



A Public Release of WRF Portal

Jeff Smith and Mark Govett
June 24, 2008





WRF Portal is Released on April 11, 2008

- WRF Portal is the graphical user interface (GUI) front end for configuring and running both WRF cores: ARW and NMM, as well as configuring and running your own programs/scripts (like post).
- Simplifies the selection/localization of your domain, as well as configuring namelist.wps and namelist.input
- Employs workflow editor to create workflows and run them
- Monitors progress of workflow runs, reports any errors
- Works on either local computer or remote computers using SSH-2
- Works with either internal workflow manager or external one that supports SGE and LSF



WRF Portal Convenience Features

- Can run portal on one computer (e.g. Windows, Linux, or Mac) and execute workflows on another computer
- Can cancel (halt) runs in progress
- Eliminates need to create and maintain complicated directory trees and configuration files
- Easily search past workflows based on multiple criteria
- Remembers your preferences (e.g. automatically fills in default information for new workflows/runs)
- Portal (initial) setup is simple with the Portal Wizard
- Includes Diff tool for comparing workflows and files



Includes WRF Domain Wizard (WDW)

- WDW configures and runs WRF Preprocessing System (WPS)
 - select region of Earth for domain and map projection parameters
 - Edit nests
 - Run WPS programs (ungrib, geogrid, and metgrid)
 - Visualize NetCDF output with Panoply or Google Earth
 - namelist.input editor (automatically fills in many parameters for you)
 - Graphical vertical (ETA level) editor
 - Supports latest WRF/WPS 3 lat-lon regional and global domains



WRF Portal

■ Zero installation!

- Just click a web link and the Java webstart application just launches from your web browser
- Portal Wizard guides you through the steps to set up the portal
- Requires Java 1.5 or later
- Can also download and run from command line
- Runs on virtually all platforms

http://wrfportal.org

WRF Portal - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://wrfportal.org/index.html


Google

WRF Portal

Home | Contact Us

Home

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

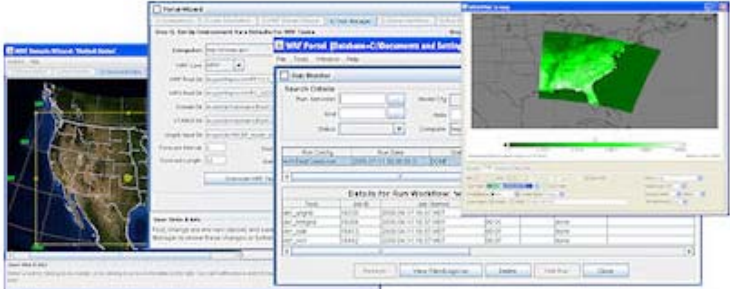


Disclaimer
Privacy Policy

NOAA website
ESRL website
FSL website

What Is WRF Portal?

WRF Portal is the graphical user interface (GUI) front end for configuring and running both WRF cores: ARW and NMM, as well as configuring and running your own programs/scripts (like post). It simplifies the selection/localization of your domain, the running and monitoring of WRF, and the visualization of your model's output. Written in Java to be portable to all platforms, WRF Portal includes WRF Domain Wizard.



What are WRF and WPS?

The Weather Research and Forecasting (WRF) Model is a mesoscale numerical weather prediction framework designed for operational forecasting and atmospheric research needs. WPS stands for WRF Preprocessing System and is used to prepare a domain (region of the Earth) for WRF.

Program Features

- Includes WRF Domain Wizard for selecting your domain on a map, defining nests, creating namelist.input, running WPS programs
- Portal Wizard walks you through the steps of configuring computers, tasks, and running WPS/WRF
- Visualize NetCDF output files with a plethora of graphing/charting options
- Define workflows (tasks to run, associated namelist files, environment variables)
- Run workflows

Done



Support

- Email support and links to online forums here:
<http://wrfportal.org/about.html>
- 17 video (flash) tutorials here:
<http://wrfportal.org/flash-tutorial.html>
- 8 html tutorials here:
<http://wrfportal.org/html-tutorial.html>

http://wrfportal.org/flash-tutorial.html

WRF Portal - Demos / Tutorials - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://wrfportal.org/flash-tutorial.html

Google

WRF Portal


Domain Wizard

Tutorials (HTML)

Tutorials (Video)

F.A.Q.

About



Disclaimer
Privacy Policy

NOAA website
ESRL website
FSL website

Accessibility
statement

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.

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

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](#).

Done

http://wrfportal.org/flash-tutorial.html

Tutorial - WRF Domain Wizard (Running real, wrf for Jan 2000 Test Data) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://wrfportal.org/tutorial-flash/tutorial-DW-TestDataJan2000.html

WRF Portal Home | Contact Us

WDW Tutorial (Video) - Running real, wrf for Jan 2000 Test Data

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

Free Met Data from NCAR
Real-time Data from NCEP

NOAA
Disclaimer
Privacy Policy
NOAA website
ESRL website
FSL website
Accessibility statement

WRF SOURCE CODE

The Version 2.2 software and data

If you are a first tutorial.

