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Sharing and shaping collective memory. The transforming perception of storm surges as regional geohazards in the mediated discourse on global warming.

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The topic of this conference is the global debate on climate change asking about the responsibility that stretches beyond national borders. In my presentation, I will focus on geohazards that usually appear in media reports as natural disasters. Already in early flyers, natural catastrophes received prominent coverage – and that has not changed until this very day.

Figure 1: Leaflet (Prague 1756): Earthquake in Lisbon 1755. (Source: <http://www.sciencz.de/magazin/upload/forschung8/Lissabon-Flugblatt.jpg>, 27.10.2009)



Climatic events concerning regional home territory are of major interest here. Yet, reports also include disasters that hit remote areas if they meet certain requirements of newsworthiness. The degree of media attention is determined by the resulting death toll, the extent of economic damage as well as whether or not celebrities or VIPs are amongst the victims. The media link these natural disasters to the regional or local context and view them generally as singular events. The majority of natural catastrophes, though, are by no means individual events. They are the manifestation of a regional geohazard that can strike again any time. Therefore, a geohazard has two dimensions: a historical one and one of perspective. Many of us cannot directly perceive the risks involved in climatic change. These are rather abstract issues belonging to the future and (seemingly) remote areas. People are hardly aware

of the impact that climate change has on their region. But differently: Regional climatic events or natural disasters are scarcely viewed from a global point of view. In this presentation, I will investigate (a) the role that the collective memory plays in the act of perceiving regional geohazards and (b) the function of the media in shaping the collective memory. A special focus will be on the changing localization of the causes of a geohazard in light of the current debate on climate change. How does a regional threat turn into a global issue?

Regional geohazards

The term ‘hazard‘ is closely related to the sociological notion of ‘risk‘ conceived by Ulrich Beck in his “*Weltrisikogesellschaft*” (World risk society) in 2007: “Risk is *not identical with* but the *anticipation of* a catastrophe”. A risk is not the event itself but denotes potential future events and the uncertainty of their taking place. The traditional reading of ‘risk‘ differentiates between two points of view. The mathematical formula employed by insurance companies calculates risk as the multiplication of probability and the amount of damage (Peters 1991). This formula provides the basis for decision-making as it helps to work out the likelihood of damage to occur as exactly as possible. This expert view is strictly separated from the non-expert view in which risk is not a category of probability but one of perception. Such subjective understanding can vary significantly from the ‘objective‘ expert assessment. The term “hazard”, however, unites these two components of risk and can be viewed as the mathematical addition of likelihood and perception (Petak/Atkisson 1982).

In geo-scientific terminology, regional geohazards cover extreme natural phenomena such as storm surges, floods, tsunamis, volcanic eruptions, earthquakes or avalanches. They pose a permanent threat to the society of a certain region. The severe earthquake recorded in 1755 acquired the status of a natural disaster because it destroyed Lisbon, Portugal’s capital.

Figure 2: Earthquake in Lisbon 1755 (Source: <http://www.spiegel.de/panorama/0,1518,grossbild-423855-335774,00.html> vom 27.10.2009)



If it hadn't had such an impact, the earthquake would have been perceived as a natural phenomenon. In actual fact, this catastrophe led to the beginnings of seismology. Furthermore, the very same disaster instigated the scientific investigation into the causes of it in order to prevent the recurrence of such disastrous events by way of making geohazards predictable. Simultaneously, special construction techniques had been developed to fortify buildings against earthquakes and to reduce possible damage. Additionally, this disaster proved to be a big chance for an individual player. Portugal's prime minister distinguished himself as a pragmatic manager of the crisis and in the wake of Lisbon's reconstruction he became the actual ruler of Portugal – the traumatized and claustrophobic king had placed the country's reign into the prime minister's hands. So, the catastrophe leads to political changes, too.

Next to the regional concern of actual effects and a latent threat, a regional geohazard can be characterized by further features (Neverla 2009, Ratter 2009):

- a) physio-geographic events and circumstances
- b) non-linear and circulating human-nature interaction
- c) uncertainty and imperfect predictability due to complexity
- d) key event: a traumatic encounter and the collective remembrance of it

The permanent threat to the region is, first and foremost, rooted in specific physio-geographic events and circumstances. For instance, Japan's specific location puts it under a permanent

threat of being hit by earthquakes. Regional geohazards are also a particular form of human-nature interaction. One precondition is mankind's settlement in an endangered region despite their knowing of the potential threat. For one thing, the settlers put themselves deliberately at risk. At the same time, humans use their natural surrounding and turn it into a cultural environment. In so doing, (wo)man interferes with the eco-system and changes the conditions that cause geohazards. After having been struck by a natural disaster, society develops certain strategies to overcome the catastrophe and takes precautionary measures which impact the eco-system just like the cultivation of landscape mentioned above. What is new is the awareness of the global inter-connectivity of events as reflected in the question of the influence that rising sea levels and global warming have on the increasing probability of geohazards like storms and gales to take place.

