



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

**Nombre:** AZORIN MOLINA, CESAR  
**Referencia:** RYC-2017-22830  
**Área Científica:** Ciencias de la Tierra  
**Correo Electrónico:** cesar.azorin-molina@gu.se

#### Título:

ASSESSMENT AND ATTRIBUTION OF WIND VARIABILITY UNDER THE STILLING PHENOMENON: IMPLICATIONS FOR ENVIRONMENTAL HYDROLOGY

#### Resumen de la Memoria:

My current position is a Marie Curie IF (2016-2018) at the University of Gothenburg (Sweden), leading as Principal Investigator the European Commission project STILLING (186K Euro): "Towards improved understanding of the worldwide decline of wind speed in a climate change scenario" (2016-2018), and the competitive research project funded by the Swedish Research Council (355K Euro): "Detection and attribution of changes in extreme wind gusts over land" (2018-2021). These projects represent my actual cutting-edge research on winds.

In a globally changing climate, scientists have paid little attention on variability of winds. A recent discovery to science is the "stilling"; a worldwide slowdown of wind speed since the 1980s. This stilling is not fully understood and neither the quantity nor the quality of wind observations is adequate to allow a reliable study. My scientific aims to fill this key gap are (i) to rescue centennial wind observations; (ii) to improve our knowledge on the influence of atmospheric circulation; and (iii) given the interdisciplinary impacts of the "stilling" on wind energy, agriculture and hydrology, among others, to look at past wind speed to better assess future wind projections for climate change adaptation. My research addresses 2 of the research priorities and Societal Challenges of the H2020 and the Spanish MINECO.

My scientific career has been developed by being exposed to 5 research centres in Spain and 4 foreign institutions (GU-Sweden; CIRA-USA; KNMI-Netherlands; CSIRO-Australia) over 15-years, and reflects a diverse experience in leadership, management, funding, supervision, teaching and communication skills in the fields of Climatology and Atmospheric Sciences. My core area of expertise is wind climatology (sea breezes) and variability (wind speed trends), analyzing their socio-economic and environmental impacts. My scientific career comprises 3 main steps:

- (i) Predoctoral phase (2003-2007) at UA - UB: I pioneered my PhD on the study of sea breezes (sea-breeze storms) by applying an innovative climatological, numerical and remote sensing approach.
- (ii) First postdoctoral phase (2008-2010) at CEAM: I applied my basic PhD results (7 SCI papers as lead author) on sea breezes to society by (a) forecasting tropospheric ozone levels to meet the European Air quality directives; (b) evaluating NWP models and operational forecasting of sea-breeze storms; and (c) developing the first collection network to measure fog-water associated with sea breezes.
- (iii) Second postdoctoral phase (2011-2016) at IPE-CSIC: I led an international cross-disciplinary research on assessing and attributing trends on winds, analyzing the implications for evaporation, water resources and droughts.

The international impact of my pioneering research on winds has been awarded with the highly selective Marie Curie IF, two Swedish Research Council funded projects, and my appointments to lead the "Surface winds" section of the State of the Climate for the Bulletin of the American Meteorological Society or the "Climate Indicator Bulletin" for the World Meteorological Organization. My actual cutting-edge research topic on the "stilling" is co-advising 2 PhD and 4 MSc students, and is my challenger research line for the RyC fellowship.

#### Resumen del Currículum Vitae:

##### Scientific background

I graduated in Geography at the UA (Alicante) in 2002 (National Award Prize), and awarded with a FPU for completing my PhD on sea breezes in 2008 (European Mention and Extraordinary PhD prize). I also obtained 2 MSc. in Geography (UA, 2004) and Climatology (UB, Barcelona, 2005). After my PhD, I was hired with a Torres Quevedo (2008-2010) at the CEAM (Valencia), where my PhD results found environmental applications. In 2011 I moved to the IPE-CSIC (Zaragoza) with a JAE-Doc (2011-2012) and JdC (2013-2016) grants, analyzing the implications of winds for water resources and droughts. Since 2016 I am a Marie Curie IF at GU (Sweden). My career has been exposed to an extensive mobility and active collaborations worldwide, with nearly 3-years in 4 international centers: GU in Sweden, CIRA in USA, KNMI in the Netherlands and CSIRO in Australia. My research has completed all steps in the Spanish scientific system previous to the RyC, as reflected by my ability to secure funding from all abovementioned competitive grants (350K Euro), 2 mobility grants -Jose Castillejo- (18.5K Euro) and a highly competitive and prestigious Marie Curie IF (186K Euro) and Swedish Research Council projects (355K and 423K Euros)



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

#### Publications

I have authored 82 peer-reviewed articles with >150 co-authors (72 published; 10 under review: 59 in Q1) in top-ranked journals such as J. Clim., Bull. Amer. Meteor. Soc., J. Geophys. Res., Clim. Dyn., Int. J. Climatol., J. Hydrol., PNAS, etc., with an h-index=23 and i10-index=42 with 2113 citations (Google Scholar); 8 non-SCI manuscripts; 9 books and reports; 37 chapters of books; and 2 informative papers.

#### Participation in RD projects

I have played an active role in 25 projects (10 international, 15 nationals) and 5 contracts, currently acting as PI of the Marie Curie IF project and one research project funded by the Swedish Research Council, all focused on the [stalling](#).

#### Conference, teaching and tutoring

I presented my work in 102 symposia (74 international; 28 national), co-organized 2 conferences and 1 EGU session, and gave 12 invited talks (2 solicited). I taught 223 hours as part-time assistance professor in Spain and abroad, supervised 3 MSc student at the GU (Sweden) and 1 JAE-Tec at the IPE-CSIC, and I am currently tutoring 2 PhD and 1 MSc. in Sweden.

#### Editor of Journals, referee and member of societies

I am associated Editor of the Rev. de Climatol. and Adv. Meteorol., and acted as reviewer for ANEP, AGU, and for 24 top-ranked journals (awarded by Elsevier) and in 4 PhD committees. I have been scientist of 6 groups, and member of 4 societies.

#### Distinctions

My wind research is highlighted within the international scientific community by being e.g. (a) lead author of the [Surface winds](#) section of the SoC for the Bull. Amer. Meteor. Soc.; (b) co-author of the [Climate Indicator Bulletin](#) (WMO); and (c) operational weather forecaster for the Groupama Sailing Team (Volvo Ocean Race).

#### Weather stations and field campaigns

I am a scientist excellent skilled in meteorological sensors, and developing weather station networks and field campaigns. I am an official weather observer of the AEMET and an active member of the International Surface Temperature Initiative-POST (WMO)

#### Dissemination

My research has been spread to an audience beyond academia by several interviews given in TV, radio and press (e.g. Horizon Magazine); lectures in schools; etc.



