

In this section we will continue testing the HYSPLIT installation by looking at a test trajectory calculation, so go ahead and open up that calculation and we will follow through with this example.

I will move this out-of-the-way, and let's double click on the run hysplit icon and then press the main menu button to open the GUI and select or click on the trajectory tab, set up run, and this opens up the basic menu for configuring a trajectory calculation.

Note in this case the starting times are all set to zero, year, month, day, hour, and that has a special meaning for HYSPLIT. In fact, zero in many of the fields has special meaning. In this case, zero means that the calculation will start at the beginning of the meteorological data file.

We're starting trajectories simultaneously at

three locations. Click on this button, you can see the locations and they can be changed here. They're starting at three different heights from the same location, a hypothetical point in the mid-western United States.

We're going to compute a trajectory duration of twelve hours in a forward direction, which means it goes along with the wind. And the top of the model is set to 10 km, (10,000 m), which means we do not process meteorological data above this height. It is a time saving feature. The vertical motion calculation will default to the vertical motion fields available in the meteorological data. We will discuss vertical motion options in more detail in the future section. Trajectory end points will be written to a file called tdump. You can name this anything you want. And the meteorological data that will be using, so that the trajectory will be calculated within

this data field, will be from October 16 to 18 of 1995. This is a special file that is provided with all HYSPLIT distributions so no matter what platform you are on you can get the same answer.

So we are going to save this. If you make any changes here, these would be written to the internal variables of the GUI, and when we click the save button, what happens is that those variables are written to the file called default_traj.

Now we can go and run the model. Two things happen when you click on run model. The first thing is the default_traj file is copied to the CONTROL file and then the model executable is run, which then reads the CONTROL file, and then writes the output to the tdump file. You can see this runs very quickly. It runs very quickly because they're only three trajectories that are only going for 12 hours.

We can exit that now, we go to display trajectory, and there're many options here, which we will go over these in more detail in future sections. But just briefly, it's going to read the endpoints of the tdump file, it is going to write the output to a file called trajplot, the .ps will be appended automatically. It's going to generate them using the background graphics from the default file arlmap. And obviously you can change any these things, the map projection will be created automatically for the output. There will be no special graphic GIS output. We are not going to draw any rings on the map. We are not going to force the map center location. We do want to label the source and we are going to have output every 12 hours, which in this case will mean that they'll be a mark at the end of the trajectory rather than along the trajectory. And we want the vertical units to be pressure. The zoom really controls

how much whitespace is between the trajectory and the map boundaries.

So when we press the execute display button, it runs the plotting program, creates the output file, and opens up Ghostview to display the Postscript file, trajplot.ps. Notice that the vertical coordinates are in pressure and we have the one mark at the end of the trajectories.

I mentioned previously how these files are being written. I'm going to open up file explorer here, and I'm going to go the HYSPLIT4 directory and then the working directory and you can see just what files were created. I mentioned that the default_traj is what the GUI writes. When you open this with Notepad and this is the information that was entered into the file, so the starting time, the three locations, the run duration, vertical motion method, top of the model, one meteorological input file,

and then the output file `tdump`. And when you run the model, that gets copied to `control`, which is this file, you can see is identical. The output then was written to `tdump`, this is an ASCII file, the format of which we actually reviewed in a previous section. This is human readable, so you should have all this, if everything worked correctly.

If it did not work correctly, if you had issues, very likely we would have found this much earlier, maybe you didn't have permission to install the software or write into the directories where it was installed. If you didn't have administrative privileges on your computer you may run into some of these issues. Also you can run into problems if you are trying to install on top of an old version of HYSPLIT. In that case just rename the `hysplit4` directory to `hysplit4_old` and then reinstall.

This concludes the test trajectory calculation.