

# WRF Domain Wizard

A tool for the WRF Preprocessing System

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# What is WRF Domain Wizard

- Graphical User Interface (GUI) for WPS
- Supports latest WRF / WPS version 3 features
- Used to
  - ☐ Define the region and projection of a domain on map
  - ☐ Define any nests
  - ☐ Write information to namelist.wps
  - ☐ Write information to namelist.input
  - ☐ Run the WPS programs
  - ☐ Visualize/Map NetCDF output
- WRF Domain Wizard is a component of WRF Portal (GUI for running WRF)
  - ☐ WRF Domain Wizard can also be run “standalone” (outside of WRF Portal)



# WRF Domain Wizard Technical Info

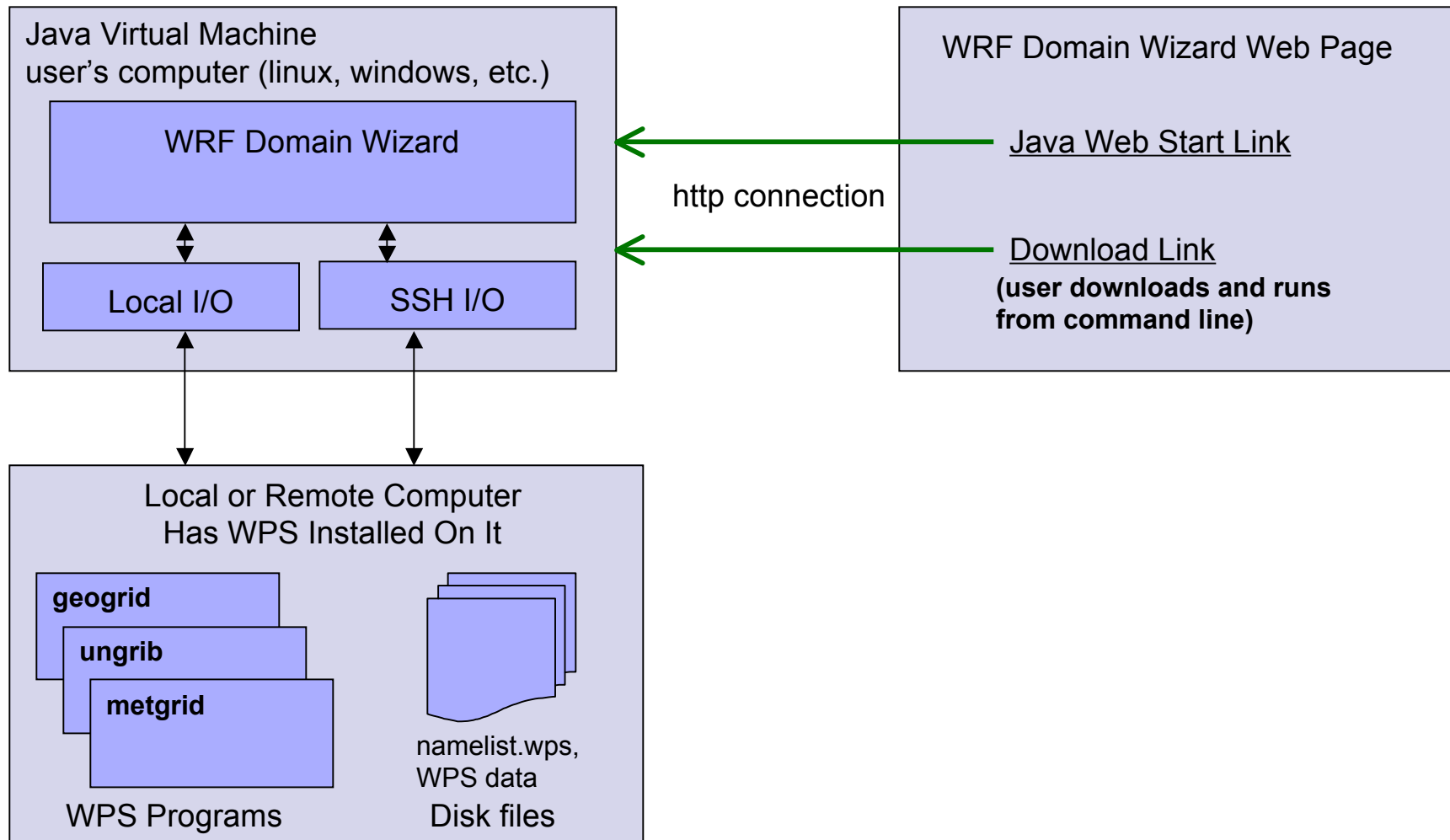
## ■ Software is written in Java

- ☐ Minimum JRE 1.5; recommend JRE 1.6 for best performance
- ☐ Runs on local computer or remote computer; uses SSH-2 and SFTP to connect to remote computer
- ☐ 384 MB of RAM (memory) available  
1024 x 768 (or better) video display

## ■ Can Be Run

- ☐ Standalone - from a webpage
- ☐ Standalone - download and run from the command line (either on local computer, or on remote computer with X forwarding)
- ☐ From within WRF Portal (GUI for running WRF)

# Domain Wizard Architecture and Flow



# <http://www.wrfportal.org/DomainWizard.html>

Domain Wizard - Mozilla Firefox

File Edit View History Bookmarks Tools Help


http://wrfportal.org/DomainWizard.html

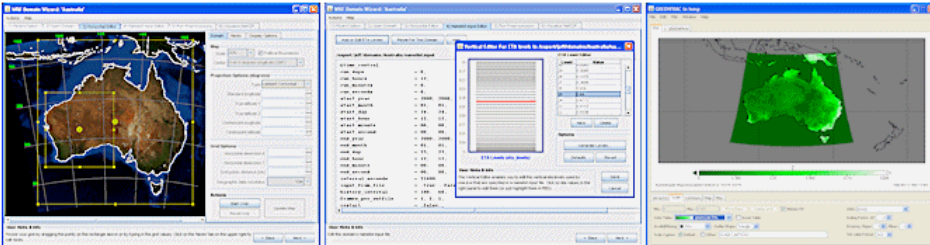
WRF Portal Home Contact Us

## WRF Domain Wizard

**WRF Domain Wizard**  
The WRF Preprocessor System (WPS) GUI  
Version 1.23 for Linux, Mac, and Windows - released July 14, 2008

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Disclaimer  
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NOAA website  
ESRL website  
FSL website  
Accessibility statement



WRF Domain Wizard is the successor to the [WRFSL GUI](#) and is a graphical user interface (GUI) for the new [WRF Preprocessing System \(WPS\)](#). It enables users to easily define and localize domains (cases) by selecting a region of the Earth and choosing a map projection. Users can also define nests using the nests editor, edit namelist.input, run the WPS programs (geogrid, ungrib, and metgrid) through the GUI, and visualize the NetCDF output. WRF Domain Wizard is also a built-in component of [WRF Portal](#). WRF Domain Wizard stores its information in the standard WPS file, [namelist.wps](#).

