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PROBLEMS WITH THE ICWF'S CLOUD FORECASTING ALGORITHM

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1. Introduction

The purpose of this paper is to provide fellow forecasters with a complete listing of the phrases, both at night and during the day, which are produced by the Interactive Computer Worded Forecasting (ICWF) system for all combinations of numerical cloud cover input. This can be used as a handy reference. This paper also discusses some of the problems and inconsistencies that can be seen from these listings and gives suggestions for improvement.

For any given period, day or night, three numerical cloud cover guidance numbers (FPC) are used (i.e., at night 00Z, 06Z, and 12Z values) by the ICWF in determining the outputted phrase. Since there are four possible values (1=CLR, 2=SCT, 3=BKN, 4=OVC), there are 64 possible combinations for a 12-hour night or day period (from 1,1,1 up to 4,4,4). The ICWF allows one to select the "Complexity Constant" that best suits the forecaster's needs. For cloud cover, the complexities can range from 1 (most detail) to 3 (least detail). For each of the 64 possible cloud cover sequences, both night and day phrases were obtained for each of the three complexity levels (a total of 368 phrases). By having the complete listings (provided in this paper) the forecaster can see which phrase would best suit the situation and then decide on the appropriate complexity constant.

Specifically, using the 12Z run cycle, the "tonight" and "next day" periods' cloud guidance was "revised" with each of the possible combinations. Because it is only possible to have 20 separate zones (in Wisconsin), the program was run several times. The phrases which the computer gave were tabulated. It is important to point out that the 1st and 4th periods (tonight and next day) were chosen because they were independent of one another. That is, if you revise "tonight" with 1,1,2 (00Z, 06Z, 12Z) then revise "tomorrow" (Period 2) with 1,1,2 (12Z, 18Z, 00Z) before running the program. It will replace the 12Z value of 2 in the "tonight" period with 1 since 12Z is overlapping.

Thus, night phrases were obtained from Period 1 guidance and day phrases were obtained from Period 4 guidance (see listings). It should be noted that according to Mr. Bob Bermowitz (NWS Techniques Development Laboratory), it was intended for there to be some "variety" in the ICWF output. So for the same set

of guidance values, the Period 1 night phrase may not be the same as the Period 3 night phrase! The same is true for Periods 2 and 4 day phrases (see TDL Note 79-6). Nevertheless, by looking at just the 1st and 4th periods, many problems and inconsistencies were found. Some of these problems were quite serious and made portions of the ICWF cloud forecasts unacceptable. The list of the various combinations of complexity, cloud category, and time period (day or night) is given below.

FOR COMPLEXITY CONSTANT = 1:

CLOUD CATEGORY	NIGHT PHRASE	DAY PHRASE
1 1 1	CLEAR	SUNNY
1 1 2	MOSTLY CLEAR	SUNNY
1 1 3	CLEAR THIS EVENING WITH INCRSG CLDNS AFT MIDNIGHT	SUNNY WITH INCRSG CLDNS IN THE AFTERNOON
1 1 4	CLEAR THIS EVENING... BECOMING CLOUDY BY MORNING	SUNNY...BECOMING CLOUDY BY EVENING
1 2 1	MOSTLY CLEAR	SUNNY
1 2 2	PARTLY CLOUDY	MOSTLY SUNNY
1 2 3	CLEAR THIS EVENING WITH INCRSG CLDNS AFT MIDNIGHT	SUNNY...WITH INCRSG CLDNS IN THE AFTERNOON
1 2 4	CLEAR THIS EVENING... BECOMING CLOUDY BY MORNING	SUNNY...WITH INCRSG CLDNS IN THE AFTERNOON
1 3 1	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
1 3 2	PARTLY CLOUDY	PARTLY CLOUDY
1 3 3	CLEAR THIS EVENING...BCMG MOSTLY CLOUDY BY MIDNIGHT	SUNNY...BCMG MOSTLY CLOUDY BY NOON
1 3 4	CLEAR THIS EVENING...BCMG MOSTLY CLOUDY BY MIDNIGHT	SUNNY...WITH INCRSG CLDNS IN THE AFTERNOON
1 4 1	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
1 4 2	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
1 4 3	CLEAR THIS EVENING...BCMG MOSTLY CLOUDY BY MIDNIGHT	SUNNY...BCMG MOSTLY CLOUDY BY NOON
1 4 4	CLEAR THIS EVENING...BCMG CLOUDY BY MIDNIGHT	SUNNY...BECOMING CLOUDY BY NOON
2 1 1	MOSTLY CLEAR	SUNNY
2 1 2	PARTLY CLOUDY	MOSTLY SUNNY
2 1 3	MOSTLY CLEAR THIS EVENING W/ INCRSG CLDNS AFT MIDNGT	PARTLY CLOUDY
2 1 4	MOSTLY CLEAR THIS EVENING... BCMG CLOUDY BY MORNING	VARIABLE CLOUDINESS
2 2 1	PARTLY CLOUDY	MOSTLY SUNNY
2 2 2	PARTLY CLOUDY	MOSTLY SUNNY
2 2 3	MOSTLY CLEAR THIS EVENING W/ INCRSG CLDNS AFT MIDNGT	PARTLY CLOUDY
2 2 4	MOSTLY CLEAR THIS EVENING... BCMG CLOUDY BY MORNING	VARIABLE CLOUDINESS
2 3 1	PARTLY CLOUDY THIS EVENING ...CLEARING BY MORNING	PARTLY CLOUDY
2 3 2	PARTLY CLOUDY	PARTLY CLOUDY
2 3 3	MOSTLY CLOUDY	MOSTLY CLOUDY

