

The model crashed! Now what !?!

Model crashes right away before doing anything.

(In this case, if you look in
/scratch/nyuID/model_output/[simulation_ID]_d[final_date]
you find no .nc output files what-so-ever.)

Common problems:

- Check your run script. Is everything set properly, including your nyuID. Are there spaces when you use the set command, set t_end=1000 is wrong, set t_end = 1000 is correct.
- Did the working (simulation output) directory already exist. The script will stop to prevent overwriting previous output.
- Is there a problem with your run_parameters directory. (Is it missing any input files? Is your simulation ID spelled correctly?)
- If this is a restart, do the restart files exist? Are they in the right place?
- Is your script consistent. Do the dates make sense? If you are asking to run the spectral model, is the numerics flag set to spectral?

Where to look: Did the run script provide any feedback? It will sometimes tell you what's wrong. This output is printed straight to screen in interactive mode, and written to

/scratch/nyuID/[simulation_ID]_d[final_date].err

When you run something in the queue. Interactive mode can be helpful to sort out problems like this.

Model stops somewhere in the middle of an integration.

This happens chiefly for one of three reasons.

- 1) You ran out of time. When you got the e-mail that the job was finished, did it look like it ran for ALL of the time you allowed it. Either you timed it perfectly, or it reached the limit, and was killed. As sign that you ran out of time is when you look in
/scratch/nyuID/model_output/[simulationID]_d[final_date]/

and see a number of files like:

`atmos_daily.nc.0000`, `atmos_daily.nc.0001`, ...

These are the individual outputs from the various processors running in parallel. They were never stitched together at the end because your job ran out of time.

Solution: Add more time to your next run. To get going again, remember to erase this failed part of your run. (It's not useful, because there are no restart files, but if it still exists, the model won't run again.) Note that sometimes the computers aren't running correctly, and jobs will go really slow. If this is the case, it should work fine next time.

2) Your model crashed. In this case, the simulation probably didn't run out of time. Rather, a numerical instability took over and the code stopped. In the output file (screen, or the `.err` or `.out` files discussed above), you'll see something like "temperature out of range." (The model recognizes numerical instabilities when the temperature (in K) goes negative or reaches values more oft found on the surface of the sun. Another sign is in the output directory. You'll see `atmos_daily.nc` (which contains data until the model exploded), but not `atmos_average.nc` or any `RESTART/` files.

Solution: These are generally the result of instabilities related to the CFL condition. Try running the model again with a shorter time step. (Note this sometimes happens when you increase the horizontal resolution, but forget to reduce the time step accordingly.

3) Strange events. Occasionally the computers do crash, taking jobs with them. This is a rare occurrence, but sometimes you just need to try running the job again.