

COMMENTS ON THE FEBRUARY 1990 DIGEST ARTICLE, "ON THE NEED FOR AUGMENTATION IN AUTOMATED SURFACE OBSERVATIONS"

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I read with dismay the paper entitled "On the Need for Augmentation in Automated Surface Observations", by McNulty, et. al., and would like to share with readers of the **Digest** some comments concerning their study and issues surrounding the upcoming implementation of the automated surface observation system (ASOS). The authors make an attempt to measure the utility of remarks in hourly surface observations (SAO's) by setting up an experiment where two different groups of meteorologists were asked to issue forecasts using different types of SAO's. One group called the "ASOS forecaster" had at their disposal SAO's without the usual additive remarks currently contained in the SAO. The other group had the regular observation. Both groups were asked to make forecasts of primarily aviation type meteorological parameters and verification results are presented that indicate that the two sets of forecasts have equal skill. The authors' conclusion is that the additive remarks are not needed since there was no loss of skill between "ASOS" and "regular" forecaster. Although the authors make statements attempting to minimize their belief in the hypothesis that there is a one-to-one correspondence between the information content in SAO's and the forecast of the weather, in the opinion of this reader, it is clear that this is a self-serving study with an apparent purpose of down playing the importance of remarks in order to rationalize the up-coming implementation of ASOS. In the ASOS era, the practice of augmenting these remarks will likely fall by the wayside since the human observer is obviously not intended to be part of the system.

Although the duration of the experiment was approximately 5 months, the authors report that there were only 22 forecast days (the phase IIb period; April 21-June 6) in the sample for which the ASOS forecaster had a true "ASOS" observation, i.e., an observation without any additive remarks at all. (The other "ASOS" observations contained within the 5 month sample had various parts of additive remarks included within the SAO.) In addition, a majority of the days in this already small sample were days of insignificant weather, i.e., unlimited ceilings with no visibility restrictions. Assuming the axiom of a one-to-one correspondence between information in the SAO and a forecast has some validity, the authors' conclusions still do not, because the sample size in this evaluation is obviously too small to produce any statistically meaningful relationship between the SAO's and the final forecast.

Most forecasters would probably agree that remarks are most useful during the convective season for the short-term prediction of precipitation and severe weather. In Kansas, the convective severe weather season is young as of June 6,

the last day in the sample, and precipitation, thunderstorms, or flash-flooding were not among any of the verified parameters. Would it not have been much more instructive to have had many more days of *significant weather* for the assessment of additive remarks since this is when they are most useful and to have evaluated *parameters more directly related to the information contained within the remarks?*

There are numerous statements made in this paper concerning the ASOS system and remote sensing that are misleading and deserve comment. The authors point out that the current requirements for surface observations were developed in 1982, prior to the advent of many of the remote sensing systems available today. What is implied in this statement is that all of the parameters contained in the augmented remarks can be seen by these sensors, rendering human augmentation obsolete. In the opinion of this reader, this remains to be seen. Also implied in the description of the ASOS system is that automation will accurately satisfy the other essentials of a surface observation (current weather, sky condition, etc.). The authors themselves point to many potential weaknesses of ASOS observations, e.g., inadequate precipitation type, the absence of cloud observations above 10,000 feet, and point visibility, just to name a few. Perhaps most disturbing is the statement at the end of the paper, "However, the lack of consistency from observer-to-observer (in reporting remarks) distracts from their value." Perhaps then, if we were to follow this line of thinking, since no two weather forecasters would make the exact same forecast from the same set of data, we could eliminate the human from the forecast process since he/she is distracting from the value of the forecast! As absurd as this sounds to some of us, perhaps this is what's next in line for the "modernized" National Weather Service.

It is also interesting that the authors apparently do not recognize the importance of remarks for post-facto research studies. There are numerous examples of case studies presented in the literature where a meso-analysis of vital thunderstorm outflow or frontal boundaries was aided by the existence of remarks in hourly SAO's. Sometimes the remarks are all a meteorologist has to locate important weather *between stations*, especially in regions of complex terrain, or during rapidly moving weather events. Although remote sensing is a wonderful way to help *aid* in the interpretation of the weather, it is vital to have as many pieces of collaborative information (at least more than one) as possible in order to have confidence in making vital forecast decisions. Remarks provide this information, especially for significant weather events and will be severely missed in the ASOS era.