Tutorial PR08 Workshop at Maart 18th & 19th 2008.

In this tutorial the basic principles of the NGMS user interface are explained step by step. You will be guided through all relevant displays in NGMS.

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1 How to launch the application

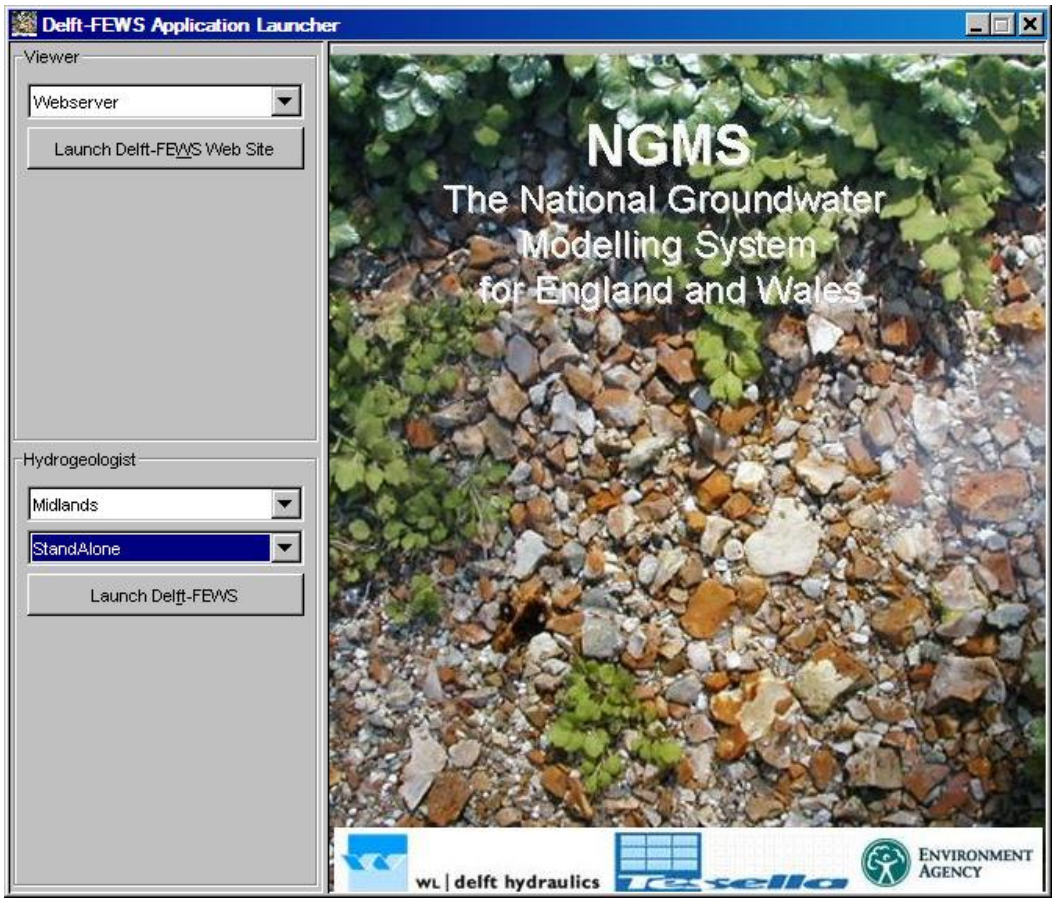
1.1 Log in

- Double click on the NGMS icon to start the Application Launcher.
- Type the password ‘hydrogeologist123’

1.2 Application selection

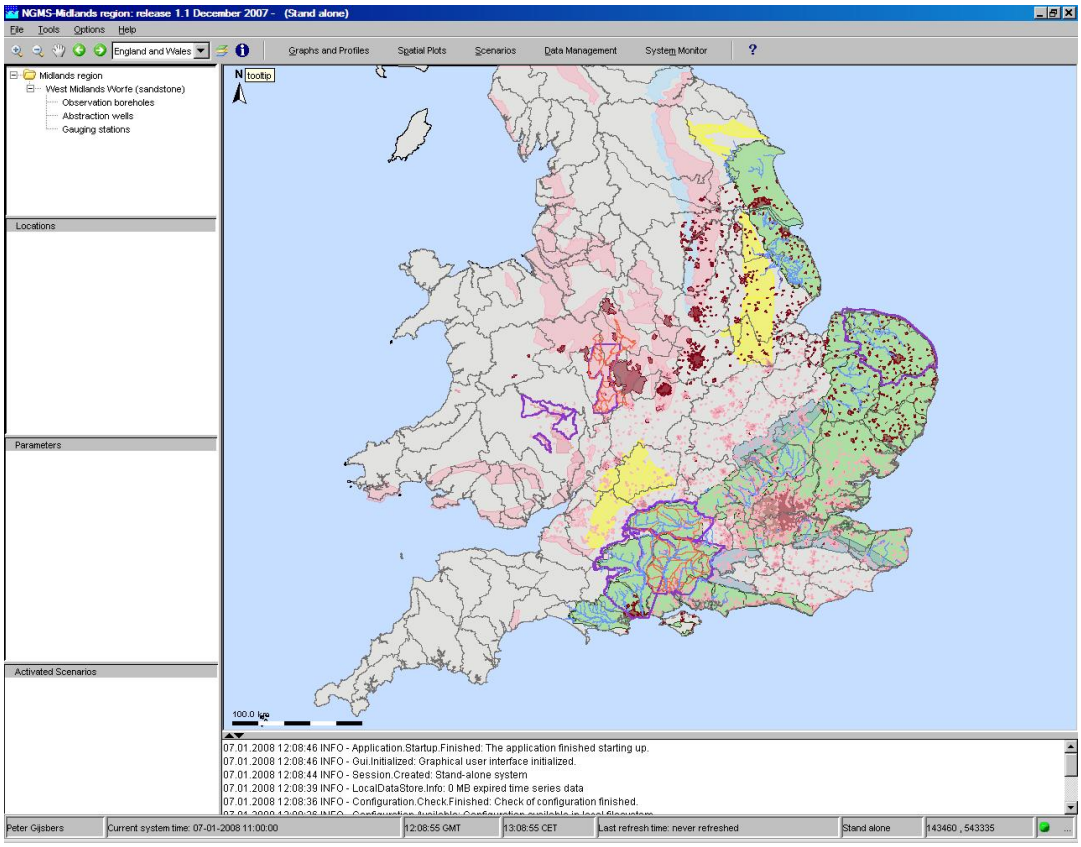
In the Application Launcher you can choose between the different regions and application types

- Select the region of interest ‘Midlands’.
- Select application type ‘StandAlone’.
- Click Launch Delft-FEWS



1.3 FEWS explorer

Now the Fews explorer screen appears. This window is the basis from which other displays are activated.



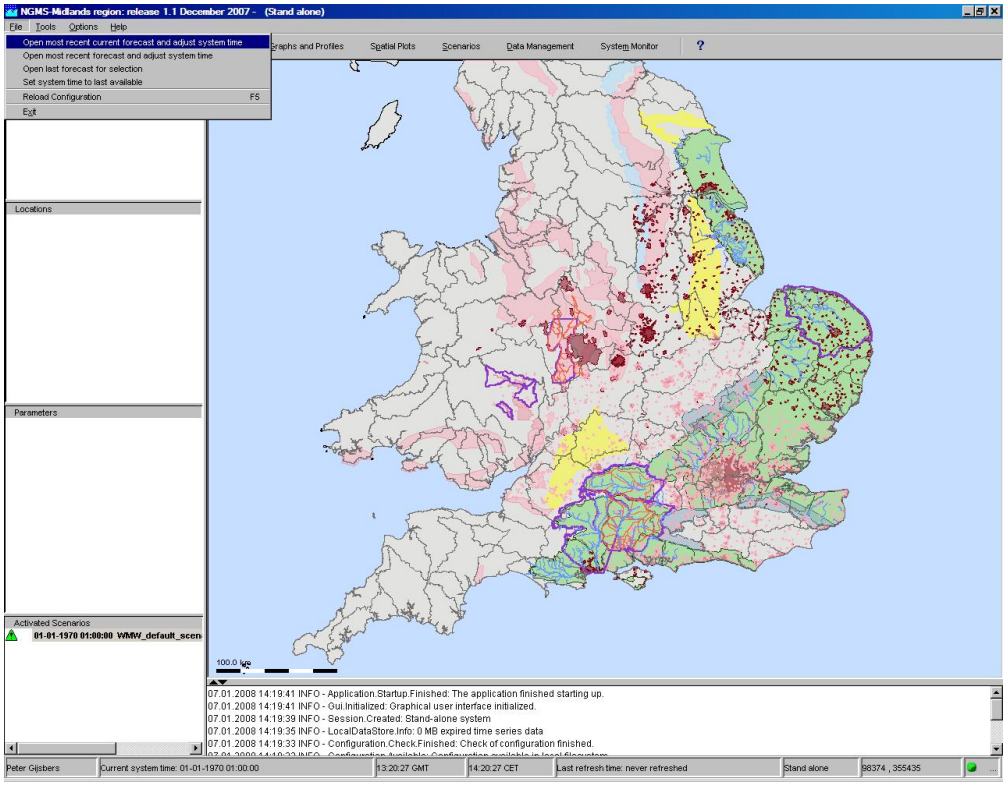
2 How to open/activate a data set

To get access to a data set, various methods are available. Please be aware that the system presents data availability by looking forward from the current system time onwards. RModel runs from the past thus require adjustment of the system or display time.

2.1 Via Explorer

The default scenarios (i.e. Calibrated Historic, Naturalized, Recent Actual, Fully Licenced) are typically approved, or in FEWS terms 'current forecasts'. Once approved, they can be opened in the Explorer by the following steps:

- Click <File> in the dropdown menus.
- Click <Open most recent current forecast and adjust system time>.



2.2 Via the Data Management dialog

2.2.1 Opening the data set

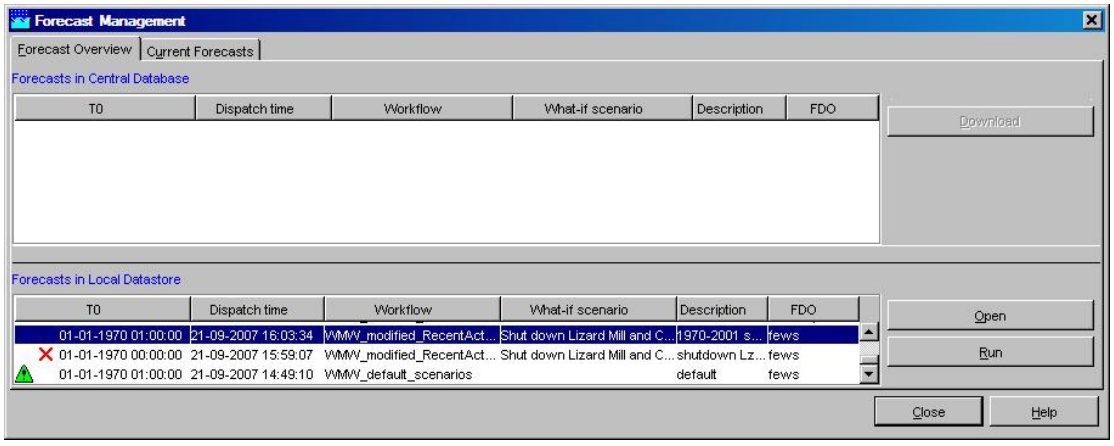
Alternative way to open the data manually via the data management dialog:

- Click the <Data Management> button in the button bar.
- Select in the 'Forecast in Local Database' panel the 'XXX_default_scenario' workflow, which is made current.

A workflow is current when there is a green triangle in front of the workflow.

- Click on the <Open> button.
- Close the Forecast Manager.

- In the lower-left corner of the principal window screen the selected workflow appears in the ‘activated scenarios’ square.

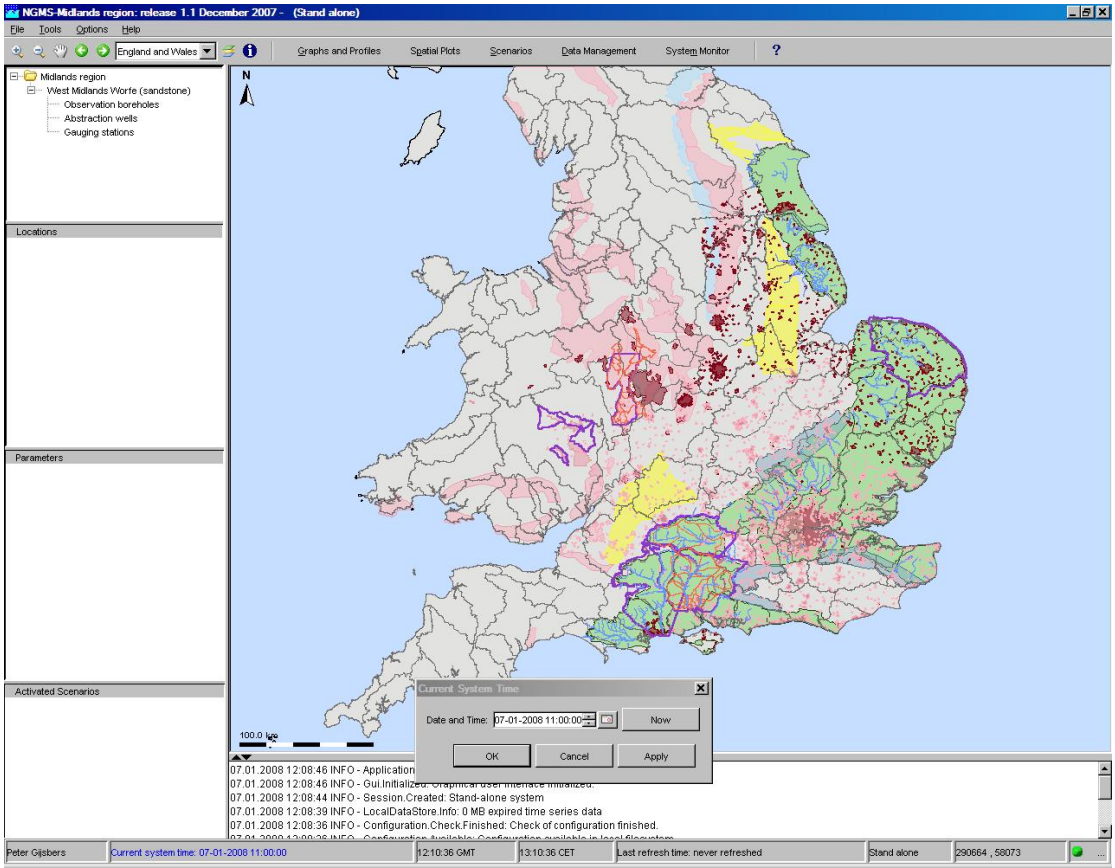


2.2.2 Adjust current system time

- Double-click on the workflow to adapt the current system time.

