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Swiss Confederation

Federal Department of the Environment,  
Transport, Energy and Communications DETEC

**Federal Office for the Environment FOEN**

# OWARNA

**Preparedness and response as effective  
and flexible answer on complex risks**

**CERG-C-Workshop  
November 4, 2011  
Geneva**



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## Content

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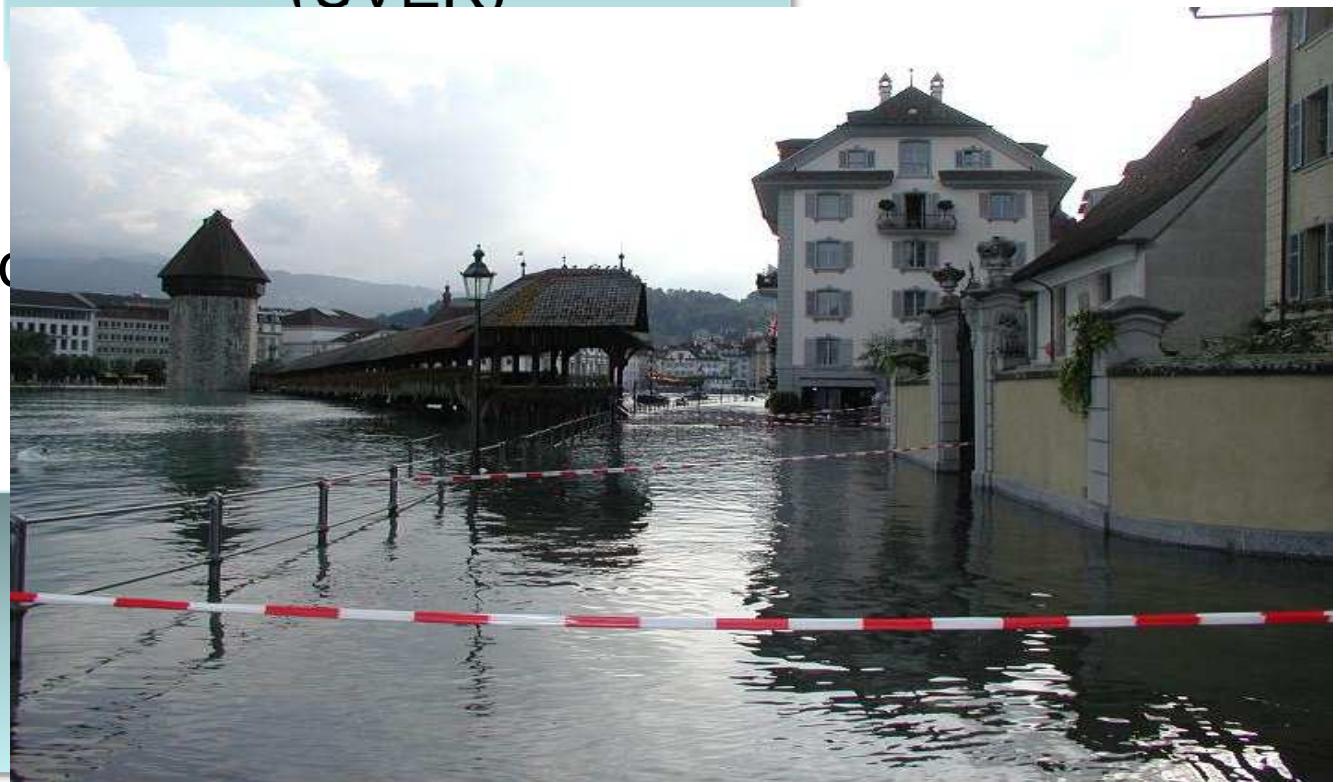
- **OWARNA and LAINAT**: its role, objectives and activities
- identification of future **challenges** in disaster risk reduction linked to **research, training and financing**
- interest in developing an international network in disaster risk reduction



