

1 **Script for Plotting addendum**

2 *ATM419/563 Spring 2024*

3
4 *** There is an updated notebook**

5 **\$LAB/PLOTTING/GRIB_plot_example_V2.ipynb you can copy and use**

- 6
7 → in Cell #3, specify source **model** ('GFS' or 'HRRR')
- 8 → in Cell #3, specify source **coordinate** (coordinate_hybrid=True for model
9 levels, otherwise False for isobaric levels)
- 10 → Cells #9, 12, 14, 15 has code that depends on these selections
- 11 → Cell #11 use "qq" to thin out the wind barbs
- 12 → handling of cross-section labels is now more rational
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13
14 • In addition to or instead of the Task outlined last Tuesday, you can work on
15 datasets I provided to you individually (if you asked) or explore the windstorm
16 event more thoroughly. In the demo last Tuesday, we plotted data from the
17 20211230_12Z HRRR operational run's 4 h forecast from a GRIB2 file with hybrid
18 (model levels). Some questions:

- 19 • how does this same case look if plotted for the same time from the HRRR
20 GRIB2 file using isobaric levels? Should it look any different? Does it?
- 21 • how does this same time look as forecast from another model, like GFS?
- 22 • how does this storm look at an earlier or later time on December 30?
- 23 • how does this same time look as forecast from an earlier cycle (longer
24 range forecast), from HRRR and/or GFS? How did forecast skill degrade with time?

25
26 * Some GRIB files you can link to and plot. **You need to make symbolic links**
27 **to the GRIB file you want in your PLOTTING directory.** You can use the
28 wild card (*) to link to multiple files at once. Look in

29
30 \$LAB/DATA/BOULDER/20211230_12: *wrfnat* and *wrfprs* files

31 → from the HRRR 12Z cycle on 2021-12-30

32 → *wrfnat* are hybrid model levels, *wrfprs* are isobaric levels

33 → try both for the same time. What's the difference?

34 → these model outputs have 3 km grid spacing

35 \$LAB/DATA/BOULDER/20211230_00:

36 → wrfnat and wrfprs from earlier HRRR cycle

37 \$LAB/DATA/BOULDER/20211229_12:

38 → wrfnat and wrfprs from earlier HRRR cycle

39
40 \$LAB/DATA/BOULDER/GFS_2021123012: all files are isobaric

41 → these are GFS model outputs, 0.25° lat/lon [about 30 km spacing]

42 \$LAB/DATA/BOULDER/GFS_2021123000:

43 → these are GFS model outputs from earlier GFS cycle

44 \$LAB/DATA/BOULDER/GFS_2021122912:

45 → these are GFS model outputs from earlier GFS cycle