

HIGHWAY Real-time Skew-T Plots

IMPORTANT: There are two important files:

/net/work/Projects/HIGHWAY/real-time-plots/data_processing/

DO_NOT_DELETE_last_run_time

DO_NOT_DELETE_running

The date/time of the last_run_time file is used to determine which files in the ftp area are newer than when the process actually processed BUFR files the last time.

The running file is created when the process first starts, and then is moved to last_run_time file right before the process ends (only if BUFR files were processed during that run). The running file is used to determine if the process is already running, before it tries to process new files. Only one process should be processing files at one time.

If you want to rerun the process, the files in the FTP area must be touched, copied in again (without the -p option on the cp), or ftp'ed again. This is because the date/time of the files in the FTP area must be newer than the last_run_time file in order for the files to be processed.

The main directory for this process is /net/work/Projects/HIGHWAY/real-time-plots. The data_processing directory is where all the data files and logs are placed and where the two important files are kept. The software directory is where all the programs are located that run during this process.

Process will be run on tsunami as the joss user and in this order:

Crontab file on tsunami for the joss user:

5 0,12 * * *

/net/work/Projects/HIGHWAY/real-time-plots/software/Highway-Real-time-plots.pl

1. Greg's process renames the *.bufr files located in the ldm directory to the correct naming convention.

2. GTS-BUFR files are copied from ldm into this directory by a cron that Scot runs.

/net/work/Projects/HIGHWAY/data_ingest/upperair/radiosonde/GTS/HKNC/BUFR/

The renamed files are HKNC_201908290000_ius_sounding.bufr. Only files like this HKNC_*.bufr are processed.

Starting around 9/11/19, there appear to be different names for the same data files.

- a) HKNC_201909090000.ius_soundings.bufr and
HKNC_201909090000_ius_sounding.bufr (These files are exactly the same).
- b) HKNC_201909091200.ius_soundings.bufr and
HKNC_201909091200_ius_sounding.bufr (These files are different).
- c) HKNC_201909111200.ius_soundings.bufr and
HKNC_201909111200_ius_sounding.bufr (These files are exactly the same).

Note that the GTS BUFR data processing code will only process HIGHWAY data from HKNC which is [Nairobi, Kenya, Site = 63741](#). The code would need to be updated to process other sites. We expect that HKNC will send soundings at 00Z and 12Z and only twice a day, therefore the cron is set up to run twice a day at these times. S. Loehrer has said that this is *not* realtime processing and more operational.

3. Determine which files have not been processed and move to raw_gts_bufr_data directory under the data_processing directory.
 - Copy *.bufr files only if DO_NOT_DELETE_running file does not exist.
 - Find *.bufr files that are newer than the last_run_time file.
4. GTS-BUFR conversion programs are run on files in data_processing/raw_gts_bufr_data.
 - Run conversion from Bufr to *.preproc then *.preproc to *.cls (ESC) files. Run command to sort *.cls files. This creates *.preproc, logs, *.cls, and sorted *.cls files in directories in data_processing area.
 - Warn if more than one sounding generated from GTS-BUFR file (i.e., *_#.preproc or *_#.cls). Use the *_01_[SONDE|PIBAL].cls files for plotting.
 - See the note above in step 2 about recognized sites for HIGHWAY.
5. Perl script is run to convert **sorted** *.cls files to .cls.sharppy format.
 - Format that Sharppy reads.
 - Files created in Temp Area.

6. Python script is run to create plots from .cls.sharppy files.
 - Files are created in Temp Area.
 - .png plots are created.
7. Tar/gzip all directories/files (including logs) and move to the processed area.
 - Remove all files/directories from Temp Area except for DO_NOT_DELETE_last_run_time file.
8. Plots are copied to the Field Catalog area -
`/net/ftp2/pub/incoming/catalog/highway`
 - Naming convention, date/time used from header of cls file:
upperair.SkewT.YYYYMMDDhhmm.Nairobi_KE.png