Release History
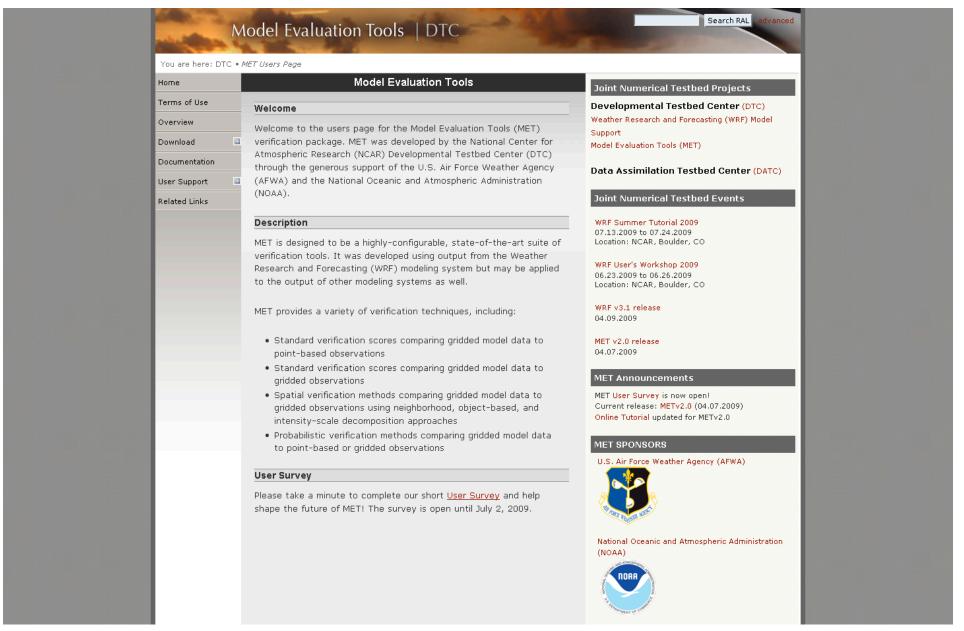
- **METv0.9**: Beta release – July, 2007
- **METv1.0**: First official release – January, 2008
- **METv1.1**: Incremental upgrades – July, 2008
- **METv2.0**: Current release – April, 2009
  - Pre-installed on tutorial machines
  - 500+ registered users from 66 countries
  - 50/50 University/Non-University users
  - On-line tutorial updated for METv2.0
  - Hands-on tutorial offered with the WRF-Tutorial

Downloading MET

- Download MET release and compile locally.
  - Register and download: **www.dtcenter.org/met/users**
- Language:
  - Primarily in C++ with calls to a Fortran library
- Supported Platforms and Compilers:
  1. Linux with GNU compilers
  2. Linux with Portland Group (PGI) compilers
  3. Linux with Intel compilers
  4. IBM machines with IBM compilers

www.dtcenter.org/met/users

Dependencies

- REQUIRED:
  - GNU Make Utility
  - C++/Fortran Compilers (GNU, PGI, Intel, or IBM)
  - NetCDF version 3 Library
  - BUFRLIB Library
  - GNU Scientific Library (GSL)
  - F2C Library (f2c or g2c, only for some compilers)
- RECOMMENDED:
  - WRF Post-Processor
  - COPYGB (included with WRF-Post)
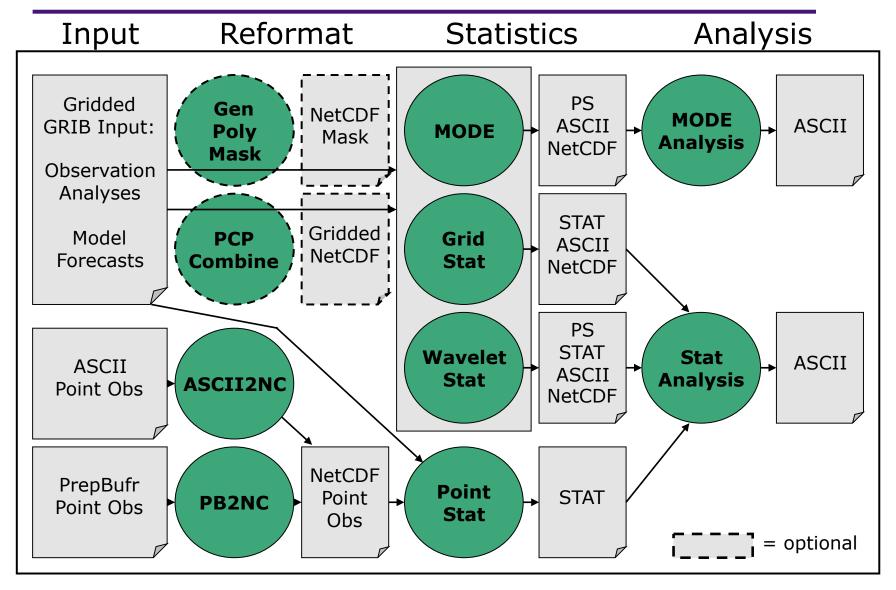 - R statistics and graphics package

