

METplus Track and Intensity Overview

George McCabe
(originally created by Minna Win)



Developmental Testbed Center

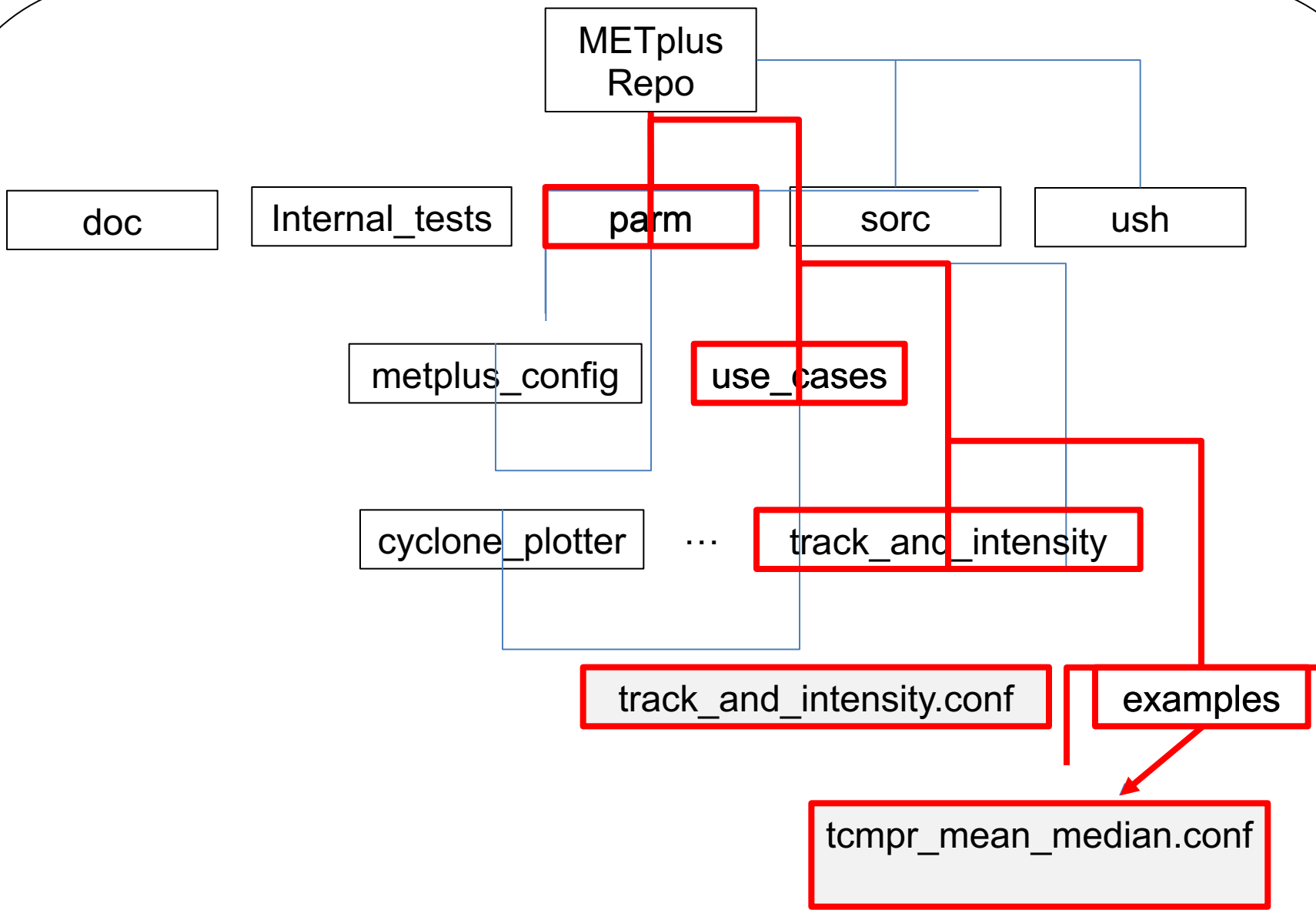
Copyright 2019, University Corporation for Atmospheric
Research, all rights reserved

Background

- In the track and intensity use case, we are comparing two non-ATCF tropical cyclone track data (A-deck and B-deck).
- We will use the GFS data provided to us by Stony Brook University (SBU)

Tools

- . The track and intensity use case employs the **MET Tc-Pairs tool** and the **plot_tcmpr.R** script to generate the statistics plots.