Each individual event is extra-ordinary and surprising. The hazard, however, results from the fact that such an event can happen again any time. The collective experience makes its recurrence likely but not predictable in exact terms.

(Wo)Mankind's strife towards lessening the catastrophic effects of a geohazard and controlling the damage by trying to make exact predictions on such events has led to an increasing body of scientific knowledge. In the early days, people mystified extreme climatic phenomena and read them as a sign of God's retribution for their sins. Later, scientific progress gave people at first the feeling to have triumphed over nature. At the same time, the non-linearity of human-nature interactions and the complexity of the respective interplay reduce the chances of predicting an event. Additionally, various scientific opinions contradict each other. Beck (2007) perceives today's paradox this way: The steady increase of knowledge and the simultaneously contradicting expert opinions about the category of risk lead to a loss of differentiation between the categories of knowing and not knowing. The certainty of (a) knowing the absolute truth and (b) achieving objectivity via natural science has split into a number of relative truths. Both unpredictability and uncertainty with respect to a geohazard are still around today despite more knowledge. They actually result from this modern form of more knowledge.

Perceiving a threat is determined by a key event, a collective traumatic encounter. The traumatic impact is not rooted in the event itself but in its effects on our lives. Such an event only strikes people as a geohazard, if it has happened before or when people become aware of

its potential for recurrence while coming to terms with the event. The resulting understanding of the permanent threat then leads to precautions or strategies to solve the problem. Geohazards have, firstly, a particular *spatial reference* through (a) the local and current effects and (b) the specific geographical context. Secondly, they have a particular *time reference*, which (i) refers to the past via the recollection of the traumatic event, (ii) looks ahead by anticipating future events and (iii) remains present in our conscience to ultimately change our practices. The public debate on regional geohazards is characterized by the circular and interactive connection between (a) scientific knowledge, (b) political and administrative knowledge and action, (c) media construction and processing of scientific and political knowledge, and (d) public awareness and interpretation.

Storm surge

When a storm surge hits the coast it causes the sea level to rise above normal. There is a connection between this event and *normal tidal action*. Currently, the links between the increase of frequency and magnitude of storm tides and global climatic changes are being discussed but have not been clearly established so far. At the eastern and southern coasts of the United States storm surges are generated by tropical storms called hurricanes. Similar phenomena are typhoons threatening Pacific coasts and islands as well as cyclones causing havoc in South East Asia.

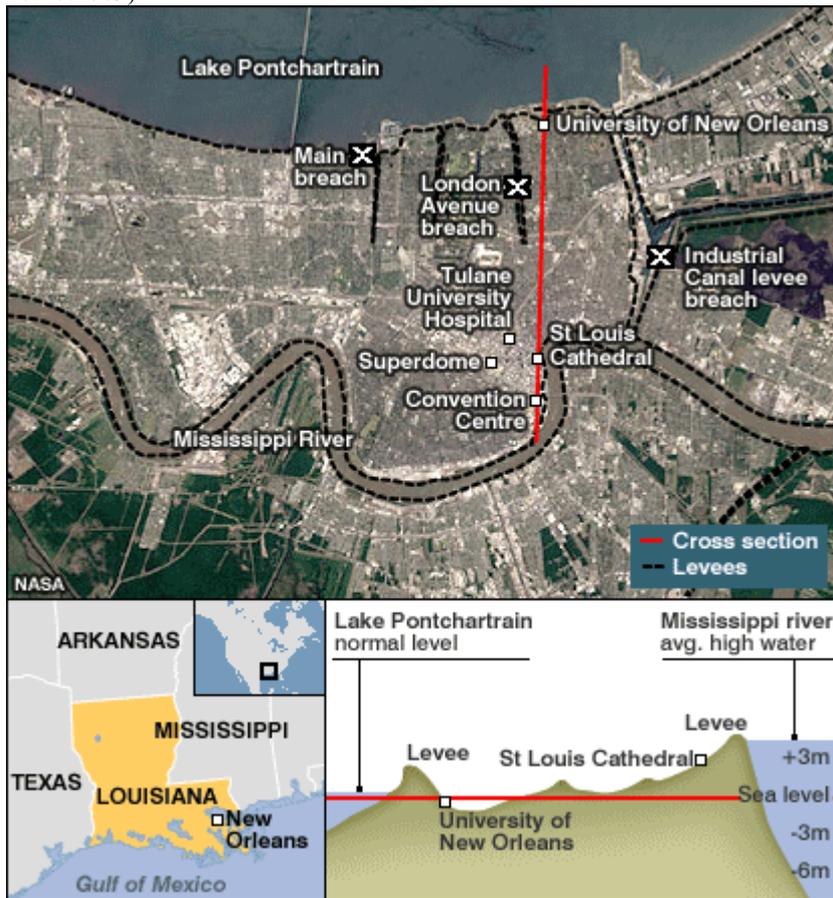
Katrina 2005

Figure 3: We were warned? New Orleans is sinking! (Source: http://www.greatdreams.com/weather/hurricanes_2005-page2.htm, 27.10.2009)



On August, 29 in 2005, hurricane Katrina hit the south-eastern parts of the USA claiming 1,800 lives and causing a damage of roughly 81 billion US dollars. New Orleans was affected most. After two dikes had broken, 80 per cent of the city was flooded and the entire city had to be evacuated.

