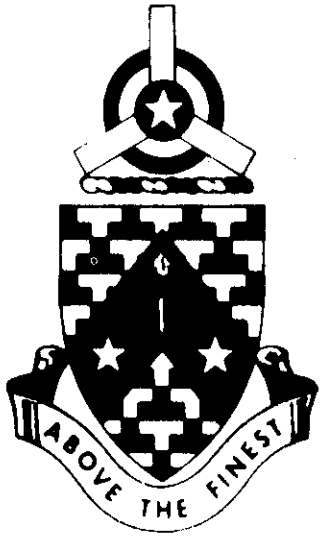
PROGRAMED TEXT

RADAR SUMMARY CHART

AM 78



JANUARY 1969

UNITED STATES ARMY

PRIMARY HELICOPTER SCHOOL

FORT WOLTERS, TEXAS

PROGRAMED TEXT

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FILE NO: AM 78

PROGRAM TITLE RADAR SUMMARY CHART

POI SCOPE: Interpretation of the information found on the radar summary chart.

INSTRUCTOR REFERENCES:

TM 1-300
Chapt 15

PREPARED BY:
CPT A. Turgeon
Maintenance/Meteorology Br

MAJ M. Sukalski
TFPL

DATE: March 1968

REVISED BY:
MAJ R. L. Burdick
Primary II Airmanship Br
Academics Department

DATE: January 1969

APPROVED BY:
DONALD J. LEWIS
LTC, SigC
Chief, OCD

DATE: January 1969

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RADAR SUMMARY CHART

PREFACE

To minimize flight hazards, an aviator must use all the tools available for planning. One of these tools is the radar summary chart.

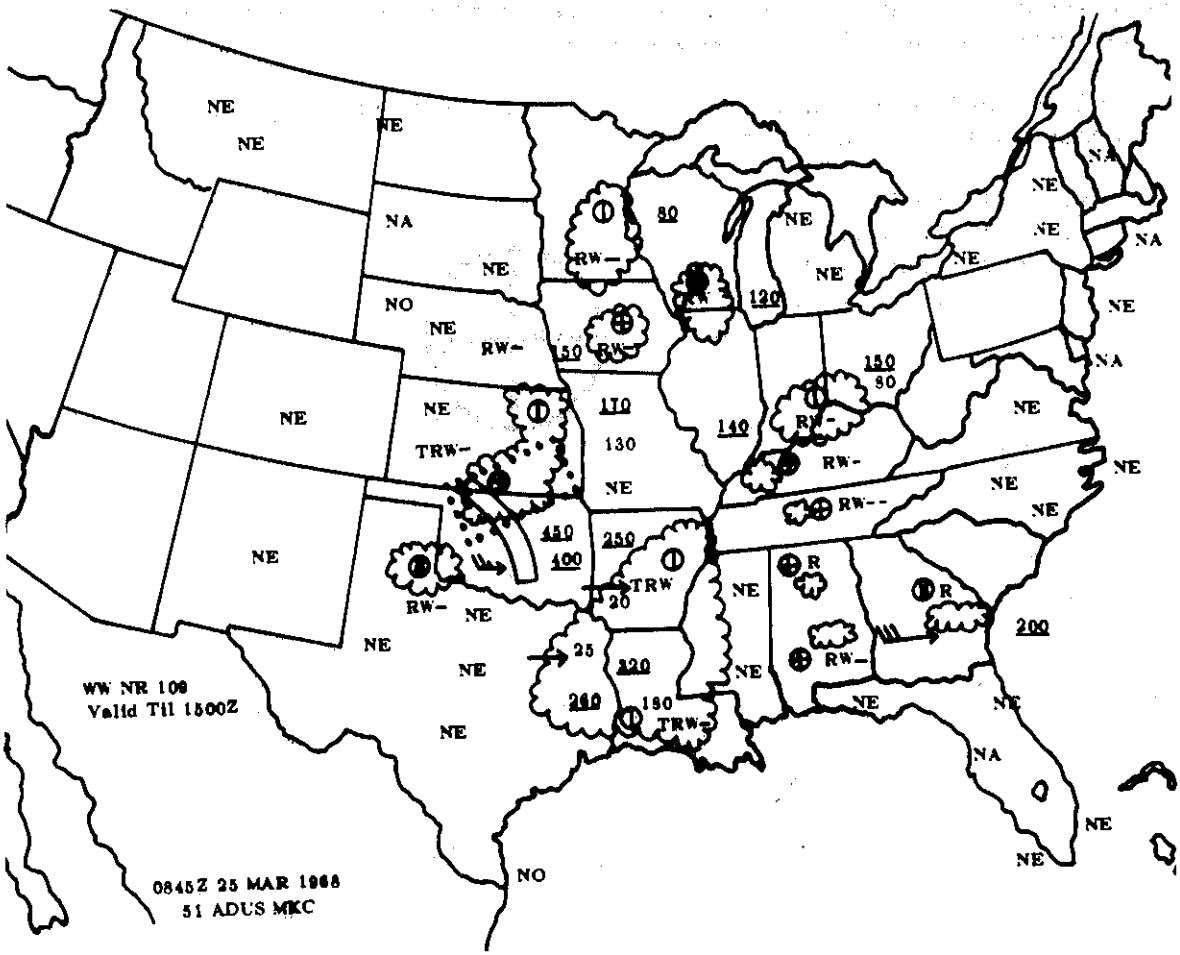
Start with frame 1 and work each frame is succession. Each frame will usually ask you a question. The correct answer is printed on the top of the next frame. If you were incorrect, turn back and restudy the information before continuing on to the next frame. When you have finished the text, complete the self evaluation exercise. Now begin by studying the performance objectives on page iv.

