

«به نام خدا»



آزمایشگاه علوم اعصاب

پرنیان طاهری 99106352

آزمایش شماره 4

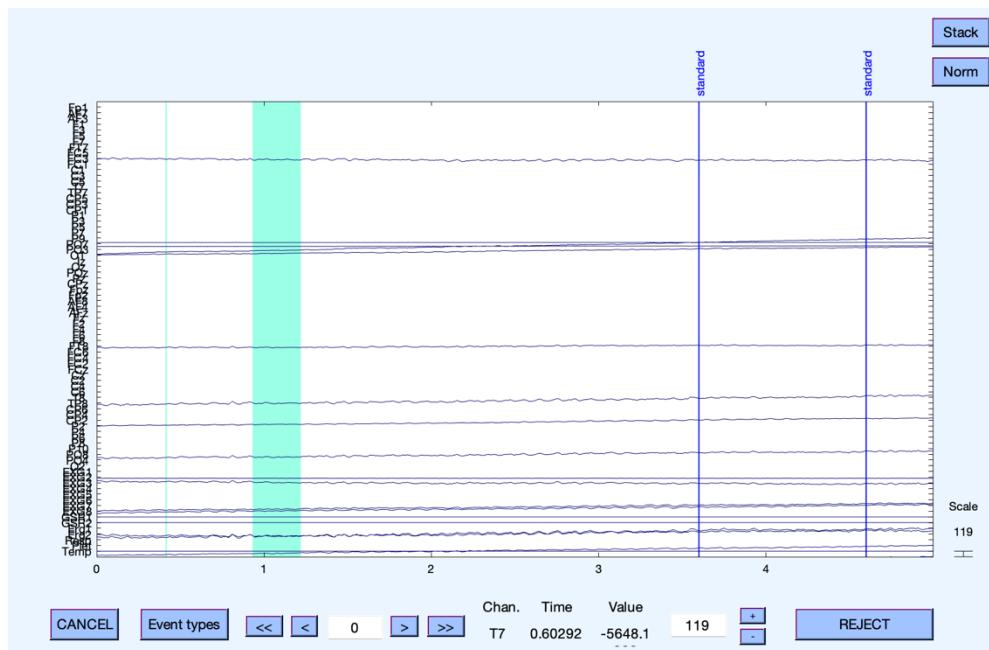
EEGLAB

ترم 1402_02

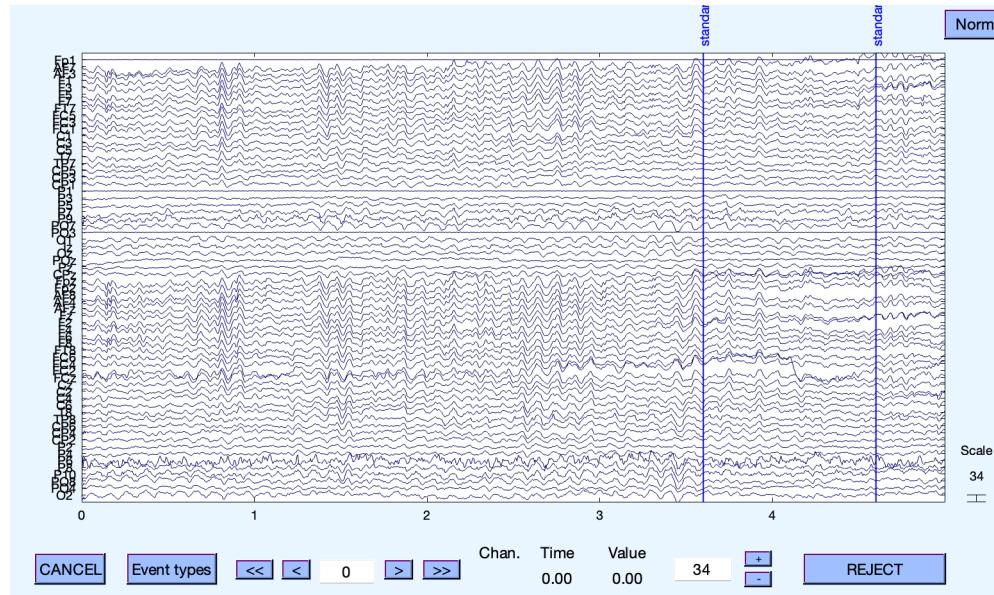
Data 2:

Raw Data:

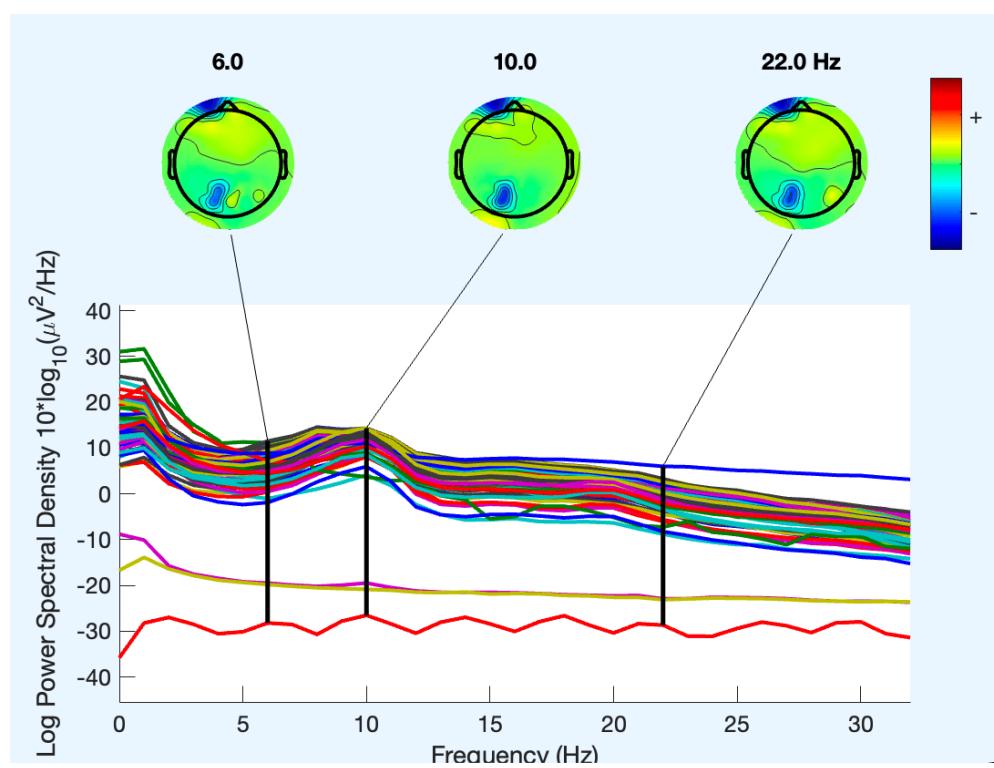
#1: BDF file	
Filename: ...LAB/task-P300_run-2_eeg.set	
Channels per frame	79
Frames per epoch	192768
Epochs	1
Events	860
Sampling rate (Hz)	256
Epoch start (sec)	0.000
Epoch end (sec)	752.996
Reference	unknown
Channel locations	Yes
ICA weights	No
Dataset size (Mb)	63.3



Applying 0.5Hz highpass filter and removing irrelevant channels:

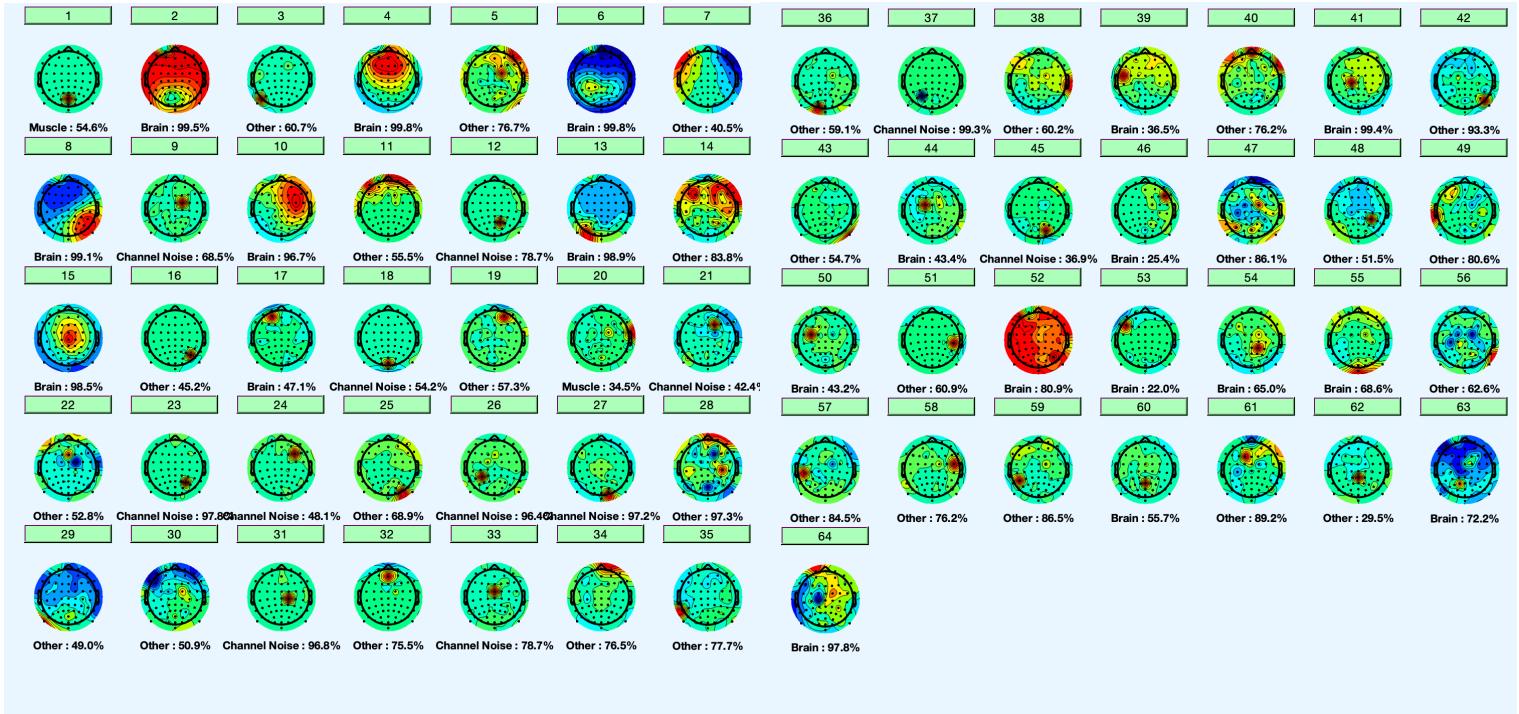


Now we have 64 EEG channels

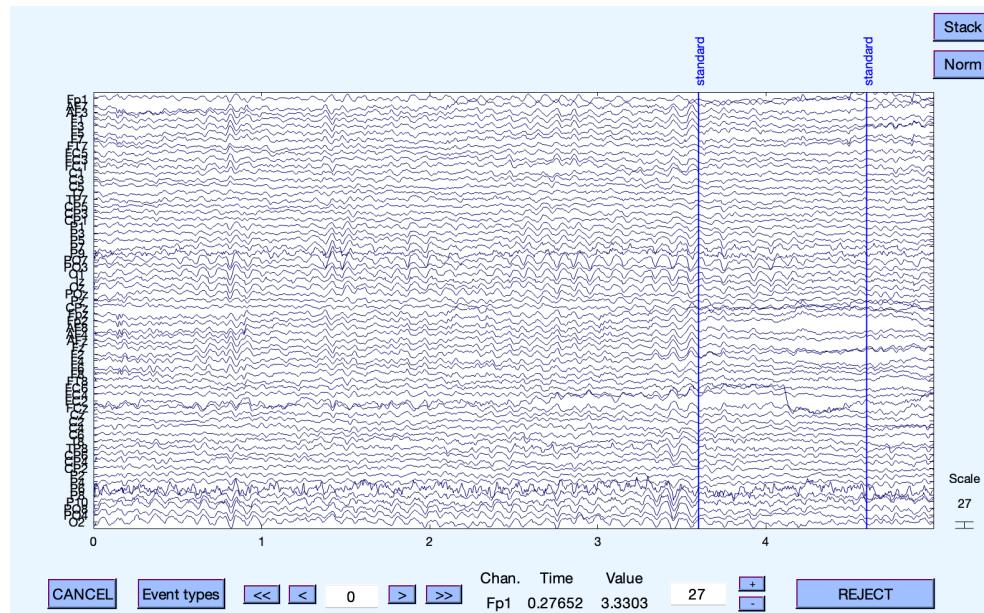


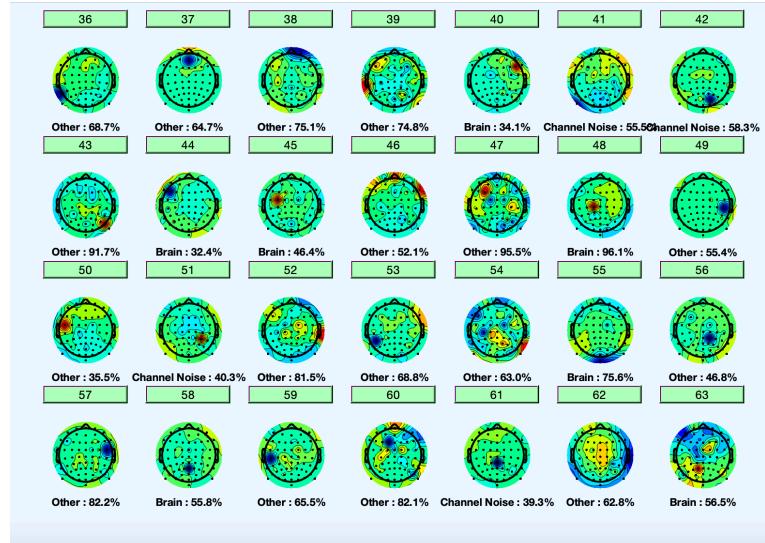
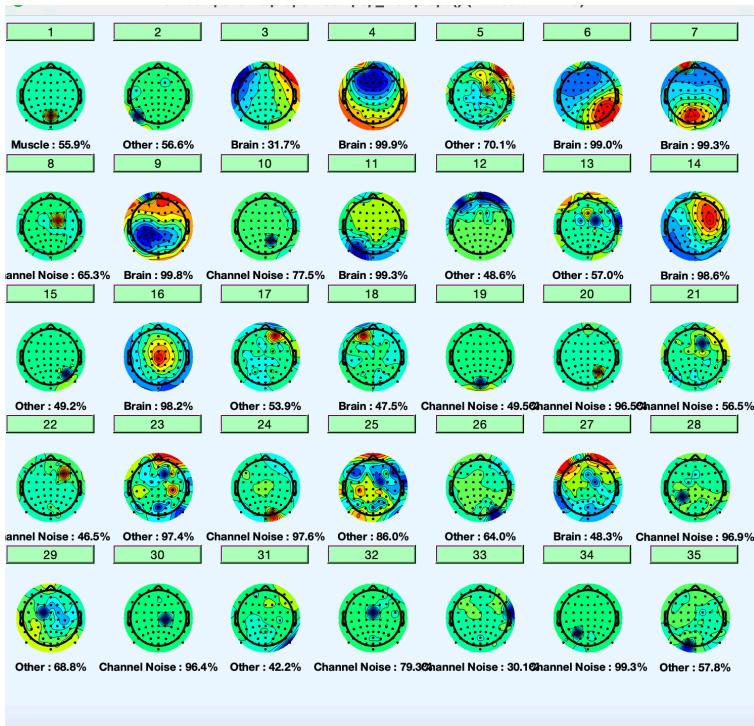
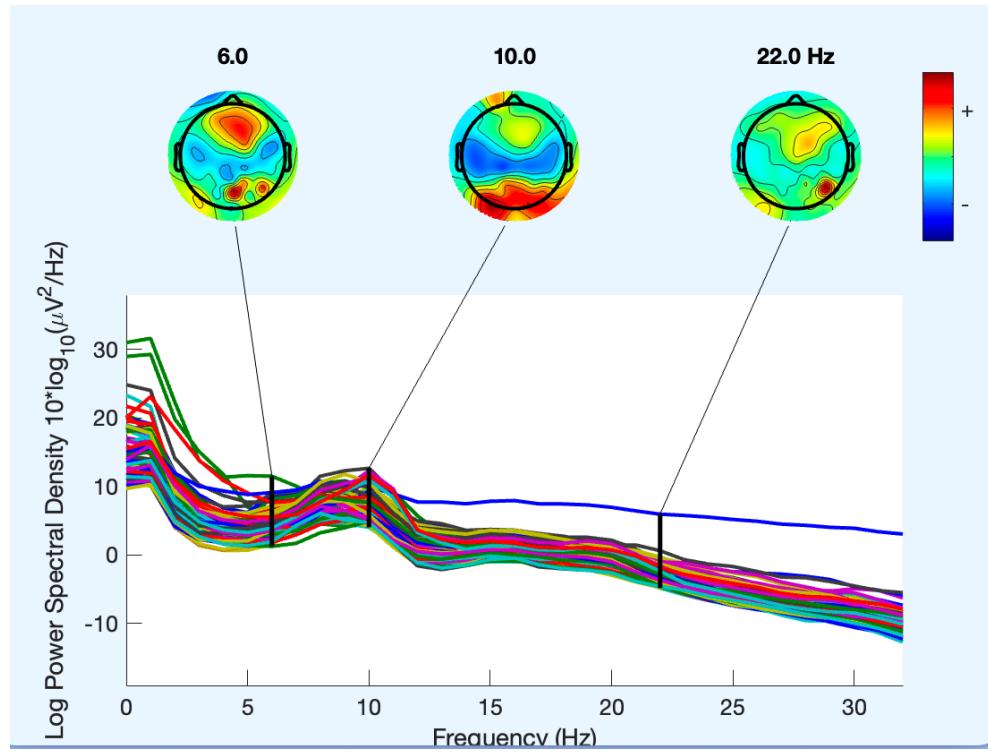
A:

Before cleaning the signal:

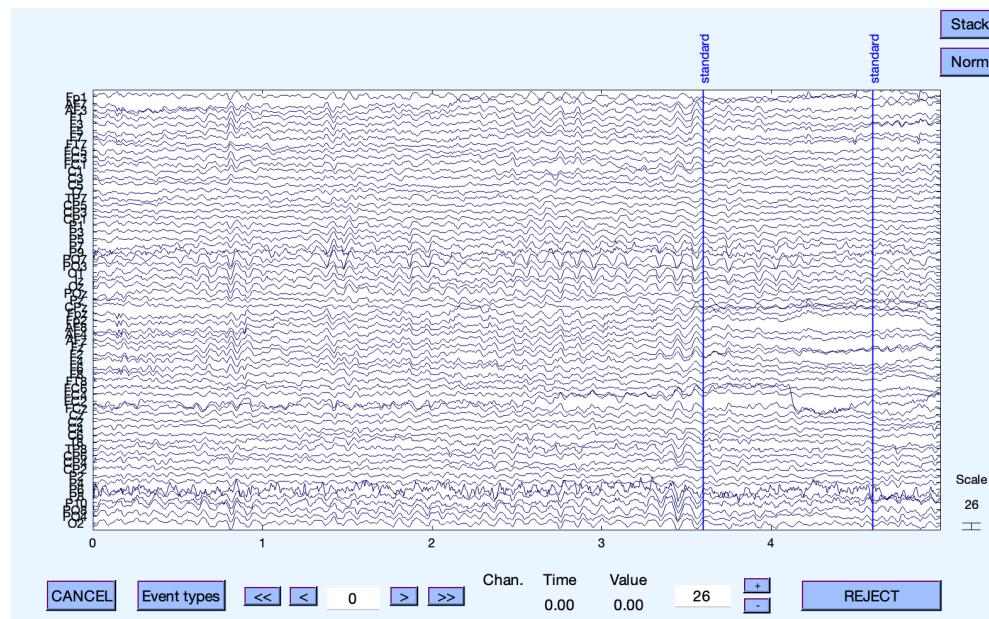
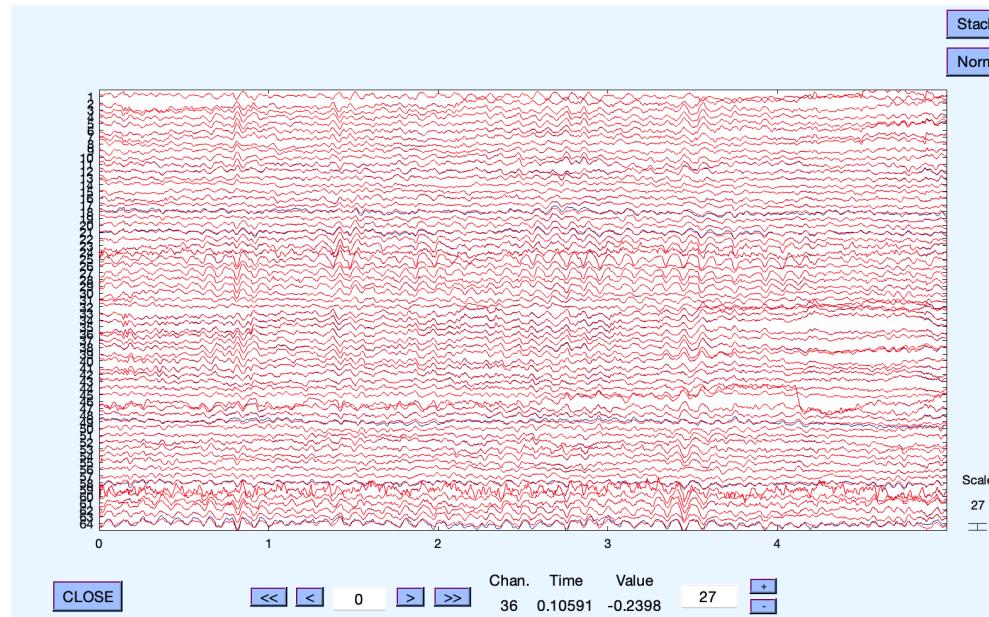


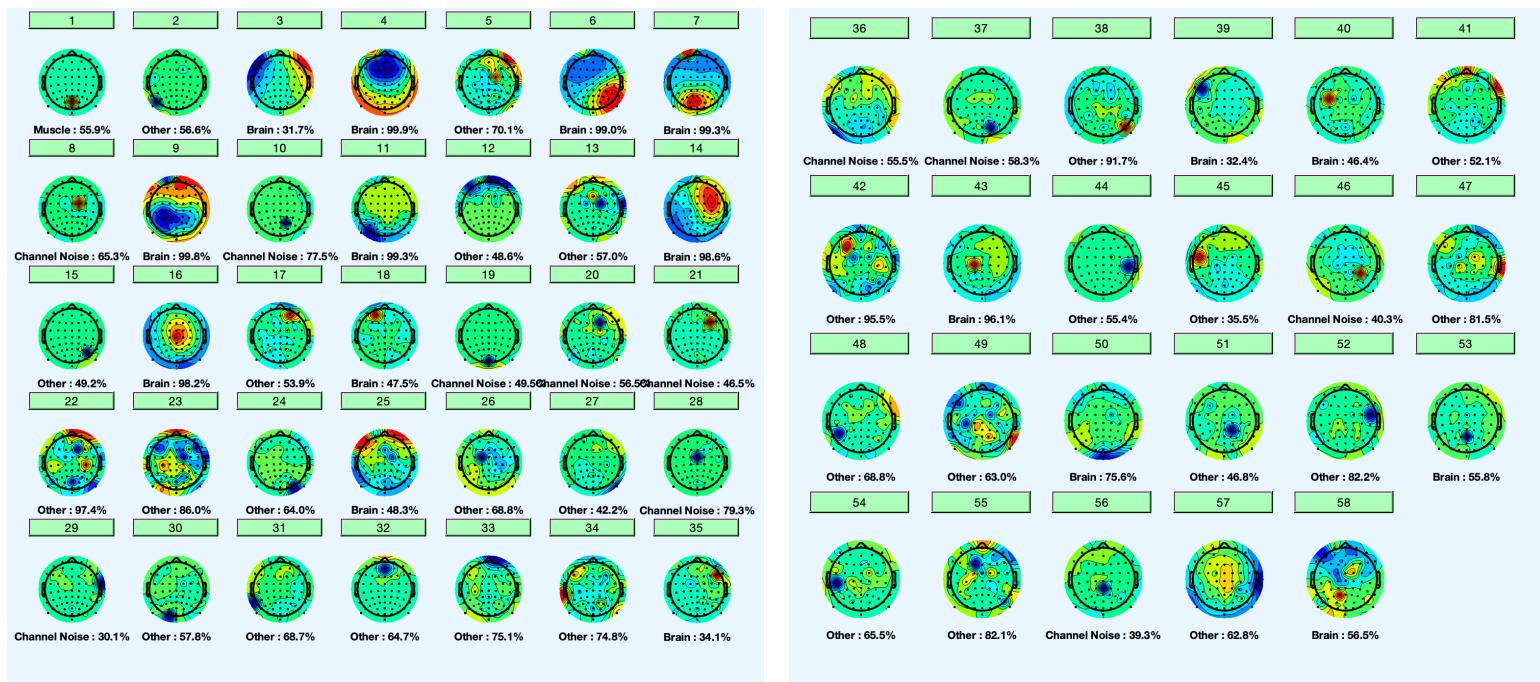
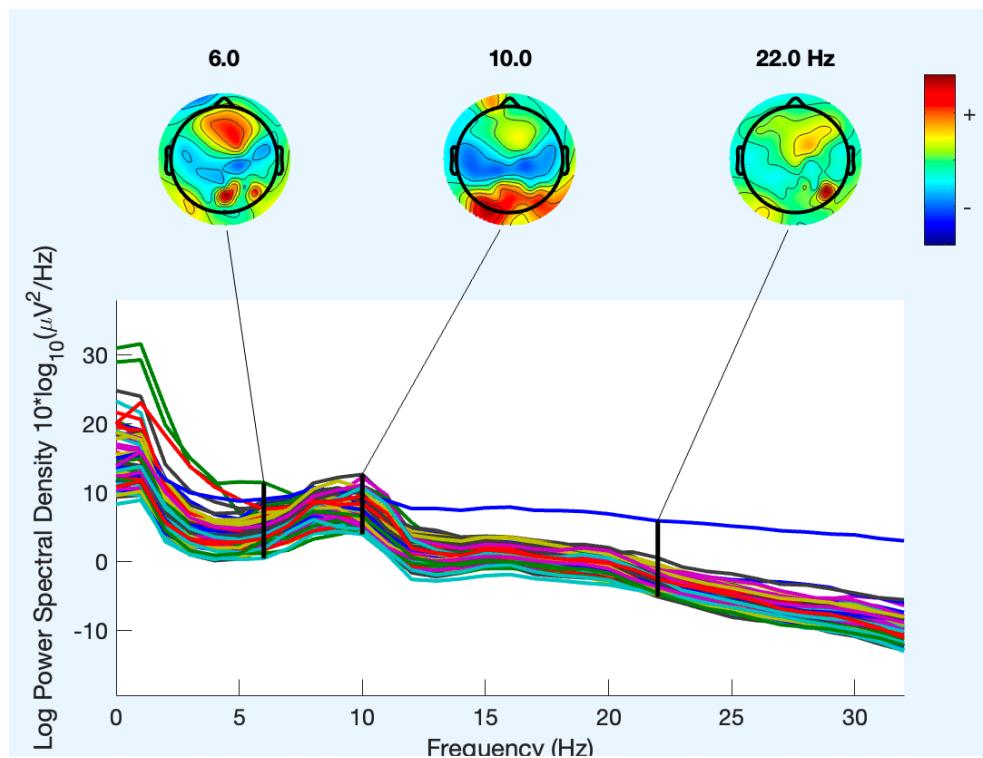
1. Remove 50Hz, re-refrancce to average



