

ERASMUS CLIMIND CHANGE



La TRANS
Educativa

GREENWTC
ENVIRONMENTAL CONSULTING FOR A DESIRABLE FUTURE



Agrupamento de
Escolas João da Rosa



ГИМНАЗИЈА "БРАНКО РАДИЧЕВИЋ"
СТАРА ПАЗОВА

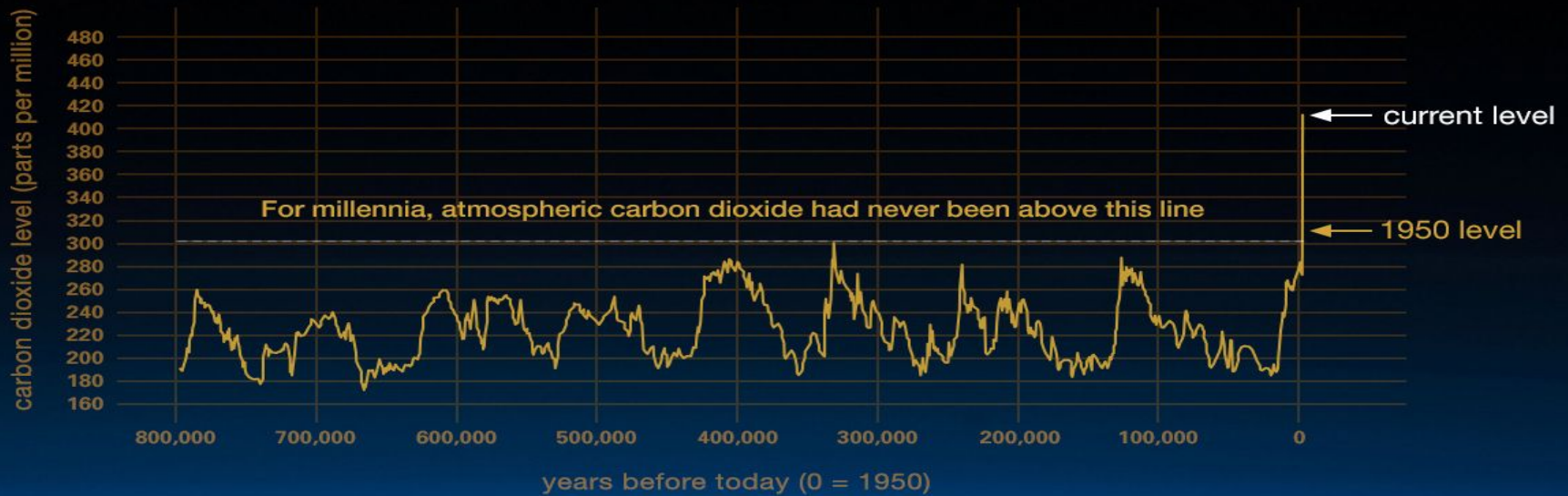




RELATIONSHIP BETWEEN CLIMATE CHANGE AND RENEWABLE ENERGY



Climate change - scientific evidence



climate.nasa.gov

Figure 1. CO2 increase based on comparison of atmospheric samples contain in ice cores

Source: <https://climate.nasa.gov/evidence/>

Climate change - scientific evidence



- ❖ *The current warming is **ten times faster** than the average rate of warming that occurred during the recovery from the Ice Age!*
- ❖ *CO₂ from human activity is **increasing more than 250 times faster** than it increased from natural sources after the last ice age!*

