

17 March 2011 -Global La Niña Update

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

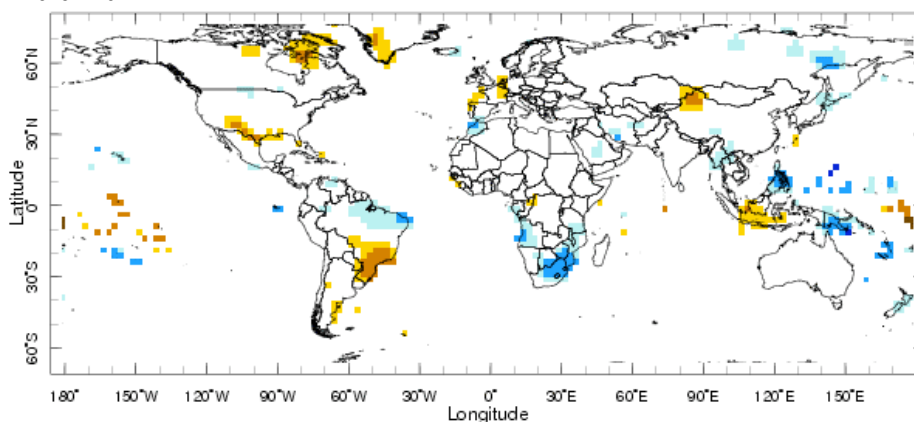
This update contains:

- A global La Niña update and forecast for precipitation (rain and snow) for the coming April–June
- A comparison between the seasonal forecast for December 2010 – February 2011 and the precipitation that occurred
- Background information on La Niña, as well as forecast monitoring guidance and resources

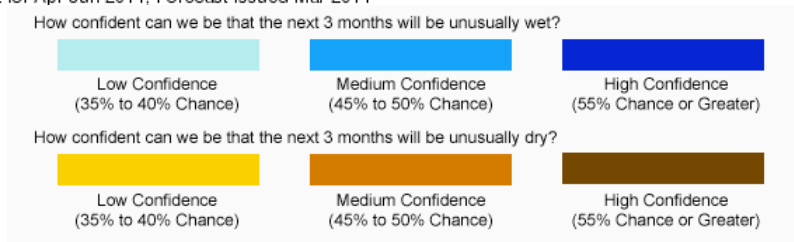
Global La Niña Update

The moderate-strong La Niña event that developed in mid-June 2010 has now been downgraded to a weak-moderate event, and is expected to continue to decline in strength over the next few weeks. However, its impacts in terms of unusual precipitation (rain and snowfall) are expected to remain strong through at least mid-April. The map below shows the IRI forecast for the total amount of rainfall that is expected from April to June 2011. The map shows whether this three-month period as a whole is expected to be *unusually* wet or dry. Notice that there are fewer locations with forecasts shown on the map than usual. This is because the forecast period covers a time of year when seasonal forecast predictability is low, making it harder to issue forecasts for many locations. Thus, in areas both with and without seasonal forecast information, it is recommended to pay close attention to shorter-range weather forecasts in order to anticipate extreme events.

Global Forecast Map: IRI Seasonal Forecast for Precipitation (rain and snow) over April – June 2011, issued on 17 March 2011.



Forecast for Apr-Jun 2011, Forecast Issued Mar 2011



How to read this forecast map: Colours over the map correspond to how confident we can be that the total amount of rainfall over the period April to June 2011 will be either above-normal (i.e., unusually wet, indicated by shades of blue) or below-normal (i.e., unusually dry, indicated by shades of yellow) for the given area and time of year. Above-normal and below-normal rainfall typically each occur about once every three years (i.e., with a probability of 33%), and so shaded areas indicate increased risks of an unusually wet or dry season. Areas with higher confidence levels have darker shades (see colour bar above). For more guidance on interpreting the forecast, see page 4.

Note: The forecasts are not a direct indication of flooding risks because floods can occur as a result of exceptionally heavy rainfall over only a few hours or a few days, and because prolonged "good" rains over a three-month period may not produce any flooding at all. However, the map does provide a reasonably good indication of areas that might be at increased risk.

Forecast Interpretation-Highlighting Areas of Concern

Areas to note with an enhanced risk of **above-normal** rainfall include:

- parts of southern Africa, where the end of the rainfall season is likely to be a bit wetter than usual.

Areas to note with an enhanced risk of **below-normal** rainfall include:

- southern Brazil, which has already been dry and tends to experience drought impacts during La Niña events;
- Kiribati and Tuvalu.

