

•

Expression of Interest

Contact Person/Scientist in Charge

- **Name and surname:** Jose Antonio Carreira de la Fuente
- **Email:** joseantonio.carreira@ujaen.es

UNIVERSIDAD DE JAÉN

Department / Institute / Centre

- **Name:** UNIVERSIDAD DE JAÉN - Center for Advanced Studies in Earth Sciences (CEATierra).
- **Address:** Campus Las Lagunillas s/n, 23071, Jaén (Spain)
- **Province:** Jaén

Research Area

- Environmental Sciences and Geology (ENV)
- Life Sciences (LIF)

Brief description of the institution:

The University of Jaén (UJA) is an EHEA medium-sized Spanish public university (some 16000 students and almost 1000 lecturers) that was established in 1993 and is organized into 6 main Schools/Faculties (Faculty of Law and Social Sciences, Faculty of Social Work, Faculty of Human Sciences, Faculty of Experimental Sciences, Faculty of Health Sciences and two Schools of Engineering). In addition to its 124 research groups, the University of Jaén is proud of its 4 Advanced Research Centers (Earth Sciences, Energy and Environmental Sciences, Olive Oil Research and Development, and Computational Sciences) and of its Institute on Iberian Archaeology Research. Moreover, UJA is integrated into a university network recognized as Campus of International Excellence in the fields of Agrifood (CEIA3), Climate Change (CamBio) and Historical Heritage (PatrimoniUN10).

UJA permanently welcomes new foreign research proposals as part of a conscious effort to increase its international profile and widen both its knowledge and its horizons.

Brief description of the Centre/Research Group (including URL if applicable):

The Interdisciplinary Soil Lab (LIS-UJA) is an interaction space between scientists dealing with ecological and environmental issues in which soil processes and plant-soil relationships play a basic functional role. It allows for integrated studies of the soil ecosystem, by putting together capabilities and know-how for the analysis of forest and agricultural soils in terms of fluxes and transformations of nutrients/pollutants (biogeochemistry and ecophysiology), morphological/geochemical features (soil science), and microbial/faunal/rhizosphere communities (ecology, biodiversity).

The LIS-UJA is integrated in the Center for Advanced Studies in Earth Sciences (CEATierra) of University of Jaén (<http://www10.ujaen.es/conocenos/centros/ceatierra/inicio>). Current staff is about fifty scientists conducting research on the functioning and status of the Earth System from different and integrated points of view: ecology, climatology, geophysics, sedimentology, remote sensing and cartography, soil science, biodiversity, etc. In this center, José A. Carreira (<http://orcid.org/0000-0002-5995-076X>) is the head of the Forest & Soil Ecology group (<https://www.youtube.com/watch?v=4KGuRtB2Hg>; <http://www.ujaen.es/investiga/rnm296/rnm296.html>), specialized in the study of the responses and adaptive capacity of forest ecosystems to global change drivers (climatic change, land-use alteration, atmospheric pollution-N deposition, fire disturbance).

Project description:

Forest vulnerability to climate change depends on the interplay of three components: exposition (magnitude, variability and rate of change of the stressor), sensitivity (intrinsic system susceptibility to the stressor) and adaptive capacity (mechanisms of system adjustment to avoid, minimize or remediate the impact). The first two components have been more intensively studied (e.g., modeling of climatic-niche and projection of tree species distributional shifts). However, in the face of global change, the need to sustain ecosystem services (biodiversity, wood production, C sequestration, etc.) just calls for a better understanding of Factors that Modulate the Adaptive Capacity of forests to Climate Change (FMACCC). The project uses mountain relic conifer forests (*Pinus sylvestris*, *Pinus nigra*, *Abies pinsapo*, *Cedrus atlantica*), at ecotone locations along altitudinal and latitudinal gradients, as experimental models. Sensitivity analyses suggest these forests are among the most vulnerable to current climate change. However, they did withstand past climate changes, thus their mere existence evidences the importance of these other factors and their modulating potential on the outcome of vulnerability. We apply an interdisciplinary approach (landscape-stand ecology, plant and soil ecology, ecophysiology and forest genetics) to analyze potential FMACCC resulting from plant-plant and plant-soil interactions which derives from spatial patterns at different scales.

Applications

CV, Motivation letter and Summary of project proposal (250 words) by 15th June 2018