CDM

San Joaquin County DYNFLOW Model

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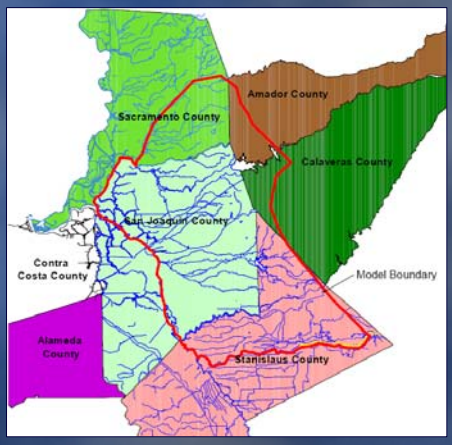
San Joaquin DYNFLOW Model

- Population
  - 650,000
  - 1.17M by 2030
- $1.75B Ag Economy
- Water Demand
  - 1,600,000 ac-ft
  - 60% Groundwater
- Eastern San Joaquin GW Basin "critically overdrafted" (DWR)

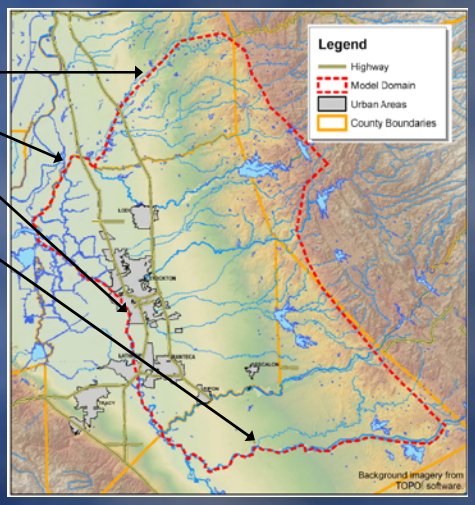


Model Code

- DYNFLOW
- 3-D finite element model
- CDM; 25 years of continual development
- 200+ projects worldwide
- Simulates
  - Groundwater flow
  - Stream flow
  - Rainfall/runoff process
  - Land use
  - Agricultural crop demand
  - Unsaturated zone flow

Model Domain

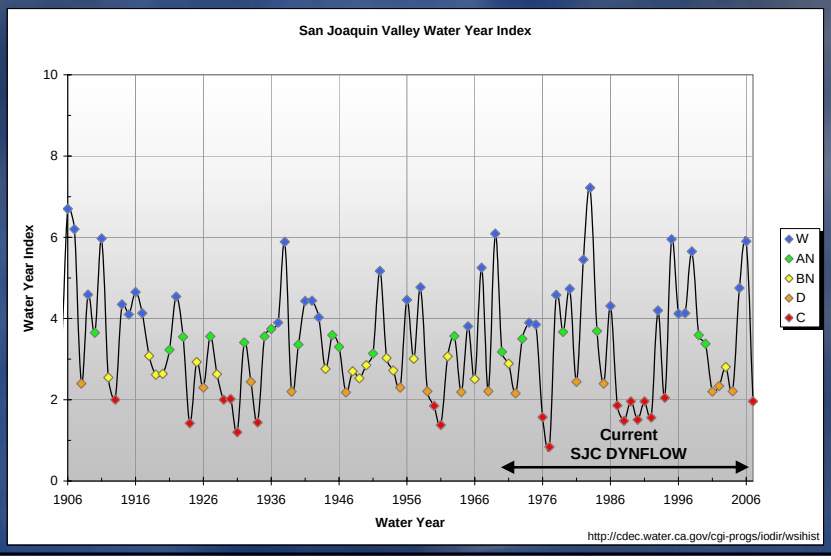
- River Boundaries
  - Cosumnes River
  - Mokelumne River
  - San Joaquin River
  - Tuolumne River
- Urban Areas
  - Lodi
  - Stockton
  - Lathrop
  - Manteca
  - Escalon
  - Ripon



Groundwater Basins

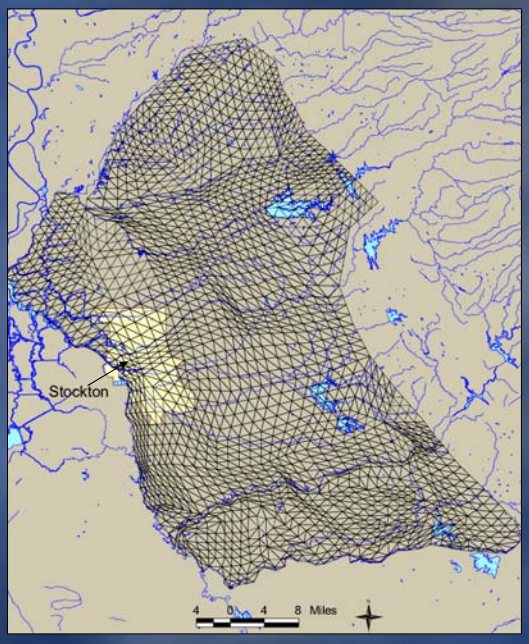
- Cosumnes
- Eastern San Joaquin
- Modesto

