HISTORIAL CIENTÍFIC DEL GRUP D'INVESTIGACIÓ * / *HISTORIAL CIENTÍFICO DEL GRUPO DE INVESTIGACIÓN **

A	DADES DELS INVESTIGADORS PRINCIPALS (*) / *DATOS DE LOS INVESTIGADORES PRINCIPALES (*)*			
1R. COGNOM / *1er. APELLIDO*	2N. COGNOM/ *2º APELLIDO*	NOM / *NOMBRE*	DNI /NIF/NIE:
AZORÍN	**MOLINA**	**CÉSAR**	**73997301E**

B	COHERÈNCIA DE LA COMPOSICIÓ DEL GRUP EN RELACIÓ AMB EL PROJECTE A DESENVOLUPAR *COHERENCIA DE LA COMPOSICIÓN DEL GRUPO CON RELACIÓN AL PROYECTO A DESARROLLAR*

1. TEAM COHESION

The Climate, Atmosphere and Ocean Laboratory (**Climatoc-Lab**; https://climatoclab.csic.es/) is a previous consolidated (**AICO/2021/023, 2021-2023**), multidisciplinary (i.e., geographers, physicists, oceanographers and engineers) and international research group working on the assessment and attribution of climate change and variability, with focus on winds and extremes. The Climatoc-Lab is **led by PI Cesar Azorin-Molina** (Senior Scientist, *Científico Titular*) from the **Desertification Research Center (CIDE)**, a joint center between the Spanish National Research Council (**CSIC**), the University of Valencia (**UV**), and supported by the *Generalitat Valenciana* (**GVA**). The Climatoc-Lab consists in a team of scientists covering the whole stages of the scientific career with funding, high scientific production rate, modern climate research tools and active networking with international institutes from **Sweden, Australia, China and New Zealand**, among others; the Climatoc-Lab also coordinates the RED-CLIMA platform, which strengthens the collaboration with scientists in South America. In addition, the Climatoc-Lab is the **unique Valencian R&D centre** participating in the **PTI+ Clima "Climate and Climate Services" of CSIC** (https://pti-clima.csic.es/), aimed at creating open access climate services, i.e. **science for policy**.

In the last 15 years, **the Climatoc-Lab has formed a pioneering research team** in the assessment and attribution of the observed and simulated changes in wind speed and extremes. Specifically, the VENTS project (**AICO/2021/023; 2021-2023**) was carried out by the **PI Cesar Azorin-Molina with 3 international experts / centers** on this topic: IPE-CSIC (Zaragoza, Spain); University of Gothenburg (Sweden); and the Commonwealth Scientific and Industrial Research Organization (CSIRO, Australia). This research group has led advances in the field of research on "stilling" *vs.* "reversal" on a global and regional scale, with emphasis on the **socioeconomic and environmental implications** on the Valencian territory: e.g., desertification, wind energy, spread of forest fires, wind erosion, dispersion of pollutants, deep convection, etc. The **major research lines** of the group are:

- Assessment of observed and simulated changes in land and ocean surface winds: "stilling" *vs.* "reversal"
- Trends and multidecadal variability in daily peak wind gusts and extremes.
- Attribution of changes in wind speed and extremes: internal decadal ocean-atmosphere oscillations.
- Sea breezes and deep convection (sea breeze fronts), precipitation and desertification processes.
- Rescue, digitization and homogenization of historical climate data.
- Development of climate services (wind monitor by applying artificial intelligence)
- Automatic weather station networks.

For the current DOWNBURST project – PROMETEO 2024, the research team from the previous AICO/2021/023 will be enriched by the participation of new international scientists working on winds and extremes and with a strong and long-term connection with the previous AICO group in terms of peer-reviewed publications, R&D projects, supervision of PhD students and postdocs, etc. (see section *C. International background of the group*). Therefore, **the DOWNBURST project is led by** the Climatoc-Lab at **CIDE (CSIC-UV-GVA)** along with a multidisciplinary research team, with high internationalization and led by renowned scientists and their **7 respective groups** (***refers to new groups**): **IPE-CSIC** (Spain), ***UVIGO** (Spain), **GU** (Sweden), ***SUSTech** (China), **CSIRO** (Australia), and ***UOA and *NIWA** (New Zealand).

Figure 1 summarizes the team cohesion in terms of expertise and in relation to the work packages of the DOWNBURST project.

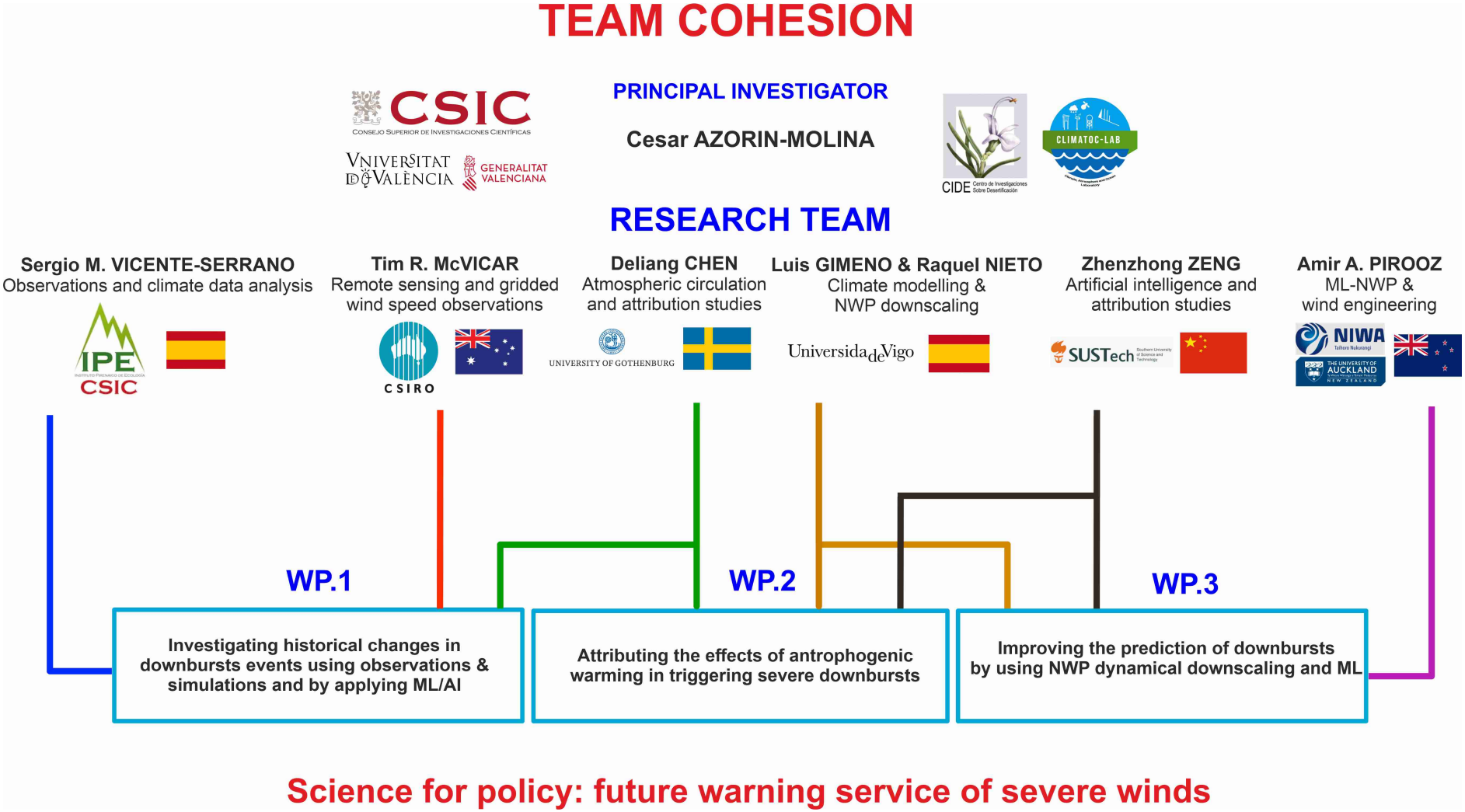

Figure 1. Team cohesion and leading researchers of the DOWNBURST project and required expertise and skills for each WP.

2. PRINCIPAL INVESTIGATOR AND RESEARCH MEMBERS

A brief summary of each member of the research team is given below (complete CV records are submitted along the proposal). Research members are grouped in sections according to their country.

2.1. SPAIN

Cesar Azorin-Molina (PI) He is a Senior Scientist (*Científico Titular*) at the Desertification Research Center (CIDE, CSIC-UV-GVA, Valencia), and head of the Climate, Atmosphere and Ocean Lab (Climatoc-Lab; https://climatoclab.csic.es/). His main scientific aim is to assess and attribute long-term changes and multidecadal climate variability with focus on winds and extremes over both land and ocean surfaces, and their socioeconomic (e.g., wind energy) and environmental (e.g., evapotranspiration-desertification) implications. He has published more than 140 SCI peer-reviewed articles in the fields of Meteorology and Atmospheric Sciences, with an h index of 48 and >10,000 citations. He coordinates the "State of the Climate – Surface winds" section of the *Bulletin of the American Meteorological Society* ; and actively participated in the Parallel Observations Science Team (POST) of the World Meteorological Organization, the Copernicus Data Rescue Service (C3S) and the CORDEX-WCRP project on high resolution model validation. He coordinated an EC H2020 MSCA-IF project, and has been PI of various research projects funded by the Swedish Research Council, the Spanish Ministry of Science and Innovation, the Swedish Research Council for Sustainable Development-FORMAS, among others. He also coordinates the RED-CLIMA of the CSIC (LINCGLOBAL programme), and obtained the Leonardo BBVA 2021 award in Earth Sciences. He is also an associate member of the Regional Climate Group of the University of Gothenburg (Sweden), and the PTI+ for "Climate and Climate Services" of CSIC. He led the consolidated group AICO/2021/023 (2021-2023) of the GVA.

Sergio M. Vicente-Serrano He is a Full Professor (*Profesor de Investigación*) at the Pyrenean Institute of Ecology (IPE-CSIC, Zaragoza) and head of the Climatology Lab and Climate Services (LCSC; https://lcsc.csic.es/es/lcsc/). He works on different topics related to global and climate change, including the study of landscape and vegetation changes in the Mediterranean region and different hydrological and climatic processes analyzed at different spatio-temporal scales. In particular, he has studied droughts from different perspectives, including the development of drought indices (SPEI) to improve the quantification of this complex phenomenon and the assessment of the impacts of droughts on the environment and water resources. He has coordinated different research projects at the European level and, in collaboration with stakeholders and water managers, has participated in climate change adaptation projects in different regions of Spain. He has more than 350 scientific documents, including 285+ articles in international journals in the fields of Hydrology, Atmospheric Sciences, Remote Sensing, etc. He has an h-index of 90 and has been included in the list of highly cited researchers since 2019. He has developed different climate services and products, including a drought monitoring system with global coverage (https://spei.csic.es/map/). He is co-coordinator of the CSIC PTI+ for "Climate and Climate Services"; was lead author of the IPCC Sixth Assessment Report; and is an advisory member of the UN "Science-Policy Interface" on the fight against desertification.

