Supplementary Figures

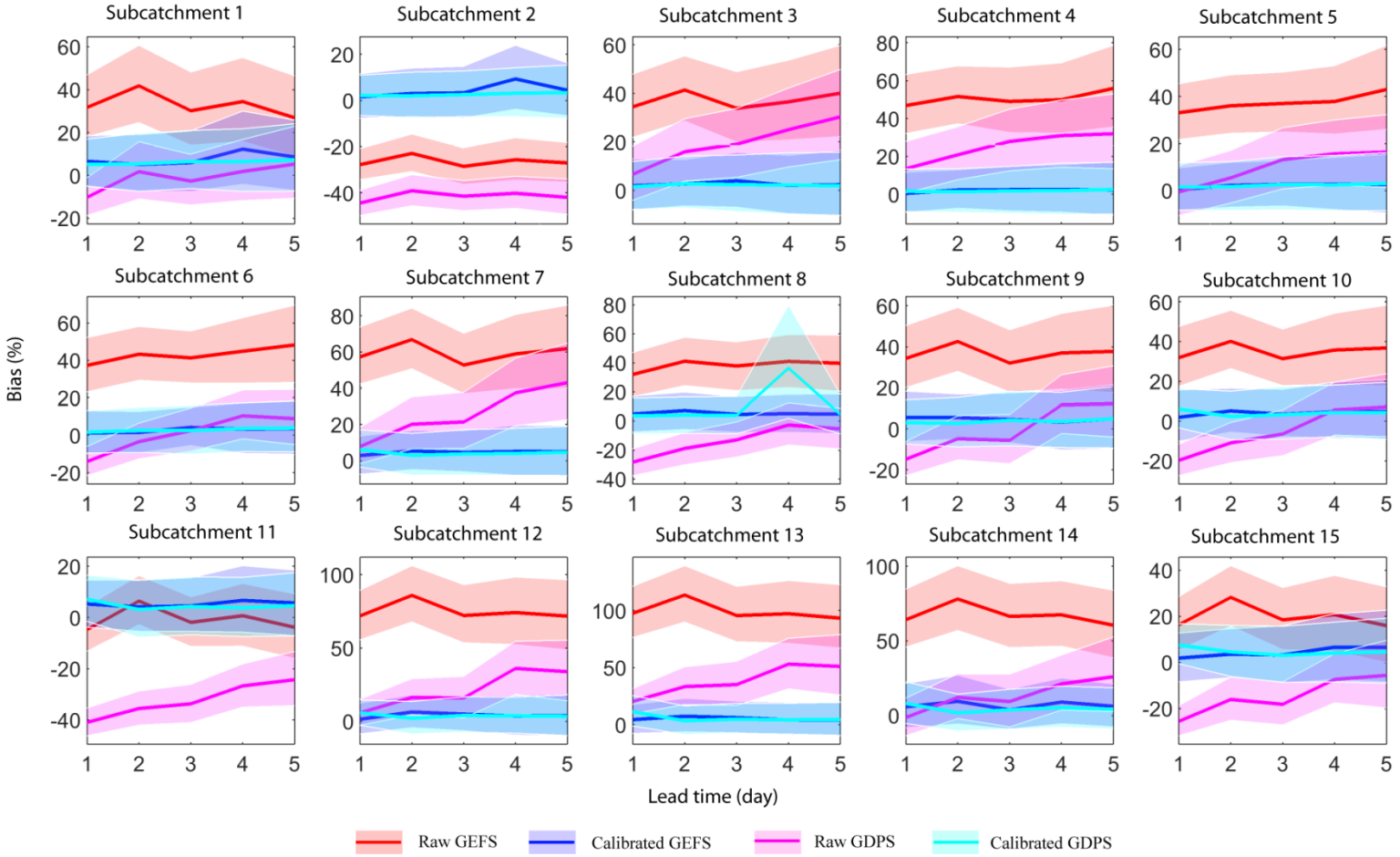

Figure SF-1(a): Subcatchment-averaged bias (%) in the raw QPFs and calibrated QPFs for individual daily forecasts as a function of lead-time for all subcatchments. The shaded region represents 5% and 95% confidence intervals generated using a bootstrap approach. Note the different scales on the vertical axes.

