

Global La Niña Update and Background Information

Produced by the International Research Institute for Climate and Society and the
Red Cross/Red Crescent Climate Centre

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This document contains regional La Niña updates, followed by background information and forecast monitoring guidance and resources.

Regional La Niña Updates

Asia

Increased risk of floods in Indonesia and the Philippines

A moderate La Niña event has recently developed and is expected to last through February 2011. Frequently, La Niña events are associated with unusually wet conditions and heightened flood risk in parts of South and Southeast Asia. During the La Niña event of 2007, 69 floods occurred throughout South and Southeast Asia, more than double the annual average number of floods from 1980-2009.

This year, the seasonal forecast shows enhanced odds of getting above-normal rainfall in the region (see forecast map 1 on page 5), particularly in Indonesia (from September-November) and the Philippines (from October-February). IRI's seasonal forecast for rainfall extremes also shows there is a slightly enhanced chance that Indonesia will experience an extremely wet season over the months of September-November (see forecast map 2 on page 5). The risks of flooding events are therefore notably increased. La Niña can also cause the path of typhoons in the western Pacific to shift more towards land.

Given the forecast for increased chances of above-normal rainfall in much of Southeast Asia and particularly in Indonesia and the Philippines, we strongly recommend making contact with national met service and monitoring weather forecasts on shorter timescales over the course of the season to anticipate the specifics in terms of where, when and how severe rainfall events might be. You may also want to consider advanced planning for implications of above-normal rainfall on disaster management, health, WATSAN and livelihoods for instance (see background information below for further guidance).

IRI also updates its seasonal forecasts on a monthly basis (next update: September 16th), and since forecast uncertainty increases the further in advance a forecast is made, we recommend monitoring the forecasts as they are updated on a monthly basis for any developments: <http://iri.columbia.edu/ifrc/forecast/3munusualprecip>. For further information about La Niña, and guidance on monitoring and enhancing preparedness using forecasts across timescales, see the background section of this document. If you have questions related to this La Niña or to seasonal forecasts, you can e-mail the IFRC Helpdesk at IRI: ifrc@iri.columbia.edu.

Pacific

Increased risk of Pacific Island floods and droughts

A moderate La Niña event has recently developed and is expected to last through February 2011. Some islands in the Pacific tend to experience drought during La Niña events, while others experience above-normal rainfall. Droughts in Fiji, Solomon Islands, FSM and Kiribati all coincided with the La Nina that persisted from 1998-2001. Due to limited water resources, droughts affecting Pacific Islands can have implications on food security, water and sanitation, health and livelihoods.

This year, the seasonal forecast shows highly enhanced odds of experiencing dry conditions, enhancing drought risk in Nauru, Tuvalu and Kiribati from September 2010-February 2011. IRI's seasonal forecast for extremes also shows there is an enhanced chance that islands in this region will experience extremely dry conditions over the months of September-November (see forecast maps 1 and 2 on page 5). The risk of drought therefore is notably increased.

Given the forecast for increased chances of insufficient rainfall on these islands, we strongly recommend monitoring for any emerging drought conditions that would activate your regional drought contingency plans. You might also consider some pre-emptive actions such as hand washing campaigns, water conservation etc as appropriate in country.

Above-normal rainfall (implying enhanced flood risk when coinciding with the rainy season) is also forecast for a number of other islands including:

- Niui from September-November
- Vanuatu from September- January
- New Caledonia from October-December
- Tonga from November-February

Since forecast uncertainty increases the further in advance a forecast is made, we recommend monitoring the forecasts as their updated on a monthly basis for any developments at: <http://iri.columbia.edu/ifrc/forecast/3munusualprecip>. IRI's next update is scheduled for September 16th. It is also important to monitor weather forecasts on shorter timescales over the course of the season to anticipate the specifics in terms of where, when and how severe rainfall events might be.

For further information about La Niña, and guidance on monitoring and enhancing preparedness using forecasts across timescales, see the attached background document. If you have questions related to this La Niña or seasonal forecasts, you can e-mail the IFRC Helpdesk at IRI:

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Africa

Increased risk of drought in East Africa and floods in the Sahel and Southern Africa

A moderate La Niña event has recently developed and is expected to last through February 2011. Frequently, La Niña events are associated with drought in East Africa and increased chances of heavy rainfall and floods in parts of the Sahel, and in Southern Africa early next year. Devastating floods in southern Africa that affected 386,776 people, leaving 32,000 homeless and killing 96, occurred in the La Niña year of 2000. Floods already occurring in West Africa can in part be attributed to the current La Niña.

