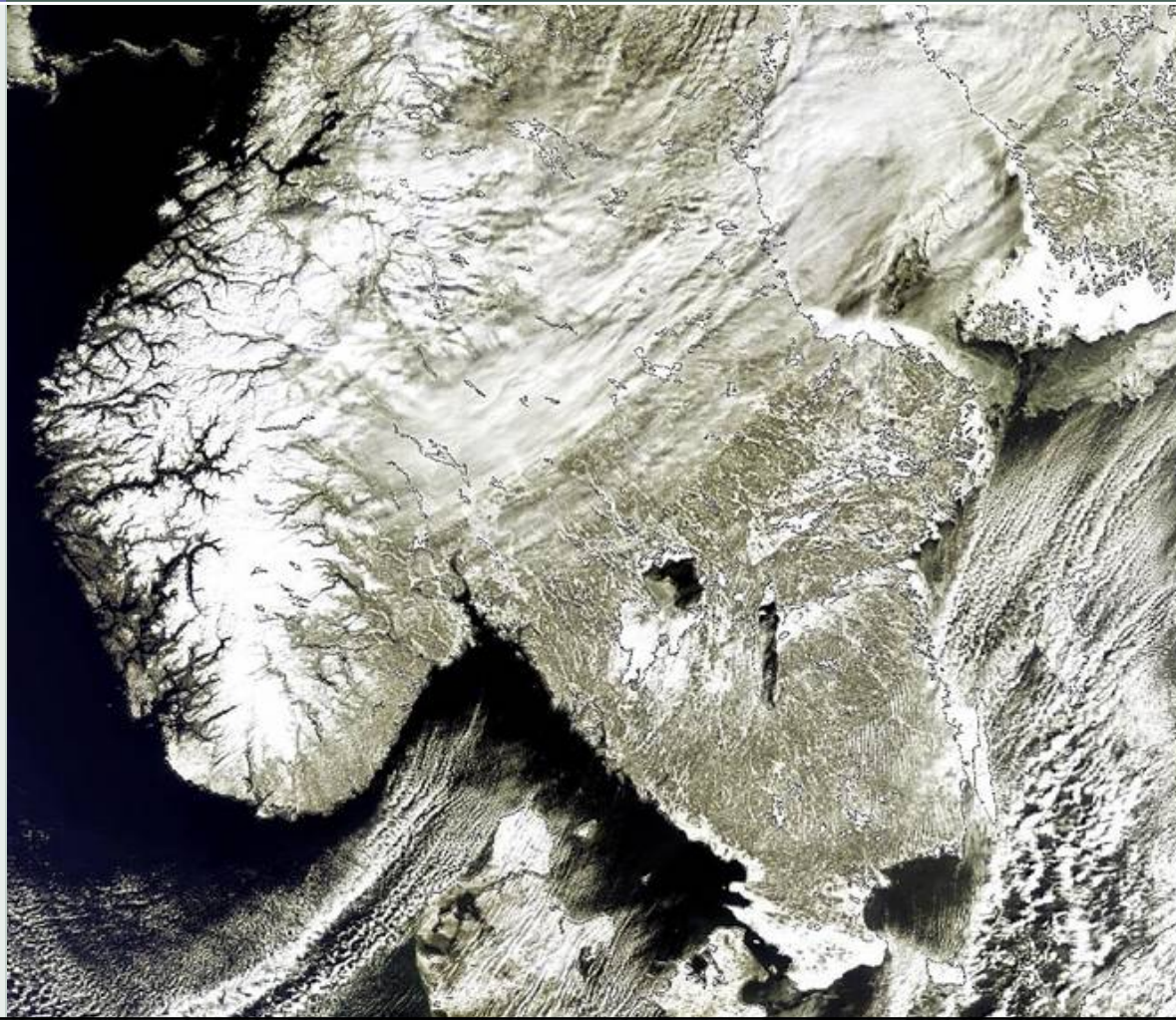


Swiss Re



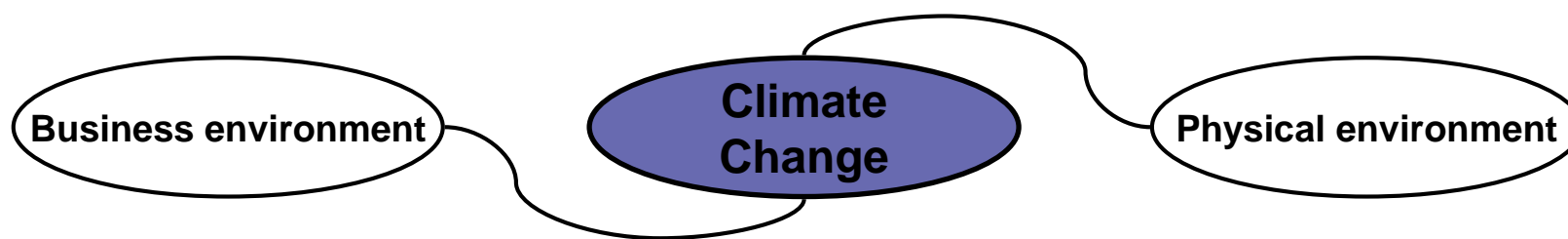
# Global Warming A Changing Risk Landscape



Dr. Silvio Tschudi  
Manager Cat Perils  
Swiss Re Germany  
Property & Specialty

