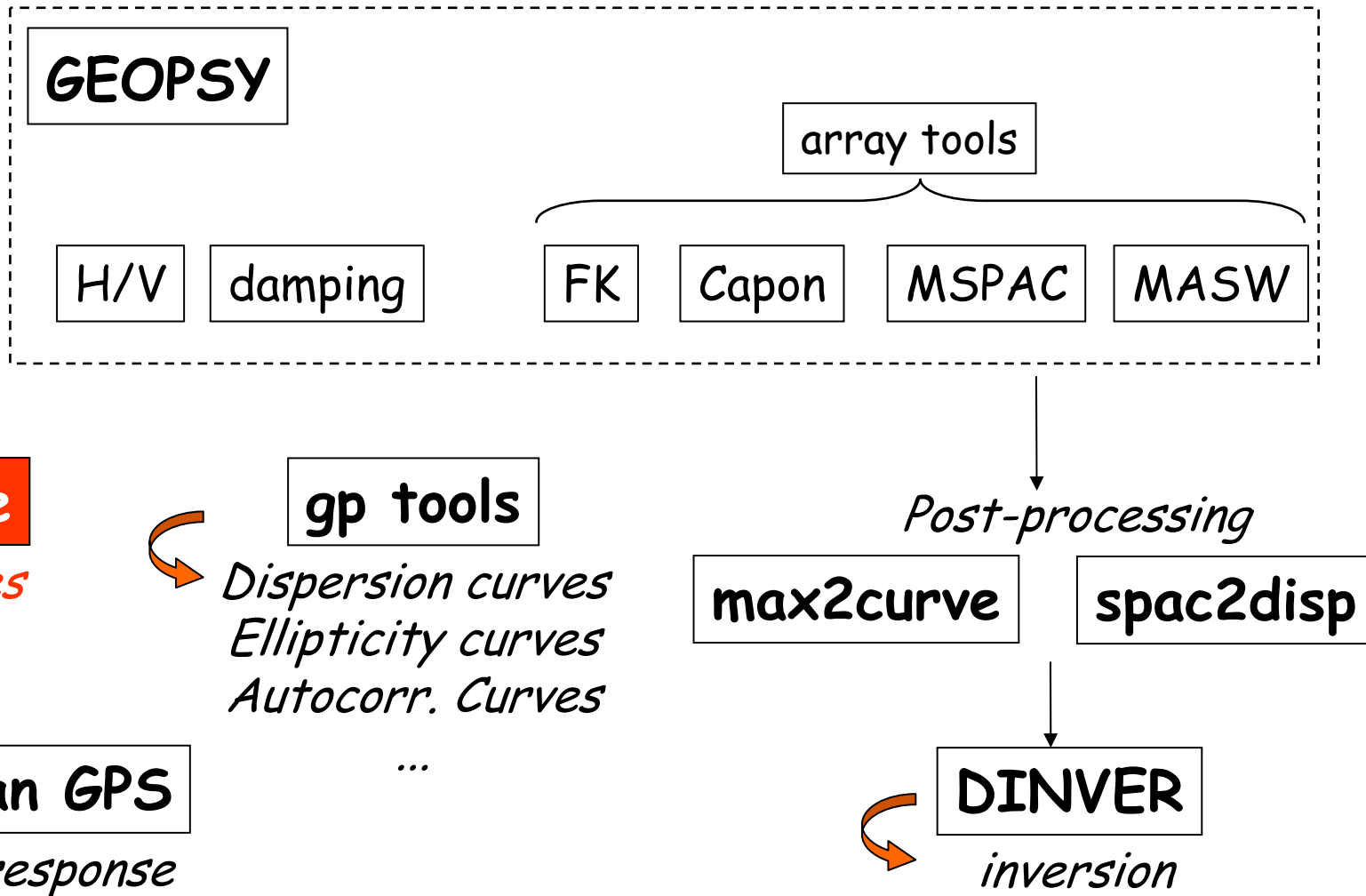


Using Ambient Vibration Array Techniques for Site Characterization

A survival kit for
Sesarray graphical tools:
FIGUE

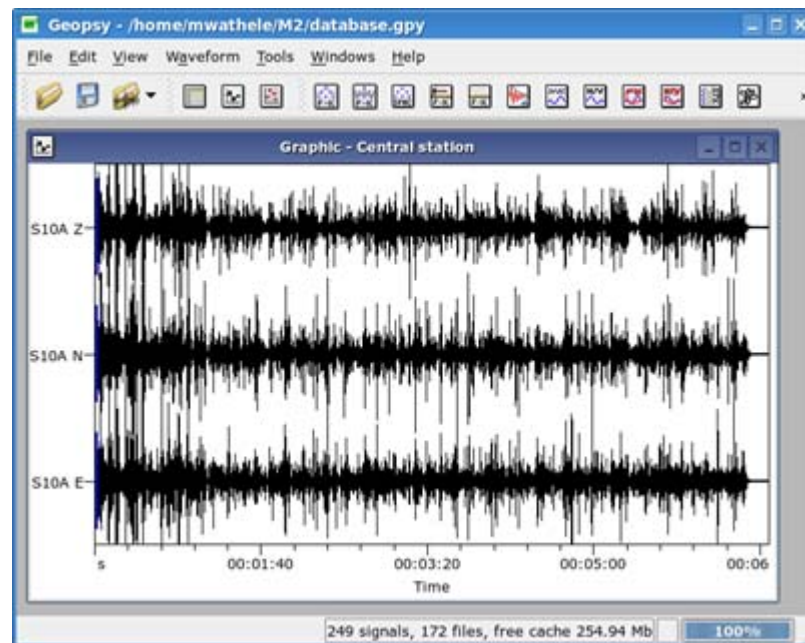
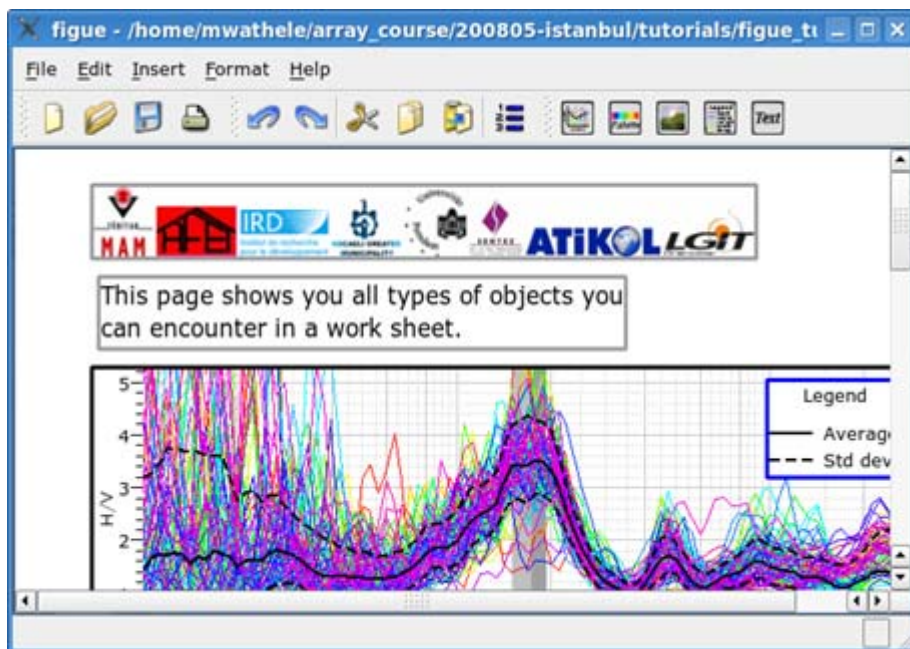
Tutorial

