IWFM / IDC Users Group Meeting

November 9, 2011

A Brief History of IWFM and IDC

- IDC (IWFM Demand Calculator) is the stand-alone root zone component of IWFM; it was originally developed to facilitate easy information transfer from C2VSim to CalSim 3.0
- During CalSim 3.0 project, additional necessary features for the original IDC were identified and a new version, IDC v4.0, was developed to implement these features
- Currently, IDC v4.0 is being linked to IWFM to develop IWFM v4.0
- Since its original development, IDC took a path of its own; so far it has been used by other groups to develop recharge and water demand data sets for other groundwater models using Modflow, MicroFEM as well as by itslef to analyze water demands

Update on IWFM and IDC Activities

- Activities related to engine development
  - Continuing work with UC Davis to increase the run-time efficiency of IWFM (efficient matrix solver, parallel processing, efficient I/O)
  - Paper on IWFM's efficient matrix solver developed by UC Davis is published in November-December 2011 issue of the journal Ground Water
  - Paper on IDC v4.0 is published in the June 2011 issue of the Journal of Irrigation and Drainage Engineering
  - Root zone component of IWFM was compared to Modflow's Farm Process using a hypothetical example; two reports are ready to be publicly available
  - IWFM GUI is being enhanced

Update on IWFM and IDC Activities

- Activities related to engine development *(continued)*
  - IWFM v4.0 that includes IDC v4.0 as the root zone component is completed; tests are under way using application to Yolo County
  - New features are added to IDC v4.0:
    - Simulation varying rooting depth for non-ponded crops
    - Alternative to use moisture content at the end of time step in computing irrigation demand; useful when simulating with large time steps such as a month
    - Implementation of a “generic” source of moisture other than precipitation and irrigation (e.g. seepage through levees in the Sacramento-San Joaquin Delta, effect of fog in meeting ET demand, capillary rise of groundwater table)

Update on IWFM and IDC Activities

- Activities related to IWFM and IDC applications
  - We are close to finalizing the calibration of C2VSim and releasing it the public
  - WRIME developed a fine-grid (32000+ elements) C2VSim that is currently being tested
  - Improvements to linkage of C2VSim to CalSim 3.0; IWFM groundwater module in CalSim 3.0 is now running in an iterative scheme
  - Collaborated with Davids Engineering in their independent testing of IDC v4.0
  - Other applications by other groups (e.g. IDC used by Davids Engineering, MBK Engineers, UC Davis; IWFM used by Oregon State University and USBR)