Slivisu User Manual

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Slivisu - A visual analytics tool to validate simulation models against collected data

To support the scientists in gaining insight into the data and the consistency between data and model, Slivisu was developed to fulfil the following tasks:

Making apparent

- the distribution of collected data over over space and time
- the various quality measures of the collected data
- the difference of calculated and modelled data in space and time

A combination of methods from analysis and visualization is applied in the concept to support the tasks:

- The Sea Level Indicator (SLI) data are clustered according to the collection process or data availability; the cluster is presented by an adaptive convex bounding box.
- All information about the SLIs in a cluster is summarized in a multivariate summation diagram which depicts the number of SLIs of a certain quality in various time intervals
- Information about single SLIs can be presented interactively on demand

Supported Data Format

Observation Data

- PostgreSQL DB
- Example:

```
Host: adsc.gfz-potsdam.de
Database: RSL2
Port: 5432
Scheme: rsl
Attribute Table: slivisu_attribs
```

with the respective username and password given.

For full functionality create a table *rsl.slivisu_attribs* which connects the native column names to those expected in slivisu. There, the information can be placed for different tables inside the database.

Attribute	Type	Description
relation	varchar(16)	Name of relation
rel_id	varchar(16)	Name of id
tab_name	varchar(16)	Name of region
curve	varchar(16)	Name of sea level curve
lat	varchar(16)	Latitude
long	varchar(16)	Longitude
rsl_min	varchar(16)	minimum of rsl
rsl_max	varchar(16)	maximum of rsl
cal_min	varchar(16)	Calibrated minimum age
cal_max	varchar(16)	Calibrated maximum age

Observation Data

The following attributes are optional. If the attribute does not exist, or the entry is empty, they are calculated from the respective equation below in the program.

cal_age	varchar(16)	Mean calibrated age, may differ from (cal_min+cal_max)/2
cal_std	varchar(16)	Standard error of age, may differ from (cal_max-cal_min)/2
rsl_mean	varchar(16)	Mean derived sea-level height, may differ from (rsl_min + rsl_max)/2
rsl_err	varchar(16)	Standard error of height determination, may differ from (rsl_max-rsl_min)/2
gid_gen	varchar(32)	contains format of global id for SLIs. E.g. gid = 'DYKE-%5.5i' rel_id

Model Data

- External data ahead of the database can be read in.

- SLIVISU/selection/blub.sel or SLIVISU/data/blub.lis

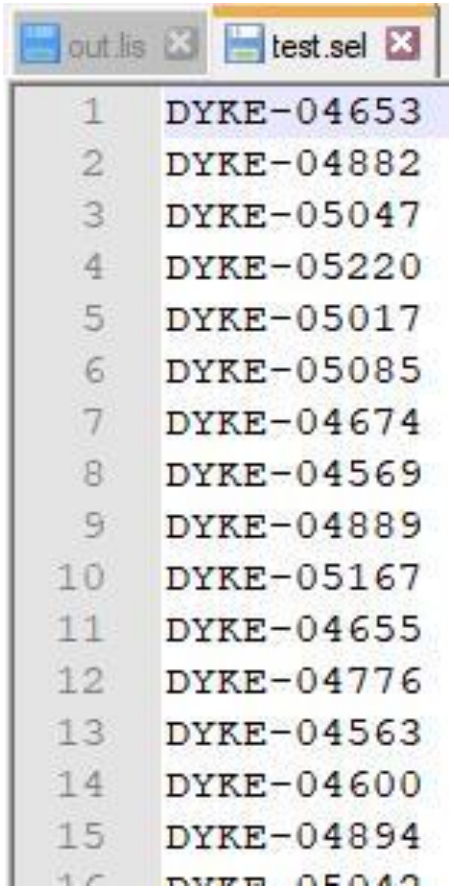
- Selection, .sel
  - Selections, that can be loaded or saved are newline separated lists of gid's in files ending with sel. These will be marked in the views, if the respective SLIs exist in the Listing. If not, the loaded selection is reduced to those gid's. But keep in mind, that with improper ending the file content is ignored.

- Parameter listing, .lis
  - A parameter listing is provided in .lis files, which contain for a set of models the parameter values and filenames where RSL predictions and calculated fits or deviations at the respective SLIs are given.

Model Data

.sel Files:

- newline separated lists of gid's in files ending with sel



Model Data

.lis Files:

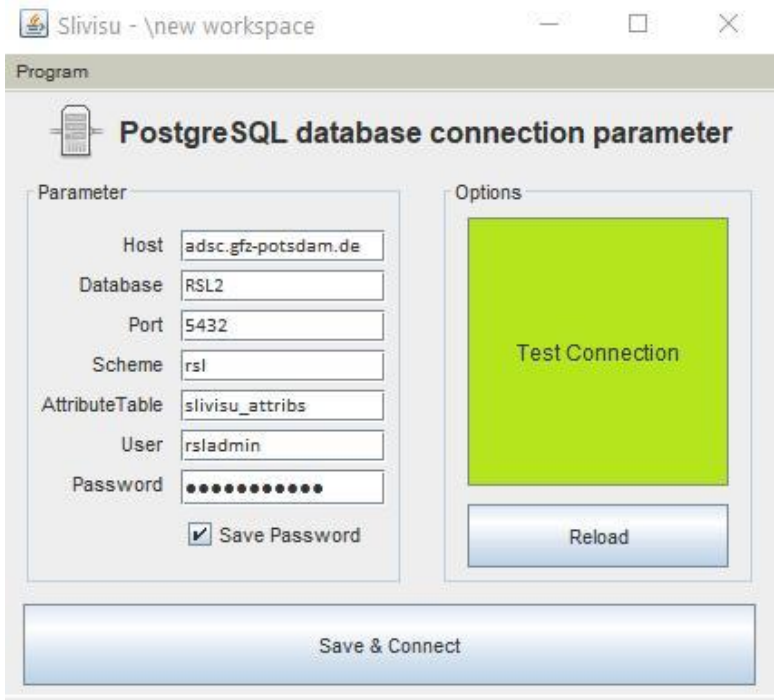
- num is the number of parameters or dimension of the parameter space.
- name# gives the annotated name in the respective view,
- min# and range# gives the minimum value and range of the respective parameter for the representations in 'cube' and the other parameter charts and matrix.
- In the following data list, the first column gives the filename which is considered relative to the directory where the .lis is located and the following columns, 2, ..., num+1, give the considered par for each model.
- The parameter name and arrays are due to the name space used in this program, as the type definition follows after # at the beginning of each line. s is string, d and f is for double and single float.

out.lis

```
1  #s num = 3
2  #s name1 = Thickness lithosphere // name of parameter
3  #s name2 = log (viscosity UM) // name of parameter
4  #s name3 = log (viscosity LM) // name of parameter
5  #d min1 = 70 // minimum in scale
6  #d min2 = 20
7  #d min3 = 21
8  #d range1 = 60 // range in scale
9  #d range2 = 1
10 #d range3 = 2
11 #sfff [visc_list] dirname  - par1 - par2 - par3 // name and parameters
12 L100_-vm2/SLI_data_f.out 110 20.6021 21.301
13 L100_1010/SLI_data_f.out 100 20.301 21.699
14 L100_1020/SLI_data_f.out 100 20.6021 21.699
15 L100_1030/SLI_data_f.out 100 20.7782 21.699
16 L100_1040/SLI_data_f.out 100 20.9031 21.699
17 L100_2010/SLI_data_f.out 100 20.301 22
18 L100_2020/SLI_data_f.out 100 20.6021 22
19 L100_2025/SLI_data_f.out 80 20.699 22
20 L100_2030/SLI_data_f.out 100 20.7782 22
21 L100_2040/SLI_data_f.out 100 20.9031 22
```

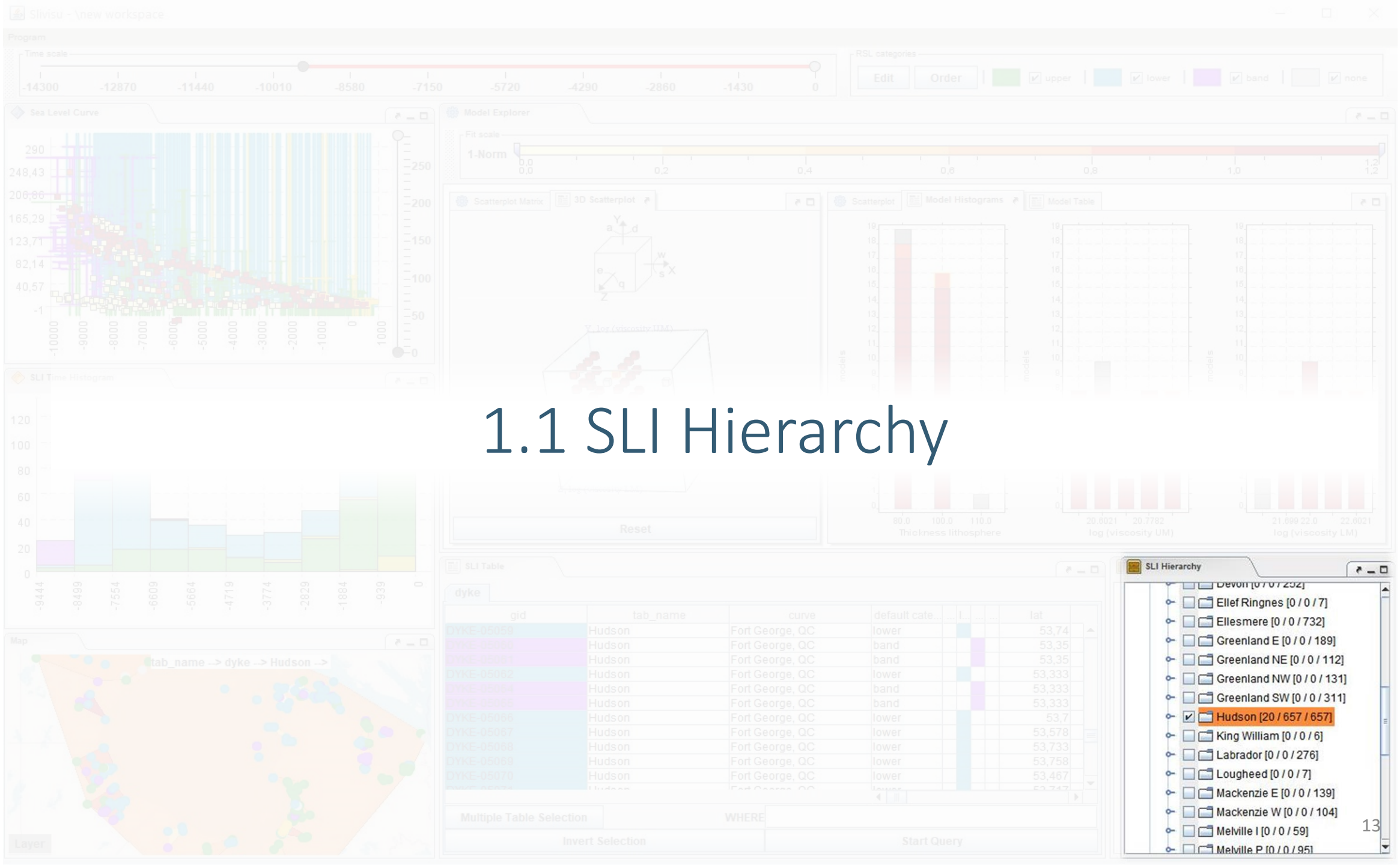
Connecting to Database

- Observation Data DB:
- Choose parameters on start
- When using a different database, the login of course has to be modified, but in the respective theme a table like `slivisu_attribs` has to exist, which relates the attribute names of the respective table containing the data to the column which is interpreted in SLIVISU.
- Click on *Test Connection*, green = connection established, yellow = connecting, red = connection failed
- *Save & Connect* to start



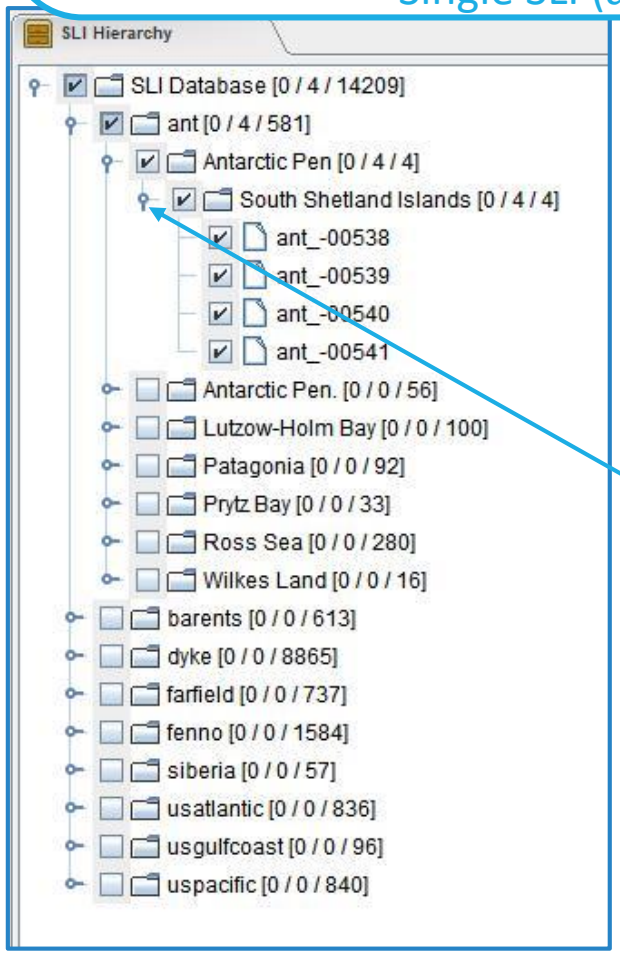
1. Exploration of Observation data

1.1 SLI Hierarchy



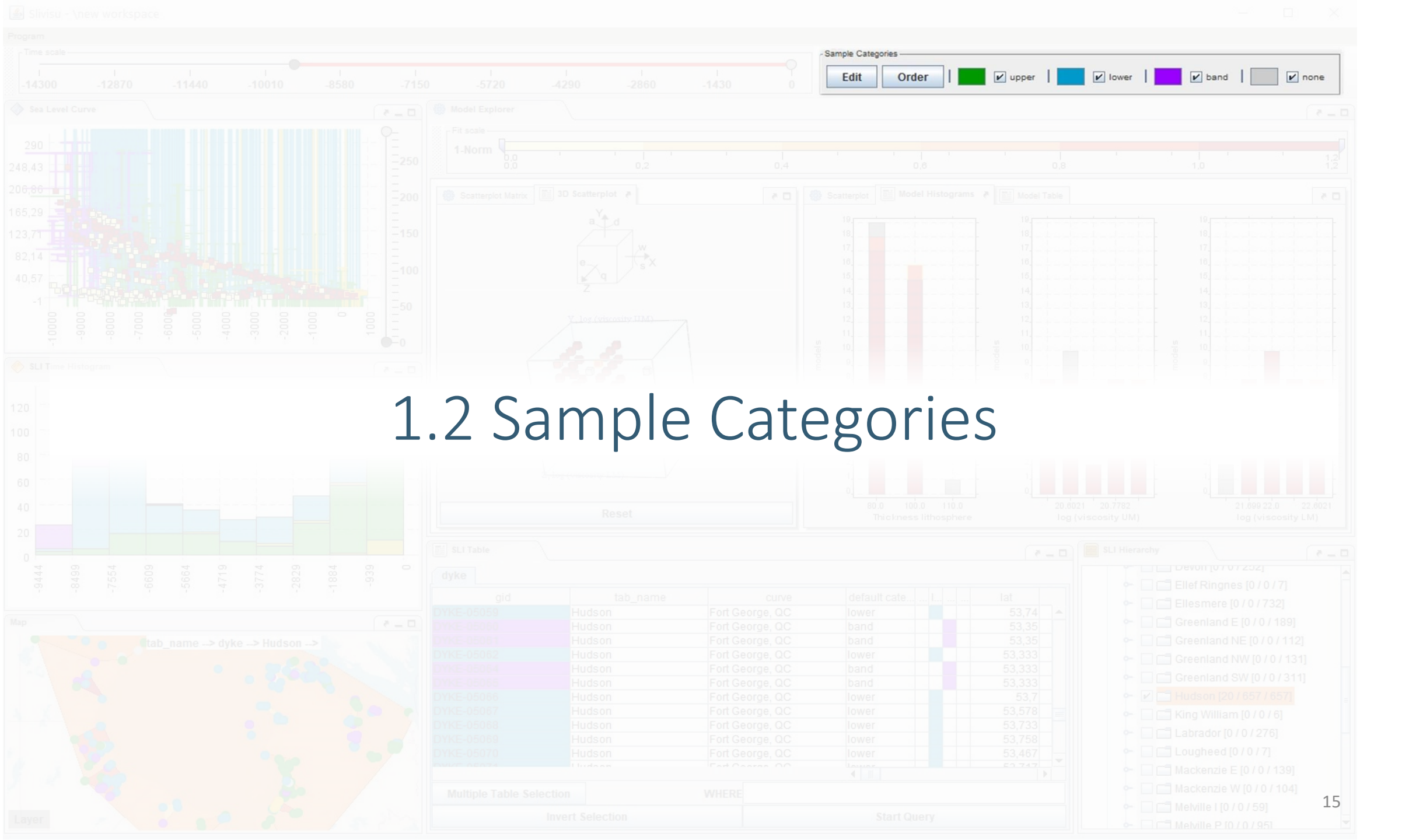
SLI Hierarchy:
The hierarchy describes a regional definement inside a table

- Database (complete SLI Database)
- SQL-Table (in this case: ant)
  - Table (*tab_name*, in this case: Antarctic Pen)
    - Subregion (*curve*, in this case: South Shetland Islands)
      - Single SLI (ant_-00538)

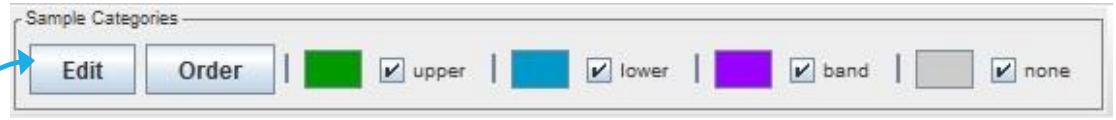


[0/4/581] = 0 SLIs marked, 4 selected, 581 total

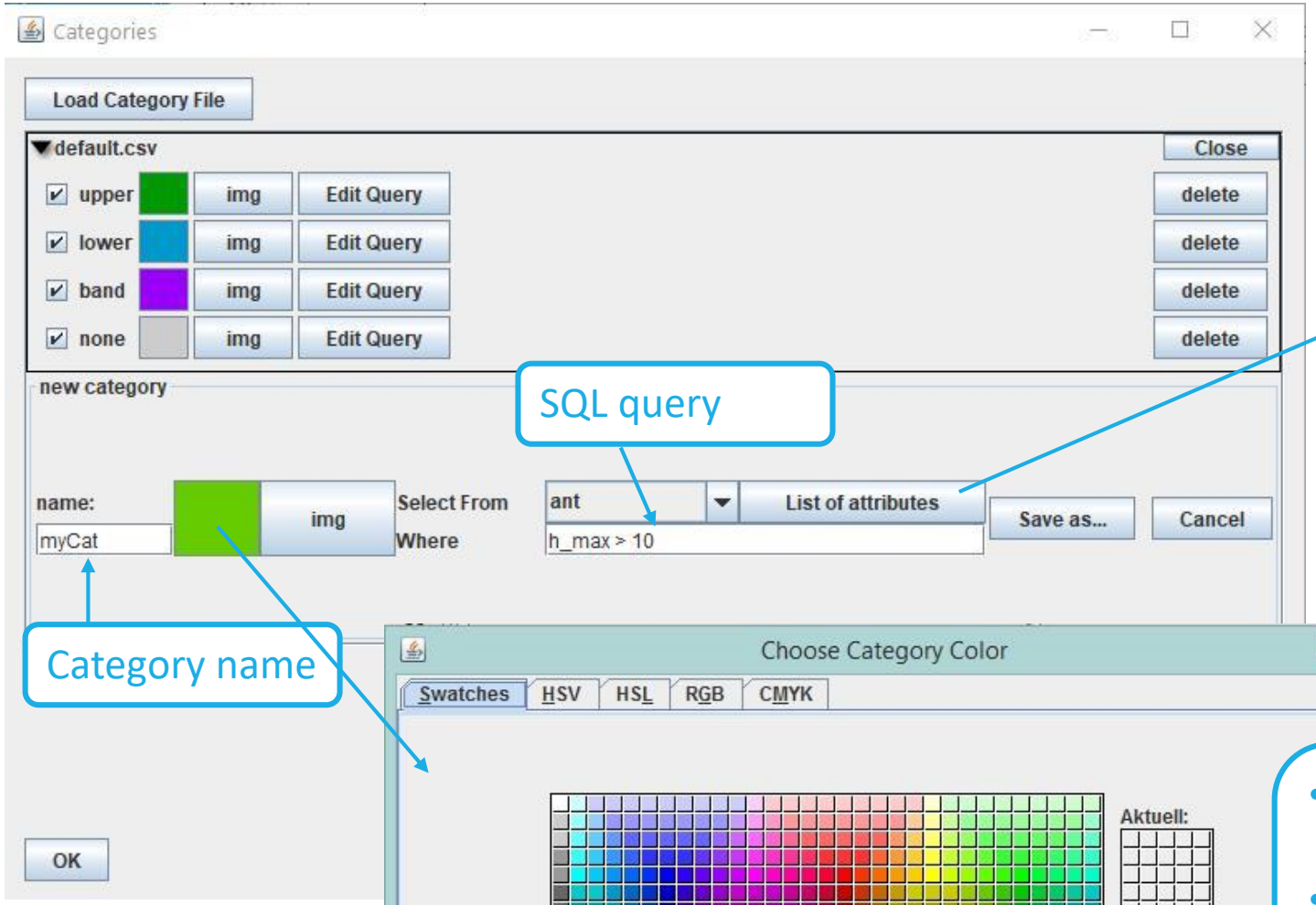
- Select a subset of SLIs by selecting hierarchy levels or single SLIs:
- Selecting a checkbox automatically selects every SLI on sublevels
- to unfold sublevels click on the circle next to the checkbox



1.2 Sample Categories

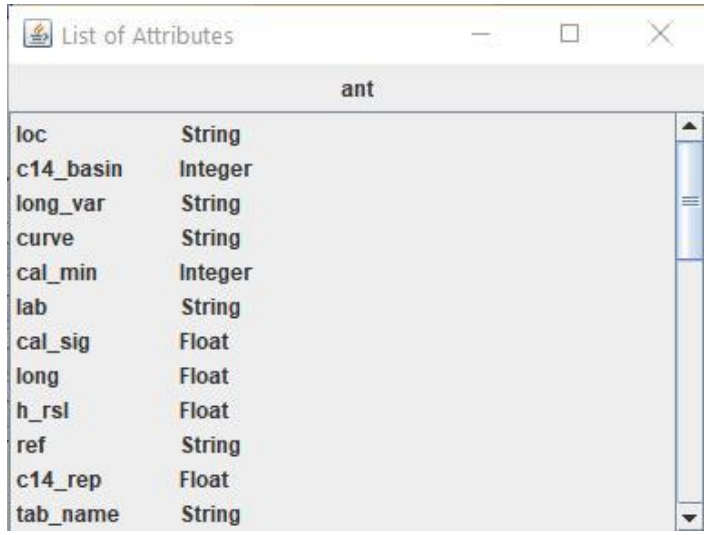


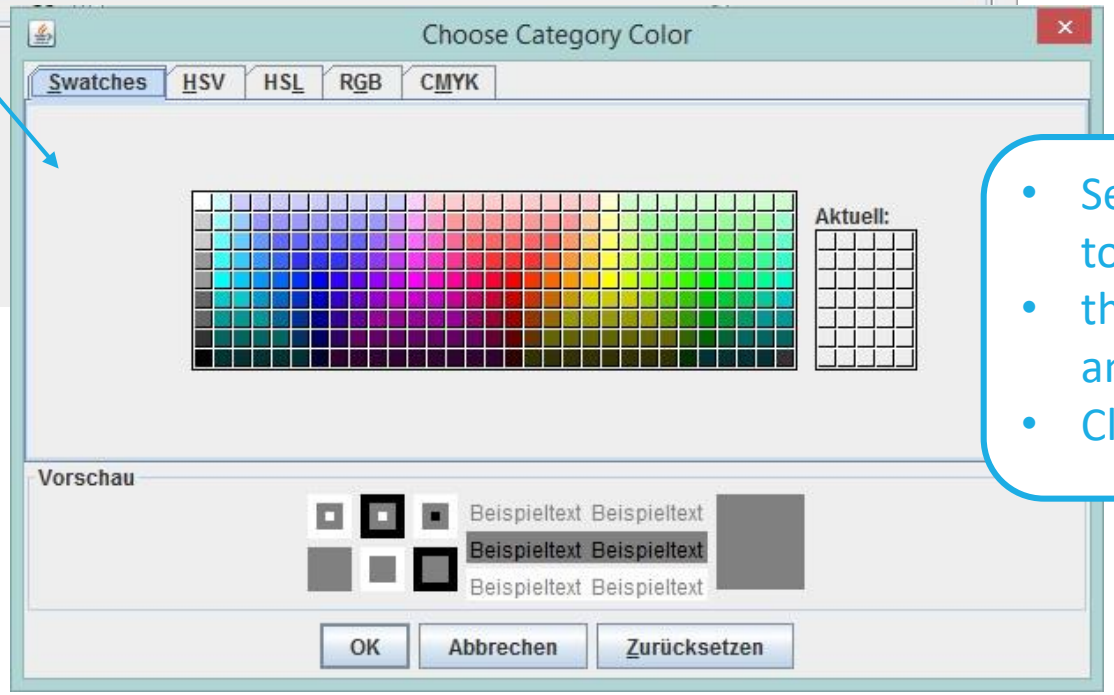
- The four default categories upper, lower, band and none are automatically selected on start
- upper: SLIs with given rsl_max and empty rsl_min
- lower: SLIs with empty rsl_max and given rsl_min
- band: SLIs with given rsl_max and given rsl_min
- none: SLIs with empty rsl_max and empty rsl_min
- to edit a category or define new categories click on *Edit*



