FINNISH METEOROLOGICAL INSTITUTE

SIRWEC 2018 | 19th International Road Weather Conference

from 29th May to 1st June 2018, Smolenice, Slovakia

Digitalization and Road Weather Forecasts to Help Decision Making for Road Maintenance

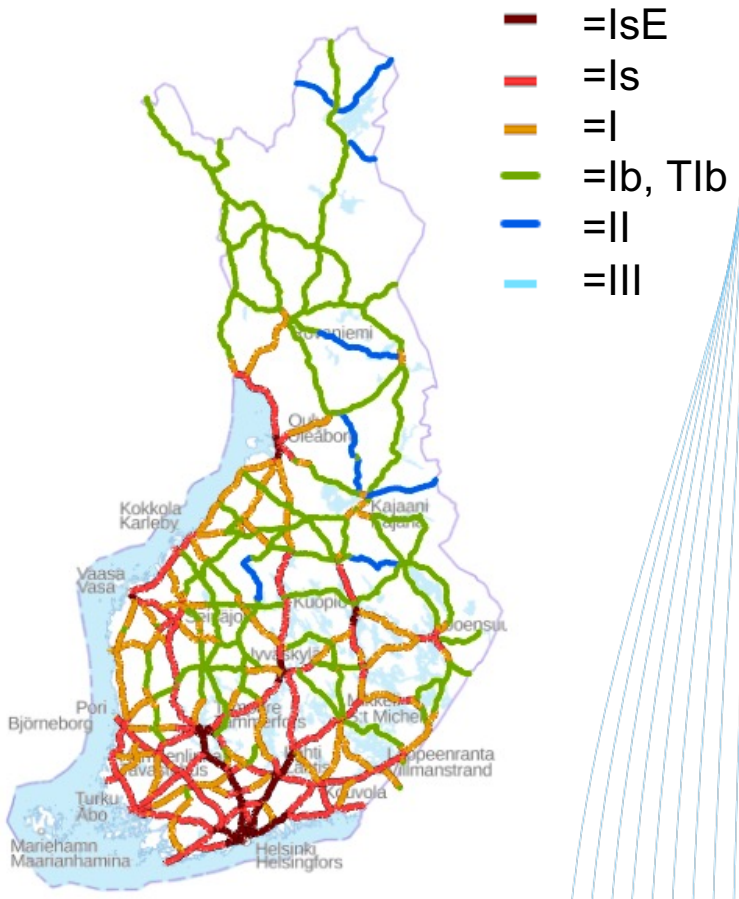
The Challenge

Road Maintenance Policy in Finland

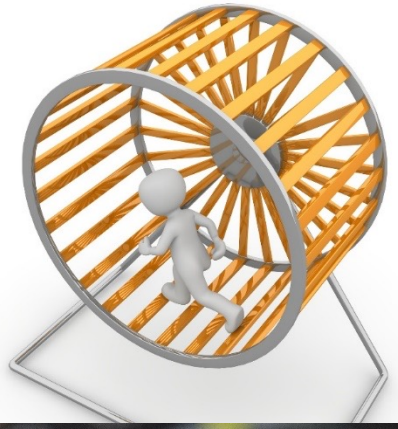
- Finnish Transport Agency tenders out maintenance contracts
- Approximately 78.000 km of roads
- Supervision by FTA's consults

Winter maintenance class	Is	I	Ib and TIb	II	III
Maximum depth of snow during snowfall	4cm	4cm	4cm	8cm	10cm
Time to clear after the end of snowfall	2.5h (slush 2h)	3h (slush 2.5 h)	3h	4h	6h

- Ploughing must be started at the latest when half of the maximum depth has accumlated on the ground (so-called 'threshold')
- Maximum snow depth must not be exceeded during snowfall and after that while the measure is being carried out.
- Only half of the snow can be slush.
- The time to carry out the measure starts when the snowfall ends and ends when the traffic lanes have been cleared.