Climate Change  
Gjensidige  
Nov 4<sup>th</sup> 08

# Agenda

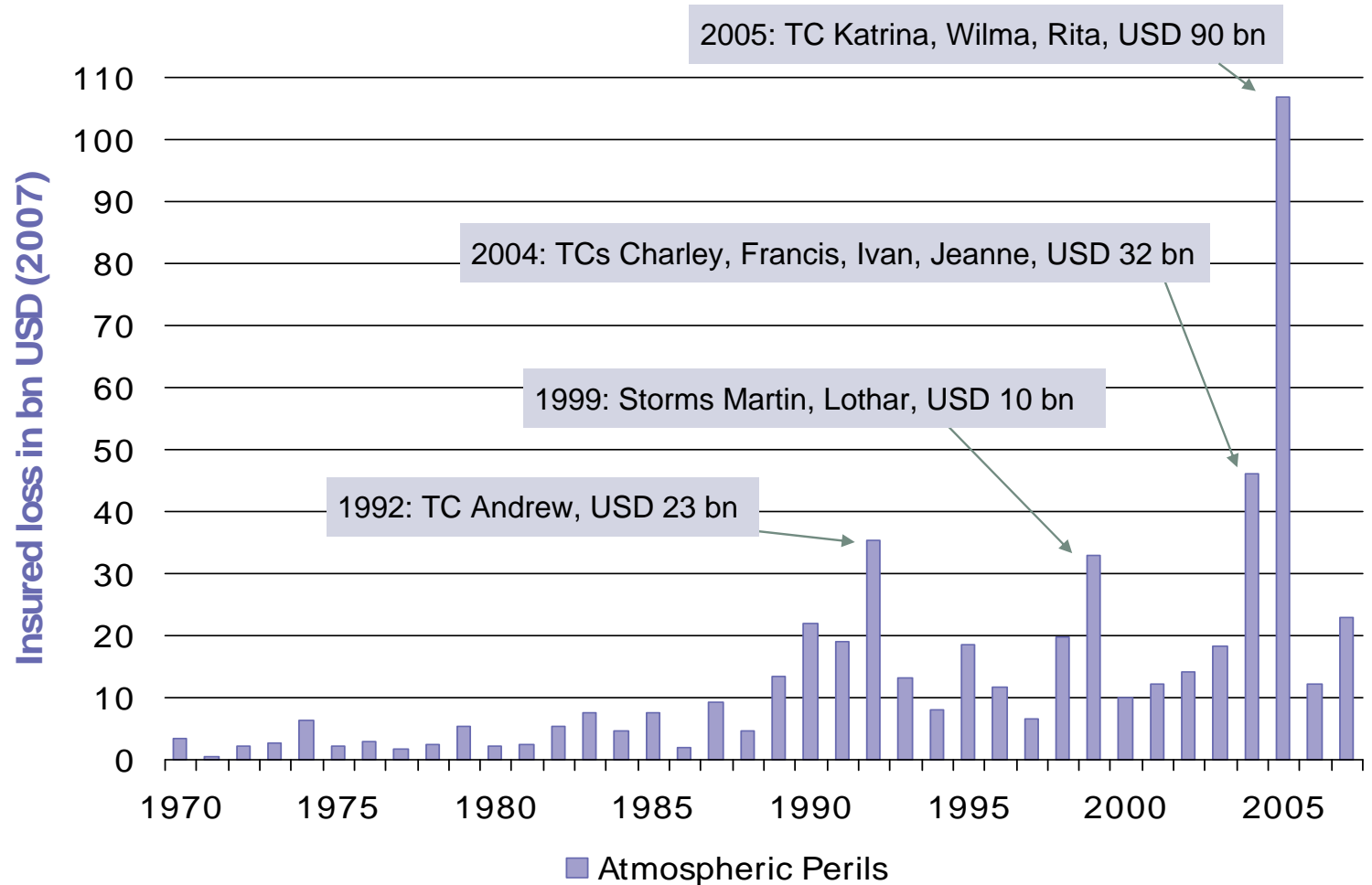




# General observations

## Upwards trend

- Insurance penetration
- Economic activity
- Population density
- Value concentration
- Vulnerability
- Environment



Dr. Silvio Tschudi  
 Manager Cat Perils  
 Swiss Re Germany  
 Property & Specialty



# General observations



Ocean Drive, FL, 1926.



Ocean Drive, FL, 2000.

