

METplus Version 2.1

Automation for the Model Evaluation Tools

Developmental Testbed Center
Boulder, Colorado

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May 2019

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Foreword: A note to METplus users

This User's Guide is provided as an aid to users of the Model Evaluation Tools (MET) and its companion package METplus. MET is a set of verification tools developed and supported to community via the Developmental Testbed Center (DTC) for use by the numerical weather prediction community. METplus is intended to be a suite of Python wrappers and ancillary scripts to enhance the user's ability to quickly set-up and run MET. Over the next few years, METplus will become the authoritative repository for verification of the Unified Forecast System.

It is important to note here that METplus is an evolving software package. Previous releases of METplus have occurred since 2017. This documentation describes the 2.0 release in September 2018. Intermediate releases may include bug fixes. METplus is also able to accept new modules contributed by the community. If you have code you would like to contribute, we will gladly consider your contribution. While we are setting up our community contribution protocol, please send email to: met_help@ucar.edu and inform us of your desired contribution. We will then determine the maturity of new verification method and coordinate the inclusion of the new module in a future version.

This User's Guide was prepared by the developers of the METplus, including Dan Adriaansen, Minna Wingen-Gildenmeister, Julie Prestopnik, Jim Frimel, Mallory Row, John Halley Gotway, George McCabe, Paul Prestopnik, Christana Kalb, Hank Fisher, Jonathan Vigh, Lisa Goodrich, Tara Jensen, Tatiana Burek, and Bonny Strong.

New for METplus v2.1

METplus v2.1 Release Notes:

Configuration:

- Added `gather_by_date.conf` for grid-to-grid and grid-to-obs use cases
- Created specific directory for plotting use case config files
- Added error checking so it is more clear what config items need to be added or changed to run
- Renamed many config variables for clarity

- Variables specific to a wrapper will contain the app name in the variable name
- Error message at startup listing all deprecated config items and the suggested new item to use
- MET configuration files updated to contain new default values that were recently added
- Current time environment variables set to be used in MET or METplus config files if needed (See section describing Timing Control 4.3.1).
- Added INIT_SEQ for looping by valid time to calculate forecast lead list (instead of specifying with LEAD_SEQ)
- Adding window begin and end variables for individual wrappers instead of having the same window for every wrapper (See OBS_WINDOW_BEGIN and OBS_WINDOW_END in section describing A-Z Config Glossary 4.5)
- Added option to skip processing of a file in some wrappers (i.e. pb2nc or regrid_data_plane) if the output file already exists (See PB2NC_SKIP_IF_OUTPUT_EXISTS in section describing A-Z Config Glossary 4.5)

Wrapper specific:

- make_plots_wrapper.py
 - Reworked following the changes to the work done on stat_analysis_wrapper.py
- stat_analysis_wrapper.py
 - Reworked to give users greater use of the MET stat_analysis tool
- pcp_combine_wrapper.py
 - Added support for -derive mode
 - Fixed bugs in -subtract mode and -sum mode
- pb2nc_wrapper.py
 - Refactored to allow looping by valid time and utilize filename templates instead of regex
- point_stat_wrapper.py
 - Refactored to allow looping by valid time and utilize filename templates instead of regex
 - Added verification mask and neighborhood width/shape configurations
- ensemble_stat_wrapper.py
 - Refactored to allow looping by valid time
- grid_stat_wrapper.py
 - Added verification mask and neighborhood width/shape configurations

- `series_by_lead_wrapper.py`
 - Changed configuration names for forecast hour to more closely match other wrappers (See `LEAD_SEQ_[N]`, `LEAD_SEQ_[N]_LABEL`, `SERIES_BY_LEAD_GROUP_FCSTS`, and `LEAD_SEQ` in section describing A-Z Config Glossary 4.5)

General:

- Improved string template substitution and extraction functionality to be more flexible and to allow time shifting/truncating (See section describing Directory and Filename Template Info 4.3.3)
- Improve timed handling so filename templates can be more flexible
- Added 'now' time item to allow start and end time of run to be defined relative to the current time at execution (See section describing Timing Control 4.3.1)
- Logfiles now contains METplus version number and start/end logs to easily discern multiple runs within a single log file
- Various bug fixes

METplus v2.0.4 Release Notes:

Configuration:

- Updated config files to match sample data directory structure

General:

- Moved large mask files from repository to sample data tarballs
- Improved logging message clarity
- List METplus version number in final configuration file and logging output

METplus v2.0.3 Release Notes:

Configuration:

- Added `DO_NOT_RUN_EXE` config variable to prevent applications from actually running
- Added `LOG_TIMESTAMP_USE_RUNTIME` config variable to use data time in log file names instead of run time
- `METPLUS_BASE` config variable is automatically set to the location METplus is being run

- Added automatically generated `CLOCK_TIME` config variable to keep track of time METplus was run

Wrapper specific:

- `mode_wrapper`
 - new python wrapper for MET tool mode
- `mtd_wrapper`
 - new python wrapper for MET tool mtd (mode time domain)
- `pcp_combine_wrapper`
 - Threshold values specified in the config files now require a comparison operator (`>`, `>=`, `==`, `!=`, `<`, `<=`, `gt`, `ge`, `eq`, `ne`, `lt`, `le`). Previously `_THRESH` values were assumed to use `>=` by `pcp_combine`
- `grid_stat_wrapper`
 - `grid_stat` will now process all name/level/threshold combinations in a single run if desired (some cases require splitting up calls to `grid_stat`, such as processing probabilistic forecasts or precip accumulations)
 - Added probability threshold configs for `grid_stat` probabilistic forecast evaluation

General:

- Compressed input files with certain file extensions (`gz`, `zip`, `bz2`) will be automatically uncompressed and placed into a staging area for use in METplus (with option to scrub staging directory after run) - Gempak files now can automatically be converted to NetCDF for use in METplus (See `[FCST/OBS]_[MET-APP]_DATATYPE`)
- NetCDF field levels can now be specified in config files, i.e. `(0,0,*,*)`. NOTE: Quotes around these items are required
- Updated MET config files to use MET 8.0
- Cleanup of plotting scripts

METplus v2.0.2 Release Notes:

Wrapper specific:

- `grid_stat_wrapper`
 - Forecast lead time set in environment as `FCST_TIME` to be read by `grid_stat` MET config file

General:

- Users can define custom environment variables in METplus config files to be used in MET config files.
(See section describing User Defined Config 4.6)

METplus v2.0.1 Release Notes:

Configuration:

- OBS_WINDOW_BEG in point_stat_wrapper, grid_to_obs.conf changed to OBS_WINDOW_BEGIN

Wrapper specific:

- pcp_combine_wrapper:
 - fixed bug selecting accumulation files.
 - sum method and file template matching.

General:

- Fixed typo in variable name in getraw_interp function.

METplus v2.0 Release Notes:

Wrapper specific:

- tc_stat_wrapper
 - can now be run stand-alone
- tc_pairs_wrapper
 - can now read ATCF input file formats
 - support for numerous input file naming conventions
 - support for input data organized into one directory or subdirectories with date information in the name
- cyclone_plotter_wrapper
 - replaced the dependency on Basemap toolkits (which are unstable on some platforms) with Cartopy for map rendering
- tcmpr_plotter_wrapper
 - now supports whitespace in plot title, sub-title, and legend

- pb2nc_wrapper
 - new python wrapper for the MET tool pb2nc
- point_stat_wrapper
 - new python wrapper for the MET tool point_stat

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Adriaansen, D., M. Win-Gildenmeister, J. Frimel, J. Prestopnik, J. Halley Gotway,
T. Jensen, J. Vigh, C. Kalb, G. McCabe, and H. Fisher, 2018:
The METplus Version 2.0 User's Guide. Developmental Testbed Center.
Available at: <https://github.com/NCAR/METplus/releases>. 85 pp.

Acknowledgments

We thank the the National Science Foundation (NSF) along with three organizations within the National Oceanic and Atmospheric Administration (NOAA): 1) Office of Atmospheric Research (OAR); 2) Next Generation Global Prediction System project (NGGPS); and 3) United State Weather Research Program (USWRP) for their support of this work. Thanks also go to the staff at the Developmental Testbed Center for their help, advice, and many types of support. We released METplus Alpha in February 2017 and would not have made a decade of cutting-edge verification support without those who participated in DTC planning workshops and the NGGPS United Forecast System Strategic Implementation Plan Working Groups (NGGPS UFS SIP WGs).

The DTC is sponsored by the National Oceanic and Atmospheric Administration (NOAA), the United States Air Force, and the National Science Foundation (NSF). NCAR is sponsored by the National Science Foundation (NSF).

Chapter 1

Overview of METplus

1.1 Purpose and organization of the User's Guide

The goal of this User's Guide is to equip users with the information needed to use the Model Evaluation Tools (MET) and its companion package METplus. MET is a set of verification tools developed and supported to community via the Developmental Testbed Center (DTC) for use by the numerical weather prediction community. METplus is a suite of Python wrappers and ancillary scripts to enhance the user's ability to quickly set-up and run MET. Over the next few years, METplus will become the authoritative repository for verification of the Unified Forecast System.

The METplus User's Guide is organized as follows. Chapter 1 provides an overview of METplus. Chapter 2 contains basic information about how to get started with METplus - including system requirements, required software, and how to download METplus. Chapter 4

1.2 The Developmental Testbed Center (DTC)

METplus has been developed, and will be maintained and enhanced, by the Developmental Testbed Center (DTC; <http://www.dtcenter.org/>). The main goal of the DTC is to serve as a bridge between operations and research, to facilitate the activities of these two important components of the numerical weather prediction (NWP) community. The DTC provides an environment that is functionally equivalent to the operational environment in which the research community can test model enhancements; the operational community benefits from DTC testing and evaluation of models before new models are implemented operationally. METplus serves both the research and operational communities in this way - offering capabilities for researchers to test their own enhancements to models and providing a capability for the DTC to evaluate the strengths and weaknesses of advances in NWP prior to operational implementation.

METplus will also be available to DTC visitors and to the WRF modeling community for testing and evaluation of new model capabilities, applications in new environments, and so on. The METplus release

schedule is coincident with the MET release schedule and the METplus major release number is six less than the MET major release number (e.g. MET 8.0 is released with METplus 2.0).

1.3 METplus goals and design philosophy

METplus is a Python scripting infrastructure for the MET tools. The primary goal of METplus development is to provide MET users with a highly configurable and simple means to perform model verification using the MET tools. Prior to the availability of METplus, users who had more complex verifications that required the use of more than one MET tool were faced with setting up multiple MET config files and creating some automation scripts to perform the verification. METplus provides the user with the infrastructure to modularly create the necessary steps to perform such verifications.

METplus has been designed to be modular and adaptable. This is accomplished through wrapping the MET tools with Python and the use of hierarchical configuration files to enable users to readily customize their verification environments. Wrappers can be run individually, or as a group of wrappers that represent a sequence of MET processes. New wrappers can readily be added to the METplus package due to this modular design. Currently, METplus can easily be applied by any user on their own computer platform that supports Python 2.7.

The METplus code and documentation is maintained by the DTC in Boulder, Colorado. METplus is freely available to the modeling, verification, and operational communities, including universities, governments, the private sector, and operational modeling and prediction centers through a publicly accessible GitHub repository. Users simply need access to a web browser to download the source code and any other relevant documentation and data samples.

1.4 METplus components

The major components of METplus package are METplus Python wrappers to the MET tools, MET configuration files and a hierarchy of METplus configuration files. Some Python wrappers do not correspond to a particular MET tool, but wrap utilities to extend METplus functionality.

1.5 Future development plans

METplus is an evolving application. New capabilities are planned in controlled, successive version releases that are synchronized with MET releases. Bug fixes and user-identified problems will be addressed as they are found and posted to the known issues section of the METplus Users web page (www.dtcenter.org/met/users/support). Future METplus development plans are based on several contributing factors, including the needs of both the operational and research community. Issues that are in the development queue detailed in the “Issues” section of the GitHub repository. Please send questions to met_help@ucar.edu.

1.6 Code support

METplus support is provided through a MET-help e-mail address: `met_help@ucar.edu`. We will endeavor to respond to requests for help in a timely fashion. In addition, information about METplus and tools that can be used with MET are provided on the MET Users web page (<http://www.dtcenter.org/met/users/>).

We welcome comments and suggestions for improvements to METplus, especially information regarding errors. Comments may be submitted using the MET Feedback form available on the MET website. In addition, comments on this document would be greatly appreciated. While we cannot promise to incorporate all suggested changes, we will certainly take all suggestions into consideration.

METplus is a "living" set of wrappers and configuration files. Our goal is to continually enhance it and add to its capabilities. Because our time, resources, and talents are limited, we welcome contributed code for future versions of METplus. These contributions may represent new use cases or new plotting functions. For more information on contributing code to METplus, please contact `met_help@ucar.edu`.

Chapter 2

Software Installation/Getting Started

2.1 Introduction

This chapter describes how to download and set up METplus. METplus has been developed and tested on the Debian Linux operating system.

2.2 Supported architectures

METplus was developed on Debian Linux and is supported on this platform.

2.3 Programming/scripting languages

METplus is written in Python 2.7. METplus is intended to be a tool for the modeling community to use and adapt. As users make upgrades and improvements to the tools, they are encouraged to offer those upgrades to the broader community by offering feedback to the developers or coordinating for a GitHub pull. For more information on contributing code to METplus, please contact `met_help@ucar.edu`.

2.4 Pre-requisites

The following software is required to run METplus:

- Python 2.7

- R version 3.2.5 ¹
- nco (netCDF operators)
- MET version 6.1 or above
- Basic familiarity with MET
- GitHub account (if you plan on contributing code to METplus)

2.5 METplus directory structure

Once you have cloned the METplus from the GitHub repository at <https://github.com/NCAR/METplus> to a location on your host, change directories to the METplus directory. You should have the following directory structure:

```
METplus
  doc
  internal_tests
  parm
  src
  ush
  README.md
```

The top-level METplus directory consists of a README.md file and several subdirectories.

The doc/ directory contains documentation for users (PDF) and Doxygen files that are used to create the developer documentaton. The Doxygen documentation can be created and viewed via web browser if the developer has Doxygen installed on the host.

The internal_tests/ directory contains unit test scripts that are only relevant to METplus developers and contributors.

The parm/ directory contains all the configuration files for MET and METplus.

The src/ directory contains Doxygen executables to generate documentation for developers.

The src/ directory contains the source code for each of the wrappers in METplus.

The ush/ directory contains the Python wrappers to the MET tools.

¹R version 3.2.5 is required when the `tcmpr_plotter_wrapper.py` wraps the `plot_tcmpr.R` script. Please refer to Chapter 21 Plotting and Graphics Support for more information about `plot_tcmpr.R`.

2.6 Getting the METplus source code


The METplus source code is available for download from a public GitHub repository. You can retrieve the source code through your web browser or the command line.

2.6.1 Get the source code via your Web Browser

2.6.1.1 Source code only:

If you wish to retrieve only the source code, then the following steps will illustrate how to quickly access the METplus source code and relevant documentation:

- On your local host (or wherever you wish to install the METplus code) create a directory where you want the code to reside
- Open the browser of your choice and navigate to <https://github.com/NCAR/METplus>. You will see something like the following:



Pull requests Issues Marketplace Explore

NCAR / METplus
Unwatch 17 Star 17 Fork 5


<> Code Issues 55 Pull requests 0 Projects 0 Wiki Insights Settings

Python scripting infrastructure for MET tools.
Edit

Manage topics

1,037 commits 14 branches 13 releases 7 contributors

Branch: master New pull request
Create new file Upload files Find file Clone or download


CPKalb Update grid2grid_hwt_env.conf
Latest commit a724bbc 2 hours ago

doc	Merge branch 'develop' of https://github.com/NCAR/METplus into develop	8 months ago
internal_tests	Updated to reflect changes in the conf file.	5 months ago
parm	Update grid2grid_hwt_env.conf	2 hours ago
sorc	Change name from Alpha-produtil to Beta-METplus.	11 months ago
ush	Accidentally committed GitHub Issue #92 changes to master branch. Rev...	2 months ago
.gitignore	Initial commit	2 years ago
.travis.yml	try ./ since we don't know how directory is structured in the travis ...	6 months ago
README.md	Updated top-level README .	a year ago

README.md

METplus Repository README File {#METplus_README}

Welcome to the documentation for the Model Evaluation Tools Plus (METplus).

This is the METplus repository Top level README.md

Basic DOCUMENTATION - getting started

ALL Documentation specific to this repository can be found in the doc/ directory.

The ORIGINAL setup text documentation in a markdown file is found here.

- doc/README_install.md — installation, configuration, running
- doc/README_terms_of_use.md — legal Terms Of Use

METplus is a Python scripting infrastructure around the MET verification tools (and eventually METViewer, a tool used for plotting MET output verification statistics).

This infrastructure utilizes the NCEP produtil package. A Platform-independent weather and ocean forecasting utility package. Developed at the National Oceanic and Atmospheric Administration (NOAA).

Website Documentation

Users can generate an entire METplus documentation website, if they have Doxygen version 1.8.9.1 or later installed.

```
cd METplus/sorc
make doc
In your browser, open the page METplus/doc/html/index.html
```

Terms of Use

@ref METplus_TermsOfUse

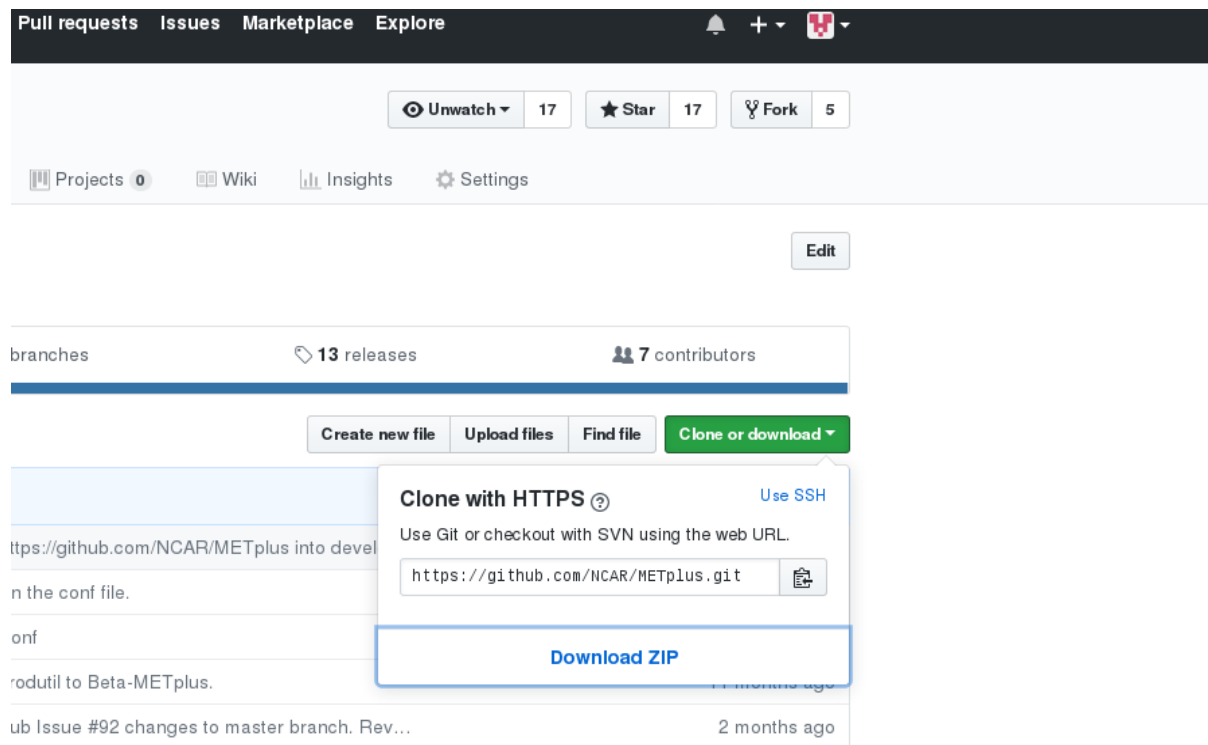
Install/Configure/Run Guide

@ref METplus_install_guide

Produtil Guide

@ref METplus_produtil

- You should be directed to the 'master' branch, verify this by looking at the button labelled 'Branch' in the upper left corner of your window, directly beneath the solid blue horizontal line.
- Click on the green "Clone or download" button near the top right of the page.
- A box appears with "Clone with HTTPS" label
- Click on the blue text: "Download Zip" :




- Your browser should prompt you on what to do with this file. Save it to the directory you created above
- cd to the directory where you saved the code. You should see the file METplus-master.zip
- Uncompress the file:
 - Linux/Unix:
 - unzip METplus-master.zip
 - You should now have a METplus-master directory
 - * If you downloaded the code via the command line, you will get a METplus directory rather than METplus-master.
 - * GitHub appends the '-master' to the name to emphasize that is is from the master branch
 - * To avoid clutter and confusion, you can now remove the METplus-master.zip (optional)

2.6.1.2 Source code, additional documentation, and sample data

If you are a new METplus user and would like to experiment with the use cases, you will want to follow these instructions to retrieve the source code, additional documentation and sample data that accompanies the use cases:

- On your local host (or wherever you wish to install the METplus code) create a directory where you want the code to reside
- Open the browser of your choice and navigate to <https://github.com/NCAR/METplus>. You will see something like the following:



[Pull requests](#)
[Issues](#)
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[Explore](#)

[NCAR / METplus](#)
Unwatch 17
Star 17
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Python scripting infrastructure for MET tools.
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1,037 commits
14 branches
13 releases
7 contributors

Branch: master
New pull request
Create new file
Upload files
Find file
Clone or download


CPKalb Update grid2grid_hwt_env.conf
Latest commit a724bbc 2 hours ago

doc	Merge branch 'develop' of https://github.com/NCAR/METplus into develop	8 months ago
internal_tests	Updated to reflect changes in the conf file.	5 months ago
parm	Update grid2grid_hwt_env.conf	2 hours ago
sorc	Change name from Alpha-produtil to Beta-METplus.	11 months ago
ush	Accidentally committed GitHub Issue #92 changes to master branch. Rev...	2 months ago
.gitignore	Initial commit	2 years ago
.travis.yml	try ./ since we don't know how directory is structured in the travis ...	6 months ago
README.md	Updated top-level README .	a year ago

README.md

METplus Repository README File {#METplus_README}

Welcome to the documentation for the Model Evaluation Tools Plus (METplus).

