



**ASECAP**

# 16th ROAD SAFETY CONFERENCE

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*Hosted by*

**seopan**  
Asociación de Empresas Constructoras  
y Concesionarias de Infraestructuras

# How to use technology to reduce disruptions caused by extreme weather events on motorways in Slovenia

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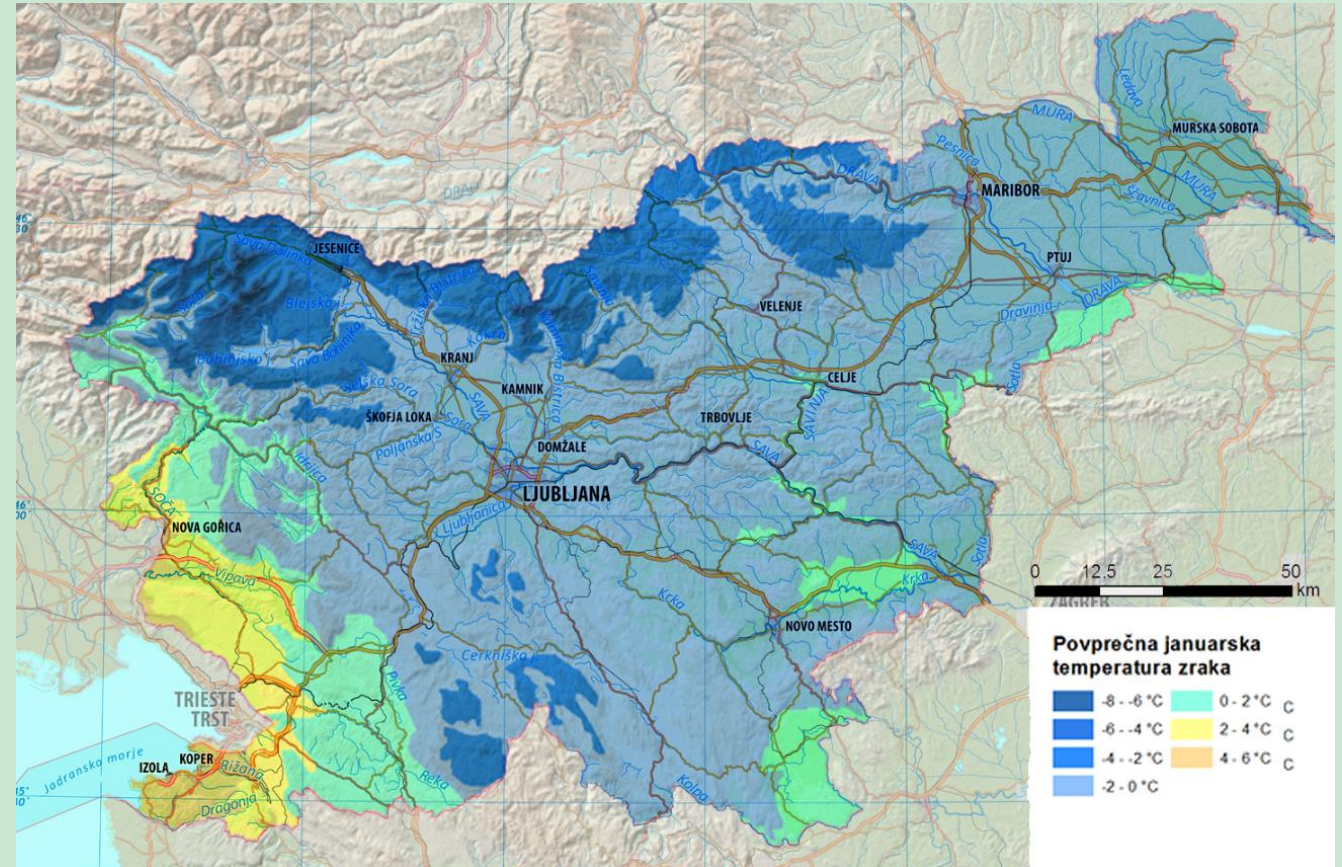
DARS D.D., MOTORWAY COMPANY IN THE REPUBLIC OF SLOVENIA



# SLOVENIA

## Three climate types

- Great influence of the Alps
- Great influence of the Adriatic Sea
- The influence of the Pannonian Plain



# Extreme weather events experienced in the last 10 years in Slovenia

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Snow & storm

Heavy rains and floods

Earthquake

A fire

Sleet



- **obstacles in traffic**
- **delays in maintenance work - adaptation of maintenance works to extreme weather events**



## Sleet – 2014 (Climate Change)





## Snow & storm

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## Heavy rain and landslides

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## Floods – 2023 (Climate Change)

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maintenance teams vs digital warning (APP, radio, VMS, C ITS, NAVI, social media,...)