Luis Gimeno-Presa He is a Full Professor (*Catedrático de Universidad*) at the University of Vigo (Ourense) and the Environmental Physics Laboratory (EphysLab; https://ephyslab.uvigo.es/), a "Research Excellence" group by Xunta-Galicia. The group is also a CSIC Associated Unit with e.g. CIDE and IPE. He has a PhD in Earth Sciences and is a world-leader 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. In the last decade, he has been working extensively in the dynamic modelling of the wind field and its relationship with the wind resource, especially offshore. He has been PI on more than 30 research projects, and published more than 290 articles and received >10,000 citations in international high impact scientific journals. He has also served as 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, being also member of 16 Editorial boards. He created the first official Master's and PhD programmes in Spain dedicated to climate science. He has also supervised 16 doctoral thesis.

Raquel Nieto She is a Full Professor (*Catedrática de Universidad*) at the University of Vigo (Ourense). She has a PhD in Atmospheric Physics (2005), and belongs to the Environmental Physics Laboratory (EphysLab; https://ephyslab.uvigo.es/), a "Research Excellence" group by Xunta-Galicia. The group is also a CSIC Associated Unit with e.g. CIDE and IPE. Her scientific, teaching and professional career has always been linked to atmospheric and climate sciences, climate change and its impacts, and the consequences of climate extremes on human health in recent years. In the last years, she has worked on the impact of extreme wind patterns associated with meteorological systems, and their consequences on energy resources (onshore wind energy) or disruptions in the electric System; using Regional Climate Models (RCMs). She is internationally recognised and has been awarded by

the European Meteorological Society (EMS) and the European Geophysical Union (EGU). In the last decade, her contributions to the knowledge of the water cycle in the atmosphere have also achieved special international impact. This topic is fundamental to understanding and justifying the predictions of mean and extreme precipitation included in the IPCC reports. She has published more than 175 peer-reviewed papers in the fields of Meteorology and Atmospheric Sciences, received >7,300 citations, and led several R&D projects funded by national and international agencies. She has supervised 10 doctoral thesis.

2.2. SWEDEN

Deliang Chen He is a Full Professor at the University of Gothenburg (Sweden), and internationally renowned climate expert, and an elected member of six world-leading academies, including the Royal Swedish Academy of Sciences and the Chinese Academy of Sciences. He has published more than 500 peer-reviewed articles in international journals such as Science, Science Advances, Nature Energy, Nature Climate Change, Nature Scientific Data, Nature Communications, National Science Review, PNAS, among others. His h-index is 90, and his research has been cited more than 40,000 times. He has served on numerous national and international committees and boards, as well as advising various governmental, intergovernmental and international non-governmental bodies, including funding agencies, e.g.: President of the Stockholm Water Prize Nominations Committee; member of the Scientific Committee of the VOLVO Environment Award; President of the Earth Sciences Division of the Royal Swedish Academy of Sciences; and member of the Board of the Stockholm Resilience Center, as well as the External Scientific Advisory Group of the Bolin Center. He has also acted as lead coordinating author in Working Group I of the IPCC Sixth Assessment Report, and is an editor of several international scientific journals.

2.3. AUSTRALIA

Tim R. McVicar He leads the Time Series Remote Sensing team within the Environmental Earth Observation group of the Environmental Sensing, Prediction and Reporting theme of CSIRO Environment (Canberra, Australia). Tim is a spatial eco-hydrologist with over 20 years research experience in the use of time series remote sensing (in particular AVHRR, Landsat and EO-1 data) linked with spatio-temporal interpolation methods and analysis technologies to model and monitor regional eco-hydrological processes. Tim leads both national and international projects aimed at better monitoring and modelling winds, moisture availability, actual evapotranspiration and vegetation dynamics. By assessing the patterns of these variables (in space and time) the catchment water balance (including catchment water yield) can be better simulated. For more than 30 years his work has focused on: (i) hydrographic basin hydrology; (ii) land use change, including associated hydrological impacts; (iii) ecophysiological functioning; (iv) agriculture; and (v) assessment of vegetation status for both productivity (i.e. drought/yield) and biodiversity assessment. He has successfully collaborated with a wide network of scientists and published 180+ works in indexed journals, with an h-index of 75, and more than 26,000 citations. He is considered one of the pioneers in the study of the "stilling" phenomenon (decline of wind speed over mid-latitude regions of the world), developed the first gridded-wind speed product across Australia, and is one of the world experts on wind speed changes (including extremes).

2.4. CHINA

Zhenzhong Zeng He currently holds the position of Associate Professor in School of Environmental Science & Engineering at Southern University of Science and Technology (China). He got his Ph.D. degree at Peking University. His research focuses on global change and the Earth system, in particular biosphere-atmosphere interactions and global environment change. He has long worked on understanding and modelling the role of vegetation in the terrestrial water cycle and the global climate system, determining the response of the biosphere to human impacts, and quantifying how the biosphere response feeds back to the water cycle and climate system. Currently his research interests focus on observations, drivers, impacts, and solutions of agricultural expansion and forest loss in tropical regions. Other interests include water resources, climate mitigation, and engineering application. In particular, he termed “reversal” to the recent increase of wind speeds since ~2010s, and its implications on wind energy. He has led research on the reconstruction of wind speed fields using artificial intelligence approaches (Partial Convolutional Neural Network). He has coordinated several national and international R&D projects and published >125 peer-reviewed articles in prestigious journals such as Nature, PNAS, etc. and received >12,000 citations.

2.5. NEW ZEALAND

Amir A. Safaei-Pirooz He is a numerical weather prediction (NWP) and computational fluid dynamics (CFD) at the National Institute of Water and Atmospheric Research (NIWA), New Zealand. He also holds an honorary academic position at the University of Auckland (UOA). His research focuses on developing high-resolution NWP reanalysis

models, NWP-CFD coupling, and downscaling of NWP and climate projection models for applications such as extreme weather events, environmental studies, and renewable energy resource assessment. Amir's expertise extends to wind tunnel experiments and investigation of anemometer response characteristics. Amir completed his PhD at the UOA, with a central focus on estimating New Zealand's design wind speeds. Amir's multi-disciplinary research, which integrates wind and mechanical engineering, numerical simulations, signal processing, and climate science, has significantly contributed to the recent revision of the Australia/New Zealand wind-loading standard. This revised standard is expected to contribute to more cost-effective and resilient buildings in New Zealand. Despite being early in his career, Amir's publications boast over 250 citations, with an h-index of 8. He is a committee member of the Australasian Wind Engineering Society (AWES) and has actively contributes to diverse scientific and engineering projects locally and abroad. Holding a bachelor's degree with Honors and a master's in Mechanical Engineering, he served as a short-term research fellow at Tokyo Polytechnic University in 2019. Beyond academia, Amir is deeply engaged in wind engineering disciplines and consulting projects, showcasing his commitment to advancing knowledge and application in his field.

C *TRAJECTÒRIA INTERNACIONAL DEL GRUP*
TRAYECTORIA INTERNACIONAL DEL GRUPO

The **international leadership and active collaboration** is given in this section. Below are listed the **CV records among the research membres** in terms of joint research projects (**C1**), peer-reviewed publications (**C2**), conferences (**C3**), and doctoral thesis (**C4**) carried out since 2018.

C1. RESEARCH PROJECTS

55 research projects (26 internationals + 23 nationals + 1 regional + 5 contracts of special relevance)

a. *International projects*

[55]
PROJECT TITLE: «EXTREME: Robust attribution of human-induced thermodynamic and dynamic contributions in historical changes of regional heat and cold waves over Europe»
FINANCIAL ENTITY: European Commission.
LENGHT FROM: 2022 **TO:** 2024
PRINCIPAL INVESTIGATORS: Dr. Deliang Chen (University of Gothenburg)

[54]
PROJECT TITLE: «Mechanisms of hydrological drought variability across Europe (MEHYDRO)»
FINANCIAL ENTITY:: i-LINK CSIC.
LENGHT FROM: 2022 **TO:** 2023
PRINCIPAL INVESTIGATORS: Dr. Sergio M. Vicente-Serrano (IPE-CSIC)
FUNDING: 23.292 euros

[53]
PROJECT TITLE: «Changes of surface wind speed and their implications for wind energy production in China in the 21st century»
FINANCIAL ENTITY: National Natural Science Foundation of China. 42071022
LENGHT FROM: January 2021 **TO:** January 2025
PRINCIPAL INVESTIGATOR: Dr. Zeng Zhenzhong (Southern University of Science and Technology)

[52]
PROJECT TITLE: «Red española e iberoamericana sobre variabilidad climática y servicios climáticos en ecosistemas terrestres y marinos» RED-CLIMA»
FINANCIAL ENTITY: Spanish National Research Council (CSIC). The International Laboratory in Global Change. LINCGLOBAL Ref. INCGLO0023
LENGHT FROM: 2021 **TO:** 2023
PRINCIPAL INVESTIGATORS: Dr. Cesar Azorin-Molina (Spanish CIDE-CSIC)

FUNDING: 29.941 euros

[51]
PROJECT TITLE: «Simulation study on influences of natural forcings on decadal change of the Third Pole-East Asia monsoon precipitation»
FINANCIAL ENTITY: Swedish Foundation for International Cooperation in Research and Higher Education
LENGHT FROM: 2021 **TO:** 2023
PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)

[50]
PROJECT TITLE: «Assessing centennial wind speed variability from a historical weather data rescue project in Sweden»
FINANCIAL ENTITY: FORMAS – A Swedish Research Council for Sustainable Development - 2019-00509
LENGHT FROM: 2020 **TO:** 2022
PRINCIPAL INVESTIGATORS: Dr. Erik Engström (SMHI) and Dr. Cesar Azorin-Molina (Spanish CIDE-CSIC and University of Gothenburg)
FUNDING: 278.614,33 euros

[49]
PROJECT TITLE: «Linking accelerated warming over the Tibetan Plateau to the increased frequency of European summer heat waves»
FINANCIAL ENTITY: Swedish Research Council (VR: 2019-03954)
LENGHT FROM: 2020 **TO:** 2022
PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)

