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Data Based Decision Making for Flood Protection

Emme / Aare River System
Measures for Flood Protection
- Dam Construction
- Regulating River Flows (Aare)
  - -> Stakeholders
- Emergency Response

Data for Emergency Response
Innovation in Data Management

Dr. Gabriela Friedl, Hydrometry, Canton Solothurn, responsible for Emergency Flood Response for River Aare, Emme and Birs (Pikett-Dienst)

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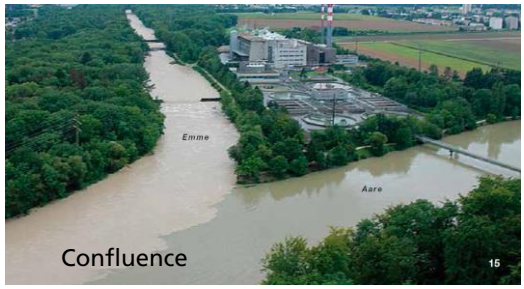

Emme / Aare River System

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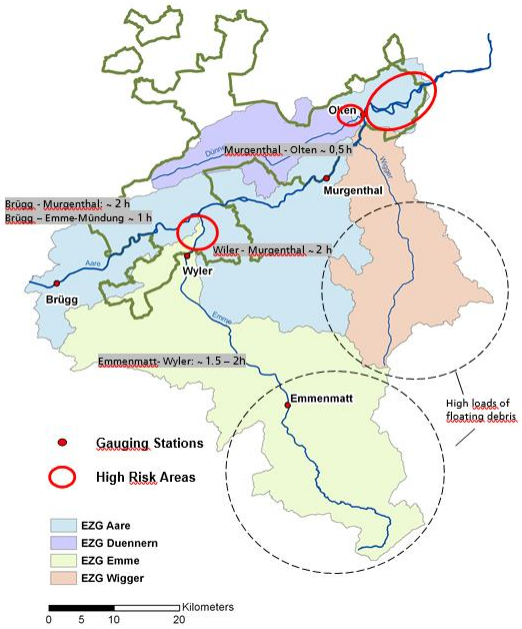

River Aare is regulated (Lake Biel)
River Emme: unregulated, fast responding

High Risk Areas (vulnerable areas with high amount of assets):
Industrial zone in Biberist
City of Olten
Private houses close to the river in Niederamt

Measures:
Construction of dams
Flow management
Response units

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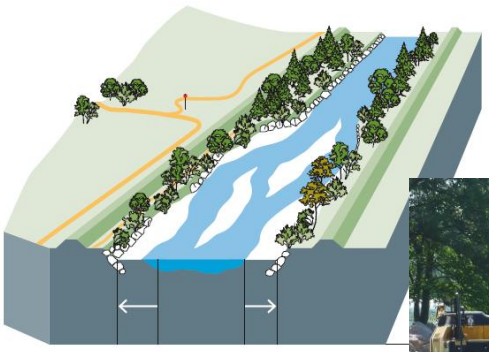
Measures for Flood Protection: Dam Construction



Project Emme

Project Aare

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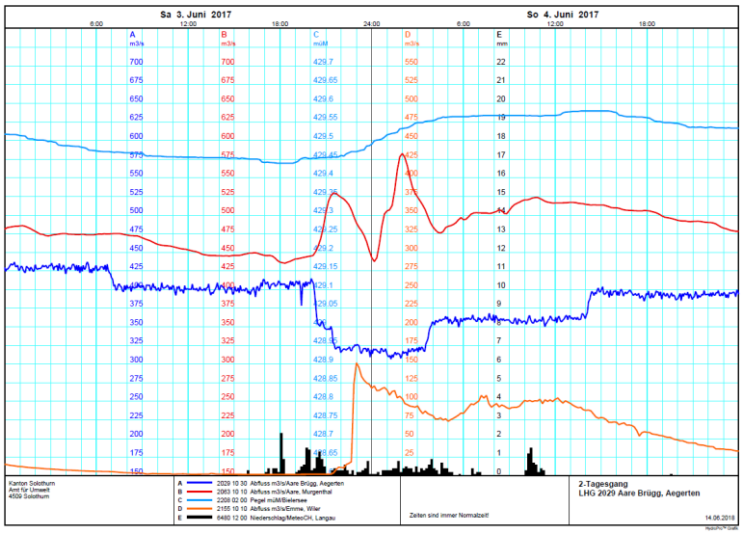
Measures for Flood Protection: Regulating River Flows

The gauge in Brügg is closed just in time for the river Aare to receive the peak discharge from the unregulated Emme



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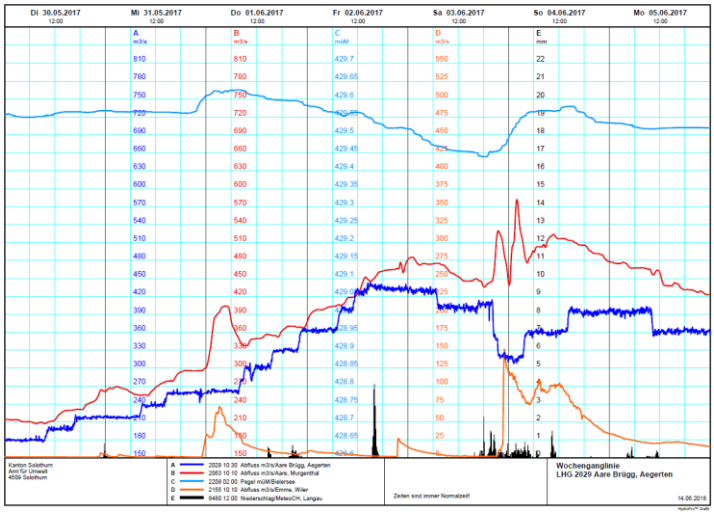
To be able to close the gauge in Brügg, the water level in Lake Biel has to be lowered several days ahead – however, there are many different interest to be considered: many stakeholders



