



## CURRICULUM VITAE (CVA)

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

<b>CV date</b>		13/01/2022	
<b>Part A. PERSONAL INFORMATION</b>			
First name	José Antonio		
Family name	Ruiz Arias		
Gender (*)	Male	Birth date	11/06/1979
Social Security, Passport, ID number	74667382-K		
e-mail	jararias@uma.es	URL Web	
Open Research and Contributor ID (ORCID) (*)	0000-0003-4220-1751		

(\*) *Mandatory*

### A.1. Current position

Position	Profesor Titular de Universidad		
Initial date	15/02/2021		
Institution	Universidad de Málaga		
Department/Center	Física Aplicada I, Facultad de Ciencias		
Country	Spain	Teleph. number	952131671
Keywords	Radiación solar; aerosol atmosférico; simulación numérica		

### A.2. Previous positions (research activity interruptions, art. 45.2.c))

Period	Position/Institution/Country/Interruption cause
2020-2021	Profesor Contratado Doctor, Univ. Málaga, Spain
2017-2020	Profesor Ayudante Doctor, Univ. Málaga, Spain
2015-2017	Researcher, Solargis s.r.o., Slovakia
2014-2015	Postdoctoral researcher, Andalucía TECH, Univ. Málaga, Spain
2011-2014	Postdoctoral researcher, Marie Curie IOF, Univ. Jaén, Spain
2009-2011	Postdoctoral researcher, CEAEMA, Univ. Jaén, Spain
2005-2009	Pre-doctoral FPI, Univ. Jaén, Spain

### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD. Physics	Universidad de Jaén	2009
Degree in Physics	Universidad de Granada	2008
MSc. Geophysics and Meteorology	Universidad de Granada	2007
Electronic Engineering	Universidad de Granada	2004

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

José A Ruiz Arias, JAR, is Associate Professor at the department of Applied Physics I in the Sciences Faculty of the University of Málaga (2017). Dr. Ruiz-Arias holds a M.Sc. in Geophysics and Meteorology from the University of Granada (2007) and a Ph.D. in Atmospheric Sciences (2009) from the University of Jaen. He teaches General Physics in the Technical School of Informatics (Health Engineering Degree) and Air Pollution in the Sciences Faculty (Environmental Sciences) of the University of Málaga, and Solar Resource in the Master in Geophysics and Meteorology of the University of Granada.

In 2005, JAR got a FPI pre-doctoral scholarship in the Physics Department of the University of Jaen to conduct the studies that led him to his Ph.D. dissertation on the influence of terrain topography in the incoming solar irradiance in mountainous areas. During these years, Dr. Ruiz-Arias developed a methodology that has been applied since then in the renowned Solargis satellite-based solar irradiance model (*solargis.com*; doi: 10.1016/j.solener.2010.06.002). In 2010, he was hired as a postdoctoral researcher in the Centre of Advanced Environmental and Energy Studies of the University of Jaen with a mandate to support the full creation of the center. In this period, he got interested in the Weather Research and Forecasting (WRF) model and started using it for his research. In 2011, JAR was awarded with a Marie Curie PEOPLE postdoctoral scholarship and moved to the National Centre for Atmospheric Research (NCAR) in Boulder, Colorado, to work under the supervision of Dr. Jimy Dudhia. The project, named SolForRenew, was proposed and led by Dr. Ruiz-Arias and pursued the improvement of the capabilities of the WRF model in the field of solar energy. Specifically, JAR developed a parameterization of the aerosol optical properties to compute the direct and diffuse components of the solar irradiance flux (doi: 10.5194/gmd-7-1159-2014). At NCAR, Dr. Ruiz-Arias got in contact with the team of Dr. Haupt, Deputy Director of the Research Applications Lab of NCAR, and collaborated with them in the proposal and the execution of the SUNCAST project funded with \$1+ Mill by the US Department of Energy. Under that project's umbrella, the capabilities of WRF as a tool in the field of solar energy were further improved, and the JAR's parameterization of aerosol optical properties became a key component of the overall WRF's improvement (doi: 10.1175/BAMS-D-14-00279.1), known as WRF-Solar.

