

# OVERVIEW

- The Insurance Market
- Effects of Climate Change on the Caribbean
- Why is Climate Change Important To Insurers?
- How Insurers Can Proactively And “Profitably” Manage Climate Change?
- Caribbean Insurance Market Responds To Climate Change

# **WORLD INSURANCE MARKET**

## **REVIEW**

# THE WORLD INSURANCE MARKET

**FOR THE YEAR 2006:**

- Catastrophes claim more than 31,000 lives
- Total losses in excess of US\$48Bn
- Insured property damages of US\$15.9Bn;  $\frac{1}{3}$  was covered by insurance
- Natural catastrophes caused insured losses totaling US\$11.8Bn
- Man-made disasters cost property insurers US\$4.0Bn

*Source: Swiss Re, Sigma 2/2007*

# WORLDWIDE INSURANCE LOSSES

## TOP 10 INSURED LOSSES: 1970 - 2006

INSURED LOSSES US\$Bn	VICTIMS (Dead or Missing)	YEAR	EVENT	COUNTRY
<b>\$66.3</b>	1,836	2005	Hurricane Katrina	US, Gulf of Mexico, Bahamas
<b>\$22.9</b>	43	1992	Hurricane Andrew	US, Bahamas
<b>\$21.4</b>	2,982	2001	Terror attach on WTC	US
<b>\$19.0</b>	61	1994	Northridge earthquake	US
<b>\$13.7</b>	124	2004	Hurricane Ivan	US, Caribbean
<b>\$12.9</b>	35	2005	Hurricane Wilma	US, Mexico, Jamaica, Haiti
<b>\$10.4</b>	34	2005	Hurricane Rita	US, Gulf of Mexico, Cuba
<b>\$8.6</b>	24	2004	Hurricane Charley	US, Cuba, Jamaica
<b>\$8.4</b>	51	1991	Typhoon Mireille	Japan
<b>\$7.4</b>	71	1989	Hurricane Hugo	US, Puerto Rico

