Adapting to change: The evolution of Road Weather Information Systems

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VEDRA

- Solutions for the design of transportation infrastructure
- RWIS for Slovenian state roads and motorways
- Several national and EU research and development projects (i.e. H2020 SME instrument, Eureka, Eurostars, Central Europe program).
- Sirwec conference in Prague in 2008 for the first time

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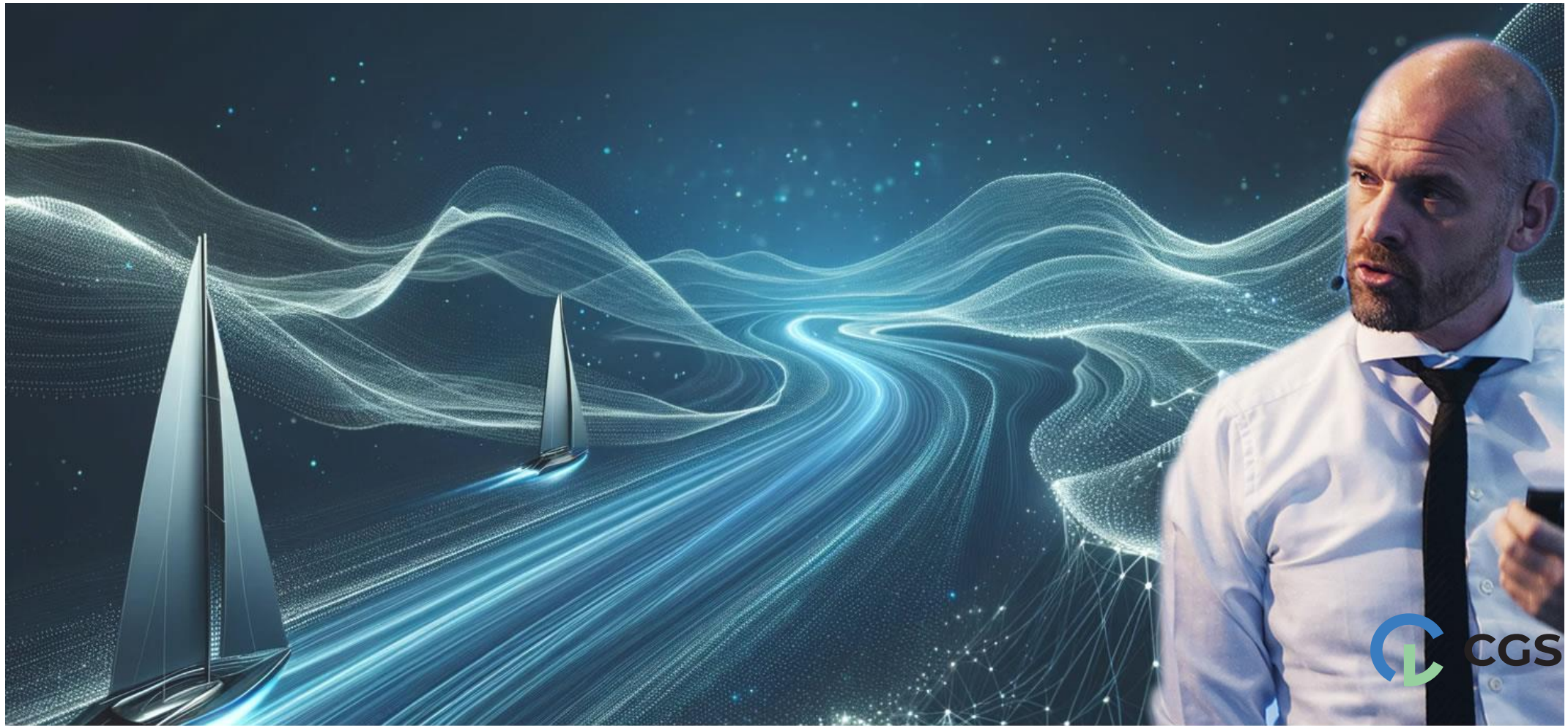
Adapting to change… what change?



