

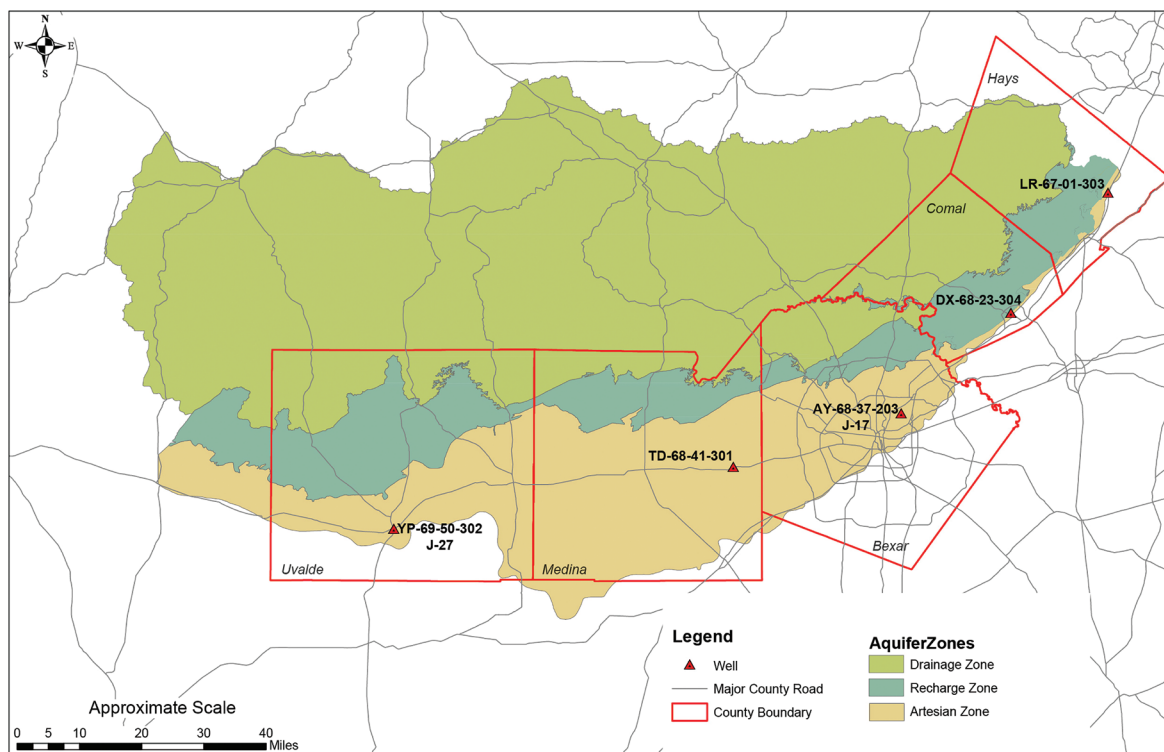
2015 GROUNDWATER LEVELS

The EAA currently maintains a groundwater level monitoring network that extends from eastern Kinney County to central Hays County. A total of 46 wells were monitored for groundwater levels in the Edwards Aquifer during 2015. The water level observation network includes wells in the recharge (unconfined) and artesian (confined) zones of the Edwards Aquifer. Continuous recording equipment was installed in 42 of the monitored wells and 4 of the wells were monitored through periodic manual tape-down measurements. Many of the wells have at least partial historical records dating back several decades.

Throughout the region, Edwards Aquifer water levels began the year well below average, following several years of below-normal recharge to the aquifer. Heavy rains during late spring; however, helped to increase water levels in the aquifer. Following are discussions of water level observations for Uvalde, Medina, Bexar, Comal, and Hays Counties. Figure 1 shows the location of wells included in this document with water level hydrographs that show the general trend of water levels and rainfall across the region in 2015. Rainfall data shown in the well hydrographs are derived from the EAA's calibrated NEXRAD radar dataset. Location for the rainfall data are also indicated on each graphic. The EAA website contains a more detailed listing of water level information for EAA monitored wells not included in this document.

