

Traffic safety gains with attention to subjective aspects of surface characteristics

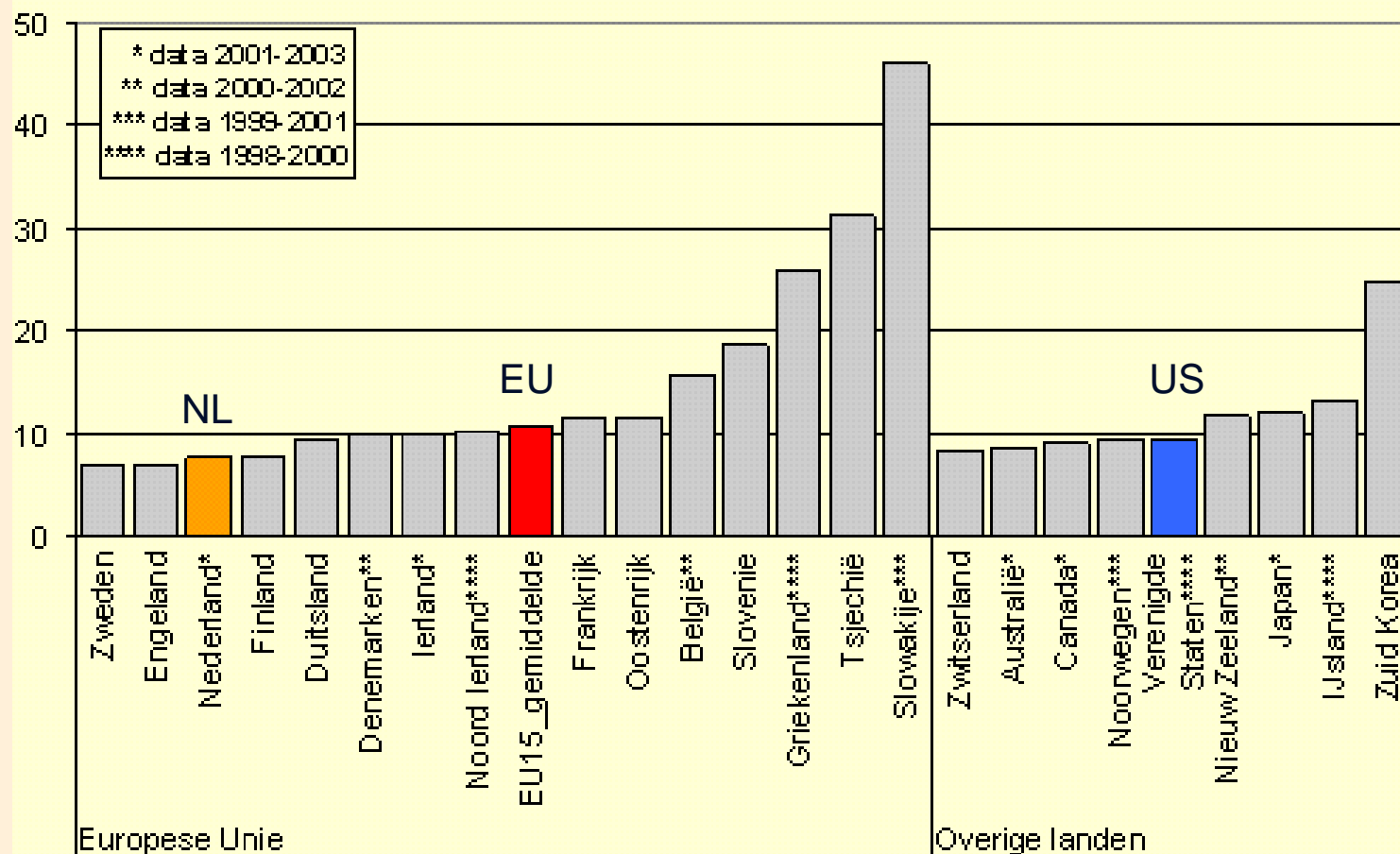
