



WRF Winter Tutorial

23-31 January 2012, Boulder, USA



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Practical Assignment





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Assignment

- ★ Detailed practical notices are On Line:
<http://www.mmm.ucar.edu/wrf/users/prac>
- ★ Open a browser – go to this web site. (This page will be available after the tutorial - till the next tutorial – beginning April 2012)
- ★ Feel free to experiment - Understand the components of WRF model that YOU are interested in – including which model core you want to run.



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Assignment

- ★ **Refer to User's Guide during practice for more details on model settings (this guide is available online - there are links from the above pages)**
- ★ **Editors: vi, emacs, nedit**
- ★ **Unix cheat-sheet available from practice page**



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Computers

Look for the **information sticker** on the monitor to see computer names.

Password
wrf.2012

Machine: ~~XXXXXX~~

LOGIN
Group PM: classXX
Group AM: classXX

Machine: *lab03a*

LOGIN

Group PM: class13

Group AM: class33

Working Directories:

/data1/\$USER/BASIC

Do not create big files, or clean up if you do.
Participants that stay for other tutorials will have access to the same computer for the 2 weeks.



WRF Summer Tutorial

11-22 July 2011, Boulder, USA



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WRF Basic

WRF-Chem

WRFDA

This web site links to the practical sessions for all Tutorials presented:

Basic WRF (11 - 15 July); WRF-Chem (18 -19 July); and **WRFDA** (20 - 22 July)

Follow the links on the top navigational bar to the specific tutorial you are currently attending.

IMPORTANT NOTE : After you have logged on and opened a terminal window, change directory to the following workshop space depending on the tutorial you are attending:

Basic WRF Tutorial: `cd /data1/$USER/BASIC`

WRF-Chem Tutorial: `cd /data1/$USER/CHEM`

WRFDA Tutorial: `cd /data1/$USER/DA`

WRF

Hands on Tutorial

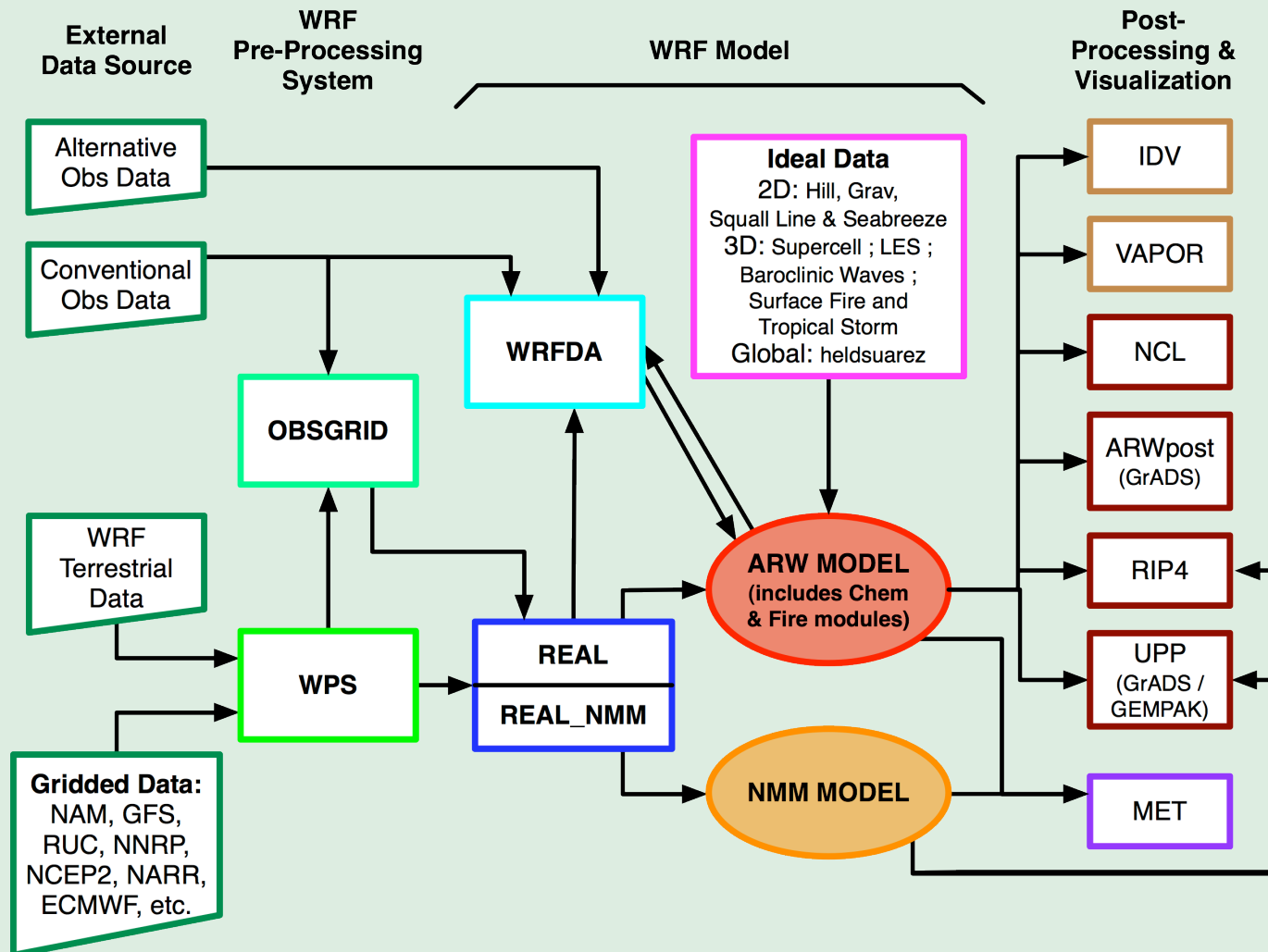
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WRF Modeling System Flow Chart





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Hands on Tutorial

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Necessary steps for a successful run

Real Data Cases



Idealized Cases



In order to run the model successfully, one normally needs to first compile the code and obtain data (*for real data cases*), before attempting to run the code.

