Supplementary Figures

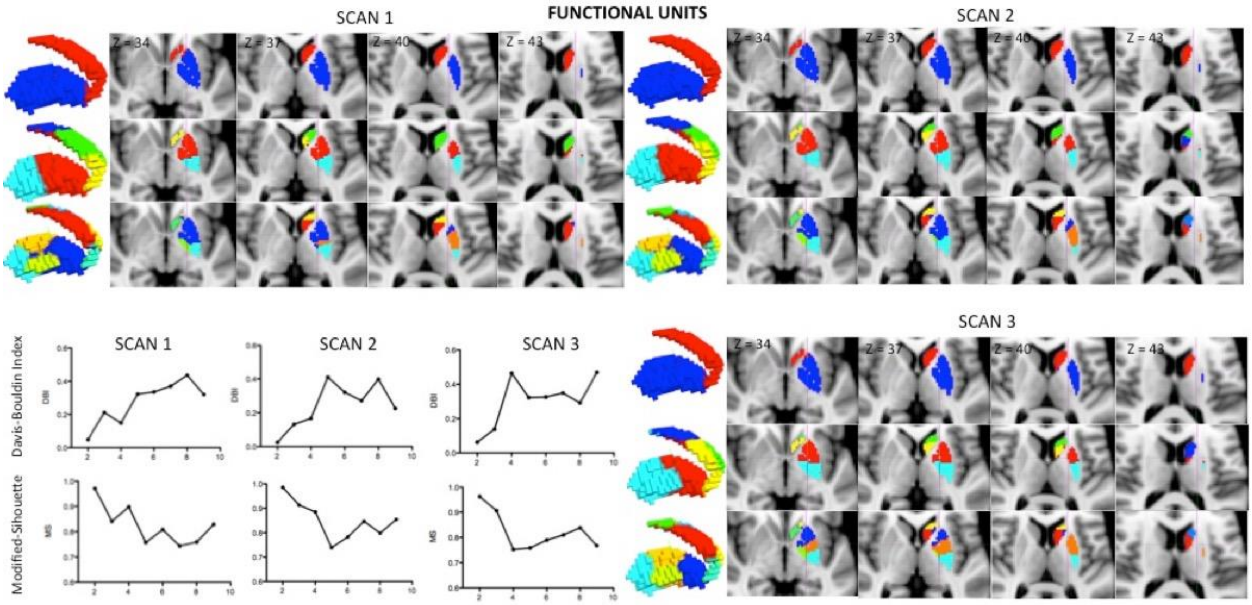

Figure 1. Functional parcellation units for temporal resolution similarity measure. The group-level clustering of the BG in scans 1, 2 & 3 derive in very similar functional units. The 3D renders and sagittal views reveal a main partition of caudate and putamen at k=2, that remain in every resolution. While resolution k=5 divides the caudate into 2 units of ventral and dorsal/anterior areas, the putamen is sectioned into anterior and posterior units. The k=9 resolution shows a functional unit comprising nucleus accumbens and one for globus pallidum, while maintaining the tripartite caudate division of the k=5 resolution and dividing putamen into anterior, central and posterior units. Moreover, the Davis-Bouldin Index, a measure of within-cluster dissimilarity, and the Modified-Silhouette Index, a measure of between-clusters dissimilarity, point to 2, 4 and 9 as best performing solutions for scan 1; 2, 7 and 9 for scan 2; and 2, 5 and 8 as the best performing solutions for scan 3.

