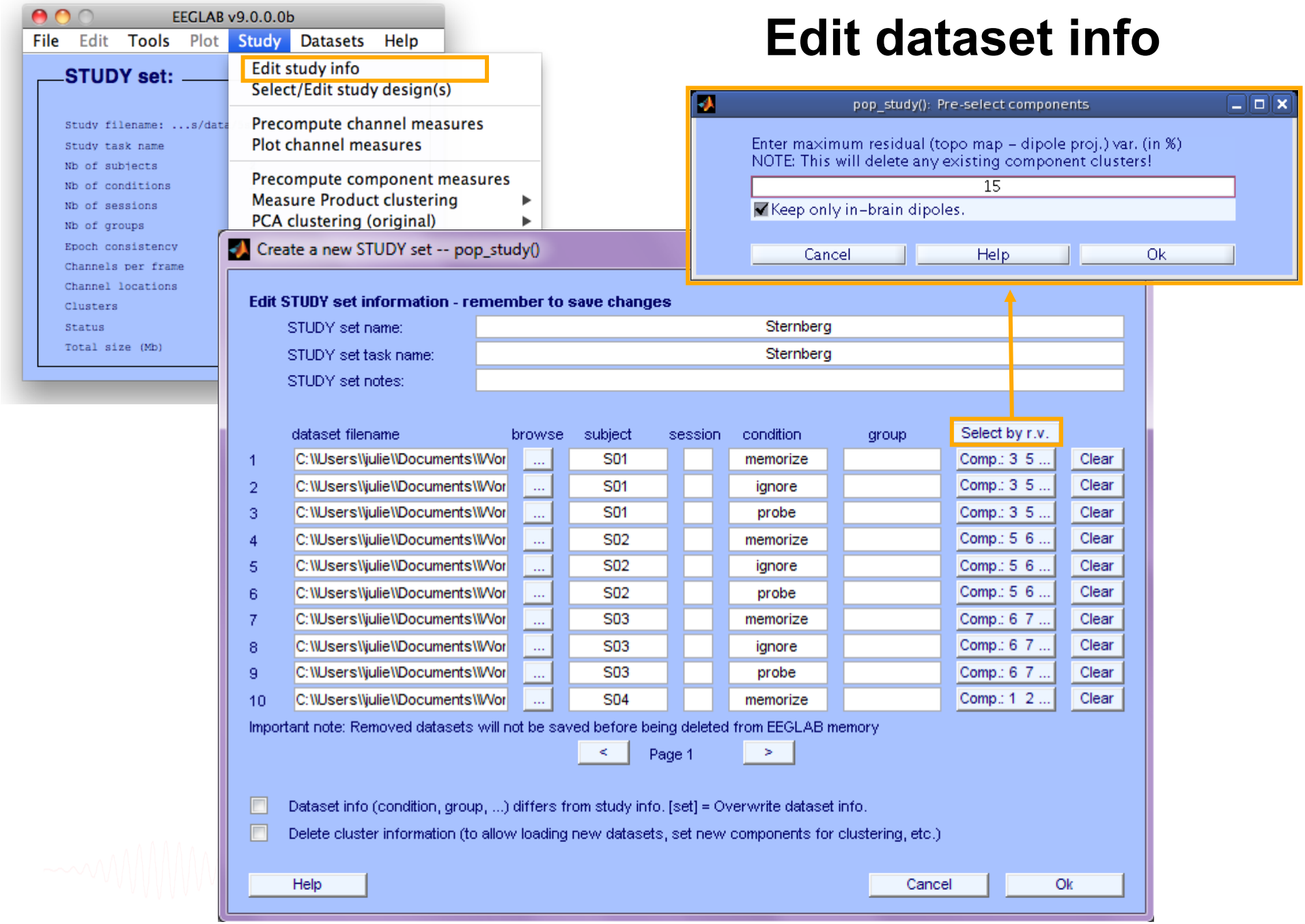
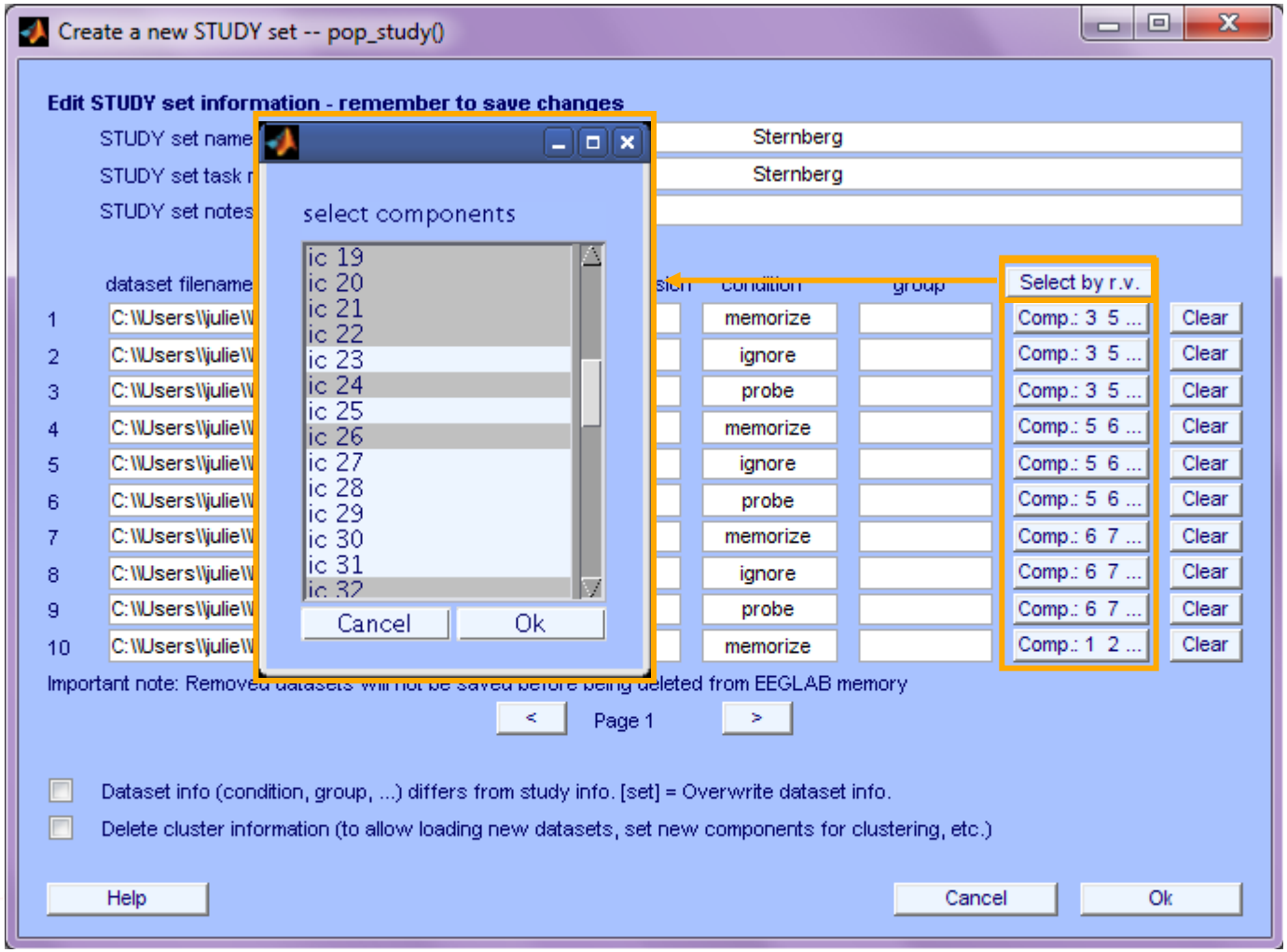
STUDY ICA component clustering

