TopoToolbox Tutorial

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Outline

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- Angle dynamics: group analysis

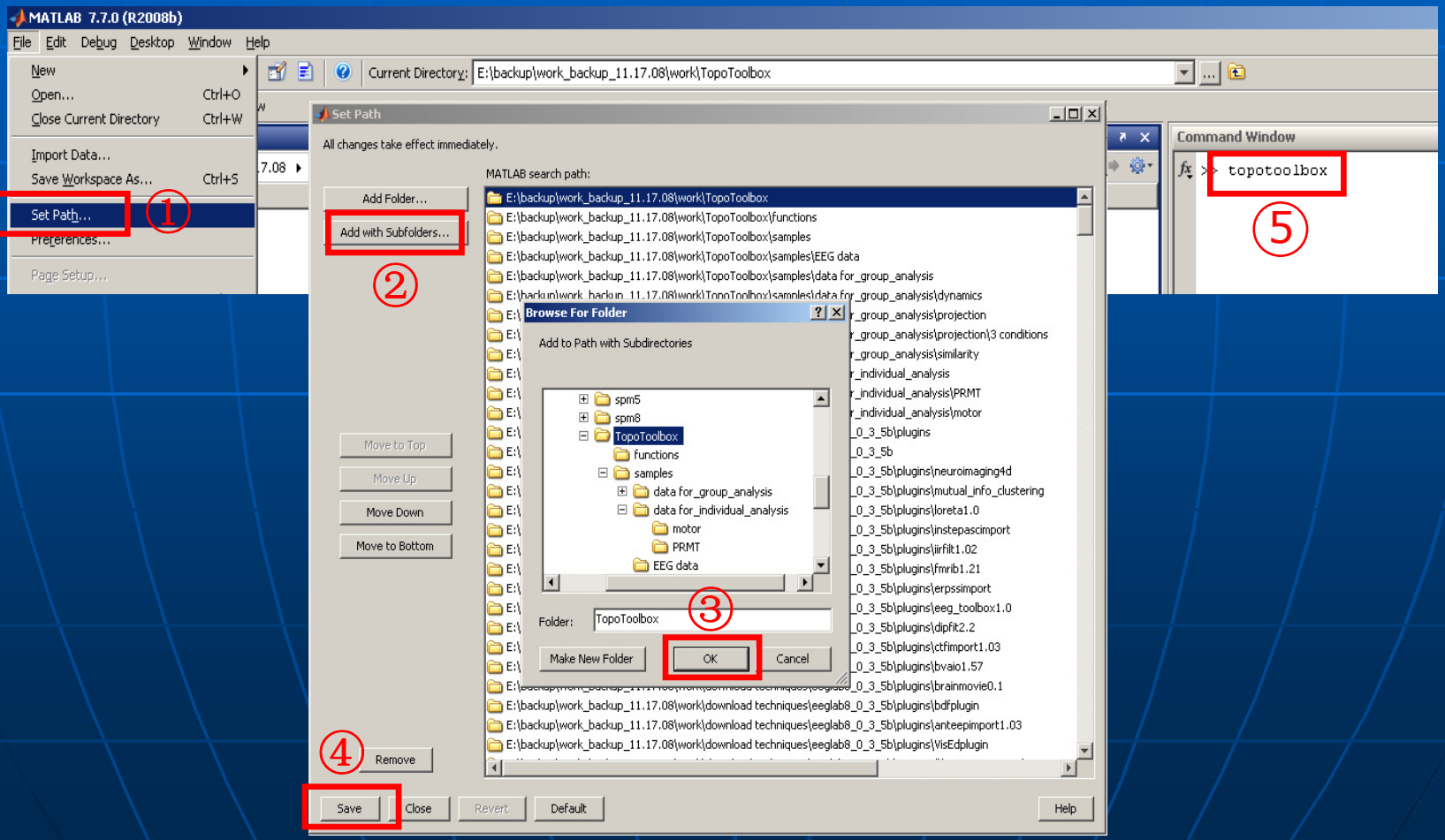
About TopoToolbox

TopoToolbox is a free open-source software platform for analyzing electrophysiological data based on topographic information in event-related EEG/MEG responses. This toolbox provides a tool for researchers to directly derive robust measures of response pattern (topographic) similarity and psychological meaningful response magnitude using electromagnetic signals in sensor space. These measures are useful for testing psychological theories without anatomical descriptions.

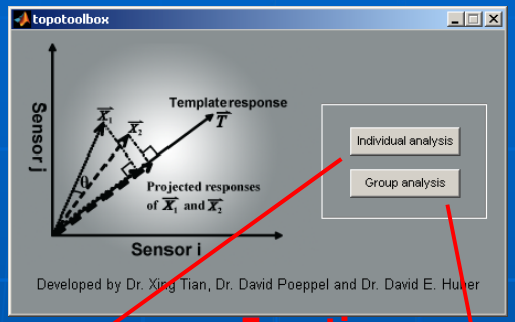
This toolbox is developed by Dr. Xing Tian, Dr. David Poeppel and Dr. David E. Huber.

Install TopoToolbox

- MATLAB required
- Download TopoToolbox and unzip it.