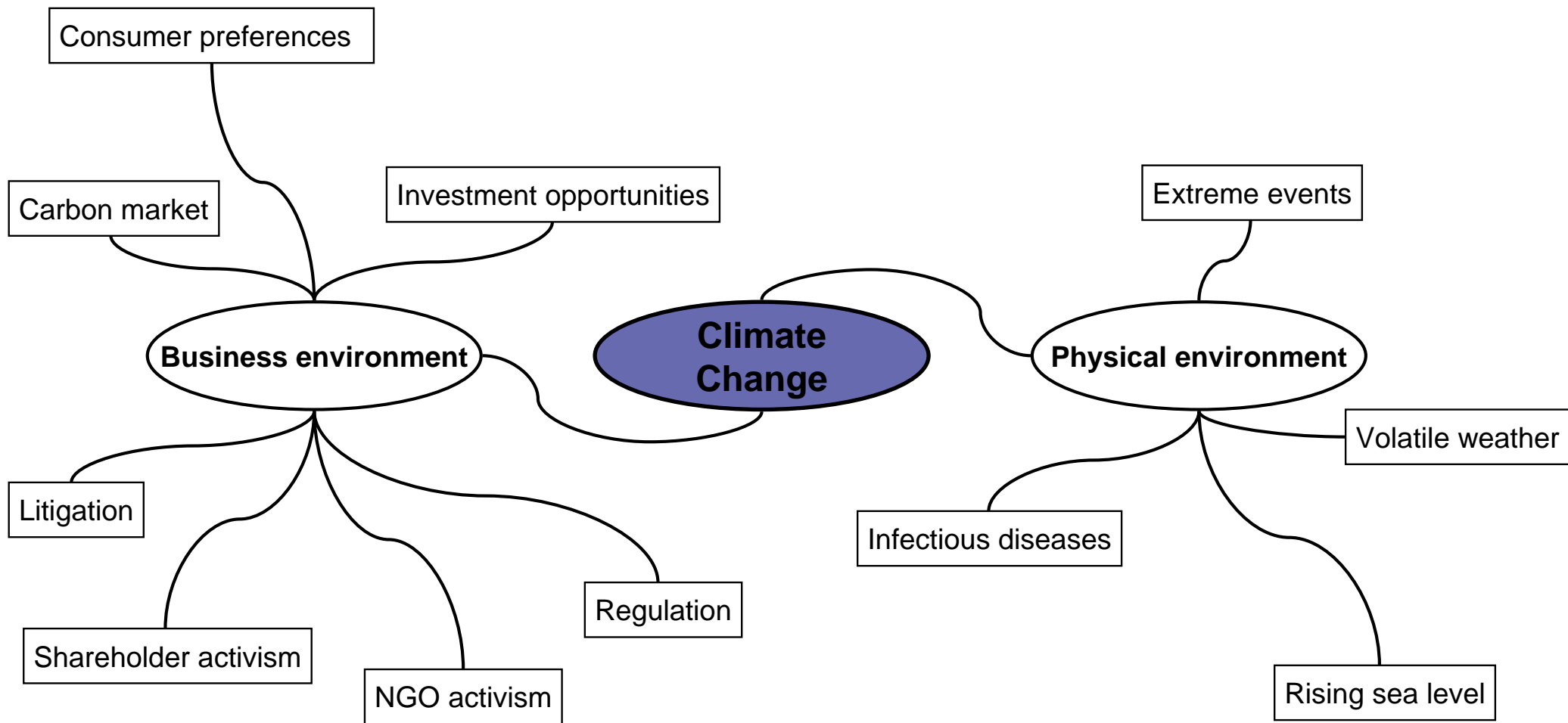


# General observations

<i>Event</i>	<i>Prop premium</i>	<i>Economic loss</i>	<i>Insured loss</i>
■ 1990 Vivian			2,8b€
■ 1999 Anatol (Winterstorm)			1,3b€
■ 1999 Lothar & Martin			5,6b€
■ 2005 Storm Erwin / Gudrun			1,3b€
■ 2005 Flood Romania	0,14b€ (10%)	1,5b€ (1%)	0,015b€
■ 2005 Flood Norbert			1,5b€
– Share Austria	2,0b€ (5%)	0,4b€ (25%)	0,1b€
– Share Switzerland	2,9b€ (48%)	1,7b€ (82%)	1,4b€
■ 2007 Kyrill			3,6b€
■ 2005 Hurricane Katrina	77b€ (57%)	95,9b€ (46%)	44,1b€

