



Optimizing Gritting Routes using Inter- connected Hyper Local Road Condition Forecast

12.06.2024



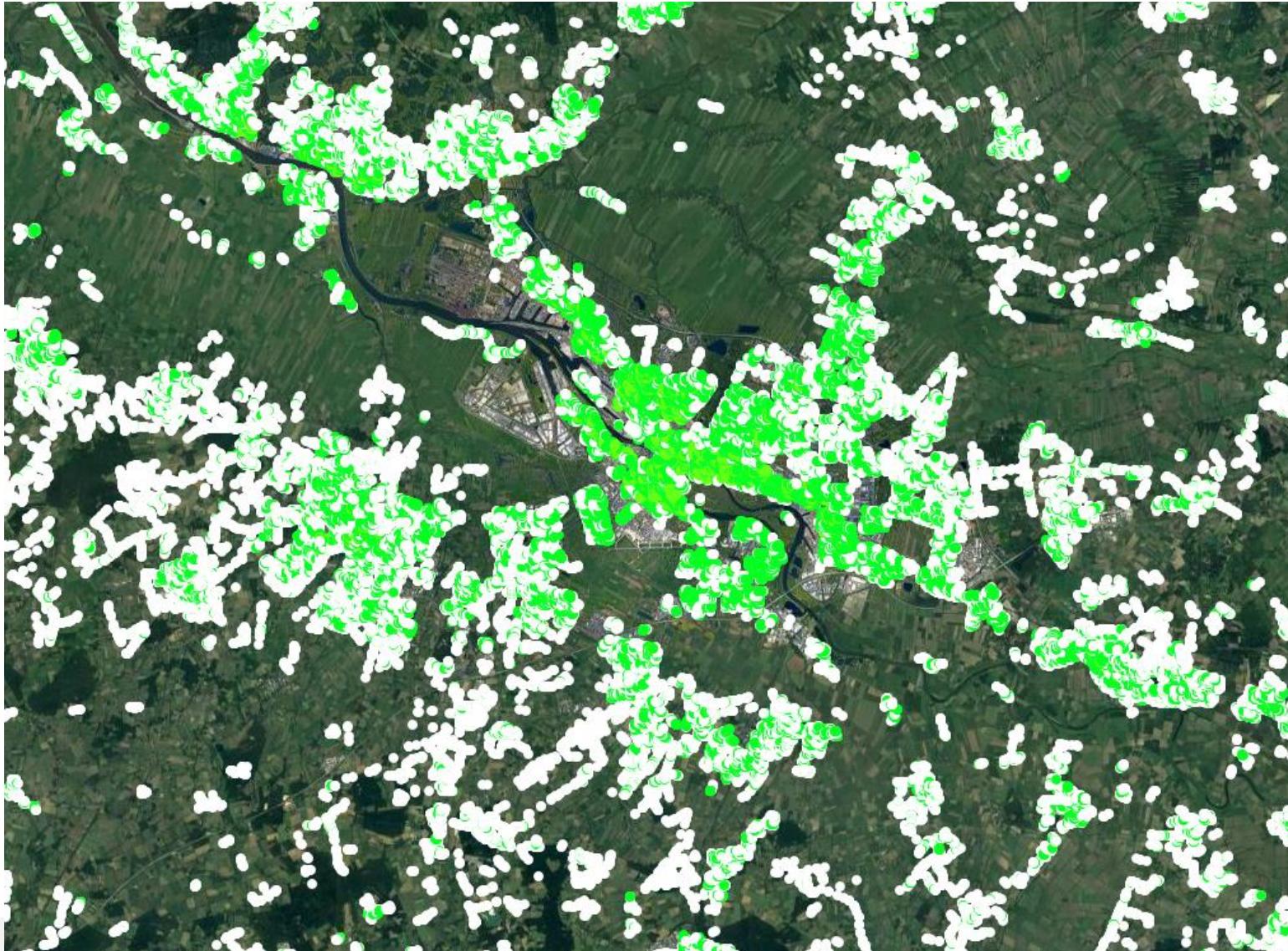
Climate change

- More and more cases with temperatures around freezing
- From 'pure' winter to black ice hazards
- Urban areas are warmer than the country side

**A cold night in december. Dew point -2, air temperature -1.
A potential for rime on the road surface**



Light snow in the evening after a warm period. Will it stick to the road surface?