Overview



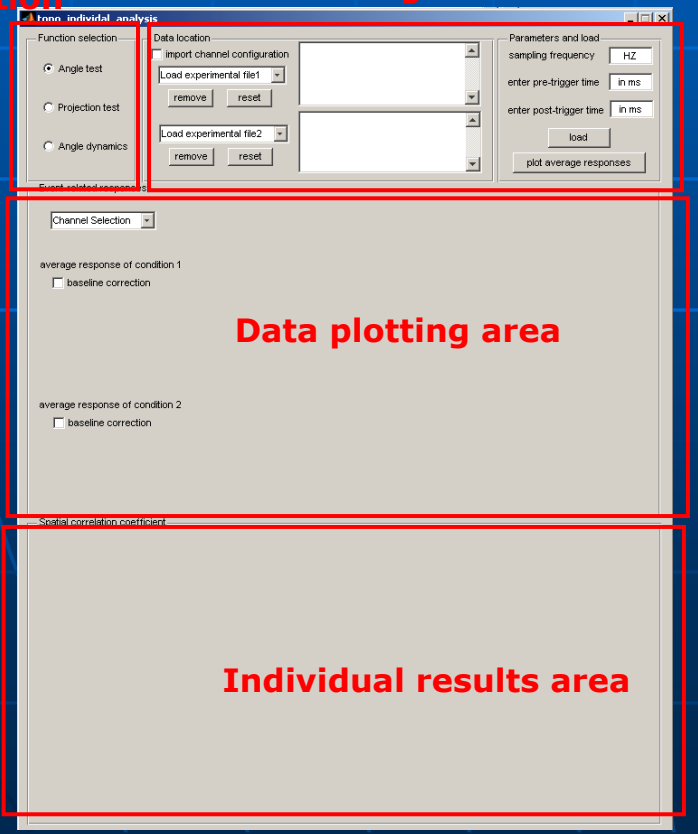
Individual analysis for all data first, then Group analysis

