Arellano, J., Pino, D., **Yagüe, C.** & Pardyjak, E.R. (2021): Surface representation impacts on turbulent heat fluxes in the Weather Research and Forecasting (WRF) model (v.4.1.3). *Geoscientific Model Development*, **14**, 3939–3967.
5. Román-Cascón, C., Lothon, M., Lohou, F., Ojha, N., Merlin, O., Aragonés, D., González-Dugo, M.P., Andreu, A., Pellarin, T., Brut, A., Soriguer, R.C., Díaz-Delgado, R., Hartogensis, O. & **Yagüe, C.** (2020): Can We Use Satellite-Based Soil-Moisture Products at High Resolution to Investigate Land-Use Differences and Land–Atmosphere Interactions? A Case Study in the Savanna. *Remote Sensing*, **12**, 1701.
6. Arrillaga, J.A., Jiménez, P., Vilà-Guerau de Arellano, J., Jiménez, M.A., Román-Cascón, C., Sastre, M. & **Yagüe, C.** (2020): Analyzing the synoptic scale, mesoscale, and local scale involved in sea breeze formation and frontal characteristics. *J. Geophysical. Research-Atmospheres*, **125**, e2019JD031302.
7. Borge, R., Requia, W.J., **Yagüe, C.**, Jhund, I. & Koutrakisa, P. (2019): Impact of weather changes on air quality and related mortality in Spain over a 25 year period [1993–2017]. *Environment International*, **133**, Part B, 105272.
8. Román-Cascón, C., **Yagüe, C.**, Steeneveld, G.J., Morales, G., Arrillaga, J.A., Sastre, M. & Maqueda, G. (2019): Radiation and cloud-base lowering fog events: Observational analysis and evaluation of WRF and HARMONIE. *Atmospheric Research*, **229**, 190-207.

9. Arrillaga, J.A., **Yagüe, C.**, Román-Cascón, C., Sastre, M., Jiménez, M.A., Maqueda, G. & Vilà-Guerau de Arellano, J. (2019): From weak to intense downslope winds: origin, interaction with boundary-layer turbulence and impact on CO₂ variability. *Atmospheric Chemistry and Physics*, **19**, 4615-4635.
10. Gómez-Moreno, F.J., Artíñano, B., Díaz Ramiro, E., Barreiro, M., Núñez, L., Coz, E., Dimitroulopoulou C., Vardoulakis, S., **Yagüe, C.**, Maqueda, G., Sastre, M., Román-Cascón, C., Santamaría, J.M. & Borge, R. (2019): Urban vegetation and particle air pollution: Experimental campaigns in a traffic hotspot. *Environmental Pollution*, **247**, 195-205
11. Román-Cascón, C., **Yagüe, C.**, Arrillaga, J.A., Lothon, M., Pardyjak, E.R., Lohou, F., Inclán, R.M., Sastre, M., Maqueda, G., Derrien, S., Meyerfeld, Y., Hang, C., Campargue-Rodríguez, P. & Turki, I. (2019): Comparing mountain breezes and their impacts on CO₂ mixing ratios at three contrasting areas. *Atmospheric Research*, **221**, 111-126.
12. Schiavon, M., Tampieri, F., Bosveld, F.C., Mazzola, M., Trini Castelli, S., Viola, A.P. & **Yagüe, C.** (2019): The Share of the Mean Turbulent Kinetic Energy in the Near-Neutral Surface Layer for High and Low Wind Speeds. *Boundary-Layer Meteorology*, **172**, 81-106.
13. Arrillaga, J.A., Vilà-Guerau de Arellano, J., Bosveld, F., Baltink, H.K., **Yagüe, C.**, Sastre, M. & Román-Cascón, C. (2018): Impact of afternoon and evening sea-breeze fronts on local turbulence, and CO₂ and Rn-222 transport. *Quarterly Journal of the Royal Meteorological Society*, **144**, 990-1011.
14. Borge, R., Artíñano, B., **Yagüe, C.**, Gómez-Moreno, F.J., Saiz-López, A., Sastre, M., Narros, A., García-Nieto, D., Benavent, N., Maqueda, G., Barreiro, M., de Andrés, J.M. & Cristóbal, A. (2018): Application of a short term air quality action plan in Madrid (Spain) under a high-pollution episode - Part I: Diagnostic and analysis from observations. *Science of the Total Environment*, **635**, 1561–1573.
15. Román-Cascón, C., Steeneveld, G.J., **Yagüe, C.**, Sastre, M., Arrillaga, J.A. & Maqueda, G. (2016): Forecasting radiation fogs at climatologically contrasting sites: evaluation of statistical methods and WRF. *Quarterly Journal of the Royal Meteorological Society*, **142**, 1048-1063.
16. Román-Cascón, C., **Yagüe, C.**, Steeneveld, G.J., Sastre, M., Arrillaga, J.A. & Maqueda, G. (2016): Estimating fog-top height through indirect field measurements. *Atmospheric Research*, **170**, 76-86.
17. Borge R., Narros, A., Artíñano, B., **Yagüe, C.**, Gómez-Moreno, F.J., de la Paz, D., Román-Cascón, C., Díaz, E., Maqueda, G., Sastre, M., Quaassdorff, C., Dimitroupoulou, C. & Vardoulakis, S. (2016): Assessment of microscale spatio-temporal variation of air pollution at an urban hotspot in Madrid (Spain) through an extensive field campaign. *Atmospheric Environment*, **140**, 432-445.
18. Arrillaga, J.A., **Yagüe, C.**, Sastre, M., & Román-Cascón, (2016): A characterisation of sea-breeze events in the eastern Cantabrian coast (Spain) from observational data and WRF simulations. *Atmospheric Research*, **181**, 265-280.
19. Sun, J. C. J. Nappo, L. Mahrt, D. Belusic, B. Grisogono, D. R. Stauer, M. Pulido, C. Staquet, Q. Jiang, A. Pouquet, **C. Yagüe**, B. Galperin, R. B. Smith, J. J. Finnigan, S.D. Mayor, G. Svensson, A. A. Grachev, & W.D.Neff. (2015): Review of Wave-Turbulence Interactions in the Stable Atmospheric Boundary Layer. *Review of Geophysics*, **53**, 956–993.
20. Sastre, M., **Yagüe, C.**, Román-Cascón, C. & Maqueda, G. (2015): Atmospheric boundary-layer evening transitions: a comparison between two different experimental sites. *Boundary-Layer Meteorology*, **157**, 375-399.
21. Román-Cascón, C., **Yagüe, C.**, Viana, S., Sastre, M., Maqueda, G., Lothon, M. & Gómara, I. (2015): Near Monochromatic Ducted Gravity Waves Associated with a Convective System Close to the Pyrenees. *Quarterly Journal of the Royal Meteorological Society*, **141**, 1320-1332.
22. Duran, L., Rodríguez-Fonseca, B., **Yagüe, C.** & Sánchez, E. (2015): Water vapour flux patterns and precipitation at Sierra de Guadarrama mountain range (Spain). *International Journal of Climatology*, **35**, 1593-1610.
23. Román-Cascón, C., **Yagüe, C.**, Mahrt, L., Sastre, M., Steeneveld, G. J., Pardyjak, E., van de Boer, A. & Hartogensis, O. (2015): Interactions among drainage flows, gravity

waves and turbulence: a BLLAST case study. *Atmospheric Chemistry and Physics*, **15**, 9031–9047.

24. Lathon, M., Lohou, F., Pino, D., Couvreur, F., Pardyjak, E. R., Reuder, J., Vilà-Guerau de Arellano, J., Durand, P., Hartogensis, O., Legain, D., Augustin, P., Gioli, B., Lenschow, D. H., Faloona, I., **Yagüe, C.**, Alexander, D. C., Angevine, W. M., Bargain, E., Barrié, J., Bazile, E., Bezombes, Y., Blay-Carreras, E., van de Boer, A., Boichard, J. L., Bourdon, A., Butet, A., Campistron, B., de Coster, O., Cuxart, J., Dabas, A., Darbieu, C., Deboudt, K., Delbarre, H., Derrien, S., Flament, P., Fourmentin, M., Garai, A., Gibert, F., Graf, A., Groebner, J., Guichard, F., Jimenez, M. A., Jonassen, M., van den Kroonenberg, A., Magliulo, V., Martin, S., Martinez, D., Mastorillo, L., Moene, A. F., Molinos, F., Moulin, E., Pietersen, H. P., Pigué, B., Pique, E., Román-Cascón, C., Rufin-Soler, C., Saïd, F., Sastre-Marugán, M., Seity, Y., Steeneveld, G. J., Toscano, P., Traullé, O., Tzanos, D., Wacker, S., Wildmann, N., and Zaldei, A. (2014): The BLLAST field experiment: Boundary-Layer Late Afternoon and Sunset Turbulence. *Atmospheric Chemistry and Physics*, **14**, 10931-10960.

C.2. Proyectos (desde 2013)

1) TÍTULO DEL PROYECTO: 'Interacciones superficie-atmosfera en un medio cambiante: ¿Como impactan en procesos de capa limite atmosferica a escalas meso, submeso y local en areas montañosas y costeras? (LATMOS-i)'.

ENTIDAD FINANCIADORA: Ministerio de Ciencia e Innovación (Referencia: PID2020-115321RB-I00).

DURACION DESDE: 01/09/2021 **HASTA:** 31/08/2024

CUANTÍA DE LA SUBVENCIÓN: 139150 €

INVESTIGADOR PRINCIPAL: Carlos Yagüe Anguís

2) TÍTULO DEL PROYECTO: 'Evaluación integral de la calidad del aire urbano y cambio climático: AIRTEC-CM'

ENTIDAD FINANCIADORA: Comunidad de Madrid/Unión Europea (Referencia: S2018/EMT-4329).

DURACION DESDE: 01/01/2019 **HASTA:** 30/04/2023

CUANTÍA DE LA SUBVENCIÓN: 938955€

INVESTIGADOR PRINCIPAL: Rafael Borge García (IP en la UCM Carlos Yagüe)

3) TÍTULO DEL PROYECTO: 'Flujos micro-mesometeorológicos en el entorno de la Sierra de Guadarrama: Influencia sobre los flujos de gases de efecto invernadero y energía (ATMOUNT-II)'

ENTIDAD FINANCIADORA: Ministerio de Economía y Competitividad (Referencia: CGL2015-65627-C3-3-R).

DURACION DESDE: 01/01/2016 **HASTA:** 31/12/2019

CUANTÍA DE LA SUBVENCIÓN: 168000 €

INVESTIGADOR PRINCIPAL: Carlos Yagüe Anguís

4) TÍTULO DEL PROYECTO: 'Técnicas innovadoras para la evaluación y mejora de la calidad del aire urbano. TECNAIRE'

ENTIDAD FINANCIADORA: Comunidad de Madrid/Unión Europea (Referencia: S2013/MAE-2972).

DURACION DESDE: 01/10/2014 **HASTA:** 31/12/2018

CUANTÍA DE LA SUBVENCIÓN: 714725 €

INVESTIGADOR PRINCIPAL: Rafael Borge García (IP en la UCM Carlos Yagüe)

5) TÍTULO DEL PROYECTO: 'Interacción entre procesos de Capa Límite Atmosférica y la niebla en ambientes estables: Estudio observacional y simulaciones numéricas'

ENTIDAD FINANCIADORA: Ministerio de Economía y Competitividad (Referencia: CGL2012-37416-C04-02).

DURACION DESDE: 01/01/2013 **HASTA:** 31/12/2016

CUANTÍA DE LA SUBVENCIÓN: 121000 €

INVESTIGADOR PRINCIPAL: Carlos Yagüe Anguís

Parte A. DATOS PERSONALES

Fecha del CVA 10/04/2023

Nombre y apellidos	María Luisa Montoya Redondo		
DNI/NIE/pasaporte	██████████	Edad	██
Núm. identificación del investigador	Researcher ID		
	Código Orcid		

A.1. Situación profesional actual

Organismo	Universidad Complutense de Madrid		
Dpto./Centro	Dpto. Física de la Tierra y Astrofísica		
Dirección	Universidad Complutense de Madrid		
Teléfono	██████████	correo electrónico	mmontoya@ucm.es
Categoría profesional	Profesor Titular Universidad	Fecha inicio	09/08/2010
Espec.cód. UNESCO	250121, 250205, 250206, 250299 251007, 251008, 25199		
Palabras clave	Simulación numérica del clima. Paleoclima. Cambio climático. Interacción criosfera-océano		

A.2. Formación académica (título, institución, fecha)

Licenciatura/Grado/Doctorado	Universidad	Año
Licenciatura en Ciencias Físicas	Universidad Autónoma de Madrid	1993
Doctorado en Ciencias	Universidad de Hamburgo (Alemania)	1999

A.3. Indicadores generales de calidad de la producción científica (véanse instrucciones)

Sexenios de investigación: 4. Fecha último: 2018

Tesis doctorales dirigidas: 3

Número de citas: 3632

Índice H: 19

Parte B. RESUMEN LIBRE DEL CURRÍCULUM (máximo 3500 caracteres, incluyendo espacios en blanco)

Realicé mi tesis doctoral en la Universidad de Hamburgo (Alemania) en 1999. Posteriormente obtuve un contrato postdoctoral en el Potsdam Institute for Climate Impact Research (PIK) donde participé en el desarrollo del modelo climático CLIMBER-3. En 2003 me incorporé a la Universidad Complutense de Madrid mediante un contrato del Programa Ramón y Cajal. Desde 2010 soy profesora titular de dicha universidad y pertenezco al centro mixto IGEO (UCM-CSIC). Mi investigación se centra en la simulación del clima, enfocada fundamentalmente al estudio de la evolución de la criosfera en el pasado y el futuro y su interacción con el clima, en particular con la circulación oceánica.

Parte C. MÉRITOS MÁS RELEVANTES (ordenados por tipología)

C.1. Publicaciones (últimos 5 años)

Revistas:

Moreno, D., Alvarez-Solas, J., Blasco, J., Montoya, M., and Robinson, A.: Simulating the Laurentide ice sheet of the Last Glacial Maximum, *The Cryosphere Discuss.*, <https://doi.org/10.5194/tc-2022-215> aceptado, 2022.

