GLOBAL WARMING & REGIONAL ENVIRONMENT CHANGE

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GLOBAL WARMING

- Caribbean
  - Between 1996 and 2006 the Caribbean contributed less than 1% to CO2 Emissions from Energy Consumption

Region	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Caribbean	26.51	28.69	28.78	29.55	30.74	31.56	32.29	32.33	32.59	34.31	307.35
North America	1,724.97	1,755.22	1,772.55	1,793.58	1,844.64	1,818.35	1,836.69	1,859.15	1,894.06	1,905.76	18,204.97
World Total	6,144.69	6,264.30	6,245.69	6,351.71	6,477.55	6,548.60	6,694.35	7,030.86	7,414.32	7,688.93	66,861.00

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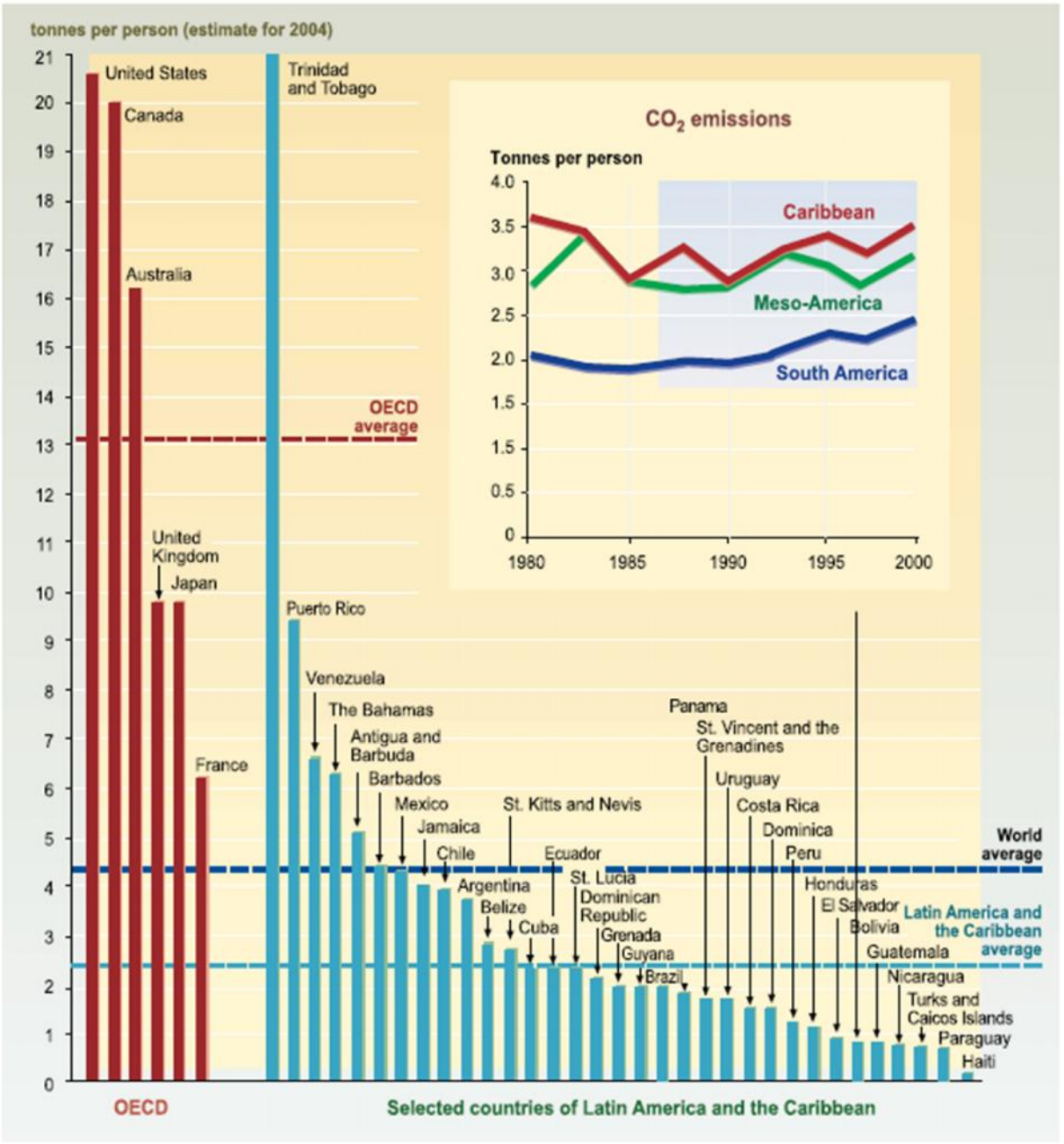

