AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

Nombre: **PÉREZ GARCÍA-PANDO, CARLOS**
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Título:

Atmospheric Mineral Dust: Prediction, Effects upon Climate and Societal Impacts

Resumen de la Memoria:

My research focuses on understanding the physical and chemical processes controlling atmospheric aerosols, and evaluating their effects upon climate, ocean biogeochemistry, air quality and health. My core area of expertise is atmospheric mineral dust. I am also a model developer with a large experience in supercomputers and operational forecasting. Since 2009 I work in the US where, currently, I am Associate Research Scientist at the NASA Goddard Institute for Space Studies and Columbia University, and I serve as PI and co-PI in competitive research projects funded by the Department of Energy, NASA and NOAA, with collaborators at NOAA/National Centers for Environmental Prediction, NOAA/Geophysical Fluid Dynamics Laboratory, Princeton University and Cornell University. Some of my achievements are:

1) I showed that the inclusion of dust aerosol as a radiatively active substance in numerical weather prediction models can significantly improve weather forecasts over dust affected regions, a seminal work inspiring a number of studies and initiatives thereafter.
2) I led an international multi-institutional initiative to develop a unique unified (regional and global) prediction model for weather, atmospheric aerosols and chemistry that today provides operational forecasts widely used by the international scientific community, weather services, companies and air quality managers.
3) I played a seminal role on the design, creation and successful implementation of the World Meteorological Organization (WMO) Regional Centers on Sand and Dust Storm Prediction in Spain, the only operational forecasting services for airborne dust fully recognized by WMO.
4) I proposed novel methods to constrain the mineral and chemical composition of dust in models in order to improve the currently uncertain estimates of dust aerosol effects upon climate.
5) I led an international cross-disciplinary research effort involving the World Health Organization to unravel the links between dust aerosols, climate and meningitis epidemics in Africa showing the current potential to forecast risk of meningitis epidemics based on climate and dust information.

My work has resulted in 46 peer-reviewed papers (67% in Q1, H-Index: 24, i10 Index: 38, number of citations: 2370, Google Scholar), 20 chapters in books, proceedings and reports, 150 contributions to conferences/workshops/seminars (26 as invited speaker) and the edition of a book of proceedings. I have organized an international conference and a workshop. I have participated in 27 international (US and EU) and national projects (in 6 of them as PD, PI or co-PI). I have co-advised 3 PhD students, 3 Master students, and 1 Postdoc. My work has been highlighted among others by NASA and the European Centre for Medium-Range Weather Forecasts, and covered by international media such as The Guardian.

Thanks to the international recognition of my contributions to basic, applied and cross-disciplinary aspects within my field, in October 2015 I was awarded with the highly selective AXA Chair to create my research group and program at the Barcelona Supercomputing Center, Spain, starting in October 2016. The obtained endowment amounts 1.8M Euro over 15 years that will allow me implementing an ambitious and stable long-term research program on mineral dust.

Resumen del Currículum Vitae:

Education
-Industrial Engineer 2001, Universitat Politècnica de Catalunya (UPC), Spain
-Ingénieur des Arts et Manufactures, 2001, Ecole Centrale Paris, France
-Advanced Studies Certificate, 2003, UPC, Spain
-Ph.D. in Environmental Engineering, Cum Laude, 2005, UPC, Spain

Positions
-10/2011-current: Associate Research Scientist, NASA Goddard Institute for Space Studies (NASA GISS), US
-10/2011-current: Associate Research Scientist, Columbia Univ., US
-9/2009-9/2011: Earth Institute Fellow, Columbia Univ., NASA GISS, and IRI, US
-2/2009-6/2009: Visiting Scientist, NOAA/NCEP, US
-1/2006-7/2009: Researcher and Group Leader, Barcelona Supercomputing Center, Spain

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

-2/2005-4/2005: Visiting Scientist, Mediterranean Centre on Insular Coastal Dynamics, Malta
-9/2001-12/2005:PhD. Candidate. UPC, Spain

Languages
-Spanish, Catalan, English, French

Co-advisor
-3 PhD students
-3 MS students
-1 Postdoc

6 competitive projects (5 international) as Project Director (PD), PI or co-PI in competitive projects
-AXA Chair on Sand and Dust Storms, 2016-2030, 1.8M Euro, funded - AXA Research Fund. PD.
-On dust forecasting, 2015-2016, 185K Euro, funded - NOAA, US. Co-PI.
-On anthropogenic dust and climate, 2014-2017, 950K Euro, funded - NASA, US. Co-PI
-On soluble iron and climate, 2011-2015, 700K Euro, funded - Department of Energy (DoE), US. PD and PI.
-On aerosol impacts, 2010-2012, 40K Euro, funded - Earth Institute, US. PI.
-On development of a dust-aerosol-chemistry model, 2006-2009, 130K Euro, funded - MCyT, Spain. PI.

21 competitive projects as researcher/collab
-12 national: e.g. CONSOLIDER, 5M Euro; NMMB-CTM,170K Euro; POLLINDUST,109K Euro; CALIOPE,1.2M Euro
-9 international: e.g. EARLINET (FP5), 4M Euro; EARLINET-ASOS (FP6); MACC, 15M Euro

Fellowships/grants
-Earth Institute Fellowship, 2009 (1000K Euro, < 5% approval rate)
-Mobility grant José Castillejo, 2009 (20K Euro)
-PhD Fellowships, UPC, 2001 and 2003 (Total 44K Euro)
-Fellowship end of studies, 2000, UPC (6K Euro)
-Financial aid: Micropulse Lidar (56 K Euro)

Publications
-46 peer-reviewed journal articles published, 31 of them in Q1 (9 in top 3 of their category), 1 in press
-Citations: 2370, h-index: 24, i10-index: 38 (Google scholar)
-Editor of Book of proceedings
-20 chapters in books, proceedings and reports
-150 contributions to conferences, workshops and seminars
-25 invited speaker
-Organizer of an international Conference, a Workshop, and Co-Chair of International Meeting

Distinctions/awards
-Awarded with the prestigious AXA Chair endowment (1.8M Euro)
-Co-author of the "Best Publication of 2014" at NASA GISS
-"Best Science Brief of 2014" at the NASA GISS
-Poster presentation prize at the 11th HARMO Conf.

