# The IPCC context and risk assessment methodologies

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#### Overview

- High level risk assessment methodology -particularly hazard and exposure
- **IPCC guidance ( if any)** -focussed on hazard, but very limited

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## Six Steps to Risk Assessment

 Scope
 - area, purpose, timeframe, etc

 Hazard analysis
 - computer models of weather

 Exposure
 - geographical information systems (GIS)

 Vulnerability
 - robustness of materials and processes

 Recovery
 - contingency plans

 Financing
 - culture/ third party agreements

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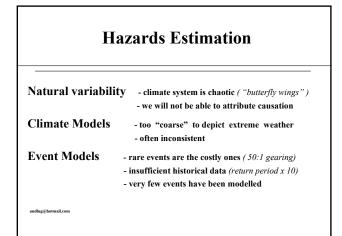
# Timeframe for an "insurance" risk assessment

Contract of insurance - annual duration

Disaster management system - decades

Infrastructure - generations

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## **IPCC Big Picture**

#### WG I

By 2100 +1.4 to 5.8 C, changed rainfall sea level + 50 cm, continuing for millenia weather - altered frequencies, intensities?

#### WG II

"emerging evidence of damage from flood and drought " Up to 5.5 billion people in water stress by 2025. Tens of millions face displacement in megacities. Many regional impacts eg crops, tundra, forests

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## **IPCC Beijing 2002 workshop**

Flood, drought, heatwaves

Return period was 100 yrs, is 40 yrs now, will be 4yrs midcentury. Convective activity Lightning +30 to 50%, more wildfire, hail, flashflood

#### **Tropical cyclones?**

maybe.. frequency +5%, intensity +5%, rain +23%

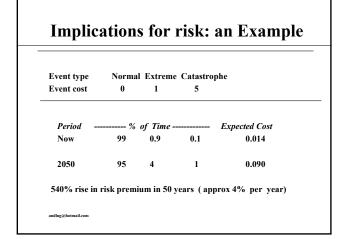
Midlatitude storms (European winter)?

More frequent, up to 20% stronger Surprises

Quickthaw, icestorm, joint events ( eg inland and coastal flood)

### **UK Climate Change & Extremes**

	Hot	Cold	Wet	Dry	
1960's	1.0	0.5	1.3	0.9	
1970's	1.7	0.7	1.1	1.5	
1980's	1.8	0.8	1.7	1.1	
1990's	3.4	0.3	1.3	1.5	
2000's	2.8	0.0	2.8	0.0	



## Exposure

#### Asset types

Property ( by function), infrastructure, crops, economic production People,ecological, cultural

Location

Often not recorded or not fixed

Value

Various bases

Time horizon

Exposure can change rapidly for socio-economic reasons IPCC presented four very different "world-views"

# **Other Aspects**

Vulnerability	may alter significantly in future
Recovery system	can have a major effect on costs
Culture	may determine viability of insurance
Contracts	key to distribution of costs
Operational	public/private; integrated/standalone

Summary

Scope - take the long view

Hazards -allow for wide uncertainty - do not plan for the past!

Exposure - create databases - be forward-looking

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