

explained by the end points alone. In this regard, it should be noted that similar conditions exist for the end points of the standard reliability curves for PoP forecasts (e.g., the solid curves in Smith's Figure 4). That is, the observed relative frequencies would generally be expected to be greater than zero for PoP forecasts of 0% and less than one for PoP forecasts of 100%. Nevertheless, reliability curves for PoP forecasts exhibit many different types of behavior (for reasonable sample sizes, these curves are generally close to the line representing completely reliable forecasts for most probability values).

I believe that these broken curves, when considered in conjunction with the relationship between the average point probability, area probability, and conditional expected areal coverage, may provide some important new insights into problems associated with the formulation and evaluation of PoP forecasts. For example, by providing the forecasters with feedback concerning their tendencies to overforecast and underforecast for certain areal coverages, it may be possible to reduce these biases. The challenge presented by Smith's paper is to determine how we

can use his results (and the above-mentioned relationships) to improve the quality of PoP forecasts and the methodology used to assess their quality.

#### References:

Murphy, A. H., and R. L. Winkler, 1977: Experimental Point and Area Precipitation Probability Forecasts for a Forecast Area with Significant Local Effects. *Atmosphere*, 15, pp. 61-78.

Smith, D. L., 1977: An Examination of Probability of Precipitation Forecasts in Light of Rainfall Areal Coverage. *National Weather Digest*, 2, No. 2, pp. 15-26.

Winkler, R. L., and A. H. Murphy, 1976: Point and Area Precipitation Probability Forecasts: Some Experimental Results. *Monthly Weather Review*, 104, pp. 86-95.

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#### Summary of the Panel Discussion on:

#### "Roles of Private and Government Meteorologists in Forecasting Affecting the Public"

##### Panelists:

Robert Copeland, WCVB-TV, Needham, MA  
Stephen J. Rigney, NWSFO, Portland, ME  
Dr. Fred Sanders, MIT, Cambridge, MA  
Norman MacDonald, WEEI Radio, Boston, MA

##### Moderator:

Robert Wassall, NWSFO, Philadelphia, PA

The moderator for this session was Mr. Robert Wassall of the NWSFO in Philadelphia. He pointed out that the respective roles of the private and government meteorologists are not well defined. There have been great inroads made by the private sector in public forecasting. The big question is how can the private and government meteorologists work together to best serve the interest of our biggest user - the general public.

The first panelist was Mr. Wallace who is involved principally in the field of industrial meteorology. He discussed the National Council of Industrial Meteorology including the stringent requirements in the code of ethics for professionalism.

He had two complaints about radio and TV meteorologists/weathercasters. First, some are "scoop-artists." They do a great disservice to their fellow meteorologists and to the public by

blowing up every pending storm to the category of "storm of the century." The public quickly reacts by burdening the private and government weather services with unending calls concerning the storm. Second, some compare their forecasts to other meteorologists' forecasts. It is good to know that there are differences of opinion and, therefore, different forecasts from different people but this on-the-air comparison should be done before the fact and not after the fact.

Mr. Copeland stated that there is always room for different forecasts as long as the public is not in jeopardy. The meteorologist has to be aware of his responsibility as a relayer of information to the public. He shared John Wallace's concerns on the injurious aspects of sensationalism and of predictions from unqualified spokesmen.

Being Chairman of the Board of Radio and Television Weathercasting, he discussed the AMS

Seal of Approval program. An AMS associate member may now be granted the Seal by evaluation but, in addition, must pass an examination prepared by Dr. Charles L. Hosler, Jr., at Pennsylvania State University. The rationale behind this is two-fold. First, the weathercaster who delivers a fine presentation but does not qualify as a professional member is now given recognition. Second, it works both ways so that he can be reprimanded if his practices are disliked.

The Seal of Approval program, whose goal is to increase the level of professionalism in television weathercasting, has become more successful the past couple years. In fact, the broadcast industry increasingly views the Seal as a requirement for employment.

Mr. Rigney reminisced a little, discussed the current trend in government meteorology and speculated about the future. Dramatic changes have taken place over the last 10 - 15 years. We are relying more and more on the computer. The computer guidance is accepted.

Today, the Forecast Office is equated to the emergency room of a hospital. Here the employees are not country doctors but specialists focusing on the daily operations. These specialists across the nation and the world have saved many lives by issuing the various storm warnings. This is the vital part of meteorology.

The government meteorologists can play the role in forecasting affecting the general public better because there is always a specialist on duty 24 hours a day. The private group has to rely on the NWS for the product. NOAA weather radio stations provide up-to-date official information including timely warnings but can't match the effectiveness of television on the public.

In the future, efforts will be directed to the short-fused event.

Dr. Sanders referred to the rash of hurricanes in the 1950s. During this period, all kinds of different advice were given by the NWS and the media (TV). This problem has been resolved. Now, if there is a forecast of a hurricane or otherwise in which community action must be taken for safety, one voice should reign - the NWS.

The NWS should operate weather observing and processing, meaning communications, and provide timely warnings for the preservation of life and property. In addition, the NWS should play a greater part in the agricultural industry. It makes sense to support this area because of our huge demand on food products. On the other hand, there is a question whether we should support

aviation, whether the NWS should provide information to the FAA.

