



Fleet based road weather monitoring

RoadCloud Oy

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RoadCloud

Unexpected road slipperiness is a major cause of fatal traffic accidents

Founded in 2014 to commercialize research done in Aalto University during last 10+ years.

Autonomous driving

Active safety systems

Advanced driver assistance systems

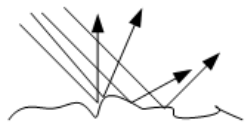
Road maintenance

Winter and summer maintenance



More efficient and safer road transportation with proactive road weather and traffic information

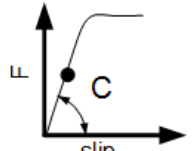
Road friction estimation methods



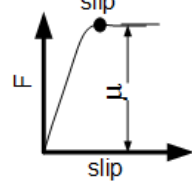
Road monitoring
(continuous)



Tyre sensing
1 per rotation



Local slip stiffness
(often)



Maximum friction
coefficient (rarely)

"Friction related"

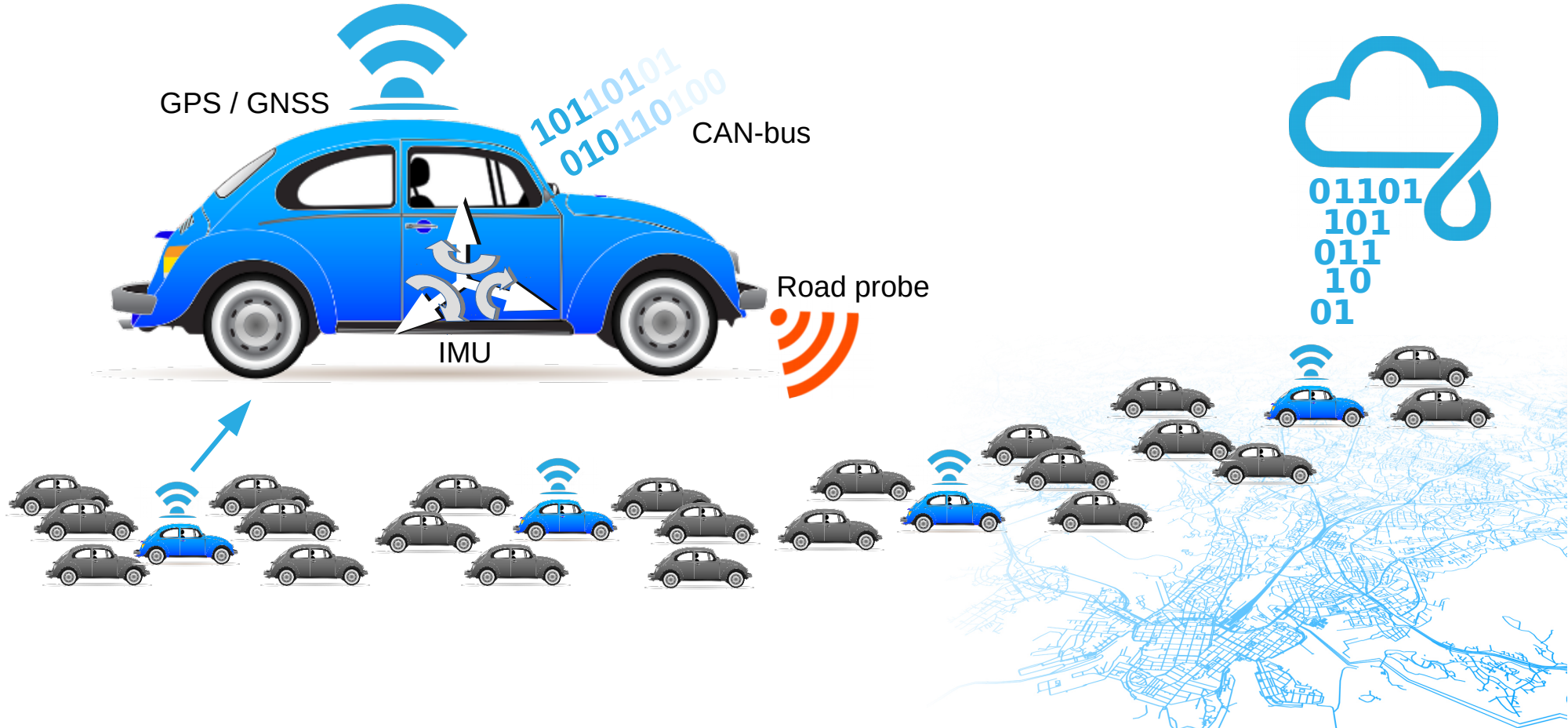
"Research level"