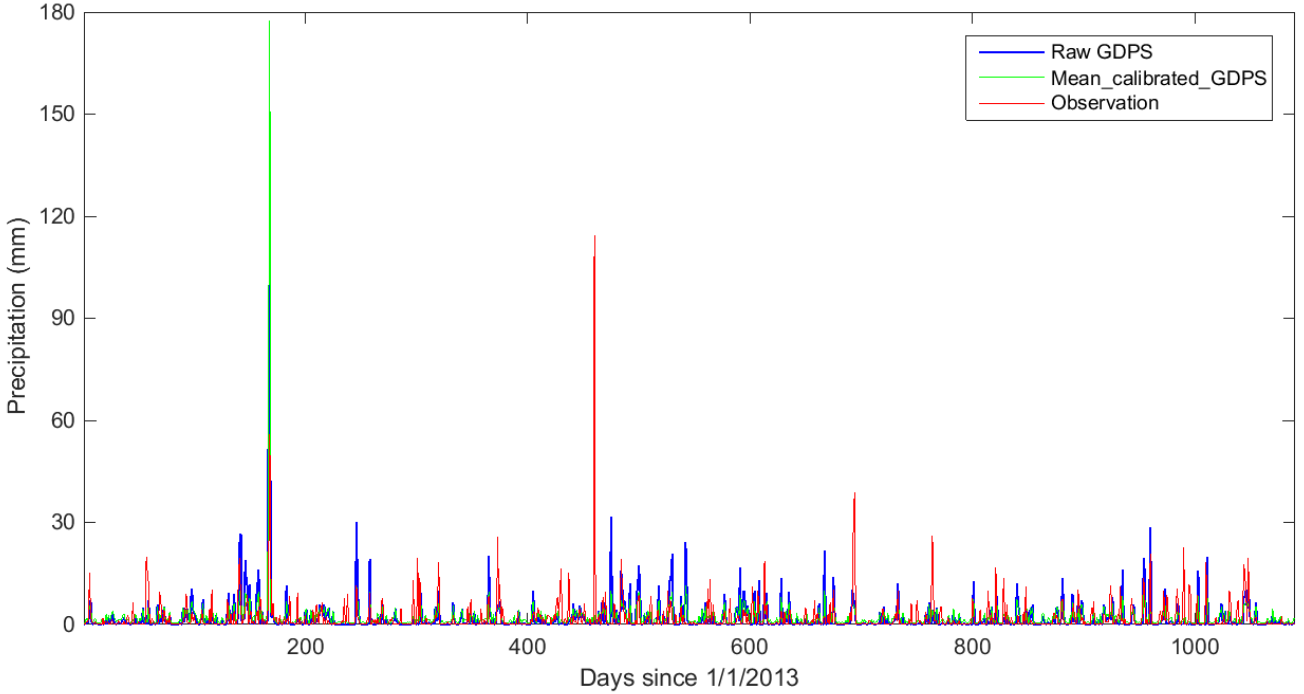

Figure SF-1(b): Comparison of weighted-area raw GDPS with subcatchment-averaged observation for the year 2013 to 2015 in subcatchment 8 for lead time of 4 days.

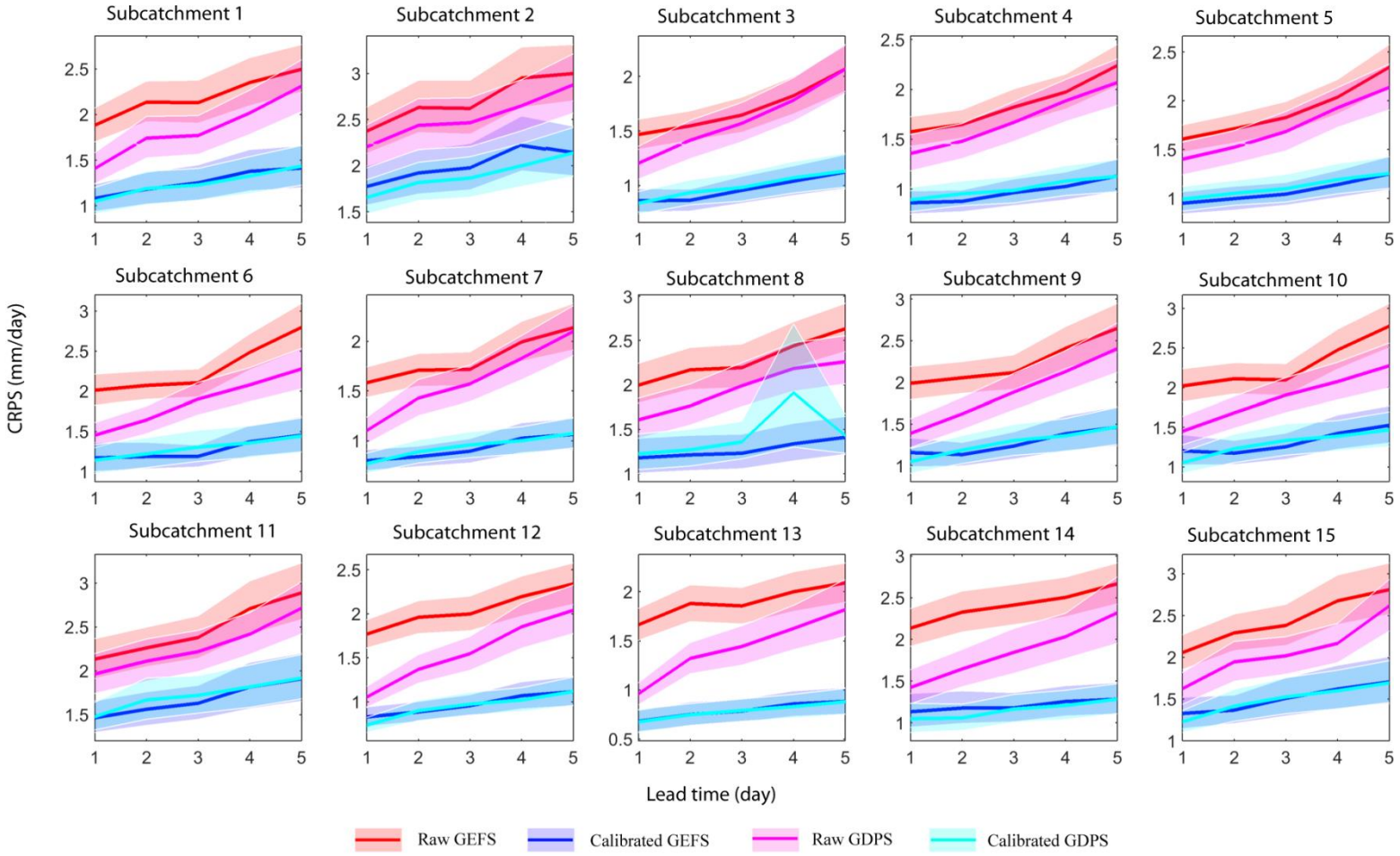

Figure SF-1(c): Subcatchment-averaged CRPS (mm/day) in the raw QPFs and calibrated QPFs for daily precipitation as a function of lead-time for all subcatchments. The shaded region represents 5% and 95% confidence intervals generated using a bootstrap approach. Note the different scales on the vertical axes.

