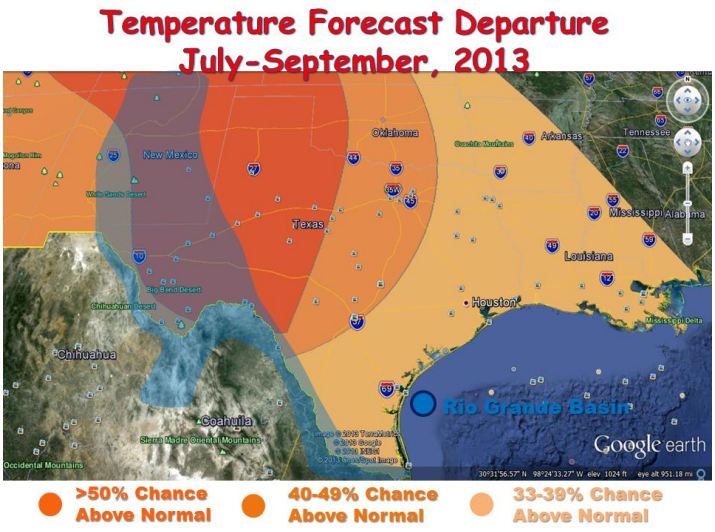
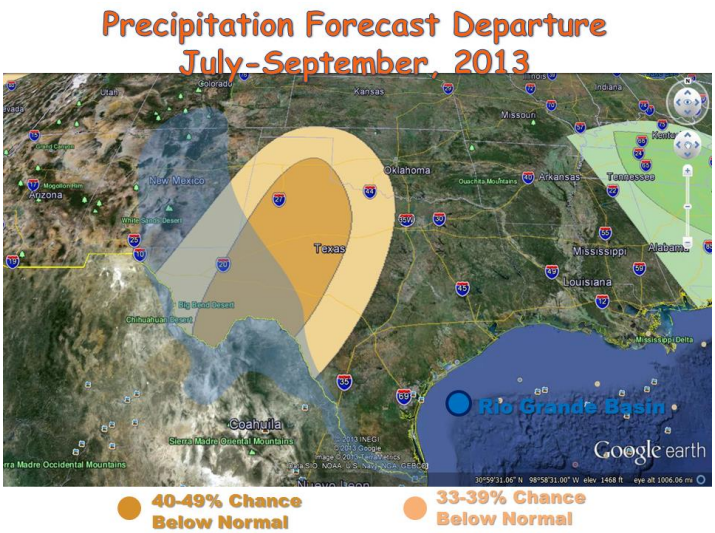




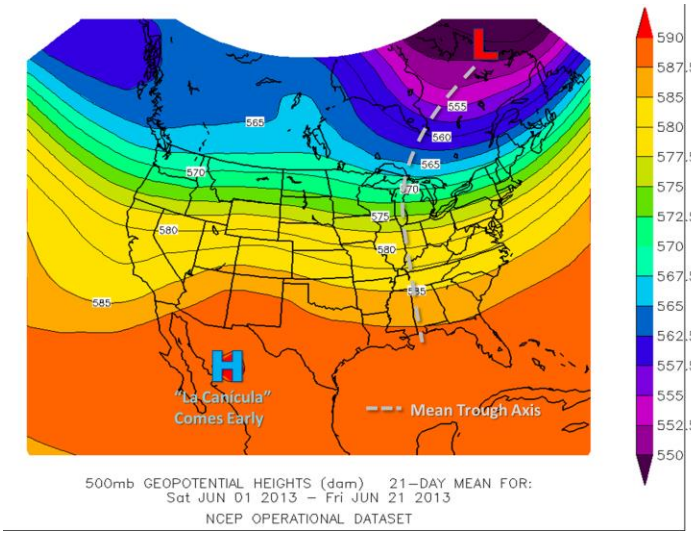
Summer Swelter: Heat, Drought Likely to Continue