## History

### Ereignisanalyse Hochwasser 2005 (UVEK)

Need for Improvement





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Division

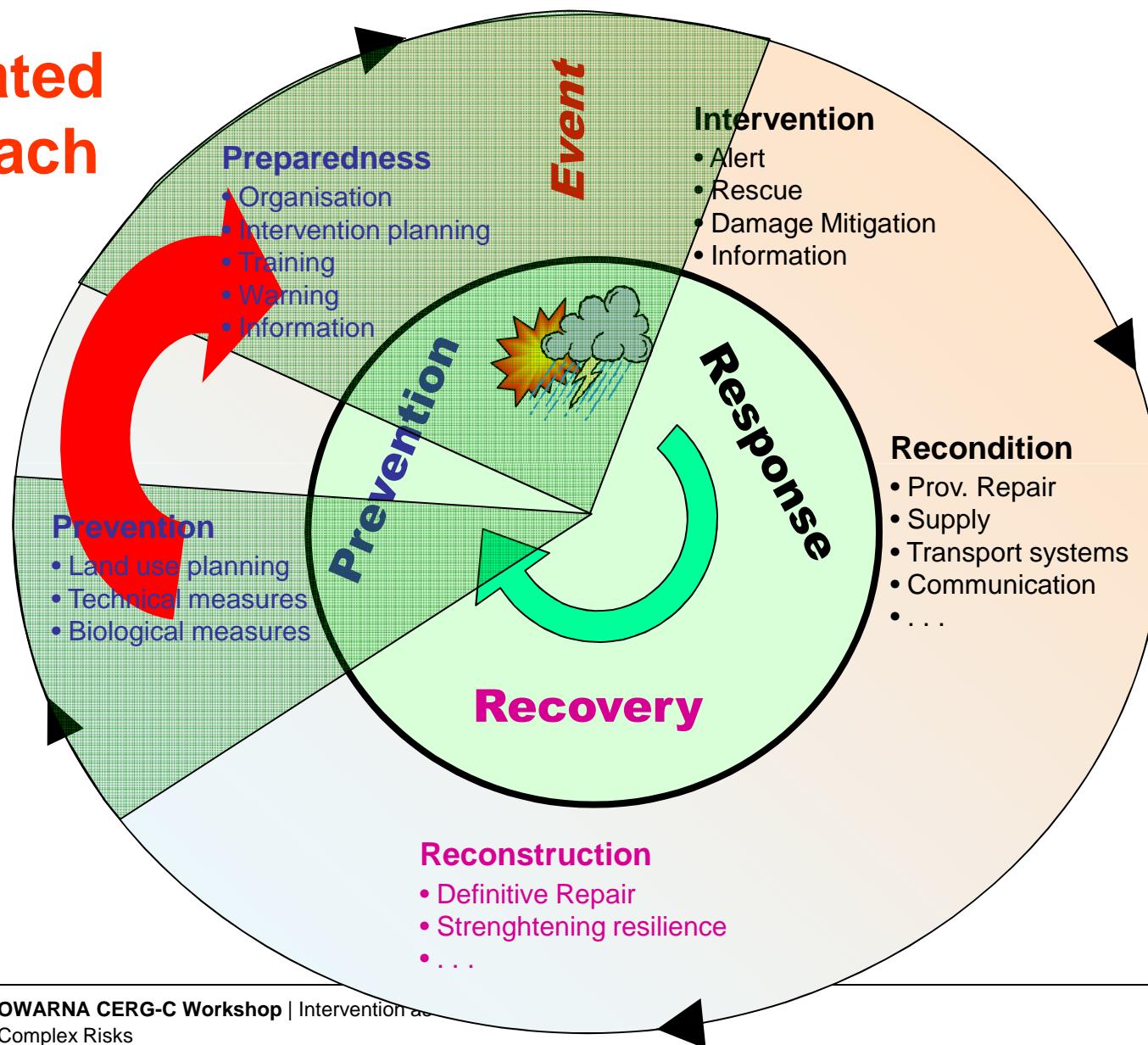
# OWARNA

## Optimisation of early warning and alerting of natural disasters

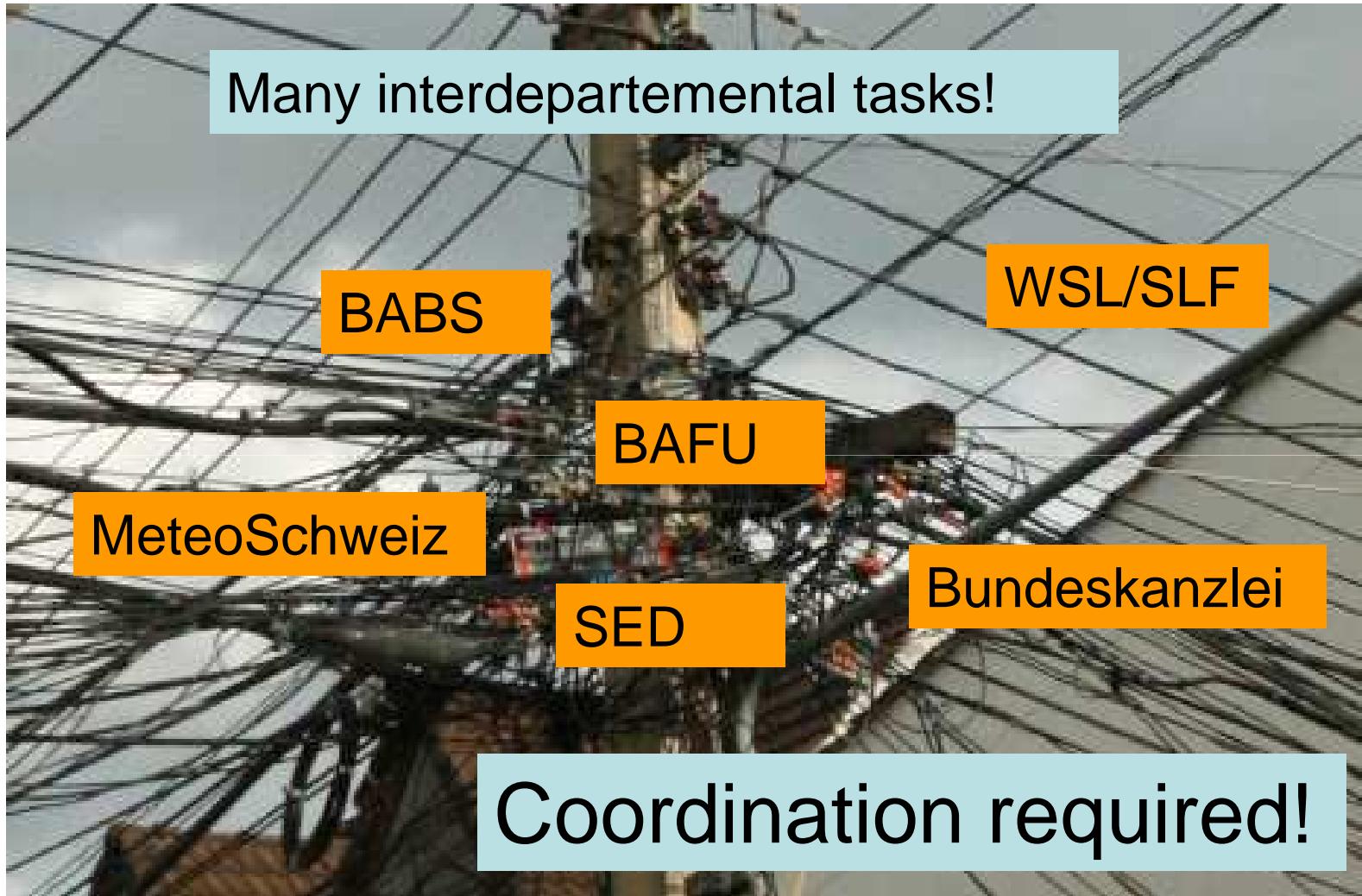


# RISK MANAGEMENT MODEL

## Integrated Approach



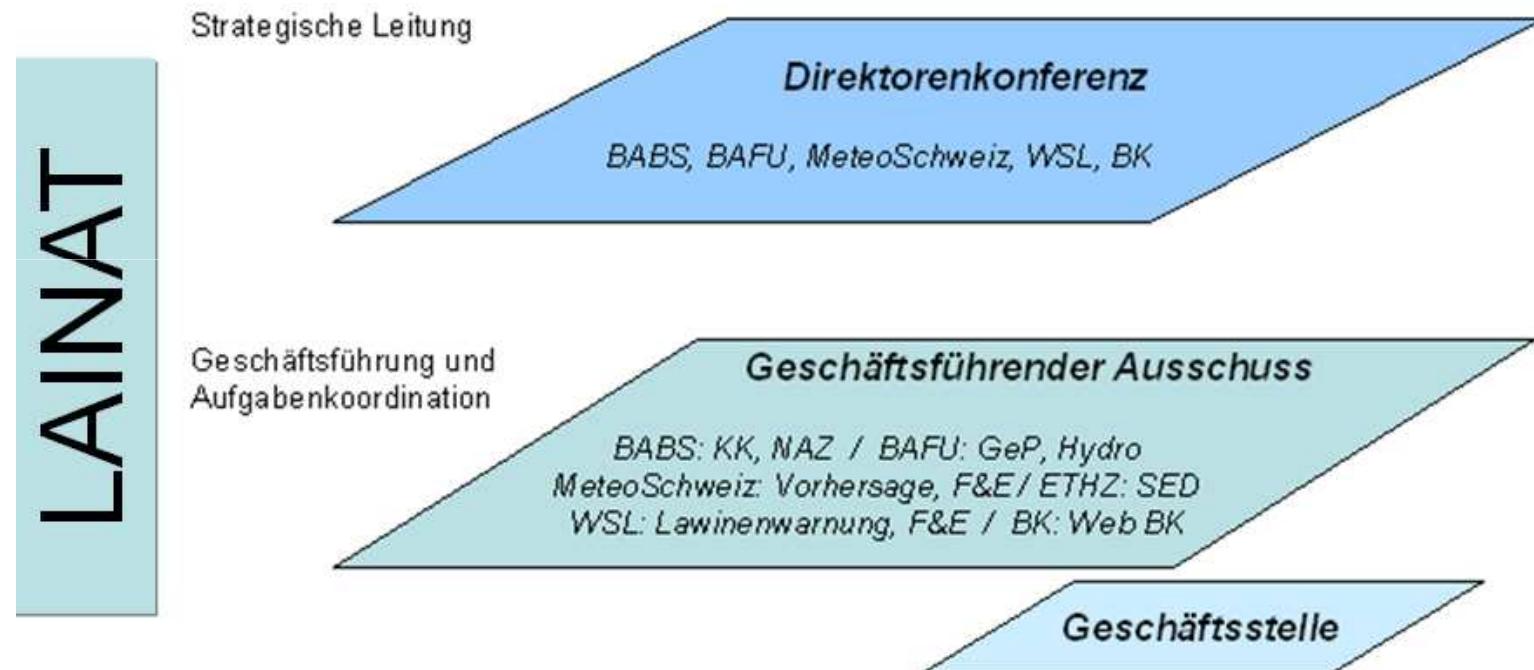
# Erfolgslogik Vorsorge und Intervention

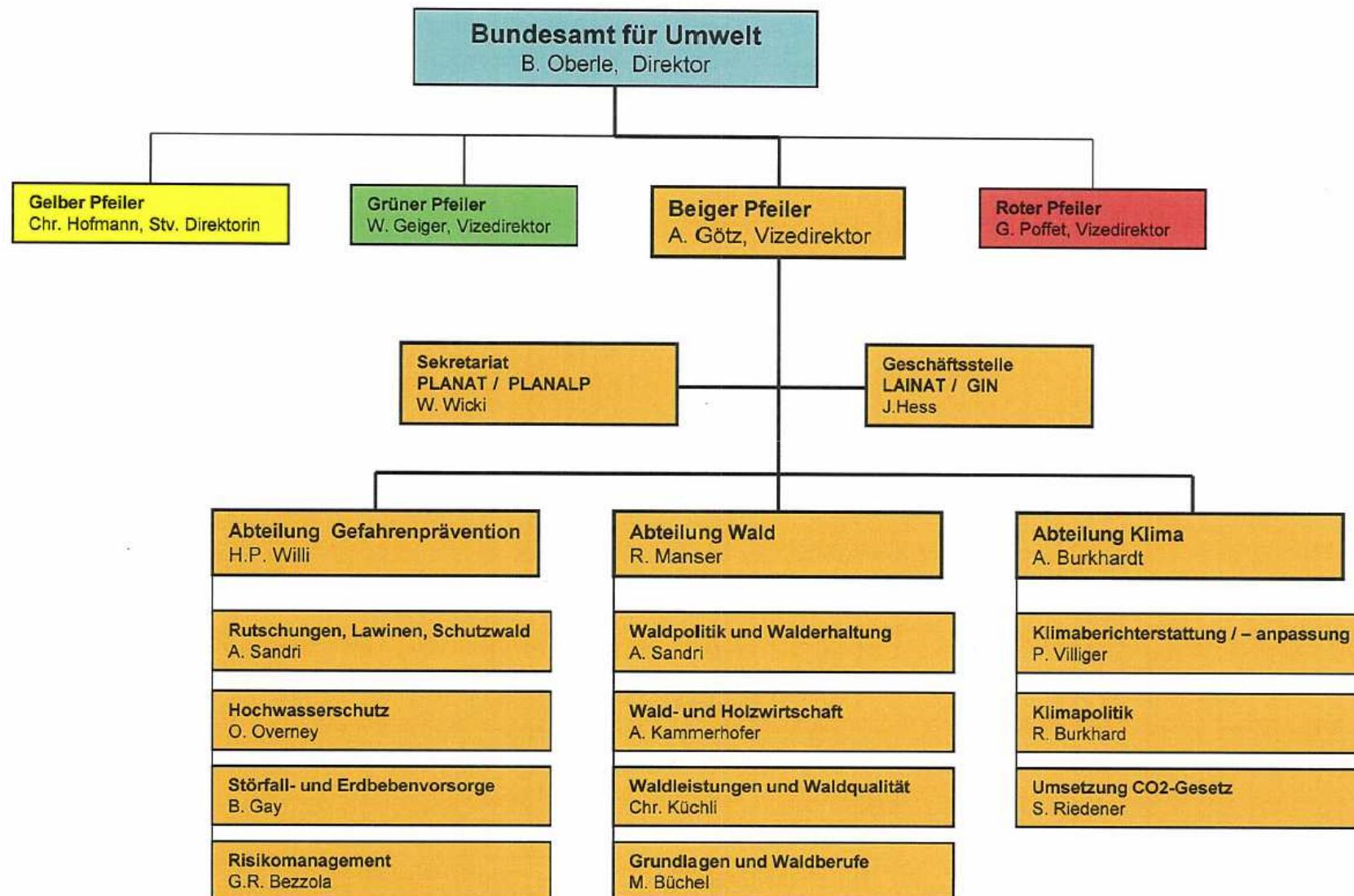




# Common decision-making process

involving heads of FOEN, FOCP, Federal Chancellery,  
MeteoSwiss, WSL adopted on 2 October 2008







