

MP4-A Project: Mobility Planning For Africa

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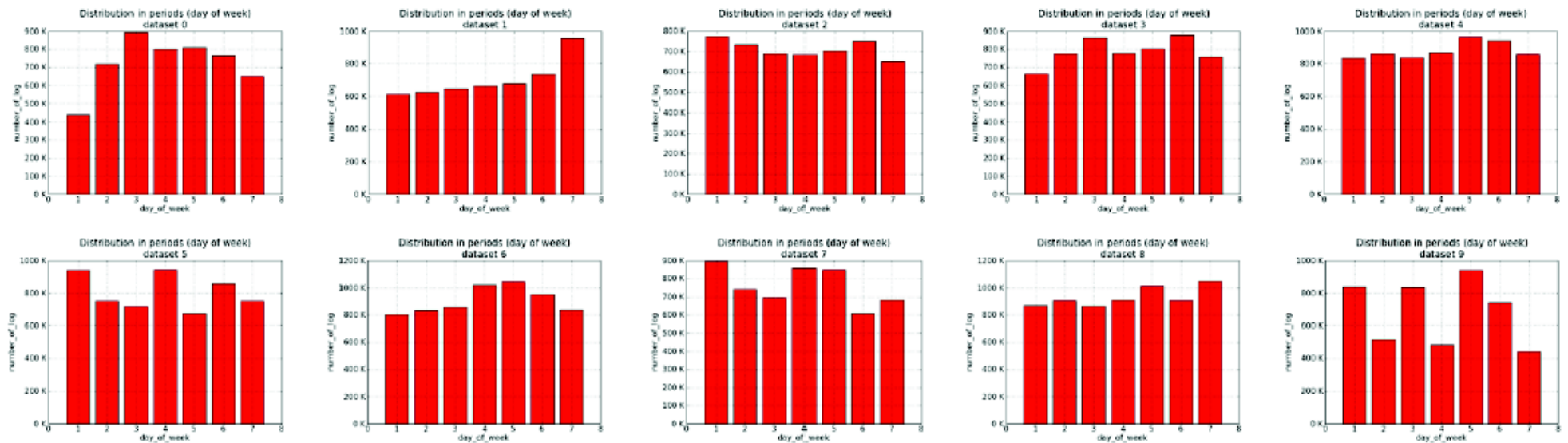
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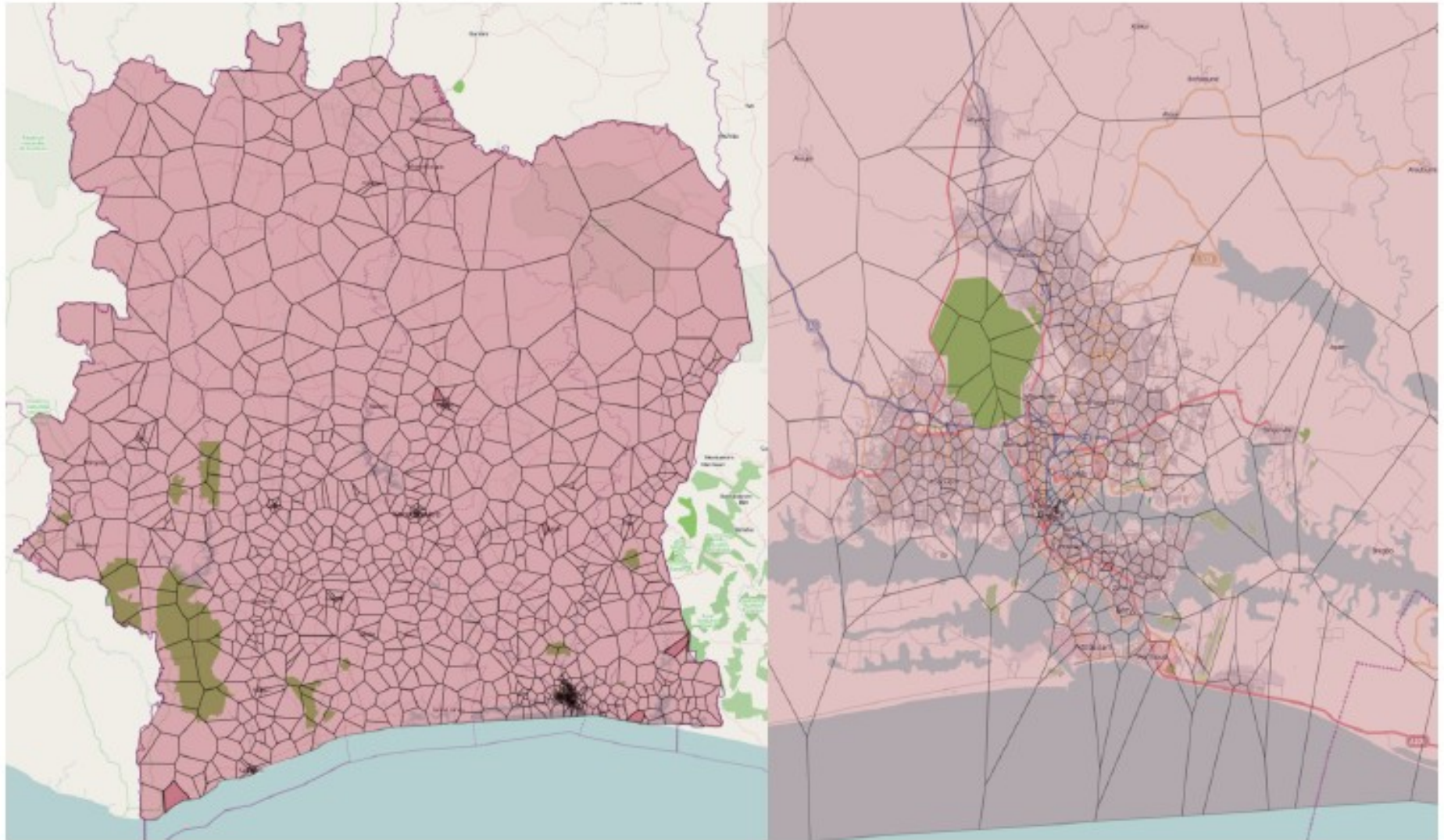
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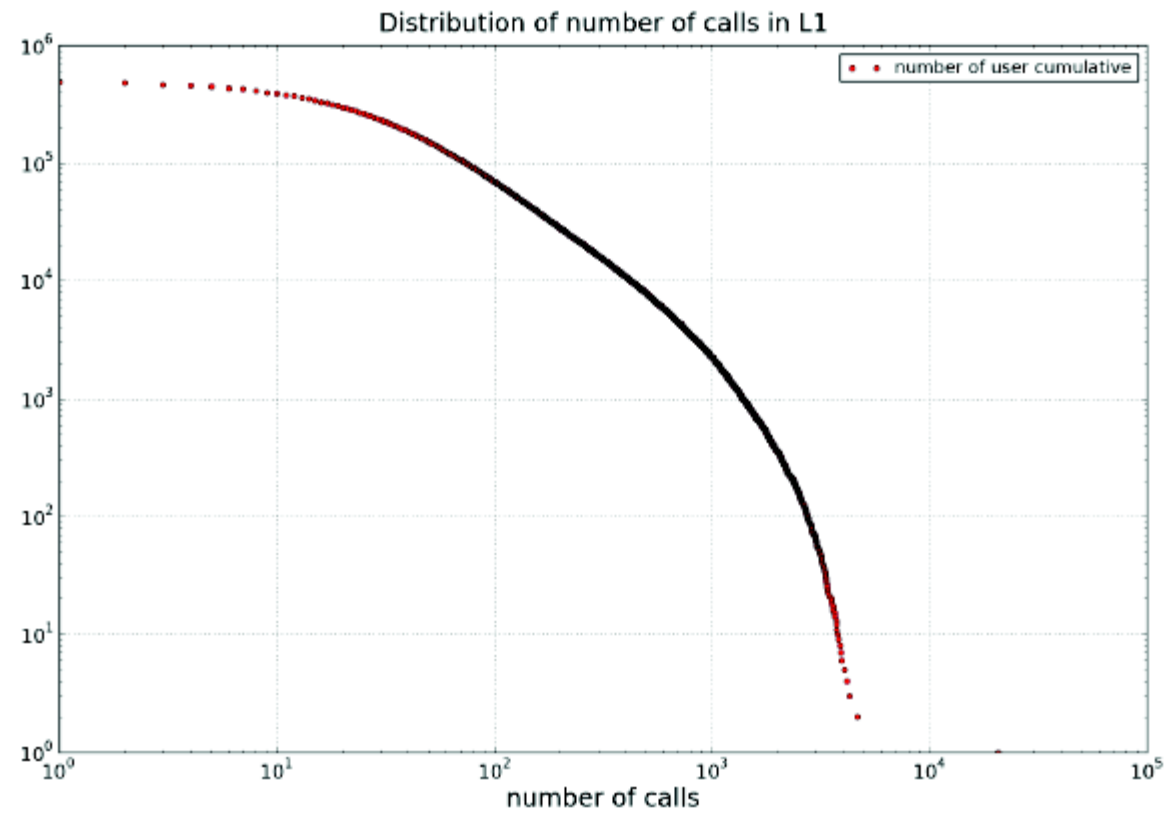
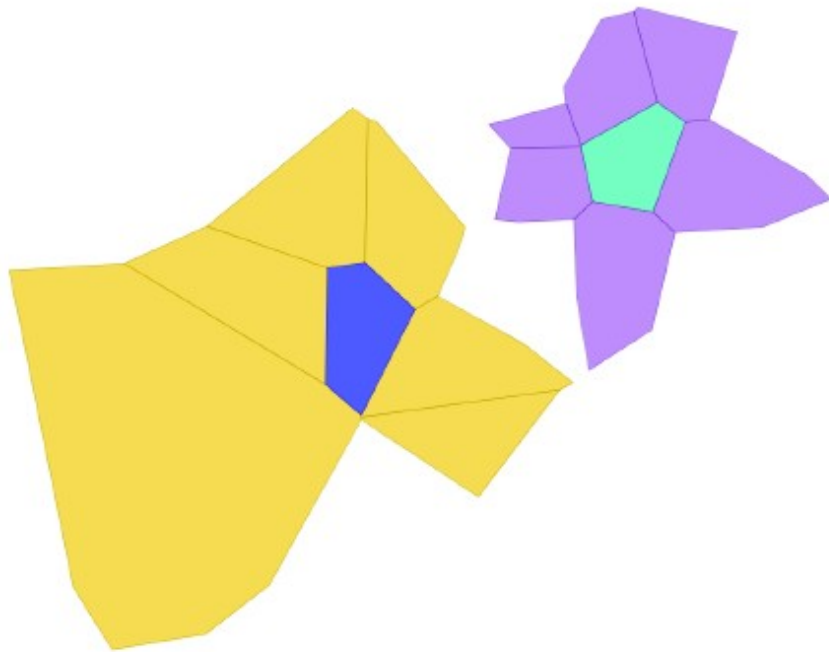
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The ten datasets provided are based on anonymized Call Detail Records (CDR) of mobile phone calls and SMS exchanges between five million of Orange's customers in Ivory Coast between December 1, 2011 and April 28, 2012. Each dataset is a set of observation of 50,000 users for two consecutive weeks. This means that each dataset covers 1% of the actual users in the relative day period. This leads to a statistical weakness in representation due to possible noise introduced by user selection. Figure 1 shows the distributions of the ten datasets by day of the week. Some datasets have very different shapes, e.g. dataset 9 shows a big decrease in activity on Thursday (day 4) while dataset 5 shows a peak during the same day of the week.