Running METplus Setup

Add METplus/ush to PATH to run
master_metplus.py from any directory

csh:

```
setenv PATH </path/to>/METplus/ush:$PATH
```

bash:

```
export PATH=</path/to>/METplus/ush:$PATH
```

Configuring METplus for Use Case cont'd

1. Create your own configure file
2. Set all necessary directory paths under the [dir] header:

OUTPUT_BASE – Where you want output to be saved

TC_PAIRS_ADECK_INPUT_DIR - where ADeck tropical cyclone input data is located

TC_PAIRS_BDECK_INPUT_DIR – where BDeck tropical cyclone input data is located

3. Indicate which wrappers to run under the [config] header:

- PROCESS_LIST=TcPairs, TCMPRPlotter

Configuring METplus for Use Case cont'd

Let's look at how we handle the plotting portion of this use case

- parm/use_cases/track_and_intensity/examples/tcmpr_mean_median.conf
- we will generate the TK_ERR boxplot, and the mean and median plots for AMSLP-BMSLP and AMAX_WIND-BMAX_WIND:

```
# Plot_TCMPR options, if left unset, default values that are
# pre-defined in the R utility (packaged with MET) will be used.
CONFIG_FILE =
{METPLUS_BASE}/parm/use_cases/track_and_intensity/tcmpr_customize.conf
PREFIX =
TITLE = TEST THIS TITLE ←
SUBTITLE = Your subtitle goes here ←
XLAB =
YLAB = Your y-label goes here ←
XLIM =
YLIM =
FILTER =
FILTERED_TCST_DATA_FILE =

# Comma-separated, no whitespace.
# Intensities for minimum SLP and max wind and track error
DEP_VARS = AMSLP-BMSLP,AMAX_WIND-BMAX_WIND,TK_ERR
SCATTER_X =
```

Configuring METplus for Use Case cont'd

Special note about the **CONFIG_FILE** variable

- **CONFIG_FILE** is a variable that defines an additional config file used by the MET tool, `plot_tcmpr.R` (will be renamed `TCMPR_PLOTTER_CONFIG_FILE` for consistency)
- Define/customize plot attributes such as image resolution
- This is optional, if undefined all defaults established in `plot_tcmpr.R` are employed
- We set `img_res = 72` to reduce the size of the `.png` plot to fit in our display
- You can also set any other `plot_tcmpr.R` variables in this additional config file, which will over-ride any variables defined in the `tcmp_mean_median.conf`

Running the use case with METplus

To generate the TK_ERR plot, and the mean and median plots of the AMSLP-BMSLP and AMAX_WIND – BMAX_WIND

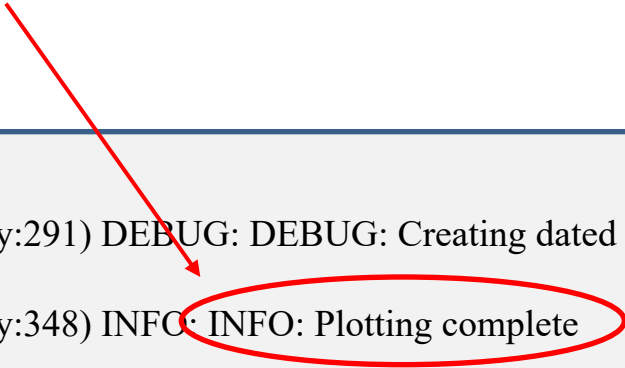
Run the following at the command line:

```
master_metplus.py
  -c parm/use_cases/track_and_intensity/track_and_intensity.conf \
  -c parm/use_cases/track_and_intensity/examples/tcmpr_mean_median.conf \
  -c <your conf file dir>/your_track_and_intensity.conf
```

Post-run overview: logging

- Look in the log file* for any ERROR messages
- Look at the end of the log for any "completion" messages

```
09/26 18:22:22.187 metplus.TCMRPPlotter (tcmpr_plotter_wrapper.py:291) DEBUG: DEBUG: Creating dated output dir  
/d1/jfrimel/pytmp_dev2.0/pytmp.track_and_intensity/tcmpr_plots  
09/26 18:22:23.992 metplus.TCMRPPlotter (tcmpr_plotter_wrapper.py:348) INFO: INFO: Plotting complete  
~
```



