Disaster Prevention
The last micrometer

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Chairman

DISASTER PREVENTION TODAY, LIVES SAVED TOMORROW
King's College London
Monday 3 October 2005

Munich Re Foundation
From Knowledge to Action

Disaster Prevention

Contents

Recent mega disasters
Disaster trends
Reasons
Optimizing disaster preparedness

Disaster Prevention

Tsunami Statistics

Country	Fatalities	Missing	Refugees		Losses	
				Share in Population (%)	US$ bn	Share of GDP (%)
India	10,881	5,792	647,599	0.1	1.5	0.3
Indonesia	126,732	93,662	533,770	0.3	4.7	2.3
Maldives	82	26	21,663	7.6	0.4	57.0
Sri Lanka	31,147	4,115	546,509	2.9	1.7	9.1
Thailand	5,395	2,932	58,552	0.1	1.3	0.9
Total	174,237	100,735	1,808,093	---	9.6	---

Source: World Bank (2005) - Update on the World Bank Response to the Tsunami Disaster, 2005-04-22
Exception: Thailand, governmental source

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Deadliest Natural Disasters 1900 - 2004
(excl. Droughts)

Date	Country/Region	Event	Death	Economic Losses (US$m)	Insured Losses (US$m)
12.11.1970	Bangladesh	Tropical Cyclone, Storm Surge	300,000	63	
27.-28.7.1976	China	Earthquake	242,769	5,600	
16.12.1920	China	Earthquake Landslide	235,000	25	
1. 9.1923	Japan	Earthquake,	142,807	2,800	590
July/Aug. 1931	China	Floodings	140,000		
26.12.2004	South Asia	Earthquake, Tsunami	>170,000	>10,000	>1.000
29./30.4.1991	Bangladesh	Tropical Cyclone	139,000	3,000	100
1971	Vietnam	Floodings	100,000		
1974	Vietnam	Floodings	100,000		

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Great Natural Disasters 2004

Date	Country/Region	Event	Fatalities	Economic losses (US$ m)	Insured losses (US$ m)
May	Haiti. Dominican Republic	Floods	2,000		
June-August	Bangladesh. India. Nepal	Floods	2,200	5,000	
August	Caribbean. USA	Hurricane Charley	32	21,300	7,900
September	Caribbean. USA	Hurricane Frances	39	10,000	5,400
September	Caribbean. USA	Hurricane Ivan	125	20,000	11,300
September	Caribbean. USA	Hurricane Jeanne	2,000	10,000	5,200
October	Japan: Niigata prefecture	Earthquake	29	28,000	450
December	South Asia. East Africa	Earthquake, Tsunami	>100,000	ca. 10,000	ca. 1,000

As at: 24. January 2005

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About Memory

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Almost forgotten
4 Hurricanes over Florida in 2004

Loss balance, total of all 4:

Total economic loss: US$ 62bn

Insured market loss: US$ 31bn

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Trends

October 2005 Münchener Rück Stiftung Loster 8

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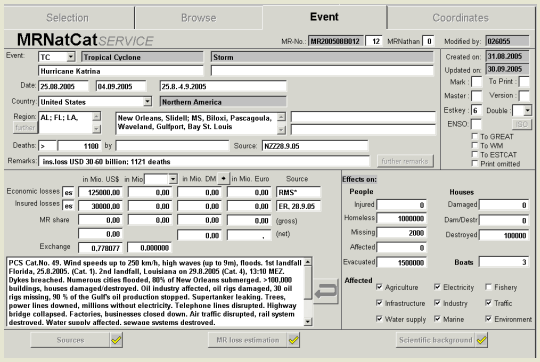
Data Entry NatCat*SERVICE*®



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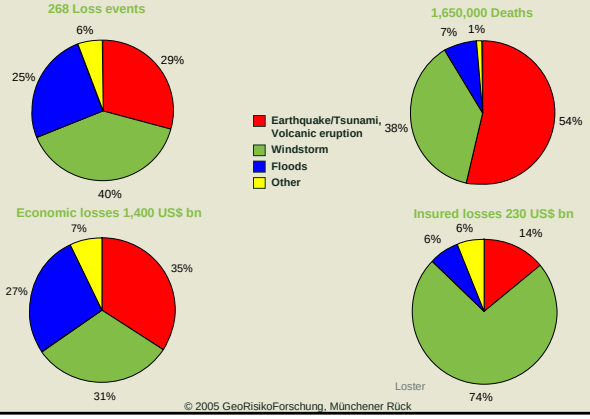
Great Natural Disasters 1950 - 2004
Percentage Distribution worldwide



