POI definition and usage in BrainVoyager QX

This is no official Brain Innovation help document. For any detail questions, please contact the author (heinecke@brainvoyager.com)
BV version used: BV QX 1.8.6
Dataset used: anatomy of subject “AA” (available on the Brain Innovation ftp-server)

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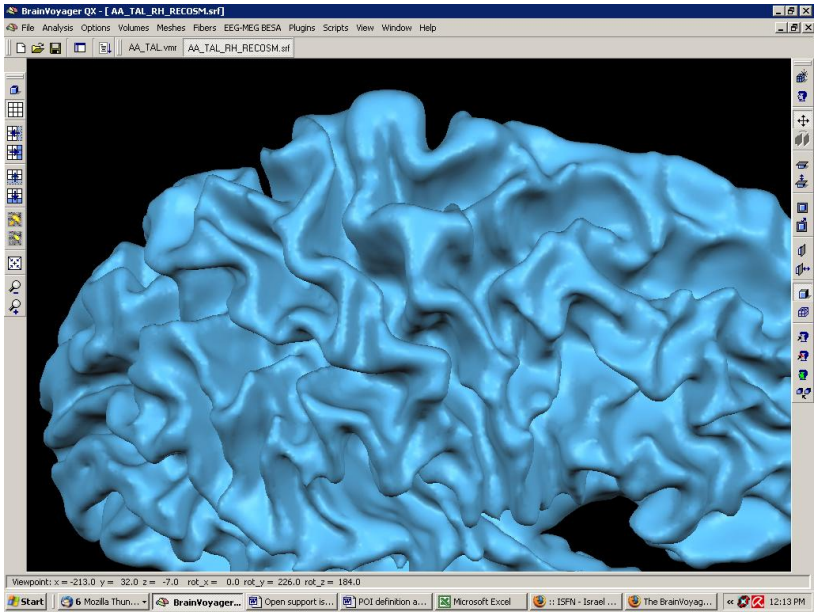
Introduction

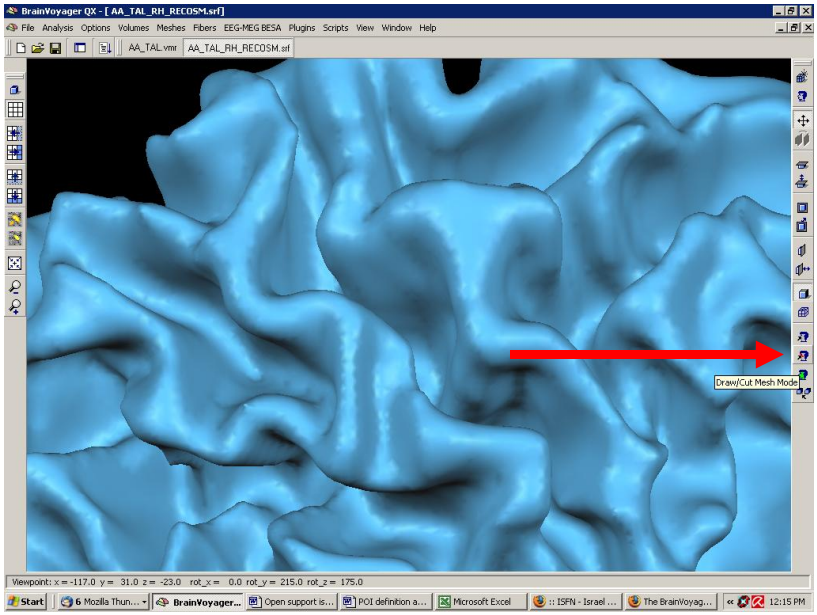
In BrainVoyager, patches of interest (POIs) can be specified either anatomically or functionally. In this document, both ways are described.

