Scripts II

HWRF Python Scripts Training
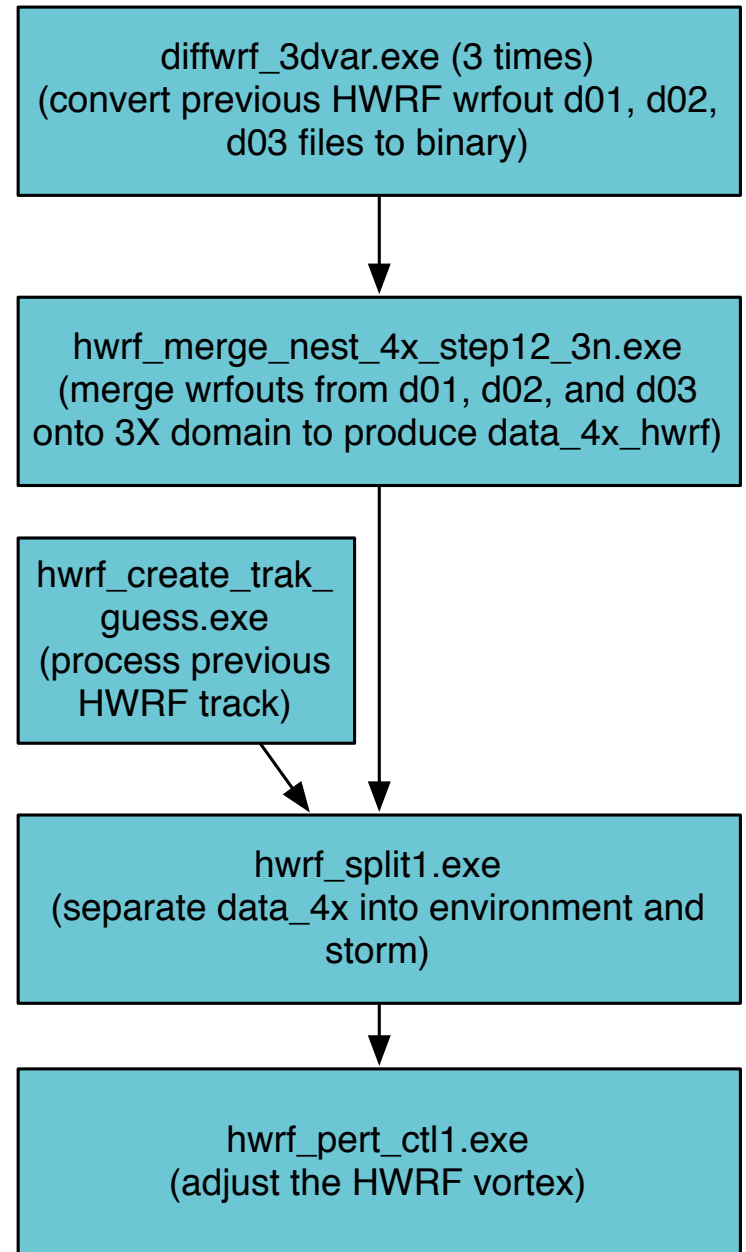
Miami, FL

November 20, 2015

Exercise

What are the steps involved with relocation of a storm that has a previous forecast available and a maximum wind speed of 40 kts?

Relocation: Stage I

Stage I is used to split the previous HWRF forecast into storm and environment so that the votes can be adjusted and relocated. This is not done when the storm is very weak, as it is best to use the GFS vortex in that case.

For obs intensity > 10, the information of location of HWRF vortex comes from the last cycle's combined domain. However, for obs intensity <= 10, the last cycles' parent domain track is used.

Stage 1 - Runs if previous HWRF available and obs intensity >= 14 m/s

diffwrf_3dvar.exe (3 times)
(convert previous HWRF wrfout d01, d02, d03 files to binary)

↓

hwrf_merge_nest_4x_step12_3n.exe
(merge wrfouts from d01, d02, and d03 onto 3X domain to produce data_4x_hwrf)

hwrf_create_trak_guess.exe
(process previous HWRF track)

hwrf_split1.exe
(separate data_4x into environment and storm)

↓

hwrf_pert_ctl1.exe
(adjust the HWRF vortex)

