

MET 3601 Syntax Problem #10

Please do your work in the syntax-problems folder on the JupyterHub and **DON'T** forget to also upload both the figure and the .ipynb file to Canvas!

<https://fit25f.ees220002.projects.jetstream-cloud.org/>

Objectives

1. Practice writing and running Python code
2. Use Cartopy to plot contours on a map
3. Using computer programming control statement techniques

Due by 11:59 pm on 10/24/2025

Problem

1. Write a Python program that reads in NCEP-NCAR Reanalysis geopotential heights from a remote server using xarray. Plot the 300-hPa heights for March 14, 1993 at 00 UTC with appropriate contour intervals (i.e., 120 m) using the Plate Carree and Lambert Conformal Projections for the Continental United States on two separate maps.

For the Lambert Conformal Projection use the following settings to set up the projection as keyword arguments when you set up the projection:

```
central_longitude= -100  
central_latitude. = 40
```

A starter script ***syntax10.ipynb*** is located in the syntax-problems folder on the JupyterHub.

- Call the Plate Carree map **300hPa_Heights_PC.png**
- Call the Lambert Conformal map **300hPa_Heights_LCC.png**
- Make sure documentation (e.g., comment block and comments throughout code) is present in your source code
- Make the output informative so that anyone running your program understand what is being produced without seeing the assignment.
- Rename the program (notebook)

```
syntax10_lastname.ipynb
```

where 'lastname' is your lastname 😊