Technology/services
-Dust, aerosol, chemistry model developer: BSC/DREAM8b, NMMB/BSC-CTM, NASA GISS ModelE
-Designer and main developer of the NMMB/BSC-CTM, internationally recognized
-Implemented first operational dust forecasts in Spain
-CALIOPE air quality forecast for Spain
-WMO Regional Centers on Sand and Dust Storm Prediction in Spain

Outreach and Dissemination
-NASA, Earth Institute, Columbia University and ECMWF have highlighted my work
-International media has covered my work (The Guardian, Voice of America, Astrobiology Magazine)

Other achievements
-5 multi-institutional agreements
-Reviewer for a number of top-ranked journals
-Grant reviewer for US DoE and UK NERC

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

Nombre: **PRIETO MARQUEZ, ALBERT**
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Título:

Macroevolucion y paleontologia de vertebrados mesozoicos

Resumen de la Memoria:

My research program focuses on understanding the patterns and processes of macroevolution using the fossil record. I am interested in the origin and diversification of new groups of organisms, particularly major vertebrate radiations such as hadrosaurids, birds, and other dinosaurian clades. Lines of research include the following:

- The origin of novel characters and how these relate to the raise and diversification of successful clades of organisms
- Characterization of the tempo and modalities (e.g. early fast vs. slower but sustained expansion) of clade diversification through deep time
- How factors extrinsic to the biology of organisms (such as geological events) influence the evolution and geographical distribution of vertebrate faunas
- How morphological anatomical variation relates to taxonomic diversity and life history
- Ancillary interests concern the reconstruction of soft tissue anatomy and functional attributes in fossil vertebrates using extant outgroup taxa as models.

Those questions are approached by integrating comparative anatomy (including traditional character analysis and the quantification of shape variation through geometric morphometrics), phylogenetic inference and systematics, quantitative historical biogeography, and macroevolutionary analysis of biodiversity patterns through time.
I use dinosaurs as a research model because of their long (160 million year) temporal range, widespread geographical distribution, high diversity, and the possession of unique anatomical structures.

Resumen del Currículum Vitae:

I hold degrees in Geology (BSc, University of Barcelona, 1996;
MSc, Montana State University, 2001) and Biology (PhD, Florida State University).
I have established myself as a leading authority in one of the most diverse and successful clades of Mesozoic vertebrates, hadrosaurid dinosaurs. I use dinosaurs as a model system for investigating how geological events affect the evolution and distribution of terrestrial faunas, how anatomy relates to biomechanical function and ecology, and how morphological variation relates to taxonomic diversity, life history, and population biology.

I have published nearly 40 peer-reviewed articles (Google Scholar shows 623 citations, h-index =15, i10-index = 20), being senior author in most of them. Highlights include: i) resolution of hadrosaurid phylogeny using all species, the framework for subsequent studies on the clade and seeting new standards for the taxonomy and systematics of these animals (Prieto-Márquez, 2010a); ii) inference of global biogeographic history of the clade, and origin of their iconic cranial crests (Prieto-Márquez, 2010b; Prieto-Márquez & Wagner, 2013) ; iii) introduction of new morphometric methods to biology (Prieto-Márquez et 2007; Joshi, Prieto-Márquez & Parker, 2011); iv) providing evidence of mountain building triggering vertebrate diversification (Gates, Prieto-Márquez & Zanno, 2012).

My research is characterized by a global perspective, both in the scope of the fieldwork and questions addressed, and the network of colleagues I collaborate with, from Spain, France, Germany, UK, China, USA, Mexico, Canada, and Argentina. Additionally, I have presented my work in international symposia and I have been invited in several occasions to talk on the results of my research (e.g., Natural History Museum of Los Angeles County, California; Midwestern University in Phoenix, Arizona; or Georgetown University in Washington D.C.). I have also

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

shown my ability to secure external funding, being the principal investigator of several grants: German Research Foundation Grant PR 1514/1-1 (€174K), Marie Curie Research Fellowship (€299K), Humboldt Fellowship (€54K), Kalbfleisch American Museum of Natural History Fellowship (US$92K), and Charlotte and Walter Kohler Charitable Trust Grant (US$28.5K), among others.

Teaching experience:

Fall 2014 and 2015, instructor for Current Controversies in Palaeobiology and Macrovolution, University of Bristol, UK

Spring 2004-2006, instructor for Comparative Vertebrate Anatomy, Florida State University, USA

Fall 2003-2004, instructor for Histology, Florida State University, USA

Supervising and mentoring:

September 2015, Edward Strickson, MSc student, University of Bristol, UK.

Fall 2014 and 2015, Tutor for students of the Paleobiology Master€s Degree program at the University of Bristol, UK.

Spring 2009, Mentor of the Internship Program at the American Museum of Natural History, New York

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

Nombre: **OLIVA FRANGANILLO, MARC**
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Título:

Holocene permafrost environments in the Antarctic Peninsula region

Resumen de la Memoria:

Since 2010 I am enrolled at the Centre for Geographical Studies of the University of Lisbon (CEG-UL) as postdoctoral researcher (2010-14) and researcher scientist (since July 14). My research focuses on past climates and present/past cold-climate geomorphological processes in polar regions and mid-latitude mountains.

