

Predicting Disaster, Managing Losses

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Finance, Environment and Sustainable Development
Corporate Responsibility and Capital Markets
Managing Qualitative Risk Issues
Paris 10.1.2003



Münchener Rück
Munich Re Group

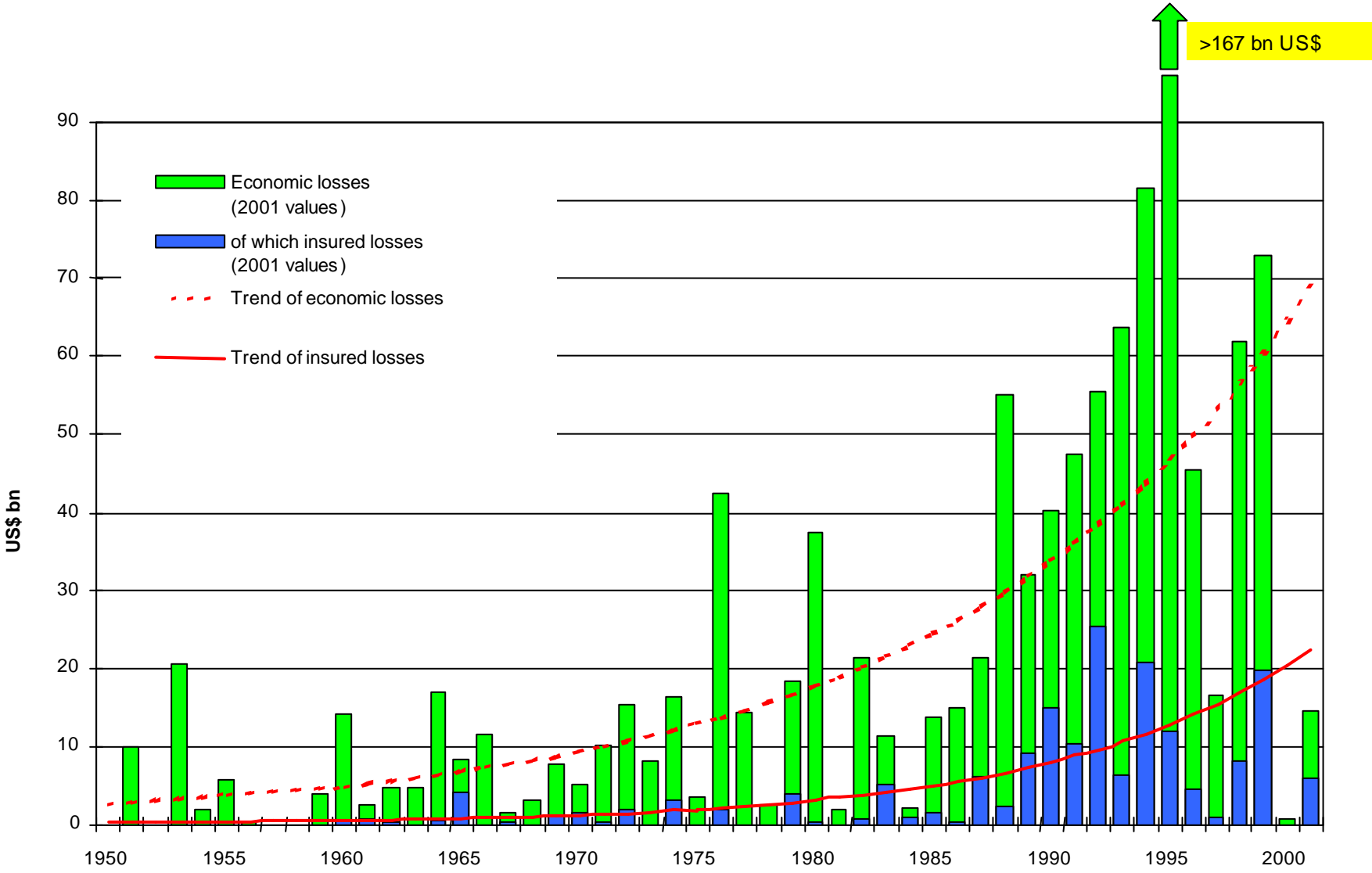
Contents

- Loss trends
- Changing risks
- Tasks (homework)
- Environment and sustainability