Anatomical specification of POIs

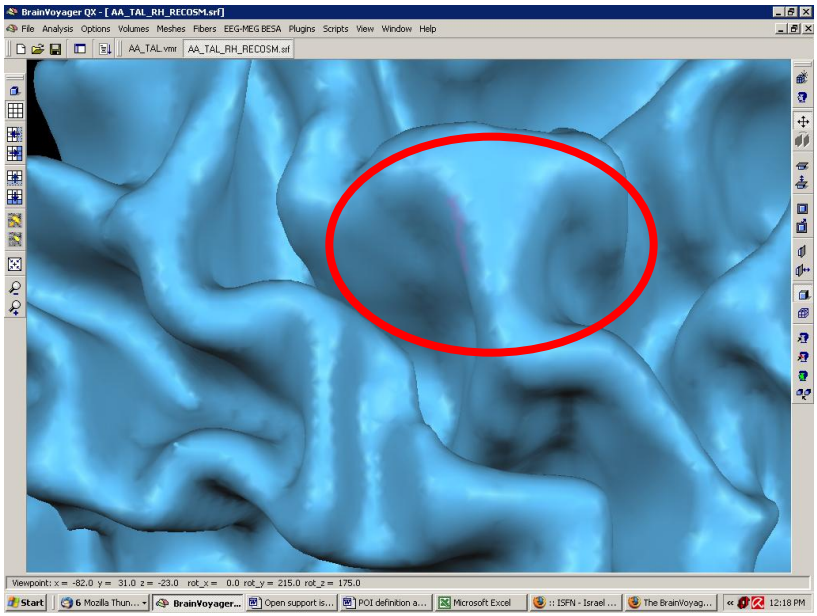
First, we load the “Recosm” file of a right hemisphere (subject AA):



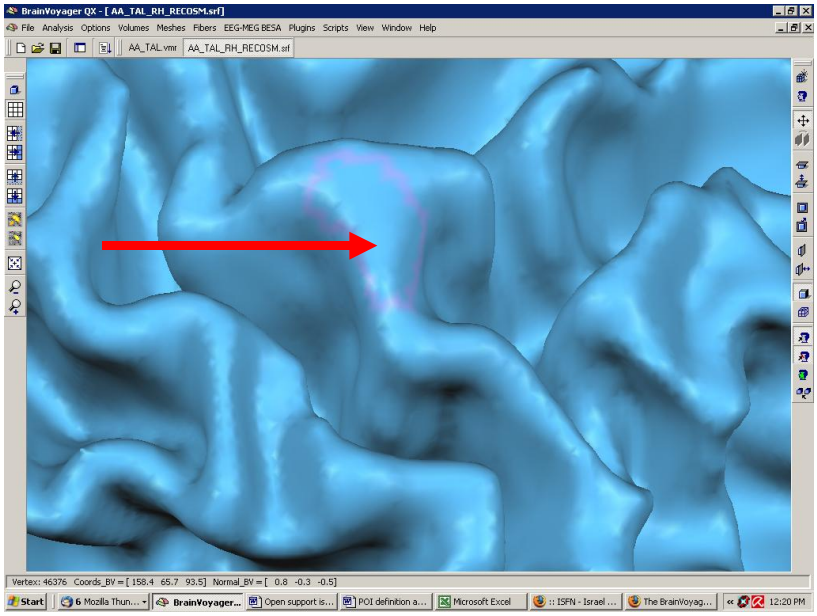
We zoom in a little more (using the combination of mouse movement + Shift + Control). To mark a region on the mesh, one has to switch the mouse mode to drawing (Draw/Cut mesh mode). This can be done by clicking the corresponding icon in the surface toolbox (face with red mark).



A helpful function is to hold down the shift function when defining neighbouring points of a contiguous patch. This will automatically connect the points clicked with a line.