PERFORMANCE OBJECTIVES

Upon completion of the program, you will be able to interpret the information available on a radar summary chart.

FRAME 1

Every 3 hours, radar reports (RAREPS) from stations all over the United States are plotted on maps and transmitted over the facsimile circuit. These maps are prepared at the weather central in Kansas City and are clled radar summary charts.



The above report is called a

a. RAREP.
b. weather depiction chart.
c. radar summary chart.
d. surface weather map.

This report is transmitted 8 times daily.

TURN TO PAGE 3 FOR FRAME 2

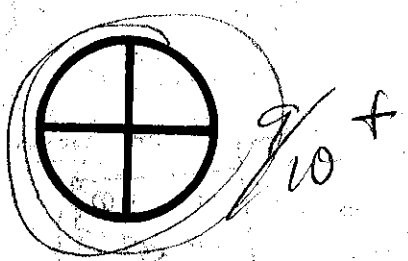
ANSWERS: a. 2045Z on 2 Mar 68.
c. 0100Z on 3 Mar 68.

FRAME 6

Radar observations give the amount of echo coverage (in tenths) on the radar scope. The symbols used to denote scope coverage are the same as those found in the teletype sequence report.

This symbol means that C of the radar scope is covered by echos caused by raindrops, hail, or snow.

a. 1/10 to 5/10.
b. 6/10 to 9/10.
c. more than 9/10.
d. less than 9/10.



