MATSim4UrbanSim achievements within SustainCity (and some discussion)

MATSim as trav. model plugin to UrbanSim

- possible to **get started with relatively little effort**
- important MATSim parameters **directly configurable in OPUS GUI**; secured by xsd style file
- **nightly builds**
- regular **regression tests** both on MATSim and on UrbanSim side

- separately needed: **road network data**. OpenStreetMap converter provided; needs to be adapted to local situation.

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Option of full MATSim configuration

- Option to use **full MATSim configuration**
- Thus access to any current MATSim version
- Could, e.g., use schedule-based transit, road pricing, or emissions calculations.

- Issue if (some version of) mode choice should be default or optional (Brussels case study)

Accessibility computation

- **High resolution accessibility computation** at resolutions ~100m x 100m feasible; table for Zürich case study:

| Cell Resolution	Origins	Aggregated Opportunities	Computing Time [min]
$50m \times 50m$	36 748	272	2-3
$100m \times 100m$	9195	272	2
$200m \times 200m$	2292	272	≈ 2
$400m \times 400m$	577	272	≈ 1
Zone Resolution	Origins	Aggregated Opportunities	Computing Time [min]
Given by zones	234	272	≈ 1

- Accessibility **based on travel times of the transport system**, not Euklidean distances
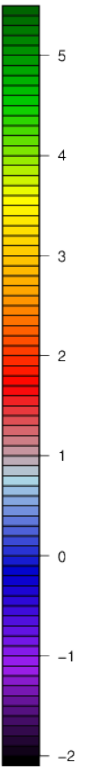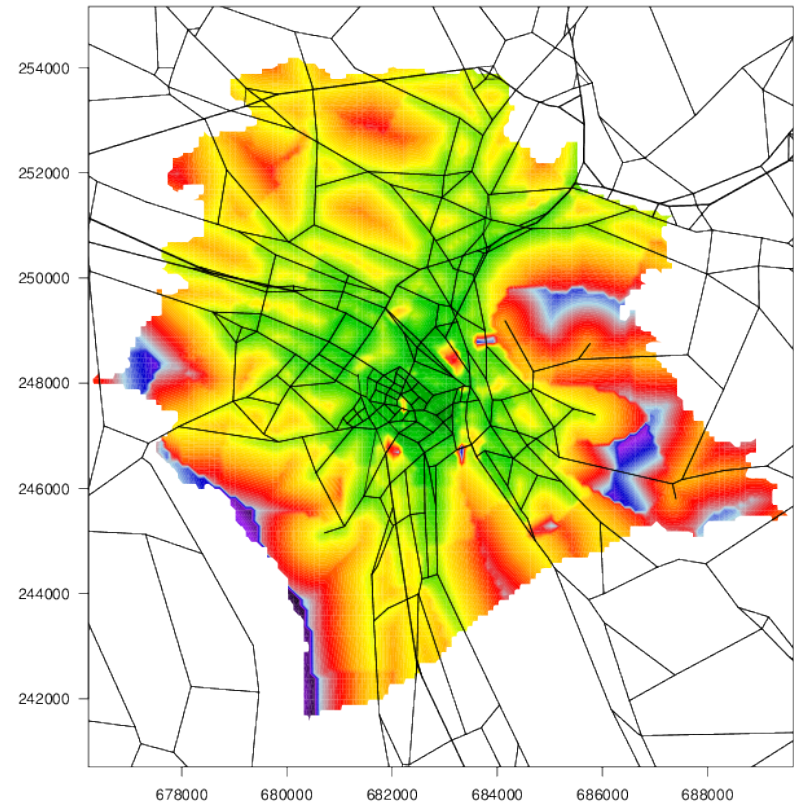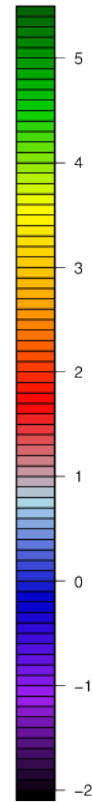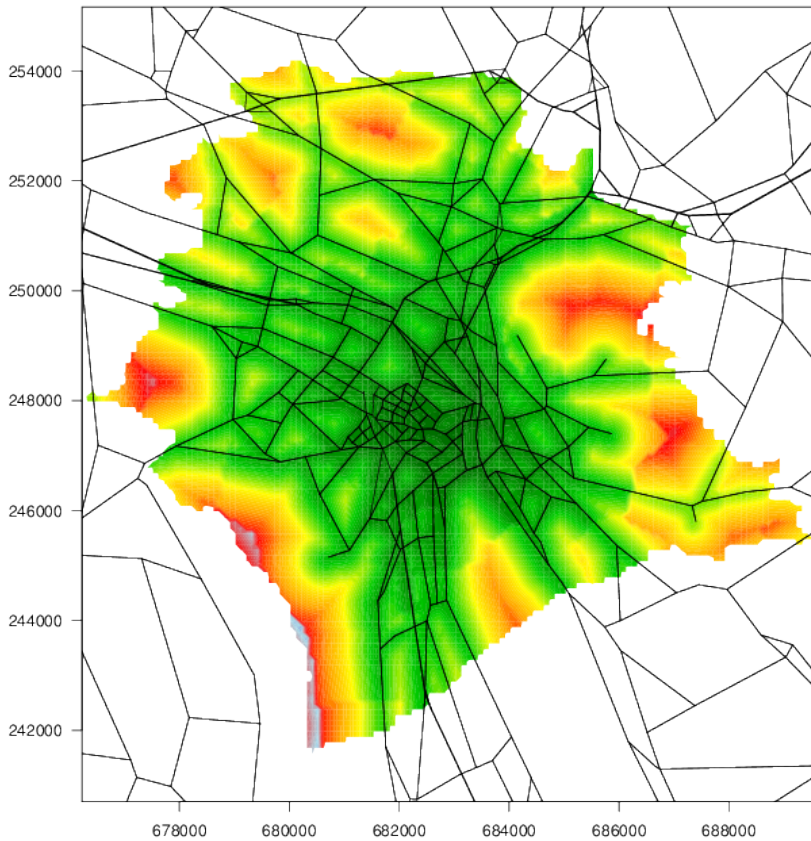- (interpolation to parcels)

