WHAT IS THE GREENHOUSE EFFECT?

Sunlight passes through the atmosphere and warms the Earth's surface. The heat hits the Earth and then is radiated back toward space. The greenhouse gas molecules in the atmosphere absorb most of the heat and then send the heat in all directions. This warms the surface of the Earth. Some heat radiates back to space. Three Greenhouse gases are water vapor, carbon dioxide, and methane. Greenhouse gases make a thermal blanket around the Earth. More greenhouse gases mean heat is absorbed and Earth is warmer.

WHAT IS...

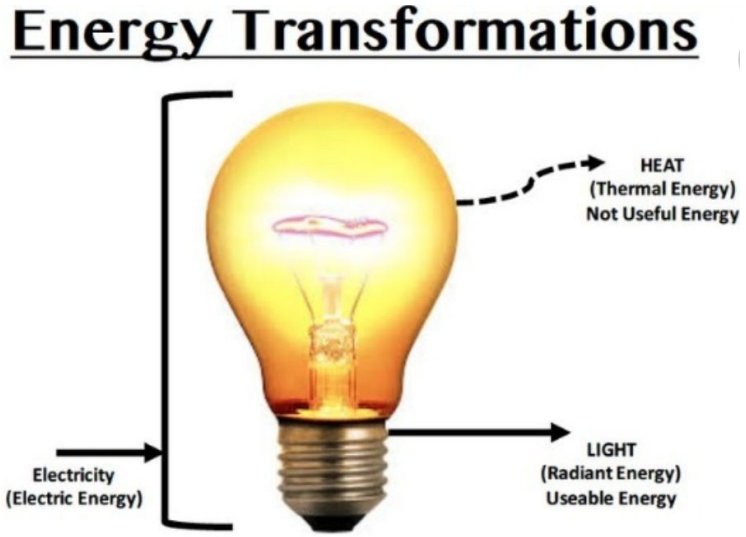
A Greenhouse Gas: Gases such as carbon dioxide and methane that absorb radiation from the sun and trap the heat in the atmosphere

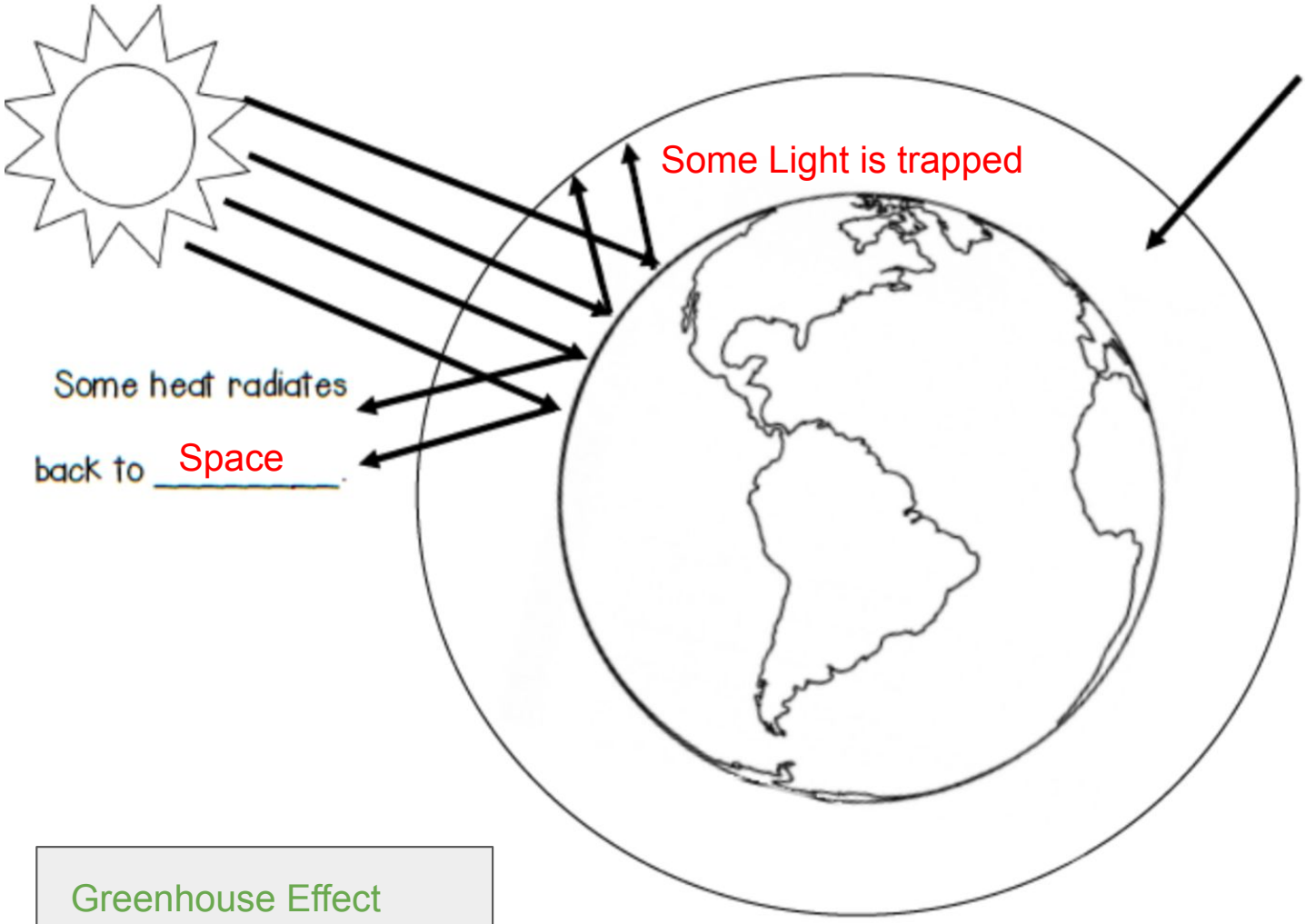
Global Climate: The range of weather that varies from region to region

