Chapter 10 Model Calibration

SacWAM was calibrated in a multi-step process that covered the upper watersheds, the Sacramento Valley floor and CVP/SWP project operations. The first step was to calibrate the rainfall runoff processes in the catchments located upstream from the valley rim reservoirs as these calculations are independent of all other processes in the model. This involved tuning the Soil Moisture method hydrological parameters in the catchments until simulated and observed historical flows matched within an acceptable degree of tolerance. This process is described in Appendix A. The next step was to focus on processes occurring on the Sacramento Valley floor. Here, the initial focus was on surface water diversions as they are largely a function of evapotranspiration and irrigation management parameters. Simulated evapotranspiration values were compared to values from DWR's CUP model. Simulated diversions were compared to historical observations and adjustments to irrigation management parameters were made as needed. Following that, an iterative process was employed in calibrating the rainfall runoff processes and the stream-aquifer interactions to historical stream flow observations and simulated stream-aquifer interaction flows from the C2VSim groundwater model. These processes were calibrated in an iterative fashion due to the interactions between rainfall runoff processes and stream-aquifer interactions. Finally, operations logic in the Other Assumptions and User Defined LP Constraints were refined so that CVP and SWP operations closely matched the CalSim II model. The valley floor calibration is described in Appendix B.

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