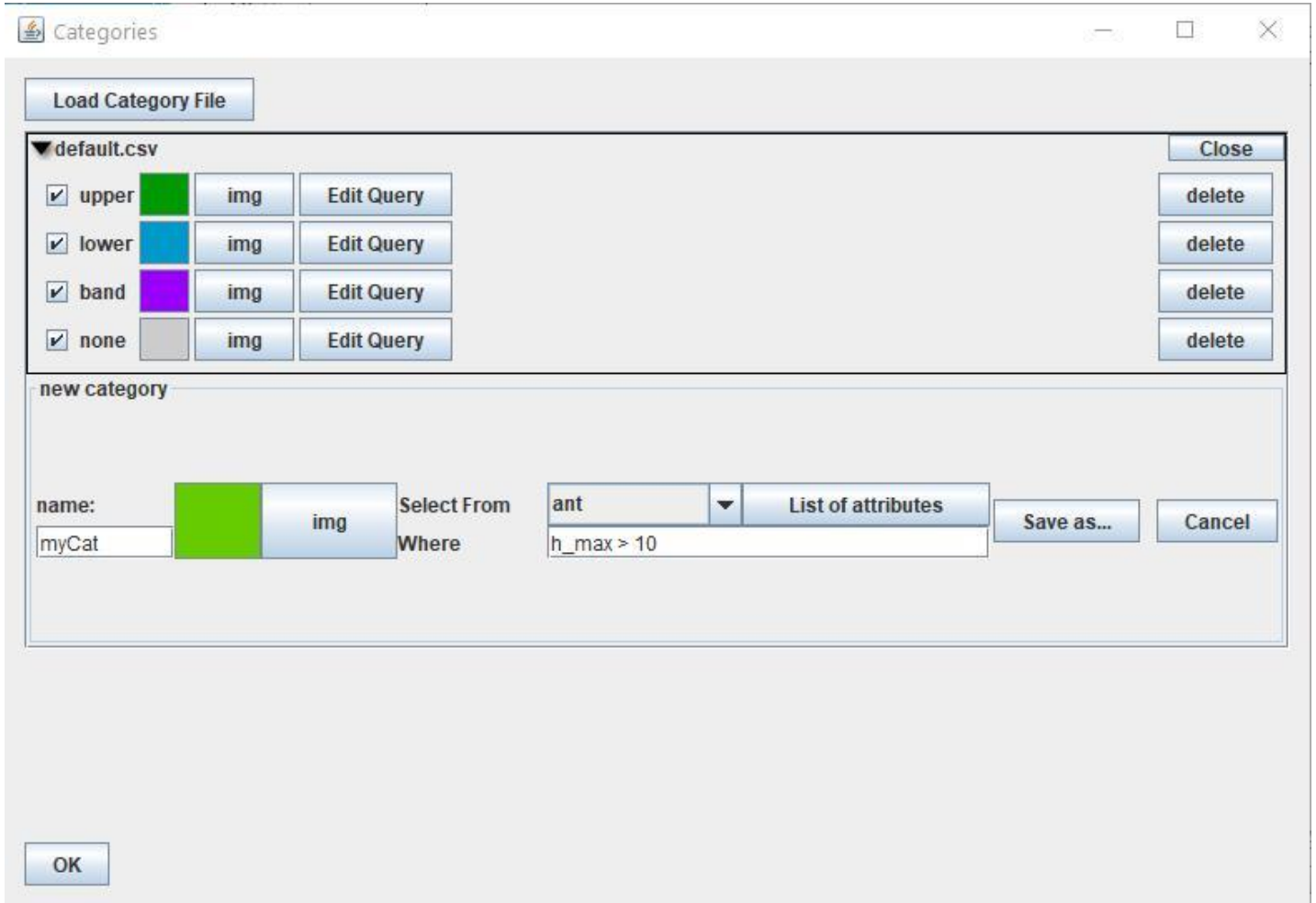
SQL query

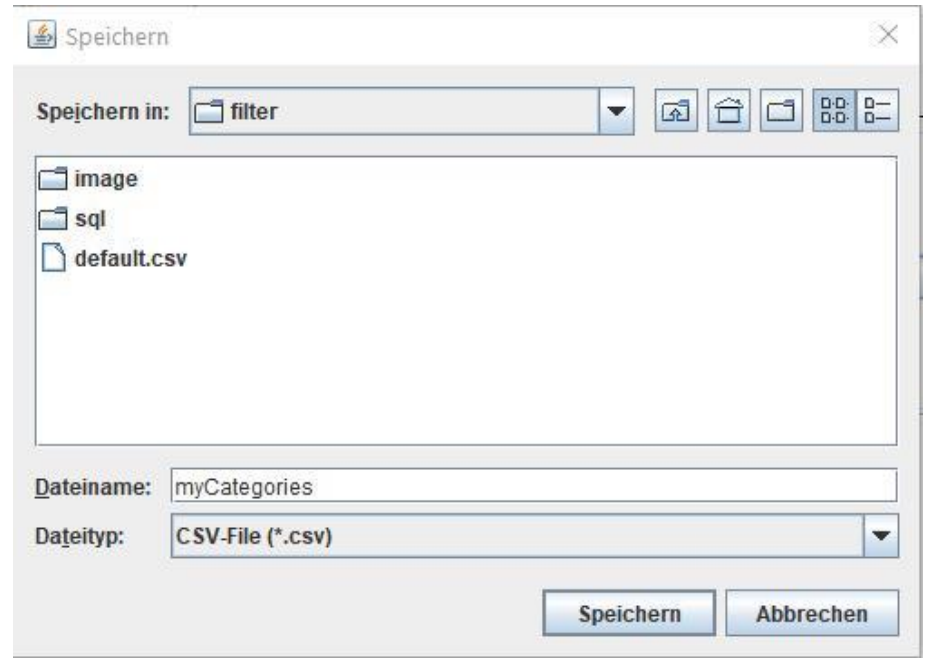
Category name



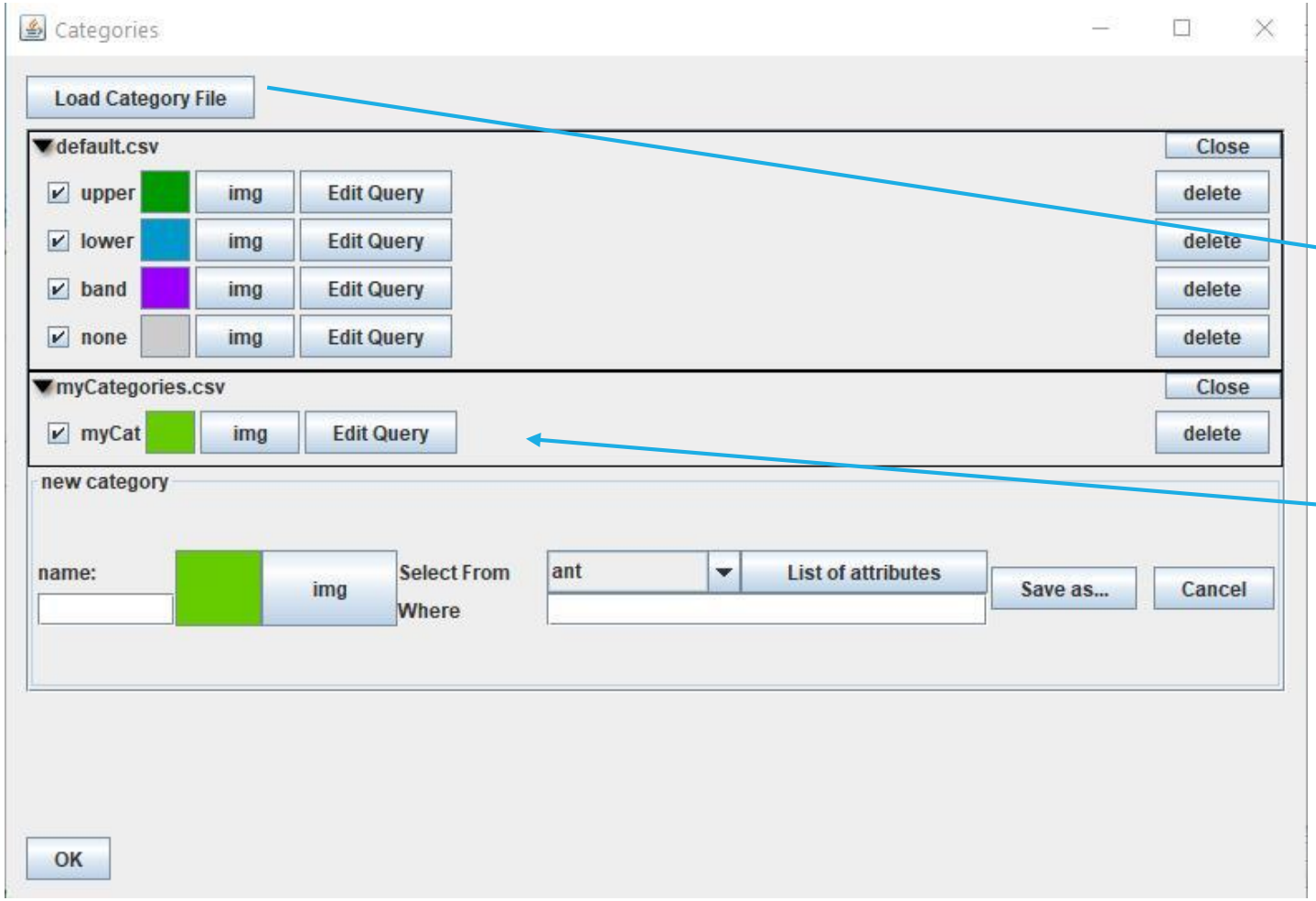


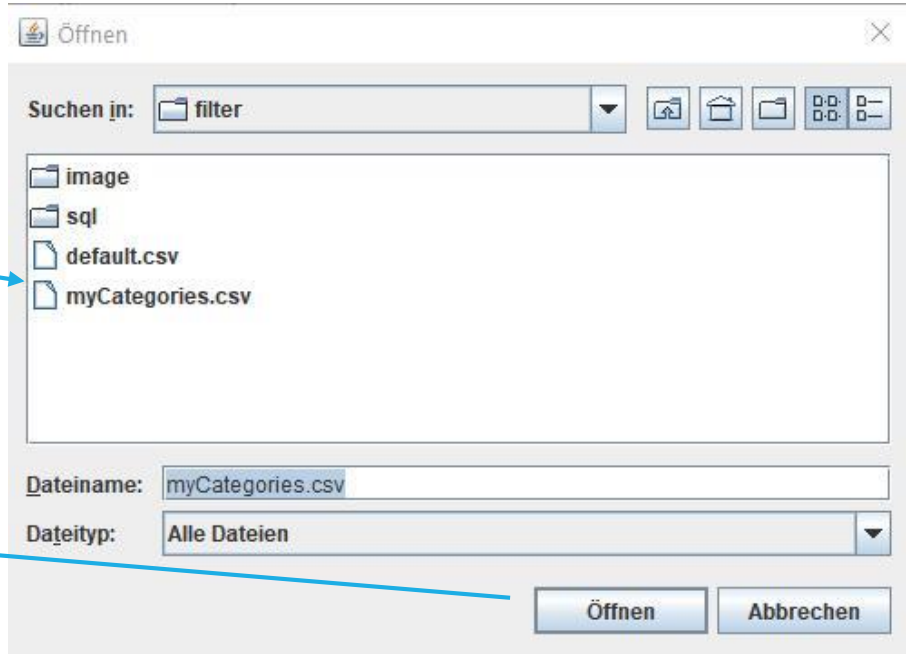
- Select category name, color and an SQL query to define SLIs for the category
- the List of attributes shows possible columns and their types
- Click *Save as...* when done





Save your category file in SLIVISU/filter





Load your category file and select your category

CSV Files

- should be located in SLIVISU/filter/mycsv.csv
- the querys are stored seperately in SLIVISU/filter/sql
- they can be edited in any text editor too

- Example default.csv:

myCat.sql | default.csv

```
1  upper;0,153,0;true;filter/image/null;filter/sql/upper.sql
2  lower;0,153,204;true;filter/image/null;filter/sql/lower.sql
3  band;153,0,255;true;filter/image/null;filter/sql/band.sql
4  none;204,204,204;true;filter/image/null;filter/sql/none.sql
5
```

Category Name

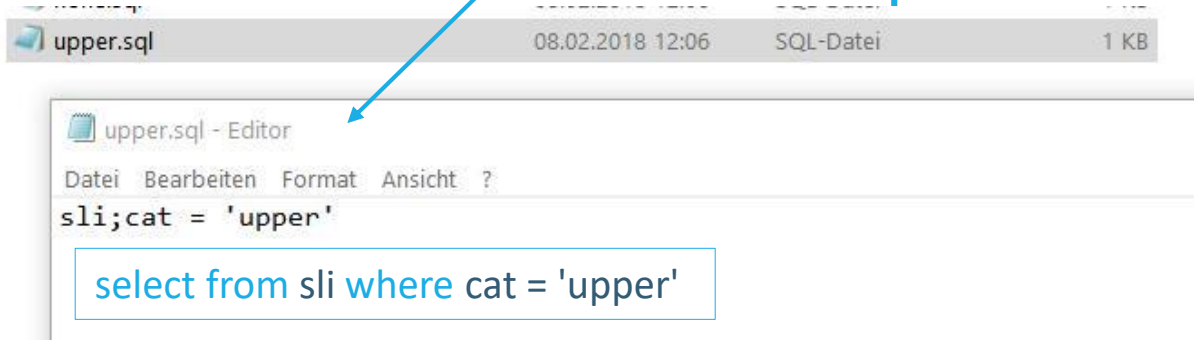
Category Color

active y/n

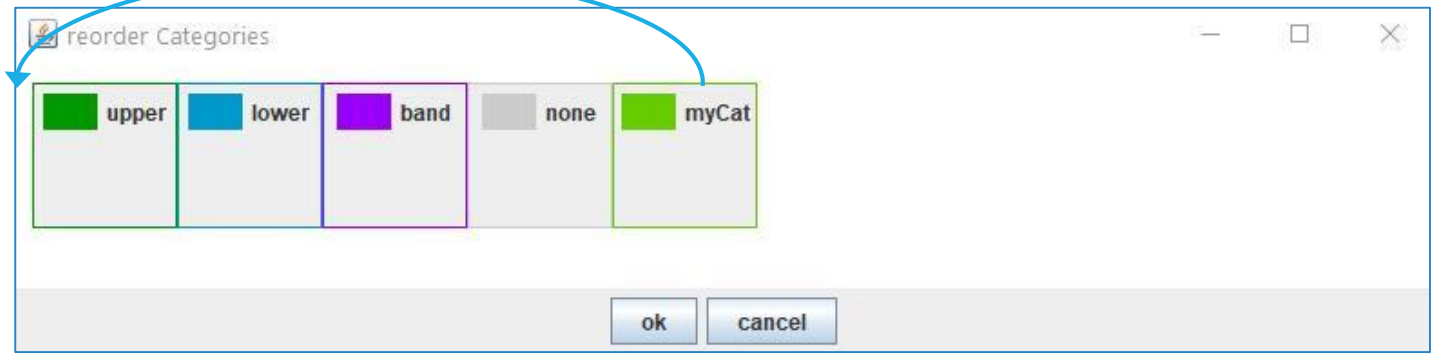
Path to Image

Path to Query File

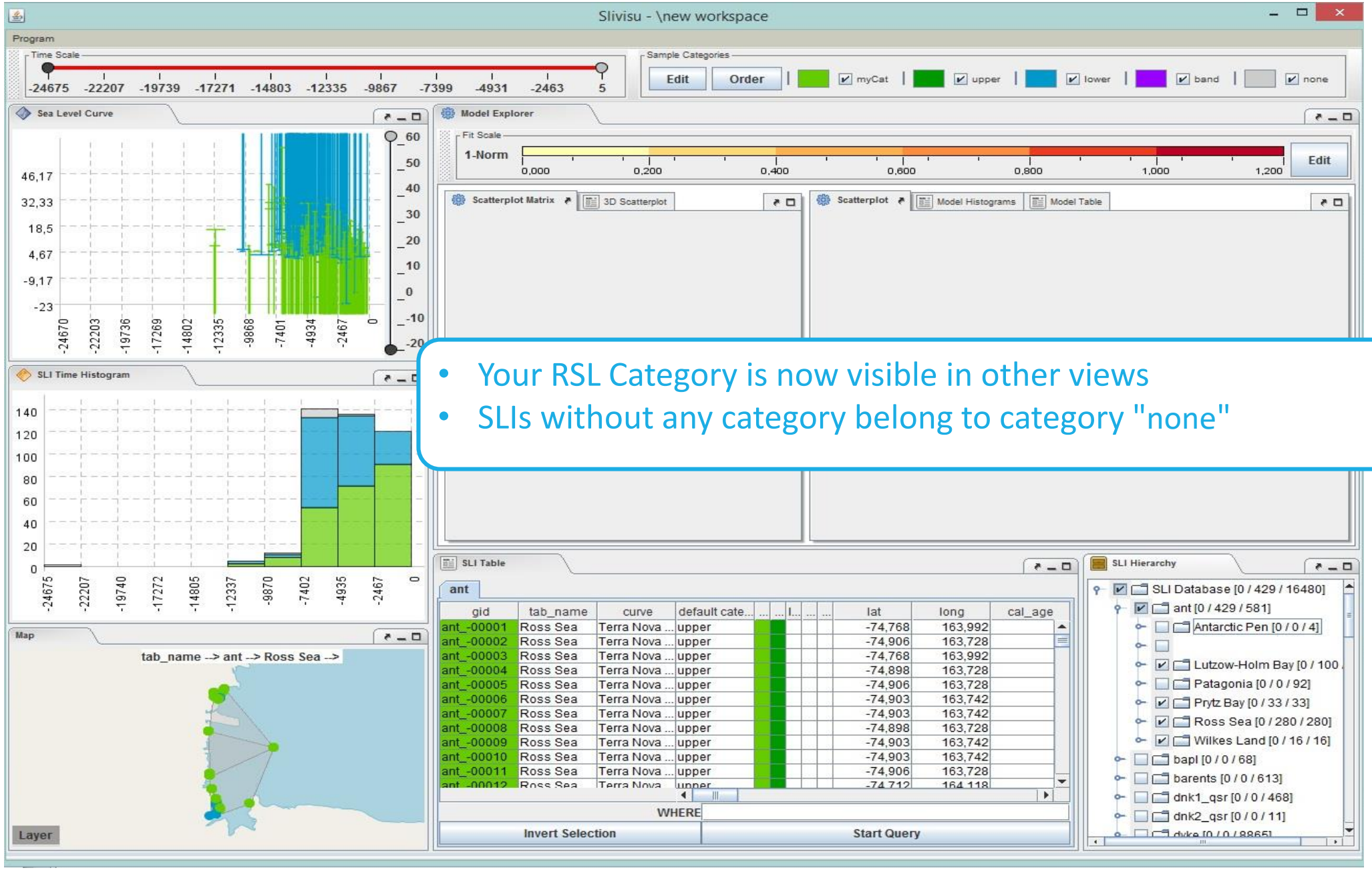
Query File



- SLI color depends on it's category. The priority is from left to right, you might need to deselect the default categories or reorder them to see your category in the other views
- To do so click on *Order*



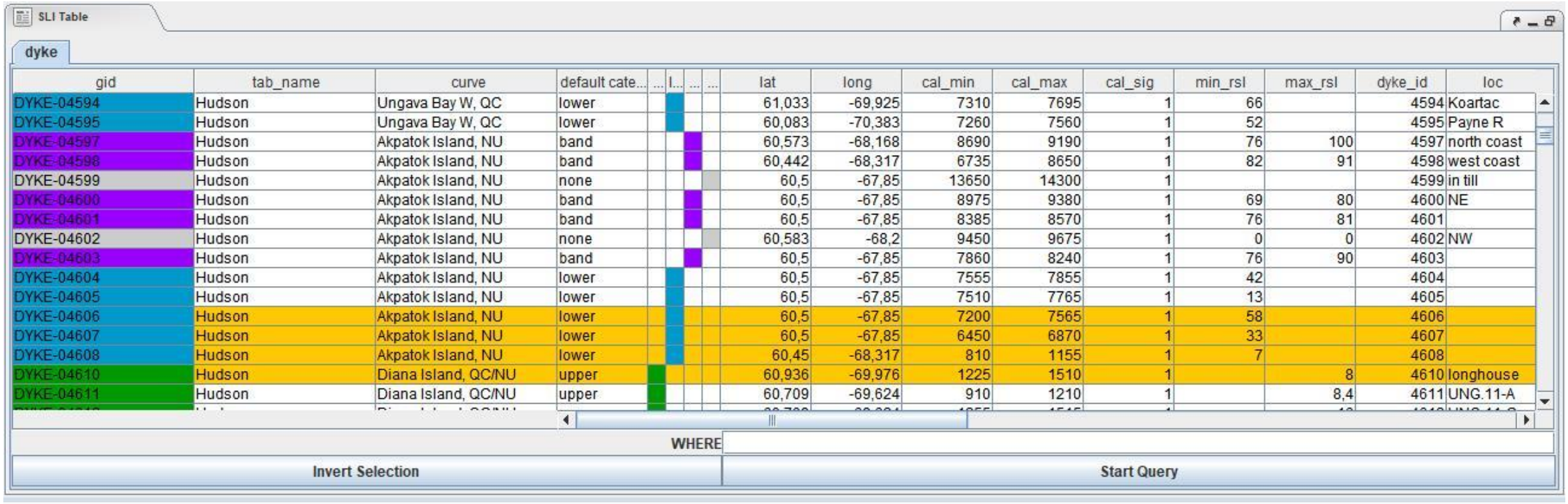
- Click and hold a Category and move it to it's new place
- Click *ok* when done



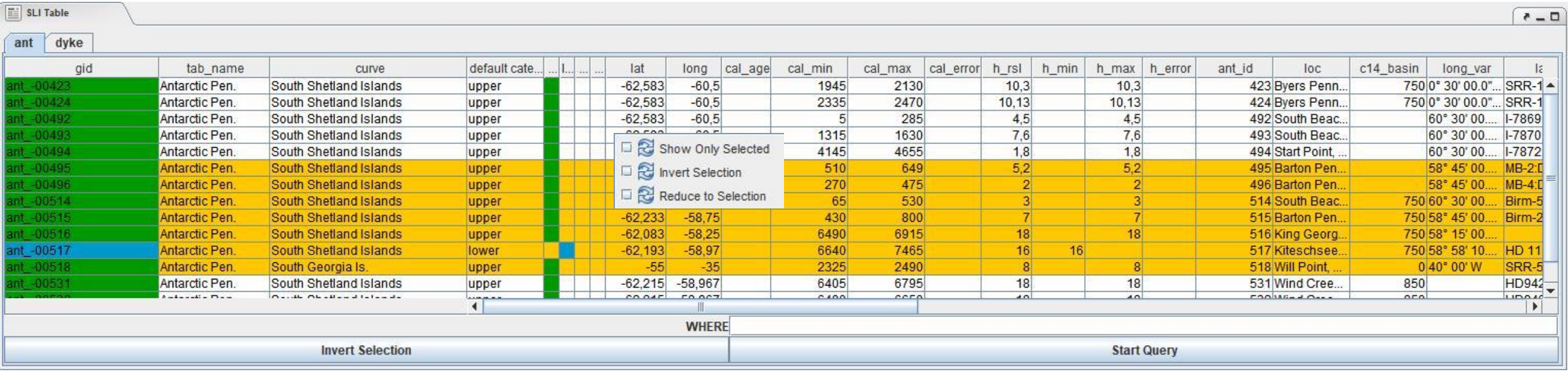
- Your RSL Category is now visible in other views
- SLIs without any category belong to category "none"

1.3 SLI Table

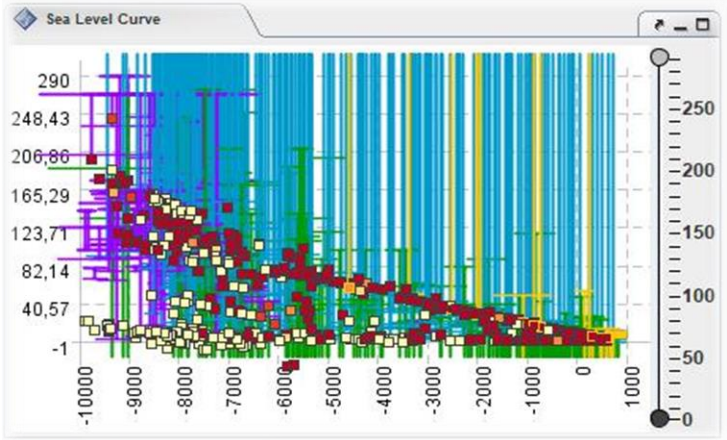
SLI Table
dyke
gid
tab_name
curve
default cate...
lat
DYKE-05059 Hudson Fort George, QC lower 53,74
DYKE-05060 Hudson Fort George, QC band 53,35
DYKE-05061 Hudson Fort George, QC band 53,35
DYKE-05062 Hudson Fort George, QC lower 53,333
DYKE-05064 Hudson Fort George, QC band 53,333
DYKE-05065 Hudson Fort George, QC band 53,333
DYKE-05066 Hudson Fort George, QC lower 53,7
DYKE-05067 Hudson Fort George, QC lower 53,578
DYKE-05068 Hudson Fort George, QC lower 53,733
DYKE-05069 Hudson Fort George, QC lower 53,758
DYKE-05070 Hudson Fort George, QC lower 53,467
Multiple Table Selection
WHERE
Invert Selection
Start Query



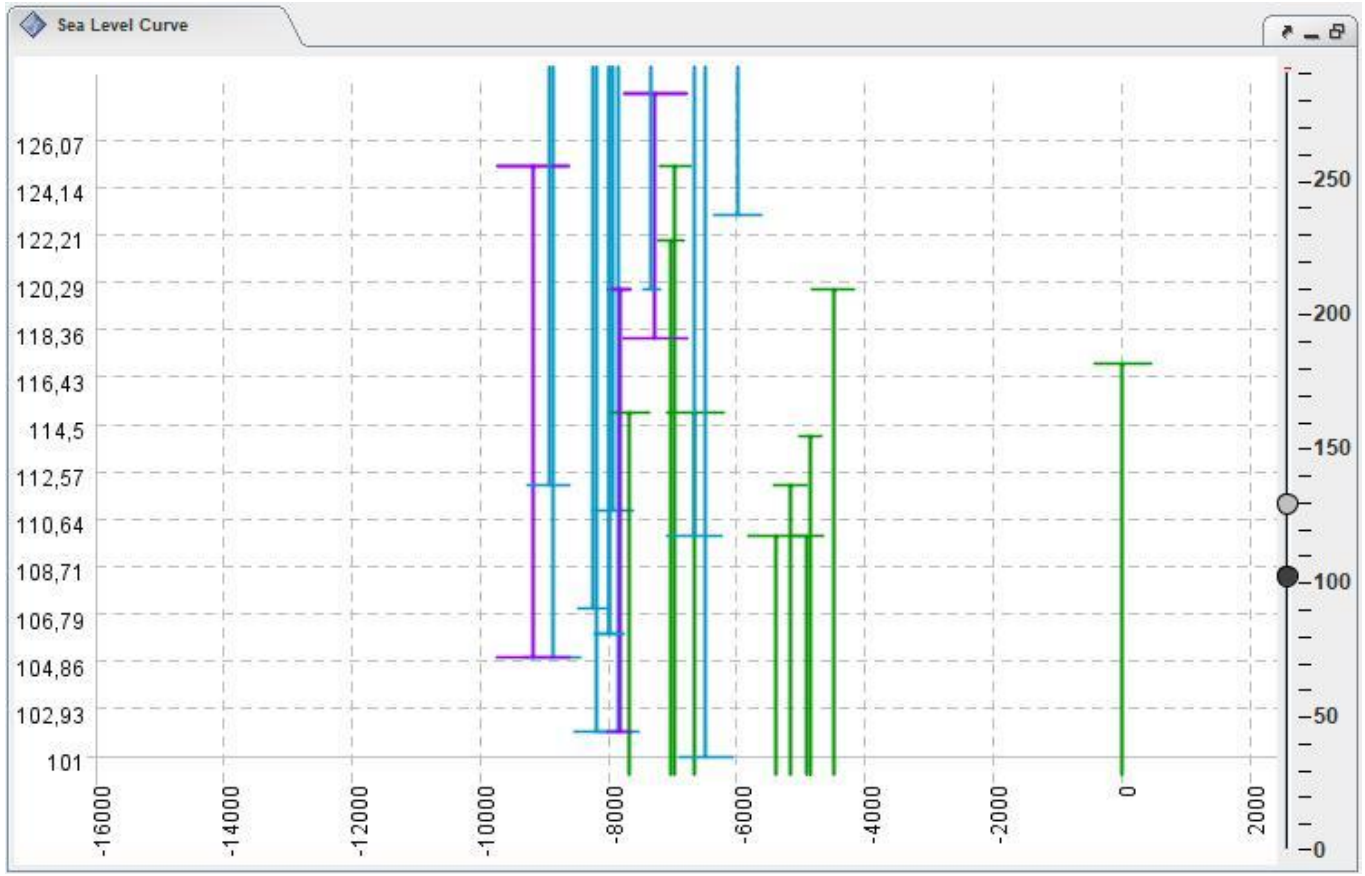
- **SLI Table** contains all the information from the database for the selected SLIs plus their categories
- yellow columns are marked SLIs



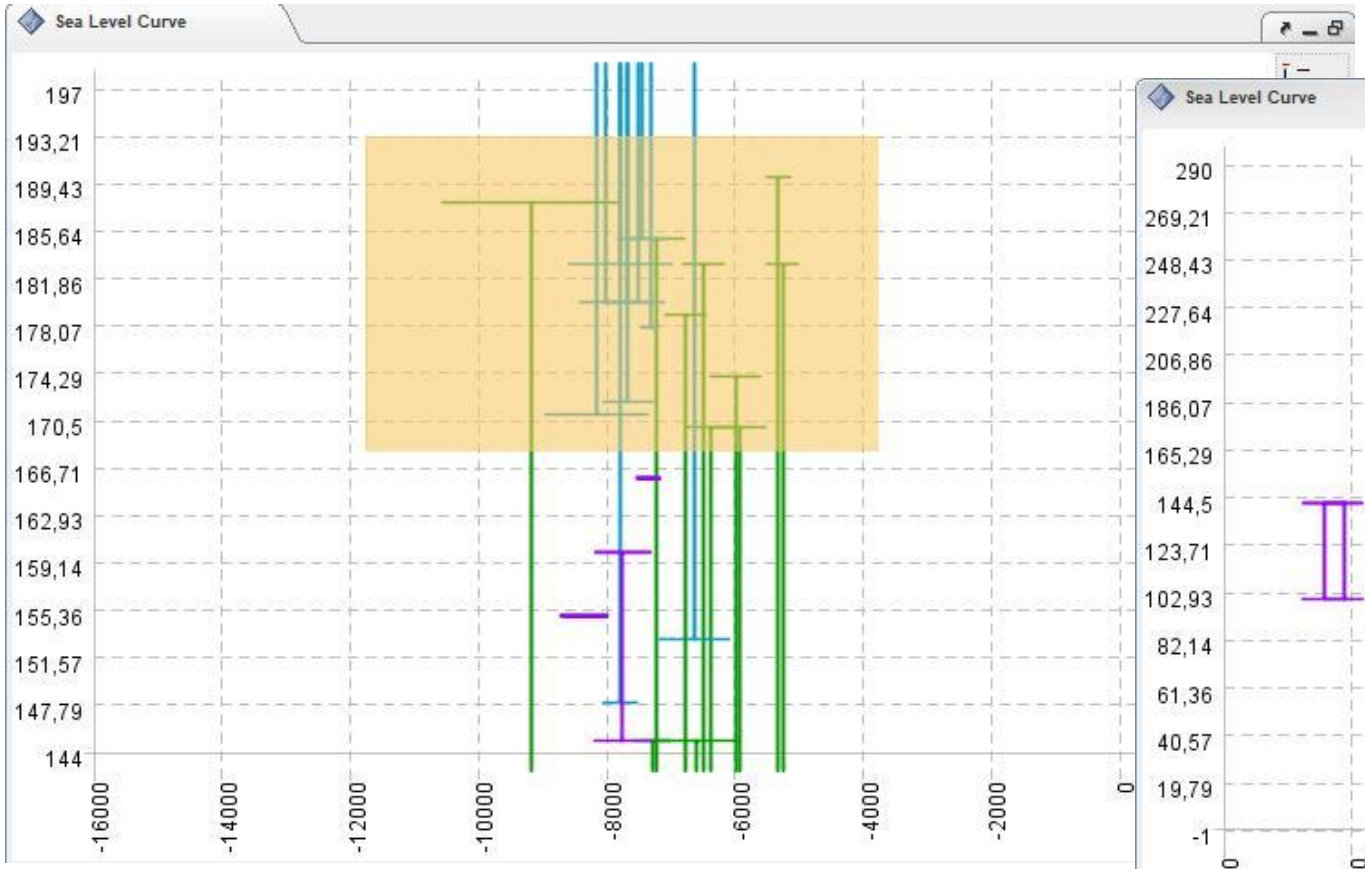
- sort the table by clicking on a column header
- to select or deselect SLIs in the **SLI-Table** click on their row (ctrl + click for adding SLIs to the selection)
- or write a SQL-Query in the field and click on *Start Query*, this will automatically mark all fitting SLIs in the open table
- *Invert Selection* inverts the selection
- Right Click opens the pop-up menu:
  - *Show only Selected* hides non selected SLIs in the **SLI-Table**
  - *Invert Selection* inverts the selection
  - *Reduce to Selection* does not work on more than one table! Other tables will be closed.