Global Warming: A gradual increase in temperature of the Earth's atmosphere caused by gases and pollutants.

Climate Change: A change in a region's weather conditions.

Fossil Fuel: Natural fuel formed from the remains of living organisms. Includes petroleum or oil, coal, and natural gas.





Greenhouse Effect

EVIDENCE OF GLOBAL CLIMATE CHANGE

Sea levels Rising & Decline of Sea Ice

Global sea levels have risen 17 cm in the last 100 years. This is double the rise in the previous 100 years. Size and thickness of the Arctic sea ice has decreased. NASA data has shown that ice sheets in Greenland and Antarctica have decreased.

Extreme Weather Events

The intensity of North Atlantic hurricanes have increased in intensity and frequency.
Changes in precipitation patterns- Temperatures rise and more moisture evaporates bringing more rain or snow. This is not spread evenly around the globe. Some areas may get more precipitation and some areas less.

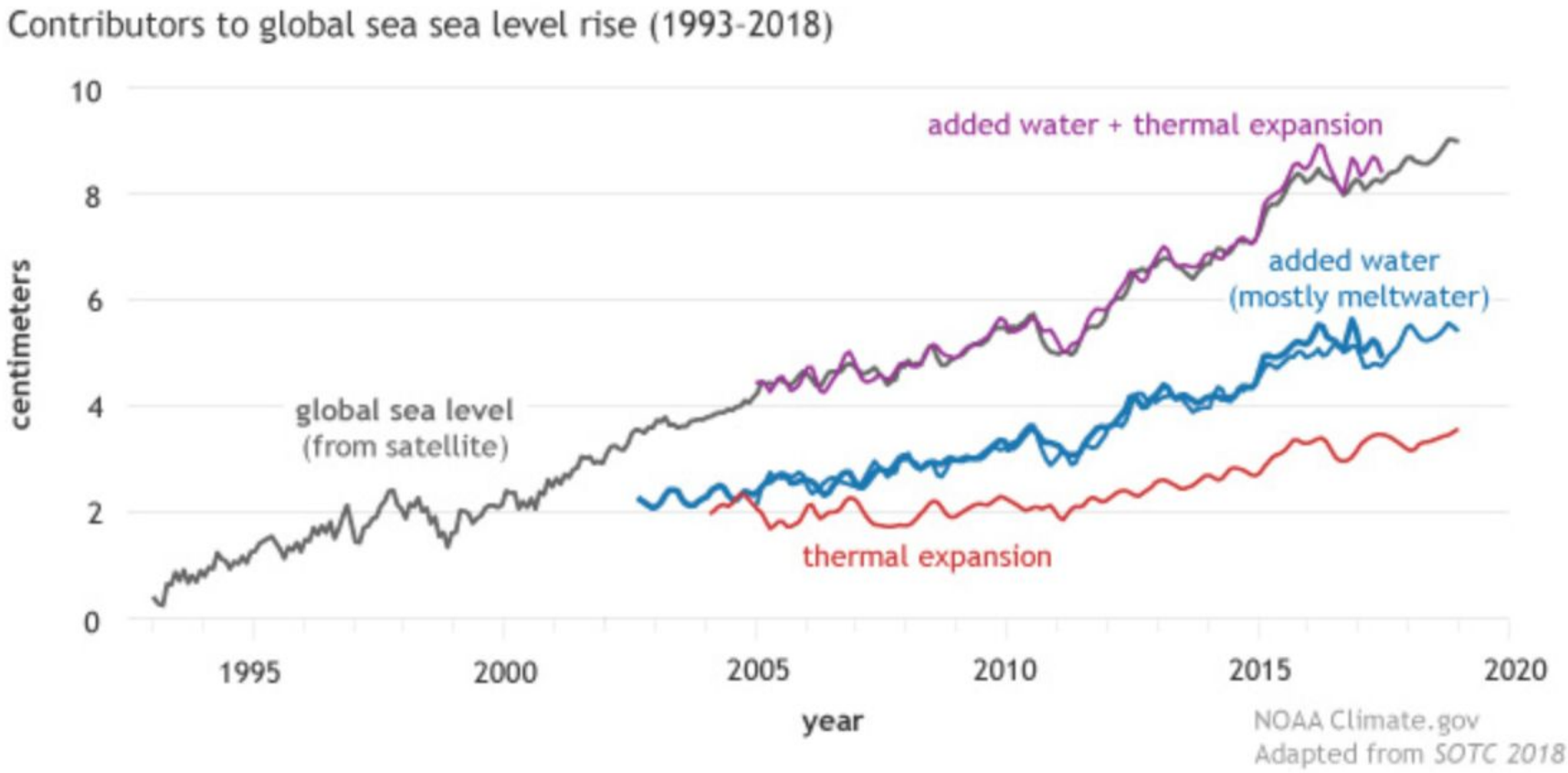
Ocean Acidification

The acidity of the surface ocean water has increased 30% since the Industrial Revolution in the early 1800s. The ocean is absorbing more and more carbon dioxide every year.