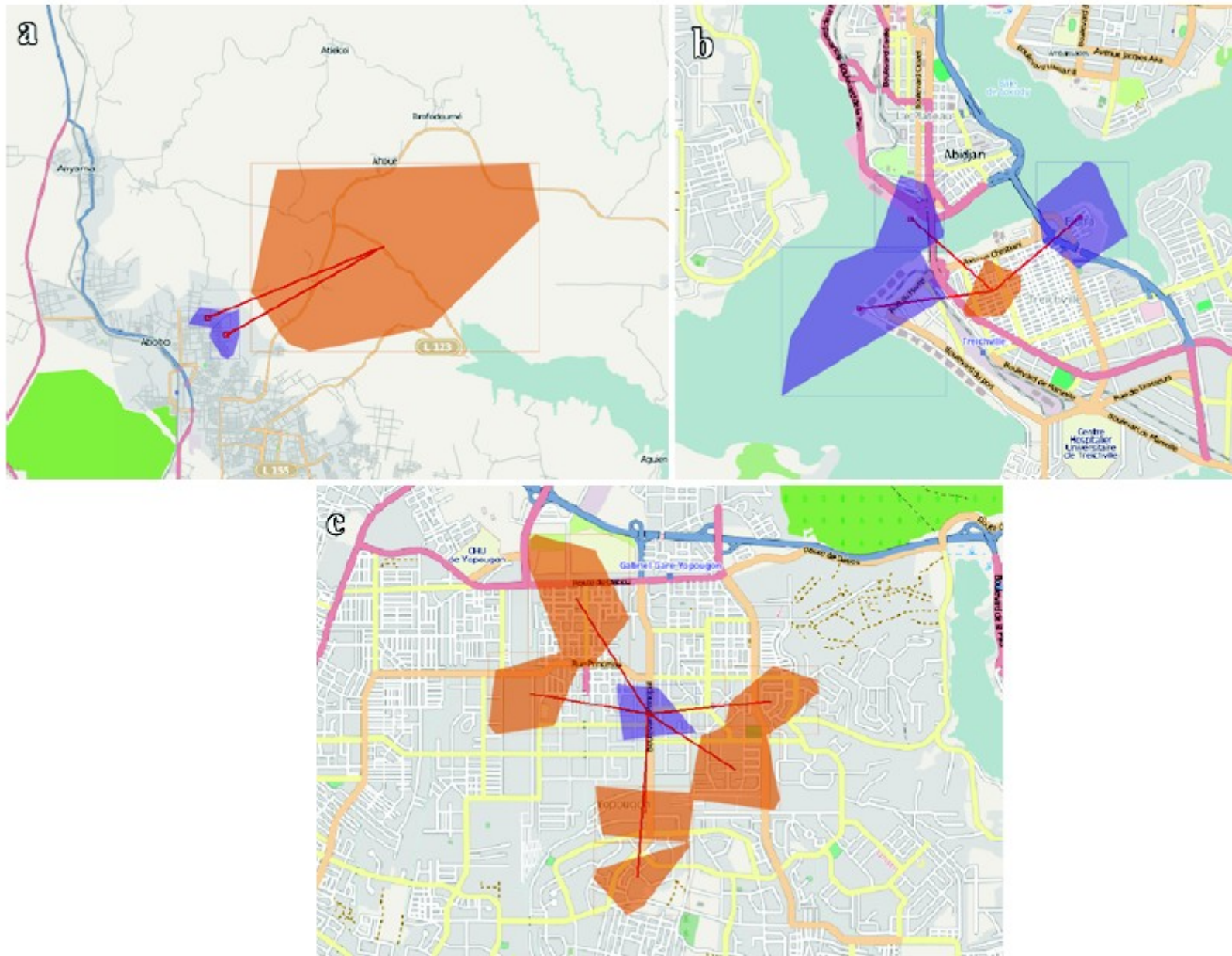




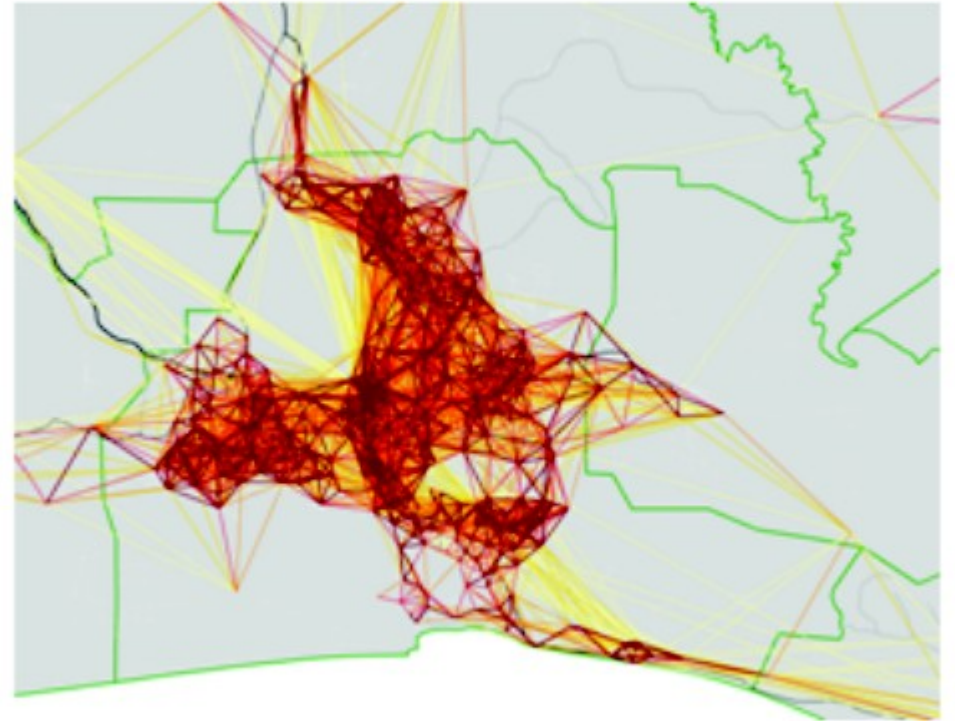
Ivory Coast Voronoi tessellation using the spatial position of antennas (left) and a focus on Abidjan city (right)



