



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: ROBINSON , ALEXANDER
Referencia: RYC-2016-20587
Área Científica: Ciencias de la Tierra
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Título:

Earth system and ice sheet modeling under climate change in the past and future

Resumen de la Memoria:

My main expertise lies in Earth system modeling with a particular focus on the ice sheets. After I obtained a Bachelors degree in Engineering from Pennsylvania State University in 2005, I completed my PhD in Physics in 2011 at the University of Potsdam and the Potsdam Institute for Climate Impact Research (PIK) in Germany. I developed an innovative, computationally fast regional climate model coupled to an ice sheet model for simulating the Greenland ice sheet (GrIS). This work has served to significantly advance our understanding of the GrIS sensitivity to climate change, as the approach allowed treatment of previously neglected, yet critically important feedback processes between the climate and ice sheet on long time scales. I completed my PhD in less than 3 years as part of a Marie Curie Research Training Network, which gave me the opportunity to build a collaborative network with the top researchers in glaciology and climate at first-class institutions around Europe (PIK, Max Plank Institute, LSCE, etc.). I began working at the Complutense University of Madrid (UCM) in 2011, where I have led a new line of glaciological research, including development of the first ice sheet model to be developed in Spain. I have successfully contributed to five nationally funded projects and I was awarded a Marie Curie Fellowship in 2012, which focused on quantifying the past and potential future contributions of the GrIS to sea level rise. In 2016, I was awarded a second Marie Skłodowska-Curie Fellowship at the University of Athens (Athens, Greece) to develop a new probabilistic approach to constraining coupled climate ice sheet model simulations using paleo data. Through my work, I have established my reputation as an expert in the long-term stability of the ice sheets, and several of my publications have been cited prominently in the 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

I also have significant expertise in the modeling and analysis of extreme events, such as heat waves and ocean circulation changes. I collaborated with colleagues at PIK to develop a methodology and set of statistical tools to quantify how the frequency of extreme events will increase under future climate change. Along with high-impact journal publications, this work led to the commission of three technical reports from the World Bank that have been used to aid policy makers concerning adaptation strategies for the future. Additionally, I have co-authored several papers on simulating energy supply and demand in sensitive regions under global warming projections.

My scientific output (25 ISI publications, 3 in Nature journals, 4 in PNAS, and 3 technical reports) and success in obtaining competitive European funding show the high quality and relevance of my research. I also strive to communicate my scientific expertise to the public, and have been interviewed several times by the media. I teach in the Physics faculty at the UCM, I have supervised 2 Masters theses and I am currently the co-supervisor of 3 PhD students.

Resumen del Currículum Vitae:

Education

2005: Bachelor degree in Engineering Science, Pennsylvania State University, USA
2005: Minor degrees in International Studies and German, Pennsylvania State University, USA
2011: PhD in Physics (Climate change / geophysics), 2011, University of Potsdam, Germany

Positions

2011-current: Postdoctoral researcher, Complutense University of Madrid, Spain
2011-current: Guest scientist, Potsdam Institute for Climate Impact Research, Germany
2008-2011: Predoctoral researcher, Potsdam Institute for Climate Impact Research, Germany
2007-2008: Fulbright Scholar, Technical University of Berlin, Germany

Personal fellowships / grants

2017-2019: Marie Skłodowska-Curie Individual Fellowship (IF), University of Athens, Greece, 165.000
2012-2014: Marie Curie Intra-European Fellowship (IEF), Complutense University of Madrid, Spain, 166.000
2008-2010: Marie Curie Early Stage Researcher Grant, Potsdam Institute for Climate Impact Research, Germany
2007-2008: Fulbright Scholarship, Technical University of Berlin, Germany

Participation in other projects

2015-current: Greenland glacial system and future sea-level rise (GreenRISE), Leibnitz Association, Germany
2015-current: Modelling abrupt climate change (MOCCA), Ministerio de Economía y Competividad, Spain



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

2014-current: Mitigación de la inestabilidad del manto de hielo Antártico Occidental, Spain
2012-2014: Simulation and analysis of key PEriods in the Quaternary: Towards advancing understanding of proxy REconstructions and model Simulations (SPEQ-TRES), Spain
2008-2011: Modelización de la variabilidad climática con modelos climáticos de distinta complejidad y relevancia en el clima de la Península Ibérica (MOVAC), Spain

Publication and citation statistics

I have published 25 ISI articles - 21 in Q1 journals, three in the Nature family of journals (one as first author) and four in PNAS. I have also co-authored 3 peer-reviewed reports and published 27 conference presentations (2 invited).

815 citations / H-index 13 (Google Scholar, ID 3cU6ewMAAAAJ)

438 citations / H-index 8 (Scopus, ID 35220447400)

741 citations / H-index 13 (Researchgate, Alexander_Robinson)

Distinctions / Awards

2012: Invited presentation, Geologica Belgica, Brussels, Belgium

2012: Award for Scientific Dissemination, Moncloa International Campus of Excellence, Madrid, Spain

2012: Young Scientist Award for best poster presentation, 8th International AEC Conference, Salamanca, Spain

2010: Invited presentation on climate change for diplomats from Latin America and the Caribbean, Berlin, Germany

Teaching / Supervision

2016-2017: Lecturer, Undergraduate course: Mechanics of Continuous Media, UCM, Spain

2016: Lecturer, PhD course: Glaciers, Ocean, Climate and Paleoclimate, IMEIO (UCM-UPM), Spain

2016: Lecturer, PhD course: Paleoclimate, surface mass balance modeling and coupled climate - ice sheet models, IMEIO (UCM-UPM), Spain