[48]
PROJECT TITLE: «Developing a modeling framework for regional land-atmosphere interaction studies: an application in the Third Pole»
FINANCIAL ENTITY: Swedish National Research Program on ModElling the Regional and Global Earth system
LENGHT FROM: 2020 **TO:** 2021
PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)

[47]
PROJECT TITLE: «The start-up fund»
FINANCIAL ENTITY: Southern University of Science and Technology. 29/Y01296122
LENGHT FROM: September 2019 **TO:** January 2026
PRINCIPAL INVESTIGATOR: Dr. Zeng Zhenzhong (Southern University of Science and Technology)

[46]
PROJECT TITLE: «High resolution climate modelling with a focus on convection and associated precipitation over the Third Pole Region»
FINANCIAL ENTITY: World Climate Research Programme (WCRP) - CORDEX
LENGHT FROM: 2019 **TO:** 2023
PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)

[45]
PROJECT TITLE: «Cross-sectoral impact assessment of droughts in complex European basins (CROSSDRO)»
FINANCIAL ENTITY: ERA-NET Consortium AXIS. JPI CLIMATE
LENGHT FROM: 2019 **TO:** 2022
PRINCIPAL INVESTIGATORS: Dr. Sergio M. Vicente-Serrano (IPE-CSIC) and Juan I. López-Moreno (IPE-CSIC)
FUNDING: 1.225.049 euros

[44]
PROJECT TITLE: «Impacts of extremely high summer temperature and drought on forest over Eurasia with a focus on Sweden»
FINANCIAL ENTITY: Swedish Research Council and Formas (2018-02858)
LENGHT FROM: 2019 **TO:** 2021
PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)

[43]
PROJECT TITLE: «Dynamics and importance of convection for precipitation in the Third Pole region: Satellite and ground-based observation versus model simulations»
FINANCIAL ENTITY: Swedish National Space Agency (SNSA: 188/18)
LENGHT FROM: 2019 **TO:** 2021
PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)

[42]
PROJECT TITLE: «Detection and attribution of changes in extreme wind gusts over land»
FINANCIAL ENTITY: Swedish Research Council – Vetenskapsrädet (VR) 2017-03780
LENGHT FROM: 2018 **TO:** 2021
PRINCIPAL INVESTIGATOR: Dr. Cesar Azorin-Molina (University of Gothenburg)
CO-PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)
FUNDING: 356.595,60 euros

[41]
PROJECT TITLE: «Observed trends and future changes in the intensity, frequency, and duration of very hot weather in Hong Kong»
FINANCIAL ENTITY: General Research Fund of Hong Kong (RGC Ref No. 11306417)
LENGHT FROM: 2018 **TO:** 2020
PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)

[40]
PROJECT TITLE: «Validation of Landsat Surface Brightness Temperature»
FINANCIAL ENTITY: Geoscience Australia
LENGHT FROM: 2018 **TO:** 2019
PRINCIPAL INVESTIGATOR: Dr. Tim R. McVICAR (CSIRO)
FUNDING: 200.000 dollars

[39]
PROJECT TITLE: «Wind Grids and MODIS Vegetation Cover: Supporting Improved ET Grids»
FINANCIAL ENTITY: Bureau of Meteorology
LENGHT FROM: 2018 **TO:** 2018
PRINCIPAL INVESTIGATOR: Dr. Tim R. McVICAR (CSIRO)
FUNDING: 50.000 dollars

[38]
PROJECT TITLE: «Integrated approach for the development across Europe of user oriented climate indicators for GFCS high-priority sectors: agriculture, disaster risk reduction, energy, health, water and tourism (INDECIS)»
FINANCIAL ENTITY: ERA-NET FOR CLIMATE SERVICES
LENGHT FROM: 2017 **TO:** 2020
PRINCIPAL INVESTIGATORS: Dr. Sergio M. Vicente-Serrano (IPE-CSIC) and Enric Aguilar (URV)
FUNDING: 600.000 euros

[37]
PROJECT TITLE: «Improving Drought and Flood Early Warning, Forecasting and Mitigation using real-time hydroclimatic indicators-IMDROFLOOD»
FINANCIAL ENTITY: JPI Water Works, European Comission
LENGHT FROM: 2016 **TO:** 2019
PRINCIPAL INVESTIGATOR: Dr. Sergio M. Vicente-Serrano (IPE-CSIC)
FUNDING: 1.182.190 euros

[36]
PROJECT TITLE: «Impact of climate change on water balance on The Third Pole Region»
FINANCIAL ENTITY: Swedish Foundation for International Cooperation in Research and Higher Education (STINT: CH2015-6226)
LENGHT FROM: 2016 **TO:** 2018
PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)

[35]
PROJECT TITLE: «Towards improved understanding of the worldwide decline of wind speed in a climate change scenario (STILLING)»
FINANCIAL ENTITY: European Commision
LENGHT FROM: 2016 **TO:** 2018
PRINCIPAL INVESTIGATOR: Dr. Cesar Azorin-Molina (University of Gothenburg).
CO-PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)
FUNDING: 185.857,20 euros

[34]
PROJECT TITLE: «Impact of increased drought severity as a consequence of changes in vapor pressure deficit and atmospheric evaporative demand in the Sahel (vegetation Response and Drought Index)»
FINANCIAL ENTITY: French National Centre for Scientific Research and Spanish National Research Council (CSIC). PIC2015FR9
LENGHT FROM: 2016 **TO:** 2018
PRINCIPAL INVESTIGATOR: Dr. Sergio M. Vicente-Serrano (IPE-CSIC)
FUNDING: 10.000 euros

[33]
PROJECT TITLE: «Landsat-MODIS actual evapotranspiration blending»
FINANCIAL ENTITY: Australian Government Department of Agriculture and Water Resources
LENGHT FROM: 2016 **TO:** 2018
PRINCIPAL INVESTIGATOR: Dr. Tim R. McVICAR (CSIRO)
FUNDING: 400.000 dollars

[32]
PROJECT TITLE: «Assessment of the global stilling phenomenon under a climate change scenario in Sweden»
FINANCIAL ENTITY: Swedish Research Council and Formas – University of Gothenburg
LENGHT FROM: 2015 **TO:** 2018
PRINCIPAL INVESTIGATOR: Dr. Deliang Chen (University of Gothenburg)
CO-PRINCIPAL INVESTIGATOR: Dr. Cesar Azorin-Molina (University of Gothenburg)
FUNDING: 422.466 euros

[31]
PROJECT TITLE: «Impacts of enhanced CO2 concentration induced changes to vegetation functioning and catchment streamflow»
FINANCIAL ENTITY: CSIRO Office of the Chief Executive Post-Doc Program
LENGHT FROM: 2015 **TO:** 2018
PRINCIPAL INVESTIGATOR: Dr. Tim R. McVICAR (CSIRO)
FUNDING: 495.000 dollars

[30]
PROJECT TITLE: «Bioregional Assessment focusing on cumulative impacts of coal mine and coal seam gas on water resources and water-related assets»
FINANCIAL ENTITY: Australian Government Department of Environment
LENGHT FROM: 2013 **TO:** 2018
PRINCIPAL INVESTIGATOR: Dr. Tim R. McVICAR (CSIRO)
FUNDING: 495.000 dollars

b. National projects

[29]
PROJECT TITLE: «Potential Effects of Climate Change on Design Wind Speed Estimates»
FINANCIAL ENTITY: Australasian Wind Engineering Society (AWES)
LENGHT FROM: 2023 **TO:** 2024
PRINCIPAL INVESTIGATOR: Dr. Amir Pirooz and Dr. Richard Turner (NIWA)

[28]
PROJECT TITLE: «Clima y servicios climáticos»
FINANCIAL ENTITY: Ministerio para Transición Ecológica y el Reto Demográfico. CSC2300000
LENGHT FROM: 2023 **TO:** 2026
PRINCIPAL INVESTIGATOR: Sergio M. Vicente-Serrano (IPE-CSIC); Dr. Jose M. Gutiérrez (IFCA-CSIC); Dr. David Barriopedro (IGEO-CSIC); Dr. Cesar Azorin-Molina (CIDE-CSIC); Dr. Santiago Beguería (EEAD-CSIC)
FUNDING: 6.250.000 euros

[27]
PROJECT TITLE: «Extreme wind and cyclone assessment over Luganville, Vanuatu»
FINANCIAL ENTITY: Asian Development Bank (ADB) and Vanuatu governemnt
LENGHT FROM: 2023 **TO:** 2024
PRINCIPAL INVESTIGATOR: Dr. Amir Pirooz, Dr. Stuart Moore and Dr. Richard Turner (NIWA)

[26]
PROJECT TITLE: «MEcanismos de las olas de CAlor y SEquías en España: el papel de las retroalimentaciones suelo-atmósfera y la dinámica atmosférica (MECASE)»
FINANCIAL ENTITY: Ministerio de Ciencia e Innovación. PID2022-137244OB-I00
LENGHT FROM: 2023 **TO:** 2026
PRINCIPAL INVESTIGATOR: Dr. Sergio M. Vicente-Serrano (IPE-CSIC) and Dr. Cesar Azorin-Molina (CIDE-CSIC)
FUNDING: 437.500 euros

[25]
PROJECT TITLE: «NIWA WeatherApp: Gridded bias correction of wind forecasts»
FINANCIAL ENTITY: National Institute of Water and Atmospheric Research (NIWA), New Zealand
LENGHT FROM: 2023 **TO:** 2023
PRINCIPAL INVESTIGATOR: Dr. Amir Pirooz (NIWA)

[24]
PROJECT TITLE: «Servicio de monitorización y estimación del viento en el litoral a partir de instrumentación de bajo coste y aprendizaje automático»
FINANCIAL ENTITY: NextGenerationEU – GVA-THINKINAZUL/2021/018
LENGHT FROM: 2022 **TO:** 2025
PRINCIPAL INVESTIGATOR: Dr. Cesar Azorin-Molina (CIDE-CSIC) and Dr. Amir Pirooz (NIWA)
CO-PRINCIPAL INVESTIGADOR: Dr. Veronica Nieves (UV)
FUNDING: 175.891,22€ euros

[23]
PROJECT TITLE: «Evaluación en alta resolución del transporte de humedad en el Atlántico Norte en clima actual y en las proyecciones futuras del CMIP-6.»
FINANCIAL ENTITY: Ministerio de Ciencia e Innovación. PID2021-122314OB-I00
LENGHT FROM: 2022 **TO:** 2025
PRINCIPAL INVESTIGATOR: Dr. Luis Gimeno (University of Vigo) and Dra. Raquel Nieto (University of Vigo)
FUNDING: 163.350 euros

