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A PRELIMINARY LOOK AT AVE-SESAME I CONDUCTED
ON APRIL 10-11, 1979

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February 1980



NASA

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Marshall Space Flight Center, Alabama*

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Technical Memorandum 78262

A PRELIMINARY LOOK AT AVE-SESAME I CONDUCTED ON APRIL 10-11, 1979

1. OBJECTIVES AND SCOPE

The objective of the AVE-SESAME I experiment was to gather rawinsonde sounding data at 3-hr intervals for the purpose of investigating atmospheric variability, especially the interaction of severe storms with their environment. Mesosynoptic conditions associated with tornadoes, severe thunderstorms, damaging winds, hail, turbulence, low visibility, and flooding can be studied both spatially and temporally to better understand the formation, development, and maintenance of severe local weather and the interrelationships between convective activity and its environment.

This quick-look report contains information on the general weather conditions during the AVE-SESAME I period, and a summary of severe weather reports assembled from the NOAA weather wire and the national weather summaries. The purpose of this report is to provide to researchers a preliminary look at conditions during the AVE-SESAME I period. Additional information has been presented by Alberty, et al., (1979).

2. DATA COLLECTED

a. Rawinsonde soundings

Rawinsonde soundings were collected at 23 National Weather Service stations and at 19 special stations. A list of these stations is given in Table 1, and their locations are shown in Fig. 1. The dates and times of scheduled soundings were as follows:

| <u>Date</u> | <u>Time (GMT)</u> |
|---------------|--------------------|
| 10 April 1979 | 12, 15, 18, 21 |
| 11 April 1979 | 00, 03, 06, 09, 12 |

Table 1. Rawinsonde stations participating in AVE-SESAME I experiment.

| Station Number | Location |
|-------------------------|----------------------|
| <u>NWS Stations</u> | |
| 229 (CKL) | Centerville, Al. |
| 232 (BVE) | Boothville, La. |
| 235 (JAN) | Jackson, Ms. |
| 240 (LCH) | Lake Charles, La. |
| 247 (GGG) | Longview, Tx. |
| 255 (VCT) | Victoria, Tx. |
| 259 (SEP) | Stephenville, Tx. |
| 261 (DRT) | Del Rio, Tx. |
| 265 (MAF) | Midland, Tx. |
| 270 (ELP) | El Paso, Tx. |
| 327 (BNA) | Nashville, Tn. |
| 340 (LIT) | Little Rock, Ar. |
| 349 (UMN) | Monett, Mo. |
| 354 (OCK) | Oklahoma City, Ok. |
| 363 (AMA) | Amarillo, Tx. |
| 365 (ABQ) | Albuquerque, Nm. |
| 433 (SLO) | Salem, Il. |
| 451 (DDC) | Dodge City, Ks. |
| 456 (TOP) | Topeka, Ks. |
| 469 (DEN) | Denver, Co. |
| 532 (PIA) | Peoria, Il. |
| 553 (OMA) | Omaha, Ne. |
| 562 (LBF) | North Platte, Ne. |
| <u>Special Stations</u> | |
| 001 (ABI) | Abilene, Tx. |
| 002 (BVO) | Bartlesville, Ok. |
| 003 (COU) | Columbia, Mo. |
| 004 (CDS) | Childress, Tx. |
| 005 (CIL) | College Station, Tx. |
| 006 (CNK) | Concordia, Ks. |
| 007 (DUA) | Durant, Ok. |
| 008 (FSM) | Fort Smith, Ar. |
| 009 (GAG) | Gage, Ok. |
| 010 (GLD) | Goodland, Ks. |
| 011 (ICT) | Wichita, Ks. |
| 012 (JCT) | Junction, Tx. |
| 013 (MLU) | Monroe, Ia. |
| 014 (MRF) | Marfa, Tx. |
| 015 (MTX) | Morton, Tx. |
| 016 (OTM) | Ottumwa, Ia. |
| 017 (POF) | Peplar Bluff, Mo. |
| 018 (RTM) | Raton, Nn. |
| 019 (UOX) | Oxford, Ms. |

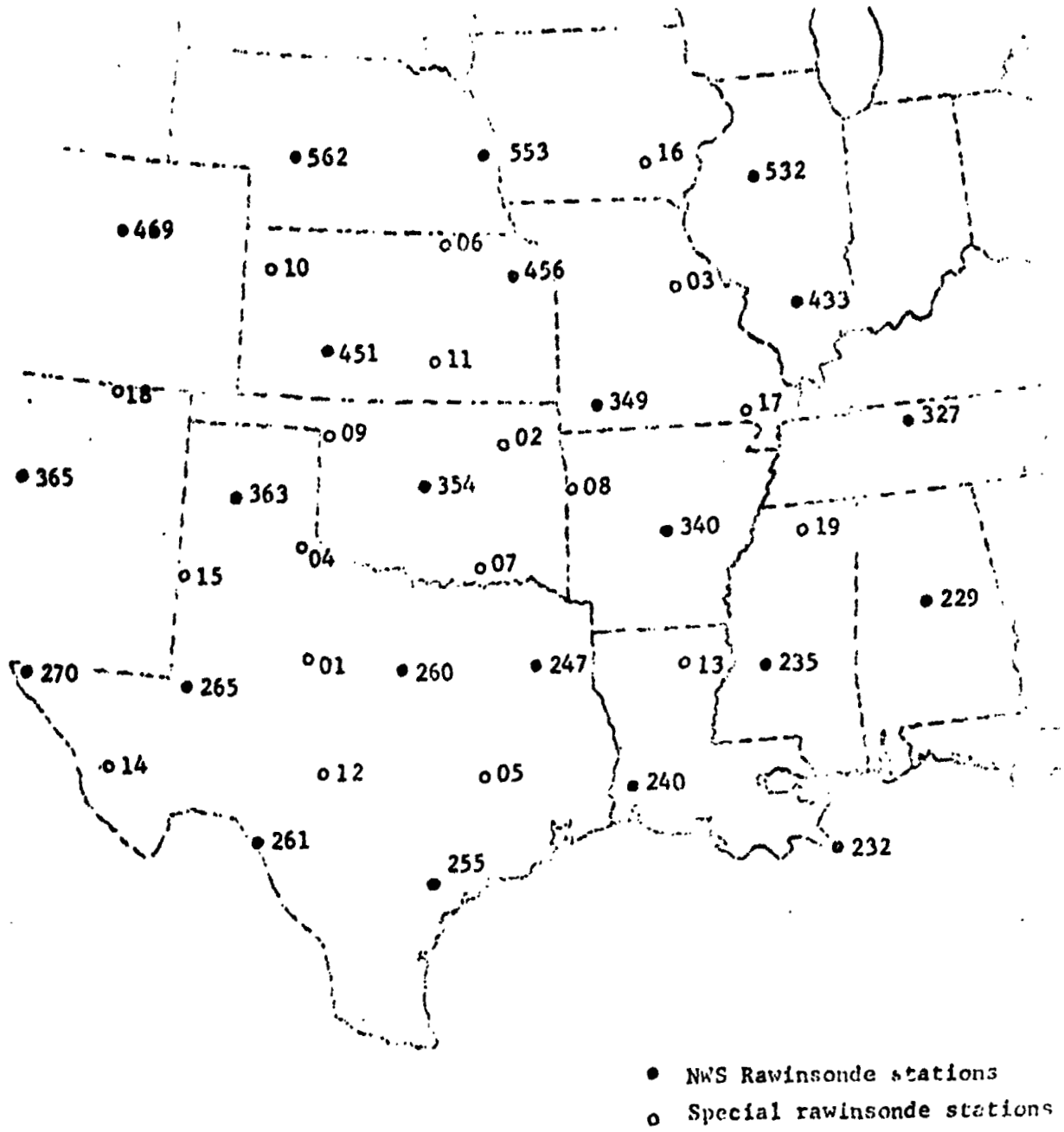


Fig. 1 Location of rawinsonde stations participating in the AVE-SESAME I experiment.

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A complete listing of sounding data interpolated to 25-mb intervals is given by Gerhard et al., (1979).

b. Surface and Upper Air

Surface and sounding data transmitted over facsimile and teletype are archived routinely at Texas A&M University. These charts and data also are available from the National Climatic Center in Asheville, North Carolina.

3. SYNOPTIC CONDITIONS

a. Synoptic Charts

Surface and upper air charts during the AVE-SESAME I period are presented in Figs. 2-6. Surface charts are presented at 6-hr intervals and upper air charts at 12-hr intervals. These charts show the general conditions during the experiment and should not be used for other purposes.

At 1200 GMT on 10 April 1979, a rapidly deepening low was centered over eastern Colorado with a cold front extending southward into west Texas. At the same time, a weak warm front extending from Texas through the southeastern United States pushed northward, transporting warm moist air from the Gulf of Mexico to the vicinity of the advancing cold front. As the day progressed, the warm and cold front occluded in Texas and moved northeastward. Conditions were favorable for convective activity by 0000 GMT on 11 April 1979 with the low-level advection of moisture from the Gulf, lift of this moist air by the cold front, and an increase in convective instability. A deep trough of low pressure extending through New Mexico at 500 mb was responsible for generating a series of short-wave impulses through Texas and Oklahoma. The development of two pre-frontal squall lines to the east of the advancing cold front, the existence of a dry line in West Texas, and

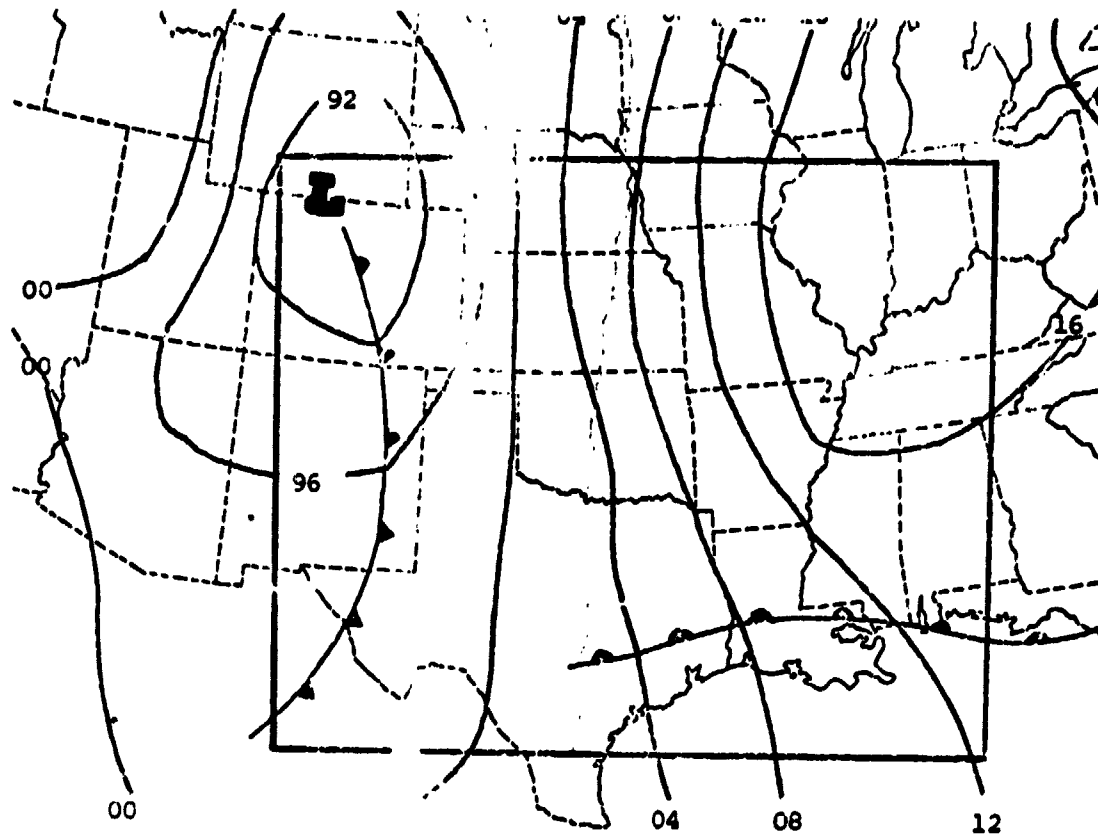
the presence of a 50-knot low-level jet all coupled to trigger the outbreak of severe weather in north central Texas and southern Oklahoma. By 1200 GMT on 11 April 1979, as the warm front advanced northward into the polar air mass, snow developed over portions of northwest Kansas and Nebraska.

b. Radar

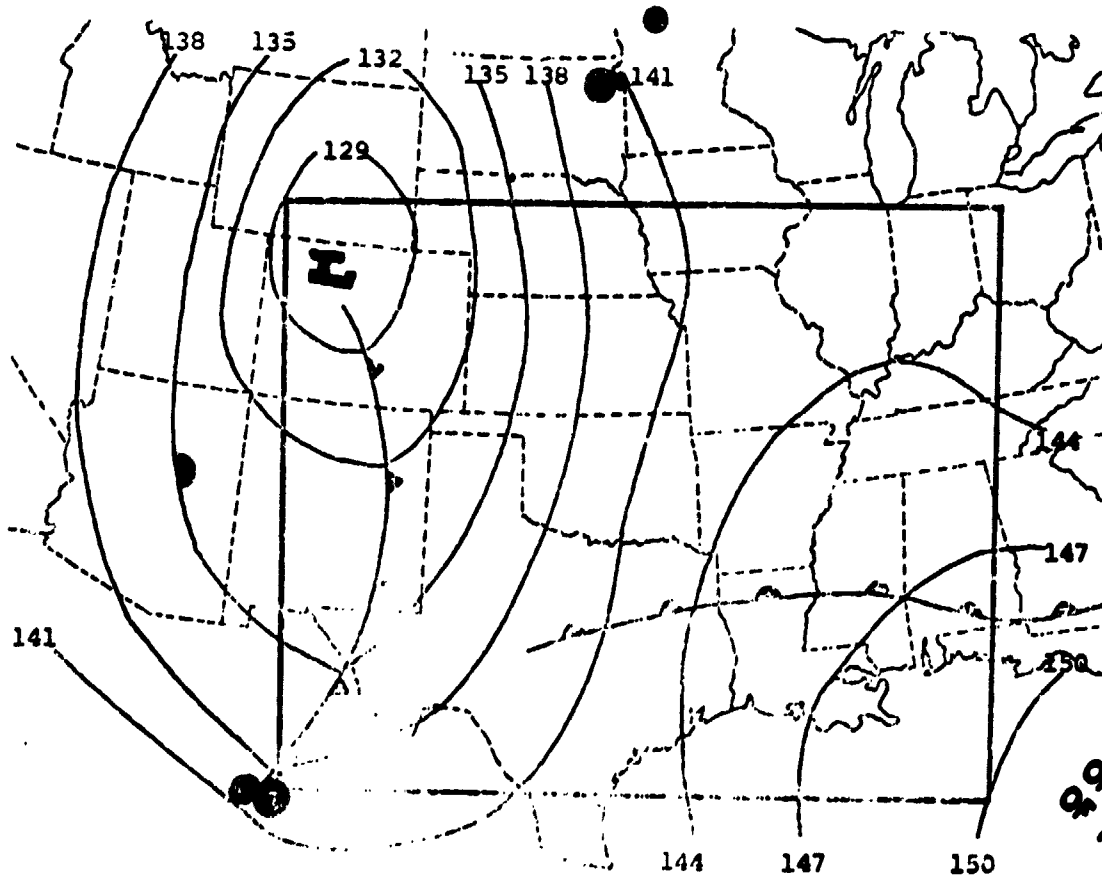
Selected radar summary charts are presented in Figs. 2-14. These charts show areas of principal convective activity, heights of echoes, movement vectors, severe weather watch boxes, etc.

c. Satellite

Satellite photographs were taken at 15-min intervals during the AVE-SESAME I period. These photographs consisted of both infrared and visual. Selected satellite photographs for each hour during the period are presented in Figs. 20-44.



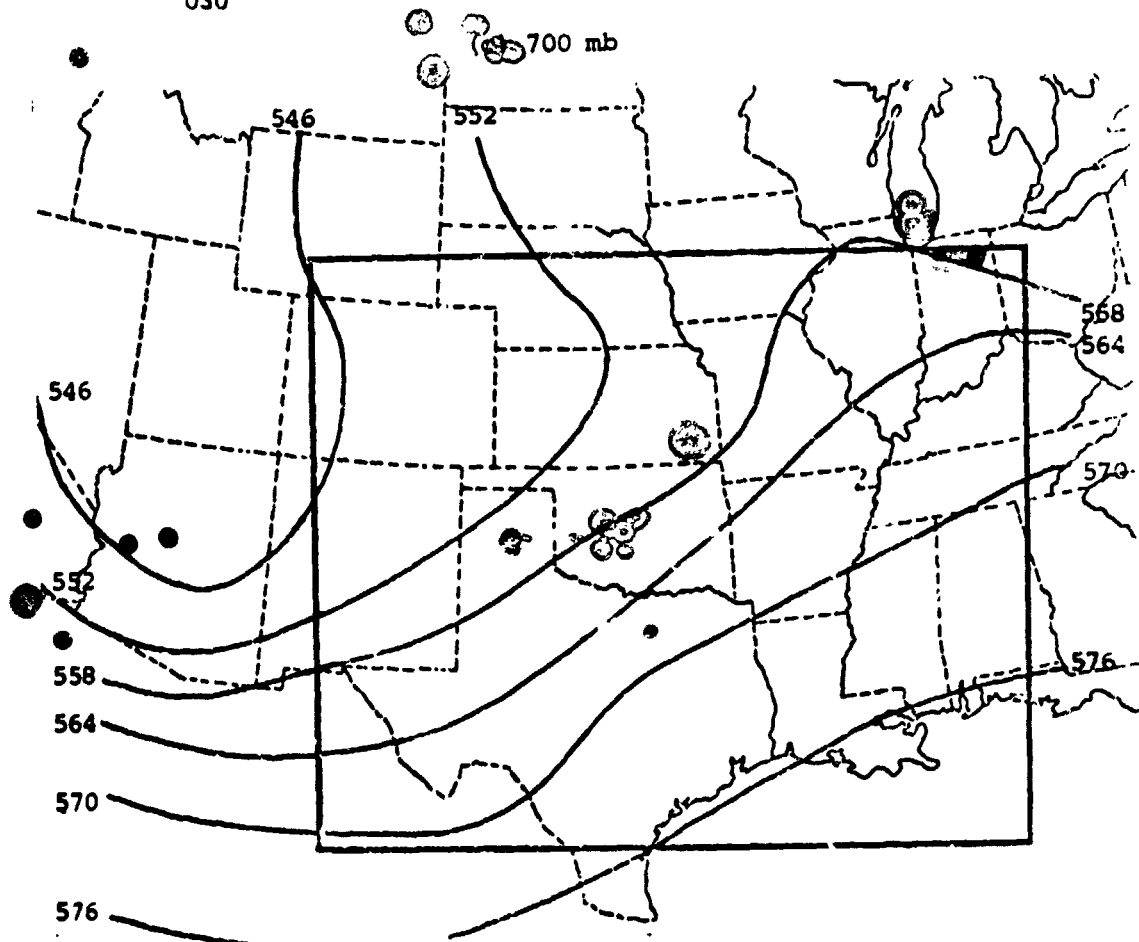
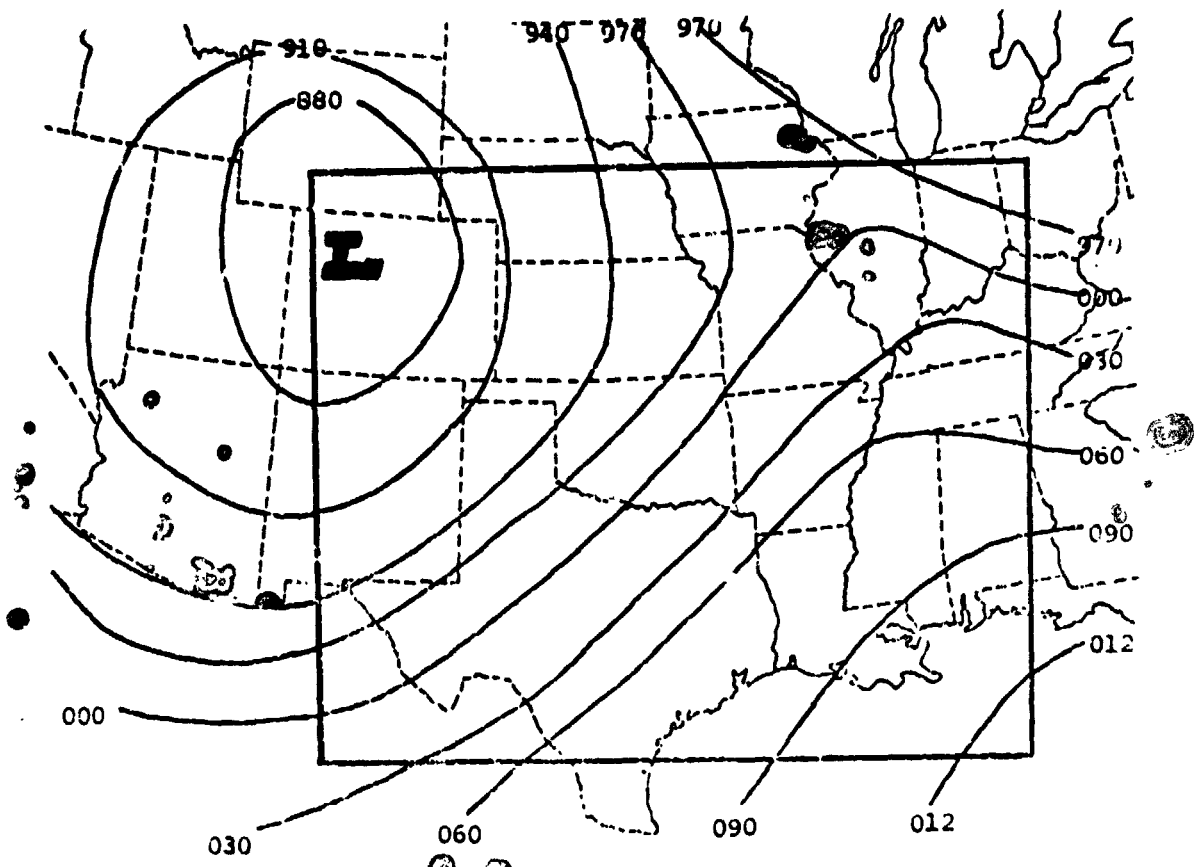
(a) Surface



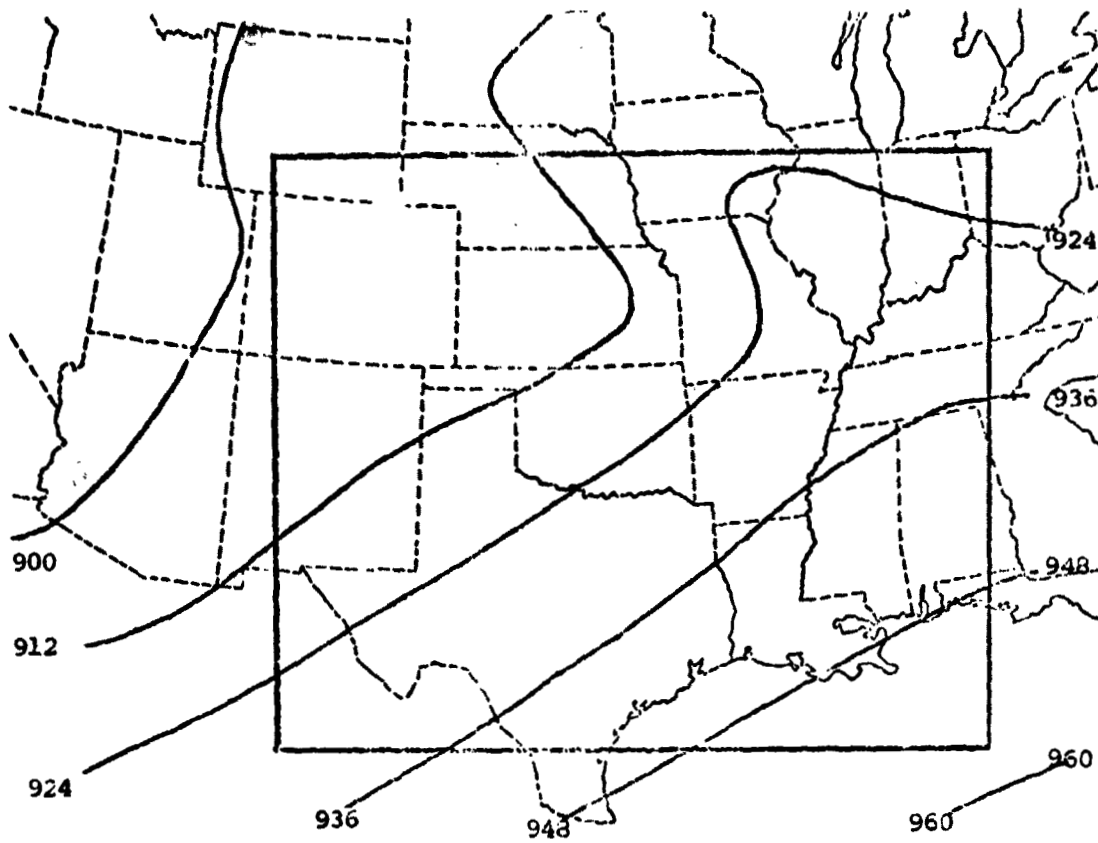
(b) 850 mb

Fig. 2. Synoptic charts for 1200 GMT, 10 April 1979.

