

## WEPPpy\_MarkSim\_Generator: WEPP Future Climate Input File Generator Using Python Scripts

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- The WEPPpy\_MarkSim\_Generator is a python script which can be used in conjunction with the MarkSim DSSAT Weather File Generator to simplify the creation of future climate data files for the WEPP model.

- What it specifically does: Generates MarkSim-derived \*.PAR Files for CLIGEN usage. User can use the generated \*.PAR file to generate long-term stochastic climate for use in WEPP.

- This program is an alternative to Excel Spreadsheet at:

<https://www.ars.usda.gov/midwest-area/west-lafayette-in/national-soil-erosion-research/docs/wepp/wepp-future-climate-generator/>

For more information on methods, refer to Trotochaud et al., 2016 paper.

- Also, using this program multiple MarkSim data could be processed at once.

### IMPORTANT NOTE:

- Before running this Python program, ensure that the following libraries are installed on your system.

- The program was tested with python 3.11.5 with the following python libraries:

-- matplotlib==3.7.2

-- pandas==2.0.3

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Steps to create \*.PAR Files for CLIGEN

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0.) Start with MarkSim-example for tests and practice to make sure proper python version and libraies are installed.

1.) In the working directory, MarkSim, you should find two sub-directories:

a) "MarkSim\_Data": Place MarkSim folder/s containing .WTG files downloaded from MarkSim's website (<http://gisweb.ciat.cgiar.org/MarkSimGCM/>).

b) "CLIGEN\_PARfiles": Place CLIGEN \*.PAR files in this directory.

2.) Create a comma-separated file named "MarkSim\_Reference\_File.txt" in the working directory. This file is used for referencing MarkSim data folder to CLIGEN PAR files. Here's an example format:

```
SNo, MarkSim_Data, CLIGEN_PARfiles  
1, example_marksim_data_1, example_1.par  
2, example_marksim_data_2, example_2.par  
...
```

3.) Run "WEPP\_MarkSim\_Generator.py" from the command prompt (or Anaconda command prompt) with Python & libraries installed on your computer:

For command prompt:

```
C:\Users\admin> python WEPPpy_MarkSim_Generator.py
```

For anaconda command prompt:

```
(base) C:\Users\admin> python WEPPpy_MarkSim_Generator.py
```

4.) The program will generate MarkSim-derived .PAR files and graphical comparisons in the "Output" folder for each run specified in the "MarkSim\_Reference\_File.txt" file.

For questions or assistance, please contact:

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