[22]
PROJECT TITLE: «Development of methodology for complex monitoring and prediction of drought and fire weather conditions in Ukraine»
FINANCIAL ENTITY: CSIC. Programa CSIC de Cooperación Científica con Ucrania
LENGHT FROM: 2022 **TO:** 2024
PRINCIPAL INVESTIGATOR: Dr. Sergio M. Vicente-Serrano (IPE-CSIC)
FUNDING: 104.379 euros

[21]
PROJECT TITLE: «Evaluación a largo plazo de los cambios en la CUbierta vegetal en los parques nacionales españoles y su conexión con los procesos de VAriabilidad y cambio CLImático»
FINANCIAL ENTITY: Ministerio para la Transición Ecológica- Organismo de Parques Nacionales
LENGHT FROM: 2022 **TO:** 2025
PRINCIPAL INVESTIGATOR: Dr. Sergio M. Vicente-Serrano (IPE-CSIC)

FUNDING: 97.462 euros

[20]
PROJECT TITLE: «Riesgo de eventos meteorológicos e hidrológicos extremos en España: impactos, escenarios futuros y herramientas para mejorar la resiliencia y adaptación al cambio climático (EXMERISK)»
FINANCIAL ENTITY: Ministerio de Ciencia e Innovación. Plan de Recuperación, Transformación y Resiliencia
LENGHT FROM: 2022 **TO:** 2024
PRINCIPAL INVESTIGATOR: Dr. Sergio M. Vicente-Serrano (IPE-CSIC)
FUNDING: 116.150 euros

[19]
PROJECT TITLE: «Probabilidad de riesgo de fenomenos meteorologicos e hidrologicos extremos en España segun las proyecciones futuras del CMIP-6 en alta resolucion espacial.»
FINANCIAL ENTITY: Ministerio de Ciencia e Innovación. TED2021-129152B-C43
LENGHT FROM: 2022 **TO:** 2024
PRINCIPAL INVESTIGATOR: Dr. Luis Gimeno (University of Vigo) and Dra. Raquel Nieto (University of Vigo)
FUNDING: 126.500 euros

[18]
PROJECT TITLE: «Servicio de monitorización de viento y predicción de sequías de viento para la industria eólica – WIND-ATLAS »
FINANCIAL ENTITY: Agencia Estatal Consejo Superior de Investigaciones Científicas – Proyecto Intramural Ref. 202230I068
LENGHT FROM: 03/11/2022 **TO:** 31/12/2023
PRINCIPAL INVESTIGATOR: Dr. Cesar Azorin-Molina (CIDE-CSIC)
FUNDING: 5.000 euros

[17]
PROJECT TITLE: «Wind assessment over a shipping container site during an extreme wind event »
FINANCIAL ENTITY: Conlinxx (New Zealand)
LENGHT FROM: 2022 **TO:** 2022
PRINCIPAL INVESTIGATOR: Dr. Amir Pirooz (NIWA)

[16]
PROJECT TITLE: «Stilling *vs.* reversal: proyecciones de la velocidad del viento en el siglo XXI y oscilaciones atmósfera-océano asociadas»
FINANCIAL ENTITY: Fundación BBVA. Beca Leonardo a Investigadores y Creadores Culturales 2021
LENGHT FROM: 01/07/2021 **TO:** 31/12/2022
PRINCIPAL INVESTIGATOR: Dr. Cesar Azorin-Molina (CIDE-CSIC)
FUNDING: 39.951 euros

[15]
PROJECT TITLE: «Design Wind Load Assessment for a Cableway over the Manganui Gorge, Mount Taranaki»
FINANCIAL ENTITY: Department of Conservation (DOC), New Zealand
LENGHT FROM: 2021 **TO:** 2021
PRINCIPAL INVESTIGATOR: Dr. Amir Pirooz (NIWA)

[14]
PROJECT TITLE: «New Zealand Convective-Permitting Reanalysis Model»
FINANCIAL ENTITY: Ministry of Business, Innovation, and Employment (MBIE), New Zealand
LENGHT FROM: 2020 **TO:** 2024
PRINCIPAL INVESTIGATOR: Dr. Stuart Moore and Dr. Amir Pirooz (NIWA)

[13]
PROJECT TITLE: «Evaluación y atribución de la variabilidad de la velocidad media y las rachas máximas de viento: causas del fenómeno "stilling" - IBER-STILLING»
FINANCIAL ENTITY: Ministerio de Ciencia e Innovación. RTI2018-095749-A-I00
LENGHT FROM: 2019 **TO:** 2021
PRINCIPAL INVESTIGATOR: Dr. Cesar Azorin-Molina (CIDE-CSIC)

FUNDING: 108.900 euros + 1 PhD student

[12]
PROJECT TITLE: «LAGRangian analysis of the Impact on the global hydrological cycle of the Major Mechanisms of Atmospheric Moisture Transport »
FINANCIAL ENTITY: Ministerio de Economía y Competitividad. RTI2018-095772-B-I00
LENGHT FROM: 2019 **TO:** 2021
PRINCIPAL INVESTIGATOR: Dr. Luis Gimeno (University of Vigo) and Dra. Raquel Nieto (University of Vigo)
FUNDING: 84.700 euros

[11]
PROJECT TITLE: «El papel de la nieve en la hidrología de la peninsula iberica y su respuesta a procesos de cambio global»
FINANCIAL ENTITY: Ministerio de Economía y Competitividad. CGL2017-82216-R
LENGHT FROM: 2018 **TO:** 2021
PRINCIPAL INVESTIGATOR: Dr. Sergio M. Vicente-Serrano (CSIC) and Dr. Juan I. López-Moreno (IPE-CSIC)
FUNDING: 240.000 euros

[10]
PROJECT TITLE: «New Zealand's design wind speed estimates for AS/NZS1170.2 (2017 – 2021)»
FINANCIAL ENTITY: Ministry of Business, Innovation, and Employment (MBIE), New Zealand
LENGHT FROM: 2017 **TO:** 2021
PRINCIPAL INVESTIGATOR: Dr. Amir Pirooz (NIWA)

[9]
PROJECT TITLE: «Atmospheric moisture transport, the bridge between ocean evaporation and Arctic Sea ice melting»
FINANCIAL ENTITY: Ministerio de Economía y Competitividad. CGL2015-65141-R
LENGHT FROM: 2016 **TO:** 2019
PRINCIPAL INVESTIGATOR: Dr. Luis Gimeno (University of Vigo) and Dra. Raquel Nieto (University of Vigo)
FUNDING: 146.410 euros

[8]
PROJECT TITLE: «Herramientas de monitorización de la vegetación mediante modelización ecohidrológica en parques continentales: Evolución reciente y proyecciones futuras»
FINANCIAL ENTITY: Parques Nacionales. Ref:.1560/2105
LENGHT FROM: 2016 **TO:** 2018
PRINCIPAL INVESTIGATOR: Dr. Sergio M. Vicente-Serrano (CSIC)
FUNDING: 38.000 euros

[7]
PROJECT TITLE: «Desarrollo de índices de sequía sectoriales: mejora de la monitorización y alerta temprana de las sequías en España»
FINANCIAL ENTITY: Ministerio de Economía y Competitividad. CGL2014-52135-C3-1-R
LENGHT FROM: 2015 **TO:** 2018
PRINCIPAL INVESTIGATOR: Dr. Sergio M. Vicente-Serrano (CSIC)
FUNDING: 181.000 euros

c. Regionals projects

[6]
PROJECT TITLE: «Cambios observados, proyecciones futuras e índices de la velocidad del viento y sus extremos en la Comunidad Valenciana»
FINANCIAL ENTITY: Valencian Regional Goverment – GVA. AICO-Program AICO/2021/023
LENGHT FROM: 2021 **TO:** 2023
PRINCIPAL INVESTIGATOR: Dr. Cesar Azorin-Molina (CIDE-CSIC)
FUNDING: 89.858,69 euros

d. *Research contracts of special relevance*

[5]
PROJECT TITLE: «Develop Landsat-MODIS Actual Evapotranspiration Grids for the Green Triangle (SE SA and western Vic)»
FINANCIAL ENTITY: National Institute for Forest Products Innovation (NIFPI) and University of South Australia (UniSA)
LENGHT FROM: Feb 2020 **TO:** June 2020
PRINCIPAL INVESTIGATOR: Dr. Tim R. McVICAR (CSIRO)
FUNDING: 90.000 dollars

[4]
PROJECT TITLE: «Expert Advice on Remote Sensing of Actual Evapotranspiration for Enhanced Irrigation Management»
FINANCIAL ENTITY: United Nations (UN) Food and Agricultural Organization (FAO)
LENGHT FROM: Oct 2019 **TO:** Oct 2019
PRINCIPAL INVESTIGATOR: Dr. Tim R. McVICAR (CSIRO)
FUNDING: 25.000 dollars

[3]
PROJECT TITLE: «Review of $20M proposals for the Northern Murray-Darling Basin Hydrometric Networks and Remote Sensing Funding Program»
FINANCIAL ENTITY: Australian Government Department of Agriculture and Water Resources
LENGHT FROM: Feb 2019 **TO:** Feb 2019
PRINCIPAL INVESTIGATOR: Dr. Tim R. McVICAR (CSIRO)
FUNDING: 20.000 dollars

[2]
PROJECT TITLE: «Actual Evapotranspiration (AET) Product Development»
FINANCIAL ENTITY: TERN Landscapes
LENGHT FROM: Nov 2019 **TO:** Dec 2020
PRINCIPAL INVESTIGATOR: Dr. Tim R. McVICAR (CSIRO)
FUNDING: 330.000 dollars

[1]
PROJECT TITLE: «Landsat-MODIS Blending for State-wide Vegetation Condition Assessment»
FINANCIAL ENTITY: NSW Office of Environment and Heritage (NSW OEH)
LENGHT FROM: May 2018 **TO:** March 2019
PRINCIPAL INVESTIGATOR: Dr. Tim R. McVICAR (CSIRO)
FUNDING: 250.000 dollars

C2. PUBLICATIONS (*at least two researcher members in the coauthorship; since 2018)

157 SCI articles + 43 other publications (chapter books – proceedings)

a. SCI articles

2023

[157] BECK, H.E., **MCVICAR, T.R.**, VERGOPOLAN N., BERG, A., LUTSKO, N.J., DUFOUR, A., **ZENG, Z.Z.**, JIANG, X., VAN DIJK, A.I.J.M. AND MIRALLES, D.G. (2023) High-resolution (1 km) Köppen-Geiger maps for 1901–2099 based on constrained CMIP6 projections. ***Scientific Data.*** 10:724, doi/10.1038/s41597-023-02549-6

