

**VRVis K1/floodvisor ii
VRVis Zentrum für Virtual
Reality und Visualisierungs
Forschungs-GmbH**

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HEAVY RAIN AND FLOOD SIMULATIONS PROTECTING AGAINST THE EFFECTS OF THE CLIMATE CRISIS

THE FREQUENCY AND IMPACT OF EXTREME WEATHER IS GROWING. VISDOM HELPS CITIES AND COMMUNITIES TO PROTECT THEMSELVES FROM FLOODING.

A tragic consequence of climate change is a significant increase in natural disasters. Especially in Austria, the number of heavy rain and flood events is expected to increase. To prepare communities, cities and entire regions for an emergency, VRVis has developed the simulation software Visdom. The software combines simulation, analysis and visualization of flood and heavy rain scenarios in one tool to support users in making quick decisions. Compared to traditional software, where first results are often only available after hours, days or weeks, Visdom delivers results at an unprecedented speed within seconds to minutes. This is an advantage in planning sessions when instant and comprehensible results are desirable. On the other hand, the ability to quickly simulate and

evaluate various scenarios, such as how a flood will develop or which suitable protective measures are available, can decide on the matter of life and death.

Visdom simulates the worst case in order to prevent it in reality.

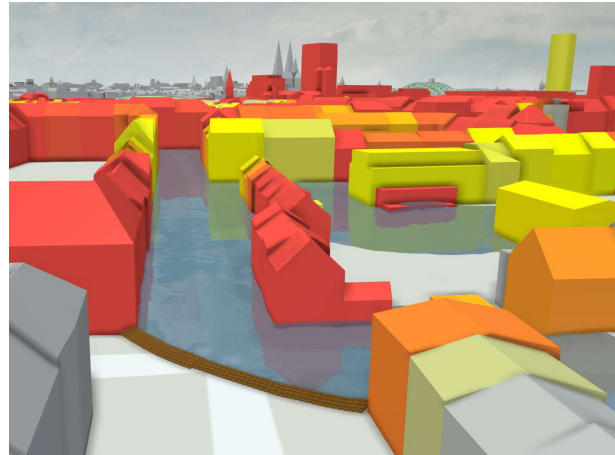
Based on real data (e.g. land register, terrain model, sewer network) a digital copy of a municipality or city is created for simulating different scenarios. The flood is rising digitally, but the solutions found by hydrodynamic modelling are real: from structural measures to suitable locations for protective barriers and evacuation plans.

SUCCESS STORY

From an ambitious research project to essential software in the climate crisis

The Integrated Simulation research group at VRVis has been working intensively on hydrodynamic models for flood protection for many years. As a result of this research work, the simulation software Visdom was developed in cooperation with the renowned flood specialist Günter Blöschl (TU Vienna). For several years, Visdom has been applied in many other cooperations with various project partners for real flood protection management, e.g. for the city of Cologne, within the EU project RAINMAN for the city of Graz as well as for the flood risk zoning of Austria.

Visdom's most important software concept is the simulation of a variety of alternative scenarios that can be compared with each other. Based on comprehensive visualizations users are enabled to analyze the effects of various meteorological factors, such as rain intensity and duration, as well as the consequences of different planning decisions. The repertoire of both hydrodynamic scenarios and testable protection measures is essentially unlimited.



© VRVis, Flood simulation with protective barrier and colour-coded risk assessment for buildings

Another important future field of application of Visdom will be the support of planning processes in the context of water-sensitive urban and landscape development, which deals with adaptation of urban infrastructure as well as natural areas due to climate change.

Project coordination

DI Dr. Jürgen Waser
Head of Integrated Simulations
VRVis

T +43 (0) 1 908 98 92
waser@vrvis.at

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**VRVis Zentrum für Virtual Reality und
Visualisierung Forschungs-GmbH**
Donau-City-Straße 11, 1220 Wien, Austria
T +43 (0) 1 908 98 92
office@vrvis.at
www.vrvis.at

Projektpartner

- ETH Zürich, Switzerland
- TU Wien, Austria
- Stadtentwässerungsbetriebe Köln AöR, Germany
- riocom, Austria

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