Swierczek-Jereczek, J., Robinson, A., Blasco, J., Alvarez-Solas, J., & Montoya, M. (2023). Time-scale synchronisation of oscillatory responses can lead to non-monotonous R-tipping. *Scientific Reports*, 13(1), 2104.

Blasco, J., Alvarez-Solas, J., Robinson, A., and Montoya, M.: Exploring the impact of atmospheric forcing and basal boundary conditions on the simulation of the Antarctic ice sheet at the Last Glacial Maximum, *The Cryosphere*, 15, 215–231, 2021. <https://doi.org/10.5194/tc-15-215-2021>

Robinson, A., Alvarez-Solas, J., Montoya, M., Goelzer, H., Greve, R., and Ritz, C.: Description and validation of the ice-sheet model Yelmo (version 1.0), *Geosci. Model Dev.*, 13, 2805–2823, <https://doi.org/10.5194/gmd-13-2805-2020>, 2020.

Tabone, I., Robinson, A., Álvarez-Solas, J. and Montoya, M.: Submarine melt as a potential trigger for the North East Greenland Ice Stream margin retreat during Marine-Isotope Stage 3, *The Cryosphere*, 13, 1911–1923, doi: 10.5194/tc-13-1911-2019.

Alvarez-Solas, J., Banderas, R., Robinson, A., and Montoya, M.: Ocean-driven millennial-scale variability of the Eurasian ice sheet during the last glacial period simulated with a hybrid ice-sheet–shelf model, *Clim. Past*, 15, 957–979, <https://doi.org/10.5194/cp-15-957-2019>, 2019.

Tabone, I., Robinson, A., Alvarez-Solas, J., and Montoya, M.: Impact of millennial-scale oceanic variability on the Greenland ice-sheet evolution throughout the last glacial period, *Clim. Past*, 15, 593–609, 2019, <https://doi.org/10.5194/cp-15-593-2019>.

Blasco, J., Tabone, I., Alvarez-Solas, J., Robinson, A., and Montoya, M.: The Antarctic Ice Sheet response to glacial millennial-scale variability, *Clim. Past*, 15, 121–133, <https://doi.org/10.5194/cp-15-121-2019>, 2019.

Libros:

Vicente-Serrano, S.M., Barriopedro, D., Azorín-Molina, C., Beguería, S., Fernández, J., García-Herrera, R., González-Rouco, F., Gutiérrez, J. M., López-Moreno, J. I., Montoya, M., Rodríguez-Fonseca, B., Zurita, P. In: CSIC Scientific Challenges towards 2030. Vol 7: Global Change Impacts: Challenge 2: Climate change processes, mechanisms and future scenarios, Editorial CSIC, 2021.

Tovar-Sánchez, A., Gabarró, C., Álvarez-Salgado, X. A., Blanca Ayarzagüena, B., Barbosa, A., Barriopedro, D., Casas, D., Dachs, J., Dall'Osto, M., Ercilla, G., Escutia, C., Fernández Pérez, F., Gili, J. M., Isla, E., Jiménez, B., López de Alda, M., Mancho, A., Montoya, M., Navarro, G., Saiz-López, A., Sala, M. M., Simó, R., Urgeles, R., Vaqué, D. Challenge 6: Polar Oceans. In: CSIC Scientific Challenges towards 2030. Vol 13: Ocean Sciences Challenges for 2030, Editorial CSIC, 2021

Mancho, A. M., Montoya, M., Rodríguez de Fonseca, B., Polo, I., Simó, R. Tierra, océano y hielo. Estructura y geodinámica de las zonas polares. Observando los polos

Vanessa Balagué, Clara Cardelús y Magda Vila (eds.). Colección Divulgación, CSIC, Ed. Catarata, 2021.

Jorge Álvarez-Solas, J., Blasco, J., Gabarró, C., Montoya, M., Robinson, A., Tabone, I. Polos y clima global: pasado, presente y futuro. Observando los polos. Vanessa Balagué, Clara Cardelús y Magda Vila (eds.), Colección Divulgación, CSIC, Ed. Catarata, 2021.

Cazenave, A., G. Meehl, M. Montoya, J.R. Toggweiler, Wieners C. Claudia, Climate change and impacts on variability and interactions. Carlos R. Mechoso (Ed.), Interacting Climates of Ocean Basins; Observations, Mechanisms, Predictability, and Impacts, Cambridge University Press (2020). 358 pages, ISBN: 9781108492706, published November 2020.

C.2. Proyectos (últimos 5 años)

Modelización de las interacciones marinas y de la pérdida dinámica de hielo en la Antártida (MARINE). PID2020-117768RB-I00. Ministerio de Ciencia e Innovación. Programa estatal de I+D+i Orientada a los Retos de la Sociedad. 2021-2024, 145.200 €. IP: M. Montoya.

Multiscales and Critical Transitions in the Earth System. H2020-MSCA-ITN-2020, 2021-2024, 4 M€. Coordinators: P. Ditlevsen; M. Montoya: IP UCM, 4 130 035.56 € (UCM: 250 904,88 €).

Tipping Points in the Earth System (TiPES). *Towards sharper estimates of critical forcing levels and associated impacts. Horizon H2020*. Topic identifier: LC-CLA-08-2018, sub-topic (b) Tipping points, 2019-2022, 8 M€. IPs: P. Ditlevsen y N. Boers; M. Montoya: leader WP.

Reduciendo la incertidumbre en la evolución de los mantos de hielo (RIMA). Ministerio de Ciencia e Innovación. CGL2017-85975-R (Programa Estatal de I+D+i Orientada a los Retos de la Sociedad). 2018-2020, 163350 €, IP: M. Montoya

Modelización del Cambio Climático Abrupto (MOCCA). Ministerio de Ciencia e Innovación. CGL2014-59384 (Programa Estatal de I+D+i Orientada a los Retos de la Sociedad). 2015-2017, 157702 €, IP: M. Montoya

C.5. Tesis doctorales dirigidas (últimos 5 años)

Modelización de los cambios climáticos abruptos glaciales y de su impacto en los mantos de hielo del hemisferio norte. Rubén Banderas Carreño. Directores: M. Montoya, J. Álvarez Solas. Universidad Complutense de Madrid, 08/02/2019. Sobresaliente (magna cum laude).

El papel de la interacción hielo-océano en la evolución pasada del manto de hielo de Groenlandia. Directores: M. Montoya, A. Robinson. Universidad Complutense de Madrid, 10/01/2019. Sobresaliente.

Simulación y análisis del clima del último milenio mediante modelos climáticos de distinta complejidad. Pablo Ortega Montilla (codirigida con J. F. González Rouco). Universidad Complutense de Madrid. Sobresaliente (magna cum laude), 2011.

C.6 Dirección de Trabajos (últimos 5 años)

Fin de Máster

2022/2021 Alumno: Sergio Pérez Montero. Codirigido con Jorge Álvarez Solas y Alexander Robinson. 10/10

2020/2021 Antarctic ice-ocean interactions in a three-dimensional ice-sheet model. Alumno: Antonio Juárez Martínez. Codirigido con Jorge Álvarez Solas y Alexander Robinson. 10/10

2018/2019: On the ability of a hybrid ice-sheet model to generate internal oscillations. Alumno: Daniel Moreno Parada. Codirigido con Jorge Álvarez Solas y Alexander Robinson. 9/10

2018/2019: Variabilidad interna decadal en el Océano Atlántico. Codirigido con Pablo Ortega Montilla y Eduardo Moreno Chamarro. 8/10.

2017/2018 Estudio de la sensibilidad de un modelo de mantos de hielo a cambios en la resolución. Alumno: Laura Fernández. Codirigido con J. Álvarez Solas y A. Robinson. 10/10

2016/2017 Evolución de la circulación oceánica en simulaciones del último milenio. Alumno: Isabel Moreno Muñoz. Codirigido con J. F. González Rouco y P. Ortega Montilla. 8.5/10

Fin de Grado

2019/2020: Modelos climáticos conceptuales. Alumno: Sergio Pérez Montero. 9.5/10.

2018/2019: Construcción de un modelo conceptual de la circulación oceánica de gran escala. Alumno: Sergio González Fernández. 10/10.

C.7 Otros

Editora de la revista *Climate of the Past*.

Codirectora Grupo Investigación PalMA (Paleoclimate Modelling and Analysis).

Miembro del Comité Nacional del Scientific Committee on Antarctic Research (SCAR) desde 2021.

Miembro del VI Expanding Ocean Frontiers Committee desde 2018.

Co-convener Tipping Points in the Earth System, European Geophysical Union, 2021, 2022.

Part A. PERSONAL INFORMATION

CV date 07/06/2023

First and Family name	Natalia Calvo Fernández		
Social Security, Passport, ID number	██████████	Age	██
Researcher numbers	Researcher ID		
	Orcid code		0000-0001-6213-1864

A.1. Current position

Name of University/Institution	Universidad Complutense de Madrid		
Department	Física de la Tierra y Astrofísica		
Address and Country	Avda. Complutense sn 28040 Madrid, Spain		
Phone number	██████████	E-mail	Nataliac@fis.ucm.es
Current position	Titular de Universidad	From	26/01/2012
Espec. cód. UNESCO	2501,2502		
Palabras clave	Climatología, Meteorología		

A.2. Education

PhD	University	Year
Doctora CC. Fisicas	Universidad Complutense de Madrid	2005
Licenciada CC. Fisicas	Universidad Complutense de Madrid	2000

A.3. JCR articles, h Index, thesis supervised...

Publications: 58 papers in international journals of the Journal Citation Reports (JCR, Web of Science, WOS)

Sexenios de investigación 3 (y uno vivo), último concedido a fecha 5/6/2019

Tesis doctorales dirigidas en los últimos 10 años 6

Citas totales 3015 (SCOPUS)*

Promedio citas/año : 350 (SCOPUS)*

Publicaciones en el primer cuartil 56*

Índice h 30*

* Artículos firmado como Calvo N y Fernandez N C

Part B. CV SUMMARY (max. 3500 characters, including spaces)

I obtained my PhD in Physics with European Mention in 2005 at Universidad Complutense de Madrid (UCM). I was awarded a FPI grant as a graduate student. I obtained an Assistant Professor position at UCM in 2004. I was a MEC/FULBRIGHT postdoctoral Fellow at the U.S. National Center for Atmospheric Research in Boulder, Colorado from 2007 to 2009 and a NCAR Advance Study Program Postdoctoral Fellow from 2010 to 2011. In 2012 I became Full time Associate Professor (Profesora Titular de Universidad) at the UCM. I belong to the STREAM UCM group: (<https://stream-ucm.es/Natalia%20Calvo.html>) with the highest mark (Excelente) in the latest evaluations.

My research interests include stratospheric dynamics, ENSO, troposphere-stratosphere coupling, climate modeling, chemistry-climate interactions, climate modeling, variability and change. I have taught several courses on dynamic meteorology, general physics laboratory, middle atmosphere dynamics, statistics applied to meteorology and physics, climate modeling and weather prediction, for graduate and undergraduate students. The quality of my teaching has been recognized with positive and very positive evaluations in DOCENTIA (program by UCM) and the UCM recognition of 3 teaching terms. I supervised or co-supervised 5 PhD thesis focused on these topics, all of them obtained the

highest mark (Sobresaliente cum laude). I supervised more than 10 Masters Thesis (TFMs) and was part in 7 committees to evaluate PhD thesis. I have participated in 11 research projects funded in European and national competitive calls. I have been Principal Investigator (PI) of 4 of these projects, one from the European Commission (STRATOCLIM) and three of the Plan Nacional de I+D+i (TRODIM, Modelización de Fuentes de humedad y PALEOSTRAT). I was the PI in 2 research contracts with private companies. Currently, I am PI of one project funded by the Spanish Government. My scientific results have been disseminated in more than 20 invited oral presentations at International conferences and research centers such as University of Berkeley in California, the U.S. National Oceanic and Atmospheric Administration and the U.K. Royal Meteorological Society. I am coauthor of the CCMVal2-SPARC 2010 report (Chemistry Climate Model Validation Activity), and Chapter 4 of the Scientific Assessments of Ozone Depletion from the World Meteorological Organization in 2014 and 2018. I was member of the Middle Atmosphere Committee of the American Meteorological Society (AMS) 2015-2020. I am currently a member of the organizing committee of DynVar Activity (www.sparcdynvar.org), which is a WCRP (World climate research program) activity to understand the role of the middle atmosphere in climate by means of CMIP (Climate Model Intercomparison Project) simulations, and Vicepresident of the International Commission of the Middle Atmosphere (ICMA) part of the International Association of Meteorology and Atmospheric Sciences. Finally, I am Affiliate Scientist, senior level university and research community scientist with a long-term, highly interactive collaborative relationship at the U.S. National Center for Atmospheric Research since 2016.

Part C. RELEVANT MERITS

C.1. Publications (including books)

- Coauthor, Chapter 4 (Polar Ozone: past, present and future), WMO (World Meteorological Organization) Ozone Assessment Report 2018.
- Coauthor, Chapter 4 (Stratospheric Ozone Changes and Climate), WMO Ozone Assessment Report 2014.
- Coauthor, Chapter 8, SPARC Report on the Evaluation of Chemistry Climate Models (CCMVal2), 2010.

Articles (of the last 10 years, selected):

[10] Benito-Barca, S., **N. Calvo**, M. Abalos (2022): Driving mechanisms for El Niño-Southern Oscillation impact on stratospheric ozone. *Atm. Chem. Phys.*, 22, 15729–15745, <https://doi.org/10.5194/acp-22-15729-2022>.

[9] Ayarzagüena, B., Manzini, E., **Calvo, N.**, and Matei, D. (2021): Interaction between decadal-to-multidecadal ocean variability and sudden stratospheric warmings, *Annals of the New York Academy of Sciences*, 1504, 215-229.

[8] Abalos, M., **Calvo, N.**, Benito-Barca, S., Garny, H., Hardiman, S. C., Lin, P., Andrews, M. B., Butchart, N., Garcia, R., Orbe, C., Saint-Martin, D., Watanabe, S., and Yoshida, K. (2021): The Brewer-Dobson circulation in CMIP6. *Atmos. Chem. Phys.*, 21, 13571–13591. doi: 10.5194/acp-21-13571-2021.