2 3 4	MOSTLY CLOUDY	MOSTLY SUNNY WITH INCRSG CLDNS IN THE AFTERNOON
2 4 1	VARIABLE CLOUDINESS	MOSTLY CLOUDY...CLEARING BY EVENING
2 4 2	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
2 4 3	MOSTLY CLOUDY	MOSTLY CLOUDY
2 4 4	MOSTLY CLOUDY	SUNNY...BECOMING CLOUDY BY NOON
3 1 1	MOSTLY CLOUDY...CLEARING BY MIDNIGHT	MOSTLY CLOUDY...CLEARING BY NOON
3 1 2	PARTLY CLOUDY	PARTLY CLOUDY
3 1 3	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
3 1 4	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
3 2 1	MOSTLY CLOUDY...CLEARING BY MORNING	MOSTLY CLOUDY...CLEARING BY EVENING
3 2 2	PARTLY CLOUDY	PARTLY CLOUDY
3 2 3	MOSTLY CLOUDY	MOSTLY CLOUDY
3 2 4	MOSTLY CLEAR THIS EVENING ...BCMG CLOUDY BY MORNING	MOSTLY CLOUDY
3 3 1	MOSTLY CLOUDY THIS EVENING ...CLEARING BY MORNING	MOSTLY CLOUDY
3 3 2	MOSTLY CLOUDY	MOSTLY CLOUDY
3 3 3	MOSTLY CLOUDY	MOSTLY CLOUDY
3 3 4	MOSTLY CLOUDY	MOSTLY CLOUDY
3 4 1	MOSTLY CLOUDY THIS EVENING ...CLEARING BY MORNING	VARIABLE CLOUDINESS
3 4 2	MOSTLY CLOUDY	MOSTLY CLOUDY
3 4 3	MOSTLY CLOUDY	MOSTLY CLOUDY
3 4 4	CLOUDY	CLOUDY
4 1 1	CLOUDY THIS EVENING... CLEARING BY MIDNIGHT	CLOUDY...CLEARING BY NOON
4 1 2	CLOUDY THIS EVENING...BCMG MOSTLY CLEAR AFTER MIDNIGHT	CLOUDY...BECOMING SUNNY BY AFTERNOON
4 1 3	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
4 1 4	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
4 2 1	CLOUDY THIS EVENING... CLEARING BY MIDNIGHT	CLOUDY...CLEARING BY EVENING
4 2 2	CLOUDY THIS EVENING...BCMG MOSTLY CLEAR AFTER MIDNIGHT	CLOUDY...BECOMING SUNNY BY AFTERNOON
4 2 3	MOSTLY CLOUDY	MOSTLY CLOUDY
4 2 4	MOSTLY CLOUDY	MOSTLY CLOUDY
4 3 1	CLOUDY THIS EVENING... CLEARING BY MORNING	CLOUDY...CLEARING BY EVENING
4 3 2	CLOUDY THIS EVENING...BCMG MOSTLY CLEAR BY MORNING	MOSTLY CLOUDY
4 3 3	MOSTLY CLOUDY	MOSTLY CLOUDY
4 3 4	CLOUDY	CLOUDY
4 4 1	CLOUDY THIS EVENING... CLEARING BY MORNING	CLOUDY...CLEARING BY EVENING
4 4 2	CLOUDY THIS EVENING...BCMG MOSTLY CLEAR BY MORNING	MOSTLY CLOUDY

