

# Probe Vehicle Data

Presentation by Michelle Fransen and Bas Turpijn, National Road Traffic Data Portal NDW, NL

Roundtable on Artificial Intelligence in Road Traffic Crash Prevention  
10-12 February 2021

# National Road Traffic Data Portal

Introduction

Michelle Fransen

# NDW is a cooperation of 19 governmental organisations



## Started with

 Real time Traffic data

 Real time delivery



Situation messages

On occurrence delivery



All roads

## Goals NDW

- Development of a shared datawarehouse of traffic data
- Stimulate effective input of data by traffic management, traffic policy and traffic information
- Efficiency through cooperation and sharing knowledge

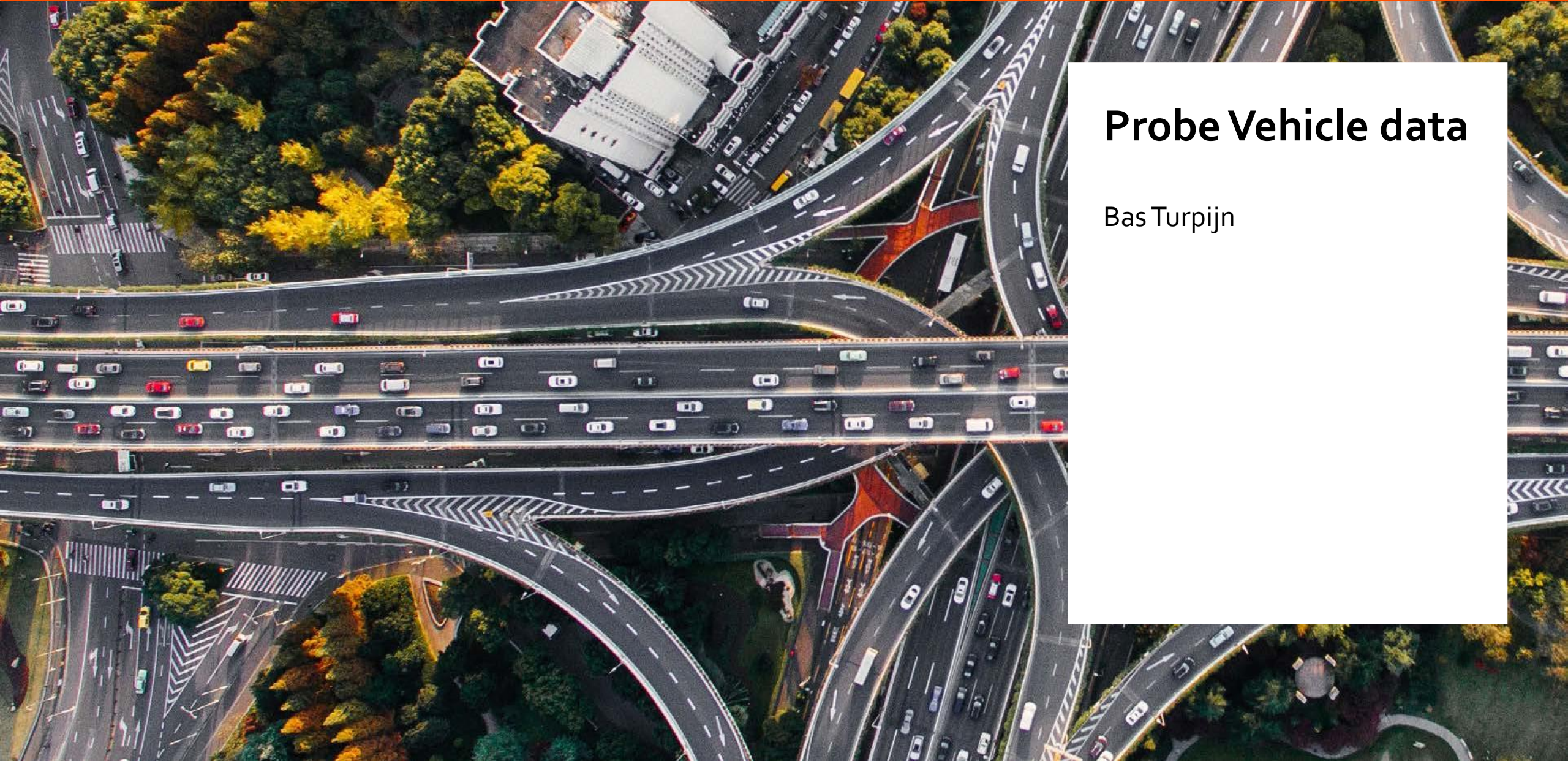


## Through the years

- More datastreams and acquisition techniques, more locations
- Historically unlocked, aswell as open data as behind logging
- Created a number of applications for our Partners to enter and consult data
- National Accespoint
- Traffic science advice and data anlysis, innovative routes
- Way of working: from outsourcing to in-house under own direction

