



WESTERN REGION TECHNICAL ATTACHMENT
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VERIFICATION OF THE THUNDERSTORM PROBABILITY EQUATIONS

Earlier this year (WRTA 87-05), we reported on the evaluation of the operational thunderstorm forecast equations for the 1986 season. These equations were produced by TDL by combining lightning frequency data sets with large scale predictors from the models to produce a new set of interactive predictors. As stated in the earlier TA, TDL found that the verification scores obtained for the 1986 season were the best ever, for any of their thunderstorm forecast products in either the western or eastern United States.

The thunderstorm equations should even be better this year since the 2.3 million strikes from the 1986 season have been included and new coefficients derived. We have done some spot checking this season and have generally found excellent correspondence between the contoured probability forecasts and lightning strike data. As examples, Figures 1 and 2, respectively, represent fairly active thunderstorm days for the northern and southern portions of the region this June. In each case we have overlaid a 2-hour accumulative strike count graphic over the 6-hour thunderstorm probability forecast valid during that time. The case shown in Figure 3 not only represented the area of major activity well but also caught the activity through central Nevada by showing a relative maximum through that area. These three cases were not specially selected; similar correspondence is noted almost every day.

As a reminder, the thunderstorm probability data are transmitted on the AFOS network, from NMC, twice per day. The data arrive in a gridded, non-displayable format. The applications program TPF (WRPN No. 58) must be run on the data to produce the AFOS graphics of 24-hour thunderstorm probability. The forecasts are for 4 six-hour periods, beginning 6 hours after cycle time (00Z, 12Z). The program TPF was revised and distributed this spring. All sites should now be using version 2.00. The revised program note has not yet been issued, but new instructions were included in the software documentation mailing to all sites, dated June 10.

We are confident that this new forecast tool will continue to provide excellent thunderstorm guidance for the forecasters in the western U.S.

References:

NOAA, 1987: An Evaluation of the Thunderstorm Probability Forecasts - 1987 Season. Western Region Technical Attachment NO. 87-05, January.

Livingston, John, 1986: TPF. Western Region Program Note No. 58, July.