2014: Lecturer, PhD course: Mathematical treatment of Earth system models, IMEIO (UCM-UPM), Spain

2004-2005: Teaching assistant, Undergraduate courses: Physics I: mechanics; Physics II: dynamics

2014-2016: Supervision of two Master theses

2014-current: Supervision of three PhD theses



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Y GESTIÓN ECONÓMICA Y
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SUBDIVISIÓN DE
PLANIFICACIÓN Y GESTIÓN
ADMINISTRATIVA

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: SANCHEZ LORENZO, ARTURO
Referencia: RYC-2016-20784
Área Científica: Ciencias de la Tierra
Correo Electrónico: asanchezlorenzo@gmail.com

Título:

Global dimming/brightening: causas e implicaciones de los cambios de la radiación solar en superficie

Resumen de la Memoria:

Mi trayectoria investigadora se ha centrado en el estudio de la radiación solar que llega a la superficie terrestre, en especial de sus tendencias durante las últimas décadas, así como en las causas y consecuencias de esos cambios radiativos. Dicho trabajo se ha desarrollado desde el 2005 en el marco de diferentes contratos: beca predoctoral de Formación del Profesorado Universitario (FPU) en la Universidad de Barcelona, investigador contratado en el Parque Científico de la Universidad de Barcelona, investigador postdoctoral en el ETH Zurich (31 meses), investigador postdoctoral en la Universidad de Girona, y desde diciembre del 2014 con un contrato Juan de la Cierva en el Consejo Superior de Investigaciones Científicas (CSIC). Igualmente, he realizado visitas de investigación predoctoral (9 meses en total) en el National Center for Atmospheric Research (NCAR, Estados Unidos) y el Institute of Atmospheric Sciences and Climate (ISAC, Italia).

Resumen del Currículum Vitae:

He participado en más de 25 proyectos de I+D+i y convenios obtenidos en convocatorias internacionales, nacionales y regionales. En seis de esos proyectos he sido investigador principal, destacando dos proyectos internacionales financiados por el Deutscher Wetterdienst (DWD) y la EUMETSAT Satellite Application Facility on Climate Monitoring (CM SAF). Los resultados de este trabajo se han difundido a través de unos 75 artículos en revistas indexadas en el ISI Web of Knowledge y Scopus. He contribuido en más de 30 capítulos de libros y actas de congresos, y más de 150 aportaciones a congresos nacionales e internacionales, incluyendo una docena de ponencias y charlas invitadas. He sido convener principal en 2014 y 2015 de una sesión de radiación solar en la American Geophysical Union Fall Meeting. Así mismo, he participado como co-convener en sesiones de radiación, nubes y aerosoles en la European Geophysical Union General Assembly (2011, 2015, 2016 y 2017), American Geophysical Union Fall Meeting (2016) y del International Radiation Symposium (2016). He codirigido una tesis doctoral y un trabajo fin de grado, y en la actualidad codirijo otra tesis doctoral. He formado parte de cuatro tribunales de tesis doctorales, uno de ellos en una universidad extranjera.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: GARCIA SERRANO, JAVIER
Referencia: RYC-2016-21181
Área Científica: Ciencias de la Tierra
Correo Electrónico: javier.garcia@bsc.es

Título:

Teleconnection Dynamics for Climate Prediction

Resumen de la Memoria:

During his scientific career, Dr. García-Serrano has worked upon the fundamental initiative of exploring teleconnection dynamics for climate prediction. He has recently been able to tackle this aim with autonomy thanks to an EU-funded H2020 Marie Skłodowska-Curie Action, DPETNA 'Dynamics and predictability of the ENSO teleconnection to the tropical North Atlantic', and a national project funded by the Spanish Ministry of Economy and Competitiveness, DANAE 'Dynamics and predictability of the ENSO teleconnection in the North Atlantic-European region', which is allowing him to build his own research team at the Barcelona Supercomputing Center (BSC). Obtaining these grants is a reflection of the candidate's solid and coherent career during his postdoctoral stage, thoroughly building a bridge between his theoretical background in atmospheric dynamics and the practical requirements of climate forecasting. He is currently leading the 'Atlantic Variability and Predictability' research line at BSC. He is also convening the session 'Towards better understanding mid-latitude atmospheric teleconnections' at the annual meetings of the European Meteorological Society.

During his PhD, the candidate developed a deep understanding of the atmospheric dynamics associated with remote forcings of Euro-Atlantic climate anomalies, such as El Niño-Southern Oscillation (ENSO) in the tropical Pacific. During his first three years as post-doctoral researcher, he acquired an in-depth knowledge of the forecast quality of seasonal and decadal climate predictions; e.g. publishing pioneering work on the skill of the Atlantic multi-decadal variability. During the following years, he started to merge his two research interests, namely teleconnection dynamics and climate forecasting, into a single research line; this work focused on the predictability of the North Atlantic Oscillation associated with Arctic sea-ice variability. The ongoing DPETNA project tries to address the gap in the understanding of the ENSO-TNA lagged relationship, i.e. a delay of about one season between the remote teleconnection (peaking in boreal spring) and mature ENSO conditions (peaking in boreal winter). The project also undertakes the novelty of evaluating the ENSO-TNA teleconnection using an unprecedented set of dynamical seasonal hindcasts. Together, DPETNA offers a prime opportunity for making substantial progress in seasonal-to-interannual predictions in the tropical Atlantic sector. A major step towards reinforcing his research line at BSC has been achieved as a result of obtaining the DANAE project. Its aim is to dissect the influence of ENSO in the Euro-Atlantic sector and diagnose the ability of forecast systems to reproduce it. Through DANAE, the applicant is also pursuing the projection of his research line at international level by expanding the collaboration as in-kind contribution to several European initiatives. Additionally, the project will contribute to a prototype development of wind power supply forecasts undertaken at BSC.