PACKAGES

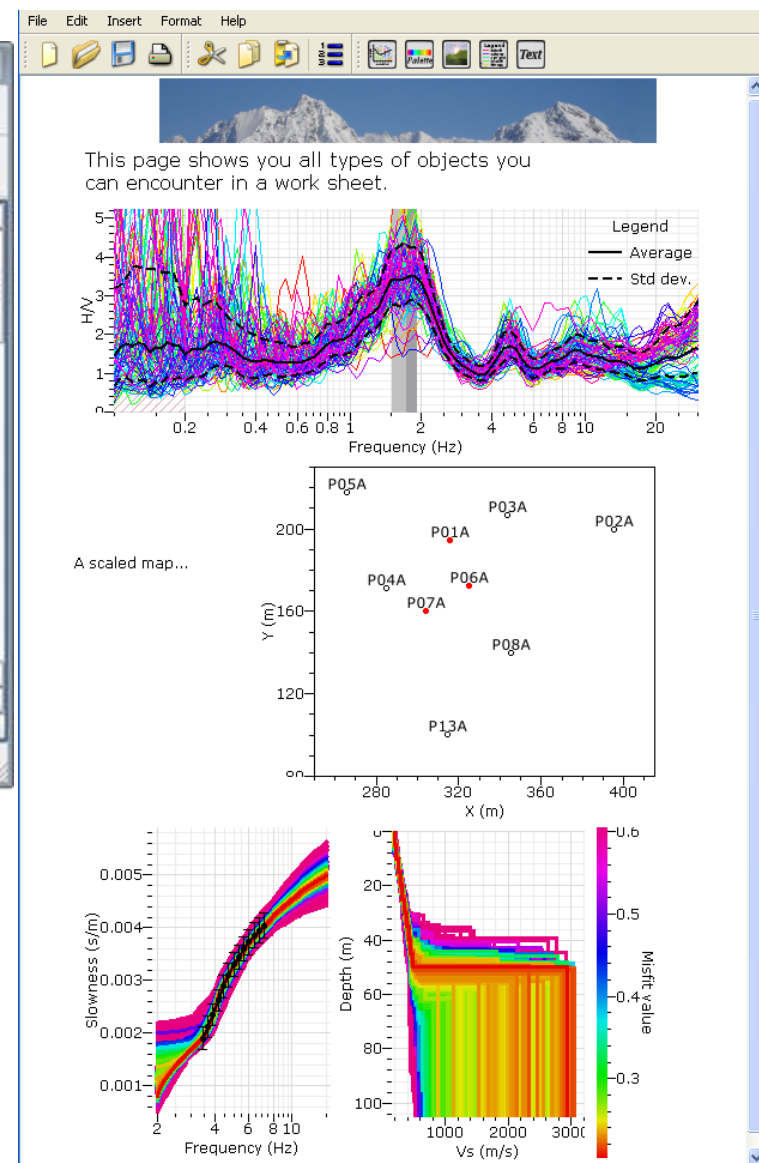
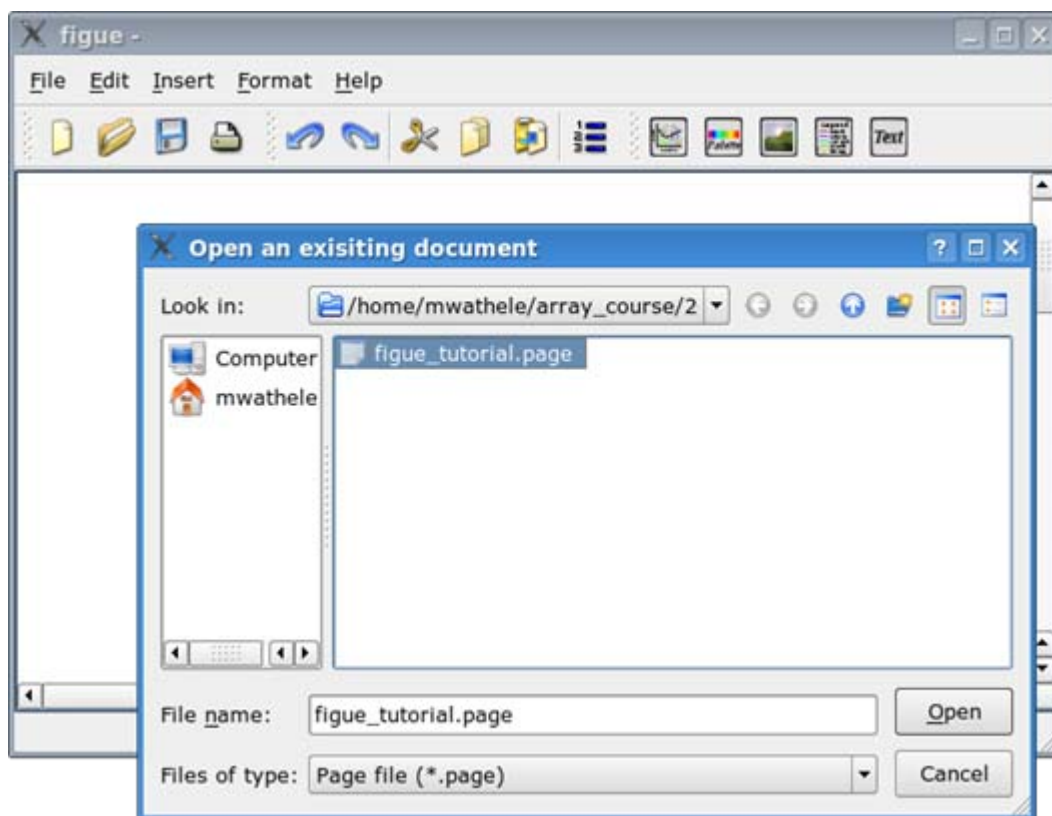


Objects inside a sheet or objects alone

"What you see is what you get"



Sheet example: **exercise with figure**

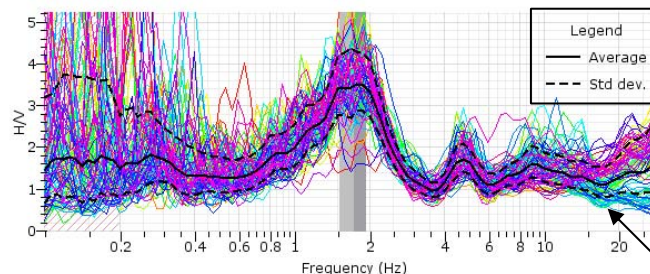


Image



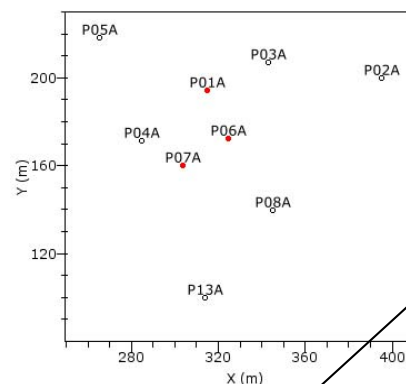
Text

This page shows you all types of objects you can encounter in a work sheet.



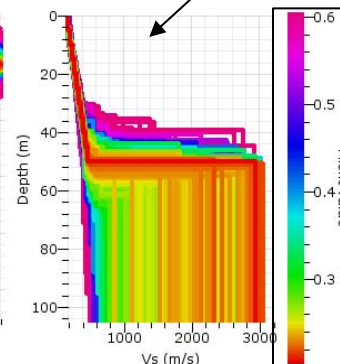
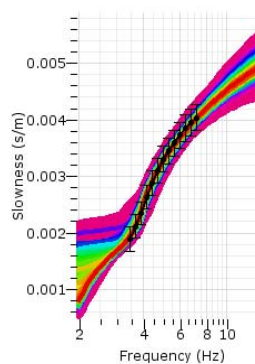
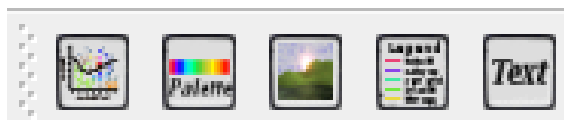
Legend

A scaled map...