WRF Domain Wizard can be run as a stand-alone application or it can be run from inside the [WRF Portal](#) application. There are two ways to launch the standalone version of WRF Domain Wizard: by downloading the application and unzipping it, or by launching it with Java Web Start. The advantages of running the Java Web Start version include being able to run it without doing an installation, and automatically receiving program updates. Having trouble running Domain Wizard? Please read the [FAQ](#) or [troubleshooting tips](#). Get the source code [here](#).

**What's New in version 1.23** - support for WRF 3 namelist.input, WPS 3 "lat-lon" regional and global domains, and visualizing NetCDF files in IDV and Google Earth.

**Run WRF Domain Wizard using Java Web Start**

[Click here to launch WRF Domain Wizard version 1.23](#)  
Requires Java 5 or later (go [here](#) if you can only run Java 1.4).

Done




# WRF Domain Wizard – How to Launch

## ■ Launch using Java Web Start

- ☐ Just click on the web page link, wait several seconds while the software downloads, then the program just runs
- ☐ No complicated installation required!
- ☐ Java and Java Web Start (javaws) come standard with Linux and Mac
- ☐ If you don't have Java on your system, download a free Java Runtime Edition (JRE) version 1.5 or later [www.java.com/getjava](http://www.java.com/getjava)

# WRF Domain Wizard – How to Launch


F.A.Q.  
About



Disclaimer  
Privacy Policy

NOAA website  
ESRL website  
FSL website

Accessibility  
statement



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**Run WRF Domain Wizard using Java Web Start**

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Requires Java 5 or later (go [here](#) if you can only run Java 1.4).

**Help! WRF Domain Wizard doesn't launch!** Here are some [trouble-shooting](#) tips.

Done

←click this link

# WRF Domain Wizard – How to Launch

- Launch using Java Web Start





# WRF Domain Wizard – How to Launch

- Launch using Java Web Start



# WRF Domain Wizard – How to Launch

- Launch using Java Web Start



# WRF Domain Wizard – How to Launch

- Launch using Java Web Start



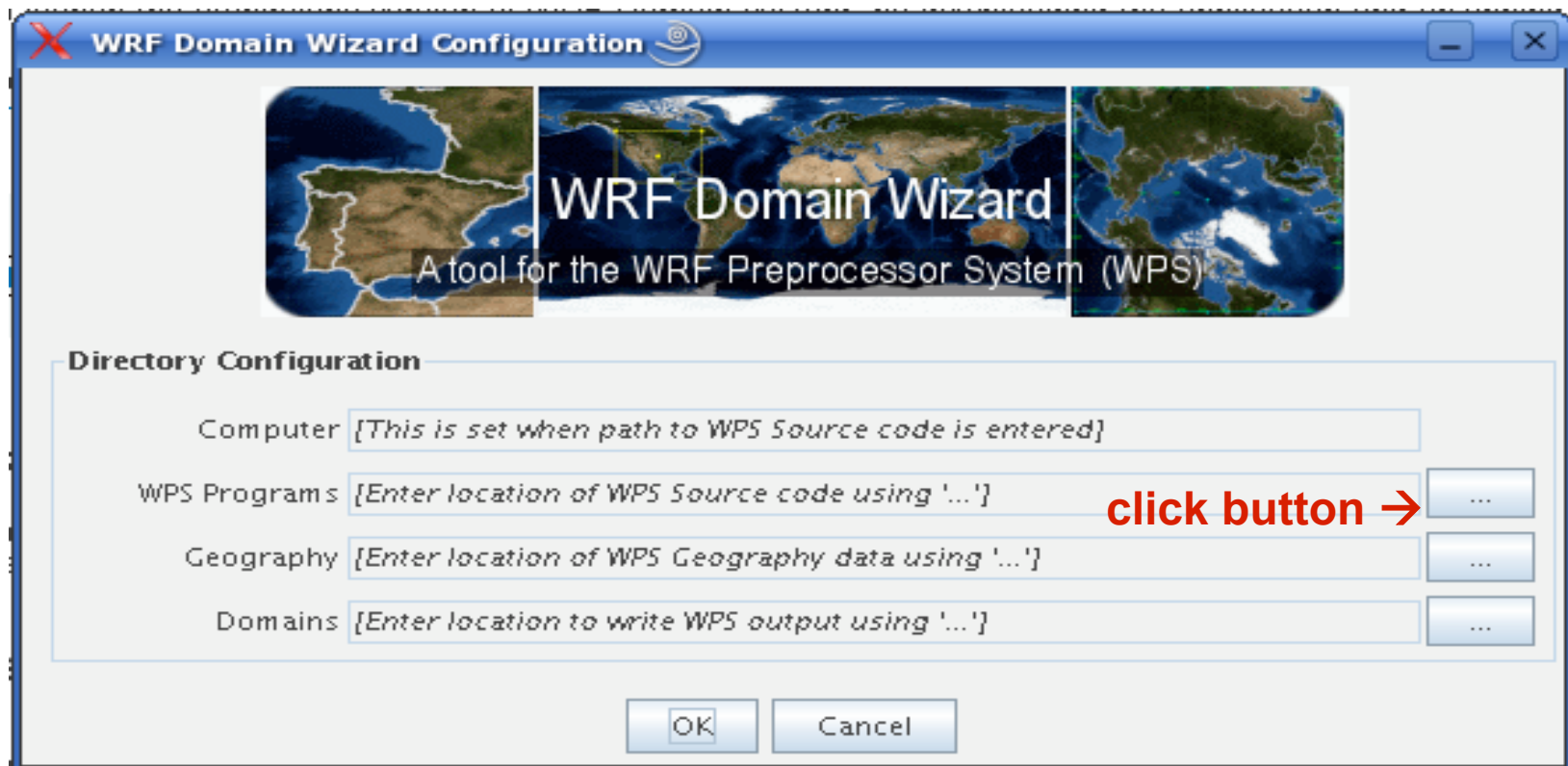


# WRF Domain Wizard – How to Launch

- Alternate launch: by downloading jar file
  - Download the **WRFDomainWizard.zip** to e.g.  
c:\WRFDomainWizard or /home/WRFDomainWizard
  - unzip **WRFDomainWizard.zip**
  - Run "run\_DomainWizard.bat" (Windows)  
or  
"run\_DomainWizard" (Linux, after chmod +x)  
or run it directly like so  
**java -Xmx390m -jar DomainWizard.jar**
  - You can place a shortcut icon on your desktop

