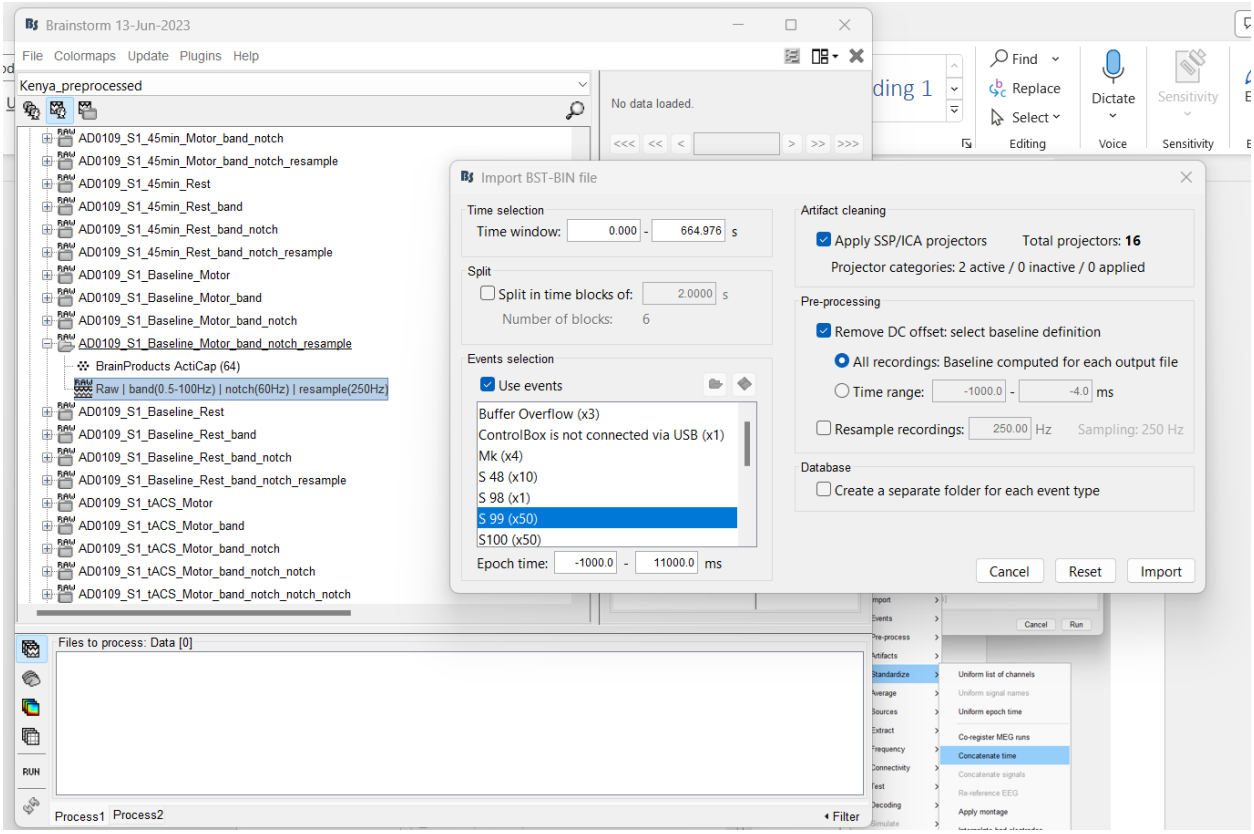
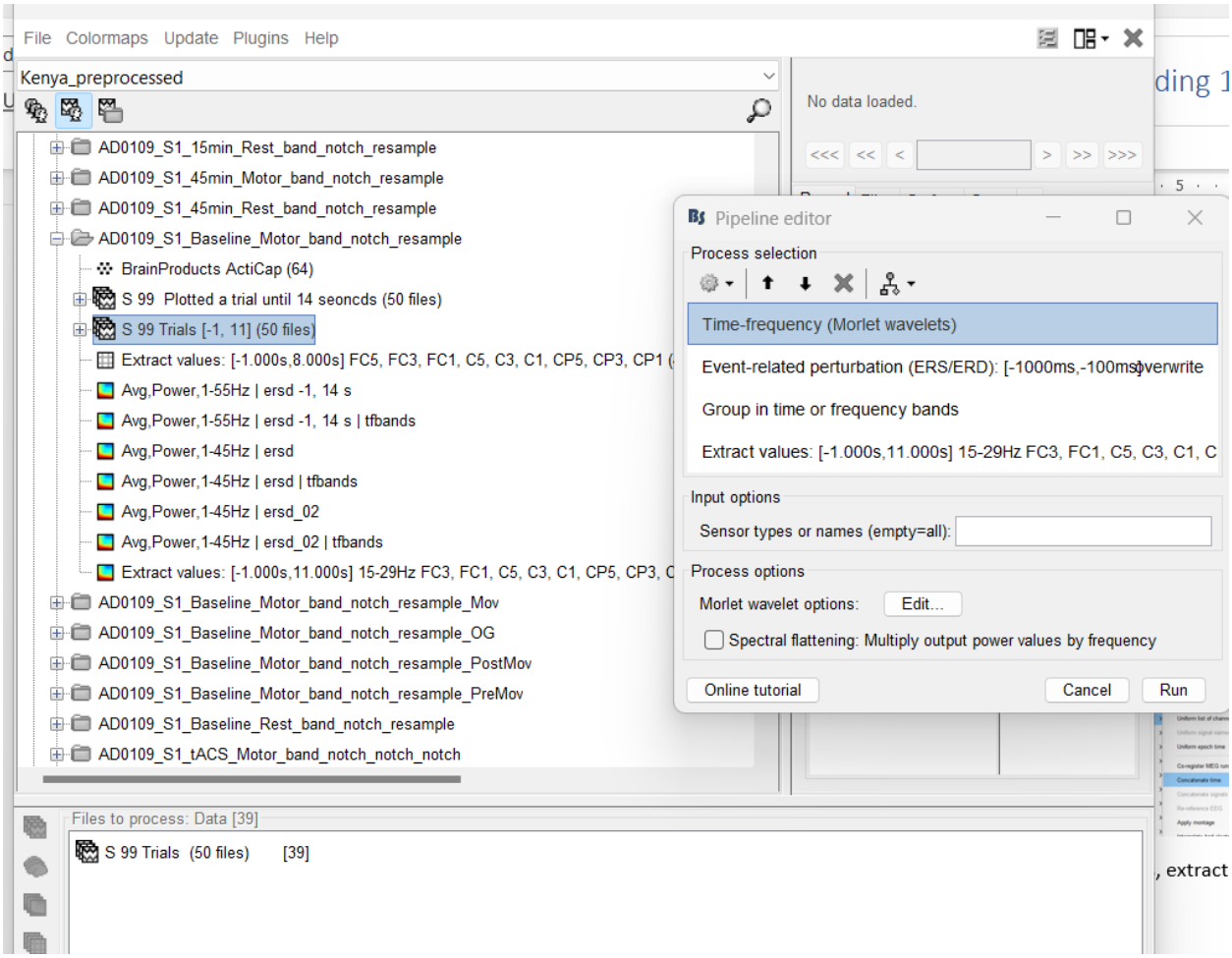
Analysis steps

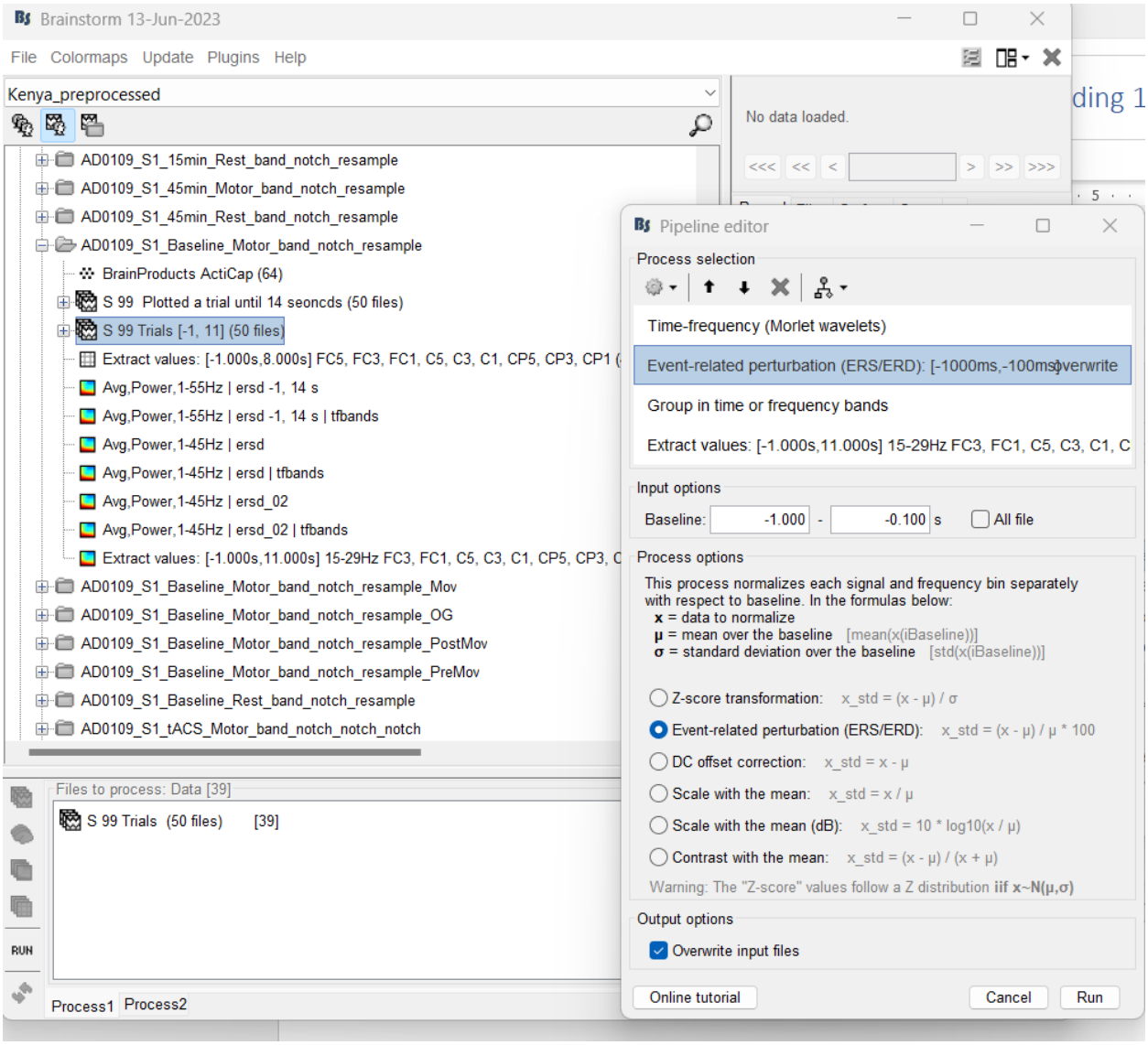
MRBD:

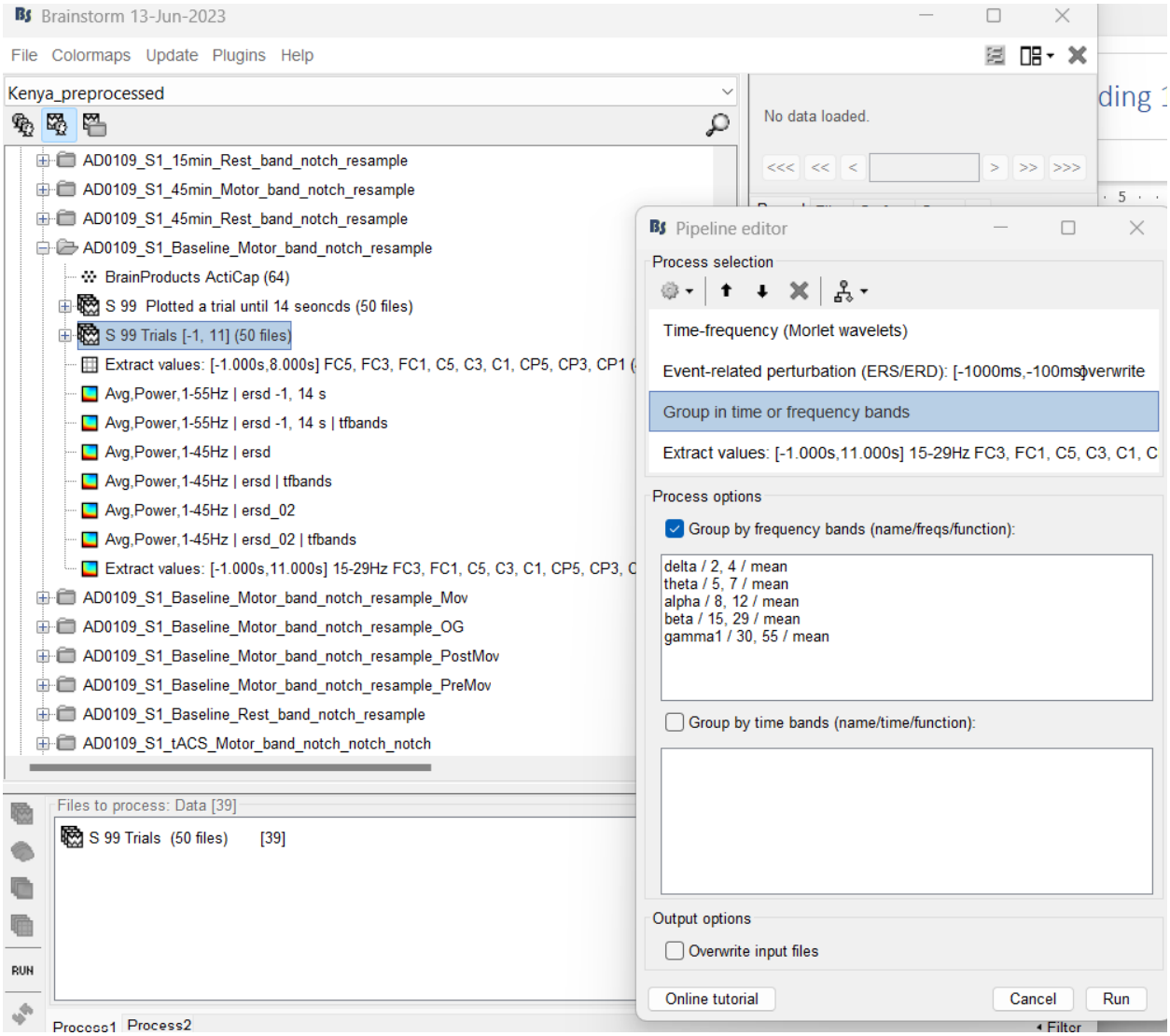
1. Import raw file in database – epoch time (-1s,11s)

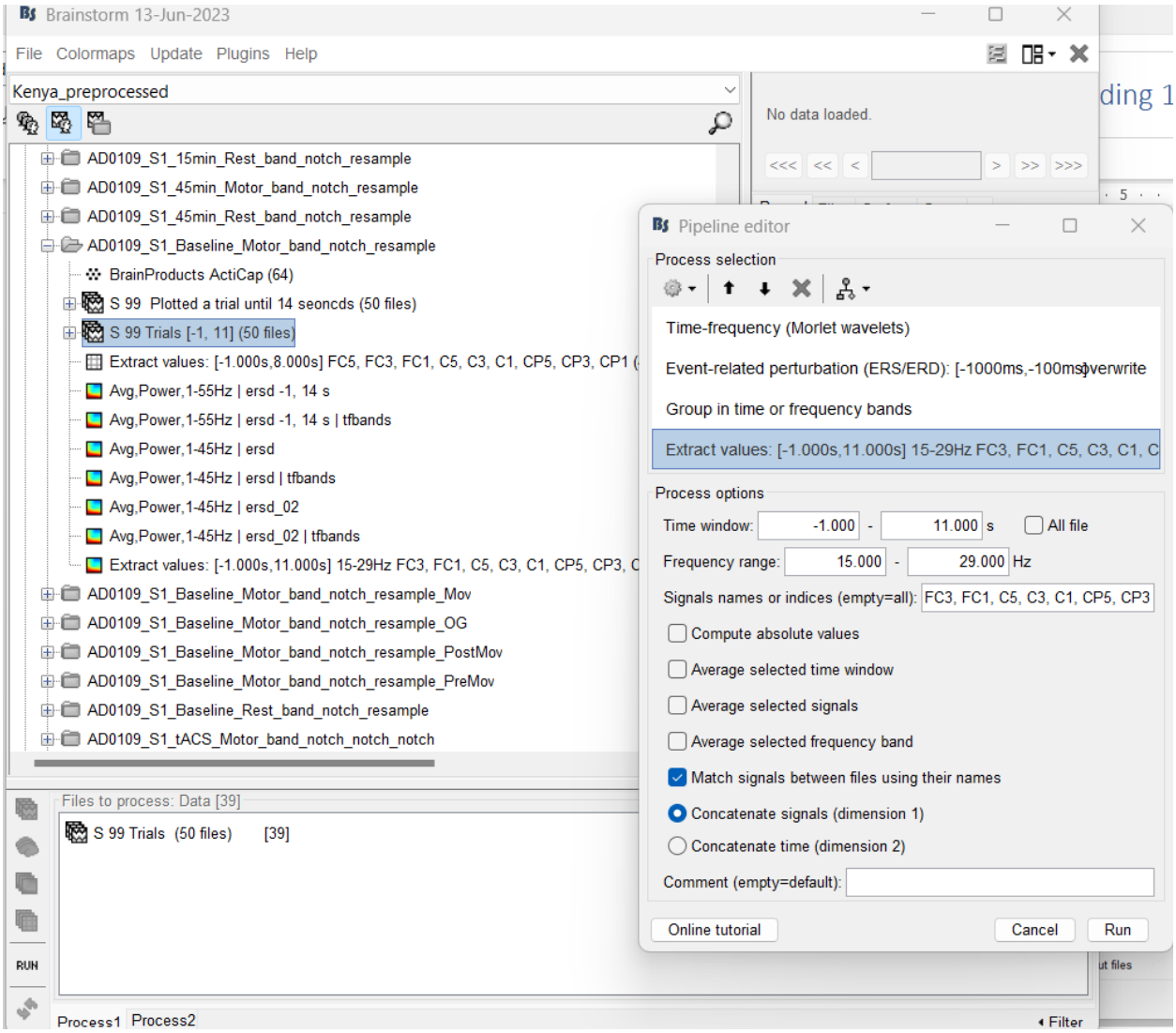


2. Run time-frequency analysis, extract MRBD, group in frequency bands, extract channels of interest.