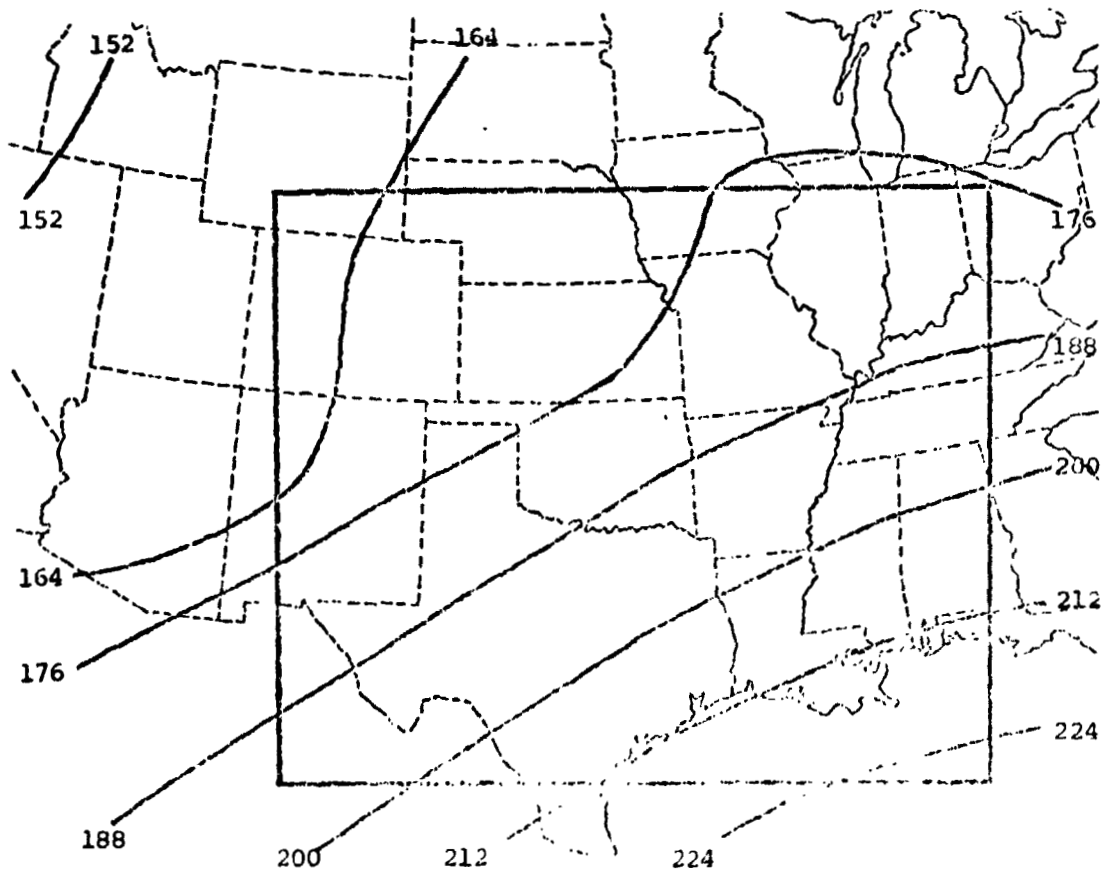
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(f) 200 mb

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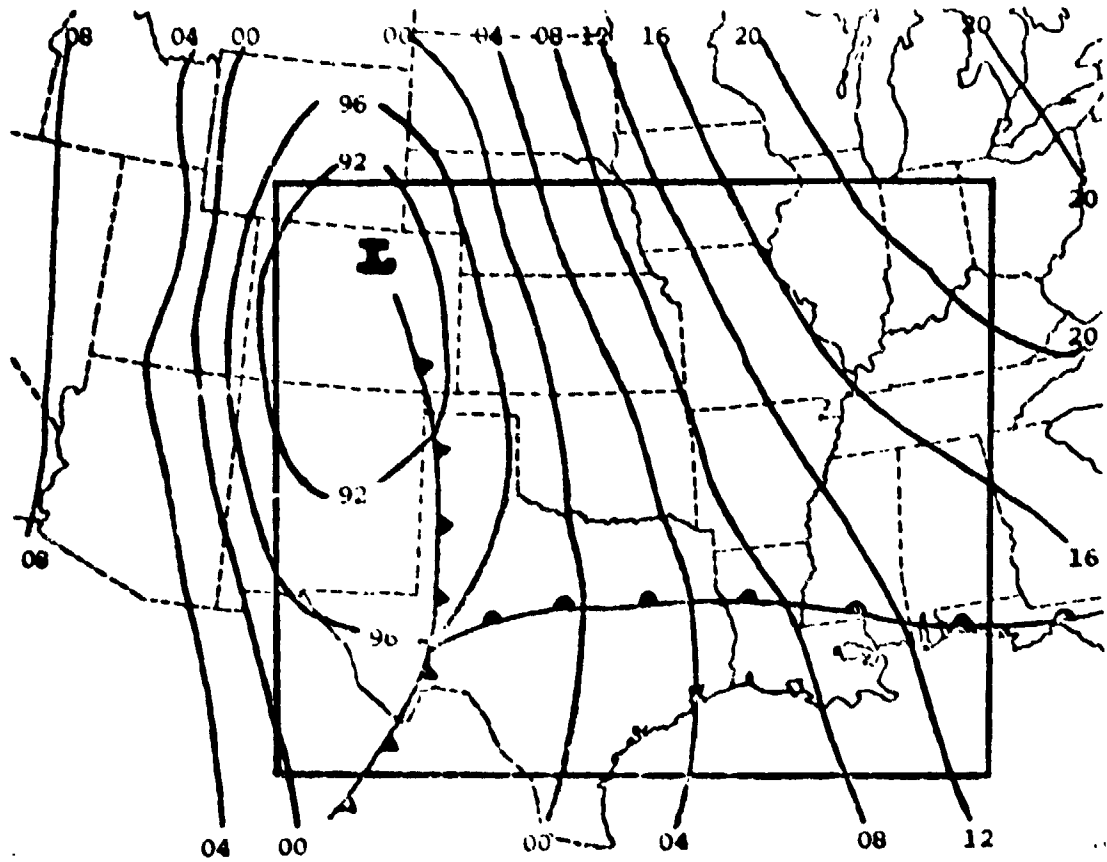
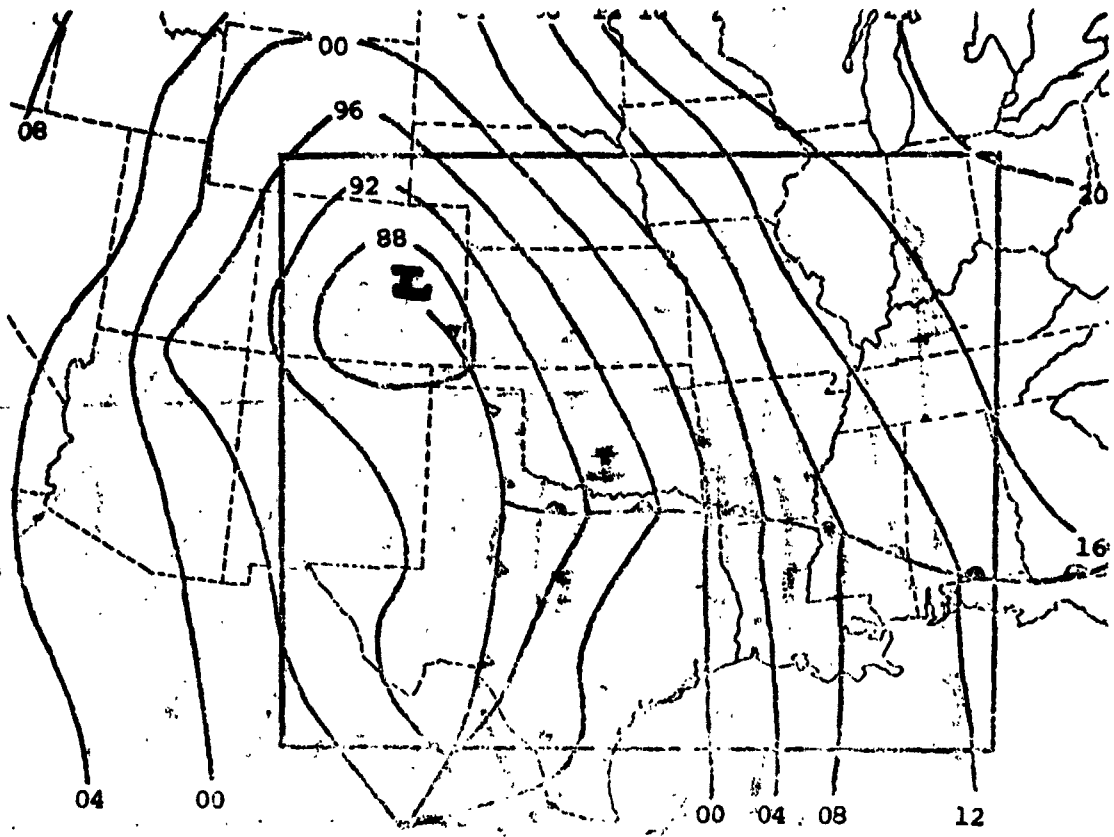
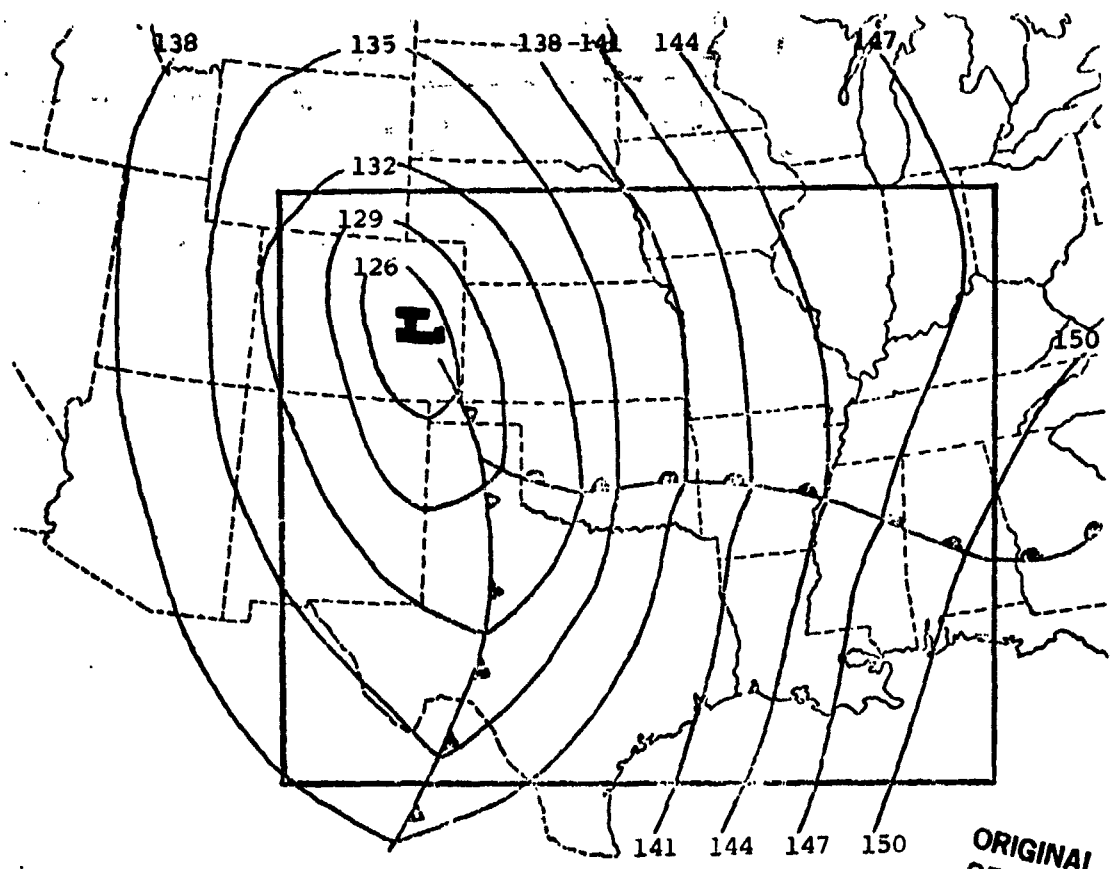


Fig. 3. Surface chart for 1800 GMT, 10 April 1979.



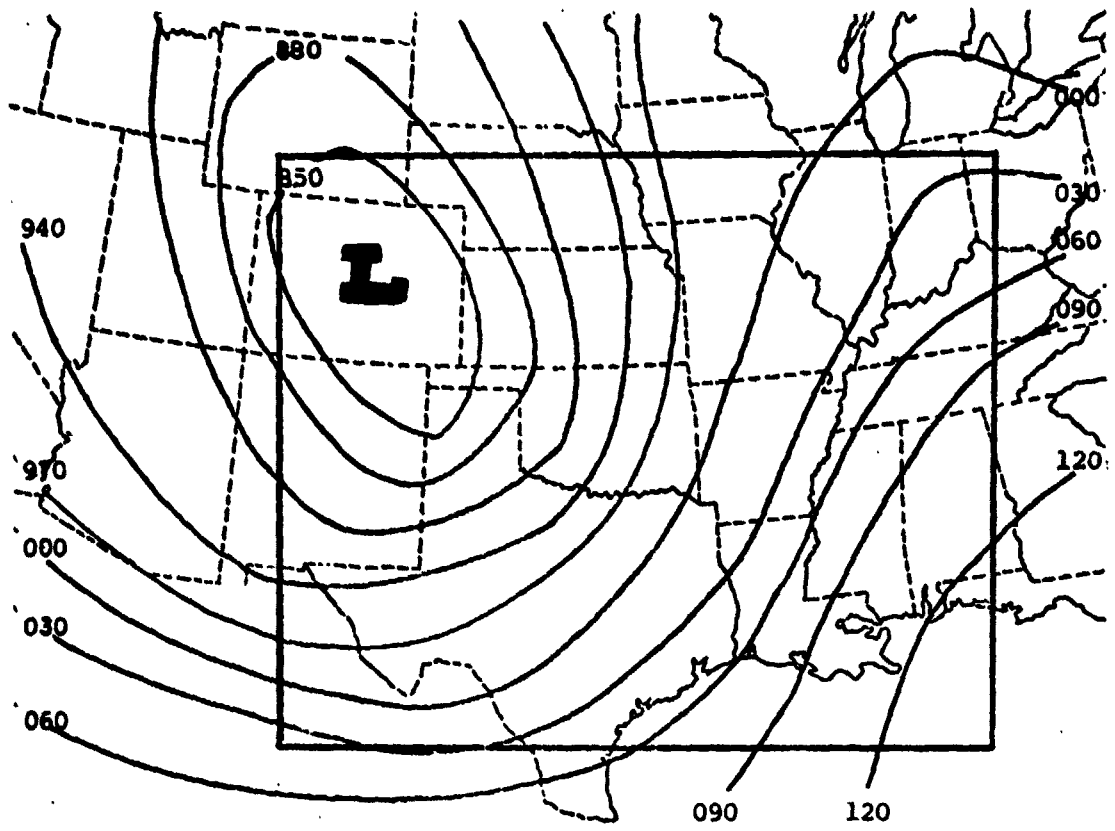
(a) Surface



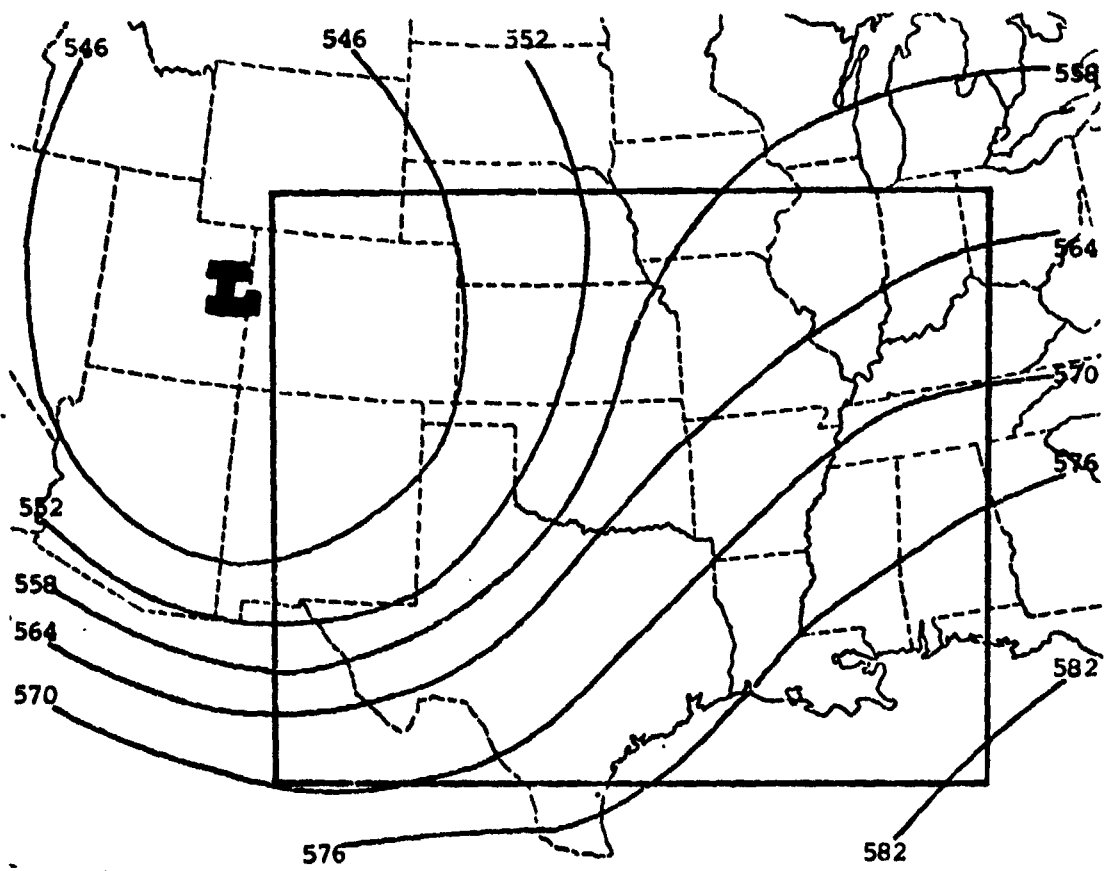
(b) 850 mb

Fig. 4. Synoptic charts for 0000 GMT, 11 April 1979.

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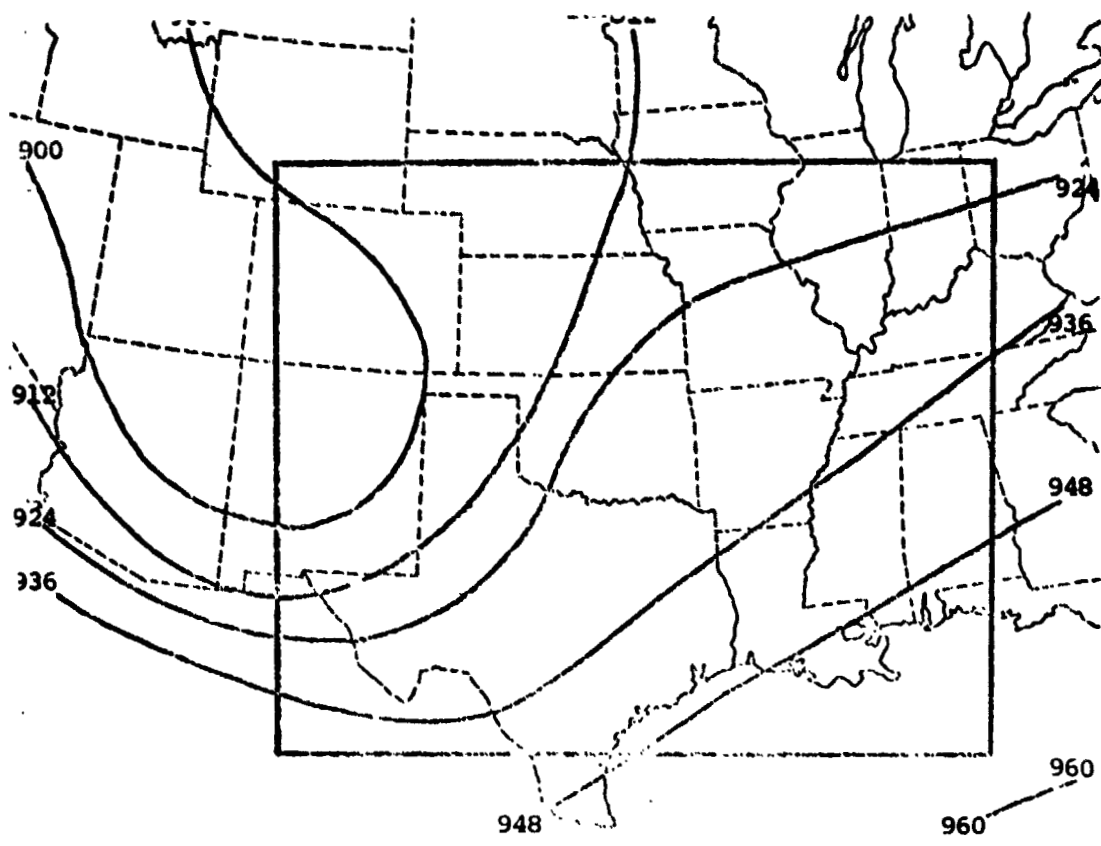


(c) 700 mb

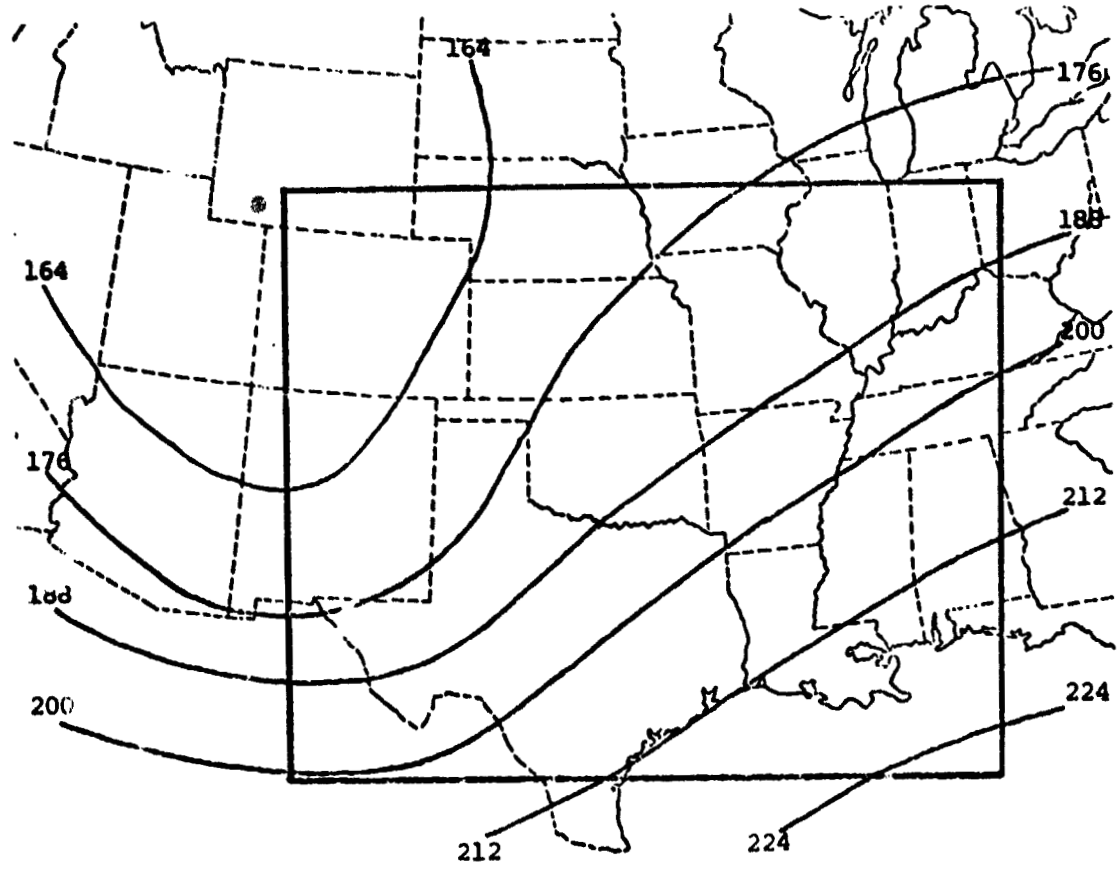


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Fig. 4. Continued.



(e) 300 mb



(f) 200 mb

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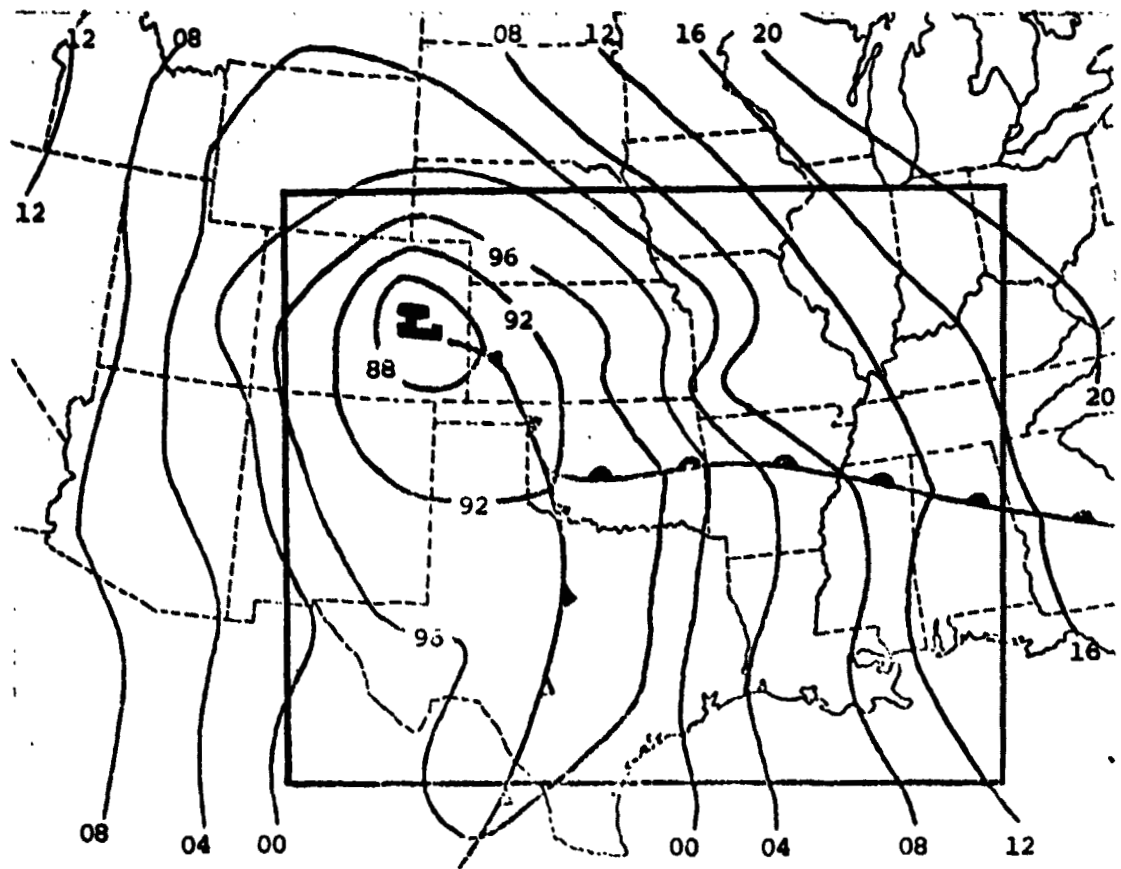
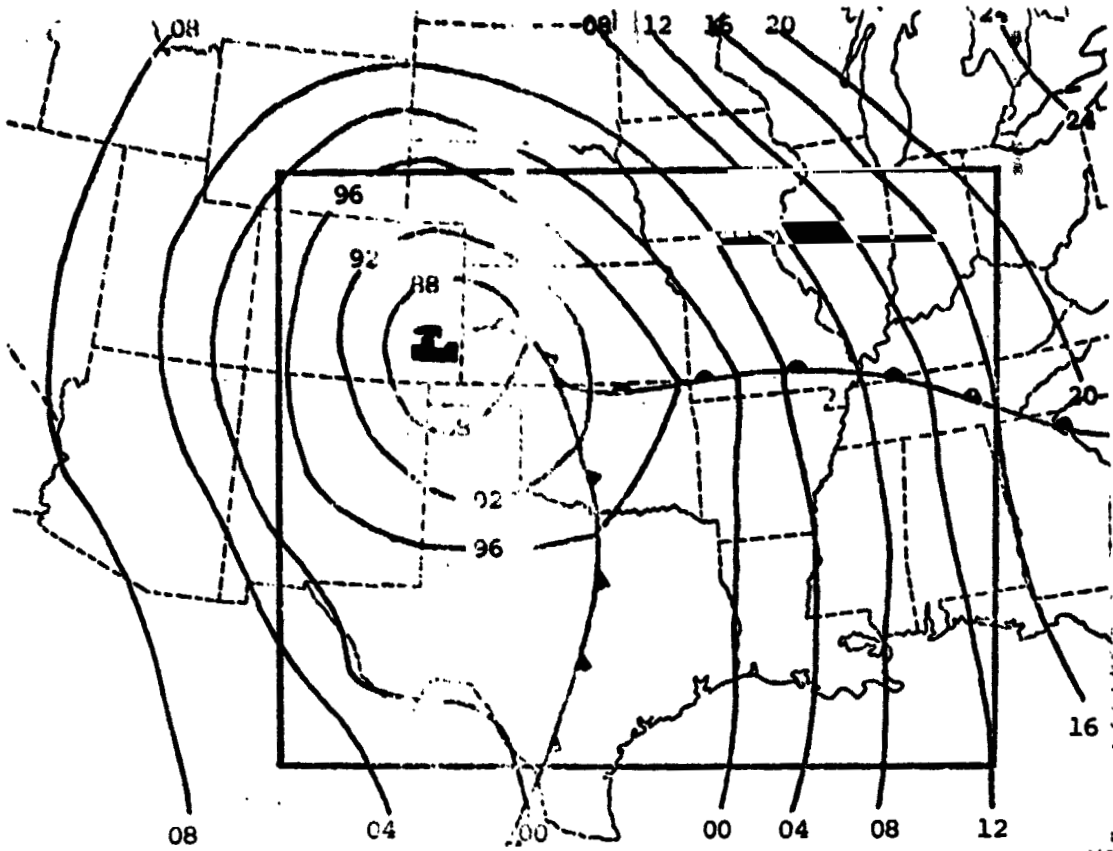
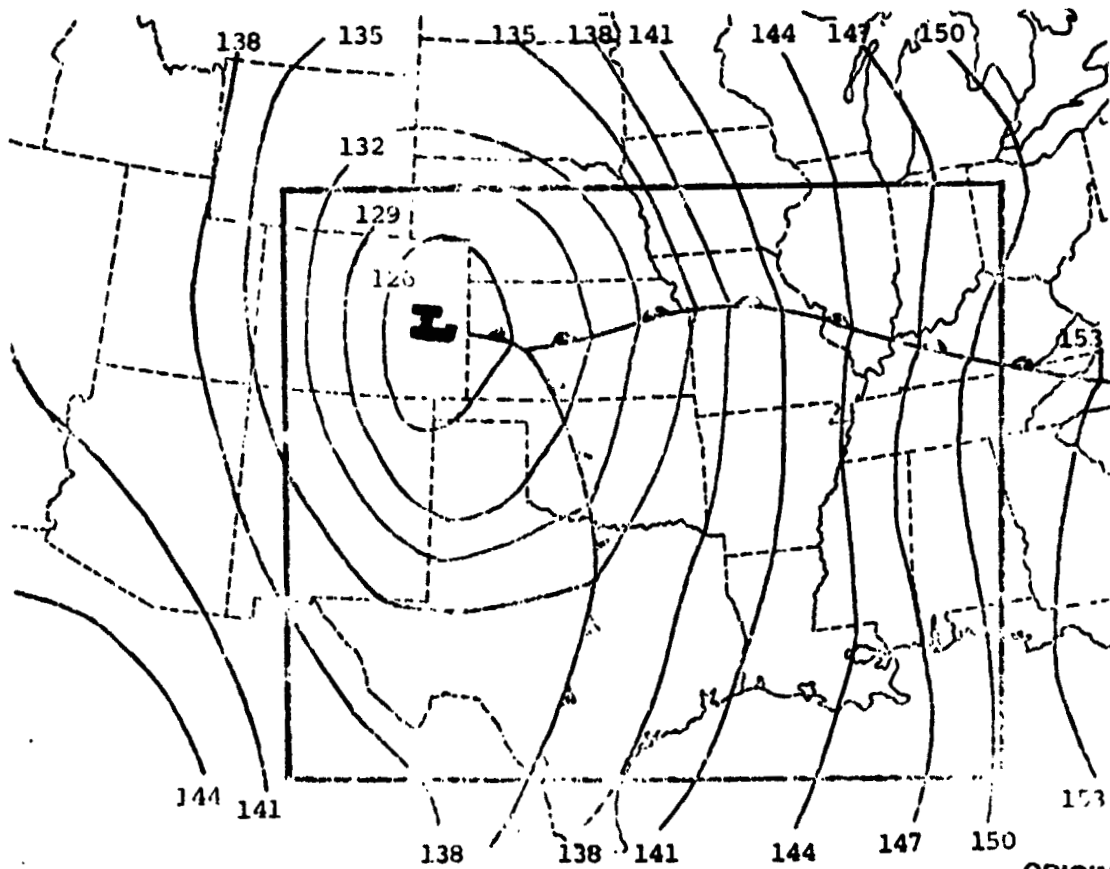


Fig. 5. Surface chart for 0600 GMT, 11 April 1979.



