Visualization for Scientific Data(CS 6635/5635)

Project Design Report

1. Basic Information

Project Title: Hurricane Visualization (Work in Progress)
Team Members: Matthew Streicher(u1379160), Kunal Manjare(u1419704)
Link to the repository: https://github.com/kunal911/CS-6635-5635-Final-Project

2. Overview

This project will visualize Hurricane Katrina and Hurricane Isabel by analyzing different variables such as Cloud moisture mixing ratio, Precipitation, Wind flow, Pressure, and overall trajectory of the storms.

To visualize the variables, we will use techniques such as iso-surface extraction to visualize the structure of clouds, volume rendering to visualize the Pressure and cloud density, vector field visualization for wind as well as stream tracers and glyphs, and we anticipate animating the storms at different time steps.

3. Importance of this project

The project is important because it can bring insight into the difference between two different strength Hurricanes.

4. Project Objectives

We hope to visualize each hurricane as it transitions through the different categories of strength (e.g Tropical storm, category 1, …, category 5), and each variable at those different categories.

5. What would you like to learn by completing this project?

We would like to become more proficient in using Paraview and the tools it has to offer. We also would like to learn more about the science of a hurricane by analyzing the variables listed in the overview.

6. Data

We will use the data set from:
IEEE 2004 visualization contest**:** http://vis.computer.org/vis2004contest/data.html
Hurricane Katrina: https://my.eng.utah.edu/~cs6635/hurricanekatrina.vts.gz

7. If you are doing a programming project, list the hardware and software you will be using.

We are not doing a programming project, however, we anticipate using Paraview's Python scripting in order to automate repetitive tasks.

8. What is your project schedule? What have you done thus far and what will you have to do to complete this project? Be as specific as possible.

Date	**Task**	**Is it Completed?**
02/02/2023	Form Team	Yes
07/02/2023	Meet to discuss possible topics	Yes
15/02/2023	Submit Team Details	Yes
18/02/2023	Sessions to discuss Visualization Designs	Yes
23/02/2023	Selection of dataset	Yes
27/02/2023	Begin Project Proposal	Yes
01/03/2023	Submit Project Proposal	Resubmitting
23/03/2023	Project Milestone	
19/04/2023	Final Submission	