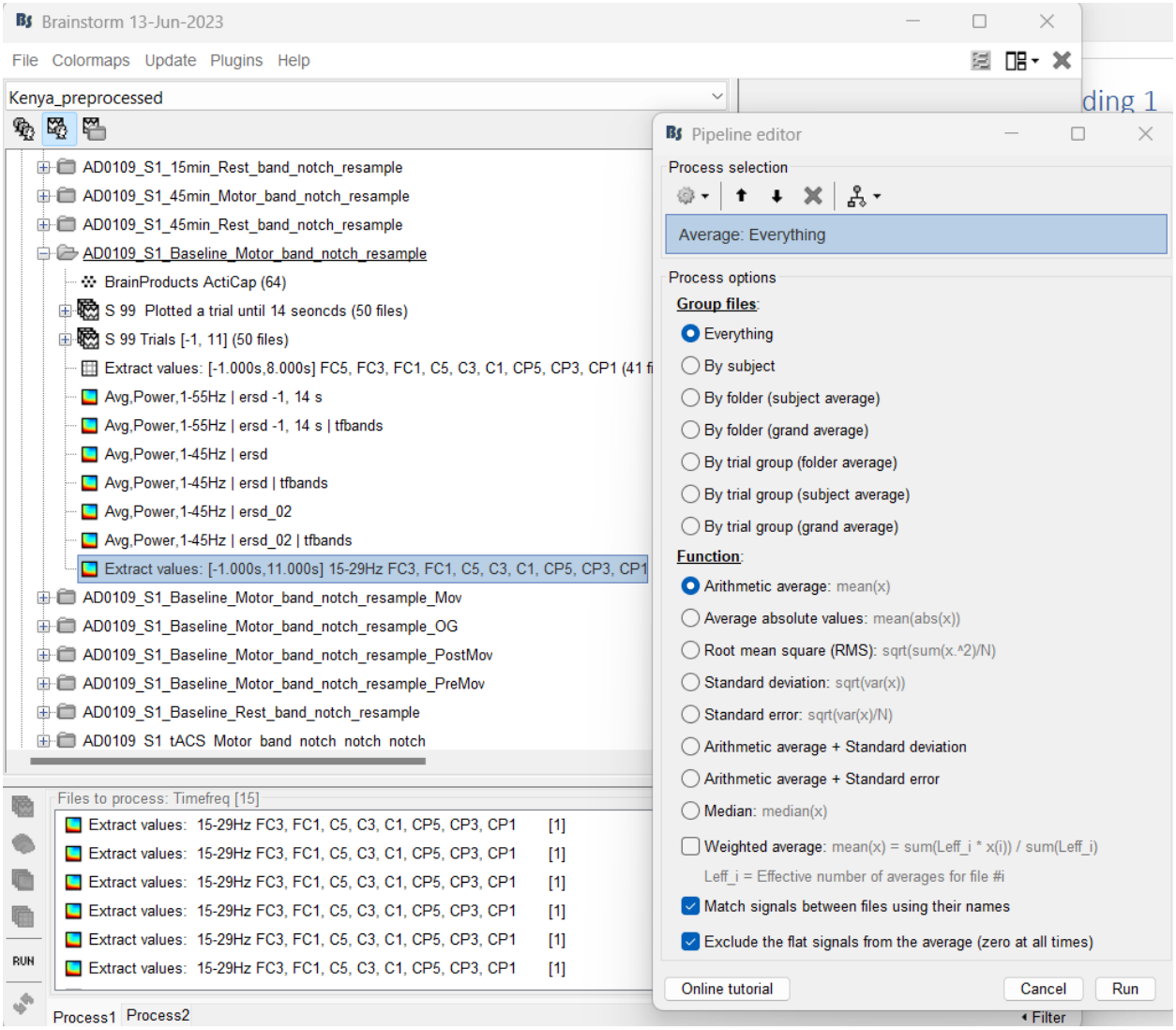



Brainstorm 13-Jun-2023
File Colormaps Update Plugins Help
Kenya_preprocessed
No data loaded.
AD0109_S1_15min_Rest_band_notch_resample
AD0109_S1_45min_Motor_band_notch_resample
AD0109_S1_45min_Rest_band_notch_resample
AD0109_S1_Baseline_Motor_band_notch_resample
BrainProducts ActiCap (64)
