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Improved large-scale hydrological modelling through the assimilation of streamflow and downscaled satellite soil moisture observations

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Supplement

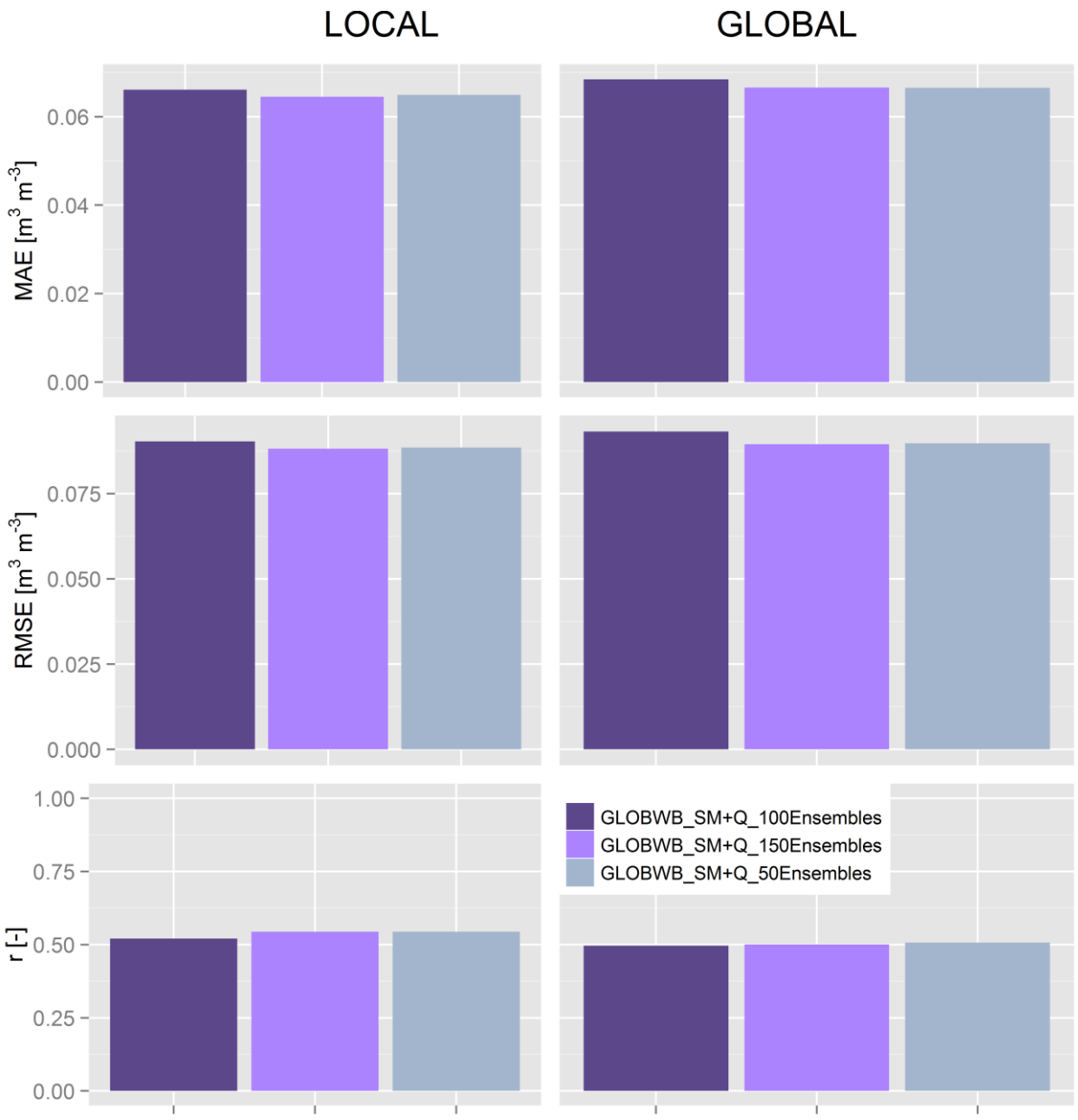

Figure S1: Comparison of evaluation results of the catchment daily means of soil moisture in the Murrumbidgee river basin. Assimilation scenario GLOBWB_SM_Q has been reproduced using 50, 100 and 150 ensemble members.