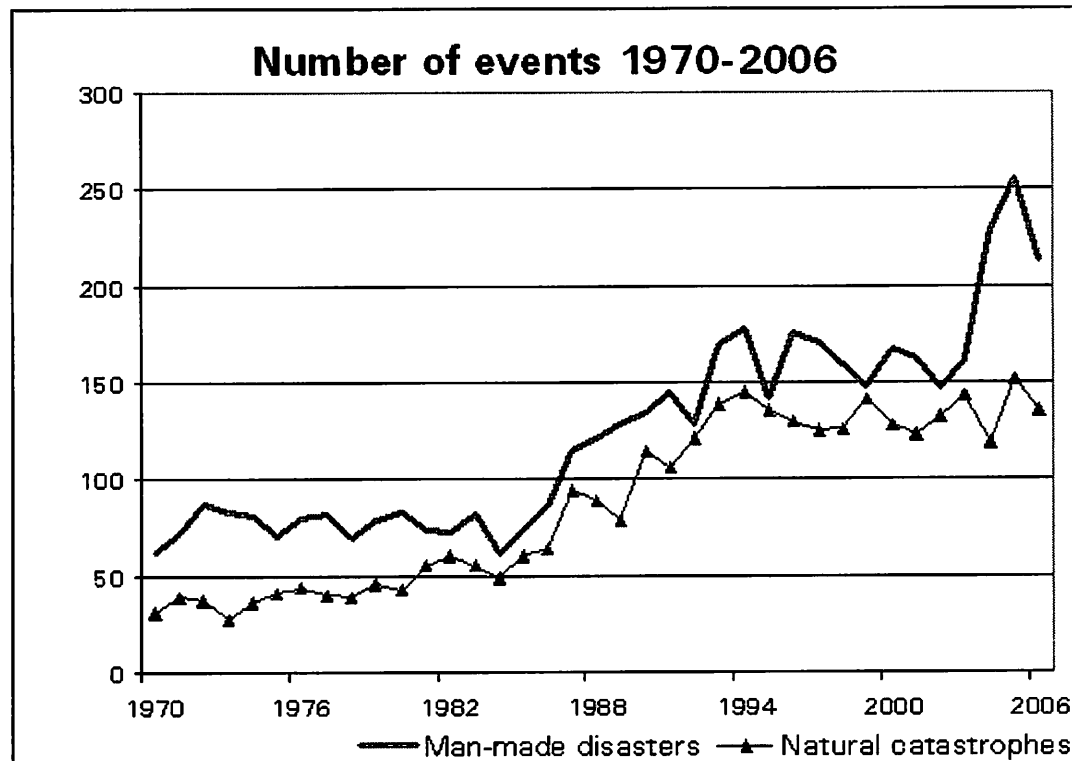
8 OUT OF 10  
ARE  
WEATHER  
RELATED

5 OUT OF 10  
ARE FROM  
2004 - 2005

Source: Swiss Re, Sigma 2/2007

# WORLDWIDE CATASTROPHES

## 349 CATASTROPHES: 1970 - 2006



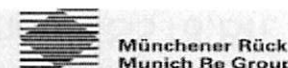
The rise in insured losses over the past decades is attributable to weather-related natural catastrophes: whereas in the 1970s the climate burden on property insurers due to severe storms, floods etc was still around US\$2.9Bn per year, in the 1980s it rose to US\$5.7Bn and in the 1990s reached US\$18.Bn.

Since 2000, the average has been US\$30.4Bn per year.

