MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

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	October 31th, 2025

First name	Mariano		
Family name	García Alonso		
Gender (*)	Male		
Social Security, Passport, ID number			
e-mail	mariano.garcia@uah.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0001-6260-5791	

A.1. Current position

Position	Associate Professor		
Initial date	11/08/2022		
Institution	Universidad de Alcalá		
Department/Center	Geología, Geografía y Medio Ambiente		
Country	Spain	Teleph. number	+34 91 885 4435
Key words	Remote sensing, LiDAR, multispectral, SAR, forest structure, forest decline, biomass, machine learning, radiative transfer models,		

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

Period	Position/Institution/Country/Interruption cause
08/01/2018-11/08/2022	Assistant Professor, University of Alcalá
01/01/2017-31/12/2017	Marie Curie Advanced Research Fellow, Centre for Landscape and Climate Research, University of Leicester.
01/01/2015-31/12/2016	Marie Curie Advanced Research Fellow, NASA-Jet Propulsion Laboratory, California Institute of Technology.
01/09/2013-31/12/2014	Postdoc at Center for Spatial Technologies and Remote Sensing, University of California, Davis.

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Technical Surveying Engineer	Polytechnic University of Madrid, Spain	2000
MSc Geographical Information Systems with Remote Sensing	University of Greenwich, England	2003
Geodesy and Cartographic Engineering	Universidad de Alcalá	2007
Ph.D. Geographical Information Technologies	Universidad de Alcalá	2011

A.4. General indicators of the quality of scientific production

Sexenios: 2 (fecha último sexenio: 31/12/2019)
Citations: Google scholar: 4737; ResearchGate: 4117
Average cites/year (last 5 years, except current year): 572
h-index: Google Scholar: 37; ResearchGate: 36; Researh Interest Score 2959
Num. Publications: 65
Num. Projects: PI last 10 years: 2

Num. Projects: Participant last 10 years: 10

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

I obtained the Technical Surveying Engineer degree (UPM, Spain) in 2000; MSc in GIS with Remote Sensing (U. Greenwich, England) in 2003; Geodesy and Cartographic Engineer degree (U. Alcalá, Spain) in 2007; Ph.D. degree in Geographical Information Technologies (U. Alcalá, Spain) in 2011. I have held post-doctoral position at the University of California, Davis (09/2013-12/2014). I was subsequently awarded a highly competitive Marie Curie International Outgoing Fellowships for Career Development (FP7-PEOPLE-2013-IOF - 3D Forest Structure Monitoring and Mapping- ID: 629376) at NASA-Jet Propulsion Laboratory, California Institute of Technology, and the Centre for Landscape and Climate Research, University of Leicester.

My research focuses on developing methods to accurately estimate 3D forest structure and its dynamics under the current context of global change, from local to regional scales integrating different remote sensing technologies, particularly LiDAR and multispectral and SAR, and ancillary data. Within this broad topic, I have focused on characterizing forest fuels both, their structure and moisture content. Studying forest fire impacts on vegetation (biomass consumption, burn severity, habitat quality) and post-fire vegetation recovery is also a significant line of my research. I am also interested in developing forest health monitoring systems based on integrating remote sensing technologies, drones to satellites, and auxiliary data (dendrochronological measurements, meteorological data).

My work has contributed to filling important knowledge gaps in the integration of remotely sensed data using different modeling approaches, particularly empirical methods based on machine learning techniques (support vector machines, random forests), but also physically based methods using radiative transfer models. This has allowed improving our ability to estimate forest structure, contributing to advance our understanding of how forest disturbances, especially fire, affect the carbon cycle, ecosystem functioning and services, or habitat quality.

During my research career I have developed a strong international profile, working in multidisciplinary international teams in Spain (University of Alcalá), United Kingdom (Universities of: Salford; Leicester; and Swansea) and USA (NASA-Jet Propulsion Laboratory, California Institute of Technology; University of California, Davis; University of Texas at Austin, University of Texas A&M). This experience allowed me to establish a wide research network with internationally renowned researchers from UK, USA, Germany, Portugal, Australia, Colombia, Chile, Honduras and China.

As a result of my research efforts, I have published more than 60 SCI peer-reviewed articles and two book chapters. I have more than 4700 citations, with an increase in the last five years from 388 (2020) to 783 (2024), according to Google Scholar Citations. Currently, I am part of the Environmental Remote Sensing Research Group of the University of Alcalá and collaborate actively with the Forest Ecology and Restoration research group, broadening the application of my research.

