

# Improving the self-explaining performance of Czech national roads

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INTRODUCTION

- Self-explaining is such traffic environment which elicits safe behavior by its design. Improving the road network according to self-explaining principles is a promising way to increase the level of safety.
- There are no universal definitions or guidelines on how to measure and improve the self-explaining performance of the existing roads.
- ... **The research project focused on improving the self-explaining performance of rural sections of Czech national roads.**

## THE STUDY

### 1) Automated segmentation

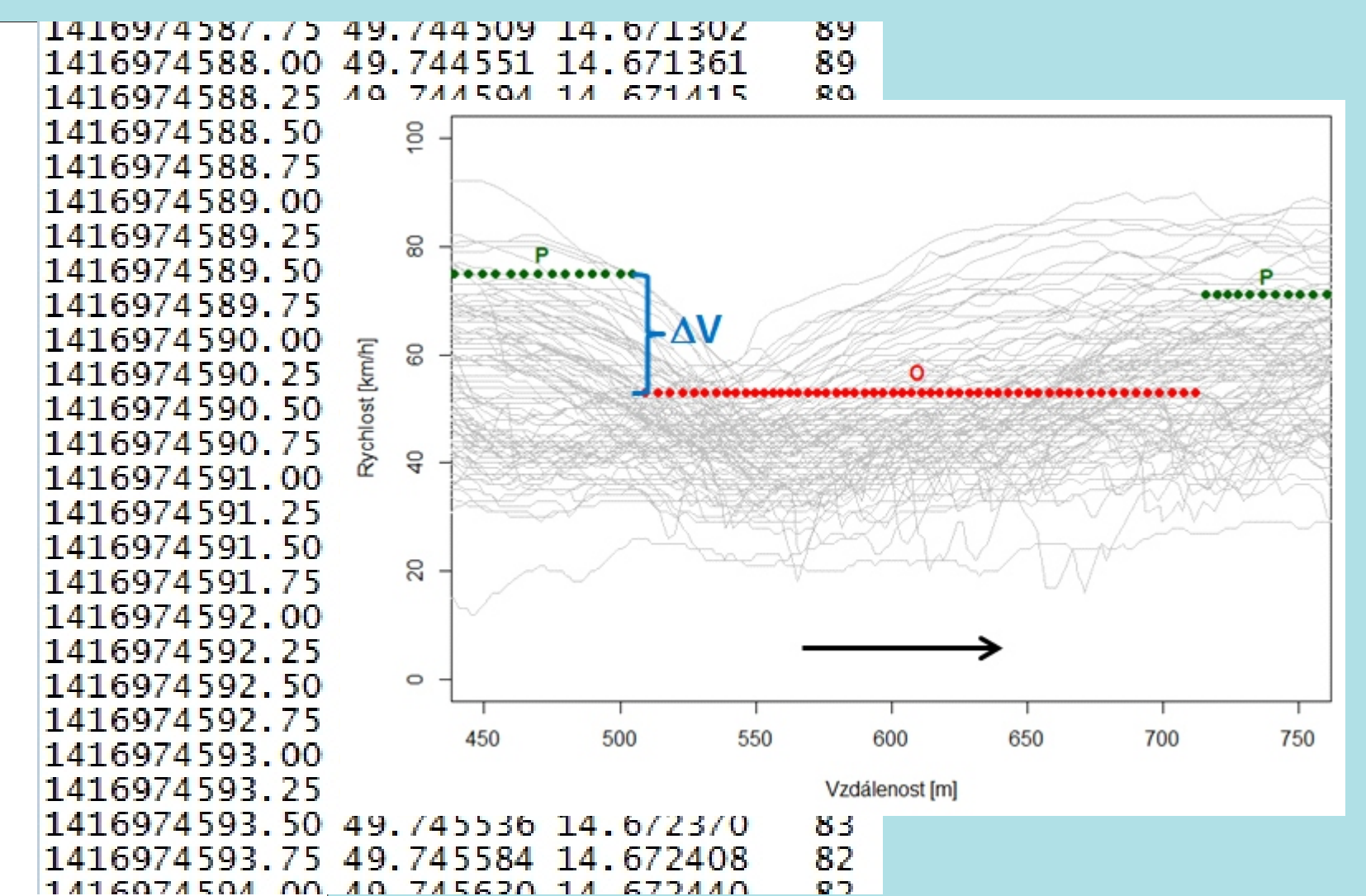
into tangents and curves

(min. length 200 m)



