

## Snow-water content

*The amount of water stored in the state's snowpack has been highly variable from year to year, ranging from a high of about 240 percent of average in 1952 to a record low of 5 percent in 2015.*



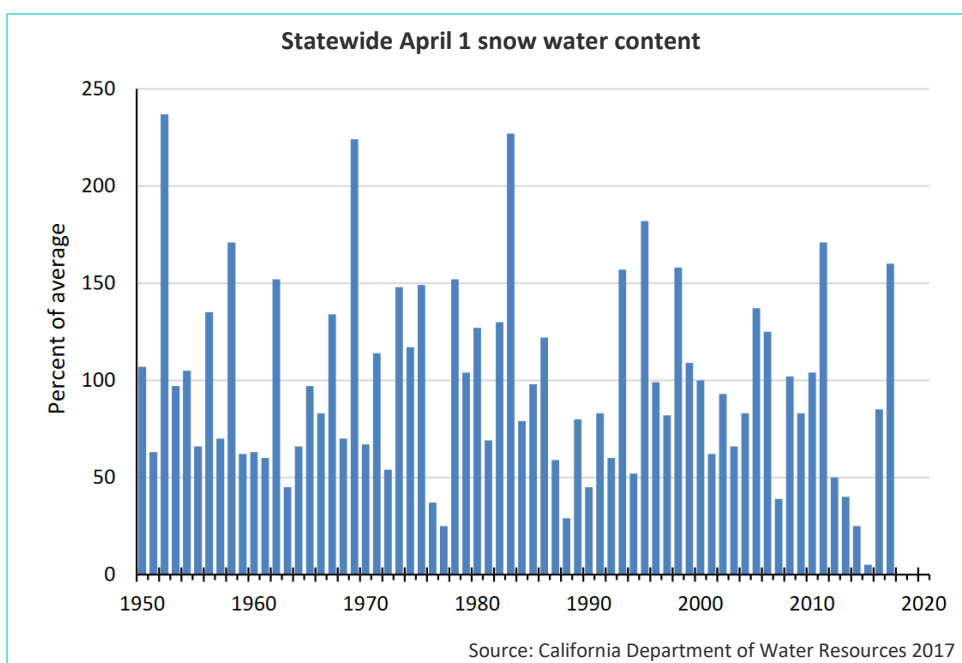
Snow-water content varies annually in California, with the lowest value on record – 5 percent of the long-term average – occurring in 2015, the warmest winter on record. This marked the fourth straight year when snow-water content was at or below 50 percent of average. Snow-water content is the amount of water stored in the snowpack. It depends on both precipitation and temperature. As winter temperatures warm, more precipitation falls as rain instead of snow, resulting in less snowpack. Warm temperatures also melt snow that has fallen.

Snowpack stores water from wintertime precipitation, releasing it as runoff in the warmer months. The state relies on water from melting snow in the Sierra Nevada to provide approximately one-third of its yearly water supply for agriculture and urban needs.

### What does the indicator show?

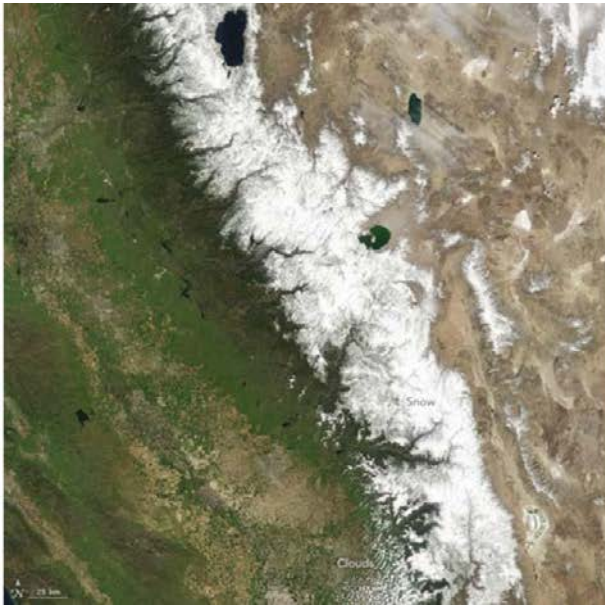
The graph shows statewide snow-water measurements taken every year around April 1, when snowpack levels have historically been deepest. Measurements are presented as the percentage of the long-term average (28 inches, for the 1961 to 2010 period). Snow-water content has ranged from over 200 percent of average in 1952, 1969 and 1983 to a record-low 5 percent of average in 2015 during the extreme drought.