## The following has to be ensured:

Communication,  
Action of  
Intervention

## Successful Intervention



## „Safety-Chain“: Warning and Alerts

GWARNA CERG-C Workshop | Intervention as Answer on

Complex Risks

Dr. Josef Hess, Executive Director LAINAT



# Safety chain: Warnings and alerts

**The following must be ensured:**

Collection  
of data

Modelling,  
forecasting

Communication,  
distribution of  
information

**Successful  
intervention**



Transmission  
of data

Issuance of  
bulletins, warnings

Local interpretation,  
training, emergency plans





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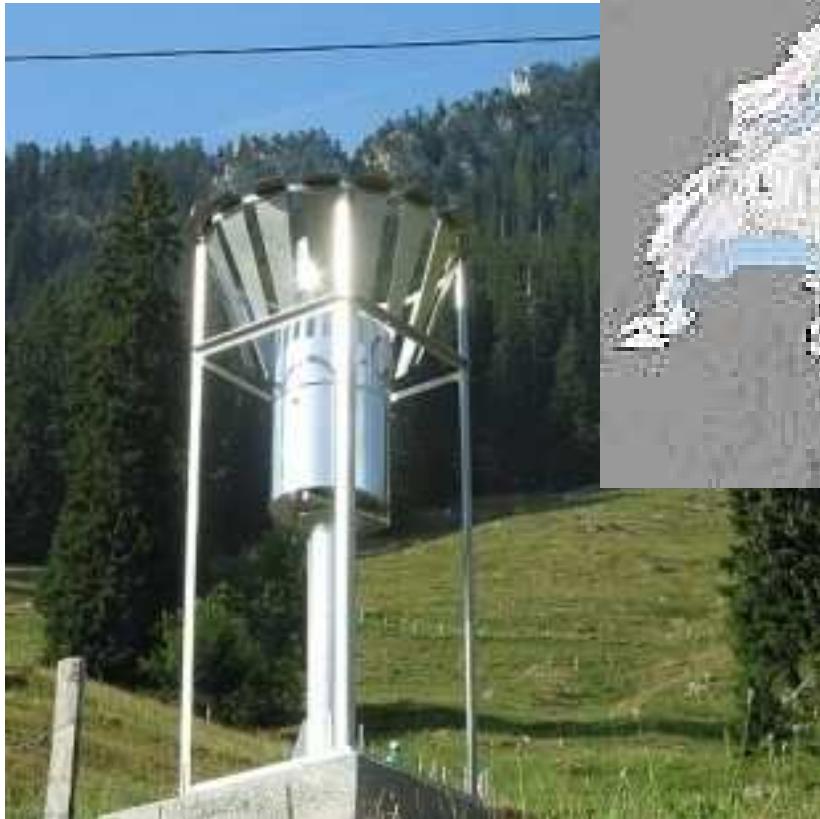
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- **LAINAT/OWARNA  
objectives and activities**