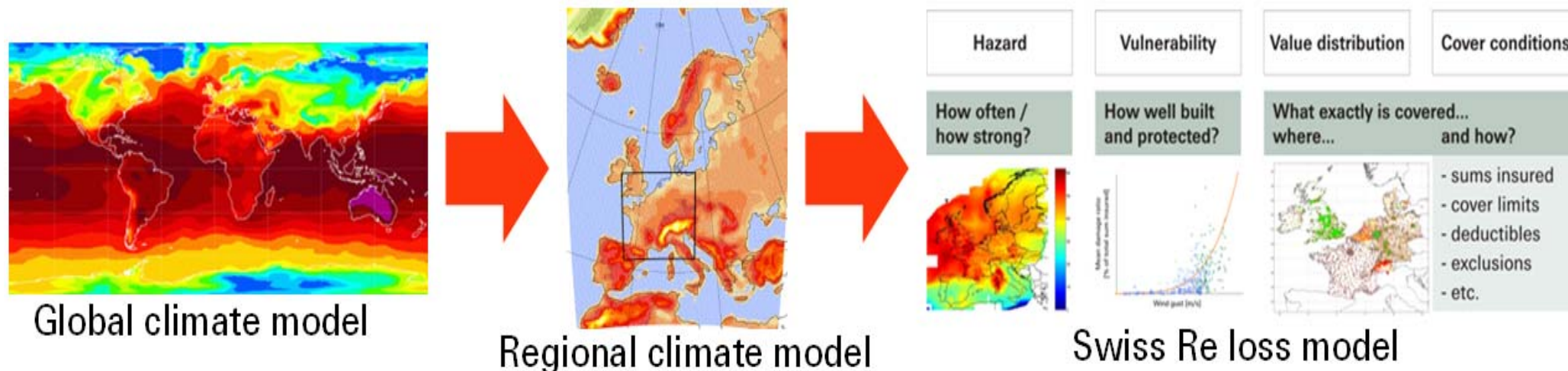


# Agenda





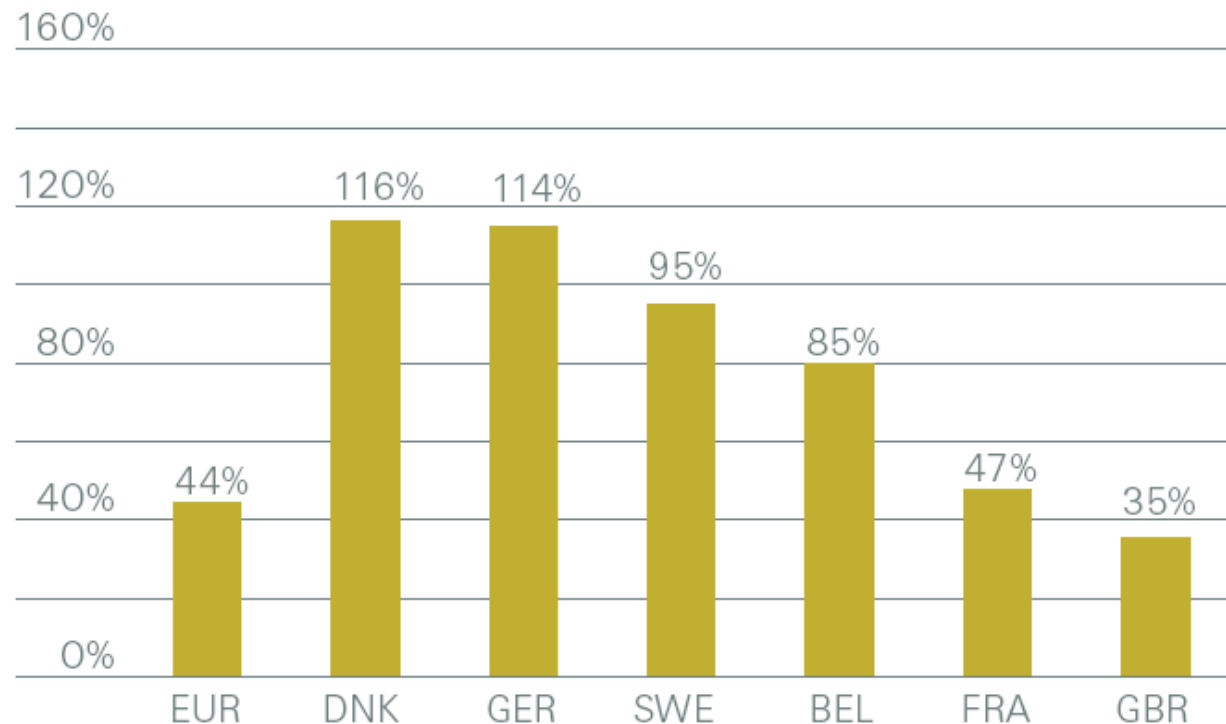
# Changes in extreme events (I)



- Global scenario A2
- 3 different regional models (ETH Zurich)
- Coupling to Swiss Re loss model



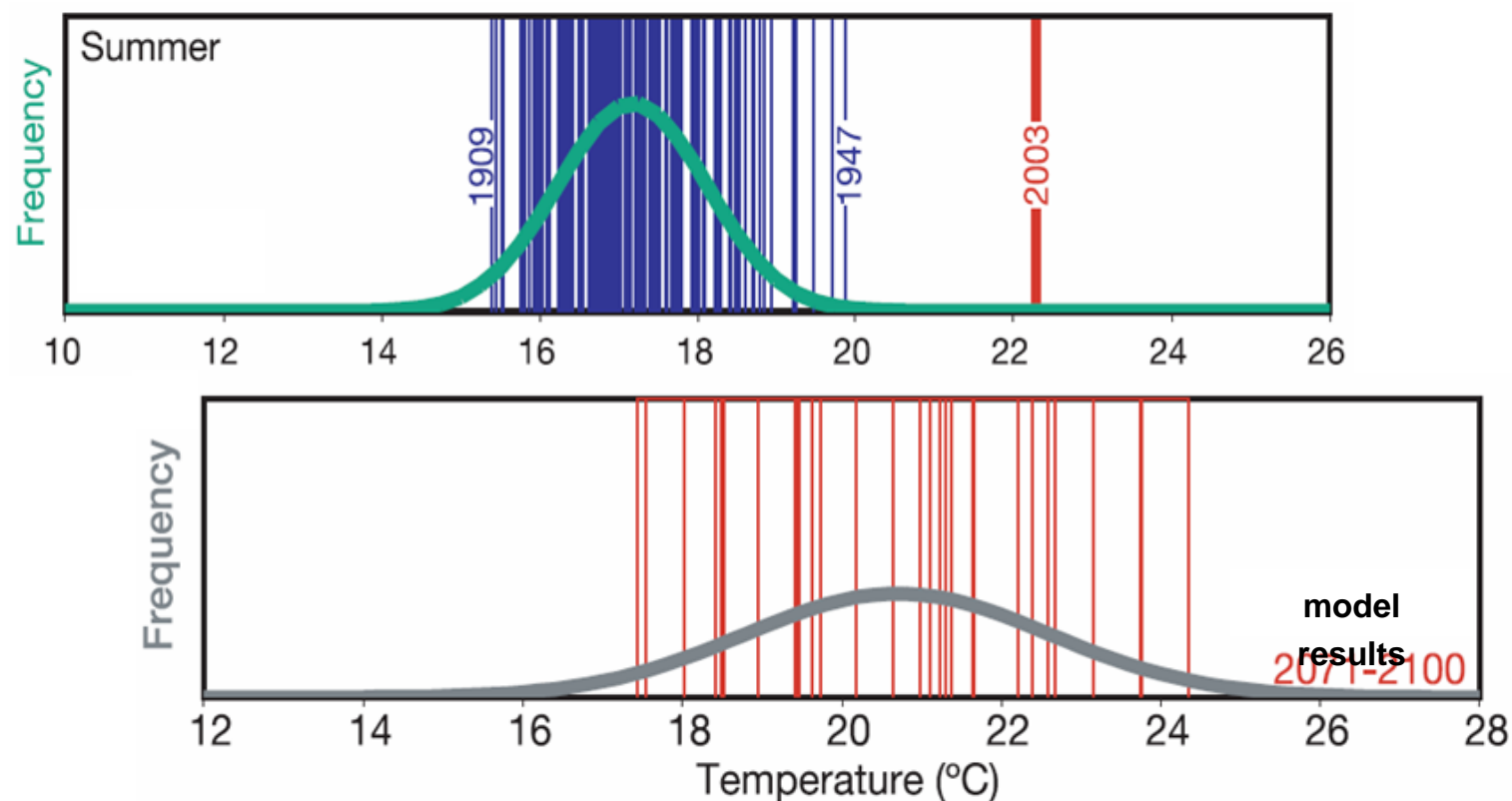
## Changes in extreme events (I)



