**RESEARCH OUTLINE**

1. Run MM5 interpb program to create vortex shift in high resolution. (done)
2. Create output: mm5plot, rip, matlab (done)
3. Create track, intensity, and statistics. (done)
4. Run new MM5 with NCEP/NCAR Re-analysis data in high resolution. (done)
5. Create Output. (done)
6. Run MM5 with NOGAPS initial data.
7. Make comparisons with observations.
8. Study topography effects.
9. Run MM5 removing topography
10. Compare and Analyze.

**Goal:** To further understand Hurricane Georges and the effects of topography in a hurricane. To analyze the possible changes in track, intensity and structure of a hurricane when crossing a topographic island. Using the two MM5 simulations for Hurricane Georges, with operational data to improve and support the analysis, further knowledge on the properties of tropical cyclones is hoped to be extracted from this experiment.

**Hypothesis:**
- **Intensity:** It has long been suggested and observed that topography greatly weakens tropical cyclones. In this experiment we will examine this. It seems likely that topography will cause tropical cyclones to lose their warm water source and abundant latent heat and kinetic energy and act as a rough surface, unlike the smooth ocean, which will cause intense updrafts on the windward side of the mountain and downward motion on the downsloping side. This effect will enhance some dry air into the hurricane which typically causes the weakening.
- **Track:** This is more difficult, there has not been significant correlation that suggests how topography affects hurricane tracks. However in this experiment we will investigate this topic. One possibility observed can be that topography acts as a boundary to storms. Hurricanes may track along the mountain chain and may be deflected from the mountains themselves. Another factor that typically occurs in slow moving discontinuous systems is the formation of lee vortices. Lee vortices are essentially vortexes that reform on the leeward side of the mountain. These features will be closely studied.
- **Structure:** It has been observed that topography helps induce dry air intrusion which tends to create a more asymmetric, larger, weaker storm. Topography also induces heavy rainfall on the upward side of the mountain, orographic enhancement. We will analyze this in the MM5 simulations and see how significant the Caribbean topography is to these effects in Hurricane Georges.

As progress is made this page will be updated.