



2019-IPR-E-000-013088

Upscaling the methods for estimating the vertical component of built-up areas from Global Digital Elevation Models

<p>Position for:</p> <p>Trainee</p>	<p>As the science and knowledge service of the Commission, the mission of Joint Research Centre is to support EU policies with independent evidence throughout the whole policy cycle.</p> <p>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</p> <p><u>Short description of activity:</u></p> <p>The successful candidate will carry out scientific and technical tasks in the Disaster Risk Management Unit (E.1); in particular he/she will contribute to the advancement of the Global Human Settlement Layer “built-up” product through the characterization of building height distribution in urban centres at global scale.</p> <p>The activity contributes to the GHSL Baseline data and indicators to support the implementation of the EU Urban Agenda and international frameworks for Disaster Risk Reduction, Sustainable Development Goals, Climate Change and the New Urban Agenda.</p> <p>In details, the trainee will contribute to the design and implementation of a set of experiments aimed at :</p> <p>i) benchmarking the capabilities offered by open and free, global Digital Elevation Models in estimating the vertical component of built-up areas and</p> <p>ii) upscaling the existing methods for 3D information extraction and validating them on a large set of presentative cities of the globe.</p> <p>The following activities are planned:</p> <ul style="list-style-type: none">• Quality assessment of the available reference data on building heights for the sample of cities;• Comparison of the performance of 7
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	<p>global Digital Elevation Models (DEM) and their composites for estimating the Generalized Vertical Components (GVC) of built-up areas;</p> <ul style="list-style-type: none"> • Performing multivariate multiple regression analysis (i.e. Generalized linear Models, MANOVA, etc.) for identifying the best combination of DEM and the best combination of DEM derived features for the production of the most reliable estimates of GVC. • Design a robust validation method for testing the predictive capabilities of the models. • Contribute to the development of the tests already implemented in Matlab and R. • Analysing the results. • Reporting.. <p><u>Qualifications:</u></p> <p><u>Essential:</u></p> <ul style="list-style-type: none"> • Academic background in statistics, spatial data analysis and Geographic Information Systems, • Knowledge of remote sensing and image analysis, machine learning, data mining will be considered an advantage, • Experience with data validation methods, exploratory data analysis, • Excellent skills with respect to: communication; strong ability to search through data, analyse, and summarise critical information. <p><u>Advantage:</u></p> <ul style="list-style-type: none"> • Knowledge of the following is desired: MATLAB, R, <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>
Unit /Directorate	<p>E - Space, Security and Migration Disaster Risk Management Unit Peace&Stability</p> <p>Further information: http://ipsc.jrc.ec.europa.eu</p>
Indicative duration	5 months
Preferred starting date	January 2020
JRC Site	Ispra
Country	Italy

JRC contact details

For any technical problems with your application, please contact:
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