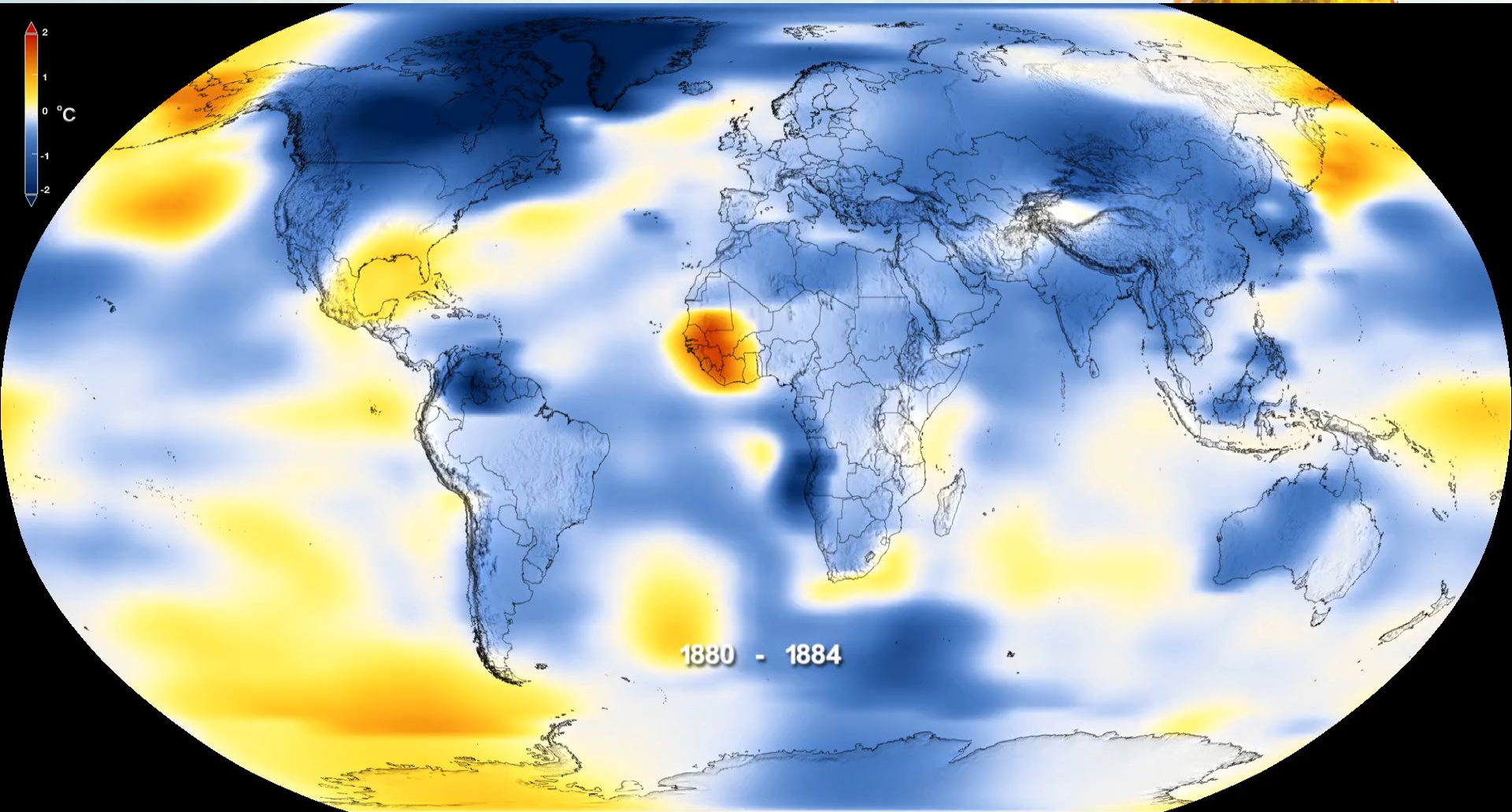
Climate change - scientific evidence



- ❖ Global temperature rising
- ❖ Ocean warming
- ❖ Decreasing ice cover
- ❖ Reduction of snow cover
- ❖ Sea level rise
- ❖ Shrinking of the Arctic ice cap
- ❖ Extreme events
- ❖ Increasing acidity (acidification) of the oceans