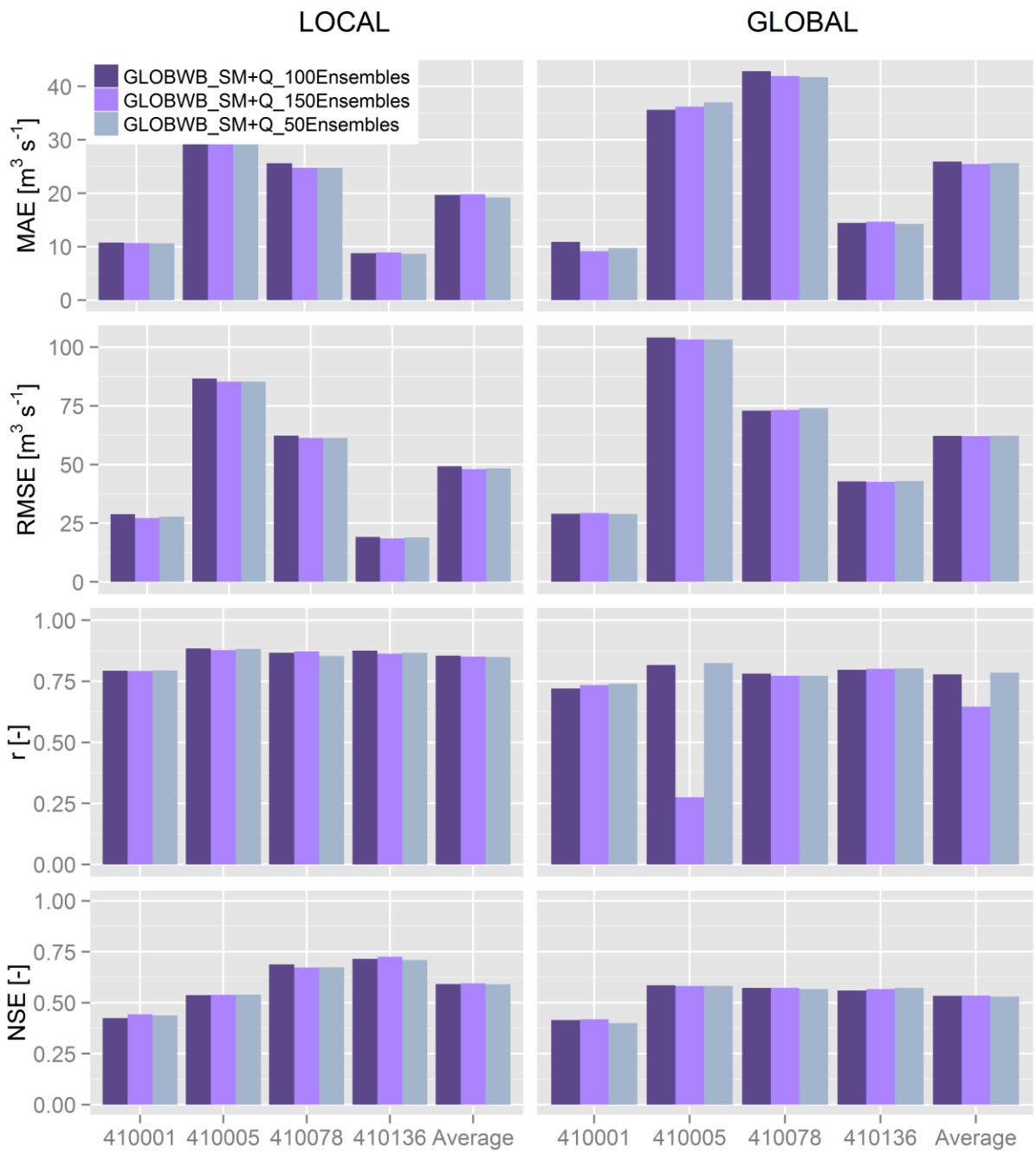

Figure S2: Comparison of evaluation results for streamflow estimates at 410001, 410005, 410078 and 410136 locations in the Murrumbidgee river. Assimilation scenario GLOBWB_SM_Q has been reproduced using 50, 100 and 150 ensemble members.

