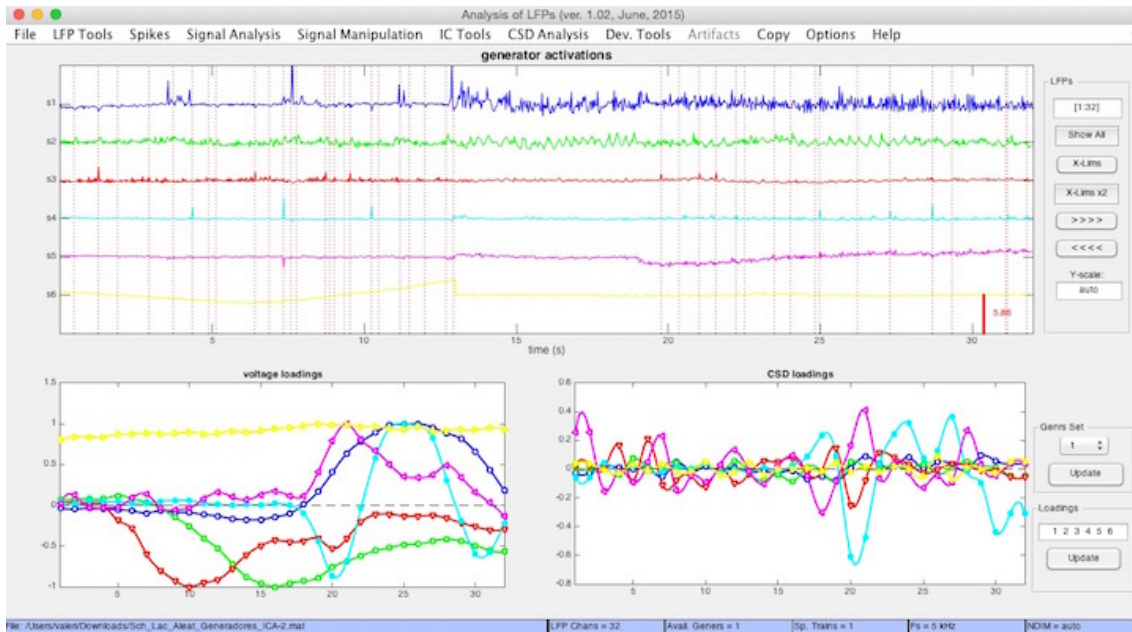


# Basic help to ICAofLFPs package

<http://blogs.mat.ucm.es/vmakarov/downloads/>

*Program window:*



*Display (column of keys to the right):*

**LFPs window:** select the channels to show on screen; use brackets and ":" for a range, e.g. [2:20] means "show channels from 2 to 20".

**Show All:** restores the entire epoch

**X-Lims:** selects an epoch by dropping a cursor twice with the mouse in the main window.

**X-Limx2:** augments the window twice each time

**>>>** and **<<<<** scroll the epoch left or right

**Y-scale:** select the Y scale

*Drop down menus*

Menu items are in red and utilities are in green

**- LFP Tools**

- **Plot Original LFPs:** retrieve the original LFPs (beware that if you made some transformations, like band-pass filtering, etc., these cannot undo; you should upload the file again).
- **Downsample:** this is useful in case your sampling rate is too high and you want the analysis to run faster or if you want to filter signals then the sampling rate could be adjusted.
- **Arrange electrodes:** In case you want the channels to appear in a specific order (usually electrode tips are not ordered properly).
- **Eliminate LFP Channels:** channels can be removed to re-do the analysis with a new set. This is useful to narrow the region of interest. If you want the original LFPs back, you cannot restore them: upload the original file again.

### - Signal Analysis

- **Fourier Spectrum:** Power spectrum of signals plotted in the main window. Play with it; select the channel in the window to the right
- **Wavelet Spectrum:** idem; to narrow the frequency band go to **Options and Frequency Limits**
- **AC+DC Power in moving window,** this is to plot a time envelop of the power for a channel (LFP, ICA component), very useful.

### - Signal Manipulation

(to be added later). These are rather intuitive. You can use them before the ICA.

### - IC Tools

- **ICA in the current time window.** You may select which LFP epoch to perform the ICA on by using the cursors to the right. This is very useful to see how reliable the separation is by choosing different time windows for analysis and then comparing the time course of components at specific times. By selecting the **Plot Original LFPs** and then **Show All** to the right you get the entire file again and may choose other epochs for analysis.
- **Plot generators:** Shows the previously obtained generators after you have moved to another screen, e.g., toggling between LFPs and generators (in the program they are called ICs).
- **Reconstruct virtual LFPs from ICs:** Just add the channels you want in the pop up window
- **Plot IC explained variance.** This is very useful to see the relative variance between obtained generators (ICs). We usually set a safe limit, but it is arbitrary. The smaller is the variance, the less reliable is the time course.
- **Save generator set:** This is to save (internally) a set of generators (ICs) after one run of the analysis. You may then run the ICA again with different LFPs, or conditionings. The stored sets can be retrieved in the small window to the right (**Genrs set Update**)
- **Normalize ICs:** You may choose between normalizing Voltage (spatial loadings) or variance of the generator activations. They are interdependent.