

DWR Update: Fall Groundwater Levels

Glenn County
Water Advisory Committee Meeting
December 8, 2015

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Northern Region Office
CA Department of Water Resources

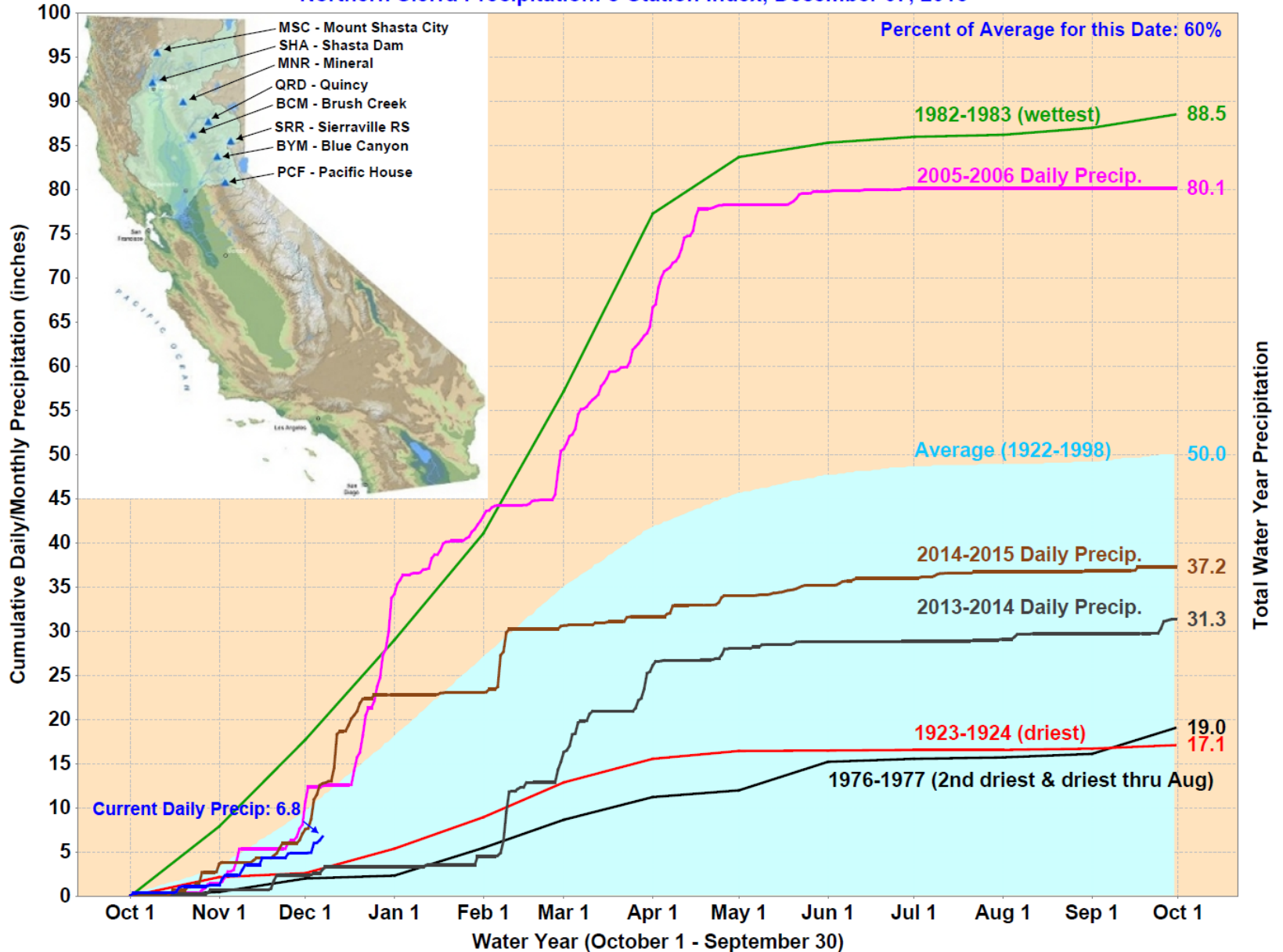


Outline

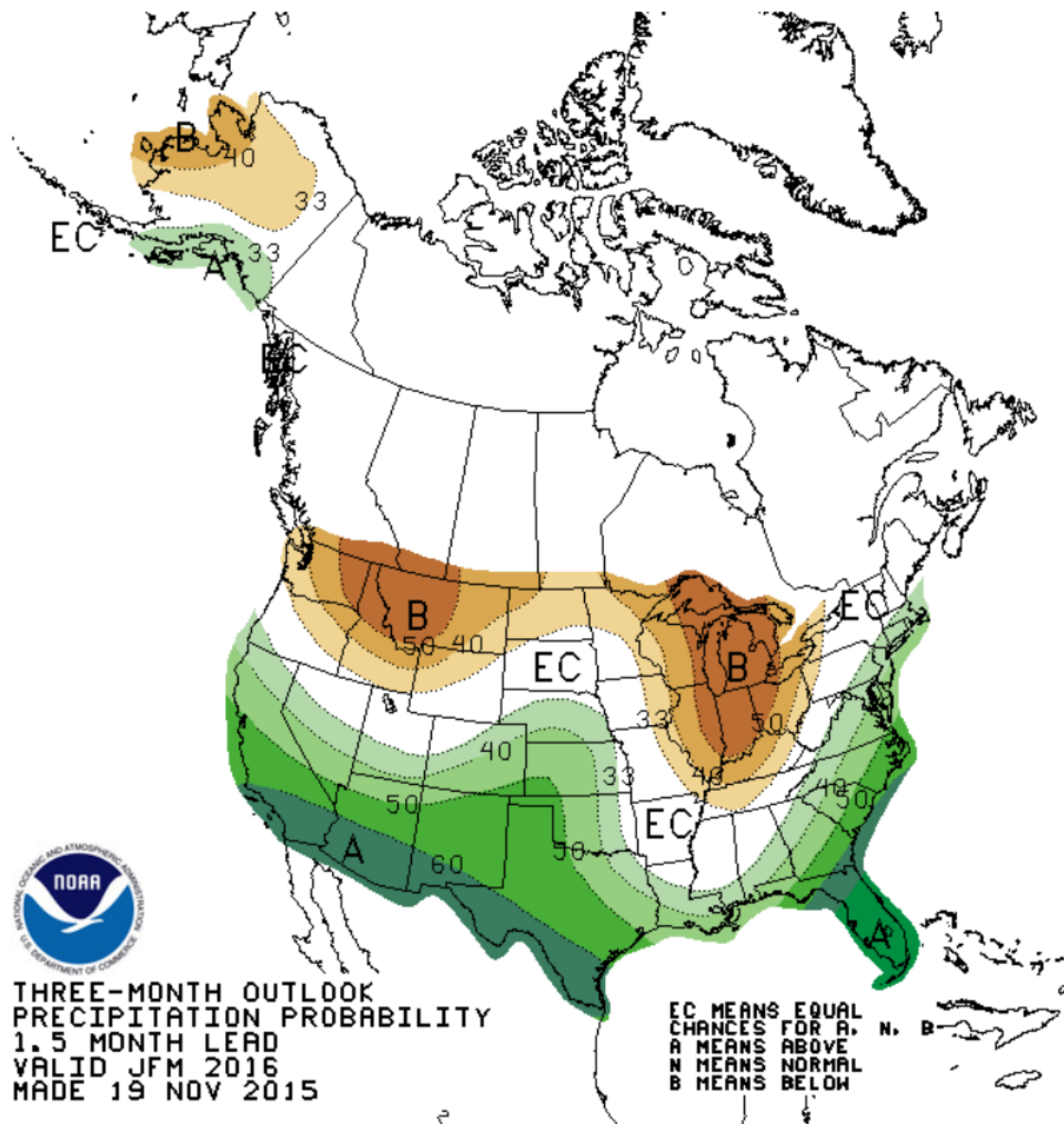
- Current precipitation and forecast
- Fall 2015 groundwater levels
 - Change maps
 - hydrographs
- Follow up on subsidence discussion from previous meeting

Sacramento Valley Precipitation – 8-Station Index

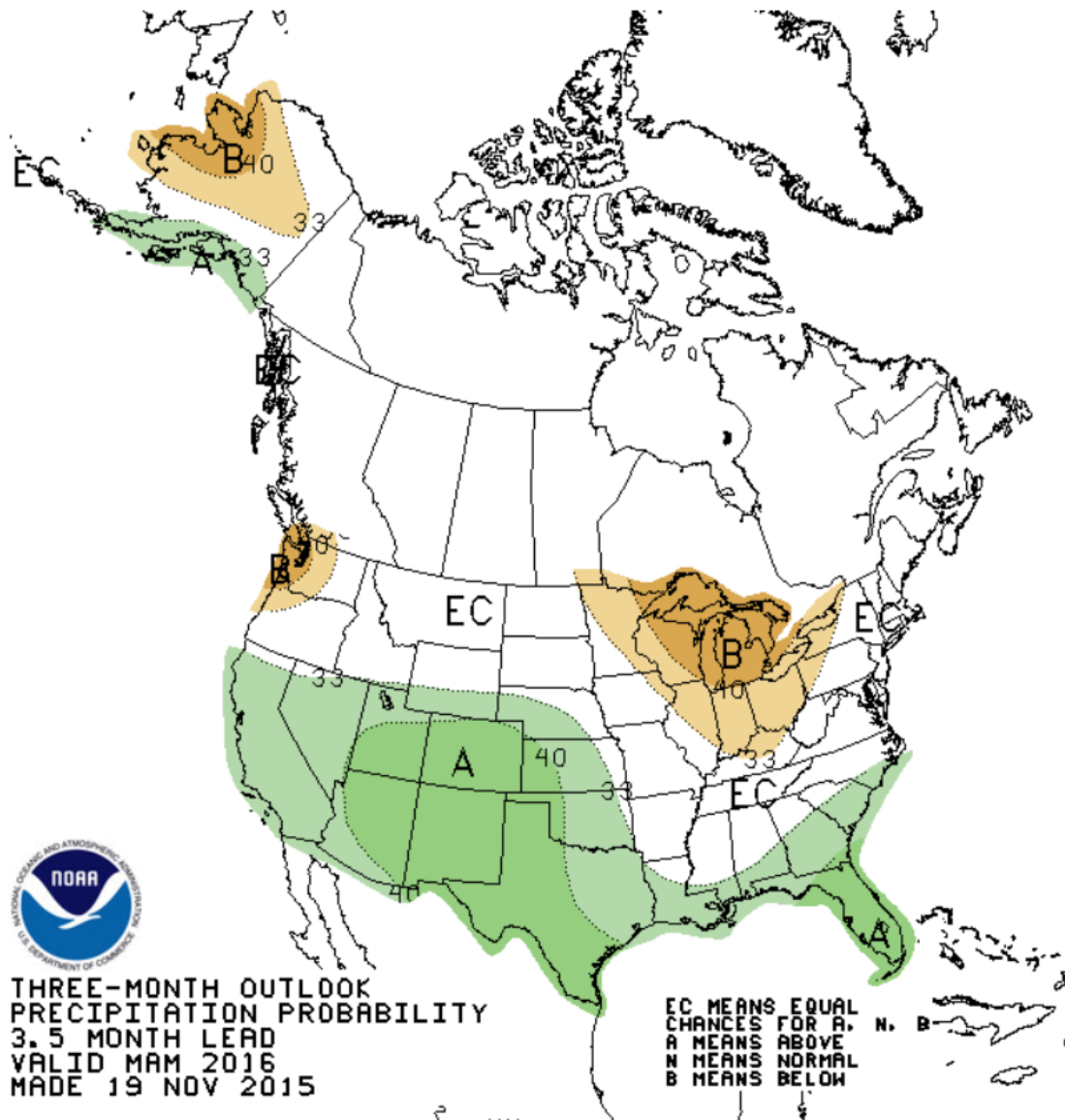
Northern Sierra Precipitation: 8-Station Index, December 07, 2015



NOAA's Precipitation Forecast (Dec, Jan, Feb)



NOAA's Precipitation Forecast (Mar, Apr, May)

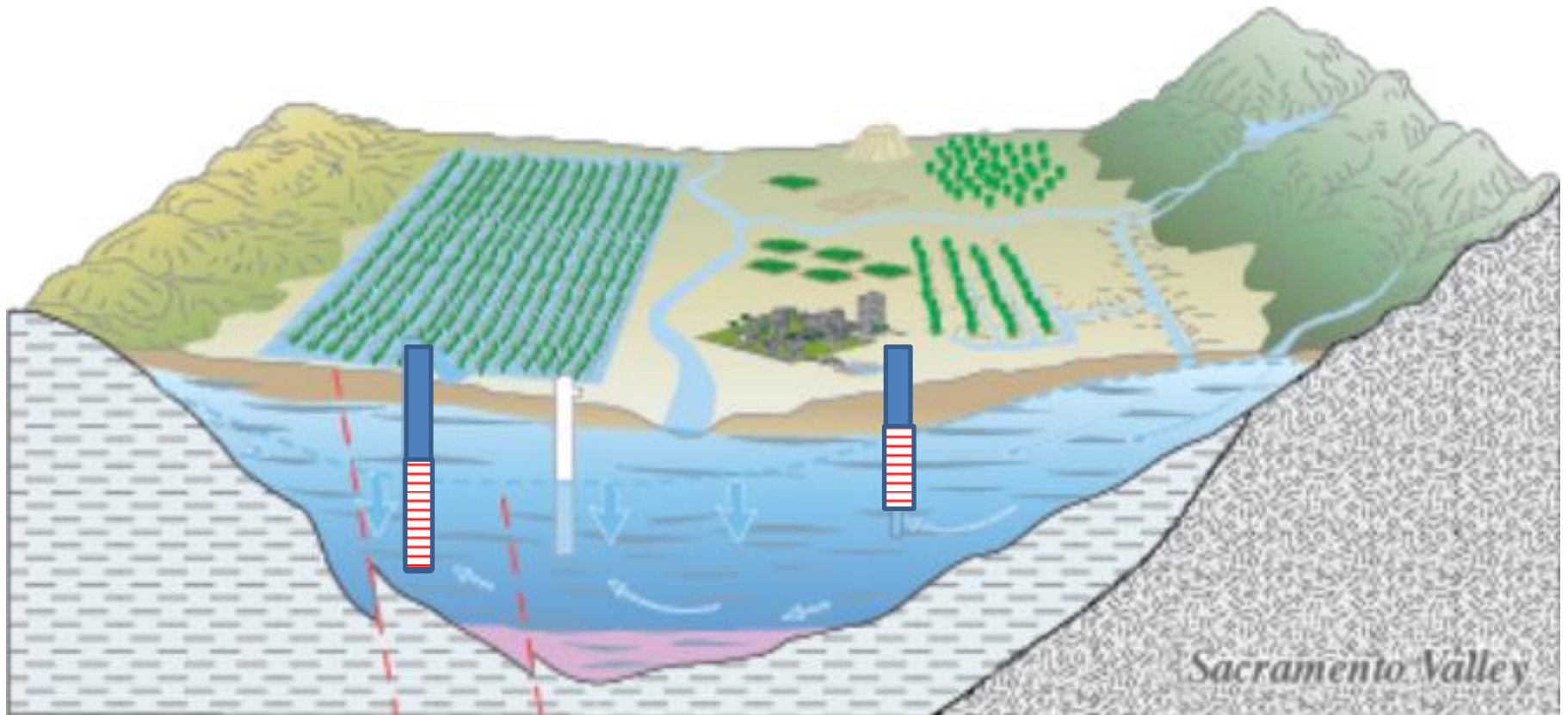


THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
3.5 MONTH LEAD
VALID MAM 2016
MADE 19 NOV 2015