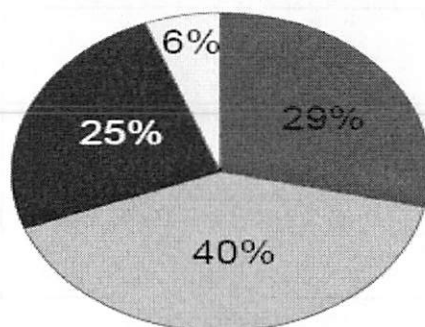
*Source: Swiss Re, Sigma 2/2007*

# WORLDWIDE CATASTROPHES

## Great Natural Disasters 1950–2005 Percentage distribution worldwide



Number of events: 267



Geologically determined events

■ Earthquake/tsunami,  
volcanic eruption

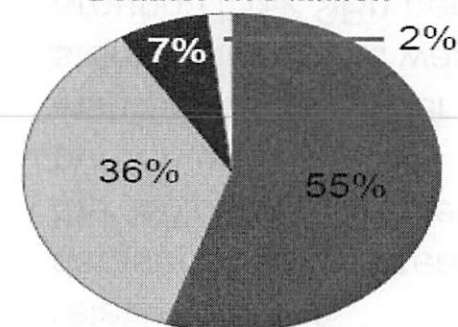
Weather determined events

■ Storm

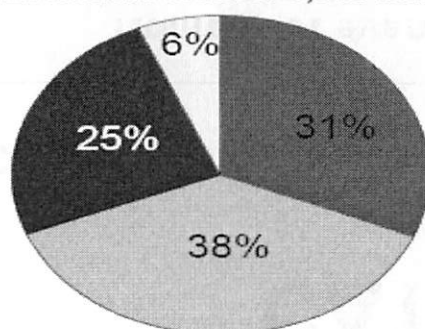
■ Floods

□ Extreme temperatures

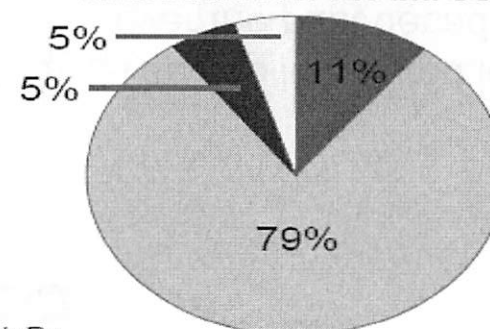
Deaths: 1.75 Million



Economic losses: 1,700 bn. US\$\*



Insured losses: 340 bn. US\$\*



\*2005 values

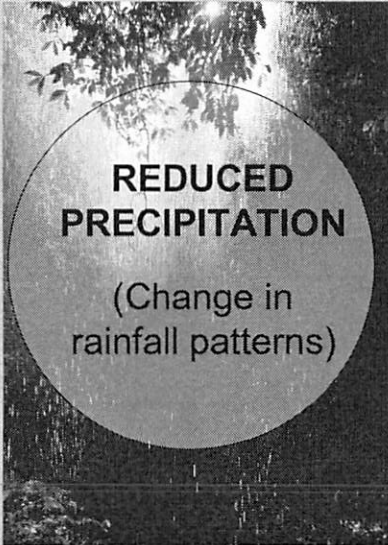
© 2006 Geo Risks Research, Munich Re

Source: Munich Re Group

# **REVIEW**

## **EFFECTS OF CLIMATE CHANGE ON THE CARIBBEAN**


# EFFECTS OF CLIMATE CHANGE ON THE CARIBBEAN



## REDUCED PRECIPITATION

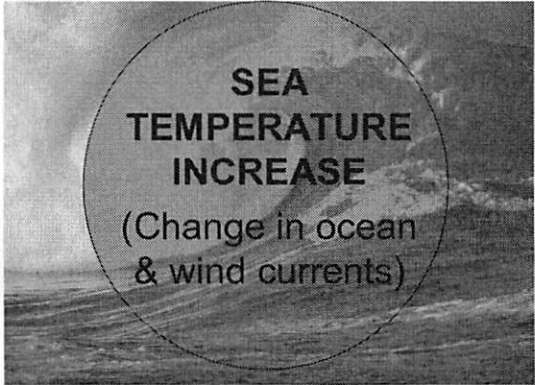
(Change in  
rainfall patterns)

- Drought
- Decreased freshwater availability
- Loss of lives



## SEA LEVEL RISE

- Increase in coastal flooding & erosion
- More extensive Storms, surge impact
- Loss of lives



## SEA TEMPERATURE INCREASE

(Change in ocean  
& wind currents)

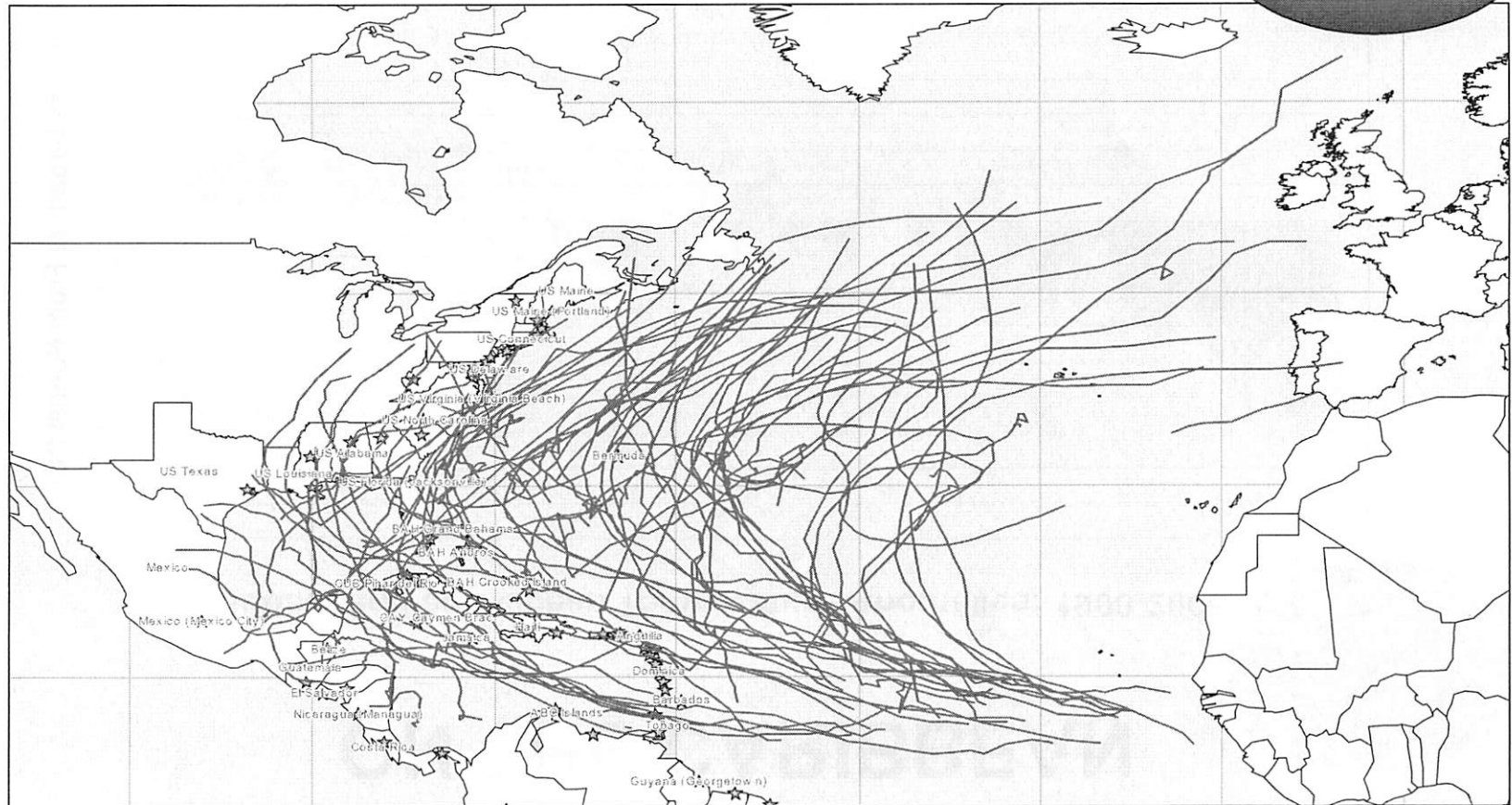
- Increased extreme events, hurricanes, storms and associated storm surge and wind impact
- Increase precipitation, possible increase in flooding & landslides
- More intense drought
- Loss of lives