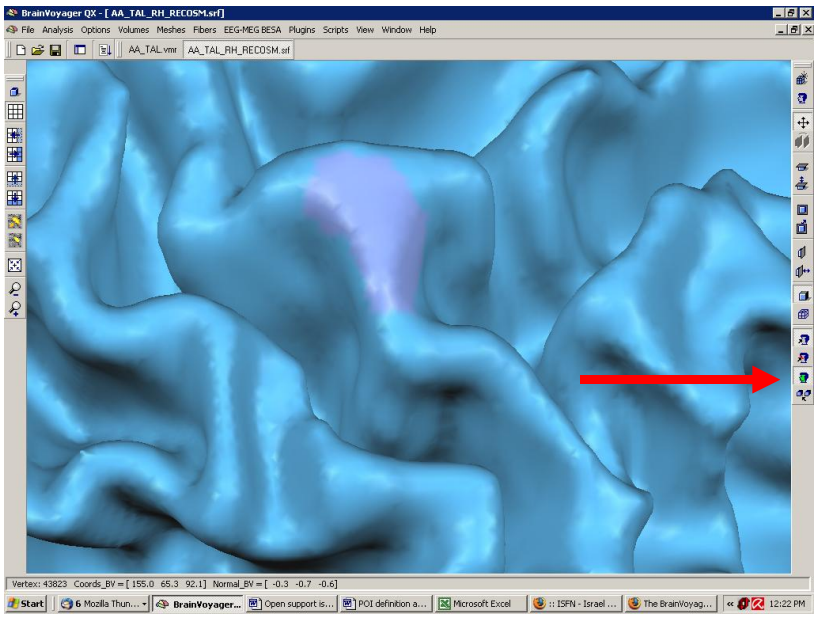


By clicking different neighbouring points, we can define a contiguous area on the selected gyrus:

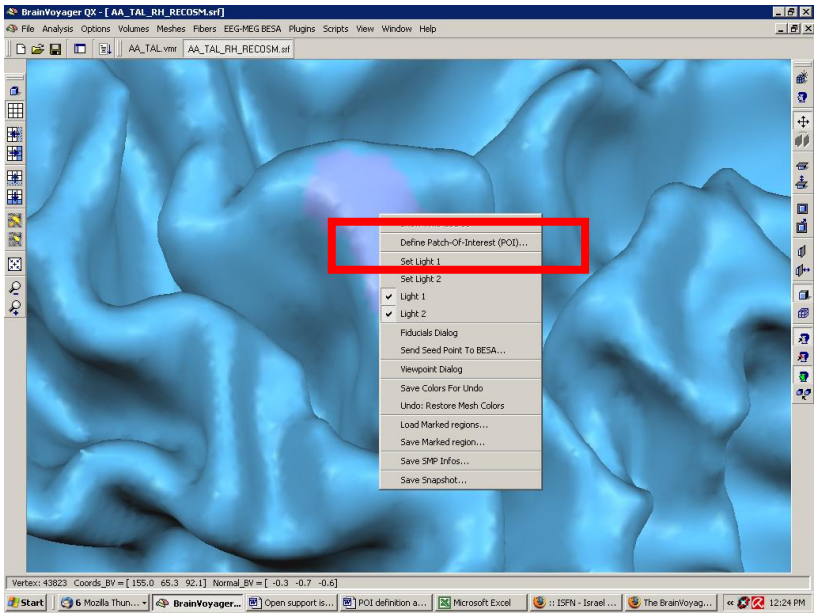


To define this area as patch of interest (POI), one has to fill the selected area. To do this, another icon in the surface toolbox (the “Fill mode”, face with green mark)

has to be used. After choosing the fill mode, a single click inside the demarcated area will fill this in the same color.

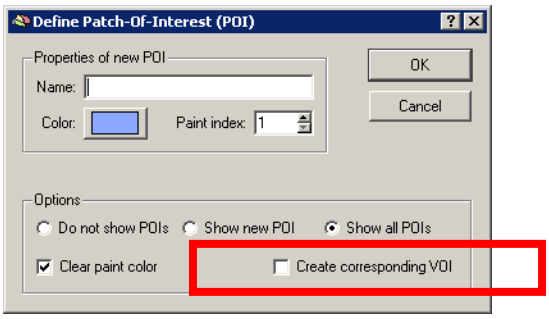


Now, we can save the marked area as a Patch of Interest (POI). To do this, we can rightclick into the region.

