

Why Adaptation matters

ClimateChange

Causes
Impacts
Solutions

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JOANNEUM RESEARCH Forschungsgesellschaft mbH

Climate Change in South-Eastern European Countries IV:

Adaptation strategies for economy & society

Zagreb, October 19-20, 2009

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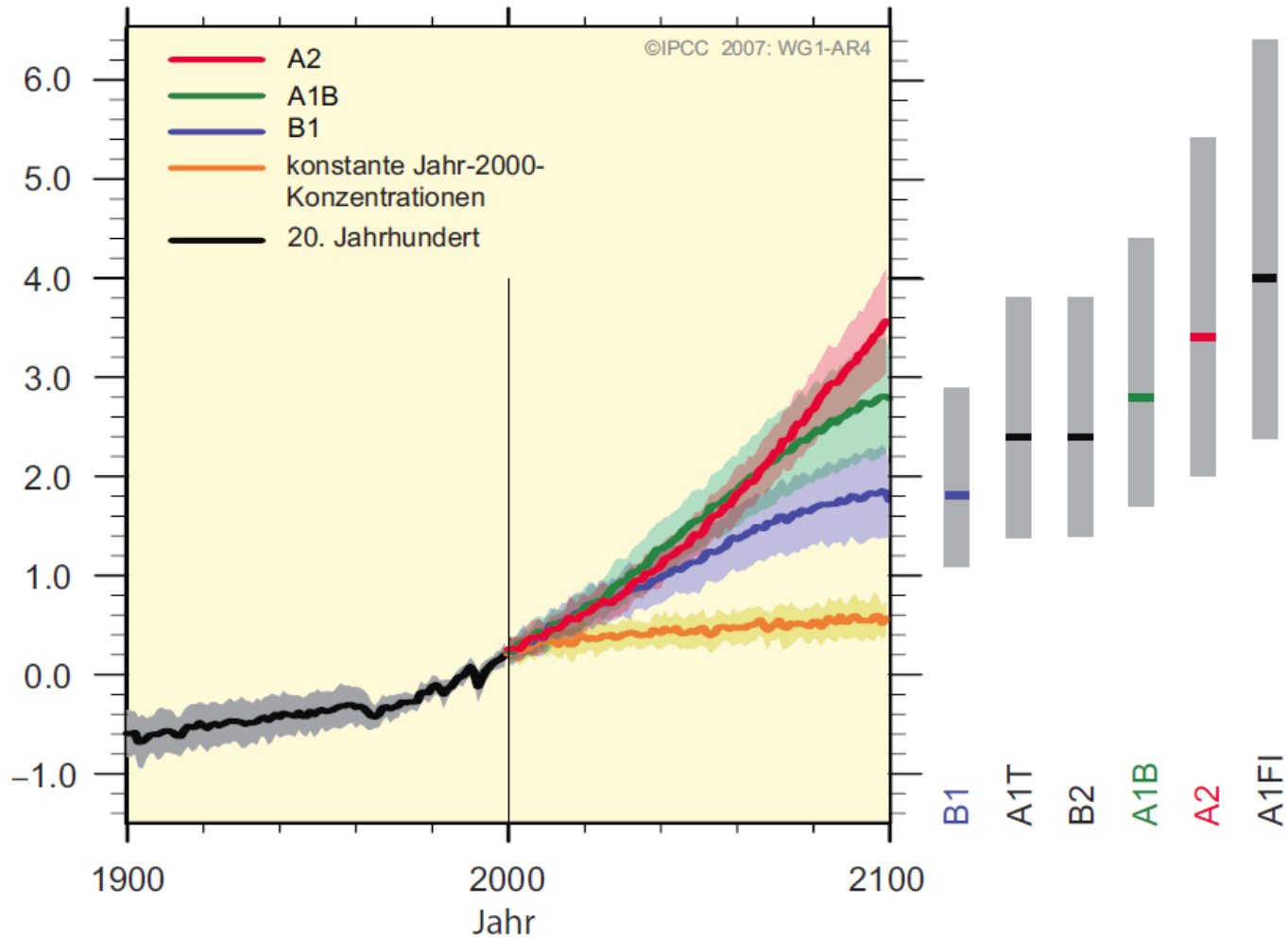
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- Introduction
- Relevance of Regional Economic Modeling for Issues of Adaptation to CC
 - Modeling for exemplary sectors
 - Building sector
 - Energy
 - Tourism