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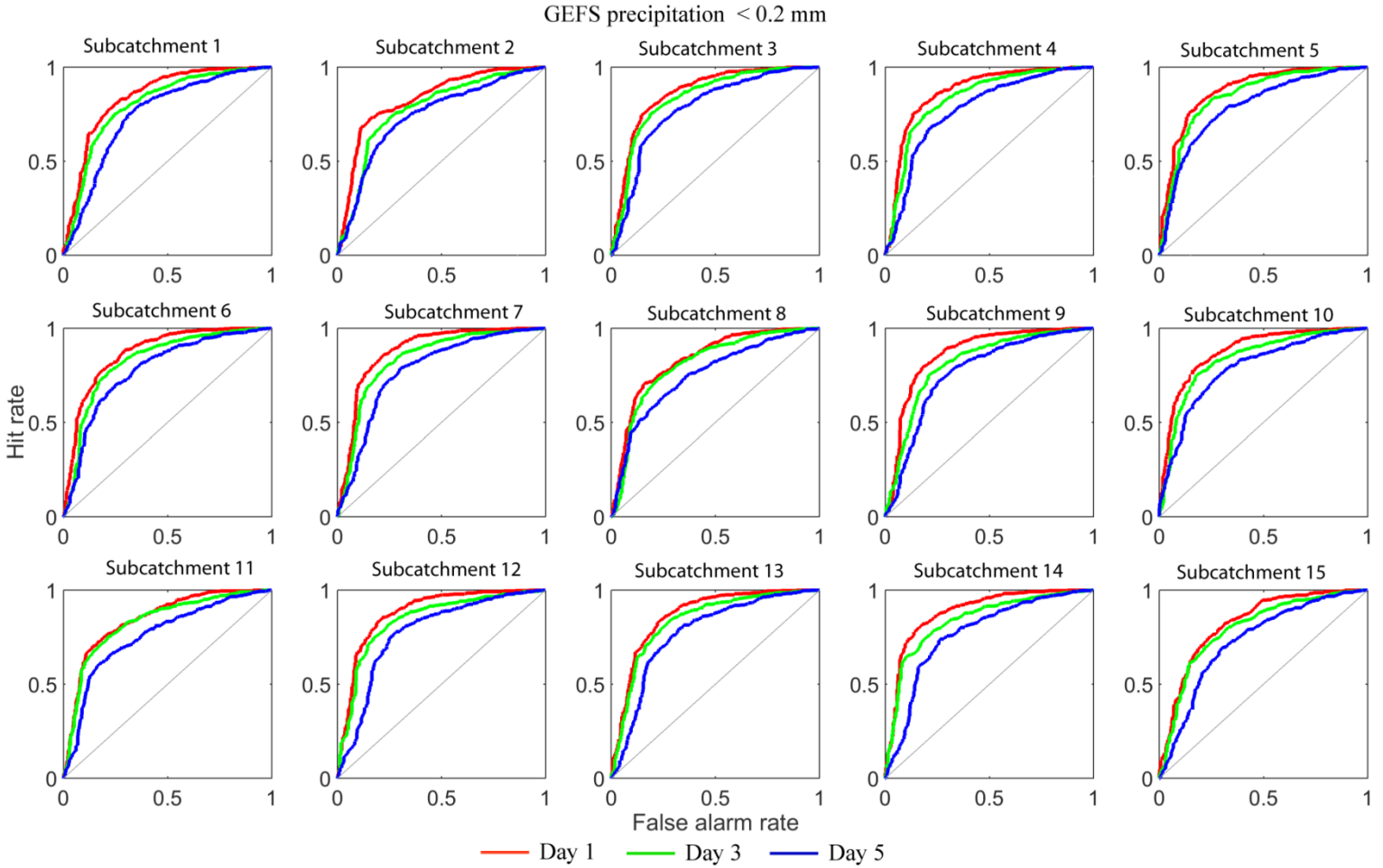

Figure SF-2(a): Relative operating characteristic (ROC) curve at lead times of 1, 3, and 5 days for calibrated GEFS for events of precipitation less than 0.2 mm for all subcatchments. In the calculation of ROC, the daily data from 2013 to 2015 are used.