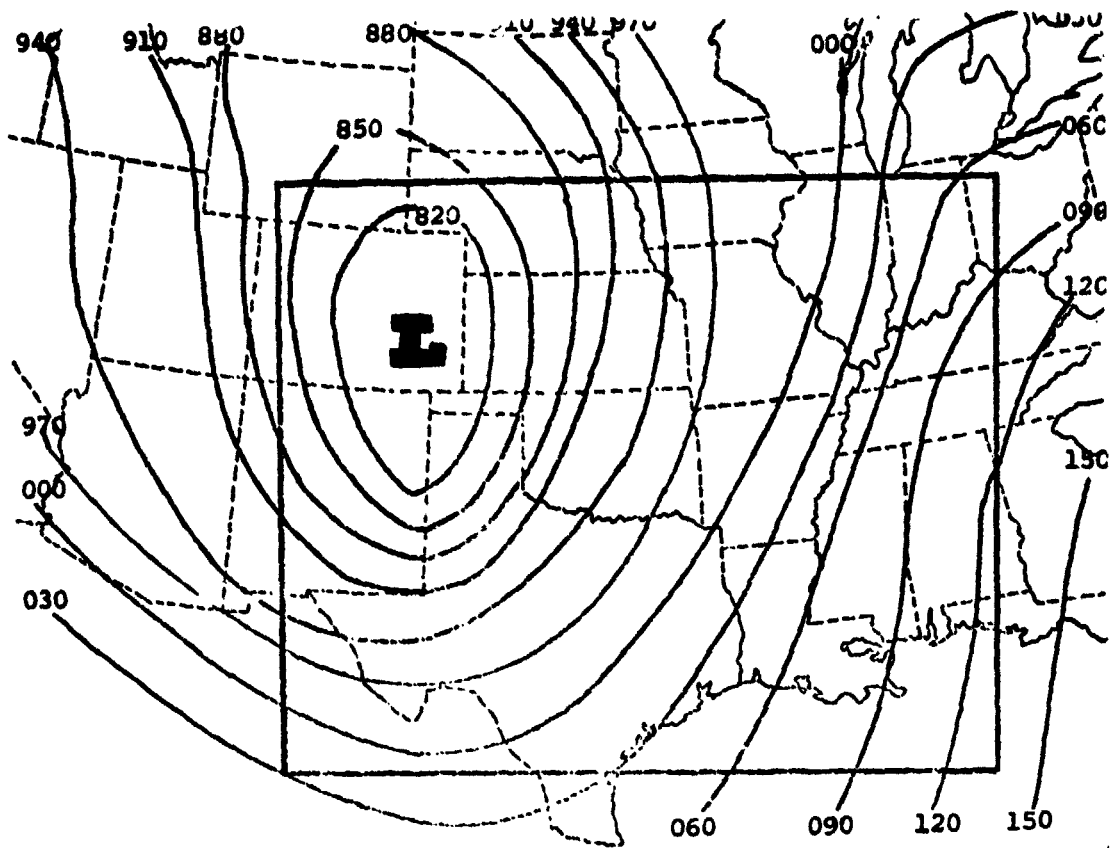
(a) Surface



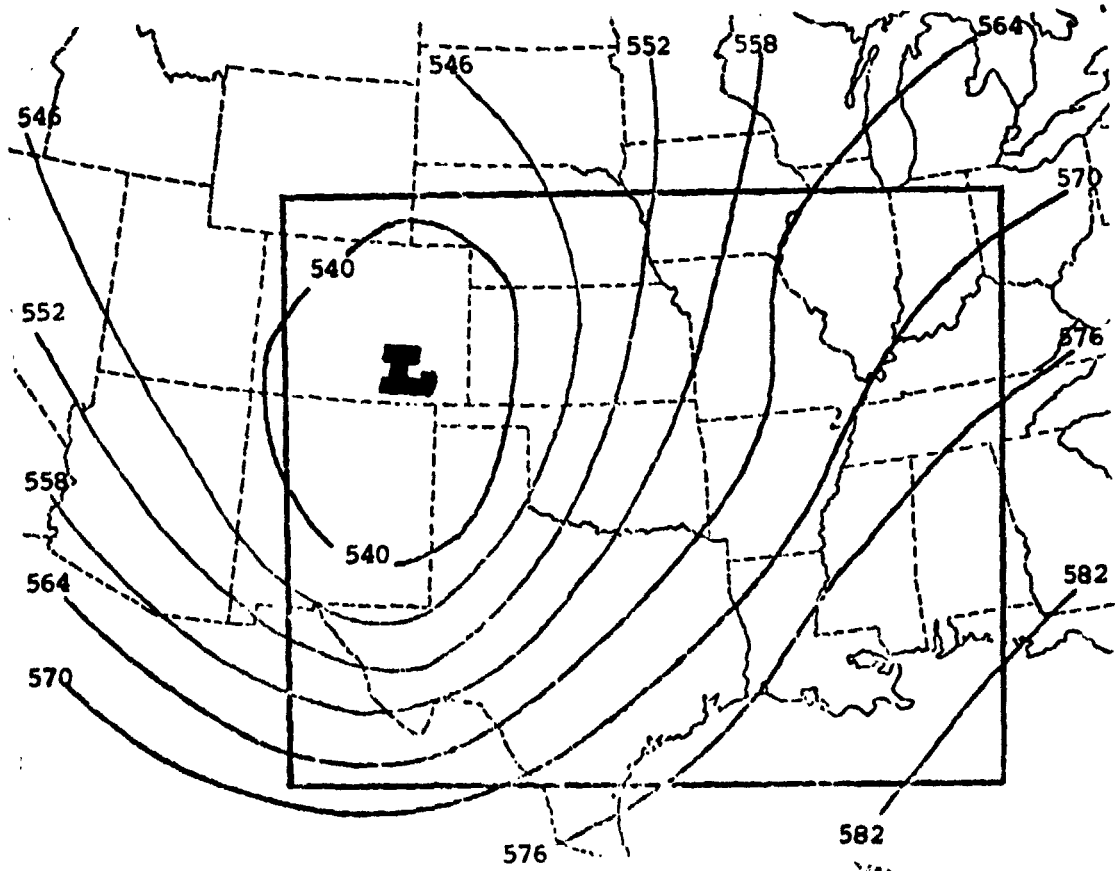
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Fig. 6. Synoptic charts for 1200 GMT, 11 April 1979.

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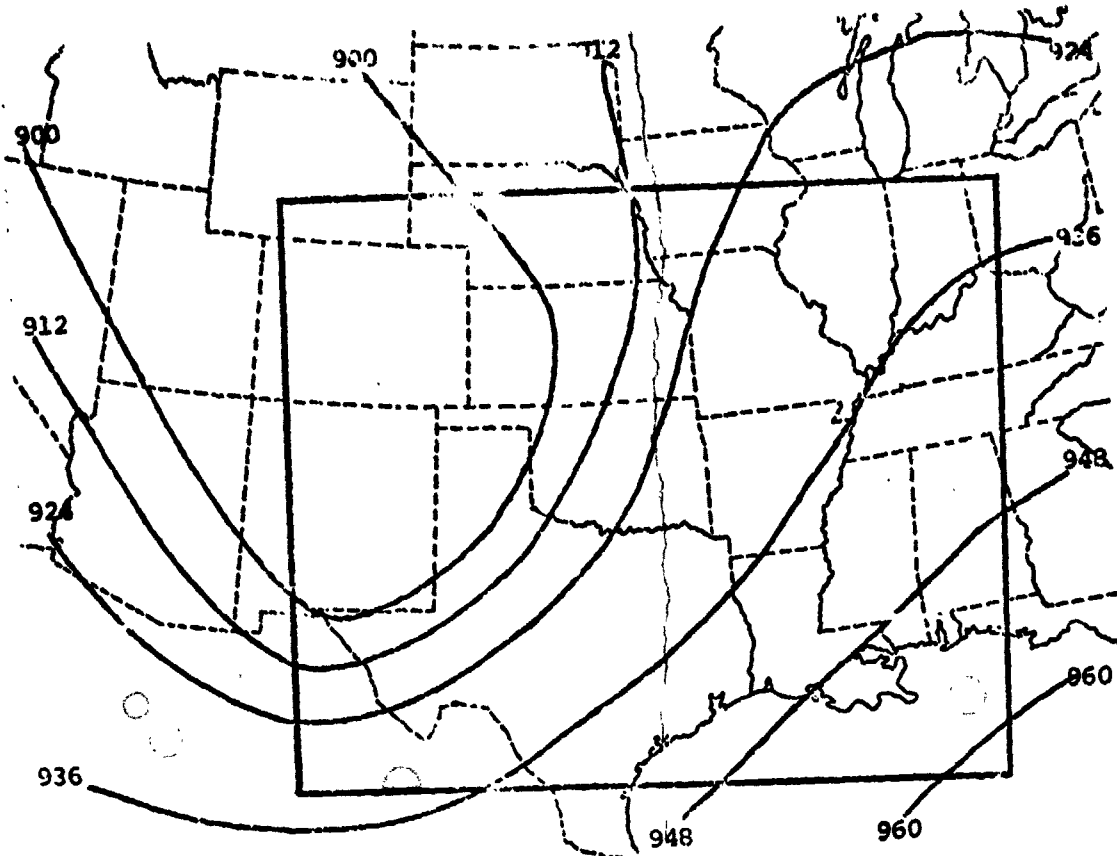


(c) 700 mb

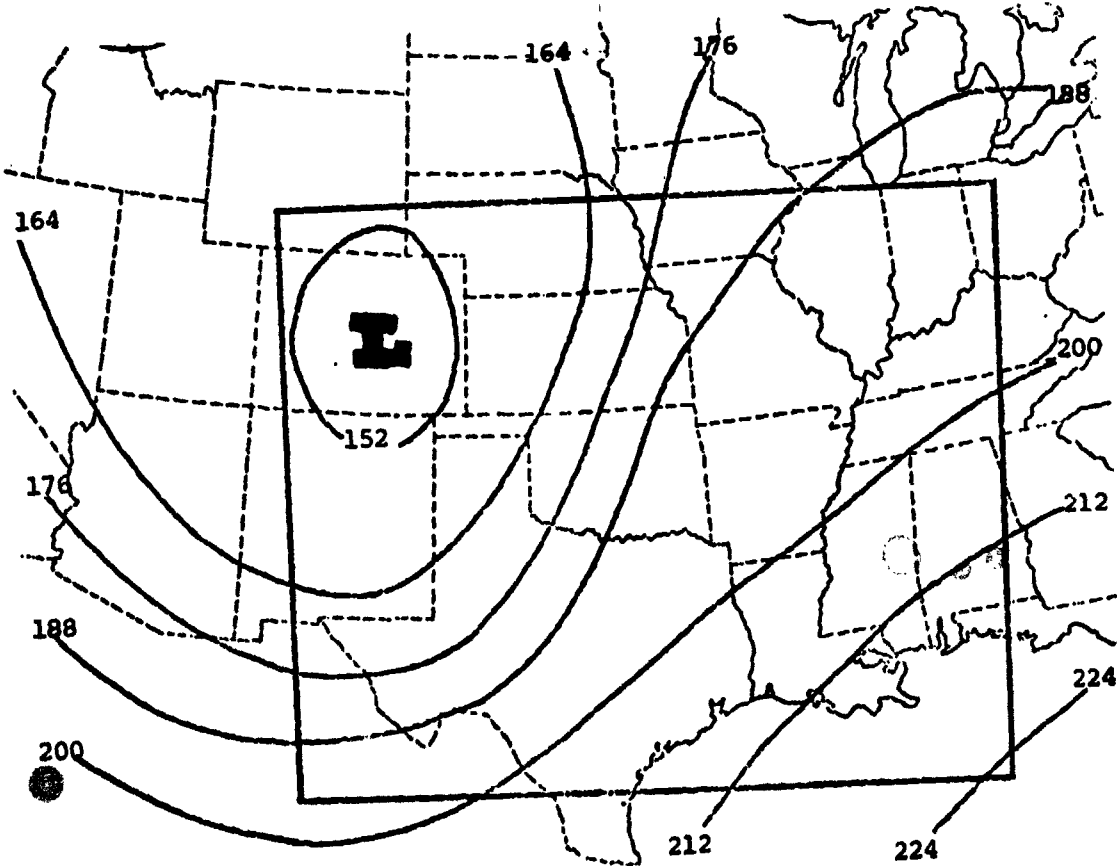


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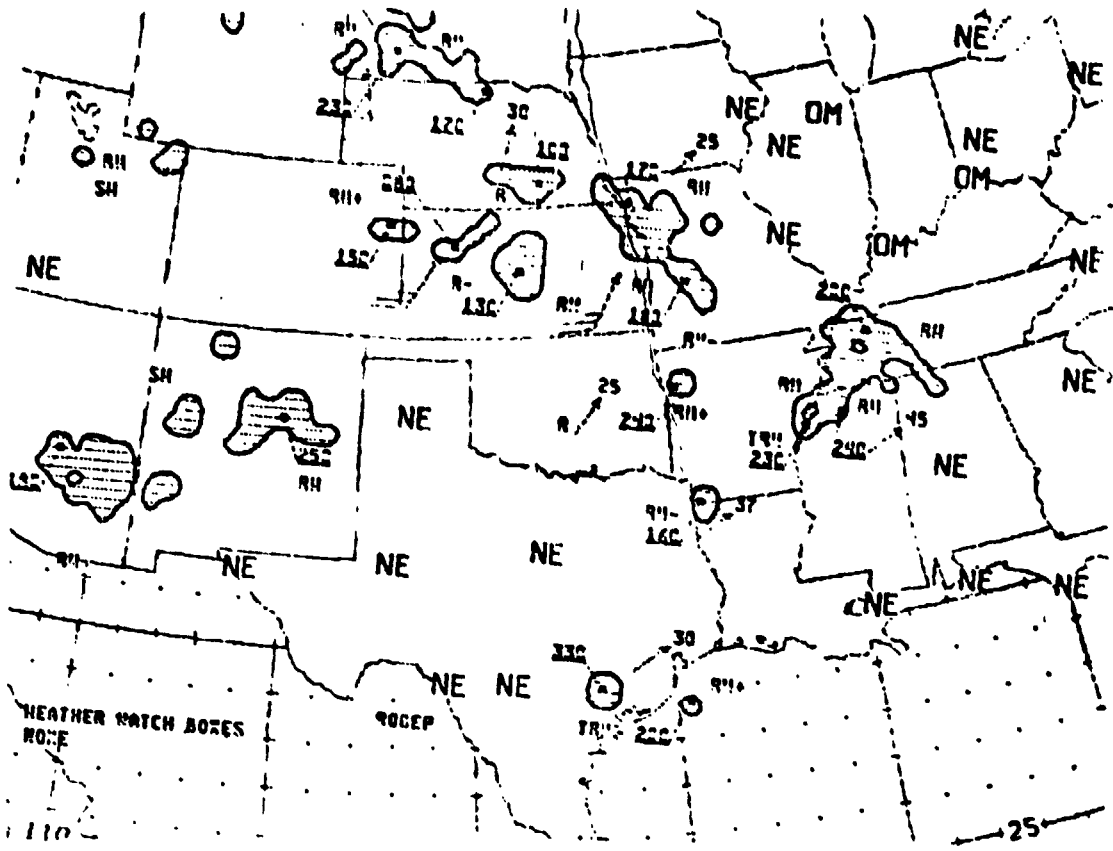


Fig. 7. Radar summary for 1435 GMT, 10 April 1979.

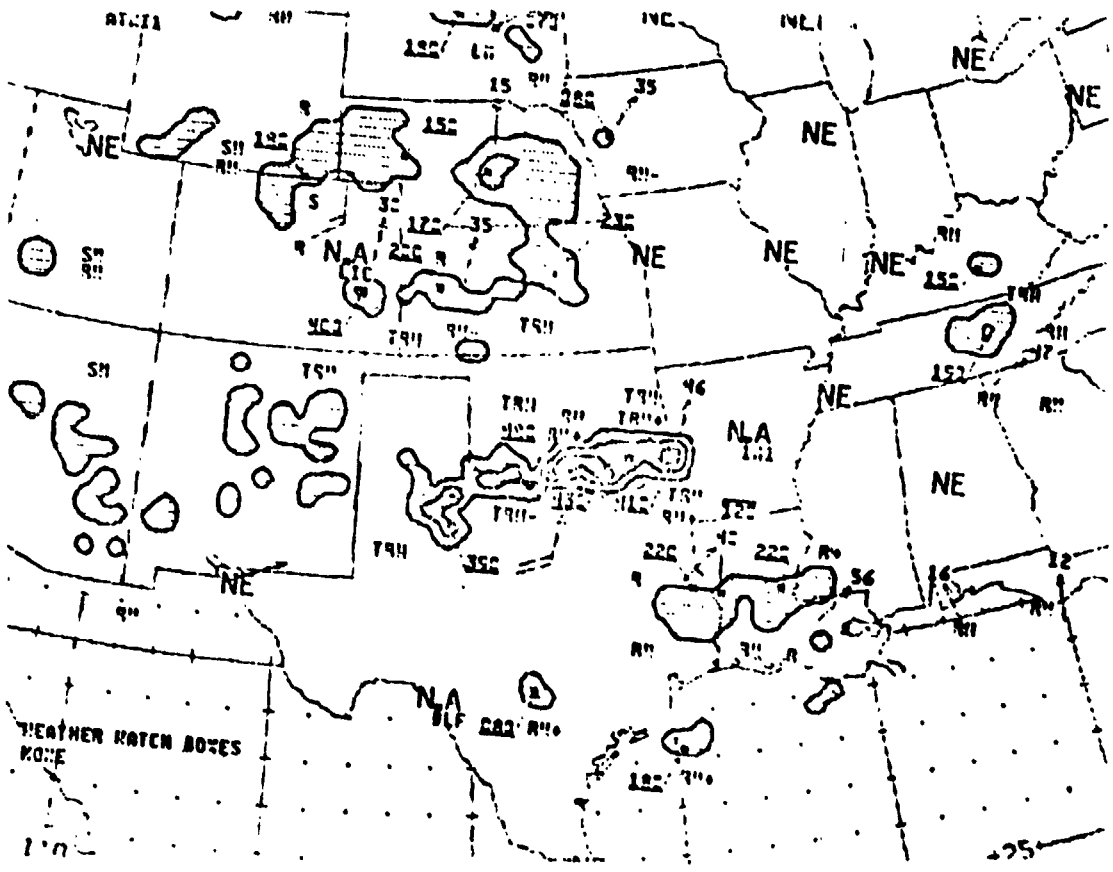


Fig. 8. Radar summary for 1935 GMT, 10 April 1979.

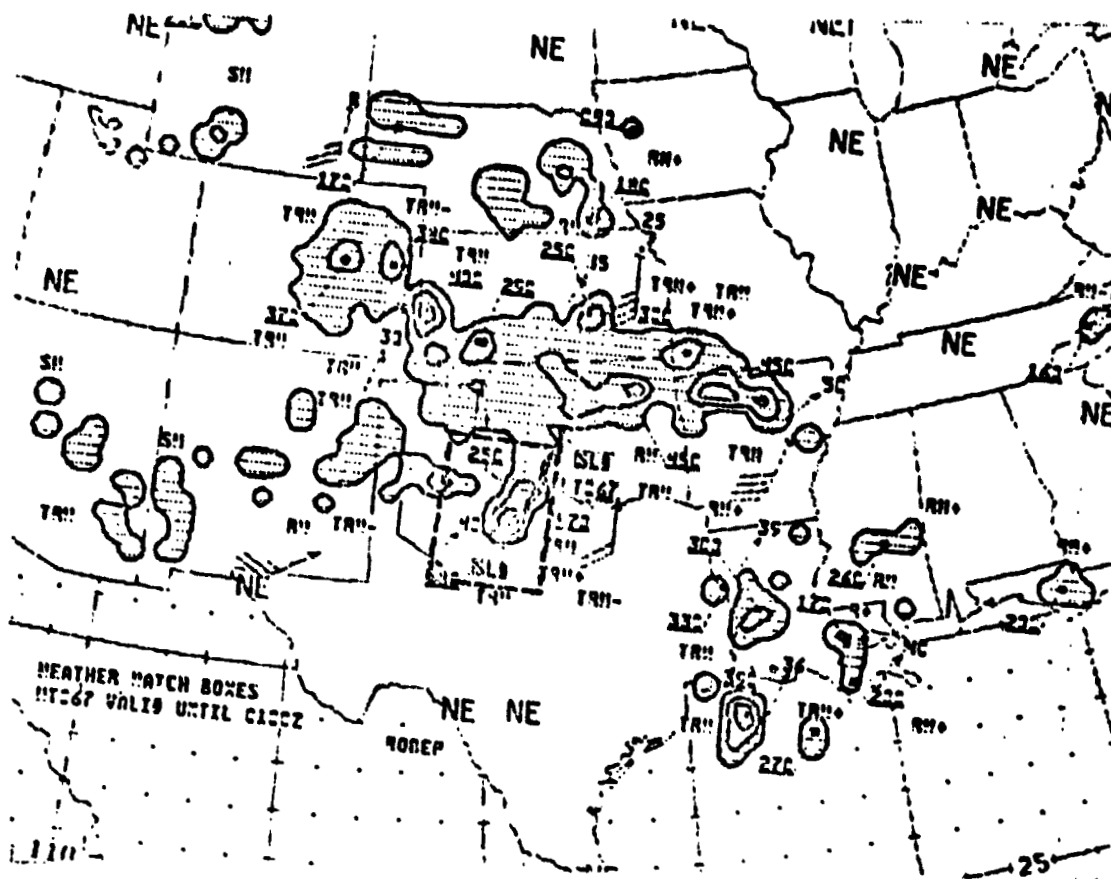


Fig. 9. Radar summary for 2235 GMT, 10 April 1979.

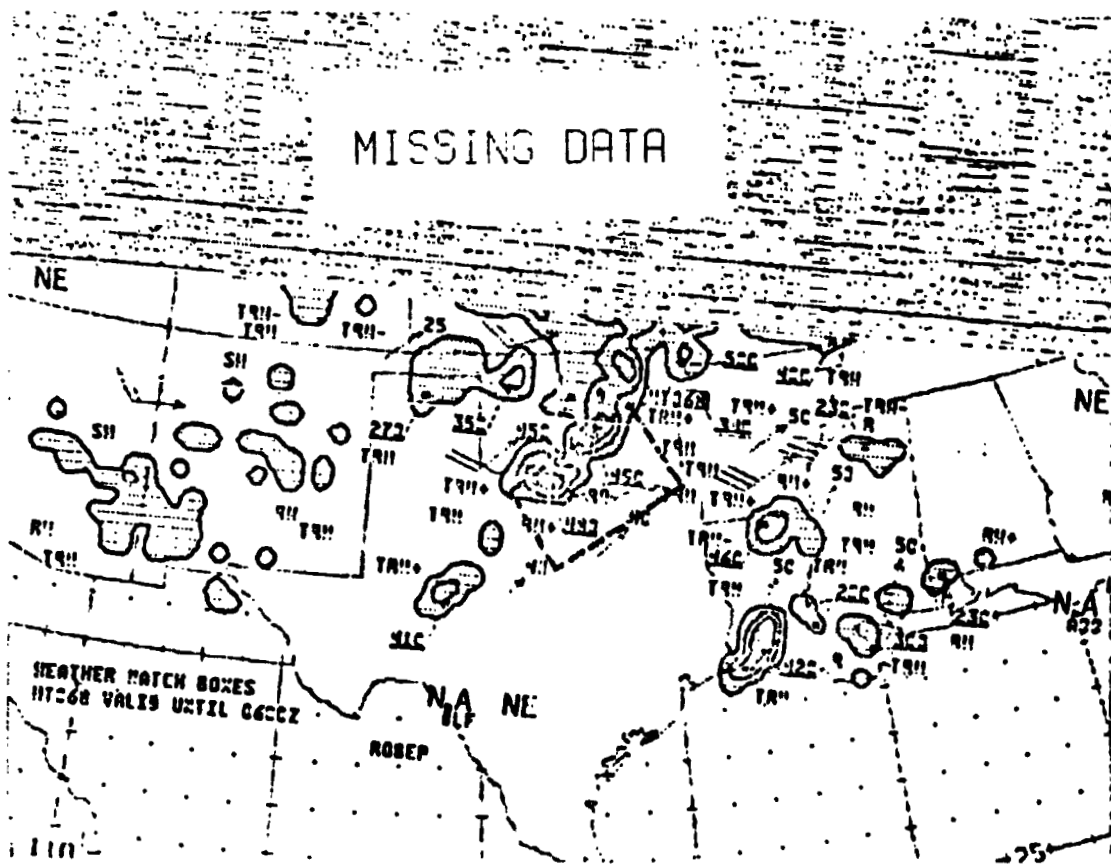


Fig. 10. Radar summary for 0135 GMT, 11 April 1979.

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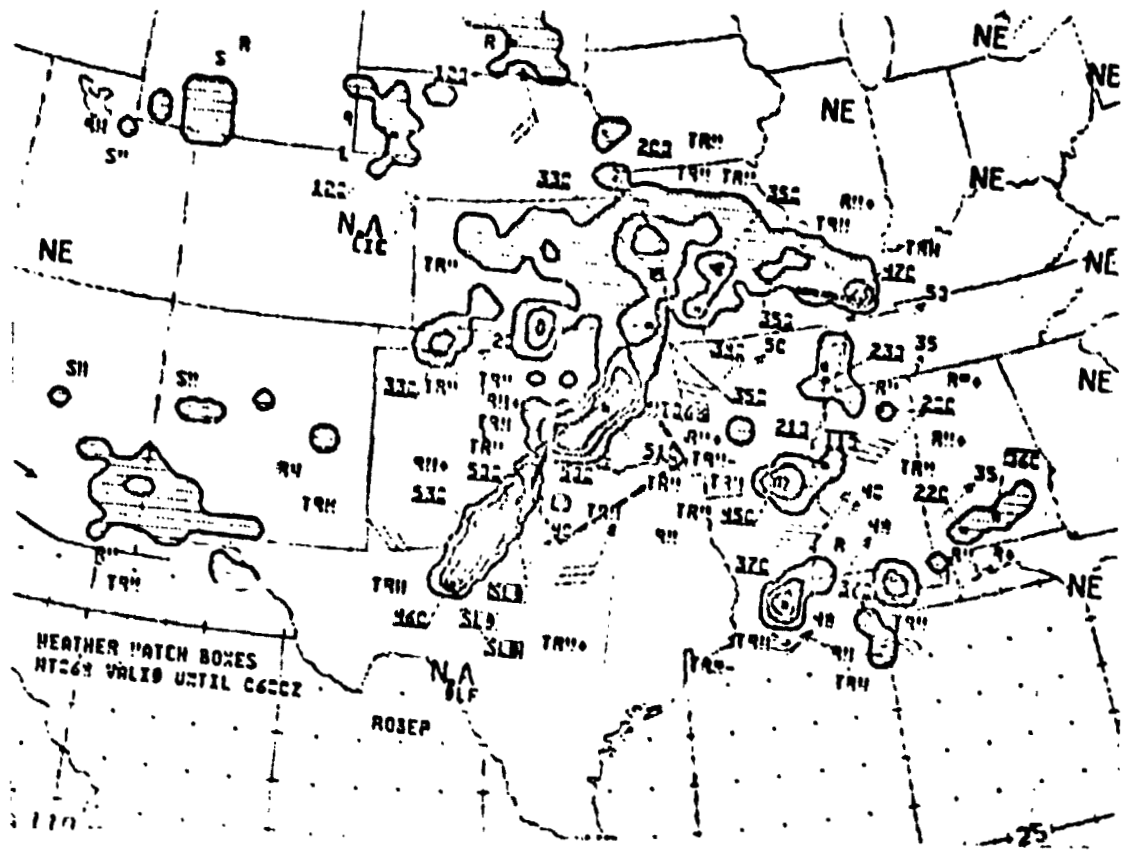


Fig. 11. Radar summary for 0235 GMT, 11 April 1979.