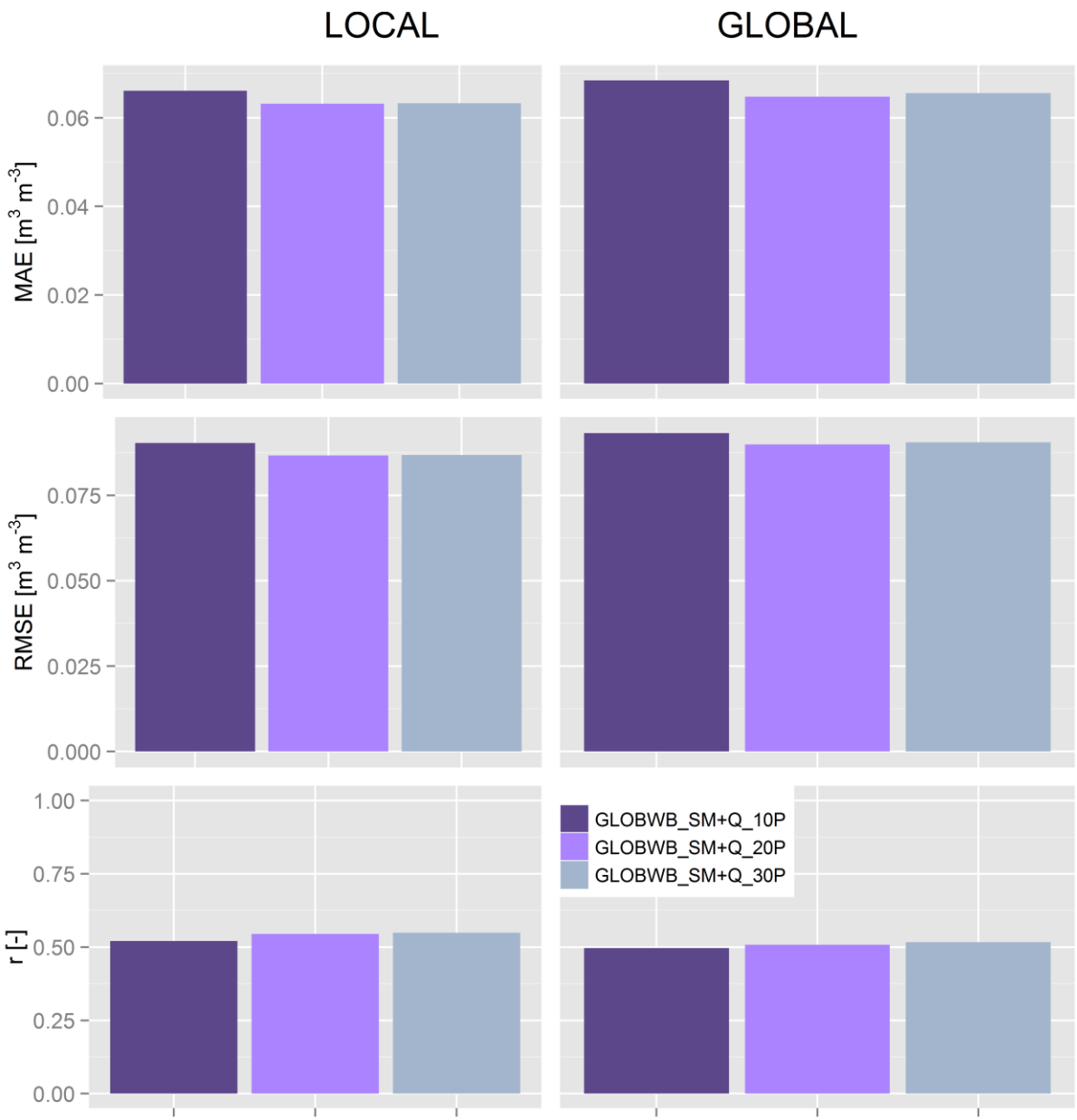

Figure S3: Comparison of evaluation results of the catchment daily means of soil moisture in the Murrumbidgee river basin. Assimilation scenario GLOBWB_SM_Q has been reproduced perturbing the precipitation with additive Gaussian white noise with standard deviation of 10 %, 20 % and 30 % of the nominal value.