Climate change - scientific evidence

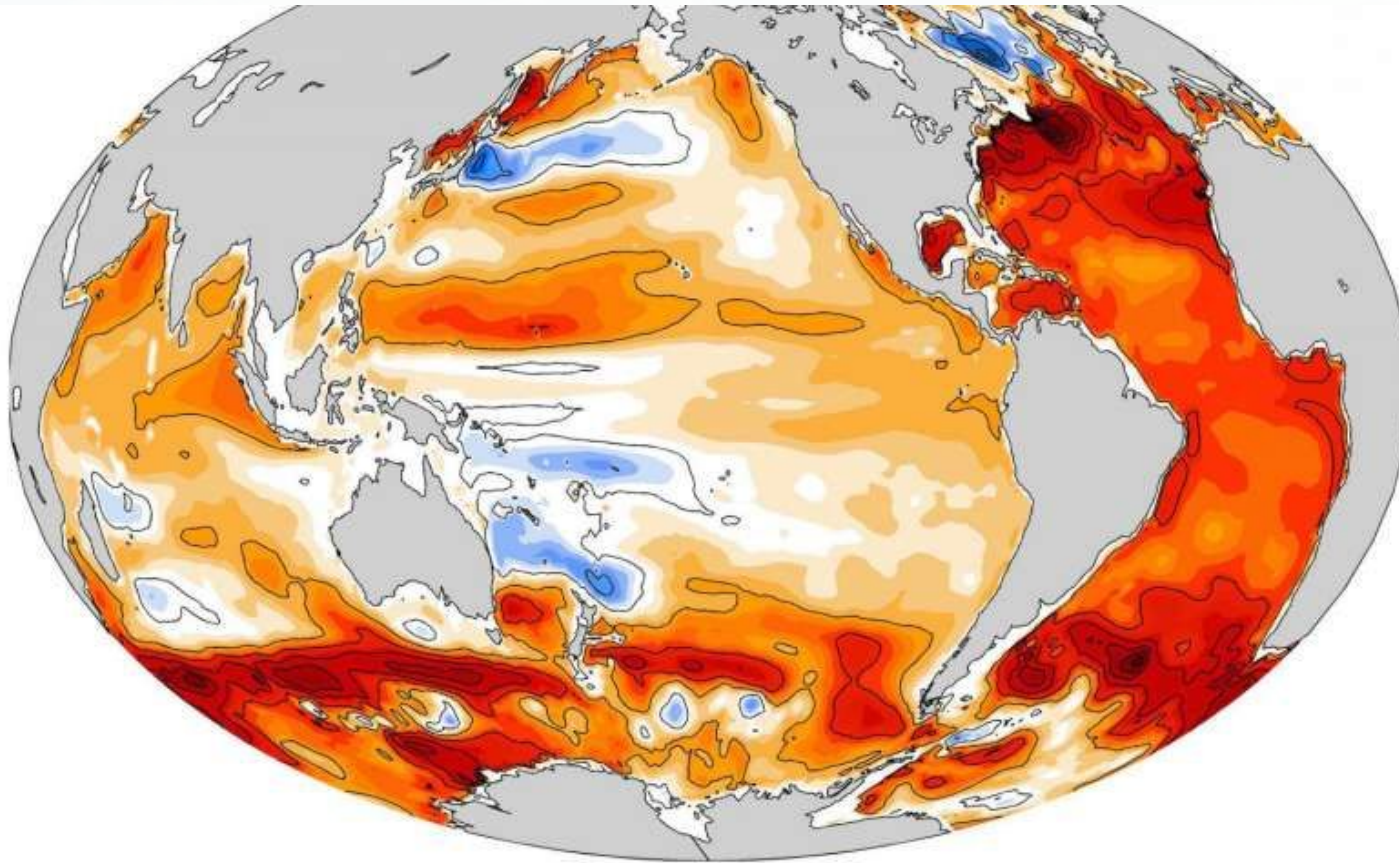
Global warming



Source: NASA/GISS

Climate change - scientific evidence

Ocean warming



Picture 2: The rate of ocean warming from 1960 to 2016 in units of W/m^2

Source <https://phys.org/news/2017-06-oceans-rapidly.html>

Climate change - scientific evidence

Decreasing ice cover



Picture 3: Greenland ice sheet

Climate change - scientific evidence

Decreasing ice cover

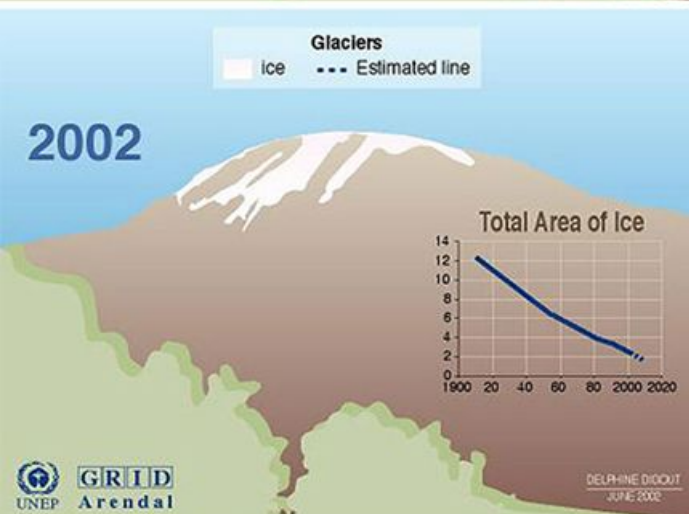


- ❖ Greenland - 279 billion tons of ice per year
- ❖ Antarctica - about 148 billion tons of ice per year

