15324 HS – Security Dangers and Concerns. Global threats, challenges, vulnerabilities and risks and regional impacts

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Contents

1. Focus & Structure of the Seminar

- What do we mean with sSecurity?
  - Security of whom?
  - Against what?
  - By which means?
- What are and poses security dangers & concerns?
- What are threats, challenges, vulnerabilities & risks for international, national, environmental and human security?

1.1 Topicality of the Topic

- What is the major threat to security?
  - In U.S.: threat of terrorism & WMD; declared national security legitimizes military action: Iraq, Afghanistan
  - In Europe: Terrorism & Global Climate Change:
    - IPCC: 4th Assessment Reports: 4 books (2007)
    - Nobel Peace Price: IPCC & Al Gore
    - German EU and G-8 Presidency: climate change
      - WBGU: Security Risk Climate Change
- Objective security threats vs. subjective concerns
  - Objective Dangers: Military potential, intention & action
  - Subjective Concerns: Perception
  - Intersubjective: Assessments

1. 2. Criteria of participation & deadlines

- Web: http://www.afes-press.de/html/fu_berlin.html
- Download: material & questionnaire
  - **Fill in the questionnaire and return it by Email to: brauch@onlinehome and thus formally register:**
  - **Give three options for a seminar paper (Referat)**
  - Registration is possible by Email until: 15 December 2007
- Seminar Criteria
  - **Regular pariticpation (all but 2 sessions)**
  - **Oral presentation also for Teilnahmeschein (no free riders)**
  - **Seminar paper (c. 20 pages): on topic of oral talk**
- Withdrawal is possible until 15 December 2007
- Final seminar plan will be on the web at 20 Dec. 2007
  - **All rules of modular BA, MA. MA IB apply**
  - **Deadline for paper submission: 30 April 2008**
  - **Nonmodular & other: submission dates: 30 April & 1 Oct.2008**

1.3. Research & Dialogue Context of the Seminar

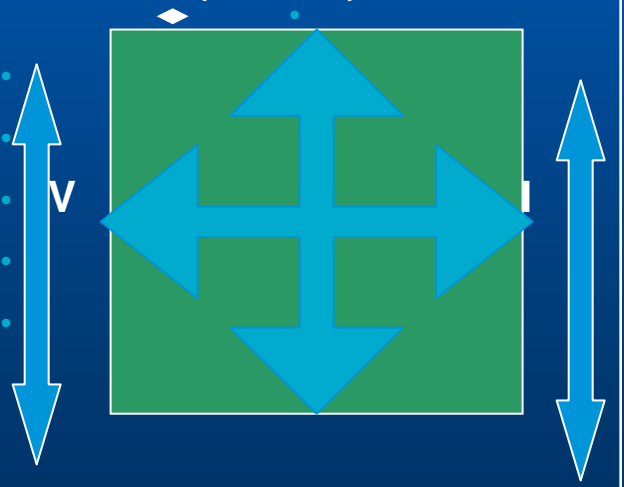
- **4th Phase of Environmental Security Research:**
  - Research project**: funded by Berghof Foundation for Conflict Research**
  - Dialogue project: **International conferences with a focus on the Mediterranean sponsored by NATO**
    - **Canterbury (2001), The Hague (2004), Istanbul (2005)**
    - **Talks at international conferences: agenda-setting**
  - Publication project: **volumes in Hexagon series**
  - Teaching project: **Graduate Seminars at OSI:**
    - **See old bibliographies**

2. Security Concepts: Dangers and Concerns

- Arnold Wolfers (1962), US of Swiss origin, realist pointed to two sides of the security concept:
- "Security, in an objective sense, measures the absence of threats to acquired values, in a subjective sense, the absence of fear that such values will be attacked".
- Absence of "threats": interest of policy-makers
- Absence of "fears": interest of social scientists, (contructivists): "Reality is socially constructed"
- Iraq case: WMD: "subjective fear" vs. "lack of objective threat"

2.1. Conceptual Quartet: Security Concepts in re-lation with peace, environment & development

Pillars & linkage concepts within the quartet

IR research programs	Conceptual Quartet	Conceptual Linkages
• Peace Research • Security Studies • Development Studies • Environment Studies 4 conceptual pillars • I: *Security dilemma* • II:*Survival dilemma* • III: *Sust. developm.* • IV: *Sustain. peace*	Peace — Security • ***I**: Security dilemma*  ***IV*** Developm. ⟷ Environm. ***III:** Sustainable development*	• Policy use of concepts & Theoretical debates on six dyadic linkages • **L1:** Peace & security • L 2: Peace & development • L 3: Peace & environment • L 4: Developm. & security • L 5: Devel. & environment • L 6: Security & environm. [six chapters reviewing & assessing the debates]

2.2. Widening of Security Concepts: Towards Environmental Security

4 trends in reconceptualisation of security since 1990:

- Widening (dimensions, sectors), Deepening (levels, actors)
- Sectoriaisation (energy,food,health), Shrinking (WMD, terrorists)

Dimensions & Levels of a Wide Security Concept

Security dimension⇒ ⇓ Level of interaction	Military	Politi-cal	Economic	Environ-mental ⇓	Societal
Human individual ⇒			**Food/health& water sec.**	Cause & Victim	**Food/health & water sec.**
Societal/Community				⇓⇑	
National	In Cold War, US since 2001: Shrinking		Energy security	⇓⇑	
Internat./Regional				⇓⇑	
Global/Planetary ⇒				GEC	

2.3. Five Security Dimensions and Four Security Dangers

Scurity Dimensions➡ ⬇ Security Dangers	Military	Political	Econo-mic	Socie-tal	Environ mental	Human
Threat	Hobbesian perspective: national/alliance security during Cold War			Grotian perspective: wider security concept in post Cold War era		
Challenges	Narrow `hard´security concept			Wider `soft´ security concepts		
Vulnerabilities	Old and new security agenda: change in actors & meaning prior and after the Cold War				New agenda: GEC, Global warming, hazard and disasters	
Risks	multiple applications in scientific and political communities prior and after the Cold War					

2.4. Three Reasons for Change: From Holocene to Antrophocene?

1. End of the Cold War: Global contextual change 1990
2. Globalization: New opportunities & challenges
3. Fundamental change in Earth history from the Holocene to an Anthropcene (Crutzen, Schellnhuber)
   - What is the cause? **Human behavior: burning of fossil fuels ➡ green house gases ➡ climate change ➡ ha-zards (hurricane Katrina?) ➡migration ➡conflicts?**
   - Stern Review **(30.10.2006): cost of not acting in 21st century: higher than costs of 1st and 2nd world wars!**
   - Whose security is at stake**? of nations? Societies? Human beings or humankind?**
   - **Which are instruments of a proactive security policy?**

3. 'Reconceptualising Security: Stage 3'

- **The goal of this UNU-EHS publication is fourfold:**
  - **to reconceptualise security since 1990: a) change of international security order; b) theory guided changes in the social sciences; c) impact of new debates on global environmental change (GEC);**
  - **to review four security dangers: 'threats', 'challenges', 'vulnerabilities' & 'risks' and use of concepts in global environmental change, climate change, hazards communities;**
  - **to discuss concepts for 'environmental' & 'human security' approaches on hydro-meteorological natural hazards (storms, floods, drought);**
  - **to draw conclusions for future research and policy-making to enhance early warning of hazards and those most exposed to hazards, and thus reducing the risks increased by hazards like the trends toward urbanisation and pressure of forced migration.**

3.1. Four Security Dangers: Threats, Challenges, Vulnerabilities & Risks

- 4 Concepts with many distinct meanings:
- Threats: 'hard sec.': military, political, economic, 'soft sec.': societal, environmental, (human);
- Challenges: all five dimensions of security;
- Vulnerabilities: all five dimensions: security, GEC, climate change, hazard community;
- Risks: multiple applications: 5 sec. dimensions: GEC, climate change, hazard community (sociology: risk society; political science, IR: risk politics; economics, psychology, geosciences)

3.2. Reconceptualizing 'Security Threats' since 1990: The 'Term '

- 'Threat', 'menace' (Lat: 'trudere' push, thrust ; Fr.: 'menace'; It.: 'minaccia'; Sp.: 'amenaza' or: 'conminación'; Port: 'ameaça'; Ger.: 'Drohung' or 'Bedrohung'): "a communication of a disagreeable alternative to individual or group by one in authority".
- *Webster's Dictionary* ***threat***: "1. a statement or expression of intention to hurt, destroy, punish, in retaliation or intimidation, 2. indication of imminent danger, harm, evil; threat of war."
- *Longman* threat: "1. statement that you will cause someone pain, unhappiness, or trouble…;
  2. possibility that something very bad will happen;
  3. someone/something that is regarded as possible danger."
- *Compact Oxford English Dictionary* threat: "1. stated intention to inflict injury, damage, or other hostile action on someone;
  2. person or thing likely to cause damage or danger;
  3. possibility of trouble."

3.3. Security Threats in (Post) Cold War World

- Robertson: 'threat assessment': "reasons behind an opponent's armament programmes" during the Cold War "on a worst case basis", where "besides personnel and hardware totals" the opponent's strategic doctrine had also to be taken into account.
- Buzan: threat to state (capabilities) and ideas (ideology); Understanding threats means understanding state's vulnerabilities.
- Since 1990 threat perception has fundamentally changed. Threat refers to dangers the planet earth is confronted with due to manifold destructive potentials of the environment & global consequences.
- German defence document (1994): "risk analysis of future develop-ments must be based on a broad concept of security … They must include social economic and ecological trends and view them in relation to the security of Germany and its allies".

3.4. New Security Threats in Post Cold War World

- Al Gore (1992): strategic threats: Global warming & ozone depletion;
- US-QDR 30.9.2001: "shift … defence planning from a 'threat-based' to a 'capa-bilities-based' model in the future … "
- US National Security Strategy (2002): Weapons of Mass Destruction, rogue states and terrorists and organised crime networks;
- EU Solana Strategy (2003): key threats: terrorism, WMD, regional conflicts, state failure, organised crime
- UN High Level Panel on Threats (2004): economic, social (poverty, in- fectious disease, *environmental degradation*, inter-state & internal con-flict, WMD, terrorism and transnational organised crime.
- Kofi Annan: In larger freedom (2005): a) preventing catastrophic ter-rorism; b) organised crime; c) nuclear, biological & chemical weapons; d) reducing the risk and prevalence of war.

4. Reconceptualising ‘Security Challenges’: The ‘Term ’

- **Challenge: (Lat.: ‘calumnia’, false accusation; Fr.: ‘defi’; Sp.: ‘desafío’, ‘reto’; Port.: ‘desafio’; It.: ‘sfida’, ‘provocazione’; Ger.: ‘Herausforderung’); Synonyms: “confrontation, defiance, interrogation, provocation, question, summons to contest, test, trial, ultimatum”, “questioning, dispute, stand opposition; difficult task, test trial”.**

4.1. New Security Challenges in Post Cold War World: UNU & TLC

- Dodds & Schnabel (2001): 'new','non-traditional' security challenges. Public's security environment has altered dramatically in new milennium." a) increasing level of globalisation; b) a growing sense of vulnerability to … remote threats, such as distant conflicts, contagions, crop failures and currency fluctuations."
- Van Ginkel and Velasquez (2001): environmental challenges: a) ozone deple-tion; b) impact of toxic chemicals on global ecosystem; and c) increasing greenhouse emissions d) "uncertainty about the future and an element of surprise". They stressed eight sub-themes: "global environmental governance, water, urbanization, industry and sustainability, global food security, energy requirements for the next millennium, global governance of biological diversity, land degradation, and the atmosphere."
- In a report of the Trilateral Commission Slaughter, Bildt and Ogura (2004): tried "to integrate traditional understandings of state security … with magnitude and importance of 'global security issues': terrorism, environmental degradation, international crime, infectious diseases and refugees."

