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ACCURACY OF THE MAX/MIN TEMPERATURE FORECASTS

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[Editor's Note: This TA represents portions of a memo, recently written by Dallavalle, which examines the accuracy of the local and MOS temperature forecasts since the inception of the AEV program.]

After completing the verification of the local and MOS max/min temperature forecasts for the 1986-87 cool season, we decided to look at the overall mean absolute errors since the inception of the AFOS-era verification (AEV) program in October 1983. The mean absolute errors of both the MOS and local forecasts were averaged for 93 stations as a function of forecast type (max or min temperature), projection, and year. On the attached four pages, you'll see the results. Note that two diagrams, namely, one for the local forecasts and one for MOS, are placed on each sheet. Figures 1, 2, 3, and 4 are for the cool season min, cool season max, warm season min, and warm season max forecasts, respectively.

The most impressive result is that the mean absolute error for the local forecasts has steadily declined at all projections since the 1983-84 cool season. In fact, for the 1986-87 cool season, the 60-h min forecast was as accurate as the 48-h min during the 1984-85 cool season. Similarly, the local 36-h min forecast in the 1986-87 cool season was as accurate as the 24-h min two seasons earlier. Analogous improvement in the local min forecasts is evident for the warm season. Although improvements in the local max forecasts are not as dramatic, nevertheless, the trend is one of increasing accuracy at all projections.

If you look at the errors of the MOS min forecasts, you'll see similar results. The 60-h min in the 1986-87 cool season was as accurate as the 24-h min in the 1984-85 season! The MOS min forecasts for the 1986 warm season were as accurate as the guidance made 12 hours earlier during the 1985 warm season. As with the locals, improvements in the MOS max forecasts are evident, but they are not as dramatic as the min. You may remember that we implemented a new MOS temperature system in November 1985.

Without a skill score that indicates improvement relative to climate, we don't know how much of the increase in accuracy of the local forecasts is attributable to synoptic conditions. However, some of the increase in skill must be due to the changes in the MOS temperature forecast system and to the improving NGM. The decline in the errors of the local max/min forecasts over the last couple of years is very impressive.

# LOCAL MIN TEMP FORECASTS

93 U.S. Stations

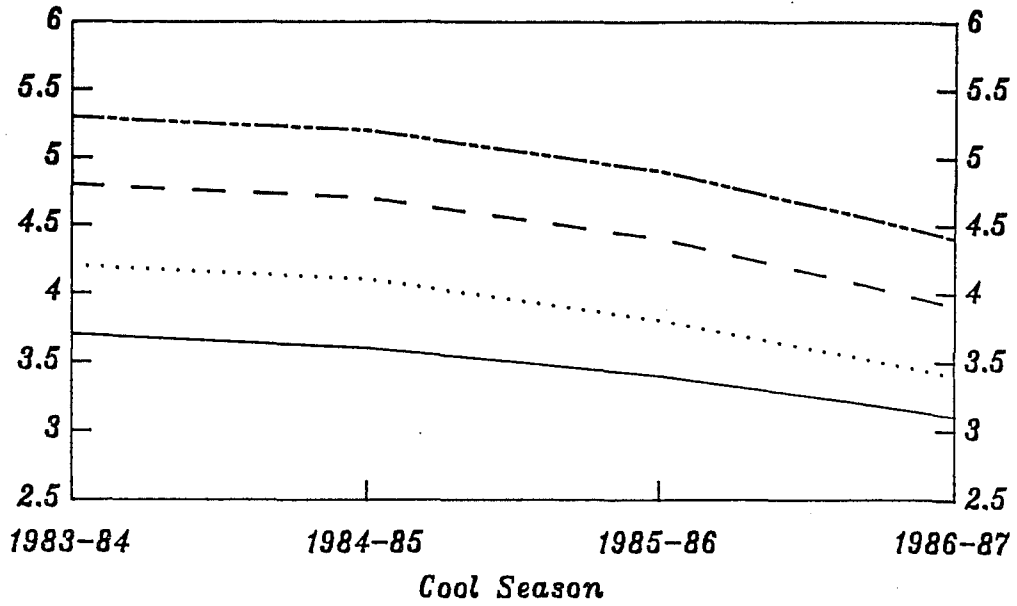
24-hr

36-hr

48-hr

60-hr

Mean Abs. Error (F)



