

Monitoring Surface Water and Groundwater Interactions in the Sacramento Valley

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Stream Depletion through the SGMA Lens:
Practical Solutions for a Complex Problem

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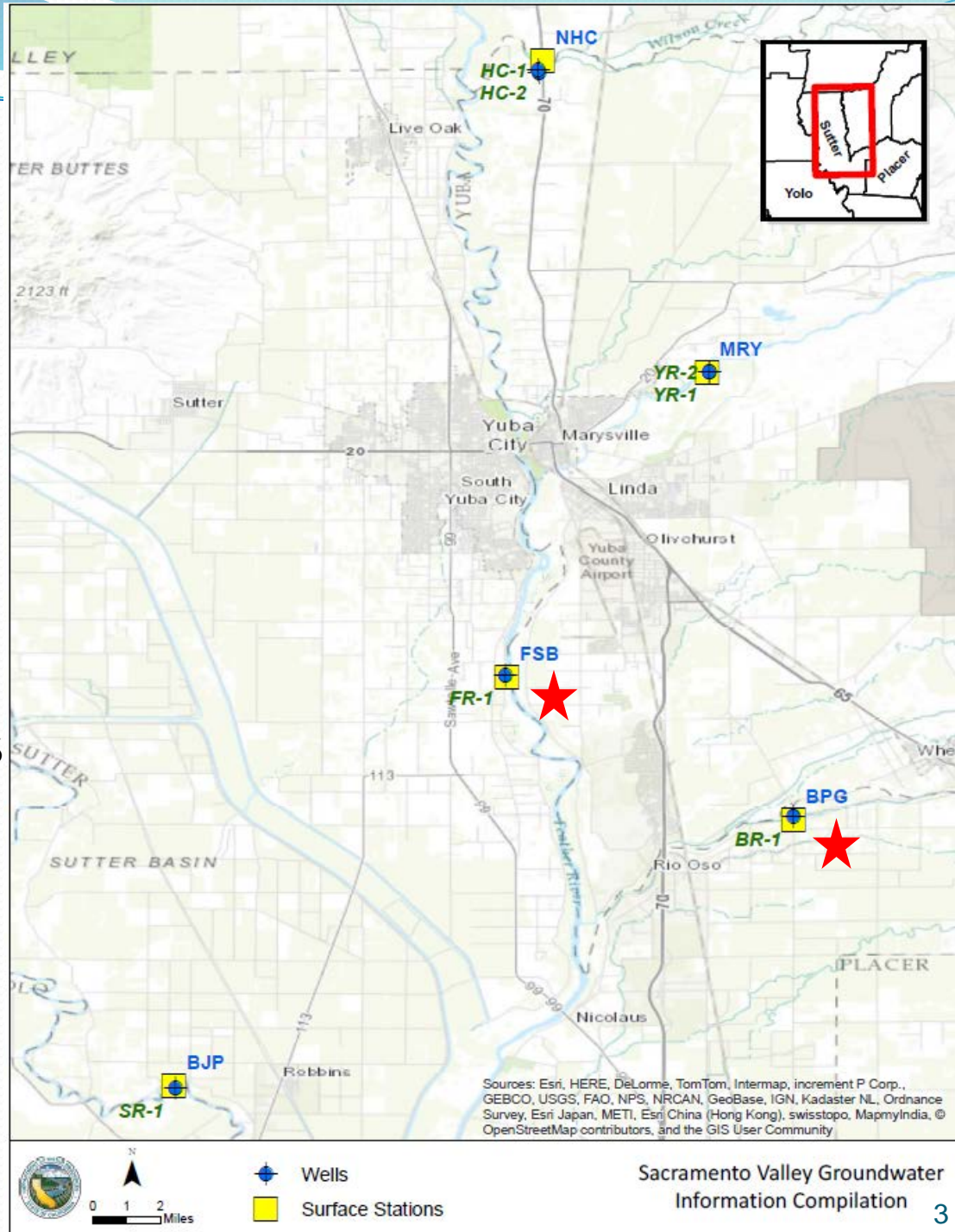