**located at the directory where you directed output, in the logs directory*

Post-run overview: output

In the output directory*, the following directories and files have been created:

logs

tc_pairs

YYYYMM directory with .tcst files

track_data_atcf

YYYYMM directory with ADeck and BDeck
files- reformatted } from MET tc_pairs

tcmpr_plots

TK_ERR_boxplot_mean.png

TK_ERR_boxplot_median.png

AMAX_WIND_BMAX_WIND_mean.png

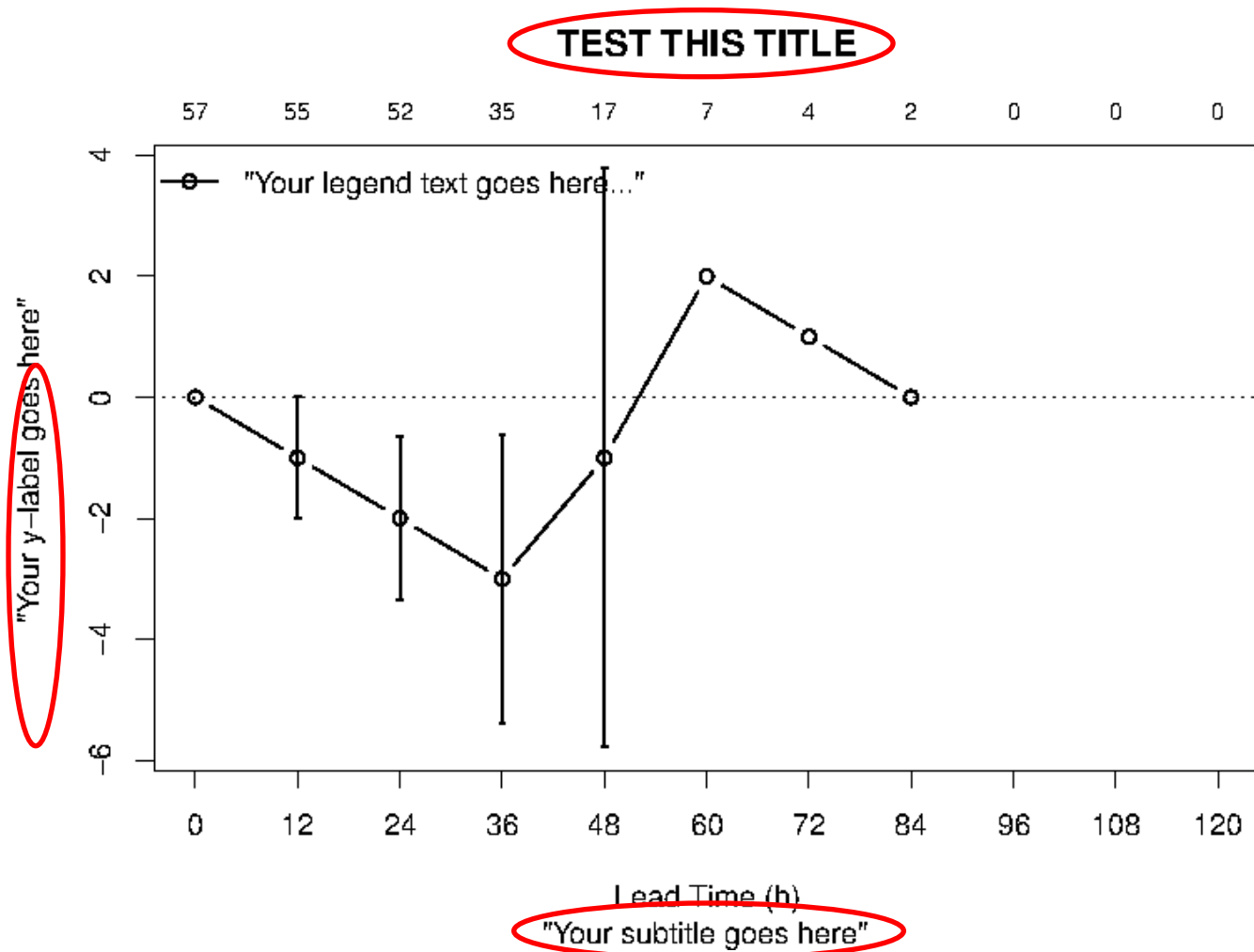
AMAX_WIND_BMAX_WIND_median.png } from plot_tmpr.R

AMSLP-BMSLP_mean.png

AMSLP-BMSLP_median.png

*as specified by OUTPUT_BASE in your config file

Post-run overview: output



Questions