
How Global Warming Changed Earth's Environment

Earth's climate is the impact of a adjust between the sum of approaching vitality from the sun and vitality being transmitted out into space. According to NASA's Earth Observatory, approaching sun based radiation strikes Earth's environment in the shape of unmistakable light, additionally bright and infrared radiation. Ultraviolet (UV) radiation has a higher vitality level than visible light, and infrared (IR) radiation has a lower energy level. Some of the sun's incoming radiation is ingested by the environment, the seas and the surface of the Earth. Much of it, however, is reflected out to space as low-energy infrared radiation. In order to remain the Earth's temperature steadily, the total number of incoming solar radiation should be as same as the total number of incoming solar radiation.

With the rapid development of industry, many greenhouse gases such as carbon dioxide (CO₂), methane(CH₄), which are discharged into the atmosphere are greatly increasing from the burning of fossil fuels. These gases act like a cover retaining infrared radiation and avoiding it from clearing out the atmosphere. The net effect causes the gradual heating of Earth's atmosphere and surface called "greenhouse effect".

There are several gases known as "Greenhouse Gases" like carbon dioxide (CO₂), chlorofluorocarbons (CFCs), methane (CH₄). They produce greenhouse effect in the earth's atmosphere. The most popular greenhouse gas is CO₂. We know that CO₂ is released into the atmosphere by process occurring in nature. According to EAP, CO₂ accounted for 82% of all United States greenhouse gases emissions. Over the two last centuries, there has been a 31-percent increase in CO₂ and a 150-percent increase in CH₄ (Pakenham, 1998). This is the result of the growth of industry during many years by burning coal, oil, and gas to produce energy. Industry revolution also lead to the progress of CFCs which is used widely in modern applications like refrigerators, air-conditions, aerosols, and many others.

The use of these gases was phased out in the 1990s after discovering that "the chemicals eat away at the ozone, an atmospheric layer made of three oxygen atoms that shield the Earth's surface from ultraviolet radiation" (Bradford, 2017). Besides, the human being also contributes to the changes in the climates. The deforestations for fuels (both wood and charcoal), industry products (papers, wood) and the use of tropical forest lands for commodities like palm oil plantations contribute to the mass deforestation of our world. Forests remove and store carbon dioxide from the atmosphere, and this deforestation releases large amounts of CO₂, as well as reducing the amount of CO₂ capture on the planet. 2.2 Effects of "Global Warming" One of the most obvious and immediate effects of Global Warming is the increase in average temperatures and extreme weather events.

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According to the National Oceanic and Atmospheric Administration (NOAA), the world temperature has increased by about 1.4 degrees Fahrenheit (0.8 degrees Celsius) over the past 100 years and Earth's surface temperature in 2016 was 1.78 degrees F (0.99 degrees C) warmer than the average across the entire 20th century. Moreover, Global Warming also may bring about the extreme weather events. For example, hurricanes formation will be change and less than in the past, but the hurricane may be more intense due to the change of climate. "And even if they become less frequent globally, hurricanes could still become more frequent in some particular areas," said atmospheric scientist Adam Sobel, author of "Storm Surge: Hurricane Sandy, Our Changing Climate, and Extreme Weather of the Past and Future" (HarperWave, 2014).

Another weather event affected by Global Warming is Lightning. A number of victims of lightning strikes will be expected to increase by 2100 if global temperatures continue to rise (Oskin, 2014). Scientists all over the world predict that extreme weather events, such as heat waves, droughts, blizzards and rainstorms will continue to happen more frequently and with greater intensity due to Global Warming. According to Climate Central, climate models forecast that global warming will cause climate patterns worldwide to experience significant changes. These changes will likely include major shifts in wind patterns, annual precipitation and seasonal temperatures variations. One of the primary manifestations of Global Warming is ice melt. There is a trend toward less snow cover in North America, Europe, and Asia from 1960 to 2015 (Kunkel, 2016).

According to the National Snow and Ice Data Center, there is now 10 percent less permafrost, or permanently frozen ground, in the Northern Hemisphere than there was in the early 1900s. Landslides and other sudden land collapses can be the outcome of the thawing of permafrost. The increase of ice melt also leads to the rise of sea levels. In 2014, the sea level accelerated 0.12 inches (3 millimeters) per year on average worldwide (the World Meteorological Organization, 2015). This ratio shows that sea-level has doubled in the average annual rise of 0.07 in. (1.6 mm) in the 20th century. Scientists project that average sea levels will be 2.3 feet (0.7 m) higher in New York City, 2.9 feet (0.88 m) higher at Hampton Roads, Virginia, and 3.5 feet (1.06 m) higher at Galveston in 2100 (EPA report, 2016).

Another effect of Global Warming which expected to be profound and widespread is on the Earth's ecosystems. With the rise in average global temperatures, many species of plants and animals are already moving their range northward or to higher altitudes which have the more comfortable temperature. Many disease-causing pathogens, which were once confined to tropical and subtropical areas, will also be developed due to warmer temperatures. This development will kill off plant and animal species that formerly were protected from disease in these areas. According to a 2013 report in the journal Nature Climate Change, the effects of Global Warming will likely contribute to the disappearance up to one-half of Earth's plants and

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one-third of animals from their current range by 2080.

Solutions to “Global Warming”

Alternative energy sources. Instead of burning fossil fuels to produce energy, using alternative energy sources can reduce significantly emissions into the atmosphere. They consist of wind, solar, bio mass, geothermal and hydro. They don't create pollutants or toxic gases which can lead to the Global Warming and they are very environmentally friendly and pose no threat to ecological balance. However, the cost of installation for systems of renewable is very high. The economic instance from the Government is very necessary to diminish the level of Global Warming).

Green Building Existed buildings emit CO₂ because of their dependence on fossil fuels for energy from air-conditioning to electricity. Using light bulbs that use less energy and more efficient heating and cooling systems helps in reducing the amount of CO₂ that is being emitted from the buildings. Therefore, that reduces our dependency on fossil fuel for electricity resulting in a reduction of greenhouse gases emission. For instance, the Empire State Building in New York went through renovations to improve energy efficiency. The renovations have reduced energy usage by 38% and save 4.4 million dollars on heating and electricity bills each year (Energy-Efficient Buildings.

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