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
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, as well as open data as behind logging
- Created a number of applications for our Partners to enter and consult data
- National Accesspoint
- Traffic science advice and data analysis, 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

**Trace:**
- Time stamp
- Longitude
- Latitude
- Yaw

\( \times 21 \) (or less, if incomplete)

**Event:**
- Time stamp
- Event type
  (+ weather, detection status...)

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**SRTI event types**
- 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

**Other event types**
- ABS activation
- Hydroplaning (sub-category of slippery road)
- **Broken down vehicle** (sub-category of obstacle)
- ...
Exploratory data analysis of one month (September 2020) shows the characteristics of several events

<table>
<thead>
<tr>
<th>EVENT TYPE</th>
<th>EVENTS [-]</th>
<th>EVENTS [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS Active</td>
<td>4287</td>
<td>0,4%</td>
</tr>
<tr>
<td>Accident</td>
<td>175</td>
<td>0,0%</td>
</tr>
<tr>
<td>Broken Down Vehicle</td>
<td>177570</td>
<td>16,8%</td>
</tr>
<tr>
<td>Vehicle In Difficulty</td>
<td>510959</td>
<td>48,4%</td>
</tr>
<tr>
<td>Weather Condition: Adhesion</td>
<td>1577</td>
<td>0,1%</td>
</tr>
<tr>
<td>Weather Condition: Precipitation</td>
<td>360183</td>
<td>34,1%</td>
</tr>
</tbody>
</table>

Distribution of event types in the data
Use Case: incident data matching

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

On highway
- Successful match: 4
- No match: 1

Off highway
- Successful match: 85
- No match: 8
Use Case: incident data matching
Use Case: weather and traffic
Use Case: weather and traffic

Average precipitation and number of hydroplaning events per hour