

To conclude the trajectory calculations section, we will do a simple exercise. If you go back to the meteorological error section, we only looked at the NARR data and the GBLR data. For the exercise, go back to that calculation and add the European Reanalysis, that is the ERA40 and the WRF, the WRF 27 km data, to the calculations, to the graphic.

So go ahead and go to the trajectory setup run menu, and we can retrieve the control file `traj_fwd_control.txt` that we had saved earlier. Let's check this to make sure the locations are correct, and yes it is, so it's Dayton at mid boundary layer at 750 m. And so we will go ahead and do two additional calculations. So we'll start by working with the ERA40, so we will rename the output file ERA40, clear the meteorology, and select the ERA40 file, and save, and then trajectory run model. Now we have this namelist file left over from the previous calculation, we do not need it here, so we will just delete and run. Now I'm not going to bother opening this for display purposes just yet. But we'll go ahead and do the calculation now using the WRF data. So setup run, where we name the output file, WRF27, we will clear the meteorology file, and add WRF27, save trajectory, and then run model.

So now we've completed the calculations. Now as a short cut, we can go ahead and go back to the original file that we opened to plot multiple trajectories, and remember it was called `traj_files.txt`. So go ahead and open that and let's just change it to the files that we know that we want to plot. So `tdump_fwd` was the original one, so let's add the

other files, `tdump_era40`, `tdump_wrf27`, and `tdump_gblr`, and `file save`, and `file exit`. So now we can go into trajectory display, and just put in here plus `traj_files.txt` and execute. And you can now see the different results using four different meteorological analyses. And they all start in a very similar fashion, the first 24 hours, and there is quite a divergence, depending on which analysis you use. Individually they're all correct, but as an ensemble, they provide information about the uncertainty of the trajectory calculation. We will explore these uncertainties some more in upcoming sections.