- Regional variation – Scandinavia to double
- “Big ones get bigger”



## Changes in extreme events (II)



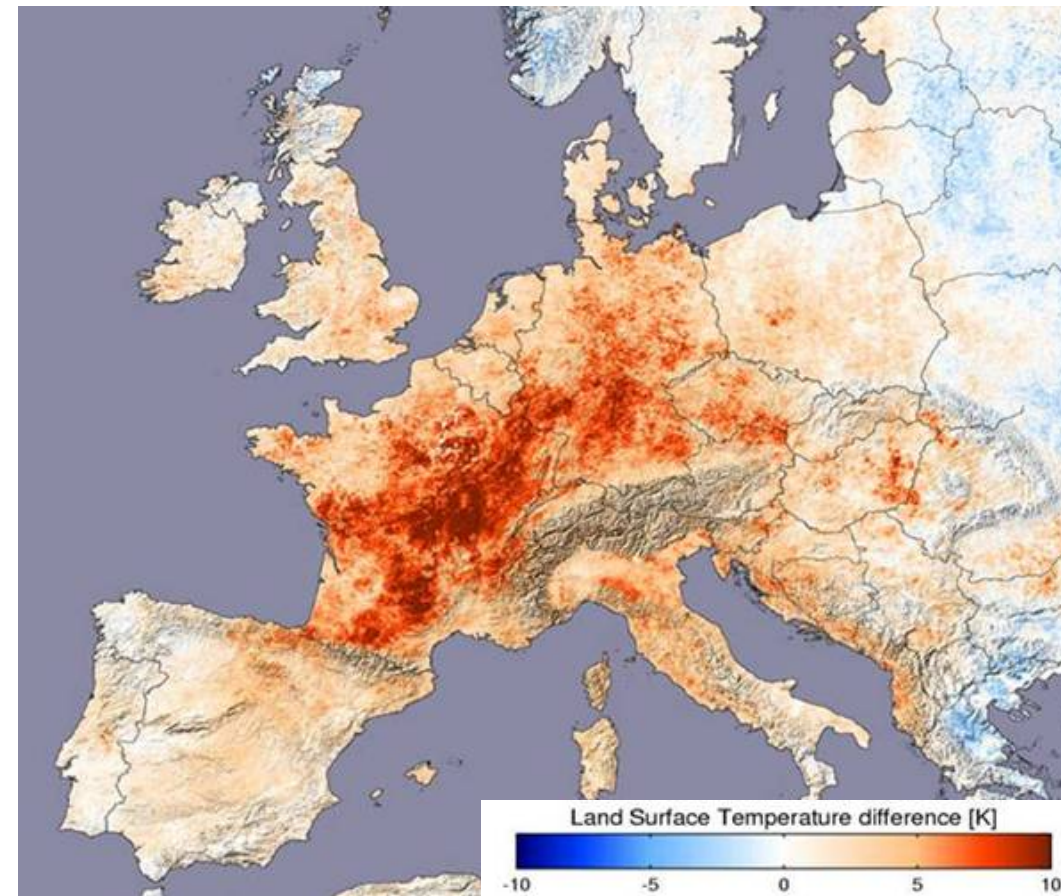
- Hot summer – will it be the normal case?