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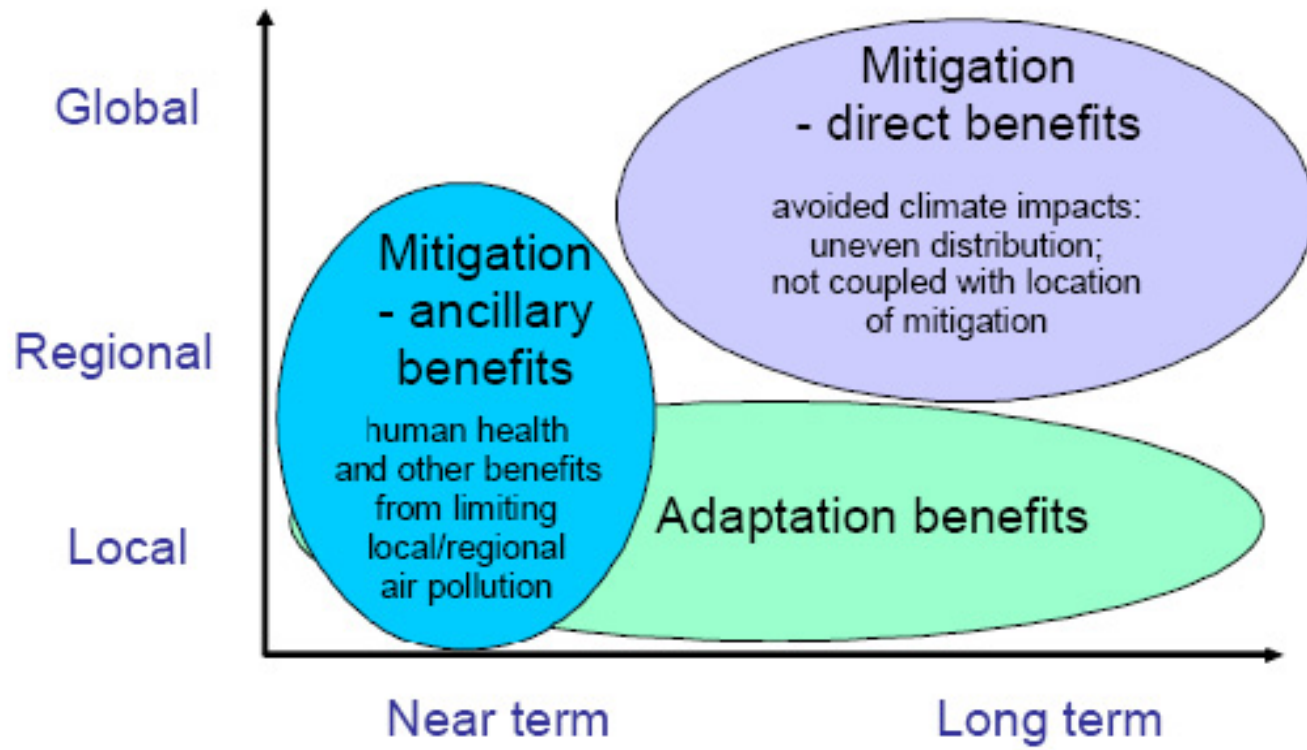
Mitigation and adaptation: costs and benefits across time and space

- In need of both mitigation and adaptation
- Incentives differ

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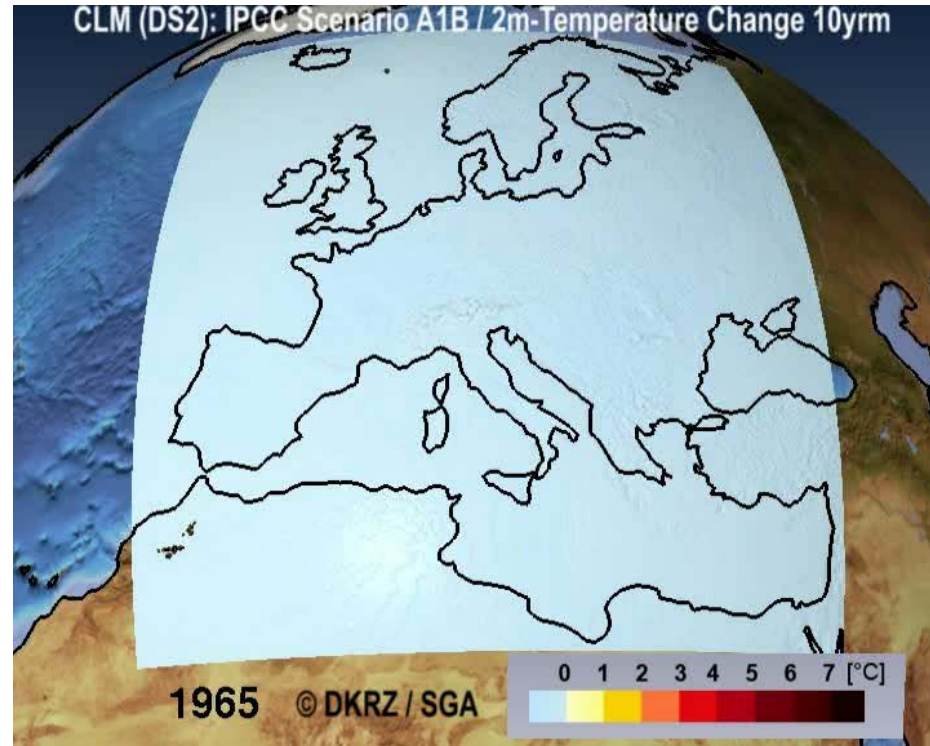
(Source: Morlot and Agrawala, 2004)