Source: World Bank's World Development Indicators 2008 and US EIA

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Pop Quiz – Global Warming

1. How much CO2 does the Caribbean emit when compared to the global average?
   - **Less than 1%**

2. The Caribbean's average tonnes per emissions of CO2 per person when compared to those of South America, is?
   - **Greater than**

Global Warming

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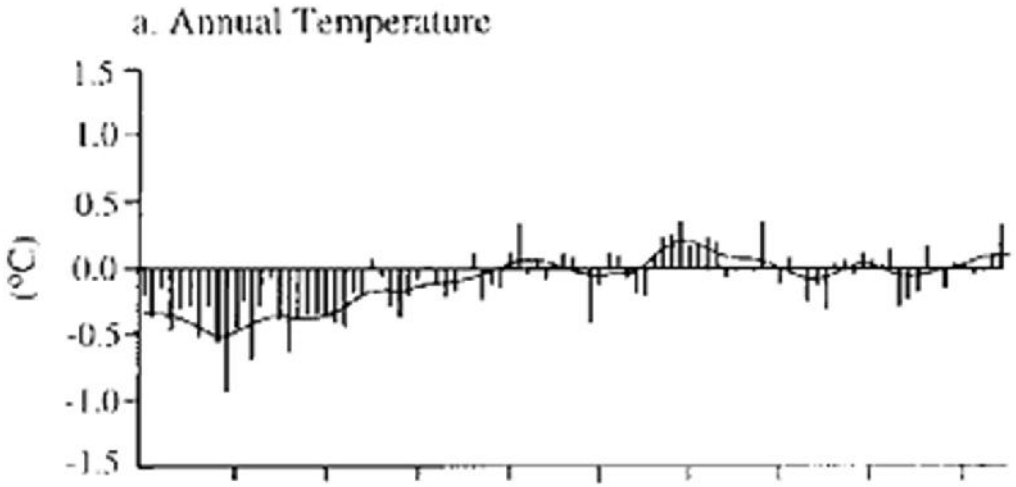
Environmental Change

- Average annual temperatures have increased by more than 0.56°C over the period 1900-1995
- Mean air temperature has risen by 0.6°C during the past 45 years.



