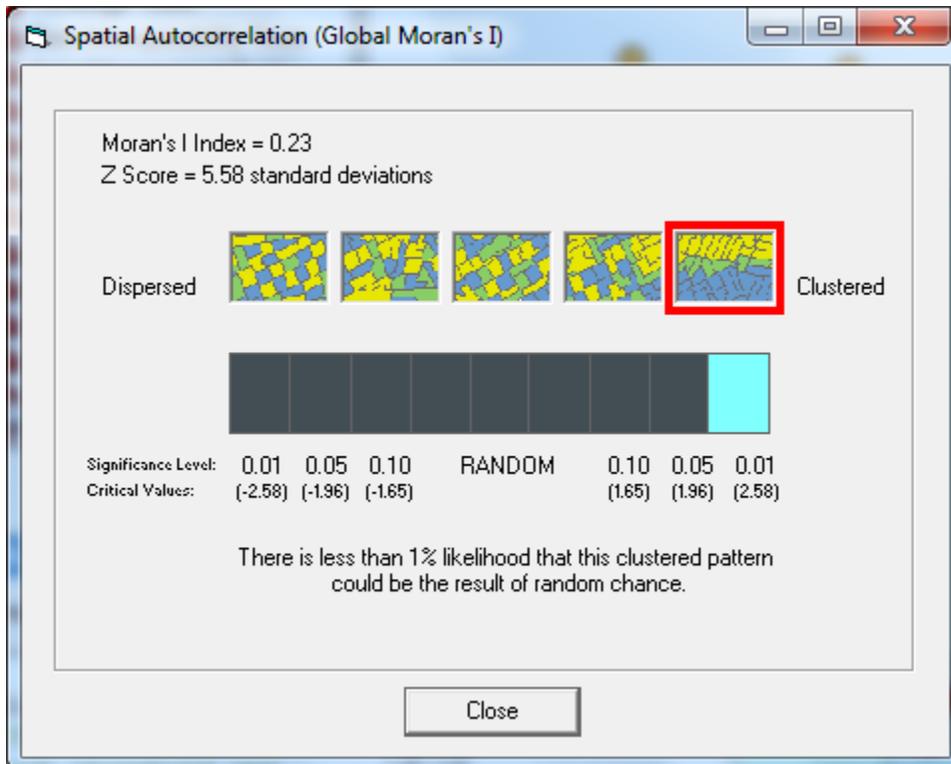


Aaron Marks

Lab 4

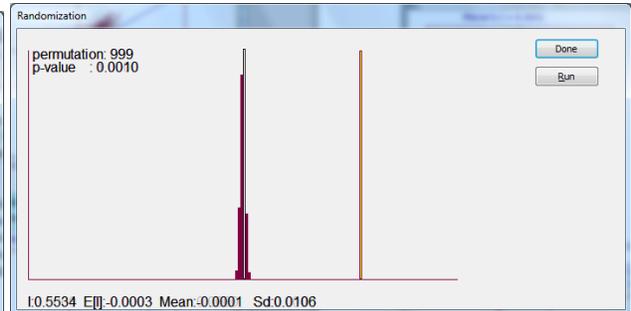
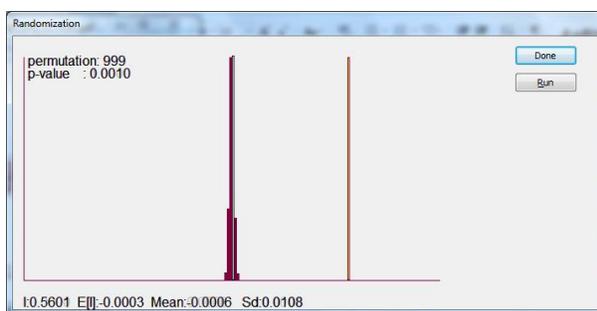
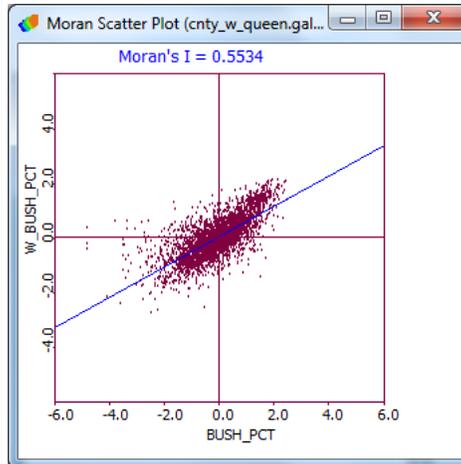
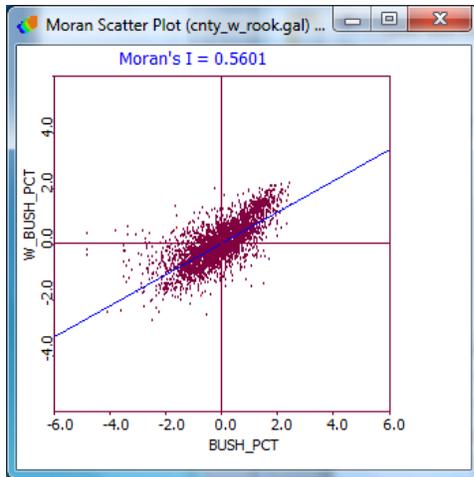
Q1a.) The null hypothesis being tested here is that there is no correlation between the age of trees and their distance to other aged trees. The zscore we would need in order to reject this null hypothesis would fall either below -1.96 or above 1.96 to be statistically significant. The null hypothesis for the Oldtree shape file would be that there is no positive correlation of the old tree data as itself.



