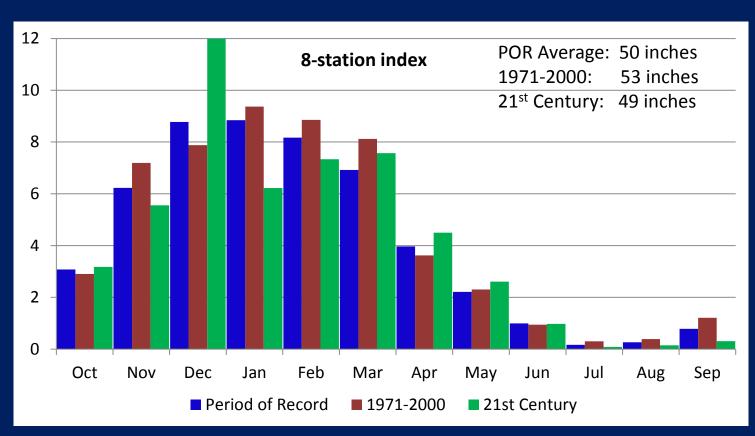
#### Climate change expectations

- Warmer temperatures
- Smaller snowpack/more rain, less snow
- Earlier snowmelt onset
- More variability
- More extremes

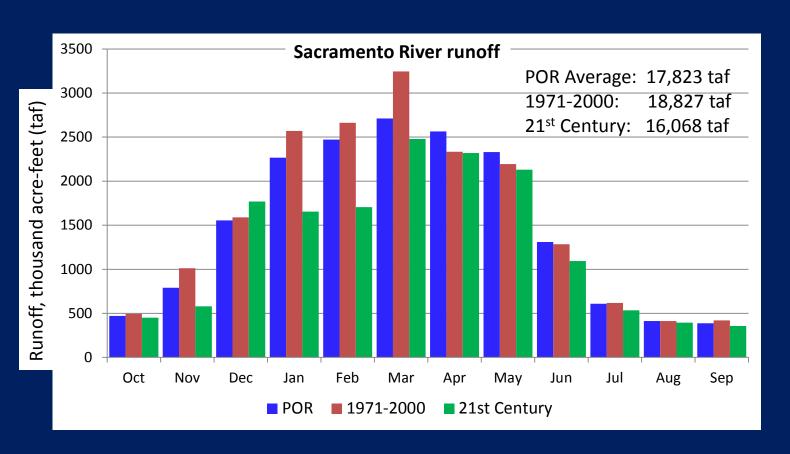
Are we seeing these already?

# 21st Century breakdown so far: A lot of variability

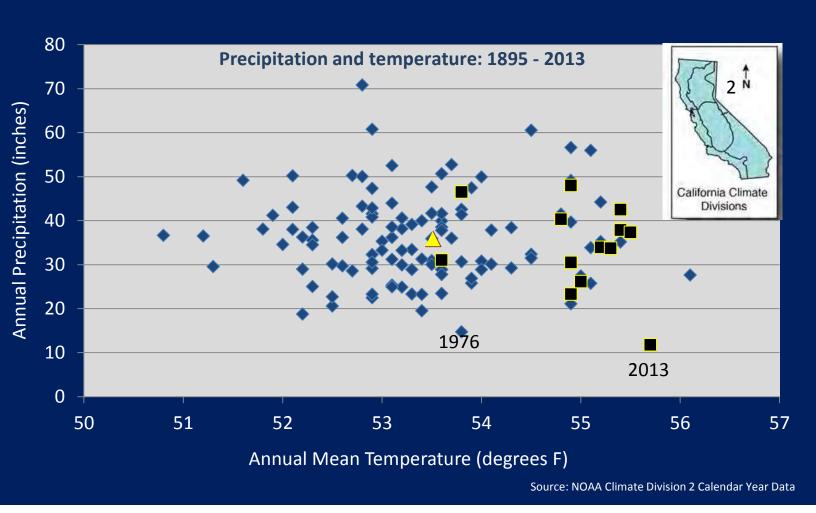


Note WY 2012 was 3<sup>rd</sup> driest December (0.34") and WY2014 was 4<sup>th</sup> driest (0.80")

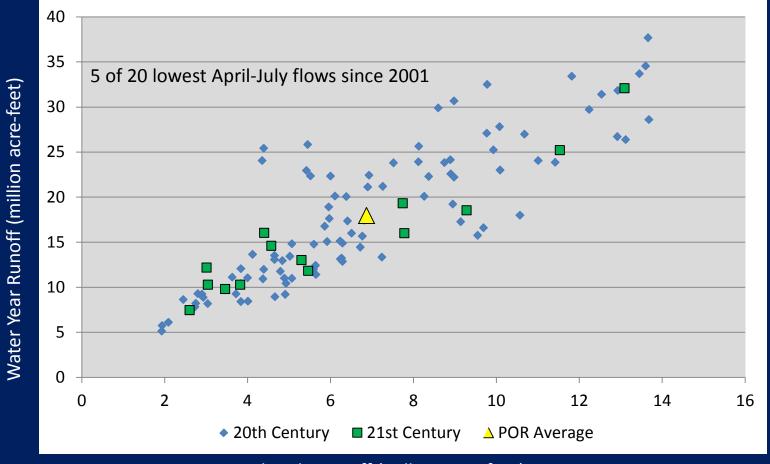
## Variability also evident in Sacramento River runoff



## It's getting warmer, which increases the impact of droughts



### 21st Century droughts on the Sacramento River



April –July Runoff (million acre-feet)