Figure 4: Geography - New Orleans (Source: http://www.greatdreams.com/weather/hurricanes_2005-page2.htm, 27.10.2009)



Located in the Mississippi Delta between the river in the south and Lake Pontchartrain in the North, the city was built on drained swamps with 70 per cent of it lying below sea level. Furthermore, New Orleans is exactly situated in a hurricane-prone area and the local population does know about the potential danger.

Bangladesh 1991

In April 1991, an extraordinarily fierce cyclone hit the coast of Bangladesh killing over 100,000 people.

Figure 5: Bangladesh 1991 (Source: <http://uprisingradio.org/home/?p=2146>, 27.10.2009)



Bangladesh is one of the world's poorest nations. The greater part of it is situated in the delta of three rivers: the Brahmaputra, the Ganges and the Meghna.

Figure 6: Geography – Bangladesh (Source: <http://www.uwec.edu/jolhm/eh2/molnar/path.htm>, 27.10.2009)

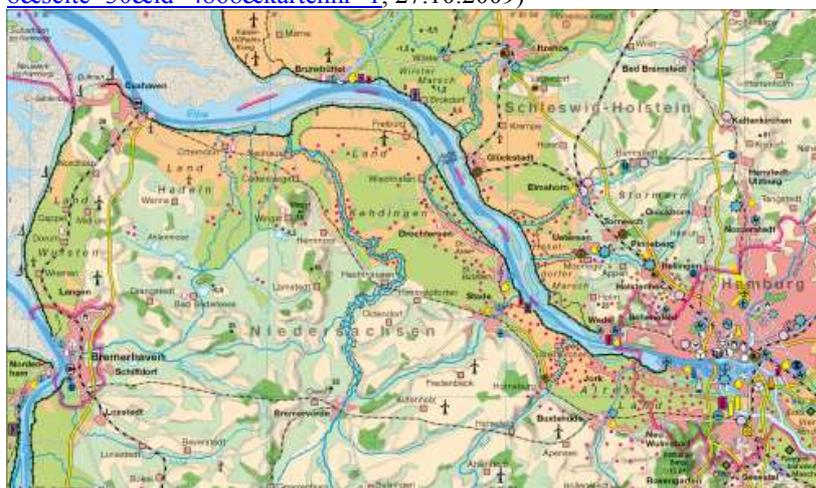


This bottomland has a sub-tropical climate. It is a densely populated area where farmland – mainly rice fields – took the place of the region's silva. Bangladesh has frequently been hit by cyclones with a generally high death toll.

Hamburg 1991

The coast of the North Atlantic Sea, too, is at the highest geophysical risk of storm surges. A series of many historical disasters has deeply engraved the ever-present peril into the collective memory and practice of the coastal population. But not only the immediate coastal region, Hamburg (a big city in the North of Germany), too is at the risk of being struck by storm tides.

Figure 7: Geography – Hamburg (Source: <http://www.diercke.de/kartenansicht.xtp?artId=978-3-14-100700-8&seite=30&id=4868&kartennr=1>, 27.10.2009)



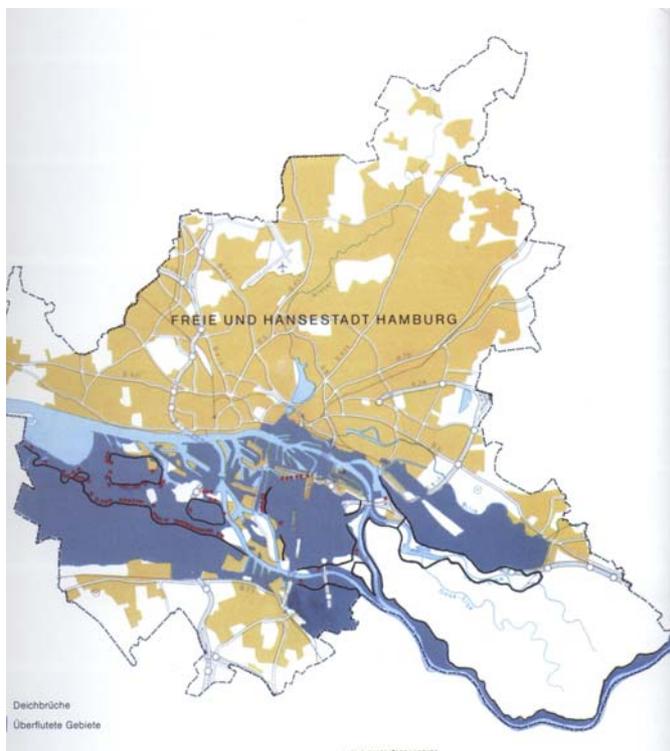
This appears to be a paradox since Hamburg is approximately 130 km away from the coast and located at the estuary of the river Elbe. Hamburg's history is dotted with storm surges causing considerable damage. Yet, for a hundred years, between 1855 and 1962, no geohazard struck. When the big storm tide flooded Hamburg in the night between the 16th and 17th of February 1962, the city was not at all prepared for this.