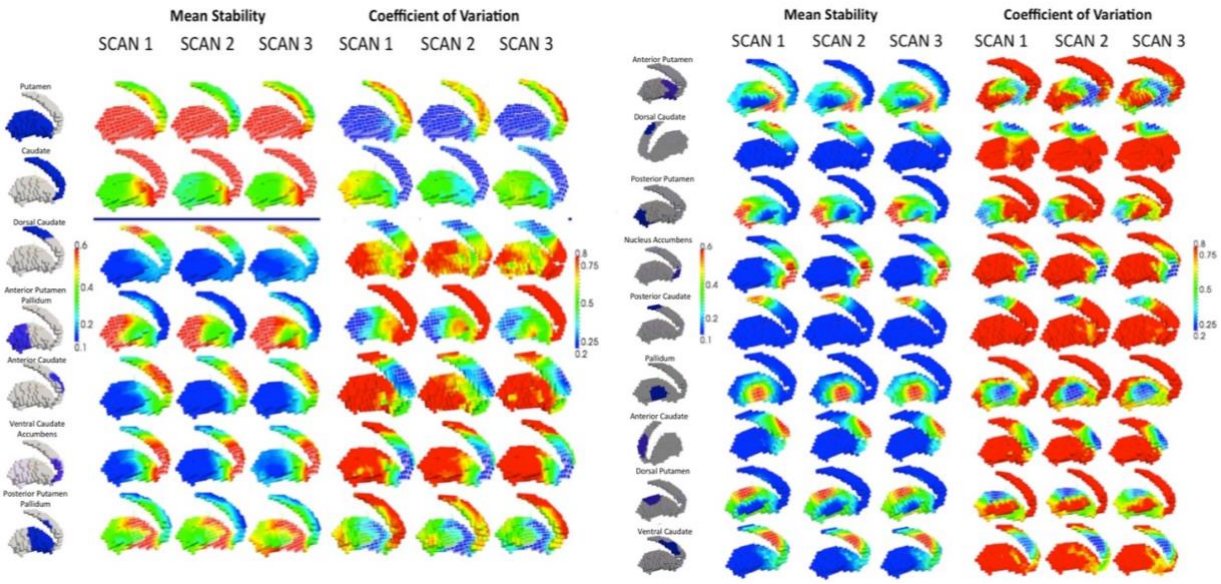

Figure 2. (A) Mean stability and coefficients of variation for k=2 and k=5 resolutions on maps obtained with temporal correlation as the similarity measure. The panels and renders show the average of the stability maps across subjects for the 2 and 5 target clusters (shown on the first column renders and delineated by a white wireframe on the 3D renders) of the k=2 and k=5 resolutions. All three scans show very similar mean stabilities, with highest values within the target cluster and lower values distant from it. The right columns show the coefficients of variation (standard deviation relative to mean) of the stability maps across subjects for the 2 and 5 target clusters in the k=2 and k=5 resolutions. Again, all three scans show very similar coefficients of variation, with lowest values within the target cluster and higher values for voxels distant from it. **(B)** Mean stability and coefficients of variation for resolution k=9.

