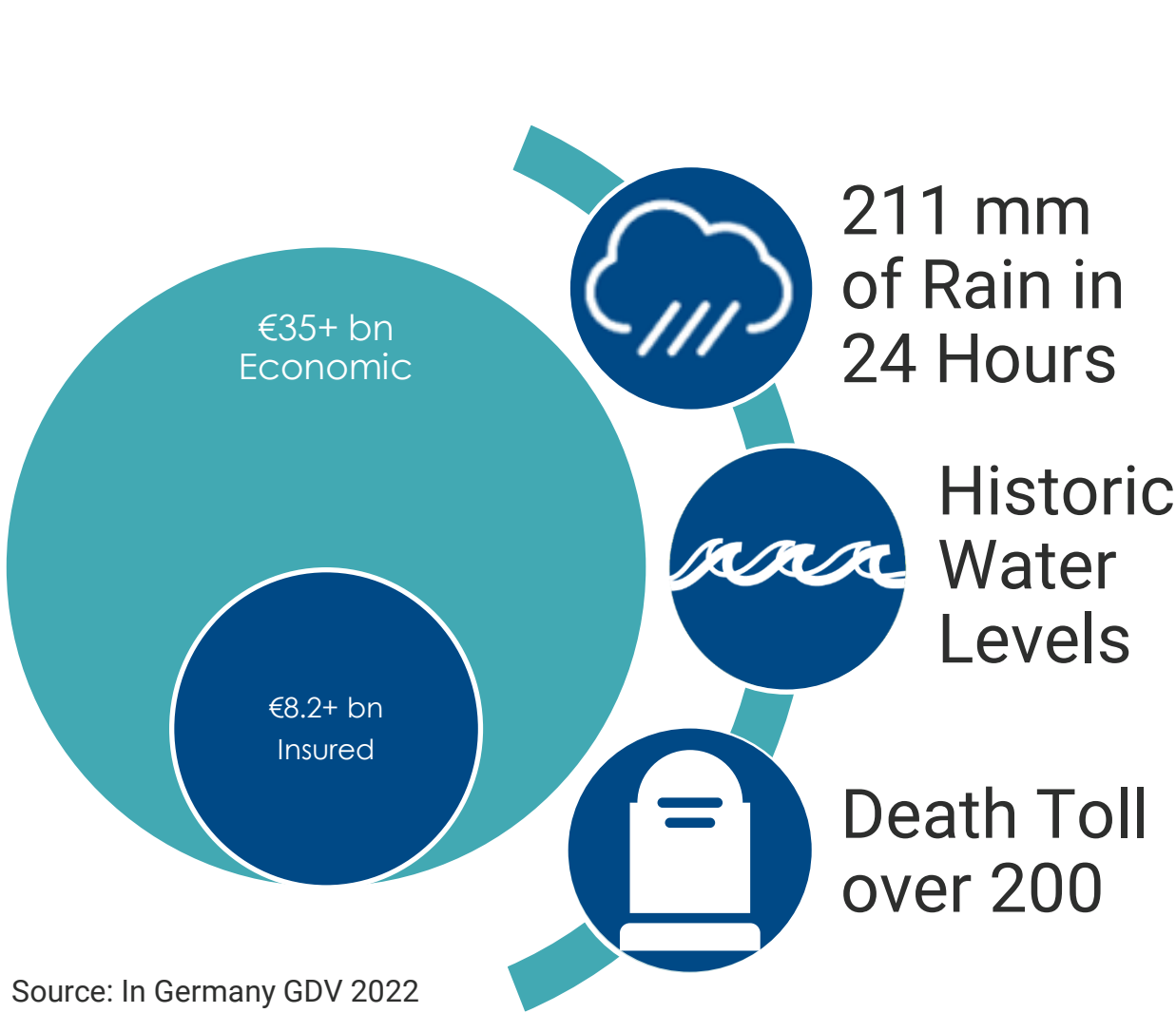


# Comprehensive risk evaluation of July 2021 Germany floods including associated uncertainties

**Punit Bhola, PhD, CEEM**  
**Margot Doucet**  
**Stefanie Alarcon**  
**Bernhard