Climate scenarios get more regional

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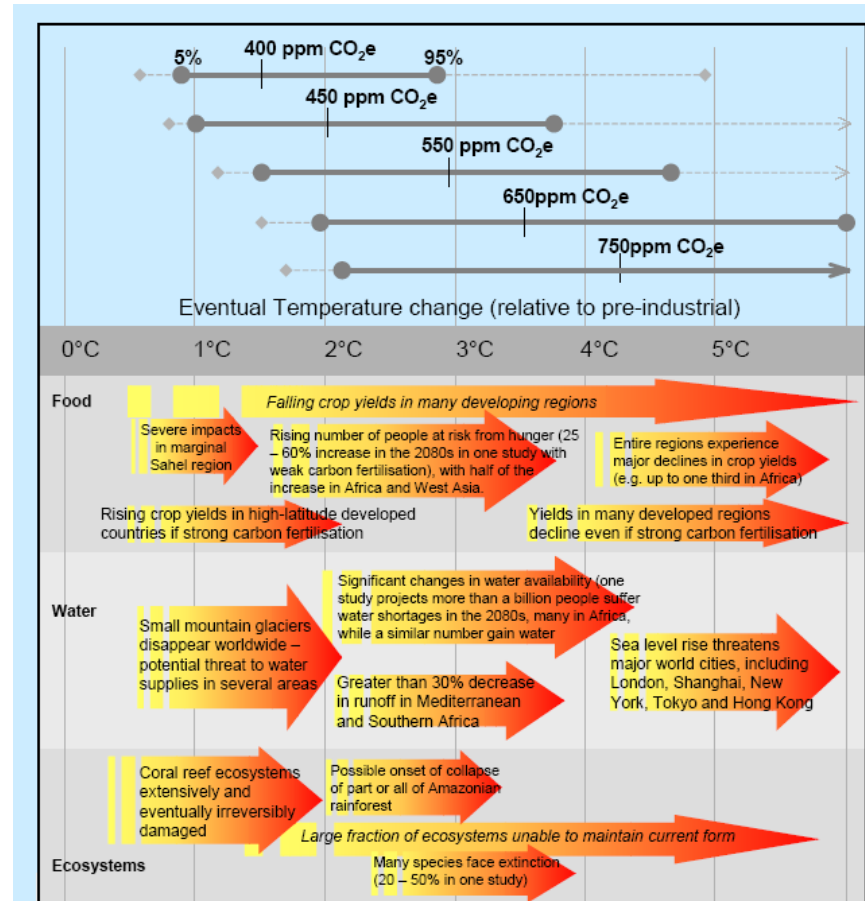
Source: DKRZ

Economic Impacts on a global scale (Stern Review)

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Source: Stern Review (2006)

Climate Impact and Adaptation Research

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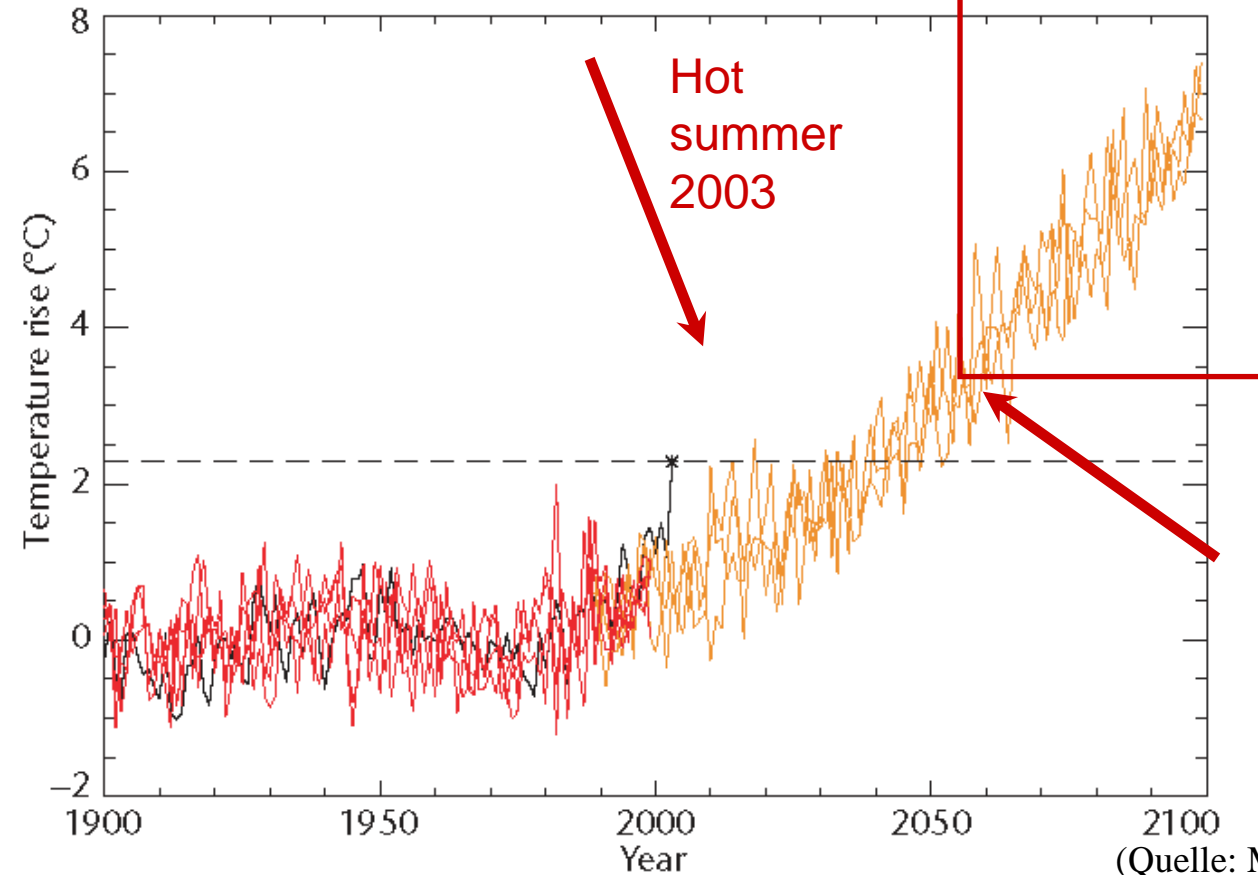
Solutions