# MOS MIN TEMP FORECASTS

93 U.S. Stations

24-hr

36-hr

48-hr

60-hr

Mean Abs. Error (F)

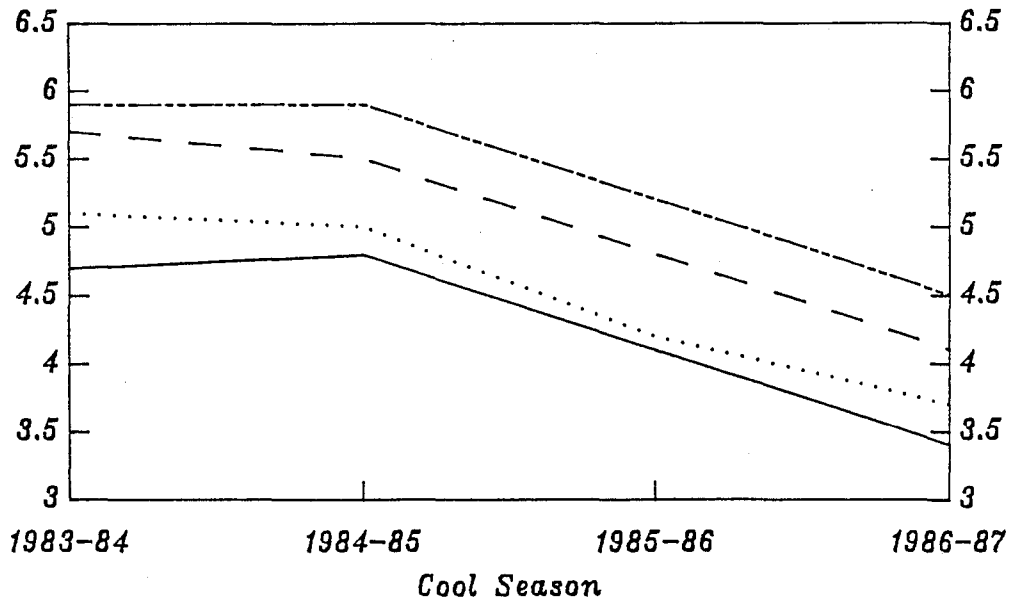


FIGURE 1

# LOCAL MAX TEMP FORECASTS

93 U.S. Stations

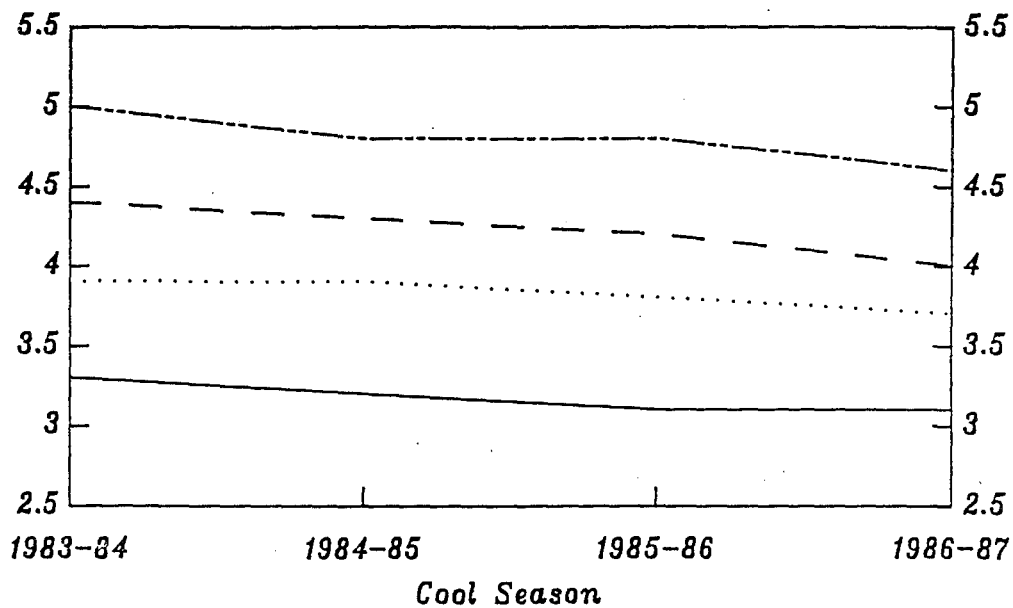
24-hr

36-hr

48-hr

60-hr

Mean Abs. Error (F)



# MOS MAX TEMP FORECASTS

93 U.S. Stations

24-h

36-h

48-hr

60-hr

Mean Abs. Error (F)