If you're running WRF 2.x, get your data data from this web page.
Note: this data isn't compatible with WRF 3!!

If you are running WRF 3, you need to get this data from here:
http://www.mmm.ucar.edu/wrf/users/download/get_sources.htm

WRF Model (Updated November 1, 2007 to Version 2.2.1)

WRF model tar file (Version 2.2.1) - Please read the [details](#). Also see a few "Known Problems" for this release.

Note: The V2.2.1 has been tested as extensively as possible and is moving to 2.2.1.

WRF Model (Updated November 1, 2007 to Version 2.2.1)

WRF model tar file (Version 2.2.1) - Please read the [details](#). Also see "Known Problems" for this release.

Please read this [special note](#) if you are using NCAR's IBMs.

Last WRF model tar file was [Version 2.1.2](#) (released January 30, 2006) - See details

Continue

http://wrfportal.org/flash-tutorial.html

Tutorial - WRF Domain Wizard (Running real, wrf for Jan 2000 Test Data) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://wrfportal.org/tutorial-flash/tutorial-DW-TestDataJan2000.html

Google

Tutorials (HTML)
Tutorials (Video)
F.A.Q.
About

NOAA

Disclaimer
Privacy Policy

NOAA website
ESRL website
FSL website

Accessibility statement

WRF

Free Met Data from NCAR

Real-time Data from NCEP

WRF SOURCE CODES AND GRAPHICS SOFTWARE DOWNLOAD PAGE

The Version 2.2 release of the WRF modeling system consists of the following software and data:

If you are a first-time WRF user, learn how to use the WRF software.

Opening jan00_wps.tar.gz

You have chosen to open

jan00_wps.tar.gz
which is a: gzip
from: http://www.mmm.ucar.edu

What should Firefox do with this file?

☐ Open with Browse...

☒ Save to Disk

☐ Do this automatically for files like this from now on.

OK Cancel

Save this file to the computer system on which the WRF software has been installed. You then need to gunzip and un-tar it:
gunzip jan00_wps.tar.gz
tar -xf jan00_wps.tar

I'm going to skip this step since I've already downloaded the data.

Continue

details. Also see

Last WRF model tar file was [Version 2.1.2](#) (released January 30, 2006) - See [details](#).

WRF Model Test Data (generated for V2.2 WRF)

[January 2000 WPS output data](#): 30 km data from 1200 UTC Jan 24 - 0000 UTC Jan 26 2000 at 6 h interval (Source: ETA AWIP data archived at NCAR). A domain 2 file is included.

Find: Next Previous Highlight all

Done

http://wrfportal.org/flash-tutorial.html

Tutorial (flash) - Portal Wizard - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://wrfportal.org/tutorial-flash/tutorial-portal-wizard.html

Portal Tutorial (Video) - Portal Wizard

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

NOAA
Disclaimer
Privacy Policy
NOAA website
ESRL website
FSL website
Accessibility statement

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

File Tools Window Help

Portal Wizard

1) Computer(s) 2) User Information 3) WRF Domain Wizard 4) Task Manager 5) Define Workflow 6) Run Workflow

About Setting Up Computers And Workflow Managers

Enter one or more LINUX, UNIX, or Mac computers on which you'll run portal tasks. Enter your computer's network name (e.g. wopr.norad.mil) to use your local computer.

To use the External Workflow Manager to execute your model tasks (jobs), you must install it separately from wrfportal.org, and then enter the path to this program here. The External Workflow Manager requires that you select a batch queue system (job scheduler)--either SGE or LSF.

| Computer | External Workflow Mgr Path | Batch (Queue) System |
|-------------------------|----------------------------|----------------------|
| computer_name.goes.here | | NONE |

Type in the name of the computer on which WRF/WPS was installed. If it is your local desktop, type in that name.

In this tutorial, WRF/WPS has been installed on a remote computer named "hep", so I will enter that name.

New Continue Save

User Hints & Info

You must configure at least one computer that will be used to run your models. Instead of deleting the first computer in the list, just rename it to the network name of the computer you will use (e.g. elmo.esrl.noaa.gov)

< Back Next >

Connected to local computer: Tornado2

Page last modified April 15, 2008

Home | WRF Portal | WRF Domain Wizard | Tutorials (HTML) | Tutorials (Flash) | F.A.Q. | About Us

Done

http://wrfportal.org/flash-tutorial.html


Tutorial (flash) - Portal Wizard - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://wrfportal.org/tutorial-flash/tutorial-portal-wizard.html

Portal Tutorial (Video) - Portal Wizard

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


Disclaimer
Privacy Policy
NOAA website
ESRL website
FSL website
Accessibility statement

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

File Tools Window Help

Portal Wizard

1) Computer(s) 2) User Information 3) WRF Domain Wizard 4) Task Manager 5) Define Workflow 6) Run Workflow

About Setting Up Computers And Workflow Managers

Enter one or more LINUX, UNIX, or Mac computers on which you'll run portal tasks. Enter your computer's network name (e.g. wopr.norad.mil) to use your local computer.