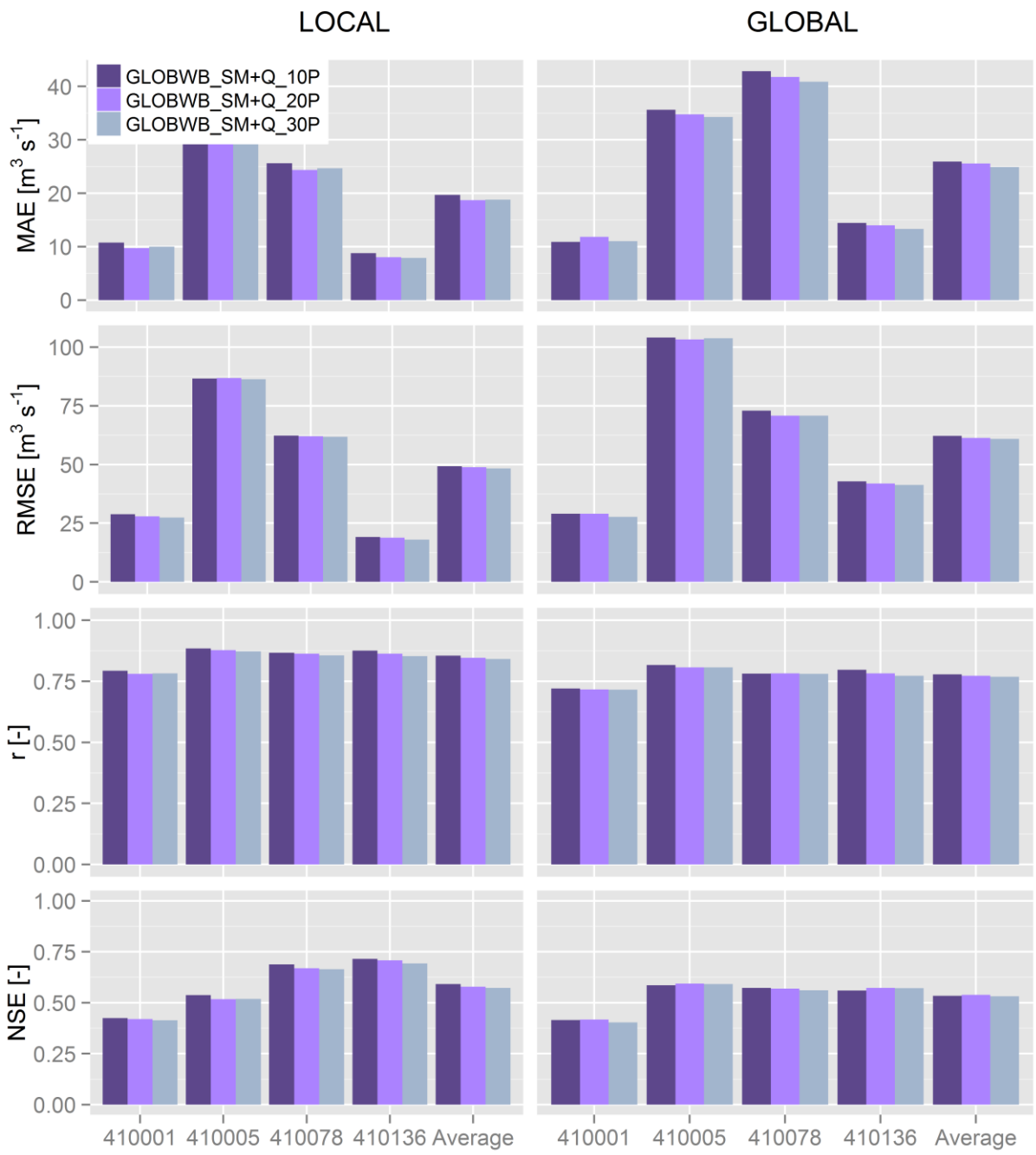

Figure S4: Comparison of evaluation results for streamflow estimates at 410001, 410005, 410078 and 410136 locations in the Murrumbidgee river. Assimilation scenario GLOBWB_SM_Q has been reproduced perturbing the precipitation with additive Gaussian white noise with standard deviation of 10 %, 20 % and 30 % of the nominal value.

