

## Calculated Parameters

Potential evapotranspiration and dew point temperatures are calculated hourly using data collected at the Illinois Climate Network (ICN) stations.

### Potential Evapotranspiration

Since December 1, 2012, potential evapotranspiration has been calculated using the Food and Agricultural Organization (FAO) of the United Nations Penman-Monteith equation as outlined in FAO Irrigation and Drainage Paper No. 56 “Crop Evapotranspiration” by RG Allen, LS Pereira, D Raes, and M Smith. Additional guidance for the calculation was obtained from [The ASCE Reference Evapotranspiration Equation](#), edited by RG Allen, IA Walter, RL Elliott, TA Howell, D Itenfisu, ME Jensen, and RL Snyder which was published in 2005 by the American Society of Civil Engineers (ASCE).

Prior to that time, the van Bavel method was used.

### Dew Point Temperature

Dew point temperature is calculated using the following equation from FAO Irrigation and Drainage Paper No. 56 “Crop Evapotranspiration” by RG Allen, LS Pereira, D Raes, and M Smith

$$T_{dew} = \frac{116.91 + 237.3 \ln \left[ \left( \frac{RH}{100} \right) \left( 0.6108 \exp \left( \frac{17.27 T}{T + 237.3} \right) \right) \right]}{16.78 - \ln \left[ \left( \frac{RH}{100} \right) \left( 0.6108 \exp \left( \frac{17.27 T}{T + 237.3} \right) \right) \right]}$$

where  $T_{dew}$  = dew point temperature,

RH = relative humidity, and

T = air temperature.