To complete the trajectory statistic section we will doing an exercise. Up to this point we've always used CAPTEX tracer release number two from Dayton, Ohio, for all of our examples. But the other location that could've been used was Sudbury, Ontario. During the experiment, tracer releases would've been conducted from either Sudbury or Dayton depending upon which weather conditions provided the most favorable transport to the sampling network.

So for the exercise I would like you to recompute the cluster analysis for the Sudbury location and determine whether or not it would have been more favorable to do releases at Sudbury than in Dayton.

So what this point you should stop the video, and then once you've completed your calculations, then go ahead and restart, and you can see the solution.

Now the best way to proceed with the solution is to go back and load the CONTROL file that we saved for the calculations, the monthly calculations, from Dayton. Setup run, retrieve, and the name of the file was traj_freq_control.txt. It started in September. We need to change the location to Sudbury, 46.62 and -80.78. We will do a 48 hour trajectory, and let's change the name of the output file, to sdump for Sudbury, just to not confuse it with the other files that have been created. And we are using the Global Reanalysis data, save, and now special runs, daily, and we will be running for 28 days, and then just execute.

Once complete, exit, and now we can directly go to the clustering menu under special runs, standard, and we need to go ahead and cluster for 48 hours and the end points folder is in hysplit4/working. We can leave the rest the same. Our output file, or wild card for the output, is sdump, and we'll go ahead and make an INFILE. And let's confirm that that's correct. So we go to hysplit4/cluster/working and open up INFILE and you can see the all the files are here, no conflicts, and we run the cluster analysis, now one hundred and two trajectories rather than 112. We can display the total spatial variance, and 1, 2, 3, so for the 4th cluster is the last one and then it starts going up, so we'll do as we did before, and we'll pick four clusters. Number of clusters is four. And now we run the assignment of individual trajectories to their clusters. That's completed, and now let's display the cluster means.

And you see that approximately 60% of the trajectories go to the north and 40% sort of along the US Canadian border. So it's not that favorable for transport in a more southeast direction, which is what's required, for the tracer to be present in the middle of the sampling network. And in fact during the course of the CAPTEX experiment, the majority of the tracer releases did occur from Dayton, Ohio, there were only two tracer releases from Sudbury.

And that concludes the exercise.