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

**Nombre:** BERNAL, SUSANA  
**Referencia:** RYC-2017-22643  
**Área Científica:** Ciencias de la Tierra  
**Correo Electrónico:** sbernal@ceab.csic.es

#### Título:

NUL.TEST: Nutrient CycLing in TERrestrial and STream ecosystems

#### Resumen de la Memoria:

I study nutrient biogeochemistry in terrestrial and stream ecosystems with emphasis on understanding the influence of climate and hydrology on nutrient cycling, catchment nutrient export, and nutrient limitation for ecosystem productivity.

During my research career, I have evaluated the potential of riparian and stream ecosystems as natural filters of nutrients at small (plot) and large (catchment) scales, emphasizing the strong relationship between hydrological and biogeochemical processes at the stream-riparian interface. My research has challenged the well-established idea that riparian zones are efficient nitrogen (N) buffers by showing that N removal by denitrification hardly occurs in Mediterranean riparian soils, while soil nitrification and N leaching happens most of the time. Regarding stream ecosystems, my studies provide empirical evidence that in-stream processes can substantially contribute to decrease but also to increase stream nutrient export at the catchment scale.

My research carefully considers catchment hydrology and water availability which influences redox conditions; and thus, biogeochemical processes and nutrient cycling. Moreover, major hydrological flow paths determine the residence time of water in soil and groundwater; and thus, the exposure time between water (and solutes carried therein) and biota. My work in semiarid regions has revealed that catchment N retention is severely constrained by water availability and that extreme hydrological events promote temporal asynchrony between nutrient supply and demand. Further, my research highlights that riparian evapotranspiration drives stream hydrology and favors water loss from the stream towards riparian zones which increases biogeochemical processing in the stream-riparian area, eventually reducing N export to downstream ecosystems.

I'm strongly interested on the impact of historic perturbations, climatic variability, and global change on catchment nutrient export. My research on long-term time series of water and N export in temperate catchments has provided strong evidence that the impact of global warming on N cycling is obscured by the long-term response of terrestrial ecosystems to past perturbations such as historical harvests. My research on the influence of climate variability on soil N cycling reveals an antagonistic effect between warming and drying which questions the potential impact of climate change on soil N cycle and catchment N export in subhumid and semiarid regions. My ongoing research as JIN-PI is focused on understanding the capacity of stream ecosystems to ameliorate water pollution in highly humanized catchments by using biogeochemical and molecular tools in impacted as well as in restored streams.

My goal is to achieve a comprehensive view of how catchment hydrology influences terrestrial and aquatic biogeochemistry by performing a highly collaborative and interdisciplinary research. I combine field work, molecular tools, statistical data analysis, and empirically-based approaches (e.g. end member mixing, isotopic fractionation models) with semidistributed and stochastic models. My research is based on an integrative multi-scaling approach with a strong effort on up-scaling biogeochemical processes from small scales (habitat, plot, reach) to ecosystem relevant scales (catchment, fluvial networks).

#### Resumen del Currículum Vitae:

ERASMUS at Lund University (Sweden, 1997) and degree in Biology by U. Barcelona (UB, 1998). Master in Experimental Biology (2000) and DEA (2003) by the Dept. Ecology (UB). I got my PhD with the Thesis "Storm Nitrogen Responses in an Intermittent Mediterranean Stream" (2006, advisor F.Sabater).

As a PhD student, I visited the UMR-ECOBIO (2 weeks, U. Rennes, France), the USGS-Troy (3 months, NY, USA), and the Dept. Physics (3 months, U.F. Paraná, Brazil). As a post-doc, I visited the Princeton Environmental Institute (PEI) and the Dept. Ecology and Evolutionary Biology (EEB) at Princeton University (NJ, USA) (3 months, 2006). I was Fulbright Postdoc Research Associate from 2007-2009 (PEI-EEB, Princeton U) and Juan de la Cierva and JAE-DOC at the CEAB-CSIC (2009-2014). At present, I'm Associate Prof. at the Dept. Ecology (UB) and PI of the JIN project NICUS (CGL2014-55234-JIN, 192.390).

I've 49 pubs (8 in review): 37 SCI pubs, and 12 book chapters and dissemination articles. My H index is 14 (Scopus) and 17 (Google Scholar). I'm leading author of 17 SCI pubs (including PNAS, 1 in review) and mentoring author (last author) of 6 SCI pubs (including Ecology, 2 in review). From my SCI pubs, 79% are Q1 of its category. The average Impact Factor of my SCI pubs is 3.52. I accumulated 736 (Scopus) and 1183 (Google Scholar) citations.



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

I have 78 contributions to congresses, seminars and workshops (68 international). Invited Speaker 16 times (including BayCEER Kolloquiums, AGU Fall 2016, AGU-Chapman 2017). Convener-Chair of 7 Special Sessions (SEFS7-8, ASLO2015-2018, SFS2018, HydroEco 2013-2017). I have been invited (dispenses covered) to 6 international events (British Council, Helmholtz Centre for Environmental Research, CNRS-CSIC Workshop, AGU-Chapman, SMIRES-COST meetings2017-2018). Member of the ASLO R. Lindeman Award Committee (2016-2018), HydroEco2017 International Advisory Board, and ECI-2019 Organization Committee.

I have been involved in 19 competitive projects (8 national, 6 EU, 5 non EU) including 1 JIN, 1 Consolider-Ingenio, 3 FP5-FP7, 1 ITN, 1 RISE, and 1 COST. I have been the leader of 1 WP of the Plan Nacional MEDFORESTREAM focused on water and nutrient linkages between terrestrial and fluvial ecosystems. I am the PI of the JIN project NICUS focused on understanding the capacity of urban streams to improve water quality and searching novel green restoration and management strategies.

I am co-advisor of 7 Master Theses and TFGs (2 ongoing). I have co-advised 1 PhD (2015, UB Extraordinary Award, AIL Best Thesis Award 2016). I have been in the Board Committee of 9 PhD and JAE-PRE grants for the CSIC. Member of the Evaluation Committee of 6 PhD Thesis. I have served as external technical expert of competitive calls for the FONCYT and ANCPyT (Argentina), the Connecticut Sea Grant Foundation (USA) and the DTMA (MINECO). I have offer my services >30 times as reviewer to SCI journals such as Ecosystems, PLOSOne, Biogeosciences, J.Geophys.Res., Environ. Pollution, Hydrol. Earth Sys. Sci., etc.

