FRAÎCHEUR

PRIORITISING URBAN COOLING

Where to cool the city first — and where are the levers for action already visible ?

As heatwaves multiply, local authorities plant, unseal surfaces and create cool islands — but where should these efforts be focused ? FRAÎCHEUR makes that choice objective : it ranks every 200 m grid cell by how much action is needed, then separately shows where levers for action are already visible.

16,474
200 m grid cells analysed — Lyon Metropolis

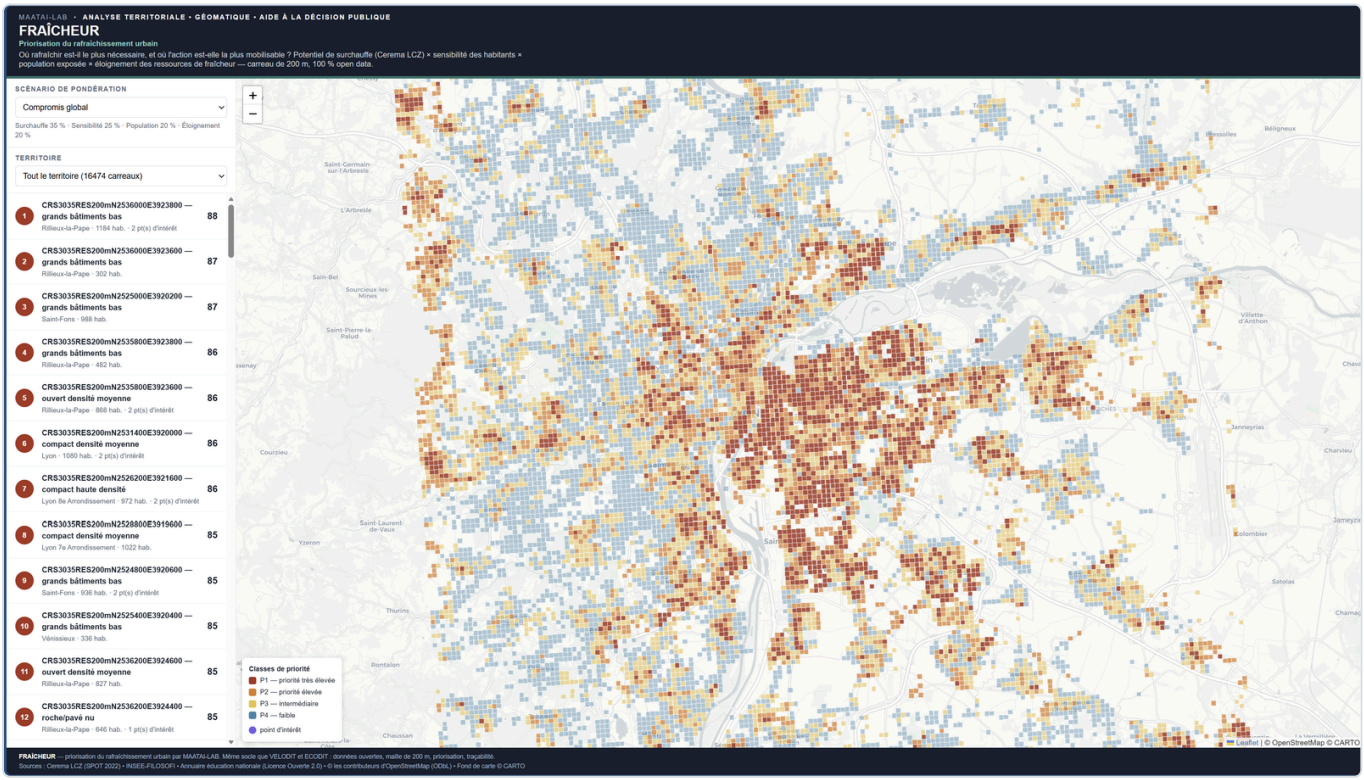
1,579
cells in the highest relative priority band (P1)

88
urban areas covered by Cerema exposure data — transferable method

100 %
open data, every priority traceable back to its sources

The principle : separate the need to act from the levers for action

A single score that added up urgency and ease would push a highly exposed but constrained neighbourhood behind a convenient one. FRAÎCHEUR produces **two distinct results** — a priority score and an apparent intervention potential — and crosses them in a programming matrix. The choice of solution (planting, shading, opening a cool venue…) comes after the ranking, never before.



The 16,474 inhabited grid cells of Lyon Metropolis, ranked by cooling priority (P1 to P4).

Four priority dimensions, a separate axis of intervention levers

All components come from open data, combined on the 200 m grid. Every result can be explained down to its source.

The priority score — “where is cooling most needed ?”

Morphological overheating potential
Cerema Local Climate Zones (international LCZ classification) : the compact, mineral fabrics that structurally feed the heat island. Assigned by the surface composition of each cell — not by a single point.

Residents' vulnerability
Older people, young children, deprivation — those most affected by extreme heat and least equipped to adapt.

Exposed population
The number of residents potentially concerned, raised where a sensitive facility is present (school, care home, nursery) — kept separate from vulnerability so intensity and numbers are not confused.