"Not generic"

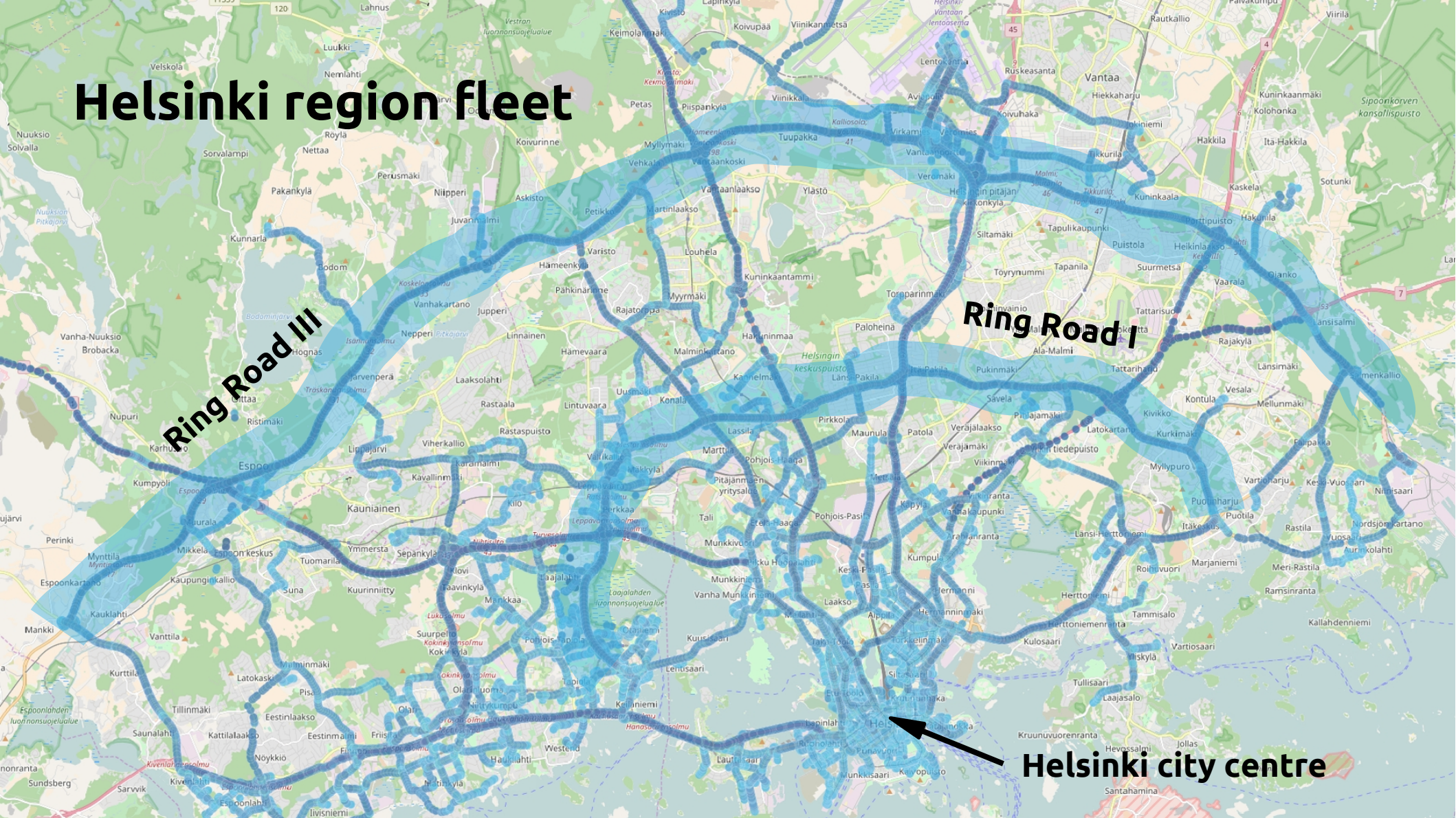
"Too rare"