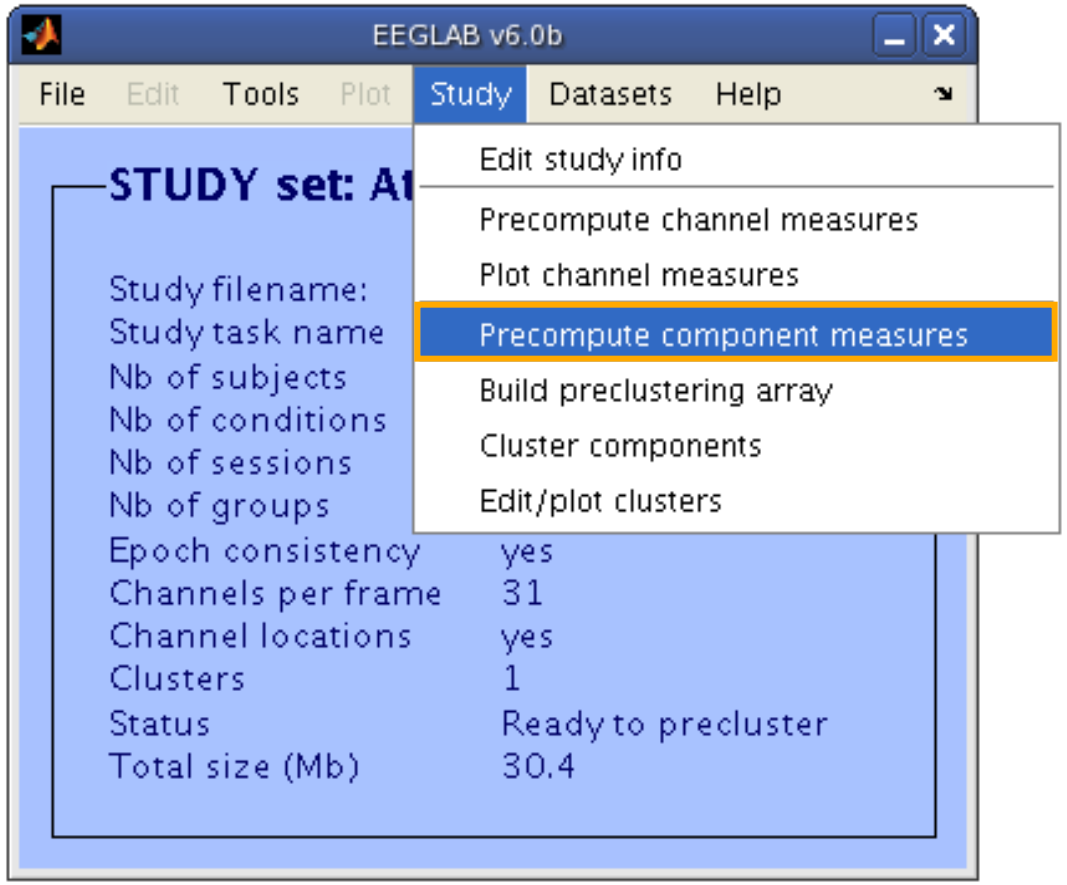
Edit dataset info



ICs to cluster

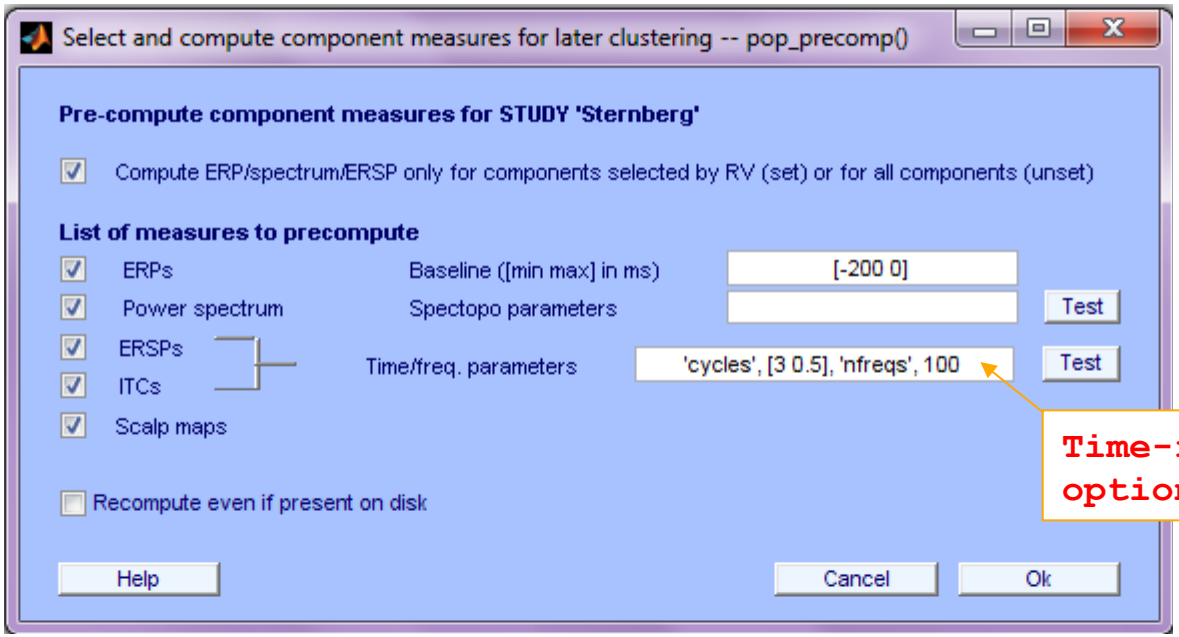


Precompute data measures



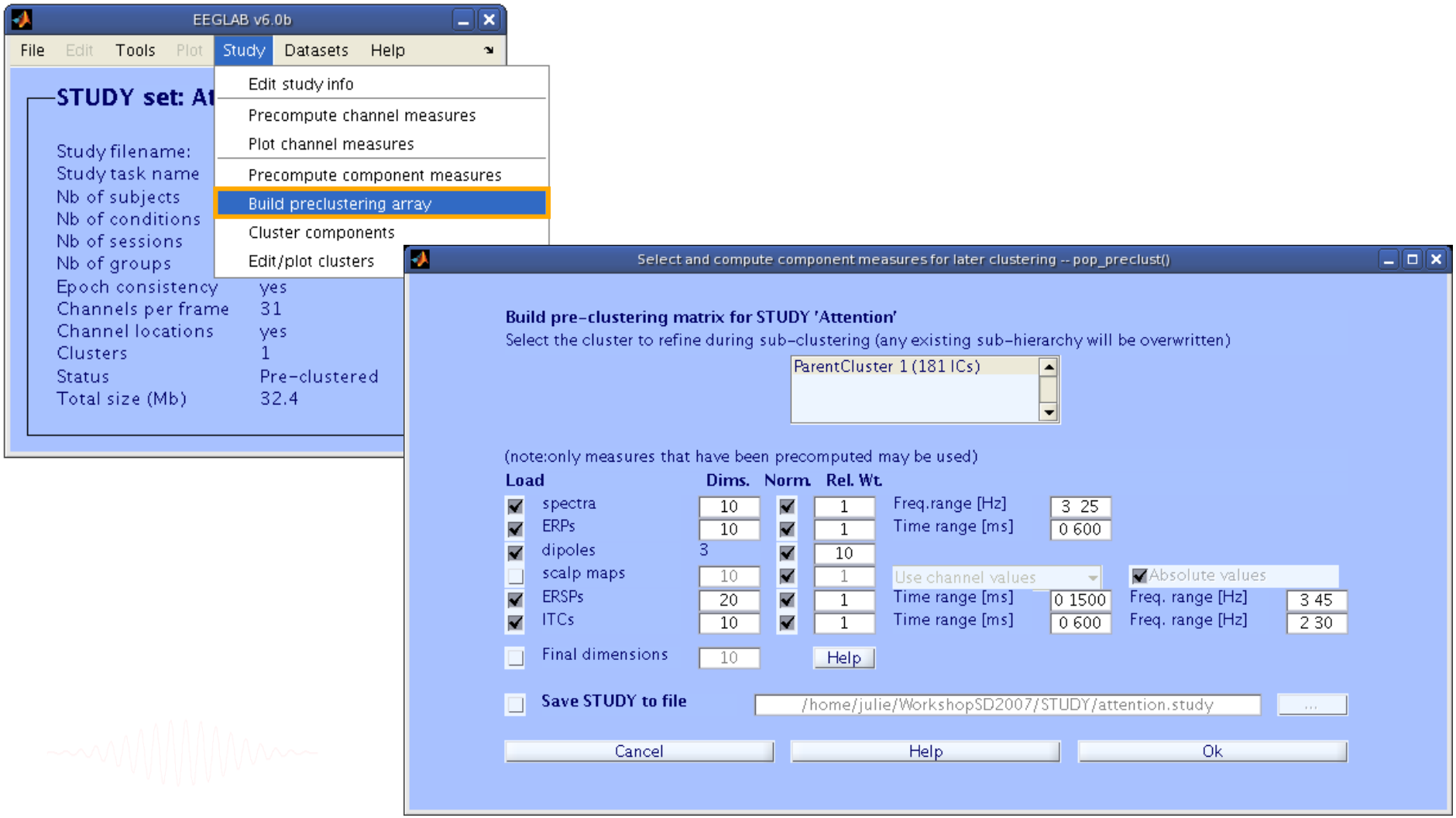
Precompute data measures