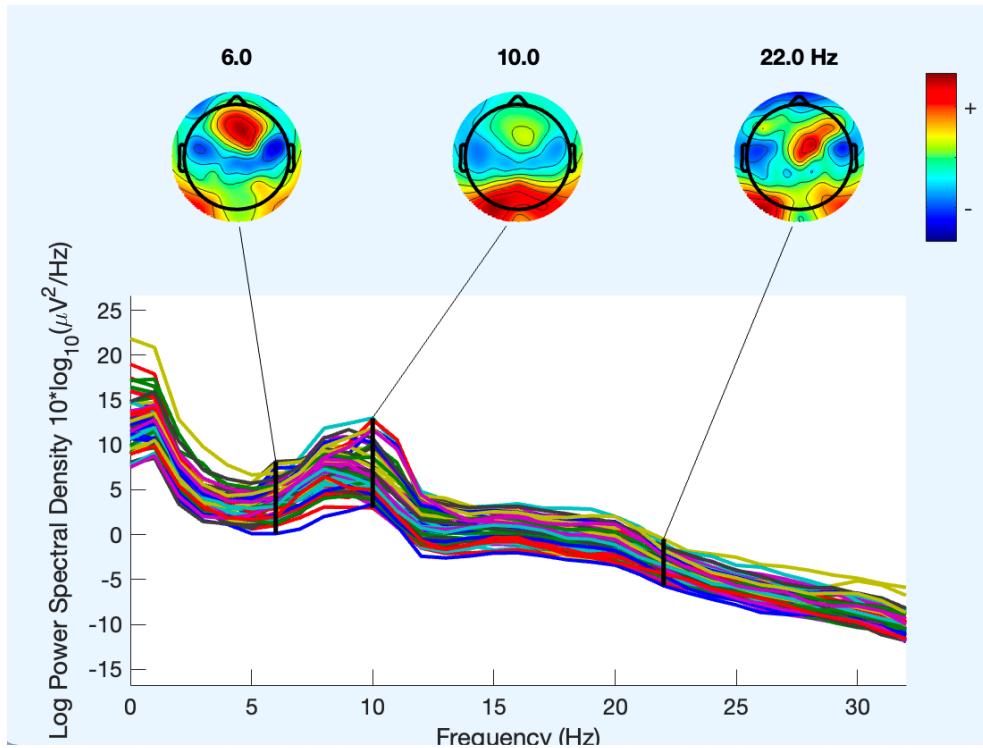
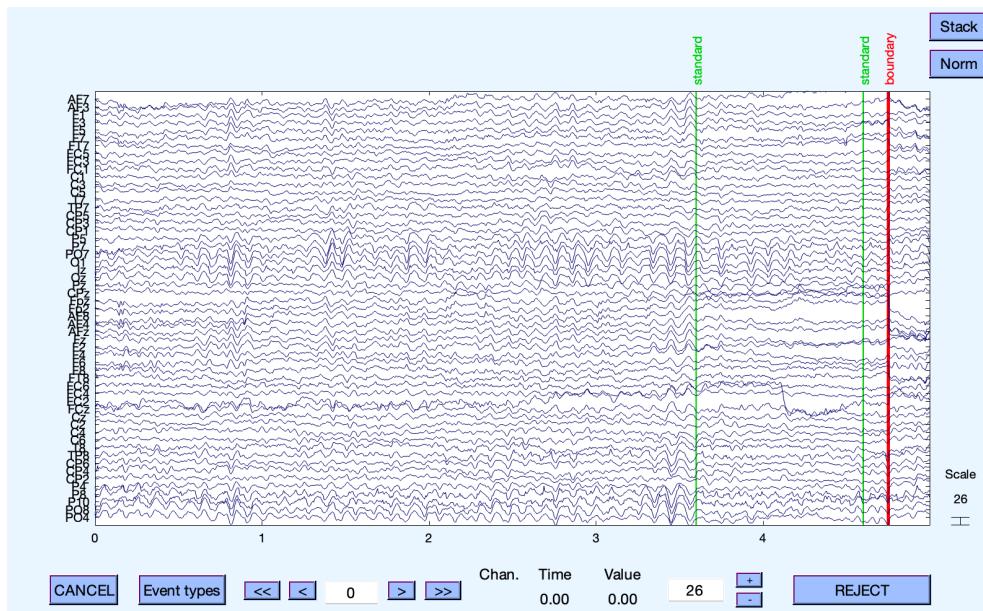


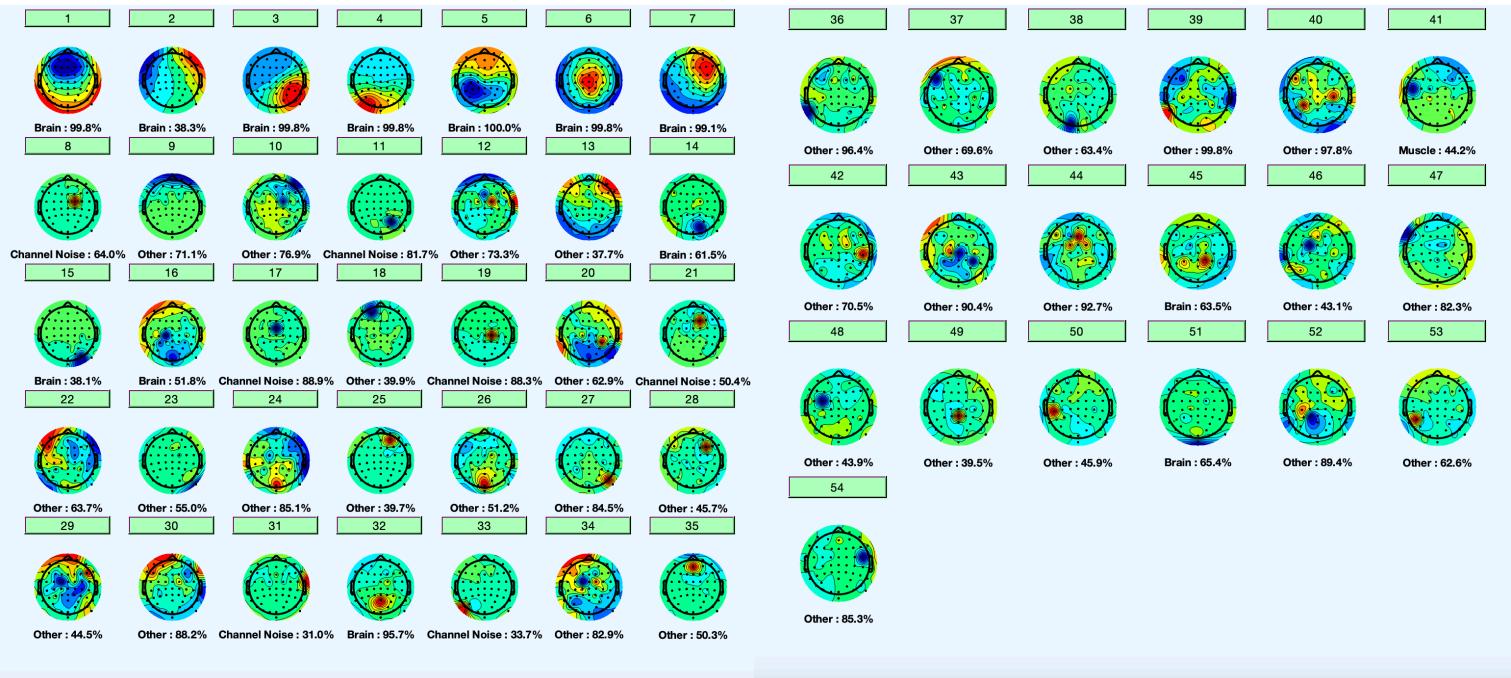
Remove components 20, 24, 28, 30, 34:



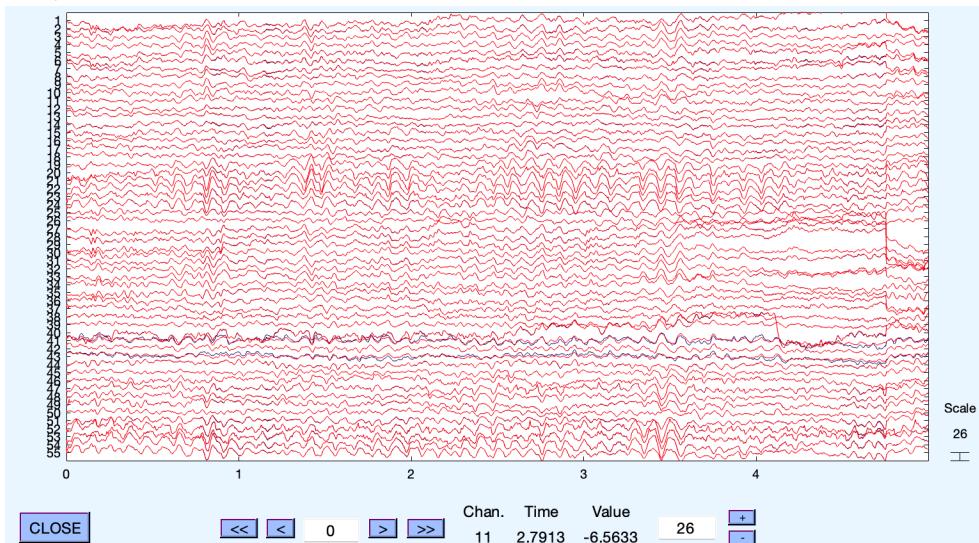


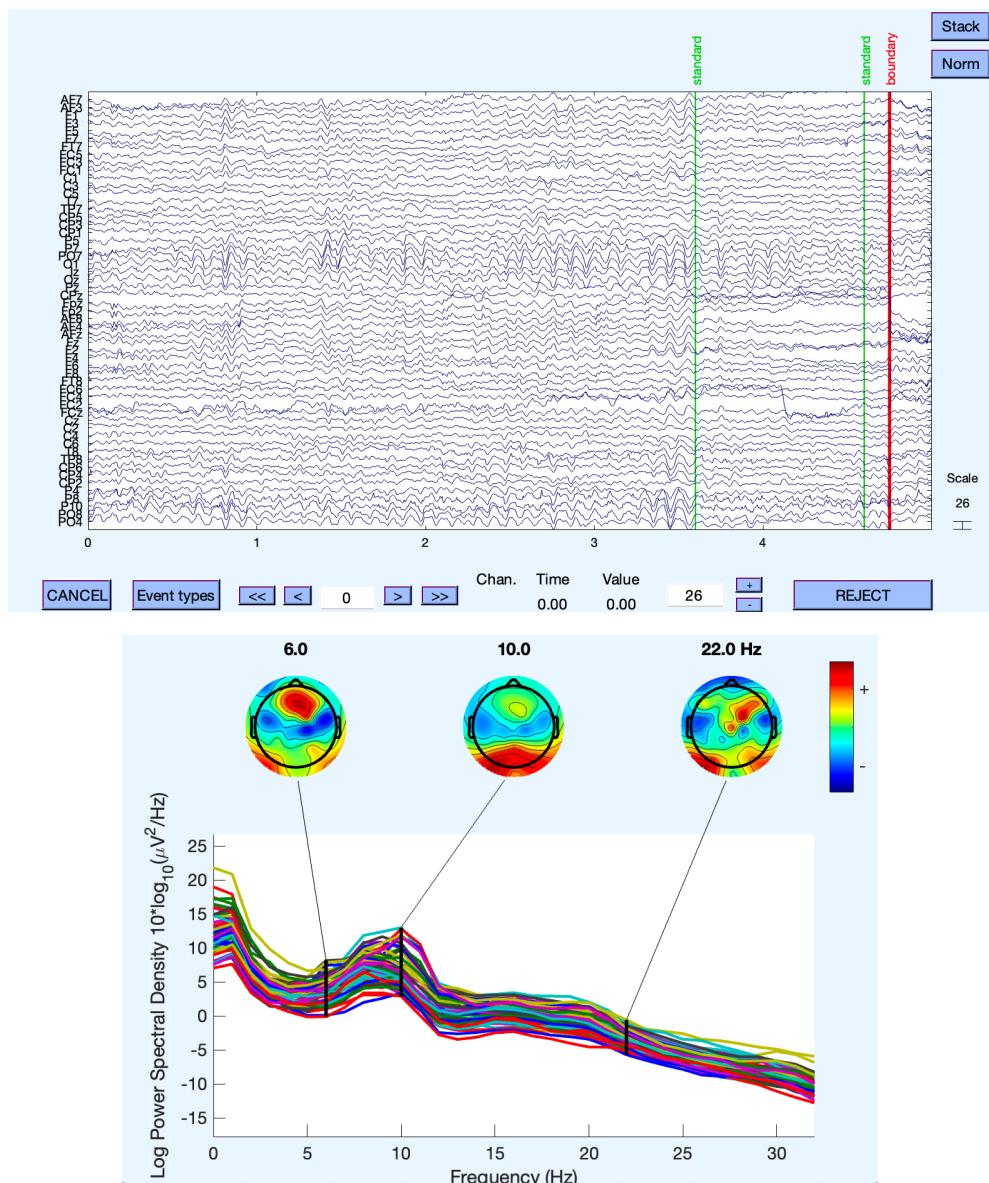
2. Remove 50Hz, reject data using ASR, re-refrancce to average:
55 channels remain.

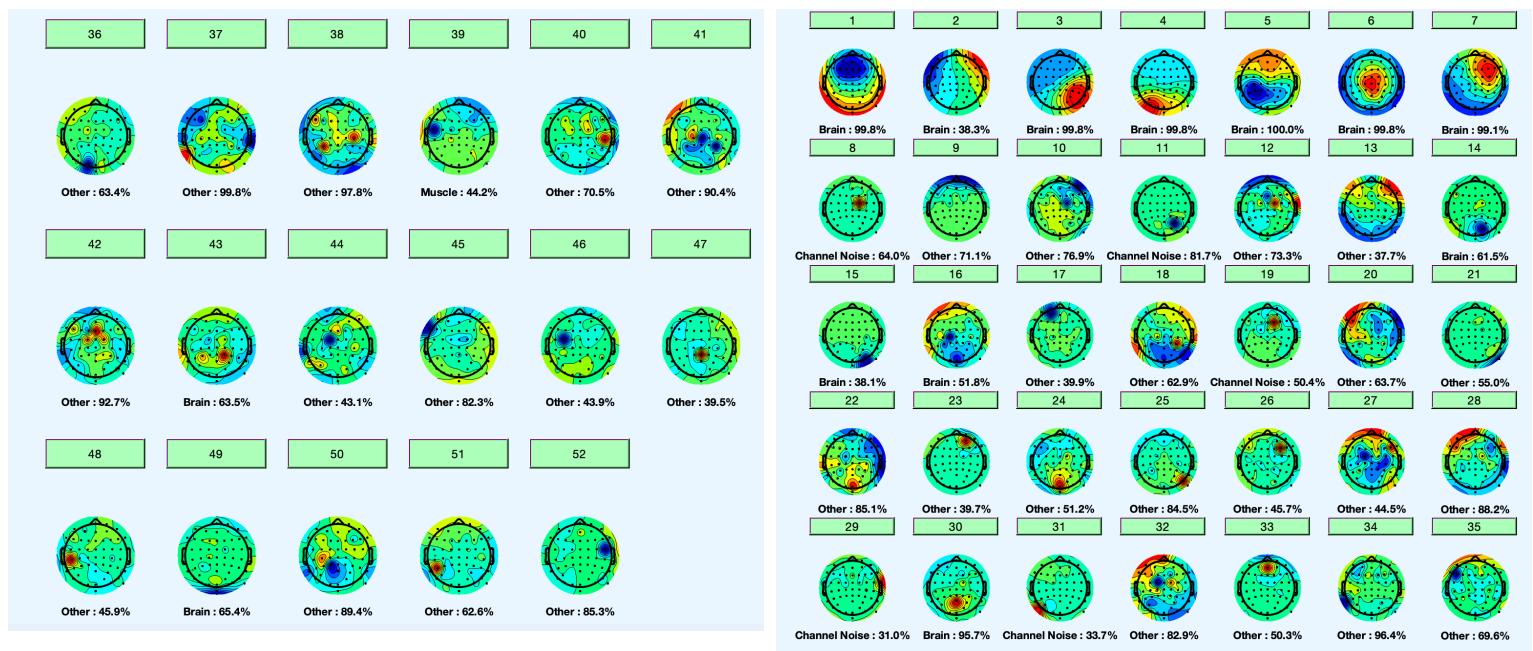




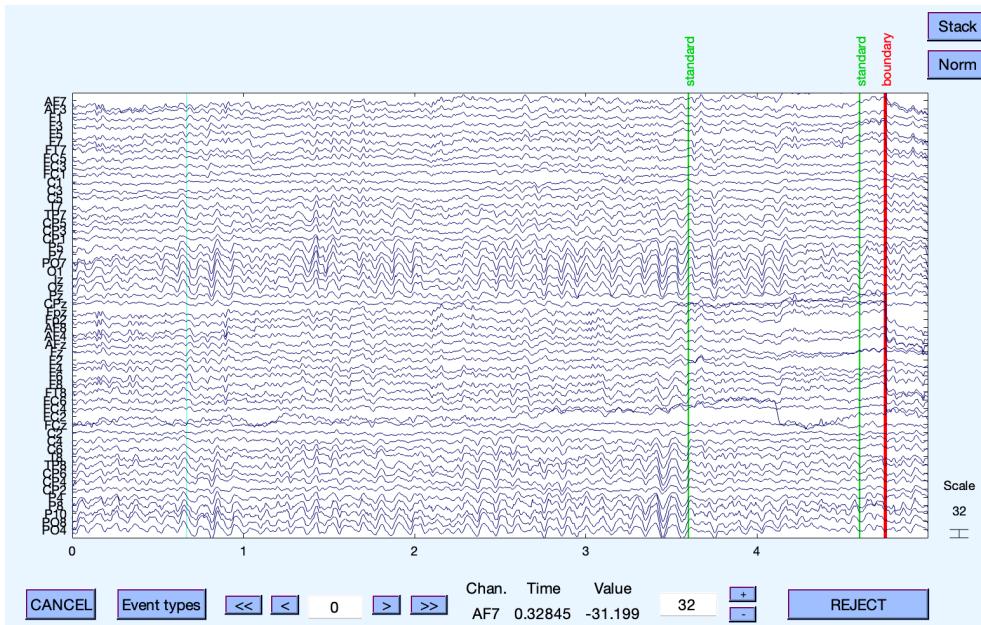
Remove 17, 19:

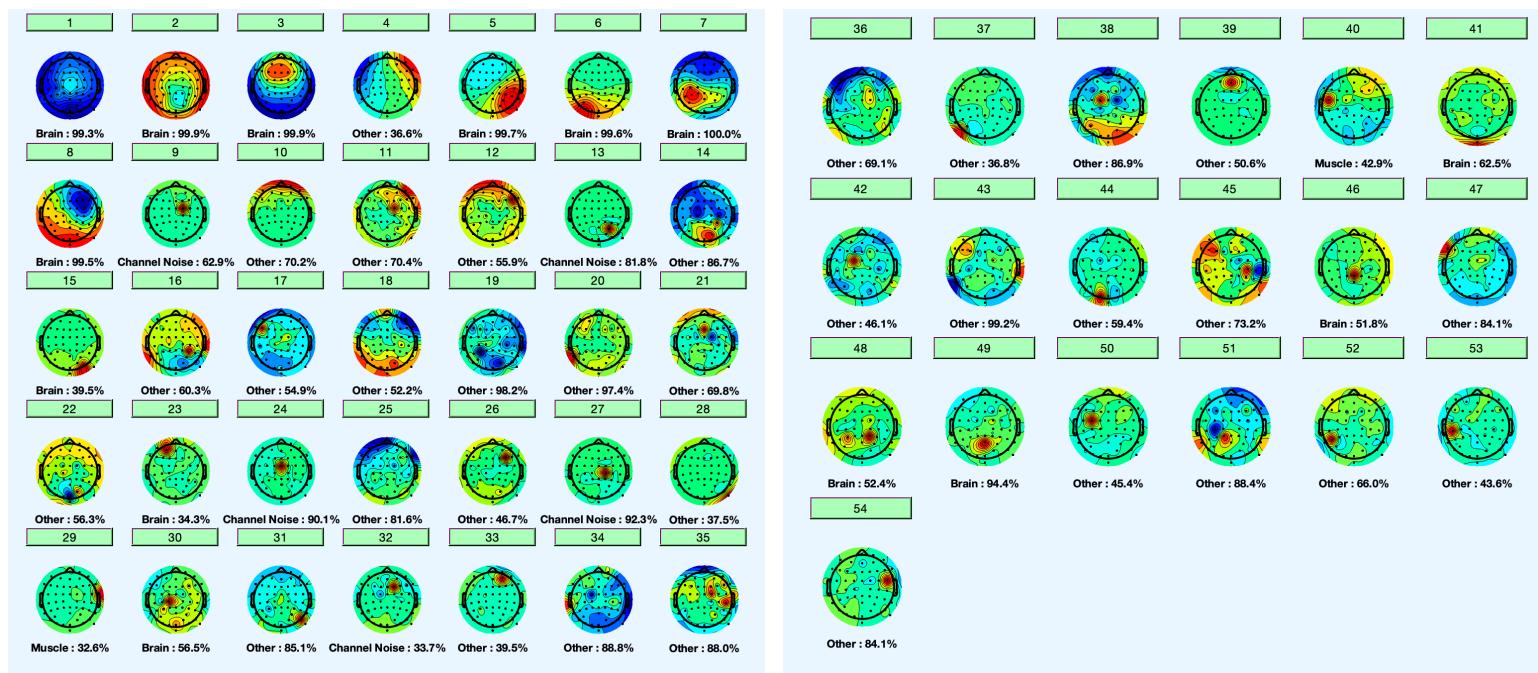
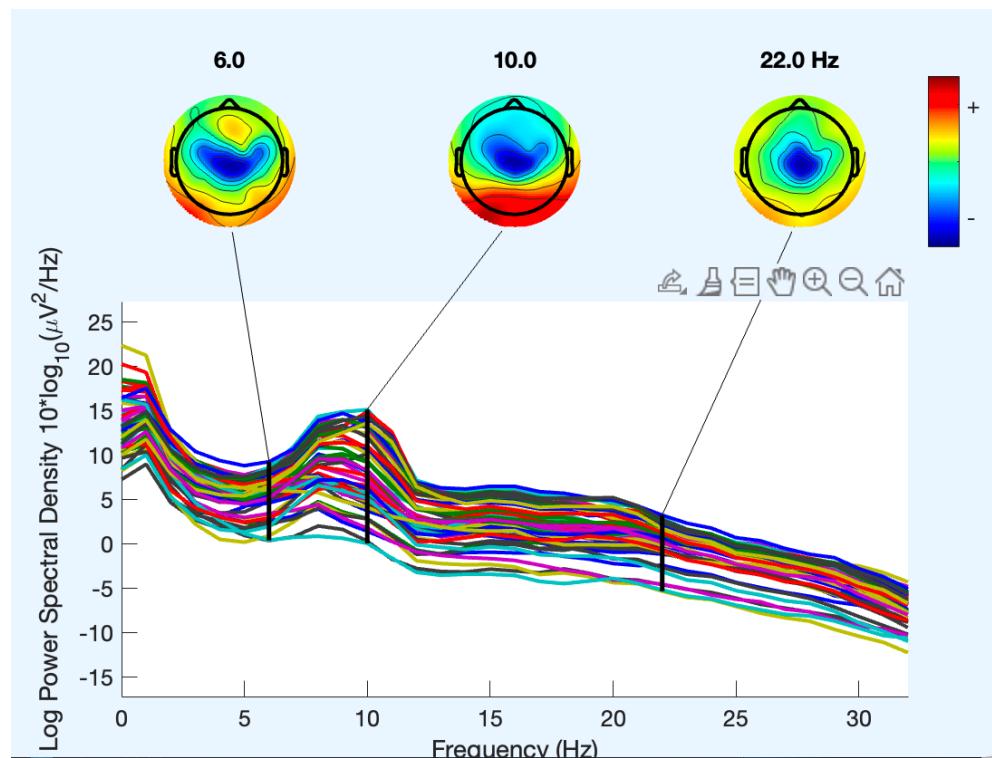




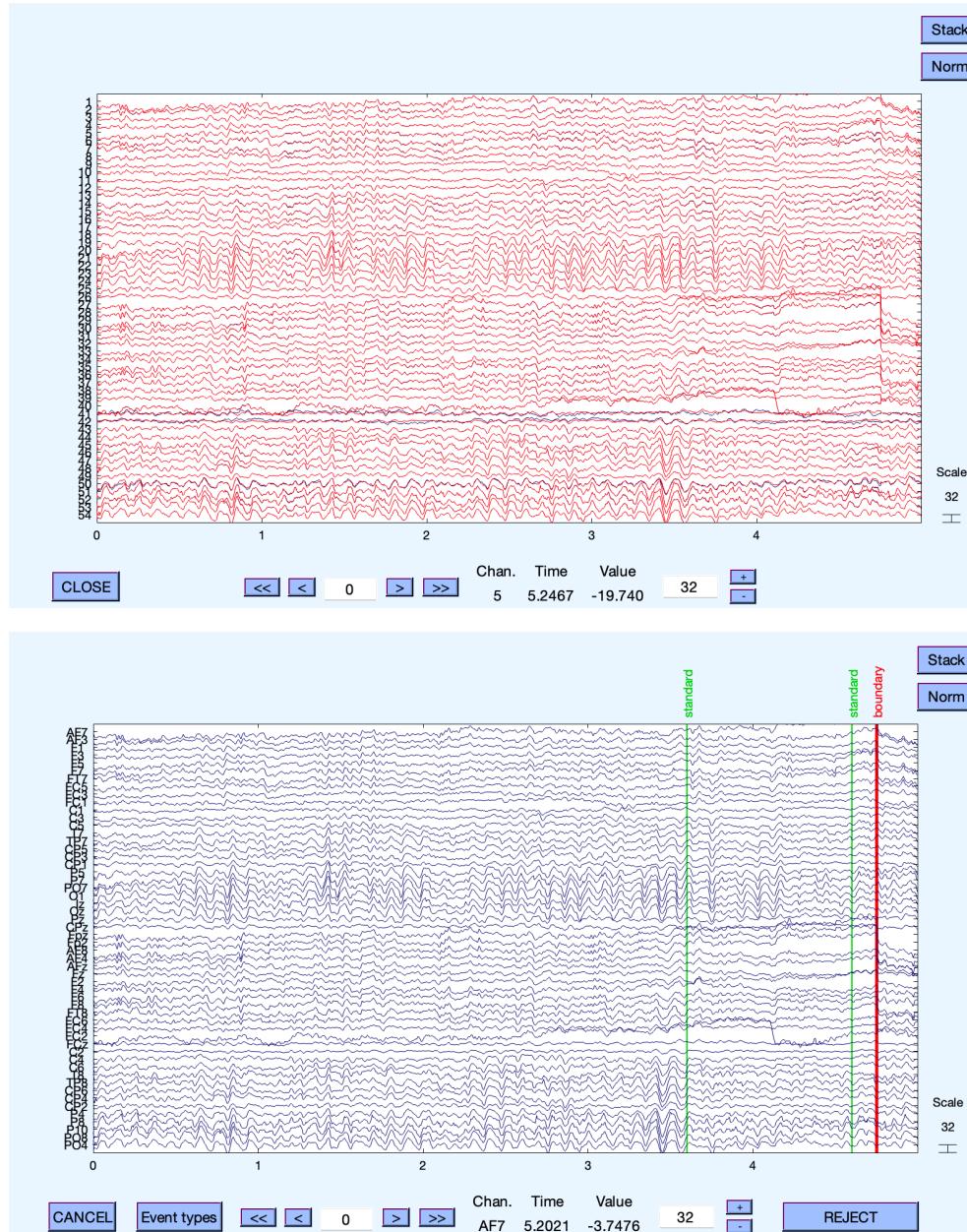


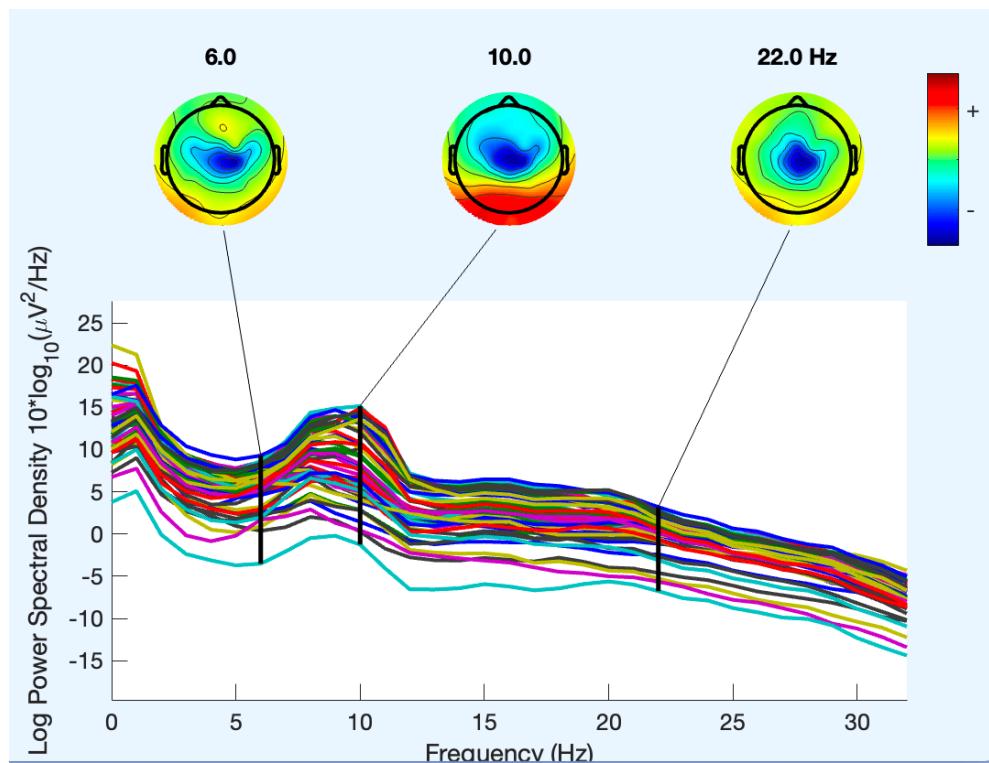
3. Remove 50Hz, reject data using ASR, re-refrancce to cz:
55 channels remain.





