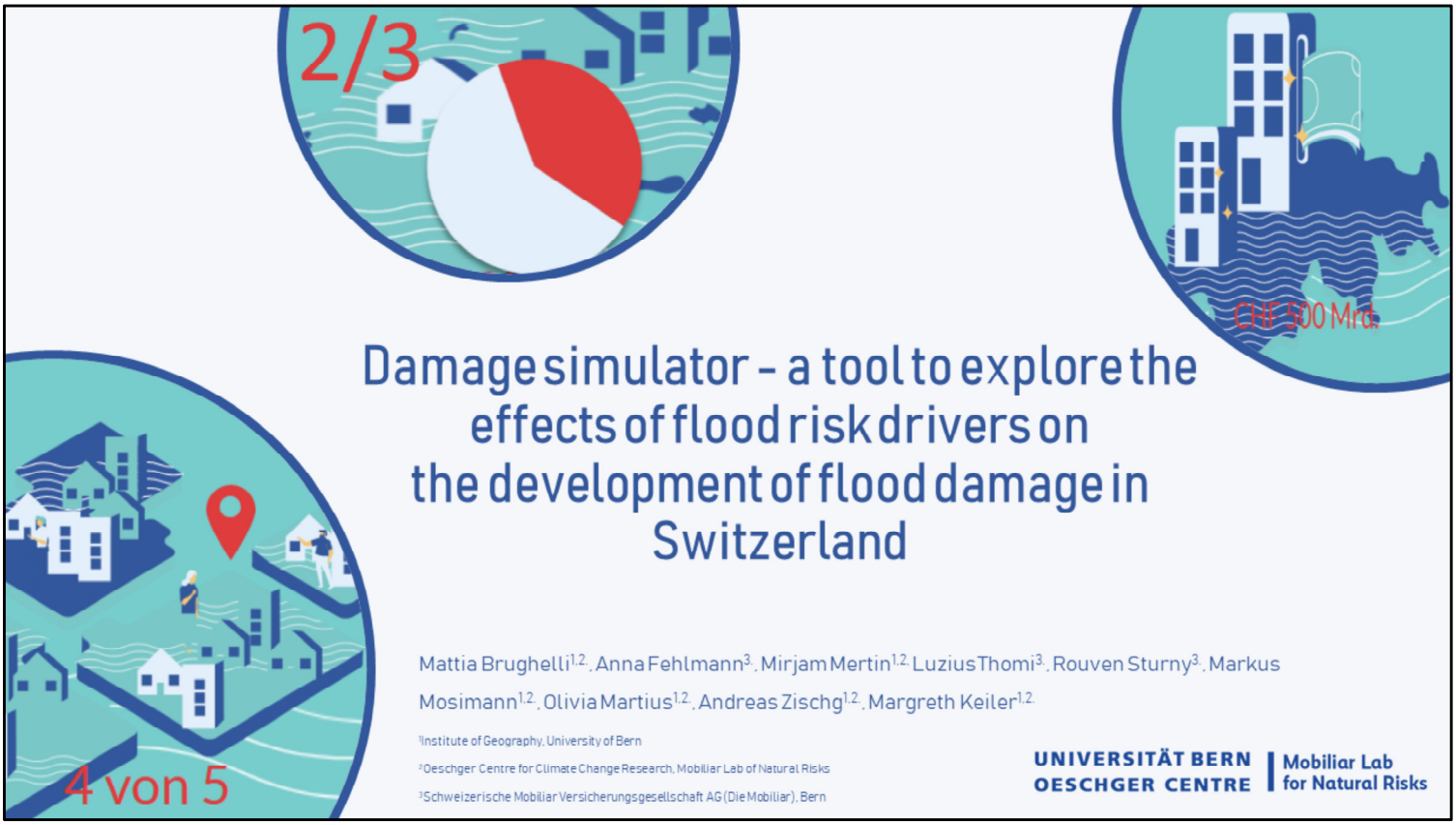


No other natural disaster is costlier to Switzerland than flooding.