Three examples (to have some visual results) …

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Continuous (left) vs. zones (right)
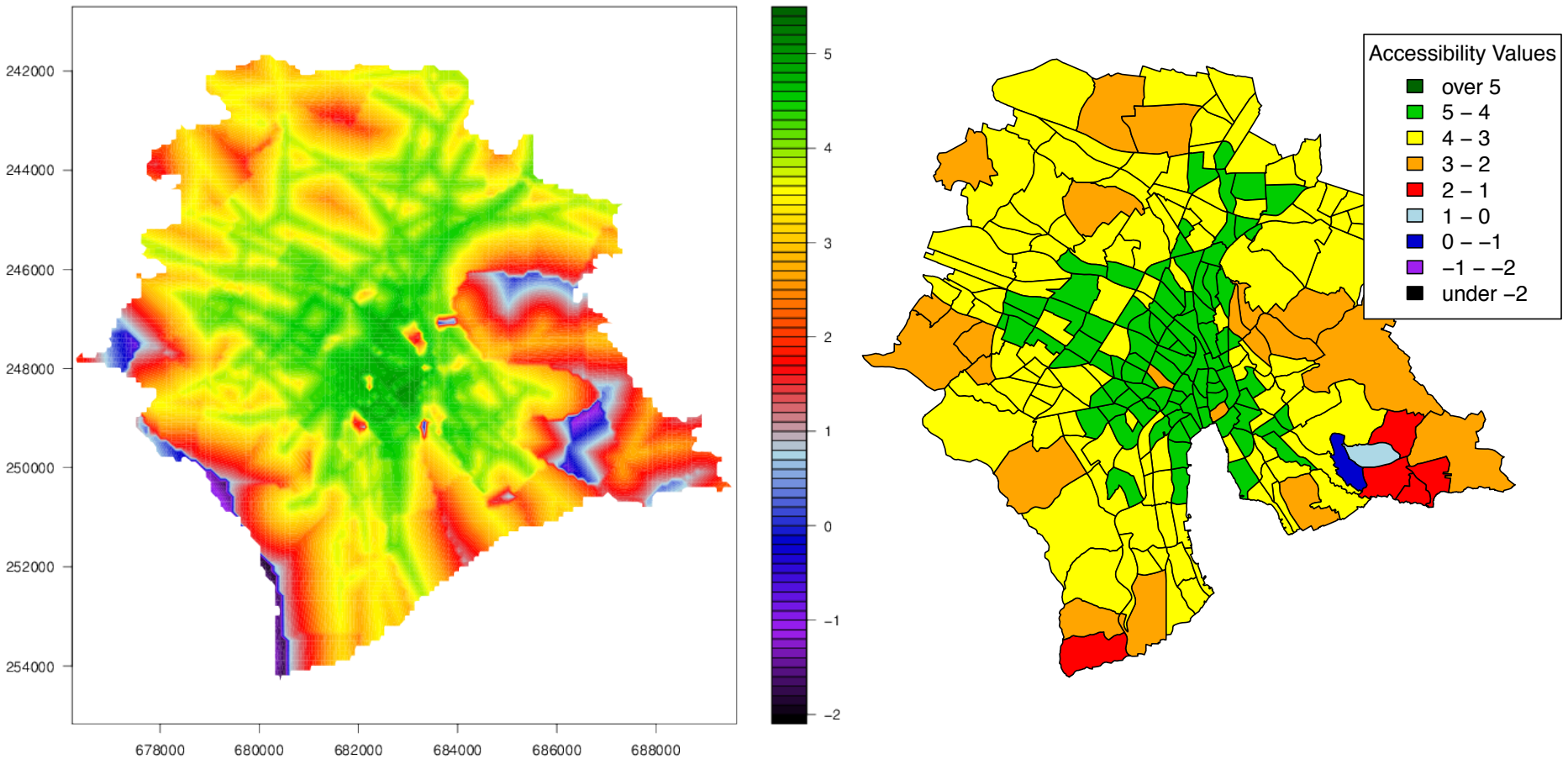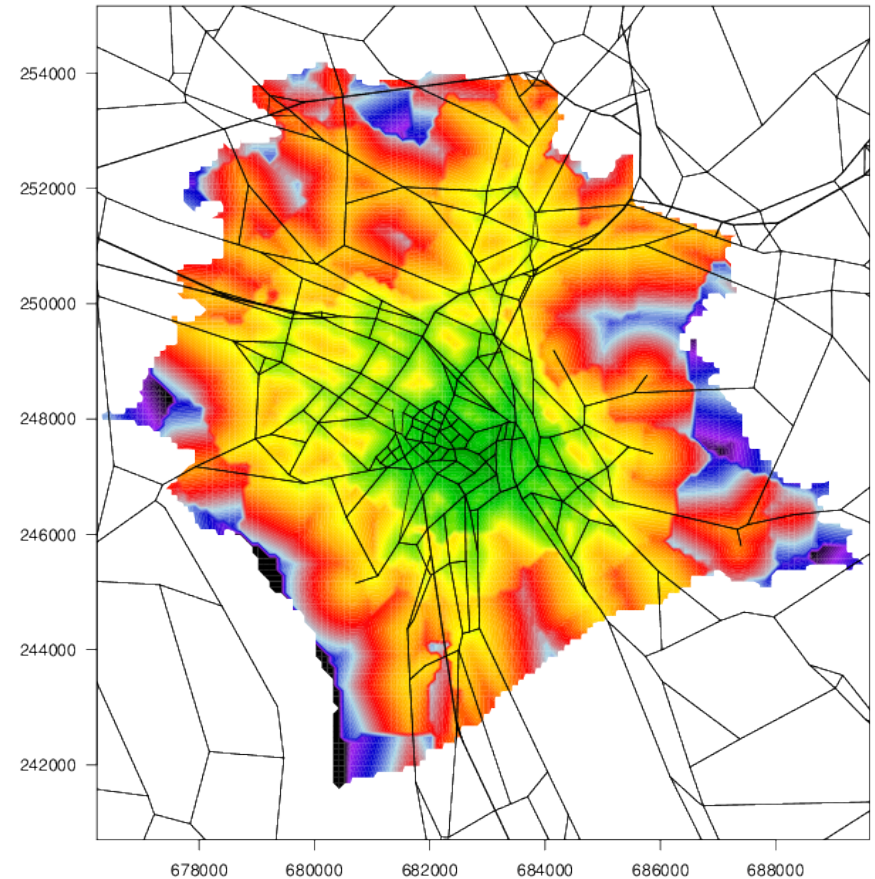