Reinhardt**

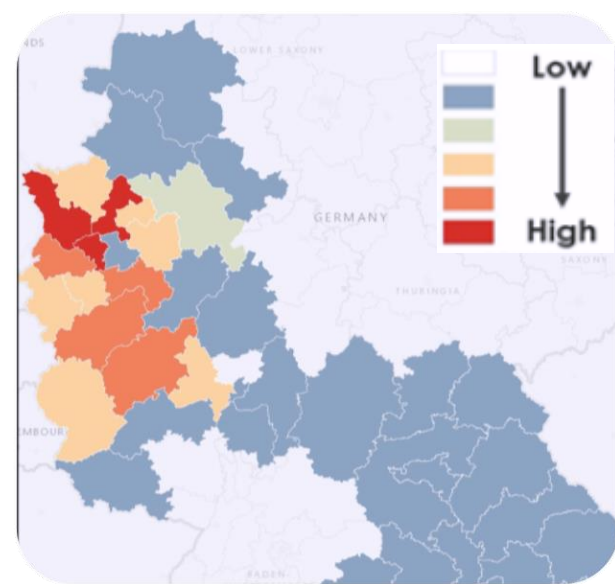
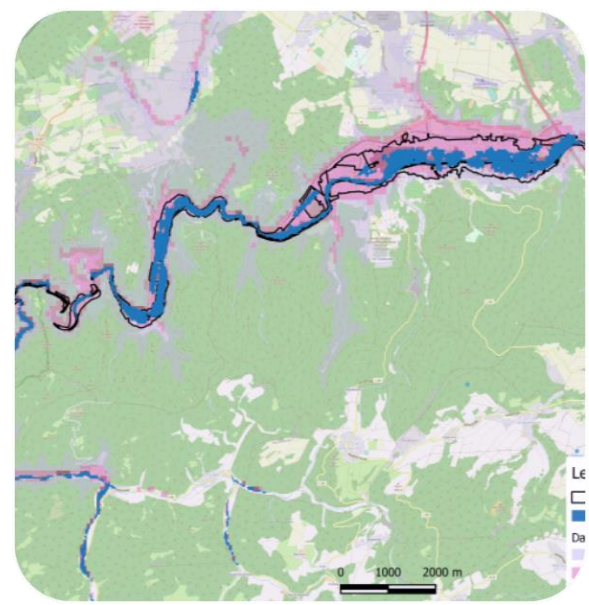
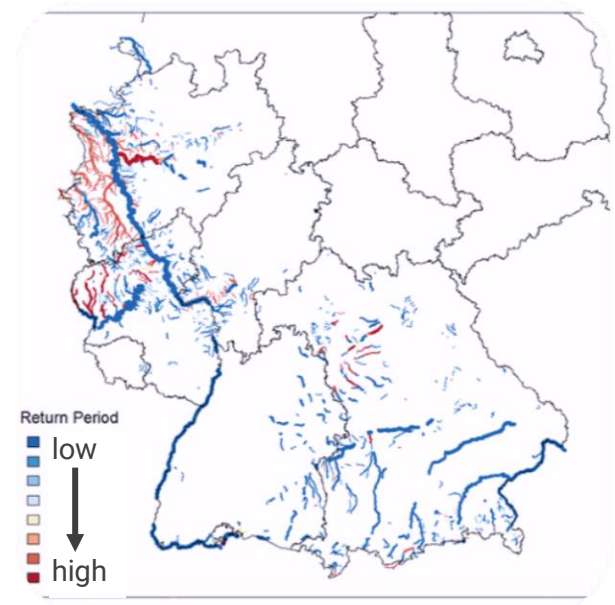
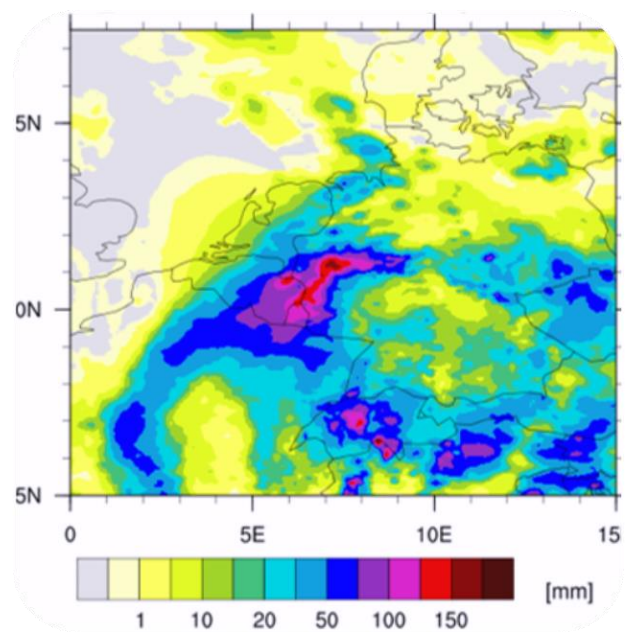
# The July 2021 flooding event in Europe