Time

RoadCloud solution: instrumented fleet of vehicles



Helsinki region fleet



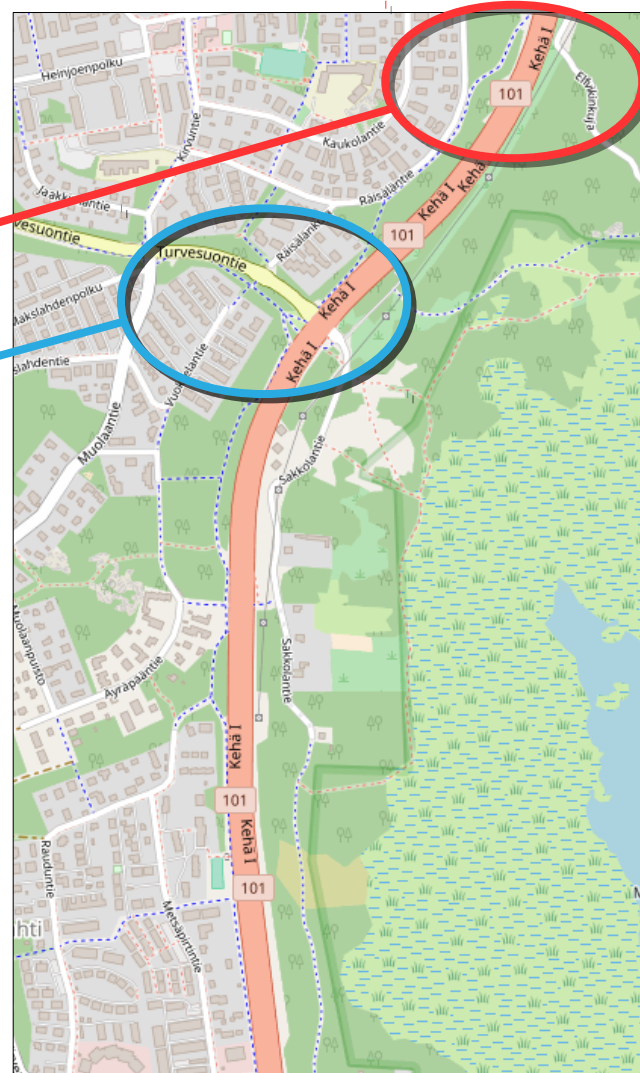
Ring Road I

Ring Road III

Helsinki city centre

Local road weather

Ring Road I – Turvesuontie



Uphill +
traffic lights

Smaller road
intersection

Local road weather

17.1.2018



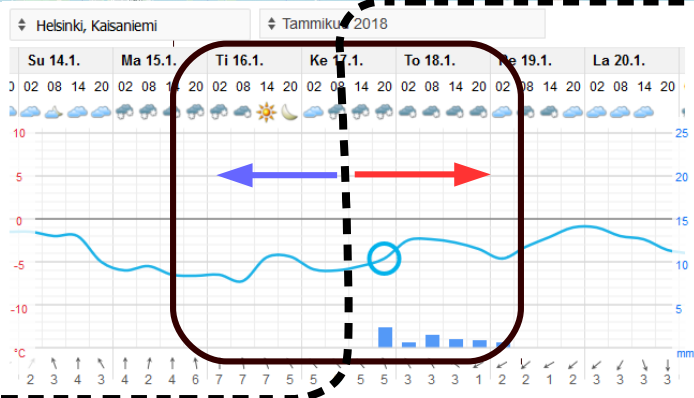
Maximum friction events



Tens of events

NORMAL CONDITIONS

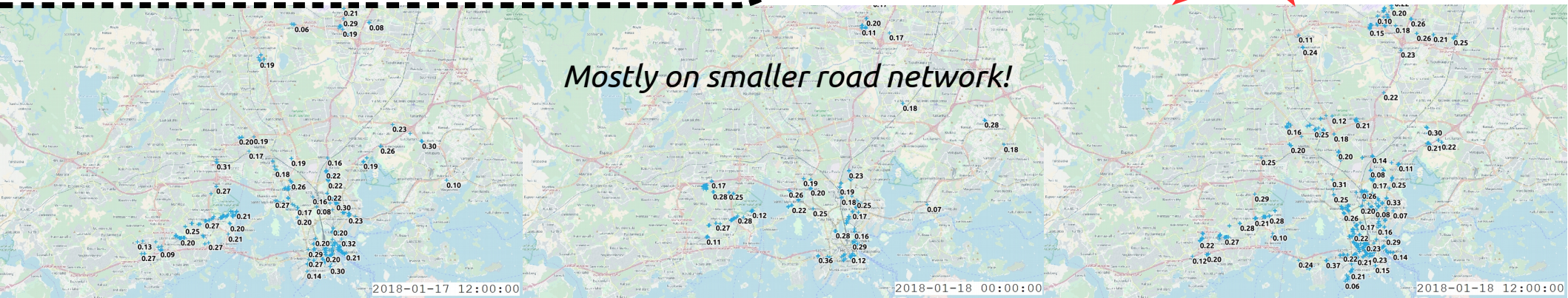
Optical measurement needed:
Water layer → friction