Alternative way to adjust system time manually:

- Double-click on <current sytem time> in the Status bar.
- Set the time to : 01-01-1970



3 How to work with the time series display

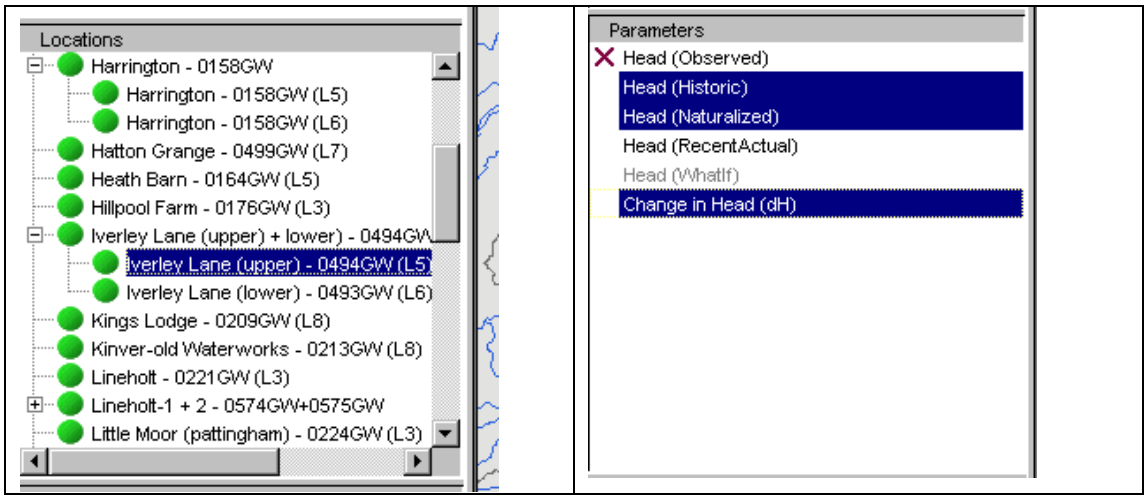
3.1 Selecting/opening a graph

3.1.1 Via Filters in the Explorer

The Filters is the left panel in the Explorer window screen. You can view a graph by making a selection via the Filters.

- Double click the folder of an area and select a location type
- Select a Location
- Select a Parameter
- Select <Graphs and Profiles> in the button bar

By holding the <Shift> or <Ctrl> button you can select multiple locations or parameters.



3.1.2 Via shortcuts in display

- Select <Graphs and Profiles> in the button bar
- Make sure the shortcut button in turned on. (The shortcut button is the most left icon)

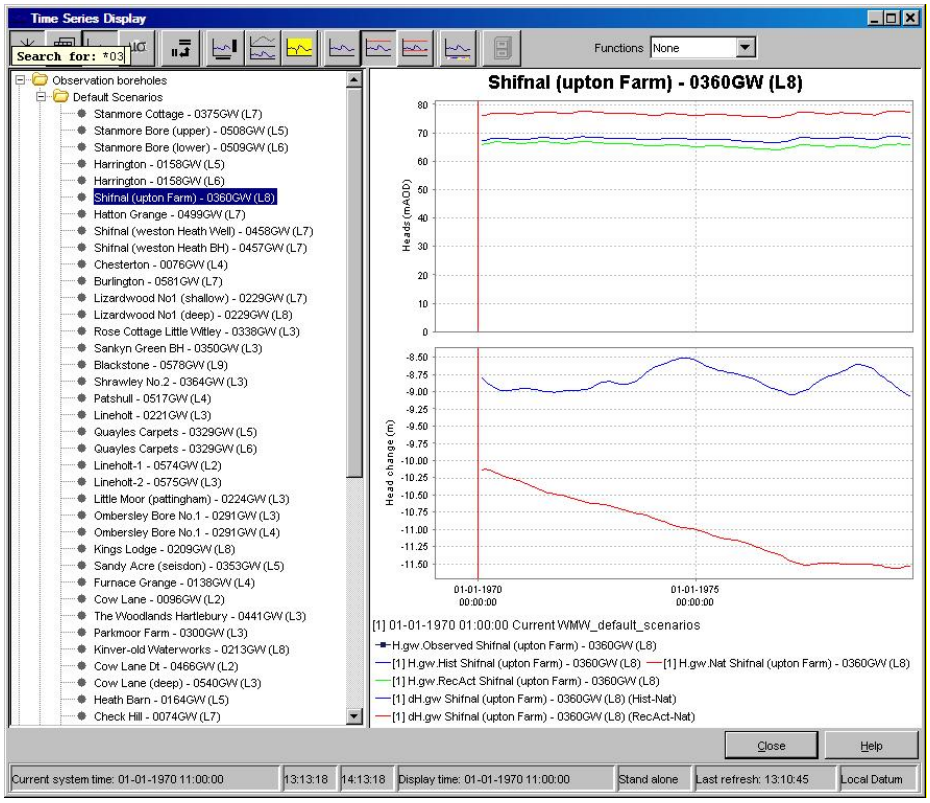
Shortcuts

- Select a location type and location from the list. A preconfigured graph with difference computations will appear.

3.2 Searching specific locations

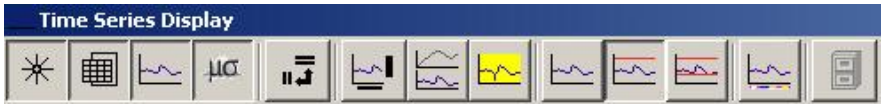
Both the Explorer filters as well as the Display shortcuts offer a search facility:

- activate the panel where you would like to search (e.g. the left panel in the Time series dialog)
- type your search string. The cursor will move to the line starting with your string
- to search anywhere in the list (i.e. not at the start of a line), use a wild card '*' and type your string



3.3 Managing layouts

The Time Series Display offers various layouts



3.3.1 How to obtain a table

Click on the second icon <Table>. By clicking this button the time series in the graph is also displayed in tabular format.

Table

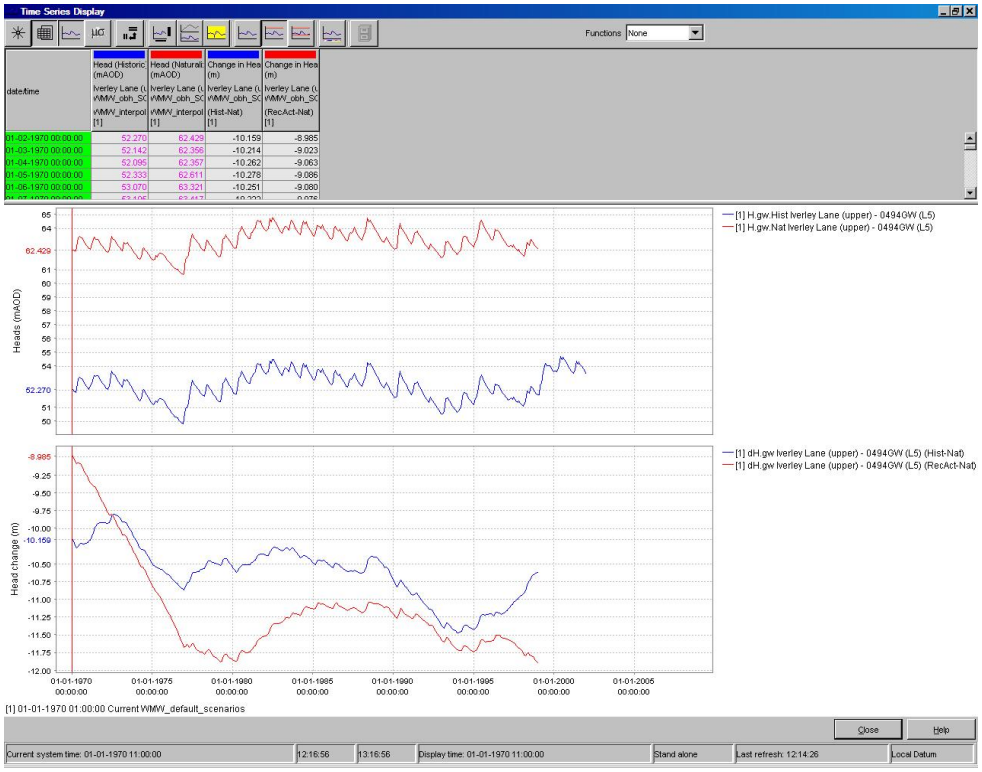
When a column is selected, the right mouse button offers a range of copy-paste facilities.

3.3.2 How to rotate the table and graph position

Click on the <Rotate splitter> button. With this button the splitter between table and graph can be placed in a horizontal position.

Rotate Splitter

Clicking the same button again returns the splitter to its default vertical position. Make sure that the table is given in vertical position



3.3.3 How to obtain a duration curve

- Select <Duration curve> in the drop down menu next to funtions (top bar).

3.3.4 How to obtain a descriptive summary (statistics)

View the statistical detail by clicking on the <Statistics> button

Statistics

Select another column in the table to obtain the summary of another time series.

Note: this function can also be used without the duration curve.

3.4 How to navigate in Graphs

3.4.1 Zoom in and out via the mouse wheel

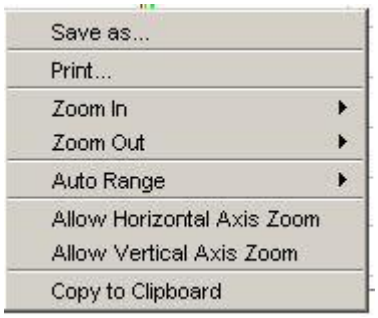
- Zooming in and out can be done with help of the scroll wheel of the mouse. Scrolling away from the user results in zooming in while scrolling towards the user results in zooming out.

3.4.2 Horizontal panning with right mouse drag

- The Graph can be dragged horizontally by pressing the right mouse button, dragging the graph and releasing the button.

3.4.3 Via the right mouse menu

Zooming is also possible by selecting a zoom range. Drag the mouse holding down the right button to form a rectangular area to zoom in to.
When clicking the right mouse button, the dropdown menu presented below appears. The menu gives you some additional options.



Save As; You can save the graph to file with this option.
Print; This option allows you to print the graph.
Zoom in/ out: You can select to zoom in and out along one or both axis with this option.
Allow Vertical / Horizontal Axis Zoom; You can select to allow for zooming in and out along one of the axis with this option.
Auto Range; This feature allows you the set automatic scaling along one or both axis.

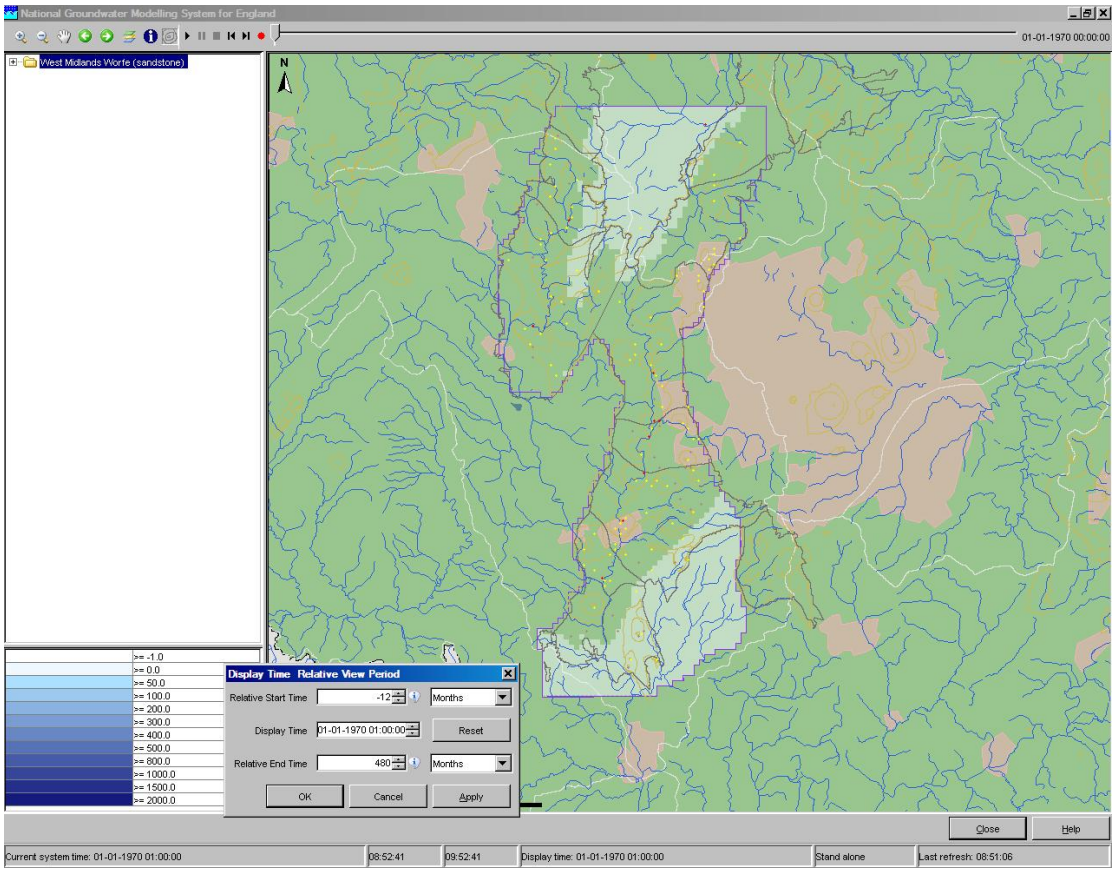
4 How to work with the spatial display

4.1 Opening the display

Open the Spatial display by clicking on <Spatial plots> in the tool bar of the Explorer.