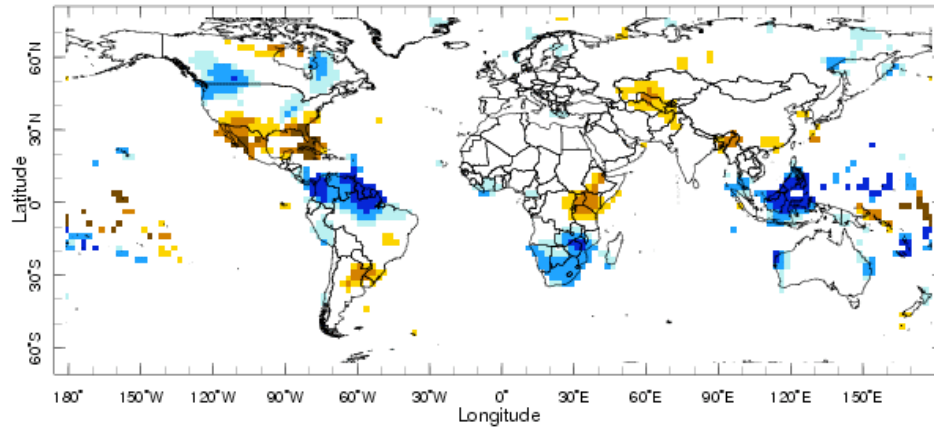
Though the current La Niña is weakening it is always recommended to monitor seasonal forecasts on a monthly basis for updates, as well as shorter-range weather forecasts to anticipate specific weather events (see page 6 for some regional monitoring resources). IRI's next forecast update is scheduled for 21 April 2011 and can be found at: <http://iri.columbia.edu/ifrc/forecast/3munusualprecip>

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.

Reflecting Back on the Forecast and Observed Rainfall

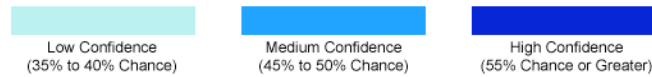
As a means of evaluating the information in La Niña Updates, it is informative to see how well the forecasts have matched the outcomes. The 'Global Forecast Map' below shows the seasonal precipitation forecast that was issued in November, for the months of December–February. We can compare that to the observed rain and snowfall, shown in the 'Observed Precipitation Map' below it.

Global Forecast Map: IRI Seasonal Forecast for Precipitation (rain and snow) over December 2010 – February 2011, issued on 18 November, 2010.



Forecast for Dec 2010 - Feb 2011, Forecast Issued Nov 2010

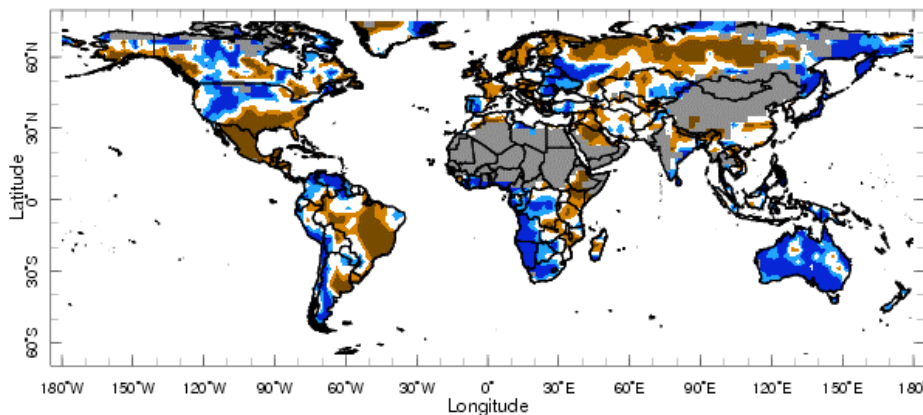
How confident can we be that the next 3 months will be unusually wet?



How confident can we be that the next 3 months will be unusually dry?



Observed Precipitation Map: The map below shows where seasonal rainfall/snowfall totals ended up being above-normal (blue) or below-normal (brown) for the December 2010–February 2011 period (compared to average rain/snow amounts for these same months 1971–2000). Areas shaded dark brown and dark blue experienced exceptionally dry / wet conditions, respectively.¹



Dec 2010 - Feb 2011

¹ NOAA's Climate Prediction Center's CAMS-OPI v0208 monthly gridded precipitation data (Climate Anomaly Monitoring System - OLR Precipitation Index)
http://www.cpc.ncep.noaa.gov/products/global_precip/html/wpage.cams_opi.html

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 (1995-96, 1998-2000, 2007-08). 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 or too little rainfall.

For example, unusually heavy rainfall in Southern Africa that often accompanies La Niña events, caused devastating floods and mudslides during the 1998-2000 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. 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 mainland Asia.

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

17 March 2011— The moderate-strong La Niña event that developed in mid-June 2010 has now been downgraded to a weak-moderate event. However, its' impacts in terms of unusual precipitation (rain and snowfall) are expected to remain strong through at least mid-April.

La Niña updates can be monitored for any developments in terms of the strength of the event. 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 possible for an area to receive a month's worth of rainfall in 1 day and thus suffer from floods, but end up having a seasonal total of below-normal rainfall consistent with the seasonal forecast.

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

Regional Climate Centre for RA II (Asia)

- Seasonal forecasts and monitoring products: <http://www.rccra2.org/detail/index.htm>

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_7182_0_0_18/LaNinagraphic_aug2%207.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.