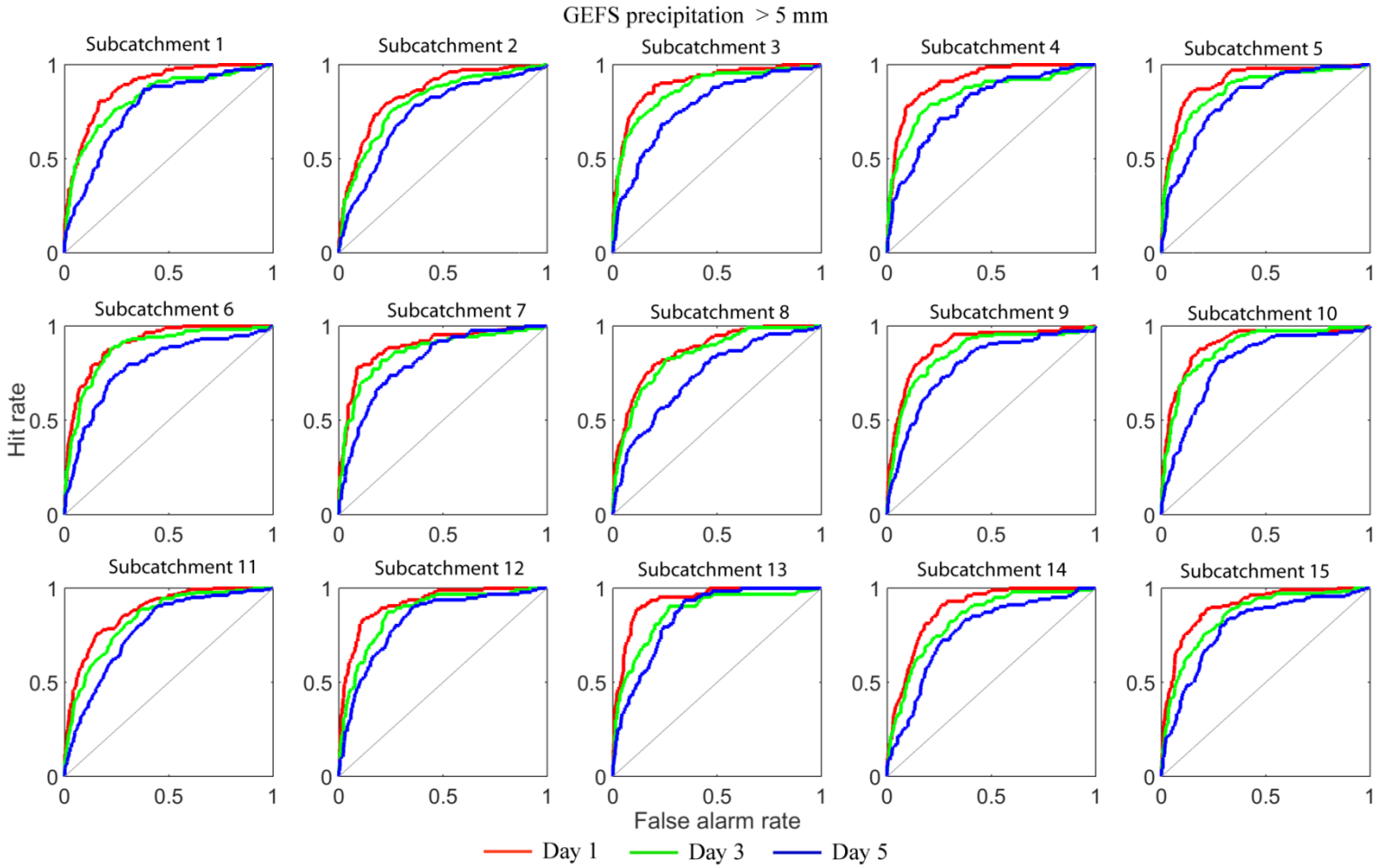

Figure SF-2(b): Relative operating characteristic (ROC) curve at lead times of 1, 3, and 5 days for calibrated GEFS for events of precipitation greater than 5 mm for all subcatchments. In the calculation of ROC, the daily data from 2013 to 2015 are used.

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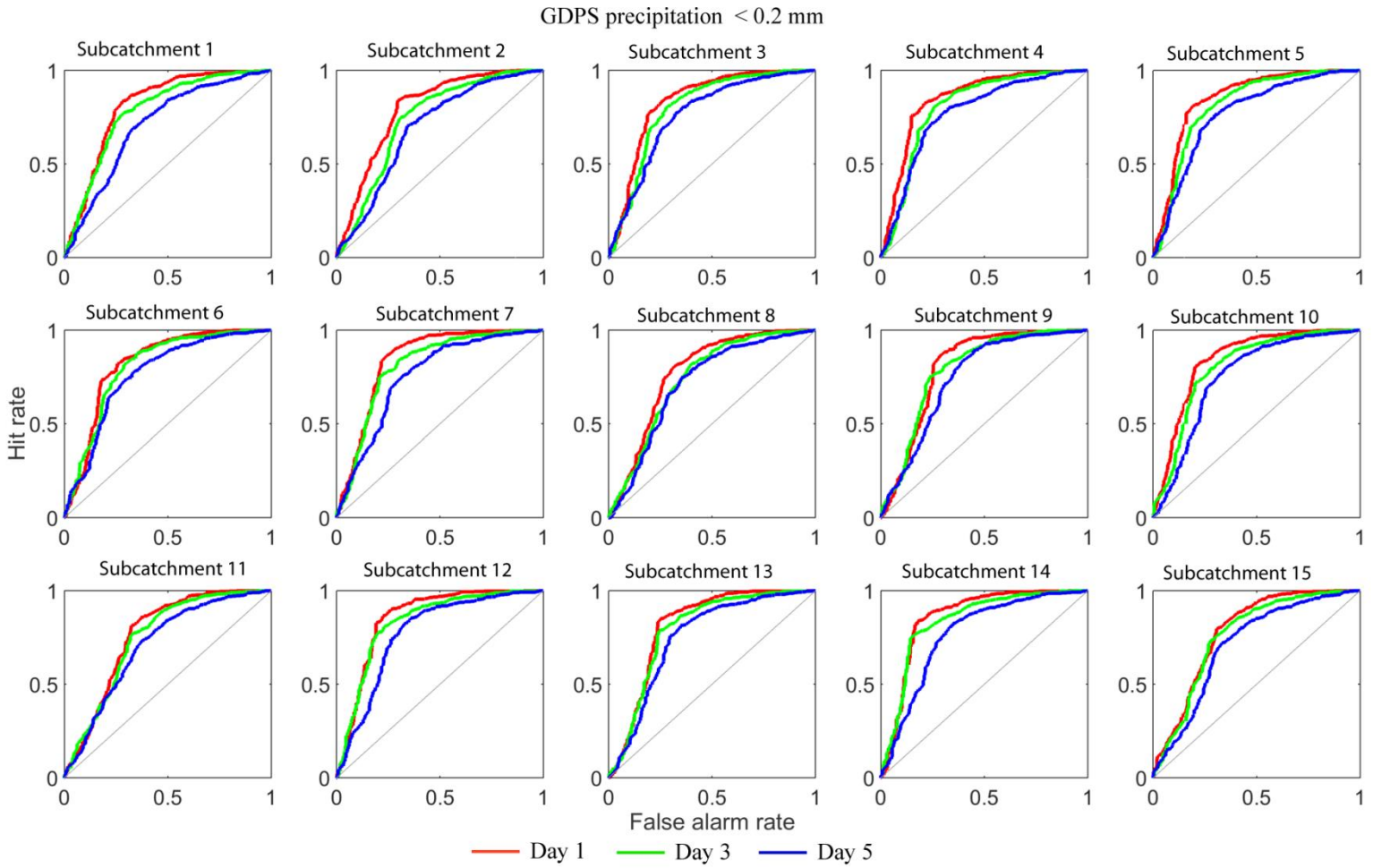