Regional differences in snow-water content have been noted in the Sierra Nevada. Cooler air temperatures at higher elevations generally allow for more snow to accumulate. Since 1950, the northern Sierra Nevada showed an overall decline of 7.4 inches. Less of a decline (1.2 inches) has occurred in the southern region, where elevations are higher. These declines are part of a broader pattern of decreasing snowpack in the western United States. This pattern correlates with warming spring temperatures and earlier snowmelt in recent years.

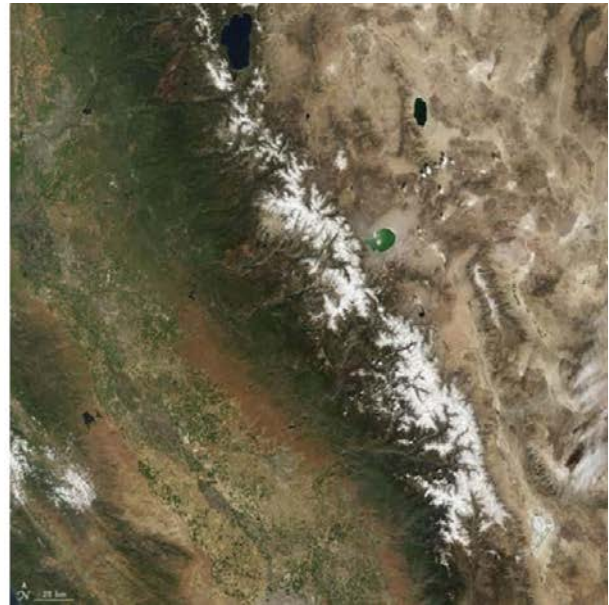




**Satellite images show average conditions of the Sierra Nevada snowpack in 2010  
and record-low snowpack in 2015**



**March 26, 2010**



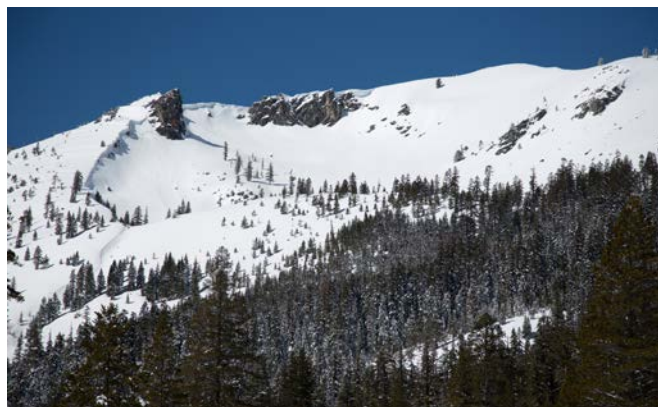
**March 31, 2015**

Source: NASA 2017

**Why is this indicator important?**

The snowpack is an important part of the state's water supply. It naturally stores water during the winter and releases it upon melting in the spring. This provides water to support domestic and agricultural uses, hydroelectricity, and recreation. Water melted from snow also nourishes ecosystems in forests, rivers, and streams.

Information on the amount of water stored in the snow helps reservoir managers to forecast how much water is available to meet the state's water demands. As the climate changes, water reservoir strategies developed based on historical conditions in California may also need to change.



*California relies heavily on water stored in snowpack.*

Photo: California Department of Water Resources

For more information about this and other climate change indicators, visit:

<https://oehha.ca.gov/climate-change/report/2018-report-indicators-climate-change-california>

