NEW FEATURES

Available since version 3.2.212

interfaces

🛢 Diagnosis: Control Panel

This new feature can be found in the **Tools** menu, under **Diagnosis > Control Panel**. You can display several charts (plots or tables) simultaneously to monitor production and other information of wells or groups of them.

One of its characteristics is the interactivity between the charts and other windows within Sahara, such as **Maps** or **Production**. When the user selects a well or group of wells in a particular chart, they are highlighted in the rest of the charts available, as well as the **Map** window, and the **Production** window (displaying the curves assigned there).
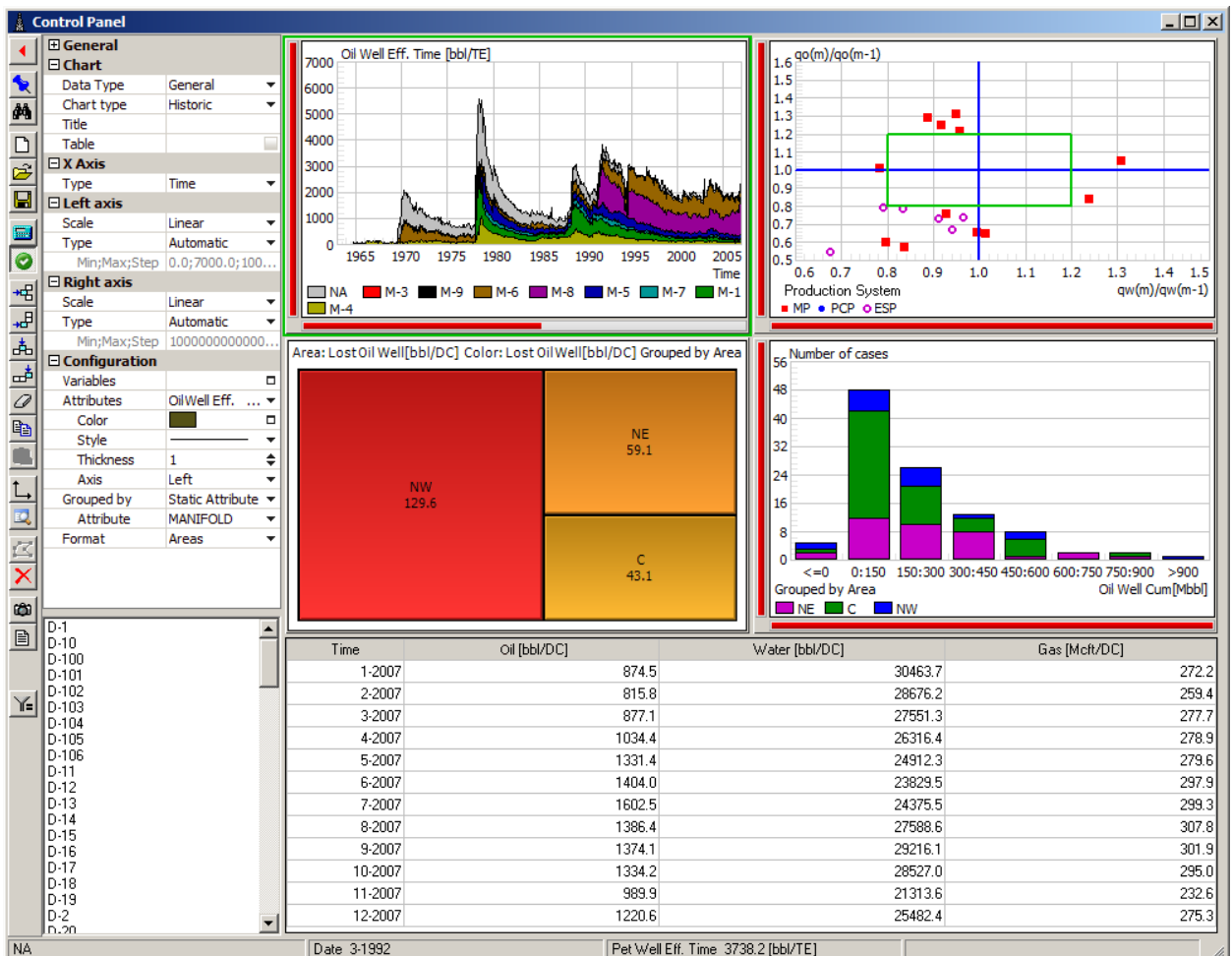
On the left area of the window there is a toolbar, a configuration panel and a list containing the selected wells.

