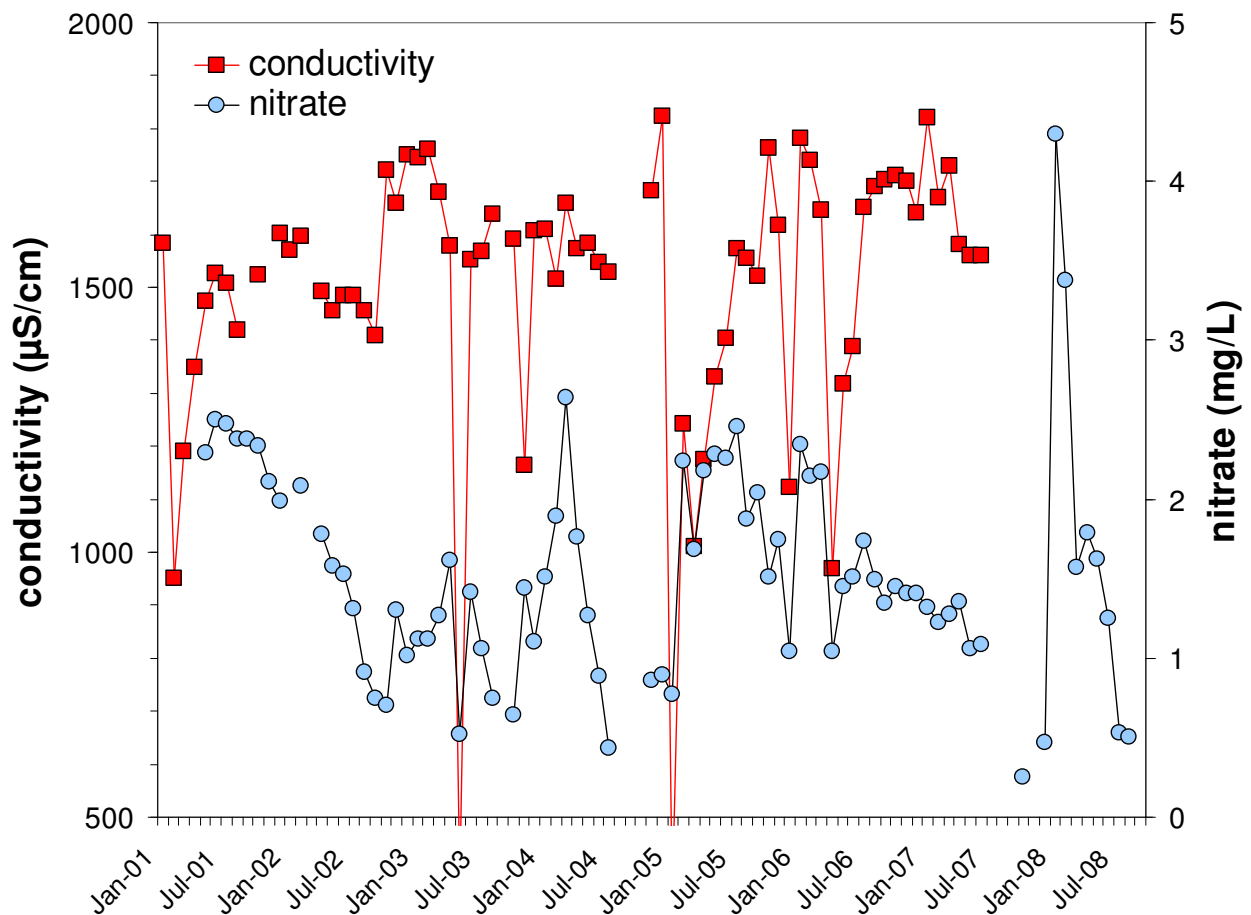


This is VR10, lower San Antonio. At this location we see the impact of mostly deeper groundwater. After the big storm of 2001, conductivity began a steady rise (and nitrate a steady decline) until the winter of 2005. Following that winter, which drastically lowered conductivity and increased nitrate concentrations, the pattern began to repeat itself. This pattern is caused by the aging of deeper groundwater, and is only broken by a very big year when significant recharge resets the clock. Note that this year, 2008, did not do that. Conductivity minimums are the result of sampling during, or soon after, storms – this is the best way of telling whether or not this was happening during any Channelkeeper sampling. Note that storm samples (low conductivity) are almost always accompanied by low nitrate – this is a high nitrate location and stormflow almost always reduces concentrations. (Very small, early, storms, can prove an exception.) Upstream land-use at VR10 is mostly agricultural.



For contrast, this is VR09, Pirie Creek. Upstream land-use is mostly Ojai urban/suburban. (I don't, as yet, have this year's conductivity results.) At this location we don't see the well-defined pattern noticeable at VR10. To me, this site is mostly influenced by shallower groundwaters. That doesn't mean no deeper groundwater impact – there may be hints of that in some of the longer period nitrate declines – but that most of the nitrate is coming from a shallower water table. This is best seen in this year's data, but almost all the peak values on the graph come after winter storms. Again, you have to mentally discount the low nitrate concentrations that co-inside with conductivity minimums as occurring during stormflow and, as such, are non-representative. The long nitrate decline from early in 2001 to the late fall of 2002 was caused by an almost total lack of storms in 2002. It's interesting that the nitrate in 2003 was much less than what occurred in 2004 – a year with less rainfall and a smaller big storm. I attribute this to the need for appreciable soilwater recharge following the 2002 drought.