My research has been highlighted in the Autonomic Television (3 times). My publication in PNAS (2012) received wide press coverage on national and international media (ScienceDaily, EurekaAlert, LaRazón, Antena3). The research at the Urban River Lab where I conduct the NICUS experiments has being covered by local TV and newspapers >15 times in 3 years.



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

**Nombre:** DONAT , MARKUS  
**Referencia:** RYC-2017-22964  
**Área Científica:** Ciencias de la Tierra  
**Correo Electrónico:** m.donat@unsw.edu.au

#### Título:

Understanding variability and long-term changes in climate extremes

#### Resumen de la Memoria:

I am a climate researcher, working in the research fields of climate extremes, climate variability and climate change. I have gained strong international recognition for my research to understand the variability and changes in climate extremes globally. Since completing my PhD in 2010, I have published 54 journal articles (including 12 papers in the prestigious high-impact journals Nature (1), Nature Climate Change (3) and Bulletin of the American Meteorological Society (8)). My publications have been cited 2,373 / 1,649 times (according to Google Scholar / Scopus as of 9th January 2018), and I have an h-index of 23 / 22 (Google Scholar / Scopus) which makes me one of the most highly cited Atmospheric Scientists within ten years post-PhD.

I have been chosen as contributing author to international assessment activities, including the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report and a report for the European Academies Science Advisory Council (EASAC). I have also been invited expert to meetings co-organised by the World Meteorological Organization (WMO).

I have successfully applied for external funding to support my research activities. This includes a personal fellowship by the Australian Research Council (funding period January 2015 to January 2018, AU\$ 368k, equivalent to 245,000 Euro), and collaborative travel grants totalling approximately AU\$ 20k (13,000 Euro).

Based on my achievements I have been awarded the World Climate Research Program (WCRP) / Global Climate Observing System (GCOS) International Data Prize 2017, and I was finalist of the 2014 Eureka Prize (category Outstanding Early Career Researcher).

I am actively serving the scientific community by organising workshops and conferences, including a WCRP workshop and scientific sessions at AGU (American Geophysical Union) and AMOS (Australian Meteorological and Oceanographic Society) conferences, and have accepted the invitation to serve as Editorial Board member of the journal Atmosphere.

I am actively supervising 5 PhD students and have previously supervised undergraduate students (e.g. Honours) to successful completion. In addition to my active research, I have taken advantage of several opportunities to teach: in university courses, at summer schools and international workshops.

#### Resumen del Currículum Vitae:

I am a climate researcher with 7.5 years of post-PhD experience, working in the fields of climate extremes, climate variability and climate change. I have completed my PhD in June 2010 (grade: very good / magna cum laude) at Freie Universität Berlin, and since then I have continuously worked in research positions at Freie Universität Berlin (Germany) and the University of New South Wales (Sydney, Australia), first as Postdoctoral Research Fellow and since January 2015 funded by a personal Fellowship. I have built a strong research profile and my research has pioneered knowledge on variability and long-term changes of climate extremes. I have initiated and led discoveries on estimates of past changes and variability, and identified mechanisms driving extremes.

In my work, I combine observations and climate models to understand variability and long-term changes in weather and climate extremes. This involves understanding the processes and mechanisms in the climate system that drive or amplify extremes. During my career I have developed both strong technical and scientific skills to analyse large and complex datasets. I have also established a strong and heterogeneous network of collaborations with research groups in Australia, Europe, North America and Asia, including some of the world-leading experts in my field.

Since 2010 I have published 54 journal articles and contributed to three book chapters. I have published four papers in Nature and Nature Climate Change, two of these as first author and two as second author. My publications have been cited 2,373 / 1,649 times (using Google Scholar / Scopus as of 9th January 2018), and I have an h-index of 23 / 22 (Google Scholar / Scopus), which makes me one of the most highly cited Atmospheric Scientists within ten years post-PhD globally.

Highlights of my career include strong recognitions of my expertise and the quality of my work, for example I was chosen as contributing author to the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report. Further, based on my achievements I have been



MINISTERIO  
DE CIENCIA, INNOVACIÓN  
Y UNIVERSIDADES



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

awarded the World Climate Research Program (WCRP) / Global Climate Observing System (GCOS) International Data Prize 2017.

I have successfully applied for competitive external funding to enable my research, which has allowed me to establish and lead my own research team, consisting of five PhD students and one Research Assistant, at UNSW Australia. In addition to leading my own research project, I have participated in three projects funded by the Australian Research Council, one project funded by the European Research Council, and one project funded by insurance industry. In addition to my active research, I have been teaching in university courses, at summer schools and international workshops. I am also actively supervising several undergraduate and PhD students.

I am also actively serving the scientific community, for example by organising topical workshops and sessions at major scientific conferences.



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

**Nombre:** GOMEZ OLIVENCIA, ASIER  
**Referencia:** RYC-2017-22558  
**Área Científica:** Ciencias de la Tierra  
**Correo Electrónico:** asiergo@gmail.com

#### Título:

Evolution of the postcranium in genus Homo: the vertebral column and thorax

#### Resumen de la Memoria:

I am a paleontologist with broad experience in human osteology and evolution. My research line is the evolution of postcranium in genus Homo, focused on the spine and thorax of extinct hominins: mainly Homo antecessor (Sierra de Atapuerca), the Middle Pleistocene hominins from Sima de los Huesos site (Atapuerca) and Neandertals. I also have four secondary lines of research: 1) Neandertals: description of new Neandertal remains and re-assessment of old collections; 2) Paleocology of the Neandertal occupations at the Sierra de Atapuerca (The Galería de las Estatuas site, in which I am the technical director; PI: J.L. Arsuaga); 3) Paleocology of the first human occupations of the Basque country; 4) Study of the recent prehistory human populations in the Western Pyrenees. I also have a broad experience in archaeopaleontological field work.