Simulation Time Period

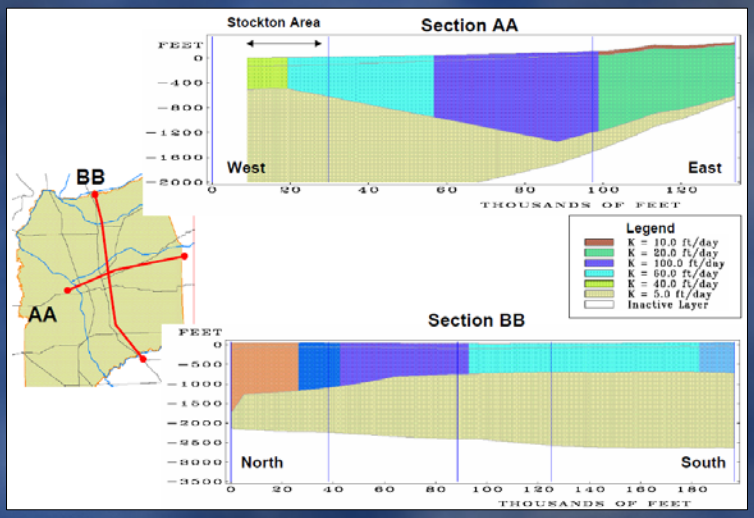


Model Grid

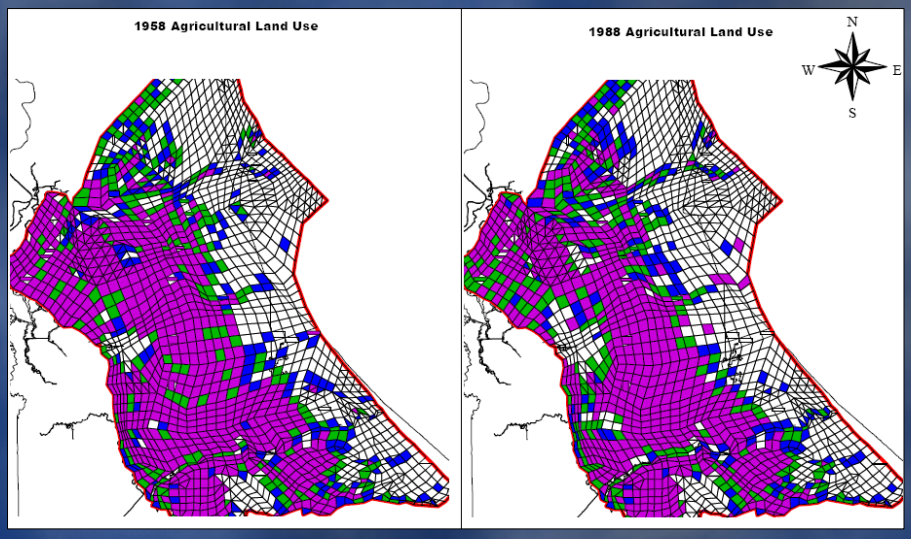
- 3,520 elements
- 1,892 nodes



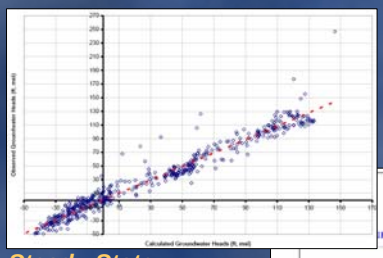
Subsurface Representation



Agricultural Land Use

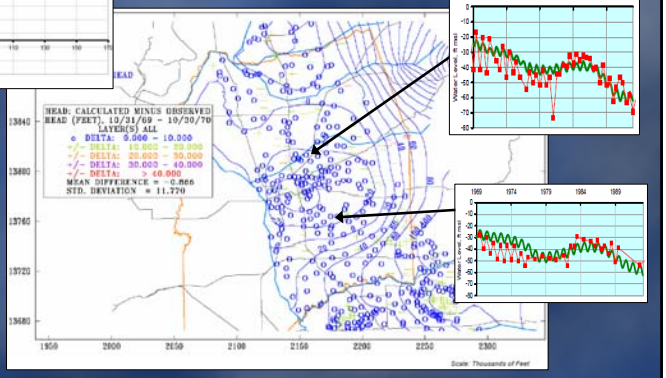


Model Calibration - Groundwater



Steady-State

Transient



Model Applications

- San Joaquin County Water Management Plan
- City of Stockton Delta Water Supply Project
- Eastern San Joaquin Integrated Regional Water Management Plan

