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Potential of GPS-based smartphone application data for country-wide emission estimation

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Road transport emissions are among the primary causes of poor air quality in cities. Typically, activity data about road transport is based on point-wise automatic traffic measurements or traffic modelling environments like VISSUM. However, such methods do not provide complete spatial patterns of emissions that are needed for air quality modelling. On the other hand, modern smartphone applications, which are used by drivers to navigate and inform about road hazards, might provide a full spatial pattern of road traffic.

We will present preliminary results of road transport emission estimates based on the application of GPS-based smartphone data. The datasets describe average speed and number of users for every road part in Poland, including both major and minor roads. The data is based on the Open Street Maps road geometry and includes more than 4.5 million road segments describing 840 thousand km of roads.