[7] B. Ayarzagüena, J. Lopez-Parages, M. Iza, **N. Calvo**, B. Rodriguez-Fonseca (2019): Stratospheric role in interdecadal changes of El Niño impacts over Europe. *Clim. Dyn.*, 52, 10.1007/s00382-018-4186-3.

[6] A. de la Cámara, M. Abalos, P. Hitchcock, **N. Calvo** and R. R. Garcia (2018): Response of Arctic ozone to Sudden Stratospheric Warmings. *Atmos. Chem. And Phys.* 18, 10.5194/acp-18-16499-2018

- [5] **Calvo, N.**, M. Iza, M.M Hurwitz, C. Peña-Ortiz, A.H. Butler, C. Cagnazzo, S. Ineson, C.I. Garfinkel (2017): Northern Hemisphere stratosphere pathway of different El Niño flavors in stratosphere-resolving CMIP5 models. *J. Climate*, 30, 12, 4351-4371.
- [4] **Calvo, N.**, Garcia, R.R. Kinnison, D.E. (2017): Revisiting Southern Hemisphere polar stratospheric temperature trends in WACCM: the role of dynamical forcing. *Geophys. Res. Lett.*, 44(7), 3402-3410.
- [3] **Calvo, N.**, Polvani, L.M., Solomon, S. (2015): On the surface impact of Arctic stratospheric ozone extremes. *Environ. Res. Lett.*, 10 (9), 094003.
- [2] Iza, M., **Calvo, N.** (2015): Role of the Stratospheric Sudden Warmings on the response to Central Pacific El Niño. *Geophys. Res. Lett.*, 42(7), 2482-2489.
- [1] Manzini, E., Karpechko, A.Y., Anstey, J. Baldwin, M. P., Black, R. X. Cagnazzo, C., **Calvo, N.** Charlton-Perez, A., Christiansen, B., Davini, P., Gerber, E., Giorgetta, M., Gray, L., Hardiman, S.C., Lee, Y.-Y., Marsh, D.R., McDaniel, B.A., Purich, A., Scaife, A.A., Shindell, D., Son, S.-W., Watanabe, S., Zappa, G (2014): Northern winter climate change: Assessment of uncertainty in CMIP5 projections related to stratosphere-troposphere coupling. *J. Geophys. Res.*, 119, 13, 7979-7998.

C.2. Research projects and grants (of the last 10 years)

- [8] RECOVERY (Stratospheric Ozone recovery in the Northern Hemisphere under climate change) Agencia financiadora: Ministerio de Ciencia e Innovación. Proyectos de Generación de Conocimiento 2021. **IP**. 2022-2024.
- [7] JEDIS (Jet Dynamics and extremeS). Agencia financiadora: MICINN (Ministerio de Ciencia, Innovación y Universidades). Proyectos de I+D+I Retos de la Sociedad 2018. 2019-2021.
- [6] PALEOSTRAT PALEOSTRAT (PALEOmodelling from a STRATospheric perspective) CGL2015-69699. Entidad Financiadora: MINECO (Ministerio de Economía y Competitividad). Proyectos de I+D+I Retos de la Sociedad 2015. 115.000 €. **Co-PI**. 2016-2020.
- [5] StratoClim (STRATOspheric and upper tropospheric processes for better CLIMate predictions) Ref. 603557. European Commission, FP7: 145.352 €. **PI**. 2014-2018
- [4] MATRES (Mecanismos y Variabilidad del Acoplamiento TROposfera-EStratosfera) CGL2012-34221. MINECO (Ministerio de Economía y Competitividad).: 84.600 €. Researcher. 2013-2015
- [3] Supercomputing and e-Science CSD 2007-00050.: MEC, CONSOLIDER. 102.000. Researcher. 2007-2011
- [2] TRODIM (DIagnosis and Modelization of the extratropical TROpopause). CGL2007-65891-C-05-02. MEC 153.670 €. **PI**. 2007-2010
- [1] Modelización de las fuentes de humedad en la región mediterránea en diferentes escenarios de cambio climático. Ministerio Educación y Ciencia. CGL2008-05968-C02-01. 130.000€. Researcher. 2009-2011.

C.3. Contracts (of the last 10 years).

- Estudio de teleconexiones climáticas en campos eólicos. Iberdrola Renovables. **Principal Investigator** (2012-2014). 25000 €.
- Estudio de teleconexiones climáticas en campos eólicos. FASAE II Iberola Renovables. **Principal Investigator** (2014-2016). 27000 €.

C.5. Invited oral presentations in conferences and invited seminars (in the last 10 years)

N. Calvo, M. Hurwitz, M. Iza, C. Peña-Ortiz, A. Butler, S. Ineson, C. Garfinkel, E. Manzini, C. Cagnazzo: Stratospheric Role on ENSO teleconnections in CMIP5 models. 3rd SPARC DynVAR workshop, Reading, UK. April 2013. **Invited**.

N. Calvo, F. Palmeiro, S. Hardiman, R. Garcia, N. Butchart: Changes in the Brewer-Dobson circulation in CMIP5 models. 12th Assembly IAGA, Merida, Mexico, August 2013. **Invited.**

N. Calvo, D. Kinnison, R. R. Garcia, D. R. Marsh: Impact of Greenhouse Gases on Stratospheric Ozone Recovery over Antarctica. SPARC Regional Workshop, Granada, Spain, 2015. **Invited.**

N. Calvo, L. Polvani, S. Solomon: On the surface impact of Arctic ozone events. SHARP workshop, Berlin 2016. **Invited.**

N. Calvo, M. Iza, F. Palmeiro, B. Ayarzagüena: Advancing in Understanding the Stratospheric ENSO pathway. 27th IUGG General Assembly, Montreal, 2019. **Invited**

The response of the Brewer-Dobson circulation to a 4xCO₂ increase in WACCM. Institute for Atmosphere and Climate. **ETH**, Zurich, 2019. **Invited seminar.**

The Brewer-Dobson circulation in CMIP6 models. Atmospheric Chemistry, Observations and Composition, National Center for Atmospheric Research, Boulder, Colorado, EE.UU. 2021.

Seminario invitado.

C.6. International participation (in the last 10 years)

- Affiliate Scientist, National Center for Atmospheric Research (NCAR), Boulder, Colorado (2016 to present)
- Vicepresident of the International Commission on the Middle Atmosphere (ICMA), part of the International Association of Meteorology and Atmospheric Sciences (IAMAS). 2019-present.
- Member of the International Commission on the Middle Atmosphere (ICMA), part of the International Association of Meteorology and Atmospheric Sciences (IAMAS). 2015-2019.
- Member of the DynVAR Activity Scientific Committee (Modelling the Dynamics and Variability of the Stratosphere-Troposphere System), part of SPARC (Stratospheric Processes and Their Role in Climate), 2010-present.
- Member of the Middle Atmosphere Committee of the American Meteorological Society (AMS), 2015-present.
- Chair of the Local Organizing Committee of the DynVarMIP workshop, held in Madrid, Spain, 2019.
- Member of the Scientific Committee of the Regional Workshop on the Role of the Stratosphere in Climate Variability and Prediction, Granada, Spain, 2015
- Program Chair of the 19th Conference of the Middle Atmosphere of the American Meteorological Society, Portland, Oregon, USA, 2017.
- Chief Local Organizer of the CCMVal2 (Chemistry Climate Model Validation Activity) Workshop, Toledo, Spain, 2009.
- Member of the Local Organizer Committee for the AGU Chapman Conference on the North Atlantic Oscillation, Ourense, Spain, 2000.

C.7. Grants/Fellowships

- MEC/Fulbright Postdoctoral Fellowship 2007-2009
- Advanced Study Program Fellowship, National Center for Atmospheric Research, EE.UU. 2010-2011.

C.8. Others

- Supervisor of 6 PhD Thesis since 2012.
- Member of 7 Ph.D. Thesis Committees since 2012.

CURRICULUM VITAE ABREVIADO (CVA)

AVISO IMPORTANTE – El *Curriculum Vitae* abreviado **no podrá exceder de 4 páginas**. Para rellenar correctamente este documento, lea detenidamente las instrucciones disponibles en la web de la convocatoria.

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

Fecha del CVA 7/6/2023

Parte A. DATOS PERSONALES

Nombre	PABLO ZURITA GOTOR		
Apellidos	[REDACTED]		
Sexo (*)	[REDACTED]	Fecha de nacimiento (dd/mm/yyyy)	
DNI, NIE, pasaporte	[REDACTED]		
Dirección email	pzurita@ucm.es	URL Web	http://alum.mit.edu/www/pzurita
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-6873-7645		

* datos obligatorios

A.1. Situación profesional actual

Puesto	CATEDRÁTICO DE UNIVERSIDAD		
Fecha inicio	17/2/2022		
Organismo/ Institución	UNIVERSIDAD COMPLUTENSE DE MADRID		
Departamento/ Centro	FACULTAD CC FÍSICAS. DEPT. FÍSICA TIERRA Y ASTROFIS.		
País	ESPAÑA	Teléfono	91-3945164
Palabras clave	Circulación general de la atmósfera, dinámica atmosférica y del clima, dinámica de fluidos geofísicos, desarrollo de modelos idealizados del clima		

A.2. Situación profesional anterior (incluye interrupciones en la carrera investigadora, de acuerdo con lo indicado en la convocatoria, indicar meses totales)

Periodo	Puesto/ Institución/ País / Motivo interrupción
2011-2021	PROFESOR TITULAR. UNIVERSIDAD COMPLUTENSE
2006-2011	INVESTIGADOR RAMÓN Y CAJAL. UNIVERSIDAD COMPLUTENSE
2004-2005	UCAR FELLOW. GEOPHYSICAL FLUID DYNAMICS LABORATORY (EEUU)
2003-2004	POSTDOC. STATE UNIVERSITY NEW YORK AT STONY BROOK (EEUU)
1997-2002	GRADUATE STUDENT. MASSACHUSETTS INSTITUTE OF TECH. (EEUU)

(Incorporar todas las filas que sean necesarias)

A.3. Formación Académica

Grado/Master/Tesis	Universidad/País	Año
DOCTORADO	MASSACHUSETTS INSTITUTE OF TECHNOLOGY (EEUU)	2003
INGENIERO INDUSTRIAL	UNIVERSIDAD DE SEVILLA	1995

(Incorporar todas las filas que sean necesarias)

Parte B. RESUMEN DEL CV (máx. 5.000 caracteres, incluyendo espacios):

Pablo Zurita Gotor se doctoró en Ciencias Atmosféricas por el Instituto Tecnológico de Massachusetts (2003, premio Rossby a la mejor tesis doctoral), bajo la dirección del Dr. R.S.



Lindzen. Tras ello, realizó estancias postdoctorales en la Universidad Estatal de Nueva York en Stony Brook (2004) y en el Laboratorio de Dinámica de Fluidos Geofísicos (2004-2006) en Princeton, NJ, becado por el programa de científicos visitantes de UCAR. Pablo Zurita se incorporó a la Universidad Complutense en 2006 con un contrato Ramón y Cajal, obtuvo la promoción a Profesor Titular en 2011, y a Catedrático de Universidad en 2022. Desde su retorno a España, Pablo Zurita ha mantenido una colaboración activa con el grupo de dinámica atmosférica de la Universidad de Princeton, realizando durante este periodo 12 estancias de entre 2 y 5 meses de duración con financiación externa.

En la Universidad Complutense, Pablo Zurita ha desarrollado su carrera académica compaginando las facetas docente e investigadora. En la primera, Pablo Zurita ha impartido docencia en el Grado en Física, el Máster en Meteorología y Geofísica y la doble titulación en Geología e Ingeniería Geológica, siempre con evaluaciones Muy Positivas del Programa Docencia, y ha supervisado 14 Trabajos Fin de Máster. Esta labor docente ha sido reconocida con tres quinquenios. En la faceta investigadora, Pablo Zurita ha sido investigador principal de 4 proyectos del Plan Nacional (incluyendo un proyecto EXPLORA), ha supervisado a 4 estudiantes de doctorado y ha publicado más de 40 artículos en revistas científicas del primer cuartil, la mayoría como primer autor. Esta actividad ha sido reconocida con tres sexenios de investigación, el último en 2017. Pablo Zurita ha mantenido una notable presencia internacional, presentando numerosas comunicaciones orales en congresos internacionales y talleres especializados. Además, ha sido invitado a impartir seminarios de investigación en centros de prestigio, de forma más reciente en el Instituto Pierre Simon Laplace de París, las Universidades de Exeter y Oxford, y el Laboratorio de Dinámica de Fluidos Geofísicos de Estados Unidos.

Pablo Zurita es especialista en Meteorología Dinámica, como demuestran los 28 artículos publicados en la principal revista del área, *Journal of the Atmospheric Sciences*, de la que también es editor asociado. Dentro de esta área, la investigación de Pablo Zurita se centra en la dinámica de la circulación general de la atmósfera y su variabilidad, donde ha propuesto nuevos modelos conceptuales para entender aspectos fundamentales de la circulación tropical y extratropical. Pablo Zurita es coautor de una monografía especializada sobre la circulación general y de un artículo de amplia difusión sobre su sensibilidad al calentamiento global. Esta investigación eminentemente teórica se apoya asimismo en simulaciones con modelos idealizados. Pablo Zurita tiene una trayectoria reconocida en este ámbito, habiendo participado en el desarrollo del primer modelo de circulación general idealizado húmedo, ampliamente usado por la comunidad científica (Frierson et al. 2006), y siendo coautor de una reciente revisión sobre este tipo de modelos en la revista *Reviews of Geophysics*.

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES –

C.1. Publicaciones escogidas (desde 2014)

Zurita-Gotor, P., Held, I. M., Merlis, T. M., Chang C. Y., Hill S. A., and C. MacDonald, 2023: Non-uniqueness in ITCZ latitude due to radiation-circulation coupling in an idealized GCM. *J. Adv. Model. Earth. Sys.*, DOI: 10.22541/essoar.168121407.72465154/v1

Martínez-Andradas V., de la Cámara A., and P. Zurita-Gotor, 2023: Stratosphere-troposphere coupling during sudden stratospheric warmings with different North Atlantic jet response. *J. Climate*, <https://doi.org/10.1175/JCLI-D-22-0736.1>

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Maher, P., Gerber, E., Medeiros, B., Merlis, T., Sherwood, S., Sheshadri, A., Sobel, A., Vallis, G., Voigt, A., and P. Zurita-Gotor, 2019: The value of hierarchies and simple models in atmospheric research. *Rev. Geophys.*, 57, 250-280.