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- Some requirements for economic climate impacts and adaptation research
 - From global analyses to regional analyses (spatial)
 - From mean values to variability and extremes (temporal)
 - From „long-term climate variability“ to „short-term climate variability“
 - From „physical changes“ to socio-economic impacts
 - From static considerations of „impacts only“ to dynamic considerations of impacts under adaptation
- Examples: Austrian Building Stock
 - Extreme Events – Floods
 - Climate Variability – Heating and Cooling Energy Demand

Climate variability and extremes

European warming predicted by the Hadley Centre model



**From the
hot summer 2003 to
a cool summer in the
early 2050s**

**Cool
summer
2053**

(Quelle: Met Office/Hadley Centre, 2004)

Climate Variability: Heating and cooling energy demand

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- Climate change impacts
 - depend on regional climate conditions, building type, building insulation and materials, etc.
 - depend on mitigation strategies (low energy buildings, renovation) and adaption strategies (passive vs active cooling)

Heating and cooling energy demand

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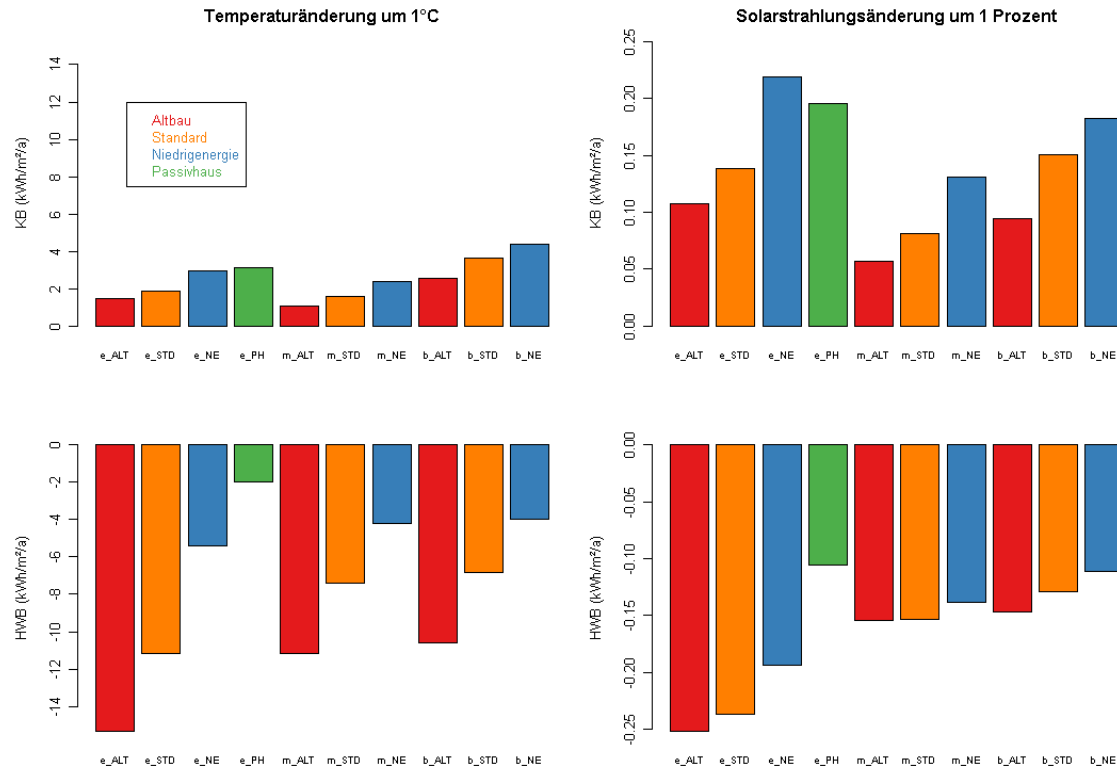
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- Sensitivity of building types to changes in temperature and solar radiation

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Source: Töglhofer et al. (2009- forthcoming)