Fall 2015 Groundwater Level Results

Change Maps and Hydrographs

Groundwater level data are grouped for analysis by well depth



>600 ft

100-450 ft

Modified from Faunt, 2009

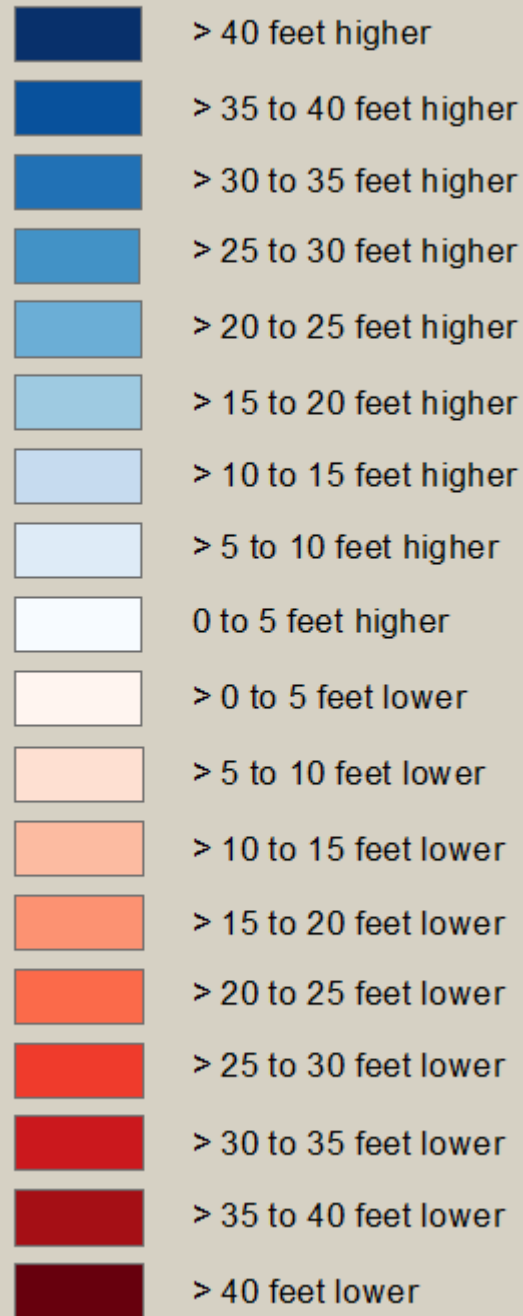
Groundwater Change Maps

100-450 ft Deep Wells

Comparison between fall 2015 and fall:

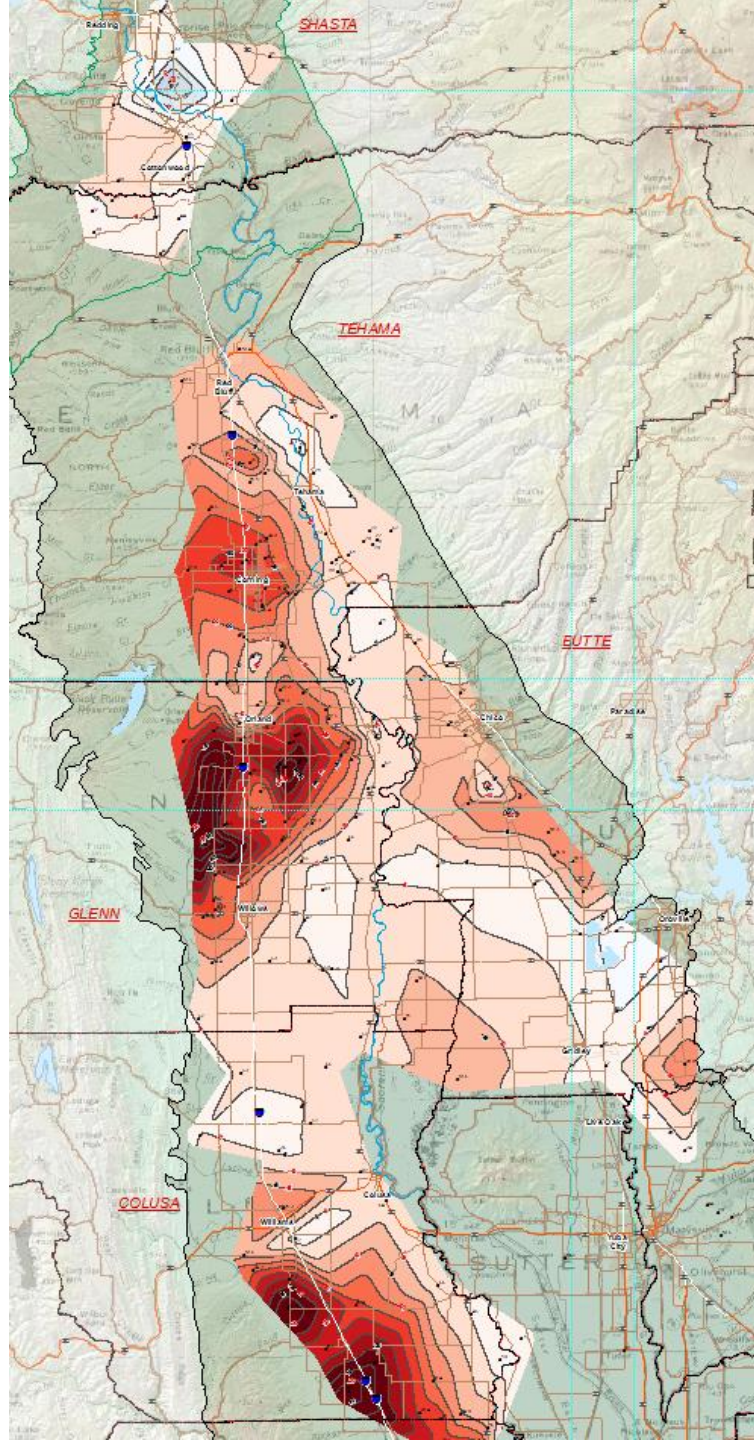
- 2004
- 2011
- 2014

Groundwater Elevation Change



Groundwater Change Map

Scale



Groundwater Change Map

well depth
100-450'

2004-2015

Fall Change

2004-2015

well depth

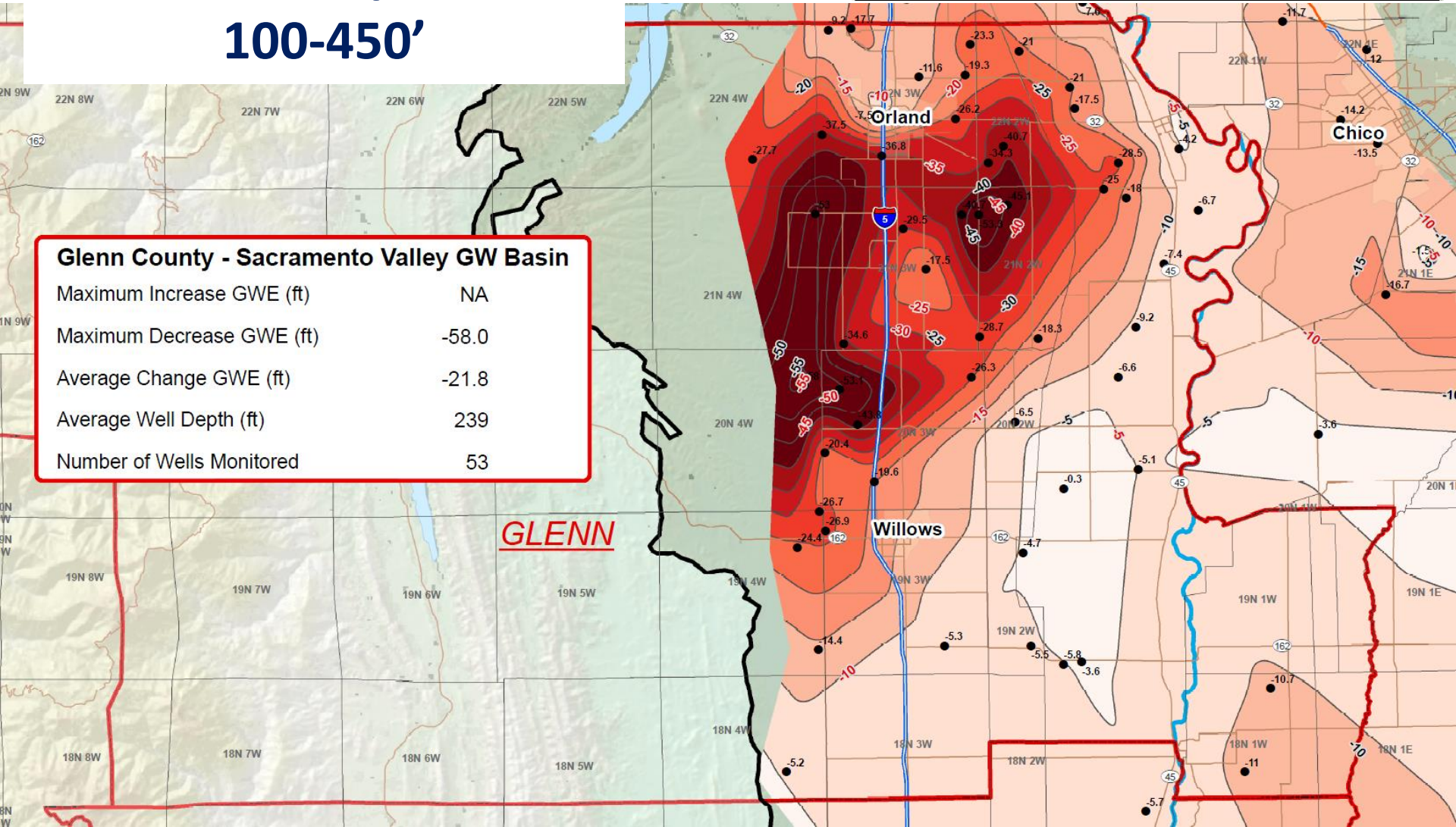
100-450'

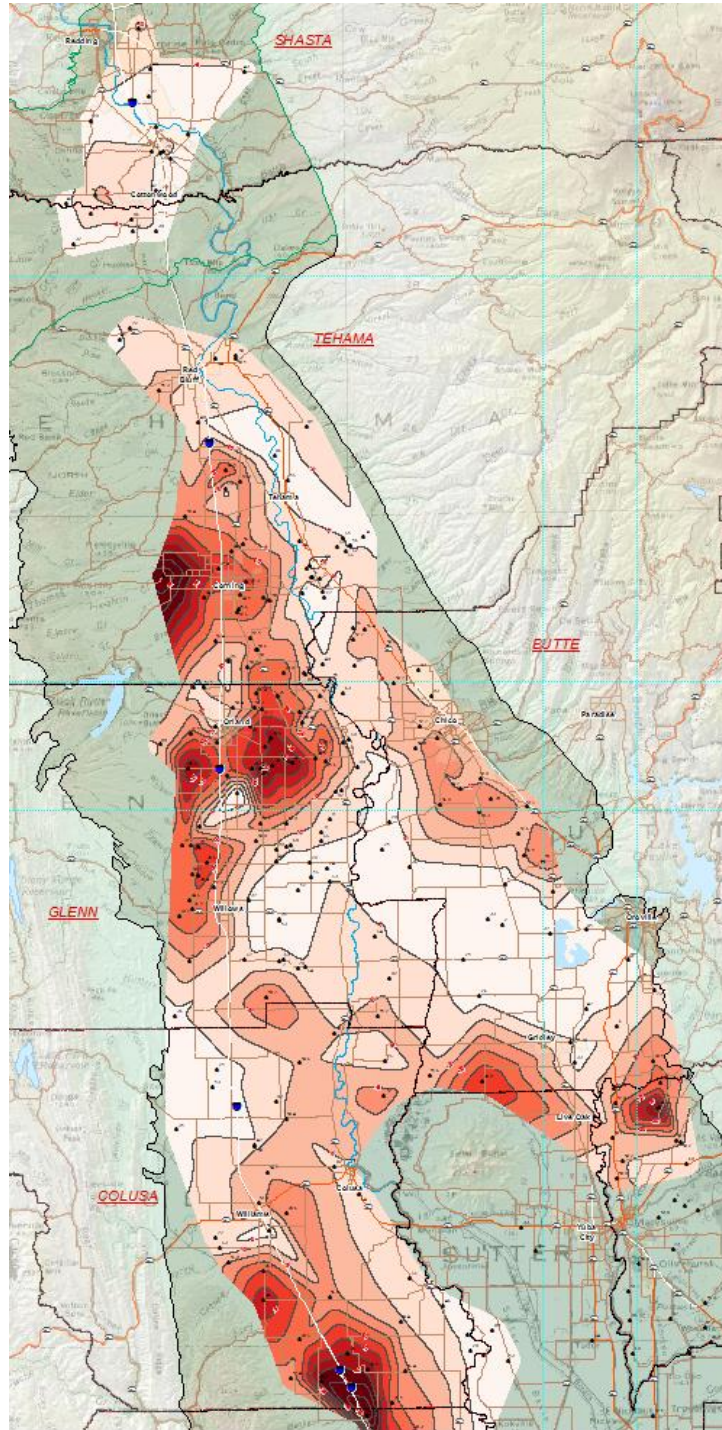
Summary Results for Fall 2004 to Fall 2015 Change in Groundwater Elevation