Source: In Germany GDV 2022



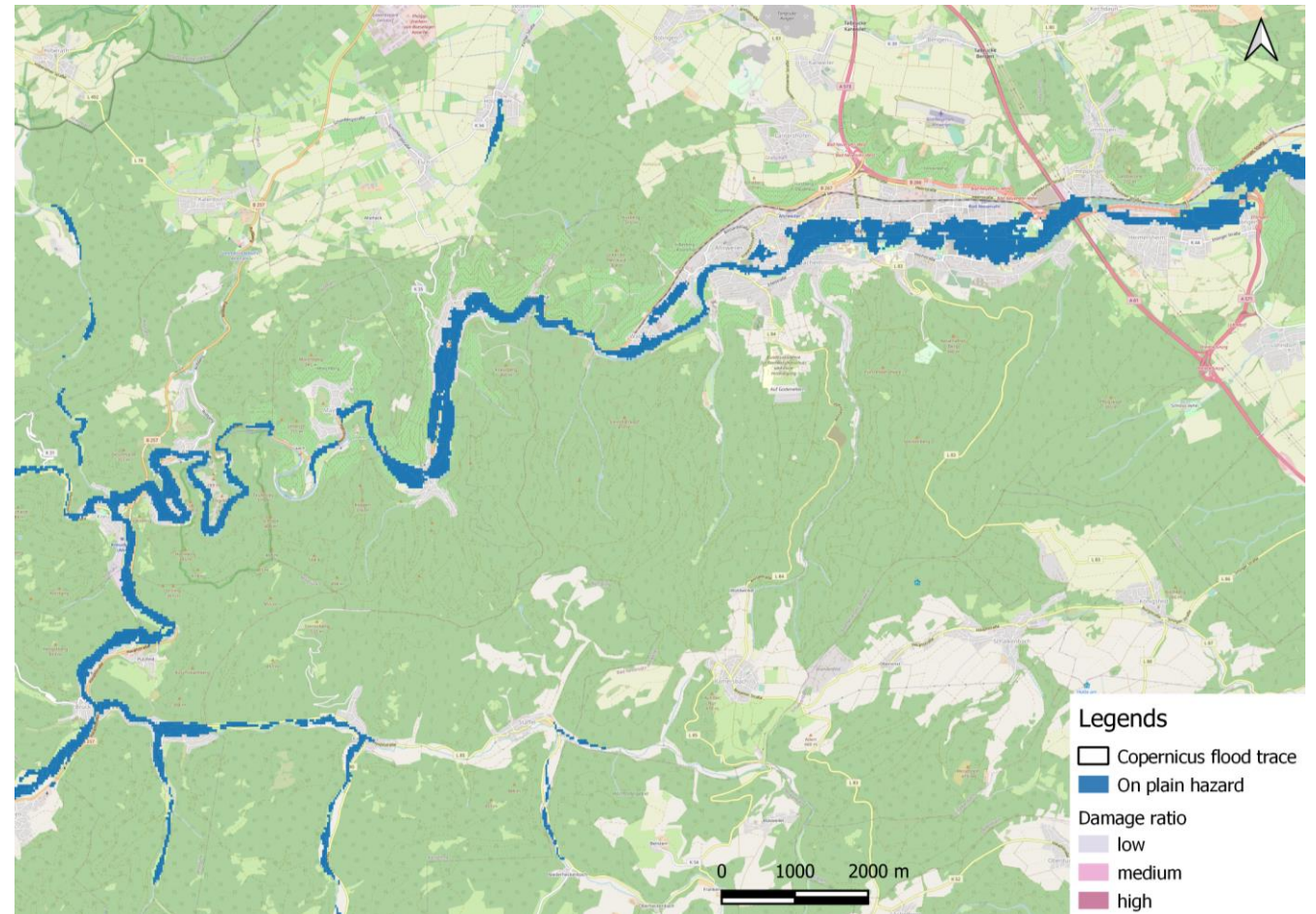
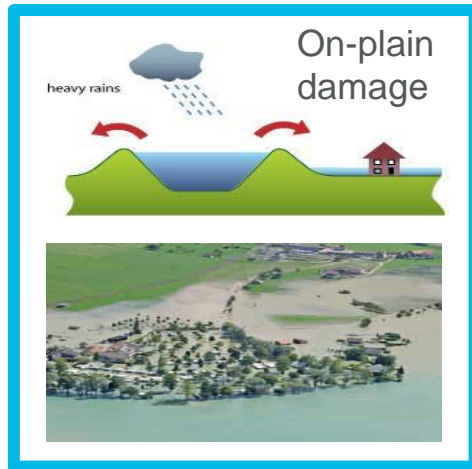
# Comprehensive re-modeling of July 2021 event using Verisk flood models