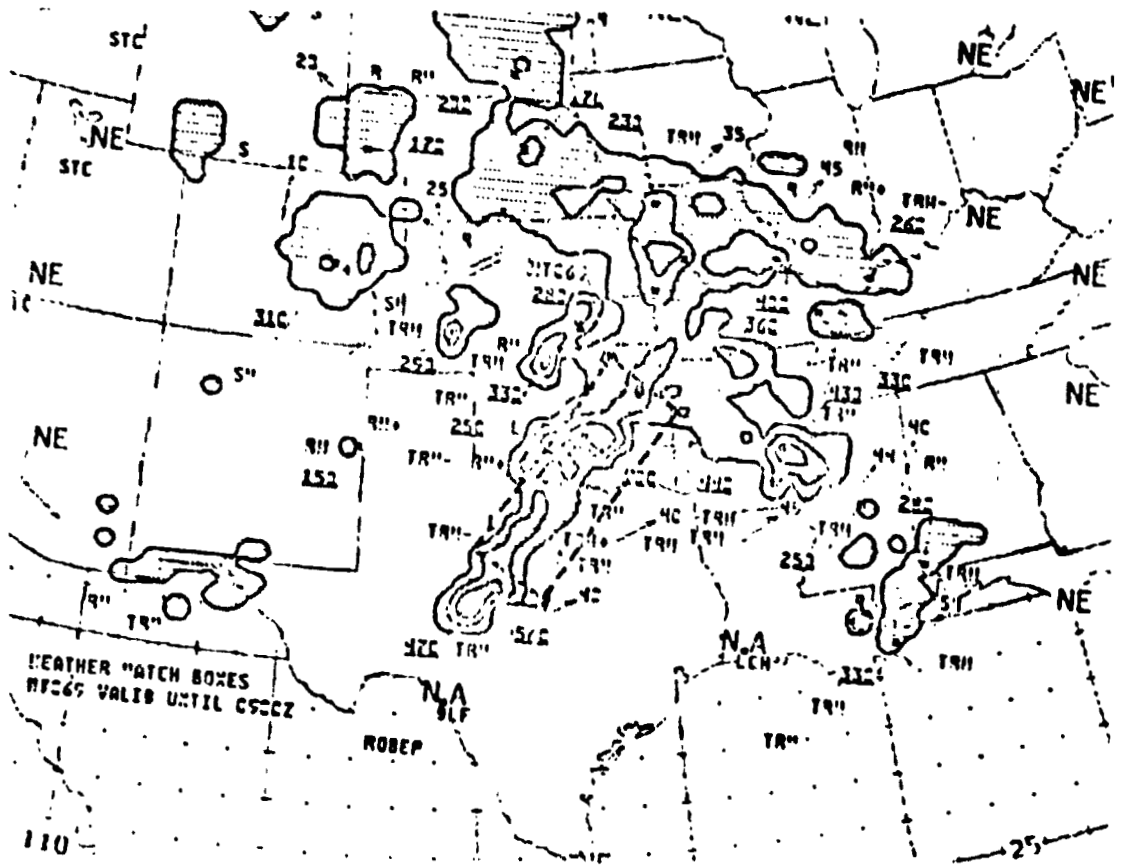


Fig. 12. Radar summary for 0435 GMT, 11 April 1979.

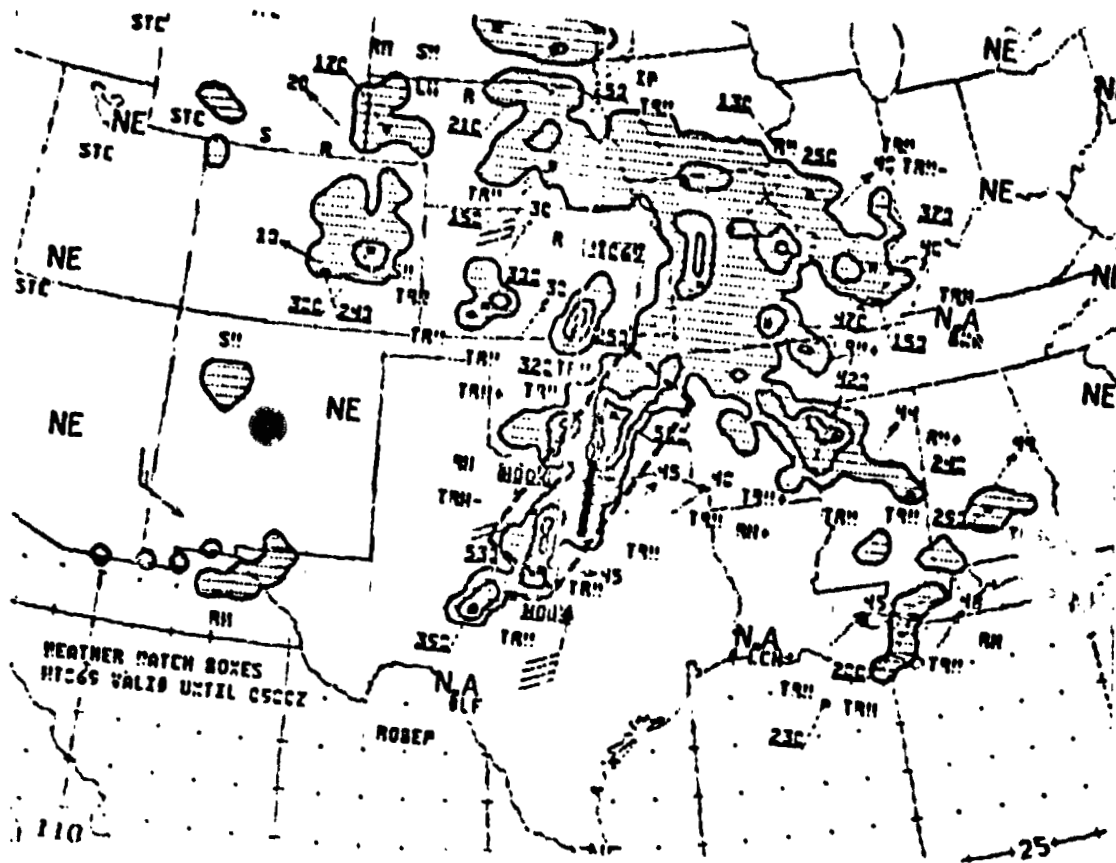


Fig. 13. Radar summary for 0535 GMT, 11 April 1979.

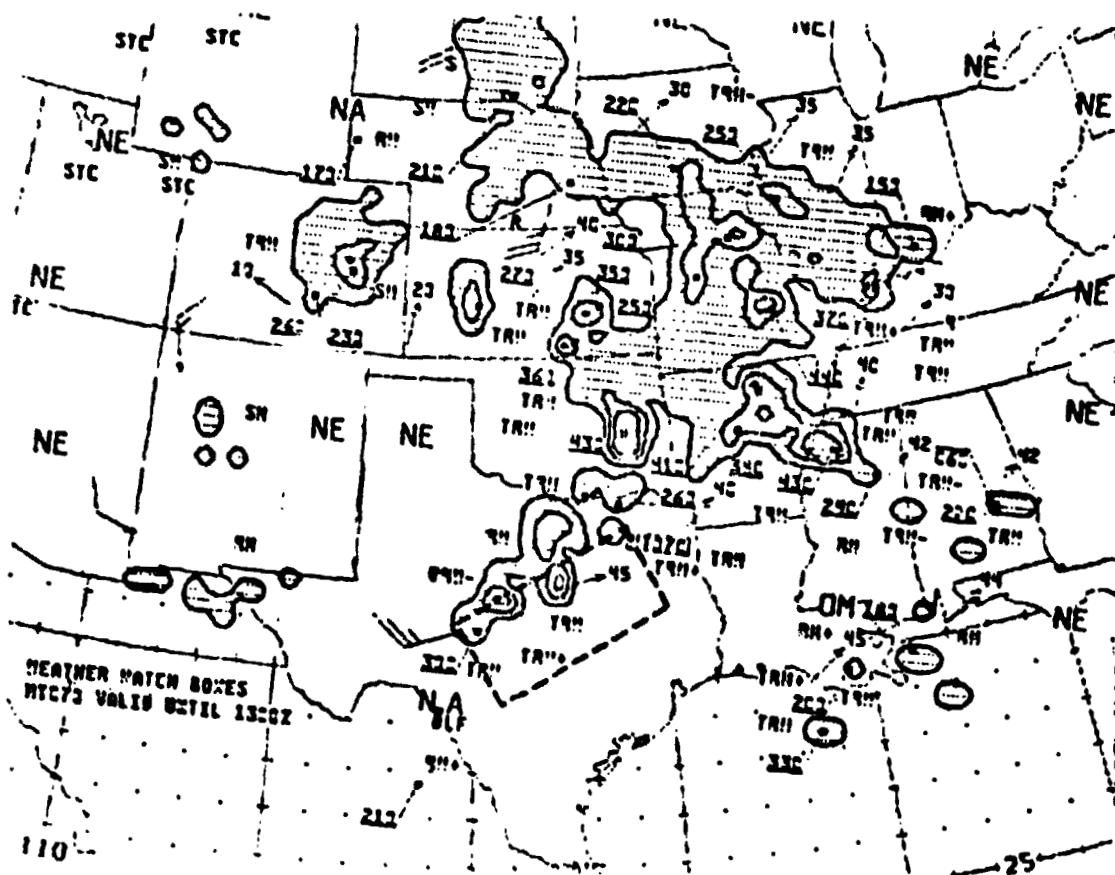


Fig. 14. Radar summary for 0635 GMT, 11 April 1979.

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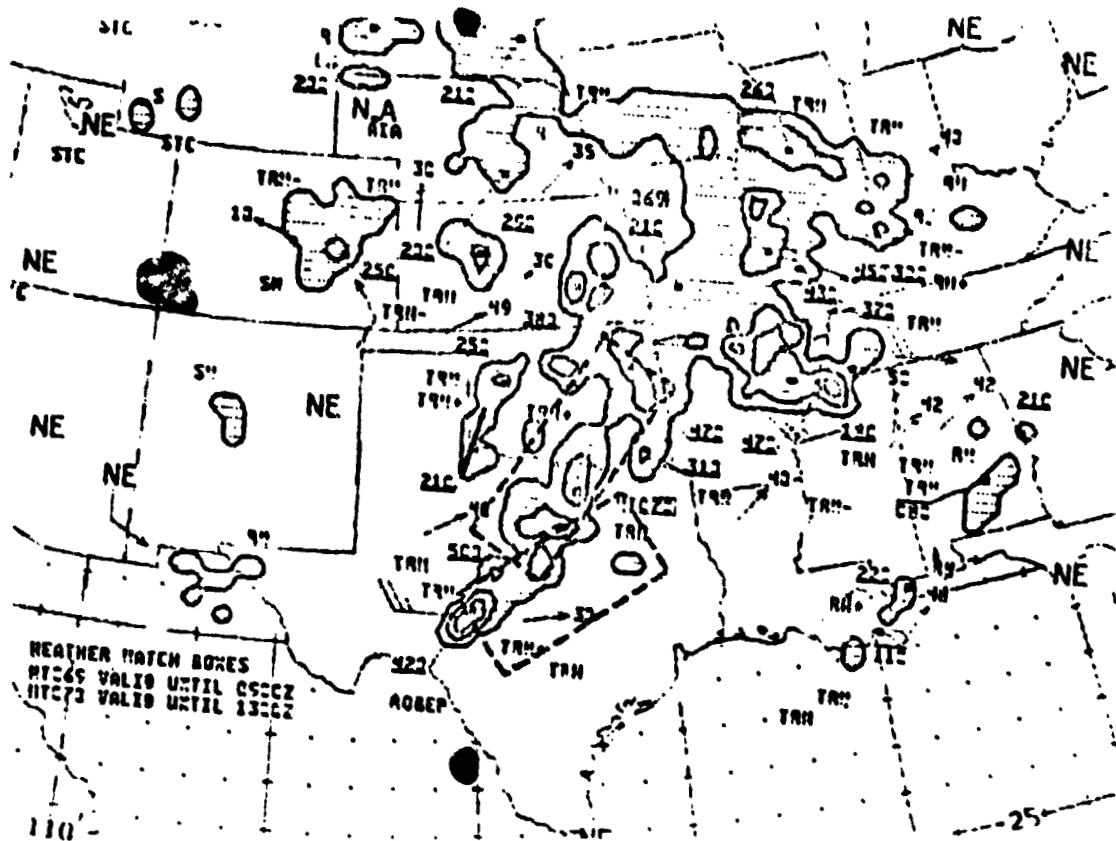


Fig. 15. Radar summary for 0735 GMT, 11 April 1979.

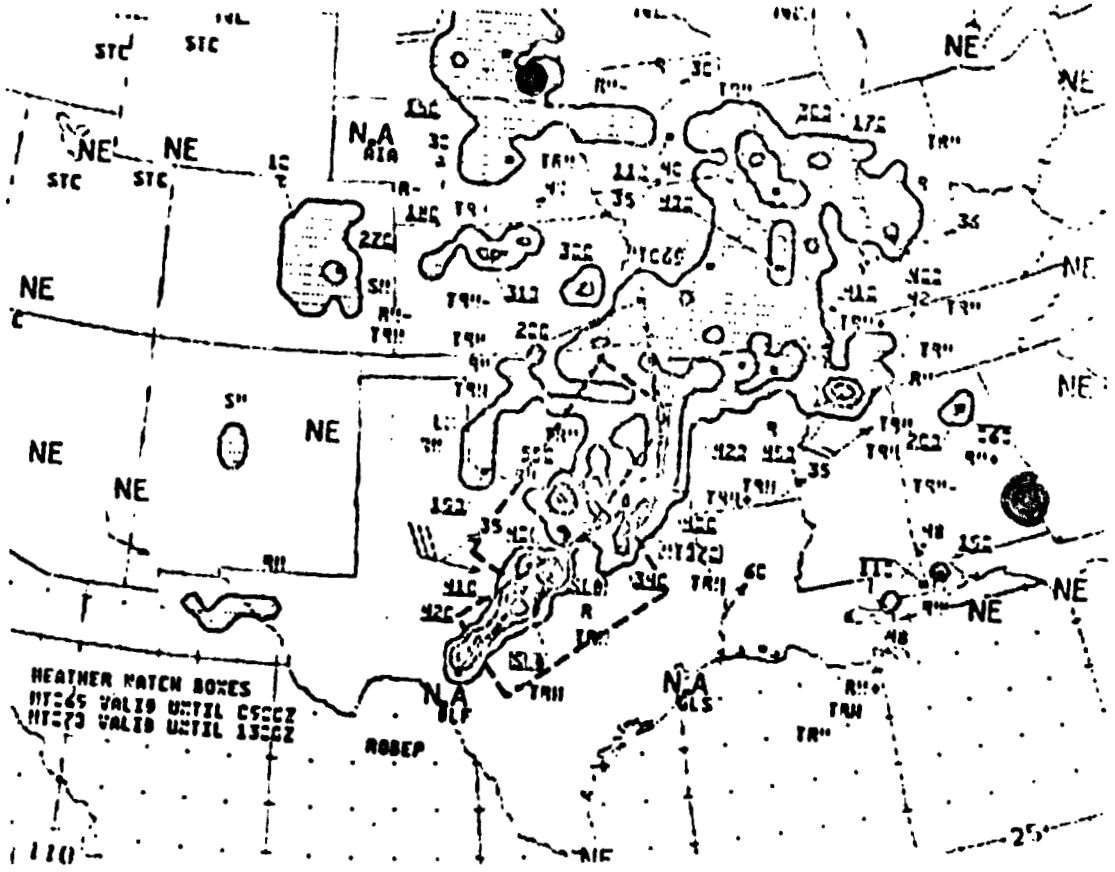


Fig. 16. Radar summary for 0835 GMT, 11 April 1979.

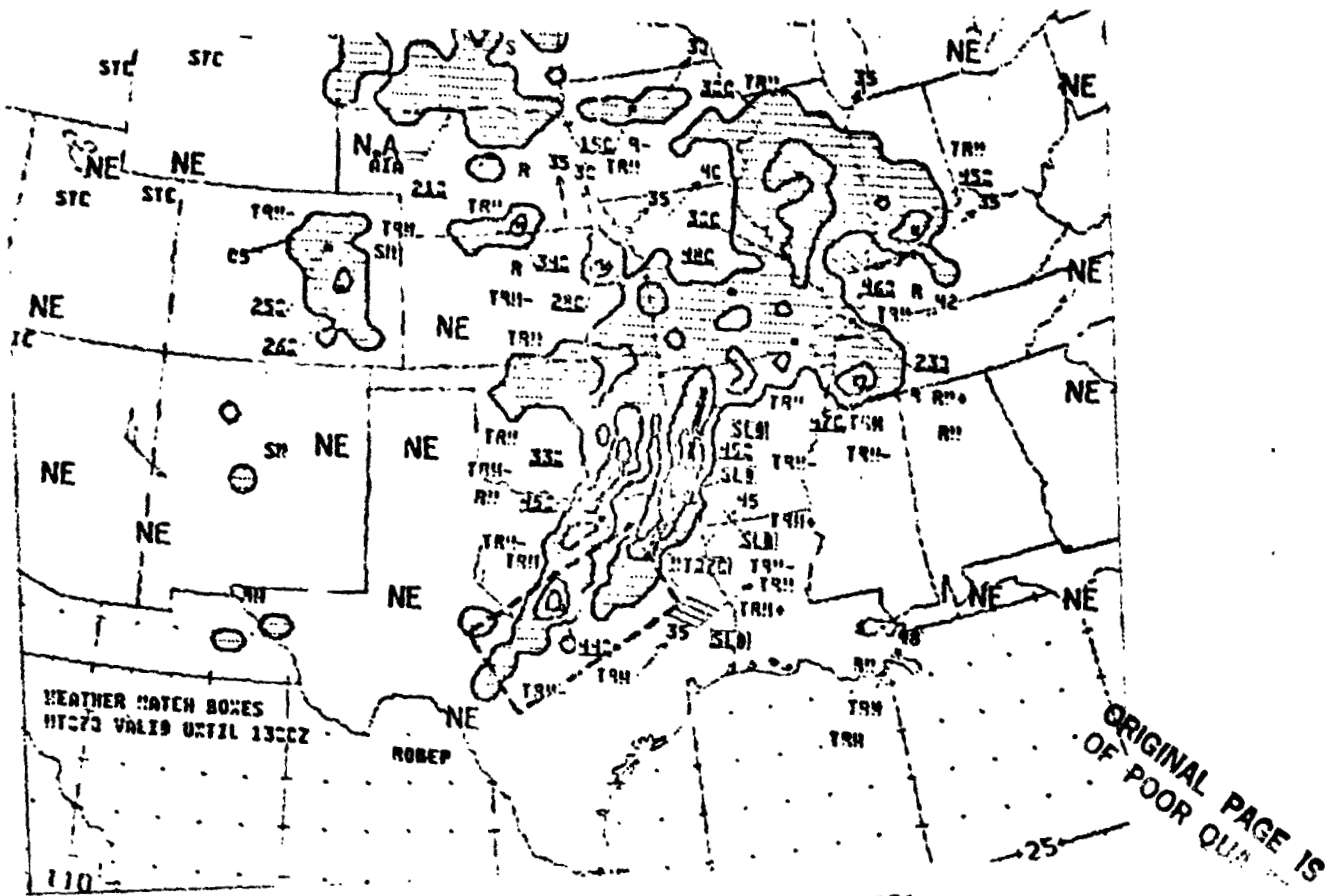


Fig. 17. Radar summary for 0935 GMT, 11 April 1979.

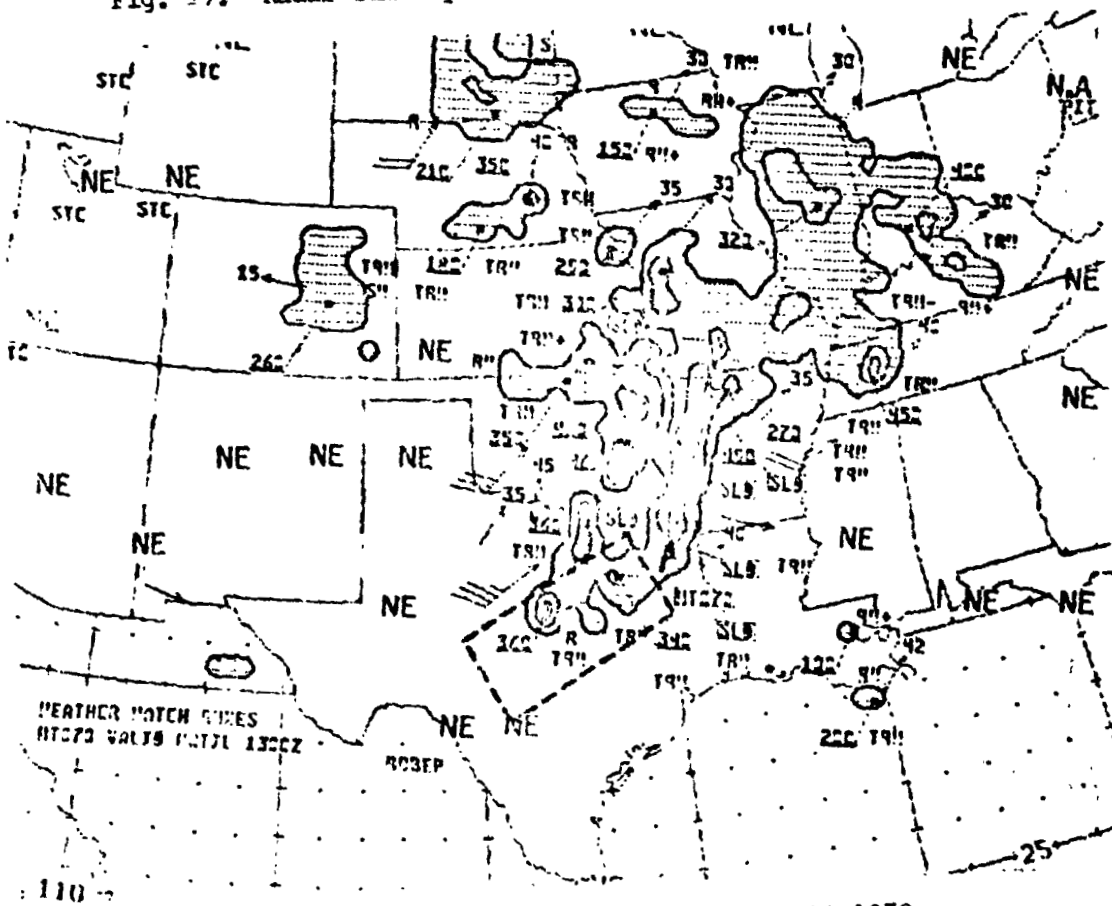


Fig. 18. Radar summary for 1035 GMT, 11 April 1979.

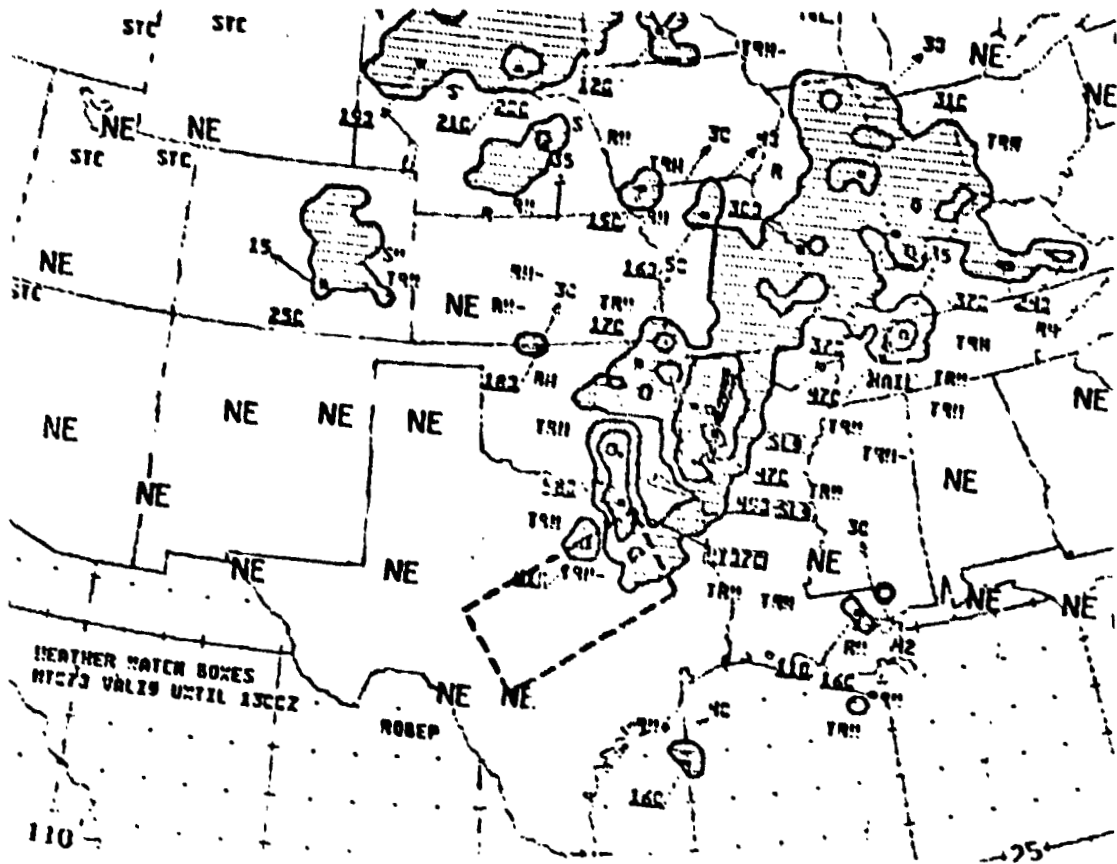


Fig. 19. Radar summary for 1135 GMT, 11 April 1979.

1202 10AP79 21E-22A 01404 12622 RRSD-STORM

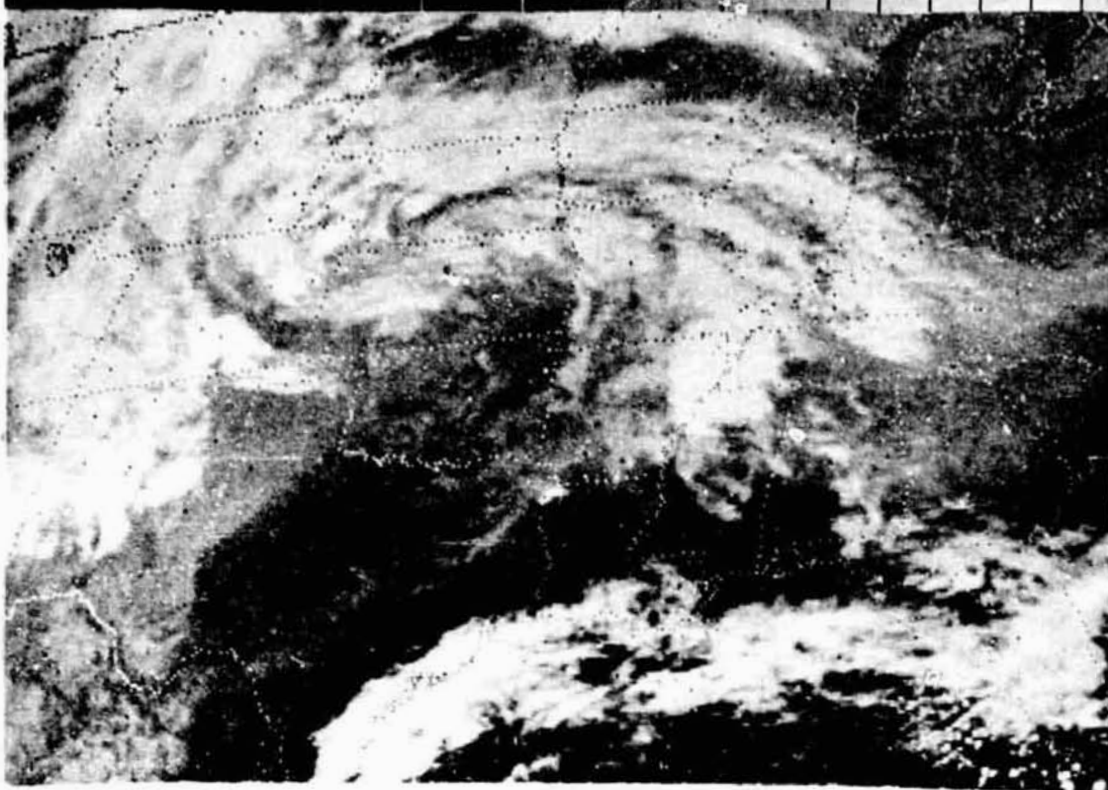


Fig. 20. GOES-East infrared satellite imagery for 1202 GMT,
10 April 1979.