The applicant is an enthusiastic and ambitious researcher with a proven ability to obtain funding to support his scientific objectives, e.g. for stays abroad (4 months in UK and 3 months in Netherlands during his PhD; 9 months in Japan and 6 months in France during his postdoctoral stage) or to host foreign researchers.

Resumen del Currículum Vitae:

Research activity:

2015-2017. Earth Sciences Department, BSC-CNS, Barcelona (junior researcher)
2016 Jun-Aug. CERFACS, Toulouse (post-doctoral stay)
2016 Mar-May. CNRM, Météo-France, Toulouse (post-doctoral stay)
2013-2015. LOCEAN-IPSL, Université Pierre et Marie Curie, Paris (post-doc, EU-FP7)
2012 Mar-Nov. AORI, University of Tokyo (post-doctoral stay)
2010-2012. Climate Forecasting Unit, IC3, Barcelona (post-doc, EU-FP7)
2009 Jul-Sep. Global Climate Division, KNMI, Netherlands (PhD stay)
2008 Feb-May. MetOffice-Hadley Centre, UK (PhD stay)
2005-2010. Department of Geophysics and Meteorology, UCM, Madrid (PhD)

Fund-raising:

- MINECO-RETOS (DANAE, CGL2015-68342-R), PI at BSC-CNS, 2016-2019
- H2020 Marie Skłodowska-Curie Action (MSCA-IF-EF 655339) at BSC-CNS, 2015-2017
- 6th Severo Ochoa Mobility Grant to host Martin P. King (Norway) at BSC-CNS, Oct 2015
- CANON Foundation in Europe (grant N2011-062), to stay at AORI (University of Tokyo)
- Spanish Ministry of Education (grant TME2008-00927), to stay at KNMI (Netherlands)



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ADMINISTRATIVA
SUBDIVISIÓN DE
PLANIFICACIÓN Y GESTIÓN
ADMINISTRATIVA

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

- European Science Foundation-MedCLIVAR (grant EG/1694), to stay at MetOffice (UK)

Author of 32 articles, 29 published - 3 under review, all in journals ranked in the first quartile (including high-impact journals, 1 in Nature Communications and 2 in Bulletin of the American Meteorological Society); 502 total citations / H-index 12; 6 non peer-reviewed publications (e.g. CLIVAR Exchanges, WGNE-BlueBook, Física de la Tierra-UCM); 3 book chapters (e.g. CLIVAR-Spain, TICCC-Catalonia); 23 oral contributions as first author (4 invited); participation in 5 European projects (FP6 AMMA, FP7 QWeCI and NAACLIM, H2020 PRIMAVERA and APPLICATE) and 8 national projects (MULCLIVAR, PICA-ICE, DEVIAJE, TRACS, MOVAC, TROVA, AVACOA, REN2002-03424); active collaboration with 11 international institutions; presence in the media; invited lecturer at workshops, university seminars and summer schools; co-author of the open-source 'S2Dverification' R-package; contributing author to the IPCC 5th Assessment Report.

Currently leading the 'Atlantic Variability and Predictability' research line at BSC-CNS, which involves four other post-docs; co-advisor of a Master thesis (Sep 2016); co-advisor of a PhD thesis (FPI associated with the applicant's MINECO-RETOS project 'DANAE', 2016-2020).



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: VERRELST , JOCHEM
Referencia: RYC-2016-19724
Área Científica: Ciencias de la Tierra
Correo Electrónico: jochem.verrelst@uv.es

Título:

Operational processing of remote sensing biophysical variables in support of FLEX photosynthesis estimates

Resumen de la Memoria:

Jochem Verrelst obtained expertise in remote sensing (RS) of vegetation through education at Wageningen Univ. (Netherlands), Univ. of Zurich (Switzerland) and Univ. of Valencia. He obtained a Master in Tropical Land and Geo-Information Science (2005), and a PhD in Remote Sensing (2010). During his PhD he started specializing in: (1) quantitative vegetation properties estimation through radiative transfer models (RTMs), and (2) exploiting all aspects of imaging spectroscopy data (spectral, spatial, directional) through RTMs and statistical models. When finalizing his PhD, he started to specialize in RS of vegetation fluorescence. He was awarded with a Marie Curie IEF to move to Laboratory of Earth Observation (LEO) Univ. of Valencia, directed by Prof. José Moreno. Prof. Moreno is the PI of the Fluorescence Explorer (FLEX) that has been selected as ESA's 8th Earth Explorer mission and aims for quantifying global photosynthetic activity. The mission is to be launched by 2021.

J. Verrelst continued at LEO as a postdoc researcher and took part in the majority of international FLEX studies (consolidation study, photosynthesis study, End-to-End simulator). He gained expertise in project management and the interpretation of the fluorescence signal, which led to collaborations with world experts, chairing fluorescence sessions at international workshops and publishing in international journals. At the same time, and in support of FLEX and Europe's Sentinels, he further specialized in the estimation of vegetation properties to become an authority. Among others, it led to the granting of a Horizon2020 project (Sensagri) that combines Sentinel-1 with Sentinel-2 data for new types of European agricultural monitoring products.

His work led to excelling in three research lines:

1. Radiative transfer modelling. Together with his former PhD student all available leaf and canopy RTMs were collected and synchronized into one toolbox called ARTMO (ipl.uv.es/artmo/). This research then diverted in the development of scene generation toolbox, global sensitivity analysis, RTM emulators.
2. Retrieval of biophysical variables. Within ARTMO various retrieval toolboxes were developed that enables automatic estimation of vegetation properties from RS images in the field of vegetation indices, machine learning, and RTM inversion.
3. RS fluorescence retrieval and interpretation towards photosynthesis and terrestrial carbon balance. Fundamental research is conducted in cooperation with world experts within FLEX team. See papers.

