



2018-IPR-D1-FGIV-010885

FG IV - Project Officer - Remote sensing for the early detection and impact mapping of *Xylella fastidiosa*

Position for:

FG IV Project officer – Scientific Research

As the science and knowledge service of the Commission, the mission of DG Joint Research Centre is to support EU policies with independent evidence throughout the whole policy cycle.

The JRC is located in 5 Member States (Belgium, Germany, Italy, the Netherlands and Spain). Further information is available at: <http://ec.europa.eu/jrc/>

The vacancy is within the Bio-Economy Unit, (located in Ispra, Italy), which provides scientific support to EU policies related to the bio-economy such as the sustainable production as well as the use of biological resources and the conversion to value added products, such as food, feed, bioenergy and bio-based products.

We are looking for a researcher to contribute to the further development and implementation of the XF-ACTORS Horizon 2020 project (<http://www.xfactorsproject.eu/>).

Global food production and ecosystems are vulnerable to plant disease and pest epidemics which become more mobile with globalization and potentially more damaging with climate change. Remote sensing can fulfil a unique role in the prevention and management of plant disease outbreaks; it permits cost-efficient monitoring of large swaths of land, and can be directly linked to vegetation attributes, including stress symptoms, that may indicate disease infection or susceptibility.

In Europe, *Xylella fastidiosa*, a xylem-invading bacterium native to the Americas, has, since its discovery in 2013, caused extensive damage to several Mediterranean crops, most notably to ancient olive groves in the Apulia region in southern Italy. As part of a Horizon 2020 project (<http://www.xfactorsproject.eu/>), the JRC is researching the use of airborne very-high-resolution hyperspectral and thermal remote sensing for the early detection of individual trees potentially infected by the pathogen. In parallel, it is invest satellite-based remote sensing to assess the damage of the epidemic across larger regions.

Following a series of airborne imaging campaigns over olive orchards in Puglia (see <https://doi.org/10.1038/s41477-018-0189-7>), ongoing work focuses on the use of imaging spectroscopy and thermography to evaluate *Xylella* infection symptoms in other host species, particularly almonds. This evaluation aims to establish links between the infection status of plants (as diagnosed using PCR), visual symptoms of disease (as recorded by plant pathologists), and plant functional traits estimated from the purpose-collected airborne remote sensing data through radiative transfer modelling.

The envisaged work will consist of developing processing chains for very high resolution remote sensing data acquired to evaluate the health status of individual trees in the context of the European *Xylella* epidemic and assessing how symptom development, as visually assessed on the ground, relate to traits retrievable from such imagery.

Qualifications:

The ideal candidate should have:

	<ul style="list-style-type: none"> • a PhD in Engineering, Natural Resource Management, Forestry, Environmental Sciences, Geography, or related field (or a University degree and 5 years of experience). • Experience in remote sensing, particularly using hyperspectral or multispectral airborne data, applied to vegetation analysis, and preferably plant health. • Experience with radiative transfer models to estimate vegetation properties is an asset. • Strong statistical background and excellent programming skills to deal with large geoscience datasets are essential • Fluency in one or more numerical and statistical computing languages (e.g. R or Python). • Good knowledge of spoken and written English (B2). • Strong record of research activities including publications in international peer-reviewed Journals. <p>In addition, the successful candidate should have the ability to work in a team and multi-cultural environment but also self-directed and creative.</p>
Directorate Unit	Sustainable Resources Bio-Economy Further information: https://ec.europa.eu/jrc/
Indicative duration	12 months initial contract with possible renewals up to maximum 6 years
JRC Site Country	Ispra Italy
Rules and eligibility	<p>The candidate must be on any valid EPSO reserve list for Function Group IV contract staff.</p> <p>Applicants to the following Calls for expression of interest can also be considered:</p> <ol style="list-style-type: none"> 1. CAST Permanent - EPSO has launched in January 2017 an open-ended selection procedure to create a pool of candidates from which the institutions, bodies, offices and agencies of the European Union (EU) can recruit contract agents. Details available at the link below: https://epso.europa.eu/documents/2240_en 2. Call COM/1/2015/GFIV – Research - The JRC has launched in January 2015 a permanent call for researchers FG IV. Details available at the link below: https://ec.europa.eu/jrc/en/working-with-us/jobs/vacancies/function-group-IV-researchers <p>Auxiliary contract staff: https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/contract-staff-members</p> <p>Article 3b of the Conditions of Employment of Other Servants of the European Union applies: the actual period of employment within the Commission under this type of contract, including any period under renewal, shall not exceed 6 years.</p> <p><i>Please note that due to the high number of applications received only shortlisted candidates will be contacted.</i></p>