Since compiling the code can take a considerable amount of time, **we have supplied pre-compiled code for this practical.**

All the pre-compiled code for the tutorial is available in your \$HOME directory when you log onto your account on the classroom machines.

We have also supplied the data, so for most of these cases you only need to run WPS/WRFV3.

If you want to experiment with compiling the code, we do have a separate exercise to practice compiling, but for all other exercises please use the pre-compiled code as this will ensure that you get the most from the practical sessions.

★ During the practical session you may find it handy to have a copy of the [WRF-ARW User's Guide](#) open on your desktop. ★

Let's start running case studies.



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Hands on Tutorial

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- [Single Domain Run](#)

- [Restart the model](#) ★

- [Two-way Nested Domain](#)

- [Objective Analysis \(OBSGRID\)](#) ★★★★★

- [Analysis Nudging](#) ★★★★★

- [Observational Nudging](#) ★★★★★

- [Setting WRF up for Climate Simulations](#) ★★★★★

Advanced Cases

- [One-way nested run using ndown](#) ★★★★★

- [Vortex Following Case](#) ★★★★★

- [Output a new variable](#) ★★★★★

- [Compute a diagnostic variable](#) ★★★★★

- [Create your own case](#) ★★★★★

WRF Basic

WRF-ARW ▶

WRF-NMM

Graphics ▶

WRF Basic Quiz

Feedback

MET

es

[! cases](#) ★★★★★

- [WRFV3 & WPS for Real Data Cases](#)

- [WRFV3 for Idealized Cases](#)

- [Single Boston Domain](#) ★★

- [Nested Boston Domain](#) ★★★

- [Your case study](#) ★★★

- [Restart the model](#) ★★★

- [Output new variable](#) ★★★



RUN WPS & WRF-ARW FOR DIFFERENT CASES

Practical Cases

Step through the cases below. Try and do as many of the cases as possible.

The ★-rating is an estimate of difficulty.

If you are an experienced user, also try to do some of the advanced cases below.

For all the Practical Cases below we are going to use data from a [severe weather event in the Mediterranean Sea](#).

Case dates are 2009-02-27_00 to 2009-02-28_00, and data are available 6-hourly.

We recommend running with pre-compiled code, so you can save some time.

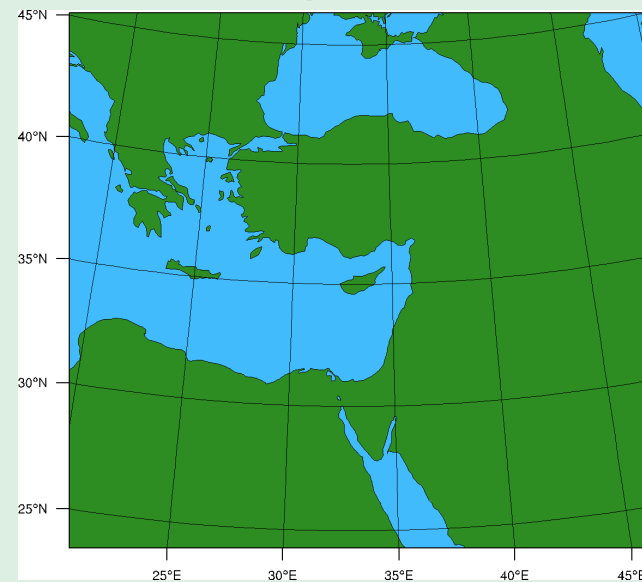
So the first step, before you start running any of the cases below, is to [copy the pre-compiled code](#) to your working directory.

- [Single Domain Run](#) ★★
- [Restart the model](#) ★★
- [Two-way Nested Domain](#) ★★ ★
- [Objective Analysis \(OBSGRID\)](#) ★★ ★ ★
- [Analysis Nudging](#) ★★ ★ ★
- [Observational Nudging](#) ★★ ★ ★

Advanced Cases

- [One-way nested run using ndown](#) ★★ ★ ★
- [Output a new variable](#) ★★ ★ ★
- [Compute a diagnostic variable](#) ★★ ★ ★
- [Create your own case](#) ★★ ★ ★
- [Compile WRFV3 & WPS for Real Data Cases](#)
- [Compile and Run WRFV3 for Idealized Cases](#)

(70x75 grid points)





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29. One of the advantages of a moving nest is the ability to change the nest domain size when it moves:
- ☐ True
 - ☐ False
30. When the WRF model fails in the first few time steps with a CFL error, the user should:
- ☐ Look for problems in the initial conditions
 - ☐ Consider a smaller timestep
 - ☐ Immediately send an email to wrfhelp
31. For a regional domain, if you process 48-h of data in metgrid, what is the longest forecast that you can generate in WRF?
- ☐ 48-h
 - ☐ No forecast is possible
 - ☐ There is no limit

[click to check your answers](#)

[click to continue with practical sessions](#)



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★ Quiz & Feedback

- Take the quiz
 - Please provide feedback before Feb 5, 2012
-

★ Have Fun

★ Ask Questions