To use the External Workflow Manager to execute your model tasks (jobs), you must install it separately from wrfportal.org, and then enter the path to this program here. The External Workflow Manager requires that you select a batch queue system (job scheduler)--either SGE or LSF.

| Computer | External Workflow Mgr Path | Batch (Queue) System |
|------------|----------------------------|----------------------|
| hep.fsl.no | | NONE |

New Delete Help Save

User Hints & Info

You must configure at least one computer that will be used to run your models. Instead of deleting the first computer in the list, just rename it to the network name of the computer you will use (e.g. elmo.esrl.noaa.gov)

< Back Next >

Connected to local computer: Tornado2

Page last modified April 15, 2008

Home | WRF Portal | WRF Domain Wizard | Tutorials (HTML) | Tutorials (Flash) | F.A.Q. | About Us

Done

Running WRF Portal From The Web

WRF Portal: A GUI For Running WRF
Beta Version 0.93 for Linux, Mac, and Windows - released May 29, 2008

WRF Portal

WRF Domain Wizard: 'United States'

Portal Wizard

WRF Portal [Database=C:\Documents and Settings\...]

Run Monitor

| Task | Job ID | Job Started | Job Status | Job Progress |
|-------------|--------|----------------------|------------|--------------|
| def_ungrb | 16335 | 2008-04-11 16:57 MDT | done | 100.00 |
| def_metgrid | 16384 | 2008-04-11 16:57 MDT | done | 100.00 |
| def_real | 16413 | 2008-04-11 16:57 MDT | done | 100.00 |
| def_wrf | 16442 | 2008-04-11 16:57 MDT | done | 100.00 |

Click Here

[Click here to launch WRF Portal Beta 0.93](#)

No installation required. Just click on the link and WRF Portal will set itself up and run. You will also automatically get updates to WRF Portal as they are made available. This beta version includes support for WRF 3 and WPS 3.

Portal Wizard (sets up WRF Portal)

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

File Tools Window Help

Portal Wizard

1) Computer(s) 2) User Information 3) WRF Domain Wizard 4) Task Manager 5) Define Workflow 6) Run Workflow

Step 1) Set Up Environment Vars Defaults For WRF Tasks

Computer: tornado.fsl.noaa.gov

WRF Core: ARW

WRF Root Dir: /WRF/WRFV3

WPS Root Dir: /WRF/WPSV3

Domain Dir: /wrf-data/domains/Colorado-ARW

VTABLE Dir: /wrf-data/domains/Colorado-ARW

Ungrib Input Dir: /wrf-data/NCEP_model_data/INPUT_DATA/NAM

Forecast Interval: 3 Source: NAM ☐ Run WPS With MPI?

Forecast Length: 12 Queue: ☐ Run WRF With MPI?

Overwrite WRF Tasks Env Vars With Values Above

Step 2) Run Task Manager

After setting up defaults for your WRF tasks, you can review and customize the tasks by pressing the "Launch Task Manager" button.

When you configure your model(s) to run, you'll need to include one or more tasks (scripts/programs) to execute. These tasks can include environment variables and associated namelist files. All of this is set up with the portal's Task Manager screen.

The portal comes standard with the tasks to run WRF. You can define your own tasks, like custom post processing, here.

Launch Task Manager

User Hints & Info

First, change any env vars (above) and save them for def_ungrib, def_metgrid, def_real, and def_wrf. Next, launch Task Manager to review these changes or further customize them.

< Back Next >

Connected to local computer: Tornado2

Monitor Workflow Runs

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

File Tools Window Help

Run Workflow: wrf-EastCoast-run1 [User:portal]

Run Monitor

Search Criteria

Run between ... Model Cfg ...

And ... Note

Status ... Computer Search

| Run Config | Run Date | Status | Run Time | Date Started | Elapsed Time |
|--------------------|-----------------------|---------|----------|-----------------------|--------------|
| wrf-EastCoast-run | 2005-07-11 00:00:00.0 | DONE | 00:07 | 2008-04-11 16:57:29.0 | 00:07 |
| wrf-EastCoast-run1 | 2005-01-11 00:00:00.0 | NOT_RUN | 00:00 | | |

Details for Run Workflow: 'wrf-EastCoast-run' on 2005-07-11 00:00:00.0

| Task | Job ID | Job Started | Run Time | Est. Time | Status |
|-------------|--------|----------------------|----------|-----------|--------|
| def_ungrib | 16335 | 2008-04-11 16:57 MDT | 00:01 | | done |
| def_metgrid | 16384 | 2008-04-11 16:57 MDT | 00:01 | | done |
| def_real | 16413 | 2008-04-11 16:57 MDT | 00:01 | | done |
| def_wrf | 16442 | 2008-04-11 16:57 MDT | 00:07 | | done |

Refresh View Files/Logs/.nc Delete Halt Run Close

Diff Tool compares workflows and files

The screenshot shows the 'Diff Tool' window. On the left, under 'Type', 'Workflow Run' is selected. The 'Workflows To Diff' section contains two entries, both with 'portal' as the host, 'hep.fsl.noaa.gov' as the domain, and 'wrf-EastCoast-run' as the workflow name. The 'Diff' button is visible. The main area displays two side-by-side text blocks representing workflow configurations. The left block is for 'wrf-EastCoast-run' and the right block is for 'wrf-EastCoast-run1'. Both configurations are identical except for the 'MODIFIED_DATE' field, which shows the date and time of the last modification for each workflow.

