

Ben Foster <foster@ucar.edu>

TIE-GCM continuation runs

8 messages

David Rainwater <rain@arlut.utexas.edu> To: Ben Foster <foster@ucar.edu>

Ben,

We'd definitely like to have your full-year climatology run, thanks for offering. Is it on an ftp site? It's probably to big to send over email; we have pretty heavy filters on attached files in & out.

What you describe about continuation runs is NOT what I was doing. I was simply specifying a previously completed primary output file as the new source file, with dates & times set to the end date & time of the new source file. That appeared to work. Are you saying it's not going to give proper output, or that there are simply two ways of doing this? My last .inp file is attached, along with the .out.

Cheers, Dave

On 4/21/15 11:45 AM, Ben Foster wrote:

Good. We also have a full year climatology run for tiegcm, so you can presumably start from a "steady-state" history for any date. I don't include that in the data distribution because its too much data, but let me know if you want to use them. I think the 1-year climatology run is for 5-deg resolution only.

Continuation runs can be a bit confusing, maybe you've already done this, but basically you comment out the SOURCE and SOURCE_START, and start with the last history from the previous run, which it will search for in your OUTPUT file, when it sees there is no source file.

--Ben

2 attachments



tiegcm.out 3277K

Ben Foster <foster@ucar.edu> To: David Rainwater <rain@arlut.utexas.edu>

David,

Wed, Apr 22, 2015 at 9:37 AM

Wed, Apr 22, 2015 at 10:01 AM

Links to history files from the climatology run of tiegcm1.94 are here:

http://download.hao.ucar.edu/pub/tgcm/data/tiegcm1.94/benchmarks/climatology/

See the climatology.contents file for contents of each file. Of course, you will want one of the primary files (*pclim*.nc) for startup, but there are also secondary diagnostic files there also.

It will work to use the history file from previous run as SOURCE history, but it will first copy the source history to the OUTPUT file before starting the first timestep. This will be a duplicate history if done this way. If you comment out the SOURCE file in namelist read, and provide the starting history in the first OUTPUT file, then it will read that history, and then begin the run without copying the source history to the output file.

--Ben

[Quoted text hidden] --Ben Foster National Center for Atmospheric Research (NCAR) High Altitude Observatory (HAO) 303-497-1595

David Rainwater <rain@arlut.utexas.edu> To: Ben Foster <foster@ucar.edu>

Hi Ben,

We have a question about starting TIE-GCM with different climo history. We've tried both the default files in the distro, and the full-year climatology run. But we see pretty different results for output for identical days and inputs, only different starting files. Should this be the case?

For example, using TGCM.tiegcm1.95.pcntr_mareqx_smax.nc for day 80, versus the 4th year-long climo for the same day. The .inp files are otherwise identical, yet we see factor ~2 differences in electron density in some places.

Regards, Dave Rainwater, Ph.D. Space and Geophysics Laboratory Applied Research Laboratories The University of Texas at Austin (512) 835-3530 [Quoted text hidden]

Ben Foster <foster@ucar.edu> To: David Rainwater <rain@arlut.utexas.edu> Thu, Dec 17, 2015 at 4:36 PM

Dave,

As I recall, the full-year climatology benchmark for v1.95 was run with solar minimum conditions, whereas the run that produced TGCM.tiegcm1.95.pcntr_mareq_smax.nc was a solar max run. You can confirm this by doing an ncdump on each history file and look at hpower, ctpoten, f107, f107a. For solar min runs (e.g., the full-year climatology), those are probably 18, 30, 100, 100, and for solar max runs they would be higher. I don't think I made a year long climatology run with solar max conditions.

So you should get better comparison between the climatology run and TGCM.tiegcm1.95.pcntr_mareq_smin.nc.

--Ben [Quoted text hidden] --Ben Foster National Center for Atmospheric Research (NCAR) High Altitude Observatory (HAO) 303-497-1595

David Rainwater <rain@arlut.utexas.edu> To: Ben Foster <foster@ucar.edu>

Ben,

Ah, that would help explain that. But that means I'm confused about how to run the code w/ proper inputs. I thought that passing it values for F10.7 etc. would override that and make it simulate the proper solar conditions. Is there another subtlety?

Regards, Dave

On 12/17/15 6:33 PM, Ben Foster wrote:

Dave,

As I recall, the full-year climatology benchmark for v1.95 was run with solar minimum conditions, whereas the run that produced TGCM.tiegcm1.95.pcntr_mareq_smax.nc <http://TGCM.tiegcm1.95.pcntr_mareq_smax.nc> was a solar max run. You can confirm this by doing an ncdump on each history file and look at hpower, ctpoten, f107, f107a. For solar min runs (e.g., the full-year climatology), those are probably 18, 30, 100, 100, and for solar max runs they would be higher. I don't think I made a year long climatology run with solar max conditions.

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--Ben

Fri, Dec 18, 2015 at 7:32 AM

On Thu, Dec 17, 2015 at 4:36 PM, David Rainwater <rain@arlut.utexas.edu <mailto:rain@arlut.utexas.edu>> wrote:

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Regards,

Dave Rainwater, Ph.D. Space and Geophysics Laboratory **Applied Research Laboratories** The University of Texas at Austin (512) 835-3530 <tel:%28512%29%20835-3530> [Quoted text hidden]

Ben Foster <foster@ucar.edu>

Fri, Dec 18, 2015 at 11:36 AM To: David Rainwater <rain@arlut.utexas.edu>, "Stanley C. Solomon" <stans@ucar.edu>, Joe McInerney <joemci@ucar.edu>

Dave,

Oh, right, you said the input files were identical except for source histories. You are correct - if you specify power, ctpoten, f107 on input, then those settings will be used regardless of the source history. However, even if you use the same input settings in both runs, if the source histories of the two runs are different, you cannot expect to get identical results, especially in the first few days of a simulation. Depending on what you are looking at and the time constants involved, it can take the model 10-20 days to reach a steady-state from differing source histories, or input settings that differ from the source history, maybe longer for 2.5-deg resolution. I'm cc'ing Stan this time ...

For release of v2.0, I will benchmark full-year climatology runs for both smin and smax, and make that distinction clear in the file names.

--Ben [Quoted text hidden]

David Rainwater <rain@arlut.utexas.edu>

Fri, Dec 18, 2015 at 11:39 AM To: Ben Foster <foster@ucar.edu>, "Stanley C. Solomon" <stans@ucar.edu>, Joe McInerney <joemci@ucar.edu>

Ben,

Ah, so there's a 10-20 day convergence time for deviating from the "stock" solar conditions. We should try a day 80 run where we start at about day 60 and evolve forward.

What's your anticipated release timeframe for v2.0?

Thanks much, Dave

On 12/18/15 12:36 PM, Ben Foster wrote:

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Ben Foster <foster@ucar.edu> To: David Rainwater <rain@arlut.utexas.edu> Cc: "Stanley C. Solomon" <stans@ucar.edu>, Joe McInerney <joemci@ucar.edu> Fri, Dec 18, 2015 at 12:07 PM

Maybe late Feb or early March for v2.0

Sent from my iPhone [Quoted text hidden]