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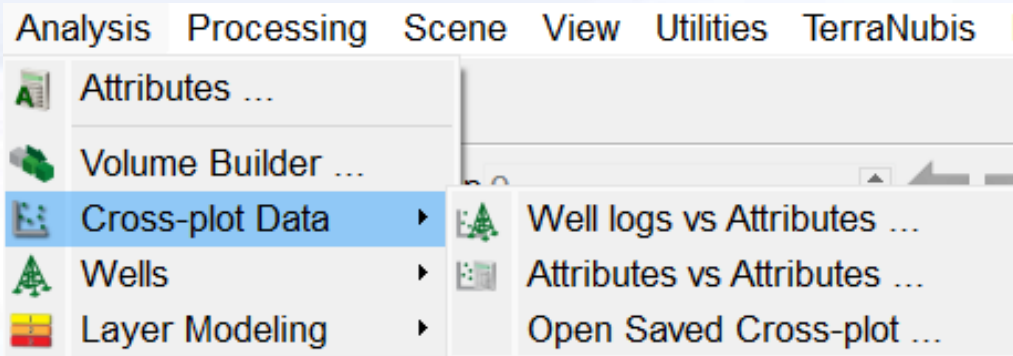
## 5.3 Cross-Plot

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## 5.3 Cross-Plot

The *Cross-plot* tool is designed to create two dimensional cross plots between 2D/3D seismic data (attributes) and either other attributes or well data. The data can be analysed in multiple maners, using different kinds of colour coding and data selection tools. It may be launched from the menu *Analysis > Cross-plot menu*.

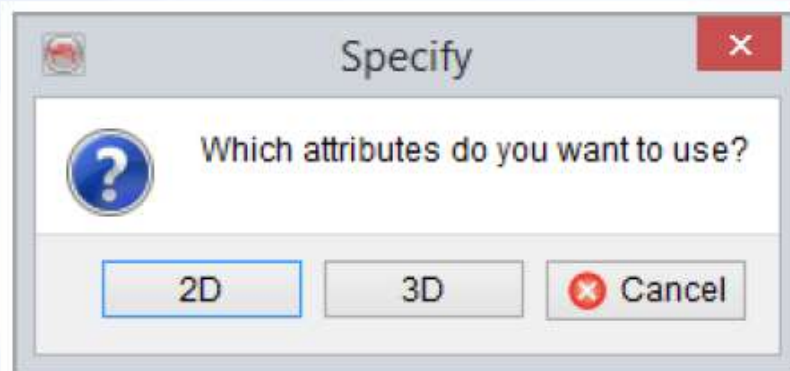


创建2D交汇图（2D/3D地震数据(属性)与其他属性或井数据）。  
数据可以多种方式分析，使用不同的颜色编码和数据选择工具。



### 5.3.1 Cross-Plot Data Extraction

The crossplot data must first be extracted, either on (a subset of) the horizon or along (deviated) well paths. 2D or 3D attributes can be used, and well logs if the extraction is done along the well paths. The extracted data will first be presented in a table before actually selecting the features to cross-plot.



The extracted data can be saved in the cross-plot table window and reopened without repeating the data extraction, from the menu *Analysis > Cross-plot > Open*.





### 5.3.1.1 Well-based Data Extraction

This window presents the attributes and/or logs that can be extracted along well path. The output will be presented in table before being used for cross-plot. At least one well must be selected, and one attribute or one log. It is also possible to select only attributes, or only logs.

The well track and time-depth model provide the locations where to extract the data. Values will be vertically extracted along a specially built measured depth axis. This axis is such that the step between two consecutive depth samples is constant but with few jumps, such that the Z difference (time or depth depending on the survey type) between consecutive depths is around the survey default sampling rate. Therefore at shallow level 1 seismic sample can correspond to 4 meters, then 8 meters at intermediate depths, 12, 16 and so on.

- Attribute values are vertically interpolated along that created MD axis, since they are unlikely to be along the Z axis defined by the survey geometry. A polynomial interpolation is performed.
- Log values are extracted in the depth domain around the depth to be computed, plus or minus half of the distance to the previous and next depths. All collected values are then processed (up-scaled) using a provided "Log resampling method" (see below).



Attribute/Well Cross-plotting

Attribute

- ☒ Q factor
- ☒ Energy
- ☒ Amplitude variance
- ☒ Amplitude average
- ☒ Edge Preserving filter (TLE Feb 2002)
- ☒ Dominant Frequency
- ☒ Similarity

Well

- ☐ F02-1
- ☐ F03-2
- ☐ F03-4
- ☐ F06-1

Log

- ☐ Density
- ☐ Sonic
- ☐ Gamma Ray
- ☐ Porosity
- ☐ P-Impedance
- ☐ P-Impedance\_rel
- ☐ Vp
- ☐ Density\_edited

Extract Between Markers ☐ Extract in time Step (m) 1

Selected zone <Start of data> <End of data>

Distance above/below (m) 0 0

Log resampling method Use Average

Radius around wells (m) 25

Filter positions - Select ...

OK Cancel Help

3D Data extraction for Well vs. Attributes Cross-Plot

Attribute/Well Cross-plotting

Attribute

- ☒ Q factor
- ☒ Energy
- ☒ Amplitude variance
- ☒ Amplitude average
- ☒ Edge Preserving filter (TLE Feb 2002)
- ☒ Dominant Frequency
- ☒ Similarity

Well

- ☐ F02-1
- ☐ F03-2
- ☐ F03-4
- ☐ F06-1

Log

- ☐ Density
- ☐ Sonic
- ☐ Gamma Ray
- ☐ Porosity
- ☐ P-Impedance
- ☐ P-Impedance\_rel
- ☐ Vp
- ☐ Density\_edited

Extract Between Markers ☐ Extract in time Step (m) 1

Selected zone <Start of data> <End of data>

Distance above/below (m) 0 0

Log resampling method Use Average

Radius around wells (m) 25

OK Cancel Help

2D Data extraction for Well vs. Attributes Cross-Plot





The following specific extraction parameters are available:

**Extract between:** It is used to limit the z-range (depth or time) of the data to extract. There are three options supported: *Markers*, *Depth* and *Time*.

If *Markers* is selected (which is default), the Start/Stop markers should also be selected from the combo boxes that are available below the extract between field.

If *Depth* is selected in the extract between field, the start/stop (m) field will be toggled on. In the later fields, starting and stopping depth range is typed in to restrict the data extraction into an interval.

Similarly, if *Time* is selected in the extract between field, the start/stop (ms) field will be toggled on.

Finally, the step-out for extracting both *Attributes* and *Well data* samples has to be defined. This can be defined in meters (default), feet (if the survey is in feet) or milliseconds. The *Extract in time* check box is usually toggled on if you want to define the data extraction step-out in TWT. It is advisable to check this box when extracting data for crossplotting against seismic volumes.