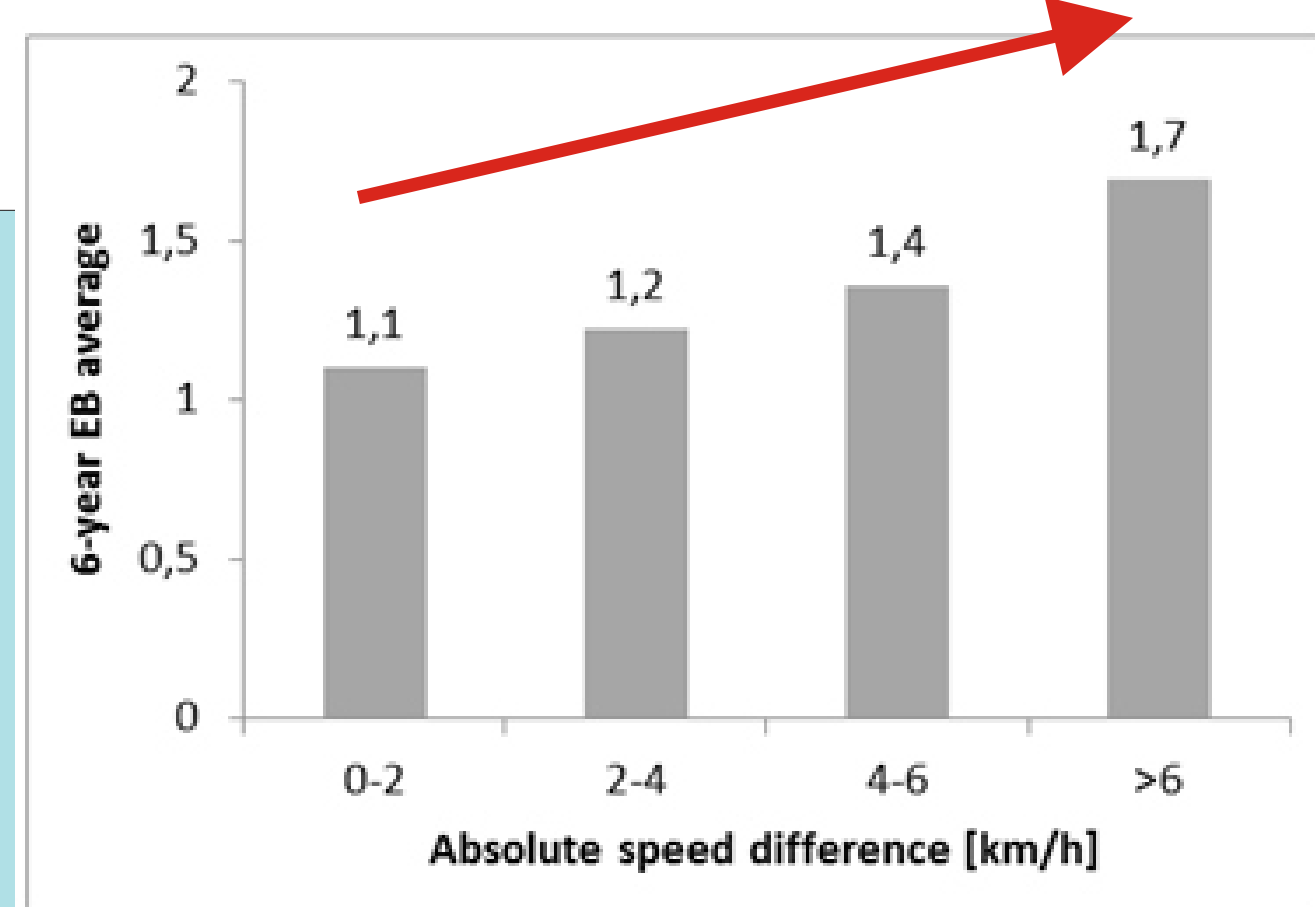
### 2) Speed

- from floating car data (FCD)
- at frequency 4 Hz
- collected for 8 months from approx. 1000-vehicle fleet
- estimation of free-flow speed from at least 100 drives / segment