# EFFECTS OF CLIMATE CHANGE ON THE CARIBBEAN

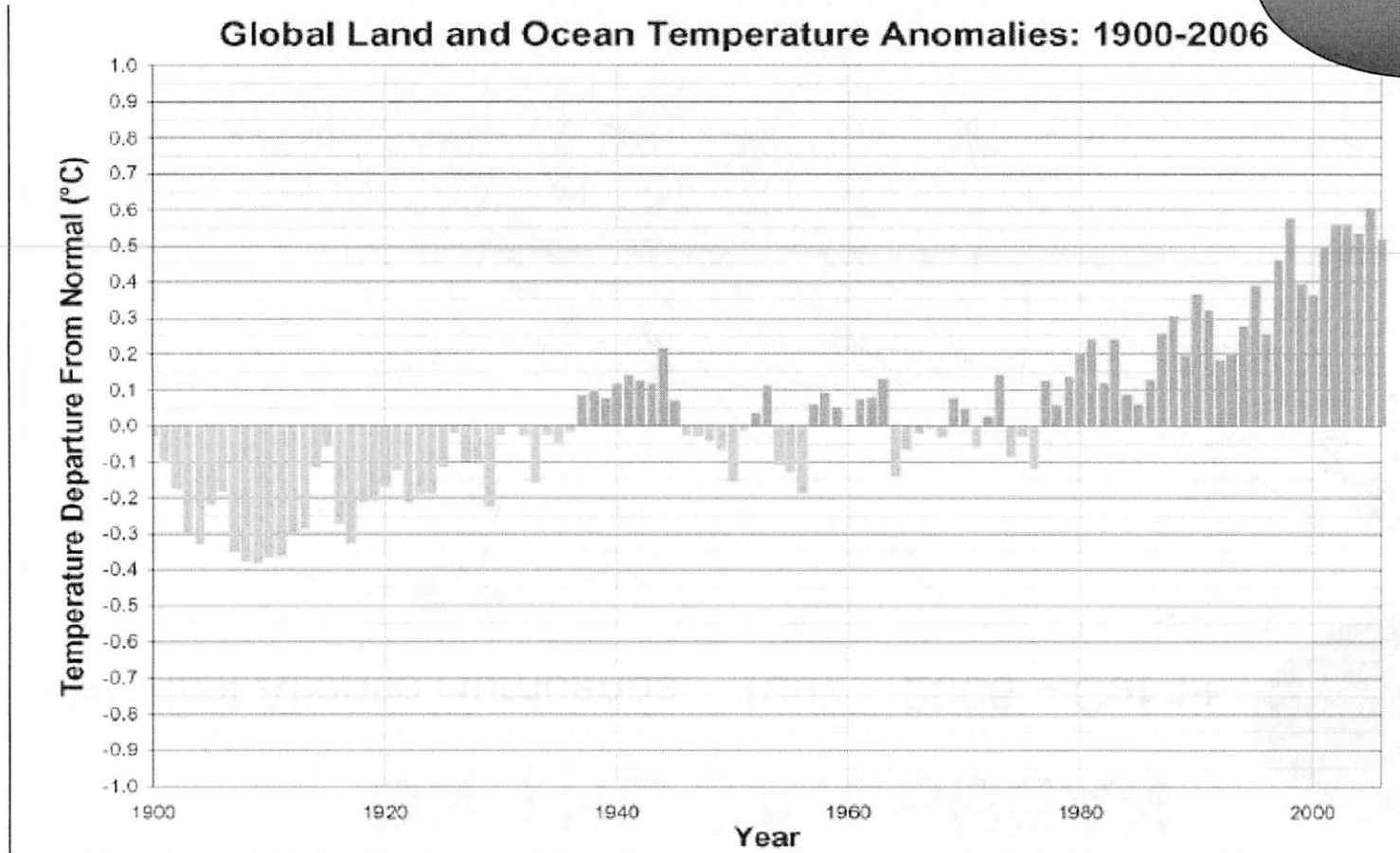
Historical Atlantic Hurricanes – 1997 – 2006 – Cat 1+