Figure SF-2(c): Relative operating characteristic (ROC) curve at lead times of 1, 3, and 5 days for calibrated GDPS for events of precipitation less than 0.2 mm for all subcatchments. In the calculation of ROC, the daily data from 2013 to 2015 are used.

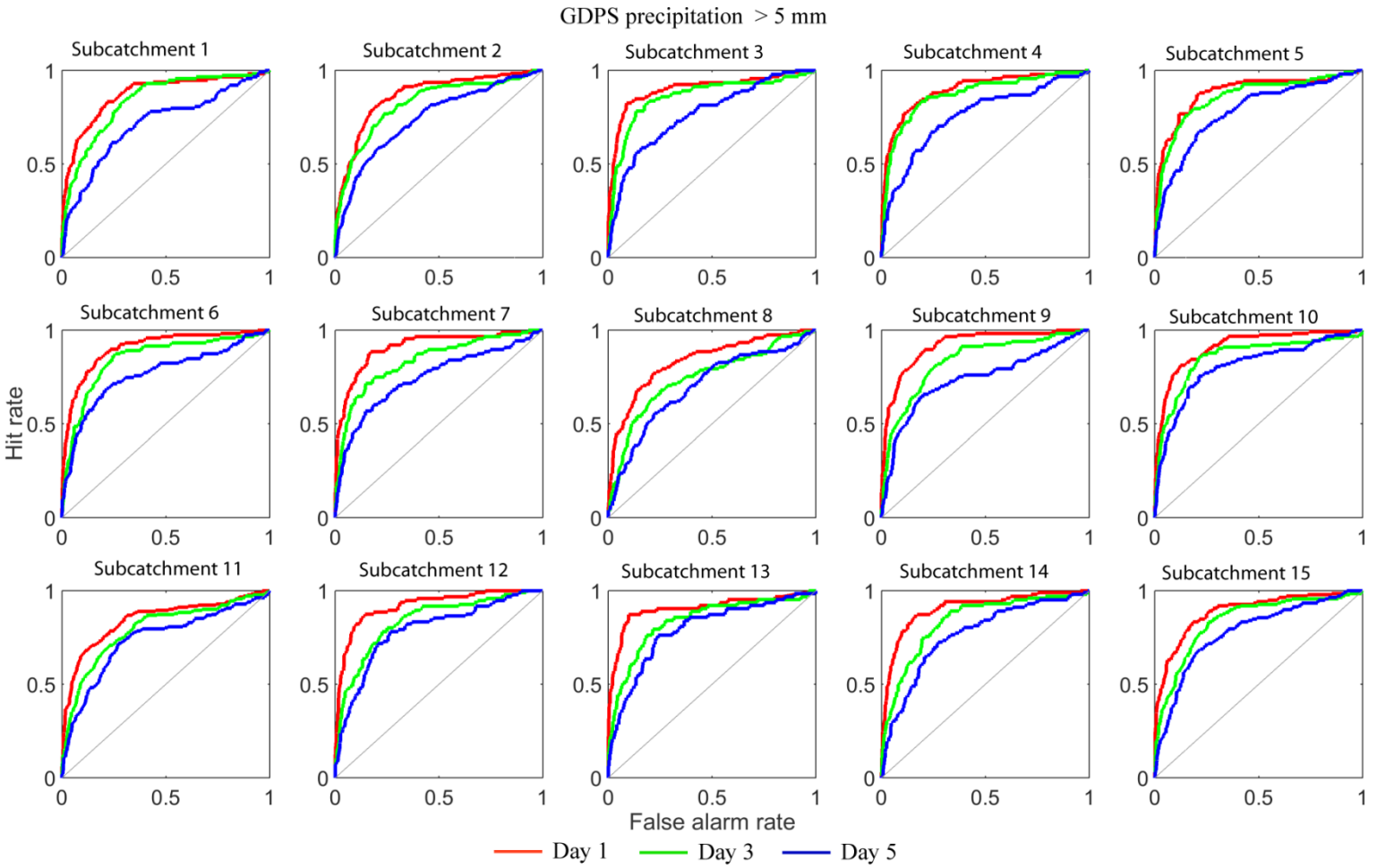

Figure SF-2(d): Relative operating characteristic (ROC) curve at lead times of 1, 3, and 5 days for calibrated GDPS for events of precipitation greater than 5 mm for all subcatchments. In the calculation of ROC, the daily data from 2013 to 2015 are used.