In 1999 I started Geography at the University of Barcelona (UB), obtaining the Degree in 2004. In 2005 I started my PhD supported by two PhD fellowships (FI, FPU). My research was supervised by Dr A. Gómez Ortiz and Dr L. Schulte at the Department for Physical and Regional Geography of the UB. In 2006 I obtained two Master degrees (Geography, Applied Climatology) and I finished my PhD in May 09. I received the Doctor Europaeus Mention and was the Outstanding PhD Award. During my PhD research I also completed three stays in foreign universities (Bern, Ottawa). My PhD focused on the reconstruction of the Mid-Late Holocene environments in Sierra Nevada, a high semiarid mountain range in southern Iberian Peninsula. Using an innovative multi-proxy approach, I reconstructed past geomorphic processes and associated climate conditions based on the analysis of two different sedimentary records (solifluction landforms and lake sediments) located at altitudes ranging from 2500 to 3000 m. The large number of (inter)national publications derived from my PhD shows evidence of the high scientific level of my PhD research.

After one year unemployed (2009), I successfully applied for a postdoctoral fellowship funded by the Portuguese Research Foundation (FCT). I moved to Lisbon (Portugal) and started my research in January 10 at the CEG-UL. During 2011 and 2012 I was funded with a Beatriu de Pinós grant, and during 2013 and until June 2014 I was awarded with a postdoctoral fellowship of the AXA Research Fund. In July 14 I started a 5-year contract as research scientist at the CEG-UL funded by the FCT.

During these years I have substantially improved my research outputs and teaching skills. My research has mainly focused on the study of present-day and past cold-climate geomorphological processes in polar regions (namely in Antarctica but also in the Arctic). I have also conducted research in other mountain regions (Rocky Mountains, Patagonia, Alps, Pyrenees, Cantabrian Mountains), which has provided me a wide comprehension of Earth processes in cold regions. Since 2012 I am leading research projects focused on present and past environmental and climatic conditions in Antarctica. Together with other researchers, I have generated high resolution proxy data from lake sediments in order to reconstruct past landscape changes (glacier fluctuations, geomorphological processes, permafrost-active layer role), tephrochronology and climate variability (precipitation, temperature) in the Maritime Antarctic.

The main purpose of my RyC proposal for the next years fit within the research fields started during the last years at the CEG-UL with the intention to expand my scientific activities to other areas in Antarctica through new research projects. I will also keep working in other Iberian mountains and, with my integration at the research group Geografía física de alta montaña of the Universidad Complutense of Madrid I will expand my study areas to other environments where the group has been working during the last decade (e.g. Iceland, Andes).

Resumen del Currículum Vitae:

My work has mainly focused on the study of on past climates and present/past cold-climate geomorphological processes in polar regions and mid-latitude mountains. After finishing my PhD in 2009 at the UB, I have been enrolled at the CEG-UL as postdoctoral researcher (2010-14) and researcher scientist (since July 14). During the last years at the CEG-UL I have substantially improved my research and teaching skills.

I have published 32 papers in SCI journals (organizing four Special Issues), many in top geomorphological and palaeoclimatic journals. Until 2013 most of the papers were focused on the Sierra Nevada, Spain (up to 12), but then I started publishing the data about polar environments generated during my postdoctoral research. In these areas, research is highly conditioned by the calendar and complex logistics. Moreover, paleoenvironmental studies require some time to generate data. The hard work done during these years is reflected in the significant increase in the number of papers in top peer-reviewed journals during the last two years: 8 in 2014, 8 in 2015, 4 recently accepted, together with 12 more reviewed/submitted and several others under preparation. I have led most of the papers (18 of 32), many of which are in top journals on geomorphological/Quaternary/Antarctic studies: The Holocene, Earth Surface Processes Landforms, Geomorphology, Permafrost Periglacial Processes, Quaternary International, Science of the Total Environment, Sedimentary Geology, Geoderma, Solid Earth, The Cryosphere, Antarctic Science, etc.

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

I have published 57 chapters in books and 105 abstracts in conferences. I have given 40 lectures in conferences and 16 more by invitation. I have been granted and awarded by several universities/organizations. I am involved in international associations (IPA, EGU, PYRN), and organize regularly conferences and sessions. I teach subjects at degree/MSc level, being accredited by ANECA/AQU agencies. I have participated in PhD committees and often serve as referee for journals and international agencies for national project calls. I have conducted several outreach activities (websites, blogs, lectures in schools) to spread my findings to an audience beyond academia.

I have participated in 15 projects and led 6 multidisciplinary projects focused on Antarctica as IP. Since 2012 I have managed two large projects funded by the Portuguese Government (120,000 EUR) and the AXA Research Fund (120,000 EUR), and four other small projects from the Portuguese Government (2000-2500 Euro). I have joined 2 field seasons in the Arctic and 5 in Antarctica. In addition, I have also conducted research in other mountain regions (Rocky Mountains, Patagonia, Alps, Pyrenees, Cantabrian Mountains).

During the last years I have also been teaching subjects related to my research topics, organizing field trips with the students and participating in several training activities. Proof of my teaching excellence is the fact of being accredited by the ANECA/AQU agencies for teaching in university environments.