Maximum Increase GWE (ft)	18.1
Maximum Decrease GWE (ft)	-58.0
Average Change GWE (ft)	-15.2
Average Well Depth (ft)	241
Number of Wells Monitored	166

Glenn County - Sacramento Valley GW Basin

Maximum Increase GWE (ft)	NA
Maximum Decrease GWE (ft)	-58.0
Average Change GWE (ft)	-21.8
Average Well Depth (ft)	239
Number of Wells Monitored	53





Groundwater Change Map

well depth
100-450'

2011-2015

Fall Change

2011-2015

well depth

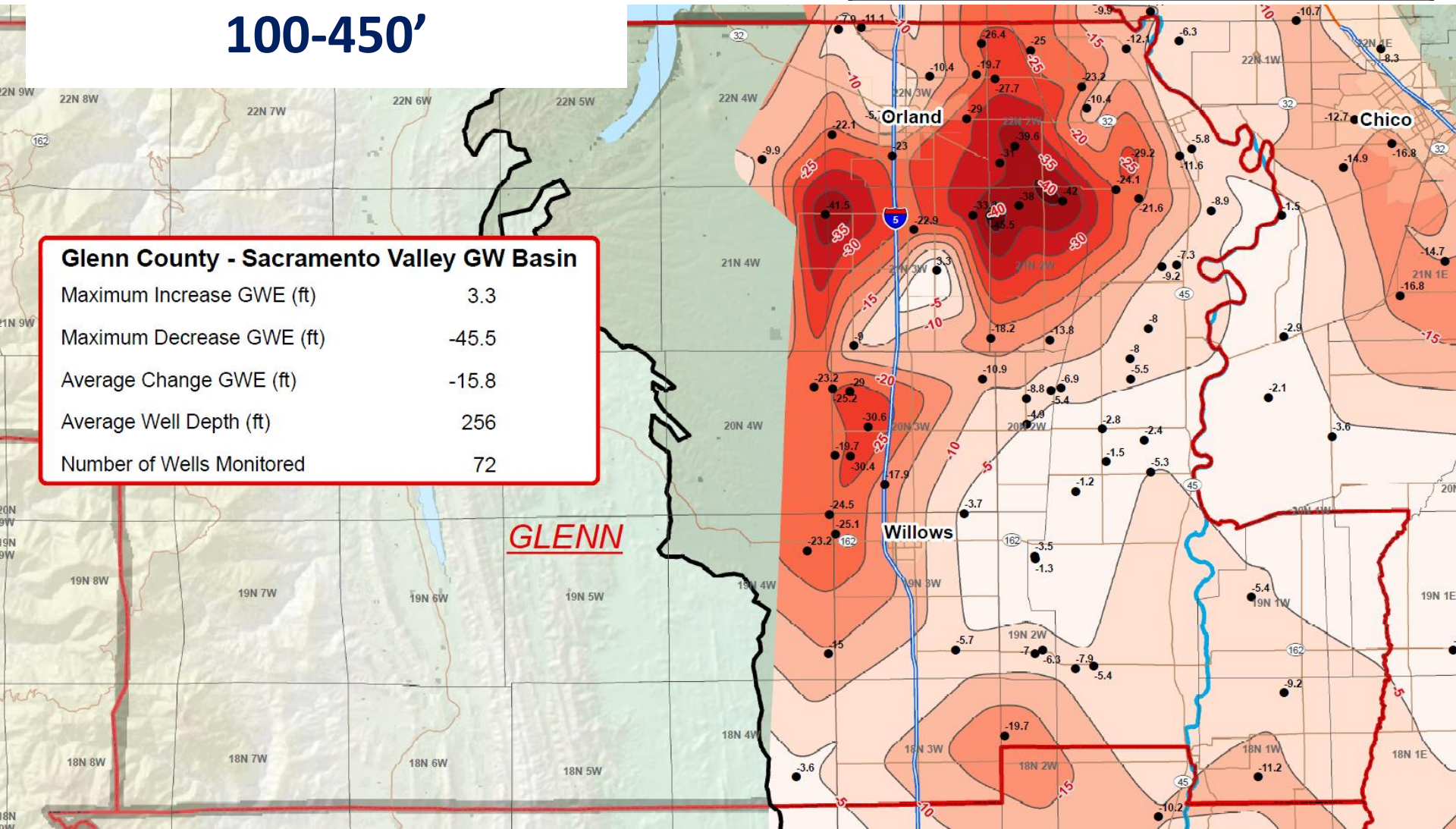
100-450'

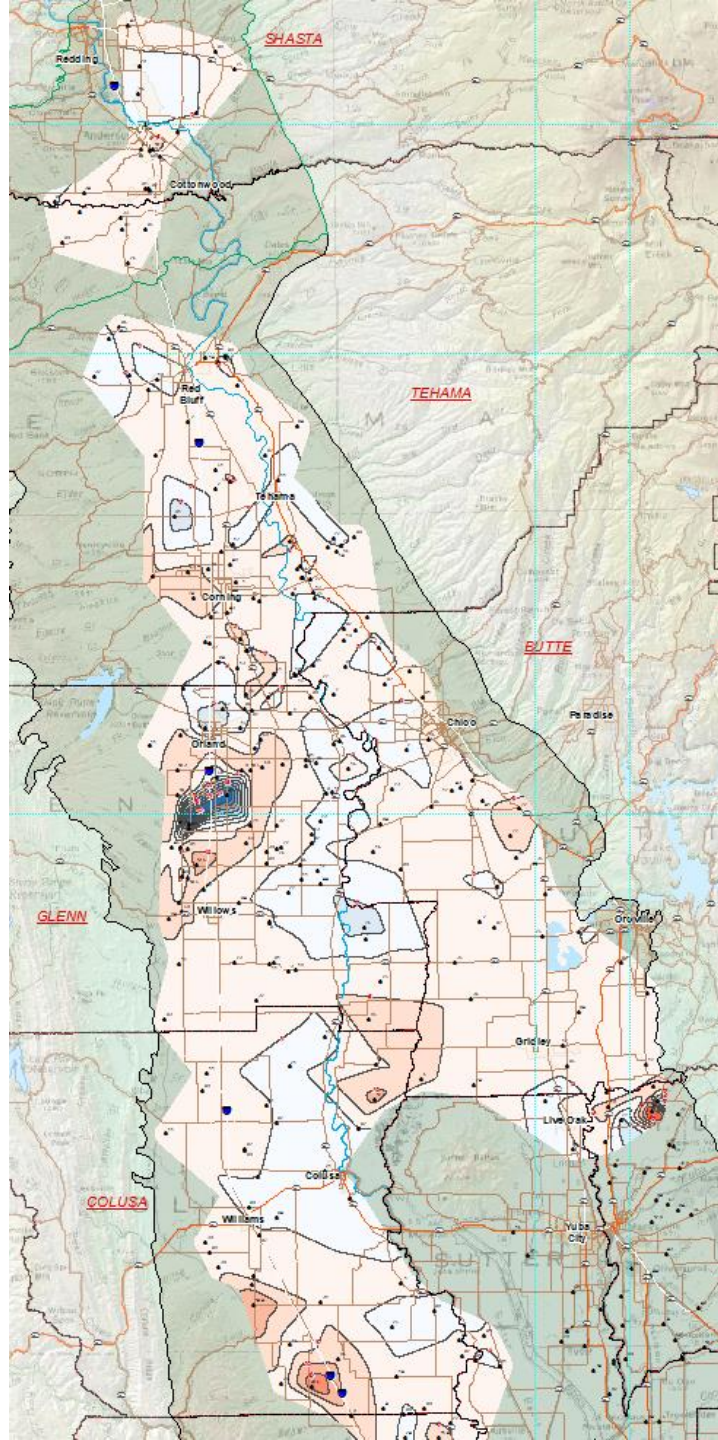
Summary Results for Fall 2011 to Fall 2015 Change in Groundwater Elevation

Maximum Increase GWE (ft)	3.3
Maximum Decrease GWE (ft)	-55.1
Average Change GWE (ft)	-12.6
Average Well Depth (ft)	252
Number of Wells Monitored	221

Glenn County - Sacramento Valley GW Basin

Maximum Increase GWE (ft)	3.3
Maximum Decrease GWE (ft)	-45.5
Average Change GWE (ft)	-15.8
Average Well Depth (ft)	256
Number of Wells Monitored	72





Groundwater Change Map

well depth
100-450'

2014-2015

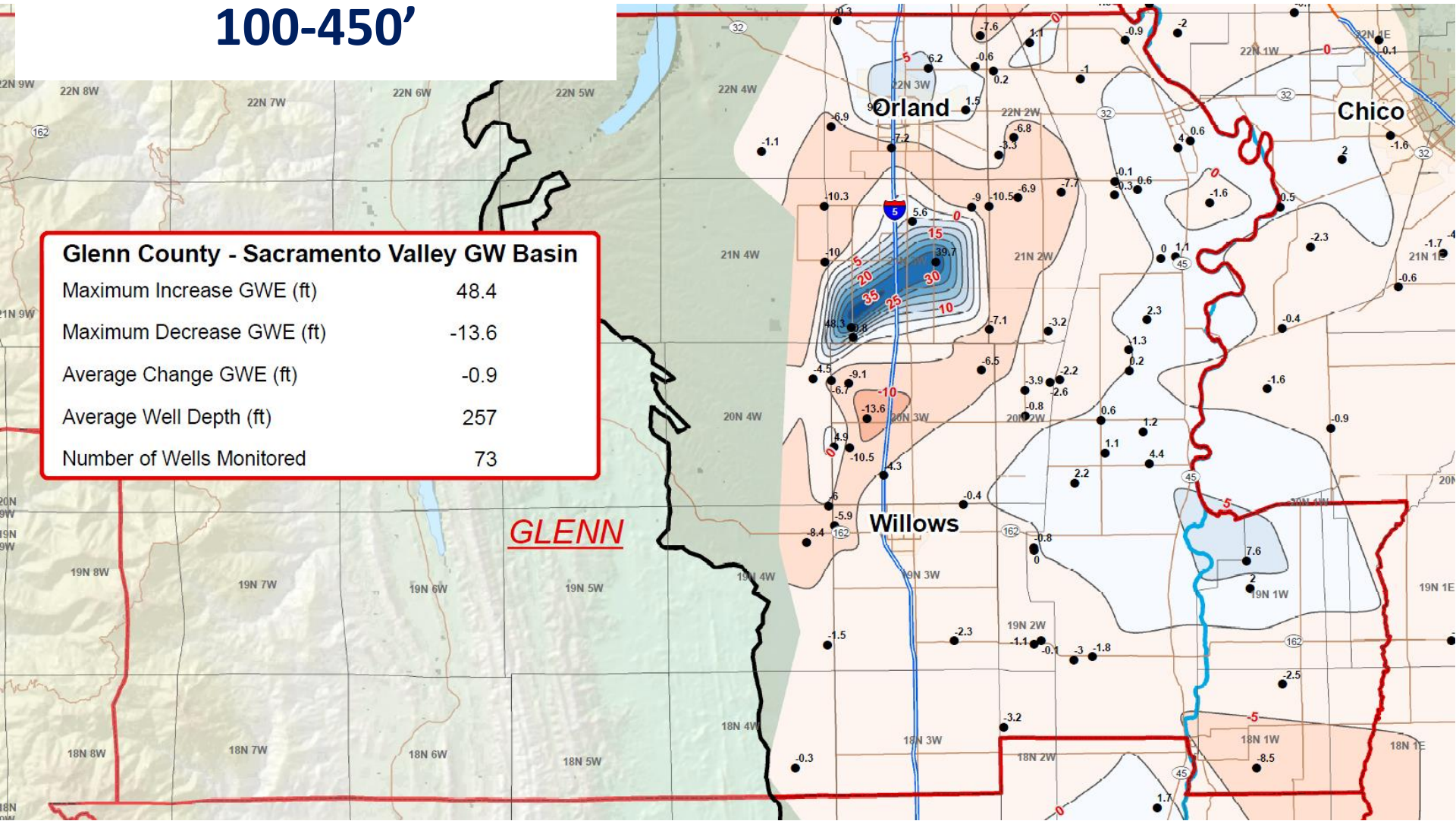
Fall Change 2014-2015 well depth 100-450'

Summary Results for Fall 2014 to Fall 2015 Change in Groundwater Elevation

Maximum Increase GWE (ft)	48.4
Maximum Decrease GWE (ft)	-20.6
Average Change GWE (ft)	-1.5
Average Well Depth (ft)	253
Number of Wells Monitored	236

Glenn County - Sacramento Valley GW Basin

Maximum Increase GWE (ft)	48.4
Maximum Decrease GWE (ft)	-13.6
Average Change GWE (ft)	-0.9
Average Well Depth (ft)	257
Number of Wells Monitored	73

