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On accumulation errors in WSR-88D precipitation algorithm during a highly evaporative low-level environment

Columbia is situated roughly 90 nautical miles from the National Weather Service radar in Weldon Springs, MO (Saint Louis) and 105 nautical miles from the National Weather Service radar in Pleasant Hill, MO (Kansas City). These radars are capable of scanning at numerous elevations. However, when set to the lowest scanning angle of 0.5° , neither radar is able to accurately depict what is occurring over Columbia, MO below an altitude of roughly 10,000 feet. This is caused by the inability of the radar beam to follow the curvature of the Earth. While to the casual observer this may seem to be a trivial issue, there are certain situations where this can create a significant issue. During the height of summer when temperatures are very warm at the surface, precipitation will potentially evaporate prior to reaching the surface. One such case from July 11-12, 2005 has been investigated with potentially significant results having been attained.