Figure 7: Crevasse (Source : Eismann/Mierach 2002: 13)



The dikes broke over 60 times along a stretch of 2.5 km. Roughly one sixth of Hamburg was deluged and the resulting damage totalled approximately three billion deutschmarks.

Figure 8: Flood plain and crevasse's location 1962 (Source: Eismann/Mierach 2002: 16)



More than 20,000 people had to be evacuated and 315 people died (Eismann et al. 2002). Again, the major victims were the socially disadvantaged. 17 years after the end of World War II, Hamburg bore still signs of the many bomb attacks it had suffered during the war, and most of the displaced lived in Hamburg-Wilhelmsburg – a low river island.

Figure 9: Wet death was a near thing! (Source: Eismann/Mierach 2002: 17)



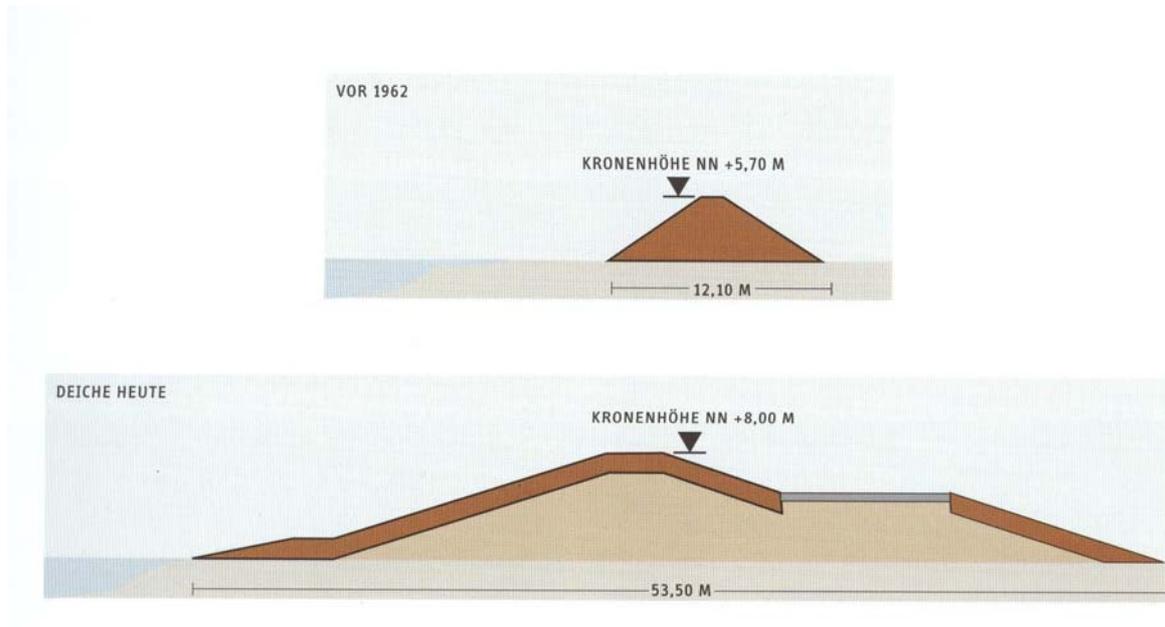
Figure 10: Wilhelmsburg: allotment settlement (Source: Eismann/Mierach 2002: 30)



In an allot settlement, many refugees had been housed in huts near the river banks and thus lived in a particularly dangerous area. But for lack of a respective historical tradition they had not been conscious about the perils of a storm surge.