The different charts are displayed on the right, and you can find a status bar on the bottom of the window showing information related to the mouse pointer´s position.

You can find the active template´s name on the window´s title bar.

Wells and groups

It is important to note that the user can work with a selection of multiple wells or multiple groups of wells that are going to be treat distinctively. In the second case, there are some charts that permit showing the data grouped by static or dynamic attributes and opened by well.

⚒ Toolbar

The toolbar handles templates, chart editing, and other specific window utilities.

▶ Show/Hide Configuration Panel
This button shows or hides the configuration panel, allowing extra room for the charts once they are configured.

🔖 Pin
If a group of wells is selected using the polygon option or clicking on a graph, a temporary group is going to be created in the Productions window and its pin is going to be automatically activated. Now using previous and next buttons the user could see the production of the selected wells.

🔍 Well selection
This button opens the Well selection window.
Once the selection of groups/wells is confirmed, the bottom list will display the names of the selected wells/groups.

Templates
The next 3 buttons allow to **Create**,**Save** and **Read** templates.
This templates are saved as "PTC" files in a folder (by default the one selected in **Edit > Configuration > Work folders > General Templates**)
These templates are project-independent; they can be opened and used in any Sahara Project.

▦ Apply
This button refreshes the charts in case "Auto-apply" is not selected.

✅ Auto apply
When this option is selected (by default: selected), any change in the configuration panel or well selection will refresh the charts.
You should unselect it when working with a large number of wells to speed up the configuration, and re-activate it afterwards.

⊞ Chart buttons
There are 4 buttons, allowing to **Add** or **Insert** charts, horizontally or vertically (always referred to the active chart´s position)
You can have as much as 5 rows of 4 charts each.
Another button **eliminates** the active chart
There are also 2 buttons that allow **Copying** and **Pasting** a chart´s configuration.

▱ Draw Polygon
This option allows the user to draw a polygon on the active chart.
Once the polygon is closed by clicking with the secondary mouse button, all wells contained within it will be selected and listed in the list.

✗ Remove selection
This cancels any selection made using a polygon and restores the list of wells or groups originally selected.

📷 Copy charts
This option copies all the window´s charts to the clipboard.
If **Ctrl** key is pressed while clicking, only the active chart will be copied.

📄 Copy list
This option copies to the clipboard the list of selected wells or groups.

⊽ Wells sub-selection
After using the draw polygon option, clicking on this button shows in the panel the sub-selected wells.

𝐌 **Chart types**

You can select the type of a particular chart by clicking on the first option in the configuration panel.
The options are:

- Variable-Variable
- Time-Variable
- Well-Variable
- ABC
- Histogram
- Hall (Prd)
- Historic
- Treemap
- Chan
- Histogram Time
- Bars

Each chart will show different configuration options that are not describe here because they are like those in "XY Charts". Here it only will be shown the news that are not included there.

When the user selects a well or group of wells in a particular chart, they are highlighted in the rest of the charts available, as well as the Map and the Production window (displaying the curves assigned).

▗▖ Histogram

It is a bar graph of a frequency distribution in which the heights of the bars are proportional to the class frequencies of wells or groups of wells that meets a condition.

