

subassX.txt

This is a file with an assessment of each subbasin's performance, or each output region if regional output variables are used. The file is located in the [resultdir](#) folder. One file is printed for each unique combination of simulated and recorded variable among the [performance criterion](#) included in the objective function given in [info.txt](#). X is the ordinal number of the performance criterion and the subbasin assessment is calculated for the same variables as that performance criterion. If more than nine criteria are included, the following are denoted by capital letters. Definitions of equations for calculating the criteria is found [here](#). Settings in [info.txt](#) decide which performance criteria is written.

When ensemble or sequence simulations are made, the results from simulations ($l=1 \dots n$ or $l=\text{sequence number}>0$) are written to files named subassX_00l.txt. For a Monte Carlo calibration n is defined by num_ens in [optpar.txt](#). For a DE calibration n is num_ngen plus one, where the first one is a simulation with median of the others parameter values.

For the calculation of criterion for lake water stage, the combination of variables wcom and wstr are exchanged for the internal variables clwc and clws by the program. These variables are the water stages cleaned from w0ref reference level ($clwc=wcom-w0ref$, $clws=wstr-w0ref$). This makes the criterion calculation more accurate, but note that relative criteria, e.g. relative bias, are relative to the smaller cleaned water stage level.

The first row of the file let you know the average period (0=timesteply, 1=daily, 2=weekly, 3=monthly, 4=yearly) used for calculation of the values that are compared in the criteria. This period corresponds to the setting meanperiod in [info.txt](#). Variable names and unit of the variables are also listed on row one. The second row is column headings. Thereafter follow subbasins which has observations, one on each row. The data limitation for calculating the subbasin criteria is the same as that of the calibration criteria. This limitation is not used for calculation of minimum and maximum values though. Missing values are indicated as -9999. Note: minimum and maximum values are based on the average period, e.g. maximum of monthly average flows.

Columns of subassX.txt:

Header	Unit	Description
SUBID / OUTREGID	-	subbasin id (as defined in GeoData.txt) or outregion id (as defined in Outregions.txt)
NSE	-	Nash-Sutcliffe efficiency
CC	-	Pearson correlation coefficient (part 1 of Kling-Gupta efficiency)
RE (%)	%	relative bias in mean
RSDE (%)	%	relative bias in standard deviation
Sim	<i>in first row</i>	mean of simulated variable
Rec	<i>in first row</i>	mean of observed variable
SDSim	<i>in first row</i>	standard deviation of simulated variable
SDRec	<i>in first row</i>	standard deviation of observed variable
MAE	<i>in first row</i>	mean absolute error
RMSE	<i>in first row</i>	root mean square error
Bias	<i>in first row</i>	bias
SDE	<i>in first row</i>	bias of standard deviation
KGE	-	Kling-Gupta efficiency

Header	Unit	Description
KGESD	-	part 2 of Kling-Gupta efficiency (std-quotient)
KGEM	-	part 3 of Kling-Gupta efficiency (mean-quotient)
NRMSE	-	normalised root mean square error
NSEW	-	Nash-Sutcliffe efficiency adjusted for bias
Nrec	-	number of observations
MinRec	<i>in first row</i>	minimum value of observed variable
MaxRec	<i>in first row</i>	maximum value of observed variable
MinSim	<i>in first row</i>	minimum value of simulated variable
MaxSim	<i>in first row</i>	maximum value of simulated variable

Example of subass1.txt:

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Subbasin assessment. Criteria is calculated for period 1. Variables: rout,
cout Unit: m3/s
SUBID  NSE  CC  RE(%)  RSDE(%)  Sim  Rec  SDSim  SDRec  MAE
RMSE  Bias  SDE  KGE  KGESD  KGEM  NRMSE  NSEW  Nrec
112 0.5071  0.721  22.6492  -68.38  0.058  0.0472  0.0681  0.1
0.0385  0.072  0.0131  -0.0132  0.5182  0.6781  1.2265  0.0662
0.5122  783
135 0.722  0.8811  -20.802  0.3982  0.3081  0.3887  0.4089
0.4071  0.1464  0.2143  -0.0811  0.0021  0.76  1.004  0.7922
0.0752  0.7223  1052

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