

**High-Level Roundtable on International  
Cooperation for Sustainable Development  
in  
Caribbean Small Island Developing States**

***The impact of climate change on Caribbean  
SIDS***

*Presented by*  
The Caribbean Community  
Climate Change Centre

26th March 2008

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# CLIMATE CHANGE CARICOM PERSPECTIVE

- **CARICOM countries' contribution to global GHG emissions budget negligible.**
- **However particularly vulnerable to impacts of climate change.**
- **Already region vulnerable to present day risks from climate variability.**
- **Incumbent on region to build capacity to adapt to climate change.**

# INITIATIVES IN PROGRESS

- **Suite of activities designed to determine:**
  - **the extent of risk arising from climate change to which region will be exposed in future.**
  - **The vulnerability of the region's natural and socioeconomic systems to climate change.**
  - **The impacts of CC on the natural and socioeconomic systems of the region.**
  - **Regional response to mitigate those impacts and costs for implementing.**
  - **Implementation of mitigative actions (ADAPTATION)**
  - **Building regional capacity to carry out the above actions**

# The Global Climate Projections

- **Unequivocal evidence that the earth's temperature is rising and attributable to anthropogenic activities – Green House Gases**
- **Projected trends through 2100**
  - **rise in global temperatures of between 2 – 4.5°C**
  - **Sea level rise of between 11 -77 cm**
  - **Changed weather patterns**
  - **More intense extremes –drought ,floods**
  - **More intense hurricanes**

# CLIMATE TRENDS IN THE CARIBBEAN

- **Past 3 decades trend of increasing mean temperature**
- **By end of 1970's a significant warming detected in lower part of atmosphere**
- **Significant >> in minimum temp.(1.4 deg. since 1960)**
- **No. of warm days in region >>, no. of cold nights <<.**
- **Frequency of droughts >> since 1960 (Cuba)**
- **Frequency of occurrence of extreme events changing- Flooding & hurricane passage > in 1990's**

# Indicative impacts

- Impact studies on vulnerable elements – some indications:
  - Less precipitation - less available water;
  - Changing weather patterns – agriculture adversely affected.
  - Sea level rise – coastal inundation, storm surge exaggeration ( tourism, aquifers, agriculture, infrastructure, human settlement)
  - Increased intensity of hurricanes ( human settlements, tourism, infrastructure, livelihoods.
  - Increased temperature ( agriculture, health, coral reefs)

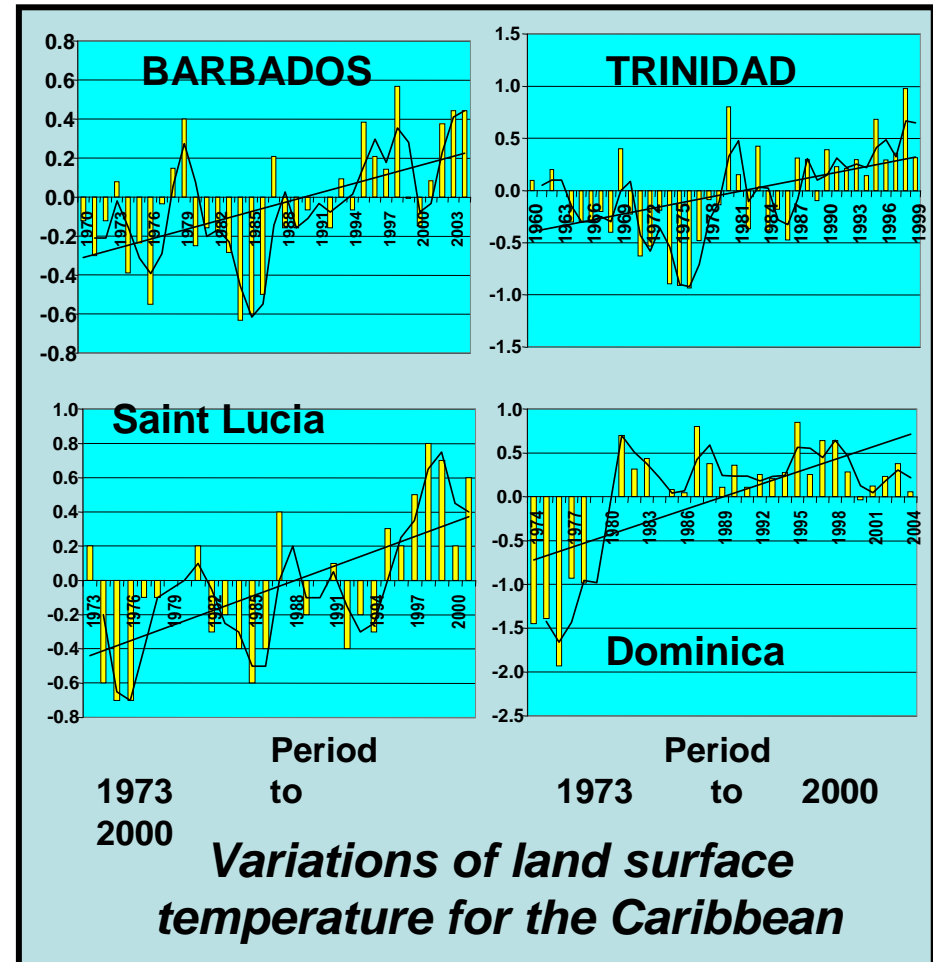
# Caribbean Climate: Temperature and Rainfall

