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**Storms over the METER-ORNL
Precipitation Network:
The First Six Months**

R. L. Miller
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OAK RIDGE NATIONAL LABORATORY
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Printed in the United States of America. Available from
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road, Springfield, Virginia 22161
Price: Printed Copy \$16.25; Microfiche \$3.00

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Contract No. W-7405-eng-26

Engineering Technology Division

STORMS OVER THE METER-ORNL PRECIPITATION NETWORK:
THE FIRST SIX MONTHS

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Date Published: June 1979

Prepared for the
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37830
operated by
UNION CARBIDE CORPORATION
for the
DEPARTMENT OF ENERGY

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CONTENTS

	<u>Page</u>
ABSTRACT	1
INTRODUCTION	1
ANALYSIS	6
STRATIFICATION	16
ACKNOWLEDGMENTS	22
REFERENCES	23
APPENDIX	25

STORMS OVER THE METER-ORNL PRECIPITATION NETWORK:
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ABSTRACT

This report presents the first set of data collected by the METER-ORNL Precipitation Network. This network of 49 recording raingages and 5 recording windsets was installed in February 1978, around the Bowen Electric Generating Plant in northwest Georgia for the purpose of investigating the potential effect of the plant's cooling towers on rainfall. This study is conducted on behalf of the DOE Program on Meteorological Effects of Thermal Energy Releases (METER).

Included in this report are the complete descriptions of 98 rainfall events which occurred over the METER-ORNL network during the period February 22-August 31, 1978. These descriptions are augmented by information and data supplied by the National Weather Service (NWS). Several stratifications of the rainfall events are performed for reference purposes.

INTRODUCTION

This report contains the first six-month data base from the operation of the METER-ORNL network.¹ This network was installed during February 1978, as part of the rainfall modification study undertaken by ORNL around the Bowen Electric Generating Plant (Plant Bowen) in northwest Georgia. Studies of weather modification around major power plants have been performed on behalf of the Department of Energy (DOE) Program called METER (Meteorological Effects of Thermal Energy Releases), to determine the extent to which modern cooling systems, such as cooling towers and cooling ponds, affect local and regional weather.^{2,3}

The rainfall modification studies around Plant Bowen were started by ORNL during FY-1977 with an investigation of climatological data accumulated by the National Weather Service (NWS) at its regular stations and the stations of the Cooperative Network. The purpose of this investigation was to compare rainfall patterns before and after 1971 (the first year of the power plant's commercial operation). An additional goal was an improved understanding of the climatology of the general study area. Based on monthly rainfall totals and prevailing winds, preliminary studies indicated some rainfall modification in the general area downwind from the plant.⁴ This modification was manifested more as a rainfall pattern redistribution rather than a rainfall enhancement. It was evident, however, that the quality and quantity of the NWS data were insufficient to place this finding on a solid scientific basis. Past field programs of rainfall modification, such as METROMEX,⁵ have established the relevant state-of-the-art and dictate several requirements for the rainfall monitoring network (raingage density, monitoring time period, etc.). The NWS network around Plant Bowen does not meet these requirements and this prompted the creation of the METER-ORNL precipitation network. Composed of forty-nine recording raingages on a square grid centered at Plant Bowen, it monitors precipitation events on a continuous basis. Five recording windsets at key locations around the power plant track the surface winds while NWS data provide additional information such as synoptic weather conditions and upper-air winds. The power plant thermal output is also monitored. Figures 1 and 2 display the METER-ORNL network against the area's topographical map and NWS networks, respectively. Two precipitation

ORNL-DWG 78-4197

Fig. 1. The METER-ORNL network superimposed on the area's topographical map, including the location of Plant Bowen and several other major features. The small darkened circles represent METER-ORNL rain gauge sites, and the crosses indicate windset sites. The contour lines are in units of feet above mean sea level.

events are considered distinct (storms) if they are separated in time by at least two hours with no rainfall over the entire METER-ORNL network. This report contains ninety-eight such precipitation events for the period February 22-August 31, 1978.

The primary purpose of this report is to provide an in-depth description of the data base which is being created by the METER-ORNL network and to present the methodology used to process and analyze the data. Examples of stratification of these data shed some light on the general climatology of the study area. Future reports will present data in summary form and will concentrate on the statistical investigation of the potential effects. The METER-ORNL network is expected to operate for a total of five years. It is believed that the resultant data base of approximately one thousand storms will determine whether rainfall modification is present within an appropriate statistical significance.

ANALYSIS

Potential rainfall modification by Plant Bowen should be most detectable by employing analytic methods based on storm events; a study based entirely on monthly rainfall amounts, for example, might miss a small effect due to "smoothing out" of the data over the longer time period. The analysis of the METER-ORNL network data is focusing on the stratification of storm events according to the type of storm, the surface wind directions immediately prior to and during the storm, the upper-air wind direction during the storm, and the magnitude of Plant Bowen's power output. This approach is useful in determining the conditions which contribute to a maximum potential effect.