Distance from potential cool resources
Distance to the nearest resource, weighted by its value : a large wooded park is not the same as a drinking fountain.

Apparent intervention potential — separate axis

Never added to the priority : apparent mineral potential, presence of public facilities — **presumed levers** that prejudge neither land control nor constraints. Every priority cell **surfaces the places it contains** (schools, care homes, nurseries, transit stops) : the authority programmes places, not grid identifiers.

Five open sources

Cerema — LCZ mapping (SPOT 2022) • INSEE-FILOSOFI 200 m cells (population, age, deprivation) • OpenStreetMap (parks, water, care homes, stops) • national schools directory • geo.api.gouv.fr (boundaries). The tool supports the operational rollout of measure 13 of France's 3rd National Climate Change Adaptation Plan (« re-naturing cities »).

THE DELIVERABLE

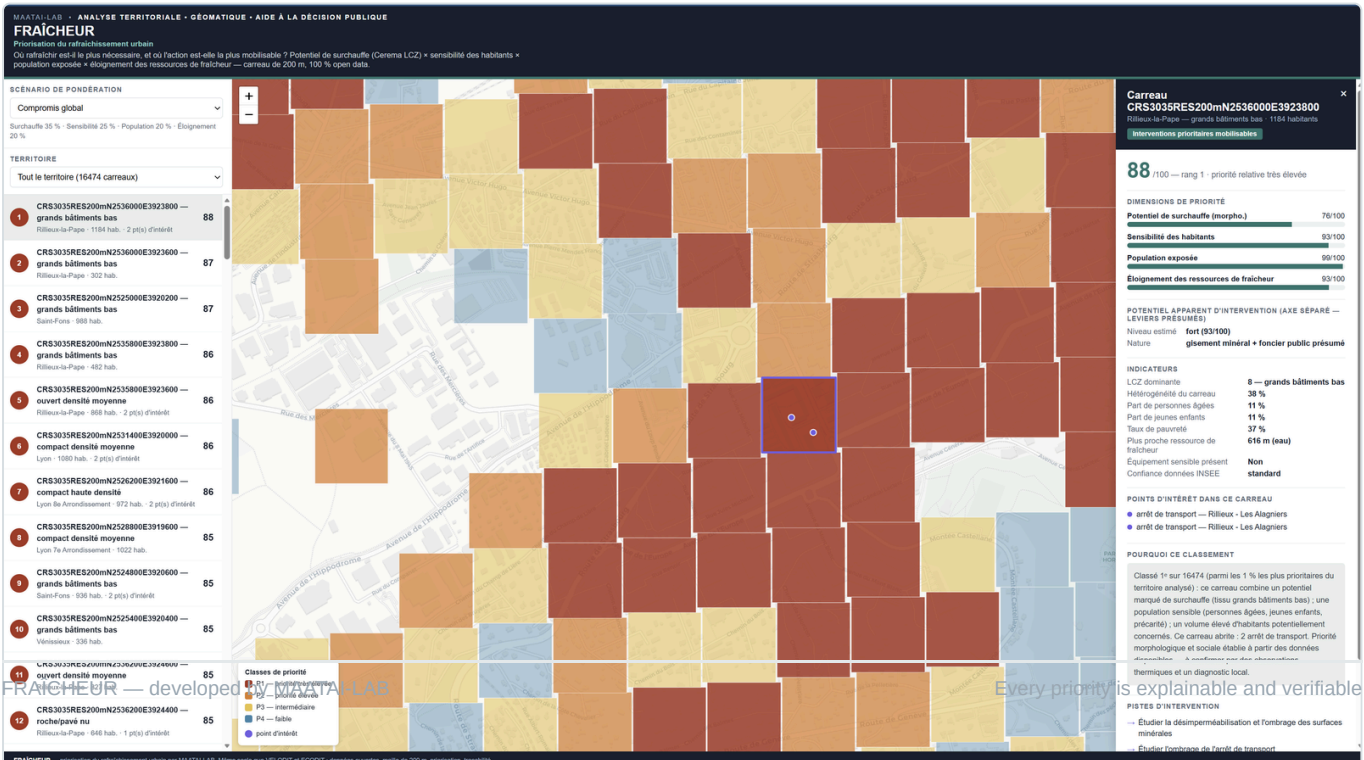
A programming matrix, grounded in real places

Crossing priority with intervention potential places each cell in one of four quadrants — with deliberately neutral labels : the choice of solution comes after the ranking. Actual distribution of the 16,474 cells, balanced scenario.

	High intervention potential	Low intervention potential
High priority	**3,797** **Priority interventions ready to mobilise** High need and visible levers — the short-term backbone.	**321** **Priority areas needing specific solutions** Just as necessary but constrained (compact fabric, little land) — cool playgrounds, shade structures, materials — not to be abandoned.
Low priority	**5,276** **Complementary opportunities** Levers present, lower need — to seize as projects arise.	**7,080** **Limited priority** Relatively favourable situation.

