

CWEMF
Integrated Water Flow Model (IWFM) v4.0 Workshop Schedule
January 7–8, 2014
Lead Instructor: Dr. Emin Can Dogrul (DWR)
Location: West Yost Associates, Davis, CA

January 7, 2014

- ***Introductions*** 9:00 – 9:05 am
- ***Introduction to IWFM*** 9:05 – 9:20 am
Historical background and general features of IWFM
- ***Session 1: Groundwater flow*** 9:20 – 9:40 am
 - Groundwater flow conservation equation
 - Vertical flow terms
 - Boundary conditions
 - Node numbering convention
 - Parametric grid approach to defining aquifer parameters
 - Solution procedure
- Demonstration of workshop software tools:*** 9:40 – 10:00 am
 - Textpad
 - IWFM Tools for Excel add-in
- Break*** 10:00 – 10:15 am
- Example 1:*** 10:15 – 11:15 am
 - Groundwater flow with specified head and no-flow boundary conditions
 - Introduction of time-tracking simulations
 - Discussion of required data files and input variables
 - Generating and analysis of groundwater budget tables

- ***Session 2: Stream flow, stream-groundwater interaction, lakes, lake-groundwater interaction*** 11:15 – 11:45 am
 - Mathematical model for stream flow and stream-groundwater interaction
 - Construction of stream networks
 - Bypasses
 - Mathematical model for lake storage and lake-groundwater interaction
 - Simultaneous solution of groundwater, stream and lake conservation equations

LUNCH

11:45 am – 1:00 pm

Example 2:

1:00 – 1:45 pm

- Stream flow and stream-groundwater interaction
- Lake and lake-groundwater interaction
- Bypasses to simulate artificial aquifer recharge
- Specifying time-series input data
- Generating stream and lake budget tables
- Discussion of results

- ***Session 3: Tile drains, subsidence and pumping/recharge*** 1:45 – 2:05 pm
 - Modeling of tile drains
 - Modeling of elastic and inelastic subsidence
 - Description of pumping/recharge by well and by element
 - Discussion of how pumping at drying wells/elements is computed

Break

2:05 – 2:15 pm

Example 3:

2:15 – 3:00 pm

- Tile drains
- Subsidence
- Pumping and recharge by wells and elements
- Discussion of results

- *Session 4: Routing of water through land surface, root zone and unsaturated zone* 3:00 – 3:40 pm

- Types of land-use categories simulated
- Simulation of rainfall runoff
- Flow terms simulated in the root zone
- Soil moisture routing in the root zone
- Soil moisture routing in the unsaturated zone

Example 4:

3:40 – 4:30 pm

- Defining precipitation and evapotranspiration
- Defining areas of different land-use types
- Rainfall runoff
- Routing moisture through root zone and unsaturated zone
- Generating root zone as well as land and water use budgets
- Discussion of results

January 8, 2014

- ***Session 5: Simulation of agricultural and urban water demands*** 9:00 – 9:30 am

- Urban water demand
- Water demand for non-ponded crops using moisture at the beginning or the end of the time step
- Water demand for ponded crops
- Tracking the source of moisture

Example 5: 9:30 – 10:30 am

- Simulation of agricultural and urban water demands
- Discussion of required data files and input variables
- Generation of land and water use budget table
- Discussion of results

Break 10:30 – 10:45 am

- ***Session 6: Stream diversions and groundwater pumping as water supply*** 10:45 – 10:55 am

Example 6: 10:55 – 11:45 am

- Specifying diversions and pumping to meet agricultural and urban water demand
- Specifying recoverable and non-recoverable losses
- Generation of budget tables
- Discussion of results

LUNCH 11:45 am – 1:00 pm

- ***Session 7: Automated supply adjustment*** 1:00 – 1:15 pm

Example 7: 1:15 – 2:00 pm

- Defining supply adjustment specifications and maximum diversion rates
- Generation of budget tables
- Discussion of results

- *Session 8: Small watersheds and multiple aquifer layers* 2:00 – 2:15 pm

- Break* 2:15 – 2:30 pm

- Example 8:* 2:30 – 3:30 pm
 - Specifying parameters and initial conditions for small watersheds
 - Specifying parameters, initial and boundary conditions for multiple aquifer layers
 - Generation of budget tables
 - Discussion of results

- *Conclusions and upcoming developments for IWFM* 3:30 – 4:00 pm

- *Open discussion* 4:00 – 4:30 pm