Zurita-Gotor, P. and I. M. Held, 2018: The finite amplitude evolution of mixed Kelvin-Rossby wave instability and equatorial superrotation in a shallow water model and an idealized GCM. *J. Atmos. Sci.*, 75, 2299-2316

Zurita-Gotor, P. and P. Álvarez-Zapatero, 2018: Coupled interannual variability of the Hadley and Ferrel cells. *J. Clim.*, 31, 4757-4773

P. Zurita-Gotor, 2017: Low-frequency suppression of Southern Hemisphere tropospheric eddy heat flux. *Geophys. Res. Lett.* 44 (4), 2007-2015

Lutsko, N.J., Held, I.M., Zurita-Gotor, P., and A.K. O'Rourke, 2017: Lower-tropospheric eddy momentum fluxes in idealized models and reanalysis data. *J. Atmos. Sci.*, 74, 3787-3797.

Barroso, J.A. and P. Zurita-Gotor, 2016: Intraseasonal variability of the zonal-mean extratropical tropopause: the role of changes in polar vortex strength and upper-troposphere wave breaking. *J. Atmos. Sci.*, 73, 1383-1399

Gómara, I., Rodríguez-Fonseca, B., Zurita-Gotor, P., Ulbrich, S., and J.G. Pinto, 2016: Abrupt transitions in the NAO control of explosive North Atlantic cyclone development. *Clim. Dyn.*, 73, 3091-3111.

Vallis, G. K., Zurita-Gotor, P., Cairns, C., and J. Kidston, 2015: Response of the large-scale structure of the atmosphere to global warming. *Q. J. R. Meteorol. Soc.*, 141, 1479-1501

Zurita-Gotor, P., Held, I. M., and M. F. Jansen, 2015: Kinetic Energy-conserving hyperdiffusion can improve low-resolution atmospheric models. *J. Adv. Model. Earth Sys.*, 07, doi:10.1002/2015MS000480, 1-19

Lutsko, N.J., Held, I.M., and P. Zurita-Gotor, 2015: Applying the fluctuation-dissipation theorem to a two-layer model of quasigeostrophic turbulence. *J. Atmos. Sci.*, 72, 3161-3177

Gómara, I., Rodríguez-Fonseca, B., Zurita-Gotor, P., and J.G. Pinto, 2014: On the relation between explosive cyclones affecting Europe and the North Atlantic Oscillation. *Geophys. Res. Lett.*, 41, 2182-2190.

Zurita-Gotor, P., 2014: On the sensitivity of zonal-index persistence to friction. *J. Atmos. Sci.*, 71, 3788-3800.

Gómara, I., Pinto, J.G., Woollings, T., Masato, G., Zurita-Gotor, P., and B. Rodríguez-Fonseca, 2014: Rossby wave-breaking analysis of explosive cyclones in the Euro-Atlantic sector. *Q. J. R. Meteorol. Soc.*, 140, 738-753.

Zurita-Gotor, P., Blanco-Fuentes, J. and E. P. Gerber, 2014: The impact of baroclinic eddy feedback on the persistence of jet variability in the two layer model. *J. Atmos. Sci.*, 71, 410-429

C.2. Proyectos más relevantes (desde 2010)

Como investigador principal

"Forzamiento dinámico y mecanismos de generación de los calentamientos súbitos estratosféricos (DYNWARM)". Ref: PID2019-109107GB-I00 (Ministerio de Economía y Competitividad). IPs: Pablo Zurita Gotor y Álvaro de la Cámara Illescas (Universidad Complutense). Duración: 2021-2023. Financiación concedida: €105.000.

"Representación de ondas de Kelvin en modelos de balance (KELBAM)". Ref: CGL2015-72259-EXP (Ministerio de Economía y Competitividad). IP: Pablo Zurita Gotor (Universidad Complutense). Duración: 2017-2019. Financiación concedida: €40,000

"Conceptual models for extratropical tropopause height (COMETH)". Ref: CGL2012-30641 (Ministerio de Economía y Competitividad). IP: Pablo Zurita Gotor (Universidad Complutense). Duración: 2013-2016. Financiación concedida: €86,000

"Dinámica del equilibrio y variabilidad interna anular del jet extratropical (DEVIAJE)". Ref: CGL2009-06944 (Ministerio de Ciencia e Innovación). IP: Pablo Zurita Gotor (Universidad Complutense). Duración: 2010-2013. Financiación concedida: €145,200

Como miembro del equipo investigador

"Global atmospheric modeling hierarchy development", Ref: AGS-1733818 (National Science Foundation, EEUU). IPs: Isaac M. Held (Geophysical Fluid Dynamics Laboratory) y Stephan Fueglistaler (Princeton University, EEUU). Duración: 2017-2019. Financiación concedida: \$368,228"

Dynamics of the Midlatitude Circulation and Implications for a Changing Climate", Ref: 1144302 (National Science Foundation, EEUU). IP: Geoffrey K. Vallis (Princeton University, EEUU). Duración: 2012-2015. Financiación concedida: \$606,252

C.5 Internacionalización

- Doctorado por el Instituto Tecnológico de Massachusetts (1996-2002)
- Investigador postdoctoral contratado: State University of New York at Stony Brook (2003)
- Investigador postdoctoral (postdoctoral fellow): Geophysical Fluid Dynamics Laboratory (Princeton, NJ) (2004-05)
- Estancias de investigación en la Universidad de Princeton durante los veranos de 2007, 2008, 2009, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019 y 2022 (total: 34 meses)
- Receptor de una beca CNRS Científico Visitante (LMD París, 2022)
- Más de 50 contribuciones científicas como primer autor en congresos internacionales especializados.
- Invitado a impartir seminarios en varias instituciones internacionales de prestigio: Princeton University, Geophysical Fluid Dynamics Laboratory, Massachusetts Institute of Technology, New York University, Columbia University, State University of New York at Stony Brook, CNRM Toulouse, University of Oxford, University of Exeter, Laboratoire de Météorologie Dynamique y Institute Pierre Simon Laplace de Paris, etc.
- Ponencias invitadas en congresos y talleres especializados (8)
- Miembro del tribunal de tesis en universidades extranjeras (Paris, Toulouse, Princeton y Oxford)
- Editor asociado de la revista Journal of the Atmospheric Sciences, principal revista de Meteorología Dinámica y normalmente englobada en el primer cuartil.
- Revisor de las principales revistas especializadas del área de conocimiento: Journal of the Atmospheric Sciences, Quarterly Journal of the Royal Meteorological Society, Journal of Climate, Geophysical Research Letters, Climate Dynamics, Journal of Geophysical Research, AGU Advances, NPJ Climate and Atmospheric Science, Physical Review Letters, Tellus, Dynamics of Atmospheric and Oceans, Fluid Dynamics Research, etc.
- Revisor de proyectos para National Science Foundation (EEUU) e Israel Science Foundation (Israel)



CURRICULUM VITAE (CVA)

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

CV date

20/04/2022

Part A. PERSONAL INFORMATION

First name	RAQUEL-OLALLA		
Family name	NIETO MUÑIZ		
Gender (*)		Birth date	
ID number			
e-mail	rnieto@uvigo.es	URL Web	https://ephyslab.uvigo.es/en/dra-raquel-nieto/
Open Researcher and Contributor ID (ORCID) -> orcid.org/0000-0002-8984-0959			

A.1. Current position

Position	CATEDRATICA de UNIVERSIDAD		
Initial date	2022		
Institution	UNIVERSITY OF VIGO		
Department/Center	Applied Physics / Faculty of Science		
Country	SPAIN	Phone	
Key words	Atmospheric Physics, Hydrological Cycle, Climate Diagnosis		

A.2. Previous positions

Period	Position/Institution/Country/Interruption cause
01/02/2001-30/06/2001	Research staff at UVigo, Spain / Change of activity
22/07/2002-15/10/2003	Research staff at Univ Santiago de Compostela, Spain / Change of activity
16/10/2003-28/12/2006	Research staff at UVigo, Spain / Promotion to Postdoctoral research
29/12/2006-28/12/2011	PostDoc Parga Pondal (eq. RyC), UVigo, Spain / Promotion to Associated Professor
2006-2008	PostDoc University of Lisbon, Portugal
29/12/2011-13/03/2012	Titular Interino, UVigo, Spain / Promotion to Associated Professor
14/03/2012-01/08/2022	Titular UVigo, Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed in Physics	Univ. of Vigo, Spain	2000
Master Education CAP	Univ. of Vigo, Spain	2001
PhD Courses in Applied Physics	Univ. of Vigo, Spain	2002
PhD in Physics	Univ. of Vigo, Spain	2005

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

RNiето has a PhD in Atmospheric Physics (2005), and is currently associated professor in the area of Earth-Physics at the UVigo (2012). She belongs to the Environmental Physics Laboratory (EphysLab), a "research excellence" group by Xunta-Galicia, integrated in one of its Singular Groups. The group is also an CSIC Associated Unit. Her scientific, teaching and professional career has always been linked to atmospheric and climate sciences, to climate change and its impacts, and in recent years to the consequences of climate extremes on human health.

During her post-doctoral period, she held a "Parga Pondal" research-post for 4 years (autonomic Ramón y Cajal). She spent 3 years (2006-08) at the Univ. of Lisbon in the Geophysics group (Portugal). During 2015-18 she was a Distinguished Visiting Researcher at the Univ. of Sao Paulo, Brazil, joining the IAG, under the "Ciencias sem Fronteiras" programme by the CNPq/MCTI Brazil Government.

She is internationally recognised in two lines of research that form part of her scientific career, and for which **she has been awarded by the two most prestigious European geophysical and meteorological societies: the European Meteorological Society (EMS) and the European Geophysical Union (EGU).**

In 2009 she was awarded the **EMS Young Scientist Award** for the publication "**Identification and climatology of Cut-off Lows near the Tropopause**" in Annals of the NY Academy of Science. This article and those derived from her PhD thesis about this topic are **the most cited articles on these meteorological structures worldwide.**

In the last decade, her contributions to the **knowledge of the water cycle in the atmosphere** have also achieved special international notoriety. This topic is fundamental to understanding and justifying the predictions of mean and extreme precipitation included in the IPCC reports.

In 2010 she published the article "**On the origin of Continental Precipitation**" in GRL, which had an extraordinary impact. It was **highlighted** by the journal itself in EOS –AGU journal- and is considered **"highly cited" by WoS**. It identifies the regions where precipitation is generated from its main global moisture sources. The results are widely **used in basic university textbooks** in Meteorology & Climatology, and it is an **entry in the Encyclopedia of Sustainability Science & Technology**. **This research line is a succession of nearly 100 papers identifying the main global and regional sources and sinks of moisture, and the mechanisms that transport this moisture to land.** Following this, the AGU invited her (& co-authors) to **synthesise the state of knowledge on moisture sources for precipitation** in an article published in 2012 in **Reviews of Geophysics** entitled "**Oceanic and Terrestrial sources of continental precipitation**", also considered **"highly cited" by WoS**.

In 2011 she received the **EGU Outstanding Young Scientist Award for her contribution to atmospheric sciences in understanding the atmospheric branch of the hydrological cycle**, in particular for her contributions **in determining the sources of moisture that generate continental precipitation.**

The importance of her research has led her to receive invitations from the most prestigious review journals to synthesise advances on the hydrological cycle (Reviews of Geophysics, Annual Reviews of Environment & Resources, Earth Science Reviews, WIREs Climate Change, WIREs Water and Nature Reviews).

A key consideration within their studies is the **analysis of the role of major moisture transport mechanisms, such as atmospheric rivers and low-level jets**. The results of several papers were compiled (by invitation) in the prestigious **Annual Reviews of Environment & Resources** in 2016 under the title "**Major Mechanisms of Atmospheric Moisture Transport and Their Role in Extreme Precipitation Events**", also considered **"highly cited" by WoS**.

She is currently researching **fundamental aspects of the hydrological cycle and its climatic implications**, addressing key questions such as (i) whether climate change implies an increase in oceanic versus terrestrial precipitation (published in Nature npj Climate & Atmospheric Sciences 2020, entitled "The growing importance of oceanic moisture sources for continental precipitation"), (ii) whether atmospheric rivers are transporting increasing amounts of moisture and whether this is consistent with basic thermodynamic principles linked to climate change (published in Nature Communications 2020 "Significant increase of global anomalous moisture uptake feeding landfalling ARs"), or (iii) the role of atmospheric water vapour residence time as a metric of the global hydrological cycle and its implications for the study of climate change (Nature Reviews Earth & Environment 2021 invited paper: "The Residence Time of Water Vapour in the Atmosphere"). The residence time of water vapour is a little-studied indicator of climate change, but from now on it will be a determining factor in the IPCC's considerations.

