

My strategy has been to first group the data by TWS (4 knts, 6 knts, etc.) then subgroups by TWA within each TWS group. For example, the "4 knt" TWS group would contain sentences with TWS between 3.5 knts and 4.5 knts. The "6 knt" group would contain data rows with TWS between 5.5 knts and 6.5 knts and so on. Eight groups in total [4,6,8,10,12,14,16,18-20]. Each TWS group was further broken down into TWA subgroups. For example the "40 deg" subgroup within the "6 knt" group would contain sentences with TWA between 35 and 44.9 degrees. The "50 deg" subgroup would contain TWA between 45 and 54.9, etc. Fifteen subgroups in all: [40, 50, 60...180]. Each group X subgroup (8 X 15=120 cells) cell contains varying numbers of boat speed STW values. The median was gotten for each cell and smoothing function applied to each set of 15 median values within each of the 8 TWS groups.

Graphs are polar plots (wind from the east) for each TWS group with median data values and smoothing function line. Final polar plot have all the smoothing function lines combined. The more data that's collected the better the polar plots will look.

My strategy is very sample size dependent. After slicing and dicing the data into 120 groups, even after starting with around 10,000 values some cells are very data poor...< 10 points.