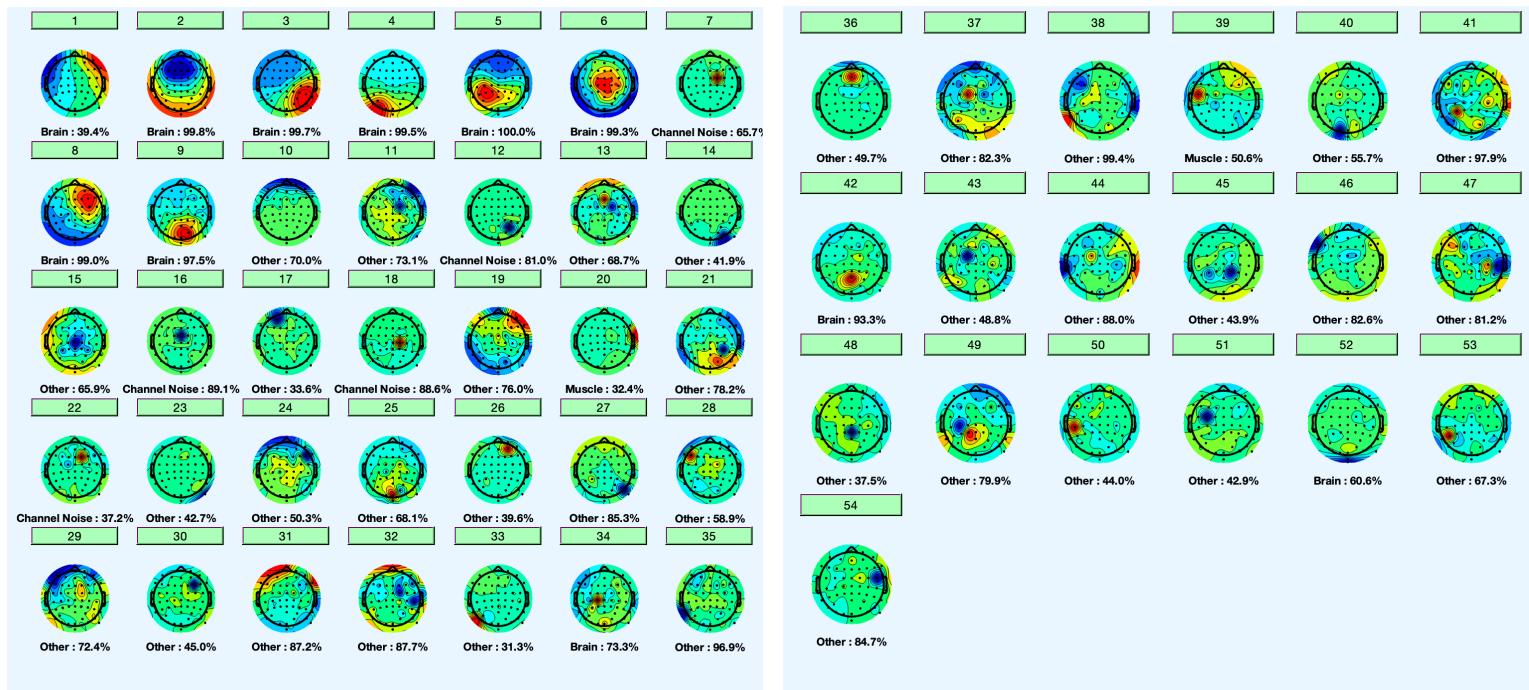
Remove 13, 24, 27:



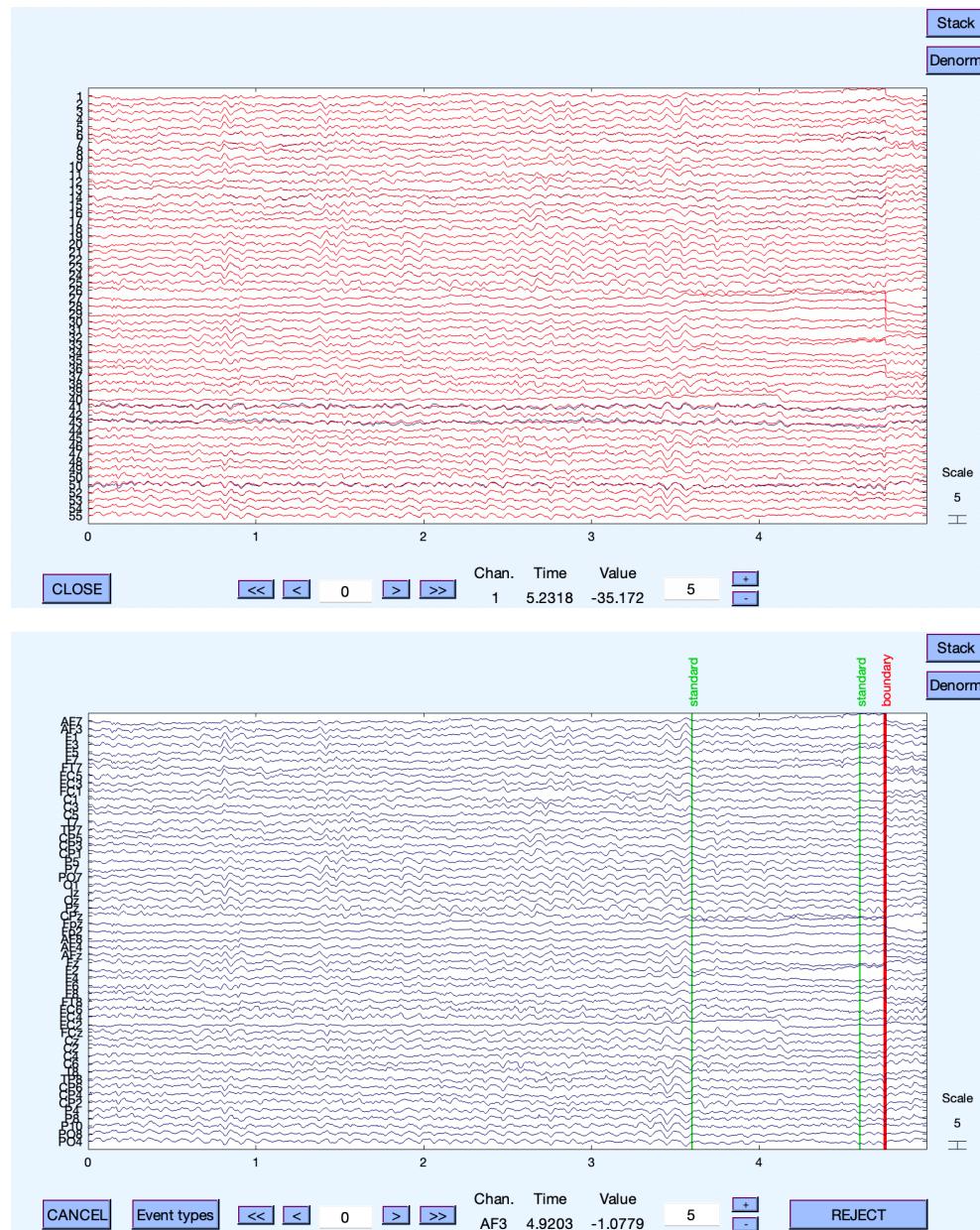


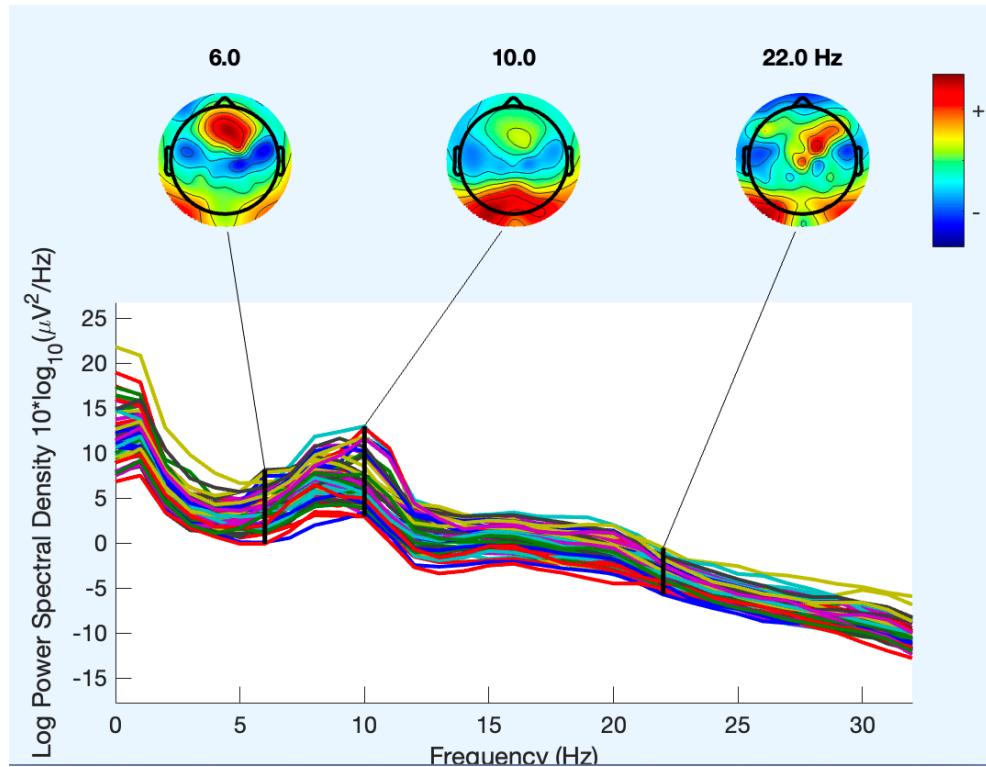
B: Remove 50Hz, reject data using ASR, re-refrancce to average:

- First ICA, then epoch:

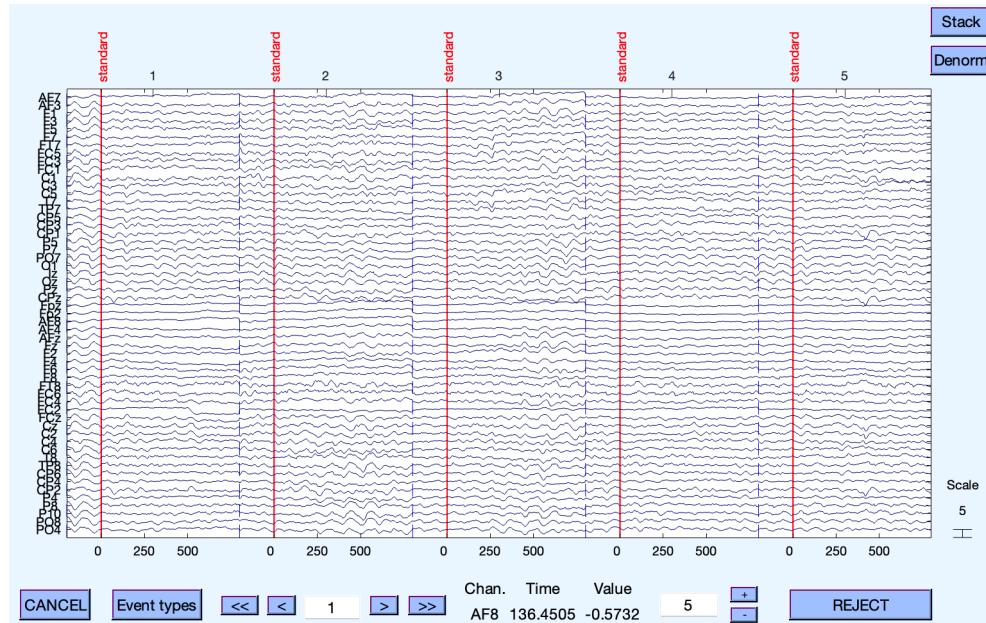


Remove 12, 16, 18:



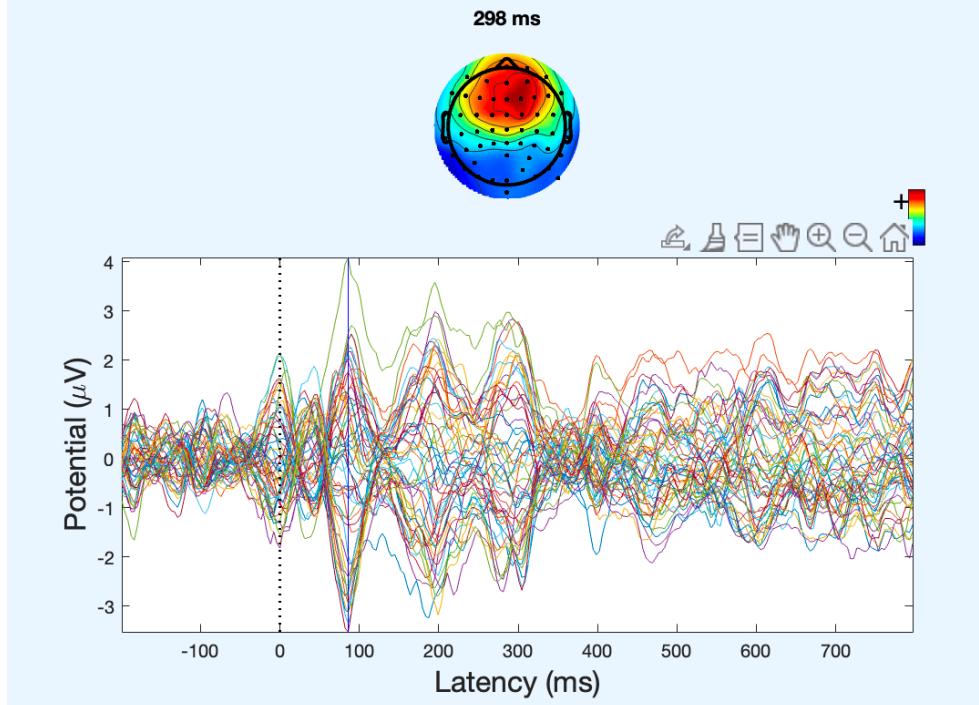


- Standard epoch:
Extract epochs and remove baseline:

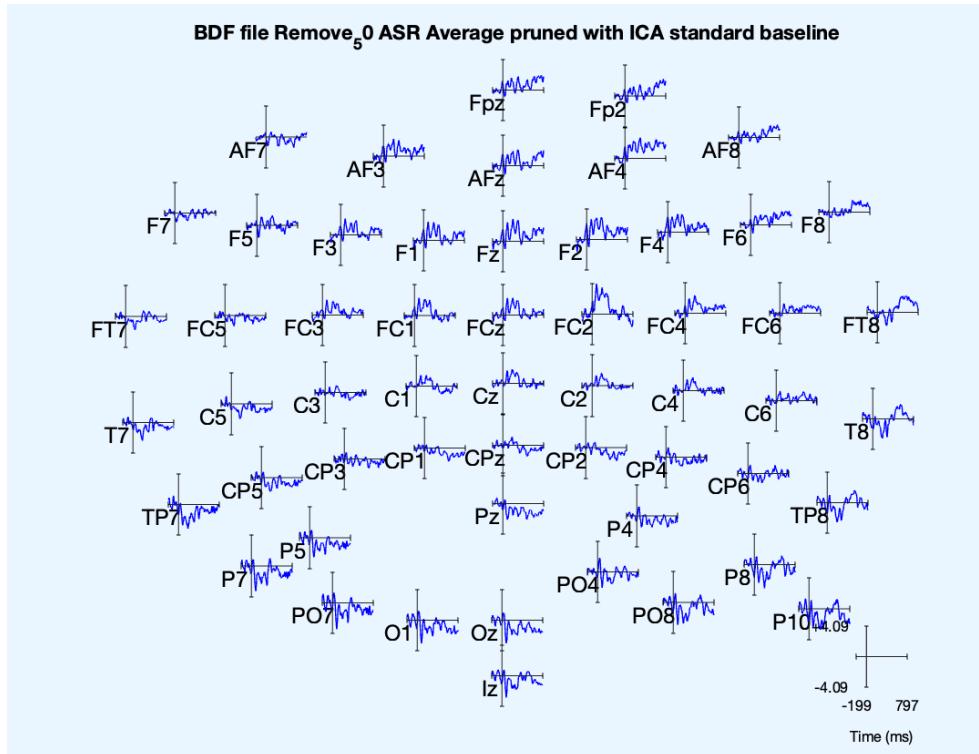


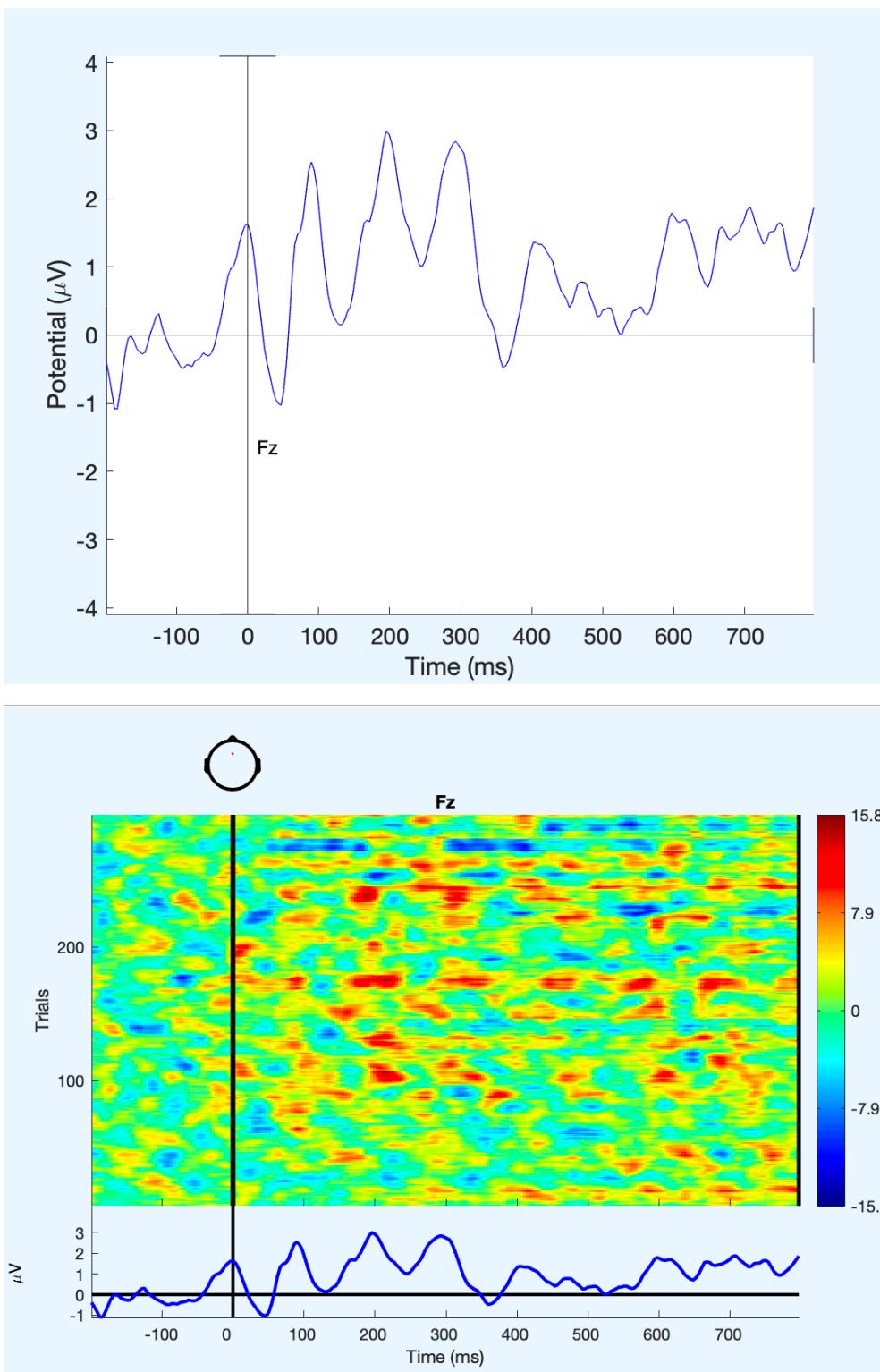
Plot ERP with scalp map:

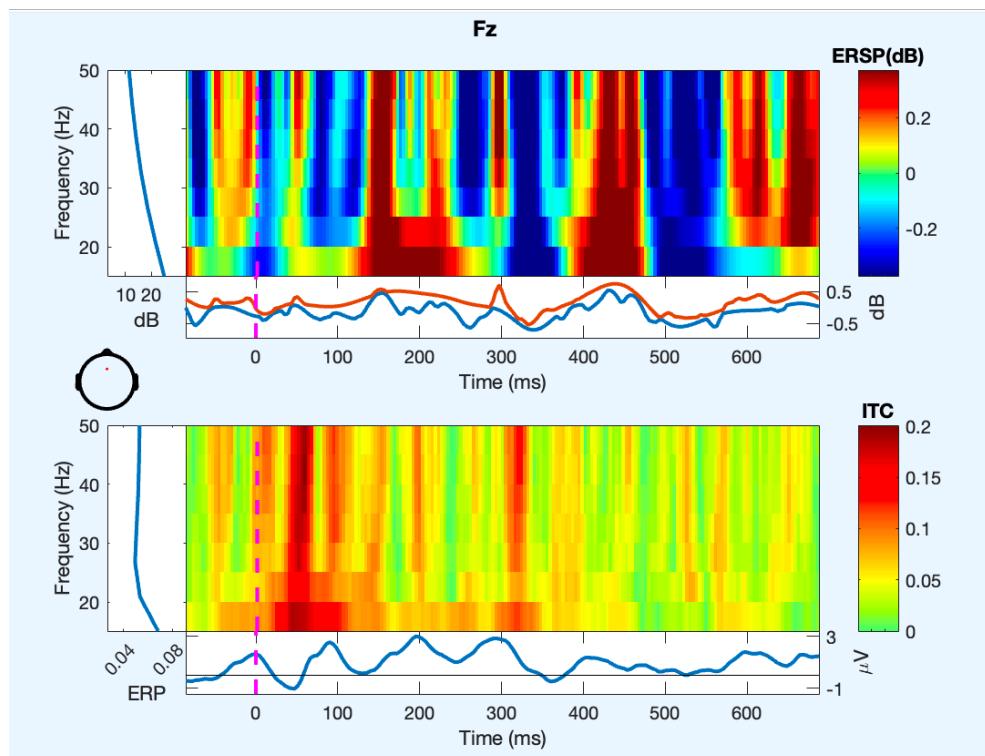
ERP data and scalp maps of BDF file Remove_50 ASR Average pruned with ICA standard baseline



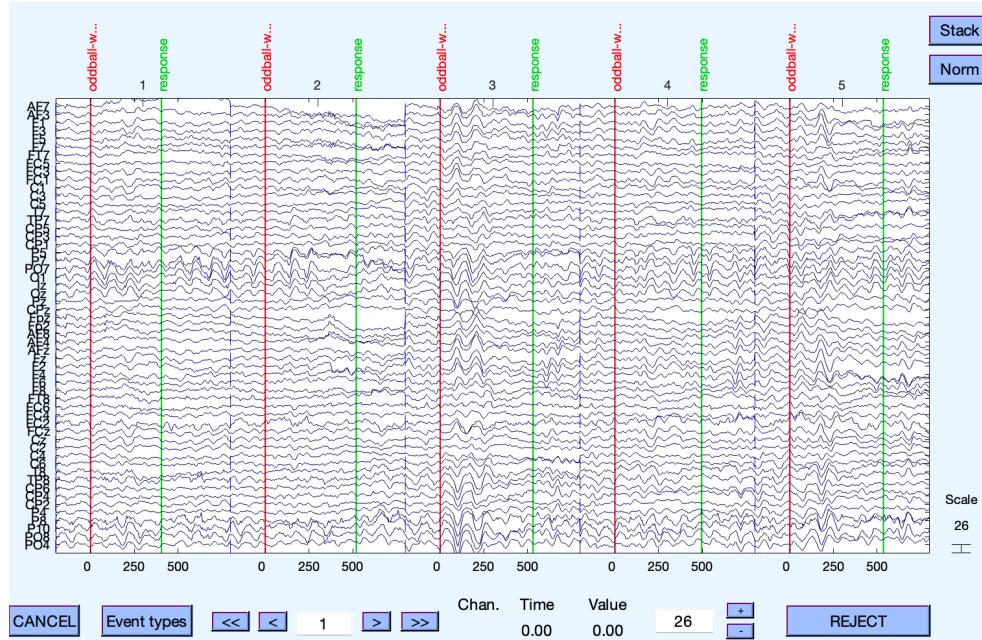
Plot ERP in scalp/rect. array:



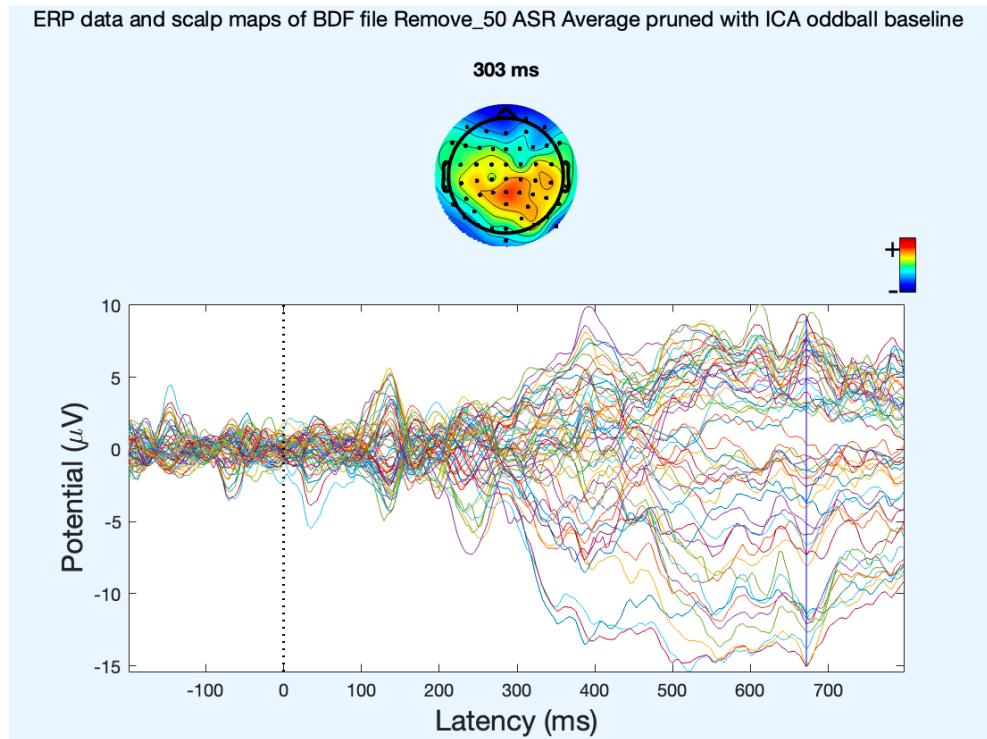




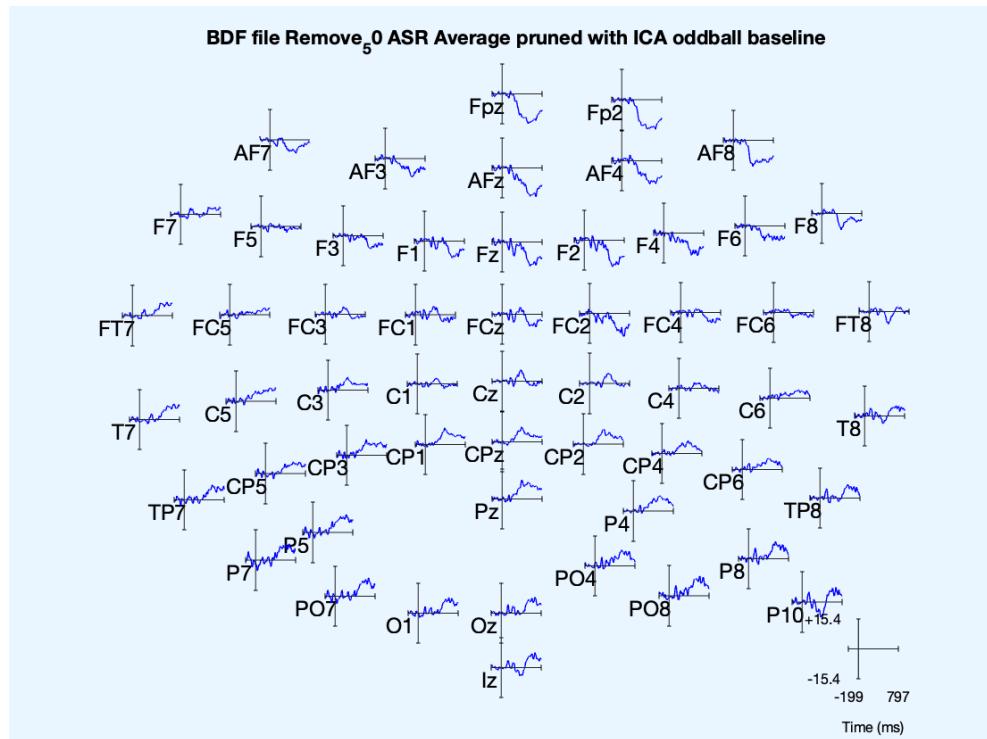
- Oddball with response epoch:
Extract epochs and remove baseline:

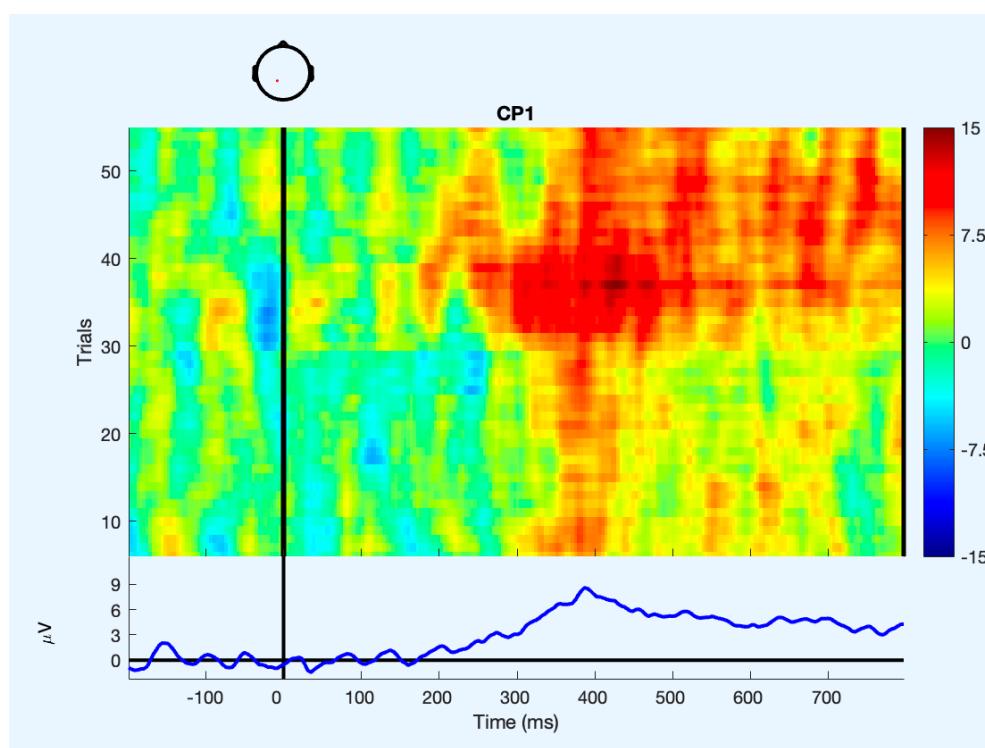
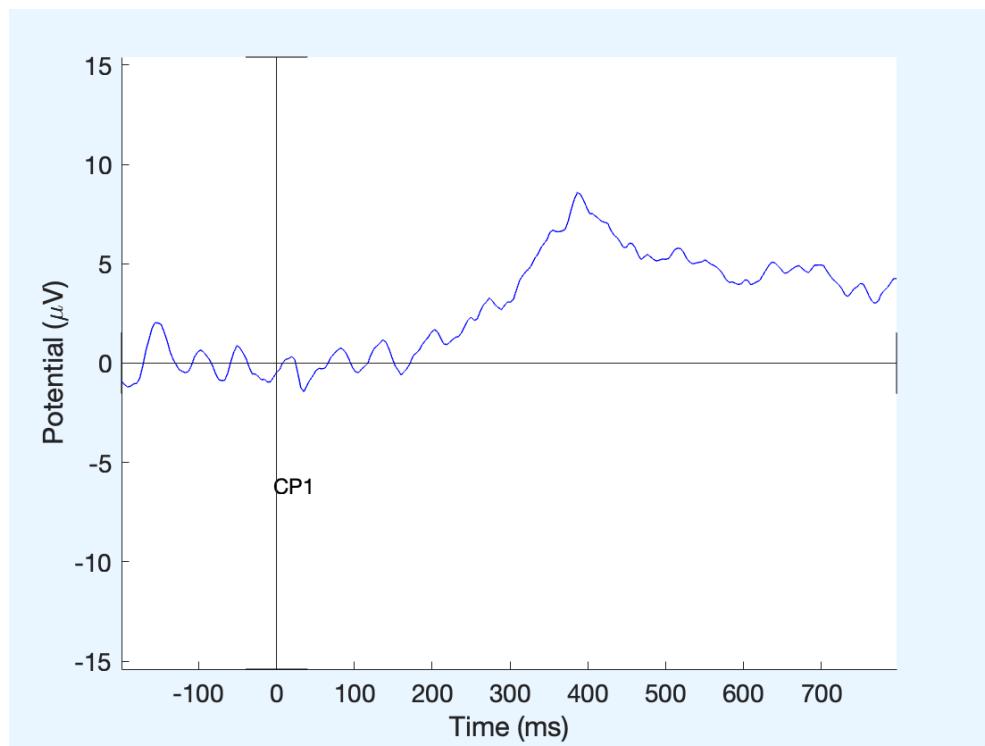


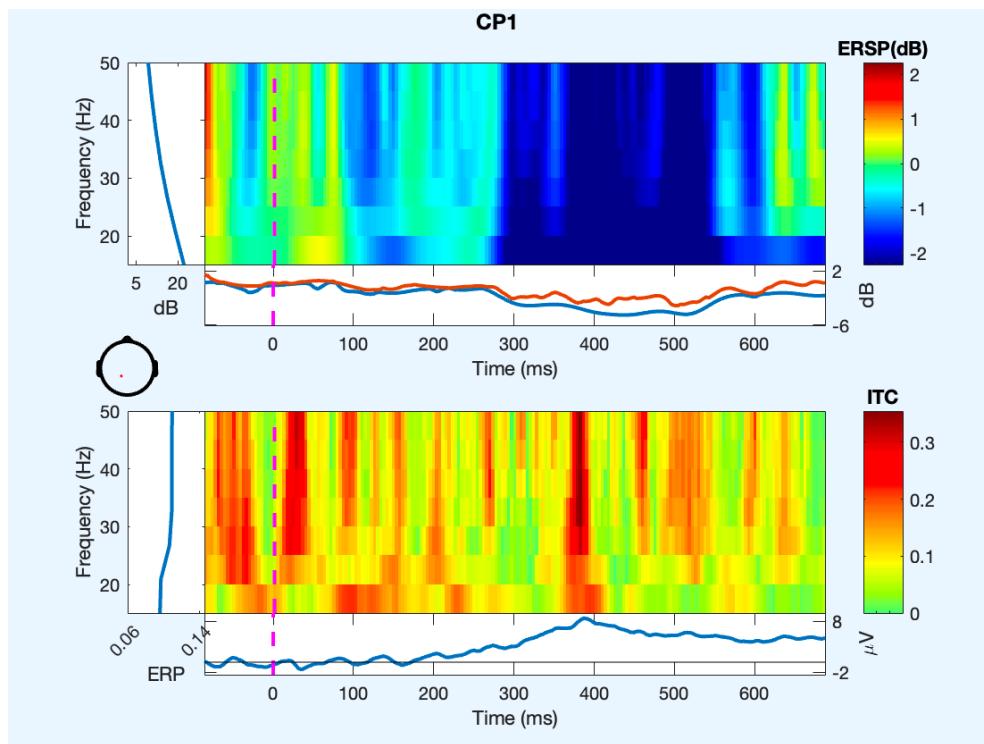
Plot ERP with scalp map:



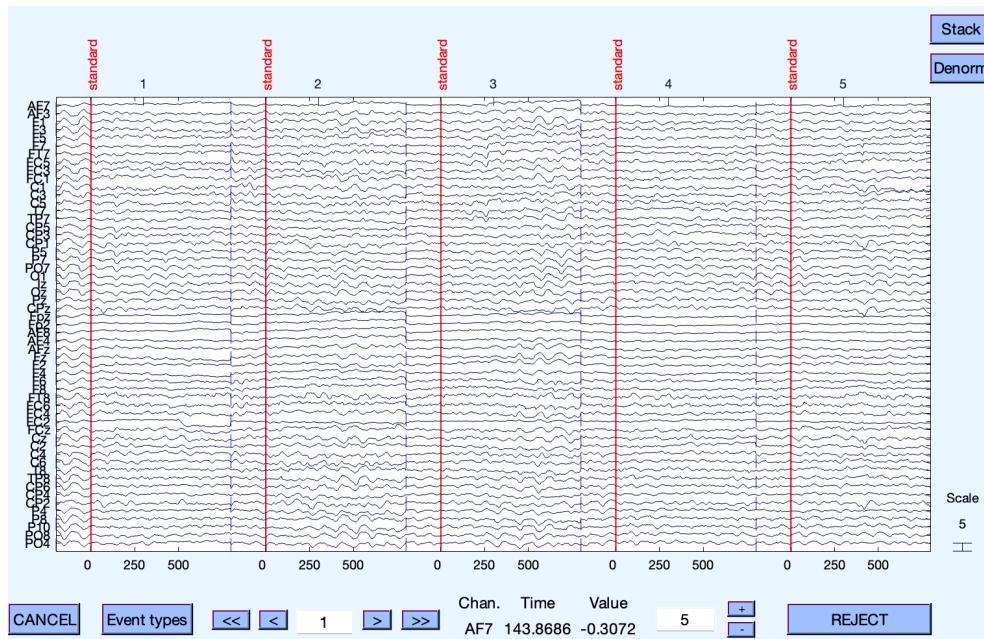
Plot ERP in scalp/rect. array:



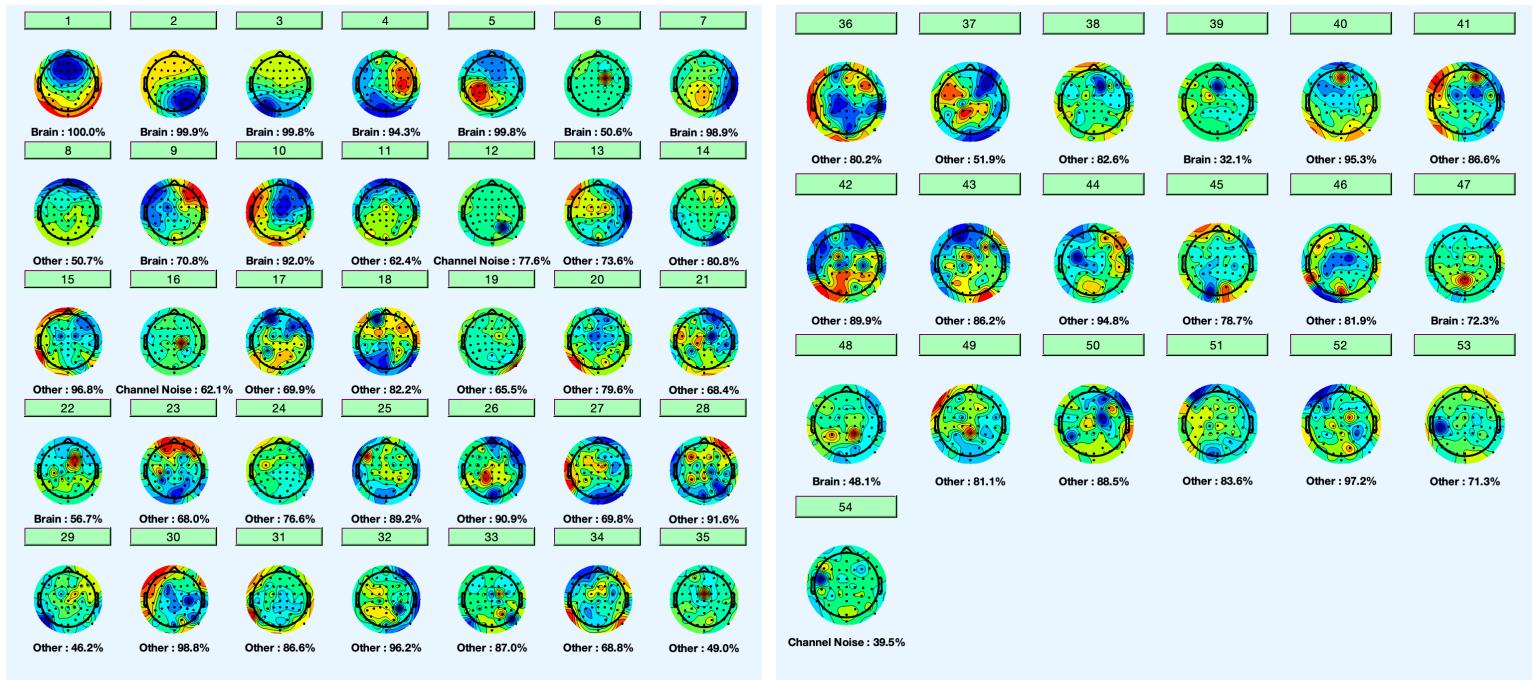




- First epoch, then ICA:
 - Standard epoch:
Extract epochs and remove baseline:

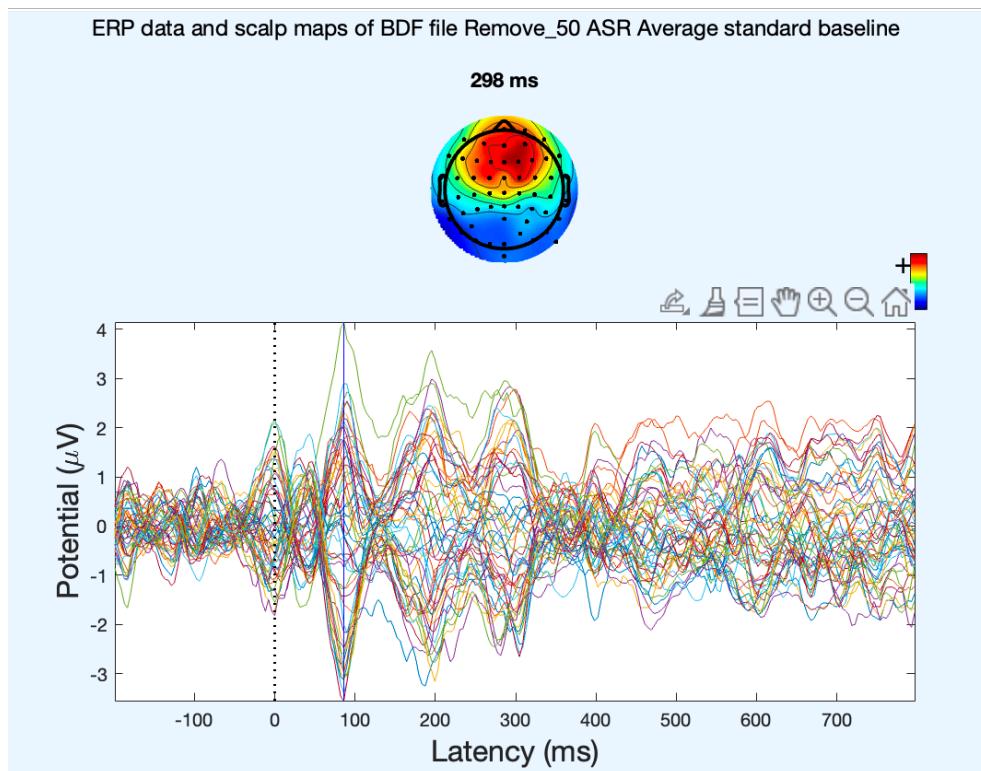


ICA:

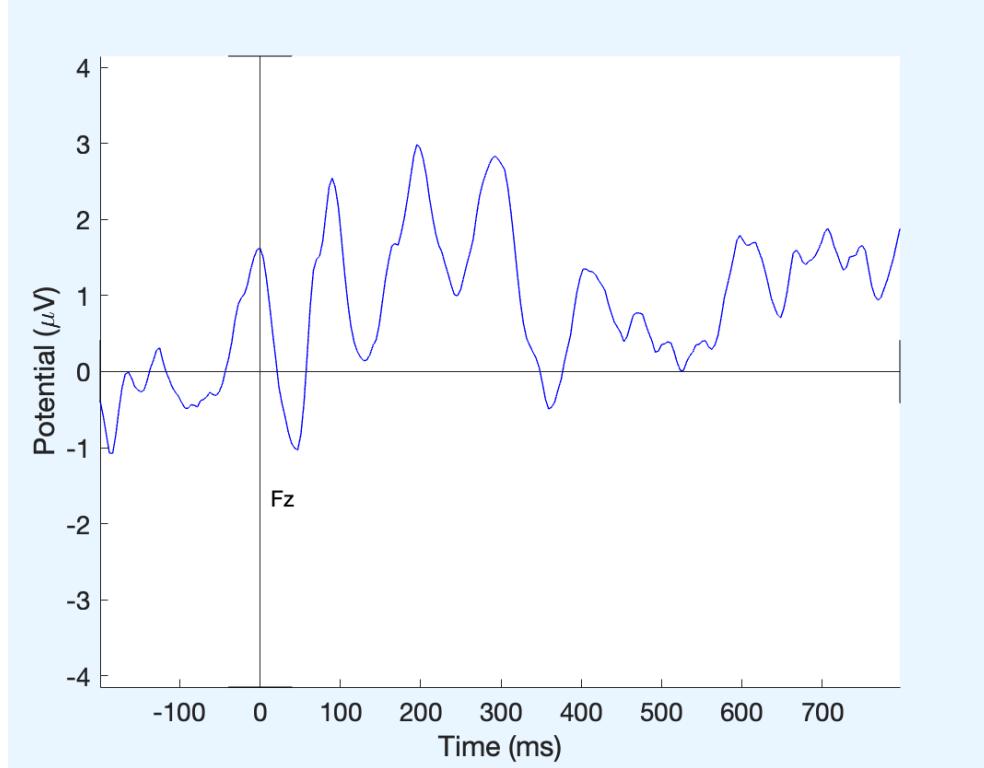
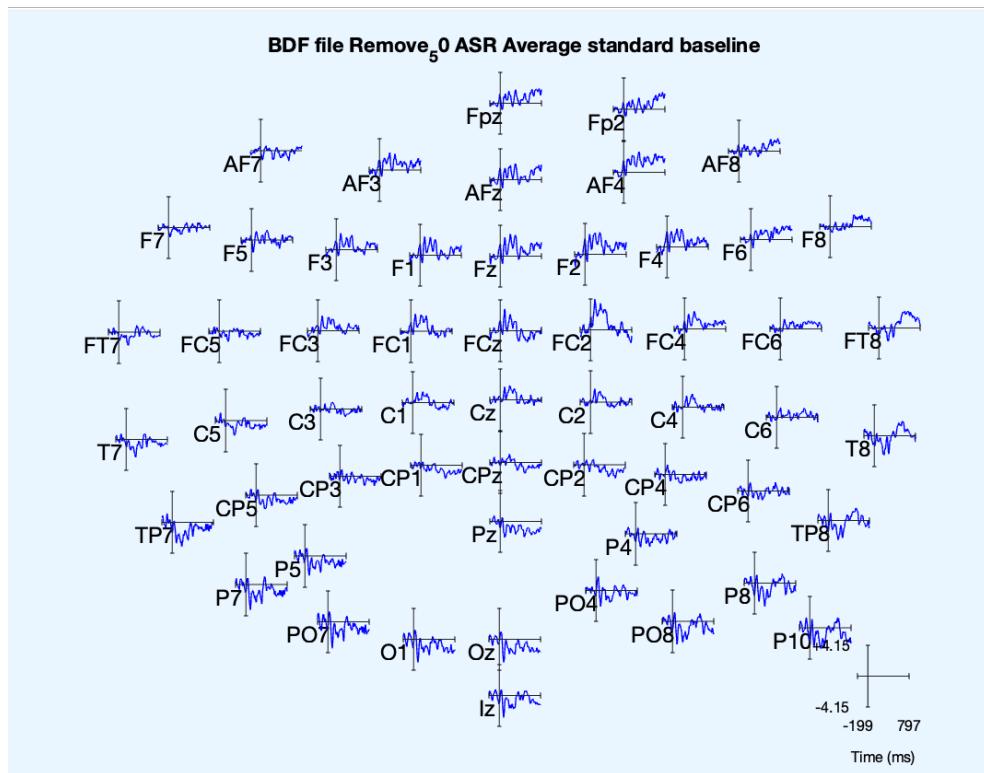


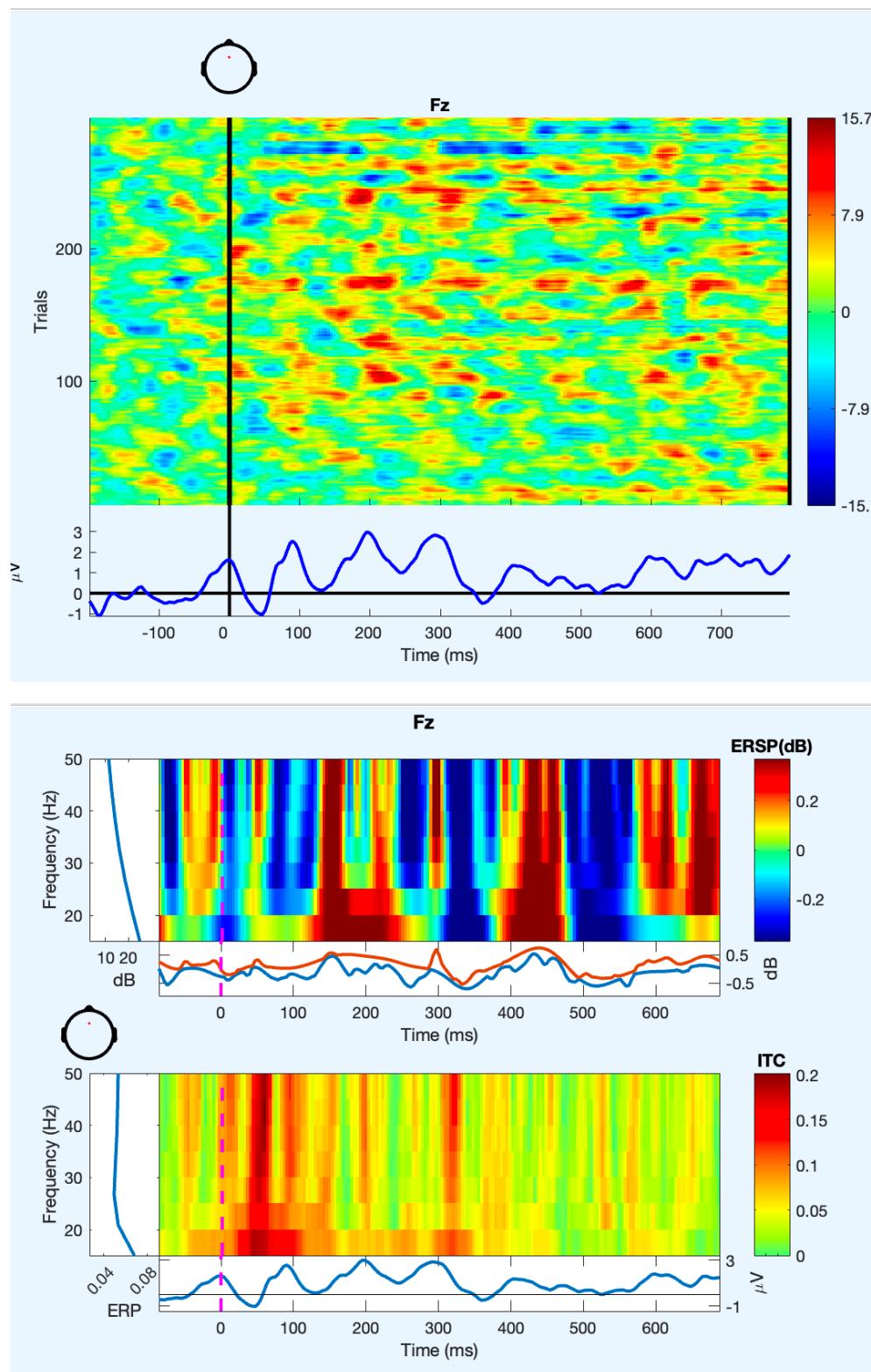
No component is removed!

Plot ERP with scalp map:

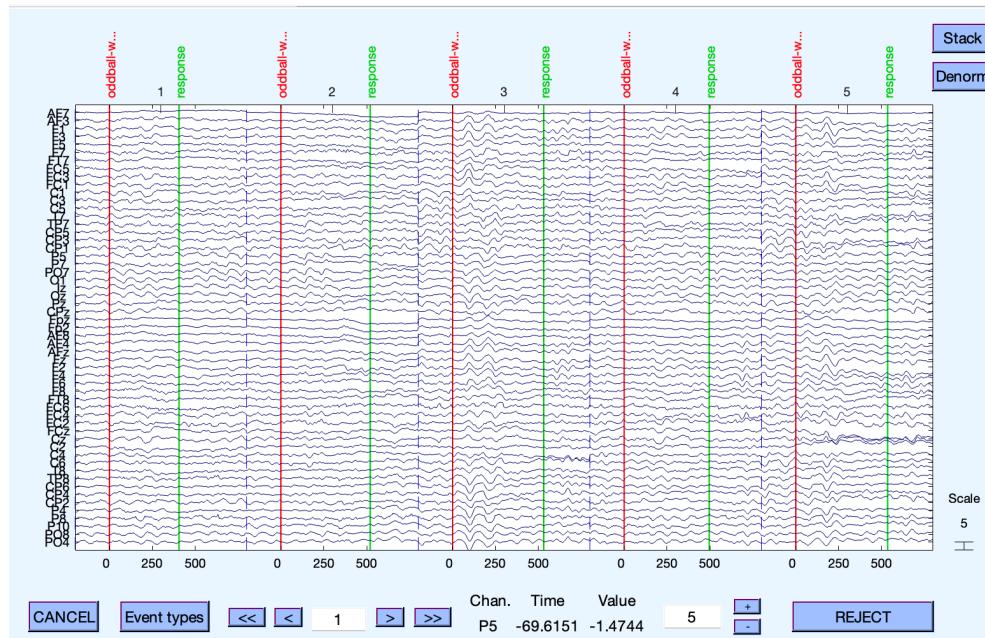


Plot ERP in scalp/rect. array:



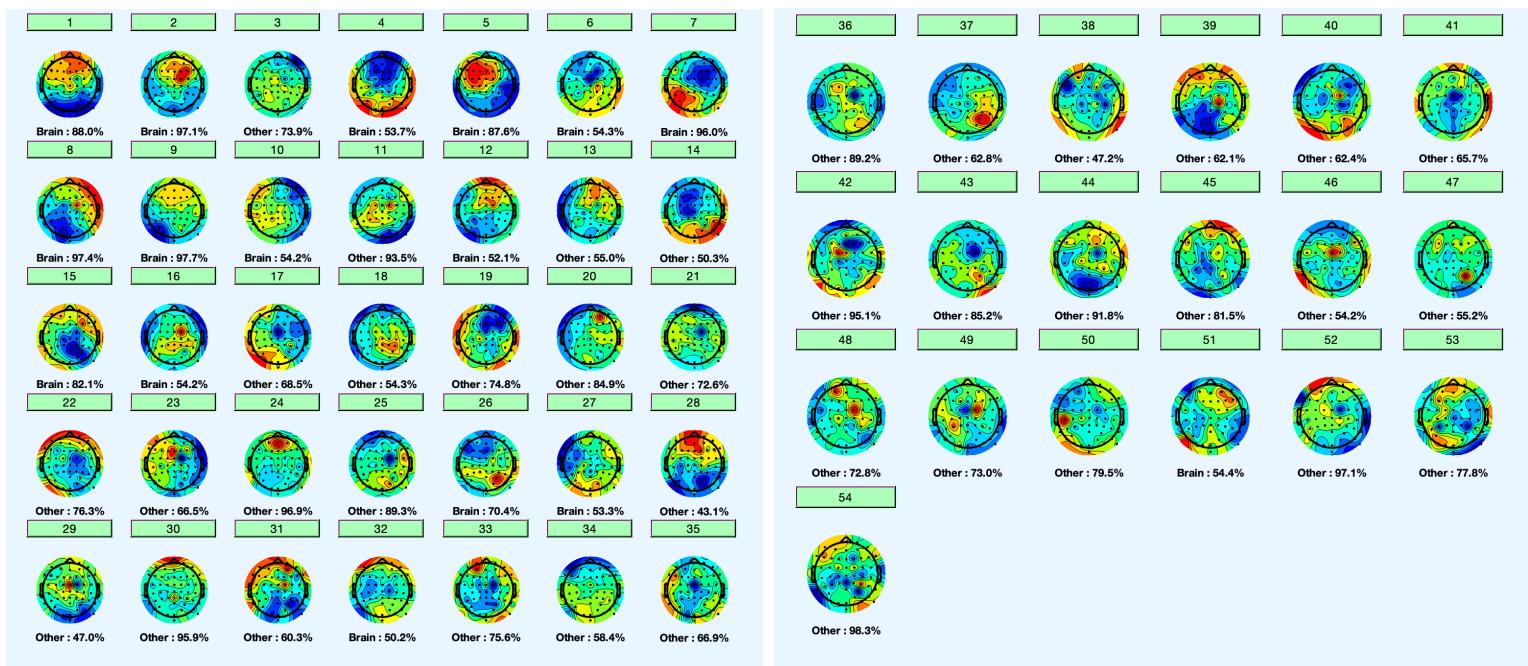


- Oddball with response epoch:
Extract epochs and remove baseline:



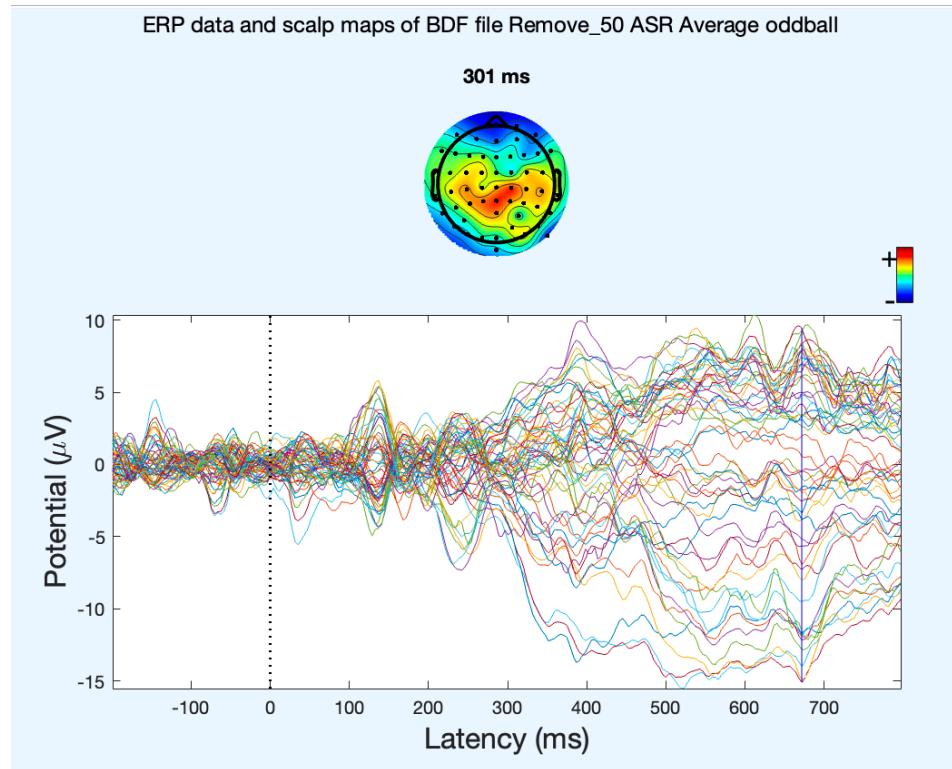
ICA:

It got ICA faster than others.



No component is removed!

Plot ERP with scalp map:



Plot ERP in scalp/rect. array:

