

NU-WRF Version 1.0 Software Definition

Final 1.04

Overview

Planned Release Date: July 2, 2010

Summary: NU-WRF 1.0 will consist of a software package of coupled components, runnable use case examples with data sets that exercise these components, and documentation on building the software and running the use cases.

Software Components Supported

The NU-WRF 1.0 package will contain the following codes/couplings:

- WRF 3.1.1
- *Related WRF 3.1.1 packages:* WPP, WPS, MET, ARWPost, RIP
- Goddard microphysics and Goddard radiation, coupled internally
- LIS, coupled internally
- GOCART-aerosol coupling without radiation
- *Data utilities:* merra2wrf, geos2wrf, gocart2wrf, MET execution

Use Cases Supported

The NU-WRF 1.0 package will contain the following use case examples. The use cases include WRF config files, datasets and instructions to run:

- 05 - California snow (00Z 12/30/05 - 00Z 01/01/06)
- 06 - Hurricane Wilma 2005
- 15 - Typhoon Morakot 2009
- 08 - C3VP (00Z 1/20 - 00Z 1/23 2007)
- 09 - MSFC: Real-time NSSL: 10 April 2009 (tornado/large hail outbreak, SE U.S.)
- 11 - MSFC: Real-time NSSL: 28 March 2007 (tornado outbreak)
- 12 - Very dry/mostly clear sky with deep PBL growth (14 July 2006)
- 14 - [GOCART-aerosol]

Datasets included with the release include GRIB files, processed GEOS and MERRA datasets and customized WPS TBL, as appropriate. A common boundary conditions file for the use cases (e.g. GFS data) could be developed and used as appropriate.

Note: Use case numbering corresponds to numbering in the shared project folder on discover. See: /discover/nobackup/projects/nu-wrf/cases/README.TXT

Note: For inclusion in the release, the use cases should (1) have all code component dependencies completed or working reasonably, (2) have contributed their input configurations and datasets to the shared project area, (3) be executable by other team members, (4) have a regression test established to exercise aspects about the case/code.

Documentation

The NU-WRF 1.0 package will contain documentation for the following:

- Accessing the Model Code and Cases

- Building the Software
- Running the Cases and Utilities

Schedule

- **May 27, 2010** - Initial NU-WRF 1.0 Software Definition accepted by team. Begin capturing codes and use cases that are done.
- **June 21, 2010** - All codes integrated into the repository and all use case inputs captured to the shared folder.
- **June 30, 2010** - All regression tests completed. Supports build all option(?)
- **July 2, 2010** - NU-WRF 1.0 released. Documentation on accessing the software and running the use cases made available. Build made available on shared folder on discover as an official release.

Software and Use Case Status Chart

Component	Contacts	Assignee	Notes	Inc	Acq	Tst
LIS, coupled internally	Sujay Kumar, Jim Geiger	Phil, Rob	Included	X	X	
Related WRF 3.1.1 packages: WPP, WPS, MET, ARWPost, RIP	Rob Burns, Rahman Syed	Rob, Rahman		X		
Data utilities: merra2wrf, geos2wrf, gocart2wrf, MET execution	Eric Kemp, Phil Hayes, Jon Case	Eric, Phil	Do we need Geography sets?	X		
Goddard microphysics and Goddard radiation, coupled internally	Roger Shi	Rob, Eric	Included, radiation effect on microphysics indirect	X	X	X
GOCART-aerosol coupling without radiation	Qian Tan, Mian Chin (?)	Rob, Chris	Already integrated?	X		
SDSU, coupled offline to LIS	Joseph Santanello, Sujay Kumar, Toshihisa Matsui	Phil, Rob	Weeks away, confirm in June	Y?		
Data utilities: sst2wrf	Eric Kemp	Eric	Untested	Y?		
LIS-GOCART coupling	Qian Tan	Phil, Rob	Not started	No		
GOCART coupled with radiation	Toshihisa Matsui	Phil, Rob	Months away	No		
GOCART, as WRF/Chem component	Kyu Myong Kim, Qian Tan	Chris, Rob	Not Included	No		
Use Case	Contacts	Assignee	Status	Inc	Acq	Tst
11 - MSFC: Real-time NSSL: 28 March 2007 (tornado outbreak)	Jon Case	Eric, Rahman	Has data	X		
12 - Very dry/mostly clear sky with deep PBL growth (14 July 2006)	Joseph Santanello, Sujay Kumar	Phil, Rob	Has data, good LIS-WRF test	X		
09 - MSFC: Real-time NSSL: 10 April 2009 (tornado/large hail outbreak, SE U.S.)	Jon Case	Eric, Rahman	Has data	X		
05 - California snow (00Z 12/30/05 - 00Z 01/01/06)	Mei Han	Chris, Rob	Stable	X		
08 - C3VP (00Z 1/20 - 00Z 1/23 2007)	Roger Shi	Rob, Eric	Done	X	X	X

06 - Hurricane Wilma 2005	Roger Shi, Scott Braun, Aaron Pratt	Rob, Eric	Has data. Only #06 or #15 needed?	X		
15 - Typhoon Morakot 2009	Roger Shi, Scott Braun, Aaron Pratt	Rob, Eric	Has data. Only #06 or #15 needed?	X		
14 - [GOCART-aerosol]	Qian Tan, Mian Chin	Chris, Rob	Already exists?	X		
02 - 2009 CA wild fires (Coupled GOCART aerosol)	Qian Tan	Phil, Rahman	Testing phase, confirm in June	?		
13 - Aerosol pollution propagation over US (January 01, 2006)	Phil Hayes	Phil, Eric, Rob	Confirm in June, requires WRF change	?		
04 - SGP Soil Moisture (June 15-17, July 25-27 2006)	Joseph Santanello, Sujay Kumar, Toshihisa Matsui	Phil, Rob	Weeks away, confirm in June	?		
01 - Aerosol Monsoon Cycle over India (May/June, 2005/2006)	Kyu Myong Kim, Mian Chin, Roger Shi	Chris, Rob	Exploring variations and coupling	No		
07 - Hurricanes with aerosol contributions	Scott Braun, Aaron Pratt	Eric, Rob	Requires two-moment microphys	No		
03 - Dust emission (Offline version)	Qian Tan, Sujay Kumar	Phil, Rahman	Not started	No		
10 - MSFC: Real-time NSSL: T.S. Erin in Aug 2007	Jon Case	Eric, Rahman	Not started	No		

Gray = Requires Confirmation
 Green = Included in Release
 Yellow = Uncertain Inclusion in Release
 Red = Not Included in Release

Inc = Included in NU-WRF 1.0
 Acq = Acquired data sets + instructions or integrated code
 Tst = Associated with an implemented regression test