4.2. New Security Challenges in Post Cold War World: Bailes (SIPRI)

- **Amb. Bailes (SIPRI):** human security challenges for Europe: "collapse of environment, pollution of food & natural resources, human & animal disease & genetic manipulation, employment, health care, social sec."
  - greenhouse effect, depletion of ozone, badly-handled migration, ageing of population, & energy crisis … case of a nuclear accident. …
  - Lesson is that many aspects of life in the EU which … are not normally thought of as security matters are highly relevant to the survival & welfare of our populations, ,,, because of the high level of development and interdependence we have attained.
  - The … harmonized approaches … should … be extended … to deal e.g. with climatic damage (drought, heat, storm and flood), major cases of pollution, and the interruption of any type of energy supplies.
- **Basic shift from military threats to manifold challenges** from all dimensions of a wide security concept. less urgent & non-violent *soft security* problems: migration, human & drug traffic. on the internal security agenda, topic for the home & justice ministries, police organisations & courts non-governmental societal groups. Migration a consequence of domestic conflicts from environmental degradation and resource depletion but it will remain difficult to distinguish *push* and *pull* factors.

5. Reconceptualising Security Vulnerabilities ': The 'Term '

- **English dictionaries:** synonyms 'vulnerability' (Lat.: 'vul-nus' or: 'vulnerabilis'; Fr.: 'vulnérabilité'; It.: 'vulne-rabile'; Sp.: 'vulnerabilidad'; Port.: 'vulnerável'; Ger.: 'Verwund-barkeit') or 'vulnerable': "accessible, assailable, defence-less, exposed, open to attack, sensitive, susceptible, tender, thin-skinned, unprotected, weak, wide open";
- "1. in danger: in peril, in jeopardy, at risk, endangered, unsafe, unprotected, unguarded; wide open; undefended, unfortified, unarmed, helpless, pregnable; 2. exposed to: open to, liable to, prone to, prey to, susceptible to, subject to, an easy target for; "non-immunity, susceptibility, danger of, insecurity, exposure, nakedness, helplessness".

5.1. Vulnerability as a Scientific Concept

- Used by global change, climate change impacts & in disaster community.
- Vulnerability: "poverty, exclusion, marginalisation & inequities in material cons.", is generated by "social, economic & political pro-cesses".
- O'Riordan (2002): *vulnerability* at societal levels: "incapacity to avoid danger, uninformed of impending threat, to be so politically powerless & poor as to be forced to live in conditions of danger."
- Oliver-Smith (2004) "vulnerability: a political ecological concept. … it can become a key concept in translating that multidisciplinarity into the concrete circumstances of life that account for a disaster."
- Wilches-Chaux (1989) identified 11 types of vulnerability, "natural, physical, economic, social, political, technical, ideological, cultural, educational, eco- logical and institutional vulnerability."

5.2. Vulnerability as a Scientific Concept in the Global Change Research Community

- Vulnerability: useful framework for consequences of GEC on human societies. Vuln. Assessment: risk of diverse outcomes given a variety of stresses that may reduce response capacity and adaptation to stressors.
- Vulnerability to GEC: risk of adverse outcomes to receptors or exposure units (human groups, ecosystems, communities) of changes in climate, environmental variables, & social conditions. … Vulnerability is a multidimensional concept involving *exposure*; *sensitivity*; and *resilience*. … Vulnerability can increase through cumulative events or when multiple stresses weaken the ability of a human group or ecosystem to buffer itself against future adverse events.
- Complex vulnerability analyses can address "multiple causes of critical outcomes rather than only the multiple outcomes of a single event." Current status of vulnerability research and assessment: potential for substantial synergy in addressing global environmental risks … & significant weaknesses which undermine the potential." A major driver of GEC has been climate change where the 'vulnerability' concept has been extensively discussed.

5.3 Vulnerability as a Scientific Concept in the Climate Research Community

- Climate change impacts, adaptation & *vulnerability* have been analysed by the 2nd IPCC WG). Mandate: "assess vulnerability of ecological systems, socioeconomic sectors, & human health to CC."
- IPCC also distinguishes between *sensitivity*, *adaptive capacity* & *vulnerability* ("the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes").

5.4. Vulnerability as a Political and Scientific Concept in the Hazard Research Community

- Blaikie, Cannon, Davis and Wisner (1994, 2000) "Characteristics of a person/group in terms of capacity to anticipate, cope with, resist, & recover from impact of a nat.hazard.
- It involves a combination of factors that determine the degree to which someone's life and livelihood is put at risk by a discrete and iden-tifiable event in nature or in society.
- The implied opposite of vulnerable is indicated by … the term *secure*. … Since it is damage to livelihood and not just life and property that is at issue, the more vulnerable groups are those that also find it hardest to reconstruct their livelihoods following disasters. Vulnerability is closely correlated with socio-economic position."
- Many concepts & no consensus. Specification is needed!

5.5. Vulnerability in the Environment, Development and Early Warning Community

- Peduzzi (2000), Early Warning Unit at UNEP/DEWA/GRID-Europe contributed to indicators for 'global vulnerability & risk mapping'. Risk: "a measure of the expected losses due to hazard event of a particular magnitude occurring in a given area over a specific time period" and *vulnerability* as "the degree of loss to each element should a hazard of a given severity occur" and as: "expected percentage of population loss due to socio-politico-economical context."
- In "*G*lobal *R*isk *a*nd *V*ulnerability *I*ndex", Peduzzi, et al. (2001): "Vulnerability: "extent to which a community, structure, service or geographic area is likely to be damaged or disrupted by the impact of a particular hazard". They separated vulnerability into
  - *Geophysical:* low evaluation along sea, high vulnerability to Tsunami;
  - *socio-economical* parameters: cultural, technical, economic factors using indicators as: GDP, literacy, life expectancy, corruption, population density, urban population growth, *mitigation capacities*.
- Vulnerability cannot be directly measured but estimated by socio-economic variables & compared to actual disaster losses.

5.6. Social Vulnerability in the Hazard and Development Research, and Policy Community

- 'Social vulnerability' is used in the hazard research comm. to distinguish social factors from manifold physical, economic, political and human aspects.
- DFID (2003) Social vulnerability is the complex set of characteristics that include a person's:
- *initial well-being* (nutritional status, physical and mental health, morale;
- *livelihood and resilience* (asset pattern & capitals, income & exchange options, qualifications);
- *self-protection* (degree of protection afforded by capability & willingness to build safe home, use safe site);
- *social protection* (forms of hazard preparedness provided by society more generally, building codes, mitigation measures, shelters, preparedness); and
- *social and political networks and institutions* (social capital, but also role of institutional environment in setting good conditions for hazard precautions, peoples' rights to express needs and of access to preparedness).

5.7. No Consensus on Vulnerability Concept

- From review of scientific vulnerability concepts in global change, climate change, hazard, environment, development and early warning communities no consensus has emerged on a definition, on criteria and indicators for the measurement of vulnerability.
- For hazard community, vulnerability is combination of additional contributing factors causing a hazard due to natural variability or human inducement to a disaster. The selection and inclusion of these contributing factors is configured by the worldview, mind-set, perception, the theories and models of the analyst.
- Vulnerability is always socially constructed. In the end therefore 'vulnerability' is how the analyst or policy-maker has defined it and which of the many definitions have become accepted by a consensus within the respective research community.

6. Reconceptualising 'Security Risks': The Term

- 'Risk' (Lat.: 'risicare' navigate around cliffs; Fr.: 'risque'; It.: 'risico, risco'; Sp.: 'riesgo'; Port.: 'risco'; Ger.: 'Risiko'): danger, peril, jeopardy, hazard; chance, gamble, possibility, speculation, uncertainty, venture; unpredictability, precarious-ness, instability, insecurity, perilousness, riskiness, probability, likelihood, threat, menace, fear, prospect.
- *Longman* : "1. possibility of bad result … that something bad, unpleasant, or dangerous may happen …; 2. take a risk…; 3. at risk …; 4. run a risk…; 5. at risk of doing something...; 6. at your own risk…; 7. cause of dangers: …; 8. insurance & business: a person or business judged according danger involved in giving them insurance/lending them money".
- *The Oxford Guide to the English Language*: "possibility of meeting danger or suf-fering harm; person or thing representing a source of risk." Besides many mea-nings in cont. American & British English, 'risk' concept has been employed in ma-ny natural & social science disciplines as a scientific concept. It has also been widely used by policy-makers to justify specific policy goals and programmes.

6.1. Risk as a Political and Scientific Concept

- Risk: philosophy, pol. sc., sociology, psychology, economics, geosciences.
- *Brockhaus Enzyklopädie* (1992): 'r. measures', 'r. assessment', 'r. factors'. 'r. indicators', 'r. society', 'r. capital, 'r. policy & management' & 'r. premiums'.
- *Brockhaus* meanings of risk": 1. possibility that action or activity causes a damage or loss of material or persons; 2. risk when consequences are uncertain. *Pure* (airplane crash), *speculative* (stock market), *insured* and *technical risks*.
- Quantitative measurement of risks, simple risk indicators are used: Risk estimates involve a prospective estimate based on probability, frequency & intensity of damages that are based on specific 'risk analyses'. 'Risk assessment' is used in daily practice in many disciplines & is influenced by personal risk acceptance. RA of nuclear technologies differs among groups & countries. 'Risk factors': social medicine, public health & epidemiology to point to factors increasing probability to get affected by a disease, risk indicators may be indirect contributing factors (e.g. social conditions for breakout of a disease).

6.2. Risk as a Political and Scientific Concept in Scientific Dictionaries

- 'Risk' evolved since 15th century referring to financial danger associated with trade. It was primarily used on insurance in economic activities.
- The term is widely employed in the *probability theory* (Laplace, Bernoulli), in *economics* (A. Smith, Ricardo, J.S. Mills, Knight), in *existential philosophy* (Kierkegaard, Heidegger, Jaspers, Sartre, Camus) and in *decision-making theory* (Neumann/von Morgenstern 1944).
- Risk concept is used as a political term in nuclear technology for estimating how much security of technology is needed & how much insecurity is acceptable for society. Risk is equated with the expectation of security contributing to risk acceptance.
- Since the 1970s the concept has been intensively discussed in economics, psychology, sociology and in political science.
- In 1980s research from 'risk perception' to 'risk communication' incl. role of media & social amplification of risk. In analysing the failure of risk communication initiatives, research increasingly focused on lack of trust towards policy makers with regard to hazardous industrial plants/installations.
- In 1990s a new school doubted objective risks pointing to social construction of risk that influenced risk perceptions and risk-taking behaviour. Others criticised risk comparisons because they ignored the societal risk context.