That information can be found at www.edwardsaquifer.org.

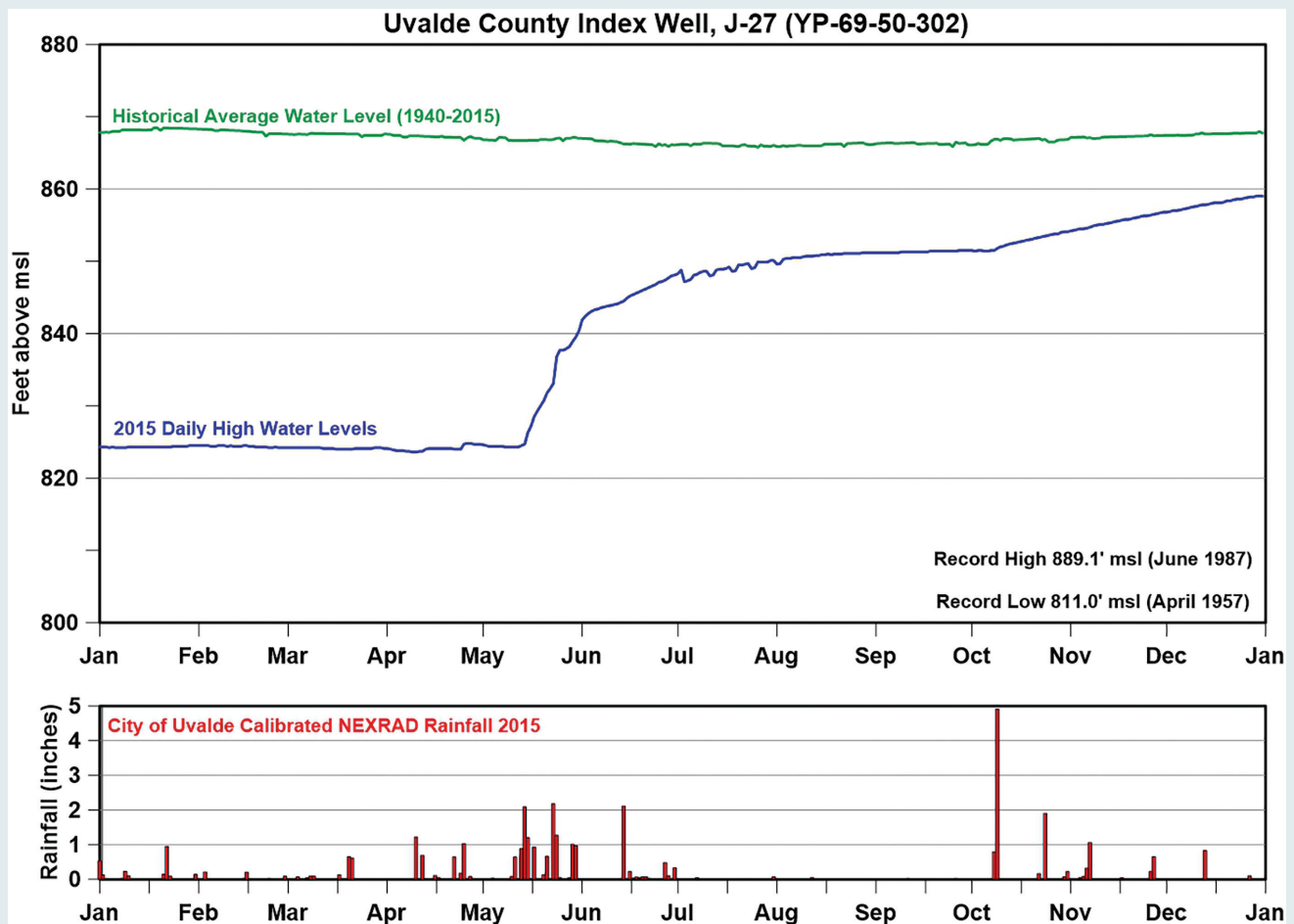
Fig. 1



UVALDE COUNTY

Water levels for wells monitored in Uvalde County generally plot below their historical averages for 2015. Water levels for the Uvalde County Index Well, J-27 are shown in Figure 2. Daily precipitation over the town of Uvalde, estimated from EAA's calibrated NEXRAD radar dataset, are shown at the bottom of Figure 2. Water levels throughout the county began the year flat and increased gradually following the heavy rains that occurred in May. To put these water levels into historical perspective, Figure 2 shows the 2015 response of well YP-69-50-324 (Uvalde Index Well J 27) compared to the historical average water levels for this well. Water levels in this well began the year significantly below-average, then increased following the heavy spring rains. While water levels continued to rise slowly for the remainder of the year, they remained slightly below-average when compared to the period of record average.