- **Distance above/below:** It is used to modify the vertical range of the extraction window using a relative distance from the provided well markers, in depth. A negative number will decrease the extraction window, a positive number will increase it.
- **Log resampling method:** Logs will be up-scaled using this method. 'Average' should be used for most of the logs. *Median*, most frequent and nearest sample are more fit for discrete logs like lithology, but can also occasionally be used for other types.
- **Radius around wells:** All traces that can be reached within the search radius will be extracted. If several traces around a well are found, the same extracted log value is posted in front of the collected attributes values. This option will only duplicate all data if no attributes are extracted. The default value is the survey bin size, *use value "0" to extract only the nearest trace*, i.e. one value per well per depth.
- **Filter positions:** See the location filters section in the same chapter.

Extract Between **Markers** ☐ Extract in time Step (m) 1

Selected zone **Markers** End of data> **Depth range**  
Time range

Distance above/below (m) 0 0

Log resampling method Use Average

Radius around wells (m) 25





### 5.3.1.2 Attribute-based Extraction Window

Attributes based data extraction window is used to extract an attribute data (stored volumes or a defined attribute) within a volume defined by a range, polygon, surfaces, body or a well path with lateral extension. The same window (shown below) could also be used to extract an attribute data along a time slice or along a surface.

Note that at least one attribute must be selected prior to data extraction. "Attributes" list shows all attribute currently loaded in the window, and the stored volume under brackets. For multiple attributes selection, use the left mouse button by holding and dragging it up/down-ward. For 2D data extraction one or more attributes along-with their corresponding "Line names" (at least one) should be selected.







Attribute cross-plotting

Select attributes and locations for cross-plot

☒ Attribute

- ☒ Q factor
- ☒ Energy
- ☒ Amplitude variance
- ☒ Amplitude average
- ☒ Edge Preserving filter (TLE Feb 2002)
- ☒ Dominant Frequency
- ☒ Similarity

Select locations by Range

In-line Range 100 748 Step 9

Cross-line Range 300 1245 Step 9

Time Range (ms) 0 1600 Step 400

Location filters - Select...

OK Cancel Help

3D data extraction for Attributes vs. Attributes Cross-plot

Attribute cross-plotting

Select attributes and locations for cross-plot

☒ Attribute ☐ Line(s)

- ☒ Q factor
- ☒ Energy
- ☒ Amplitude variance
- ☒ Amplitude average
- ☒ Edge Preserving filter
- ☒ Dominant Frequency

- ☐ PAR0
- ☐ PAR1
- ☐ PAR2
- ☐ PAR3
- ☐ PAR4
- ☐ PAR5

Select locations by Range

Number Range 1 Step 10

Time Range (ms) 0 1600 Step 400

Location filters - Select...

OK Cancel Help

2D data extraction for Attributes vs. Attributes Cross-plot



The volume/horizon based extraction is performed by selecting locations according to one of the following criteria:

- **Range:** It is selected to extract the data on a regular 3D volume or a grid (if it is a time slice). The steps are the increments in the corresponding range. To extract dense data points for a crossplot, smaller steps should be used. Note that the larger steps will decrease the amount of extracted data. Cubes coarser than the requested grid will not be interpolated, undefined values will be posted to the cross-plot table instead. *For 2D data extraction this is the only possible option and only the time range can be specified.*
- **Polygon:** The lateral extent for a crossplot data could also be defined by a polygon. Once the *Polygon* option is chosen, the desired polygon is chosen by pressing the *Select* button. The inline/crossline steps are the increments in the inlines/crosslines range within the polygon. The time range is also an additional constrain in data extraction that defines a vertical restriction window for a polygonal type of volumetric cross-plot.
- **Table:** Only positions listed in a table will be used for the extraction. The table might be an OpendText pointset, or a column-sorted ASCII file with inline, crossline and Z values in the first three columns respectively.
- **Surface:** Used for data extraction along a 2D/3D horizon, or between horizons. Please note that the attributes will be interpolated if extracted along an horizon. If the extraction is done between two horizons (volume based extraction using a user-defined Z step), it will not interpolate the attributes. The "Extra Z" values increase or decrease the extraction window size, and work similar as the attribute set time gates (relatively). The left value applies to the top horizon and the right value applies to the base horizon.
- **Body:** It is used to restrict the data extraction within a selected 3D body. The radio boxes inside/outside are used to extract the data either inside or outside the selected body. If it is outside, the further ranges are sub-selected in the *Within bounding box* field.
- **Well:** It is used to extract attribute data along the selected well paths. The data would be extracted vertically and according to the (TWT/depth dependent) survey setup. The time gate is defined by providing a time range with time steps (vertical sampling rate).
- **Location filters** can be added in order to add one or several restrictions to the area of extraction.





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### 5.3.1.3 Location Filters

The filters should be used to further limit the amount of data to be extracted for making cross-plots. Several filters can be used simultaneously.

Filters

Specify Filters

☐ ▼

- ☐ Random
- ☐ Subsample
- ☐ Range
- ☐ Surface

Percentage to pass 1

OK Cancel Help



Filters are of two types:

The first two filters, *Random* and *Subsample*, are not position related. The *Random* filter passes a certain percentage of random samples selected in the main extraction window, while the *Subsample* filter will pass a finite (user-defined) number of samples. For instance, for the *Random* option, if the value is 1, only 1% of all extracted data would be selected for cross-plotting.

The last four - *Range*, *Polygon*, *Table* and *Surface* (see previous section for definitions) are position based filters. These are used to define sub-areas that will complement the extraction settings provided in the main extraction window. Multiple filters can be chosen out of these. Thus, the points satisfying the main extraction settings and all defined filters will be used for the extraction of attributes.







## 5.3.2 Cross-Plot Table

The crossplot table displays the extracted data. It is used to edit and plot the data for a crossplot. A row in the table corresponds to one extracted data point, annotated by its position (X, Y and Z) and followed by the collected attributes values (forming at vector, from left to right: logs, attributes, stored data). The star adjacent to an attribute name indicates sorted column. Empty cells represent attributes than could not be extracted with the provided the settings for data extraction.

The table enables the manipulation and edition of the collected data, prior to making cross-plots. For instance, it is possible to sort the data from an attribute, and to delete the first or last rows, before plotting the data. Please note that the table window is interactively linked with the cross-plot window. Any editing done in the cross-plot window will reflect in the table window that remains open and active while working in the cross-plot window.







