

# vsoil-player user manual

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## Introduction

The “vsoil-player” application is part of the “Vsoil” software platform. It is a computer tool dedicated to the visualisation of the results produced by the modules and models built in the “vsoil-modules” and “vsoil-models” applications. The “vsoil-player” application allows you to compile and run a model, to view the results of a simulation of a module or of a model, or to compare the results from several simulations. This manual presents to you the functionalities of this application in detail.

The scientific data present in this manual (variables, modules, models) may no longer correspond to the data contained in your “vsoil-player” software. The screenshots were taken on a version of the software at one time and may not have been updated.

# 1 Home screen

The operations of compiling and running a model, and of viewing and comparing results from model simulations are accessible after launching the “vsoil-player” application (see figure 1).



Figure 1: Home screen: access to the main functions of the “vsoil-player” application

When launching the application you have the choice to:

1. View a model previously executed.
2. Compare the results of several simulations.
3. Run an already built model.
4. Import processes, modules or models.
5. Export processes, modules or models.
6. Archive data.
7. Restore archived data.

8. Access user manuals.
9. Quit the application.

Import, export, restore and archive operations, unlike others, do not lead to the working environment (presented in section 2): once these operations are completed, you return to the home screen (see figure 1).

## 2 Workspace presentation

After having selected one of the functions of the home screen, with the exception of the import, export, restore and archive functions (see figure 1), the workspace appears (see figure 2). It is divided into two main parts:

1. the upper part is formed by the toolbar (blue rectangle in figure 2) itself composed of two parts:
  - the left part contains the access buttons to the previous and next steps;
  - the right part contains the access buttons to the functionalities common to all “Vsoil” applications. Refer to the manual entitled “common toolbar user manual”, accessible from the “User manuals” section of the “vsoil-player” application’s home screen (see figure 1), for more information on these features.
2. the lower part, dedicated to entering and viewing the results, is made up of the four tabs “Compilation”, “Initialization”, “Run” and “Plots” (green rectangle in the figure 2). These steps are similar in the “vsoil-modules”, “vsoil-models” and “vsoil-player” applications. Refer to the manual entitled “model usage user manual”, accessible from the “User manuals” section of the “vsoil-player” application’s home screen (see figure 1), for a description of these steps.