Q1b.) The moran's I score was 0.23 and the Z-score was 5.58. The suggested spatial auto correlation here is Clustered. This relationship is significant at a level of <0.05 to 0.01.

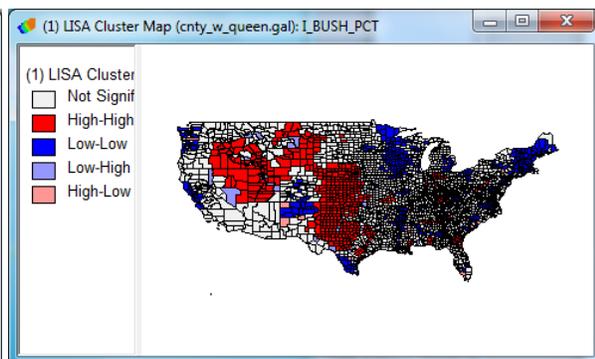
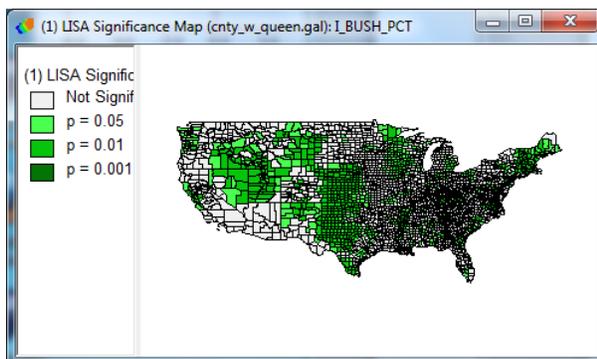
Q1c.) Using the inverse distance squared would put a heavier weight value on closer points and less on possible outliers.

Q2.) The difference between a rook and queen contiguity matrix is the surrounding areas that are considered adjacent. A rook will only consider those sharing a side made up of a line, such as top, bottom, left and right. A queen method will look at anything that shares a point, such as corners.



Q3.) The Moran's I values for the two methods are shown above. 0.5601 for rook and 0.5534 for queen. The difference between the two values is 0.0067. The P value for both was .0010. They are both significant at the 0.05 level based on these values.

Q4.) Based on the rook matrix, the areas of dark green are more significant. Based on the Cluster map we see that areas of High Bush Percent are located in the mid to mid west region in three large areas. Low percentages are found in smaller clusters on the west coast, along the mississippi, and in the north east. Between rook and queen there are no major changes to the locations of the clusters but the shapes have slight changes to some of the exterior counties changing from clustered to non significant, such as the top right of the north east cluster.



Q5.) There is a quite a bit of change to the patterns in voting from the county level to the state level. This is due to the weights being at different boundaries for both the actual entity but also its surroundings using both methods change drastically. County data is on a much smaller scale, and state data is more generalized and loses some of its internal significance.

Q6.) The global Moran's I values for Queen and Rook are .37780 and .3847 respectively. The difference between the two is again very small and areas of clusters remain the same, but the cluster has obviously changed in the mid west. This is similar to how they county data changed, clusters remained in the same area but changed in size and/or shape in some places.

Q7.) The clusters for the state level queen matrix can be seen with a high Bush percentage up north in the mid west, Montana South Dakota and Wyoming, while low percentages can be seen in the north east around New York Massachusetts and New Hampshire. These match up to the county level data to a certain degree, there are some changes but they are not complete opposites in any way.

Q8.) Areas with a higher percentage of urban population voting for bush are found in the red areas, and seem to be clustered with the areas of low urban population that voted for bush, which goes with the fact that the area that voted for bush is considered a cluster in the previous findings. Areas of High urban population that did not vote for bush would be the Light red areas, which are found near the areas of both low urban population and low bush votes, also goes along with everything before hand. Demographicly it looks as though areas of high urban population located around major cities have low bush percentages, and areas located further away voted for Bush.

Q9.) The two new variables chosen were percentage who voted Kerry compared against the county's population in 2000. A similar map was generated going along with areas of high population, major cities, had a higher percentage of votes for Kerry, and areas of low population and low votes for kerry are similar to those areas that voted for bush. The maps are similar in that they are almost exact opposites.

