Wood River Valley
Model Construction Update

Jason C. Fisher
These slides were presented at the Wood River Valley Modeling Technical Advisory Committee meeting Thursday, 8/12/2014, 10am-3pm at the Community Campus, Black Box Room, in Hailey. Taken outside the context of the original presentation, these slides may not provide a complete or accurate representation of the speaker’s intent.
Vertical Overlap Between Adjacent Model Cells
Use of Connected Linear Network (CLN) and Well (WEL) Packages for Pumping
Pump located in CLN

\[ Q = C (h_{GWF_1} - b_1) \]

Layer 1

Layer 2

Layer 3

Pump located in CLN₂
Failure to Converge
Failure to Converge

3+ hours
The Well (WEL) Package is Now Used to Simulate Pumping
The Well (WEL) Package is Now Used to Simulate Pumping

Assumption: pumped groundwater from a well is simulated as discharge from the lowest model cell in contact with the wells open interval.
Steady-State Conditions with All Aquifer Components
Raw data files

- Alluvium bottom elevation
- Land surface elevation
- Basalt extent
- Aquitard extent
- Groundwater flows in the tributary canyons
- Groundwater drains at Silver Creek and Stanton Crossing
- Surface water in reaches of Silver Creek and Big Wood River
- Evapotranspiration, diversions, canal seepage, well pumping, irrigated lands, etc.

Package vignette that creates package datasets from raw data files

Package vignette that pre- and post-processes the groundwater flow model

1. Build model grid
2. Specify as volumetric flux boundary condition
3. Specify as head-dependent flux boundary condition
4. Specify as flux boundary condition
5. Build MODFLOW input files

- R raster layers

- .tif
- .adf
- .shp
- .kml
- .csv
- .tif
- .shp
- .csv
- .tif
- .shp
- .csv

- Build and run Windows batch file
- .bat

- Run MODFLOW model

- Read MODFLOW output files and write results
- .lst
- .hds
- .bud
Package ‘wrv’

August 11, 2014

Version 0.1-5
Date 2014-07-28
Title Wood River Valley Groundwater Flow Model
Author Jason C. Fisher
Maintainer Jason C. Fisher <jfisher@usgs.gov>
Depends R (>= 3.1.0), sp, rgdal, rgeos, raster
Imports igraph
Suggests RCurl, knitr, xtable, png
SystemRequirements MODFLOW-USG (>= 1.2)

Description Pre- and post-processing program for the groundwater flow model of the Wood River Valley aquifer system, south-central Idaho.

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URL https://github.com/jfisher-usgs/wrv

BugReports https://github.com/jfisher-usgs/wrv/issues

ByteCompile yes
LazyCompile yes

VignetteBuilder knitr

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