Type

- ☐ Workflow
- ☒ Workflow Run
- ☐ Text files from disk

Workflows To Diff

| | | | |
|---|--------|------------------|--------------------|
| 1 | portal | hep.fsl.noaa.gov | wrf-EastCoast-run |
| 2 | portal | hep.fsl.noaa.gov | wrf-EastCoast-run1 |

Diff

Clear

```
USERNAME=PORTAL
NAME=WRF-EASTCOAST-RUN
MODEL_TYPE=WRF
NOTE=
DATA_ROOT_DIR=/EXPORT/JEFF/WRFPORTAL-RUNS
INPUT_FILES_DIR=
ACCOUNT_NAME=MAPP
RUN_STATUS=SUBMITTED
WORKFLOW_MGR=INTERNAL
FLOWRATE=-1
MODIFIED_DATE=2008-04-11 16:44:56.049
MODEL_CONFIG_NAME=WRF-EASTCOAST

RUN TASKS
DEF_UNGRIB
DEF_METGRID
DEF_REAL
DEF_WRF

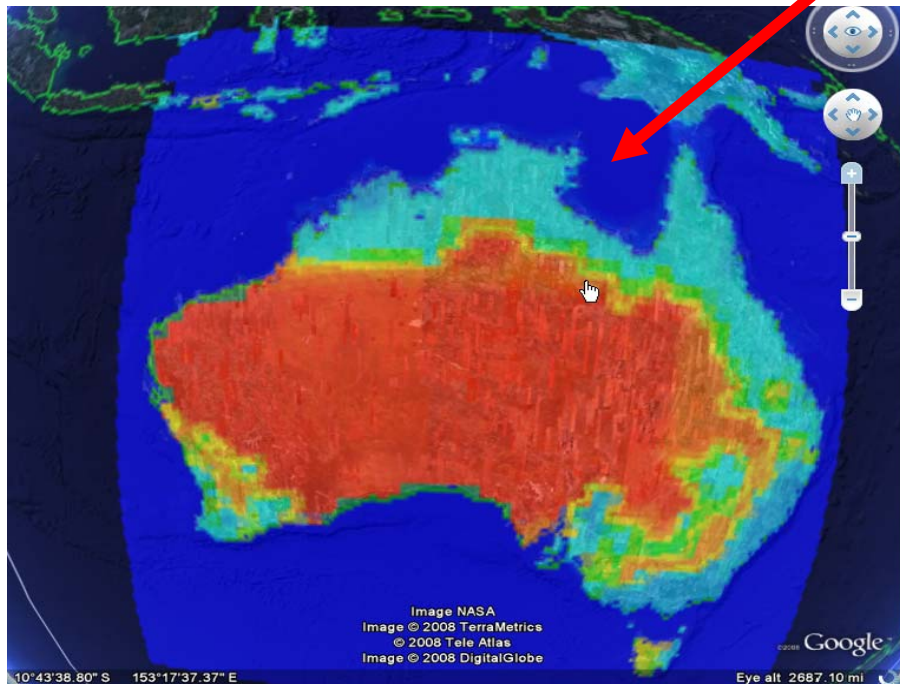
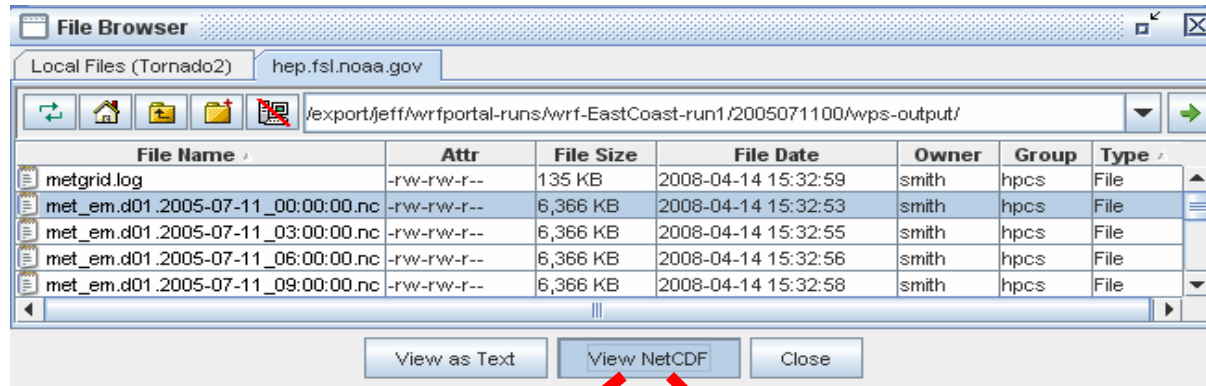
RUN DATES
2005-07-11 00:00:00.0
```

```
USERNAME=PORTAL
NAME=WRF-EASTCOAST-RUN1
MODEL_TYPE=WRF
NOTE=
DATA_ROOT_DIR=/EXPORT/JEFF/WRFPORTAL-RUNS
INPUT_FILES_DIR=
ACCOUNT_NAME=MAPP
RUN_STATUS=SUBMITTED
WORKFLOW_MGR=INTERNAL
FLOWRATE=-1
MODIFIED_DATE=2008-04-14 14:35:07.609
MODEL_CONFIG_NAME=WRF-EASTCOAST

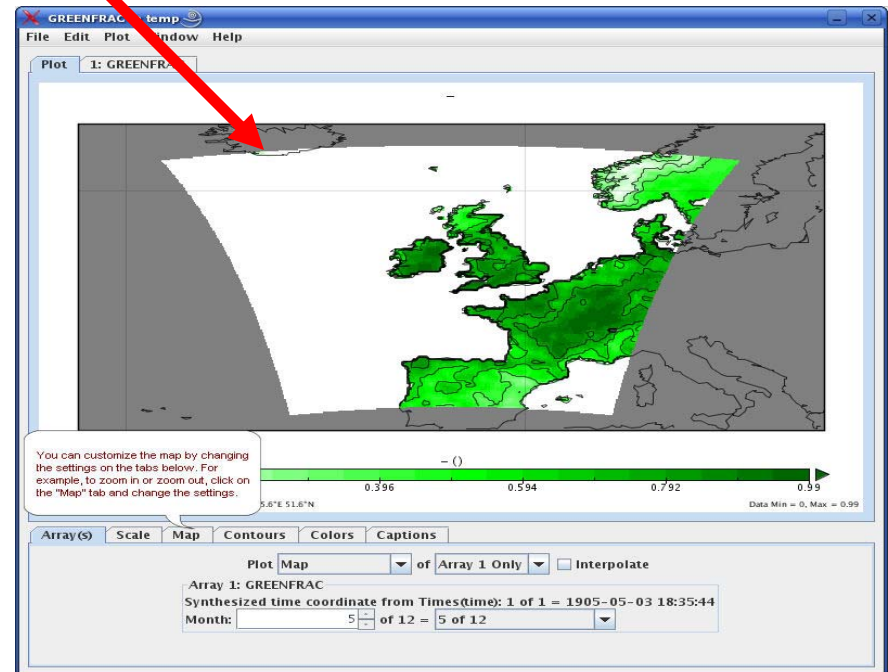
RUN TASKS
DEF_UNGRIB
DEF_METGRID
DEF_REAL
DEF_WRF

RUN DATES
2005-01-11 00:00:00.0
```