➤ **Improvements of forecasts**

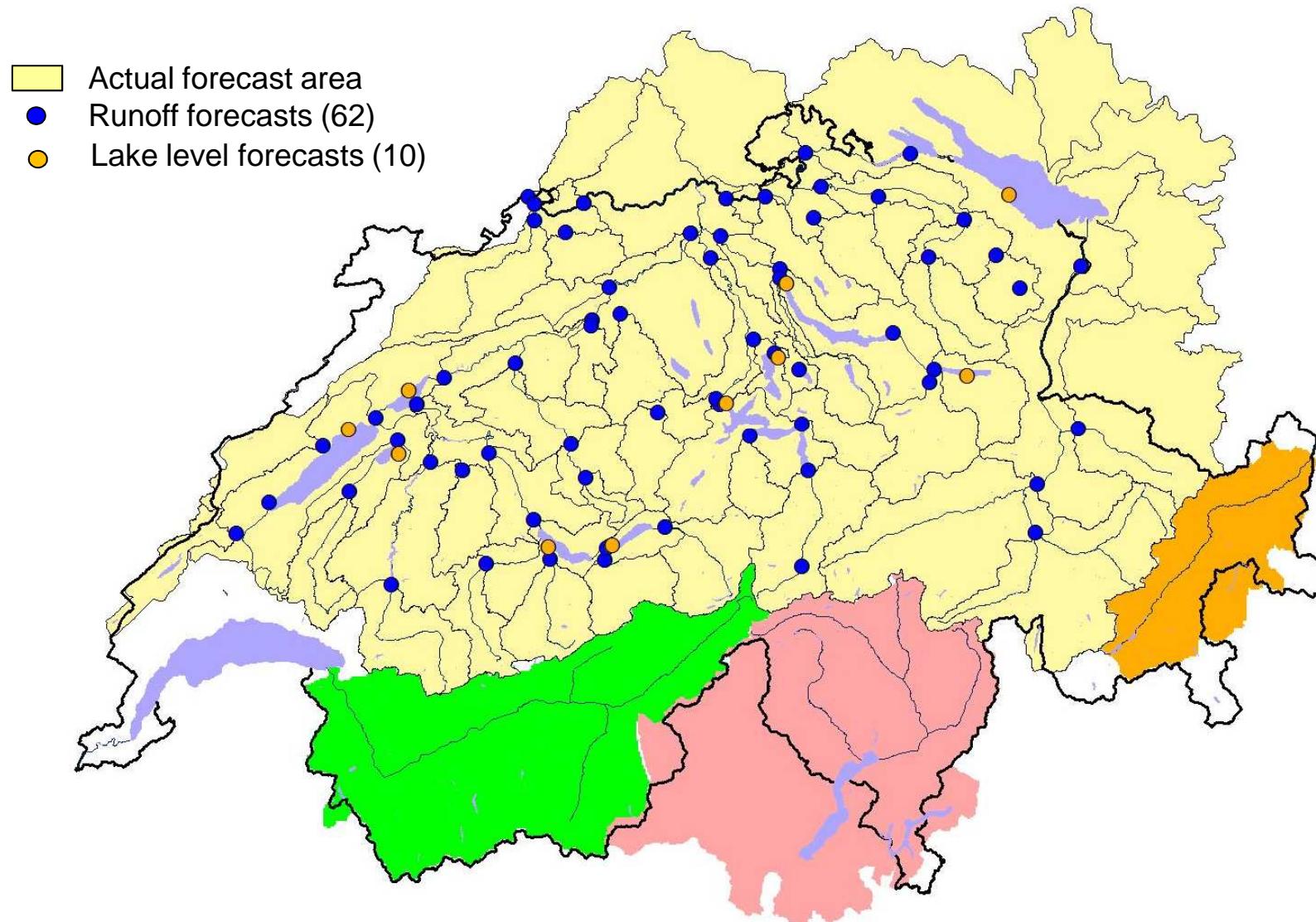


# Completion of meteorological monitoring



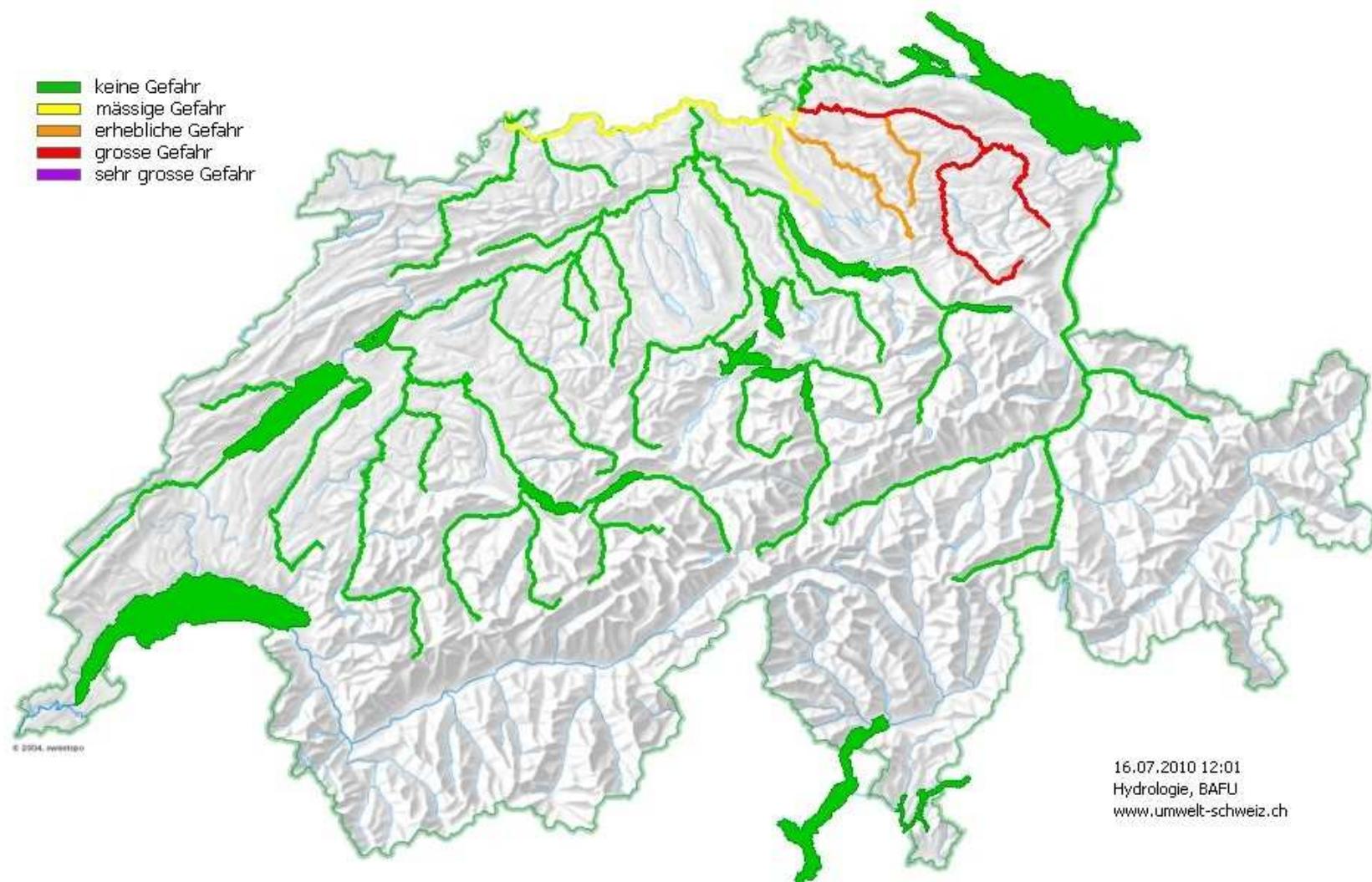


# Completion of hydrological forecast area





# Hazard level forecast





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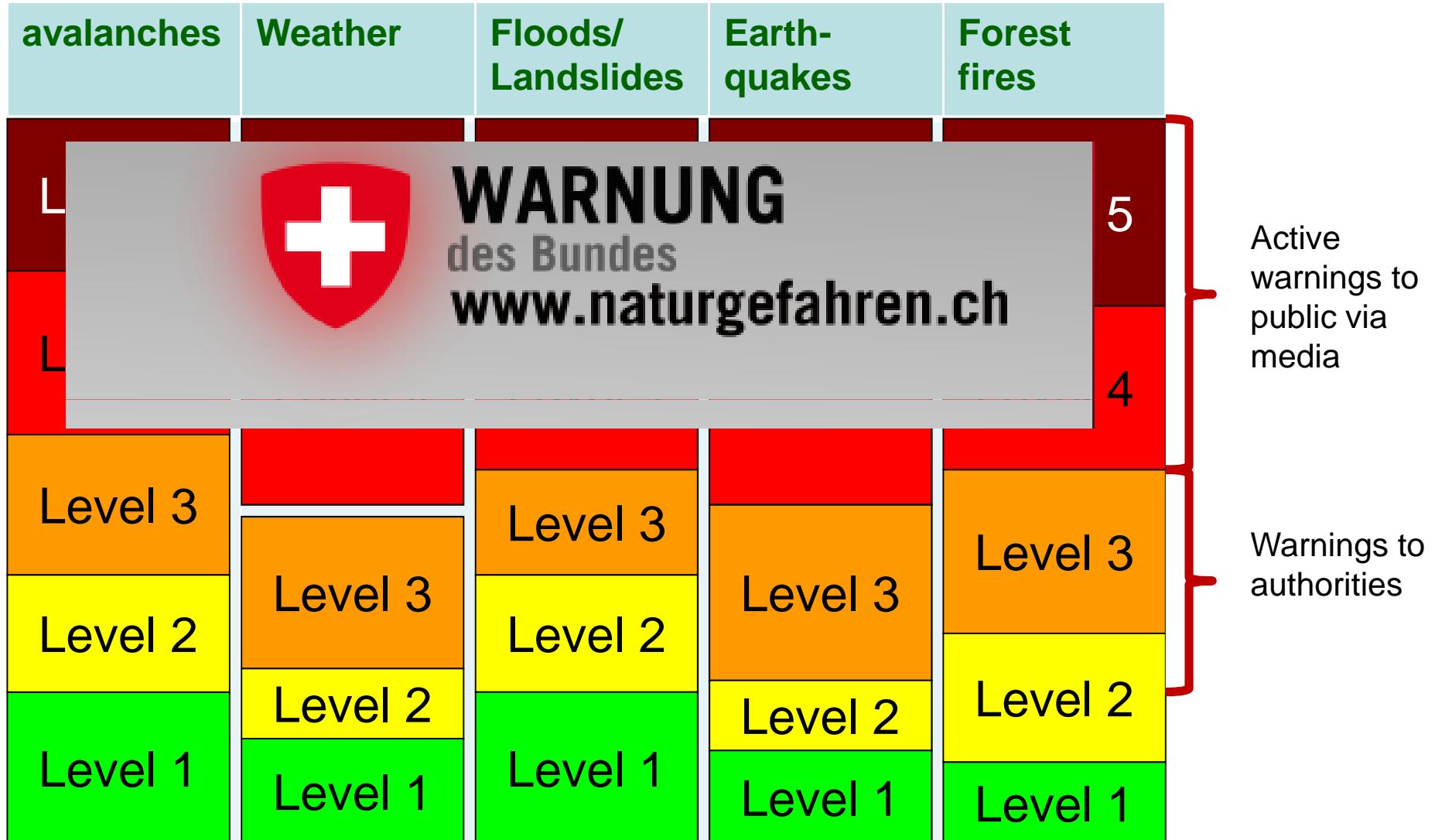
**Federal Office for the Environment FOEN**