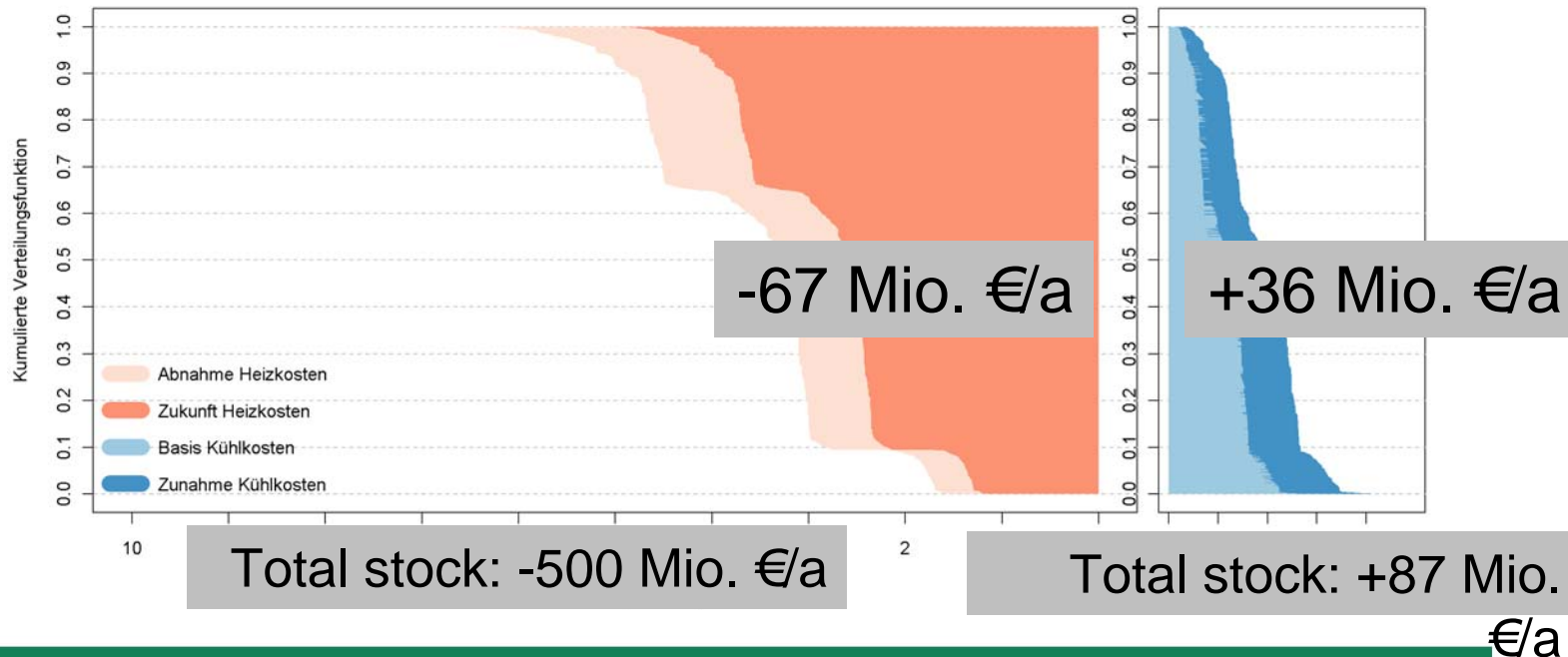
Heating and cooling energy demand

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- Cumulative distribution function for office buildings
- Changes in heating and cooling costs for current building stock and price levels under regional climate scenario reclip:more (+2.3°C)

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Heating and cooling energy demand

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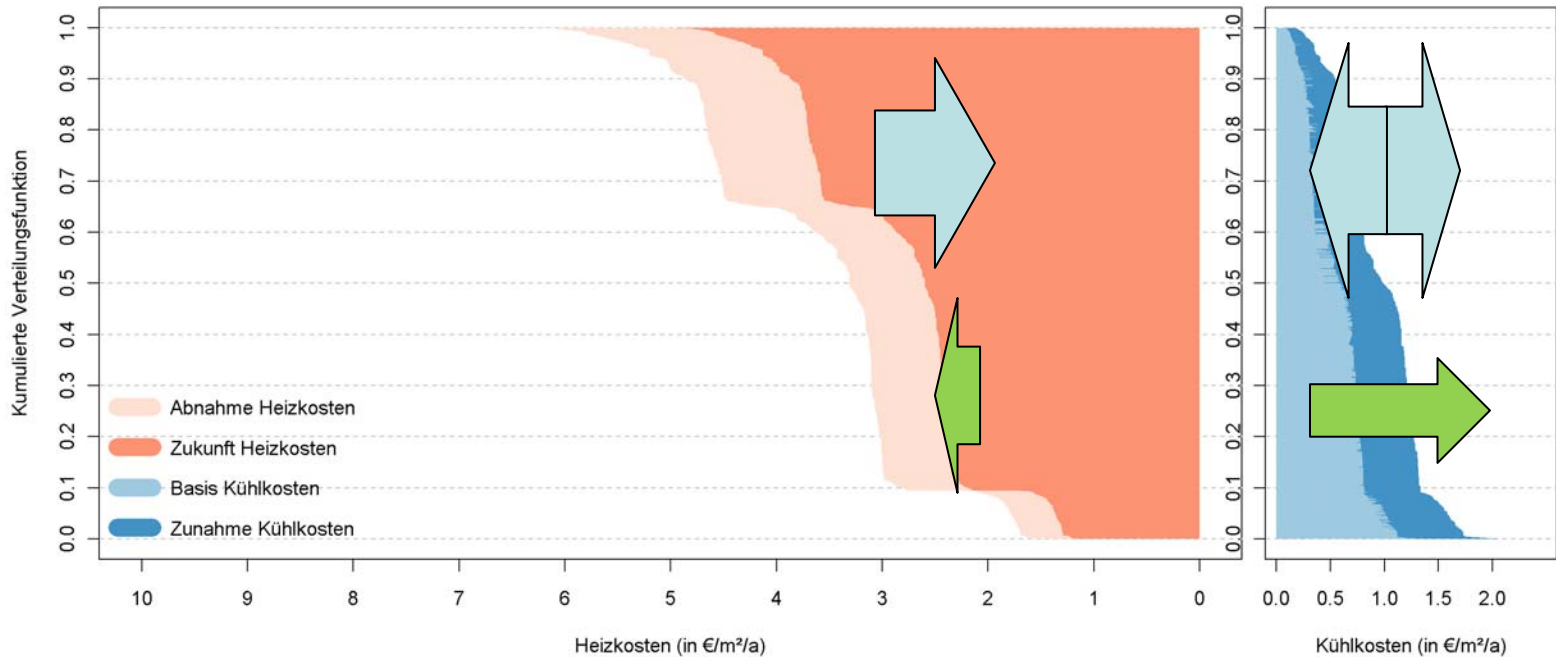
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■ What happens to these functions under

