



Federal Ministry of Education and Research (BMBF) Support Programme:
Risk management of extreme flood events (RIMAX):
Prediction and management of flash floods in urban areas (URBAS)



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URBAS

Prediction and management of flash floods in urban areas

Project funded by the
Federal Ministry of Education and Research BMBF (Germany)
part of
RIMAX „Risk management of extreme flood events“

Internet: <http://www.urbanesturzfluten.de>

Internet: <http://www.rimax.de>

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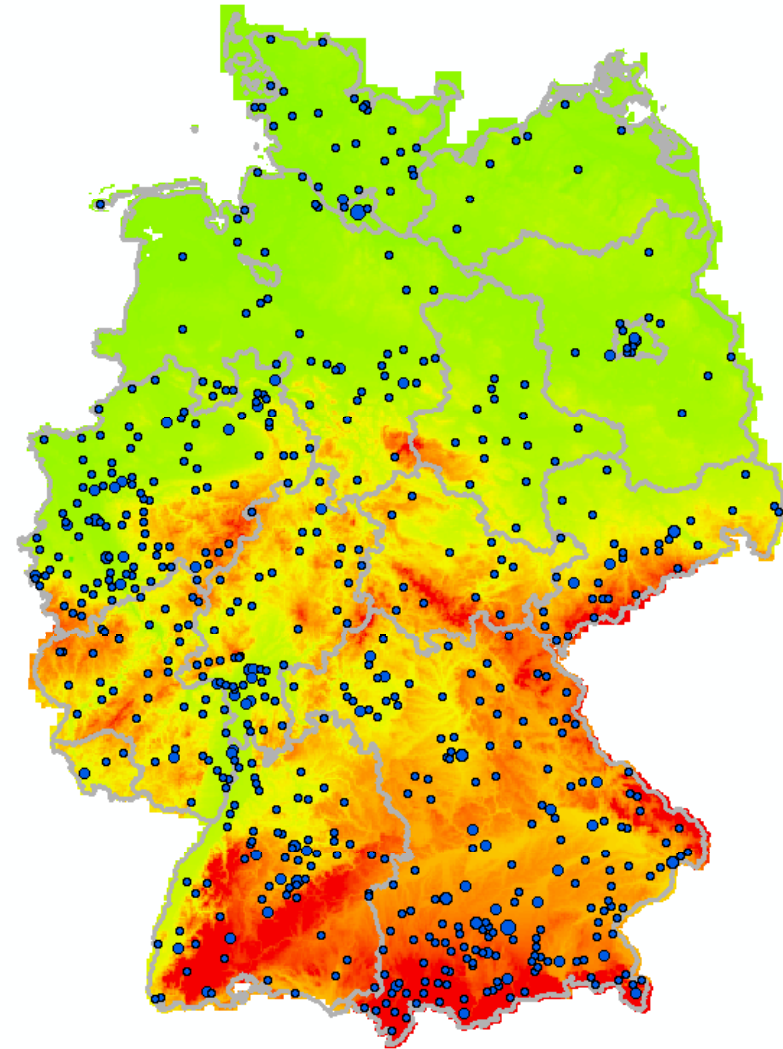
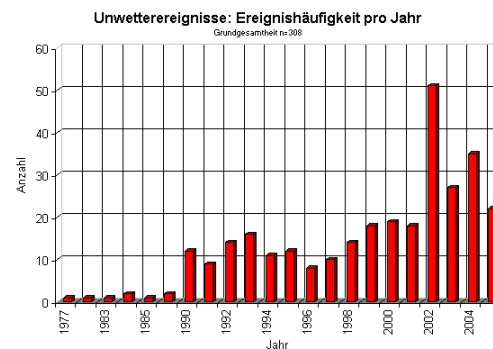
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Reasons for the research project

- Flash-Floods in Germany: really a problem?
- Recorded Flash Flood events in urban areas in the last 15 years in Germany



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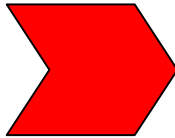