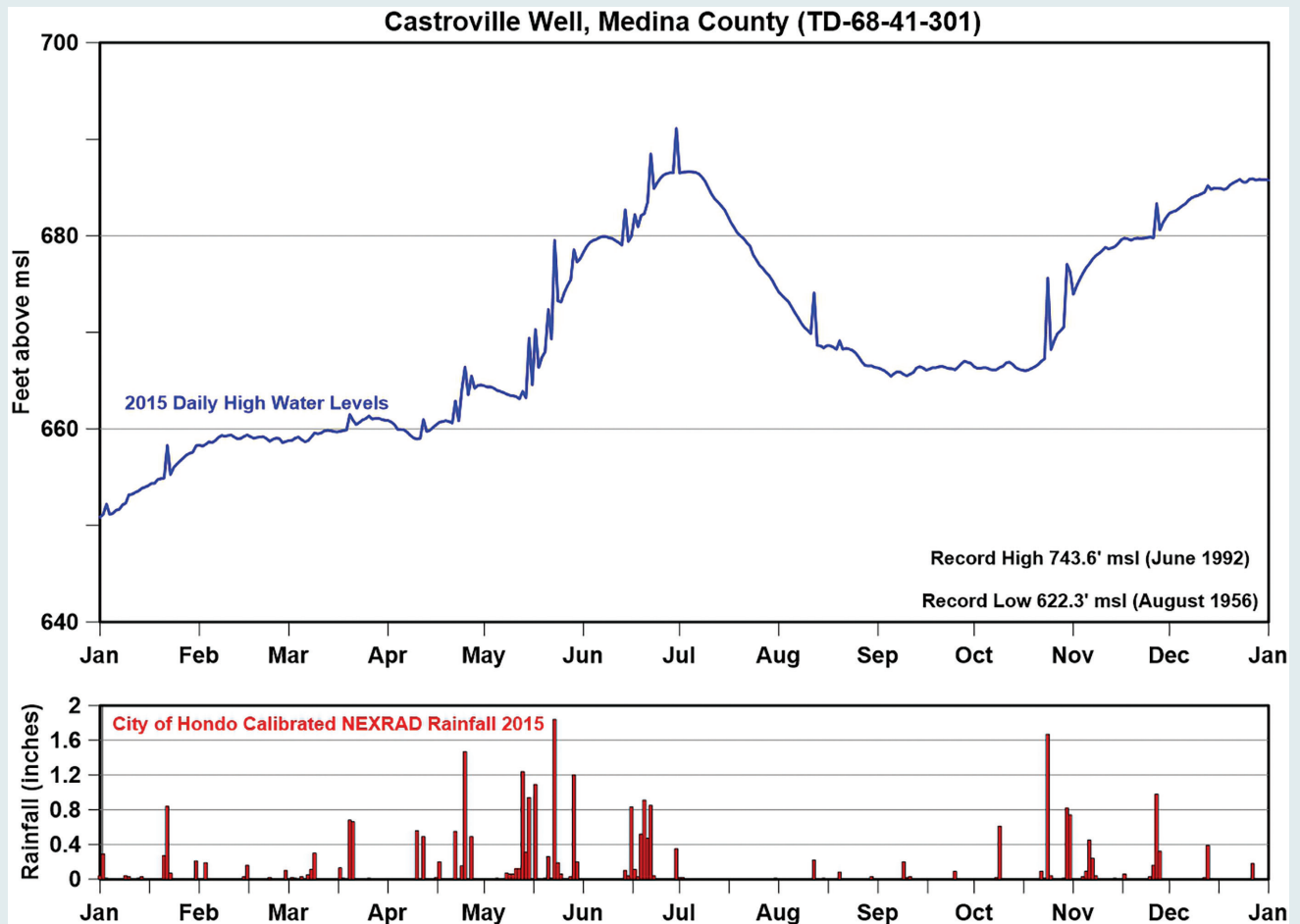
Fig. 2



MEDINA COUNTY

Water levels in Medina County began the year relatively flat and increased following the heavy rains that occurred in the month of May. Water levels in the recharge zone remained relatively flat for the remainder of the year, while wells in the artesian zone declined slightly during the dry summer months and increased again following rains in November and December. Figure 3 shows the response of well TD-68-41-301 (Castroville Well) to 2015 weather conditions. Water levels in this well began the year very low, but responded to rainfall and rose until July when rainfall amounts decreased. Water levels increased again after a relatively wet fall season.

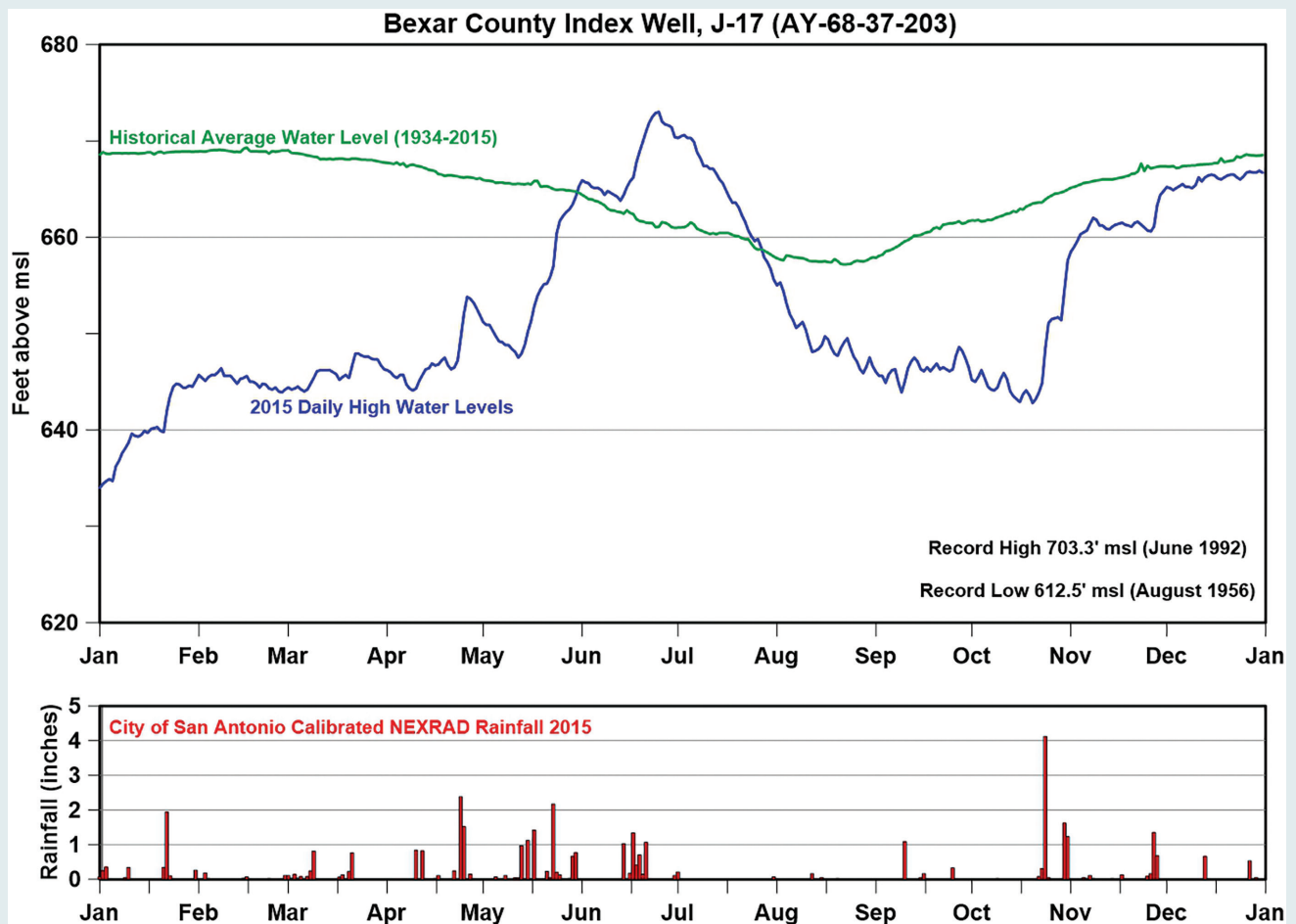
Fig. 3



BEXAR COUNTY

The responses of water levels to rainfall in Bexar County are somewhat more variable compared to Medina and Uvalde Counties, with wells in and near the recharge zone having large and near-instantaneous responses to rainfall events followed by rapid declines. Water-levels in Bexar County were relatively constant from the beginning of the year through late April, increased significantly following heavy rains in May, declined significantly during the dry summer, and increased again following late October rain events. To put these water levels into historical perspective, Figure 4 shows the 2015 response of well AY-68-37-203 (San Antonio Index Well J-17) compared to the historical average water levels. Water levels in this well began the year significantly below average, then recovered to several feet above average following heavy rains in late May and June. Water levels then declined significantly during a dry summer, but recovered to near-average levels by the end of the year.