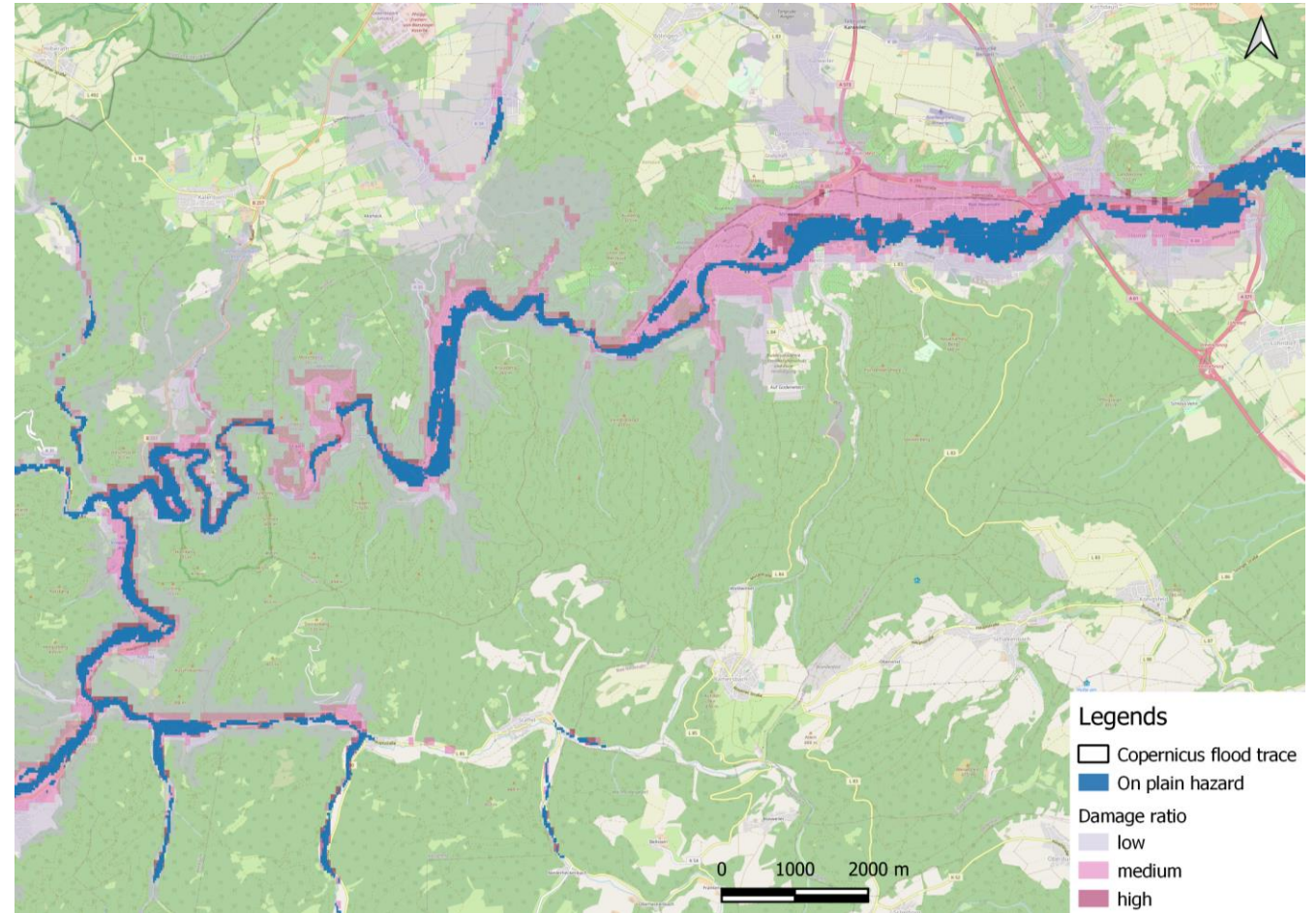
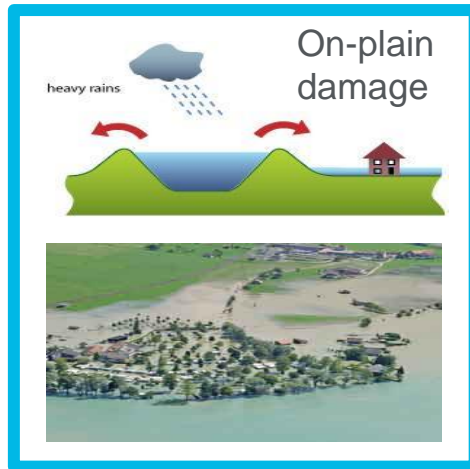
Source: Verisk