Presentation Outline

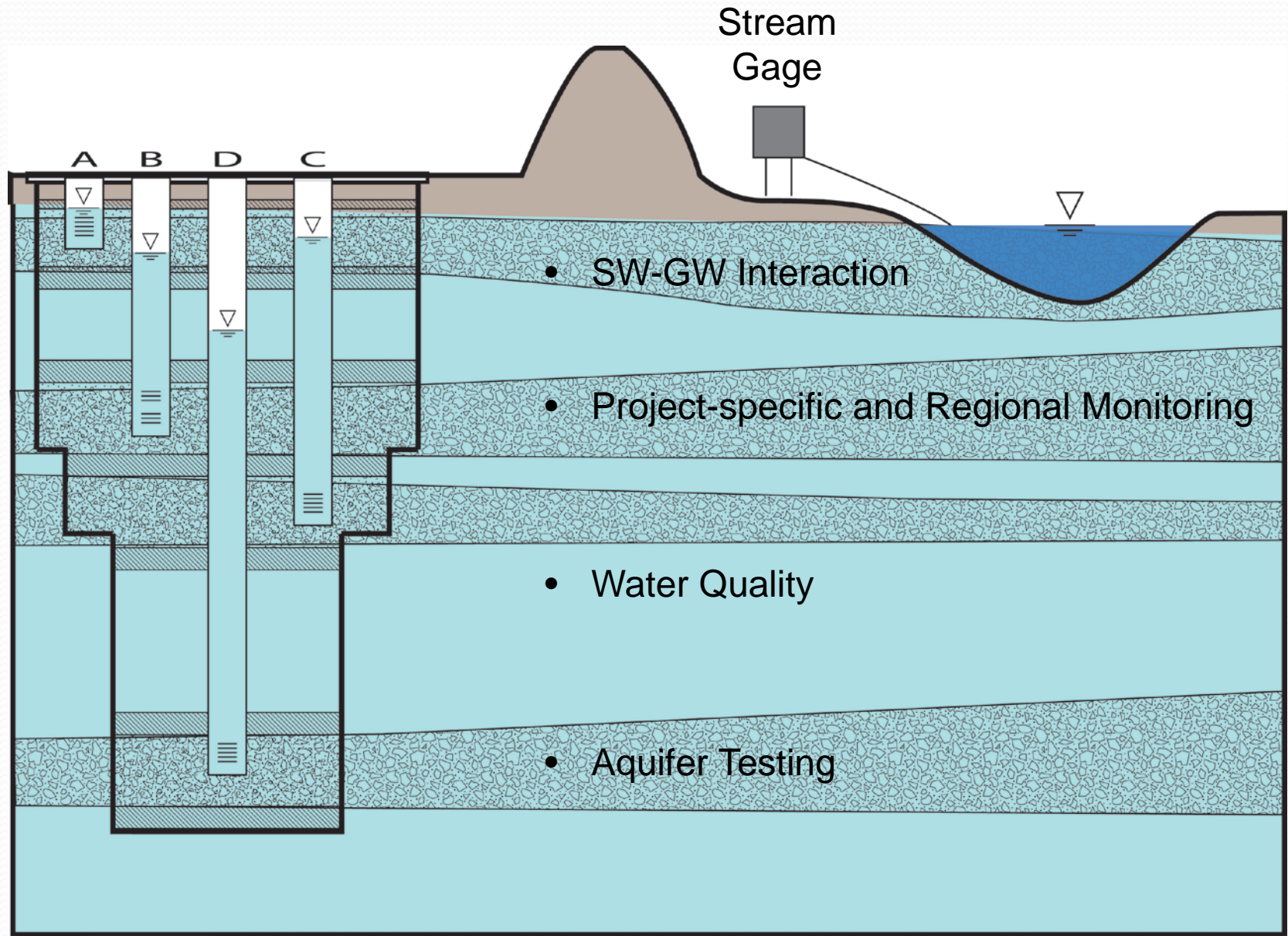
- Data Collection Sites and Chronology
- Example Hydrographs
- UC Davis Study
- Next Steps
- Data Sources

DWR Multi-purpose Monitoring Wells Near Stream Gages in Sac Valley

- Sutter County
 - Bear River Well (BR-1) 2003 ★
 - Feather River Well (FR-1) 2005 ★
- Yuba County
 - Yuba River Wells (YR-1, -2) 2004-06
 - Honcut Creek Wells (HC-1, -2) 2006-07
- Yolo County
 - Sacramento River Well (SR-1) 2005



Typical DWR Multi-purpose Monitoring Well near Stream Gage



Bear River Well (BR-1)