- Click display time in the Status bar.
- Adjust display time (begin and end) if desired.

Note: since the Modflow computation produces result at the end of the stress period, the first date in the run, i.e. the initial situation, may have no results.



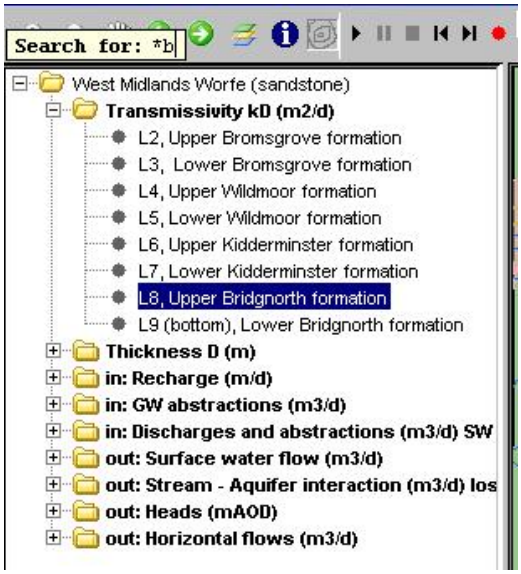
4.2 How to open data

4.2.1 Via opening folders

- To open folders, double click folder or single click '+'

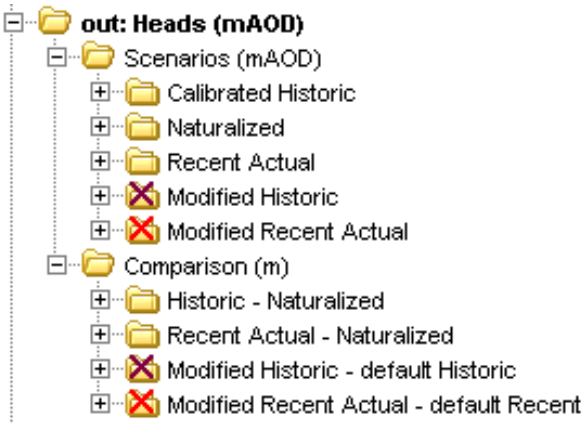
4.2.2 Via data search

- To search for a data item, select the panel and start typing. The search method will look for the line which starts with your search characters
- use '*' for wildcards, (i.e. searches the character combination anywhere in the lines)



4.2.3 Data availability

In the folder structure you can see if there is data available.
brown cross = no data is available
red cross = data is available, but not in the selected time range or for this specific run.



4.3 How to navigate on the map

4.3.1 Direct with the mouse

- Zooming can be done directly by pointing the mouse at map and scrolling the wheel. The map zooms centrally around the mouse pointer.
  To see more of the left site of the map, point the mouse at the right side of the map and scroll.
- Panning can be done by dragging the mouse while the right mouse button is pressed.

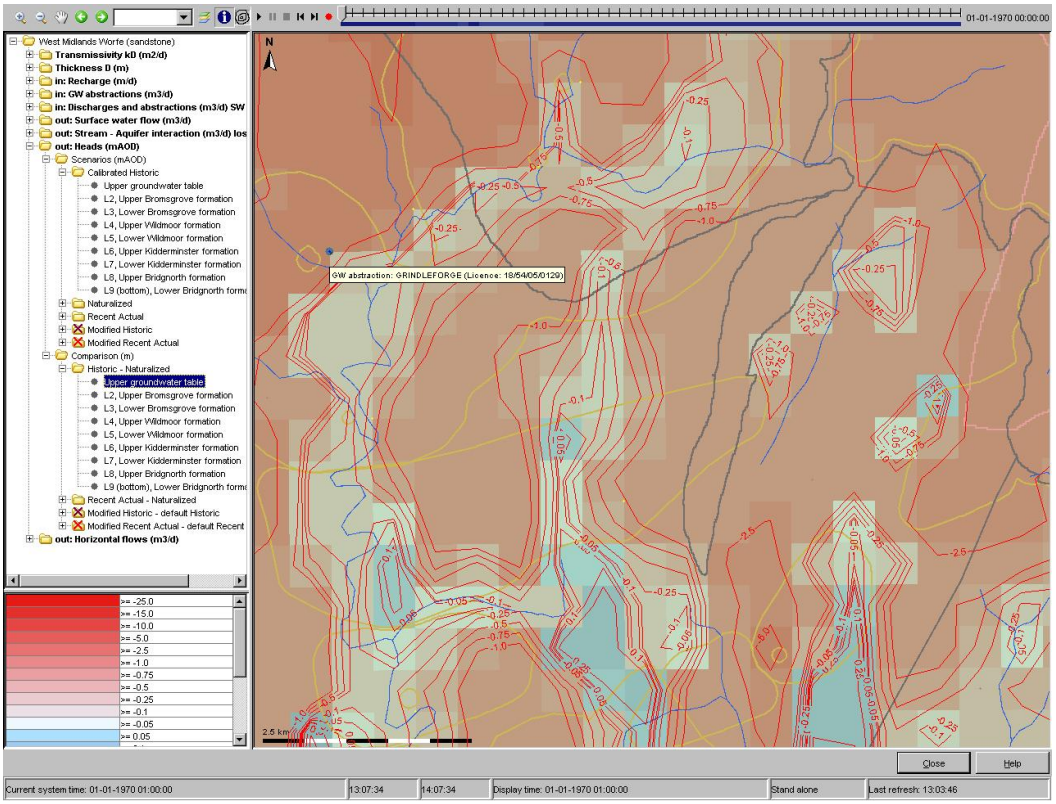
4.3.2 Via the GIS map facilities

An alternative is to use the click zoom/pan buttons in the upper left corner.

4.3.3 Tooltip

The tooltip provides information available in the GIS-layer, e.g. the name of an location or river.

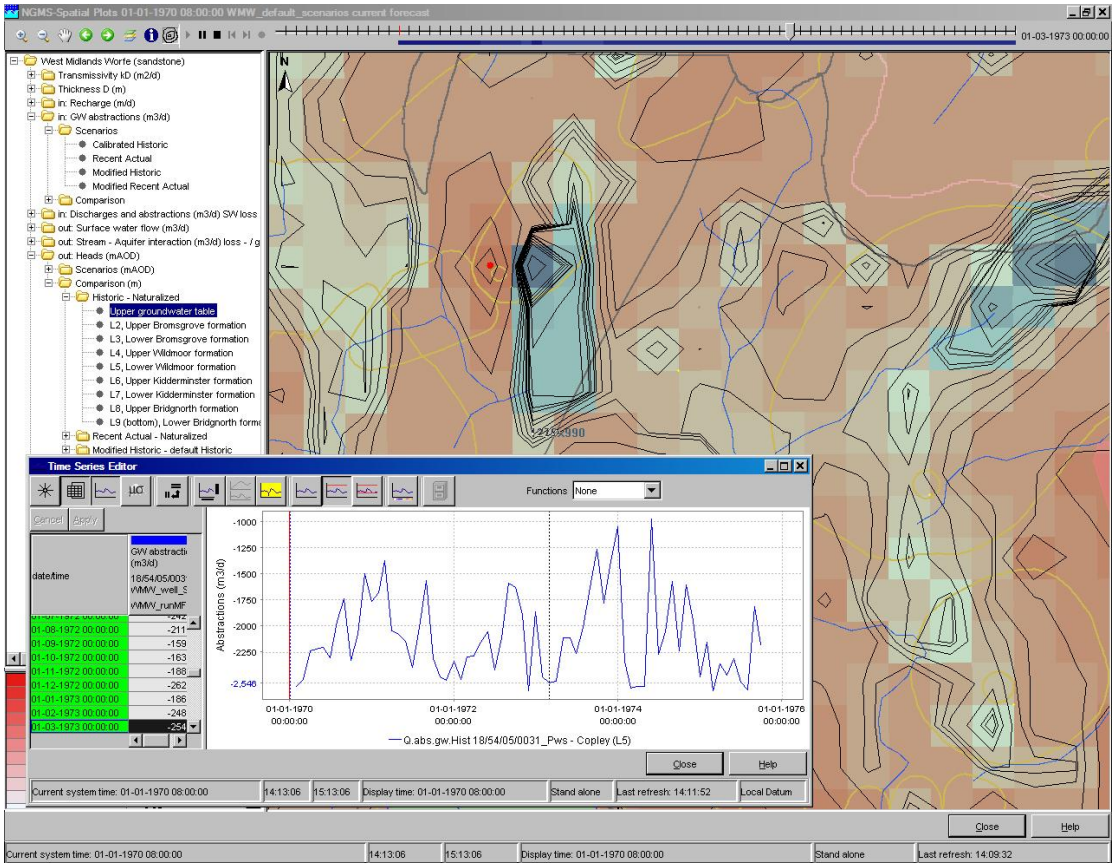
- Click on the <Tooltip> button, the ‘i‘ in the toolbar.
- Mover your mouse cursor over a shape.



4.4 How to obtain a graph in time for a specific point

- Double click the plot to popup a graph of this data set.
- If the map is animated, a slider will show the progress on the graph

- The system allows a user to swap to another data set while a graph is open and in animation. This allows the user to combine different sets of animations in one view.



4.5 How to obtain a cross section/side view

For regular grids, the user can drag its own single or multi-point cross section and obtain a side view .

4.5.1 Drawing the profile via the right mouse menu

- Click with right mouse button on the map to select your start point
- Select <Start Drawing Profile (Ctrl)>
- Single left click to place an intermediate point
- Double left click to set the end point and release the sketch.

4.5.2 Drawing the profile via a short cut

- Keep Ctrl pressed while clicking the start point with your left mouse button
- release the Ctrl-key
- Single left click to place an intermediate point
- Double left click to set the end point and release the sketch.

4.5.3 Retrieving the time series for this dataset

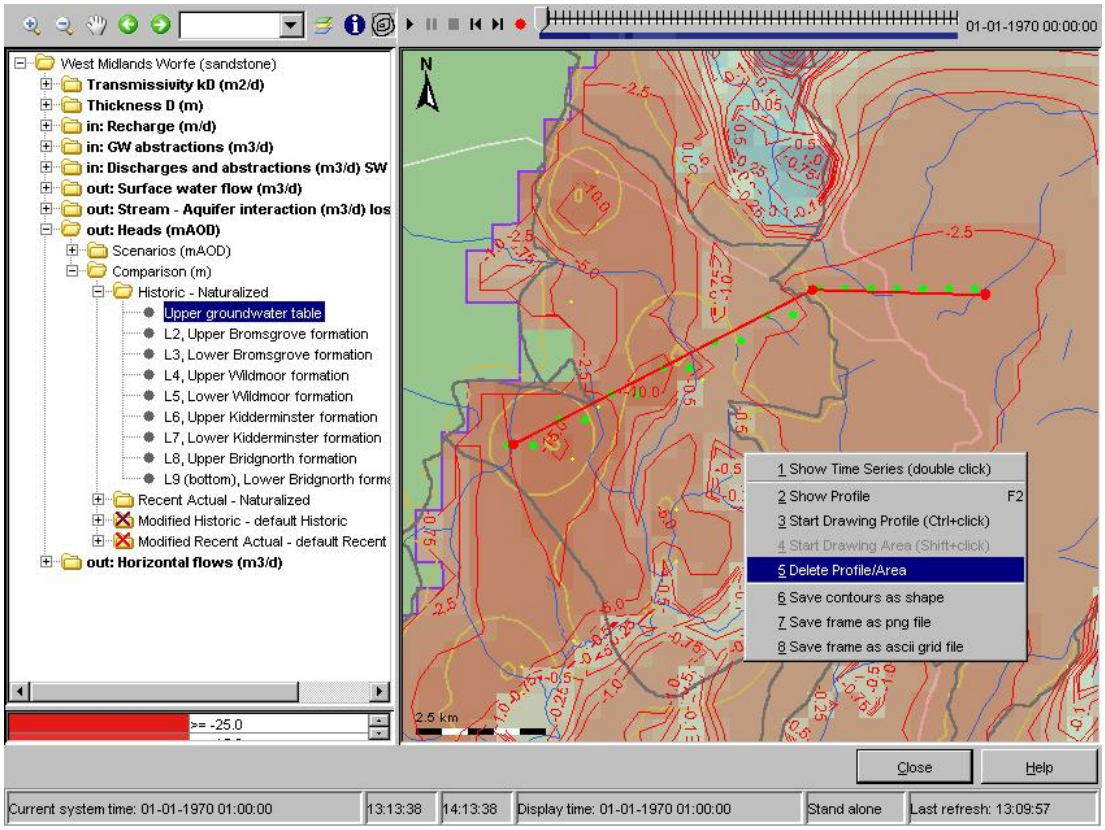
- Click with right mouse button on the map to select your start point
- Select <Show profile (F2)>
  As a result the time series display pops up with the single time series This window can be decreased to place it next to the map.