6.3. Debate on 'Risk' and 'Risk Society' in the Social Sciences

- **Bonss (1995):** development of 'sociology of risk' since late 1960s after Seveso, Harrisburg, Bhopal & Tschernobyl. He broadened sociological risk debates:
  - 1) linkage betw. risk & technology to be analysed as a problem of insecurity;
  - 2) from a historical perspective treatment of uncertainty should be re-constructed.
  - 3) A systematic history of discourse on risk as a social & cultural construct on transition from a reactive to active orientation of insecurity.
- **Bonss** pointed to two alternatives from an action or systems perspective:
  - From an action perspective, risks are reduced to risk decisions,
  - from a systems perspective risks are treated as threats or danger of loss.
  - He suggests to analyse risks in the context of social construction of uncertainties.
  - While uncertainties due to dangers exist irrespective of human actions, uncertainties as risks include intentions & implementation of action.
  - Risks are often the result of decisions made under uncertainty.
- **Beck (1986):** 'Risk society' influenced debate in social sciences. Risk is increasing with complexity of technology. Research on mental models gained in importance focusing on misperceptions of different kinds of risks.
- Beck's 'risk society' initiated a global debate in social sciences that impacts on security risks. 'Risk policy and politics' as well as 'risk management' comprise all measures of an enterprise to improve its financial performance.

6.4. Debate on Beck's 'Risk Society'

- **Ulrich Beck (1999) defined 'risk' as:**
  - to foresee & control future consequences of human action, unintended consequences of radicalised modernization.
  - institutionalised attempt, a cognitive map, to colonise the future;
  - risk regime is a function of a new order: it is not national, but global;
  - risks presuppose decisions previously undertaken with fixed norms of calculability, connecting means and ends;
  - risk and risk society combines what once was mutually exclusive – society and nature, social sciences and material sciences, the discursive construction of risk and the materiality of threats.
- **Predictable *risks* & unpredictable *threats:* typology of three types of global threats:**
  - **1) *wealth-driven* ecological destruction & technological-industrial dangers (ozone hole, global warming) & unpredictable risk of genetic engineering;**
  - **2) risks related to *poverty* & environmental destruction;**
  - **3) *weapons of mass destr*uction**
- **Global threats led to a world where established risk-logic has whittled away, & where hard to manage dangers prevail over quantifiable risks.**
- **New dangers are removing conventional pillars of safety calculation.**
- **Damage loses its spatio-temporal limits and becomes global and lasting.**
- **It is hardly possible any more to blame definite individuals for such damage.**
- **Financial compensation cannot award for damage done;**
- **No insurance against the worst-case effects of spiralling global threats.**

6.5. Global and Regional Environmental Risk as a Scientific Concept

- Kasperson & Kasperson (2001) distinguish *systemic* risks & *cumulative environmental change* with short- and long-term consequences.
  - global environmental risk is about threat; it is also about opportunity.
  - take stock of distinctive *challenges* posed by global environmental *risks*,
  - ability of knowledge system to identify & characterise such *threats*,
  - capability of societies to address vulnerability and the management of *challenges*.
- G*lobal environmental risk* refers to threats … resulting from human-induced environ-mental change, either systemic or cumulative, on the global scale.
- They focus on five themes:
  - 1) Global environment *risk* is the ultimate *threat*.
  - 2) *Uncertainty* is persistent feature for understanding process, causation & predicting outcomes.
  - 3) Global environment risk manifests in different ways at spatial scale.
  - 4) *Vulnerability* is a function of variability & distribution in physical & socio-economic systems; limited human ability to cope with accumulating hazard, & socio-econ. constraints
  - 5) Futures are not given, they must be negotiated.
- Global environm. risks threaten international security & peaceful relations among states, contributing to differentiation of wealth and increasing competition, tensions & conflict.

6.6. Risk as a Practical Concept in the Hazard Research Community

- UN-ISDR (2002) defined 'risk' as:
  The probability of harmful consequences, or expected loss (of lives, people injured, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human induced hazards and vulnerable/capable conditions. Risk is expressed by the equation: Risk = Hazards x Vulnerability/Capacity.
- ISDR (2004) offers a slightly different definition of 'risk':
  Conventionally risk is expressed by the notation: Risk = Hazards x Vulnerability. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability. Beyond expressing a possibility of physical harm, it is crucial to recognise that risks are inherent or can be created or exist within social systems. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share the same perceptions of risk and their underlying causes.

6.7. EU Communities: "Strategic Objectives 2005-2009 – Europe 2010: (26 January 2005)

- **EU Commission "Strategic Objectives 2005-2009 – Europe 2010: A Partnership for European Renewal: Prosperity, Solidarity & Security":**
  - security of the citizen "can be put at risk by natural disasters, environmental or health crises & transport & energy threats."
  - EU role in risk prevention, early warning, crisis management, acting for victims of disasters.
  - "managing risk in the modern world."
  - Environmental and health risks such as increased threats of floods or droughts following climate change, fallout from potential biological, chemical or radiological attacks of serious outbreaks of disease …. They must be tackled: by ability to offer early warning & immediate response to a particular crisis, & by long-term prevention. Information & surveillance networks need to be effective if they are to cope adequately with cross-border threats.
- **Focus from narrow military threats to:**
  - a) non-military security challenges: org. crime, terrorism, human/drug trafficking;
  - b) natural disasters, environmental and health risks;
  - c) energy supply crises & vulnerability of traffic & energy infrastructure;
  - d) promoting global solidarity with sustainable development.

7. Climate Change Impacts and Regional Socio-Economic Consequences

Climate Change Impacts: Temperature & Sea level Rise

- Global average temperature rise in 20th century: + 0.6°C

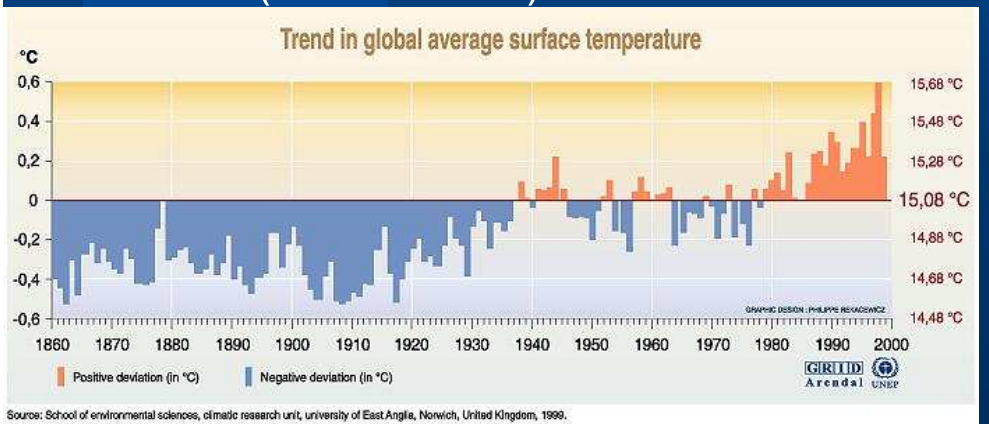
Projected temperature rise:

- TAR (1990-2100):+1.4-5. 8°C
- AR4 (07):+1.1-6.4 (1.8-4)°C

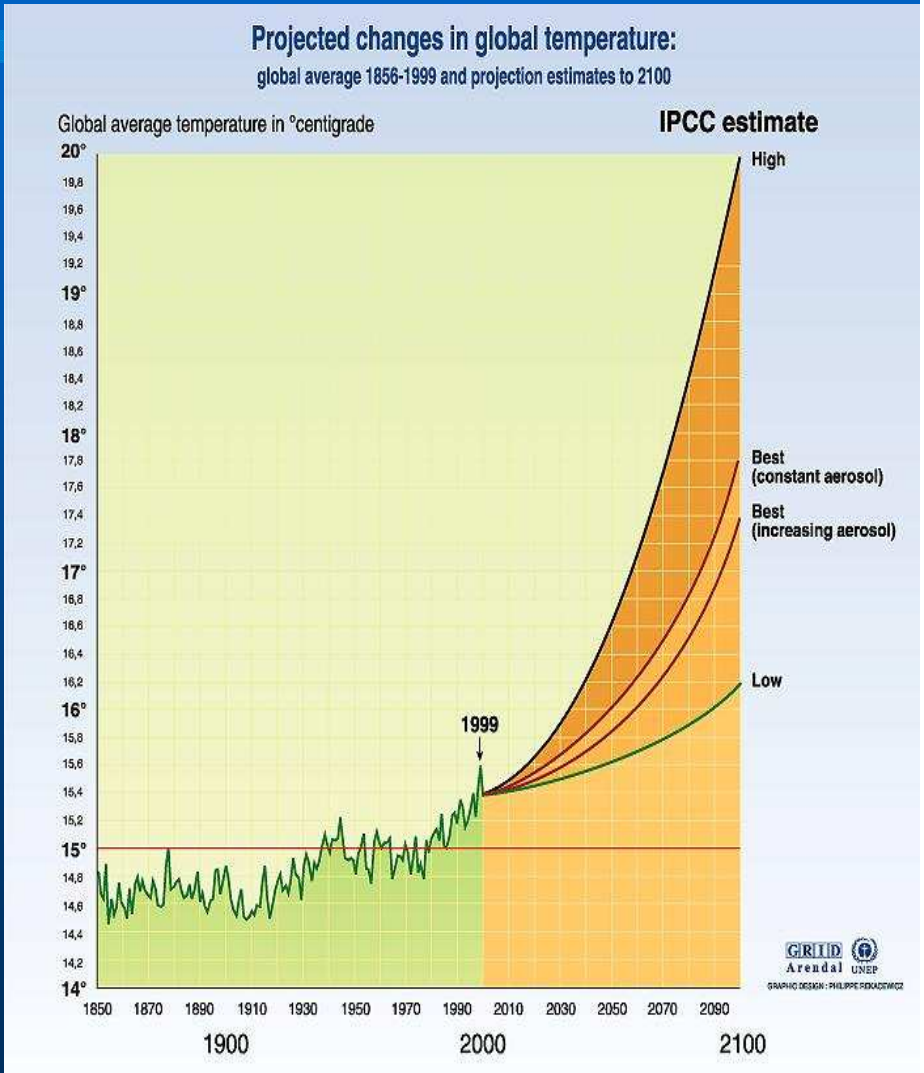
Sources: IPCC 1990,1995,2001,'07

Sea level Rise:

- 20th cent.: +0,1-0,2 metres
- TAR: 21st century: 9-88 cm
- AR4 (2000-2100): 18-59 cm



Source: School of environmental sciences, climatic research unit, university of East Anglia, Norwich, United Kingdom, 1999.



Source : Temperatures 1856 - 1999: Climatic Research Unit, University at East Anglia, Norwich UK. Projections: IPCC report 95.