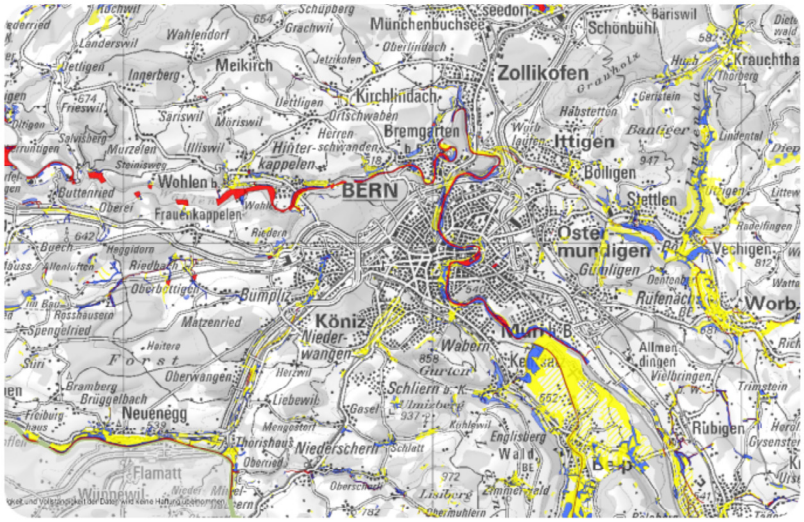
- Over two-thirds of the damage caused by natural disasters is due to floods
- During the past 40 years 4 out of 5 Swiss municipalities have been affected.
- And although the new purchase value of all endangered buildings is around 500 billion Swiss Francs, researchers so far have barely addressed the damage that are caused by flooding. Instead they focused mostly on why and how these floods occur.

In order to supplement the traditional flood research by analysing the **flood damage** the Mobiliar Lab for Natural Risks established the **“flood risk research initiative”**.

PS: The Mobiliar Lab for natural risk not only conducts research on floods, but also on hail and storms. If you want to know more about the joint research initiative of the Swiss Mobiliar insurance and the Oeschger centre for climate change you can visit the website www.mobiliarlab.unibe.ch.

The tool “damage simulator”

What, why and how! The tool damage simulator

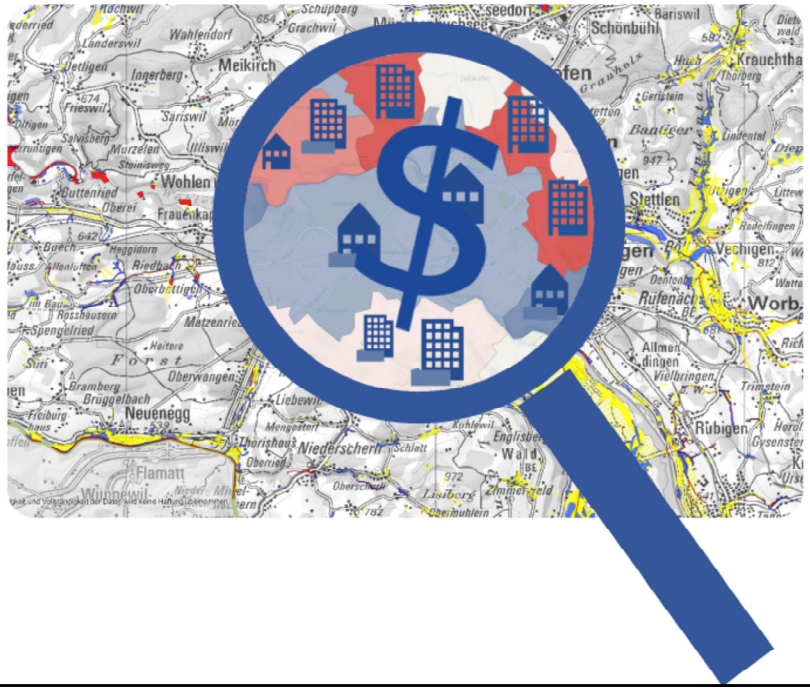


What:

What:

- Flood protection today is largely based on the hazard perspective. Which answers the following questions: where, how much and how frequently does the water flow?

