

Map3-2D tutorial

Version 1.0

GUV surface projection

- 1. Uncompress the file "GUV.zip". A folder will be created with the files "GUV.tif", "GUV_Mask_thin.tif" and "GUV_Mask_thick.tif"
- 2. Run Map3-2D and open the file "GUV.tif". This is a 2-channel 3D stack with 100 slices (check the sliders at the bottom of the window).
- 3. If a dialog appears to set this folder as the default folder, then click on Yes.
- 4. A voxel dialog will pop up to check if the detected voxel size is correct. Click on Apply.
- 5. In the menu bar go to *Image -> Add Mask 1*. A dialog will pop up.
- 6. Select the option *Load from an image stack file* and click on *Continue*
- 7. Open the file "GUV_Mask_thin.tif". Everything that is not in the mask will be shown as background. The background color can be modified
- 8. In the menu bar go to *Process -> 2D projection*. A new window will be created and a *Properties* dialog will pop up on top of it.
- 9. In the Subfolder name write "test"
- 10. In the Map filename write "test 1"
- 11. As the GUV has a spherical shape, you can choose *Sphere* as the *Estimation method* and click on *Estimate*. The dialog should look like

Properties						
Project options	Unfolding	options	Map image options			
Subfolder name:	Unfolding axis:	+Z 🔹	Height effects:			
test	Central longitude:		Weight latitudes			
Map filename:	Reference axis:	+X •	Weight longitudes			
test 1	Shift:	0	Height factor:	1		
	4	+	Radius (R):	Max. 💌		
Import properties from file	Geographical tabl	e size:	Border projection:	Max 🔹		
Fitting options	Latitudes:	90	Interpolation:	Cubic 👻		
Current approximation:	Longitudes:	180	Map Size:	V Auto		
Sphere (algebraic)	[Estimate	Height:	500		
Wask-17 Kei. Irame. 1 👻	Projection:		Width:	500		
Fitting mask: Mask-1 -	Equirectangular	•	Grid lines settings:			
Reference frame: 1	Projection parame	tore:	Latitudes	Longitudes		
Estimation method:	Parameter	Value				
Sphere (algebraic)	Standard parallel	0	Border color:	255		
Estimate Adjust						
			Cancel	Apply		

- 12. Press Apply to get the corresponding 2D projection.
- 13. Use the sliders to check the two additional channels (grid and height). As the GUV is very spherical without any protrusion/indentation, the information on the height channel is almost zero. The display range can be enhanced with the *Auto* button in the toolbar.
- 14. Use the *Selection -> Make selection -> Polygon* tool (or use the shortcut on the toolbar) to make a selection on the first channel, and add it to the ROI Manager.



- 15. In the sidebar click on *Transfer* (and *Apply* in the dialog) to see this region in the main window.
- 16. Go to the main window and click on the new ROI that appeared in the ROI Manager. This is a 3D ROI which is different for every slice. Please move the *Z* slider to see the ROI extent.
- 17. In the sidebar click on *Measure*. A measurements table will pop up with information about this 3D ROI.
- 18. Repeat the same but pressing [Ctrl] + *Measure*. Only the current slice will be measured (valid only for 3D ROIs).

🖌 Statistics										
File Edit ∞										
	Roi Name	Channel	Time	Mean Intensity	Std. Deviation	Mininum Value	Maximum Value	Sum Value		
1	T1-Z1-C1-X3	1	1	62.4909	36.3203	0	202	1523779		
2	T1-Z1-C1-X3	1	1	62.4909	36.3203	0	202	1523779		
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- 19. Add an extra channel in the main window image (*Image -> Add extra channel*).
- 20. Select this extra channel with the *C* slider and select the ROI in the ROI Manager (if not already selected).
- 21. In the sidebar click on *Draw* and press *Apply* in the subsequent dialog. The selection is now drawn in this additional channel.
- 22. Return to the 2D projection window and click on *Map -> Transfer Grid* at the menu bar.
- 23. Go back to the main window and click on *Menu -> Save*. The saved image(s) can contain the main channels and/or additional channels. Leave the default options and click on *Save*. The resulting image is a BigTiff file (BTF) that can be opened in ImageJ/FIJI.