It is expected that such unusual rainfall patterns will be reflected in updates to the seasonal forecast that will be made in mid-September, featured at: <http://iri.columbia.edu/ifrc/forecast/3munusualprecip>. We will send you another update at that point, but encourage you to take this early advisory into consideration as you plan for the coming six months.

As always, we recommend making contact with regional and national met services and to monitor weather forecasts on shorter timescales over the course of the season to anticipate the specifics in terms of where, when and how severe rainfall events might be.

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Americas

Increased risk of floods and droughts

A moderate La Niña event has recently developed and is expected to last through February 2011. Frequently in the past, La Niña events have been associated with:

- Unusually wet conditions and heightened flood risk in northern parts of South America, (mostly in Columbia, Venezuela, Guyana, Suriname, French Guiana and northern Brazil).
- Abnormally dry conditions and heightened drought risk in central Chile, eastern portions of Argentina and Uruguay.
- Increased hurricane activity in the Atlantic, and is in part what is contributing to forecasts for a very active hurricane season this year.

Currently, the seasonal forecast shows enhanced odds of getting above-normal rainfall (implying enhanced flood risk when coinciding with the rainy season), in parts of Central America, northern South America and the Caribbean (see attached forecast map).

Flood risk is particularly heightened for Haiti and the Dominican Republic from (from September-November). IRI's seasonal forecast for rainfall extremes shows there is a slightly enhanced chance that Haiti and the Dominican Republic will experience an extremely wet season over the months of September-November (see forecast maps 1 and 2 below). The risks of flooding events are therefore notably increased.

There are also enhanced odds of dry conditions, heightening drought risk when coinciding with the rainy season in:

- Argentina and Uruguay (from September-February)
- Paraguay (from September-November)
- Ecuador (from December-February).

Looking further ahead, IRI's seasonal forecast also projects enhanced odds of above-normal rainfall and associated flood risk in: Guyana (from November-February), and in French Guiana and Suriname (from December-February). IRI also updates its seasonal forecasts on a monthly basis (next update: September 16th), and since forecast uncertainty increases the further in advance a forecast is made, we recommend monitoring the forecasts as their updated on a monthly basis for any developments: <http://iri.columbia.edu/ifrc/forecast/3munusualprecip>

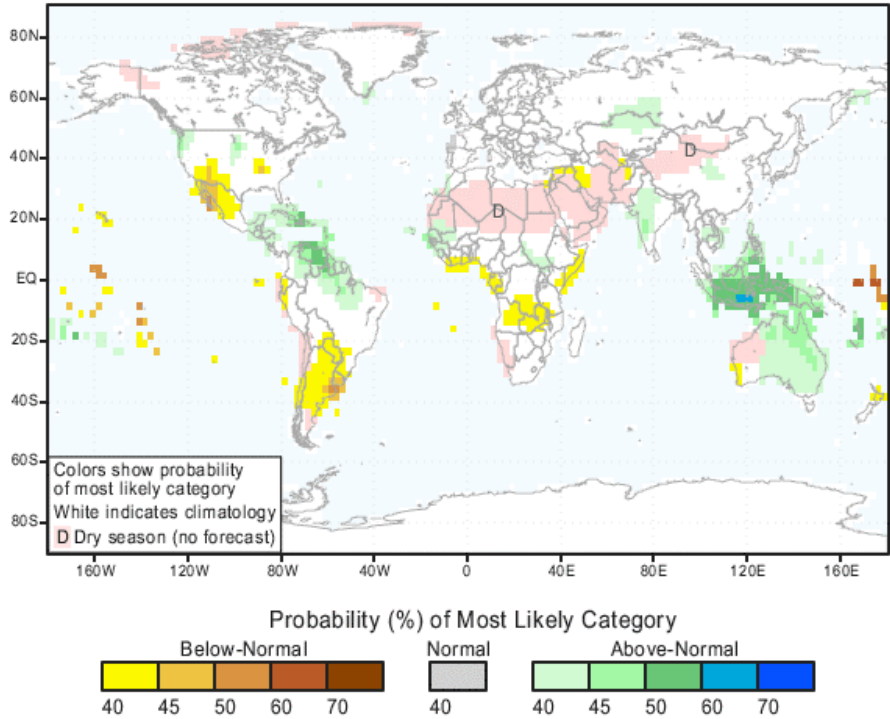
Given the forecast for increased chances of abnormal rainfall in many parts of the Americas and particularly for heightened flood risk in Haiti and the Dominican Republic, we strongly recommend national met services are contacted and that weather forecasts on shorter timescales are monitored over the course of the season to anticipate the specifics in terms of where, when and how severe rainfall events might be, and to monitor any emerging drought conditions. You may also want to consider advanced planning for implications of unusual rainfall on disaster management, health, WATSAN and livelihoods for instance (see attached background document for further guidance).