Visualize NetCDF output files



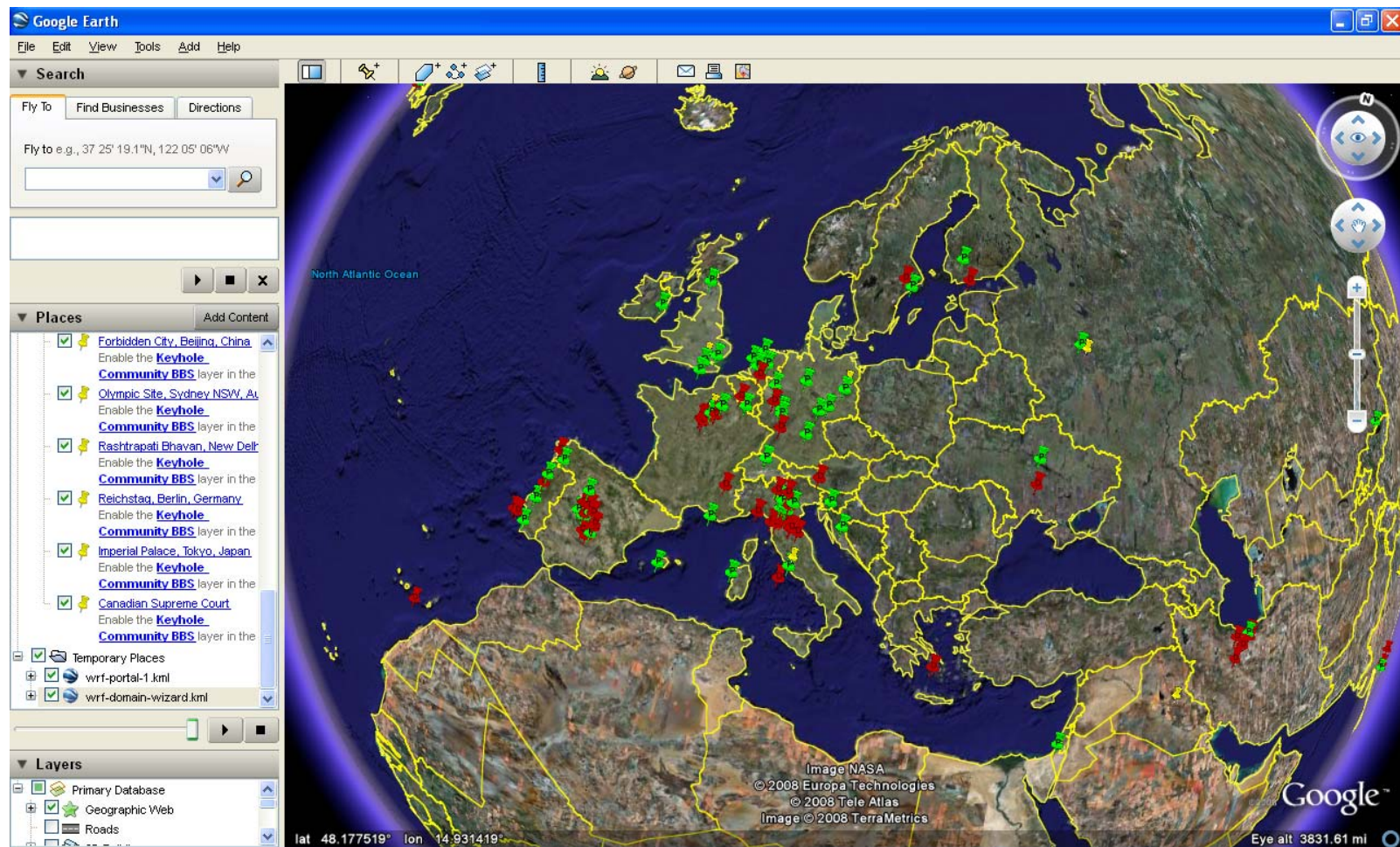
Google Earth