For the X-axis can be selected both production variables and production control variables.
Once a variable is selected, the clasification criteria can be set using values ranges. The automatic option, creates automatically the classes considering the variable values. The manual option needs that the user enters the values of minimum, maximum and step and creates the correspondent classes. Using the user option, only the limits of the clases are required.
This example shows the number of wells that have oil rates between 0 y 40 with steps of 10 bbl/DC.
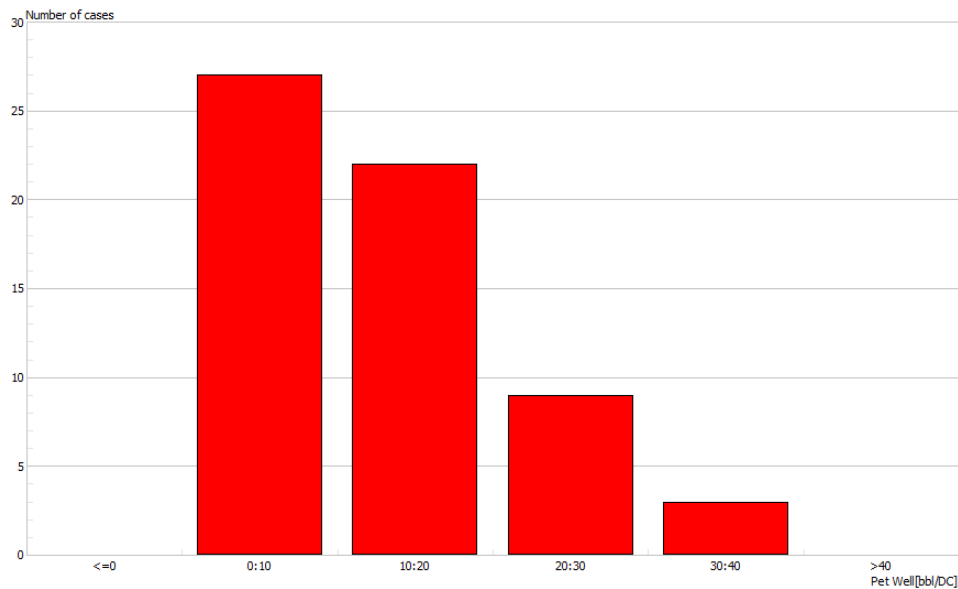
Grouping

An additional functionality of this type of chart is that a grouping selection can be done in each class. The grouping criteria can be static attributes, dinamic attributes, any production variable or any production controls variable.
Adding as grouping selection the static attribute "Block":
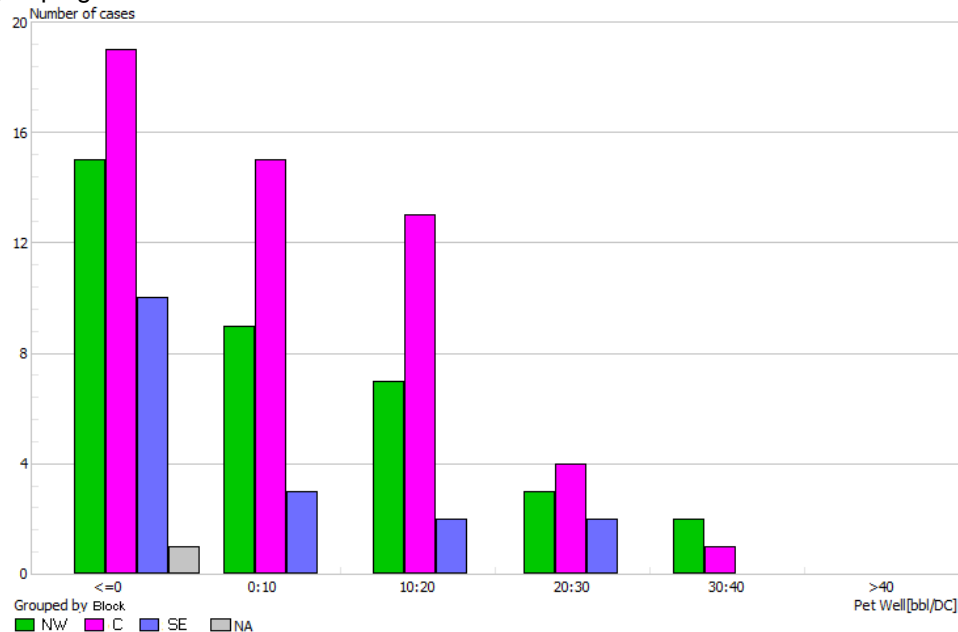
This chart shows, e.g.: 27 wells with rates between 0 and 10 bbl/DC are divided into: 9 in the NorthWest, 15 in the Centre and 3 in the SouthEast.