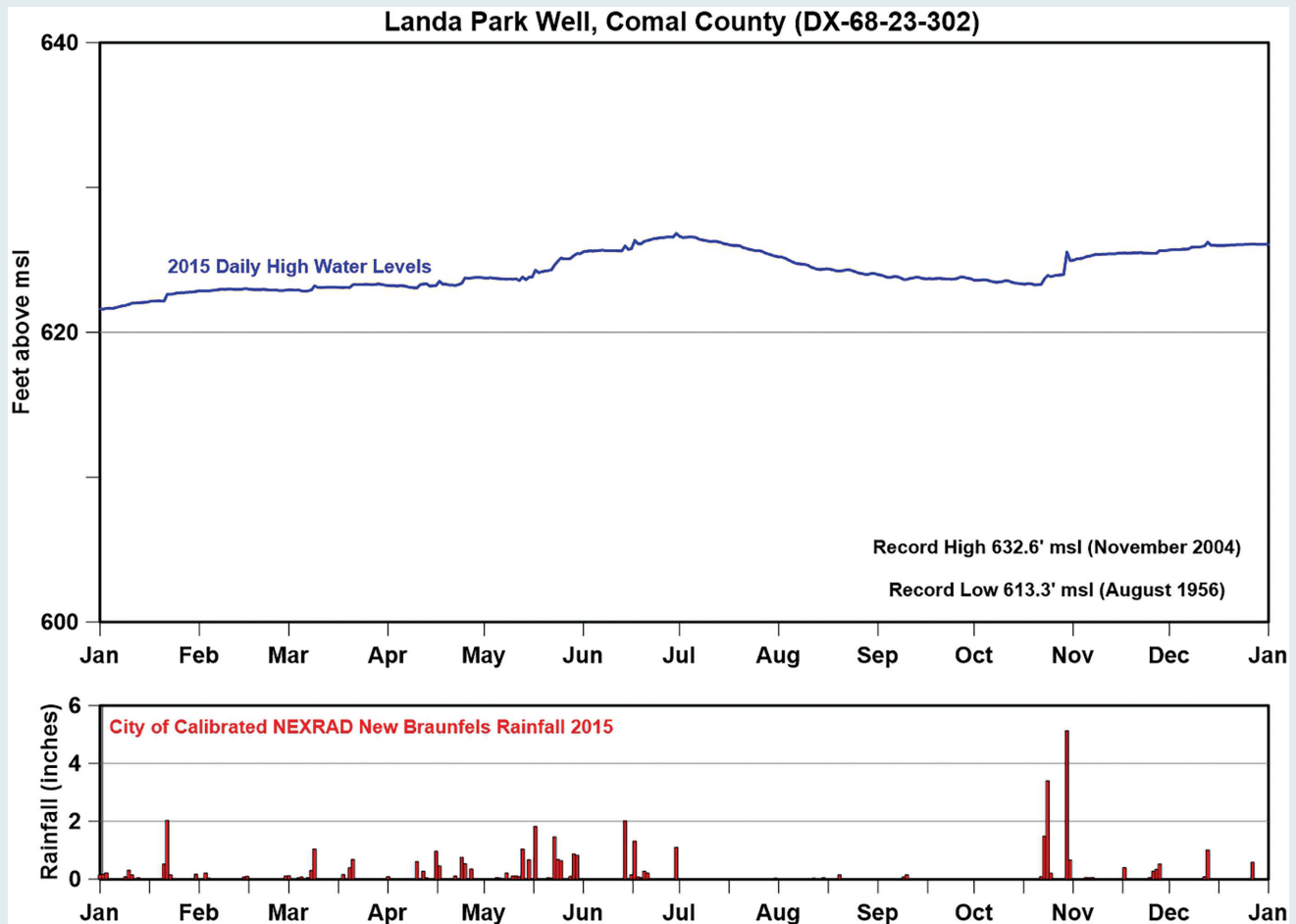
Fig. 4



COMAL COUNTY

Well water level responses to rainfall in Comal County show somewhat higher amplitudes of variability to rainfall for wells in and near the recharge zone, than do wells in the artesian zone. Water-levels were relatively constant from the beginning of the year through late April, with some increase following a January rainfall event. Water levels then increased significantly following a series of heavy rains in May. After declining somewhat during the dry summer, water levels increased again following two closely-spaced rain events in late October. To put these water levels into historical perspective, Figure 5 shows the response of well DX-68-23-302 (Landa Park Well) to 2015 weather conditions. This well, located in the artesian zone, shows less water level fluctuation than a typical recharge zone well. Water levels in this well began the year below normal, then recovered following the heavy rains in late May and June. Water levels then declined slightly during a dry summer, but recovered some by the end of the year.