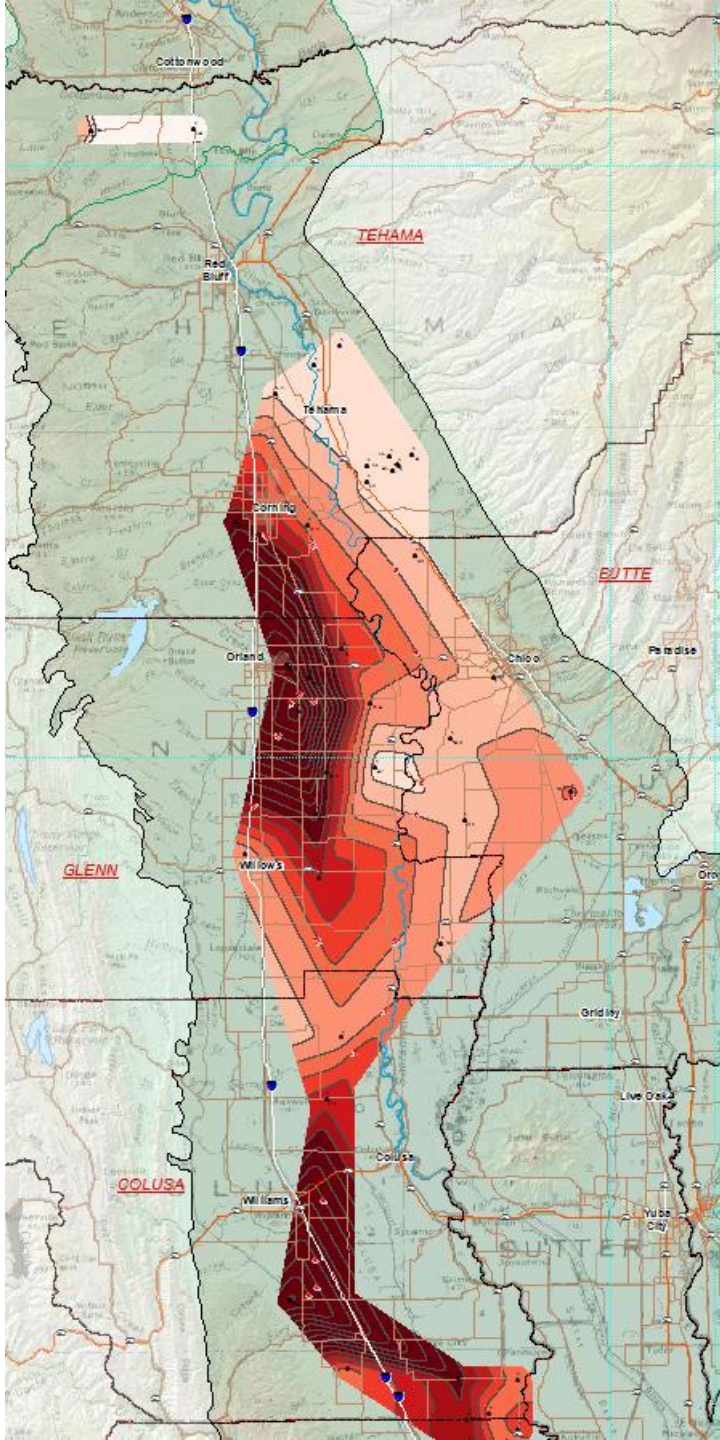


Groundwater Change Maps

well depth
>600'

Comparison from fall 2015 to fall:

- 2004
- 2011
- 2014



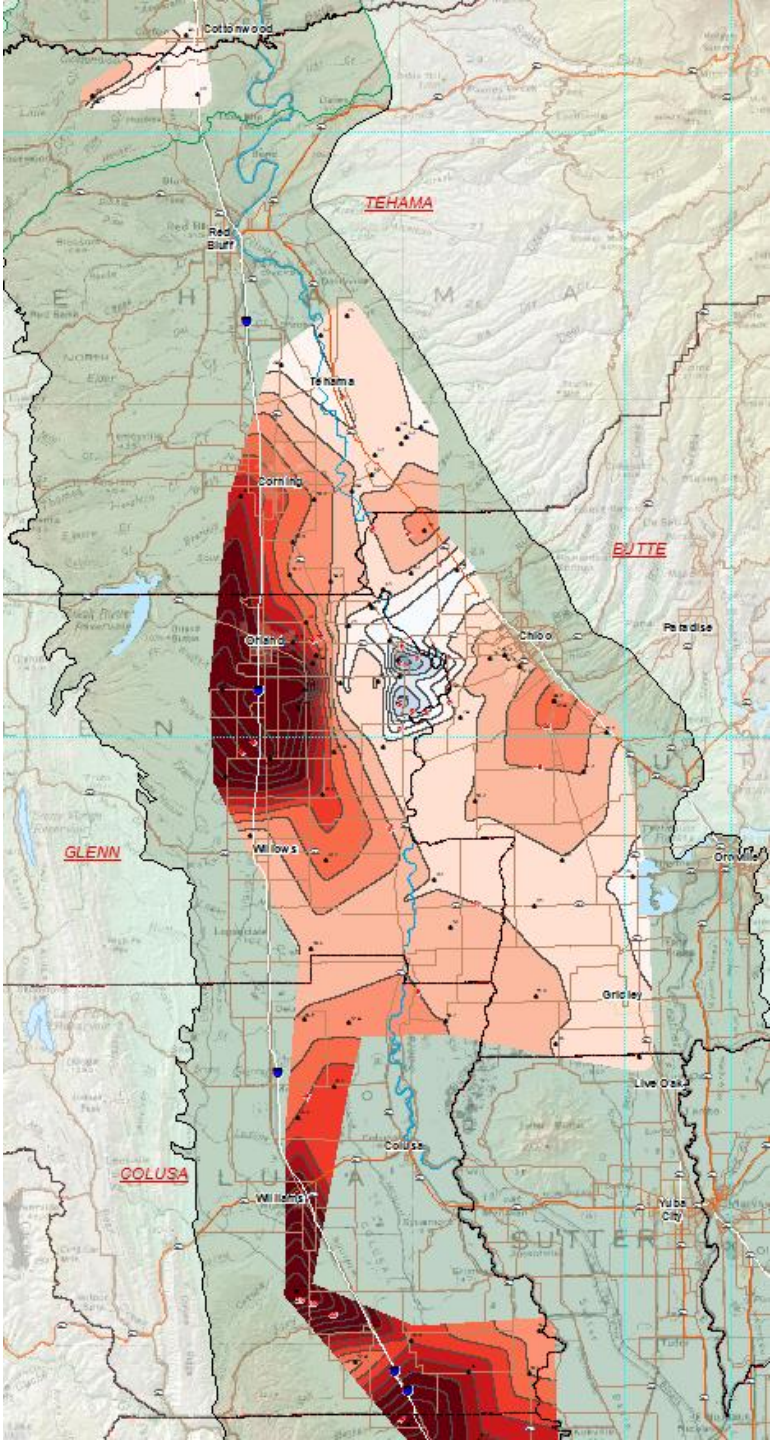
Groundwater Change Map

well depth
>600'

2004-2015

Summary Results for Fall 2004 to Fall 2015 Change in Groundwater Elevation

Maximum Increase GWE (ft)	NA
Maximum Decrease GWE (ft)	-89.9
Average Change GWE (ft)	-23.8
Average Well Depth (ft)	808
Number of Wells Monitored	39



Groundwater Change Map

well depth
>600'

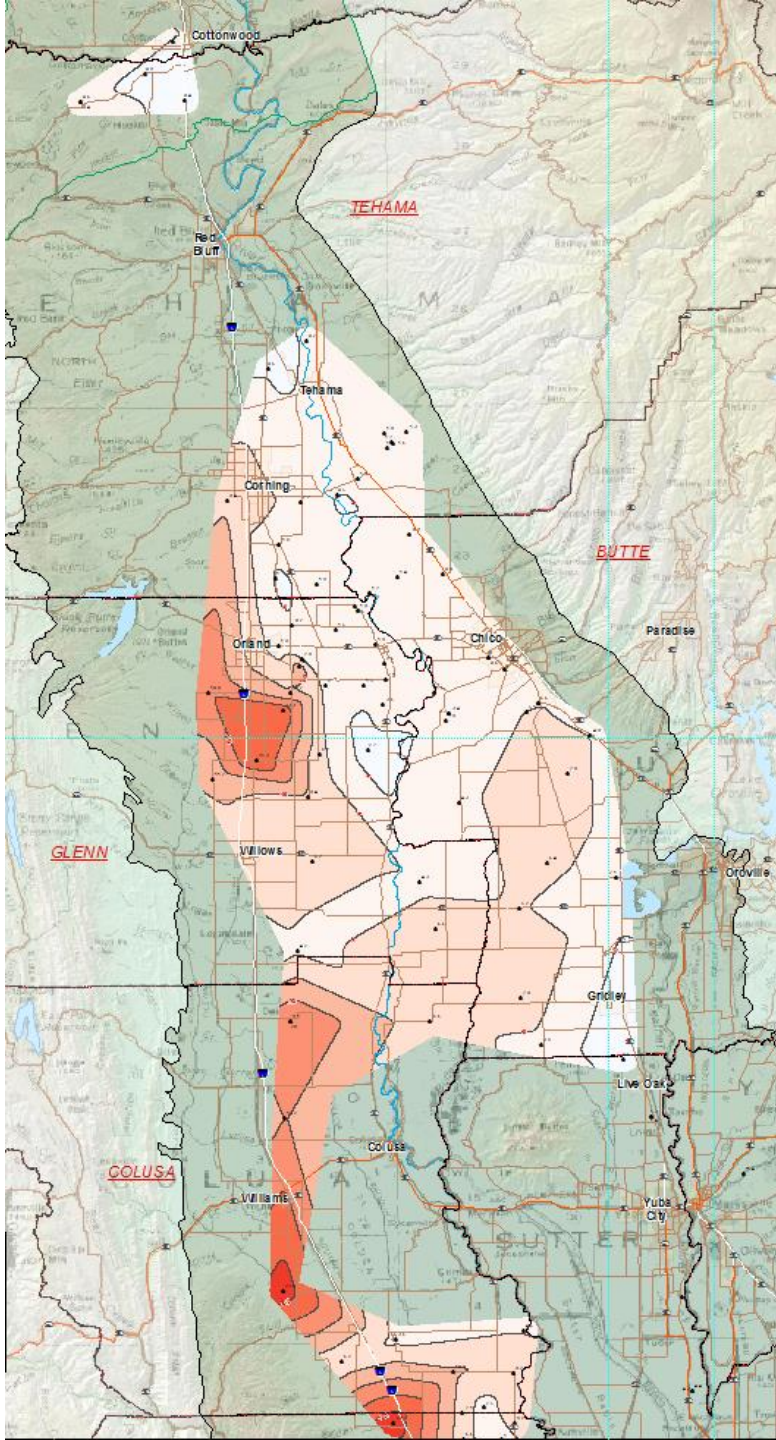
2011-2015

Summary Results for Fall 2011 to Fall 2015 Change in Groundwater Elevation	
Maximum Increase GWE (ft)	27.5
Maximum Decrease GWE (ft)	-76.6
Average Change GWE (ft)	-15.7
Average Well Depth (ft)	877
Number of Wells Monitored	78

Groundwater Change Map

well depth
>600'

2014-2015



Summary Results for Fall 2014 to Fall 2015 Change in Groundwater Elevation

Maximum Increase GWE (ft)	2.7
Maximum Decrease GWE (ft)	-27.8
Average Change GWE (ft)	-4.8
Average Well Depth (ft)	878
Number of Wells Monitored	78