CrossPlot from saved data

Save Edit X Y+ Y- X Y Z Show 50,0% Show In/Ctrl

Xplot-Well-Seismic\_copy

	X-Coor	Y-Coor	Z (ms)	* In-line	X-line	X Offse	Y Offse	Selecti	MD(m)	Densit	SD24	SD44	SD64	Energy	[1 ^
361/336	6065...	6080...	235.04	361	336	0	0	1	261.97	2.002	7521...	7961...	5661...	2190...	-10
361/336	6065...	6080...	237.03	361	336	0	0	1	263.97	1.99...	7491...	7045...	4486...	2354...	-36
361/336	6065...	6080...	239.02	361	336	0	0	1	265.97	1.65...	7409...	5841...	2697...	2346...	12
361/336	6065...	6080...	241.02	361	336	0	0	1	267.97	1.39...	7457...	5261...	1694...	2342...	-46
361/336	6065...	6080...	243.01	361	336	0	0	1	269.97	1.49...	7642...	5479...	1756...	2340...	-75
361/336	6065...	6080...	245	361	336	0	0	1	271.97	1.56...	7912...	6371...	2878...	2294...	-10
361/336	6065...	6080...	247	361	336	0	0	1	273.97	1.48...	8249...	7751...	4762...	2220...	-68

Close Help


Standard workflow: Save , edit, click in a column and then , click in another column and then , launch the cross-plot window .

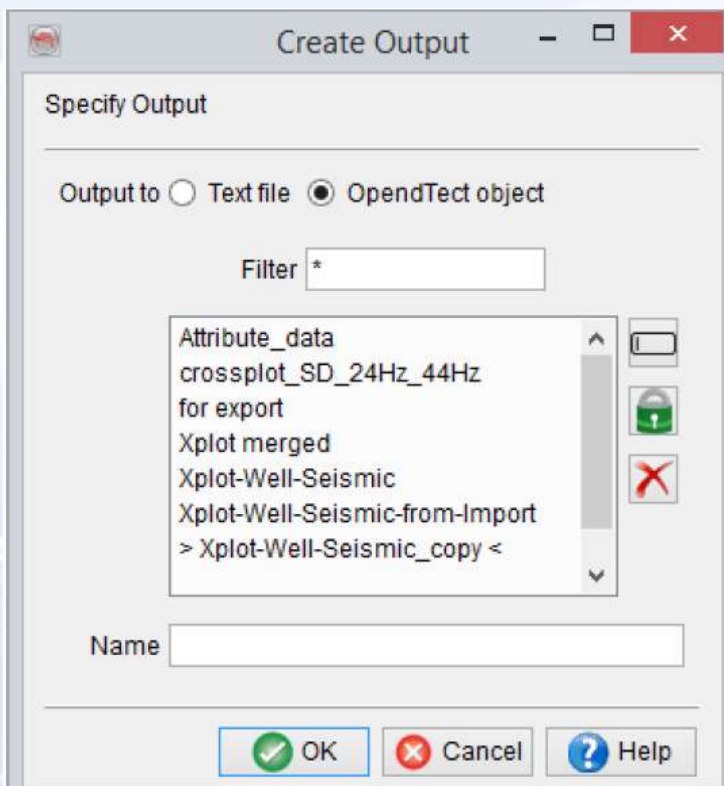
You can select a column by either clicking on its title cell or by clicking on any single cell.








## The toolbar contains the following editing tools:


 Saves the data shown in the table to a file (simple text file or OpendText object). OpendText object is a special format to retrieve (open) the cross-plot. The format is called position vector data and the data is saved in the survey sub-directory (/Features/\*.pvds). The Text file selection outputs the data to an ASCII (column sorted) file that later on can be used in 3rd party software e.g. Excel.





 Open/Retrieve the stored crossplot data. An alternative short-cut is present in the menu *Analysis > Cross-plot > Open Crossplot*.


 Assigns the X-axis of the cross-plot to a selected/highlighted column.


 Assigns the Y-axis of the cross-plot to selected/highlighted column.

 Removes the selected Y-axis for cross-plotting.


 Removes the selected rows in the table.


 Moves the selection of the primary Y-axis one column to the left. The cross-plot gets updated accordingly.

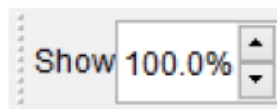
 Moves the selection of the primary Y-axis one column to the right. The cross-plot gets updated accordingly.

 Sorts the selected column to an increasing order, from top to bottom.




 Add an empty column in the table. In the pop-up window, the column name is provided. The mathematical operation is done to compute the data for the new column. An example is the Acoustic impedance data computed from the velocity and density logs available in the crossplot table. For further information on the mathematical operators, please find the description on the Mathematics attribute in the Appendix.


 Removes the selected column from the crossplot.




Displays selected percentage of the data. If a lot a data was extracted not all will be displayed in the table. Nevertheless the sort and remove lines tools may still apply to all the extracted data, upon request of the user.

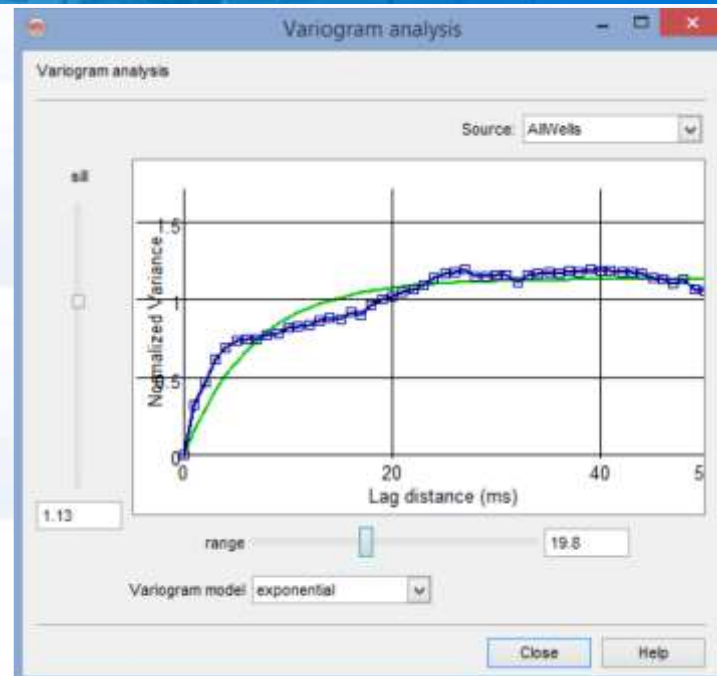
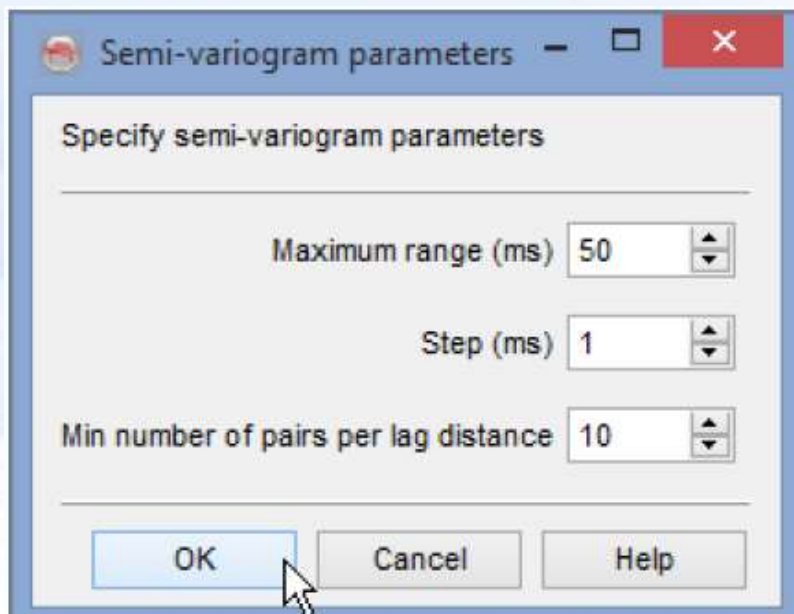
 Toggles on/off the display of the coordinates.

