



Combination of precipitation datasets with distinct characteristics

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In this study, a technique was developed to combine information from two precipitation datasets with different spatial and temporal resolutions. Precipitation datasets that are solely gauge-based are expected to have less time mean systematic error, as they only include actual precipitation measurements, but are generally only available at a fairly low resolution. Datasets that incorporate other data, such as radar, are available at higher resolutions, but the additional data may contain systematic errors or biases. For many applications, a user would like a dataset with minimal systematic error, and at a high spatial and temporal resolution.

A technique was developed to generate a third dataset that inherits the long-term statistical properties of the lower resolution dataset, and the short-term spatial and temporal variability of the high resolution dataset. The technique was developed to be general (eg. applied to different fields, such as temperature, and with any resolution datasets), but was specifically used in this study to combine information from the 1/8th degree 24-hour Climate Prediction Center's gauge-based Unified Precipitation Analysis and the 4 km 6-hrly River Forecast Center Quantitative Precipitation Estimate datasets.