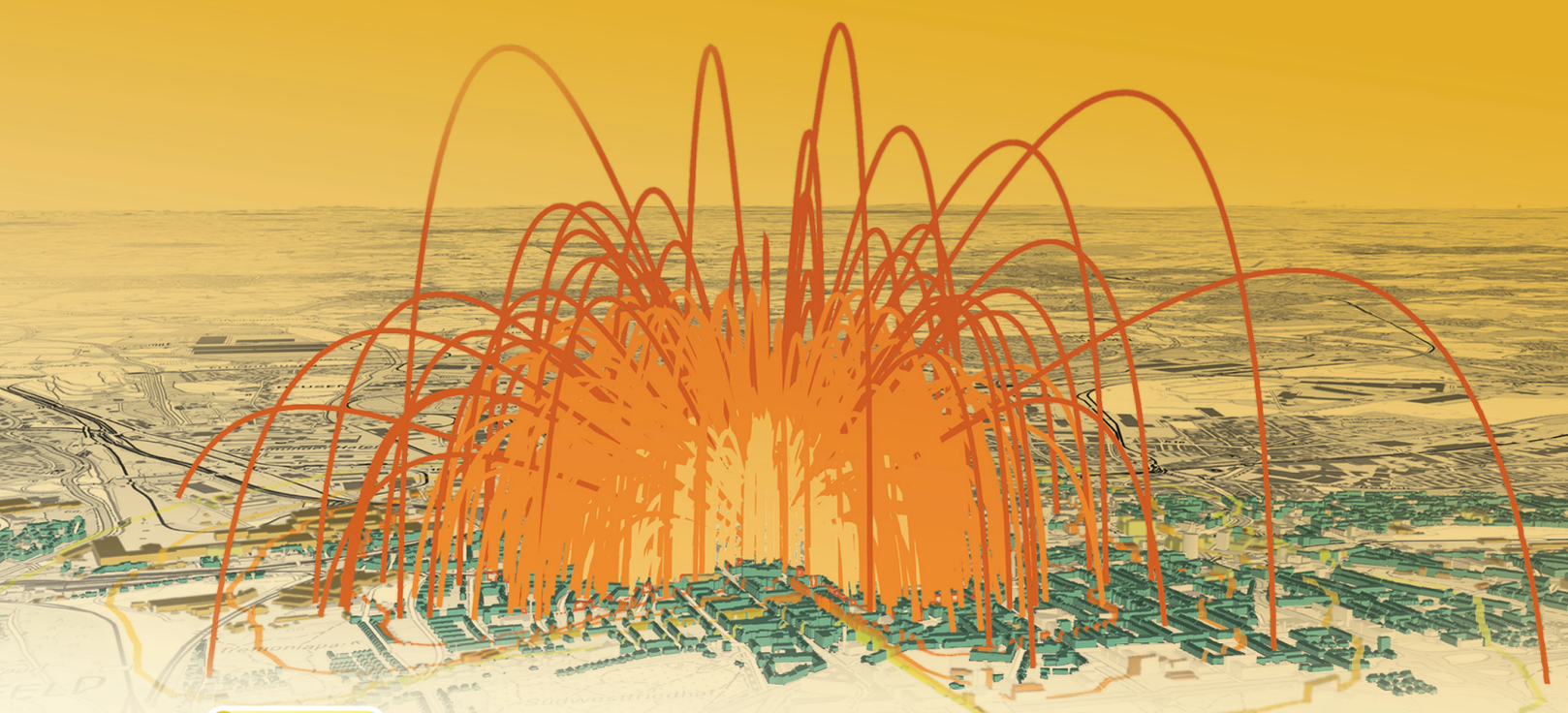


in cooperation with:

Fraunhofer EMI

VC Blastprotect

Comprehensive Hazard Analyses with 3D Bomb Simulations

Know what's coming. Use physical simulations based on 3D city models to make the best possible predictions and evaluate measures for defusing aerial bombs.

VC Blastprotect enables systematic investigations in the event of a World War II aerial bomb discovery. In these situations where the fast and well-founded weighing of risks is enormously important, VC Blastprotect helps to plan the necessary protection and evacuation measures.

For individual scenarios, the propagation of the blast wave and the shrapnel flight is calculated in the context of the 3D city model. The results obtained are used to identify various injury and damage indicators in the affected areas as a valid basis for the hazard analysis.

The simulation results of VC Blastprotect provide a visual impression of the effects of a possible detonation, while factoring in the local circumstances, with previously unattained accuracy and speed. Depending on the scope of the simulation, reliable results are available in as little as one hour and enable the determination of hazard areas of varying intensities.

▲ Figure above: Hazard analysis for the defusing of an aerial bomb by the explosive ordnance disposal team.

Scan and learn more.

virtual city systems
digital views. real perspectives.

Simulation of detonation pressure wave and shrapnel

VC Blastprotect simulates the potential spread of blast waves and shrapnel that could be caused by unexploded aerial bombs while also factoring in surrounding structures. The solution supports the modeling of specific situations in which such ordnance is discovered, and simulations can incorporate adjustments in existing structures as well as include other bodies such as temporary container walls. Individual scenarios for type, location and orientation of the aerial bomb are investigated, evaluated and compared.

Process flow

Scenario definition

Define the location of the bomb in the surrounding area, as well as its type and orientation, directly in the web map.

Immediate solution (open field)

First estimations of a standard scenario without influence of surrounding buildings (open field) are immediately possible.

Pressure & shrapnel simulation

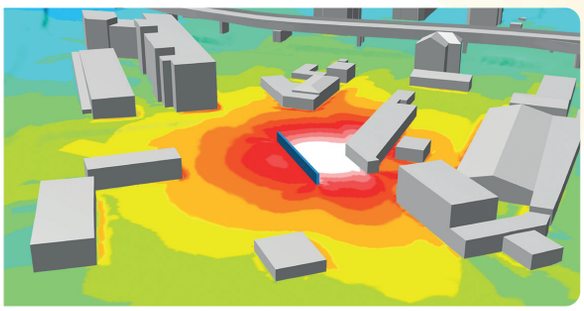
Simulation of pressure wave propagation and shrapnel in the 3D city model is created to prepare for decisions.

Simulation results

Reliable results are ready from one hour after the start of the simulation and can be used interactively in the VC Map.

Background

VC Blastprotect emerged from the SIRIUS research project, which was implemented in cooperation between the ordnance removal service of North-Rhine Westphalia, the Fraunhofer Ernst-Mach-Institute and Virtual City Systems.



Motivation

More than 75 years after the end of the Second World War, numerous unexploded bombs are still being discovered in many regions of Germany. Defusing these bombs usually involves considerable effort and risks – including for the civilian population. The scientific investigations of the SIRIUS project as well as other already successfully implemented projects prove that, in many cases of aerial bomb disposal, the evacuation area can be significantly smaller than previous approaches allow.

Another exciting product that might interest you:

VC Map

As functional as a Swiss Army knife, VC Map allows a wide range of analyses and simulations based on visualized geodata. Different departments can work with the web-based tool on a mobile basis, access data jointly, and exchange it easily with each other.

Do you have questions about this product or our company? We will be happy to advise you.

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