- **LAINAT/OWARNA**  
**objectives and activities**

➤ **Official federal warnings**



## New warning products



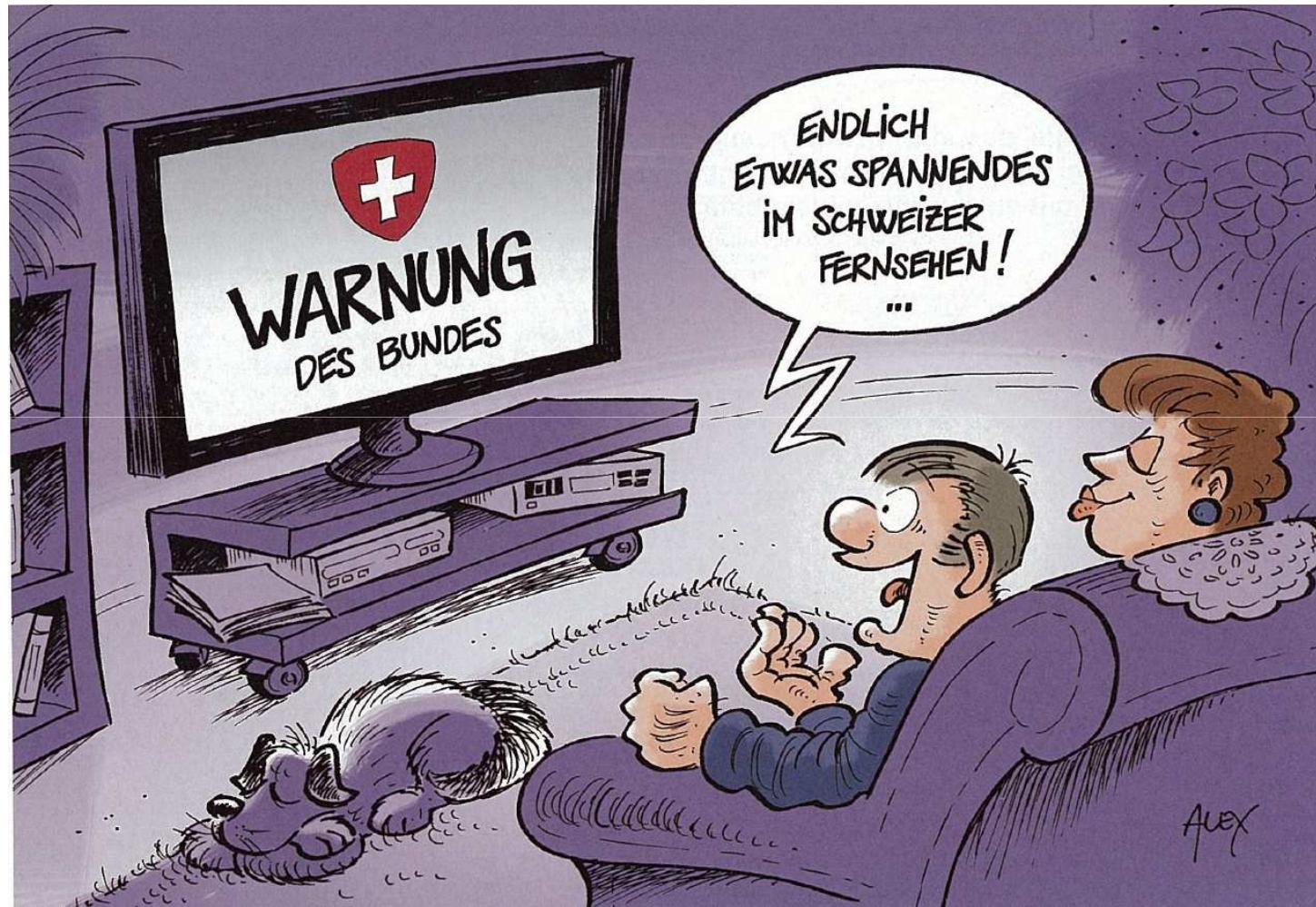


# Unique optical and acoustical Layout





# Unique optical and acoustical Layout





# From Warning to actions Mitigation and Response actions

Actions of flood mitigation – Aare, Bern



# From Warning to actions Mitigation and Response actions

Individual mitigation and response actions by home owners!





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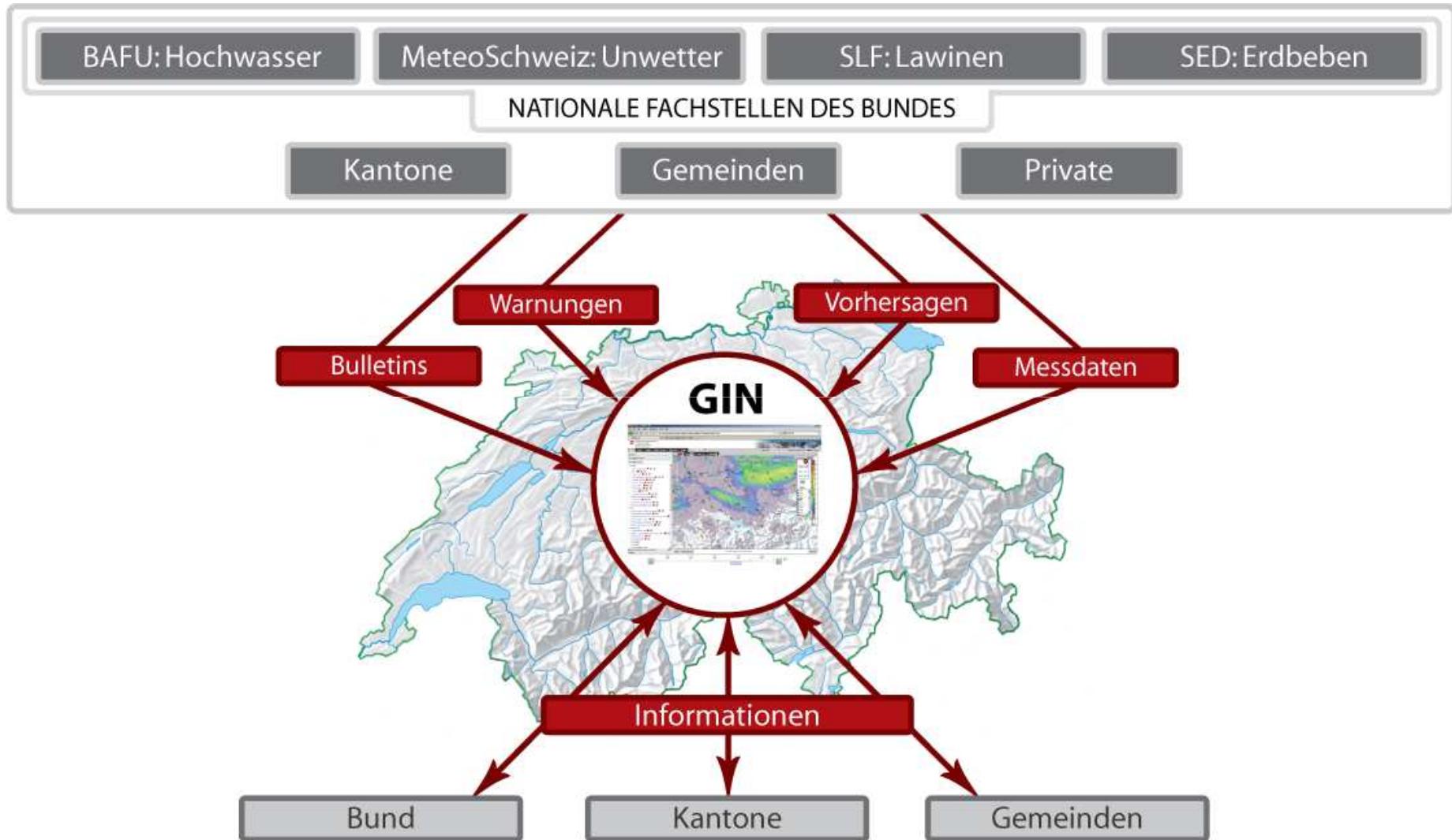
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- **LAINAT/OWARNA  
objectives and activities**
- **Joint Information Platform For  
Natural Hazards in Switzerland (GIN)  
for professionals**

