**Heat Index Climatology Scripts**

These files are in the file folder ‘heatIndex’. Please note that input files are assuming a directory path. Make sure to change directory paths before running if running on a different computer. These files are optimized to run on a Linux machine with perl and BASH scripts.

1. Since stations may be added to cli-DAP in years to come, update the station file each year using

listStations.pl OUTPUTFILENAME.txt

This program runs through all the stations in the CONUS

1. The main script that completes the data pull and most tables are

fullDataPullHI.bash OUTPUTFILENAME.txt ENDYEAR

In these files, the programs are as follows:

A) pullALLdataHI.pl (completes the cli-DAP call for Temp, Wind and Dew Point for HI/WC calculation, and files are put into the ‘Data’ folder in the host folder)

B) tablesHI.pl (completes tables of hours above HI thresholds)

C) percentTablesHI.pl (Completes tables of percent of hours above HI thresholds for months)

D) percentTablesHIHR.pl (Completes tables of percent of hours above HI thresh for hours of day)

E) HIDays.pl (Completes tables of days above HI thresholds for days with 1-8 hours above thresholds)

All output data are sent to the main ‘Data’ folder. Script takes 2-4 days to run.

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If the script is interrupted, update the stations file with the remaining stations needing to be run.

If you need to rerun the deliverables but not re-download the data, simply open the bash script and comment out the pullALLdataHI.pl statement by putting a # symbol before the line starts.

1. While all stations are ran, not all are quality for a long-term climatology. Weed out "bad" stations by doing a data availability check in the main folder using

allStns-QC.pl

Program sends bad stations to BadStnData folder and creates separated station files

stations-QC.txt

stations-bad.txt

Stations are considered good for climatology if they have at least 30 years with 90% Temp availability

**Heat Index Climatology Station Output Files**

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**Hours Files**

Raw Data

1. (Station)-raw.csv
   1. This file has the downloaded data that is used to calculate both wind chill and heat index. These data are pulled from cli-DAP for this station.

Temperature Data Availability for Averages

1. (Station)-actObsMo.csv
   1. Gives number of hours where temperature was not missing at the station during each month of the year
2. (Station)-actObsHr.csv
   1. Gives number of hours where temperature was not missing at the station during each hour of the day

For each station, four hourly threshold files are created. Thresholds are available in 5°F intervals from 50°F through -40°F (18 thresholds)

1. (Station)-(Threshold)-threshHIMo.csv
   1. Gives monthly values of when that threshold was met
   2. Data from the 1973-74 winter and each successive winter
2. (Station)-(Threshold)-threshHIMo-perc
   1. Gives a percentage of hours during each month where the threshold was met.
   2. Data from the 1973-74 winter and each successive winter
   3. Average number of observations for each month in the long-term listed at the bottom along with long-term percentages per month
3. (Station)-(Threshold)-threshHIHr
   1. Gives hourly values of when that threshold was met
   2. Hours are listed 0000 through 2300, based on the first two digits of the hourly observation
   3. Data from the 1973-74 winter and each successive winter
4. (Station)-(Threshold)-threshHIHr-perc
   1. Gives a percentage of hours during each hour of the day where the threshold was met.
   2. Data from the 1973-74 winter and each successive winter
   3. Average number of observations for each month in the long-term listed at the bottom along with long-term percentages per hour.

Summary files of each threshold are created as well to easily view each of the long-term averages throughout the thresholds.

1. (Station)-AvgHIObsMo.csv
   1. Lists long-term average values for all thresholds for months of the year
2. (Station)-AvgHIPercMo.csv
   1. Lists long-term percent of hours values for all thresholds for months of the year
3. (Station)-AvgHIObsHr.csv
   1. Lists long-term average values for all thresholds for hours of the day
4. (Station)-AvgHIPercHr.csv
   1. Lists long-term percent of hours values for all thresholds for hours of the day

**Days Files**

A threshold file is available for days where at least a certain number of hours reached that threshold. These range from one to eight hours in a given day. Data from the 1973-74 snow year and each successive snow year are available. An average and total summary are given at the bottom of the file. A total 64 files (8 heat index thresholds, 8 number of hours thresholds) follow this file pattern:

(Station)-HIDays-(Threshold)-(#Hours).csv

An example is:

KORD-HIDays-100-3.csv

This file contains the number of days where Chicago O’Hare reached a heat index of 100°F or hotter for at least three hours on a given day

Summary files are also available for each station with following the pattern of:

(Station)-HIDaysSum.csv

These files list out each long-term average summary for each threshold and each minimum number of hours the threshold was reached.