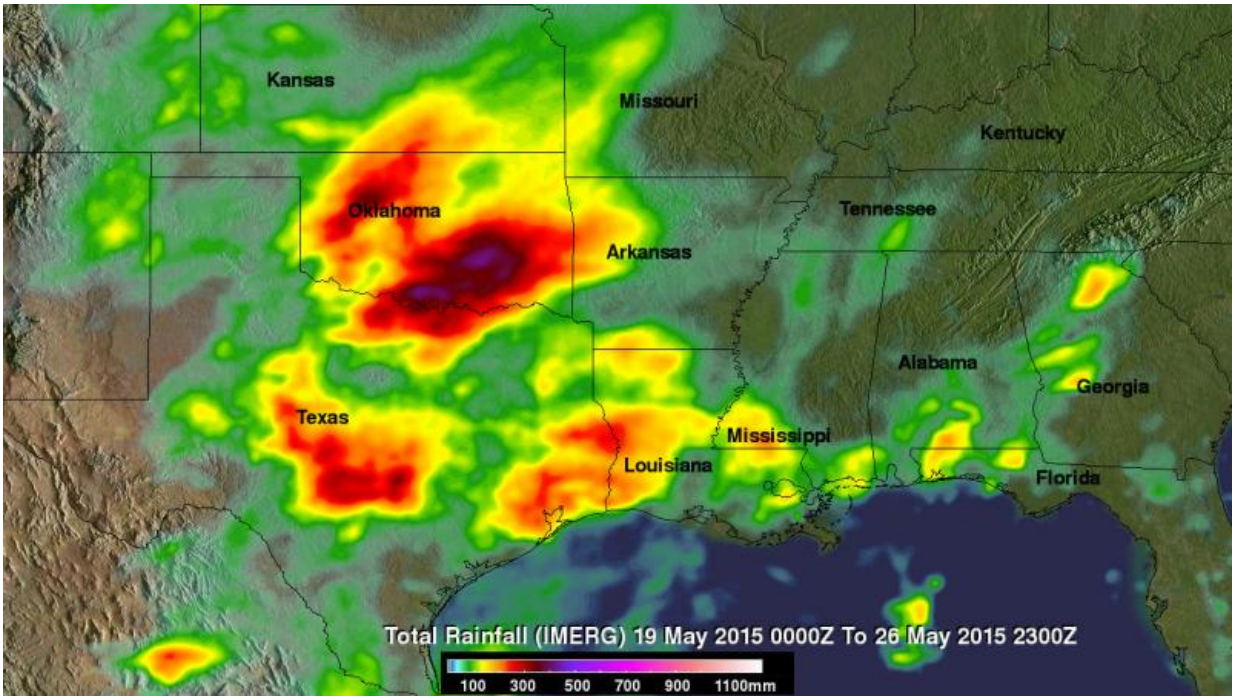
Severe flooding hits central Texas, Oklahoma

May 29 2015, by Lynn Jenner



IMERG rainfall estimates for the week-long period May 19 to 26, 2015 for the south central US. Credit: Hal Pierce (SSAI/NASA GSFC)