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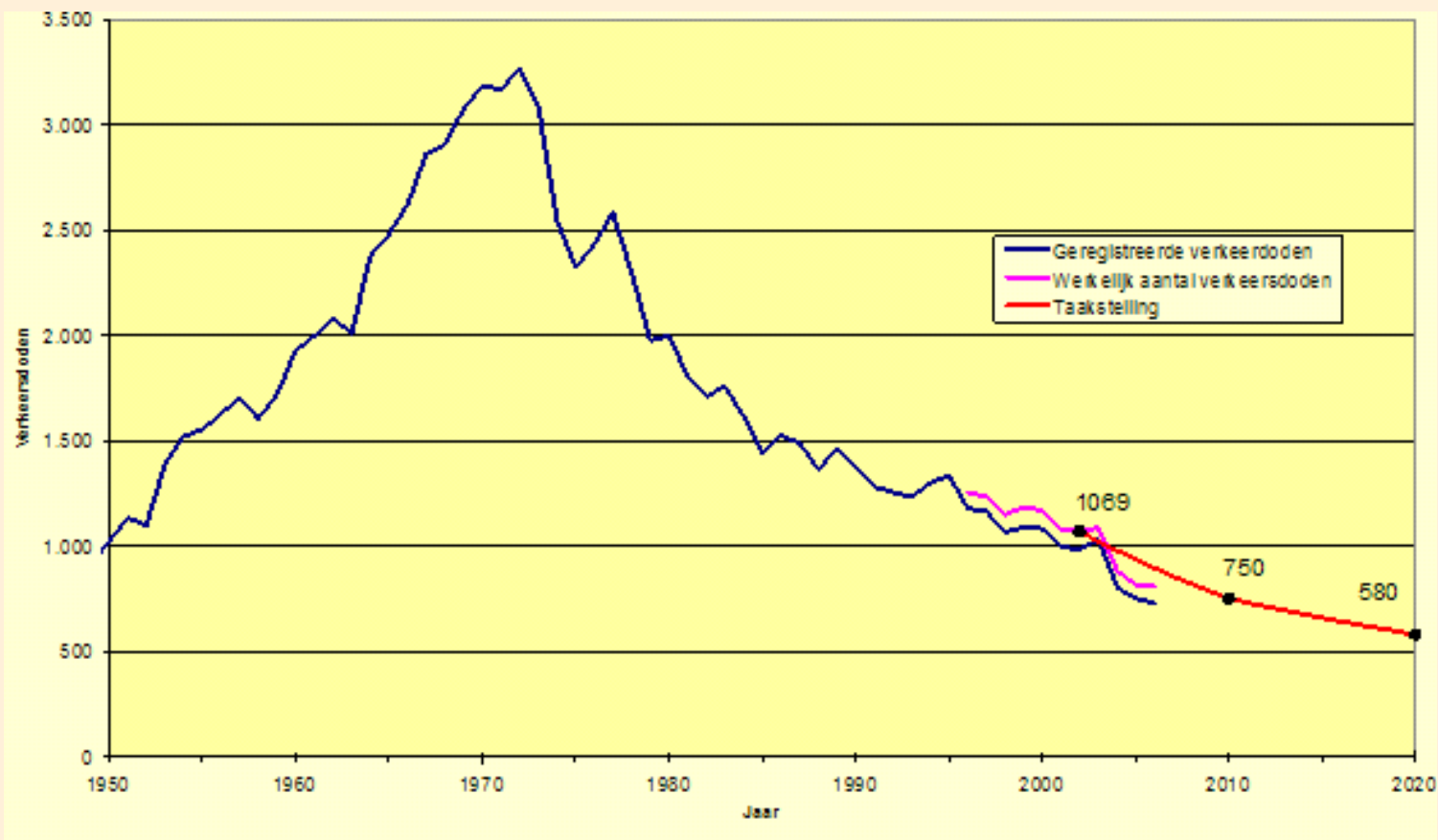
Contents

