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Study of impacts of global warming on climate change: Rise in sea level and disaster frequency

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Abstract
Scientists know that certain gases trap heat and act like a blanket to warm the planet. One of the most important is carbon dioxide (CO_2), which we release into the atmosphere when we burn fossil fuels oil, coal, and natural gas to generate electricity, power our vehicles, and heats our homes. As we overload our atmosphere with carbon dioxide, more and more heat is trapped and Earth steadily warms up in response. How do we know? The scientific evidence is overwhelming. Trends in temperature readings from around the world show that global warming is taking place. Every one of the past 40 years has been warmer than the 20th century average. 2016 was the hottest year on record. The 12 warmest years on record have all occurred since 1998.Over the past 130 years; the global average temperature has increased 1.5 degrees Fahrenheit, with more than half of that increase occurring over only the past 35 years. The pattern is unmistakable: Every one of the past 40 years has been warmer than the 20th century average. 2016 was the hottest year on record. The 12 warmest years on record have all occurred since 1998.

Keywords: earth, temperature, atmosphere, blanket

Introduction
Scientists know that certain gases trap heat and act like a blanket to warm the planet. One of the most important is carbon dioxide (CO_2), which we release into the atmosphere when we burn fossil fuels oil, coal, and natural gas to generate electricity, power our vehicles, and heat our homes. As we overload our atmosphere with carbon dioxide, more and more heat is trapped and Earth steadily warms up in response. How do we know? The scientific evidence is overwhelming. Trends in temperature readings from around the world show that global warming is taking place. Every one of the past 40 years has been warmer than the 20th century average. 2016 was the hottest year on record. The 12 warmest years on record have all occurred since 1998.Over the past 130 years; the global average temperature has increased 1.5 degrees Fahrenheit, with more than half of that increase occurring over only the past 35 years. The pattern is unmistakable: Every one of the past 40 years has been warmer than the 20th century average. 2016 was the hottest year on record. The 12 warmest years on record have all occurred since 1998.

Carbon Dioxide Levels are increasing in the Atmosphere
Detailed measurements of atmospheric carbon dioxide (CO_2) levels have been taken continuously for more than 50 years. The data show that CO_2 levels have steadily increased every year. Today they are 25 percent higher than in 1957. What's more, scientists have detailed records of past CO_2 levels from ice core studies, which show that CO2 levels are higher today than at any point since our distant ancestors began migrating out of Africa 800,000 years ago. Increased CO_2 is the primary driver of global warming.

CO_2 Absorbs Heat Reflected from the Earth's Surface Heat That Would Otherwise Pass Freely into Space. The Co_2 then Releases that Heat, Warming the Earth's Atmosphere
As CO_2 levels increase, the pace of warming accelerates. Satellite measurements confirm that less heat is escaping the atmosphere today than 40 years ago. Though other heat-trapping gases also play a role, CO_2 is the primary contributor to global warming. The climate has changed many times in the geologic past due to natural causes — including volcanic activity, changes in the sun's intensity, fluctuations in Earth's orbit, and other factors — but none of these can account for the current rise in global temperatures.

We are Responsible for the Increase in CO_2
Scientists can conclusively identify that human activity is responsible for the observed increase in CO_2. How? The carbon dioxide emitted by burning coal, natural gas, and oil has a unique chemical "fingerprint" and the additional CO_2 in the atmosphere bear that signature.
Scientific societies and scientists have released numerous statements and studies showing the overwhelming consensus that global warming are happening and that human activity is the primary cause.

Global Warming Could Cause Sea Levels to Rise Higher Than the Height of a Three-Storey Building
The last time ocean temperatures were this warm, sea levels were up to nine meters higher than they are today, according to the findings of a new study, which were described as "extremely worrying" by one expert. The researchers took

samples of sediment from 83 different sites around the world, and these "natural thermometers" enabled them to work out what the sea surface temperature had been more than 125,000 years ago. This revealed that over the course of some 4,000 years the oceans had got about 0.5C warmer, reaching about the same temperatures as are found now – after a similar increase achieved largely as a result of human-induced climate change in little over a century. Previous research has established that sea levels at the time were between six and nine meters higher. This gives an indication of what sea levels might be like once the vast oceans expand and ice sheets melt over the course of the next centuries and millennia. If sea levels were to increase by nine meters, parts of London and New York, almost all the Netherlands, huge chunks of China, including Shanghai, and much of Bangladesh would be just some of the places that would be lost to the sea. But the bad news does not end there.

Conclusion

From the various studies and reports, it is evident that the with the current rate of carbon dioxide release in the atmosphere there would not only be the increase in the global temperature, but it will also cause rise in sea, level and increase the frequency of disasters. The following major challenges are noticed from the above study:

- Emissions from human activities are increasing the frequency of extreme weather events. In particular, there are likely to be many more heat waves, droughts and changes in rainfall patterns.
- The temperature is estimated to increase by 2 to 6^{o} Celsius within year 2100, which is a tremendous increase from our current average temperature of 1.7^{o} Celsius (IPCC).
- By the mid-2020s, sea level rise around Manhattan and Long Island could be up to 10 inches, assuming the rapid melting of polar sea ice continues. By 2050, sea-rise could reach 2.5ft and more than 4.5ft by 2080 under the same conditions.

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