In 2014, Dr. Ruiz-Arias returned to Spain, to the University of Málaga, where he was awarded with a postdoctoral position in the Andalucía TECH International Campus to investigate the implications of the spatial and temporal resolution of the gridded aerosol optical depth databases regularly used in the evaluation of solar irradiance resource. In 2016, he joined as researcher in Solargis, in Bratislava, where he was until 2017 when he was awarded with an assistant position (Profesor Ayudante Doctor) in the Applied Physics I department of the University of Málaga, where he now develops his work.

During his career, Dr. Ruiz-Arias has maintained a regular and fruitful research collaboration with the renowned Dr. Gueymard (h-index 45; 19 joint publications in scopus.com) and has been an active member of the International Energy Tasks 36 and 46 of the Solar Heating & Cooling Programme and the Task 16 of the Photovoltaic Power Systems Program. JAR has 60 publications listed in scopus.com, with a total of 2660 cites, or 44.3 cites/publication (13/01/2022). His unusually high *h-index* (32) and having 37 of his publications in Q1 demonstrate the outstanding and significant quality of the research that Dr. Ruiz-Arias conducts. He has supervised 3 PhD thesis and 5 MSc thesis, and he is currently supervising a Ph.D. student. In addition, JAR keeps a long-term collaboration with the Solargis international company since 2007, that is rendered in a ongoing 6-year series of knowledge transfer contracts.

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

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

Ruiz-Arias, J.A. 2021. Aerosol transmittance for clear-sky solar irradiance models: Review and validation of an accurate universal parameterization. *Renewable and Sustainable Energy Reviews*. Vol. 145, 111061. doi: 10.1016/j.rser.2021.111061

Ruiz-Arias, J.A. and Gueymard, C.A. 2018: Worldwide inter-comparison of clear-sky solar radiation models: Consensus-based review of direct and global irradiance components simulated at the earth surface. *Solar Energy*. Vol. 168, pp. 10-29. doi: 10.1016/j.solener.2018.02.008

Ruiz-Arias, J.A., Gueymard, C.A., Santos-Alamillos, F.J. and Pozo-Vázquez, D. 2016: Worldwide impact of aerosol's time scale on the predicted long-term concentrating solar power potencial. Scientific Reports. Vol. 6, 30546. doi: 10.1038/srep30546

Jimenez, P.A., Hacker, J.P., Dudhia, J., Haupt, S.E., Ruiz-Arias, J.A., Gueymard, C.A., Thompson, C.A., Eidhammer T., Deng, A. 2016: WRF-Solar: Description and clear-sky assessment of an augmented NWP model for solar power prediction. Bulletin of the American Meteorological Society. Vol. 97(7), pp. 1249 – 1264. doi: 10.1175/BAMS-D-14-00279.1

Gueymard, C.A. and Ruiz-Arias, J.A. 2015: Extensive worldwide validation and climate sensitivity analysis of direct irradiance predictions from 1-min global irradiance. Solar Energy. Vol. 128, pp. 1-30. doi: 10.1016/j.solener.2015.10.010

Ruiz-Arias, J.A., Arbizu-Barrena, C., Santos-Alamillos, F.J., Tovar-Pescador, J., Pozo-Vázquez, D. 2016: Assessing the surface solar radiation budget in the WRF model: A spatio-temporal analysis of the bias and its causes. Monthly Weather Review. Vol. 144, pp. 703-711. doi: 10.1175/MWR-D-15-0262.1

Ruiz-Arias, J.A. and Gueymard, C.A. 2015: Solar Resource for High Concentrator Photovoltaic Applications, Ch. 10. In: High Concentrator Photovoltaics: Fundamentals, Engineering and Power Plants. (Eds. Pérez-Higueras P. and Fernández, E.F.) Springer. ISBN 978-3-319-15038-3.