Selection	Browse	Event	Coordinates																																				
MRNatCat <i>SERVICE</i>		MR-No.: MR199912B010 10 MRNathan 1	Modified by: 039590																																				
Event: WS Winterstorm	Storm	Created on: 30.12.1999	Updated on: 16.05.2002																																				
Winter storm Lothar		Mark: <input type="checkbox"/> To Print: f	Master: <input type="checkbox"/> Version: <input type="checkbox"/>																																				
Date: 26.12.1999 26.12.1999 26.12.1999		Estkey: <input type="checkbox"/> Double: C	ENSO: <input type="checkbox"/> ISO																																				
Country: France	Western Europe	<input type="checkbox"/> To GREAT	<input type="checkbox"/> To WM																																				
Region: W, NW, NE, C, further	Ille-de France, Paris, Le Havre, Normandy, Britanny	<input type="checkbox"/> To ESTCAT	<input type="checkbox"/> Print omitted																																				
Deaths: <input type="checkbox"/> 84 by <input type="checkbox"/>	Source: R																																						
Remarks: 50-80J.*Obergr.4-5Mrd.DM /EU3. deaths: 91 (Lothar+Martin)2.2.2000		further remarks																																					
<table border="1"> <thead> <tr> <th></th> <th>in Mio. US\$</th> <th>in Mio. FF</th> <th>in Mio. DM</th> <th>in Mio. Euro</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>Economic losses</td> <td>es 8000.00</td> <td>0.00</td> <td>15000.00</td> <td>7669.38</td> <td>AW317.00</td> </tr> <tr> <td>Insured losses</td> <td>es 4450.00</td> <td>0.00</td> <td>8600.00</td> <td>4397.11</td> <td>*s.small</td> </tr> <tr> <td>MR share</td> <td></td> <td></td> <td></td> <td></td> <td>(gross)</td> </tr> <tr> <td></td> <td>0.00</td> <td></td> <td>0.00</td> <td>0.00</td> <td>(net)</td> </tr> <tr> <td>Exchange</td> <td>1,942430</td> <td>0,298160</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			in Mio. US\$	in Mio. FF	in Mio. DM	in Mio. Euro	Source	Economic losses	es 8000.00	0.00	15000.00	7669.38	AW317.00	Insured losses	es 4450.00	0.00	8600.00	4397.11	*s.small	MR share					(gross)		0.00		0.00	0.00	(net)	Exchange	1,942430	0,298160				Effects on: People Injured <input type="checkbox"/> 0 Homeless <input type="checkbox"/> 0 Missing <input type="checkbox"/> 0 Affected <input type="checkbox"/> 0 Evacuated <input type="checkbox"/> 0 Affected <input checked="" type="checkbox"/> Agriculture <input checked="" type="checkbox"/> Electricity <input type="checkbox"/> Fishery <input checked="" type="checkbox"/> Infrastructure <input type="checkbox"/> Industry <input type="checkbox"/> Traffic <input type="checkbox"/> Water supply <input checked="" type="checkbox"/> Marine <input type="checkbox"/> Environment	
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Houses Damaged <input type="checkbox"/> 0 Dam/Destr <input type="checkbox"/> 0 Destroyed <input type="checkbox"/> 0 Boats <input type="checkbox"/> 0		<p>Windstorm (6 hours), wind speeds up to 180 km/h (150 km/h in Paris), heavy rain, floods. 69 of 96 departments disaster declared. Houses (roofs, aeriels) damaged. Cranes, scaffoldings, power lines, traffic signs, trees downed. 4 million without electricity. Paris: 40 % of trees in Bois de Boulogne/Vincennes damaged. Highways, roads, railway lines blocked. Paris Metro traffic disrupted. Airports closed. Boats, yachts, sport planes damaged. Damages in Disneyland (closed on 26.12.). Up to 300 million trees downed (storms Lothar and Martin). Losses to agriculture (greenhouses, tobacco industrv. fruit tree plantations. livestock). Also affected: Germanv. Switzerland.</p>																																					
Sources <input checked="" type="checkbox"/>		MR loss estimation <input checked="" type="checkbox"/>																																					
		Scientific background <input checked="" type="checkbox"/>																																					