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

C.1. Publications (**More than 120 SCI papers**)

L. Gimeno, J. Eiras-Barca, A.M. Durán-Quesada, F. Domínguez, R. van der Ent, H. Sodemann, R. Sánchez-Murillo, **R. Nieto**, J. W. Kirchner (2021) The residence time of water vapour in the atmosphere, Nature Reviews Earth & Environment, doi: 10.1038/s43017-021-00181-9 **BY INVITATION**

I. Algarra, **R. Nieto**, A.M. Ramos, J. Eiras-Barca, R.M. Trigo, L. Gimeno (2020) Significant increase of global anomalous moisture uptake feeding landfalling Atmospheric Rivers, Nature Communications 11, 5082; <https://doi.org/10.1038/s41467-020-18876-w>

L. Gimeno, **R. Nieto**, R. Sorí (2020) The growing importance of oceanic moisture sources for continental

precipitation, npj Climate and Atmospheric Science 3, 27 ; <https://doi.org/10.1038/s41612-020-00133-y>

L. Gimeno, M. Vázquez, J. Eiras-Barca, R. Sorí, M. Stojanovic, I. Algarra, **R. Nieto**, A.M. Ramos, A.M. Durán-Quesada, F. Dominguez (2020) Recent progress on the sources of continental precipitation as revealed by moisture transport analysis, Earth Science Reviews 201, 103070; DOI: <https://doi.org/10.1016/j.earscirev.2019.103070>

R. Nieto, L. Gimeno (2019) A database of optimal integration times for Lagrangian studies of atmospheric moisture sources and sinks, Scientific Data 6, <https://doi.org/10.1038/s41597-019-0068-8>

L. Gimeno, M. Vázquez, J. Eiras-Barca, R. Sorí, I. Algarra, **R. Nieto** (2019) Atmospheric moisture transport and the decline in Arctic Sea ice, Wiley Interdisciplinary Reviews-Climate Change 10(4), 1-12; <https://doi.org/10.1002/wcc.588> [REVIEW BY INVITATION](#)

L. Gimeno, F. Dominguez, **R. Nieto**, R.M. Trigo, A. Drumond, C. Reason, A.S. Taschetto, A.M. Ramos, R. Kumar, J. Marengo (2016) Major Mechanisms of Atmospheric Moisture Transport and Their Role in Extreme Precipitation Events, Annual Review of Environment and Resources, Vol. 41 [BY INVITATION & PREMIO CAMPUS DEL AGUA](#).

R. Nieto, R. Castillo, A. Drumond, L. Gimeno (2014) The modulation of oceanic moisture transport by the hemispheric annular modes. Frontiers in Earth Science 2(11), 1-12, doi: 10.3389/feart.2014.00011

L. Gimeno, A. Stohl, R.M. Trigo, F. Domínguez, K. Yoshimura, L. Yu, A. Drumond, A.M. Durán-Quesada, **R. Nieto** (2012) Oceanic Sources of Continental Precipitation, Reviews of Geophysics doi:10.1029/2012RG000389 [BY INVITATION \(ISI highly cited article\)](#)

L. Gimeno, A. Drumond, **R. Nieto**, R. Trigo, and A. Stohl (2010), On the origin of continental precipitation, Geophys. Res. Lett., doi:10.1029/2010GL043712 [HIGHLIGHTED IN EOS \(ISI highly cited article\)](#)

C.2. Congress [\(more than 220 presentations in international congress\)](#)

[More than 220 presentations in international congress](#) including annual assemblies of the American Meteorological Society, American Geophysical Union, European Geophysical Union of the European Meteorological Society

Organization of international conferences:

2004 First International School in Advances Climate Studies. Ourense, Spain. Role: Organizing Committee

2007 Seminario sobre Precipitación y fenómenos meteorológicos asociados en el Cono Sur Americano, Ourense, Spain. Role: Organizing Committee

2016 8th EGU Leonardo Topical Conference Series on the hydrological cycle: "From evaporation to precipitation: the atmospheric moisture transport" in Ourense, Spain. Role: Organizing Committee

2017 First electronic conference on the hydrological cycle. Role: Organizing Committee

C.3. Research projects

SETESTRELO: High-resolution assessment of North Atlantic moisture transport in current climate and CMIP-6 future projections. IP: Raquel Nieto & Luis Gimeno. Funded by MICIN. PID2021-122314OB-I00. 2022 – 2025. (163.350,00) Role in the project: IP

ESMORGA: LAGRangian analysis of the Impact on the global hydrological cycle of the Major Mechanisms of Atmospheric Moisture Transport). IP: Raquel Nieto & Luis Gimeno. Funded by MICIN. TED2021-132088B-I00. 01/12/2022 – 31/12/2024. (135000 €) Role in the project: IP

LAGRIMA: LAGRangian analysis of the Impact on the global hydrological cycle of the Major Mechanisms of Atmospheric Moisture Transport). IP: Raquel Nieto & Luis Gimeno. Funded by MINECO. RTI2018-095772-B-I00. 01/01/2019 – 30/09/2022. (84.700 €) Role in the project: IP

EVOCAR: The atmosphere moisture transport, the bridge between evaporation and precipitation in the IP: Luis Gimeno & Raquel Nieto. Funded by MINECO CGL2015-65141-R. 01/01/2016 – 30/09/2019 (146.410,00 €). Role in the project: IP

INDROFLOOD: Improving Drought and Flood Early Warning, Forecasting and Mitigation using real-time hydroclimatic indicators. Coordinator S Vicente-Serrano. Funded by Water JPI -WaterWorks 2014 Horizon 2020. PCIN-2015-243. Participating entities: CSIC, Coordinator (Spain). Univ. de Lisboa (FFCUL) Partner (Portugal). Univ. of Cape Town Partner (South Africa). National Meteorological Adm. Romania, Univ. Tartu Partner (Estonia). Research Inst Field Crops "Selectia" Partner (Moldova). Farisa Partner (Spain). UVIGO Partner (Spain). 01/05/2016 – 31/12/2019 100.000,00 € (Total: 1.086.190,00 €). Role in the project: Research Member.

THIS: The role of the moisture transport in the extreme precipitation, flooding and droughts in the European Atlantic coasts. IP: Raquel Nieto. Funded by Xunta de Galicia. Conselleria de Educación. EM2014/043. 14/05/2014 – 14/05/2017 (93.000,00 €) Role in the project: IP

ACPCA: Arctic Climate Processes Linked through the Circulation of the Atmosphere. IP Luis Gimeno. Funded by ERA-net.RUS" programme within FP7. 01/01/2013 - 30/09/2014. PRI-PIMERU-2011-1429. 01/09/2012 – 01/03/2015 (40.000 €) Role in the project: Participant

TRAMO: Transport of moisture in the Atmosphere. IP: Raquel Nieto. Funded by MINECO. 01/01/2013 - 31/12/2015. CGL2012-35485. 01/01/2013 - 31/12/2015 (93.000 €) Role: IP.

STORMEx: Mid-Latitude North Atlantic Extreme Storms Variability: Diagnosis, Modelling Dynamical Processes and Related Impacts on Iberia. IP Ricardo Trigo. Funded by FCT Portugal. 01/03/2012 – 31/08/2015. (149.000 €) Role in the project: Participant.

CHEGA: Dynamical characterization of the Hydrological Atmospheric Cycle for Galicia (Spain). Funded by Xunta de Galicia. Conselleria de Educación. 01/01/09-31/12/11. IP: Raquel Nieto.

MSM. Dynamical identification of moisture sources in the Mediterranean and analysis of their variability IP: Luis Gimeno. Funded by MICINN CLI-CGL2008-05968-C02-02. 01/01/09 - 31/12/12 (135.000 €). Role in the project: Participant

CIRCE: Climate Change and Impact Research: the Mediterranean Environment Diagnosis and modelling of the moisture sources in the Mediterranean region. IP: Antonio Navarra. Funded by the European Union FP6 (59 Universities or Research centres). 01/04/2007- 30/06/2011 (13.730.066 €). Role in the project: Participant

C.4. Contracts, technological or transfer merits

- Name of contract: ESA CCI Project: EUROPEAN SPACE AGENCY, CLIMATE CHANGE INITIATIVE – WATER VAPOR. Code/Reference: AO/1-9041/17/I-NB. IP Luis Gimeno. Funding entity: ESA (European Space Agency) - Univ Reading. Participating entities: UVIGO, Univ Reading (UK), DWD (Germany), Telespazio VEGA (UK), Brockmann consult (Germany), Spectral Earth (Germany), STFC Rutherford Appleton Laboratory (UK), ECCC (Canada), KIT, Germany, Univ Leicester (UK), BIRA-IASB(Belgium), Univ Versailles (France). Start-End date: 01/05/2020 – 30/09/2021. Incomes: 36.237,00 €. Role in the contract: Research Member.

- 2018 Arquimedes Award, Spanish Science Ministry to the best research advisor, Student Luis Gimeno-Sotelo. Title of the work A new pattern of the moisture transport for precipitation related to the drastic decline in Arctic sea ice extent.

- Name of the contract: RISC Floods and Drought risks in the Miño-Limia basins Code/Reference: 0034_RISC_ML_6_E (IINTERREG-POCTEP 2014-2020). IP M. Gómez-Gesteira. Funding entity: EU FEDER. Participating entities: Confederación Hidrográfica Miño-Sil, IPMA, IP(APA), UVIGO, Univ Porto (FEUP). Start-End date: 01/06/2017 – 31/12/2021. Incomes: 449.821,87 € (Total: 1.751.462,56 €). Role in the project: Participant

- Name of the contract: MarRISK: Adaptation to climate change of the coast of Galicia and north of Portugal. Code/Reference: 0262_MARRISK_1_E (IINTERREG-POCTEP 2014-2020). IP: M. Gómez-Gesteira. Funding entity: EU FEDER. Participating entities: Cons Medio Ambiente e Ordenación do Territorio. Xunta de Galicia, Centro Tec del Mar Inst tecnológico para el control del medio marino de Galicia, Agencia Estatal CSIC, IPMA, Instituto de Investigaciones Marinas, UVigo, Centro Interdisciplinar de Investigação Marinha e Ambiental, Universidade do Minho, IEO, Univ Aveiro, Agência Portuguesa do Ambiente, Inst Engenharia de Sistemas e Computadores, Tecnologia e Ciência, Instituto Hidrográfico. Start-End date: 01/06/2017 – 30/06/2021. Incomes: 477.290,62 € (Total: 2.217.787,86 €) Role in the project: Participant

CURRICULUM VITAE ABREVIADO ULTIMOS 5 AÑOS

Parte A. Datos personales:		Fecha del CVA	23/6/2023
Nombre y apellidos	Belén Rodríguez de Fonseca		
DNI/NIE/pasaporte		Edad	
Núm. identificación del investigador	Researcher ID	I-8276-2017	
	Código Orcid	https://orcid.org/0000-0002-5261-7083	

A.1. Situación profesional actual

Organismo	Universidad Complutense de Madrid		
Dpto./Centro	Facultad de Ciencias Físicas		
Dirección	Plaza de las Ciencias s/n, Ciudad Universitaria, 28040 Madrid		
Teléfono		correo electrónico	brfonsec@ucm.es
Categoría profesional	Catedrática de Universidad	Fecha inicio	16 de septiembre de 2022
Espec. cód. UNESCO			
Palabras clave	Variabilidad climática, interacciones aire-océano, teleconexiones climáticas, El Niño		

A.2. Formación académica (título, institución, fecha)

Licenciatura/Grado/Doctorado	Universidad	Año
Licenciada en Ciencias Físicas	Universidad Complutense de Madrid	1994
Doctora en Ciencias Físicas	Universidad Complutense de Madrid	2001

Indicadores generales de calidad de la producción científica h-index (scopus:30 with 3150 citas, google scholar: 33 with 3965 citas)

Parte B. RESUMEN LIBRE DEL CURRÍCULUM

BRF es Investigadora Principal del grupo UCM-excelente TROPA y miembro del Instituto de Geociencias CSIC-UCM (IGEO) . Ha publicado más de 70 artículos en revistas SCI, posee una amplia experiencia en variabilidad climática tropical y extratropical, junto con un historial de proyectos nacionales y de la Unión Europea (TRIATLAS, PREFACE y AMMA entre otros). Belén Rodríguez Fonseca ha participado en más de 25 proyectos: 7 proyectos de investigación nacionales, liderando 5 de ellos , 4 proyectos de la UE (liderando en 3 de ellos la contraparte de la UCM), y 13 proyectos de cooperación con África Occidental, en 9 de los cuales ha sido la investigadora principal. De estos proyectos, se han conseguido más de 2 000 000 de euros para investigación bajo su dirección. Durante este tiempo, ha dirigido 13 Tesis Doctorales y más de 30 TFMs y actualmente dirige 4 Tesis Doctorales. Desde 201, dirige proyectos de cooperación con Senegal, asesorando tesis doctorales e investigando en servicios climáticos en África (afloramiento, precipitación y malaria). Durante sus actividades de cooperación ha impartido cursos en la Universidad Cheikh Anta Diop, en Dakar, sobre análisis estadístico de datos, tanto para estudiantes de máster como de doctorado (un total de 10 cursos impartidos desde 2011). Este proyecto de cooperación ha sido financiado con convocatorias de cooperación del CSIC (ICOOP) y la UCM y a través de los programas Erasmus (Mundus y Erasmus +). Durante sus 20 años de docencia, ha impartido más de 9 asignaturas diferentes: Cálculo numérico, Estadística, Física, Física Laboratorio, Física de la Atmósfera, Oceanografía Física, Física aplicada

a la Biología, Variabilidad Climática y Análisis de Datos en Meteorología. Su investigación se centra en la variabilidad del sistema climático y en cómo la temperatura de la superficie del mar puede utilizarse para encontrar cierta predictibilidad de los impactos. Es la primera autora de un trabajo pionero sobre la influencia del Niño del Atlántico en el desencadenamiento del ENSO y de un artículo de revisión sobre el impacto de la temperatura superficial del mar en las sequías del Sahel. Ha sido autora contribuyente de los informes de evaluación AR5 y AR6 del IPCC. Además, BRF ha sido co-coordinadora de CLIVAR-España (<http://clivar.es>), miembro del CLIVAR FOCI sobre Tropical Basin Interactions (<http://www.clivar.org/research-foci/basin-interaction-hide>). En los últimos años ha participado en el Sistema de Observación del Atlántico Tropical de CLIVAR (<http://www.clivar.org/tropical-atlantic-observing-system-review>). Co-dirige una sesión de la Unión Geofísica Europea sobre Teleconexiones Tropicales desde hace 13 años. Además de estas actividades, Belén Rodríguez-Fonseca está muy interesada en la difusión de la variabilidad y el cambio climático a la sociedad, desde la escuela primaria hasta la universidad. En este contexto, es coordinadora del taller virtual Meteolab (<http://meteolab.fis.ucm.es>) y ha organizado actividades en colegios, museos y visitas guiadas en la universidad. Ha dirigido proyectos de innovación educativa para utilizar estas herramientas en la docencia. Todos los doctorandos que han realizado con Belén Rodríguez-Fonseca la Tesis Doctoral han continuado con la investigación. Ha realizado estancias por más de 2 años en diferentes instituciones de todo el mundo (Scripps Institution of Oceanography, California), Universidad de Washington (JISAO, Seattle), Universidad de California en Los Ángeles (UCLA), Universidad de Bergen (Centro Bjerknes), Instituto Max Planck Institute for Meteorology (MPI, Alemania). Actualmente trabaja en colaboración con UCLA (LA, USA), UCSC (USA), Barcelona Supercomputing Center (BSC, España), GEOMAR (Alemania), UCAD (Senegal), UIB (Noruega), LOCEAN (París), ECMWF, ICTP (Trieste), ECMWF, CSIRO (Australia) y con el Instituto de Ciencias del Mar (CSIC). Es Coordinadora del Máster en Meteorología y Geofísica. Para más información visitar <http://tropia.fis.ucm.es/members/11>