Picture 4: A torrent of water from the melting ice sheet in Greenland

Climate change - scientific evidence

Reduction of snow cover



Picture 5: Melting snow on Kilimanjaro

Climate change - scientific evidence

Sea level rise

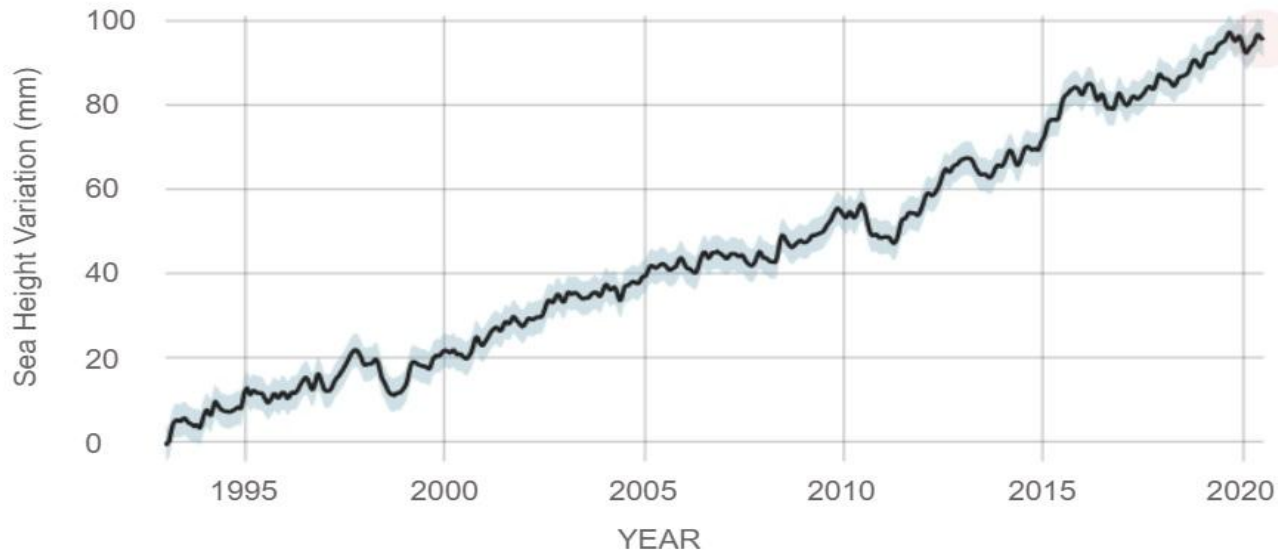


SATELLITE DATA: 1993-PRESENT

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

RATE OF CHANGE

↑ **3.3**
millimeters per year



Click+drag
to zoom

RESET

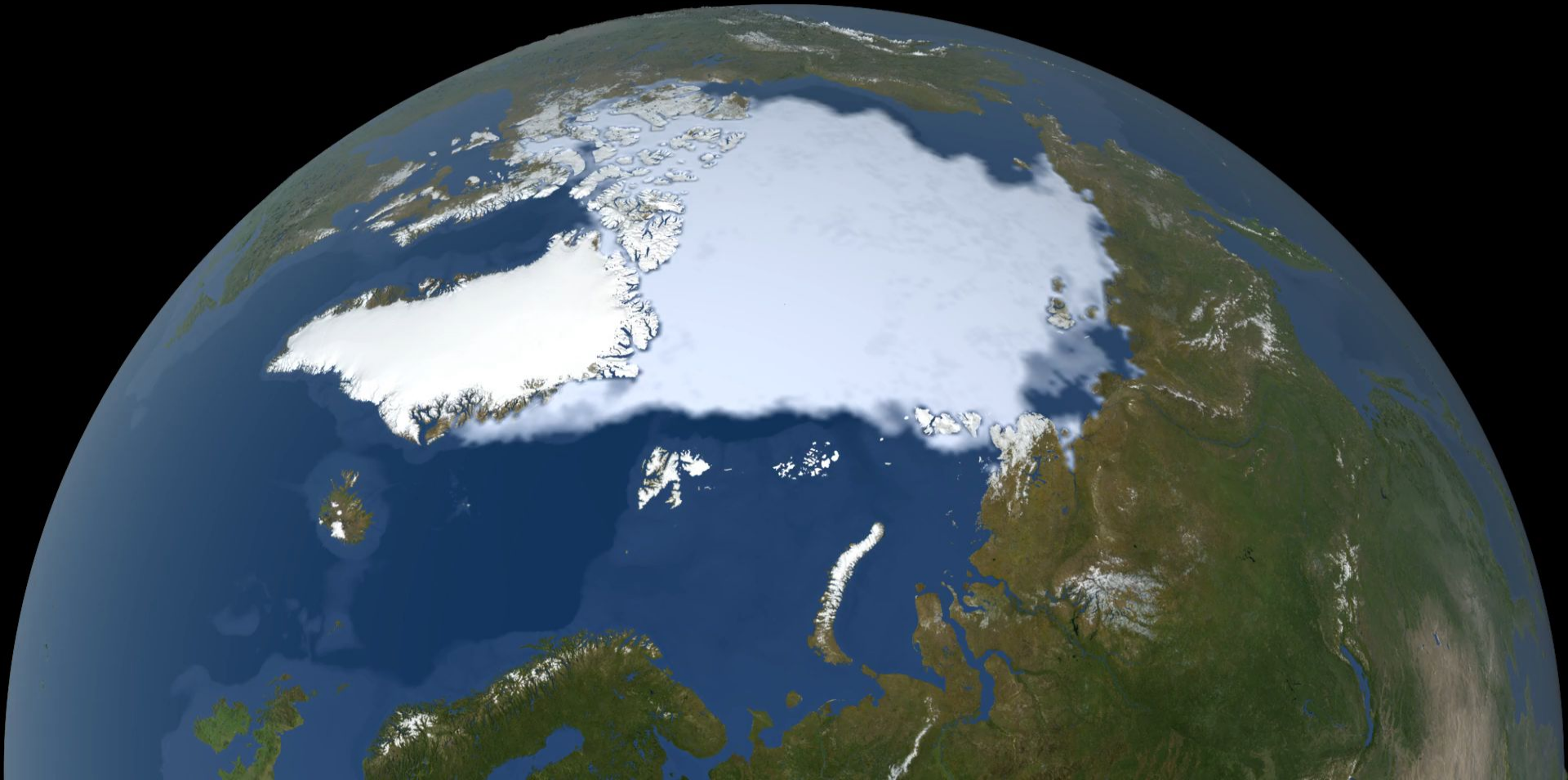
Get Data: [HTTP](#) | Snapshot: [PNG](#)