HURRICANES



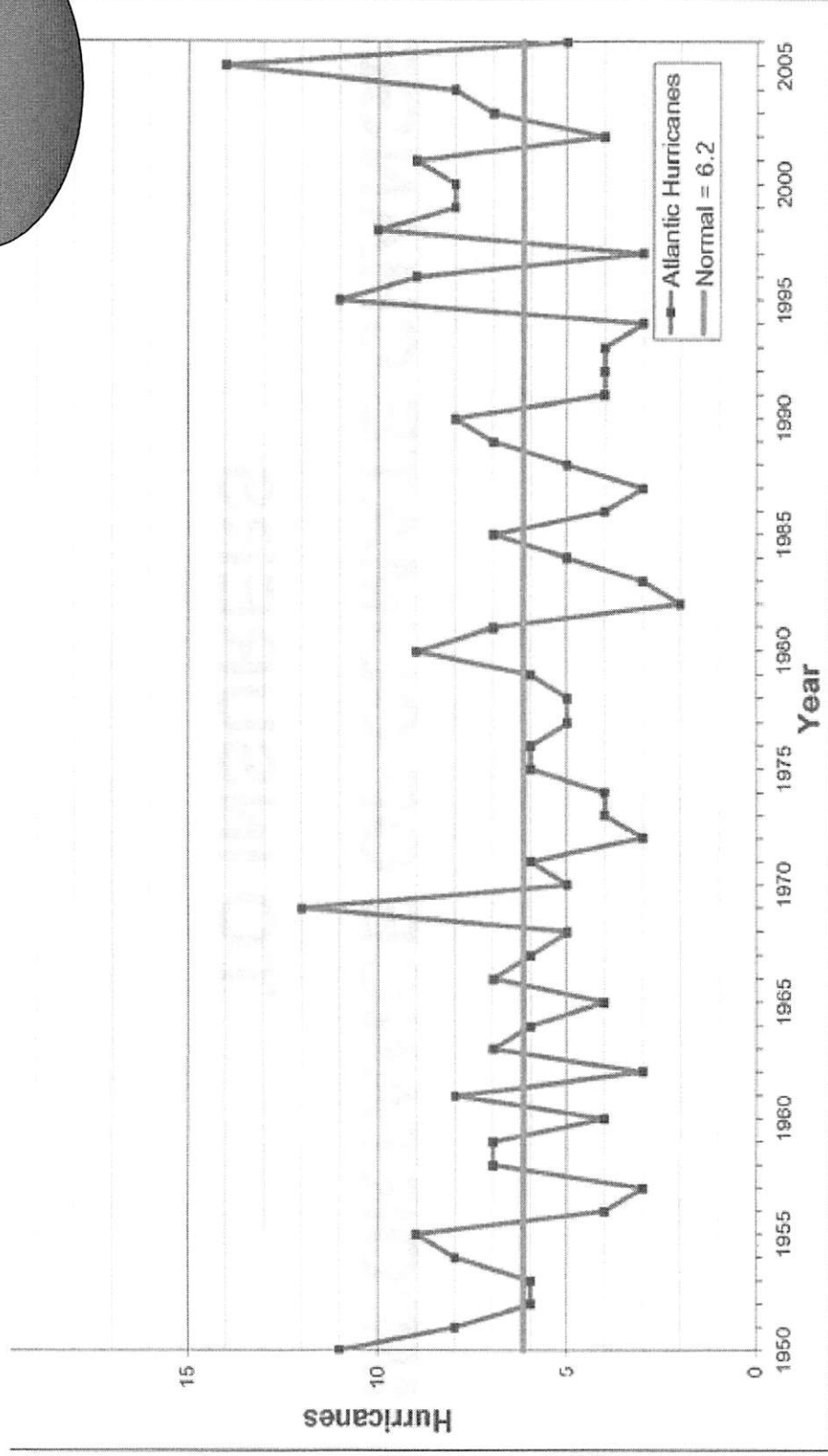
# EFFECTS OF CLIMATE CHANGE ON THE CARIBBEAN