[156] ZHAO, Y., LIANG, S., LIU, Y., **MCVICAR, T.R.**, **AZORIN-MOLINA, C.**, ZHOU, L., DUNN, R.J.H., JEREZ, S., QING, Y., YANG, X., XU, J., **ZHENZHONG, Z.** 2023: Global assessment of spatiotemporal changes of frequency of terrestrial wind speed. ***Environmental Research Letters.*** 18(4), 044048. doi: 10.1088/1748-9326/acc9d5

[155] FERNANDEZ-DUQUE, B., **VICENTE-SERRANO, S.M.**, MAYNARD, O., DOMINGUEZ-CASTRO, F., PEÑA-ANGULO, D., NOGUERA, I., **AZORIN-MOLINA, C.**, EL KENAWY, A. 2023. Long-term changes of temperature, relative humidity and vapour pressure deficit in Bolivia (1950-2019). ***International Journal of Climatology.*** doi: 10.1002/joc.8226

[154] MINOLA, L., ZHANG, G., OU, T., KUKULIES, J., CURIO, J., GUIJARRO, J.A., DENG, K., **AZORIN-MOLINA, C.**, SHEN, C., PEZZOLI, A., **CHEN, D.**, 2023: Climatology of near-surface wind speed from observations and high-resolution climate models over the Tibetan Plateau. ***Climate Dynamics.*** doi: 10.1007/s00382-023-06931-3

[153] MINOLA, L., LÖNN, J., **AZORIN-MOLINA, C.**, ZHOU, C., ENGSTRÖM, E., WERN, L., HELLSTRÖM, S., ZHANG, G., SHEN, C., PEZZOLI, A., **CHEN, D.** 2023. The contribution of large-scale atmospheric circulation to variations of observed near-surface wind speed across Sweden since 1926. ***Climatic Change.*** 176(5): 54. doi: 10.1007/s10584-023-03525-0

[152] AZORIN-MOLINA, C., DUNN, R.J.H., RICCIARDULLI, L., MEARS, C.A., **MCVICAR, T.R.**, NICOLAS, J.P., **ZENG, Z.**, BOSILOVICH, M.G. 2023: [Global climate; Atmospheric circulation] Land and ocean surface winds [in "State of the Climate in 2022"]. ***Bulletin of American Meteorological Society***. 104(9), S72-S74.

[151] HUANG, X., DUNN, R.J.H., LI, L.Z.X., **MCVICAR, T.R.**, **AZORIN-MOLINA, C.**, **ZENG, Z.** 2023. Increasing global terrestrial diurnal temperature range for 1980-2021. ***Geophysical Research Letters***. 50(11), e2023GL103503, doi: 10.1029/2023GL103503

[150] ENGSTRÖM, E., WERN, L., HELLSTRÖM, S., KJELLSTROM, E., ZHOU, C., **CHEN, D.**, **AZORIN-MOLINA, C.**, 2023: Data rescue of historial wind observations in Sweden since the 1920s. ***Earth System Science Data*** 15(6), 2259-2277. doi: 10.5194/essd-15-2259-2023

[149] **AZORIN-MOLINA, C.**, **SAFAEI PIROOZ, A.A.**, BEDOYA-VALESTT, S., UTRABO-CARAZO, E., ANDRES-MARTIN, M., SHEN, C., MINOLA, L., GUIJARRO, JOSE A., AGUILAR, E., BRUNET, M., FLAY, R. G.J., **VICENTE-SERRANO, S.M.**, **MCVICAR, T.R.**, **CHEN, D.**, 2023: Biases in wind speed due to anemometer changes. ***Atmospheric Research*** 289, 106771. doi: 10.1016/j.atmosres.2023.106771

[148] NOGUERA, I., **VICENTE-SERRANO, S.M.**, PEÑA-ANGULO, D., DOMINGUEZ-CASTRO, F., JUEZ, C., TOMAS-BURGUERA, M., LORENZO-LACRUZ, J., **AZORIN-MOLINA, C.**, HALIFA-MARIN, A., FERNANDEZ-DUQUE, B., EL KENAWY, A., 2023: Assessment of vapour pressure deficit variability and trends in Spain and possible connections with soil moisture. ***Atmospheric Research.*** doi: 10.1016/j.atmosres.2023.106666

[147] FERNÁNDEZ-ÁLVAREZ, J. C., PÉREZ-ALARCÓN, A., EIRAS-BARCA, J., RAHIMI, S., **NIETO, R.**, **GIMENO, L.** (2023) Projected changes in atmospheric moisture transport contributions associated with climate warming in the North Atlantic, ***Nature Communications***, Vol. 14, 6476 ; DOI: 10.1038/s41467-023-41915-1

[146] SÁNCHEZ-MURILLO, R., GONZÁLEZ-HITA, L., MEJÍA-GONZÁLEZ, M. A., CARTEÑO-MARTINEZ, B., APARICIO-GONZÁLEZ, J. C., MAÑÓN-FLORES, D., ORTEGA, L., STOJANOVIC, M. , **NIETO, R.**, **GIMENO, L.** (2023) Tracing isotope precipitation patterns across Mexico, ***PLOS WATER***, DOI: 10.1371/journal.pwat.0000136

[145] STOJANOVIC, M. , SORÍ, R., GUEROVA, G., VÁZQUEZ, M., **NIETO, R.**, **GIMENO, L.** (2023) Vegetation Greenness Sensitivity to Precipitation and Its Oceanic and Terrestrial Component in Selected Biomes and Ecoregions of the World, ***Remote Sensing***, Vol. 15, Issue 19, 4706; DOI: 10.3390/rs15194706

[144] ANDRES-MARTIN, M., **AZORIN-MOLINA, C.**, SHEN, C., FERNÁNDEZ-ÁLVAREZ, J. C., **GIMENO, L.**, **VICENTE-SERRANO, S. M.**, ZHA, J. (2023) Uncertainty in surface wind speed projections over the Iberian Peninsula: CMIP6 GCMs versus a WRF-RCM, ***Annals of the New York Academy of Sciences***, DOI: 10.1111/nyas.15063

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[142] KEUNE, J., SMESSAERT, F., **NIETO, R.**, **GIMENO, L.**, MIRALLES, D.G. (2023) Land–atmosphere feedbacks contribute to crop failure in global rainfed breadbaskets, npj ***Climate and Atmospheric Science***, Vol. 6 :51 ; DOI: 10.1038/s41612-023-00375-6

[141] PÉREZ-ALARCÓN, A., COLL-HIDALGO, P., FERNÁNDEZ-ÁLVAREZ, J. C., TRIGO, R.M., **NIETO, R.**, **GIMENO, L.** (2023) Climatological variations of moisture sources for precipitation of North Atlantic tropical cyclones linked to their tracks, ***Atmospheric Research***, Vol. 290, 106778; DOI: 10.1016/j.atmosres.2023.106778

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[137] PÉREZ-ALARCÓN, A., FERNÁNDEZ-ÁLVAREZ, J. C., SORÍ, R., LIBERATO, M.L.R. , TRIGO, R.M., **NIETO, R.**, **GIMENO, L.**(2023) How much of precipitation over the Euroregion Galicia – Northern Portugal is due to tropical-origin cyclones?: A Lagrangian approach, ***Atmospheric Research***, Vol. 285, 106640 ; DOI: 10.1016/j.atmosres.2023.106640

[136] PÉREZ-ALARCÓN, A., COLL-HIDALGO, P., FERNÁNDEZ-ÁLVAREZ, J. C., TRIGO, R.M., **NIETO, R.**, **GIMENO, L.**(2023) Evaluating changes in the moisture sources for tropical cyclones precipitation in the North Atlantic that underwent extratropical transition, ***Geophysical Research Letters***, Vol. 50, Issue 7 ; DOI: 10.1029/2022GL102120

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[133] FERNÁNDEZ-ÁLVAREZ, J. C., VÁZQUEZ, M., PÉREZ-ALARCÓN, A., **NIETO, R.**, **GIMENO, L.**(2023) Comparison of Moisture Sources and Sinks Estimated with Different Versions of FLEXPART and FLEXPART-WRF Models Forced with ECMWF Reanalysis Data, ***Journal of Hydrometeorology***, DOI: 10.1175/JHM-D-22-0018.1

[132] FERNÁNDEZ-ÁLVAREZ, J. C.,COSTOYA, X., PÉREZ-ALARCÓN, A., RAHIMI, S., **NIETO, R.**, **GIMENO, L.**(2023) Dynamic downscaling of wind speed over the North Atlantic Ocean using CMIP6 projections: Implications for offshore wind power density, ***Energy Reports***, Vol. 9; 873-885 : DOI: 10.1016/j.egyr.2022.12.036

[131] SORÍ, R., GIMENO-SOTELO, L., **NIETO, R.**, LIBERATO, M.L.R. , STOJANOVIC, M. , PÉREZ-ALARCÓN, A., FERNÁNDEZ-ÁLVAREZ, J. C., **GIMENO, L.**(2023) Oceanic and terrestrial origin of precipitation over 50 major world river basins: Implications for the occurrence of drought, ***Science of The Total Environment***, Vol. 859, Part 2; DOI: 10.1016/j.scitotenv.2022.160288

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[129] VICENTE-SERRANO, S.M., MAILLARD, O., PEÑA-ANGULO, D., DOMÍNGUEZ-CASTRO, F., NOGUERA,

I., LORENZO-LACRUZ, J., **AZORIN-MOLINA, C.**, JUEZ, C., GUIJARRO, J.A., HALIFA-MARÍN, A., EL KENAWY, A., 2022: Evaluation of long-term changes in precipitation over Bolivia based on observations and CMIP models. ***International Journal of Climatology.*** doi: 10.1002/joc.7924

[128] JIN, Y., S. HU, A. D. ZIEGLER, L. GIBSON, J. E. CAMPBELL, R. XU, **D. CHEN**, K. ZHU, Y. ZHENG, B. YE, F. YE, **Z. ZENG**, 2023: Energy production and water savings from floating solar photovoltaics on global reservoirs. Nature Sustainability. DOI: 10.1038/s41893-023-01089-6.