1301 10AP79 11E-22A 01293 12732 RRSD-STORM

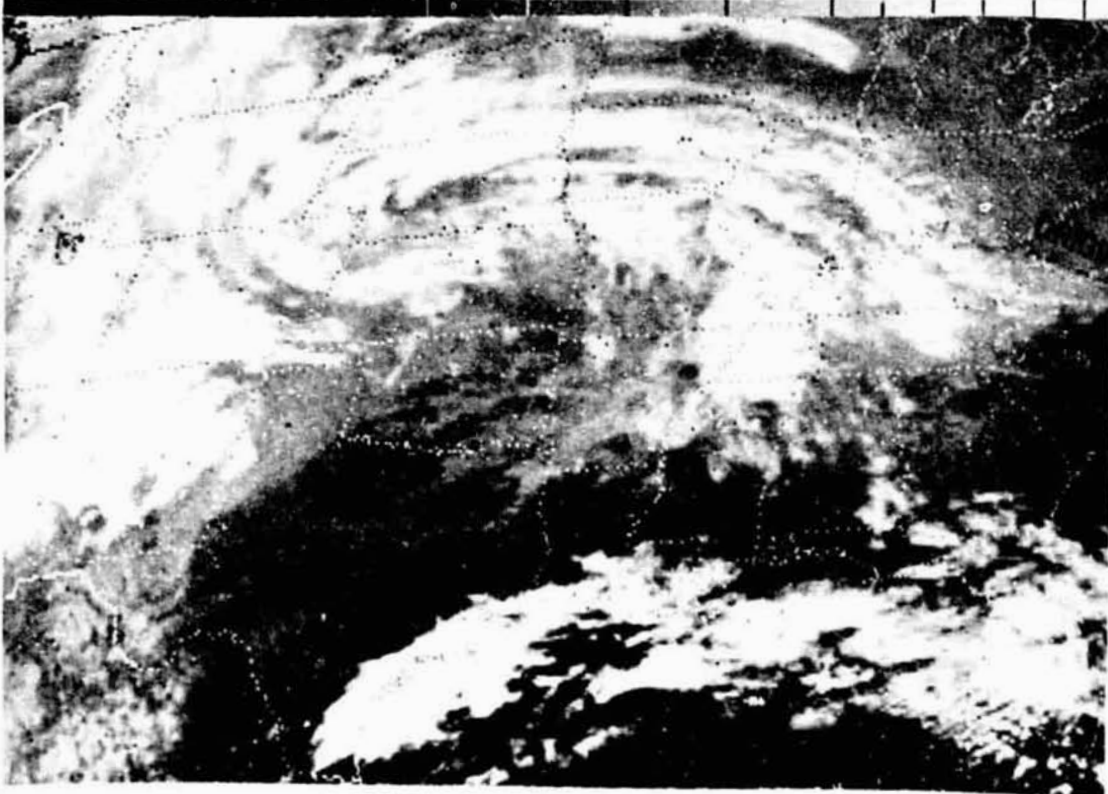


Fig. 21. GOES-East infrared satellite imagery for 1301 GMT,
10 April 1979.

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1401 10AP79 11A-2 01184 12882 PQ35N95W-1

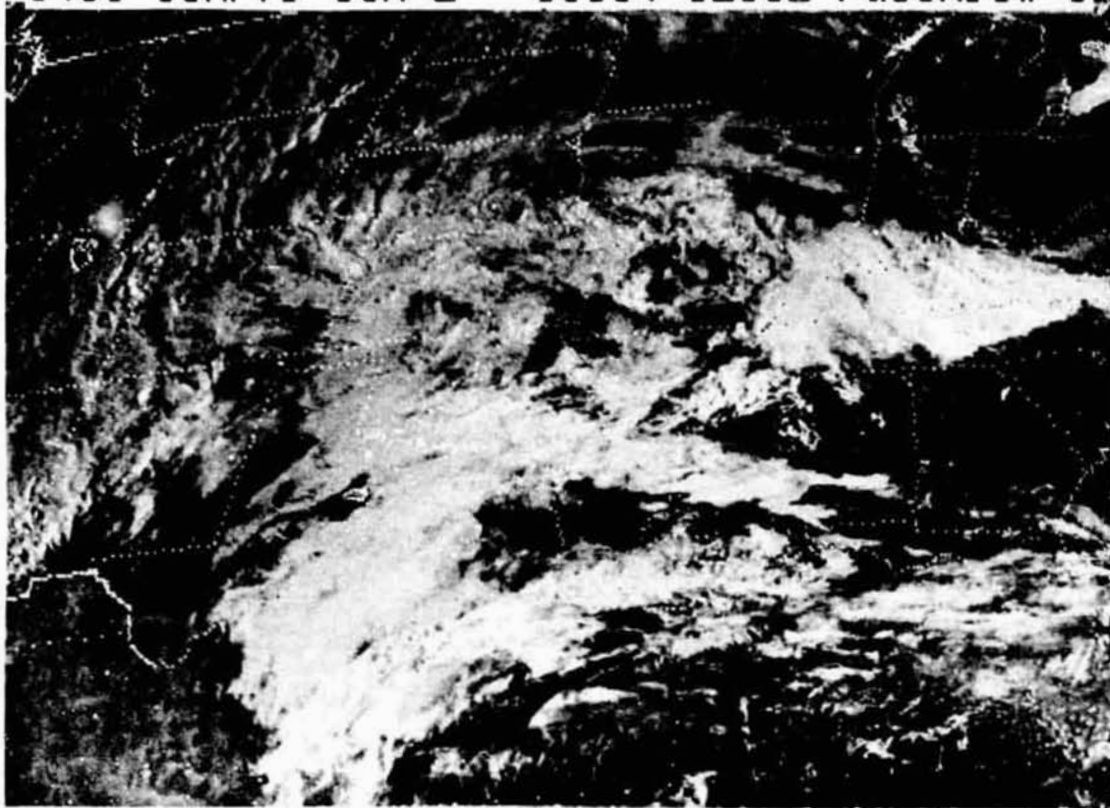


Fig. 22. GOES-East visual satellite imagery for 1401 GMT, 10 April 1979.

1501 10AP79 11A-2 01434 13862 PQ35N95W-1

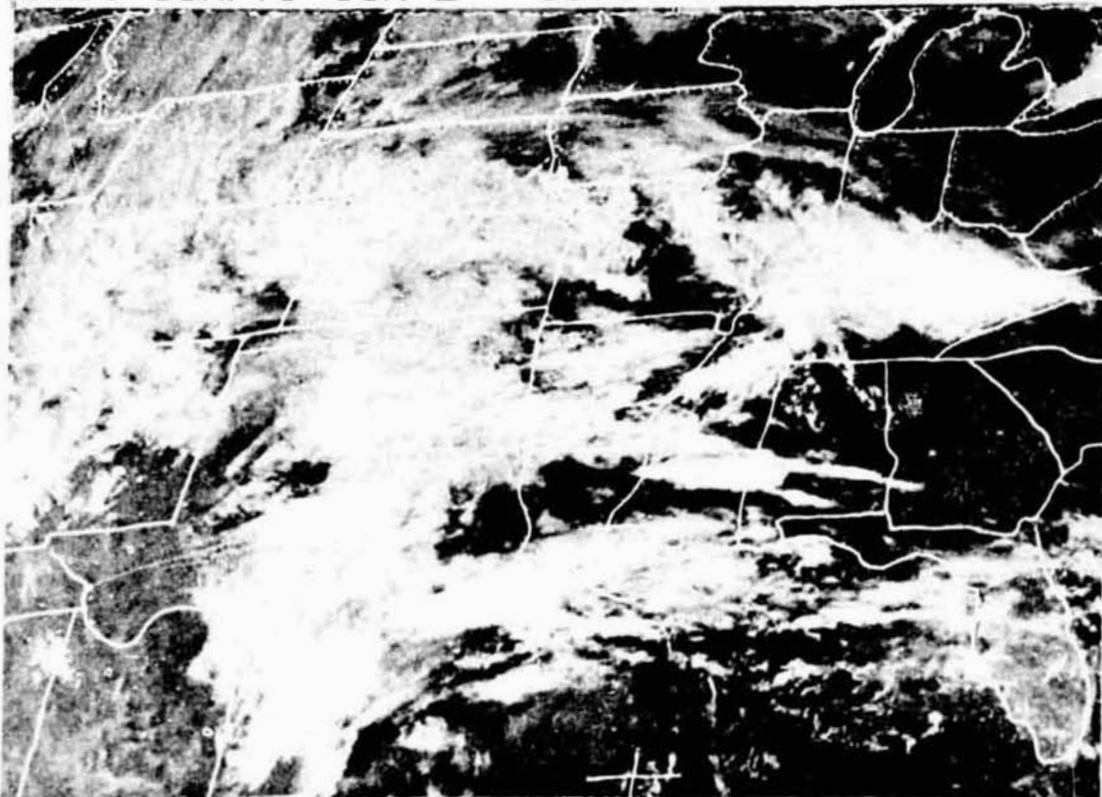


Fig. 23. GOES-East visual satellite imagery for 1501 GMT, 10 April 1979.

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1601 10AP79 11A-2 01012 13252 PQ35N95W-1

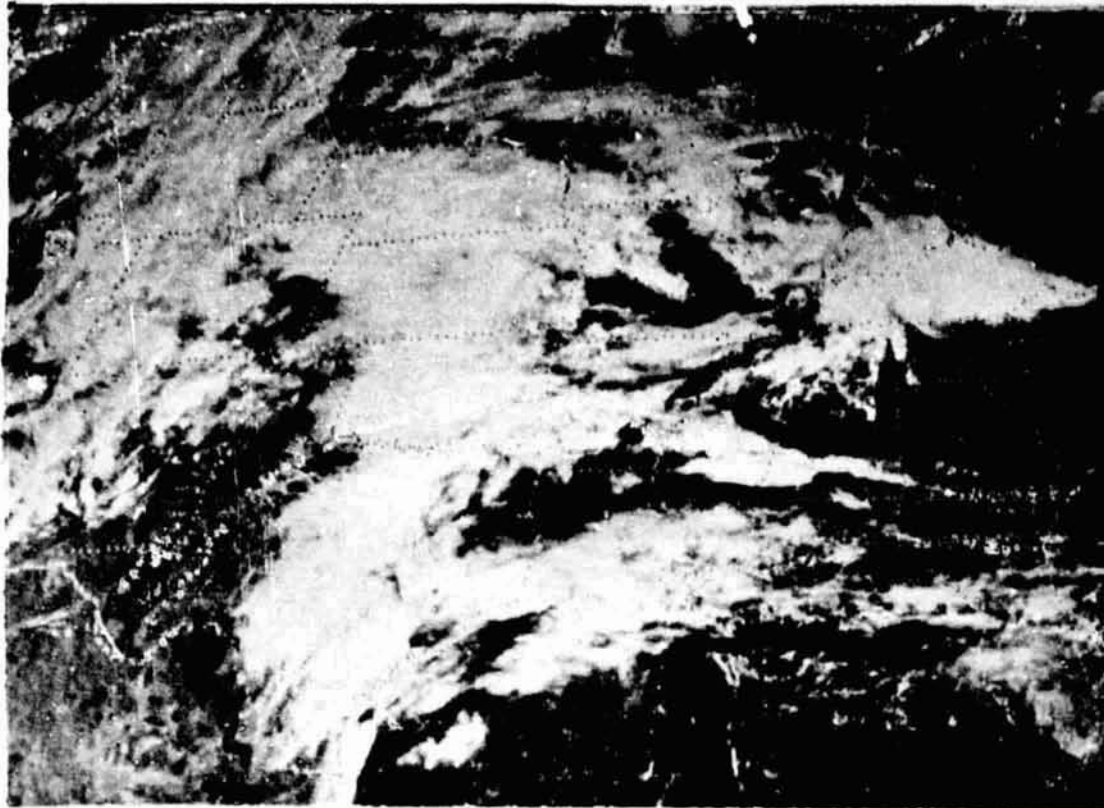


Fig. 24. GOES-East visual satellite imagery for 1601 GMT,
10 April 1979.

1700 10AP79 11A-2 00984 13451 PQ35N95W-1

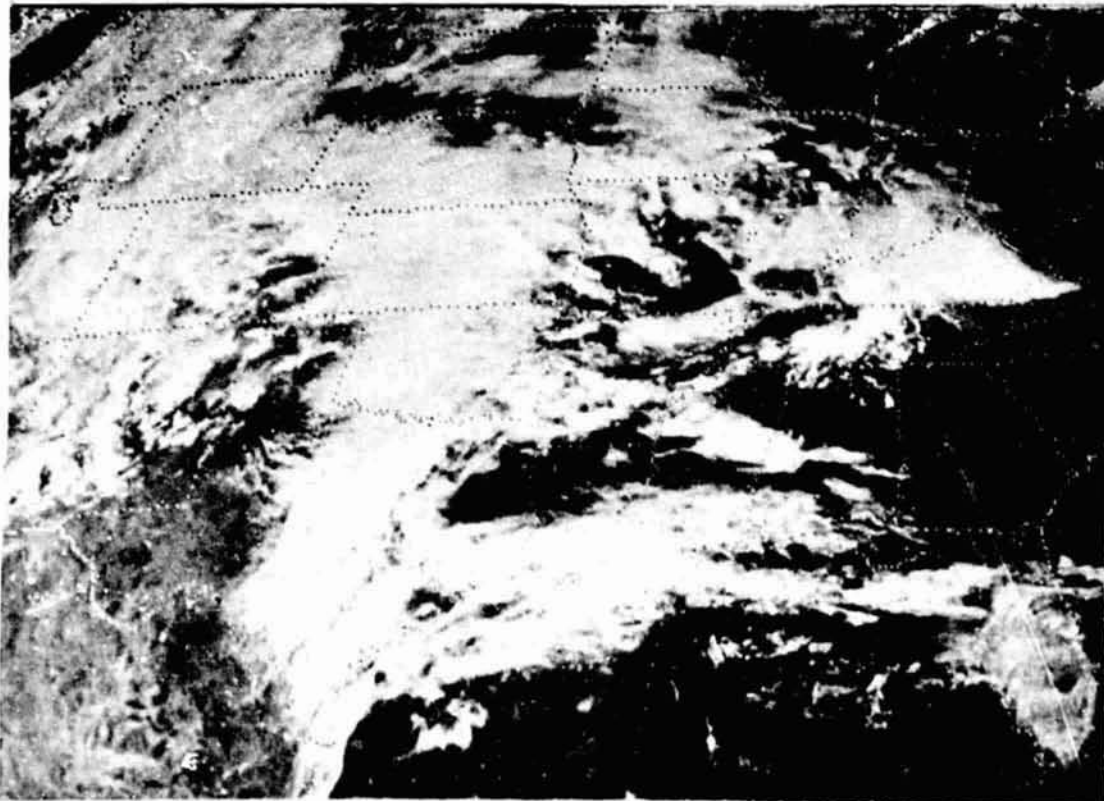


Fig. 25. GOES-East visual satellite imagery for 1700 GMT,
10 April 1979.

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1801 10AP79 11A-2 00971 13632 PQ35N95W-1

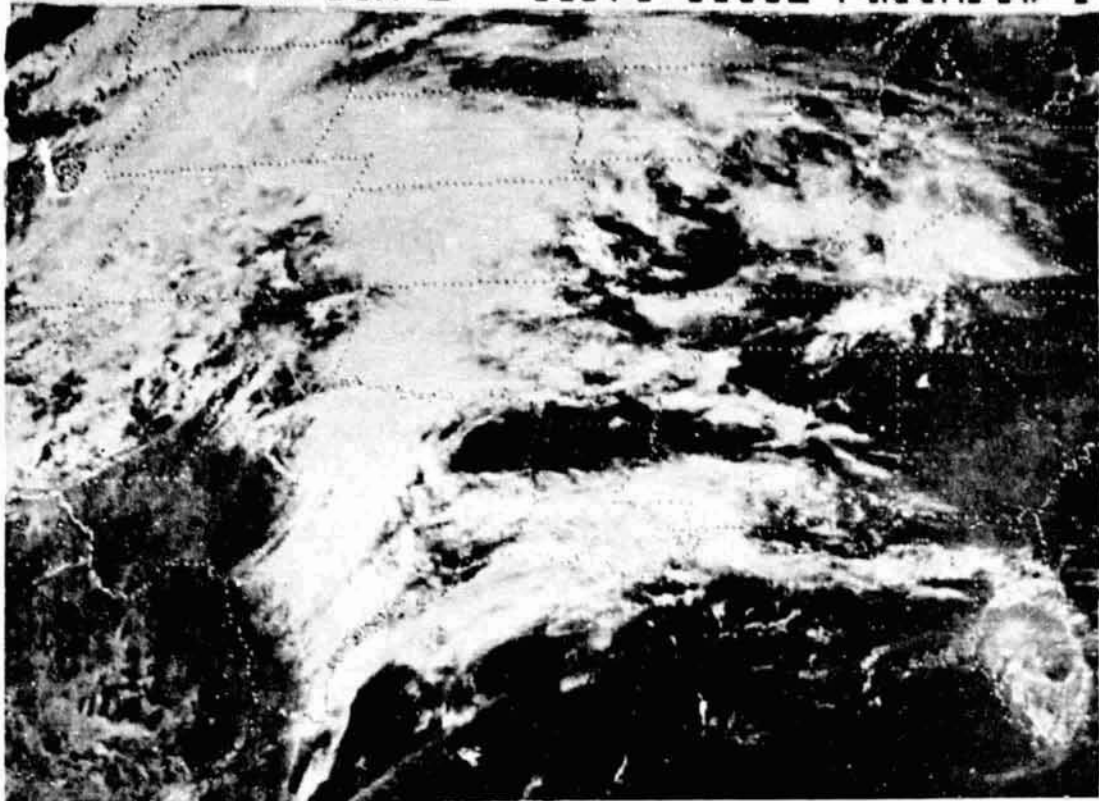


Fig. 26. GOES-East visual satellite imagery for 1801 GMT,
10 April 1979.

1900 10AP79 11A-2 01002 13792 PQ35N95W-1

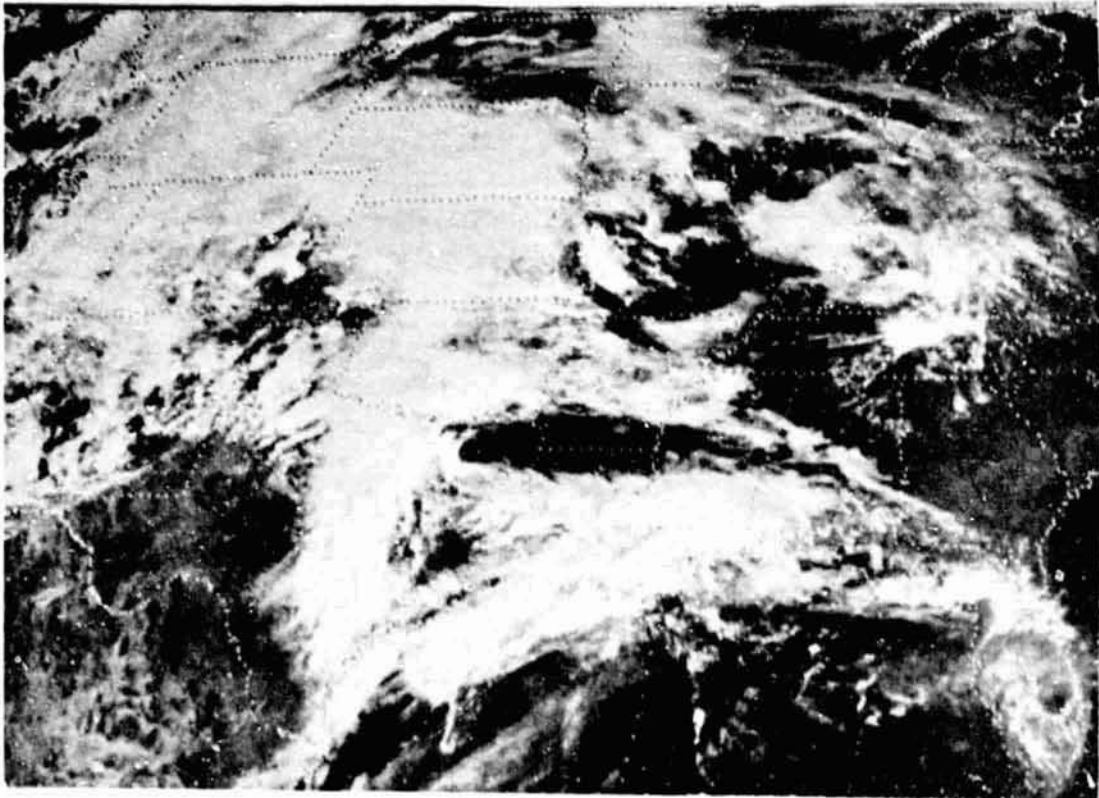


Fig. 27. GOES-East visual satellite imagery for 1900 GMT,
10 April 1979.

2000 10AP79 11A-2 01053 13911 PQ35N95W-1

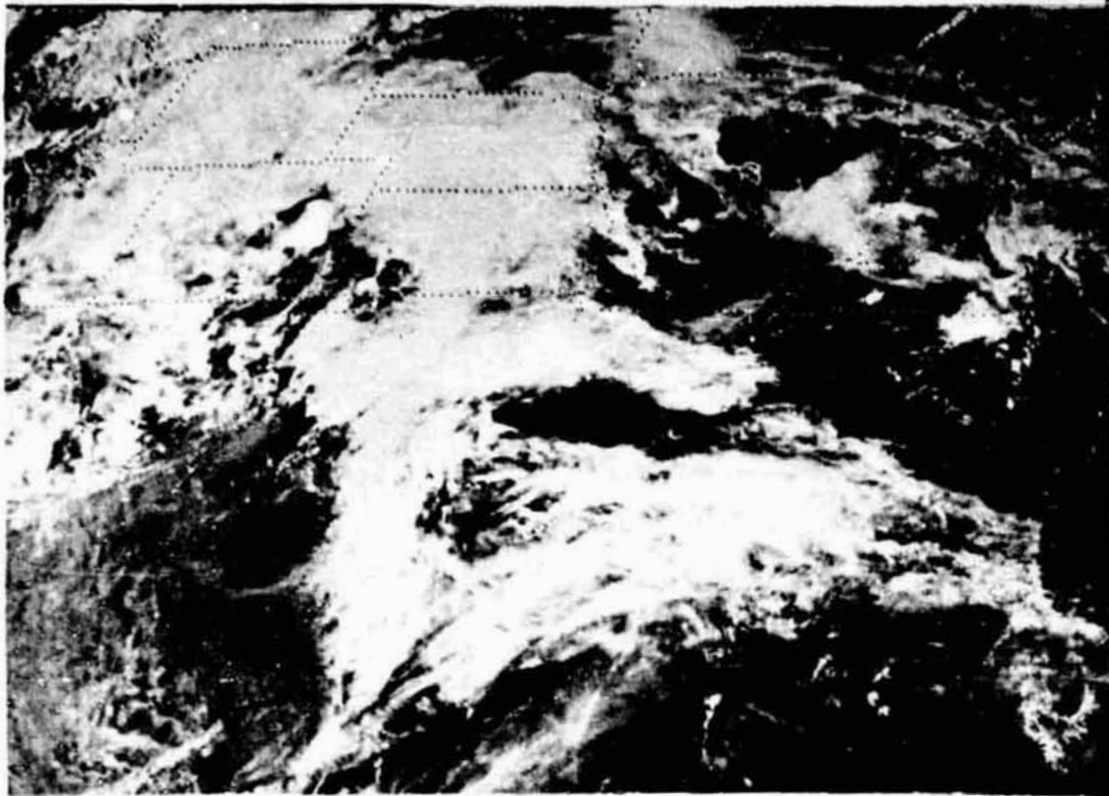


Fig. 28. GOES-East visual satellite imagery for 2000 GMT,
10 April 1979.

2100 10AP79 11A-2 01132 13982 PQ35N95W-1

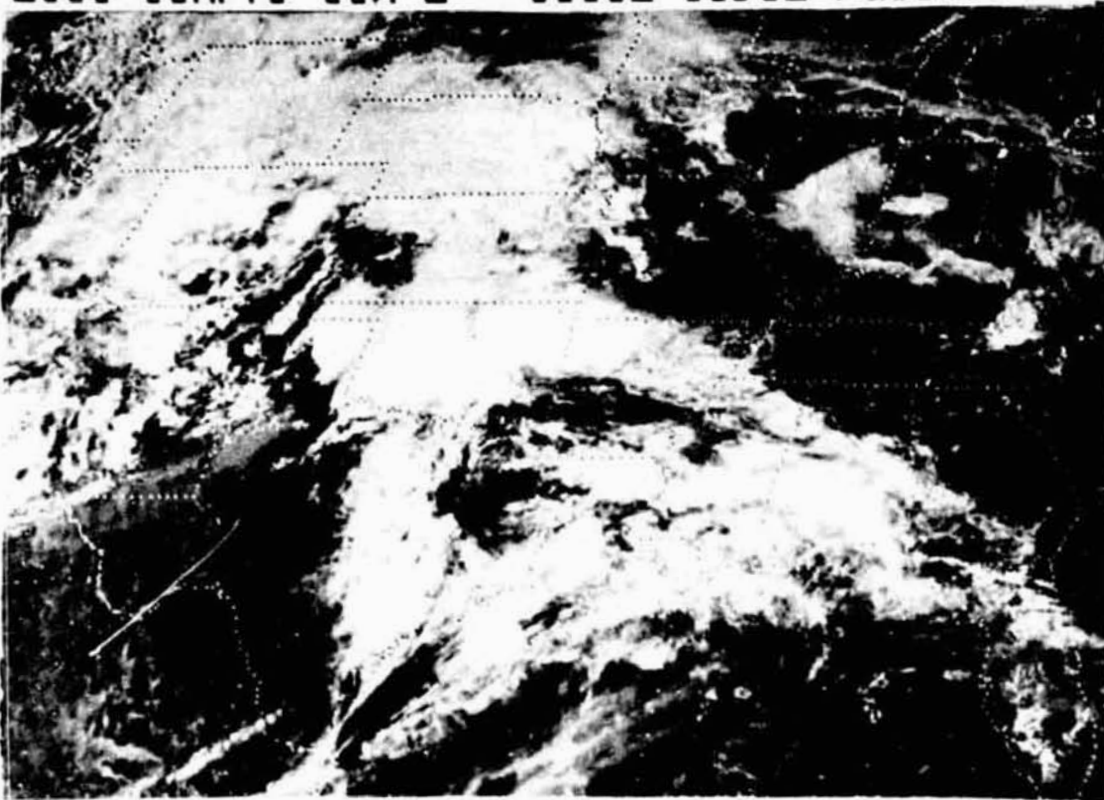


Fig. 29. GOES-East visual satellite imagery for 2100 GMT,
10 April 1979.

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2200 10AP79 11A-2 01232 14002 PQ35N95W-1

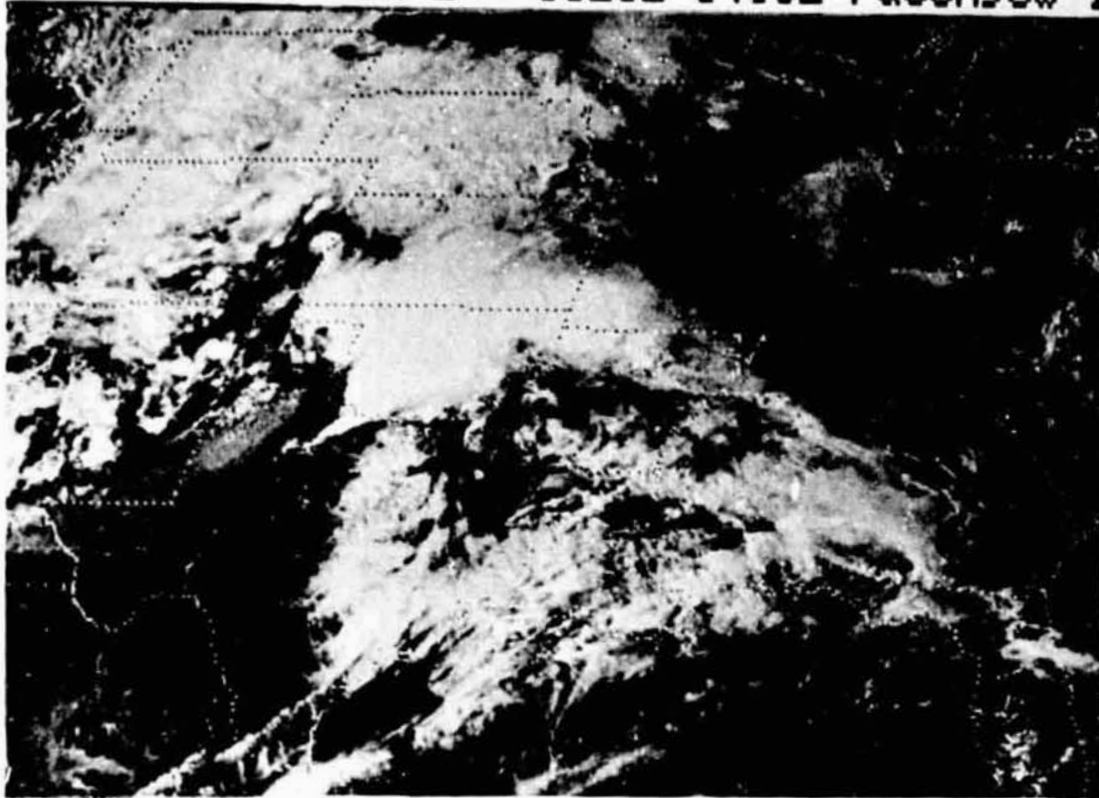


Fig. 30. GOES-East visual satellite imagery for 2200 GMT,
10 April 1979.