Great natural catastrophes 1950–2001



Great Weather Disasters 1950 - 2001

Decade comparison

	Decade 1950 - 1959	Decade 1960 - 1969	Decade 1970 - 1979	Decade 1980 - 1989	Decade 1990 - 1999	last 10 1992 - 2001	Factor last 10:60s
Number	13	16	29	44	72	64	4.0
Economic losses	41.2	54.1	79.4	126.1	425.4	362.0	6.7
Insured losses	-	7.2	11.5	23.0	98.9	79.3	11.0

Losses in US\$ billion - 2001 values

MRNatCat SERVICE

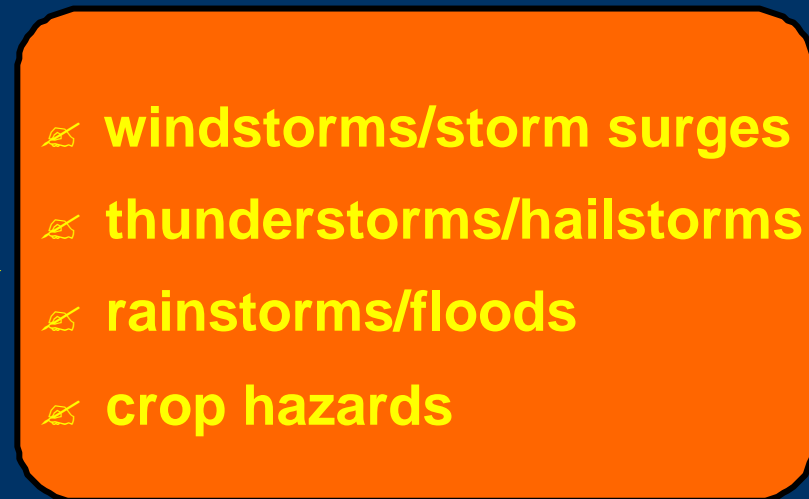
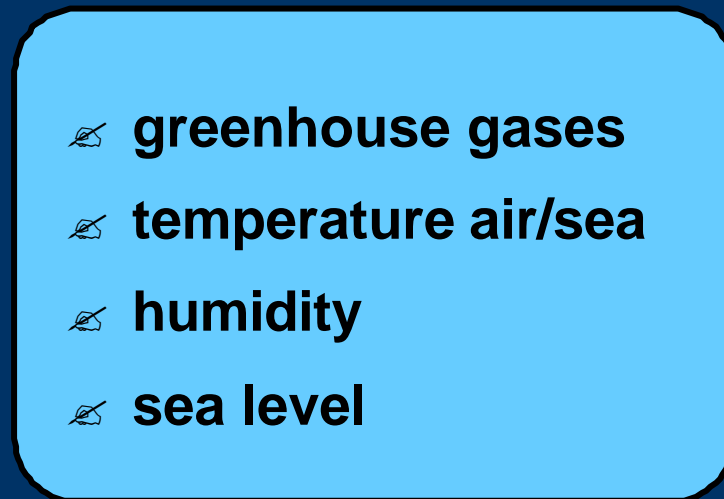
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A bright sun is centered in the upper half of the image, shining against a clear, vibrant blue sky. The sun's rays are visible, creating a starburst effect. The overall scene is bright and clear, suggesting a sunny day.