This is the METplus repository Top level README.md

Basic DOCUMENTATION - getting started

ALL Documentation specific to this repository can be found in the doc/ directory.

The ORIGINAL setup text documentation in a markdown file is found here.

- doc/README_install.md — installation, configuration, running
- doc/README_terms_of_use.md — legal Terms Of Use

METplus is a Python scripting infrastructure around the MET verification tools (and eventually METViewer, a tool used for plotting MET output verification statistics).

This infrastructure utilizes the NCEP produtil package. A Platform-independent weather and ocean forecasting utility package. Developed at the National Oceanic and Atmospheric Administration (NOAA).

Website Documentation

Users can generate an entire METplus documentation website, if they have Doxygen version 1.8.9.1 or later installed.

```
cd METplus/sorc
make doc
In your browser, open the page METplus/doc/html/index.html
```

Terms of Use

@ref METplus_TermsOfUse

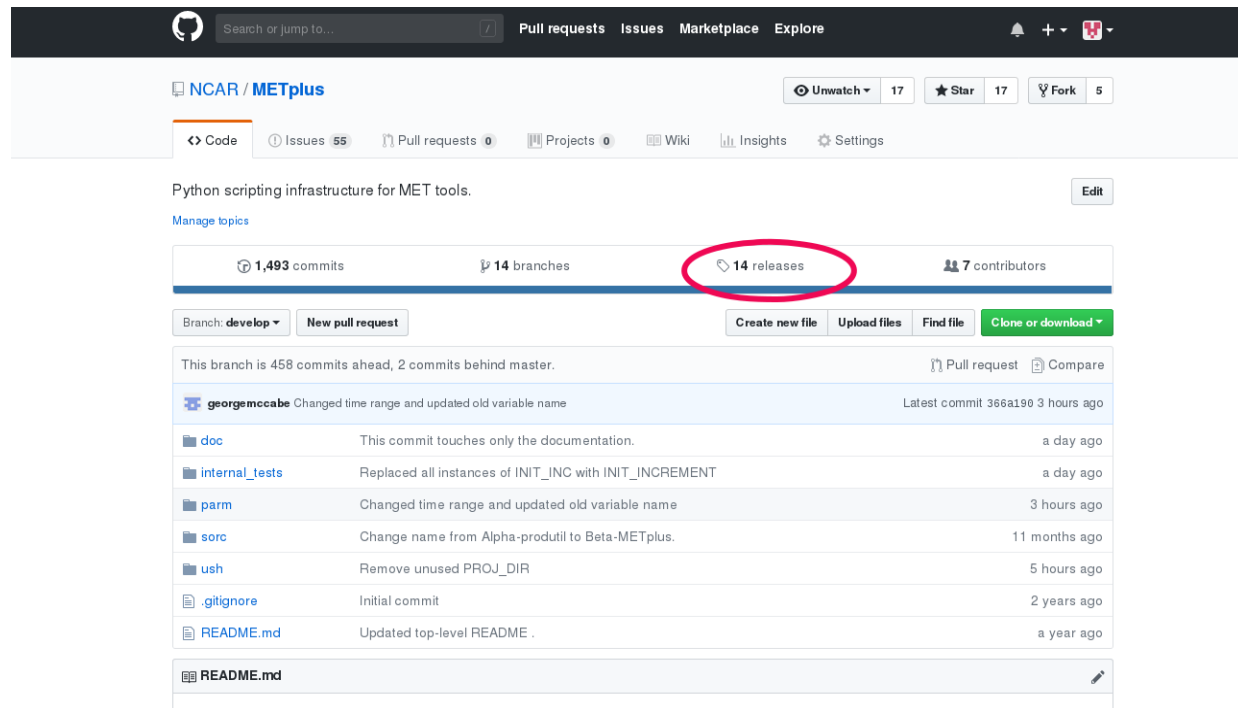
Install/Configure/Run Guide

@ref METplus_install_guide

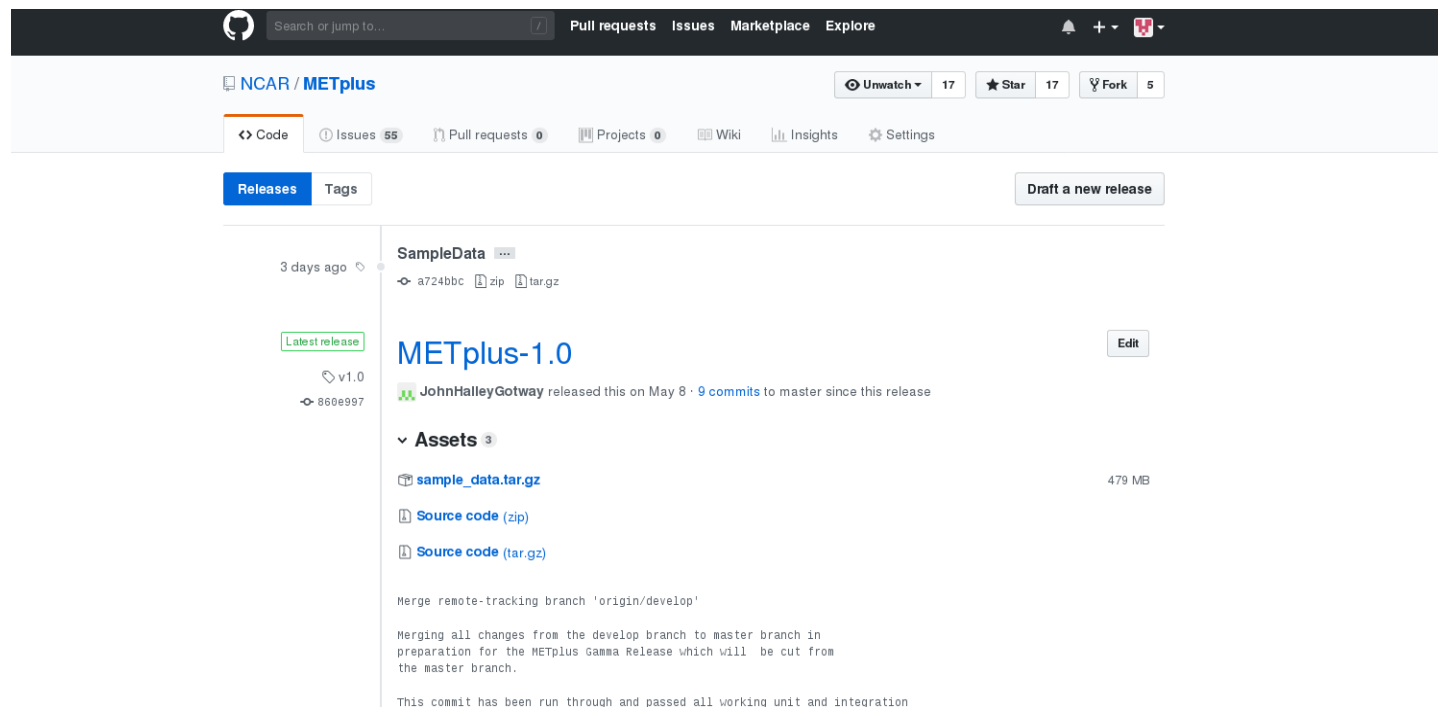
Produtil Guide

@ref METplus_produtil

- Click on the 'releases' link, highlighted by a red circle in the diagram below:



- You will be redirected to another screen. The latest available release appears at the top of the screen:



- Click on the 'Source code' link (either the *zip* or *tar.gz*) and when prompted, save it to the directory you created.

- Uncompress the source code (on Linux/Unix: *gunzip* for zip file or *tar xvfz* for the tar.gz file)
- Create a directory for the sample data directory
- Click on the *sample_data.tar.gz* link and when prompted, save the file to the directory you created above

2.6.2 Get the source code via Command line

- On your local host (or wherever you wish to install the METplus code) create a directory where you want the code to reside
- cd to the directory you just created.
- On the command line, enter the following:
 - *git clone https://github.com/NCAR/METplus*
 - The source code should appear under the METplus directory
- To update your copy, cd to your METplus install directory: */path/to/METplus* and enter *git pull* at the command line

2.7 Set up your environment

Environment variables need to be set to allow the METplus application to be run from any directory and for locating the necessary Python modules. There is an option to set the JLOGFILE environment variable, which indicates where JLOGS will be saved. JLOGS provide information pertinent to the configuration-file framework. If this environment is unset, then output from the configuration framework will be directed to stdout (your display).

Add the following information to your .cshrc (C shell) or .bashrc (Bash shell):

.cshrc:

- Open your .cshrc file and do the following:
- To your PATH, add: *full-path-to-METplus/ush*
- Optional: add JLOGFILE variable and set to *full-path-to-save-jlog-files*
- Close your .cshrc file and run **source ~/.cshrc**

e.g.

```
set path = (other_path_entries ~/METplus/ush
# optional
setenv JLOGFILE ~/jlog_out
```

.bashrc:

- Open your .bashrc file and do the following:
- To your PATH, add : *full-path-to-METplus*/ush
- Optional: add a JLOGFILE environment variable and set it to the directory where you want the logs to reside
- Close your .bashrc file and run `source ~/.bashrc`

e.g.

```
export PATH=~ /METplus/ush:$PATH
#optional
export JLOGFILE=~ /
```

2.8 Set up METplus Configuration files

There are four METplus configuration files that must be defined prior to running METplus. These configuration files reside in the `METplus_INSTALL_DIRECTORY/METplus/parm/metplus_config`

The following configuration files are automatically loaded during a METplus run and do not need to be invoked on the command line.

- `metplus_data.conf`
 - data-relevant settings:
 - * filename templates
 - * regular expressions for input or output filenames
 - * directories where input data are located
- `metplus_logging.conf`
 - set logging levels for METplus and MET output
 - turn on/off logging to stdout (screen) or log files
- `metplus_runtime.conf`
 - runtime-related settings:
 - * location of METplus master `_metplus.conf` file (the 'master' conf file that is a collection of all the final METplus configuration files)
- `metplus_system.conf`
 - system-related settings:
 - * location of METplus source code

- * location of MET source and build
- * location of other non-MET executables/binaries
- * location of METplus parm directory

They must be fully defined by replacing all variables with */path/to's* with valid path names, or have those variables defined in a down-stream config file. If configuring METplus in a common location for multiple users, it is recommended that the these four configuration files are fully defined. Individual users have the option to make customizations by over-riding any of these values in their own configuration files.

2.9 Running METplus

Running METplus involves invoking the Python script `master_metplus.py` from any directory followed by a list of configuration files (file path relative to the *path_to_METplus_install_dir*/METplus/parm directory).

Example: Using a “default” configuration

create your own config file and under the [config] header/family section, add the following:

```
//This is a comment, comments are defined with a // at the beginning of the line.
// Setting the PROCESS_LIST to Usage indicates that we want usage information [config]
PROCESS_LIST = Usage
// Set the MET_INSTALL_DIR to any real directory. We just need to override the /path/to placeholder
set in the // metplus_system.conf file [dir] MET_INSTALL_DIR = /home/minnawin/latest/METplus
// Set these to any valid directory to override the /path/to placeholder set in the
TMP_DIR = /tmp
PROJ_DIR = /tmp
OUTPUT_BASE = /tmp
```

```
>master_metplus.py -c ./my_user_config.conf
```

or

```
>master_metplus.py -c /username/my_user_config.conf
```

if you saved your default config in a directory other than where you are running master_metplus.py

A usage message appears, indicating that other config files are required to perform useful tasks and a list of currently supported wrappers:

```
USAGE: This is a default process, please indicate more specific processes in the PROCESS_LIST variable
in one or more of the following configuration files:
```

```
-parm/metplus_config/metplus_runtime.conf
```

```
-parm/metplus_use_cases/<usecase_name>/<usecase_name>.conf
```

```
-parm/metplus_use_cases/<usecase_name>/examples/<example_name>.conf  Currently  available
processes are:
```

- TcPairs
- ExtractTiles
- SeriesByInit
- SeriesByLead
- PcpCombine
- RegridDataPlane
- GridStat
- Mode
- MTD
- RegridDataPlane
- CyclonePlotter
- TCMPRPlotter
- PB2NC
- PointStat
- StatAnalysis
- MakePlots

Example: Using a use-case configuration

```
>master_metplus.py -c use_cases/feature_relative/feature_relative.conf
```

Runs METplus using the defaults set in the three config files found in `parm/metplus_config`. Any variables defined in these three config files can be over-ridden in the `parm/use_cases/feature_relative/feature_relative.conf` file. METplus will run using the values specified in the `feature_relative.conf` file.

Example: Using example configuration to perform specific evaluation (e.g. Model 1 vs. Obs1, Model 1 vs Obs 2, Model 2 vs. Obs 1, etc.)

```
>master_metplus.py -c use_cases/feature_relative/feature_relative.conf \  
-c use_cases/feature_relative/example/series_by_lead_all_fhrs.conf
```

This runs METplus using the defaults set in the three config files found in `parm/metplus_config`, where variables can be over-ridden by `parm/use_cases/feature_relative/feature_relative.conf` or in `parm/use_cases/feature_relative/example/series_by_lead_all_fhrs.conf`. The order in which conf files are called is important. Variables that are defined in intermediate conf files will be over-ridden by the same variables set in the conf file following it, or the last conf file.

Chapter 3

METplus Python Wrappers

This chapter provides a description of each supported Python wrapper in METplus. A METplus wrapper is a Python script that encapsulates the behavior of a corresponding MET tool. Each of these sections can be added to the `PROCESS_LIST` configuration list variable. The Configuration section of each wrapper section below lists the METplus configuration variables that are specific to that wrapper organized by config file section. You can find more information about each item in the A-Z Config Glossary (4.5).

3.1 CyclonePlotter

3.1.1 Description

3.1.2 Configuration

[dir]

[filename_templates]

[config]

Deprecated:

CYCLONE_OUT_DIR

3.2 EnsembleStat

3.2.1 Description

Used to configure the MET tool `ensemble_stat`.

3.2.2 Configuration

[dir]

OBS_ENSEMBLE_STAT_POINT_INPUT_DIR

OBS_ENSEMBLE_STAT_GRID_INPUT_DIR

FCST_ENSEMBLE_STAT_INPUT_DIR

ENSEMBLE_STAT_OUTPUT_DIR

[filename_templates]

OBS_ENSEMBLE_STAT_POINT_INPUT_TEMPLATE

OBS_ENSEMBLE_STAT_GRID_INPUT_TEMPLATE

FCST_ENSEMBLE_STAT_INPUT_TEMPLATE

[config]

ENSEMBLE_STAT_ONCE_PER_FIELD

FCST_ENSEMBLE_STAT_INPUT_DATATYPE

OBS_ENSEMBLE_STAT_INPUT_POINT_DATATYPE

OBS_ENSEMBLE_STAT_INPUT_GRID_DATATYPE

ENSEMBLE_STAT_GRID_VX

ENSEMBLE_STAT_CONFIG

ENSEMBLE_STAT_MET_OBS_ERROR_TABLE

ENSEMBLE_STAT_N_MEMBERS

OBS_ENSEMBLE_STAT_WINDOW_BEGIN

OBS_ENSEMBLE_STAT_WINDOW_END

Deprecated:

ENSEMBLE_STAT_OUT_DIR

3.3 ExtractTiles

3.5.1 Description

The `extract_tiles_wrapper.py` script is used to regrid and extract subregions from paired tropical cyclone tracks that are created by the `tc_pairs_wrapper`. Unlike the other METplus wrappers, the `extract_tiles_wrapper` does not correspond to a specific MET tool. It invokes the `tc_stat_wrapper`, which in turn calls the MET `tc_stat` tool to determine the lat/lon positions of the paired track data. This information is then used to create tiles of subregions. The `extract_tiles_wrapper` creates a 2n degree x 2m degree grid/tile with each storm located at the center.

3.3.1 Configuration

The following should be set in the METplus configuration file to define the dimensions and density of the tiles comprising the subregion:

LON_ADJ - set to a value in degrees, found under the `[config]` header/family. This defines the 2n portion of the 2n x 2m subregion tile.

LAT_ADJ - set to a value in degrees, found under the `[config]` header/family. This defines the 2m portion of the 2n x 2m subregion tile.

NLAT - set to a whole number, found under the `[config]` header/family. This defines the number of latitude points to incorporate into the subregion (density).

NLON - set to a whole number, found under the `[config]` header/family. This defines the number of longitude points to incorporate into the subregion (density).

DLON - set to the value that defines the resolution of the data (in decimal degrees). Found under the `[config]` header/family section of the METplus config file.

DLAT - set to the value that defines the resolution of the data (in decimal degrees). Found under the `[config]` header/family section of the METplus config file.

EXTRACT_TILES_FILTER_OPTS - Additional filtering by summary (via the MET `tc_stat` tool). Please refer to Chapter 20 in the MET Users Guide (TC-STAT Tools) for all the available options for filtering by summary method in `tc-stat`. If no additional filtering is required, simply leave the value to `EXTRACT_TILES_FILTER_OPTS` blank/empty in the METplus configuration file. This is located in the `[config]` header/family section of the METplus config file.

Deprecated:

EXTRACT_OUT_DIR

3.4 GempakToCF

3.4.1 Description

Used to configure the utility GempakToCF.

3.4.2 Configuration

[exe]

GEMPAKTOCF_CLASSPATH

[dir]

GEMPAKTOCF_INPUT_DIR

GEMPAKTOCF_OUTPUT_DIR

[filename_templates]

GEMPAKTOCF_INPUT_TEMPLATE

GEMPAKTOCF_OUTPUT_TEMPLATE

[config]

GEMPAKTOCF_SKIP_IF_OUTPUT_EXISTS

3.5 GridStat

3.5.1 Description

Used to configure the MET tool grid_stat.

3.5.2 Configuration

[dir]

FCST_GRID_STAT_INPUT_DIR

OBS_GRID_STAT_INPUT_DIR

GRID_STAT_OUTPUT_DIR

CLIMO_GRID_STAT_INPUT_DIR (optional)

[filename_templates]

FCST_GRID_STAT_INPUT_TEMPLATE

OBS_GRID_STAT_INPUT_TEMPLATE

CLIMO_GRID_STAT_INPUT_TEMPLATE (optional)

GRID_STAT_VERIFICATION_MASK_TEMPLATE (optional)

[config]

GRID_STAT_CONFIG

FCST_GRID_STAT_INPUT_DATATYPE

OBS_GRID_STAT_INPUT_DATATYPE

GRID_STAT_ONCE_PER_FIELD

FCST_GRID_STAT_PROB_THRESH (optional)

OBS_GRID_STAT_PROB_THRESH (optional)

GRID_STAT_NEIGHBORHOOD_WIDTH (optional)

GRID_STAT_NEIGHBORHOOD_SHAPE (optional)

FCST_GRID_STAT_WINDOW_BEGIN (optional)

FCST_GRID_STAT_WINDOW_END (optional)

OBS_GRID_STAT_WINDOW_BEGIN (optional)

OBS_GRID_STAT_WINDOW_END (optional)

Deprecated:

GRID_STAT_OUT_DIR

3.6 MakePlots

3.6.1 Description

The `make_plots_wrapper` creates various statistical plots using python scripts for the various METplus use cases. This can only be run following `stat_analysis_wrapper` when `LOOP_ORDER = processes`. To run `make_plots_wrapper`, include `MakePlots` in `PROCESS_LIST`.

3.6.2 Configuration

The following values must be defined in the METplus configuration file:

PLOTTING_SCRIPTS_DIR - This variable is found under the [dir] header/family section of the METplus config file. This is the directory containing all the python plotting scripts that make_plots_wrapper calls. It is recommended {METPLUS_BASE}/ush/plotting_scripts.

STAT_FILES_INPUT_DIR - This variable is found under the [dir] header/family section of the METplus config file. This is the directory where the files from running previously running stat_analysis_wrapper are located. These are the files used as the data to create the plots. It is recommended to set this to {STAT_ANALYSIS_OUTPUT_DIR}.

PLOTTING_OUTPUT_DIR - This variable is found under the [dir] header/family section of the METplus config file. This is the base directory where the output from running make_plots_wrapper will be put.

VERIF_CASE - This variable is found under the [config] header/family section of the METplus config file. This is the specific use case being run. Valid options are grid2grid, grid2obs, and precip.

VERIF_TYPE - This variable is found under the [config] header/family section of the METplus config file. This is the type of verification being run for the specific use case. For VERIF_CASE = grid2grid, valid options are anom, pres, and sfc. For VERIF_CASE = grid2obs, valid options are conus_sfc and upper_air. For VERIF_CASE = precip, any accumulation amount is valid, ex. A24.