# Probe Vehicle data

Bas Turpijn



# Probe Vehicle Data

 Directive 2010/40/EU



## Delegated Regulation (EU) No. 886/2013

Data and procedures for the free provision of **road safety-related minimum universal traffic information (SRTI)**

### Overview of the eight SRTI event type categories



Temporary  
slippery road



Animal, people,  
obstacle, debris



Unprotected  
accident area



Short-term  
road works



Reduced  
visibility



Wrong-way  
driver

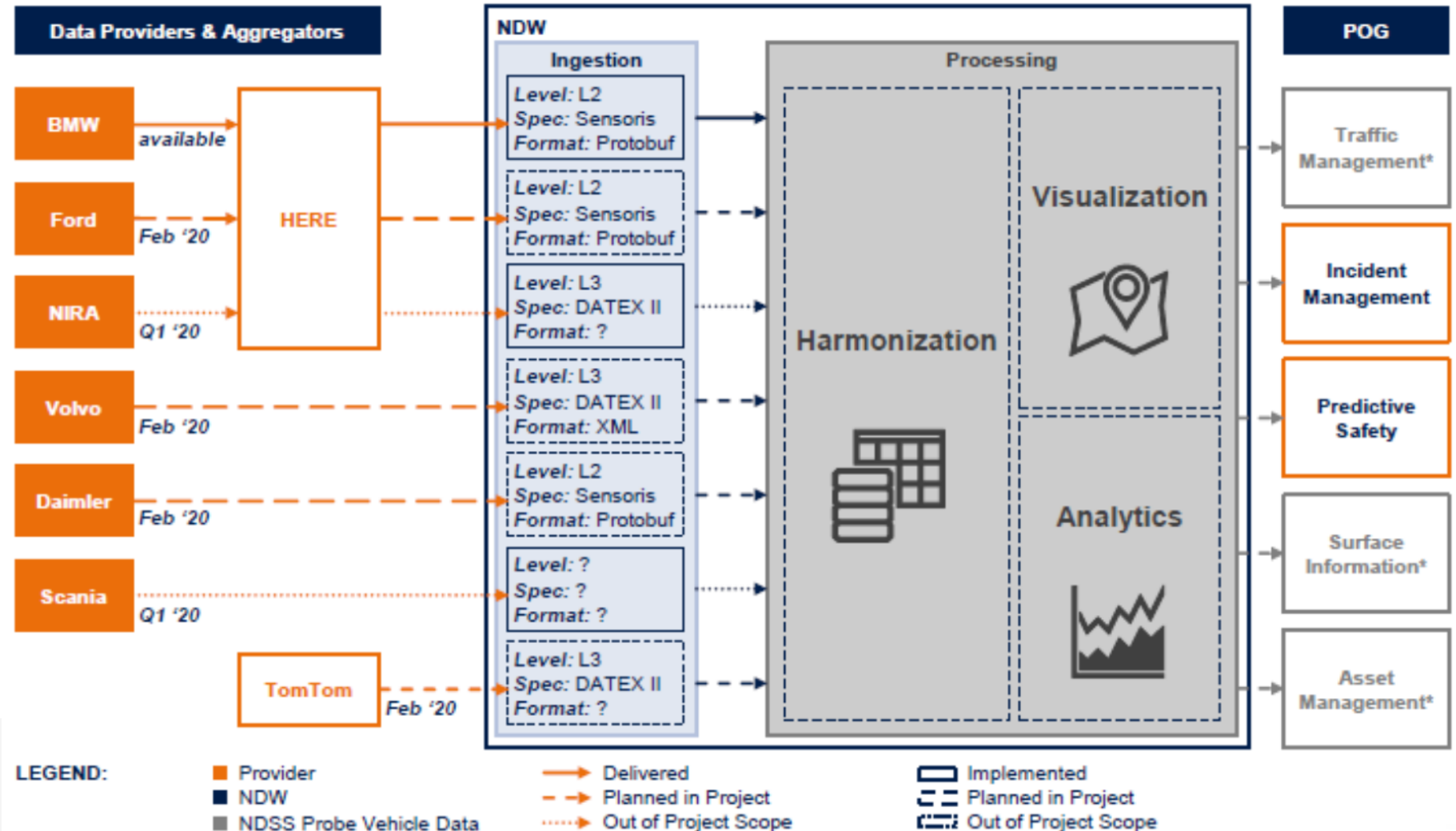


Unmanaged  
road blockage



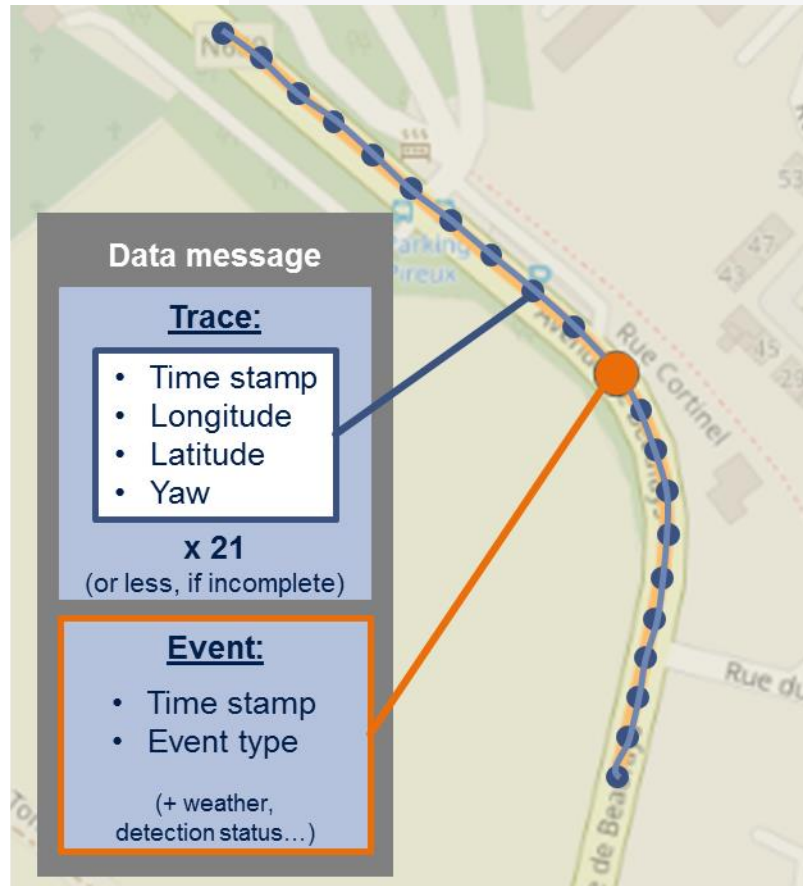
Exceptional  
weather

# The data is being stored and processed within NDW to implement use cases for the Product Owner Group (POG)





# Contents of vehicle event data message



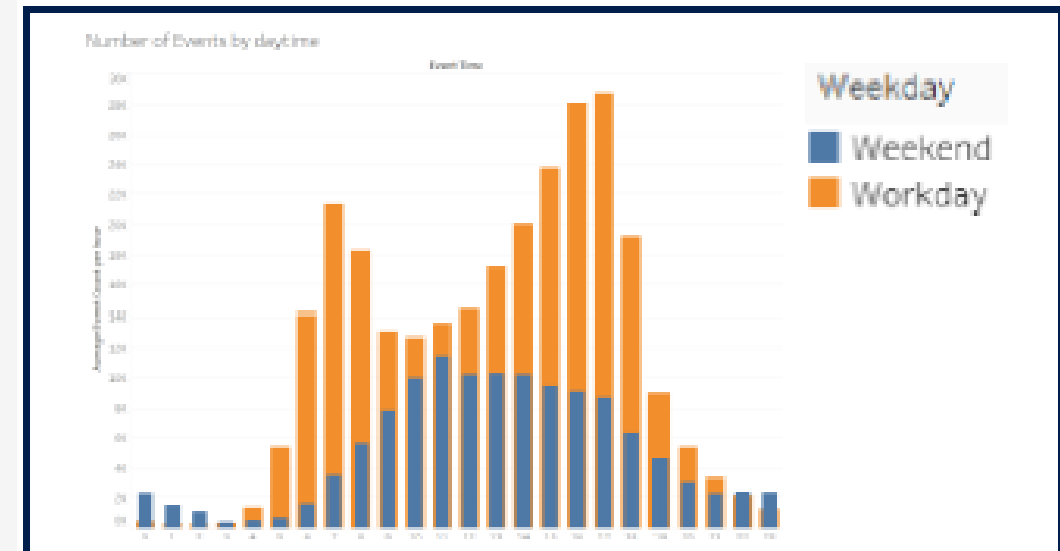
- Level 3**
- SRTI event types  
*according to EU delegated regulation No 886/2013*
- » Temporary slippery road
  - » Animal, people, obstacles, debris on the road
  - » **Unprotected accident area**
  - » Short-term road works
  - » Reduced visibility
  - » Wrong-way driver
  - » Unmanaged blockage of a road
  - » Exceptional weather conditions
- Level 2**
- Other event types
- » **ABS activation**
  - » **Hydroplaning** (sub-category of slippery road)
  - » **Broken down vehicle** (sub-category of obstacle)
  - » ...

▶ Most traces contain 21 positions and time stamps over a time span of ~20 seconds.

# Exploratory data analysis of one month (September 2020) shows the characteristics of several events

EVENT TYPE	EVENTS [-]	EVENTS [%]
ABS Active	4287	0,4%
Accident	175	0,0%
Broken Down Vehicle	177570	16,8%
Vehicle In Difficulty	510959	48,4%
Weather Condition: Adhesion	1577	0,1%
Weather Condition: Precipitation	360183	34,1%