2300 10AP79 11A-2 01334 13971 PQ35N95W-1

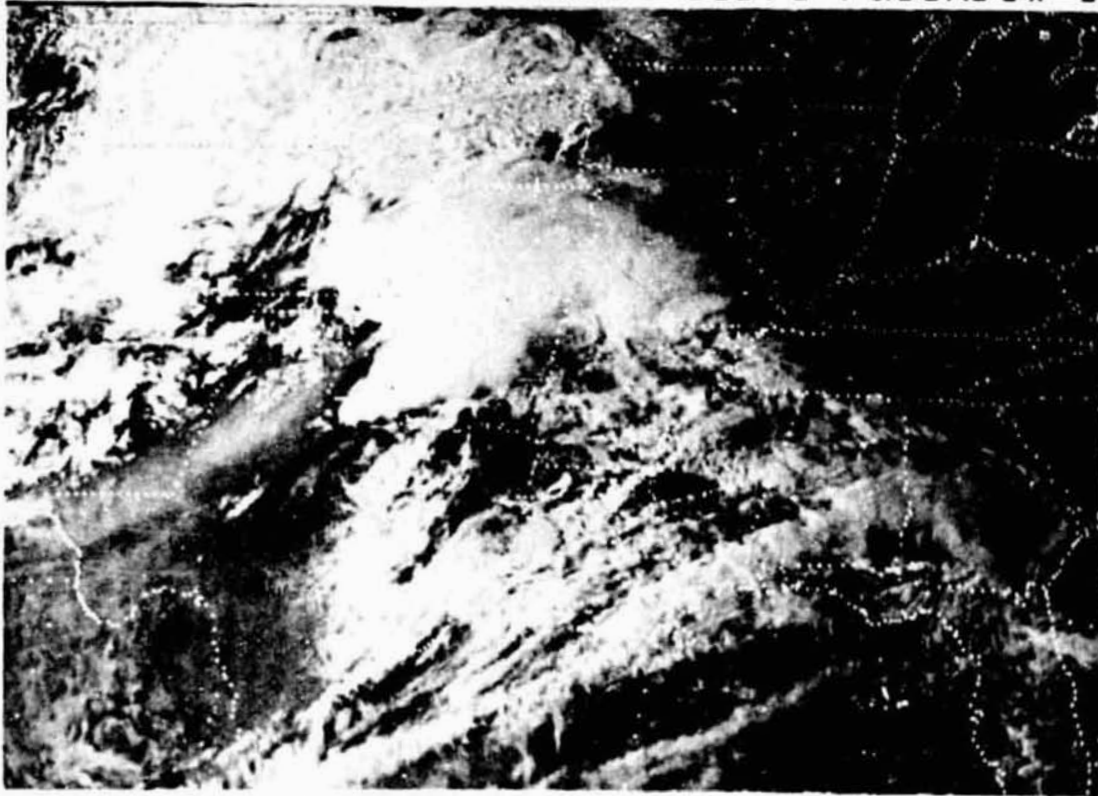


Fig. 31. GOES-East visual satellite imagery for 2300 GMT,
10 April 1979.

0014 11AP79 11A-2 00011 12281 PQ35N95W-1

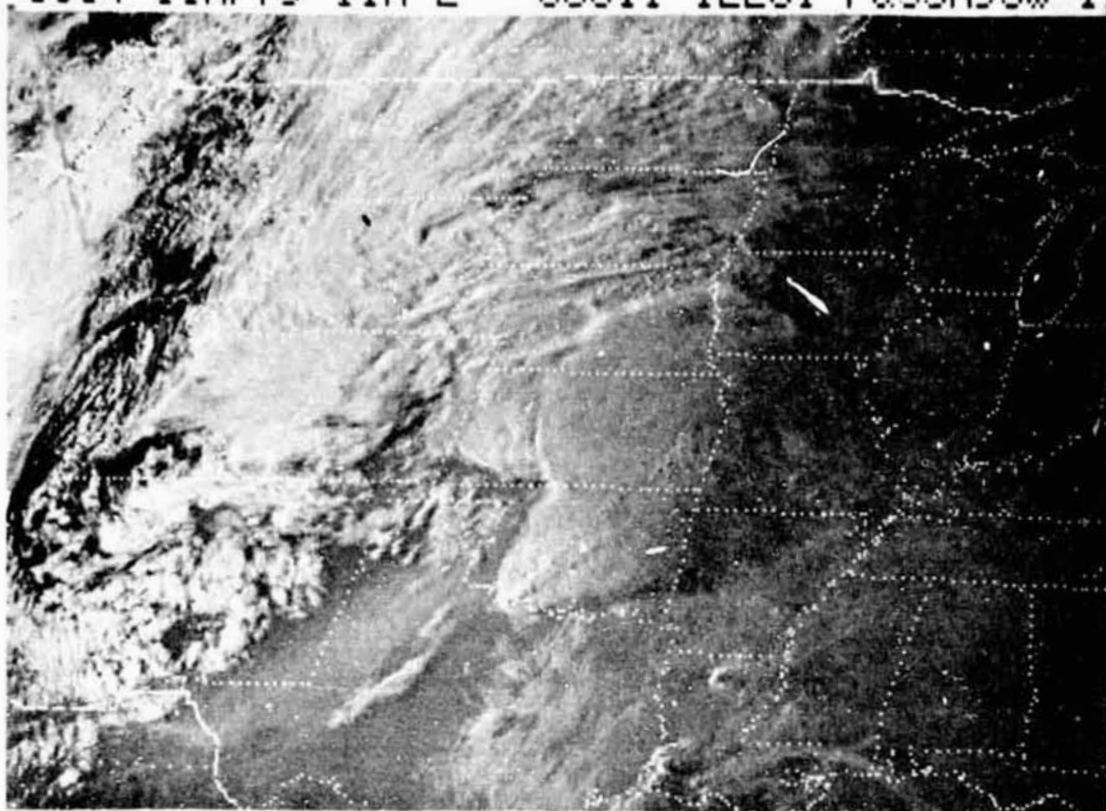


Fig. 32. GOES-East visual satellite imagery for 0014 GMT,
11 April 1979.

0101 11AP79 11E-2ZA 01572 13771 PQ35N95W-1



Fig. 33. GOES-East infrared satellite imagery for 0101 GMT,
11 April 1979.

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0201 11AP79 11E-2ZA 01682 13621 PQ35N95W-1

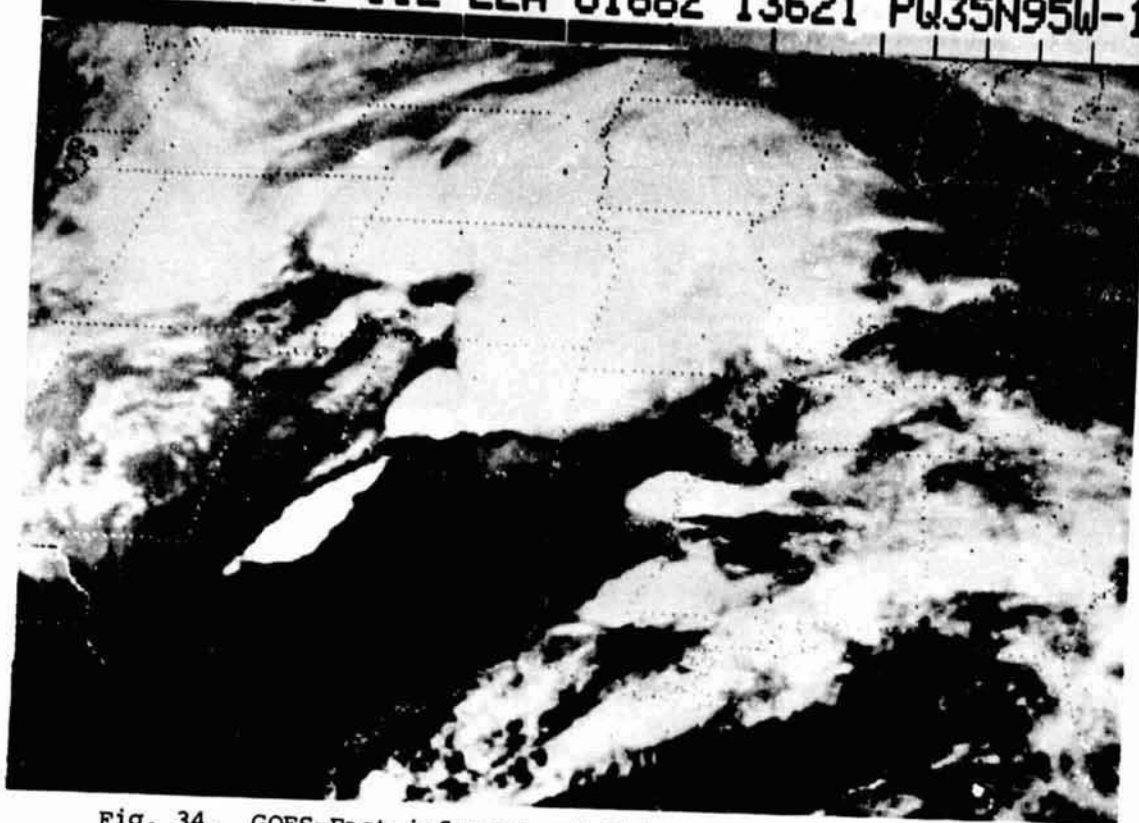


Fig. 34. GOES-East infrared satellite imagery for 0201 GMT,
11 April 1979.

0303 11AP79 11E-2ZA 01772 13441 PQ35N95W-1

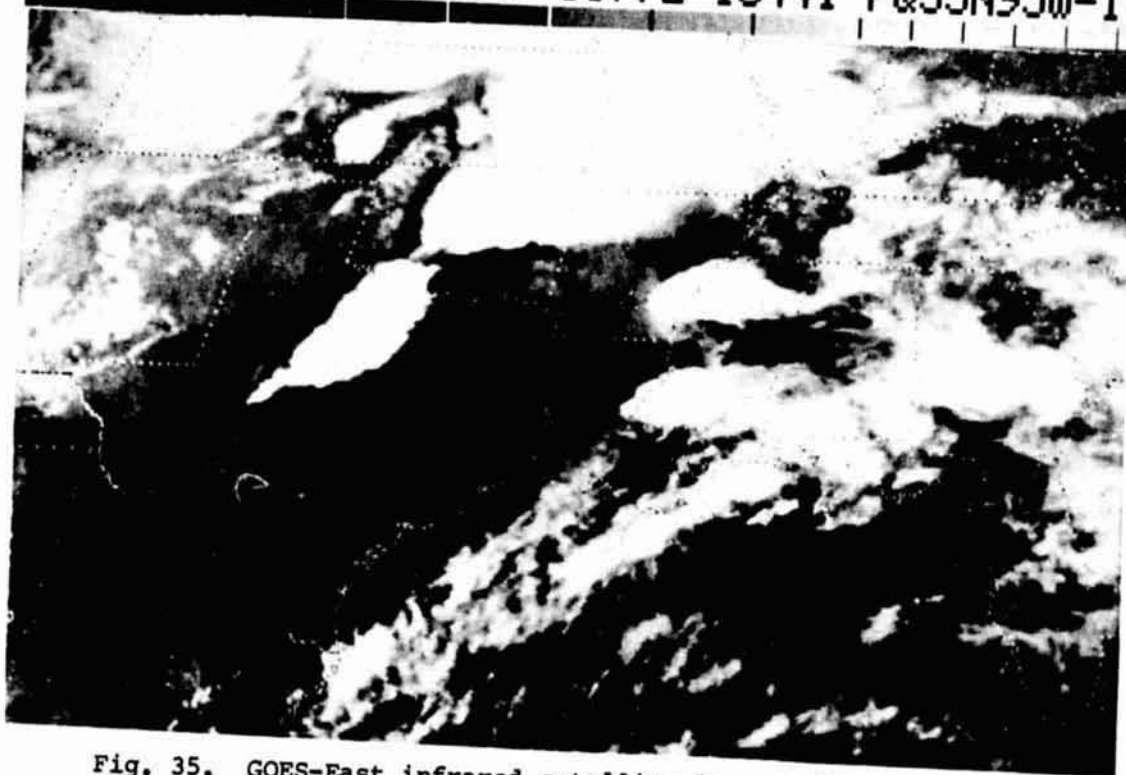


Fig. 35. GOES-East infrared satellite imagery for 0303 GMT,
11 April 1979.

0401 11AP79 11E-2ZA 01842 13261 PQ35N95W-1

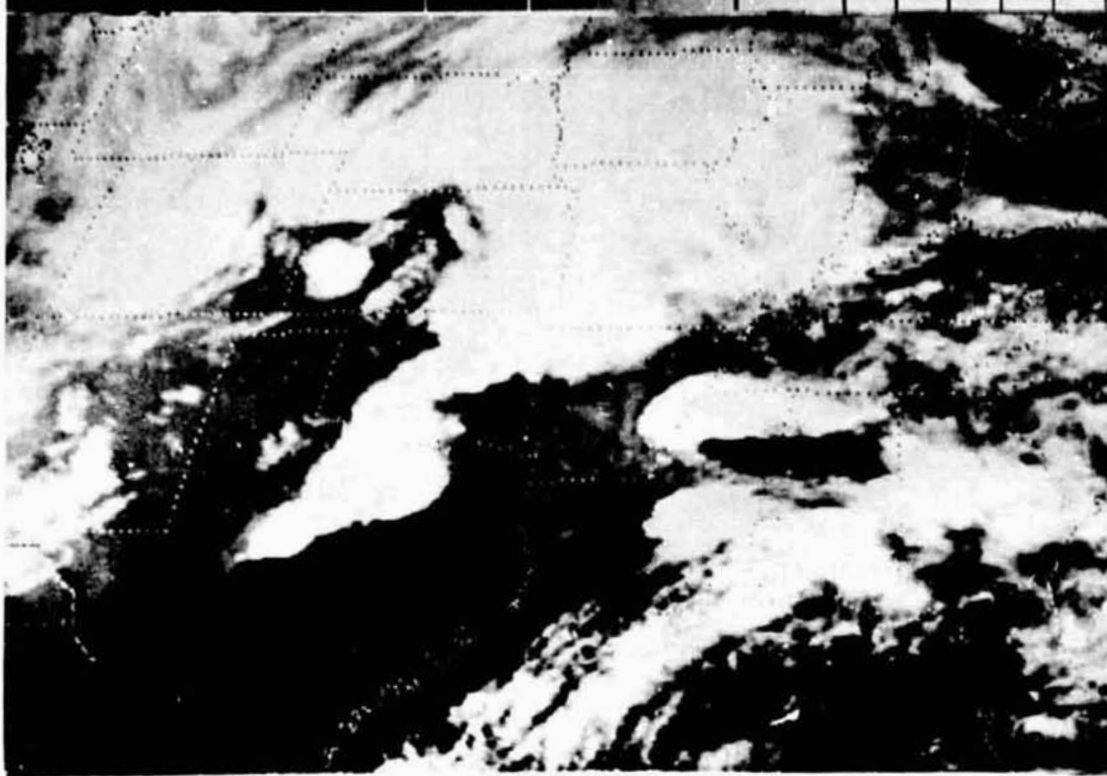


Fig. 36. GOES-East infrared satellite imagery for 0401 GMT,
11 April 1979.

0501 11AP79 11E-2ZA 01881 13081 PQ35N95W-1

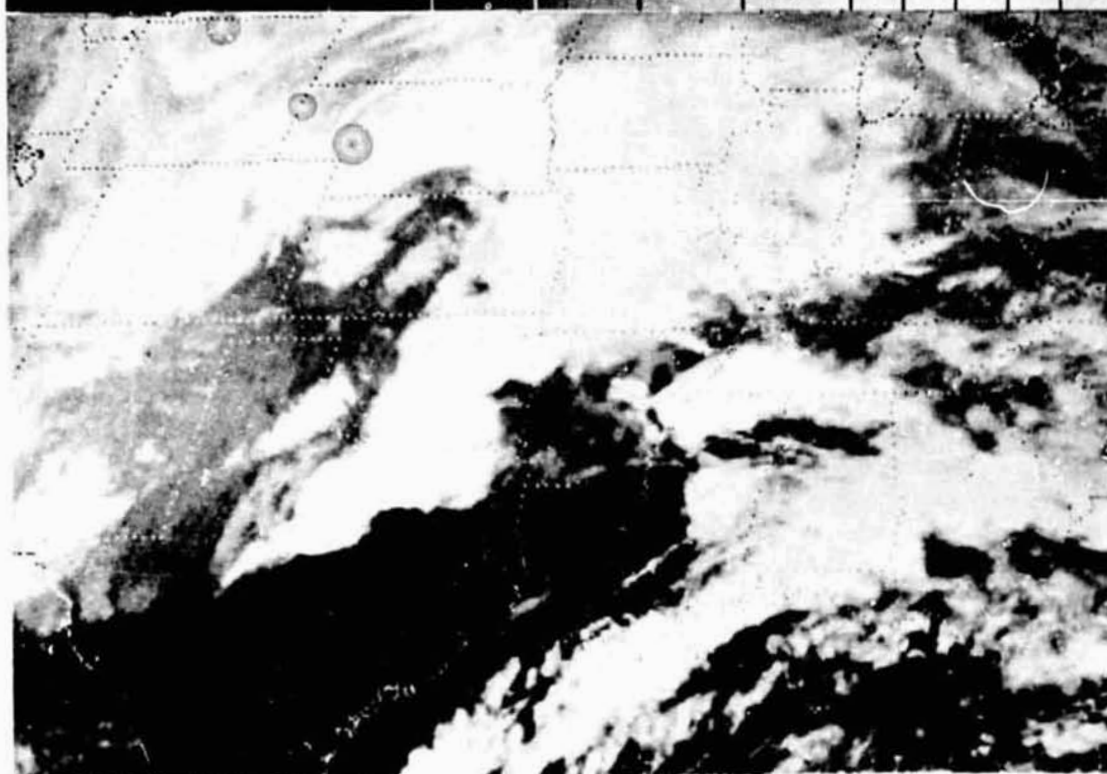


Fig. 37. GOES-East infrared satellite imagery for 0501 GMT,
11 April 1979.

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0615 11AP79 11E-2ZA 01884 12911 PQ35N95W-1

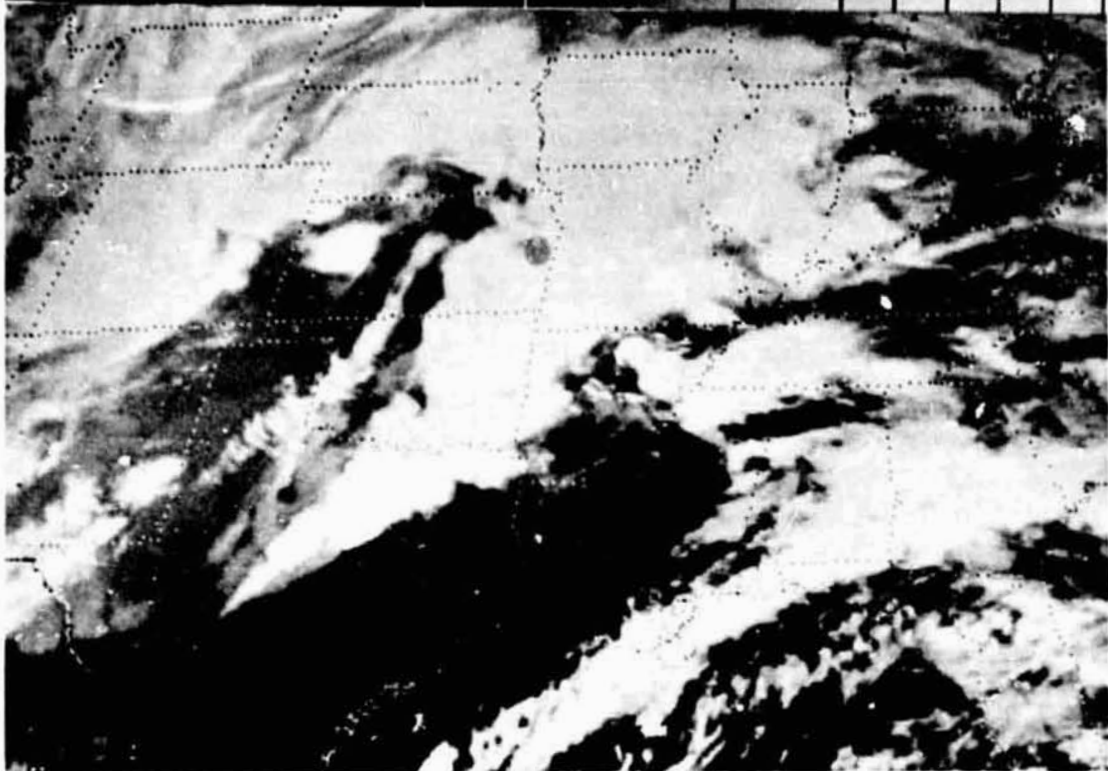


Fig. 38. GOES-East infrared satellite imagery for 0615 GMT,
11 April 1979.

0715 11AP79 11E-2ZA 01864 12762 PQ35N95W-1

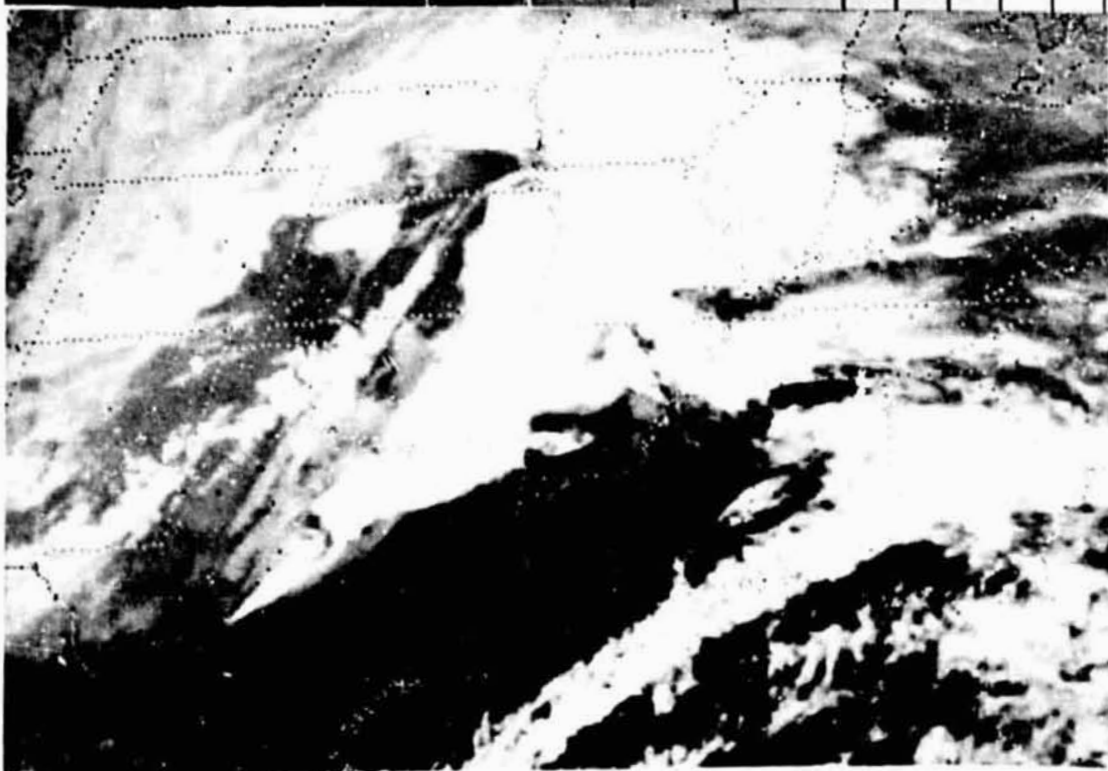


Fig. 39. GOES-East infrared satellite imagery for 0715 GMT,
11 April 1979.

0801 11AP79 11E-22A 01813 12651 PQ35N95W-1

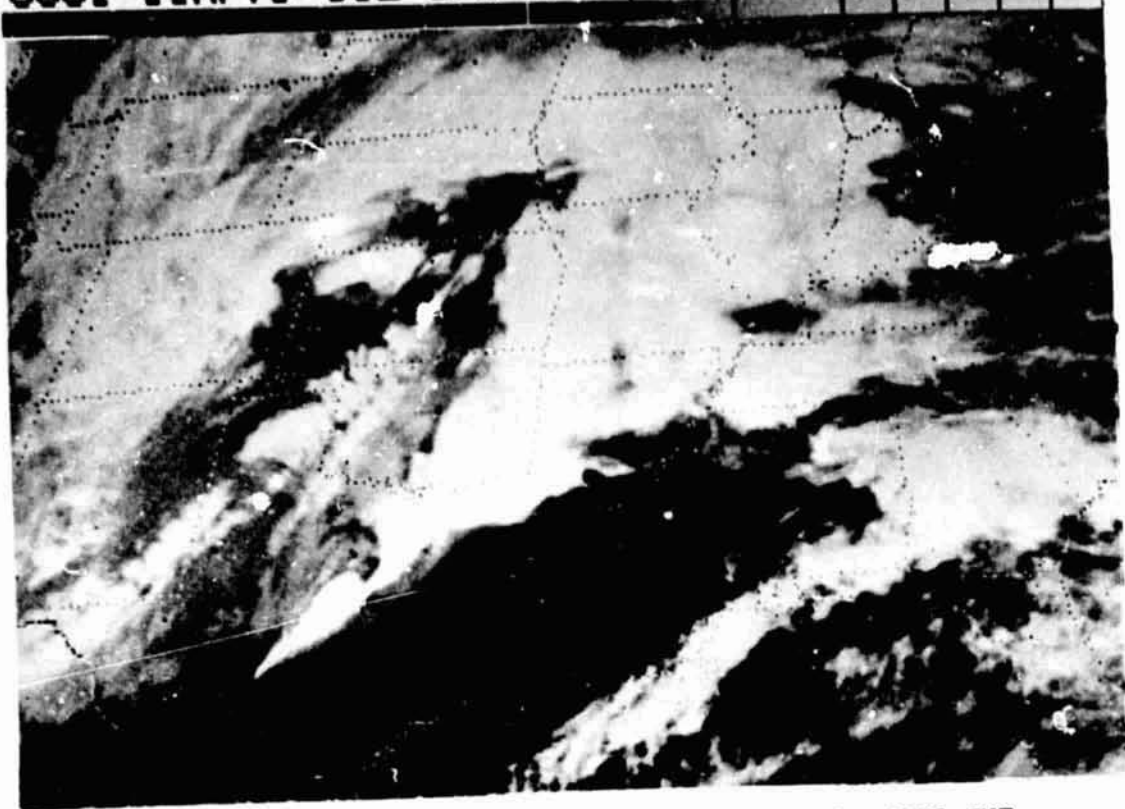


Fig. 40. GOES-East infrared satellite imagery for 0801 GMT,
11 April 1979.

0901 11AP79 11E-22A 01723 12581 PQ35N95W-1

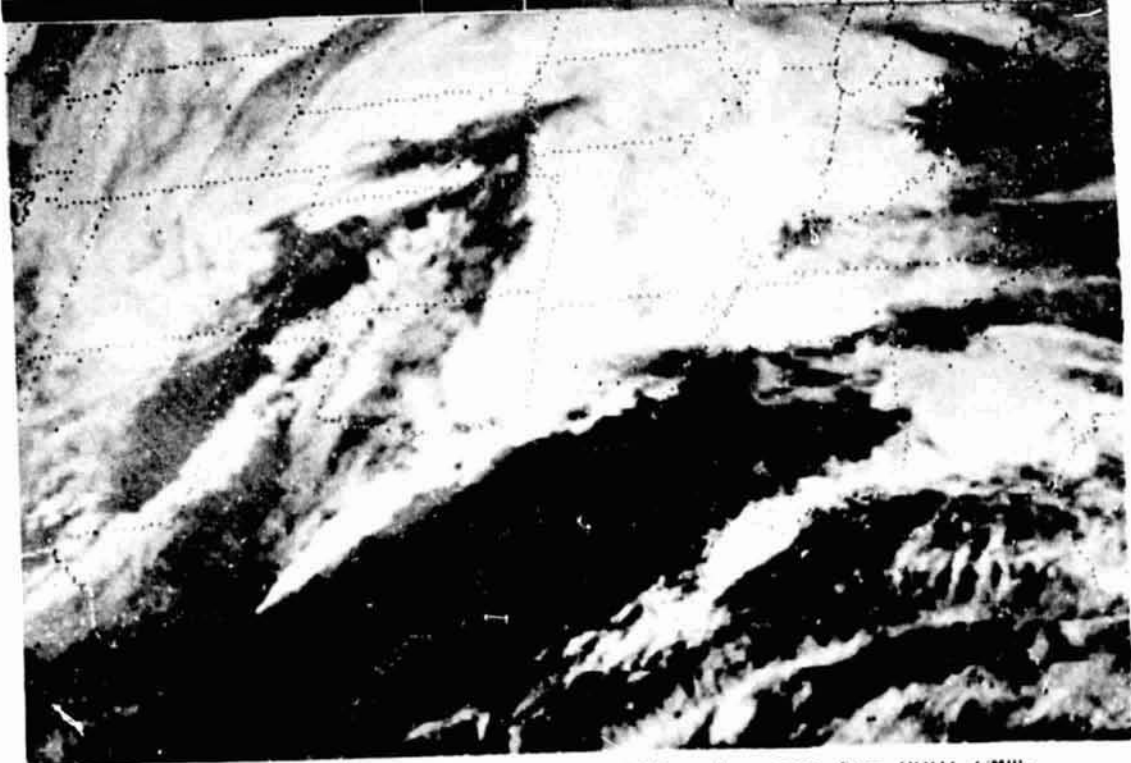


Fig. 41. GOES-East infrared satellite imagery for 0901 GMT,
11 April 1979.