The heat is on

The present problems will be strongly aggravated if the climatic change predictions come true

Increase in



Another problem

✍ ozone "hole"

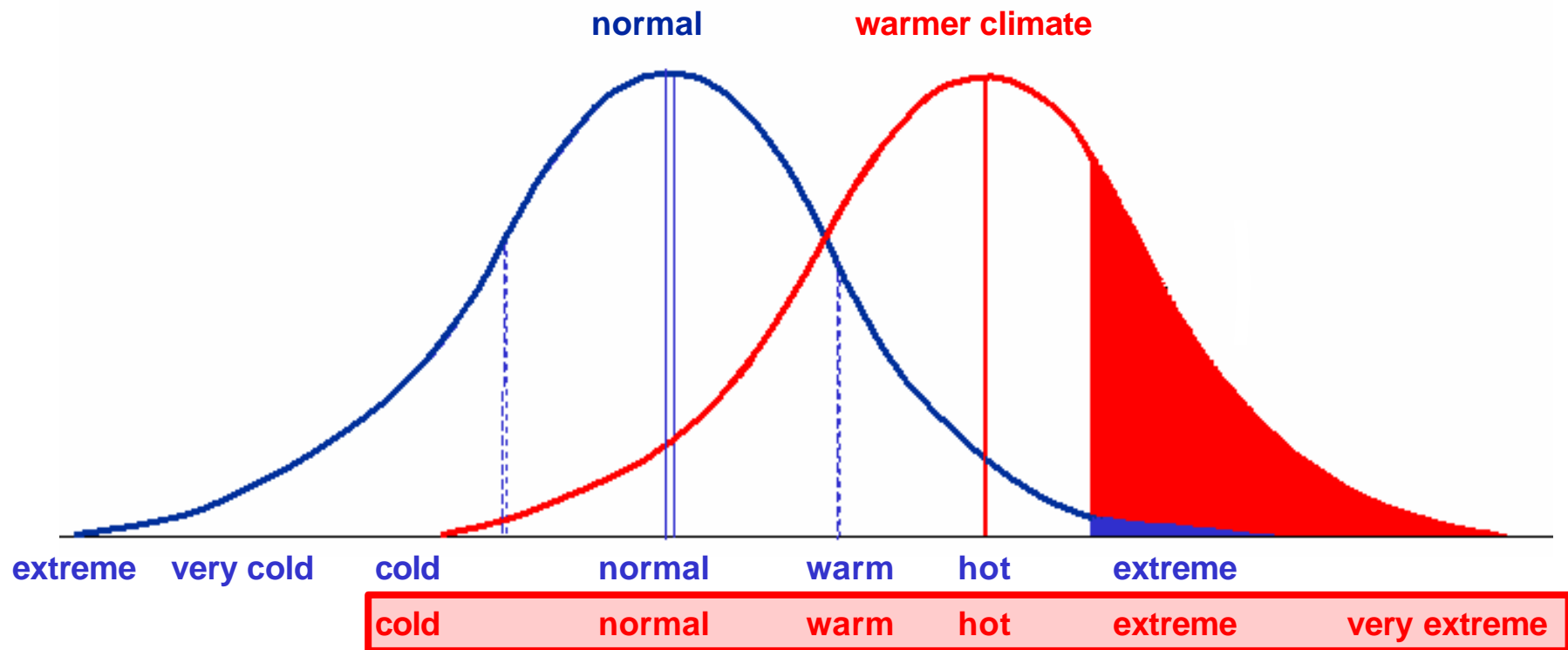


✍ skin cancer

✍ biosphere damage

More extreme events in a warmer climate

Example: heat waves



A few recent weather related disasters

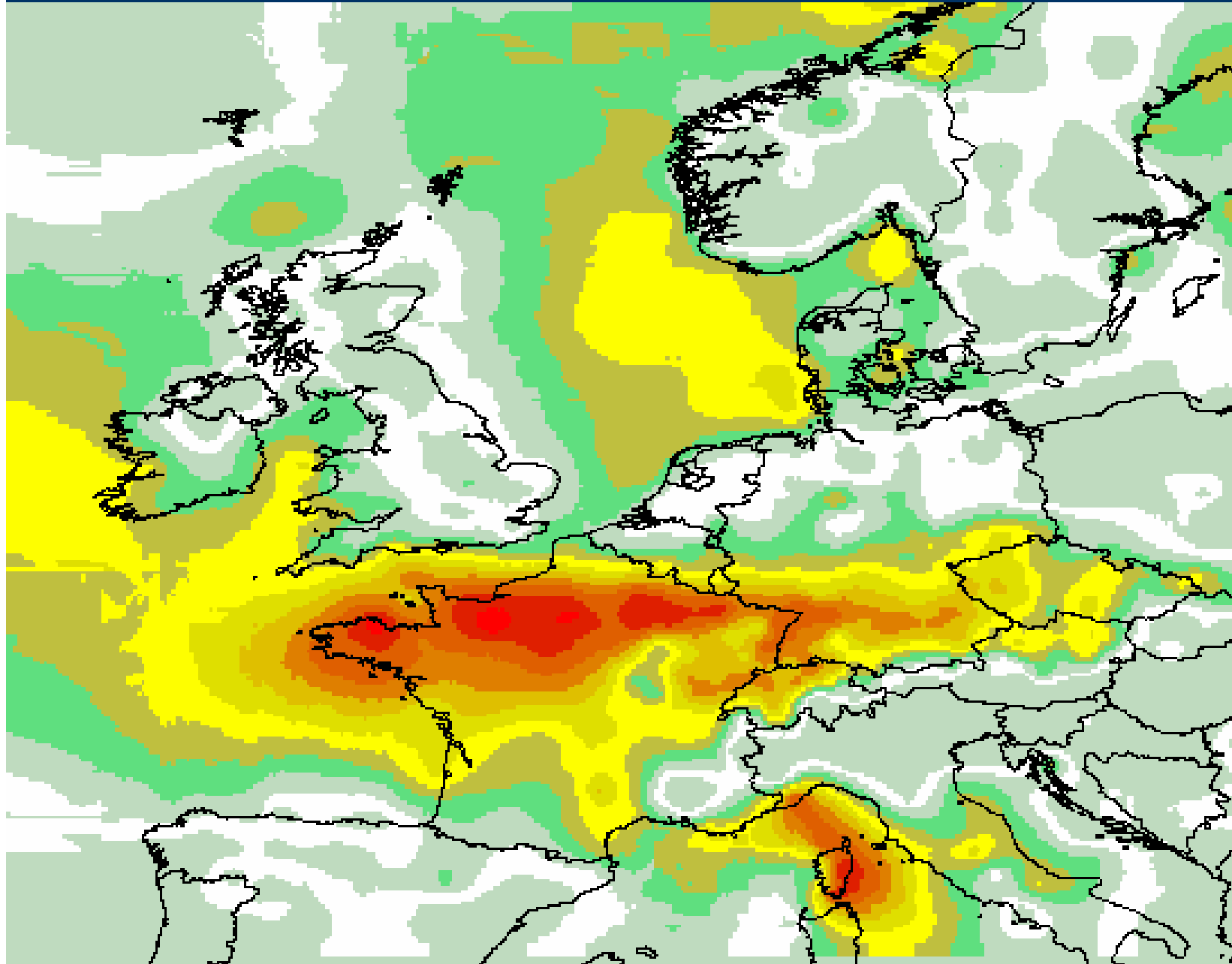
Selected events (focus France, Germany)

Region	Event	Date	Remark
France (N)	Rain, Floods	April/May 2001	worst since 1926
Germany	Severe storms	May	South: 140 mm/24 hrs
Germany	Severe storms	July 2002	record winds, rain
Germany	Rain, Floods	August 2002	RP > 150 years
Austria	Rain, Floods	August 2002	RP > 150 years
Czech Rep.	Rain, Floods	August 2002	RP > 100 years
Spain	Rain, floods	March/Ap. 2002	225mm/3 hours
France (S)	Rain, Floods	September 2002	annual prec. in 36 hrs.
France, Germany	Windstorm Jeanett	October 2002	large area
France, Europe	Storm, Rain, Floods	January 2003	widespread over Europe

Events started to become more extreme !