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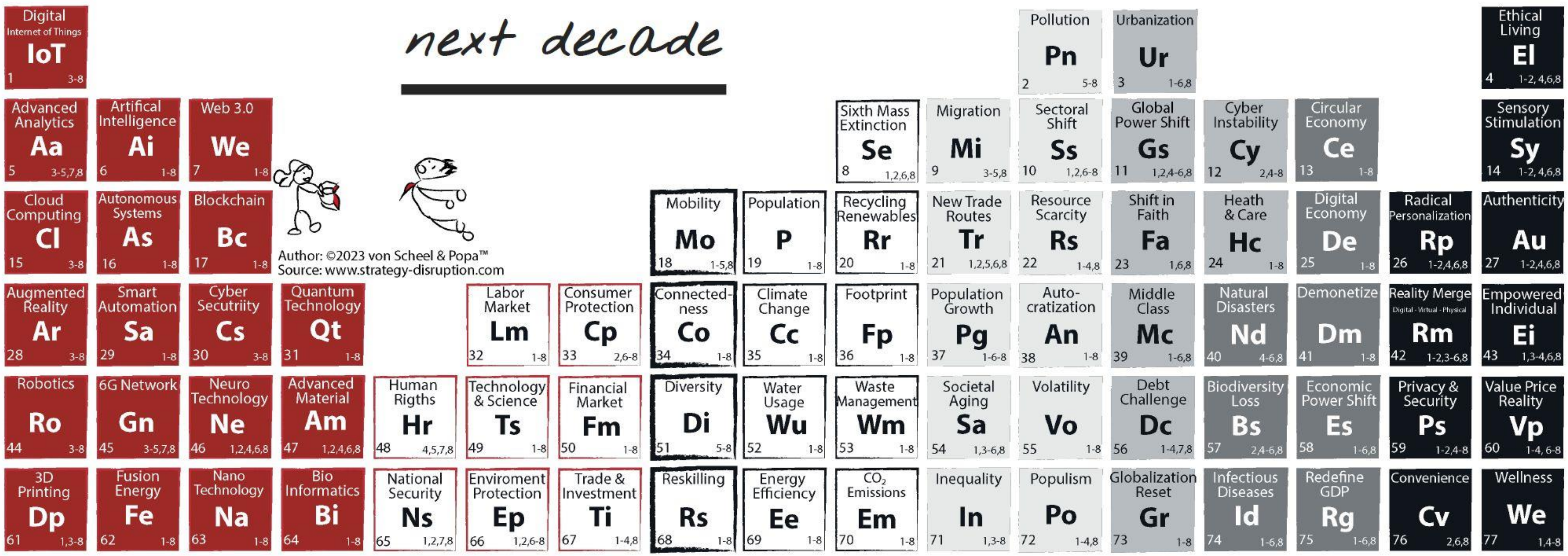
Megatrends that shape the *next decade*



Groups

- Science & Technology
- Regulatory
- Workforce
- Enviroment
- Globalization
- Demographic
- Economic
- Consumer

Elements

Megatrend Name — Digital — Group
Symbol — IoT
Number — 1 — 3-8 — Strategic Archetype Inclinations

Strategic Archetype Inclinations

1. Growth
2. Competitiveness
3. Cost Efficiency
4. Performance
5. Operational Excellence
6. Service or Product
7. Lower Risk
8. Sustainable Dev. Goals