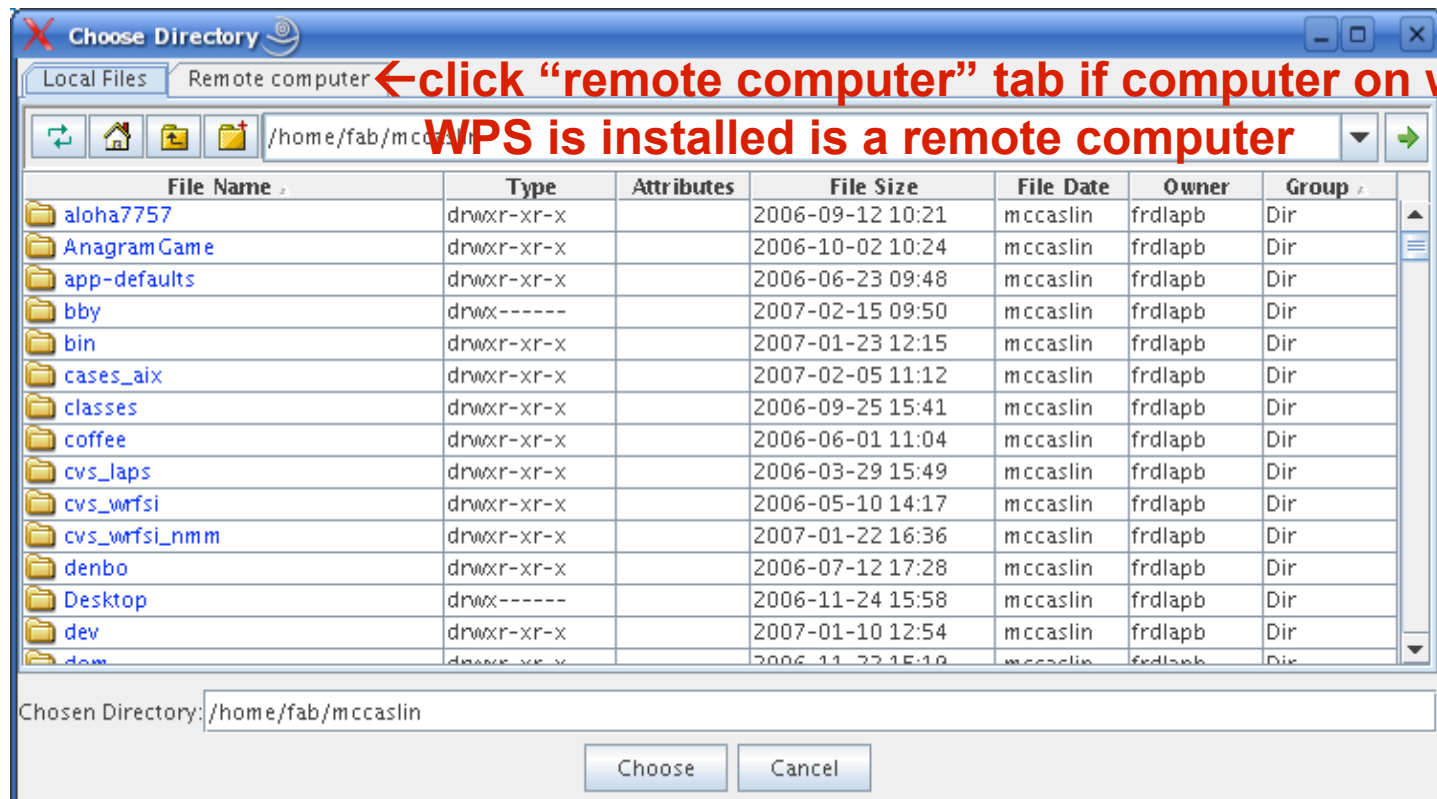
# WRF Domain Wizard – How to Run

- When first launched, the configuration window appears
- Click on the “...” buttons to set the paths