I have served as reviewer for more than 15 scientific journals; guest editor for a special issue of the Remote Sensing journal (ISSN- 2072-4292), and since September 2021, I am Associate Editor of Remote Sensing of Environment journal (ISSN- 1879-0704). I have been project evaluator for several research agencies: MINECO (Spain), FONDECYT (Chile), International Foundation for Science (Sweden), UEFISCDI (Romania), USDA-SBIR (USA). I have attracted more than 380 000 € from competitive research calls and more than 160 000 € from consultancy activities through Complutum Tecnologías de la Información Geográfica (www.complutig.com), a spin-off of the University of Alcalá created in 2012, of which I am a co-founder. This spin-off has become essential for the transfer of the knowledge acquired in my research activities to society, enabling the operational applications of the methods developed through research; engaging stakeholder, end-users and companies from different countries.

With regards my academic activity, I am Associate Professor at the University of Alcalá since 08/2022, teaching at undergraduate (Environmental Sciences; Tourism; Arts) and post-graduate (MSc in Geographical Information Technologies) levels. I also participate in the Wildland Fire, Science and Integrative Management MSc (University of Lleida). Other academic activities include PhD co-supervision (7 completed, 1 ongoing), MSc (20 completed / 2 in progress) and bachelor theses (9 completed). Seminars organization; the academic

coordination of the MSc in Geographical Information Technologies; University of Alcalá (5 years).

Part C. RELEVANT MERITS

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

1. Tijerín-Triviño, J., Serra-Maluquer, X., García-Valdés, R., Zavala, M.A., **García, M.**, Astigarraga, J., Cruz-Alonso, V., Rebollo, P., Gazol, A., Rodes-Blanco, M., Tanase, M.A., & Ruiz-Benito, P. (2025). Hydraulic strategies modulate forest productivity responses to hotter droughts. Global Change Biology. 31, no. 7: e70369. https://doi.org/10.1111/gcb.70369 **(IF 12.0)**
2. Aragoneses, E., **García, M.**, Tang, H. & Chuvieco, E. (2025) A multi-sensor approach allows confident mapping of forest canopy fuel load and canopy bulk density to assess wildfire risk at the European scale, *Remote Sensing of Environment, 318, 114578, https://doi.org/10.1016/j.rse.2024.114578* **(IF 11.4)**
3. Aragoneses, E. García, M., Ruiz-Benito, P. & Chuvieco, E. (2024) Mapping forest canopy fuel parameters at European scale using spaceborne LiDAR and satellite data, Remote Sensing of Environment, 303, 114005, *https://doi.org/10.1016/j.rse.2024.114005* .
4. Rodes-Blanco, M., Ruiz-Benito, P., Silva, C.A. & **García, M**. (2023). Canopy gap patterns in Mediterranean forests: a spatio-temporal characterization using airborne LiDAR data. Landscape Ecology, 1-16. https://doi.org/10.1007/s10980-023-01663-5 **(IF: 4.0)**
5. Araza, A., Herold, M., de Bruin, S., Ciais, P., Gibbs, D. A., Harris, N., Santoro, M., Wigneron, J.P., Yang, H., Málaga, N., Nesha, K., Rodriguez-Veiga, P., Brovkina, O., Brown, H. C. A., Chanev, M., Dimitrov, Z., Filchev, L., Fridman, J., **García, M.**, Gikov, A., Govaere, L., Dimitrov, P., Moradi, F., Muelbert, A.E., Novotný, J., Pugh, T. M. A., Schelhaas, M. J., Schepaschenko, D., Stereńczak, K. & Hein, L., (2023). Past decade above-ground biomass change comparisons from four multi-temporal global maps, International Journal of Applied Earth Observation and Geoinformation, V. 118, 103274, https://doi.org/10.1016/j.jag.2023.103274. **(IF: 7.6)**
6. Viana-soto, Al., Okujeni, A., Pflugmacher, D., García, M., Aguado, I & Hostert, P. (2022) Quantifying post-fire shifts in woody-vegetation cover composition in Mediterranean pine forests using Landsat time series and regression-based unmixing. Remote Sensing of Environment, 281, 113239. https://doi.org/10.1016/j.rse.2022.113239 **(IF: 13.5)**
7. Moreno-Fernández, D., Camarero, J.J., **García, M.,** Lines, E. R., Sánchez-Dávila, J., M.A., Tijerín, Valeriano, C., Viana-Soto, A., Zavala, J., & Ruiz-Benito, P. (2022). The interplay of the tree and stand-level processes mediate drought-induced forest dieback: evidence from complementary remote sensing and tree-ring approaches. Ecosystems. https://doi.org/10.1007/s10021-022-00793-2 **(IF: 3.4)**
8. Viana-Soto, A., **García, M.**, Aguado, I., & Salas, J. (2022) Assessing post-fire forest structure recovery by combining LiDAR data and Landsat time series in Mediterranean pine forests. International Journal of Applied Earth Observation and Geoinformation, 108, 102754, https://doi.org/10.1016/j.jag.2022.102754 **(IF: 7.6)**
9. Torres, P., Rodes-Blanco, M., Viana-Soto, A., Nieto, H & **García, M.** (2021). The Role of Remote Sensing for the Assessment and Monitoring of Forest Health: A Systematic Evidence Synthesis. Forests, 12, 1134, https://doi.org/10.3390/f12081134 **(IF: 3.28)**
10. Moreno-Fernández, D., Viana-Soto, A., Camarero, J.J., Zavala, M.A., Tijerín, J., & **García, M.** (2021). Using spectral indices as early warning signals of forest dieback: The case of drought-prone Pinus pinaster forests. **Science of the Total Environment**. (**IF: 7.96**)