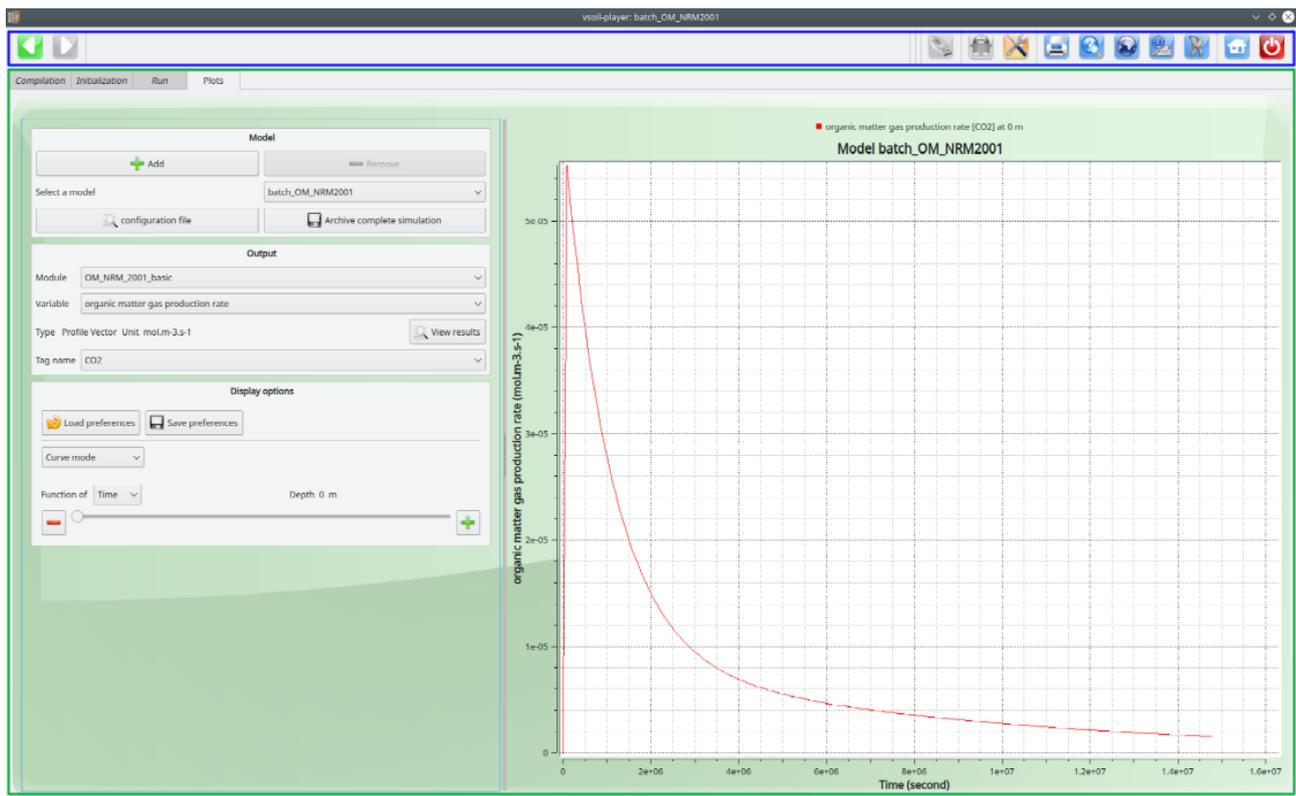


Figure 2: Workspace made up of the toolbar (blue rectangle) and a space for entering and viewing results (green rectangle)

### 3 Visualisation of simulation results

The “Visualisation” function, accessible from the home screen (see figure 1), allows you to view the results from a simulation already carried out through the “vsoil-modules”, “vsoil-models” or “vsoil-player” applications.

#### 3.1 Simulation selection

After having selected the “Visualisation” function from the home screen (see figure 1), a dialog box appears allowing you to select the directory containing the folder in which the results of the simulation to be visualised are saved (see figure 3).