- **Traffic safety in NL, and trends**
- **Perceptible and imperceptible road surface properties**
- **Skid resistance and traffic safety**
- **Intended new approach for skid resistance management on Dutch state highways**

Traffic accidents NL vs other countries



Traffic casualties NL over time



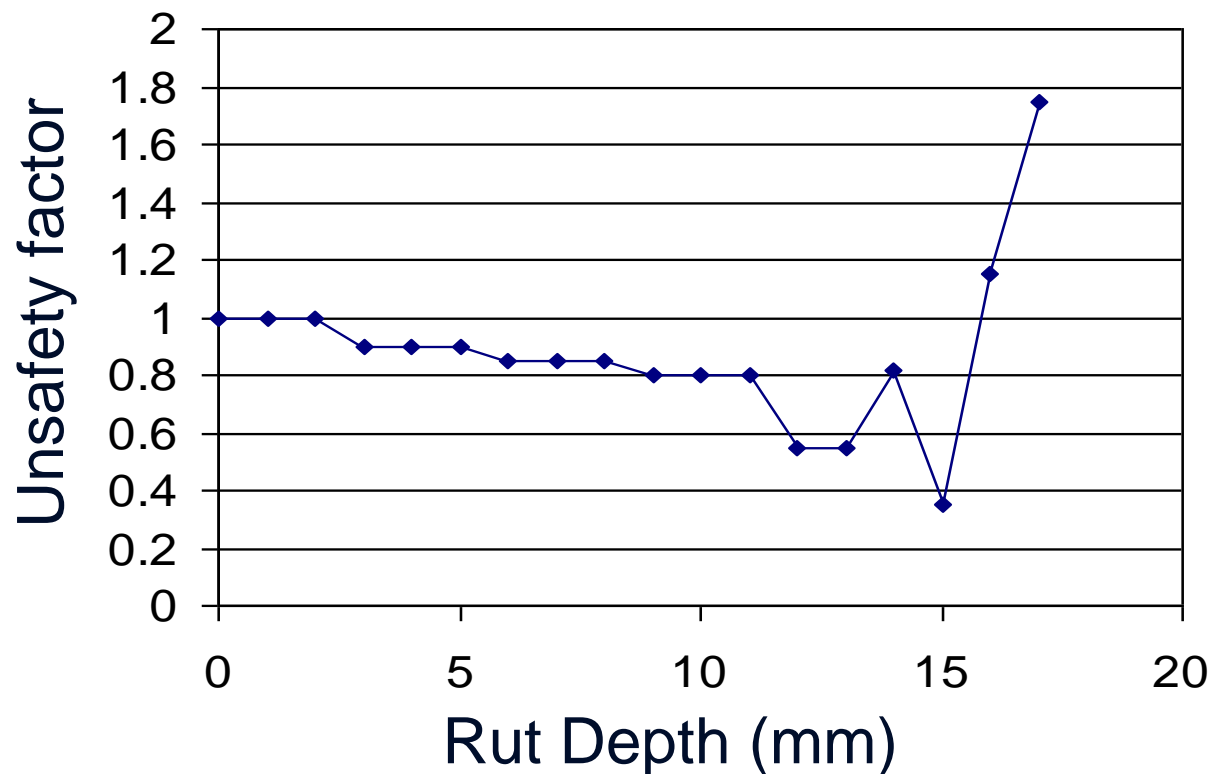
Increasing traffic safety

- **Safer cars (ABS, ESP, etc)**
- **Safety belts**
- **Motorcycle helmets**
- **Anti-alcohol campaigns**
- **Crossings => roundabouts**
- **Road condition**
- **...**