# Fluvial and pluvial flooding

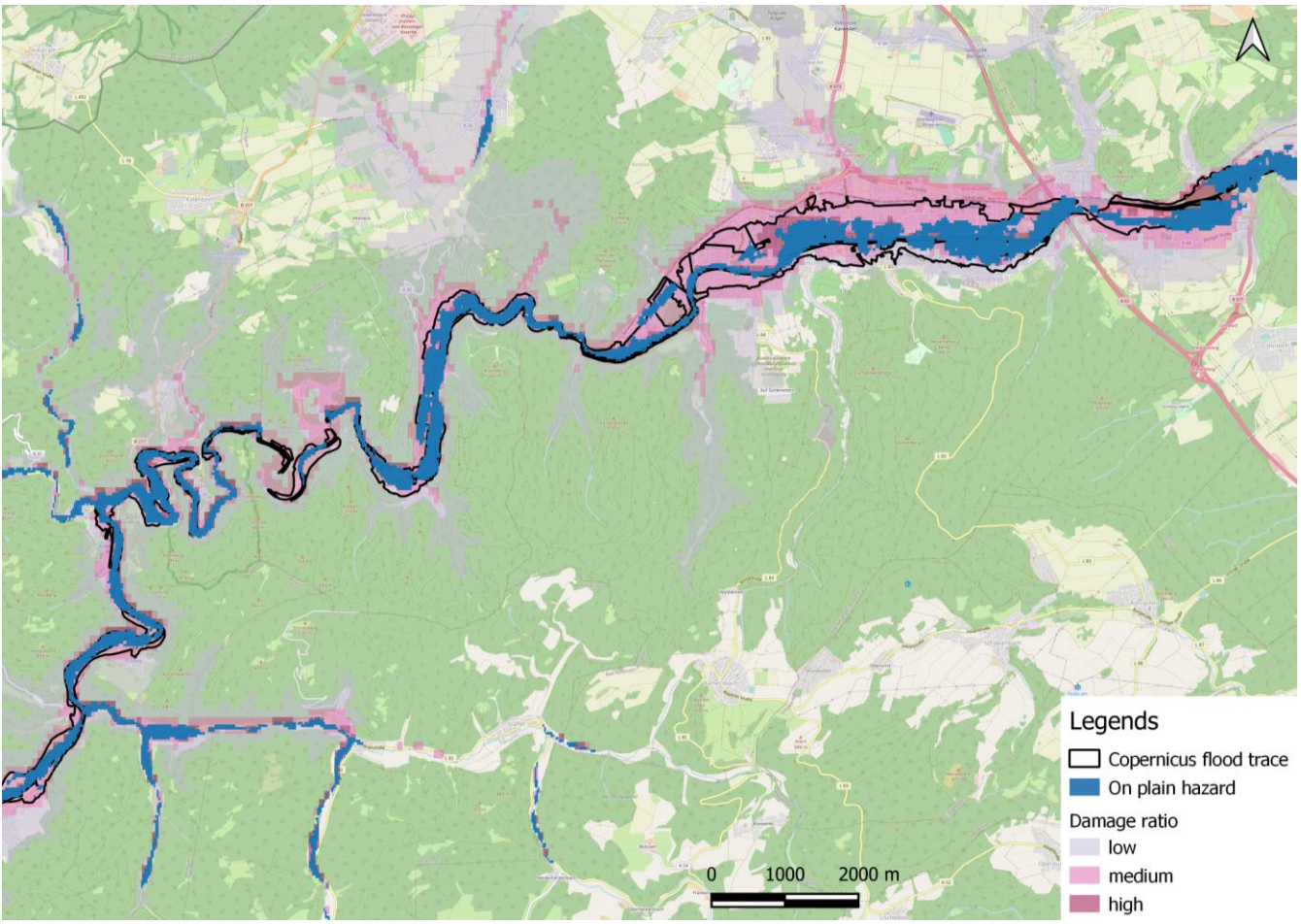
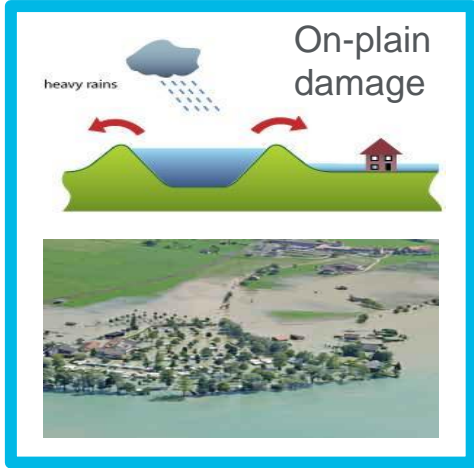