2D plots

Types of objects



Palette

Selection of objects in a sheet

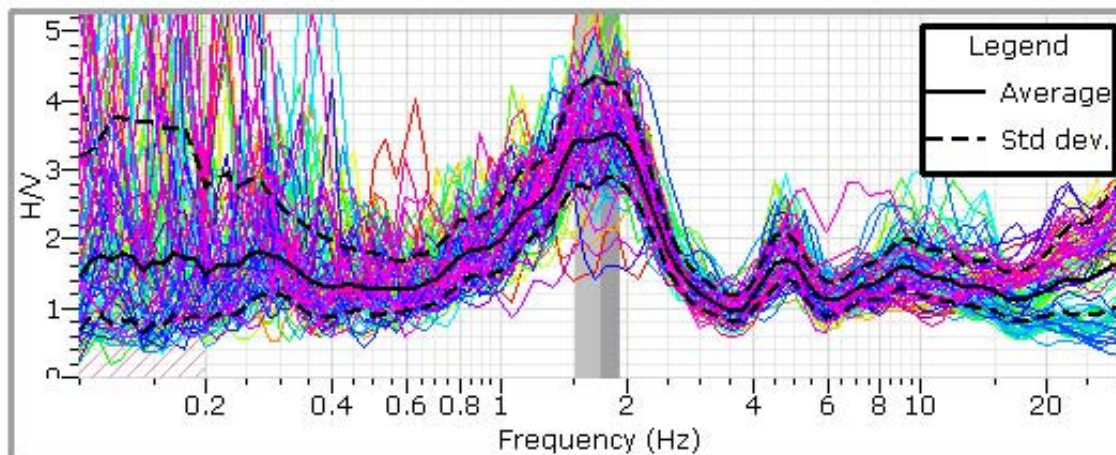
Blue: hover, object is not selected but will be if mouse is clicked

Black: selected and active object (only one active at a time)

Gray: selected object, part of a multiple selection, not active



This page shows you all types of objects you can encounter in a work sheet.



Key strokes:

TAB

go to next object and
make it active

SHIFT

multiple selection

The image shows a software interface with a main window titled "figure - /home/mwathele/array_course/200805-istanbul/tutorials/fig_..." and a "Property editor" window titled "Property editor::figure - /home/mwathele/array_course/200805-istanbul/tutorials/fig_...".

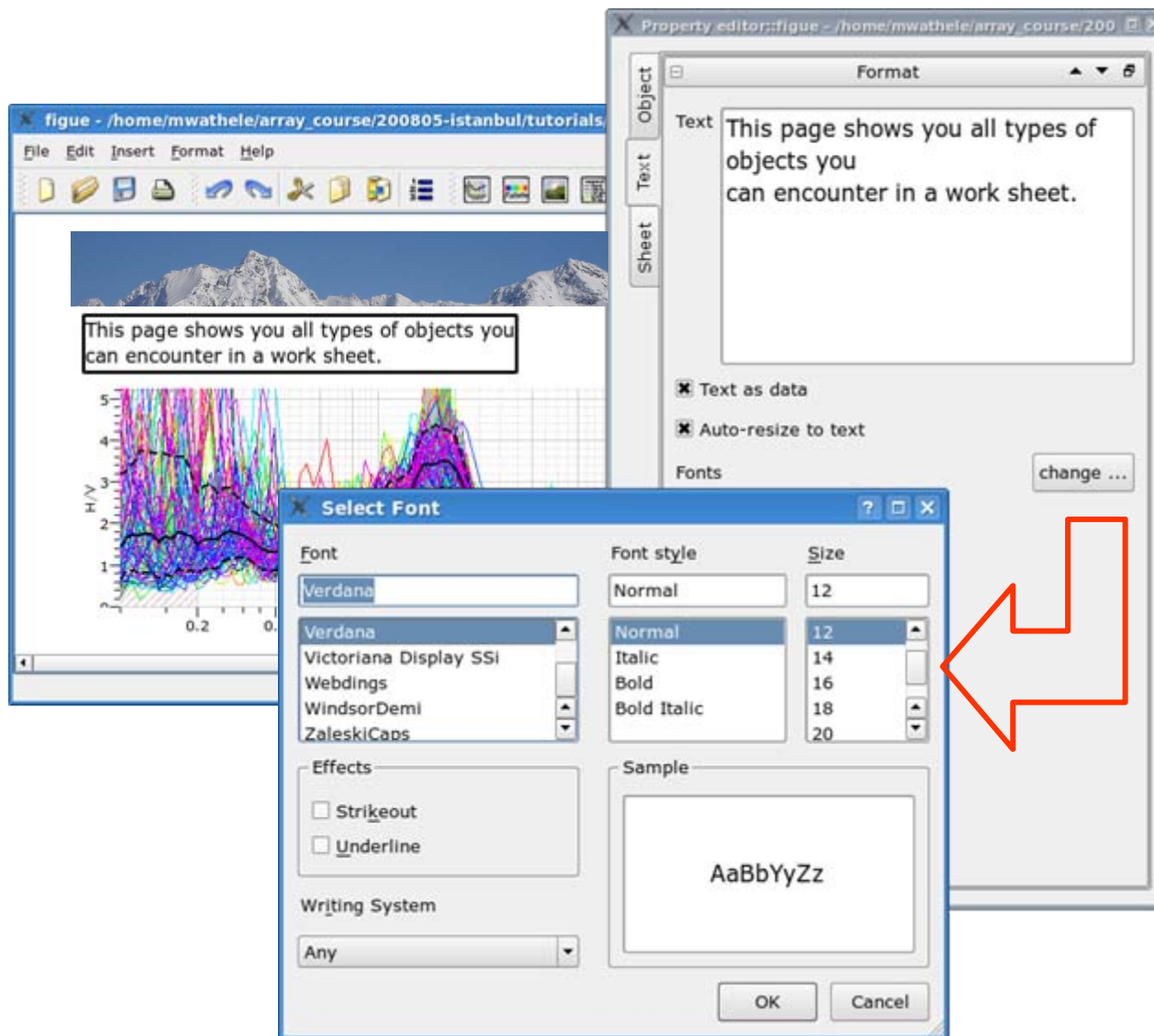
In the main window, a right-click context menu is open over a plot area. The menu includes options: Properties (Ctrl+Alt+P), Order, Alignment, Delete, Print, Export image as ..., Copy, Copy image, Save make-up, Save as a page, and Restore make-up. A red arrow points to the "Properties" option with the text "Right click".

The "Property editor" window has a sidebar with three categories: "Object", "Text", and "Sheet". A vertical label "Categories" is placed next to this sidebar. The "Object" category is selected, showing properties for "object_1" (QtTextEdit). A box highlights the "Order" property in the "Identification" section, with a label "Order" and an arrow pointing to it. Another box highlights the "Expand/Collapse" icon (a square with a minus sign) in the "Print" section, with a label "Expand/Collapse" and an arrow pointing to it. A third box highlights the "Resize" handle (a double-headed arrow) in the "Geometry" section, with a label "Resize" and an arrow pointing to it. The "Geometry" section includes fields for X anchor, Y anchor, Anchor (Top left corner), Width, Height, and a checkbox for "Constant width/height ratio". The "Print" section includes fields for Left, Right, Top, and Bottom margins, Resolution (300 dpi), Transparency (alpha, 255), and a checkbox for "Transparent object (mask)".