S 99 Plotted a trial until 14 seoncds (50 files)
S 99 Trials [-1, 11] (50 files)
Extract values: [-1.000s,8.000s] FC5, FC3, FC1, C5, C3, C1, CP5, CP3, CP1
Avg,Power,1-55Hz | ersd -1, 14 s
Avg,Power,1-55Hz | ersd -1, 14 s | tfbands
Avg,Power,1-45Hz | ersd
Avg,Power,1-45Hz | ersd | tfbands
Avg,Power,1-45Hz | ersd_02
Avg,Power,1-45Hz | ersd_02 | tfbands
Extract values: [-1.000s,11.000s] 15-29Hz FC3, FC1, C5, C3, C1, CP5, CP3,
AD0109_S1_Baseline_Motor_band_notch_resample_Mov
AD0109_S1_Baseline_Motor_band_notch_resample_OG
AD0109_S1_Baseline_Motor_band_notch_resample_PostMov
AD0109_S1_Baseline_Motor_band_notch_resample_PreMov
AD0109_S1_Baseline_Rest_band_notch_resample
AD0109_S1_tACS_Motor_band_notch_notch_notch
Files to process: Data [39]
S 99 Trials (50 files) [39]
RUN
Process1 Process2
Pipeline editor
Process selection
Time-frequency (Morlet wavelets)
Event-related perturbation (ERS/ERD): [-1000ms,-100ms] overwrite
Group in time or frequency bands
Extract values: [-1.000s,11.000s] 15-29Hz FC3, FC1, C5, C3, C1, C
Input options
Baseline: -1.000 - -0.100 s All file
Process options