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

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Título:

Paleoenvironmental reconstructions from continental records

Resumen de la Memoria:

The overall theme of my research mainly deals with the reconstruction of the physical and biological conditions of ancient environments in order to evaluate their response to past climatic fluctuations. The use of multidisciplinary approaches allows me to understand the past, the present and predict future global environmental changes. In this way, reconstructing past biotic responses to environmental alterations will allow me to detect current potential endangered ecosystems. This is a highly useful approach in sensitive areas, such as those in the Mediterranean region (very sensitive to humidity fluctuations), where the global climate change is a serious environmental problem. This research fits with one of the research priorities of the EU, the Horizon 2020, as well as the "Plan Estatal de Investigación Científica y Técnica y de Innovación 2013-2016" (Spanish MINECO). During my research career I have developed these paleoclimatic, paleoecological and paleoenvironmental approaches from three main different points of view:

1) Paleoecological and paleoenvironmental studies of European fossil mammals. This research line started at the beginning of my scientific career, and is still a strong topic of my actual research. However, in 2010 I was awarded with a Juan de la Cierva fellowship, and I developed a new geochemical approach, mainly focused on stable isotope studies, to better understand the diets and trophic relationships of Neogene and Quaternary mammals, as well as the paleoenvironments where they lived.

2) Paleolimnology (reconstruction of paleoenvironments and paleohydrology from lacustrine records). This research line derived from the sedimentological studies developed during my PhD and the knowledge about geochemical proxies acquired during my Juan de la Cierva fellowship. At present, I am studying paleolimnological records from different latitudes, including the southern Iberian Peninsula, northern England and Scotland, to understand the NAO by means of a multi-proxy geochemical approach in lacustrine sediments. This research is funded by a prestigious postdoctoral Marie Curie IEF fellowship from the European Commission (awarded in the 2013 Call).

3) Anthropogenic impact in the environment: It was a spin-off from the previous one, and it is becoming more important, as it is essential to quantify the human impact on the natural background to decipher between natural and human-induced environmental/climatic changes.

Resumen del Currículum Vitae:

I obtained my Bachelor's Degree in Geology in 2000 and my PhD on Earth Sciences in 2006 at the University of Granada. I have been awarded with multiple competitive research grants and contracts since I was an undergraduate student. My pre-doctoral career was funded by three subsequent competitive fellowships to develop stratigraphic and environmental research in continental deposits: (1) Junta de Andalucía pre-doctoral fellowship (2001), (2) Ministerio de Educación y Ciencia (MEC) pre-doctoral fellowship, namely FPU, (2002-2005) and (3) University of Granada pre-doctoral fellowship (2006). During my postdoctoral stage (2006-present) I have been working for several research institutions: (1) University of Granada (2006), (2) Instituto Tecnológico de la Construcción (AIDICO; Alicante) (2007-2008), (3) Institut Català de Paleontologia (Sabadell) (2008-2009), (4) University of Cádiz (2009-2010), (5) Instituto Andaluz de Ciencias de la Tierra (Juan de la Cierva fellowship) (CSIC) (2010-2013), (6) University of Córdoba (2013), University of Granada (2013-2014) and University of Glasgow (2014-2015). I have been involved in both teaching and research activities since I was an undergraduate student. I was certified as "Profesor Titular de Universidad" by the Agencia Nacional de Evaluación de la Calidad y Acreditación (ANECA) in 2014. My present research field, stable isotope geochemistry on fossil mammals and lacustrine sediments, is funded by different competitive grants of the Junta de Andalucía (I am the P.I. of one of them, funds: 125,321 Euros), of the Spanish Ministerio de Economía y Competividad, and of the Marie Curie program from the European Commission (I am the PI. Funds: 309,235 Euros). I regularly collaborate with different research groups and I have actively participated in 13 different projects. In addition to all of this, I have published 41 papers in JCR-SCI journals (h-Index 11 according to SCOPUS database), being most of them of high impact. I am the first author in 18 of these papers, the only author in one, the corresponding author in 19, and the second author in other 19. Besides, I have 2 more articles presently under review. I have served as a regular reviewer for the Comisión Nacional de Investigación Científica y Tecnológica (CONICYT) from Chile and for various SCI journals, such as: Geology, Naturwissenschaften, Journal of Human Evolution, Journal of Vertebrate Paleontology, Revista Mexicana de Ciencias Geológicas, Palaeo3, Science of the Total Environment, Journal of Iberian Geology, Spanish Journal of Paleontology, etc. Currently, I am a Marie Curie fellow (IEF program; 2013 Call) at the University of Glasgow, where I am developing new organic specific-compound proxies from lacustrine sediments to study the behaviour of the past North Atlantic Oscillation (NAO) and the human impact in the environment. As I am really aware of the importance of the impact of the research on society, I have actively promoted different outreach activities, such as newspaper notes, documentaries or informal talks to bring science close to society.

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

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Título:

Applications of isotope geochemistry addressing global environmental issues: towards a mechanistic understanding of the biogeochemical behaviour of trace elements

Resumen de la Memoria:

With increasing anthropogenic pressure on ecosystems, current key drivers behind geochemical research are issues such as the potential effects of climate change, the sustainability of natural resources including soil health, food security and ecosystem diversity, minerals and energy resources, and water and air pollution.

My research career has been primarily devoted to improving our mechanistic understanding of trace element cycles within the geosphere, atmosphere, hydrosphere and biosphere. In particular, the mechanisms responsible for the transfer of trace elements between and at the interface of these reservoirs. My work includes multiple approaches (laboratory, field, model predictions) and a range of methods particularly focussing on isotope measurements to examine the behaviour of trace elements. Ultimately, my goal as an environmental geochemist is to deliver research that provides an evidence-base to underpin sound decisions and policy making for society.

Collaborative work in 5 international multi-disciplinary consortia programmes funded by the EC and UK Research Councils, 10 years of post-doctoral experience and 7 years of international exposure in Ireland, Greece and the UK have provided me with a wide breadth of knowledge and expertise and a number of research outputs: 37 publications, 897 citations and h-index=19. My research is supported by the constant development of novel approaches for the study of both stable trace elements and radioisotopes in a suite of matrices including (i) coal and mine waste as potential sources (main focus of my research between 2005-2009), (ii) soil-water system as temporary or permanent sink of trace elements (2010-2016) and (iii) plant/animal tissues as potential receptors (2012-2016).