For further information about La Niña, and guidance on monitoring and enhancing preparedness using forecasts across timescales, see the attached background document. If you have questions related to this La Niña or seasonal forecasts, you can e-mail the IFRC Helpdesk at IRI: ifrc@iri.columbia.edu.

Forecast Maps

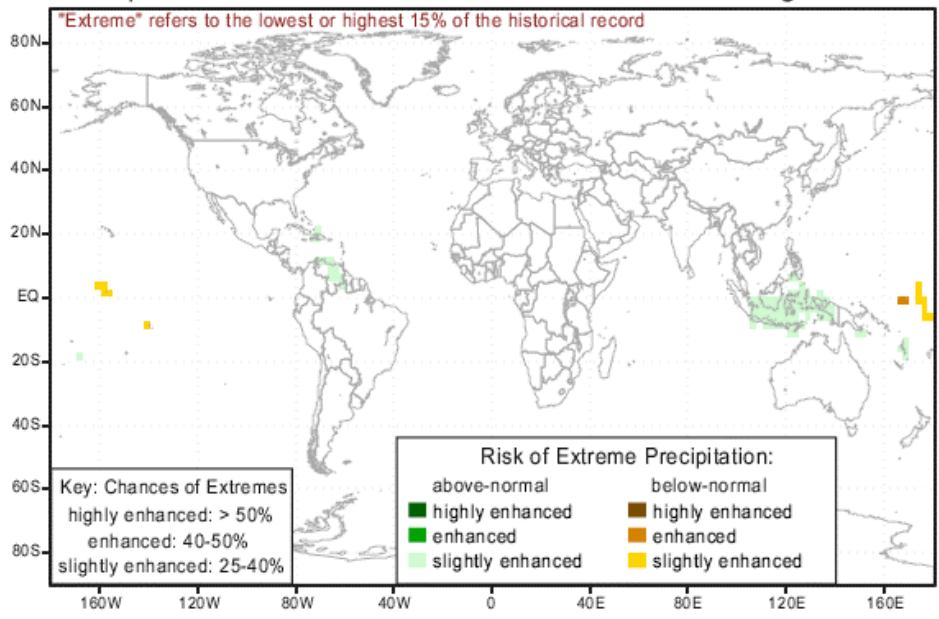
Map 1

IRI Multi-Model Probability Forecast for Precipitation for September-October-November 2010, Issued August 2010



Map 2

IRI Multi-Model Probability Forecast of Extreme Precipitation for September-October-November 2010, Issued August 2010



Background and Forecast Monitoring Information

What is La Niña and why does it matter?

La Niña is a natural part of climate variability, and refers to a colder than average period in the equatorial Pacific (the opposite of warm El Niño events). In the last 20 years, we have experienced 3 moderate to strong La Niña events. While La Niña can go unnoticed or even have beneficial impacts in many parts of the world, it can also be disruptive or cause extensive problems when some areas receive too much rainfall and other areas receive too little.

For example, unusually heavy rainfall in Southern Africa that often accompanies La Niña events, caused devastating floods and mudslides during the 1998-2001 La Niña that resulted in deaths, injuries and left thousands homeless. In Bangladesh, 4 out of the 6 most catastrophic flood years since 1954 have occurred during La Niña events. On many Pacific Islands, La Niña is frequently accompanied by drought, putting major stress on the limited availability of fresh water resources. Right now, recent flooding in Pakistan and West Africa can in part be attributed to La Niña conditions that began to develop this June. La Niña is also associated with increased hurricane activity in the Atlantic, and can cause the path of typhoons in the western Pacific to shift more towards land.