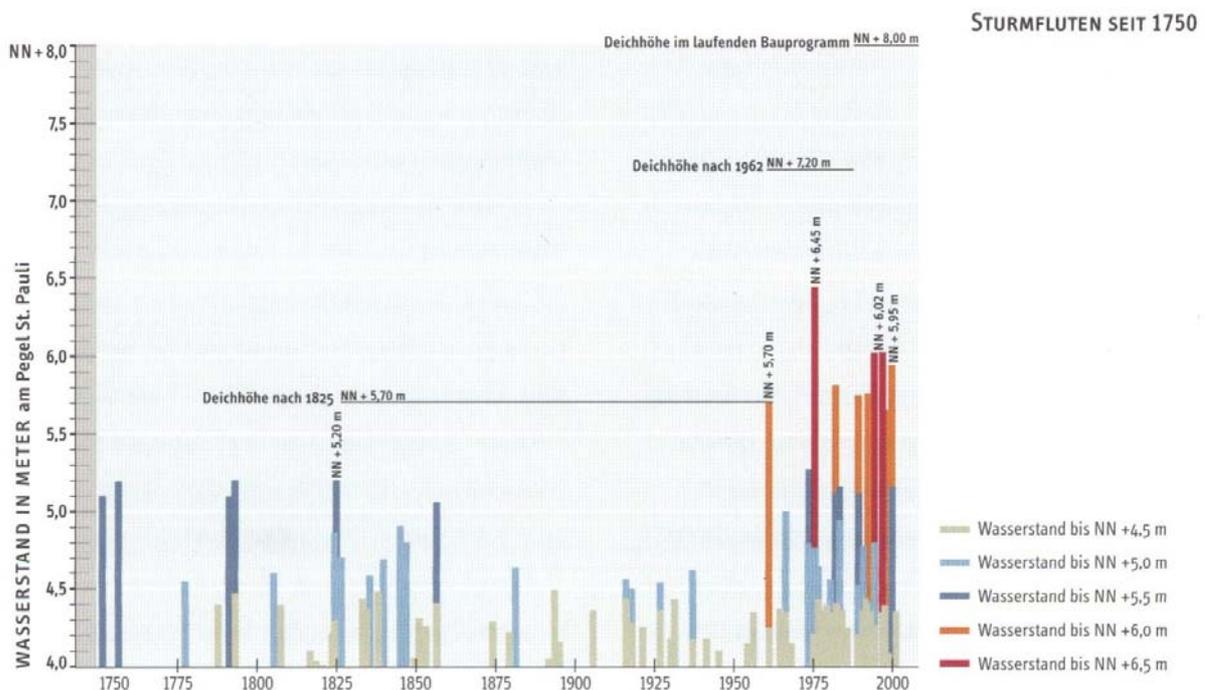
The 1962 flood was a traumatic experience for Hamburg and simultaneously made the citizens aware of the city's permanent risk of being flooded. Hamburg's State Governor of the Interior and later Chancellor of the Federal Republic of Germany (FRG) Helmut Schmidt, distinguished himself as a pragmatic manager of the crisis. He attained a high reputation. In particular, Schmidt incorporated the German Federal forces in the rescue operations so that the *Bundeswehr* acquired the status of a "humanitarian aid organisation". Furthermore, Schmidt called for help on the NATO and thus included the international community of states in the relief efforts. After the catastrophe pragmatic and technocratic measures were taken. Since 1962 the government has invested massively in coastal protection and has built higher dikes. Also, the population was no longer permitted to live behind the dike protection lines.

Figure 11: Principles of dike construction before 1962 and today (Source: Eismann/Mierach 2002: 40)



After 1962, Hamburg experienced a sharp increase in the number of storm surges.

Figure 12: Hamburg: Storm floods 1750 to 2000 (Source: Eismann/Mierach 2002: 105)



In 1976 the city was struck by a storm surge again, this time with an even higher water level than 1962. But the newly erected dikes held and only little damage was recorded. Despite both the frequency and increasing intensity of storm tides, Hamburg's citizens developed a sense of absolute safety (von Storch et al. 2006). This self-assurance is so well established that Hamburg dropped its earlier policy of disallowing living and working quarters built behind the dikes. 1997 Hamburg's *Buergerschaft* (or parliament) decided to develop new

quarters in the Hamburg port area and named it accordingly: “HafenCity” (PortCity). Since then, this big and prestigious construction project is under way and has already been partly completed and populated. However, the risk of flooding has not been ignored in this project and in actual fact, the methods applied do not “fight against the aquatic force of nature” but virtually “go with the tide”: Instead of erecting dikes and walls, the principle of constructing wharves or artificial hills is being applied.

