Daily Means and Extremes documentation

This document will overview the necessary information to successfully run and use the Means and Extremes program to generate the yearly DMF for IGLD Regulation.

# Note:

API request restrictions:

Limits on Requests per client (IP):

* Up to 5 requests per second
* Up to 30 requests per minute

Limits on data per request (data endpoint):

* One minute data – one week
* Three minute data – 3 weeks
* All others, - 1 month

To satisfy API request restrictions in place to prevent strain on the API and surrounding resources, the script contains a time out (time.sleep(2) in line 163). This will cause the program to pause for 2 seconds between data queries. As a result, the script will take at least a couple hours to generate the results. It is recommended to start the execution and let it run in the background (the script itself has minimal impact on local system resources).

# Procedure:

## Setup:

1. You will need to have Python installed on your system to run this script. If you do not, look online to install python version 3.12.
   1. Note: the script was built and tested in python 3.12. If you use another version, unexpected errors may occur.
2. This script uses the library “requests”. This library will need to be installed via PIP on the correct version of Python in order to execute. Ie. “**pip install requests**” which will install the required library.

## Use:

1. After you have completed the setup, in the working directory, type: “python MeansExtremes-main.py” which will begin running the program.
2. The program will display every day’s Daily mean as it goes through them. This process will take many hours as it has to go through 365 days for 41 stations. If the process is interrupted it will need to restart. Run this program in the background.
3. The program will output a file called “CORNWALL\_DMF\_2024.dat” which will contain the required data in the correct format.

**Note**: Line 6 for each station entry is filled with ‘dummy’ values. For reference, this is the line last line that appear for every station and includes the instantaneous highs and lows, the number of recorded hourly heights and number of days.