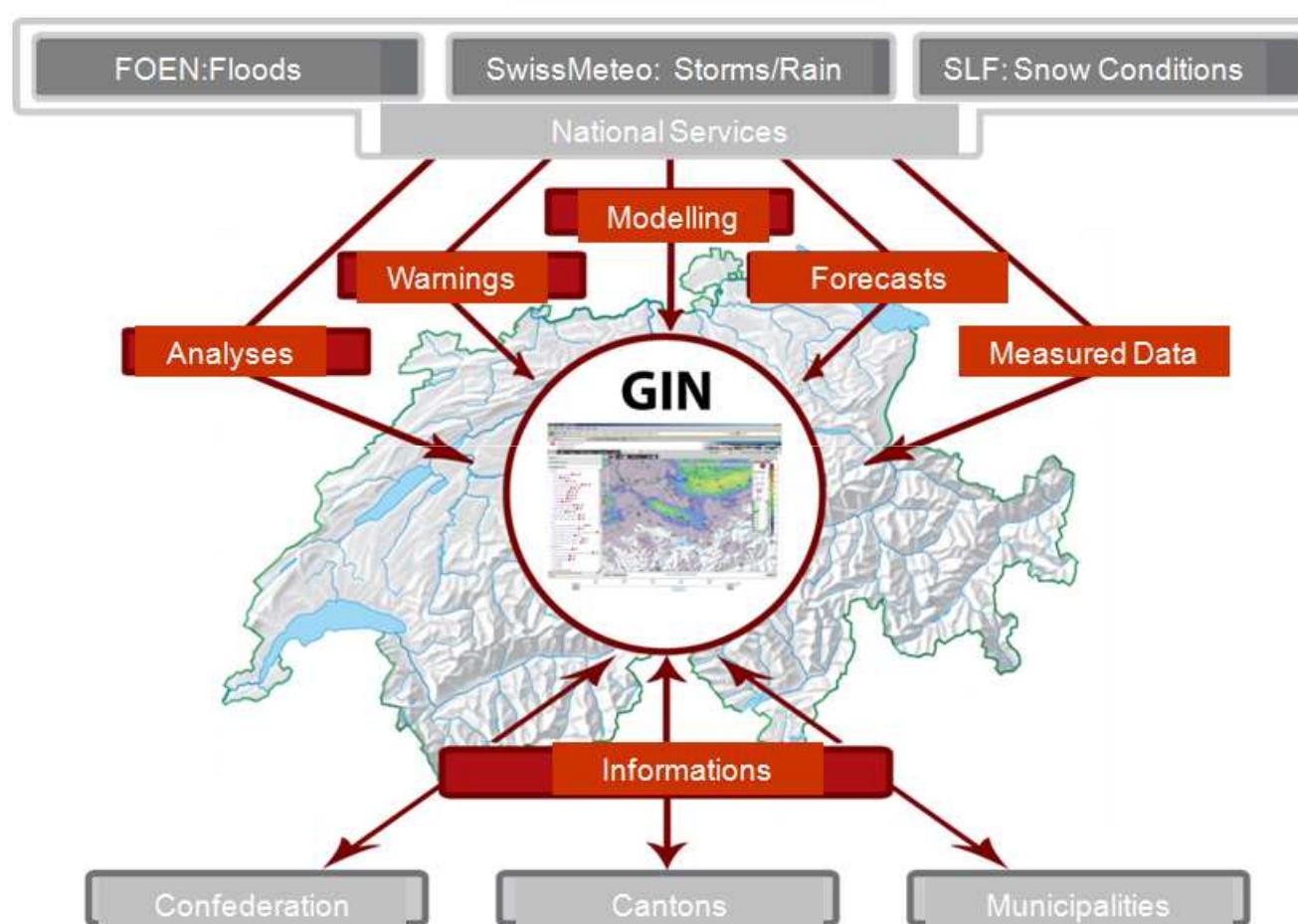


# Gemeinsame Informationsplattform Naturgefahren GIN



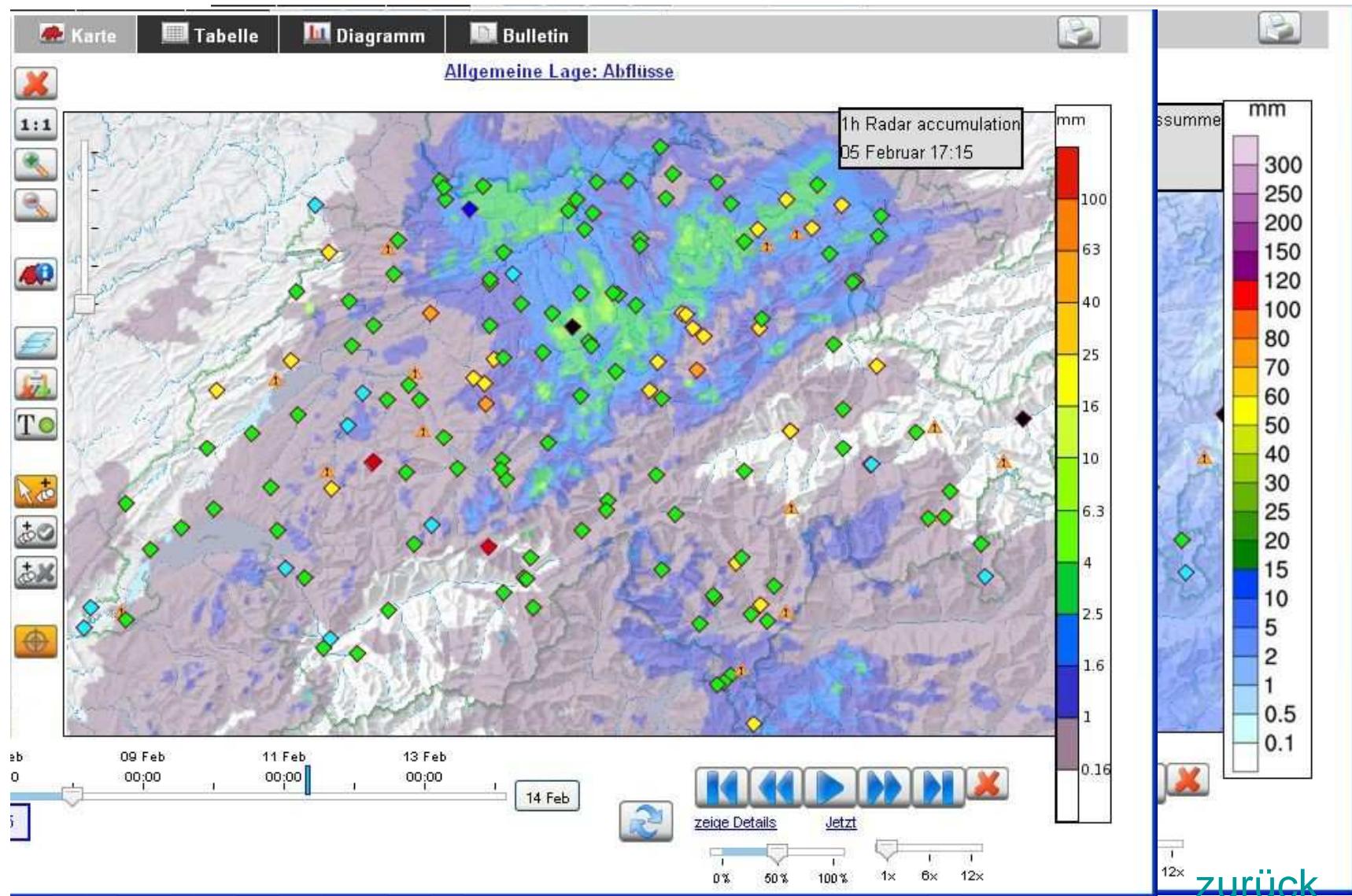


# Integrated information system



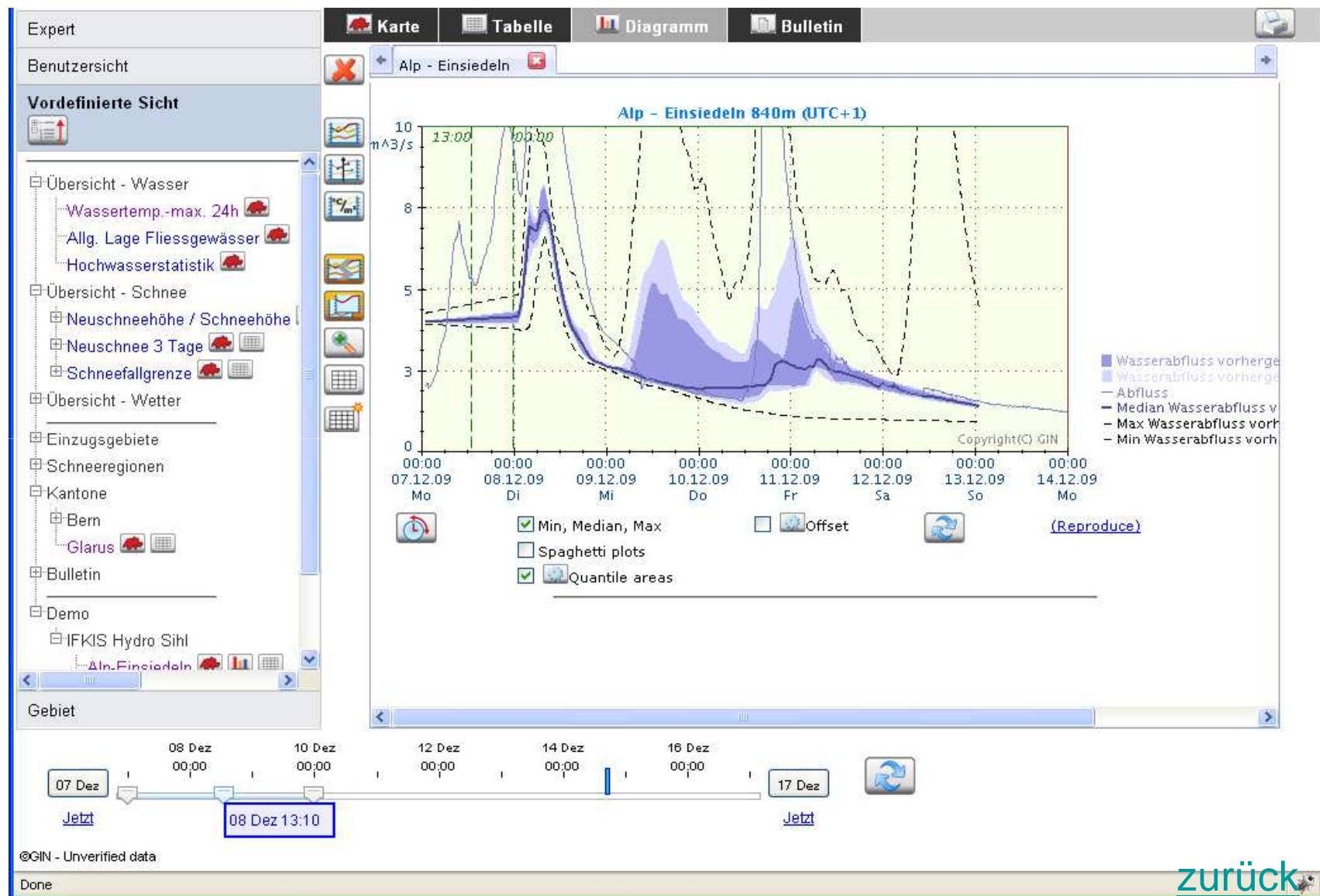


# Precipitation forecast on GIN





# Hydrological forecast on GIN



zurück



# Cockpit

## Official warning map

**Daten** **FAQ** **News** **Kontakt** **Links** **Zeitzone: UTC+1** [Logout](#)

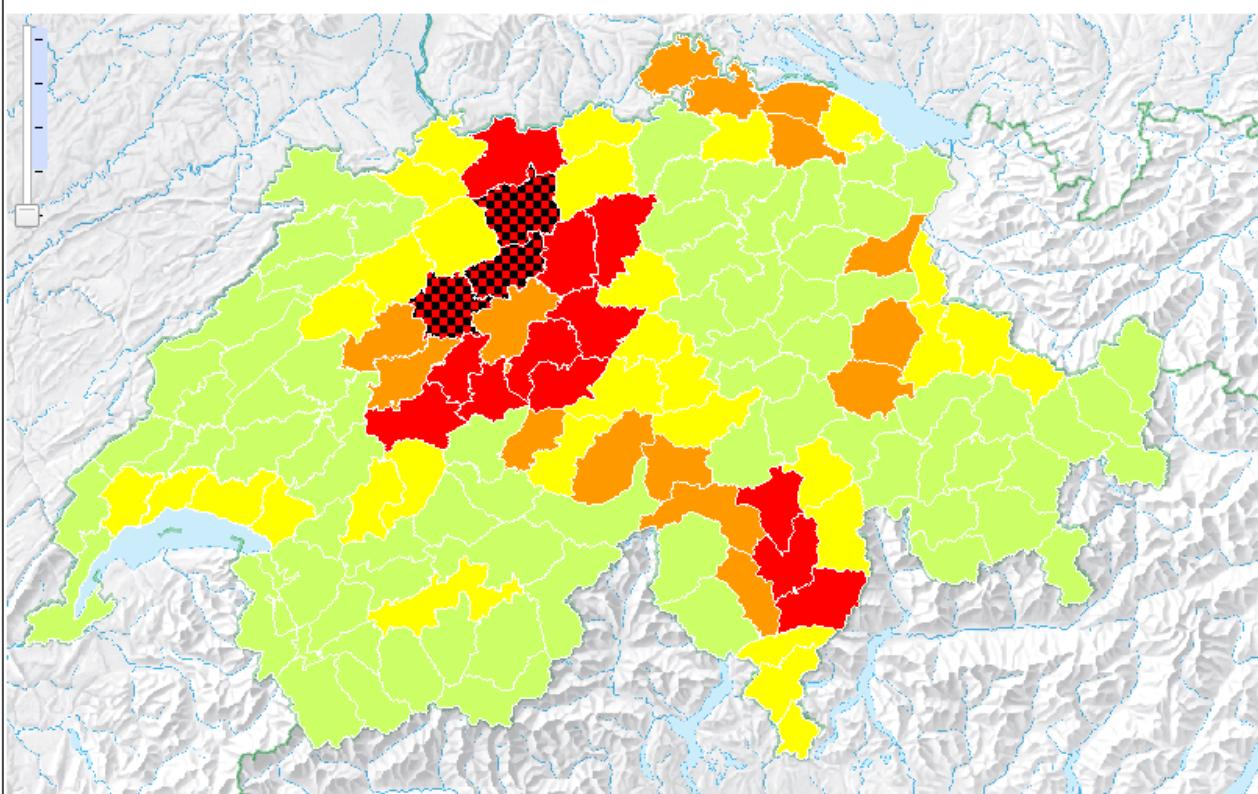
**Daten Explorer**  
**Benutzerdefinierte Sichten**  
**Vordefinierte Sichten**

- Offizielle Warnungen
- Gefahrensituation Bund
- Gefahrensituation User

- Übersicht - Wasser
  - Allg. Lage Fließgewässer
  - Hochwasserstatistik
  - Wassertemp. - Max. 24h
- Hydrologische Vorhersagen
- Übersicht - Schnee
  - Schneehöhe / Neuschneehöhe
  - Neuschnee 3 Tage
  - Schneefallgrenze
- Übersicht - Wetter
  - Temperatur
  - Niederschlag
  - Niederschlagsradar
  - COSMO
  - Wind
  - Windgeschwindigkeit

**Offizielle Warnungen** 5 2 1 1 1 2 1 1 2

**Karte** **Tabelle** **Diagramm** **Bulletin**



**Gefahrensituation Bund** 4 2 3 2 1 2 1 2

**Gefahrensituation User** - - d - - - - c

23 Okt 02 Nov  
[Jetzt](#) 25 Okt 03:40 [Jetzt](#)



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- **LAINAT/OWARNA**  
**objectives and activities**
- **Information Platforms for public**



# „prevention gate“ on ch.ch

www.ch.ch Das Schweizer Portal

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Für Privatpersonen Für Unternehmen Über die Behörden Über die Schweiz

[+ Allgemeine Informationen](#)  
[+ Waldbrand](#)  
[+ Hochwasser](#)  
[+ Erdbeben](#)  
[+ Lawinen](#)  
[+ Sturm](#)  
[+ Rutschungen](#)  
[+ Gewitter/Hagel](#)  
  
[+ Brand](#)  
[+ Unfall](#)  
[+ Einbruch](#)  
[+ Diebstahl](#)

## Naturgefahren und andere Gefahren

**NATURGEFAHREN** **ANDERE GEFÄHREN**

**1. Wählen Sie ein Ereignis**

Waldbrand  Sturm  
 Hochwasser  Rutschungen  
 Erdbeben  Gewitter und Hagel  
 Lawinen

**2. Wie verhalte ich mich?**

Vorher  Während  Danach

**MEDIENMITTEILUNGEN**  
[Bund warnt künftig via Radio und TV vor grossen Naturgefahren](#)  