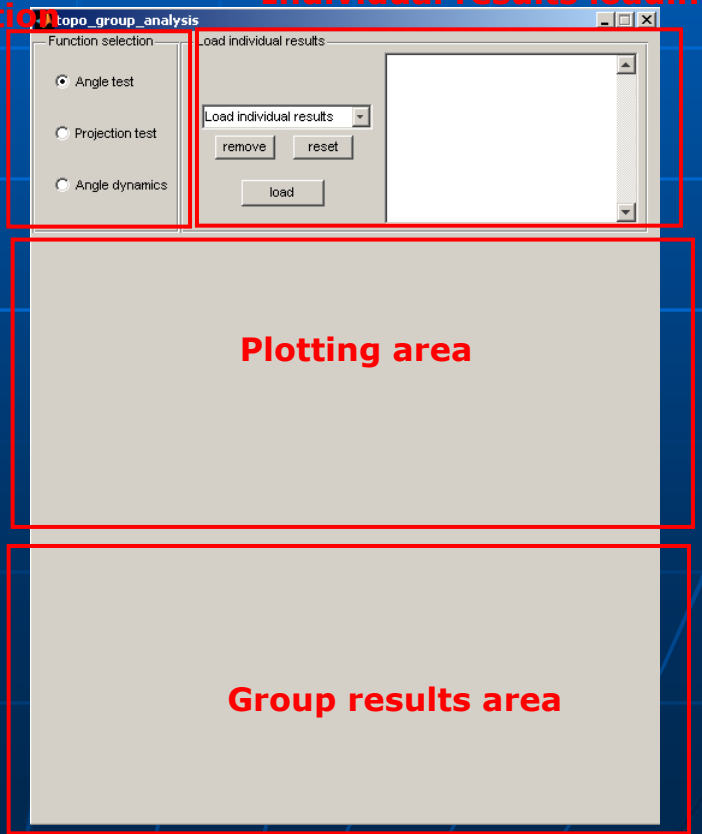
Function selection

Data loading area

Function selection

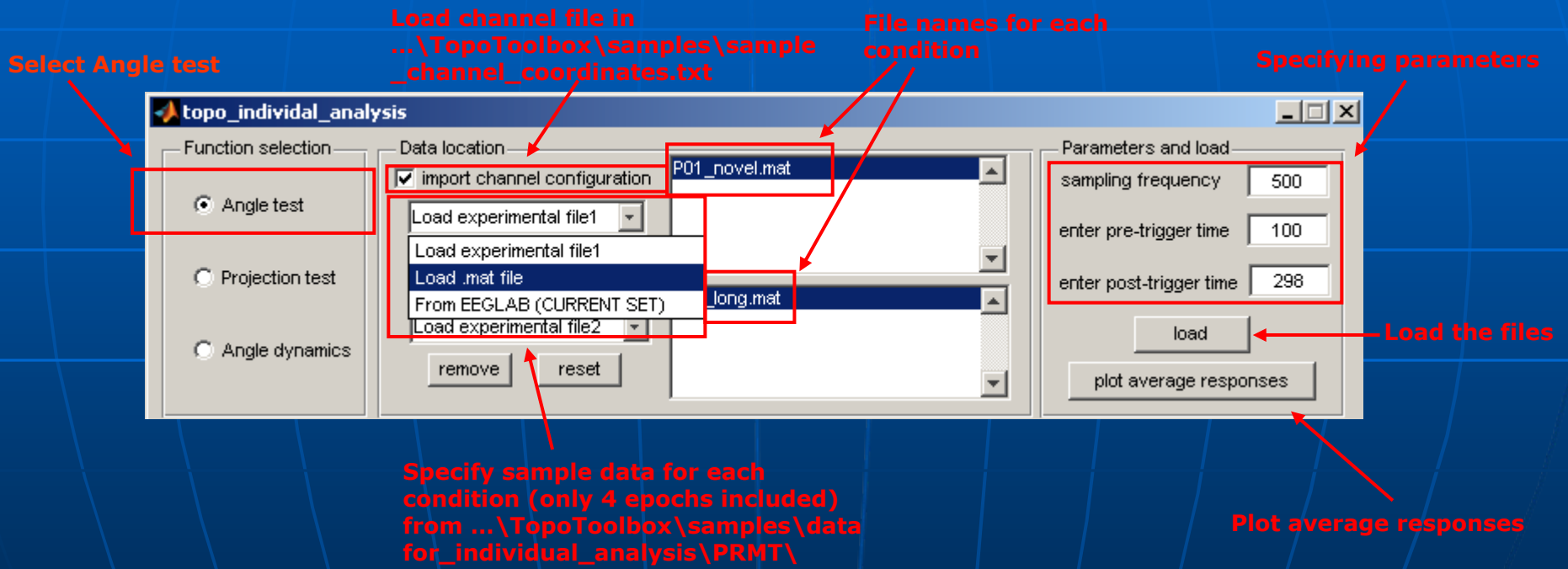
Individual results loading area





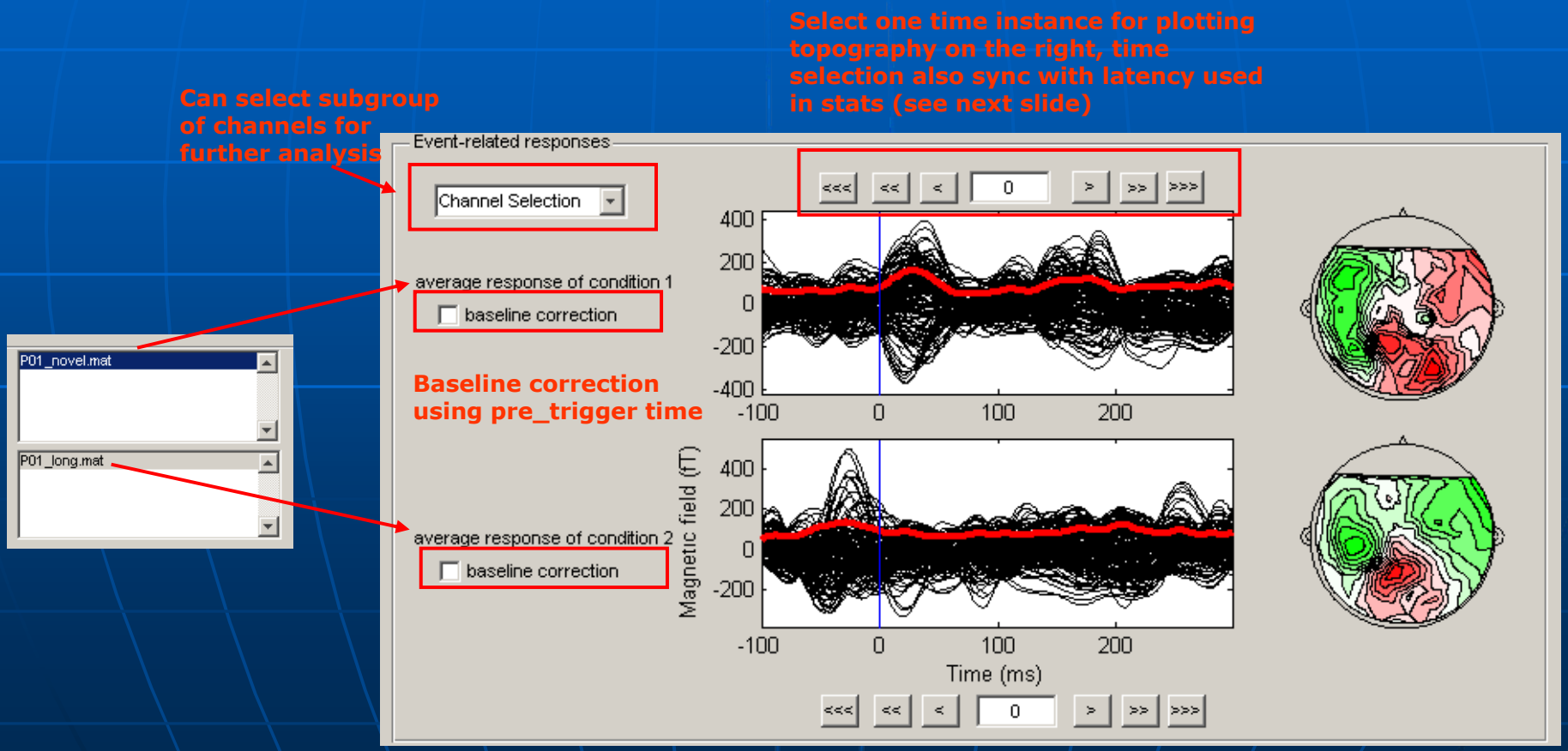
Angle test: Individual analysis

- Loading individual data



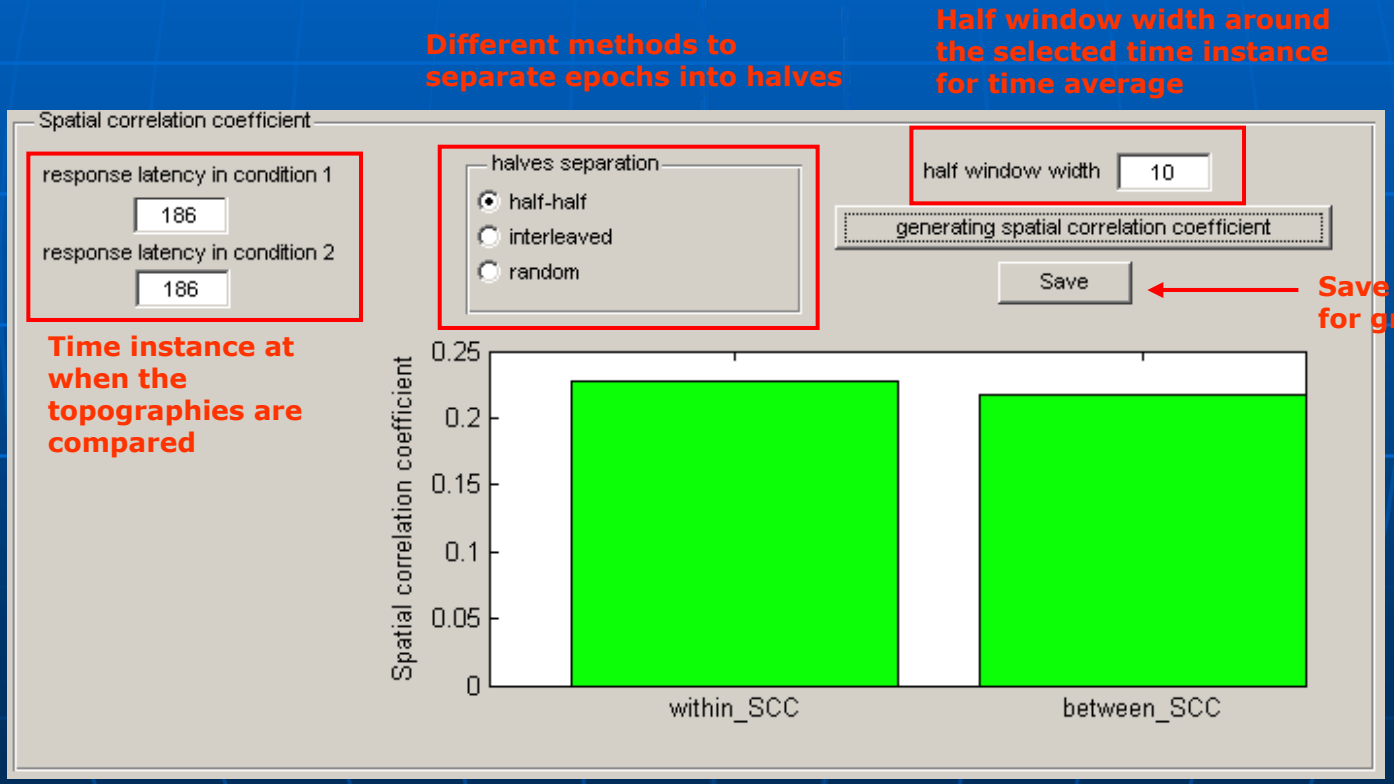
