Nash-Sutcliffe Efficiencies of Daily Streamflow Predictions

**Figure C1.** The distribution of the at-site Nash-Sutcliffe efficiencies of daily streamflow predictions for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The Nash-Sutcliffe efficiency is along the vertical axis. Nash-Sutcliffe efficiency ranges from one to negative infinity; a value of one indicates a perfect fit, while a value of zero indicates that a mean value would have produced the same level of accuracy. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C2. The distribution of the at-site Nash-Sutcliffe efficiencies of the logarithms of daily streamflow predictions for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The Nash-Sutcliffe efficiency of the logarithms is along the vertical axis. Nash-Sutcliffe efficiency ranges from one to negative infinity; a value of one indicates a perfect fit, while a value of zero indicates that a mean value would have produced the same level of accuracy. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C3. The distribution of the at-site root-mean-square errors of daily streamflow predictions for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis indicates the root-mean-square error in units of streamflow. Lower values represent less error, on average. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C4. The distribution of the at-site root-mean-square-normalized errors of daily streamflow predictions for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis indicates the root-mean-square-normalized error. Lower values represent less error, on average. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in Table 1.
Figure C5. The distribution of at-site average percent errors of daily streamflow predictions for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the average percent bias. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C6. The distribution of at-site Pearson correlations between simulated and observed daily streamflows for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the Pearson correlation, which ranges from negative to positive one. A perfect correspondence would exhibit a Pearson correlation of one. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C7. The distribution of at-site Spearman correlations between simulated and observed daily streamflows for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the Spearman correlation, which ranges from negative to positive one. A perfect correspondence between ranked streamflow would exhibit a Spearman correlation of one. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C8. The distribution of the at-site Nash–Sutcliffe efficiencies of the daily storage-yield curve (SYC) for each method of prediction in ungaged basins (PUB) is considered here. See text for a description of the methodology used to predict the SYC. The horizontal axis indicates each PUB method. The Nash–Sutcliffe efficiency is along the vertical axis. Nash–Sutcliffe efficiency ranges from one to negative infinity; a value of one indicates a perfect fit, while a value of zero indicates that a mean value would have produced the same level of accuracy. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C9. The distribution of the at-site Nash-Sutcliffe efficiencies of the logarithms of the daily storage-yield curve (SYC) for each method of prediction in ungaged basins (PUB) is considered here. See text for a description of the methodology used to predict the SYC. The horizontal axis indicates each PUB method. The Nash-Sutcliffe efficiency of the logarithms is along the vertical axis. Nash-Sutcliffe efficiency ranges from one to negative infinity; a value of one indicates a perfect fit, while a value of zero indicates that a mean value would have produced the same level of accuracy. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C10. The distribution of the at-site root-mean-square errors of the daily storage-yield curve for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis indicates the root-mean-square error in units of storage fraction (time, storage volume divided by mean streamflow). Lower values represent less error, on average. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C11. The distribution of the at-site root-mean-square-normalized errors of the daily storage-yield curve for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis indicates the root-mean-square-normalized error. Lower values represent less error, on average. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Average percent errors of the daily storage-yield curve

Figure C12. The distribution of at-site average percent errors of the daily storage-yield curve for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the average percent bias. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C13. The distribution of at-site Pearson correlations between the simulated and observed daily storage-yield curves for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the Pearson correlation, which ranges from negative to positive one. A perfect correspondence would exhibit a Pearson correlation of one. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C14. The distribution of at-site Spearman correlations between the simulated and observed daily storage-yield curves for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the Spearman correlation, which ranges from negative to positive one. A perfect correspondence between ranked values would exhibit a Spearman correlation of one. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C15. The distribution of at-site percent errors in the estimated coefficient of variation of annual streamflows for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C16. The distribution of at-site percent errors in the estimated coefficient of variation of daily streamflows for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C17. The distribution of at-site percent errors in the estimated 10th percentile of the distribution of 7-day average annual-minimum events for each method of prediction in ungaged basins (PUB) is considered here. This event is related to the 10-year, 7-day average annual event. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C18. The distribution of at-site percent errors in the estimated 50th percentile of the distribution of 7-day average annual-minimum events for each method of prediction in ungaged basins (PUB) is considered here. This event is related to the 2-year, 7-day annual-minimum event. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in Table 1.
Figure C19. The distribution of at-site percent errors in the estimated 90th percentile of the distribution of annual-maximum events for each method of prediction in ungaged basins (PUB) is considered here. This event is related to the 10-year annual-maximum event. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C20. The distribution of at-site percent errors in the estimated 90-percent-exceedance streamflow for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C21. The distribution of at-site percent errors in the estimated 75-percent-exceedance streamflow for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C22. The distribution of at-site percent errors in the estimated 50-percent-exceedance streamflow for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C23. The distribution of at-site percent errors in the estimated 25-percent-exceedance streamflow for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C24. The distribution of at-site percent errors in the estimated 10-percent-exceedance streamflow for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C25. The distribution of at-site percent errors in the estimated mean daily streamflow for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C26. The distribution of at-site percent errors in the estimated coefficient of variation (L-CV) of daily streamflow for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C27. The distribution of at-site percent errors in the estimated skewness (L-skew) of daily streamflows for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C28. The distribution of at-site percent errors in the estimated kurtosis (L-kurtosis) of daily streamflows for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Method of prediction in ungaged basins

Figure C29. The distribution of at-site percent errors in the estimated lag-1 autocorrelation of daily streamflows for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C30. The distribution of at-site percent errors in the estimated amplitude of the sinusoidal seasonal trend of daily streamflows for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C31. The distribution of at-site percent errors in the estimated phase of the sinusoidal seasonal trend of daily streamflows for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis shows the percent error. Unbiased methods display a median near zero and minimum variability of at-site bias. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.
Figure C32. The distribution of the at-site root-mean-square-normalized errors of estimated Fundamental Daily Streamflow Statistics (FDSS) for each method of prediction in ungaged basins (PUB) is considered here. The horizontal axis indicates each PUB method. The vertical axis indicates the root-mean-square-normalized error. Lower values represent less error, on average. (The dark line indicates the median of the distribution, the box outlines the 25th and 75th percentiles, and the whiskers extend to the data point a distance not more than 1.5 times the interquartile range away from the nearest quartile. Data points beyond this whisker length are defined as outliers and, to increase the visibility of the distribution, have not been drawn.) Method abbreviations are in table 1.