 Toggles on/off the display of Z values.

 Shows histogram and statistics on the selected column.


 Allows to achieve *vertical variogram analysis*. A variogram describes the spatial continuity. The vertical variogram can be computed for any of the attribute or log from the extracted data. To achieve a variogram analysis from well log, the log data is resampled at the variogram processing step and de-trended prior to the variogram computation itself. In the pop-up windows, the different parameters can be defined: the maximum range (maximum distance allowed between the pairs for the analysis), the step and the minimum pairs per log distance. Once these parameters provided, the variogram is computed and the analysis can be performed.





Variogram analysis: Set parameters (left), main window(right) : blue = real data, green = model

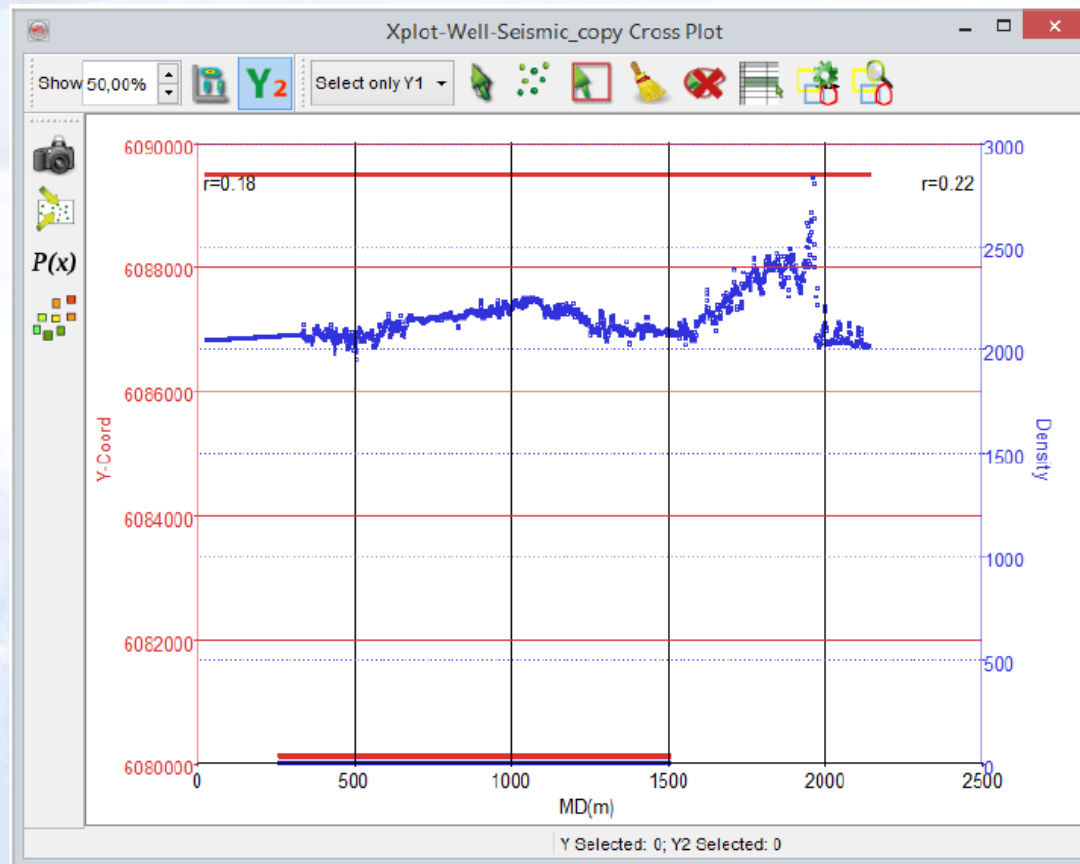
A synthetic variogram can be set in changing the sill, the range and also the variogram model (exponential, spherical, gaussian). The objective is to get a synthetic variogram that best describes the real variogram. The data can be analyzed for each well or for all of them. The analysis results can be used when achieving inversion.

 Launches the crossplot window.



## 5.3.3 Cross-Plot Window

The cross-plot window shows the data previously extracted and shown the cross-plot. The window may start empty if insufficient data was selected in the table window.







The cross-plot window contain three toolbars to perform various tasks:

### Crossplot manipulation toolbar



Take the snapshot of the cross-plot.



Gives access to the main crossplot window properties: scaling, statistics, regression line, density plot parameters.

$P(x)$  Creates multivariate from the cross-plot data.

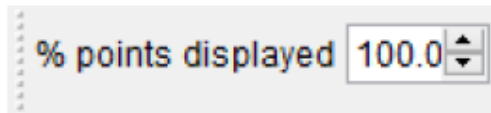


Colour code the points with respect to a .



Colour code the points with respect to the wells they were collected.

### Crossplot display toolbar



Is used to update the amount of displayed scattered points in a cross-plot. It increases the efficiency to display the data quickly. Normally, a huge data slows down the machine performance, when displayed as scattered points. To avoid this, this option is used to display a selected percentage of the points. Moreover, the percentage is only set for the data that has values; undefined values are ignored in the percentage.



All wells



The scattered points of individual/all wells are displayed.



Used to show a coloured density cross-plot. Normally, if the displayed scattered data points are too large, it consume huge memory to display the data. In that case, the density plots are useful. In a density plot the data will not be filtered out in the display (*% point displayed*) as in the case of a scattered point display. In the cross plot properties window, there is a tab available for the . In that tab, a user can set a number (currently displayed data) to display the data. When this plot is ON, there will be a colour table displayed that can be changed. The colour spectrum designates the distribution of the points per pixel.



Used to Toggle on/off the second Y-axis (Y2) scattered points. It may be noted that when the second Y-axis (Y+) is selected to be cross plotted against Y1 and X, the data points may become too large to be displayed. Therefore, in this case, the system will prompt a warning to display a given percentage of the data (*% points displayed*).