Related to my main research line, I have obtained interesting results that have been published at the most important journals of the field of human evolution, such as Journal of Human Evolution and American Journal of Physical Anthropology and also general multidisciplinary Journals such as PNAS and Science. The main results in this line are:

- To demonstrate that Neandertals show morphological differences with modern humans in all and each cervical vertebra, likely related to differences in posture and cranial differences (Gómez-Olivencia et al., 2013a). Moreover, the Sima de los Huesos Middle Pleistocene humans are more similar to Neandertals (but still different from them) than to modern humans (Gómez-Olivencia et al., 2007).
- To demonstrate that Neandertals show a less curved (less lordotic) lumbar spine (Been et al., 2012, 2014-AJPA), among other morphological differences (Gómez-Olivencia et al., 2017-JHE). Moreover, this less lordotic spine would be present in middle Pleistocene Sima de los Huesos (Bonmatí et al., 2010; Arsuaga et al., 2015-PNAS), and would be derived within genus Homo (Gómez-Olivencia et al., 2017-JHE)
- To demonstrate that Neandertals have a thorax which morphologically different from that of Homo sapiens (Gómez-Olivencia et al., 2009-JHE), with differences that do not only affect the costal skeleton, but also the mesosternum (Gómez-Olivencia et al., 2012-JHE)

Regarding the secondary lines of research:

- I have described Neandertal remains from the sites of La Chapelle-aux-Saints, La Ferrassie (LF1, LF8), Regourdou (Gómez-Olivencia et al., 2013a, 2013b, 2015; Gómez-Olivencia et al., 2012, 2013b-JHE, 2015-JHE, in press), including the only reported case of cannibalism north of parallel 50 (Goyet; Rougier et al., 2016-Sci.Rep.)
- The publication of the first Neandertal cave site at the Sierra de Atapuerca (Galería de las Estatuas; Arsuaga et al., 2017)
- The description of the oldest macro-mammal site of the Basque Country (Punta Lucero, 400-600 ka BP) (Gómez-Olivencia et al., 2015-Quat. Sci. Rev.)
- To have found the oldest Middle Paleolithic site from the province of Biscay (Arlanpe) (Rios-Garaizar et al., 2015)
- The finding of two new sites with recent prehistory human remains (Punta Lucero II, Covachón III) and the publication of the human remains from Askondo and Arlanpe.

The quality of the research I have performed is reflected in the fact that since 2015 I am an Associated Editor of the most important journal of Human evolution: J. Hum. Evol.

#### Resumen del Currículum Vitae:

##### Education

- 2002: Bachelor degree in Sciences-Geology (Univ. País Vasco-UPV/EHU, 2002),
- 2005: Diploma de Estudios Avanzados in Paleontology (Univ. Complutense de Madrid, 2005)
- 2009: PhD in Human Evolution (Univ. Burgos)

##### Positions

- 2004-2008: Pre-doctoral research fellow. Univ. Burgos
- 2010-2012: Post-doctoral research fellow. Univ. Cambridge, UK (Funded by Spanish Ministry of Education-FECYT)
- 2013-2014: Marie Curie research fellow. Muséum national d'Histoire naturelle, 153,620 €
- 2014-current: Ikerbasque Research fellow at the Univ. Basque Country UPV/EHU

##### Publications and citation statistics



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

46 scientific (peer-reviewed) publications (+ 2 in press + 7 in review):

34 of them are within SCI (4 of them are high impact publications (1 Science and 3 PNAS); 24 from the Q1; 19 from the first 10%; 13 as first author, 17 as corresponding author) + 2 in press (both as first author, both are top 10%) + 6 in review

12 of them out of the SCI (2 as first author) +1 in review

26 additional publications + 9 in press

1 edited books + 1 edited book in press + currently working on another edited book

859 citations/ h-index 15 (Google scholar)

566 citations/h-index 12 (Scopus)

There is a growing impact of my publications: for the last two years (2016-2017) my papers obtained a mean of 158 (Scopus) or 210 (google scholar) citations.

International collaborations

I am part of four different international research groups that are engaged in the publication of Neandertal fossil remains from Belgium (Goyet), France (La Ferrassie and Regourdou) and Israel (Kebara 2).

Research projects:

As principal investigator:

6 International projects (5 European: Marie Curie MC-IEF 327243; GB-TAF-4688; FR-TAF-109; GB-TAF-3674, BE-TAF-4132; 1 Leakey Foundation, USA)

9 regional projects

As a team member:

-7 european projects (Excavation and Research projects of Regourdou (5), La Ferrassie (1) in France, and Goyet in Belgium)

-5 national projects (Spanish Ministry; PI: J.L. Arsuaga)

-18 from Regional funding bodies/Foundation

Teaching

Since 2015:

-Master Universitario de Evolución Humana (Interuniversitario). University of Burgos. Registro fósil de homínidos (4 hours per year)

-Master de Cuaternario-Cambios ambientales y huella humana (Universidad del País Vasco/Euskal Herriko Unibertsitatea). Subject: Patrimonio y paisaje. Elaboración y desarrollo de proyectos (5 hours per year)

Supervision of Mphil/PhD students

I have supervised two master students who are now my PhD students. Both of them have obtained fellowships in order to perform an international PhD between the University of the Basque Country and Université de Bordeaux (France).

Review of R+D projects

-Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO), Belgium

-Agencia Nacional de Evaluación y Prospective (ANEP)

Article review and Editorial Board

Since the beginning of 2015 I am part of the editorial board of Journal of Human Evolution.

I have reviewed for: Science, J. Hum. Evol., Am. J. Phys. Anthropol., Quat. Intl., J. Archaeol. Sci.

36 papers reviewed/edited in the last 5 years.

Field work

More than 15 months of accumulated experience in paleontological work (co-direct).

Since 2015 technical director of the site of Galeria de las Estatuas (Sierra de Atapuerca; PI: J.L. Arsuaga) and Ranero (Biscay).



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

**Nombre:** GALVE ARNEADO, JORGE PEDRO  
**Referencia:** RYC-2017-23335  
**Área Científica:** Ciencias de la Tierra  
**Correo Electrónico:** jpgalve@gmail.com

#### Título:

Desarrollo de metodologías orientadas a la evaluación de riesgos geológicos

#### Resumen de la Memoria:

El principal objetivo de mi investigación es evaluar el riesgo asociado a las amenazas geológicas integrando la cartografía geomorfológica con métodos de exploración del subsuelo, técnicas de análisis espacial e información de sensores remotos. Esta propuesta se ajusta a las prioridades incluidas en el "Horizon 2020 work programme 2018-2020" de la Comisión Europea, así como a los retos de la sociedad recogidos en la "Estrategia Española de Ciencia y Tecnología y de Innovación 2013-2020". Además, los resultados de mi investigación tienen un notable impacto en países intensamente afectados por los riesgos naturales, como por ejemplo Italia, Costa Rica o Ecuador, donde estoy desarrollando parte de mis investigaciones. Mi trabajo investigador cubre todos los pasos para la evaluación de los riesgos geológicos:

1. Identificación y monitoreo de amenazas geológicas. Aplico la cartografía geomorfológica clásica combinada con estudios históricos, métodos geofísicos, técnicas de análisis del relieve e información obtenida de sensores remotos a través de técnicas a la vanguardia (LiDAR, Fotogrametría UAV, InSAR). En ese sentido, mis colaboradores y yo hemos cartografiado y monitorizado dolinas, zonas con subsidencia progresiva y deslizamientos. Además, hemos identificado el primer mega-abanico vulcanogénico descrito en la literatura internacional. Actualmente, estoy poniendo a prueba una plataforma web de la Agencia Espacial Europea para llevar a cabo análisis InSAR en la nube: the Geohazards Exploitation Platform and Portal.
2. Modelización de la susceptibilidad y la peligrosidad. Estoy desarrollando y probando diversas metodologías para llevar a cabo modelos de susceptibilidad y peligrosidad de dolinas, deslizamientos y centros de emisión volcánicos. Mis colaboradores y yo hemos generado modelos de susceptibilidad y peligrosidad (1) de dolinas en el Valle del Ebro y en los Alpes Carnicos (Italia); (2) de deslizamientos en Vernazza, Pogliaschina (Italia) y Loja (Ecuador); y (3) de centros de emisión volcánicos en El Hierro (Islas Canarias). Ahora estoy trabajando en modelos de peligrosidad de deslizamientos en una carretera de la región de las Alpujarras (Granada).
3. Evaluación del riesgo. He desarrollado un procedimiento innovador (1) para estimar la máxima inversión posible en medidas de mitigación rentables; y (2) para optimizar económicamente la medida de mitigación más apropiada. Además, he aplicado una metodología que estudia la aceptabilidad de una medida de mitigación según tres criterios diferentes: su rentabilidad, un criterio ALARP y un criterio "utilitarista". Esta metodología ya ha sido aplicada exitosamente en zonas afectadas por dolinas y deslizamientos en el Valle del Ebro y en Vernazza (Italia).

#### Resumen del Currículum Vitae:

Soy investigador del Departamento de Geodinámica de la Universidad de Granada. Obtuve mi licenciatura, máster y grado de Doctor en la Universidad de Zaragoza en 2001, 2005 y 2009, respectivamente. En 2010 trabajé como investigador en el Departamento de Ciencias de la Tierra y la Materia Condensada de la Universidad de Cantabria. Ese mismo año me concedieron la Ayuda para estancias posdoctorales en el extranjero del Ministerio de Ciencia y Tecnología para desarrollar una estancia de dos años en el Dipartimento di Science della Terra de la Università degli Studi di Modena y Reggio Emilia (Italia). En 2012 regresé a la Universidad de Zaragoza por un año para trabajar de investigador contratado asociado a un proyecto y desde 2014 disfruté de un contrato de investigación del Programa Juan de la Cierva (Ministerio de Economía y Competitividad) en la Universidad de Granada que terminó en Abril de 2017. En estos momento tengo una plaza de Profesor Sustituto Interino en esa misma universidad. Desde 2014 he impartido clases en las asignaturas: "Geomorfología", "Geomorfología Aplicada", "SIG y Cartografía Geológica" (Grado de Geología), "Sistemas de Información Geográfica y Teledetección" (Grado de Ciencias Ambientales), "Geología" (Grado de Ingeniería Civil) y "Medio Físico" (Grado de Biología). Además, también he participado en un curso del programa de doctorado en "Ciencias de la Tierra" sobre "Sistemas de Información Geográfica" en la misma universidad. Mi carrera investigadora se ha desarrollado participando en 20 proyectos de investigación (12 internacionales) y 17 contratos con empresas y la administración pública. Soy autor y coautor de 49 artículos SCI (15 como primer autor) y más de 90 publicaciones, entre artículos no SCI en revistas nacionales y volúmenes de comunicaciones a congresos y capítulos de libros. La calidad de mi producción científica se refleja en que una gran parte de los artículos SCI están publicados en revistas Q1 (32/49) y mi alto índice H (16 según Scopus). Estos indicadores de calidad se ajustan a los que presentan en la actualidad investigadores que obtuvieron un contrato "Ramón y Cajal" hace uno, dos e incluso tres años. He dirigido una Tesis doctoral de la Università degli Studi di Modena y Reggio Emilia (Italia) y actualmente estoy dirigiendo otra Tesis doctoral de la Università di Pisa (Italia). Asimismo, he dirigido dos Trabajos Fin de Grado (y actualmente dirijo otros dos) de la Universidad de Granada y co-dirijo un Trabajos Fin de Master de la Universidad de Barcelona. He participado en acciones de divulgación científica como el podcast "GeoCastAway", la actividad [Geología](#), en entrevistas en medios y en la organización de congresos nacionales e internacionales. Soy revisor habitual de artículos científicos para revistas SCI tales como [Geomorphology](#), [Journal of Hydrology](#) o [Engineering Geology](#), por citar algunas de las más importantes en su campo. También ha



MINISTERIO  
DE CIENCIA, INNOVACIÓN  
Y UNIVERSIDADES



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

actuado como revisor de proyectos de investigación para el "National Center of Science and Technology Evaluation" de la Republica de Kazajistán. Recientemente, me fue aprobado como Investigador Principal un proyecto de la Agencia Espacial Europea para poner a prueba la plataforma web "Geohazards Exploitation Platform and Portal".



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

**Nombre:** DE MATOS ARAUJO, CRISTIANO VENICIUS

**Referencia:** RYC-2017-22324

**Área Científica:** Ciencias de la Tierra

**Correo Electrónico:** cristiano.araujo@icman.csic.es

#### Título:

Changing the paradigm of the ecotoxicity assays applied in environmental risk assessment: the non-forced exposure approach

#### Resumen de la Memoria:

My first contact with a research project was in 1999, when I was studying Biology in Brazil. The activities I developed were related to environmental mycology and mineral nutrition of plants. Having obtained my Biology degree in 2001, I was invited to participate in a project in the field of ecotoxicology, starting my first contact with studies on environmental contamination. I was awarded a researcher fellowship from CNPq (Brazil) to participate in that project whose main goal was to implement new ecotoxicological methods to assess the efficiency of a wastewater treatment plant.

When that project finished, I applied to a Master's fellowship and in 2003 I started to develop my Master's thesis with a fellowship from CAPES (Brazil). The aim was to monitor, by using bioassays, an acidified tropical freshwater ecosystem that was suffering the impact caused by discharges of sulfuric acid of a titanium dioxide manufacturer. I identify the role of the pH and of the dissolved metals as determinants in the toxicity of the water, helping to stop the discharge of effluents in the lakes close to the manufacturer.

In 2005 I was contracted to work in a wastewater treatment plant to implement ecotoxicological methods in order to ensure an effective monitoring plan for the treatment of industrial effluents. With this study, the company was able to assess how toxic the effluent to be treated was and to improve the efficiency of the treatment.

In 2006, I went to Spain with a 4-years fellowship from CAPES to do my PhD Thesis at the University of Cádiz. I developed a new ecotoxicological assay using microphytobenthos to assess the quality of coastal sediments. The ultimate goal of the thesis was to create an easy-to-use kit to measure toxicity of coastal sediment.