Discriminators

The ABC Prod plot showing the quotient or differences between the current flow and and the previous flow, now allows the user to apply discriminators removing from the graph those wells that gives values that are within a specified area limited by its extreme values.
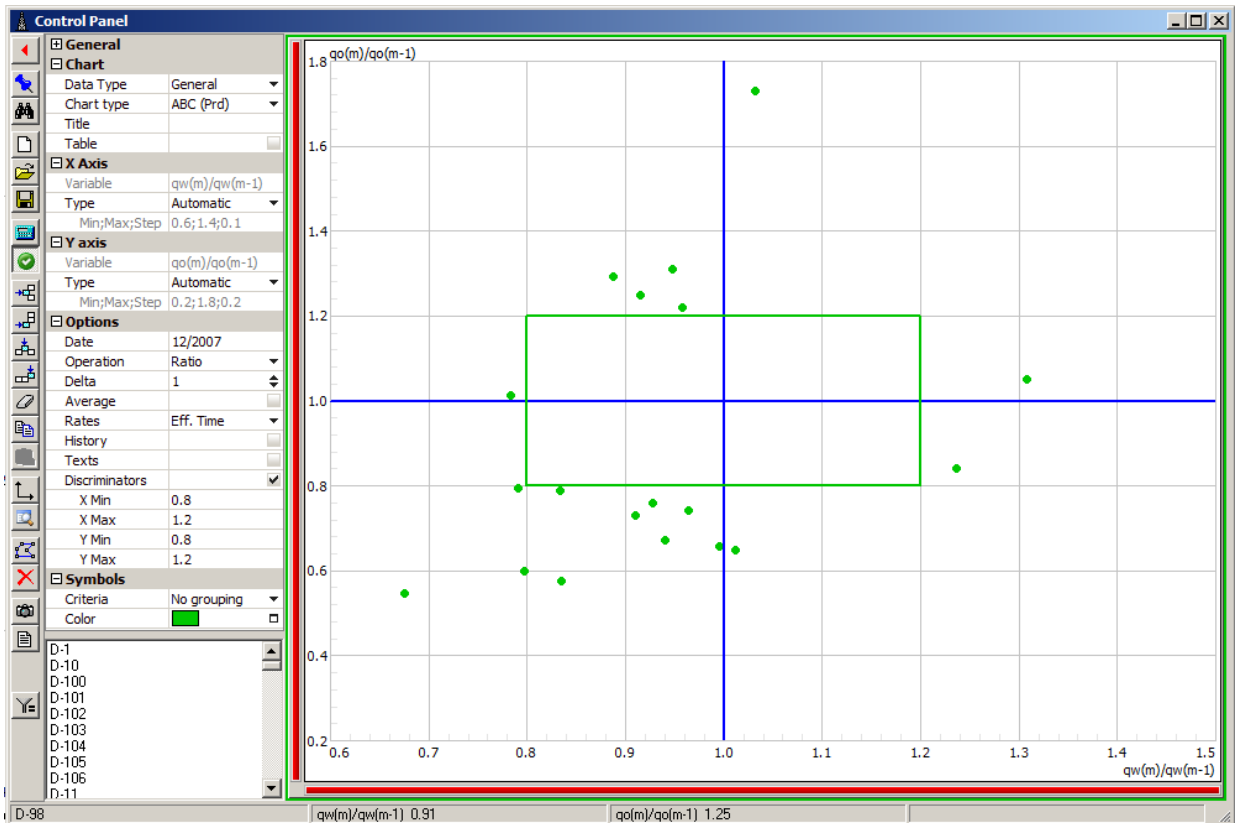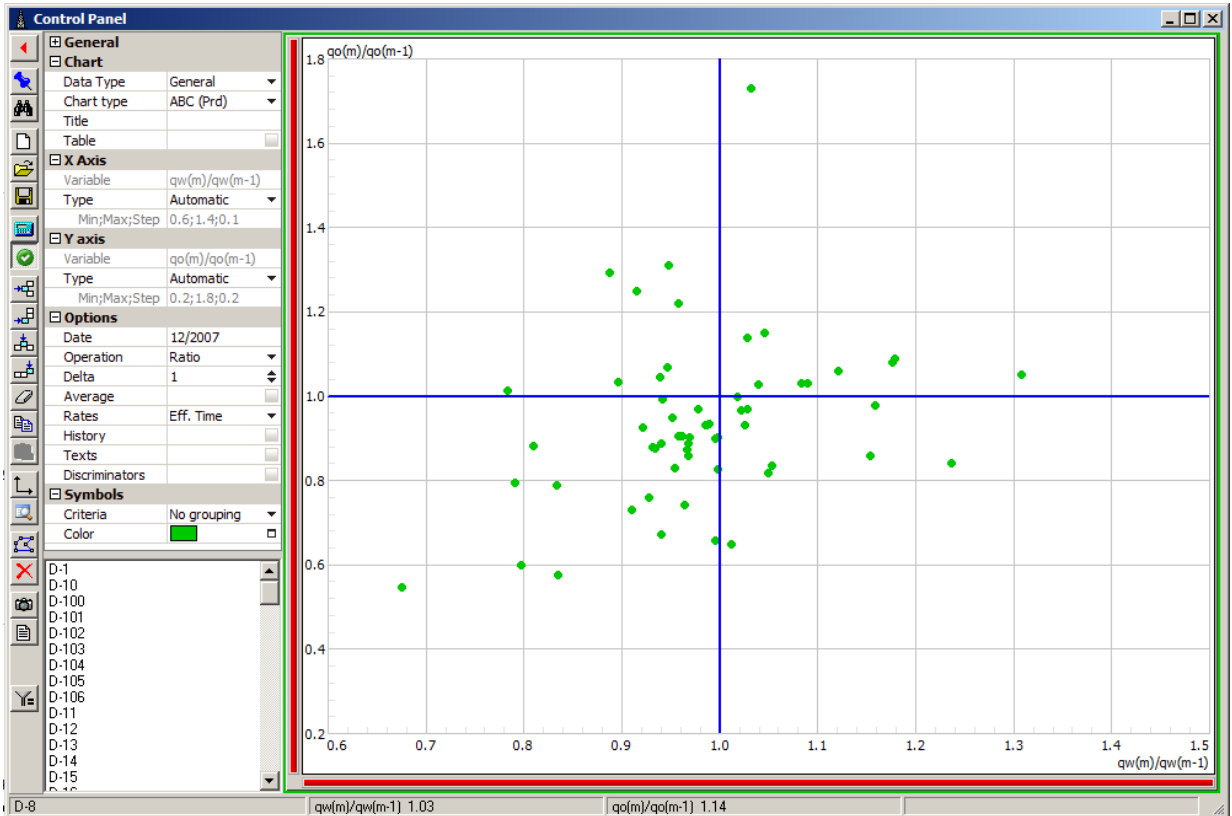
XY Charts – Markers