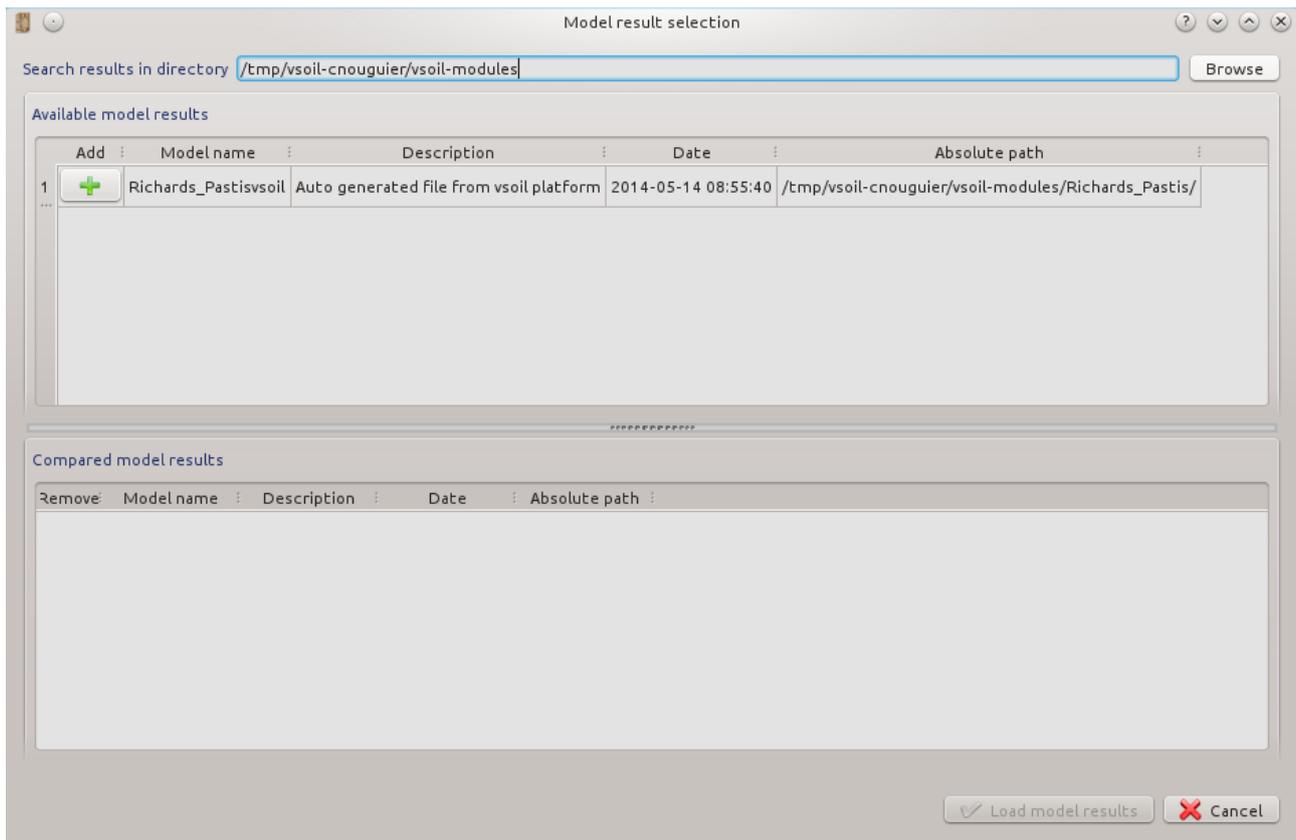


Figure 3: Selecting simulation results

Click the **Browse** button to select the path to this directory. This directory can be:

- Either a directory in which you have previously archived a simulation from a “Vsoil” application<sup>1</sup>. Note: Archiving is done using the “Archive complete simulation” button from the “Plots” tab of each of these applications.
- Either a temporary directory in which the simulations was carried out from a “Vsoil” application<sup>1</sup>. Note : This directory can be automatically emptied each time you restart your computer. The temporary directory are:
  - On Linux, /tmp/vsoil-[login]/[vsoil-modules|vsoil-appname1];

<sup>1</sup>“vsoil-modules”, “vsoil-models” or “vsoil-player”

- On Windows, C:/Users/[login]/AppData/Local/Temp/[vsoil-appname1].

In the “Available model results” panel (see figure 3) the simulations contained in the selected directory appear.

Select the simulation whose you want to view results using the associated  button. The selected simulation then appears in the “Compared model results” panel (see figure 3). You can only select one simulation. You can deselect the chosen simulation by clicking on the  button in the “Compared model results” panel.

Once the simulation has been chosen, validate your choice by clicking on the  **Load model results** button. You will then arrive on the “Plots” tab.

### 3.2 Visualisation of output variables

The “Plots” tab is used to view the evolution over time of the output variables of the previously selected model (see figure 4). The “Output” panel is dedicated to the selection of an output variable. You can only view one output variable at a time.

