Assignment 4

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1. What:

   It's a collection of weather information, including temperature, relative humidity and direction of wind, of 152 locations in total which represented by their latitude and longitude. There are 23 files in total, each file is a specific time point. Information was gathered every 4 hours, from 2021-07-22 12:00:00 to 2021-07-26 04:00:00.

   Every file contains 152 objects and 8 attributes. *id* are integral number (nominal), *lat* and *lng* are numerical number (ratio), *date* and *time* are character string (interval), *tem* and *rhu* are numerical number (ratio) and *wnd* are numerical number (ratio).

2. Why:

   Show the global pattern dynamics of direction of winds, temperatures and humidity and select proper representations along time. Show trends of each feature of a certain location along time.

3. How:

   For *wnd*, I choose arrows to visualize the direction of wind. For *tem*, sequential colormap is chose to show the scale of heat. For r*hu*, colormap is chose to represent the level of relative humidity. For dynamics on features from a global view, I use the **geospatial map** corresponding to the *lat* and *lng* as background and superimpose features on it. When I select a certain location, **line plots** of temperature, humidity could be updated. Scatterplot would be shown to investigate correlation between *lat*, *lng* and *wnd*.

4. Insights:

   Temperature and humidity are fluctuating along the day and shows a negative correlation. During the day time (8:00-16:00), temperature tends to be higher and humidity tends to be lower than nigh time. Wind doesn't show an obvious pattern, but we still find out that around 16:00 in the day wind is more centrally distributed around 100-150.