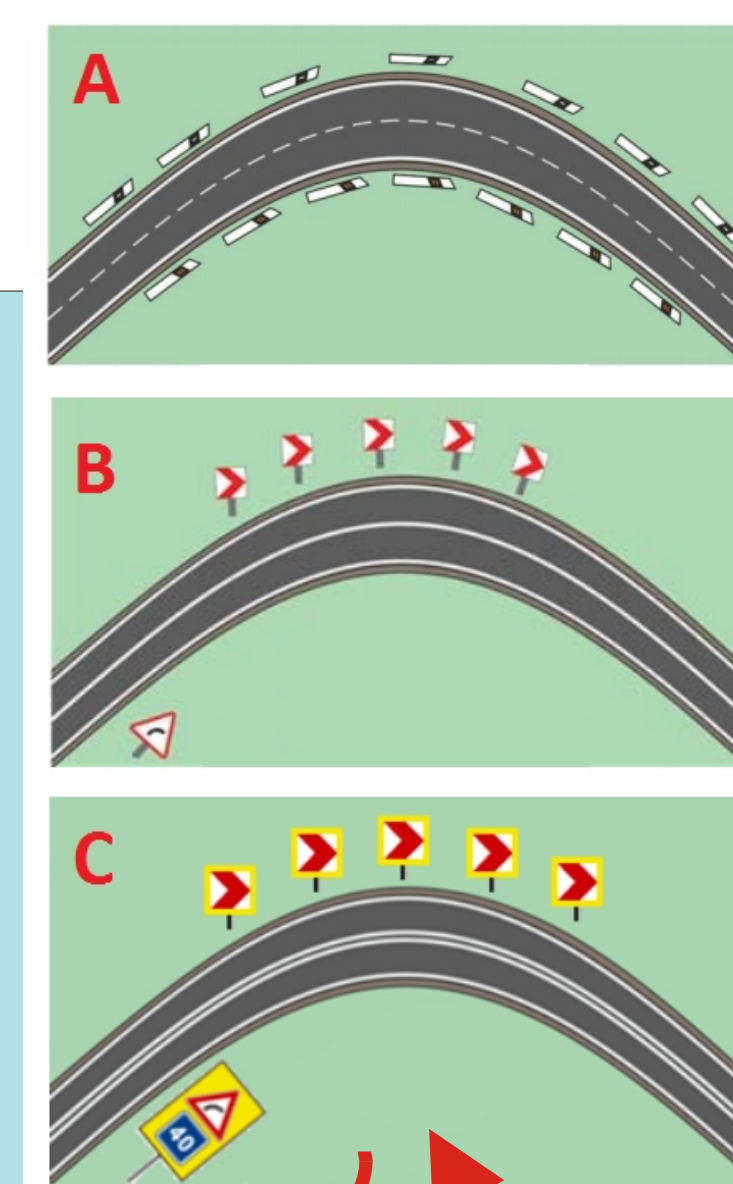
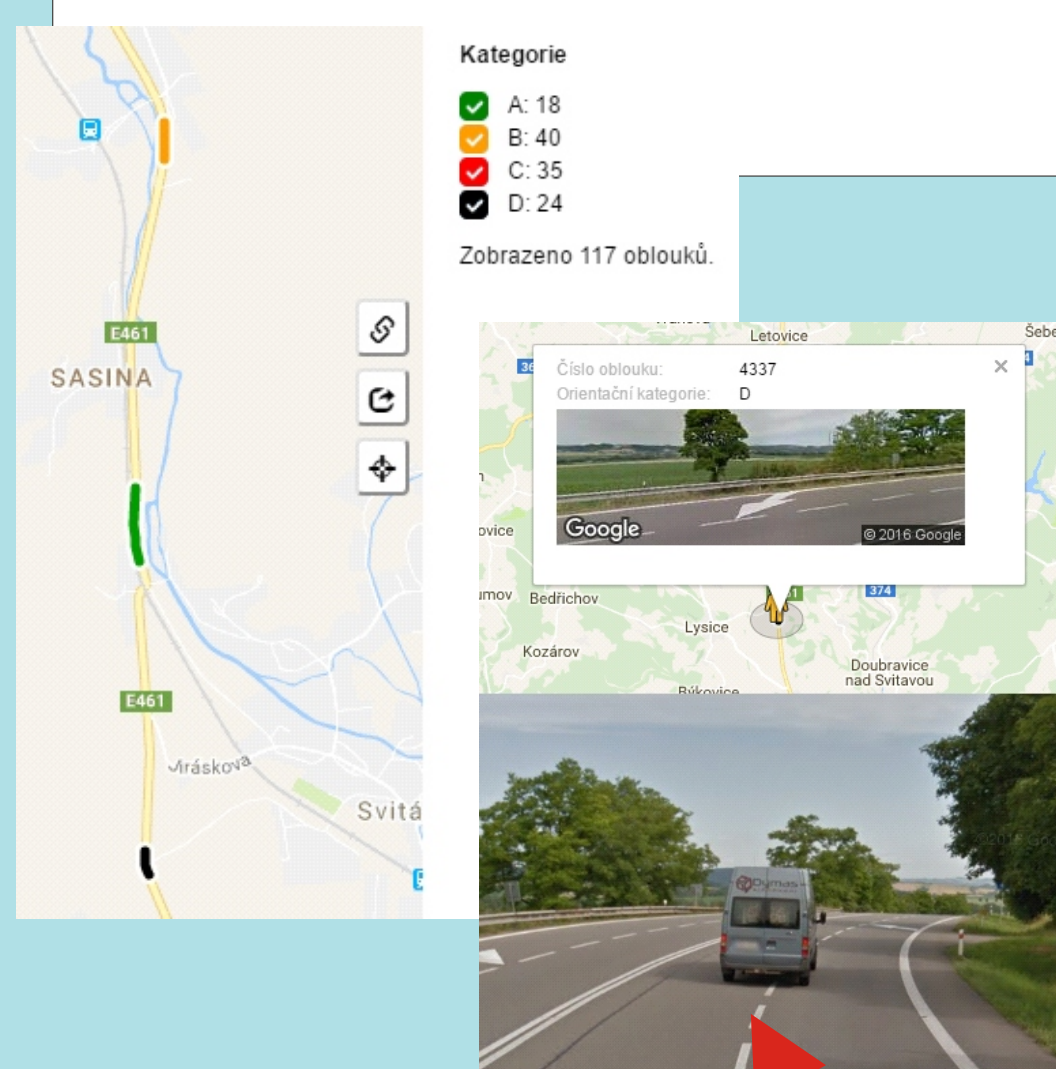
### 3) Speed models