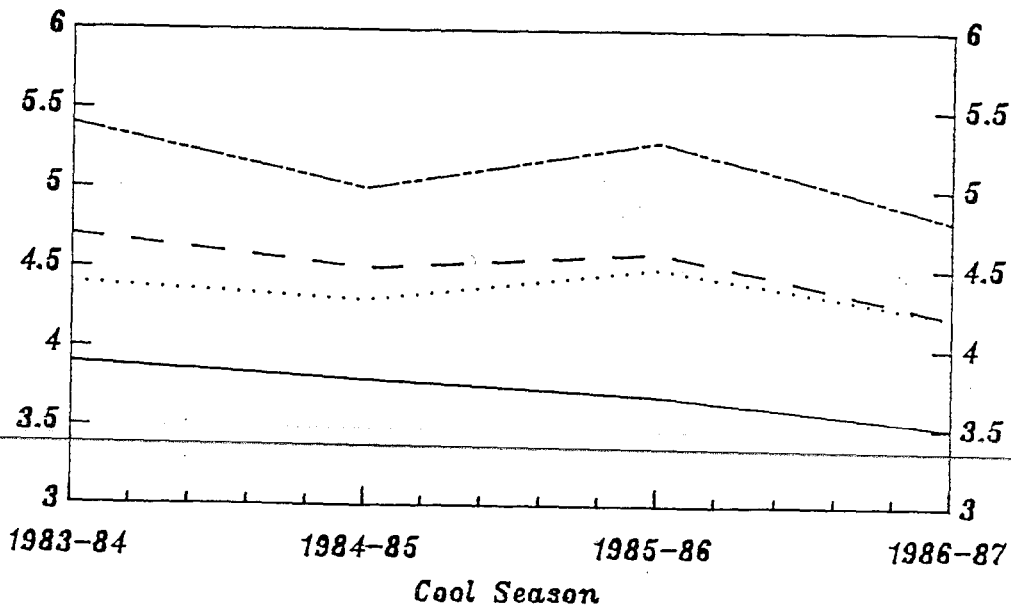


FIGURE 2

# LOCAL MIN TEMP FORECASTS

93 U.S. Stations

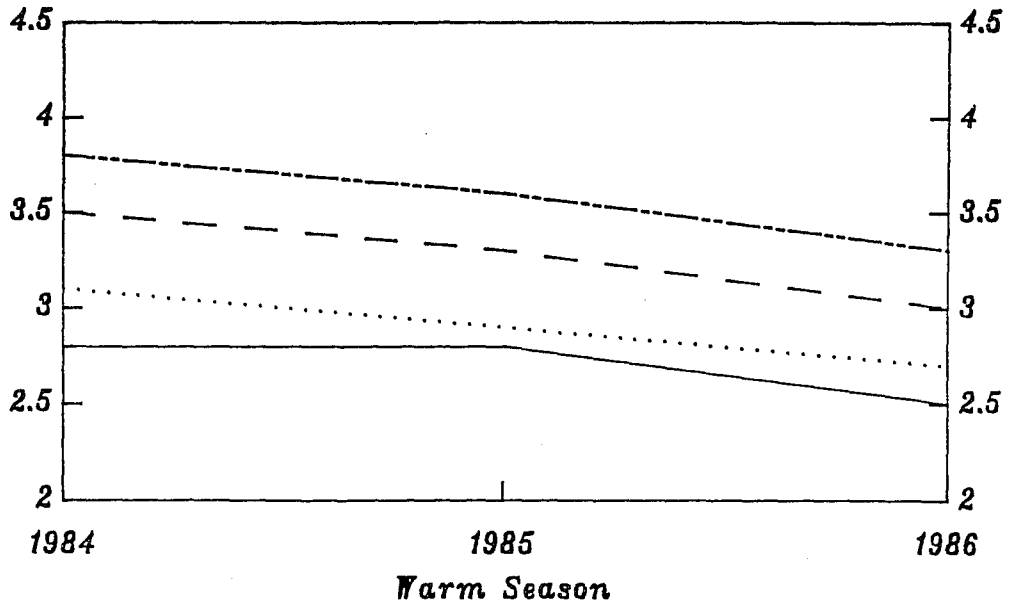
24-hr

36-hr

48-hr

60-hr

Mean Abs. Error (F)



# MOS MIN TEMP FORECASTS

93 U.S. Stations

24-hr

36-hr

48-hr

60-hr

Mean Abs. Error (F)