A bridge to ECODIT : 90 double-dividend school playgrounds

FRAÎCHEUR crosses with ECODIT, our tool for making school surroundings safer. Across the metropolis, 90 sites hosting children stand out as priorities in both readings at once. These are playgrounds where planting serves, in one gesture, both pupils' safety and their protection from heat. These « cool playgrounds » appear as a toggleable layer on the map, ready to feed a shared programme between the roads and ecological-transition departments.

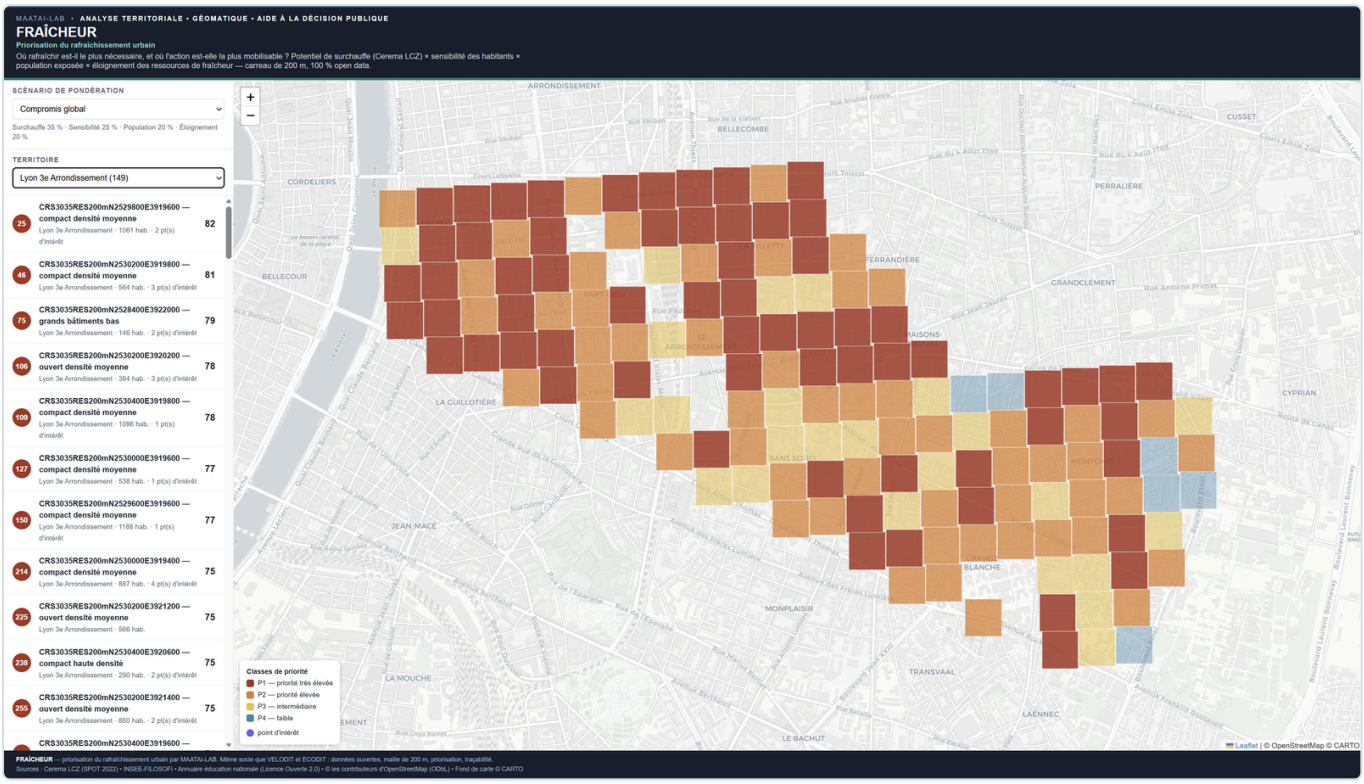


FRAÎCHEUR — developed by MAATAI-LAB

Every priority is explainable and verifiable

Drill down to the district, then test against observations

The ranking filters by municipality or district, and comes with a discipline of caution that makes it a defensible tool.



Reading filtered to one district (Lyon 3rd — 149 cells) : priority contrasts appear street by street. Interface shown in French.

A method that owns its limits

- **A morphological potential, not a measured temperature** : the exposure grid derived from local climate zones is an expert hypothesis, to be calibrated against thermal observations (satellite imagery, field measurements) — this is the planned validation protocol.
- **A relative ranking**, valid within the territory analysed — never a judgement « in absolute terms ».
- **Presumed levers** : intervention potential prejudges neither land control nor heritage constraints.

A pilot on your territory

A ranking of every inhabited cell, an interactive map filterable by municipality, briefing sheets for priority areas with their sensitive places, a review workshop with your teams and a protocol for testing against thermal observations — deployable across the 88 urban areas covered by Cerema data.

« FRAÎCHEUR identifies areas where a predisposition to overheating, significant resident needs and limited access to cool resources come together, then singles out those where levers for action are already visible. »

Sources : Cerema LCZ, INSEE, national education (Open Licence) • © OpenStreetMap (ODbL)