The Long-Term Pavement Performance Section of BAB 5

– Current Status and Outlook –

By

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RPUG Road Profile Users' Group

Outline

1 Introduction and Objectives

2 Data

3 Analysis and Results

4 Conclusions and Outlook

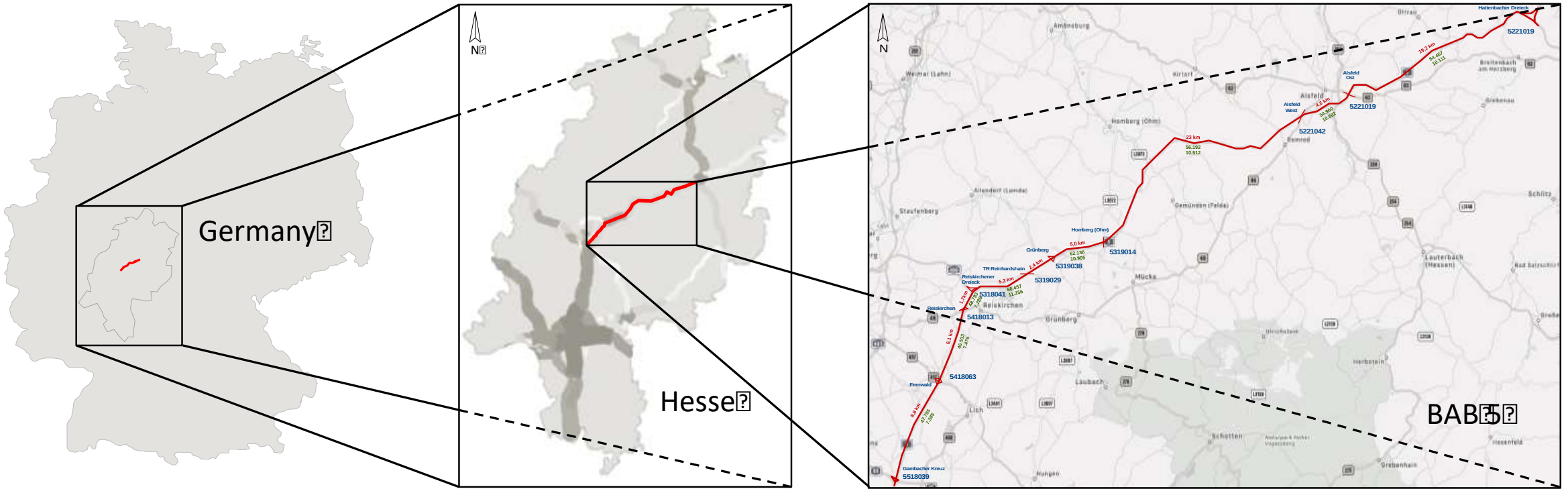
1 Introduction and Objectives

A long-term pavement performance section was established in Hesse, Germany in order to:

- assure the quality of survey conditions (german: ZEB),
- test new monitoring features,
- analyze the condition of state,
- answer questions regarding road construction,
- analyze climatic influences,
- analyze the influences of heavy traffic

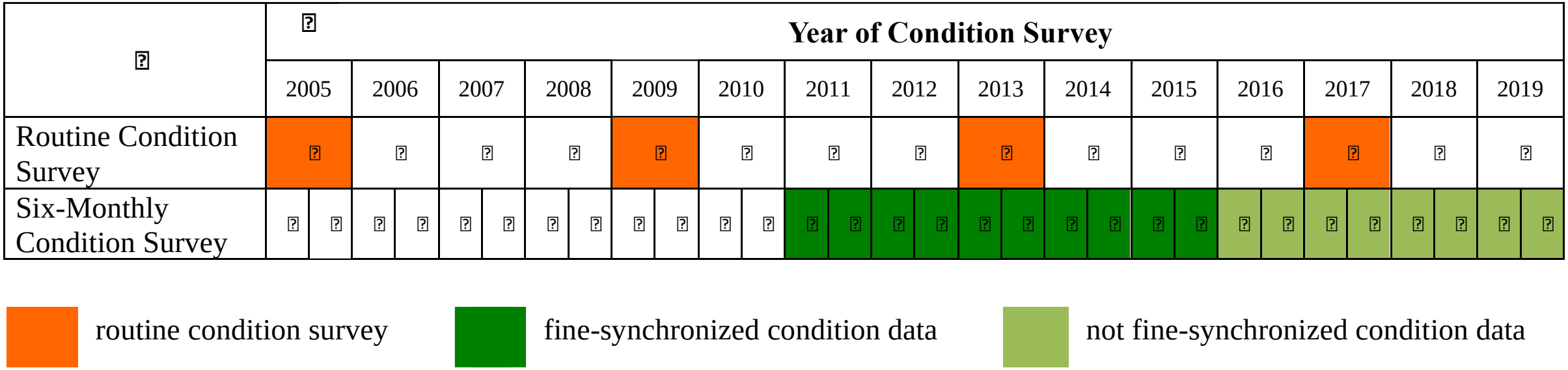
Bergmann-Syren, J.; Smet, W.; Komma, Ch.; Skakuj, M. (2017)

1 Introduction and Objectives



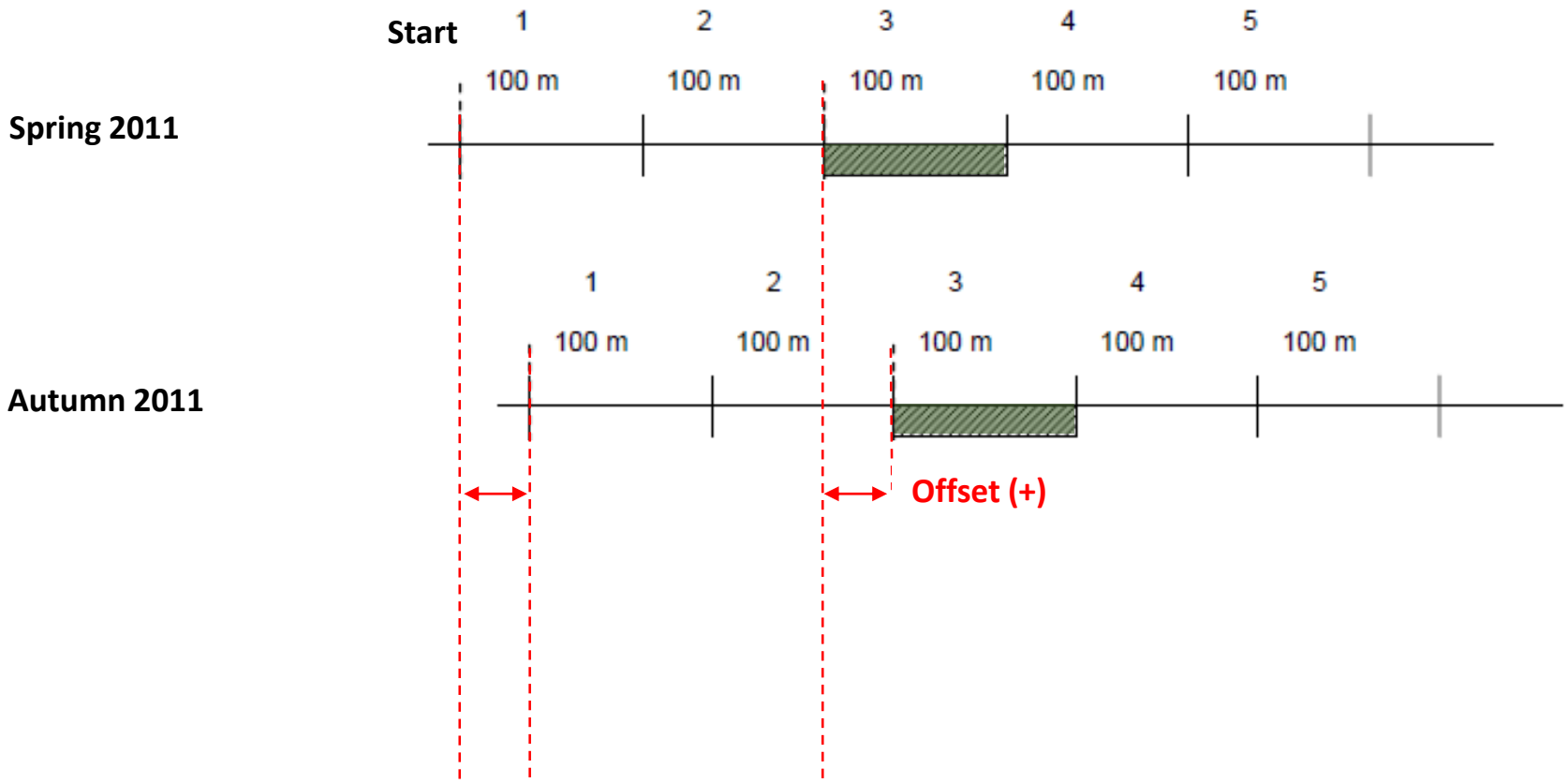
Blumenfeld (2019)