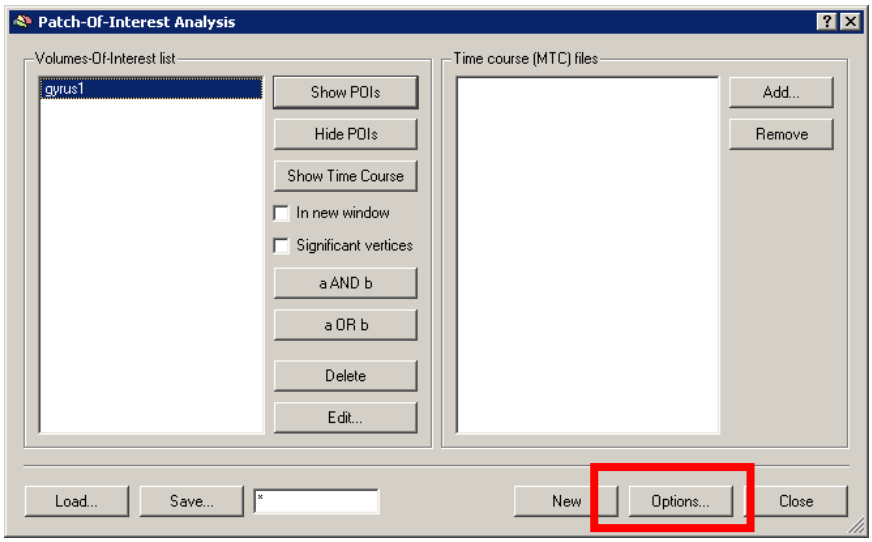


Using the entry “Define Patch of Interest” in the context menu, a POI can be created.

The new dialog allows to name the POI and - if necessary – to create a corresponding volume of interest (VOI) at the same time.



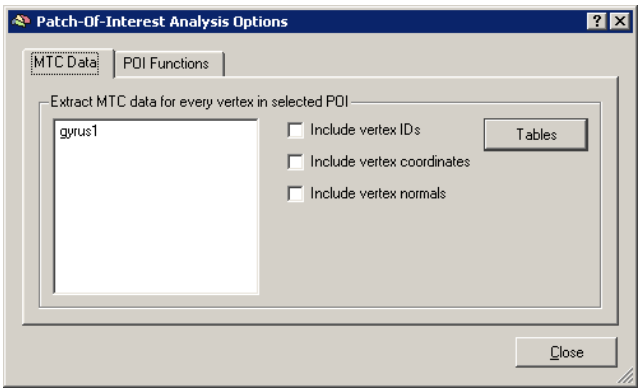
After providing the name and clicking OK, the POI window will pop up.



One should save the new file as [name].poi.

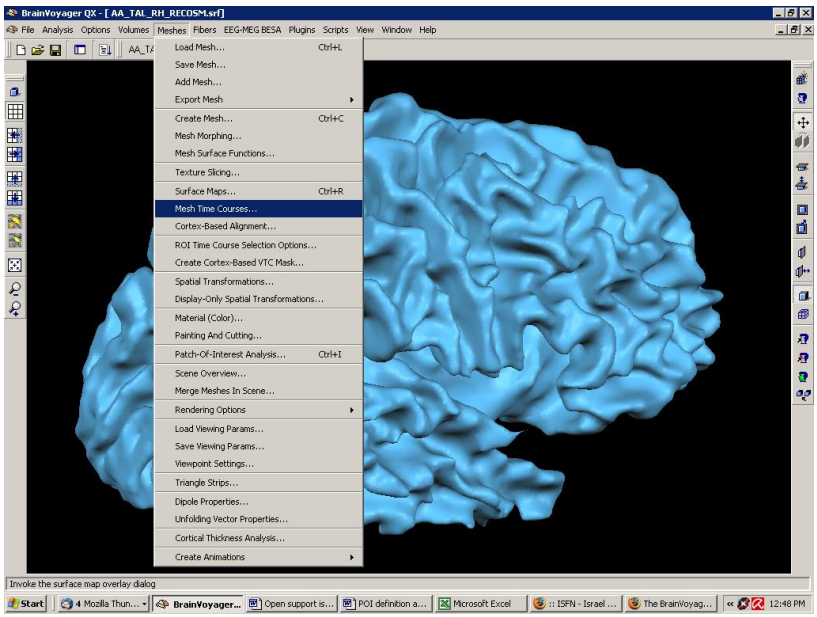
The same combination operations between POIs (AND/OR) as in the base module (for VOIs) can be performed;