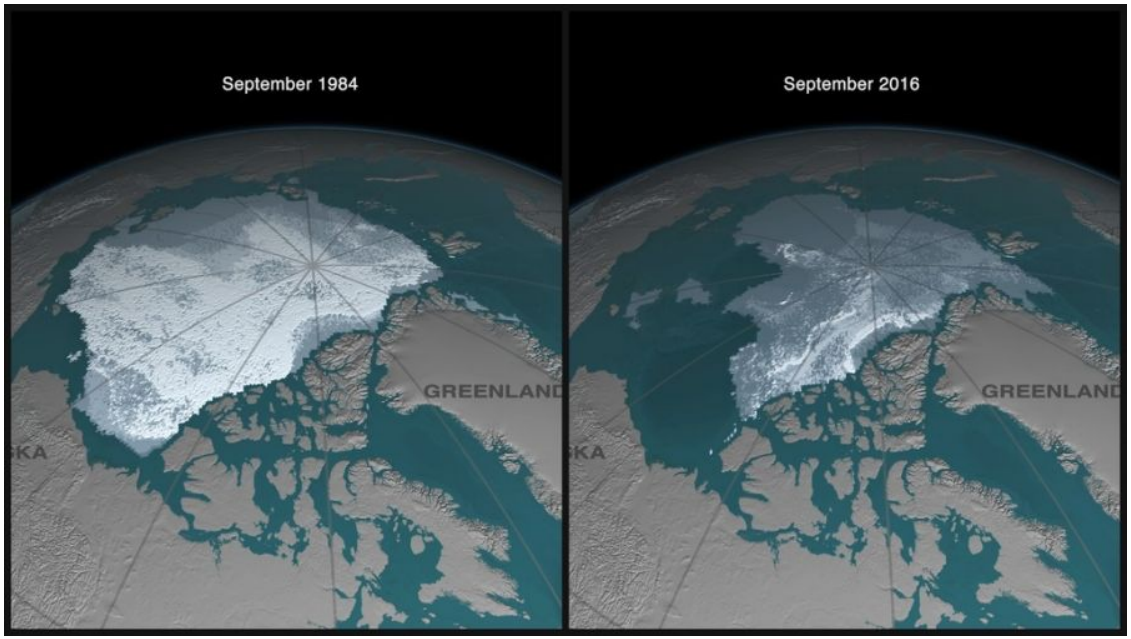
Rise of Global Temperature

The number of record high temperatures has increased.