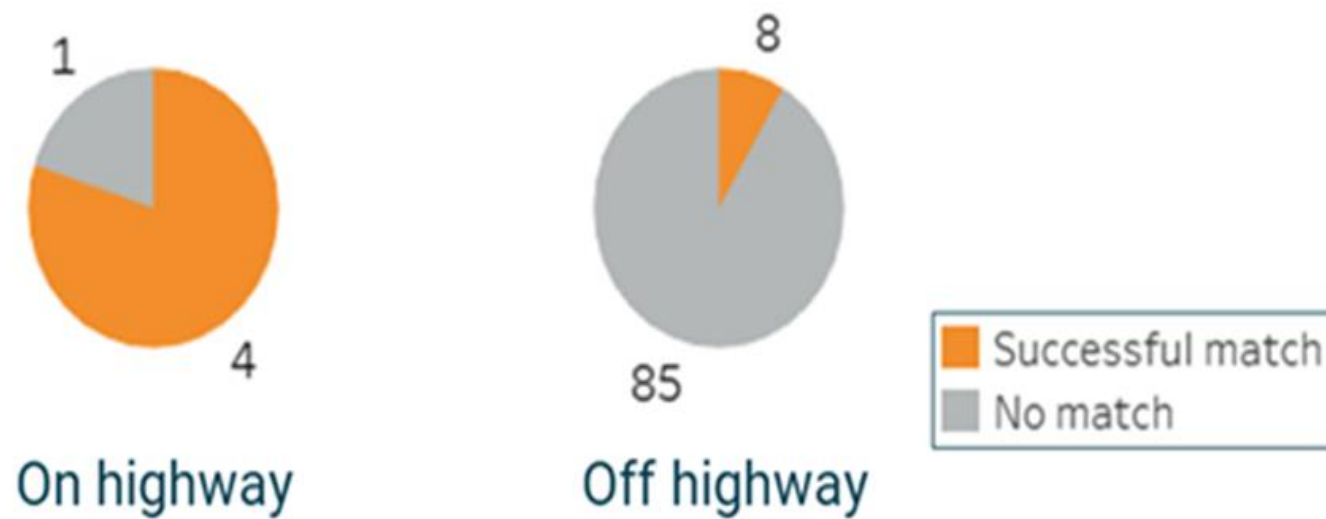
Distribution of event types in the data



Daily distribution: The data shows the rush hour and weekend peaks

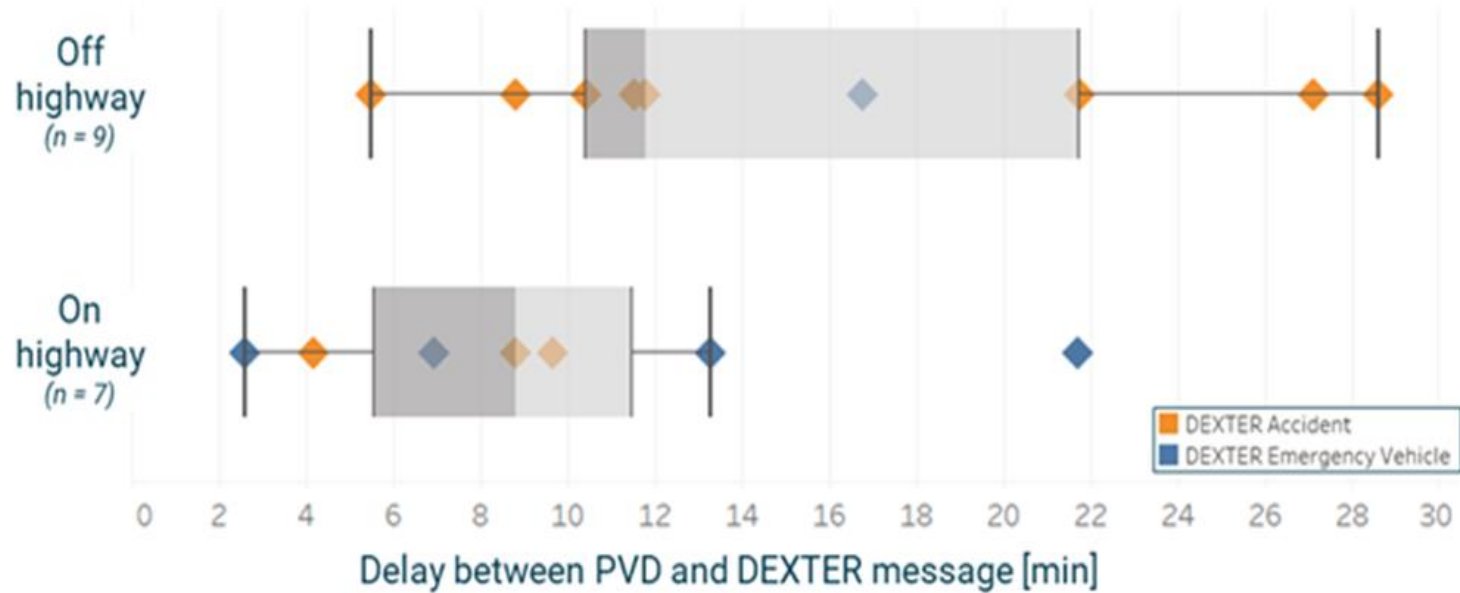
## Use Case: incident data matching

