DTC 2007 13 km Dynamic Core Test - Archive Overview
Last updated on August 13, 2008 by Ligia Bernardet

The 2007 Core Test focused on four retrospective time periods corresponding to the four seasons:

Summer:	09 July – 24 August 2005
Fall:	11 October – 23 November 2005
Winter:	10 January – 2 February 2006
Spring:	10 April – 23 May 2006

For each retrospective period, forecasts out to 60 h were generated on a 13-km grid for each dynamic core with output files every three hours. The 2007 Dynamic Core Test archive resides on the NCAR MSS. The dates within each season for which forecasts were generated on the IBM and LINUX platforms are listed below.

		IBM	**LINUX**
Summer 2005	July 00 UTC	11, 14, 17, 20, 23, 26, 29	11, 20, 29
	July 12 UTC	09, 12, 15, 18, 21, 24, 28	15, 24
	Aug 00 UTC	01, 04, 07, 10, 13, 16, 19, 22	07, 16
	Aug 12 UTC	02, 05, 08, 11, 14, 17, 20, 24	02, 11, 20
Fall 2005	Oct 00 UTC	11, 14, 17, 20, 23, 26, 29	11, 20, 29
	Oct 12 UTC	12, 15, 18, 21, 24, 27, 30	15, 24
	Nov 00 UTC	01, 04, 07, 10, 13, 16, 19, 22	07, 16
	Nov 12 UTC	02, 05, 08, 11, 14, 17, 20, 23	02, 11, 20
Winter 2006	Jan 00 UTC	10, 13, 16, 19, 22, 25, 28, 31	10, 19, 28
	Jan 12 UTC	11, 14, 17, 20, 23, 26, 29	14, 23
	Feb 00 UTC	03, 06, 09, 12, 15, 18, 21	06, 15
	Feb 12 UTC	01, 04, 07, 10, 13, 16, 19, 22	01, 10, 19
Spring 2006	Apr 00 UTC	10, 13, 16, 19, 22, 25, 28	Same as IBM
	Apr 12 UTC	11, 14, 17, 20, 23, 26, 29	
	May 00 UTC	01, 04, 07, 10, 13, 16, 19, 22	
	May 12 UTC	02, 05, 08, 11, 14, 17, 20, 23	

The following paragraph describes the overall directory structure of this archive.

/DTCRT/RETRO: Root directory for all data used to generate the initial and lateral boundary conditions for the retrospective forecasts. The input files are grouped into subdirectories corresponding to the retrospective season (winter, spring, summer, or fall). Under the seasonal subdirectories, the files are grouped into subdirectories named **yyyymmddhh**, where yyyy corresponds to the year of the forecast cycle, mm corresponds to the month, dd corresponds to the day and hh corresponds to the hour. This directory tree is used to store all input data for DTC testing. Hence, one will find files in this directory tree that extend beyond those described in this document. The following type of file for the 2007 Core Test is archived under the **RETRO** subdirectory:

ETA212.tgz: contains NAM forecast grids with the file naming convention yyjjjhh00000ff, where yyyy corresponds to the year, mm corresponds to the month, dd corresponds to the day and hh corresponds to the hour of the forecast cycle and ff corresponds to the forecast hour (00-60).

/DTCRT/CT2007: Root directory for all 2007 Core Test output files, code, scripts, and static files.

static: Subdirectory containing all time-independent namelists used to run the forecast system. Subdirectory **DOMAINS** has files **verifparm.tar.gz**, containing the namelists to run the NCEP Verification System, and **static_arw.tar.gz** and **static_nmm.tar.gz**, containing the geogrid static file, the namelists to run the WRF Pre-Processor, the WRF model, and the WRF Post-Processor for the ARW and NMM dynamic cores, respectively. Subdirectory **EXTDATA** has file **static.tar.gz**, containing the Variable Table used to run the ungrib program of the WRF Pre-Processor.

code: Subdirectory containing all source codes and scripts for end-to-end system., organized in subdirectories by platform (**IBM** and **LINUX**). Scripts, workflow manager and log files are also located in this subdirectory.

CIstats: Subdirectory containing computations of medians, outliers (for temperature, relative humidity and winds), means (for precipitation as well) and uncertainty estimates. Contains files **precip/precip_CI.tar.gz** and **sfcupa/sfcupa_CI.tar.gz.**

LINUX and **IBM:** Subdirectories containing the output files of the forecasting system on the respective computing platforms. Subdirectory **yyyymmddhh** contains output files for each forecast cycle, where yyyy corresponds to the year of the forecast cycle or initial time of the forecast, mm corresponds to the month, dd corresponds to the day, and hh corresponds to the hour. **ARW** and **NMM** subdirectories are used to distinguish between the two dynamic cores. The subdirectories under these headings are listed on the next page.

nclprd: contains images.tar file, which has all the image files generated for the forecast cycle.

postprd: contains post-processed output files. All of these files were produced by the WRF Post-Processor and are in GRIB format. The "**WRFPRS**" and "**wrfprs**" files contain 3D grids on pressure surfaces and 2D grids (files used by DTC for verification and image generation), the "**wrfmanlev**" files contain 3D grids on selected isobaric surfaces, and the "**WRFTWO**" and "**wrftwo**" files contain 2D grids. Each of these files contains a single forecast time. The **wrfpcp.tar** file contains the GRIB files with 3-hour precipitation accumulation. Files with upper case names contain fields on the native model horizontal grid, while files with lower case names contain fields on the RUC-13 grid.

