



10,000 Meters

apparent uplift rate  
-13 mm/yr 13

HR,

Please find attached a GIS map of incorporated settlements and surface deformation velocities. The latter are labeled 'apparent uplift' as in InSAR measurements we have a 1D measurement in the satellite line-of-sight which is primarily sensitive to vertical motions, but also somewhat sensitive to E-W-oriented motions. (Thus there is a component of horizontal deformation, which is due to accumulation of strain on the regional strike-slip faults, such as the San Andreas and Rodgers Creek faults, which can look like uplift.) The subsiding areas are the areas marked with red spots. The largest line-of-sight velocities are of the order of 10 mm/yr with respect to neighboring areas; converted to a vertical rate, this is equivalent to a 13 mm/yr maximum subsidence rate; the median subsidence rate in those areas is around 8-9 mm/yr.

The magenta areas are the boundaries for incorporated settlements in the region. (The density of our observations tends to be greatest in these areas, as buildings are the best reflectors for InSAR.) As you can see, one of the subsiding areas is almost wholly within the city boundaries of Rohnert Park; the other lies mostly within unincorporated areas between Sebastopol and Santa Rosa. As I mentioned in my earlier message, we are not exactly sure of the relative importance of shallow sediment settling/compaction effects and subsidence due to groundwater extraction in the case of the Rohnert Park subsidence, although I imagine borehole and well-level data from those areas would provide some constraints.

If you have any further questions, I'd be happy to try to answer them.

Best wishes,

Gareth