Project #2: Forecasting

In this project you will be providing forecasts for three different cities using a variety of tools. Like before, your team will be divided into three sub-teams: 1) Data and forecasts, 2) Theory, and 3) Project management. This time, you and your partner must pick a different sub-team duty than in project #1. Each week your team will be given a new city to forecast. On Monday, you will create a forecast for Tuesday and Thursday of that week. On Wednesday, you will again provide a forecast for Thursday. Each week you will be given a different city to forecast. Each city comes with a station code to help you determine exactly where to forecast.

You will be forecasting the high and low temperature, the maximum wind speed, and total precipitation. You must submit your forecast to Tim and Hannah by email no later than 11pm on Monday (for your Tuesday/ Thursday forecasts) and 11pm on Wednesday (for your Thursday forecast). After the real data come in, your job will be to compare your forecasts to the actual data and, if there are differences, try to determine why your forecast was incorrect.

Data/Analysis Team:

Your job is to analyze a variety of observational data and model output to create the forecasts. Use whatever tools you can find. Some good websites to use are listed below. However, you must provide screen captures or downloaded versions of all data and model output you used to create your forecasts. Simply copying a forecast from someone else is not enough. You need to document how you arrived at your forecast. At the end of this project, the data team will submit all of the data/model output used for each city. Including where you got the information you used. Please keep this information organized and include some notes regarding where the data were acquired and for what time period.

Theory Team:

You will pick one time range and one forecast type. Please provide a thorough background of your forecast choice (i.e., medium range climatology forecasts). Also discuss numerical weather prediction and how that has changed forecasting. We expect the paper to be at least 2-3 pages, 12 pt font, 1 inch margins, single spaced, and properly cited.

Project Managers:

Your job is to make sure everyone is doing their work and helping out when/where needed. It is also your responsibility to submit the forecasts ON TIME. On Oct 30, you will present a summary of your team's forecasting abilities (including figures, graphs, etc.) as well as the findings from the theory team. You will submit a written summary of the theory and data teams, including some figures and/or graphs. Separately, the theory team will submit their complete

work. This report should be at least two pages (not including figures), 12 pt font, 1 inch margins, single spaced, and properly cited.

Websites:

Surface Data and Forecast maps

https://www.wpc.ncep.noaa.gov/#page=sfc

https://www.wpc.ncep.noaa.gov/html/sfc-zoom.php

https://www.wpc.ncep.noaa.gov/#page=ovw

Federal Government Forecast

https://graphical.weather.gov/

http://www.intellicast.com/National/Temperature/Default.aspx

National Center for Atmospheric Research Data and Forecast Page

http://weather.rap.ucar.edu/

Model Output Statistics (MOS)

http://www.nws.noaa.gov/mdl/synop/products/bullform.all.php

Description of MOS: http://www.nws.noaa.gov/mdl/synop/mavcard.php

National Weather Service Model and Guidance Page

http://mag.ncep.noaa.gov/ □ Model Guidance □ model area (NAMER) □ model Type (GFS) □ 1000_500_thick On the lower right, pick however many days you're interested in to see an animation of hourly forecast model output.

Satellite data

http://rammb-slider.cira.colostate.edu/

https://weather.cod.edu/satrad/exper/

Visible Imagery: This is what your eyes would see if you were sitting on the satellite. Thicker clouds will show up brighter

Infrared Imagery: These images show temperature. Brighter colors indicate higher cloud tops. Low level clouds appear darker or not at all.

Water Vapor Imagery: These images show radiation emitted by water vapor and indicates how much water vapor is in the upper levels of the atmosphere. No water vapor will usually show up as darker colors. Animations of these images will show you large scale atmospheric motions and the transport of moisture.