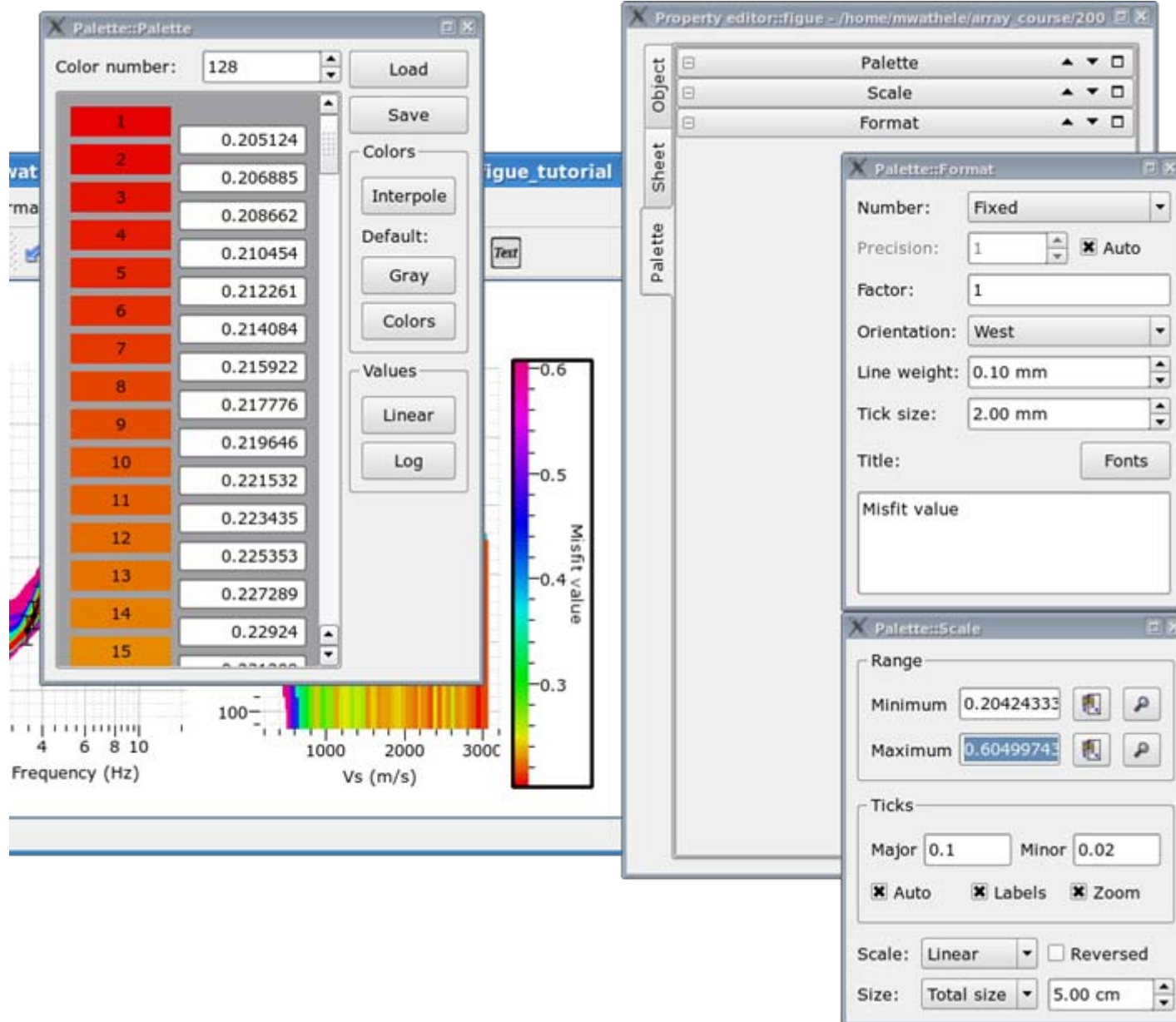
Properties of objects

Double click or right click "properties"

Properties of a text



Properties of a palette



Properties of a 2D plot

Double click
or right click
+ properties

Right click

Right click

Menu Object

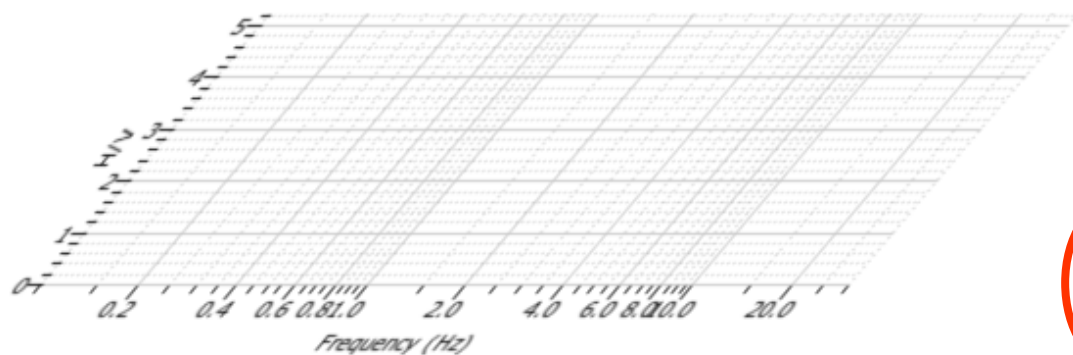
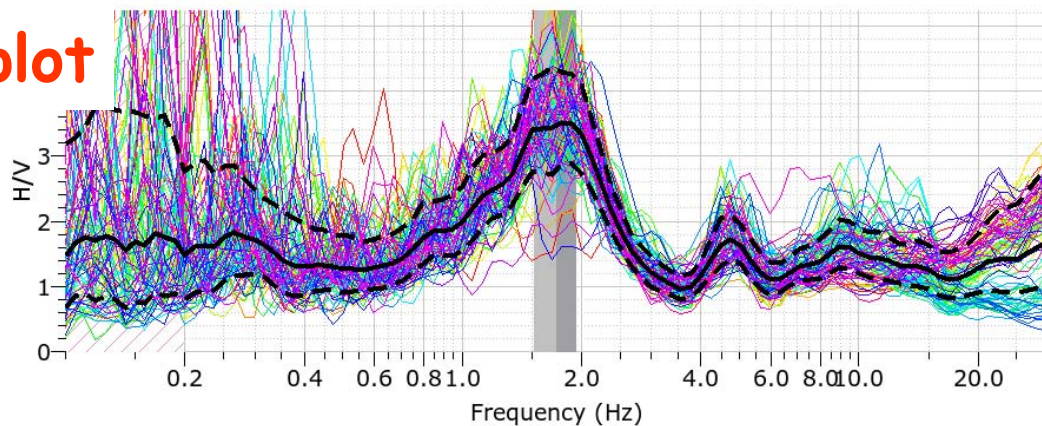
Menu Graph Content

Properties	Ctrl+Alt+P
Order	▶
Alignment	▶
Delete	
Print	
Export image as ...	
Copy	
Copy image	
Save make-up	
Save as a page	
Restore make-up	

Properties	Ctrl+Alt+P
Zoom	Ctrl+Alt+Z
Zoom in	Ctrl++
Unzoom	Ctrl+-
Save layers	
Add layers	