To Do

Windfield Storm „Lothar“ 26.12.1999



- no data
- % 1 - 70
- % 70 - 80
- % 80 - 90
- % 90 - 100
- % 100 - 110
- % 110 - 120
- % 120 - 130
- % 130 - 140
- % 140 - 150
- % 150 - 160
- % 160 - 170
- % 170 - 220

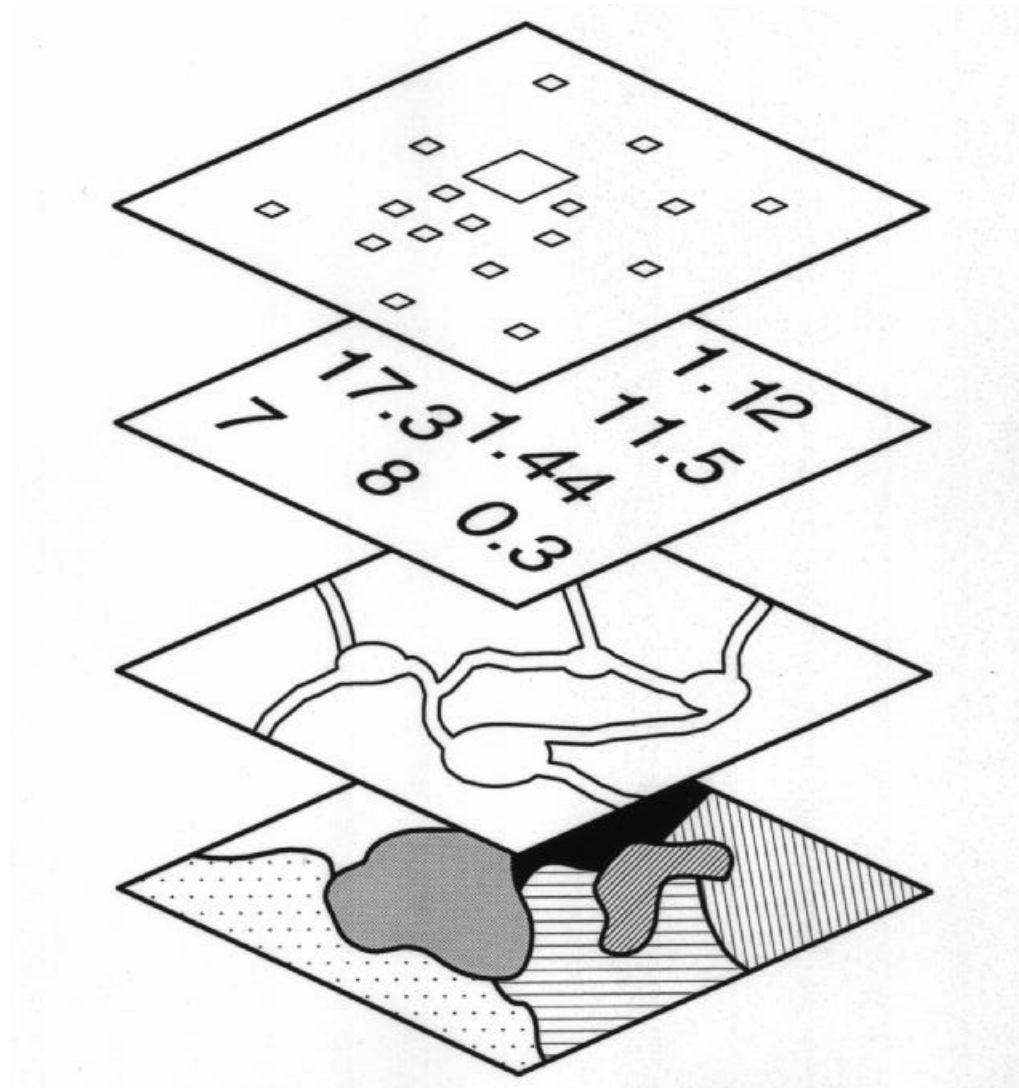


Hail Munich

Computer techniques

Overlaying and calculating

- buildings
- values
- land use
- storm tracks
- flood levels
- sums insured
- etc.