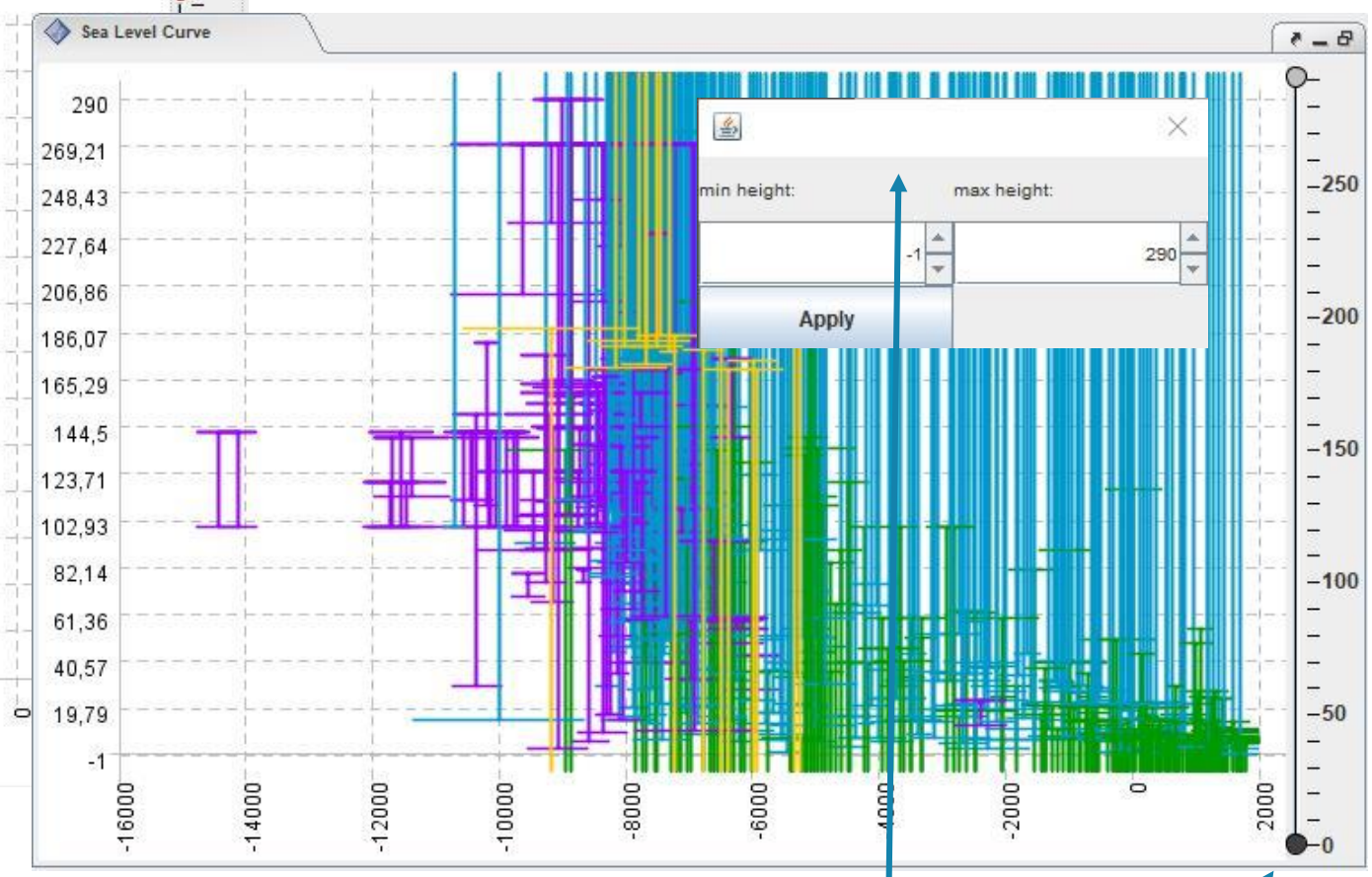


1.4 Sea Level Curve



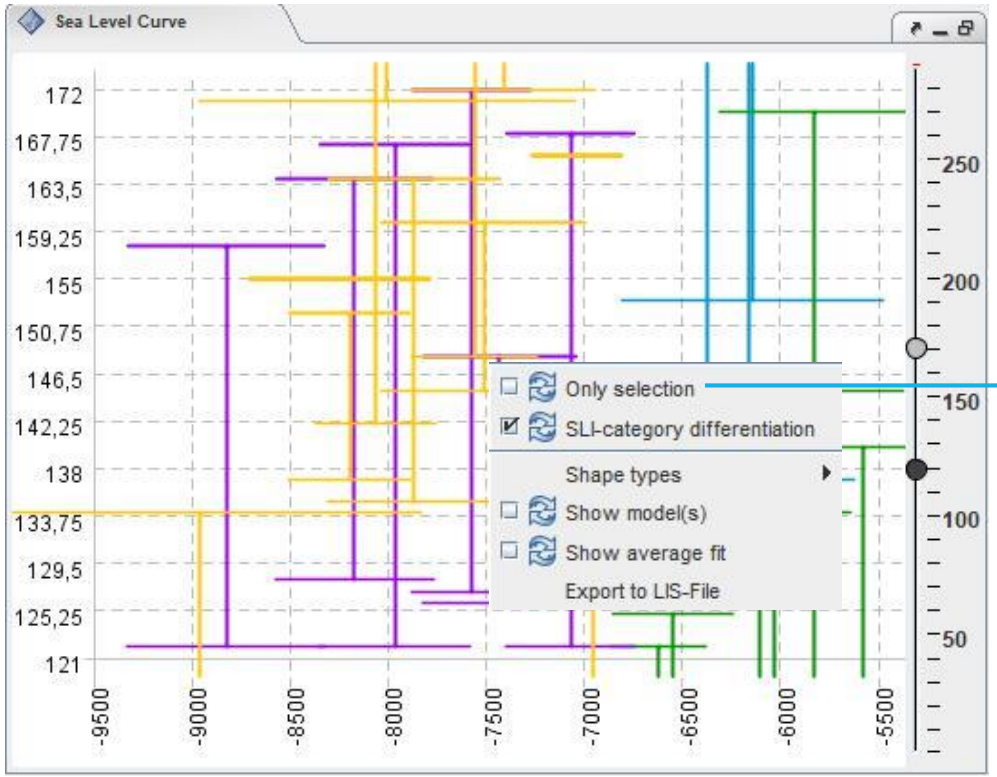
- **Sea Level Curve** for individual samples
- X: uncertainty interval of time point
- Y: uncertainty interval of value (height)
- Color: interval type / category

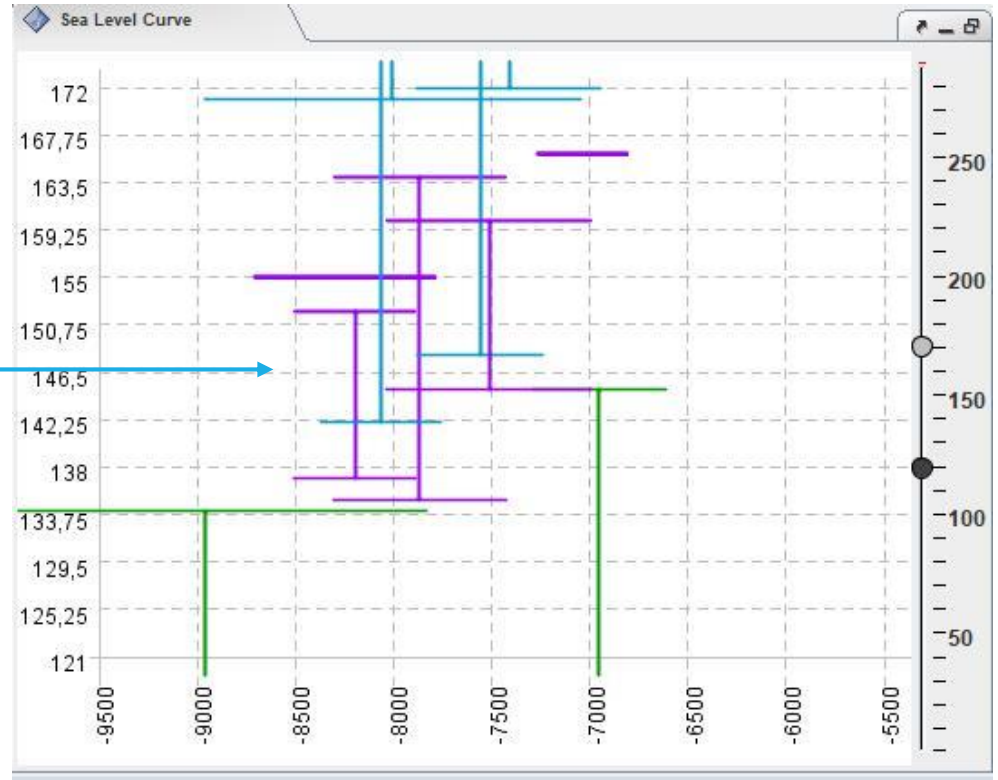




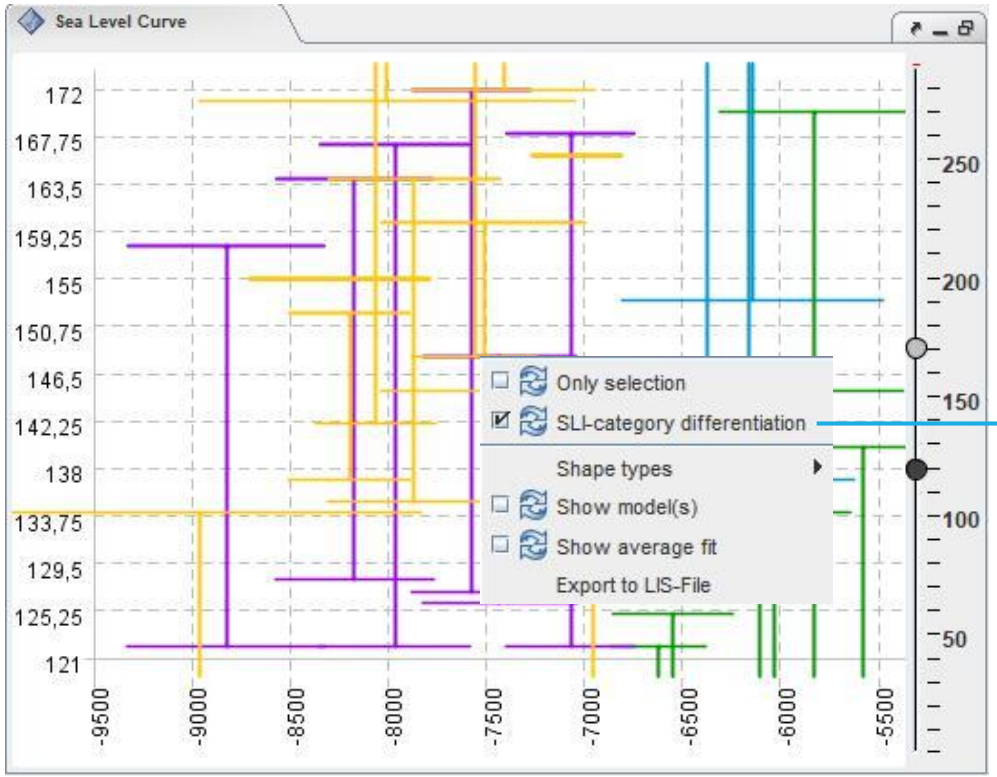
- Select by clicking and drawing a rectangle over the shapes
- Marked samples are yellow
- right click on the slider opens the edit menu where `max height` and `min height` can be adjusted
- adjust the scale on the right to view only SLIs within the selected height range by moving the sliders

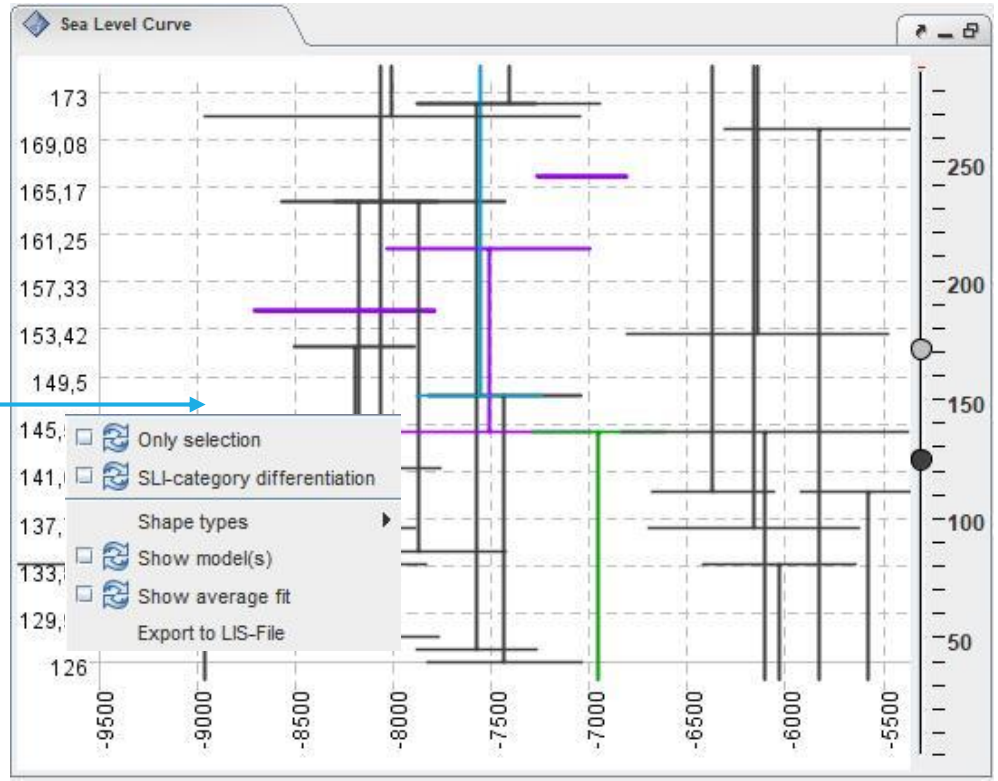
Right click opens the pop-up menu



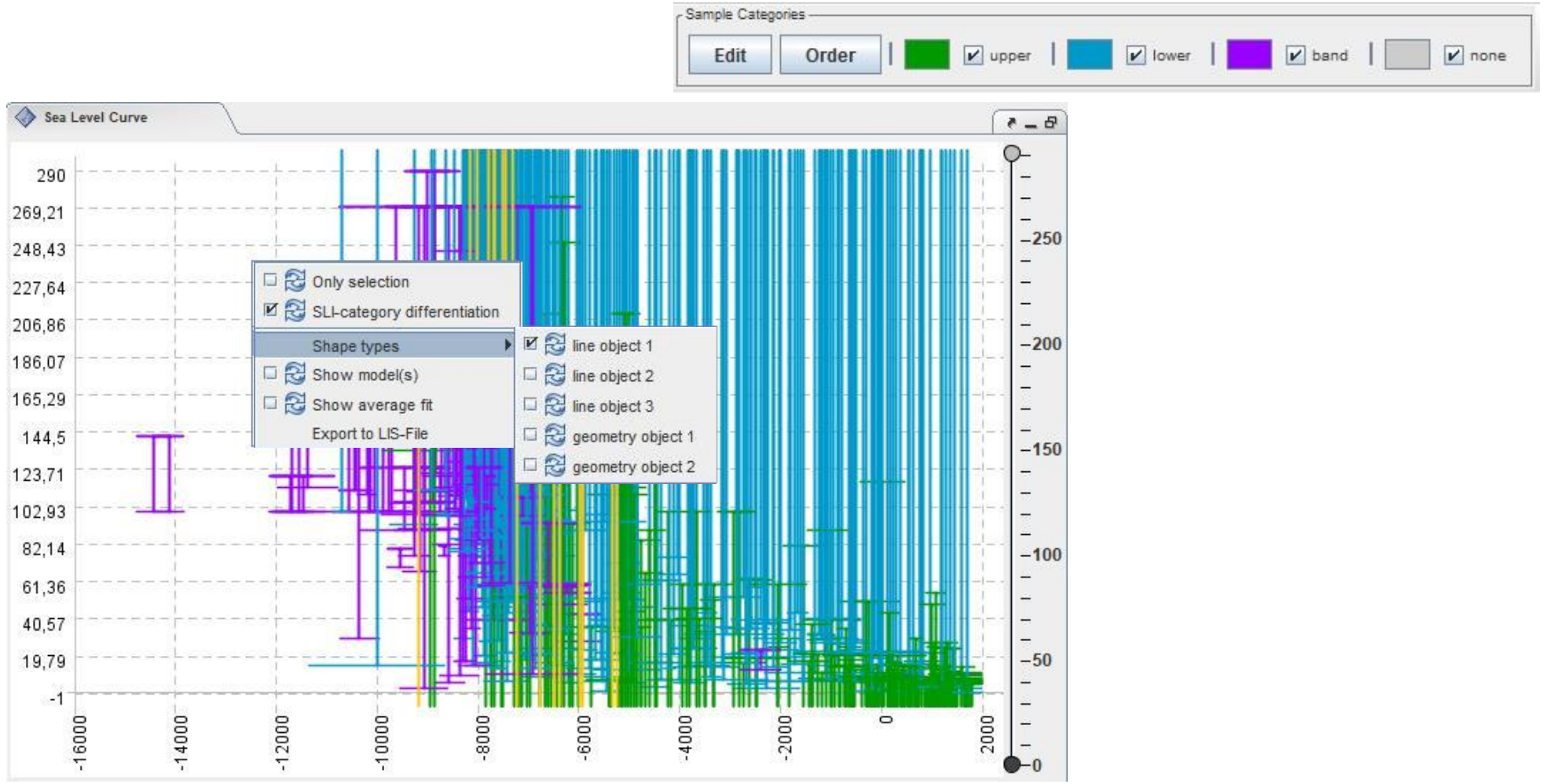


When *Only selection* is checked, only the marked SLIs are shown

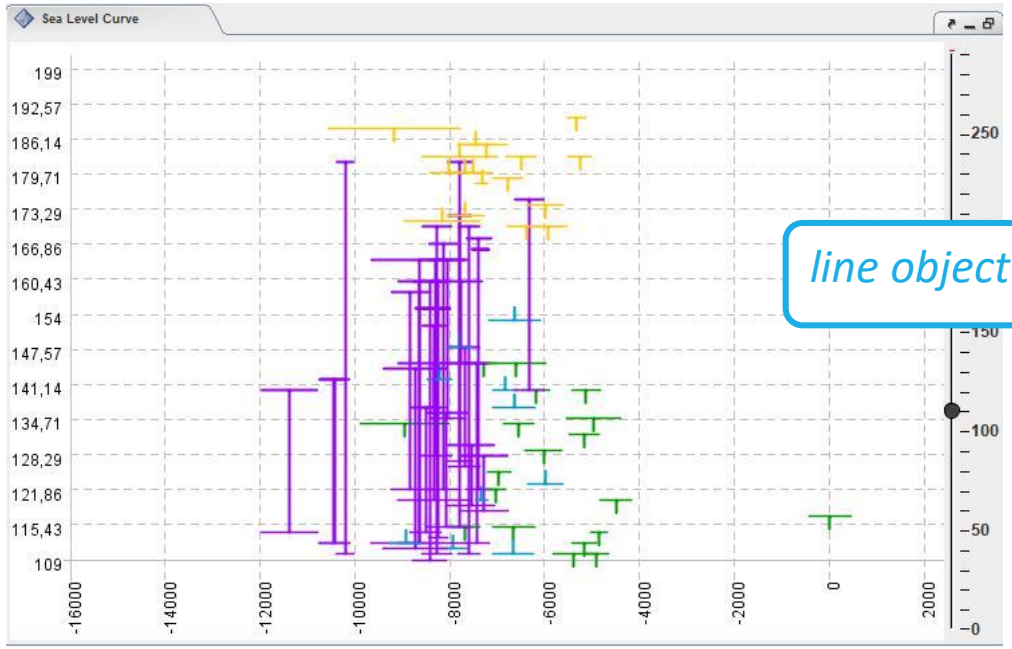




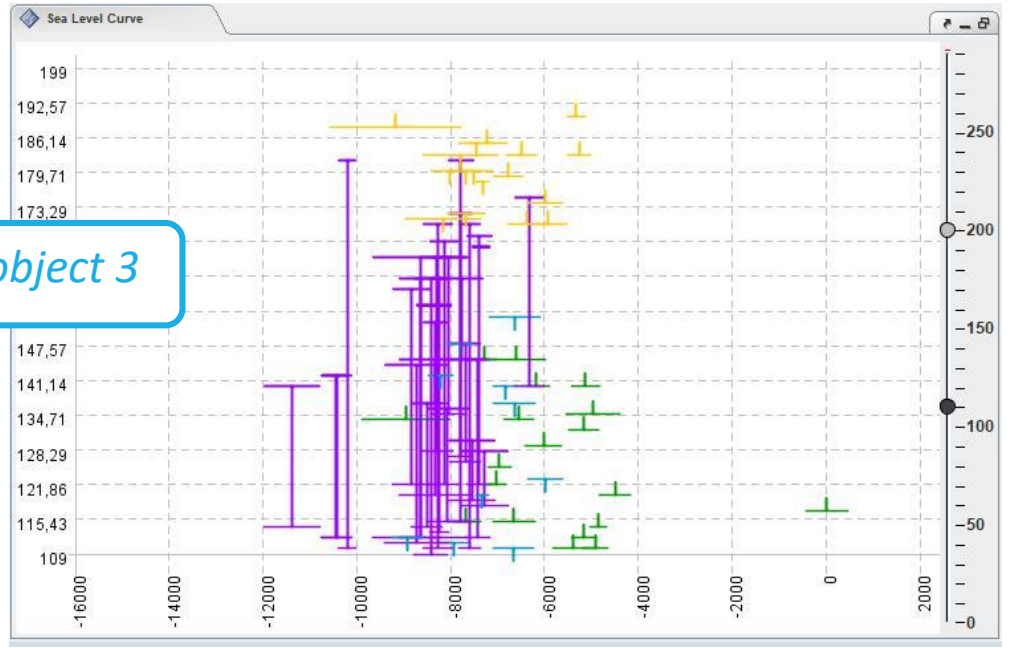
When *SLI-category differentiation* is unchecked, only the marked SLIs are shown in their category color, other SLIs appear dark grey.



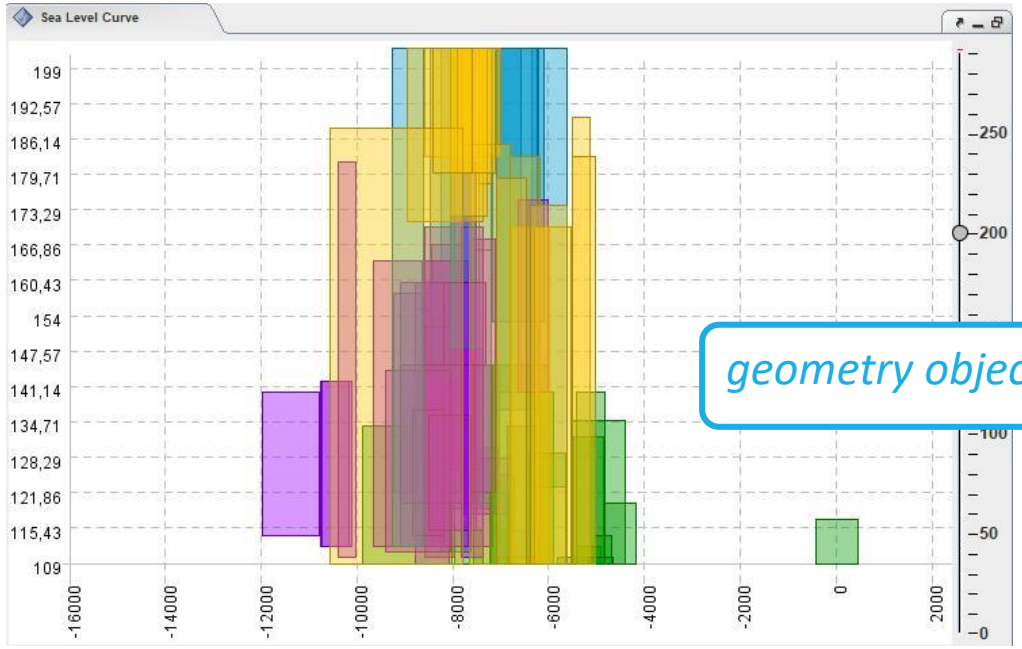
Shape types changes the form of the SLIs, default is *line object 1*



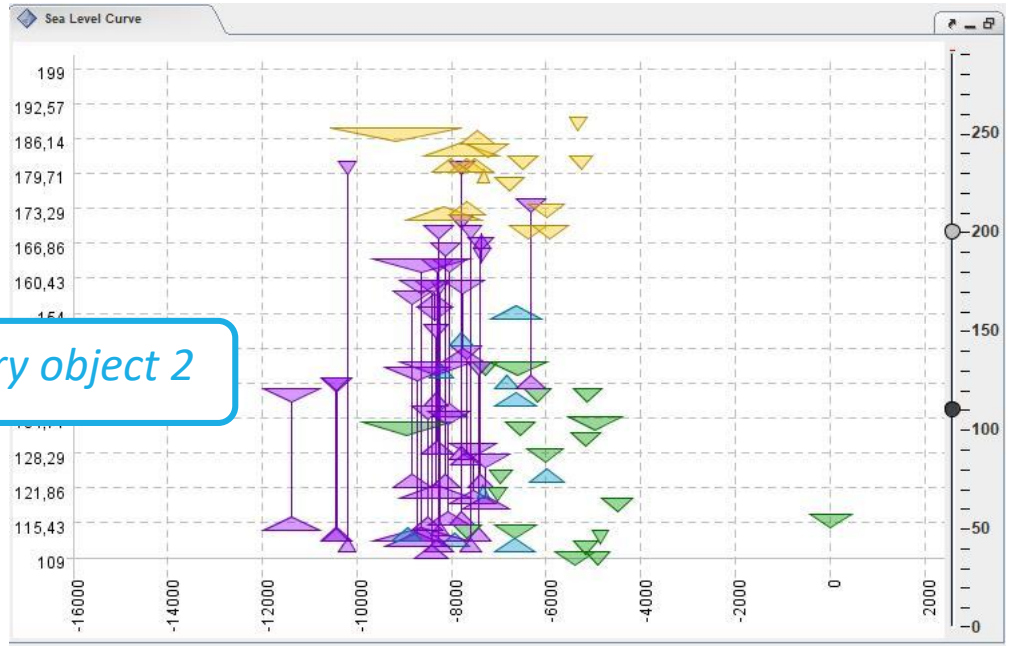
line object 2



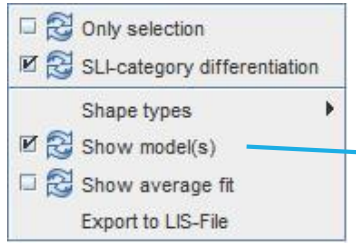
line object 3

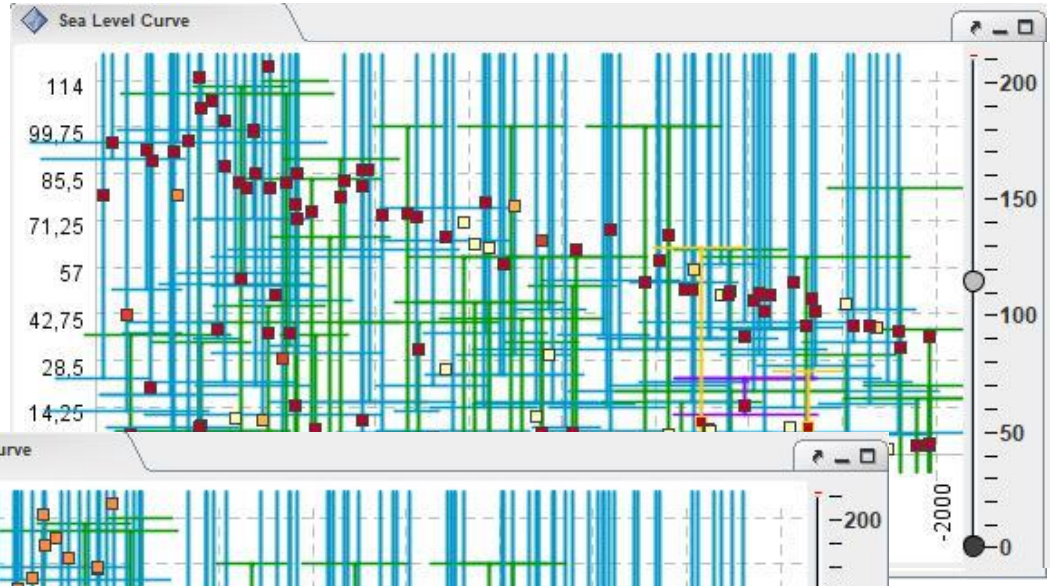


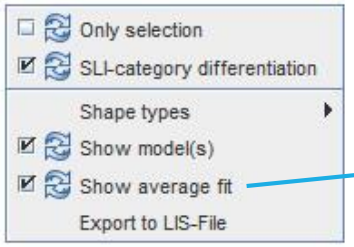
geometry object 1

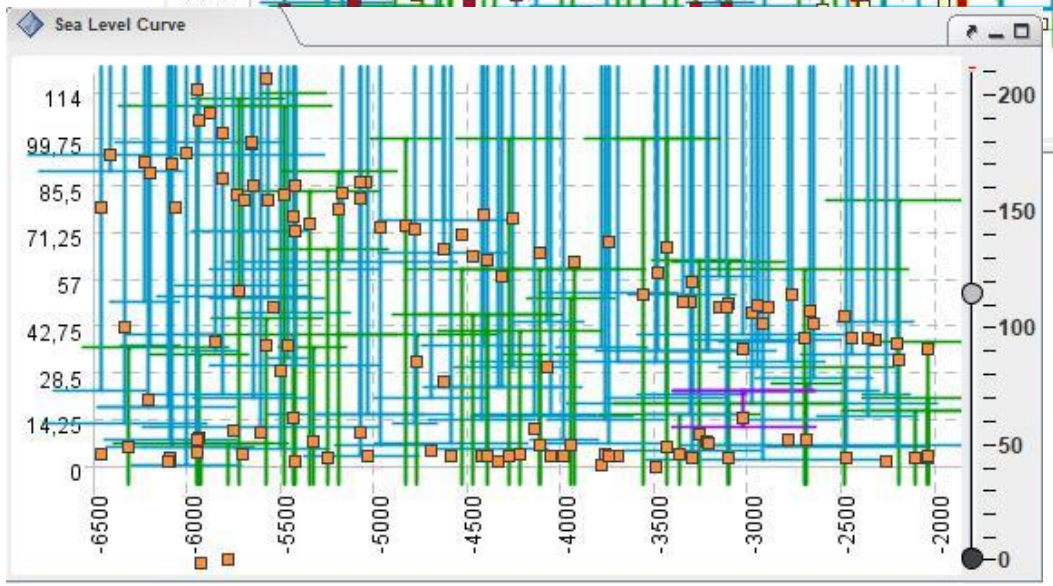


geometry object 2









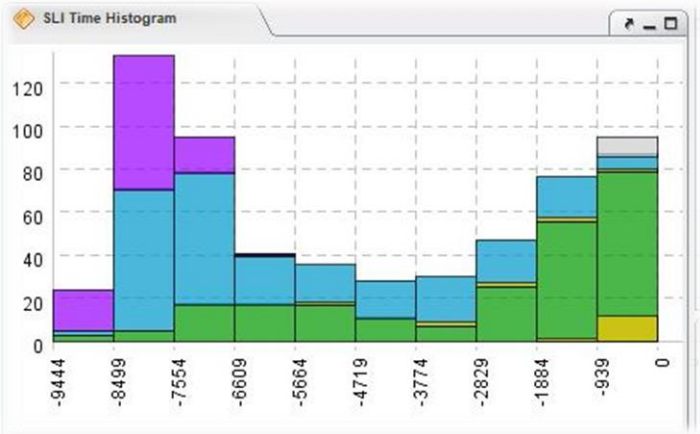
- When *show model(s)* is checked, the model points are shown with their Goodness of Fit color
- *show average fit* shows them in the color of the average model fit
- *Export to LIS-File*: save the selected SLIs in lis-Format