In 2011, I started my Postdoctoral period that began in Portugal and was extended with stays in Brazil, Ecuador and, recently, a Juan de la Cierva-Incorporación contract in Spain. The research field which I started to develop during my postdoctoral period is related to the change of paradigm of ecotoxicological assays: from forced exposure to a free-choice, multi-compartmented, non-forced exposure scenario. This new focus is based on the ability of an organism to avoid contamination by moving towards more favorable habitats. Although environmental risk of contamination has always been related to toxicity, which supposes a deleterious effect caused by a continuous exposure, I have hypothesized that contaminants can represent an environmental risk even if no toxicity is observed at the individual level. If organisms detect the presence of contaminants and avoid their toxic effects by moving to other habitats, toxic effects in individuals should not be expected, but the displacement of the organisms may be considered a real and significant impact. I have incorporated new concepts linked to ecotoxicological studies in this approach, which had not previously been taken into account such as: avoidance and preference behaviors, habitat (re)colonization, habitat connectivity, habitat fragmentation (chemical barrier), metapopulation, and habitat selection. This change of paradigm given to the ecotoxicological studies has provided greater ecological relevance to environmental risk assessment schemes as an additional tool to assess the danger of contamination at the ecosystem/landscape level.

#### Resumen del Currículum Vitae:

I am a researcher focused on the impact of chemical substances on the environment. In 2001, after getting a degree in Biology, I started to work in the field of Ecotoxicology and Environmental Risk Assessment, focusing on different environmental problems caused by domestic and industrial discharges, acidification processes and agricultural activities. These diversified fields allowed me to study different responses and apply many bioassay methodologies able to detect environmental disturbance on different species and levels of biological organizations from individual to ecosystems. I have developed studies with researchers from different countries in freshwater and marine/estuarine ecosystems, which provided me with a broad vision of the innumerable contamination scenarios to be studied and understood.

I have participated in 17 research projects in different countries and acted as Principal Researcher in four of them. I have coauthored ca. 40 scientific papers (31 in Q1), in which around 80 researchers have participated. In many of these papers I am the first author (>70%) and corresponding author (>80%). Recently, I have edited a book with the researcher Cândida Shinn, to which 111 researchers from 18 countries contributed. I have also participated as author or invited speaker in some scientific events like SETAC Latin America.

As Postdoctoral Researcher, I have focused on a new approach (non-forced exposure scenario) to assess the effects of contamination from an ecosystem perspective and not only the individual toxic effect perspective. The non-forced exposure approach permits the integration



MINISTERIO  
DE CIENCIA, INNOVACIÓN  
Y UNIVERSIDADES



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

of new concepts linked to ecosystem structure to ecotoxicological studies: organisms' spatial avoidance, (re)colonization, habitat connectivity, habitat fragmentation, chemical barrier, and habitat preference. This change of exposure paradigm provides higher ecological relevance to ecotoxicological studies and environmental risk assessment as an additional tool to evaluate the danger of contamination, even if no toxic effect is observed at the individual level.



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

**Nombre:** OCHOA HUESO, CARLOS RAUL  
**Referencia:** RYC-2017-22032  
**Área Científica:** Ciencias de la Tierra  
**Correo Electrónico:** rochoahueso@gmail.com

#### Título:

Biogeochemical cycling and community assembly in terrestrial ecosystems subjected to air pollution and climate change

#### Resumen de la Memoria:

I integrate a wide range of experimental and methodological approaches to investigate the effects of air pollution and climate change on biogeochemical processes and community assembly in terrestrial ecosystems, as well as the capacity of these ecosystems to provide key services such as carbon storage and soil fertility.

During my scientific career, I have developed a comprehensive approach to study the impacts of nitrogen deposition on terrestrial ecosystems. My initial interest in the communities of annual and woody plants gradually led to a much more general interest in ecological interactions, such as mycorrhizae or competition/facilitation between plant species, the spatial distribution and physiology of biological soil crusts, soil faunal communities, as well as the functioning of ecosystems in general, especially in relation to processes associated with nutrient cycling, such as N fixation, mineralization, greenhouse gas fluxes, and the capacity of ecosystems to generate key services such as soil carbon storage. This last question continues to interest me very much today, given its relevance in the context of the current climate change and the need to generate information that can be reliably integrated into Earth-System models.

Since July 2016 I have worked as Juan de la Cierva-Incorporation researcher at the Department of Ecology of the Autonomous University of Madrid. During this time, I have investigated how the disruption of ecological networks as a result of global environmental change, on the one hand, and the loss of multitrophic biodiversity, on the other, affect the functionality of ecosystems. As a result of my work, I have pioneered studies demonstrating how ecosystem networks become significantly disconnected in response to nitrogen addition. I have also worked on the elaboration of meta-analyses on the effect of nitrogen deposition on moss and lichen communities and on the effects of grazing abandonment on soil fertility and microbial activity in dehesas of central Spain. In addition, during this period I have extended my area of specialization to the analysis of spatially explicit data as a result of my role as coordinator of the unit "Spatial dynamics in ecology" of the Master of Ecology of the Autonomous University of Madrid.

I have spent a significant proportion of my scientific career (approximately four years) in international research institutions. Three of these years I worked at the Hawkesbury Institute for the Environment (HIE) of Western Sydney University, Australia, a prestigious research center that hosts a multitude of world-renowned researchers in the study of the consequences of global change for terrestrial ecosystems. During this time, I carried out novel research on the effects of climate change (changes in precipitation regimes and increase in CO<sub>2</sub> concentrations in the atmosphere) and the eutrophication of ecosystems in above- and belowground ecosystem structure and processes (nutrient cycling and composition and activity of microbial communities), within a plant-soil-microbial interactions framework. I have also become an active member of international research networks such as the Nutrient Network (NutNet, <http://www.nutnet.umn.edu/>) and the DroughtNet (<http://drought-net.colostate.edu/>).

#### Resumen del Currículum Vitae:

The results of my research include thirty-eight publications included in the Scientific Citation Index, including single author papers in highly-reputed journals like Ecology. I am first author in twenty-four of them and second in four. I have led or participated in eight book chapters or reports not included in the Scientific Citation Index, for a total of forty-six scientific publications. I have presented fifty-four communications in national and international conferences. My articles have been cited 486 times and my h-index is 11 (based on Scopus, 07/01/2018). Twenty-three of my publications are in journals of the first quartile and the greater proportion of them are in journals of the "Pollution" category (thirteen), included within the Earth Sciences Area of MICINN. Currently, I have nine scientific manuscripts under review or in revision, six of them as the first author.