[ Eidgenössisches Departement für Verteidigung, Bevölkerungsschutz und Sport ]  
  
[2 Jahre COSMO-2: eine erste Bilanz](#)  
[ Bundesamt für Meteorologie und Klimatologie ]

**CHECKLISTEN**  
[Waldbrand](#)  
[Hochwasser](#)  
[Erdbeben](#)  
[Lawinen](#)

**Erweiterte Suche** **SUCHEN**  
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[Gemeinde / Kanton auswählen](#)

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**Behördenverzeichnis**

**Abstimmungen/Wahlen**

**Mach dich staatskundig**

**Gefahrenportal**



## Aktuelle Naturgefahren-Warnungen des Bundes

Der Bund veröffentlicht an dieser Stelle die offiziellen Naturgefahren-Warnungen der höchsten Stufen 4 (grosse Gefahr) und 5 (sehr grosse Gefahr).

Im Moment liegen keine Warnungen vor.

Aktuelle und detaillierte Informationen zur aktuellen Naturgefahren-Lage finden Sie auf folgenden Seiten:



[Gefahrenkarte der MeteoSchweiz](#) - Wind, Gewitter, Regen, Schneefall, Strassenglätte, Hitze, Frost, Waldbrand, Tauwetter



[Nationales Lawinenbulletin des WSL-Institut für Schnee- und Lawinenforschung SLF](#) - Allgemeine Lage, Vorhersage und Tendenzen

### Weitere Informationen

[Was sind offizielle Naturgefahren-Warnungen der höchsten Stufen 4 und 5?](#)

[PLANAT – Nationale Plattform Naturgefahren](#)



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- **LAINAT/OWARNA**  
**objectives and activities**
- **Training of local experts**



## Naturgefahrenberatung: Menschen vor Ort für die Vorsorge

Von Milena Conzetti. Aktualisiert am 14.03.2011



**Mit dem Projekt «Warn» will der Kanton Bern die Unwetterwarnung koordinieren. Eine wichtige Massnahme dabei ist die neue Ausbildung von Lokalen Naturgefahrenberaterinnen und -beratern.**



Paul Mauerhofer, Chef des Regionalen Führungsorgans Kiesental, Hans Kienholz, Naturgefahrenspezialist, und René Eggimann, im Amt für Bevölkerungsschutz zuständig für die Ausbildung der Führungsorgane, überlegen in einer Trockenübung, was passieren könnte, wenn es in Schwarzenburg zu nass wird. (Manu Friedrich)