Lis Format for **Sea Level Curve:**

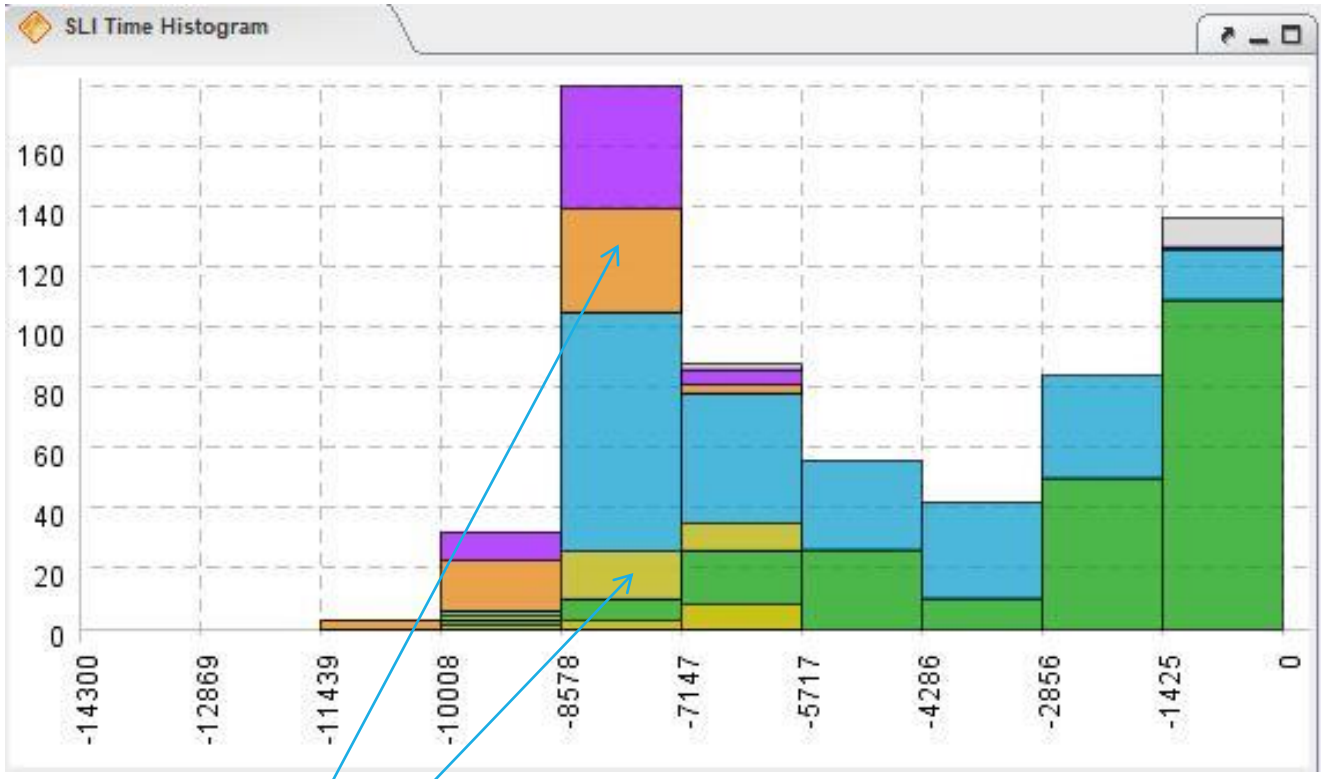
SLC.lis

```
#s visual_query = SeaLevelCurve
#s [sli_tables] table
dyke
#sdddddd [slis from SLC] SLIcode - time_min - time_max - hsli_min - hsli_max - category - fit_L100_1010 - L100_1010_height - fit_L100_1030 - L100_1030_height
DYKE-00664  8380    9035    26.0    50.0    band    1.0 41.821  1.0 34.747
DYKE-00013  2850    3935    1.89999997615814    1.89999997615814    upper   1.0 -7.1531 1.0 -5.4194
DYKE-00018  785 1270    2.16000008583069    2.16000008583069    upper   1.0 -1.7385 1.0 -1.4669
DYKE-00109  915 1300    2.0 2.0 upper   1.0 -1.0546 1.0 -0.57788
DYKE-00032  3130    4620    3.90000009536743    3.90000009536743    upper   1.0 -8.355  1.0 -6.145
DYKE-00114  1305    1825    2.0 2.0 upper   1.0 -1.5755 1.0 -0.8791
DYKE-01546  6165    6660    64.0    83.0    band    1.0 64.793  1.0 71.268
DYKE-00737  7560    7865    20.0    25.0    band    1.0 25.877  0.0 12.809
DYKE-00094  645 800 4.0 4.0 upper   1.0 -0.62295    1.0 -0.34063
DYKE-00009  15405   18175   4.5 4.5 upper   1.0 -109.85 1.0 -89.548
DYKE-00061  11070   12965   -19.0   -19.0   upper   1.0 -52.404 1.0 -52.133
DYKE-00084  2360    2745    4.0 4.0 upper   1.0 -2.6626 1.0 -1.565
```

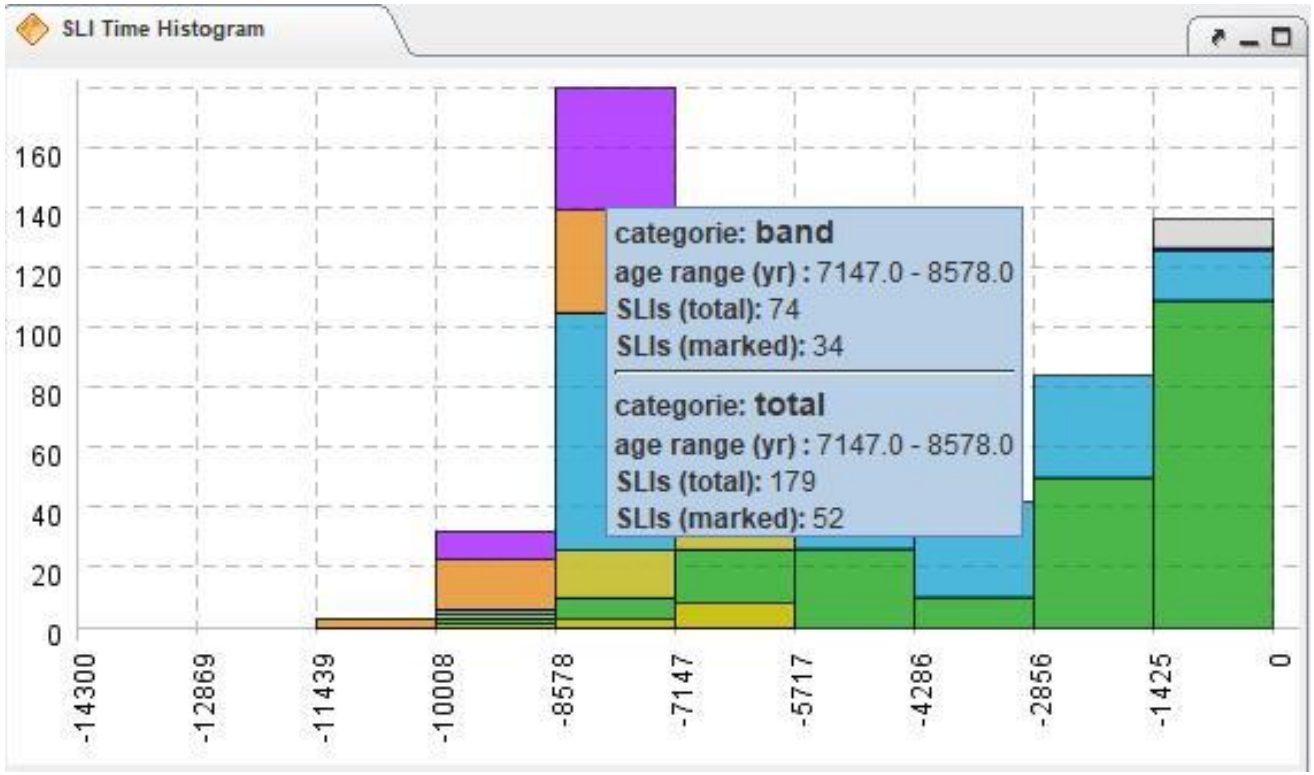
model fit and height
(only if at least one model is selected)



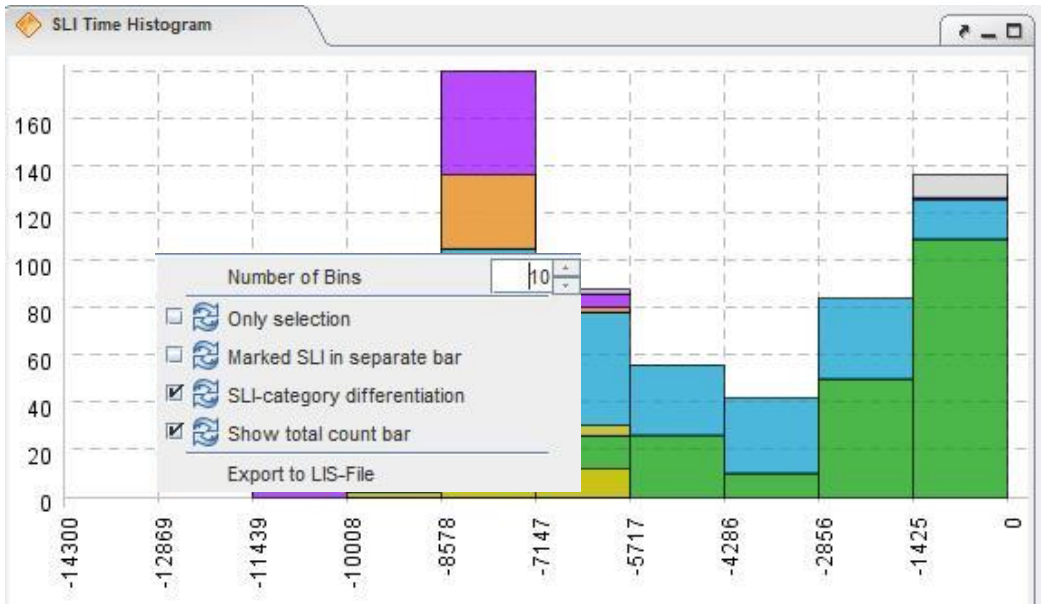
1.5 SLI Time Histogram



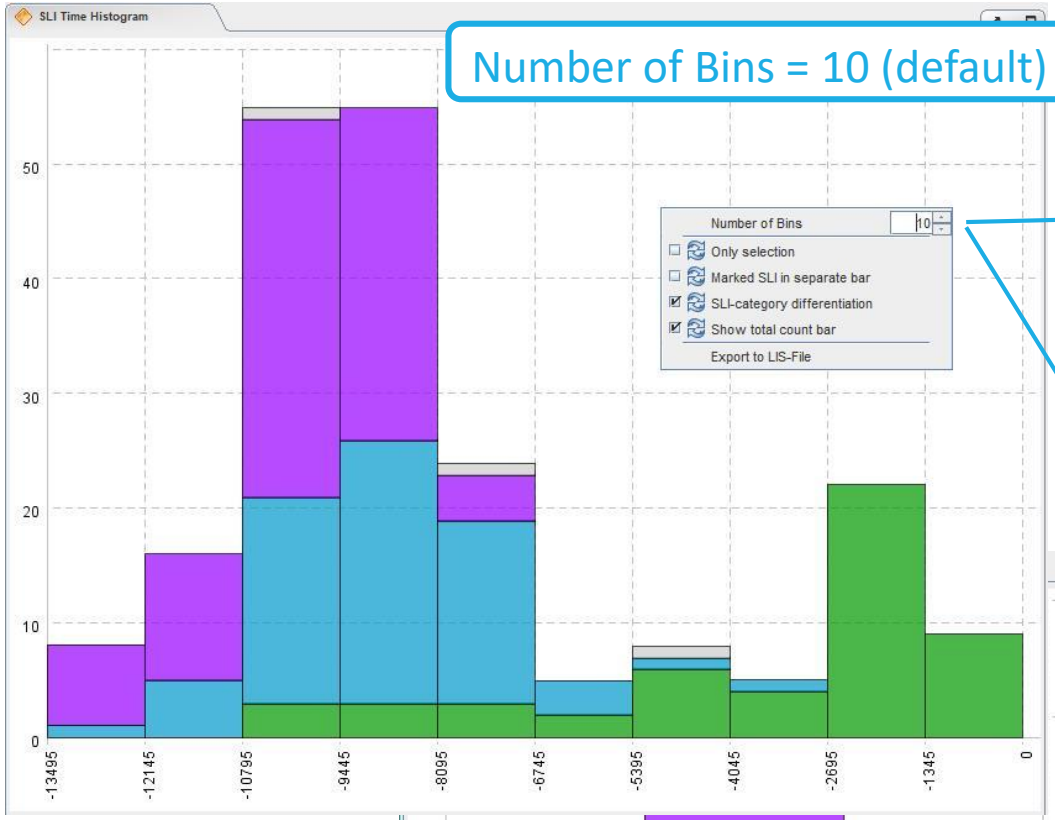
- Number of samples in a time interval grouped by type
- X: Time, Y: number
- yellow overlayed parts show the number of marked samples in the category/time interval

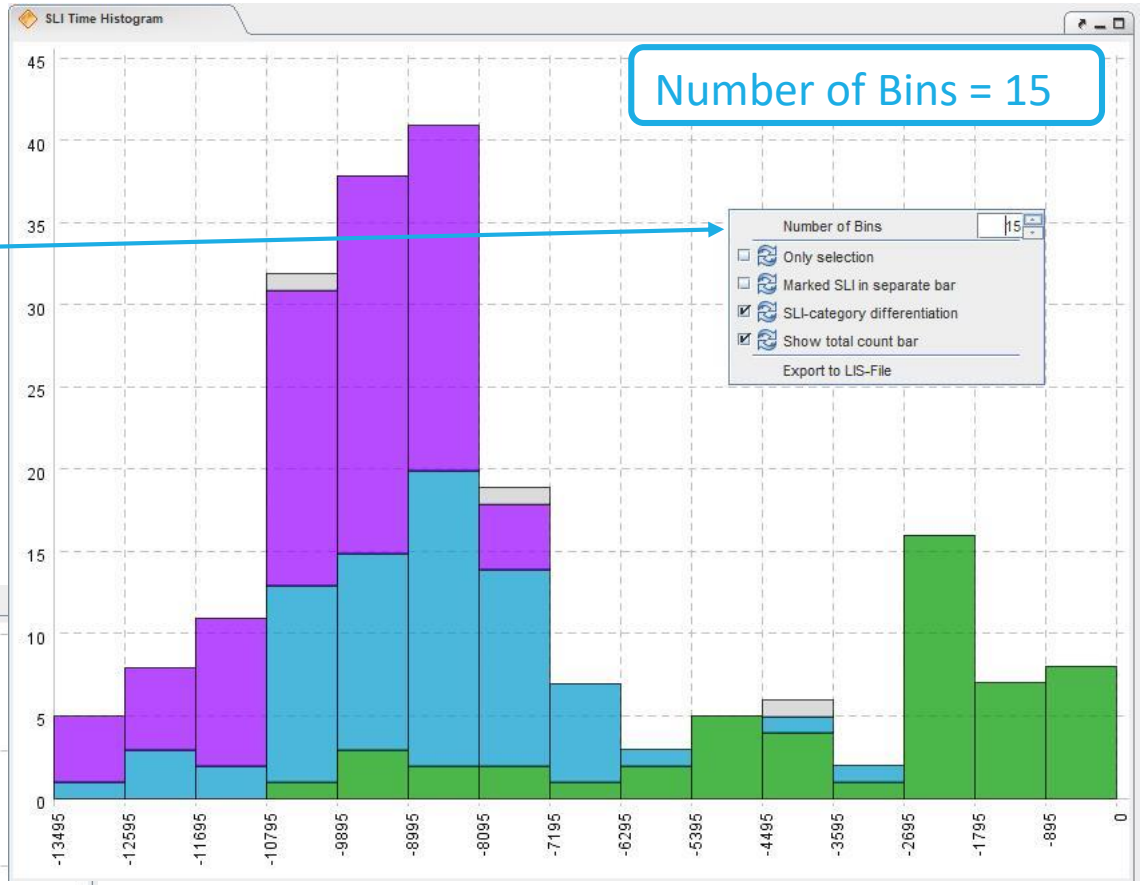


- A tooltip shows details about the category and the time interval by hovering the mouse over
- Selection of bins with click or ctrl + click

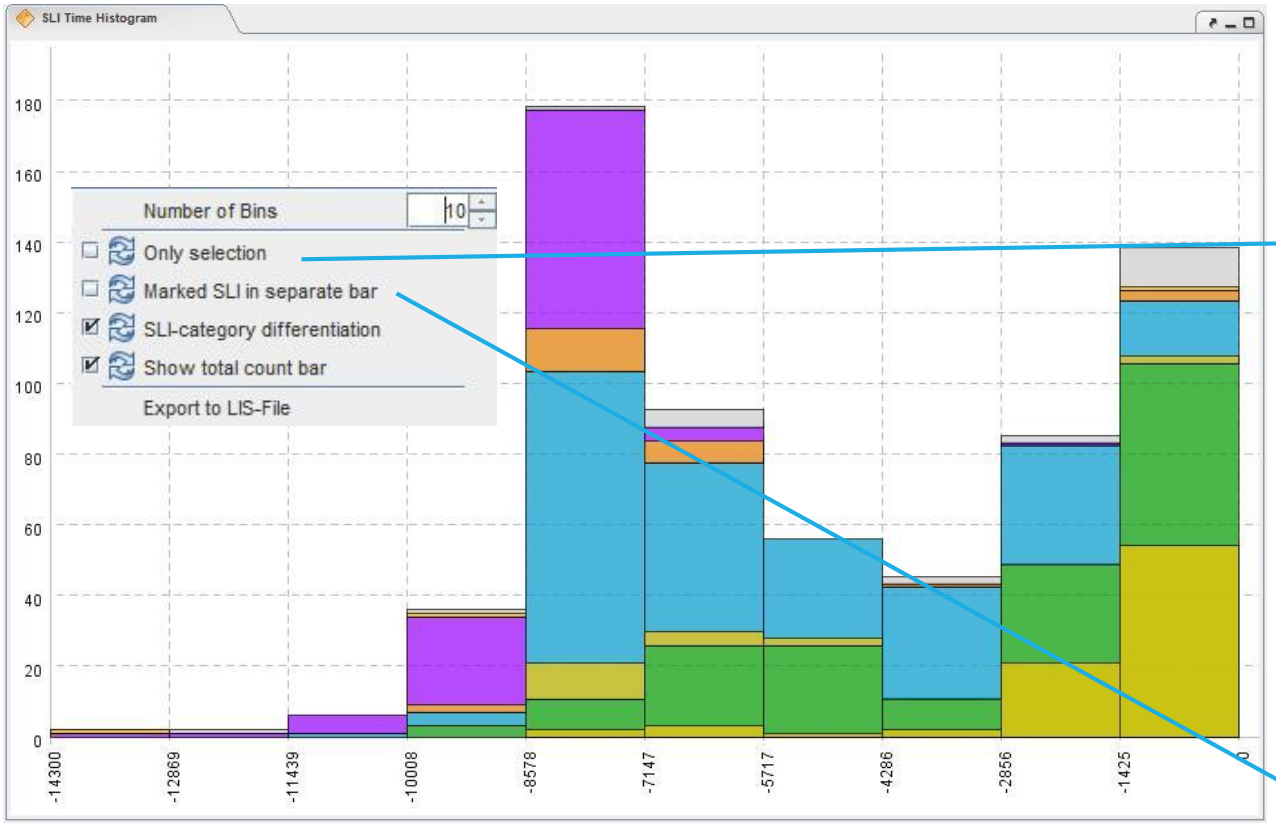


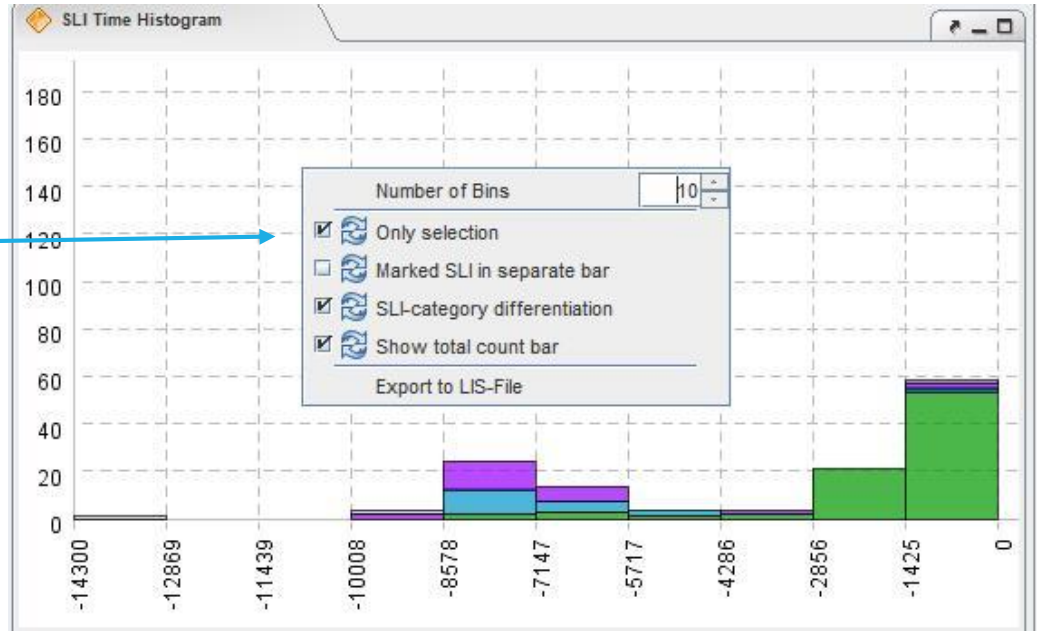
Right click opens the pop-up menu

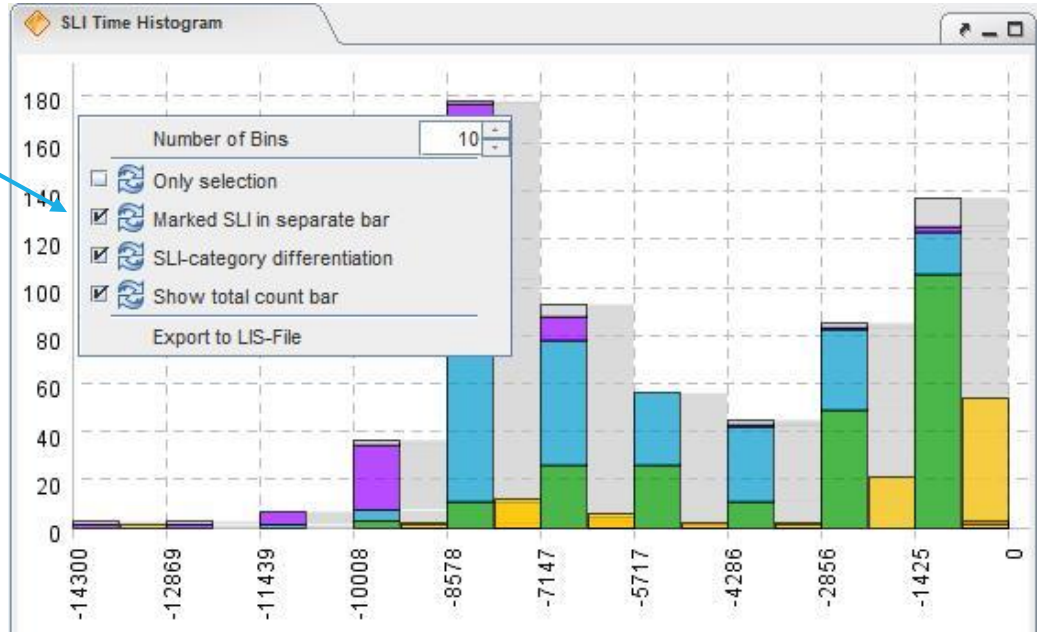




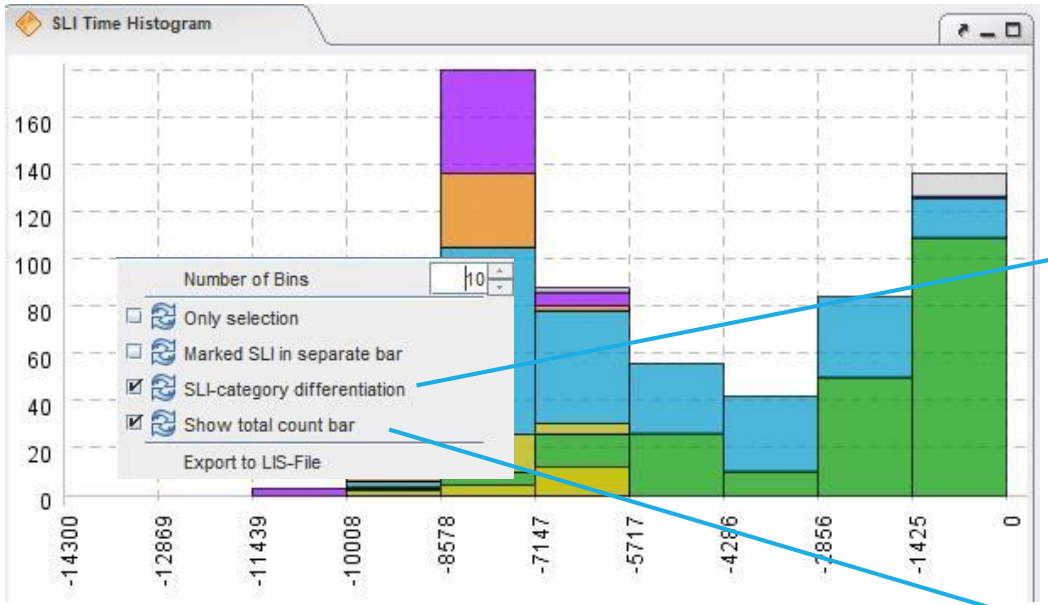
The number of Bins can be adjusted from 1 to 30

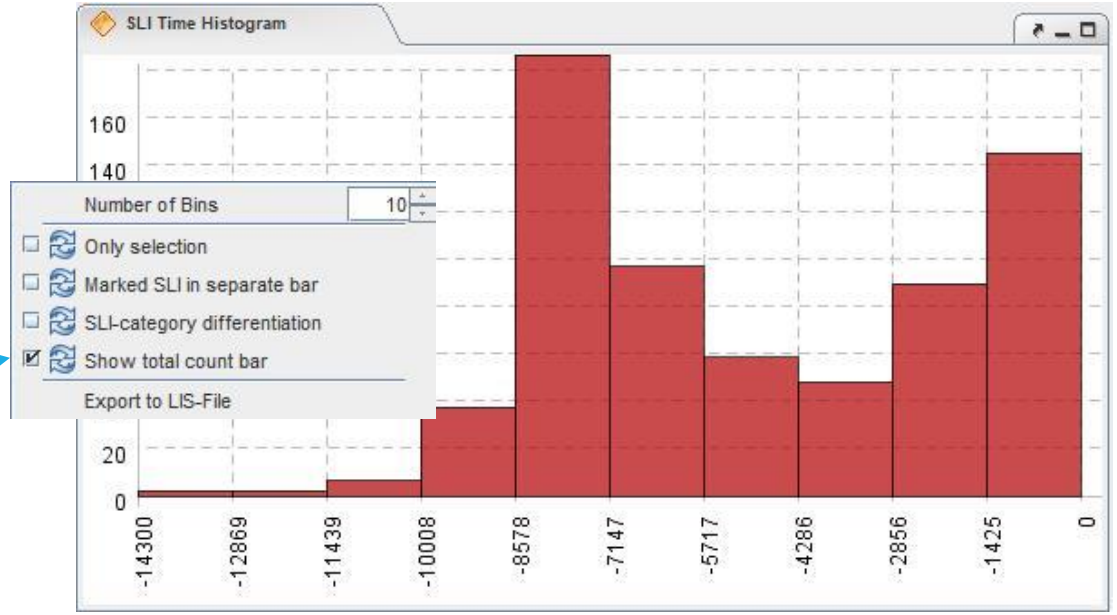


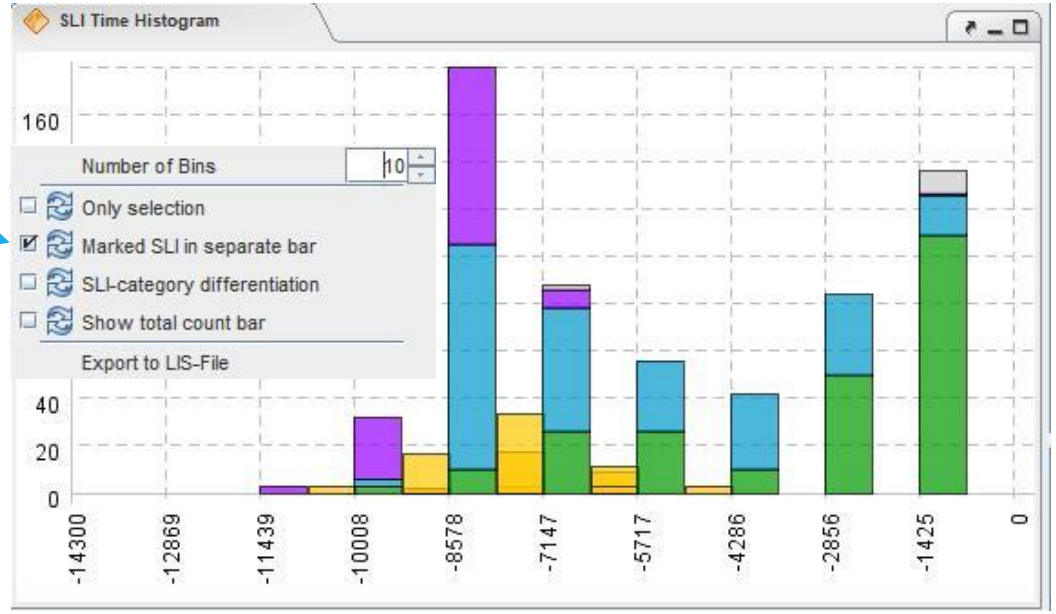




- Check *Only selection* to see only marked SLIs in the histogram
- Check *Marked SLI in seperate* bar to see the number of marked samples inside a time interval in a seperate bar