## Digital orto-photo comparison before/after floods 2023





## Hailstorm & fire near motorway – 2022/2023 (Climate Change)

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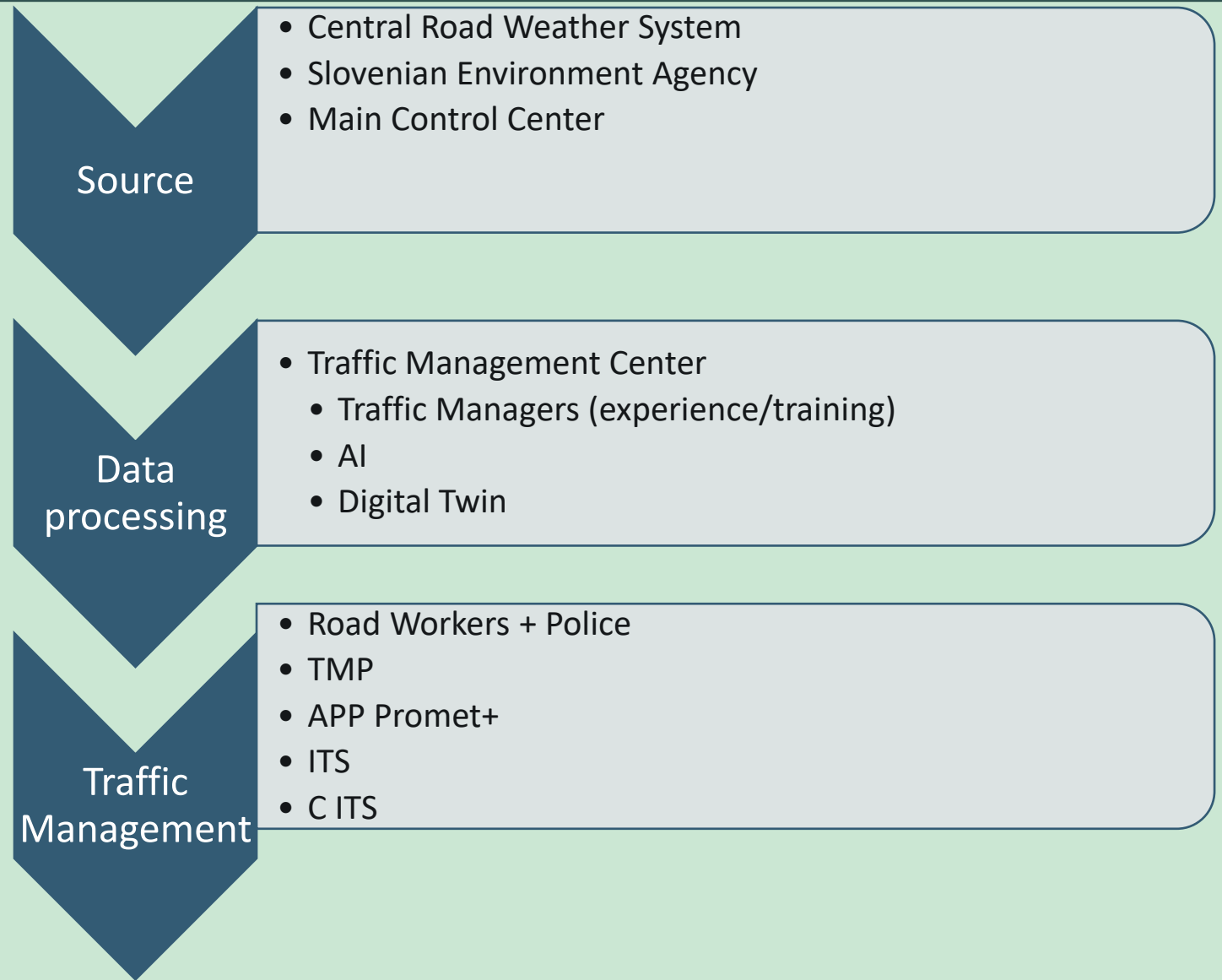


## Strong wind – winter & summer time (Climate Change)

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# How to use technology to reduce disruptions caused by extreme weather events on motorways in Slovenia?