- 4-zone monitoring well

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

- CDEC River Gage BPG

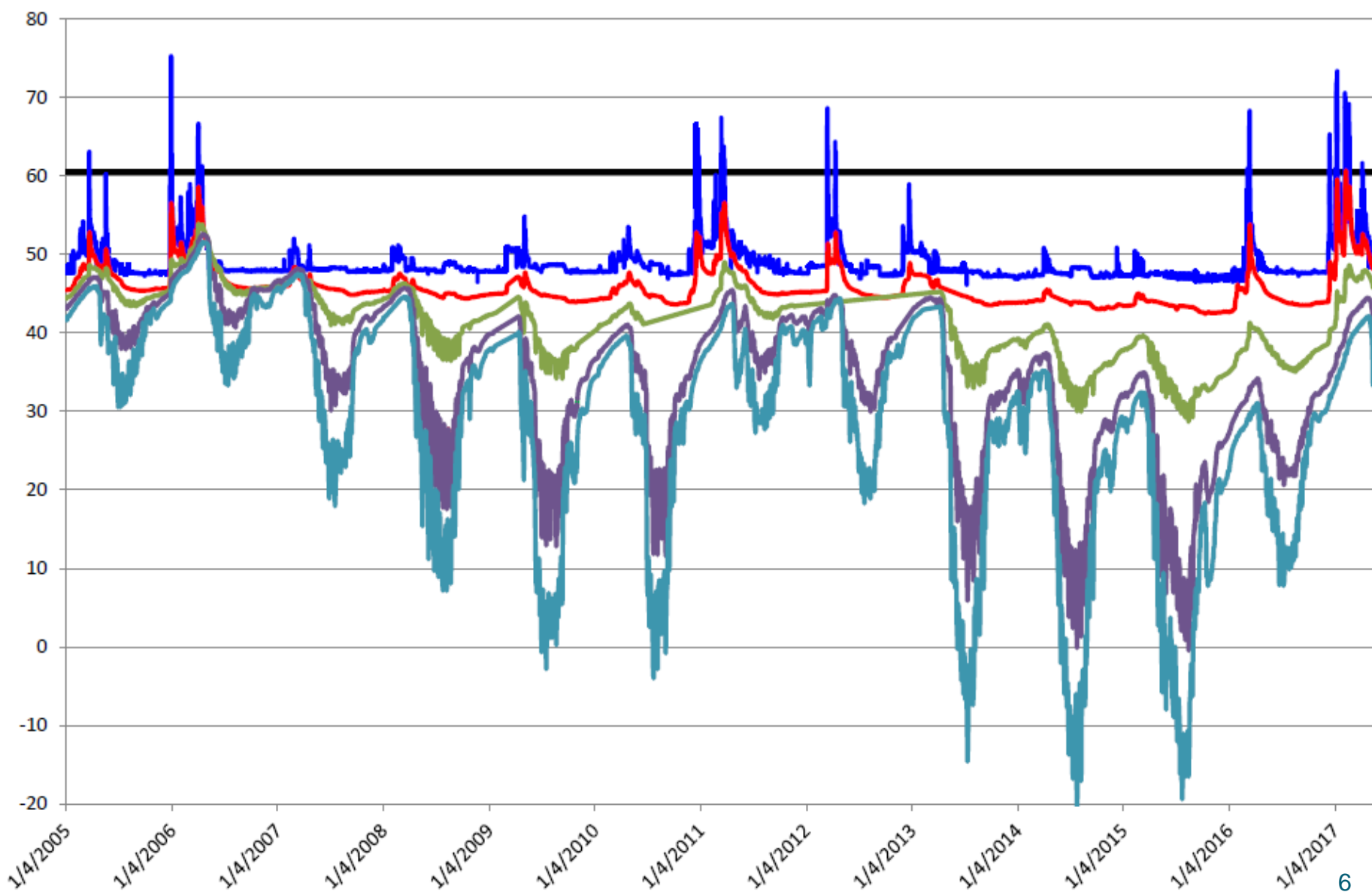
<http://cdec4gov.water.ca.gov/>



Bear River Well (BR-1) and Stream Gage BPG

1/04/2005 to 5/15/2017