Media coverage on Hurricane Katrina 2005 and Bangladesh Cyclone 1991

Media reports on Katrina have already gained scientific attention (Tierney et al. 2006, Robinson 2009, Manning 2008). The US-American media predominantly covered the civil unrest in New Orleans and exaggerated the extent and degree of looting and lawlessness enormously. Journalists requested strict social control and effective incorporation of the armed forces in the disaster management. Tierney et al. (2006) interpret this mainly as an indication of (a) militarism being greatly significant in US-American ideology but also (b) the myth that a catastrophe is generally accompanied by pillage, social disorganization and aberrant behaviour. This myth, Tierney et al. argue, is taken up and up-dated by the media. Another explanation for this media frame relates to the fact that the victims were mostly poor and black people. Sociologists rate this as a sign of latent racism (Manning 2008), whereas Robinson (2009) points out that the disaster became catastrophic only through the inadequate crisis management at the national, regional and local level. The debate on the money that has not been invested in coastal protection was linked to the question on the appropriateness of the expenses of the war on Iraq. During the Katrina debate the first large demonstrations in Washington against the war took place in September 2005. Robinson further suggests that Katrina has been made a sensational media event. Media reports at its first anniversary elaborated the disaster and placed it in the collective memory. National and regional media framed the geohazard quite differently. At the national level, the media drew on national ideals. The event (or point) of reference was the terrorist attack 9/11. In particular, the governor’s personal failure to deliver was emphasized and the root of the catastrophe considered to be his incompetence. There was even a discussion on whether or not to give New Orleans up as living quarters due to its critical location. At the local level, however, local interests lead to the *local* core message: “We will rebuild”. Historical points of reference for crisis management were earlier hurricanes. Particularly prominent players became *individual heroes*. “Mother Nature” was explored to unearth the roots of the disaster and the media chose religious principles and beliefs to frame their coverage. Nevertheless, both perspectives tried

to strengthen the community spirit and to build a collective identity via the perception and digestion of the catastrophe. According to the existing studies of Katrina, US media did not link this geohazard to global climate change. Yet, the US-American *Time Magazine* of 3rd October 2005 entitled its lead article “Are we making hurricanes worse?” and discussed the influence of global warming on the increased frequency of regional geohazards. Whether this is a singular occurrence or not, cannot be established here.

Figure 13: *Time*, Oktober 2005



Media studies have also focused on the cyclone that struck Bangladesh in 1991. For instance, Dove & Khan (1995) researched the media coverage on the cyclone within both the Bengal and international context. The international perspective revealed that the cyclone’s disastrous impact was primarily rooted in poverty and social inequality which compel people to settle in perilous areas. From the Bengal point of view, though, the researchers at first emphasized the inevitability of this natural phenomenon. The Bengal media considered the country’s limited resources as the main cause of the catastrophe. In the early nineties and from the Bengal perspective, the media linked the cyclone to global warming and greenhouse effect. Since, these factors stem predominantly from the emissions caused by the industrialized countries, the focus shifts from internal to international structural problems and inequality. The climate

frame of the media coverage on the Bangladesh cyclone is predominantly employed to pass the responsibility for its disastrous effects to the international community.

Media Coverage on Hamburg 1962

The project called “StarG – Storm surges as regional Geohazards” examines the question if the collective memory of the 1962 storm tide has changed in connection with the current debate on climate change. One part of this project will be presented here. It employed the method of a long-run discourse analysis to investigate the reports in the *Hamburger Abendblatt*, a regional daily. In this exploratory pilot study, a number of categories are being established for a subsequent quantitative content analysis of the coverage in other media. Although still at an early stage, a number of important insights can be drawn from the study. The following types of occasions for remembrance were defined:

- (1) Memorial days/anniversaries celebrated every fifth year + first anniversary (10 occasions)
- (2) Historical contextualization: severe storm tides in Hamburg after 1962 (11 occasions)
- (3) Historical analogies: storm surges abroad: (4 occasions: the cyclone in Bengal/Pakistan in 1970 and Bangladesh in 1991, hurricane Katrina 2005 and the tsunami hitting Thailand in 2004)

All in all, 25 memory occasions could be defined that had taken place between 1962 and 2007. In 2002 and 2007 doublings occurred. A special position here takes the 2004 tsunami since it is a different type of event than the other occasions: Tsunamis do not result from storms and gales but from seaquakes. Yet, the fact that they have similar effects like storm tides secured this type of geohazard a place in this study.

Figure14: Time course: Occasions for remembrance (yellow: anniversaries, blue: analogies, red: severe storm floods)

1962	NN + 5,70 m
1963	1 Jahr
1964	
1965	
1966	
1967	5 Jahre
1968	
1969	
1970	Bengalen/Ostpakistan
1971	
1972	10 Jahre
1973	NN + 5,33 m
1974	
1975	
1976	NN + 6,45 m
1977	15 Jahre
1981	
1981	NN + 5,81 m
1982	20 Jahre
1983	
1984	
1985	
1986	
1987	25 Jahre
1988	
1989	
1990	NN + 5,75 m
1991	Bangladesch
1992	30 Jahre
1993	NN + 5,76 m
1994	NN + 6,02 m
1995	NN + 6,02 m
1996	
1997	35 Jahre
1998	
1999	NN + 5,74m
2000	NN + 5,95
2001	
2002	NN + 5,26m / 40 Jahre
2003	
2004	Tsunami
2005	Katrina
2007	45 Jahre / NN + 5,40m

We sampled different *Hamburger Abendblatt* issues that appeared over a period of two weeks around the memory occasion: Counting started one week before and end one after a particular anniversary – in order to follow its preparation – and two weeks after the event with all the other occasions since we had no way of predicting their occurrence. We included articles that had or mentioned one (or more) of the following topics: (1) the 1962 storm tide, (2) storm surges in general, (3) the respective memory occasion and (4) climate change.