Loss Potentials of Selected Natural Disaster Scenarios

Scenario	Return period (1x in years)	Economic loss (US\$ bn)	Insured loss (US\$ bn)
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Windstorm USA	100	80	40
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Earthquake USA	100	50	20
	1000	200	80

Windstorm Europe	100	30	20
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Windstorm Japan	100	25	20
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Earthquake Japan	100	100	10
	1000	2000	50

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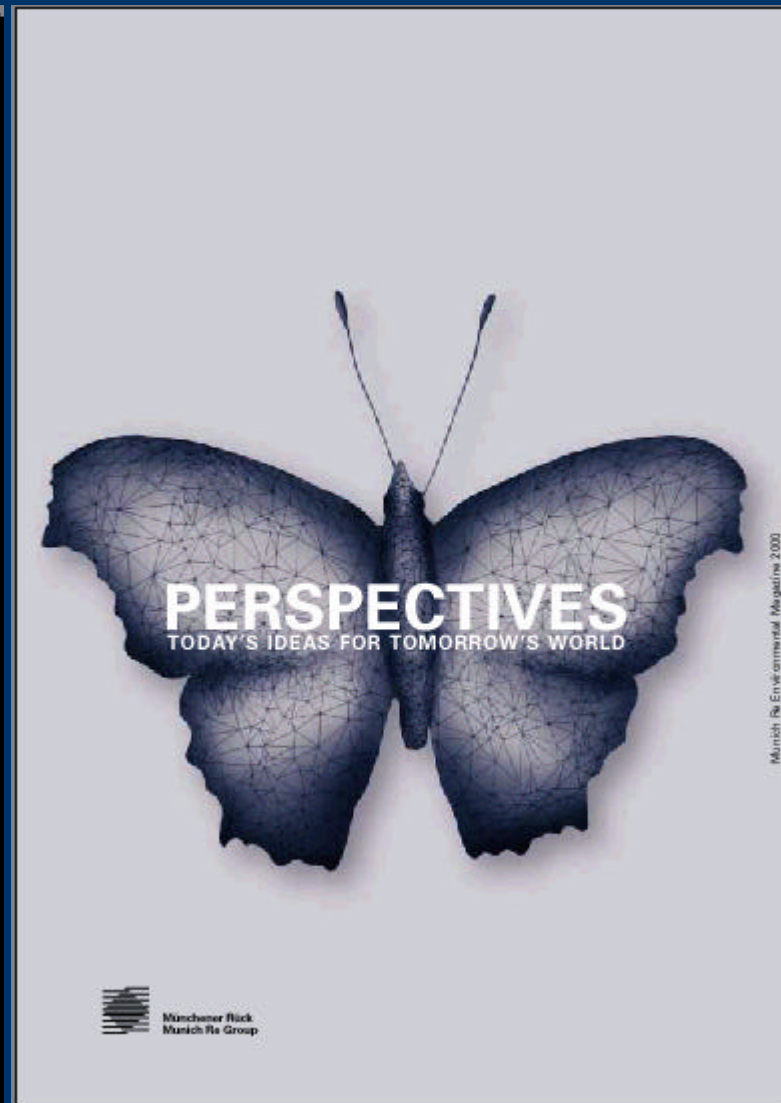
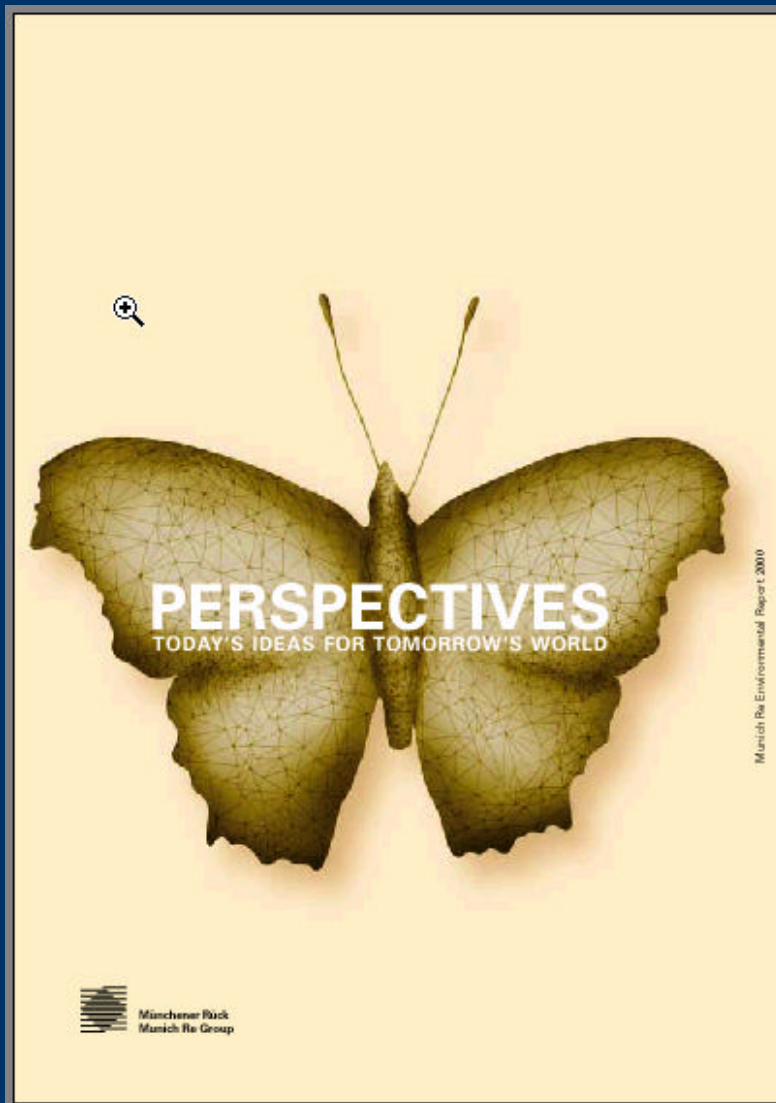
Insurance Tools