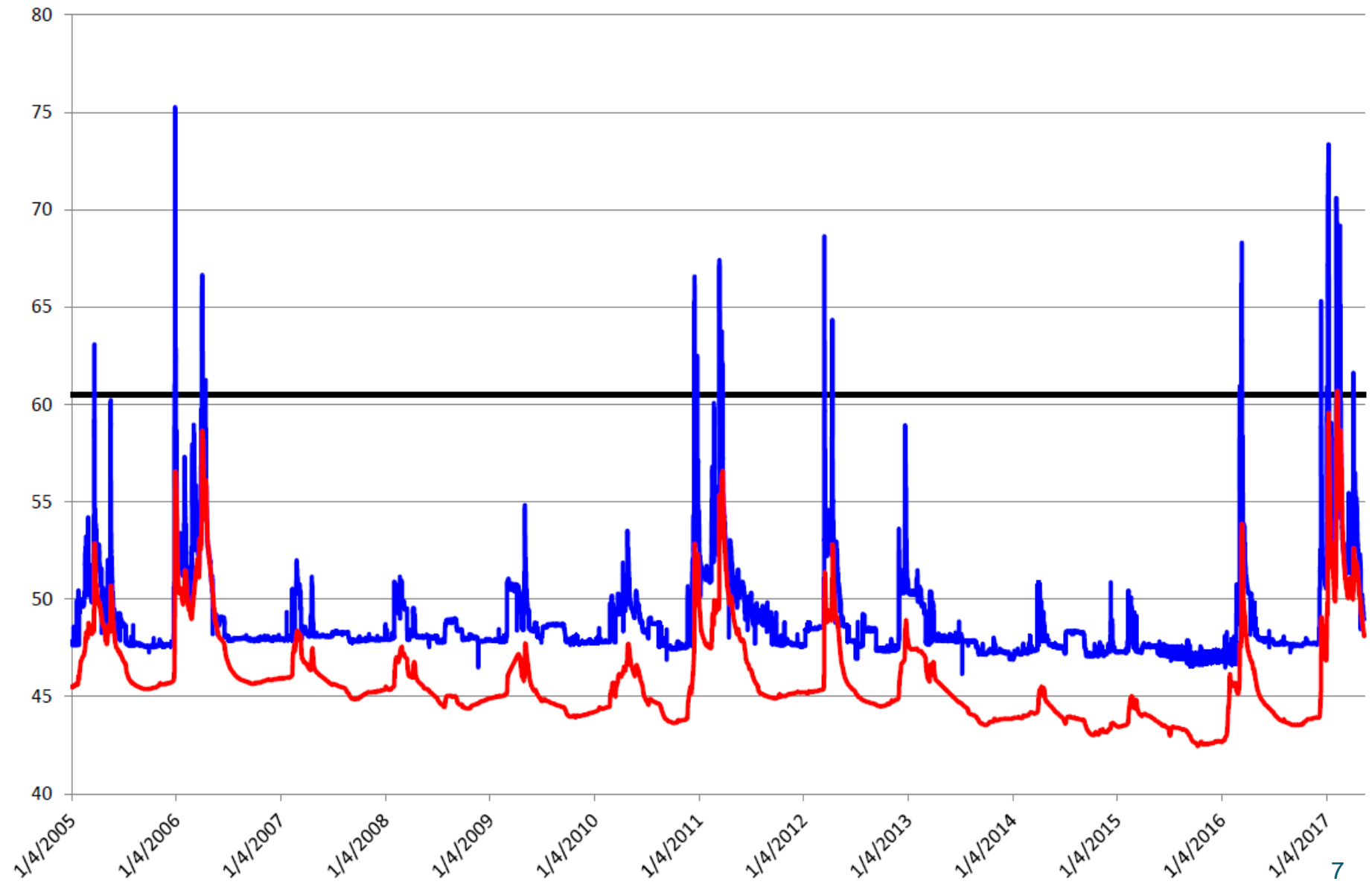
Ground Surface Elevation BPG Gage (Datum Adjusted) BR-1A BR-1B BR-1C BR-1D



Bear River Well (BR-1) and Stream Gage BPG

1/04/2005 to 5/15/2017

Ground Surface Elevation BPG Gage (Datum Adjusted) BR-1A



Feather River Well (FR-1)