- Increased mitigation takes place
- adaptation



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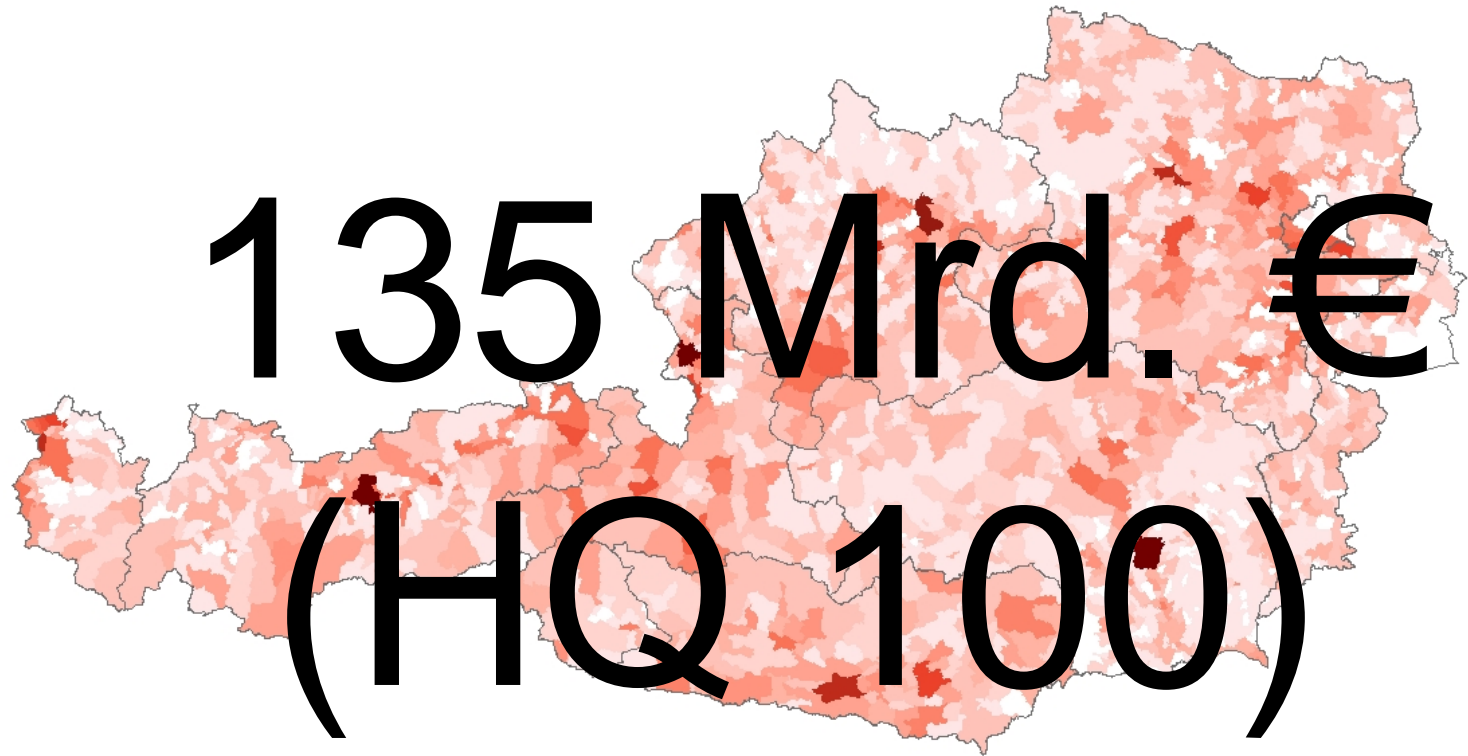


Extreme Events: Flood Risks and the building stock (HORA: HQ 100)

