Documentation of Uncertainties and Biases Associated with Surface Temperature Measurement Sites for Climate Change Assessment

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The use of temperature data from poorly sited stations can lead to a false sense of confidence in the robustness of multidecadal surface air temperature trend assessments.

Davey and Pielke (2005) presented photographic documentation of poor observation sites within the U.S. Historical Climate Reference Network (USHCN) with respect to monitoring long-term surface air temperature trends. [These photographs were first shown to the community at the 2002 Asheville, North Carolina, meeting of the American Association of State Climatologists (see information online at www.stateclimate.org/meetings/minutes/2002minutes).] Peterson (2006) compared the adjusted climate records of many of these stations and concluded that

> . . . the similarity between the homogeneity-adjusted time series from the good and poorly sited stations supports the view that even stations that do not, upon visual inspection, appear to be spatially representative can, with proper homogeneity adjustments, produce time series that are indeed representative of the climate variability and change in the region.

One of the objectives of the USHCN, however, as stated in Easterling et al. (1996),

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