Uncertainty on Impact from Tropics; Reservoir Conditions Should Worsen

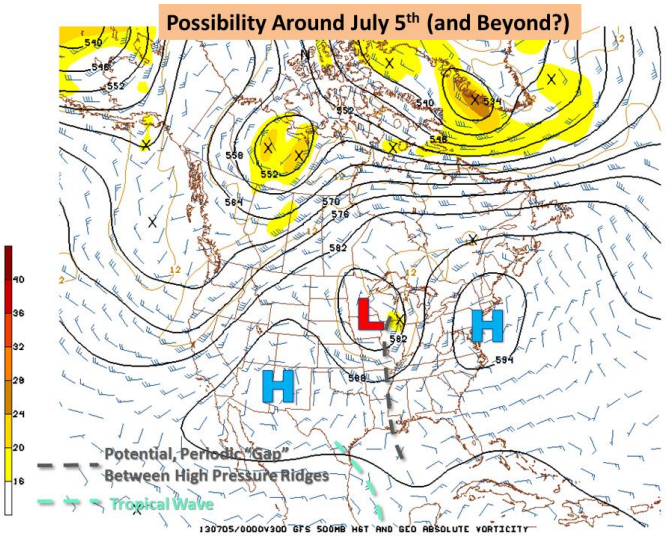
Will There Be Periodic Moisture Between July and September?

Overview and Outlook

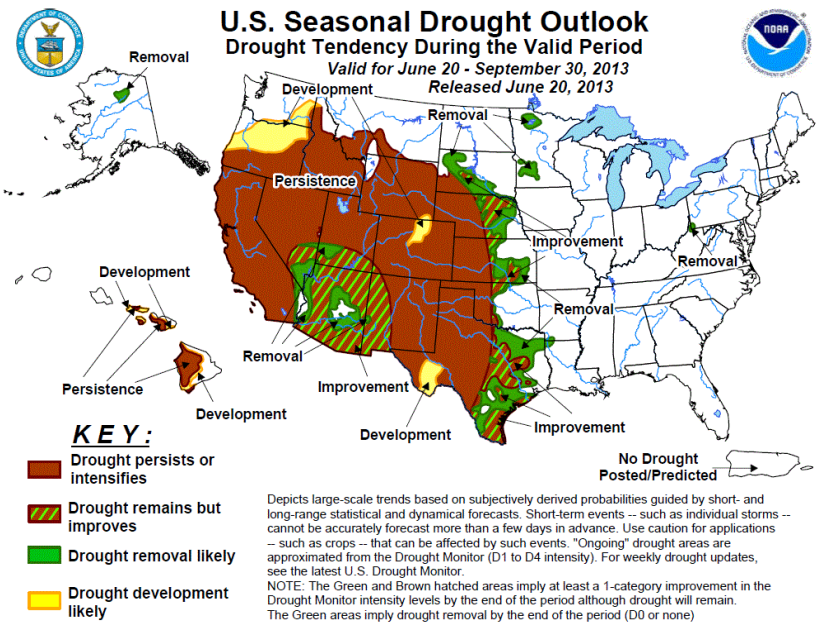
The summers (June-August) of 2011 and 2012 each cracked the top ten hottest all-time for most of the Rio Grande Valley and Deep South Texas, with 2012 also reaching the top ten driest for many as well. Will the pattern which dominated most of the summer of 2012 and has done so in June 2013 (right, top) with above normal temperatures and below normal rainfall continue through July, August, and perhaps September? Long term indicators and persistence suggest this pattern should generally hold through summer, though there are *slightly* more hopeful signs for puzzle pieces to fit together to provide a more favorable pattern for some rain to parts of the Rio Grande Valley in early July (right, bottom).



In this graphic, the central Atlantic summer ridge extends to the eastern seaboard, while the southwestern U.S. ridge remains. A stronger western Atlantic ridge could allow tropical waves to nudge toward the western Gulf; the position of a central U.S. trough would help steer larger cyclones around the Atlantic ridge and into the Gulf.