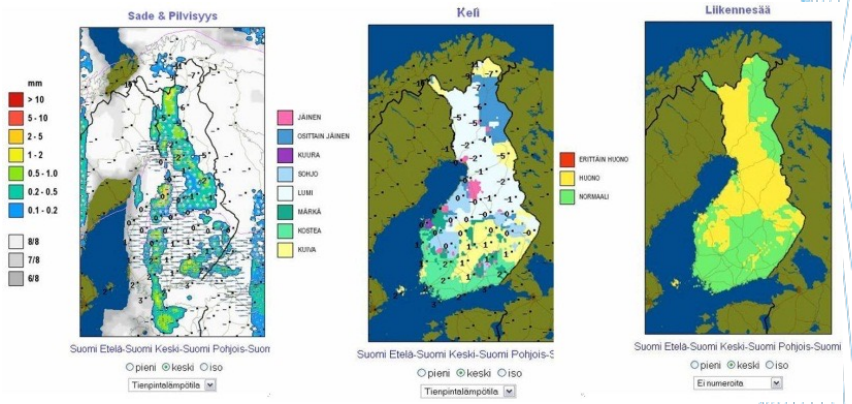
Maintenance Operator's Aims



Decision Making

Road Weather Center

- Operates road maintenance actions
- Optimizing the maintenance work



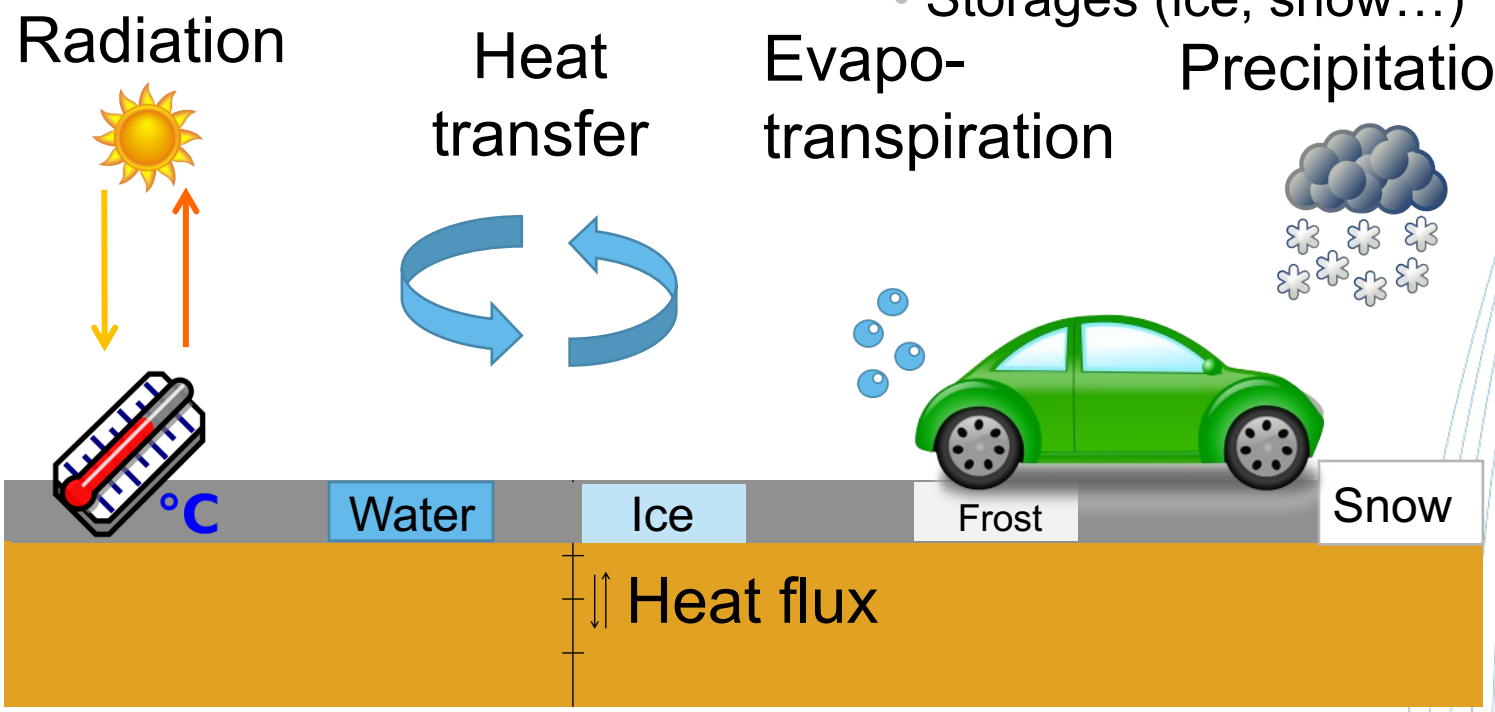
FINNISH METEOROLOGICAL INSTITUTE

SIRWEC 2018 | 19th International Road Weather Conference

from 29th May to 1st June 2018, Smolenice, Slovakia

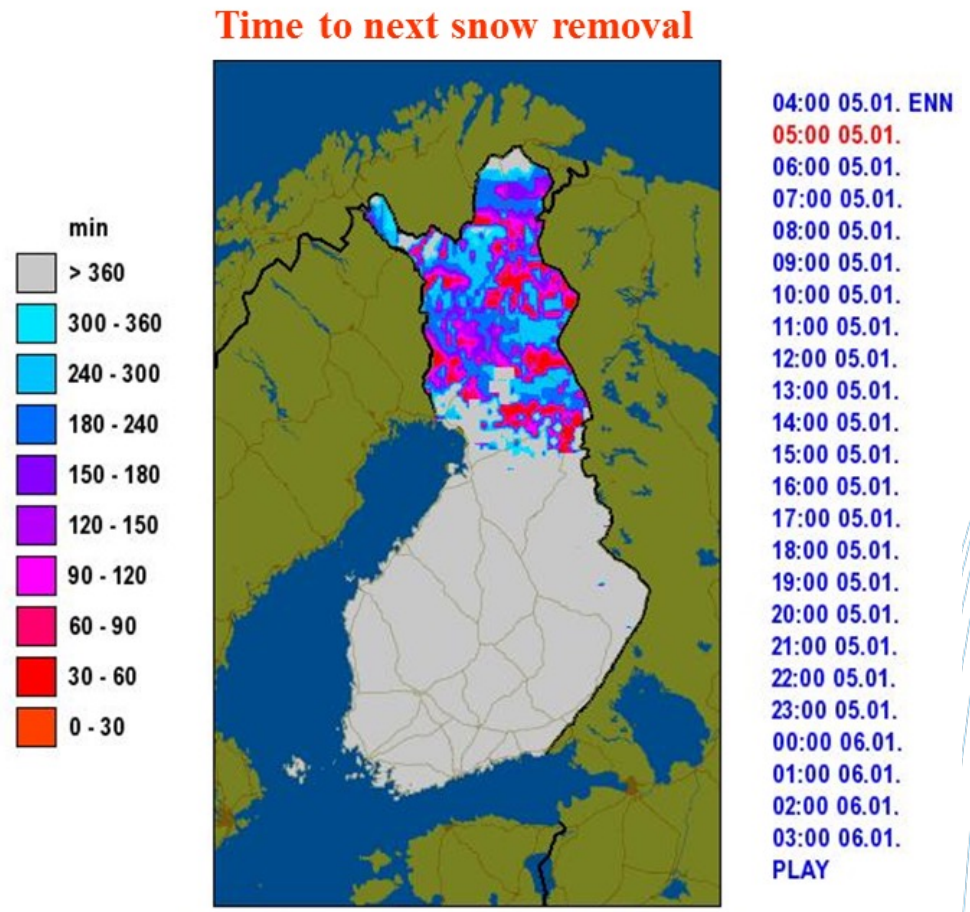
FMI Road Weather Model (RWM)

- Input data
  - Observation analysis
  - NWP-model
- Output parametres
  - Surface temperature
  - Surface conditions
  - Storages (ice, snow…)



Snow plough scheduling service

- RWM forecast
- Time for next snow plough
- Different maintenance classes
- Radar and other observations for analysis



What if?

Snow Plough Scheduling

- Snow event lasts for long time
- Maintenance operations fall behind of the requirements
- There is still snow from last event
- Roads on the area are ploughed at different time

On long lasting events, informations of the executed maintenance work is needed to keep the model up to date