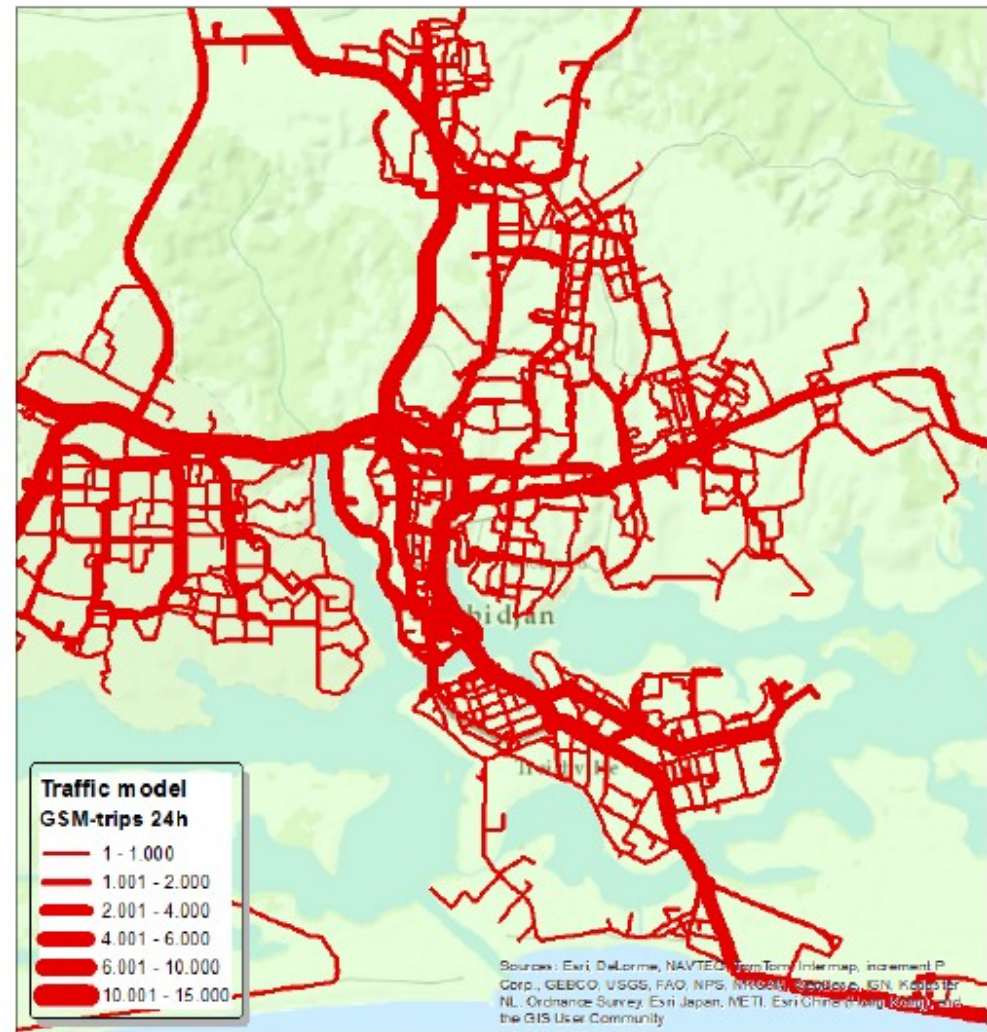
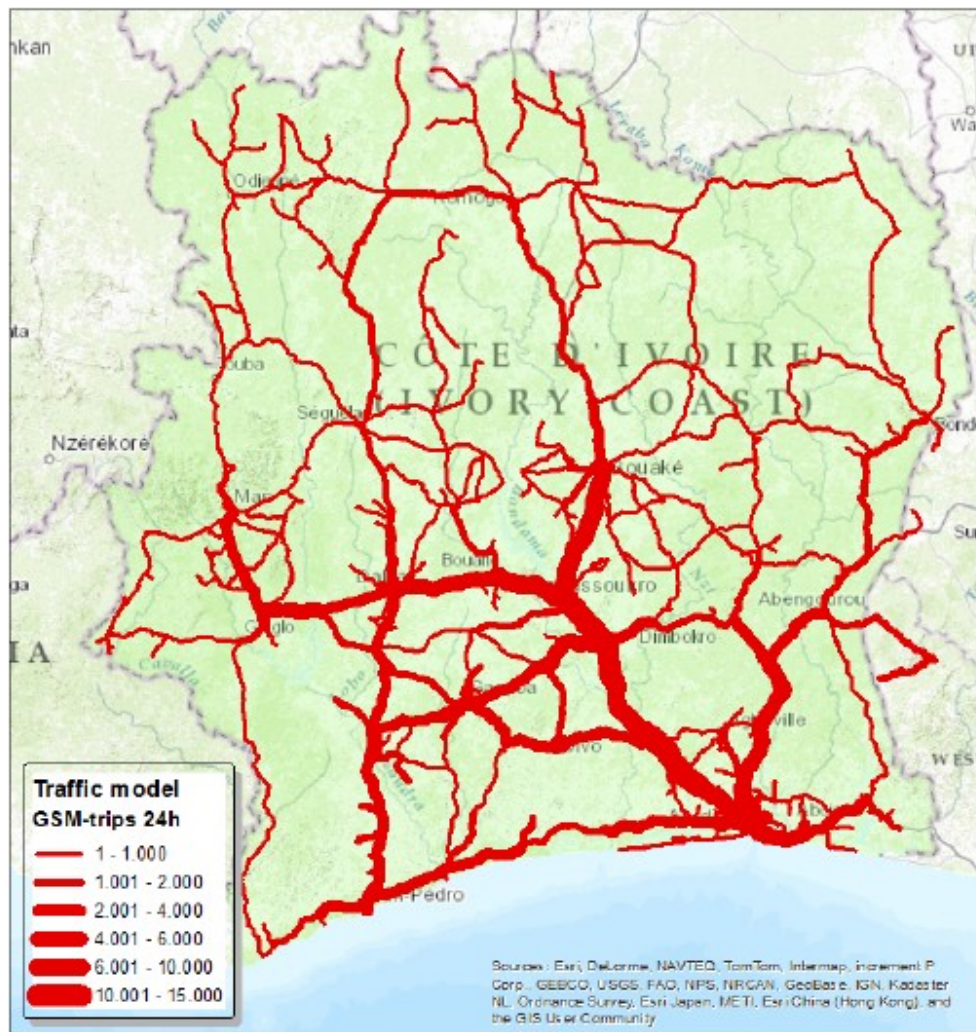
Example of L1 detection (left), Distribution of number of calls in the most frequent location (right)