2 Data – Condition Data



Blumenfeld (2019)

2 Data – Finesynchronization



Skakuj, Komma (2016)

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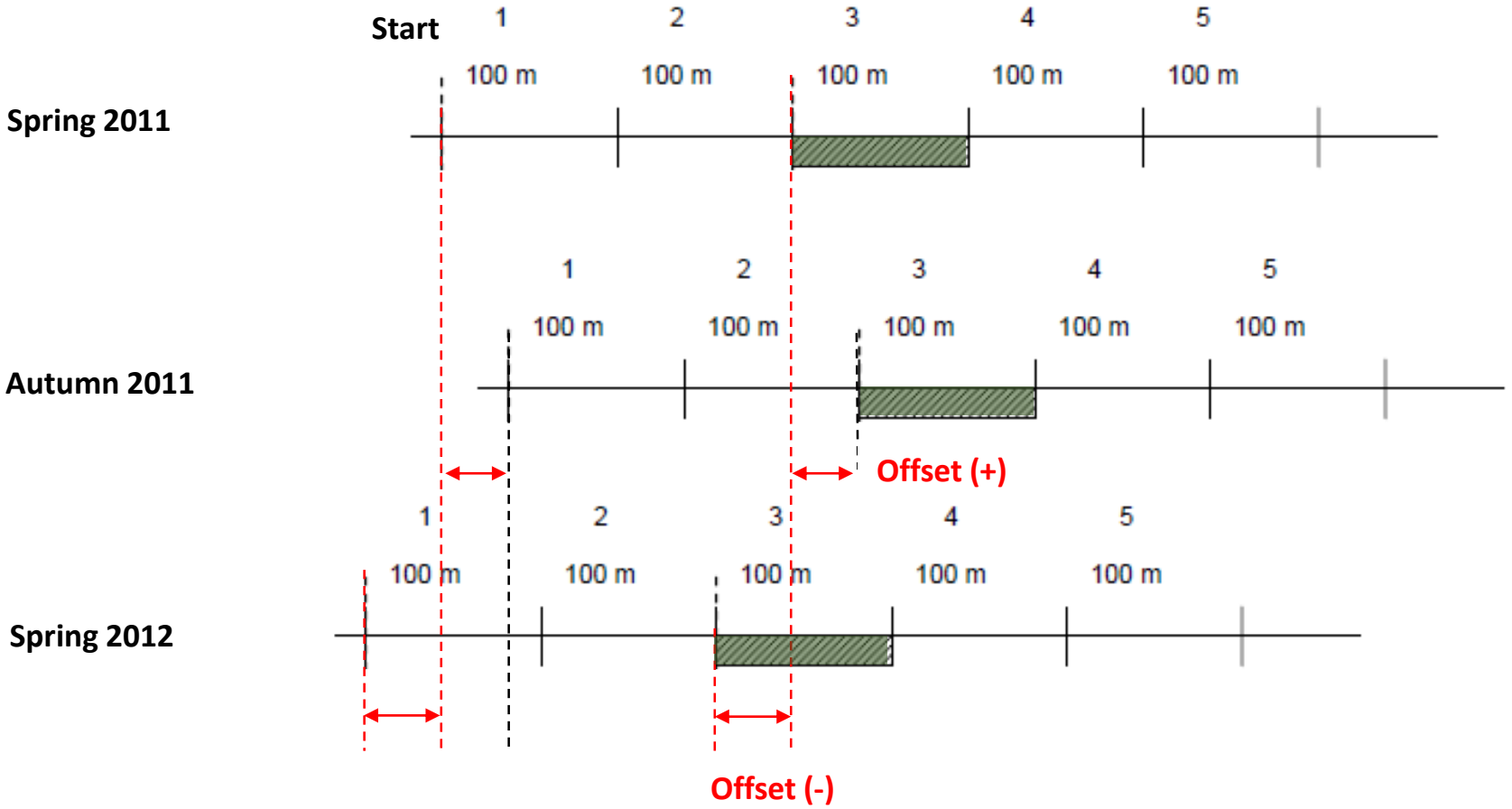

Skakuj, Komma (2016)

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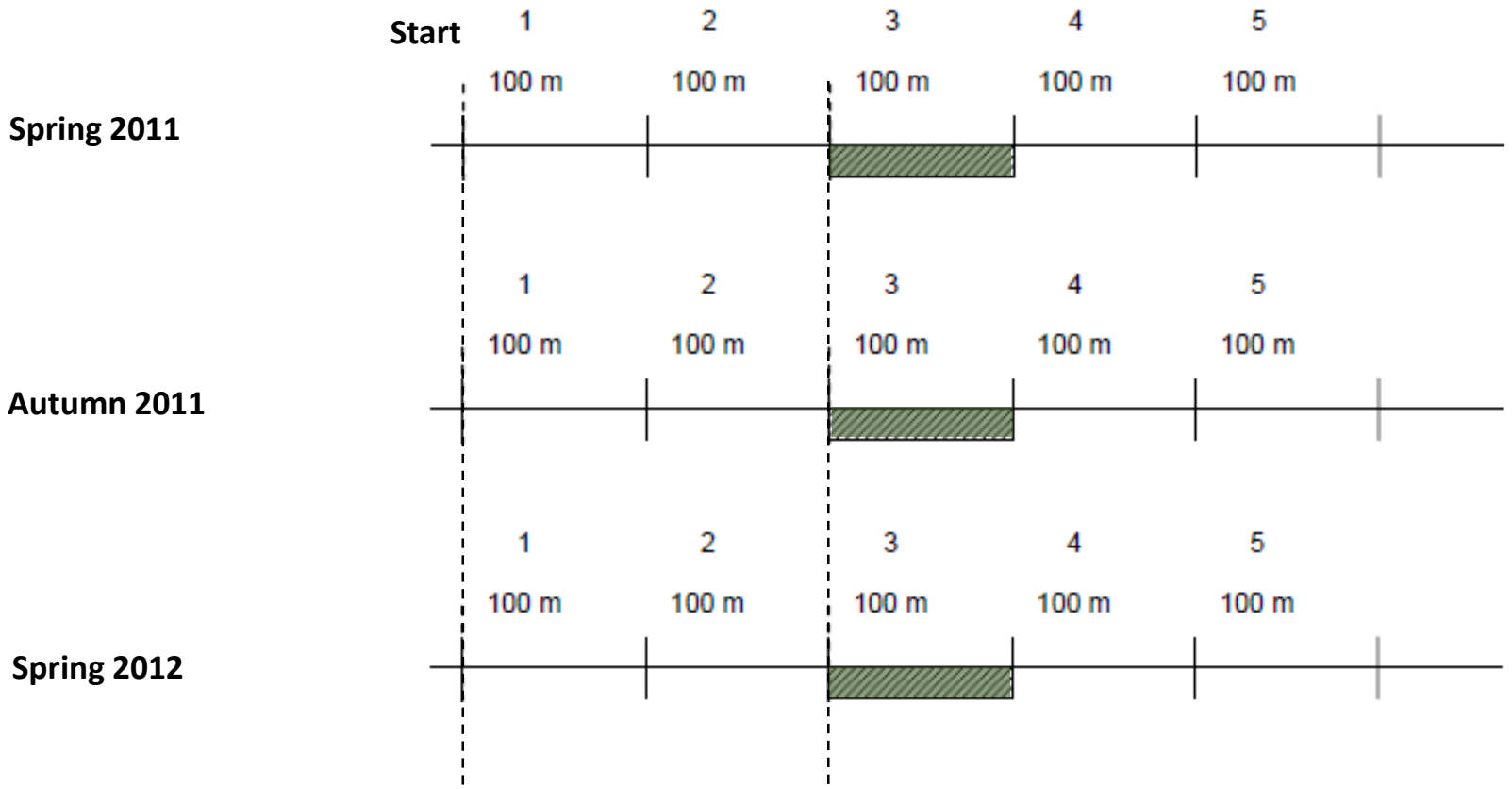

Skakuj, Komma (2016)

