A Guide to WRF

Reference the ARW On-line tutorial at
http://www.mmm.ucar.edu/wrf/OnLineTutorial/index.htm

I. Setting up the WRF and WPS

*Make sure the correct NETCDF paths are in you .bashrc or .cshrc file
    PATH=/home/netcdf/bin:$PATH
    export PATH
*Make sure to have the correct path for the PGI compiler and MPICH
    PATH=$PATH:$PGI/linux86/6.2/bin:/usr/local/pbs/bin:/usr/local/ncarg/bin:/usr/local/grads/bin:

1. Log into bora using the command ssh –X bora
    -X allows you to use X windows for running programs such as RIP
2. In the desired directory create a WRF directory
    mkdir WRF
3. Download the WRF source code from the following web-site
http://www.mmm.ucar.edu/wrf/users/download/get_source.html
    The latest version of the WRF tar file and WPS tar file
    Place them in the WRF directory
4. untar the files
    gzip –cd WRFV2.1.TAR.gz | tar –xf –
    gzip –cd WPSV2.2.TAR.gz | tar –xf –
    This will create new directories WRFV2/ and WPS/
5. move into the WRFV2 directory to configure and compile WRF
6. ./configure
    Choose option 1 for a single processor run
    Choose option 6 for an MPI run
7. ./compile em_real
    This will create the following executable files in main/ directory
        ndown.exe
        nup.exe
        real.exe
        wrf.exe
8. move into the WPS directory to configure and compile WPS
9. ./configure
    Choose option 1 for a single processor run
    Choose option 3 for an MPI run
10. ./compile
    This will create the following executables in the WPS directory
        geogrid.exe
        metgrid.exe
        ungrib.exe

11. create a WPS_GEOG directory for the terrestrial data input within the WPS directory
12. Download the terrestrial data input from the tutorial or the following website
http://www.mmm.ucar.edu/wrf/users/download/get_source2.html
13. untar the terrestrial data file inside the /WPS/WPS_GEOG directory
    gzip –cd geog_general.tar.gz | tar –xf –
14. edit the path of the terrestrial input data in the following namelist files to
    geo_data_path = 'your WPS_GEOG data location'
    namelist.wps
    namelist.wps-all_options
15. Your pre-processing and domain set up can be done manually as listed in the steps below or with the aide of Domain Wizard.
    Find more information at: http://wrfportal.org/index.html
16. Also edit the domain and time portions of namelist.wps
17. ./geogrid.exe
18. be sure your model data is in a directory called data located in the WRF/ directory
19. link the data using the following command
    ./link_grib.csh ../data/*name of model data**
    ./link_grib.csh ../data/NARR* or ./link_grib.csh ../data/GFS*
20. link the correct Vtable for your model data
    ln –sf ungrib/Variable_Tables/Vtable.NARR Vtable
    you can look up the available Vtables in the directory ungrib/Variable_Tables
21. ./ungrib.exe
22. ./metgrid.exe
    *I have found that metgrid.exe may fail when using NARR data
    *To correct this problem add SPECHUMD to metgrid.tbl.arw

II. Initializing and Running WRF

23. Now move to the /WRFV2/run directory
24. Edit the namelist.input file for your case
    namelists created with the SI are not compatible with the new version of WRF
25. link the met_em files created in the WPS setup
    ln –sf */directory of met_em files* ./
    ln –sf /l/emily/WPS/met_em* ./
26. run real.exe
    For a single processor type real.exe
    For an mpi run type mpirun –nolocal –np 4 real.exe
27. to monitor the progress or real.exe type tail –f rsl.error.0000
28. delete the rsl files if running an mpi run
29. run wrf.exe
    For a single processor wrf.exe
    For an mpi run type mpirun –nolocal –np 4 wrf.exe
30. to monitor the progress of wrf.exe type tail –f rsl.error.0000
31. see instructions on viewing data on RIP4 or any other visualization software