Layers of a 2D plot

Double click
or right click
+ properties

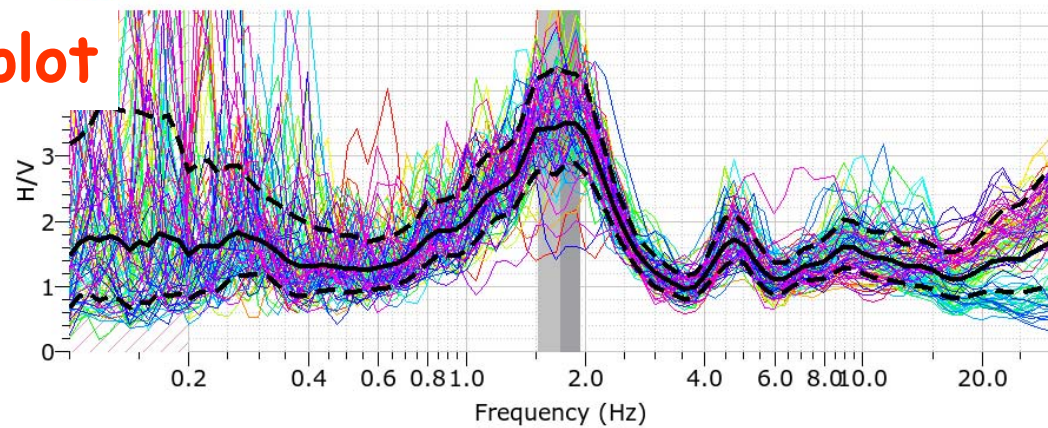


Background: grid lines

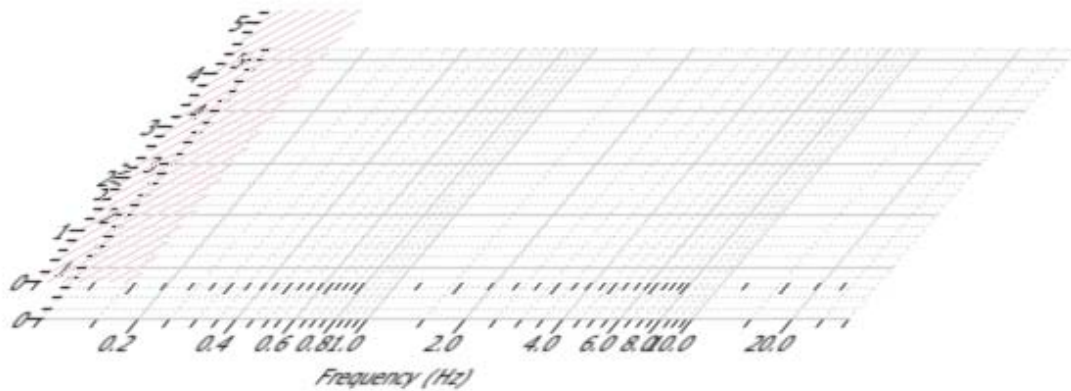


Layer stack			
graph			
	Type	Name	Opacity
1	ParallelBands	T10	1
2	ParallelBands	f0	1
3	XUniqueYColorLines	Windows	1
4	DynXYColorLines	Average	1
5	DynXYColorLines	Stddev	1

Layers of a 2D plot

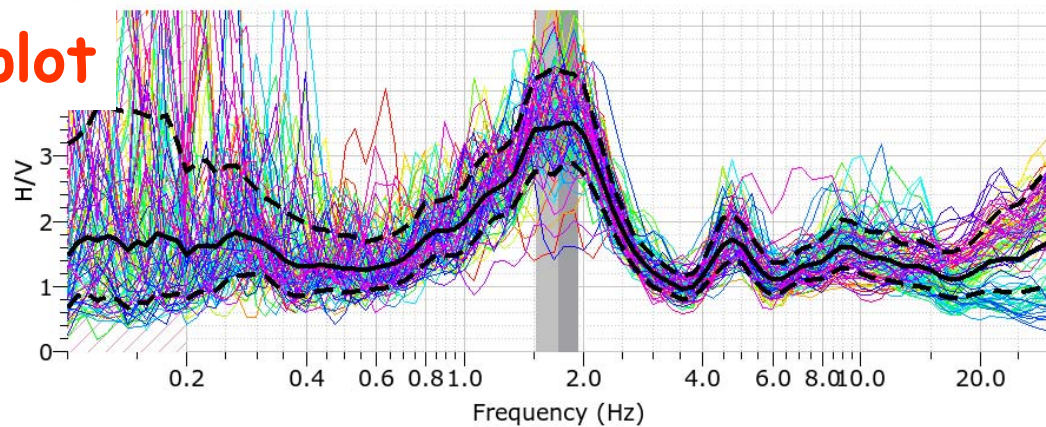


Parallel bands

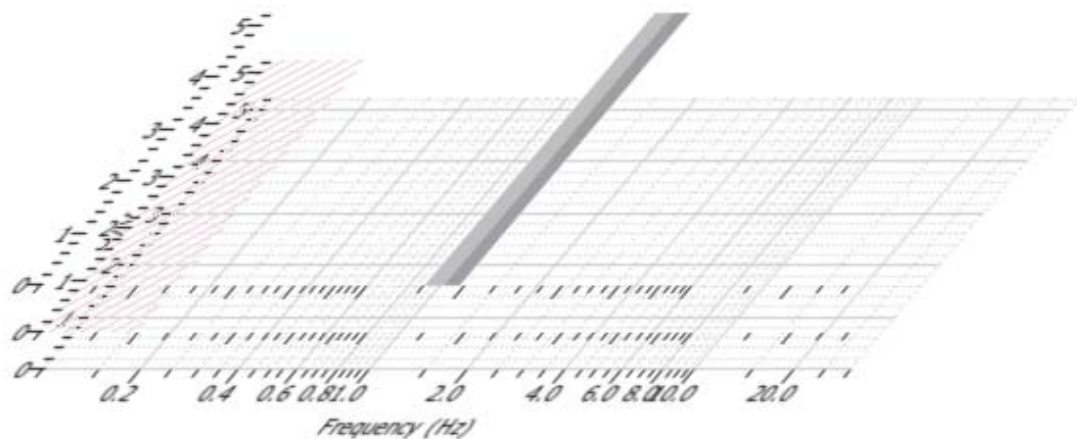


Layer stack			
graph			
	Type	Name	Opacity
1	ParallelBands	T10	1
2	ParallelBands	f0	1
3	XUniqueYColorLines	Windows	1
4	DynXYColorLines	Average	1
5	DynXYColorLines	Stddev	1

Layers of a 2D plot

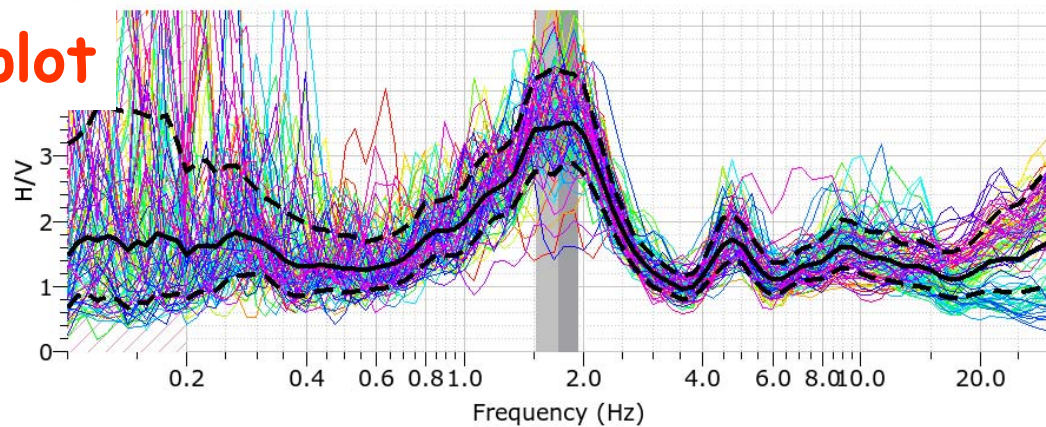


Parallel bands

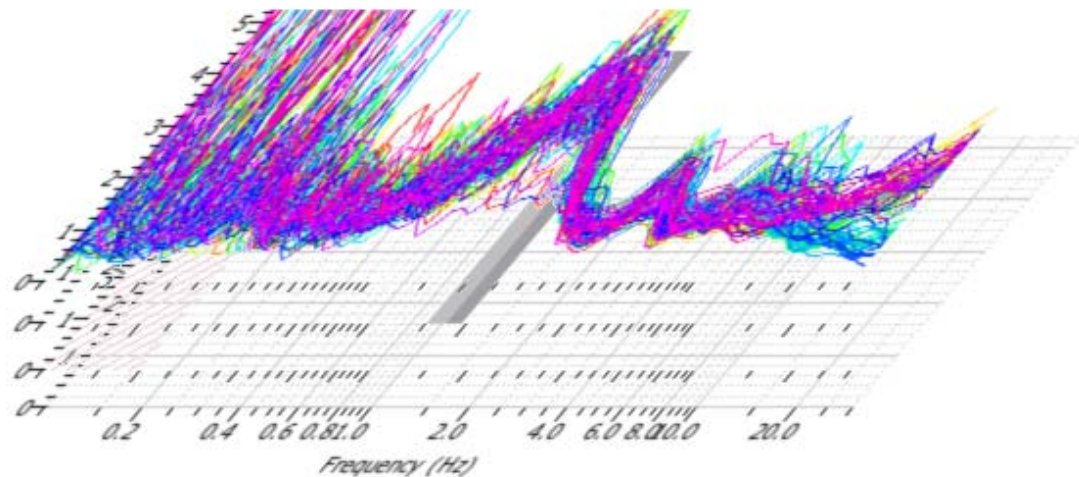


Layer stack			
graph			
	Type	Name	Opacity
1	ParallelBands	T10	1
2	ParallelBands	f0	1
3	XUniqueYColorLines	Windows	1
4	DynXYColorLines	Average	1
5	DynXYColorLines	Stddev	1