SLIPPERY CONDITIONS

Optical measurement needed:
Main road coverage

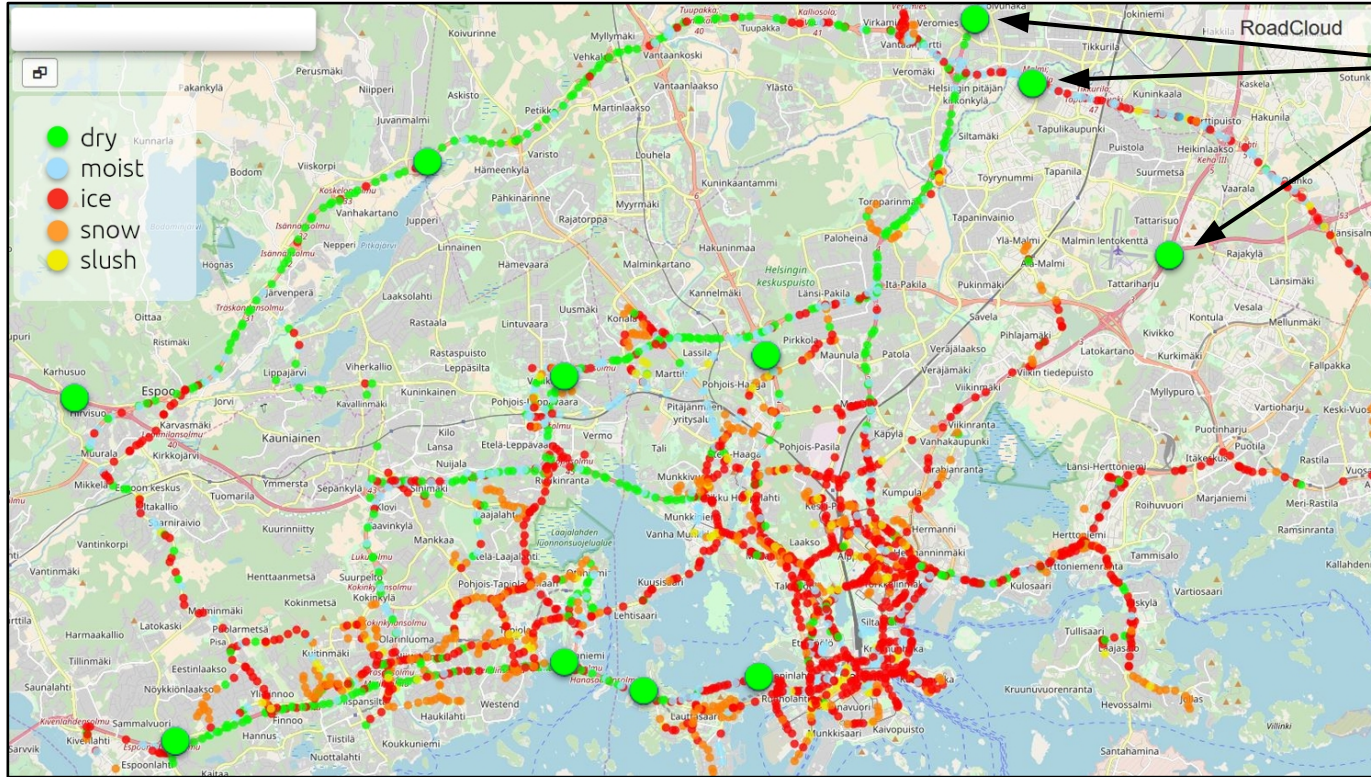
Thousands of events



Mostly on smaller road network!