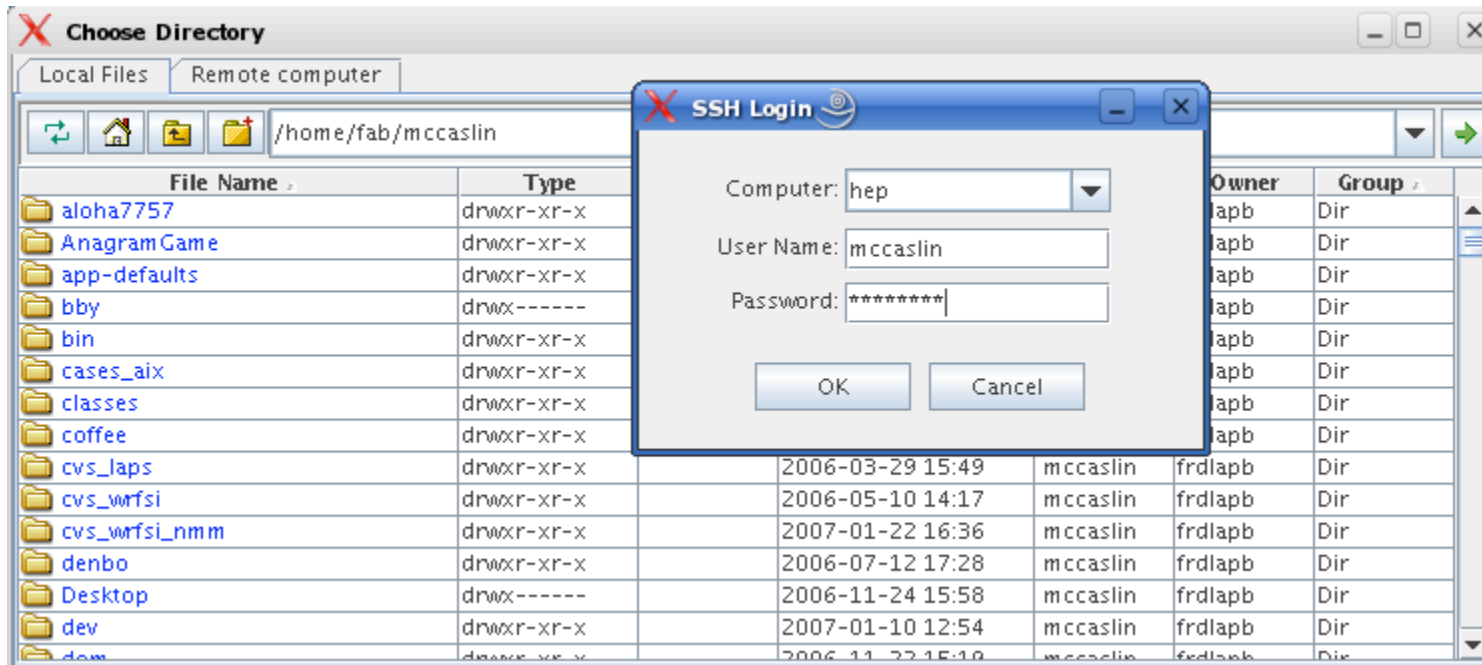
# WRF Domain Wizard – How to Run

## ■ Configuration Directory Chooser



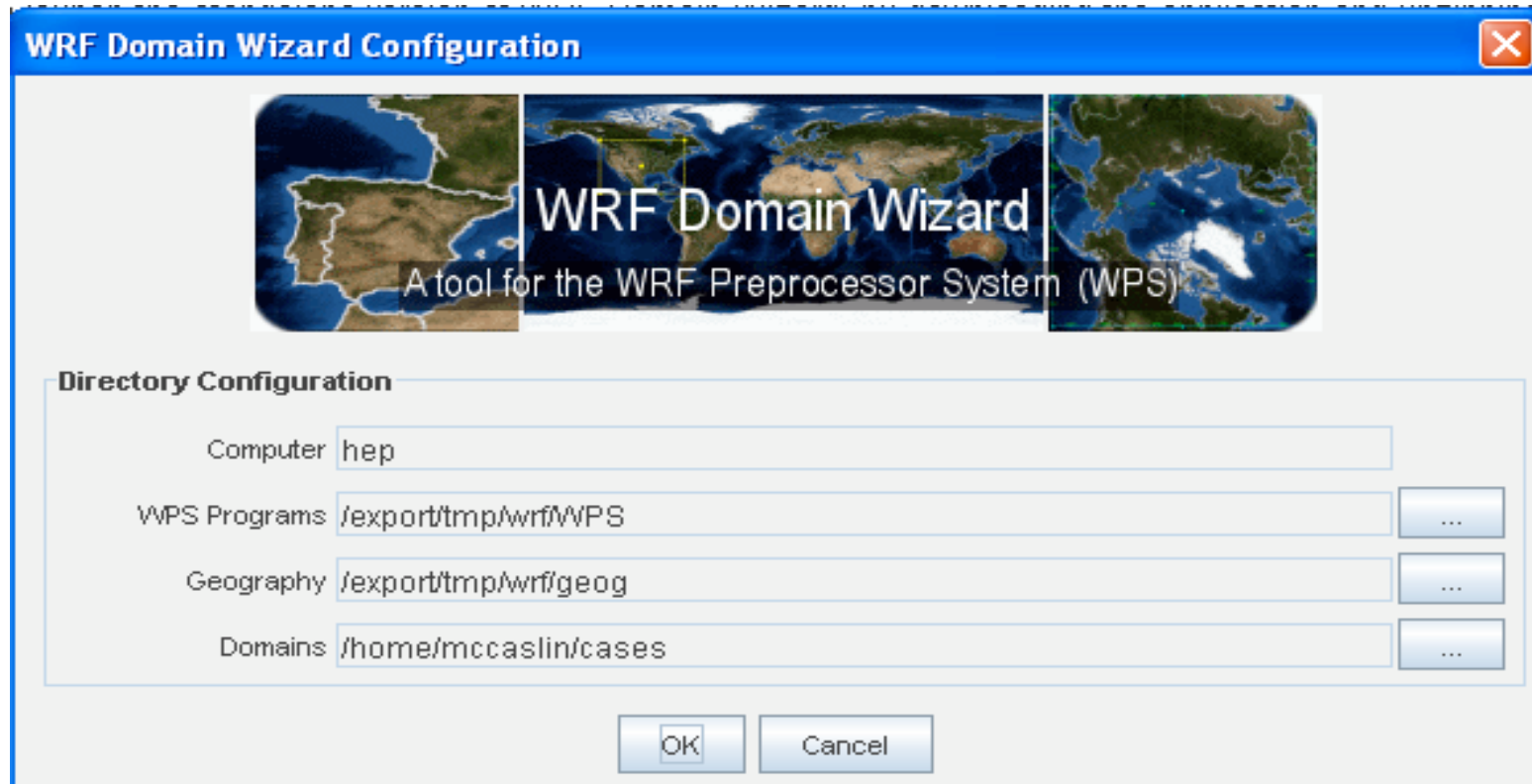
# WRF Domain Wizard – How to Run

- SSH login for “remote computer”



# WRF Domain Wizard – How to Run

- Configuration complete







# WRF Domain Wizard – How to Run

- WRF Domain Wizard writes these dir paths (configuration information) to a text file called DomainWizard.cfg
  - Located in your home directory, will contain, e.g.:
    - hep
    - /export/tmp/wrf/WPS
    - /export/tmp/wrf/geog
    - /home/mccaslin/cases
- Alternatively, you can run WRF Domain Wizard from within WRF Portal (next slide)

# <http://www.wrfportal.org/WRFPortal.html>

**WRF Portal** Home | Contact Us

## Download WRF Portal

**WRF Portal: A GUI For Running WRF**  
Beta Version 0.94 for Linux, Mac, and Windows - released July 14, 2008

**Home**  
WRF Portal  
Domain Wizard  
Tutorials (HTML)  
Tutorials (Video)  
F.A.Q.  
About

**WRF Portal: A GUI For Running WRF**  
Beta Version 0.94 for Linux, Mac, and Windows - released July 14, 2008

WRF Portal is the GUI that takes you through the entire process of running WRF: creating a domain (using the built-in WRF Domain Wizard component that generates your namelist.wps and namelist.input files), creating and running workflows, monitoring the progress of your runs, diffing workflows and files. Supports WRF version 2.x and generally supports the new WRF version 3. Get the source code [here](#).

**What's New in version 0.94** - Improved WRF 3 support, minor bug fixes and improvements.  
**What's New in version 0.93** - Updates to WRF Domain Wizard for WRF 3 namelist.input, WPS 3 "lat-lon" regional and global domains, and visualizing NetCDF files in IDV and Google Earth.

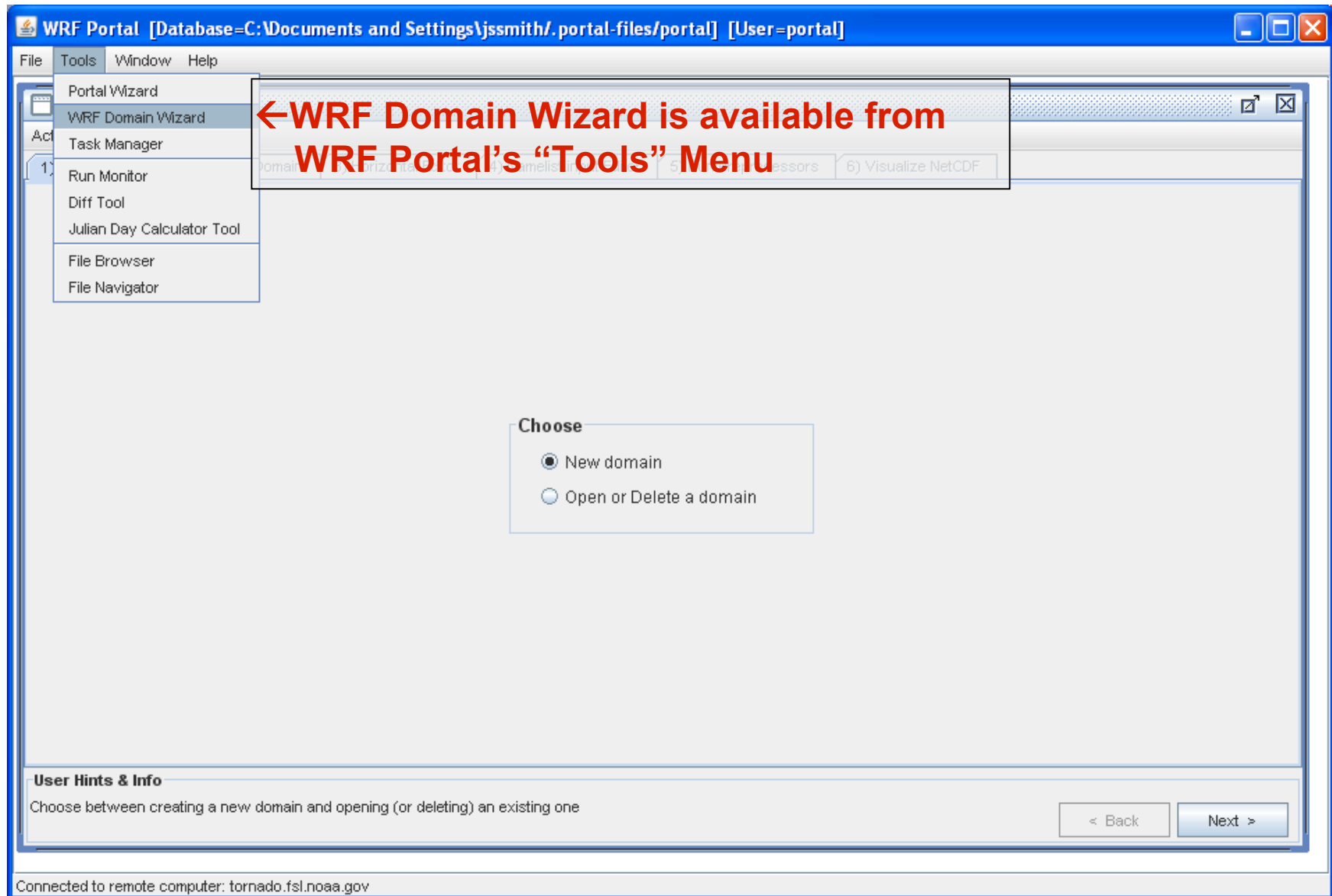
**Run WRF Portal using Java Web Start (recommended, no installation required)**