The articles related to the analogies make up 52 % of the entire sample and are thus greatly over-represented in relation to the number of occasions. This is because there is one prominent event. The 2004 tsunami had been covered in the same year by 206 newspaper articles. Consequently, this particular event received the highest media attention in Hamburg over the entire investigation period and thus topped the 172 articles written in 1962 on the storm tide.

Results

Of the altogether 568 newspaper articles, 142 topicalized on the 1962 storm surge or mentioned it. Climate (change) was either the major concern of or mentioned in 14 articles all around the memory occasions. Coastal protection did not feature as a selection criterion here. In a first viewing of the entire material this topic proved to be extremely important as it was the central issue of 32 newspaper articles.

Figure 15: Topics in the course of time (yellow: anniversaries, blue: analogies, red: severe storm floods)

Year	Date	Total	1962	Climate	Coastal defence
1963		8	8		2
1967		0			
1970	12.11.	6	1		
1973	7.12.	9	4		1
1972		8	7		1
1976	3.1.	71	27		8
1977		0			
1981	24.11.	22	6		5
1982		18	18		
1987		28	28		3
1990	28.2.	6	3	2	
1991	29.4.	11		1	
1992		6	5	2	
1993	23.1.	10	1	2	2
1994	28.1.	13	2	1	3
1995	10.1.	10	3		3
1997		8	7		
1999	5.2.	13	4	1	1
2000	31.1.	7		1	2
2002	29.1.	7	1		
2002		15	13		1
2004	26.12.	206	2		
2005	28.8.	73	1	4	
2007		1			
2007	9.11.	12			
		568	141	14	32

Figure 16: Topics and memory occasions (It was possible to find more than one topic in each articles. This is the reason why the addition of percentages does not count 100 %)

Occasion	Remembrance 1962 (Main topic or reference)	Climate (Main topic or reference)	Coastal defence (Main topic)	Total Articles
Anniversaries	85 (in 95 %)	2 (in 2 %)	7 (in 8 %)	92 (100 %)
Severe storm floods	52 (in 29 %)	7 (in 4 %)	25 (in 14 %)	180 (100 %)
Analogies	4 (in 1 %)	4 (in 1 %)	/	296 (100 %)
Total	141 (in 25 %)	14 (in 3 %)	32 (in 6 %)	568 (100 %)

The articles constantly revealed the following patterns, independent of the memory occasion:

- Information about type and extent of damage and service
- Efficiency of crisis management
- Importance of players: Helmut Schmidt and the *Bundeswehr*
- Comparison of 1962 with
 - (a) subsequent storm tides in order to (i) show the effectiveness of the construction measures to protect the coast, (ii) instil a sense of safety in the population and (iii) prove political competence in decision-making
 - (b) the plight of the victims of similar events in order to ask Hamburg's citizens for donations
- the decrease in media memory of the 1962 events in the context of political decisions

The memory of the 1962 storm surge was particularly present in the articles published on the yearly returns of the day (or rather night). Yet the rhythm changed. In 1967 and 1977 (5th and 15th anniversary) the event was not at all mentioned, whereas the geohazard's 20th and 25th anniversary (1982 and 1987 respectively) received particular attention. From 1982 until 2002, every fifth year specials covered this event on several pages with testimonies of contemporary witnesses. However, over the years the media coverage declined. Public attention for the storm surge peaked for the last time on its 40th anniversary in 2002 and that was the temporary end of the event being covered. On the 45th anniversary, in 2007, the newspaper saw no mention of the geohazard. Instead, on the 16th February (the exact date of the anniversary) people could read an article about the situation in Thailand three years after the tsunami had struck in 2004. This clearly suggests that the collective memory is not only tied content-wise to a certain event but also to its particular date. The reasons why the media fail to cover an event on the date of its yearly return could be seen in an overall waning attention induced by disappearing risk awareness. Furthermore, over the course of 40 years a gradual

generation break took place. Finally, two recent urban development projects in Hamburg – building the *HafenCity* (new living and working quarters in Hamburg’s port area) and enhancing Hamburg’s river island *Wilhelmsburg* to cater for a growing city– ran counter to any political motivation to keep the disastrous memory alive.

With every subsequent severe storm tide the readers were reminded of the 1962 event. Referring back to it, the press employed the geohazard to show how effective the building operations were and that Hamburg and its citizens are safe in the event of even higher water levels.