Parte C. EXPERIENCIA INVESTIGADORA MÉRITOS MÁS RELEVANTES (ordenados por tipología)

Publicaciones

- Crespo-Miguel, Rodrigo, et al. "ENSO coupling to the equatorial Atlantic: Analysis with an extended improved recharge oscillator model." (2023).
- Wade; Belen Rodriguez-Fonseca; Marta Martín del Rey; Alban Lazar; Jorge López-Parages; Amadou Thierno Gaye. 2022. Interdecadal changes in SST variability drivers in the Senegalese-upwelling: the impact of ENSO Climate Dynamics.
- Crespo, L. R., Rodríguez-Fonseca, M. B. R., Polo, I., Keenlyside, N. S., & Dommenges, D. (2022). v Environmental Research Letters.
- Martín-Gómez, V., Mohino, E., Rodríguez-Fonseca, B., & Sánchez-Gómez, E. (2022). Understanding rainfall prediction skill over the Sahel in NMME seasonal forecast. *Climate Dynamics*, 1-21.
- Losada, T., Rodríguez-Fonseca, B., Mechoso, C. R., Mohino, E., & Castaño-Tierno, A. (2022). Changes in interannual tropical Atlantic-Pacific basin interactions modulated by a South Atlantic cooling. *Journal of Climate*, 1-46
- González-Alemán, J. J., Grams, C. M., Ayarzagüena, B., Zurita-Gotor, P., Domeisen, D. I., Gómara, I., B. Rodríguez-Fonseca & Vitart, F. (2022). Tropospheric role in the predictability of the surface impact of the 2018 sudden stratospheric warming event. *Geophysical Research Letters*, 49(1), e2021GL095464.
- Gallego, D., García-Herrera, R., Mohino, E., Losada, T., & Rodríguez-Fonseca, B. (2022). Secular Variability of the Upwelling at the Canaries Latitude: An Instrumental Approach. *Journal of Geophysical Research: Oceans*, e2021JC018039
- Diouf, I., Suárez-Moreno, R., Rodríguez-Fonseca, B., Caminade, C., Wade, M., Thiaw, W. M., ... & Ndiaye, M. K. N. (2022). Oceanic Influence on Seasonal Malaria Incidence in West Africa. *Weather, Climate, and Society*, 14(1), 287-302.

- Gómara, I., Rodríguez-Fonseca, B., Mohino, E., Losada, T., Polo, I., & Coll, M. (2021). Skillful prediction of tropical Pacific fisheries provided by Atlantic Niños. *Environmental Research Letters*, 16(5).
- Exarchou E., P. Ortega, B. Rodríguez-Fonseca, T. Losada, I. Polo and C. Prodhomme (2021) Impact of equatorial Atlantic variability on ENSO predictive skill. *Nature Comm.*, 12.
- Gómara I., G. Bellocchi, R. Martin, B. Rodríguez-Fonseca, M. Ruiz-Ramos (2020). Influence of climate variability on the potential forage production of a mown permanent grassland in the French Massif Central. *Agricultural and Forest Meteorology*, 280. doi.org/10.1016/j.agrformet.2019.107768.
- Martija-Díez, M., Rodríguez-Fonseca, B., & López-Parages, J. (2021). ENSO Influence on Western European summer and fall Temperatures. *Journal of Climate*, 34(19), 8013-8031
- Carnicer J, Domingo-Marimon C, Ninyerola M, Camarero J.J, Bastos A., López-Parages J., Blanquer L., Rodríguez-Fonseca B., Lenton T., Dakos V., Ribas M., Gutierrez E., Peñuelas J., Pons X. (2019) Regime shifts of Mediterranean forest carbon uptake and reduced resilience driven by multidecadal ocean surface temperatures. *Global Change Biology* 2019;25:2825–2840. <https://doi.org/10.1111/gcb.14664>. Numero de citas: 2
- Martín-Rey M, I Polo, B Rodríguez-Fonseca, A Lazar and T Losada (2019), Ocean dynamics shapes the structure and timing of tropical Atlantic variability modes, *Journal of Geophysical Research: Oceans*, DOI:10.1029/2019JC015030
- Mohino, E., Rodríguez-Fonseca, B., Mechoso, C. R., Losada, T., & Polo, I. (2019). Relationships among Intermodel Spread and Biases in Tropical Atlantic Sea Surface Temperatures. *Journal of Climate*, 32(12), 3615-3635
- G.R. Foltz, P. Brandt, I. Richter, B Rodríguez-Fonseca, F. Hernandez, M. Dengler, R.R. Rodrigues, J. Schmidt, L. Yu, N. Lefevre, L. Cotrim, M.J. McPhaden, M. Araujo, J..... M., Rodríguez-Fonseca, B., Gómara, I., Mohino, E., Dieng, A. L., & Gaye, A. T. (2019). Oceanic Forcing on Interannual Variability of Sahel Heavy and Moderate Daily Rainfall. *Journal of Hydrometeorology*, 20(3), 397-410.

Proyectos (últimos 5 años)

Nacionales:

- DISTROPIA: Modulaciones decadales de las interacciones entre cuencas tropicales y sus impactos. IP: Teresa Losada Doval y Elsa Mohino Harris. (Universidad Complutense de Madrid). 01/01/2023-31/12/2025. 179.080 €.
- OFF: OceansForFuture. Servicios climáticos innovadores usando información oceánica y comunicación con la sociedad. IP: Belén Rodríguez de Fonseca e Irene Polo Sánchez. (Universidad Complutense de Madrid). 01/12/2022-01/12/2024. 264.500 €.

Proyectos Europeos:

- South and Tropical Atlantic climatebased marine ecosystem prediction for sustainable management (TRIATLAS). European Comission. Noel Keenlyside. (University of Bergen). 2018-2023. 11.000.000 €. IP UCM: Belén Rodríguez-Fonseca.
- Next Generation Earth Modelling Systems. Bjorn Stevens. (Max Planck Insitute fur Meteorolgy). 2021-2025. IP UCM: Elsa Mohino.

Proyectos de Cooperación:

- Fortalecimiento de los recursos en Investigación, Educación y Desarrollo Tecnológico del Laboratorio de Física de la Atmósfera y el Océano Simeon Fongang de la Universidad Cheikh Anta Diop de Dakar. Universidad Complutense de Madrid. Elsa Mohino Harris. 01/02/2018-31/12/2018. 18.000 €.
- “ESTUDIO DE LA VARIABILIDAD CLIMÁTICA EN ÁFRICA OCCIDENTAL PARA UNA SOCIEDAD SOSTENIBLE STUDY OF CLIMATE VARIABILITY IN WEST AFRICA FOR A SUSTAINABLE SOCIETY”. Proyecto ICOOP del Consejo Superior de Investigaciones Científicas). 01/01/2022-31/12/2023. 23.800 €.

Redes de Investigación:

TBI-MULMOD: COLABORACIÓN Y SEMINARIO SOBRE MODULACIONES MULTIDECADALES DE LA INTERACCIÓN ENTRE CUENCAS OCEÁNICAS TROPICALE. Rodríguez de Fonseca (Consejo Superior de Investigaciones Científicas). 01/01/2022-31/12/2023. 21.080 €.

Proyectos Innovación Educativa:

Meteolab como herramienta educativa de Meteorología en el Aula. (Universidad Complutense de Madrid). 01/09/2020-01/10/2021.

Sexenios posibles, concedidos y en activo, se considerarán los sexenios relativos de toda la carrera investigadora, comprobación en www.ucm.es/pdi-1.

3 sexenios de investigación. Sexenio vivo. Próximo sexenio a solicitar en

Número de tesis dirigidas y defendidas, especificando el nombre del doctorando, calificación y lugar.(indico 10 últimas)

- 1 "Climate variability and predictability in Southerwester European ". Maialen Martija. Dirigida por: Belén Rodríguez-Fonseca and Jorge López-Parages. Septiembre 2022, Madrid. Sobresaliente Cum Laude
- 2 Ocean atmospheric interactions in the equatorial atlantic and ENSO multidecadal variability. Lander Crespo. Supervised by: Noel Keenlyside, Shunya Koseki and Belen Rodriguez-Fonseca. 2019. Bergen (Noruega). Sobresaliente Cum Laude
- 3 Tropical Ocean-atmosphere interactions in copupled models. The case of the Equatorial Thermocline and the NorthWest African upwelling. Antonio Castaño. Dirigida por : Elsa Mohino, Teresa Losada, Belén Rodríguez-Fonseca. 2019. Sobresaliente Cum Laude
- 4 Interdecadal changes in ocean teleconnections with the Sahel. Implications in rainfall. Predictability. Roberto Suárez Moreno. 2017. Dirigida por: Belén Rodríguez de Fonseca. Sobresaliente Cum Laude.
- 5 Climate and health: Observations and Modelling of seasonal malaria incidence for its prediction over Senegal and Sahel. Ibrahima Diouf. Diciembre 2015. Dakar (Senegal). Dirigida por: Amadou Thierno Gaye, Belén Rodriguez Fonseca y Jaques André Ndione. Sobresaliente Cum Laude
- 6 Evaluación de las teleconexiones climáticas observadas y simuladas con modelos CMIP en la región Euro-Atlántica. Nube González Reviriego. Salamanca, 2015. Dirigida por: Concepción Rodríguez Puebla (Universidad de Salamanca) & Belén Rodríguez-Fonseca. Sobresaliente Cum Laude
- 7 Tropical Atlantic influence on the Pacific: Air-sea interactions and modulations. Marta Martín del Rey. 2015. Mención Europea. Dirigida por: Belén Rodríguez-Fonseca & Irene Polo Sánchez (UCM). Sobresaliente Cum Laude
- 8 Multidecadal modulation of ENSO teleconnections with the Euro-Mediterranean rainfall. Jorge López Parages. Madrid, 2015. Dirigida por: Belén Rodríguez-Fonseca. Sobresaliente Cum Laude
- 9 Explosive cyclogenesis in the Euro-Atlantic sector: study of associated large-scale dynamics and variability. Iñigo Gomara Cardiallaguet. Madrid, 2015. Dirigida por: Belén Rodríguez-Fonseca, Pablo Zurita Gotor & Joaquim Pinto. Sobresaliente Cum Laude
- 10 Climate variability effects on field crops in Iberian Peninsula. Predictability. Mirian Capa Morocho. 2015. Supervised by: Margarita Ruiz Ramos & Belén Rodríguez-Fonseca.

CV Date	26/01/2023
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Part A. PERSONAL INFORMATION

First Name	Cristina		
Family Name	Peña Ortiz		
Sex		Date of Birth	
ID number Social Security, Passport			
URL Web			
Email Address	cpenort@upo.es		
Open Researcher and Contributor ID (ORCID)	0000-0002-5451-8521		

A.1. Current position

Job Title	Profesora Titular		
Starting date	2020		
Institution	Universidad Pablo de Olavide		
Department / Centre	Departamento de sistemas físicos, químicos y naturales / Facultad de Ciencias Experimentales		
Country		Phone Number	
Keywords			

A.3. Education

Degree/Master/PhD	University / Country	Year
Astrofísica y Ciencias de la Atmósfera del Departamento de Física de la Tierra, Astronomía y Astrofísica II.	Universidad Complutense de Madrid / Spain	2006
Licenciado en Ciencias Física	Universidad Complutense de Madrid	2002

Part B. CV SUMMARY

After graduating in Physical Sciences in 2002 from the Universidad Complutense de Madrid, I obtained my PhD in 2006 from the same university. During my PhD I worked on stratospheric climate variability associated with QBO and its impact on the meridional circulation and the polar vortex. During my postdoctoral career I have continued to develop studies related to the QBO. I have researched its impact on the Semiannual Oscillation (SAO) in the upper stratosphere and mesosphere as well as its influence on convection in the upper troposphere, describing a new mechanism of modulation of the polar vortex through the changes induced on the deep convection in the tropics.

I have participated in 11 projects obtained in competitive calls of which I have been principal investigator in two of them: "VABES: Water Vapor Variability in the Lower Stratosphere (CGL2016-78562-P)" and of the project "The Open Climate-Impacts Encyclopedia (PCIN-2017-046)", which was part of ERA4CS, an ERA-NET initiated by JPI Climate with co-funding by the European Union (Grant 690462). These projects have allowed me to initiate new lines of research on the impact of heat waves on mortality and the water vapour transport to the lower stratosphere. Additionally, I have also developed work on the characterisation of jet streams and their response to global warming as well as on temperature trends and their impact on the length of the seasons.

In 2012 I started to work as Assistant Professor at the Universidad Pablo de Olavide where I currently work as senior lecturer (Profesor Titular). In this University, I have taught different subjects in the Degree in Environmental Sciences Degree: Meteorology and Climatology, Global Change and Renewable Energies, of which I am the coordinator. Additionally, I have been a tutor for more than 18 degree final projects. At Master level, I teach the subject

"Adaptation to Climate Change" in the official Master "Carbon Management and Assessment in Ecosystems".

In relation to management at the University, I have been Secretary of the Department of Physical, Chemical and Natural Systems between 2016 and 2020 and since 2020 the Director of the same Department.

I am author of 31 publications of which 27 are articles included in JCR which belong to the first quartile of their categories. I have 2/2 "sexenios" and 4/5 "tramos de investigación". Total cites (Scopus) 505, h-index (Scopus): 14.

