Global Climate Change

The Signs of Climate Change

Scorching summers, melting glaciers, stronger storms- the signs of global climate change are all around us. The Earth's climate is getting warmer, and the signs are everywhere. Rain patterns are changing, sea level is rising, and snow and ice are melting sooner in the spring. All of the following are considered to be signs of global climate change.

Higher Temperatures

More Droughts

Wilder Weather

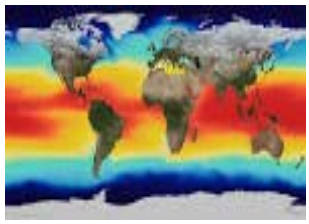
Changing Weather Patterns

Less Snowpack

Shrinking Sea Ice

Melting Glaciers

Thawing Permafrost



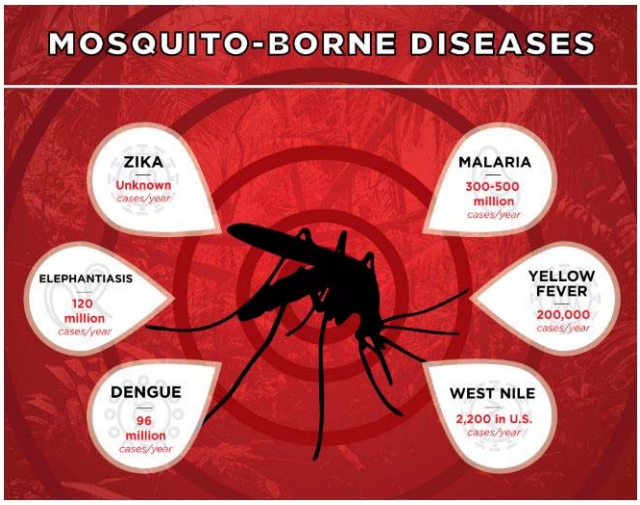
Warmer Oceans

Rising Sea Levels

The Effects of Climate Change

As global temperatures continue to rise, we'll see more changes in our climate and our environment. These changes will affect people, animals, and ecosystems in many ways. Less rain can mean less water for some places, while too much rain can cause terrible flooding. More hot days can dry up crops and make people and animals sick. In some places, people will struggle to cope with a changing environment. In other places, people may be able to successfully prepare for these changes. The negative impacts of global climate change will be less severe overall if people reduce the amount of greenhouse gases we're putting into the atmosphere and worse if we continue producing these gases at current or faster rates.

Health



Heat waves, severe storms, air pollution, and diseases linked to climate already threaten people's health in many areas of the world. Global climate change will increase these threats. Some people will be particularly at risk, especially those who are poor, very young or elderly, or disabled, or those who live in coastal areas or big cities.

Temperature–Related Illnesses

Heat waves are uncomfortable for everyone, but for infants and young children, the elderly, and people who are already sick, they can be especially dangerous. Extreme heat can cause illnesses such as heat cramps, heat stroke, and even death. A 2003 heat wave in Europe caused about 50,000 deaths, and a 1995 heat wave in Chicago caused more than 600 deaths. In fact, heat waves cause more deaths in the United States every year than hurricanes, tornadoes, floods, and earthquakes combined.
On the flip side, as the world gets warmer, the number of illnesses and deaths related to extreme cold (like hypothermia and frostbite) may decrease.

Air Pollution

You probably know someone with asthma, or maybe you have this condition yourself. Certain kinds of air pollutants, like ozone, can make asthma and other lung conditions worse. Ozone found high in the atmosphere is called "good ozone" because it protects life on Earth from the sun's harmful ultraviolet rays. Ozone can also be found close to the surface of the Earth, where it is considered “bad ozone” because it's the main ingredient of smog and is harmful for people to breathe. Bad ozone is created from pollutants that go through chemical reactions in the atmosphere. Climate change is likely to increase the amount of bad ozone in the air because more ozone is created when the temperature is warm.

Spreading Diseases

Climate change might allow some infectious diseases to spread. As winter temperatures increase, ticks and mosquitoes that carry diseases can survive longer throughout the year and expand their ranges, putting more people at risk. One big concern is malaria, a deadly disease spread by mosquitoes in many hot, humid parts of the world.