The final panelist was Mr. MacDonald who stated that the big problem is the way many radio stations handle the weather. DJs do not read the official forecasts verbatim, personal interpretations and sly remarks are added, and updated forecasts are left on the mantle. This action must be controlled through licensing by the FCC, by the state, etc. He proposed that the NWA pick up the ball where the AMS dropped it. Let's correct the foolishness, rebuild the interest in meteorology and get a "Whale of Approval" program going. (Stronger than the Seal of Approval program.)

He agreed with the earlier panelists regarding warnings issued by the NWS. In addition, we must obliterate the amateurs, tone down the nuts and "home run hitters" and stop the kids.

The NWS is putting the poor, struggling meteorologist out of business by providing private service to radio stations. This should be terminated especially where the forecast segment is sponsored.

Mr. Wassall then called for questions from the floor. Many of the participants in the discussion did not identify themselves. It is hoped that the principal points were caught and summarized in the following paragraphs.

First, a lengthy session dealt with the topic of forecast quality on radio stations. It was suggested that lawsuits may or may not help correct the problem. Frances Parmenter (NESS) encouraged writing to the FCC and to the station if forecasts aren't broadcast properly. Jerry LaRue (NWS) elaborated on this by stating that all letters, critical or otherwise, are maintained on files for display and anyone may go to the hearings for FCC license renewal for the station. Mr. Copeland proposed that an enforcement scheme be developed where the station would be penalized with a "financial slap in the teeth" like \$1500 fine for each violation of failing to observe the latest forecasts.

Many deplored the lack of communications, specifically the wire services carrying the forecasts. The people are supplying the money for the NWS and have a right to forecast but where is it written that the general public has to be provided a forecast by the NWS? Jim Vollkommer (NWS) relayed a wire service director's comment that if there was a murder in Boston and a severe thunderstorm in Maine - he'd move the murder first.

People who live in remote areas served by small 12 hours/day radio stations are short-changed on information because these stations only have the

wire services and not the local loop. Vollkommer continued that these taxpayers are entitled to good warnings but the communications gap is destroying the good efforts and services of the NWS. MacDonald says that this is where the private meteorologist(s) can enter the picture and collect a good profit by banding together several small stations in remote, scarcely-populated regions. Copeland concurred and commented that many radio stations don't realize they can afford the services so it is up to the private sector to encourage this.

The next topic of discussion was the licensing of disseminators of weather information on radio and television. Copeland said the NWS has stringent agreements for weather circuits but Rigney claimed they are unenforceable.

The next exchange concerned the private sector paying a users tax. The government is collecting raw data and the computer is outputting guidance while the private meteorologists are merchandising the product. Sanders stated a tax was possible since the private guy is making a profit on this material. Wallace added that the tax is not realistic - the charge would put most privates out of business.

Educational material for the public was the subsequent topic of discussion. There is an interest in educational material - certainly not half-hour programs but short takes such as those developed at Penn State.

The subject of weather warnings incited much talk from the panelists and the audience. Wassall told the group that in Philadelphia there is a tendency for private meteorologists to issue warnings - hydrologic, marine, etc. MacDonald says the stations he serves read the warnings by the NWS and he comments on them one way or the other. He added we've got to watch out for the high school kids giving warnings -it's the job of the NWS only. Jack Rimkunas (NWS) and others said that it was the law of the land for the NWS to be solely responsible for weather warnings.

The large number of unemployed meteorologists was noted. Rigney complained there are approximately 1250 operational meteorologists in the NWS. He says from a public service standpoint, this is a small number to provide a good product and play the role in the communities we work in. It was agreed that we must find ways to absorb the young, budding meteorologists into the work force. One solution is to encourage hiring pros for TV and radio. In order for the meteorologist to be prepared for on-air work, MacDonald suggested that a course in broadcasting be given at all meteorology schools.

The closing remarks of the meeting dealt with the quality of weather broadcasts on TV/radio and

related obstacles. Jim Bigney (WLBZ-TV) spoke about the problems of telling stations what they can or cannot do - a question of freedom of access - the First Amendment. He suggested the NWA provide them with standards. We should think about the many more people giving out information that are not pros. Sanders called for regulation of the non-pros. Rimkunas replied that the TV weather show is 50-60% showmanship and the rest meteorology and added we should not restrict the on-air person to be a meteorologist because many fine presentations are broadcast by non-pros. Harvey Leonard (WNAC-TV) pointed out that one private service makes a profit by briefing the on-the-air, non-pro talent on some TV stations. Is this talent able to relay the information adequately? Wassall stated the quality of the weather shows in the Boston market is the finest he's ever witnessed yet other large markets present the weathermen as clowns. How should we overcome this? Parmenter proposed that the NWA develop a position paper - a policy to be presented to the Broadcasters Association. The policy would encourage employment of professionals, require airing updated forecasts, tone down sensationalism, etc. All concurred that this would be a good move.

Finally, referring to Bigney's comments, Art Ayers (NWS) noted that a managerial representative from the broadcast industry on the panel would have completed the cross section. Vollkommer added that a panel of users was needed.

End of meeting.

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#### *Satellites from pg 42*

features such as vorticity centers with the LFM progs to determine their validity.

On behalf of the membership of NWA, I want to thank Jim Gurka and Frances Parmenter for conducting this seminar on satellite application to forecasting.

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