# Changes in extreme events (II)

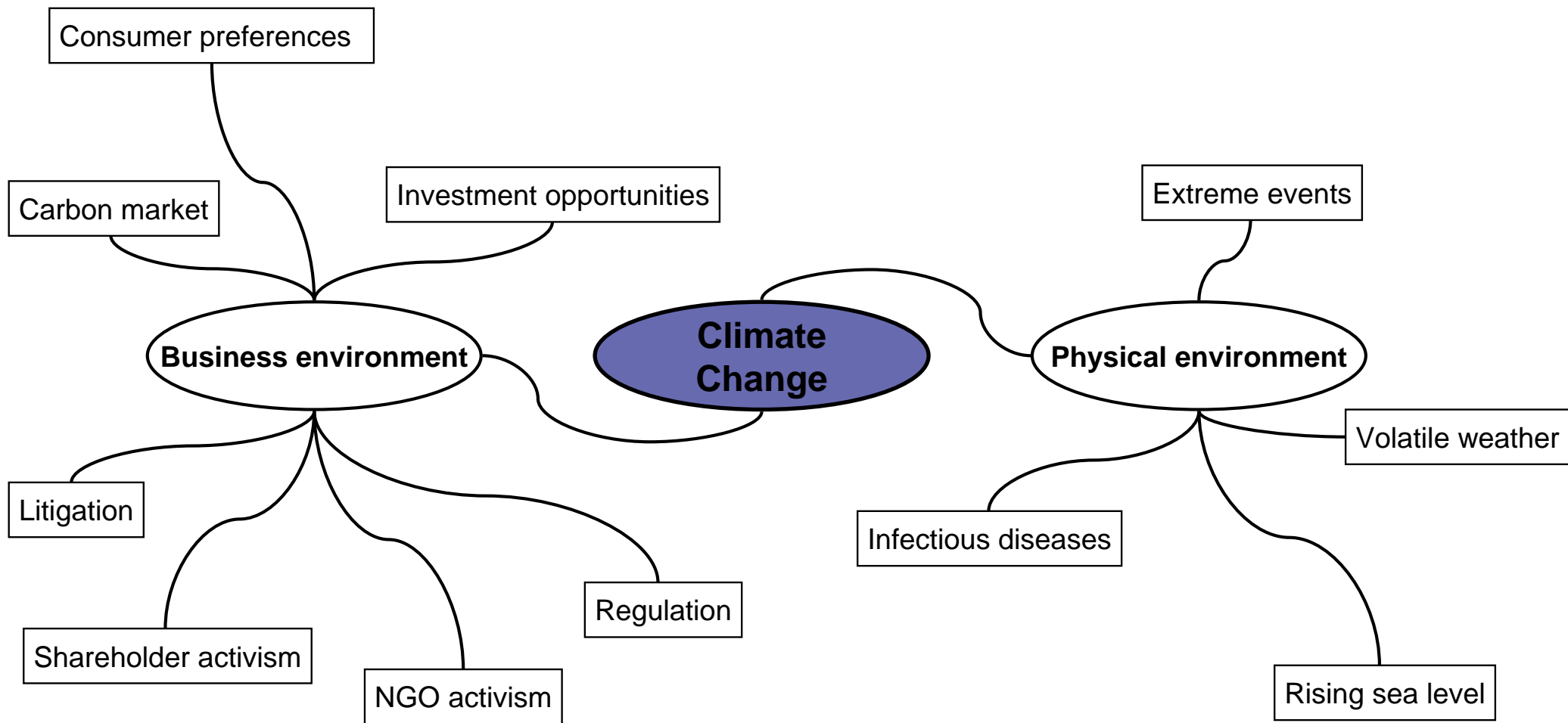
## Economic impacts

- Agriculture
- Fresh water resources
- Forest fires
- Shortage of electricity
- Excess mortality
- Industry
- Tourism