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Great Natural Disasters 1950 – 2004
Decade comparison

	Decade 1950-1959	Decade 1960-1969	Decade 1970-1979	Decade 1980-1989	Decade 1990-1999	Last 10 1995-2004	Factor last 10: 1960s
Number	20	27	47	63	91	62	2,3
Economic losses	44,9	80,5	147,6	228,0	703,6	552,8	6,9
Insured losses	-	6,5	13,7	28,8	132,2	96,0	14,6

The comparison of the last ten years with the 1960s shows a dramatic increase

Losses in US$bn. – 2004 values

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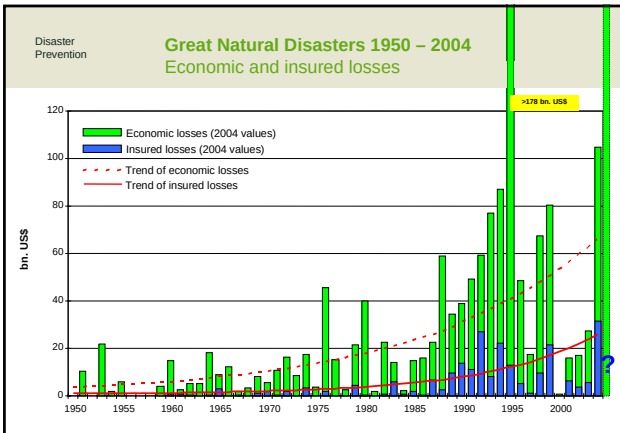
Great Natural Disasters 1950 – 2004
Economic and insured losses



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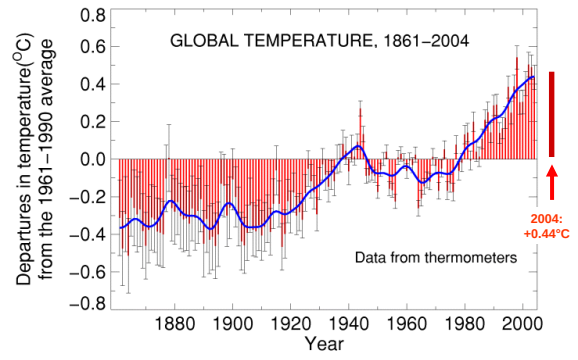
Global Mean Temperature (1861-2004)



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Recent Scientific Evidence

British scientists estimate, that it is very likely (confidence level >90%) that human influence has already at least doubled the risk of a heat wave exceeding the threshold magnitude of the European heat wave 2003 (Stott et al., 2004).

A recent model simulation for the North Atlantic suggests that climate change will intensify the maximum wind speed by 0.5 on the Saffir Simpson scale and precipitation by 18% in hurricanes until 2050 (Knutson et al., 2004).

A 2005 Nature publication by Emanuel, MIT, (Emanuel, 2005) shows for the first time that major tropical storms both in the Atlantic and the Pacific region have already increased since the 1970s in duration and intensity by about 50 percent. The projections are that this trend induced by global warming will continue in the future.

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Global Warming - Changing Risks

Increase in greenhouse gases

Increase in temperature air + sea
Increase in humidity

Increase in sea level

more extreme weather events

e.g. windstorms, hail storms, rain storms and drought

important for insurer:

- stronger events
- frequent events

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Coping Techniques
Example Insurance Industry

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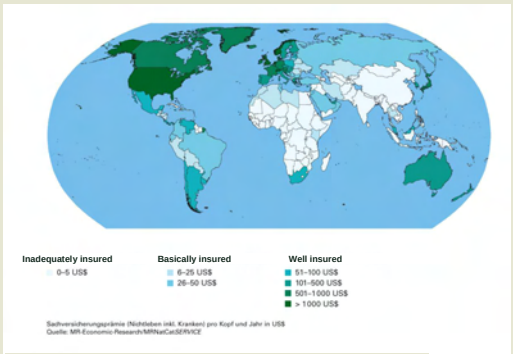
Insured and Uninsured World
Average Property Premium per Capita per Year



Average premium levels, property (non-life) per capita and per year in US$

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Focus Early Warning
The key?

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Forecast success!

For forecasting chief, no joy in being right

Max Mayfield strives for accuracy, but worries about complacency.

By TAMARA LUSH, Times Staff Writer
Published August 30, 2005

MIAMI - About an hour after Hurricane Katrina made landfall, forecasters at the National Hurricane Center were running on adrenaline and sugar. Few had slept much in recent days, if at all.

Director Max Mayfield's eyes were puffy, his voice slightly cracked from giving interviews to media outlets around the world.

"I don't even know what day it is," said Mayfield.