Angle test: Individual analysis

- Plotting the average responses

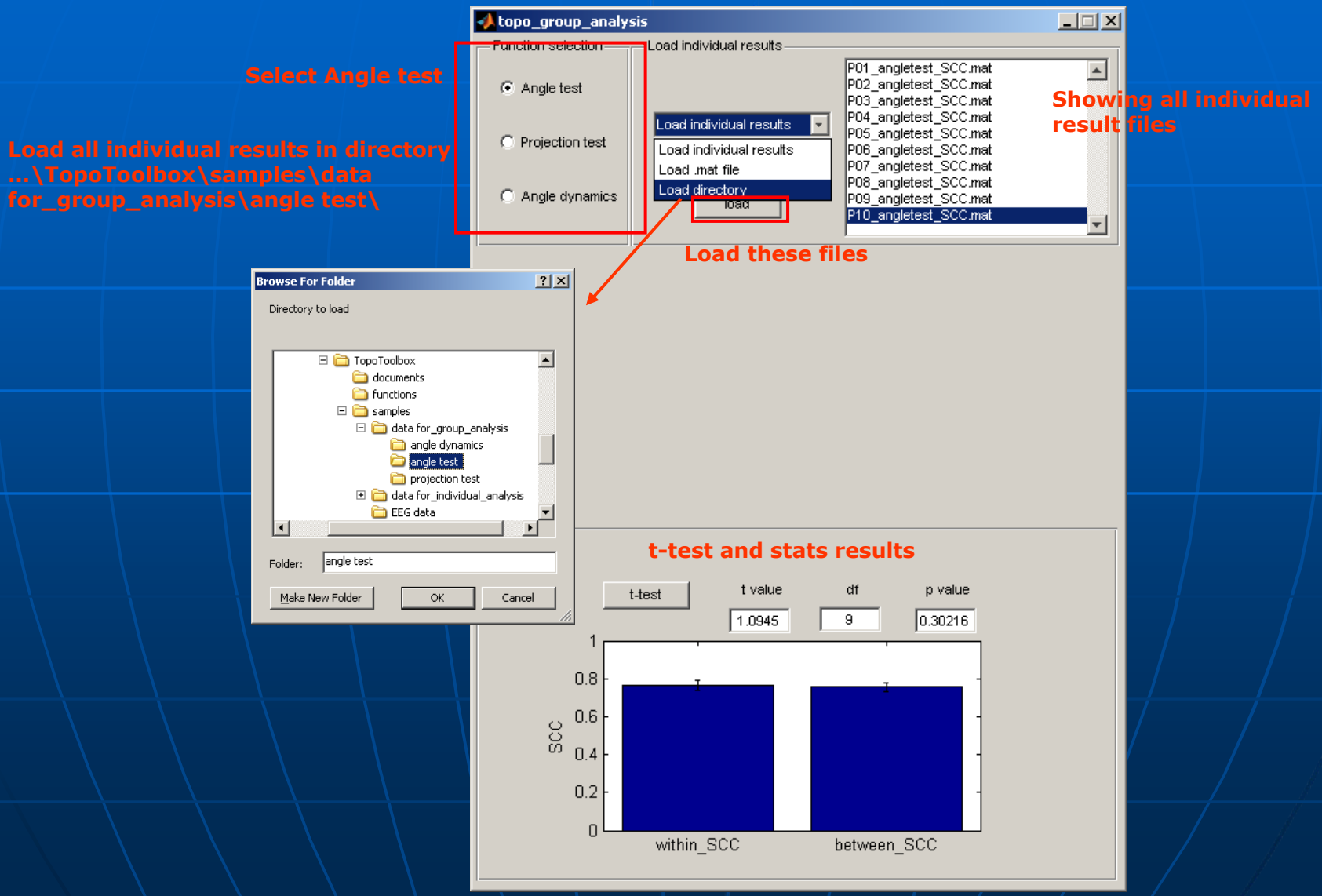


Angle test: Individual analysis

- Individual stats results

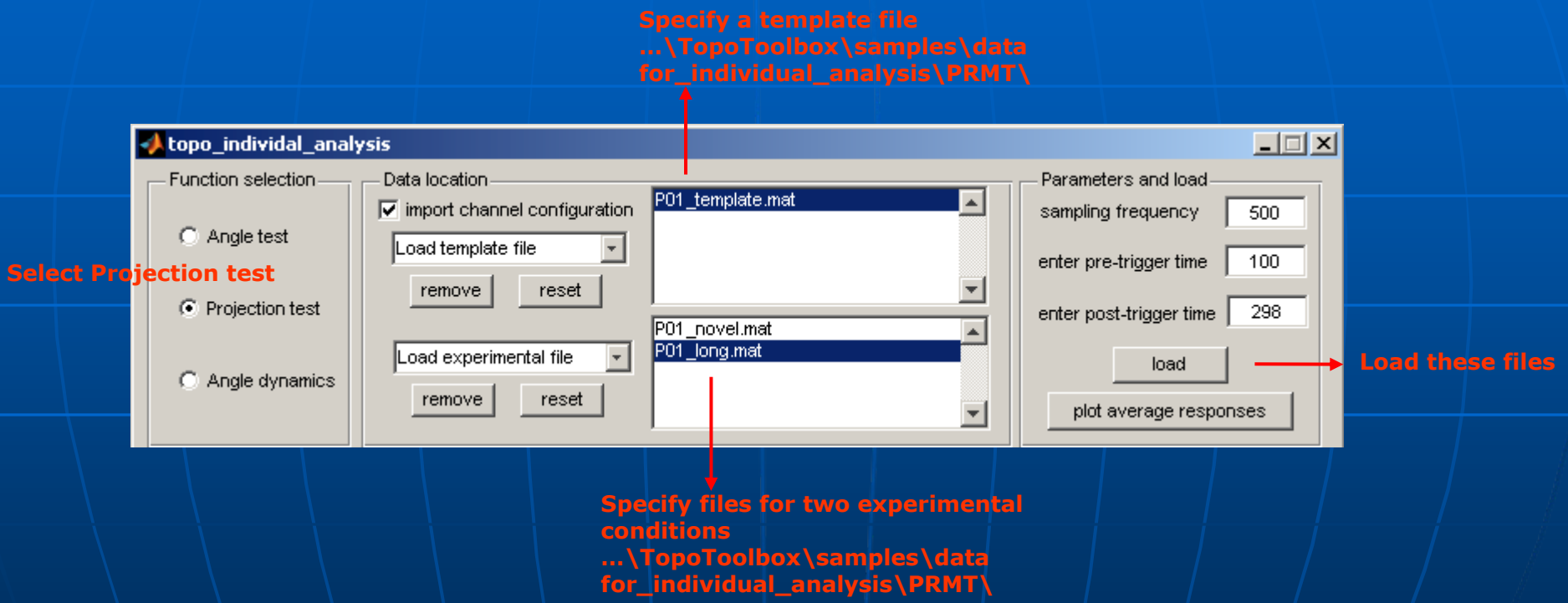


Angle test: group analysis



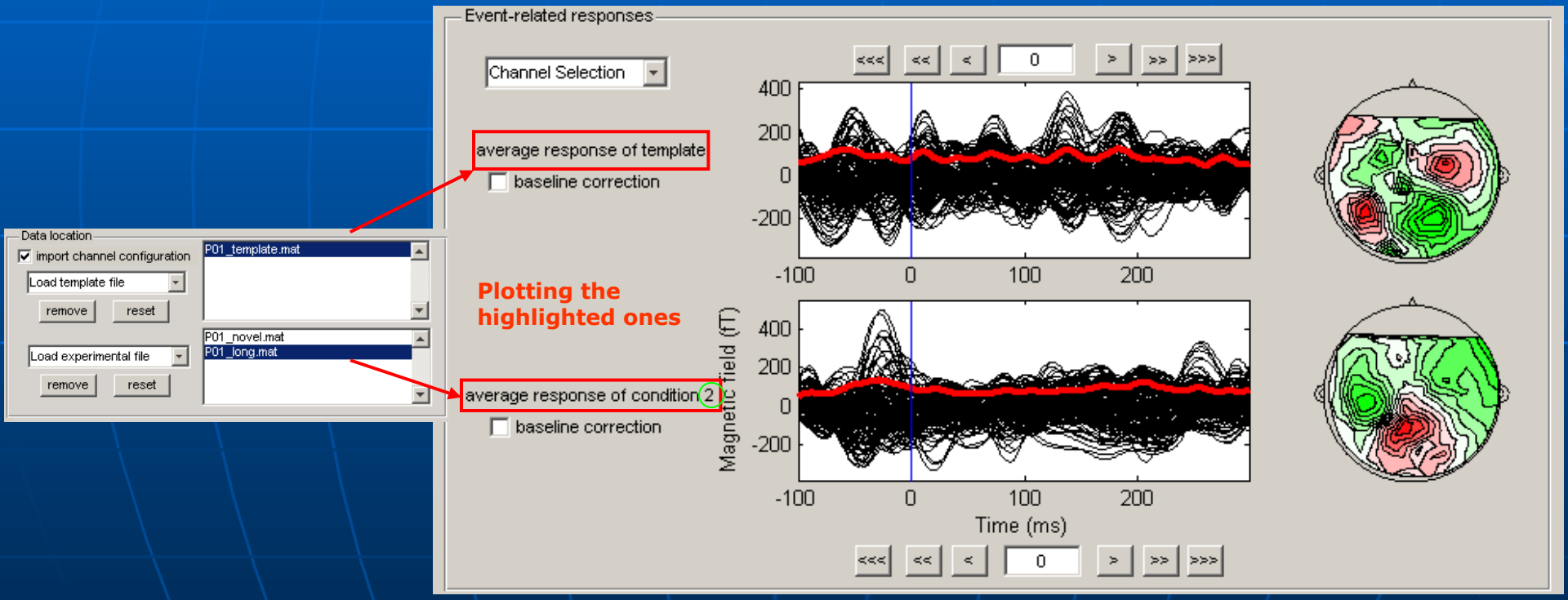
Projection test: individual analysis

