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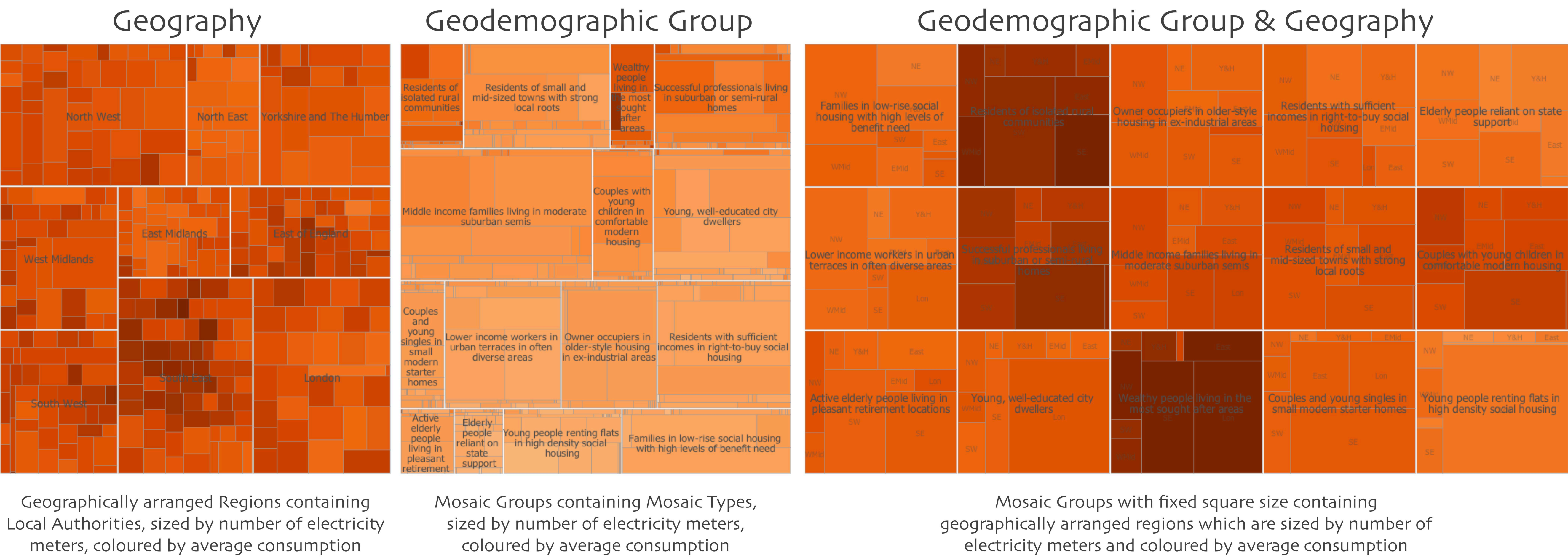
Geovisualization of Household Energy Consumption Characteristics

@sgeoviz
#sgeovizhide

Sarah Goodwin and Jason Dykes - giCentre, City University London

Domestic energy consumption correlates with household disposable income, tenure, composition and urban/rural location[1], but the relationship between energy use and geodemographics has scarcely been investigated. We are analysing variations in energy consumption together with geography and geodemographics. A greater understanding of this complex relationship at neighbourhood level will benefit local government, consumers and energy companies as it will allow realistic comparisons and enable better targeting for services and schemes to encourage more sustainable energy use.

