



EUROPEAN COMMISSION

JOINT RESEARCH CENTRE

2022-IPR-A5001-FGIV-019768

**FG IV Scientist - Exploratory Research Project  
Spatially explicit PESTIcide health RISK indicators based  
on satellite mapping of crops and human settlements  
(PESTIRISK)**

**POSITION FOR:**

Member of the contract staff Function Group IV – art. 3b of the Conditions of Employment of Other Servants

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1962R0031:20110101:EN:PDF>

**WE ARE:**

As the science and knowledge service of the Commission, the mission of DG Joint Research Centre (JRC) 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: <https://ec.europa.eu/jrc/>

The JRC offers a vacancy for a Contract Agent within the Exploratory Research Project “Spatially explicit PESTIcide health RISK indicators based on satellite mapping of crops and human settlements” (PESTIRISK). The JRC Exploratory Research Programme is a strategic initiative characterised by ideas that might lead to novel results and qualitatively enrich current JRC scientific work.

The current vacancy is in the Directorate for Sustainable Resources of the JRC. The directorate supports the European Commission with independent, technical and scientific evidence in the areas of the environment including biodiversity, environmental quality and sustainable use of natural resources. The operational scientific research will take place in the Food Security Unit.

The Scientific Development Unit is in charge of the overall JRC Exploratory Research Programme.

**WE PROPOSE:**

A position to carry out scientific tasks in accordance with Exploratory Research Project “Spatially explicit PESTIcide health RISK indicators based on satellite mapping of crops and human settlements” (PESTIRISK).

Pesticide use has continuously increased in the EU from 2008 to 2018. The European Commission’s Farm to Fork Strategy, embedded in the Green Deal priority, targets to reduce the overall use and risk of chemical pesticides by 50% until 2030 across the EU. So far, to assess the overall health risk from pesticide use in the EU, Eurostat uses the Harmonized Risk Indicators 1 and 2 (HRI1, HRI2). However, this indicator is solely based on pesticide national sales reporting and substance hazard weighting. Numerous studies point to widespread pesticide contamination of dwellings and public areas near agricultural lands. As pesticides’ use is crop-specific, spatially explicit crop type maps can be used to model exposure scenarios on people. Benefiting from satellites and machine learning, two key JRC datasets should make this possible: the EU Crop Map and the Global Human Settlement Layer (GHSL). In this project, the 10-m resolution 2018 EU Crop Map will be further expanded to cover the period 2017-2021. By combining the EU Crop Map with the GHSL spatial population data and the data on pesticide use practices, the project aims to develop an exposure model. The modelling precision can be further improved using the IPCHEM data on pesticide monitoring in humans and the environment, ultimately leading to the development of a unique spatially explicit pesticide exposure risk indicator.

**The successful candidate will:**

- Develop a detailed research plan to explore the exposure of public to pesticides due to the proximity to agricultural fields;
- Participate to the development and implementation of multi-year crop type maps for area of interest of the project;
- Explore and develop a method to estimate pesticide exposure by combining spatial datasets of agricultural land, population distribution and chemical occurrences;

- Use available information sources to develop a catalogue of most commonly used pesticides on particular crops;
- Link with relevant stakeholders to understand different agricultural practices across the EU in order to improve the precision of the exposure model;
- Develop innovative data-driven approaches to spatially map pesticide exposure at the EU-27 scale resulting in an indicator.

**WE LOOK FOR:**

A scientist with the following qualifications:

- A doctoral diploma in applied agricultural engineering, computer science, and bioscience engineering or related fields, alternatively completed university studies of at least three years attested by a diploma and at least five years professional experience in a field relevant to the position.
- Extensive knowledge/experience in machine learning, geospatial and heterogeneous data analysis, statistics and programming (e.g. R, Python) is essential;
- Broad knowledge in the area of agriculture or environment is essential;
- Knowledge of remote sensing (optical and radar); cloud computing is an advantage;
- Open-source project experience that demonstrates programming, mathematical and machine learning abilities and interest is an advantage;
- Knowledge of environmental and health toxicity is an advantage;
- Solid record of research activities relevant for the position including publications in international peer-reviewed journals is an advantage;
- Ability to lead a multidisciplinary project is an advantage;
- Good oral and written communication skills in English (B2) are essential, knowledge of other languages is an advantage.

In addition, the following competences will be considered as an advantage:

- Ability to work in a team and in a multi-cultural environment;
- The candidate is expected to be creative and work independently.

**INDICATIVE CONTRACT DURATION:**

24 months employment contract for the Exploratory Research project “PESTicide health RISK indicators based on satellite mapping of crops and human settlements” (PESTIRISK).

Employment contracts for Contract Agents can be renewed for maximum 6 years.

**PLACE OF WORK:**

Ispra (IT)

**ELIGIBILITY CRITERIA:**

Candidates for this contract agent position shall:

- (i) have passed a valid EPSO CAST selection procedure;
- or
- (ii) be registered in the EPSO Permanent CAST [https://epso.europa.eu/documents/2240\\_en](https://epso.europa.eu/documents/2240_en)
- or
- (iii) be registered in the specialised call for researchers <https://ec.europa.eu/jrc/en/working-with-us/jobs/vacancies/function-group-iv-researchers> (used mainly by the JRC).

With a valid application number to one of the above, you may then apply for this specific vacancy at JRC through: <http://recruitment.jrc.ec.europa.eu/?type=AX>.

**RECRUITMENT POLICY:**

The Joint Research Centre

- Cultivates a workplace based on respect for other people and the environment.
- Embraces non-discriminatory practices and equality of opportunity. In case of equal merit, preference will be given to the gender in minority.