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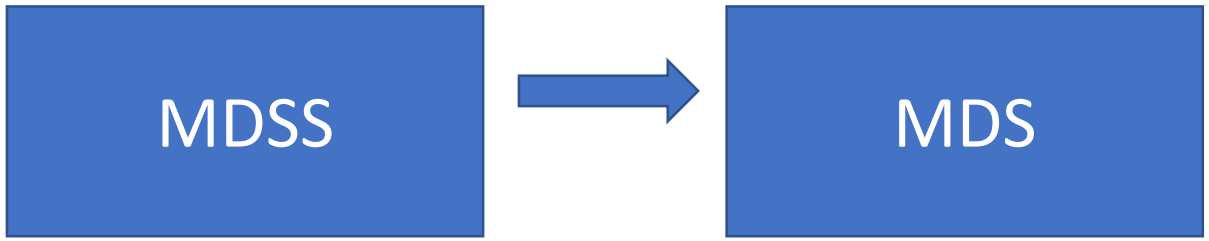
The current development stage of RWIS

- IoT, mobile data, connected vehicle data…
- Friction
- Forecasts optimization, Route based forecasts
- Probabilistic forecasts
- Residual salt models
- Managing equipment and people
- Automation, Connected Autonomous Vehicles



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External forces

- Climate change
- Other environmental aspects

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External forces

- **Climate change**
- Other environmental aspects

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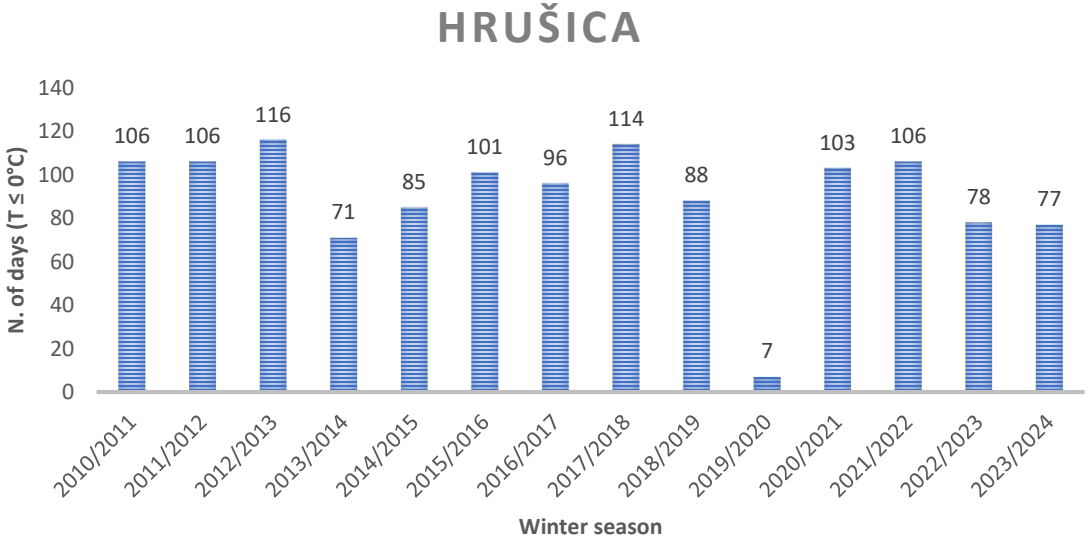
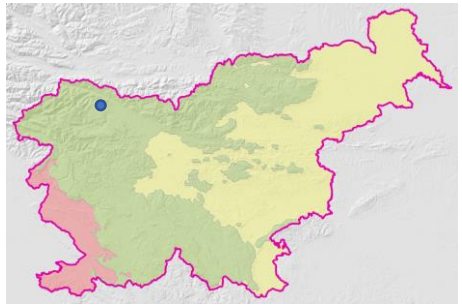
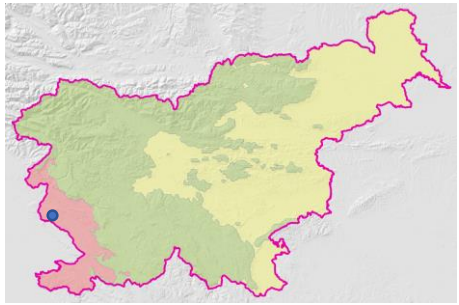
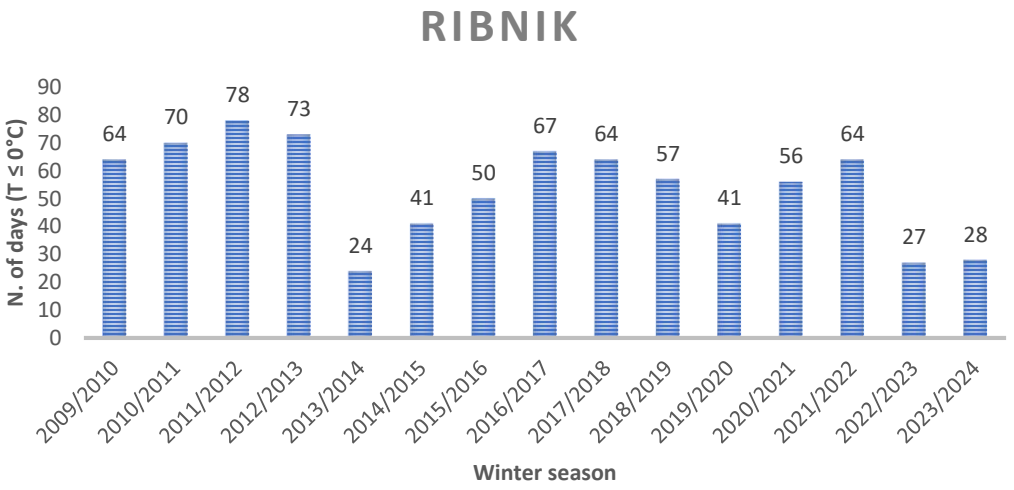
Cold days - motorways