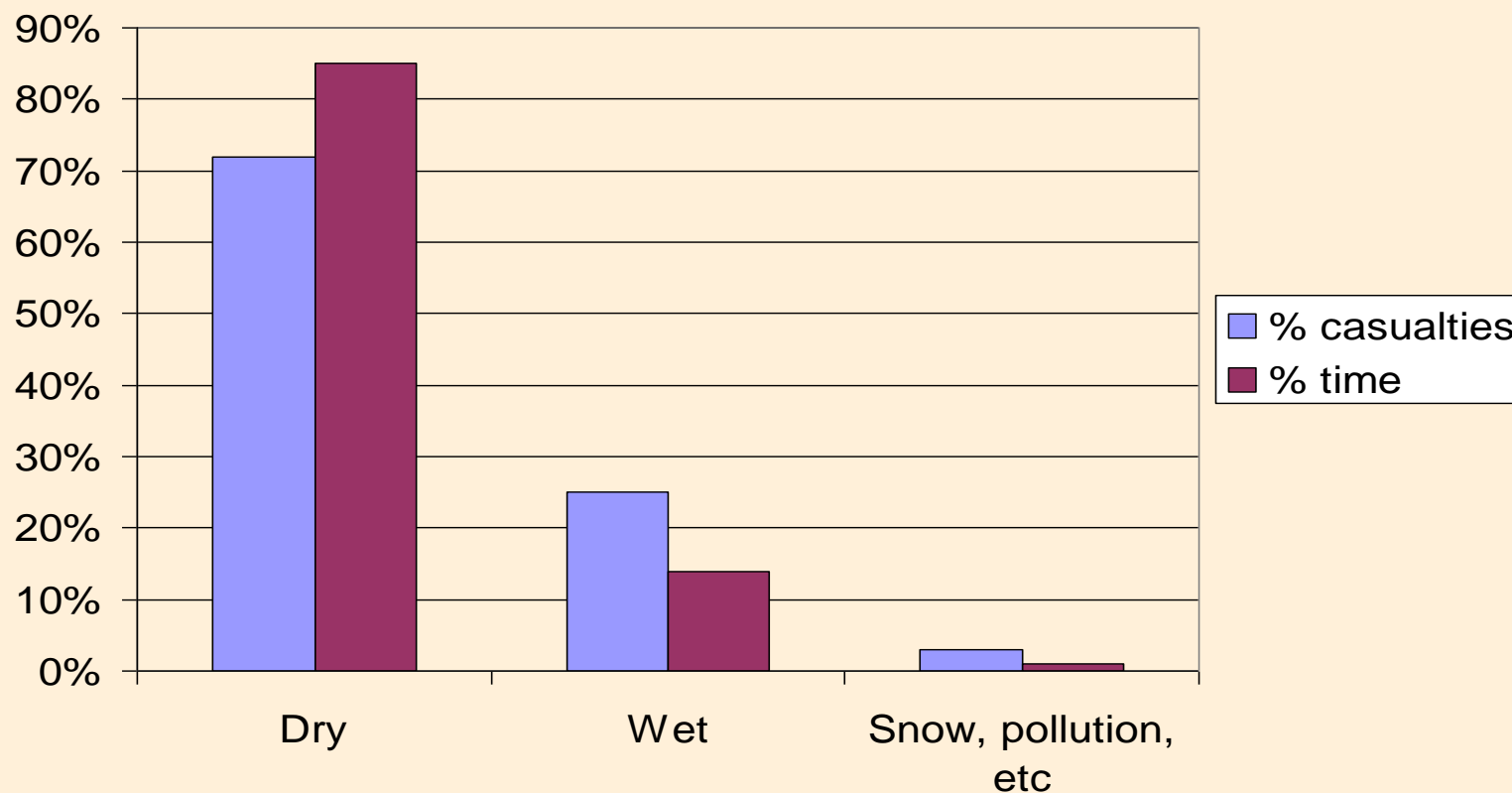
Traffic safety and road surface characteristics

- **85-95% of accidents due to human errors**
 - **safety estimation or risk perception**
 - **overrating own capabilities**
 - **and/or vehicle capacities**
 - **perception of “environment”, a.o. road**
 - **perceptible and imperceptible properties of road surface**
 - **(un)evenness**
 - **skid resistance**

