

Climate in the Americas: a challenge or an opportunity for a more solidary America

By Max Campos and Estefanía Jiménez¹

Since late last year and early 2014, the systems of global and regional climate warning have been reporting on the possibility of occurrence of the weather phenomenon called El Niño (warm anomalies of the oceanic component of ENSO). This phenomenon, which is associated with the natural variability of the planet and today is under constantly study because of the potential exacerbation of its impacts due to climate change, has distinct weather manifestations in different regions of the Americas. A severe drought occurs from southern Mexico along the Central America Pacific, contrasting with heavy rains and floods in the Caribbean slope. Many Caribbean countries are also affected by the drought, while in some regions of Peru and Bolivia rainfall increases significantly. Northeastern Brazil increases its water stress and the border region of the United States and Mexico also presents an insufficiency condition.

This situation has major implications for the economy, particularly in the energy sector of the countries whose systems of electricity generation depends on water, causing that many of the countries involved have to compromise their finances by importing fossil fuels to meet their demand. The agricultural sector, the main user of water resources, will present huge losses particularly in those areas with limited

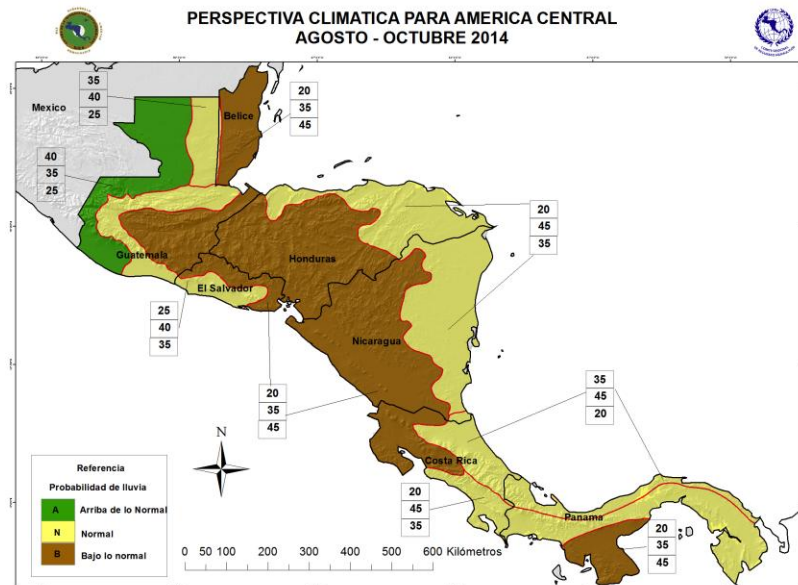
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Estefanía Jiménez: Engineer in meteorology graduated from the University of Costa Rica where currently she is pursuing the Licenciature's degree. During her undergrad years, Estefanía worked at the Center for Geophysical Research of her university, and then joined the National Meteorological Institute of Costa Rica where she worked for over 4 years. Here she worked in the Department of Synoptic and the Department of Climatology, where she conducted research mainly on climate variability and climate change; in addition she had the opportunity to represent the country at major meetings such as in the Framework Convention of the United Nations Climate Change sessions. Estefanía recently joined the group of Energy and Climate Change in the Department of Sustainable Development of the Organization of American States in Washington DC, she supports projects that encourage renewable energy, climate change mitigation and adaptation actions in the most vulnerable sectors of the Americas.

access to irrigation or in other cases where flooding affects crops. This produces a ripple effect that reaches the market of goods and services and food security.

In the specific case of Central America, the latest report of the Climate Forum for Central America² (CRRH-SICA, June 2014) clearly indicates the occurrence of an irregular rainy season, which is affecting in particular, but not exclusively, the Pacific watershed of the Central American isthmus.

Figure 1. Climate perspective Central America, CRRH-SICA 2014.



"... Due to changes in the gradient of atmospheric pressure between the Pacific and Atlantic Ocean the rainfall deficit of the August-October quarter will be enhanced, and eventually extremes as droughts in the Central American dry corridor and heavy rains on the Caribbean coast south of Central America (Climate Forum for Central America CRRH-SICA 2014)..."

This irregular rainfall has prevented adequate recharge of water sources and soil. The deficit of the rainy season in much of the region creates risk to the security of water supply for hydropower generation, for human and animal consumption of basic grains and livestock grazing, as well as drier conditions in the natural vegetation for the 2014-2015 dry season months. These dry conditions favor the occurrence of forest fires to occur owing to typical El Niño conditions of strong winds, which can cause significant damage to the reserve zones, protected areas and national parks.

Most global forecast models suggest that the condition of El Niño will reach at least a moderate strength during the remaining months of the year, peaking its warming later this year or early next one. With this perspective, there are no appropriate conditions for the rainy regime near the Pacific coast of Central America to be regularized, and rather an early exit of the rainy season is expected.

In the case of the Caribbean, the rainfall reduction conditions are also alarming among the productive sectors, particularly in the tourism, which is an important activity for this region (CariCOF, 2014³).