What, why and how! The tool damage simulator



What:

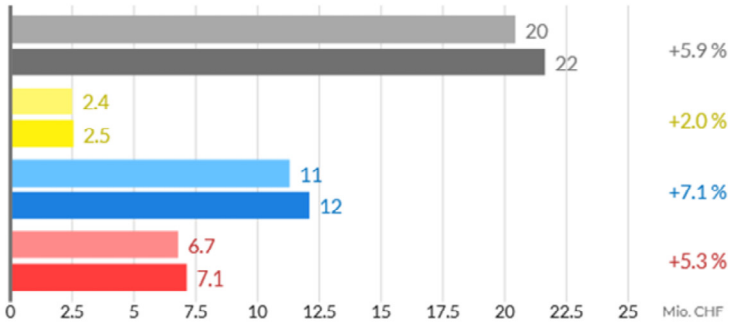
- Tool to support **paradigm shift** by providing overview of damage extent
  - From the flood hazard perspective to damage view

4

What:

- With the **paradigm shift** to the damage view, the **expected extent of damage** is considered. Which answers also the question about where and how often damage can occur and how high damage can be.
- For the first time, expected damage values can be analysed on a nationwide basis.

What, why and how! The tool damage simulator



What:
- Tool to support **paradigm shift** by providing overview of damage extent
  - From the flood hazard perspective to damage view

Why:
- Simulate the influence of different **risk drivers** on flood damage
- Look at possible **future** trends
- Encouraging a constructive flood **risk dialog**

How:
- Based on empirical flood loss data

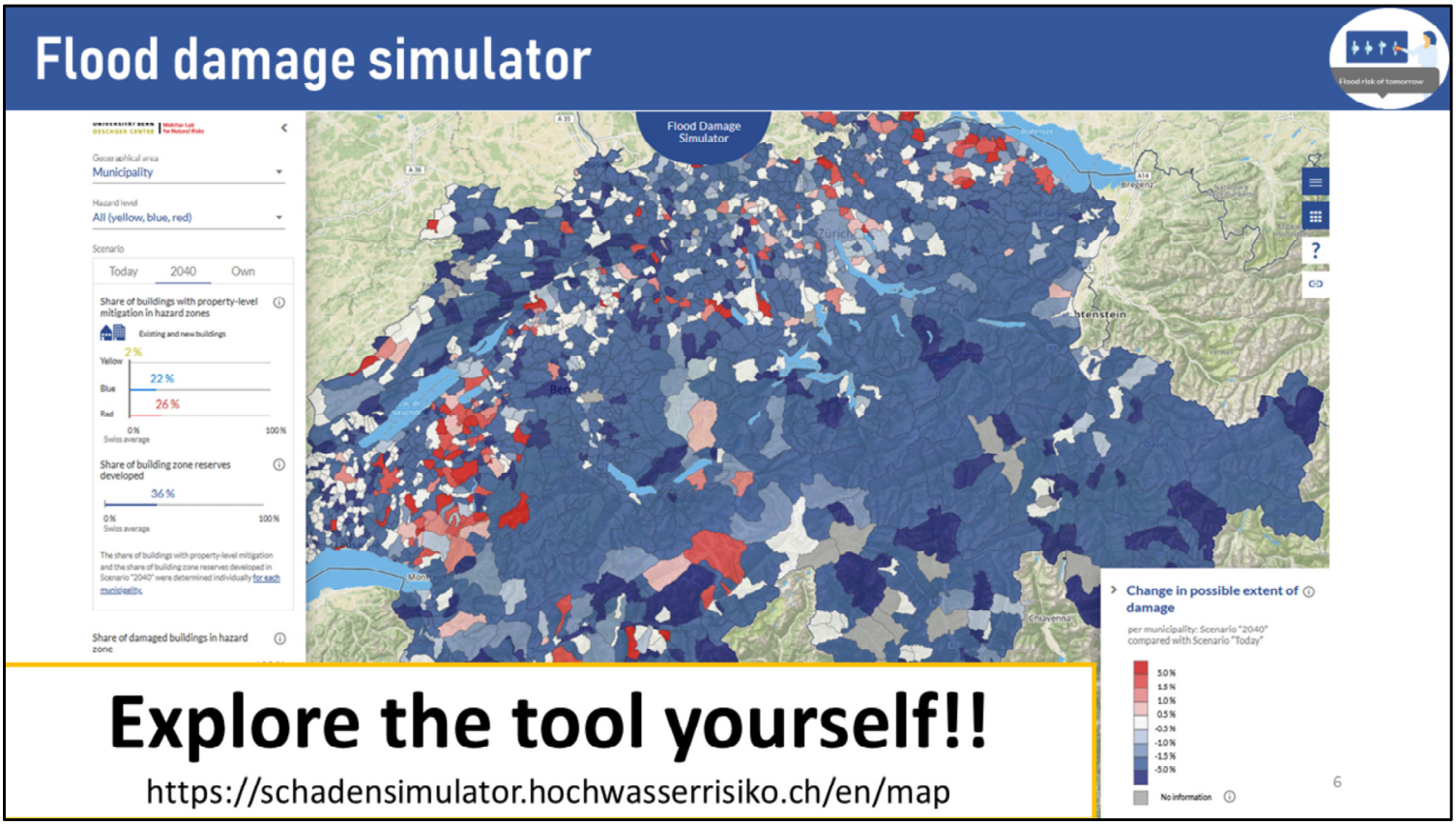
Not included:
- Surface runoff, groundwater rise, backwater from sewerage system
- Climate change