Part C. RELEVANT ACCOMPLISHMENTS

C.1. Most important publications in national or international peer-reviewed journals, books and conferences

AC: corresponding author. (n° x / n° y): position / total authors. If applicable, indicate the number of citations

- 1 **Scientific paper.** Huber V.; Peña-Ortiz C.; Gallego. D; Sera F.; Lange S.2022. Evidence of rapid adaptation integrated into projections of temperature-related excess mortality Environmental Research Letters.
- 2 **Scientific paper.** Nuria Pilar Plaza; Aurélien Podglajen; Cristina Peña-Ortiz; Felix Ploeger. 2021. Processes influencing lower stratospheric water vapour in monsoon anticyclones: insights from Lagrangian modelling Atmospheric Chemistry and Physics. COPERNICUS GESELLSCHAFT MBH. 21, pp.9585-9607. ISSN 1680-7316.
- 3 **Scientific paper.** Ana E. Melgarejo; Paulina Ordoñez; Raquel Nieto; Cristina Peña-Ortiz; Ricardo García-Herrera; Luis Gimeno. 2021. Mechanisms for Severe Drought Occurrence in the Balsas River Basin (Mexico) Atmosphere. MDPI. ISSN 2073-4433.
- 4 **Scientific paper.** Pedro Ribera Rodríguez; Paulina Ordoñez; David Gallego Puyol; Cristina Peña Ortiz. 2020. Internal variability and external forcings in the ocean-atmosphere multidecadal oscillator over the North Atlantic Climate Dynamics. Springer. 55, pp.909-953. ISSN 0930-7575.
- 5 **Scientific paper.** Veronika Huber; Linda Krummenauer; Cristina Peña Ortiz; Stefan Lange; Antonio Gasparini; Ana M. Vicedo Cabrera; Ricardo García Herrera; Katja Frieler. 2020. Temperature-related excess mortality in German cities at 2 °C and higher degrees of global warming Environmental Research. Elsevier. 186. ISSN 0013-9351.
- 6 **Scientific paper.** Cristina Peña Ortiz; Elisa Manzini; Marco Giorgetta. 2019. Tropical Deep Convection Impact on Southern Winter Stationary Waves and Its Modulation by the Quasi-Biennial Oscillation Journal of Climate. AMS. 32-21. ISSN 0894-8755.
- 7 **Scientific paper.** Francisco Gómez Delgado; David Gallego Puyol; Cristina Peña Ortiz; Inmaculada Vega; Pedro Ribera Rodríguez. 2019. Long term variability of the northerly winds over the Eastern Mediterranean as seen from historical wind observations Global and Planetary Change. Elsevier. 172, pp.355-364. ISSN 0921-8181.
- 8 **Scientific paper.** Vega I.; Gallego D.; Ribera P.; F. de Paula Gómez-Delgado; García-Herrera R.; Peña-Ortiz C.2018. Reconstructing the Western North Pacific Summer Monsoon since the Late Nineteenth Century Journal of Climate. American Meteorological Society. 31, pp.355-368. ISSN 0894-8755.
- 9 **Scientific paper.** Gallego D.; García-Herrera R.; Peña-Ortiz C.; Ribera P.2017. The steady enhancement of the Australian Summer Monsoon in the last 200 years Scientific Reports. Nature Publishing Group. 7. ISSN 2045-2322.
- 10 **Scientific paper.** N. Calvo; M.Iza; M.M. Hurwitz; et al; C.I. Garfinkel. 2017. Northern Hemisphere Stratospheric Pathway of Different El Niño Flavors in Stratosphere-Resolving CMIP5 Models Journal of Climate. AMS. ISSN 0894-8755.
- 11 **Scientific paper.** Ordoñez P.; Ribera P.; Gallego D.; Peña-Ortiz C.2016. Tracking the Indian Summer Monsoon Onset Back to the Preinstrument Period Journal of Climate. 29-22, pp.8115-8127. ISSN 0894-8755.

- 12 Scientific paper.** Gallego D.; Ordonez P.; Ribera P.; Pena-Ortiz C.; Garcia-Herrera R.2015. An instrumental index of the West African Monsoon back to the nineteenth century QUARTERLY JOURNAL OF THE ROYAL METEOROLOGICAL SOCIETY. WILEY-BLACKWELL, 111 RIVER ST, HOBOKEN 07030-5774, NJ USA. 114-693, pp.3166-3176. ISSN 0035-9009.
- 13 Scientific paper.** Pena-Ortiz C.; Barriopedro, D.; Garcia-Herrera, R.2015. Multidecadal Variability of the Summer Length in Europe Journal of Climate. AMER METEOROLOGICAL SOC, 45 BEACON ST, BOSTON, MA 02108-3693 USA. 28-13, pp.5375-5388DOI: 10.1175/JCLI-D-14-00429.1. ISSN 0894-8755.
- 14 Scientific paper.** Hurwitz, MM; Calvo, N; Garfinkel, CI; Butler, AH; Ineson, S; Cagnazzo, C; Manzini, E; Pena-Ortiz, C. 2014. Extra-tropical atmospheric response to ENSO in the CMIP5 models CLIMATE DYNAMICS. SPRINGER, 233 SPRING ST, NEW YORK, NY 10013 USA. 43-12, pp.3367-3376. ISSN 0930-7575.
- 15 Scientific paper.** Ordonez P.; Ribera P.; Gallego D.; Pena-Ortiz C.(4/). 2013. Influence of Madden-Julian Oscillation on water budget transported by the Somali low-level jet and the associated Indian summer monsoon rainfall Water Resources Research. American Geophysical Union. 49-9. ISSN 1944-7973.
- 16 Scientific paper.** Pena-Ortiz C.; Gallego D.; Ribera P.; Ordonez P.; Álvarez-Castro MD. (1/). 2013. Observed trends in the global jet stream characteristics during the second half of the 20th century JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES. AMERICAN GEOPHYSICAL UNION. 118, pp.2702-2713. ISSN 2169-897X.
- 17 Scientific paper.** David Barriopedro Cepero; David Gallego Puyol; María del Carmen Álvarez Castro; Ricardo García Herrera; Dennis Wheeler; Cristina Peña Ortiz; Susana Barbosa. (6/). 2013. Witnessing North Atlantic westerlies variability from ships' logbooks (1685–2008) Climate Dynamics. Springer. ISSN 0930-7575.
- 18 Scientific paper.** Ordoñez P.; Ribera P.; Gallego D.; Pena-Ortiz C.2012. Major moisture sources for Western and Southern India and their role on synoptic scale rainfall events (aceptado) Hydrological Processes. WILEY-BLACKWELL. ISSN 0885-6087.
- 19 Scientific paper.** P. Ribera; D. Gallego; C. Peña-Ortiz; L. Del Rio; T. A. Plomaritis; J. Benavente. 2011. Reconstruction of Atlantic historical winter coastal storms in the Spanish coasts of the Gulf of Cadiz, 1929–2005 Natural Hazards and Earth System Sciences. COPERNICUS GESELLSCHAFT MBH. 11, pp.1715-1722. ISSN 1561-8633.
- 20 Scientific paper.** Peña-Ortiz C.; Schmidt H.; Giorgetta M. A.; and Keller M.2010. QBO modulation of the semiannual oscillation in MAECHAM5 and HAMMONIA JOURNAL OF GEOPHYSICAL RESEARCH. American Geophysical Union. 115, pp.1-19. ISSN 0148-0227.
- 21 Scientific paper.** Pena-Ortiz C.; Ribera P.; García-Herrera R.; Giorgetta M.A.; García R.2008. Forcing mechanism for the seasonal asymmetries of the secondary circulation of the QBO in ERA-40 and MAECHAM5 JOURNAL OF GEOPHYSICAL RESEARCH. American Geophysical Union. 113, pp.1-16. ISSN 0148-0227.
- 22 Scientific paper.** Pena-Ortiz C.; Garcia-Herrera R.; Ribera P.; Calvo N.2008. Hemispheric asymmetries in the Quasi-biennial Oscillation signature on the mid-high latitude circulation of the stratosphere Annals of the New York Academy of Sciences. BLACKWELL PUBLISHING -. 1146, pp.32-49. ISSN 0077-8923.
- 23 Scientific paper.** D. Gallego; R. García-Herrera; R. Prieto; C.Peña-Ortiz.2008. On the quality of climate proxies derived from newspaper reports. A case study Climate of the Past. Copernicus Publications (European Geosciences Union) -. 4, pp.11-18. ISSN 1814-9324.
- 24 Scientific paper.** Ribera P; Pena-Ortiz C; Añel J.A.; Gimeno L.; de la Torre L.; Gallego D.2008. Quasibiennial modulation of the Northern Hemisphere tropopause height and temperature JOURNAL OF GEOPHYSICAL RESEARCH. American Geophysical Union. 113, pp.1-10. ISSN 0148-0227.
- 25 Scientific paper.** Calvo N; Giorgetta MA; Pena-Ortiz C. 2007. Sensitivity of the boreal winter circulation in the middle atmosphere to the quasi- biennial oscillation in MAECHAM5 simulations JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES. American Geophysical Union. 112, pp.1-13. ISSN 0148-0227.

- 26 Scientific paper.** Ribera P; Pena-Ortiz C; Garcia-Herrera R; Gallego D; Gimeno L; Hernandez E - . 2004. Detection of the secondary meridional circulation associated with the quasi-biennial oscillation JOURNAL OF GEOPHYSICAL RESEARCH. American Geophysical Union. 109, pp.1-8. ISSN 0148-0227.
- 27 Scientific paper.** Ribera P.; Gallego D.; Pena-Ortiz C.; Gimeno L.; Garcia-Herrera R.; Hernandez E.; Calvo N.2003. The stratospheric QBO signal in the NCEP reanalysis, 1958-2001 - Nombre de la revista: GEOPHYSICAL RESEARCH LETTERS - GEOPHYSICAL RESEARCH LETTERS. American Geophysical Union. 30, pp.1-8. ISSN 0094-8276.

C.3. Research projects and contracts

- 1 Project.** ENCICLOPEDIA LIBRE DE LOS IMPACTOS CLIMATICOS INTERSECTORIALES PCIN-2017-046. Cristina Peña Ortiz. (Universidad Pablo de Olavide). 15/09/2017-14/09/2020. 75.200 €.
- 2 Project.** VARIABILIDAD DEL VAPOR DE AGUA EN LA BAJA ESTRATOSFERA. Cristina Peña Ortiz. (Universidad Pablo de Olavide). 30/12/2016-29/12/2019. 136.730 €.
- 3 Project.** CGL2013-44530-P, Nueva Generación de Índices Climáticos Instrumentales. Aplicación al Estudio de la Teleconexión Monzón-Mediterráneo. Ministerio de Economía y Competitividad. David Gallego Puyol. (Universidad Pablo de Olavide). 01/01/2014-31/12/2017. 103.100 €. Team member.
- 4 Project.** P10-RNM-6547, Escenarios futuros de inundación costera en la Bahía de Cádiz: Implicaciones en la gestión de la zona litoral. Junta de Andalucía. Javier Benavente González. (Universidad Pablo de Olavide). 26/03/2013-26/03/2016. 34.000 €. Team member.
- 5 Project.** CGL2012-34221, Mecanismos de modulación del Acoplamiento Troposfera-Estratosfera. Ministerio de Economía y Competitividad. David Barriopedro Cepero. (Universidad Complutense de Madrid). 01/01/2013-31/12/2015. 74.000 €. Team member.
- 6 Project.** 200800050083542 (<http://salva-sinobas.uvigo.es/>), Caracterización del clima en la península ibérica durante el periodo 1750-1850. Ministerio de Medio Ambiente y Medio Rural y Marino. Ricardo García Herrera. (Universidad Pablo de Olavide). 01/12/2008-31/12/2011. 393.072 €. Team member.
- 7 Project.** ES0604, MoU 332/0, Atmospheric water vapour in the climate system. Unión Europea (Cost Action ES0604). Federico Fierli. (Universidad Pablo de Olavide). 05/10/2007-04/10/2011. 100.000 €. Team member.
- 8 Project.** Morphological impacts and coastal risk induced by extreme storm events. VII Programa MARco de la UE. Ref: 202798. Paolo Ciavola. (Universidad Pablo de Olavide). 01/06/2008-31/05/2011. 3.499.354 €. Team member.
- 9 Project.** CGL2007-65891-C05-04, Diagnóstico y modelización de la tropopausa extratropical. Caracterización climatológica de las corrientes en chorro.. Plan Nacional de I+D. Pedro Ribera Rodríguez. (Universidad Pablo de Olavide). 01/12/2007-30/11/2010. 112.530 €.
- 10 Project.** Diagnosis of the northern hemisphere jet stream: a new perspective from tropopause maps.. Ministerio de Ciencia e Innovación. David Gallego Puyol. (Universidad Pablo de Olavide). 01/01/2008-31/12/2009. 8.500 €. Team member.
- 11 Project.** CGL2005-07288-C05-05, Variabilidad Climática del chorro troposférico (Proyecto Coordinado TROPEX: Caracterización térmica y dinámica de la tropopausa Extratropical. Implicaciones Meteorológicas, Climáticas y Ambientales.. MINISTERIO DE EDUCACION Y CIENCIA. Pedro Ribera Rodríguez. (Universidad Pablo de Olavide). 31/12/2005-30/12/2006. 6.000 €. Team member.