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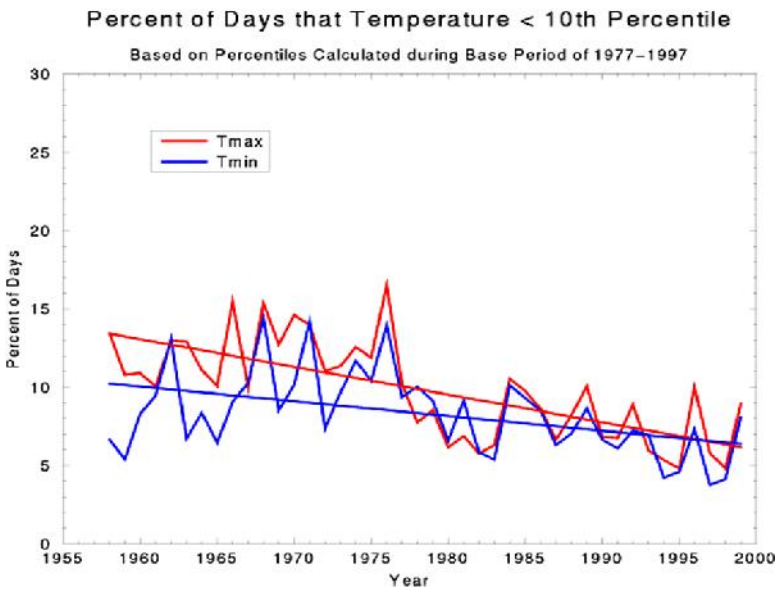
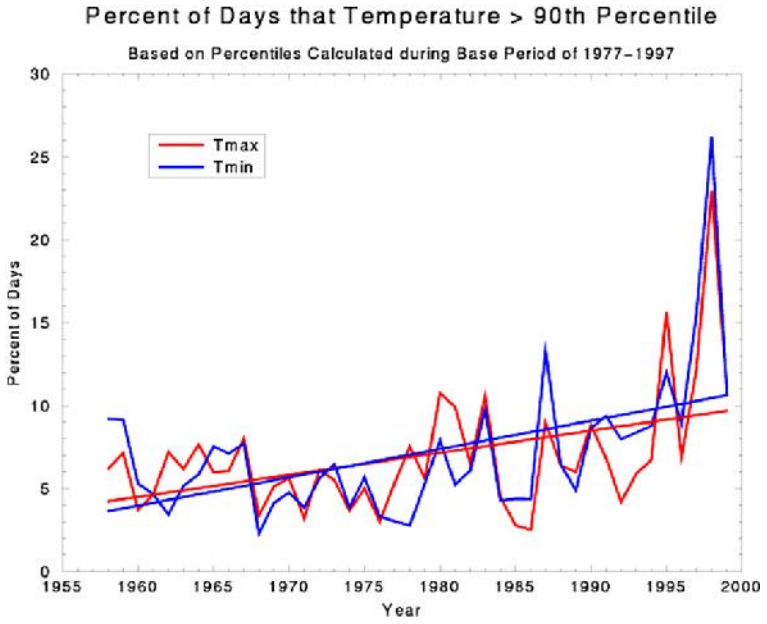
ENVIRONMENTAL CHANGE

- 1950-2000
  - More warm days, More warm nights
  - Fewer cool days, Fewer cool nights





- Similar to the global case the changes over land for the Caribbean, exceed those of the oceans

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Pop Quiz – Environmental Change

Temperature

- The frequency of cool nights in the Caribbean has been?
  - **Decreasing**

- The Caribbean's temperature average is not unlike the global average, in that :
  - **Land areas show a greater warming than Ocean surfaces**

- What has been the increase in annual averaged temperatures for the Caribbean
  - **0.5°C**

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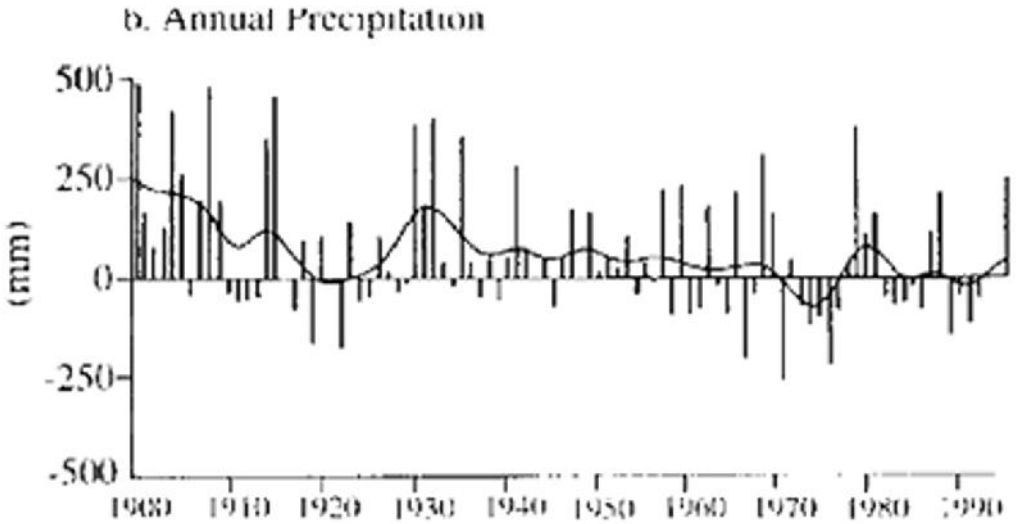
Environmental Change