## Source

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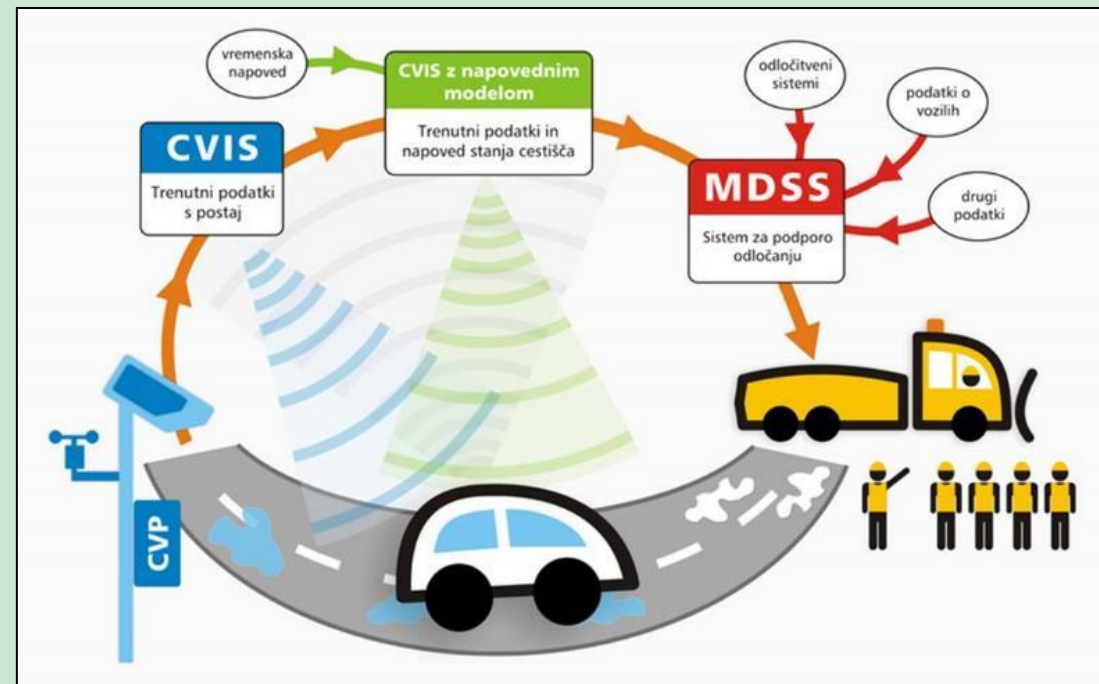
Central Road Weather System for Motorways

Slovenian Environment Agency

Information from neighboring countries (via TMP APP)