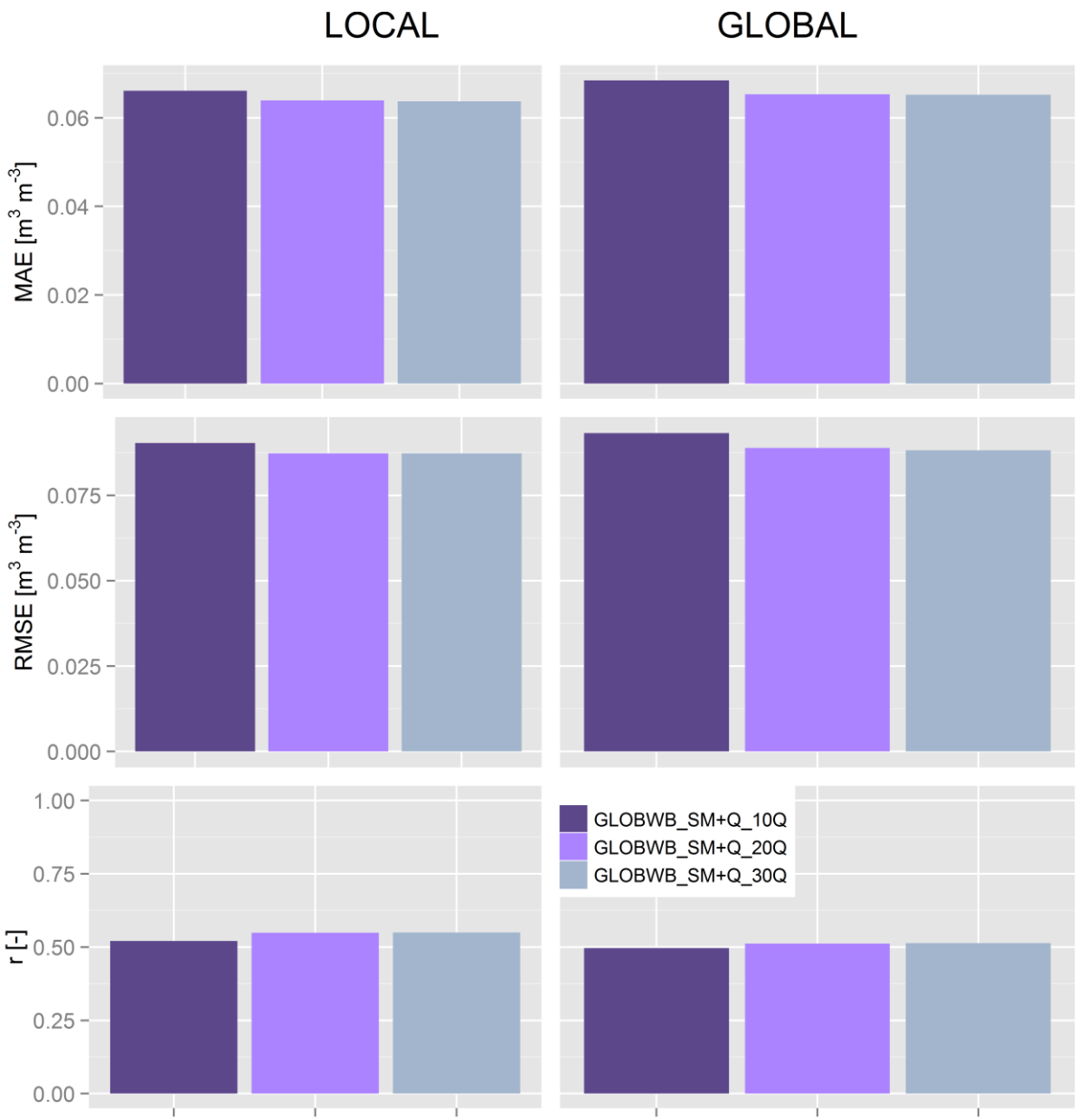

Figure S5: Comparison of evaluation results of the catchment daily means of soil moisture in the Murrumbidgee river basin. Assimilation scenario GLOBWB_SM_Q has been reproduced setting a standard error for the discharge observations of 10 %, 20 % and 30 % of the discharge.