Source: DARS RWIS

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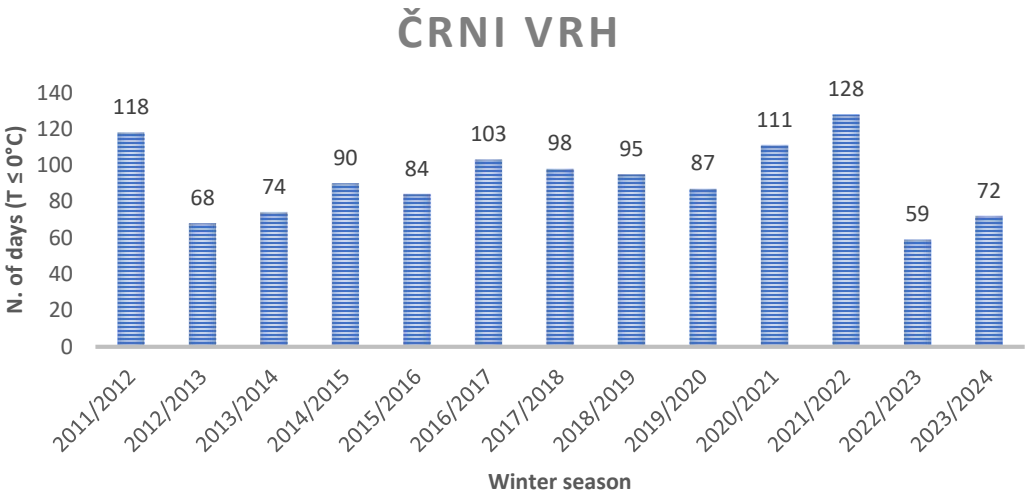
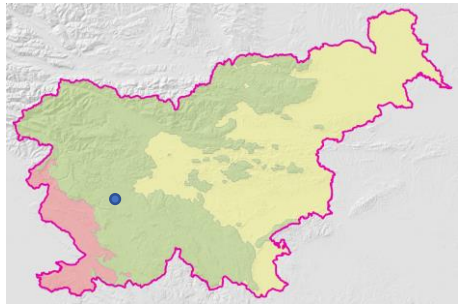
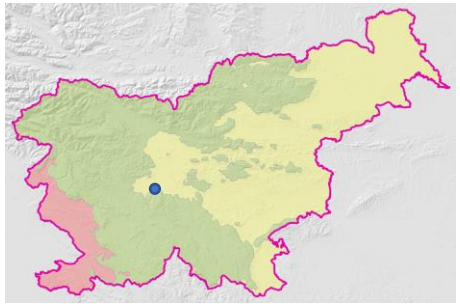
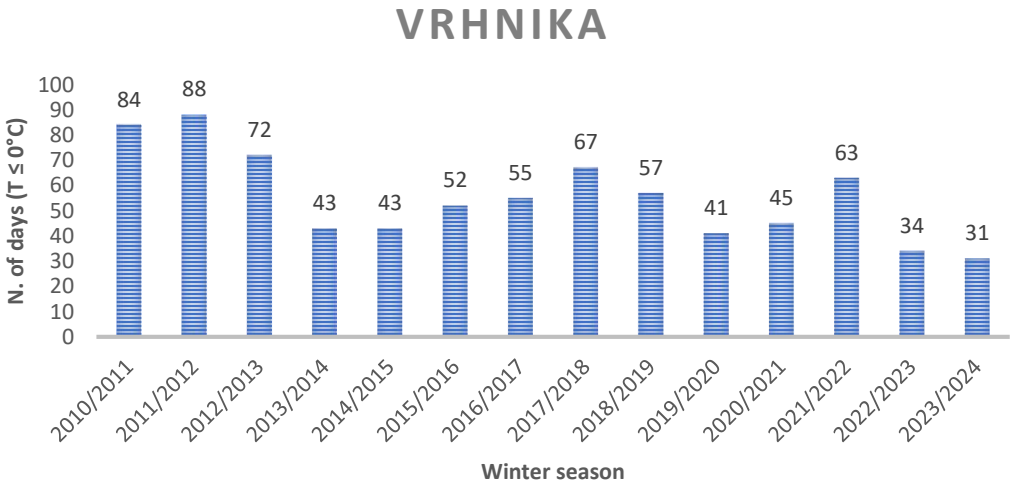
Cold days – regional roads