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Challenge and Objectives

- **Climate change:** growing frequency and intensity of flash floods in Western Europe
 - Little is known about the **character of flash floods** in urban areas (spatial distribution, frequency, typical damage)
 - Flood protection **strategies** referring to river flooding cannot be applied to flash floods in towns
- 
- **More knowledge** through case studies: meteorological parameters, runoff and flood, damages, actions
 - **Improvement:** forecast tools and systems for early warning
 - **Development:** Innovative, feasible actions and measures for risk reduction and disaster management for local authorities
 - **Practicability:** Valuable results for authorities, citizens, insurances, urban planners

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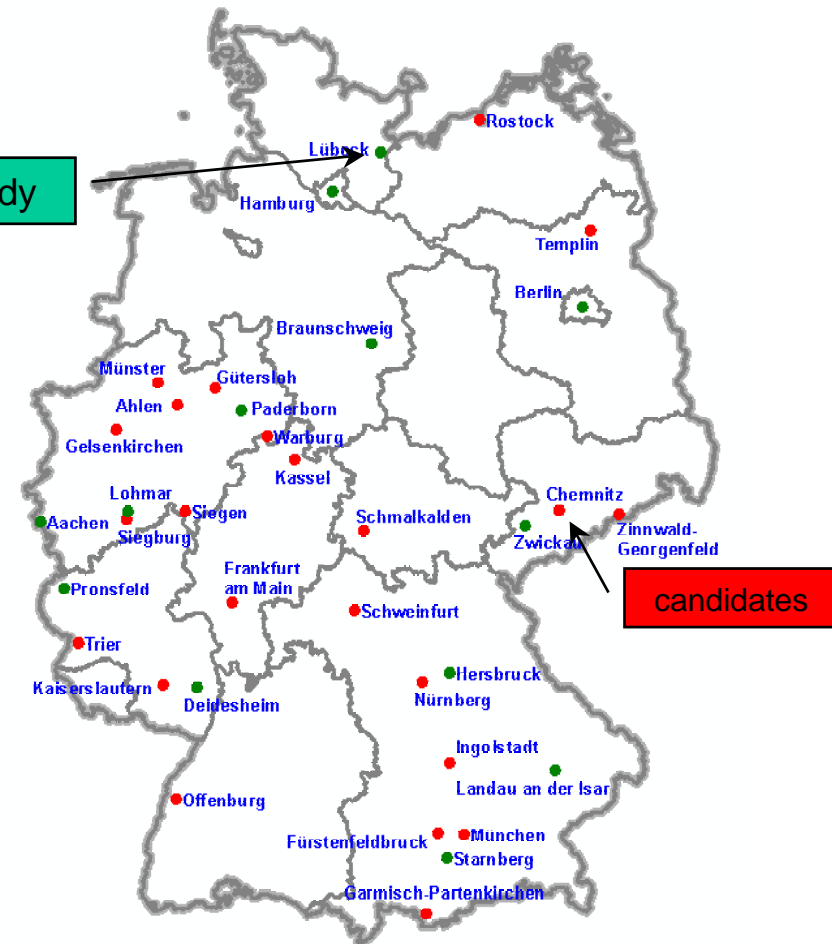
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Case studies

- 15 representative cities in Germany
- Interviews with all involved authorities
- Ex post studies and simulations
 - meteorological situation
 - runoff and flooding
 - damages
 - disaster management