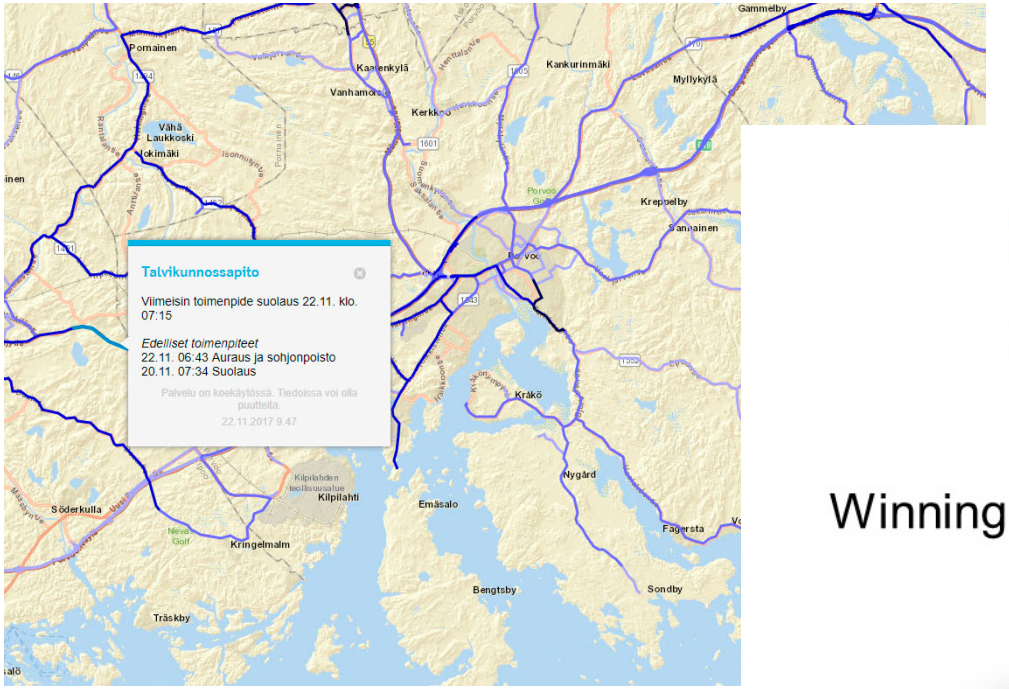
FINNISH METEOROLOGICAL INSTITUTE

SIRWEC 2018 | 19th International Road Weather Conference

from 29th May to 1st June 2018, Smolenice, Slovakia

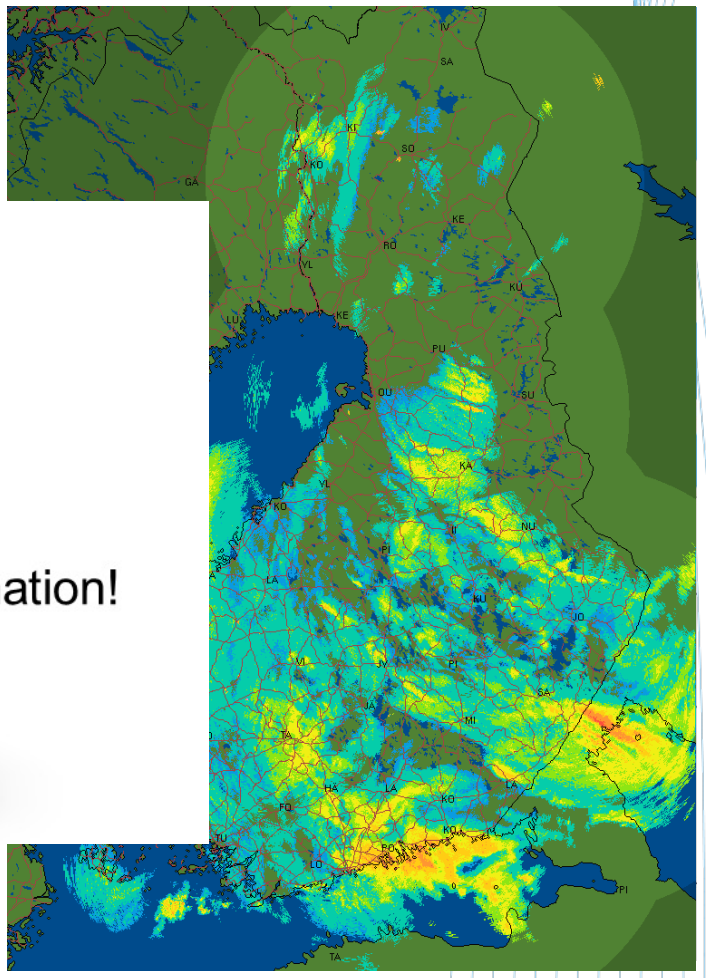
Solution 2.0

New Digital Input Data



Using Old Data More Efficiently

Winning combination!



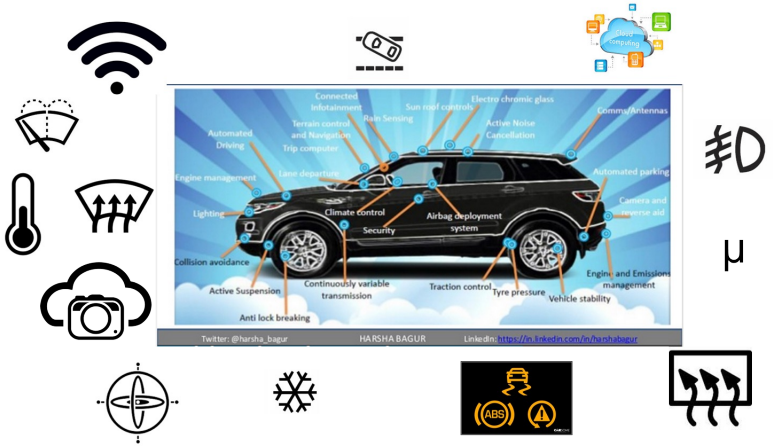
NEXT STEPS

5G-SAFE MOBILE DATA

Observations from vehicles

- Attached devices (eg. Teconer RCM411)
- Data produced by vehicle itself
- Camera data

Information will be used to make better analysis for RWM



5gsafe.fmi.fi

FINNISH METEOROLOGICAL INSTITUTE

THANK YOU!

5G-SAFE

WWW.FMI.FI janne.miettinen@fmi.fi 5gsafe.fmi.fi