Mayfield and the team of forecasters in Miami had just achieved the near-impossible.

At 11 p.m. Friday, more than two days before Katrina reached land, the hurricane specialists said the hurricane would make landfall in the bayous of Louisiana, east of New Orleans. They pinpointed a town called Buras as the most likely place it would strike.

They were off by 18 miles. In the business of hurricane prediction, that's laser-beam accuracy.

"A superb forecast," Mayfield said.

It was not something to celebrate, any happiness gave way to melancholy.

"I hate to be bragging about that when there are people killed," he said.

Another worry of Mayfield's is that people will start to put too much faith in the hurricane center's forecasts and ignore warnings for other, nearby areas.

Source: http://www.sptimes.com/2005/08/30/State/For_forecasting_chief.shtml

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Awareness issues

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Why people did not escape
Some examples

- Underestimation (destructive power of the storm)
- Hope or set of beliefs
- Age
- Disability
- Fear of pilferage
- Inability to organize (e. g. large families)
- Lack of transportation
- Lack of willpower

Poverty

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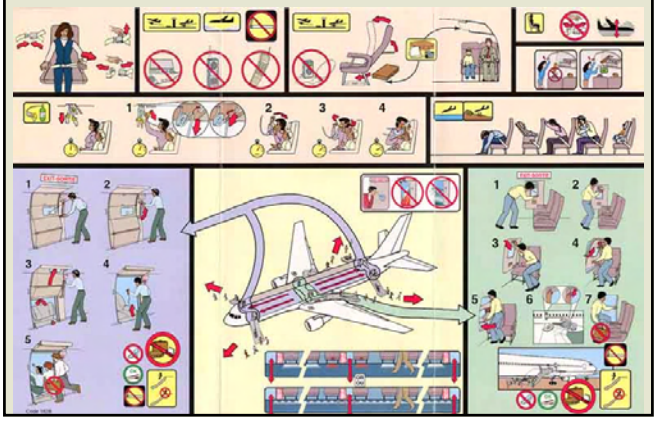
Airplane Safety Card



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Hotel Fire Escape

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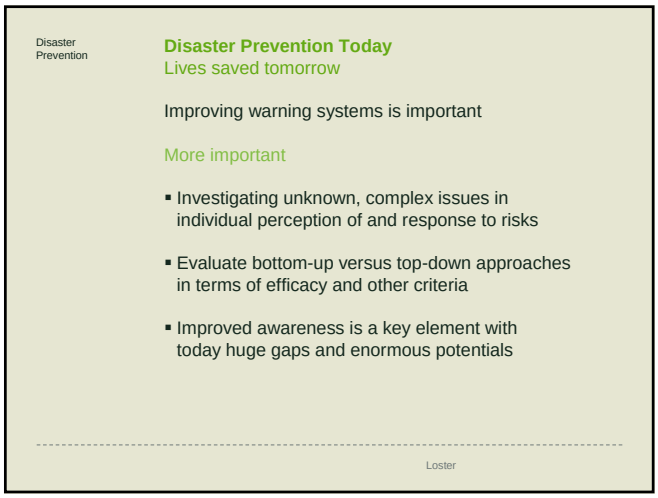
16 – 17 November 2005: Munich Re Foundation Symposium
Worldwide Disaster Prevention – Awareness is the Key

10:00 – 11:15	**Plenary** Welcome Address & Keynotes
11:15 – 12:45	**Plenary Presentations** Recent Mega Disasters – Setting the Scene
14:00 – 18:00	**Thematic Slot 1 – The Needs** Tailor Made Solutions for International Disaster Prevention, Awareness and Preparedness in the Developing World
Parallel Session 1 09:00 – 12:00	**Thematic Slot 2 - Strategies** Risk Management Solution Concepts and International Strategies
Parallel Session 2 09:00 – 12:00	**Thematic Slot 3 – Financial solutions** Financial Disaster Risk Management Solutions in Force - Lessons Learnt
Parallel Session 3 09:00 – 12:00	**Workshop** Disaster Assistance: Challenges, Innovations, Solutions at the Community Level
13:30 – 15:30	**Plenary Conclusion Session** Recommendation on the Most Urgent and Cost-Effective Options to Optimize Disaster Prevention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Disaster Prevention Today
Lives saved tomorrow
Improving warning systems is important
More important
▪ Investigating unknown, complex issues in individual perception of and response to risks
▪ Evaluate bottom-up versus top-down approaches in terms of efficacy and other criteria
▪ Improved awareness is a key element with today huge gaps and enormous potentials
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Thank you for your attention!
Come to our Symposium and support our work in this important field
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