Source: DRSI RWIS

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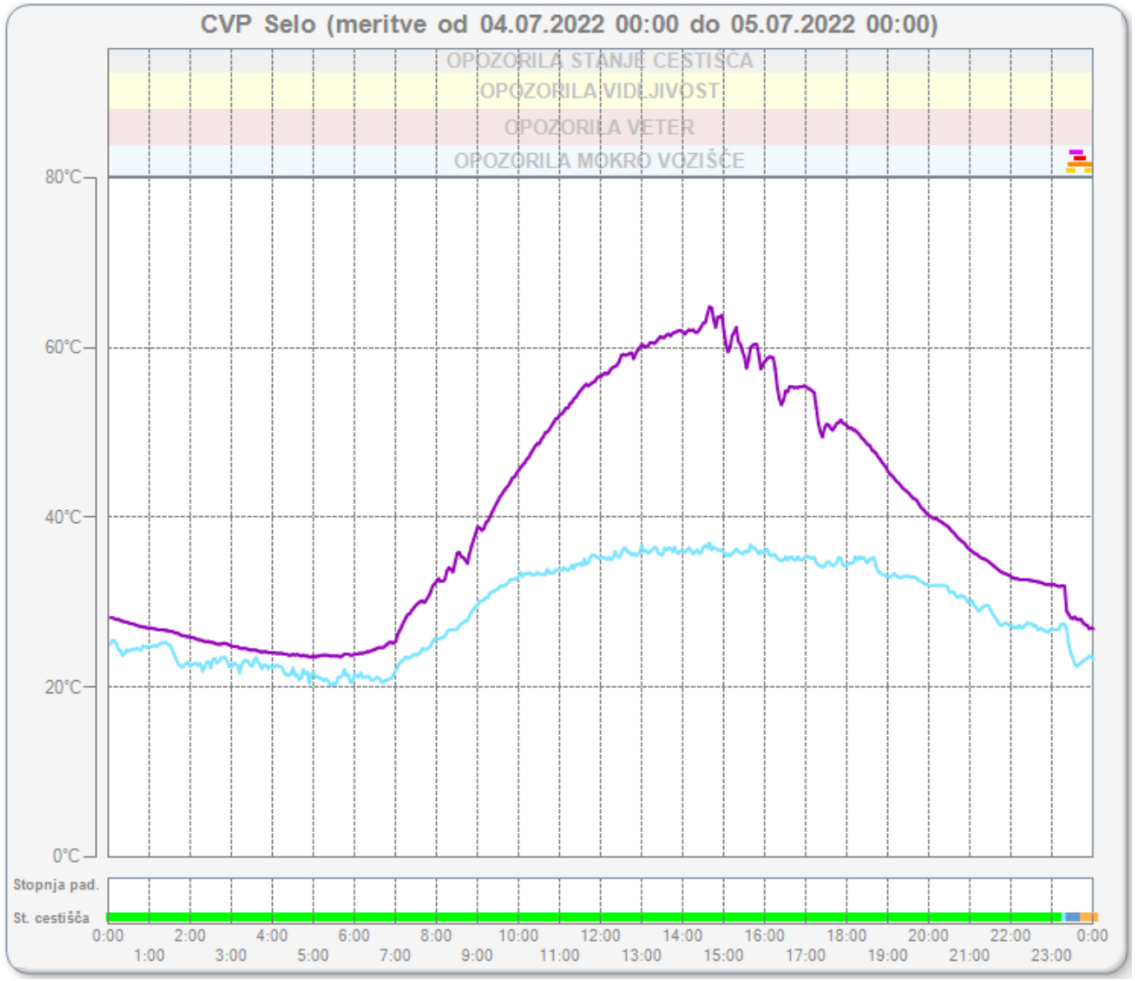
Summer road temperatures