PLOT_TIME - This variable is found under the [config] header/family section of the METplus config file. This specifies the way to treat the date information. Valid options are valid and init.

VALID/INIT_BEG - This variable is found under the [config] header/family section of the METplus config file. This is the starting date in YYYYMMDD form. It is named accordingly to the value set for PLOT_TIME.

VALID/INIT_END - This variable is found under the [config] header/family section of the METplus config file. This is the ending date in YYYYMMDD form. It is named accordingly to the value set for PLOT_TIME.

VALID_HOUR_METHOD - This variable is found under the [config] header/family section of the METplus config file. This specifies the way to treat the valid hour information. Valid options are LOOP or GROUP. LOOP will consider the valid hours individually, and GROUP will consider them valid hours as a whole.

VALID_HOUR_BEG - This variable is found under the [config] header/family section of the METplus config file. This is the starting valid hour in HHMM form.

VALID_HOUR_END - This variable is found under the [config] header/family section of the METplus config file. This is the ending valid hour in HHMM form.

VALID_HOUR_INCREMENT - This variable is found under the [config] header/family section of the METplus config file. This is the increment used build the list of all valid hours to be used. This is an integer defined in seconds.

INIT_HOUR_METHOD - This variable is found under the [config] header/family section of the METplus config file. This specifies the way to treat the initialization hour information. Valid options are LOOP or GROUP. LOOP will consider the initialization hours individually, and GROUP will consider them as a whole.

INIT_HOUR_BEG - This variable is found under the [config] header/family section of the METplus config file. This is the starting initialization hour in HHMM form.

INIT_HOUR_END - This variable is found under the [config] header/family section of the METplus config file. This is the ending initialization hour in HHMM form.

INIT_HOUR_INCREMENT - This variable is found under the [config] header/family section of the METplus config file. This is the increment used build the list of all initialization hours to be used. This is an integer defined in seconds.

MODELn_NAME - This variable is found under the [config] header/family section of the METplus config file. This is the name of the model. Particularly, this is the model name listed in the MET .stat files.

MODELn_OBS_NAME - This variable is found under the [config] header/family section of the METplus config file. This is the name of the observations that were used as truth to compare MODELn_NAME to. Particularly, this is the observation name listed in the MET .stat files.

MODELn_NAME_ON_PLOT - This variable is found under the [config] header/family section of the METplus config file. This is the name that will appear on the plots for MODELn_NAME and is used to define subsequent data paths pertaining to MODELn_NAME.

FCST_VARn_NAME - This variable is found under the [config] header/family section of the METplus config file. This is the variable name

FCST_VARn_LEVELS - This variable is found under the [config] header/family section of the METplus config file. This is the list of variable levels that coorespond to FCST_VARn_NAME.

REGION_LIST - This variable is found under the [config] header/family section of the METplus config file. This is the list of regions for plotting verification.

LEAD_LIST - This variable is found under the [config] header/family section of the METplus config file. This is the list of forecast hour leads for plotting verification.

INTERP - This variable is found under the [config] header/family section of the METplus config file. This is the type of interpolation the verification was done on. It cooresponds to the interpolation in the MET .stat files.

PLOT_STATS_LIST - This variable is found under the [config] header/family section of the METplus config file. This is a list of the statistics to calculate and create plots for. The list of valid options varies depending on line type that was used during the filtering of stat_analysis_wrapper. For SL1L2, VL1L2 valid options are bias, rms, mss, rsd, rmse_md, rmse_pv, pcor, fbar, and fbar_obar. For SAL1L2, VAL1L2, the valid options is acc. For VCNT, bias, fbar, fbar_obar, speed_err, dir_err, rmsve, vdiff_speed, vdiff_dir, rsd, fbar_speed, fbar_dir, fbar_obar_speed, and fbar_obar_dir.

CI_METHOD - This variable is found under the [config] header/family section of the METplus config file. This is the method used to create confidence intervals for. Valid options are EMC, or NONE.

VERIF_GRID - This variable is found under the [config] header/family section of the METplus config file. This is the name of the grid the verification was done on, ex. G002.

EVENT_EQUALIZATION - This variable is found under the [config] header/family section of the METplus config file. If set to True, if any of the listed models are missing data for a particular time, data for all models will be masked out for this time. If set to False, there are no changes to the data.

The following values are optional in the METplus configuration file:

FCST_VARn_THRESH - This variable is found under the [config] header/family section of the METplus config file. This is a list of threshold for plotting verifying that cooresponds to FCS_VARn_NAME.

FCST_VARn_OPTIONS - This variable is found under the [config] header/family section of the METplus config file. These are extra settings used to describe FCS_VARn_NAME.

VARn_FOURIER_DECOMP - This variable is found under the [config] header/family section of the METplus config file. If this is set to True, plots will be made for the Fourier decomposition of FCS_VARn_NAME. This should have been previously run in grid_stat_wrapper. The default value to False.

VARn_WAVE_NUM_LIST - This variable is found under the [config] header/family section of the METplus config file. This is a list of the Fourier decomposition wave numbers to create plots for.

3.7 Mode

3.7.1 Description

Used to configure the MET tool mode.

3.7.2 Configuration

[dir]

FCST_MODE_INPUT_DIR

OBS_MODE_INPUT_DIR

MODE_OUTPUT_DIR

[filename_templates]

FCST_MODE_INPUT_TEMPLATE

OBS_MODE_INPUT_TEMPLATE

[config]

MODE_CONFIG

FCST_MODE_INPUT_DATATYPE

OBS_MODE_INPUT_DATATYPE

MODE_QUILT

MODE_CONV_RADIUS

MODE_FCST_CONV_RADIUS

MODE_OBS_CONV_RADIUS

MODE_CONV_THRESH

MODE_FCST_CONV_THRESH

MODE_OBS_CONV_THRESH

MODE_MERGE_THRESH

MODE_FCST_MERGE_THRESH

MODE_OBS_MERGE_THRESH

MODE_MERGE_FLAG

MODE_FCST_MERGE_FLAG

MODE_OBS_MERGE_FLAG

MODE_MERGE_CONFIG_FILE

FCST_MODE_WINDOW_BEGIN

FCST_MODE_WINDOW_END

OBS_MODE_WINDOW_BEGIN

OBS_MODE_WINDOW_END

Deprecated:

MODE_OUT_DIR

3.8 MTD

3.8.1 Description

Used to configure the MET tool mtd (mode time domain).

3.8.2 Configuration

[dir]

FCST_MTD_INPUT_DIR

OBS_MTD_INPUT_DIR

MTD_OUTPUT_DIR

[filename_templates]

FCST_MTD_INPUT_TEMPLATE

OBS_MTD_INPUT_TEMPLATE

[config]

MTD_CONFIG

MTD_MIN_VOLUME

MTD_SINGLE_RUN

MTD_SINGLE_DATA_SRC

FCST_MTD_INPUT_DATATYPE

OBS_MTD_INPUT_DATATYPE

FCST_MTD_CONV_RADIUS

FCST_MTD_CONV_THRESH

OBS_MTD_CONV_RADIUS

OBS_MTD_CONV_THRESH

Deprecated:

MTD_OUT_DIR

3.9 PB2NC

3.9.1 Description

The pb2nc_wrapper is a Python script that encapsulates the behavior of the MET pb2nc tool to convert prepBUFR files into netCDF.

3.9.2 Configuration

[dir]

PB2NC_INPUT_DIR

PB2NC_OUTPUT_DIR

[filename_templates]

PB2NC_INPUT_TEMPLATE

PB2NC_OUTPUT_TEMPLATE

[config]

PB2NC_SKIP_IF_OUTPUT_EXISTS

PB2NC_OFFSETS

PB2NC_INPUT_DATATYPE

PB2NC_CONFIG_FILE

PB2NC_MESSAGE_TYPE (optional)

PB2NC_STATION_ID (optional)

PB2NC_GRID (optional)

PB2NC_POLY

PB2NC_OBS_BUFR_VAR_LIST (optional)

PB2NC_TIME_SUMMARY_FLAG

PB2NC_TIME_SUMMARY_BEG

PB2NC_TIME_SUMMARY_END

PB2NC_TIME_SUMMARY_VAR_NAMES

PB2NC_TIME_SUMMARY_TYPES

PB2NC_WINDOW_BEGIN

PB2NC_WINDOW_END

Deprecated:

PREPBUFR_DATA_DIR

PREPBUFR_MODEL_DIR_NAME

PREPBUFR_DIR_REGEX

PREPBUFR_FILE_REGEX

NC_FILE_TMPL

PB2NC_VERTICAL_LEVEL

OBS_BUFR_VAR_LIST

TIME_SUMMARY_FLAG

TIME_SUMMARY_BEG

TIME_SUMMARY_END

TIME_SUMMARY_VAR_NAMES

TIME_SUMMARY_TYPE

OVERWRITE_NC_OUTPUT

VERTICAL_LOCATION

3.10 PcpCombine

3.10.1 Description

The `pcp_combine_wrapper` is a Python script that encapsulates the MET `pcp_combine` tool. It provides the infrastructure to combine or extract from files to build desired accumulations.

3.10.2 Configuration

[dir]

FCST_PCP_COMBINE_INPUT_DIR

FCST_PCP_COMBINE_OUTPUT_DIR

OBS_PCP_COMBINE_INPUT_DIR

OBS_PCP_COMBINE_OUTPUT_DIR

[filename_templates]

FCST_PCP_COMBINE_INPUT_TEMPLATE

FCST_PCP_COMBINE_OUTPUT_TEMPLATE

OBS_PCP_COMBINE_INPUT_TEMPLATE

OBS_PCP_COMBINE_OUTPUT_TEMPLATE

[config]

FCST_IS_PROB

OBS_IS_PROB

FCST_PCP_COMBINE_[N]_FIELD_NAME

OBS_PCP_COMBINE_[N]_FIELD_NAME

FCST_PCP_COMBINE_DATA_INTERVAL

OBS_PCP_COMBINE_DATA_INTERVAL

FCST_PCP_COMBINE_TIMES_PER_FILE

OBS_PCP_COMBINE_TIMES_PER_FILE

FCST_PCP_COMBINE_IS_DAILY_FILE

OBS_PCP_COMBINE_IS_DAILY_FILE

FCST_PCP_COMBINE_INPUT_DATATYPE

OBS_PCP_COMBINE_INPUT_DATATYPE

FCST_PCP_COMBINE_INPUT_LEVEL

OBS_PCP_COMBINE_INPUT_LEVEL

FCST_PCP_COMBINE_RUN

OBS_PCP_COMBINE_RUN

FCST_PCP_COMBINE_METHOD

OBS_PCP_COMBINE_METHOD

FCST_PCP_COMBINE_MIN_FORECAST

OBS_PCP_COMBINE_MIN_FORECAST

FCST_PCP_COMBINE_MAX_FORECAST

OBS_PCP_COMBINE_MAX_FORECAST

FCST_PCP_COMBINE_STAT_LIST

OBS_PCP_COMBINE_STAT_LIST

FCST_PCP_COMBINE_DERIVE_LOOKBACK

OBS_PCP_COMBINE_DERIVE_LOOKBACK

PCP_COMBINE_SKIP_IF_OUTPUT_EXISTS

Deprecated:

PCP_COMBINE_METHOD

FCST_MIN_FORECAST

FCST_MAX_FORECAST

OBS_MIN_FORECAST

OBS_MAX_FORECAST

FCST_DATA_INTERVAL

OBS_DATA_INTERVAL

FCST_IS_DAILY_FILE

OBS_IS_DAILY_FILE

FCST_TIMES_PER_FILE

OBS_TIMES_PER_FILE

FCST_LEVEL

OBS_LEVEL

3.11 PointStat

3.11.1 Description

The `point_stat_wrapper` is a Python script that encapsulates the MET `point_stat` tool. It provides the infrastructure to read in gridded model data and netCDF point observation data to perform grid-to-point (grid-to-obs) verification.

3.11.2 Configuration

[dir]

FCST_POINT_STAT_INPUT_DIR

OBS_POINT_STAT_INPUT_DIR

POINT_STAT_OUTPUT_DIR

[filename_templates]

FCST_POINT_STAT_INPUT_TEMPLATE

OBS_POINT_STAT_INPUT_TEMPLATE

POINT_STAT_VERIFICATION_MASK_TEMPLATE (optional)

[config]

POINT_STAT_OFFSETS

FCST_POINT_STAT_INPUT_DATATYPE

OBS_POINT_STAT_INPUT_DATATYPE

POINT_STAT_CONFIG_FILE

MODEL

POINT_STAT_REGRID_TO_GRID

POINT_STAT_GRID

POINT_STAT_POLY

POINT_STAT_STATION_ID

POINT_STAT_MESSAGE_TYPE

FCST_POINT_STAT_WINDOW_BEGIN (optional)

FCST_POINT_STAT_WINDOW_END (optional)

OBS_POINT_STAT_WINDOW_BEGIN (optional)

OBS_POINT_STAT_WINDOW_END (optional)

POINT_STAT_NEIGHBORHOOD_WIDTH (optional)

POINT_STAT_NEIGHBORHOOD_SHAPE (optional)

Deprecated:

FCST_INPUT_DIR

OBS_INPUT_DIR

START_HOUR

END_HOUR

BEG_TIME

FCST_HR_START

FCST_HR_END

FCST_HR_INTERVAL

OBS_INPUT_DIR_REGEX
 FCST_INPUT_DIR_REGEX
 FCST_INPUT_FILE_REGEX
 OBS_INPUT_FILE_REGEX
 OBS_INPUT_FILE_TMPL
 FCST_INPUT_FILE_TPOINTMPL
 REGRID_TO_GRID

3.12 RegridDataPlane

3.12.1 Description

Used to configure the MET tool `regrid_data_plane`.

3.12.2 Configuration

[dir]
 FCST_REGRID_DATA_PLANE_INPUT_DIR
 OBS_REGRID_DATA_PLANE_INPUT_DIR
 [filename_templates]
 FCST_REGRID_DATA_PLANE_INPUT_TEMPLATE
 OBS_REGRID_DATA_PLANE_INPUT_TEMPLATE
 [config]
 FCST_REGRID_DATA_PLANE_RUN
 OBS_REGRID_DATA_PLANE_RUN
 REGRID_DATA_PLANE_SKIP_IF_OUTPUT_EXISTS
 REGRID_DATA_PLANE_VERIF_GRID
 FCST_REGRID_DATA_PLANE_INPUT_DATATYPE
 OBS_REGRID_DATA_PLANE_INPUT_DATATYPE
Deprecated:
 VERIFICATION_GRID

3.13 SeriesByInit

3.13.1 Description

The `series_by_init_wrapper` provides the infrastructure needed to perform a series analysis on tropical cyclone data, based on initialization times. The `series_by_init_wrapper` creates numerous plots that represent the field, level, and statistic for each initialization time.

3.13.2 Configuration

`ADECK_TRACK_DATA_DIR` - The full filepath to the Adeck data files. This variable is found under the `[dir]` header/family section in the METplus config file.

`BDECK_TRACK_DATA_DIR` - The full filepath to the Bdeck (Best track) data files. This variable is found under the `[dir]` header/family section of the METplus config file.

`INIT_BEG` - set this to the starting YYYYMMDD of the time window of interest (e.g. 20180601). This variable is found under the `[config]` header/family section of the METplus config file.

`INIT_END` - set this to the ending YYYYMMDD of the time window of interest (e.g. 20180615). This variable is found under the `[config]` header/family section of the METplus config file.

`INIT_INCREMENT` - set this to the step size/increment (in seconds) between your beginning and ending init times of interest (eg. 21600, which corresponds to 6 hours). This variable is located under the `[config]` header/family section of the METplus config file.

`INIT_HOUR_END` - This is the ending hour to of the init hour time window (e.g. `INIT_HOUR_END = 23` to end your ini time at 23Z). This variable is located under the `[config]` header/family section of the METplus config file.

`INIT_INCLUDE` - This is a list of dates in YYYYMMDD_hh format data that might reside outside your specified time window of interest but want to include in your verification (e.g. `INIT_INCLUDE = 20180616_12`). This variable is located under the `[config]` header/family section of the METplus config file.

`INIT_EXCLUDE` - This is a list of dates in YYYYMMDD_hh format of data that you wish to exclude from your verification. (e.g. If, for some reason, you wish to exclude the 20180611_12, 20180613_06 data and include the 20180616_12 data, you would specify it in the following manner: `INIT_EXCLUDE = 20180611_12, 20180613_06`). This variable is located under the `[config]` header/family section of the METplus config file.

`SERIES_ANALYSIS_FILTER_OPTS` - Apply `tc_stat` syntax for performing any additional filtering on your input data, which is done via `tc_stat_wrapper/tc_stat` tool (e.g. `SERIES_ANALYSIS_FILTER_OPTS`

= -init_beg {INIT_BEG} -init_end {INIT_END} . This limits results that lie within the INIT_BEG and INIT_END times that were specified in your METplus configuration file, Refer to Chapter 20 of the MET User's Guide for the syntax to use for performing filtering via the MET tc_stat tool).

Deprecated:

SERIES_INIT_FILTERED_OUT_DIR

3.14 SeriesByLead

3.14.1 Description

The series_by_lead_wrapper provides the infrastructure needed to perform a series analysis on tropical cyclone data, based on lead (forecast hour) times. The series_by_lead_wrapper creates numerous plots that represent the field, level, and statistic for each lead (forecast) time. The series_by_lead can be done in one of two ways: by all forecast hours or by forecast hour groupings. Performing a series analysis by valid time with forecast hour groupings can be useful when analyzing storm tracks based on time “bins” such as by days (eg. day 1, day 2, day 3, etc.).

3.14.2 Configuration

The input track and model data files are defined in any one of the user's METplus configuration files. If creating a final configuration file that overrides all other config files, it is customary to define the MODEL_DATA_DIR, pointing to the directory where all model data resides. The full file path to the INIT_INCLUDE and INIT_EXCLUDE are used to list the times in YYYYMMDD_HH format to include or exclude from your time window. If these values are undefined (i.e. no value is set for the variable), then all available times in your time window will be considered. For example, if your data is available every 6 hours and you are interested in creating a series analysis from init time 20180601 to 20180615 for all available times, from 00z to 23z, you would set the following:

INIT_BEG = set this to the starting YYYYMMDD of the time window of interest (e.g. 20180601). This variable is found under the [config] header/family section of the METplus config file.

INIT_END = set this to the ending YYYYMMDD of the time window of interest (e.g. 20180615). This variable is found under the [config] header/family section of the METplus config file.

INIT_INCREMENT = set this to the step size/increment (in seconds) between your beginning and ending init times of interest (eg. 21600, which corresponds to 6 hours)

INIT_HOUR_END = 23

FHR_BEG - The beginning forecast hour of interest.

FHR_END - The ending forecast hour of interest.

FHR_INC - The increment/time step in hours.

The following should be undefined if you are performing a series analysis for all available forecast hours. Otherwise, define these if you wish to perform a series analysis by lead time (to create your own forecast hour groupings and associated labels).

FHR_GROUP_BEG - This is a list of forecast hours that define each “block” or “grouping” of forecast hours. The number of beginning forecast hours must match the number of ending forecast hours. This variable is found under the [config] header/family section of the METplus config file.

FHR_GROUP_END - This is a list of forecast hours that define the end of each “block” or “grouping” of forecast hours. The number of ending forecast hours must match the number of beginning forecast hours. This variable is found under the [config] header/family section of the METplus config file.

FHR_GROUP_LABELS - This is a list of the labels to be applied for each “block” or “grouping” of forecast hours. The number of labels must equal the number of forecast hour begin and end items. This variable is found under the [config] header/family section of the METplus config file.

INIT_INCLUDE - This is a list of any data you wish to include that might lie outside your specified time window (e.g. INIT_INCLUDE=20180616_12 would include any data corresponding to 20180616_12). This is found under the [config] header/family section of the METplus config file.

INIT_EXCLUDE - A list of any data that you wish to exclude from your verification. If, for some reason, you wish to exclude the 20180611_12, 20180613_06 data and include the 20180616_12 data, you would specify it in the following manner: INIT_EXCLUDE = 20180611_12, 20180613_06. This variable is located under the [config] header/family section of the METplus config file.

SERIES_ANALYSIS_FILTER_OPT - Perform additional filtering on your input data, via the tc_stat_wrapper/MET tc_stat tool. Refer to Chapter 20 of the MET User’s Guide for the syntax to use for performing filtering via the MET tc_stat tool.

Deprecated:

SERIES_LEAD_FILTERED_OUT_DIR

3.15 StatAnalysis

3.15.1 Description

The stat_analysis_wrapper encapsulates the behavior of the MET stat_analysis tool. It provides the infrastructure to summarize and filter the MET .stat files. stat_analysis_wrapper can be run in two different methods. First is to look at the STAT lines for a single date, to use this method set LOOP_ORDER = times. Second is to look at the STAT lines over a span of dates, to use this method set LOOP_ORDER = processes. To run stat_analysis_wrapper, include StatAnalysis in PROCESS_LIST.

3.15.2 Configuration

The following values must be defined in the METplus configuration file for running with `LOOP_ORDER = times`:

`STAT_ANALYSIS_LOOKIN_DIR` - This variable is found under the `[dir]` header/family section of the METplus config file. This is the directory that the `stat_analysis` wrapper will use to build the argument to `-lookin` for the MET `stat_analysis` tool. It can contain wildcards, i.e. `*`.