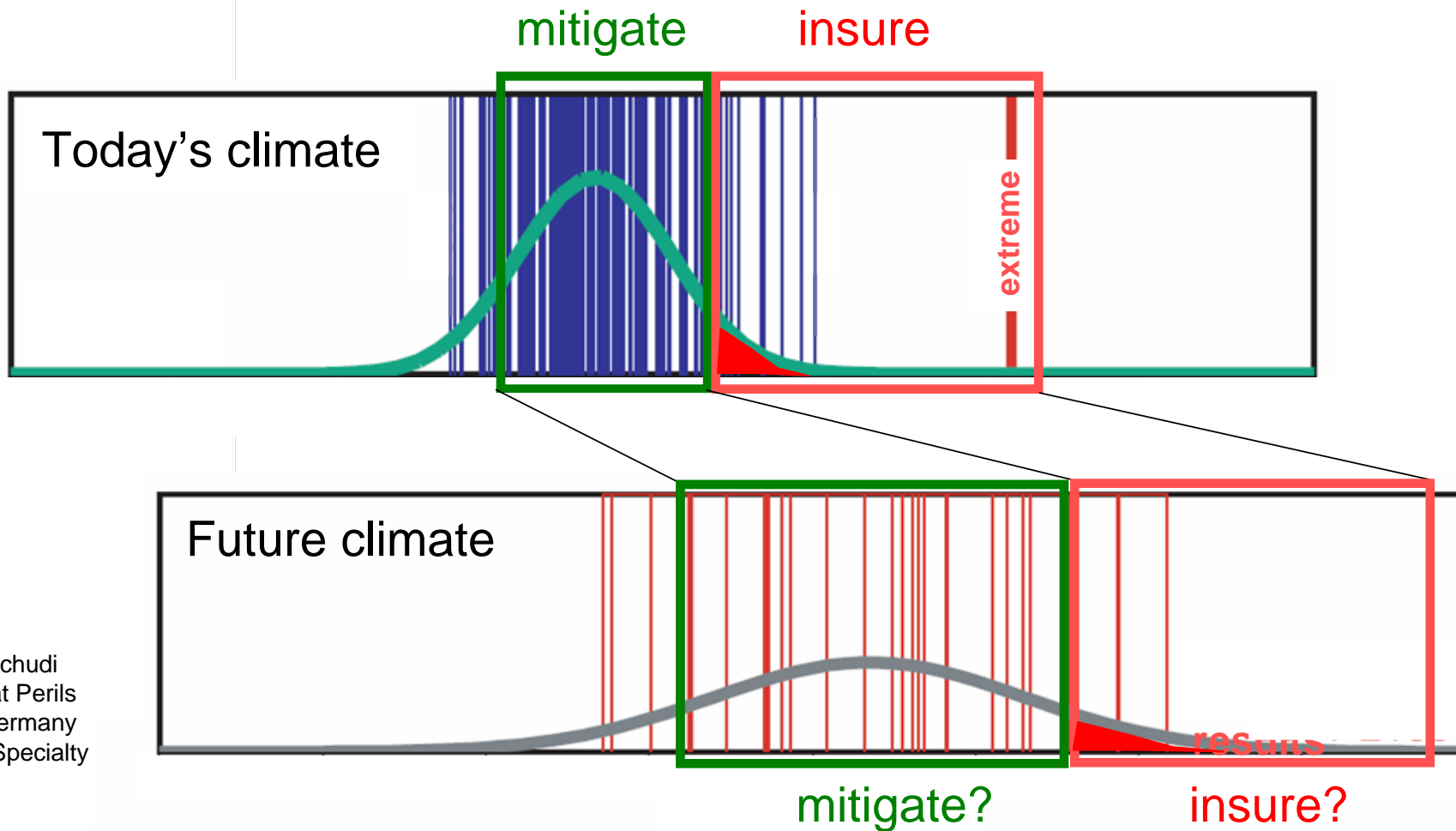


# Agenda





# Changes in the insurance perspective

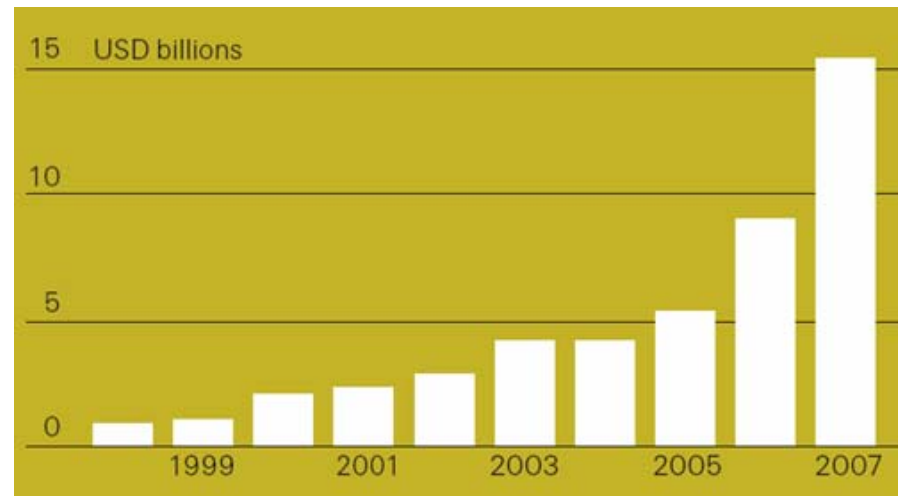


Dr. Silvio Tschudi  
 Manager Cat Perils  
 Swiss Re Germany  
 Property & Specialty



## Changes in the insurance perspective

- Demand for climate change related insurance cover
  - CatXL (e.g. European winterstorm cover)
  - CatBond (e.g. Tropical cyclone cover)
  - Structured weather energy products (e.g. power plants)
  - Microinsurance (e.g. developing countries)



Total non-life bonds issued and outstanding



# Changes in regulation

## ***Non-exhaustive list:***

<b>Region:</b>	<b>Implemented binding targets</b>	<b>Planned binding or aspirational emission targets</b>	<b>Frameworks/ Markets</b>
World:	Kyoto Protocol: -5.2% by 2012	- Post 2012 targets negotiations start COP/MOP2007	- Kyoto (CDM, JI) - Bali
Europe:	- Kyoto target: 8% by 2012 - EU: -20% (-30%) target by 2020 (awaiting country split)	- UK: -60% target by 2050 (binding, decision in 2007 legislature) - ...	- EU ETS related to Kyoto
US:	- CAAB 32: -25% by 2020	- Federal: 18% reduction in carbon intensity from 2002-2012 (aspirational) - US Mayors climate protection agreement: -7% by 2012 - CA: -80% by 2050 - New Mexico: -75% by 2050 - ...	- CCX - RGGI - Pending cap and trade proposals: Bingaman, Feinstein-Carper, Kerry-Snowe, McCain-Lieberman, Sanders-Boxer
Australasia:	- Kyoto target: Japan: - 6% by 2012	- China: -846 mio tCO <sub>2</sub> e by 2020 - Australia: +8% above 1990 levels by 2012 - ...	- AUS ETS (dev) - Hong Kong/Guangdong pilot - Beijing announced trading scheme plans



# Changes in litigation (I)

	Reports in Specialist Publications	First Regulations	First Lawsuits Filed	Successful Litigation
<b>Asbestos</b> :	<b>1906</b> French factory report of 50 deaths of asbestos textile workers	<b>1931</b> UK Asbestos Regulations specify compensation for asbestosis	<b>1950's</b> First lawsuits filed requesting compensation for asbestosis	<b>1966</b> First lawsuit in Beaumont, Texas, against eleven manufacturers of asbestos-products <b>2001</b> Estimates of the eventual cost of asbestos mass torts range from \$200 to \$265 billion. - US Insurance loss as of 2004: USD 55 bn - Total estimated future losses: USD 275 bn
<b>Climate change:</b>	<b>1950's</b> Observations of increasing CO2 concentration in the atmosphere	<b>2005</b> Kyoto protocol enters into force	<b>2004</b> First lawsuits filed challenging regulatory inaction, relief against emitters, recovery of damages	?