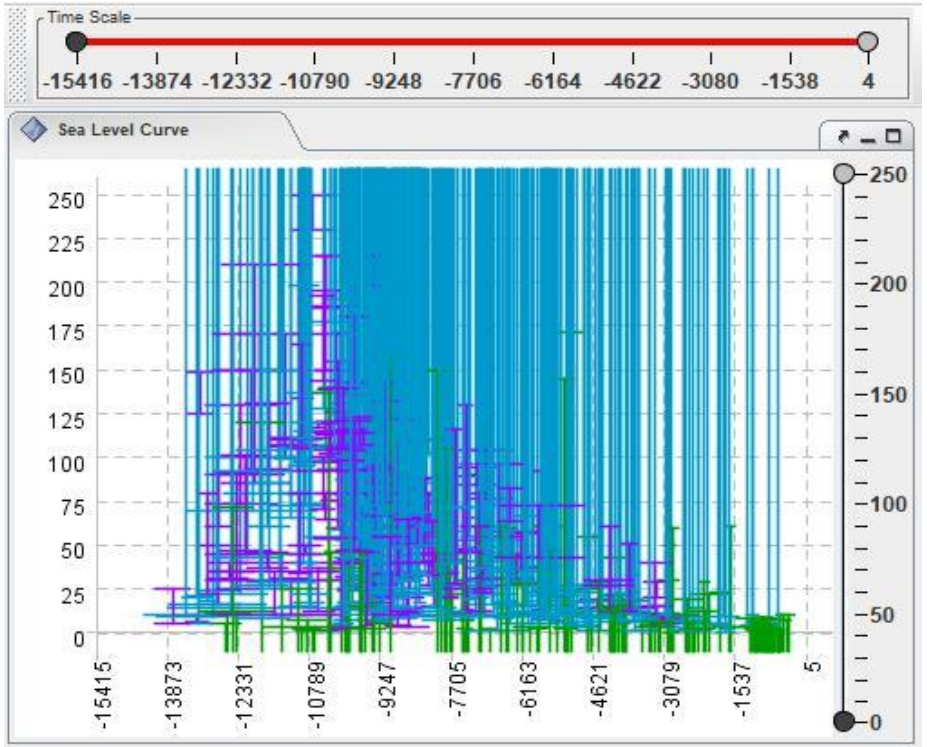
- Unchecking *SLI-category differentiation* shows total count only
- Unchecking *Show total count* bar removes the grey seperate bar (in combination with *marked SLI in seperate bar*)
- *Export to LIS-File*: save the selected SLIs

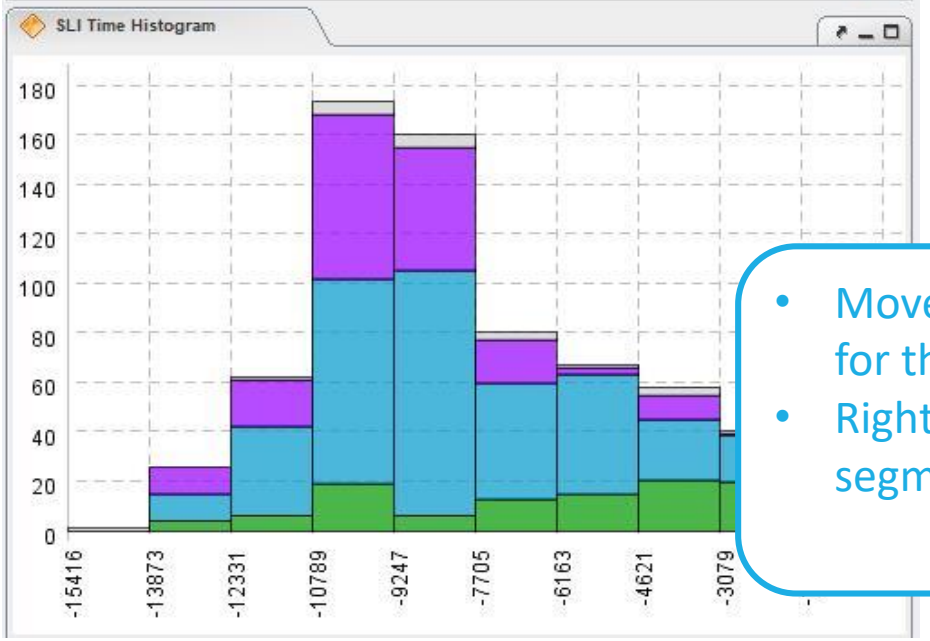
Lis Format for **SLI Time Histogram:**

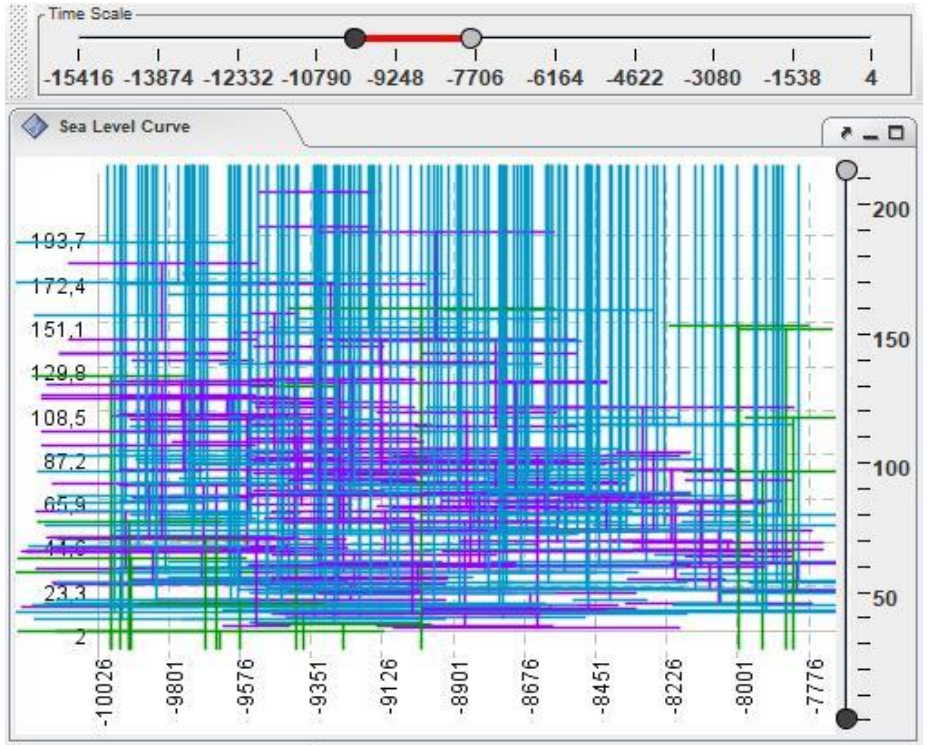
Histo.lis

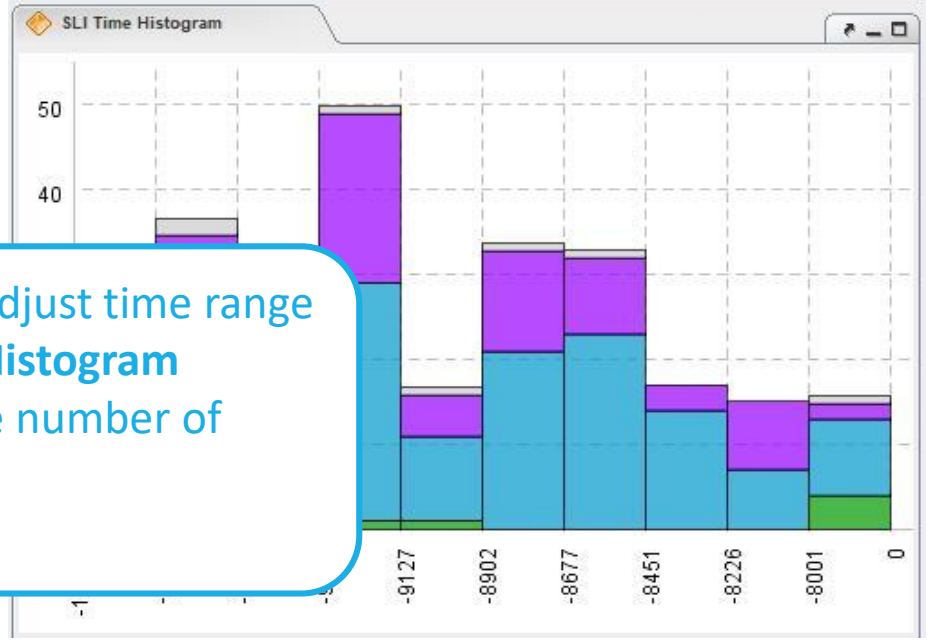
```
1  #s visual_query = TimeHistogram
2  #s [sli_tables] table
3  dyke
4  #sdd [slis from histogram] SLIcode - bar_time_min - bar_time_max - category
5  DYKE-07363  -5.0     2371.0  upper
6  DYKE-05305  2371.0   4748.0  upper
7  DYKE-08990  4748.0   7124.0  lower
8  DYKE-08607  11877.0  14254.0 band
9  DYKE-06598  2371.0   4748.0  upper
10 DYKE-02665  9501.0   11877.0 band
11 DYKE-06028  2371.0   4748.0  upper
12 DYKE-08524  11877.0  14254.0 none
13 DYKE-03932  7124.0   9501.0  lower
14 DYKE-00433  9501.0   11877.0 upper
```

1.6 Time Scale



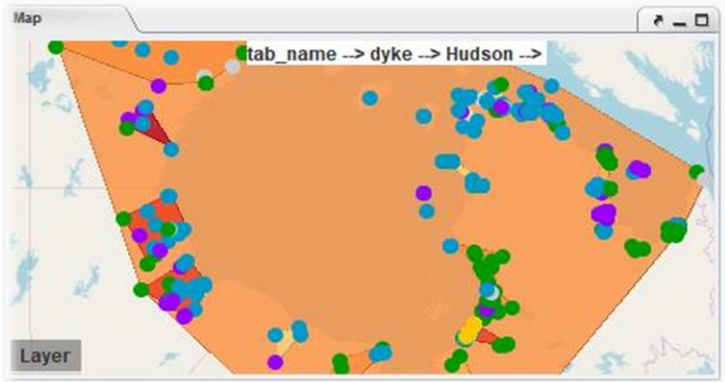


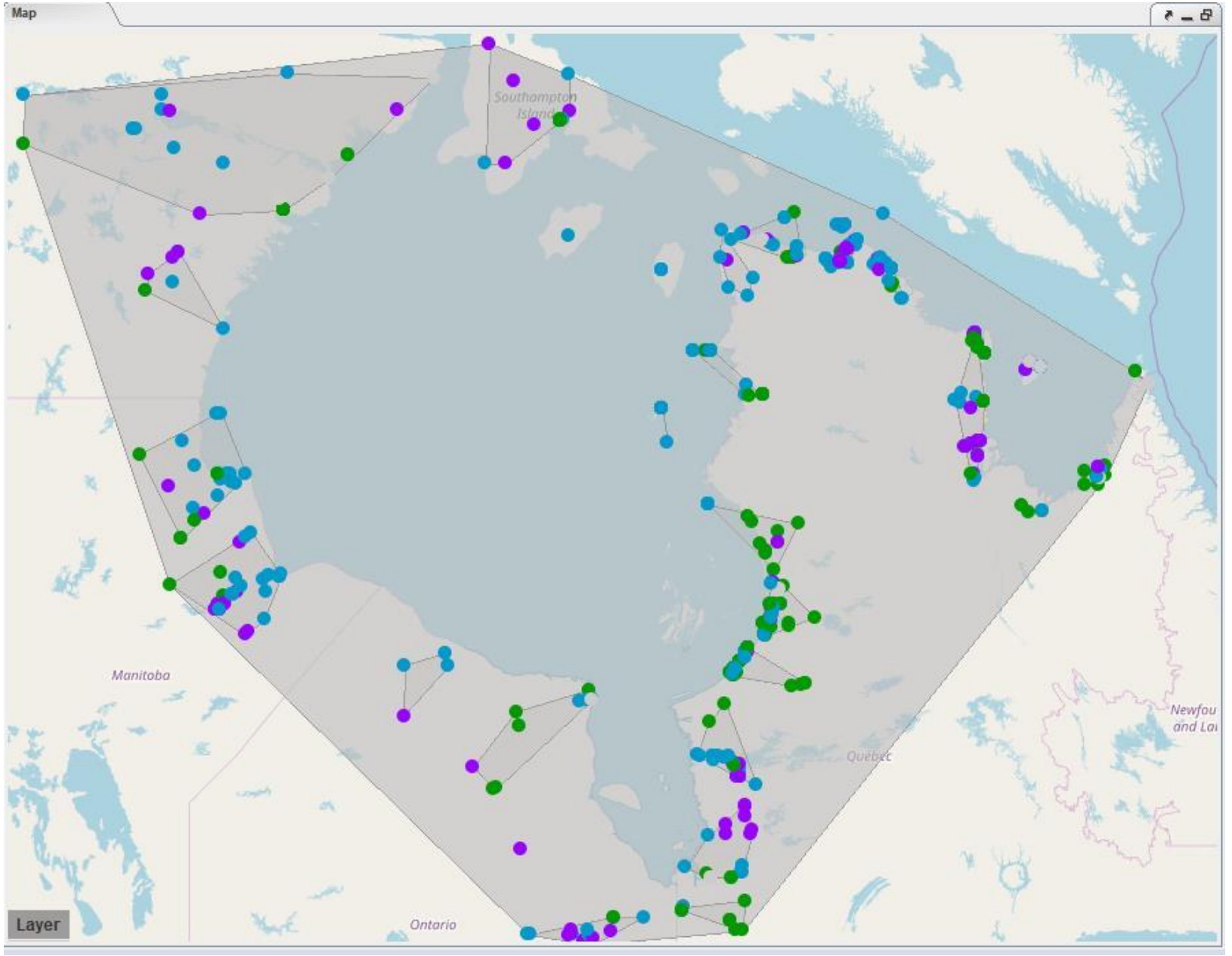




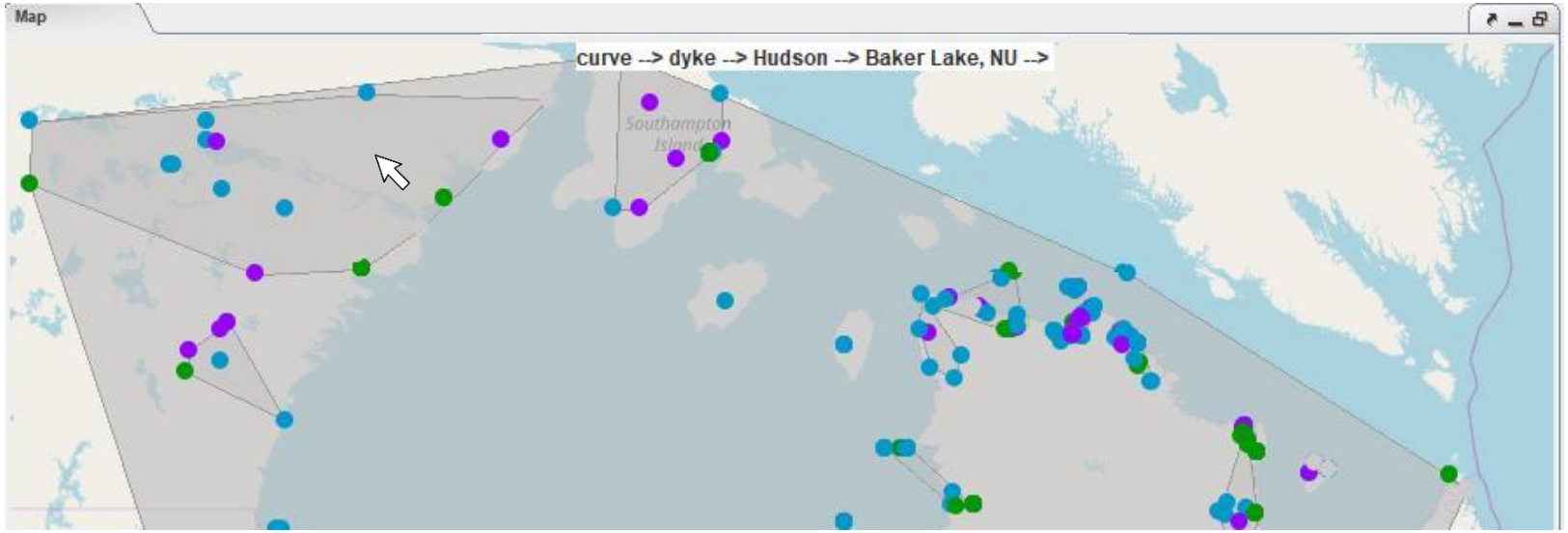
- Move the sliders in the **Time Scale** to adjust time range for the **Sea Level Curve** and the **Time Histogram**
- Right click opens a menu to change the number of segments

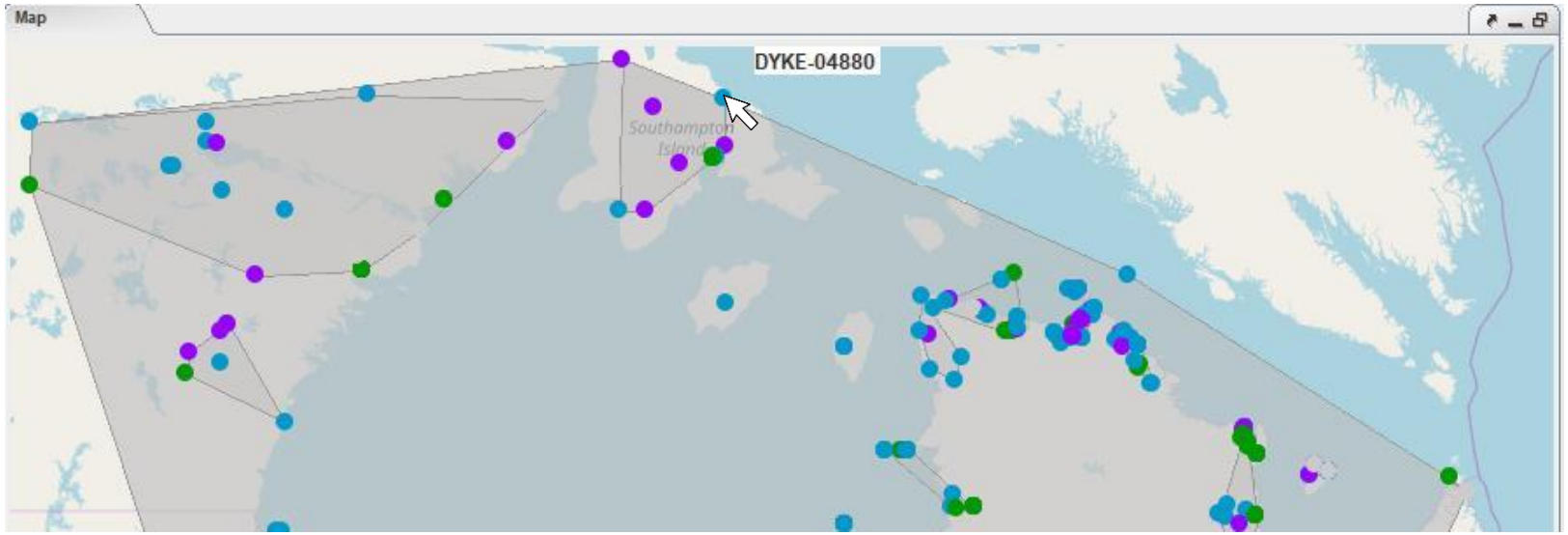
1.7 Map



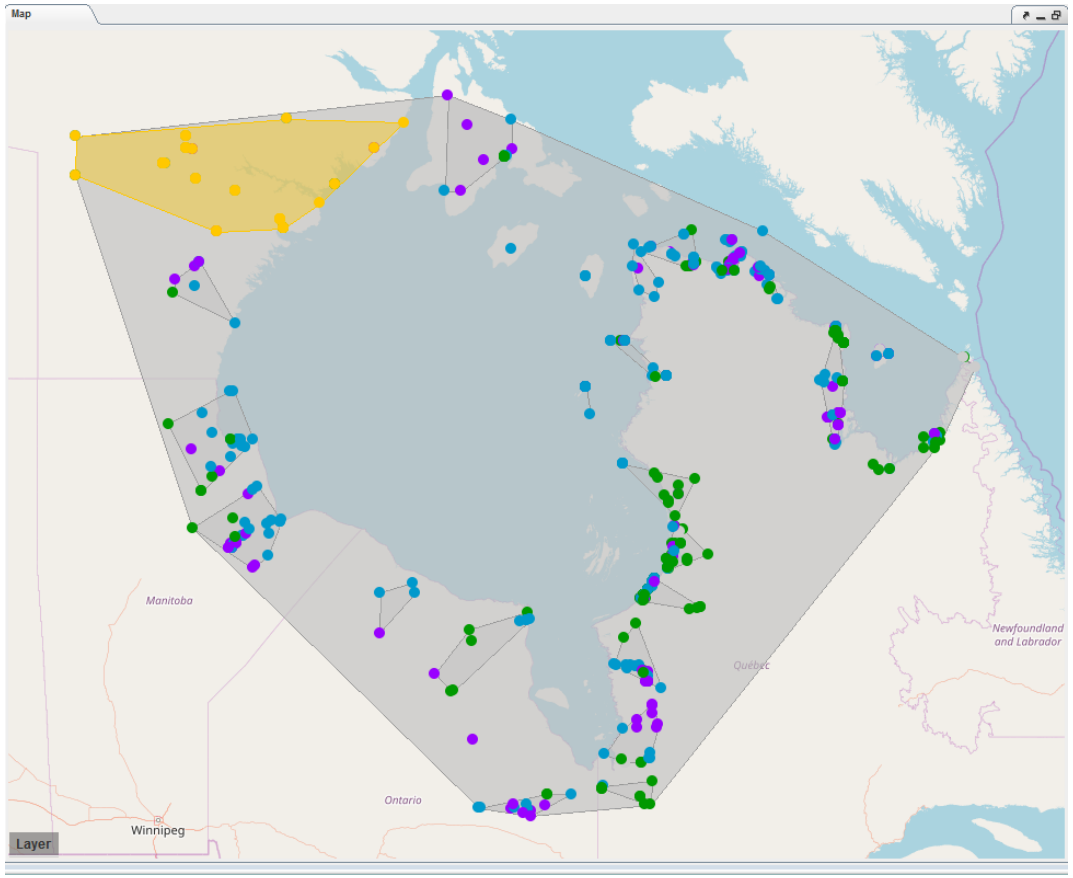


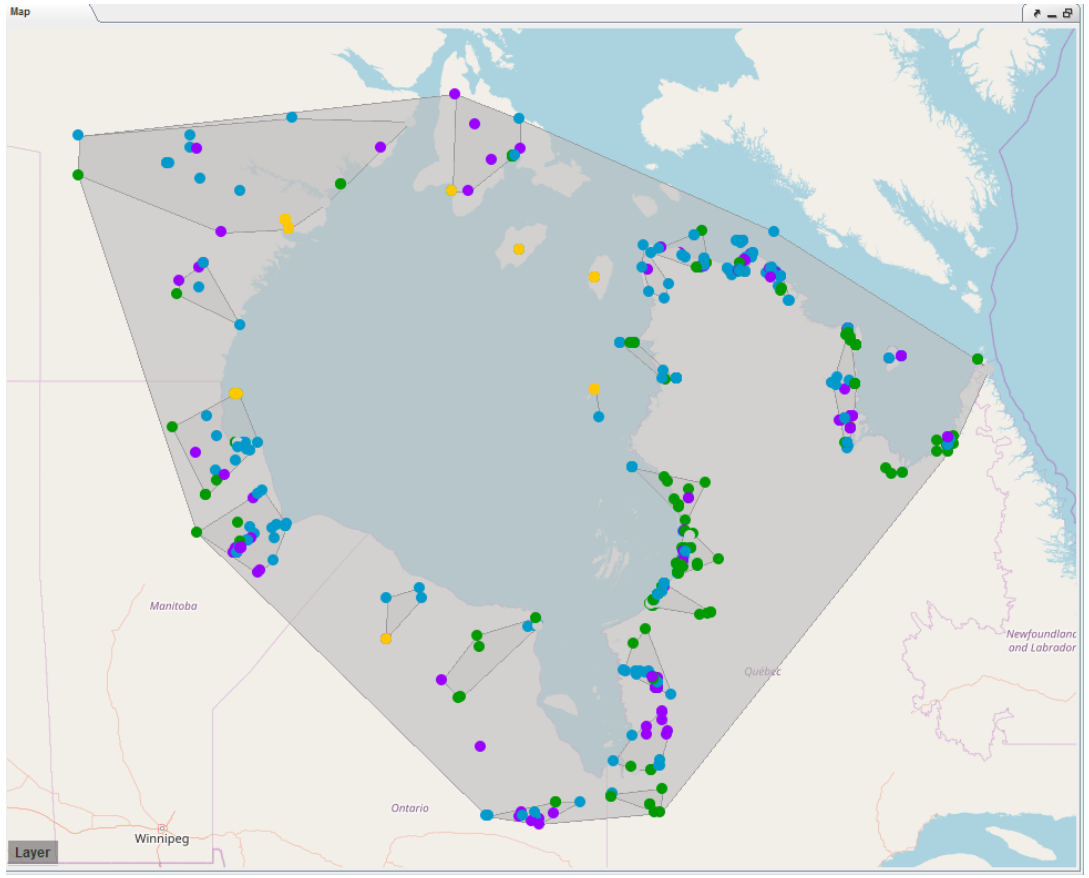
Spatial distribution of samples and sample groups



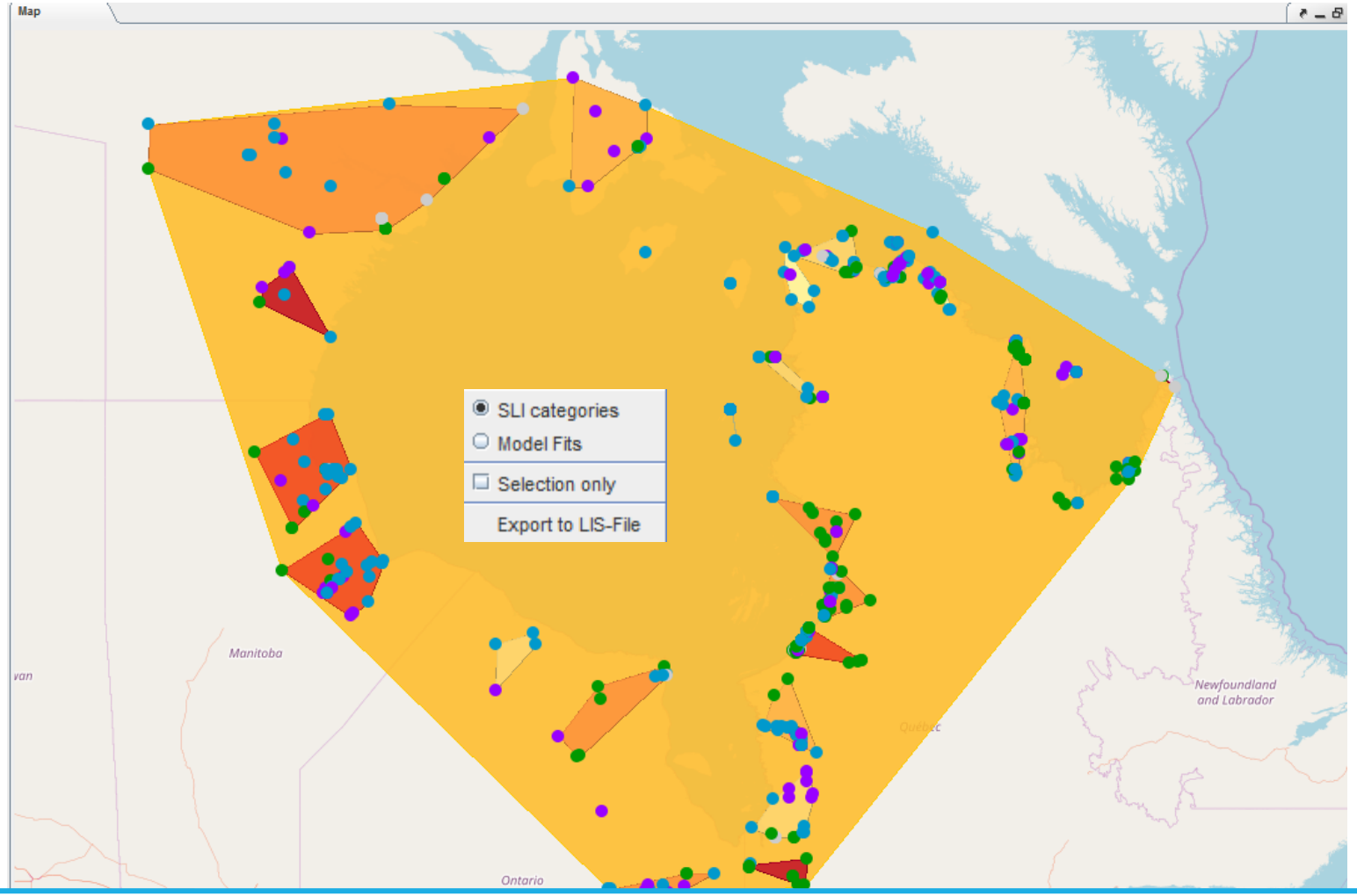


- The name of a SLI or curve is shown at the top by hovering over it with the mouse
- "Grab" the map with the left mouse button to pan it
- Zooming is possible with the mouse wheel

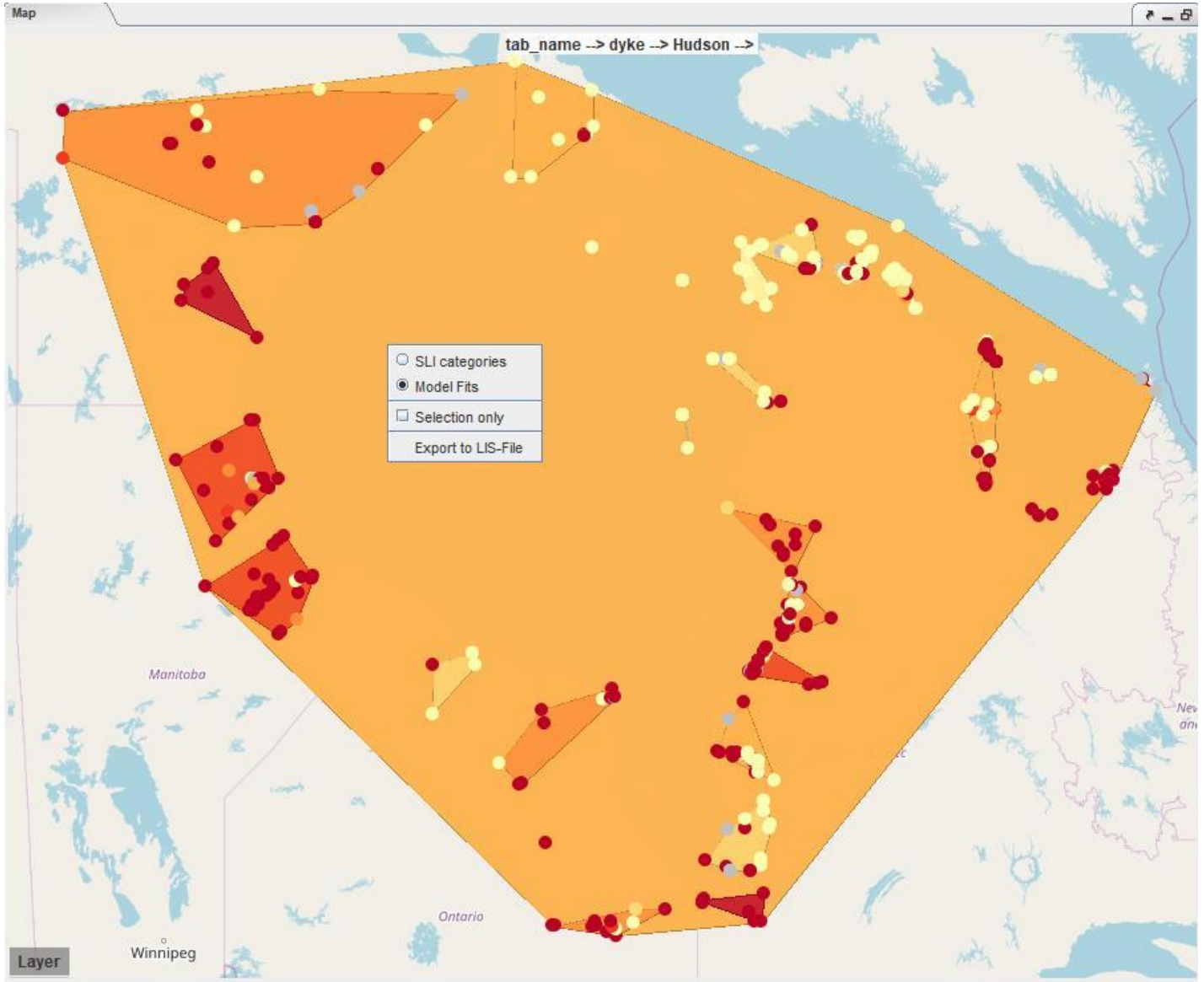




- select a (sub)region by clicking in the polygon
- or select single SLIs by clicking (ctrl + click adds SLI to selection)