White = snow on the road
Green = wet road

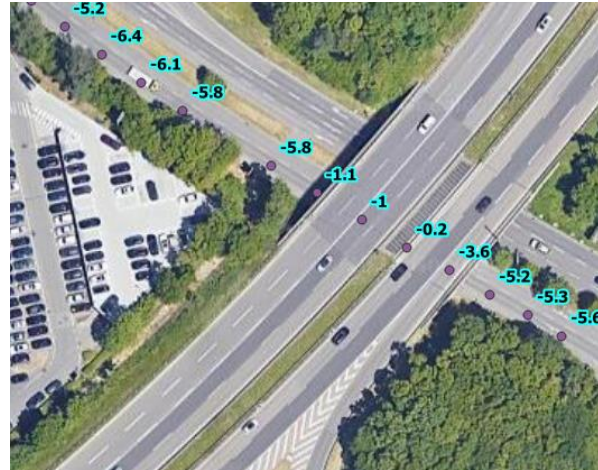
What will happen if the roads stay wet and the sky will clear?

Then : snow will stay snow, but
Wett will become black ice! For
Instance cycle paths in the city

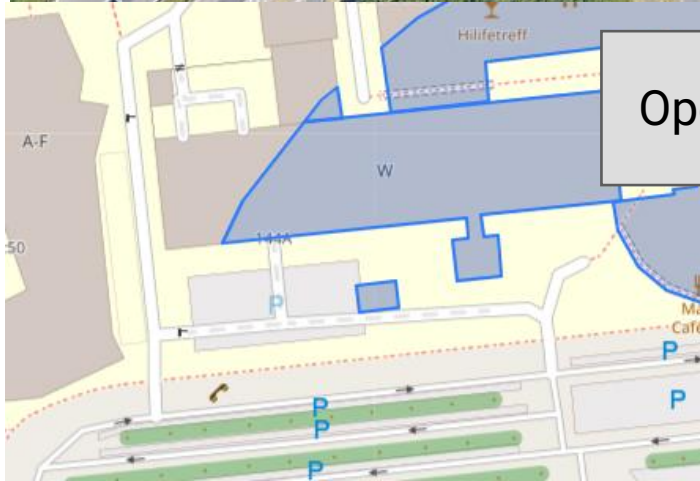