Traffic safety vs rut depth, wet road



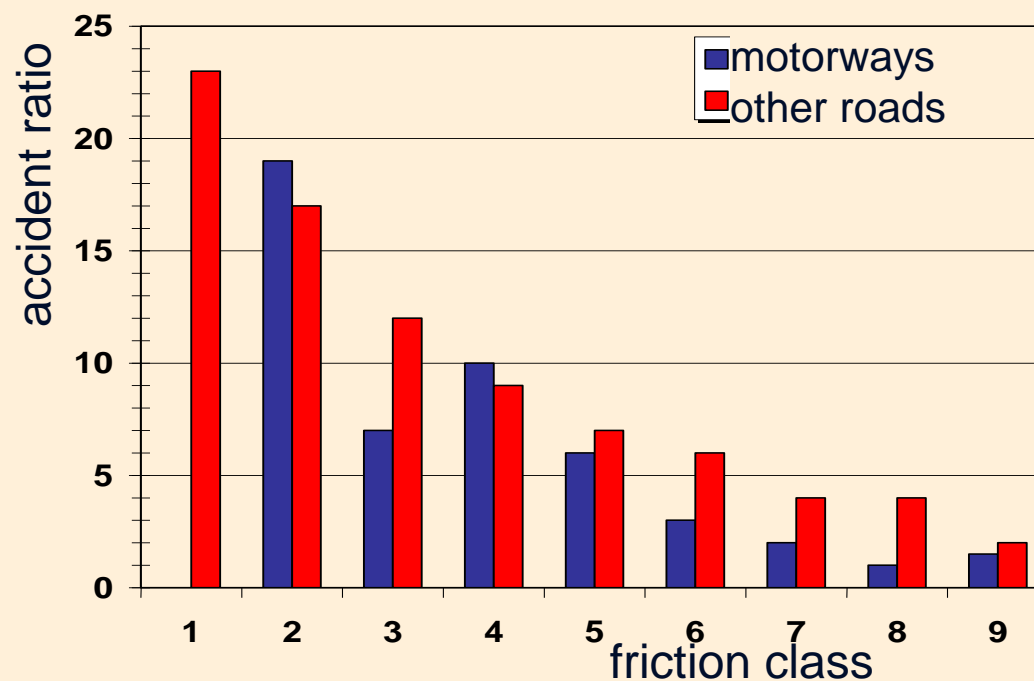
Traffic casualties vs road condition



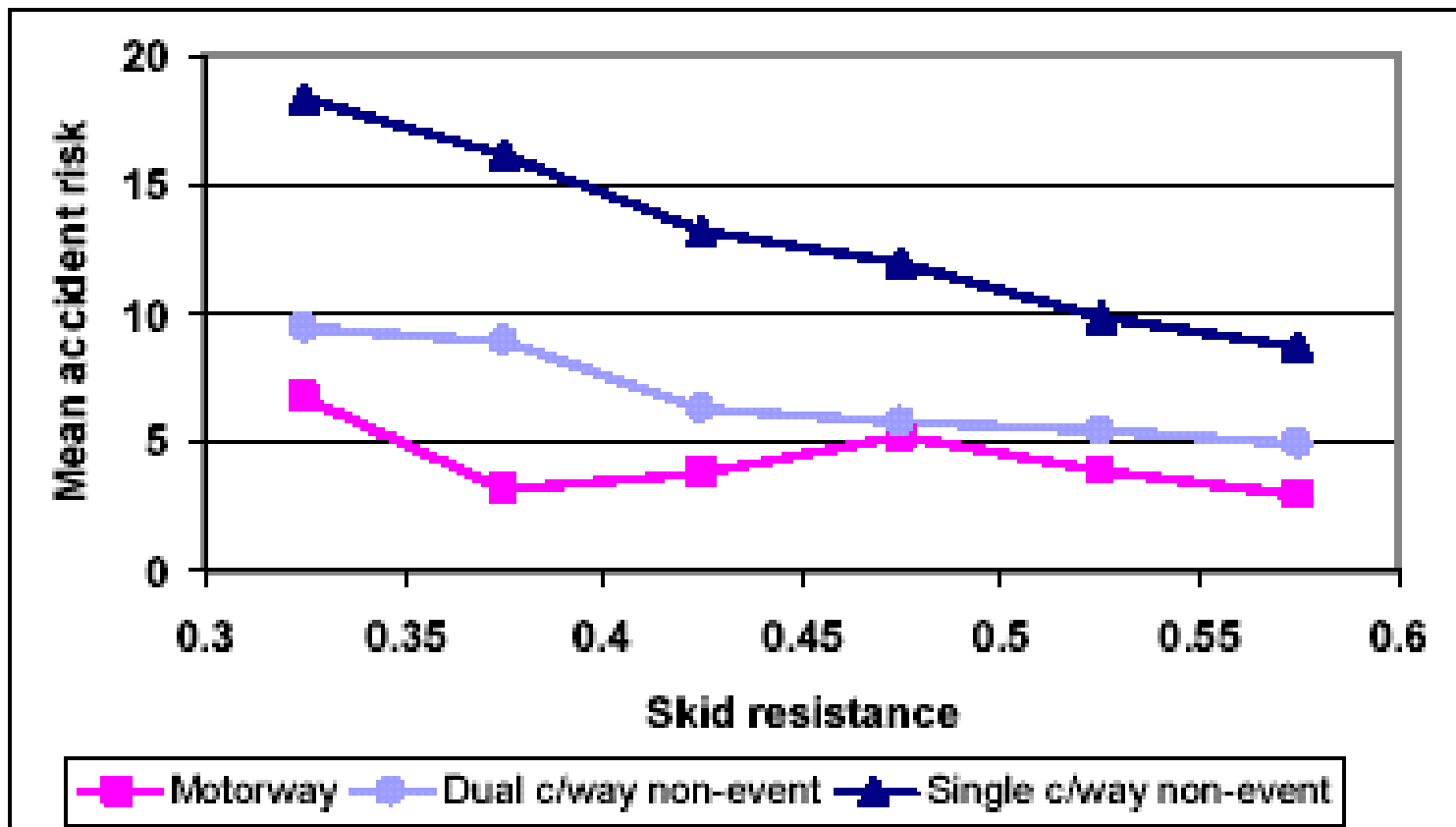
Traffic safety and wet grip

NL: RWS/SWOV (1973)

