RESPONSE TO THE COMMENTS of Charles A. Doswell III and Barry Schwartz

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It is true that the results about the value of "Remarks" presented in McNulty *et al.* (1990—M90 in Doswell's notation) do not match the conceptions of most meteorologists. However, the essence of the scientific method is the collection of data to test and confirm an initial hypothesis. If the data does not match the initial model, one must reevaluate and recast the starting hypothesis. To simply suppress the data because it does not validate ones pre-conceived notion is not an acceptable alternative.

It is interesting to note that Doswell suggests that a survey of forecasters be conducted. In fact, this was one of the first things done by the KaPP management team. In 1985, NWS Central Region and National Severe Storms Forecast Center (NSSFC) forecasters (meteorologists and met techs) were queried on the usefulness and importance of some 48 remarks listed in the Manual of Surface Observations (Federal Meteorological Handbook Number 1). From the 428 individuals who responded, it was possible to classify remarks into four groups: (1) those remarks that could be generated by ASOS (13 remarks); (2) those remarks that require a human observer, but that must be retained (13 remarks); (3) those remarks that require a human observer that would be nice to have, but that could be done without (9 remarks); and (4) those remarks that could be eliminated (13 remarks). Indeed in a limited way, the feelings of the forecasters support the philosophical arguments presented by both Schwartz and by Doswell. However, this survey only measured the subjective feelings of the forecasters, it did not address the intrinsic value of SAO remarks.

The Topeka Tower Augmentation Project (TTAP) and an unpublished study by the NWS Office of Meteorology both found that less than 5 percent of all SAOs contain remarks. The portion of these remarks that would be considered significant by Schwartz and Doswell is a small part of this 5 percent. Does such a small number of remarks really have a significant impact on day-to-day forecasts? This becomes especially significant when it is realized that many elements of the current SAO are better described by means other than a fixed point ground observer. For example, which tells more: the remark "CB N", or a satellite or radar image defining the location of the CB to within a mile or two?

Further, as was acknowledged by Schwartz, individual remarks are only pieces of "collaborative" information. Their presence may, or may not, indicate the occurrence of significant conditions. Further, as was demonstrated in the TTAP, there is a significant deal of subjectivity in determining when specific remarks are appropriate. However, we fail to see the relevance of the operating characteristics of automobiles or the differences between forecasts to these inconsistencies in the basic "observed data."

Both Schwartz and Doswell seemingly separate data interpretation and analysis from the forecast process. They both initially question the relationship between the information content of the SAO and the forecast (e.g., "it is not obvious that there must necessarily be a direct connection between the value of additive remarks and the quality of . . . forecasts" (Doswell). However, by the end of each discourse, they both cite SAO remarks as critical (e.g., "I dispute the lack of value in additive remarks" (Doswell). These two assertions appear contradictory at best.

Admittedly, Schwartz and Doswell make some valid points. Both the small sample examined and the lack of significant weather during the Kansas Pilot Project (KaPP) preclude arriving at definitive conclusions. However, these conditions were not pre-planned. Contrary to Schwartz's assertion, the typical Kansas severe weather season begins with one or two episodes in March (e.g. the March 13, 1990, Heston, Kansas tornado). Severe weather occurrence rapidly increases during April. The peak frequency of both tornadoes and large hail is in May. The incidence of severe convection falls off markedly by late June. Strong convection during the summer is generally associated with heavy rain and an occasional excessive wind gust. The choice of the December through June period for KaPP was made with the hope of sampling several winter storms and several spring severe weather episodes. Unfortunately, Mother Nature did not totally cooperate, and the KaPP did not have the flexibility or the luxury (that a research organization has) to alter its real-time forecast experiment to fit nature's whims.

Schwartz appears to be under the misconception that "current requirements for surface observations (SAOs) were developed in 1982." In actuality, observation requirements have been continually evolving since at least 1887 (see the Signal Service reference in M90). Most current requirements evolved during the 30s, 40s, and 50s. The year 1982 was simply the last time that the surface observation manual was reprinted, it was not when current requirements were developed. With the advent of many new remote sensing technologies during the last half of the twentieth century, it would seem that the observing methodology that has evolved since the late nineteenth century should be reviewed and revised where appropriate.

Finally, two things must be realized about ASOS. First, the equipment used during the KaPP was an early prototype ASOS. The KaPP was a true risk reduction effort designed to examine many aspects of ASOS in a field environment.

One aim was to identify not only the satisfactory but also the deficient aspects of the system itself. Many improvements in the production system resulted from the things identified during the KaPP. Secondly, an ASOS observation has never been sold as a replacement for the total information content of the SAO. ASOS observations are only a small piece of the observational data base that will be available within the next decade.

The purpose in publishing M90 was to suggest, in a public forum, that technology can often provide the forecaster with better or more pertinent information than a handful of remarks appended to SAOs. All meteorologists, forecasters, and research scientists must be open minded and be willing to evaluate whether the need for individual remarks is dictated by science or by tradition. As meteorology moves into a new era, the community must go forward with an open mind and be willing to set aside ideas that have seen their time and step across new frontiers.

LETTERS TO THE EDITORS

Dear Editors:

I must compliment you and your staff for the improvement in the Digest. The printing is much clearer and the articles most interesting and of great help to the reader. There is much need for articles that help the new members in the field as well as the professional members.

I have over 65-years of background in the weather forecasting field and some 57 years in doing the long range outlook phase of weather forecasting. Now I have mentioned many times that if there is anything I may be able to do in your organization I would be pleased to do so. Even though I am over 77-years young I still have a little vigor to exert in making my views understood in this long range weather work.

I wish the NWA a fruitful year in 1991 and that you may grow steadily and create more interest in this interesting field.

Francis J. Socey
Weems, VA

Dear Editors:

Congratulations on the constantly improving National Weather Digest. It has become an excellent publication.

As a relatively silent member of many years, I've read each issue of the NWD since the formation of NWA. You've constantly improved and have created a fine publication.

Your articles are diverse and interesting. The format is excellent. Your NEWS is current and significant. The Announcements are timely. The Book Reviews are well done. I'm surprised at the scarcity of Letters to the Editor.

For those of us who have not managed to participate in the meetings, your NWA Meeting Abstracts are very informative and greatly appreciated.

Thanks for a good job!

William H. Haggard, C.C.M.
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