Software requirement:

1. Fortran compliers such as Cygwin (<https://www.cygwin.com/>). When installing Cygwin, please install gfortran.
2. Matlab to plot figures. Python or other packages could also plot the results.

Main program:

‘recycl\_chr\_rea.f’ is the fortran program using text file input (I suggest you run this program first).

‘recycl\_chr\_rea\_NetCDF.f’ is the program using netCDF file input.

Procedures:

1. If you run the program using Cygwin command line, firstly go into the folder with the inputs and the code.
2. Compile the program using ‘gfortran -o PrecRe recycl\_chr\_rea.f’. The program will generate a PrecRe.exe file.
3. In the command line, run ‘./PrecRe’
4. You can change the file name.
5. .out files are the output files
6. .txt files are the input files
7. After the program generates results, run the plot\_month.m file using Matlab to visualize results.

Input files:

E.txt: evaporation data

PCP.txt: precipitation data

Q199806.txt: precipitable water content in the air

U199806.txt: zonal wind speed

V199806.txt: latitudinal wind speed

Output files:

RR\_ncep03.out: precipitation recycling ratio

E1\_ncep03.out: evaporation

W1\_ncep03.out: atmospheric water content

U1\_ncep03.out: wind speed

V1\_ncep03.out: wind speed

E0.dat: initial conditions automatically generated using the program.