7.1. Average Value of Surface Temperature (IPCC 2007, WG 1, AR4, p. 14)

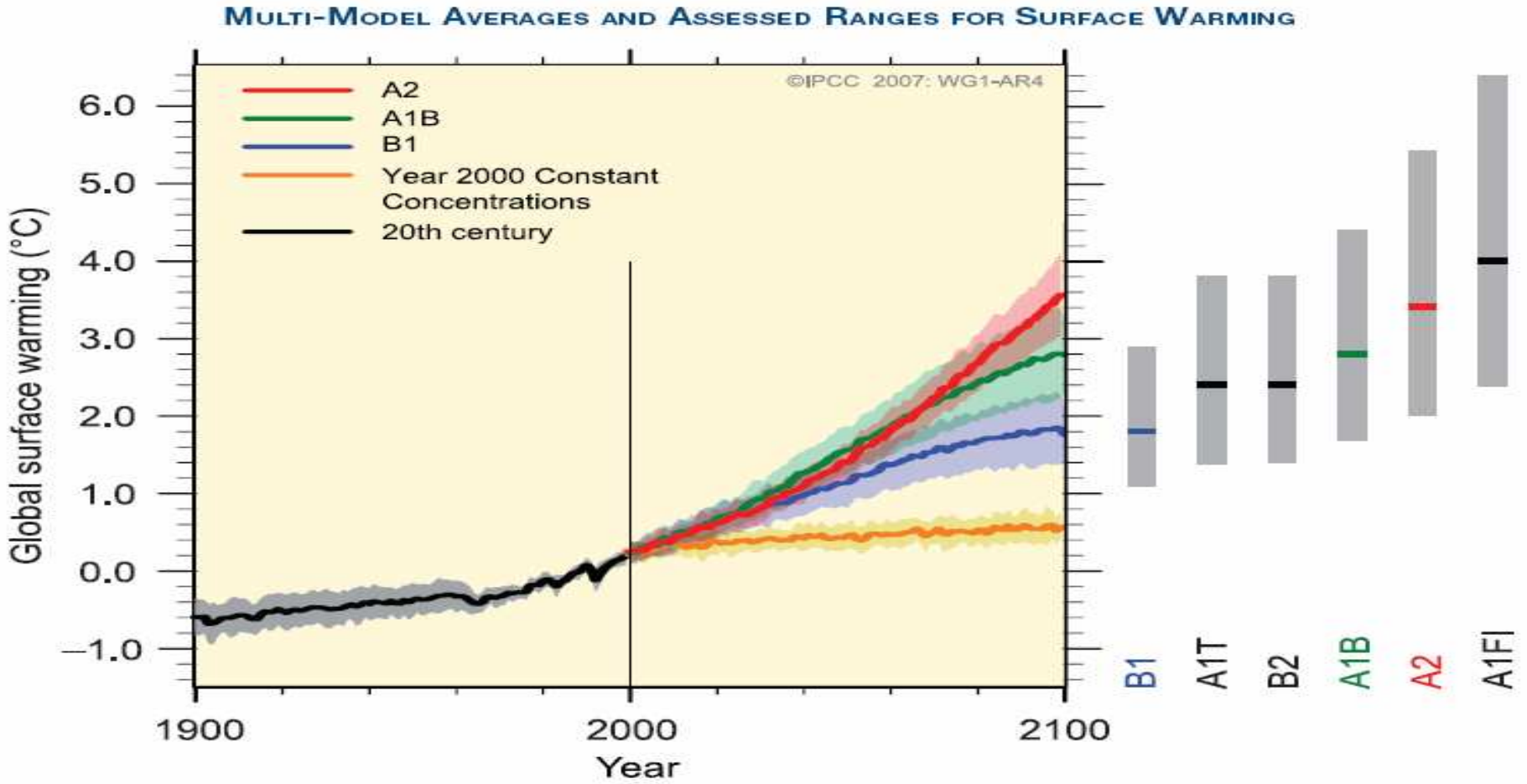


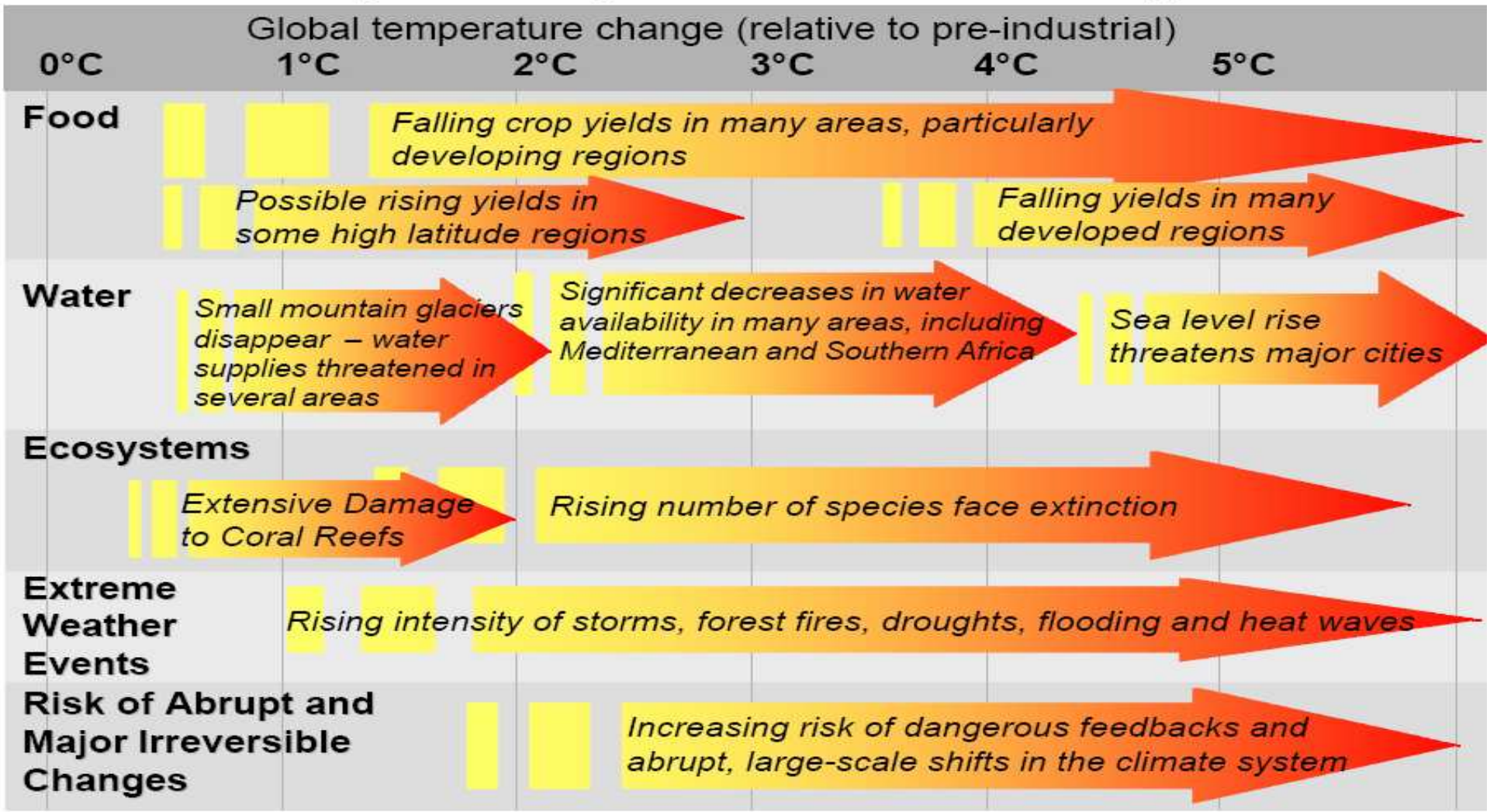
Figure SPM.5. *Solid lines are multi-model global averages of surface warming (relative to 1980–1999) for the scenarios A2, A1B and B1, shown as continuations of the 20th century simulations. Shading denotes the ±1 standard deviation range of individual model annual averages. The orange line is for the experiment where concentrations were held constant at year 2000 values. The grey bars at right indicate the best estimate (solid line within each bar) and the* ***likely*** *range assessed for the six SRES marker scenarios. The assessment of the best estimate and* ***likely*** *ranges in the grey bars includes the AOGCMs in the left part of the figure, as well as results from a hierarchy of independent models and observational constraints. {Figures 10.4 and 10.29}*

7.2. IPCC Chair Pachauri: Projections of future climate

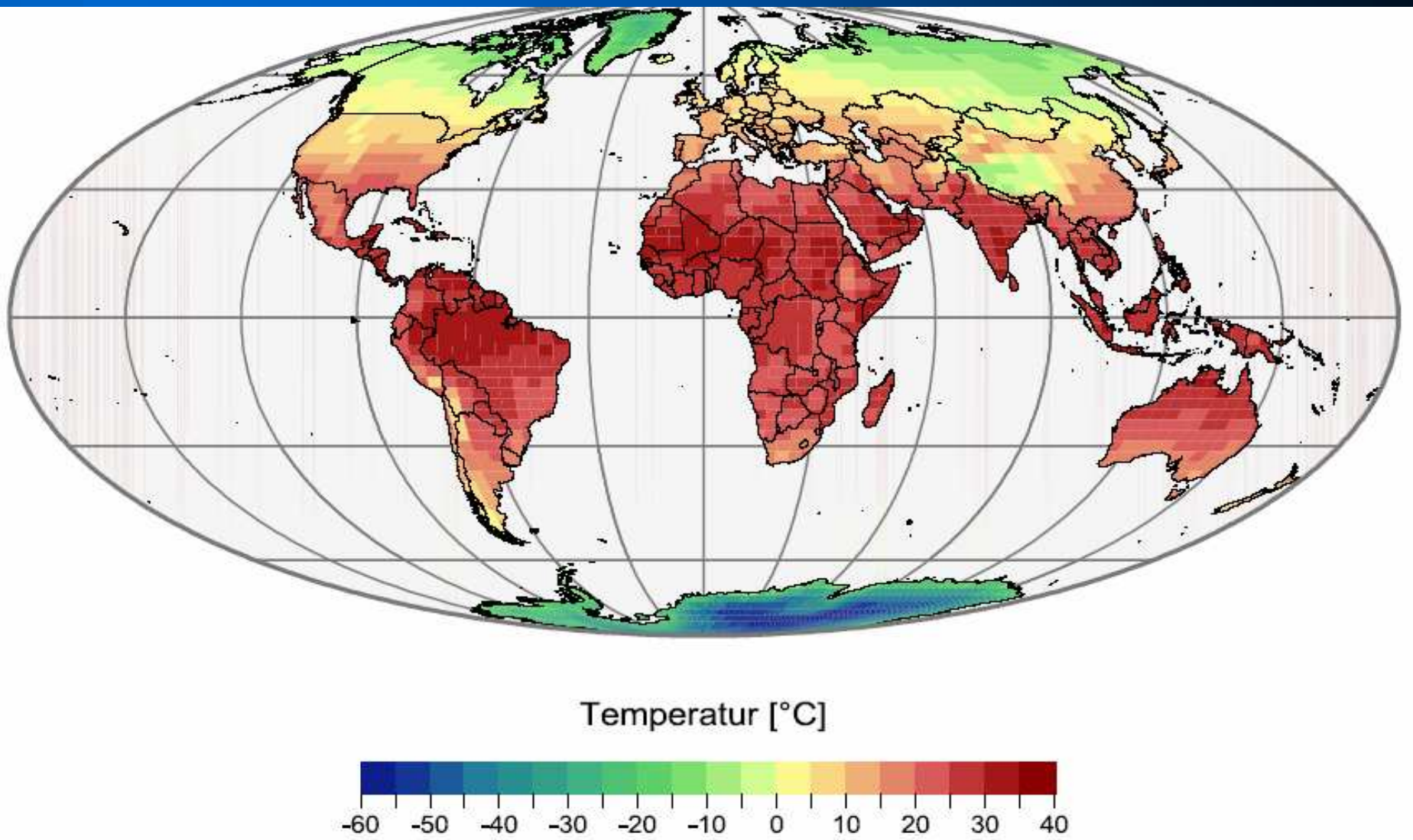
- Arctic late-summer sea ice may disappear almost entirely by the latter part of the 21st century
- This will affect sea-level in Mediterranean
- *Very likely* that hot extremes, heat waves, heavy precipitation events will become more frequent
- Drying in the Sahel, the Mediterranean, southern Africa and parts of southern Asia.
- More intense & longer droughts observed since 1970s, particularly in the tropics and subtropics.