HURRICANES



# EFFECTS OF CLIMATE CHANGE ON THE CARIBBEAN

## HURRICANES

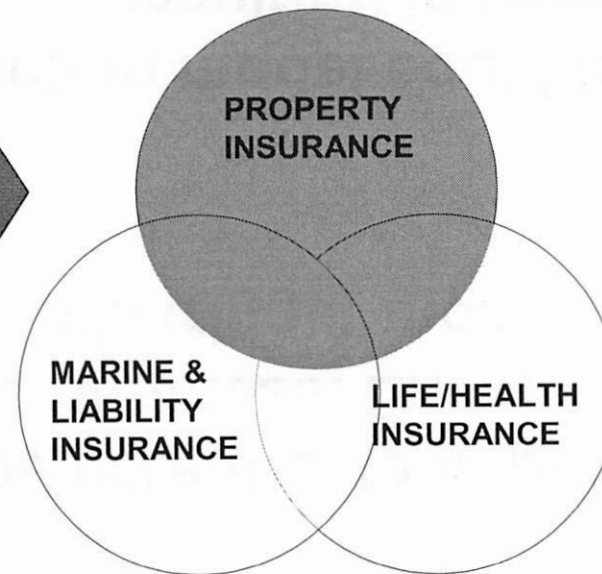
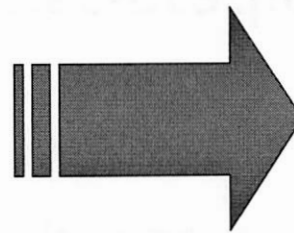
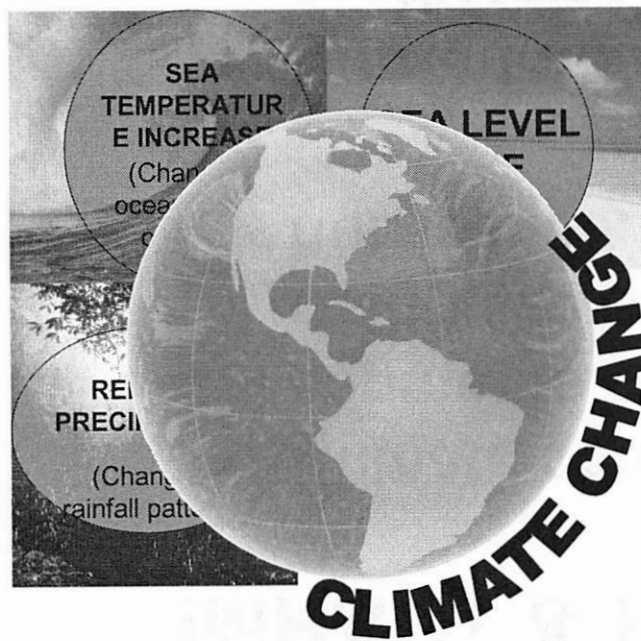


# **IMPORTANCE OF CLIMATE CHANGE TO INSURERS**

## **REVIEW**

# WHY IS CLIMATE CHANGE IMPORTANT TO INSURERS

- WEATHER AND CLIMATE ARE CORE BUSINESS ACTIVITIES ...



# **IMPACT & RELEVANCE ON INSURANCE**

- **Climate change has the potential to impact all segments of insurance business. Example, the rising sea temperature will trigger more hurricanes.**
- **Current disaster-prediction model could lead to costly miscalculations → resulting in possible cutbacks on catastrophe risk.**
- **Tightening of terms, e.g. increased deductibles, exclusions, percentage of loss deductibles**

## **IMPACT & RELEVANCE ON INSURANCE**

- **A case of availability and affordability are emerging (especially for commercial customers)**
- **Insurers are being squeezed by higher reinsurance prices**
- **Expectations for rating agencies to establish more capital in anticipation of rising future losses**

## **... as a consequence**

- **Insurers may protect themselves by withdrawing from markets ... cut their exposure to risky areas**
  - **Tighten terms**
  - **Alter the pricing and terms of coverage**
-



# **PROACTIVE & “PROFITABLE” MANAGEMENT OF CLIMATE CHANGE**

## **REVIEW**

# PROACTIVE AND PROFITABLE MANAGEMENT OF CLIMATE CHANGE

***“FROM RISK TO OPPORTUNITY: How Insurers Can Proactively and Profitably Manage Climate Change”***

A Ceres Report – August 2006

Offer the following Advanced Climate Solutions:

- Promoting Loss Prevention
  - Crafting Innovative Insurance Products & Service
  - Participating in Carbon Market
  - Aligning Terms & Conditions with Risk-Reducing Behaviours and Capitalising on the “Halo Effect”
  - R&D and Investment in Climate Change Solutions
  - Building Awareness
  - Leading By Example
-