- Precipitation

Relative to 1961-90

- Rainfall data for the 19th Century shows a much greater seasonal, inter-annual, and decadal-scale variability,
- A 250 mm declining trend in average annual rainfall is evident



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Pop Quiz – Environmental Change

1. The changes seen in Caribbean annual precipitation is largely due to :
   - **None of the Above**

2. What is the trend associated with Caribbean Precipitation:
   - **A Declining trend of 250mm**

Precipitation

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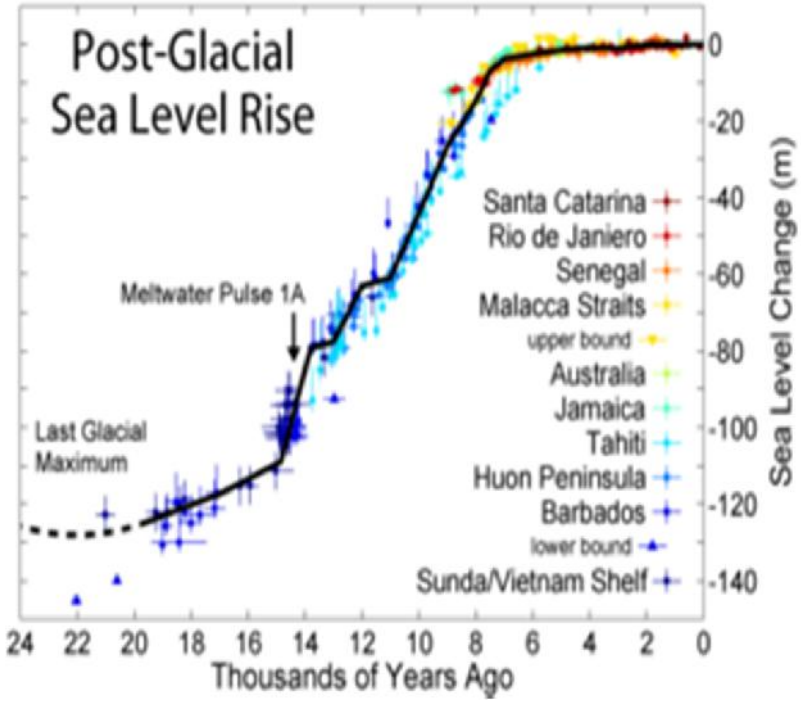
Environmental Change

- Extremes
  - Recall mean global sea surface rose by 1.7±0.5mm/year over the period 1961 – 1993.
  - Available information suggests that SLR trends in the Caribbean have been broadly similar to global trends over this same period.



