

TITLE: Statistical Severe Storm Nowcasting Comparison of
VAS and Rawinsonde Soundings

RESEARCH INVESTIGATOR:

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SIGNIFICANT ACCOMPLISHMENTS TO DATE IN FY-84:

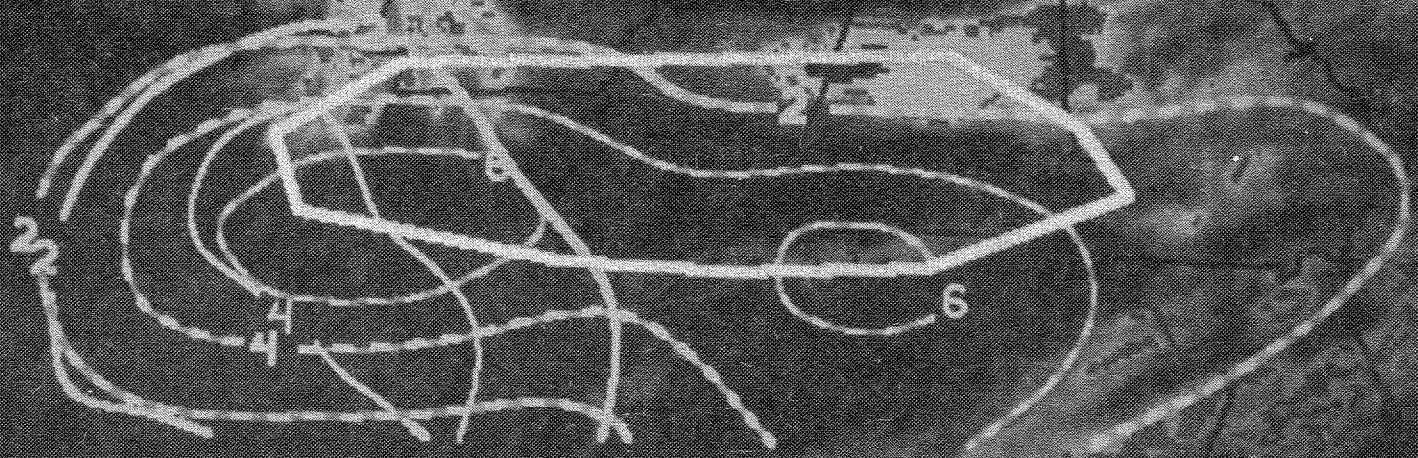
The author's statistical severe storm nowcasting technique using upper air soundings (VAS or radiosonde) has been translated to the IBM McIDAS system. This is a significant change from the older Harris /6 McIDAS computer system. VAS sounding data processed at the NESS Development Laboratory at the University of Wisconsin (on the IBM McIDAS system) are sent nearly in real time to Kansas City NESS/SFSS personnel, along with the author's product, the probability of severe storms. Kansas City personnel are thus able to compare the severe storm information content of VAS and rawinsonde sounding data. A sample is shown in figure 1, where the contours of the likelihood of severe storms based only upon upper air VAS and rawinsonde data are shown, as well as the SELS outlook based upon surface data, radar, operational computer models, and other data sources.

FOCUS OF CURRENT RESEARCH:

The true strengths and weaknesses of satellite sounding data are becoming apparent with these frequent nowcasting comparisons. The impact of data gaps due to clouds has become clear in several cases this spring. The ability of the VAS soundings to illustrate features not always seen by the rawinsonde network has also become clear. For example, in figure 1 the VAS contours closely follow the warm sector in the Gulf Coast states, whereas the rawinsonde-based contours apparently do not see this verified feature in the same way.

RECOMMENDATIONS FOR NEW RESEARCH:

Though this is not a new idea, case studies seen so far strongly show the need for efforts to combine satellite and rawinsonde products. Even though the VAS data by itself appears to have statistically as much severe storm information as radiosonde data, differences (both shortcomings and advantages!) of each data type are readily apparent. The VAS sounding data being available after the 12Z radiosonde data undoubtedly influenced the case in the figure. VAS sounding data gaps due to clouds have hurt the ability of this nowcasting technique in several cases, even though the existing data agreed very well with the radiosonde network.



PROB. SEVERE

SELS 'AC' VALID 20Z APR 19-12Z APR 20

BASED ON RAOB DATA _____ APRIL 19 12Z
BASED ON VAS DATA - - - - - APRIL 19 17Z