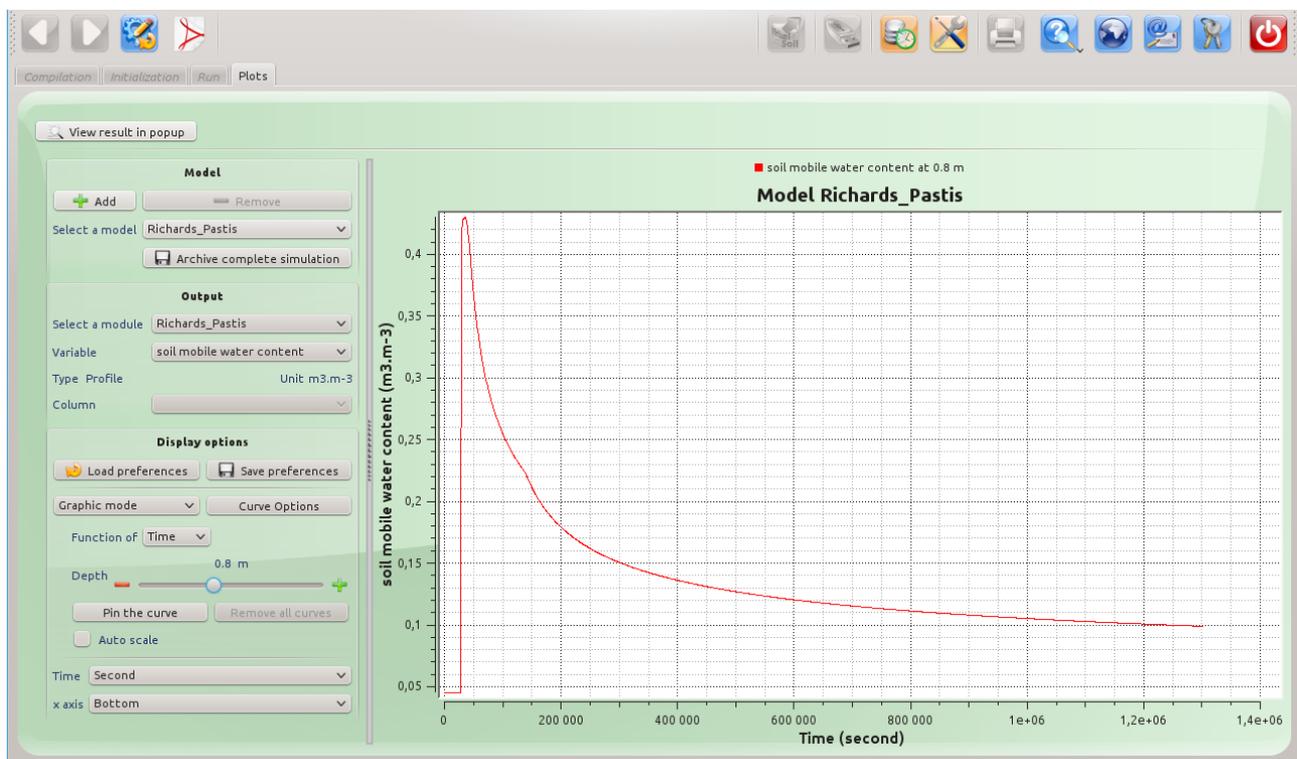


Figure 4: General overview of the “Plots” tab

You have the possibility to add from the “Plots” tab a simulation to the chosen simulation. To do this, click on the  button in the “Model” panel (see figure 4). Then use the same procedure as the one described in the section 3.1 above to choose the simulation to be added. This one then appears in the drop-down list of simulations in the “Model” panel (see figure 4). You can then display the evolution over time of an output variable of the model used in this simulation.

By clicking on the  button of the “Model” panel (see figure 4), you can delete from the drop-down list of simulations the one whose name is selected in this list.

## 4 Comparison of models

The “Models comparison” function, accessible from the home screen (see figure 1), allows you to compare the results of simulations from the same model or from models with identical output variables, these simulations having been executed from the “vsoil-modules”, “vsoil-models” or “vsoil-player” applications.

### 4.1 Selection of the simulations to be compared

After having selected the “Models comparison” function from the home screen (see figure 1), a dialog box appears allowing you to select the directories containing the folders of the simulations to be compared (see figure 5).

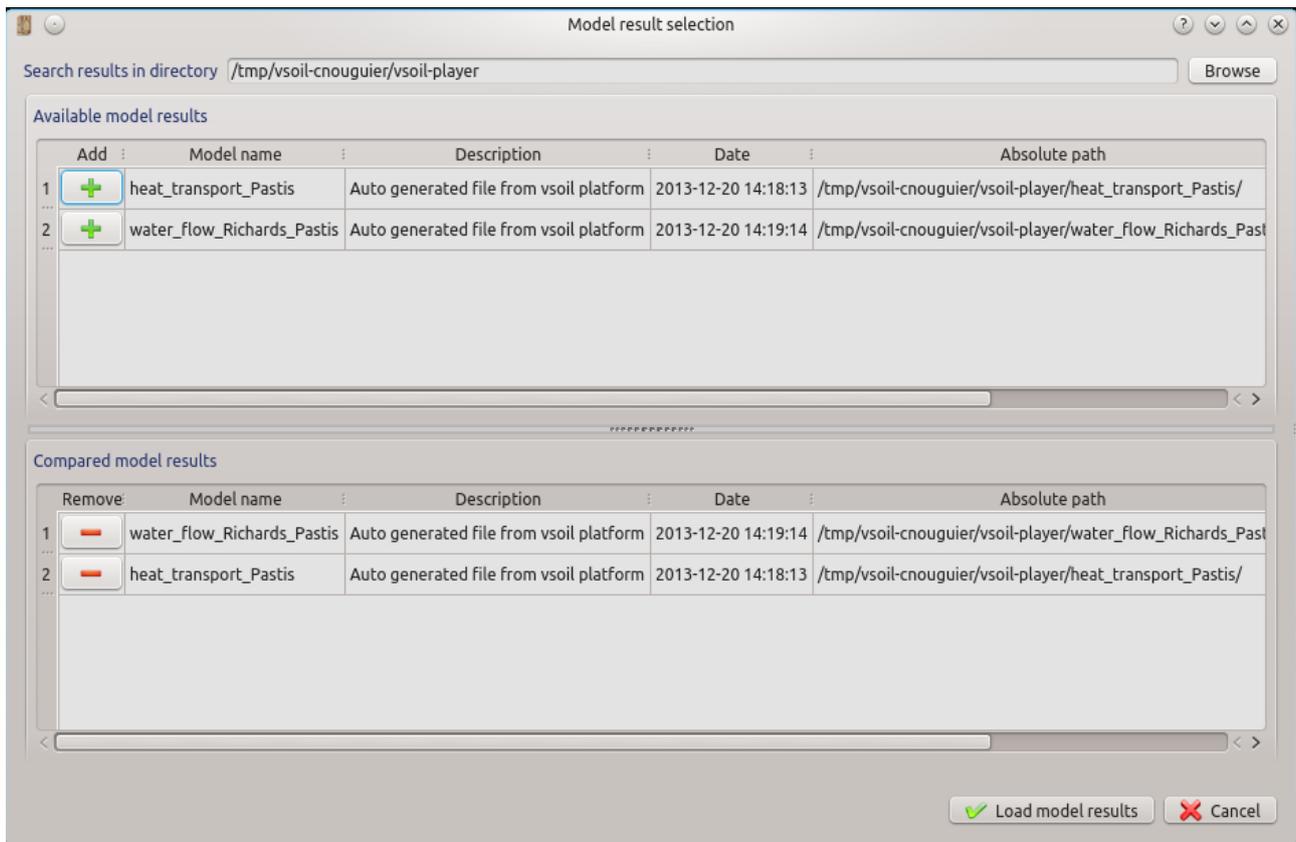
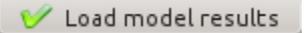