- ✍ **Adequate pricing**
- ✍ **Substantial deductibles,
based on the respective exposure**
- ✍ **Loss prevention**
- ✍ **Accumulation control**

- ✍ **Improved claims settlement**
- ✍ **Reinsurance, retrocession**
- ✍ **Liability limits**
- ✍ **Exclusion of certain hazards**
- ✍ **Exclusion of particularly exposed areas**

Lothar

Prestige



Vision Guiding principles Goals

1 OUR CLAIM

We build lasting value for our clients, shareholders and staff and for the wider society.

By constantly strengthening reinsurance business as a key group activity, we actively help to shape the future of the Munich Re Group.

Our independence is assured by the quality of our services and strategies.

We concern ourselves with today's great challenges – population growth, reducing resources, environmental pollution, climate change. From our knowledge of risk, we are competent to adopt positions on issues affecting society.

We think and act globally. We assume, manage and finance risks worldwide. By so doing, we contribute to social, economic and technological progress.

→ continue

Environmental Issues and Sustainability

Environmental conditions

Meet the Expectations of the Stakeholders

- **Shareholders**
- **Clients**
- **Rating Agencies**
- **Public Interest, Reputation**
- **Employees**

Environmental Issues and Sustainability

Important tasks (homework)

- **Loss potentials analyses** (incl. trends)
- **Insurance tools** (e.g. adequate premiums)
- **Asset Management** (DJSI, FTSE4Good etc.)
- **Housekeeping** (Certification etc.)
- **Real Estate Management**
- **Education**

Kyoto Protocol Support

Insuring the Mechanisms

Products can include:

- Business Interruptions
- Forest-/Agriculture projects (CO₂ sinks, yield)
- Buffer Insolvencies etc. (credit insurance, surety bonds etc.)
- Projects Financing (more an issue for banks)
- Others (Consulting, Trading, CO₂ Banking etc.)

What we need:

- => long-term political certainty on regulations (political risks)
- => clear values for GHG emission reductions (business plans)
- => active CDM-, JI-, ET World (spread portfolios)
- => strong rules and regulations (=> compliance regime)
- => good global consensus is an important prerequisite!

Thank you – questions ??

