

Frequently Asked Questions on Integrated Hydrologic Modeling and Water Budgets pertaining to the Sustainable Groundwater Management Act and Groundwater Sustainability Plan Regulations

DWR staff working on Sustainable Groundwater Management Act (SGMA) and the associated Groundwater Sustainability Plan (GSP) Regulations have addressed the following frequently asked questions (FAQs) which focus on the relationship between the responsibility of Groundwater Sustainability Agencies (GSAs) to prepare basinwide water budgets and the potential obligation to model groundwater conditions for their GSPs under SGMA.

Frequently asked technical questions regarding the DWR Models and Water Budget Pilot projects are addressed separately at the following location:

http://water.ca.gov/groundwater/sgm/pdfs/Technical_WaterBudgets_FAQ_20170921_Final.pdf.

1. What integrated hydrologic modeling tools are available from DWR?

GSP Regulations specify that DWR will make the California Central Valley Groundwater-Surface Water Simulation Model (C2VSim) and the Integrated Water Flow Model (IWFWM) available for use by Agencies (*see* 23 CCR §354.18(f)).

The latest version of IWFWM can be downloaded from DWR's web site at:

<http://baydeltaoffice.water.ca.gov/modeling/hydrology/IWFWM/index.cfm>

The coarse grid version of C2VSim can be downloaded from the following web site:

http://baydeltaoffice.water.ca.gov/modeling/hydrology/C2VSim/index_C2VSIM.cfm

A fine-grid version of the C2VSim model is expected to be available in early 2018. However, DWR has no immediate plans to develop other integrated hydrologic modeling tools.

2. Are numerical groundwater and surface water models required for GSP development?

A numerical groundwater and surface water model is not required for a GSP; however, the GSP is required to identify and describe an equally effective method, tool, or analytical model to evaluate projected water budget conditions (*see* 23 CCR § 354.18(e)).

For more information on the use of models for GSP development, refer to pages 6 through 9 of the Modeling Best Management Practices

(http://www.water.ca.gov/groundwater/sgm/pdfs/BMP_Modeling_Final_2016-12-23.pdf).

3. Are GSAs required to use a DWR model to develop their GSPs?

No. The Department is making the C2VSim and IWFWM models publicly available, and a GSA may elect to use them in development of their GSP, but each GSA is free to choose to use a different groundwater and surface water model (*see* 23 CCR § 354.18(f)).

4. Will DWR use C2VSim to check the water budget of GSAs in the Central Valley, submitted as part of their GSPs? What happens if a GSA's water budget doesn't agree with that of C2VSim?

The Department may independently evaluate the appropriateness of model results relied upon by the Agency, and use that evaluation in the Department's assessment of the Plan. (*see* 23 CCR § 352.4(g)) In the course of that independent evaluation, the Department may use information from any source, including C2VSim. A GSA is not required to utilize C2VSim,

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and the model used by the GSA is not required to agree with results from C2VSim. However, the Department's evaluation will seek to determine whether the GSP substantially complies with the requirements of the GSP Regulations (*see* 23 CCR § 352.4(b)).

During an independent evaluation, DWR will not use C2VSim or any other model as the standard against which the information contained in a GSP is evaluated. However, DWR may consider any and all available information in undertaking its independent evaluation.

5. Can C2VSim be used to generate a water budget for my GSA area?

Prior versions of C2VSim (i.e., those released prior to 2017) can generate *groundwater budgets* for any element, or group of elements, within the model domain. Future releases of C2VSim (including the version scheduled for release in early 2018) will be built using the IWFMM-2015 code, which has the capability to generate *comprehensive water budgets including groundwater budgets* for user-defined subareas of the model. Therefore, if a GSA area can be spatially defined by a group of C2VSim elements, a water budget for that GSA can be generated from C2VSim. If there are C2VSim elements that fall partially outside the GSA boundary, spatial proportioning can be used for those elements to account for any adjustments to the water budget generated by C2VSim.

6. Does DWR plan to develop a model specific to GSA boundaries?

No, DWR currently has no plans to develop models specific to GSA boundaries.

7. Can C2VSim be adapted by GSAs for their basin?

C2VSim is built on the IWFMM modeling platform with data from the Central Valley. The fine grid version (C2VSim-FG; planned for release in early 2018) may be used by GSAs within the Central Valley to develop a more site-specific model with detailed information on local conditions.

8. Are GSAs required to submit location specific information for groundwater pumping in the water budgets submitted in their GSP?

No. A water budget is required to provide an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin (*see* 23 CCR § 354.18). Neither SGMA nor the GSP Regulations require location-specific information for groundwater pumping as part of the water budget.

9. My GSA has developed our own model. Does DWR intend to compare the water budget from my GSA's model with DWR's water budget information?

There is no requirement for the water budget from GSA's model to match that of any particular model, including DWR's water budget information. However, DWR "may independently evaluate the appropriateness of model results" (*see* 23 CCR § 352.4(g)). (See FAQs #3 and 4, above)

10. Does my GSA's water budget need to consider the impacts to adjacent basins?

A GSA is not required to consider the impacts to adjacent basins in their water budget. However, the Department will evaluate whether a GSP adversely affects the ability of an

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adjacent basin to implement their GSP or impedes achievement of sustainability goals in that basin (see Water Code § 10733 and 23 CCR § 352.4(b)(7)). As a result, DWR recommends that GSAs prepare interbasin agreements, as applicable, to establish compatible sustainability goals and understanding of fundamental elements of GSPs of each GSA as they relate to sustainable groundwater management. Among other information, the GSP Regulations suggest an interbasin agreement include technical information such as the estimate of groundwater flow across basin boundaries, including consistent and coordinated data, methods, and assumptions. Local coordination and agreement on these flows, and potential other information, will make it easier for DWR to determine whether implementation of a GSP may have an adverse effect on adjacent basins. For details on interbasin agreements, see the GSP Regulations §357.2 (http://www.water.ca.gov/groundwater/sgm/pdfs/GSP_Emergency_Regulations.pdf).

11. Will DWR use information submitted by GSAs to improve DWR's water budgets and C2VSim?

DWR may use any available, credible data that the Department believes will refine C2VSim and water budgets. Once information submitted by a GSA has been verified, the Department will consider incorporating it in C2VSim.