Detecting dangerous locations in the road network with jam tail warnings

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Over 35% of drivers have experienced one or more accidents caused by sudden or unexpected traffic holdups.
Jam Tail Collision

Impact can be catastrophic

Resulting in lost lives, emergency services costs and traffic delays
TomTom Business Structure

B2C

Consumer
Drive - PND’s
Sports – GPS Sports
Watches

Automotive
Car manufacturers and
direct vendors

Telematics
Fleet telematics and
commercial fleet owners

Licensing
Device vendors,
web service providers,
geographic information
system owners,
government administrations

B2B
TomTom Traffic Sources

Data taken from these sources to provide Real-Time traffic services in 47 countries

3rd party app data only based on GPS routing

>36,000 TomTom fleets generating high quality probe data
Unprecedented amount of GPS probes

13,900,000,000,000
Points collected to date

6,000,000
Trips per Day

350,000,000,000
Total KMs Driven
TomTom Traffic – Fusion engine

Advanced fusion engine, tuned to perfection since 2007

**VALIDATION**

Map-matching and filtering invalid data, e.g. by comparing different sources

**FUSION**

Fusing all valid data into a real-time traffic state for entire road network

**DETECTION**

Generating traffic incidents for road stretches with significant delays combined with journalistic data
Real-time Delay and Incident Information

Delay & Incident information
Jams, road works, accidents, … on all roads with FRC 0-5

Compact Feed
Information only for roads with significant delays

Freshest Information
Updated every 60 seconds, always available on client request.

Optional Extras

Safety Package
• Jam tail warnings
• Severe weather warnings

Prediction Package
• Jam tendency
• Jam lifetime
Jam Tail Warnings

Currently available for motorways (functional road class 0).

Algorithm has been tuned to avoid unnecessary warnings.

Important parameters:
• Tail length
• Minimum tail speed
• Speed drop
• Propagation direction
Jam Tail Warnings: Detection example

Jam tail accident occurred at 10:35
Jam Tail Warnings: Blackspot detection

We collected the jam tails in Belgium for one week
Jam Tail Warnings: Blackspot detection

Just one week of data clearly shows the most dangerous locations on the road

Spatial Analyst Tools
Use kernel density estimation to derive frequent jam tail locations
Jam Tail Warnings: Blackspot detection

Brussels Morning

Brussels Afternoon
Jam Tail Warnings: Blackspot detection

Brussels West

Time Distribution

FREQUENCY

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Applications – Real Time

Push Messages

Dynamic Signs
Applications – Permanent

Fixed Warnings

Improved Road Capacity
Thank you,
Any questions?

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