Picture 6: Satellite observation of sea level in the period from 1993 to today

Source: NASA Goddard Space Flight Center

Climate change - scientific evidence

Shrinking of the Arctic ice cap

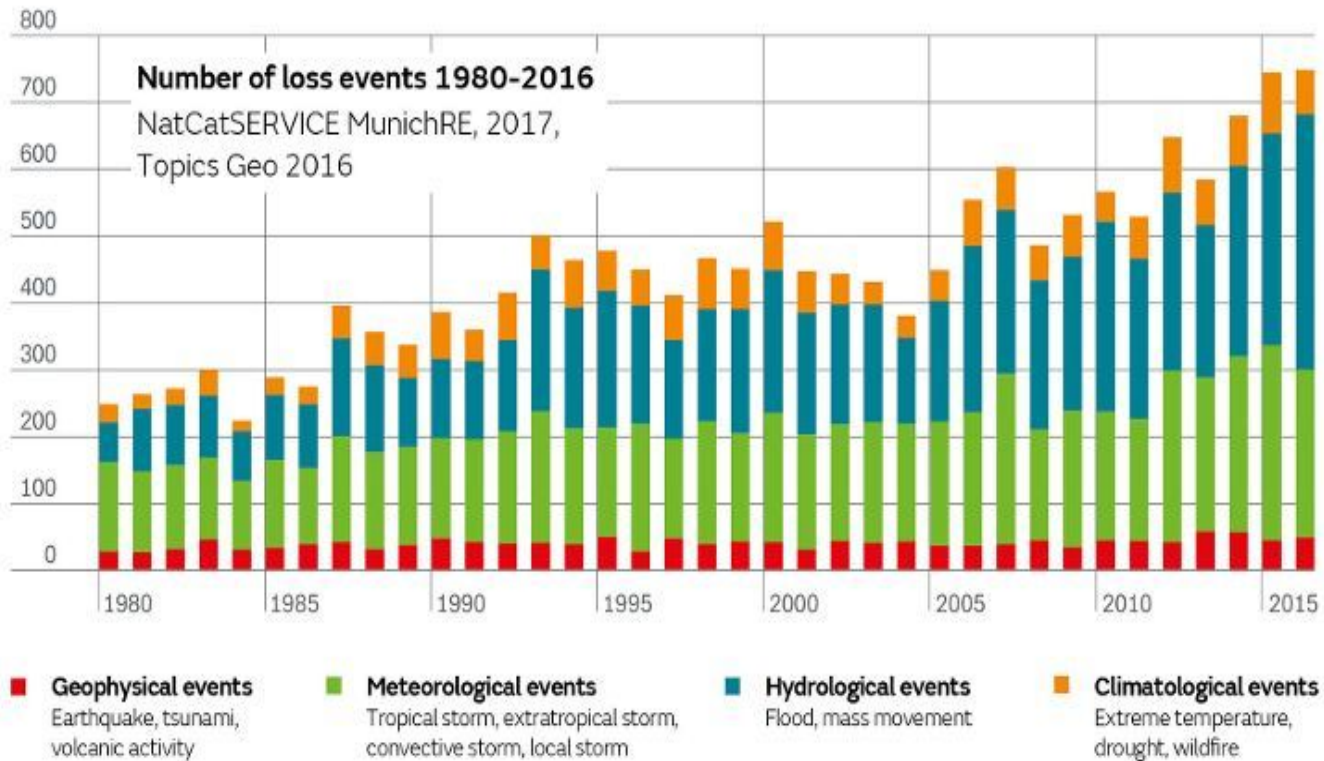


Climate change - scientific evidence

Extreme events



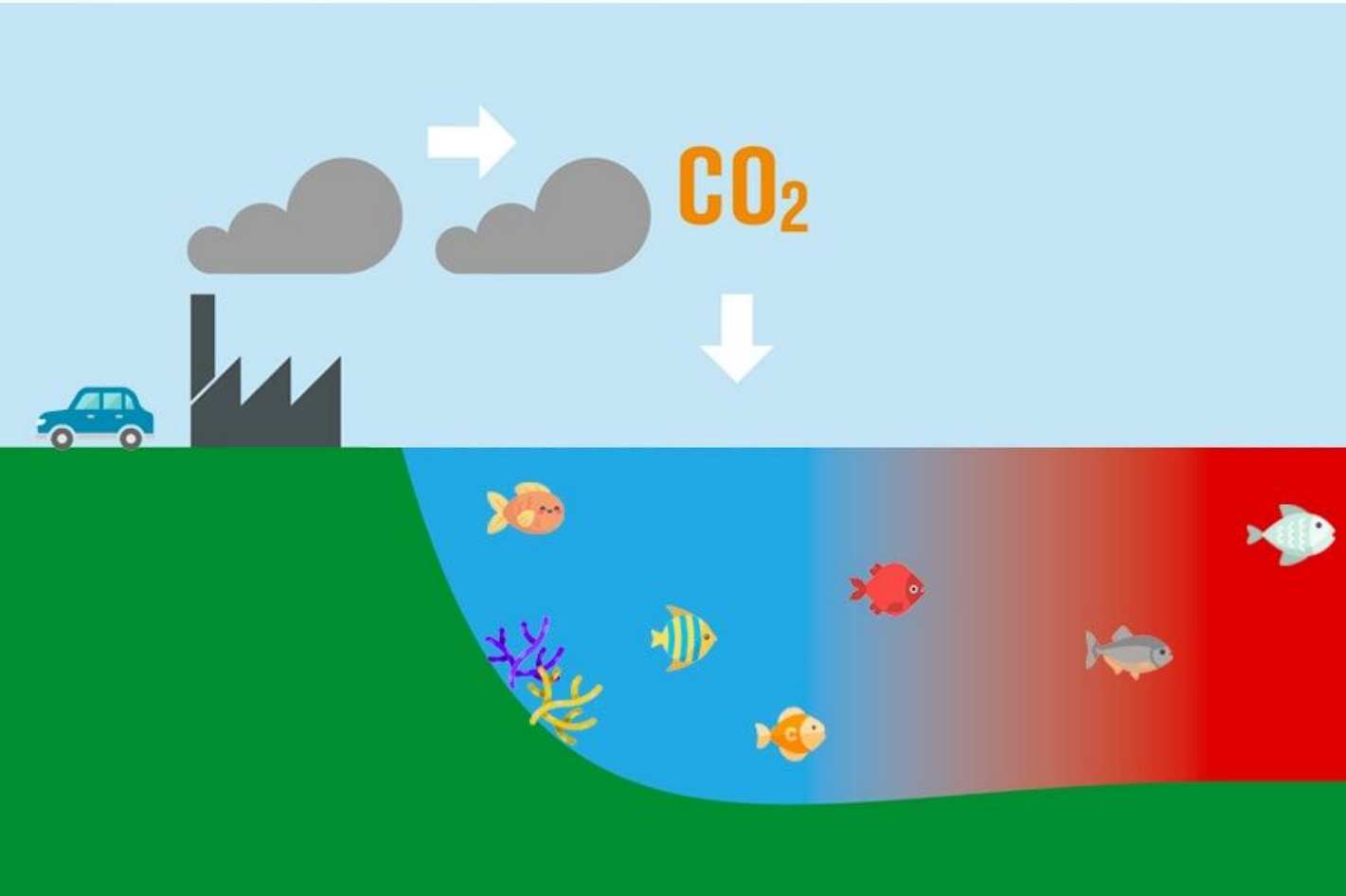
Are extremes becoming more frequent?