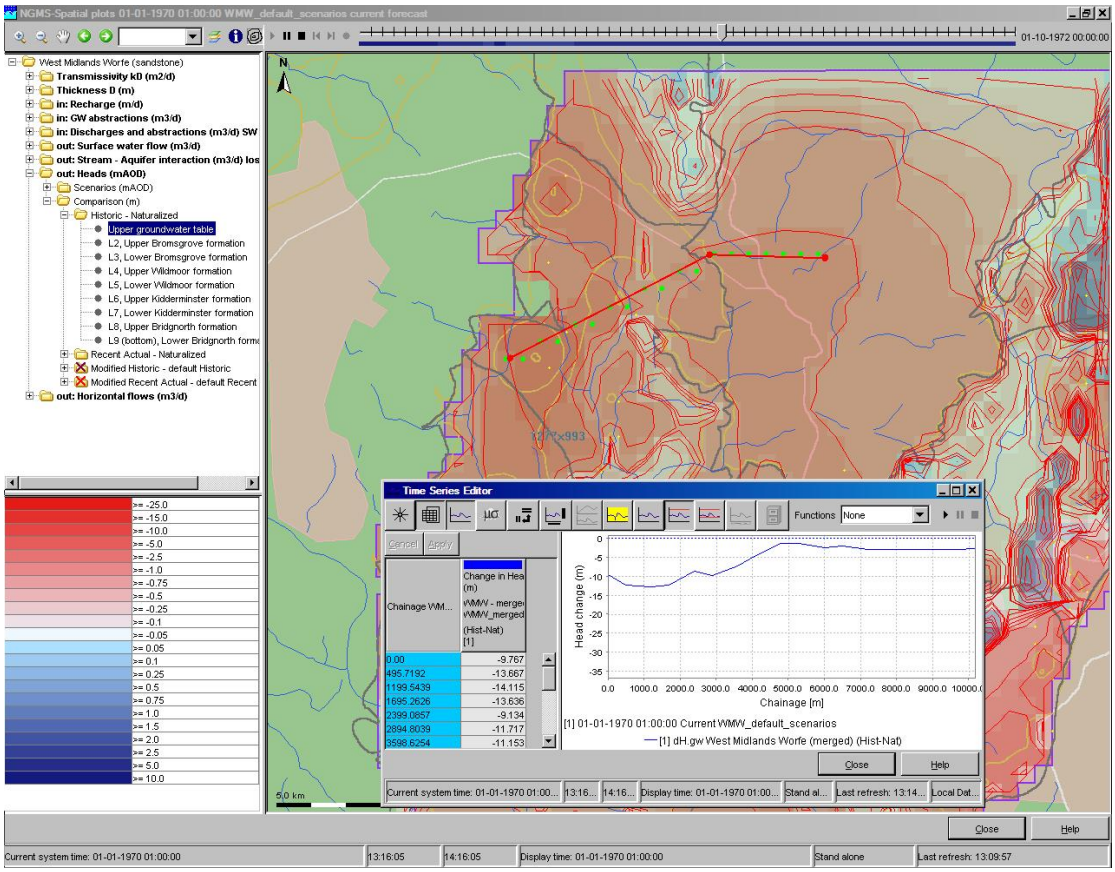
4.5.4 Retrieving the time series for multiple layers

- After a map has been activated in the previous step, you can select the associated folder to obtain time series graphs for all maps defined in this foldert
- Select <Show profile (F2)>
  As a result the time series display pops up with all time series defined in the plotgroup. This window can be decreased to place it next to the map.

4.5.5 Deleting the sketched

- Click with right mouse button on the map to select your start point
- Select <Delete Profile/Area>


01-01-1970 00:00:00
West Midlands Worfe (sandstone)
Transmissivity kD (m2/d)
Thickness D (m)
in: Recharge (m/d)
in: GW abstractions (m3/d)
in: Discharges and abstractions (m3/d) SW
out: Surface water flow (m3/d)
out: Stream - Aquifer interaction (m3/d) los
out: Heads (mAOD)
Scenarios (mAOD)
Comparison (m)
Historic - Naturalized
Upper groundwater table
L2, Upper Bromsgrove formation
L3, Lower Bromsgrove formation
L4, Upper Wildmoor formation
L5, Lower Wildmoor formation
L6, Upper Kidderminster formation
L7, Lower Kidderminster formation
L8, Upper Bridgnorth formation
L9 (bottom), Lower Bridgnorth forma
Recent Actual - Naturalized
Modified Historic - default Historic
Modified Recent Actual - default Recent
out: Horizontal flows (m3/d)
1 Show Time Series (double click)
2 Show Profile F2
3 Start Drawing Profile (Ctrl+click)
4 Start Drawing Area (Shift+click)
5 Delete Profile/Area
6 Save contours as shape
7 Save frame as png file
8 Save frame as ascii grid file
>= -25.0
2.5 km
Close
Help
Current system time: 01-01-1970 01:00:00
13:13:38
14:13:38
Display time: 01-01-1970 01:00:00
Stand alone
Last refresh: 13:09:57


NGMS-Spatial plots 01-01-1970 01:00:00 WMW_default_scenarios current forecast
01-10-1972 00:00:00
Time Series Editor
Functions
None
Cancel
Apply
Chainage WM...
Change in Hea (m) WMW - merge WMW_merged (Hist-Nat) [1]
0.00 -9.767
495.7192 -13.667
1199.5439 -14.115
1695.2626 -13.636
2399.0857 -9.134
2894.8039 -11.717
3598.6254 -11.153
Head change (m)
Chainage [m]
[1] 01-01-1970 01:00:00 Current WMW_default_scenarios
[1] dH.gw West Midlands Worfe (merged) (Hist-Nat)
Close
Help
5.0 km
Current system time: 01-01-1970 01:00:00
13:16:05
14:16:05
Display time: 01-01-1970 01:00:00
Stand alone
Last refresh: 13:09:57

5 How to operate the Scenario Editor

5.1 Background

To define a new scenario or to add extra abstraction locations the Scenario Editor can be used. this editor can be activated by selecting <Scenarios> in the Explorer toolbar.

The Scenario Editor allows scenario specification and dispatching per model area and run type. A scenario is always derived from a default run such as a Recent Actual run or the Fully Licenced run.

The upper left part of the Scenario Editor allows selection of the area of interest and the run from which the scenario is derived. The associated right panel provides on the default run and the available starting conditions.

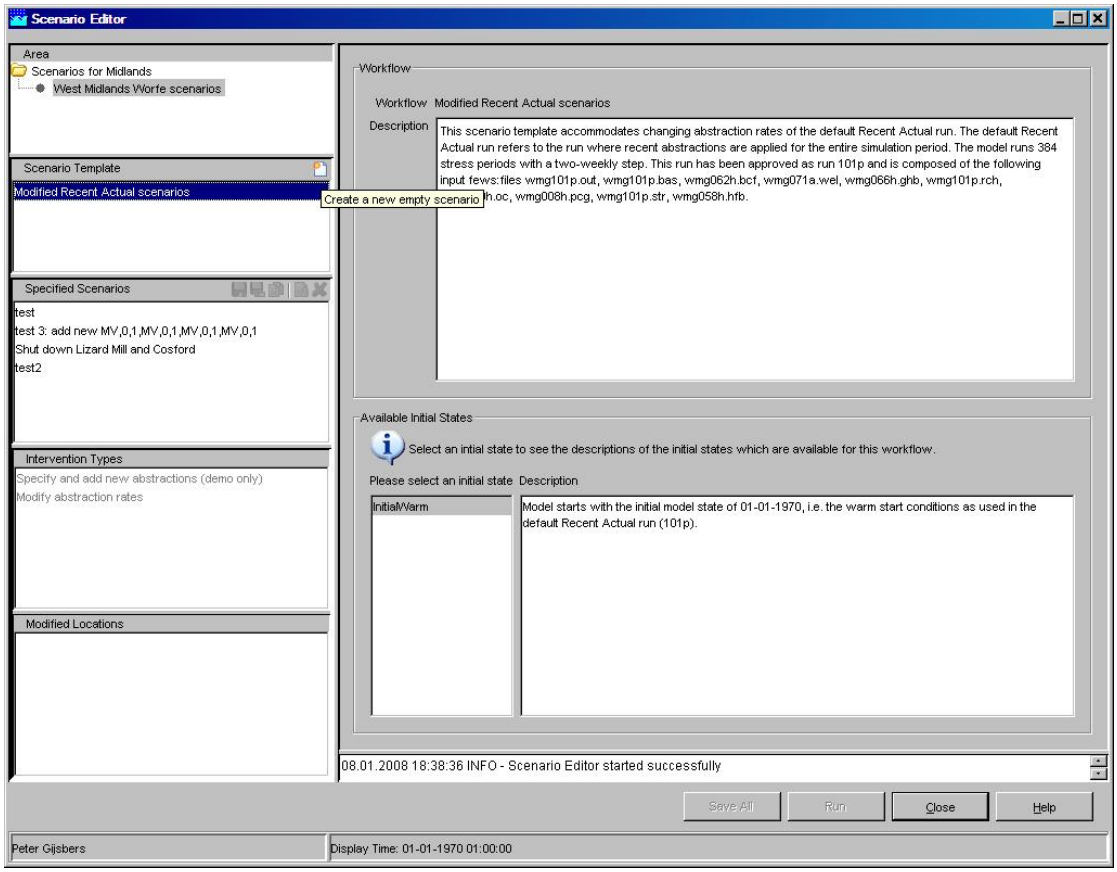
The middle part is lists the scenarios defined. The icons allows the user to mange the scenarios: i.e. create new, save, save as, copy, lock etc.

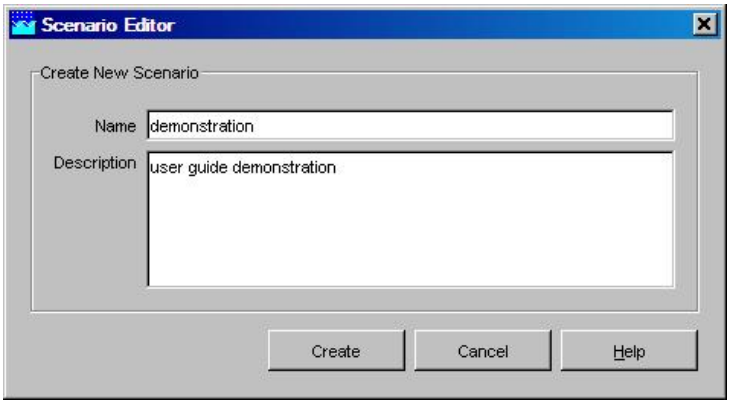
The lower left part allows selection of the specific interventions. If the user is active in this area, the right panel is used to specify the exact intervention to be applied.

5.2 How to create and managing scenarios

5.2.1 Defining a new scenario

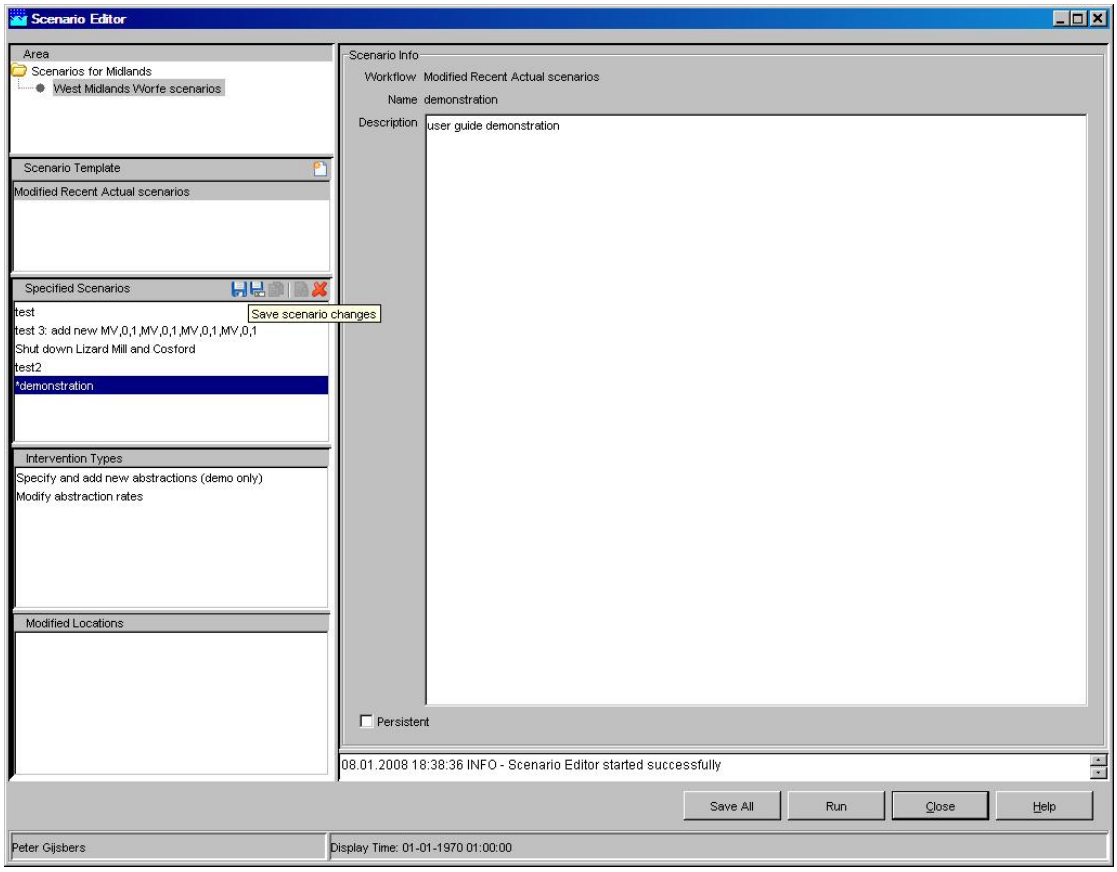
- Go to the top left list box (Area)
- open the folder and select the model area to be used
- Go to the Scenario Templates list
- Select with your mouse the template for the scenario to apply, e.g. “Modified Recent Actual scenarios.”
  Note that the right panel will show background information on this type of run.
- Select <Create new scenario> via the icon or a right mouse click
- Define the name of your scenario. (for example: “Demonstration”)





