* **Input\_Coords.kmz**: Google Earth file containing the MACA input coordinates as placemarks.
* **Cell\_Centers.kmz**: Google Earth file containing the MACA cell centers as placemarks.
* **Coords.csv**: CSV file containing the input and cell center coordinates. Coordinates are recorded both in geographic format and UTM16N.
* **MACA\_Data folder**: Folder containing data downloaded from the MACA datasets (<https://climate.northwestknowledge.net/MACA/data_csv.php>).
  + Parameters used for all downloads:
    - Step One
      * Frequency of Desired Data: daily data; Return all days in years
    - Step Three
      * Select number of variables for CSV columns: 1
    - Step Four
      * Column 2
        + MACAv2-METDATA (Climate)
        + CCSM4 (USA)
        + Pr(Precipitation)
  + Folder organization
    - Linear: Used by the pd\_f\_c\_calibration\_linear.m script.
      * Hist: “Historical” model data downloaded for all 11 coordinates.
        + Parameters:

Step One

Select Scenario: historical (1950-2005)

Year Start: 1990

Year End: 2000

* + - * RCP45: End 21st century RCP 4.5 model data downloaded for all 11 coordinates.
        + Parameters:

Step One

Select Scenario: RCP 4.5 (2006-2099)

Year Start: 2090

Year End: 2099

* + - * RCP85: End 21st century RCP 8.5 model data downloaded for all 11 coordinates.
        + Parameters:

Step One

Select Scenario: RCP 8.5 (2006-2099)

Year Start: 2090

Year End: 2099

* + - Decadal: Used by the pd\_f\_c\_calibration\_decadal.m script.
      * Raw: Unaltered file downloads. These are not used by the script.
        + 2000\_2005: “Historical” model data downloaded for all 11 coordinates.

Parameters:

Step One

Select Scenario: historical (1950-2005)

Year Start: 2000

Year End: 2005

* + - * + RCP45: RCP 4.5 model data downloaded for all 11 coordinates.

Parameters:

Step One

Select Scenario: RCP 4.5 (2006-2099)

Year Start: 2006

Year End: 2099

* + - * + RCP85: RCP 8.5 model data downloaded for all 11 coordinates.

Parameters:

Step One

Select Scenario: RCP 8.5 (2006-2099)

Year Start: 2006

Year End: 2099

* + - * Combined: Files altered from those in the “Raw” folder. These are used by the script.
        + RCP45: Combined “Historical” and RCP 4.5 model data for all 11 coordinates. For each coordinate, equivalent timeseries data from the 2000\_2005 and RCP45 folders are combined for a total timespan of 2000 – 2099.
        + RCP85: Combined “Historical” and RCP 8.5 model data for all 11 coordinates. For each coordinate, equivalent timeseries data from the 2000\_2005 and RCP85 folders are combined for a total timespan of 2000 – 2099.
* **pd\_f\_c\_calibration\_linear.m**: This script calculates the ratio between the K value representative of 1990-1999 and the K value representative of 2090-2099. Ratios are calculated for both the RCP 4.5 and RCP 8.5 scenarios.
* **pd\_f\_c\_calibration\_decadal.m**: This script expands on the pd\_f\_c\_calibration\_linear.m script. It calculates the ratios between the K value representative of 1990-1999 and the K values representative of each decade in the 21st century (i.e. [2000-2009, 2010-2019, …, 2090-2099]). The script calculates ratios for both the RCP 4.5 and RCP 8.5 scenarios. Note that for the decade of 2090-2099, this script reproduces the same ratios calculated in the pd\_f\_c\_calibration\_linear.m script.
* **Output folder**: Folder containing data produced by the third cells of both the pd\_f\_c\_calibration\_linear.m and pd\_f\_c\_calibration\_decadal.m scripts. The third cells of both scripts are exactly the same, and so running either script will create this folder with identical data products. The data products are maps showing the locations of the input coordinates and cell centers.
* **Output\_pd\_f\_c\_calibration\_linear folder:** Folder containing data produced by the pd\_f\_c\_calibration\_linear.m script.
* **Output\_pd\_f\_c\_calibration\_decadal folder:** Folder containing data produced by the pd\_f\_c\_calibration\_decadal.m script.

To estimate K2/K0 ratios throughout the 21st century, we used the procedures of Barnhardt et al., 2020 which utilize the MACA datasets (<https://www.climatologylab.org/maca.html>). Downloading 21st century MACA data for the entire Chestatee watershed would have required a massive amount data storage, and so we decided to only download timeseries data for a smaller number of representative points spaced evenly throughout the basin. We aimed to get ~10 points, so we created a grid with x spacing of 0.1 degrees and y spacing of 0.05 degrees. This resulted in 11 points within the watershed. We input these 11 points into the MACA download interface and obtained data for the 11 cells that contain the points. K2/K0 ratios were calculated for each of the 11 cells, and we averaged those values.

**K2/K0 ratios for the decades [2000-2009, 2010-2019, …, 2090-2099]:**

* **RCP 4.5:** 
  + **1.15517446**
  + **0.949176466**
  + **0.98730054**
  + **1.0693741**
  + **1.055008944**
  + **1.017901154**
  + **1.141791594**
  + **1.101723726**
  + **1.077861174**
  + **1.084426617**
* **RCP 8.5:**
  + **0.965491286**
  + **1.110033055**
  + **1.020035876**
  + **0.978682298**
  + **1.14977496**
  + **1.006153106**
  + **1.157224542**
  + **1.036983782**
  + **1.224639221**
  + **1.26514041**

K\_Ratio\_combined\_span.png

