

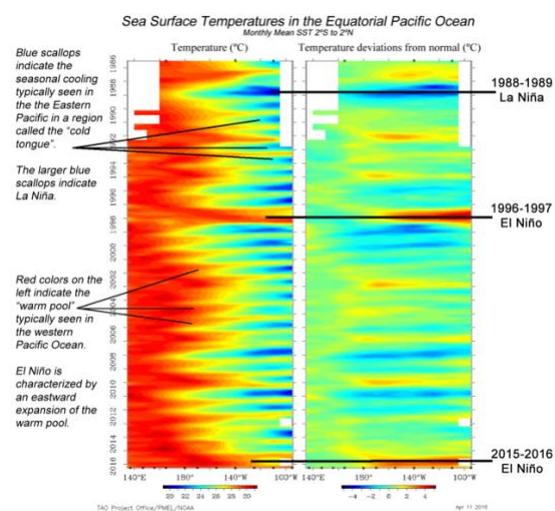
Measures to Prevent Damages Caused by La Niña in the Following Winter to Protect Environmentally Vulnerable Areas

Forum: Environment Commission

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Introduction

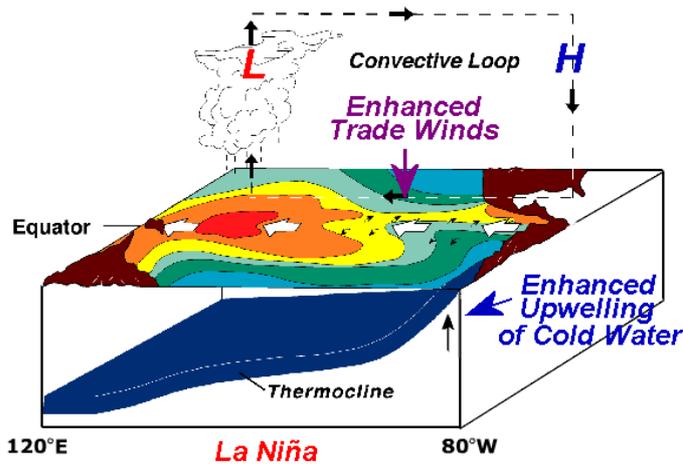
La Niña means something more intense now than ever before because of how severe it can bring changes to climate changes, La Niña is also sometimes called “El Viejo”, “anti-El Niño”, or simply “a cold event.” The term La Niña refers to the “climate pattern that describes the cooling of the temperature of the surface-ocean water in the central and east-central equatorial Pacific.” La Niña occurs when equatorial trade winds become stronger, distorting ocean surface currents and drawing cooler deep water up from below. Typically, La Niña events occur every 3 to 5 years or so. On the other hand, La Niña is the counterpart to El Niño, which is characterized by unusually warm ocean temperatures in the equatorial region of the Pacific Ocean. In most cases, El Niño with its warm waters, causes droughts, while La Niña, with its cold waters, increased flooding, rainfall, and hurricanes.



Sea surface temperatures in the equatorial Pacific Ocean.

Background

La Niña is mainly caused by a build-up of cooler water in the tropical Pacific, the area of the Pacific Ocean between Tropic Cancer and the Tropic of Capricorn. In most cases, the eastward-moving trade winds bring the cold water to the surface, a process known as upwelling. The process of upwelling can severely drop the sea-surface temperature, which can bring environmental damage to some regions of the world. The impact of La Niña on our climate and weather has been highly variable throughout history. The severe changes in the temperature of waters caused economies dependent on certain weather conditions to endure hardship. For example, La Niña caused the fish to migrate to a warmer sea temperature. This led to economic difficulties for areas that heavily relied on fish stocks. Also, Marginal areas suffer or thrive depending on the effects of El Niño and La Niña, leading to further knock-on effects elsewhere.



The process of enhanced upwelling of cold water that causes La Niña.

Problems Raised

Natural Disasters

The most obvious consequences of La Niña are the environmental disasters they cause around the world. While La Niña usually happens in the Pacific, they also impact hurricanes in the Atlantic during August, September, and October. The change in the weather pattern cuts off much wind shear in the Caribbean Sea and elsewhere across the basin, allowing more Atlantic hurricanes and tropical storms to form and grow stronger.

Another severe effect that La Niña bring is flooding. In South Asia, the flooding has devastated Pakistan killing almost 1,500 people and causing at least \$10 billion in damage. The Deluges also ripped across Bangladesh affecting about 7.2 million people negatively.

Additional wildfires are also a disastrous problem that occurred. Across the West, particularly in California, nearly 2.5 million acres have been scorched in almost 7,900 fires in 2022 due to La Niña, according to the California Department of Forestry and Fire Protection.

Agricultural Production Loss

The climate changes from La Niña cause great negative consequences especially in causing severe losses in agriculture. Between November 2007 and April 2008, Bolivia suffered heavy rains that caused floods. The most affected departments were La Paz, Cochabamba, Chuquisaca, Beni, and Santa Cruz. As of April 22, 2008, 123,748 households were affected. In de departments of Beni, Oruro, and Chuquisaca, the affected population represented more than 20% of the total population. The death toll was 74 people. The citizens, especially the farmers in Queensland suffered great losses from the disasters of their lands due to the heavy rain and flood that destroyed their agriculture systems. This also caused more than 10,000 people forced to be evacuated. The resulting



Flooding in Southeast Queensland on Feb.28, 2022

Damage and Loss Assessment (DaLA) estimated the total damage and loss to be 511 million dollars, which represents 3.4% of Bolivia's GDP. 33% of this total amount corresponds to damage and 67% to losses. The most affected sector was agriculture; including livestock, damage and losses in this sector reached 276.5 million dollars.