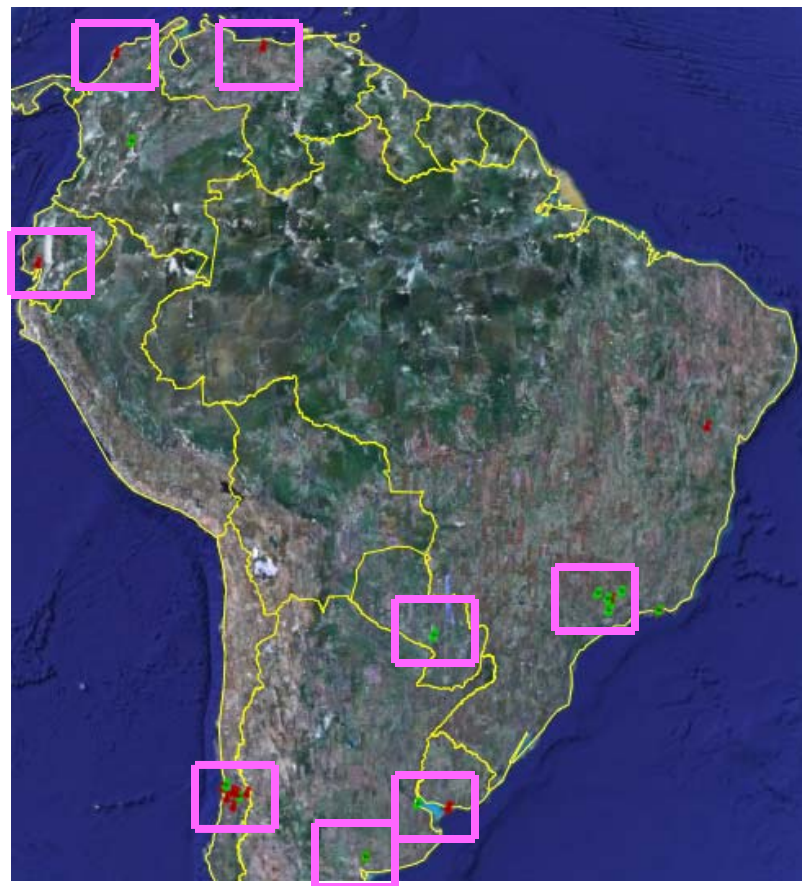
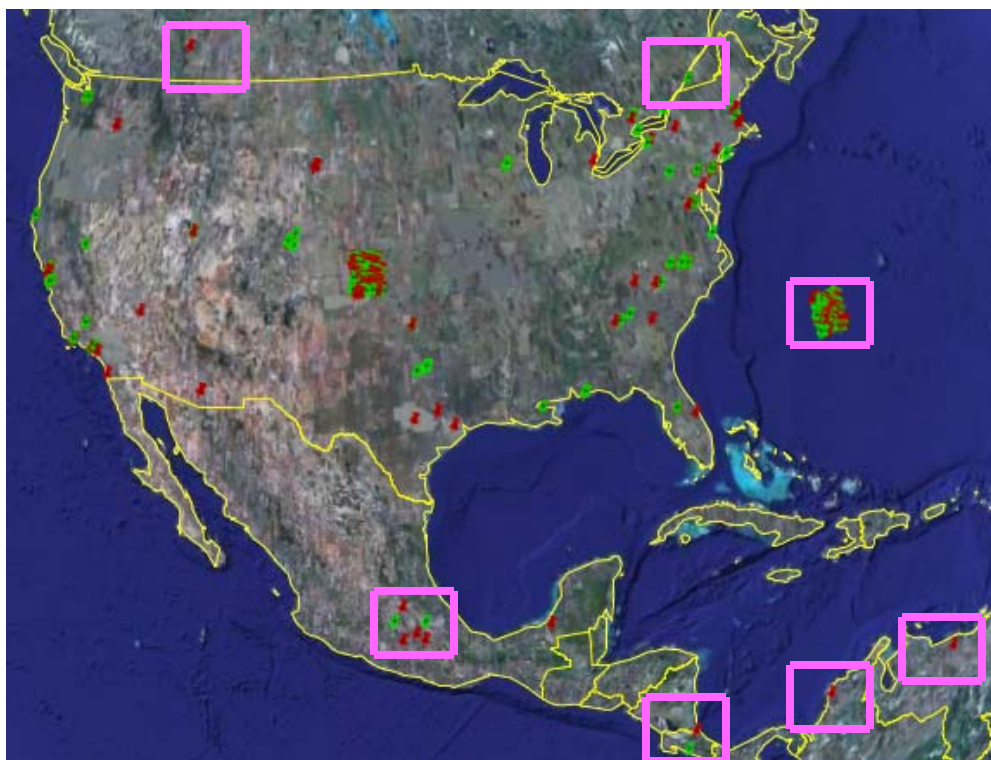
Panoply

