

10 Things You Should Know About Climate Change

1. **Climate change refers to a long-term shift in weather conditions.** It is measured by changes in a variety of climate indicators (e.g. temperature, precipitation, wind) including both changes in average and extreme conditions. Climate change can be the result of natural processes and/or human activity.
2. **Over most of Earth's history, natural processes have been responsible for periods of climate change.** The Earth's climate has changed throughout its history long before human activity could have played a role. For example, the planet has swung between cold glacial periods or "ice ages", and warm interglacial periods over the last few million years. Changes in the past can be explained by natural factors such as changes in the Earth's orbit, in the sun's intensity, in the amount of explosive volcanic activity, by changes to the surface of the Earth, and farther back in time, to the position of the continents. Of these, only changes in the sun's intensity and volcanic activity are relevant on century timescales.
3. **Human activity has now become the main cause of recent climate change.** The strong global warming observed since the mid-20th century has been largely attributed to human influences on the climate. Global warming refers to the observed long-term rise in global average surface temperature and is one manifestation of climate change. The rate of global warming over the last half of the 20th century was about twice that for the whole century. This human influence results primarily from the burning of fossil fuels such as coal, oil, and natural gas. Burning these fuels generates carbon dioxide, a greenhouse gas. Land use changes, such as deforestation and conversion of land to agriculture, have also contributed carbon dioxide to the atmosphere.
4. **Global warming is primarily attributed to the enhancement of the natural greenhouse gas effect.** Greenhouse gases are so-named because they reduce heat loss from Earth to outer space. In this respect they act in a way that is similar to a greenhouse, creating warmer conditions than there would otherwise be, were these gases not present. Atmospheric concentrations of key greenhouse gases such as carbon dioxide, methane, nitrous oxide, and ozone have risen substantially as a result of human activity. This has enhanced or intensified the natural greenhouse effect.
5. **The ozone hole is not the main cause of global warming.** Global warming and ozone depletion (in the stratosphere) are issues with fundamentally different primary causes but they are interlinked in a number of ways. However, ozone depletion itself is not a principal cause of climate change. Changes in ozone and climate are directly linked because ozone absorbs solar radiation and is also a greenhouse gas. Stratospheric ozone depletion and increases in global tropospheric ozone that have occurred in recent decades have opposing contributions to climate change. The ozone-depletion contribution, while leading to surface cooling, is small compared with the contribution from all other greenhouse gas increases, which leads to surface warming. The total forcing from these other greenhouse gases is the principal cause of observed and projected climate change. Ozone depletion and climate change are indirectly linked because both ozone-depleting substances and their substitutes are greenhouse gases.
6. **Climate change is a warming trend, not just a warming cycle.** Global temperature naturally varies up and down from year to year and decade to decade. Natural climate variability will continue to have an influence on the state of the climate over short time

periods, but superimposed on these natural fluctuations is a long term trend towards global warming. In order to detect climate change – a long term trend – above the ‘noise’ of natural climate variability, it is important to look to long term data records. When the record of global average surface temperature over the past 100 years or so is examined, a long term global warming of about 0.8 °C is observed.

7. **Climate change will affect communities all over the world.** Climate change is projected to lead to both changes in average conditions and in extreme weather events. Increases in droughts, heavy rains, floods, and severe storms, where these occur, can be very disruptive for society and are among the potential impacts of most concern. As well, rising sea levels will affect coastal areas, along which, in many regions, human communities are concentrated. Changes in temperature and precipitation will affect natural habitats and managed ones, with impacts on agriculture and food supplies of particular concern to a growing human population. There will be opportunities as well as risks associated with climate change, but in balance, impacts are expected to become increasingly negative as global average surface temperature becomes increasingly warmer.
8. **Individuals, organizations and the international community can make a difference in dealing with climate change.** We must act. Measures to reduce greenhouse gas emissions are essential to slowing the rate of climate change. Raising awareness of the issues surrounding climate change can make a significant difference.
9. **We must incentivize things that make the problem better and stop incentivizing things that make the problem worse**
10. **Businesses can help, and save money while they do it. It’s important for every business to look at their carbon footprint and plan long-term to reduce it.**

Some websites to check out:

1. NASA.gov
2. NOAA.gov
3. SkepticalScience.com
4. EPA.gov
5. DeSmogBlog.com
6. TheGuardian.com/us/environment
7. BusinessGreen.com
8. Citizensclimatelobby.org
9. Sierraclub.org
10. 350.org
11. Grist.com
12. Citizensclimatelobby.org

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