Hydrographs

22N03W24E

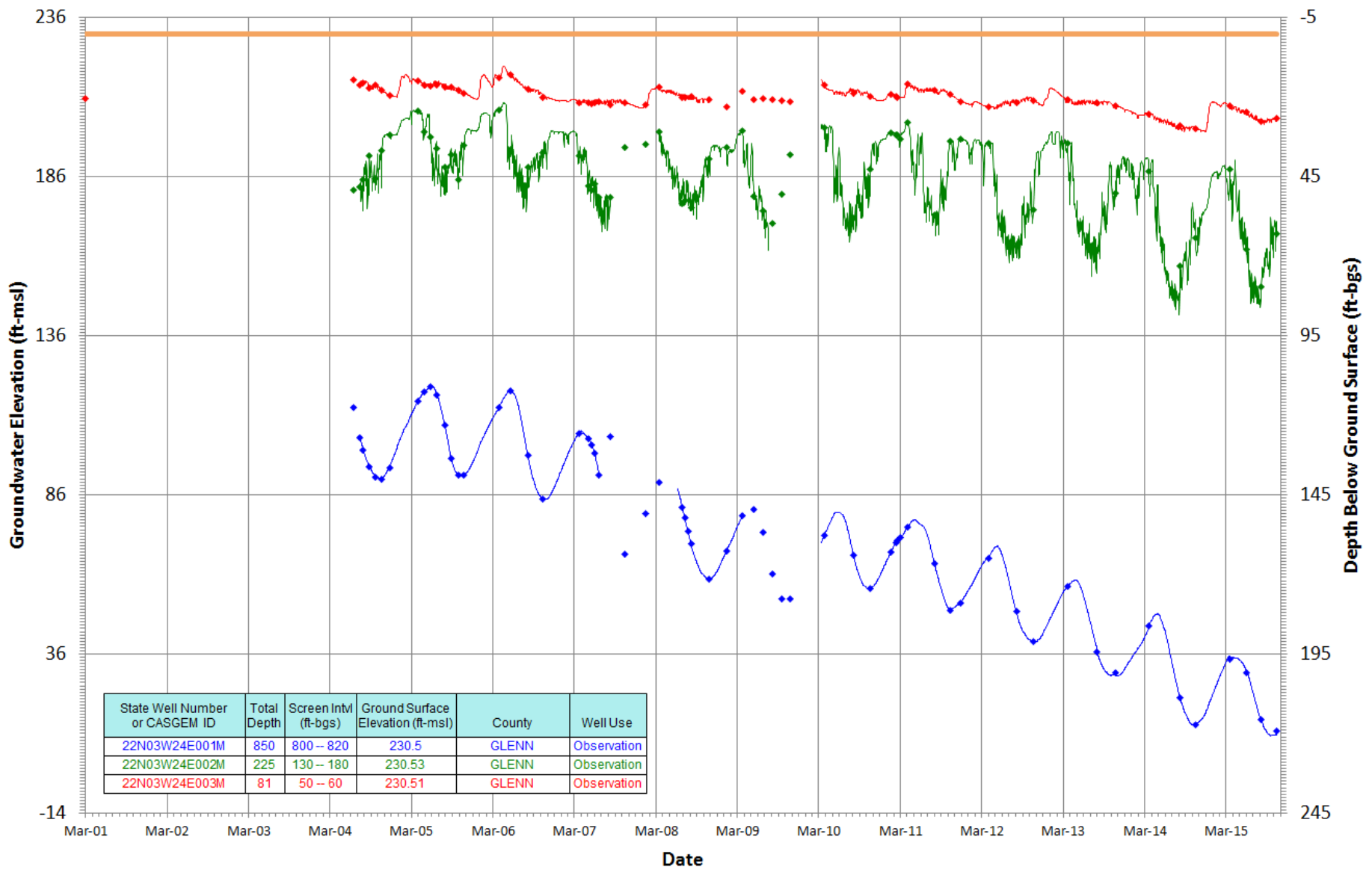


<http://www.water.ca.gov/waterdatalibrary/>

50' intervals

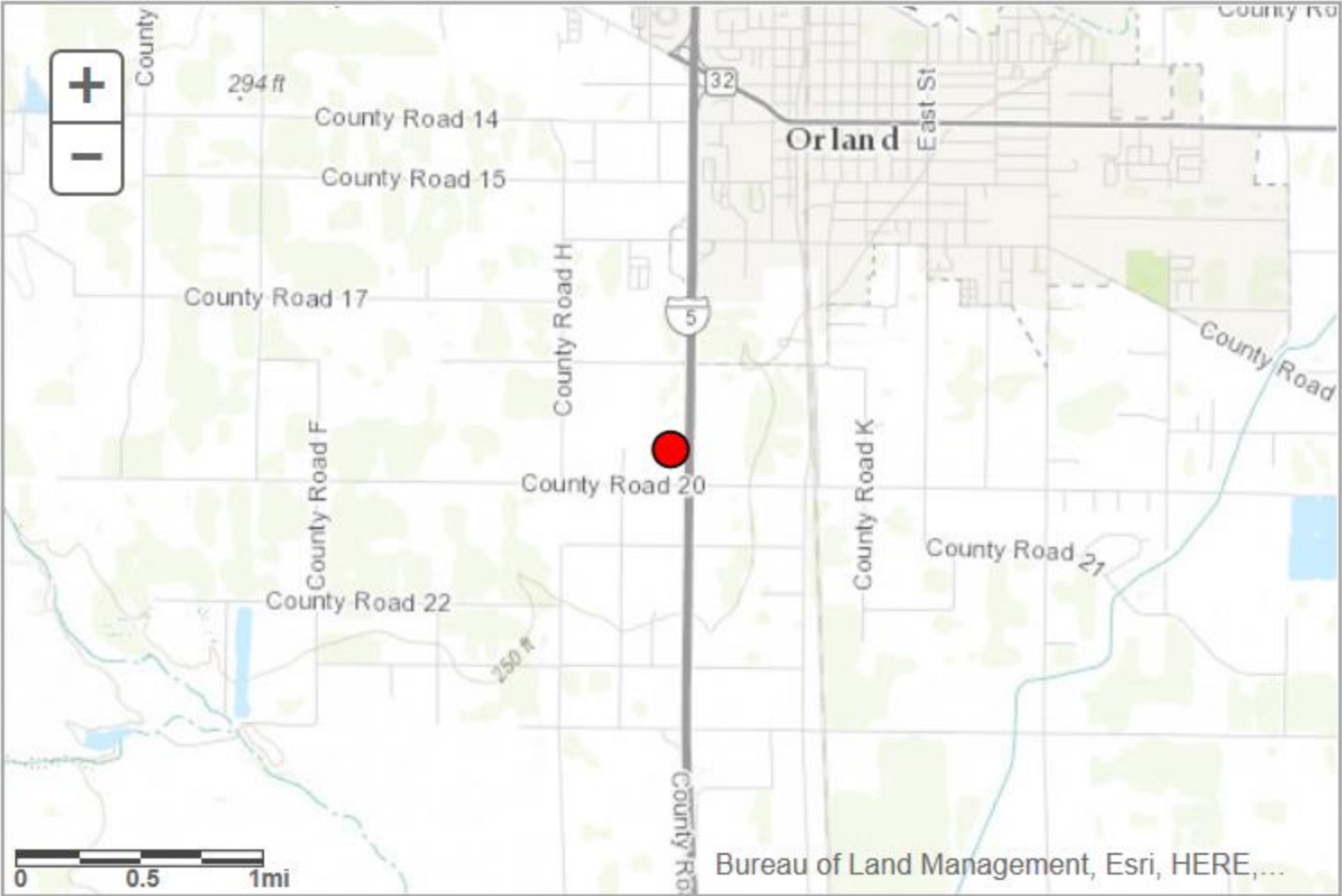
Clustered Well Hydrograph
 Period Of Record: 03/01/2001 to 10/15/2015

Hydrograph Criteria
 County Name is 'GLENN'
 Monitoring Entity is 'Department of Water Resources'
 Well Use is 'Observation'



— Ground Surface Elev
 — 22N03W24E001M
 — 22N03W24E002M
 — 22N03W24E003M
 ◆ Periodic Meas.

22N03W28P

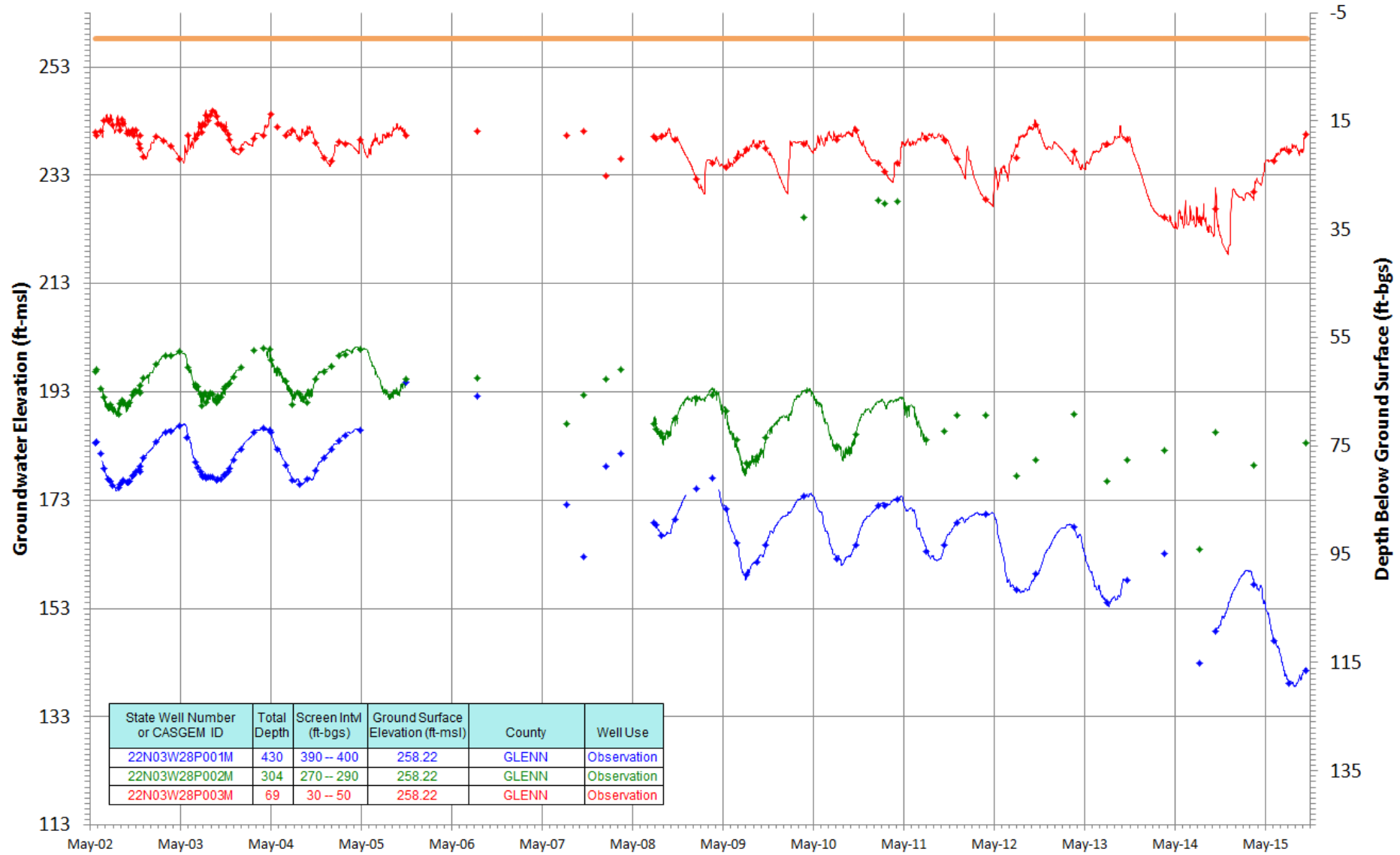


<http://www.water.ca.gov/waterdatalibrary/>

20' intervals

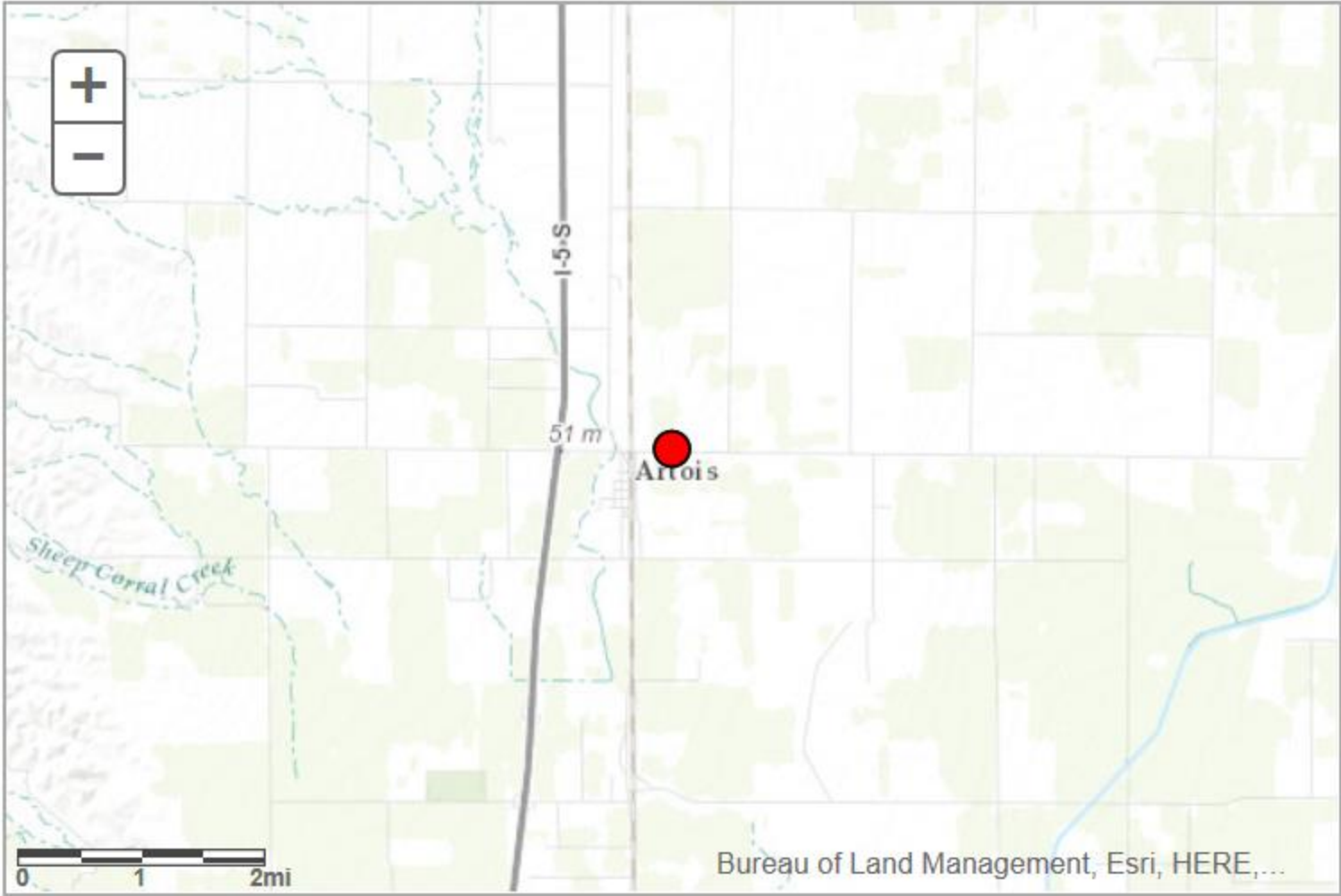
Clustered Well Hydrograph
 Period Of Record: 05/22/2002 to 10/15/2015

Hydrograph Criteria
 State Well Number contains '22n03w28P'



— Ground Surface Elev — 22N03W28P001M — 22N03W28P002M — 22N03W28P003M ◆ Periodic Meas.