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1001 11AP79 11E-22A 01633 12551 PQ35N95W-1

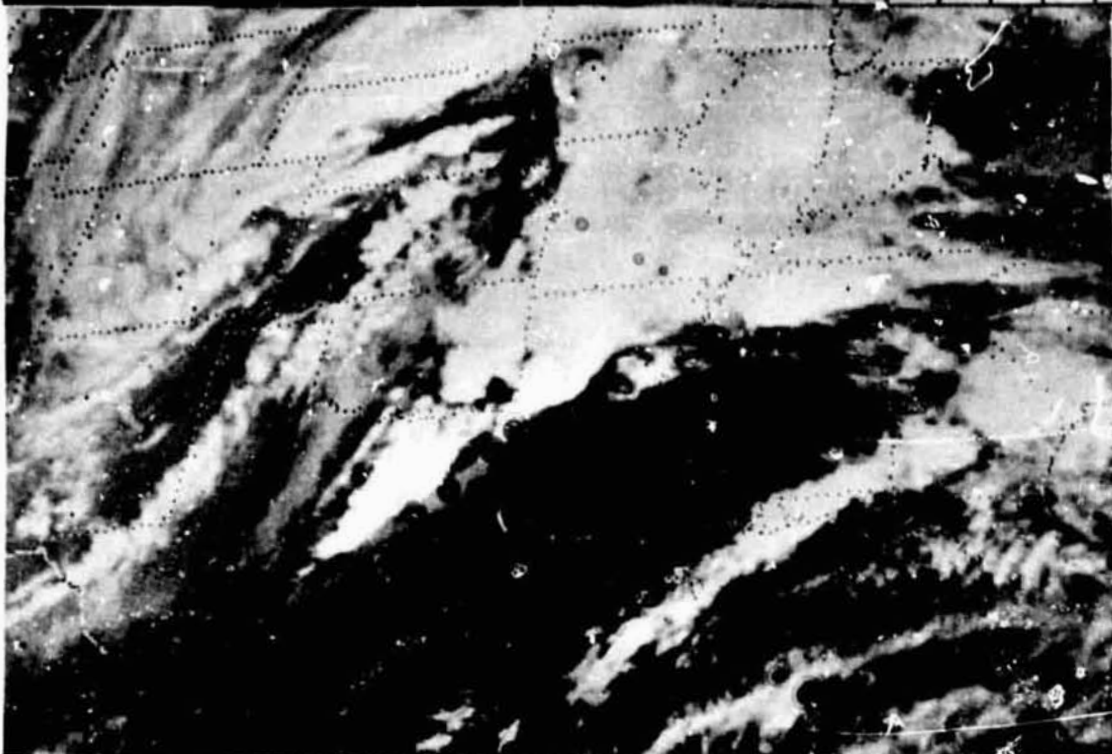


Fig. 42. GOES-East infrared satellite imagery for 1001 GMT,
11 April 1979.

1101 11AP79 11E-22A 01521 12571 PQ35N95W-1

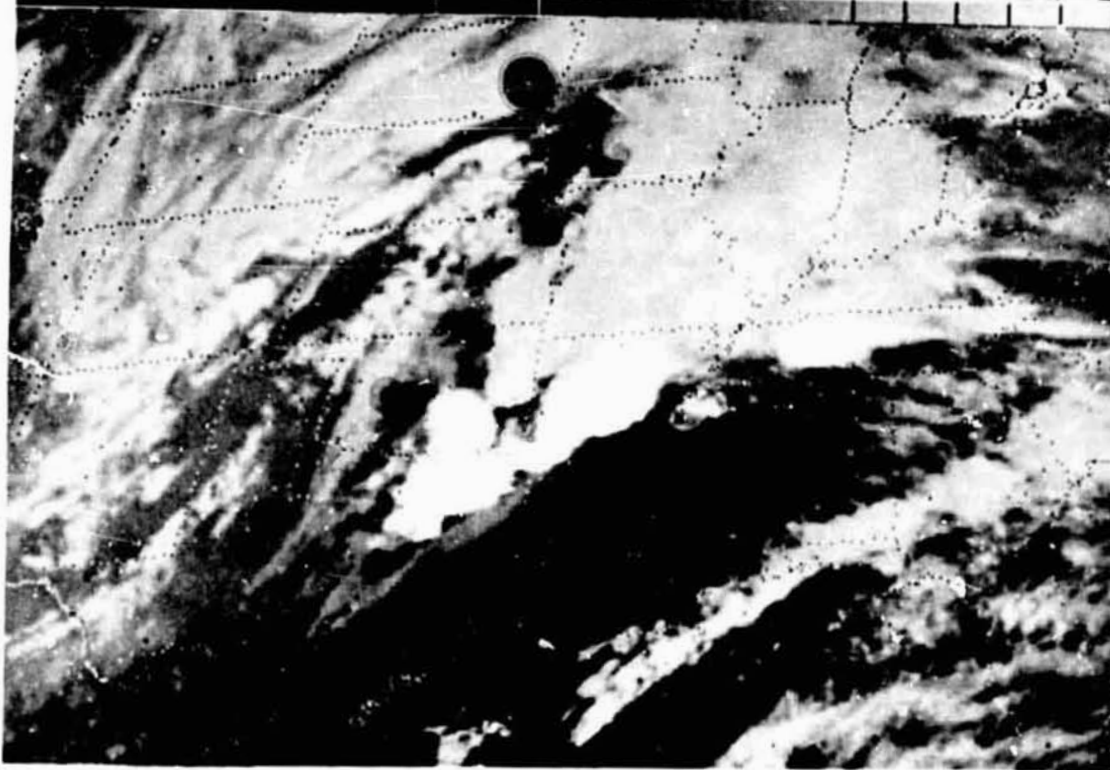


Fig. 43. GOES-East infrared satellite imagery for 1101 GMT,
11 April 1979.

1145 11AP79 11E-2ZA 01454 12592 PQ35N95W-1

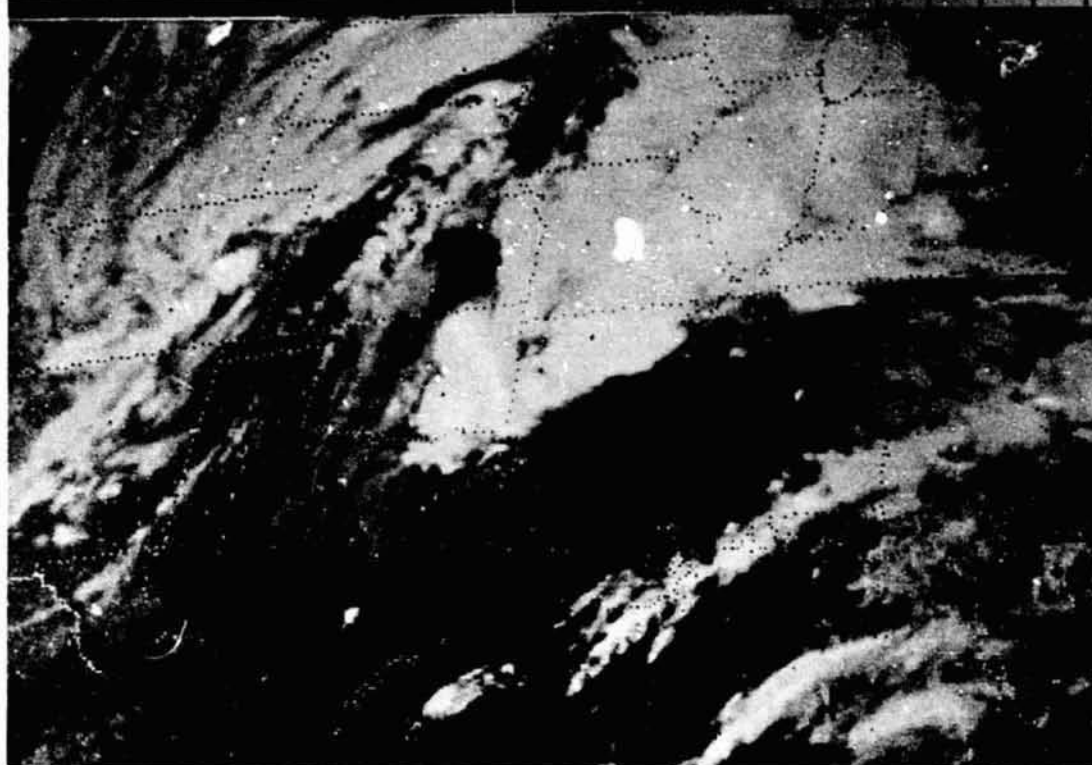


Fig. 44. GOES-East infrared satellite imagery for 1145 GMT,
11 April 1979.

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4. SEVERE AND UNUSUAL WEATHER REPORTED

AVE-SESAME I proved to be a strong outbreak period for severe and unusual weather events. Reports of tornadoes, severe thunderstorms, strong winds, heavy rain, hail, flooding, duststorms, and severe weather watches and warnings were compiled from the NOAA weather wire and national weather summaries when available and are presented in Table 2. A large number of these events took place in the South Central United States, with reports of over forty tornadoes, hail, severe thunderstorms, and strong winds in the South Central United States during the entire AVE-SESAME I experiment period. In one 2-hr period (0100-0300 GMT, 11 April 1979), twelve different tornadoes occurred within a 75 km radius of Wichita Falls, Texas. This outbreak of tornadoes in the Red River Valley area was responsible for 59 deaths and 1029 injuries. The locations, paths, times, and a corresponding damage scale determined by Fujita (used by permission) are presented in Fig. 46. A description of the Fujita damage scale specifications is presented in Table 3.

TABLE 2. Teletype reports taken from NOAA weather wire and national weather summaries of severe and unusual weather from 0600 CST April 10 to 0600 CST April 11, 1979.

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|----------------|---|-------------------|
| GAL RAREP | RW & -TRW W & NW OF HOU MOVING TOWARD CLL @ 40 MPH | 1045 |
| WIND | 75 MPH WINDS IN GUADALUPE PASS AREA | 1106 |
| LCH RAREP | SCATTERED RW IN A 10 MI WIDE AREA, 10 MI NW OF CONROE TO 20 MI SW OF DAM B RESERVOIR | 1135 |
| GAL RAREP | ISOLATED TRW MIDWAY BETWEEN CLL AND HUNTSVILLE, PATCHES OF -R SCATTERED E OF THERE TOWARDS LAKE LIVINGSTON AND A FEW MILES S OF LAKE RAYBURN. MOVEMENT IS NE. | 1145 |
| SEP RAREP | TWO ++ TRW 30 MI N OF DALLAS-FORT WORTH METROPLEX | 1150 |
| MW RAREP | WIDELY SCATTERED RW NEAR MIDLAND | 1330 |
| LCH RAREP | SCATTERED SHOWERS IN AN AREA 70 MI WIDE FROM LUFKIN TO 20 MI N OF BATON ROUGE | 1335 |
| HONDO RAREP | -RW IN SAN ANTONIO AREA AND N FOR 35 MI MAX TOPS 8000 FT | 1335 |
| GGG RAREP | +TRW & ++TRW FROM BETHEL, OK TO N OF DEQUEEN, AR IN 20 MI WIDE AREA MOVING NE @ 50 MPH. SCATTERED -R IN SE TX AND CENTRAL LA EXTENDING FROM LUFKIN, TX TO ALEXANDRIA, LA IN A 40 MI WIDE AREA MOVING NE @ 35 MPH. MAX TOP @ DEQUEEN, AR @ 30,000 FT | 1335 |
| SVRTRW WARNING | NWS-AMARILLO WARNING FOR ARMSTRONG & CARSON COS. UNTIL 245 PM | 1340 |
| RAREP | ++TRW 7 MI N OF TULIA, TX AND NEAR WASHBURN, TX MOVING NE @ 40 MPH | 1340 |
| HAIL | GOLFBALL SIZE HAIL IN STORMS NEAR TULIA AND WASHBURN, TX | 1340 |
| TORNADO WATCH | KC, MO WATCH #67 FOR W AND N CENTRAL TX AND SW OK FROM 2:30 PM UNTIL 7:00 PM. WATCH AREA IS ALONG A LINE FROM 30 MI SW OF ABILENE, TX TO 30 MI NW OF HOBART, OK AND IS 90 MI ON EITHER SIDE OF LINE | 1355 |

TABLE 2. CONTINUED.

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|--------------------|---|-------------------|
| TORNADO WARNING | IN EFFECT UNTIL 2:45 PM FOR MOTLEY CO, TX | 1355 |
| LUB RAREP | POSSIBLE RADAR INDICATED TORNADO SE OF CROSBYTON HAS MOVED NW AND @ 13:38 WAS ABOUT 4 MI SE OF MATADOR, TX | 1355 |
| TRW LINE | LINE OF TRW IN NE PORTION OF TEXAS S PLAINS | 1355 |
| TRW | ++TRW OCCURRING FROM APPERMONT TO BUANNAH, TX | 1401 |
| AMA RAREP | SVR TRW MOVING NE INTO DONLEY CO, TX @ 35 MPH | 1425 |
| LCH RAREP | SCATTERED RW FROM RAYBURN LAKE TO S OF SHREVEPORT, LA TOWARD NATCHEZ, MS | 1435 |
| GGG RAREP | -TRW S OF TYLER TO 10 MI SW OF LONGVIEW MAX TOP 27,000 FT | 1435 |
| WINTER STORM WATCH | NAT'L WX SUMM FOR TONIGHT & WEDNESDAY FOR NW KS | 1500 |
| TEMP | RECORD LOW-ROCKFORD, IL: 19° | 1500 |
| TORNADO WARNING | NWS-WICHITA FALLS, TX: WARNING FOR WILBARGER CO, TX UNTIL 5:00 PM | 1553 |
| TORNADO | RADAR INDICATED TORNADO 15 MI S OF VERNON, TX AND MOVING NE @ 25 MPH | 1555 |
| TORNADO WATCH | CONTINUES IN EFFECT UNTIL 7:00 PM FOR TX & OK ALONG AND 90 MI EITHER SIDE OF A LINE FROM 30 MI SW OF ABILENE TO 30 MI NW OF HOBART, OK | 1620 |
| TORNADO | TORNADO @ 4:00 PM CAUSED DAMAGE AND INJURIES IN VERNON AND OKLAUNION, TEXAS | 1600 |
| TRW | +TRW OCCURRING FROM N OF HASKELL TO 15 MI W OF WICHITA FALLS MOVING NE @ 45 MPH | 1620 |
| TORNADO | TORNADO VISUALLY OBSERVED TO BE MOVING N ACROSS THE RED RIVER INTO OK | 1633 |
| TORNADO WARNING | ISSUED FOR BAYLOR CO INCLUDING SEYMOUR, TX | 1656 |
| TORNADO | BAYLOR CO SHERIFF REPORTED A TORNADO TOUCH-DOWN IN SEYMOUR, TX. TORNADO WAS REPORTED TO BE MOVING NE AND TO HAVE RETURNED TO THE CLOUDS | 1653 |

TABLE 2. CONTINUED.

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|------------------------|--|-------------------|
| SEP RAREP | AREA OF ++TRW IN THE SEYMOUR, TX AREA, MOVING NE AT 45 MPH. PRECIP TOPS TO 58,000 FT W OF SEYMOUR | 1635 |
| TORNADO | TORNADO SEEN BY A SVR WX SPOTTER @ ROCKY POINT | 1700 |
| WINDS | WINDS OF 65 MPH WERE REPORTED IN GUADALUPE PASS AREA | 1700 |
| TORNADO WATCH | TORNADO WATCH #68 HAS BEEN ISSUED FOR N CENTRAL, NE TEXAS AND S CENTRAL, SE OKLAHOMA FOR 6:00 PM TO 12:00 AM. THE WATCH AREA IS ALONG AND 70 MI EITHER SIDE OF A LINE 50 MI S OF WICHITA FALLS, TX TO 40 MI E OF MCALESTER, OK . | 1700 |
| SVR TRW WARNING | NWS HAS ISSUED A SVR TRW WARNING EFFECTIVE UNTIL 7:00 PM FOR WICHITA CO OF TX | 1745 |
| WICHITA FALLS RAREP | SVR TRW SPOTTED ON RADAR 5 MI W OF IOWA PARK, TX MOVING NE | 1745 |
| HAIL | GOLF TO BASEBALL SIZE HAIL REPORTED BY SPOTTERS 20 MI SW OF WICHITA FALLS, TX | 1750 |
| TORNADO WARNING | NWS TORNADO WARNING ISSUED FOR WICHITA CO, TX AND CITY OF WICHITA FALLS, TX EFFECTIVE UNTIL 7:00 PM | 1800 |
| WICHITA FALLS RAREP | A TORNADO WAS INDICATED 10 MI SW OF WICHITA FALLS, TX | 1758 |
| TORNADO | SPOTTER REPORTED A TORNADO 5 MI SW OF THE WICHITA FALLS MEMORIAL STADIUM MOVING NE @ 30 MPH | 1800 |
| SEP RAREP | ++TRW WAS 25 MI W OF WICHITA FALLS, MOVING NW @ 45 MPH. TOPS TO 53,000 FT | 1735 |
| TORNADO WARNING | NWS WARNING EFFECTIVE UNTIL 7:00 PM FOR CLAY CO, TX | 1811 |
| TORNADO | TORNADO IN WICHITA FALLS @ SOUTHWEST PARKWAY AND HARRISON STREETS MOVING E @ 30 MPH | 1811 |
| TORNADO WARNING | NWS WARNING FOR ARCHER CO, TX EFFECTIVE UNTIL 6:15 PM | 1720 |
| TORNADO | RADAR INDICATED & BAYLOR CO SHERIFF REPORTED A TORNADO IN BAYLOR CO, TX NEAR MAYBELLE, MOVING NE @ 30 MPH | 1720 |

TABLE 2. CONTINUED.

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|---------------------|--|-------------------|
| SVR TRW WARNING | NWS WARNING FOR JACKSON, OUACHITA, LINCOLN, AND UNION PARISHES IN N CENTRAL LA | 1835 |
| SVR TRW | SVR TRW THAT CAUSE WICHITA FALLS TORNADO HAS MOVED N TO OK AND IS ABOUT 20 MI NE OF WICHITA FALLS. ALSO, A LINE OF TRW IS BEGINNING TO FORM W OF ABILENE | 1930 |
| GGG RAREP | ++TRW WERE OVER FARMERVILLE, LA AND SE OF THERE MOVING NE AT 40 MPH | 1930 |
| SEP RAREP | A LINE OF TRWS HAS DEVELOPED AND EXTENDS FROM N OF ABILENE TO W OF SAN ANGELO MOVING NE @ 45 MPH | 1935 |
| GAL RAREP | ++TRW OVER LA BETWEEN CAMERON AND LAKE CHARLES MOVING NE @ 40 MPH | 1940 |
| SVR TRW WARNING | NWS HAS ISSUED A WARNING FOR STERLING AND COKE CO OF TEXAS EFFECTIVE UNTIL 9:00 PM | 1945 |
| SAN ANGELO RAREP | SVR TRW 8 MI ESE OF STERLING CITY, TX, MOVING NE @ 25 MPH. A LINE OF TRW HAS RAPIDLY DEVELOPED DURING PAST HOUR FROM BIG LAKE TO STERLING CITY TO COLORADO CITY | 1945 |
| SVR TRW WARNING | NWS WARNING FOR SW PARISHES IN LA EFFECTIVE UNTIL 8:30 PM | 1930 |
| LCH RAREP | SHORT LINE OF TRW FROM CALCASIEU LAKE TO KINDER, LA MOVING NE @ 55 MPH | 1930 |
| SVR TRW WARNING | NWS WARNING ISSUED FOR ARCHER & YOUNG CO OF TX EFFECTIVE UNTIL 10:00 PM. LINE OF SVR TRW FROM 20 MI SW OF ARCHER CITY TO ABILENE WERE MOVING NE @ 45 MPH | 20:45 |
| HAIL, RAIN | GOLFBALL SIZE HAIL AND HEAVY RAINS WERE REPORTED BY THE DEPT OF PUBLIC SAFETY IN BRONTE AND WATER VALLEY, TX | 2030 |
| HAIL | INCH AND A HALF HAIL REPORTED AT DYESS AFB AND GOLFBALL SIZE HAIL AT VIEW, TX | 2050 |
| ABI RAREP | LINE OF SVR TRW FROM E OF ALBANY TO NOVICE, TX MOVING SE @ 30 MPH | 2110 |
| TORNADO WARNING | NWS WARNING FOR COLEMAN & CALLAHAN CO OF TX EFFECTIVE UNTIL 10:30 PM | 2115 |

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|------------------------------|---|-------------------|
| TORNADO | DPS REPORTED A CONFIRMED TORNADO E OF CREWS, TX MOVING NE @ 40 MPH | 2117 |
| SAN ANGELO RAREP | INDICATED TORNADO 10 MI WNW OF PAINT ROCK, TX MOVING E @ 35 MPH | 2128 |
| SEP RAREP | 35 MI WIDE LINE OF +TRW & ++TRW EXTENDED FROM 35 MI NE OF WICHITA FALLS TO 45 MI SW OF SAN ANGELO MOVING SE @ 35 MPH | 2135 |
| TORNADO WATCH | NWS HAS ISSUED WATCH #69 FOR N CENTRAL TX, CENTRAL AND E OK EFFECTIVE 9:30 PM TO 3:00 AM. THE WATCH AREA IS ALONG AND 70 MI EITHER SIDE OF A LINE FROM 40 MI SE OF ABILENE, TX TO 40 MI E OF TULSA, OK. | 2100 |
| DFW RAREP | LINE OF SVR TRW WITH POSSIBLE LARGE HAIL WAS INDICATED 30 MI E OF WICHITA FALLS TO BALLINGER MOVING E @ 30 MPH | 2145 |
| FUNNEL CLOUD | FUNNEL SPOTTED ON RUNNELS/CONCHO CO LINE ON HIGHWAY 83 | 2134 |
| HAIL | NUMEROUS HAIL REPORTS IN THE TOM GREEN/RUNNELS CO AREA AS WELL AS AT MATHIS FIELD | 2210 |
| TORNADOES & FUNNEL CLOUDS | NUMEROUS REPORTS OF TORNADOES & FUNNEL CLOUDS HAVE BEEN REPORTED TO AND BY THE DPS IN NW COLEMAN CO, TX AND ALSO INDICATED BY RADAR. THE TORNADOES WERE MOVING NE @ 35 MPH | 2220 |
| OKC RAREP | SVR TRW OVER HOLDENVILLE, OK MOVING NE @ 40 MPH | 2225 |
| TORNADO WARNING | NWS ISSUED WARNING FOR STEVENS CO & PALO PINTO CO, TX EFFECTIVE UNTIL 12:30 AM | 2301 |
| DFW RAREP | POSSIBLE TORNADOES NEAR CADDO, TX AND JUST N OF STRAWN, TX MOVING E @ 35 MPH | 2315 |
| AUS RAREP | POSSIBLE TORNADO NEAR BROWNWOOD MOVING E @ 35 MPH | 2314 |
| TORNADO WARNING | NWS WARNING FOR BROWN CO, TX EFFECTIVE UNTIL 12:30 AM | 2325 |
| ABI RAREP | POSSIBLE TORNADO 6 MI SW OF BLANKET, TX MOVING ENE @ 35 MPH | 2320 |

TABLE 2. CONTINUED.

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|-----------------|---|-------------------|
| SVR TRW WARNING | NWS WARNING FOR COLEMAN CO, TX UNTIL 12:30 AM | 2325 |
| ABI RAREP | SVR TRW 10 MI S OF TALPA, TX MOVING ENE @ 35 MPH | 2320 |
| MAF RAREP | ++TRW 15 MI SE OF SAN ANGELO AND ANOTHER 30 MI E OF SAN ANGELO BOTH MOVING E @ 35 MPH | 2330 |
| SVR TRW WARNING | NWS ISSUED WARNING FOR PARKER, HOOD, WISE, & ERATH CO OF TX EFFECTIVE UNTIL 1:00 AM | 2345 |
| DFW RAREP | LINE OF SVR TRW WITH POSSIBLE LARGE HAIL INDICATED FROM ALVORD TO COMANCHE MOVING E @ 35 MPH | 2345 |
| SER RAREP | TWO ++TRW IN PROGRESS. ONE JUST W OF MINERAL WELLS, TX MOVING NE @ 35 MPH, THE OTHER JUST S OF COMANCHE MOVING E @ 50 MPH | 2335 |
| TORNADO WARNING | NWS ISSUED WARNING FOR PARKER, HAMILTON, AND MONTAGUE CO OF TX, EFFECTIVE UNTIL 1:00 AM | 2335 |
| DFW RAREP | SVR TRW WITH POSSIBLE TORNADOES @ MINERAL WELLS, TX AND LAMBLEIN, TX | 0000 |
| TORNADO | OBSERVED ON THE GROUND @ NOCONA MOVING E @ 40 MPH | 0000 |
| SVR TRW WARNING | NWS WARNING EFFECTIVE UNTIL 10:30 AM FOR BOSQUE AND CORYELL CO, TX | 0030 |
| ACT RAREP | LINE OF ++TRW FROM 75 MI NW OF WACO TO HAMILTON MOVING E @ 35 MPH | 0020 |
| TORNADO WATCH | NWS HAS ISSUED WATCH #70 EFFECTIVE 1:00 AM UNTIL 7:00 AM ALONG AND EITHER SIDE OF A LINE FROM 10 MI S OF JUNCTION, TX TO TYLER, TX | 0030 |
| TORNADO WARNING | NWS ISSUED WARNING EFFECTIVE UNTIL 10:30 AM FOR WISE CO, TX | 0030 |
| TORNADO | TORNADOES WERE REPORTED IN BRIDGEPORT AND BOWIE BOTH MOVING ENE @ 50 MPH | 0030 |
| RAIN | RW AND TRW WERE LOCATED IN A 45 MI WIDE AREA FROM 25 MI NW OF JUNCTION TO BROWNWOOD MOVING E @ 30 MPH. RAINFALL RATES WERE ½"/HOUR. MAX TOP WAS 30,000 FT 30 MI N OF JUNCTION | 0045 |

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|---------------------|---|-------------------|
| SVR TRW WARNING | NWS ISSUED WARNING FOR SOMERVELL AND JOHNSON COS OF TX EFFECTIVE UNTIL 02:00 | 0100 |
| DFW RAREP | SVR TRW WITH POSSIBLE LARGE HAIL INDICATED 5 MI W OF GLEN ROSE MOVING ENE @ 35 MPH | 0100 |
| DFW RAREP | POSSIBLE TORNADOES AT MINERAL WELLS AND NEAR LAMKIN | 0000 |
| SEP RAREP | TWO ++TRW WERE IN PROGRESS, ONE JUST W OF BROWNWOOD, THE OTHER N OF MINERAL WELLS, BOTH MOVING NE @ 35 MPH | 0035 |
| TORNADO WARNING | NWS ISSUED WARNING EFFECTIVE UNTIL 02:15 AM FOR DENTON CO, TX | 0115 |
| DFW RAREP | POSSIBLE TORNADO 2 MI N OF KRUM MOVING ENE @ 35 MPH. ALSO, A LINE OF SEVERE TRW EXTENDED FROM SANGER TO RHOME | 0115 |
| TORNADO WARNING | NWS ISSUED WARNING EFFECTIVE FOR E LOVE AND W MARSHALL COS OF OK UNTIL 10:45 AM | 0110 |
| OKC RAREP | POSSIBLE TORNADO INDICATED 10 MI S OF MARIETTA, OK MOVING ENE @ 40 MPH | 0110 |
| SVR TRW WARNING | NWS ISSUED WARNING FOR MENARD CO, TX EFFECTIVE UNTIL 2:30 AM | 0130 |
| SAN ANGELO RAREP | SVR TRW INDICATED 20 MI SW OF MENARD, TX MOVING NE @ 30 MPH | 0130 |
| HONDO RAREP | A FEW +TRW AND SCATTERED TRW WERE LOCATED FROM JUST N OF ROCKSPRINGS TO 40 MI NW OF LAMPASSAS. THIS 40 MI WIDE AREA WAS MOVING E @ 30 MPH. RAINFALL RATES WERE FROM 1 TO 2 INCHES/HOUR. MAX TOP 35,000 FT, 25 MI NW OF JUNCTION, TX | 0135 |
| TORNADO WARNING | NWS ISSUED WARNING EFFECTIVE UNTIL 2:25 AM FOR MARSHALL, W BRYAN, & S JOHNSTON COS OF OK | 0145 |
| TORNADO | TORNADO REPORTED BY OK HIGHWAY PATROL NEAR KINGSTON, OK | 0145 |
| TORNADO WARNING | NWS ISSUED WARNING FOR GRAYSO CO, TX EFFECTIVE UNTIL 3:00 AM | 0200 |
| DFW RAREP | SVR TRW WITH POSSIBLE TORNADO 20 MI SW OF SHERMAN MOVING NE @ 35 MPH | 0200 |

TABLE 2. CONTINUED.