Source: DARS RWIS

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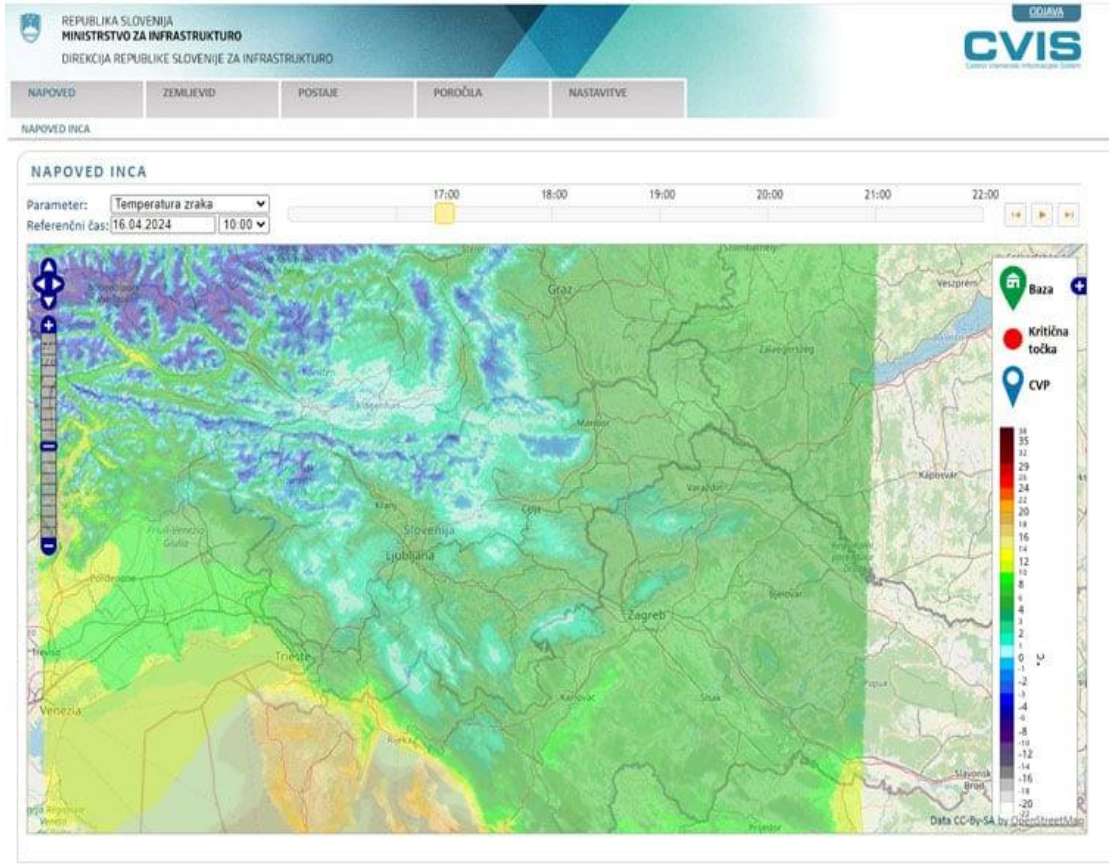
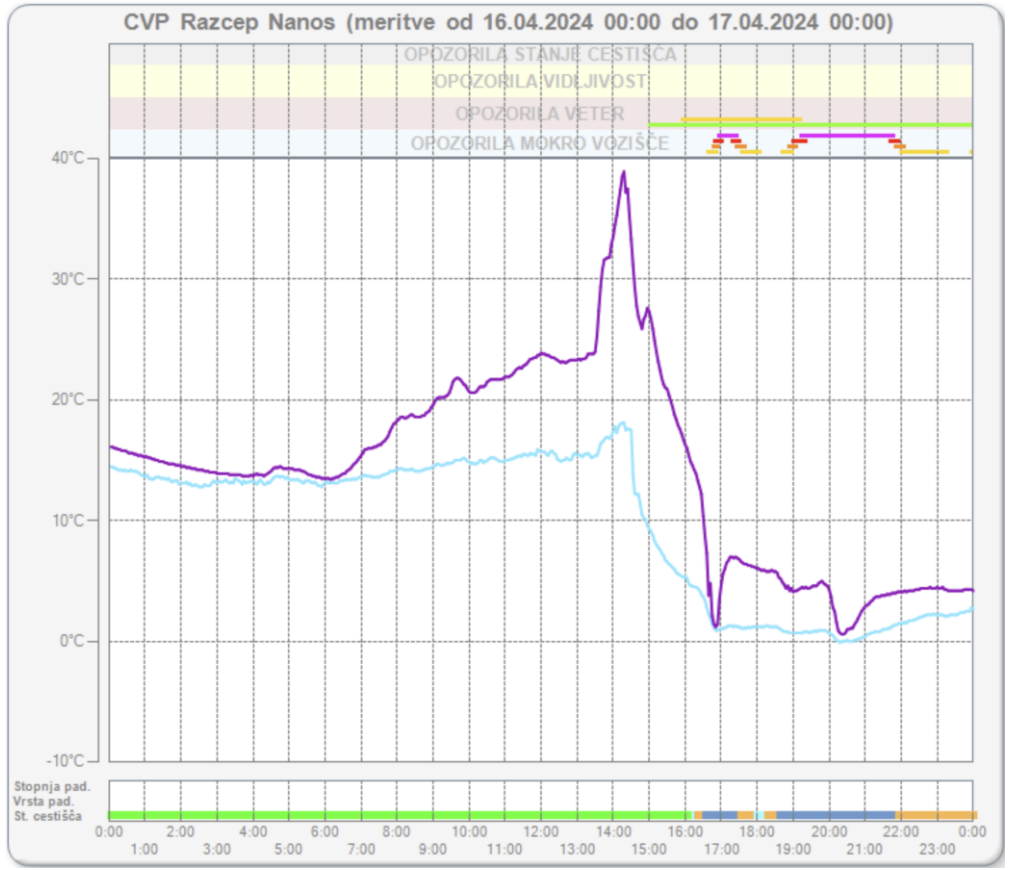
Severe weather event on April 16th 2024



Source: DRSI RWIS



Source: DARS RWIS

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Source: DARS

125,5 km/h

Wind 18.8.2022

- Secondary networks of meteorological stations, such as RWIS on roads, are becoming increasingly important. Recently, these have often recorded interesting or even extreme weather events. These events are highly localized, which means they are not always detectable by the current density of the national network of weather stations.