# **CARIBBEAN INSURANCE MARKET RESPOND TO CLIMATE CHANGE**

## **REVIEW**

## **CARIBBEAN INSURANCE MARKET RESPOND TO CLIMATE CHANGE**

- There are a number of organisation engaged in climate change activities within the region
- A Caribbean Catastrophe Risk Insurance Facility (CCRIF) was launched on June 1<sup>st</sup>, 2007.
- The CCRIF provides participating Caribbean governments with immediate access to liquidity if hit by a hurricane or earthquake.
- CCRIF was able to secure US\$110 million of claims paying capacity on the international reinsurance and capital markets

**THANK YOU**

# CARIBBEAN INSURANCE MARKET RESPOND TO CLIMATE CHANGE

- First Ever Regional Catastrophe Risk Insurance Pool Up and Running in Time for 2007 Hurricane Season
- Beginning June 1st, the Caribbean Catastrophe Risk Insurance Facility (CCRIF) will provide participating governments from the region with immediate access to liquidity if hit by a hurricane or earthquake

***CCRIF participating governments are:*** Anguilla, Antigua & Barbuda, Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, St Kitts & Nevis, St Lucia, St Vincent & the Grenadines, Trinidad & Tobago, Turks and Caicos Islands -The World Bank

## **CARIBBEAN INSURANCE MARKET RESPOND TO CLIMATE CHANGE**

- This regional institution, registered in the Cayman Islands, is the first regional disaster insurance facility in the world.
- Its reserves come from participating countries and donors. Funds from Canada, the United Kingdom and the World Bank (through the International Bank for Reconstruction and Development – IBRD) have already been received and contributions from Bermuda, France and the Caribbean Development Bank have been pledged.

## **CARIBBEAN INSURANCE MARKET RESPOND TO CLIMATE CHANGE**

- CCRIF was able to secure US\$110 million of claims paying capacity on the international reinsurance and capital markets.
- The reinsurance structure consists of four layers:
  - CCRIF retains the first layer of US\$10 million;
  - reinsurers underwrite the second (US\$15 million) and third layers (US\$25 million);
  - the top layer (US\$70 million) is financed with reinsurance (US\$50 million) plus US\$20 million coverage through a catastrophe swap between the World Bank (IBRD) and CCRIF



# **REVIEW**

## **CLIMATE CHANGE**

**... (If needed for this presentation)**

# CLIMATE CHANGE

- **Chemistry of the Greenhouse Effect**
- **Physics of the Greenhouse Effect**

# CLIMATE CHANGE

## Chemistry of the Greenhouse Effect

The two gases contributing most significantly to the natural greenhouse warming of the earth are **water vapour** and **carbon dioxide**. Methane, nitrous oxide, ozone and sulphur hexafluoride are also greenhouse gases but make a smaller contribution to the greenhouse effect because their concentrations are so low.

Since the beginning of the Industrial Revolution, human activities have caused an increase in several greenhouse gases, most notably carbon dioxide.

# CLIMATE CHANGE

## Physics of the Greenhouse Effect

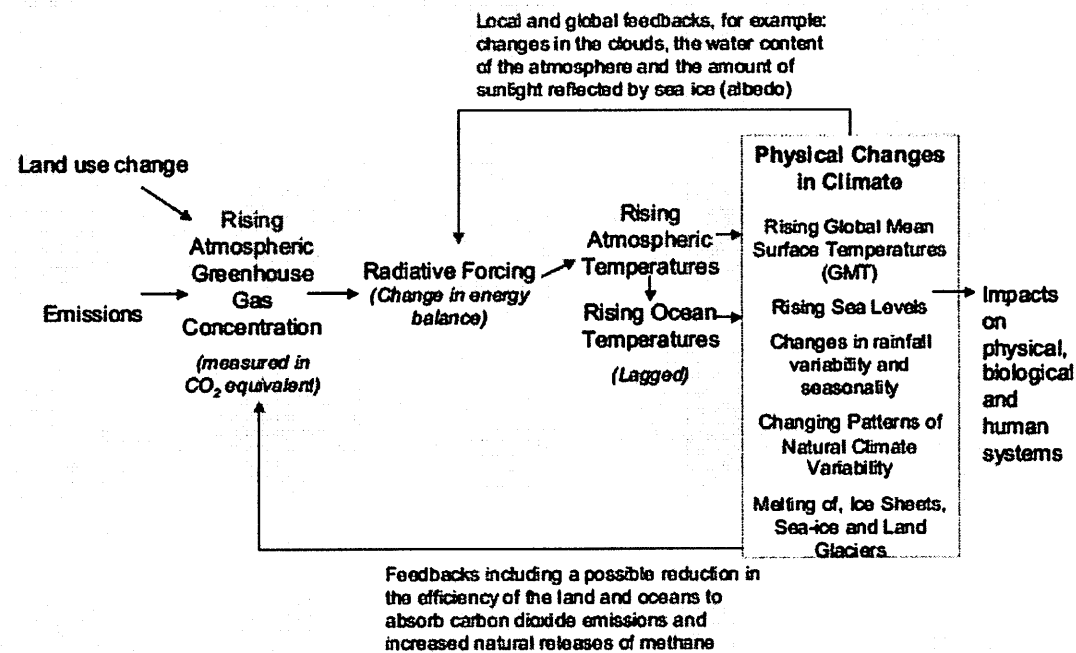
The greenhouse effect is absolutely vital to allowing life, as we know it to survive on earth. Without the greenhouse effect, Earth would be a cold planet, with a mean surface temperature well below freezing. The greenhouse effect insulates earth, resulting in the mild temperatures at the earth's surface that have allowed life to flourish.