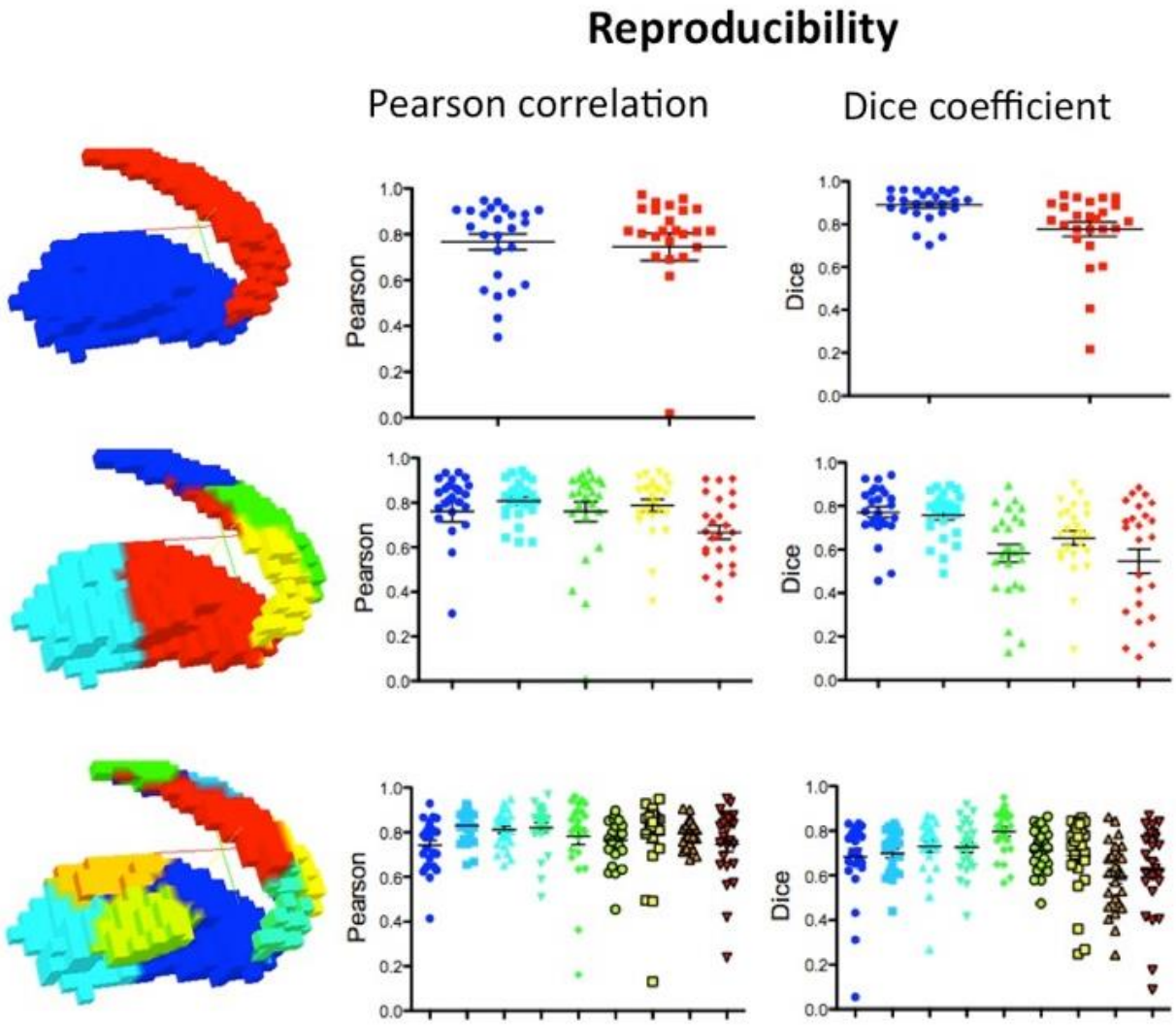

Figure 3. Reproducibility of stability maps obtained by using the temporal correlation similarity measure. The 3D renders show the group-level functional units obtained for sessions 1 and 2. The plots indicate the reproducibility measured by Pearson correlation for each subject across stability maps obtained for resolutions k=2, k=5 and k=9. The Dice coefficient measured on binarized stability maps, in which 1 represents the most stable cluster, are also shown. These data reveal strong reproducibility of the stability maps obtained through BASC across different scans.