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Hail

According to ESSL very large hail (5 cm and more) is now 3 times more likely than it was in the 1950s.

External forces

- Climate change
- **Other environmental aspects**

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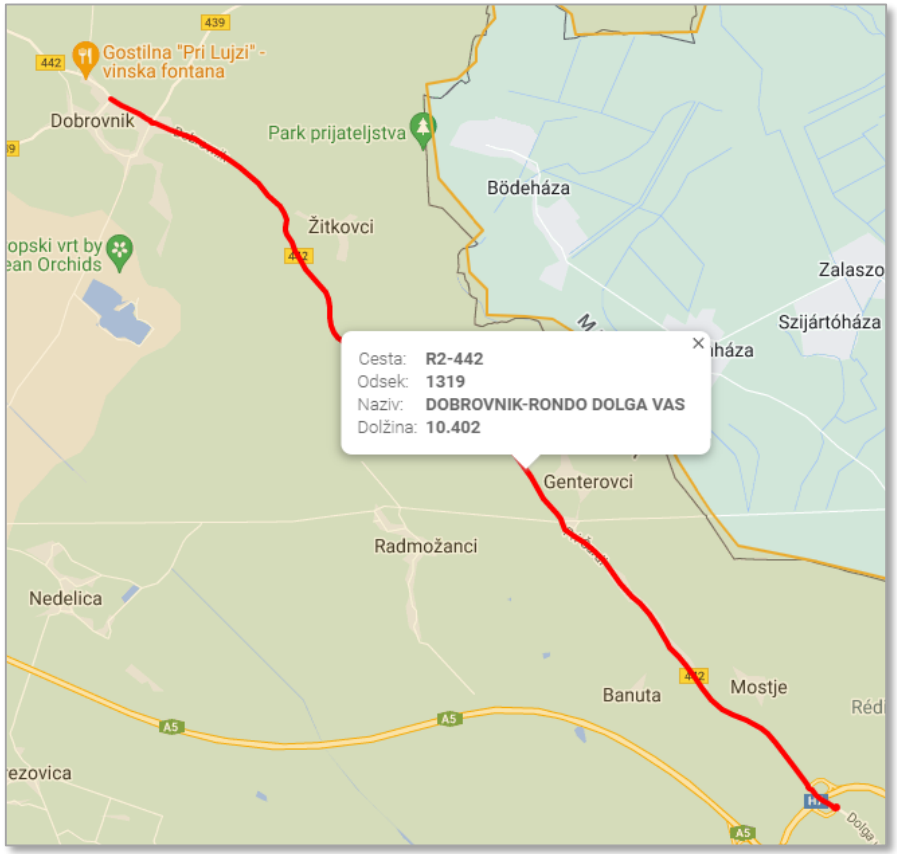
Salt consumption

Road section: Dobrovnik and Dolga vas in Slovenia, length: 10.400 m, road width: 6 m, total area: 62.400 m^2

Weather conditions: approximately 25 cm of snow falls in 10 hours, temperature up to -5 ^oC



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Without preventive activities

4x gritting (2,5 t salt per one activity), **total 10 t of salt**

With preventive activities

1x preventive action and 2x gritting (1 t + 2x 2,5 t) **total 6 t of salt**

SAVINGS 40%

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We used to follow the RWIS during winter only, but now it's all year round... and we don't even dare to put away the snowplows... ☺

our users

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Thank you