The only disaster without references made to 1962 was the 1991 cyclone. Here, as was in 1970, the press reported on the event but to a considerably lesser extent than on hurricane Katrina and the tsunami in Thailand. Both catastrophes became important media events – also in Hamburg. Except for 1991, the reports appealed to the population for funds by reminding them of their own experiences in 1962. Many Europeans and around 500 Germans were amongst the victims trapped in Thailand’s “tourist paradise”. There was such a high death toll amongst Scandinavian tourists that Finland and Sweden perceived the tsunami as one of the severest national catastrophe since World War II (Kivikuru 2009). Thus, if fellow country(wo)men fall victim to a spatially remote disaster then this event moves closer and becomes *regionalized*.

The articles on *climate change* also refreshed the memory of the 1962 storm surge. From 1990 onwards, the climate frame appears in reports on storm tide reports or in the respective context. Note the temporal connection between the publication of the IPCC [Intergovernmental Panel on Climate Change] reports in 1990 and 1995 (Neverla 2008) and the quick succession of four catastrophic storm surges that took place in 1991, 1993, 1994 and 1995.

Figure 17: Combination: Climate frame, IPCC-reports und political decisions towards urban development (yellow: anniversaries, blue: analogies, red: severe storm floods)

Year	Date	Total	1962	Climate	
1990	28.2.	6	3	2	
1991	29.4.	11	0	1	IPCC 1
1992		6	5	2	May 90
1993	23.1.	10	1	2	
1994	28.1.	13	2	1	
1995	10.1.	10	3		
1997		8	7		IPCC 2
1999	5.2.	13	4	1	Dez 95
2000	31.1.	7		1	
2002	29.1.	7	1		
2002		15	13		IPCC 3
2004	28.8.	206	2		Feb 01
2005	26.12.	73	1	4	
2007		1			
2007	9.11.	12			IPCC 4
					May 07
		398	42	14	

It appears that global warming is becoming the logical explanation of this unusually high number of storm surges – it is only one of many possible answers, though.

Before the climate debate began, scientists identified another factor for the rising risk of storm tides. Extended coastal protection increases the tidal range. Additionally, the water cannot drift freely but is caught up between the dikes and pushed upstream in the event of a storm tide. This in turn leads to higher tidal waves and thus more hazardous storm surges. Over the last decades, this discussion has received a fair amount of attention in the *Hamburger Abendblatt*, though not so much as a discourse on *hazardous* matters but on *environmental* issues. Climate change represents more of a new facet complementing the environmental frame and adding a global perspective. But after the turn of the century, climate ceased to be relevant for media coverage despite the high numbers of storm tides. When the last storm surge struck in November 2007, climate change did not feature in our sample although already in May 2007 the 4th IPCC report had been published. Rather, it was more important to report that the newly built *HafenCity* had successfully defied its first storm tide without any damage whatsoever. Hurricane Katrina, though, was covered by four articles that embraced the discussion on climate change – and here the climate debate came out strongest.

Conclusion

Research on Katrina 2005 and Bangladesh 1991 demonstrates what the media discourses about the connection between nature and society cover in the first place: the significance of religion and fatalism, technocracy and crisis management as well as political dimensions and the employment of the armed forces. Media reports on regional geohazards indicate social structures and significant social institutions. At the same time, they point to the prevailing ideologies and values of a particular society. The same holds for the regional media coverage on the 1962 storm surge in Hamburg. Here, we can also observe the change in people's awareness of a potential geohazard. Especially generation alterations push the key event aside. Other causes are the political and economic interests pursued by individual players. Linking climate change to a regional geohazard can result in the transforming perception of risk and can promote the regional event to a global level. This happens when the long-term topic climate change clashes – for instance caused by the publication of IPCC reports – with the commemoration of a traumatic key encounter. Depending on the regional experiences of subsequent disasters and interests, the globalization of regional geohazards, however, works only temporarily.

Nevertheless two questions will remain unanswered for now: (1) How does the population of an affected area remember natural disasters? (2) Does their perception of the regional effect of climate change agree with the respective media coverage? A representative survey of 500 Hamburg residents shows the following differences: In April 2008, 61 % of Hamburg's population considered climate change a severe if not highly severe threat to their home town. 83 % perceived storm tides as natural disasters with the worst possible impact on Hamburg (Ratter 2008). In November 2007, only a few months before this survey was carried out, the last storm surge had struck Hamburg. Already in a study carried out one year after the first survey, ie in April 2009, the number of locals viewing climate change as a serious or even very serious threat to Hamburg dropped to 53 % (Ratter 2009) – in 2008, no storm tide had taken place here. Caused by the loss of a contemporary experience combined with the advent of the global financial crisis, the population became aware of other risks instead, and climate change lost its relevance. Thus, the findings of this study signal a discrepancy between media reports about potential risks and people's awareness of perils. This certainly needs further scientific inspection.

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