7.3. Projected Impacts of Climate Change

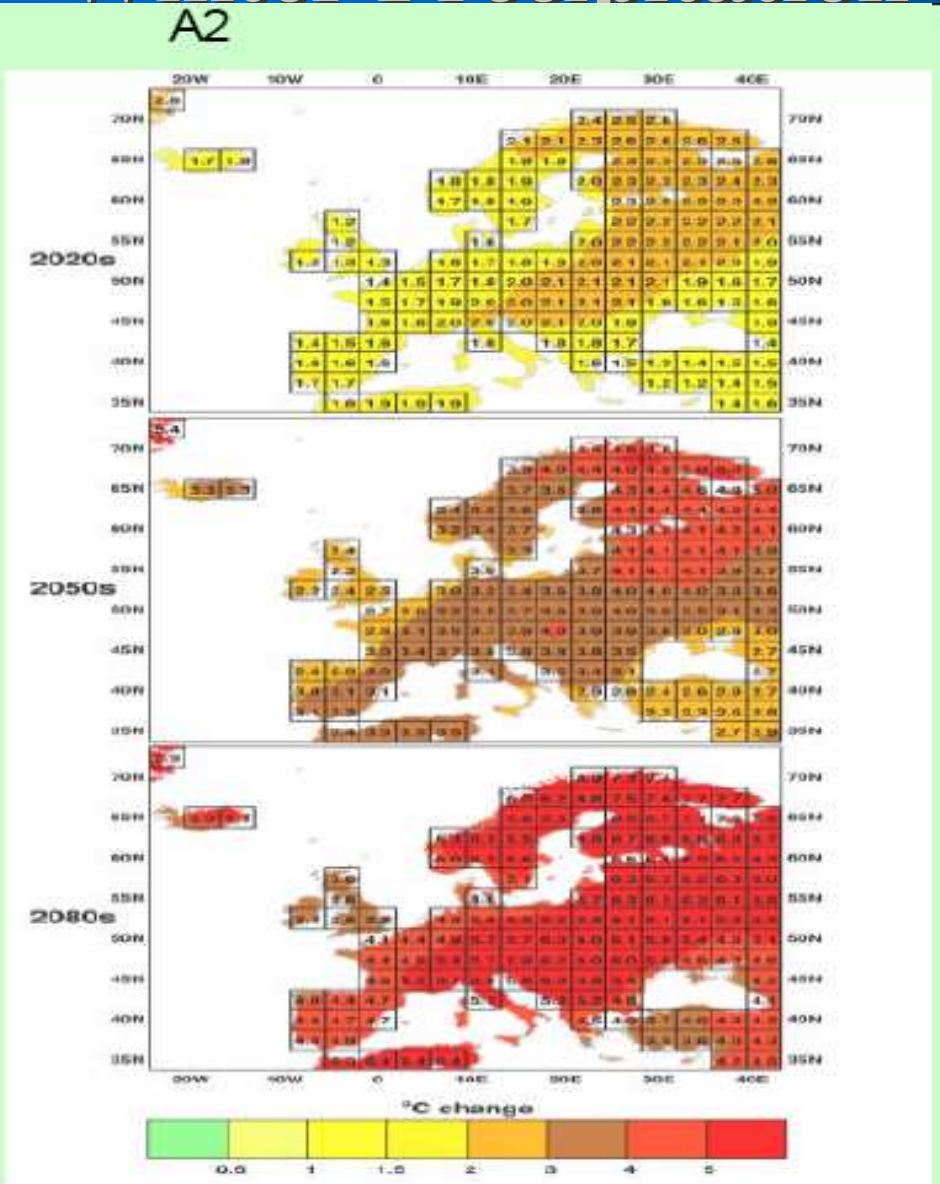
STERN review ON THE ECONOMICS OF CLIMATE CHANGE