- regression models, using AADT, geometry, cross-section, etc.
- separately for tangents and curves
- difference = consistency
- successfully validated against crashes

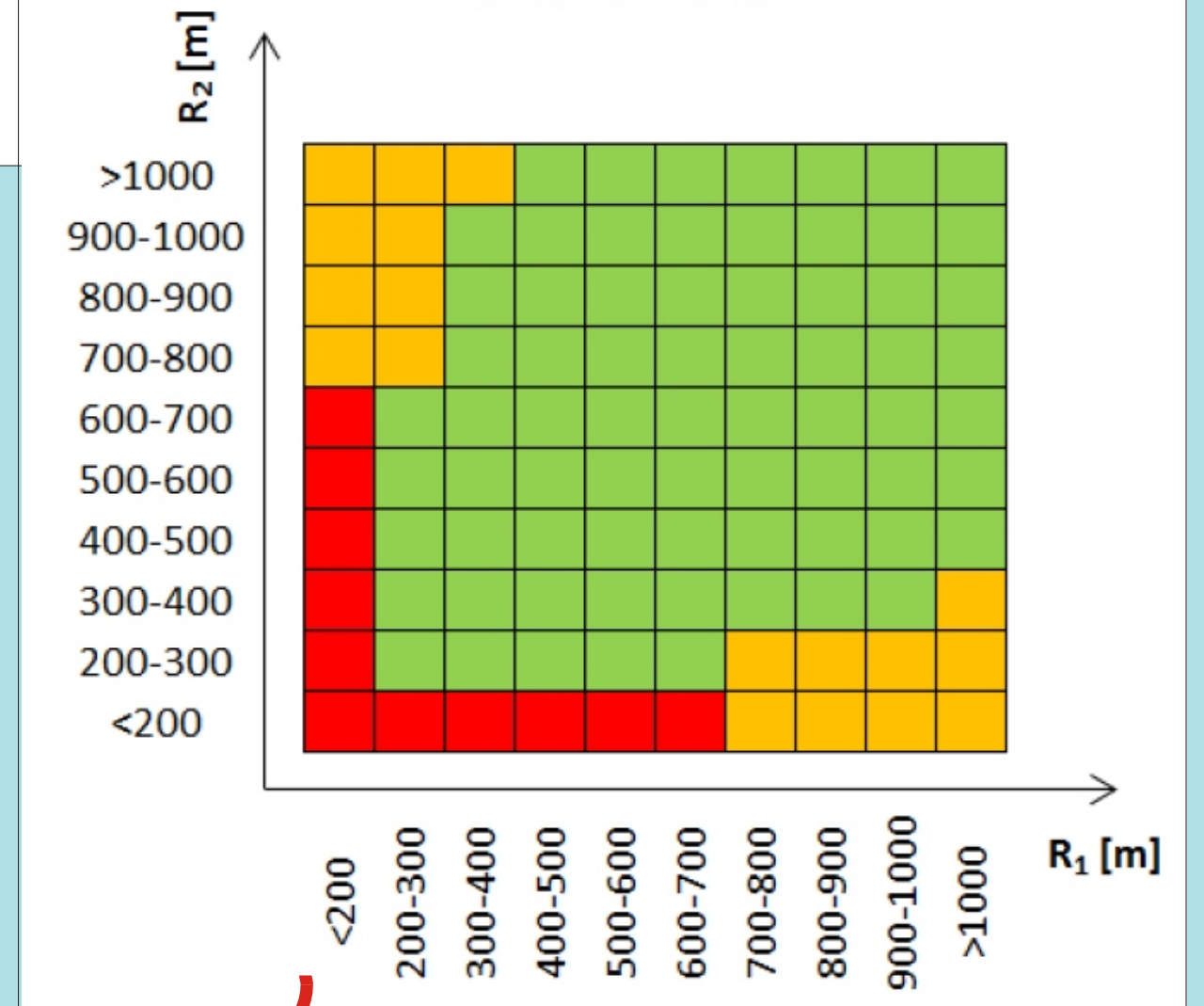
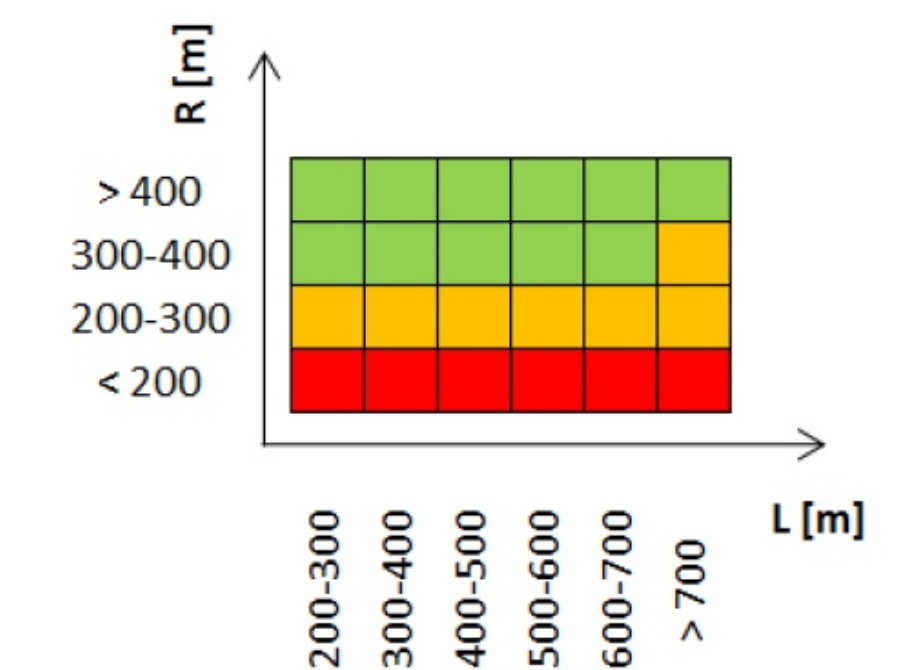


### 4) Network-wide application

- models predicted consistency of tangent-curve pairs
- ranking based on speed, radii, curvature
- assessment of both single elements and relation design (tangent-curve pairs or 2-curve sequences)



	$\Delta V$ [km/h]	$R$ [m]
A	> -5	> 300
B	-5 až -10	200 – 300
C	< -10	< 200



## CONCLUSIONS:

- Guideline to increase safety of rural curves and improve the self-explaining performance
- From data collection and processing to final categorization and optimization proposal
- Certified for practical use and to be applied by Czech national road agency

## ACKNOWLEDGMENTS

T A

Floating car data provided by Princip a.s.  
Additional data collected by Vojtěch Cícha, Stanislav Řehák, Jiří Sedoník.

Č R

Technology  
Agency  
of the Czech Republic

Funded by Technology Agency of the Czech Republic project TB0200MD062.  
Supported by the research infrastructure of Transport R&D Centre (CZ.1.05/2.1.00/03.0064).