Infrastructure sensors

Satellite monitoring of infrastructure conditions







# Data processing

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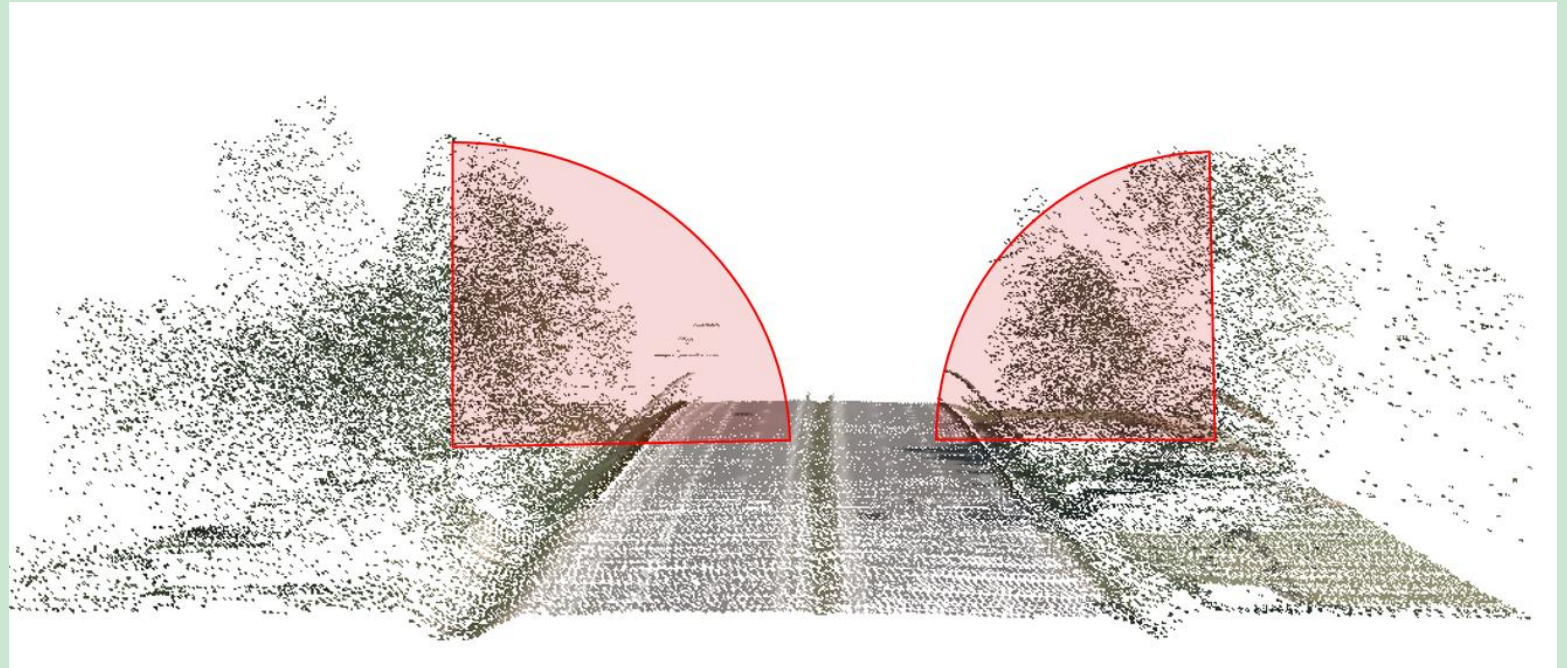
## Traffic Management Center

Traffic Managers (experience/training)

AI

Digital Twin

Lidar



# Traffic Management

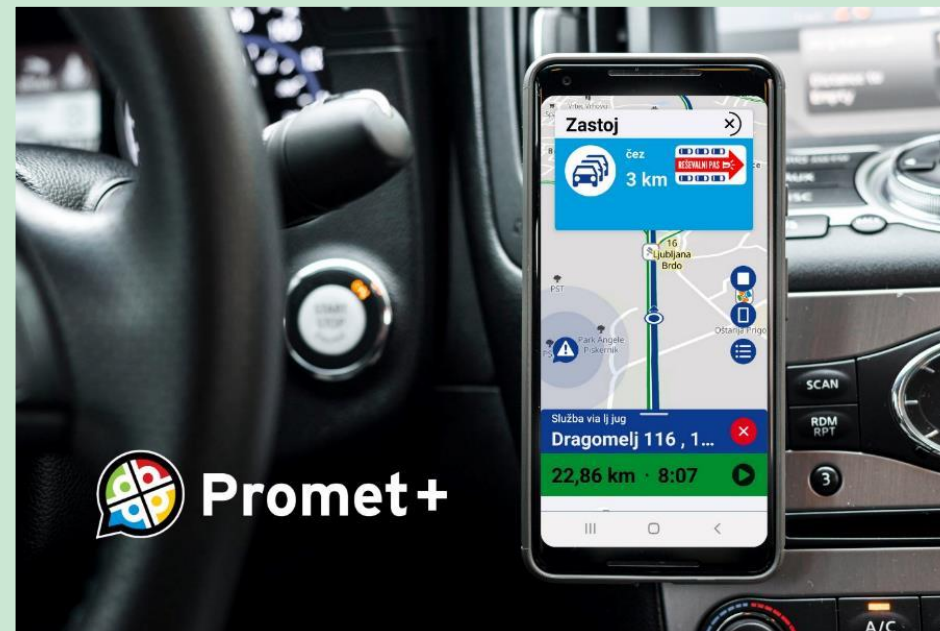
TMP – Traffic Management Plan

APP Promet+

ITS

C ITS

Traffic Management (for protect the road users & road workers)







<https://youtu.be/cYnCzCHn7zQ?feature=shared>

## Adaptation to Extreme Weather

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- reorganization of maintenance works (digitization of road works)
- reorganization of traffic management
- faster and better (precisely) weather information
- faster alerting of drivers and maintenance personnel (APP, ITS, C ITS, 5G/6G)
- AI processing data on the behavior of road infrastructure



***Thank you for your  
attention***

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