21N03W34Q

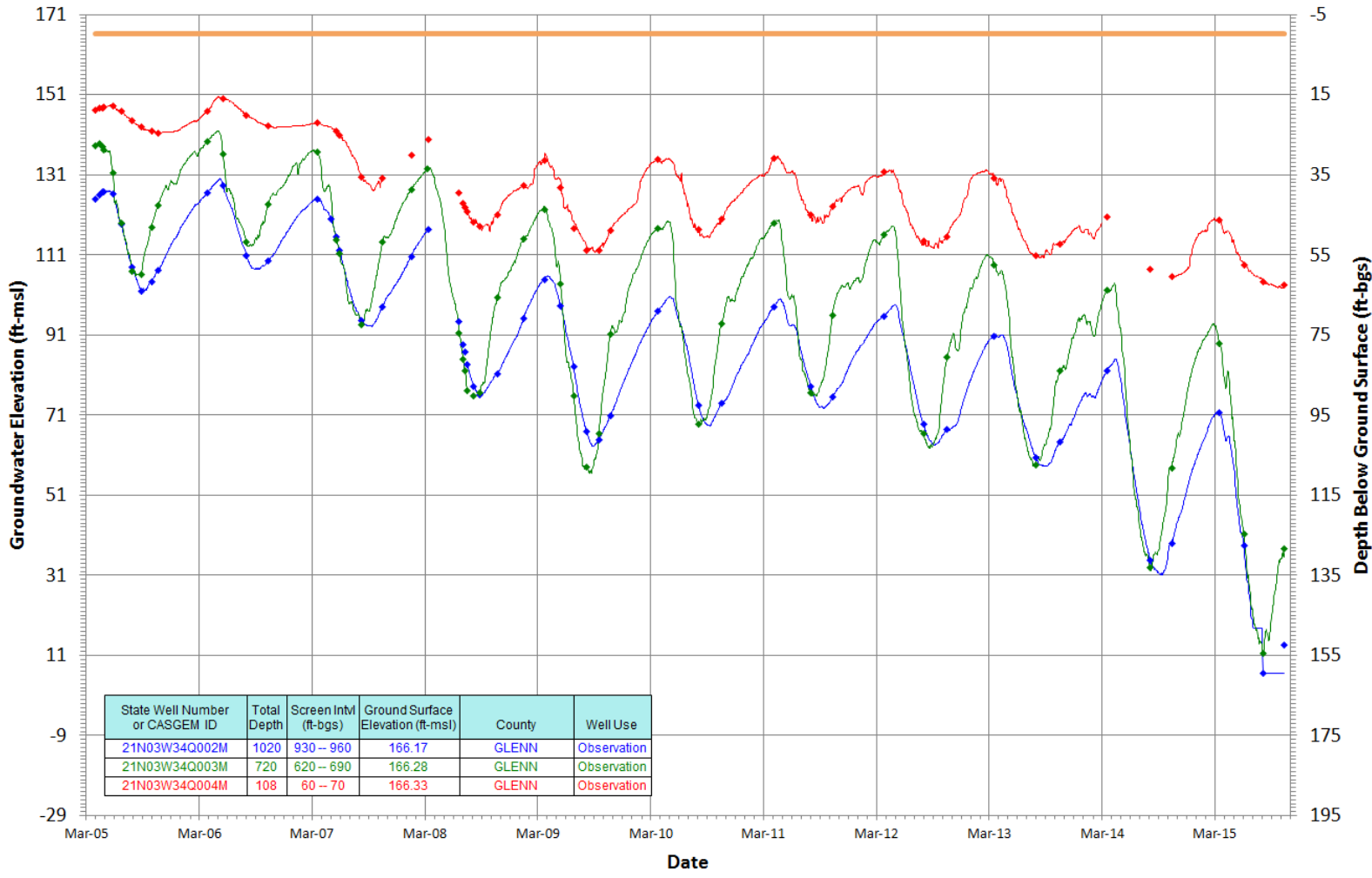


<http://www.water.ca.gov/waterdatalibrary/>

20' intervals

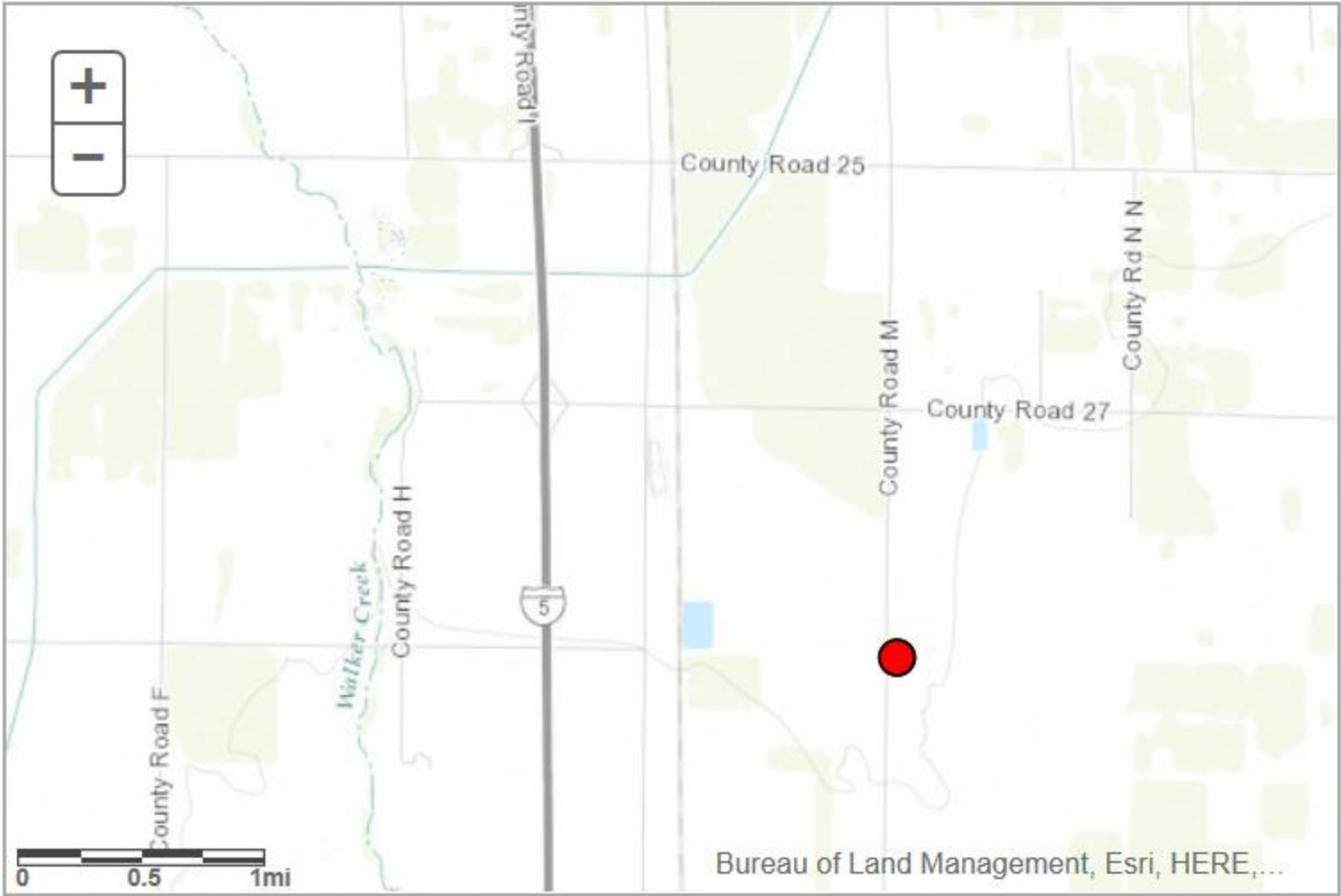
Clustered Well Hydrograph
 Period Of Record: 03/31/2005 to 10/13/2015

Hydrograph Criteria
 County Name is 'GLENN'
 Monitoring Entity is 'Department of Water Resources'
 Well Use is 'Observation'



— Ground Surface Elev — 21N03W34Q002M — 21N03W34Q003M — 21N03W34Q004M ◆ Periodic Meas.

21N03W23D

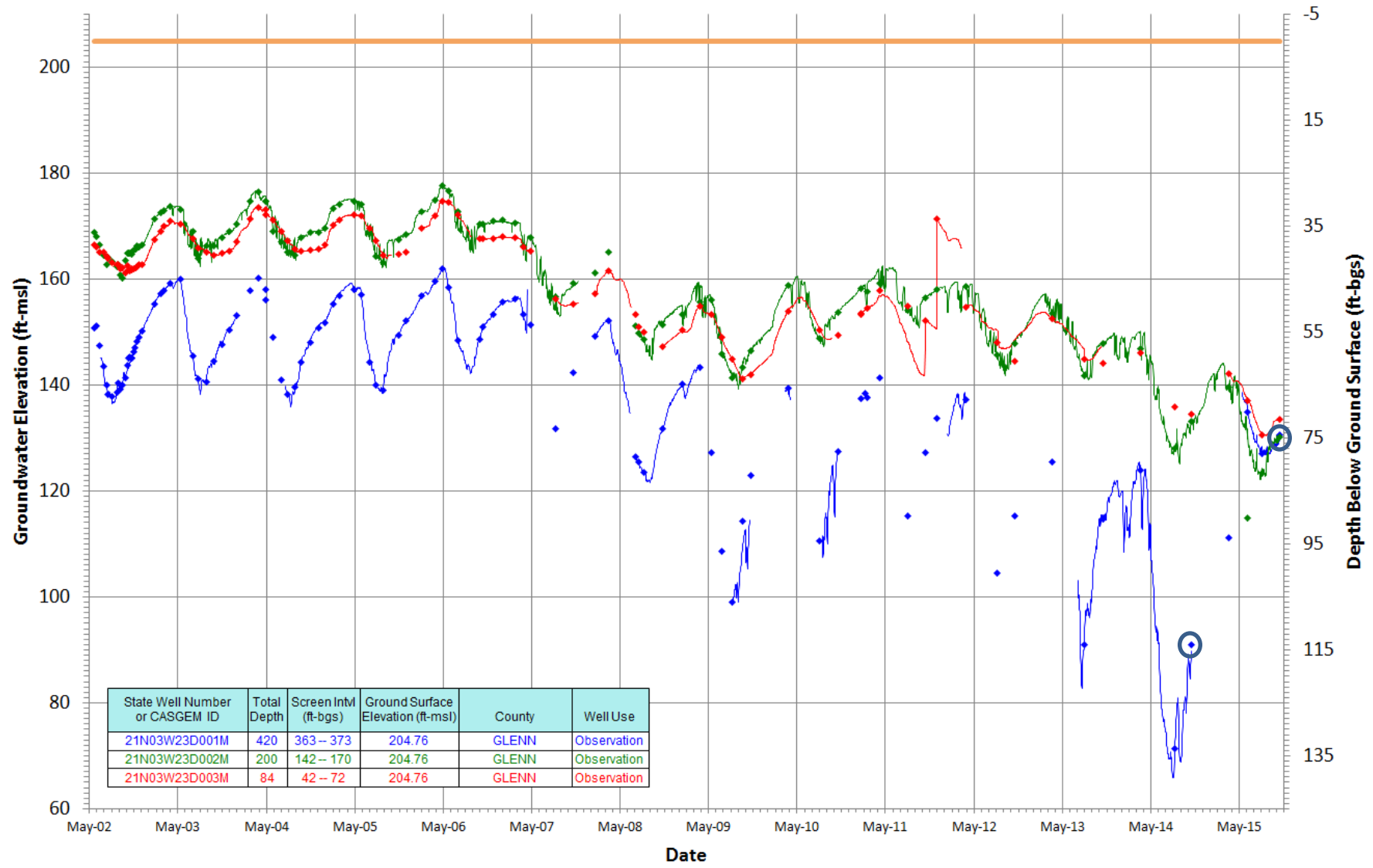


<http://www.water.ca.gov/waterdatalibrary/>

20' intervals

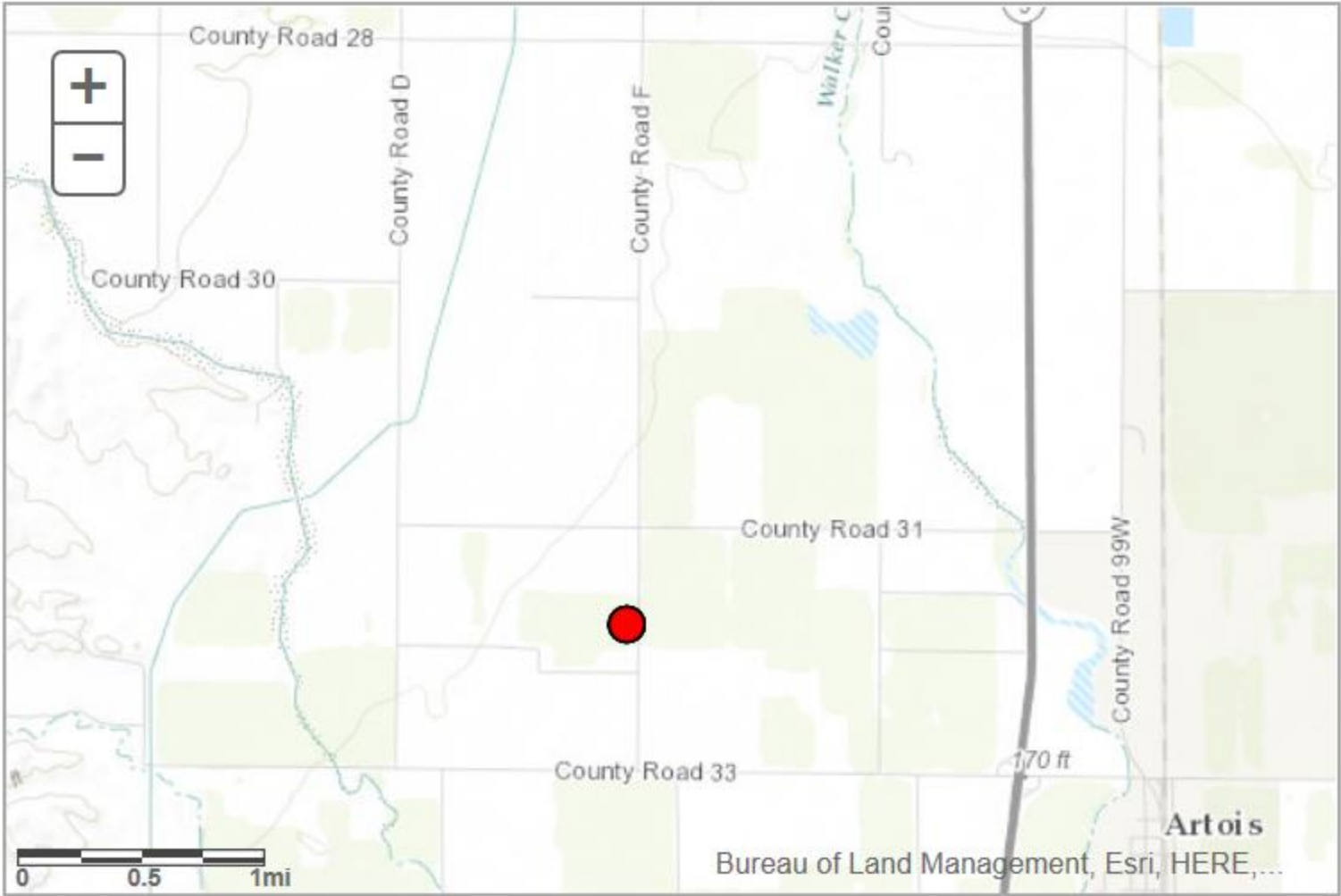
Clustered Well Hydrograph
 Period Of Record: 05/22/2002 to 10/15/2015

Hydrograph Criteria
 State Well Number contains '21N03W'



Ground Surface Elev 21N03W23D001M 21N03W23D002M 21N03W23D003M Periodic Meas.