Event matches of unique PVD accidents with DEXTER incidents (Jul 8 to Sep 7, 2020)

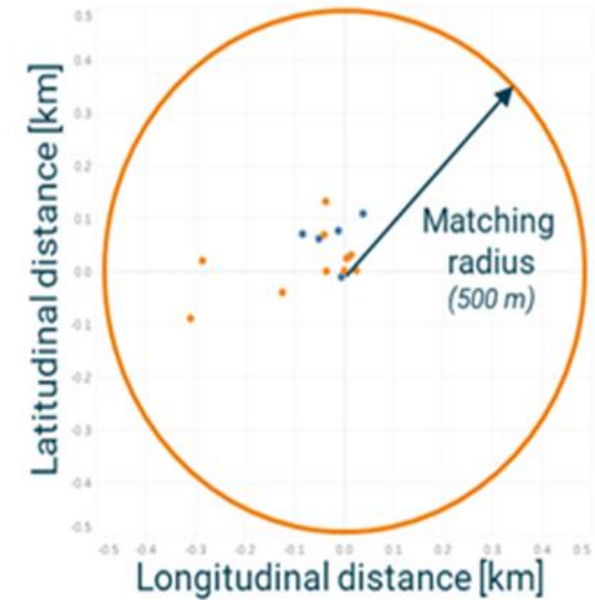


# Use Case: incident data matching

Message latency reduction by PVD accidents (Jul 8 to Sep 7, 2020)