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HQ100 Wohnimmobilien Verkehrswert in Mio. €	11 - 25	151 - 250	1.001 - 1.500
bis 5	26 - 50	251 - 500	1.501 - 2.500
6 - 10	51 - 100	501 - 750	2.501 - 5.000
	101 - 150	751 - 1.000	5.001 - 9.500

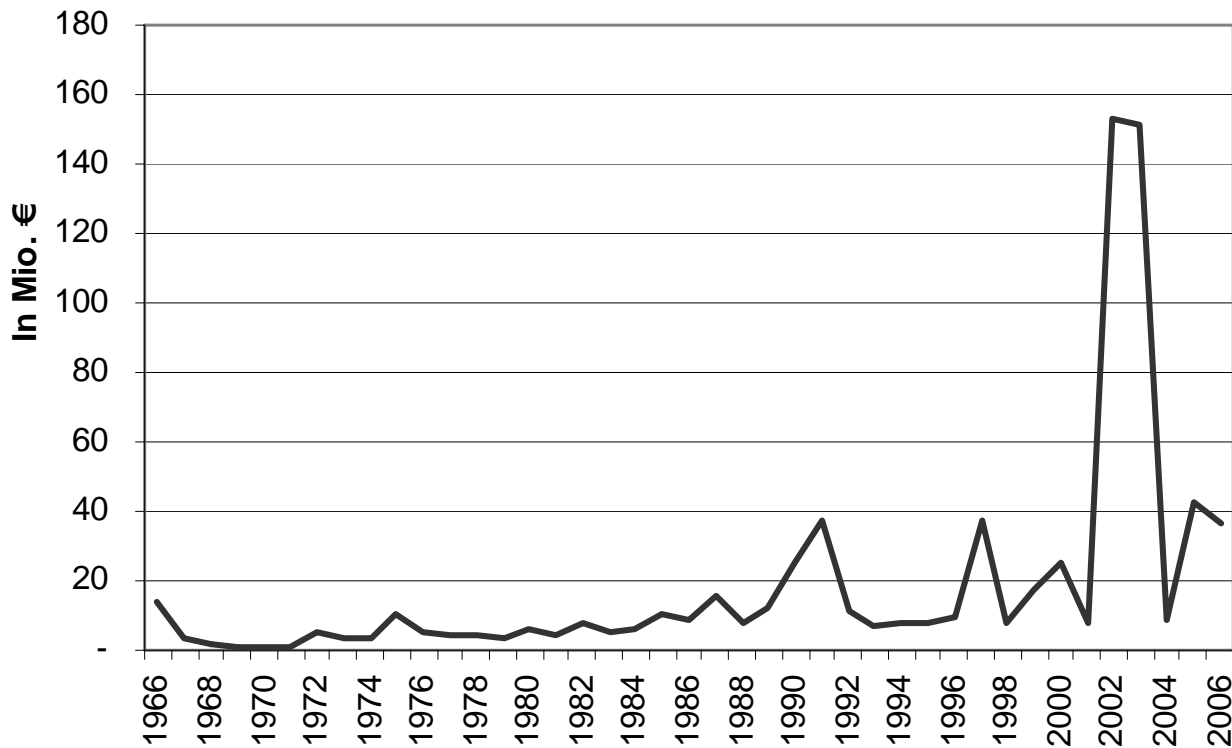
Extreme Events: Claim Analysis CatFund

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■ Catastrophe Fund – Claims of Private Entities



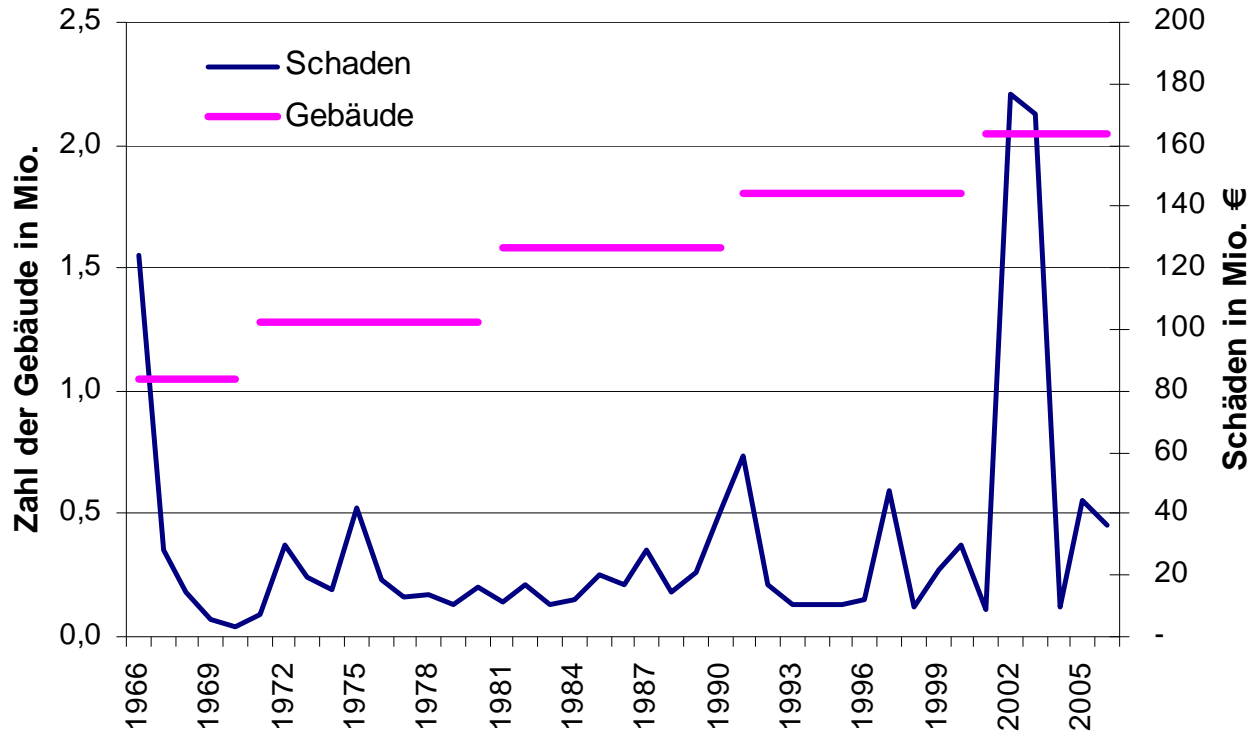
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- Adapted to Building Cost Index
- Level of Building stock