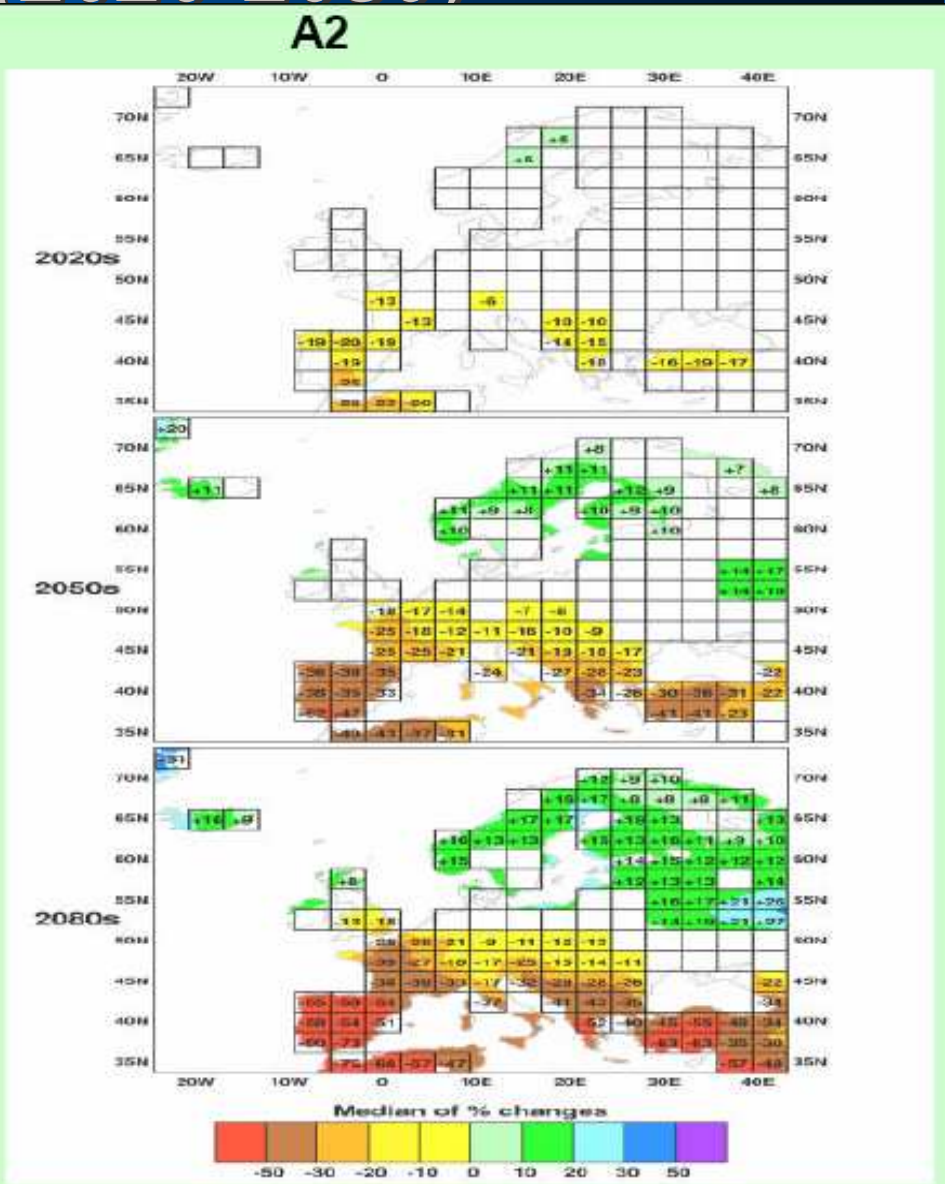


7.4. Annual Average Temperature for 2050: 2040-2069 © WBGU 2006

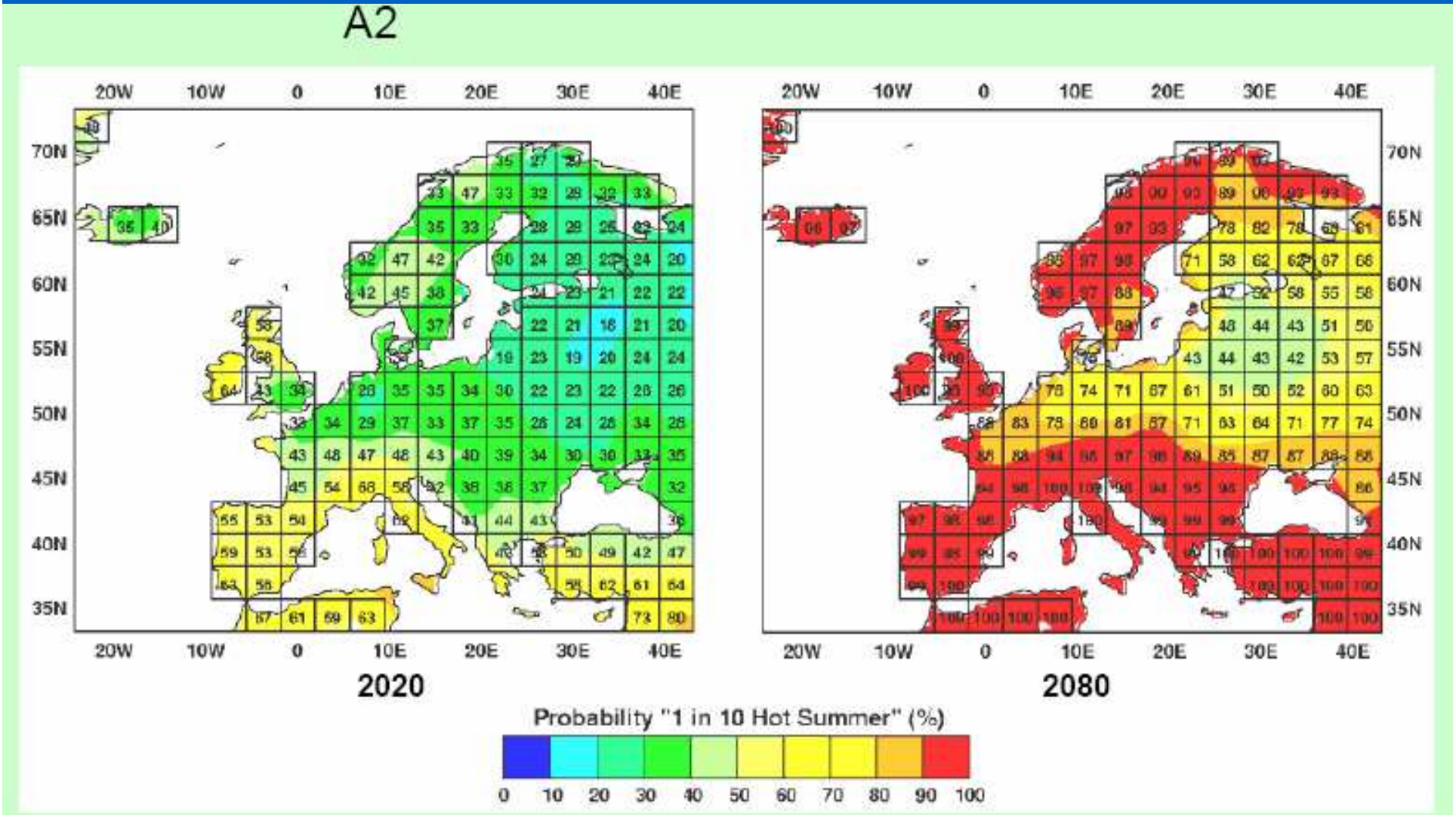


7.5. Projected Winter Temperature and Winter Precipitation (2020-2080)



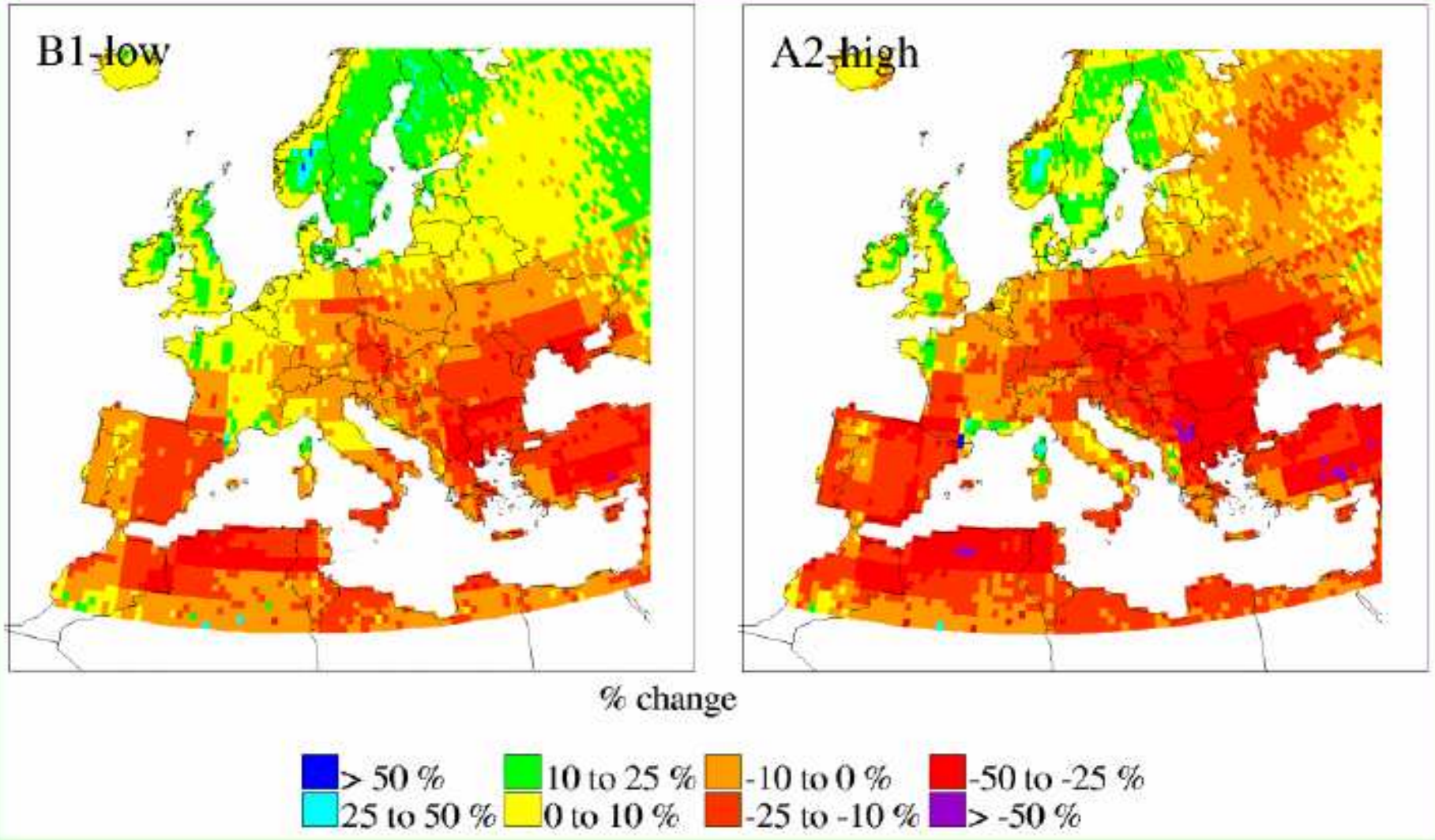


7.6. Probability of Hot Summers (M. Parry, IPCC, London, 2005)



7.7. Water Availability 2050

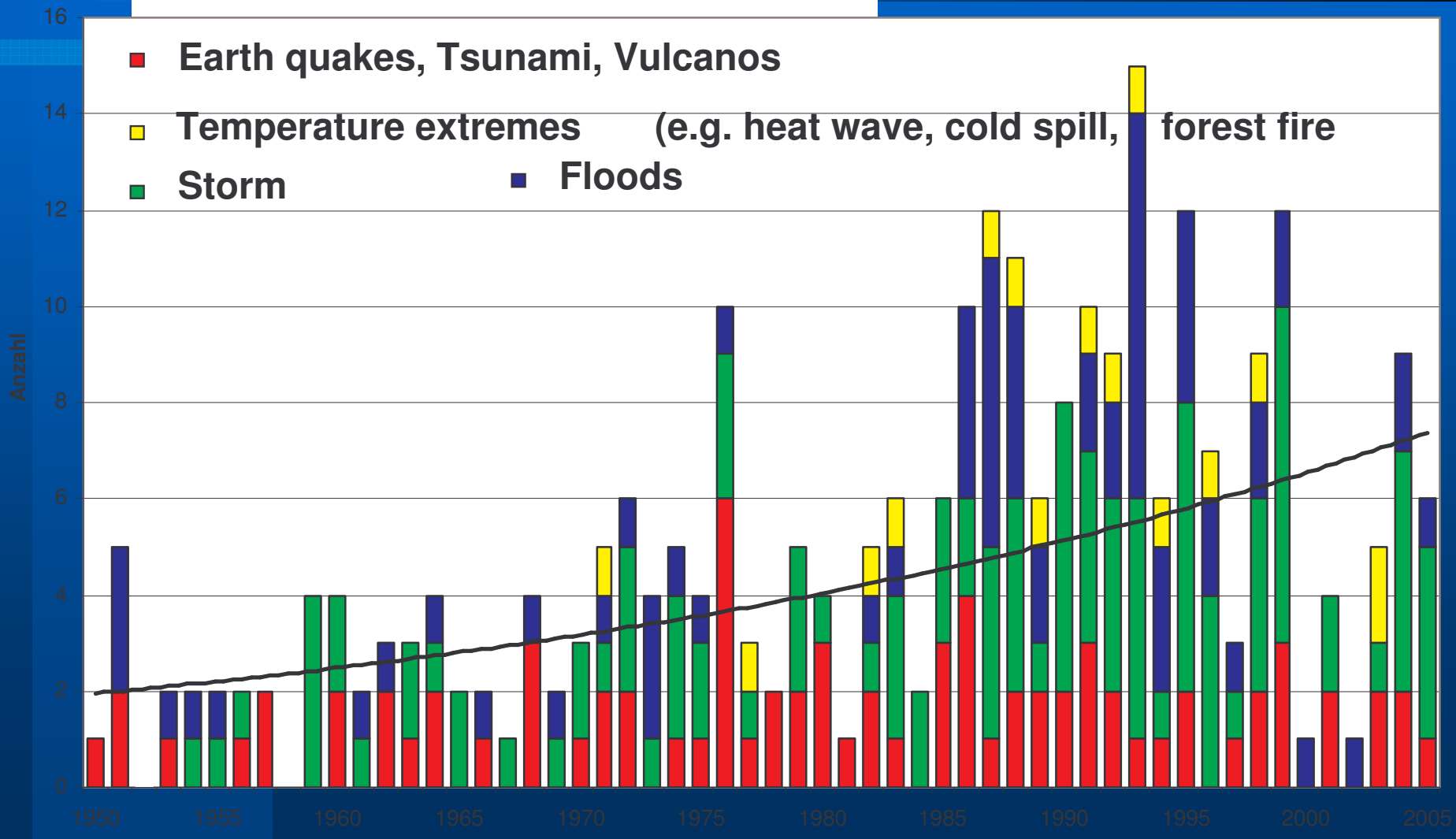
(M. Parry, IPCC, London, 2005)



8. Environmental Impacts of Climate Related Natural Hazards

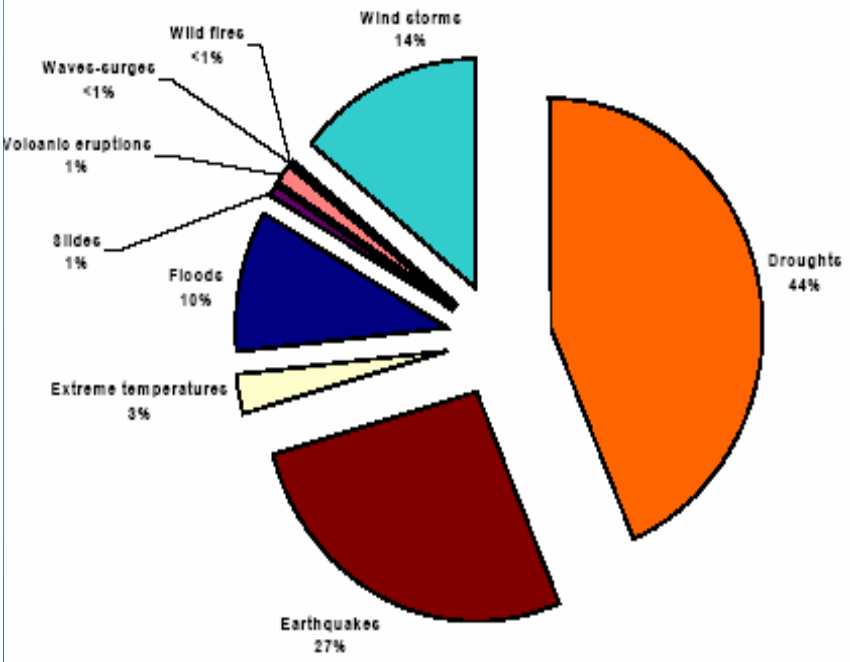
- During the 20 th Century climate related na-tural hazards have increased:
  - Drought (water scarcity and degradation)
  - Heat waves (impact on human beings, agriculture)
  - Forest fires
  - Flash floods and landslides
- During the 21st Century climate change will
  - increase temperature and reduce precipitation
  - Droughts may intensify and desertification may become irreversible in some regions
  - Heat waves will increase
  - In some areas agricultural yields will decline.