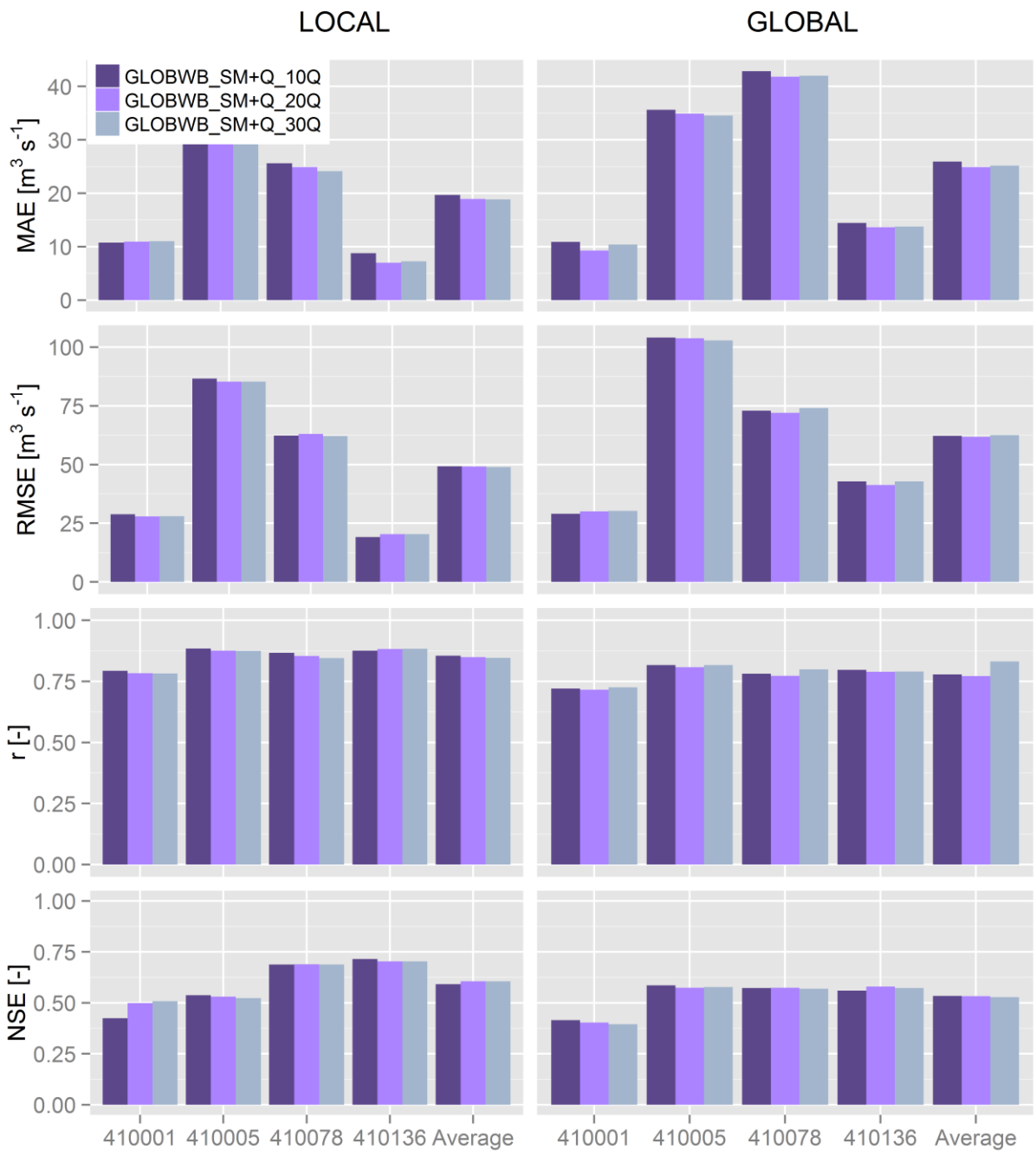

Figure S6: Comparison of evaluation results for streamflow estimates at 410001, 410005, 410078 and 410136 locations in the Murrumbidgee river. Assimilation scenario GLOBWB_SM_Q has been reproduced setting a standard error for the discharge observations of 10 %, 20 % and 30 % of discharge.