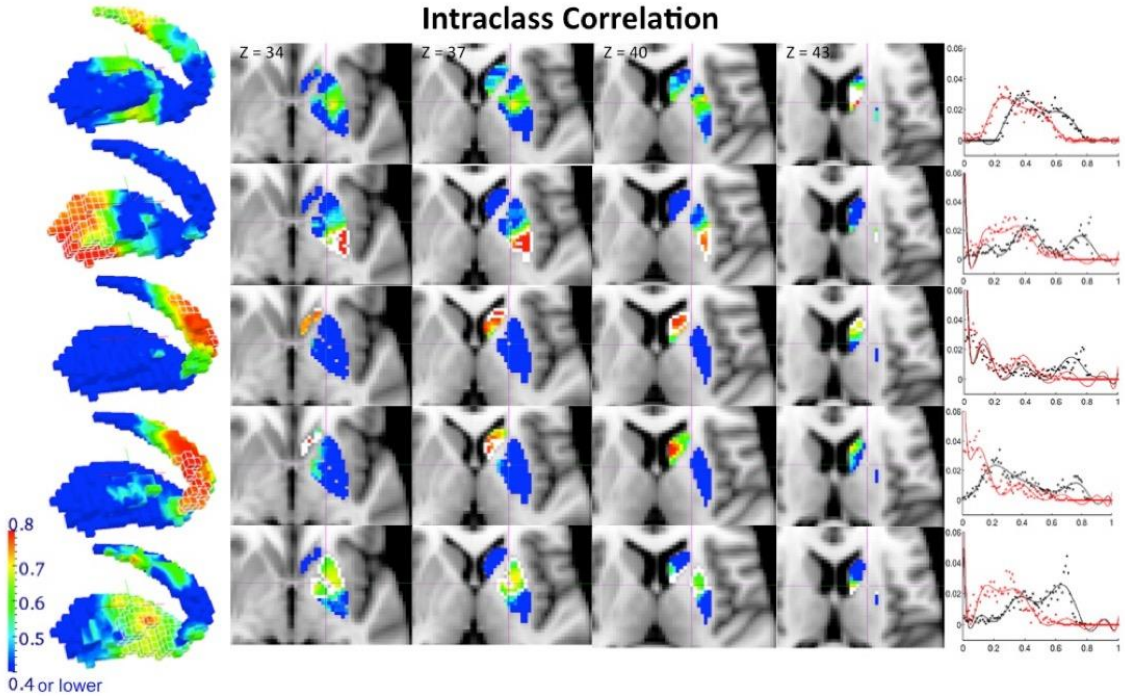

Figure 4. Intraclass correlation (ICC) for maps obtained with temporal correlation as similarity measure with resolution k=5. We examined reliability at every voxel level through ICC in the stability maps, defined as the proportion of variability across subjects relative to the total variability in the data. ICC values for the stability maps obtained from scan 1 and the average of scans 2 and 3 at resolution k=5 are delineated by a white line for the slice view and a white wireframe on the renders. High ICC values are only found in proximity to the target clusters. The low stability in voxels distant from the target cluster might explain this regional distribution of ICC values in the BG. The graph placed next to each cluster's ICC map represents the distribution of frequencies of the ICC values obtained when ICC was computed after having regressed out mean frame displacement for each subject (in black), and also when ICC was calculated without regressing that parameter out (in red).