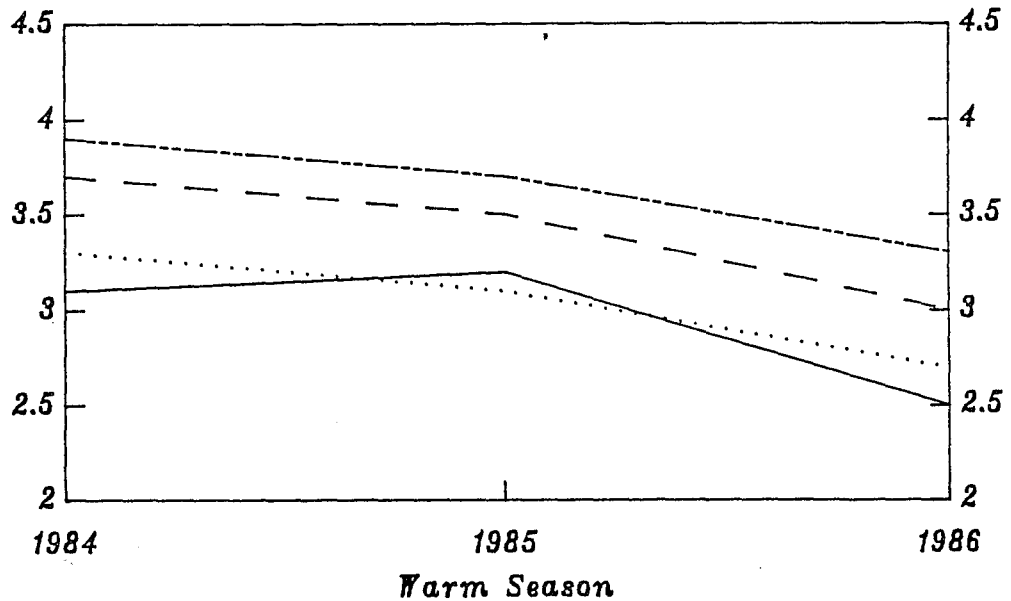


FIGURE 3

# LOCAL MAX TEMP FORECASTS

93 U.S. Stations

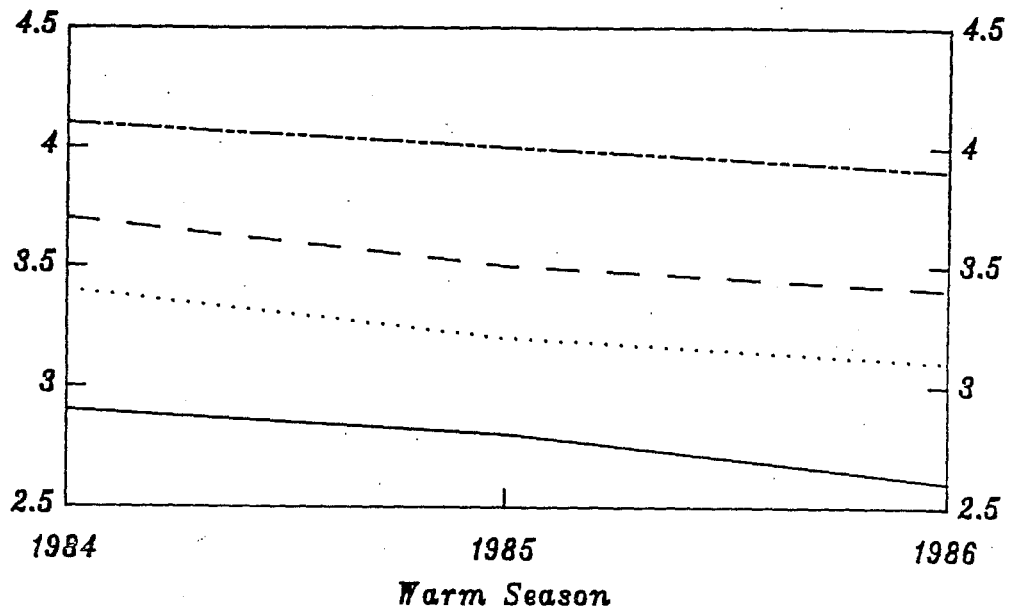
24-hr

36-hr

48-hr

60-hr