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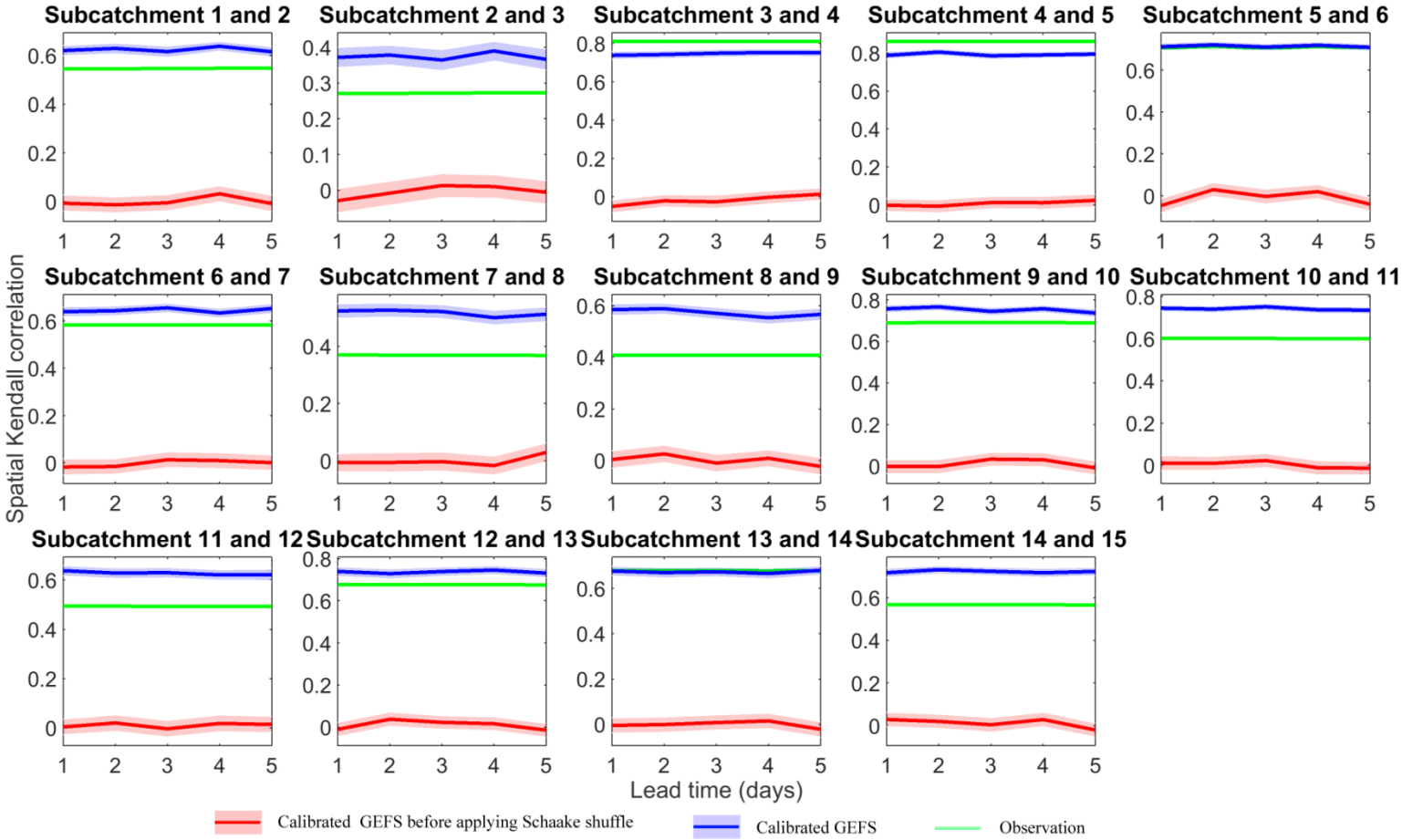

Figure SF-3a: Spatial Kendall correlation coefficients for the calibrated GEFS before and after applying the Schaake shuffle and for observation between different subcatchments.