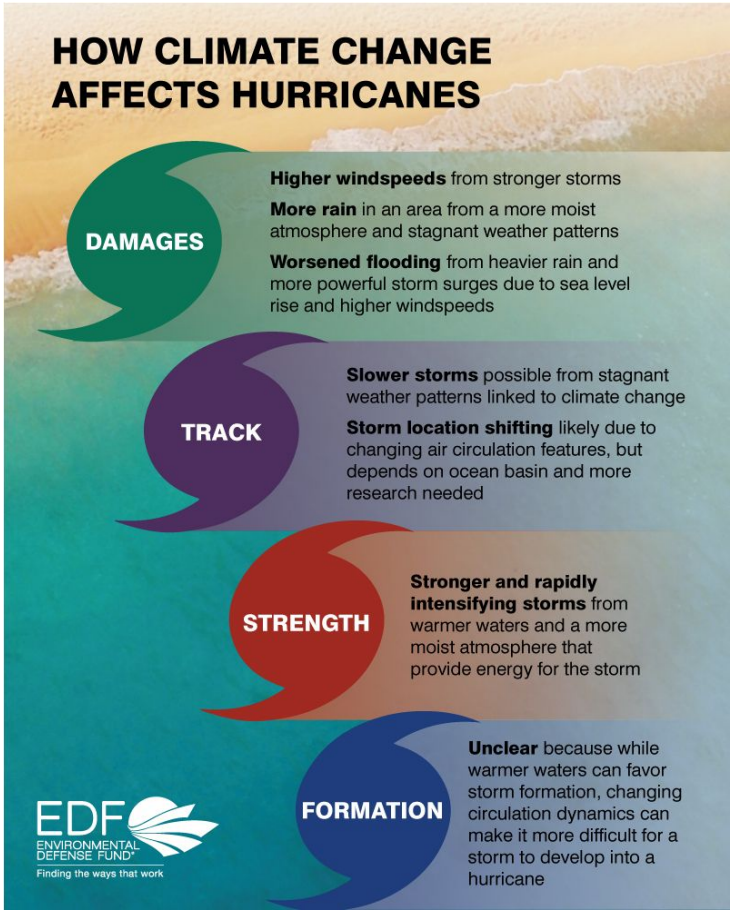
SEA LEVEL RISE and DECLINE OF SEA ICE

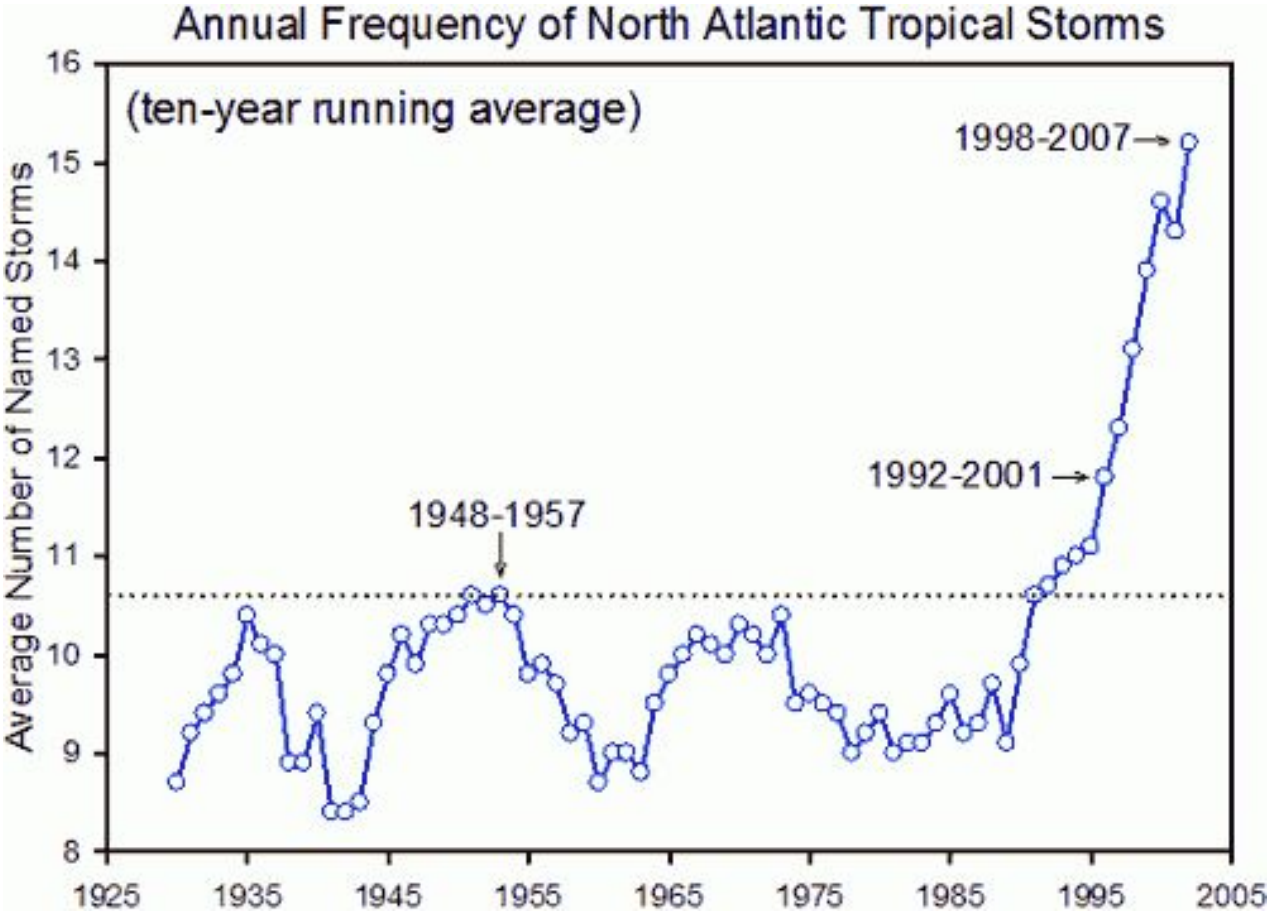


SEA LEVEL RISE and DECLINE OF SEA ICE



Extreme Weather Events

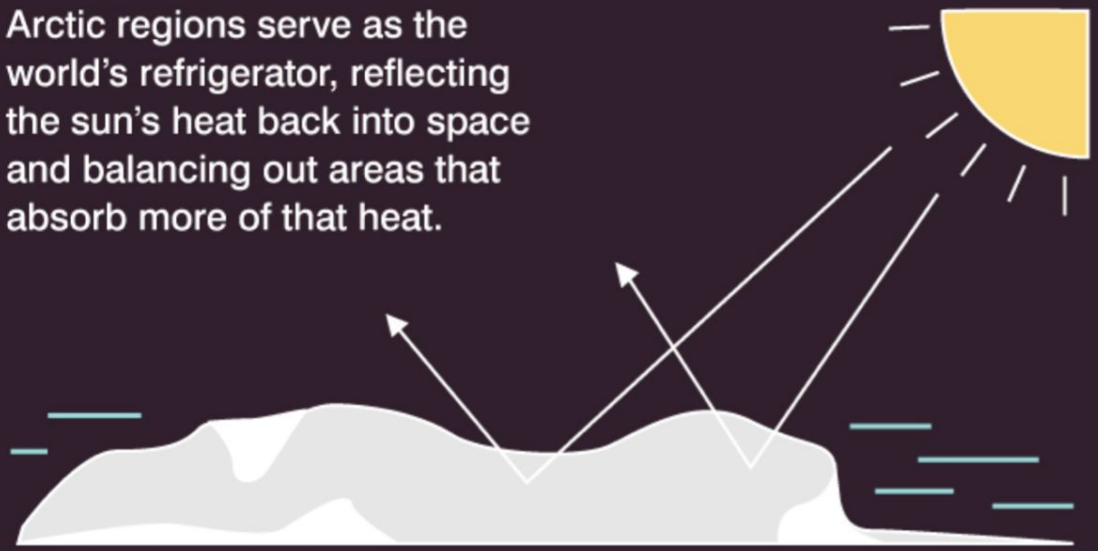




EFFECTS OF CLIMATE CHANGE

Ice-Free Arctic Regions

Arctic regions serve as the world's refrigerator, reflecting the sun's heat back into space and balancing out areas that absorb more of that heat.