² <http://www.recursohidricos.org/index.php/78-icetheme/icetabs/185-xxxix-foro-del-clima-de-america-central-2>

³ <http://www.cimh.edu.bb/?p=precipoutlook>

Figure 2. Caribbean climate perspective (CariCOF, 2014)



Important to note that, despite these conditions, the characteristic of the climate in the hemisphere does not eliminate the possibility that systems such as hurricanes, tropical storms or depressions to occur, what the climate forecast warns is about a hurricane season in the Caribbean Basin with lesser amounts of these phenomena.

According to the International Center for Research on El Niño Phenomenon (CIIFEN) based in Ecuador, El Niño is already being felt in the region. The lack of rain in several areas of North, Central and South America, plus the Caribbean, has to do with the warming waters of the Pacific typical of El Niño, as well as excess rainfall that, on the contrary, is recorded in parts of the Southern Cone such as in Paraguay, where floods have ravaged. Models been used at the CIIFEN also indicate that El Niño will reach its full development in the last months of 2014 and may continue for the first of 2015.

As is evident in the reporting of the media (Table 1) it is important to deal with the phenomenon with determination, using the best scientific and technical knowledge available, early warnings we received and the opportunities to learn from a phenomenon that has existed and always will exist among us in the Americas. For the World Meteorological Organization (WMO), the United Nations Fund for Agriculture (FAO) and the United Nations Convention to Combat Desertification, we must follow the example of Australia, the only country with a national policy to combat droughts. This is where the Organization of American States has a role based on their mandates and programs such as the Inter-American Program for Sustainable Development (PIDS), in which it is established the exchange of experiences and practices that encourage political processes that allow to reduce socio economic and environmental impacts, which are major determinants in the loss of welfare and poverty in the hemisphere.

El Niño is a phenomenon that does not discriminate between developed countries, developing countries, rich countries, poor countries, sectors, social conditions, gender, borders or any other classification that humans have self imposed. El Niño is a phenomenon that calls for solidarity of the inhabitants of the Americas.

Table 1. Impacts of El Niño in the Americas.

Country / Region / Organization	Implications of El Niño to date, been reported by the media in the Americas.
Brazil	Despite being a country away from the Pacific, a deficit of rainfall is registered in the state of Sao Paulo, the most populous; the authorities have turned to technology to fill dams and having adequate water and energy. The Brazilian company Modclima, on request by the Basic Sanitation Company of the State of Sao Paulo (Sabesp) is "bombing" the clouds to generate rain and has already achieved the fall of about 11 thousand 500 million liters of water in the dams, equivalent to 1.2% of total capacity.
Colombia	22 of the 32 departments of the country are currently suffering from lack of rain, damage to agriculture and livestock are high, besides the living conditions of hundreds of thousands of people have further worsened, especially in the north, where there are places where have not had rain for two years. Fifteen indigenous children of La Guajira have died from diseases related to lack of food and water. In the departments of La Guajira, Magdalena, Córdoba, Atlántico, Sucre, Bolivar and Cesar have been recorded 642 forest fires in recent weeks, some 40 thousand cattle have died of thirst and farmers have lost their crops. According to the Agricultural Society of Colombia, GDP growth in this sector may drop from 5.2% in 2013 to 3.3% in 2014.
El Salvador	At least 6.6 million sacks of corn have been lost as a result of drought and there is a risk of losing 2,475,000 quintals of beans, according to the Salvadoran Chamber of Small and Medium Agricultural Producers.
Costa Rica	In the province of Guanacaste, with coasts on the Pacific and one of the main agricultural, livestock and tourist areas, is on yellow alert because of drought, accompanied by winds that aren't typical of this time of year, the deficit rainfall since April is 50% and in July it rained 1.3% of the historical average of this month (IMN-CR).
Guatemala	The drought affects 28 of the 338 municipalities, said this month by the president of Guatemala, Otto Perez Molina.
Bolivia	18 municipalities in the Andean region of Oruro, near the border with Chile, are in drought emergency.
Mexico	44% of its territory is affected by some degree of drought, according to the latest National Weather Service monitoring, performed on June 30. As of April 30, 711 municipalities in the country suffered a deficit of precipitation, according to the National Water Commission (CONAGUA).
United States	In California, Oregon and Nevada a situation of chronic drought has been lived for three years, a problem that has intensified since the beginning of 2014 and in the first of these states the case has been declared "exceptional". Also from beginnings of the year to July 19 have occurred in California three thousand 400 fires that have burned 20 thousands 600 hectares and it's estimated the agricultural sector of the state may lose this year over one billion dollars.
Dominican Republic and Puerto Rico	Dams are at the minimum capacity and restrictions for the water supply have been announced.
Venezuela	The country has experienced a "from severe to extreme" drought in recent months that has affected nine of its 23 states, prompting the government to start rationing the water supply, interrupting partially or completely the service in various parts, even for three days a week.