## Crossplot selection toolbar

Select only Y1


Is inactive, if a cross-plot is created with one Y-axis. It allows to make section of the scattered points. The selection settings (*Select only Y1/Y2, both*) are important to remove unwanted points from the extracted data. When dual Y-axis are cross-plotted, a user can select individual or both Y-axis points by changing this option.

 Toggles a pan/selection mode. Selection mode is used to select the scattered points. When pan is toggled on, rest selection options (see below) become inactive, which avoids editing/manipulation of the cross-plotted data.


 Used to display the selected scattered point in an active scene. The selection of the data points is done by using selection mode. By using this option, the selected scattered data can be saved as a pointset/body. Right-click on a point in a scene and from the pop-up menu select 'save as a pointset' or 'create body' option.


 Selection mode (rectangle/polygon). The selection is made by holding the left-mouse button down and selecting the desired area within the cross-plot.

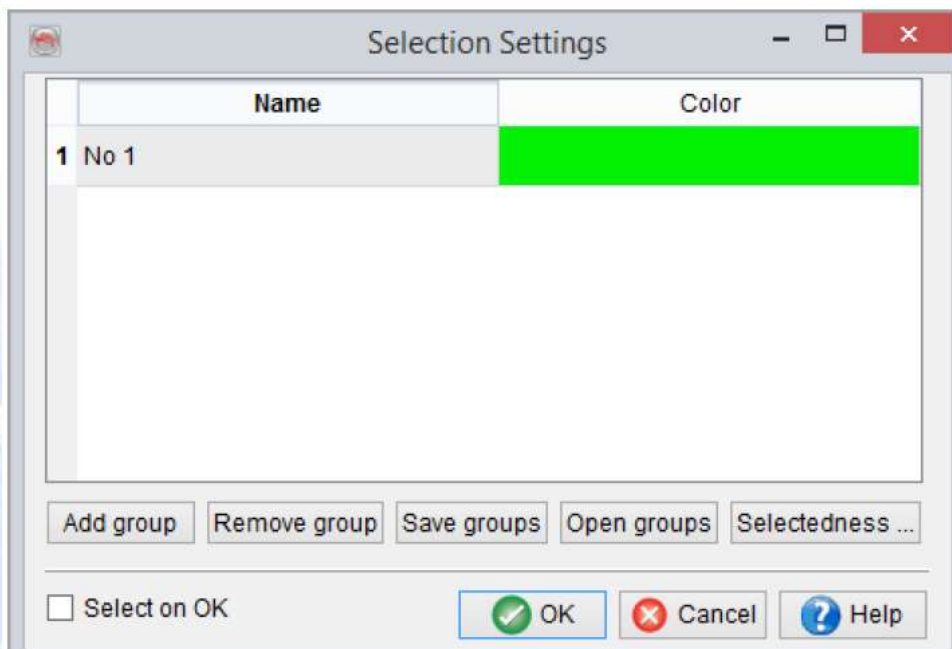
 Used to de-select the selected data points (using selection mode tools).

 The unwanted data points can be removed by using selection mode and this trash button. In order to remove the data points of Y1, Y2 or both, use selection mode tools to select an area within which the data is to be removed. After that press this button to remove the data.



 Used to select the data from a cross-plot and display the corresponding selected data in the spread-sheet (Well/Attribute data window).

 You can do multiple selections by adding new groups (see below). It is launched using this manage selection button. The multiple group selection allows you to select different clusters/trends on a crossplot in the form of groups. Second and subsequent selections are made by clicking on a group name and holding the CTRL key down from a keyboard prior. Then the corresponding polygon (with a given colour) is drawn over the crossplot display area. It is a very useful tool for reservoir prediction and characterization.







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This option is used to by using a mathematical logic over a range. It restricts the selection according to the range set in the *Refine Selection* window (a pop-up window invokes when this button is pressed). For instance, a user may want to remove a data (x0) within a range of 3-4 from a cross-plot in which 1-2 values are overlapping. To do that, press this button to launch *Refine Selection* window. In the *Enter Ranges* field, an equation can be set i.e.  $X0 > 3$  and  $X0 < 4$ . Where X0 is desired data in a cross-plot. After this a section can be made within a cross-plot to remove values within the polygon according to the equation.

 Refine selection

Define mathematical operation

Ranges (e.g.  $0 > x0 \ \&\& \ x0 > 1.5 \ \&\& \ -6125 < x1$ )

Enter Ranges

Set

☐ Select on OK


☒ OK

☒ Cancel

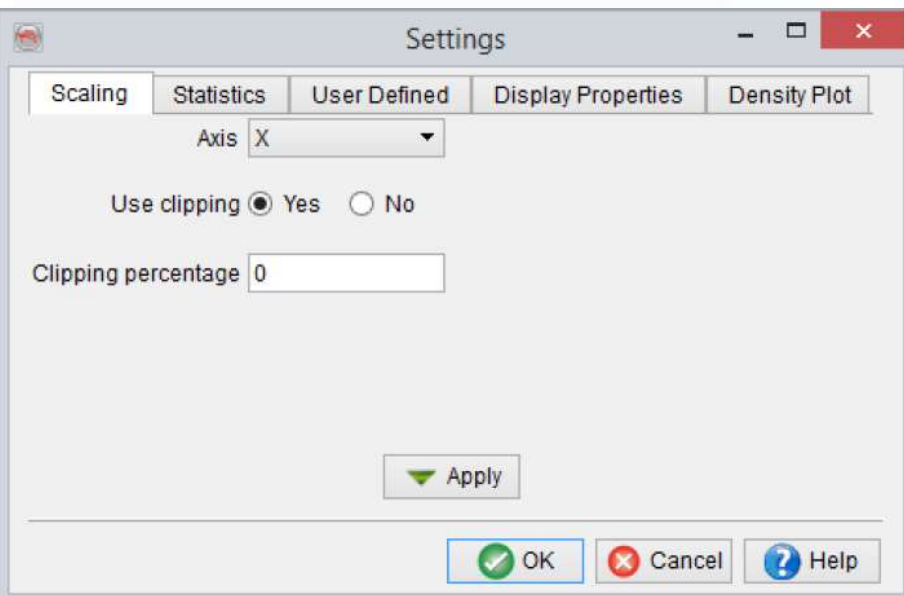
☒ Help



### 5.3.3.1 Cross-Plot Properties

The properties window (accessed via ) can be used to adjust the scale, view statistics, add regressing lines etc.

**Scaling Tab:** Sets the clipping state for each axis, or the amplitude range for the chart. Default: 0, which means that the window is adjusted to fit the entire amplitude distribution.