White = snow on the road
Green = wet road

The Model



Training dataset
500,000 data points

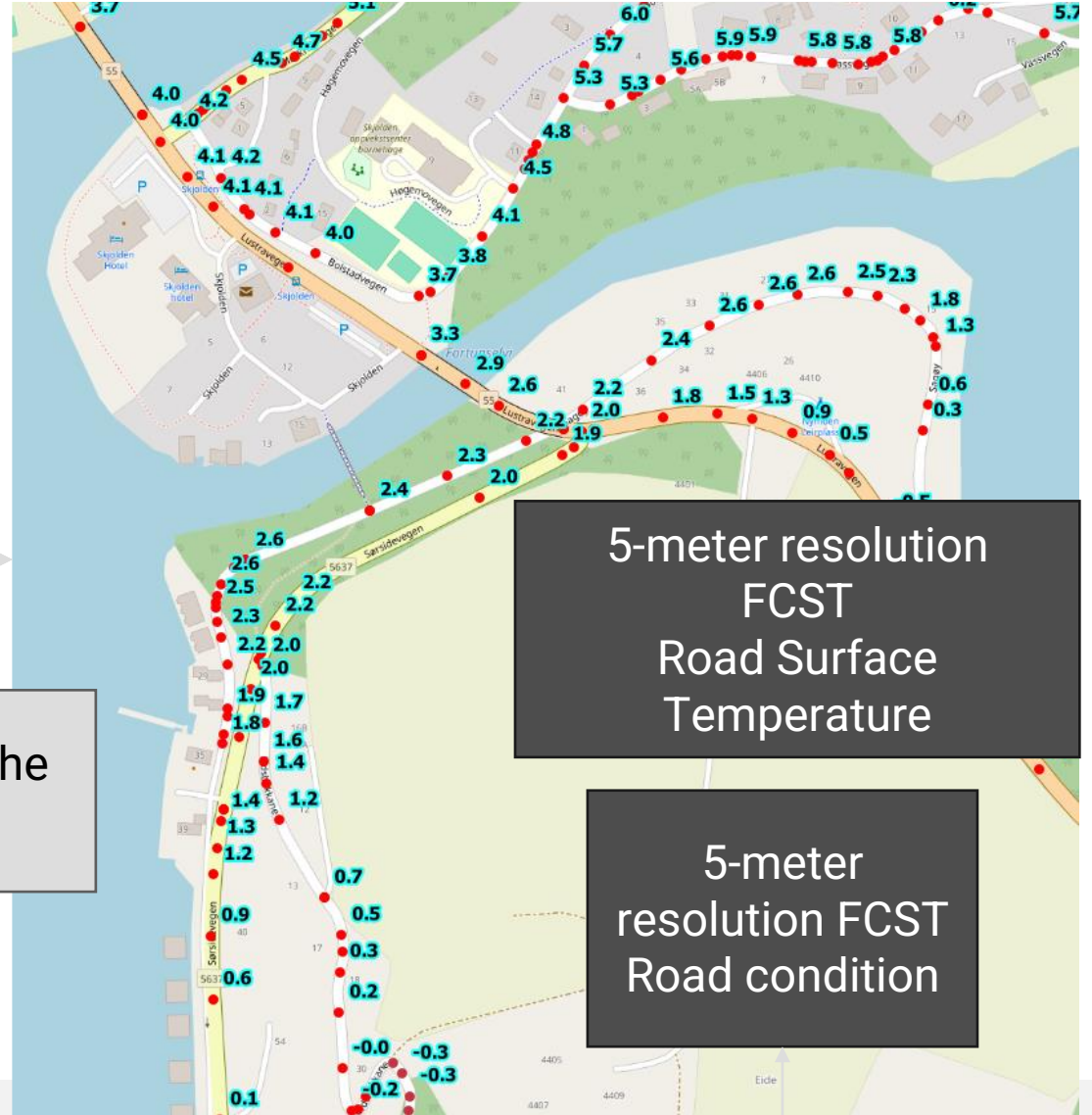


Open Streetmap



Training dataset
1500+ road weather stations

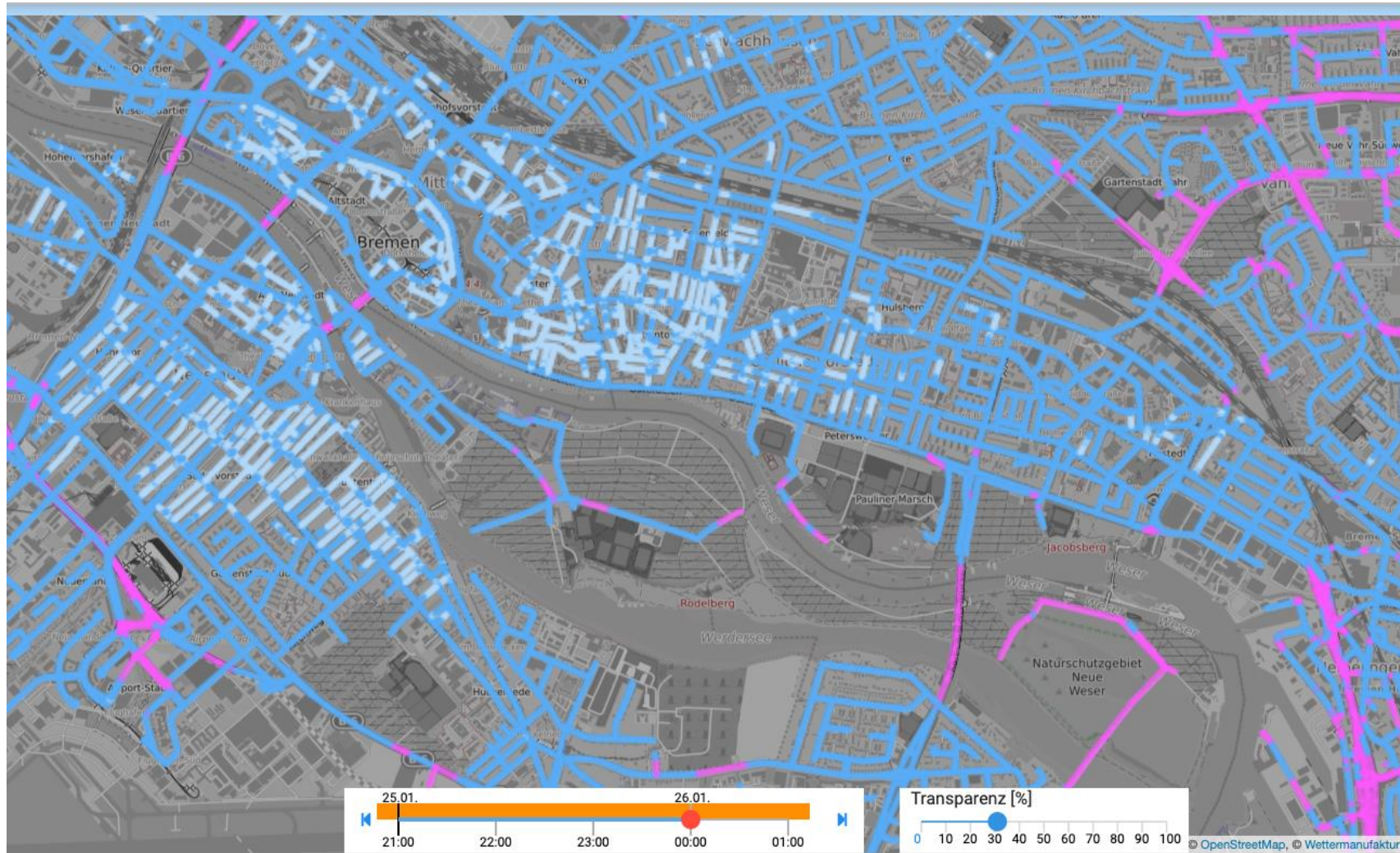
RWIS along the route!