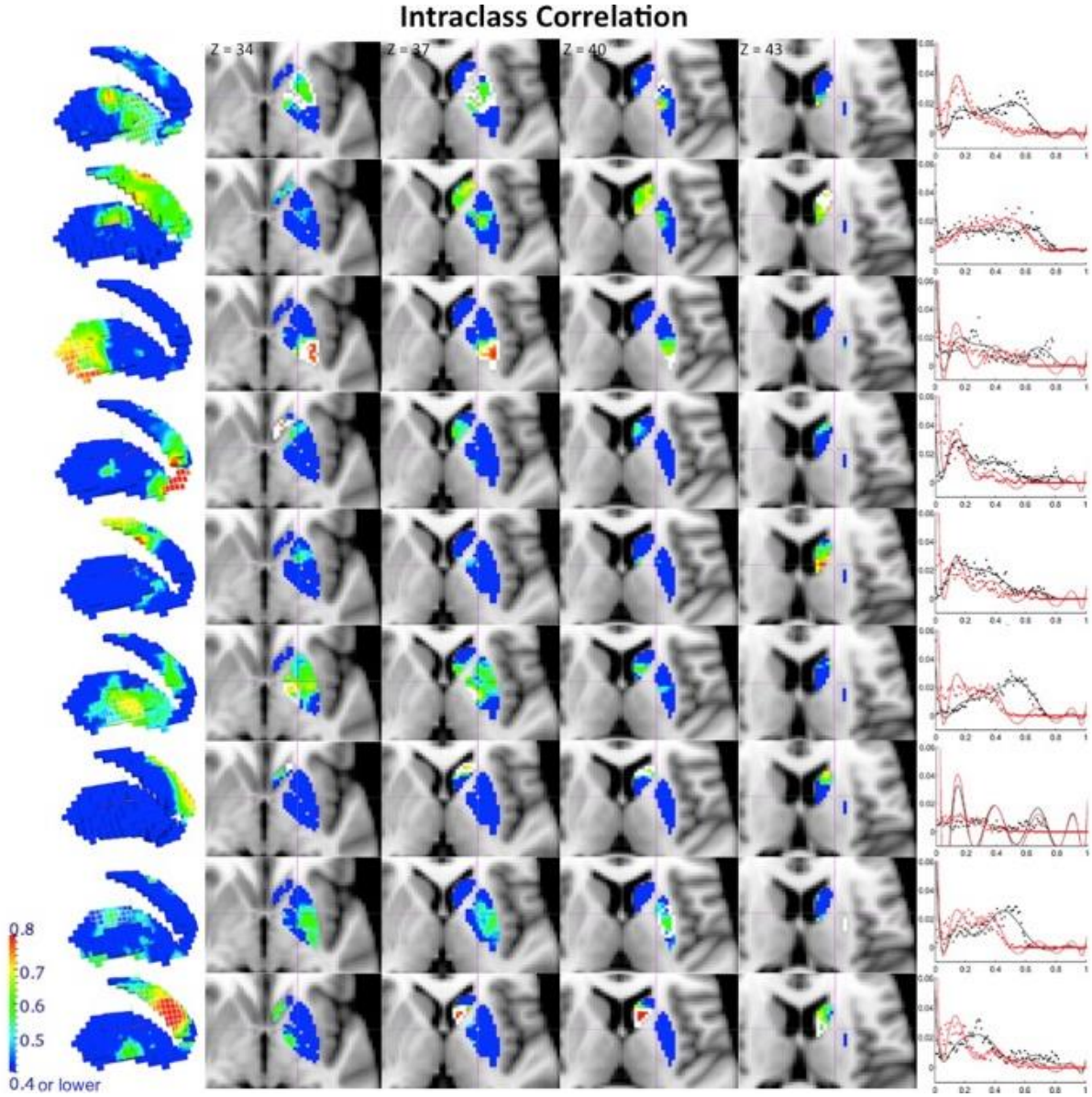

Figure 5. Intraclass correlation (ICC) for maps obtained with temporal correlation as the similarity measure with resolution k=9. We examined reliability at every voxel level through ICC in the stability maps, defined as the proportion of variability across subjects relative to the total variability in the data. ICC values between for the stability maps obtained from scan 1 and the average of scans 2 and 3 at resolution k=9 are delineated by a white line for the slice view and a white wireframe on the renders. High ICC values are only found in proximity to the target cluster. The low stability in voxels distant from the target cluster might explain this regional distribution of ICC values in the BG. The graph placed next to each cluster's ICC map represents the distribution of frequencies of the ICC values obtained when ICC was computed after having regressed out mean frame displacement for each subject (in black), and also when ICC was calculated without regressing that parameter out (in red).