Once developed, La Niña events typically persist for about a year (occasionally longer), peaking during the October-January period. However, the largest impacts for a location may not coincide with the peak of the La Niña itself. Peak impacts from La Niña are usually felt during a given location's rainy season, because that is when a disruption of the rains or too much rainfall can have the greatest impact on society (affecting agriculture, livelihoods, food security, health and safety, etc).

Summary of current La Niña conditions

August 2010 – The La Niña that emerged in June 2010, is now of moderate strength. There is a high chance (90%) that the La Niña will continue through the remainder of 2010. It is also likely to persist into the early months of 2011.

La Niña updates can be monitored for any developments in terms of the strength of the event. Right now the La Niña is not expected to be as strong as previous events in the late 1980's and 90's. However, it is important to remember that the strength of a La Niña event only provides a rough indication of how widespread and severe associated impacts are likely to be on a *global scale*. The strength of a La Niña event does not provide certainty regarding the severity of impacts *in specific locations*. The best way to anticipate if this La Niña event is likely to bring too much or too little rainfall to your area is to monitor seasonal forecasts, which take influential factors from this La Niña and other elements in the climate system into account.

Guidance on monitoring and connecting forecasts with actions to enhance preparedness and response

The benefit that seasonal forecasts offer, which weather forecasts do not, is long-lead time or early warning information. Having an early indication that a rainy season might be wetter or drier than normal for instance can be a helpful guide to anticipate any potential impacts. However, monitoring seasonal forecasts should be supplemented with monitoring forecasts on shorter-term timescales (like 10-day, weekly and daily weather forecasts), to obtain more certainty and detail

regarding where and when extreme events might occur. Seasonal rainfall forecasts are similar to seasonal cyclone forecasts in the sense that knowing if the cyclone season is likely to be more active than normal might prompt you to be more prepared, but you would have to monitor shorter-term weather and cyclone forecasts to anticipate where and when individual cyclones make landfall.

Limitations

Important! Seasonal Forecasts Do Not Provide Any Detailed Spatial Information. Weather forecasts are like a high-definition picture, giving you detailed information on exactly where rainfall is likely to occur. Seasonal forecasts however, are more big-picture (coarse resolution). Thus, it is not possible to make inferences about precisely *where* there are risks of increased or decreased rainfall. A forecast for increased risk of above-normal rainfall over West Africa, for example, should be taken as just that, and not as a forecast for above-normal rainfall in specific countries or parts of countries in West Africa.

Important! Seasonal Forecasts Only Give a General Sense of the Character of the Season by Providing a Forecast of Seasonal Rainfall Totals. The seasonal forecasts are for whether cumulative rainfall totals over 3 months time are likely to be normal, above-normal or below-normal. This gives you a general overview of the season, but does not elaborate on possible day-to-day weather fluctuations. Although it does not happen very often, it is quite possible for an area to receive a month's worth of rainfall in 1 day and thus suffer from floods, but have a seasonal total of below-normal rainfall consistent with the seasonal forecast. In general, however, the seasonal rainfall forecast is a reasonable indicator of the likelihood for such weather events.

Important! Seasonal forecasts are probabilistic. If you had no forecast, you would have no idea of whether rainfall would be normal, above-normal, or below-normal, and so each of these three possible outcomes would have a probability of 33%. Seasonal forecasts can tell you if one of those three categories is more likely than the others. However, probabilities for the less likely events should not be ignored, to avoid being over-confident in the forecasts. For example, a 45% chance of above normal-rainfall means that there is an enhanced chance of getting rainfall totals that are above-normal for the season, but there is still a 55% chance of getting normal or below-normal rainfall. Seasonal forecasts therefore leave a large amount of uncertainty, but when combined with monitoring of weather forecasts on shorter timescales and a no-regrets early action strategy, can still be very beneficial by providing enhanced lead-time for preparedness.

One helpful guide may be to think of probabilities of 35 or 40% as being only slightly enhanced, 45 or 50% as enhanced, and greater than 50% as highly enhanced.