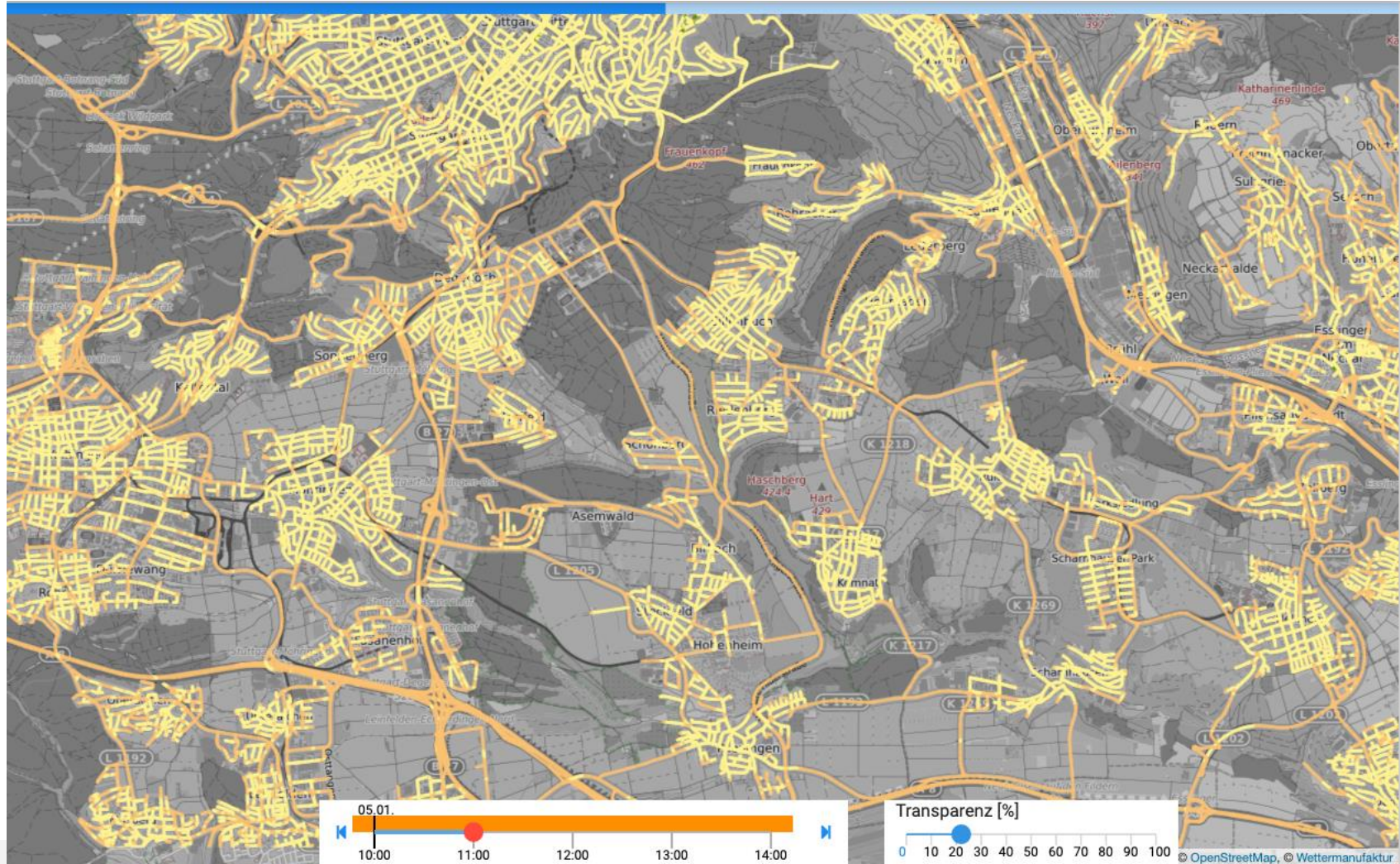
5-meter resolution
FCST
Road Surface
Temperature

5-meter
resolution FCST
Road condition

Freezing rain on the coldest roads



Especially the main roads outside the city are cold / rime hazard



Care for the environment and a save money

Dynamic routing and / or gritting

A high resolution road surface condition map

- determines which routes need a drive-by or gritting
- Can be used to treat colder routes first and warmer later (or not at all)
- can be used to automatically select the amount of product to apply

Notes on uncertainty in the forecast

- A risk factor can be added to also show roads that are 'almost' in at the threshold