5.2.2 How to save your scenario

- Select the relevant scenario in the <Specified Scenarios> panel
- Click <save scenario changes> (1st button or right mouse click)



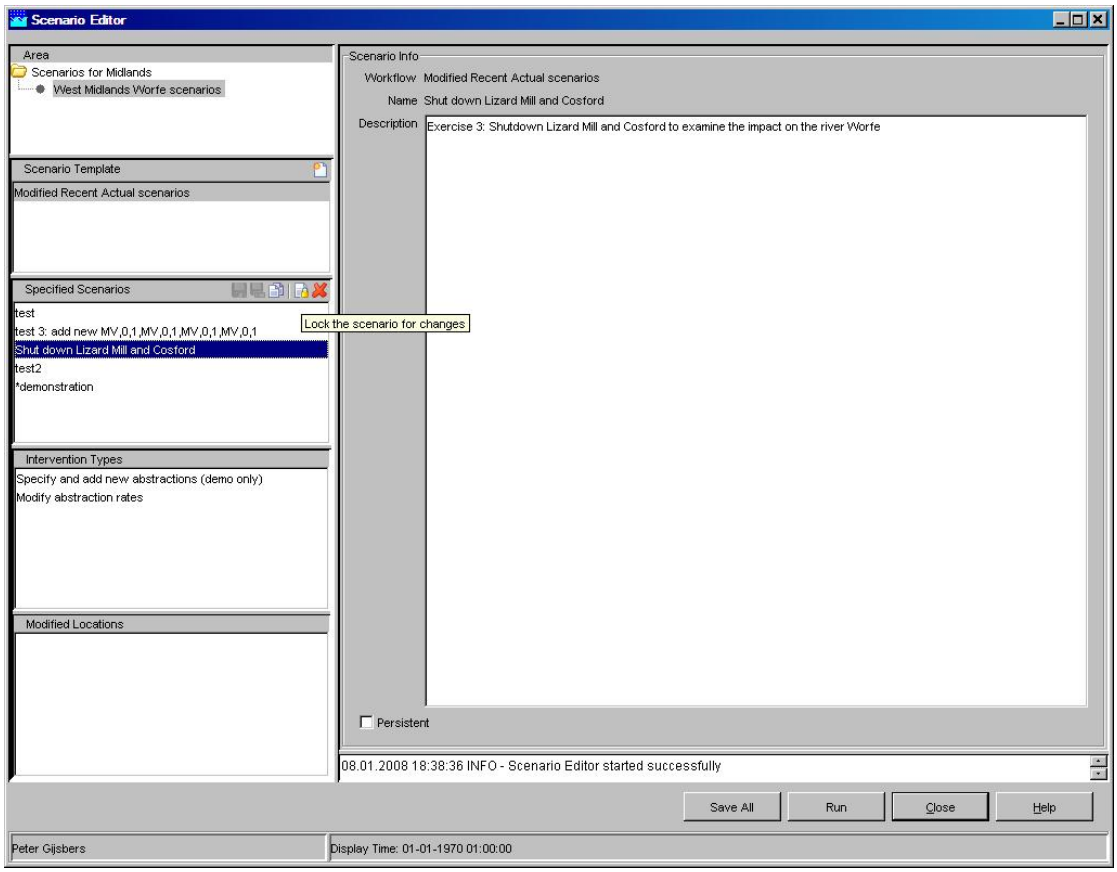
Alternative, use the 'Save all' button at the bottom of the editor. Note that this will save all scenarios which are or have been modified.

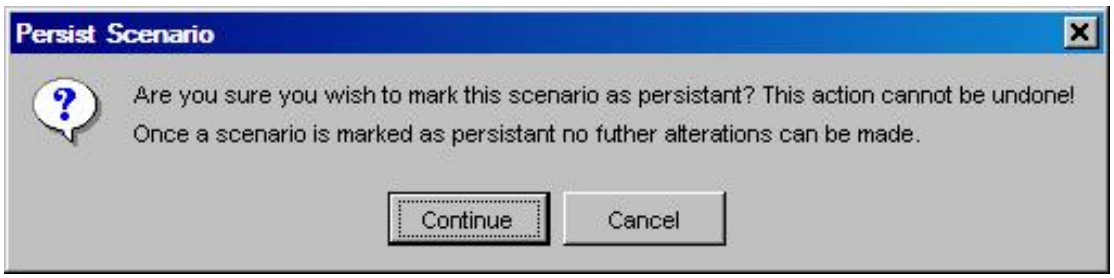
A scenario change is indicated by the '*' in front of the scenario name.

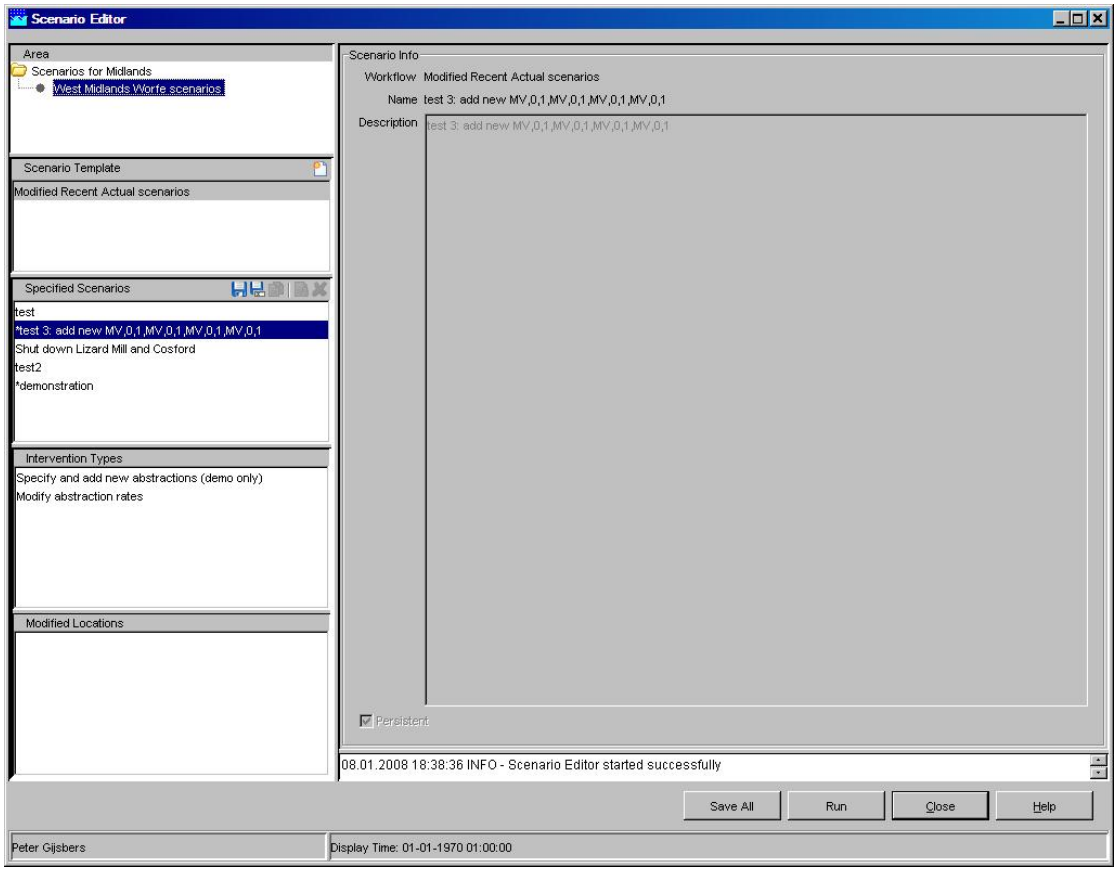
5.2.3 How to lock your scenario

If you are satisfied with your scenario and do not want anyone to change it, you should 'lock' it. A locked, or persistent, scenario cannot be modified. Deletion can only be done by system administrators.

- Within the <Specified Scenarios> list, select the scenario to lock
- Click <lock scenario for changes> (4th button or right mouse menu)
- The system informs you that this action cannot be rolled back.
  Click <continue>
- The scenario is locked for future editing, but it can still be used to run models.





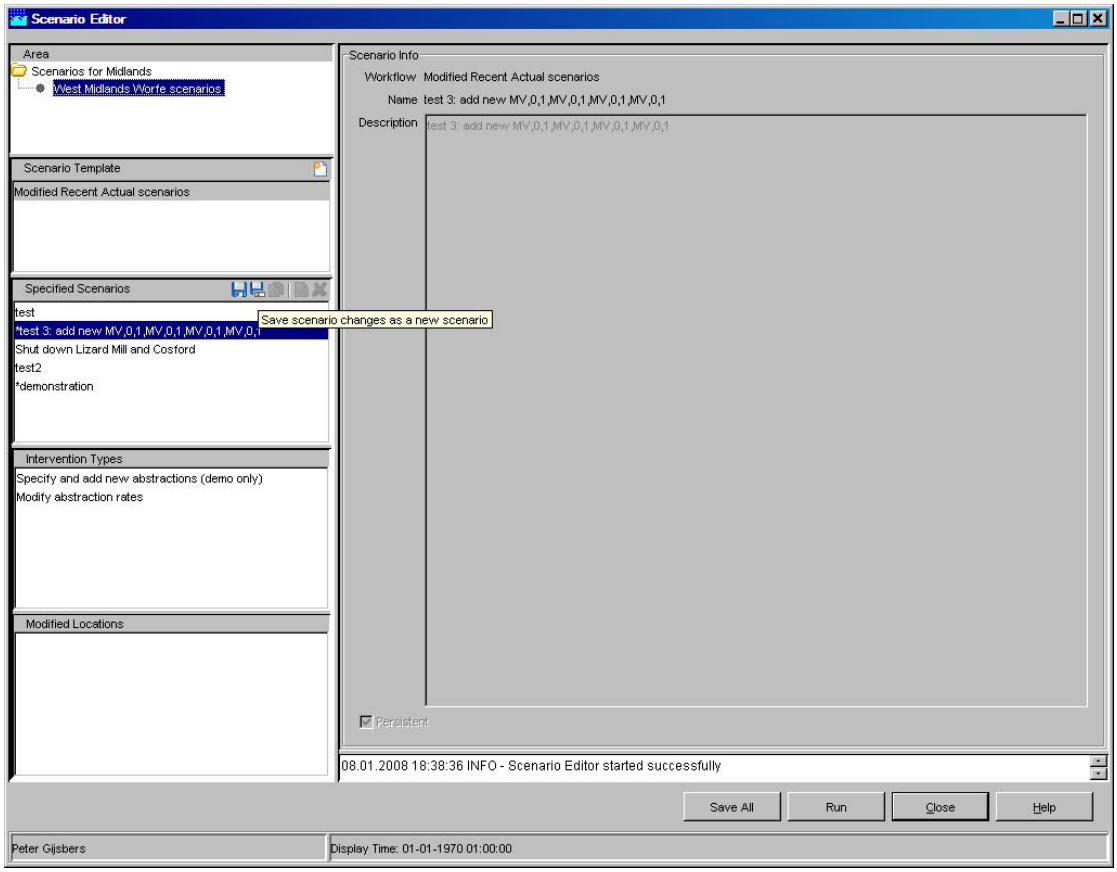

Scenario Editor
Area
Scenarios for Midlands
West Midlands Worfe scenarios
Scenario Template
Modified Recent Actual scenarios
Specified Scenarios
test
*test 3: add new MV,0,1,MV,0,1,MV,0,1,MV,0,1
Shut down Lizard Mill and Cosford
test2
*demonstration
Intervention Types
Specify and add new abstractions (demo only)
Modify abstraction rates
Modified Locations
Scenario Info
Workflow Modified Recent Actual scenarios
Name test 3: add new MV,0,1,MV,0,1,MV,0,1,MV,0,1
Description test 3: add new MV,0,1,MV,0,1,MV,0,1,MV,0,1
Persistent
08.01.2008 18:38:36 INFO - Scenario Editor started successfully
Save All
Run
Close
Help
Peter Gijsbers
Display Time: 01-01-1970 01:00:00

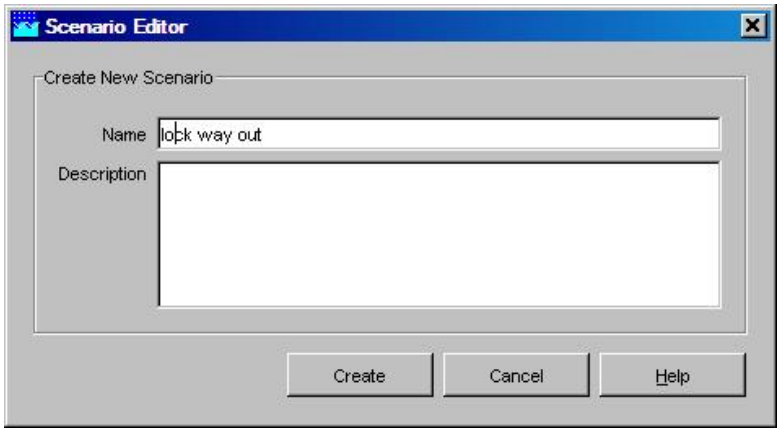
5.2.4 How to keep your 'original' scenario while you have modified it

If you are editing a scenario by accident, you can save it as a new one to preserve the settings of the old one.

- Click <save scenario changes as new scenario> (2th button)
- Enter a new name.