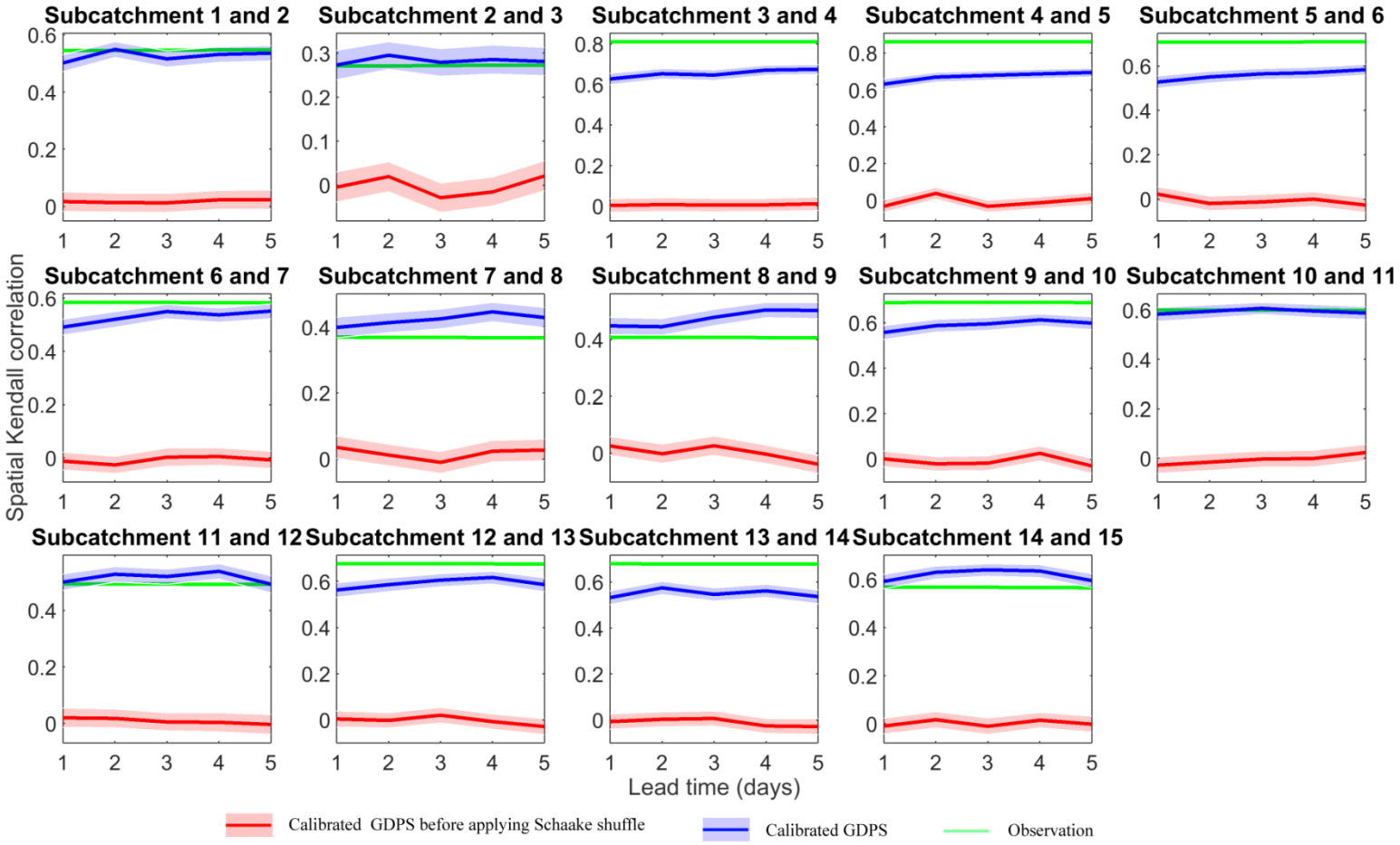

Figure SF-3b: Spatial Kendall correlation coefficients for the calibrated GDPS before and after applying the Schaake shuffle and for observation between different subcatchments.