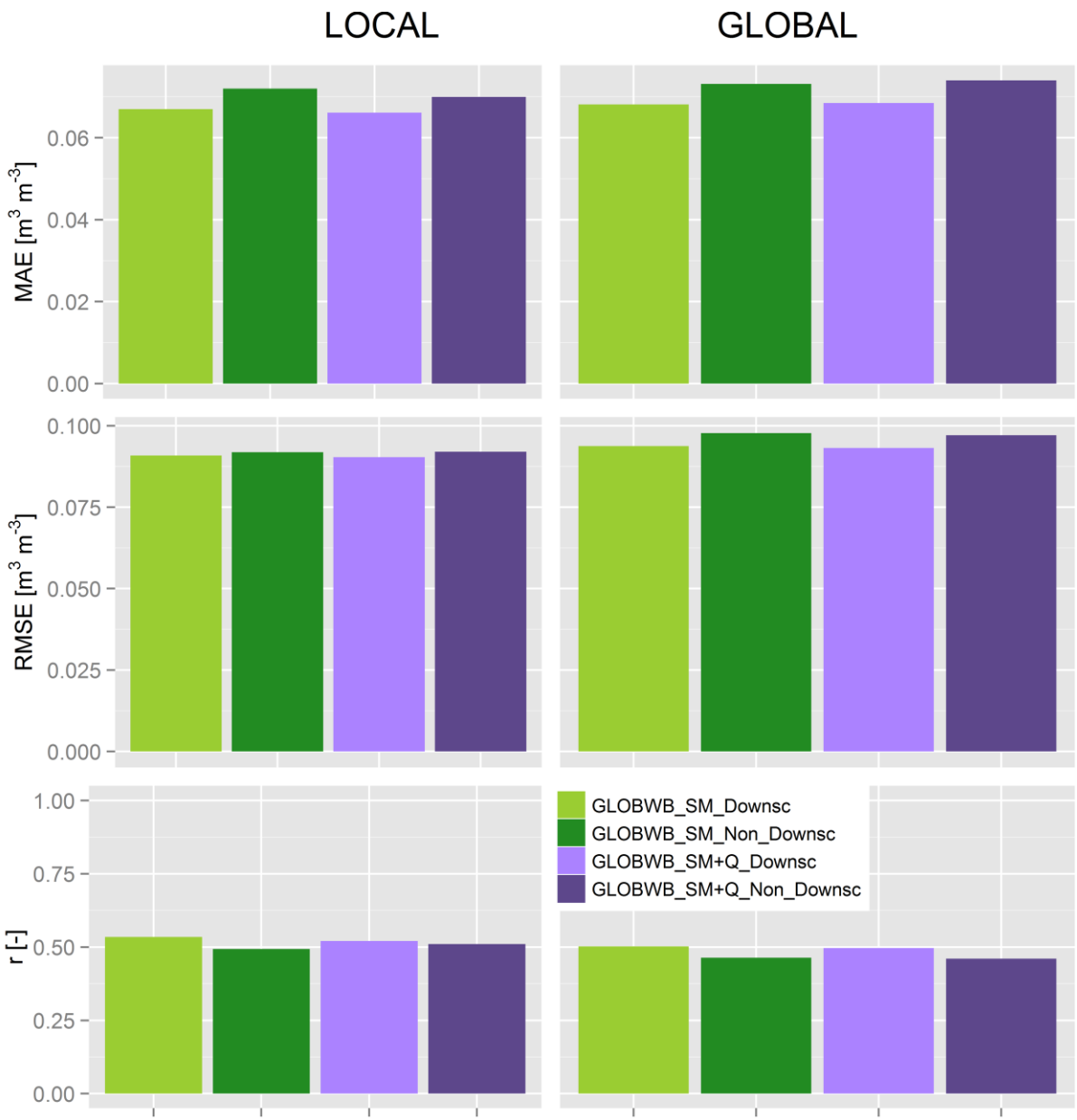

Figure S7: Comparison of evaluation results of the catchment daily means of soil moisture in the Murrumbidgee river basin. Assimilation scenarios GLOBWB_SM (green) and GLOBWB_SM+Q (purple) are shown when downscaled and non-downscaled soil moisture observations are assimilated.