WRF Portal User Community -1

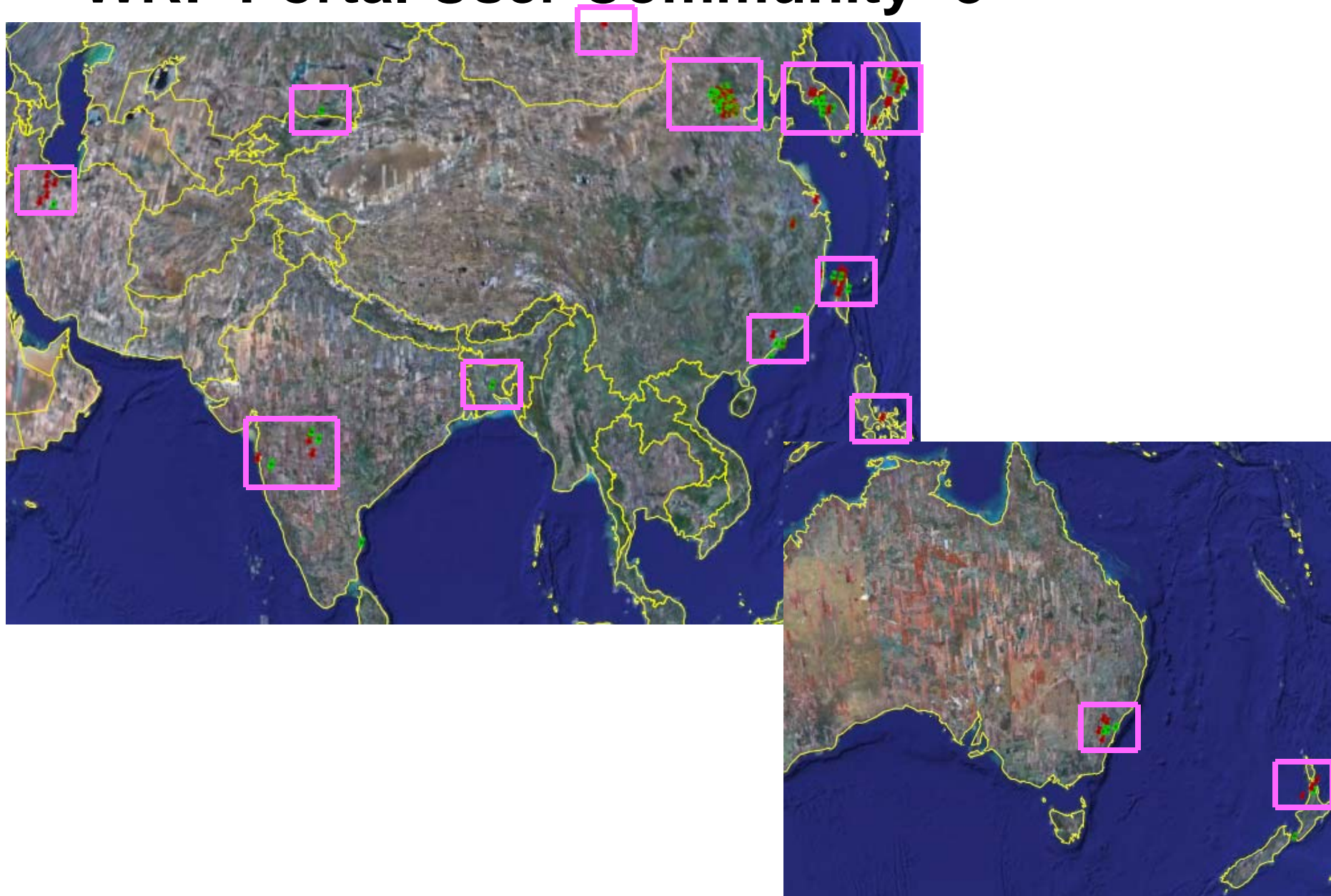
| Software | Est. Users | Countries | Google Earth |
|-------------------|------------|-----------|--------------------------------------|
| WRF Portal | 314 | 47 | open in Google Earth |
| WRF Domain Wizard | 448 | 47 | open in Google Earth |
| Ext. Workflow Mgr | 27 | 9 | open in Google Earth |