8.1. Major Global Natural Hazards (1950 – 2005)



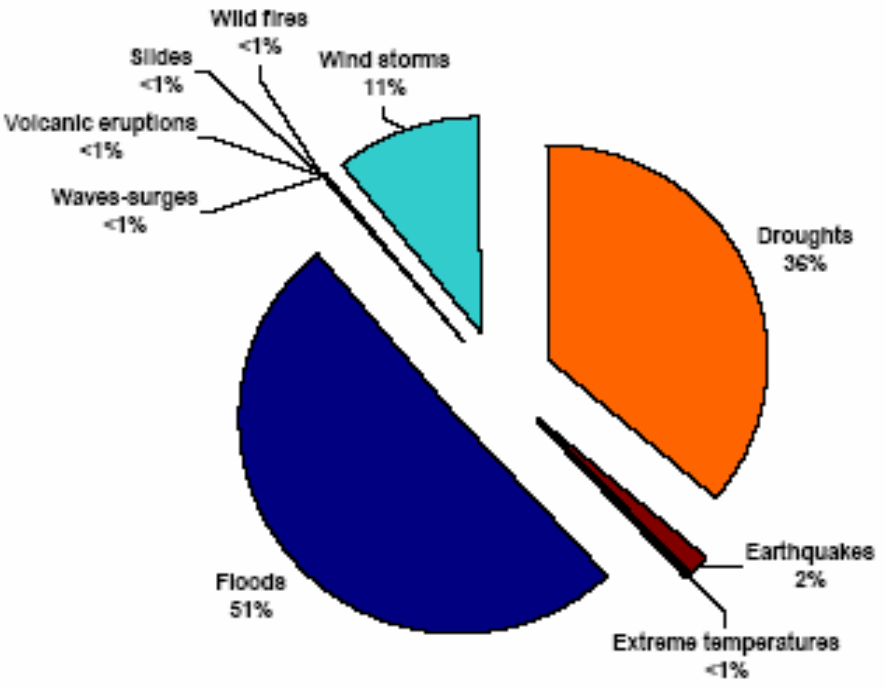
8.2. Impacts of Hazards (1974-2003)

Reported Deaths from Natural Hazards globally: 2.066.273 persons



Source: Hoyois/Guha-Sapir (2004)

Affected persons of Natural Hazards: 5 076 494 541



(1) injured + homeless + affected

8.3. Heatwave of 2003, IPCC AR4, WG II, p. 562

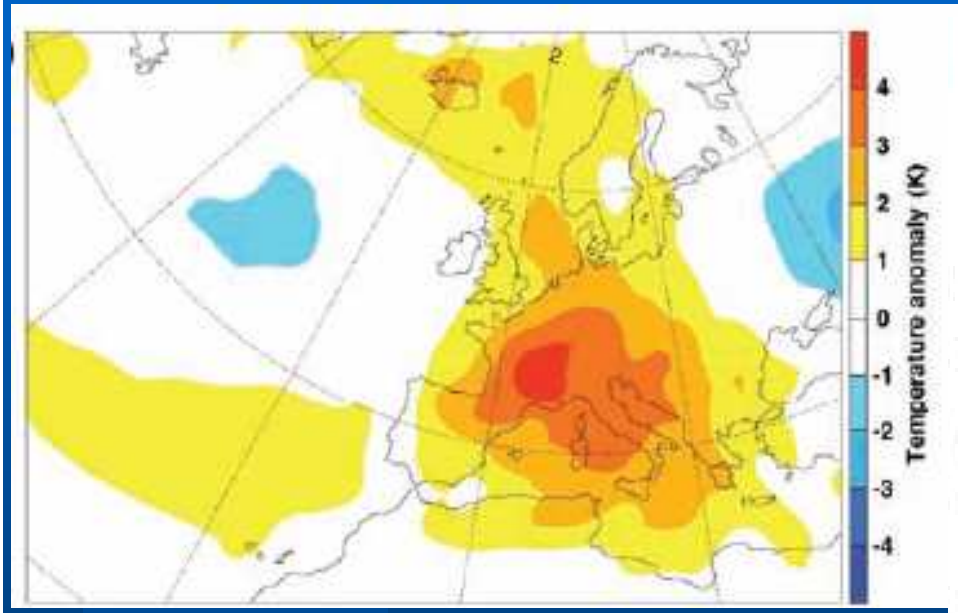


Figure 12.4. *Characteristics of the summer 2003 heatwave (adapted from Schär et al., 2004). (a) JJA temperature anomaly with respect to 1961 to 1990. (b) to (d): JJA temperatures for Switzerland observed*

12.6.1 Heatwave of 2003

A severe heatwave over large parts of Europe in 2003 extended from June to mid-August, raising summer temperatures by 3 to 5 °C in most of southern and central Europe (Figure 12.4). The warm anomalies in June lasted throughout the entire month (increases in monthly mean temperature of up to 6 to 7°C), but July was only slightly warmer than on average (+1 to +3°C), and the highest anomalies were reached between 1st and 13th August (+7°C) (Fink et al., 2004). Maximum temperatures of 35 to 40°C were repeatedly recorded and peak temperatures climbed well above 40°C (André et al., 2004; Beniston and Díaz, 2004).

8.4. Heat Wave of 2003 in Europe

10 Most Deadly Disasters (1987-2006)

Year of occurrence	Disaster type	Region / Country	Number of killed
2003	Heat wave	Europe	72.210
2006	Heat wave	Western Europe	3.392
1998	Heat wave	India	2.541
2003	Heat wave	Indian Subcontinent	1.472
2005	Cold wave	Europe	1.330
2002	Heat wave	India	1.030
1987	Heat wave	Greece	1.000
2002	Cold wave	India	900
2002	Cold wave	Bangladesh	700
1995	Heat wave	United States	670

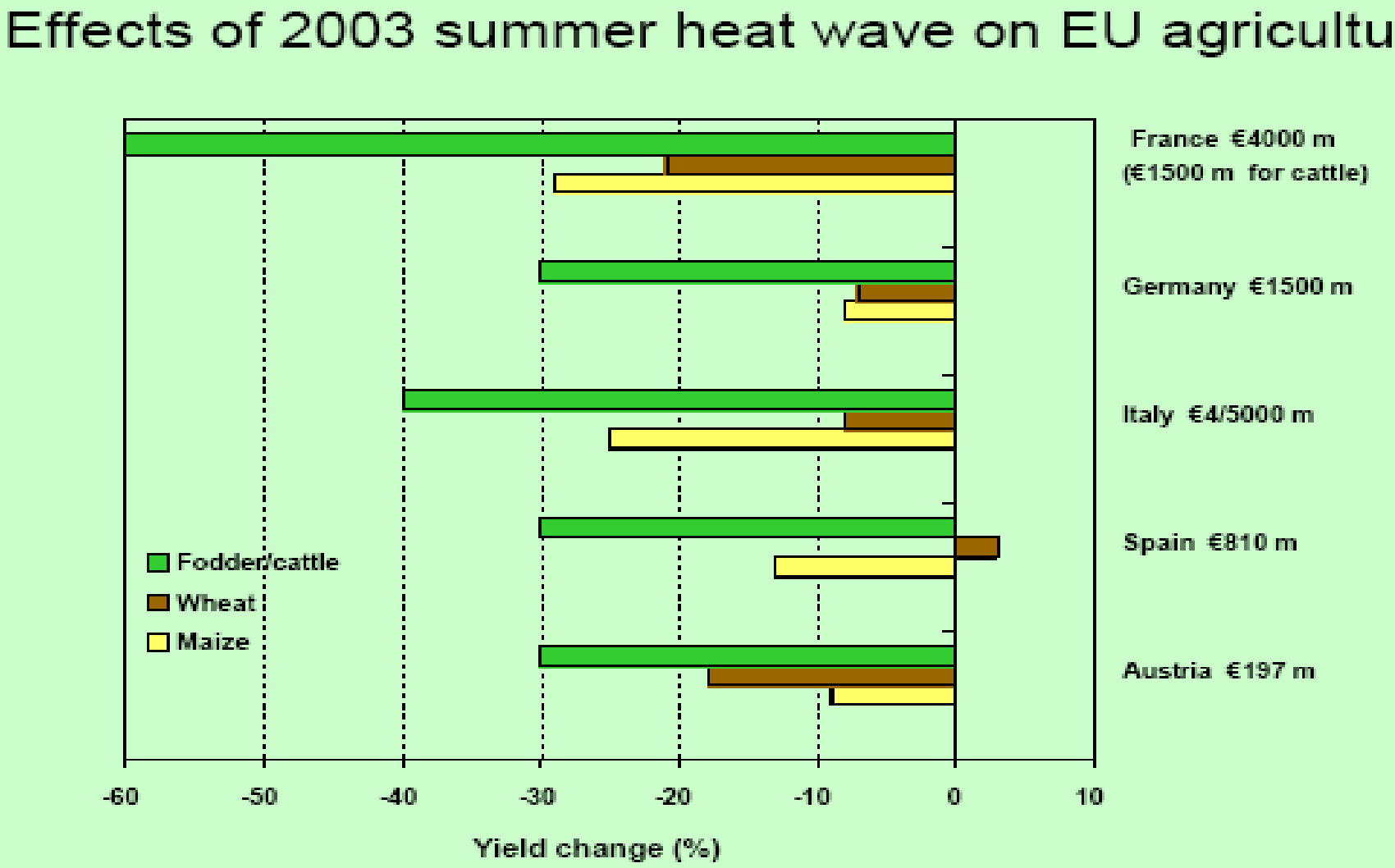
2003 heat wave mortality	
Country	Number of killed
Italy	20.089
France	19.490
Spain	15.090
Germany	9.355
Portugal	2.696
Belgium	1.175
Switzerland	1.039
Netherlands	965
Croatia	788
Czech Rep	418
Austria	345
United Kingdom	301
Slovenia	289
Luxembourg	170

(EMDAT)

8.5. Effects of 2003 Summer Heat Wave on Agricultural Yield in Five EU Countries

© M. Parry, Meeting of EU Agriculture/ Environment Ministers, 11.9.2005, London

COPA



9. Environmental Security Threats, Challenges, Vulnerabilities and Risks

- Does environment & climate change security threats, challenges, vulnera-bilities & risks or is it (object) affected by other security threats, chal-lenges, vulnerabilities & risks?
  - For whom? (referents of securitisation activity)
  - Which & whose values are threatened, challenged, vulnerable & or put at risk by the environment?
  - How much is environment threatened, challenged, vulnerable & put at risk?
  - By what means, at what cost and in what time is environment threa-tened, challenged, vulnerable and at risk?
  - What and who might threaten, challenge, make vulnerable and put at risk environment?
  - Whose fears should count?
  - Security by what means and strategies?

9.1 Environmental Security Dangers: Cause and Victim of Securitization

- Security is achieved if there is an absence of objective threats and subjective fears to basic values.
- Ecosystem was introduced as reference object of '*environmental security*'. Its values at risk are sustainability & the sources of dangers are humankind & global environmental change .
- Environment is considered as cause & object of threats, challenges, vulnerabilities and risks posed by GEC, environmental pollution & natural hazards.
- While most securitisation efforts have focused on the 'state' or on the 'society' as major referent objects, Westing (1989) introduced the environment into a 'comprehensive human security' concept that requires both *protection* (quality of environment) and *utilisation* requirement (human welfare).
- Renewable natural resources must be used in sustainable way.

9.2. Janus Quality of Environmental Security: Cause or Object of Security Threats, Challenges, Vulnerabilities and Risks

- 1st stage of environmental security research:
  - Westing: security impact of use herbicides on environm. in Vietnam
  - Ullman, Myers, Matthews: GEC as national security threats for US
- 2nd stage: Empirical phase (Homer-Dixon, Bächler groups)
  - Toronto group: population growth, environmental scarcity as cause of env. Stress posing security dangers (threats, chall., vuln., risks)
  - ENCOP: env. Scarcity and degradation posing security dangers
- 3rd stage: Diversified and lack of consensus
  - Collier/Handler: resource abundance as a security danger
- Goals for 4th stage: need for reconceptualisation
  - Dalby 2002; Brauch 2003; Brauch/Dalby/Oswald 2007.