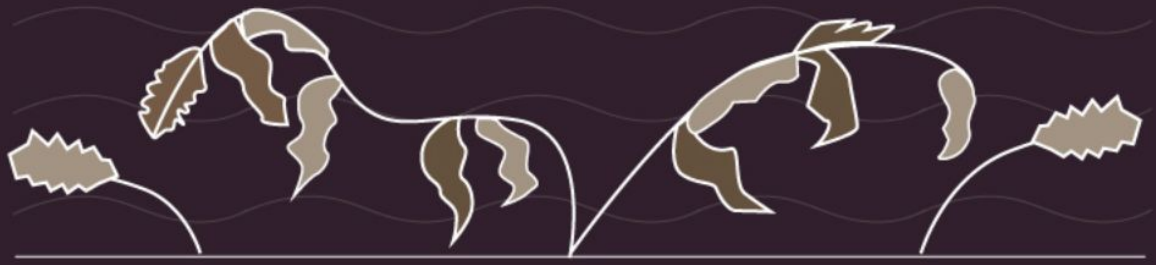


The world's arctic regions lose 13% of their sea ice per decade and will be ice-free before 2050.

Source: World Wildlife Foundation

EFFECTS OF CLIMATE CHANGE

More Droughts + Heat Waves



While many areas see greater precipitation because of climate change, long-term warming of the earth is linked to more evaporation