Layers of a 2D plot



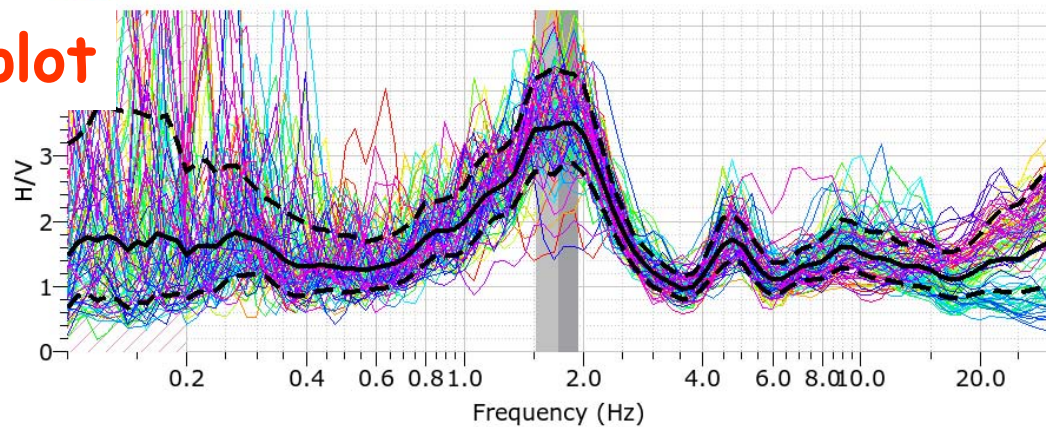
XY Color lines



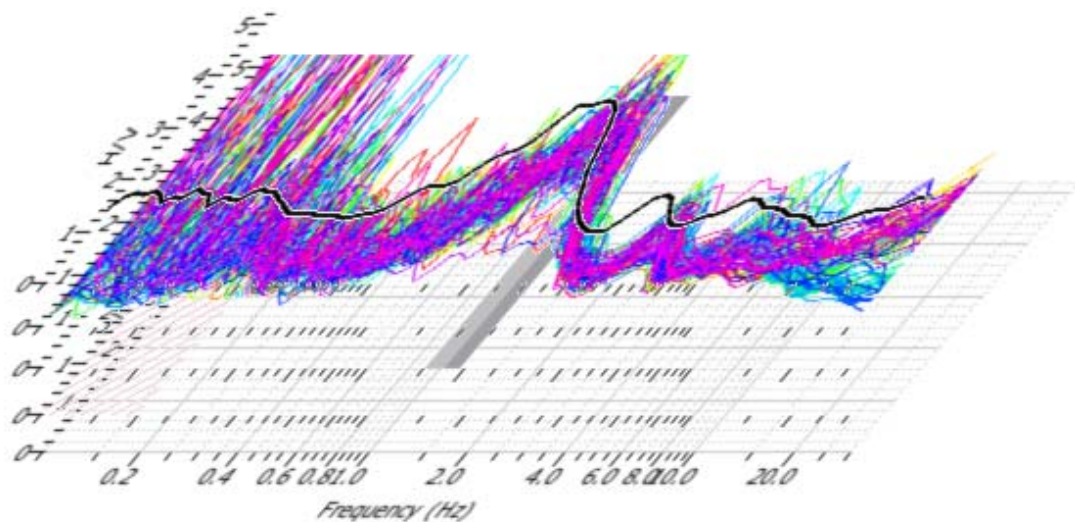
Layer stack			
graph			
	Type	Name	Opacity
1	ParallelBands	T10	1
2	ParallelBands	f0	1
3	XUniqueYColorLines	Windows	1
4	DynXYColorLines	Average	1
5	DynXYColorLines	Stddev	1

Layer stack controls: Up arrow, Down arrow, Delete button.

Layers of a 2D plot

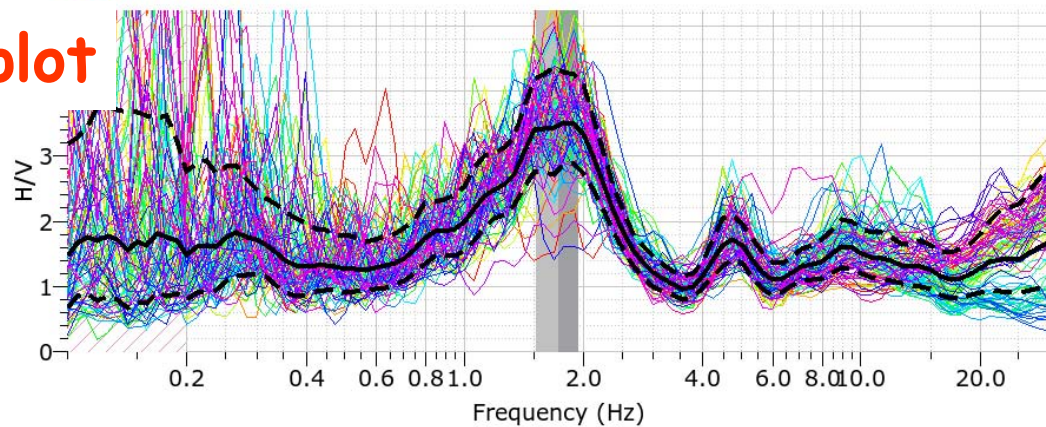


Dynamic XY Color lines

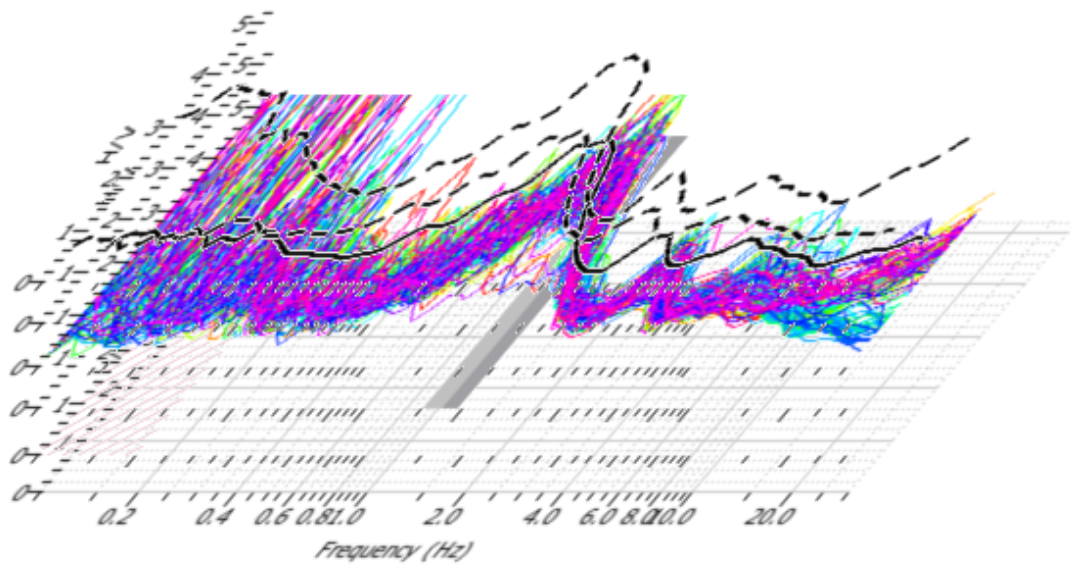


Layer stack			
graph			
	Type	Name	Opacity
1	ParallelBands	T10	1
2	ParallelBands	f0	1
3	XUniqueYColorLines	Windows	1
4	DynXYColorLines	Average	1
5	DynXYColorLines	Stddev	1