A key aspect to my research has been developing isotopic dilution techniques and ICP-MS analytical methods, which have been fundamental in adding new insights into the complex interactions of trace elements within the soil-pore water system. Isotope data enhances our mechanistic understanding on the behaviour of trace elements in the environment, and enables us to shed light on the processes controlling their transfer to non-labile pools in soil. My studies have covered a diversity of issues concerning trace elements: the integration of isotopic and speciation data with geochemical speciation models, examining sources, behaviour and solubility of metals in alluvial soils, including the potential impacts of flooding on metal bioavailability (British Geological Survey, 2010-2012), addressing nutrient deficiencies in soil and rice and food security (Cranfield University, 2012-2014), or studying the biogeochemical behaviour and plant availability of radionuclides in soil (University of Nottingham, 2014-2016).

Another key driver of my research is developing our ability to produce mechanistically sound long-term predictions of trace element availability and how biogeochemical sinks operate. For example my current research involves the production of models to predict long-term kinetic incorporation of radionuclides into soils. In this context, the work conducted within the Chernobyl Exclusion Zone (Ukraine) has been instrumental in assessing the validity of our predictions of long-term biogeochemical behaviour of radionuclides in soils.

Resumen del Currículum Vitae:

*Current and former positions: Graduated in Geology (University of Barcelona) in 1999. PhD obtained in 2005 at the Instituto de Ciencias de la Tierra "Jaume Almera" (CSIC) and defended at the Politechnic University of Catalonia with Summa Cum Laude honours. In March was appointed as post-doctoral researcher at the Instituto Jaume Almera-CSIC for 3 years. In January 2009 I was awarded a MEC/Fullbright post-doctoral fellowship to conduct research at the University of Limerick (Ireland, 1 year) and the Centre for Research and Technology Hellas (Greece, 8 months). In September 2010 I joined the British Geological Survey (UK) as IEF Marie Curie fellow to lead my own research project funded by 7FP-PEOPLE-MC program (2 years). In November 2012 I was appointed as post-doctoral researcher in soil biogeochemistry at the National Research Soil Institute/ Cranfield University (UK, 1.3 years). Since March 2014 I am post-doctoral researcher associate in soil biogeochemistry at the University of Nottingham (UK). I have developed an independent research career and built an active network of strong international working relationships international within my field and beyond my own discipline.

*Projects: I have played an active role in 5 international projects, including 3 EC funded projects, 1 UK Research Council (NERC) funded project and 1 project co-founded by UK Research Councils and the Bill&Melinda Gates Foundation. All of them are large multi-disciplinary consortia programmes. My research project at the British Geological Survey was EC-funded (7FP-PEOPLE-MC program).

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

*Awards/Grants: post-doctoral fellowship (MEC/Fulbright, 2009-2010); Intra-European IEF Marie Curie fellowship (2010-2012)

*Publication record and impact: I have co-authored 37 publications (plus 2 under review and 2 in preparation), of which 34 are in SCI journals. 32 papers are in journals with impact factor=2-5 and 15 in IF>4 journals (e.g. Sci Total Environ, Environ Sci and Technol). Approx 75% of the journals are within the first quartile of their knowledge areas. As per Jan 2016 I have 897 citations (Scopus) and h-index=19. One of my first-authored recent publications is an invited paper and has been cited 102 times (Scopus) within <4yr. The UK-NERC Open Research Archive records shows 4991 downloads for selected works available on free access. I have 34 contributions to conferences, 33 at international level.

*Lecturing/Mentoring: Currently co-supervising a undergraduate students. I have served as external examiner of 2 PhD dissertations and I undertake regular training sessions to students in the use of (HPLC)-ICP-MS.

*Professional Service and affiliations: Member of the International Medical Geology Association. Member of the Editorial Board of the peer-reviewed journal Coal Combustion and Gasification Products; Moderator of the "Chemistry & Mineralogy" sessions at the World of Coal Ash Conference held in USA (2009, 2011). Reviewer of well-respected journals e.g. Environmental Science and Technology, Science of the Total Environment, Chemosphere, Fuel, Journal of Hazardous Materials, International Journal of Coal Geology.

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

Nombre: **GONZÁLEZ JIMÉNEZ, JOSÉ MARÍA**
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Título:

Mineralogía y Geoquímica de Elementos del Grupo del Platino en rocas ultramáficas y máficas

Resumen de la Memoria:

Dr. González-Jiménez started into research during the last year of his Degree in Geology (conferred October 2004) through a supervised research work in the Department of Mineralogy and Petrology of the University of Granada (Spain). Soon after he was awarded with a state-funded PhD Fellowship from the Spanish "Ministerio de Educación FPI Grant" (2005-2009, University of Granada) to carry out a PhD project focused on the study of chromite deposits from ophiolite complexes, aiming to address the key question on what type of primary or secondary processes may produce these ores anomalously enriched in the platinum-group elements. The results showed that fractionation of the platinum-group minerals in the upper mantle is linked with the crystallisation of chromite mainly; and that it takes place when discrete minute minerals known as Platinum-Group Minerals become form. Moreover, he showed that PGEs are effectively mobilized during the secondary alteration processes to produce higher-grade ores, particularly during regional metamorphism of the ultramafic rocks. The outcomes obtained from his PhD research were benchmarks, which provided the basis for the subsequent work and modeling during this period as a Post-Doctoral Researcher in the Macquarie Univeristy in Australia, initially appointed in early 2010 to Macquarie as an Early Career Researcher of the ARC National Key Center of Metallogeny and Evolution of Continents (GEMOC) and later as Research Fellow in the new ARC Center of Excellence for Core to Crust Fluid Systems (CCFS). As an Early Career Researcher he contributed to the design and redaction of one of the foundation project of the Centre, as well as during the interviews of the evaluation panels. At this time (mid 2011) he was also awarded with additional extra funding through the independent ECSTAR (Early Career Startup Award Research) ARC Post-Award Early Career Research Support. Leading his own project he developed an innovative approach that combined a large variety of modern data-acquisition techniques of in-situ microanalysis (LA-MC-ICPMS, SHRIMP) for measuring compositions of radiogenic and non-radiogenic isotopes (Re-Os, U-Pb, Lu-Hf) as well as minor and trace elements in a range of mantle minerals (including platinum-group minerals, base-metal sulfides, zircons, chromite and dimons). Networking with Australian and overseas researchers during his Postdoctoral period allowed him to be enrolled in 20 research projects funded by national agencies from Australia as well as overseas (including Spain and Mexico). Two years ago (January 2014) Dr. González-Jiménez was appointed to University of Chile as Assistant Professor through an internationally based open competition seeking exceptional candidate of excellence to undertake high-quality research and teaching. During this period he has won four successful proposals supported by the Chilean government in excess of 7 Milllon €, one of them as unique investigator (up to 180,000 €). While spanned his network of collaborators in Latin America and consolidated his own research group (a total of 13 students under his (co)-supervision), he has endeavored new scientific problems such as the mobility of noble metals in the lithosphere through the study of active geothermal systems, mantle xenoliths and exhumed serpentinite massifs around the world.

Resumen del Currículum Vitae:

Degree in Geology (2004), Master Degree (2007) and PhD (2009) from the University of Granada, the two latter degrees scored with the mention "Sobresaliente Cum Laude" by unanimity. Three short pre-doctoral stages in France (BRGM, Orléans; 2 months each year in 2006, 2007 and 2008) and post-doctoral experience as an early-career researcher in Spain (Sept 2009-February 2010, University of Granada) and at Macquarie University in Sydney, Australia (February 2010 -June 2011 ARC National Key Centre of GEMOC, and June 2011-December 2013 ARC Centre of Excellence of CCFS). Since 2014 I hold a permanent position as Assistant Professor at the Department of Geology of the University of Chile; a position won in an international competition seeking excellence researchers.
My academic output includes 45 publications "37 papers in international and high-impact peer-reviewed journals (32 published, 1 in press, 3 accepted with minor corrections and 1 submitted; 18 of them first-author and 6 second-author) and 8 book chapters" and 79 communications to national an international meetings of the specialty (26 of them as first author). Among the 37 research papers 35 have been published in indexed journals and 28 of them are listed in the top 25% of their respective category. These publications include original research related to the mineralogy, petrology, geochemistry and isotope geochemistry of mafic-ultramafic rocks, and they have had a large impact in the relevant scientific community as is attested by the great number of citations (a total of 390, including 287 without self-citations; h index = 11, source Web of Science; I am ranked among the top 15 mineralogist in Spain;http://indice-h.webcindario.com/).

Secure successfully candidate for applying funds, as demonstrated by my vigorous externally funded research program with 16 projects as team member funded by state agencies from Spain, Australia, Chile and Mexico (~10 Million Euros in the last 5 year) and two projects as unique (PI) investigator funded by the Australian Research Council (375,000 Euros; 2011-2013) and FONDECYT in Chile (180,000 Euros; 2014-2017).

Inviter speaker in two prestigious international conferences (EGU, 2013 and Goldschdmit 2015), I have given seminars (8) and short

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

courses (2) in universities worldwide. I am also member of the Editorial Board of Ore Geology Reviews (top 4 in the category of Mineralogy) and the Boletín de la Sociedad Geológica Mexicana, as well as frequently asked reviewer for scientific journals and project proposals for state-funded agencies (including the National Fundation (NSF) of the USA government, the CSIC of the Univeristy of the Republic of Uruguay and the Spanish National Evaluation and Prospective Agency (ANEP)).

I have (co)-supervised 1 PhD student (University of Zaragoza, Conf. 2015) and 1 Minor thesis (University of Granada, Conf. 2010). Currently, I am (co)-supervising a total of 13 students (1 PhD, 3 Master, and 10 Minor theses) whose research projects are partially funded by my own project. Frequent research visits in five different continents attest to my outstanding international reputation in various scientific circles, my wide network of collaborators include the most prominent scientist on my field, assuring a continued cutting-edge of my science that is transmitted to my students.

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

Nombre: **BALLESTEROS GÓMEZ, ANA MARÍA**
Referencia: RYC-2015-18482
Área Científica: Ciencias de la Tierra
Correo Electrónico: a.m.ballesterosgomez@gmail.com

Título:

Development of novel methods for the analysis of legacy, emerging and unknown environmental contaminants

Resumen de la Memoria:

My research is focused on the analysis of legacy, emerging and unknown contaminants (and metabolites) by developing new analytical techniques at the extraction (supramolecular assemblies) and at the detection (e.g. ambient mass spectrometry) stages. These techniques are faster, simpler and provide wide-scope methods for the identification of new contaminants of environmental relevance and have also a high potential for implementation in other laboratories and companies.