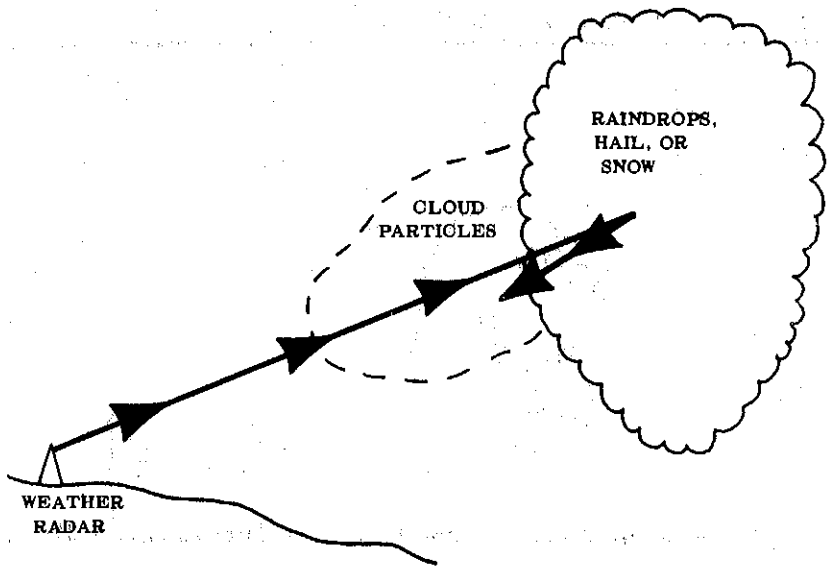
TURN TO PAGE 4 FOR FRAME 7

ANSWERS: c. radar summary chart.
8 times daily.

FRAME 2

Radar summary charts depict the development and movement of storm areas across the United States.

The beam from a weather radar transmitter will be reflected from an area containing raindrops, hail, or snow particles.

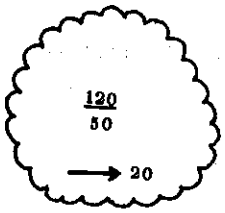


In the above example, the radar beam penetrates the smaller cloud particles, but is reflected back to the transmitter from an area containing particles sufficiently large enough to constitute raindrops, hail, or snow. These reflections are seen as echos on a radar scope.

ANSWER: c. more than 9/10.

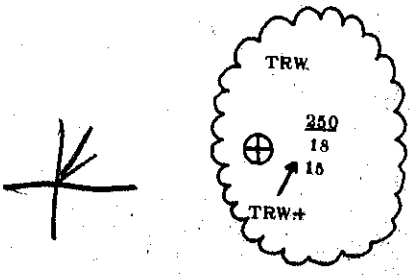
FRAME 7

The height of the echo tops and bases, on the radar scope, is expressed in hundreds of feet above mean sea level.



In this example, the area of radar echos extends from 5000ft to 12,000 ft MSL.

The echo cell is moving eastward at 20 knots.



Answer the following questions based on the information in the diagram above.