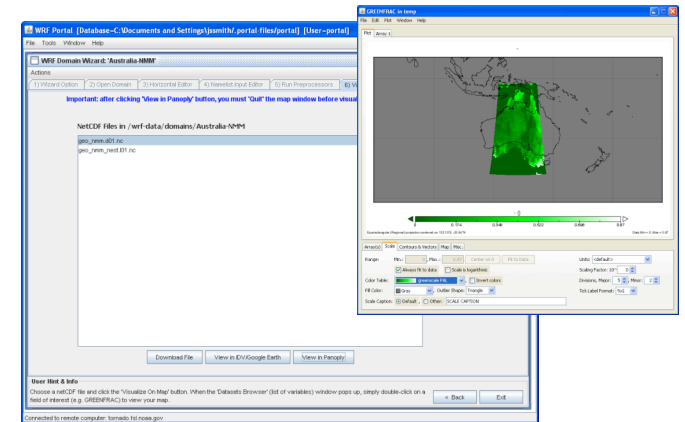
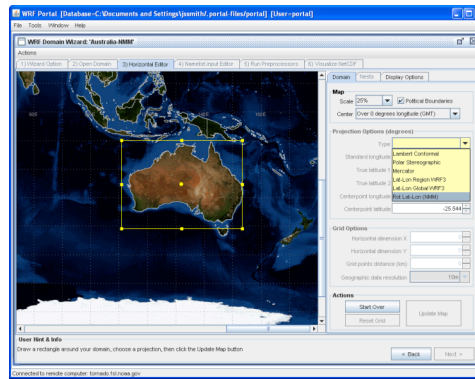
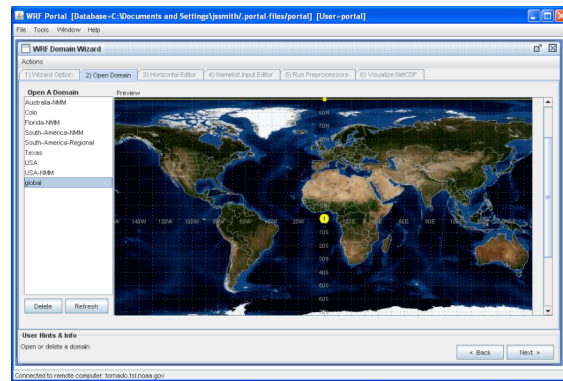
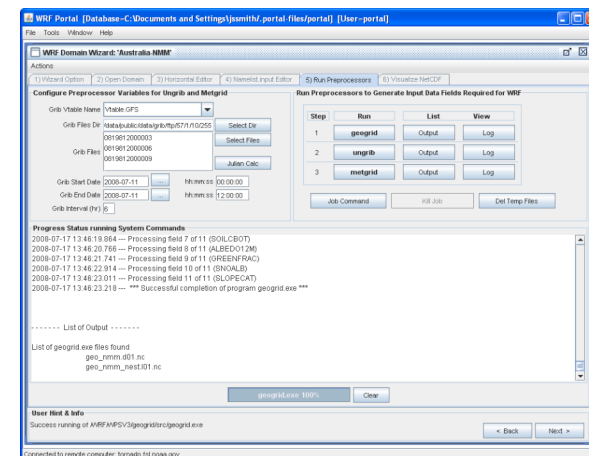
[Click here to launch WRF Portal Beta 0.94](#) ←click this link to launch WRF Portal

No installation required. Just click on the link and WRF Portal will set itself up and run. You

