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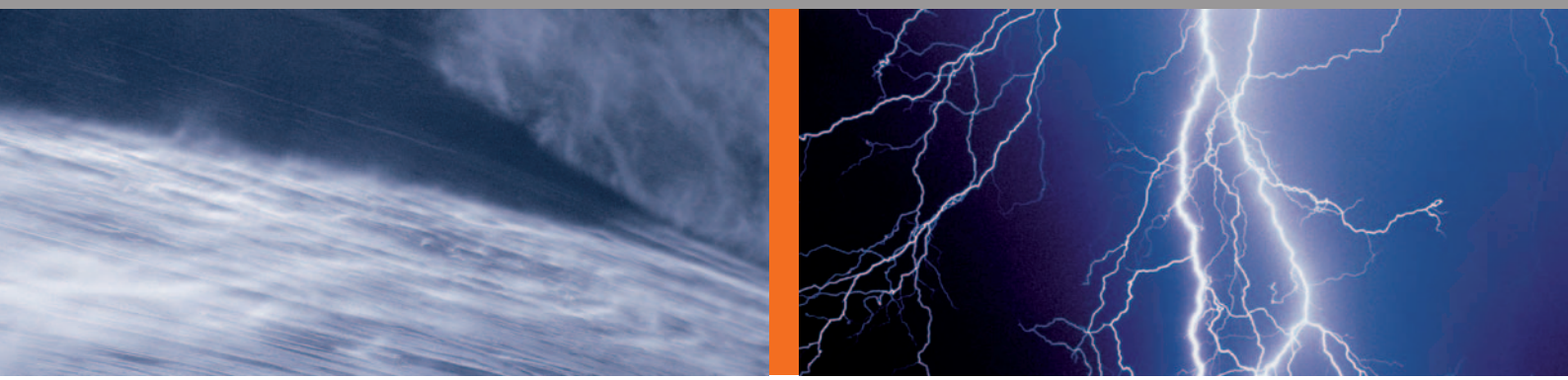

SAFE – EARLY-WARNING FOR EXTREME WEATHER

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SAFE

A NEW GENERATION OF WEATHER-WARNING SYSTEMS

Flooding, thunder- and hailstorms, heavy rainfall – the frequency of extreme weather conditions is increasing and can cause serious damage or even be a threat for life and limb. The Fraunhofer FOKUS works within the project **SAFE** (Sensor-actuator-based early-warning system for extreme weather conditions) on an early-warning system which is customized to the user's situation.

SAFE provides individualized alert messages via your private television set. It sends situation-based warnings to your cell phone and operates fully-automated building protection systems in case of thunderstorms. In this way, it offers security for citizens and rescue forces as well as for industrial plants and facilities at risk (critical infrastructure). The ambitious objective of the project **SAFE** is to develop a new generation of local extreme weather warning systems, which are a basic protection-tool, especially against the background of global climate changes.

INDIVIDUAL WARNINGS FOR DANGEROUS WEATHER CONDITIONS

For the **SAFE** system, the Fraunhofer researchers resort to two different technologies: First of all, they employ special inexpensive weather sensors, which can be installed in high quantity within a close-knit network. In connection with already existing weather stations, they ensure gapless measurement of meteorological developments within a region. Data collected by this sensor-network, which will span a protective shield around townships and industrial plants, will be complemented by supra-regional data, provided by satellites or radar systems. A novel forecast system, specialized on extreme weather employs these data and generates highly-precise forecasts with regard to time and location.

However: Forecasts alone cannot provide protection! For this purpose, an information logistics platform communicates effectively between sensor and actuator technology. It is the centerpiece of **SAFE**. It processes the incoming sensor-data and makes sure that appropriate danger prevention processes are being initiated on the basis of forecasts. So-called information logistics engines, which perform intelligent control of the information flow, are the core of the information logistics platform. The engines are able to gather information from various sources and compare the data with user requirements, saved in profiles within the system.

PILOT PROJECT SAFE

SAFE is performing a test run in the South German market town Mering near Augsburg and at the premises of the Wacker Chemie AG in Burghausen. The system is connected to a meteorological warning center (Unwetterzentrale Deutschland) and provides a protective shield around the two locations. The system is indicating precisely time and location of weather events and makes weather forecasts available to all citizens of Mering.

Furthermore, in order to test the system, certain groups of pilot users can resort to additional technologies – e.g. automatic facility protection mechanisms for severe weather, customized warning messages on their private TV set as well as situation-based alert messages on their mobile phone. In addition to that, relief units can resort to a system, which provides site plans, the position of other units and colleagues as well as location-based warning maps onto the mobile phone.

SERVICES AND COMPETENCIES

The Fraunhofer FOKUS has dealt for years with conceptual design, pilot project development and monitoring in the field of location- and situation-based services, e.g. severe-weather warning services. The objective is to deduct or anticipate the current individual demand for information and services of a user from situation-based data, in order to generate advice or to provide information.

For this purpose, the Fraunhofer FOKUS and its partners developed:

- semantic combinations of contents with situation and task models;
- information models which register their current environment as well as detected and predicted changes over time;
- feasibility studies, requirements reviews and profitability analyses in the fields of information demand, positioning and sensor technologies, dynamic personalization of mobile services and service platforms;
- mentoring for the conceptual design, architecture development, implementation and handling of location and situation-based services, in particular early-warning systems.

PROJECT PARTNERS

- Institut für Automation und Kommunikation e.V. Magdeburg (ifak)
- Meteomedia GmbH
- Thies Clima GmbH
- Kisters AG
- Regnauer Fertigbau GmbH & Co. KG
- Versicherungskammer Bayern
- Wacker Chemie AG
- Marktgemeinde Mering

APPLICATION PARTNERS

- e*Message Wireless Information Services Deutschland GmbH
- Prometheus Beteiligungs GmbH
- Somfy GmbH

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