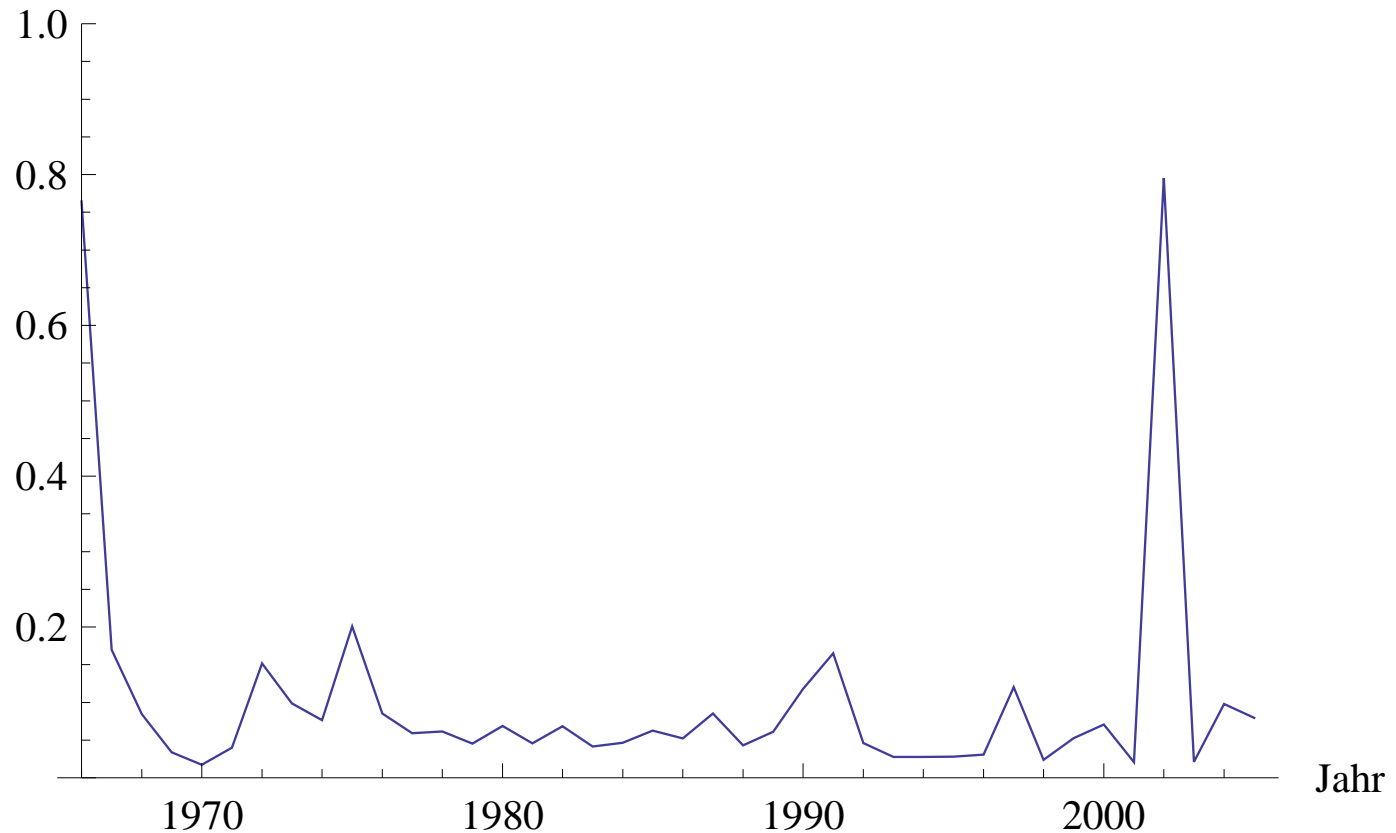
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normierter
Schaden



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