Settings

Scaling Statistics User Defined Display Properties Density Plot

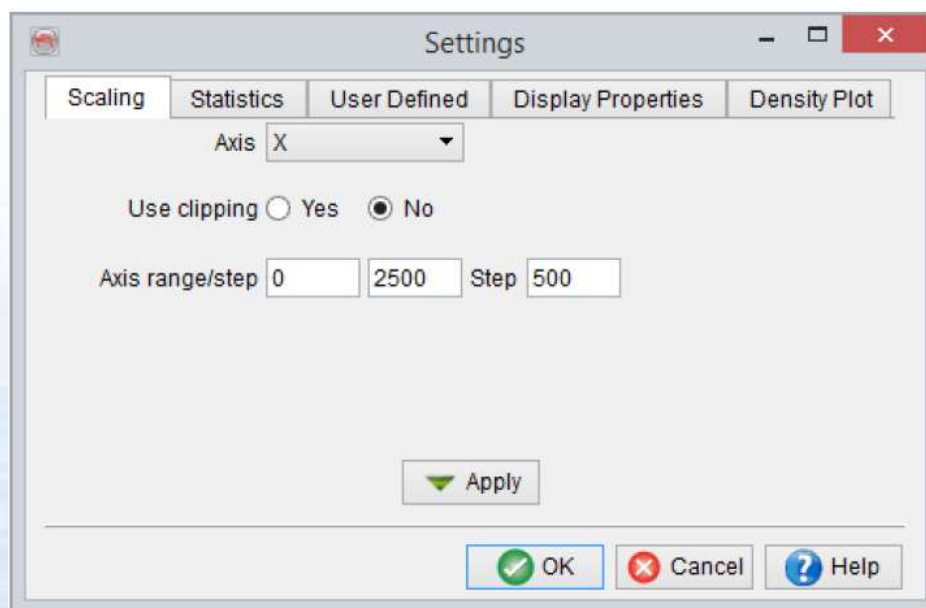
Axis X

Use clipping ☒ Yes ☐ No

Clipping percentage 0

Apply

OK Cancel Help



Settings

Scaling Statistics User Defined Display Properties Density Plot

Axis X

Use clipping ☐ Yes ☒ No

Axis range/step 0 2500 Step 500

Apply

OK Cancel Help





**Statistics Tab:** Shows the parameters of a least square fit between the attributes used as X and Y1 (values and errors). The regression line can be displayed in the cross-plot window, as well as the correlation coefficient.

Settings

Scaling Statistics User Defined Display Properties Density Plot

Y = 6084479 + 1.5334245 \* X

Error 0.17410137 0.00032287405

Correlation Coefficient 0.18279269 ☒ Put in plot

☐ Show regression line

Apply

OK Cancel Help



**User Defined Tab:** Sets a user-defined regression line, that can be displayed as well in the cross-plot window. A simple line can also be drawn in the cross-plot window, in which case the corresponding coefficients will be displayed in this tab.

Settings

Scaling Statistics **User Defined** Display Properties Density Plot

Equation Y1=  RMS Error

☐ Show Y1 User Defined Curve

Equation Y2=  RMS Error

☐ Show Y2 User Defined Curve

☐ Draw Line

▼ Apply

OK Cancel Help






**Display Properties Tab:** Sets user-defined marker size, marker shape and the Y-axis color.


Settings

Scaling Statistics User Defined **Display Properties** Density Plot

Marker size 1

Marker shape Square

Y Axis Color  Crimson

Y2 Axis Color  RoyalBlue

Apply

OK Cancel Help



**Density Plot Tab:** This tab is used to set the minimum points for the automated density plot. Scatter plots will not be allowed below that number. The tab settings define the bin size prior to counting the number of occurrences.

Settings

Scaling Statistics User Defined Display Properties **Density Plot**

Current Number of Points (including undefined values) 10044

Threshold minimum points for Density Plot 2000

Cell Size 1

Nr of Cells across Width 551

Nr of Cells across Height 435

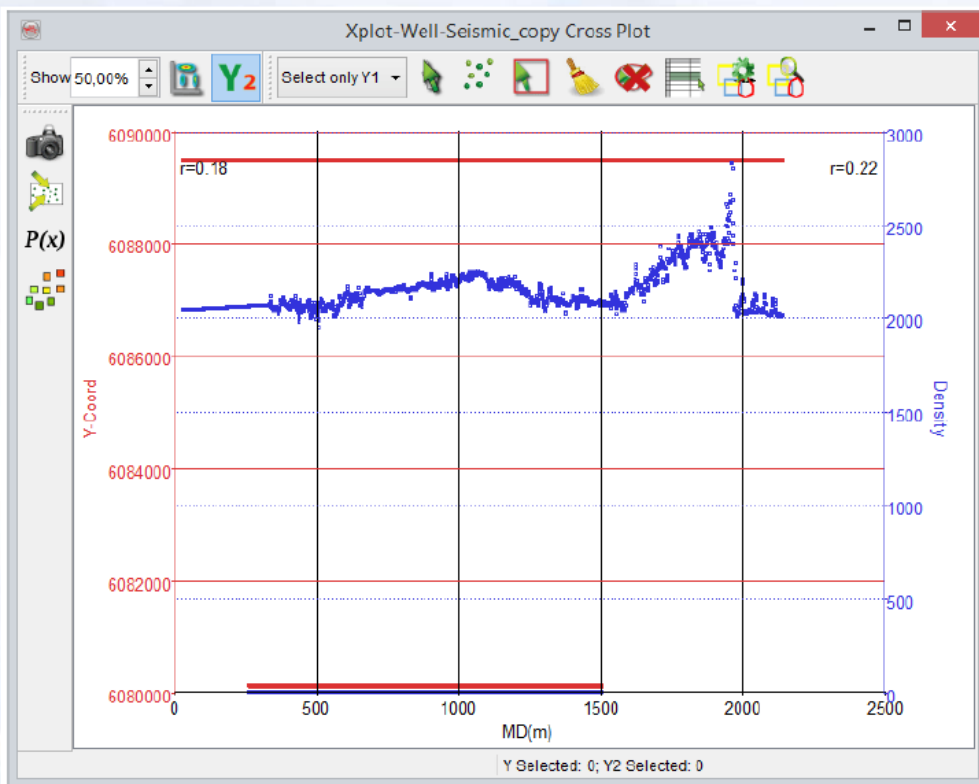
▼ Apply

OK Cancel ? Help





The following pictures shows an example of density plot. Please note that an additional colorbar has appeared. Units are the number of points that correspond to the color.





### 5.3.3.2 Probability Density Functions

Probability Density Functions (PDFs) can be created from the cross-plot toolbar icon  $P(x)$ . This icon launches a pop-up dialog that can be used for selecting attributes in order to create PDFs. The PDFs are stored in OpendText Format, that can later be used for running Bayesian classifications.