C.3. Research projects

1. Identificación y caracterización de puntos calientes de cambio forestal inducidos por sequía mediante un enfoque multi-escala y multisensory (REMOTE). Ministerio de Ciencia e Innovación: 01/09/2022 – 31/08/2025 (**105 000 €**): PI: Inmaculada Aguado (UAH) y Mariano García (UAH)
2. Developing a holistic for risk-wise adaptation of the wildfire management in the EU to global changes (**FirEUrisk**). H2020-LC-CLA, European Commission. 01/04/2021-31/03/2025. Fire EU Risk. (**10 539 794 €** total project / **530 000 €** UAH). PI: Domingos X. Viegas (UC); Emilio Chuvieco (UAH). Role: researcher

3. Data-driven models of forest drought vulnerability and resilience across spatial and temporal scales: application to the Spanish climate change adaptation strategy (**DARE**). (**96 000 €**) MINECO. PI: Miguel Ángel de Zavala (UAH). Role: researcher
4. Análisis global de factores humanos asociados al riesgo de incendio (**AnthropoFire**). MINECO. (**60 000 €**) PI: Inmaculada Aguado (UAH). Role: Researcher.
5. Desarrollo de un sistema para el seguimiento de la salud forestal en la Comunidad de Madrid mediante técnicas de teledetección (**SaFoT**). Consejería de Educación e Investigación. Comunidad de Madrid (**148 395 €** total Project / **88 395 €** UAH). PI: Mariano García.
6. 3D Forest Structure Monitoring and Mapping (**ForeStMap**). FP7-PEOPLE-2013-IOF - Marie Curie Action: "International Outgoing Fellowships for Career Development" European Commission (**294 219** €). PI: Mariano García (applicant) Heiko Balzter (coordinator from the host institution).

C.4. Contracts, technological or transfer merits

Since the beginning of my research career, I have participated in research contracts between the University of Alcalá and private companies (Art. 83 LOU.: Meteologica, S.A; Iberdrola Distribución Eléctrica, S.A.U.). Co-founder of Complutum Tecnologías de la Información Geográfica (www.complutig.com), a spin-off of the University of Alcalá, created in 2012; working closely with stakeholders and private companies. I have carried out consultancy activities for Tragsatec, S.A.; Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ); o el Instituto Forestal de Chile.

C.5. Tesis Doctorales Dirigidas

1. John Gajardo Saavedra (2014). Estimation of gap fraction and clumping index with terrestrial and airborne laser scanner data. Sobresaliente.
2. Alba Viana Soto (2022). Enhancing post-fire forest recovery monitoring through a remote sensing perspective. Sobresaliente "*Cum Laude*".
3. Pablo Jesús Torres Hernández (2024). Evaluación del estado de salud de las masas forestales de la Comunidad de Madrid mediante técnicas de teledetección. Sobresaliente.
4. Juilián Tijerín Triviño (2024). Patterns of forest structure and productivity across spatiotemporal scales: evidence from field-based and remote sensing observations. Sobresaliente "*Cum Laude*".
5. Álvaro Agustín Chávez Durán (2025) Estimation of forest fuel loads using an integrated geospatial approach. Sobresaliente. Realizado bajo convenio de cotutela entre la Universidad de Alcalá (España) y la Universidad de Guadalajara (México).
6. Elena Aragoneses de la Rubia (2025). Mapping and parameterisation of European forest fuels using remote sensing. Sobresaliente "*Cum Laude*"
7. Marina Rodes Blanco (2025). Spatio-temporal characterization of Iberian forest responses to global change using remote sensing. Sobresaliente "*Cum Laude*"

C.6. Dirección de Trabajos Académicos

Trabajos Fin de Grado: 9
Trabajos Fin de Master: >20