

COMPARISON AGAINST NEXRAD AND RAIN GAUGES

Raw NEXRAD rainfall estimates are very poor at capturing accurate volumes though they can represent the spatial characteristics of rainfall. Rain gauges are very good at getting good volumes but have poor spatial representation. The District NEXRAD vendors combined these datasets by adjusting the NEXRAD surface so that the average volumes calculated by NEXRAD would match the average volume from the rain gauges. Over long periods of time you would expect close agreement. Table 9-7 compares the processing and available data from the three systems.

A map of the average annual differences (NEXRAD - NLDAS) is shown in Figure 9-5. Figure 9-5 is created by first developing a NEXRAD dataset that can be compared to the NLDAS by calculating an area-weighted average of the NEXRAD grids that lie within each NLDAS grid cell. Included in Figure 9-5 is an indication of the influence of each of the main NEXRAD radar installations that cover the SJRWMD. The figure shows that most of the precipitation estimates are within plus or minus 10% (approximately plus or minus 5 inches) of each other.

NLDAS was chosen since it covered Georgia, South Carolina and Alabama, and it supplied the hourly intervals needed by HSPF. The NLDAS precipitation dataset has been very nice to work with in the calibration of the HSPF models.

Table 9-7. Comparison of available data from NLDAS, NEXRAD and rain gauges

	NLDAS	SJRWMD NEXRAD Precipitation	SJRWMD Rain Gauges
Spatial Type	Gridded	Gridded	Irregularly spaced
Spatial Aggregation	Average over grid cell	Average over grid cell	Sample from 8 inch diameter rain gauge
Spatial Domain	Continental United States	SJRWMD plus buffer ¹	SJRWMD
Spatial Interval	1/8 degree x 1/8 degree approx. 12x12 km	2x2 km	If there are approx. 100 gauges then would average 20 km between gauges
Time Domain	1979-continuing	2007-continuing ²	Early 1970s-continuing
Time Interval	1 hour	1 hour	Time stamp for each 0.01 inch tip, typically summed to an hour

1. What is currently available to SJRWMD staff, though all of Florida is processed by the current contractor (Vieux and Associates).
2. Hourly data is no longer available before 2007 due to problems with the data.