4 4 3	CLOUDY	CLOUDY
4 4 4	CLOUDY	CLOUDY

FOR COMPLEXITY CONSTANT = 2:

CLOUD CATEGORY	NIGHT PHRASE	DAY PHRASE
1 1 1	CLEAR	SUNNY
1 1 2	MOSTLY CLEAR	SUNNY
1 1 3	MOSTLY CLEAR	MOSTLY SUNNY
1 1 4	BECOMING CLOUDY	BECOMING CLOUDY
1 2 1	MOSTLY CLEAR	SUNNY
1 2 2	PARTLY CLOUDY	MOSTLY SUNNY
1 2 3	PARTLY CLOUDY	MOSTLY SUNNY
1 2 4	BECOMING CLOUDY	BECOMING CLOUDY
1 3 1	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
1 3 2	PARTLY CLOUDY	PARTLY CLOUDY
1 3 3	BECOMING MOSTLY CLOUDY	BECOMING MOSTLY CLOUDY
1 3 4	BECOMING MOSTLY CLOUDY	BECOMING CLOUDY
1 4 1	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
1 4 2	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
1 4 3	BECOMING MOSTLY CLOUDY	BECOMING MOSTLY CLOUDY
1 4 4	BECOMING CLOUDY	BECOMING CLOUDY
2 1 1	MOSTLY CLEAR	SUNNY
2 1 2	PARTLY CLOUDY	MOSTLY SUNNY
2 1 3	PARTLY CLOUDY	PARTLY CLOUDY
2 1 4	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
2 2 1	PARTLY CLOUDY	MOSTLY SUNNY
2 2 2	PARTLY CLOUDY	MOSTLY SUNNY
2 2 3	PARTLY CLOUDY	PARTLY CLOUDY
2 2 4	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
2 3 1	PARTLY CLOUDY	PARTLY CLOUDY
2 3 2	PARTLY CLOUDY	PARTLY CLOUDY
2 3 3	MOSTLY CLOUDY	MOSTLY CLOUDY
2 3 4	MOSTLY CLOUDY	BECOMING CLOUDY
2 4 1	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
2 4 2	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
2 4 3	MOSTLY CLOUDY	MOSTLY CLOUDY
2 4 4	BECOMING CLOUDY	BECOMING CLOUDY
3 1 1	MOSTLY CLEAR	PARTLY CLOUDY
3 1 2	PARTLY CLOUDY	PARTLY CLOUDY
3 1 3	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
3 1 4	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
3 2 1	PARTLY CLOUDY	PARTLY CLOUDY
3 2 2	PARTLY CLOUDY	PARTLY CLOUDY
3 2 3	MOSTLY CLOUDY	MOSTLY CLOUDY
3 2 4	MOSTLY CLOUDY	MOSTLY CLOUDY
3 3 1	MOSTLY CLOUDY	MOSTLY CLOUDY
3 3 2	MOSTLY CLOUDY	MOSTLY CLOUDY
3 3 3	MOSTLY CLOUDY	MOSTLY CLOUDY
3 3 4	MOSTLY CLOUDY	MOSTLY CLOUDY