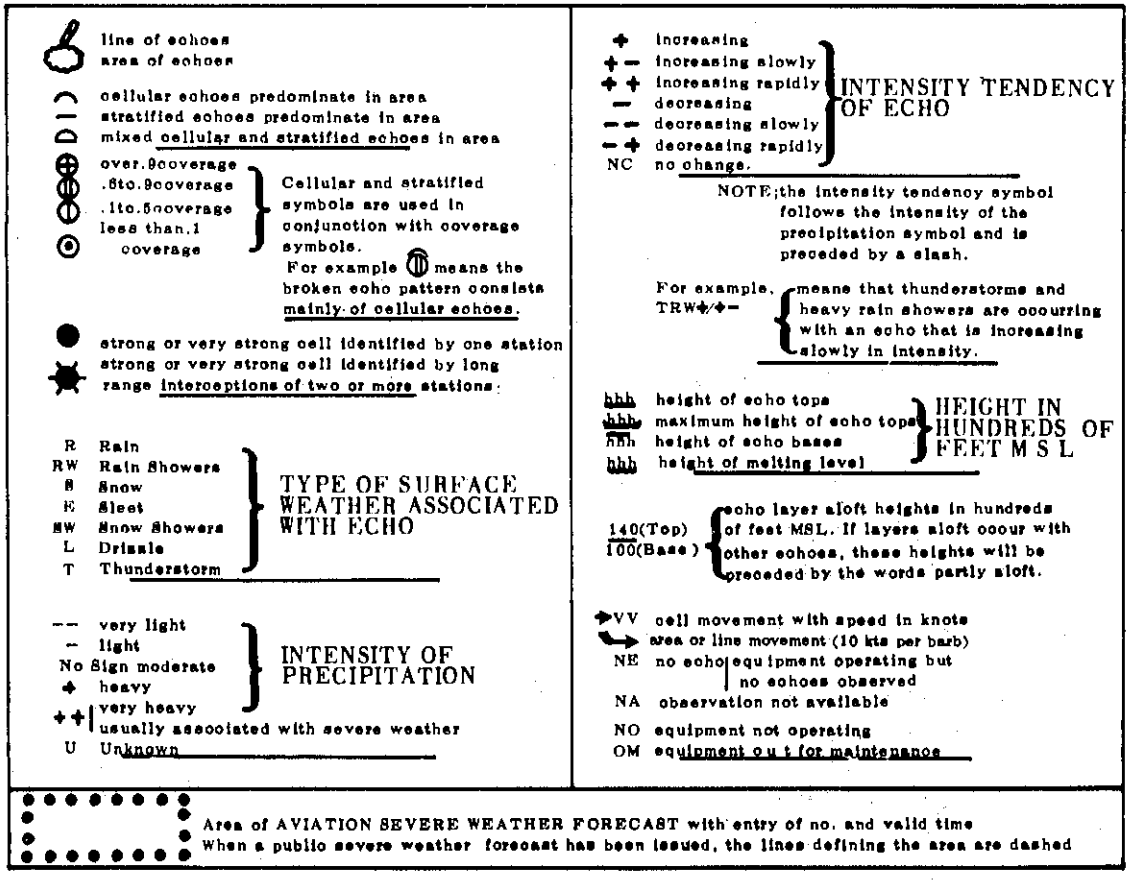
a. Type of precipitation rain showers
b. The echos cover more than 9/10 of the radar scope.
c. The echo cell extends from 1200 ft (base) 25,000 ft (tops).
d. The cell is moving south-northeast at 15 knots.

ANSWER: raindrops, hail, or snow.

FRAME 3

In order to accurately interpret the information on a radar summary chart, you must familiarize yourself with the various symbols used to depict certain weather phenomena.

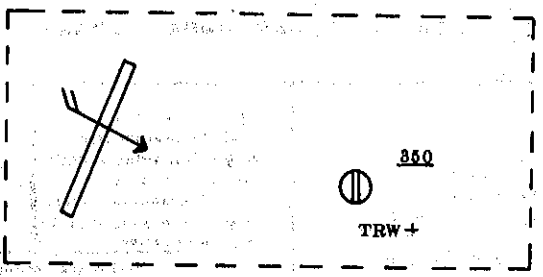
EXPLANATION OF RADAR SUMMARY CHART



ANSWER: a. rain showers; b. more than 9/10; c. 1800 - 25,000 ft; d. NNE @ 15K

FRAME 8

On a radar summary map, areas of severe weather will be outlined by a dotted or dashed line.



(11) 6/10 to 9/10

In the above example, a severe weather symbol outlines an area containing:

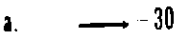
a. extensive advection fog.
b. a line of thunderstorms moving toward the SE.
c. an overcast condition with heavy showers.
d. cloud bases at 35,000 feet MSL.

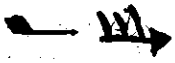
How much of the radar scope has echoes of rain, hail or snow?

a. less than 1/10.
b. 1/10 to 5/10.
c. 6/10 to 9/10.
d. more than 9/10.

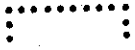
FRAME 4

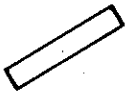
Try to complete the following matching test without reference to the legend on page 5.

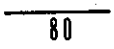
a. 

b. 

c. NA

d. 

e. 

f. 

g. 

h. 

i. 

j. 

k. NE

J 1. cellular echos indicating cumuliform cloud development.

G 2. stratified echos indicating stratiform cloud development.

E 3. echo pattern showing a line of thunderstorms.

H 4. indicates heavy intensity of precipitation.

