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DLR/ADAC campaign: "Wide" traffic monitoring

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A new method of traffic monitoring is being set up, collecting and evaluating a set of "wide" photographs from aeroplanes, airships or balloons. From these pictures, current traffic conditions for a particular location can be monitored in great detail, covering a large area. The German Aerospace Center (DLR) has additionally developed a new camera system. The goal is to collect a series of congestion times as quickly as possible. In conjunction with a campaign by the German Automobile Association (ADAC) involving holiday traffic on the Munich-Salzburg (A8) motorway, traffic congestion is monitored by these systems.

Traffic jam lengths are already reported. For the driver however, it is also important to know how much time would be taken by being involved in any congestion. Forewarned is forearmed and, using this knowledge, a driver can decide whether to take another route or "ride out" the jam.

The DLR/ADAC campaign is a demonstration of how accurate, using aerial photography, these congestion times calculations can be. At a later date, a system could be put in place to provide this sort of information in real time.



The camera system consists of three commercially-available 16 megapixel cameras. Using the cameras, an area of approximately seven kilometres can be covered (over two kilometres per camera). The traffic jam times are determined by mathematical methods. Journey times are compared - these are measured by ADAC vehicles, which travel the route themselves during the campaign.

For the collection of vehicle speeds, the optimal photograph frequency is about two to five images per second. Since the ADAC vehicles are in the frames at different positions, the speed as well as the acceleration of each individual vehicle can be derived from the automatic vehicle collection system. By means of a series of pictures it is possible to monitor the entire traffic situation such as overtaking, driver behaviour at motorway slip roads and queue formation.

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