



2017-IPR-C-000-8887

Distributing emissions using population density

Position for:

Trainee

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://www.jrc.ec.europa.eu>

Short description of activity:

The "Air and Climate Unit" (C05) of the Directorate for Energy, Transport and Climate offers a Trainee position for a graduate or MS to be involved in research activities of the Unit, giving support to the Emissions group.

The Unit performs scientific research on the links between air pollution and climate change to inform policy makers about potential synergies and trade-offs. In this context, the Unit operates EDGAR the Emissions Database for Global Atmospheric Research. EDGAR provides global past and present day anthropogenic greenhouse gas emissions by country and sector both as time series and grid-maps (<http://edgar.jrc.ec.europa.eu/index.php>).

The objective of this study is to distribute the emissions time-series 1970-2012 on a grid of 0.1deg x 0.1deg using population density maps. The JRC Human Settlements map is judged to be the most suitable, given its high spatial resolution and its temporal coverage from 1970 onwards. The population density map needs to be converted into an urban population proxy at 0.1deg x 0.1deg and a rural population proxy.

Then these maps need to be compared to the previous population proxies of EDGAR based on the CIESIN Settlements data. Finally the impact of the spatial distribution with the new proxy data on the total emission gridmaps needs to be analysed in order to derive the uncertainty and the sensitivity to catch migration patterns. This work will allow to further improve the emission gridmaps in the EDGAR database.

	<p>The trainee will learn to use the human settlement maps and contribute to:</p> <ul style="list-style-type: none"> - A derivation of new urban and rural population density proxy data at 0.1deg x0.1deg, covering the globe, based on the JRC Human Settlements map. - A comparison of these new proxy data with the old proxy data based on CIESIN Settlements data. - Evaluation of the impact of the new proxy data on the total emissions gridmap to estimate the uncertainty and sensitivity of the emissions gridmap on the population proxy. - A final documentation and presentation of the results. <p><u>Qualifications:</u> <u>Essential:</u></p> <ul style="list-style-type: none"> • University degree in informatics or engineering, • Experience with Geographical Information System tools. • Good knowledge of English (level B2) <p><u>Advantage:</u> Interest to work on climate and air pollution research within an international emissions team. Knowledge on emission inventory compilations is of advantage.</p> <p><u>For general eligibility requirements, please read the rules governing the traineeship scheme of the JRC:</u></p> <p>https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/jrc-trainees</p>
Institute/Directorate Unit	Directorate for Energy, Transport and Climate C05 – Air & Climate Further information: https://ec.europa.eu/jrc/en/research-topic/air-quality
Indicative duration	5 months
Preferred starting date	As soon as possible
JRC Site	Ispra
Country	Italy
<u>JRC contact details</u>	For any technical problems with your application, please contact: JRC-ESRA@ec.europa.eu