One of those pieces, the North Atlantic Oscillation (NAO), has trended more "neutral" in June 2013 compared with a more persistently negative phase for the past six Junes. Forecasts into July suggest a mixed phase of the NAO, which, combined with a neutral phase of El Niño/Southern Oscillation, limits confidence in the summer precipitation forecast near the Texas coast – wet or dry.

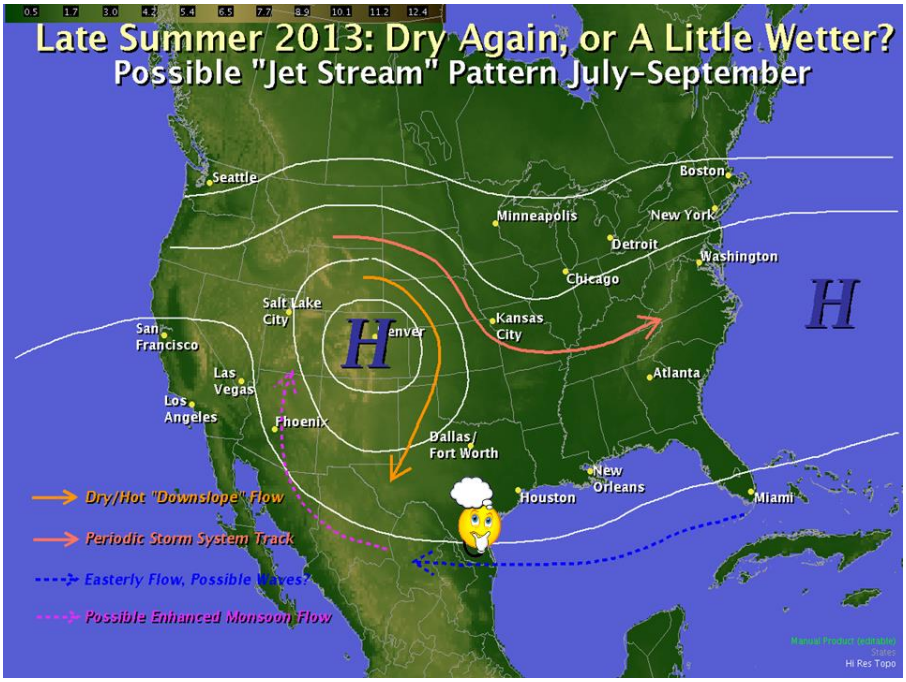


The seasonal "droughtlook" (left) offers some insight into the low confidence forecast. Improvement is suggested for much of the Lower and Mid Rio Grande Valley, which have been mired in Extreme to Exceptional Drought since the middle of August, 2012, with areas from the ranchlands to the Coastal Bends likely being removed from a drought category altogether by the end of September. While part of the reasoning is the above average number of tropical cyclones forecast for the Atlantic Basin (which increases statistical odds), some of the reasoning may be related to the position and "tilt" of the western U.S. ridge. The droughtlook implies the ridge would be centered over Colorado with limited or no extent into northern Mexico. This would allow atmospheric flow to be more from the east, rather than the north, into south Texas. The flow would bend from the southeast into Arizona, lifting tropical moisture across mountainous terrain into locally heavy rainfall for a more robust late summer monsoon (below, right).

But will – *could* – this happen? One of the hopes for the 2013 hurricane season is for tropical waves, rather than storms or hurricanes, to bring periodic, efficient rainfall to the Rio Grande Valley and beyond. This forecast pattern *might* open a few more cracks in the proverbial door, and would certainly help green up grasses, gardens, pastures, and farms. Unfortunately, dry air pressing into the Big Bend, west Texas, and much of New Mexico would erase the moisture before reaching the tributaries that feed Amistad and perhaps Falcon Reservoir. Helpful local rainfall would do little to alleviate the long term water crisis.