Case study



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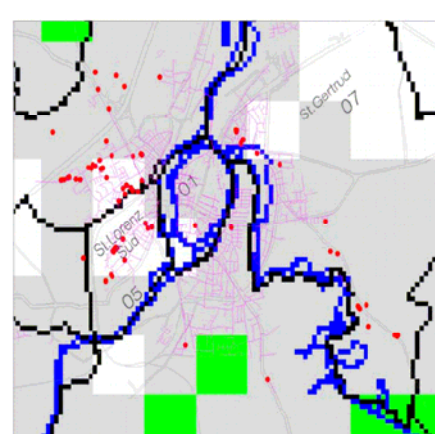
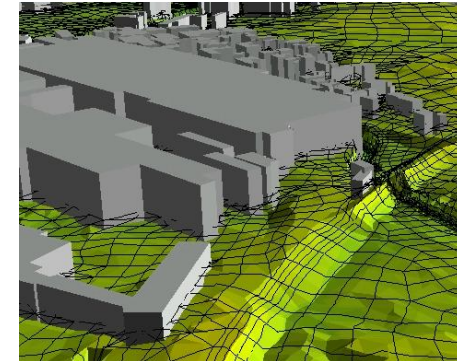
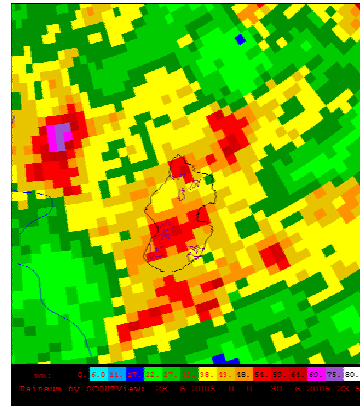
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Case studies

- **Meteorological situation:**
measured precipitation vs.
design rain/runoff
- **Runoff and flooding:**
simulation of sewage/
stormwater network
small urban creeks and
surface flow and interaction
- **Damage assessment**
at micro scale
- **Disaster management:**
organisation, operation of
services, damage reduction
measures



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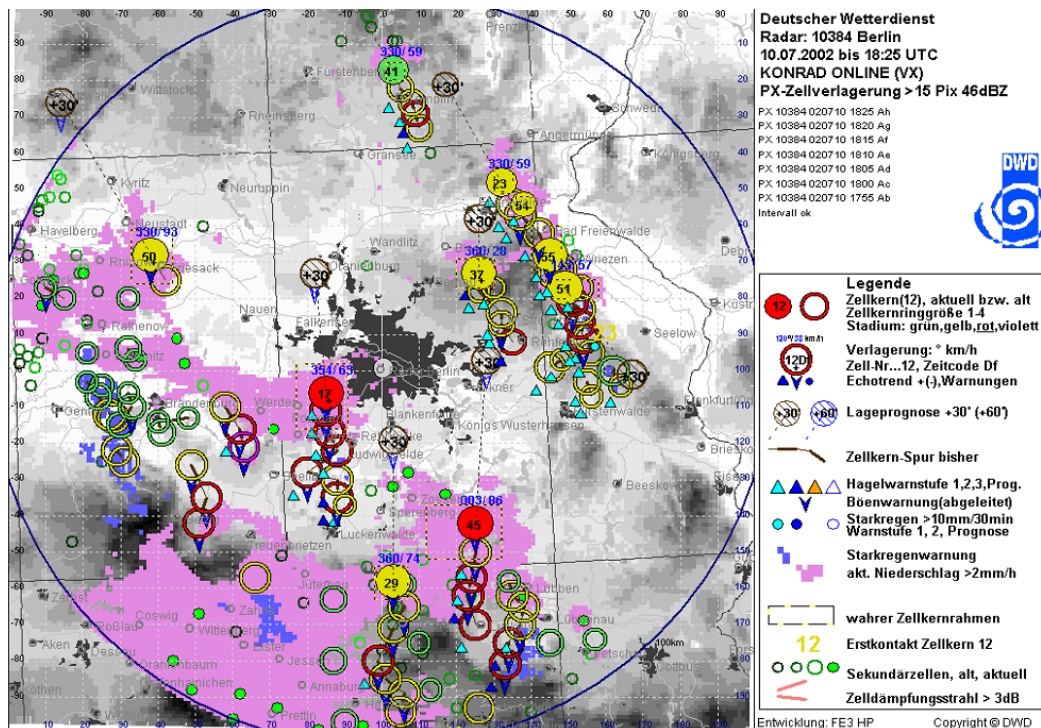


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Improvement of forecast tools and systems for early warning



