Using Hierarchical Models and Relative Rates to Predict the Duration and Maximum Intensity of a Hurricane which forms in the Atlantic Basin

Let w be the wind speed associated with a given atmospheric pressure p over time t and the i^{th} storm.

$$w_i(t|p,x,y) = \sum_{j=0}^{k} \beta_{ij} t^j + \sum_{\forall \delta_p,\delta_x,\delta_y} \alpha_{\delta_p \delta_x \delta_y} p^{\delta_p} x^{\delta_x} y^{\delta_y} \; ; \delta_p, \delta_x, \delta_y \in \{0,1\}$$

(1) Classify storms based on relative rates of change

$$\frac{dw_i}{dt} = \sum_{j=1}^{k} j \times \beta_{ij} t^{j-1}$$

(2) Determine minimum time frame required to accurately classify storm

(3) Assess accuracy of prediction capability

(4) Cross valid the model

Update the Wooten-Tsokos scale to include damages and costs.

Locate additional data need to address this question.

Verify the Wooten-Tsokos scale determine transition in pressures with the highest level of significance.

Chi-square tests of independents

Using transition probabilities to track the path of a hurricane in the Atlantic Basin

PROCEDURE:

1. TITLE
2. ABSTRACT The abstract is written last
3. KEYWORDS Last thing
4. INTRODUCTION The introduction to the data set and problem written first (may change as we view the data) and will include the literature review (preliminary search to start – completed once there is a draft of the paper.
5. METHODS Outline of the methods used is written after significant finds are found
6. ANALYSIS Statistical analysis of data addressing the stated problem is second
7. MODEL QUALITY Evaluation of the model
8. VALIDITY Validation of the model
9. USEFULNESS
10. CONCLUSION
11. REFERENCE can be done last (or as they are found in research done alone the way)

All the while searching for appropriate journals to submit to.