TIP: Compute all measures so you can test different combinations for clustering

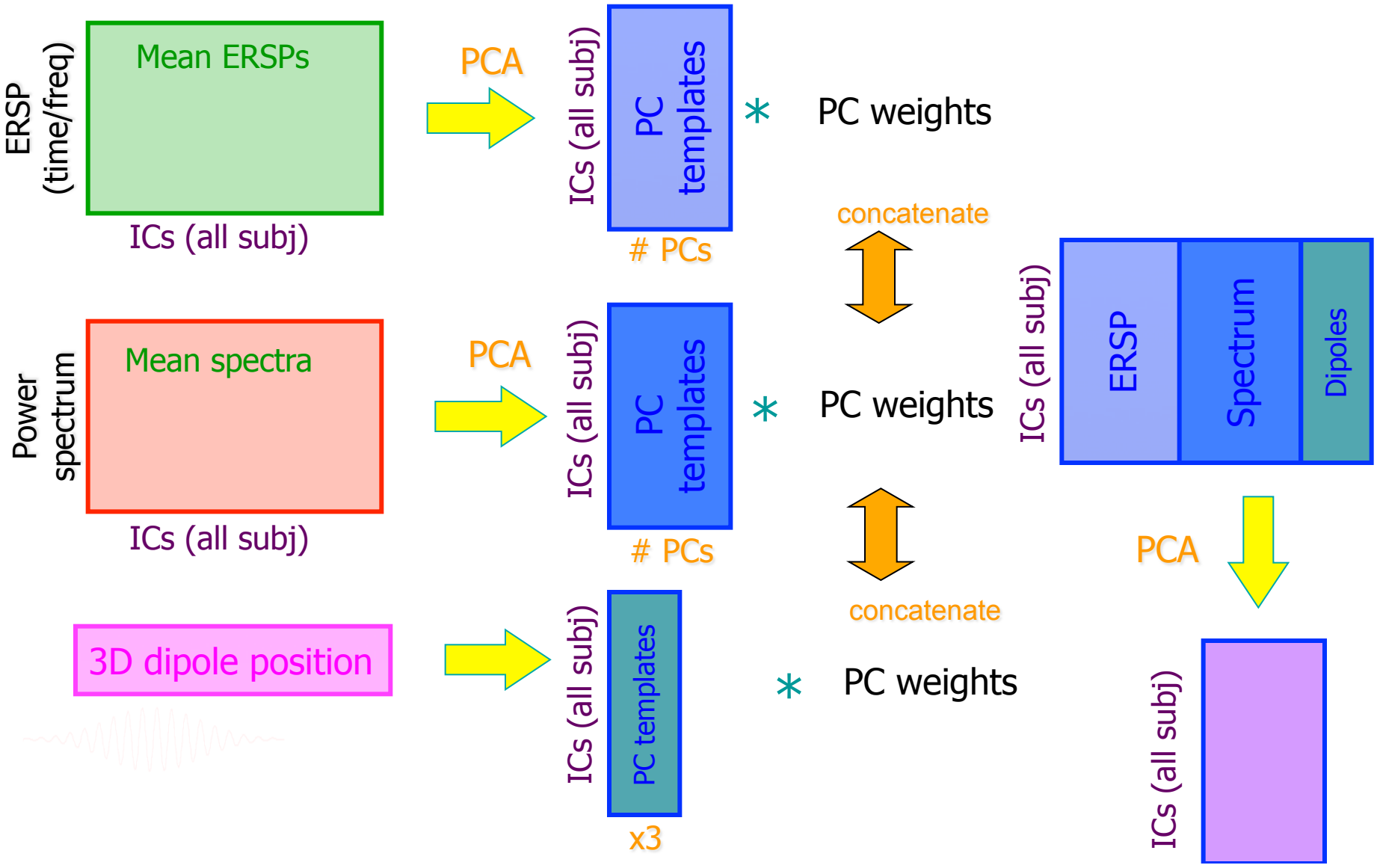


Time-frequency options

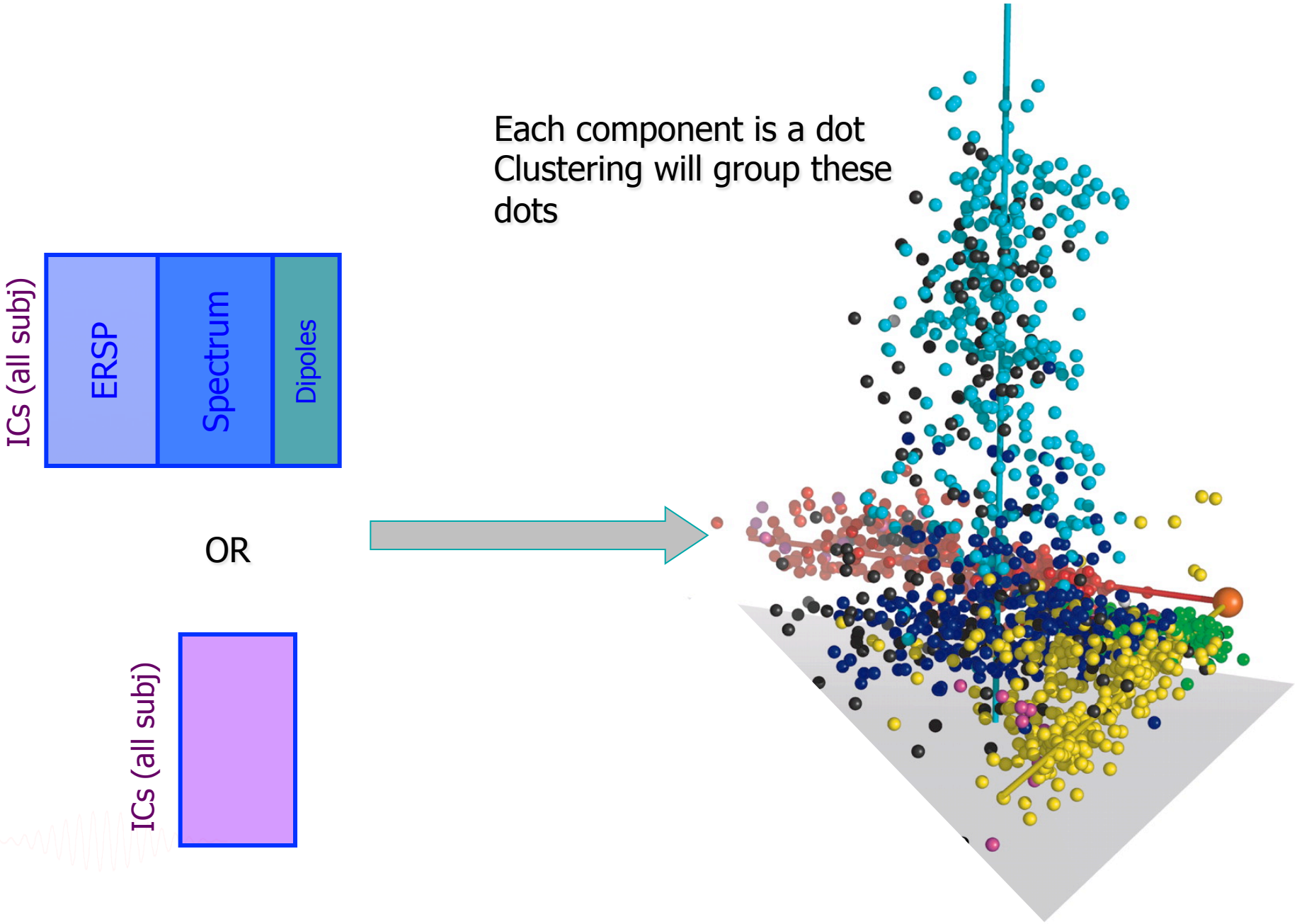
Cluster components



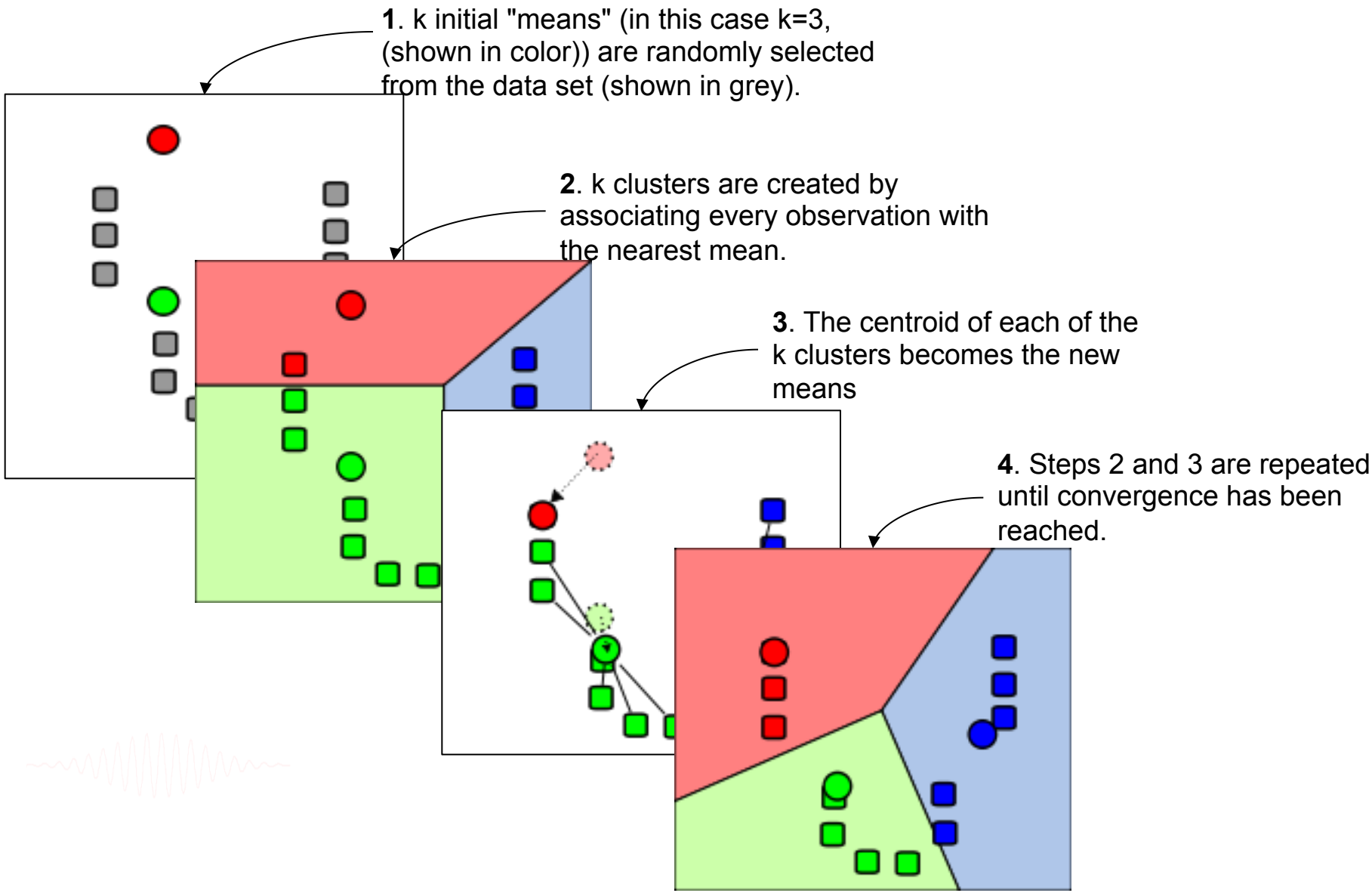
Precluster schematic