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[125] LIU, Y., **ZENG, Z.**, XU, R., ZIEGLER, A.D., JEREZ, S., **CHEN, D.**, CHAPPELL, A., **AZORIN-MOLINA, C.**, ZHOU, L., XU, H., LI, L.Z., DONG, L., ZHOU, F., CAO, R., LIU, J., YE, B., KUANG, X., YANG, X. 2022: Increases in China's wind energy production from the recovery of winds since 2012. ***Environmental Research Letters.*** 17 114035. doi: 10.1088/1748-9326/ac9cf4

[124] ZHOU, L. LIU, H., JIANG, X., ZIEGLER, A.D., **AZORIN-MOLINA, C.**, LIU, J., **ZENG, Z.** 2022: An artificial intelligence construction of global gridded surface winds. Science Bulletin. 67(20), 2060-2063. doi: 10.1016/j.scib.2022.09.022

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[42] ENGSTRÖM, E., **AZORIN-MOLINA, C.,** WERN, L., HELLSTRÖM, S., ZHOU, C., **CHEN, D**., 2022: Data rescue of historical wind observations in Sweden since the 1920s. *EMS Annual Meeting: European Conference for Applied Meteorology and Climatology*, Bonn, Germany, September 4 – 9, 2022. **Oral presentation** [Abstract publication Vol.19 EMS2022-436]

[41] MINOLA, L., LÖNN, J., **AZORIN-MOLINA, C.,** ZHOU, C., ENGSTRÖM, E., WERN, L., HELLSTRÖM, S., LÖNN, J., **CHEN, D**., 2022: Variations of observed near-surface wind speed across Sweden during 1926-1996 en. *Swedish Climate Symposium. Norrköping, Sweden, May 16 – 18, 2022.* **Oral presentation.**

[40] ZHOU, C., **AZORIN-MOLINA, C.,** ENGSTRÖM, E., MINOLA, L, WERN, L., HELLSTRÖM, S., LÖNN, J., **CHEN, D**., 2022: HomogWS-se: A century-long homogenized dataset of near-surface wind speed observations since 1925 rescued in Sweden for community use. *Swedish Climate Symposium. Norrköping, Sweden, May 16 – 18, 2022.* **Poster presentation.**

[39] ENGSTRÖM, E., **AZORIN-MOLINA, C.,** WERN, L., HELLSTRÖM, S., ZHOU, C., **CHEN, D**., 2022: Data rescue and digitization of historical wind speed observations in Sweden. *Swedish Climate Symposium. Norrköping, Sweden, May 16 – 18, 2022.* **Poster presentation.**

[38] KHORCHANI, M., ZHOU, L., **AZORIN-MOLINA, C.,** JIANG, X., BEDOYA-VALESTT, S., UTRABO-CARAZO, E., ANDRES-MARTIN, M., ZHANG, G., ZENG, Z. 2022: A gridded wind speed observation product using artificial intelligence for Eastern Iberian Peninsula. *EGU General Assembly 2022.* Vienna, Austria, 23-27 May 2022. **Virtual PICO.** EGU22-11640.

[37] ZHOU, C. **AZORIN-MOLINA, C.,** ENGSTRÖM, E., MINOLA, L., WERN, L., HELLSTRÖM, S., LÓNN, J., **CHEN, D**. 2022: A century-long homogenized dataset of near-surface wind speed observations since 1925 rescued in Sweden, HomogWS-se. *EGU General Assembly 2022.* Vienna, Austria, 23-27 May 2022. **Virtual PICO.** EGU22-7828.

[36] ENGSTRÖM, E., **AZORIN-MOLINA, C.,** WERN, L., HELLSTRÖM, S., STURM, C., JOELSSON, M., ZHOU, C., **CHEN, D**. 2022: The WINDGUST project: results of the digitization of historical wind speed observations in Sweden. *EGU General Assembly 2022.* Vienna, Austria, 23-27 May 2022. **Virtual PICO.** EGU22-7366.

[35] BEDOYA-VALESTT, S., **AZORIN-MOLINA, C., GIMENO, L.**, CAFARO, C., UTRABO-CARAZO, E., ANDRES-MARTIN, M., GUIJARRO, J.A., AGUILAR, E., BRUNET, M. 2022: Observed changes in sea breezes over the Western Mediterranean basin, 1961-2020. *EGU General Assembly 2022.* Vienna, Austria, 23-27 May 2022. **Virtual PICO.** EGU22-6633.

2021

[34] ENGSTRÖM, **AZORIN-MOLINA, C.,** ZHOU, C., LÖNN, J., WERN, L., HELLSTRÖM, S., STURM, C., JOELSSON, M., ZHANG, G., MINOLA, L., DENG, K., **CHEN, D**., 2021: Advances in the data rescue and digitization of historical wind speed observations in Sweden: the WINDGUST project. *Data Management Workshop. Patras, Greece, October 25 – 27, 2021. Oral presentation.* **Oral presentation.**

[33] ZHOU, L., **AZORIN-MOLINA, C., ZENG, Z.** 2021: How representative is global terrestrial wind speed from in-situ observations?. *EGU General Assembly 2021.* Vienna, Austria, 19-30 April 2021. **Virtual PICO.** EGU21-14270.

[32] PIROOZ, A.A.S., FLAY, R.G.J., TURNER, R., **AZORIN-MOLINA, C.,** 2021: Wind-tunnel setup for investigating the response characteristics of anemometers. *EGU General Assembly 2021.* Vienna, Austria, 19-30 April 2021. **Virtual PICO.** EGU21-10422.

[31] PIROOZ, A.A.S., FLAY, R.G.J., TURNER, R., **AZORIN-MOLINA, C.,** 2021: State of the art in cup anemometry. *EGU General Assembly 2021.* Vienna, Austria, 19-30 April 2021. **Virtual PICO.** EGU21-10399.

[30] ENGSTRÖM, **AZORIN-MOLINA, C.,** WERN, L., HELLSTRÖM, S., STURM, C., JOELSSON, M., ZHANG, G., MINOLA, L., DENG, K., **CHEN, D**., 2021: Advances in the data rescue and digitization of historical wind speed observations in Sweden; the WINDGUST project. *EGU General Assembly 2021.* Vienna, Austria, 19-30 April 2021. **Virtual PICO.** EGU21-5848.

2020

[29] ENGSTRÖM, **AZORIN-MOLINA, C.,** WERN, L., HELLSTRÖM, S., STURM, C., JOELSSON, M., ZHANG, G., MINOLA, L., **CHEN, D**., 2020: Digitization of historical wind speed observations at the Swedish Meteorological and Hydrological Institute. *EGU General Assembly 2020.* Vienna, Austria, 3-8 May 2020. **Oral presentation.** EGU2020-3491.

[28] MINOLA, L., ZHANG, F., **AZORIN-MOLINA, C., SAFAEI PIROOZ, A.,** FLAY, R., HERSBACH, H., **CHEN, D**., 2020: Near-surface mean and gust wind speed in ERA5 across Sweden: towards and improved gust parametrization. *EGU General Assembly 2020.* Vienna, Austria, 3-8 May 2020. **Oral presentation.** EGU2020-4691.

[27] DENG, K., **AZORIN-MOLINA, C.,** MINOLA, L., **CHEN, D**., 2020: Global near-surface wind speed trends in observation and CMIP6 historical simulation for 1850-2014. *EGU General Assembly 2020.* Vienna, Austria, 3-8 May 2020. **Oral presentation.** EGU2020-4730.

[26] SAFAEI PIROOZ, A.A., FLAY, R.G.J., TURNER, R., **AZORIN-MOLINA, C.,** 2020: Possible effects of climate change on New Zealand design wind speeds. *EGU General Assembly 2020.* Vienna, Austria, 3-8 May 2020. **Poster presentation.** EGU2020-6247

[25] SAFAEI PIROOZ, A.A., FLAY, R.G.J., MINOLA, L. **AZORIN-MOLINA, C., CHEN, D**., 2020: Effects of sensor response and gust duration on maximum wind gust measurements and data homogenisation. *EGU General Assembly 2020.* Vienna, Austria, 3-8 May 2020. **Poster presentation.** EGU2020-12298

[24] ZHANG, G., **AZORIN-MOLINA, C.,** WANG, X., SHI, P., **CHEN, D**., **McVICAR, T.R.**, GUIJARRO, J.A., 2020: Impact of rapid urbanization on the observed daily maximum wind speed variability: a case study in Yangtze River Delta (China). *EGU General Assembly 2020.* Vienna, Austria, 3-8 May 2020. **Poster presentation.** EGU2020-13005.

[23] AZORIN-MOLINA, C., BRUNET, M., AGUILAR, E., GUIJARRO, J:A., **SAFAEI PIROOZ, A.A.**, FLAY, R.G.J., MINOLA, L., ZHANG, G., LOPEZ-BUSTINS, J.A., **McVICAR, T.R.**, **CHEN, D**. 2020: Overview of the IBER-STILLING project: Assessment and attribution of wind speed and wind gust variability. *EGU General Assembly 2020.* Vienna, Austria, 3-8 May 2020. **Poster presentation.** EGU2020-5056.

2019

[22] SERGIO M. VICENTE-SERRANO, **CESAR AZORIN-MOLINA**, MARINA PEÑA-GALLARDO, MIQUEL TOMAS-BURGUERA, FERNANDO DOMÍNGUEZ-CASTRO, NATALIA MARTÍN-HERNÁNDEZ, SANTIAGO BEGUERÍA, AHMED EL KENAWY, IVÁN NOGUERA AND MÓNICA GARCÍA. Impact of drought variability on remote sensing vegetation activity in Spain: a high spatial resolution analysis from 1981 to 2015. Symposium on "Climate Change and Natural Hazards: Coping with and managing hazards in the context of a changing climate" Padova, Italy, 25th-26th February 2019.

[21] MINOLA, L., ZHANG, F., **AZORIN-MOLINA, C.,** HERSBACH, H., **CHEN, D**., 2019: Near-surface wind speed and gust in ERA5 across Sweden: towards an improved gust parametrization. *EMS Annual Meeting: European Conference for Applied Meteorology and Climatology*, Copenhague, Denmark. **Oral presentation**. [Abstract publication Vol.16 EMS2019-390]

[20] SAFAEI PIROOZ, A.A., FLAY, R.G.J., TURNER, R., **AZORIN-MOLINA, C.,** 2019: Possible effects of climate change on New Zealand Design Wind Speeds. *8th Australian & New Zealand Disaster & Emergency Management Conference.* Gold Coast, Australia, 12-13 June 2019. **Oral presentation.**

[19] CHEN, A., HO, C.H., **CHEN, D**., **AZORIN-MOLINA, C.,** 2019: Tropical cyclone rainfall in the Mekong River Basin for 1983-2016. *EGU General Assembly 2019.* Vienna, Austria, 7-12 April 2019. **Poster presentation.** EGU2019-305.

[18] CHEN, D., MINOLA, L., WESSELSHMIDT, N., **AZORIN-MOLINA, C., McVICAR, T.R.**, 2019: Evaluating near-surface wind speed trends using global reanalysis products. *EGU General Assembly 2019.* Vienna, Austria, 7-12 April 2019. **Poster presentation.** EGU2019-18633.