`STAT_ANALYSIS_OUTPUT_DIR` - This variable is found under the `[dir]` header/family section of the METplus config file. This is the base directory where the output from running `stat_analysis_wrapper` will be put.

`LOOP_BY` - This variable is found under the `[config]` header/family section of the METplus config file. This defines the way to treat the looping of the date information.

`VALID/INIT_TIME_FMT` - This variable is found under the `[config]` header/family section of the METplus config file. This describes the formatting of the `BEG` and `END` dates, ex. `%Y%m%d`.

`VALID/INIT_BEG` - This variable is found under the `[config]` header/family section of the METplus config file. This is the starting date in the format set in the `TIME_FMT`. It is named accordingly to the value set for `LOOP_BY`.

`VALID/INIT_END` - This variable is found under the `[config]` header/family section of the METplus config file. This is the starting date in the format set in the `TIME_FMT`. It is named accordingly to the value set for `LOOP_BY`.

`VALID_HOUR_METHOD` - This variable is found under the `[config]` header/family section of the METplus config file. This specifies the way to treat the valid hour information. Valid options are `LOOP` or `GROUP`. `LOOP` will consider the valid hours individually, and `GROUP` will consider them valid hours as a whole.

`VALID_HOUR_BEG` - This variable is found under the `[config]` header/family section of the METplus config file. This is the starting in `HHMM` form.

`VALID_HOUR_END` - This variable is found under the `[config]` header/family section of the METplus config file. This is the ending valid hour in `HHMM` form.

`VALID_HOUR_INCREMENT` - This variable is found under the `[config]` header/family section of the METplus config file. This is the increment used build the list of all valid hours to be used. This is an integer defined in seconds.

`INIT_HOUR_METHOD` - This variable is found under the `[config]` header/family section of the METplus config file. This specifies the way to treat the initialization hour information. Valid options are `LOOP` or `GROUP`. `LOOP` will consider the initialization hours individually, and `GROUP` will consider them as a whole.

INIT_HOUR_BEG - This variable is found under the [config] header/family section of the METplus config file. This is the starting initialization hour in HHMM form.

INIT_HOUR_END - This variable is found under the [config] header/family section of the METplus config file. This is the ending initialization hour in HHMM form.

INIT_HOUR_INCREMENT - This variable is found under the [config] header/family section of the METplus config file. This is the increment used build the list of all initialization hours to be used. This is an integer defined in seconds.

STAT_ANALYSIS_CONFIG - This variable is found under the [config] header/family section of the METplus config file. It is recommended to set this to {PARM_BASE}/use_cases/plotting/met_config/STATAnalysisConfig.

MODEL - This variable is found under the [config] header/family section of the METplus config file. This is the model name. Particularly, this is the model name listed in the MET .stat files.

OBTYPE - This variable is found under the [config] header/family section of the METplus config file. This is the observation type. Particularly, this is the observation time listed in the MET .stat files.

JOB_NAME - This variable is found under the [config] header/family section of the METplus config file. This is the MET stat_analysis job name that is to be run. Valid options are filter, summary, aggregate, aggregate_stat, go_index, and ramp. For more information on these job names and what they do, please see the MET Users Guide.

JOB_ARGS - This variable is found under the [config] header/family section of the METplus config file. The job arguments that are to be run with the corresponding JOB_NAME. If using -dump_row, use -dump_row [dump_row_filename]. If using -out_stat, -out_stat [out_stat_filename]. For more information on these job arguments, please see the MET Users Guide.

The following values are optional in the METplus configuration file for running with LOOP_ORDER = times:

DESC - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

FCST_LEAD - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

FCST_VAR_NAME - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

FCST_VAR_LEVEL - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

OBS_VAR_NAME - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

OBS_VAR_LEVEL - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

REGION - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

INTERP - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

INTERP_PTS - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

FCST_THRESH - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

COV_THRESH - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

LINE_TYPE - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

STAT_ANALYSIS_DUMP_ROW_TMPL - This variable is found under the [filename_templates] header/family section of the METplus config file. A user customized template to use for the dump_row file. If left blank and a dump_row file is requested, a default version will be used.

STAT_ANALYSIS_OUT_STAT_TMPL - This variable is found under the [filename_templates] header/family section of the METplus config file. A user customized template to use for the out_stat file. If left blank and a out_stat file is requested, a default version will be used.

The following values must be defined in the METplus configuration file for running with LOOP_ORDER = processes:

STAT_ANALYSIS_OUTPUT_DIR - This variable is found under the [dir] header/family section of the METplus config file. This is the base directory where the output from running stat_analysis_wrapper will be put.

VERIF_CASE - This variable is found under the [config] header/family section of the METplus config file. This is the specific use case being run. Valid options are grid2grid, grid2obs, and precip.

VERIF_TYPE - This variable is found under the [config] header/family section of the METplus config file. This is the type of verification being run for the specific use case. For VERIF_CASE = grid2grid, valid options are anom, pres, and sfc. For VERIF_CASE = grid2obs, valid options are conus_sfc and upper_air. For VERIF_CASE = precip, any accumulation amount is valid, ex. A24.

PLOT_TIME - This variable is found under the [config] header/family section of the METplus config file. This specifies the way to treat the date information. Valid options are valid and init.

VALID/INIT_BEG - This variable is found under the [config] header/family section of the METplus config file. This is the starting date in YYYYMMDD form. It is named accordingly to the value set for PLOT_TIME.

VALID/INIT_END - This variable is found under the [config] header/family section of the METplus config file. This is the ending date in YYYYMMDD form. It is named accordingly to the value set for PLOT_TIME.

VALID_HOUR_METHOD - This variable is found under the [config] header/family section of the METplus config file. This specifies the way to treat the valid hour information. Valid options are LOOP or GROUP. LOOP will consider the valid hours individually, and GROUP will consider them valid hours as a whole.

VALID_HOUR_BEG - This variable is found under the [config] header/family section of the METplus config file. This is the starting valid hour in HHMM form.

VALID_HOUR_END - This variable is found under the [config] header/family section of the METplus config file. This is the ending valid hour in HHMM form.

VALID_HOUR_INCREMENT - This variable is found under the [config] header/family section of the METplus config file. This is the increment used build the list of all valid hours to be used. This is an integer defined in seconds.

INIT_HOUR_METHOD - This variable is found under the [config] header/family section of the METplus config file. This specifies the way to treat the initialization hour information. Valid options are LOOP or GROUP. LOOP will consider the initialization hours individually, and GROUP will consider them as a whole.

INIT_HOUR_BEG - This variable is found under the [config] header/family section of the METplus config file. This is the starting initialization hour in HHMM form.

INIT_HOUR_END - This variable is found under the [config] header/family section of the METplus config file. This is the ending initialization hour in HHMM form.

INIT_HOUR_INCREMENT - This variable is found under the [config] header/family section of the METplus config file. This is the increment used build the list of all initialization hours to be used. This is an integer defined in seconds.

STAT_ANALYSIS_CONFIG - This variable is found under the [config] header/family section of the METplus config file. It is recommended to set this to {PARM_BASE}/use_cases/plotting/met_config/STATAnalysisConfig.

MODELn_NAME - This variable is found under the [config] header/family section of the METplus config file. This is the name of the model. Particularly, this is the model name listed in the MET .stat files.

MODELn_OBS_NAME - This variable is found under the [config] header/family section of the METplus config file. This is the name of the observations that were used as truth to compare MODELn_NAME to. Particularly, this is the observation name listed in the MET .stat files.

MODELn_NAME_ON_PLOT - This variable is found under the [config] header/family section of the METplus config file. This is the name that will appear on the plots for MODELn_NAME and is used to define subsequent data paths pertaining to MODELn_NAME.

FCST_VARn_NAME - This variable is found under the [config] header/family section of the METplus config file. This is the variable name

FCST_VARn_LEVELS - This variable is found under the [config] header/family section of the METplus config file. This is the list of variable levels that coorespond to FCST_VARn_NAME.

REGION_LIST - This variable is found under the [config] header/family section of the METplus config file. This is the list of regions for plotting verification.

LEAD_LIST - This variable is found under the [config] header/family section of the METplus config file. This is the list of forecast hour leads for plotting verification.

INTERP - This variable is found under the [config] header/family section of the METplus config file. This is the type of interpolation the verification was done on. It cooresponds to the interpolation in the MET .stat files.

LINE_TYPE - This variable is found under the [config] header/family section of the METplus config file. A single value or list of values used in the stat_analysis data stratification.

The following values are optional in the METplus configuration file for running with LOOP_ORDER = processes:

FCST_VARn_THRESH - This variable is found under the [config] header/family section of the METplus config file.

FCST_VARn_THRESH - This variable is found under the [config] header/family section of the METplus config file. This is a list of thresholds that cooresponds to FCS_VARn_NAME.

FCST_VARn_OPTIONS - This variable is found under the [config] header/family section of the METplus config file. These are extra settings used to describe FCS_VARn_NAME.

VARn_FOURIER_DECOMP - This variable is found under the [config] header/family section of the METplus config file. If this is set to True, data stratification will be done for the Fourier decomposition of FCS_VARn_NAME. This should have been previously run in grid_stat_wrapper. The default value to False.

VARn_WAVE_NUM_LIST - This variable is found under the [config] header/family section of the METplus config file. This is a list of the Fourier decomposition wave numbers to do data stratification.

Deprecated:

STAT_ANALYSIS_OUT_DIR

3.16 TcPairs

3.16.1 Description

The `tc_pairs_wrapper` encapsulates the behavior of the MET `tc_pairs` tool. The wrapper accepts Adeck and Bdeck (Best track) cyclone track data in extra tropical cyclone format (such as the data used by sample data provided in the METplus tutorial), or ATCF formatted track data. If data is in an extra tropical cyclone (non-ATCF) format, the data is reformatted into an ATCF format that is recognized by MET.

3.16.2 Configuration

`TC_PAIRS_CONFIG_FILE` - The full path to the MET `tc_pairs` config file. This variable is located under the `[config]` header/family section of the METplus config file.

`INIT_BEG` - The start of the initialization time window of interest, in `YYYYMMDD` format. This variable is located under the `[config]` header/family section of the METplus config file.

`INIT_END` - The end of the initialization time window of interest in `YYYYMMDD` format. This variable is located under the `[config]` header/family section of the METplus config file.

`INIT_INCREMENT` - The time step/increment in seconds to be used to determine which data files will be used/considered in the verification. (e.g. `INIT_INCREMENT = 21600` sets the time step size to 6 hours, so data that will be considered will be `INIT_BEG`, `INIT_BEG + INIT_INCREMENT`, until the `INIT_END` is reached). This variable is found under the `[config]` header/family section of the METplus config.

`INIT_HOUR_END` - The cutoff for the last date to be considered in the time window (eg. if `INIT_HOUR_END=18` and `INIT_END=20190121`, then the last date to be included in the time window is `20190121_18`). This variable is located in the `[config]` header/family section of the METplus config file.

`INIT_INCLUDE` - The list of initialization times in `YYYYMMDD_hh` format to include in the verification (e.g. `INIT_INCLUDE = 20170601_00, 20170601_12, 20170602_6`). This variable is located in the `[config]` header/family of the METplus config file.

`INIT_EXCLUDE` - The list of initialization times in `YYYYMMDD_hh` format to be excluded from the verification (e.g. `INIT_EXCLUDE = 20190121_06, 20181231_23`). This variable is located in the `[config]` header/family section of the METplus config file.

`TOP_LEVEL_DIRS` - This defines how to run the MET `tc-pairs` tool. If set to 'yes', then the MET `tc-pairs` tools will search the input file directory and all its subdirectories for input data (ADeck and BDeck files). If set to 'no', then the `tc_pairs` wrapper generates the matched ADeck and BDeck files (based on beginning and end times of the time window of interest) that the MET `tc-pairs` tools takes as input.

`MODEL` - The list of models to include in the verification. If left empty/unassigned, then all models in the track files will be considered. This variable corresponds to the model dictionary value in the MET config file. This variable is located under the `[config]` header/family section of the METplus config file.

STORM_ID - The list of storm ids to include in the verification. If left empty/unassigned (ie `STORM_ID =`), then all storm ids in the track files will be included in the verification. This variable is located under the `[config]` header/family section of the METplus config file.

BASIN - A list of basins of interest. If left empty/undefined, then all basins are included in the verification. This variable is found under the `[config]` header/family section of the METplus config file.

CYCLONE - A list of cyclones to consider in the verification. If this is left empty/unassigned, then all cyclones will be considered in the verification. This variable is found in the `[config]` header/family section of the METplus config file.

STORM_NAME - A list of storm names to include in the verification. If this is left empty/unassigned, then all storm names are included in the verification. This variable is found in the `[config]` header/family section of the METplus config file.

DLAND_FILE - The full path of the file that has the gridded representation of the minimum distance from land. This variable is found under the `[config]` header/family section of the METplus config file.

TRACK_TYPE - This is used to determine whether the Adeck and Bdeck data are in ATCF format or not. If left empty/unassigned, then the input data is in ATCF format and the wrapper does not attempt to perform any reformatting. If set to `'extra_tropical_cyclone'` (this is the non-ATCF format of data like that provided in the sample data in the tutorial tar ball) then the wrapper will reformat it to an ATCF format (which the MET `tc_pairs` tools requires). This variable is found in the `[config]` header/family section of the METplus config file.

ADECK_FILE_PREFIX - This is the prefix to the Adeck files if the input Adeck file is the same format as the data included in the sample data tutorial tar ball. Leave this empty/undefined when dealing with ATCF formatted data. This variable is found under the `[config]` header/family section of the METplus config file.

BDECK_FILE_PREFIX - This is the prefix that describes the Bdeck files when the input Bdeck file is the same format as the data included in the sample data tutorial tar ball. Leave this empty/undefined if your data is ATCF formatted. This variable is found in the `[config]` header/family section of the METplus config file.

MISSING_VAL_TO_REPLACE - This is applicable only if using the sample data in the tutorial tar ball, which is the extra tropical cyclone data (i.e. data that is in a non-ATCF format). This is the value used to replace the value of the data's original missing value.

MISSING_VAL - For non-ATCF, extra tropical cyclone data (such as the data supplied in the `feature_relative` tutorial tar ball), this is the value used to define missing values.

3.17 TcStat

3.17.1 Description

Used to configure the MET tool `tc_stat`.

3.17.2 Configuration

3.18 TCMPRPlotter

3.18.1 Description

The `tcmpr_plotter_wrapper` is a Python script that wraps the R script `plot_tcmpr.R`. This script is useful for plotting the calculated statistics for the output from the MET-TC tools. This script, and other R scripts are included in the MET installation. Please refer to section 21.2.3 of the MET User's Guide for usage information.

3.18.2 Configuration

The following are configuration settings that correspond to the `tcmpr_plotter` wrapper. A description of what these values represent are found in the appendix in chapter 4, METplus System Configuration

LOOP ORDER

CONFIG_FILE

PREFIX

TITLE

SUBTITLE

XLAB

YLAB

XLIM

YLIM

FILTER

FILTERED_TCST_DATA_FILE

DEP_VARS

SCATTER_X

SCATTER_Y

SKILL_REF

SERIES

SERIES_CI

LEGEND

LEAD

PLOT_TYPES

RP_DIFF

DEMO_YR

HFIP_BASELINE

FOOTNOTE_FLAG

PLOT_CONFIG_OPTS

SAVE_DATA

The following are TCMPR flags, if set to 'no', then don't set flag, if set to 'yes', then set the flag

NO_EE

NO_LOG

SAVE

TCMPR_DATA

TCMPR_PLOT_OUTPUT_DIR

Deprecated:

TCMPR_PLOT_OUT_DIR

3.19 WaveletStat

3.19.1 Description

NOTE: This wrapper has not been tested for use in METplus.

Chapter 4

METplus System Configuration

This chapter is a guide on configuring METplus.

4.1 Config Best Practices

Below is a list of Best Practices:

1. Set your log level to an appropriate level.
 - (a) Debug is the most verbose and is useful for developers and when you are troubleshooting problems
 - (b) Info is the less verbose than Debug and is the recommended level to initially set your log level
 - (c) Warning - only logs warnings, error or critical events
 - (d) Error - only logs errors or critical events
 - (e) Critical is the least verbose
2. Direct your logging either to stdout or to a log file.
3. Review your log file to verify that all your processes ran cleanly.
4. The order in which you list your METplus config files matter. The last config file on the command line will over-ride any key-values defined in an earlier config file.
5. Check the master_metplus.conf file, as it contains all the key-values based on what you have specified. This will help you determine whether you forgot to replace any */path/to* with valid paths or to verify that you have defined things as you expected.

4.2 Config File Structure

METplus employs a hierarchy of configuration files employed in METplus. At the lowest level are the “set-and-forget” type configuration files that reside in the *METplus_installation_dir/parm/metplus_config*. At the next level are the configuration files that pertain to a user’s specific needs in the *METplus_installation_dir/parm/use_cases/specific_use_case*

- Four configuration files are required for METplus to be fully configured (i.e. all keywords are defined by either whitespace or a valid value):
 - metplus_system
 - metplus_data
 - metplus_logging
 - metplus_runtime

By default, key-values that require the user’s input are set to */path/to*. Make sure to replace these with the appropriate directory for your project.

- Additional configuration files are optional and the key-values defined there will over-ride any values defined in the four mandatory METplus configuration files. These additional configuration files enables users to use a common set of configuration files and to create customized environments for their verification tasks.

4.3 Common Config Variables

4.3.1 Timing Control

Mention LOOP_BY (deprecated LOOP_BY_INIT), [INIT/VALID]_TIME_FMT, [INIT/VALID]_BEG, [INIT/VALID]_END, [INIT/VALID]_INCREMENT, LEAD_SEQ, INIT_SEQ, LEAD_SEQ_[MIN/MAX]

Describe ‘now’ functionality including shift and truncate

4.3.2 Field Info

Mention [FCST/OBS]_VAR[N]_[NAME/LEVEL/THRESH/OPTIONS] and how they translate to MET field info dictionary format

Mention if FCST_VAR[N]_NAME or LEVEL is missing but OBS_ equivalent is, it will use the same value for both. The same is not true for THRESH and OPTIONS

ENS_* equivalents are also available for use in ensemble_stat if you want different ensemble info from fcst and obs

4.3.3 Directory and Filename Template Info

Mention how filename templates work in regard to time

Mention how input directories are traversed if OBS_[APP_NAME]_WINDOW_[BEGIN/END] are non-zero

Mention time shifting in filename templates

4.4 Config Quick Start Example

Track and Intensity Use case with sample data

- Create a directory where you wish to store the sample data
- Retrieve the sample data from the GitHub repository:
 - In your browser, navigate to <https://github.com/NCAR/METplus/releases>
 - locate the latest release and click on the sample_data.tar.gz link associated with that release
 - save it to the directory you created above, hereafter referred to as INPUT_DATA_DIRECTORY
 - cd to your \$INPUT_DATA_DIRECTORY and uncompress the tarball: `tar xvfz sample_data.tar.gz`
 - when you perform a listing of the sample_data directory, the INPUT_DATA_DIRECTORY/sample_data/GFS contains the data you will need for this use case
- Set up the configuration file:
 - Your METplus install directory will hereafter be referred to as METplus_INSTALL
 - Verify that all the *path/to* values are replaced with valid paths in the METplus_INSTALL/parm/metplus_conf/metplus_system.conf files
 - Two configuration files are used in this use case, track_and_intensity.conf file and tcmp_mean_median.conf to take cyclone track data, and using tc_pairs_wrapper.py which wraps the MET TC-Pairs tool (to match ADeck and BDeck cyclone tracks to generate matched pairs and error statistics). The tcmp_plotter_wrapper.py is then used (wraps the MET tool plot_tcmp.R) to generate a mean and median plots for these matched pairs.
 - In your editor, open the METplus_INSTALL/METplus/parm/use_cases/track_and_intensity.conf file:
 - * You will replace any */path/to* with actual paths by setting the following:
 - * PARM_BASE to the path to where you installed METplus, appended with with 'parm':
METplus_INSTALL/all_users/METplus/parm
 - * OUTPUT_BASE to where you wish to save the output:
 - ADECK_TRACK_DATA_DIR to INPUT_DATA_DIRECTORY/sample_data/GFS/track_data

- * save your changes and exit your editor
 - * In your editor, open the METplus_INSTALL/METplus/parm/use_cases/track_and_intensity/examples/tcmpr
 - * Verify that PROCESS_LIST is set to TcPairs, TCMPRPlotter. This instructs METplus to run the TcPairs wrapper first (TC-Pairs) followed by the TCMPR plotter wrapper (plot_TCMPR.R).
- Run the use case:
 - Make sure you have set the following environment in your .cshrc (C shell) or .bashrc (Bash):
 - * csh: setenv RSCRIPTS_BASE \$MET_BASE/scripts/Rscripts
 - * bash: export RSCRIPTS_BASE \$MET_BASE/scripts/Rscripts
 - * Refer to Section 2.7 for the full instructions on setting up the rest of your environment
 - * on your command line, run:
 - master_metplus.py -c use_cases/track_and_intensity/track_and_intensity.conf -c use_cases/track_and_intensity
 - * When complete, you will have a log file in the output directory you specified, and under the tc_pairs directory you will see .tcst files under the 201412 subdirectory. These are the matched pairs created by the MET tool Tc-pairs and can be viewed in any text editor.
 - * Plots are generated under the tcmpr_plots subdirectory, in .png format. You should have the following plots which can be viewed by any graphics viewers such as 'display' on Linux/Unix hosts:
 - AMAX_WIND-BMAX_WIND_mean.png
 - AMAX_WIND-BMAX_WIND_median.png
 - AMSLP-BMSLP_mean.png
 - AMSLP-BMSLP_median.png
 - TK_ERR_mean.png
 - TK_ERR_median.png

4.5 A-Z Config Glossary

This glossary was created from the two commands:

```
$ cat METplus/parm/metplus_config/*.conf METplus/parm/use_cases/**/*.conf METplus/parm/use_cases/**/*.conf
> allopts.conf
$ grep = allopts.conf | grep -v \# | sort | uniq > uniqueopts.conf
```

General form of glossary entry:

CONFIG_NAME_HERE

...Some description here...