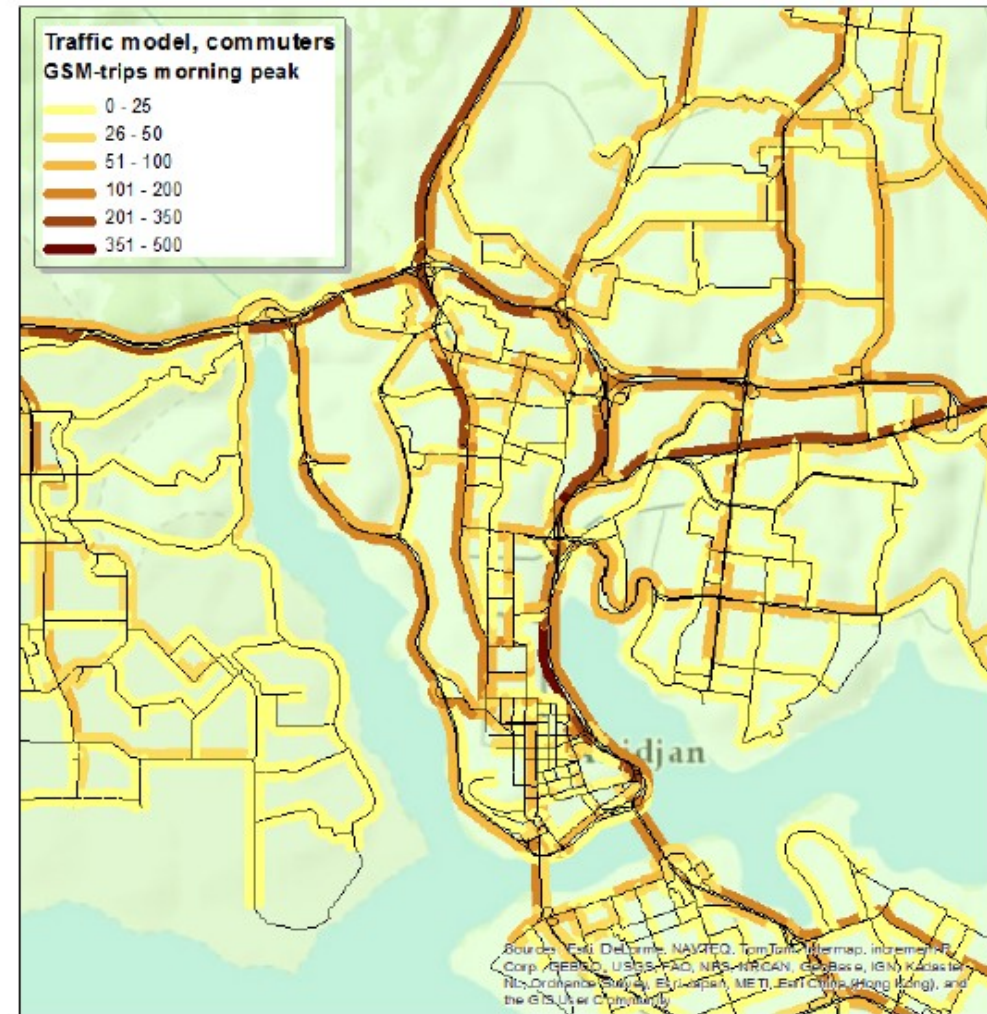
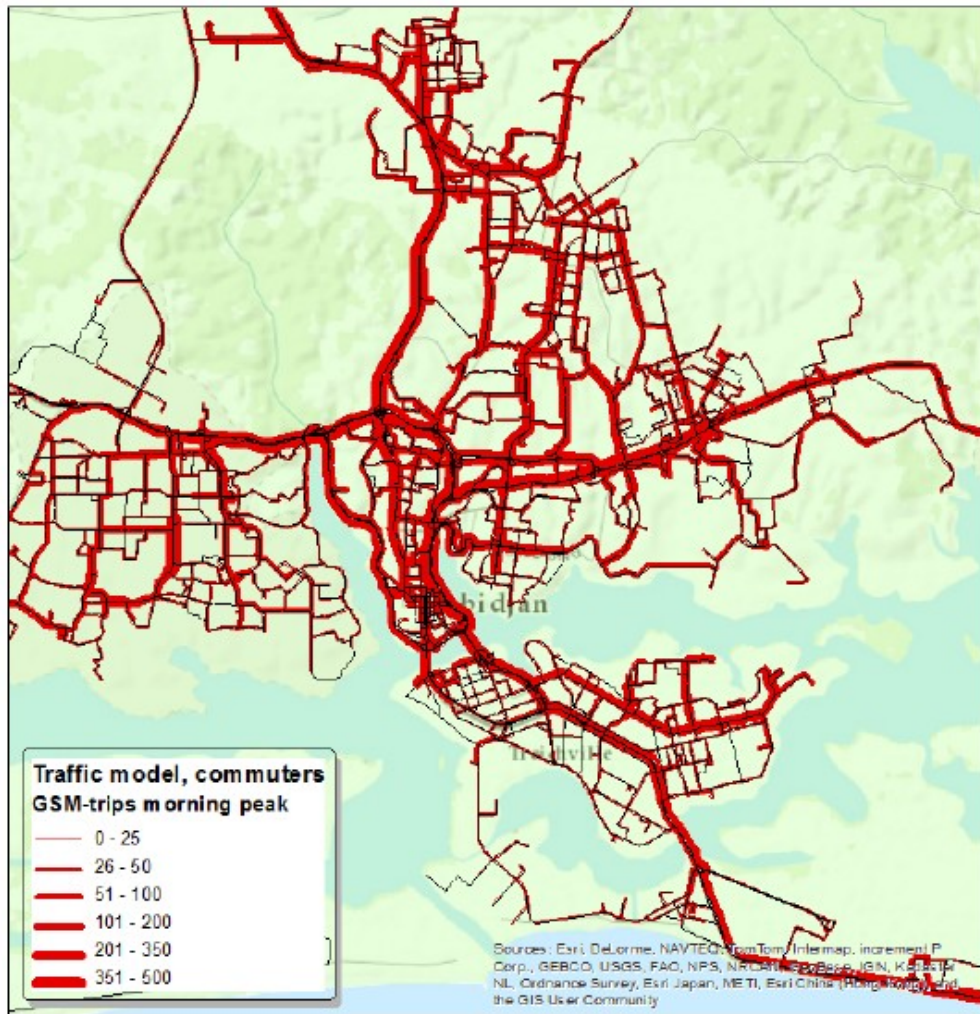
Examples of traffic flows taken from one of the O/D matrices produced: (a) flows from the outskirts of Abidjan to the city; (b) from a single area to other districts; (c) confluence of several districts to a central one.