Ongoing progress made ARTMO a cutting-edge mapping framework, and boosted international collaborations and research lines. In collaboration with students and collaborating groups, further progress to the development of novel toolboxes dedicated to hyperspectral data processing is foreseen; spatial, temporal, spectral, directional apps; coupling with atmosphere RTMs; fluorescence toolbox. Additionally, it is the ambition to become an authority in the processing of hyperspectral images (e.g. FLEX) to vegetation properties, with emphasis on quantification of photosynthesis. Together with data assimilation methods (e.g. emulation), fluorescence data hold the promise to ultimately close the global carbon cycle. As such, J. Verrelst aims to target new generation of vegetation products dedicated to an improved understanding of the Changing Earth.

Resumen del Currículum Vitae:

Dr. Jochem Verrelst is a post-doctoral researcher at the Laboratory for Earth Observation (LEO) at the Image Processing Laboratory (IPL), University of Valencia, with over 10 years of experience in Remote Sensing (RS) Science and a strong international profile.

He holds an MSc Tropical Land Use with a major in ecology (2005) and an MSc in Geo-Information Science (2005) from Wageningen Univ., Netherlands. For his first MSc thesis, he studied for six months vegetation-herbivory interactions and facilitation mechanisms between hippos and antelopes at Bénoué National Park, Cameroon. The thesis received the Univ. best thesis award (2002). Afterwards he started his PhD at Wageningen on the topic of quantifying an old-growth forest at Swiss National Park. The thesis focussed on the exploitation of combined hyperspectral and multi-angular RS data and involved the use of canopy radiative transfer models (RTMs). The PhD went in cooperation with Remote Sensing Laboratories (RSL), Univ. of Zurich, Switzerland under supervision of Prof. Michael Schaepman. At that time J. Verrelst undertook lab visits to RSL and LEO, Univ. of Valencia, Spain. The PhD resulted in various publications that were published in top-refereed Journals such as *Remote Sensing of Environment*. During his PhD, he received a best poster award at the 4th Workshop on Multi-angular Measurements (Sydney, 2006) and a best paper award at 1st hyperspectral WHISPERS Workshop (Grenoble, 2009). In 2010 J. Verrelst received his PhD, which was evaluated as very good (University top 20%). In 2010 he was also awarded with a Marie Curie IEF to study vegetation fluorescence at LEO, Univ. of Valencia under supervision of Prof. J. Moreno. He continued at LEO and got involved in coordination and execution of several ESA projects in preparation of ESA's 8th Earth Explorer FLEX.

J. Verrelst is the initiator and coordinator of ARTMO scientific software package that enables automated processing satellite images into vegetation properties. ARTMO is an expanding modular toolbox that is built of a unique collection of RTMs, retrieval algorithms and processing tools. Since ARTMO's launch in 2013, the ipl.uv.es/artmo/ webpage is daily visited and over 600 accepted users have



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DIVISIÓN DE PROGRAMACIÓN
Y GESTIÓN ECONÓMICA Y
ADMINISTRATIVA

SUBDIVISIÓN DE
PLANIFICACIÓN Y GESTIÓN
ADMINISTRATIVA

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

registered. It initiated various international collaborations and led to several dedicated papers and invitations to give tutorials at national events (EUFAR summer school at Albacete; ESA land summer school at Valencia; Polytechnic Univ. of Valencia), universities abroad (Leuven, Antwerp, Wageningen) and international workshops (IGARSS2012; WHISPERS2014; SAIL35, Univ. of Twente; EUFAR drones workshop, Milan 2016). At EARSeL IS2015, J. Verrelst received the best conference award for ARTMO s global sensitivity analysis toolbox. His expertise on optical RS methods has been internationally recognized; he chaired conference sessions and it led to the participation to the ISSI 2016 workshop on imaging spectroscopy (IS) where only 40 world experts were invited - and will lead to a book on advances in IS. J. Verrelst is experienced in grant writing. He has published 45 papers in international journals (5 > 50 times cited), 4 book chapters and over 80 conference contributions. He has a Scopus h-factor of 18 and received over 1000 citations. He successfully supervised over 10 MSc students and two PhD students. The latter as daily supervisor.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: LOPEZ GARCIA, JUAN MANUEL
Referencia: RYC-2016-19386
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Título:

Paleoambiente, Paleoclima y Biocronología del Cuaternario en la región Mediterránea mediante el estudio de micromamíferos

Resumen de la Memoria:

Mi línea de investigación principal se encuentra relacionada con el estudio de los micromamíferos fósiles en relación a la reconstrucción cronológica, ambiental y climática de nuestros antepasados que vivieron durante el Cuaternario en Europa occidental, incluyendo la Península Ibérica, Italia, Sur de Francia o el Norte de África. Los aspectos más relevantes de mi trayectoria investigadora hasta el momento son: 1) primer autor de 26 artículos en revistas científicas internacionales de primer rango y con factor de impacto, como *J. Hum. Evol.*, *Quat. Sci. Rev.* o *J. Quat. Sci.*, entre otras, con un H-index=13; 2) Participación como conferencia invitada en diversos congresos internacionales: XVIII INQUA Congress (Berna, 2011), European Middle Paleolithic during MIS8-MIS3 (Wolbrom, 2012), Science & Past (Zaragoza, 2013), SVP Arvicolid Workshop (Berlin, 2014) y 1st Meeting of Microvertebrate Working Group (Alcalá de Henares, 2016); 3) Liderazgo como investigador principal de tres proyectos internacionales financiados 2011BP -A00272, HU-TAF-3246 y BE-TAF-5468; 4) Estancias post-doctorales en centros de investigación I+D y universidades internacionales: Hungarian Natural History Museum (Budapest), Museum National d'Historie Naturelle (Paris), Università di Palermo (Palermo), Università degli Studi di Ferrara (Ferrara) Université de Cartage (Tunez), Gibraltar Museum (Gibraltar), Centre Archéologique de la Grotte Scladina (Namur) y Royal Belgian Institute of Natural Sciences (Bruselas); 5) Colaboraciones por invitación a actividades de divulgación científica relacionadas con los yacimientos en lo que he trabajado, así como en otros eventos dirigidos al gran público en: Italia (Como y Scilato), España (Tarragona y Poblet); 6) Director de tres tesis de máster (finalizadas) y cuatro doctorales (financiadas; una depositada, tres en proceso de finalización); 7) Miembro editorial de la revista con revisión externa *Antiqua* (2010-2013) y actualmente de la revista con revisión externa "Advances Geosciences" (desde 2016) y editor invitado de la revista con factor de impacto *Comptes Rendus Palevol* para el volumen especial *Biochronology, biostratigraphy and paleoecology of the Quaternary* (2016, vol. 15, Issue 6); 8) Miembro organizador de los siguientes congresos de carácter internacional: XX Congresso dell'AAI (Ferrara, Italia, 2013) y B2-Biochronology, biostratigraphy and paleoecology of the Quaternary of Europe (B2PQUE) en XVII UISPP International Congress (Burgos, 2014); 9) Colaborador como revisor en la convocatoria FP7-PEOPLE-2013-IEF de las Marie Curie Actions y en el programa de proyectos Synthesis de la UE (2015 y 2016) y colaborador como revisor en la revistas con factor de Impacto: *Geologica Acta*, *Int. J. Osteoarchaeol.*, *J. Hum. Evol.*, *Geobios*, *Quat. Int.*, *Mammal Rev.*, *Paleogeogr. Paleoclimatol. Paleocol.*, *Wildl. Res.*, *Hystrix*, *Quat.*, "*Riv. Ital. Paleontol. S.*", "*Revista Mexicana de Ciencias Geológicas*". Mi principal objetivo a corto plazo de investigación consiste en aplicar para la obtención de un proyecto europeo (ERC-Consolidator Grant), el cual se encuentra en proceso de preparación. La obtención de un proyecto europeo me permitiría liderar un equipo, con personal postdoctoral, estudiantes y técnicos cualificados, con el objetivo de introducir nuevos métodos a mis líneas de investigación

Resumen del Currículum Vitae:

Hasta fecha de hoy me encuentro dirigiendo cuatro tesis de doctorado (financiadas), una se encuentra ya depositada (Università di Ferrara-Lectura Marzo 2017) y las otras tres se encuentran en proceso de finalización. Hasta el momento de dichas tesis doctorales han surgido siete publicaciones en revistas indexadas (cuatro C.R. *Palevol*: Bañuls-Cardona et al. 2016; Galán-García et al. 2016a y 2016b; Fernández-García et al. 2016; un *J. Mamm. Evol.*: Luzi et al. 2016; un *The Holocene*: Bañuls-Cardona et al. 2016 y un *Palaeogeogr. Palaeoclimatol. Palaeocol.*: Bañuls-Cardona et al. 2016). He liderado como investigador principal tres proyectos financiados 2011BP -A00272, HU-TAF-3246 y BE-TAF-5468. He participado en al menos cinco congresos internacionales por invitación (1st Meeting of Microvertebrate Working Group-Alcalá de Henares, 2016; SVP Arvicolid Workshop-Berlin, 2014; Science & Past-Zaragoza, 2013; European Middle Palaeolithic during the MIS8-MIS3-Wolbrom, 2012; XVIII INQUA Congress-Berna, 2011). He participado en la organización de dos congresos internacionales (XVII UISPP International Congress-Burgos, 2014 y XX Congresso dell'AAI-Ferrara, 2013). He sido Editor Asociado de la revista con revisión externa "Antiqua" (2010-2013) y actualmente de la revista "Advances Geosciences" (desde 2016), así como Editor Invitado para un volumen especial (*Biochronology, biostratigraphy and paleoecology of the Quaternary*) en la revista de factor de impacto *C. R. Palevol* (2016, vol. 15, Issue 6). He participado en la revisión de seis proyectos Synthesis (CZ-TAF-5569, GB-TAF6428, HU-TAF-6118, HU-TAF-6858, HU-TAF-6573 y HU-TAF6946) y en los contratos postdoctorales "Marie Curie" (FP7-PEOPLE-2013-IEF), así como he revisado artículos para más de diez revistas internacionales con factor de impacto (*Riv. Ital. Paleontol. S.*, *Revista Mexicana de Ciencias Geológicas*, *Geologica Acta*, *Int. J. Osteoarchaeol.*, *J. Hum. Evol.*, *Geobios*, *Quat. Int.*, *Mammal Rev.*, *Palaeogeogr. Palaeoclimatol. Palaeocol.*, *Wildl. Res.*, *Hystrix and Quat.*). He realizado estancias postdoctorales en ocho centros de investigación internacionales, en Europa (Hungarian Natural History Museum en Budapest, Museum National d'Histoire Naturelle de Paris, Università di Palermo, Università degli Studi di Ferrara, Gibraltar Museum, Centre Archéologique de la Grotte Scladina en Namur y Royal Belgium Institute of Natural Science en Bruselas) y el Norte de África (Université de Cartage en Tunez), que se reflejan en 11 publicaciones de factor de impacto, de las cuales en ocho soy el primer firmante (un *Quat.*; 2016 vol. 27, 133-139; dos *Quat. Sci. Rev.*; 2015a vol. 107, 260-266 y 2015b vol. 128, 1-13; un *Ital. J. Geos.*; 2015 vol. 134, 162-169; un