- Accidents vs wet grip
- Intervention level, warning level, acceptance level



UK: TRL 2004



UK: Investigatory levels

Site category and definition		Investigatory level at 50km/h							
		0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65
A	Motorway class								
B	Dual carriageway non-event								
C	Single carriageway non-event								
Q	Approaches to and across minor and major junctions, approaches to roundabouts								
K	Approaches to pedestrian crossings and other high risk situations								
R	Roundabout								
G1	Gradient 5 to 10% longer than 50m								
G2	Gradient >10% longer than 50m								
S1	Bend radius <500m – dual carriageway								
S2	Bend radius <500m – single carriageway								

2004 categories and investigatory levels for wet grip
(dark gray is normal range, light grey are exceptions for low-risk situations)

NL Skid resistance policy

Until recently:

- Yearly monitoring state highways network
- Use only this year's data
- 1 threshold level for all road types
- Fairly binary judgment: OK / not OK (“green / red”)

Drawbacks:

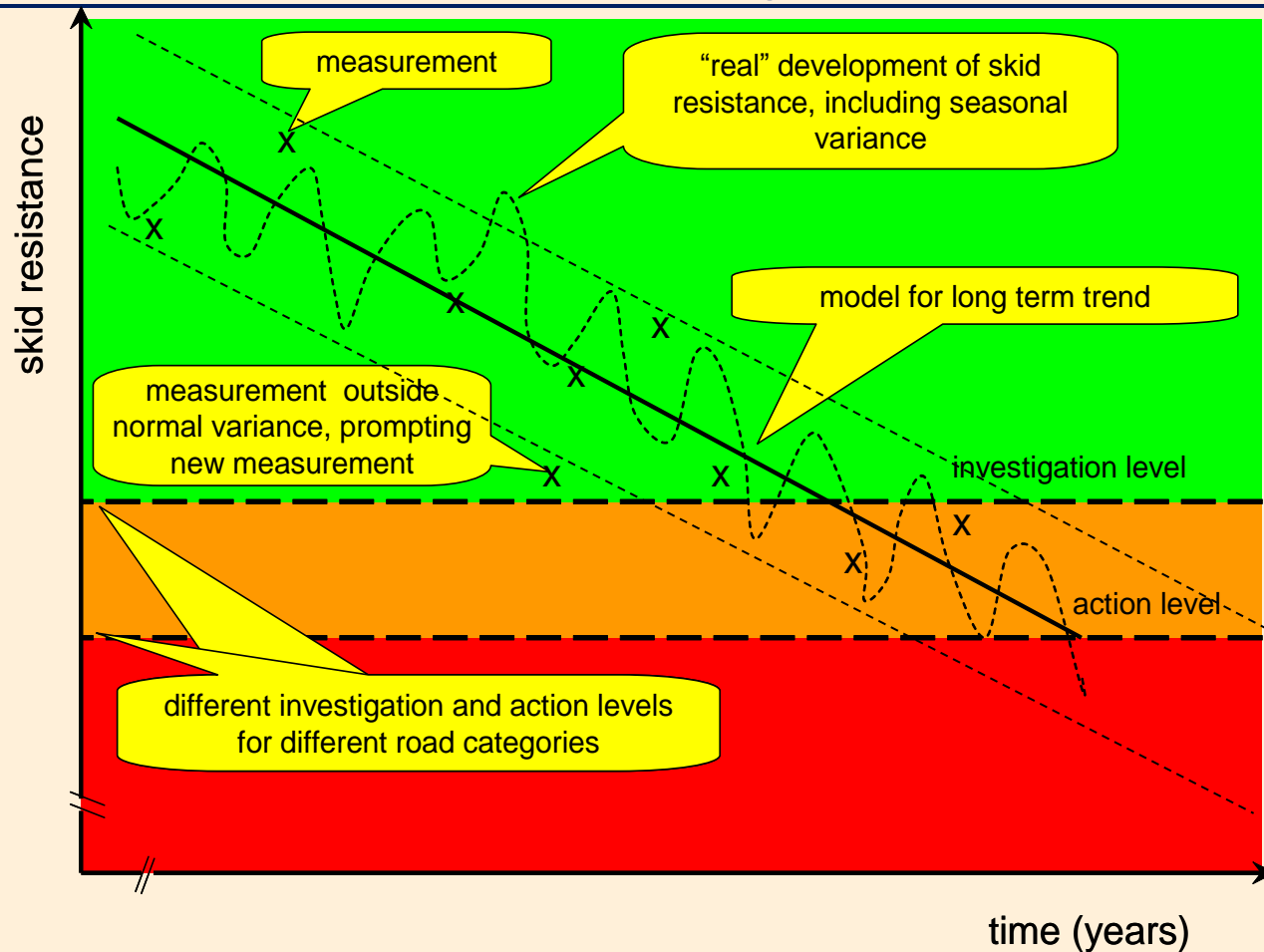
- Data fluctuations (seasonal variation, spatial variation, equipment reproducibility)
- Gradual, not binary, influence of skid resistance on traffic safety