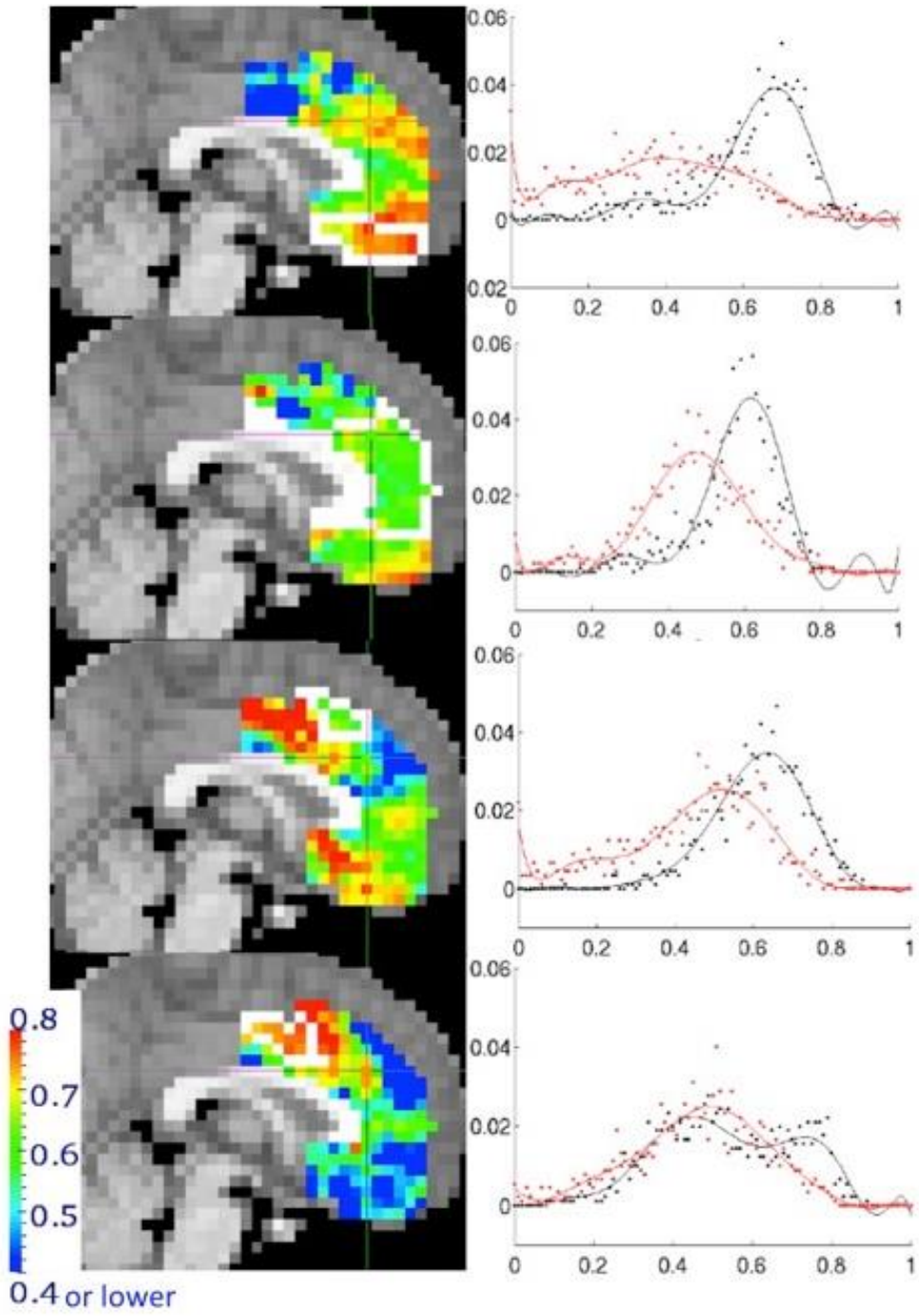

Figure 6. Intraclass correlation (ICC) for maps obtained by applying BASC on a different brain region. ICC values between sessions 1 and 2 in the TRT sample for the stability maps obtained from the medial wall (target clusters delineated by a white line). Again, high ICC values are only found in proximity to the target cluster. The low stability in voxels distant from the target cluster might explain the regional distribution of ICC values in the BG. The graph placed next to each cluster's ICC map represents the distribution of frequencies of the ICC values obtained when ICC was computed after having regressed out mean frame displacement for each subject (in black), and also when ICC was calculated without regressing that parameter out (in red).