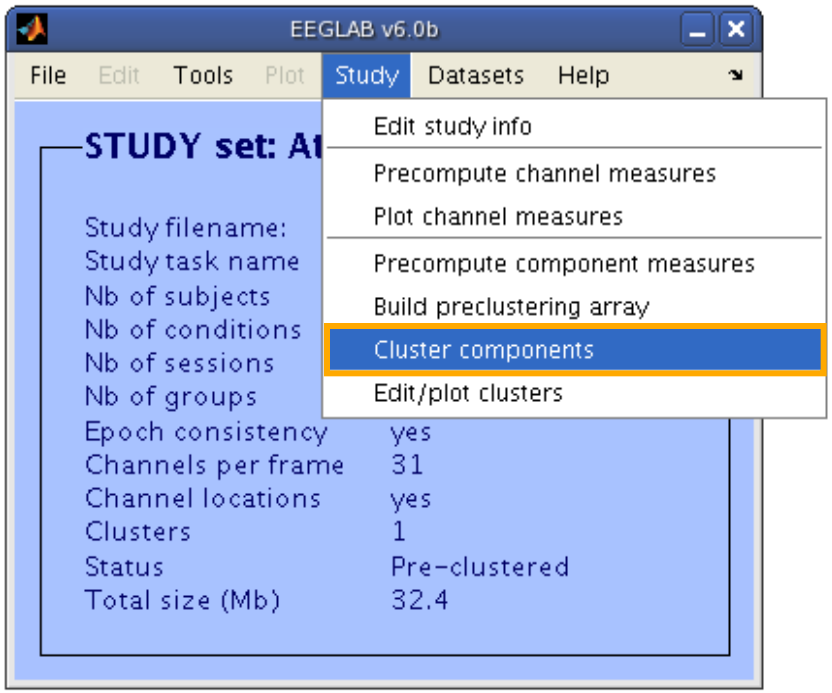
Precluster schematic

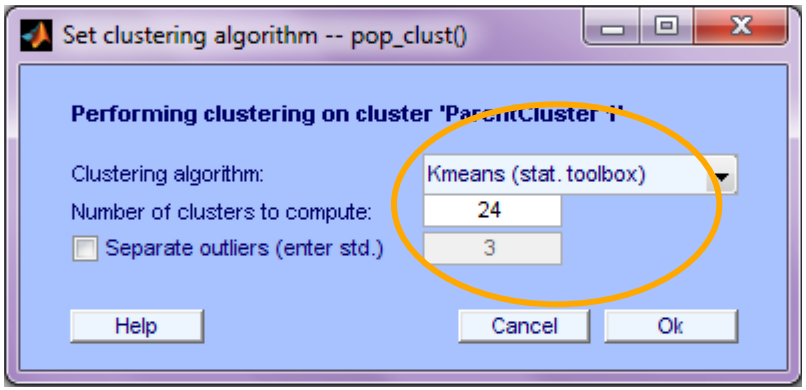


Classical KMean



Cluster components





Choosing data measures

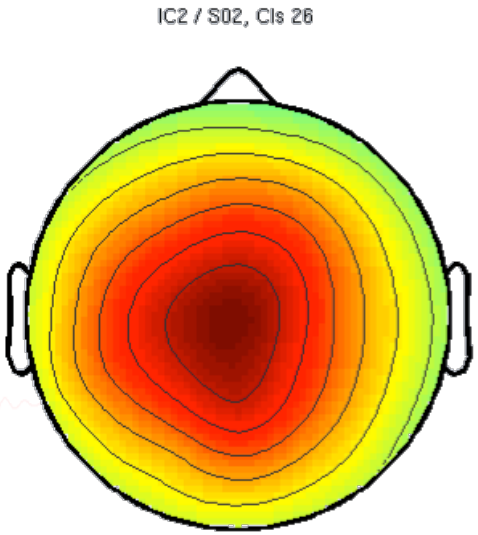
What measure(s) should you use?