Severe Inflation

Another prominent consequence of climate change by La Niña is the knock-on effects.

Because of the property losses and the crop damages that happened by the disasters, crops have to spend more time regrowing and require more efforts from the farmers to harvest. Since it takes much more time to harvest and produce the crops, it leads to a smaller number of crops being sold compared to the usual amount sold before the climate change happened. Therefore, this causes a rise in inflations in the prices of everything ranging from a cup of coffee to coal used in steelmaking. Similarly, the extreme temperature does not only affect land and sea-based food



Argentina's key agriculture areas saw intense and prolonged heat coupled with little or no rain, in early 2022, resulting in stunted crops that was caused by La Niña.

provisions but also the supply and consumption of energy and water. Intense heat can cause water dam levels to drop drastically and can drag down the supply of power in areas that are reliant on hydroelectric energy. It can likewise trigger households and firms to use more electricity and water for hydration, cooling, and irrigation. All these individually and combined, affect the prices of commodities as a whole.

International Actions

Providing Forecast-based Funding

Forecast-based financing is a way of getting humanitarian funding to communities before a disaster strikes. It uses weather forecasts to fund ahead of extreme weather events. The overall goal is to prevent natural hazards from becoming disasters and reduce human suffering. The International Federation of Red Cross and Red Crescent Societies (IFRC) has pioneered and improved forecast-based financing approach since 2014. In 2018, IFRC launched forecast-based Action through the Disaster Response Emergency Fund which is a dedicated funding mechanism that helps



Members of IFRC giving humanitarian aid in Syria

national societies to focus on taking early actions before disasters strike.

Another organization that plays a significant role in funding is the Green Climate Fund (GCF). Created in 2014, the **Green Climate Fund (GCF)** is a global financial fund focused on investments related to mitigation and adaptation actions that follows the Paris Agreement goal of limiting global temperature increase to below 2 degrees Celsius. While paying close attention to the needs of societies that are highly vulnerable to the effects of climate change, specifically, Least Developed Countries (LDCs), Small Island Developing States (SIDS), and the African States, the GCF builds a bridge between private investment and climate action. GCF helps reduce greenhouse gas (GHG) emissions in developing countries and helps vulnerable societies adapt to the unavoidable impacts of climate change such as La Niña. GCF also shows some interest in ensuring 50:50 balance between mitigation and adaptation investments over time and 50% of the adaptation allocation for particularly vulnerable countries. This can especially help vulnerable countries that went through La Niña to adapt and economically recovery from the damages that were made.

Providing Accurate Climate Change Reports

One of the crucial reasons why many forecasts can't surely predict climate changes such as La Niña is due to the lack of detail or analysis of reports on climate changes. Luckily, The Intergovernmental Panel on Climate Change (IPCC), created by the world Meteorological Organization in collaboration with the United Nations Environmental Program, is the main international scientific body narrated to climate change research. The IPCC offers scientific assessment reports on climate changes, future risks, adaption, and mitigation. The reports made by the IPCC are written by leading scientists who volunteer their time and skill as writers and reviewers of the reports and are the greatest dependable source of details on climate change.

Possible solutions

Supporting Eco-farming Projects

One of the most severe environmental impacts that La Niña leaves is the destruction of agriculture and farming. Because most farming relies heavily on water usage, it is crucial to create an alternative for the agriculture system to continue to operate. For example, drought is a common example that exacerbates the agricultural system by reducing the water supply that can be used. Therefore, it is necessary to support agricultural initiatives and technological adaptations that reduce reliance on water and decrease the amount of water used in farming systems.



This shows a Filipino farmer using organic farming system.

Supporting Multi-system Prevention and Mitigation Measures

To prevent and weaken the damage that La Niña brings, Supporting and funding

organizations that manage environmental systems can be very beneficial. Systems such as urban forestry, community gardens, and natural land preservation not only help pull carbon out of the atmosphere but also help reduce surface heat, feed communities, slow down the passage of water through soil and stabilize the soil around them which reduces the risk of flash flooding. Reducing the risk of flooding and reducing surface heat can be the most important factor when vulnerable areas are faced with La Niña.

Glossary

La Niña: periodic cooling of ocean surface temperatures in the central and east-central equatorial Pacific.

Knock-on effect: an event or action that causes other things to happen.

Red Cross and Red Crescent Societies (IFRC): This is the world's largest humanitarian network. The IFRC acts before, during, and after disasters and health emergencies to meet the needs and improve the lives of vulnerable people.

Intergovernmental Panel on Climate Change (IPCC): This is an intergovernmental body of the United Nations. Its job is to advance scientific knowledge about climate change caused by human activities. The World Meteorological Organization and the United Nations Environment Program established the IPCC in 1988.

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