Agriculture

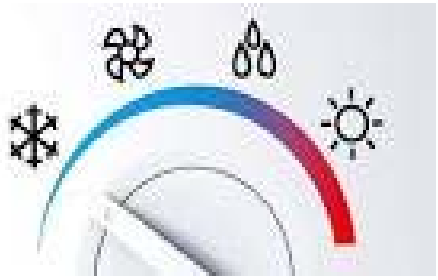


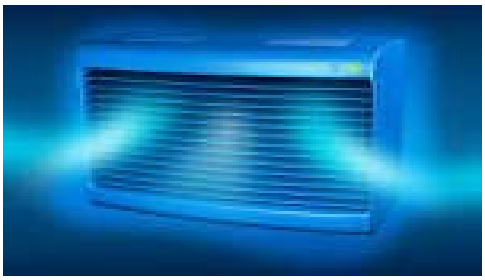
The crops that we grow for food need specific conditions to thrive, including the right temperature and enough water. A changing climate could have both positive and negative effects on crops. For example, the northern parts of the United States have generally cool temperatures, so warmer weather could help certain crops grow. In southern areas where temperatures are already hot, even more heat could hurt crop growth. Global climate change will also affect agriculture and food supply in many other ways.

Crop Losses

Climate change could make it too hot to grow certain crops, and droughts caused by climate change could reduce the amount of water available for irrigation. Climate change is also likely to cause stronger storms and more floods, which can damage crops. Higher temperatures and changing rainfall patterns could help some kinds of weeds and pests to spread to new areas. If the global temperature rises an additional 3.6°F, U.S. corn production is expected to decrease by 10 to 30 percent.

Energy





Global climate change will affect how much energy we need and when we need it. As temperatures rise, more people will need to keep cool by using air conditioning, which uses a lot of electricity. However, some people might need less energy to heat buildings in the winter because it may not get as cold as it used to be. Climate change could also make it harder to produce certain types of electricity, such as hydropower.

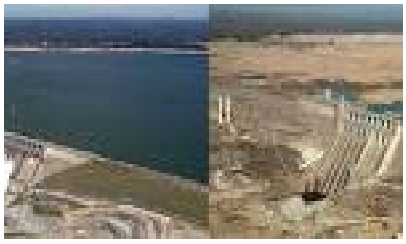
Hydropower

As climate change causes precipitation patterns to shift, some areas that currently have plenty of water to make hydropower, such as northern California, might not have enough water in the future. Without enough water to produce electricity, these areas could experience power shortages and blackouts. They might have to use other energy sources to make more of the electricity they need, and if these sources are fossil fuels like coal, oil, or natural gas, more greenhouse gases will be added to the atmosphere.

Air Conditioning

Climate change will lead to more hot days and more heat waves. As a result, people will need to use more air conditioning to stay cool. As people use more air conditioning, electricity shortages and blackouts could increase. Because most electricity is currently produced by burning fossil fuels, using more electricity to run air conditioners will also add more greenhouse gases to the atmosphere.

Water Supplies



Climate change is affecting where, when, and how much water is available for people to use. Many parts of the world already have very little water, and climate change could make this problem worse. Rising temperatures, changing precipitation patterns, and increasing droughts will affect the amount of water in lakes, rivers, and streams, as well as the amount of water that seeps into the ground to replenish ground water.

Public Water Supplies

In 2007, a major drought hit the southeastern United States. Lake Lanier, which is the main source of drinking water for the Atlanta area, was reduced to record–low water levels. People had to use less water in their homes and businesses and make other changes, such as not watering their lawns.

Lakes, Rivers, and Streams

Many places rely on snowmelt to fill the lakes, rivers, and streams that help keep drinking water reservoirs full and provide water to irrigate crops. For example, many parts of the western United States depend on water from the Colorado River, which is fed by melting snowpack in the Rocky Mountains. Less snowpack and earlier snowmelt will reduce the amount of water flowing into the Colorado and other rivers.