K 5. means no echo observed at that station.

C 6. means an observation is not available at that station.

I 7. height of echo tops is 8000' MSL.

F 8. height of echo bases is 8000' MSL.

A 9. cell is moving eastward at 30 knots.

B 10. line or area of precipitation is moving eastward at 30 knots.

D 11. outlines an area forecasting severe weather.

ANSWER: b. a line of thunderstorms moving toward the SE.
c. 6/10 to 9/10

SUMMARY

The radar summary chart is essentially like any other facsimile report. You must understand the symbols in order to interpret the wealth of information contained in the report.

Review these symbols and their meaning by referring to the legend on page 5 before taking the self evaluation test.

COMPLETE THE SELF EVALUATION EXERCISE ON PAGE 12

ANSWERS: 1. J, 2. g, 3. e, 4. h, 5. K, 6. c, 7. i, 8. f, 9. a, 10. b, 11. d

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FRAME 5

In the lower left hand corner of every radar summary chart, you will find a block of information containing the time and date when the chart was prepared.

If a severe weather warning forecast (WW) is in effect for an area of the United States, the area will be outlined by dotted black lines on the chart. (Refer to legend).

The valid time for this weather warning and its identification number are given above the time block.

WW NR 342

Valid Til 0100Z

2045Z 2MAR1968
107 ADUS MKC
RADAR SUMMARY

The time of preparation for this report is

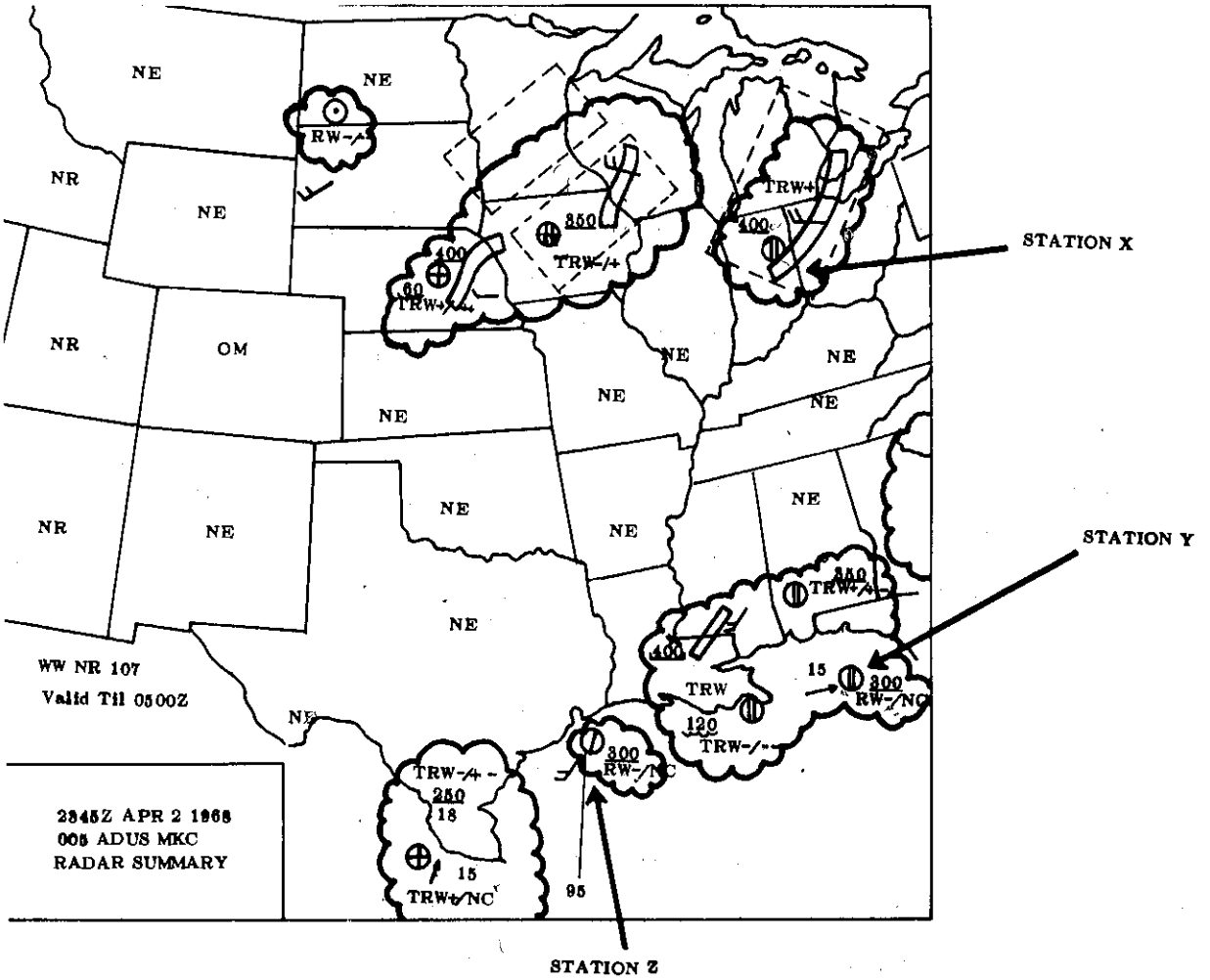
a. 2045Z on 2 Mar 68.
b. 1445Z on 2 Mar 68.
c. 2045C on 2 Mar 68.
d. 2045Z on 3 Mar 68.

