Peter Kurtz and Richard Snider
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Bird Migration and Wind Speeds

Our project will visualize the flight paths of three seagulls and wind speeds. We have the goal of understanding if the flight paths of the seagulls are influenced by the wind speed in the area they fly in. We are also interested if the elevation of the seagulls is affected by the wind speed.

This visualization is important because it can help wildlife researchers understand bird behavior better. If the wind does affect where birds fly, scientists could use available wind data to predict where birds will fly and their elevation. If they are not correlated, scientists would then be able to search for correlations elsewhere.

Our visualization will be a bird's eye view of the area the seagulls traverse, plotted atop satellite imagery of the target area. A point will represent each seagull. The elevation of the birds will be visualized by the color of the

point, where a darker color signifies lower elevation and a lighter color a higher elevation. We will also visualize arrows representing the wind around the area.

We found the seagull tracking data from a data set on Kaggle. We found the wind speed vector data from the National Center for Atmospheric Research or NCAR for short.

We will be using Python and Paraview to create the visualization. The wind speed data is a .nc file. To read such a file, we will need to use a NetCDF Reader to make the data usable.

We plan to hand in the source code that produces the visualization. We also will hand in a video of the visualization.

We will know if the project was successful if it is easy to visualize where the seagulls go and the wind speed near or on the path of the seagulls. This will then mean that understanding correlations between the flight path and wind speed will be easy.

The main goal of the project is to create a visualization where it is easy to

see correlations between wind speed, direction of flight, and elevation, or lack thereof.

In the first two weeks, we will create the seagull flight path. The next two weeks will be overlaying that path on the wind dataset. We will then make the color change with elevation.

In the final phase of the project, we will graph all the data on a satellite map.