Instructions to download and run models used in the article:

*A Hydrologic Landscapes Perspective on Groundwater Connectivity of Depressional Wetlands*

11/27/2019

A two-dimensional, groundwater flow model (VS2DI) was developed to examine groundwater flow in domains intended to replicate those presented in Winter [1]. Additional models were created to examine groundwater flow in these same domains with hypothetical wetlands inserted into the domains. Users are encouraged to review the accompanying article (Neff et al., 20xx) to understand the purpose, construction, and limitations of this model.

We used VS2DI v1.3 in our simulations. This program has a graphical user interface (GUI), is available free of charge, and can be downloaded as a ~38 mb file from <https://www.usgs.gov/software/vs2di-version-13>. Newer versions of VS2DI should also work to run the models, including VS2DRTI which includes the ability to simulate reactive solute transport. The VS2Dx programs are supported by USGS and detailed user manuals are available.

All input and output files associated with these models are available from the U.S. Environmental Protection Agency (EPA) at <https://doi.org/10.23719/1504529>. These files are replicated here to provide a single record of the modeling, complete with instructions to replicate our modeling results.

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System requirements

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The models contained in this data release were run using

64-bit Windows 7 (Service Pack 1) with VS2DI (v 1.3)

installed, provided in the bin directory as described

below. Other operating systems and versions of VS2DI may

be acceptable.

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Working with zip files

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All zip files should be unzipped into a directory with the

same name as the zip file name without the .zip extension.

Files in this supplement must be unzipped using the 7-zip

software, available free of charge at

<https://www.7-zip.org/>.

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Running the model

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The model(s) must be run from within the VS2DI software,

The models will not run by attempting to open them through

Windows Explorer, they must be opened through the

VS2DI program.

1) Download and install the VS2DI (v 1.3) software from

<https://www.usgs.gov/software/vs2di-version-13>.

This file is approximately 38 mb and is named

vs2di\_1\_3\_setup.exe

2) Install VS2DI (v 1.3) on your machine by double

clicking the vs2di\_1\_3\_setup.exe file and

following the prompts in the installer.

3) Locate the VS2DI software or a shortcut to open

the VS2DI software on your computer. You may

see links installed to open VS2DTI, VS2DHI,

ReadMe, Postprocessor, and Uninstall.

Open VS2DTI.

4) When you open the VS2DI software, the VS2DI

preprocessor GUI opens automatically.

5) Open a model of your choosing by selecting

file->open->navigate to and select desired

model file->open

See ‘Working with Zip Files,’ above if

necessary.

Note: When you open the file in VS2DI,

you will be presented with error messages

about the site map not being loaded.

This is a JPG of the domain used to

create the model. These images are

available in Winter [1], but are not included here.

Ignore this and continue

6) All aspects of the model setup can be viewed in

the pre-processor. See the VS2DI (v 1.3)

documentation for details, URL provided

below.

7) Run the model:

- select show->postprocessor

[this will open the post processor in a new

window and the model domain may appear in the

GUI]

- click on the 'play' button at the top-left of

the postprocessor window to run the model.

NOTE: When the model runs, it writes output files

to the directory where the model file is located.

If output files are already present the program will

overwrite these files when running the new simulation.

You may want to first relocate the model file to

a new, empty directory, and then run the model.

8) Model results may be viewed in the postprocessor GUI

or by viewing the output files generated by the

model. These will be located in the same directory

where the model file is located. Description of

these files is provided below. As long as the

model parameters are not changed, output files

should also be identical to the files provided in

this supplement.

Additional information on using the VS2DI (v 1.3) program

can be accessed at:

https://wwwbrr.cr.usgs.gov/projects/GW\_Unsat/vs2di1.3/index.html.

It is strongly recommended users familiarize themselves

with using the VS2DI (v 1.3) program before attempting to

work with the model files provided in this data release.

References

1. Winter, T.C. The Concept of Hydrologic Landscapes. *J Am Water Resour Assoc* **2001**, *37*, 335-349.