[17] WERN, L., **AZORIN-MOLINA, C.,** ENGSTRÖM, E., HELLSTRÖM, S., ZHANG, G., MINOLA, L., **CHEN, D**., 2019: Wind data rescue initiative at the Swedish Meteorological and Hydrological Institute. *EGU General Assembly 2019.* Vienna, Austria, 7-12 April 2019. **Poster presentation.** EGU2019-17792.

[16] ZHANG, G., **AZORIN-MOLINA, C.,** SHI, P., LIN, D., GUIJARRO, J.A., KONG, F., **CHEN, D**., 2019: Impact of near-surface wind speed variability on wind erosion in the eastern agro-pastoral transitional zone of Northern China, 1982-2016. *EGU General Assembly 2019.* Vienna, Austria, 7-12 April 2019. **Poster presentation.** EGU2019-7682.

[15] ZHANG, G., **AZORIN-MOLINA, C.,** SHI, P., **CHEN, D**., **McVICAR, T.R.**, GUIJARRO, J.A., 2019: Quantifying the contribution of uneven warming to the observed wind stilling in North China for 1961-2016. *EGU General Assembly 2019.* Vienna, Austria, 7-12 April 2019. **Oral presentation.** EGU2019-7437.

[14] AZORIN-MOLINA, C., McVICAR, T.R., GUIJARRO, J.A., TREWIN, B., FROST, A.J., MINOLA, L., ZHANG,. G., **CHEN, D**., 2019: Trends of daily peak wind gusts in Australia, 1941-2016. *EGU General Assembly 2019.* Vienna,

Austria, 7-12 April 2019. **Poster presentation.** EGU2019-7281.

[13] MINOLA, L., **AZORIN-MOLINA, C.,** GUIJARRO, J.A., **CHEN, D**., 2019: Homogenization of near-surface wind speed and gust series across Sweden. *EGU General Assembly 2019.* Vienna, Austria, 7-12 April 2019. **Poster presentation.** EGU2019-4356.

2018

[12] MINOLA, L., **AZORIN-MOLINA, C.,** GUIJARRO, J.A., SON, S.-W., **CHEN, D**., 2018: Surface wind speed and gust across Scandinavia: Observations and model simulations. *PhD Poster Conference,* Gothenburg, Sweden. **Poster presentation**.

[11] AZORIN-MOLINA, C., ASIN, J., **McVICAR, T.R.**, MINOLA, L., ZHANG, G., CHEN, A., LOPEZ-MORENO, J.I., **VICENTE-SERRANO, S.M**., **CHEN, D**., 2018: Evaluación del desgaste de los anemómetros: aproximación estadística para corregir errores en la velocidad del viento. *11th Annual Meeting of the Spanish Climatological Society*, Cartagena, Spain. **Oral presentation**. [Proceeding publication]

[10] AZORIN-MOLINA, C., MENENDEZ, M., **McVICAR, T.R.**, ACEVEDO, A., **VICENTE-SERRANO, S.M**., CUEVAS, E., MINOLA, L., ZHANG, G., CHEN, A., **CHEN, D**., 2018: Tendencias de la velocidad del viento en Canarias, 1948-2014. *11th Annual Meeting of the Spanish Climatological Society*, Cartagena, Spain. **Oral presentation**. [Proceeding publication]

[9] ZHANG, G., **CHEN, D**., SHI, P., KONG, F., **AZORIN-MOLINA, C.,** GUIJARRO, J.A. 2018: Variability of winter haze over the Beijing-Tianjin-Hebei region tied to wind speed in the lower troposphere and particulate sources. *EMS Annual Meeting: European Conference for Applied Meteorology and Climatology*, Budapest, Hungary. **Poster presentation**. [Abstract publication Vol.15 EMS2018-831]

[8] AZORIN-MOLINA, C., GUIJARRO, J.A., **McVICAR, T.R.**, TREWIN, B., FROST, A.J. 2018: A new approach to homogenize daily peak wind gusts: an application to the Australian series. *EMS Annual Meeting: European Conference for Applied Meteorology and Climatology*, Budapest, Hungary. **Poster presentation**. [Abstract publication Vol.15 EMS2018-830]

[7] MINOLA, L., **AZORIN-MOLINA, C.,** GUIJARRO, J.A., SON, S.-W., **CHEN, D**., 2018: How well do Regional Climate Models simulate and parametrize surface wind speed and wind gust across Scandinavia. *EMS Annual Meeting: European Conference for Applied Meteorology and Climatology*, Budapest, Hungary. **Oral presentation**. [Abstract publication Vol.15 EMS2018-7-1]

[6] AZORIN-MOLINA, C., GUIJARRO, J.A., **McVICAR, T.R.**, TREWIN, B., FROST, A. 2018: Advances in the homogenization of daily peak wind gusts: and application to the Australian series. *EGU General Assembly 2018.* Vienna, Austria, 8-13 April 2018. **Poster presentation.** EGU2018-14546.

[5] AZORIN-MOLINA, C., CHEN, D., DUNN, R.J.H., KLEIN-TANK, A.M.G., GUIJARRO, J.A., **McVICAR, T.R.**, MINOLA, L., 2018: STILLING project: Advances in the compilation and homogenization of historical wind speed data for the assessment of the stilling phenomenon. *EGU General Assembly 2018.* Vienna, Austria, 8-13 April 2018. **Poster presentation.** EGU2018-15160.

[4] SAFAEI PIROOZ, A.A., FLAY, R.G.J., **AZORIN-MOLINA, C.,** 2018: Homogenisation of daily wind gusts recorded at Auckland and Wellington airports during 1972-2017. *EGU General Assembly 2018.* Vienna, Austria, 8-13 April 2018. **Poster presentation.** EGU2018-12157.

[3] ZHANG, G., PEIJUN, S., **CHEN, D**., **AZORIN-MOLINA, C.,** GUIJARRO, J.A., 2018: Trends of near surface maximum wind speed in China: under a shifted East Asian monsoon scenario. *EGU General Assembly 2018.* Vienna, Austria, 8-13 April 2018. **Poster presentation.** EGU2018-9122.

[2] RICARDO GARCIA-HERRERA, JOSE M. GARRIDO-PEREZ, DAVID BARRIOPEDRO, CARLOS ORDÓÑEZ, **SERGIO M. VICENTE-SERRANO, RAQUEL NIETO, LUIS GIMENO**, PASCAL YIOU. The severe drought of 2016-2017 in Western Europe. European Geosciences Union General Assembly 2018. Vienna | Austria | 8–13 April 2018.

[1] DOMÍNGUEZ-CASTRO, F., **VICENTE-SERRANO, S.M**., JAAK JAAGUS , MIQUEL TOMAS-BURGUERA ,

MAKKI KHORCHANI , MARINA PEÑA-GALLARDO, **TIM MCVICAR**. Climatic influence on atmospheric evaporative demand in Estonia (1951-2015). The 1st International Electronic Conference on Hydrological Cycle (CHyCle-2017), 12 - 16 November 2017; Sciforum Electronic Conference Series, Vol. 1.

C4. DOCTORAL THESIS – since 2018

34 doctoral thesis (23 defended + 11 ongoing) ***In red co-supervised by members of the research team**

a. Ongoing PhD thesis

[34] XU, J.: *Global wind resources assessment*. Supervised by Dr. Zhenzhong Zeng. PhD scholarship SUSTech.

[33] GIMENO-SOTELO, L.: *Extremos meteorológicos y fuentes de humedad*. Universidad Complutense de Madrid, Madrid, Spain. Supervised by Dr. David Barriopedro and **Dr. Sergio M. Vicente-Serrano**. FPU scholarship.

[32] FERNADEZ-ALVAREZ, J.C.: *Future changes in atmospheric moisture and wind field using numerical simulations: Implications for moisture transport and wind energy*. International PhD mention. Supervised by **Dr. Luis Gimeno** and **Dr. Raquel Nieto**. Xunta de Galicia PhD Grant.

[31] QIN, Y.: *Impacts of renewable energy: wind, solar and hydro facilities*. Supervised by Dr. Zhenzhong Zeng. PhD scholarship SusTech.

[30] GONÇALVES, A.: *Variability of extreme weather events and influence on the renewable energy sector in the Iberian Peninsula: wind energy*. Supervised by **Dr. Raquel Nieto** and Dr. M. Liberato. FCT Potuguese Ministry PhD Grant.

[29] COLL-HIDALGO, P.: *High-resolution modeling of extratropical storms that affected the Iberian Peninsula and their effect on offshore wind potential and extreme rainfall*. International PhD mention. Supervised by **Dr. Luis Gimeno** and **Dr. Raquel Nieto**. Xunta de Galicia PhD Grant.

[28] ANDRES-MARTIN, M.: *Estudio de la variabilidad de los eventos de "wind drought" y su aplicación a servicios climáticos*. CIDE (CSIC-UV-GVA), Valencia. Supervised by **Dr. Cesar Azorin-Molina** and **Dr. Sergio M. Vicente-Serrano**. FPU scholarship.

[27] PASHAEI, Z.: *Analysis of factors affecting horizontal visibility changes in Tehran metropolis*. University of Tabriz, Tabriz, Iran. Supervised by Dr. Behroz Sarraf and **Dr. Cesar Azorin-Molina**.

[26] SHEN, C.: *Detection and attribution of global near-surface wind speed changes in future projections*. Earth Sciences Centre, Regional Climate Group, University of Gothenburg, Göteborg, Sweden. Supervised by **Dr. Deliang Chen** and **Dr. Cesar Azorin-Molina**. Swedish VR scholarship.

[25] UTRABO-CARAZO, E.: *Estudio y atribución de la variabilidad multidecadal del viento y sus extremos, con énfasis en la Península Ibérica*. CIDE (CSIC-UV-GVA), Valencia, Spain. Supervised by **Dr. Cesar Azorin-Molina** and Dr. Enric Aguilar. FPI grant.

[24] BEDOYA-VALESTT, S.: *Cambios observados y simulados de los vientos locales y brisas marinas.* CIDE (CSIC-UV-GVA), Valencia, Spain. Supervised by **Dr. Cesar Azorin-Molina** and **Dr. Luis Gimeno**. Santiago Grisolía Generalitat Valenciana grant.

b. Defended PhD thesis

[23] HENRIQUES, M.: *Interactions between waterholes and riparian vegetation in remote and data-scarce dryland*

anabranching rivers. Monash University, Australia. Supervised by Dr. **Tim R. McVICAR**, Dr. Edoardo Daly and Dr. Kate Holland Kate Holland (CLW Adl). Defended August 2023.

