Reading Notes Summary

UCL Centre for Advanced Spatial Analysis

MSc Urban Spatial Science

Dissertation

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## Reference Title (Template)

|  |  |
| --- | --- |
| Full reference |  |
| Article type  *(e.g., Empirical, Theoretical, Conceptual)* |  |
| What is the article about? |  |
| What is the main research question/argument? |  |
| How are the aims explored/tested/presented? |  |
| What are the main findings? |  |
| What gaps does it identify? |  |
| Limitations/critiques |  |
| How does it link to wider learning? |  |
| Additional notes  *(incl. useful quotes)* |  |

## Richardson 2013 – Spatial turn in health research

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| --- | --- |
| Full reference | Richardson, D.B. *et al.* (2013) ‘Spatial Turn in Health Research’, *Science*, 339(6126), pp. 1390–1392. Available at: <https://doi.org/10.1126/science.1232257> |
| Article type  *(e.g., Empirical, Theoretical, Conceptual)* | Conceptual |
| What is the article about? | Perspective piece on the evolution of spatial health research thanks to advances in spatially referenced data |
| How are the aims explored/tested/presented? | Discussion of recent advances in the field; examples of studies utilising novel methodologies |
| What are the main findings? | * Density, size and availability of geospatial data has facilitated new research in spatial and temporal analysis * Examples include:   + Wearable environmental/biometric monitors that capture geospatial information, for fine-scale exposure assessment.   + Spatial modelling of HIV transmission, that takes into accounts patient demographics, daily activities and local prevalence   + Mobile cell phone data providing spatiotemporal movement data; examples include researching interactions between human and animal movements in Kenya to track the spread of malaria   + GPS-enabled real-time air quality and radiation monitoring at fine spatial resolutions |
| What gaps does it identify? | The need for institutional standards and models for this new field, plus availability of distributed spatial data infrastructures (note this paper from 2013; how does the current data environment compare?) |
| Limitations/critiques | - |
| How does it link to wider learning? | Provides high level overview of the direction of research in this area as of 2013; provides a basis for further research to track the path of air pollution exposure |
| Additional notes  *(incl. useful quotes)* | - |

## Mubareka 2008 – Settlement location and population density estimation

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| Full reference | Mubareka 2008 – Settlement location and population density estimation using remote sensing |
| Related module | Dissertation (project proposals) |
| Article type  *(e.g., Empirical, Theoretical, Conceptual)* | Empirical |
| What is the article about? | Develops and tests a method for estimating settlement location probability, and population density, at 90m resolution using remote sensing data. Study area is a region in northern Iraq. |
| How are the aims explored/tested/presented? | Trains a model using 50% of a fieldwork collected dataset on settlements in Northern Iraq, combined with remote sensing data of the region. The remaining 50% is used to validate the model predictions. |
| What are the main findings? | * Can build the probability and pop density model using solely data from Shuttle Radar Topographic Mission (SRTM) digital terrain model (for elevation, etc.), and Landsat Enhanced Thematic Mapper (ETM). * Population density layer uses land cover and topographic features for input; Settlement probability layer uses distance from roads and water bodies, and land cover for input. * Model is validated using field collected data set from the Rapid Assessment Program (RAP), from humanitarian agencies. * R2 of approx. 0.3; is this sufficient for practice/application? (may need to look deeper into the interpretation of R2 in this context) |
| Limitations/critiques | Methodology is very complex, and requires extensive data cleaning calculations before incorporation in model; would be challenging to replicate in a different context. |
| Additional notes  *(incl. useful quotes)* | * “Surface modelling refers to allocating population or their attributes … to a fine scale in a regularly spaced grid” (p.2340) * Pop density estimates are more predictable in rural areas, compared with urban environments * Pioneers of remote sensing population estimation:   1. Deichmann & Eklundh 1991   2. Dichmann 1996   3. Sweitzer & Langaas 1995   4. Dobson et al. 2000   5. Tian et al. 2005 |