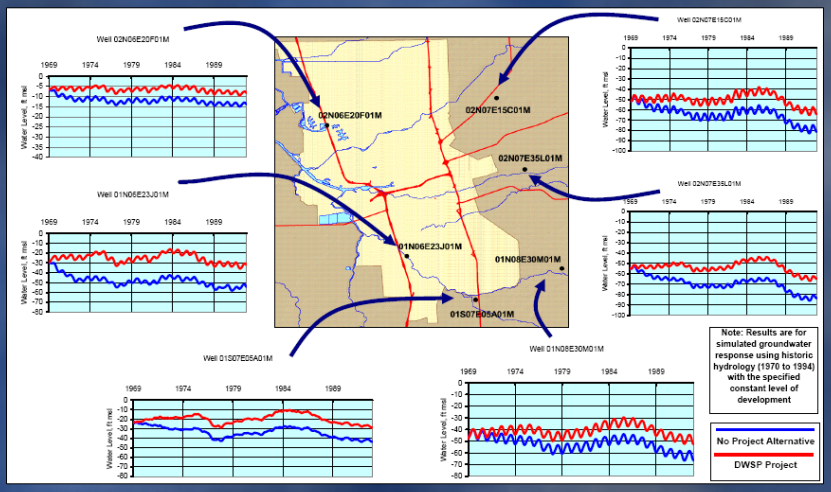
San Joaquin County Water Mgmt Plan

- Primarily focused on changes in GW levels
- Components included
  - re-operation of New Hogan Reservoir,
  - South County Water Supply Project
  - Farmington Project
  - Freeport Groundwater Banking Project.
- 1970 to 2000 hydrology

Stockton Delta Water Supply Project

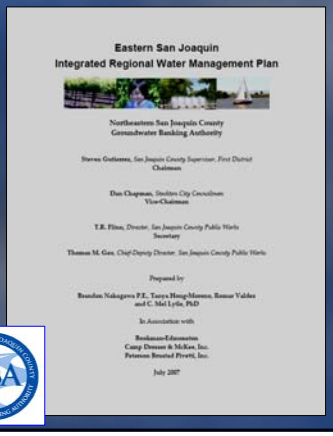
- Support for EIR
- Identify potential impacts and/or benefits to the groundwater system
- Changes to
  - Groundwater levels
  - Groundwater / surface water interaction

Stockton Delta Water Supply Project



IRWMP

- Development of IRWMP
- Support for Integrated Conjunctive Use Program
- Potential groundwater management actions
- Identify potential impacts and/or benefits to groundwater
- Changes to
  - Groundwater levels
  - Groundwater / surface water interaction

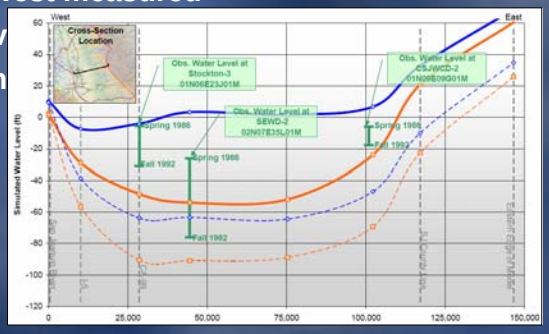

Eastern San Joaquin
Integrated Regional Water Management Plan

Northeastern San Joaquin County
Groundwater Banking Authority

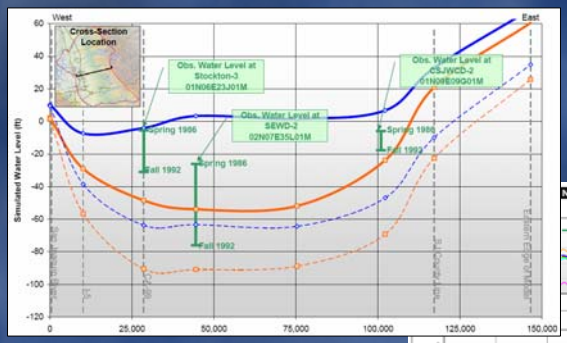
July 2007

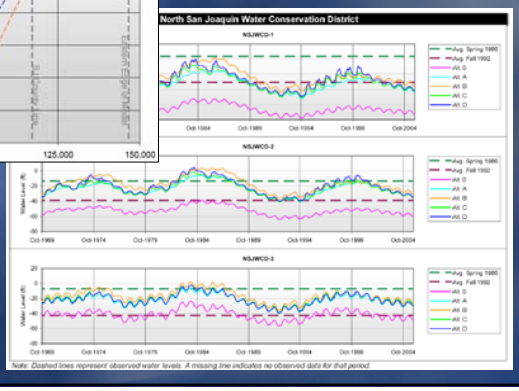
IRWMP

- Basin Operation Criteria
  - Pre-1960: prior to over-use
  - Spring 1986: highest in past 25 years
  - Fall 1992: lowest measured
  - Basin Reserv
  - Basin Termin



IRWMP





Questions?

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