



All You Need to Know about the Southwest Monsoon

The Southwest has experienced a severe fire season in 2011, but relief may be on the way. It comes in the form of the “Southwest Monsoon,” an event that typically starts in early July and generally begins to draw the curtain on the fire season in Arizona, New Mexico, West Texas, southern Utah and southwestern Colorado.

Here’s a set of questions-and-answers that will help you to better understand the phenomena. Thanks go to Robyn Heffernan, fire weather science and dissemination meteorologist with NOAA’s National Weather Service, for providing the answers.

1. What is the Southwest Monsoon?

The word monsoon is derived from the Arabic word mausim, which means “season” and refers to a wind system that reverses direction between winter and summer. This seasonal change of wind direction typically results in dramatic changes in moisture levels in the atmosphere, and it is for this reason that the monsoon is associated with thunderstorm activity. What is commonly called the Southwest Monsoon is actually the northern fringe of a much larger circulation over Mexico called the Mexican Monsoon. The impacts of the monsoon circulation over both Mexico and the Southwest U.S. have resulted in the most recent naming of this phenomenon as the North American Monsoon.

The North American Monsoon is defined by a shift in wind patterns in the summer as Mexico and the Southwest U.S. warm under intense solar heating. For the Southwest, this heating results in a surface high pressure center that initially forms over northern Mexico, and then moves near the Four-Corners region. As this happens, the flow reverses from dry land areas to moist ocean areas. In the North American Monsoon, moisture is typically transported from the Gulf of California and the Gulf of Mexico. The monsoon typically arrives in mid- to late June over northwest Mexico, and early July over the southwest U.S.

2. What areas does it affect?

In the U.S., the North American Monsoon most greatly affects the Southwest, however, impacts from the monsoon will at times, during the summer, be felt throughout the entire West. These impacts are typically an increase in moisture in the atmosphere, and consequently, enhanced thunderstorm development.

3. How strong does this year’s monsoon appear? Has it already started?

The “strength” of the monsoon typically refers to the strength and consistency of the circulation pattern that imports moisture into the southwestern U.S. Although this is difficult to predict, there are correlations between the strength of the monsoon and the climatic phase of the El Nino Southern Oscillation (ENSO). This year began with a very strong La Nina which typically correlates to a stronger than normal monsoon. That being said, the current ENSO phase is neutral which may result in more normal monsoon activity.



Historically, the onset of the monsoon across the Southwest U.S. was defined by a date in which moisture levels in the atmosphere had reached a specific threshold and were sustained for a number of days. To limit confusion, in 2008 the monsoon was no longer defined by a specific start date but rather by a season of June 15 to September 30.

For this year, as of the first week of July, the high pressure center associated with the North American Monsoon had begun to set up near the Four-Corners region and import moisture across the Southwest.

4. Does the monsoon signal the end of the fire season in the Southwest?

Due to the heavy rain and increased moisture levels in the atmosphere that typically accompany the monsoon, the start of the monsoon circulation tends to decrease fire potential significantly across the Southwest. If the monsoon moisture is not consistent or only focused across a specific portion of the Southwest, fire potential may remain high throughout the course of the summer.