As collaborator student (2004-2005), PhD researcher (2006-2010) and researcher (2010-2011) at the Department of Analytical Chemistry of University of Córdoba (supervisor prof. S. Rubio) I developed new supramolecular solvents and adsorbents produced by self-assembly for the extraction and analysis of contaminants. These micro-extraction techniques are fast, efficient and environmentally-friendly alternatives to the conventional extraction methods. My main contribution was to design supramolecular solvents or adsorbents with advanced functional features, such as magnetic properties for dispersive magnetic microextractions and tunable composition and aggregate-size for better selectivity in extractions. These new supramolecular assemblies were applied to the extraction of a variety of organic contaminants (PAHs, perfluorinated compounds, bisphenols, chlorophenols, etc.) in environmental samples and later successfully employed by other research groups worldwide. I also did a pre-doctoral 3.5-month stay at the Institute of Environmental Studies (IVM) of the VU University Amsterdam (The Netherlands) where I participated as researcher of the European project PERFOOD (FP7-KBBE).

Later, I worked as Marie Curie Experienced Researcher at the IVM-VU University Amsterdam (2012-2014). This project gave me the opportunity to visit different top research environmental centres (in UK, Belgium, Sweden, Norway) and to establish a solid European network. I worked with prof. Jacob de Boer and Pim Leonards. I mainly innovated on the use of novel separation and detection techniques for screening new flame retardants, such as two dimensional GC with high-resolution mass spectrometry, the use of the novel source GC-APCI and advances in ambient mass spectrometry. I also identified novel and unreported flame retardants with high relevance for the environment. Later, I moved for a 5-month postdoctoral position (2014) funded by the University of Antwerp (UA) at the group of prof. Adrian Covaci (Toxicological Centre, UA, Belgium) to develop screening methods for the identification of metabolites of emerging contaminants. Finally, since November 2014, I was granted a position as project leader at the IVM-VU Amsterdam (The Netherlands) by NWO (VENI laureate, 250 K€) as part of a prestigious talent scheme for young researchers to initiate my first independent research project/line. Currently, I actively work on the identification of contaminants, mainly used in products (flame retardants, bisphenols, etc.) and of relevance for human exposure in indoor environments. I collaborate with top research groups in Belgium (prof. A. Covaci), Canada (prof. E. Reiner), Birmingham (prof S. Harrad) and companies for the transfer and commercialization of the methods (ICL, DSM, Bruker Daltonics).

Resumen del Currículum Vitae:

-Doctor title: Sobresaliente cum laude, extraordinary prize, International Mention. Analytical Chemistry Department, University of Córdoba (supervisor prof. S. Rubio). 2011

-Research stays abroad: the pre-doctoral (3.5 months, Netherlands) and postdoctoral stays have provided me with a solid international network (2-years, Netherlands with prof. J.de Boer, 2- and 5-months, Belgium with prof. A. Covaci, 2-weeks, Canada with prof E. Reiner). Since around 1 year ago, I am researcher leading a national project at the VU University Amsterdam that is part of a prestigious talent scheme for young researchers (VENI laureate 2015).

-Publications: 32 articles (first-author of 15, second-author of 9 and corresponding author of 8 including all my 7 first-author postdoctoral research articles), 1 technical note (first-author) and 2 book chapters (first-author). 97% of the 32 articles are in Q1 (first quartile JCR, including top journals as Env. Sci. Technol., Env. Health Perspect. and Anal. Chem.) and 79% in the first decile. My WOS H-index is 14 (634 citations), my Google Scholar H-index is 15 (831 citations); average impact factor last 5-year 4.99

Contributions to National and International conferences (33): 20 posters (5 first-author), 13 oral (9 first-author) being 3 as invited speaker in workshops organized by the international company Bruker Daltonics (Netherlands in 2013 and Canada in 2015) and in an international symposium organized by the Ontario Ministry of Environment (Canada, 2015) .

-Academic and research prizes (main author):

1. SEQA young award 2015 (Analytical Chemistry Spanish Society), Spain, 2000 €
2. Extraordinary thesis prize. University of Cordoba, Spain, 2013
3. GRASEQA prize for young scientists (€accésit€), 2012, Spain 200 €
4. Marie Curie prize for young scientists (€accésit€) IUIQFN and University of Córdoba, Spain, 2011
5. Article-top cited reviews 2008-2009 [Ballesteros et al., J. Chromatogr. A, 1216 (2009) 449], Elsevier

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

6. End-of-studies award B.S. in Environmental Sciences, 2005

-Academic and research prizes as co-author:

1. Poster award (Recent Advances in Food Analysis Conference) Prague, 2013, 750€
2. Featured article [Second author in García-Fonseca at al Anal. Chim. Acta, 617 (2008) 3] Elsevier

-Research fellowships

1. 2-year, Initiation into research fellowship (University of Cordoba) 2004-2006
2. 4-year PhD FPU fellowship (Spanish Ministry) 2006-2010
3. Short stay abroad grant for the PhD European Mention (Spanish Ministry) 2009
4. 2-year ITN Marie Curie fellowship (Experienced Researcher) at IVM-VU University of Amsterdam (The Netherlands) 2012-2014
5. 5-month postdoctoral fellowship in Belgium funded by a program of the University of Antwerp, 2014
6. 3-year fellowship VENI talent scheme. NWO (Netherlands Organization for Scientific Research). 2014-2017

7.1-year Postdoctoral Pegasus Marie Curie by FWO-EU (COFUND) in Belgium (granted but not enjoyed for incompatibility with VENI grant), 2014

-Participation in Research Projects: 2 regional and 6 national (Spanish) projects, 1 international industry-funded project, 5 European projects PERFOOD, INFLAME, INTERFLAME, DENAMIC, A-TEAM and I am PI of a 3-year prestigious national Dutch project (VENI, NWO).