in drier parts of the world. Droughts and heat waves wreak havoc on agricultural systems and, in some cases, cause deadly famines.

In 2015, scientists said that an ongoing drought in California—the state's worst water shortage in 1,200 years—was intensified by up to **20 percent** by global warming.

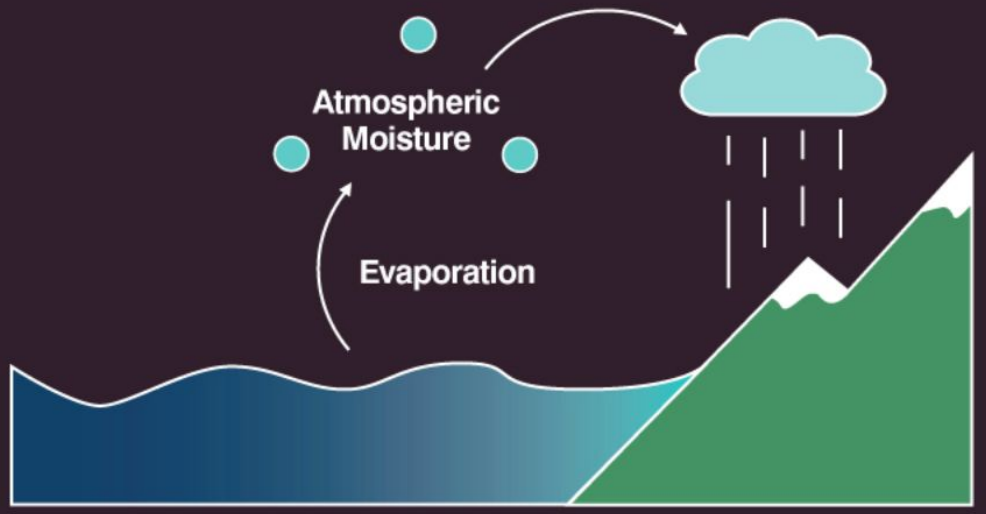
Source: Natural Resources Defense Council, Inc.