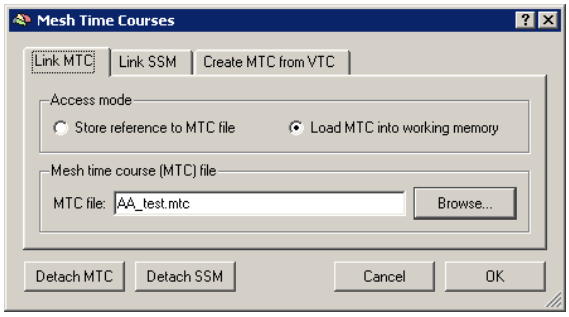
In the MTC field, MTC timecourses can be added. Using the “Options” button, one can perform different operations.



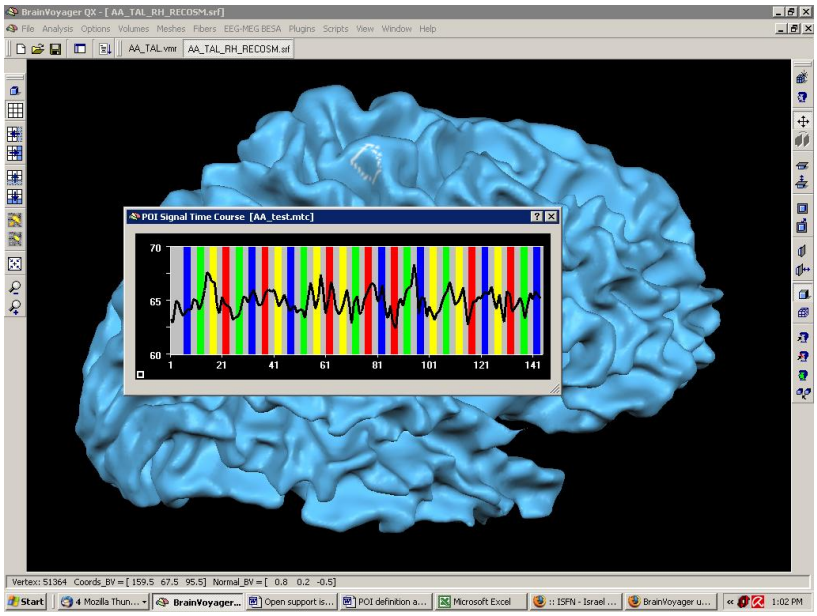
Functional specification of POIs

To define a region of interest on the basis of a functionally defined region, one either uses the SMP that has been created on the basis of a VMP in the base module or creates the statistical map directly in the surface module. We choose the second approach. First, we have to link a mesh time course (MTC) file. This can be performed via the “Mesh Time Courses...” option in the BrainVoyager QX “meshes” menu:

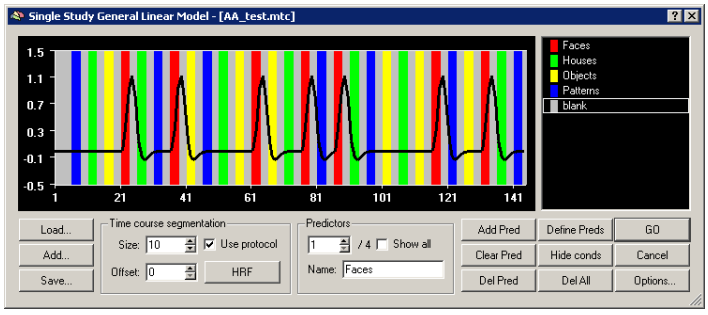




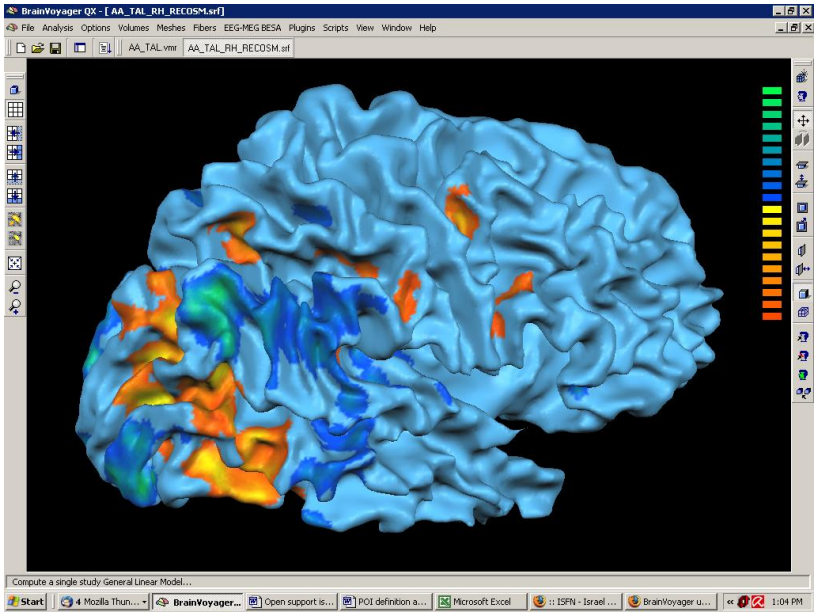
To obtain the timecourse for a specific area, one can CTRL + left-click on the mesh.



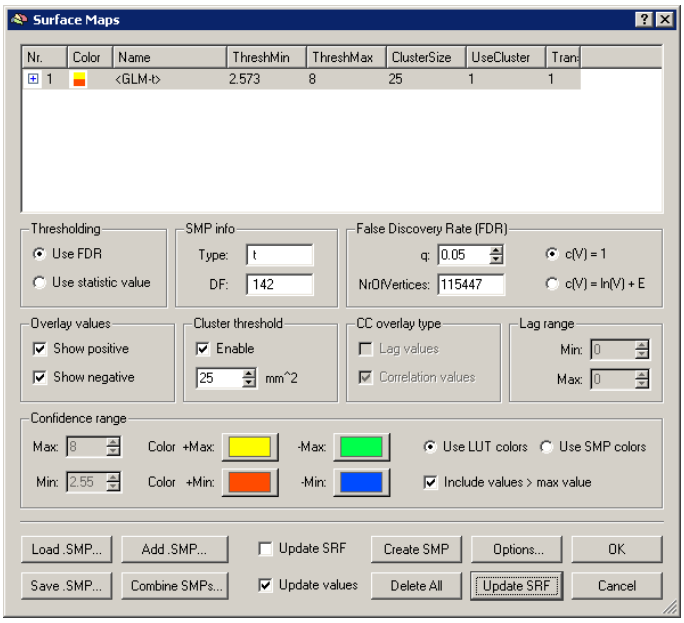
To obtain a statistical map, we specify a (single study) GLM model. It is important to keep the focus on the surface (and not to click on the VMR before opening the GLM dialogue).



