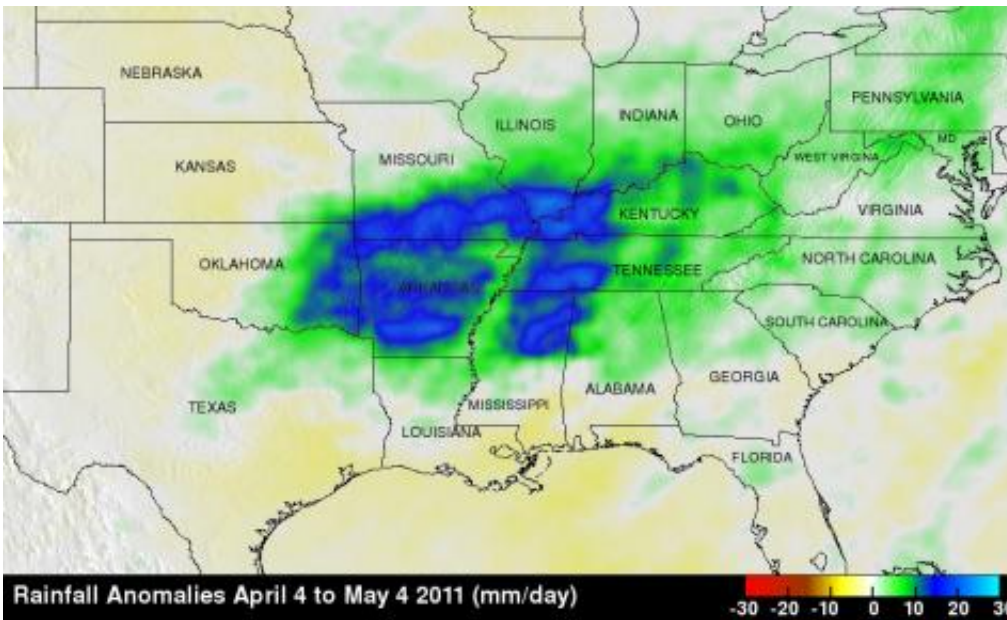


TRMM maps a wet spring, 2011 for the Central U.S.

May 10 2011, By Steve Lang



TMPA rainfall anomalies were created in this rainfall map for the period April 4 to May 4, 2011 for the eastern two thirds of the country. The anomalies were constructed by computing the average rainfall rate over the period and then subtracting the 10-year average rate for the same period. Credit: NASA/SSAI, Hal Pierce

(PhysOrg.com) -- NASA's Tropical Rainfall Measuring Mission satellite has been keeping track of the drenching rainfall that has been occurring in the central U.S. this springtime, and a newly created rain map from that data from April to May 4, 2011 shows those soaked areas.

A combination of [heavy rains](#) and a large snow melt has put parts of the central U.S. at risk for record flooding this spring with several locations along the Mississippi already at or near record levels. One likely culprit is La Niña. Despite the fact that the current La Niña appears to be winding down, its effects in the atmosphere can persist for a while. Furthermore, although not every La Niña brings major flooding to the region, La Niña's are conducive for above-normal rainfall from East Texas and northern Louisiana up through Arkansas and the Tennessee and Ohio Valleys with below-normal rainfall across Texas, southern Louisiana and Florida.

During La Niña, below-normal sea surface temperatures occur in the equatorial East Pacific and above-normal temperatures in the West Pacific. This pattern leads to enhanced tropical thunderstorm activity over the West Pacific, which in turn can influence the weather in middle latitudes by shifting the jet stream pattern. On average, La Niña's favor an upper-level trough over the Midwest with the jet stream dipping down out of the northern Rockies and flowing west-to-east across the central Mississippi and Ohio Valleys before heading back up over the Northeast. This pattern steers developing low pressure systems across the Plains and central [Mississippi](#) into the Tennessee and Ohio Valleys. These areas of low pressure provide the focus for showers and storms while drawing warm moist air up from the Gulf of Mexico, resulting in enhanced rainfall across the central part of the country.

The main objective of the [Tropical Rainfall](#) Measuring Mission or TRMM satellite is to measure rainfall over the global Tropics. TRMM measures rainfall using a combination of passive microwave and active radar sensors. For expanded coverage, TRMM can be used to calibrate rainfall estimates from other satellites. The TRMM-based, near-real time Multi-satellite Precipitation Analysis (TMPA) at the NASA Goddard Space Flight Center, Greenbelt, Md. provides rainfall estimates over the global Tropics.

In addition to [rainfall](#), this type of jet stream pattern can lead to strong storms by allowing strong jet stream winds to override warm moist air from the Gulf as was evidenced by the recent tornado outbreak. In fact, some of the biggest tornado outbreaks, including the previous record "Super Outbreak" in 1974, have occurred during La Niña's.

TRMM is a joint mission between [NASA](#) and the Japanese space agency JAXA.

Provided by JPL/NASA

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