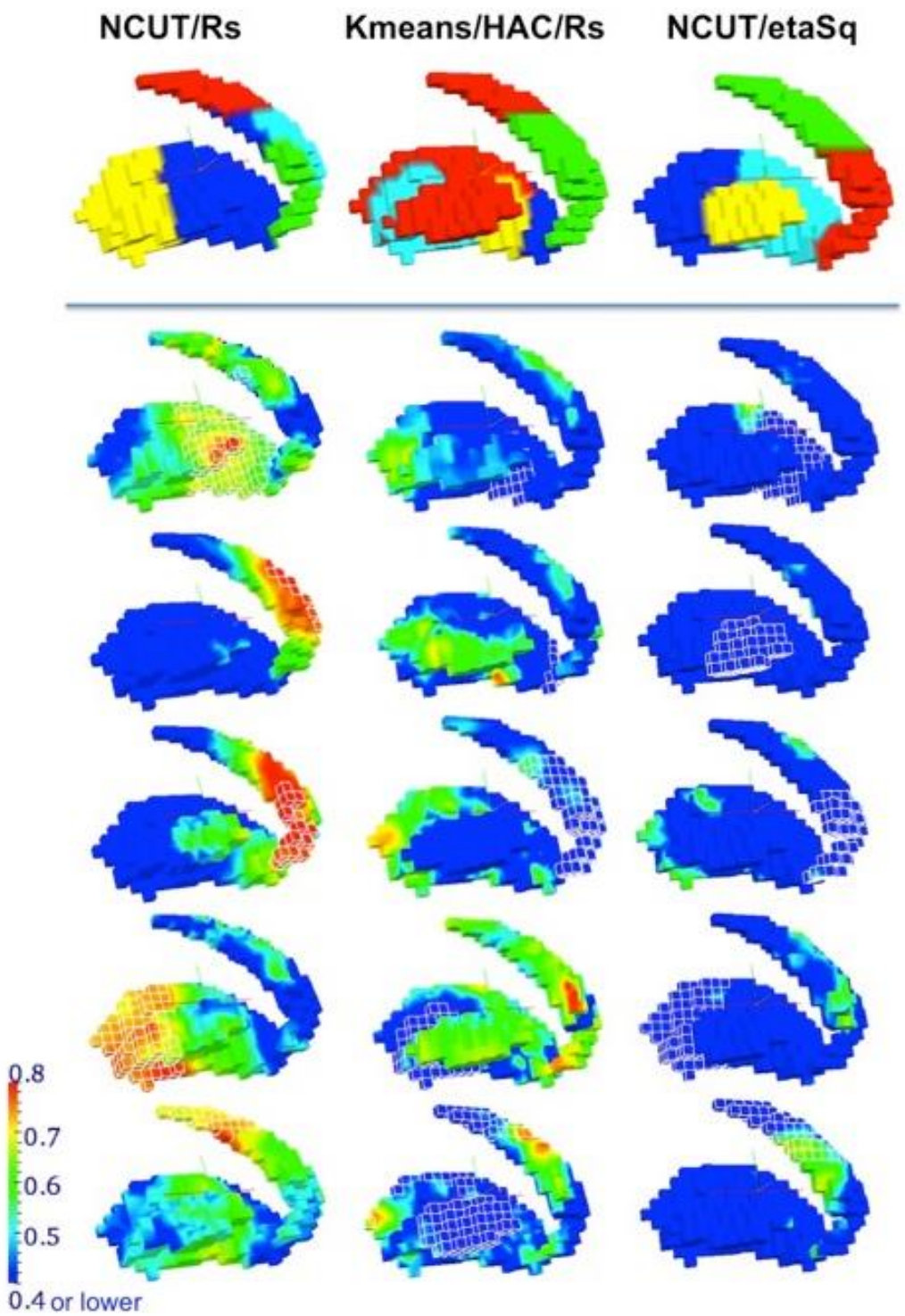

Figure 7. Group-level divisions and ICC maps for stability maps obtained using (1) NCUT clustering and spatial correlation as the similarity measure, (2) k-means clustering for the individual level analysis and hierarchical clustering (HAC) for the group-level one, and spatial correlation as the similarity measure, and finally (3) NCUT clustering and eta square as the similarity measure. K-means/HAC/Rs showed a very unfeasible parcellation of the BG and lower ICC values