German Aerospace Center

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A clear view even in the dark and in fog – traffic information via radar satellite

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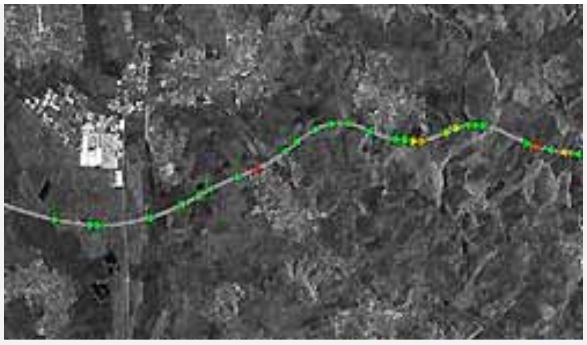

Motorway junction in Walldorf, Germany as viewed by TerraSAR-X

The German Aerospace Center (DLR) has begun several months of tests into the feasibility of obtaining traffic information via satellite. The German radar satellite TerraSAR-X is going to monitor selected sections of motorway in Germany, Austria, Switzerland and California. The aim of this project is to develop a procedure for large-scale traffic data capture, independent of ground systems, that permits data relay to various traffic information providers. In contrast to measurement procedures used to date, most of them stationary cameras, information gleaned by satellite can yield up-to-the-minute information, even from roads without sensors, whatever the weather, regardless of borders.

The technology is not limited to discovering areas of high traffic density. It can also be used to calculate the average speed of motorway (autobahn) traffic, so that the exact journey time between junctions can be established. With the help of such information, traffic information service providers will be able to make better journey time forecasts – even in fog, heavy rain and darkness – thanks to the latest radar technology.

Traffic measurement of the A4 near Dresden using radar satellite

In the context of the field campaign started on 26 February 2008, the first stretches of motorway to be observed will be the A4 to the west of Dresden, and the area where Germany, Austria and Switzerland

meet. Later, this will be extended to the Ruhr, the A5 and A8 at Karlsruhe and Interstate 5 in California, to the north-west of Los Angeles.

Traffic data capture represents an expansion of the capabilities of the radar satellite. TerraSAR-X, which has been operational since June 2007, has sent over 10 000 high-quality radar images back to Earth to date. In order to analyse the large amounts of data, an additional mainframe computer was made available at the DFD field station at Neustrelitz, near Berlin, in January 2008. The surveying, and the preparation of the data for the emergency services are just two further examples of potential varied uses of the satellite data, which is already being used by over 200 scientists world-wide.

About TerraSAR-X

TerraSAR-X is the first German satellite to be manufactured under what is called a public-private partnership (PPP) between the German Aerospace Center and Astrium GmbH in Friedrichshafen.

The satellite circles Earth in a polar orbit and records unique, high-quality X-band radar data of the whole planet with its active antenna. TerraSAR-X works regardless of weather conditions, cloud cover and daylight and is able to provide radar data with a resolution of up to one metre.

DLR is responsible for using TerraSAR-X data for scientific purposes. It is also responsible for planning and implementing the mission as well as controlling the satellite. Astrium built the satellite and shares the costs for developing and using it. Die Infoterra GmbH, a subsidiary company founded specifically for this purpose by Astrium, is responsible for marketing the data commercially.

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