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Exploring Road Incident Data with Heat Maps

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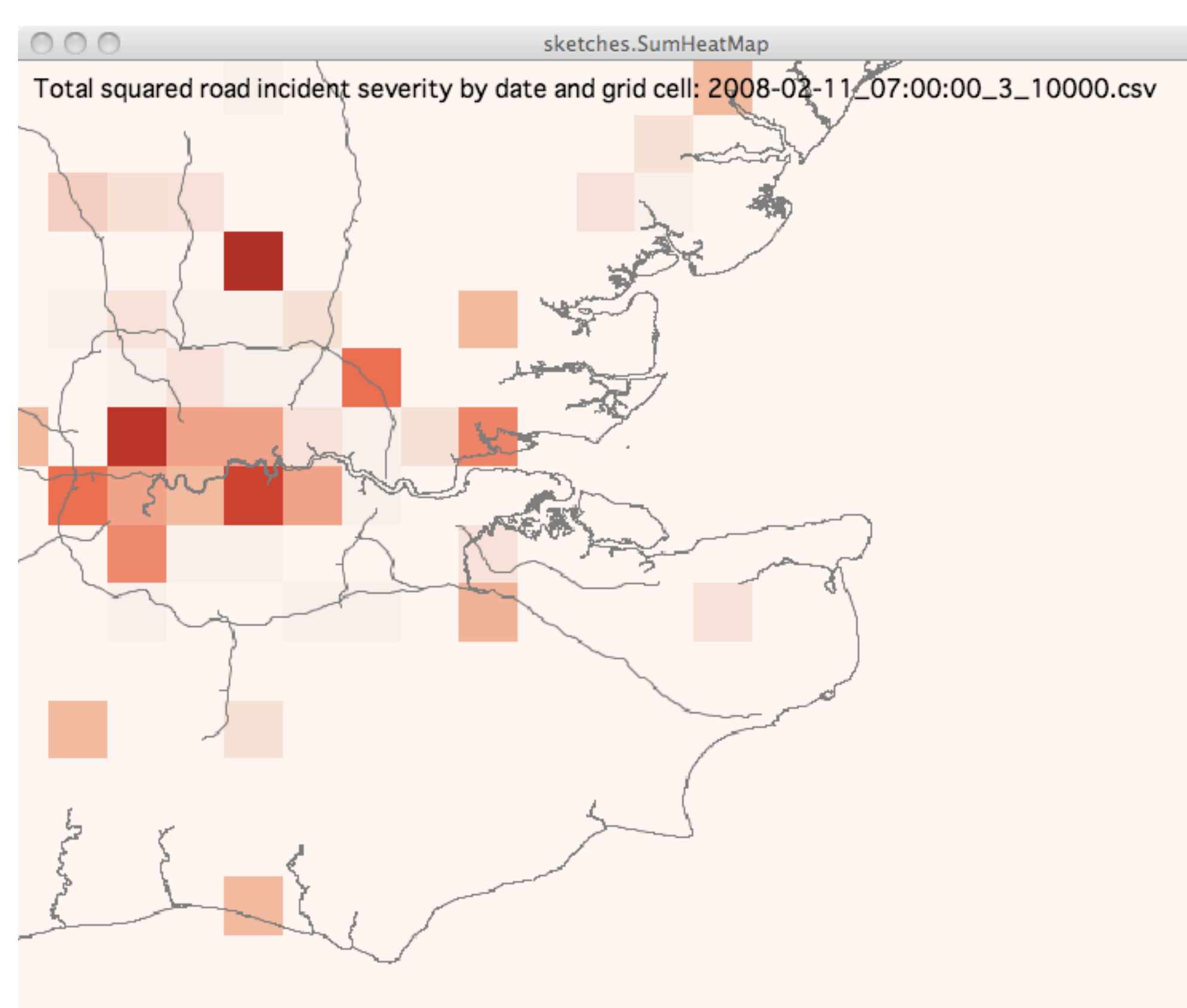
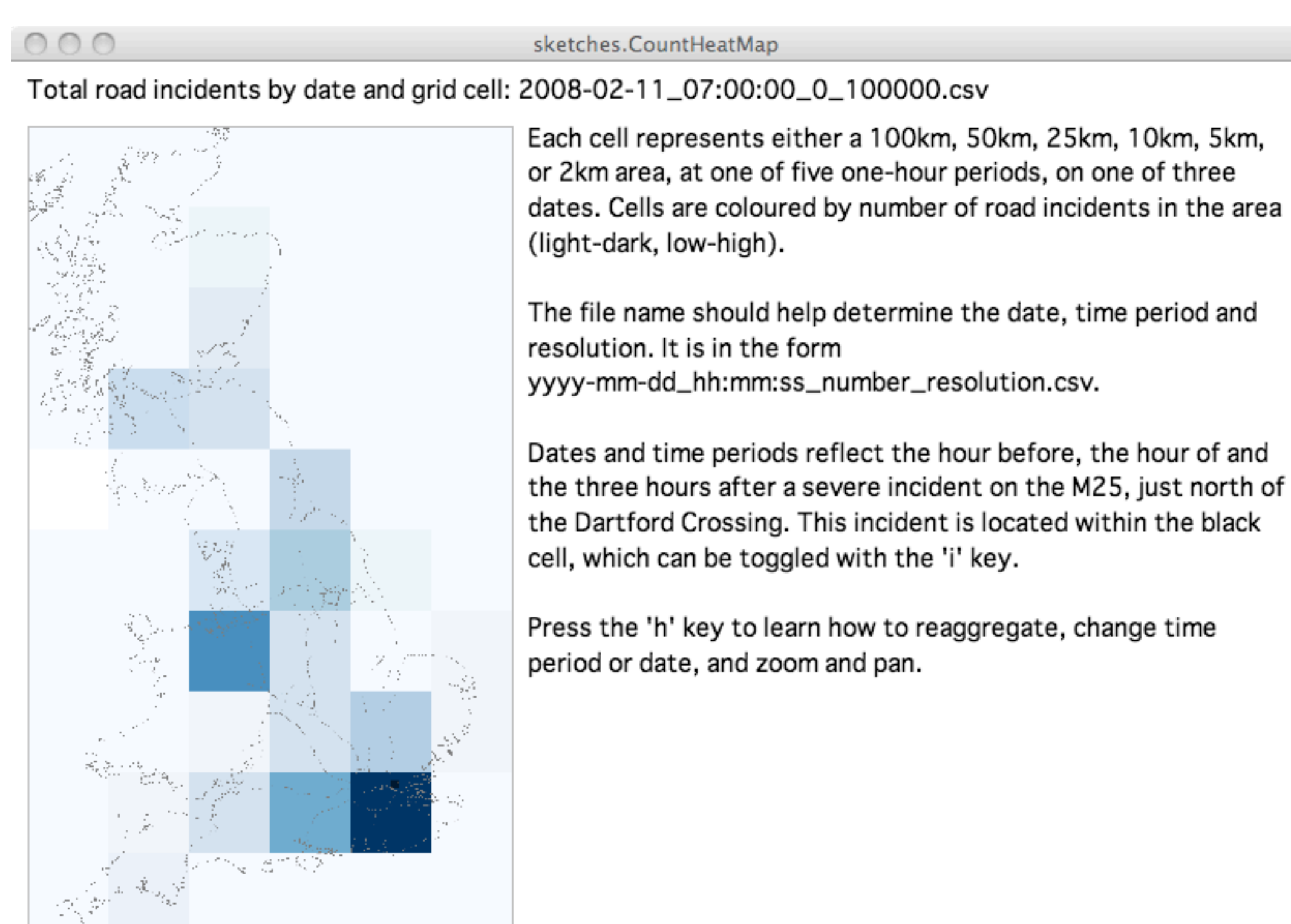
1) Road incident data