3 4 1	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
3 4 2	MOSTLY CLOUDY	MOSTLY CLOUDY
3 4 3	MOSTLY CLOUDY	MOSTLY CLOUDY
3 4 4	CLOUDY	CLOUDY
4 1 1	VARIABLE CLOUDINESS	CLEARING
4 1 2	VARIABLE CLOUDINESS	PARTLY CLOUDY
4 1 3	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
4 1 4	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
4 2 1	PARTLY CLOUDY	CLEARING
4 2 2	VARIABLE CLOUDINESS	PARTLY CLOUDY
4 2 3	MOSTLY CLOUDY	MOSTLY CLOUDY
4 2 4	MOSTLY CLOUDY	MOSTLY CLOUDY
4 3 1	MOSTLY CLOUDY	CLEARING
4 3 2	MOSTLY CLOUDY	MOSTLY CLOUDY
4 3 3	MOSTLY CLOUDY	MOSTLY CLOUDY
4 3 4	CLOUDY	CLOUDY
4 4 1	MOSTLY CLOUDY	CLEARING
4 4 2	MOSTLY CLOUDY	MOSTLY CLOUDY
4 4 3	CLOUDY	CLOUDY
4 4 4	CLOUDY	CLOUDY

FOR COMPLEXITY CONSTANT = 3:

CLOUD CATEGORY	NIGHT PHRASE	DAY PHRASE
1 1 1	CLEAR	SUNNY
1 1 2	MOSTLY CLEAR	SUNNY
1 1 3	MOSTLY CLEAR	MOSTLY SUNNY
1 1 4	BECOMING CLOUDY	PARTLY CLOUDY
1 2 1	MOSTLY CLEAR	SUNNY
1 2 2	PARTLY CLOUDY	MOSTLY SUNNY
1 2 3	PARTLY CLOUDY	MOSTLY SUNNY
1 2 4	BECOMING CLOUDY	PARTLY CLOUDY
1 3 1	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
1 3 2	PARTLY CLOUDY	PARTLY CLOUDY
1 3 3	BECOMING CLOUDY	VARIABLE CLOUDINESS
1 3 4	BECOMING CLOUDY	MOSTLY CLOUDY
1 4 1	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
1 4 2	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
1 4 3	BECOMING CLOUDY	VARIABLE CLOUDINESS
1 4 4	BECOMING CLOUDY	MOSTLY CLOUDY
2 1 1	MOSTLY CLEAR	SUNNY
2 1 2	PARTLY CLOUDY	MOSTLY SUNNY
2 1 3	PARTLY CLOUDY	PARTLY CLOUDY
2 1 4	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
2 2 1	PARTLY CLOUDY	MOSTLY SUNNY
2 2 2	PARTLY CLOUDY	MOSTLY SUNNY
2 2 3	PARTLY CLOUDY	PARTLY CLOUDY
2 2 4	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
2 3 1	PARTLY CLOUDY	PARTLY CLOUDY
2 3 2	PARTLY CLOUDY	PARTLY CLOUDY
2 3 3	MOSTLY CLOUDY	MOSTLY CLOUDY

2 3 4	MOSTLY CLOUDY	BECOMING CLOUDY
2 4 1	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
2 4 2	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
2 4 3	MOSTLY CLOUDY	MOSTLY CLOUDY
2 4 4	BECOMING CLOUDY	BECOMING CLOUDY
3 1 1	MOSTLY CLEAR	PARTLY CLOUDY
3 1 2	PARTLY CLOUDY	PARTLY CLOUDY
3 1 3	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
3 1 4	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
3 2 1	PARTLY CLOUDY	PARTLY CLOUDY
3 2 2	PARTLY CLOUDY	PARTLY CLOUDY
3 2 3	MOSTLY CLOUDY	MOSTLY CLOUDY
3 2 4	MOSTLY CLOUDY	MOSTLY CLOUDY
3 3 1	MOSTLY CLOUDY	MOSTLY CLOUDY
3 3 2	MOSTLY CLOUDY	MOSTLY CLOUDY
3 3 3	MOSTLY CLOUDY	MOSTLY CLOUDY
3 3 4	MOSTLY CLOUDY	MOSTLY CLOUDY
3 4 1	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
3 4 2	MOSTLY CLOUDY	MOSTLY CLOUDY
3 4 3	MOSTLY CLOUDY	MOSTLY CLOUDY
3 4 4	CLOUDY	CLOUDY
4 1 1	VARIABLE CLOUDINESS	CLEARING
4 1 2	VARIABLE CLOUDINESS	PARTLY CLOUDY
4 1 3	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
4 1 4	VARIABLE CLOUDINESS	VARIABLE CLOUDINESS
4 2 1	PARTLY CLOUDY	CLEARING
4 2 2	VARIABLE CLOUDINESS	PARTLY CLOUDY
4 2 3	MOSTLY CLOUDY	MOSTLY CLOUDY
4 2 4	MOSTLY CLOUDY	MOSTLY CLOUDY
4 3 1	MOSTLY CLOUDY	CLEARING
4 3 2	MOSTLY CLOUDY	MOSTLY CLOUDY
4 3 3	MOSTLY CLOUDY	MOSTLY CLOUDY
4 3 4	CLOUDY	CLOUDY
4 4 1	PARTLY CLOUDY	MOSTLY CLOUDY
4 4 2	MOSTLY CLOUDY	MOSTLY CLOUDY
4 4 3	CLOUDY	CLOUDY
4 4 4	CLOUDY	CLOUDY

