



## 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

CV date Sep-2022

First name	Javier		
Family name	Estévez Gualda		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	<a href="mailto:jestev@uco.es">jestev@uco.es</a>	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0003-4185-6844		

(\*) Mandatory

### A.1. Current position

Position	Full Professor		
Initial date	13-Jun-2022		
Institution	University of Cordoba		
Department/Center	Rural Engineering, Civil Constructions and Engineering Projects		
Country	Spain	Teleph. number	
Key words	Agrometeorology, Validation Procedures, Smart Models		

### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Agronomic Engineering	University of Córdoba	2002
PhD in Agronomic Engineering	University of Córdoba	2008

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

I am Full Professor since November 2017 and I have two research quality evaluation periods recognized (CNEAI). I am PhD in Agricultural Engineering and obtained a FPI scholarship named "Agrometeorology applied to irrigation" from Junta de Andalucía. It is worth noting that my End-of-Degree Project was funded by TRAGSA (Empresa de Transformación Agraria, SA). I have worked here until being hired as an Engineer in a university-enterprise research project with GMV Innovating Solutions and TRAGSA.

My research career is focused on agrometeorological applications using different procedures for validating, characterizing and improving the prediction of different environmental variables. Firstly, I started developing several quality control procedures applied to meteorological data as a prerequisite before their use and he also participated in several research projects related to Agricultural and Environmental Sector during his Phd period and afterwards. Years later, machine learning techniques and multifractal analysis were incorporated in a relevant way into his line of work. In this sense, quality assurance techniques have been applied to accurately estimate reference evapotranspiration, optimizing water resources management, as well as precipitation, solar radiation, wind speed, relative humidity, river stage and temperature data. These procedures have been widely used in different countries for different purposes: ensuring the reliability of time-series, detection of sensors failure, smart interpolation, generation of warnings, detection of spurious signals, erroneous or suspect data, etc. I have obtained remarkable results as can be noticed in the 29 research papers (Google Scholar h index: 16, total citations: 864, mean citations/year: 111,6 for the last 5 years and normalized impact: 1,14<sup>1</sup>) in JCR journals, as well as several papers published in

<sup>1</sup> Normalized impact calculated following methodology for 2020 call for grants to Severo Ochoa Centers of Excellence and María de Maeztu Units of Excellence and citations of articles by the researcher as of 12/10/2021

other indexed international journals. Results from this research line have been also reported in communications presented at different International Conferences, highlighting some invitations as Keynote speaker in Argentina and Italy. Besides, several works have been presented at national conferences of technology transfer related to irrigators, farmers, technicians and policymakers.

I have supervised two PhD thesis. The first one in 2014 was related to the development of smart quality controls procedures for hydrological data, from which two publications in first position JCR journals were derived, as well as a patent related to Artificial Intelligence that has been in operation for several years. Nowadays, this PhD student (Miriam López Lineros) is working in University of Seville as associate professor. The second one (in 2020) was related to multifractal characterization of validated thermal variables, with two JCR publications and several international conference communications. The PhD student (Pascual Herrera Grimaldi) is currently supervisor of Hydrological Planning in the Andalusian Atlantic Basins in Tragsatec. At this moment, the applicant is supervising two PhD thesis, one of them focused on Machine Learning models for improving agrometeorological estimates and predictions, from which four JCR publications have already been derived.

I am principal investigator of the National project AGL2017-87658-R that study the variability of aridity in Andalusia by using smart modeling of validated meteorological data from weather stations and multifractal characterization. The results of this research project have been published in ten JCR publications and several communications at International Conferences. In addition, he has participated in 8 research projects of competitive programs of the National and Autonomous Plans, 3 Interreg projects (Spain-Portugal) and 1 International research project. He also collaborated in different transfer contracts highlighting one with Public Civil Agency for an amount of € 315.813,63 and other with the company ASAJA (Agrarian Association of Young Farmers), a benchmark in the agricultural sector.

My scientific training is completed with various stays of medium duration in three international research centers, Napier Edinburgh University (Scotland), University of Cuyo (Argentina) and University of Trento (Italy), as well as several short stays under the Erasmus Programme (TST). He has been editor of a Special Issue in Atmosphere JCR journal during 2021 and in 2018 for a Special Issue of Acta Geophysica JCR journal called “Hydro-meteorological time series analysis and their relation to climate change”. Besides, I have been member of the scientific committee of the “International Congress on Project Management and Engineering” in three editions and currently, he is evaluator of the State Investigation Agency and regular reviewer of several JCR journals.