- After reading in model data, the layers for regions will have the average fit color (see Fitscale)
- SLI points keep their category color
- to see their goodness of fit color select *Model Fits* from the pop-up menu (right click)
- on selection of indicators in **SLI Table**, the fit is not adjusted here, but depends on the SLIs existing in the table



- Check *Selection only* to see only marked SLIs
- Chose *Export to LIS-File* to save the selected SLIs

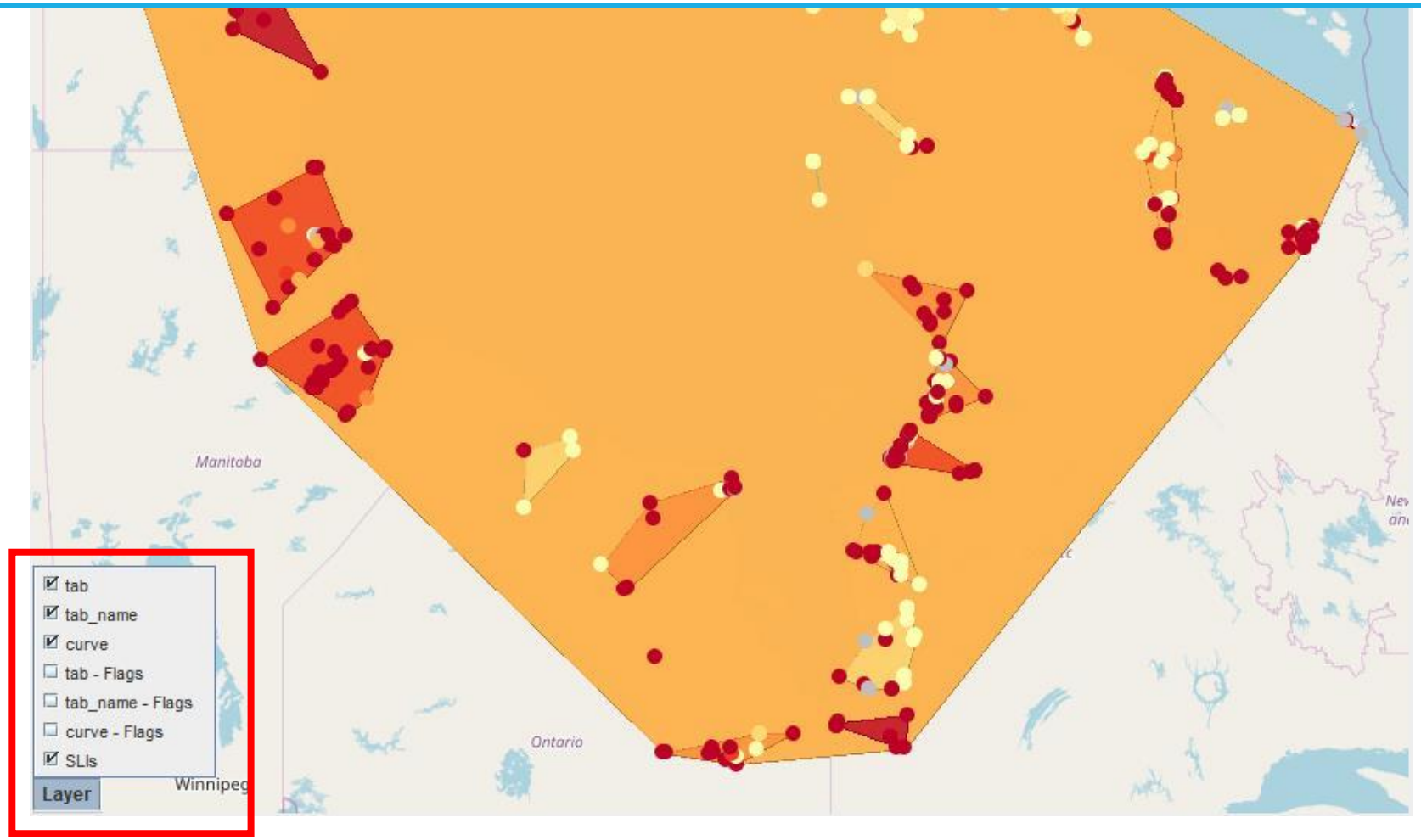
Lis Format for **Map:**

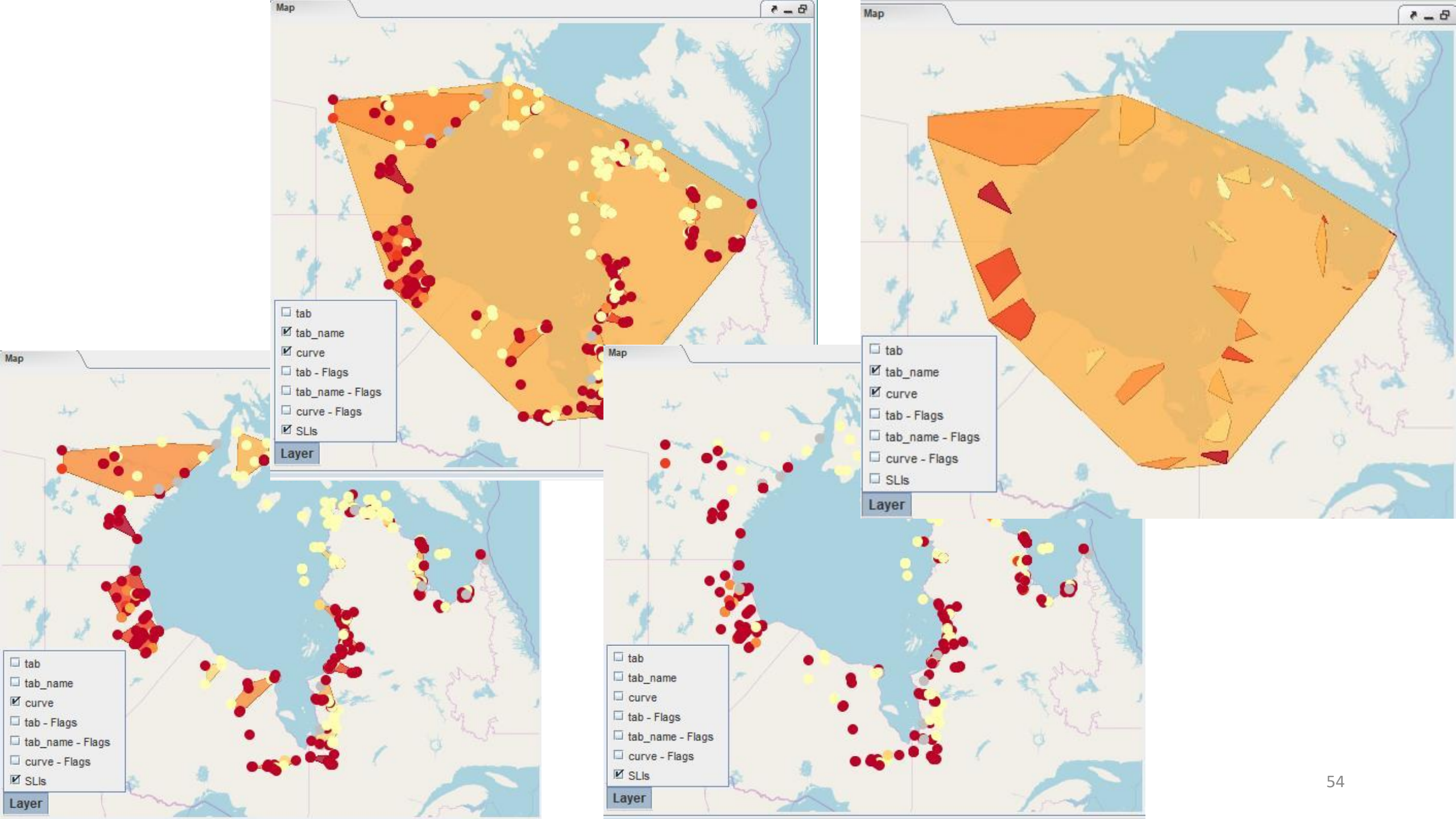
Map.lis

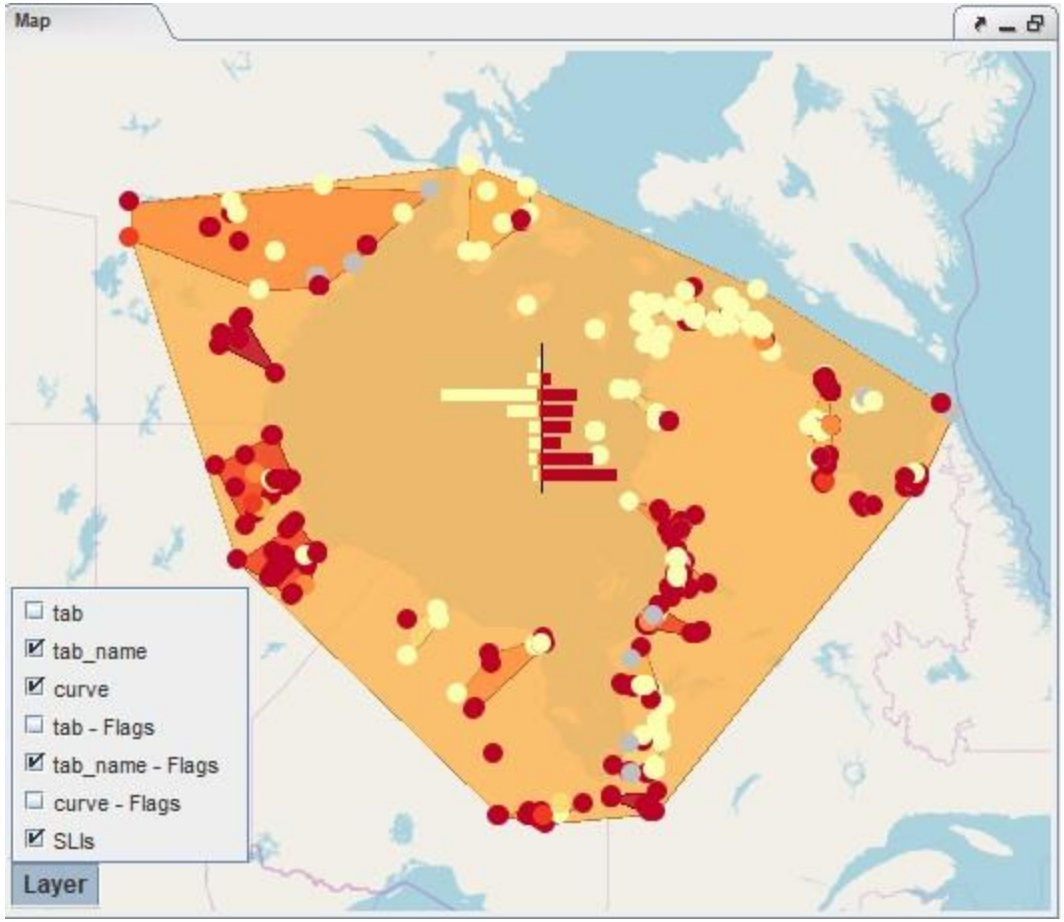
```
1  #s visual_query = Map
2  #s [sli_tables] table
3  dyke
4  #sdddd [slis for map] SLIcode - lat - lon - tab_name:curve - fit_L100_1010 - fit_L100_1030
5  DYKE-00664  66.1417007446289    -65.7249984741211   Baffin E:Pangnirtung F, Baffin I, NU    1.0 1.0
6  DYKE-00013  71.3167037963867    -156.567001342773   Alaska N:Pt Barrow, AK  1.0 1.0
7  DYKE-00018  71.38330078125  -156.483001708984   Alaska N:Pt Barrow, AK  1.0 1.0
8  DYKE-00109  67.1667022705078    -163.5  Alaska N:Kotzebue Sound, AK 1.0 1.0
9  DYKE-00032  71.25   -156.75 Alaska N:Pt Barrow, AK  1.0 1.0
10 DYKE-00114  67.1667022705078    -163.5  Alaska N:Kotzebue Sound, AK 1.0 1.0
```

model fit
(only if at least one model is selected)

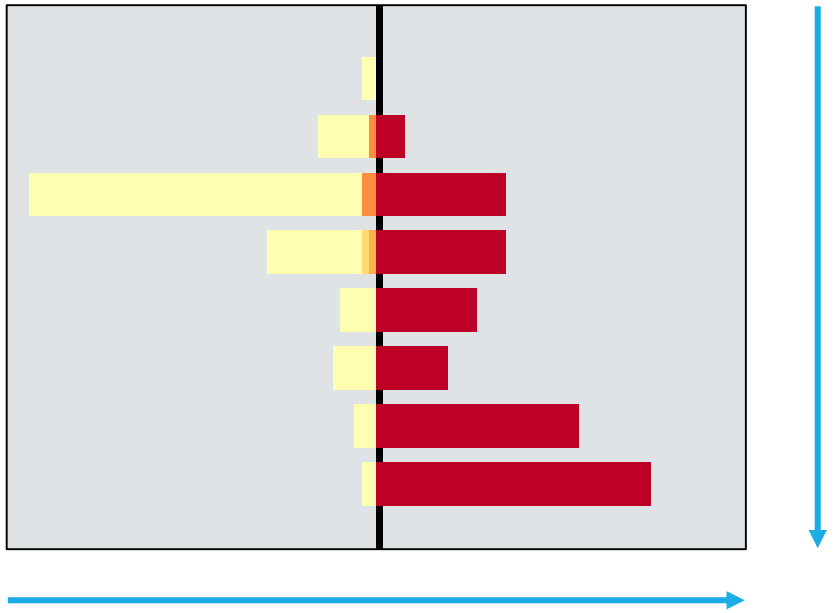
- Click on Layer in the lower left corner to open the layers menu
- *tab*: Polygons for the tables (SQL-Table)
- *tab_name*: Polygons for the regions (*tab_name*)
- *curve*: Polygons for the subregions (*curve*)
- *flags*: show goodness of fit histogram
- SLIs: SLI points




Map
tab
tab_name
curve
tab - Flags
tab_name - Flags
curve - Flags
SLIs
Layer

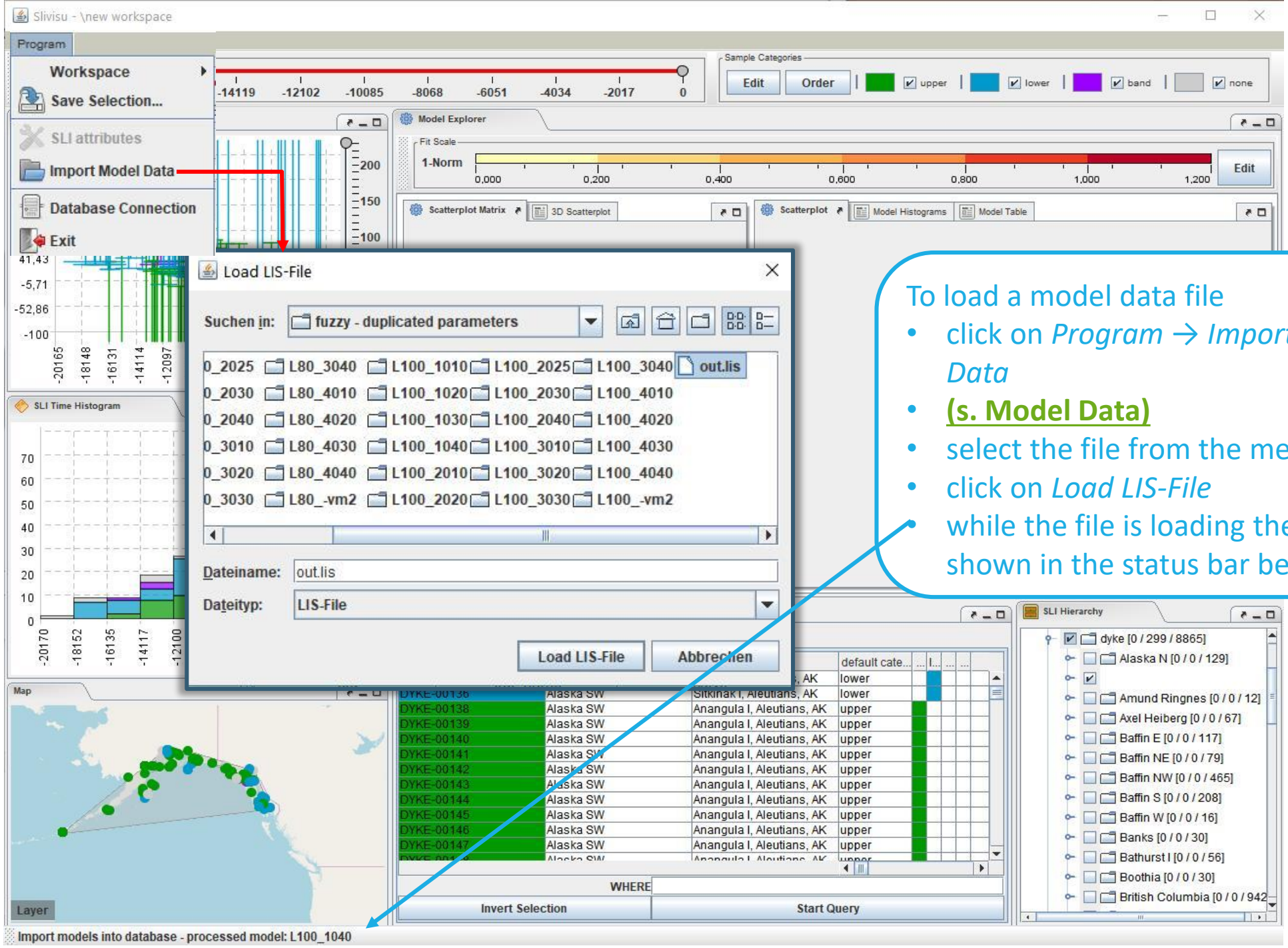


Time from past to present



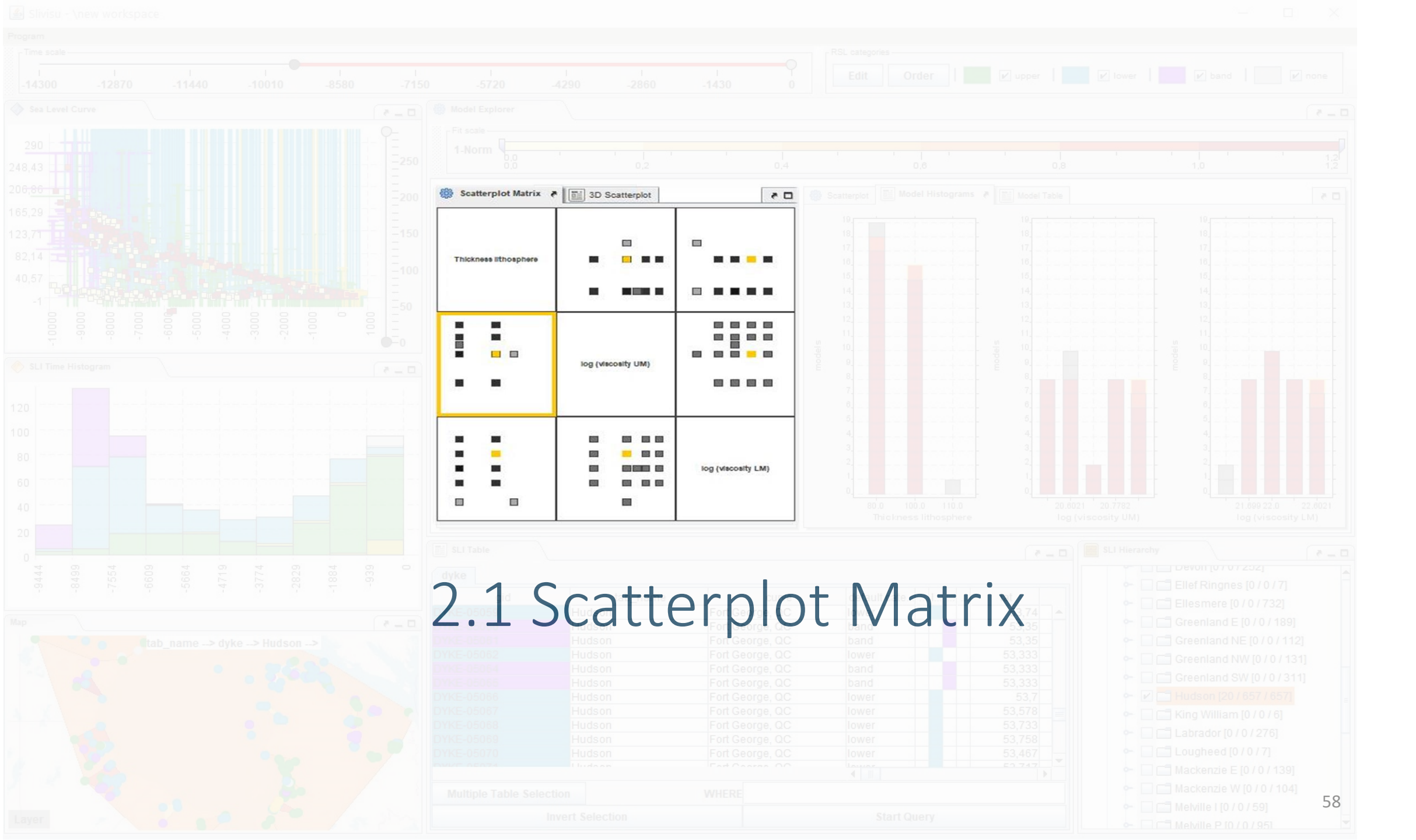
- color = goodness of fit
- length = number of SLIs in time interval

2. Exploration of Model Data

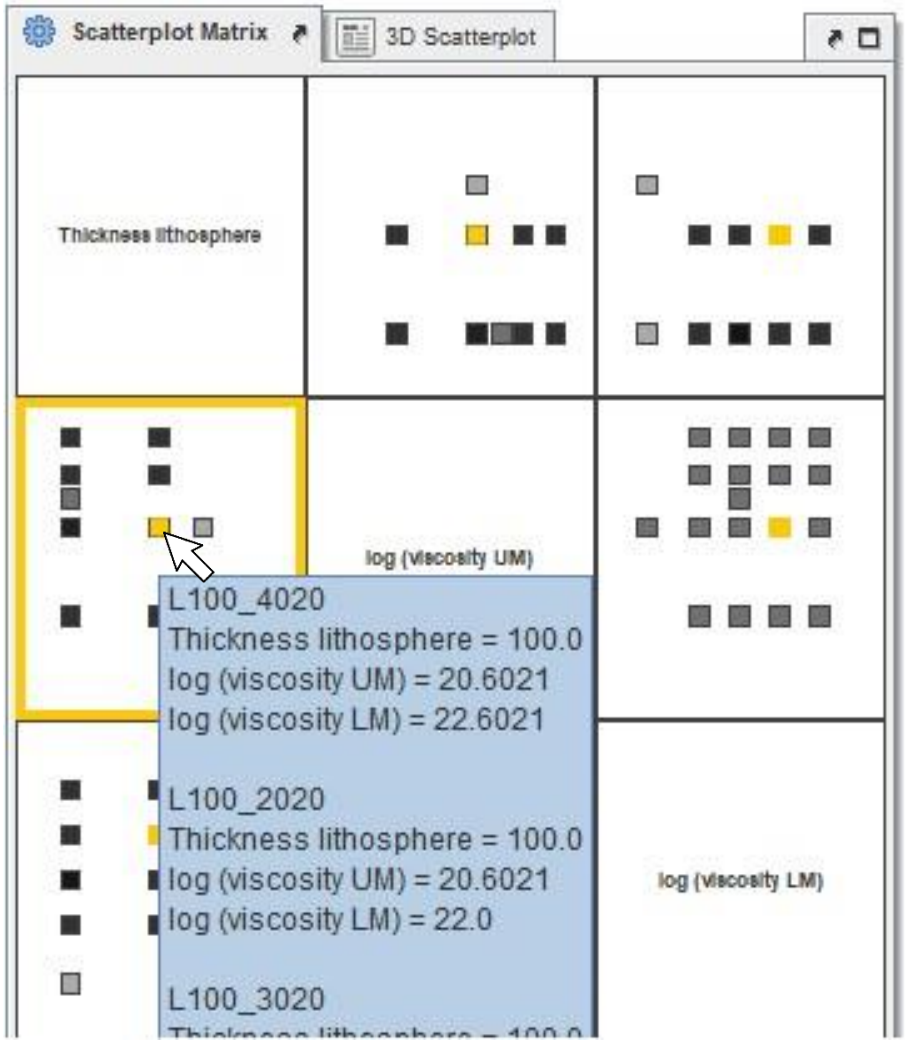


To load a model data file

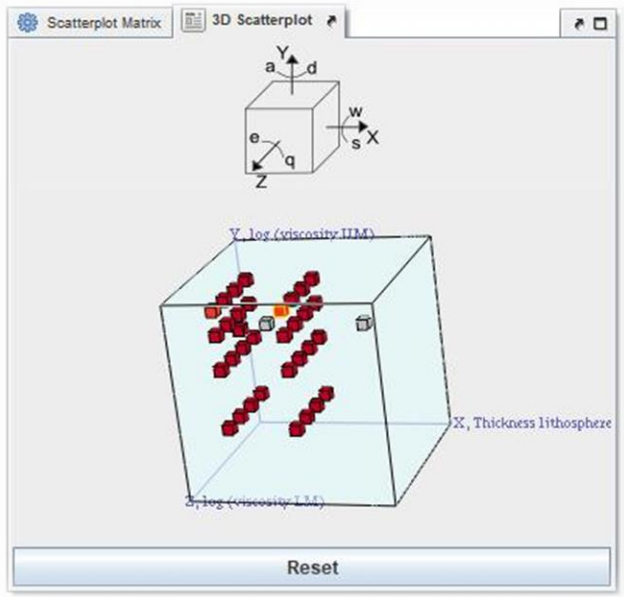
- click on *Program → Import Model Data*
- **(s. Model Data)**
- select the file from the menu
- click on *Load LIS-File*
- while the file is loading the status is shown in the status bar below



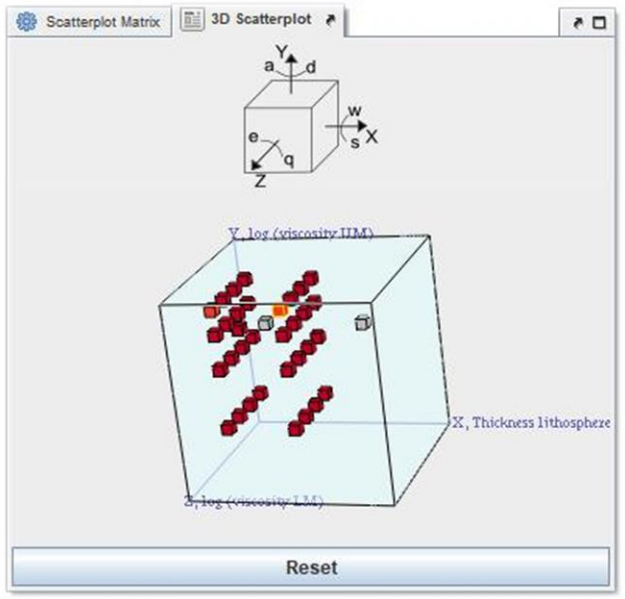
2.1 Scatterplot Matrix



- A Scatterplot Matrix for the model parameters
- Moving the mouse over an instance shows details as tool tip



