

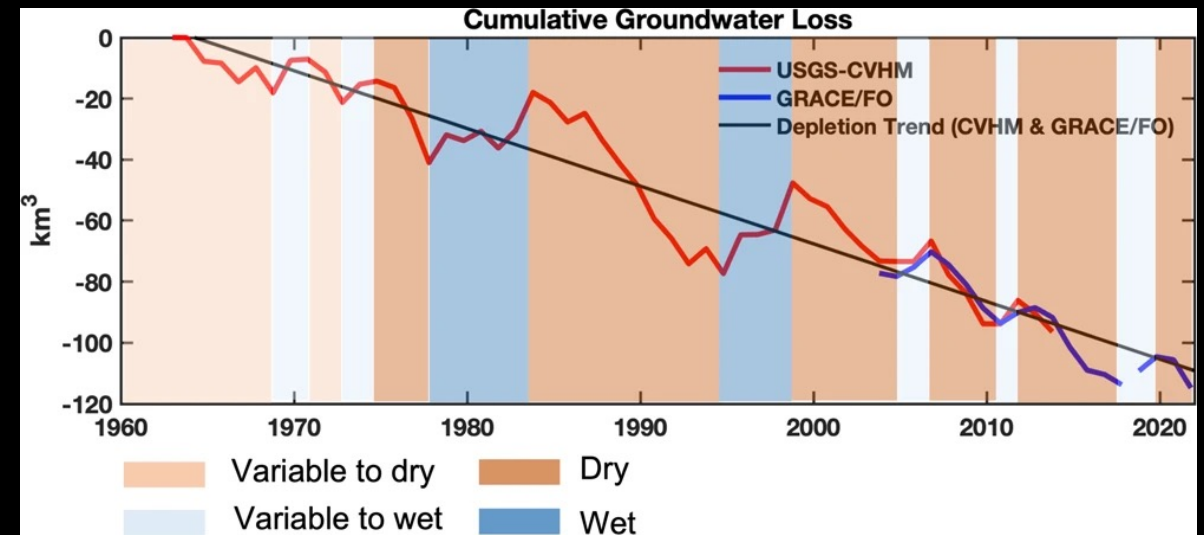
Increasing Groundwater Depletion Rate in the Central Valley of California



Groundwater is critical to maintaining crop production in dense agricultural regions like California's Central Valley. This is especially true during drought, when groundwater supplies two-thirds (or more) of irrigation water. This has led to falling water tables, drying wells, and subsiding land. In 2015, California passed legislation to begin a 27-year groundwater management program.

This study uses nearly two decades of observations from NASA's GRACE satellite mission, including the period of the recent "megadrought". Satellite observations combined with model simulations shows that the rate of groundwater depletion in the Central Valley has been accelerating since 2003 (1.86 km³/yr, 1961–2021; 2.41 km³/yr, 2003–2021; 8.58 km³/yr, 2019–2021).

These results support California's decision to implement a groundwater management program in the Central Valley, which is intended to ensure continued groundwater availability during intense droughts in future.



Yearly cumulative groundwater losses in the Central Valley of California

Discussed in "Reservoirs Rise, but Groundwater Woes Remain"
<https://earthobservatory.nasa.gov/images/150953/reservoirs-rise-but-groundwater-woes-remain>

Liu, P.-W., Famiglietti, J.S., Purdy, A.J. et al. Groundwater depletion in California's Central Valley accelerates during megadrought. *Nat Commun* 13, 7825 (2022). <https://doi.org/10.1038/s41467-022-35582-x>