5

Why:
- With the tool it's possible to simulate the influence of different **risk drivers** on flood damage. Also possible **future** trends in the extent of damage can be estimated.
- The tool helps transfer knowledge and overcome communication barriers between different stakeholders such as house owners, local authorities, spatial planners as well as researchers.

How:
- Based on empirical flood loss data

Not included:
- Surface runoff, groundwater rise, backwater from sewerage system
- Climate change



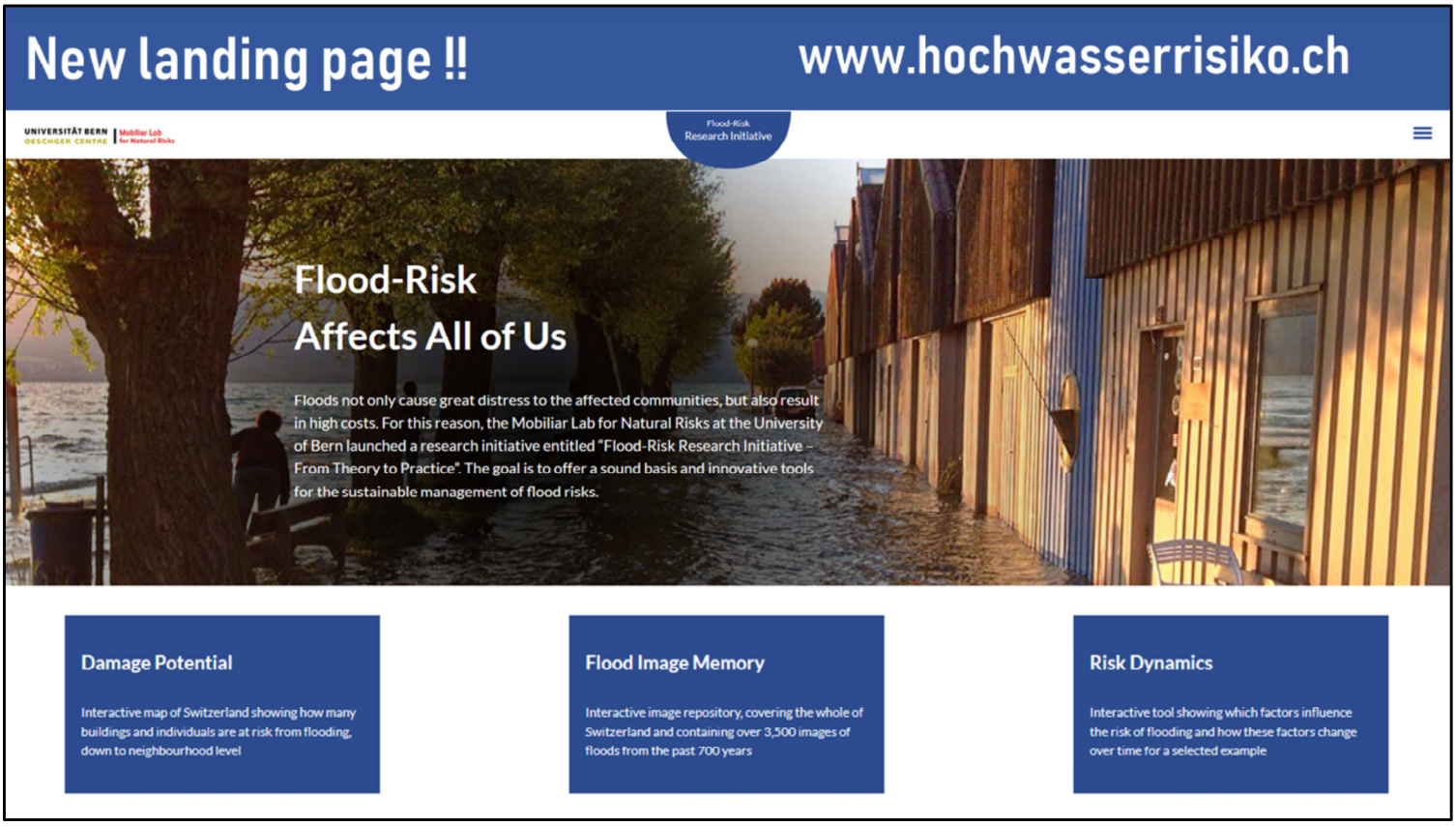
- With the **flood damage simulator** you can simulate the flood damage for today and in future playing with the main risk drivers and by choosing your mitigation strategies.
- The user can create his or her own future scenario for the community of interest. And learn about why and how flood risk might change.

Go and explore the tool (LINK: https://schadensimulator.hochwasserrisiko.ch/en/map)

Important note: the official publication of the damage simulator is scheduled for the 18 Mai 2020. Especially in the English version, some text are not available yet.

You'll find further information about the methodology that has been used to calculate the expected damage here:
D1723 | EGU2020-19685
Do hazard maps mirror loss data? – A vulnerability assessment based on loss data and hazard maps

Other tools of the "Flood risk research initiative"



Three other tools have been already published by the Mobiliar Lab during the first phase of the "flood research initiative", in order to better understand **flood damage** and their occurrence. The tools deal with flood over time looking into the past, analysing the present and simulate possible future scenarios.

- All the three published tools are stored in the **"flood risk research initiative"** landing page. https://www.hochwasserrisiko.ch/en
- This site comes in a new look, where the focus is on how the tools helped people in their daily business and also explains the purpose of the whole initiative.
- The new tool "damage simulator" will be available on the landing page starting 18 Mai 2020 .