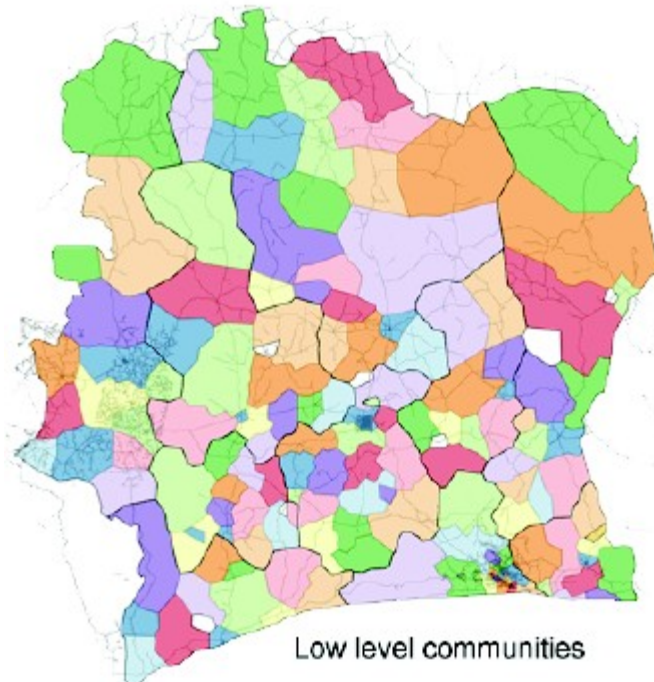
Mobile phone movements in Ivory Coast and Abidjan.



Traffic model for 24 hour period for Ivory Coast (left) and Abidjan Area (right)

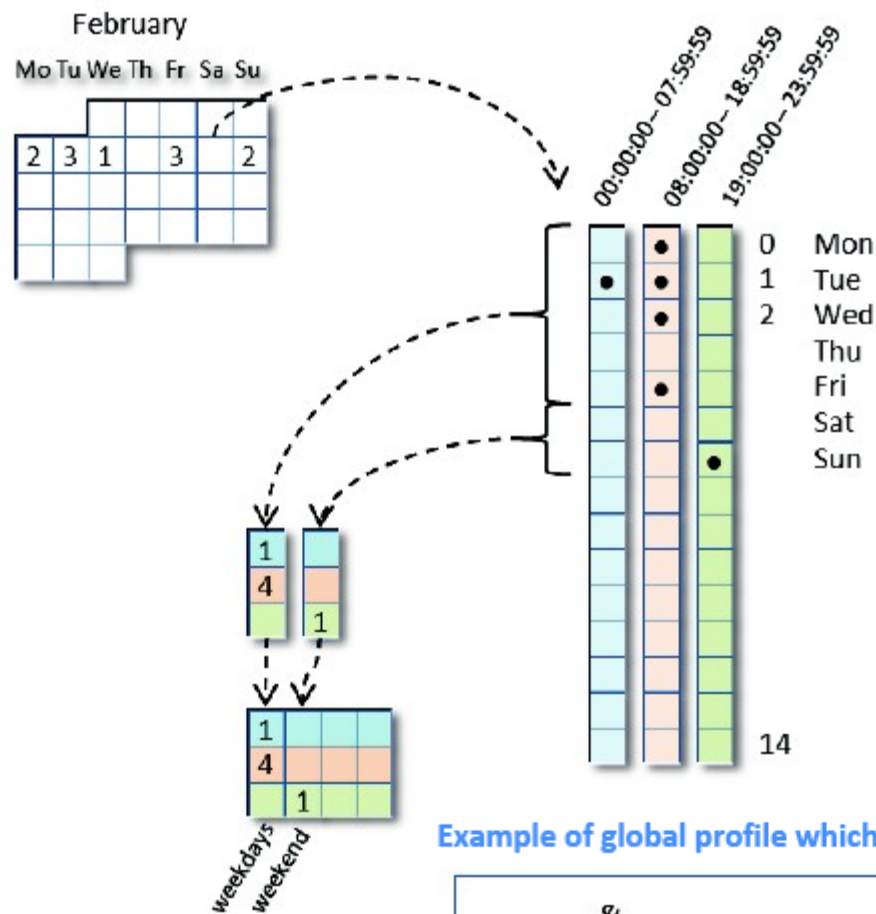


Traffic model for morning peak period for greater Abidjan (left) and Abidjan Centre Area (right).