In the XY Charts, where the user can select both axis variable, there is the possibility to plot each well with a distinctive symbol and color corresponding to a third variable.
This third variable can be:
- A static attribute
- A dynamic attribute
- A production variable
- A production controls variable

For the next two examples, the configuration was:
- X axis: Oil Rate
- Y axis: Water Rate
- Third variable: in the first case the cumulative oil, going from yellow to red in increasing values; and in the second case the dynamic attribute Extraction System.

In both plots, the evolution of two months history is vizualized with blue lines.
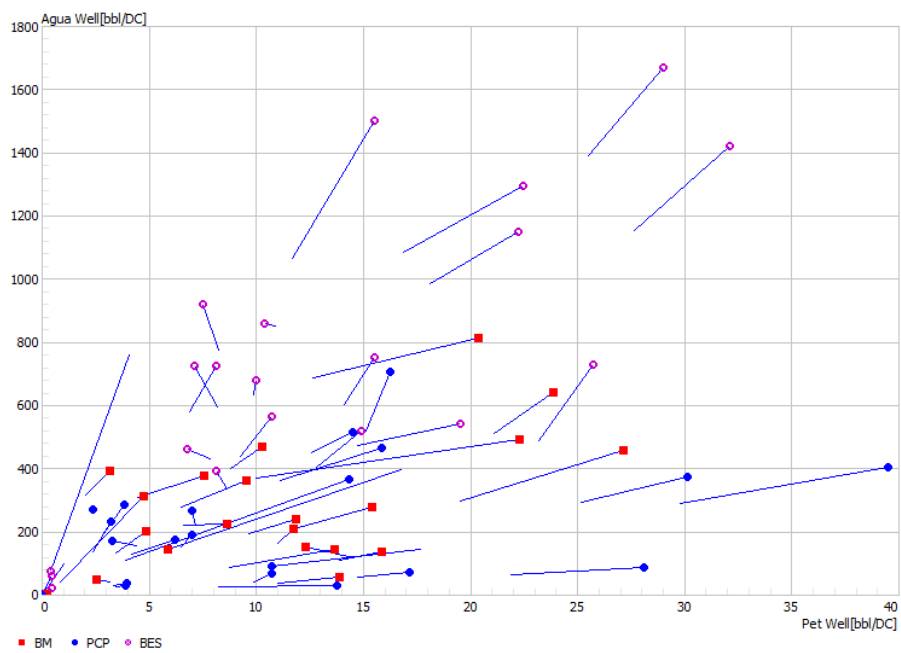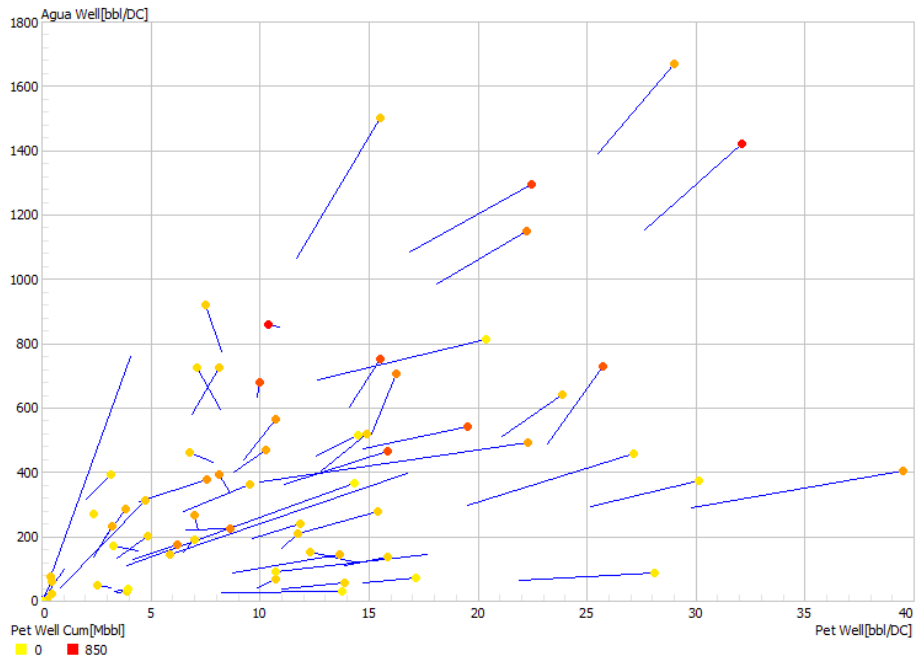
Hall Plots