EFFECTS OF CLIMATE CHANGE

Greater Precipitation + Stronger Storms

Long-term warming increases atmospheric moisture available to storms, leading to heavier rainfall and snowfall events.

90% of the Earth's warming over the last 60 years has occurred in oceans.

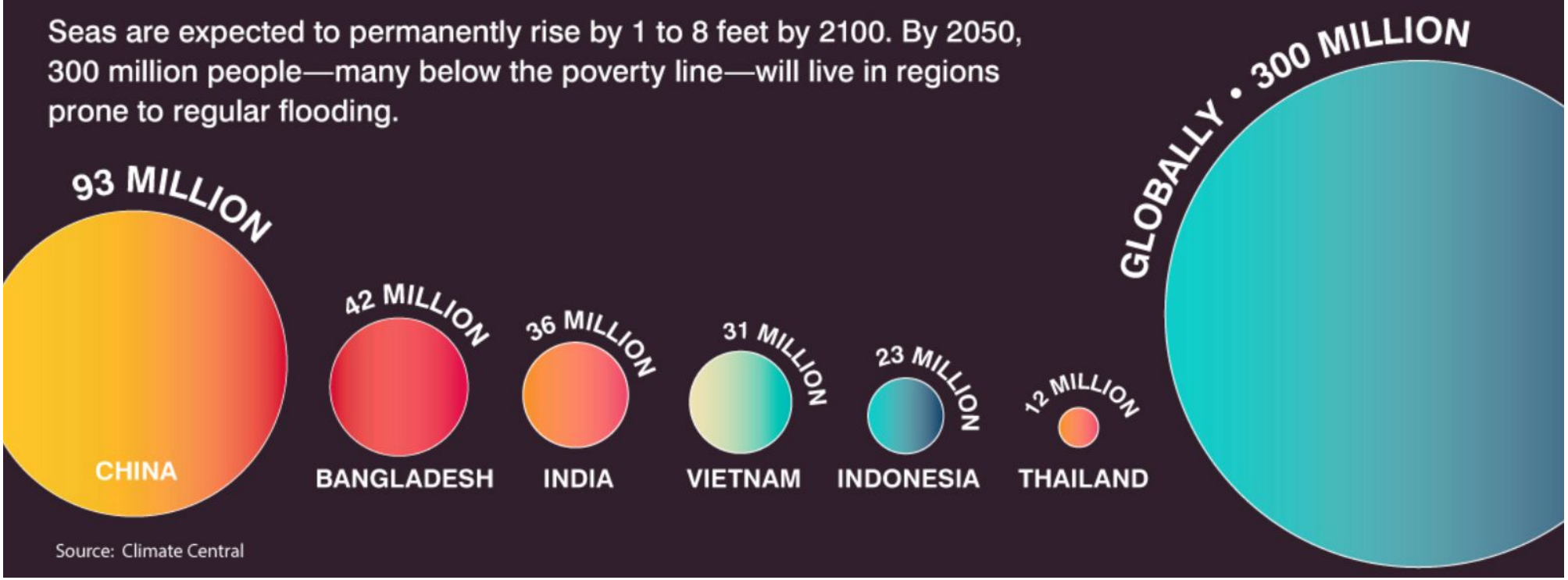


Source: Environmental Protection Agency, National Oceanic and Atmospheric Administration

EFFECTS OF CLIMATE CHANGE

Sea Level Rise

Seas are expected to permanently rise by 1 to 8 feet by 2100. By 2050, 300 million people—many below the poverty line—will live in regions prone to regular flooding.