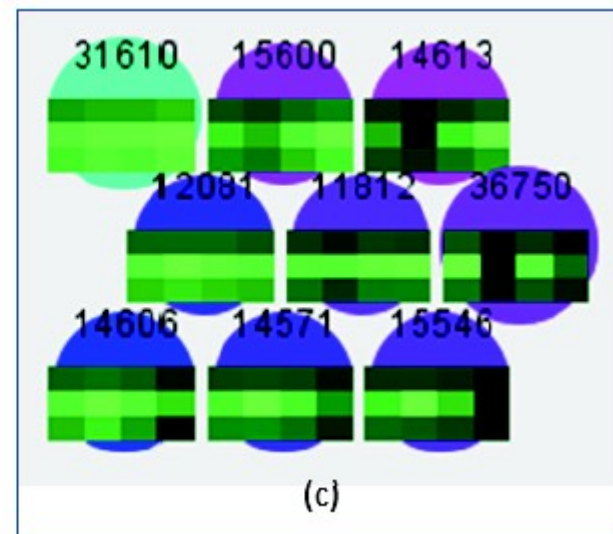
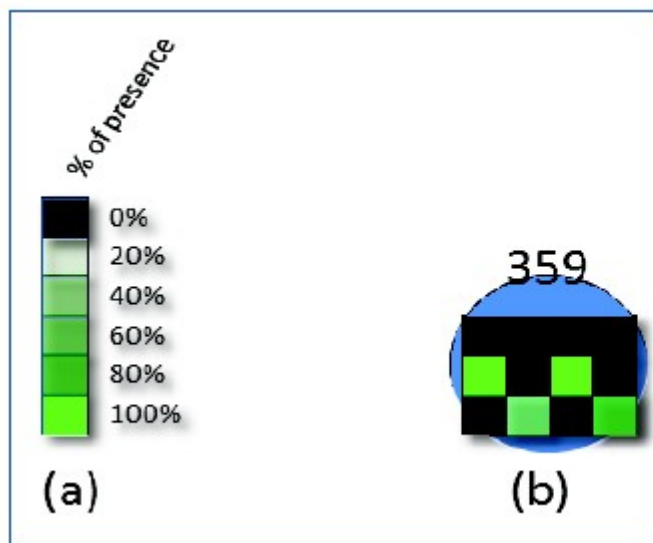
Results of social Borders with at high level (top) and low level (bottom) compared to political and administrative maps.

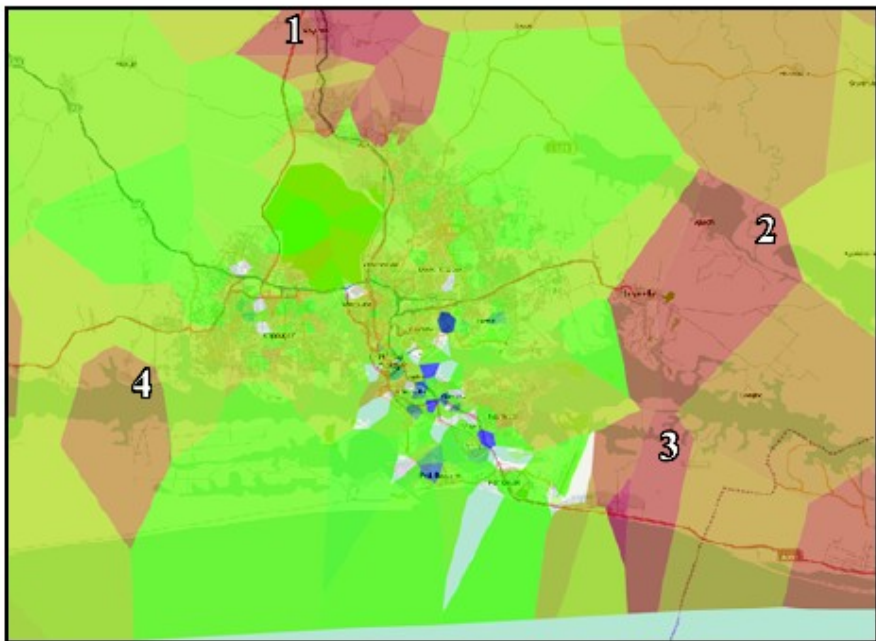
Reconstruction of the *Multi-Dimensional Temporal Profile* used in the Abidjan case study.



Example of global profile which includes 359 users

Global user profiles in the city of Abidjan.





Traffic model for morning peak period in the roads that connect the leaving areas

Preferred Location of the Commuter Profile.

