



Co-funded by the
Erasmus+ Programme
of the European Union

Principles of adaptation and mitigation of impacts of climate change

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Contents

Chapter 1

- Climate change
 - Nguyên nhân
 - Các tác động
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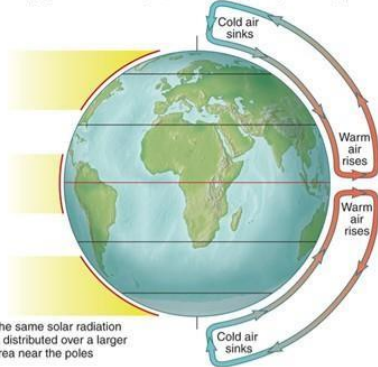
Climate and Weather

Khí hậu bao gồm các yếu tố nhiệt độ, độ ẩm, lượng mưa, áp suất khí quyển, các hiện tượng xảy ra trong khí quyển và nhiều yếu tố khí tượng khác trong khoảng thời gian dài ở một vùng, miền xác định.



Tropical	Dry	Moderate	Continental	Polar	Non-permanent
Tropical wet	Semi-arid	Mediterranean	Humid continental	Tundra	Non-permanent
Tropical wet and dry	Arid	Humid subtropical	Subarctic	Ice cap	Highlands
		Marine west coast			

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The same solar radiation is distributed over a larger area near the poles

Climate and. Weather

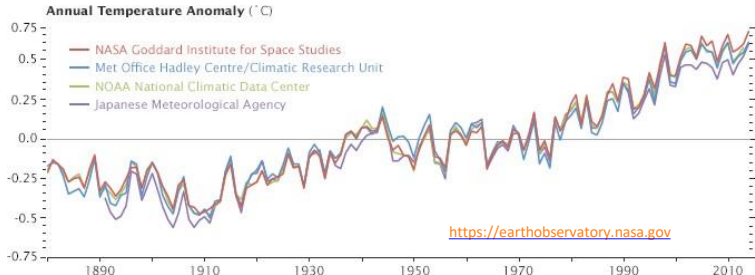
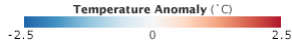
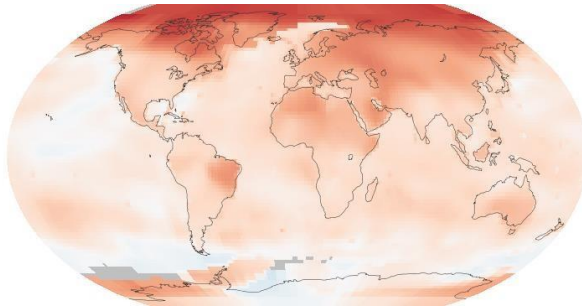
Thời tiết là các diễn biến của các yếu tố trên nhưng ở thời điểm hiện tại hoặc tương lai gần.

DỰ BÁO THỜI TIẾT NGÀY 17/5



Temperatur

2005-2014



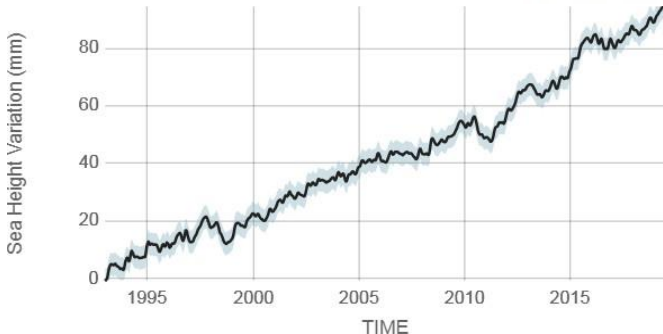
NASA Cập nhật tình hình nước biển dâng:

<https://climate.nasa.gov/vital-signs/sea-level/>

SATELLITE DATA: 1993-PRESENT

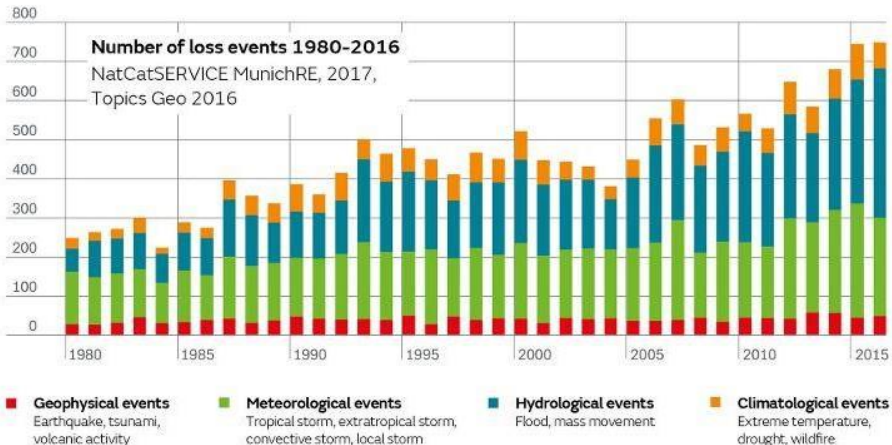
Data source: Satellite sea level observations.
Credit: NASA Goddard Space Flight Center

Nước biển dâng
RATE OF CHANGE
↑ 3.3 g
millimeters per year



Extreme weather

Are extremes becoming more frequent?



Discussion

Nguyên nhân của các vấn đề trên?

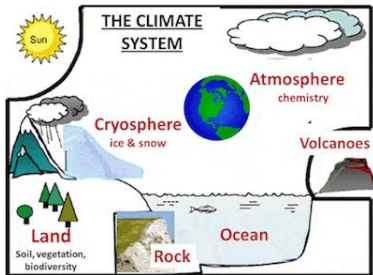
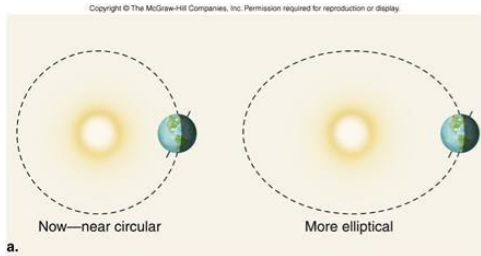
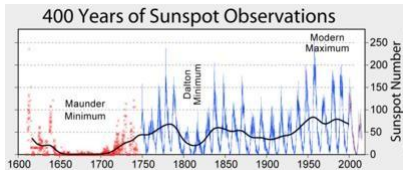
- Tự nhiên
- Con người
- Diễn ra như thế nào