Relocation: Stage II

Stage II is used to split the global forecast to get the environment

diffwrf_3dvar.exe (5 times)
(wrfinput_d01, wrfanl_d02, wrfanl_d03, ghost_d02, and ghost_d03 to binary)

hwrf_create_nest_1x_10m.exe
(rebalance the inner nest domain data and output new_data_d01)

hwrf_merge_nest_4x_step12_3n.exe
(info from d01, d02, and d03 onto 3X domain to produce data_4x_gfs and roughness2)

hwrf_create_trak_
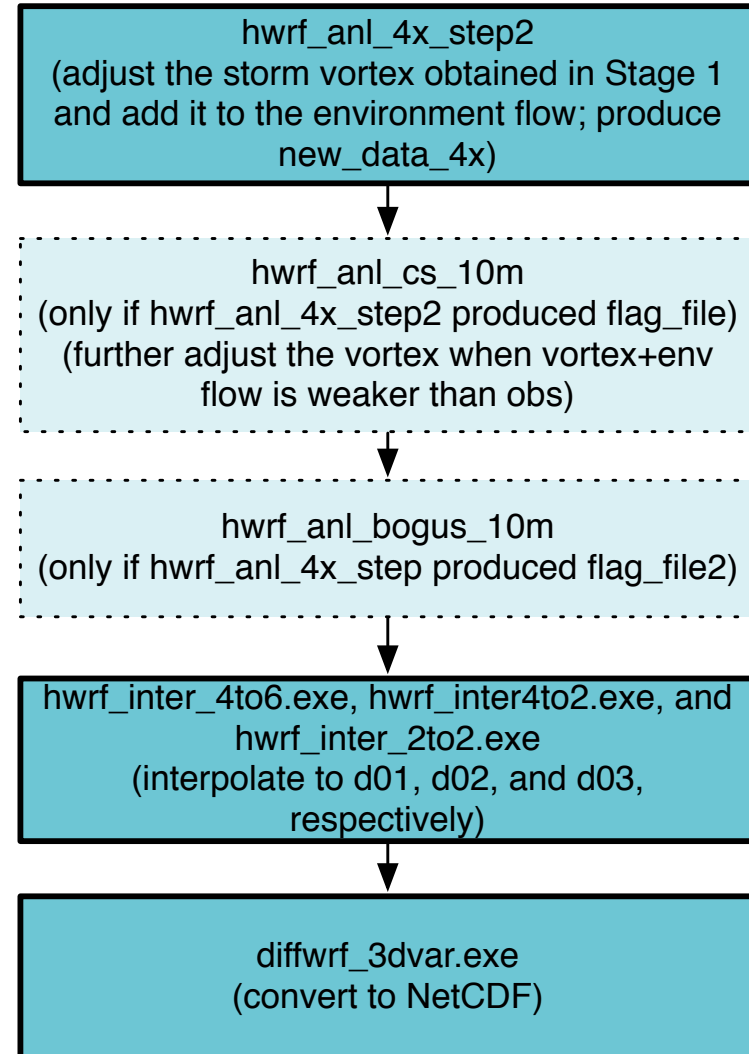guess.exe
(process GFS track)

hwrf_split1.exe
(separate data_4x into environment and storm)

Relocation: Stage III

Stage III
- For Cold starts, bogus strong storms but use global vortex for weak ones
- For cycled starts, use HWRF vortex for strong storms, but cycle global vortex for weak ones.
- Special case I: if flag_file2 (RMW_obs/RMS_model > 16 or beta < 0.7 and st_int < 64), abort model vortex insertion and resort to bogus

Cycled and observed intensity >= 14 m/s

hwrf_anl_4x_step2
(adjust the storm vortex obtained in Stage 1 and add it to the environment flow; produce new_data_4x)

hwrf_anl_cs_10m
(only if hwrf_anl_4x_step2 produced flag_file)
(further adjust the vortex when vortex+env flow is weaker than obs)

hwrf_anl_bogus_10m
(only if hwrf_anl_4x_step produced flag_file2)

hwrf_inter_4to6.exe, hwrf_inter4to2.exe, and hwrf_inter_2to2.exe
(interpolate to d01, d02, and d03, respectively)

diffwrf_3dvar.exe
(convert to NetCDF)

Exercise

Determine what we should be running for GSI in 3DVAR mode only

Debugging the Branch

- What does Rocoto indicate?

- What can we find from the standard error/output for GSI?

- How can we edit the scripts to fix the problem?

Submitting a job with the reservation

XML Version

<custom> -l partition=vjet -l flags=ADVRES:HWRF-Training. 9227950 </custom>

QSUB

qsub -l partition=vjet -l flags=ADVRES:HWRF-Training.9227950 <other options>