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|-----------------|--|-------------------|
| FUNNEL CLOUDS | FUNNEL CLOUDS SEEN BY SPOTTERS IN STORM NEAR SHERMAN, TX | 0200 |
| TORNADO WATCH | NWS ISSUED WATCH #71 EFFECTIVE 3:00 AM UNTIL 9:00 AM FOR NE TX, W & CEN AR, SE OK, & NW LA. WATCH AREA IS ALONG AND 70 MI EITHER SIDE OF A LINE FROM 30 MI W OF LONGVIEW, TX TO 70 MI NNW OF LITTLE ROCK, AR | 0215 |
| SVR TRW WARNING | NWS ISSUED WARNING EFFECTIVE UNTIL 3:30 AM FOR PARKER AND TARRANT CO OF TX | 0220 |
| DFW RAREP | SVR TRW WITH POSSIBLE LARGE HAIL JUST N OF CRESSON, TX MOVING NE @ 35 MPH | 0220 |
| SVR TRW WARNING | NWS ISSUED WARNING EFFECTIVE UNTIL 3:30 AM FOR BROWN CO, TX | 0220 |
| ABI RAREP | LINE OF TRW INDICATED MOVING INTO BROWN CO FROM THE SW. THE LINE IS MOVING ENE @ 35 MPH | 0215 |
| TORNADO WARNING | NWS WARNING ISSUED FOR BRYAN AND ATOKA CO OF OK EFFECTIVE UNTIL 3:15 AM | 0225 |
| OKC RAREP | POSSIBLE TORNADO INDICATED 10 MI SW OF DURANT, OK | 0220 |
| SVR TRW WARNING | NWS ISSUED WARNING FOR MILLS CO, TX EFFECTIVE UNTIL 3:15 AM | 0235 |
| AUS RAREP | SVR TRW INDICATED NEAR GOLDTHWAITE MOVING ENE @ 25 MPH | 0310? |
| HONDO RAREP | ++TRW WERE LOCATED 15 MI N OF ROCKSPRINGS AND 35 MI NW OF LAKE BUCHANAN. THEIR RAINFALL RATES WERE UP TO 2"/HR. MOVEMENT TO E @ 25 MPH. MAX TOP 38,000 FT 35 MI NW OF LAKE BUCHANAN | 0235 |
| SVR TRW WARNING | NWS ISSUED WARNING FOR HAMILTON & COMANCHE CO OF TX EFFECTIVE UNTIL 3:45 AM | 0245 |
| DFW RAREP | SVR TRW WITH POSSIBLE HAIL FROM COMMANCHE TO NEAR RISING STAR, TX MOVING NE @ 40 MPH | 0245 |
| SVR TRW WARNING | NWS ISSUED WARNING EFFECTIVE UNTIL 4:20 AM FOR BOSQUE CO, TX | 0320? |
| HAIL | HAIL UP TO GOLFPBALL SIZE REPORTED IN THE CITY OF BROWNWOOD, TX | 0305 |
| SVR TRW WARNING | NWS ISSUED WARNING FOR SEVIER & HOWARD CO OF AR EFFECTIVE UNTIL 4:15 AM | 0325 |

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|----------------------|--|-------------------|
| SHREVEPORT RAREP | SVR TRW NEAR DEQUEEN, AR MOVING NE @ 50 MPH. THIS STORM IS PART OF A LINE 30 MI WIDE FROM W OF MT IDA, AR TO 25 MI W OF TEXARKANA TO 25 MI NW OF TYLER, TX MOVING E @ 30 MPH | 0325 |
| DUSTSTORM WARNING | WARNING FORECAST FOR SOUTH PLAINS IN WEST TEXAS | 0339 |
| DFW RAREP | LINE OF SCATTERED TRW FROM BROWNWOOD, TX TO STEPHENVILLE TO FORT WORTH TO CORSICANA TO MT PLEASANT TO THE RED RIVER. SOME OF THESE STORMS ARE SEVERE WITH POSSIBLE HAIL & HIGH WINDS | 0415 |
| HAIL | MARBLE SIZE HAIL REPORTED NW OF DEQUEEN, AR | 0330 |
| HAIL | BASEBALL SIZE HAIL REPORTED IN DECATUR, TX | 0000 |
| SHREVEPORT RAREP | +TRW WERE LOCATED N OF DEQUEEN AR TO N OF MT IDA, AR | 0545 |
| FLASH FLOOD WATCH | WATCH IN EFFECT FOR ENTIRE STATE OF AR TODAY | 0410 |
| | SERVICE A | CST |
| ICING | ICING ALOFT OVER N HALF OF NM | 0840 |
| ICING | ICING ALOFT OVER W HALF OF MO | 0915 |
| RAREP | LINE 30S MLC TO 40 SW PRX TO 30 NNW MQP OF SCATTERED EMBEDDED TRW WITH A LEVEL 5 CELL, MAX TOP 50,000 | 1135 |
| TURBULENCE, ICING | UPPER AIR REPORT OF TB MDT AND RIME ICING OVER ABQ | 1218 |
| RAREP | A LINE 30 MI SE MLC TO 10 MI SW PRX TO 40 MI S LBB TO 30 MI S DHT: EMBEDDED TRW WITH AN EXTREME LEVEL 6 AND A FEW LEVEL 5 ECHOES. MAX TOPS 48,000 FT | 1235 |
| HAIL | 1" HAIL REPORTED 40 MI S OF ADM | 1233 |
| OKC RAREP | HAIL 162°/76 MI, TROPOPAUSE - 39,700 FT | 1233 |
| SEP RAREP | TROPOPAUSE 40,200 FT | 1230 |
| GGG RAREP | TROPOPAUSE 39,000 FT | |
| TURBULENCE | OVER ABI C141 EXPERIENCED MODERATE TURBULENCE | 1304 |
| HAIL | ¼" HAILSTONES @ LVS | 1315 |

TABLE 2. CONTINUED.

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|--------------|--|-------------------|
| TURBULENCE | TURBULENCE & UDDF OVER NM AND W TX | 1305 |
| RAREP | 60 MI ESE FSM TO 50 MI WSW LIT TO 40 MI S LBB TO 30 MI S DHT - EMBEDDED TRW WITH AN EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES TOPS TO 48,000 FT | 1335 |
| OKC RAREP | HAIL 187°/54 MI, TROP @ 39,700 FT | 1335 |
| HAIL | ¼" HAIL @ HBR | 1450 |
| RAREP | LINE 50 MI NE FYV TO 40 SW FLP TO 60 MI S CDS TO 50 MI NE DHT WITH AN EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES. MAX TOPS 53,000 FT | 1535 |
| RAREP | 40 MI SW HCT TO 10 MI N LAA TO 50 MI SW AKO WITH LEVEL 5 ECHOES AND TOPS TO 38,000 FT | 1535 |
| TURBULENCE | OVER GAG MODERATE TO SVR TURB., TRACE OF ICING AND EXTREMELY +RW | 1627 |
| RAREP | FROM 30 MI SE SLN TO 30 MI S ARG TO 30 MI NNW ABI WITH EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES, MAX TOPS 58,000 FT. TORNADO REPORTED 2128Z FROM ZONE AKO TO 60 MI W ANY TO 60 MI W GAG TO 30 SSE DEN TRW WITH SOME LEVEL 5 ECHOES. MAX TOPS 45,000 FT | 1635 |
| SEP RAREP | ¼" HAIL IN CELL 16°/73 MI | 1733 |
| HAIL | ¼" HAIL 6 MI N COS | 1719 |
| RAREP | 20 W HYS TO 25 WSW CNG TO 30 W LIT TO 40 NNE ABI WITH AN EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES. MAX TOP 58,000 FT. TORNADO REPORTED IN SW PRECIP AREA FROM ZONE AKO TO 60 MI W ANY TO 60 MI W GAG TO 30 SSE DEN TRW WITH SOME LEVEL 5 ECHOES. MAX TOPS 45,000 FT | 1735 |
| RAREP | FROM 20 MI W HYS TO 40 MI NNW SGF TO 35 MI E MLC TO 40 MI NNE ABI: AREA OF BROKEN EMBEDDED TRW WITH AN EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES. MAX TOPS 55,000 FT. TORNADO REPORTED 0000Z 5 MI S SPS | 1835 |

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|-----------------------|---|-------------------|
| RAREP | FROM 50 MI NE AKO TO 20 MI W HYS TO 30 MI SE GCK TO 50 MI SW AKO: AREA OF SCATTERED LOCALLY EMBEDDED TRW WITH A FEW LEVEL 5 ECHOES. MAX TOPS 35,000 FT | 1835 |
| HAIL | 1/8" HAILSTONES AT LCH | 1853 |
| BLOWING DUST, WIND | BLOWING DUST IN ALL QUADRANTS, GUST TO 40 MPH AT ELP | 1955 |
| RAREP | FROM 40 MI WSW LNK TO 70 MI E BUM TO 20 MI SSW ADM TO 35 MI SW SPS, AREA OF BROKEN EMBEDDED TRWS WITH SOME LEVEL 5 ECHOES. MAX TOPS 50,000 FT | 1935 |
| GGG RAREP | TROP AT 50,000 FT | 1930 |
| SEP RAREP | TROP AT 43,000 FT | 2001 |
| RAREP | FROM 50 MI NW LNK TO 70 MI E BUM TO 30 MI NW PRX TO 35 MI SW SPS, AREA OF BROKEN EMBEDDED TRWS WITH FEW EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES. MAX TOPS 50,000 FT | 2035 |
| RAREP | FROM 60 MI NE ABI TO 35 MI W SJT, LINE OF BROKEN TRWS 20 MI WIDE WITH EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES, MAX TOPS 53,000 FT | 2035 |
| RAREP | NEAR CNG ISOLATED EXTREME LEVEL 6 TRW 20 MI IN DIAMETER, MAX TOP 44,000 FT | 2035 |
| RAREP | 50 MI NW MLU, ISOLATED INTENSE LEVEL 5 TRW 15 MI IN DIAMETER, MAX TOP 45,000 FT | 2035 |
| DUST, WIND | ELP, DUST ALL QUADRANTS WIND GUSTING TO 36 MPH | 2104 |
| HAIL | MARBLE SIZE HAILSTONES ACCUMULATING ON THE GROUND AT ABI | 2105 |
| HAIL | 1/4" HAILSTONES AT ABI | 2059 |
| RAREP | FROM 30 MI NE PWE TO 30 MI NNE CBI TO 40 MI SW SGF TO 20 MI SW CNU, AREA OF BROKEN EMBEDDED TRWS, MAX TOPS 40,000 FT | 2135 |
| RAREP | FROM 50 MI NNW FYU TO 50 MI S TUL TO 40 MI NW ADM TO 40 MI NE ABI TO 30 MI W SJT, LINE OF BROKEN TRWS WITH FEW EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES. MAX TOPS 58,000 FT. SVR WX REPORTED LAST HOUR | 2135 |
| RAREP | 40 MI NE CNG ISOLATED EXTREME LEVEL 6 TRW OF 20 MI DIAMETER, MAX TOP 44,000 FT, 3/4" HAIL REPORTED | 2135 |

TABLE 2. CONTINUED.

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|--------------|---|-------------------|
| RAREP | FROM 50 MI E LIT TO 20 MI W GRW TO 40 MI NW MLU TO 60 MI E TXK, AREA OF SCATTERED TRWS WITH SOME LEVEL 5 ECHOES, MAX TOPS 43,000 FT | 2135 |
| DUST | ELP - DUST, ALQDS | 2152 |
| HAIL | 1/4" TO 1/2" HAILSTONES AT SJT | 2155 |
| RAREP | FROM 30 MI NE PWE TO 40 MI S STL TO 60 MI SSW ANY, AREA OF BROKEN EMBEDDED TRWS WITH SOME LEVEL 5 ECHOES. MAX TOPS 40,000 FT | 2235 |
| RAREP | FROM 50 MI N FYU TO 40 MI SSW BWD TO 20 MI S SJT TO 30 MI SE HBR, AREA OF BROKEN TRWS WITH A FEW EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES. MAX TOPS 50,000 FT | 2235 |
| RAREP | 45 MI NE MON EXTREME LEVEL 6 TRW, 15 MI IN DIAMETER, TOP OF 43,000 FT | 2235 |
| HAIL | 3/8" HAILSTONES AT SJT | 2315 |
| SEP RAREP | HOOK ECHO 342°/52 MI | 2259 |
| RAREP | FROM 50 MI SSE OMA TO 50 MI SSE . . . TO 50 MI W SGE, AREA OF SCATTERED EMBEDDED TRWS WITH A FEW LEVEL 5 ECHOES, MAX TOPS 44,000 FT | 2335 |
| RAREP | FROM 30 MI SSW SGE TO 50 MI W ACT TO 20 MI S SJT TO 30 MI E MBR, AREA OF BROKEN EMBEDDED TRWS WITH FEW EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES. MAX TOPS 50,000 FT. NUMEROUS REPORTS OF SVR WX. | 2335 |
| RAREP | FROM 40 MI SE FLP TO 50 MI SE MEM TO 30 MI NE MON TO 40 MI NW LIT, AREA OF SCATTERED EMBEDDED TRWS WITH FEW LEVEL 5 ECHOES, MAX TOPS 42,000 FT | 2335 |
| RAREP | 30 MI SE ICT, ISOLATED EMBEDDED LEVEL 5 TRW, 20 MI DIAMETER, TOP TO 32,000 FT | 2335 |
| SEP RAREP | HOOK ECHO 335°/70 MI, HOOK ECHO 232°/75 MI, TROP 42,300 FT | 2330 |
| RAREP | FROM 40 MI SE BDF TO 30 MI NW LEU TO CGI TO 30 MI NW FAM, AREA OF BROKEN TRWS, MAX TOP 30,000 | 2335 |
| RAREP | 40 MI NNE JKS, ISOLATED LEVEL 5 TRW 30 MI IN DIAMETER, TOP TO 47,000 FT | 2335 |

TABLE 2. CONTINUED.

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|--------------|--|-------------------|
| RAREP | FROM 60 MI SE CNU TO 20 MI W MLC TO 45 MI ESE DFW, LINE OF BROKEN TRWS 25 MI WIDE WITH FEW LEVEL 5 ECHOES. TOPS TO 48,000 FT, 2" HAIL, GUSTS TO 65 MPH AND POSSIBLE TORNADOES REPORTED | 2335 |
| SEP RAREP | HOOK ECHO 194°/45 MI | 0030 |
| RAREP | FROM 40 MI NE IRK TO 40 MI NNE FYV TO 30 MI SW TUL TO 50 MI SE SPS TO 10 MI S SJT, LINE OF BROKEN TRWS 40 MI WIDE WITH A FEW EXTREME LEVEL 6 AND LEVEL 5 ECHOES. HAIL TO 2", GUSTS TO 65 KNOTS AND POSSIBLE TORNADOES IN TEXAS AREA | 0035 |
| RAREP | FROM 70 MI NE ICT TO 20 MI W CNU TO 30 MI E ANY AREA OF BROKEN TRWS WITH SOME LEVEL 5 ECHOES. MAX TOPS 36,000 FT | 0035 |
| RAREP | FROM 30 MI W ARG TO 30 MI WNW TUP TO 30 MI N GRW TO 50 MI NW LIT, AREA OF SCATTERED TRWS WITH SOME LEVEL 5 ECHOES, MAX TOPS 42,000 FT | 0035 |
| RAREP | VICINITY OF MAP ISOLATED LEVEL 5 TRW 30 MI DIAMETER, TOP TO 44,000 FT | 0035 |
| RAREP | FROM 20 MI N FYV TO 40 MI SSW FSM TO 40 MI SE ADM TO 30 MI N DLE, LINE OF BROKEN TRWS 30 MI WIDE WITH FEW EXTREME LEVEL 6 AND SOME LEVEL 5 ECHOES. MAX TOPS 55,000 FT. HAIL TO 2", GUSTS TO 65 KTS, POSSIBLE TORNADOES IN TX-OK REGION | 0235 |
| RAREP | FROM BDF TO 40 MI NE DEC TO 30 MI S STL TO 15 MI NW UIN, AREA OF BROKEN TRWS, MAX TOP 40,000 FT | 0235 |
| RAREP | FROM 20 MI W MAP TO 30 MI NE DYR TO 40 MI N TUP TO 40 MI SW FLP, AREA OF BROKEN TRWS WITH FEW EXTREME LEVEL 6 AND LEVEL 5 ECHOES MAX TOPS 42,000 FT | 0235 |
| RAREP | FROM 30 MI NE FYV TO 40 MI S FSM TO 60 MI W GGG, LINE OF BROKEN TRWS 30 MI WIDE WITH FEW LEVEL 5 ECHOES, MAX TOP 46,000 FT, HAIL TO 2", GUSTS TO 65 KTS, POSSIBLE TORNADOES | 0335 |
| RAREP | FROM BDF TO 40 MI NE DEC TO 15 MI E STL TO BRL, AREA OF BROKEN TRWS, MAX TOP 30,000 FT | 0335 |
| RAREP | 30 MI WNW JKS LEVEL 5 TRW 30 MI IN DIAMETER, TOP TO 47,000 FT | 0335 |

TABLE 2. CONCLUDED.

| <u>EVENT</u> | <u>LOCATION</u> | <u>TIME (CST)</u> |
|--------------|--|-------------------|
| RAREP | FROM 50 MI SW OBH TO 40 MI E TKO TO 20 MI NNW HLC, AREA OF SCATTERED EMBEDDED TRWS, TOPS TO 31,000 FT | 0335 |
| RAREP | 30 NE MLC TO 30 MI W LZZ, LINE OF BROKEN TRWS 25 MI WIDE WITH FEW LEVEL 5 ECHOES, TOPS TO 45,000 FT, HAIL TO 2", POSSIBLE TORNADOES | 0335 |
| SEP RAREP | HAIL INDICATED 97°/43 MI | 0406 |
| RAREP | FROM 30 MI W ELP TO 45 MI SE FSM TO 45 MI SW GGG, LINE OF BROKEN TRWS 30 MI WIDE WITH FEW LEVEL 5 ECHOES, MAX TOP 46,000 FT. HAIL TO 2", GUSTS TO 65 MPH, POSSIBLE TORNADOES | 0435 |
| RAREP | 20 MI NW JKS ISOLATED LEVEL 5 TRW 30 MI DIAMETER TOP TO 43,000 FT | 0435 |
| RAREP | 40 MI NE TUL TO 35 MI S MLC TO 30 MI SE BWD, LINE OF BROKEN TRWS 25 MI WIDE WITH FEW LEVEL 5 ECHOES, TOPS TO 57,000 FT, HAIL TO 2", POSSIBLE TORNADOES | 0435 |

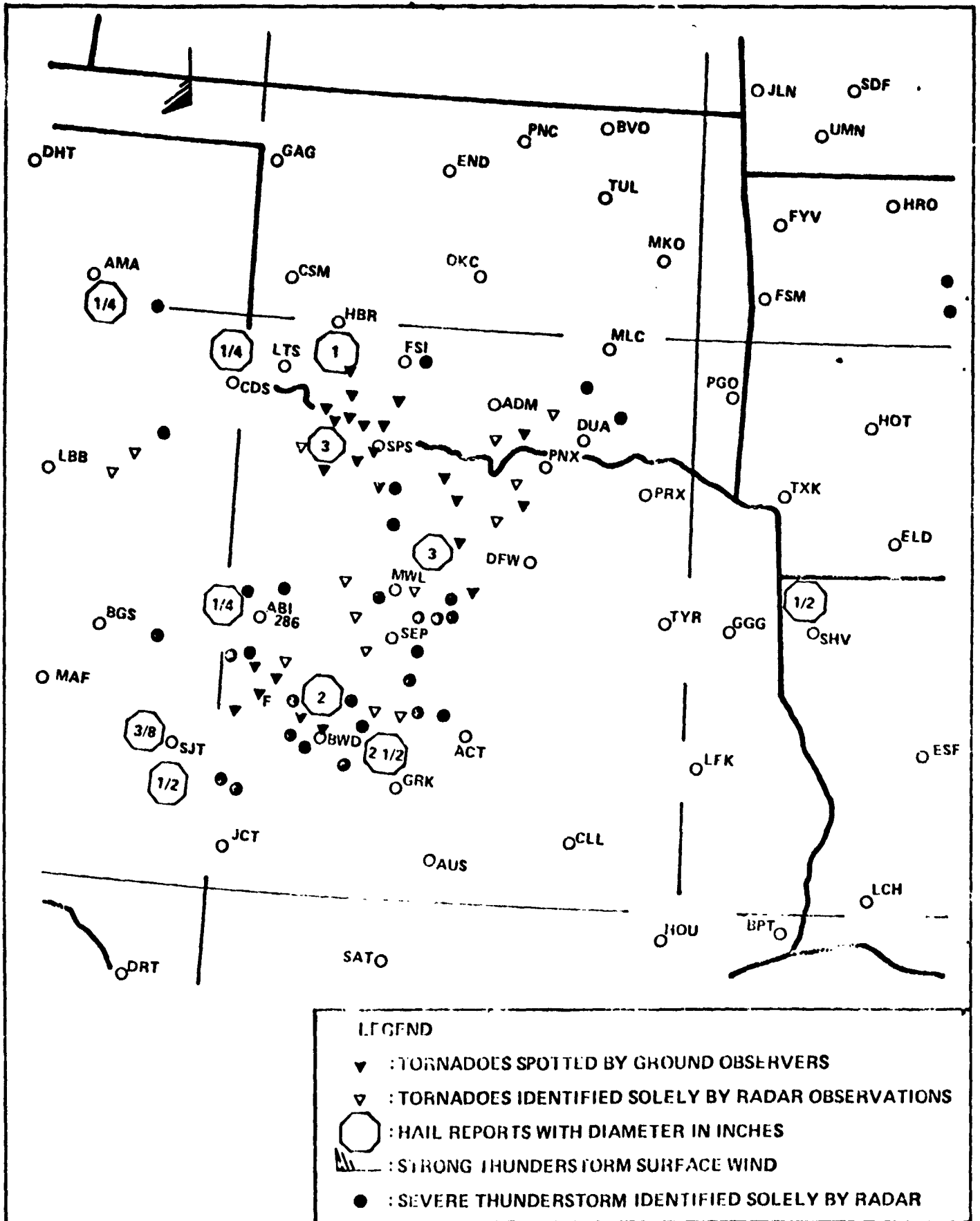


Fig. 45. Severe weather reports that occurred between 1200 GMT 10 April and 1200 GMT 11 April 1979 in the South Central United States.

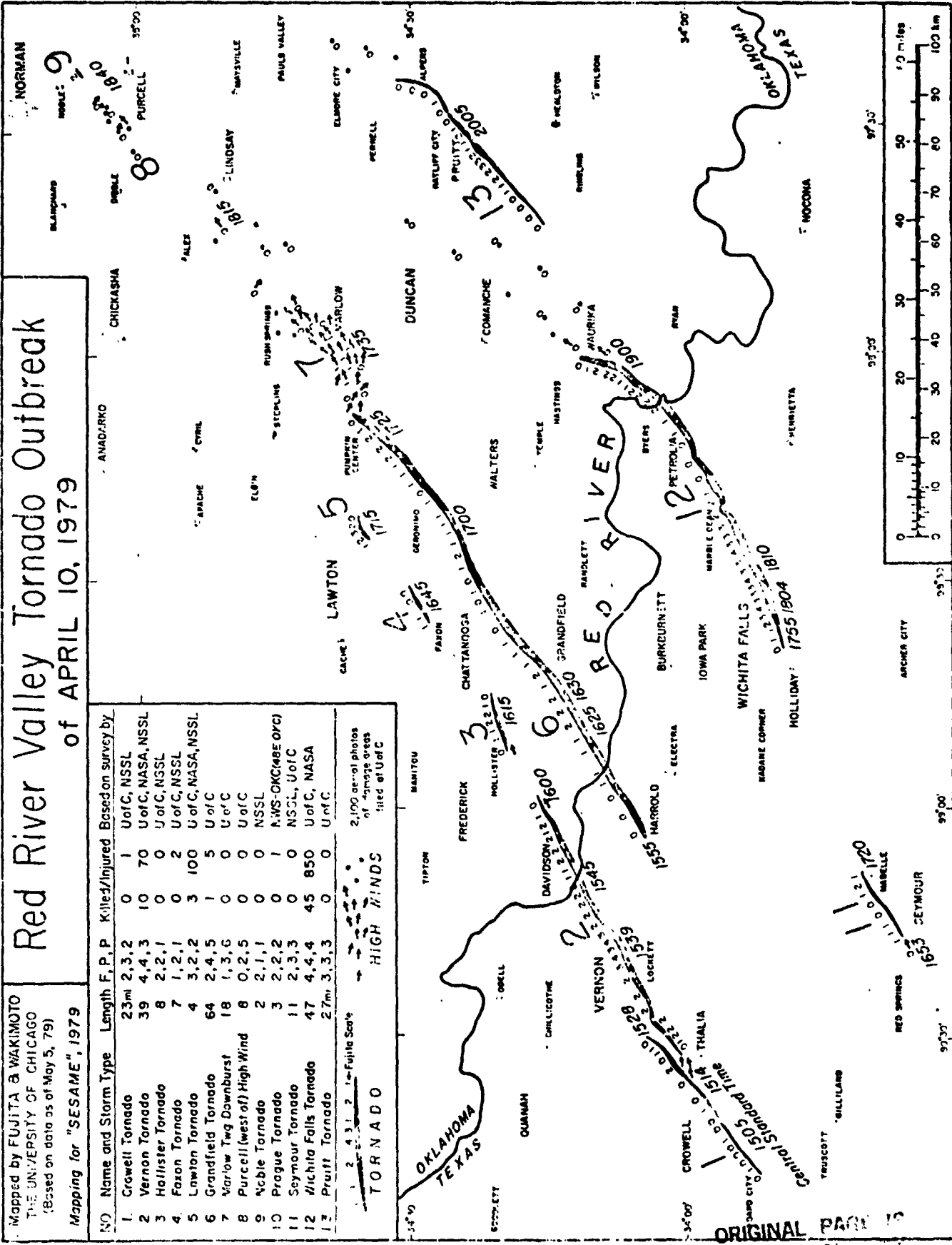


Fig. 46. Red River Valley tornado outbreak of 10 April 1979.

Table 3. Fujita Scale damage specifications.*

| Fujita Scale | Windspeed (mph) | Damage | Remarks |
|---------------------|------------------------|---------------|--|
| 0 | 40-72 | LIGHT | Some damage to chimneys and TV antennae; breaks twigs off trees; pushes over shallow rooted trees. |
| 1 | 73-112 | MODERATE | Peels surface off roofs; windows broken; light trailer houses pushed or overturned; some trees uprooted or snapped; moving automobiles pushed off the road. |
| 2 | 113-157 | CONSIDERABLE | Roofs torn off frame houses leaving strong upright walls; weak buildings in rural areas demolished; trailer houses destroyed; large trees snapped or uprooted; railroad boxcars pushed over; light object missiles generated; cars blown off highway. |
| 3 | 158-206 | SEVERE | Roofs and some walls torn off frame houses; some rural buildings completely demolished; trains overturned; steel-framed hangar warehouse structures torn; cars lifted off ground; most trees in a forest uprooted, snapped, or leveled. |
| 4 | 207-260 | DEVASTATING | Whole frame houses leveled, leaving piles of debris; steel structures badly damaged; trees debarked by small flying debris; cars and trains thrown some distances or rolled considerable distances; large missiles generated. |
| 5 | 261-318 | INCREDIBLE | Whole frame houses tossed off foundations; steel-reinforced concrete structures badly damaged; automobile-sized missiles generated; incredible phenomena can occur. |
| 6-12 | 319-sonic | INCONCEIVABLE | Should a tornado with the maximum wind speed in excess of scale 6 occur, the extent and types of damage may not be conceived. A number of missiles such as iceboxes, water heaters, storage tanks, automobiles, etc. will create serious secondary damage on structures. |

*From Fujita (1971)

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APPROVAL

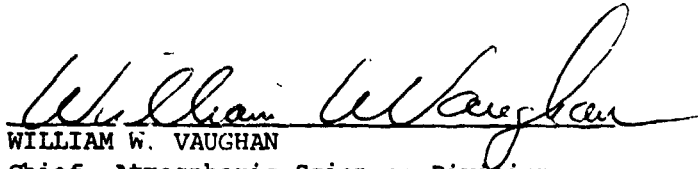
A PRELIMINARY LOOK AT AVE-SESAME I CONDUCTED ON APRIL 10-11, 1979

By Steven F. Williams, James R. Scoggins,
Nicholas Horvath, and Kelly Hill

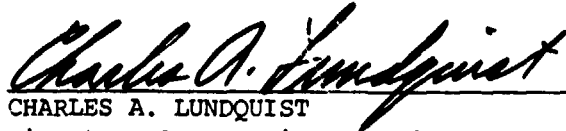
The information in this report has been reviewed for technical content. Review of any information concerning Department of Defense or nuclear energy activities or programs has been made by the MSFC Security Classification Officer. This report, in its entirety, has been determined to be unclassified.



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