Fecha del CVA	07/06/2023
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Parte A. DATOS PERSONALES

Nombre	David		
Apellidos	Gallego Puyol		
Sexo		Fecha de Nacimiento	
DNI/NIE/Pasaporte			
URL Web	https://www.upo.es/vareclim/index.php		
Dirección Email	dgalpuy@upo.es		
Open Researcher and Contributor ID (ORCID)	0000-0002-2082-4125		

A.1. Situación profesional actual

Puesto	Profesor Titular Universidad		
Fecha inicio	2008		
Organismo / Institución	Universidad Pablo de Olavide		
Departamento / Centro	Sistemas Físicos, Químicos y Naturales / Facultad de Ciencias Experimentales		
País	España	Teléfono	
Palabras clave	Meteorología; Climatología		

A.3. Formación académica

Grado/Master/Tesis	Universidad / País	Año
Física	UNIVERSIDAD COMPLUTENSE DE MADRID. FÍSICA DE LA TIERRA II, ASTRONOMÍA Y ASTROFÍSICA	2001
Licenciado en Ciencias Físicas Especialidad Física de la Tierra y del Cosmos	Universidad Complutense de Madrid	1998

Parte B. RESUMEN DEL CV

After completing my degree in Physics in 1998, I finished a PhD in "Physics of the Earth and the Cosmos" in 2001 at the Universidad Complutense in Madrid. During my PhD, I worked on the design and implementation of computer algorithms aimed to identify meteorological structures as well as in multivariate analysis of climate series. During these years I also worked as research fellow for the "Climatological Database for the World's Oceans (CLIWOC)" EU FV5 project. In 2002 I was hired as Assistant Professor (Profesor Ayudante) by the Pablo de Olavide University (Seville, Spain) where I currently work as senior lecturer (Profesor Titular). During my postdoctoral career I further developed the research line on objective identification methods applied to climatic problems, especially those dealing with climate extremes. In this line I led the work on the generation of new climatologies of Cut-Off lows, the tropospheric jet stream, the stratospheric vortex, as well as working on precipitation extremes. Simultaneously I further worked on climate reconstruction. In this line I have published new historical series for the North Atlantic SLP, and in particular I have contributed to the generation of the longest available series for the strength of several monsoonal systems. Some of them going back to the 18th century. During the last two years I was part of the Pablo de Olavide's research group collaborating with the Seville City Hall in a project aimed to implement a heat wave naming and categorization system in partnership with the Atlantic Council's Adrienne Arsht-Rockefeller Foundation Resilience Center (USA).

Along my research career I have worked in 18 competitive research projects at European, national, and local level. Since 2013 I have experience as Principal Investigator (PI) of projects of the Spanish "National Program for Fostering Excellence in Scientific and Technical Research". Between 2013 and 2016 I was the PI of the INCITE project ("Nueva generación

de índices climáticos instrumentales. Aplicación al estudio de la teleconexión monzón-Mediterráneo" CGL2013-44530-P) and between 2016 and 2020 I was co-PI of the VAVES Project ("Variabilidad del vapor de agua en la baja estratosfera" CGL2016-78562-P). I have also experience as in private-sector oriented research with "Confederación Hídrica del Guadalquivir" and as IP with "Azora inversiones", to with I developed applied climatologies of moisture transport and climate extremes in the Caribbean respectively.

Parallely to my research, I develop an active teaching activity. Between 2019 and 2022 I was the Academic Coordinator of the degree in Environmental Sciences at the Pablo de Olavide University and two double degrees with Human Sciences and Agricultural Engineering. Within these degrees I teach four subjects: "Meteorology and Climatology", "Renewable Energy", "Global Change" and "Noise pollution" and I have been supervisor of more than 30 "Final Year Project" students and two Master Projects. At the master degree, I teach the subject "Modelling and scenarios of Climate Change" within the "Climate Change, Carbon and Hydrological Resources" master program. At the PhD level, I have supervised five doctoral students and currently, I supervise one more who, as of 2023, is in their last year of a research aimed to model the moisture transport in the Upper Troposphere-Lower Stratosphere. All the PhD I have supervised along mi career now have a successful career both in research and teaching.

I have participated in several international research networks. I have worked as referee for the IPCC, as well as for several JCR journals and the "Agencia Nacional de Evaluación y Prospectiva" (ANEP).

Although the AEI is currently recommending the adaptation to the DORA declaration, I have opted to include in this summary some of the traditional general quality indicators: 49 JCR publications (38 Q1), 3/3 "sexenios" and 5/5 "tramos de investigación". Total cites (Scopus) 1346, h-index (Scopus): 21.

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES

C.1. Publicaciones más importantes en libros y revistas con "peer review" y conferencias

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores. Si aplica, indique el número de citaciones

- 1 **Artículo científico.** Paulina Ordoñez; David Gallego; Pedro Ribera; Cristina Peña; Ricardo Garcia Herrera. 2016. Tracking the Indian Summer Monsoon onset back to the pre-instrumental period. Journal of Climate. 29, pp.8115-8127. <https://doi.org/10.1175/JCLI-D-15-0788.1>
- 2 **Artículo científico.** Veronika; Cristina; David; Stefan; Francesco. 2022. Evidence of rapid adaptation integrated into projections of temperature-related excess mortality. Environmental Research Letters. 17. <https://doi.org/10.1088/1748-9326/ac5dee>
- 3 **Artículo científico.** David; Ricardo; Elsa; Teresa; Belén. 2022. Secular Variability of the Upwelling at the Canaries Latitude: An Instrumental Approach. Journal of Geophysical Research OCEANS. Wiley. 127-3. <https://doi.org/10.1029/2021JC018039>
- 4 **Artículo científico.** David; Ricardo; Teresa; Elsa; Belén. 2021. A Shift in the Wind Regime of the Southern End of the Canary Upwelling System at the Turn of the 20th Century. Journal of Geophysical Research OCEANS. Wiley. 126-5, pp.1-17. <https://doi.org/10.1029/2020JC017093>
- 5 **Artículo científico.** Inmaculada Vega; Pedro Ribera; David Gallego. 2020. Characteristics of the Onset, Withdrawal, and Breaks of the Western North Pacific Summer Monsoon in the 1949–2014 Period. Journal of Climate. 33, pp.7371-7389.

- 6 **Artículo científico.** Pedro Ribera; Paulina Ordoñez-Pérez; David Gallego; Cristina Peña-Ortiz. 2020. Internal variability and external forcings in the ocean-atmosphere multidecadal oscillator over the North Atlantic. *Climate Dynamics*. 55, pp.909-923.
- 7 **Artículo científico.** David Gallego; Paula Hidalgo. 2019. A historical climatology of the easterly winds in the strait of Gibraltar. *Atmosfera*. 33-3, pp.181-195. <https://doi.org/10.20937/ATM.2019.32.03.02>
- 8 **Artículo científico.** Paulina Ordoñez Perez; Raquel Nieto; Luis Gimeno; Pedro Ribera Rodriguez; David Gallego Puyol; Carlos Abraham Ochoa Moya; Arturo Ignacio Quintanar. 2019. Climatological moisture sources for the Western North American Monsoon through a Lagrangian approach: their influence on precipitation intensity. *Earth System Dynamics*. 10, pp.59-72. <https://doi.org/10.5194/esd-10-59-2019>
- 9 **Artículo científico.** Francisco de Paula Gomez Delgado; Ricardo Garcia Herrera; David Gallego Puyol; Cristina Peña Ortiz; Inmaculada Vega Martin; Pedro Ribera Rodriguez. 2019. Long term variability of the northerly winds over the Eastern Mediterranean as seen from historical wind observations. *Global and Planetary Change*. 172, pp.355-364. <https://doi.org/10.1016/j.gloplacha.2018.10.008>
- 10 **Artículo científico.** David Gallego Puyol; Ricardo Garcia Herrera; Francisco de Paula Gómez Delgado; Paulina Ordoñez Perez; Pedro Ribera Rodriguez. 2019. Tracking the moisture transport from the Pacific towards Central and northern South America since the late 19th century. *Earth System Dynamics*. 10, pp.319-331. <https://doi.org/10.5194/esd-10-319-2019>
- 11 **Artículo científico.** Inmaculada Vega Martin; David Gallego Puyol; Pedro Ribera Rodriguez; Francisco de Paula Gomez Delgado; Ricardo Garcia Herrera; Cristina Peña Ortiz. 2018. Reconstructing the Western North Pacific Summer Monsoon since the late 19th century. *Journal of Climate*. 31, pp.355-368. <https://doi.org/10.1175/JCLI-D-17-0336.1>
- 12 **Artículo científico.** Ricardo García Herrera; David Barriopedro Cepero; David Gallego Puyol; Javier Mellado Cano; Dennis Wheeler; Clive Wilkinson. 2018. Understanding weather and climate of the last 300 years from ships logbooks. *WIREs Climate Change*. Wiley. 9, pp.1-18. <https://doi.org/10.1002/wcc.544>
- 13 **Artículo científico.** Alicia Troncoso Lora; Pedro Ribera Rodriguez; Gualberto Asencio Cortes; Inmaculada Vega Martín; David Gallego Puyol. 2017. Imbalanced Classification Techniques for Monsoon Forecasting based on a new climatic time series. *Environmental Modelling and Software*. <https://doi.org/10.1016/j.envsoft.2017.11.024>
- 14 **Artículo científico.** David Gallego Puyol; Ricardo García Herrera; Cristina Peña Ortiz; Pedro Ribera Rodriguez. 2017. The steady increase of the Australian Summer Monsoon in the last 200 years. *Scientific Reports*. 7, pp.16166. <https://doi.org/10.1038/s41598-017-16414-1>
- 15 **Artículo científico.** David Gallego Puyol; Paulina Ordoñez Perez; Pedro Ribera Rodriguez; Cristina Peña Ortiz; Ricardo Garcia Herrera. 2015. An instrumental index of the West African Monsoon back to the nineteenth century. *Quarterly Journal of the Royal Meteorological Society*. Wiley. 141-693, pp.3166-3176. <https://doi.org/10.1002/qj.2601>
- 16 **Artículo científico.** Severin Irl; David E. V. Harter; Manuel J. Steinbauer; David Gallego Puyol; Jose María Fernandez Palacios; Anke Jentsch; Carl Beierkuhnlein. 2015. Climate vs. topography – spatial patterns of plant species diversity and endemism on a high-elevation island. *Journal of Ecology*. Wiley. <https://doi.org/10.1111/1365-2745.12463>
- 17 **Artículo científico.** Paulina Ordoñez Pérez; Pedro Ribera Rodríguez; David Gallego Puyol; Cristina Peña Ortiz. 2013. Influence of Madden-Julian Oscillation on water budget transported by the Somali low-level jet and the associated Indian summer monsoon rainfall. *Water Resources Research*. American Geophysical Union. 49, pp.6474-6485. <https://doi.org/10.1002/wrcr.20515>
- 18 **Artículo científico.** Cristina Peña Ortiz; David Gallego Puyol; Pedro Ribera Rodríguez; Paulina Ordoñez Pérez; Maria del Carmen Álvarez Castro. 2013. Observed trends in the global jet stream characteristics during the second half of the 20th century. *Journal of Geophysical Research: Atmospheres*. 118, pp.1-12. <https://doi.org/10.1002/jgrd.50305>

- 19 Artículo científico.** David Barriopedro Cepero; David Gallego Puyol; María del Carmen Álvarez Castro; Ricardo García Herrera; Dennis Wheeler; Cristina Peña Ortiz; Susana Barbosa. 2013. Witnessing North Atlantic westerlies variability from ships' logbooks (1685-2008). Climate Dynamics. Springer Berlin Heidelberg. on-line first, pp.DOI 10.1007/s00382-013-1957-8. <https://doi.org/10.1007/s00382-013-1957-8>

C.3. Proyectos o líneas de investigación

- 1 Proyecto.** UPO-1266073 EFIMERA: Evaluación de Futuros Impactos de Medicanes, Riesgos Asociados. Álvarez Castro. (Universidad Pablo de Olavide). 01/02/2020-31/01/2022. 85.000 €.
- 2 Proyecto.** Reconstrucción del clima a partir de cuadernos de bitácora, BitacoR. Universidad Pablo de Olavide. David Gallego Puyol. (Universidad Pablo de Olavide). 12/2019-12/2021. 42.000 €. Investigador principal.
- 3 Proyecto.** EQC2018-005303-P ESTACION PARA APLICACIONES DENDROCRONOLOGICAS EN INVESTIGACIONES MEDIOAMBIENTALES. Linares Calderón. (Universidad Pablo de Olavide). 01/01/2018-31/03/2021. 393.577,97 €.
- 4 Proyecto.** CGL2016-78562-P, CGL2016-78562-P: VARIABILIDAD DEL VAPOR DE AGUA EN LA BAJA ESTRATOSFERA CGL2016-78562-P. Ministerio de economía y competitividad. Cristina Peña Ortiz. (Universidad Pablo de Olavide). 30/12/2016-29/12/2019. 136.730 €.
- 5 Proyecto.** CGL2015-72164-EXP, CGL2015-72164-EXP: Determinación del upwelling costero en NW África a partir de diarios de navegación (1700-actualidad). Ministerio de Economía y Competitividad. Ricardo García Herrera. (Universidad Complutense de Madrid). 01/01/2017-31/12/2018. 50.000 €.
- 6 Proyecto.** UNPO15-CE-3208 CONSOLIDACION DEL CENTRO DE CÁLCULO DE LA UPO MEDIANTE LA AMPLIACIÓN Y MEJORA DEL CLUSTER DE PROCESADORES DE ALTA CAPACIDAD PARA CÁLCULO CIENTÍFICO. (Universidad Pablo de Olavide). 01/01/2016-31/12/2018. 199.357 €.
- 7 Proyecto.** P12-TIC-1728 Técnicas Avanzadas para el Análisis de Datos Temporales: Aplicación a Terremotos y Contaminación Ambiental MOTRIZ. CENTRO DE ACUSTICA APLICADA Y EVALUACION NO DESTRUCTIVA; (ANTIGUA) CONSEJERIA DE ECONOMIA, INNOVACION Y CIENCIA. Troncoso Lora. (Universidad Pablo de Olavide). 27/06/2014-26/06/2018. 35.850 €.
- 8 Proyecto.** CGL2013-44530-P, CGL2013-44530-P: NUEVA GENERACIÓN DE ÍNDICES CLIMÁTICOS INSTRUMENTALES. APLICACIÓN AL ESTUDIO DE LA TELECONEXIÓN MONZÓN-MEDITERRÁNEO. Ministerio de economía y competitividad. David Gallego Puyol. (Universidad Pablo de Olavide). 01/01/2014-31/12/2016. 113.740 €.
- 9 Proyecto.** P10-RNM-6547 ESCENARIOS FUTUROS DE INUNDACIÓN COSTERA EN LA BAHÍA DE CÁDIZ: IMPLICACIONES EN LA GESTIÓN DE LA ZONA LITORAL.. Junta de Andalucía. JAVIER BENAVENTE. (Universidad de Cádiz). 03/2013-03/2016. 34.000 €. Otros.
- 10 Contrato.** Estudio sobre la probabilidad de impacto de un huracán a partir de registro histórico en zonas de interés de la Cuenca del Atlántico Norte Azora Inversiones. David Gallego Puyol. 04/2016-01/05/2016. 5.390,55 €.