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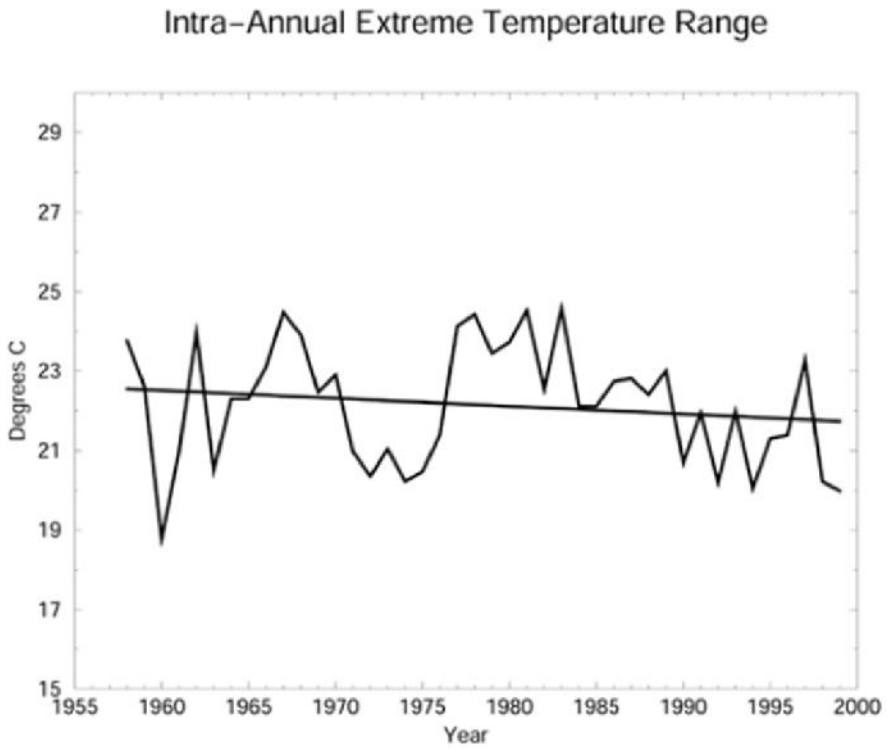
Environmental Change

- Extremes
  - Decreasing Temperature Range
    - Smaller Differences between coldest and warmest temperatures



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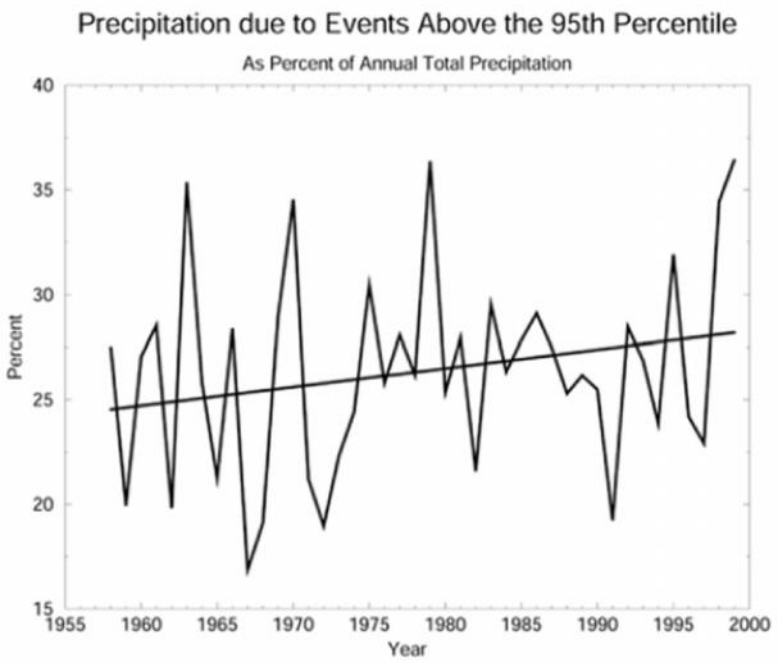
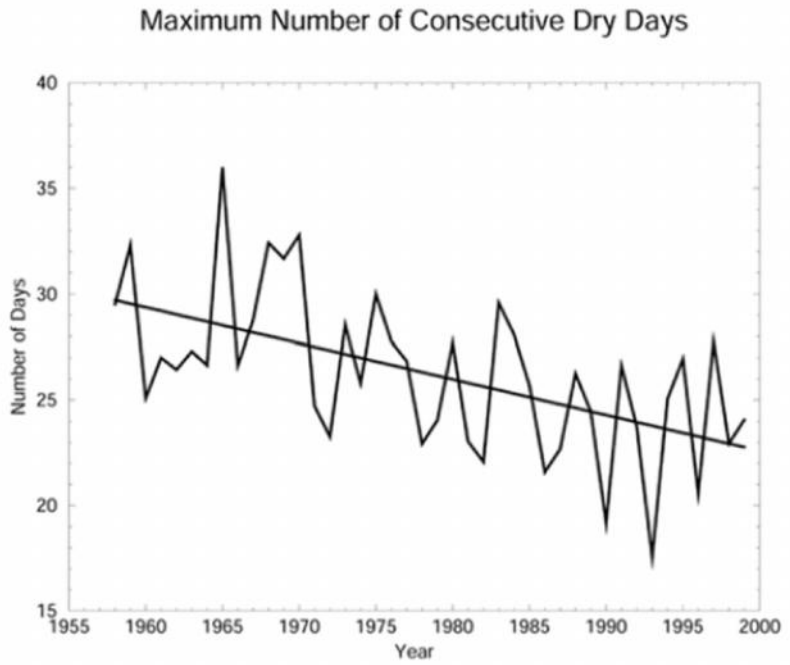
Environmental Change