- Loading individual data



Projection test: individual analysis

- Plotting the average responses

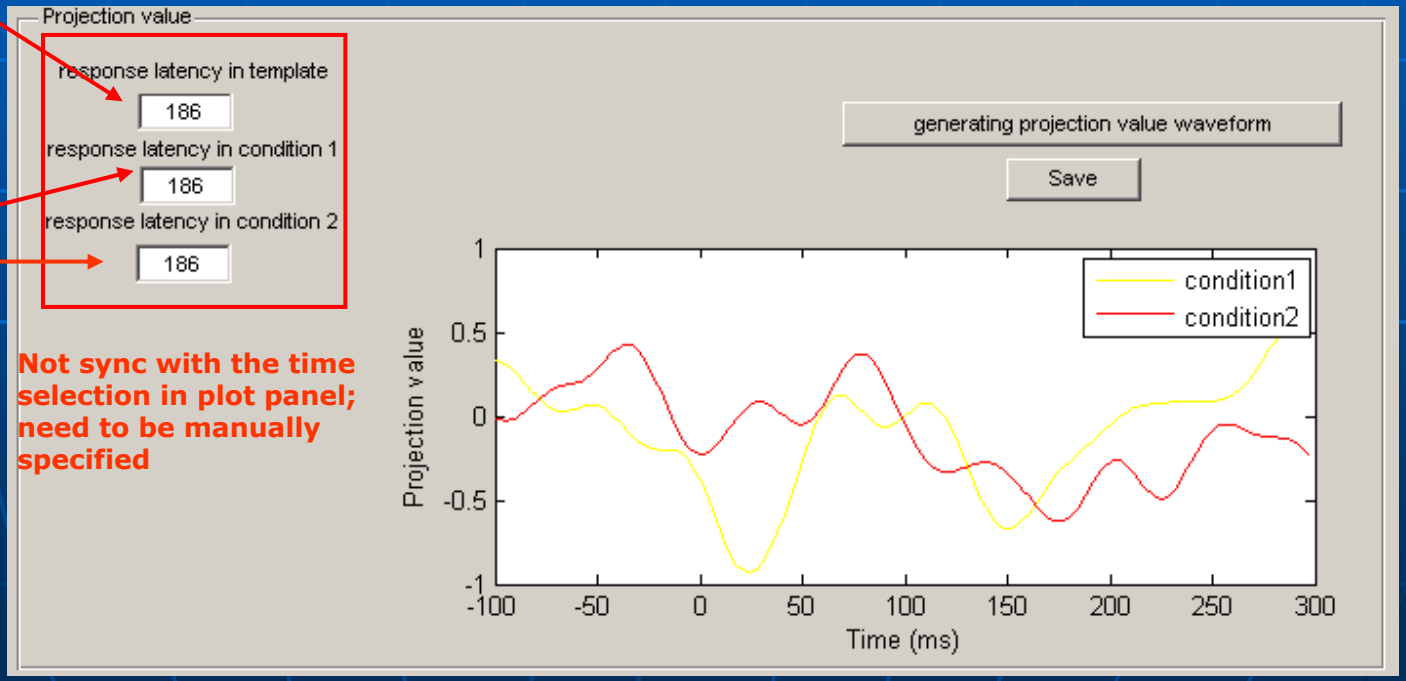


Projection test: individual analysis

- Individual stats results

Time instance for the topography of template

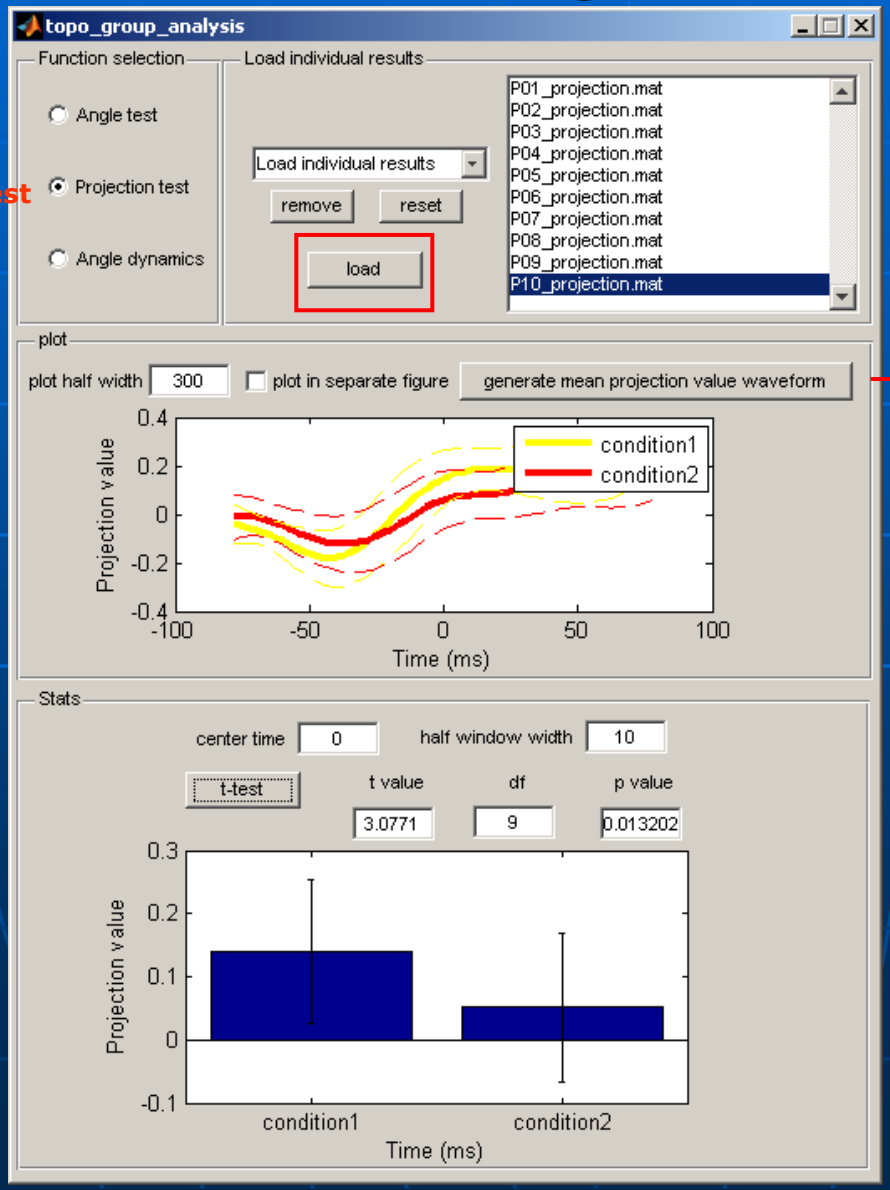