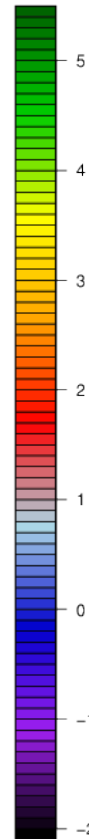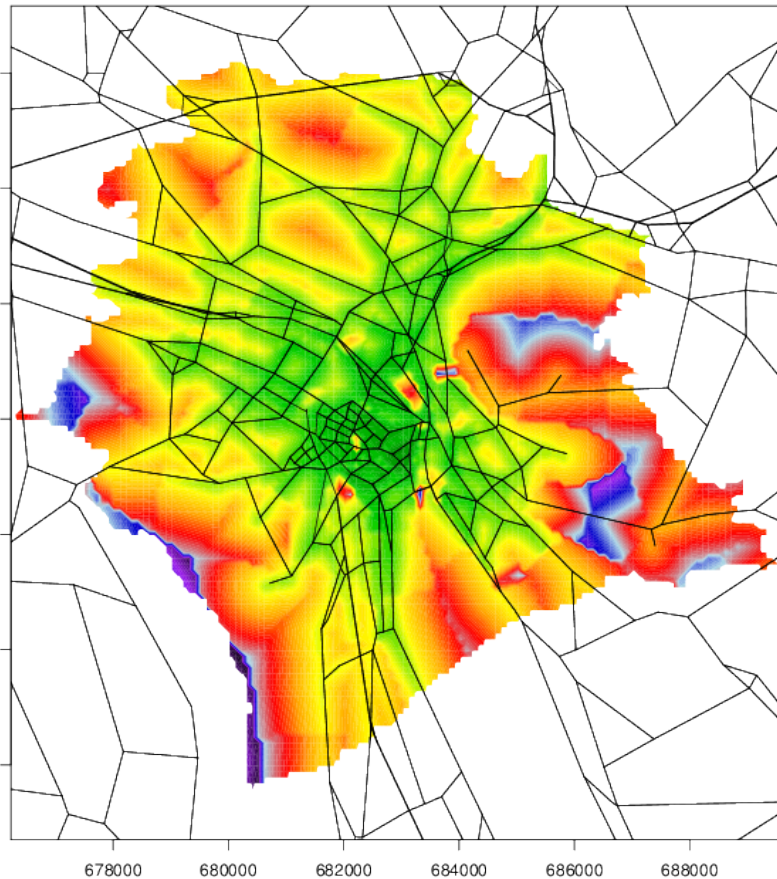no more "average" value for zones

Uncongested (left) vs. congested (right)

accessibility reduced by congestion

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Congested (left) vs. bicycle (right)

City centre: bicycle ~ congested car. Suburbs: car much better

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Cold start, warm start, hot start

- Cold start: Start from unrelaxed situation.

- Hot start: Start from relaxed situation of last MATSim run. Obviously **much faster** (only about 30 MATSim iterations per call to travel model).

- Seems to have been under-utilized …
  … presumably because of necessity of separate initial run.

  → might need automatic version of this (?)

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Brussels case study

- non-calibrated travel model

- issues with 32-bit computers (not enough memory)

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Outlook

- Coupling between **Java** (MATSim) and **Python** (UrbanSim) still not optimal; can't say if computer science progress will eventually fix this.

- Sitting at the "downstream" end of the project: Stub versions were insufficient; a **running case study (maybe based on artificial data) much earlier** would have helped us a lot. ("Simple scenario" good idea, but also came too late for us.)

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