This process normalizes each signal and frequency bin separately with respect to baseline. In the formulas below:
x = data to normalize
μ = mean over the baseline [mean(x(iBaseline))]
σ = standard deviation over the baseline [std(x(iBaseline))]
Z-score transformation: x_std = (x - μ) / σ
Event-related perturbation (ERS/ERD): x_std = (x - μ) / μ * 100
DC offset correction: x_std = x - μ
Scale with the mean: x_std = x / μ
Scale with the mean (dB): x_std = 10 * log10(x / μ)
Contrast with the mean: x_std = (x - μ) / (x + μ)
Warning: The "Z-score" values follow a Z distribution iif x~N(μ,σ)
Output options
Overwrite input files
Online tutorial
Cancel
Run

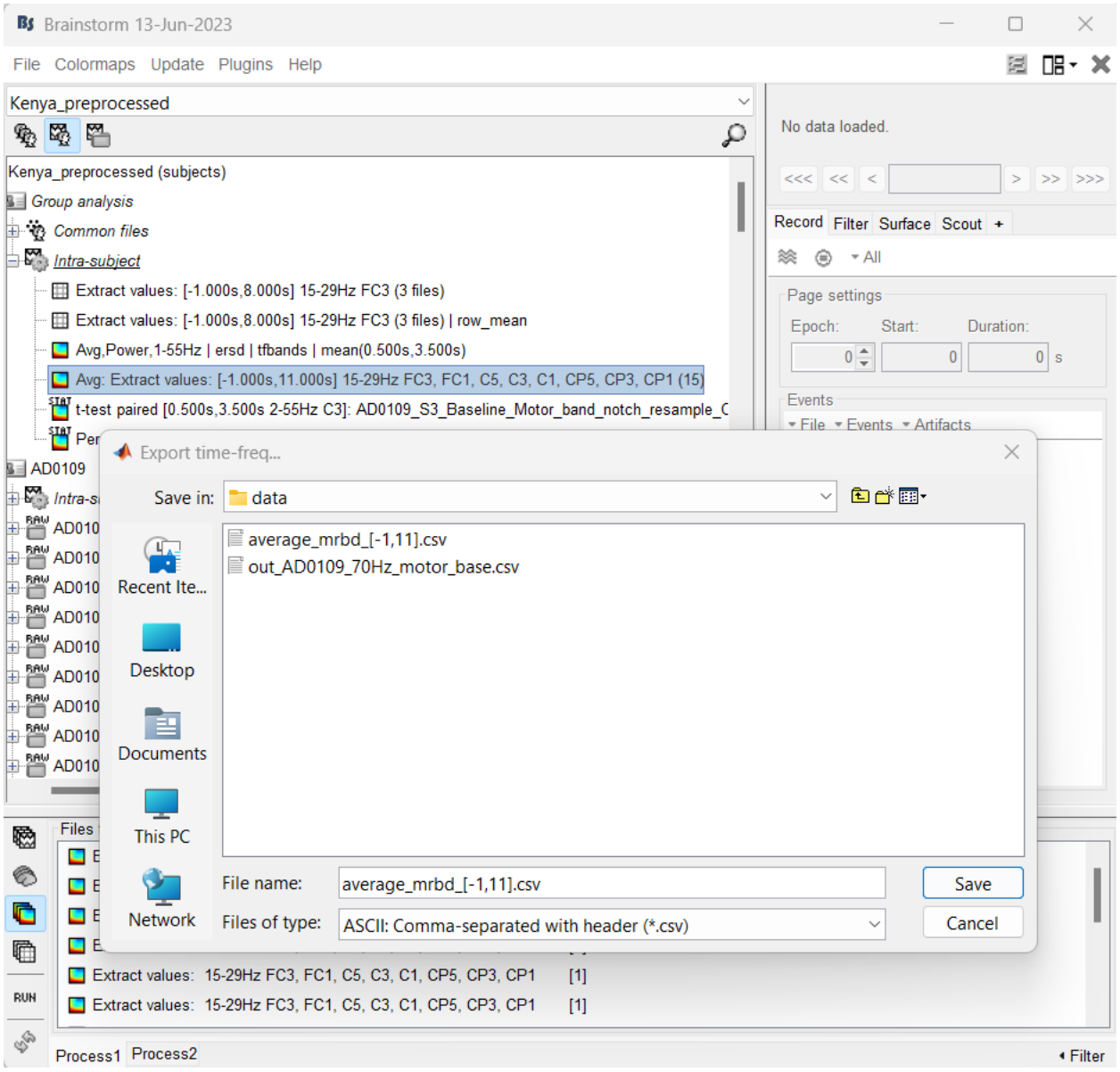

Brainstorm 13-Jun-2023
File Colormaps Update Plugins Help
Kenya_preprocessed
No data loaded.