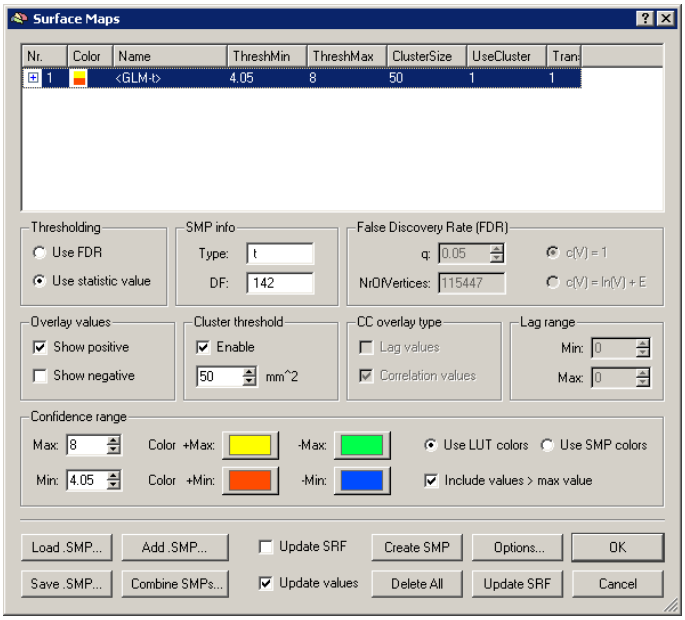
GLM result:



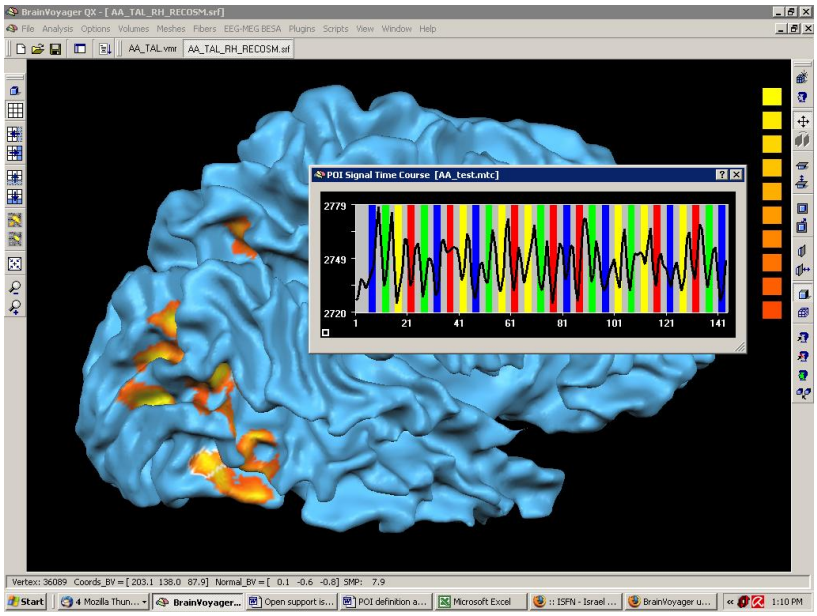
To adjust the statistical map, we open the “Surface maps” dialog in the Meshes menu.