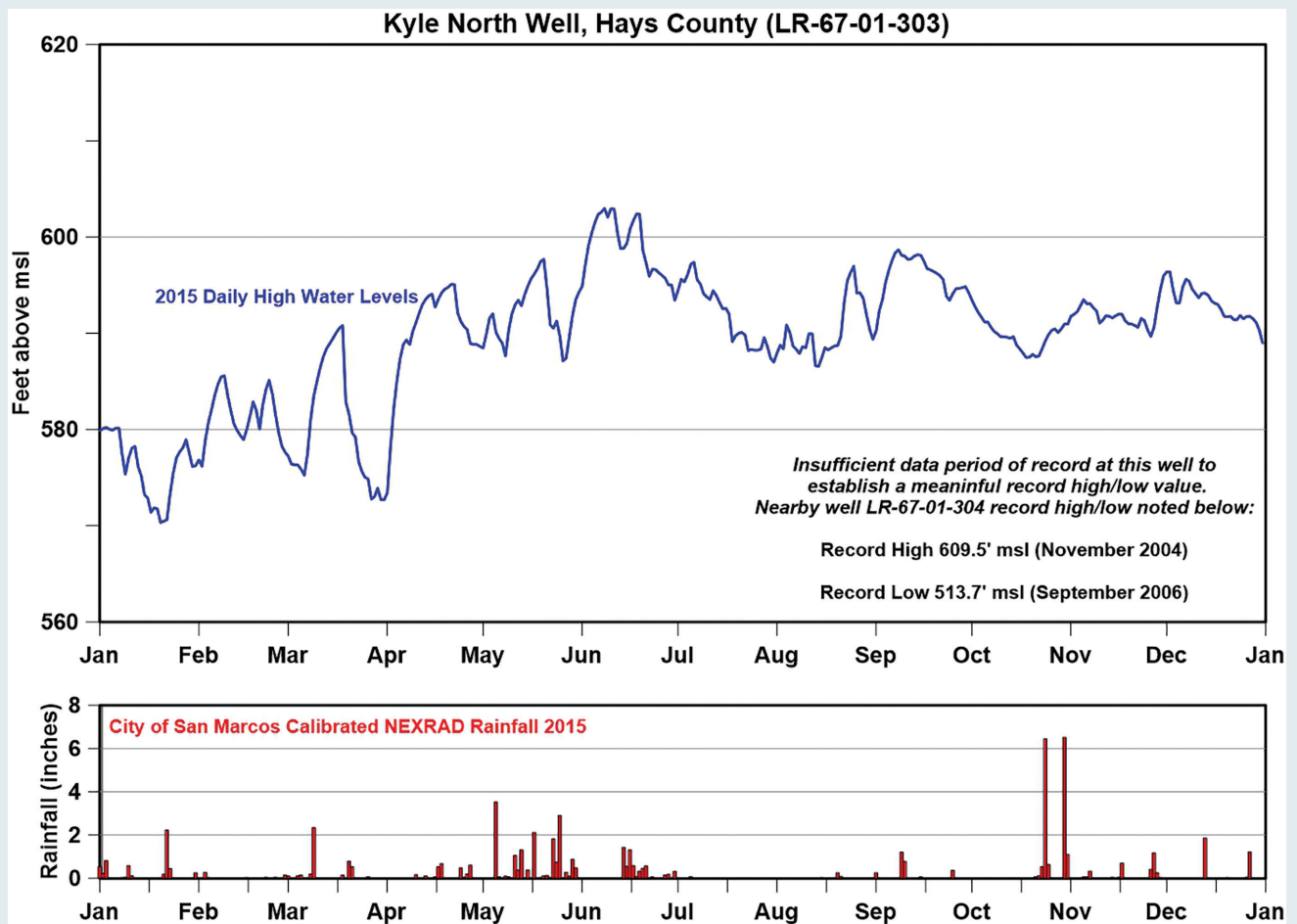
Fig. 5



HAYS COUNTY

Well LR 67 01 303, shown in Figure 5 responds differently than any other well in the Hays County portion of the observation network with frequent large oscillations that are not always associated with rainfall events. The reason for this variability is not known for certain, but is likely a combination of hydrologic compartmentalization (poor hydraulic connection to the rest of the aquifer) and the influence of nearby pumping wells. In general, water-levels in Hays County showed a slight rise following rain in January, then remained relatively constant until a significant increase following the series of rain events in May. After declining during the dry summer, water levels increased again following the late-October rains.

Fig. 6



EAA staff have access to measure over 150 additional wells as part of a regional synoptic water level monitoring program or to support focused studies. Focused synoptic measurements have been collected episodically in Comal and Hays counties since 2006, with the goal of improving overall understanding of aquifer behavior in this area. Synoptic measurements are generally obtained with steel-tape or electric-line measuring devices. Data for numerous other wells throughout the state of Texas can be obtained from Texas Water Development Board's online groundwater database at <http://www.waterdatafortexas.org/groundwater>.