Directory Structure

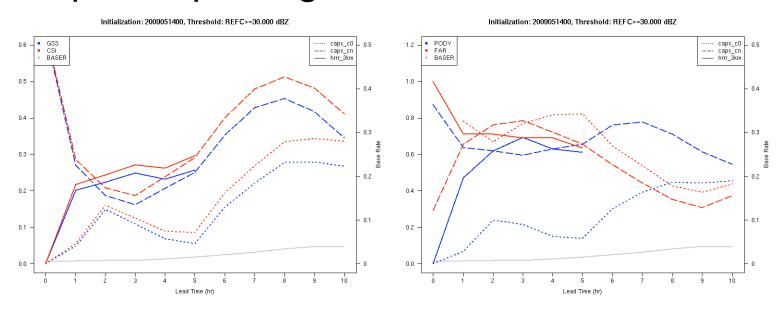| File or Directory	Contents
README	Installation instructions and release notes.
Makefile_gnu (pgi, intel, ibm)	Top-level Makefile to be configured prior to building MET.
lib/	Source code for internal MET libraries.
src/	Source code for the MET applications.
doc/	MET User's Guide.
bin/	Built MET executables.
scripts/	Test scripts to be run after building MET.
data/	Sample data used by the test scripts.
out/	Output generated by the test scripts.

Building MET

- Steps for building MET:

  1. Build required libraries.

     - Same family of compilers for MET

  2. Select the appropriate Makefile.

     - GNU, PGI, Intel, or IBM

  3. Edit the Makefile.

     - C++ and Fortran compilers
     - Paths for NetCDF, BUFRLIB, GSL, and F2C libraries

  4. Run Make to build all of the MET tools.

  5. Run the test script and check for runtime errors.

     - Runs each of the MET tools at least once.
     - Uses sample data distributed with the tarball.

MET v2.0 Flowchart

Input   Reformat   Statistics   Analysis

Gridded GRIB Input:

Observation Analyses

Model Forecasts

Gen Poly Mask

NetCDF Mask

Gridded NetCDF

MODE

PS ASCII NetCDF

MODE Analysis

ASCII

PCP Combine

Grid Stat

STAT ASCII NetCDF

Wavelet Stat

PS STAT ASCII NetCDF

Stat Analysis

ASCII

ASCII Point Obs

ASCII2NC

PrepBufr Point Obs

PB2NC

NetCDF Point Obs

Point Stat

STAT

[dashed box] = optional

Graphics

- Limited graphics incorporated into MET
- Options for plotting MET statistical output
  - R, NCL, IDL, GNUPlot, and many others
- Submit your own plotting and/or analysis scripts for posting to the MET website.

R Statistics and Graphics

- The R Project for Statistical Computing (www.r-project.org)
  - Powerful statistical analysis and plotting tools
  - Large and growing user community
  - Freely available and well supported for Linux/Windows/Mac

- Sample R plotting and analysis scripts posted on the MET website

- Use R to plot data in the practical sessions

Configuration Files

- MET tools controlled using command line options and ASCII configuration files
  - Well commented and documented in MET User's Guide
  - Easy to modify
  - Distributed with the tarball
- Configuration files control things such as:
  - Fields/levels to be verified
  - Thresholds to be applied
  - Interpolation methods to be used
  - Verification methods to be applied
  - Regions over which to accumulate statistics