# Fluvial and pluvial flooding





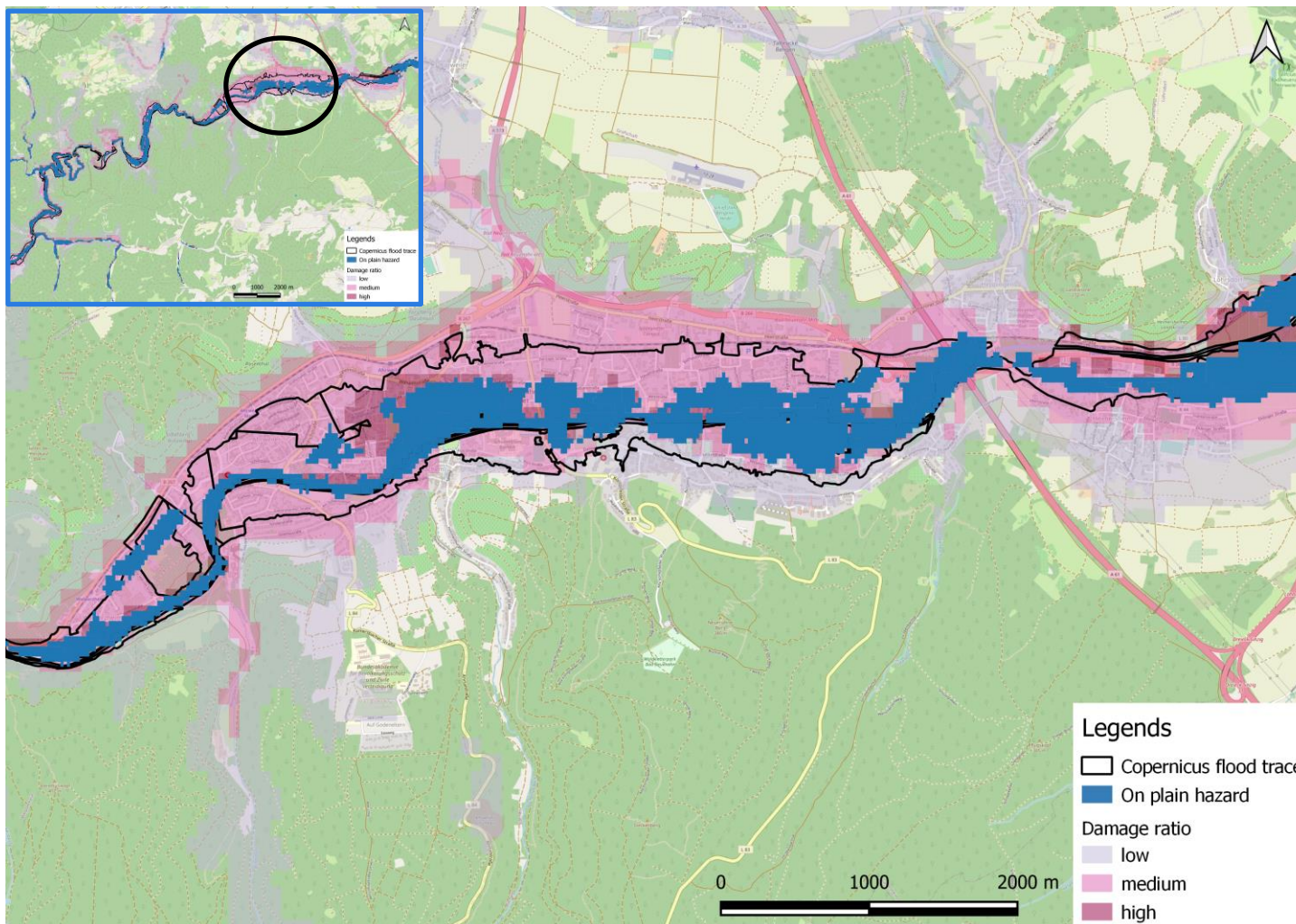
# Fluvial and pluvial flooding



Source: Verisk

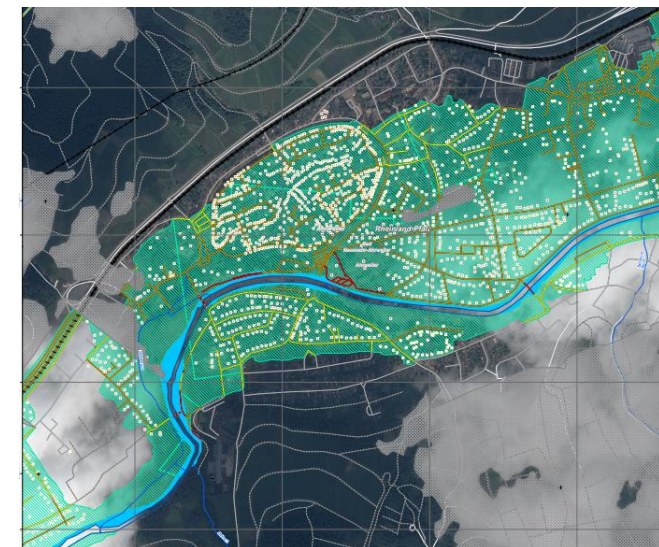


# Bad Neuenahr-Ahrweiler

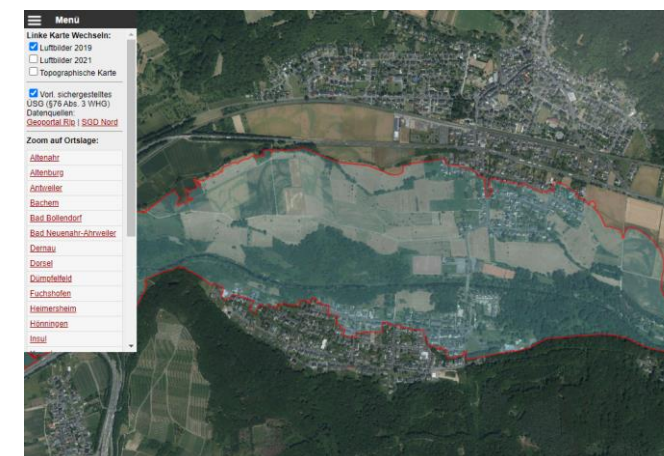


Source: Verisk

