To complete section 17, we will do an exercise. If you recall the original Sagebrush simulation, the final results showed somewhat under-prediction for the highest concentrations. So the question to you is how much would the model configuration be related to this. So can you change the configuration to get a better result, to eliminate that kind of bias. The assumption here and this is the hint, that the plume size near the source is much narrower than the width of the concentration grid. So the hint would be to, perhaps rather than going through those steps, just edit the batch file and run this with a finer grid resolution. So I'm going to pause, or you should pause and then when have answered the question, let's go back and start this up again.

Alright so the suggestion was that the simplest approach is just to run the batch file to redo the calculations, local calculation with the finer concentration grid resolution. Remember in the previous section we did a polar concentration grid, which is another way of automatically getting finer resolution close-in to the source. But unfortunately not all of the post-processing model options are available for that at this point. So let’s go ahead and configure this. I’m going to open up the tutorial batch and this would be the conc_local, that was the exercise for the Sagebrush simulation, and all we need to do is reduce the size of the concentration grid, remember it was 100 m, so let's reduce that to half and make it 50 m, let's see if that has an effect, and we can leave everything else the same, and just run this.

So while this is running, eventually what you going to see is the final scatter diagram and the statistical results for the simulation and it's all part of the batch file, so we don't have to go through the individual steps.

While that is, let's go back to the original, and let's look at the scatter diagram, the original scatter diagram, and this is where we have the under-prediction. We could also look at the statistics. If you recall the correlation of that original run was actually 0.80 I believe, not 0.79. It was quite good with a final rank of 2.6 let's say. And a little bit of under-calculation overall.

OK, let's see what we have here. So this calculation has completed with the finer grid. And we can see there is a reduction in the correlation coefficient, it is not as good. The overall under-prediction is about the same, fractional bias 0.19 versus 0.13 and even overall is less. So the statistics actually with this finer grid are worse. However as you can see, the scatter diagram shows the elimination of the under-prediction, I can move this at the same time. So you can see we've eliminated the under-prediction for the highest concentrations, but overall as you can see, this group here looks like it's gotten worse, it's moved off the one to one line, so there are overall changes that, are, show overall the results are not as good. And this is to some extent consistent with some of things we've seen before and that it is not always possible to make everything better at the same time with the same change. And partly because as the concentration grids get finer, there is more sensitivity to random errors, and sensitivity

to particle number for instance. You may want to try this calculation again with higher particle numbers, or perhaps even with a Gaussian option. There are different possibilities for proceeding. I’m not going to do that here but this is the point of having measurement data available to you, in that you can try different configurations to see what the overall effect would be.

And this concludes the exercise.