Radar Network (Nowcasting tool KONRAD) from the German Weather Service

- Improvement of cell tracking methods
- Improvement of detecting methods for flash flood events
- More knowledge about environmental influences

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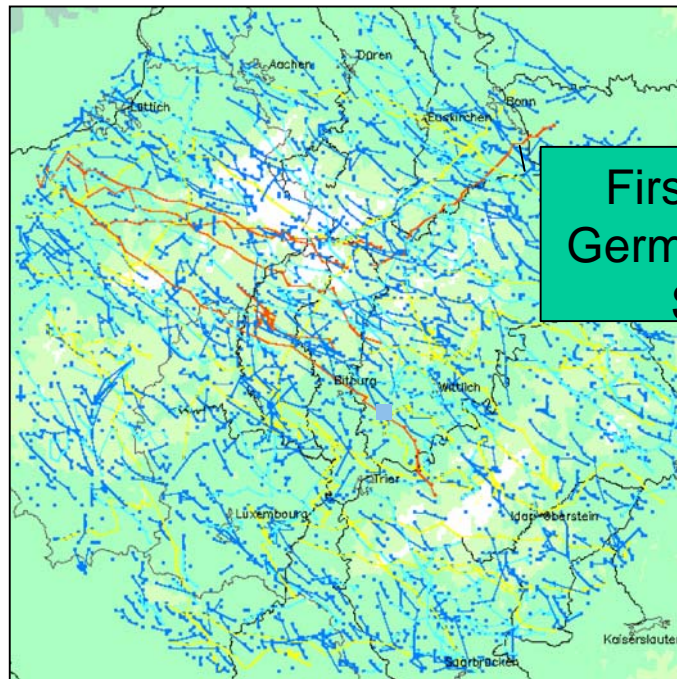


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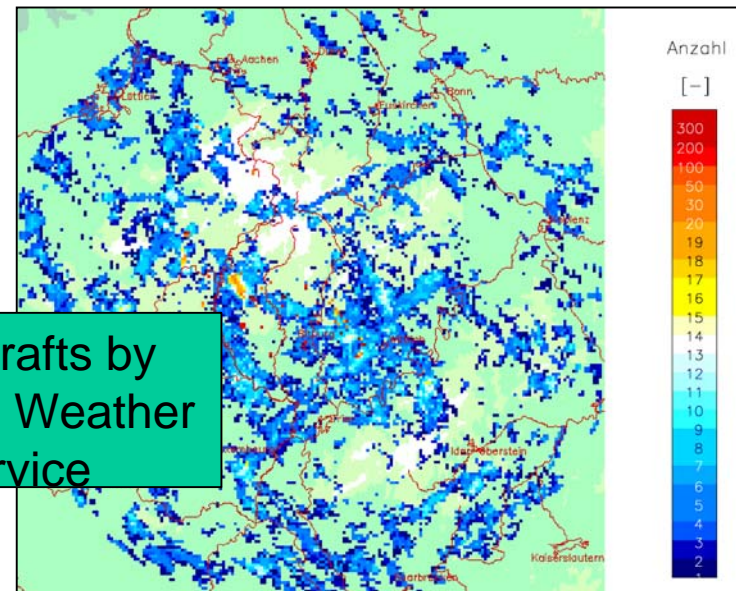


Affected regions: distribution, frequency, intensity

- Statistical analyses of radar pictures in the last 5-8 years



First drafts by
German Weather
Service



- Detection of „typical“ thunderstorm tracks
- most and less affected regions (1 year example)

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Hazard and risk analyses in urban areas

- Development of different methods for hazard and risk analyses for small and big cities
- Collection of „best practices“
- Prototypes of hazard and risk maps for cities



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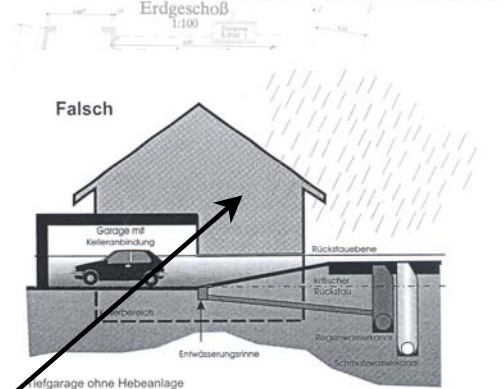
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Actions and measures for risk reduction in urban areas