NB this only works if you did not save the changes you made to the original one





5.3 How to modify existing time series

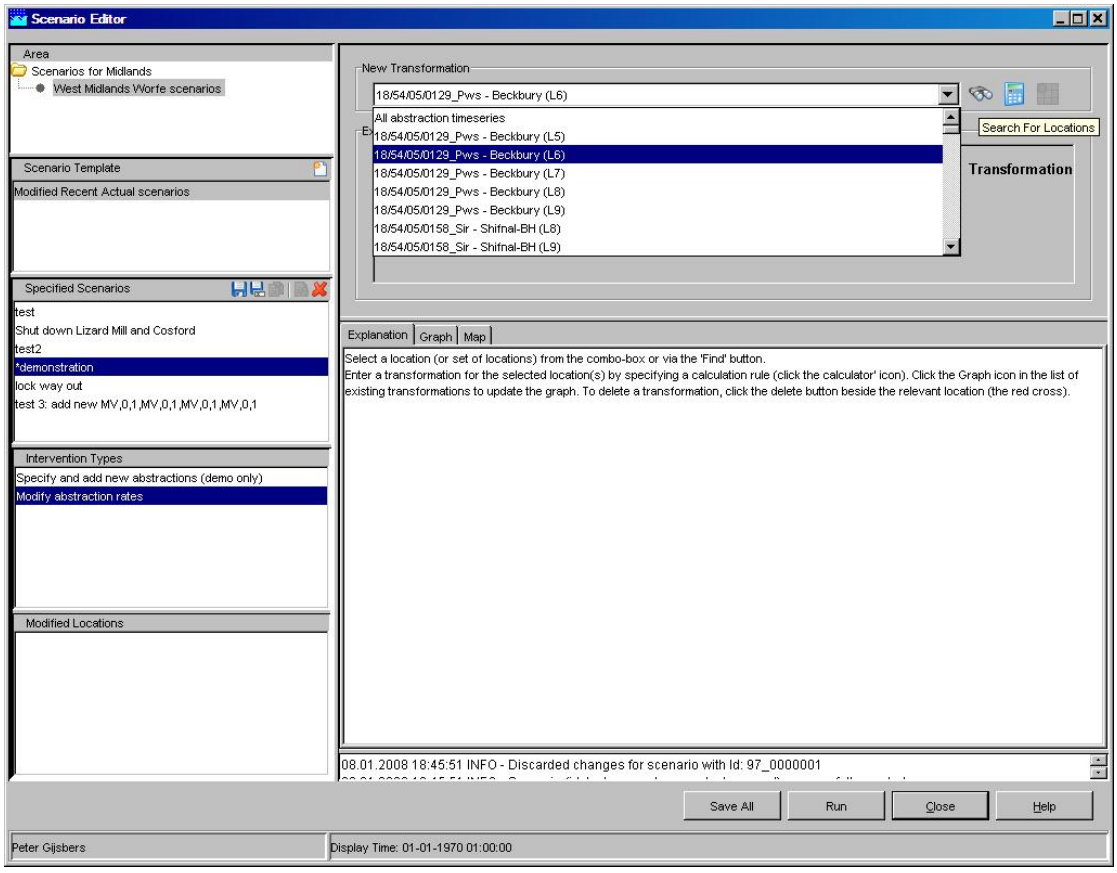
5.3.1 Select the intervention type

To modify existing time series such as abstractions rates, do follow the next steps:

- Select the scenario of interest or create a new one.
- Go to Intervention types field
- Select “Modify abstraction rates”
- Go to the top right panel (New Transformation)
- Read the explanation panel at the bottom

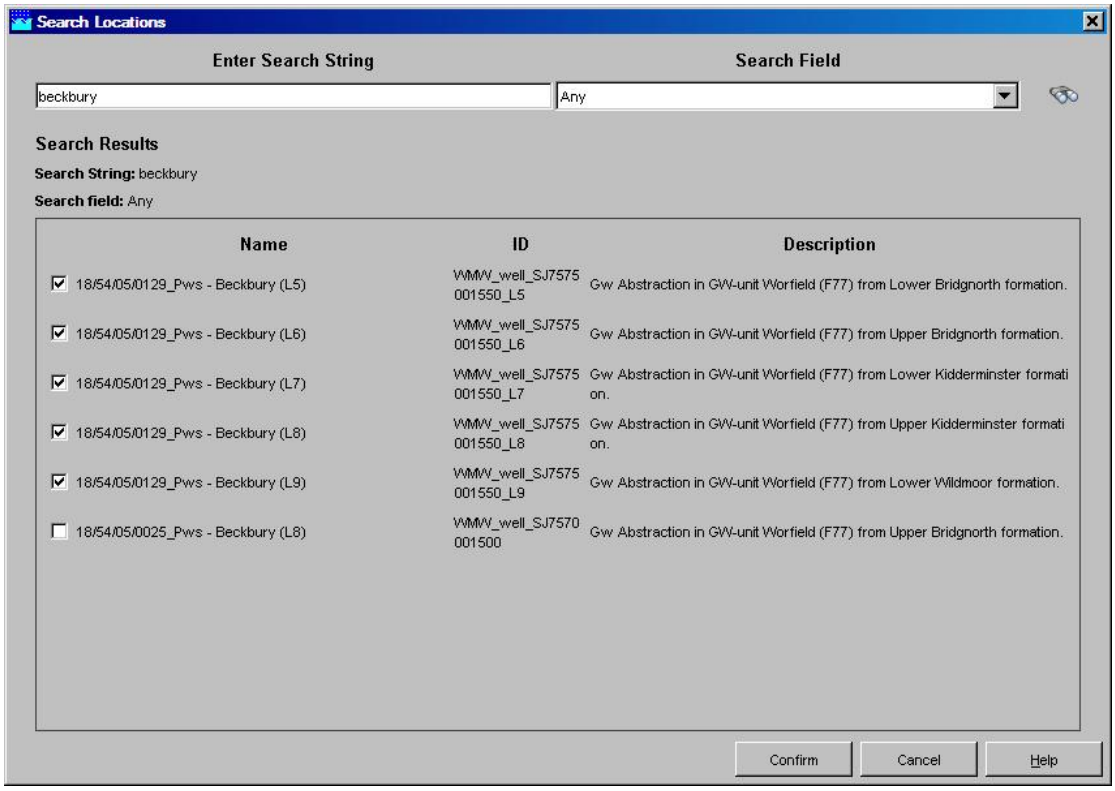
5.3.2 Select a location from the combobox

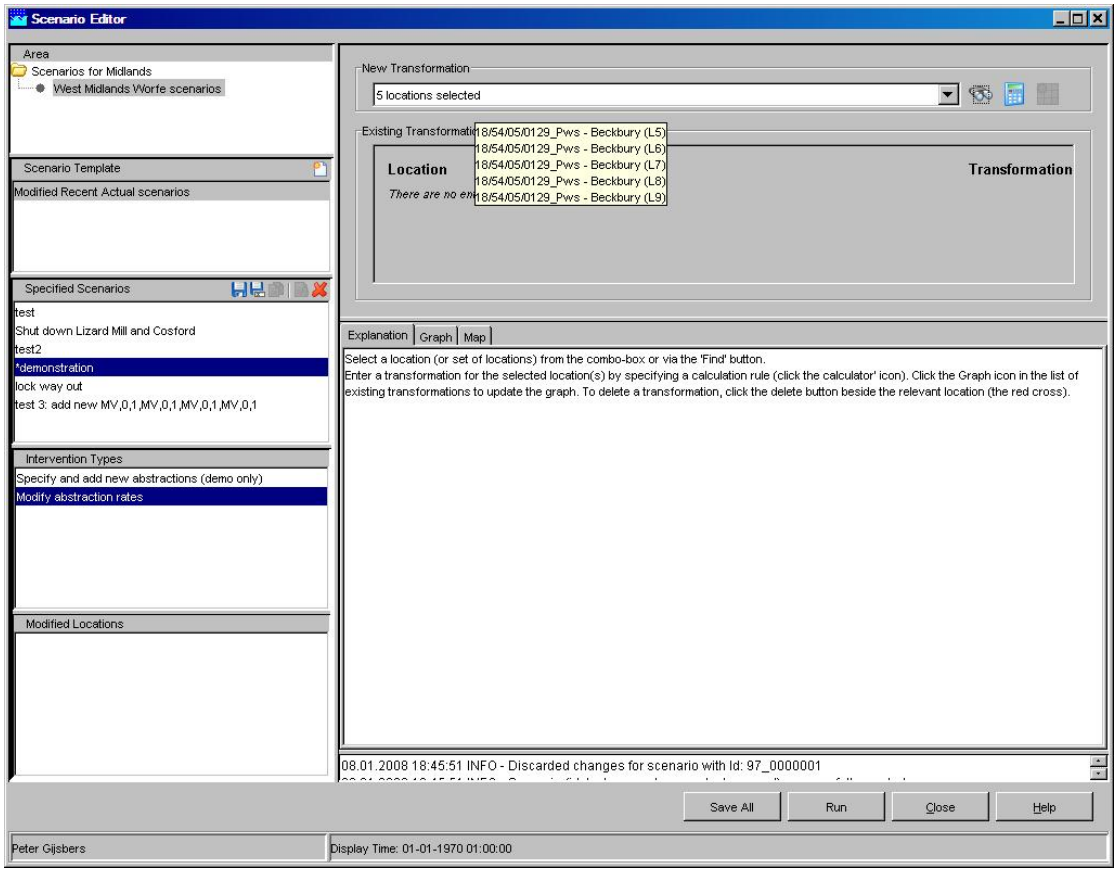
- Select a location from the combo-box.
- the combo box offers a selection of the full location set (i.e. all locations) or each one individually.
- Select the calculator button to formulate the modification (see next section).



5.3.3 Search a location for time series modification

- Use the 'Find' (binocular) button to search for a location or a set of locations.
- Enter the name or code of the location and press Enter or the binocular.
- Select the location(s) of interest and press confirm to hand back your selection.

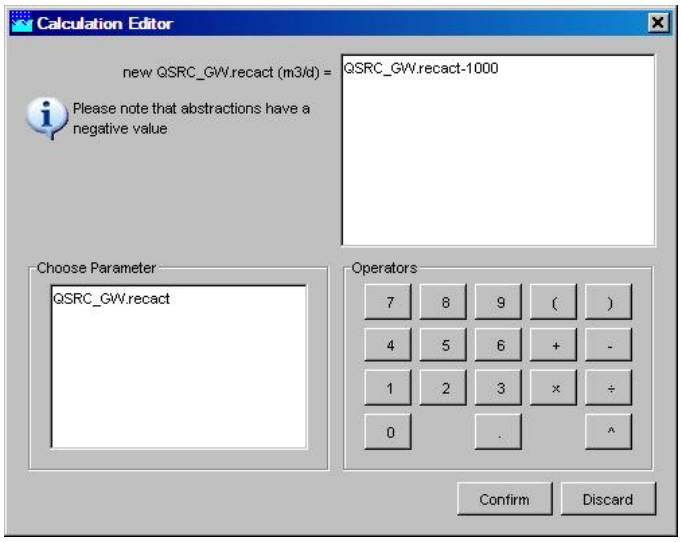

Search Locations
Enter Search String
Search Field
beckbury
Any
Search Results
Search String: beckbury
Search field: Any
Name
ID
Description
18/54/05/0129_Pws - Beckbury (L5)
WMV_well_SJ7575001550_L5
Gw Abstraction in GW-unit Worfield (F77) from Lower Bridgnorth formation.
18/54/05/0129_Pws - Beckbury (L6)
WMV_well_SJ7575001550_L6
Gw Abstraction in GW-unit Worfield (F77) from Upper Bridgnorth formation.
18/54/05/0129_Pws - Beckbury (L7)
WMV_well_SJ7575001550_L7
Gw Abstraction in GW-unit Worfield (F77) from Lower Kidderminster formation.
18/54/05/0129_Pws - Beckbury (L8)
WMV_well_SJ7575001550_L8
Gw Abstraction in GW-unit Worfield (F77) from Upper Kidderminster formation.
18/54/05/0129_Pws - Beckbury (L9)
WMV_well_SJ7575001550_L9
Gw Abstraction in GW-unit Worfield (F77) from Lower Wildmoor formation.
18/54/05/0025_Pws - Beckbury (L8)
WMV_well_SJ7570001500
Gw Abstraction in GW-unit Worfield (F77) from Upper Bridgnorth formation.
Confirm
Cancel
Help