Time instance for experimental conditions in group analysis (next slide)



Not sync with the time selection in plot panel; need to be manually specified

Projection test: group analysis

Select Projection test



Load all individual results in directory ...\TopoToolbox\samples\data for_group_analysis\projection test\

Plotting mean projection value with two standard error of the means, centered at the individual experimental latency (specified in previous slide)

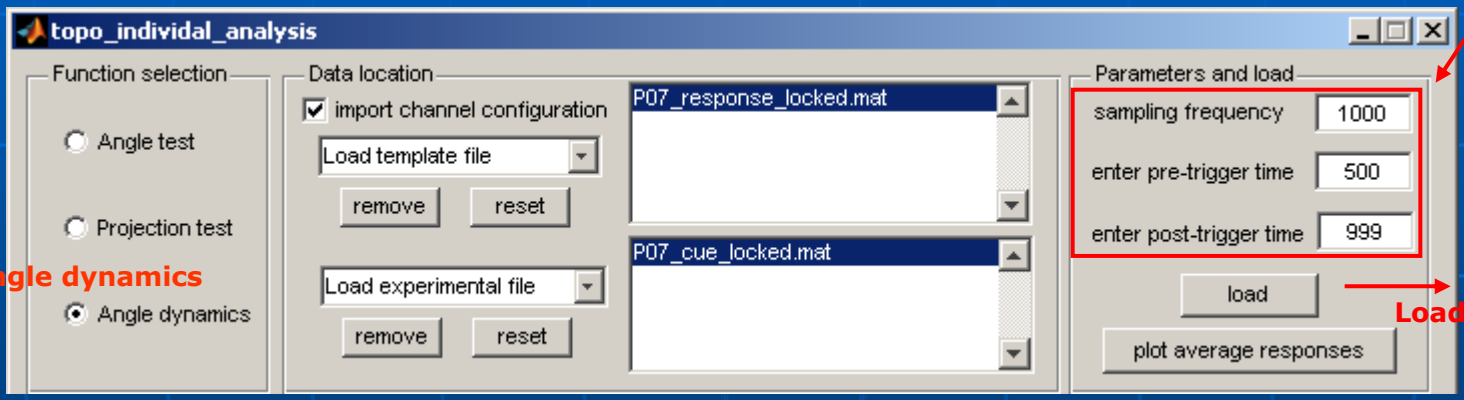
Stats results for group analysis

Angle dynamics: individual analysis

- Loading data

Specify a template file
...\TopoToolbox\samples\data
for_individual_analysis\motor\

