

(Comment 1): Correct Table 1. The 2019 row reports 3 missing timestamps but lists only 2.

Response: We thank the editor for identifying this error. The number of missing timestamps in 2019 was incorrectly given as 3; the correct number is 2 (20190127 02:30 and 20190312 10:50), as listed in the table. The totals in Table 1 were already based on the correct value and remain unchanged.

Changes in manuscript:

The missing count for 2019 has been corrected from 3 to 2 (Table 1, Line 207).

(Comment 2): Clarify the scope of the LOOCV validation. As described, the left-out station is excluded from the RRBF residual interpolation. However, it isn't clear if it is also excluded from the calculation of $C(t)$ and the recursive C_EWMA , i.e., are the authors claiming full independence from gauge observations and is this actually the case?

Response:

We thank the editor for this important question. In our LOOCV, the left-out gauge is excluded from the residual interpolation: the cross-validation error at each gauge is computed analytically from the RBF system (Rippa, 1999), which is equivalent to refitting the residual field without that gauge. However, the left-out gauge was **not** excluded from the estimation of the bias factor $C(t)$ and, consequently, from the recursive C_EWMA . The validation is therefore not fully independent of the gauge observations, and we do not claim full independence.

We nevertheless expect the influence of a single gauge on the bias factor to be small. $C(t)$ is estimated as the ratio of summed gauge and radar rainfall over a large number of gauge–radar pairs (at least 20, and typically many more), so the contribution of any individual gauge is limited. In addition, pairs outside the 5th–95th percentile range of the gauge-to-radar ratio are excluded, the temporal change of $C(t)$ is limited to $\pm 30\%$, and $C(t)$ is further smoothed by the EWMA. Because $C(t)$ is a single domain-wide factor rather than a local adjustment, the left-out gauge does not inform the local estimate at its own location beyond this small contribution. We have revised the manuscript to describe the scope of the validation accurately and to note that the reported LOOCV statistics may be slightly optimistic.

Changes in manuscript:

The description of the LOOCV procedure in Sect. 3.5 has been revised to state that the left-out gauge is excluded from the residual interpolation but is retained in the estimation of $C(t)$ and C_{EWMA} , and that the validation is therefore not fully independent (Lines 187–191).