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DE ECONOMÍA, INDUSTRIA
Y COMPETITIVIDAD



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Y GESTIÓN ECONÓMICA Y
ADMINISTRATIVA

SUBDIVISIÓN DE
PLANIFICACIÓN Y GESTIÓN
ADMINISTRATIVA

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Palaeogeogr. Palaeclimatol. Palaeocol.; 2014 vol. 409, 169-179, un Riv. Ital. Paleontol. S 2013 vol. 119, 229-244: un Hist. Biol.; 2013 vol. 25, 51-57 y un Quat. Int.; 2011 vol. 243, 137-142). Autor de un total de 72 publicaciones de factor de impacto con revisión externa con un H-index= 13, un número de citas totales de 731 citas repartidas entre 7 años con citas con un promedio de citas por año de 104,4 (fuente Web of Science). De estas publicaciones soy primer firmante en 26, con un H-index= 11 y un promedio de 9,6 citas por artículo liderado, 250 citas repartidas entre 7 años, promedio de citas por año de 35,1 y de estas 26 publicaciones 16 son de Q1 en su disciplina



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: GOMEZ MARTIN, JUAN CARLOS

Referencia: RYC-2016-19570

Área Científica: Ciencias de la Tierra

Correo Electrónico: chmjgm@leeds.ac.uk

Título:

Chemistry and new particle formation processes at the surface and space interfaces of planetary atmospheres

Resumen de la Memoria:

I am an experimental physicist by training with broad experience in laboratory laser techniques, spectroscopy and mass spectrometry, but I am also familiar with rate theory and ab initio quantum chemistry calculations, which I use to interpret kinetic and photochemical laboratory observations and generalise experimental results. I have developed and commissioned instruments for laboratory and field work and I have conducted myself field campaigns and analysed observations. In addition, I am acquainted with satellite and radar remote sensing techniques and I have contributed to atmospheric chemistry model development.

My main research interests focus on the chemistry and new particle formation processes occurring at the bottom and the top interfaces of planetary atmospheres (i.e. the ocean and space atmospheric boundaries), which show interesting parallelisms from a fundamental point of view. My research in the lower atmosphere is related to ozone-destroying and particle-forming halogen chemistry with climate feedback implications. Regarding the Earth's upper atmosphere, I am interested in the formation of Meteor Smoke Particles by condensation of metal silicates from material ablated from micrometeoroids, and the impact of Cosmic Dust ablation in atmospheric phenomena occurring in different planets. This includes a range of topics such as climate change indicators, climate feedbacks, bio-geochemical cycles, paleoclimate and the origin of life, amongst others. I am also interested in low temperature reactions of simple organic molecules and high temperature silicate dust formation of astrochemical and (exo)planetary relevance.

Resumen del Currículum Vitae:

I studied Physics in Granada, Spain, and took a PhD in gas phase halogen atmospheric photochemistry, kinetics and spectroscopy at the Institute for Environmental Physics and Remote Sensing of the University of Bremen. Besides laboratory work on spectroscopy and kinetics of halogen-containing molecules, I participated in the ground calibration of GOME2 (EUMETSAT).

After a brief post-doc in Bremen, I was appointed as Research Fellow in the School of Chemistry of the University of Leeds, where I worked during 2.5 years on photochemistry and gas-to-particle conversion processes of mesospheric and tropospheric interest. In 2009 I moved to Toledo, Spain, where I worked at the Laboratory for Atmospheric and Climate Science of the Spanish Research Council (CSIC). My research at CSIC focused on the design, construction, development and field deployment of spectroscopy-based instruments for in situ measurements of halogen precursors, active halogens and reservoir species. I organised the first atmospheric field campaign carried out at the Galapagos islands (CHARLEX), led by Alfonso Saiz-Lopez. In Toledo I contributed to establishing the group (currently department of Atmospheric Chemistry at the Rocasolano Institute of Physical Chemistry in Madrid) as an international reference for the study of atmospheric halogen chemistry (see e.g. our review on the atmospheric chemistry of iodine in Chemical Reviews, impact factor 37, 110 citations). In 2012 I moved back to the School of Chemistry of the University of Leeds to work at John Plane's Planetary Atmospheres Lab in a 5 year ERC funded project on cosmic dust (CODITA). In Leeds I have developed several cutting-edge experiments, including the only existing cosmic dust ablation simulator, designed to understand the evaporation of metals from meteoroids in the mesosphere-lower thermosphere and to gain insights into their composition and input rate. I have carried out work on photochemical kinetics and spectroscopy of sodium, calcium and aluminium-bearing molecules. I am working on the implementation of meteoric metal photo-chemical mechanisms and kinetics in a global chemistry-climate model (WACCM), and carrying out a study on the impact of meteoric sulfur in the Earth's atmosphere. I have published 15 papers on upper atmospheric chemistry and astrochemistry in the last 5 years and in 2016 I have obtained funding from UK research councils (NERC and STFC) to carry out laboratory work on the atmospheric chemistry of meteoritic aluminium, nickel and phosphorus. I have published my work in high quality journals (Atmospheric Chemistry and Physics, Journal of Geophysical Research, Geophysical Research Letters, Chemical Reviews, Physical Chemistry Chemical Physics, Journal of Physical Chemistry, Astrophysical Journal, Review of