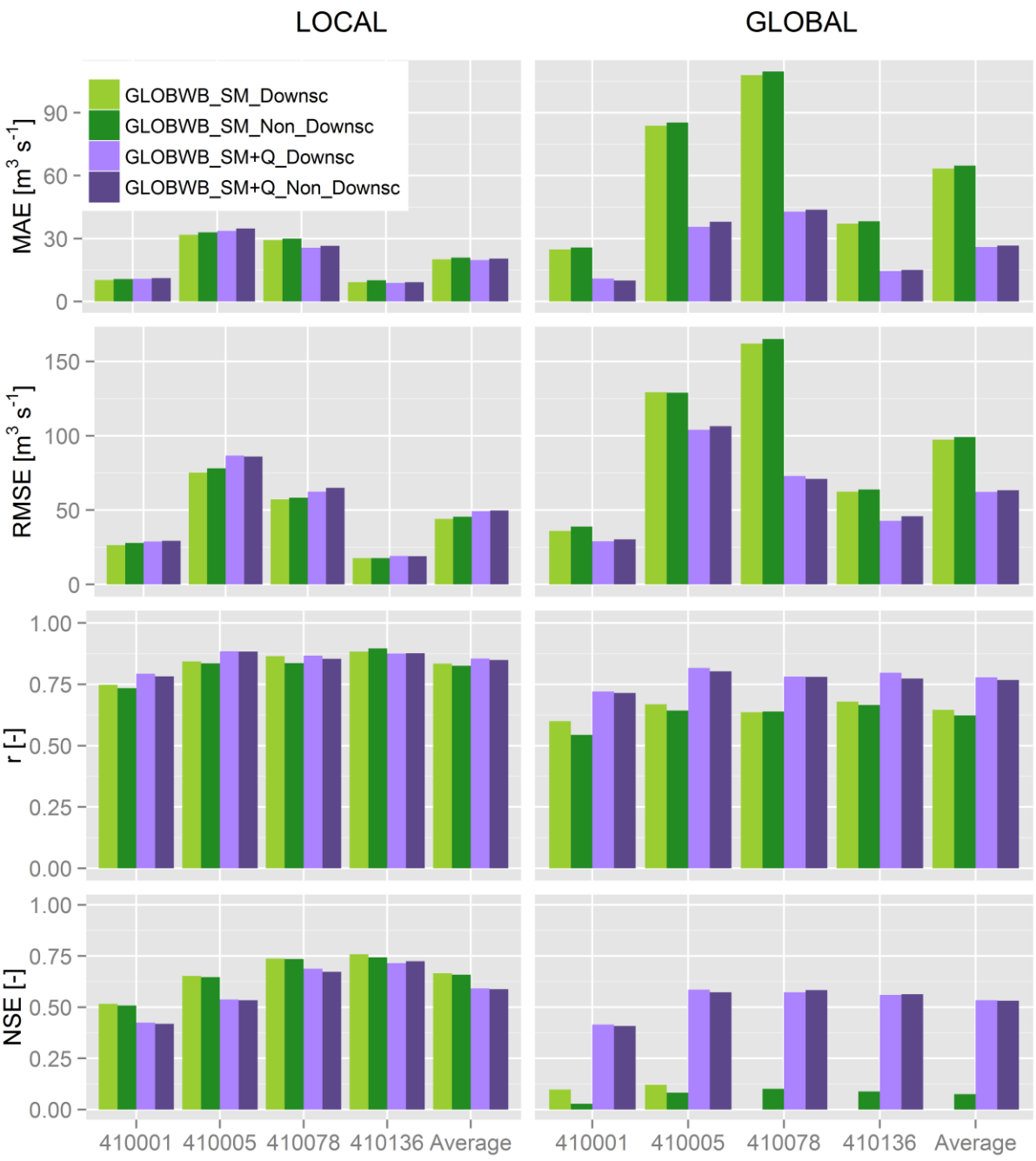

Figure S8: Comparison of evaluation results for streamflow estimates at 410001, 410005, 410078 and 410136 locations in the Murrumbidgee river. Assimilation scenarios GLOBWB_SM (green) and GLOBWB_SM+Q (purple) are shown when downscaled and non-downscaled soil moisture observations are assimilated.