

Teens driving (and risk) exposure based on data from the Green Box

The Green Box is an In-Vehicle-Data-Recorder which documents events performed by the vehicle. Events include G-force events as well as location events that are generated in fixed time intervals.

This data can be used to get estimates on exposure and (some) risk related characteristics of the exposure.

In the context of young drivers, the data generated from the Green Box can be used to obtain the following dimensions of exposure:

- Total exposure (per time unit)
- Exposure by time of the exposure (night/day, weekday/weekend, summer/winter)
- Exposure by type of road (urban, rural, expressway)
- Exposure by type of trip and possibly inferred trip purpose (proximity to home and other pre-defined locations such as: shopping areas, recreational location, entertainment zones)
- Exposure by characteristics of the driver (i.e. gender, age, stage in training, driving experience).

Regarding risk-related exposure – we can measure exposure to risky situations (such as: night-time driving, exposure to highway driving, driving to recreational facilities). Additionally, we measure the amount and rate of performing risky driving (as measured by the Green Box), for example: how often do young drivers speed, hard-brake, accelerate etc.

These ideas are demonstrated by placing both types of events (location and safety events) on a GIS map. In order to be able to generate valid statements on overall exposure by road segments – a procedure of map-matching is needed. This procedure is currently under development.

Within the framework of the PROLOGUE EU project several small scale studies are currently collecting driving data of young drivers. Analysis of this data will provide insights into exposure patterns of young drivers (and their parents) under various scenarios.