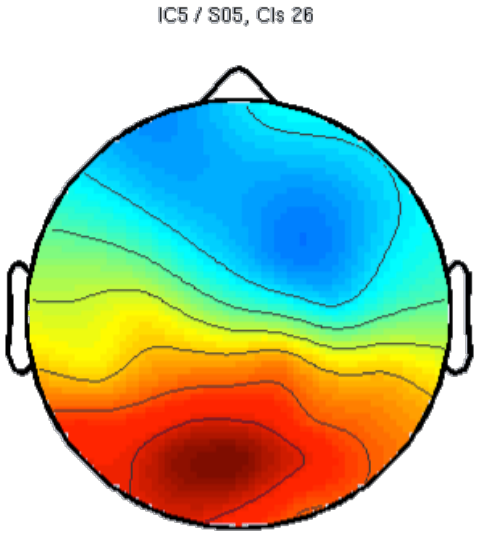
It depends on your final cluster criteria…

- If for example, your priority is dipole location,
  then cluster only based on dipole location…

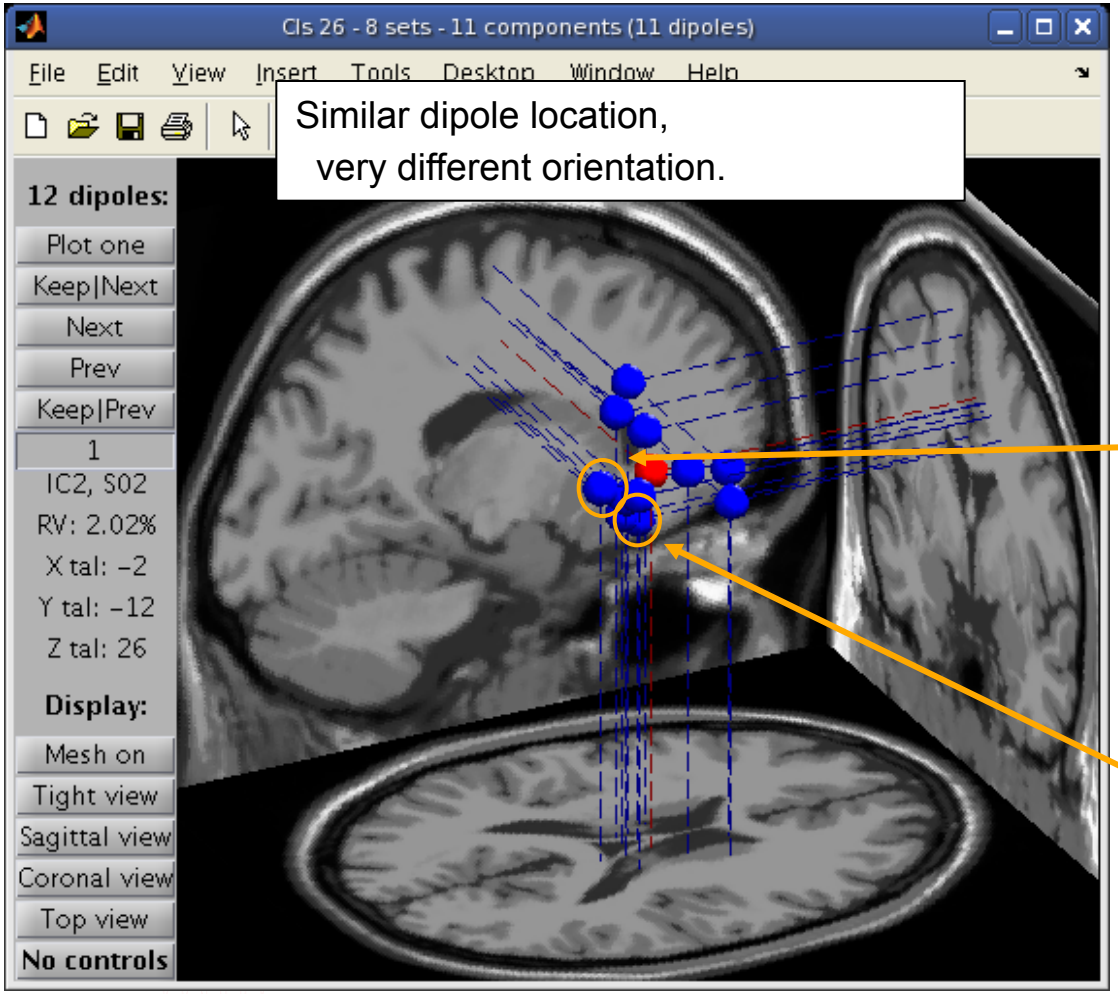
But consider:

- What is the difference between these two components?



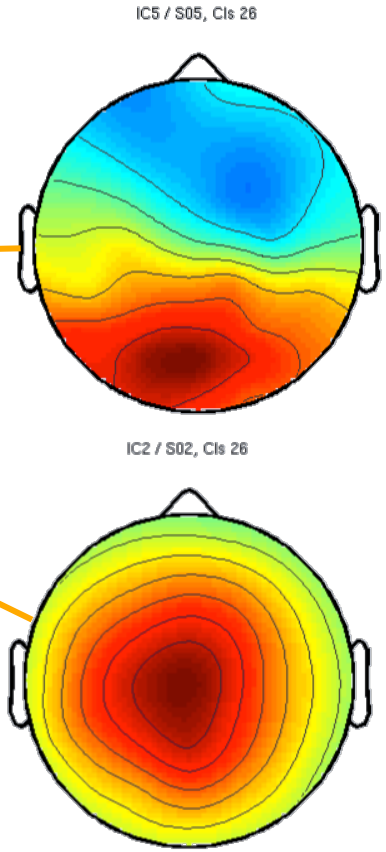


Choosing data measures

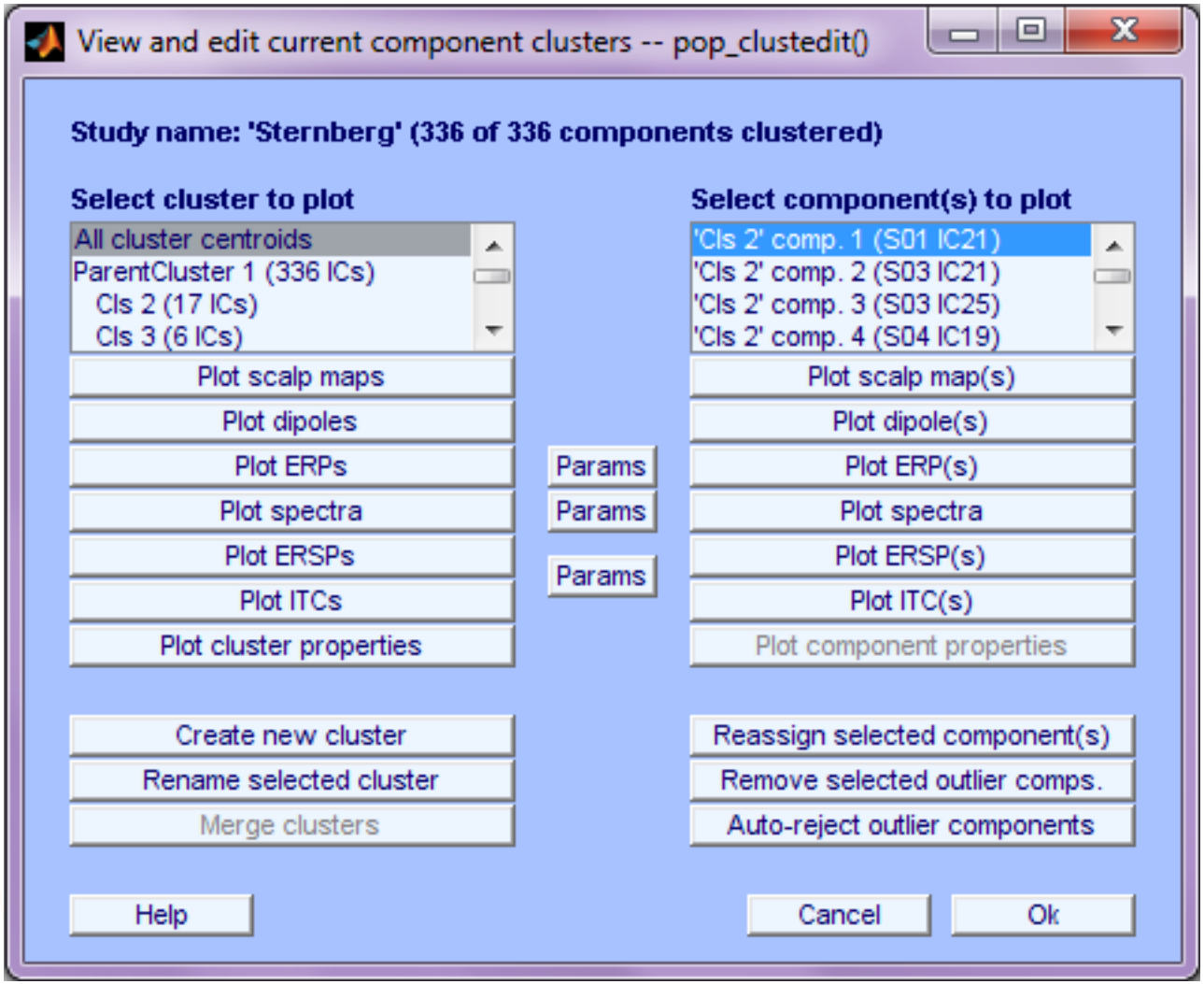


Similar dipole location,
very different orientation.

