IID Instruction Manual

Introduction

This document describes the operation of the Infinite Improbability Drive (IID) developed by Bodeker Scientific for the SLMACC Climate Shock Vulnerability project.. All code is written in the Python programming language and the required files are IID.py, Storyline directory, Transition Probabilities directory and Irrigation Restriction CDF directory.

Operation

The operation of the IID is very simple. Open up a terminal using a Python environment. The IID requires the parameter of path to a directory containing storylines, If none is provided it will default to ./example_storylines. The program can be run with the following command;

$ python IID.py /path/to/storylines

The IID will print any errors found with the storylines and output the probabilities of each story to a csv file named story_probs.csv. Note: the python libraries Pathlib, Scipy, Pandas and Numpy are required to run this program.

Requirements to run code

There are a few files / directories required to run this program along with the required python libraries. All required files and directories are included in the repository.

- Transition Probability Tables: This is located in the directory ./TransitionProbabilities. This directory contains tables detailing the weather state transition probabilities for each month. These files are referenced for use in calculating the probability of transitions in each story.
- Irrigation Restriction CDF tables: This is located in the directory ./IrrigationRestriction. This directory contains tables required for generating CDF's for the irrigation restriction for each month, these CDFS are then interpolated to calculate the probability of a prescribed restriction value being equal to or greater than the actual restriction value.
- Storyline Directory. This directory is given as a parameter to the script. If none is given then the program defaults to ./example_storylines. The stories do not require a naming convention as the IID will try and read all csv files located in the directory. If there are any errors with reading the storyline files check that the storylines match the format of the stories in ./example_storylines.

Output

The IID will output story probabilities in a file named story_prob.csv in the base directory the script is located in. The output csv will have the columns “file” and “prob”. Each row of the csv will contain the filename and probability of a story from the storyline directory.