- 3-zone monitoring well
- Single-zone monitoring well

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

- CDEC River Gage FBL/FSB

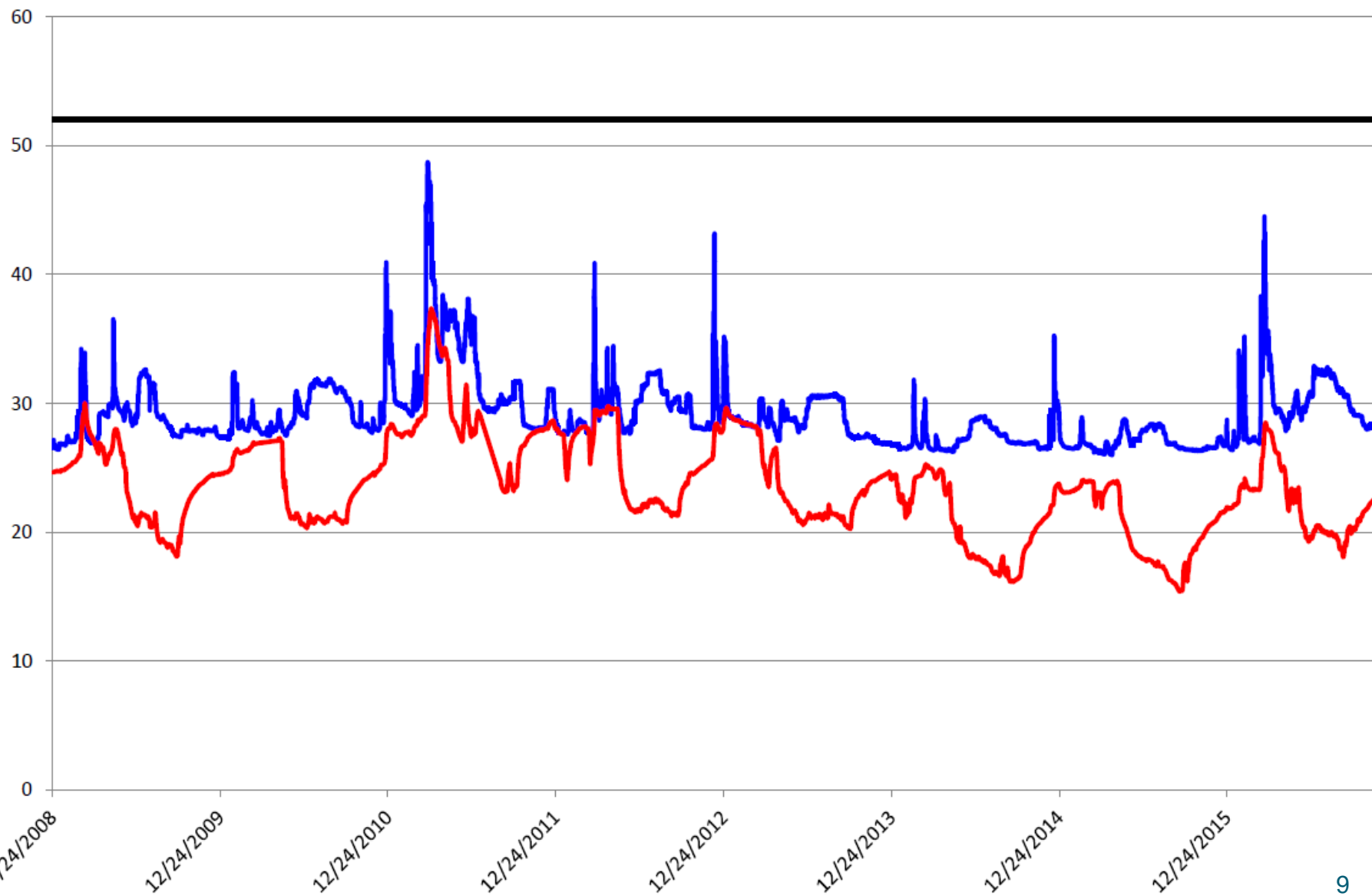
<http://cdec4gov.water.ca.gov/>



Feather River Well (FR-1) and Stream Gage FSB

12/24/2008 to 10/12/2016

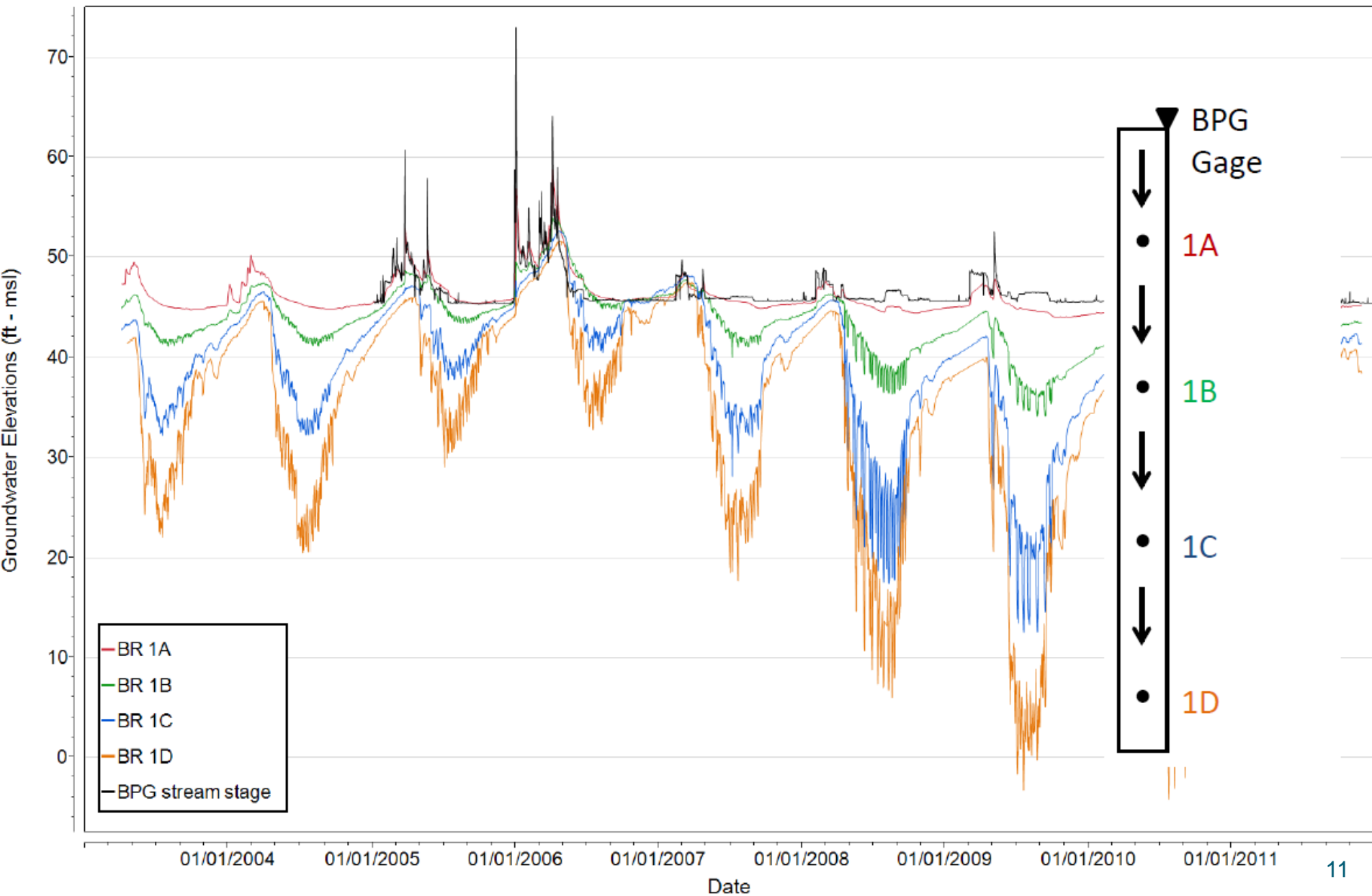
Ground Surface Elevation FSB Gage FR-1A



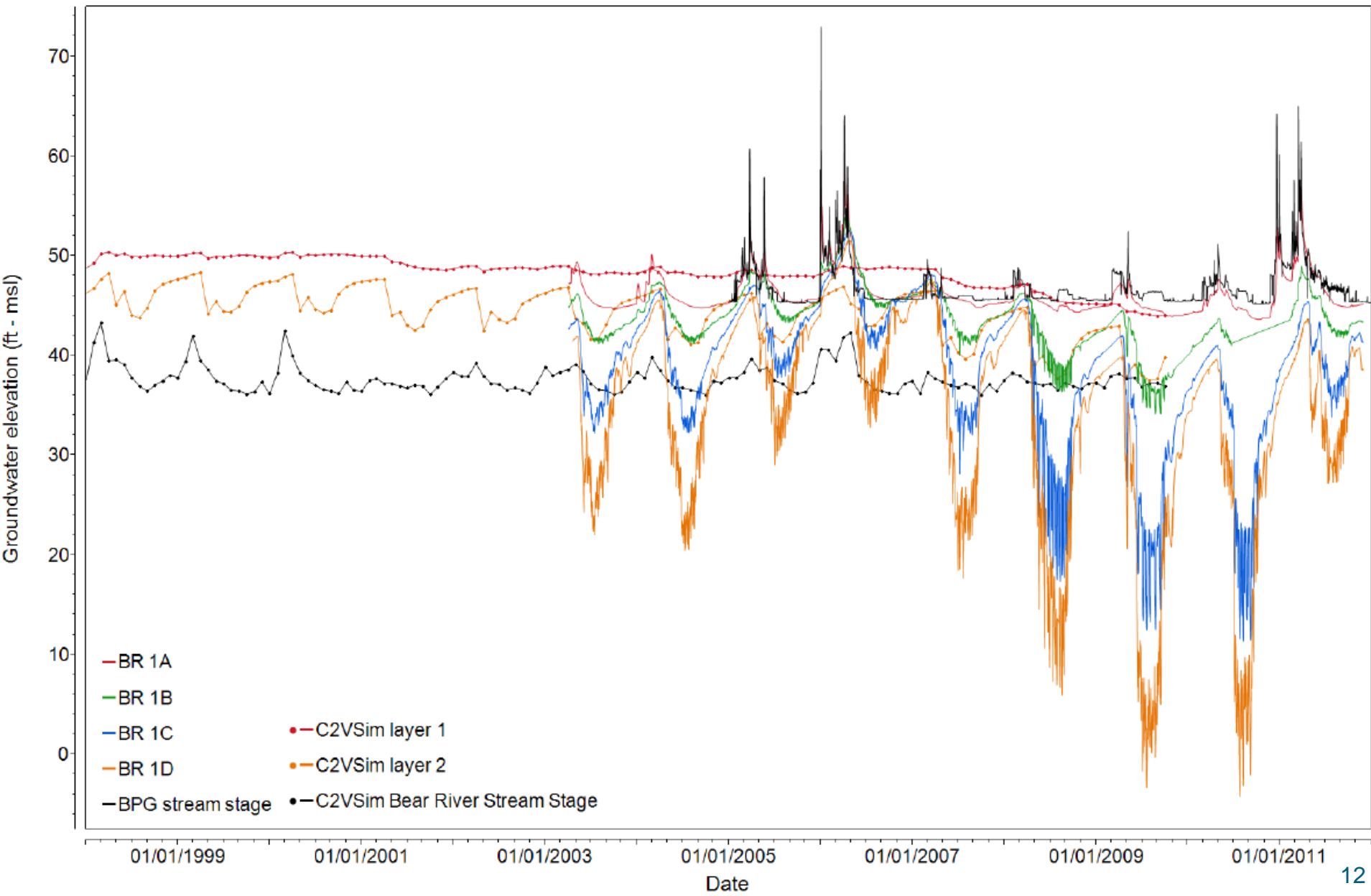
UC Davis Study 2009-2012

- Analyze data (2003-2011) from four stations in Sutter and Yuba Counties to better understand SW-GW interactions
- Use data to help review existing models in the area (SacFEM, CVHM, and C2VSim) and evaluate their performance
- Based on performance, identify a model suitable for further investigation

Vertical Hydraulic Gradients



Observed versus Simulated Levels



UC Davis Study High-Level Conclusions

- Monitoring data offer useful insights into gaining and losing conditions in local rivers and streams
 - Bear River and Feather River sites = mostly losing
 - Yuba River site = mostly gaining
- Data also offer useful insights into existing groundwater model performance concerning SW-GW interaction
- The C2VSim model was determined most suitable for further investigation of SW-GW interaction

Next Steps

- Currently using these data to support refinement and calibration of C2VSim and SVSim
- All data are available to GSAs and other interested parties for use in GSPs and water resource studies
- DWR plans to continue supporting data collection and dissemination from these sites in the future

Data Sources

- Surface Water - California Data Exchange Center (CDEC)
<http://cdec4gov.water.ca.gov/>
- Groundwater - DWRs Water Data Library (WDL)
<http://www.water.ca.gov/waterdatalibrary/>

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