Flood **yesterday**: https://ueberschwemmungsgedaechtnis.hochwasserrisiko.ch/de/home
Flood **today**: https://schadenpotenzial.hochwasserrisiko.ch/de/map
Flood **tomorrow**: https://schadensimulator.hochwasserrisiko.ch/en/map

Publication and research projects:
https://www.mobiliarlab.unibe.ch/research/flood_risk_research_initiative

Flood image memory

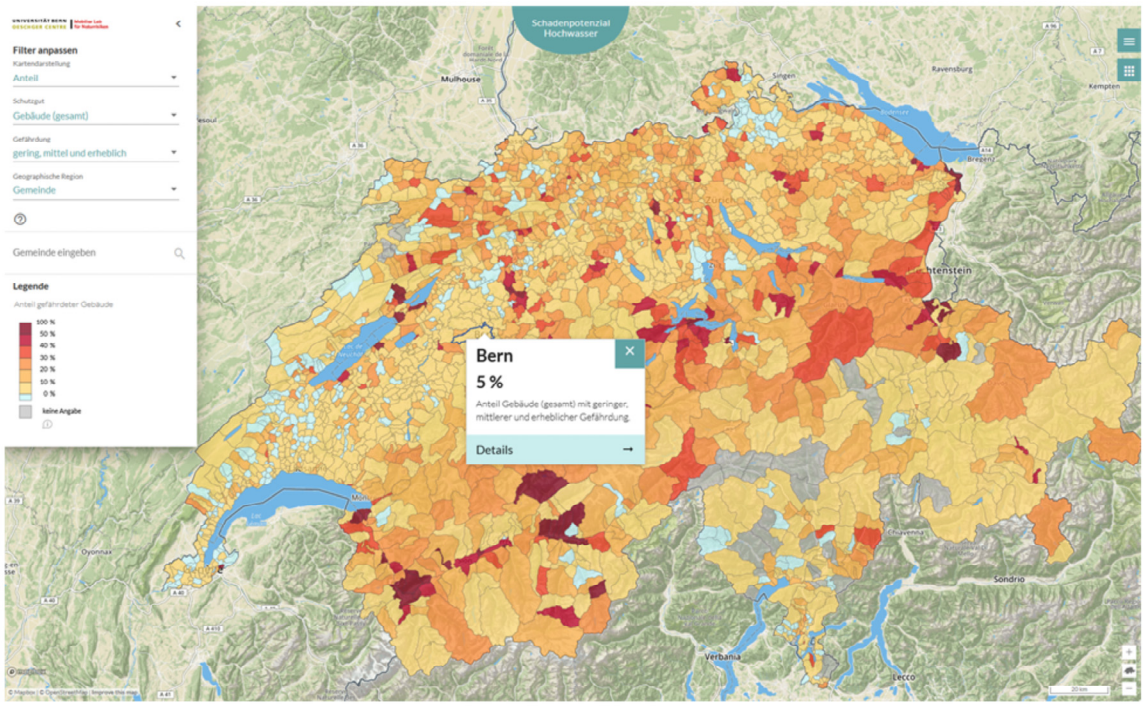
Our time travel starts with the flood risks of **yesterday**.

- **Remembering past events** encourages a willingness to deal with possible future events and strengthen our awareness of the danger.
- It has been shown that, despite major damage, floods disappear from the awareness of the population within a few years.

1. Therefore, a website was developed in order to counteract that past flood events are soon forgotten with the help of flood pictures.
2. Flood pictures help local decision-makers to sensitize the population to protective measures.
3. They are an important source of information for experts, for example for risk assessment or as a validation tool for flood simulations.