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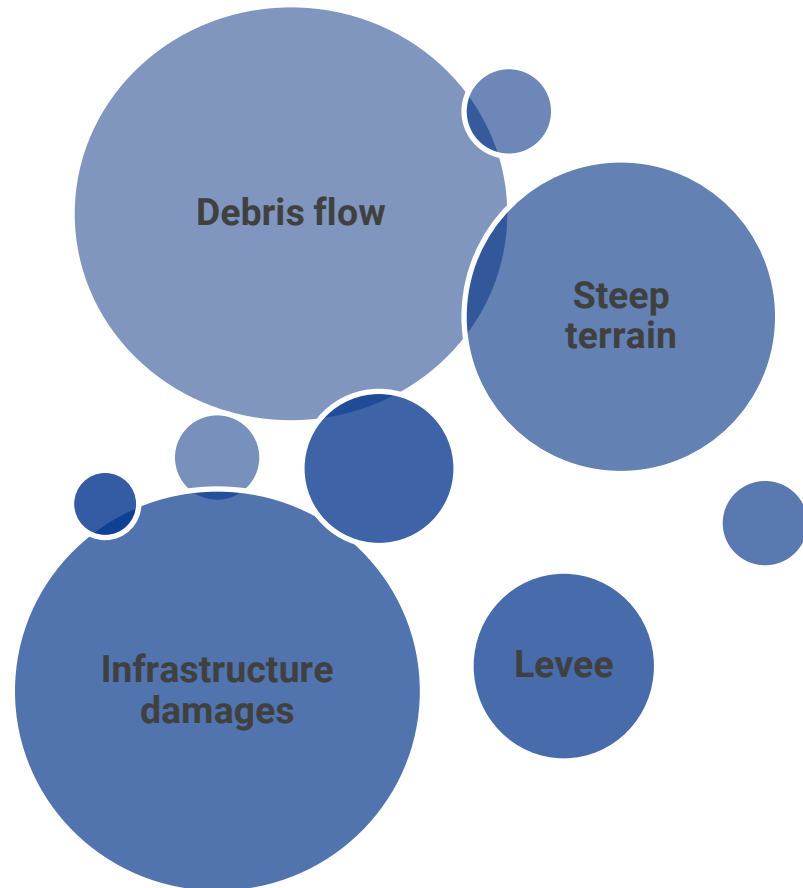
Source: Copernicus Emergency Management Service. <https://emergency.copernicus.eu/>



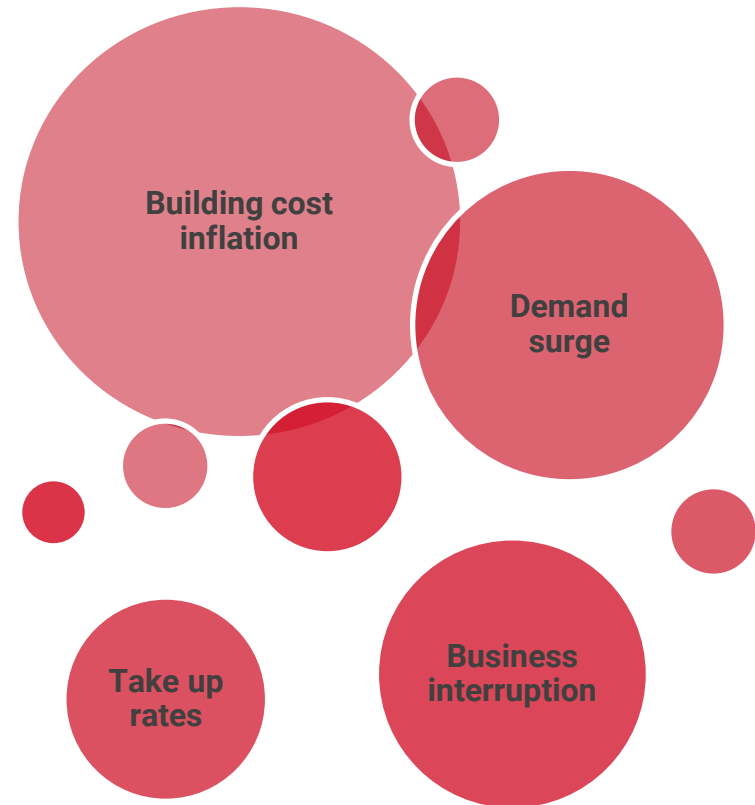
Source: Die Struktur- und Genehmigungsdirektion (SGD) Nord,Rheinland-Pfalz: <https://sgdnord.rlp.de/>