Mean Abs. Error (F)



# MOS MAX TEMP FORECASTS

93 U.S. Stations

24-hr

36-hr

48-hr

60-hr

Mean Abs. Error (F)

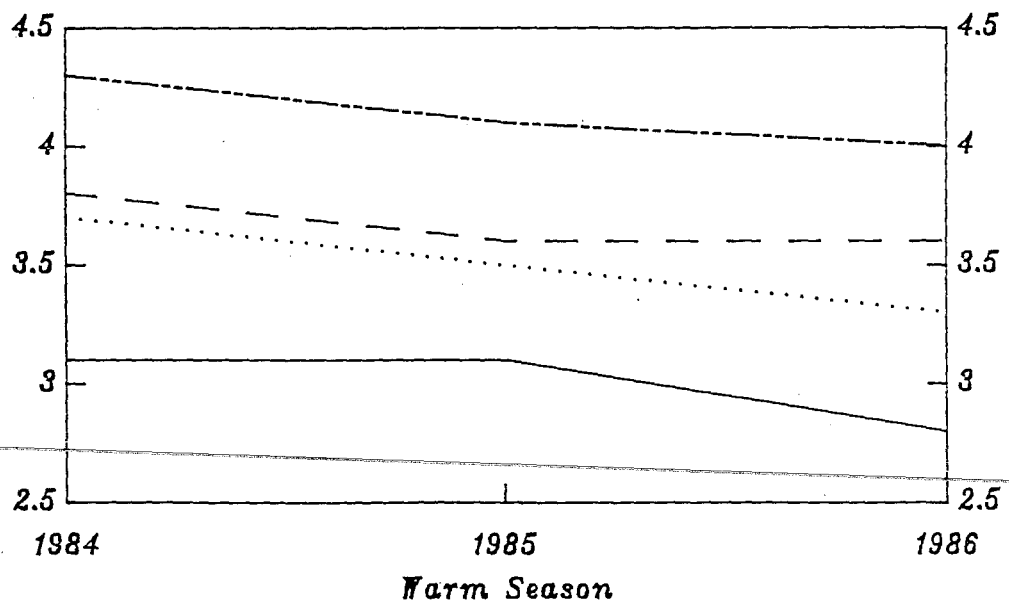


FIGURE 4