MINISTERIO
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Y COMPETITIVIDAD

**AYUDAS RAMÓN Y CAJAL
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Turno de acceso general



DIVISIÓN DE PROGRAMACIÓN
Y GESTIÓN ECONÓMICA Y
ADMINISTRATIVA

SUBDIVISIÓN DE
PLANIFICACIÓN Y GESTIÓN
ADMINISTRATIVA

AGENCIA
ESTATAL DE
INVESTIGACIÓN

Scientific Instruments, Atmospheric Measurement Techniques), most of them ranked within the first quantil of their areas. My H index is 13 according to WoS and 15 according to Google Scholar.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: PARADELO NUÑEZ, REMIGIO
Referencia: RYC-2016-19286
Área Científica: Ciencias de la Tierra
Correo Electrónico: remigio.paradelo@uvigo.es

Título:

Impact of human activities on soils and remediation of negative impacts

Resumen de la Memoria:

My research has been devoted to study the diverse impacts of human activities (agriculture, industry, mining) on the surface, especially on soils, and to develop techniques for remediation of the negative impacts, with the global objective of increasing our potential to protect natural resources and restore the functions and properties of degraded soils and waters.

Among the negative impacts of human activities on the surface, I have studied a variety of cases mostly focused on agriculture and mining. The effect of agricultural activities on soil properties that are essential for global equilibria have been studied, including the influence of land use change and agricultural inputs (lime, chemical fertilizers, organic amendments, pesticides and antibiotics) on the C cycle, soil physical degradation and pollution. In particular, I have undertaken extensive research about the presence, origin, distribution and environmental risk of heavy metals in organic amendments and soils. On the other side, I have studied the impacts of mining activities with a special focus on the roofing slate industry, in particular in what concerns physical, chemical and biological soil degradation due to waste production and disposal.

Regarding the development of techniques for the remediation of negative impacts, I have focused on the use of organic amendments of residual origin for the reconstruction of minesoils and for the treatment of polluted soils and waters. In the first case, agroindustrial wastes were used for the amelioration of the properties of wastes from the slate industry, in order to reconstruct soils and create suitable conditions for revegetation as a first step to restoration of the damaged surfaces. Organic amendments have also been successfully used as adsorbent materials for the bioremediation of metal-polluted soils and for the treatment of waters polluted with organic and inorganic pollutants. The ensemble of these studies have demonstrated the potentialities of waste materials as resources in the field of environmental protection.

Resumen del Currículum Vitae:

I hold a Degree in Chemistry (Universidade de Santiago de Compostela, 2002) and a PhD in Soil Science (Universidade de Santiago de Compostela, 2009). I worked as a postdoctoral researcher at the USC (2009-2010) and at the Paris Institute of Technology for Life, Food and Environmental Sciences (AgroParisTech) (2010-2012). Later on, I worked as an Assistant Professor in Soil Science in AgroParisTech for two years (2012-2014) before returning to Spain in 2014 under a Juan de la Cierva contract (Universidade de Vigo).

My research is an interdisciplinary approach to soil degradation and remediation, studying processes and mechanisms of physical, chemical and biological degradation, and a number of techniques for restoration, mostly related to the reuse of organic wastes. I have worked at several scales, from laboratory to field, and with some of the oldest agronomic field experiments of the world.

I have published 62 peer-reviewed papers in four idioms, 51 of them in JCR journals (5 more under review), with a 49% in the Q1 (18% in the top 10% journals), some of them in number one journals of their discipline, such as Bioresource Technology (Agricultural Engineering), Agriculture, Ecosystems & Environment (Agriculture, multidisciplinary) or Land Degradation and Development (Soil Science). In most of those papers (34 out of 51 in journals of the JCR) I am the first author and/or corresponding author. My h-index is 12 and Scopus counts 387 cites (as per January 2017). These publications have been produced in collaboration with researchers from 20 different research groups in several countries (mostly from Spain and France, but also Portugal, the UK, Switzerland, Germany and Brazil). Thus, throughout my career I developed a solid net of international collaborations.

I participate or have participated in 14 research projects in Spain and France with research teams from several institutions, and some of them in collaboration with companies of different size, from consulting offices to transnational companies such as Veolia. I have presented 75 works in scientific conferences, co-organizer of two conferences and a workshop, and an invited speaker in three occasions in Spain and Italy. I have reviewed more than 100 papers for international journals (28 in the last year), mostly in the fields of soil science and environmental sciences, including leading publications such as Bioresource Technology, Global Change Biology, Journal of Hazardous Materials, Geoderma or Agriculture Ecosystems & Environment. I have also acted as a reviewer for research projects for the Agreenskills program and the Czech Science Foundation.

I have a solid experience in teaching in subjects related to soil science, environmental science and agronomy, with seven years and more than 700 hours of teaching at three institutions in Spain and France, at several levels from BSc to MSc, and I have been qualified by both the Spanish and French Agencies for Education.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: MIRALLES MELLADO, ISABEL
Referencia: RYC-2016-21191
Área Científica: Ciencias de la Tierra
Correo Electrónico: imirallesmellado@gmail.com

Título:

Soil quality assessment, soil restoration and functioning of the C-cycle in arid and semiarid environments

Resumen de la Memoria:

After I got my Environmental Sciences degree, I received a University Teacher Training Research Fellowship at the University of Granada funded by the Spanish Ministry (2003 - 2006), with which I started my Ph.D. Thesis, where I developed a novel, up-to-date methodology for characterizing soil quality indicators in arid and semiarid environments. I was Lecturer at the University of Granada. After completing my PhD Thesis, I got a postdoctoral fellowship funded by the University of Granada and I after that, I worked as a researcher for the University of Almería on a research Project studying indicators for environment monitoring based on studying CO₂ fluxes variability associated with degradation states in semiarid environment. In 2008 I was contracted at the EEZA-CSIC (Almería) working on a project funded by the company HOLCIM-Spain with which I applied my background on soil quality designing an ecological restoration plan for drylands affected by mining activities. I also actively participated in other research projects (COSTRAS, GEDCARBO and DESIRE [European 6th FP Project]). Later (2009 - 2010) I received an International Postdoctoral Research Contract funded by the Spanish Ministry at the Catholic University of Louvain-la-Neuve (Belgium), where I developed additional skills required by an independent researcher and I collaborated with the research team of DIGISOIL project (European 7th FP Project). I reinforced my background studying the impact of changes in land use on soil quality and C-cycle in drylands and I began to study biocrusts in arid zones and their possible effect on soil quality. From 2010 to 2013 I received a Juan de la Cierva Research Contract from the Spanish Ministry at EEZA-CSIC. I was again a guest researcher at other Spanish research institutions to extend my knowledge on biochemical soil quality and C-cycle in arid crusted soils. Moreover, I was researcher participating in the projects BACARCOS, CARBORAD, GHG Europe (European 7th FP Project) and ARESASA, I taught a course in the Global Change Assessment Master s at the University of Almería. I co-advised one Ph.D. Thesis at the EEZA-CSIC and I co-advised four Undergraduate Final Year Projects at University of Almería focused on soil restoration in drylands. From January 2015 to January 2017 I was awarded with a Marie Curie Intra-European Fellowship Senior Post-docs at Université Catholique de Louvain-la-Neuve (Belgium), reinforcing my research line focused on the role of biocrusts in soil quality and the C-balance in drylands. Furthermore, I received a grant from the AET to carry out a research project from which I was the principal investigator and I am researcher collaborating in DINCOS and MINECO Projects. During these two last years, I have been (co)convener in three sessions at European Geosciences Union General Assembly (Vienna, Austria), and I co-organized the International Congresses: 4th Biohidrology Conference 2016 (Almería, Spain) and Les 13es Journées d'Etude des Sols (Louvain la Neuve, Belgium). I am co-advising another Ph.D. Thesis at the GENYO-Centre (Granada) where I am working on creating a bio-nanotechnology platform with researcher from SALUMA research group and I am carrying out a research line in biotechnology and nanotechnology for agri-food/environmental applications (e.g. soil restoration, soils degraded by agriculture and livestock).

Resumen del Currículum Vitae:

During my professional research career I have received several European and National fellowships and research contracts, including a Marie Curie Intra-European Fellowship (FP7-PEOPLE-2013-IEF) at Université Catholique de Louvain (Belgium) from Research European Commission Executive Agency, a Juan de la Cierva Research Contract (National Plan) at EEZA-CSIC, an International Postdoctoral Research Contract (National Plan) at Université Catholique de Louvain (Belgium), a Posdoctoral Fellowship (Beca Puente del Plan Propio de la Universidad de Granada) at the University of Granada, and a Research Contract at EEZA-CSIC funded by HOLCIM S.A., an University Teacher Training Fellowship (Beca de Formación de Profesorado Universitario (FPU), National Plan) at the University of Granada, University Teacher Training and Researcher Training at Universities and Research Centers from Andalucía Fellowship (Beca de Formación de Personal Docente e investigador, en Universidades y Centros de Investigación Andaluces, Junta de Andalucía) at University of Almería. Throughout my professional career, I have done 11 research stays on different Spanish and foreign centers as guest researcher. My cooperation with several Spanish and foreign research groups has created strong long-term synergies highlighting: (i) my participation in 18 research projects, 4 of them supported by European funding; (ii) I have (co)authored 67 publications (34 international journals, 31 of which are SCI journals, 3 books, 30 book chapters) plus 4 articles submitted in SCI journals; (iii) I have presented more than 70 communications to Congresses (iv) I am the main researcher leading two projects: BIOSOC (EU 7th WorkFrame Programme-Grant-623393) funding by the Research European Agency (235.000 €), and a research project funded by AET (2.000 €); (v) I have, in the last two years, (co)convened three sessions on soil quality assessment and soil organic carbon dynamics at the General Assembly of the European Geophysical Union (Vienna, Austria), and I was co-organized of the International 4th Biohidrology Conference 2016 (Almería, Spain) and of Les 13es Journées d'Etude des Sols (Louvain la Neuve, Belgium); (vi) Lecturer in Environmental, Biology and Pharmacy degrees at the University of Granada and in the Global Change Assessment Master s at the University of Almería; (vii) I have co-advised one Ph.D. student Doctoral Thesis at EEZA-CSIC (Almería) and I am co-advising another Ph.D. Thesis at GENYO Research Center (Granada) and I have co-advised four Undergraduate Final Year Projects at University of Almería; (viii) I am referee for 8 high-impact SCI journals and reviewer of International



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Y COMPETITIVIDAD



DIVISIÓN DE PROGRAMACIÓN
Y GESTIÓN ECONÓMICA Y
ADMINISTRATIVA

SUBDIVISIÓN DE
PLANIFICACIÓN Y GESTIÓN
ADMINISTRATIVA

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Research Projects funded by the Czech Science Foundation (GACR); (xix) I have created a framework of international collaborations and I am working on creating a bio-nanotechnology platform with researcher from SALUMA research group; (x) I have received the accreditation by the Spanish National Quality Assessment and Accreditation Agency (ANECA) of Lecturer at any Spanish University, Private University Lecturer and Hired Lectured; (xi) I have been in Organization and Scientific Committees of several national congresses.