with an unspecific distribution, while NCUT/eta^2 displayed a feasible BG division, which differed from the one obtained by our method, with low reliability.

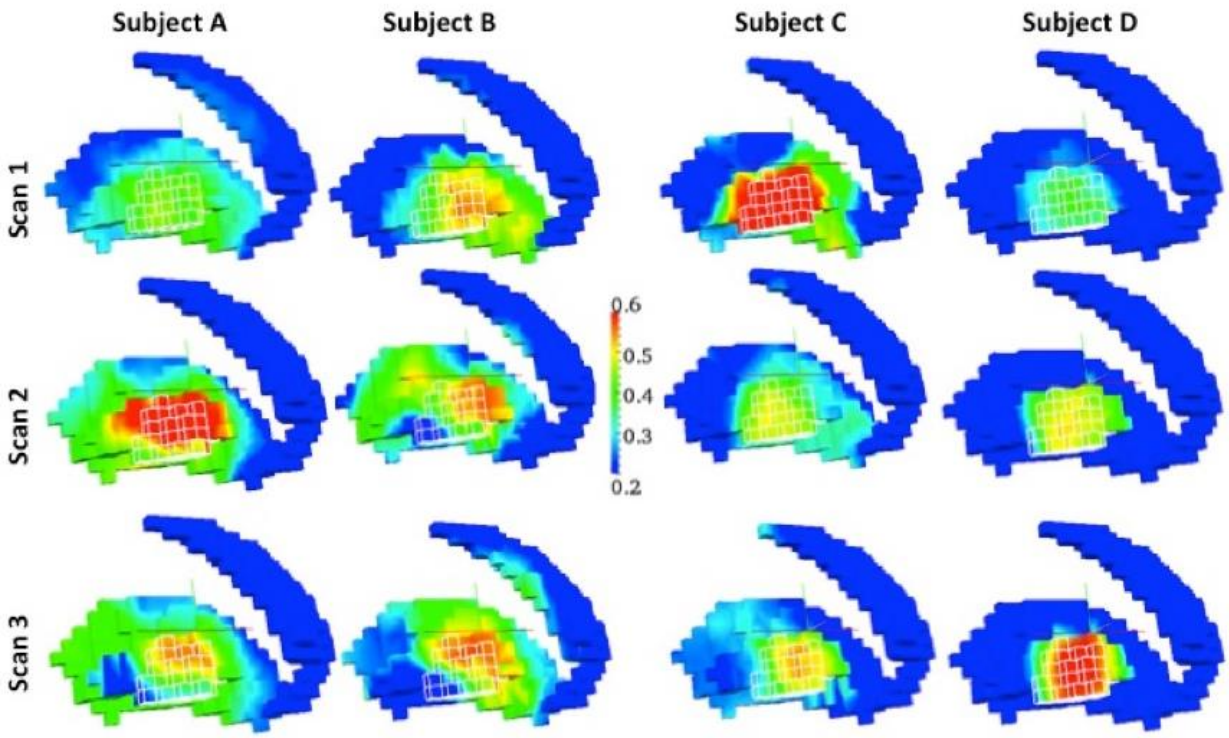

Figure 8. Individual stability maps for four subjects across the three scans. Notice how for every subject and scan, the target unit, highlighted with a white wireframe, shows the highest stability values. It is interesting to notice that the most variability across subjects is found around the target unit's boundaries.