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

### **C.1. Publications** (*see instructions*)

**Estévez, J.**, A Llabrés-Brustenga, MC Casas-Castillo, García-Marín, A.P. Kirchner, R., Rodríguez-Solà, R., 2022. A quality control procedure for long-term series of daily precipitation data in a semiarid environment- Theoretical and Applied Climatology, 1-13

Bellido-Jiménez, J. A., **Estévez, J.**, García-Marín, A. P. 2021. Assessing new intra-daily temperature-based machine learning models to outperform solar radiation predictions in different conditions. *Applied Energy*, 298, 117211.

Bellido-Jiménez, J.A., **Estévez, J.**, García-Marín, A.P., 2021. New machine learning approaches to improve reference evapotranspiration estimates using intra-daily temperature-based variables in a semi-arid region of Spain. *Agricultural Water Management* 245, 106558

**Estévez, J.**; Bellido-Jiménez, J.A.; Liu, X.; García-Marín, A.P. Monthly Precipitation Forecasts Using Wavelet Neural Networks Models in a Semiarid Environment. *Water* 2020, 12, 1909.

Herrera-Grimaldi, P., García-Marín, A.P., **Estévez, J.**, 2019. Multifractal analysis of diurnal temperature range over Southern Spain using validated datasets. *Chaos*, 29(6), 062105.

**Estévez, J.,** García-Marín, A.P., Báez Benitez, J., M.C. Casas Castillo, L. Telesca. 2018. "Introduction to the special issue on hydro-meteorological time series analysis and their relation to climate change", *Acta Geophysica*, 66: 317–318.

**Estévez, J.,** Gavilán-Zafra, P., García-Marín, A. P. 2018. Spatial regression test for ensuring temperature data quality in southern Spain. *Theoretical and Applied Climatology*. DOI 10.1007/s00704-016-1982-8.

**Estévez, J.,** A.P. García-Marín, J.A. Morábito, M. Cavagnaro. 2016. Quality assurance procedures for validating meteorological input variables of reference evapotranspiration in mendoza province (Argentina), *Agricultural Water Management*, Volume 172: 96-109

**Estévez, J.,** Gavilán, P., García-Marín, A.P., Zardi, D., 2015. Detection of spurious precipitation signals from automatic weather stations in irrigated areas. *International Journal of Climatology*, 35: 1556-1568.

López-Lineros, M., **Estévez, J.,** Madueño, A., Giráldez, J.V., 2014. A new quality control procedure based on non-linear autoregressive neural network for validating raw river stage data, *Journal of Hydrology*. 510, pp. 103 - 109.

**Estévez, J.,** Padilla, F., Gavilán, P., 2012. Evaluation and Regional Calibration of Solar Radiation Prediction Models in Southern Spain. *Journal of Irrigation and Drainage Engineering ASCE*, 138, pp. 868 - 879.

## C.2. Congress

Bellido-Jiménez, J.A., **Estévez, J.,** García-Marín, A.P. Title: Assessing neural network approaches for solar radiation estimates using limited climatic data in the Mediterranean Sea. Type of participation: oral communication. Congress: The 3rd International Electronic Conference on Atmospheric Sciences (ECAS2020). Location: online. Date: 16-30-Nov-2020.

Bellido-Jiménez, J.A., **Estévez, J.,** García-Marín, A.P. Title: Assessing Bayesian optimization and grid-search tuning of hyperparameters in a neural network model to estimate  $ET_0$  with a low-cost sensor. Type of participation: communication. Congress: Dortmund International Research Conference. Location: Dortmund, Alemania. Date: June 2020.

**Estévez, J.,** Liu, X., Bellido-Jiménez, J.A., García-Marín, A.P. Title: Assessing Wavelet Analysis for Precipitation Forecasts Using Artificial Neural Networks in Mediterranean Coast. Type of participation: oral communication. Congress: International conference on Time Series and Forecasting-ITISE 2019. Location: Granada, Spain. Date: September 2019.

Herrera-Grimaldi, P., García-Marín, A.P., **Estévez, J.,** Ayuso-Muñoz, J.L. Title: Análisis regional de frecuencias del rango térmico diario en Andalucía. Type of participation: Oral Communication. Congress: XXIII International Congress on Project Management and Engineering. Location: Málaga (Spain). Date: July 2019.

Herrera-Grimaldi, P., García-Marín, A.P., **Estévez, J.** Title: Análisis multifractal de la amplitud térmica diaria en Andalucía. Type of participation: oral communication. Congress: XXII International Congress on Project Management and Engineering. Location: Madrid. Date: July 2018. Award: Young researcher award.

García-Marín, A.P., Ayuso-Ruiz, J.L., Ayuso-Muñoz, J.L., **Estévez, J.,** Cantero-Chinchilla, F.N. Title: Análisis de tendencias y puntos de cambio en la temperatura de la provincia de Cádiz. Type of participation: oral communication. Congress: XXI International Congress on Project Management and Engineering. Location: Cádiz, Spain. Date: July 2017.