Create Probability Density Function

Attribute MD(m) Range 0 2500 Nr of Bins 25

Attribute Y-Coord Range 6080000 6090000 Nr of Bins 25

More -> <- Less

Output PDF Select ...

OK Cancel Help

Please note that all attributes from the table can be selected. Attribute ranges are generated automatically to fit the extracted data distribution. These can be edited before creating the PDF.





### 5.3.3.3 Overlay from a Third Attribute

Scattered points can be coded with respect to the amplitudes of an attribute using that option. The popup window requires the selection of that third attribute, and colorbar specifications (type and amplitude range)

Overlay Properties

Display Properties within points

0 0 Rainbow

Overlay Y1 Attribute None

0 0 Chimney

Overlay Y2 Attribute None

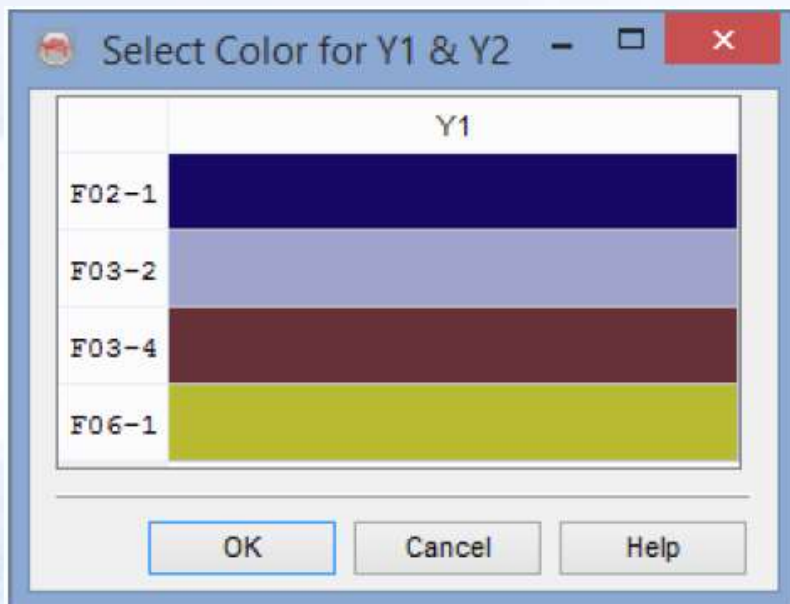
Apply

OK Cancel Help



### 5.3.3.4 Well-based Color Coding

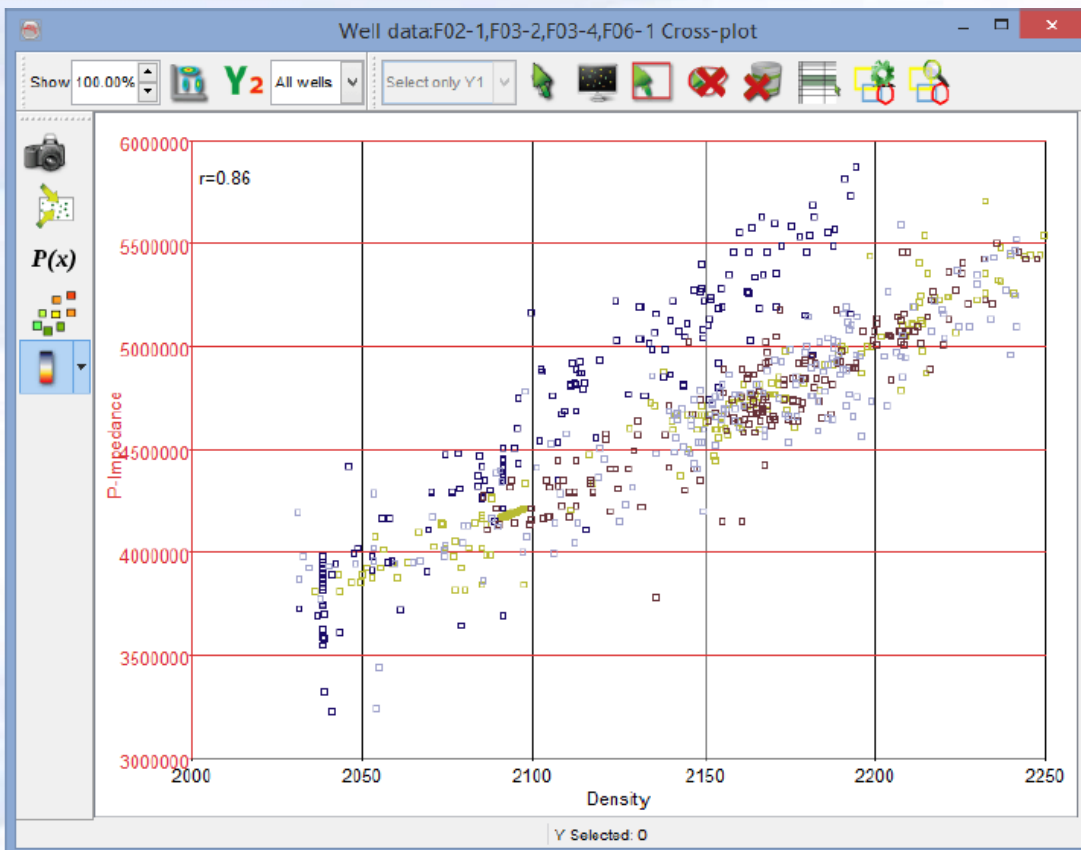
The scattered points in the cross-plot window can be coded with respect to the wells along which the data points were originally extracted. The following utility window can be used to control the colour associated to each well:







The configuration above gives the following result:





### 5.3.3.5 Selection Settings

The selections made interactively in the cross-plot window can be further refined and managed in this window.

Refine selection

Define mathematical operation


Ranges (e.g.  $0 > x_0 \ \&\& \ x_0 > 1.5 \ \&\& \ -6125 < x_1$ )