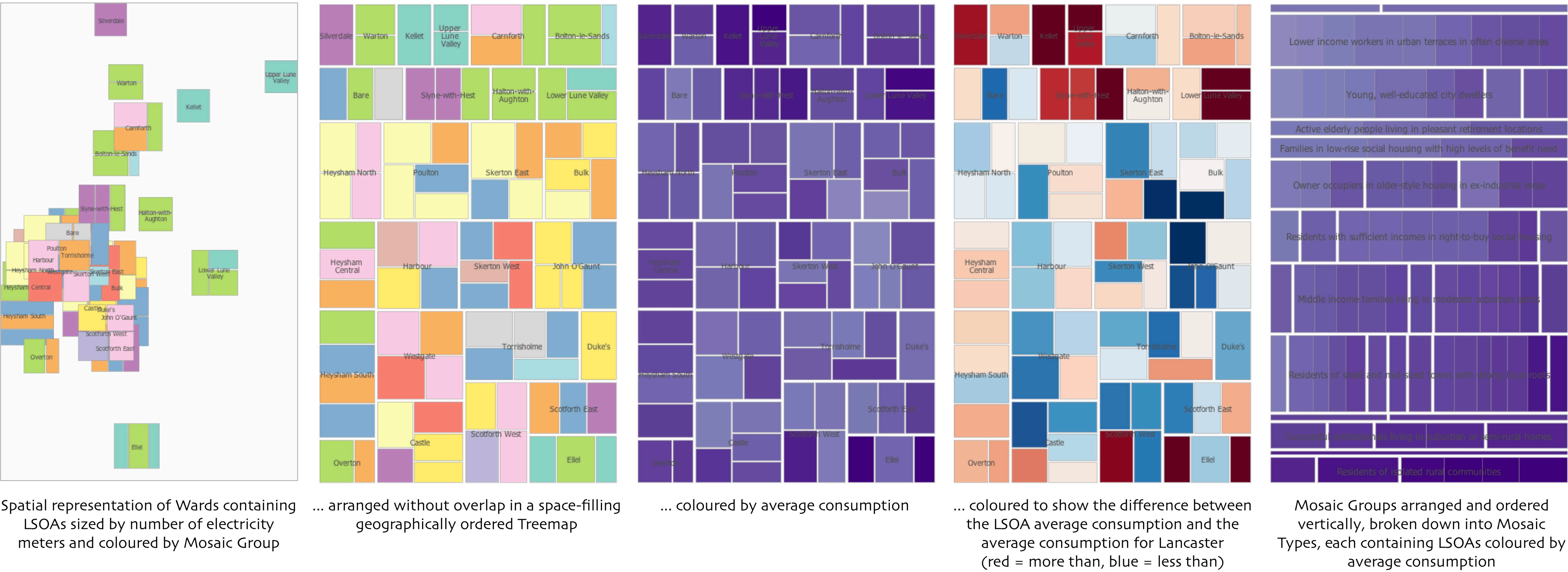
Visual Exploration: Household energy consumption varies by ...



This exploratory analysis combines publicly available 2008 electricity consumption data (using standard electricity meter data) from the Department of Climate Change (www.decc.gov.uk) with Experian's 2010 Mosaic Public Sector Classification available for academic research (www.mimas.ac.uk), which contains 15 demographic Groups and 69 Types. Our exploratory analysis was undertaken using HiDE software (www.giCentre.org/hide).

To improve accuracy when combining pre-aggregated datasets the highest resolution data available was used for the analysis (Lower Super Output Areas, ONS 2001 Census geography). Anomalies were found during the exploration, particularly in relation to unallocated electricity meters in the DeCC dataset which lead to discrepancies in household to meter count in certain areas. There is also a notable issue with the use of 2001 geographies as many LSOAs have become less homogenous since 2001, especially where large-scale regeneration has taken place. These issues will be addressed through our classification and visualization.

Lancaster Case Study: Transforming views to identify local patterns



Continued Research:

We aim to create a neighbourhood energy consumption classification that combines datasets related to energy consumption, saving and loss with geodemographics to enable better understanding of energy user types by applying and developing engaging interactive geovisualization techniques [2].

[1] Druckman, A & Jackson, T 2008, "Household Energy Consumption in the UK: A Highly Geographically and Socio-economically Disaggregated Model" Energy Policy, vol. 36, pp. 3177-3192.
[2] Slingsby, A., Dykes, J. & Wood, J. (2011). "Exploring Uncertainty in Geodemographics with Interactive Graphics" IEEE Transactions on Visualization and Computer Graphics, 17(12), pp. 2545-2554. doi: 10.1109/TVCG.2011.197 - <http://openaccess.city.ac.uk/437/>



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