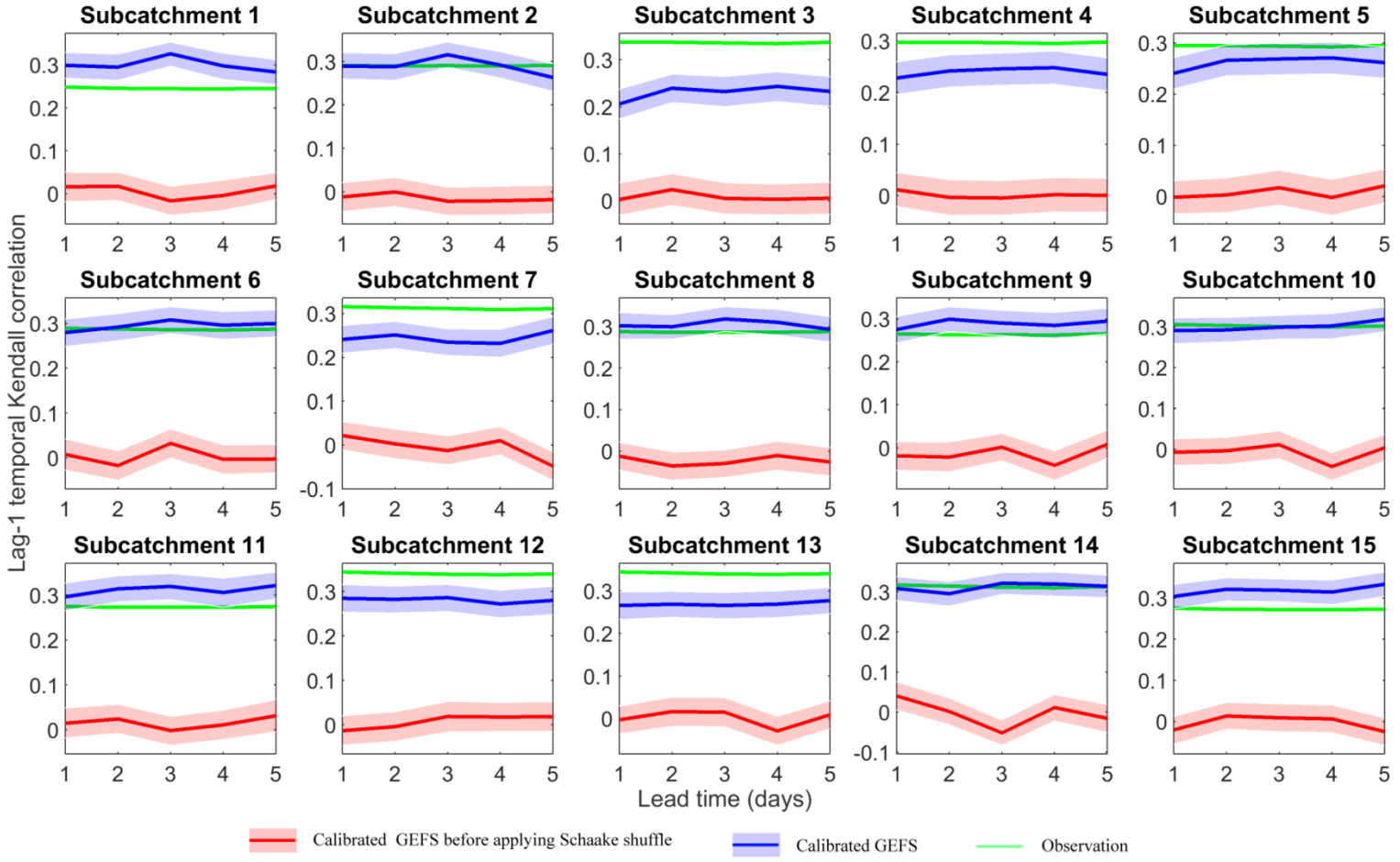

Figure SF-4a: Lag-1 temporal Kendall correlation coefficients for the calibrated GEFS before and after applying the Schaake shuffle and for observation.

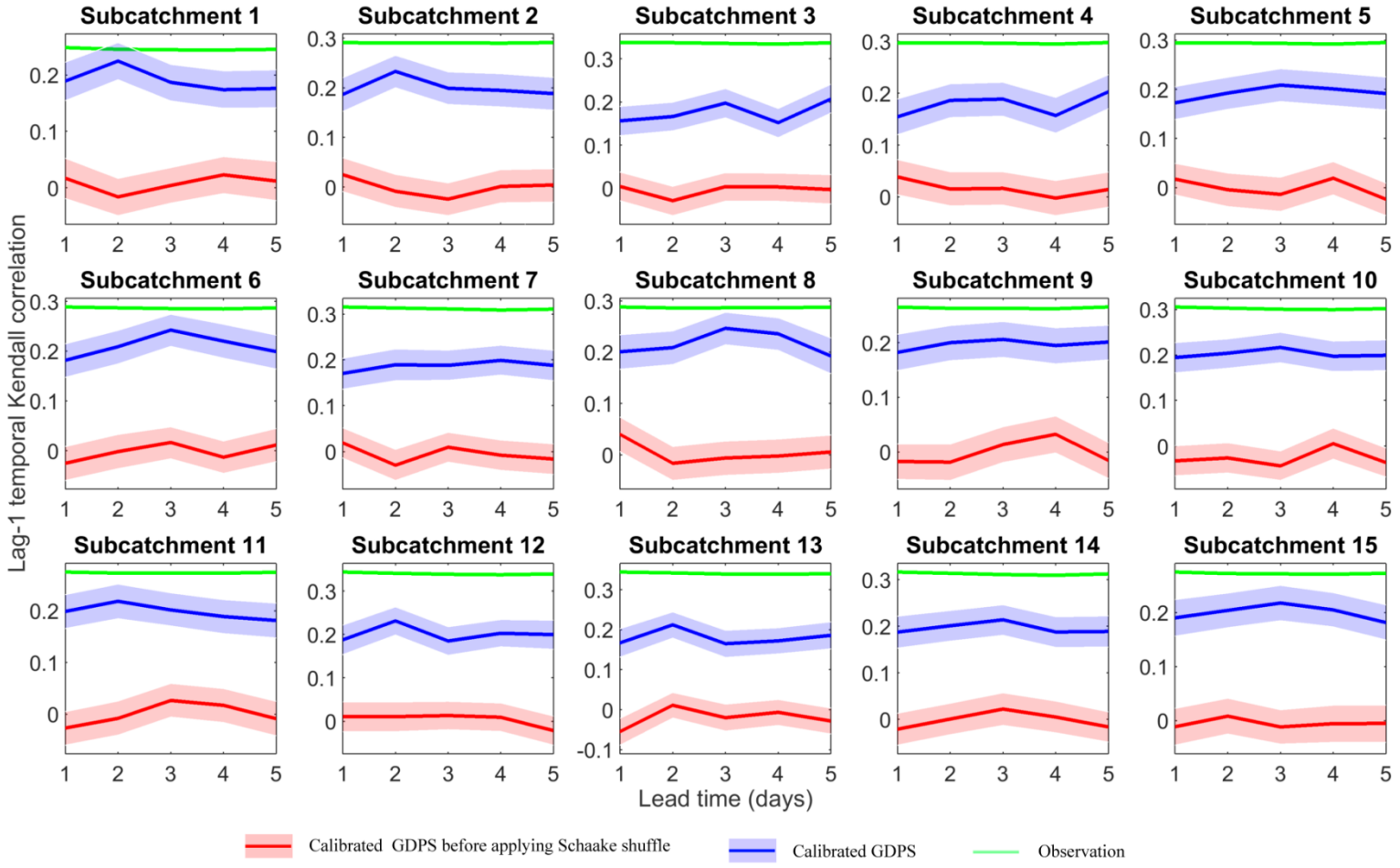

Figure SF-4b: Lag-1 temporal Kendall correlation coefficients for the calibrated GDPS before and after applying the Schaake shuffle and for observation.

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