Used by: Which METplus utility is this used by?

Family: Which family? [dir], [config], [filename_temUpdates], [exe], [regex_pattern], etc...

Default: If it makes sense to include a default value (or value shipped in a release), do it here

4.5.1 A

ADECK_FILE_PREFIX

Prefix of the files in ATCF format containing tropical cyclone forecast data (“adeck” matched pairs).

Used by: tc_pairs_wrapper.py

Family: [config]

Default: Varies

ADECK_TRACK_DATA_DIR

Directory that contains the ATCF formatted files containing tropical cyclone forecast data (“adeck” matched pairs).

Used by: tc_pairs_wrapper.py

Family: [dir]

Default: Varies

AMODEL

The model name of the ADeck model data

Used by: cyclone_plotter_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default:

ONLY_ASCII_REGEX_LEAD

The regular expression describing the analysis (obs) file name (in ASCII format) of the intermediate file generated when running a series by lead case.

Used by: series_by_lead_wrapper.py

Family: [regex_pattern]

Default:

ANLY_NC_TILE_REGEX

The regular expression used to search the input files that are in netCDF format and used in the series by analysis task.

Used by: series_by_lead_wrapper.py, series_by_init_wrapper.py

Family: [regex_pattern]

Default:

ANLY_TILE_PREFIX

The prefix to the filename for the analysis file that is created as part of a series analysis.

Used by: feature_util.py

Family: [regex_pattern]

Default:

ANLY_TILE_REGEX

The regular expression for the analysis input file the file is in GRIB2.

Used by: series_by_lead_wrapper.py, series_by_init_wrapper.py

Family: [regex_pattern]

Default:

4.5.2 B

BACKGROUND_MAP

Control whether or not a background map shows up for series analysis plots. Set to 'yes' if background map desired.

Used by: series_by_lead_wrapper.py, series_by_init_wrapper.py

Family: [config]

Default: no

BASIN

Control what basins are desired for tropical cyclone analysis.

Per the MET users' guide, acceptable basin ID's are:

WP = Western Northern Pacific

IO = Northern Indian Ocean

SH = Southern Hemisphere

CP = Central Northern Pacific

EP = Eastern Northern Pacific

AL = Northern Atlantic

SL = Southern Atlantic

Used by: cyclone_plotter_wrapper.py, tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

BDECK_FILE_PREFIX

Relevant for non-ATCF tropical cyclone data. The filename prefix for the BDeck data.

Used by: tc_pairs_wrapper.py

Family: [config]

Default: Varies

BDECK_TRACK_DATA_DIR

The input directory where the BDeck track data resides.

Used by: tc_pairs_wrapper.py

Family: [dir]

Default: Varies

BEG_TIME

Beginning time for analysis in YYYYMMDD format.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py

Family: [config]

Default: Varies

BMODEL

The model name of the BDeck model data.

Used by: tc_stat_wrapper.py

Family: [config]

Default:

4.5.3 C

CI_METHOD

The method for creating confidence intervals.

Used by: make_plots_wrapper.py

Family: [config]

Default:

Control the size of the circle marker in the cyclone plotter.

Used by: cyclone_plotter_wrapper.py

Family: [config]

Default: 41

CLOCK_TIME

Automatically set by METplus with the time that METplus was started. Setting this variable has no effect as it will be overwritten. Can be used for reference in metplus_final.conf or used with other config variables.

Used by: All

Family: [config]

Default: Set automatically to current clock time in %Y%m%d%H%M%S format

CONFIG_DIR

Directory containing config files relevant to MET tools.

Used by: compare_gridded_wrapper.py, ensemble_stat_wrapper.py, grid_stat_wrapper.py, mode_wrapper.py, stat_analysis_wrapper.py

Family: [dir]

Default: Varies

CONFIG_FILE

Specific configuration file name to use for MET tools.

Used by: grid_stat_wrapper.py, mode_wrapper.py, tcmpr_plotter_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

CONVERT_EXE

Path to the ImageMagick “convert” executable.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py, series_by_init_wrapper.py, series_by_lead_wrapper.py

Family: [exe]

Default: /path/to

COV_THRESH

Specify the values of the COV_THRESH column in the MET .stat file to use.

Used by: stat_analysis_wrapper.py

Family: [config]

Default:

CROSS_MARKER

Control the size of the cross marker in the cyclone plotter.

Used by: cyclone_plotter_wrapper.py

Family: [config]

Default: 51

CUT_EXE

Path to the Linux “cut” executable.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py

Family: [exe]

Default: /path/to

CYCLONE

Specify which cyclone numbers to include in the tropical cyclone analysis. Per the MET users’ guide, this can be any number 01-99 (HH format). Use a space or comma separated list, or leave unset if all cyclones are desired.

Used by: tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

CYCLONE_INIT_DATE

Initialization date for the cyclone forecasts in YYYYMMDD format.

Used by: cyclone_plotter_wrapper.py

Family: [config]

Default: Varies

CYCLONE_INIT_HR

Initialization hour for the cyclone forecasts in HH format.

Used by: cyclone_plotter_wrapper.py

Family: [config]

Default: Varies

CYCLONE_INPUT_DIR

Input directory for the cyclone plotter. This should be the output directory for the MET TC Pairs utility.

Used by: cyclone_plotter_wrapper.py

Family: [dir]

Default: Varies

CYCLONE_MODEL

Define the model being used for the tropical cyclone forecasts.

Used by: cyclone_plotter_wrapper.py

Family: [config]

Default: Varies

CYCLONE_OUT_DIR

Specify the directory where the output from the cyclone plotter should go.

Used by: cyclone_plotter_wrapper.py

Family: [dir]

Default: Varies

CYCLONE_PLOT_TITLE

Title string for the cyclone plotter.

Used by: cyclone_plotter_wrapper.py

Family: [config]

Default: Varies

4.5.4 D**DEMO_YR**

The demo year. This is an optional value used by the plot_TCMR.R script, (which is wrapped by tcmr_plotter_wrapper.py). Please refer to Chapter 21 in the MET User's Guide for more details.

Used by: tcmr_plotter_wrapper.py

Family: [config]

Default: Varies

DEP_VARS

Corresponds to the optional flag -dep in the plot_TCMR.R script, which is wrapped by tcmr_plotter_wrapper.py. The value to this flag is a comma-separated list (no whitespace) of dependent variable columns to plot (e.g.

AMSLP-BMSLP, AMAX_WIND-BMAX_WIND, TK_ERR). If this is undefined, then the default plot for TK_ERR (track error) is generated. Note, if you want the track error plot generated, in addition to other plots, then you need to explicitly list this with the other variables. Please refer to Chapter 21 in the MET User's Guide for more details.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

DESC

Specify the values of the DESC column in the MET .stat file to use.

Used by: stat_analysis_wrapper.py

Family: [config]

Default: Varies

DLAND_FILE

The file generated by the MET tool tc_dland, containing the gridded representation of the minimum distance to land. Please refer to Chapter 18 of the MET User's Guide for more information about the tc_dland tool.

Used by: tc_pairs_wrapper.py

Family: [config]

Default: Varies

DLAT

The latitude value, in degrees.

Used by: met_util.py

Family: [config]

Default: 0.5

DLON

The longitude value, in degrees.

Used by: met_util.py

Family: [config]

Default: 0.5

DO_NOT_RUN_EXE

True/False. If True, applications will not run and will only output command that would have been called.

Used by: command_runner.py

Family: [config]

Default: False

4.5.5 E

EGREP_EXE

Path to the Linux “egrep” executable.

Used by: feature_util.py, pb2nc_wrapper.py, point_stat_wrapper.py

Family: [exe]

Default: /path/to

END_DATE

Ending time/date string for analysis with format YYYYMMDDHH.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py

Family: [config]

Default: Varies

END_HOUR

Ending hour for analysis with format HH.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py

Family: [config]

Default: Varies

END_TIME

Ending date string for analysis with format YYYYMMDD.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py

Family: [config]

Default: Varies

EVENT_EQUALIZATION

If event equalization is to be used (True) or not (False).

Used by: make_plots_wrapper.py

Family: [config]

Default: True

Set the output directory for the METplus extract_tiles utility.

Used by: extract_tiles_wrapper.py, series_by_init_wrapper.py, series_by_lead_wrapper.py

Family: [dir]

EXTRACT_C

Default: Varies

EXTRACT_TILES_FILTER_OPTS

Control what options are passed to the METplus extract_tiles utility.

Used by: extract_tiles_wrapper.py

Family: [config]

Default: Varies

EXTRACT_TILES_VAR_LIST

Control what variables the METplus extract_tiles utility runs on.

Used by: feature_util.py

Family: [config]

Default: Varies

4.5.6 F

[deprecated] FCST_EXACT_VALID_TIME

No longer used. Please use FCST_WINDOW_BEGIN and FCST_WINDOW_END instead. If both of those variables are set to 0, the functionality is the same as FCST_EXACT_VALID_TIME = True.

Used by: grid_stat_wrapper.py mode_wrapper.py, mtd_wrapper.py

Family: [config]

Default: False

FCST_[N]_FIELD_NAME

This variable is used to define a [N] hour accumulation NetCDF field in the forecast dataset used in the MET tool pcp_combine. [N] must be an integer ≥ 1 .

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

FCST_ASCII_REGEX_LEAD

Regular expression used to find the forecast file (ASCII format) generated as an intermediate step in the series by lead use case.

Used by: series_by_lead_wrapper.py

Family: [regex_pattern]

Default: Varies

[deprecated] FCST_GEMPAK_INPUT_DIR

Input directory for GEMPAK formatted forecast files. Use GEMPAKTOCF_INPUT_DIR if GempakToCF is in the PROCESS_LIST.

Used by:

Family: [dir]

Default: Varies

[deprecated] FCST_GEMPAK_TEMPLATE

Template used to specify input filenames for GEMPAK formatted forecast files. Use GEMPAKTOCF_INPUT_TEMPLATE if GempakToCF is in the PROCESS_LIST.

Used by:

Family: [filename_templates]

Default: Varies

FCST_GRID_STAT_INPUT_DATATYPE

Specify the data type of the input directory for forecast files used with the MET grid_stat tool. Currently valid options are NETCDF, GRIB, and GEMPAK. If set to GEMPAK, data will automatically be converted to NetCDF via GempakToCF.

Used by: grid_stat_wrapper.py

Family: [config]

Default: Varies

FCST_GRID_STAT_INPUT_DIR

Input directory for forecast files to use with the MET tool grid_stat.

Used by: grid_stat_wrapper.py

Family: [dir]

Default: Varies

FCST_GRID_STAT_INPUT_TEMPLATE

Template used to specify forecast input filenames for the MET tool grid_stat.

Used by: grid_stat_wrapper.py

Family: [filename_templates]

Default: Varies

FCST_GRID_STAT_PROB_THRESH

Threshold values to be used for probabilistic data in grid_stat. The value can be a single item or a comma separated list of items that must start with a comparison operator (>, >=, ==, !=, <, <=, gt, ge, eq, ne, lt, le).

Used by: grid_stat_wrapper.py

Family: [config]

Default: ==0.1

[deprecated] FCST_HR_END

Please use LEAD_SEQ instead.

Used by:

Family: [config]

Default:

[deprecated] FCST_HR_INTERVAL

Please use LEAD_SEQ instead.

Used by:

Family: [config]

Default:

[deprecated] FCST_HR_START

Please use LEAD_SEQ instead.

Used by:

Family: [config]

Default:

[deprecated] FCST_INIT_INTERVAL

Specify the stride for forecast initializations.

Used by: compare_gridded_wrapper.py, ensemble_stat_wrapper.py, grid_stat_wrapper.py, mode_wrapper.py

Family: [config]

Default: Varies

[deprecated] FCST_INPUT_DIR_REGEX

Please use FCST_POINT_STAT_INPUT_DIR instead.

Used by: point_stat_wrapper.py

Family: [regex_pattern]

Default: Varies

[deprecated] FCST_INPUT_DIR

Specify the input directory for the forecast files. Use FCST_[MET-APP]_INPUT_DIR instead, i.e. FCST_GRID_STAT_I

Used by: compare_gridded_wrapper.py, grid_stat_wrapper.py, mode_wrapper.py, point_stat_wrapper.py, pcp_combine_wrapper.py

Family: [dir]

Default: Varies

[deprecated] FCST_INPUT_FILE_REGEX

Regular expression to use when identifying which forecast file to use.

Used by: point_stat_wrapper.py

Family: [regex_pattern]

Default: Varies

[deprecated] FCST_INPUT_FILE_TMPL

Please use FCST_POINT_STAT_INPUT_TEMPLATE instead.

Used by: point_stat_wrapper.py

Family: [filename_templates]

Default: Varies

[deprecated] FCST_IS_DAILY_FILE

Please use FCST_PCP_COMBINE_IS_DAILY_FILE instead.

Acceptable values: true/false

Used by: pcp_combine_wrapper.py

Family: [config]

Default: False

FCST_IS_PROB

Specify whether the forecast data are probabilistic or not.

Acceptable values: true/false

Used by: compare_gridded_wrapper.py, ensemble_stat_wrapper.py, grid_stat_wrapper.py, mode_wrapper.py

Family: [config]

Default: False

FCST_LEAD

Specify the values of the FCST_LEAD column in the MET .stat file to use.

Used by: stat_analysis_wrapper.py

Family: [config]

Default: Varies

[deprecated] FCST_LEVEL

Please use FCST_PCP_COMBINE_INPUT_LEVEL instead.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

FCST_MAX_FORECAST

Specify the maximum forecast lead time to use for the analysis.

Used by: compare_gridded_wrapper.py, ensemble_stat_wrapper.py, grid_stat_wrapper.py, mode_wrapper.py

Family: [config]

Default: Varies

FCST_MODE_INPUT_DATATYPE

Specify the data type of the input directory for forecast files used with the MET mode tool. Currently valid options are NETCDF, GRIB, and GEMPAK. If set to GEMPAK, data will automatically be converted to NetCDF via GempakToCF.

Used by: mode_wrapper.py

Family: [config]

Default: Varies

FCST_MODE_INPUT_DIR

Input directory for forecast files to use with the MET tool mode.

Used by: mode_wrapper.py

Family: [dir]

Default: Varies

FCST_MODE_INPUT_TEMPLATE

Template used to specify forecast input filenames for the MET tool mode.

Used by: mode_wrapper.py

Family: [filename_templates]

Default: Varies

FCST_MTD_INPUT_DATATYPE

Specify the data type of the input directory for forecast files used with the MET mode-TD tool. Currently valid options are NETCDF, GRIB, and GEMPAK. If set to GEMPAK, data will automatically be converted to NetCDF via GempakToCF.

Used by: mtd_wrapper.py

Family: [config]

Default: Varies

FCST_MTD_INPUT_DIR

Input directory for forecast files to use with the MET tool mode-TD.

Used by: mtd_wrapper.py

Family: [dir]

Default: Varies

FCST_MTD_INPUT_TEMPLATE

Template used to specify forecast input filenames for the MET tool mode-TD.

Used by: mtd_wrapper.py

Family: [filename_templates]

Default: Varies

[deprecated] FCST_NATIVE_DATA_TYPE

Specify the data format of the forecast data. Use FCST_PCP_COMBINE_INPUT_DATATYPE instead

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

FCST_NC_TILE_REGEX

Define the regular expression for input forecast files that are in netCDF.

Used by: series_by_lead_wrapper.py, series_by_init_wrapper.py

Family: [regex_pattern]

Default: Varies

FCST_PCP_COMBINE_DATA_INTERVAL

Specify the accumulation interval of the forecast dataset used by the MET pcp_combine tool when processing daily input files.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

FCST_PCP_COMBINE_DERIVE_LOOKBACK

Specify how far to look back in time in hours to find files for running the MET pcp_combine tool in derive mode.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: ADD

FCST_PCP_COMBINE_INPUT_DATATYPE

Specify the data type of the input directory for forecast files used with the MET pcp_combine tool. Currently valid options are NETCDF, GRIB, and GEMPAK. Required by pcp_combine if FCST_PCP_COMBINE_RUN is True. Replaces deprecated variable FCST_NATIVE_DATA_TYPE.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

FCST_PCP_COMBINE_INPUT_DIR

Specify the input directory for forecast files used with the MET pcp_combine tool.

Used by: pcp_combine_wrapper.py

Family: [dir]

Default: Varies

FCST_PCP_COMBINE_INPUT_LEVEL

Specify what accumulation level should be used from the forecast data for the analysis. Used only when running pcp_combine with SUBTRACT mode set or processing accumulation files that do not have the accumulation specified in the filename template.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

FCST_PCP_COMBINE_INPUT_TEMPLATE

Template used to specify input filenames for forecast files used by the MET pcp_combine tool.

Used by: pcp_combine_wrapper.py

Family: [filename_templates]

Default: Varies

FCST_PCP_COMBINE_IS_DAILY_FILE

Specify whether the forecast file is a daily file or not.

Acceptable values: true/false

Used by: pcp_combine_wrapper.py

Family: [config]

Default: False

FCST_PCP_COMBINE_METHOD

Specify the method to be used with the MET pcp_combine tool processing forecast data.

Valid options are ADD, SUM, SUBTRACT, and DERIVE.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: None

FCST_PCP_COMBINE_[MIN/MAX]_FORECAST

Specify the minimum or maximum forecast lead time to use when finding the lowest forecast lead to use in pcp_combine.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

FCST_PCP_COMBINE_OUTPUT_DIR

Specify the output directory for forecast files generated by the MET pcp_combine tool.

Used by: pcp_combine_wrapper.py

Family: [dir]

Default: Varies

FCST_PCP_COMBINE_OUTPUT_TEMPLATE

Template used to specify output filenames for forecast files generated by the MET pcp_combine tool.

Used by: pcp_combine_wrapper.py

Family: [filename_templates]

Default: Varies

FCST_PCP_COMBINE_RUN

Specify whether to run the MET pcp_combine tool on forecast data or not.

Acceptable values: true/false

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

FCST_PCP_COMBINE_STAT_LIST

List of statistics to process when using the MET pcp_combine tool on forecast data in derive mode.

Acceptable values: sum, min, max, range, mean, stdev, vld_count

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

FCST_PCP_COMBINE_TIMES_PER_FILE

Specify the number of accumulation intervals of the forecast dataset used by the MET pcp_combine tool when processing daily input files.

Used by: pcp_combine_wrapper.py

Family: [config]

Default:

FCST_REGRID_DATA_PLANE_INPUT_DATATYPE

Specify the data type of the input directory for forecast files used with the MET regrid_data_plane tool. Currently valid options are NETCDF, GRIB, and GEMPAK. Required by pcp_combine.

Used by: regrid_data_plane_wrapper.py

Family: [config]

Default: Varies

FCST_REGRID_DATA_PLANE_INPUT_DIR

Specify the input directory for forecast files used with the MET regrid_data_plane tool.

Used by: regrid_data_plane_wrapper.py

Family: [dir]

Default: Varies

FCST_REGRID_DATA_PLANE_INPUT_TEMPLATE

Template used to specify input filenames for forecast data used by the MET regrid_data_plane tool. If not set, METplus will use FCST_REGRID_DATA_PLANE_TEMPLATE.

Used by: regrid_data_plane_wrapper.py

Family: [filename_templates]

Default: Varies

FCST_REGRID_DATA_PLANE_OUTPUT_TEMPLATE

Template used to specify output filenames for forecast data used by the MET regrid_data_plane tool. If not set, METplus will use FCST_REGRID_DATA_PLANE_TEMPLATE.

Used by: regrid_data_plane_wrapper.py

Family: [filename_templates]

Default: Varies

FCST_REGRID_DATA_PLANE_TEMPLATE

Template used to specify filenames for forecast data used by the MET regrid_data_plane tool. To specify different templates for input and output files, use FCST_REGRID_DATA_PLANE_INPUT_TEMPLATE and FCST_REGRID_DATA_PLANE_OUTPUT_TEMPLATE.

Used by: regrid_data_plane_wrapper.py

Family: [filename_templates]

Default: Varies

FCST_REGRID_DATA_PLANE_OUTPUT_DIR

Specify the output directory for forecast files used with the MET regrid_data_plane tool.

Used by: regrid_data_plane_wrapper.py

Family: [dir]

Default: Varies

FCST_THRESH

Specify the values of the FCST_THRESH column in the MET .stat file to use.

Used by: stat_analysis_lead_wrapper.py

Family: [config]

Default:

FCST_TILE_PREFIX

Prefix for forecast tile files. Used to create filename of intermediate files that are created while performing a series analysis.

Used by: feature_util.py

Family: [regex_pattern]

Default: Varies

FCST_TILE_REGEX

Regular expression for forecast input files that are in GRIB2.