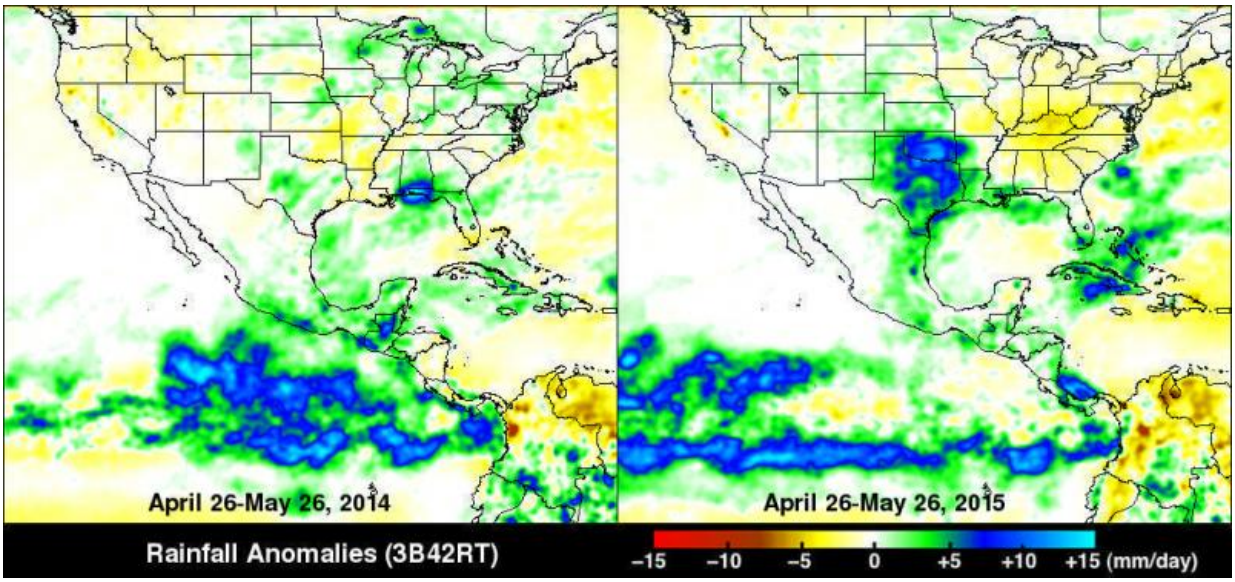
A stagnant upper-air pattern that spread numerous storms and heavy rains from central Texas up into Oklahoma has resulted in record flooding for parts of the Lone Star State. One of the hardest hit areas was in Hays County Texas south of Austin where the Blanco River rose rapidly and set a new record crest at over 40 feet, 13 feet above flood stage, following a night of very heavy rain in the area, with over 12

inches reported locally in a short period of time, in an area already wet from previous storms. The combination of high pressure over the southeastern United States and a persistent southerly flow of moisture up out of the Gulf of Mexico ahead of a deep upper-level trough that was slow to leave the central and southern Rockies set the stage for persistent widespread storms across the Southern Plains from the eastern half of Texas, through Oklahoma, and into southern Kansas.

The Integrated Multi-satellitE Retrievals for GPM, known simply as IMERG, is a new rainfall product that produces estimates of precipitation from a combination of passive microwave sensors, including the GMI microwave sensor onboard the GPM satellite, and geostationary IR (infrared) data. This first image shows IMERG rainfall estimates for the week-long period 19 to 26 May 2015 for the south central US. IMERG shows upwards of 200 mm of rain (~8 inches, orange and red areas) across central and southeastern Texas and a large portion of Oklahoma with locally higher amounts exceeding 300 mm (~12 inches, shown in brown) in central Texas and 400 mm (~16 inches, purple areas) over south central Oklahoma, where early in the period a stationary front provided the focus for storms. So far at least 18 fatalities are being blamed on the recent flooding across the region.

The recent rains drove monthly average rainfall totals well in access of the seasonal averages for this period. The panel on the right shows the current monthly TRMM-based average rainfall (which has a much longer climatology than IMERG) is well above the typical amount (shown in blue) for this time of year across most of the eastern two thirds of Texas and almost all of Oklahoma. The northern Gulf Coast also has above normal rainfall (shown in green) while at the same time the Tennessee and Ohio Valleys are showing below normal rainfall (yellow area). This type of pattern along with the excessive rainfall anomalies evident over the eastern equatorial Pacific offers a strong clue as to a potential culprit—El Nino. Anomalous rainfall over the eastern

equatorial Pacific with alternating areas of above and below normal rainfall extending into midlatides is a classic El Nino teleconnection pattern. Rainfall anomalies were somewhat similar for this same time last year (left panel), but although there was an inkling, El Nino failed to materialize. This year El Nino appears to be alive and well.



TRMM rainfall totals for the region comparing May 2014 and May 2015. Credit: Hal Pierce (SSAI/NASA GSFC)

TRMM/GPM are a joint missions between NASA and the Japanese space agency JAXA.

Provided by NASA's Goddard Space Flight Center

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