Eye on Drought

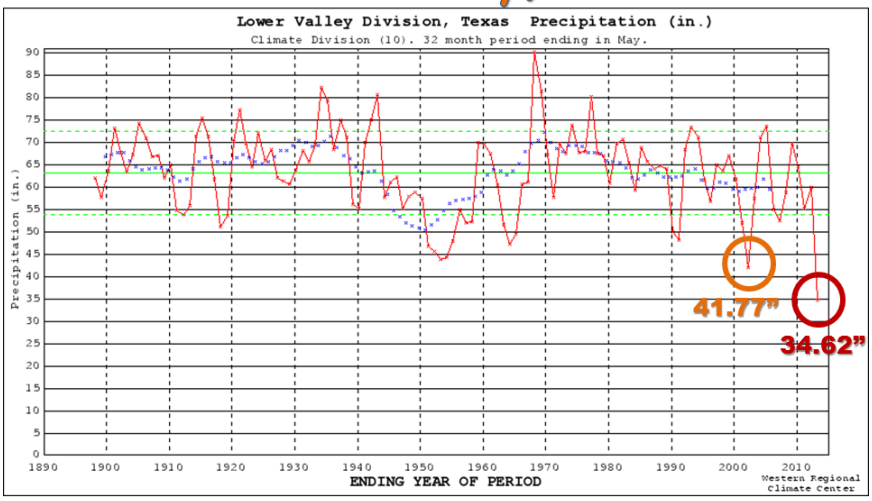
The Rio Grande Valley is still a very long way from ending the current long term drought, which began when the spigot literally shut off at the end of September, 2010. In the 32 months hence, and despite some temporary relief from the end of April until the first weekend of June, precipitation totals remain entrenched as an all-time record dating to 1895. At the end of May, the total of 34.62 was still more than 7 inches ***below*** the prior 32 month record for the same time frame, from October 1999 through May 2002 (top left, next page). The probability for such a drought remains around 1% during the nearly 120 year sample. It would take a little more than a year's *average* precipitation (28.537 vs. 24.814) just to catch up. As of this writing, June was expected to finish with one third of normal precipitation for the Rio Grande Valley; this will surely open the gap between the current record at 33 months and the prior record when the data are available, sometime in mid-July.



Falcon Dam Relief Fleeting

Torrential rains of up to 17 inches at Eagle Pass on June 14-15 quickly found their way to Falcon Reservoir, but as expected, were quickly absorbed into the lake. This increased conservation levels to those similar during summer 2012, with the Texas share of the conservation surging past those at the same time (June 20th) in

32-month precipitation totals October-May, RGV



Departure from average: -28.537" . Departure from Prior Record: -7.15"

2012 (bottom). The 7 point percentage increase was marginally good news; unless significant rains fall in the basin upstream of Falcon between July and September, peak evaporation rates and municipal water usage in the Valley will bring levels back into the 20s. Worse, Amistad International Reservoir received none of the Eagle Pass water, and remained about one half the conservation percentage compared with late June 2012. Most reservoirs across the border were also in dire need of water.

Conservation: Still King

Should periodic helpful rains fall later this summer in the Lower and Mid Valley, residents should take advantage of the opportunity:

- Turn off sprinklers after a soaking rain, particularly if the system does not have a sensor or gage to automatically shut itself off after a sufficient amount of rain falls.
- Cut grass infrequently to allow moisture to be retained closer to the ground by taller blades.
- Consider rain harvesting! A small amount of rain can go a long way when harvested. The water can be used for irrigation, wildlife/livestock supplies, and some in-home use.
- Check for leaky pipes, faucets, toilets, etc.
- Take shorter showers

Falcon Reservoir is 33.1% full as of 2013-06-20

- **Peak Percent Full, Recent Event (June 20) 33.2 (Texas Share)**
- **Increase Since Eagle Pass Flood: 7.5%, or ~115K Acre-Feet**
- **June 20, 2012: 29.5 (Texas Share)**