Marie Skłodowska Curie Action –Postdoctoral Fellowship 2025
(MSCA-PF-2025)

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Department /Institute /Centre	**Name**	Department of Natural Systems and Resources. ETSI Montes, Forestal y del Medio Natural
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Research Area		Environment and Geoscience (ENV)
Brief description of the Centre/Research Group		The research activity of the Department of Natural Systems and Resources (www.montes.upm.es/?page_id=4680) at the School of Forestry Engineering and the Environment (ETSI Montes, Forestal y del Medio Natural, www.montes.upm.es) of Universidad Politécnica de Madrid covers a wide range of topics related to the management, conservation and restoration of forests, protected areas and natural resources, contributing to significant advances in these fields. The Department and School offer an ideal environment for applied research with access to modern research facilities (labs and high-performance computing), and a wide network of stakeholders that actively participates in research projects and dissemination activities. The multidisciplinary research team in which the fellow will be integrated consists of members from two research groups within the School, working in close collaboration with researchers from two highly ranked international institutions: the University of Arizona (USA) and the Laboratoire des Sciences du Climat et de l'Environnement (LSCE) in France. The collaboration among these groups focuses on improving the modeling and predictions of future forest carbon sinks in global models (mainly Land Surface Models) by generating, compiling and combining data collections (mainly tree-ring data and forest inventory data) to develop regional-scale data frameworks data could assist model refinement. These high-level research projects on Global Ecology and Climate Change have demonstrated high-impact outcomes, making this an ideal opportunity for a MSCA fellow to join.

Project description	Forests capture almost a third of global anthropogenic carbon emissions to the atmosphere each year thus slowing down the pace of climate change. However, current projections of the capacity of forests to remain as a carbon sink through the century are highly uncertain due to the variability in simulating the vegetation-climate feedbacks by the Land Surface Model (LSM). The proposed project focuses on leveraging existing tree-ring and forest inventory data from northern Mediterranean countries to generate new eco-physiological and long-term growth estimates for multiple plant functional types. This data will be used to parameterize and calibrate the LSM ORCHIDEE for the 20th century, with the potential to impact future climate change simulations using the Earth System Models (ESMs) from the IPSL in which the LSM is integrated as the land component. ORCHIDEE has a cutting-edge computing environment for data assimilation and is the only existing LSM currently implementing a subroutine for radial tree growth under an ERC Starting Grant. The MSCA fellow's work will contribute to refining the long-term response of Mediterranean forests in the enhanced ORCHIDEE model, which will directly influence the next generation of simulations for the upcoming Intergovernmental Panel on Climate Change (IPCC) report. This project will provide valuable insights for improving the understanding of forest carbon sinks and their role in global climate projections.
Applications: documents to be submitted and deadlines	The applicant should submit, not later than the **30th of April 2025**: • Letter of motivation including a summary of the main scientific achievements • Curriculum vitae • Contact details of two people who could serve as references