Layers of a 2D plot



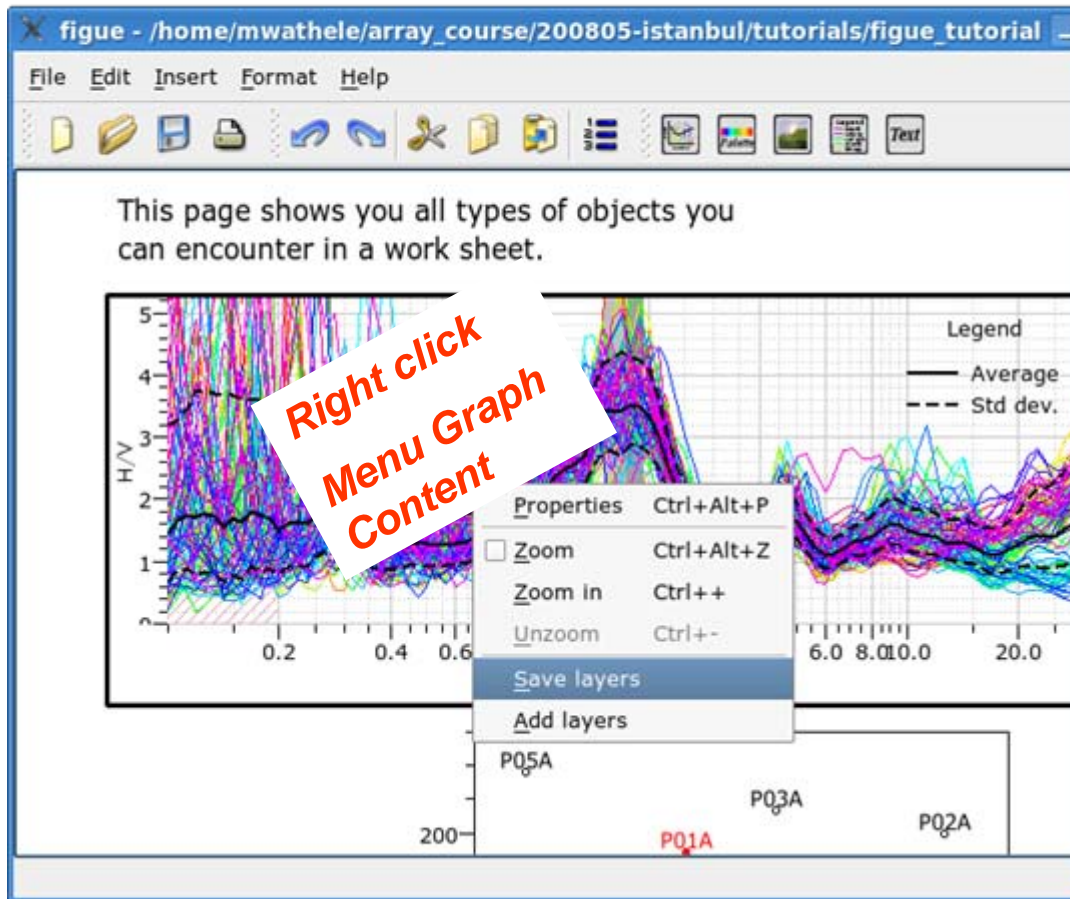
Dynamic XY Color lines



Layer stack			
graph			
	Type	Name	Opacity
1	ParallelBands	T10	1
2	ParallelBands	f0	1
3	XUniqueYColorLines	Windows	1
4	DynXYColorLines	Average	1
5	DynXYColorLines	Stddev	1

Save, Load, Re-order, Delete,... layers

Files: *.layer



Property editor::figure - /home/mwathele/array_course/200805-I

Format

Horizontal Axis
Vertical Axis
Grid lines
Transparent content (Mask)
Print content as bitmap

Line weights (mm)
Contour: 0
Grid line: 0.05

Layer stack

	Type	Name	Opacity
1	ParallelBands	T10	1
2	ParallelBands	f0	1
3	XUniqueYColorLines	Windows	1
4	DynXYColorLines	Average	1
5	DynXYColorLines	Stddev	1

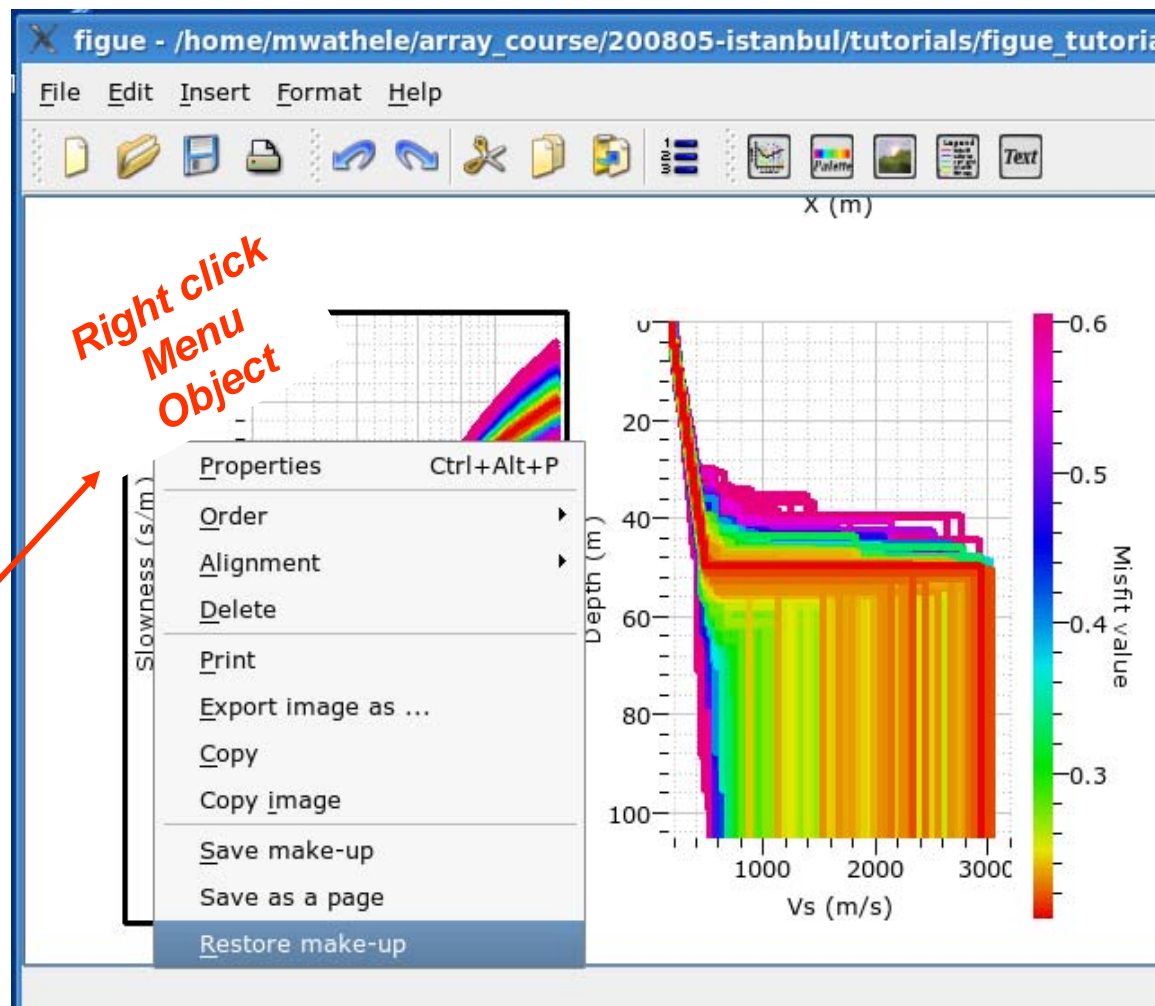
Delete

Save & restore "makeups"