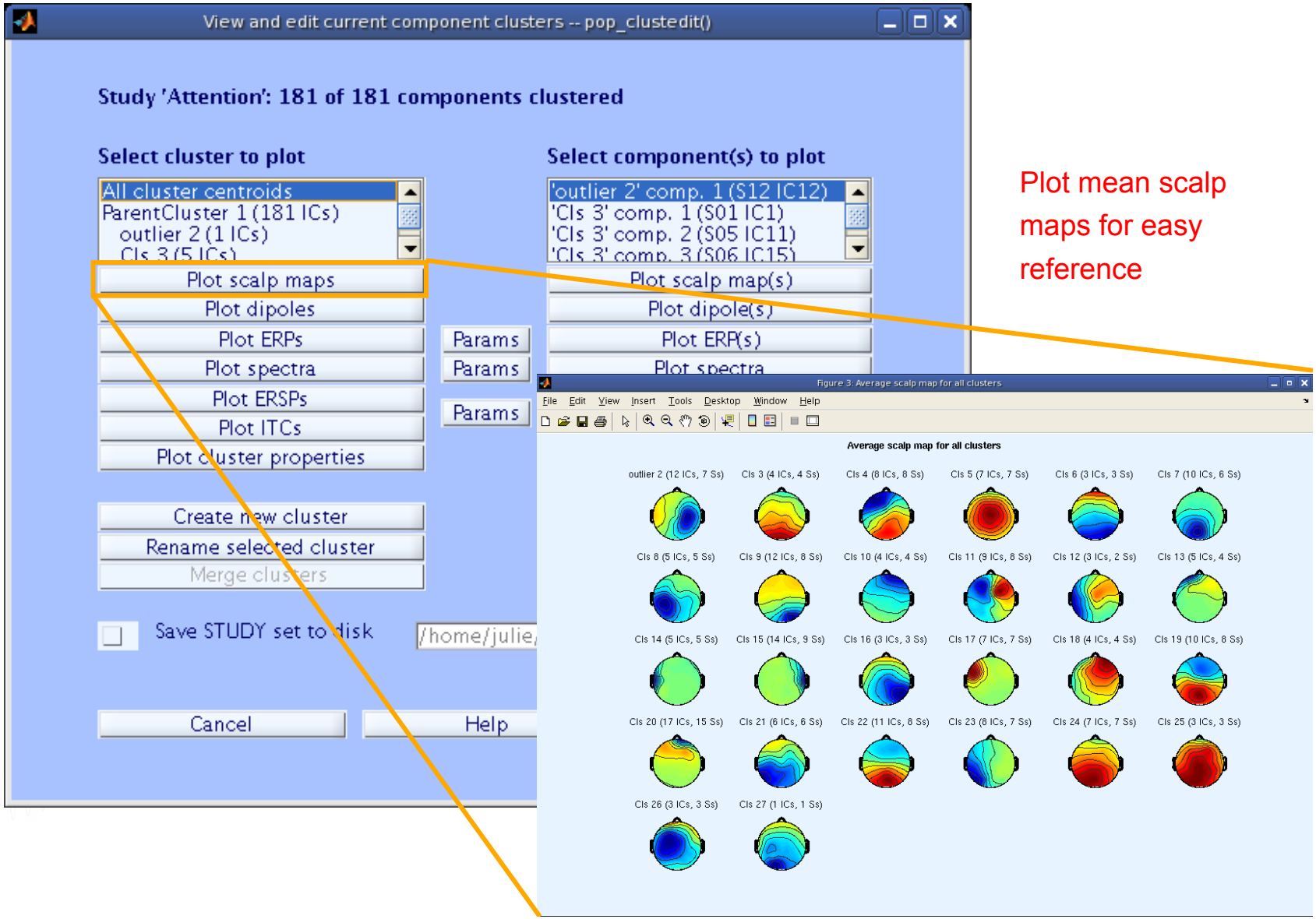
Obvious dramatic effect on
scalp map topography:



Plot/edit clusters

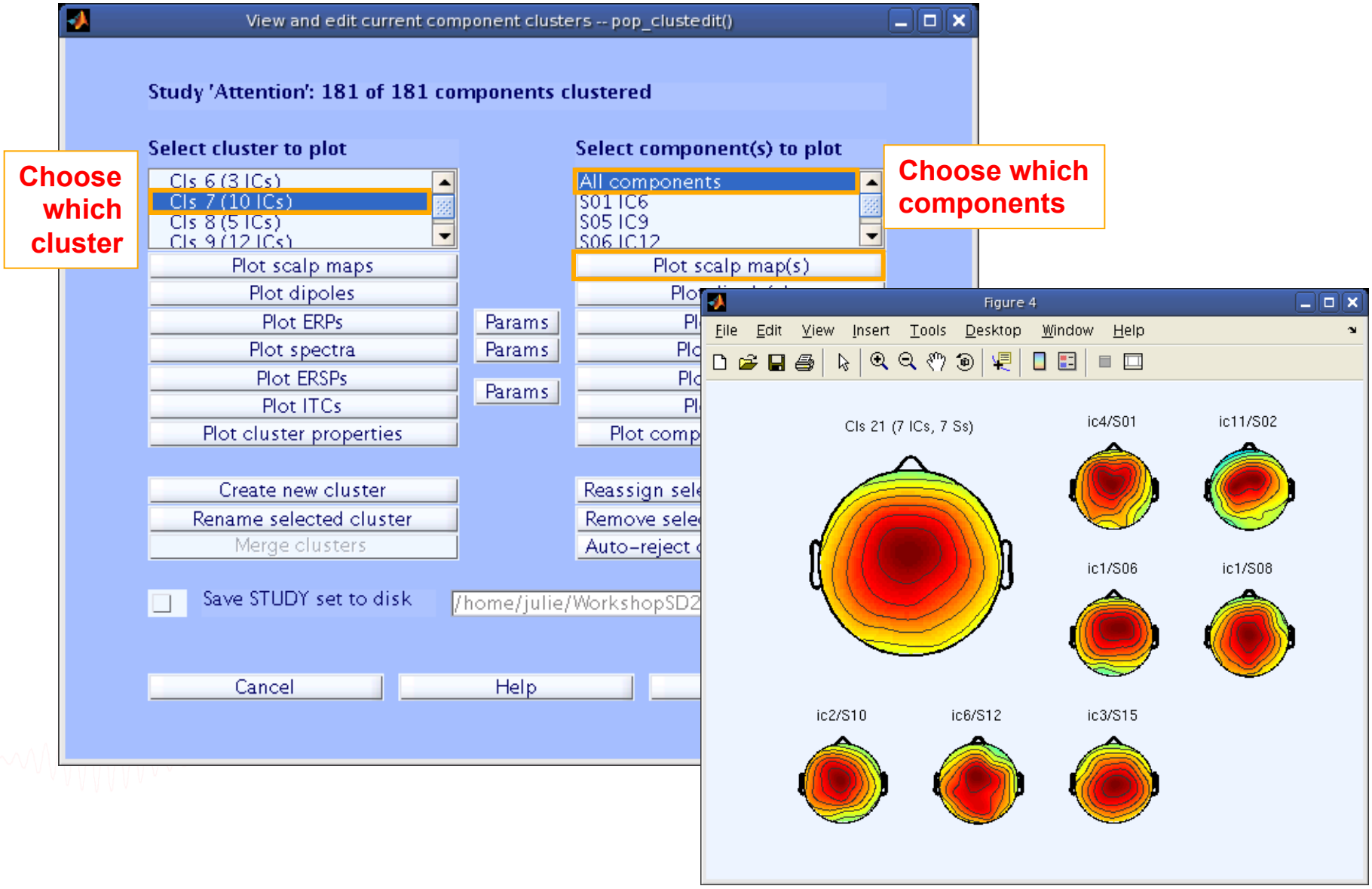


Plot cluster data

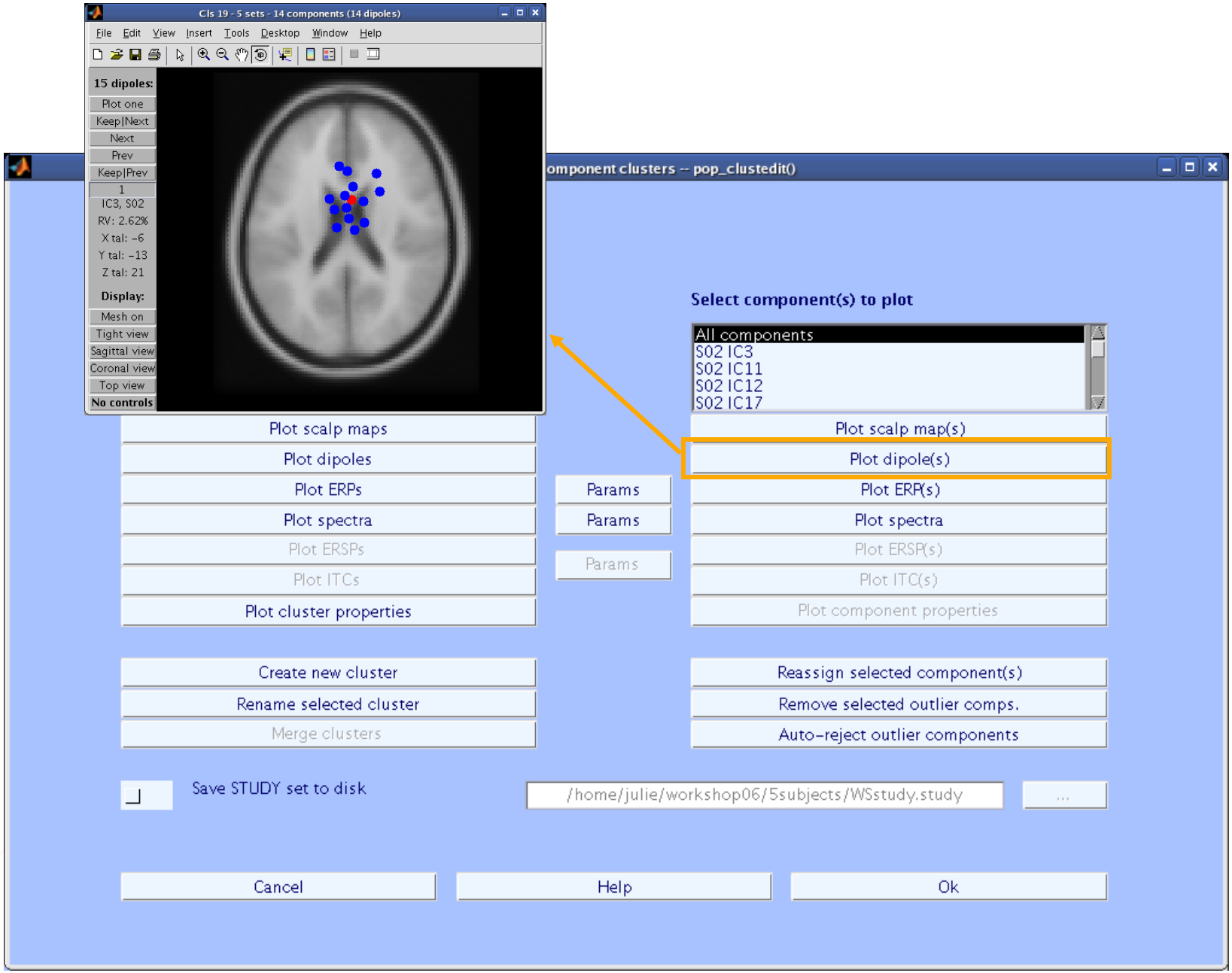


Plot mean scalp maps for easy reference

Plot cluster data



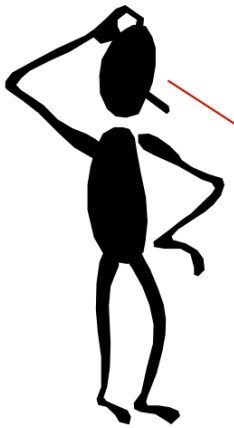
Plot cluster data

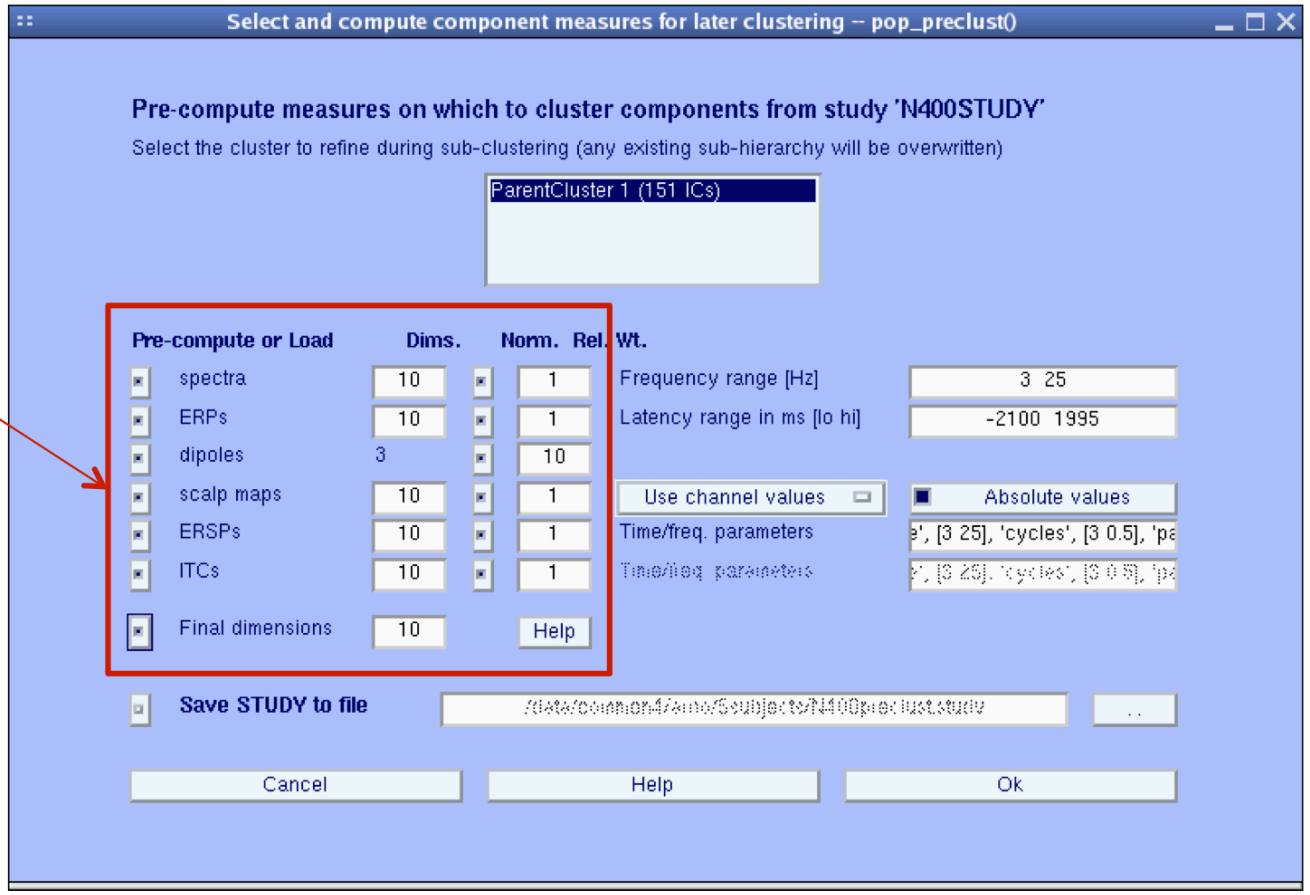


Issue with standard clustering

Large parameter space problem: many different clustering solutions can be produced by changing parameters and measure subsets. Which one should we choose?