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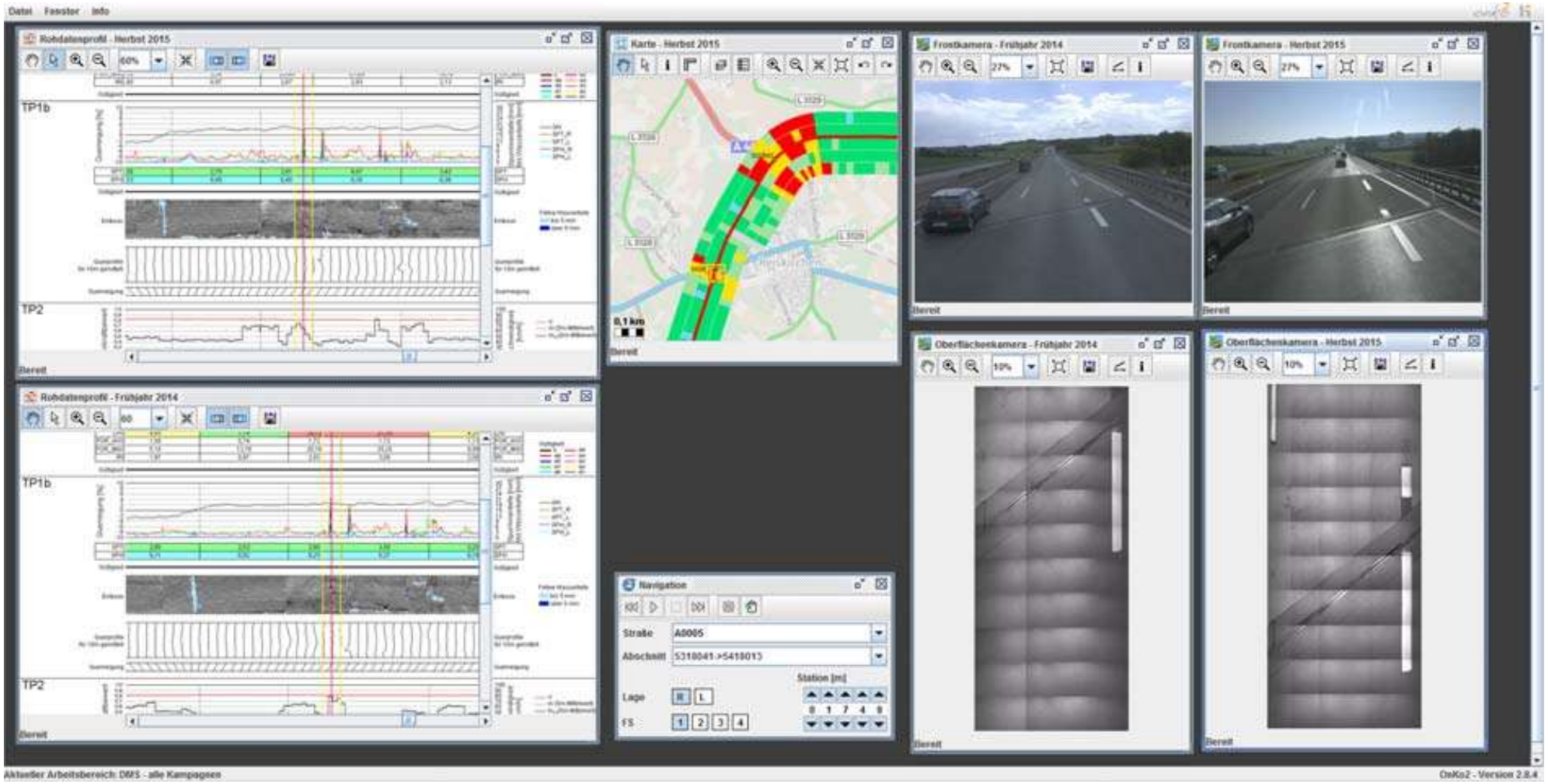

Skakuj, Komma (2016)

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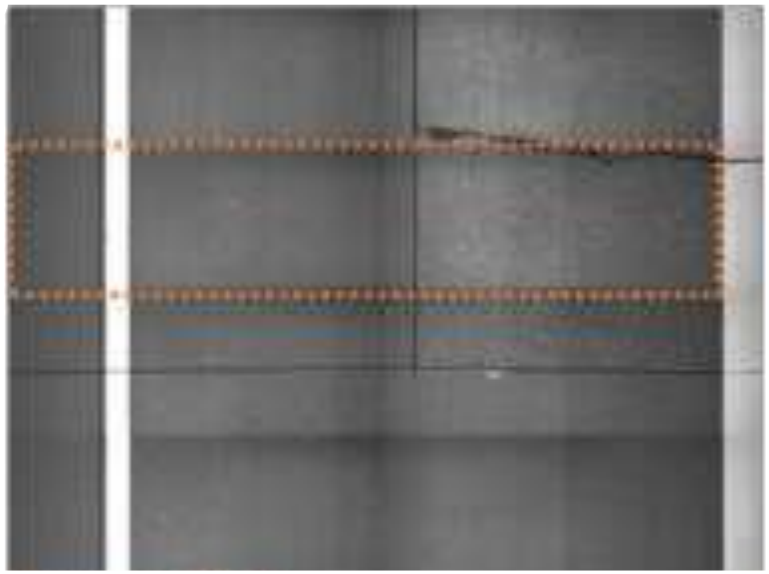
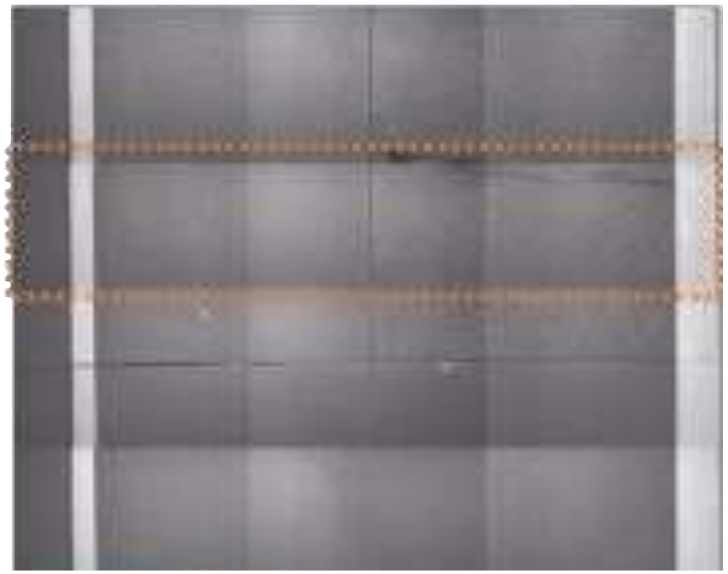
2 Data – Finesynchronization

