

# El Nino hurls floods and fire, storms and famine across the planet



Vendors protect themselves and their merchandise from a sudden downpour in Manila, Philippines, in 2010. At the time, the rain was a great relief to farmers suffering from an El Nino-triggered drought in that country. Photo:AP/Pat Roque

A fog of thick smoke settles over the Indonesian countryside, sickening hundreds of thousands of people. The fog is creating an environmental crisis.

In Peru, officials cancel plans to host the famous car race, the Dakar Rally. Instead, they prepare for powerful rain and floods.

In Ethiopia, crops die for lack of seasonal rain. United Nations officials warn that a famine is coming.

All these problems have their roots in El Nino.

Many Californians hope El Nino will bring rains this winter to end the long drought, or dry spell. But the idea of this mysterious climate phenomenon brings fear to much of the world.

## Threat To Developing Countries

Its long-distance effects are so great that some researchers say it doubles the risk of war in much of the developing world.

Researcher Michael "Mickey" Glantz is an El Nino researcher at the University of Colorado, Boulder. He knows that some people think El Nino can be a good thing. "But generally speaking it's doom and gloom," he says.

Periodic warming of the Pacific Ocean has happened for thousands of years. However, scientists have only recently realized how it affects the world.

Normally, the hottest ocean surface temperatures on the planet are in the western Pacific, near Indonesia. Storms get their energy from warm ocean water. During an El Nino, these warm, rain-producing waters slide east, creating conditions for large storms.

The eastward movement of these warm waters can also affect powerful jet stream currents. These strong winds high above the Earth change their paths. This throws seasonal weather patterns into serious disorder.

### **Influencing Storms, Causing Droughts**

Normal seasonal rains might not come to parts of India, Africa and Southeast Asia. Crops die and wildfires begin. In parts of North and South America, pounding storms may roll over the landscape.

In Southern California, El Nino is best known for heavy downpours of rain and overflowing rivers. Yet El Nino may also steer rain away from dry farm fields that need it badly.

A series of terrible famines killed more than 30 million people in India and China in the late 1800s. These events first made researchers aware of the weather phenomenon known as El Nino.

In 1904 British mathematician and weather scientist Sir Gilbert Walker began to study the monsoons, or rainy seasons, in India. Walker saw patterns of monsoon failures in certain years. He found connections between these patterns and the way atmospheric pressure bounced up and down in the eastern and western Pacific.

### **U.N. Says Planet Is Better Prepared Than Before**

Today, U.N. officials say the world is better prepared than ever to deal with the effects of El Nino. Yet they warn that 11 million children are at risk from hunger, disease and lack of water in eastern and southern Africa alone.

Drought causes other dangers as well. In Indonesia, companies cut down plants and light fires to clear farm land. Because of the hot, dry El Nino weather, the fires quickly spread. These massive fires have happened during every El Nino since 1982. Already this year, hundreds of thousands of people have been sickened, and 19 have died.

The smoke, which has spread to Malaysia, Singapore, the Philippines and Thailand, has also released enormous quantities of the greenhouse gas carbon dioxide, according to researchers. The gasses can cause a rise in the Earth's temperature.

Drought and flooding caused by El Nino can have other health effects. Outbreaks of cholera, typhoid and other diseases can happen in areas where floodwaters have been contaminated by human or animal waste, health experts say.

### **Effects Reach Over Land And Under Sea**

El Nino's damaging effects are not confined to land.

Warming Pacific waters can generate an increase in hurricanes. El Nino was cited as a possible reason for Hurricane Patricia, one of the strongest hurricanes ever recorded.

Researchers at the National Oceanic and Atmospheric Administration cited the warming effects of El Nino as a reason for a global coral bleaching event. Temperature changes can cause coral reefs to release their coating of algae. Algae are kinds of plants that grow mostly in water and often live on coral. Corals get their food from algae. Without algae, the coral reefs turn white, get sick and can die.

### **Named For Its Christmas Arrival**

El Nino got its name because of its effect on the fishing industry. Before people knew that El Nino was a worldwide event, fishermen in Peru and Ecuador noticed the warm currents that sometimes arrived around Christmas. The warm water seemed to drive fish away. El Nino, Spanish for "the child," was a reference to the birth of Christ.

Normally, trade winds that blow from east to west cause an upwelling in the ocean, along the coast of South America. The cold, nutrient-rich water from deeper in the ocean moves up towards the surface. This cool water supports fish like anchovies, which are used internationally to feed livestock. During El Nino, however, the trade winds slow, or stop entirely. The upwelling ends, and the anchovies die.

Glantz said that this affects the business world since the price of soybeans, which is also used to feed livestock, is rising too.

"It kind of starts a chain reaction around the globe," Glantz said.

## El nino Quiz

Circle the most correct choice

**Which of the following answer choices describes TWO MAIN ideas in the article?**

- A. There have always been El Nino events, but scientists did not understand weather patterns until recently.
- B. The hottest ocean surface temperatures are in the western Pacific, and El Nino has greater impact there than anywhere else.
- C. El Nino causes different storm patterns across the world, and it can result in famine, disease, and harmful changes in the ocean.
- D. The large storms associated with El Nino occur frequently, and since people are better prepared for them they are less dangerous today.

**Which sentence from the article BEST supports a central idea?**

- A. Periodic warming of the Pacific Ocean has happened for thousands of years.
- B. The smoke, which has spread to Malaysia, Singapore, the Philippines and Thailand, has also released enormous quantities of the greenhouse gas carbon dioxide, according to researchers.
- C. Drought and flooding caused by El Nino can have other health effects.
- D. Researchers at the National Oceanic and Atmospheric Administration cited the warming effects of El Nino as a reason for a global coral bleaching event.

**Which of the following statements describes how Sir Gilbert Walker explained changes in monsoons in India?**

- A. Normal seasonal rains are affected by the jet stream.
- B. Monsoons are related to changes in atmospheric pressure in the eastern and western Pacific.
- C. Monsoons only occur when there are strong trade winds.
- D. Monsoons fail to arrive in India when El Nino occurs in India and China.

**Researcher "Mickey" Glantz would be most likely to agree with which of the following statements?**

- A. Weather patterns like El Nino have an impact on many aspects of life, including economics.
- B. History shows us that El Nino has a regular pattern, and is less of a problem today than hurricanes.
- C. Researchers have proven that coral can live without algae even in warm water.
- D. El Nino can be a good thing in many regions of the world.