Used by: series_by_init_wrapper.py, series_by_lead_wrapper.py

Family: [regex_pattern]

Default: Varies

[deprecated] FCST_VAR

Define the name of the forecast variable to be used in the analysis. See FCST_VAR[N]_NAME, FCST_VAR[N]_LEVELS, FCST_VAR[N]_THRESH, and FCST_VAR[N]_OPTIONS where [N] = integer ≥ 1 .

Used by: compare_gridded_wrapper.py, ensemble_stat_wrapper.py, make_plots_wrapper.py, met_util.py

Family: [config]

Default: Varies

FCST_VAR_LEVEL

Specify the values of the FCST_VAR_LEVEL column in the MET .stat file to use.

Used by: stat_analysis_wrapper.py

Family: [config]

Default: Varies

FCST_VAR_NAME

Specify the values of the FCST_VAR_NAME column in the MET .stat file to use.

Used by: stat_analysis_wrapper.py

Family: [config]

Default: Varies

FCST_VAR[N]_LEVELS

Define the levels for the [N]th forecast variable to be used in the analysis where [N] is an integer ≥ 1 . The value can be a single item or a comma separated list of items. You can define NetCDF levels, such as (0,*,*), but you will need to surround these values with quotation marks so that the commas in the item are not interpreted as an item delimiter. Some examples:

```
FCST_VAR1_LEVELS = A06, P500
FCST_VAR2_LEVELS = "(0,*,*)", "(1,*,*)"
```

If FCST_VAR[N]_LEVELS is not set but OBS_VAR[N]_LEVELS is, the same information will be used for both variables. There can be [N] number of these variables defined in configuration files, simply increment the “_VAR1_” string to match the total number of variables being used, e.g.:

```
FCST_VAR1_LEVELS
FCST_VAR2_LEVELS
...
FCST_VAR[N]_LEVELS
```

Used by: make_plots_wrapper.py, met_util.py

Family: [config]

Default: Varies

FCST_VAR[N]_NAME

Define the name for the [N]th forecast variable to be used in the analysis where [N] is an integer ≥ 1 . If FCST_VAR[N]_NAME is not set but OBS_VAR[N]_NAME is, the same information will be used for both variables. There can be [N] number of these variables defined in configuration files, simply increment the “_VAR1_” string to match the total number of variables being used, e.g.:

```
FCST_VAR1_NAME
FCST_VAR2_NAME
...
FCST_VAR[N]_NAME
```

Used by: make_plots_wrapper.py, met_util.py

Family: [config]

Default: Varies

FCST_VAR[N]_OPTIONS

Define the options for the [N]th forecast variable to be used in the analysis where [N] is an integer ≥ 1 . These addition options will be applied to every name/level/threshold combination for VAR[N]. If FCST_VAR[N]_OPTIONS is not set but OBS_VAR[N]_OPTIONS is, the same information will be used for both variables. There can be [N] number of these variables defined in configuration files, simply increment the “_VAR1_” string to match the total number of variables being used, e.g.:

```
FCST_VAR1_OPTIONS
FCST_VAR2_OPTIONS
...
FCST_VAR[N]_OPTIONS
```

Used by: make_plots_wrapper.py, met_util.py

Family: [config]

Default: Varies

FCST_VAR[N]_THRESH

Define the threshold(s) for the [N]th forecast variable to be used in the analysis where [N] is an integer ≥ 1 . The value can be a single item or a comma separated list of items that must start with a comparison operator ($>$, \geq , $=$, $!=$, $<$, \leq , gt , ge , eq , ne , lt , le). If FCST_VAR[N]_THRESH is not set but OBS_VAR[N]_THRESH is, the same information will be used for both variables. There can be [N] number of these variables defined in configuration files, simply increment the “_VAR1_” string to match the total number of variables being used, e.g.:

```
FCST_VAR1_THRESH
FCST_VAR2_THRESH
...
FCST_VAR[N]_THRESH
```

Used by: make_plots_wrapper.py, met_util.py

Family: [config]

Default: Varies

FHR_BEG

Specify the first forecast lead time to use in the analysis. Use in combination with FHR_END and FHR_INC.

Used by: series_by_lead_wrapper.py

Family: [config]

Default: Varies

FHR_END

Specify the last forecast lead time to use in the analysis. Use in combination with FHR_BEG and FHR_INC.

Used by: series_by_lead_wrapper.py

Family: [config]

Default: Varies

FHR_GROUP_BEG

Define which forecast lead time should be first in a group of forecast leads to use in the analysis. Use in combination with FHR_GROUP_END and FHR_INC.

Example:

```
FHR_GROUP_BEG = 24
FHR_GROUP_END = 42
FHR_INC = 6
```

List of forecast leads processed: [24, 30, 36, 42]

Used by: series_by_lead_wrapper.py

Family: [config]

Default: Varies

FHR_GROUP_END

Define which forecast lead time should be the last in a group of forecast leads to use in the analysis. Use in combination with FHR_GROUP_BEG and FHR_INC.

Example:

FHR_GROUP_BEG = 24

FHR_GROUP_END = 42

FHR_INC = 6

List of forecast leads processed: [24, 30, 36, 42]

Used by: series_by_lead_wrapper.py

Family: [config]

Default: Varies

FHR_GROUP_LABELS

Label strings to use for the forecast groups.

Used by: series_by_lead_wrapper.py

Family: [config]

Default: Varies

FHR_INC

Stride to use for incrementing forecast lead times used in the analysis. Use in combination with FHR_BEG and FHR_END or FHR_GROUP_BEG and FHR_GROUP_END.

Used by: series_by_lead_wrapper.py

Family: [config]

Default: Varies

FILTER

Corresponds to the optional -filter argument to the plot_TCMPR.R script which is wrapped by tcmpr_plotter_wrapper.py. This is a list of filtering options for the tc_stat tool.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

FILTERED_TCST_DATA_FILE

Corresponds to the optional -tcst argument to the plot_TCMPR.R script which is wrapped by tcmpr_plotter_wrapper.py. This is a tcst data file to be used instead of running the tc_stat tool. Indicate a full path to the data file.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

FOOTNOTE_FLAG

This corresponds to the optional -footnote flag in the plot_TCMPR.R script which is wrapped by tcmpr_plotter_wrapper.py. According to the plot_TCMPR.R usage, this flag is used to disable footnote (date).

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

FORECAST_TMPL

Filename template used to filter forecast files.

Used by: tc_pairs_wrapper.py

Family: [filename_templates]

Default: Varies

4.5.7 G

GEMPAKTOCF_INPUT_DIR

Specify the input directory for the tool used to convert GEMPAK files to netCDF.

Used by: gempak_to_cf_wrapper.py

Family: [dir]

Default: Varies

GEMPAKTOCF_INPUT_TEMPLATE

Filename template used for input files to the tool used to convert GEMPAK files to netCDF.

Used by: gempak_to_cf_wrapper.py

Family: [filename_templates]

Default: Varies

GEMPAKTOCF_OUTPUT_DIR

Specify the output directory for files generated by the tool used to convert GEMPAK files to netCDF.

Used by: gempak_to_cf_wrapper.py

Family: [dir]

Default: Varies

GEMPAKTOCF_OUTPUT_TEMPLATE

Filename template used for output files from the tool used to convert GEMPAK files to netCDF.

Used by: gempak_to_cf_wrapper.py

Family: [filename_templates]

Default: Varies

GENERATE_TRACK_ASCII

Specify whether or not to produce an ASCII file containing all of the tracks in the plot.

Acceptable values: true/false

Used by: cyclone_plotter_wrapper.py

Family: [conf]

Default: Varies

[deprecated] GEN_SEQ

Used by:

Family:

Default:

GFS_ONLY_FILE_TMPL

Filename template used to identify the GFS analysis file.

Used by: feature_util.py

Family: [filename_templates]

Default: Varies

GFS_FCST_FILE_TMPL

Filename templated used to identify the GFS forecast files.

Used by: feature_util.py

Family: [filename_templates]

Default: Varies

GRID_STAT_CONFIG

Specify the absolute path to the configuration file used by the MET grid_stat tool.

Used by: grid_stat_wrapper.py

Family: [config]

Default: Varies

GRID_STAT_ONCE_PER_FIELD

True/False. If True, grid_stat will run once to process all name/level/threshold combinations specified. If False, it will run once for each name/level. Some cases require this to be set to False, for example processing probabilistic forecasts or precipitation accumulations.

Used by: grid_stat_wrapper.py

Family: [config]

Default: False

GRID_STAT_OUT_DIR

Specify the output directory where files from the MET grid_stat tool are written.

Used by: grid_stat_wrapper.py

Family: [dir]

Default: Varies

4.5.8 H

HFIP_BASELINE

Corresponds to the optional -hfip_bsln flag in the plot_TCMR.R script which is wrapped by tcpr_plotter_wrapper.py. This is a string that indicates whether to add the HFIP baseline, and indicates the version (no, 0, 5, 10 year goal).

Used by: tcpr_plotter_wrapper.py

Family: [config]

Default: Varies

4.5.9 I

INIT_BEG

Specify the beginning initialization time to be used in the analysis. Format can be controlled by INIT_TIME_FMT.

Used by: command_builder.py, extract_tiles_wrapper.py, make_plots_wrapper.py, master_metplus.py, stat_analysis_wrapper.py, tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

INIT_END

Specify the ending initialization time to be used in the analysis. Format can be controlled by INIT_TIME_FMT.

Used by: command_builder.py, extract_tiles_wrapper.py, make_plots_wrapper.py, master_metplus.py, stat_analysis_wrapper.py, tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

INIT_EXCLUDE

Specify which, if any, forecast initializations to exclude from the analysis.

Used by: tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

INIT_HOUR_BEG

Specify the beginning initialization hour to be used in the analysis. Format is HHMM.

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

INIT_HOUR_END

Specify the ending initialization hour to be used in the analysis. Format is HH or HHMM.

Used by: extract_tiles_wrapper.py, make_plots_wrapper.py, stat_analysis_wrapper.py, tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

INIT_HOUR_INCREMENT

Specify a time increment for valid times for use in the analysis.

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

INIT_HOUR_METHOD

Specify the method for the treatment of valid hours.

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

INIT_INCLUDE

Specify which forecast initializations to include in the analysis.

Used by: tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

INIT_INCREMENT

Control the increment or stride to use when stepping between forecast initializations. Units are seconds.

Used by: command_builder.py, extract_tiles_wrapper.py, make_plots_wrapper.py, master_metplus.py, stat_analysis_wrapper.py, tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

INIT_TIME_FMT

Specify a formatting string to use for INIT_BEG and INIT_END.

Used by: command_builder.py, master_metplus.py

Family:

Default:

INTERP

Specify the interpolation used to create the MET .stat files.

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default:

INTERP_PTS

Specify the number of interpolation used to create the MET .stat files.

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default:

INTERVAL_T

Define the interval time in hours (HH) to be used by the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

4.5.10 J

JOB_ARGS

Specify stat_analysis job arguments to run.

Used by: stat_analysis_wrapper.py

Family: [config]

Default:

JOB_NAME

Specify stat_analysis job name to run.

Used by: stat_analysis_wrapper.py

Family: [config]

Default:

4.5.11 K**4.5.12 L****LAT_ADJ**

Specify a latitude adjustment, in degrees to be used in the analysis.

Used by: met_util.py

Family: [config]

Default: Varies

LEAD

For cyclone_plotter_wrapper.py, this refers to the column of interest in the input ASCII cyclone file.

In the tcmpr_plotter_wrapper.py, this corresponds to the optional -lead argument in the plot_TCMR.R script (which is wrapped by tcmpr_plotter.py). This argument is set to a comma-separated list of lead times (h) to be plotted.

In feature_util.py, this corresponds to the name of the column of interest in the input ASCII data file.

In tc_stat_wrapper.py, this corresponds to the name of the column of interest in the input ASCII data file.

Used by: cyclone_plotter_wrapper.py, tcmpr_plotter_wrapper.py, feature_util.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

LEAD_LIST

Specify a list of forecast leads to include in the analysis. Comma separated list format, e.g.:

0, 24, 48, 72, 96, 120

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

LEAD_SEQ

Specify the sequence of forecast lead times to include in the analysis. Comma separated list format, e.g.:
0, 6, 12

Used by: compare_gridded_wrapper.py, ensemble_stat_wrapper.py, gempak_to_cf_wrapper.py, grid_stat_wrapper.py, mode_wrapper.py, reformat_gridded_wrapper.py

Family: [config]

Default: Varies

LEGEND

The text to be includede in the legend of your plot.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

LINE_TYPE

Specify the MET STAT line types to be considered.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default:

LOG_DIR

Specify the directory where log files from MET and METplus should be written.

Used by: command_builder.py, met_util.py

Family: [dir]

Default: Varies

LOG_LEVEL

Specify the level of logging.

Everything above this level is sent to standard output. To quiet the output to a comfortable level, set this to “ERROR”.

Options (ordered MOST verbose to LEAST verbose):

NOTSET

DEBUG

INFO

WARNING

ERROR

CRITICAL

Used by: met_util.py

Family: [config]

Default: Varies

LOG_METPLUS

Control the filename of the METplus log file. Control the timestamp appended to the filename with LOG_TIMESTAMP_TEMPLATE. To turn OFF all logging, do not set this option.

Used by: master_metplus.py, met_util.py

Family: [config]

Default: Varies

LOG_MET_OUTPUT_TO_METPLUS

Control whether logging output from the MET tools is sent to the METplus log file, or individual log files for each MET tool.

Used by: command_runner.py

Family: [config]

Default: yes/no

LOG_MET_VERBOSITY

Control the verbosity of the logging from the MET tools.

0 = Least amount of logging (lowest verbosity)

5 = Most amount of logging (highest verbosity)

Used by: command_builder.py

Family: [config]

Default: 2

LOG_TIMESTAMP_TEMPLATE

Set the timestamp template for the METplus log file. Use Python strftime directives, e.g.

%Y%m%d for YYYYMMDD.

Used by: met_util.py

Family: [config]

Default: %Y%m%d

LOG_TIMESTAMP_USE_DATETIME

STrue/False. Determines which time to use for the log filenames. If True, use INIT_BEG if LOOP_BY_INIT is True or VALID_BEG if LOOP_BY_INIT is False. If False, use current time.

Used by: met_util.py

Family: [config]

Default: False

LON_ADJ

Specify a longitude adjustment, in degrees to be used in the analysis.

Used by: met_util.py

Family: [config]

Default: Varies

LOOP_BY

Control whether the analysis is processed across valid or initialization times.

Used by: command_builder.py, compare_gridded_wrapper.py, ensemble_stat_wrapper.py, grid_stat_wrapper.py, make_plots_wrapper.py, master_metplus.py, mode_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: true

LOOP_ORDER

Control the looping order for METplus. Valid options are “times” or “processes”. “times” runs all items in the PROCESS_LIST for a single run time, then repeat until all times have been evaluated. “processes” runs each item in the PROCESS_LIST for all times specified, then repeat for the next item in the PROCESS_LIST

Used by: make_plots_wrapper.py, master_metplus.py, pb2nc_wrapper.py, point_stat_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

4.5.13 M

METPLUS_BASE

This variable will automatically be set by METplus when it is started. It will be set to the location of METplus that is currently being run. Setting this variable in a config file will have no effect and will report a warning that it is being overridden.

Used by: All

Family: [dir]

Default: Location METplus is being run from

METPLUS_CONF

Provide the absolute path to the METplus final configuration file. This file will contain every configuration option and value used when METplus was run.

Used by: config_launcher.py

Family: [config]

Default: Varies

MET_BASE

The base directory where your MET installation resides.

Used by: cyclone_plotter_wrapper.py, extract_tiles_wrapper.py, master_metplus.py, met_util.py, pb2nc_wrapper.py, point_stat_wrapper.py, series_by_init_wrapper.py, series_by_lead_wrapper.py, tcmpr_plotter_wrapper.py, tc_pairs_wrapper.py, usage_wrapper.py

Family: [dir]

Default:

MET_BIN

The location of MET binaries.

Used by:

Family:

Default:

MET_BUILD_BASE

The base directory of the MET install. Only needed if using MET version 6.0

Used by: tcmpr_plotter_wrapper.py

Family: [dir]

Default: Varies

MET_INSTALL_DIR

The base directory of the MET install. To be defined when using MET version 6.1 and beyond

Used by: compare_gridded_wrapper.py, cyclone_plotter_wrapper.py, ensemble_stat_wrapper.py, extract_tiles_wrapper.py, feature_util.py, grid_stat_wrapper.py, mode_wrapper.py, pb2nc_wrapper.py, pcp_combine_wrapper.py, point_stat_wrapper.py, regrid_data_plane_wrapper.py, series_by_init_wrapper.py, series_by_lead_wrapper.py, stat_analysis_wrapper.py, tcmpr_plotter_wrapper.py, tc_pairs_wrapper.py, tc_stat_wrapper.py, wavelet_stat_wrapper.py

Family: [dir]

Default: Varies

MISSING_VAL

Specify the missing value code.

Used by: tc_pairs_wrapper.py

Family: [config]

Default: Varies

MISSING_VAL_TO_REPLACE

Specify the missing value code to replace.

Used by: tc_pairs_wrapper.py

Family: [config]

Default: Varies

MODEL

Specify the model name.

Used by: compare_gridded_wrapper.py, ensemble_stat_wrapper.py, stat_analysis_wrapper.py, tc_pairs_wrapper.py

Family: [config]

Default: Varies

MODEL1_NAME

Define the model name for the first model to be used in the analysis. There can be N number of models defined in configuration files, simply increment the “MODEL1_” string to match the total number of models being used, e.g.:

MODEL1_NAME

MODEL2_NAME

.

.

.

MODELN_NAME

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

MODEL1_NAME_ON_PLOT

Define the name the first model will be listed as on the plots. There can be N number of models defined in configuration files, simply increment the “MODEL1_” string to match the total number of models being used, e.g.:

MODEL1_NAME_ON_PLOT

MODEL2_NAME_ON_PLOT

.

.

.

MODELN_NAME_ON_PLOT

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

MODEL1_OBS_NAME

Define the observation name that was used to compare the first model to be. There can be N number of observation names defined in configuration files, simply increment the “MODEL1_” string to match the total number of models being used, e.g.:

MODEL1_OBS_NAME

MODEL2_OBS_NAME

.

.
.
MODELN_OBS_NAME

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

MODEL1_STAT_DIR

Define the stat file directory for the first model to be used in the analysis. There can be N number of model directories defined in configuration files, simply increment the “MODEL1_” string to match the total number of models being used, e.g.:

MODEL1_DIR
MODEL2_DIR

.
.
.
MODELN_DIR

Used by: stat_analysis_wrapper.py

Family: [config]

Default: Varies

MODEL_DATA_DIR

Specify the directory where the model data are located.

Used by: feature_util.py

Family: [dir]

Default: Varies

[deprecated] MODEL_NAME

Please use MODEL instead.

Used by: point_stat_wrapper.py

Family: [config]

Default: Varies

MODE_CONFIG

Path to mode configuration file.

Used by: mode_wrapper.py

Family: [config]

Default: Varies

MODE_CONV_RADIUS

Comma separated list of convolution radius values used by mode for both forecast and observation fields. Has the same behavior as setting `MODE_FCST_CONV_RADIUS` and `MODE_OBS_CONV_RADIUS` to the same value.

Used by: `mode_wrapper.py`

Family: [config]

Default: 5

MODE_CONV_THRESH

Comma separated list of convolution threshold values used by mode for both forecast and observation fields. Has the same behavior as setting `MODE_FCST_CONV_THRESH` and `MODE_OBS_CONV_THRESH` to the same value.

Used by: `mode_wrapper.py`

Family: [config]

Default: >0.5

MODE_FCST_CONV_RADIUS

Comma separated list of convolution radius values used by mode for forecast fields.

Used by: `mode_wrapper.py`

Family: [config]

Default: 5

MODE_FCST_CONV_THRESH

Comma separated list of convolution threshold values used by mode for forecast fields.

Used by: `mode_wrapper.py`

Family: [config]

Default: 5

MODE_FCST_MERGE_FLAG

Sets the `merge_flag` value in the mode config file for forecast fields. Valid values are NONE, THRESH, ENGINE, and BOTH.

Used by: `mode_wrapper.py`

Family: [config]

Default: THRESH

MODE_FCST_MERGE_THRESH

Comma separated list of merge threshold values used by mode for forecast fields.

Used by: `mode_wrapper.py`

Family: [config]

Default: >0.45

MODE_MERGE_CONFIG_FILE

Path to mode merge config file.

Used by: mode_wrapper.py

Family: [config]

Default: Varies

MODE_MERGE_FLAG

Sets the merge_flag value in the mode config file for both forecast and observation fields. Has the same behavior as setting MODE_FCST_MERGE_FLAG and MODE_OBS_MERGE_FLAG to the same value. Valid values are NONE, THRESH, ENGINE, and BOTH.

Used by: mode_wrapper.py

Family: [config]

Default: THRESH

MODE_MERGE_THRESH

Comma separated list of merge threshold values used by mode for forecast and observation fields. Has the same behavior as setting MODE_FCST_MERGE_THRESH and MODE_OBS_MERGE_THRESH to the same value.

Used by: mode_wrapper.py

Family: [config]

Default: >0.45

MODE_OBS_CONV_RADIUS

Comma separated list of convolution radius values used by mode for observation fields.

Used by: mode_wrapper.py

Family: [config]

Default: 5

MODE_OBS_CONV_THRESH

Comma separated list of convolution threshold values used by mode for observation fields.