Mobile vs static measurements

26.2.2018

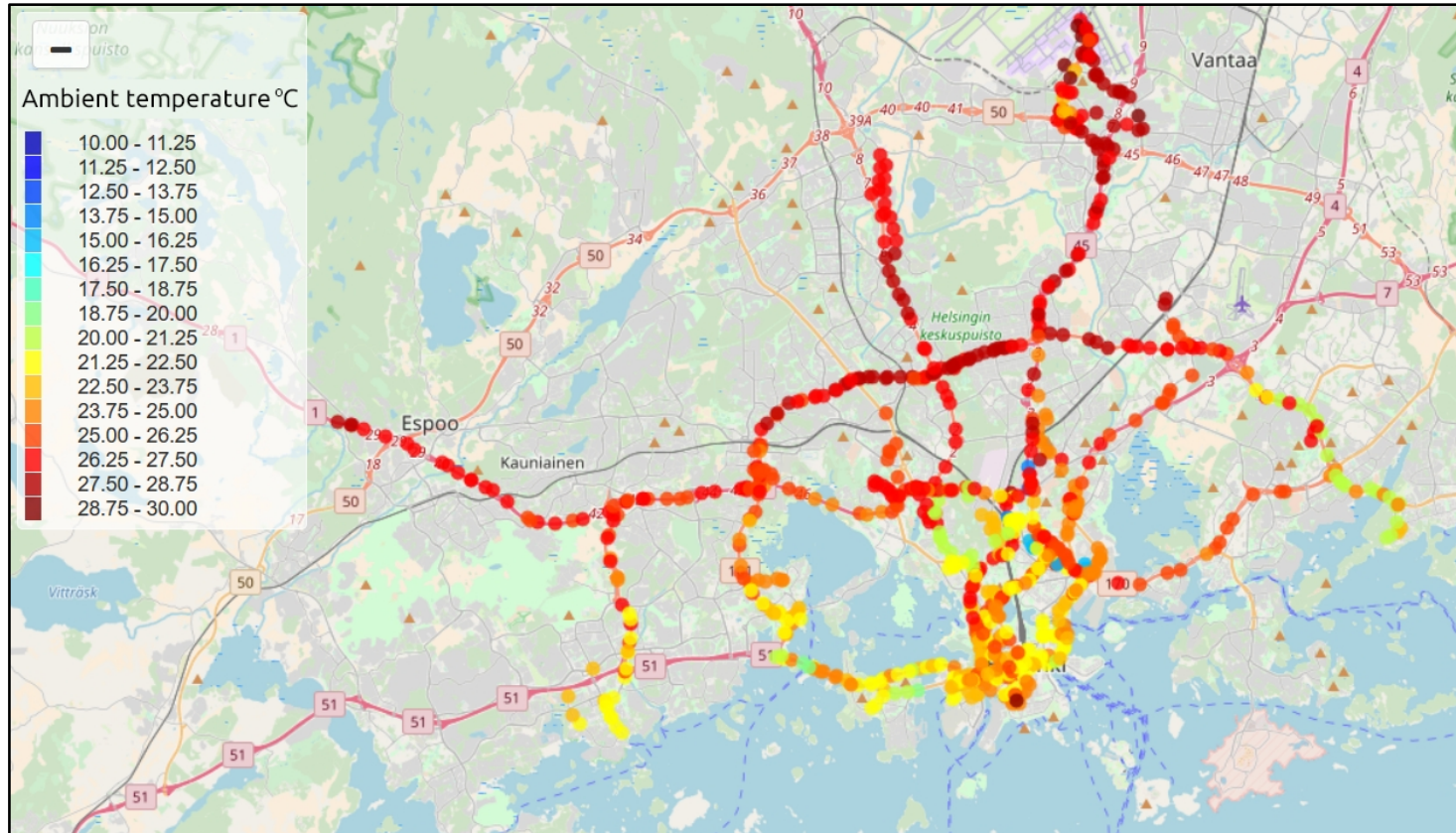


Static measurements

How is the road weather?

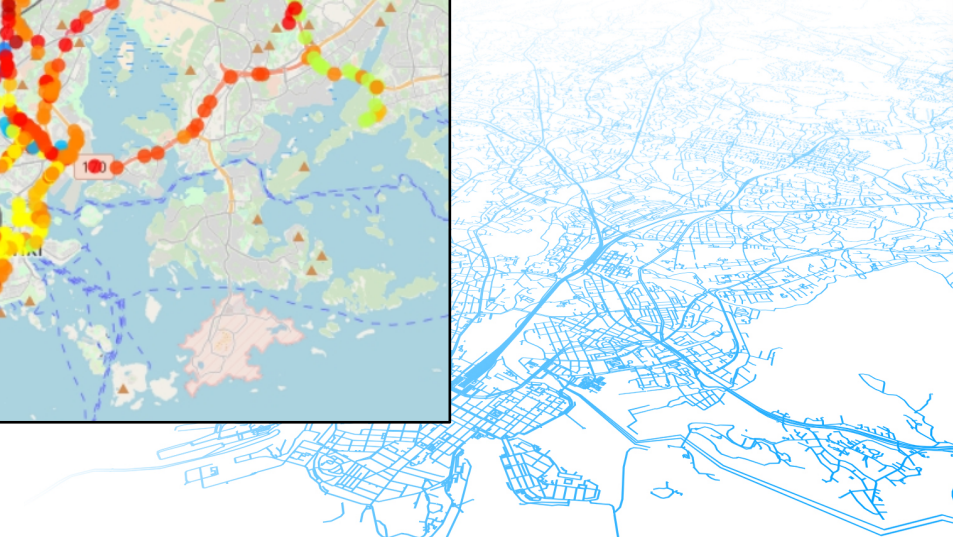
"Heat" map – ambient air temperature

14.5.2018



Microclimate
detection

Thousands of measurements
VS
Tens of measurements



Cloud-based approach



Necessity for large scale mobile road weather measurements!

-  *Information services*
-  *Road network management*
-  *Sensor management*
-  *Data fusion*
-  *Big data*



Thank you and drive safe!

www.roadcloud.fi