NL Skid resistance policy

New approach:

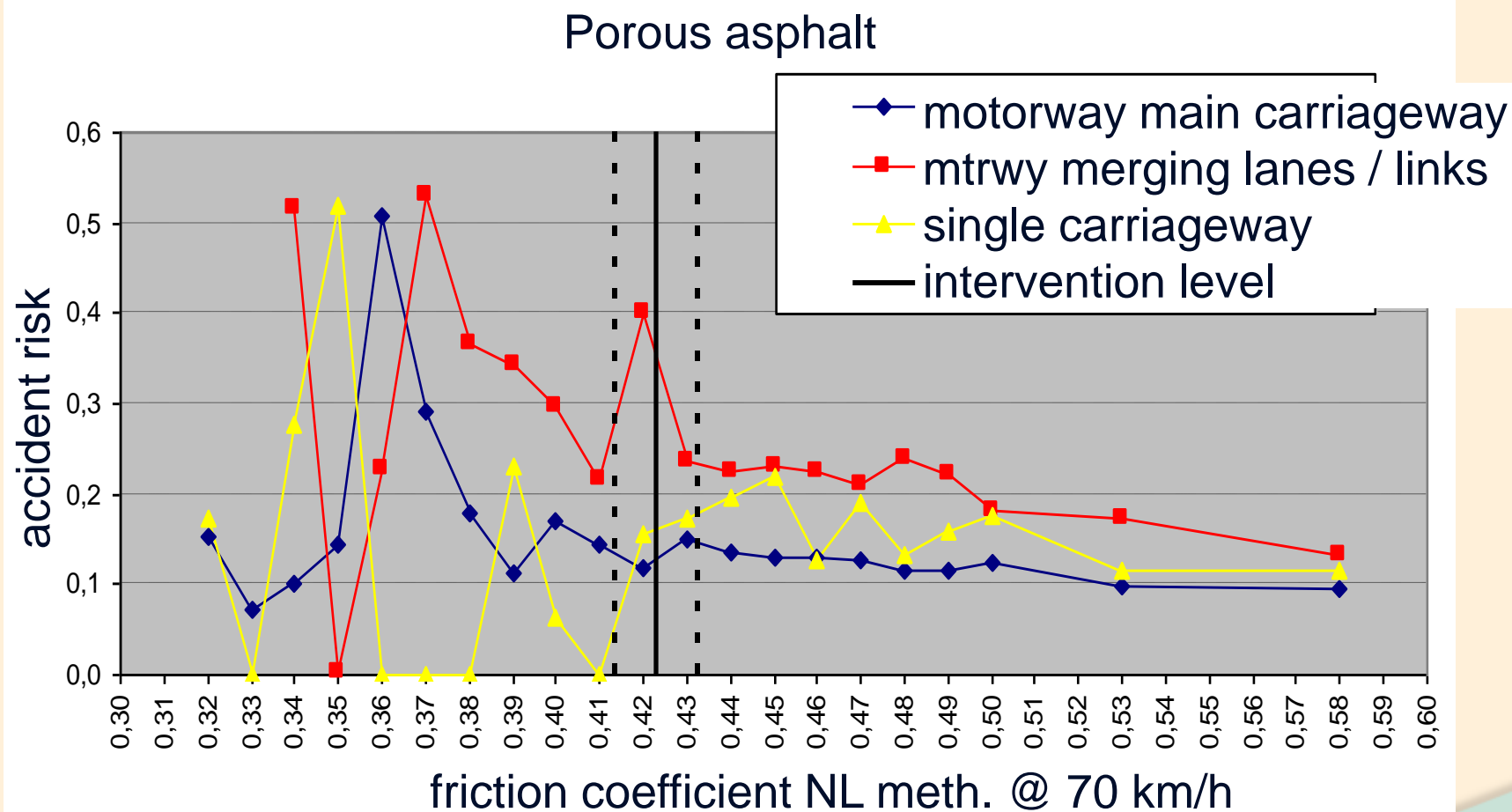
- **Use weighted multi-year data, with seasonal correction**
- **Investigatory level: “Orange” zone**
- **Investigate norm level and possible differentiation for road categories, e.g:**
 - **Motorways: main carriageways, no events**
 - **Motorways: slip roads, merging sections**
 - **Single carriageway highways**