## Changes in litigation (II)



■ New residential area – future risk?



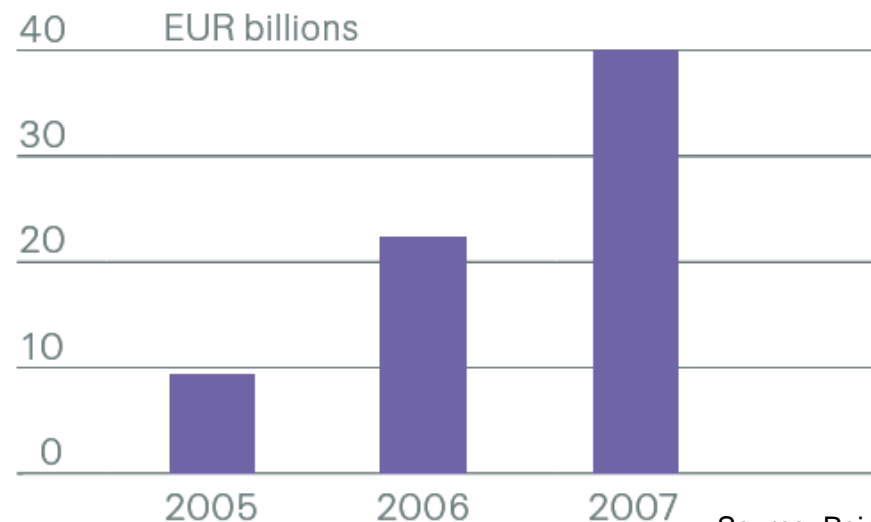
## Changes in the shop (I)

### Example

Flight Munich – Oslo  
– Munich

→ About\* 1 ton CO<sub>2</sub>

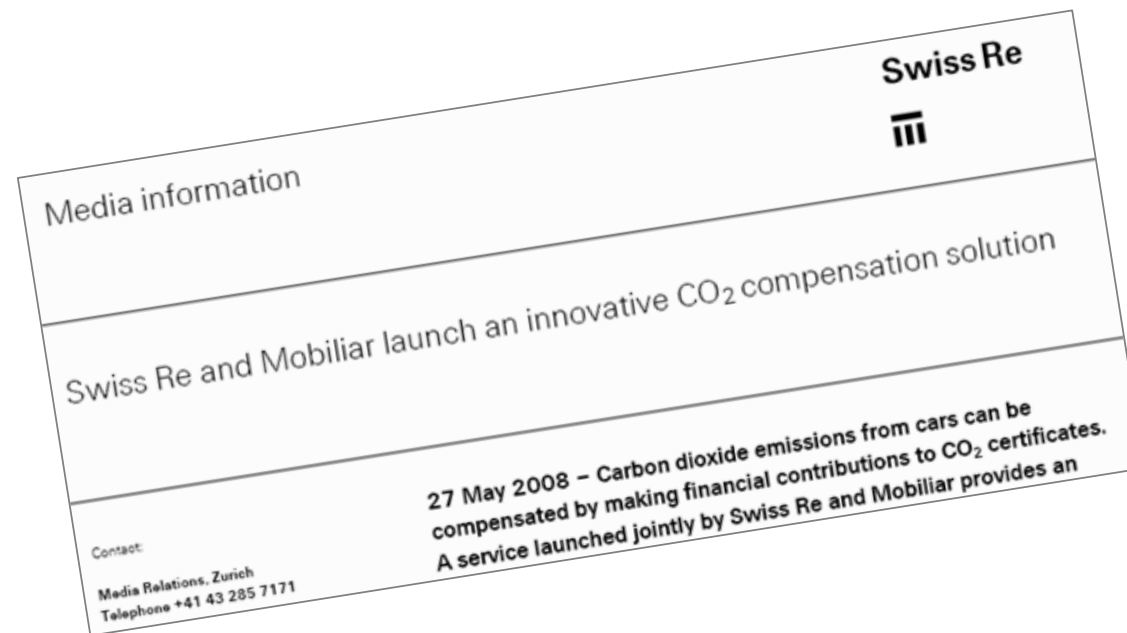
- Global carbon market grew in value to an estimated €70 billion in 2008



Source: Point Carbon

- Dominated by European Union Emissions Trading Scheme
- Present day value: some 20 € per ton CO<sub>2</sub>e (high in 2008: almost €30)

## Changes in the shop (II)



- Online compensation of personal CO<sub>2</sub> emission
- Linking market know-how with personal needs



## Changes in the shop

- **Energy savings insurance**  
protecting the installer or owner of an energy efficiency project from under-achievement of predicted energy savings
- **Renewable energy project insurance**  
covering performance risk for renewable energy systems, e.g. through wind power derivatives
- **Green building insurance**  
replacing conventional property damaged or destroyed in a covered loss with improved green and/or energy-efficient property
- **Pay-as-you drive insurance**  
insurance premiums are charged according to actual miles driven
- **Carbon insurance**  
covering business and performance risks associated with projects designed to achieve emission reduction certificates

# Swiss Re's response

Jacques Aigrain, CEO of Swiss Re:

„... climate change has become an important element of our long-term risk management strategy.“

Four strategic priorities:

- Understand the risk & adapt pricing and risk models accordingly
- Influence the business environment by raising awareness at industry & governmental level
- Leverage the opportunities by developing products & services for mitigation and adaptation
- Address own environmental footprint





# Agenda