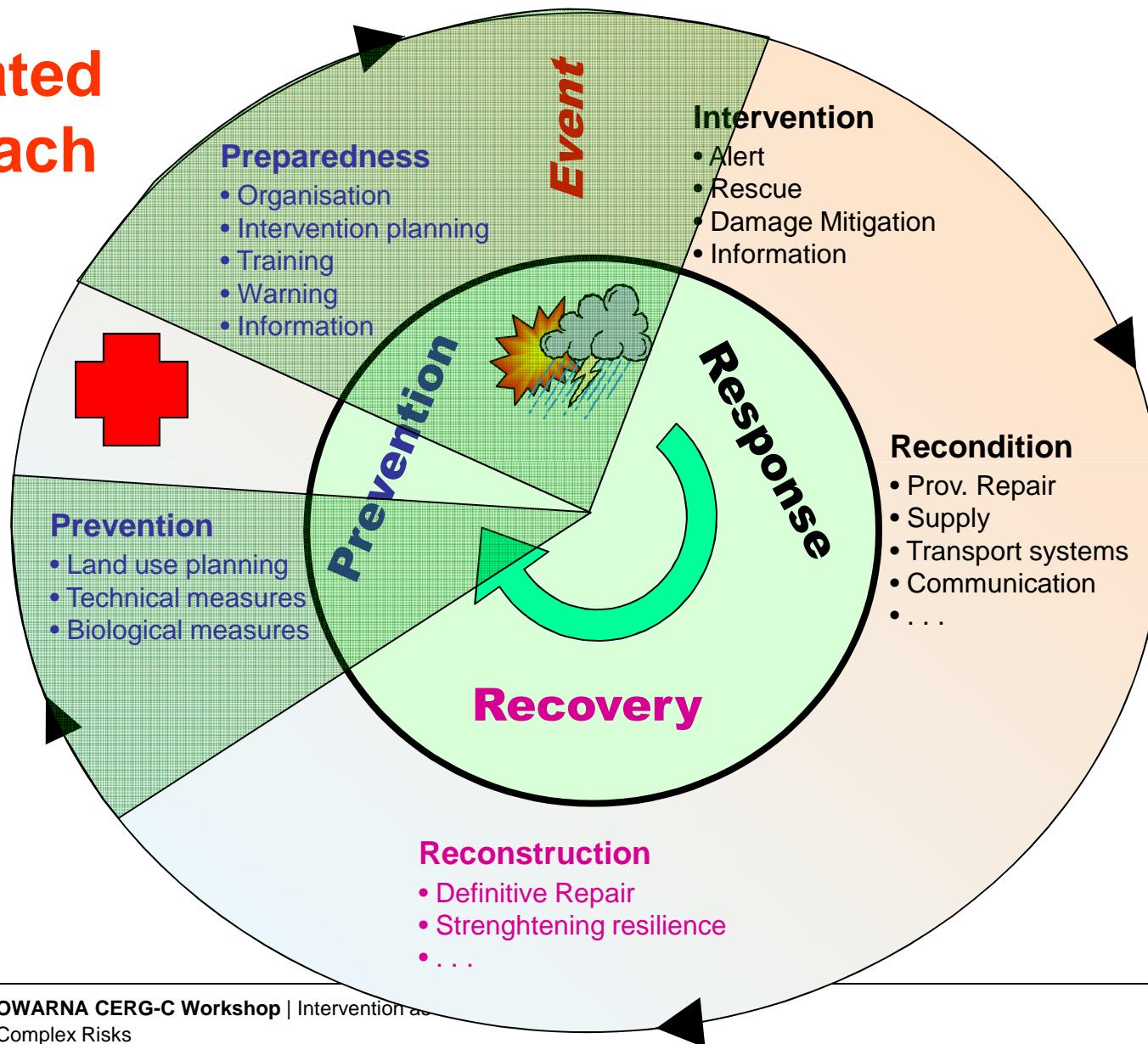
**„Wir Lawinen, sondern mehrere Gefahrenprozesse herücksichtigen. Was hat**

Hinter einem weissen Vorhang beobachtet eine Frau, wie sich vier Männer in schwarzen Jacken mit kleinem rotem Schriftzug mit einem Doppelmeter an der Brücke über den Schwarzenburger Dorfbach zu schaffen machen. Sie vermessen Höhe und Breite des Durchlasses, notieren die Zahlen. Sie betrachten das enge Bachbett oberhalb und unterhalb der Brücke, treten ein paar Schritte zur Seite und beginnen zu diskutieren. Die Männer sind Teilnehmer des kantonalen Pilotkurses für Lokale Naturgefahrenberater vom 7. und 8. März (siehe Kasten). Bei der Übung am Dorfbach geht es darum, Schwachstellen und Gefahrenherde im Falle eines Hochwassers zu erkennen und Massnahmen zur Vermeidung von Schäden vorzuschlagen. Die Männer berechnen, wie viel Wasser kommen könnte und wie viel davon unter der Brücke durchpassen würde. Was, wenn noch Äste oder Siloballen mitgeschwemmt würden?



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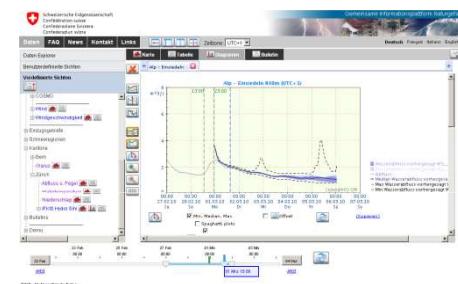
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- **OWARNA and LAINAT**: its role, objectives and activities
- identification of future challenges in disaster risk reduction linked to research, training and financing
- interest in developing an international network in disaster risk reduction

# identification of future challenges in disaster risk reduction linked to **research**, training and financing

- Runoff forecast
- Flash flood forecast
- Cooperation/PPP in data exchange
- Cooperation/PPP in forecasting
- Establishment of „observer-networks“







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identification of future challenges in disaster risk reduction  
linked to research, **training** and financing

- Strengthening knowledge of **professionals and public**
- Timely provision of relevant information on hazard situations and events
- (international) cooperation





# Benefits of preparedness and intervention

Preparation and warning measures by the federal government:

- Contribute towards **risk reduction**, as do technical/structural preventive measures
- **Complement** technical/structural preventive measures
- Can be **implemented rapidly**
- Help the cantons perform their statutory duties
- Permit **synergies** (certain activities only have to be carried out once instead of 26 times)
- Make it possible to **respond** rapidly to new risks resulting from **climate change** (adaptation strategy)



# Benefits of preparation and intervention

The OWARNA follow-up report shows that the **federal government** requires additional resources amounting to **approximately 14 to 16 million Swiss francs per annum**. The measures of the federal government support those of the cantons in an efficient manner.

The “Distribution of tasks between the federal government and cantons” project shows that the **cantons** will also need to provide additional resources amounting to **40 to 50 million Swiss francs per annum**.

While annual additional expenditure amounts to around **60 to 70 million Swiss francs**, overall **risk reduction amounts to more than 200 million Swiss francs per annum**.



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## identification of future challenges in disaster risk reduction linked to research, training and **financing**

- Improving knowledge on cost-effectiveness of intervention measures
- Enabling private stakeholders to act in a „self dependent“ way
- Setting incentives for public and/or third parties' support of risk management in favor of intervention measures





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# interest in developing an international network in disaster risk reduction

- Positive interest available
- Numerous activities in international projects and HA-engagements
- We are ready to share our knowledge and experiences with international partners
- Limited resources to support international initiatives, therefore focus on neighbouring countries, EU and „MOU-countries“



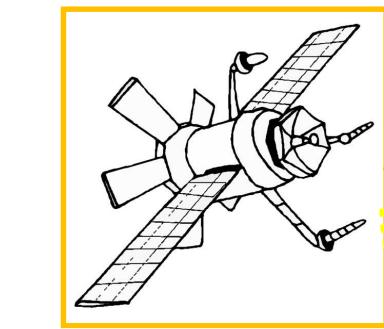
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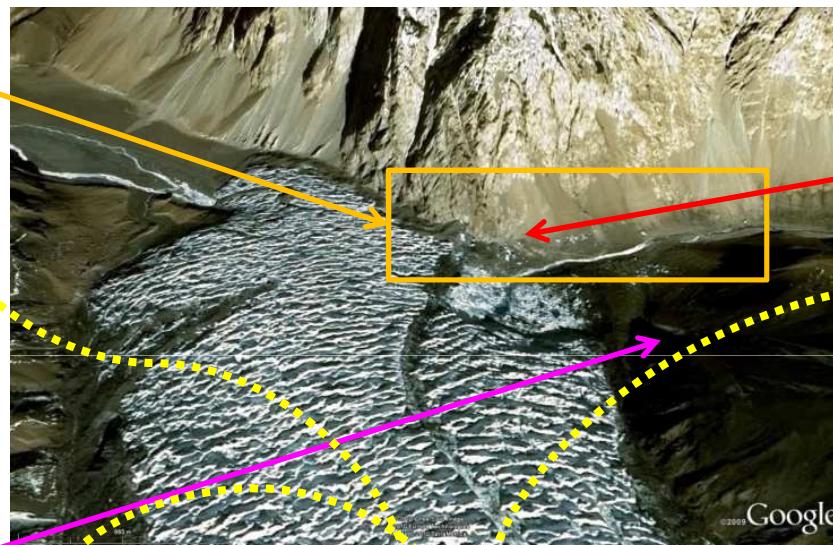
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# Example

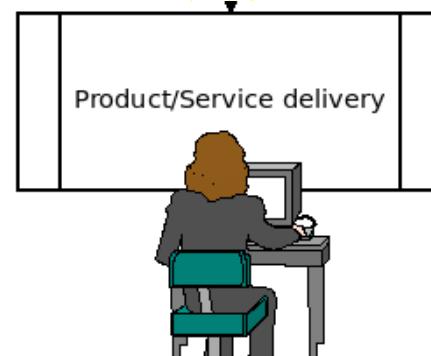
## Yarkant River, Xinjiang Prov., China



Satellite observation  
(SAR and optical)



Gauge station  
(upstream)



Observation station  
(camera)

Concept of a GLOF Early Warning System



# Thank you for your kind attention!

Josef Hess  
josef.hess@bafu.admin.ch



## Die Schweiz ist rüttelfest

Aktualisiert am 10.05.2011



### Ranking on preparedness against natural disasters

