README

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1. User Input
   This GUI requires 8 variables for locating the data. User should define those variables as inputs before running this program.
   1.1 USGS Station Number:
      USGS Station Number is a unique identification code which is assigned according to a downstream order system. Most of the station numbers are 8 digits which first 2 digits represent the number of major river basin and the following 6 digits represent the downstream-order number. User should specifically identify flow data from which USGS site is desired. The format of station (site) number input is in numbers; for example, 03335500.
   1.2 Start Date
      Start Date is the FIRST day of the time period for the desired data. This date is used for both streamflow data and precipitation data. The format of State Date input is in YYYY-MM-DD; for example, 1990-01-01.
   1.3 End Date
      End Date is the LAST day of the time period for the desired data. This date is used for both streamflow data and precipitation data. Note that the End Date should not be any earlier than the Start Date. The format of End Date input is in YYYY-MM-DD; for example, 1990-12-31.
   1.4 NCDC Data Access Token
      The NCDC Data Access Token is gathered by user from NCDC website as: https://www.ncdc.noaa.gov/cdo-web/token.
      Email address is required, user should enter the email address as the website shows and the token will be sent to the entered email address. Token is a 32 digits combination of upper and lower case letters. Example: kwrtLoTcpyssVMksOTFjxaYtnTzULdUZ.
   1.5 Extents
      Extents are the extreme points for the watershed. This input data can be found by importing the watershed's shapefile into Arc GIS. Watershed's shapefile can be downloaded from USGS StreamStats website by identifying an outlet and then delineating the watershed ("Delineate" tool on top left of the window). USGS StreamStats website can be found as:
      https://streamstats.usgs.gov/ss/.
      Other methods could also be used for finding all 4 extents, approximations are also acceptable.

2. GUI Output

   All downloaded data are stored under "Results" folder in the working directory. Daily flow data, peak flow data, and precipitation data are named as DailyFlow, PeakFlow, and Precipitation respectively.

   2.1 Daily Flow

   Daily flow data for the given specific USGS Gaging Station is downloaded and stored in the folder as DailyFlow. 6 files should be listed as 1 raw data, 1 metrics (Annual_Metrics which contains calculated parameters), 1 summary of data analysis (Checked_Summary), 1 hydrograph, 1 Boxplot, and 1 Q-Q plot.

   2.2 Peak Flow

   Peak flow data for the given USGS Gaging Station is Downloaded and stored in the folder as PeakFlow. 2 files should be listed as 1 raw data, and 1 extreme discharge hydrograph plot (Design flow volumes vs return periods).

   2.3 Precipitation

   Precipitation data for the given extents are downloaded and stored in the folder as Precipitation. Multiple files should be listed depends on how many rainfall stations are located within the given extents. Except for raw data, 7 files could be found as: 1 summary of data analysis, 2 metrics (Annual_Metrics and Monthly_Metrics), 1 average precipitation for all stations (P.csv), 3 hyetographs (Daily, Month, and Yearly). User can forces on different results for different time interval or different research purposes.