Ensemble Pre-Processor Calibration Program (ENS_PRE_CP) User Manual

1. Overview

ENS_PRE_CP automatically calibrates the preadjust program, creating the necessary statistics files for its execution. This manual describes how to execute the program and its inputs and outputs.

2. Execution

To execute ENS_PRE_CP, use the ens script as follows:

   ens -p ens_pre_cp -I <batch_filename> -o <output_filename>

   where   batch_filename is the name of the input file to use with ENS_PRE_CP (described below)
            output filename is the file to contain the log-output from the ENS_PRE_CP run.

3. Required Apps-Defaults Tokens

The following apps-defaults tokens must be set:

1. calb_area_ts_dir
2. ens_files

The following command can be used to verify that these are set:

   get_apps_defaults <token name>

   where token name is either calb_area_ts_dir or ens_files

If the token has been specified correctly, then a directory will be printed to the screen. All input files are assumed to exist in the directory corresponding to the calb_area_ts_dir token or in one of its subdirectories. Also a subdirectory called "cpc_fcsts/stats" of the directory corresponding to the token ens_files must exist. The output file is placed in this directory.

4. Run Settings

ENS_PRE_CP uses the following settings in order to run: input time series file and output file prefix. Each will now be described:

4.1 Input Time Series File
The input time series file contains observed data used for calibration of the preadjust program. The file must be in data-card (ASCII) format, must contain either precipitation or temperature data and should be one of the files used by ESP to generate ensembles of river stage or flow time series.

4.2 Output File Prefix

The output file prefix is the first part of the name of the output statistics file generated by the ENS_PRE_CP and should correspond to a preadjust area name. The complete output file name is

    <output file prefix>_<data type>.stat

    where   data type is either "precip" or "temp" depending on if the input time series was of precipitation or temperature, respectively.

5. Default Run Settings

If any of the settings described above are not available at run-time, the ENS_PRE_CP will not execute.

6. Input Settings Through The Batch File

The batch file is read sequentially and processed by the ENS_PRE_CP in order to calibrate the preadjust program.

6.1 Batch File Format

The batch file has a fixed format consisting of two lines. The first line specifies the complete path and file name of the input time series file starting from the directory corresponding to the apps-defaults token calb_area_ts_dir. If the file specified cannot be found, then the ENS_PRE_CP will exit. The second line specifies the output file prefix. There is no requirement currently placed on the prefix, but it should correspond to a preadjust area in order for preadjust to find the file.

6.2 Example

The following is an example of a valid ENS_PRE_CP batch file:

    newi4/newi4.map
    des

7. Output

The ENS_PRE_CP creates an output file that follows the naming scheme described in section 4.2 and is placed in the subdirectory cpc_fcsts/stats of the directory corresponding to the apps-defaults token "ens_files". The format of the file depends on if the input data is precipitation or temperature and is described below.

7.1 Output File Format for Temperature Data

The file first consists of seven lines of information gathered from the input time series file, including an identifier, description, period of record, type, unit, output format and a description of the statistics in the file. The rest of the file consists of the running five day average values, monthly average values and running seasonal average values for the mean ("MEAN"), standard deviation ("STD"), minimum ("MIN") and maximum ("MAX") of the data. The data is presented in a five column table with the first

column being the month or day and the next four being the statistics in the order given above.

7.2 Output File Format for Precipitation Data

The output file for precipitation data contains the same first seven lines as described in the previous section. The rest of the file consists of the running five day average values, monthly average values and running seasonal average values for the probability of precipitation ("P{X>0}"), mean ("AVG(X)"), standard deviation ("STD(X)"), standard deviation of all non-zero observed precipitation values ("STD(Y)"), mean of the log of all non-zero observed precipitation values ("AVG(log(Y))"), minimum ("MIN") and maximum ("MAX"). The data is presented in a eight column table with the first column being the month or day and the next seven being the statistics in the order given above.