

# **Groundwater Substitution Issue No. 15 - DRAFT Land Subsidence Monitoring**

## **Background**

The goal for 2010 is to understand what constitutes sufficient land subsidence monitoring, to quickly determine if a transfer proposal effectively addresses the issue, and to understand what contract language concerning this monitoring requirement is appropriate.

## **Recommendation for 2010**

- DWR and/or Reclamation staff should compare estimate of groundwater pumping proposed for a transfer to estimates of other groundwater use in the transfer area and determine if proposed pumping is a significant portion of overall pumping.
- In advance of transfer season, DWR and/or Reclamation staff should review available geologic and survey data to identify areas of the Sacramento Valley that may suffer from inelastic subsidence.
- In those areas where substantial land subsidence due to groundwater pumping has occurred or is likely to occur, sellers should contribute to ongoing efforts to monitor land subsidence.

## **Future Discussions for the Long-Term Program**

- Evaluate subsidence in the Sacramento Valley that may result from groundwater pumping for transfers and estimate its impact
- DWR and Reclamation should re-survey the Sacramento Valley GPS benchmark network on a regular schedule (some agencies in the Valley are looking at a three-year survey interval.)
- DWR and Reclamation should determine if Interferometric Synthetic Aperture Radar (INSAR) is an appropriate method to survey for land subsidence in the Sacramento Valley. If it is less expensive than current techniques, employ those who can apply it to the Valley.
- DWR and USBR should review available extensometer data to determine if inelastic subsidence is occurring in the Valley, especially in areas where transfer wells are sited.

- DWR and Reclamation should review geologic maps and data from the Sacramento Valley and identify areas where land subsidence due to groundwater pumping is most likely to occur.