21N03W31H001M

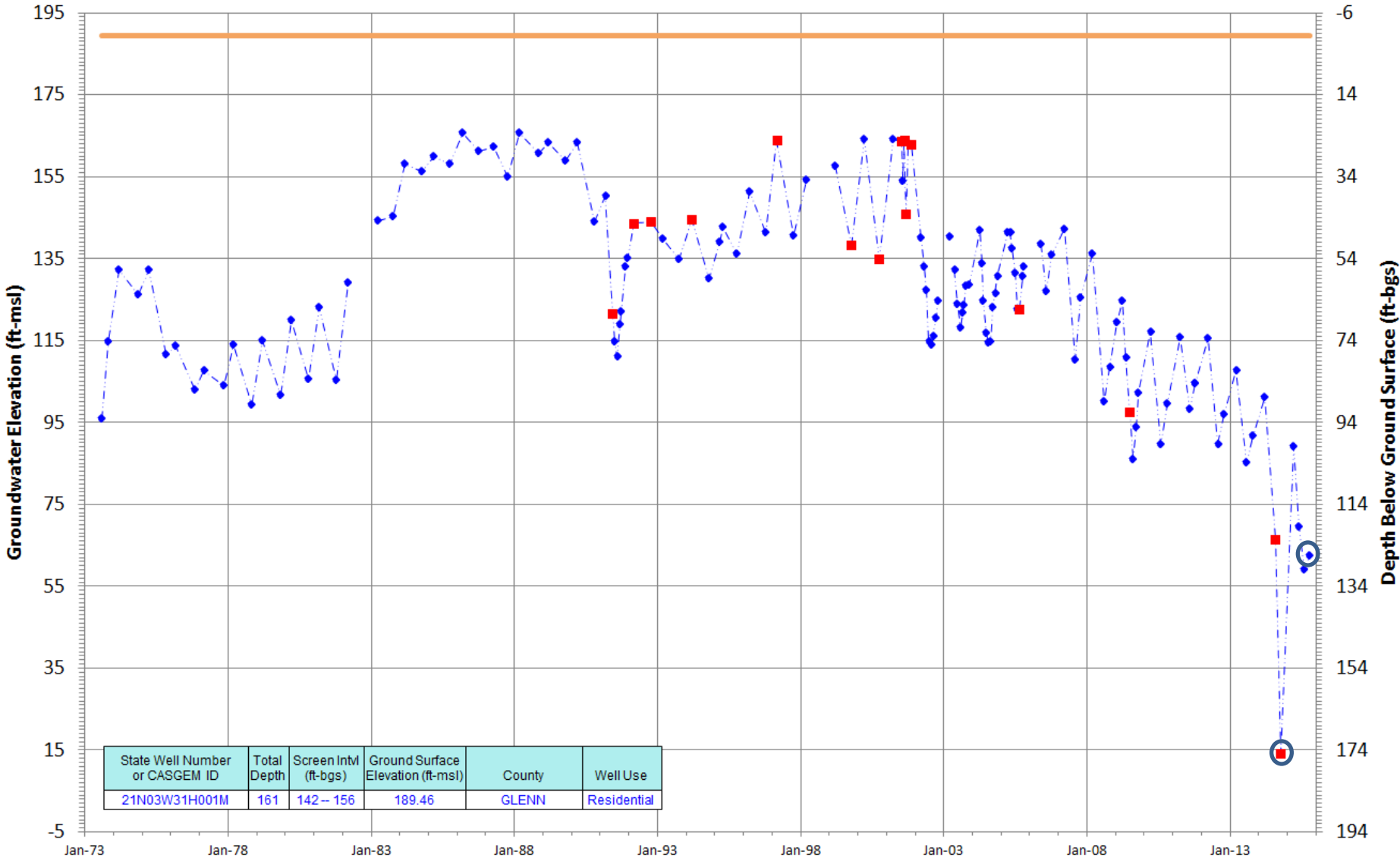


<http://www.water.ca.gov/waterdatalibrary/>

20' intervals

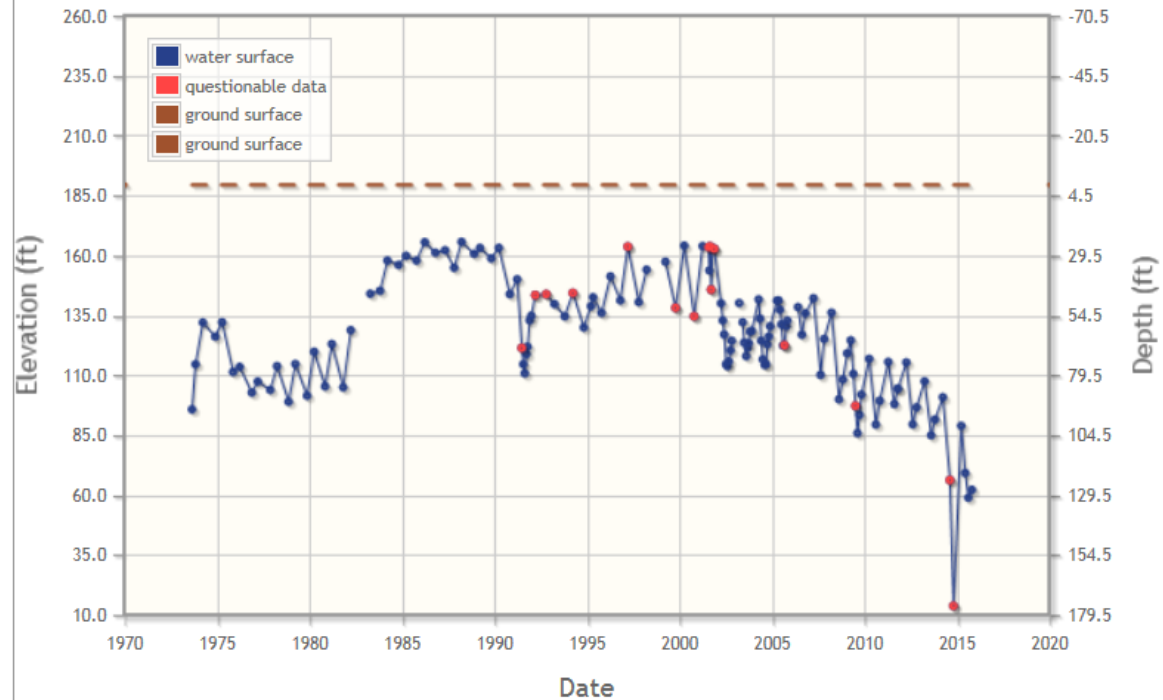
21N03W31H001M
 Period Of Record: 08/10/1973 to 10/13/2015

Hydrograph Criteria
 State Well Number contains '21N03W'



— Ground Surface Elev
 — Mean Daily Measurements
 - - - ◆ - - - Periodic Measurements
 ■ Questionable Measurements

Groundwater Levels for Well 396332N1222356W001

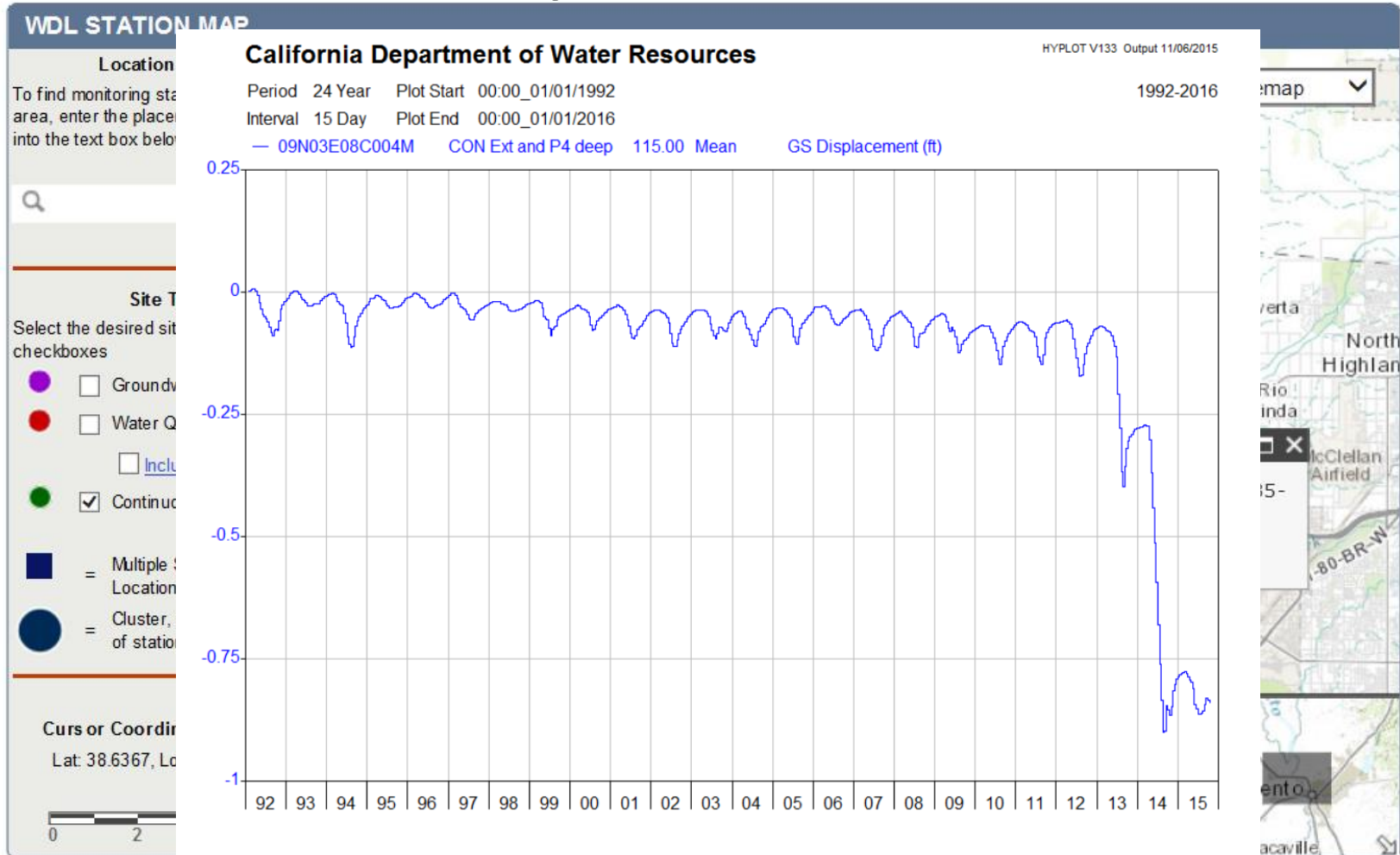


Download CSV File

Date	RPE	GSE	RPWS	WSE	GS to...	Msmt Code	CASGEM Msmt	Agency	Comments
10/13/2015 01:00	189.940	189.460	127.5	62.44	127.02		N	1	
08/03/2015 00:00	189.940	189.460	130.8	59.14	130.32		N	1	
06/03/2015 00:00	189.940	189.460	120.5	69.44	120.02		N	1	
03/16/2015 00:00	189.940	189.460	100.84	89.1	100.36		N	1	
10/13/2014 00:00	189.940	189.460	175.85	14.09	175.37	Q-6	N	1	Well was deepe...
08/04/2014 00:00	189.940	189.460	123.46	66.48	122.98	Q-6	N	1	Well was deepe...
03/17/2014 00:00	189.940	189.460	88.94	101	88.46		Y	1	
10/15/2013 00:00	189.940	189.460	98.19	91.75	97.71		N	1	
07/29/2013 00:00	189.940	189.460	104.81	85.13	104.33		N	1	