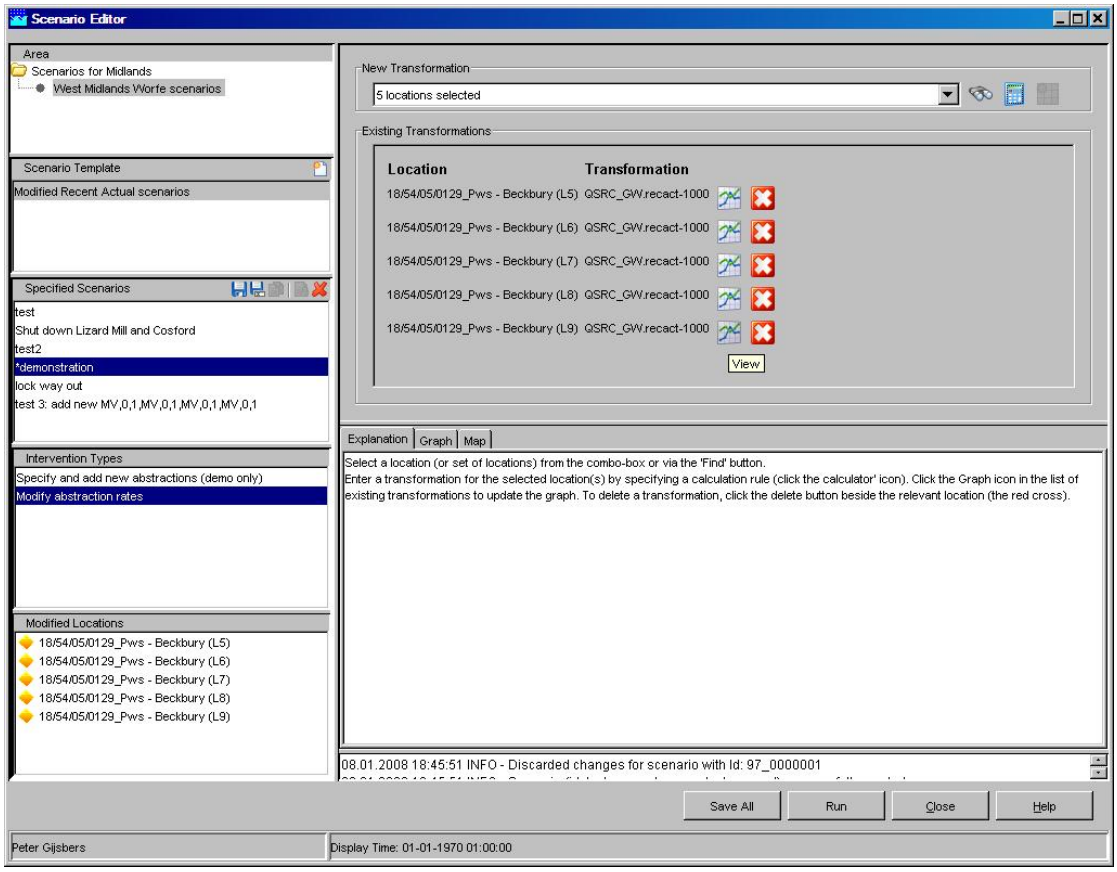

Scenario Editor
Area
Scenarios for Midlands
West Midlands Worfe scenarios
Scenario Template
Modified Recent Actual scenarios
Specified Scenarios
test
Shut down Lizard Mill and Cosford
test2
*demonstration
lock way out
test 3: add new MV,0,1,MV,0,1,MV,0,1,MV,0,1
Intervention Types
Specify and add new abstractions (demo only)
Modify abstraction rates
Modified Locations
New Transformation
5 locations selected
Existing Transformati
18/54/05/0129_Pws - Beckbury (L5)
18/54/05/0129_Pws - Beckbury (L6)
18/54/05/0129_Pws - Beckbury (L7)
18/54/05/0129_Pws - Beckbury (L8)
18/54/05/0129_Pws - Beckbury (L9)
Location
Transformation
There are no en
Explanation
Graph
Map
Select a location (or set of locations) from the combo-box or via the 'Find' button.
Enter a transformation for the selected location(s) by specifying a calculation rule (click the calculator' icon). Click the Graph icon in the list of existing transformations to update the graph. To delete a transformation, click the delete button beside the relevant location (the red cross).
08.01.2008 18:45:51 INFO - Discarded changes for scenario with Id: 97_0000001
Save All
Run
Close
Help
Peter Gijsbers
Display Time: 01-01-1970 01:00:00

5.3.4 How to define a time series modification

A modification can be defined by means of a formula or a table (not operational yet).

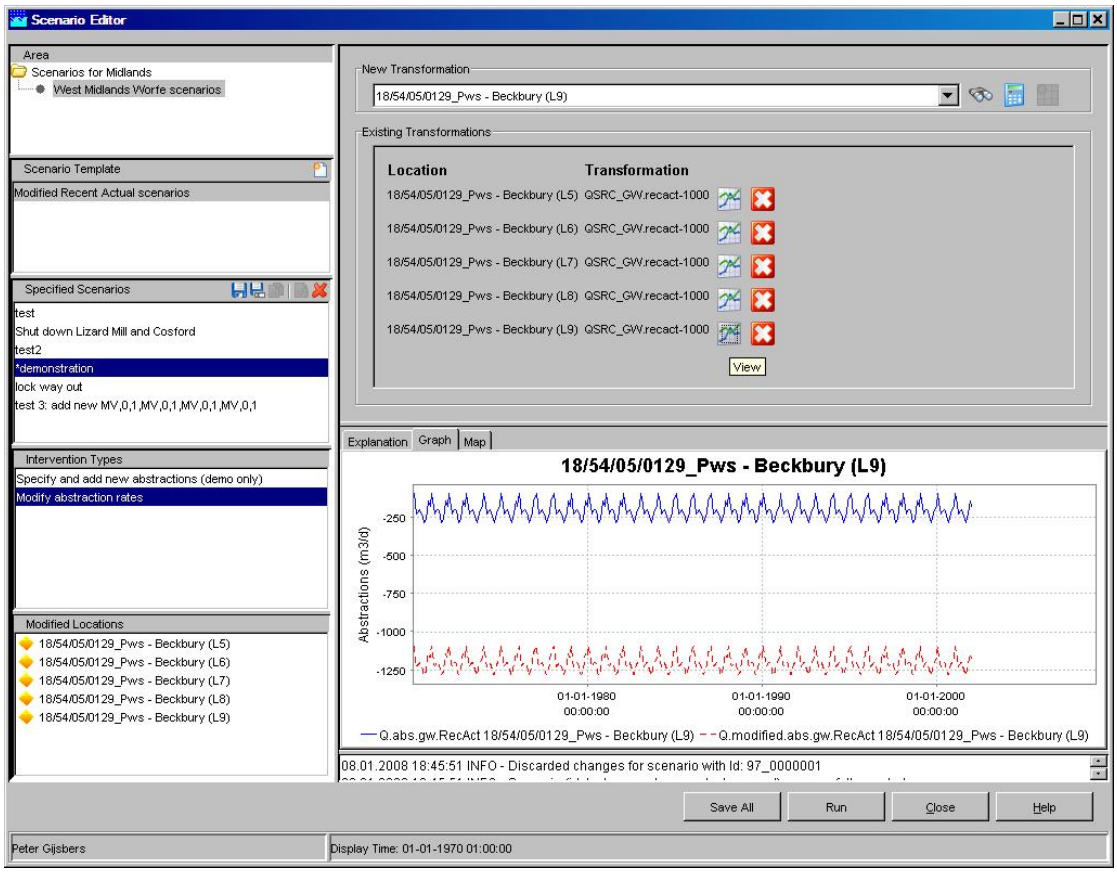
- Open the Calculation Editor by clicking the calculator.
- Enter a formula/calculation rule
  Please note the unit and sign conventions on the editor
  The formula as specified will be applied for the location(s) selected.
- Confirm the formula. A list of locations with formulas will appear.





5.3.5 Viewing the modification in comparison to the original data

- Click the Graph icon in the list of existing transformations to update the graph.
- If required, select the graph worksheet to view the original and the modified time series



5.3.6 How to manipulate a transformation which is incorrectly defined

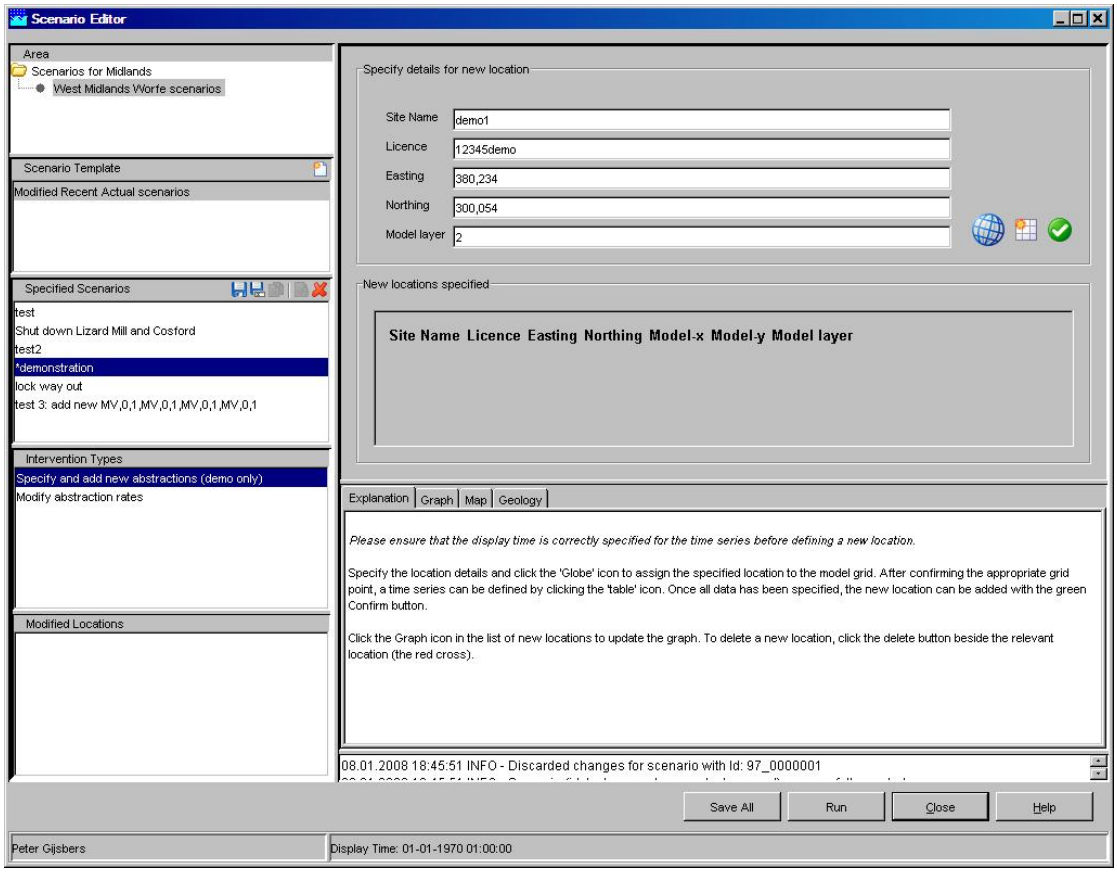
- Ensure that the proper location is active (either via the combo box or by clicking the graph icon)
- Click the calculator to open the editor
- Modify the formula and confirm
- To delete a transformation, click the delete button beside the relevant location (the red cross).

5.4 How to define a new location with associated time series

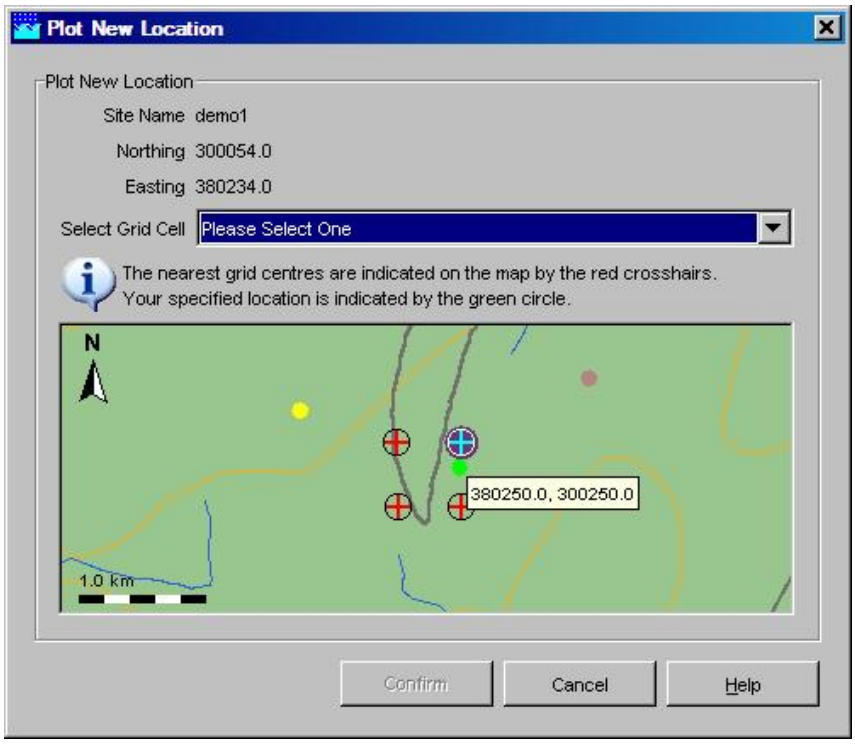
5.4.1 Defining the location

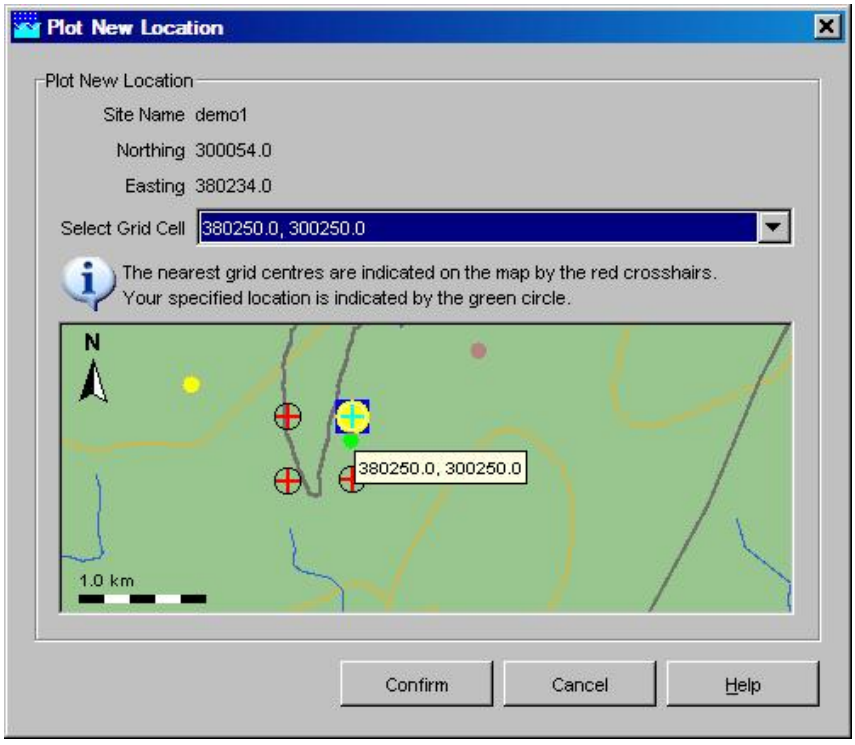
Please note: the specification is functioning, but the data will not be processed properly into the input files of Modflow.
Please ensure that you do the steps in the order as specified. An incorrect order may result in failure messages.