LINK: https://ueberschwemmungsgedaechtnis.hochwasserrisiko.ch/de/home

Flood damage potential

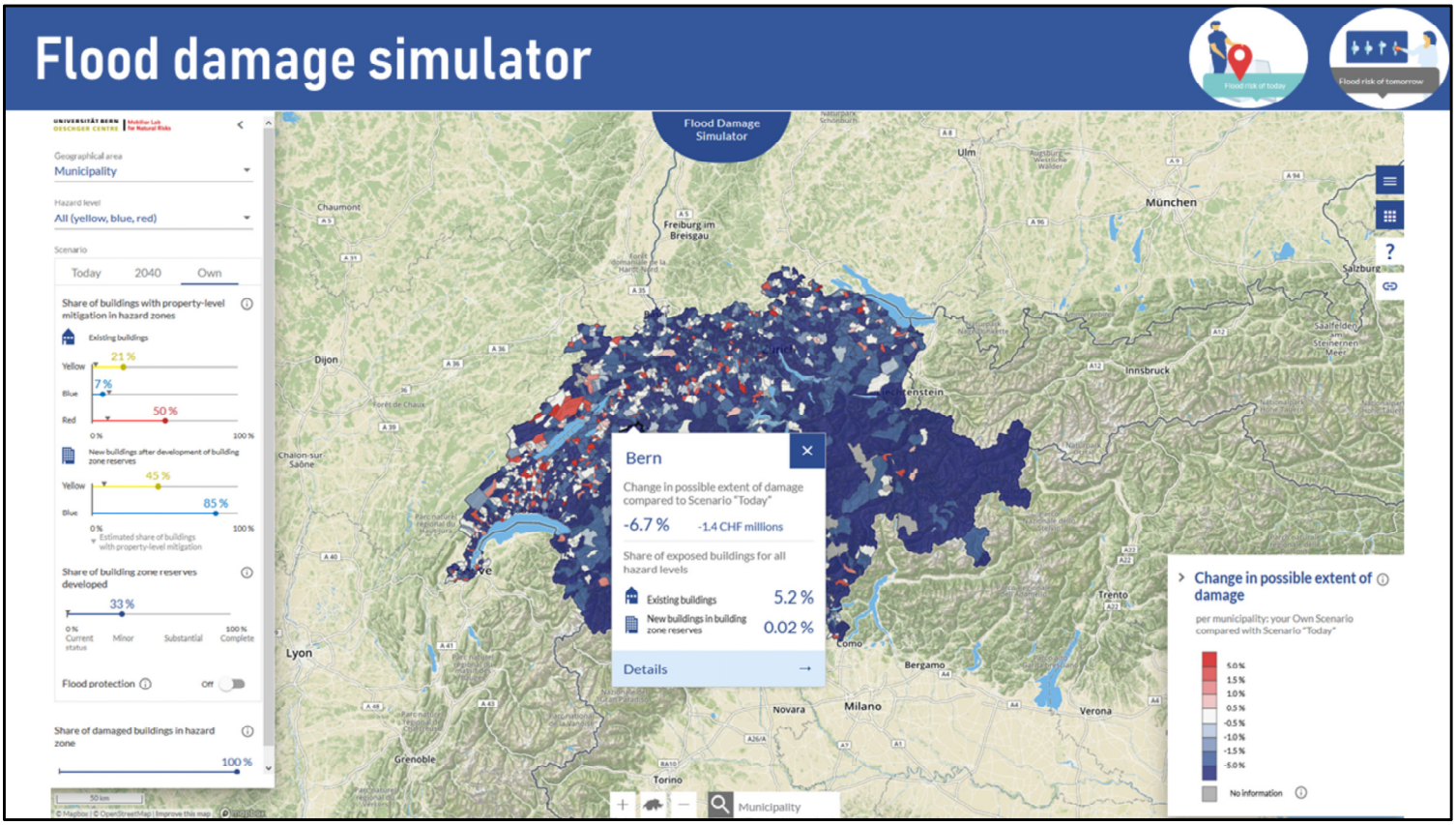


10

The next stop in our time travel is the flood risk of **today**.

- The tool shows the **flood damage potential** within Switzerland, so for example in Bern 5% of all buildings are at risk of flooding.
- The tool indicates the flood hotspots in Switzerland and therefore helps prioritize protective measures based on facts and exposure.

LINK: https://schadenpotenzial.hochwasserrisiko.ch/de/map



The last stop in our time travel is a mix of the flood risk of **today and tomorrow**.

- The already presented damage simulator is available as a preview here: https://schadensimulator.hochwasserrisiko.ch/en/map