Plants, Animals, and Ecosystems



Most plants and animals live in areas with very specific climate conditions, such as temperature and rainfall patterns, that enable them to thrive. Any change in the climate of an area can affect the plants and animals living there, as well as the makeup of the entire ecosystem. Some species are already responding to a warmer climate by moving to cooler locations. For example, some North American animals and plants are moving farther north or to higher elevations to find suitable places to live. Climate change also alters the life cycles of plants and animals. For example, as temperatures get warmer, many plants are starting to grow and bloom earlier in the spring and survive longer into the fall. Some animals are waking from hibernation sooner or migrating at different times, too.

Disappearing Habitats

As the Earth gets warmer, plants and animals that need to live in cold places, like on mountaintops or in the Arctic, might not have a suitable place to live. If the Earth keeps getting warmer, up to one–fourth of all the plants and animals on Earth could become extinct within 100 years. Every plant and animal plays a role in the ecosystem (for example, as a source of food, a predator, a pollinator, a source of shelter), so losing one species can affect many others.

Coral Reefs

Coral reefs are created in shallow tropical waters by millions of tiny animals called corals. Each coral makes a skeleton for itself, and over time, these skeletons build up to create coral reefs, which provide habitat for lots of fish and other ocean creatures. Warmer water has already caused coral bleaching (a type of damage to corals) in many parts of the world. By 2050, live corals could become rare in tropical and sub-tropical reefs due to the combined effects of warmer water and increased ocean acidity caused by more carbon dioxide in the atmosphere. The loss of coral reefs will reduce habitats for many other sea creatures, and it will disrupt the food web that connects all the living things in the ocean.

Forests



Forests provide homes for many kinds of plants and animals. They also protect water quality, offer opportunities for recreation, and provide people with wood. Forests are sensitive to many effects of climate change, including shifting weather patterns, drought, wildfires, and the spread of pests like the mountain pine beetle. Unlike some animals, trees can't just get up and move when the temperature gets too hot or other conditions change!

Wildfires

Wildfires are already common in the forests and grasslands of the western United States. As the Earth gets warmer and droughts increase, wildfires are expected to occur more often and be more destructive. Wildfires do occur naturally, but the extremely dry conditions resulting from droughts allow fires to start more easily, spread faster, and burn longer. In fact, if the Earth gets just 3.6°F warmer, we can expect wildfires in the western United States to burn four times more land than they do now. Fires don't just change the landscape; they also threaten people's homes and lives.

Coastal Areas



Global climate change threatens coastlines and the buildings and cities located along them. Hundreds of millions of people around the world live in low–lying areas near the coast that could be flooded as the sea level rises. Rising sea level will also erode beaches and damage many coastal wetlands. Rising sea level and stronger storms caused by warmer oceans could completely wipe out certain beaches and islands.

Coastal Cities

Climate change poses risks for cities near the ocean. Places like Miami; New York City; New Orleans; and Venice, Italy, could flood more often or more severely if sea level continues to rise. If that happens, many people will lose their homes and businesses.

Coastal Wetlands

Climate change will damage coastal wetlands all over the world. Wetlands protect the shore from flooding, and they also provide important habitats for many types of plants and animals. For example, the Everglades are wetlands close to sea level in southern Florida that are home to diverse ecosystems. As sea level rises, salt water could flood parts of the Everglades, leaving animals such as birds, alligators, turtles, and panthers with less habitat.

Recreation



In addition to causing all sorts of problems, such as heat waves, droughts, and coastline damage, warmer temperatures could also affect people's jobs, recreational activities, and hobbies. For example, in areas that usually experience cold winters, warmer temperatures could reduce opportunities for skiing, ice fishing, and other winter sports. Also, rising sea level could wash away beaches.

Ski Season
As air temperatures continue to rise, ski season won't last as long. Places that are used to getting lots of snow might get more rain instead. Some ski resorts might have to close because of climate change. There may be shorter seasons for other cold weather activities, like outdoor ice skating, snowmobiling, and ice fishing.

Beaches
Higher sea level will mean less space at the beach. A combination of stronger storms and sea level rise could increase the rate of erosion along the coast, and some beaches could disappear altogether.