Figure 5: Selection of simulation results to be compared

Click the **Browse** button to specify the path to such a directory. Such a directory can be:

- Either a directory in which you have previously archived a simulation from a “Vsoil” application<sup>1</sup>. Note: Archiving is done using the “Archive complete simulation” button from the “Plots” tab of each of these applications.
- Either a temporary directory in which the simulations was carried out from a “Vsoil” application<sup>1</sup>. Note : This directory can be automatically emptied each time you restart your computer. The temporary directory are:
  - On Linux, /tmp/vsoil-[login]/[vsoil-appname1].

- On Windows, C:/Users/[login]/AppData/Local/Temp/[vsoil-appname1].

The simulations contained in the selected directory appear in the “Available model results” section (see figure 5). Then use the  button to add in the “Compared model results” section one or more simulations. You have the possibility to select a simulation in a directory then to change directory using the  button in order to select one or more other simulations. You can remove a simulation from the drop-down list containing the simulations to be compared by using the  button. You must have selected at least two simulations to be able to validate your choice using the  button.

Once your choice is validated, you then arrive on the “Plots” tab.

## 4.2 Comparison of output variables

The “Plots” tab is used to compare on the same graph the identical output variables of the previously selected simulations (see section 4.1). The “Output” panel is dedicated to the selection of an output variable. You can only compare one output variable at a time (see figure 6).