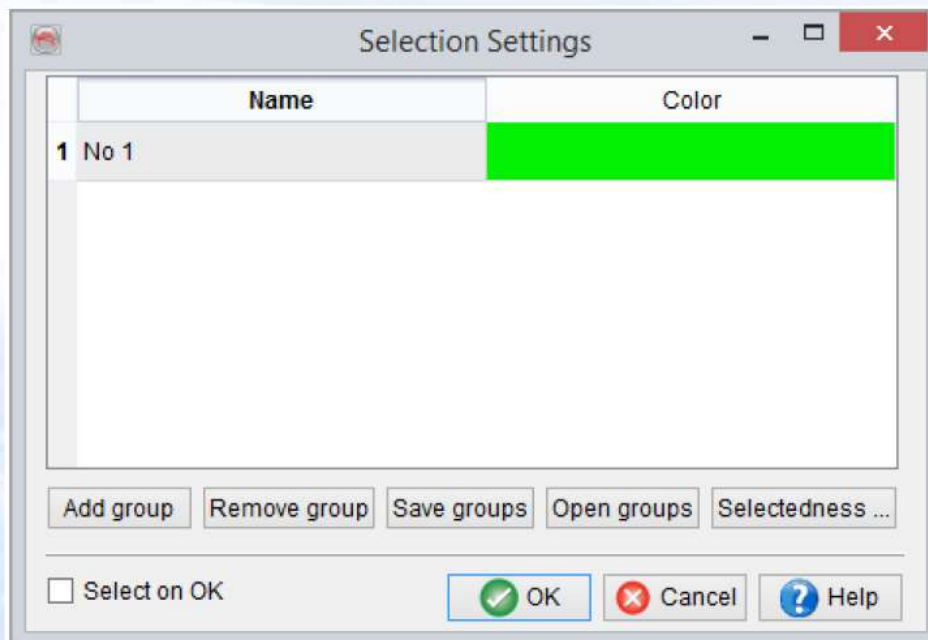
Enter Ranges

☐ Select on OK






The 'Refine' option () utilizes mathematical logic to restrict the selection according to the range set in the Refine Selection window (a pop-up window invoked when this button is pressed). For instance, a user may want to remove a data (x0) within a range of 3-4 from a cross-plot in which 1-2 values are overlapping. To do that, press this button to launch Refine Selection window. In the *Enter Ranges* field, an equation can be set i.e.  $X0 > 3$  and  $X0 < 4$ . Where X0 is desired data in a cross-plot. After this a section can be made within a cross-plot to remove values within the polygon according to the equation.

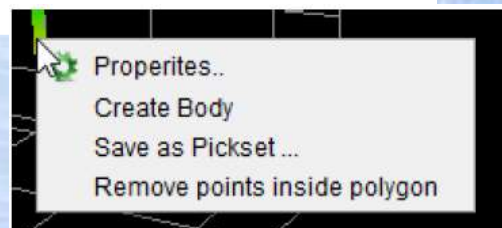




The 'Manage Selection' option () can be used to do multiple selections by adding new groups (see below). It is launched using this manage selection button. The multiple group selection allows you to select different clusters/trends on a crossplot in the form of groups. Second and subsequent selections are made by clicking on a group name and holding the CTRL key down from a keyboard prior. Then the corresponding polygon (with a given colour) is drawn over the crossplot display area. It is a very useful tool for reservoir prediction and characterization.

The selected scattered points can then be displayed in the active scene by clicking on OK. This allows an interactive display of the cross-plot in a scene. The displayed points (i.e. picks) can be saved in the OpendTect survey either as a pointset or as a Body. Right-click on any point in the display, it will launch a pop-up menu (see below).

- **Properties:** It can be used to edit the size of the points.
- **Create Body:** Create a Body from the selected points.
- **Save as pointsets:** To store the selected points as a pointset.
- **Remove selected points:** Removes the selected data.







You can do multiple selections by adding new groups (see below). It is launched using this manage selection button. The multiple group selection allows you to select different clusters/trends on a crossplot in the form of groups. Second and subsequent selections are made by clicking on a group name and holding the CTRL key down from a keyboard prior. Then the corresponding polygon (with a given colour) is drawn over the crossplot display area. It is a very useful tool for reservoir prediction and characterization.

In the column name, a new name should be given that would be added in the crossplot data table. Show selectedness as an overlay, if checked, would display the colour coded selection ranging (between 0-1) as an overlay in the crossplot area. The colours represent the chosen colortable. Show selectedness in 3D scene would display the points within the selectedness range in the 3D scene.

Save Selection Area

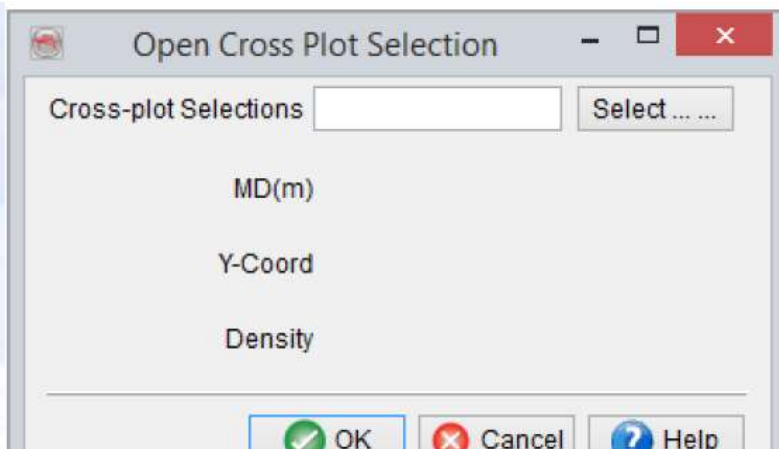
Specify Parameters

Cross-plot Selections  Select.....

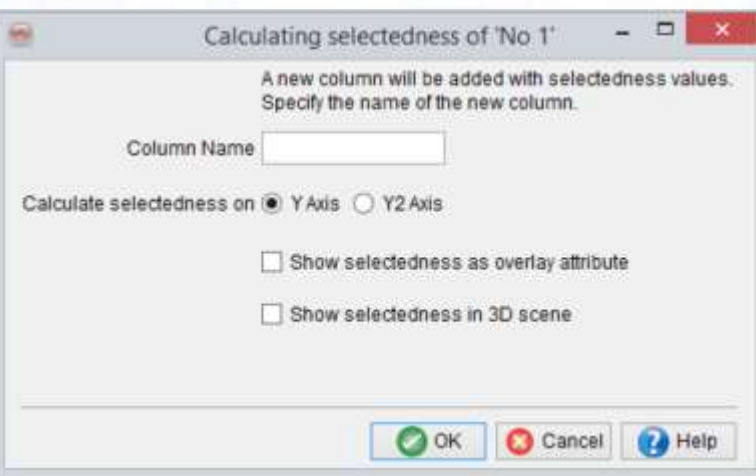
☒ OK ☐ Cancel ☐ Help



The user can manage the groups (or selections) by saving them (Save groups)



Furthermore, the user can also manage the groups (or selections) by opening (Open groups) the saved groups.



The Selectedness is a special data selection. It is a measure of how likely a point is to be selected in a particular selection. If a point is present in and around the center of a particular selection that has higher selectedness values. Whereas those belonging in the border regions are less likely to belong to that selection and thus it will have lower selectedness values. It is a measure of which points are better representative of a particular selection. The value of Selectedness ranges from 0-1. The points outside the selection has undefined values. It is added as a separate attribute in the table and can be seen in the form of an overlay attribute. To mark selectedness, one group is needed to be selected by using the selection mode.





## 5.3.4 Open Crossplot

This option allows you to open previously saved or imported crossplot data and will directly open the data in the crossplot table.