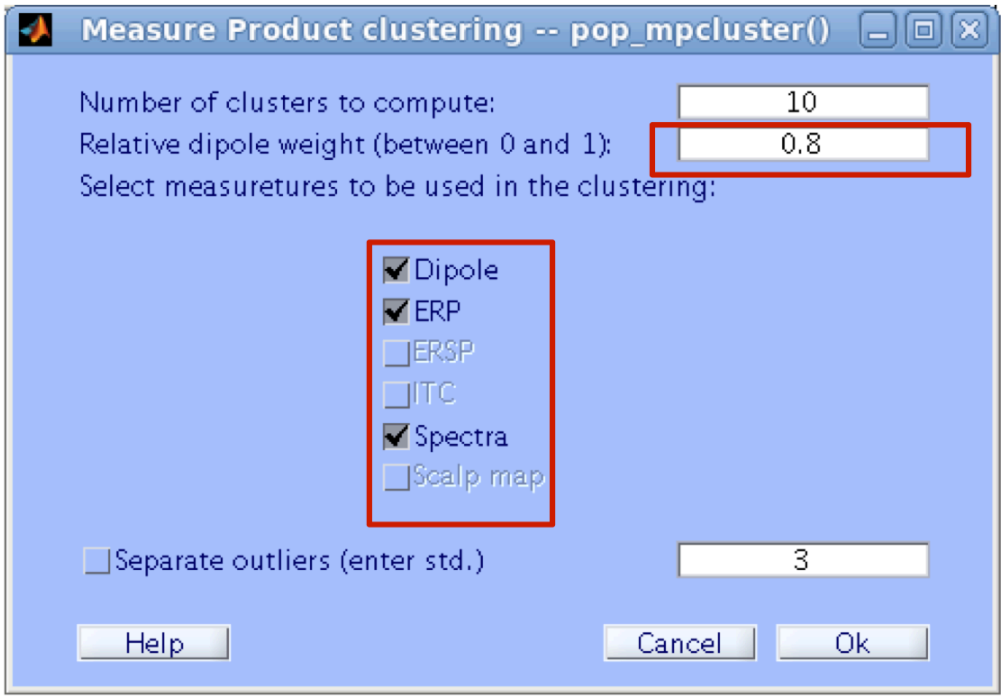
EEGLAB clustering has ~12 parameters





Measure projection

(EEGLAB plug-in by Nima Bigdely Shamlo)
only has one pre-clustering parameter.

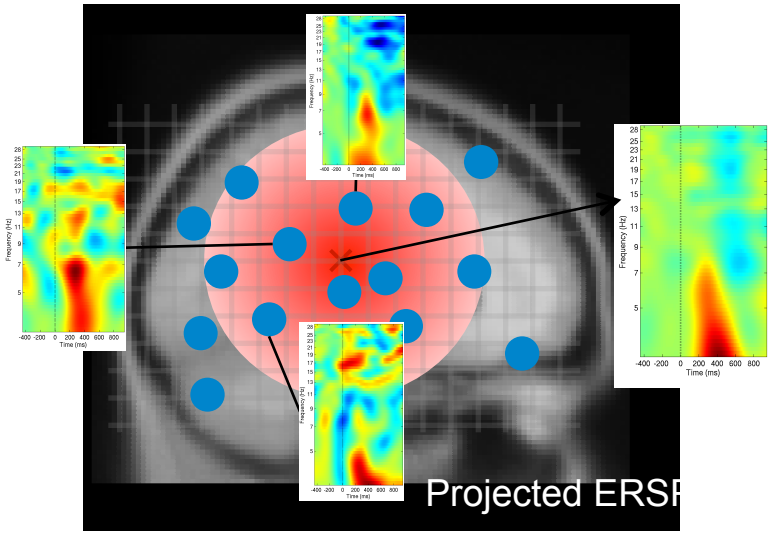


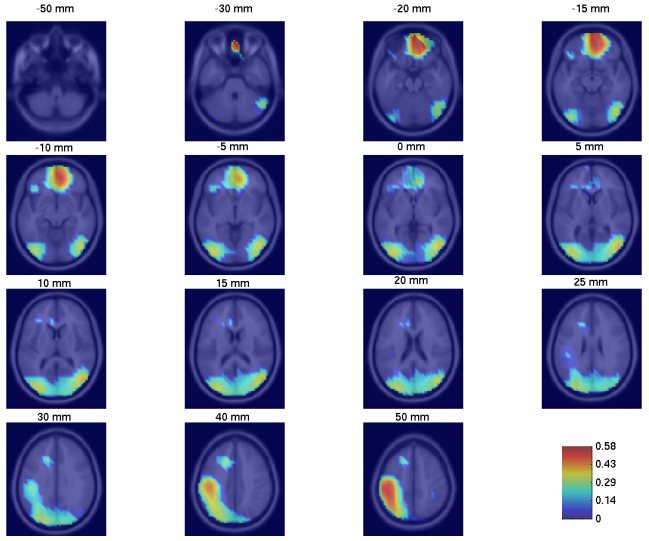
Measure projection

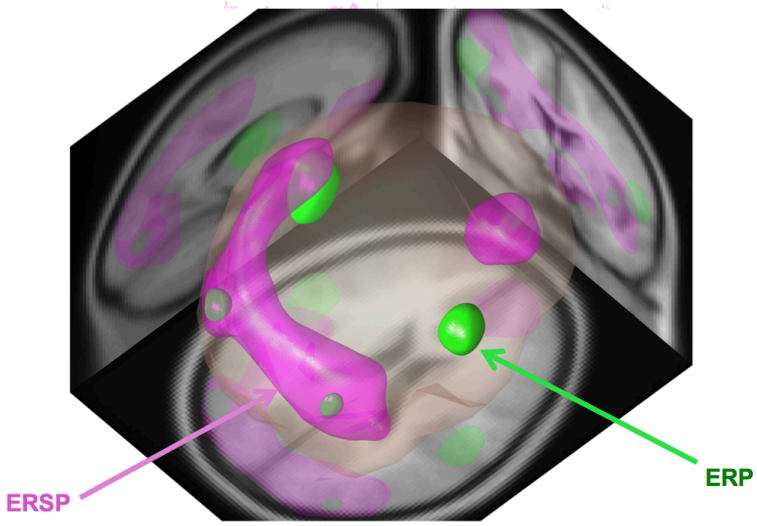
- **Instead**, we can directly work on pair-wise similarity matrices and prevent ICs with similarities less than certain threshold (e.g., ERSP corr. < 0.5) to be clustered together.

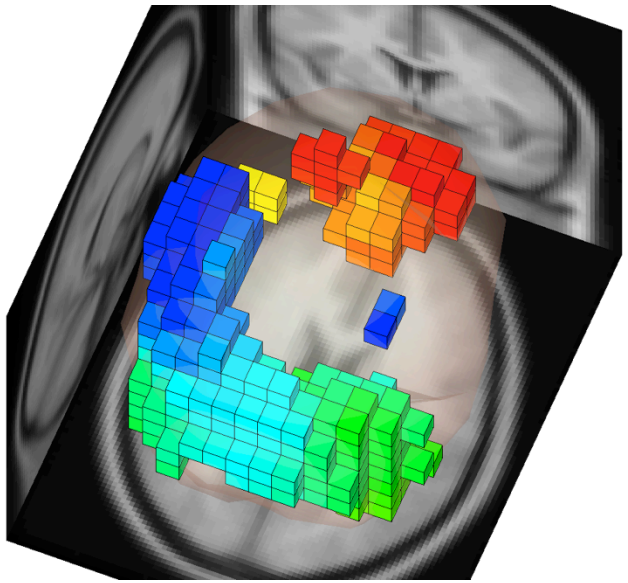
- The most important measure is **equivalent dipole location**

Measure Projection Toolbox









Exercise

- Load the Stern STUDY (STUDY folder)
- Precluster (pre-computation already done) and cluster components using measures of your choice. Experiment with different measures.