Specifying parameters



Select Angle dynamics

Load these two files

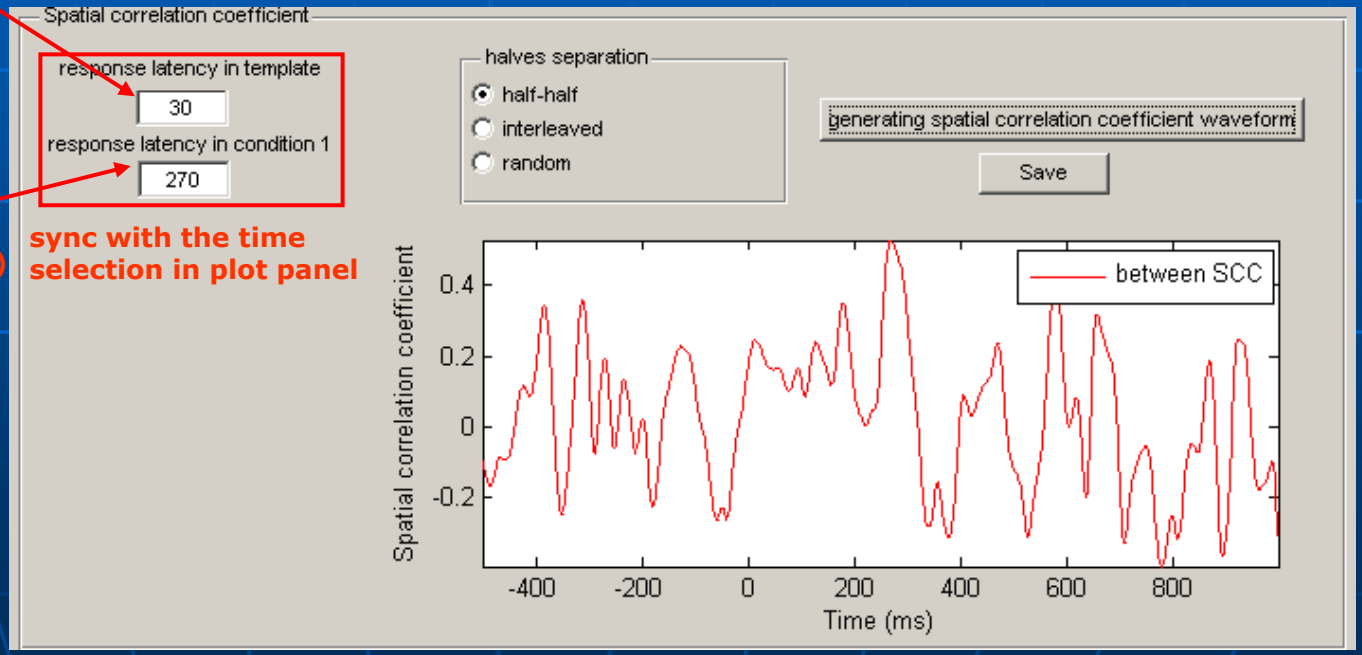
Specify a file for experimental condition
...\TopoToolbox\samples\data
for_individual_analysis\motor\

Angle dynamics: individual analysis

- Individual stats results

Time instance for the topography of template

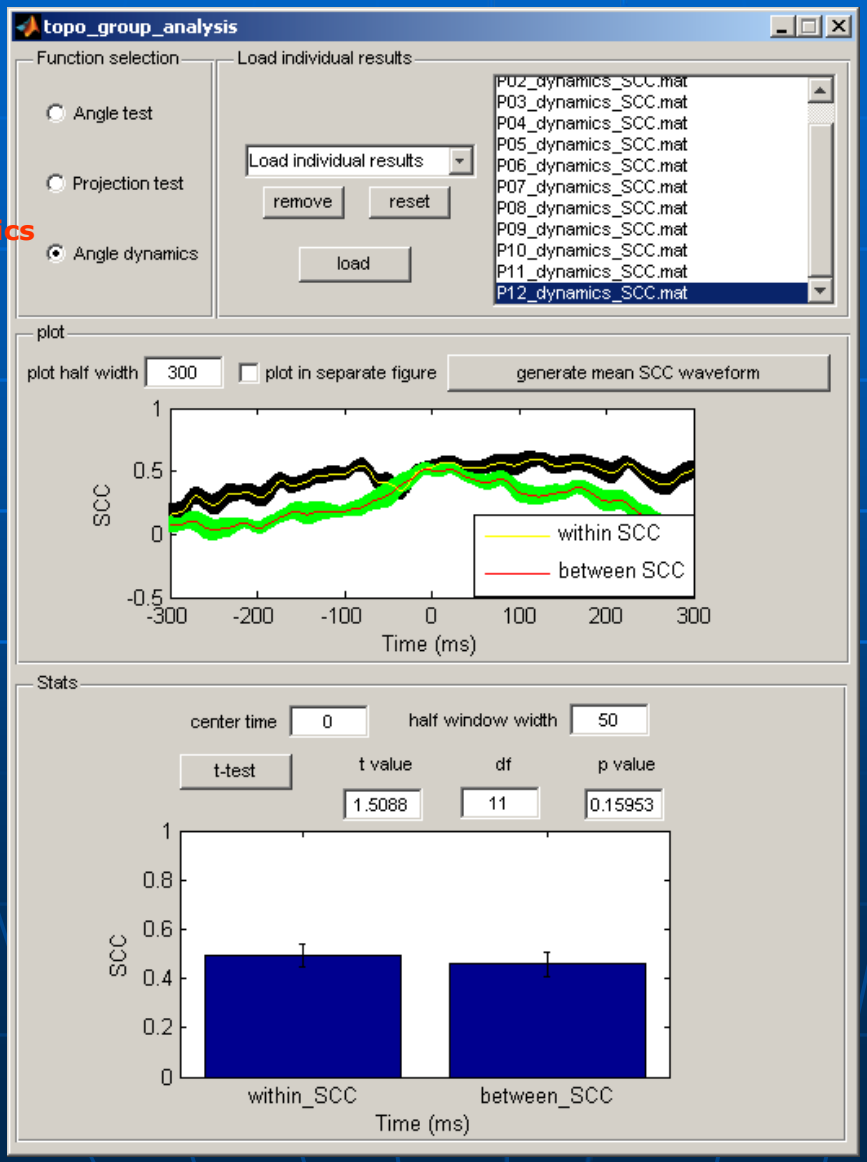
Time instance for experimental condition in group analysis (next slide)



sync with the time selection in plot panel

Angle dynamics: group analysis

Select Angle dynamics



Load all individual results in directory ...\TopoToolbox\samples\data for_group_analysis\angle dynamics\

Plotting mean spatial correlation coefficients with two standard error of the means, centered at the individual experimental latency (specified in previous slide)

Stats results for group analysis