I have demonstrated my capacity to manage my own resources and lead my own research initiatives. I have participated in five projects funded by competitive calls (Parques Nacionales, Plan Nacional, European Research Council), in two of which I was the PI (ExPEER, Hawkesbury Institute for the Environment). I also received and managed a budget of 60,000 Australian dollars as part of my fellowship at the Hawkesbury Institute for the Environment, in Australia, while the Juan de la Cierva-Incorporation Fellowship that I competitively obtained later included a research budget of 6,000 euros.

I created what is currently known as CAPERmed, a Mediterranean Basin-wide meeting that aims at promoting the cooperation amongst air pollution and climate change researchers and actors involved in the implementation of the environmental agenda for quantifying current impacts and identifying current and future environmental challenges in the Mediterranean region. As a result of the first CAPERmed meeting, held in Lisbon, Portugal, in 2014, I led the write up of a review article entitled "Ecological impacts of atmospheric pollution and interactions with climate change in terrestrial ecosystems of the Mediterranean Basin: Current research and future directions", which involved the coordination of more than thirty co-authors. The success of the first meeting ensured the organization of a second CAPERmed meeting two years later. This meeting, celebrated in Brescia, Italy, in 2016, resulted in lively scientific discussions, media coverage, and in the organization of a special issue containing ten research articles for the journal Environmental Science and Pollution Research (Impact



MINISTERIO  
DE CIENCIA, INNOVACIÓN  
Y UNIVERSIDADES



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

Factor: 2.71) entitled "(E)merging directions on air pollution and climate change research in Mediterranean ecosystems", published in December 2017. There will be a third meeting in 2018 in Pamplona, Spain.

I recently edited a series of articles for Ecosistemas, the journal of the Spanish Association of Terrestrial Ecology. The monograph, entitled "Anthropogenic alterations of the nitrogen cycle and consequences for ecosystems", focused on the consequences of nitrogen pollution on ecosystems from the Mediterranean Basin.

Currently, I am supervising two doctoral theses, one in Australia (Western Sydney University) and one in Spain (Autonomous University of Madrid). I have supervised, or I am supervising, two master's theses in Australia, one in Italy and four in Spain, as well as a Bachelor's thesis in Spain.



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

**Nombre:** ORTEGA MONTILLA, PABLO  
**Referencia:** RYC-2017-22772  
**Área Científica:** Ciencias de la Tierra  
**Correo Electrónico:** portegamon@gmail.com

#### Título:

Understanding decadal climate variability and predictability in the North Atlantic: Insights from climate models and paleodata

#### Resumen de la Memoria:

I consider myself as a climate scientist with a broad range of interests, including paleoclimatology, ocean dynamics, decadal prediction and climate feedbacks. To date, the bulk of my research efforts has focused on studying the past to learn for the future, with particular interest in the fate of the ocean circulation and its climate impacts. Throughout my research trajectory I've built a comprehensive set of complementary skills from climate modelling to data assimilation, advance statistics and paleoclimate reconstruction methods.

I obtained my PhD (Summa Cum Laude and European Doctor Mention) at the Universidad Complutense de Madrid (UCM) in december 2011. During my PhD, four stays abroad at the Earth Science Research Center (Canada), the University of Reading (UK, twice), and l'Universite Pierre et Maire Curie (UPMC, France) were key to defining my current scientific interests and developing my international collaborations. Since then, I've acquired a unique profile both as a climate modeller and paleo-climatologist, accumulating 6 years of experience in recognised European research centres: 22 months at the LSCE (France), a reference laboratory for the study of paleoclimates; 14 months at LOCEAN/UPMC (France), a research centre on ocean modelling responsible for the development of NEMO (the most widely used ocean model in Europe, included, e.g., in the operative prediction models of the Metoffice and MeteoFrance); and the Department of Meteorology of the University of Reading (3 years), the top-graded institution in Europe for climate research. Thanks to this diverse enriching experience I've established a solid heterogeneous network of collaborations with research groups across the United Kingdom, Spain, France and Switzerland, and participated actively to 14 national and international research projects.

I have a longstanding commitment with educational and outreach activities, and have been thus involved in university lectures (96 hours), innovative teaching projects, laboratory demonstrations, dissemination seminars and book chapters). I also have experience in supervising activities (7 postdocs, 1 PhD, 2 undergraduates and 1 master student).

My experienced profile has allowed me to recently join the Barcelona Supercomputing Center (a prestigious national research center with a Severo Ochoa distinction) in the role of co- leader of the Climate Prediction group. This is a relatively large (15 postdoctoral researchers and 3 PhD students) and prolific research group, with a broad domain of expertise (from ocean and atmospheric dynamics, to biogeochemistry and sea ice processes) and highly recognised and active at the European level. For instance, it's currently involved in 9 H2020 and Copernicus projects. In 4 of these projects, I have an important contribution as coordinator of the activities of the CP group. Since my arrival in September 2017, I'm overseeing the participation of the group to 3 new H2020 proposals (to be submitted in February 2018). In two of them, I would be the PI at the BSC.

#### Resumen del Currículum Vitae:

The scientific quality and relevance of my research is supported by 19 publications in journals of the first quartile (9 as a first author, 5 as second). These articles have received a total of 206 citations (161 since the beginning of 2016) and my h-index is 9 (all metrics from Scopus, January 2018).

Regarding communication, I have 33 presentations in international conferences (20 posters and 13 oral talks, from which 1 invited) and have given invited seminars at the University of Bordeaux, the Imperial College of London and the National Oceanography Center at Southampton.

I've also been an expert reviewer for a wide range of specialized journals: Climate Dynamic, Climate of the Past, Journal of Atmospheric and Solar-Terrestrial Physics, Nature, Nature Geosciences, Geophysical Research Letters, Earth System Dynamics and Global Biogeochemical Cycles. In addition, I've been member of the Committee of a PhD thesis (Laura Fernandez Donado, UCM, 18/12/2015) and acted as the external reviewer of two other ones (Alberto Martinez de la Torre; USC, 2014; Marta Martin del Rey, UCM, 2015).

The visibility and impact of my work has been boosted since 2015, when my publication record went from 4 to 19 articles (all within the first quartile), including 5 peer-reviewed papers published in high-impact journals (Nature as first author, Nature Geosciences x2, Nature Communications and BAMS). Another proof of my increasing recognition as a paleo-scientist is a News & Views article that I recently published (Ortega et al, Nature Geoscience, 2016), where I discuss recent results on the role of atmospheric circulation in European temperature during the last millennium. I've also contributed with two articles (one solicited, as lead-author) to a joint issue on decadal climate variability between CLIVAR Exchanges and PAGES (July 2017). And have participated to a US CLIVAR Workshop report on the current state of the Atlantic Meridional Overturning Circulation. Currently, I have three papers under review, two as co-author (one in Nature, one in Geophysical Research Letters) and one as first author (in Climate Dynamics).

Also indicative of the relevance of my work is that 4 of my most frequent co-authors are world leading researchers: Fidel Gonzalez-Rouco (UCM; lead author to Chapter 5 in the 5th IPCC assessment report), Eric Guilyardi (LOCEAN; lead author of Chapter 9), Rowan Sutton (NCAS-Climate; lead author to Chapter 11) and Valerie Masson-Delmotte (LSCE; co-ordinating lead author to Chapter 5 and recently elected co-chair of the 1st IPCC Working Group), with whom I'm still collaborating.



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

**Nombre:** TANASE , MIHAI ANDREI  
**Referencia:** RYC-2017-22555  
**Área Científica:** Ciencias de la Tierra  
**Correo Electrónico:** mihai@tma.ro

#### Título:

Environmental monitoring from Earth Observation data-sets

#### Resumen de la Memoria:

My research career started at the Forest Research and Management Institute (FRMI) where I became interested in geoscience applications to forest management questions. To develop the relevant skills, I have enrolled in Master and PhD programs at the Mediterranean Institute of Chania (Environmental Management, 2004-2006) and the University of Zaragoza (Geography, 2006-2010). I held postdoctoral positions at the University of Melbourne (Super Science fellow, 2011-2014) and the University of Alcalá (Juan de la Cierva fellow, 2015-2016). I have spent extended periods as a visiting academic at the Centre for the Study of the Biosphere from Space (2008), Gamma Remote Sensing and Consulting (2009), University of Maryland (2010), and Boston University (2014). Through my doctoral and postdoctoral research, I became interested in applied remote sensing technologies to natural hazards, terrestrial ecosystems monitoring, and natural resources management. My research lines relate to global-scale problems such as wildfires, carbon cycling, and landscape dynamics as follows:

**Natural hazards:** I have worked towards developing highly automated methods for assessing fire impacts on vegetation as well as novel ways for monitoring forest recovery in different environments. This research line demonstrated the potential of the radar sensors for fire impact estimation and continuous forest monitoring. The pioneering nature of this effort was awarded the Interactive Prize Paper Award by the IEEE Geoscience and Remote Sensing Society in 2010. Within this research line, I am the lead investigator of a European Space Agency funded project focused on burned area mapping using SAR-based (Sentinel-1) remote sensing.

**Carbon cycling:** my work improved forest biomass estimation accuracy using dense multi-temporal radar data series and polarimetric target decomposition techniques. I have worked on enhancing backscatter models with a priori forest structural information obtained from Lidar sensors as well as using Lidar sensors alone for carbon stocks retrieval. Through collaborative research I am working towards a better characterization of forested landscapes by means of airborne discrete and full waveform Lidar.

**Landscape dynamics:** I have assessed the utility of high spatial resolution optical imagery for land management purposes in the framework of two FP6 projects (GMES GEOLAND and FireParadox) making significant contributions by assessing object- and pixel-oriented classification methods. Together with A/Prof. R. Kennedy (Oregon State University) I am working towards integrating radar and optical temporal-series into trajectory fitting algorithms to allow for a more reliable differentiation of forest landscape changes. Within this research line, I am the lead investigator of the EO-ROFORMON project aimed at prototyping a novel forest monitoring system based on the integration of active and passive temporal series.

The significance and impact of my research is evidenced by the international projects I lead which amount to 1.5 million in funding. I was the lead investigator of five projects granted by the European, German, Japanese, and Canadian space agencies. I have collaborated in two successful Early Career Research Grants (\$40,000 each) funded by the University of Melbourne and I am the lead investigator of two major research projects as detailed in my resume.

#### Resumen del Currículum Vitae:

My research background includes significant experience in Geoscience with an emphasis on Remote Sensing for environmental applications. Through M.Sc. (Environmental Management, 2004-2006) and Ph.D. (Geography, 2006-2010) programmes, I have specialized in the use of active and passive remote sensing for monitoring processes and patterns in the natural environment, particularly those related to the biosphere (e.g., natural hazards, vegetation). I held postdoctoral positions at the University of Melbourne (2011-2014) and the University of Alcalá (2015-2016) and was a visiting academic at the Centre for the Study of the Biosphere from Space (2008), Gamma Remote Sensing and Consulting (2009), University of Maryland (2010), and Boston University (2014).

My research program is focused on improving operational applications in the fields of natural hazards management and environmental monitoring through the use of advanced remote sensing technologies. As such, I have worked towards developing novel methods for landscape characterization and monitoring using active (synthetic aperture radar, lidar) and passive (optic) satellite and airborne datasets. My future research plans include studying global-scale problems by taking advantage of synergies between multiple remote sensing platforms for a better characterization of landscape dynamics. To tackle such objectives, I aim to integrate information from an array of active and passive sensors using time-series analysis and cloud-based computing capabilities. My current research program aims at tapping the potential of dense active-passive time-series synergies.

The impact and relevance of my research program is demonstrated by an h-index of 12 (from 423 citations, Scopus January 2017) and awarded research funding amounting 1.9 million (1.5 million as lead investigator and 0.4 million as fellowships). I was the lead



MINISTERIO  
DE CIENCIA, INNOVACIÓN  
Y UNIVERSIDADES



## AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

### Turno de acceso general

investigator for nine research projects and collaborated in further seven international projects with a total funded value of 50€ million. I have authored or co-authored one book chapter, 26 journal articles (80% in Q1 ranked journals), and 6 refereed conference submissions and have presented my work at 18 national and international conferences. Since finishing my PhD, I have published an average of three peer-reviewed journal articles per year (>50% as first author) and was awarded several research fellowships (i.e., Juan de la Cierva fellowship, Cornelius Regan Trust award, Endeavour fellowship, Super Science fellowship) and the Interactive Prize Paper Award by the Geoscience and Remote Sensing Society (2010).

My teaching experience includes postgraduate courses and student supervision at three national and international universities (University of Zaragoza, University of Alcalá, and the University of Melbourne). I was invited to lecture on radar remote sensing at the Remote Sensing Summer School (International Geoscience and Remote Sensing Symposium, IGARSS, 2013) and the 8th joint conference of the Institute of Foresters of Australia and the New Zealand Forestry's institute (2015). I was an associated editor for the PLOS ONE journal and peer-reviewed over 30 articles for major international journals (e.g. Remote sensing of Environment, Transactions on Geoscience and Remote Sensing).