9.3. Compilation of Environmental 'Threats', 'Challenges', 'Vulnerabilities' and 'Risks'

Environmental causes, stressors, effects and natural hazards pose	Natural and economic factors		Societal impact factors (exposure)	
	Substantial threats for	Challenges affecting	Vulnerabilities for	Risks for
	Security objects (for what or whom?)			
Climate change - temperature increase (creeping, long-term)	- Human health - agriculture (yield decline) - biodiversity - desertification	- tourism - food security - fisheries - government action - economic action	- infectious disease - damage to crops - natural systems - water scarcity - forest fire	- human populations - the poor, old people and children due to heat waves
Climate change - sea level rise (creeping, long-term)	- Small island states - marine eco-system, - indigenous communities, - industry, energy	- deltas - coastal zones - marine, freshwater ecosystems	- coastal cities, habitats, infrastructure, jobs - cities, homes, jobs	- livelihood - poor people, - insurance, - financial services

9.4. Potential Land Loss and Population Exposed in Asia. (IPCC 2001a: 569)

Country	SLR (cm)	Potential land loss		Population exposed	
		km^2	%	million	%
Bangladesh	45	15,668	10.9	5.5	5.0
Bangladesh	100	29,846	20.7	14.8	13.5
India	100	5,763	0.4	7.1	0.8
Indonesia	60	34,000	1.9	2.0	1.1
Japan	50	1,412	0.4	2.9	2.3
Malaysia	100	7,000	2.1	>0.05	>0.3
Pakistan	20	1.700	0.2	n.a.	n.a.
Vietnam	100	40,000	12.1	17.1	23.1

10. Seminar structure and papers (for details see seminar plan)

Wednesday, 20 February 2008: Basic Concepts

2. Objective security dangers vs. subjective concerns as topics of analyses
3. The Post-Cold War Debate on Security Concepts: Narrowers vs. Wideners
4. Security Threats, Challenges and Vulnerabilities
5. Security Risks, International Risk Society and Policy
6. Legitimizing a War with Objective Security Threats: Case of Iraq 2002-2007

Thursday, 21 February 2008: Security Approaches and Applications

7. Constructivist approaches focusing on intersubjective security analysis
8. Reconceptualizing the concepts of global threats to security
9. Rec. concepts of global challenges to security for regions, states, societies and people
10. Rec. concepts of global vulnerabilities to security: global & climate change
11. Rec. concepts of global risks to security: approaches on international risk society

Friday, 22 February 2008: Climate Change as a new Security Danger

12. Regional impacts of global climate change for Europe: WG II of IPCC's 4th AR
13. Regional impacts of global climate change for Asia/Africa: IPCC's 4th AR
14. Regional impacts of global climate change for Americas: IPCC's 4th AR
15. Policy relevance of the reconceptualization of security

10.1. Coping with Global Environmental Change, Disasters and Security

26.11.2007, **18-20.00, Ihnestraße 22/UG 2;**

- **Mi - Fr 09.00-18.00; 20.-22.02.2008 22/E2**

Free booklets by Hans Günter Brauch for preparation:

- "Threats, Challenges, Vulnerabilites and Risks in Environmental and Human Security" **(2005)**
- Environment and Human Security. Towards Freedom from Hazard Impacts **(2005)**

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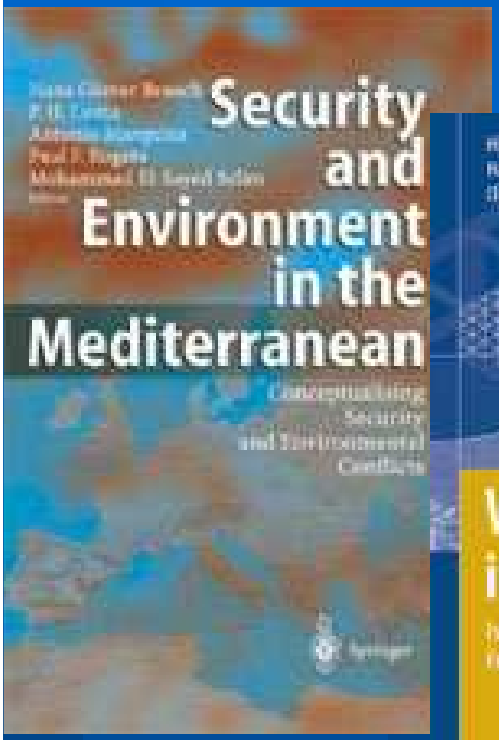
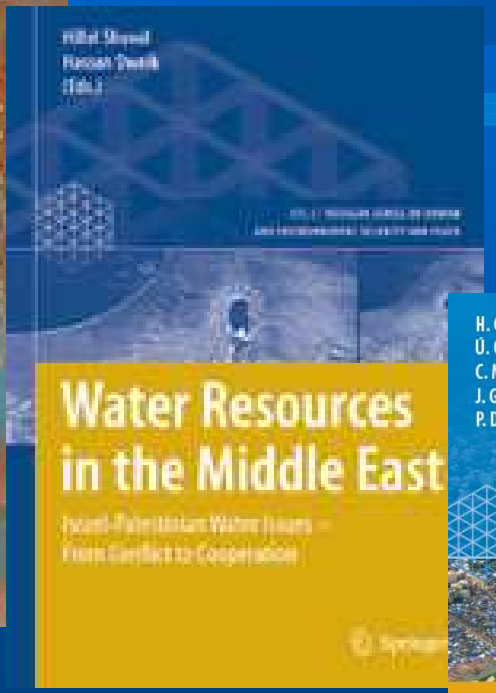
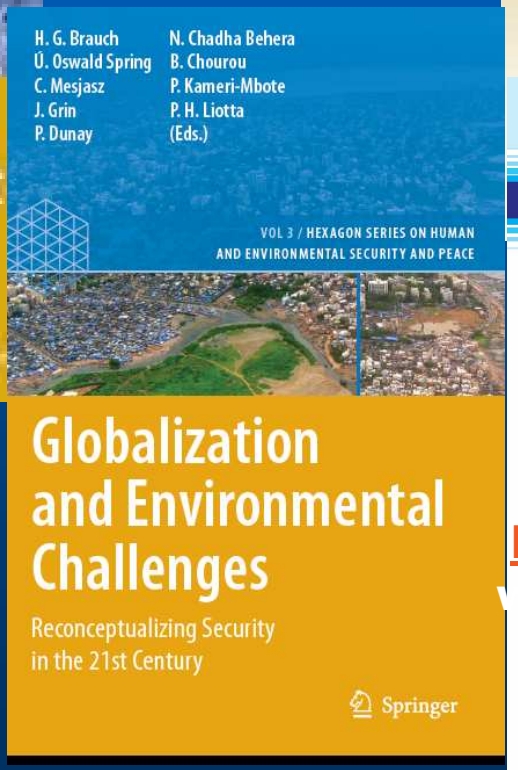
WBGU Study: Destabilisierungs- und Konfliktpotential prognostizierter Umweltveränderungen in der Region Südeuropa und Nordafrika bis 2020/2050. (**2006)**

Download: http://www.afes-press.de/html/download_hgb.html

10.5. Bibliographic References







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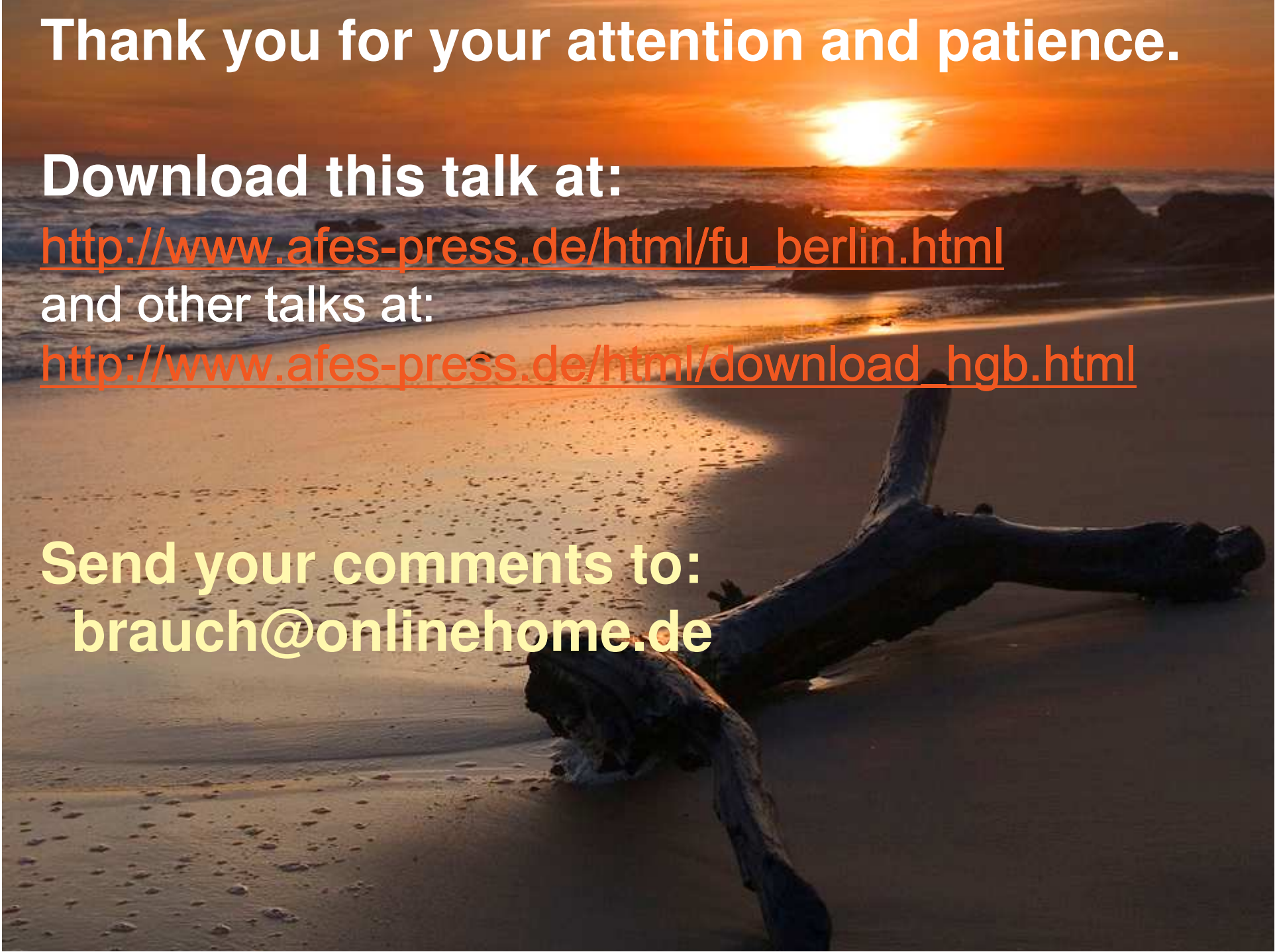
<http://www.afes-press-books.de/html/hexagon.htm>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