

Position Offered: POSTDOCTORAL RESEARCHER

Project: *Integrating remote sensing and epidemiological modelling for operational surveillance and risk assessment of emerging plant diseases in the context of climate change*

Technological and scientific fields: Remote sensing, Epidemiological modelling, Climate change, Machine Learning, Radiative Transfer Modelling

Location: Córdoba, Andalusia, Institute for Sustainable Agriculture, <https://www.ias.csic.es/>

Research Group/PI: Phytopathology of Sustainable Agricultural Systems, Juan A. Navas Cortés, <https://tinyurl.com/2pdp4pt>

PROJECT SUMMARY

The project entails linking satellite remote sensing and epidemiological modelling to advance operational surveillance and risk assessment of emerging plant diseases. The objectives are: 1) To assess the use of hyperspectral and multispectral satellite imagery to detect and monitor plant diseases in agricultural settings; 2) To integrate satellite remote sensing data into epidemiological models to improve their parameterization and optimise surveillance and disease control; 3) To enhance the risk assessment of plant diseases in a changing climate by combining satellite remote sensing data, epidemiological models, and species distribution models.

PROFESSIONAL PROFILE

Minimum requirements:

- PhD in Agricultural Engineering, Biology, or a equivalent field, with specific expertise in remote sensing applications for plant disease monitoring and/or epidemiological modelling.
- Skilled in hyperspectral and multispectral imaging analyses, and plant trait quantification using radiative transfer models.
- Experience with epidemiological modelling in agricultural settings, including stochastic and spatially explicit compartmental models and species distribution models.
- Publications and/or a strong track record in relevant fields to the project. English proficiency.

Merits to be considered:

- Proficiency in programming languages such as R and Python for data analysis and modelling.
- Knowledge of advanced statistical methods and machine learning techniques for biological data.
- Experience with integrating remote sensing data into epidemiological models.
- Familiarity with climate model simulations (CMIP6) for risk assessments under climate change.

WHAT IS OFFERED

This postdoctoral position offers an unique opportunity to collaborate within an interdisciplinary team of scientists, including plant pathologists, remote sensing experts, mathematicians, and epidemiological modellers. This position involves working closely with co-PI Dr. Vincent Cervera at the Valencian Institute of Agricultural Research in Valencia for 1 year. The successful candidate will conduct a 240-ECTS training plan, which includes pursuing a 2-year M.Sc. in Biostatistics, specialized courses in digital competencies, relevant to the project, and a secondment at a foreign institution to gain expertise in advanced radiative transfer modelling.

Contract conditions:

Indefinite contract for a Postdoctoral Researcher associated to the Momentum Project of 4 years' duration according to Spanish science law. Gross annual salary (41.000 € - 52.000 €).

Start of contract: before 31 December 2024

PRINCIPAL INVESTIGATOR CONTACT

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