- Extremes
  - Although total Precipitation showed decrease, the number of heavy rainfall events has increased
  - Additionally the number of consecutive dry days has been decreasing





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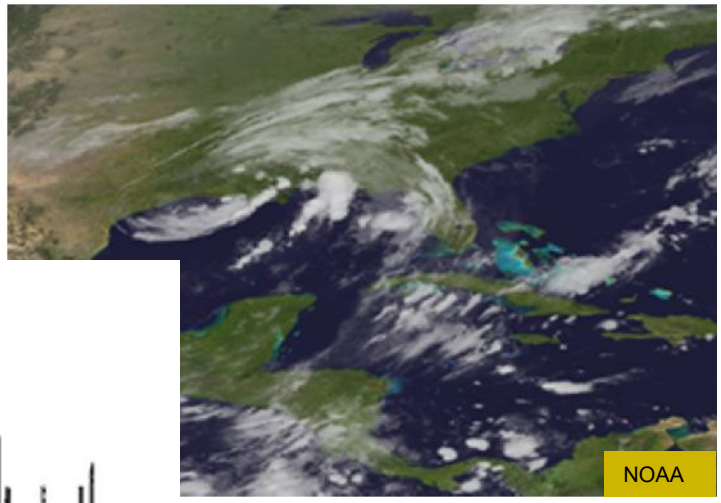
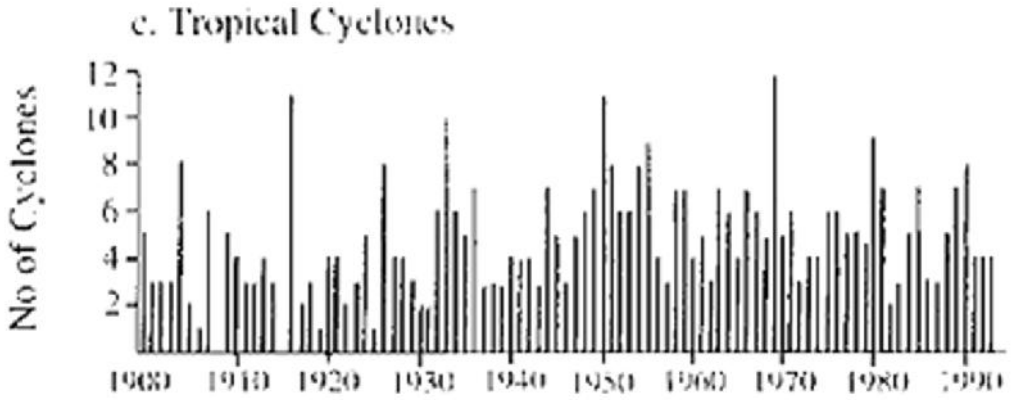
ENVIRONMENTAL CHANGE

- **Tropical storm and hurricane** frequencies vary considerably from year to year, but evidence suggests substantial **increases in intensity** and **duration** since the 1970s.





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Pop Quiz – Environmental Change

Extremes

1. Approximately how much per year has sea level risen in the Caribbean?
   - **1.7 mm**

2. There is clear and irrefutable evidence that tropical storms have been increasing in intensity and frequency over the last century.
   - **False**

3. The number of consecutive dry days in the Caribbean has been increasing hence the decrease in overall precipitation.
   - **True**