Used by: mode_wrapper.py

Family: [config]

Default: 5

MODE_OBS_MERGE_FLAG

Sets the merge_flag value in the mode config file for observation fields. Valid values are NONE, THRESH, ENGINE, and BOTH.

Used by: mode_wrapper.py

Family: [config]

Default: THRESH

MODE_OBS_MERGE_THRESH

Comma separated list of merge threshold values used by mode for observation fields.

Used by: mode_wrapper.py

Family: [config]

Default: >0.45

MODE_OUT_DIR

Output directory to write mode files.

Used by: mode_wrapper.py

Family: [dir]

Default: Varies

MODE_QUILT

True/False. If True, run all permutations of radius and threshold.

Used by: mode_wrapper.py

Family: [config]

Default: False

MTD_CONFIG

Path to mode-TD configuration file.

Used by: mtd_wrapper.py

Family: [config]

Default: Varies

MTD_CONV_RADIUS

Comma separated list of convolution radius values used by mode-TD for both forecast and observation files. Has the same behavior as setting MTD_FCST_CONV_RADIUS and MTD_OBS_CONV_RADIUS to the same value.

Used by: mtd_wrapper.py

Family: [config]

Default: 5

MTD_CONV_THRESH

Comma separated list of convolution threshold values used by mode-TD for both forecast and observation files. Has the same behavior as setting MTD_FCST_CONV_THRESH and MTD_OBS_CONV_THRESH to the same value.

Used by: mtd_wrapper.py

Family: [config]

Default: >0.5

MTD_FCST_CONV_RADIUS

Comma separated list of convolution radius values used by mode-TD for forecast files.

Used by: mtd_wrapper.py

Family: [config]

Default: 5

MTD_FCST_CONV_THRESH

Comma separated list of convolution threshold values used by mode-TD for forecast files.

Used by: mtd_wrapper.py

Family: [config]

Default: >0.5

MTD_OBS_CONV_RADIUS

Comma separated list of convolution radius values used by mode-TD for observation files.

Used by: mtd_wrapper.py

Family: [config]

Default: 5

MTD_OBS_CONV_THRESH

Comma separated list of convolution threshold values used by mode-TD for observation files.

Used by: mtd_wrapper.py

Family: [config]

Default: >0.5

MTD_OUT_DIR

Ouput directory to write mode-TD files.

Used by: mtd_wrapper.py

Family: [dir]

Default: Varies

MTD_SINGLE_DATA_SRC

Only used ifMTD_SINGLE_RUN is True. Determines which data set to process. Valid options are FCST and OBS.

Used by: mtd_wrapper.py

Family: [config]

Default: FCST

MTD_SINGLE_RUN

Run mode-TD with -single option. Must set MTD_SINGLE_DATA_SRC to specify which data set to process.

Used by: mtd_wrapper.py

Family: [config]

Default: False

4.5.14 N**NCAP2_EXE**

Path to the “ncap2” executable.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py, series_by_lead_wrapper.py

Family: [exe]

Default: /path/to

NCDUMP_EXE

Path to the “ncdump” executable.

Used by: met_util.py, pb2nc_wrapper.py, point_stat_wrapper.py, series_by_lead_wrapper.py

Family: [exe]

Default: /path/to

NC_FILE_TMPL

File template used to match netCDF files used for analysis.

Used by: pb2nc_wrapper.py

Family: [filename_templates]

Default: Varies

NLAT

The number of latitude points.

Used by: met_util.py

Family: [config]

Default: Varies

NLON

The number of longitude points.

Used by: met_util.py

Family: [config]

Default: Varies

NO_EE

Set the “NO_EE” flag for the TC Matched Pairs plotting utility.

Acceptable values: yes/no

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: no

NO_LOG

Set the “NO_LOG” flag for the TC Matched Pairs plotting utility.

Acceptable values: yes/no

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: no

4.5.15 O

OBS_[N]_FIELD_NAME

This variable is used to define a [N] hour accumulation NetCDF field in the observation dataset used in the MET tool pcp_combine. [N] must be an integer ≥ 1 .

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

OBS_BUFR_VAR_LIST

Specify which BUFR codes to use from the observation dataset when using the MET pb2nc tool. Format is comma separated list, e.g.:

PMO, TOB, TDO

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

[deprecated] OBS_DATA_INTERVAL

Specify the accumulation interval of the observation dataset used by the MET pcp_combine tool.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

[deprecated] OBS_GEMPAK_INPUT_DIR

Specify the input directory for GEMPAK formatted observation files. Use GEMPAKTOCF_INPUT_DIR if running GempakToCF from the PROCESS_LIST.

Used by: pcp_combine_wrapper.py

Family: [dir]

Default: Varies

[deprecated] OBS_GEMPAK_TEMPLATE

Filename template used to filter GEMPAK formatted observation files. Use GEMPAKTOCF_INPUT_TEMPLATE if running GempakToCF from the PROCESS_LIST.

Used by: pcp_combine_wrapper.py

Family: [filename_templates]

Default: Varies

OBS_GRID_STAT_INPUT_DATATYPE

Specify the data type of the input directory for observation files used with the MET grid_stat tool. Currently valid options are NETCDF, GRIB, and GEMPAK. If set to GEMPAK, data will automatically be converted to NetCDF via GempakToCF.

Used by: grid_stat_wrapper.py

Family: [config]

Default: Varies

OBS_GRID_STAT_INPUT_DIR

Specify the directory where the input observation files are for the MET grid_stat tool.

Used by: grid_stat_wrapper.py

Family: [dir]

Default: Varies

OBS_GRID_STAT_INPUT_TEMPLATE

Filename template used to filter input observation files used by the MET grid_stat tool.

Used by: grid_stat_wrapper.py

Family: [filename_templates]

Default: Varies

OBS_GRID_STAT_PROB_THRESH

Threshold values to be used for probabilistic data in grid_stat. Used when setting OBS_* variables to

probabilistic forecast data for comparison. The value can be a single item or a comma separated list of items that must start with a comparison operator (>,>=,==,!<,<=,gt,ge,eq,ne,lt,le).

Used by: grid_stat_wrapper.py

Family: [config]

Default: ==0.1

OBS_INPUT_DIR

Specify the input directory for observation files.

Used by: point_stat_wrapper.py

Family: [dir]

Default: Varies

OBS_INPUT_DIR_REGEX

Specify the regular expression to use when searching for observation file input directories.

Used by: point_stat_wrapper.py

Family: [regex_pattern]

Default: Varies

OBS_INPUT_FILE_REGEX

Regular expression used to filter observation input files used in the analysis.

Used by: point_stat_wrapper.py,

Family: [regex_pattern]

Default: Varies

OBS_INPUT_FILE_TEMPL

Specify the filename template to use for observation input files.

Used by: point_stat_wrapper.py,

Family: [filename_templates]

Default: Varies

OBS_IS_DAILY_FILE

Specify whether the forecast file is a daily file or not.

Acceptable values: true/false

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

OBS_IS_PROB

Used when setting OBS_* variables to process forecast data for comparisons with mtd. Specify whether the observation data are probabilistic or not. See FCST_IS_PROB.

Acceptable values: true/false

Used by: mtd_wrapper.py

Family: [config]

Default: False

OBS_LEVEL

Specify what accumulation level should be used from the observation data for the analysis. See FCST_LEVEL for more information

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

OBS_MODE_INPUT_DATATYPE

Specify the data type of the input directory for observation files used with the MET mode tool. Currently valid options are NETCDF, GRIB, and GEMPAK. If set to GEMPAK, data will automatically be converted to NetCDF via GempakToCF.

Used by: mode_wrapper.py

Family: [config]

Default: Varies

OBS_MODE_INPUT_DIR

Input directory for observation files to use with the MET tool mode.

Used by: mode_wrapper.py

Family: [dir]

Default: Varies

OBS_MODE_INPUT_TEMPLATE

Template used to specify observation input filenames for the MET tool mode.

Used by: mode_wrapper.py

Family: [filename_templates]

Default: Varies

OBS_MTD_INPUT_DATATYPE

Specify the data type of the input directory for observation files used with the MET mode-TD tool. Currently valid options are NETCDF, GRIB, and GEMPAK. If set to GEMPAK, data will automatically be converted to NetCDF via GempakToCF.

Used by: mtd_wrapper.py

Family: [config]

Default: Varies

OBS_MTD_INPUT_DIR

Input directory for observation files to use with the MET tool mode-TD.

Used by: mtd_wrapper.py

Family: [dir]

Default: Varies

OBS_MTD_INPUT_TEMPLATE

Template used to specify observation input filenames for the MET tool mode-TD.

Used by: mtd_wrapper.py

Family: [filename_templates]

Default: Varies

OBS_NAME

Provide a string to identify the observation dataset name.

Used by: point_stat_wrapper.py

Family: [config]

Default: Varies

[deprecated] OBS_NATIVE_DATA_TYPE

Specify the data format of the observation data. Use OBS_PCP_COMBINE_INPUT_DATATYPE instead.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

OBS_PCP_COMBINE_INPUT_DATATYPE

Specify the data type of the input directory for observation files used with the MET pcp_combine tool. Currently valid options are NETCDF, GRIB, and GEMPAK. If set to GEMPAK, data will automatically be converted to NetCDF via GempakToCF. Required by pcp_combine if OBS_PCP_COMBINE_RUN is True. Replaces deprecated variable OBS_NATIVE_DATA_TYPE.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

OBS_PCP_COMBINE_INPUT_DIR

See FCST_PCP_COMBINE_INPUT_DIR4.5.6.

Used by: pcp_combine_wrapper.py

Family: [dir]

Default: Varies

OBS_PCP_COMBINE_INPUT_TEMPLATE

Filename template used to filter input observation files used by the MET pcp_combine tool.

Used by: pcp_combine_wrapper.py

Family: [filename_templates]

Default: Varies

OBS_PCP_COMBINE_OUTPUT_DIR

Specify the output directory where files from the MET pcp_combine tool are written.

Used by: pcp_combine_wrapper.py

Family: [dir]

Default: Varies

OBS_PCP_COMBINE_OUTPUT_TEMPLATE

Filename template used for writing output files from the MET pcp_combine tool.

Used by: pcp_combine_wrapper.py

Family: [filename_templates]

Default: Varies

OBS_PCP_COMBINE_RUN

Specify whether to run pcp_combine on the observation data or not.

Acceptable values: True/False

Used by: pcp_combine_wrapper.py

Family: [config]

Default: Varies

OBS_REGRID_DATA_PLANE_INPUT_DATATYPE

Specify the data type of the input directory for observation files used with the MET regrid_data_plane tool. Currently valid options are NETCDF, GRIB, and GEMPAK. If set to GEMPAK, data will automatically be converted to NetCDF via GempakToCF.

Used by: regrid_data_plane_wrapper.py

Family: [config]

Default: Varies

OBS_REGRID_DATA_PLANE_INPUT_DIR

Specify the input directory for observation files used by the MET regrid_data_plane tool.

Used by: regrid_data_plane_wrapper.py

Family: [dir]

Default: Varies

OBS_REGRID_DATA_PLANE_OUTPUT_DIR

Specify the output directory where files are written from the MET regrid_data_plane tool.

Used by: regrid_data_plane_wrapper.py

Family: [dir]

Default: Varies

OBS_REGRID_DATA_PLANE_RUN

Specify whether to run regrid_data_plane on the observation data or not.

Acceptable values: True/False

Used by: regrid_data_plane_wrapper.py

Family: [config]

Default: Varies

OBS_REGRID_DATA_PLANE_INPUT_TEMPLATE

Specify the input filename template to use for observation files (input and output) used by the MET regrid_data_plane tool. If not set, METplus will use OBS_REGRID_DATA_PLANE_TEMPLATE.

Used by: regrid_data_plane_wrapper.py

Family: [filename_templates]

Default: Varies

OBS_REGRID_DATA_PLANE_OUTPUT_TEMPLATE

Specify the output filename template to use for observation files (input and output) used by the MET regrid_data_plane tool. If not set, METplus will use OBS_REGRID_DATA_PLANE_TEMPLATE.

Used by: regrid_data_plane_wrapper.py

Family: [filename_templates]

Default: Varies

OBS_REGRID_DATA_PLANE_TEMPLATE

Specify the filename template to use for observation files (input and output) used by the MET regrid_data_plane tool. To specify different templates for input and output files, use FCST_REGRID_DATA_PLANE_INPUT_TEMPLATE and FCST_REGRID_DATA_PLANE_OUTPUT_TEMPLATE.

Used by: regrid_data_plane_wrapper.py

Family: [filename_templates]

Default: Varies

[deprecated] OBS_VAR

Specify the string for the observation variable used in the analysis. See OBS_VARn_NAME, OBS_VARn_LEVELS, OBS_VARn_OPTIONS and OBS_VARn_THRESH where n = integer ≥ 1 .

Used by: grid_stat_wrapper.py

Family: [config]

Default: Varies

OBS_VAR_LEVEL

Specify the values of the OBS_VAR_LEVEL column in the MET .stat file to use.

Used by: stat_analysis_wrapper.py

Family: [config]

Default: Varies

OBS_VAR_NAME

Specify the values of the OBS_VAR_NAME column in the MET .stat file to use.

Used by: stat_analysis_wrapper.py

Family: [config]

Default: Varies

OBS_VAR[N]_LEVELS

Define the levels for the [N]th observation variable to be used in the analysis where [N] is an integer ≥ 1 . The value can be a single item or a comma separated list of items. You can define NetCDF levels, such as (0,*,*), but you will need to surround these values with quotation marks so that the commas in the item are not interpreted as an item delimiter. Some examples:

OBS_VAR1_LEVELS = A06, P500

OBS_VAR2_LEVELS = "(0,*,*)", "(1,*,*)"

If OBS_VAR[N]_LEVELS is not set but FCST_VAR[N]_LEVELS is, the same information will be used for both variables. There can be [N] number of these variables defined in configuration files, simply increment the "_VAR1_" string to match the total number of variables being used, e.g.:

OBS_VAR1_LEVELS

OBS_VAR2_LEVELS

...

OBS_VAR[N]_LEVELS

Used by: make_plots_wrapper.py, met_util.py

Family: [config]

Default: Varies

OBS_VAR[N]_NAME

Define the name for the [N]th observation variable to be used in the analysis where [N] is an integer ≥ 1 . If OBS_VAR[N]_NAME is not set but FCST_VAR[N]_NAME is, the same information will be used for both variables. There can be [N] number of these variables defined in configuration files, simply increment the “_VAR1_” string to match the total number of variables being used, e.g.:

```
OBS_VAR1_NAME
OBS_VAR2_NAME
...
OBS_VAR[N]_NAME
```

Used by: make_plots_wrapper.py, met_util.py

Family: [config]

Default: Varies

OBS_VAR[N]_OPTIONS

Define the options for the [N]th observation variable to be used in the analysis where [N] is an integer ≥ 1 . These addition options will be applied to every name/level/threshold combination for VAR[N]. If OBS_VAR[N]_OPTIONS is not set but FCST_VAR[N]_OPTIONS is, the same information will be used for both variables. There can be [N] number of these variables defined in configuration files, simply increment the “_VAR1_” string to match the total number of variables being used, e.g.:

```
OBS_VAR1_OPTIONS
OBS_VAR2_OPTIONS
...
OBS_VAR[N]_OPTIONS
```

Used by: make_plots_wrapper.py, met_util.py

Family: [config]

Default: Varies

OBS_VAR[N]_THRESH

Define the threshold(s) for the [N]th observation variable to be used in the analysis where [N] is an integer ≥ 1 . The value can be a single item or a comma separated list of items that must start with a comparison operator (>, >=, ==, !=, <, <=, gt, ge, eq, ne, lt, le). If OBS_VAR[N]_THRESH is not set but FCST_VAR[N]_THRESH is, the same information will be used for both variables. There can be [N] number of these variables defined in configuration files, simply increment the “_VAR1_” string to match the total number of variables being used, e.g.:

```
OBS_VAR1_THRESH
OBS_VAR2_THRESH
...
OBS_VAR[N]_THRESH
```

Used by: met_util.py

Family: [config]

Default: Varies

[deprecated] OBS_WINDOW_BEG

Please use OBS_WINDOW_BEGIN.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py

Family: [config]

Default: Varies

OBS_WINDOW_BEGIN

Corresponds to the OBS_WINDOW_BEG in the MET config file for pb2nc. Please refer to Chapter 4 of the MET User's Guide.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py

Family: [config]

Default: Varies

OBS_WINDOW_END

Corresponds to the OBS_WINDOW_END in the MET config file for pb2nc. Please refer to Chapter 4 of the MET User's Guide.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py

Family: [config]

Default: Varies

OBTYPE

Provide a string to represent the type of observation data used in the analysis. Used in setting output filename

Used by: compare_gridded_wrapper.py, ensemble_stat_wrapper.py, grid_stat_wrapper.py, mode_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

[deprecated] OB_TYPE

Please use OBTYPE instead.

Used by: compare_gridded_wrapper.py, ensemble_stat_wrapper.py, grid_stat_wrapper.py, mode_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

OUTPUT_BASE

Provide a path to the top level output directory for METplus.

Used by: config_launcher.py, pb2nc_wrapper.py, point_stat_wrapper.py, tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [dir]

Default: Varies

OVERWRITE_NC_OUTPUT

Specify whether to overwrite the netCDF output or not when using the MET pb2nc tool.

Acceptable values: yes/no

Used by: pb2nc_wrapper.py

Family: [config]

Default: yes

OVERWRITE_TRACK

Specify whether to overwrite the track data or not.

Acceptable values: yes/no

Used by: extract_tiles_wrapper.py, feature_util.py

Family: [config]

Default: no

4.5.16 P**PARM_BASE**

Specify the top level METplus parameter file directory.

Used by: config_launcher.py, pb2nc_wrapper.py, point_stat_wrapper.py, tc_stat_wrapper.py

Family: [dir]

Default: Varies

PB2NC_CONFIG_FILE

Specify the absolute path to the configuration file for the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

PB2NC_GRID

Specify a grid to use with the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

PB2NC_MESSAGE_TYPE

Specify which PREPBUFR (PB) message types to convert using the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

PB2NC_OUTPUT_DIR

Specify the directory where files will be written from the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [dir]

Default: Varies

PB2NC_POLY

Specify a polygon to be used with the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

PB2NC_STATION_ID

Specify the ID of the station to use with the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

[deprecated] PCP_COMBINE_METHOD

SPlease use [FCST/OBS]_PCP_COMBINE_METHOD instead.

Used by: pcp_combine_wrapper.py

Family: [config]

Default: ADD

PLOTTING_OUTPUT_DIR

Specify the output directory where plots will be saved.

Used by: make_plots_wrapper.py

Family: [dir]

Default: Varies

PLOTTING_SCRIPTS_DIR

Specify the directory where the plotting scripts are located.

Used by: make_plots_wrapper.py

Family: [dir]

Default: Varies

PLOT_CONFIG_OPTS

Specify plot configuration options for the TC Matched Pairs plotting tool.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

PLOT_STATS_LIST

Specify which statistics should be plotted in a comma separated list, e.g.:

acc, bias, rmse

Used by: make_plots_wrapper.py

Family: [config]

Default: Varies

PLOT_TIME

Specify the treatment of the plotting dates/times.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

PLOT_TYPES

Specify what plot types are desired for the TC Matched Pairs plotting tool. By default, a boxplot is generated if this is undefined in the configuration file. If other plots are requested and a boxplot is also desired, you must explicitly list *boxplot* in your list of plot types. Supported plot types: BOXPLOT, POINT, MEAN, MEDIAN, RELPERF (relative performance), RANK (time series of ranks for the first model), SCATTER, SKILL_MN (mean skill scores) and SKILL_MD (median skill scores).

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

POINT_STAT_CONFIG_FILE

Specify the absolute path to the configuration file to be used with the MET point_stat tool.

Used by: point_stat_wrapper.py

Family: [config]

Default: Varies

POINT_STAT_GRID

Specify the grid to use with the MET point_stat tool.

Used by: point_stat_wrapper.py

Family: [config]

Default: Varies

POINT_STAT_MESSAGE_TYPE

Specify which PREPBUFR message types to process with the MET point_stat tool.

Used by: point_stat_wrapper.py

Family: [config]

Default: Varies

POINT_STAT_OUTPUT_DIR

Specify the directory where output files from the MET point_stat tool are written.

Used by: point_stat_wrapper.py

Family: [dir]

Default: Varies

POINT_STAT_POLY

Specify a polygon to use with the MET point_stat tool.

Used by: point_stat_wrapper.py

Family: [config]

Default: Varies

POINT_STAT_STATION_ID

Specify the ID of a specific station to use with the MET point_stat tool.

Used by: point_stat_wrapper.py

Family: [config]

Default: Varies

PREFIX

This corresponds to the optional -prefix flag of the plot_TCMPR.R script (which is wrapped by tcmpr_plotter_wrapper.py). This is the output file name prefix.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

PREPBUFR_DATA_DIR

Specify the directory where the PREPBUFR data are located for the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [dir]

Default: Varies

PREPBUFR_DIR_REGEX

Regular expression to use when searching for PREPBUFR data.

Used by: pb2nc_wrapper.py

Family: [regex_pattern]

Default: Varies

PREPBUFR_FILE_REGEX

Regular expression to use when searching for PREPBUFR files.