[22] WU, J.: *Biogeophysical impacts of Earth greening udner past and future climate.* School of Environental Science and Technology, College of Engineering, Southern University of Science and Technology, Shenzhen, China. Supervised by Dr. Guy Schurgers and **Dr. Zhenzhong Zeng**. Defended 13 November 2023.

[21] KUKULIES, J.: *Observing and modeling precipitation in the Tibetan Plateau region –from large-scale processes to convective storms-* Earth Sciences Centre, Regional Climate Group, University of Gothenburg, Göteborg, Sweden. Supervised by Dr. **Deliang Chen.** Defended 2023

[20] HUI-WEN, L.: *Towards an improved understanding of precipitation variations over the Tibetan Plateau-* Earth Sciences Centre, Regional Climate Group, University of Gothenburg, Göteborg, Sweden. Supervised by Dr. **Deliang Chen.** Defended 2023

[19] PEREZ-ALARCON, A.: *Modeling of moisture transport associated with tropical cyclones.* International PhD mention. University of Vigo, Ourense, Spain. Supervised by **Dr. Luis Gimeno** and **Dr. Raquel Nieto**. Defended 2023.

[18] NOGUERA, I.: *Las sequías repentinas "flash droughts" en España.* Instituto Pirenaico de Ecologia, Spanish National Research Council (IPE-CSIC), Zaragoza, Spain. Supervised by Dr. **Sergio M. Vicente-Serrano**. Defended 23 June 2023.

[17] FENG, Y.: *Tropical forest loss in the early twenty-first century: patterns, drivers, and implications for the carbon cycle.* School of Environmental Science and Technology, College of Engineering, Southern University of Science and Technology, Shenzhen, China. Supervised by Dr. Chunmiao Zheng, Dr. Ji Chen and **Dr. Zhenzhong Zeng**. Defended 1 June 2022

[16] VAN NIEL, T.G.: *Assessing the ability of surface energy variables to scale actual evapotranspiration.* University of Western Australia, Australia. Supervised Dr. **Tim R. McVICAR**, Dr. Nick Callow and Dr. Caitlin Moore. Defended August 2022

[15] NAVARRO-SERRANO, F.M.: *Análisis del comportamiento altitudinal de la temperatura del aire superficial en áreas de montaña*. Instituto Pirenaico de Ecologia, Spanish National Research Council (IPE-CSIC), Zaragoza, Spain. Supervised by Dr. Juan-I. Lopez-Moreno and **Dr. Cesar Azorin-Molina**. Defended 18 December 2020.

[14] ALGARRA, I.: *Moisture transport associated with Atmospheric Rivers and Low Level Jets at global scale*. International PhD mention. University of Vigo, Ourense, Spain. Supervised by **Dr. Luis Gimeno** and **Dr. Raquel Nieto**. Defended 2020.

[13] MINOLA, L.: *Changes in near-surface winds across Sweden over the past decades – Observations and simulations*. Earth Sciences Centre, Regional Climate Group, University of Gothenburg, Göteborg, Sweden. Supervised by **Dr. Cesar Azorin-Molina** and **Dr. Deliang Chen**. Defended 11 December 2020.

[12] ZHANG, G.: *Wind speed variability and associated environment issues with a focus on northern China*. Beijing Normal University, Beijing, China. Supervised by Dr. Peijun Shi, **Dr. Deliang Chen** and **Dr. Cesar Azorin-Molina**. Defended 20 May 2020.

[11] SALVADOR, C. *Effects of drought on daily mortality in the Iberian Peninsula: risks and vulnerability*. International PhD mention. Best PhD Award 2020. University of Vigo, Ourense, Spain. Supervised by **Dr. Raquel Nieto** and Dr. Cristina Linares. Defended 2020.

[10] SALVADOR, S. *The Influence of International, EU, National and Regional Legislation in the Development of Offshore Wind Farms. The Case of Galicia (Spain)*. International PhD mention. University of Vigo, Ourense, Spain. Supervised by Dr. **Luis Gimeno** and Dr. F.J. Larruga. Defended 2019.

[9] CIRIC, D.: *Linking extreme precipitation events and the associated moisture transport*. University of Vigo, Ourense, Spain. Supervised by **Dr. Luis Gimeno** and **Dr. Raquel Nieto**. Defended 2019.

[8] STOJANOVIC, M: *The role of atmospheric moisture transport in major drought episodes*. University of Vigo, Ourense, Spain. Supervised by **Dr. Luis Gimeno** and Dr. A. Drumond. Defended 2019.

[7] PEÑA-GALLARDO, M.: *Drought indices validation: improving monitoring knowledge on different systems in Spain and the United States.* Universidad de Sevilla, Sevilla, Spain. Supervised by Dr. **Sergio M. Vicente-Serrano**. Defended 17 September 2019.

[6] MARTÍN-HERNÁNDEZ, N.: *The use of long-term high-spatial resolution Normalized Difference Vegetation Index (NDVI) to determine different environmental processes in Spain.* Universidad de Zaragoza, Zaragoza, Spain. Supervised by **Dr. Sergio M. Vicente-Serrano** and Dr. Santiago Beguería. Defended 17 May 2019.

[5] AIFANG, C.: *Tropical cyclone induced extreme wind, rainfall, and floods in the Mekong River Basin.* Earth Sciences Centre, Regional Climate Group, University of Gothenburg, Göteborg, Sweden. Supervised by Dr. **Deliang Chen** and Dr. Roland Barthel. Defended 27 April 2019.

[4] TOMAS-BURGUERA, M.: *La demanda de agua por parte de la atmósfera en la España Peninsular e Islas Baleares*. Universidad de Zaragoza, Zaragoza, Spain. Supervised by Dr. **Sergio M. Vicente-Serrano**. Defended 17 January 2019.

[3] ZHANG, X.: *Contribution of changes in atmospheric circulation patterns to regional temperature and precipitation variation.* Institute of Tibetan Plateau Research, Chinese Academy of Sciences, China. Supervised by Dr Tandong Yao and **Dr. Deliang Chen**. Defended December 2018

[2] SORI, R. *Atmospheric moisture transport: the bridge between ocean evaporation and hydrological extremes in major tropical river basins*. International PhD mention. Best PhD Award 2018. University of Vigo, Ourense, Spain. Supervised by **Dr. Luis Gimeno** and **Dr. Raquel Nieto**. Defended 2018.

[1] VAZQUEZ, M. *Fuentes oceánicas y terrestres de precipitación en el ártico: nuevas metas y orientaciones desde una aproximación lagrangiana*. University of Vigo, Ourense, Spain. Supervised by **Dr. Luis Gimeno** and **Dr. Raquel Nieto**. Defended 2018.

D *PROJECCIÓ DELS DOCTORS FORMATS EN EL GRUP* / *PROYECCIÓN DE LOS DOCTORES FORMADOS EN EL GRUPO*

The professional status of the PhD trained under the supervision of the research members of the DOWNBURST project is outstanding and diverse; since **all of them hold jobs in research centers, universities, public administrations, and secondary education schools**. Below is a summary of the positions held by the doctors trained in the group:

[23] WU, J.: Postdoc at Eastern Institute of Technology (China)

[22] HENRIQUES, M.: Research assistant at *Monash University* (Australia)

[21] KUKULIES, J.: Postdoc staff at the NCAR (United States)

[20] HUI-WEN, L.: Postdoc staff at the *University of Gothenburg* (Sweden)

[19] PEREZ-ALARCON, A.: Xunta de Galicia Junior Postdoctoral Scientist - *University of Vigo* (Spain)

[18] NOGUERA, I.: Natural Environment Research Council's (NERC, United Kingdom)

[17] FENG, Y.: Postdoc at LSCE (Institut Pierre-Simon Laplace, France)

[16] VAN NIEL, T.G.: Postdoc staff at CSIC Environment (Australia)

[15] NAVARRO-SERRANO, F.M.: High School Professor – Andalucia (Spain)

[14] ALGARRA, I.: High School Professor – Galicia (Spain)

[13] MINOLA, L.: Postdoctoral fellow – *Swedish Research Council* (VR, Sweden)

[12] ZHANG, G.: Postdoctoral fellow – *Beijing Normal University* (BNU, China)

[11] SALVADOR, C.: Xunta de Galicia Junior Postdoctoral Scientist - *University of Vigo* (Spain)

[10] SALVADOR, S.: Assistant Professor – University of Vigo (Spain)

[9] CIRIC, D.: Software Engineering

[8] STOJANOVIC, M: Xunta de Galicia Junior Postdoctoral Scientist - *University of Vigo* (Spain)

[7] PEÑA-GALLARDO, M.: *University of Sevilla* (Spain)

[6] MARTÍN-HERNÁNDEZ, N.: Assistant Professor – *University of La Rioja* (Spain)

[5] AIFANG, C.: Tenured-track position - *Southern University of Science and Technology* (China)

[4] TOMAS-BURGUERA, M.: Assistant Professor - *Universitat de les Illes Ballears* (Spain)

[3] ZHANG, X.: Assistant Professor - *Tangshan Normal University* (China)

[2] SORI, R.: Ramón y Cajal – *University of Vigo* (Spain)

[1] VAZQUEZ, M.: Xunta de Galicia Junior Postdoctoral Scientist – *University of Vigo* (Spain)

Moncada (Valencia), 17 de noviembre de 2023
Investigadors principals del projecte / Investigadores principales del proyecto

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Les dades contingudes en esta sol·licitud podran ser incorporades a un fitxer informatitzat amb una finalitat exclusivament administrativa (art. 10 al 13 del Decret 96/1998, de 6 de juliol, del Govern Valencià, i la Llei Orgànica 15/1999, de 13 de desembre). / *Los datos contenidos en esta solicitud podrán ser incorporados a un fichero informatizado con una finalidad exclusivamente administrativa (art. 10 al 13 del Decreto 96/1988, de 6 de julio, del Gobierno Valenciano y la Ley Orgánica 15/1999, de 13 de diciembre.*

La persona firmant es fa responsable de la veracitat de totes les dades contingudes en este document, sense perjuí de la possible comprovació, si és procedent, per part de la Direcció General. / La persona firmante se hace responsable de la veracidad de todos los datos contenidos en este documento, sin perjuicio de la posible comprobación, si es procedente, por parte de la Dirección General.

* L'Historial del grup i la Memòria cientificotècnica del projecte es consideren part integrant i contingut mínim de la sol·licitud, per la qual cosa l'absència o falta de contingut d'aquests documents determinarà la inadmissió d'aquesta. (Art. 14.3 de les bases reguladores)

* *El Historial del grupo y la Memoria científico-técnica del proyecto se consideran parte integrante y contenido mínimo de la solicitud, por lo que la ausencia o falta de contenido de estos documentos determinará la inadmisión de la misma. (Art. 14.3 de las bases reguladoras)*