Picture 7: Extreme events

Climate change - scientific evidence

Increasing acidity (acidification) of the oceans



Picture 8: Acidification of the oceans

Climate change - Causes



The Greenhouse Effect



Atmosphere

climate.nasa.gov

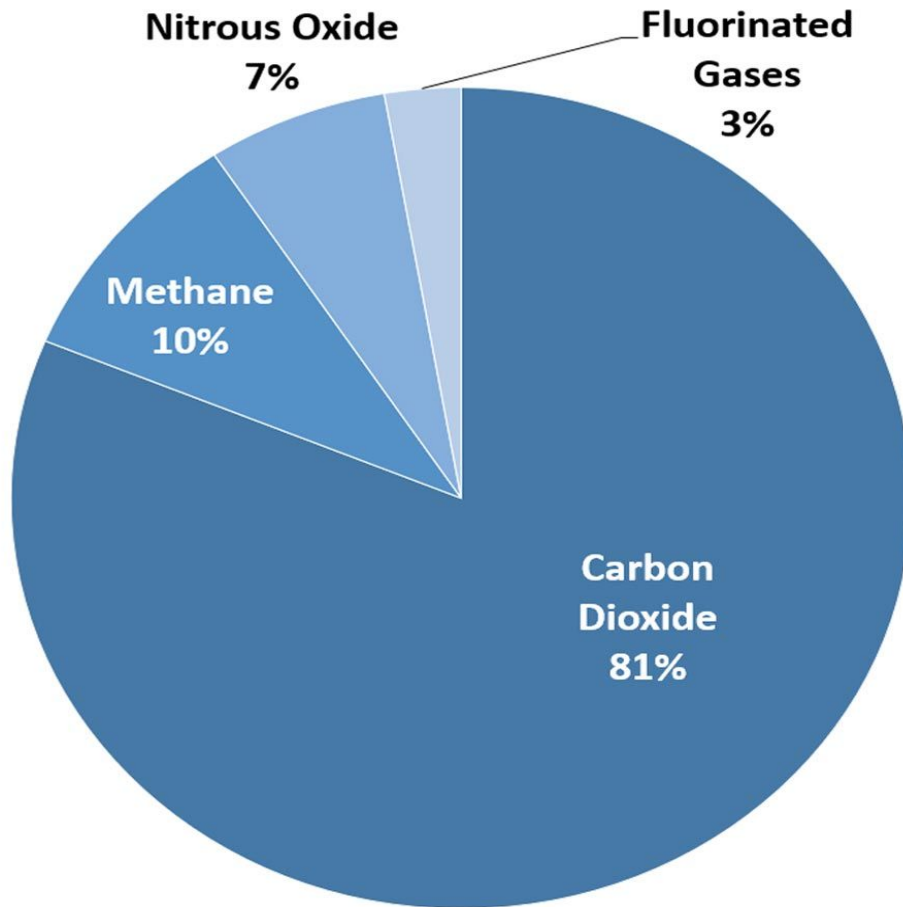
Picture 9: The Greenhouse Effect

<https://www.youtube.com/watch?v=PqxmzKLYrZ4>

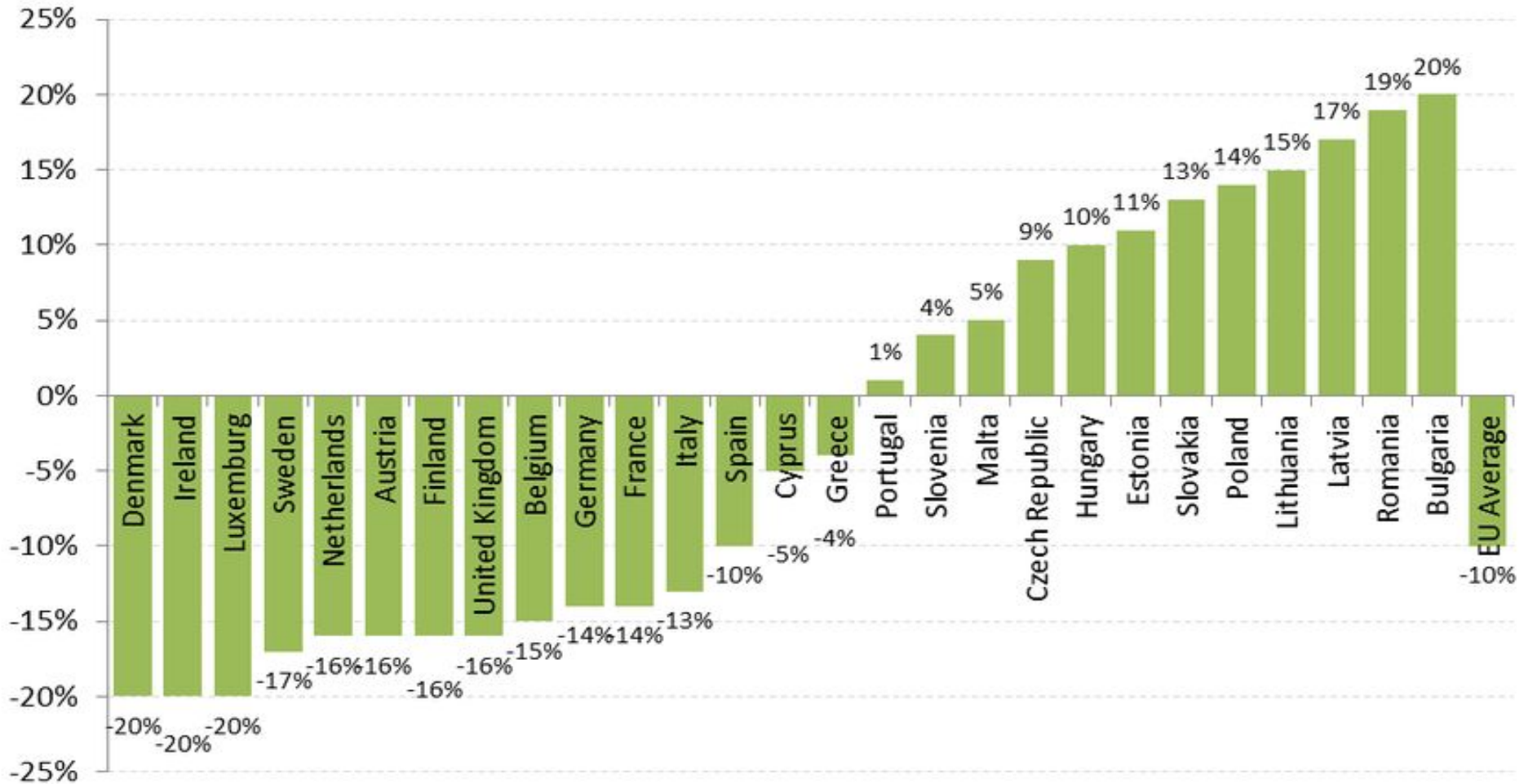


Climate change - Causes

Overview of Greenhouse Gas Emissions in 2018



GHG emissions reduction in EU



EU Member State greenhouse gas emissions reduction in 2020
(relative to 2005 levels)

Renewable Energy



Biomass energy



Hydro energy



Wind energy



Wide observation
of the Nature



Geothermal energy



Solar energy

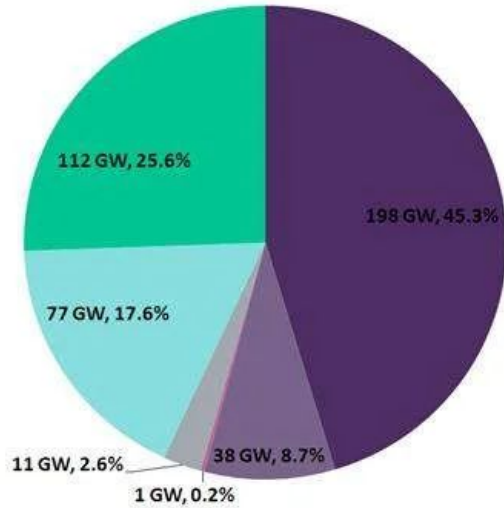


Tidal energy

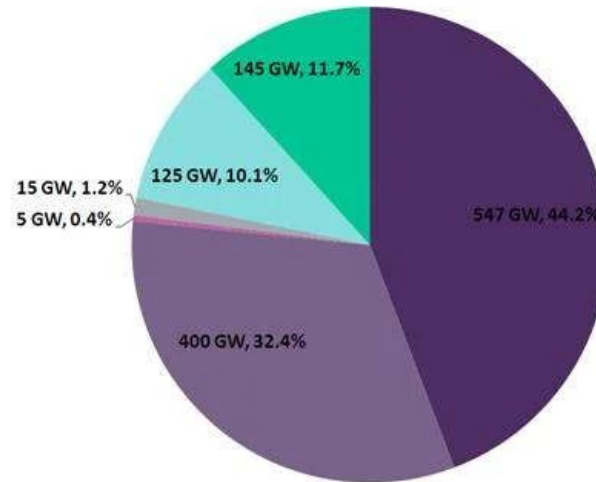
Renewable Energy



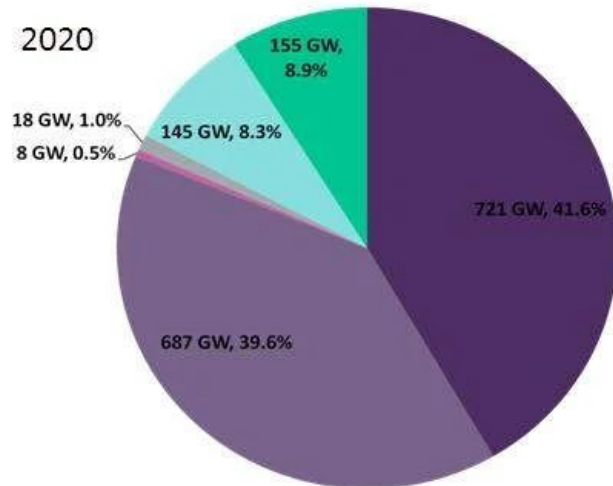
2010



2017



2020



- Wind
- Solar PV
- Solar thermal
- Geothermal
- Biopower
- Small hydro

Climate change - possible solutions



The response to climate change involves a two-pronged approach:

- ❖ Reducing emissions and stabilizing the level of greenhouse gases in the atmosphere ("**mitigation**")
- ❖ Adaptation to climate change that is already planned ("**adaptation**")

Climate change - possible solutions



- ❖ Education
- ❖ Awareness
- ❖ Industry - new technologies
- ❖ Traffic
- ❖ Forestation
- ❖ Agriculture - organic production
- ❖ Renewable energy
- ❖ Recycling

Which one do you choose?

Climate change - possible solutions



„Knowledge is the golden ladder through which one goes to the heavens; knowledge is the light that illuminates our path through life and leads us to the future life full of eternal glory.“

Mihajlo Idvorski Pupin



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Thank you for your attention!



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