Ruiz-Arias, J.A., Gueymard, C.A., Santos-Alamillos, F.J., Pozo-Vázquez, D. 2015: Do spaceborne aerosol observations limit the accuracy of modeled surface solar irradiance? Geophysical Research Letters. Vol. 42, pp. 605-612. doi: 10.1002/2014GL062309

Gueymard, C.A. and Ruiz-Arias, J.A. 2015: Validation of direct normal irradiance predictions under arid conditions: A review of radiative models and their turbidity-dependent performance. Renewable and Sustainable Energy Reviews. Vol. 45, pp. 379-396. doi: 10.1016/j.rser.2015.01.065

Ruiz-Arias, J.A., Dudhia, J., Gueymard, C.A. 2014: A simple parameterization of the short-wave aerosol optical properties for surface direct and diffuse irradiances assessment in a numerical weather model. Geoscientific Model Development. Vol. 7, pp. 1159 – 1174. doi: 10.5194/gmd-7-1159-2014

## C.2. Congress

### C.3. Research projects

*Título:* Desarrollo y análisis de una base de datos de los recursos solares y eólicos de la Península Ibérica para el estudio de un sistema eléctrico bajo en carbón

*Referencia:* PID2019-107208RB-C22

*Entidad:* Programa Estatal de I+D+i Orientada a los Retos de la Sociedad, Ministerio de Ciencia, Innovación y Universidades

*Investigador Principal:* David Pozo Vázquez (UJA) y José A. Ruiz Arias (UMA)

*Duración:* 01/06/2020 – 31/05/2023

*Cuantía:* 113.740 €

*Participación:* Investigador principal

*Título:* Análisis y modelado del impacto del aerosol sobre las nubes y la precipitación

*Referencia:* P18-RT-3820

*Entidad:* Proyectos PAIDI 2018, Consejería de Conocimiento, Investigación y Universidad, Junta de Andalucía.

*Investigador Principal:* Lucas Alados Arboledas (UGR) y José A. Ruiz Arias (UMA)

*Duración:* 01/01/2020 – 31/03/2023

*Cuantía:* 108.292 €

*Participación:* Investigador principal

*Título:* Predicción de energía solar a corto plazo mediante advección y difusión de nubosidad a partir de imágenes de satélite

*Referencia:* UMA20-FEDER-134

*Entidad:* Programa Operativo FEDER Andalucía 2014 – 2020, Universidad de Málaga

*Investigador Principal:* José A. Ruiz Arias (UMA) y Francisco J. Santos Alamillos (UCA)

*Duración:* 29/10/2021 – 28/10/2023

*Cuantía:* 34.372 €

*Participación:* Investigador principal

*Título:* A comprehensive framework for high-resolution assessment and short-term forecasting of the solar resource for renewable energy applications

*Referencia:* FP7-PEOPLE-2010-IOF (nº 273648)

*Entidad:* 7-th Framework Programme for Research of the European Commission

*Investigador Principal:* José A. Ruiz Arias (UJA)

*Duración:* 03/10/2011 – 02/10/2014

*Cuantía:* 212.869 €

*Participación:* Investigador principal

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

*Título:* Realización de asesoramiento científico-técnico en proyectos relacionados con la energía solar y la optimización del rendimiento de las plantas de energía solar

*Empresa:* Solargis, Eslovaquia

*Investigador Principal:* José A. Ruiz Arias, Universidad de Málaga

*Duración:* 01/08/2021-31/07/2024

*Cuantía:* 96.853 €.

*Título:* Realización de asesoramiento científico-técnico en proyectos relacionados con la energía solar y la optimización del rendimiento de las plantas de energía solar

*Empresa:* Solargis, Eslovaquia

*Investigador Principal:* José A. Ruiz Arias, Universidad de Málaga

*Duración:* 01/08/2019-31/07/2021

*Cuantía:* 32.210 €.

*Título:* Realización de asesoramiento científico-técnico en proyectos relacionados con la energía solar y la optimización del rendimiento de las plantas de energía solar

*Empresa:* Solargis, Eslovaquia

*Investigador Principal:* José A. Ruiz Arias, Universidad de Málaga

*Duración:* 01/08/2019-31/07/2021

*Cuantía:* 32.266 €.

*Título:* Realización de asesoramiento científico-técnico en proyectos relacionados con la energía solar y la optimización del rendimiento de las plantas de energía solar

*Empresa:* Solargis, Eslovaquia

*Investigador Principal:* José A. Ruiz Arias, Universidad de Málaga

*Duración:* 01/08/2018-31/07/2019

*Cuantía:* 31.824 €.