The acquisition and quality control (QC) of real-time precipitation measurement is a critical element of effective operational flood monitoring systems and accurate precipitation products. To address the rapidly growing amount of available precipitation data, a systematic method of quality controlling and assimilating real-time precipitation data in real-time has been developed. METSTAT QC system operates in two modes: (1) Real-time in order to provide immediate results and (2) Real-time with delay to allow additional datasets and gauges to become available for more thorough QCing. Although acquisition of real-time precipitation data into a consolidated database has already been accomplished for many of the major gauges across North America, there are still numerous networks, such as ALERT, that are yet to be included in real-time. The strategic partnership with STARR, Fullar, and METSTAT has incorporated nearly 100 ALERT gauges across Arizonia into the METSTAT consolidated database. METSTAT QC system is designed to detect and flag any data points that do not meet the quality criteria for each sensor data type. The data are then assimilated into the METSTAT database and QC’d as any other hourly report. This is accomplished by applying a series of quality control quality measures from Weather Decision Technologies (WDT). Large differences between the radar-derived and gauge-based rainfall amounts to a lower confidence flag, however the QC algorithm does not expect each value to perfectly match an observation. Given that observation measurement with a radar-derived rainfall amount is determined by applying a weighted NEXRAD rainfall adjustment to gauge rainfall measurements from Weather Decision Technologies (WDT). Large differences between the radar-derived and gauge-based rainfall amounts to a lower confidence flag, however the QC algorithm does not expect each value to perfectly match an observation. Given that observation measurement with a radar-derived rainfall amount is determined by applying a weighted NEXRAD rainfall adjustment to gauge rainfall measurements from Weather Decision Technologies (WDT). Large differences between the radar-derived and gauge-based rainfall amounts to a lower confidence flag, however the QC algorithm does not expect each value to perfectly match an observation.

SATELLITE RAINFALL BASED QC

METSTAT QC algorithm provides a QC confidence flag for each 1-hour gauge precipitation value. The QC confidence flag ranges from 0.0 to 1.0, where 0.0 suggests the value is likely incorrect while 1.0 means the value is likely correct. For instance, if radar data at a particular gauge location is largely blocked, then radar data is down-weighted while the satellite and spatial-based QC dominate the QC confidence flag. The weighting also depends on what sensor data is available; sometimes satellite data is the only reliable means of QCing.
<table>
<thead>
<tr>
<th>LATENCY</th>
<th>SPATIAL RESOLUTION</th>
<th>QC SKILL</th>
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<tbody>
<tr>
<td>0 MINUTES</td>
<td>1-KM</td>
<td>High</td>
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