Spring 2011

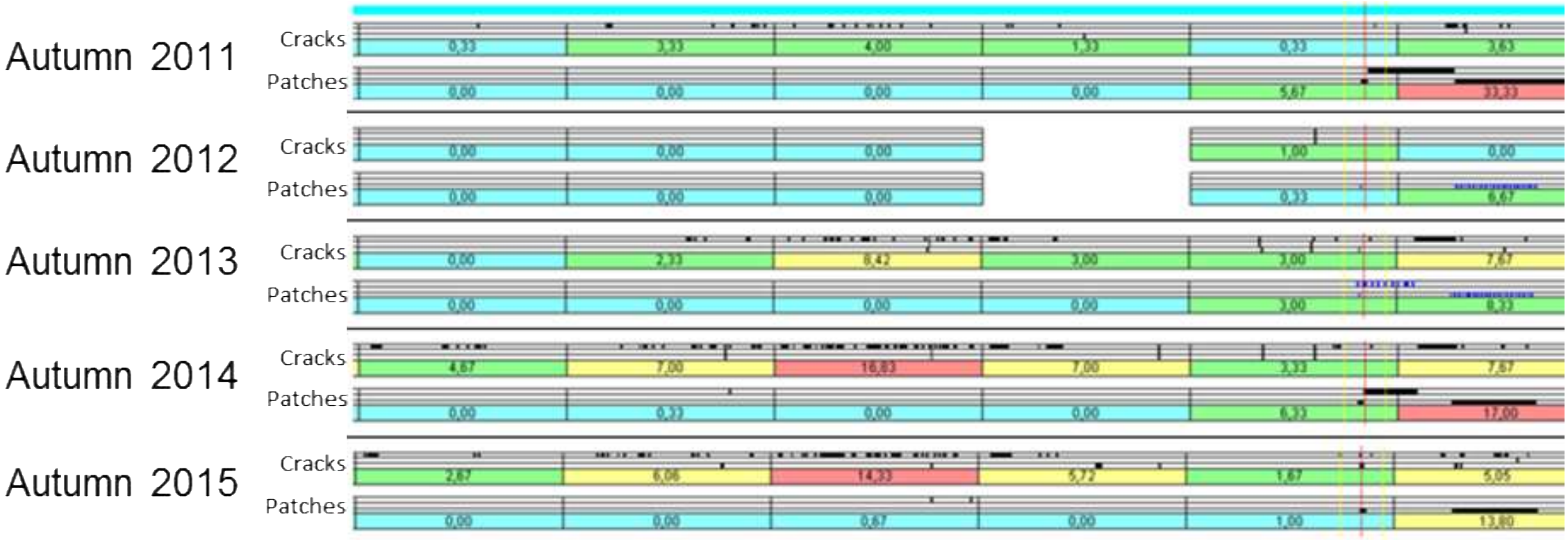


Spring 2013



Spring 2015

2 Data – Finesynchronization



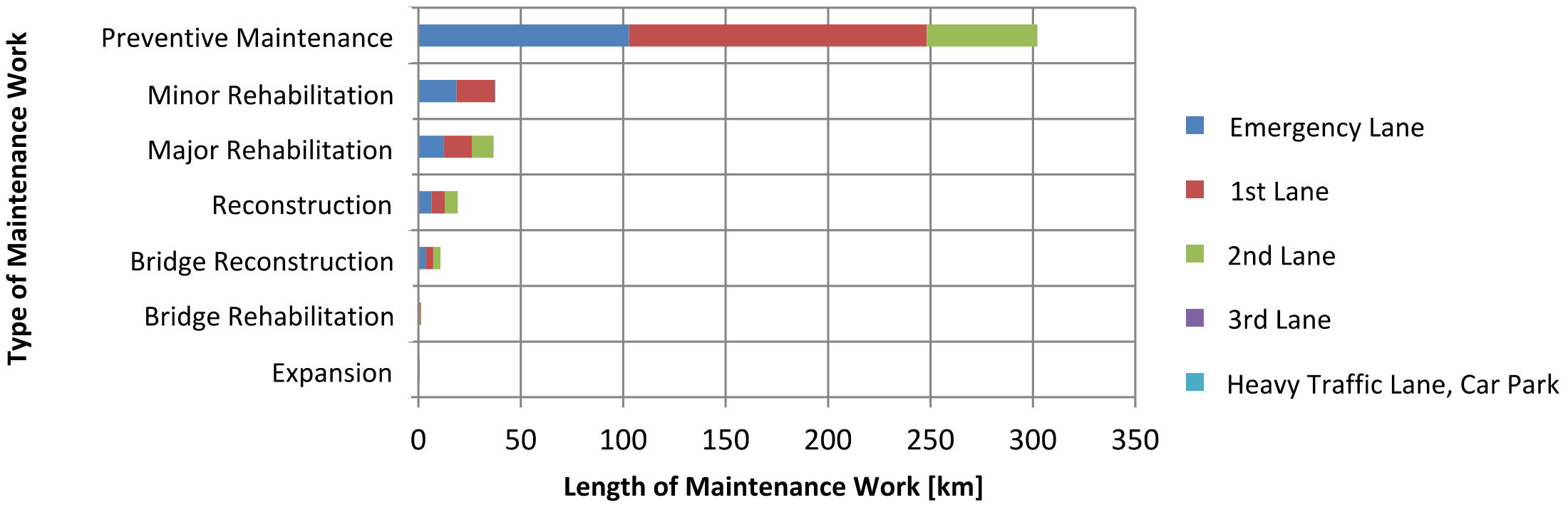
Bergmann-Syren, J.; Smet, W.; Komma, Ch.; Skakuj, M. (2017)

2 Data – Maintenance Works

Information on M&R Treatments		Example 1	Example 2
Time Range	Start	2011-04-04	2011-06-06
	End	2011-05-05	2011-06-06
Event		-	vehicle accident
Type of Treatment		Rehabilitation	-
Description		SMA LA	truck with dangerous goods tipped over, lost 3,000 l of crude
Affected Section	Start	397.2	419.3
	End	391.4	419.6
Direction of Travel		Kassel	Frankfurt
Affected Lane number		0, 1	0, 1
Traffic Routing		3 + 1	-
Location of Construction Site	Start	340.1	-
	End	390.7	-
Closed Lanes (> 24h)			0, 1
Notes		-	warning sign
Involved Agencies		Agency North	Agency South
Name of Editor		-	-

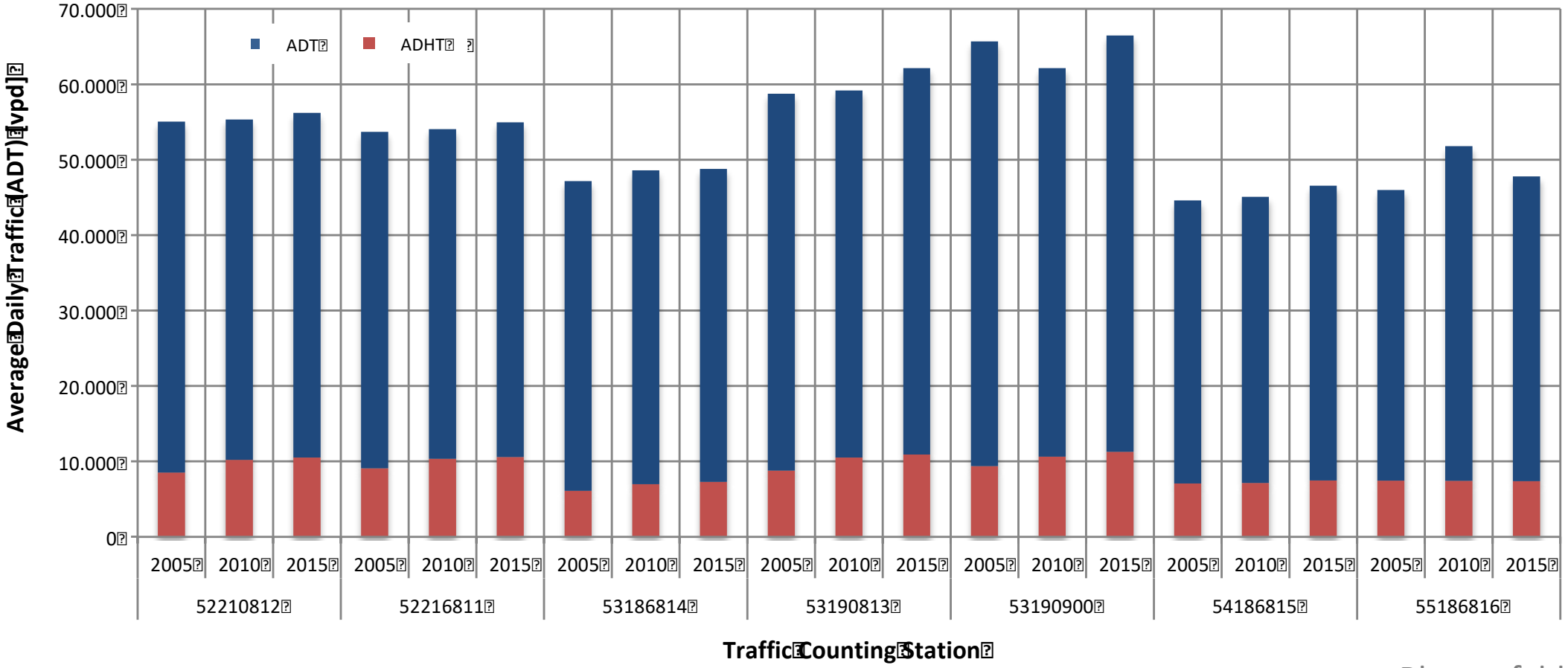
Blumenfeld (2019)

2 Data – Maintenance Works (2011 – 2015)



Blumenfeld (2019)