*Source: [www.climate.org](http://www.climate.org)*

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# CLIMATE CHANGE

Figure 1.4 The link between greenhouse gases and climate change.



# EFFECTS OF CLIMATE CHANGE ON THE CARIBBEAN

## HURRICANES

The strongest hurricanes in the Atlantic

Year	Name	Lowest Pressure (hPa)	Sea area
2005	Wilma	882	Caribbean
1988	Gilbert	888	Caribbean
1935	Labor Day Hurricane	892	Florida Keys
2005	Rita	897	Gulf of Mexico
1980	Allen	899	Caribbean
2005	Katrina	902	Gulf of Mexico
1999	Mitch	905	Near Honduras
1969	Camille	905	Gulf of Mexico
2004	Ivan	910	Caribbean
1955	Janet	914	Caribbean

Source: 2006 Geo Risks Research, Munich Re

# IMPACT & RELEVANCE ON INSURANCE

## PROPERTY INSURANCE



### EXAMPLES:

- Property damage
- Business interruption
- Roadway and infrastructure
- Agricultural products
- Crop & Livestock

## MARINE & LIABILITY INSURANCE



### EXAMPLES:

- Hull & Cargo losses
- Environmental
- Professional
- Political risk
- Equipment breakdown

## LIFE & HEALTH INSURANCE

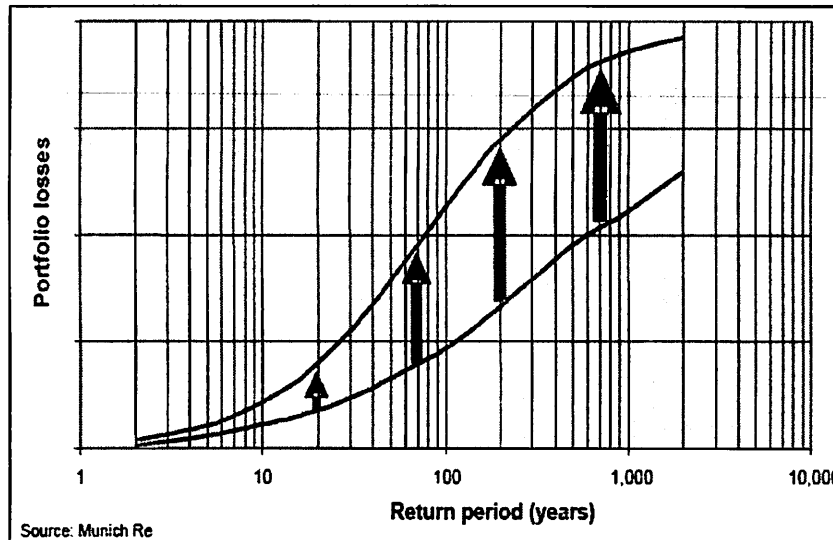


### EXAMPLES:

- Injury
- Infectious disease
- Pollutant releases
- Mental health
- Nutrition

# CHALLENGES FOR THE CARIBBEAN INSURERS

Example: Adjustment of loss distribution (pml curve) as a consequence of changing risk



The upper arrow shows the adjustments of the loss distribution including the following factors:

- Higher hurricane frequency
- Higher intensities
- Re-evaluation of the storm surge, flood risk
- Loss aggravating factors in connection with mega catastrophes

Source: 2006 Geo Risks Research, Munich Re