Caveat for post-processed files:

Soil temperature and moisture in all post-processed files are correct but the labeling of the soil levels in the NMM GRIB files is incorrect. Levels 0-5, 5-30, 30-100, and 100-250 cm, levels should be labelled 0-10, 10-40, 40-100, and 100-200 cm, respectively.

wpsprd: contains final output from WPS process metgrid (**met*** files).

qpfprd: contains the 24-h and 3-h Quantitative Precipitation Forecast (QPF) verification statistics obtained using NCEP's QPF verification package.

verifprd: contains surface and upper air verification files obtained using NCEP's verification package, both as area averages **(*.vsdb** files) and as pairs of observation and forecast (**prepfits*** files).

wrfprd: contains the raw WRF output files on the native grid (**wrfout***). Output was generated every 3 hours over the 60 hour forecast with each forecast time (or valid time) written to a separate file. Additionally, contains output files from real (**wrfinput_d01** and **wrfbdy_d01**).

In addition to the **ARW** and **NMM** subdirectories, a third subdirectory **ARWNMM** contains the file **nclprd/images.tar,** which contains the images of the difference fields between ARW and NMM and the Skew-T plots of the ARW and NMM soundings.

Missing forecasts are listed on the next page.

Missing Forecast Products:

Forecast cycle	Affected Cycle	Missing data	Reason
Summer	2005070912 (NMM only)	Incomplete 3-h QPFV (miss 60 h)	Unknown
	2005072812 (NMM only)	Incomplete 3-h QPFV (miss 60 h)	Unknown
Fall	2005101212	Incomplete 3-h QPFV	Corrupt ST2 file
	2005103012	Incomplete sfc/upa verif	Missing RUC Prepbufr
	2005110100	Incomplete sfc/upa verif	Missing RUC Prepbufr
	2005110812	Incomplete sfc/upa verif	Missing RUC Prepbufr
	2005111000	Incomplete sfc/upa verif	Missing RUC Prepbufr
Winter	2006011300	Incomplete 24-h and 3-h QPFV	Missing RFC and St2 analysis
	2006011412	Incomplete 24-h and 3-h QPFV	Missing RFC and ST2 analysis
	2006011712	Imcomplete sfc/upa verif	Missing RUC Prepbufr
	2006011900	Imcomplete sfc/upa verify	Missing RUC Prepbufr
	2006021312	Incomplete 3-h QPFV	Corrupt ST2 file
	2006021500	Incomplete 3-h QPFV	Corrupt ST2 file
	2006021612	Incomplete sfc/upa	Missing RUC Prepbufr
	2006021800	Incomplete sfc/upa	Missing RUC Prepbufr
Spring	2006042200	Incomplete 24-h QPFV and incomplete sfc/upa	Missing RFC analysis and missing RUC Prepbufr
	2006042312	Incomplete 24-h QPFV and incomplete sfc/upa	Missing RFC analysis and missing RUC Prepbufr
	2006050100	Incomplete 3-h QPFV	Missing ST2 analysis
	2006051300	Incomplete sfc/upa	Missing RUC Prepbufr
	2006051412	Incomplete sfc/upa	Missing RUC Prepbufr
	2006052312	Incomplete sfc/upa	Missing RUC Prepbufr

/DTCRT/OBS: Root directory for all the observation files used for the forecast verification. The observation files are collected into subdirectories named **yyyymmdd**, where yyyy corresponds to the year, mm corresponds to the month, and dd corresponds to the day for which the observations are valid. This directory tree is used to store all observation data for DTC testing. Hence, one will find files in this directory tree that extend beyond those described in this document. The following types of files for the 2007 Core Test are archived under the observation subdirectory:

precip_yyyymmdd.tgz: contains Stage-II national multi-sensor hourly precipitation analysis data and NCEP/CPC's 1/8 degree daily precipitation analysis.

RUC_prepbufr_yyyymmddhhhh.tar.gz, where hh is 00 or 12, contain RUC prepbufr files used for the surface and upper air verification.

Data with problems:

- Summer: None.
- Fall
  - RUC Prepbufr
    - 2005111007 missing
    - 2005111009 missing
    - 2005110121 corrupt
    - 2005110121 corrupt
  - ST2 2005101319 corrupt
- Winter
  - RUC Prepbufr
    - 2006011918 corrupt
    - 2006021716 through 2006021723 missing
    - 2006021817 through 2006021823 missing
    - 2006022512 through 2006022523 missing (does not affect any cycle)
  - RFC 20060115 missing
  - ST2 2006021516 corrupt
- Spring
  - RUC Prepbufr
    - 2006042316 through 2006042323 missing
    - 2006051412 missing
    - 2006052600 through 2006052623 missing
  - RFC 20060424 missing
  - ST2 2006052600 missing