-Press releases (postdoctoral stage): interviewed 5 times by the national Dutch and international press (De Telegraaf, C2W, Chemical and Engineering news, Chem

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

Nombre: **MINGUILLON BENGOCHEA, MARIA CRUZ**
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Área Científica: Ciencias de la Tierra
Correo Electrónico: mc.minguillon@gmail.com

Título:

Composition and sources of atmospheric aerosols in different environments. Emphasis on carbonaceous aerosols

Resumen de la Memoria:

My research in the last twelve years has been focused on atmospheric aerosols: their ambient concentrations in different environments, urban, regional, remote, and indoors; their chemical composition; the factors and processes that determine their variability; their sources; and their mitigation measures.

After my Chemical Engineering degree (2002, Extraordinary Award), I worked on emissions from the ceramic industry at the Institute of Ceramic Technology. I then started my PhD research at an Associated Unit University-CSIC on the relation of industrial particulate emissions and ambient aerosols. The work resulted in an Air Quality Improvement Plan and an actual decrease of pollution levels (arsenic and other metals concentrations) in the study area, apart from my PhD title in 2007, the Doctorate Extraordinary Award, and the Award to the best research work about the ceramic cluster.

During my postdoctoral contract at the University of Southern California (2008) I studied the impact of shipping emissions on the Long Beach harbor area, focusing on the fine and quasi-ultrafine organic matter tracers, and I studied the variability of coarse particulate matter in Los Angeles. I continued my postdoctoral research at Paul Scherrer Institute (2009-2010), focusing on two fields. The first one was the particulate matter composition and sources in Swiss areas. The second one was the carbonaceous aerosol source apportionment, using the 14C technique, applied for the first time in Spain. I contributed to the development of a new EC-OC separation method for subsequent radiocarbon analysis. I studied the carbonaceous aerosols in the framework of the international campaign DAURE (more than 14 research groups), combining the results from multiple techniques, including aerosol mass spectrometer (AMS) and 14C leading to unique findings.

Since May 2010 I am a Researcher at the IDAEA-CSIC. I specialized in carbonaceous aerosols, given my postdoctoral experience abroad, and I am the main researcher on secondary organic aerosols in my research group, using the state-of-the-art Aerosol Chemical Speciation Monitor (ACSM) instrument, for which I represent my group in the European ACTRIS Network. Our ACSM is the first one in Spain. This technique has allowed us to obtain unprecedented view on the processes governing aerosol formation and sources in remote, regional and urban environments, thus impacting air quality and climate research. The results have been published in scientific papers and a PhD thesis which I supervised. I also have an interest in the population exposure and indoor environments, as I am currently supervising a PhD thesis in the framework of a Marie Curie ITN project on the personal exposure to PM in underground systems (to be finished in March 2016). I am specialist in source apportionment studies, having published several works on this topic. I also work on mitigation strategies to improve air quality, having edited a book on this topic. Other research interests include sensor technologies for air quality, for which I am the lead researcher in my research team, within COST Action TD1105.

Resumen del Currículum Vitae:

I graduated in Chemical Engineering in 2002 at the University Jaume I (Castellón, Spain), with Extraordinary Prize. I worked at the Institute of Ceramic Technology supported by a competitive IMPIVA grant (2003). I was awarded a competitive PhD grant (2003-2007) by the Spanish Ministry of Education and Science, to study the impact of industrial emissions mitigation on the air quality of the Castellón ceramic area, in CSIC (Barcelona, Spain). I obtained my PhD title in June 2007 with Doctorate Extraordinary Prize and the Prize to the best ceramic research work. My thesis resulted in an official Air Quality Improvement Plan (elaborated with the Regional Government) leading to an actual decrease of pollution levels. In 2008 I was offered a Postdoctoral Researcher position at the University of Southern California (USC), Los Angeles, USA, where I worked with Prof. Constantinos Sioutas (h-index 58). In 2009-2010 I was a Postdoctoral Researcher at Paul Scherrer Institute (PSI), Switzerland, working with Prof. Urs Baltensperger (h-index 68), supported by a competitive postdoctoral grant awarded by the Spanish Ministry of Science and Innovation. From May 2010 to present I am a Researcher at the Institute of Environmental Assessment and Water Research (IDAEA, CSIC) (awarded with a competitive JaeDoc national grant until April 2013 and contracted afterwards).
Within my current research team, I am the lead researcher dealing with atmospheric organic aerosol. As such, I represent our team in the ACTRIS Network. I use the state-of-the-art ACSM instrument for the real time chemical characterization of submicron particles. I am the leading researcher from my group in COST Action TD1105 dealing with sensor technologies. I am member of European Working Groups. I have participated in 28 national and international research projects and represented my group in numerous project meetings. I have a well-established international network. I have proved my ability to work proactively, autonomously and to forward plan. I co-authored 53 SCI research articles, 80% in Q1 journals, cited >1200 times. My h-index is 19. I co-authored 2 books, 11 book chapters, and edited a book. I co-authored 90 contributions to conferences, 16 reports for the European Commission, 1 report for the Swiss Environmental Agency, and

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2015

Turno de acceso general

several reports for Regional Governments in Spain. I co-author the Spanish Air Quality Improvement Plan. I supervised a master thesis (Sep 2009) and a PhD thesis (July 2015), and supervise a PhD thesis from a Marie Curie ITN. I co-organized two international training schools. I was invited speaker in two international training schools and a dissemination talk in the Instituto Cervantes (Serbia). I was chair twice in international conferences. I am reviewer for 20 SCI journals and project proposal evaluator for the Republic of Kazakhstan. I participated in two dissemination videos on atmospheric aerosols. My research has been published by the Spanish media (TV news broadcast, radio and press).

My plan for the near future is to strengthen my research in the carbonaceous aerosols and the personal exposure. I am co-PI of a National project, and participant in a H2020 Marie Curie ITN proposal (both under evaluation), and coordinator of a proposal for a COST Action with 38 partners from 23 countries.