Files: *.mkup

Load "object.mkup"

Be careful: difference
between makeups for:
-Objects (right click)
and
-Sheets

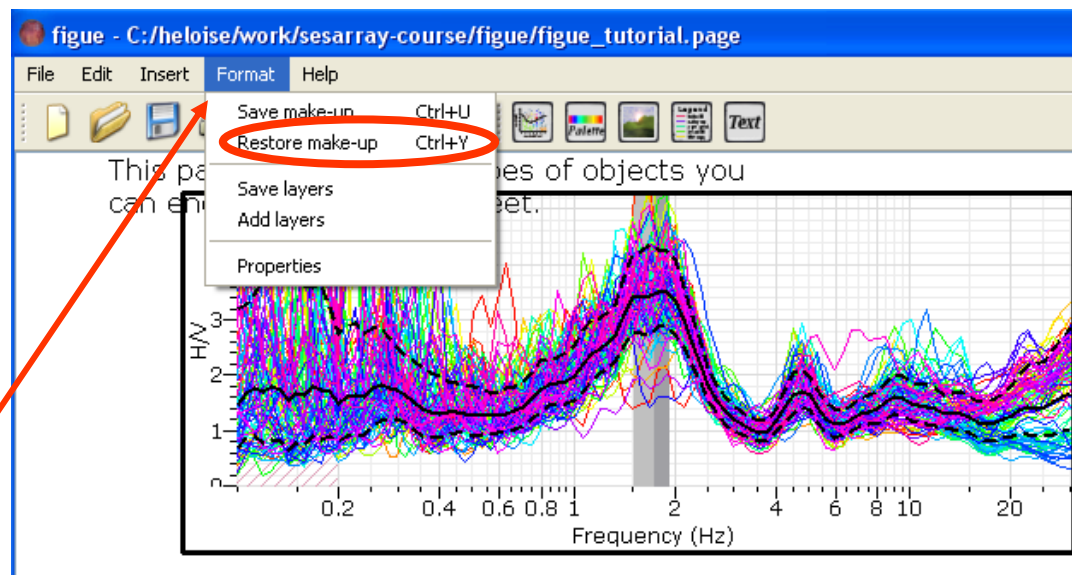


Save & restore "makeups"

Files: *.mkup

Load "object.mkup"

Be careful: difference
between makeups for:
-Objects
and
-Sheets (top menu bar)

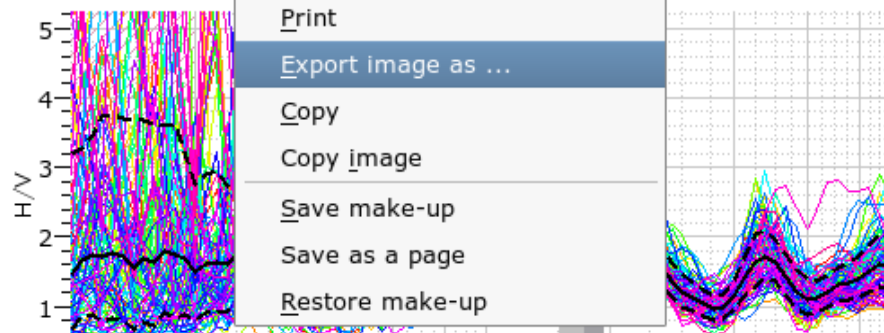


Save images

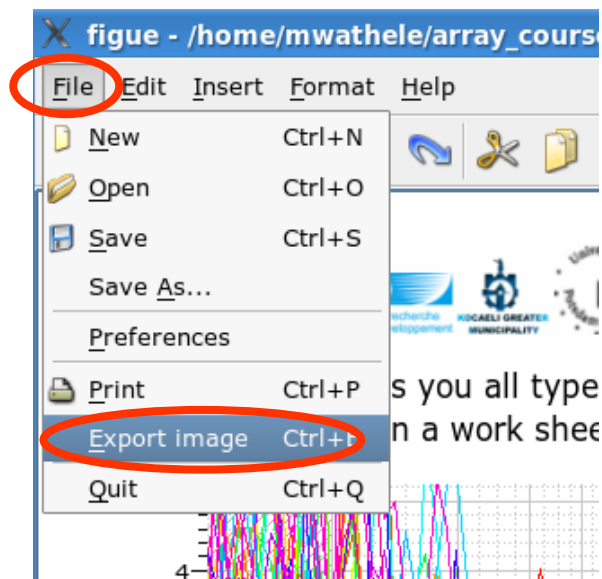
Create an image of an object

Right click
Menu
Object

This page shows
can encounter



Create an image of the
whole sheet

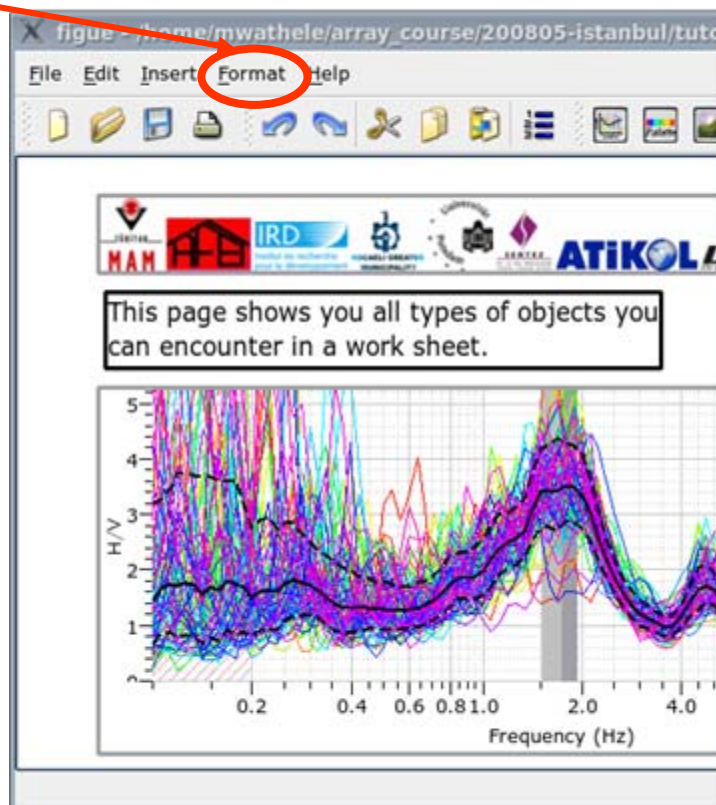


Controlling output resolution

First: "ctrl+a" to select all objects
And either: *right click => properties*

Or

*Top menu bar:
"format" => properties*



Property editor: figure - /home/mwathele/array_course/200805-istanbul/tuto

Object

Name: object_1

Type: QtbTextEdit

Geometry

X anchor(cm): 1.56733333333333

Y anchor(cm): 2.28266666666667

Anchor: Top left corner

Width(cm): 9.52133333333333

Height(cm): 1.184

☐ Constant Width/Height ratio

Print

Left margin(cm): 0.5

Right margin(cm): 0.5

Top margin(cm): 0.5

Bottom margin(cm): 0.5

Resolution: 100 dpi

Transparency (alpha): 255

☒ Transparent object (mask)

Controlling image production from command line

```
figure figure_tutorial.page -e figure_tutorial.png -f PNG -dpi 50
```

Whole sheet into a PNG file with low resolution

```
figure figure_tutorial.page -e figure_tutorial.pdf -f PDF -dpi 300
```

High quality PDF

```
figure -h
Usage: figure [OPTIONS] [FILE]...
Customize your figures saved as .page and convert into usual
image format (see option --format). FILE(s) are .page files.
These files are tar.gz files containing an xml (contents.xml)
and eventually some other binary files.
[...]
```

For more information

Figure as a quick plotter

```
cat curve.txt | figure -c -m dc.mkup
```

Plot a curve stored in a 2-column text file
with format saved in a "makeup" file (object kind)

Other types of plots: grids, dots, many curve,...
see option -h for more information.