Follow-up on
subsidence questions from
previous meeting

Inelastic Movement. Conway Extensometer

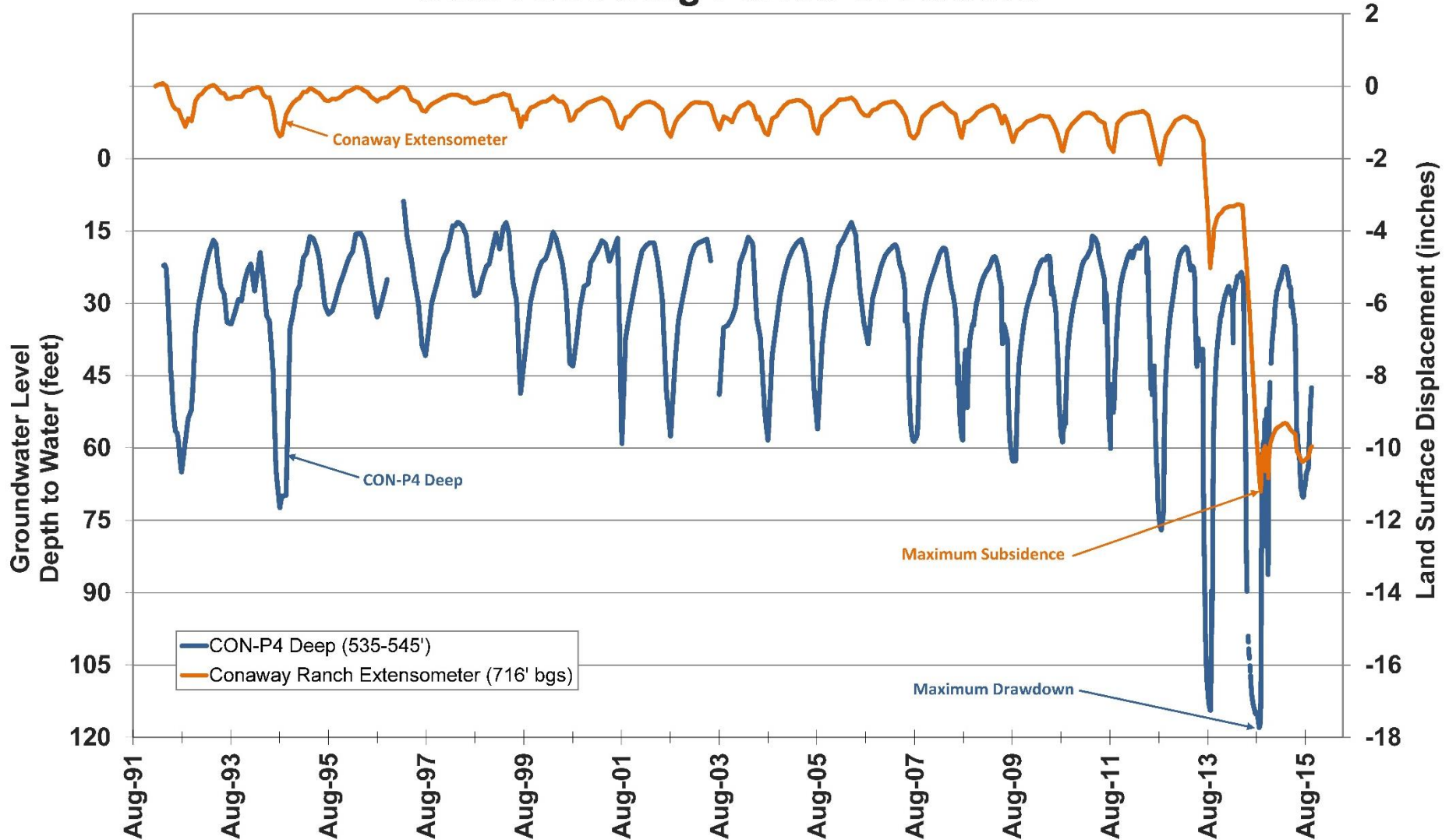


09N03E08C004M

716ft

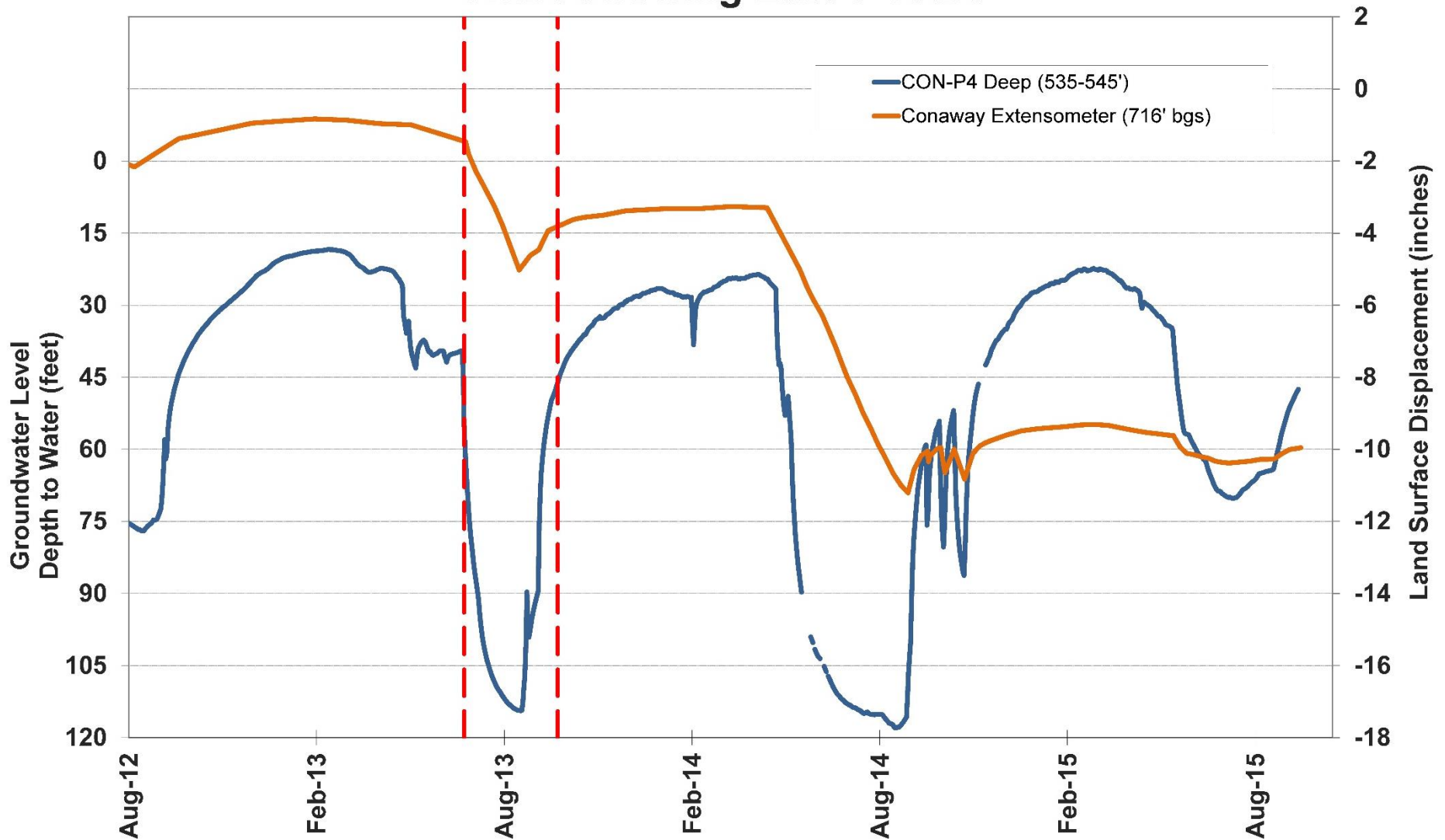
Extended Period of Record

Chart Showing Period of Record



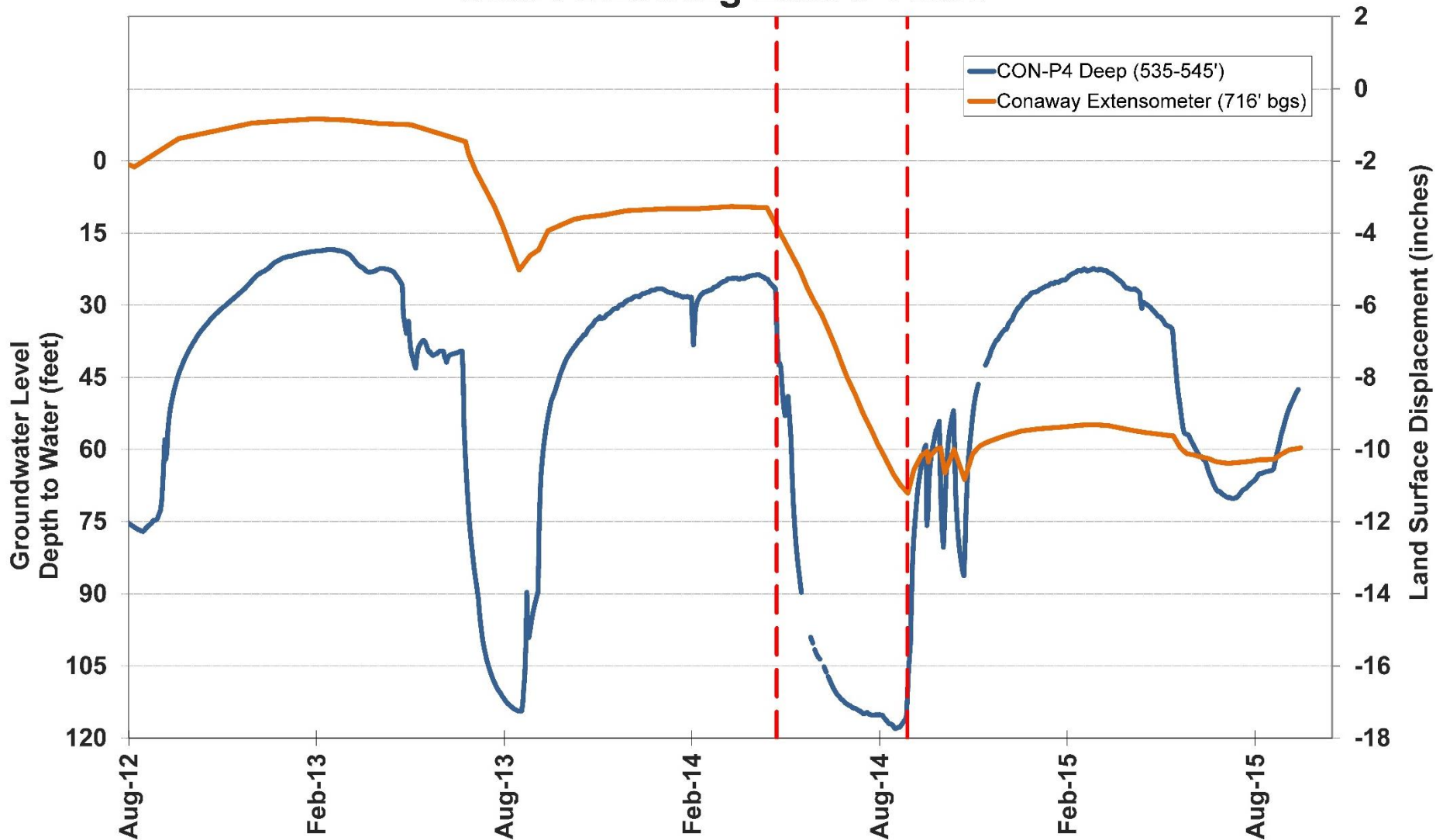
2013 Displacement

Chart Showing Last 3 Years



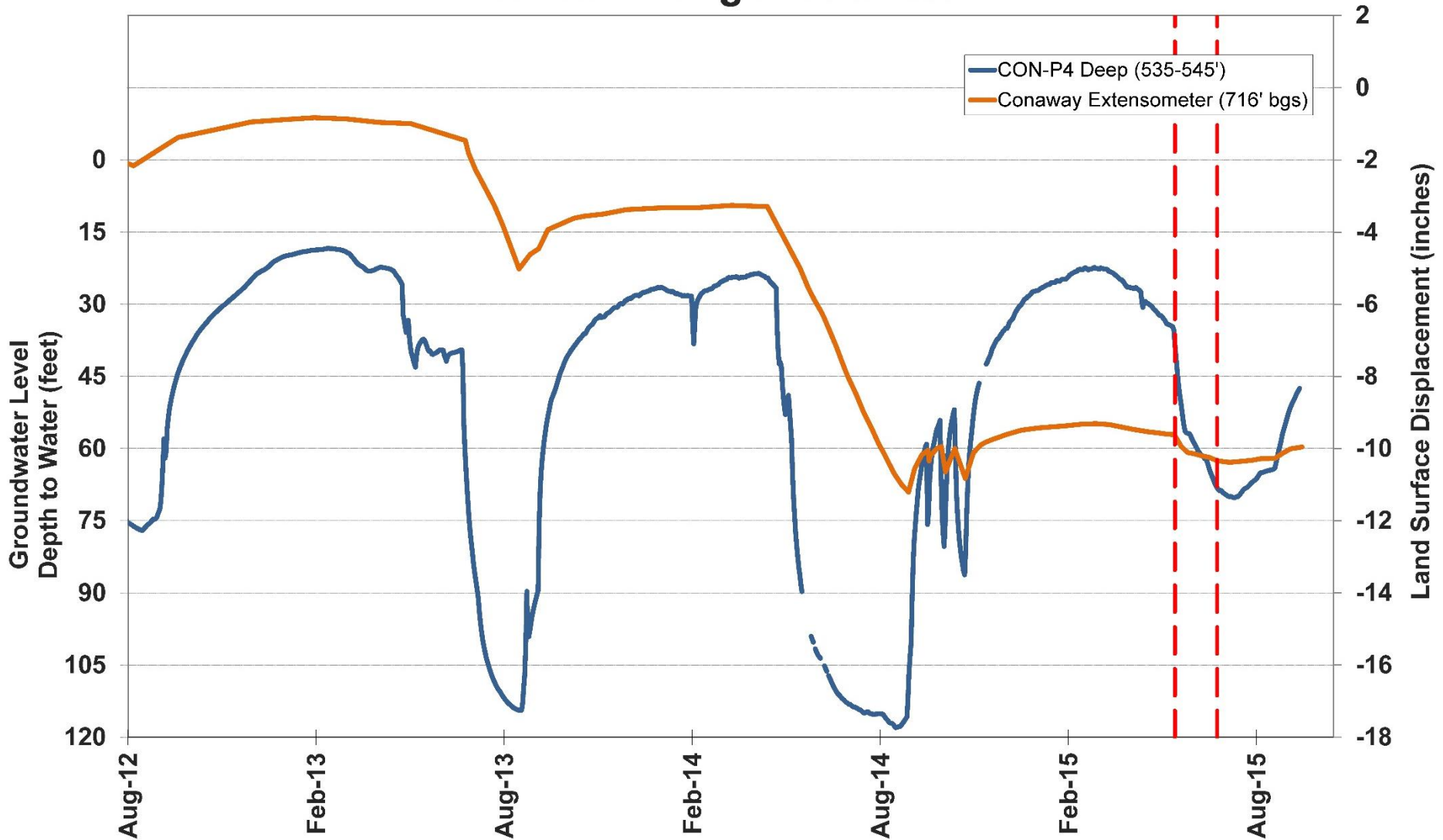
2014 Displacement

Chart Showing Last 3 Years



2015 Displacement

Chart Showing Last 3 Years



Subsidence follow up:

- DWR Response letter to Northern Sacramento Counties went out: December 4, 2015.
 - “DWR acknowledges the importance...”
 - “...at this time we are unable to commit additional funding...”
- NSV IRWM group requesting meeting with DWR Director

Sustainable Groundwater Management Act (SGMA)

Update:

- Basin boundary regulations completed
- Proposals for boundary changes:
January 1-March 31, 2016
- SBI 3 – GSAs; no overlap, complete applications, and cannot claim areas outside of the agency's jurisdiction
- GSP regulations – draft out Dec/Jan.
Finalized by June 1, 2016

Thank You



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