

Release Notes for IWFEM Version 2015.0.397

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This version of IWFEM includes the following modifications and corrections:

1. **(07/13/2015)** When calculating the contribution of groundwater horizontal flows to the global solution matrix, the temporary array was not properly initialized to zero. This sometimes caused a convergence error when several nodes are inactive or active nodes are dry. This error is corrected.
2. **(07/14/2015)** In calculating the derivative of the horizontal flow component of the groundwater equations with respect to the groundwater heads, the gradient of transmissivity is no longer considered. This change is made to make sure that the resulting matrix is symmetric when there are some dry nodes in the groundwater part and the solution is robust.
3. **(07/17/2015)** The simulation of root water uptake from groundwater is modified. Groundwater is now the first source of water to meet the potential ET. The concept of “cessation depth” is abandoned. Instead, capillary rise above the groundwater table is considered. It is now assumed that soil moisture content is at total porosity at groundwater table and decreases linearly to zero at a height above the groundwater table that is equal to the capillary rise. In the new approach, the maximum potential ET from groundwater is calculated based on the intersection of the capillary rise and the saturated groundwater with the root zone. This new approach produces water demand results that are consistent with water supply computations.

4. **(08/19/2015)** The gradient of the constraint general head boundary conditions for groundwater component were not computed correctly when the general head and the groundwater were hydraulically disconnected. This is corrected.
5. **(08/19/2015)** When a groundwater hydrograph location specified by the user was an inactive layer, the code gave a fatal error and stopped. This behavior is modified so that a warning is now issued and the program continues to run.
6. **(09/18/2015)** Input from and output to HDF5 files are implemented. Budget files are now required to be HDF5 files instead of Fortran binary files.