

bestsims.txt

When performing calibrations that generate several simulations as results (e.g. Monte Carlo simulation) a number of best results (num_ens defined in [optpar.txt](#)) are saved to *bestsims.txt*, one row per simulation. The simulation with best objective function value (column CRIT) is first. The file is located in the [resultdir](#) folder given in [info.txt](#).

For DEMC calibrations (task DE in [optpar.txt](#)), *bestsims.txt* contains parameter values of the last generation of all populations plus one row (first row in the file) with median values of this last generation. **Note:** The population parameter sets are the last ones accepted by the DEMC algorithm (column iacc == 1 in the [allsim.txt](#) result file). **Note 2:** The median is here, for npop>3 and even npop, equal to the smaller of the two middle values, i.e. not the midpoint of them.

File content

The first row contains column headings. The first column is the ordinal number, and the second is the value of the objective function on which the simulations are sorted. The closest following columns are a set of performance criteria (see table below and [equations](#)). When several criteria are given in [info.txt](#) to be used together as the objective function, the columns with performance information will be repeated once per such criteria.

The last columns contain parameter values. Only the parameters calibrated are included in the file. The heading of these columns is the parameter name. Thus for parameters that is not general parameters, several columns with the same name may occur. The number of those columns is the number of soil types, land uses etc. calibrated for that parameter.

The value of a performance criterion will be given if it has been calculated during the simulation. Which criterion that is calculated is determined by the choice of objective function. Criterion that can be deduced from the calculations of the objective function are saved, but no additional ones are calculated. Missing values are indicated with -9999. If the objective function is composed of several criteria comparing the same variables, e.g. both NSE and RE of discharge, there will be still be several (two for the example) sets of performance criteria columns in the file, but they will have the same values since they are comparing the same variables. **Note:** If several RA criteria have been selected, only the last of them will be printed to file.

The columns of *bestsims.txt*:

Column	Description
NO	row number
CRIT	value of objective function
rr2	regional Nash-Sutcliffe efficiency (data from all subbasins combined in one data series)
sr2	spatial Nash-Sutcliffe efficiency, calculated using annual means for all subbasins (requires at least 5 years and 5 subbasins with data) to form one data series to calculate the Nash-Sutcliffe efficiency on
mr2	average of Nash-Sutcliffe efficiencies for subbasins
rmae	regional mean absolute error (data from all subbasins combined in one data series)
sre	spatial relative bias (calculated on annual means for all subbasins)
rre	regional relative bias (data from all subbasins combined in one data series)

Column	Description
mre	average of the relative bias for all subbasins (Note: fraction, not %)
rra	regional RA, similar to regional NSE, RA is a Nash-Sutcliffe like criterion where the square in the Nash-Sutcliffe formula is exchanged with a coefficient value
sra	spatial RA, similar to spatial NSE, RA is a Nash-Sutcliffe like criterion where the square in the Nash-Sutcliffe formula is exchanged for a coefficient value
mra	average value of RA for subbasins, RA is a Nash-Sutcliffe like criterion where the square in the Nash-Sutcliffe formula is exchanged with a coefficient value
tau	average of Kendall's Tau value for subbasins
md2	median of Nash-Sutcliffe efficiency for subbasins
mda	median of all subbasins' RA (Nash-Sutcliffe like criteria where the square is exchanged with a coefficient value)
mrs	average of error in standard deviation for subbasins
mcc	Pearson correlation coefficient, average of all subbasins with observations
mdkg	median of Kling-Gupta efficiency for subbasins
akg	average of Kling-Gupta efficiency for subbasins
asckg	average of Kling-Gupta Efficiency rescaled to the interval [-1,1]
mar	average of absolute relative bias for subbasins (Note: fraction. not %)
mdnr	median of normalised RMSE for subbasins
mnw	average of Nash-Sutcliffe efficiencies adjusted for bias for subbasins
snr	spatial root mean square error
smb	spatial mean absolute scaled bias on natural log transformed values
numrc	number of data points included in calculation of regional criteria
nummc	number of areas (subbasins/outregions) which criteria is included in mean and median criteria calculations
parname	parameter(s) that has been calibrated (one or several columns)

Example of *bestsims.txt*:

```

NO,CRIT,rr2,sr2,mr2,rmae,sre,rre,mre,rra,sra,mra,tau,md2,mda,mrs,mcc,mdkg,ak
g,asckg,mar,mdnr,mnw,snr,smb,numrc,nummc,cevp,wcfc,rrcs1,rivvel,damp
1,-0.20237763,0.70495784,-9999,0.20237763,35.02048492,-9999,-0.27154529,-0.2
5385103,-9999,-9999,-9999,-9999,0.18291715,-9999,-0.41173482,0.65588838,0.29
082537,0.32529864,0.21824078,0.29653594,0.12578303,0.37322822,-9999,-9999,87
60,24,0.10426278,0.07934671,0.23716953,1.46884918,0.12412609

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