2 Data – Traffic



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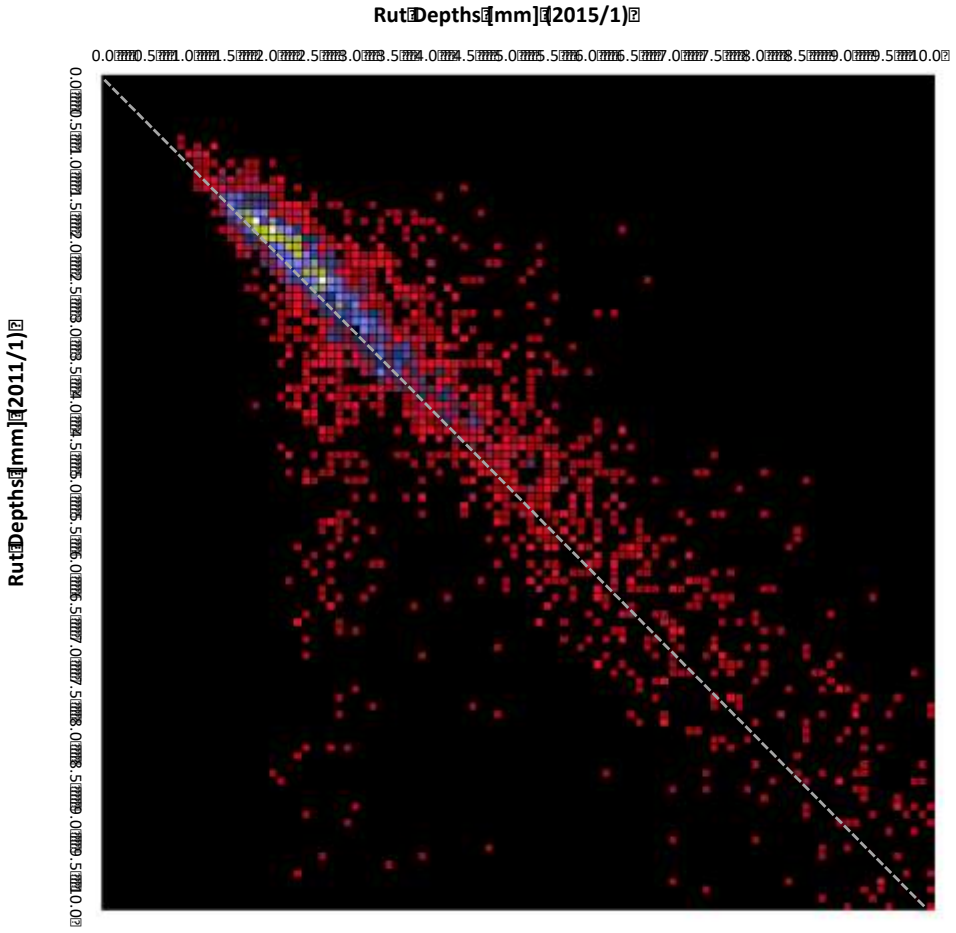
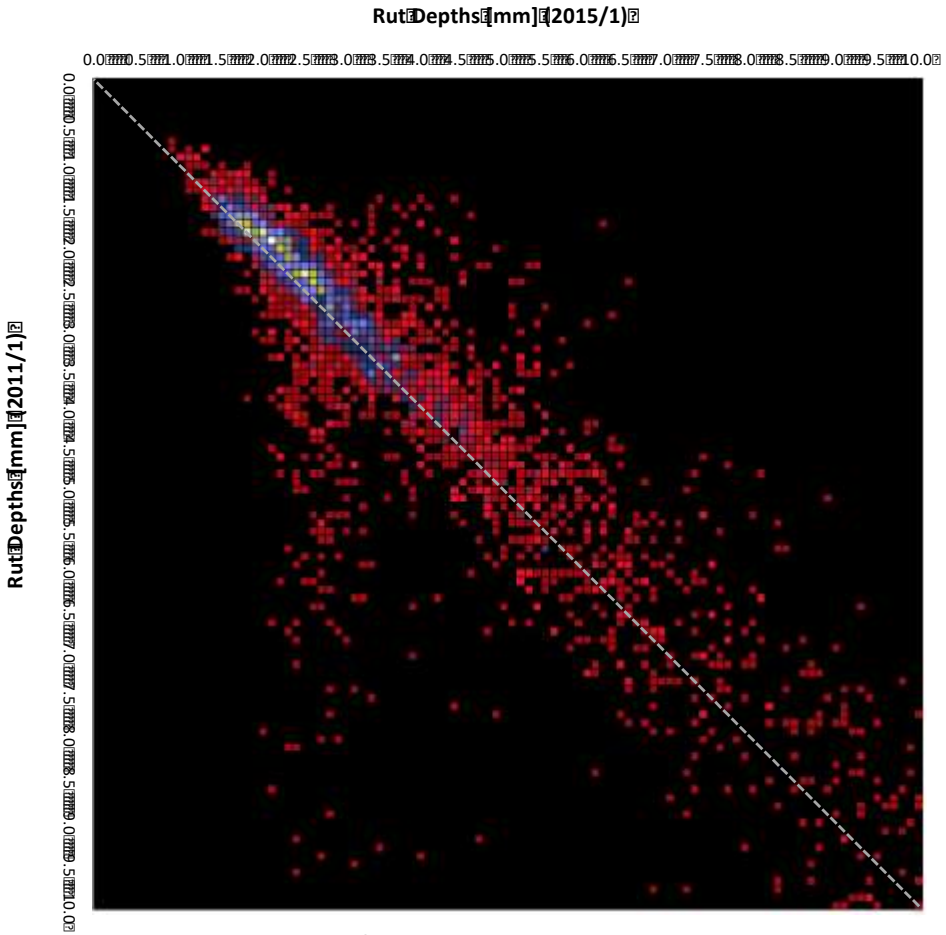
2 Data – Surface Type

		Lane		
		1	2	3
Surface type	asphalt concrete	1,181 (38.1 %)	1,033 (33.3 %)	120 (3.9 %)
	cement concrete	352 (11.4 %)	362 (11.7 %)	50 (1.6 %)

3 Analysis and Results



Finesynchronized Sections
(*N* = 3,022) – 100m



Non-finesynchronized Sections
(*N* = 2,912) – 100m

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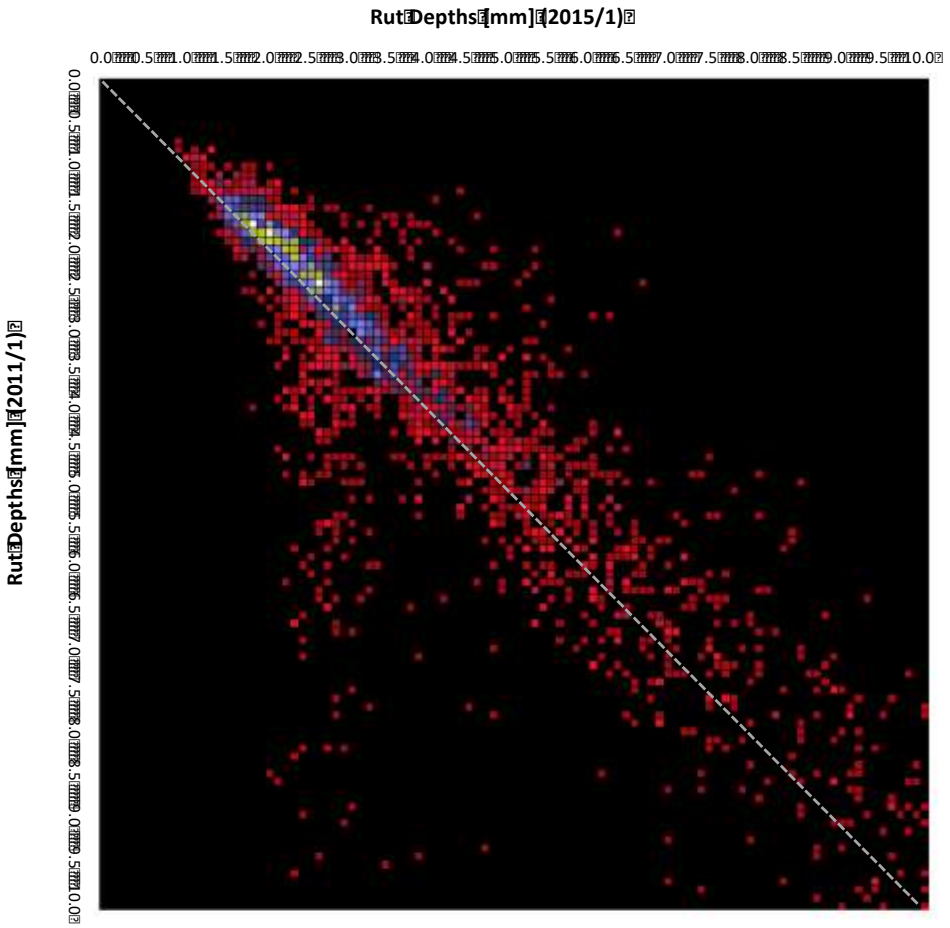
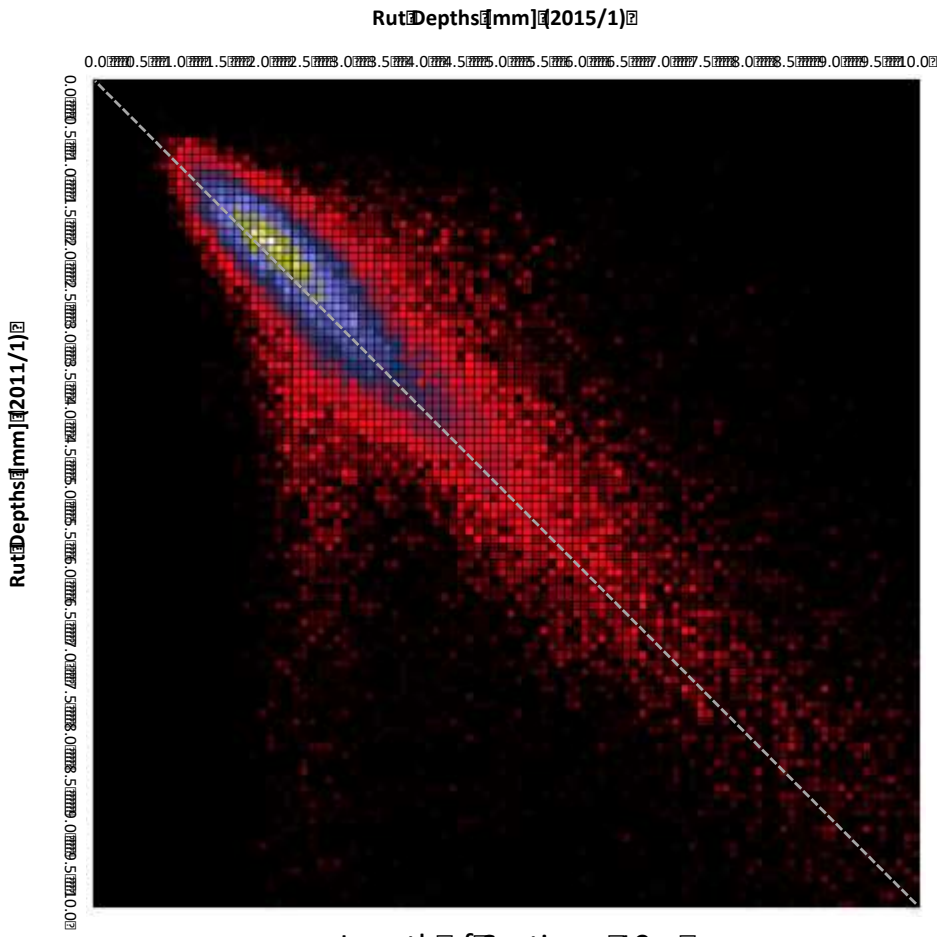
3 Analysis and Results