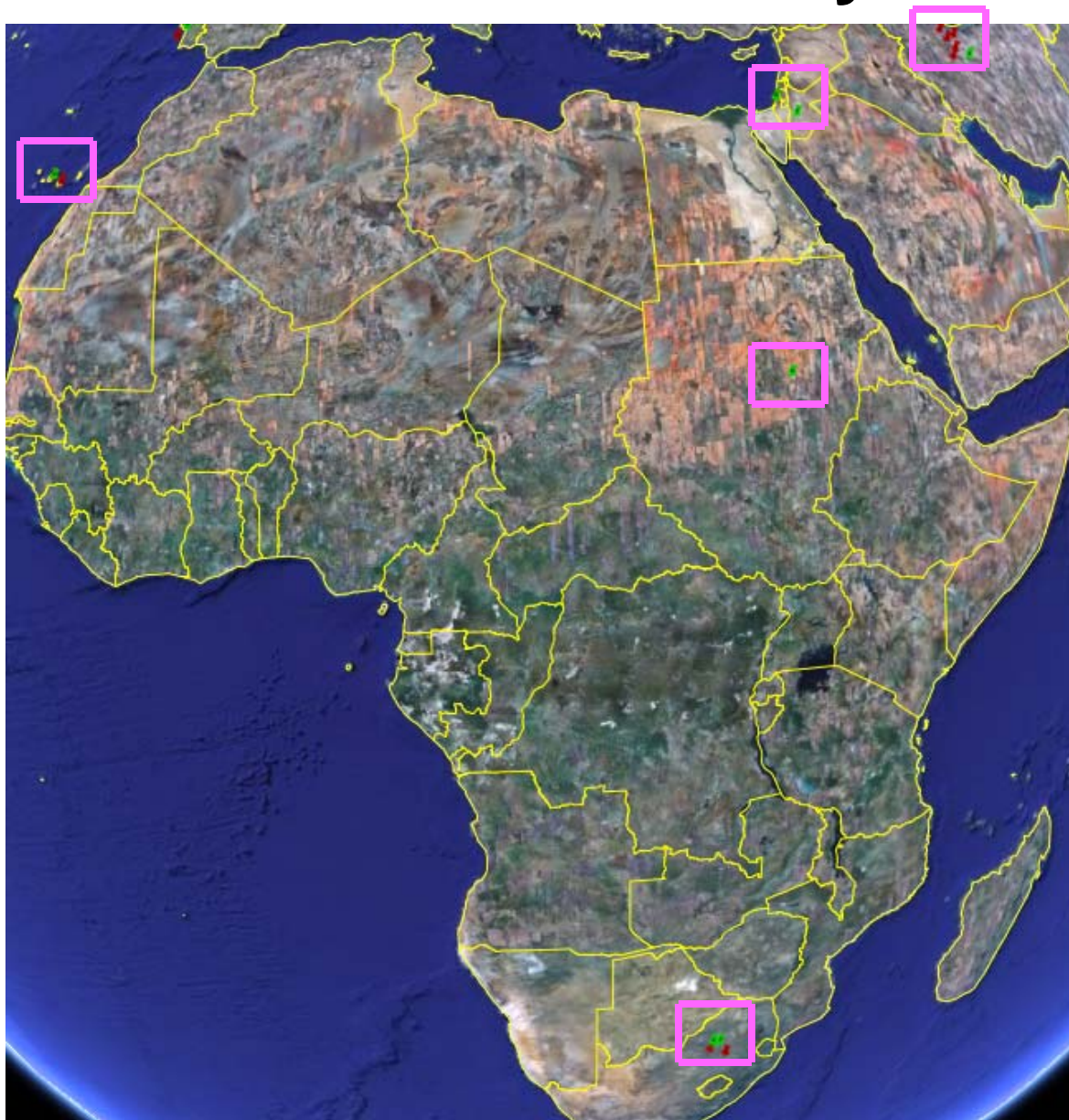
WRF Portal User Community -2



WRF Portal User Community -3



WRF Portal User Community -4





Credits

- Software developed by Aviation Branch of ESRL's Global Systems Division (part of NOAA)
- Jeff Smith, Mark Govett, Paula McCaslin, Chris Harrop
- See our poster on Wednesday afternoon

Questions?