

Utilization of 5-Second Data in Data Quality Programs for Meteorological Towers

Tim Waldron (Met Associates)

The use of higher frequency un-averaged (raw) data from meteorological towers as an additional tool to assess data quality and instrument performance is examined using 5sec data from Ameren's Callaway nuclear plant.

The discussion is divided into three primary sections:

1. Graphical displays of raw data samples are shown to be capable of identifying sensor problems which remain nearly invisible or undetectable in 15min or hourly averages.
2. The use of 5sec data to determine tower shadow effects on each sensor is demonstrated. This is useful for existing configurations but critical for tower upgrades or system modifications. Effects are shown to be significant enough to warrant consideration for Emergency Response operations as well as data input preparation of annual dose modeling.
3. The 5sec data are shown to be capable of providing a great amount of detail on the local met conditions and dispersive character of the atmosphere.

Although the Callaway facility has maintained the a raw 5sec data base for many years, the conversion to digital data loggers, and the almost unlimited storage media capacities of the current times, make the addition of higher frequency data bases quite realistic.