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Selecting Good Quality Official and Citizen Science Rain Gauge Data and Blending with Radar for More Accurate Rainfall Representation

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Rainfall data collected by citizen scientists is typically regarded as low quality and therefore remains underused in hydrological applications. Conversely, official data collected by professional organisations is often treated as more reliable than it really is. Here we demonstrate that value can be extracted from citizen science rainfall data by applying automated statistical quality control combined with manual checks. We also consider the pros and cons of citizen science rain observations.

Carefully selected rain data from official and citizen science gauges have been blended with radar. Examples of how rainfall depths vary depending on the data inputs are presented, highlighting the benefit of incorporating all available data sources. This approach is particularly important when determining rainfall during spatially and temporally variable convective storms. The research is concerned with convective storms that resulted in pluvial flooding in urban areas of the UK between 2014 – 2018, however, the methodology could be implemented in any location where hourly (or shorter interval) rain gauge data and radar are available.