Christina Holt - NOAA Affiliate <christina.holt@noaa.gov>

HWRF runs

Ben Green - NOAA Affiliate <ben.green@noaa.gov> Mon, Mar 7, 2016 at 11:39 AM
To: Christina Holt - NOAA Affiliate <christina.holt@noaa.gov>

FYI, Henry has copied this run to a different space... so you can go ahead and delete your copy to free up disk.

On Mon, Feb 29, 2016 at 5:36 PM, Christina Holt - NOAA Affiliate <christina.holt@noaa.gov> wrote:

> Howdy!
>
> The run is about 24 hours in at this point and lives here:
>
> /pan2/projects/dtc-hurr/Christina.Holt/hwrf_physbaseline/pytmp/cold_initopt1/2014091518/06L/runwrf
>
> Let me know if I can help out with anything else.
>
> Christina
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> On Mon, Feb 29, 2016 at 1:29 PM, Ben Green - NOAA Affiliate <ben.green@noaa.gov> wrote:
>
> > Thanks, Christina! Sorry for my mistakes -- just glad I got the bulk of it right :)
> >
> > On Mon, Feb 29, 2016 at 12:57 PM, Christina Holt - NOAA Affiliate <christina.holt@noaa.gov> wrote:
> >
> > > Ben,
> > >
> > > I have just a couple of minor comments/corrections in purple about the last points.
> > >
> > > > Finally, Christina and I talked about some of the limitations of DA/cycling/etc **in the HWRF workflow environment.** They are:
> > > > 1.) "Raw" GFS analysis can't be used in HWRF **with GSI** --> only FGAT **forecasts from GDAS** can be used
> > > > 2.) **Relocation** of the vortex **must** be done **if GSI is to be run.**
> > > > 3.) Cycled DA **without vortex insertion** is difficult/impossible to do in HWRF because D01 moves. **Vortex init procedure is beside the point of cycling the DA. Also forgot to mention that we don't do d01 DA, so cycling the d02/d03 DA procedure is even more troublesome.**
> > > >
> > > > However, Christina did say that HWRF does produce some files that make it possible (*outside of HWRF, i.e., using your own workflow*) to do cycled DA without vortex insertion -- which is what we want. Just to provide a caveat, this is totally different than the procedure HWRF uses for D01. We assume (through tests in previous years) that the GFS analysis has done a good job with large-scale DA and don't alter it. I was mentioning for these files, you could potentially run GSI on the relocated GFS analysis, if you wanted. We don't have that option in HWRF. Those wrfinput files live in the HWRF directory structure here: /pan2/projects/dtc-hurr/Christina.Holt/hwrf_physbaseline/pytmp/cold_physbaseline/2014091518/06L/intercom/gfsinit/relocate.stage3
> > >
> > > I'm happy to answer any other questions about the initialization procedure. It gets complicated when we start talking about the DA procedure and what is actually for each domain and what happens for cold/cycled runs.
> > >
> > > Christina
> > >
> > > On Mon, Feb 29, 2016 at 12:28 PM, Ben Green - NOAA Affiliate <ben.green@noaa.gov> wrote:
> > >
> > > > Henry and Christina,

Thank you both for talking with me today. I think we've figured out exactly what the "cold start" run did, and what we wanted to do differently. But first, some background (**Christina, please correct me anywhere I'm wrong!**)...

A typical HWRF run goes through the following steps:

1.) FGAT
2a.) Vortex recentering (through TC vitals)
2b.) Vortex *insertion* (either through a previous HWRF forecast [cycled], **or** through TC vitals ["cold start"])
3.) GSI data assimilation
4.) GDAS merge step
5.) Forward integration

So... what we got for the cycled/control run was the above, and for step 2b the inserted vortex was from the 6-h HWRF forecast. That's all fine and good.

What we got for the "cold start" run is that **step 2b still took place, but a vortex was inserted based on TC vitals**. What we wanted to get was a run **where step 2b was eliminated completely.** Christina has very kindly started this run for us now; the differences between this and the earlier "cold start" should be minimal.

Finally, Christina and I talked about some of the limitations of DA/cycling/etc **in the HWRF workflow environment.** They are:
1.) "Raw" GFS analysis can't be used in HWRF --> only FGAT can be used
2.) **Relocation** of the vortex **must** be done
3.) Cycled DA **without vortex insertion** is difficult/impossible to do in HWRF because D01 moves

However, Christina did say that HWRF does produce some files that make it possible (*outside of HWRF, i.e., using your own workflow*) to do cycled DA without vortex insertion -- which is what we want.

Hope that all makes sense, and **PLEASE** point out anything I got wrong!!! Thanks again!

-Ben

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