AD0109_S1_15min_Rest_band_notch_resample
AD0109_S1_45min_Motor_band_notch_resample
AD0109_S1_45min_Rest_band_notch_resample
AD0109_S1_Baseline_Motor_band_notch_resample
BrainProducts ActiCap (64)
S 99 Plotted a trial until 14 seoncds (50 files)
S 99 Trials [-1, 11] (50 files)
Extract values: [-1.000s,8.000s] FC5, FC3, FC1, C5, C3, C1, CP5, CP3, CP1
Avg,Power,1-55Hz | ersd -1, 14 s
Avg,Power,1-55Hz | ersd -1, 14 s | tfbands
Avg,Power,1-45Hz | ersd
Avg,Power,1-45Hz | ersd | tfbands
Avg,Power,1-45Hz | ersd_02
Avg,Power,1-45Hz | ersd_02 | tfbands
Extract values: [-1.000s,11.000s] 15-29Hz FC3, FC1, C5, C3, C1, CP5, CP3,
AD0109_S1_Baseline_Motor_band_notch_resample_Mov
AD0109_S1_Baseline_Motor_band_notch_resample_OG
AD0109_S1_Baseline_Motor_band_notch_resample_PostMov
AD0109_S1_Baseline_Motor_band_notch_resample_PreMov
AD0109_S1_Baseline_Rest_band_notch_resample
AD0109_S1_tACS_Motor_band_notch_notch_notch
Files to process: Data [39]
S 99 Trials (50 files) [39]
RUN
Process1 Process2
Pipeline editor
Process selection
Time-frequency (Morlet wavelets)
Event-related perturbation (ERS/ERD): [-1000ms,-100ms] overwrite
Group in time or frequency bands
Extract values: [-1.000s,11.000s] 15-29Hz FC3, FC1, C5, C3, C1, C
Process options
Group by frequency bands (name/freqs/function):
delta / 2, 4 / mean
theta / 5, 7 / mean
alpha / 8, 12 / mean
beta / 15, 29 / mean
gamma1 / 30, 55 / mean
Group by time bands (name/time/function):
Output options
Overwrite input files
Online tutorial
Cancel
Run


Brainstorm 13-Jun-2023
File Colormaps Update Plugins Help
Kenya_preprocessed
No data loaded.
AD0109_S1_15min_Rest_band_notch_resample
AD0109_S1_45min_Motor_band_notch_resample
AD0109_S1_45min_Rest_band_notch_resample
AD0109_S1_Baseline_Motor_band_notch_resample
BrainProducts ActiCap (64)
S 99 Plotted a trial until 14 seoncds (50 files)
S 99 Trials [-1, 11] (50 files)
Extract values: [-1.000s,8.000s] FC5, FC3, FC1, C5, C3, C1, CP5, CP3, CP1
Avg,Power,1-55Hz | ersd -1, 14 s
Avg,Power,1-55Hz | ersd -1, 14 s | tfbands
Avg,Power,1-45Hz | ersd
Avg,Power,1-45Hz | ersd | tfbands
Avg,Power,1-45Hz | ersd_02
Avg,Power,1-45Hz | ersd_02 | tfbands
Extract values: [-1.000s,11.000s] 15-29Hz FC3, FC1, C5, C3, C1, CP5, CP3,
AD0109_S1_Baseline_Motor_band_notch_resample_Mov
AD0109_S1_Baseline_Motor_band_notch_resample_OG
AD0109_S1_Baseline_Motor_band_notch_resample_PostMov
AD0109_S1_Baseline_Motor_band_notch_resample_PreMov
AD0109_S1_Baseline_Rest_band_notch_resample
AD0109_S1_tACS_Motor_band_notch_notch_notch
Pipeline editor
Process selection
Time-frequency (Morlet wavelets)
Event-related perturbation (ERS/ERD): [-1000ms,-100ms] overwrite
Group in time or frequency bands
Extract values: [-1.000s,11.000s] 15-29Hz FC3, FC1, C5, C3, C1, C
Process options
Time window: -1.000 - 11.000 s All file
Frequency range: 15.000 - 29.000 Hz
Signals names or indices (empty=all): FC3, FC1, C5, C3, C1, CP5, CP3
Compute absolute values
Average selected time window
Average selected signals
Average selected frequency band
Match signals between files using their names
Concatenate signals (dimension 1)
Concatenate time (dimension 2)
Comment (empty=default):
Online tutorial
Cancel
Run
Files to process: Data [39]
S 99 Trials (50 files) [39]
RUN
Process1 Process2
Filter

3. Average signals across participants



4. Export in .csv with header



5. Run python code: graph_mrbd.py