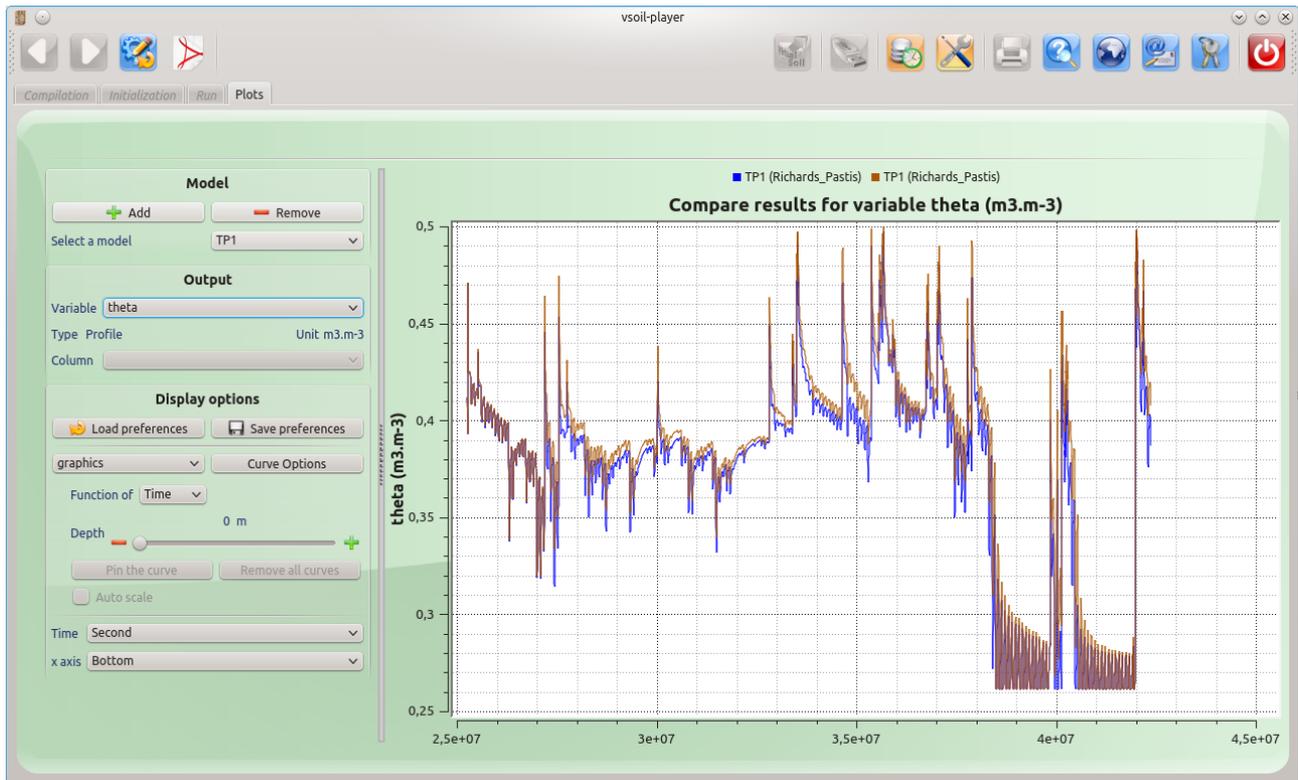


Figure 6: Comparison of the evolution over time of an output variable common to two simulations

As in the case of the visualisation of an output variable of a single simulation (see section 3.2), you have the possibility to add (using the ) or remove (using the ) one or more simulations in the drop-down list of the “Model” panel (see figure 6).

## 5 Running a model

The “Execute a model” function, accessible from the home screen (see figure 1), allows you to select a model, then to execute it *i.e.* to launch a simulation.

The steps to be carried out concerning the execution of a model are the steps taking place in the “Compilation”, “Initialization”, “Run” and “Plots” tabs. These steps being similar in the “vsoil-modules”, “vsoil-models” and “vsoil-player” applications, refer to the manual entitled “model usage user manual”, accessible from the “User manuals” section from the home screen of the “vsoil-player” application (see figure 1), for a description of these steps.

## 6 Functions for importing/exporting models

These functions are accessible from the home screen (see figure 1) and some of them from the workspace (in the common toolbar).

Refer to the manual entitled “import/export user manual” from the “User manuals” list accessible from the home screen of the “vsoil-player” application (see figure 1).

## 7 Functions for restoring/archiving data

These functions are accessible from the home screen (see figure 1) and some of them from the workspace (in the common toolbar).

Refer to the general functions documentation, namely the manual entitled “common toolbar user manual” from the “User manuals” list accessible from the home screen of the “vsoil-player” application (see figure 1).

## 8 Using stop’n’resume capability

### 8.1 Save “resumable” outputs final state

To save “resumable” outputs final state of a model, it needs to use the “resumable” capability. To do so, go to “initialisation” tab, then “global” sub-tab and finally “timestamps definition” part. Set “save state frequency” to “After simulation end” value.

Run the simulation. At the end, an initialisation file has been generated. It contains the same characteristics as the initialisation file used by this simulation. The only difference is the values of all “resumable” outputs are saved.

The generated file is named “vsoil\_model\_init\_data\_stop.saved\_state.xml”. It is in the same directory as the original initialisation file is. By default, it is in the system temporary directory:

- Linux, /tmp/vsoil-[LOGIN]/[VSOIL-APPNAME]/[MODEL\_NAME]/parameters
- Windows, C:/Users/[LOGIN]/AppData/Local/Temp/[VSOIL-APPNAME]/[MODEL\_NAME]/parameters

With

- “[LOGIN]” the user login name (\$LOGNAME or \$USER on Linux)
- “[VSOIL-APPNAME]” the vsoil application name (in general vsoil-player)
- “[MODEL\_NAME]” the model name used for the simulation

### 8.2 Resume the execution of a model from a previous saved state

To resume the execution of a model from a previous saved state, it needs to load an initialisation file containing “resumable” outputs variables (see section 8.1). In “initialisation” tab, select the initialisation file previously generated at the end of a simulation. Its location depends on the operating system (see 8.1).

A dialog box propose the available times. In other words, the times there are saved “resumable” outputs variables. The general case is to choose the most recent date. This is the last value in the list. Unless you need to resume from a older date.<sup>9</sup>

### Timestamps definition

 Load timestamp
 Save timestamp
 Reset values

---

Date of reference (UTC)	<input type="text" value="2013-01-01 00:00:00"/>	⤴ ⤵
Simulation start (UTC)	<input type="text" value="2013-02-24 12:00:00.000"/>	⤴ ⤵
<input type="text" value="Simulation end (UTC)"/> ▼	<input type="text" value="2014-02-28 12:00:00.000"/>	⤴ ⤵
Time bound min	<input type="text" value="0.00001 s"/>	⤴ ⤵
Time bound max	<input type="text" value="800.00000 s"/>	⤴ ⤵
Time initial dt	<input type="text" value="Default"/>	▼
Scheduling speed up strategy	<input type="text" value="Slow gradual"/> ▼	<input type="text" value="1.10"/> ⤴ ⤵
Scheduling slow down strategy	<input type="text" value="Fast gradual"/> ▼	<input type="text" value="2.00"/> ⤴ ⤵
Save frequency	<input type="text" value="After elapsed time (s)"/> ▼	<input type="text" value="86400 s"/> ⤴ ⤵
Save state frequency	<input type="text" value="After simulation end"/> ▼	
<input type="checkbox"/> Resume state		