## ■ Temperature trend

- Temperature records have shown an increase in the last century, with the 1990s being the warmest decade since the beginning of the 20th century.
- 1998 also appears as the warmest year on record.

## ■ Rainfall trend

- Records have shown changing patterns.
- Floods in some areas and droughts in other areas



# Hurricane Ivan over Grenada



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# INSURED LOSSES

Storm	Class	Year	Estimated 1990 Insured Losses (000's)	Estimated 1990 Insured Losses if Maximum Wind Speed Increases by		
				5%	10%	15%
Hugo	4	1989	\$3,658,887	\$4,902,705 34%	\$6,514,172 78%	\$8,542,428 133%
Alicia	3	1983	\$2,435,589	\$3,382,775 39%	\$4,312,884 77%	\$5,685,853 133%
Camille	5	1969	\$3,086,201	\$4,120,733 34%	\$5,438,332 76%	\$7,095,008 130%
Source: Clark, 1997.						

# SOME CLIMATE CHANGE-RELATED CONSEQUENCES

- **Sea level rise:-**
  - beach erosion
  - loss of mangrove
  - intrusion of salt water into aquifers
- **Higher sea water temperatures:-**
  - coral reef destruction
- **More severe hurricanes**
  - Damage to infrastructure
- **Changes in rainfall patterns:-**
  - More floods and land slides
  - More droughts
- **Increased difficulty in achieving sustainable development**

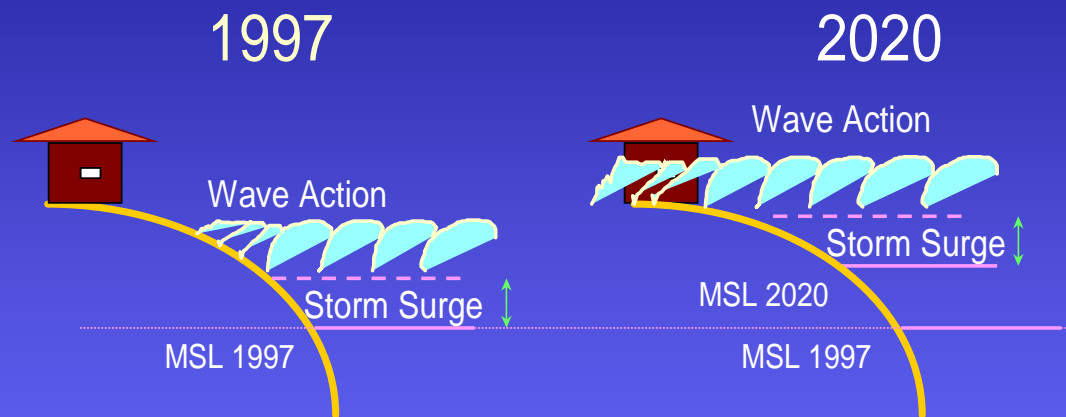


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# SLR & Storm Surge

## Coastal Impact of Storm Surge and Wave Action under a Sea Level Rise Scenario



### Response Strategies:

- Retreat
- Accommodation
- Protection

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# One of many flood events Georgetown, Guyana

