



EUROPEAN FORUM FOR GEOGRAPHY AND STATISTICS
KRAKOW CONFERENCE 2014
22-24 October, Krakow, Poland

ABSTRACT

Title: GHSL application in Europe: Towards new population grids

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Keywords: population disaggregation, GHSL, Europe

Text (100 – 500 words)

In the context of the Urban and Regional Built-up Analysis (URBA) project which uses the Global Human Settlement Layer (GHSL) technology, to map buildings in Europe, population data of different sources and types have been used to produce population grids using the built environment as reference for disaggregation.

GHSL technology relies on automatic analysis of satellite imagery to produce unprecedented fine-scale maps quantifying built-up structures. Among the outputs of GHSL technology, is a raster geo-dataset representing, for each cell, the ratio of coverage by building structures.

Better geo-information on the spatial distribution of population is increasingly required for various applications. Population censuses provide accurate data on the characteristics and number of residents for administrative or enumeration areas. However, these data are not uniformly and readily available across European Union member states. Additionally, these data are available as total count for units varying in size, and frequently residents occupy only specific zones of these units, at different densities.

The use of related ancillary data and spatial modeling allows disaggregating and refining population distributions. Making these data available as regular grids facilitates spatial analysis and mitigates





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biases such as the modifiable areal unit problem and the related ecological fallacy problem. The use of the European GHSL data in the process of producing refined and consistent population distribution grids for Europe, at 100 and 1000 m resolution, will be presented.

Results provide a more consistent and improved depiction of the spatial distribution of resident population. These data will be used to refine the current settlement classification model used in GHSL to analyze settlement types in Europe. They will be used in the analysis of the relationship between administrative boundaries and settlement types. They will also further improve analyses involving population distribution, at a range of scales, and will benefit environmental studies, risk and emergency management, planning of public facilities, and policy assessment in general.