Figure 7: set “save state frequency” value

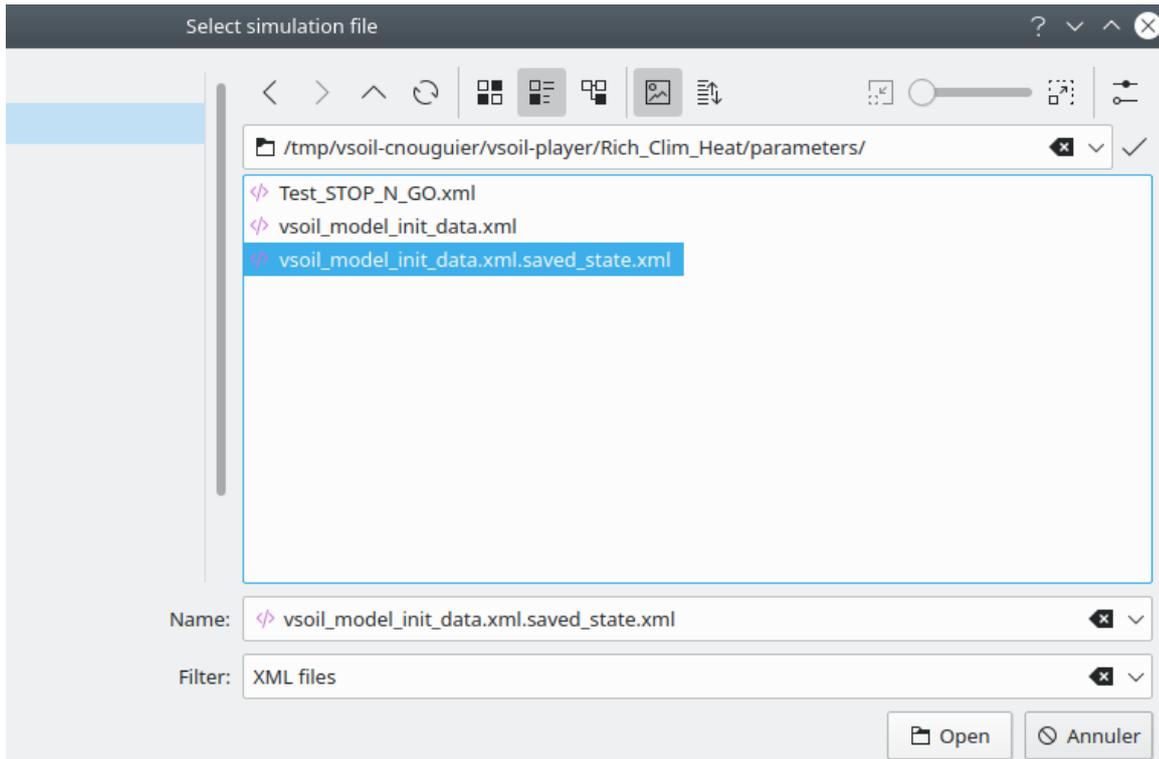


Figure 8: Loading the “saved\_state” initialisation file

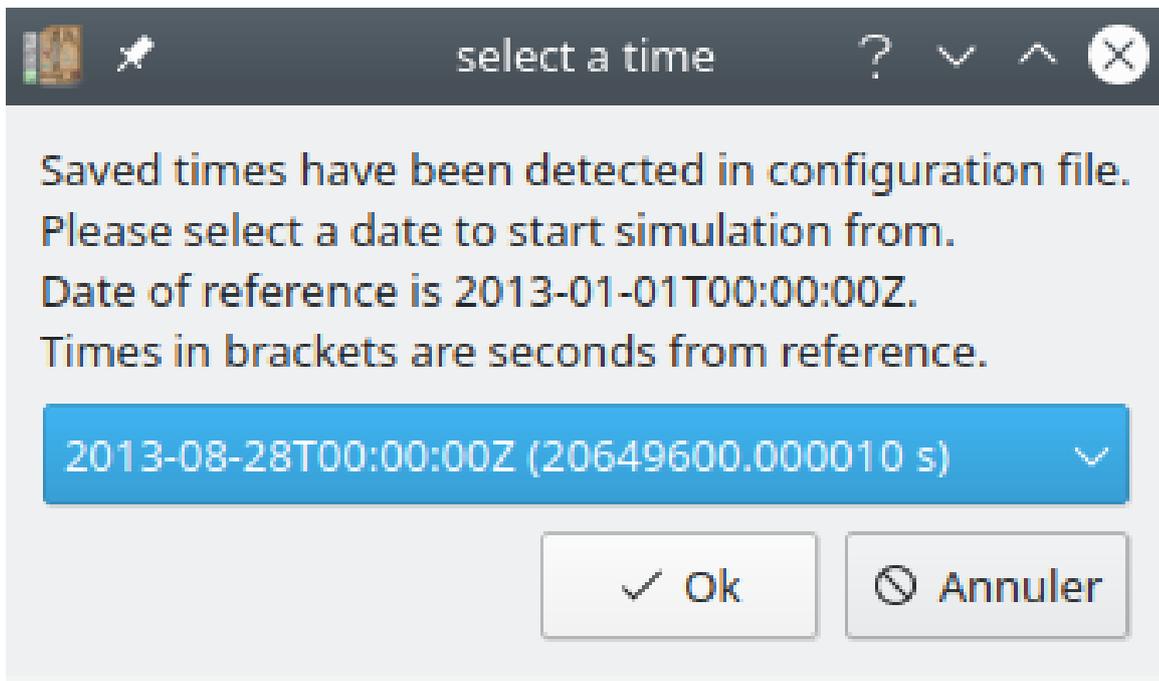


Figure 9: Resume date selection

Notice: To check you are in resume mode, see the “Resume state” check box. It is in “initialisation” tab, “global” sub-tab, “timestamps definition” part. New information coming from saved simulation are shown.

Simulation start and end dates are both set to the chosen date in the dialog box above.<sup>9</sup> It needs now to change the simulation end to have a new epoch. Then clic on “prepare run” button. Finally, go to next tab “run” to lauch the simulation.

### Timestamps definition

 Load timestamp

 Save timestamp

 Reset values

Date of reference (UTC)	<input type="text" value="2013-01-01 00:00:00"/>	⌵	
Simulation start (UTC)	<input type="text" value="2014-02-28 12:00:00.001"/>	⌵	
Simulation end (UTC) <span style="float: right;">▼</span>	<input type="text" value="2014-02-28 12:00:00.000"/>	⌵	
Time bound min	<input type="text" value="0.00001 s"/>	⌵	
Time bound max	<input type="text" value="800.00000 s"/>	⌵	
Time initial dt	<input type="text" value="Custom"/> ▼		<input type="text" value="172.49100"/> ⌵
Scheduling speed up strategy	<input type="text" value="Slow gradual"/> ▼		<input type="text" value="1.10"/> ⌵
Scheduling slow down strategy	<input type="text" value="Fast gradual"/> ▼		<input type="text" value="2.00"/> ⌵
Save frequency	<input type="text" value="After elapsed time (s)"/> ▼		<input type="text" value="86400 s"/> ⌵
Save state frequency	<input type="text" value="After simulation end"/> ▼		
<input checked="" type="checkbox"/> Resume state			
Resume initial previous dt	<input type="text" value="800.00000"/>	⌵	
Resume next time to save	<input type="text" value="36590400.00"/>	⌵	
Resume nb validates before save	<input type="text" value="0"/>	⌵	

Figure 10: Check resume mode