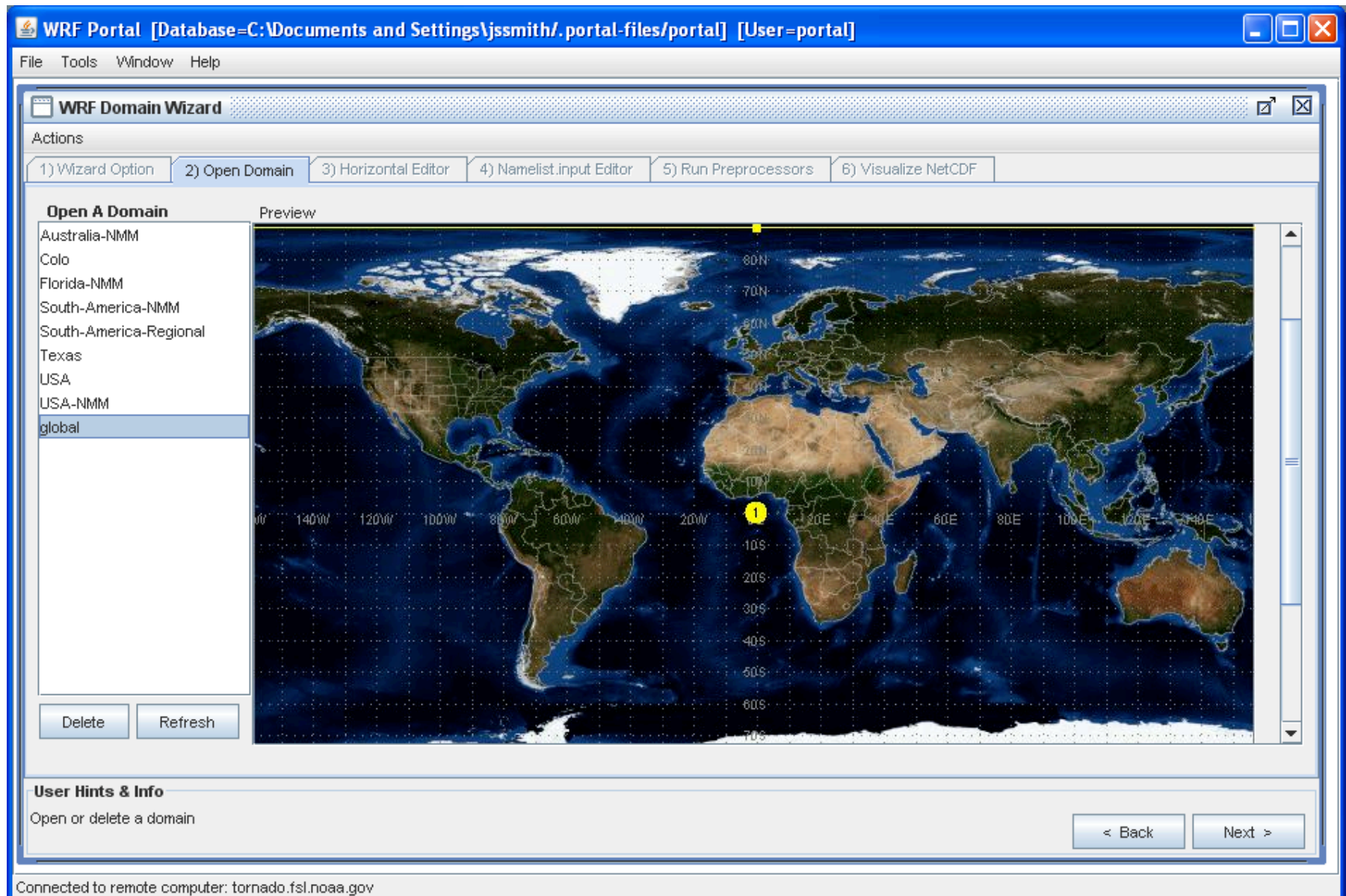
Task	Job ID	Job Started	Job Status	Job Progress
def_ungrib	16335	2008-04-11 16:57 MDT	done	100%
def_metgrid	16384	2008-04-11 16:57 MDT	done	100%
def_ens	16413	2008-04-11 16:57 MDT	done	100%
def_vart	16442	2008-04-11 16:57 MDT	done	100%

# <http://www.wrfportal.org/WRFPortal.html>



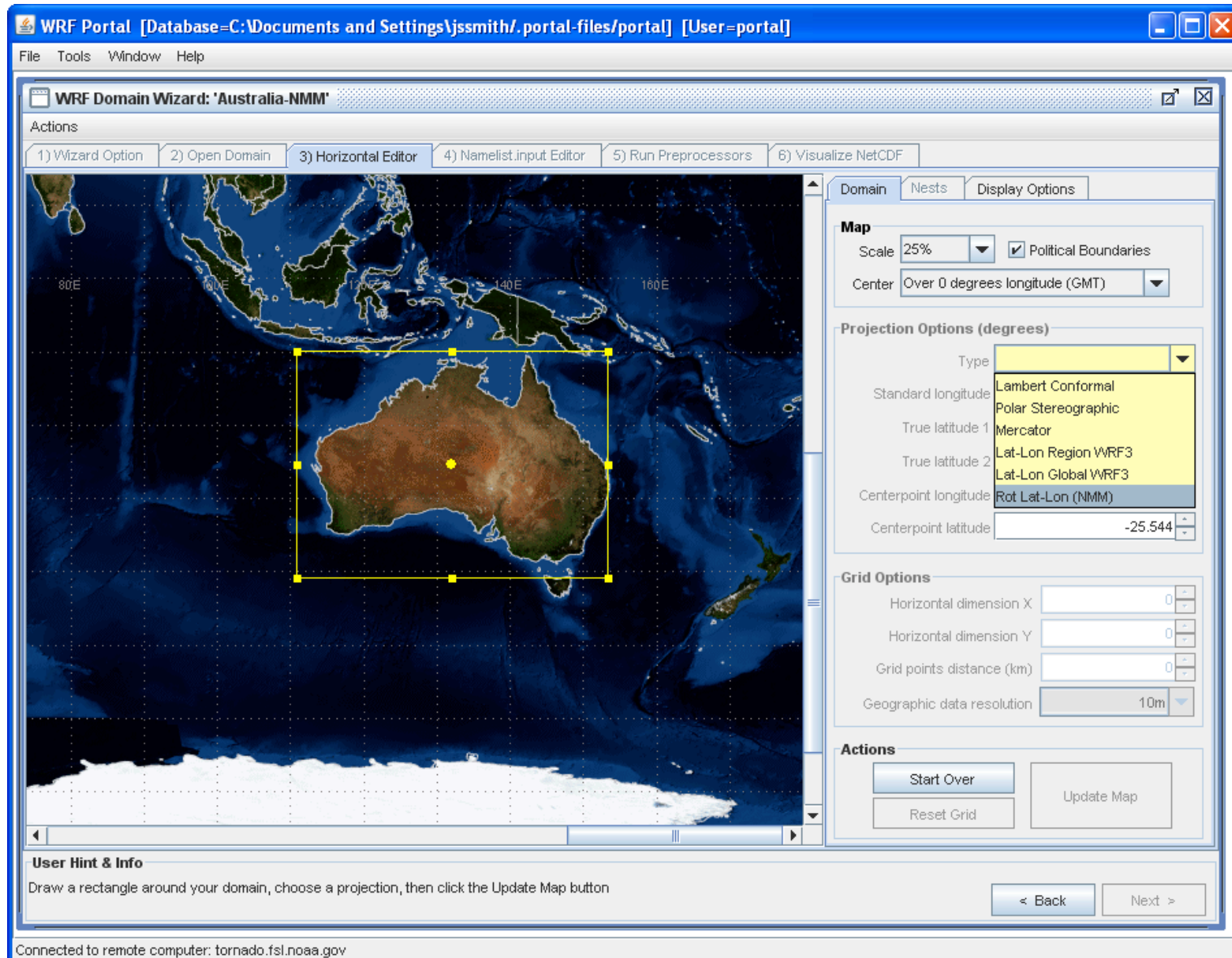
[illegible]

# Open an existing domain (with preview)





# Select domain, choose projection...



# Edit Nests...

WRF Portal [Database=C:\Documents and Settings\jssmith/.portal-files/portal] [User=portal]

File Tools Window Help

WRF Domain Wizard: 'Australia-NMM'

Actions

1) Wizard Option 2) Open Domain 3) Horizontal Editor 4) Namelist.input Editor 5) Run Preprocessors 6) Visualize NetCDF

Domain Nests Display Options

Nested Domain Properties

ID	PID	Ratio	Left	Right	Top	Bot	IX	IY	Res
1	1	1	1	51	114	1	51	114	10m
2	1	3	6	22	69	42	48	81	10m

New Nest

Nest Properties

Parent ID: 1

Grid spacing ratio to parent: 3

Geographic data resolution: 10m

Nest Coordinates

(LL) Left: 6

(UR) Right: 22

(UR) Top: 69

(LL) Bottom: 42

OK Cancel

User Hint & Info

Select a nest by clicking on its number, or by clicking on a row in the table (the child first).