Recommendations for connecting forecasts to actions for enhanced preparedness and response:

If over the coming months seasonal precipitation (rainfall) forecasts for your region indicate a higher risk of abnormal rainfall, it is important to start considering the implications:

- What would too much or too little rainfall mean in terms of food security, health, disaster management, displacement and livelihoods?
- Who is vulnerable?

- What can be done to prepare? What kind of ‘no-regrets’ actions could be taken early on, that would help to manage these impacts?
- Are your contingency plans adequate and up to date?
- Are your relief stocks sufficient for probable demands?
- When was the last time that staff and volunteers received training on disaster management?
- Should you meet with staff to discuss the situation and collectively brainstorm possible courses of action?

Thinking through these questions with your colleagues is always a good idea. That way you can monitor conditions and forecasts for the months, weeks, days and hours ahead, to see if and when it becomes necessary to activate the plans and resources you’ve put in place. For more resources on developing an Early Warning, Early Action strategy, visit:

<http://www.climatecentre.org/site/early-warning-early-action>

Monitoring Resources

For short-term weather forecasts, the best place to check is with your national meteorological services. Some national meteorological services also provide seasonal forecast information. To find your national meteorological service: http://www.wmo.int/pages/members/members_en.html

The resources provided below include global and regional sources for monitoring seasonal forecasts. In some cases, short-term weather forecasts are also provided by these institutions.

Global Source:

International Research Institute for Climate and Society (IRI)

- Seasonal forecasts: <http://iri.columbia.edu/ifrc/forecast/3munusualprecip>
- Updates on the current La Niña/El Niño status: <http://iri.columbia.edu/climate/ENSO/currentinfo/QuickLook.html>
- For global forecasts on the likelihood of above average rainfall in the coming 6 days: <http://ingrid.ldeo.columbia.edu/maproom/.IFRC/.Forecasts/>

Regional Sources:

Africa

African Centre for Meteorological Applications for Development (ACMAD)

- Seasonal forecasts: http://www.acmad.ne/en/climat/previ_saison.htm
- Monthly, 10-day, and 24-hour forecasts also available

East Africa

IGAD Climate Prediction and Applications Centre (ICPAC)

- Seasonal, monthly and 10-day forecasts: <http://www.icpac.net/>

Southern Africa

SADC Drought Monitoring Centre (DMC)

- Seasonal and 10-day forecasts: <http://www.sadc.int/dmc/>

South African Weather Service

- Weather forecasts 11-30 days in advance, 7-day forecasts: <http://www.weathersa.co.za/>

Asia

ASEAN Specialised Meteorological Centre (ASMC)

- Seasonal forecast:
http://www.weather.gov.sg/wip/web/ASMC/Regional_Weather/Monthly_Weather_and_Haze_Outlook4
- La Niña/El Niño monitoring
http://www.weather.gov.sg/wip/web/ASMC/Regional_Weather/Status_of_El_Nino

Pacific Islands

Island Climate Update (ICU)

- Seasonal forecasts: <http://www.niwa.co.nz/news-and-publications/publications/all/icu>

Americas

Caribbean

Caribbean Institute for Meteorology and Hydrology (CIMH)

- Seasonal forecast and drought monitoring resources: <http://www.cimh.edu.bb/>

Central America

Climate Outlook Forum for Central America

- Seasonal forecast: <http://www.aguayclima.com/clima/inicio.htm>

South America

Centro Internacional para la Investigacion del Fenomeno de El Niño (CIIFEN)

- Seasonal forecast: <http://www.ciifen-int.org/>

Historical La Niña Impacts

While no two La Niña events are exactly alike, scientists have mapped out areas where La Niña has frequently been associated with increases or decreases in rainfall in the past, see:

http://portal.iri.columbia.edu/portal/server.pt/gateway/PTARGS_0_5665_7175_0_0_18/LaNinaRain.pdf

The IFRC Helpdesk at IRI

If you have questions about La Niña or forecasts etc. the International Research Institute for Climate and Society (IRI) has a helpdesk to provide the RC/RC with assistance in interpreting climate information relevant to the RC/RC's work. To seek assistance from this source please e-mail your question to ifrc@iri.columbia.edu.