- Ensure that your display time is set at the beginning of period for which new values will be entered
- Go to the scenario to modify
- Select “Specify and add new abstraction (demo only)” in the intervention type field
- Go to the top right panel “Specify details for new location.”
- Fill the properties



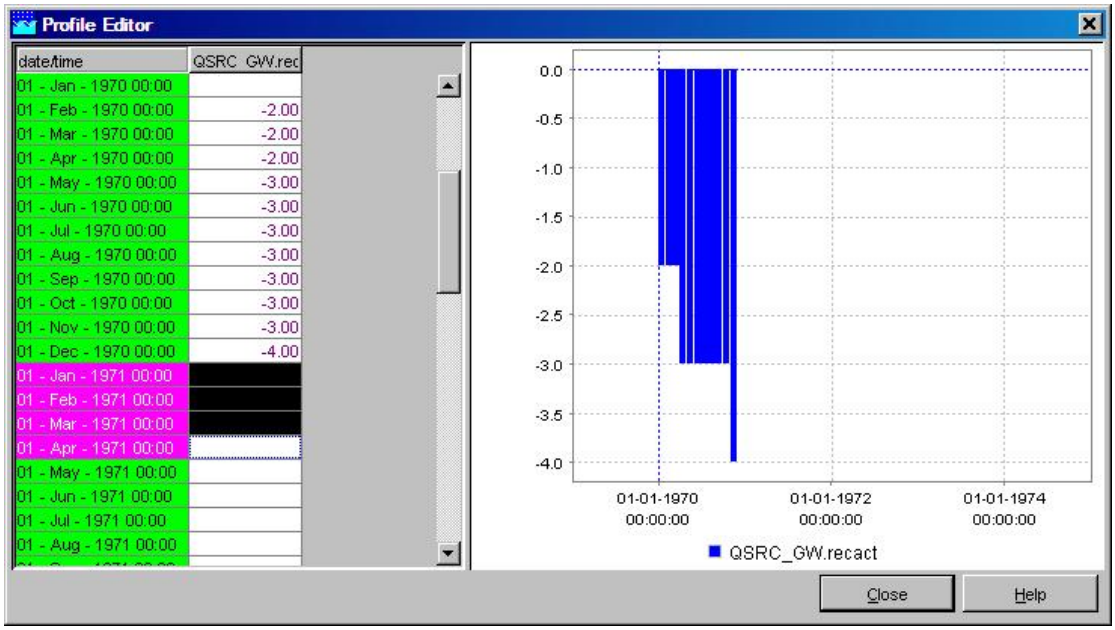
- Click the 'Globe' icon to assign the specified location to the model grid.
- Choose a grid point from the map or the combo-box and confirm the appropriate grid point





5.4.2 Defining the associated time series

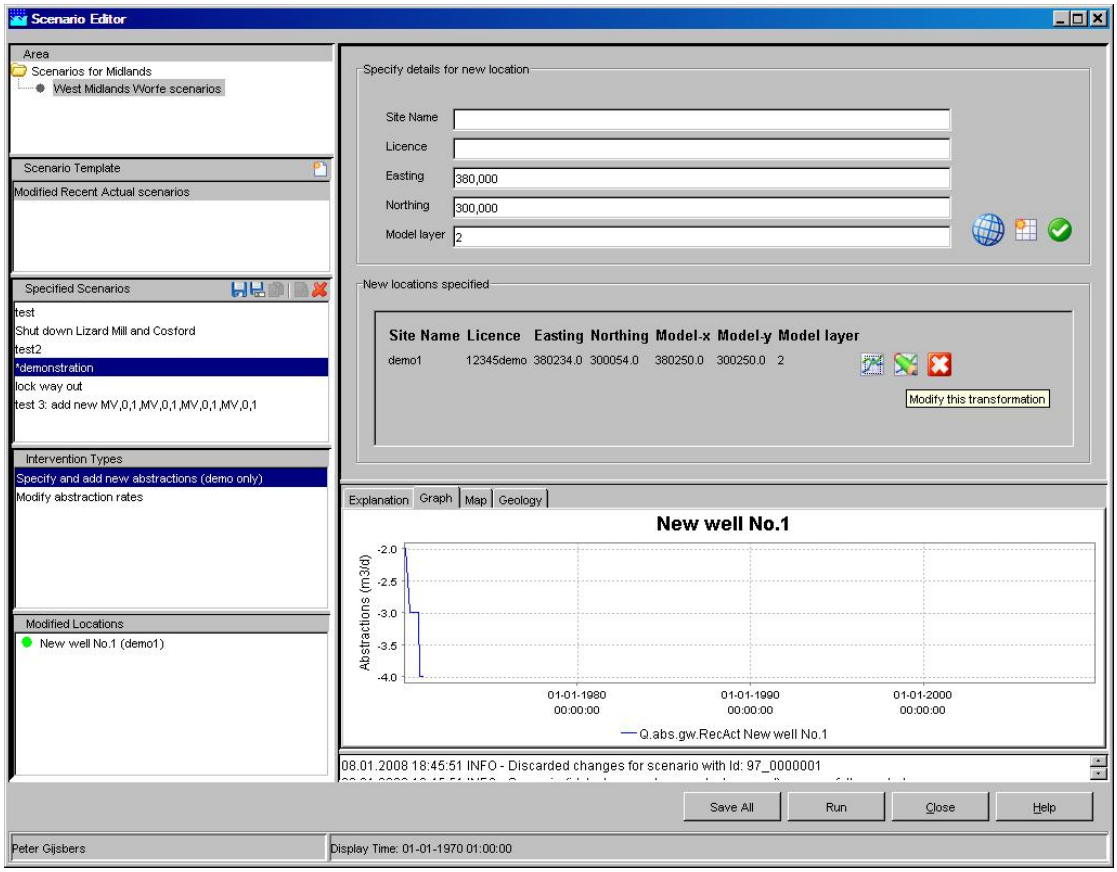
- Clicking the 'table' icon to define the associated time series
- Fill the table. Ensure that each record is filled with a value
  It is also possible to paste (Ctrl+V) the records from e.g. Excel
- Close the table editor



5.4.3 Confirm the new location

- Once all data has been specified, the new location has to be confirmed by clicking the green Confirm button.

5.4.4 Managing and manipulating new locations

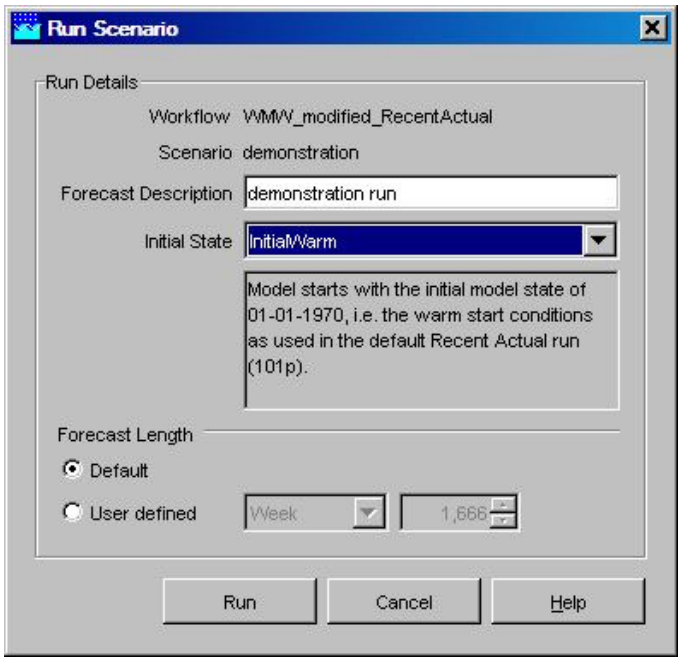


- To view a graph of the new location, click the Graph icon in the list of new locations and switch to the graph worksheet.
- To modify the time series, click the Pencil' icon. The table editor will popup. Note that this action is considered a data change even if you haven't changed any data
- To delete a new location, click the delete button besides the relevant location (the red cross).

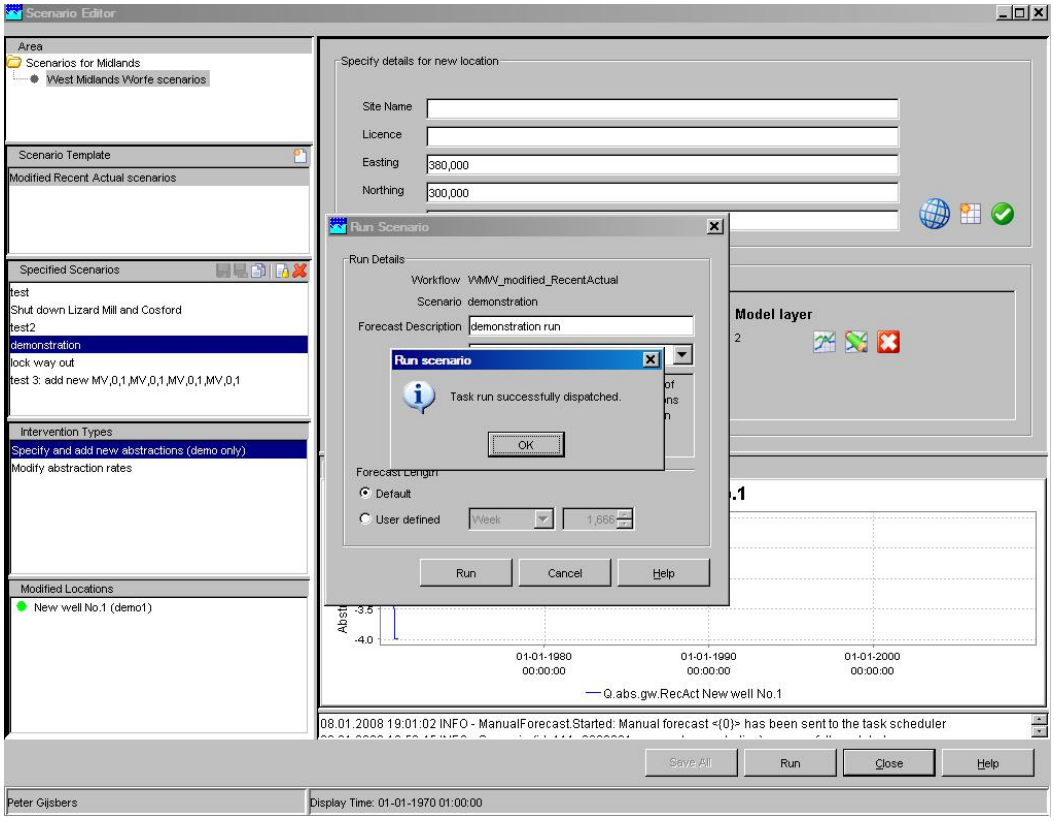
5.5 How to run a scenario

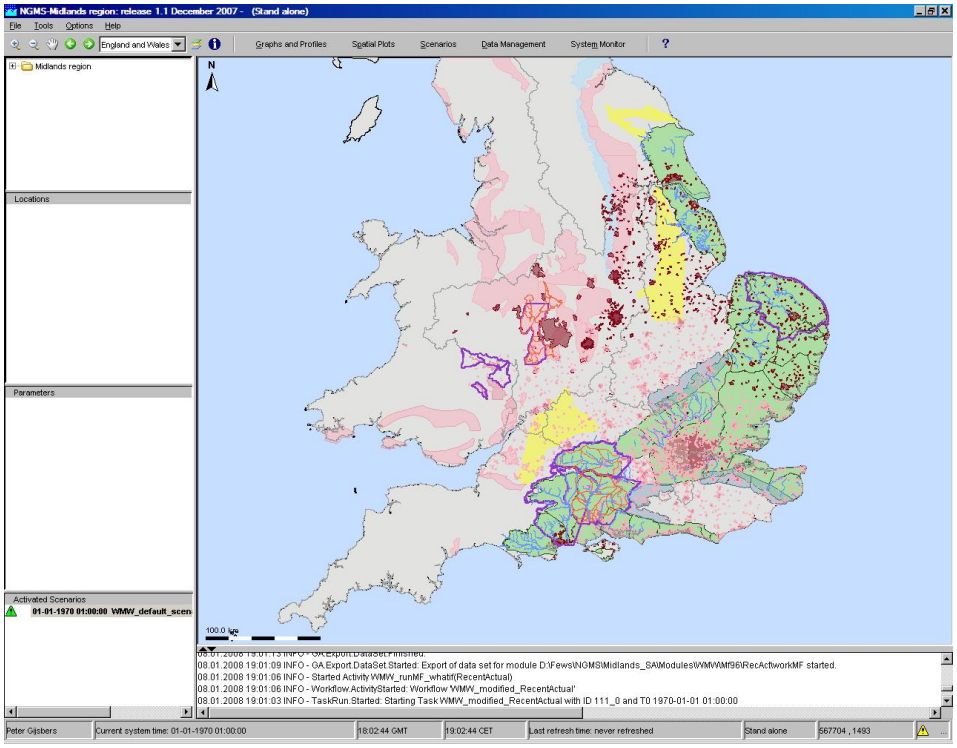
- Ensure that you've selected the proper scenario to run.
- Click the <Run> button at the bottom of the window.
- Before running the scenario you have to save the specified scenario. If you have not done it by your selves, either via the icons or via the <Save All> button, you will get the following message.
- Click whatever is appropriate.
  Cancel will go back to scenario editor mode without saving the scenario.
  Discard will discard your scenario
  Save and Save as will save your scenario

If the scenario is saved, the Run Dialog appears.



- Provide a relevant name for the run (e.g. a combination of name and state used)
- Select the relevant initial state from the Initial state combo-box
- Click <Run>
- The editor will inform you that the run has been dispatched
  Click <OK>



The model is running.

- Close the editor to go to the Explorer window.
- In the log panel you will see the log messages of the dispatched run.
- The run is completed when a message pops up into your screen.