The weather warning forecast is valid until

a. 0342Z on 2 Mar 68.
b. 0100Z on 2 Mar 68.
c. 0100Z on 3 Mar 68.
d. 0100Z on 1 Mar 68.

STOP, TURN TO PAGE 2 FOR FRAME 6

RADAR SUMMARY CHART
SELF EVALUATION EXERCISE



Refer to the above map to answer the following questions.

1. The most severe weather is occuring at.

   a. Station Z.
   b. Station X.
   c. Station Y.

2. Which of the following is true for Station Z?

   a. Heavy thunderstorms are occuring with no change on echo intensity.
   b. Light rain showers with echo that is increasing slowly in intensity.
   c. No precipitation.
   d. Light rain showers with no change on echo intensity.

3. The echo line on Station X covers

a. an area north of Station X.
b. an area west of Station X.
c. an area east of Station X.
d. no echo line is being observed at Station X.

4. The date and time of this radar summary is

a. 2300Z April 2, 1968.
b. 2345 April 2, 1968.
c. 2300Z - 0500Z April 3, 1968.
d. Not shown on this chart.

5. The echo coverage at Station Y is

a. less than Station Z.
b. more than Station Z.
c. the same as Station Z.
d. no coverage is indicated at Station Y.

6. The cell at Station Y is moving E.N.E. at 15 Knots.

a. westward at 15 knots.
b. eastward at 150 knots.
c. northward at 15 knots.
d. eastward at 15 knots.

7. The echo line at Station X is moving _____ at _____ knots.

a. westward at 20 knots.
b. eastward at 20 knots.
c. eastward at 200 knots.
d. westward at 200 knots.

8. The height of the top of the echo at Station X extends to

a. 400 ft.
b. 40,000 ft.
c. 40 ft.
d. the height of the echo tops are not recorded.

9. The number of the weather warning on this chart is _____ and it is valid until _____.

a. 107; 0500Z.
b. 107; 2345Z.
c. 005; 2345Z.
d. 005; 0500Z.

10. The heaviest precipitation is occuring at

a. Station X.
b. Station Y.
c. Station Z
d. No precipitation is observed at any station.

ANSWER KEY ON PAGE 14

INTENTIONALLY BLANK

ANSWERS TO SELF EVALUATION EXERCISE

1. b
2. d
3. c
4. b
5. b
6. d
7. b
8. b
9. a
10. a

L2607 Army—Ft. Sill, Okla.