Weather Analysis and Forecast end of semester project – ATMS 103

Prof. Miller has been giving a weather analysis and forecast discussion for Asheville, NC throughout the semester, generally on Tuesdays. Your group will be expected to make a similar presentation for a city in the lower 48 states in the U.S. You'll be giving an analysis of the weather that occurred over the 24 hour period from 1200 UTC 30 April – 1200 UTC 1 May 2018 and then give a 48 hour forecast for the period 1200 UTC 1 May – 1200 UTC 3 May 2018 at your location of interest.

A brief analysis of the large-scale weather features on the SLP, 500, and 300 hPa level maps is required, being certain to highlight the features relevant to your chosen city over the past 24 hours. You'll also be expected to give the wind speed (miles per hour) and wind direction (N, NE, E, SE, S, SW, W, NW) analysis valid at 1800 UTC on 30 April, the maximum temperature analysis on 30 April, the minimum temperature analysis on 1 May, and the observed 24-h accumulated precipitation amount (liquid equivalent) from 1200 UTC 30 April – 1200 UTC 1 May 2018.

A brief overview of the predicted large-scale weather features on the SLP, 500, and 300 hPa level maps is required, being certain to highlight the features relevant to your chosen city over the next 48 hours. You'll also be expected to give the wind speed (miles per hour) and wind direction (N, NE, E, SE, S, SW, W, NW) forecast valid at 1800 UTC on 1 and 2 May 2018, the maximum temperature forecast on 1 and 2 May, the minimum temperature forecast on 2 and 3 May 2018, and the predicted 24-h accumulated precipitation amount (liquid equivalent) from 1200 UTC 1 May – 1200 UTC 2 May 2018 and from 1200 UTC 2 May – 1200 UTC 3 May 2018.

A thorough weather analysis and forecasting discussion should require the presentation to last between ten and fifteen minutes (no longer than 15 minutes). Two of the three team members will make the presentation (person #1; analysis, person #2; forecast) in front of the class and the third team member will compose a typed two page double-spaced summary of the analysis and forecast for the particular city. Each team will hand in electronic versions of their PowerPoint weather analysis and forecast presentation and their one page analysis and forecast summary on Tuesday, May 1, 2018. ***Each team will make a forecast for a unique city***. Please let me know which city your group will be creating a forecast for by 26 April so that we don't have duplicate forecasts.

The template for your forecast can be found here,

http://www.atms.unca.edu/dmiller/atms103/map_disc_10apr2018.pptx

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Other useful web sites might be found at the following locations,

http://www.weather.gov/ (click on the interactive map to find observations at your location)

http://www.wpc.ncep.noaa.gov/archives/web_pages/sfc/sfc_archive.php (SLP analysis maps, use "CONUS")

http://www.spc.noaa.gov/obswx/maps/ (500 and 300 hPa level analysis maps)

http://mag.ncep.noaa.gov/model-guidance-model-area.php# (SLP, 500 & 300 hPa forecast maps)

MODEL GUIDANCE → NAM → NAMER → 05/01/2018 00UTC

Select 024, 036, 048, and 060 'Forecast Hours' maps of [1] SLP; click on "850_temp_mslp_precip", [2] 500 hPa level; click on "500_vort_ht", and [3] 300 hPa level; click on "300_wnd_ht"

Expectations

In your verbal and written description you will need to demonstrate proper usage of weather terminology (e.g., cold front, trough, jet stream or jet streak, meridional, zonal, convergence, divergence, air mass type, etc.) and a proper logic behind describing what happened ("Why were overnight minimum temperatures so low?") or what will happen ("The maximum temperature on Tuesday will be rather low because…"). Your analysis and forecast discussion must be consistent with the maps and the written narrative that you present. Some issues to consider; [a] are wind direction and speed statements consistent with what is shown on the SLP charts?, [b] are maximum and minimum temperature statements consistent with wind directions and cloud cover?, and [c] are precipitation accumulation statements consistent with the proximity to significant weather features such as a front, a low pressure system, an upper-level trough, and an upper-level jet stream or jet streak? One final point to consider, if the weather doesn't appear to behave according to expectations of the synoptic-scale weather features, is it possible that a more localized (mesoscale) effect caused the "strange" weather pattern that you have observed or are predicting to happen?

A minor portion of your weather analysis and forecasting project grade (one quarter) will be an evaluation of the effectiveness of your communication. Using a strong voice for excellent projection, proper voice intonation, and professional attire for the presentation will earn a maximum score. A written document demonstrating minimal grammatical and spelling errors and a logical organization of the analysis and forecast description will earn a maximum score.