

# Release Notes for SutraPrep Version 3D.1

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## Summary of release

These Release Notes describe *Version 3D.1* of the U.S. Geological Survey (USGS) **SutraPrep** code (Provost, 2002), a text-based pre-processor for the USGS ground-water flow and transport model **SUTRA** *Version 2D3D.1* (Voss and Provost, 2002). **SutraPrep** aids in the preparation of input datasets for three-dimensional (3D) **SUTRA** simulations and includes a 3D, logically rectangular mesh generator. It is best suited to problems with relatively simple geometry and boundary conditions. For problems of significant complexity, a more sophisticated pre-processor such as **SutraGUI** (Winston and Voss, 2003) may be more appropriate.

At present, information on **SutraPrep** *Version 3D.1* includes these Release Notes and the **SutraPrep** documentation (Provost, 2002), which may be downloaded from a US Geological Survey web site (<http://water.usgs.gov/nrp/gwsoftware/sutra.html>).

The distribution package for **SutraPrep** *Version 3D.1* contains Fortran-90 source code and a Windows™ executable; this informational file; detailed documentation (Provost, 2002); and an example problem that is described in the documentation.

In this release, **SutraPrep** is distributed as an executable code (compiled with Digital® Fortran Version 6.0.A) that runs under Microsoft Windows® XP, 2000, NT, or 95/98 operating systems. The source code can be recompiled and run on any platform that has a standard Fortran-90 compiler.

## Software Release Notice

**SutraPrep** is public-domain software and is released to you cost-free by USGS for any purposes you choose. This is a general public release.

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**The user assumes all risk for any damages whatsoever resulting from loss of use, data, or profits arising in connection with the access, use, quality, or performance of this software.**

*USGS much appreciates your support in reporting any problems that may occur so that the codes can be improved.*

## General Instructions

Except where stated otherwise, the following instructions assume that **SutraPrep** has been installed into the default directory recommended during the installation process, c:\SutraSuite\SutraPrep\_3D\_1. If a directory other than the default directory was selected, \SutraSuite will not be located directly under c:\, but the directory structure below \SutraSuite will remain as described below.

Instructions that involve mouse clicks refer to clicking on file names or icons displayed under the Windows Explorer file manager. For example, to "double-click on *file.txt*", use Windows Explorer to display the contents of the directory (folder) that contains the file *file.txt*, then click twice (in rapid succession) on the file name *file.txt* or its corresponding icon using the left mouse button. To "right-click", click once using the right mouse button.

## Installation

After the **SutraPrep** code (*Version 3D.1*) is unzipped, the associated files will be in a new directory, c:\SutraSuite\SutraPrep\_3D\_1. This directory contains four subdirectories: \source, which contains the Fortran source files; \examples, which contains example datasets; \documentation, which contains this *ReleaseNotes* file; and \bin, which contains the **SutraPrep** executable file, *sutraprep\_3D\_1.exe*, and a shortcut to this executable file.

## Running SutraPrep

To run **SutraPrep**, create a *Windows shortcut* to the file *sutraprep\_3D\_1.exe* (found in the c:\SutraSuite\SutraPrep\_3D\_1\bin directory) in the desired working directory and double-click on the shortcut.. A window will appear indicating that the **SutraPrep** code is running. At the prompt, enter the name of the **SutraPrep** *.prp* input file you would like to use for the current run.

## Documentation

These Release Notes and the **SutraPrep** manual (Provost, 2002) are the primary documentation of the code. The **SutraPrep** manual is distributed with this release and is also available, free of charge, in electronic (*pdf*) format from the USGS website <http://water.usgs.gov/nrp/gwsoftware/sutra.html>.

## Example problem

An example problem (*coastal*) that corresponds to the example described in detail in the documentation (Provost, 2002) is provided in the directory SutraSuite\SutraPrep\_3D\_1\examples. All input and output files for the problem are included there. It is recommended that the utility and input files be copied to a new working directory for testing runs so that the user's new **SutraPrep** output does not overwrite the existing output files that were downloaded.

To run the example, run **SutraPrep** and enter *coastal.prp* at the prompt. SutraPrep will create the following files:

<i>coastal.inp</i>	<b>SUTRA</b> main input file
<i>coastal.ics</i>	<b>SUTRA</b> initial conditions file
<i>coastal.wrl</i>	VRML plot of the blocks used to define the finite-element mesh
<i>coastal.prl</i>	A log of the <b>SutraPrep</b> run

Please note the following:

- The file *coastal.inp* will include "placeholders" for input parameters not known or computed by **SutraPrep**. These parameters must be entered manually by the user before the file can be used in a **SUTRA** run. (This example was not intended to serve as a complete **SUTRA** example problem. Rather, it was designed to illustrate the procedure for setting up a **SUTRA** problem using **SutraPrep**.)
- The VRML plot of the mesh blocks, *coastal.wrl*, can be viewed using any software that is compatible with VRML 2.0. A number of such viewers are available on the Internet, and several can be obtained free of charge.

## References

Provost, A.M., 2002, **SutraPrep**, a pre-processor for SUTRA, a model for ground-water flow with solute or energy transport: U.S. Geological Survey Open-File Report 02-376, 43 p.  
<http://water.usgs.gov/nrp/gwsoftware/sutra.html>

Voss, C. I., and Provost, A.M., 2002, **SUTRA**, A model for saturated-unsaturated variable-density ground-water flow with solute or energy transport, U.S. Geological Survey Water-Resources Investigations Report 02-4231, 250 p.  
<http://water.usgs.gov/nrp/gwsoftware/sutra.html>

Winston, R.B. and Voss, C.I., 2003, **SutraGUI**, a graphical-user interface for SUTRA, a model for ground-water flow with solute or energy transport: U.S. Geological Survey Open-File Report 03-285, 114 p.  
<http://water.usgs.gov/nrp/gwsoftware/sutra.html>