

Advanced cognitive neuroscience

Practical week 2

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1 MNE-python basics

Lateralization of auditory responses

1. Is there lateralization of auditory responses?
 - (a) Make a plot of the EEG evoked response (average) for the left and the right stimuli.
 - (b) Make a difference plot of left – right stimuli.
2. Is the peak changed by a lower low pass setting, e.g. 30 Hz?

2 Statistical assessment

From the sample dataset get the EEG epochs for the auditory stimuli. Once you have done that make a plot of the global field power (GFP) for each stimuli.

We define GFP as the standard deviation of the evoked signal over time

Questions:

- Are there differences between the two GFPs?
- Can the GFPs help us with an statistical assessment of the data?

Permutation tests

To make a proper statistical assessment of the auditory stimuli run a permutation test. see https://mne.tools/stable/auto_tutorials/stats-sensor-space/plot_stats_spatio_temporal_cluster_sensors.html for inspiration.