Length of Sections: 100m
(*N* = 2,912)



Length of Sections: 10m
(*N* = 30,797)

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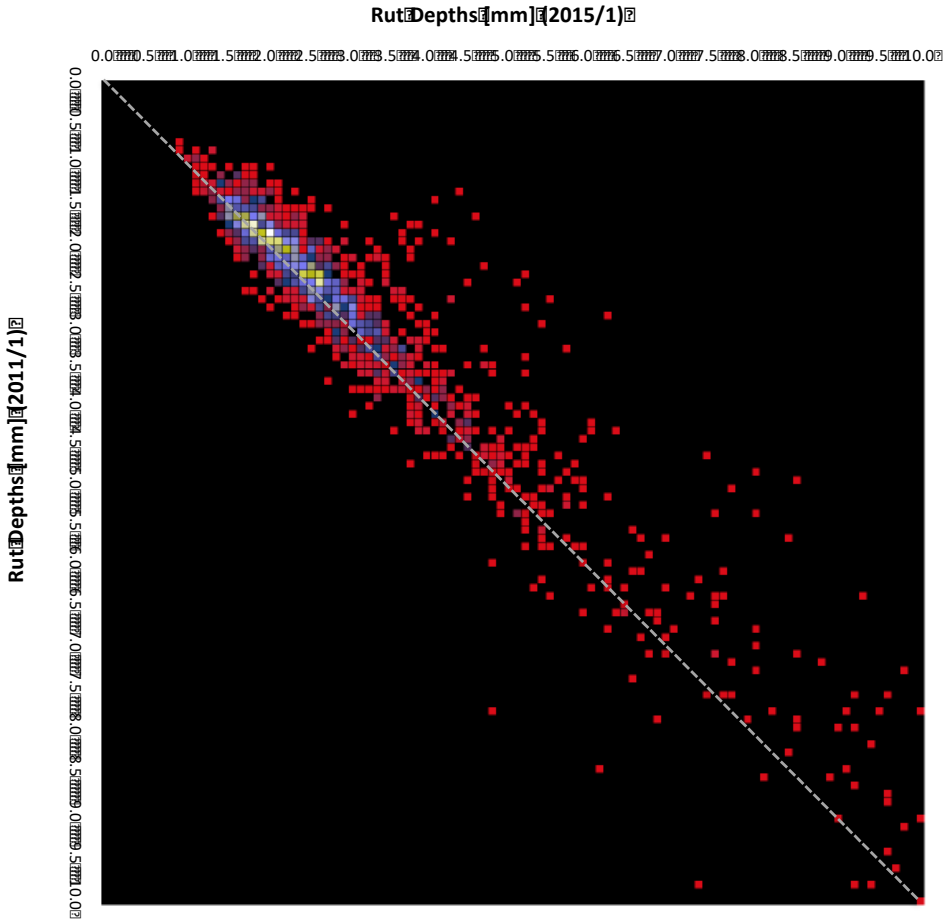
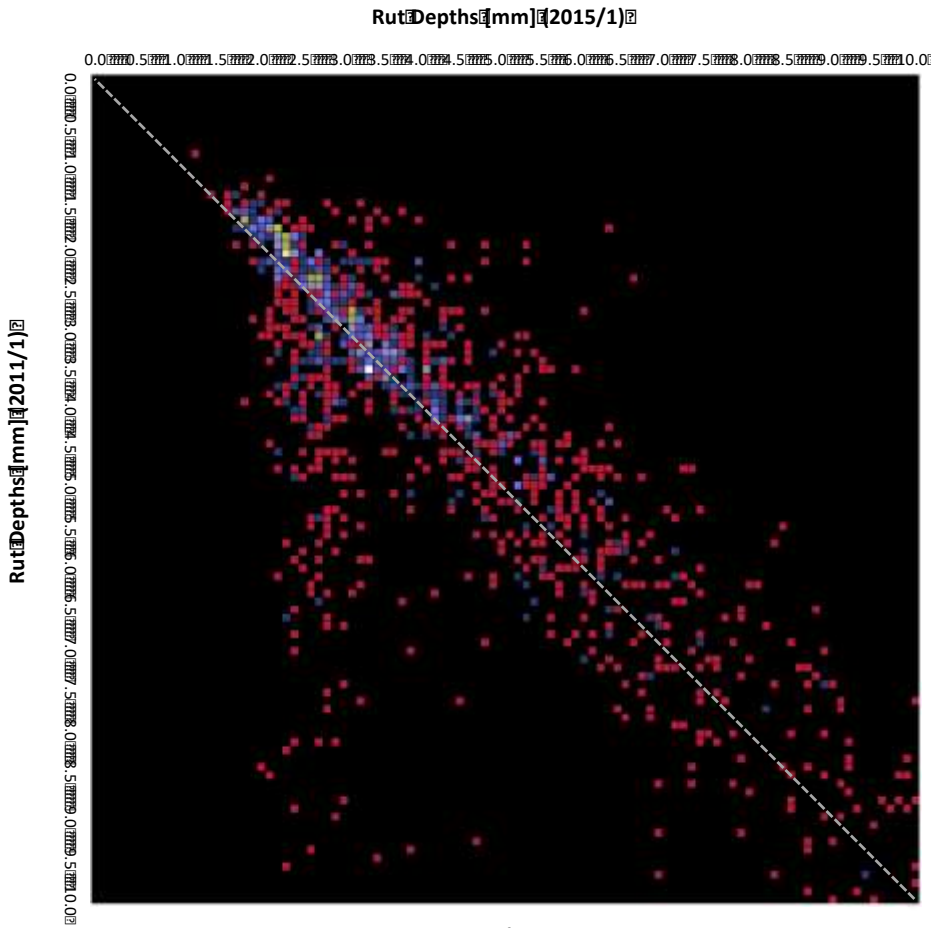
3 Analysis and Results