This plot shows pressure multiplied by duration of injection versus the injected volumen for all selected wells.
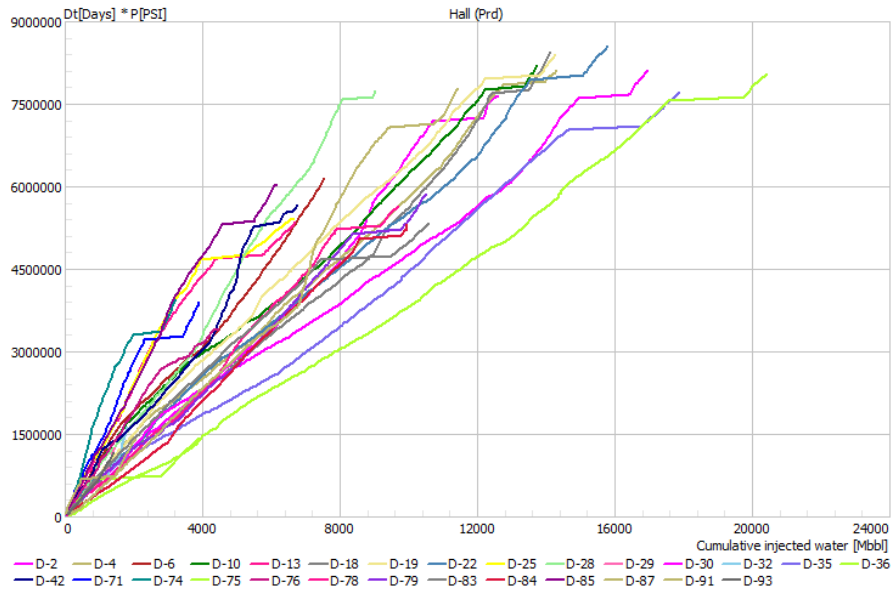
Static and Dynamic Attributes

To take advantange of the possibility to plot wells using the symbols or markers of their attributes, it is needed to have them configured and eventually ordered.
The symbols and colours asignation can be done easily going to: **Edit > Variables**
In this Windows selecting the Group wells, the user can configure each static or dynamic attribute selecting it in the Data menu.

Automatic assignment
This button assigns automatically symbols and colors to each value of the attribute. This configuration can be modified afterwards.

Order
This button gives a list in alphabetic order for the attribute, that could be pretty useful for example in one as Campaign:

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