**Readme**

With the programs *Fig01.for* to *Fig13c.for* we make the source codes available which we have used to produce the main results of the article “The joint influence of break and noise variance on the break detection capability in time series homogenization” offering the possibility to the public to reproduce and retrace our findings. The names of the programs denote the respective Figure numbers in the paper. Some of the codes are designed to generate more than only one Figure, e.g., *fig09.for*, which is able to reproduce both Fig. 9a and Fig. 9b. In this case an interactive screen input (*a* or *b*) is necessary to specify the aimed Figure. The program *Fig13.for* is able to produce Fig. 13a and 13b directly, but Fig. 13c only indirectly by preparing first some additional data. In this case, the program *Fig13.for* has to be run three times, separately for SNR=0.5, 1.0, and 1.5. The intermediate steps are chosen, because the calculations are rather time consuming. The three generated data sets *Fig13c.050*, *Fig13c.100,* and *Fig13c.150* are then visualized by applying *For13c.for.*

The programs are written in FORTRAN77, but they include also NCAR Graphics commands (these are compatible to the FORTRAN language) which are necessary to visualize the results. Thus, most of the Figures can be reproduced “from scratch” just by running the FORTRAN programs, because the underlying data are based on random numbers that are internally generated in the programs themselves. However, Fig. 1, 2, 6, and, 7 are based on observational data from climate stations maintained by the *Deutscher Wetterdienst*. Originally, the entire data were not freely available, but nowadays the restrictions are abrogated for most of the stations. Unfortunately, we have used also a few stations for which this is not the case until today. Therefore, the used data cannot be published. However, similar data is available at the Climate Data Center of DWD (<http://www.dwd.de/cdc>).

In order to run the concerned programs (1, 2, 6, and, 7), two input files have to be prepared: one containing the list of stations including their geographical locations and a second one containing the monthly mean temperatures of these stations.

The format of these data must be compatible to the following two FORTRAN reading commands (which you can also find in the respective codes):

read(30,’(i5,a42,2f8.4)’)k,staname(k),xla(k),phi(k)

read(31,’(i4,3i3,f8.4)’)k,j,m,ianz,xm

where *k* denotes a running number *staname(k)* the station name, *xla(k)* and *phi(k)* the geographical longitude and latitude, respectively. In the second reading command *k* denotes again a running number, *j* the year minus 1900, *m* the month, *ianz* the number daily observations for this month, and *xm* the mean monthly temperature.

The programs run on any linux mashine with an NCL/NCAR Graphics package installed. This software is available at <http://www.ncl.ucar.edu/> and registered under doi:10.5065/D6WD3XH5. For our calculations we used version 6.3.0 together with a gfortran compiler. An alternative proceeding can be of course to delete all Graphic commands, running the remaining pure FORTRAN code and plotting the results by your own.

However, if you decide to run the programs as they are (including the Graphic commands) the output will be a metafile named *gmeta* which can be transformed by the command *ctrans* to a common graphic format, e.g. to PostScript, by:

ctrans –f font12 –d ps.color gmeta > figure.ps

We regret that the code lines are not always excessively commented. In case of any question do not hesitate to contact me.

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