

## Early Warning System for Transport Routes

KIT Project to Be “Selected Place in the Land of Ideas” on February 10, 2010



*Railway section near Kobe, Japan, after the 1995 earthquake (Source: dpa)*

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The earthquake early warning system for transport infrastructures “EWS Transport” is a joint development of Karlsruhe Institute of Technology (KIT) and Fraunhofer Institute for Optronics, Systems Technology, and Image Evaluation (IOSB). On February 10, 2010, KIT will be granted this year’s award “Selected Place in the Land of Ideas” for this development. The award ceremony will take place during the 15<sup>th</sup> Information Technology Colloquium Karlsruhe, 15.00 hrs, at the Fraunhofer IOSB. Prior to this ceremony, the Operating Center of Deutsche Bahn (German Railways) near the main railway station can be visited from 12.30 hrs. Representatives of the media are cordially invited to attend both events. Registration is required.

Earthquakes are natural events that cannot be forecast in the long term. The impacts for the regions affected are devastating, as is illustrated by the catastrophe on Haiti these days. At many places, rapid aid is required, but often major infrastructures, such as transportation and supply networks, have been destroyed. The natural event turns into a catastrophe.

To better predict the impacts of natural events on infrastructures, an early warning system is being tested under the project “EWS Transport”. This system shall prevent larger damage of traffic participants in particular. Otherwise, motorways, railway sections, and above all bridges might become fatal traps.

Studies under the project “EWS Transport” have focused on the impacts of an earthquake on railroad traffic. It is the objective to directly detect a just occurring earthquake and to identify endangered objects, immediately warn the users affected, and quickly estimate possible damage.

“To demonstrate the possibilities of the system, we have developed an online demonstration”, explains project head Professor Dr.-Ing. Eberhard Hohnecker from the Railroad Engineering Division of the KIT Institute of Highway and Railroad Engineering. “Based on the example of Baden-Württemberg, we can simulate an earthquake and pursue the complete successive chain of events.”

An interesting aspect of “EWS Transport” is the principle possibility of using the railway network itself as an early warning system and network state detector. The earthquake early warning system would be part of the control and safety system in railway-bound traffic. Presently, the control and safety technology in the track system is being further developed, the objective being technical interoperability among the individual EU member states. To use the existing infrastructure for early earthquake detection, rapid damage imaging, and long-term control of the network state, the aspects to be considered in this further development need to be determined.

The **EWS Transport** project consists of three partial projects executed by different institutes:

- Real-time seismology for earthquake early warning (KIT Geophysical Institute),
- Risk assessment and reduction for railway transport routes (Railroad Engineering Division of the KIT Institute of Highway and Railroad Engineering),

- Specific information and communication system (Fraunhofer Institute for Optronics, Systems Technology, and Image Evaluation (IOSB), Karlsruhe).

On February 10, 2010, the “EWS Transport” project will be granted the 2010 award “Selected Place in the Land of Ideas”. The award will be handed over during the 15<sup>th</sup> Information Technology Colloquium Karlsruhe, 15.00 hrs, at the Fraunhofer IOSB, Fraunhoferstraße 1, 76131 Karlsruhe. Prior to the colloquium, the Operation Center of Deutsche Bahn (German Railways) at the central railway station can be visited from 12.30 hrs. Representatives of the media are cordially invited to attend both events. Kindly register under [www.iosb.fraunhofer.de/?31317](http://www.iosb.fraunhofer.de/?31317) or [marion.hutzel@iosb.fraunhofer.de](mailto:marion.hutzel@iosb.fraunhofer.de).

The competition “365 Places in the Land of Ideas” has been organized since 2006 by the initiative “Germany – Land of Ideas” together with the Deutsche Bank under the auspices of Federal President Horst Köhler. In 2010, KIT was particularly successful. This year, it will be granted awards for another two ideas in this competition: On November 4, 2010 for the “Karlsruhe Stress Days” of the House of Competence and on December 18, 2010 for the Hydrogen Test Center for safe hydrogen technology.

**Karlsruhe Institute of Technology (KIT) is a public corporation and state institution of Baden-Württemberg. It fulfills the mission of a university and the mission of a national research center of the Helmholtz Association. KIT focuses on a knowledge triangle that links the tasks of research, teaching, and innovation.**

This press release is available on the internet at [www.kit.edu](http://www.kit.edu).