Used by: pb2nc_wrapper.py

Family: [regex_pattern]

Default: Varies

PREPBUFR_MODEL_DIR_NAME

Specify the name of the model being used with the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

PROCESS_LIST

Specify the list of processes for METplus to perform, in a comma separated list.

Used by: master_metplus.py

Family: [config]

Default: Varies

PROJ_DIR

A directory for generic use. The user can store input files (if INPUT_BASE is not defined), intermediate files, and any other project-related files.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py, tc_stat_wrapper.py

Family: [dir]

Default: Varies

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4.5.18 R

REFERENCE_TMPL

The filename template describing the observation/reference data.

Used by: tc_pairs_wrapper.py

Family: [filename_templates]

Default: Varies

REGION

Specify the values of the VX_MASK column in the MET .stat file to use.

Used by: stat_analysis_wrapper.py

Family: [config]

Default:

REGION_LIS

A list of the regions of interest.

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

REGRID_TO_GRID

If supported, provide the output grid that is desired from the MET tool being used in the analysis.

Used by: make_plots_wrapper.py, point_stat_wrapper.py

Family: [config]

Default: Varies

REGRID_USING_MET_TOOL

Specify whether to regrid using the MET regrid_data_plane tool or not.

Acceptable values: yes/no

Used by: feature_util.py, met_util.py, series_by_init_wrapper.py, series_by_lead_wrapper.py

Family: [config]

Default: yes

RM_EXE

Specify the path to the Linux “rm” executable.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py, series_by_lead_wrapper.py

Family: [exe]

Default: /path/to

RP_DIFF

This corresponds to the optional -rp_diff flag of the plot_TCMR.R script (which is wrapped by tcmr_plotter_wrapper.py).

This a comma-separated list of thresholds to specify meaningful differences for the relative performance plot.

Used by: tcmr_plotter_wrapper.py

Family: [config]

Default: Varies

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SAVE

Corresponds to the optional -save flag in plot_TCMR.R (which is wrapped by tcmr_plotter_wrapper.py).

This is a yes/no value to indicate whether to save the image (yes).

Used by: tcmr_plotter_wrapper.py

Family: [config]

Default: Varies

SAVE_DATA

Corresponds to the optional -save_data flag in plot_TCMR.R (which is wrapped by tcmr_plotter_wrapper.py).

Indicates whether to save the filtered track data to a file instead of deleting it.

Used by: tcmr_plotter_wrapper.py

Family: [config]

Default: Varies

SCATTER_X

Corresponds to the optional -scatter_x flag in plot_TCMR.R (which is wrapped by tcmr_plotter_wrapper.py).

This is a comma-separated list of x-axis variable columns to plot.

Used by: tcmr_plotter_wrapper.py

Family: [config]

Default: Varies

SCATTER_Y

Corresponds to the optional `-scatter_y` flag in `plot_TCMPR.R` (which is wrapped by `tcmpr_plotter_wrapper.py`). This is a comma-separated list of y-axis variable columns to plot.

Used by: `tcmpr_plotter_wrapper.py`

Family: [config]

Default: Varies

SCRUB_STAGING_DIR

Remove staging directory after METplus has completed running if set to True. Set to False to preserve data for subsequent runs.

Used by: `master_metplus.py`

Family: [config]

Default: False

SERIES

Corresponds to the optional `-series` flag in `plot_TCMPR.R` (which is wrapped by `tcmpr_plotter_wrapper.py`). This is the column whose unique values define the series on the plot, optionally followed by a comma-separated list of values, including: ALL, OTHER, and colon-separated groups.

Used by: `tcmpr_plotter_wrapper.py`

Family: [config]

Default: Varies

SERIES_ANALYSIS_BY_INIT_CONFIG_FILE

Specify the absolute path for the configuration file to use with the MET `series_analysis` tool by initialization time.

Used by: `series_by_init_wrapper.py`

Family: [config]

Default: Varies

SERIES_ANALYSIS_BY_LEAD_CONFIG_FILE

Specify the absolute path for the configuration file to use with the MET `series_analysis` tool by lead time.

Used by: `series_by_lead_wrapper.py`

Family: [config]

Default: Varies

SERIES_ANALYSIS_FILTER_OPTS

Filtering options to be applied during series analysis. Filter options are performed by invoking the MET `tc_stat` tool within the METplus wrapper.

Used by: series_by_lead_wrapper.py, series_by_init_wrapper.py

Family: [config]

Default: Varies

SERIES_CI

Corresponds to the optional -series_ci flag in plot_TCMR.R (which is wrapped by tcmr_plotter_wrapper.py). This is a list of true/false for confidence intervals. This list can be optionally followed by a comma-separated list of values, including ALL, OTHER, and colon-separated groups.

Used by: tcmr_plotter_wrapper.py

Family: [config]

Default: Varies

SERIES_INIT_FILTERED_OUT_DIR

Specify the directory where filtered files will be written from the MET series_analysis tool when processing by initialization time.

Used by: series_by_init_wrapper.py

Family: [dir]

Default: Varies

SERIES_INIT_OUT_DIR

Specify the directory where files will be written from the MET series_analysis tool when processing by initialization time.

Used by: series_by_init_wrapper.py

Family: [dir]

Default: Varies

SERIES_LEAD_FILTERED_OUT_DIR

Specify the directory where filtered files will be written from the MET series_analysis tool when processing by lead time.

Used by: series_by_lead_wrapper.py

Family: [dir]

Default: Varies

SERIES_LEAD_OUT_DIR

Specify the directory where files will be written from the MET series_analysis tool when processing by lead time.

Used by: series_by_lead_wrapper.py

Family: [dir]

Default: Varies

SKILL_REF

This corresponds to the optional `-skill_ref` flag in `plot_TCMPR.R` (which is wrapped by `tcmpr_plotter_wrapper.py`). This is the identifier for the skill score reference.

Used by: `tcmpr_plotter_wrapper.py`

Family: `[config]`

Default: Varies

START_DATE

Specify the start data for the analysis time period. Format is `YYYYMMDDHH`.

Used by: `pb2nc_wrapper.py`, `point_stat_wrapper.py`

Family: `[config]`

Default: Varies

STAGING_DIR

Directory to uncompress or convert data into for use in METplus.

Used by: All

Family: `[dir]`

Default: `OUTPUT_BASE/stage`

START_HOUR

Specify the start hour for the analysis time period. Format is `HH`.

Used by: `pb2nc_wrapper.py`, `point_stat_wrapper.py`

Family: `[config]`

Default: Varies

STAT_ANALYSIS_CONFIG

Specify the absolute path for the configuration file used with the MET `stat_analysis` tool.

Used by: `stat_analysis_wrapper.py`

Family: `[config]`

Default: Varies

STAT_ANALYSIS_DUMP_ROW_TMPL

Specify the template to use for the `stat_analysis` `dump_row` file.

Used by: `stat_analysis_wrapper.py`

Family: `[filename_templates]`

Default:

STAT_ANALYSIS_LOOKIN_DIR

Specify the input directory where the MET `stat_analysis` tool will find input files.

Used by: stat_analysis_wrapper.py

Family: [dir]

Default: Varies

STAT_ANALYSIS_OUT_STAT_TMPL

Specify the template to use for the stat_analysis out_stat file.

Used by: stat_analysis_wrapper.py

Family: [filename_templates]

Default:

STAT_ANAL

Specify the output directory where files will be written from the MET stat_analysis tool.

Used by: stat_analysis_wrapper.py

Family: [dir]

Default: Varies

STAT_FILES_INPUT_DIR

Specify the directory where stat files exist that plots can be generated from.

Used by: make_plots_wrapper.py

Family: [dir]

Default: Varies

STAT_LIST

Specify a list of statistics to be computed by the MET series_analysis tool.

Used by: series_by_init_wrapper.py, series_by_lead_wrapper.py

Family: [config]

Default: Varies

STORM_ID

The identifier of the storm(s) of interest.

Used by: cyclone_plotter_wrapper.py, met_util.py, tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

STORM_NAME

The name(s) of the storm of interest.

Used by: tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

SUBTITLE

The subtitle of the plot.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

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Provide the input directory for the track data for the TC Matched Pairs plotting tool.

Used by: tcmpr_plotter_wrapper.py

Family: [dir]

Default: Varies

TCMPR_PLOT_OUT_DIR

Provide the output directory where the TC Matched Pairs plotting tool will create files.

Used by: tcmpr_plotter_wrapper.py

Family: [dir]

Default: Varies

TC_PAIRS_CONFIG_FILE

Provide the absolute path to the configuration file for the MET tc_pairs tool.

Used by: tc_pairs_wrapper.py

Family: [config]

Default: Varies

TC_PAIRS_DIR

Specify the directory where the MET tc_pairs tool will write files.

Used by: tc_pairs_wrapper.py

Family: [dir]

Default: Varies

TC_PAIRS_FORCE_OVERWRITE

Specify whether to overwrite the output from the MET tc_pairs tool or not.

Acceptable values: yes/no

Used by: tc_pairs_wrapper.py

Family: [config]

Default: no

TC_STAT_AMODEL

Specify the AMODEL for the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_BASIN

Specify the BASIN for the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_BMODEL

Specify the BMODEL for the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_CMD_LINE_JOB

Specify expression(s) that will be passed to the MET tc_stat tool via the command line.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_COLUMN_STR_NAME

Specify the string names of the columns for stratification with the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_COLUMN_STR_VAL

Specify the values for the columns set via the TC_STAT_COLUMN_STR_NAME option for use with the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_COLUMN_THRESH_NAME

Specify the string names of the columns for stratification by threshold with the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_COLUMN_THRESH_VAL

Specify the values used for thresholding the columns specified in the TC_STAT_COLUMN_THRESH_NAME option for use with the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_CYCLONE

Specify the CYCLONE of interest for use with the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_DESC

Specify the DESC option for use with the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_INIT_BEG

Specify the beginning initialization time for stratification when using the MET tc_stat tool.

Acceptable formats: YYYYMMDD_HH, YYYYMMDD_HH:mm:ss

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_INIT_END

Specify the ending initialization time for stratification when using the MET tc_stat tool.

Acceptable formats: YYYYMMDD_HH, YYYYMMDD_HH:mm:ss

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_INIT_EXCLUDE

Specify the initialization times to exclude when using the MET tc_stat tool, via a comma separated list e.g.:

20141220_18, 20141221_00

Acceptable formats: YYYYMMDD_HH, YYYYMMDD_HH:mm:ss

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_INIT_HOUR

The beginning hour (HH) of the initialization time of interest.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_INIT_INCLUDE

Specify the initialization times to include when using the MET tc_stat tool, via a comma separated list e.g.:

20141220_00, 20141220_06, 20141220_12

Acceptable formats: YYYYMMDD_HH, YYYYMMDD_HH:mm:ss

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_INIT_MASK

This corresponds to the INIT_MASK keyword in the MET tc_stat config file. For more information, please refer to Chapter 20 in the MET User's Guide.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_INIT_STR_NAME

This corresponds to the INIT_STR_NAME keyword in the MET tc_stat config file. Please refer to Chapter 20 in the MET User's Guide for more details.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_INIT_STR_VAL

This corresponds to the INIT_STR_VAL keyword in the MET tc_stat config file. Please refer to Chapter 20 in the MET User's Guide for more information.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_INPUT_DIR

Specify the input directory where the MET tc_stat tool will look for files.

Used by: tc_stat_wrapper.py

Family: [dir]

Default: Varies

TC_STAT_JOBS_LIST

Specify expressions for the MET tc_stat tool to execute.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_LANDFALL

Specify whether only those points occurring near landfall should be retained when using the MET tc_stat tool.

Acceptable values: True/False

Used by: tc_stat_wrapper.py

Family: [config]

Default: False

TC_STAT_LANDFALL_BEG

Specify the beginning of the landfall window for use with the MET tc_stat tool.

Acceptable formats: HH, HHmmss

Used by: tc_stat_wrapper.py

Family: [config]

Default: -24

TC_STAT_LANDFALL_END

Specify the end of the landfall window for use with the MET tc_stat tool.

Acceptable formats: HH, HHmmss

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_LEAD

Specify the lead times to stratify by when using the MET tc_stat tool.

Acceptable formats: HH, HHmmss

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_LEAD_REQ

Specify the LEAD_REQ when using the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_MATCH_POINTS

Specify whether only those points common to both the ADECK and BDECK tracks should be written out or not when using the MET tc_stat tool.

Acceptable values: True/False

Used by: tc_stat_wrapper.py

Family: [config]

Default: false

TC_STAT_OUTPUT_DIR

Specify the output directory where the MET tc_stat tool will write files.

Used by: tc_stat_wrapper.py

Family: [dir]

Default: Varies

TC_STAT_RUN_VIA

Specify the method for running the MET tc_stat tool.

Acceptable values: CONFIG

If left blank (unset), tc_stat will run via the command line.

Used by: tc_stat_wrapper.py

Family: [config]

Default: CONFIG

TC_STAT_STORM_ID

Set the STORM_ID(s) of interest with the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_STORM_NAME

Set the STORM_NAME for use with the MET tc_stat tool.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_TRACK_WATCH_WARN

Specify which watches and warnings to stratify over when using the MET tc_stat tool.

Acceptable values: HUWARN, HUWATCH, TSWARN, TSWATCH, ALL

If left blank (unset), no stratification will be done.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_VALID_BEG

Specify a comma separated list of beginning valid times to stratify with when using the MET tc_stat tool.

Acceptable formats: YYYYMMDD_HH, YYYYMMDD_HHmmss

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_VALID_END

Specify a comma separated list of ending valid times to stratify with when using the MET tc_stat tool.

Acceptable formats: YYYYMMDD_HH, YYYYMMDD_HH:mm:ss

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_VALID_EXCLUDE

Specify a comma separated list of valid times to exclude from the stratification with when using the MET tc_stat tool.

Acceptable formats: YYYYMMDD_HH, YYYYMMDD_HH:mm:ss

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_VALID_HOUR

This corresponds to the VALID_HOUR keyword in the MET tc_stat config file. For more information, please refer to Chapter 20 of the MET User's Guide.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_VALID_INCLUDE

Specify a comma separated list of valid times to include in the stratification with when using the MET tc_stat tool.

Acceptable formats: YYYYMMDD_HH, YYYYMMDD_HH:mm:ss

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_VALID_MASK

This corresponds to the VALID_MASK in the MET tc_stat config file. Please refer to Chapter 20 of the MET User's Guide for more information.

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TC_STAT_WATER_ONLY

Specify whether to exclude points where the distance to land is ≤ 0 . If set to TRUE, once land is encountered the remainder of the forecast track is not used for the verification, even if the track moves back over water.

Acceptable values: true/false

Used by: tc_stat_wrapper.py

Family: [config]

Default: Varies

TIME_METHOD

Specify which time method to use with the MET pb2nc and point_stat tools.

Acceptable values: BY_VALID, BY_INIT

Used by: pb2nc_wrapper.py, point_stat_wrapper.py

Family:

Default:

TIME_SUMMARY_BEG

Specify the starting time of the summary when using the MET pb2nc tool.

Acceptable formats: HHMMSS

Used by: pb2nc_wrapper.py

Family: [config]

Default: 000000

TIME_SUMMARY_END

Specify the ending time of the summary when using the MET pb2nc tool.

Acceptable formats: HHMMSS

Used by: pb2nc_wrapper.py

Family: [config]

Default: 235959

TIME_SUMMARY_FLAG

Specify whether to receive a time summary from the MET pb2nc tool or not.

Acceptable values: True/False

Used by: pb2nc_wrapper.py

Family: [config]

Default: False

TIME_SUMMARY_TYPES

Specify a comma separated list of time summary types to receive from the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

TIME_SUMMARY_VAR_NAMES

Specify a comma separated list of time summary variable names to receive from the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

TITLE

Specify a title string for the TC Matched Pairs plotting tool.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

TMP_DIR

Specify the path to a temporary directory where the user has write permissions.

Used by: extract_tiles_wrapper.py, pb2nc_wrapper.py, point_stat_wrapper.py, series_by_init_wrapper.py, series_by_lead_wrapper.py, tc_stat_wrapper.py

Family: [dir]

Default: Varies

TOP_LEVEL_DIRS

Specify whether to use top-level directories when using the MET tc_pairs utility or not.

Acceptable values: yes/no

Used by: tc_pairs_wrapper.py

Family: [config]

Default: no

TRACK_DATA_DIR

Specify the directory where track data are located for use with the MET tc_pairs tool.

Used by: tc_pairs_wrapper.py

Family: [dir]

Default: Varies

TRACK_DATA_MOD_FORCE_OVERWRITE

Specify whether to force an overwrite of the track data or not.

Acceptable values: yes/no

Used by: tc_pairs_wrapper.py

Family: [config]

Default: no

TRACK_DATA_SUBDIR_MOD

Specify the sub-directory where modified track data files are stored for use with the MET tc_pairs tool.

Used by: tc_pairs_wrapper.py

Family: [dir]

Default: Varies

TRACK_TYPE

Specify the track type to filter by when using the MET tc_pairs tool.

Used by: tc_pairs_wrapper.py

Family: [config]

Default: Varies

TR_EXE

Specify the path to the Linux “tr” executable.

Used by: pb2nc_wrapper.py, point_stat_wrapper.py

Family: [exe]

Default: /path/to

4.5.21 U**4.5.22 V**

VALID_BEG

Specify a begin time for valid times for use in the analysis.

Acceptable formats: YYYYMM[DD[_HH]]

Used by: command_builder.py, make_plots_wrapper.py, master_metplus.py, stat_analysis_wrapper.py,
tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

VALID_END

Specify an end time for valid times for use in the analysis.

Acceptable formats: controlled via VALID_TIME_FMT

Used by: command_builder.py, make_plots_wrapper.py, master_metplus.py, stat_analysis_wrapper.py, tc_pairs_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

VALID_HOUR_BEG

Specify a beginning hour for valid times for use in the analysis.

Acceptable formats: HHMM

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

VALID_HOUR_END

Specify an end hour for valid times for use in the analysis.

Acceptable formats: HHMM

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

VALID_HOUR_INCREMENT

Specify a time increment for valid times for use in the analysis.

Acceptable formats: seconds

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

VALID_HOUR_METHOD

Specify the method for the treatment of valid hours.

Acceptable formats: LOOP or GROUP

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

VALID_INCREMENT

Specify the time increment for valid times for use in the analysis.

Acceptable formats: seconds

Used by: command_builder.py, make_plots_wrapper.py, master_metplus.py, stat_analysis_wrapper.py, tc_stat_wrapper.py

Family: [config]

Default: Varies

VALID_TIME_FMT

Specify a strftime formatting string for use with VALID_BEG and VALID_END.

Used by: command_builder.py, master_metplus.py

Family: [config]

Default: Varies

VAR_LIST

Specify a comma separated list of variables to be used in the analysis.

Used by: feature_util.py, pb2nc_wrapper.py, series_by_init_wrapper.py, series_by_lead_wrapper.py

Family: [config]

Default: Varies

VARn_FOURIER_DECOMP

Specify if Fourier decomposition is to be considered (True) or not (False).

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: False

VARn_WAVE_NUM_LIST

Specify a comma separated list of wave numbers pairings of the Fourier decomposition.

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default:

VERIFICATION_GRID

Specify the absolute path to a file containing information about the desired output grid from the MET regrid_data_plane tool.

Used by: regrid_data_plane_wrapper.py

Family: [config]

Default: Varies

VERIF_CASE

Specify a string identifying the verification case being performed.

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

VERIF_GRID

Specify a string describing the grid the verification was performed on.

Used by: make_plots_wrapper.py

Family: [config]

Default:

VERIF_TYPE

Specify a string describing the type of verification being performed.

Used by: make_plots_wrapper.py, stat_analysis_wrapper.py

Family: [config]

Default: Varies

VERTICAL_LOCATION

Specify the vertical location desired when using the MET pb2nc tool.

Used by: pb2nc_wrapper.py

Family: [config]

Default: Varies

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WGRIB2

Specify the path to the “wgrib2” executable.

Used by: feature_util.py, pb2nc_wrapper.py, point_stat_wrapper.py

Family: [exe]

Default: /path/to

4.5.24 X

XLAB

Specify the x-axis label when using the TC Matched Pairs plotting tool.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

XLIM

Specify the x-axis limit when using the TC Matched Pairs plotting tool.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

4.5.25 Y

YLAB

Specify the y-axis label when using the TC Matched Pairs plotting tool.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

YLIM

Specify the y-axis limit when using the TC Matched Pairs plotting tool.

Used by: tcmpr_plotter_wrapper.py

Family: [config]

Default: Varies

4.5.26 Z

4.6 User Defined Config

You can define your own custom config variables that will be set as environment variables when METplus is run. MET config files can read environment variables, so this is a good way to customize information that

is read by those files. To create add a custom config variable, add a section to one of your METplus config files called [user_env_vars]. Under this header, add as many variables as you'd like. For example, if you added the following to your METplus config:

```
[user_env_vars]
VAR_NAME = some_text_for_feb_1_1987_run
```

and you added the following to a MET config file that is used:

```
output_prefix = ${VAR_NAME}
```

then at run time, the MET application will be run with the configuration:

```
output_prefix = some_text_for_feb_1_1987_run
```

You can also reference other variables in the METplus config file. For example:

```
[config]
INIT_BEG = 1987020104
...
[user_env_vars]
USE_CASE_TIME_ID = {INIT_BEG}
```

This is the equivalent of calling

```
export USE_CASE_TIME_ID=1987020104
```

at the beginning of your METplus run. You can access the variable in the MET config file with \${USE_CASE_TIME_ID}.

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