Stakeholders: Regulating Lake Biel

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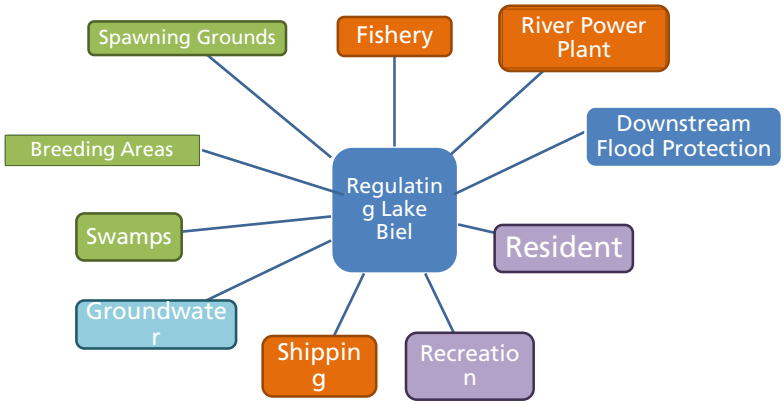

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Measures for Flood Protection: Emergency Response

Goal: fire fighters, police and communities
- Install movable flood protection units
- Close movable dam locks
- Close roads and underpass

Time requirement: 2 hours

Requirements for a successful emergency response:

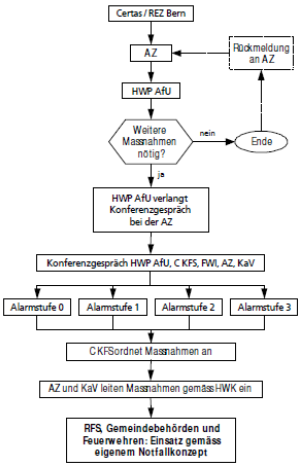
Defined alerting levels, well below alarm levels to allow enough time for response

Automatic alerts from upstream gauging stations

Defined alarm levels (to prevent flooding, based on flodd modelling)

Defined processes (Alarm and Massnahmen-konzept)

All involved parties are trained on the concept



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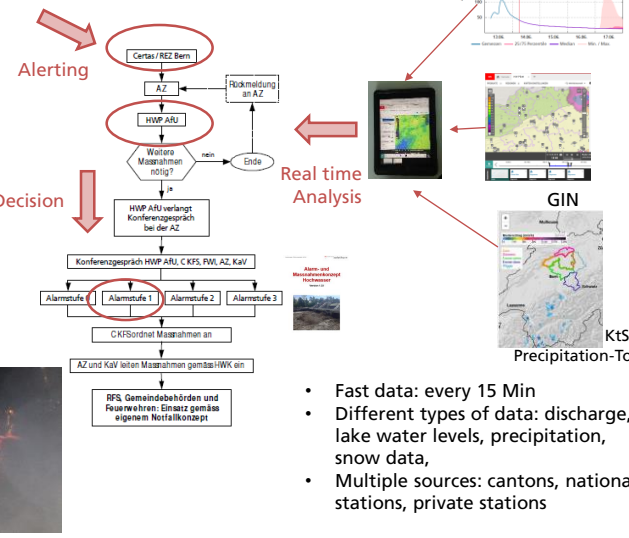
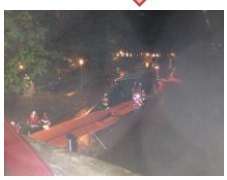
Data during a flood event

Reliable data: Redundancy





- Fast data: every 15 Min
- Different types of data: discharge, lake water levels, precipitation, snow data,
- Multiple sources: cantons, national stations, private stations

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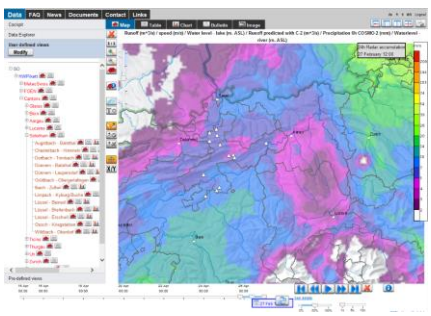
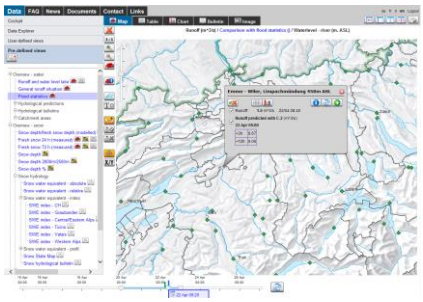
Innovation: fast – reliable - shared

GIN: Gemeinsame Informationsplatform Naturgefahren
(Common Natural Hazard Information Platform)





Prerequisite for successful datasharing in times of emergencies:

Fast data transfer, multiple sources of data, different kind of data
Redundancy: Every single element from probe, logger, transmission to computer server and database is set up redundantly
Sharing: Distinguishing between preliminary data and verified data to be able to share data almost real time