Connected to remote computer: tornado.fsl.noaa.gov

# Edit namelist.input (and eta levels)

The screenshot displays the WRF Portal interface. The main window is titled "WRF Domain Wizard: 'Australia-NMM'" and shows a sequence of steps: 1) Wizard Option, 2) Open Domain, 3) Horizontal Editor, 4) Namelist.input Editor, 5) Run Preprocessors, and 6) Visualize NetCDF. The "4) Namelist.input Editor" step is active, showing the file path `/wrf-data/domains/Australia-NMM/namelist.input` and a list of parameters with their values. A red arrow points from the "Add or Edit ETA Levels" button to the "Vertical Editor For ETA levels" dialog box.

The "Vertical Editor For ETA levels" dialog box is titled "Vertical Editor For ETA levels in /wrf-data/domains/Australia-NMM/namelist.input". It features a vertical axis on the left ranging from 0.0 to 1.0, with horizontal lines representing eta levels. A red line highlights the level at 0.201. On the right, a table titled "ETA Level Editor" lists the levels and their values.

Level	Value
38	0.0
37	0.018
36	0.038
35	0.058
34	0.078
33	0.098
32	0.118
31	0.138
30	0.158
29	0.179
28	0.201
27	0.224
26	0.248
25	0.274

Below the table are buttons for "New" and "Delete". Under the "Options" section, there are buttons for "Generate Levels...", "Defaults", and "Revert". At the bottom right are "Save" and "Cancel" buttons. A "User Hints & Info" section at the bottom left provides additional information.

**User Hint & Info**  
Edit this domain's namelist.input file. The following parameters have been defaulted for this domain: max\_dom, s\_we, e\_we, s\_sn, e\_sn, dx, dy, i\_parent\_start, j\_parent\_start, time\_step. Right click in the window to Copy, Paste, or Find.

Connected to remote computer: tornado.fsl.noaa.gov



# Run WPS programs (geogrid, ungrib, metgrid)

WRF Portal [Database=C:\Documents and Settings\jssmith/.portal-files/portal] [User=portal]

File Tools Window Help

WRF Domain Wizard: 'Australia-NMM'

Actions

1) Wizard Option 2) Open Domain 3) Horizontal Editor 4) Namelist.input Editor 5) Run Preprocessors 6) Visualize NetCDF

**Configure Preprocessor Variables for Ungrib and Metgrid**

Grib Vtable Name: Vtable.GFS

Grib Files Dir: /data/public/data/grib/ftp/57/1/10/255

Grib Files: 0819812000003   
0819812000006  
0819812000009

Grib Start Date: 2008-07-11  hh:mm:ss: 00:00:00

Grib End Date: 2008-07-11  hh:mm:ss: 12:00:00

Grib Interval (hr): 6

**Run Preprocessors to Generate Input Data Fields Required for WRF**

Step	Run	List	View
1	<input type="button" value="geogrid"/>	<input type="button" value="Output"/>	<input type="button" value="Log"/>
2	<input type="button" value="ungrib"/>	<input type="button" value="Output"/>	<input type="button" value="Log"/>
3	<input type="button" value="metgrid"/>	<input type="button" value="Output"/>	<input type="button" value="Log"/>

**Progress Status running System Commands**

2008-07-17 13:46:19.864 --- Processing field 7 of 11 (SOILCBOT)  
2008-07-17 13:46:20.766 --- Processing field 8 of 11 (ALBEDO12M)  
2008-07-17 13:46:21.741 --- Processing field 9 of 11 (GREENFRAC)  
2008-07-17 13:46:22.914 --- Processing field 10 of 11 (SNOALB)  
2008-07-17 13:46:23.011 --- Processing field 11 of 11 (SLOPECAT)  
2008-07-17 13:46:23.218 --- \*\*\* Successful completion of program geogrid.exe \*\*\*

----- List of Output -----

List of geogrid.exe files found  
geo\_nmm.d01.nc  
geo\_nmm\_nest.i01.nc

**User Hint & Info**

Success running of /WRF/WPSV3/geogrid/src/geogrid.exe

Connected to remote computer: tornado.fsl.noaa.gov

# View output in Panoply or Google Earth

**WRF Portal** [Database=C:\Documents and Settings\jssmith/.portal-files/portal] [User=portal]

File Tools Window Help

**WRF Domain Wizard: 'Australia-NMM'**

Actions

1) Wizard Option 2) Open Domain 3) Horizontal Editor 4) Namelist.input Editor

**Important: after clicking 'View in Panoply' button, you must 'Quit'**

NetCDF Files in /wrf-data/domains/Australia-NMM

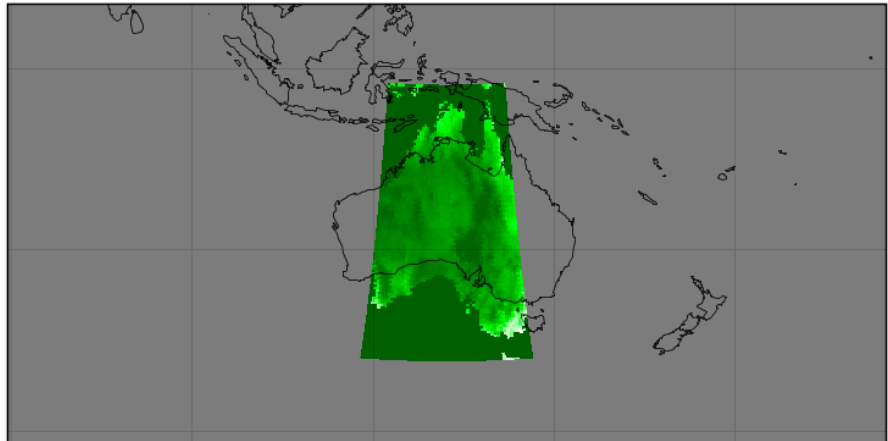
geo\_nmm.d01.nc  
geo\_nmm\_nest.l01.nc

Download File View in IDV/Google Earth View in Panoply

**GREENFRAC in temp**

File Edit Plot Window Help

Plot Array 1



Equiarectangular (Regional) projection centered on 132.15°E -25.54°N Data Min = 0, Max = 0.87

Array(s) Scale Contours & Vectors Map Misc.

