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Comparison of North America Regional Reanalysis (NARR) Potential Evapotranspiration (ET) with climate station estimates

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In order that crop coefficients may be used in the estimation of actual evapotranspiration (AET), one requires the potential (PET) or reference ET. More than likely, however, a climate station is not nearby to provide the appropriate parameters for calculating PET or reference ET. One solution is to use the closest climate station; however, micro- and meso-scale variability in the weather/climate makes this undesirable. What is required is an estimate of PET that varies in space and time with adequate resolution to resolve the important variability in that parameter. One solution (investigated here) may be to use numerical weather prediction model output or some derivative of such output. Such data are available via the internet in a timely manner with reasonable spatial resolution for North America, i.e. North America Regional Reanalysis (NARR) product. These data were obtained from: http://www.emc.ncep.noaa.gov/mmb/rreanl/. The analysis reported here compared the NARR Potential Evapotranspiration (ET) (Mesinger et al., 2006) with the Standardized Reference ET (ETsz) (Allen et al., 2005) as calculated from flux tower / climate station data. For the year 2002, daily ETsz was compared to daily PET as determined from the NARR data – preliminary results indicate a very good linear relationship with a correlation (r-squared) greater than 0.9.