2. Analysis of Some Problems

After close inspection of these tables, the many problems and inconsistencies, as perceived by the author, have been broken down into the following three categories: (1) FPC guidance trends causing magnitude and/or timing errors, (2) night versus day inconsistencies, and (3) miscellaneous problems/ inconsistencies.

A. FPC Guidance Trends Causing Magnitude and/or Timing Errors

The progression (or trend) in the FPC cloud numbers is given more weight than the actual magnitude of the numbers. This adversely affects both

the wording and timing of the clouds. The most vivid examples of this are associated with a complexity constant of 1. Consider the following combinations:

(1) 1 3 3 gives "sunny...becoming mostly cloudy by noon."
1 3 4 gives "sunny...with increasing cloudiness in the afternoon."

Obviously, 1 3 4 is cloudier than 1 3 3, but the ICWF makes the latter sound cloudier. Also, the ICWF increases the clouds in the morning for 1 3 3 but not until the afternoon for 1 3 4, whereas in actuality they both reached a 3 level by noon.

(2) 2 3 3 (day) gives "mostly cloudy."
2 3 4 (day) gives "mostly sunny with increasing cloudiness in the afternoon."

Given that 2 3 3 is mostly cloudy (reasonable), it makes no sense for 2 3 4 (which is even cloudier than 2 3 3) to say mostly sunny at all! Furthermore, once again the ICWF increases the clouds in the morning for 2 3 3 but not until the afternoon for 2 3 4 because the progression is given more weight than the actual magnitude. In actuality, both reach the 3 level by noon.

(3) 2 3 4 (day) gives "mostly sunny with increasing cloudiness in the afternoon."
2 4 4 (day) gives "sunny...becoming cloudy by noon."

If anything, 2 4 4 is cloudier guidance than 2 3 4. However, because the ICWF apparently considers the smooth progression from 2 to 3 to 4 more important than the actual magnitudes, it gives the cloudier 2 4 4 an unabashed "sunny" and gives 2 3 4 only "mostly sunny with increasing cloudiness."

B. Night Versus Day Inconsistencies

Seemingly for "variety," many of the night phrases are not merely reciprocals of their corresponding day phrases. Rather, it is apparent that for a Complexity Constant of 1, what happens at night is often given more emphasis than what happens during the day. For Complexity Constants of 2 and 3, night clouds or trends are much less important than during the day. Here are some examples:

For Complexity 1, more emphasis at night than during day:

(1) 2 1 3 (day) gives "partly cloudy."
2 1 3 (night) gives "mostly clear this evening with increasing cloudiness after midnight."

(2) 3 4 1 (day) gives "variable cloudiness."
3 4 1 (night) gives "mostly cloudy this evening...clearing by morning."

(3) 4 3 2 (day) gives "mostly cloudy."
4 3 2 (night) gives "cloudy this evening...becoming mostly clear by morning."

(4) 3 3 1 (night) mentions "clearing by morning," so why doesn't the day mention "clearing by evening" rather than just "mostly cloudy?"

For Complexity 2, less emphasis for cloud cover is given at night than during day:

(5) 4 3 1 (day) gives "clearing."
4 3 1 (night) gives "mostly cloudy."