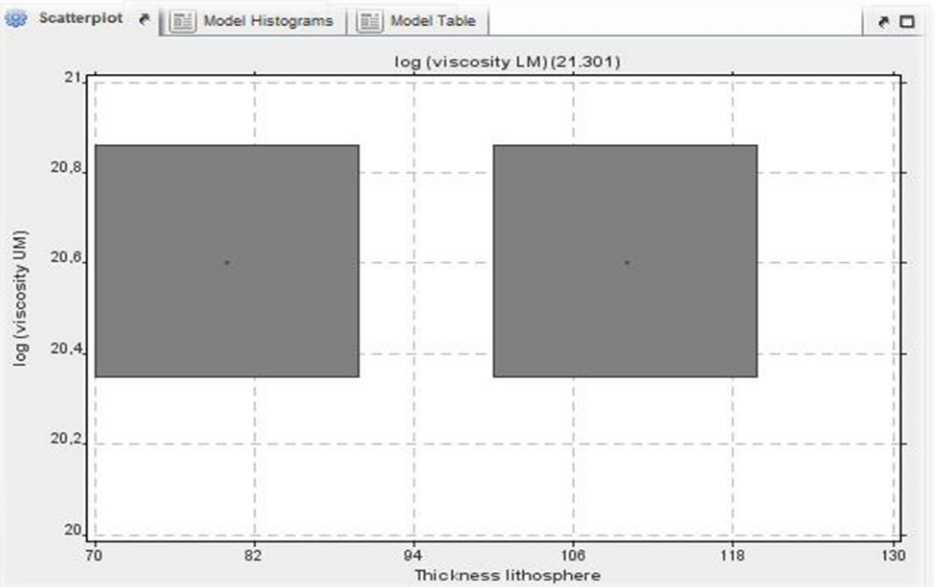
2.2 3D Scatterplot

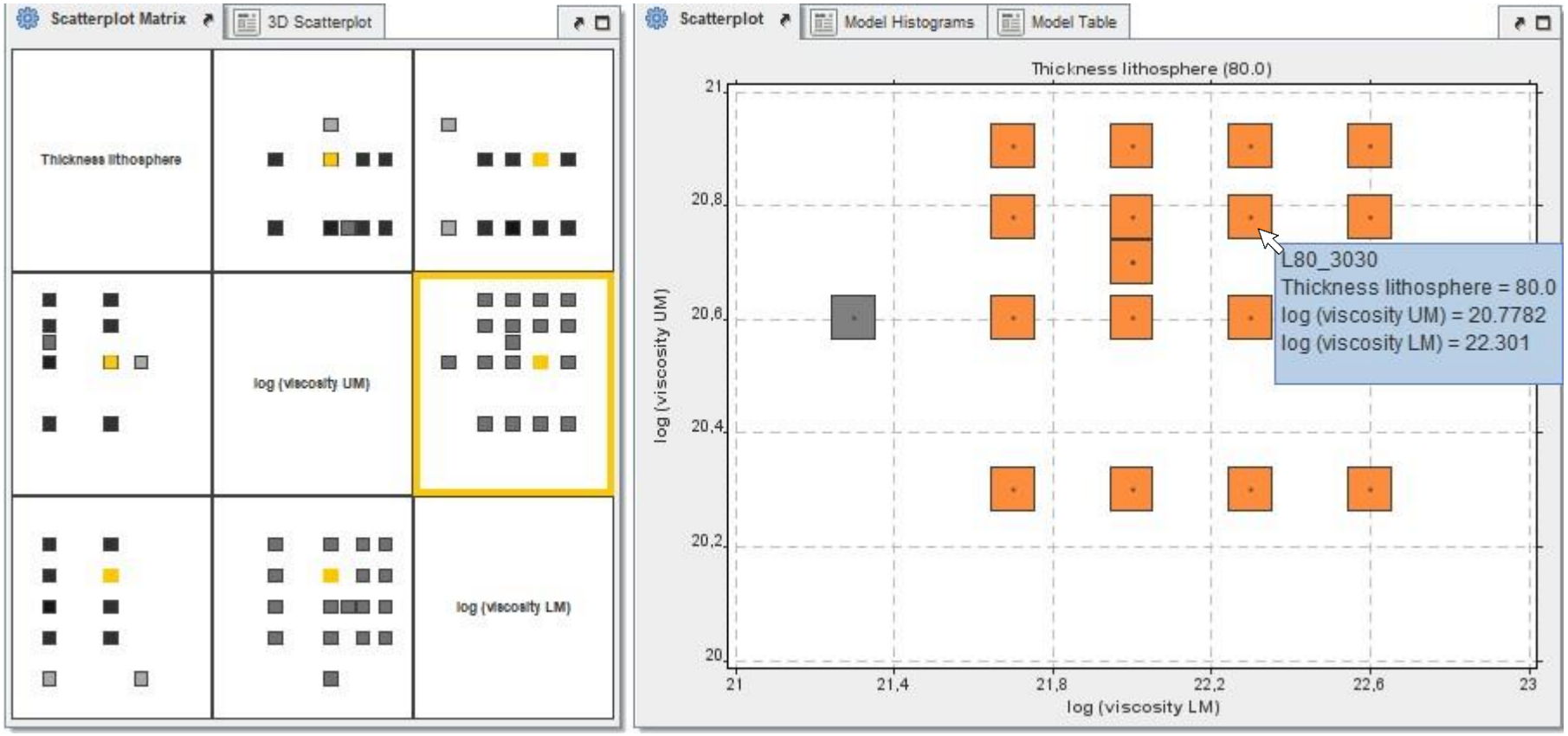


3D Scatterplot

- Axes: model parameters
- Cubes: model instances
- Cube color: aggregated goodness of fit
- Turn the cube with the keyboard as shown in the graphic above (or with the mouse, X-Axis only)
- *Reset* brings the cube back in the default position

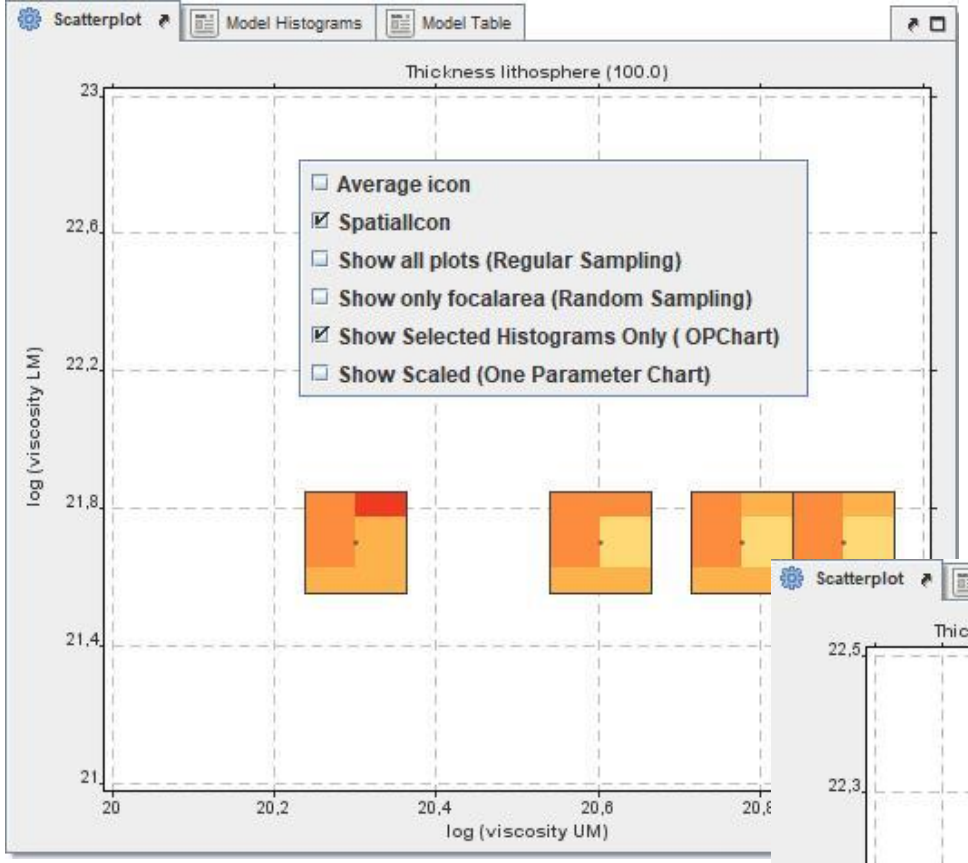
2.3 Scatterplot

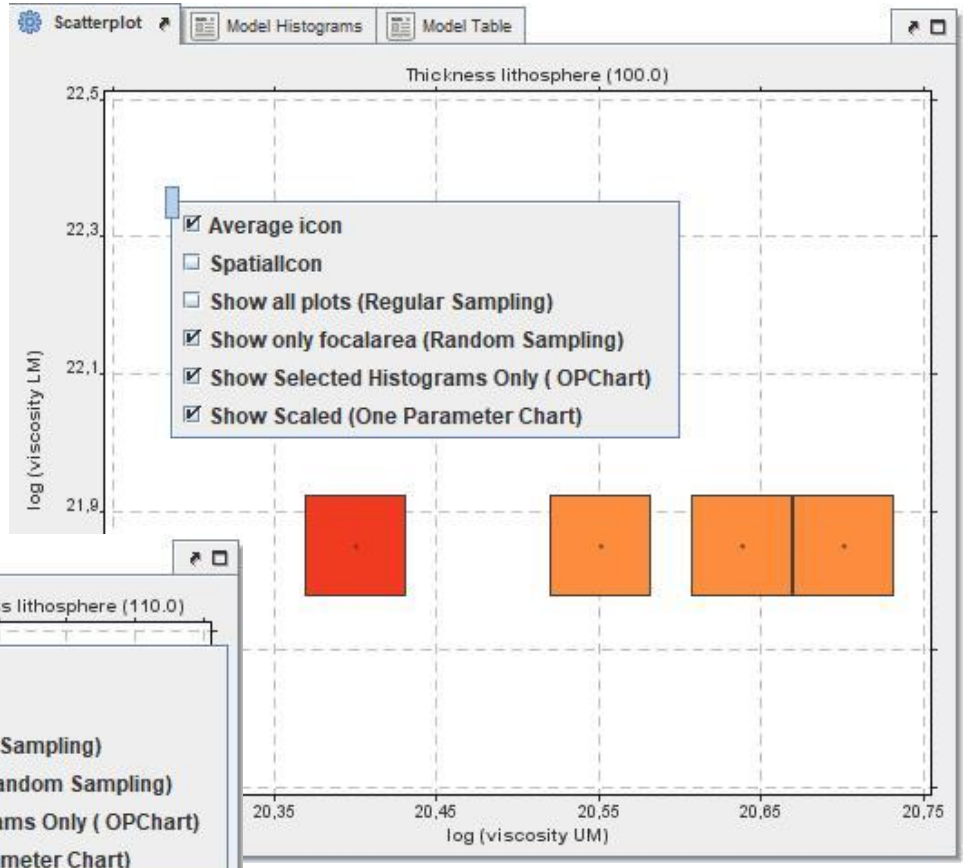


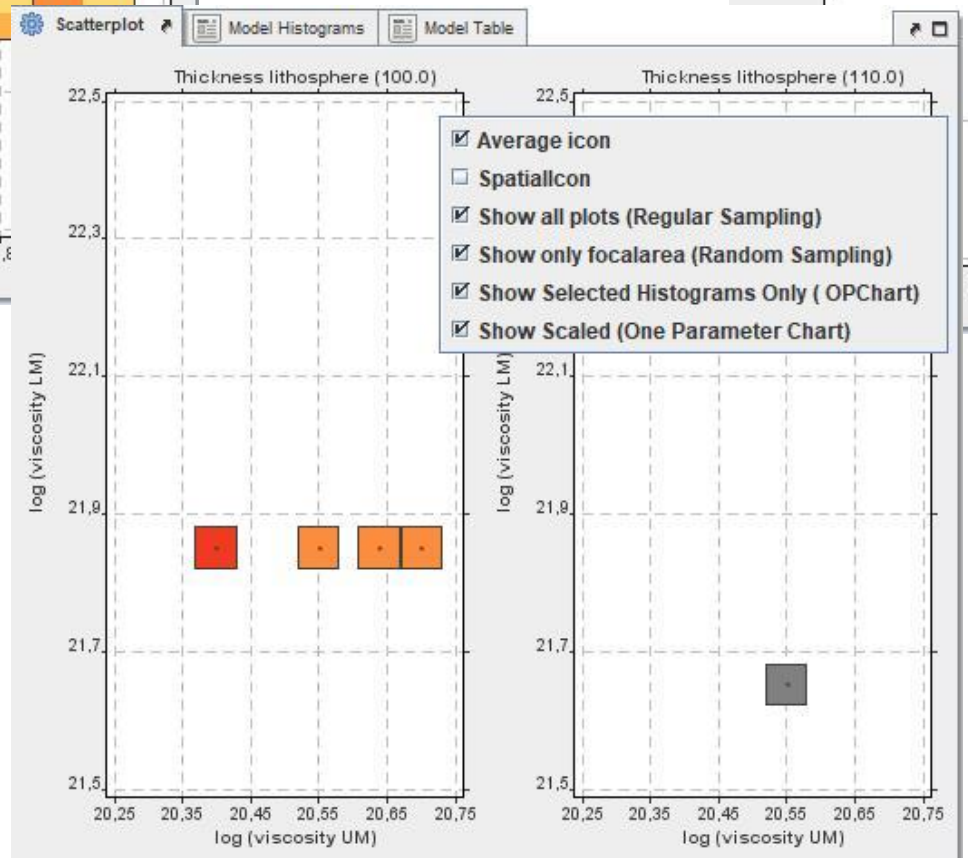


Scatterplot

- The selected plot from the Scatterplot Matrix in detail
- Moving the mouse over an instance shows details as tool tip

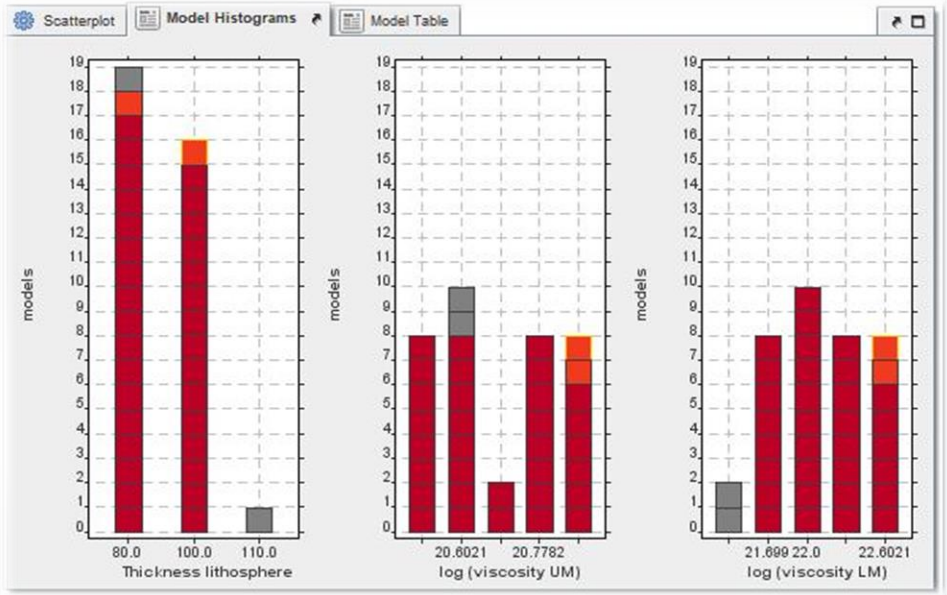


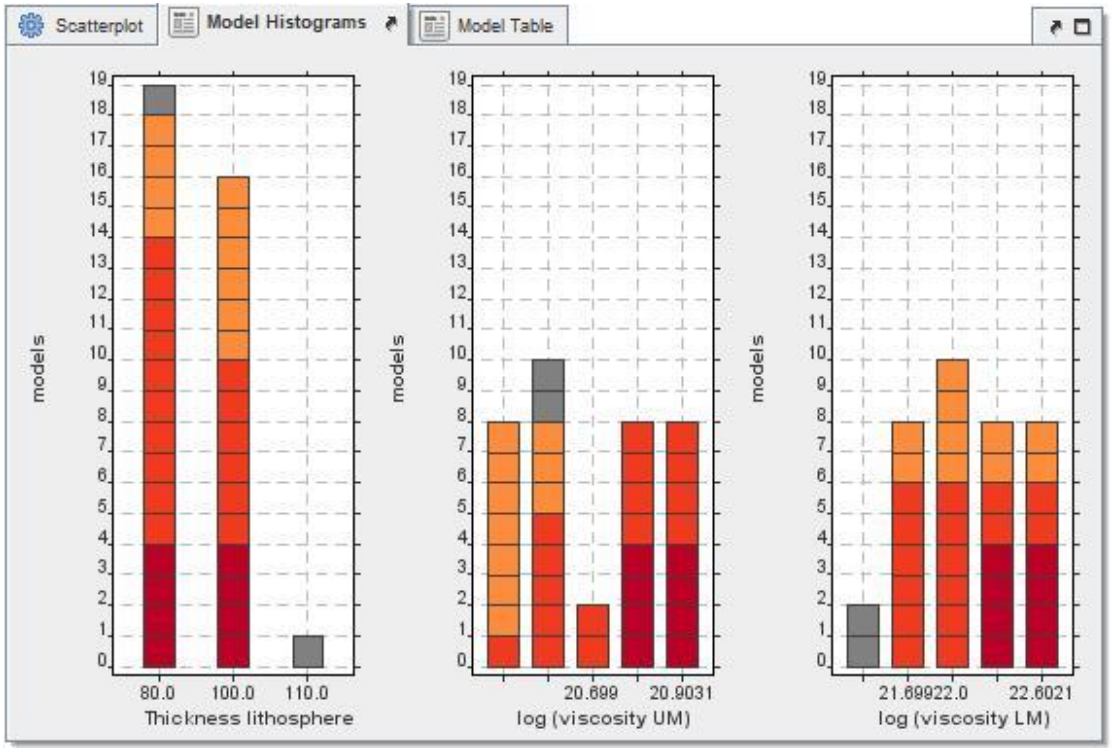




Right click opens a popup menu with the view settings.

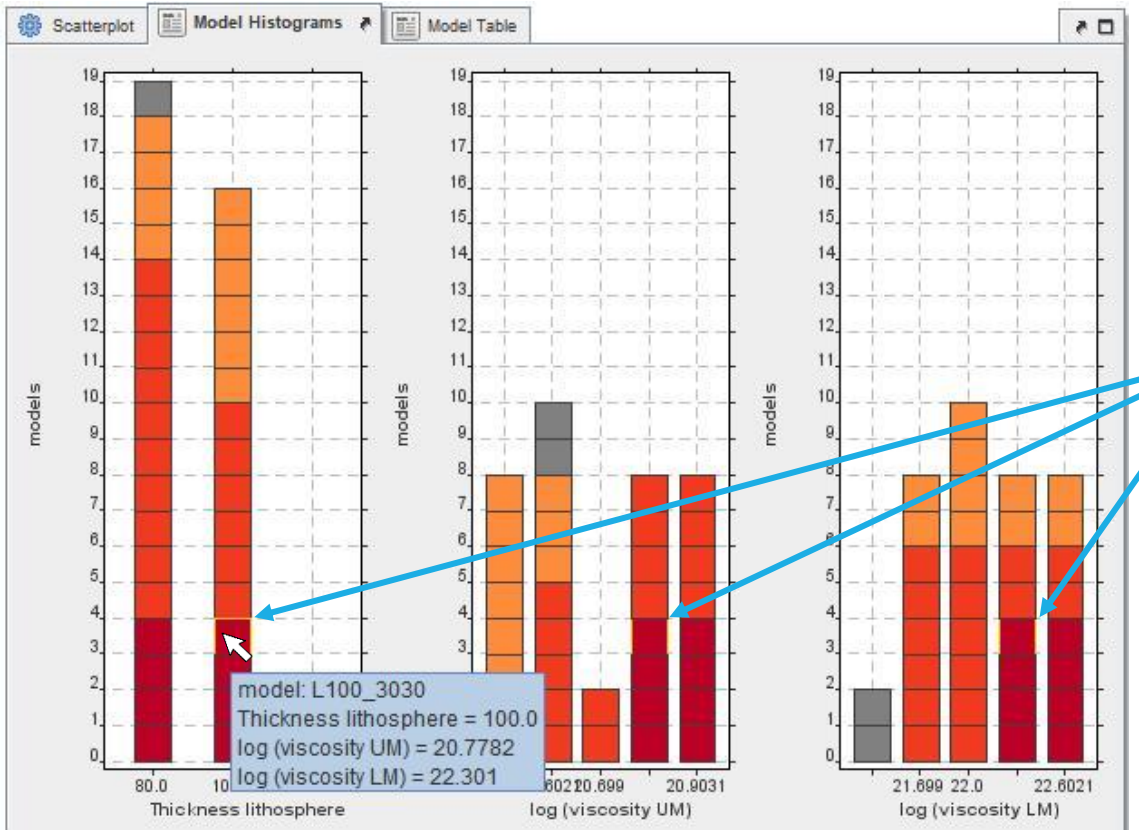
2.4 Model Histogram





Model Histogram

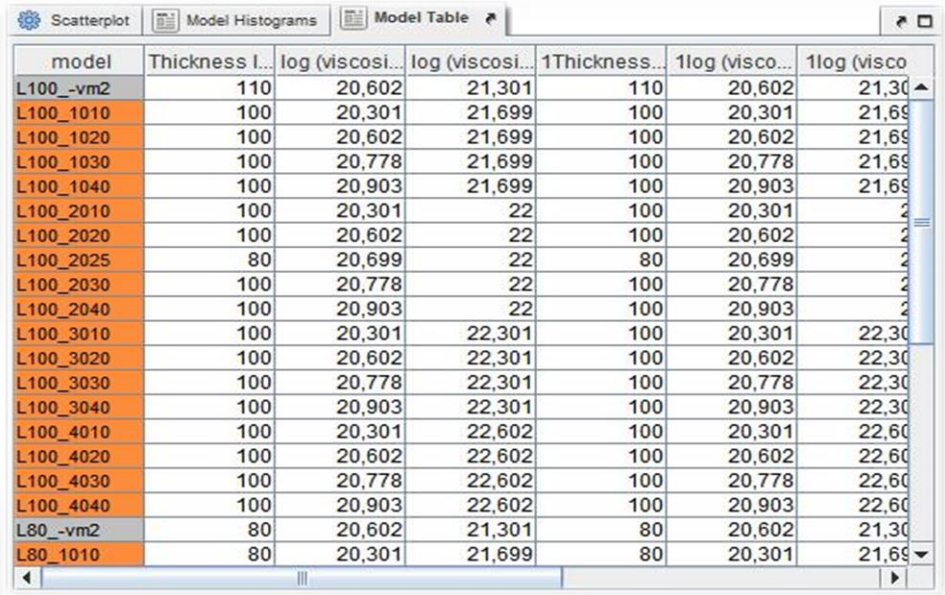
- One histogram for each model parameter
- X: parameter value
- Y: stack of model instances sorted by goodness of fit



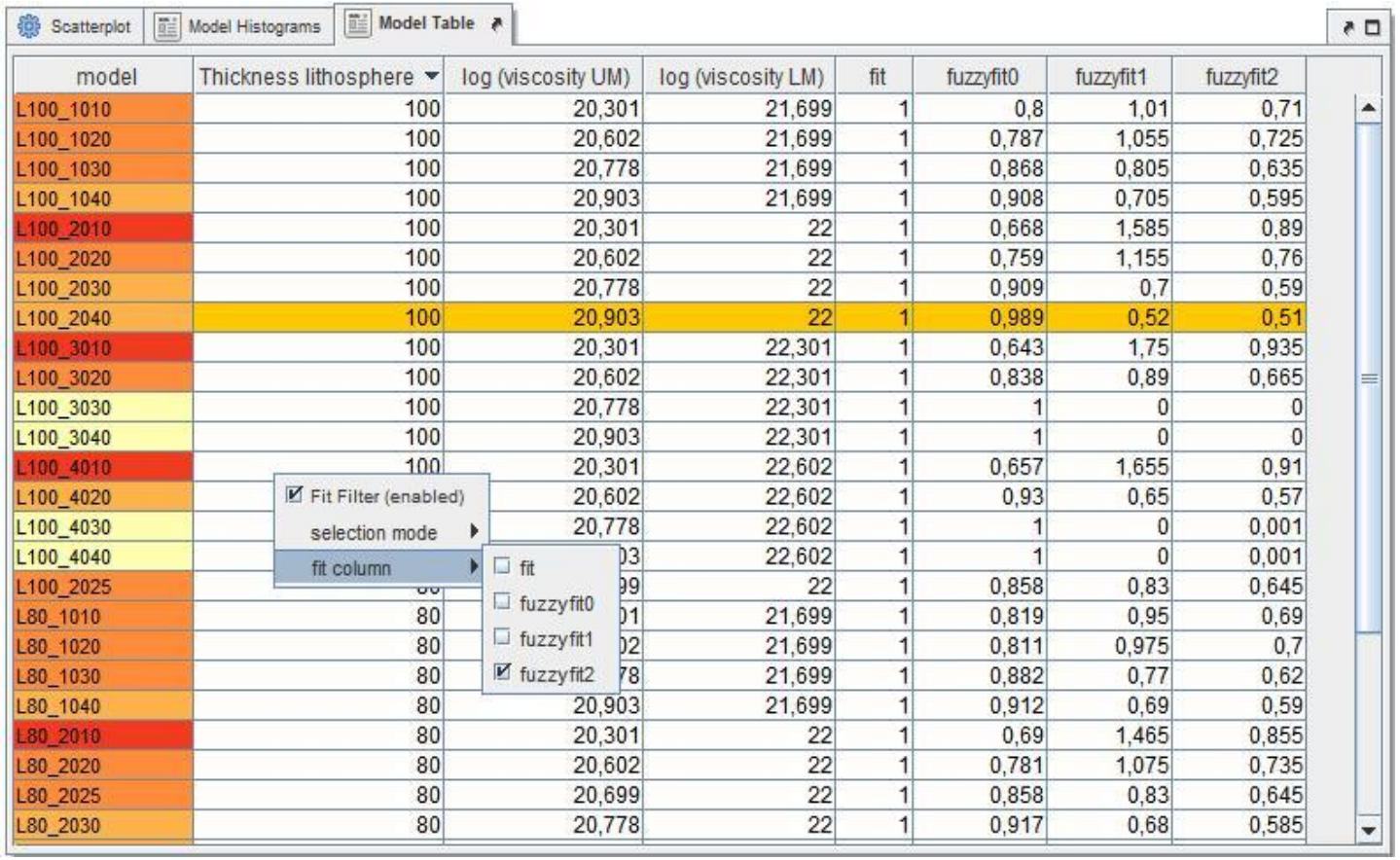
- Moving the mouse over an instance shows details as tool tip
- Select a model instance by clicking on the square
- A yellow frame shows which instance is selected
- Ctrl + click to add further models
- Unselect by clicking outside an existing model

Right click opens a popup menu with the view settings.

2.5 Model Table



model	Thickness l...	log (viscosi...	log (viscosi...	1Thickness...	1log (visco...	1log (visco
L100_-vm2	110	20,602	21,301	110	20,602	21,30
L100_1010	100	20,301	21,699	100	20,301	21,69
L100_1020	100	20,602	21,699	100	20,602	21,69
L100_1030	100	20,778	21,699	100	20,778	21,69
L100_1040	100	20,903	21,699	100	20,903	21,69
L100_2010	100	20,301	22	100	20,301	2
L100_2020	100	20,602	22	100	20,602	2
L100_2025	80	20,699	22	80	20,699	2
L100_2030	100	20,778	22	100	20,778	2
L100_2040	100	20,903	22	100	20,903	2
L100_3010	100	20,301	22,301	100	20,301	22,30
L100_3020	100	20,602	22,301	100	20,602	22,30
L100_3030	100	20,778	22,301	100	20,778	22,30
L100_3040	100	20,903	22,301	100	20,903	22,30
L100_4010	100	20,301	22,602	100	20,301	22,60
L100_4020	100	20,602	22,602	100	20,602	22,60
L100_4030	100	20,778	22,602	100	20,778	22,60
L100_4040	100	20,903	22,602	100	20,903	22,60
L80_-vm2	80	20,602	21,301	80	20,602	21,30
L80_1010	80	20,301	21,699	80	20,301	21,69



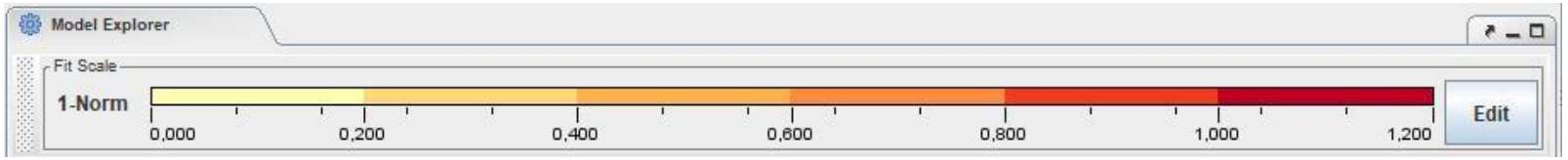
model	Thickness lithosphere	log (viscosity UM)	log (viscosity LM)	fit	fuzzyfit0	fuzzyfit1	fuzzyfit2
L100_1010	100	20,301	21,699	1	0,8	1,01	0,71
L100_1020	100	20,602	21,699	1	0,787	1,055	0,725
L100_1030	100	20,778	21,699	1	0,868	0,805	0,635
L100_1040	100	20,903	21,699	1	0,908	0,705	0,595
L100_2010	100	20,301	22	1	0,668	1,585	0,89
L100_2020	100	20,602	22	1	0,759	1,155	0,76
L100_2030	100	20,778	22	1	0,909	0,7	0,59
L100_2040	100	20,903	22	1	0,989	0,52	0,51
L100_3010	100	20,301	22,301	1	0,643	1,75	0,935
L100_3020	100	20,602	22,301	1	0,838	0,89	0,665
L100_3030	100	20,778	22,301	1	1	0	0
L100_3040	100	20,903	22,301	1	1	0	0
L100_4010	100	20,301	22,602	1	0,657	1,655	0,91
L100_4020		20,602	22,602	1	0,93	0,65	0,57
L100_4030		20,778	22,602	1	1	0	0,001
L100_4040		03	22,602	1	1	0	0,001
L100_2025		99	22	1	0,858	0,83	0,645
L80_1010	80	01	21,699	1	0,819	0,95	0,69
L80_1020	80	02	21,699	1	0,811	0,975	0,7
L80_1030	80	78	21,699	1	0,882	0,77	0,62
L80_1040	80	20,903	21,699	1	0,912	0,69	0,59
L80_2010	80	20,301	22	1	0,69	1,465	0,855
L80_2020	80	20,602	22	1	0,781	1,075	0,735
L80_2025	80	20,699	22	1	0,858	0,83	0,645
L80_2030	80	20,778	22	1	0,917	0,68	0,585

- Model table containing all the information from the model data file plus the model fits
- yellow rows are marked model instances
- In the `model column`, the color shows the average model fit for the selected SLIs

- sort the table by clicking on a column header
- right click opens the pop up menu where the fit column can be chosen