Distance between matched events

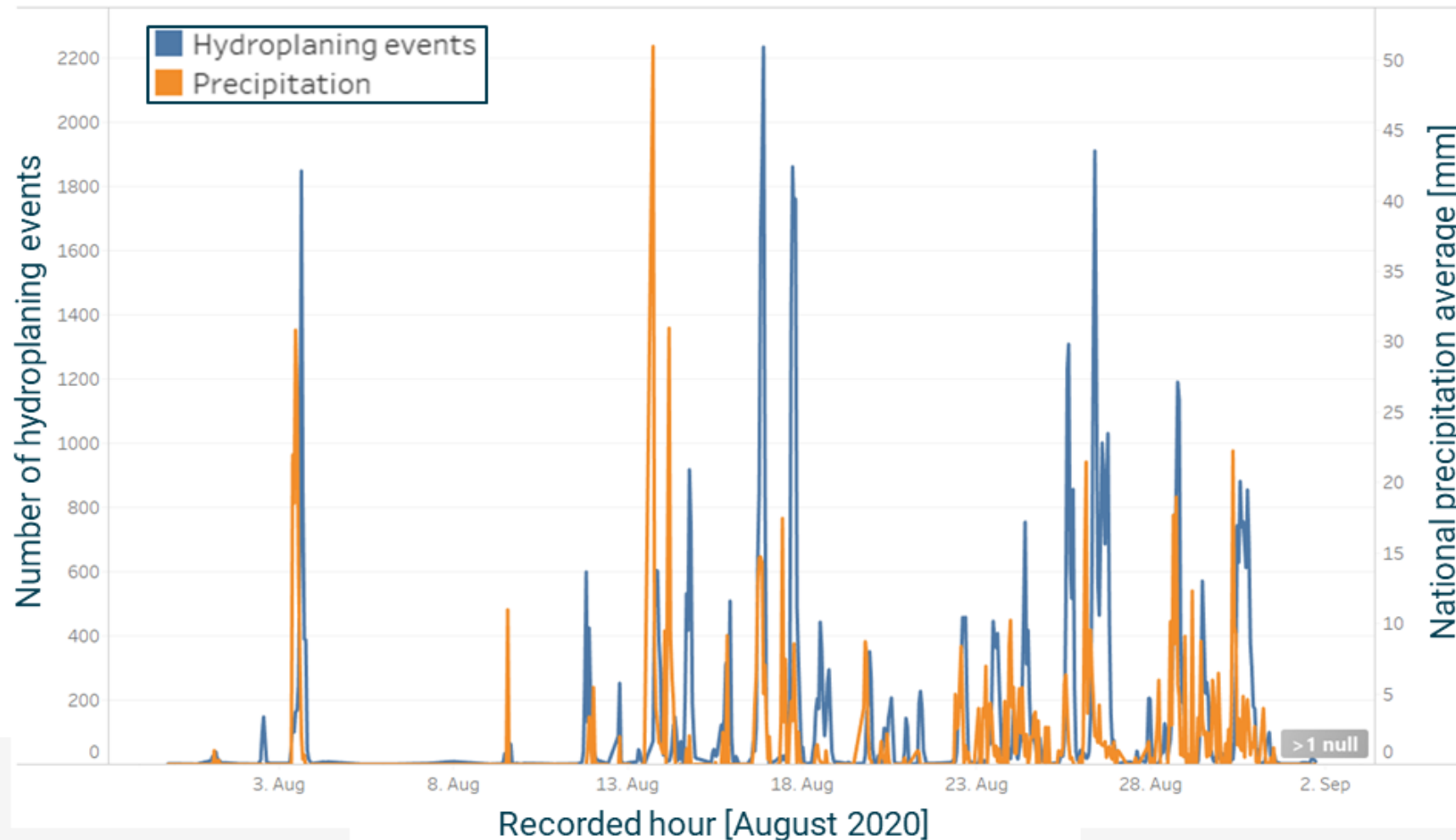


## Use Case: weather and traffic



# Use Case: weather and traffic

Average precipitation and number of hydroplaning events per hour



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2021

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