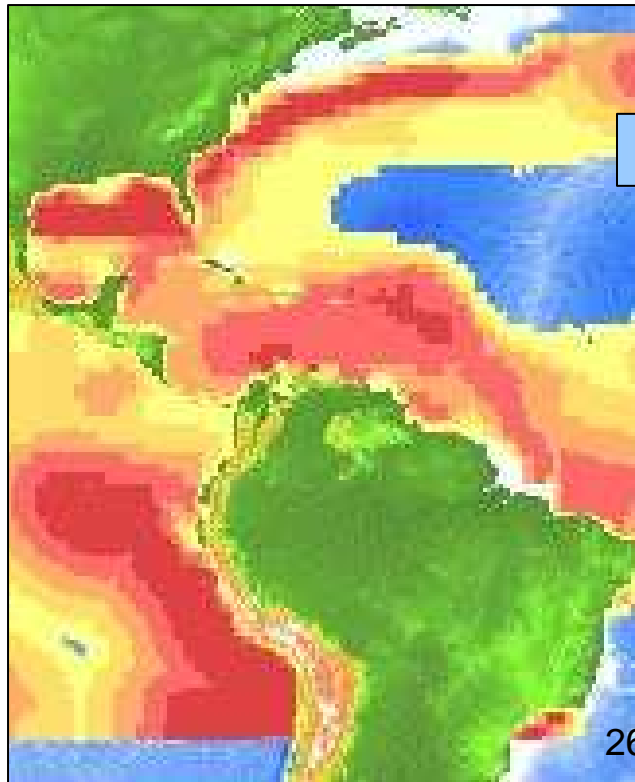


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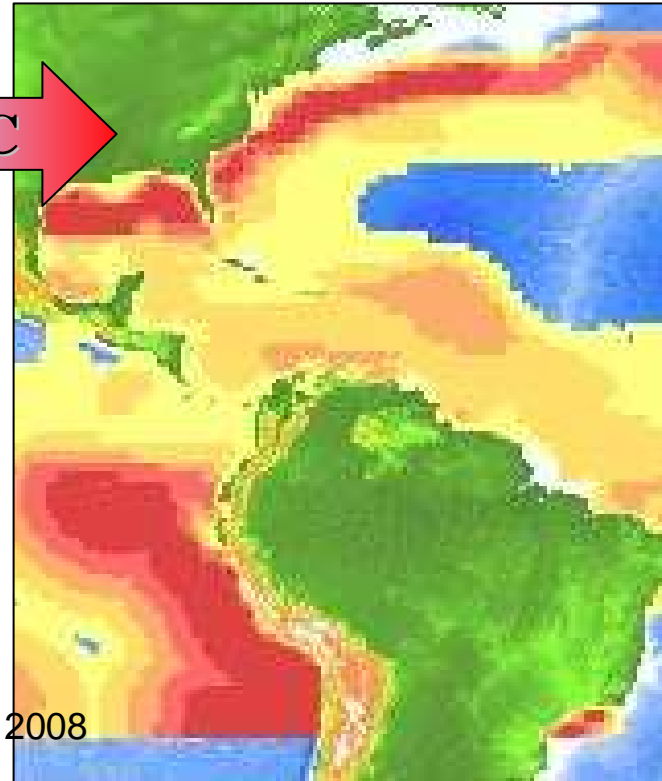
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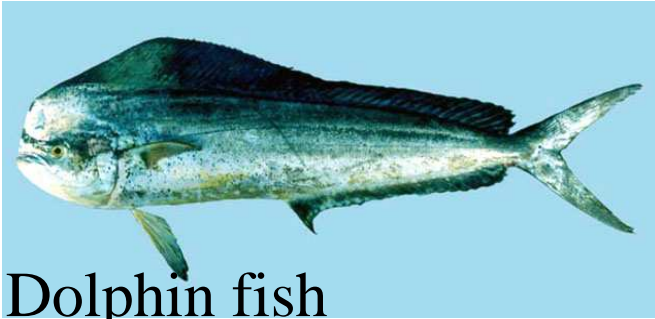
Habitat becomes less favourable