It seems as though this is because people during the day will see some sunshine and realize that it's clearing; but at night, since the clearing will take place after many are fast asleep, people will only see the cloudiness. Regardless of whether this was the intent, it is this author's contention that both the day and night phrases should be the same.

(6) 1 3 4 (day) gives "becoming cloudy."
1 3 4 (night) gives "becoming mostly cloudy" (not as cloudy).

(7) 4 1 1 (day) gives "clearing."
4 1 1 (night) gives "variable cloudiness" (clearing trend ignored).

(8) Similar to (7) above, a distinction is made during the day between 4 1 1 and 4 1 2 (clearing versus partly cloudy) whereas at night they are the same (variable cloudiness).

For Complexity 3, less emphasis at night than during the day:

(9) same as (6) above.

(10) same as (7) above.

(11) same as (8) above.

One exception to the fact that night is given less emphasis for Complexities 2 and 3 is combination 1 1 2 (day) which gives "sunny" while 1 1 2 (night) gives "mostly clear" (a little more detail). Another exception is with 1 1 4 and 1 2 4 which gives "partly cloudy" during the day but "becoming cloudy" at night.

C. Miscellaneous Problems/Inconsistencies

The following examples show problems which seem to be more random in nature with no explanations able to be offered.

(1) Complexity 1:
3 2 4 (day) gives "mostly cloudy"
3 2 4 (night) gives "mostly clear this evening...becoming cloudy by morning."

These should be consistent. Why would the same cloud guidance be mostly cloudy for a time during the day but mostly clear for the same time at night?

(2) Complexity 1:
4 4 1 (day) gives "cloudy...clearing by evening."
4 4 1 (night) gives "cloudy this evening...clearing by morning."

The day phrase is good here (clouds for most of the day). But why would the nighttime be cloudy only in the evening?

(3) Complexity 3:
4 2 2 (day) gives "partly cloudy."
4 2 2 (night) gives "variable cloudiness."

Why are not these the same?

(4) Complexity 1:
4 2 2 (day) gives "cloudy...becoming sunny by afternoon."
4 2 2 (night) gives "cloudy this evening...becoming mostly clear after midnight."

One says "by afternoon" yet the other says "after midnight!" Also, one is completely sunny yet the other is only mostly clear. To be consistent with itself, it should say "becoming mostly sunny by afternoon" (day) and "becoming mostly clear by midnight" (night).

(5) Complexity 1:
4 2 1 (night) gives "cloudy this evening...clearing by midnight."
4 2 1 (day) gives "cloudy...clearing by evening!"

The clouds become scattered or clear completely by midnight or noon (2nd period) according to the guidance. The night ICWF wording is good, but during the day it should read "cloudy early...clearing by noon" not by evening!

3. Conclusions

This paper has presented constructive criticism of the ICWF cloud forecasting scheme which supposedly will soon become the method by which field

forecasters are to construct their zone and local forecasts. It can be seen that there are numerous inadequacies with the current wording of the output generated for cloud cover by ICWF. While not having had access to the actual algorithm, it still was possible to identify the probable sources of the inconsistencies by reviewing the lists of output. By classifying the problems into three categories: (1) sequence/trend outweighing magnitude, (2) night versus day, and (3) miscellaneous; it is hoped that this will help make them more easily correctable. Suggestions for improvement have been given throughout the paper. However, the main suggestion would be to make the wording consistent for both night and day periods. Variety is the spice of life, but in the case of ICWF cloud forecasting, it is a hindrance. It will be difficult enough for forecasters to get used to never again using "fair...partly sunny...decreasing cloudiness...partly to mostly sunny...or partly to mostly cloudy", all terms which are avoided by the ICWF.

If the wording can be made more consistent, the ICWF cloud forecasting scheme could conceivably be of use to forecasters in the NEXRAD era. The forecaster could then rest assured that the wording that would be expected from certain inputted guidance numbers will, in fact, be what is generated as output. The forecaster would not have to refer to the lists which have been supplied in this paper.

4. Reference

Heffernan, M. M., and H. R. Glahn, 1979: User's Guide for TDL's Computer Worded Forecast Program. TDL Office Note 79-6, available from U. S. Dept. of Commerce, NOAA, National Weather Service, Silver Spring, MD, 13 pp.