# Uncertainty factors

## Hazard



## Loss estimation






# Summary



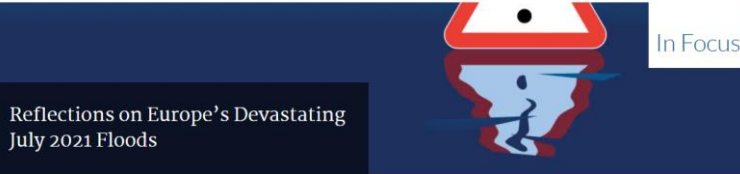
# Thank you and stay posted



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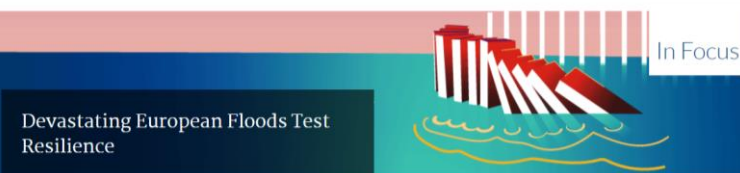
In Focus

Reflections on Europe's Devastating July 2021 Floods

By Punil Bhatt, Matthew Hergott | January 31, 2022

When a low-pressure system named "Bernd" parked itself over central Europe in mid-July 2021, it caused significant flooding in western Germany and neighboring countries. The German states of Rhineland-Palatinate and North Rhine-Westphalia were particularly hard hit, as were the Netherlands and Belgium.

<https://www.air-worldwide.com/blog/posts/2022/01/reflections-on-july-2021-floods/>



In Focus


Devastating European Floods Test Resilience

By Roger Grenier | July 29, 2021

Of all the natural hazards that cause property damage in Europe, flood is the costliest. Low pressure system "Bernd" parked itself over central Europe and brought about significant flooding from July 13 to 18. The Rhineland-Palatinate and North Rhine-Westphalia regions in particular experienced heavy and, in some cases, historic rainfall, with the border region between the German states of Bavaria, Thuringia, and Saxony affected by localized flooding as well.

Impacted German rivers with notable gauge readings included the tributaries of Mosel and Rhine, some of


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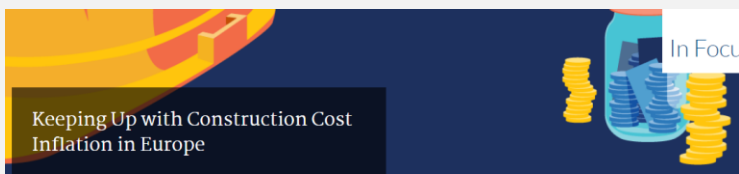
In Focus

How the Pandemic Has Impacted Reconstruction Costs After Germany's Extreme Flood Event

By Anthony Hanson | October 21, 2021

Significant flooding occurred when low pressure system "Bernd" parked itself over central Europe in mid-July 2021. In Germany, the Rhineland-Palatinate and North Rhine-Westphalia regions experienced heavy and, in some cases, historic rainfall with the border region between the states of Bavaria, Thuringia, and

<https://www.air-worldwide.com/blog/posts/2022/03/construction-cost-inflation-europe/>



In Focus

Keeping Up with Construction Cost Inflation in Europe

By Anthony Hanson | March 31, 2022

The first quarter of 2022 signaled the start of the third consecutive year of global construction cost volatility. Prices for all building materials have had significant highs and lows at different times over the past two years, making it difficult to plan for new construction. But more importantly it has generated much uncertainty in the face of rebuilding after a natural catastrophe.

We will start with a look at the construction indexes for the countries most affected by the recent cluster of storms in Europe. Then we will take a closer look at a component-level index for Germany to understand how volatility can increase for a specific component. We will finish up with a discussion of sources of economic disruption that will continue to affect the construction market in the near future.

<https://www.air-worldwide.com/blog/posts/2022/03/construction-cost-inflation-europe/>



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**Developing a Global Method for Normalizing Economic Loss from Natural Disasters**

Brian Ailstadt; Anthony Hanson; and Austin Nijhuis

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**Abstract**

Our understanding of past natural catastrophes has important implications for catastrophe modeling and disaster risk management, mitigation, and adaptation. To assess past events, loss "normalization" is used to isolate natural and economic factors contributing to economic losses. Conventional normalization adjusts for changes in economic activity using the value of capital stock or gross domestic product (GDP). Due to the limited international availability of capital stock data, most global studies elect to use GDP. However, capital stock may be preferable because it directly measures the value of damageable physical assets. In this study, we present a method for global catastrophe loss normalization using capital stock, and apply this method to normalize hurricane disaster losses in the United States. We assess the robustness of our normalization method by comparing losses

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Demand Surge Perspective on European Extratropical Cyclones

