The La Niña event that has been behind much of this winter’s dry weather is waning, but experts forecast more drought and elevated fire risk in coming months.

While a relatively wet December likely saved the region from extreme drought conditions, January and February were dry. Only one major storm in February brought precipitation to Arizona, mostly soaking northern areas—14 inches of snow fell around the North Rim of the Grand Canyon. Several weak storms dipped into southern Arizona last month, but they ferried little moisture, leaving most of the state with less than 70 percent of average precipitation. New Mexico was slightly wetter (Supplemental Figure 1).

Since the water year began on October 1, precipitation in much of Arizona has been less than 70 percent of average; New Mexico has been more variable (top figure). Precipitation deficits over six- and twelve-months are substantial in parts of the region (Supplemental Figures 2-3), and drought conditions remain widespread. As of February 28, about 82 and 92 percent of New Mexico and Arizona, respectively, were classified with moderate or a more severe drought category (bottom figure). This is an increase in Arizona of about 18 percent from January 31. Drought intensity in some parts of New Mexico has decreased slightly but drought also remains draped over most of the state. Upcoming months will be crucial for deepening or improving drought, especially in northern areas that receive a large portion of winter precipitation in March and April (Supplemental Figures 4–5).

Spring in the Southwest is also windy, and dry weather combined with blustery days could cause rapid declines in mountain snowpack. La Niña’s influence on weather this winter has been evident in Arizona and New Mexico. Many storms have been pushed north in recent months, clipping only the northern reaches of both states. This is a classic La Niña pattern. But La Niña is not the only force at work. The Madden–Julian Oscillation (MJO) and the Arctic Oscillation (AO) also have played a role. The MJO—the periodic pulse of tropical storms that migrate east in the Pacific Ocean and push moisture into the Southwest—has been inactive since December, when it helped boost wet weather (Supplemental Figure 6). Also, a positive AO has helped suppress incursions of Arctic air that froze the Southwest in February 2011 (Supplemental Figure 7).
EC = Equal chances.
No forecasted anomalies.

B = Below
A = Above

% 33.3 40.0 50.0 60.0
33.3 40.0 50.0 60.0 70.0

Source: National Resources Conservation Service

The Seasonal Drought Outlook calls for drought to persist, intensify, or develop in all of Arizona and New Mexico during the March–May period (Supplemental Figure 13).

Despite high snow accumulations in parts of the Upper Colorado River Basin in recent weeks, scant early season snows make above-average spring streamflows unlikely; October–December precipitation always contributes disproportionately to Colorado River runoff.

The spring streamflow forecast for Arizona issued on March 1 calls for the Little Colorado, Verde, Salt, and Gila rivers to be 40, 31, 37, and 27 percent of average, respectively (Supplemental Figure 14).

While it is too early to reliably forecast the 2012–2013 winter, it is worth noting that there have been 10 back-to-back La Niña events since 1900. In four of those cases, a La Niña developed for a third consecutive winter, while an El Niño developed in the third winter in the other six cases. ENSO-neutral conditions have never followed a two-year La Niña.

Fire and forest managers in the Southwest expect an active fire season.

In recent months, there has been insufficient tropical moisture to fuel storms wafting through the region. As a result, storms have remained weak. This is common during La Niña events but can be overrun during MJO events, which have been absent since December.

The precipitation outlook for March–May calls for increased chances for below-average precipitation in all of Arizona and New Mexico (right). Odds for below-average precipitation are 50–60 percent for a large area in the southern tier of both states and along the Arizona and New Mexico border (right).

The March–May outlook calls for increased odds of above-average temperatures in all of Arizona and New Mexico (Supplemental Figure 10).

La Niña will likely persist during February–April, but chances for its continuation greatly drop thereafter (Supplemental Figure 11).

La Niña events were present 15 times during March–May between 1950 and 2008. Including recent trends, precipitation during these months was often 10–70 millimeters (0.4–2.7 inches) below average parts of Arizona and New Mexico; central Arizona experienced the most precipitation deficits (Supplemental Figure 12). Two inches is about 25 percent of the total winter precipitation in many areas.

The amount of water contained in the snowpack, or snow water equivalent (SWE), was below average in Arizona as of March 2 (left) but above-average in several basins in New Mexico.

Winter storms in the last month has helped boost SWE in the Upper Colorado River Basin since February 8. However, all but one contributing watershed remains below 90 percent of average as of March 2 (Supplemental Figure 8).

Streamflow forecasts suggest a 50 percent chance that the April–June flow into Lake Powell will be less than 67 percent of average (Supplemental Figure 9); there is about a 10 percent chance that inflows will be greater than average.

Streamflow forecasts suggest a 50 percent chance that the April–June flow into Lake Powell will be less than 67 percent of average (Supplemental Figure 9); there is about a 10 percent chance that inflows will be greater than average.

Fire and forest managers in the Southwest expect an active fire season.

In recent months, there has been insufficient tropical moisture to fuel storms wafting through the region. As a result, storms have remained weak. This is common during La Niña events but can be overrun during MJO events, which have been absent since December.

The precipitation outlook for March–May calls for increased chances for below-average precipitation in all of Arizona and New Mexico (right). Odds for below-average precipitation are 50–60 percent for a large area in the southern tier of both states and along the Arizona and New Mexico border (right).

The March–May outlook calls for increased odds of above-average temperatures in all of Arizona and New Mexico (Supplemental Figure 10).

La Niña will likely persist during February–April, but chances for its continuation greatly drop thereafter (Supplemental Figure 11).

La Niña events were present 15 times during March–May between 1950 and 2008. Including recent trends, precipitation during these months was often 10–70 millimeters (0.4–2.7 inches) below average parts of Arizona and New Mexico; central Arizona experienced the most precipitation deficits (Supplemental Figure 12). Two inches is about 25 percent of the total winter precipitation in many areas.

The amount of water contained in the snowpack, or snow water equivalent (SWE), was below average in Arizona as of March 2 (left) but above-average in several basins in New Mexico.

Winter storms in the last month has helped boost SWE in the Upper Colorado River Basin since February 8. However, all but one contributing watershed remains below 90 percent of average as of March 2 (Supplemental Figure 8).

Streamflow forecasts suggest a 50 percent chance that the April–June flow into Lake Powell will be less than 67 percent of average (Supplemental Figure 9); there is about a 10 percent chance that inflows will be greater than average.

Fire and forest managers in the Southwest expect an active fire season.

In recent months, there has been insufficient tropical moisture to fuel storms wafting through the region. As a result, storms have remained weak. This is common during La Niña events but can be overrun during MJO events, which have been absent since December.

The precipitation outlook for March–May calls for increased chances for below-average precipitation in all of Arizona and New Mexico (right). Odds for below-average precipitation are 50–60 percent for a large area in the southern tier of both states and along the Arizona and New Mexico border (right).

The March–May outlook calls for increased odds of above-average temperatures in all of Arizona and New Mexico (Supplemental Figure 10).

La Niña will likely persist during February–April, but chances for its continuation greatly drop thereafter (Supplemental Figure 11).

La Niña events were present 15 times during March–May between 1950 and 2008. Including recent trends, precipitation during these months was often 10–70 millimeters (0.4–2.7 inches) below average parts of Arizona and New Mexico; central Arizona experienced the most precipitation deficits (Supplemental Figure 12). Two inches is about 25 percent of the total winter precipitation in many areas.