- 14.5 million records
- 2.5 million road incidents
- United Kingdom
- September 2002 to September 2009

2) Method and tools

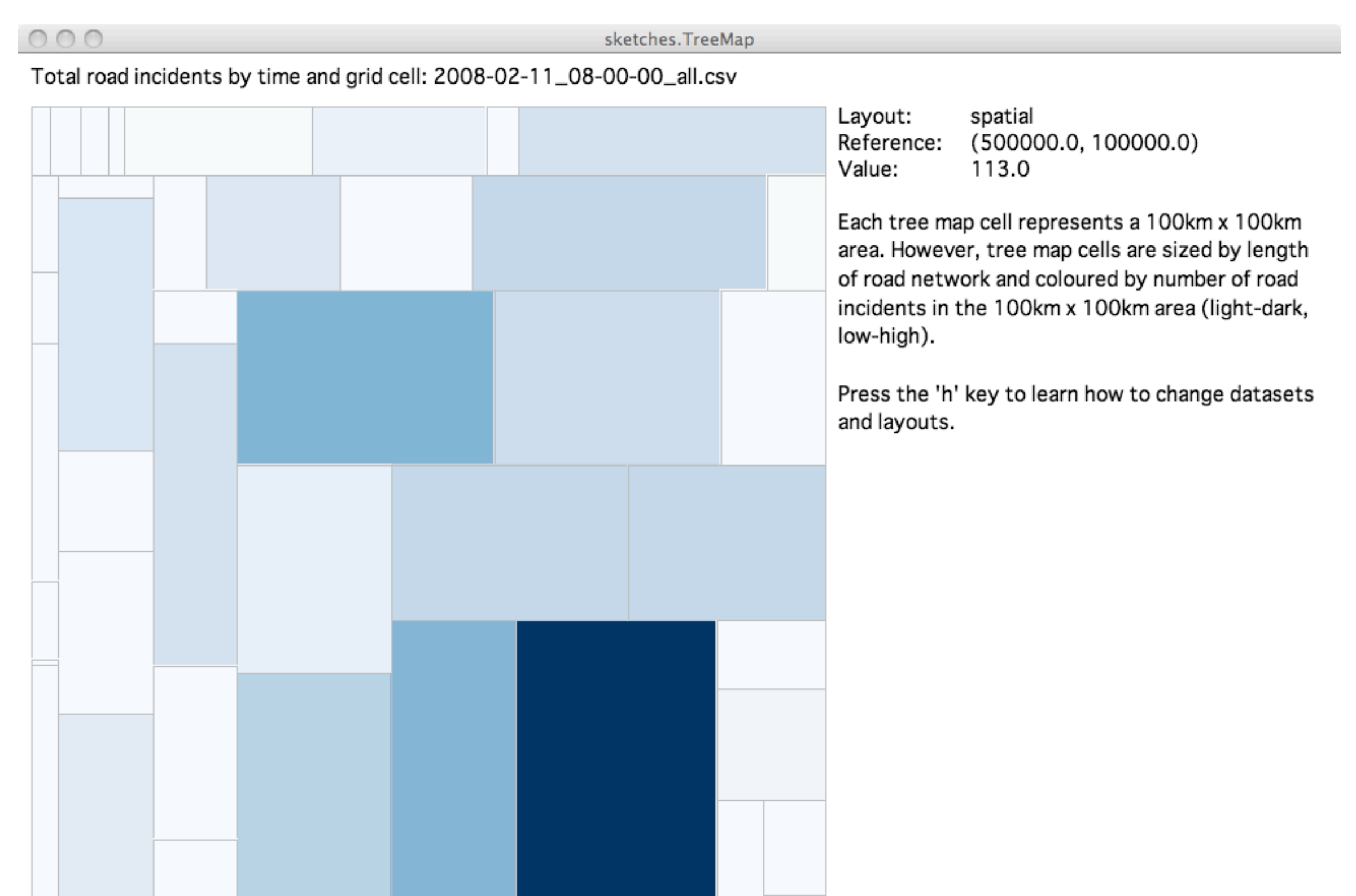
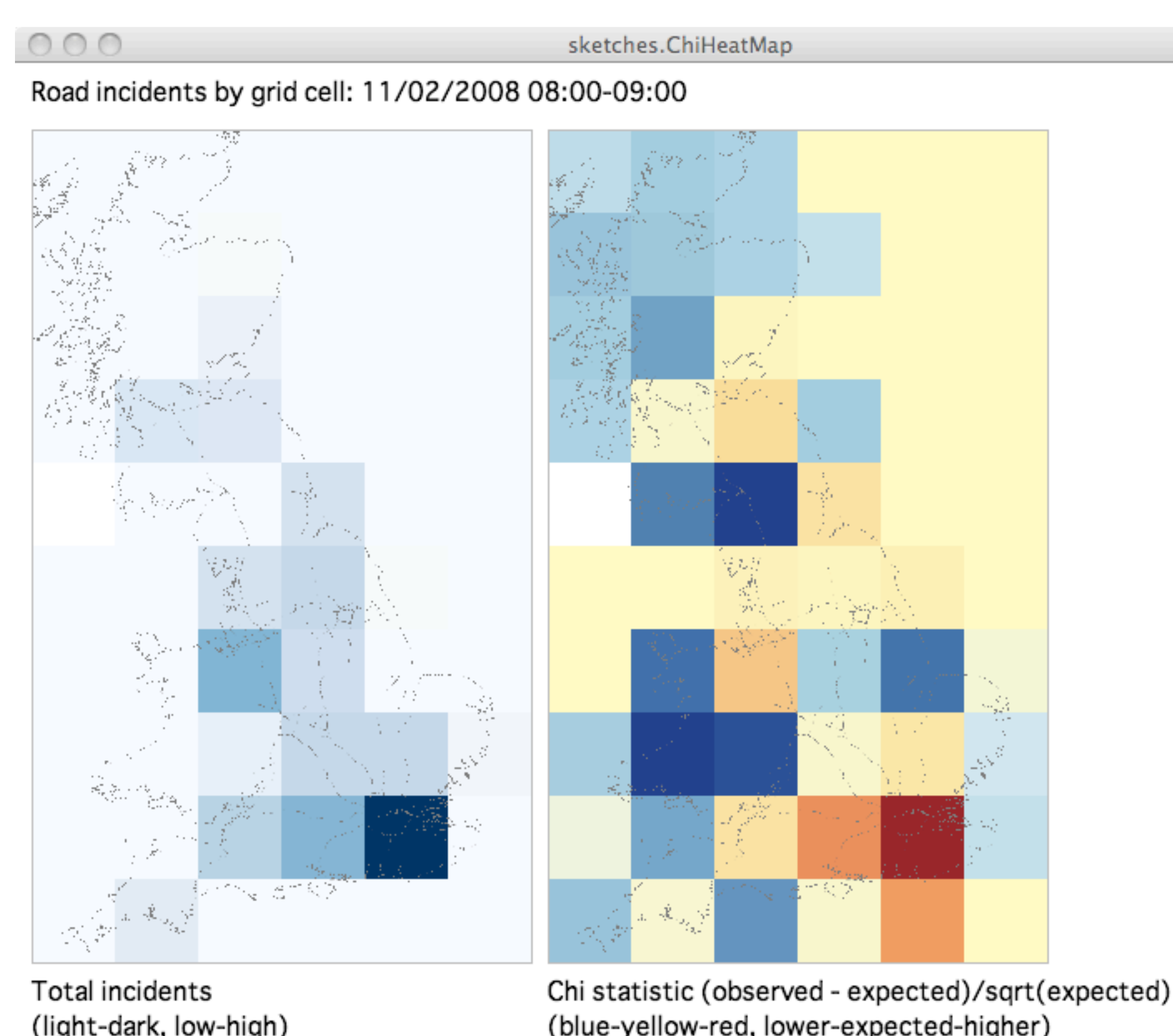
- Parse, filter and mine (Fry, 2007)
- UNIX command-line utilities
- GDAL/OGR geo-tools
- LandSerf GIS
- MySQL

3) Software



Interactive heat maps at multiple spatial and temporal resolutions enable the user to explore patterns before, during and after several severe road incidents (rated 5 on a 1 to 5 integer scale) at one London location.

Single spatial and temporal resolution heat maps demonstrate abstract, interactive spatial representations and alternative values.



4) Evaluation

The software prototypes follow cartographic practice. Based on system provision, interaction is reasonably powerful.

Presentation and discussion of results with domain experts highlighted further requirements.

5) Conclusions and future work

The exploration process detected:

- anomalies in the data
- patterns for further investigation

The software should be extended to support:

- existing interaction and task typologies
- the tasks performed by domain experts



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