**Estévez J.,** Gavilán, P., García-Marín, A.P. Title: Estudio del impacto climático y la aridez en las zonas regables del Sur de España (Andalucía). Type of participation: Oral communication. Congress: VI Seminario Internacional: Universidad, Sociedad y Estado. Location: Mendoza (Argentina). Date: Nov-2015.

**Estévez J.**, Tittle: Control de calidad de datos climáticos en Agrometeorología. Aplicaciones e impacto en las estimaciones de  $ET_0$ . Análisis de casos: Andalucía (España) y Mendoza. Type of participation: Invited Key Speaker. Congress: Seminarios de Excelencia Investigadora. Location: Mendoza (Argentina). Date: 04/12/2015

**Estévez J.**, Tittle: Data validation procedures in Agricultural Meteorology. A Prerequisite for their use. Type of participation: Invited Key Speaker. Congress: Scientific seminars of Università degli Studi di Salerno. Location: Salerno (Italy). Date: 29/05/2013

**Estévez J.**, García-Marín, A.P., Medina-Cobo, M.T., Ayuso-Muñoz, J.L. Tittle: Efecto de la validación de datos de precipitación en el análisis regional en la provincia de Málaga. Type of participation: Communication. Congress: XVI International Congress on Project Engineering. Location: Valencia (Spain). Date: July-2012

### C.3. Research projects

**Project:** Predicción Inteligente de la variabilidad espacio-temporal de la aridez en el Sur de España. **Scope:** National. **Participation:** Principal investigator. **Principal investigators:** JAVIER ESTÉVEZ GUALDA / AMANDA P. GARCÍA-MARÍN. **Number investigators:** 4. **Code:** AGL2017-87658-R **From:** 01/01/2018, **Duration:** 4 years. **Total Budget:** 99.825,00€

**Project:** Centro Ibérico para la Investigación y Lucha contra Incendios Forestales **Scope:** European Union. **Participation:** Research collaborator. **Principal investigators:** Francisco Rodríguez y Silva **Number investigators:** 8. **Code:** 0753\_CILIFO\_5\_E **From:** 01/04/2018. **Duration:** 4 years **Total Budget:** 24.666.660,81 €

**Project:** Riego inteligente de alta resolución en el cultivo del almendro **Scope:** Autonomic **Participation:** Researcher **Principal Investi:** José A. Jiménez-Berni **Number investigators:** 4 **Code:** P18-FR-1518 **From:** 01/01/2019 **Duration:** 3 years **Total Budget:** 120.500 €

**Project:** Nuevos métodos basados en el análisis multifractal para la regionalización de las precipitaciones extremas y estimación de una ley IDF en Andalucía. **Scope:** Local. **Participation:** Researcher. **Number investigators:** 2. **Program name:** Plan Propio de Investigación de la Universidad de Córdoba. **Code:** XXPP.Modalidad 4.1. **From:** 01/01/2015 **Duration:** 2 years **Total Budget:** 1.888,62€

**Project:** Aplicación de nuevas técnicas de teledetección para la evaluación de la gestión del riego a nivel de zona regable. **Scope:** National. **Participation:** Researcher. **Principal investigators:** PEDRO D. GAVILÁN ZAFRA. **Number de investigators:** 5. **Code:** RTA2011-00015-00-00. **From:** 14/11/2011 **Duration:** 3 years **Total Budget:** 135.991,2€

### C.4. Contracts, technological or transfer merits

**National patent. Publication number: ES2539407 A2.** Publication date: 17-mayo-2016. **Application number:** P201301205. **Denomination:** Procedimiento para la validación, detección de errores y corrección de los datos procedentes de sensores de nivel en ríos. **Inventors:** M. López-Líneros, J. Estévez Gualda, J.V. Giráldez Cervera, A. Madueño Luna, A.E. de Barros Ruano, P.M. Frazão Fernandes Ferreira. Companies operating it or having an assignment or license agreement: PYMESUMA, SL. **License number:** 201400031

**Competitive I+D+i actions- Agencia de Obra Pública (Junta de Andalucía):** Análisis de la percepción-demanda social de los usuarios de las vías ciclistas andaluzas y estudio prenormativo para reducir los accidentes por deslizamiento/derrape con pavimento mojado y mal tiempo (CICLOVIAS) **Participation:** Researcher. **Principal investigator:** Jesús María Ayuso y José R Jiménez Romero. **Number de investigators:** 7. **From:** 01/10/2013 **Duration:** 24 meses **Total budget:** 315.813,63 €