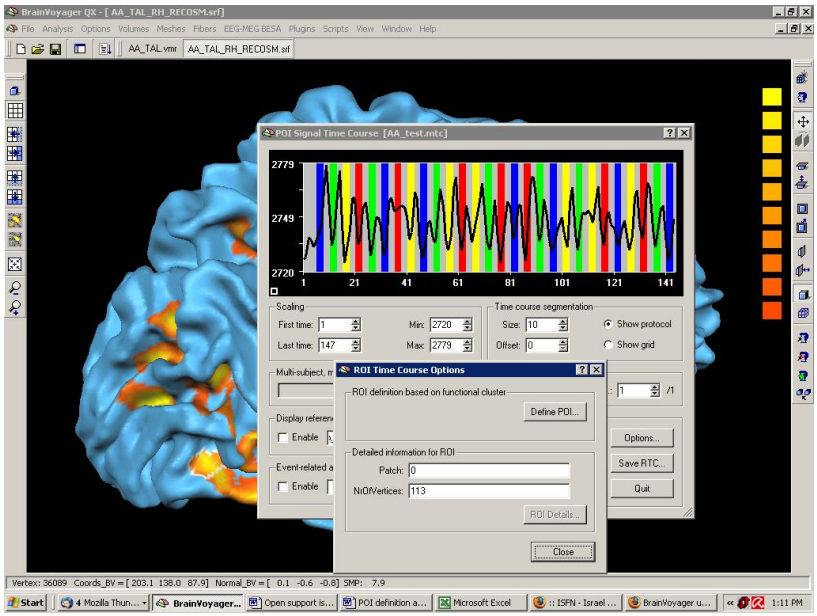
We switch of the negative values, set a different (t-based) threshold and increase the cluster threshold.



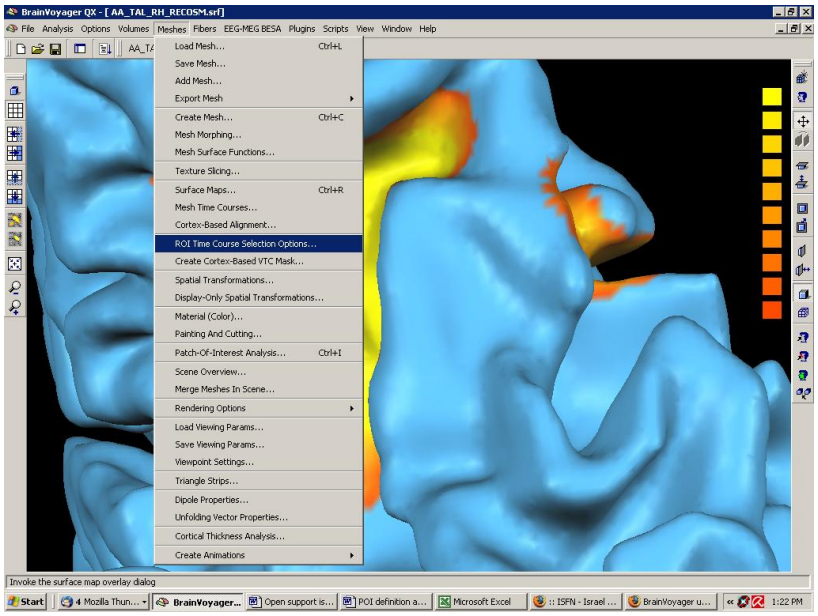
To define a functional region, one either has to CTRL + click into the functional patch or right-click and use the context menu.



To save the selected patch as patch of interest (POI), one can open the options part of the signal timecourse dialog and click the Options button. The button “Define POI...” will create a patch of interest of the selected patch.



To create a larger selection, on has to set the max number of vertices to a larger value (the standard “spread range” is 50). This can be done via the “ROI Time Course Selection Options...” option in the BrainVoyager QX “Meshes” menu (see below).


BrainVoyager QX - [AA_TAL_RH_RECOSM.srf]
File Analysis Options Volumes Meshes Fibers EEG-MEG BESA Plugins Scripts View Window Help
Load Mesh... Ctrl+L
Save Mesh...
Add Mesh...
Export Mesh
Create Mesh... Ctrl+C
Mesh Morphing...
Mesh Surface Functions...
Texture Slicing...
Surface Maps... Ctrl+R
Mesh Time Courses...
Cortex-Based Alignment...
ROI Time Course Selection Options...
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Create Animations
Invoke the surface map overlay dialog
Start
4 Mozilla Thun...
BrainVoyager...
Open support is...
POI definition a...
Microsoft Excel
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