Source: Climate Central

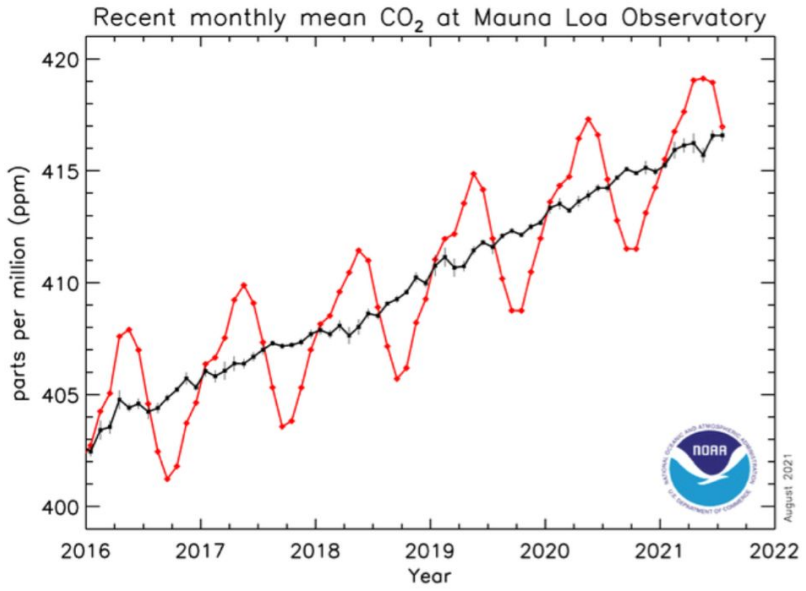
MORE EVIDENCE OF GLOBAL CLIMATE CHANGE

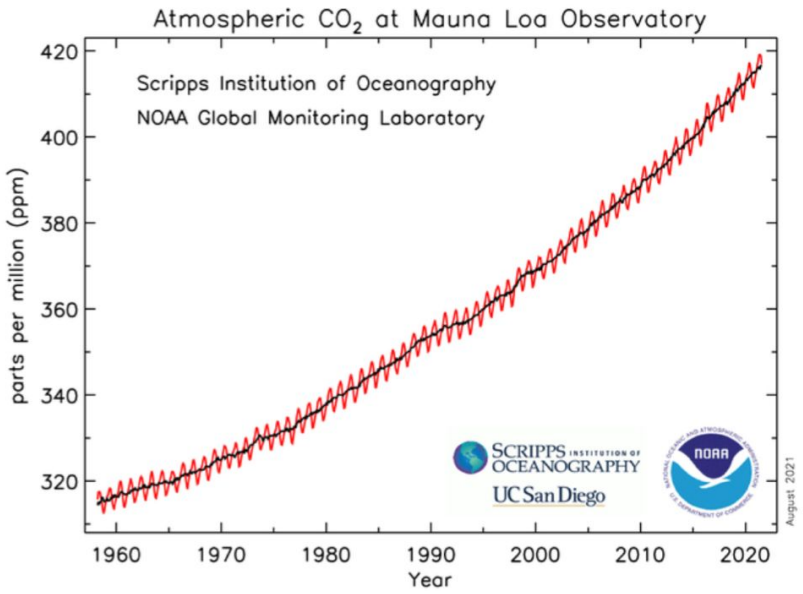
Increase in Greenhouse Gases

Carbon dioxide is a minor but very important component of the atmosphere. CO_2 is good at holding heat. Humans have increased atmospheric CO_2 concentration by more than a third since the Industrial Revolution began in the late 1700s-1800s.

Fossil Fuels Versus Renewable Resources

Fossil fuels were formed over millions of years from the fossils, or remains, of dead animals and plants buried under dirt and rock. Heat from inside the earth and pressure from dirt and rock changed the fossils into oil, natural gas, and coal. It took millions of years to make fossil fuels, we call them "nonrenewable fuels." Fossil fuels were formed during the time of the dinosaurs. Renewable energy is from resources that are naturally replenished like solar and wind. Using renewable energy will reduce the amount of greenhouse g released.





Ocean Acidification