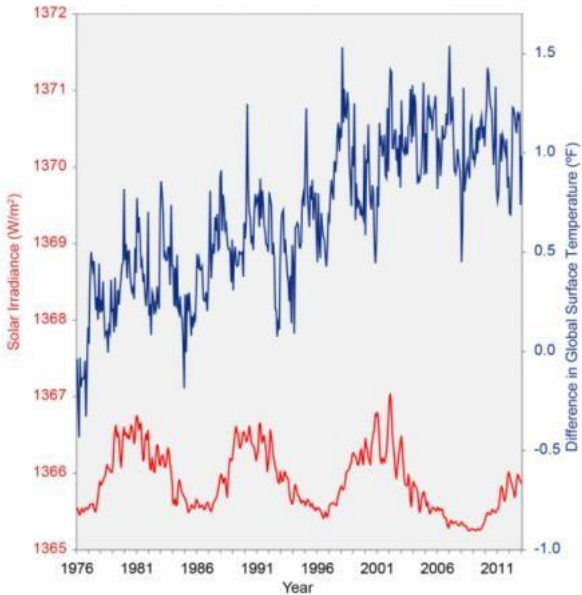
Các yếu tố làm thay đổi khí hậu

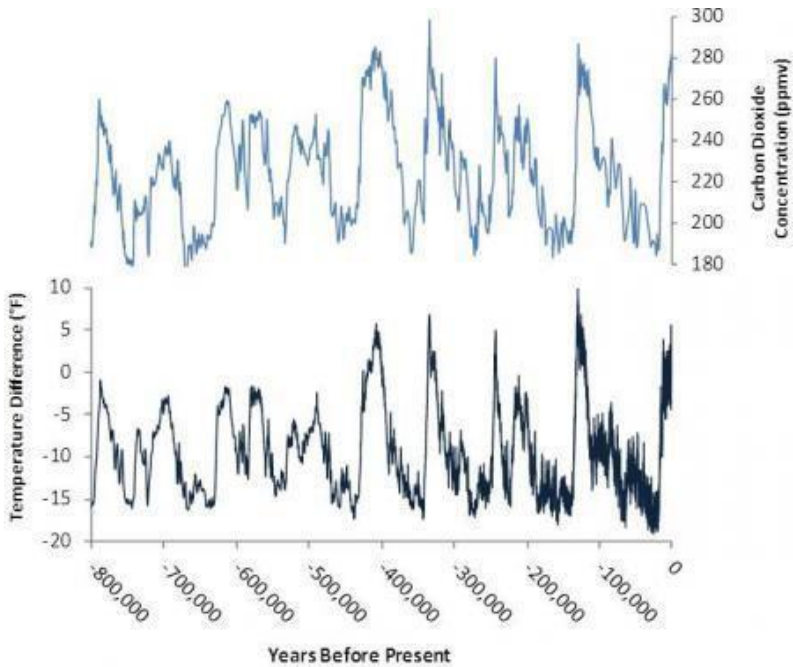
Tự nhiên

- Nhiệt độ thay đổi



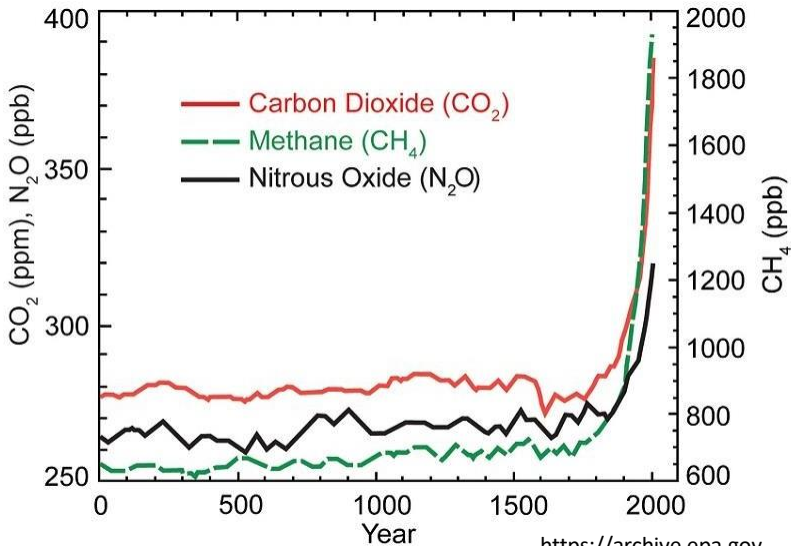
Measurements of Surface Temperature and Sun's Energy





Các yếu tố làm thay đổi khí hậu

Con người

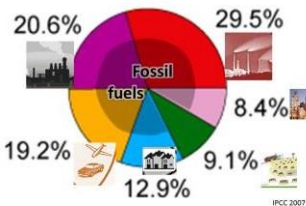


Discussion

- Nguồn phát thải các loại khí trên?

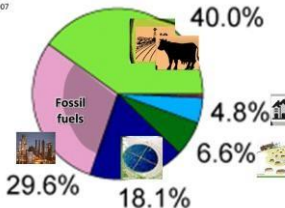


Global CO2 emissions 72% of total



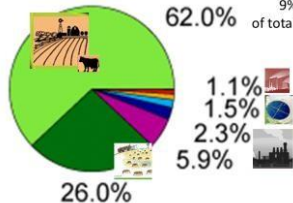
Global methane emissions 18% of total

IPCC 2007



Global nitrous oxide emissions 9% of total

IPCC 2007



CO2:

fossil fuels mainly, also deforestation

Methane:

agriculture- but the sectorial source is the livestock industry from the ruminant gut.

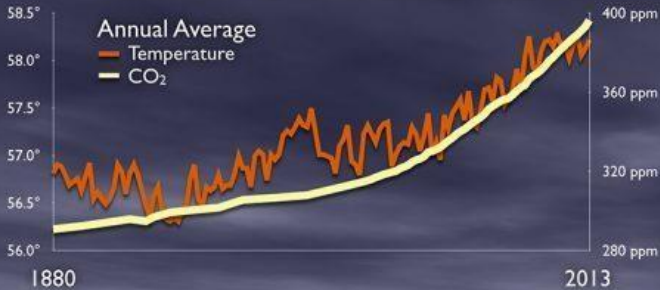
Also fossil fuel industry.

Nitrous oxide

Agriculture industry- nitrogen fertilizers.

Also livestock manure.

Global Temperature and CO₂



Source: National Climate Assessment 2014

CLIMATE  CENTRAL

Temperature vs. CO₂, 1880-2013. (U.S. National Climate Assessment, via Climate Central)