Sections without any Treatments
(*N* = 1,717) – 100m



Sections with Treatments
(*N* = 1,509) – 100m

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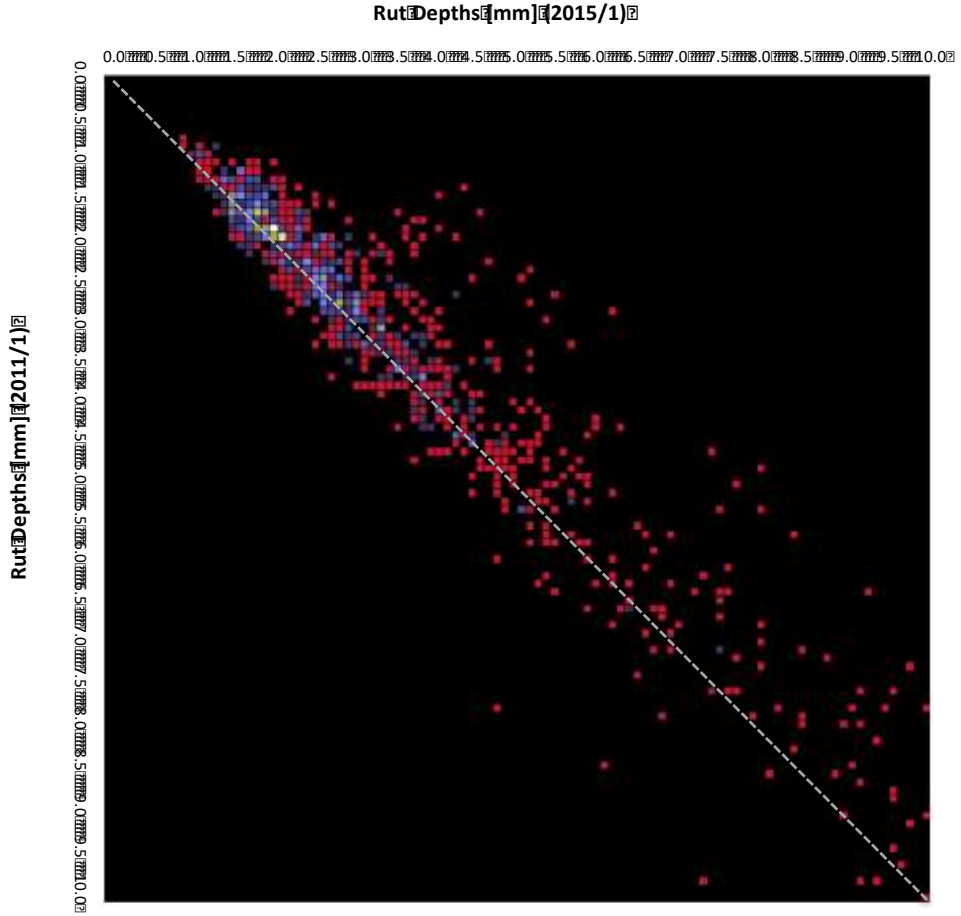
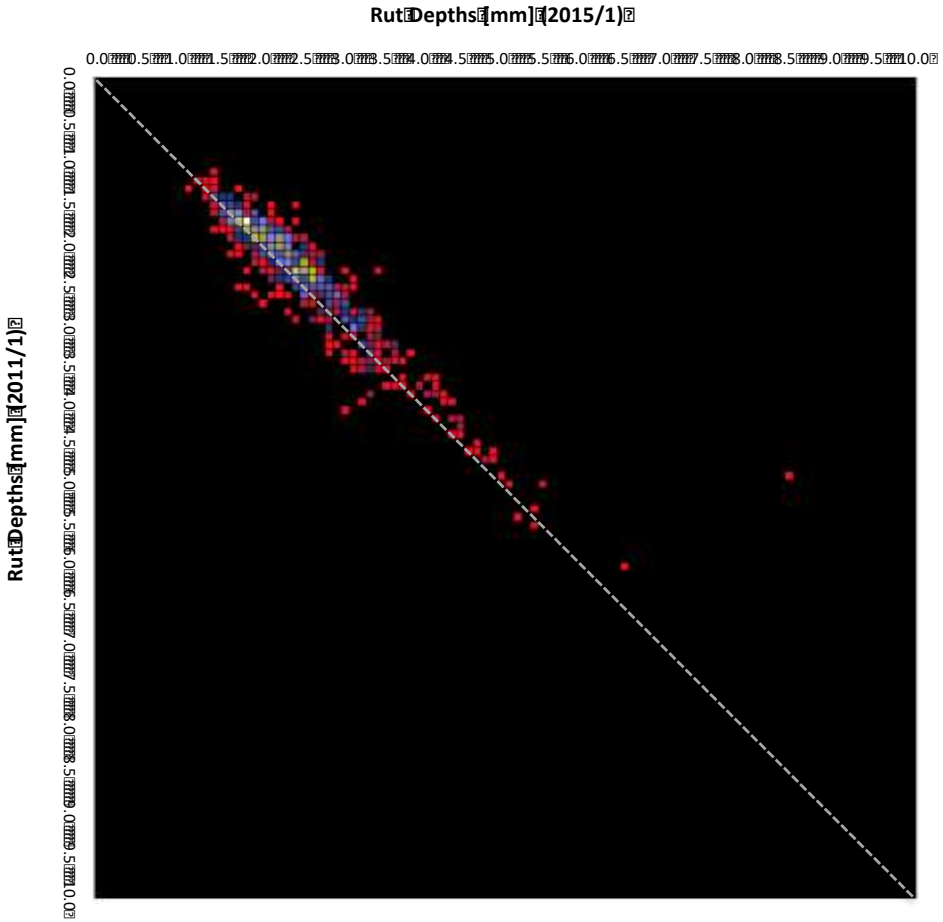
3 Analysis and Results



Asphalt Concrete (*N* = 2,334)



Cement Concrete (*N* = 764)

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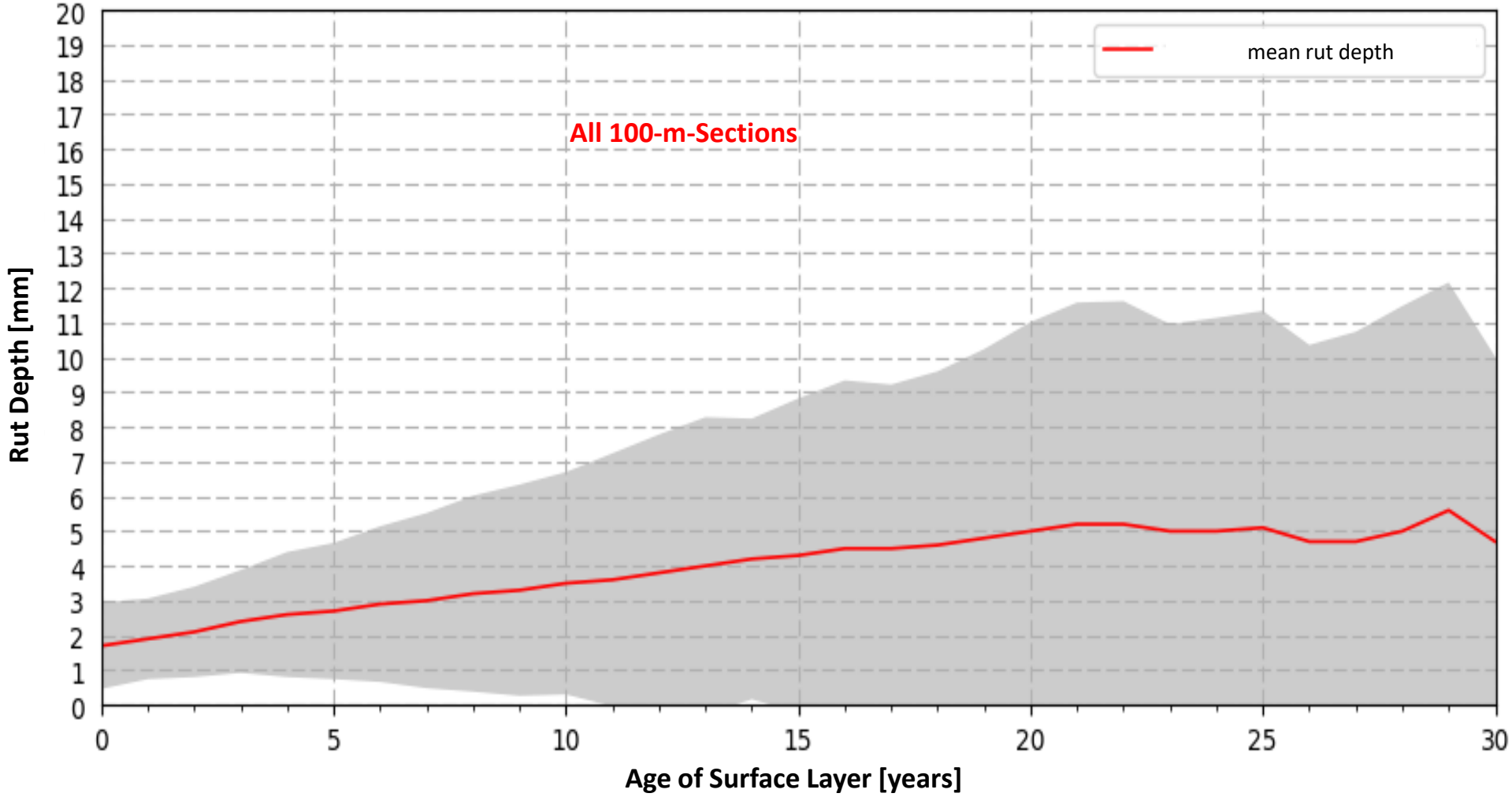
3 Analysis and Results