Model Explorer
Fit Scale
1-Norm
0,000
0,200
0,400
0,600
0,800
1,000
1,200
Edit

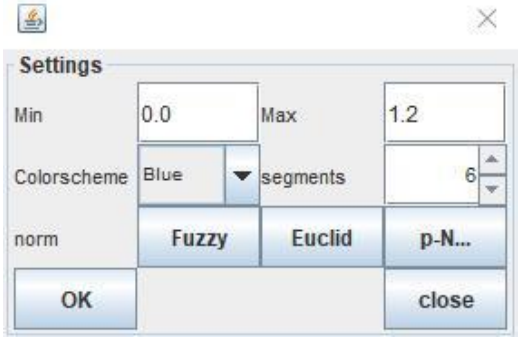
2.6 Fit Scale

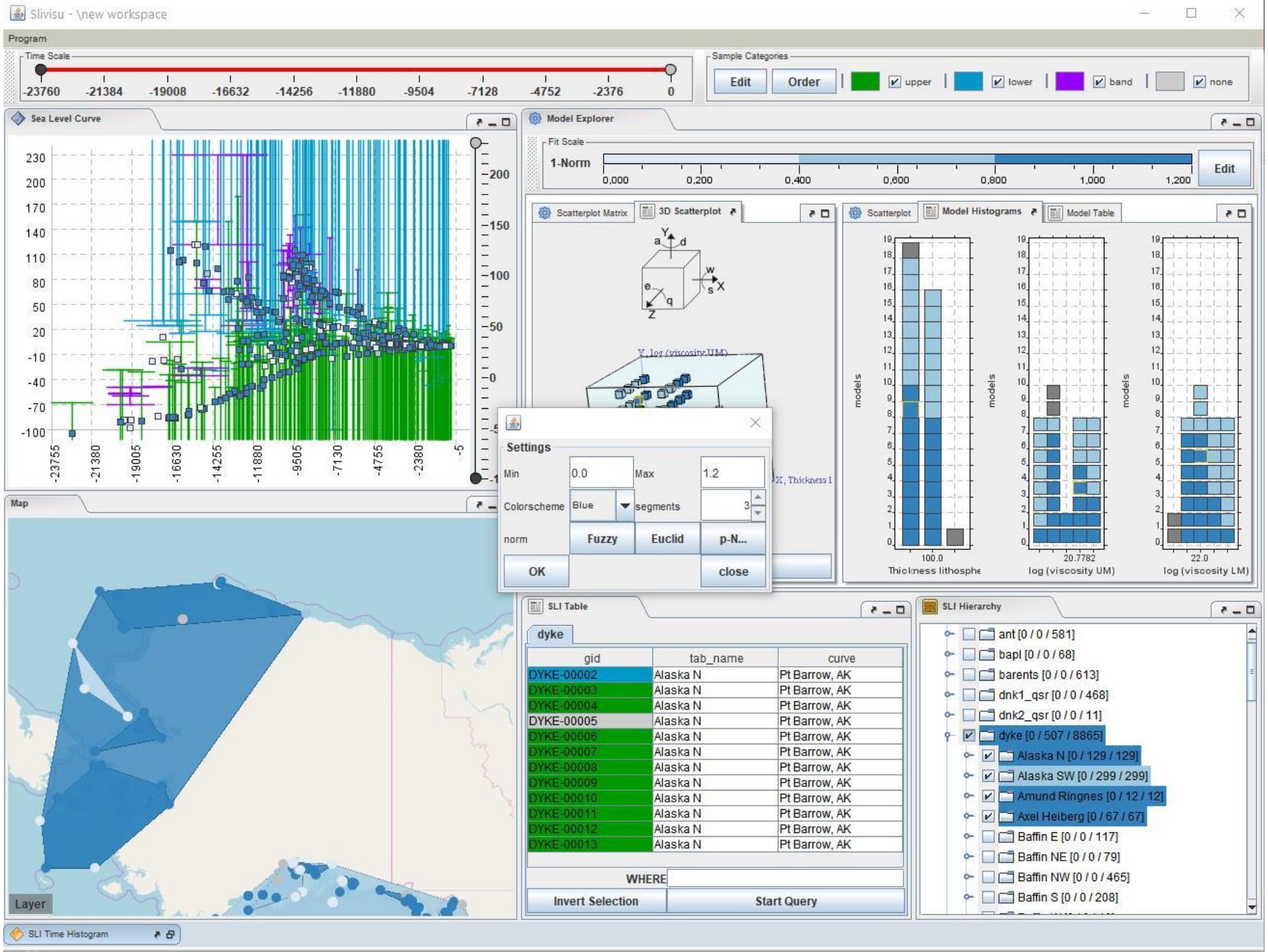


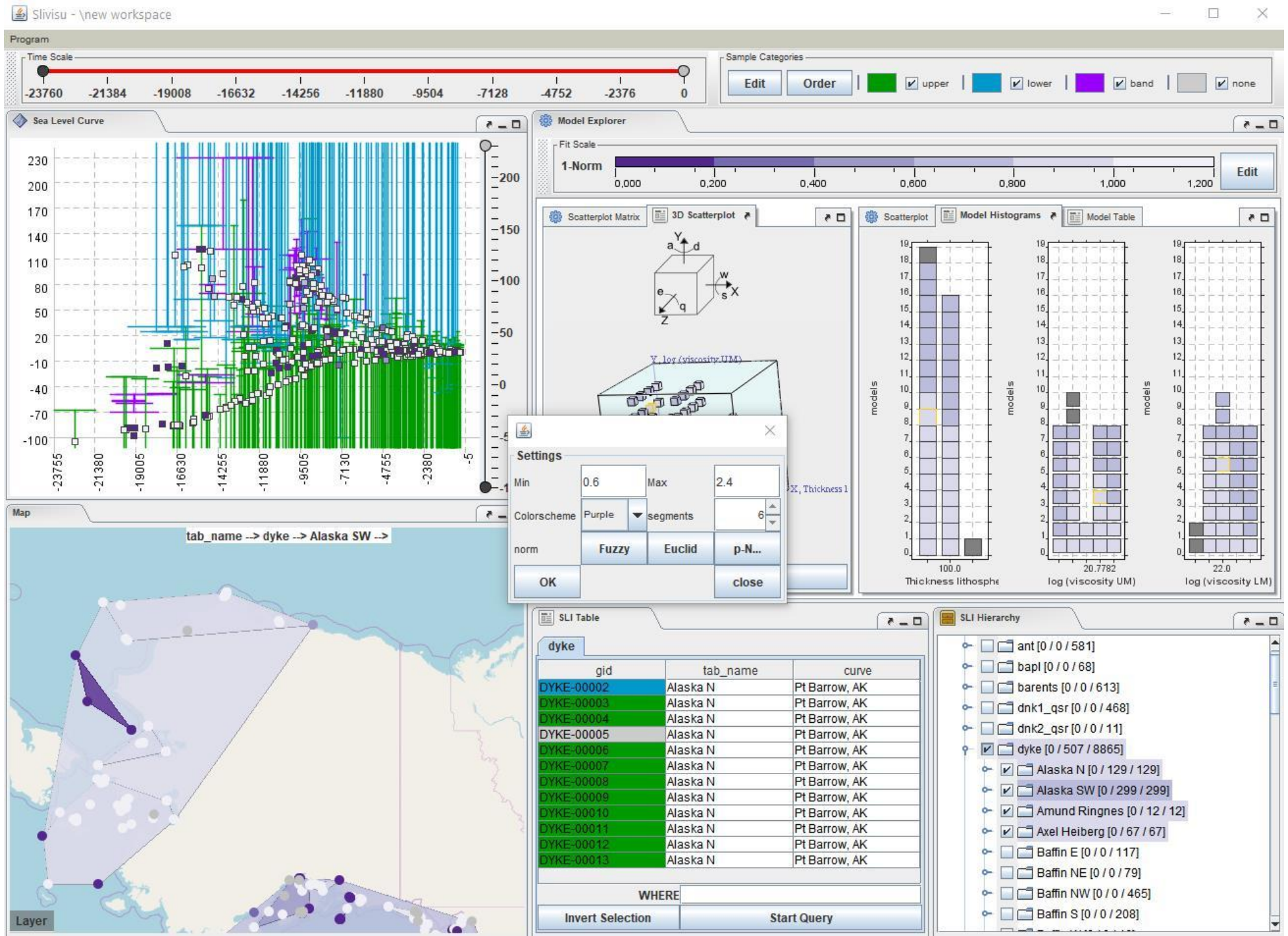
The **Fit Scale** shows

- which norm is used to calculate the goodness of fit
- the color scale for the goodness of fit
- click on edit to open the settings menu
  - min/max: scale range, default it 0 to 1.2
  - Colorscheme: colors for the goodness of it, default is red
  - segments: number of different colors, default is 6
  - norm: Fuzzy: 1- norm, Euclid: 2 -norm, p-Norm:

$$fit = (1/N \sum_{i=1}^{N} fit_i^p)^{1/p}$$




Slivisu - \new workspace
Program
Time Scale
-23760 -21384 -19008 -16632 -14256 -11880 -9504 -7128 -4752 -2376 0
Sample Categories
Edit
Order
upper
lower
band
none
Sea Level Curve
Model Explorer
Fit Scale
1-Norm
0,000 0,200 0,400 0,600 0,800 1,000 1,200
Edit
Scatterplot Matrix
3D Scatterplot
Scatterplot
Model Histograms
Model Table
models
100.0
Thickness lithosphe
20.7782
log (viscosity UM)
22.0
log (viscosity LM)
Settings
Min
0.0
Max
1.2
Colorscheme
Blue
segments
3
norm
Fuzzy
Euclid
p-N...
OK
close
Map
Layer
SLI Table
dyke
gid
tab_name
curve
DYKE-00002 Alaska N Pt Barrow, AK
DYKE-00003 Alaska N Pt Barrow, AK
DYKE-00004 Alaska N Pt Barrow, AK
DYKE-00005 Alaska N Pt Barrow, AK
DYKE-00006 Alaska N Pt Barrow, AK
DYKE-00007 Alaska N Pt Barrow, AK
DYKE-00008 Alaska N Pt Barrow, AK
DYKE-00009 Alaska N Pt Barrow, AK
DYKE-00010 Alaska N Pt Barrow, AK
DYKE-00011 Alaska N Pt Barrow, AK
DYKE-00012 Alaska N Pt Barrow, AK
DYKE-00013 Alaska N Pt Barrow, AK
WHERE
Invert Selection
Start Query
SLI Hierarchy
ant [0 / 0 / 581]
bapl [0 / 0 / 68]
barents [0 / 0 / 613]
dnk1_qsr [0 / 0 / 468]
dnk2_qsr [0 / 0 / 11]
dyke [0 / 507 / 8865]
Alaska N [0 / 129 / 129]
Alaska SW [0 / 299 / 299]
Amund Ringnes [0 / 12 / 12]
Axel Heiberg [0 / 67 / 67]
Baffin E [0 / 0 / 117]
Baffin NE [0 / 0 / 79]
Baffin NW [0 / 0 / 465]
Baffin S [0 / 0 / 208]
SLI Time Histogram


Slivisu - \new workspace
Program
Time Scale
-23760 -21384 -19008 -16632 -14256 -11880 -9504 -7128 -4752 -2376 0
Sample Categories
Edit
Order
upper
lower
band
none
Sea Level Curve
Model Explorer
Fit Scale
1-Norm
0,000 0,200 0,400 0,600 0,800 1,000 1,200
Edit
Scatterplot Matrix
3D Scatterplot
Scatterplot
Model Histograms
Model Table
models
100.0
Thickness lithosphe
20.7782
log (viscosity UM)
22.0
log (viscosity LM)
Settings
Min
0.6
Max
2.4
Colorscheme
Purple
segments
6
norm
Fuzzy
Euclid
p-N...
OK
close
Map
tab_name --> dyke --> Alaska SW -->
Layer
SLI Table
dyke
gid
tab_name
curve
DYKE-00002 Alaska N Pt Barrow, AK
DYKE-00003 Alaska N Pt Barrow, AK
DYKE-00004 Alaska N Pt Barrow, AK
DYKE-00005 Alaska N Pt Barrow, AK
DYKE-00006 Alaska N Pt Barrow, AK
DYKE-00007 Alaska N Pt Barrow, AK
DYKE-00008 Alaska N Pt Barrow, AK
DYKE-00009 Alaska N Pt Barrow, AK
DYKE-00010 Alaska N Pt Barrow, AK
DYKE-00011 Alaska N Pt Barrow, AK
DYKE-00012 Alaska N Pt Barrow, AK
DYKE-00013 Alaska N Pt Barrow, AK
WHERE
Invert Selection
Start Query
SLI Hierarchy
ant [0 / 0 / 581]
bapl [0 / 0 / 68]
barents [0 / 0 / 613]
dnk1_qsr [0 / 0 / 468]
dnk2_qsr [0 / 0 / 11]
dyke [0 / 507 / 8865]
Alaska N [0 / 129 / 129]
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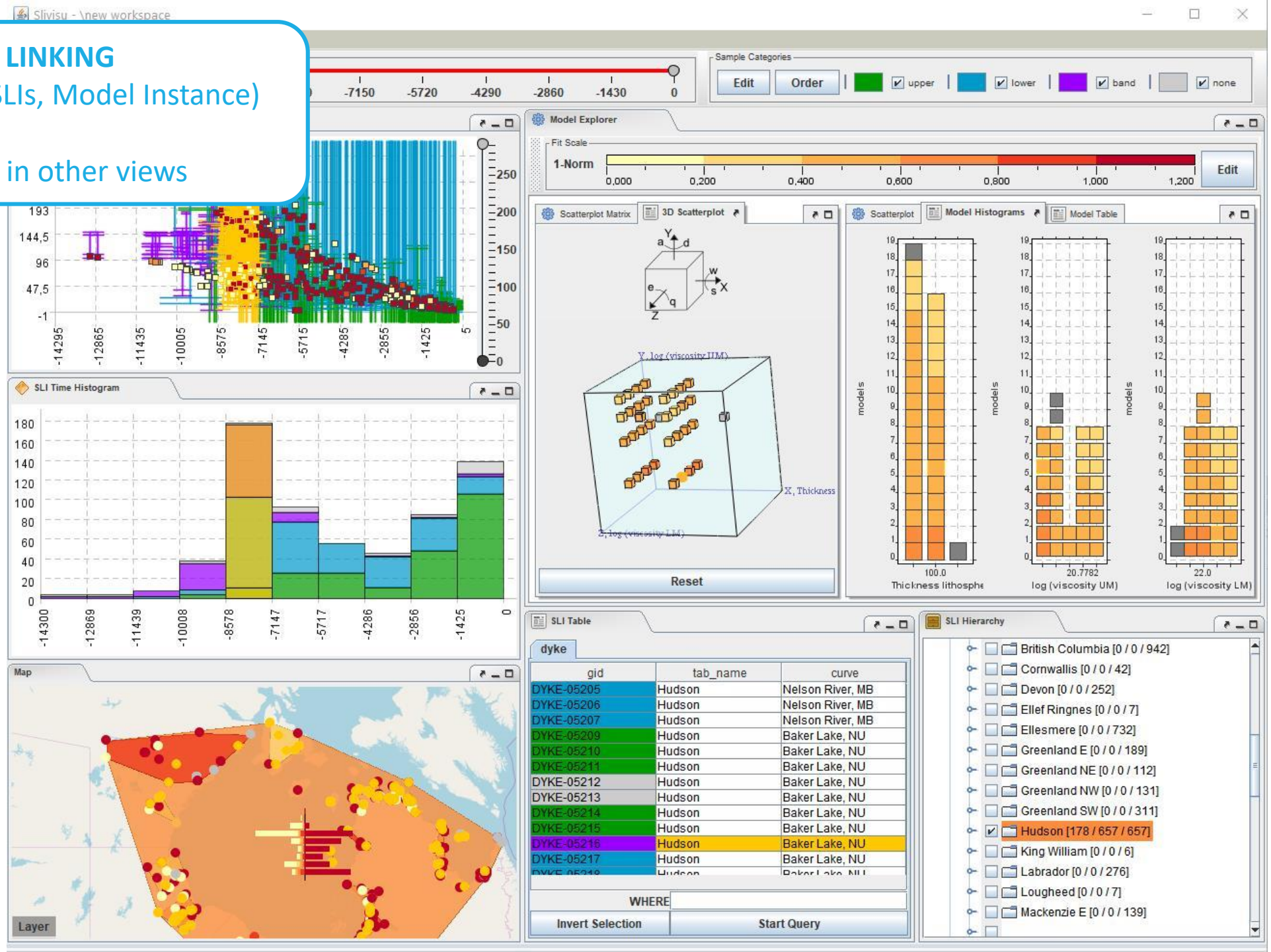
Amund Ringnes [0 / 12 / 12]
Axel Heiberg [0 / 67 / 67]
Baffin E [0 / 0 / 117]
Baffin NE [0 / 0 / 79]
Baffin NW [0 / 0 / 465]
Baffin S [0 / 0 / 208]

3. Brushing and Linking

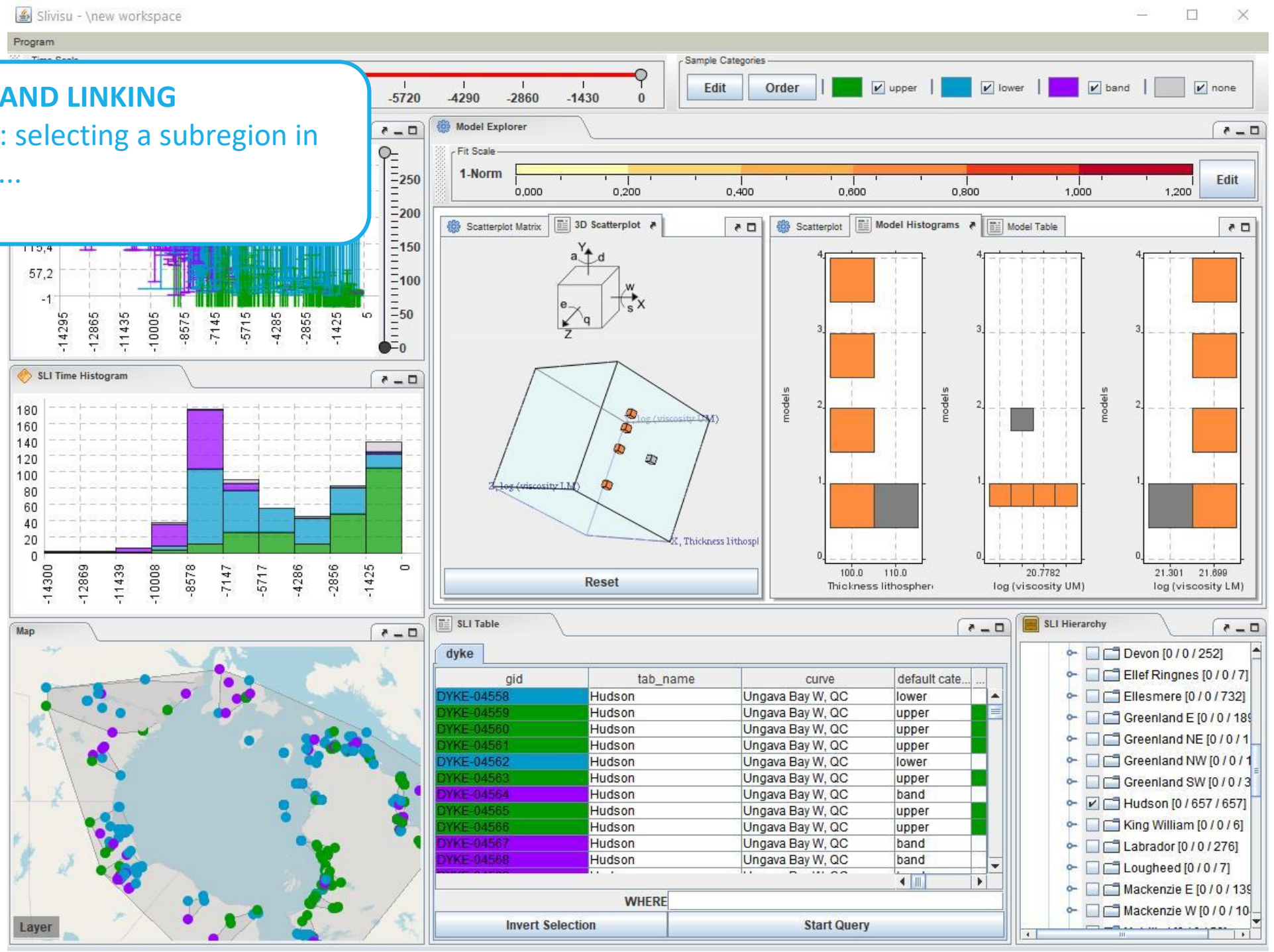
BRUSHING AND LINKING

- Select data (SLIs, Model Instance) in one view
- See selection in other views



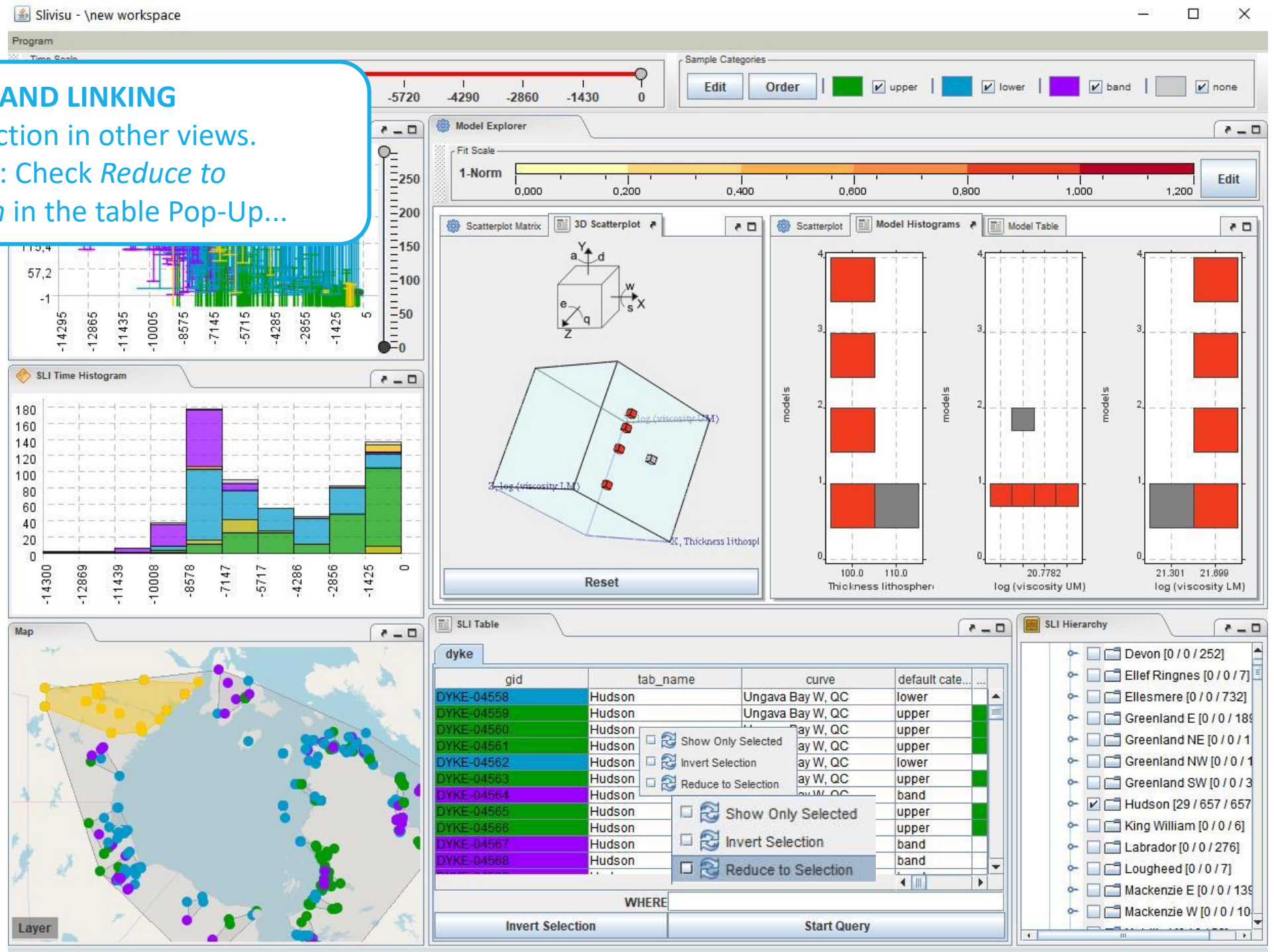
BRUSHING AND LINKING

- Example: selecting a subregion in the map...



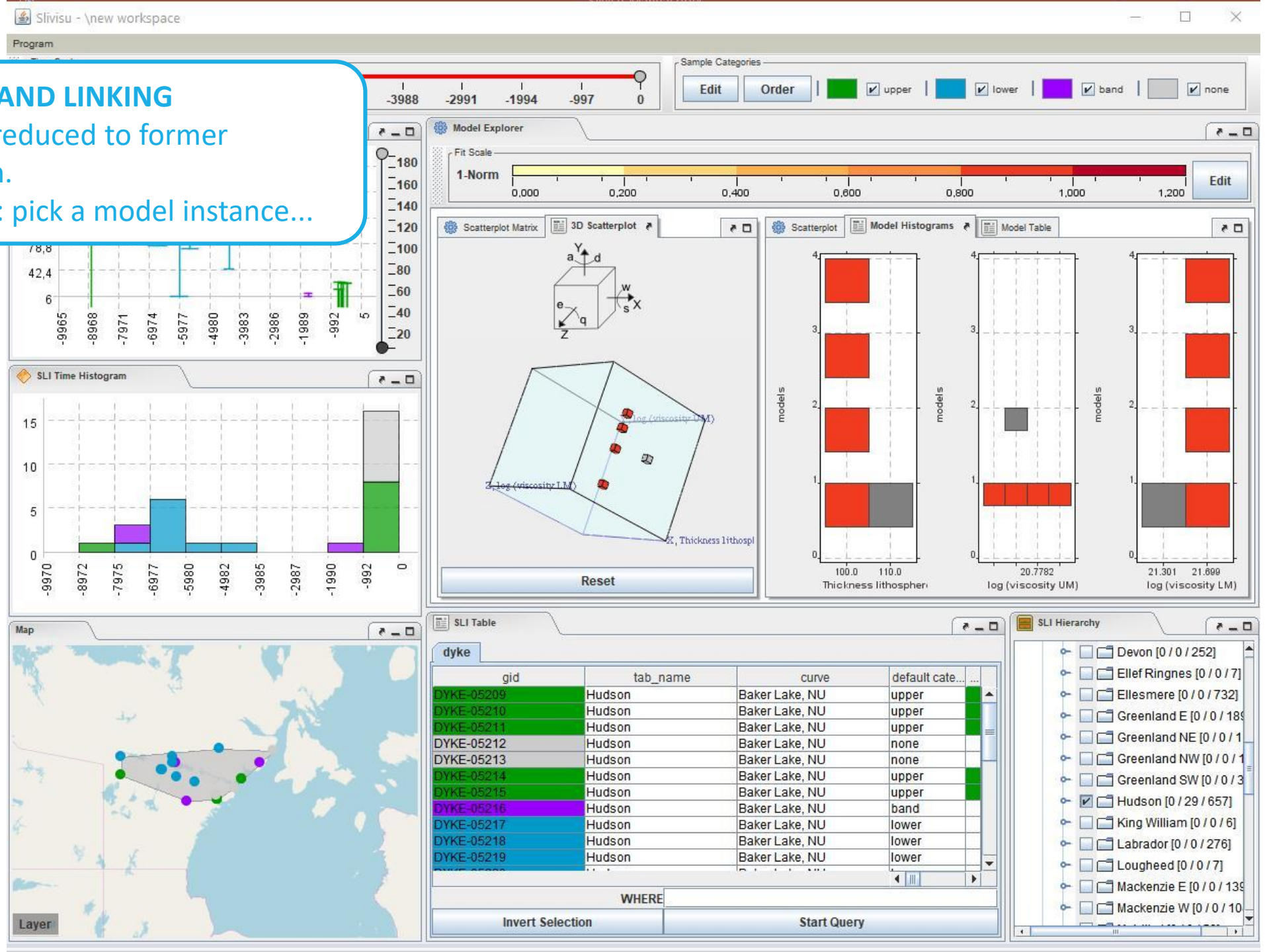
BRUSHING AND LINKING

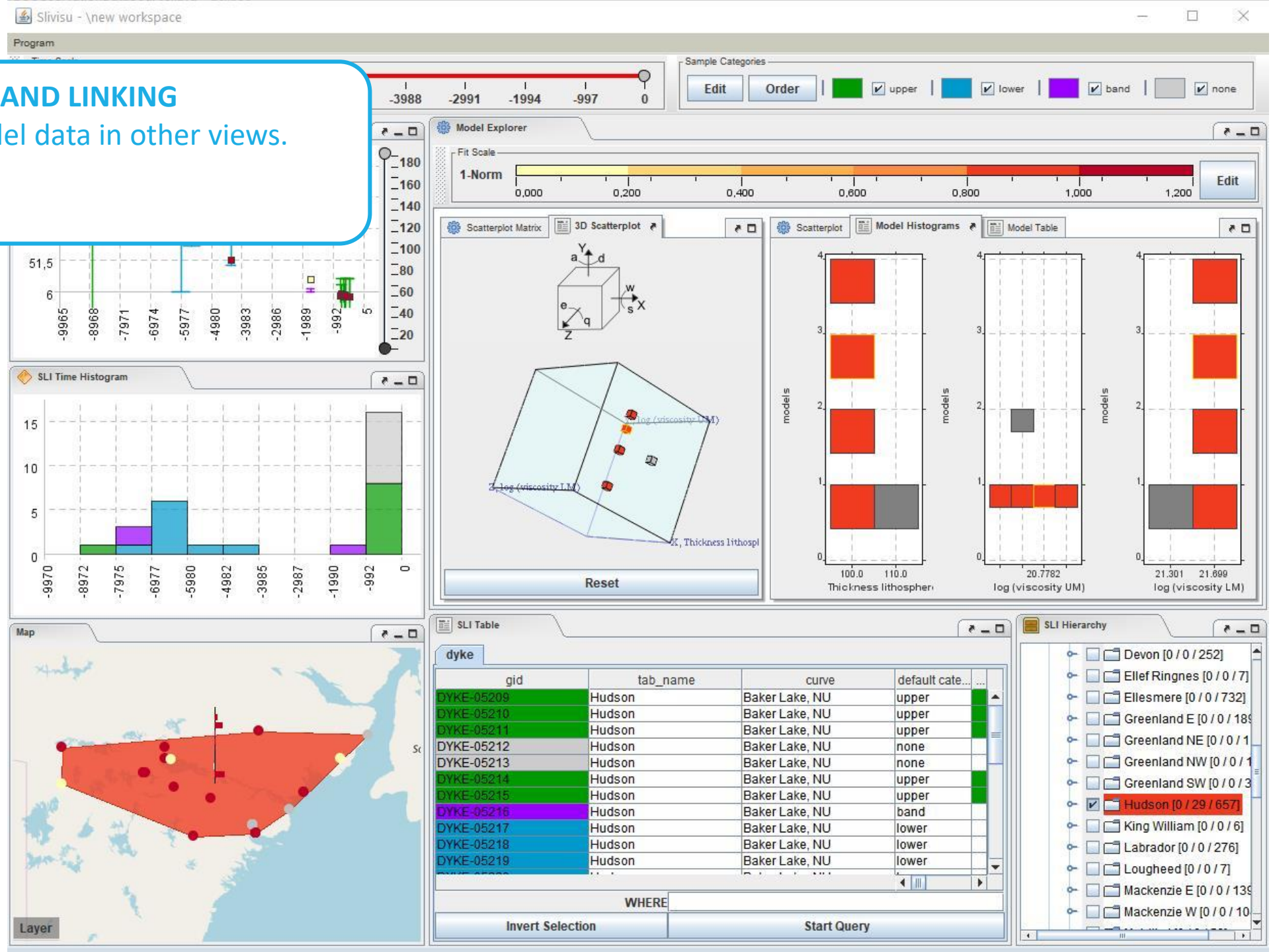
- See selection in other views.
- Example: Check *Reduce to Selection* in the table Pop-Up...



BRUSHING AND LINKING

- SLIs are reduced to former Selection.
- Example: pick a model instance...



BRUSHING AND LINKING

- See model data in other views.
- Explore!