

groundwater level decrease between spring 2008 and spring 2018 was approximately 23.4 ft within the District boundaries. The change in groundwater levels ranges geographically from a maximum increase of about 12 ft, to a maximum decrease of about 78 ft.

### Change in Groundwater Storage between Spring 2017 and 2018

Between 2017 and 2018, groundwater levels in the District increased on average despite widespread minimal decreases, with an estimated increase in groundwater storage of about 6,700 acre-ft. The average groundwater level increase between spring 2017 and spring 2018 was approximately 1 ft within the District boundaries. The change in groundwater levels range from a maximum increase of about 23 ft, to a maximum decrease of about 55 ft. Figure 2.6 illustrates this change in groundwater storage with a color flood similar to Figure 2.5. Spring 2017 groundwater levels were subtracted from the spring 2018 groundwater levels to develop Figure 2.6. The increase in storage in 2018 is likely the result of above-average precipitation in 2017 and decreased demand for pumping.

#### 2.2.6 Projected Change in Groundwater Storage for Water Years 2019 and 2020

The change in groundwater storage beneath the District is strongly influenced by the components that make up the groundwater balance, as described in Section 2.2. The general tendency is for groundwater storage to increase with increased precipitation as shown on Figure 2.7. This occurs not because precipitation is the primary cause of storage changes but because it is an index to irrigation demand, groundwater pumping, boundary underflows, and other components of the water budget for the District. While a general positive correlation exists between the annual change in groundwater storage and the annual precipitation, the correlation is not sufficient to develop a useful predictive relation.

Groundwater levels and the corresponding groundwater storage have been decreasing for the last decade. Groundwater levels have fluctuated from year to year, but they do display a general downward trend. Correspondingly, the expectation is that groundwater levels within 2019 and 2020 will follow the trend over the last decade. Considering that water year 2019 has been wet into the month of March, it seems likely that precipitation for 2019 will be above average, which means short-term groundwater levels are more likely than not to be higher than in 2018. If precipitation in 2019 is normal or above normal, the expectation is higher groundwater levels will occur. If the precipitation is less than normal, the expectation is lower groundwater levels will occur. The annual average groundwater-level change in particular years has ranged from a rise of less than 5 ft (2006) to a decline of less than 5 ft (2013), and the groundwater-level changes for 2019 and 2020 most likely will be within that range.