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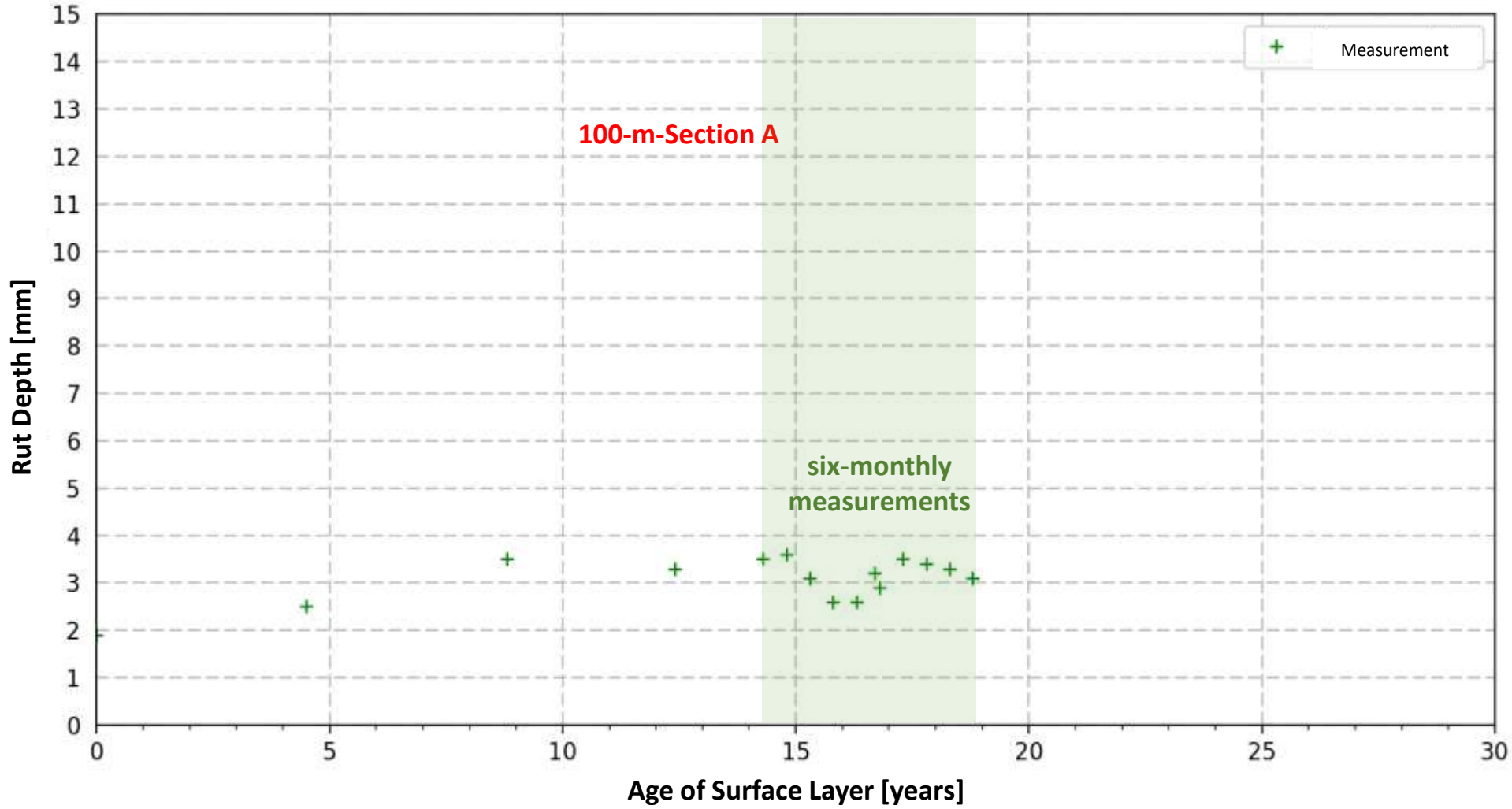

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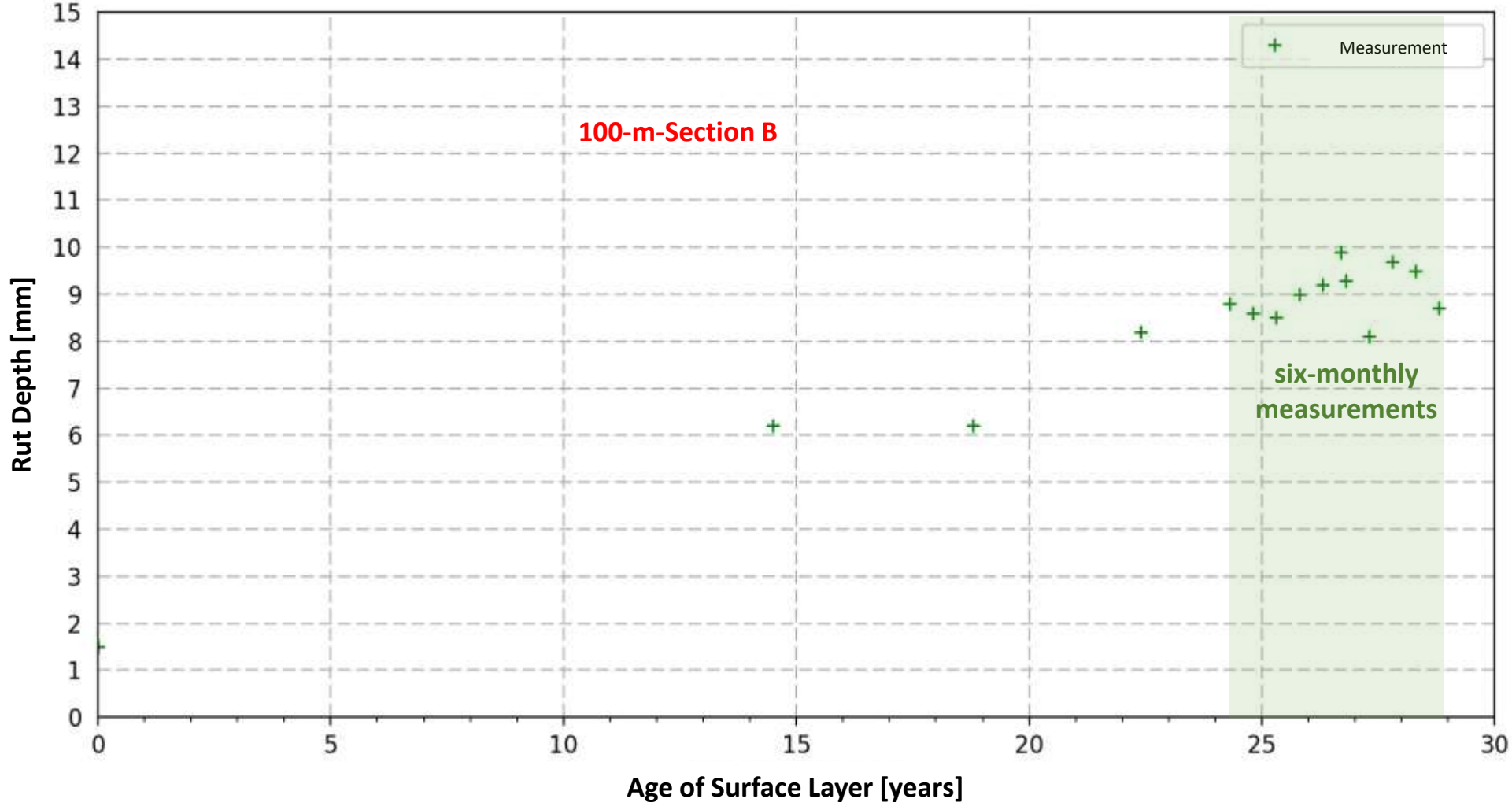

4 Conclusions and Outlook

- unique high-quality data source in Europe
- data is visualized and provided online
- quality assurance and advancement of ZEB
- data basis for further research
  - fine-synchronized data shows that the effect of lateral shift between condition surveys is marginal
  - condition improvements of more than 1.0 mm in rutting were exclusively related to maintenance work
  - measurement accuracy overlaps true condition changes within four years

- evaluate bearing capacity using TSD in future
- analyze effects of maintenance treatments

Acknowledgement

The author would like to thank the Federal Ministry of Transportation and Digital Infrastructure (BMVI), the Federal Highway Research Institute (BASt) and the Hessian Road Authority (Hessen Mobil) for data provision in support of this study.

Thank you!

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Literature

Bergmann-Syren, J.; Smet, W.; Komma, Ch.; Skakuj, M. (2017). *The Long-Term Observation on Motorway BAB A5 in Hesse as a Data Source for Research in the Field of Road Maintenance*. World Conference on Pavement and Asset Management (WCPAM), Milan, Italy

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