Range: Min.: 0, Max.: 0.87, Center on 0, Fit to Data

☒ Always fit to data ☐ Scale is logarithmic

Color Table: greenscale PAL ☐ Invert colors

Fill Color: Gray Outlier Shape: Triangle

Scale Caption: ☒ Default ☐ Other: SCALE CAPTION

Units: <default>

Scaling Factor: 10<sup>0</sup>

Divisions, Major: 5, Minor: 2

Tick Label Format: %G

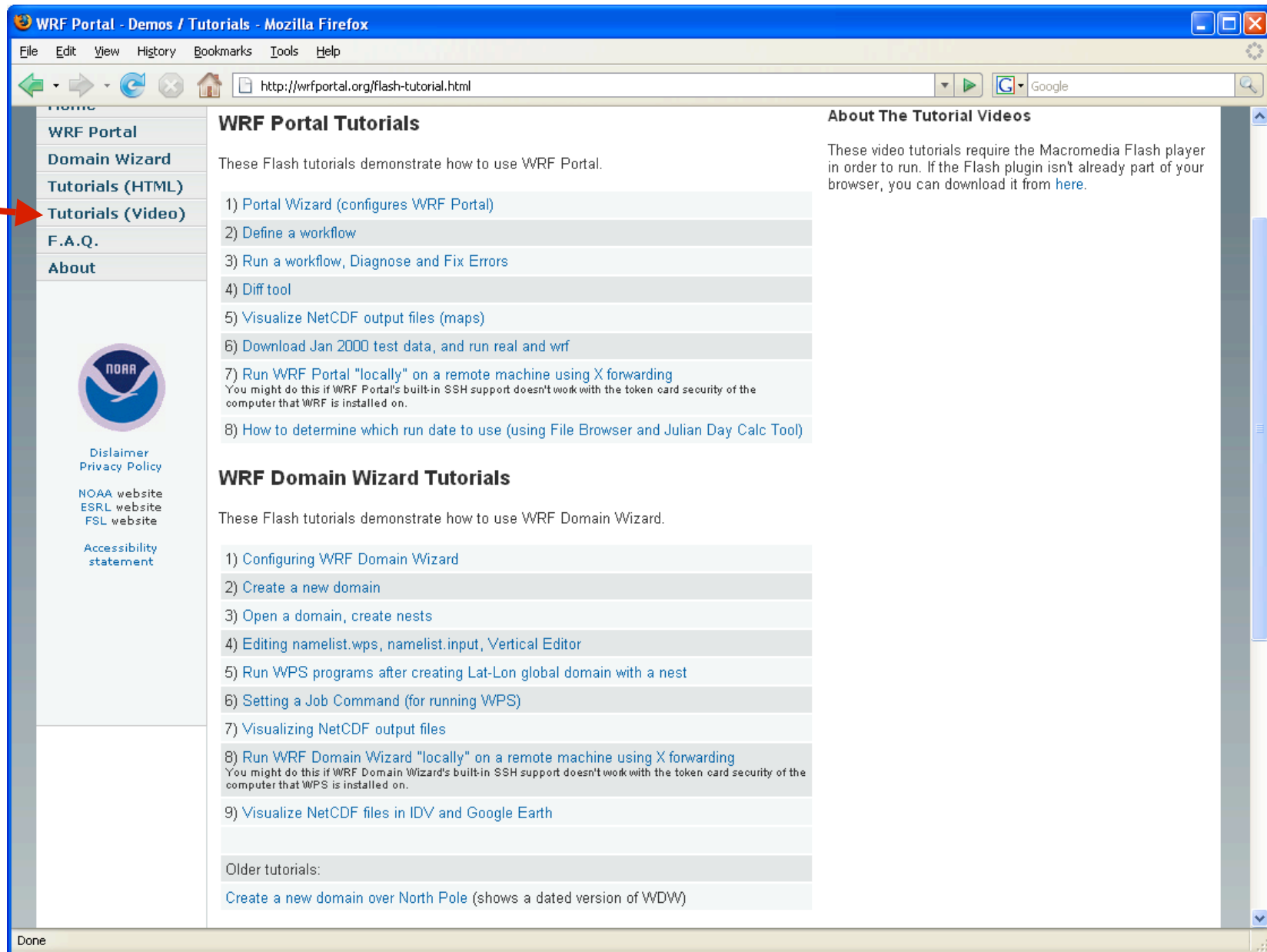
**User Hint & Info**

Choose a netCDF file and click the 'Visualize On Map' button. When the 'Datasets Browser' (list of variables) window pops up, simply double-click on a field of interest (e.g. GREENFRAC) to view your map.

< Back Exit

Connected to remote computer: tornado.fsl.noaa.gov

# Confused? We have video tutorials here



The screenshot shows a Mozilla Firefox browser window titled "WRF Portal - Demos / Tutorials". The address bar displays "http://wrfportal.org/flash-tutorial.html". The left sidebar contains a navigation menu with the following items: "Home", "WRF Portal", "Domain Wizard", "Tutorials (HTML)", "Tutorials (Video)", "F.A.Q.", and "About". A red arrow points to the "Tutorials (Video)" link. Below the menu is the NOAA logo and links for "Disclaimer", "Privacy Policy", "NOAA website", "ESRL website", "FSL website", and "Accessibility statement". The main content area is titled "WRF Portal Tutorials" and contains a list of 8 tutorials. To the right of the main content is a section titled "About The Tutorial Videos" which states that the video tutorials require the Macromedia Flash player.

**WRF Portal Tutorials**

These Flash tutorials demonstrate how to use WRF Portal.

- 1) [Portal Wizard](#) (configures WRF Portal)
- 2) [Define a workflow](#)
- 3) [Run a workflow, Diagnose and Fix Errors](#)
- 4) [Diff tool](#)
- 5) [Visualize NetCDF output files \(maps\)](#)
- 6) [Download Jan 2000 test data, and run real and wrf](#)
- 7) [Run WRF Portal "locally" on a remote machine using X forwarding](#)  
You might do this if WRF Portal's built-in SSH support doesn't work with the token card security of the computer that WRF is installed on.
- 8) [How to determine which run date to use \(using File Browser and Julian Day Calc Tool\)](#)

**WRF Domain Wizard Tutorials**

These Flash tutorials demonstrate how to use WRF Domain Wizard.

- 1) [Configuring WRF Domain Wizard](#)
- 2) [Create a new domain](#)
- 3) [Open a domain, create nests](#)
- 4) [Editing namelist.wps, namelist.input, Vertical Editor](#)
- 5) [Run WPS programs after creating Lat-Lon global domain with a nest](#)
- 6) [Setting a Job Command \(for running WPS\)](#)
- 7) [Visualizing NetCDF output files](#)
- 8) [Run WRF Domain Wizard "locally" on a remote machine using X forwarding](#)  
You might do this if WRF Domain Wizard's built-in SSH support doesn't work with the token card security of the computer that WPS is installed on.
- 9) [Visualize NetCDF files in IDV and Google Earth](#)

Older tutorials:

[Create a new domain over North Pole](#) (shows a dated version of WDW)

**About The Tutorial Videos**

These video tutorials require the Macromedia Flash player in order to run. If the Flash plugin isn't already part of your browser, you can download it from [here](#).



**Thank you!**