- Risk reduction
 - town planning
 - technical measures
 - information

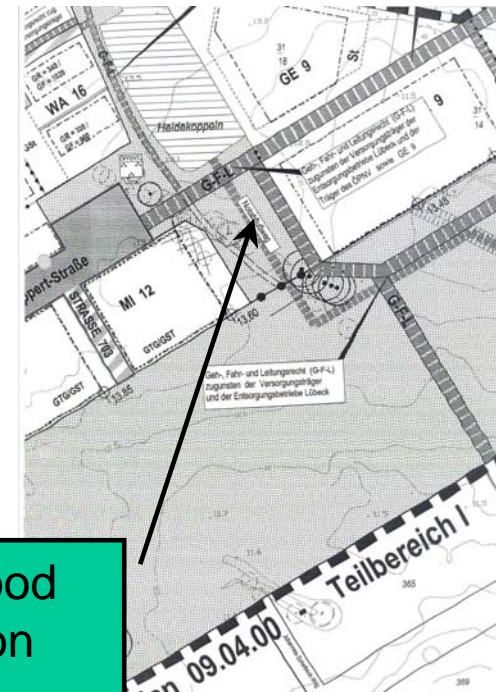
Wohin mit dem Abwasser?

SEB Ratgeber für Haus- und Grundstücksentwässerung



Information

e.g. emergency flood ways and retention ponds



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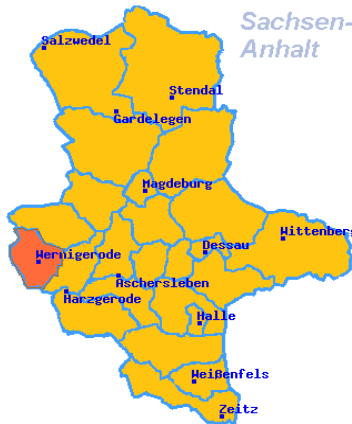


Actions and measures disaster management

Damage reduction

- early warning and alarming
- disaster management
- disaster control

Warnsituation - Alle Warnungen



Aktuelle Warnungen:

- Alle Warnungen
- Gewitter incl. Begleiterscheinungen

Zur Deutschlandübersicht

Region: Warnlagebericht
Wochenvorhersage Wettergefahr

Aktuelle Wetterdaten

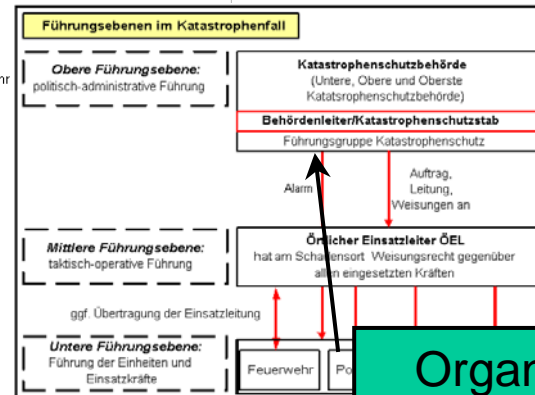
- Warnung vor extremem Unwetter
- Unwetterwarnung
- Vorwarnung zur Unwetterwarnung
- Warnung vor markantem Wetter
- Wetterwarnung
- Seewetterwarnung
- keine Warnung

Warning by
German Weather
Service

Simplified Decision
matrix for warning
and alarming in
Hamburg

Warnart Warnstufe Gewässer	X	WW	WU	WUEX
0		W	W	A
1	W	W	A	A
2	A	A	A	A

Stand: 03.06.03 16:16 Uhr



Organisation

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More information....

Internet: <http://www.urbanesturzfluten.de>

Internet: <http://www.rimax.de>

and thank You for listening

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