Intended new approach for skid resistance policy

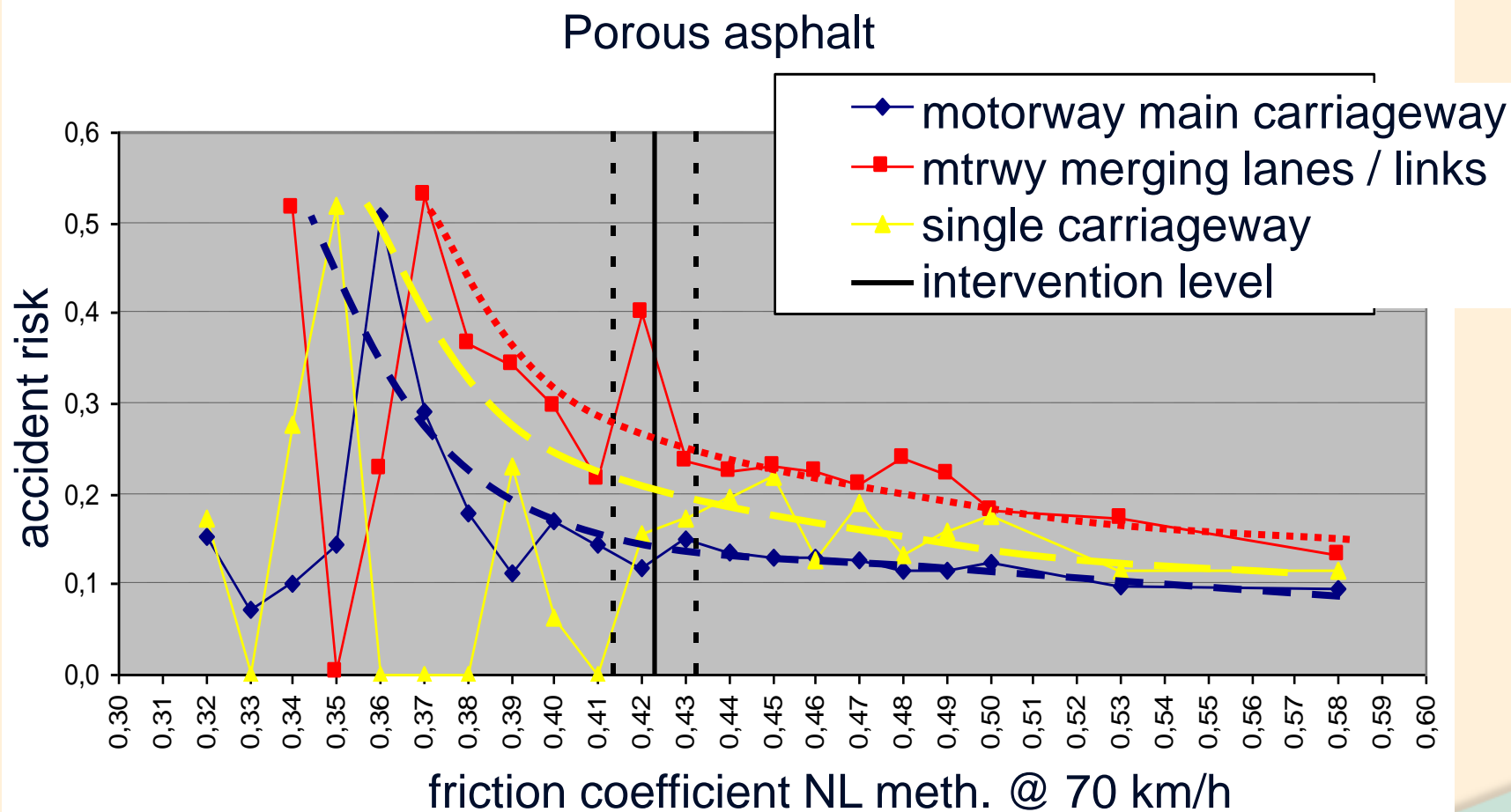


Traffic safety and wet grip

NL: RWS/TNO (2008)



Traffic safety and wet grip





Thank you for your attention!

Questions?

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