+1°C



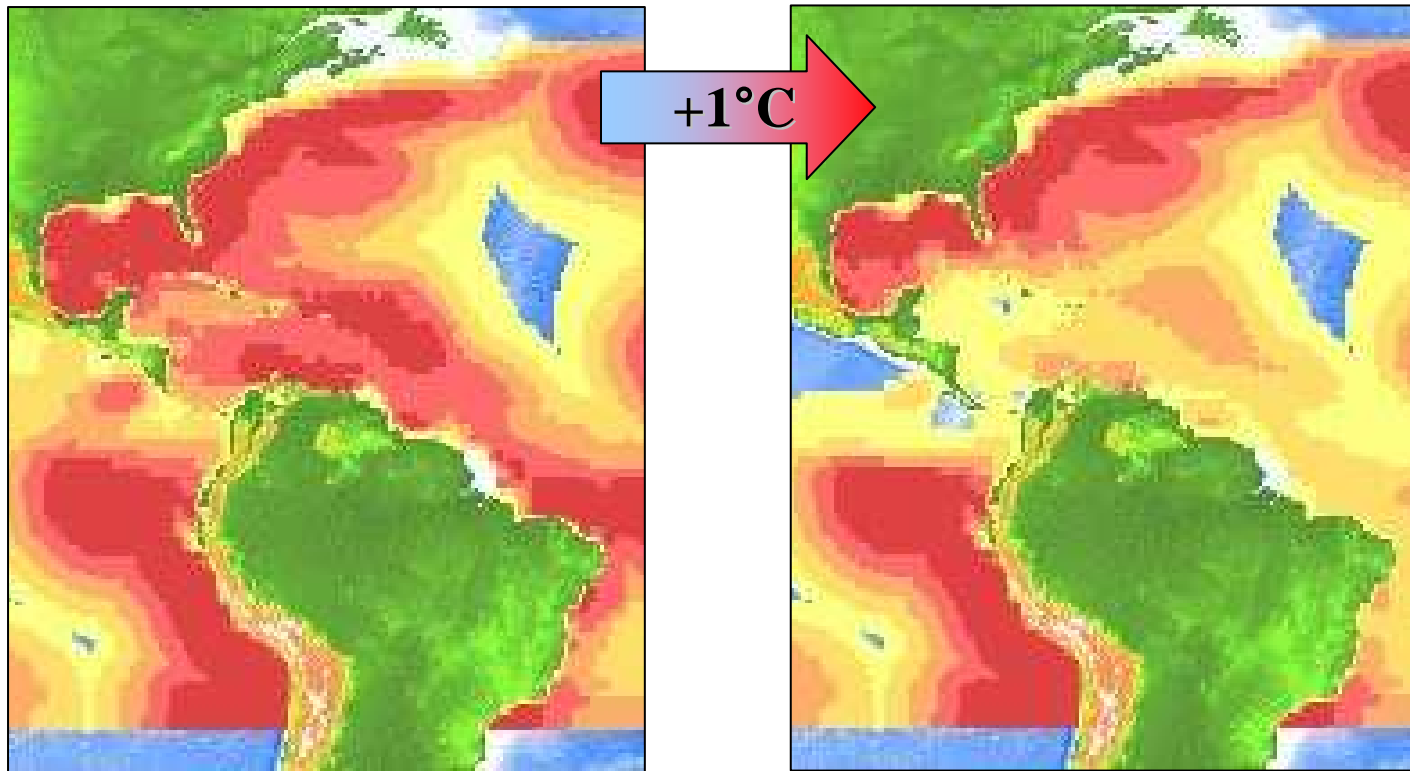
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Dolphin fish

*Coryphaena hippurus*

Habitat becomes less favourable



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# ENERGY

- Region economy highly Carbon intensive & not as competitive as it can be.
- Heavy outflow of foreign ex. to meet escalating energy bill.
- Endogenisation of regional energy sources coupled with effective demand and supply side management practices regarded as essential part of region's adaptive strategy.

# ENERGY

- Although region emits miniscule percentage of global emissions opportunity to utilise the CDM mechanism under Kyoto to put energy sector on more sustainable footing.
- CDM projects in the areas of:
  - Energy efficiency
  - Renewable energy – solar, geothermal, wind, OTEC, biofuels, wa.ve
  - Landfill gas (waste management)
  - Ethanol – transformation of sugar industry



# The CARICOM Climate Change Centre

- Recognizing the vulnerability to the impacts of climate change and climate variability on the economic development and social needs of the region:
  - The Heads of Governments of CARICOM in July 2002, endorsed the creation of a permanent capacity in the region to address climate change issues.
  - The Centre is mandated to coordinate the regional response to climate change and its efforts to manage and adapt to its projected impacts.



- ◆ Operational since January 2004
- ◆ Located in Belmopan, Belize