The storm type is identified using a classification developed by the Illinois State Water Survey.⁶ The ten categories include the eight storm types used in the METROMEX study,⁶ with the addition of the occluded front and the cold air mass. The occluded front storm type has the same requirement as the other frontal types: the surface front must be within 120 km (75 mi) of the precipitation occurring at the network. The category of cold air mass consists of precipitation on the colder side of a surface front at a distance of greater than 240 km (150 mi) from that front. The rainfall is usually widely scattered with no evident synoptic or mesoscale causes. The air mass storm type described in the METROMEX study is therefore further restricted to rainfall occurring on the warmer side of a surface front at the same minimum distance of 240 km (150 mi) from the front. For cases in which the nearest frontal system is many hundreds of kilometers away from the

precipitation, the decision between air mass and cold air mass is subjective.

The National Weather Service (NWS) surface maps, as illustrated in Figure 3, are utilized in conjunction with the raingage charts for determination of the storm type. The starting and ending times of the storms are calculated from the raingage charts. From one to three maps during the period of the storm are displayed, depending on the storm's duration. The sides of the larger and smaller maps represent a distance of 1280 km (800 mi) and 640 km (400 mi), respectively. The square in the center of each map delineates the position of the METER-ORNL network. Symbols indicating precipitation or "bad weather" at NWS stations are circled. The fronts and squall lines are analyzed and redrawn for each map, in many cases at a different location from that derived by the NWS analysis. Note that the thick darker lines represent the color red, while the thick lighter lines are indicative of blue. For storms having precipitation which is caused by more than one type of weather, the type which contributes the greater amount of rainfall is considered to be the dominant storm type.

The storm track within the network is approximated by the average of the upper-air wind directions at three levels (850 mb, 700 mb, and 500 mb) during the storm period. Figure 4 exemplifies the NWS maps which are used to obtain this approximation. The side of each map represents a distance of 1280 km (800 mi); the location of the METER-ORNL network is again depicted by a square on the map. The wind direction at the network is estimated for each map from wind directions at surrounding stations and the approximation that the wind travels

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 5/23 1400 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT

Storm No.	30	Synoptic Type	WARM FRONT
Started:	5/23 1500		1978 (EDT)
Ended:	5/23 1900		1978 (EDT)

Map during middle of storm: 5/23 1700 EDT

Map during end of storm: 5/23 2000 EDT

Fig. 3. The National Weather Service surface maps corresponding to Storm #30, May 23, 1978. The analysis was conducted using the standard coloring scheme for identification of the fronts and squall lines; however, the thick darker lines represent red and the thick lighter lines are indicative of blue on this reproduction.

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4831 ETD

Storm No. 23 Synoptic Type SQUALL LINE
 Started: 5/8 1200 1978 (EDT)
 Ended: 5/8 2100 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/8 2000 EDT

Remarks: Upper-air winds from the WSW

Fig. 4. The National Weather Service 850 mb, 700 mb, and 500 mb maps during Storm #23, May 8, 1978.

parallel to the height contours with lower heights to the left of the flow. The average of the upper-air wind directions is indicated below the maps in the remarks.

The surface winds approximate the direction in which the cooling tower plumes travel from Plant Bowen. Erroneous wind direction data were obtained from the METER-ORNL windsets prior to May 9, 1978; therefore, the surface wind directions for storms before that date are estimated from the NWS surface maps by observing the winds at the NWS stations surrounding the METER-ORNL network and examining the general surface air flow associated with the storm. The wind directions for these earlier storms are noted as prevailing surface winds in the remarks section below the NWS surface maps. Only maps from several hours before to several hours after the start of the storm are examined to obtain the prevailing wind direction, since the location of a potential effect is believed to be partly determined by the plume position during this time period of the storm.

The surface winds at the METER-ORNL windsets are used for storms which occurred on or after May 9, 1978. The data are separated into two groups: immediately prior to storms and during storms as shown by Figs. 5 and 6, respectively. By obtaining wind directions for both of these time periods, it may be possible to ascertain which one (if either) contributes more toward identifying a region of potential rainfall modification. The trace on the left side of each chart indicates wind speed, with full scale at 50 mph, and the trace on the right side displays wind direction. Time is the parameter of the vertical axis with one inch being the equivalent of one hour; the times at the top and

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4491 ETD
 Storm No. 42 Synoptic Type AIR MASS
 Started: 6/11 1600 1978 (EDT)
 Ended: 6/11 1900 1978 (EDT)

Remarks: Surface winds from the ESE

Fig. 5. Surface wind speed and direction at the METER-ORNL windset sites immediately prior to Storm #42, June 11, 1978.

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4490 ETD

Storm No. 42 Synoptic Type AIR MASS
 Started: 6/11 1600 1978 (EDT)
 Ended: 6/11 1900 1978 (EDT)

Remarks: Surface winds from the NW (ONLY BOWEN NO. 1 CONSIDERED SINCE NO PRECIPITATION AT OTHERS)

Fig. 6. Surface wind speed and direction at the METER-ORNL windset sites during Storm #42, June 11, 1978.

bottom edges of each strip are included. The wind direction of the Bowen #2 windset was found to most accurately reflect the direction of the cooling tower plumes; therefore, the prevailing wind direction of this windset is weighted more heavily than the others in the determination of the direction. The time period of the windset data immediately prior to storms extends from the storm starting time back to 1 1/2-3 hours prior to the starting time depending on the persistence of a prevailing wind direction. For windset data during storms, emphasis is placed on identifying the prevailing wind direction during the first several hours of the storm and during periods of precipitation at the windset sites.

The magnitude of Plant Bowen's electrical generation during a storm is a major factor in considering a potential effect. Obviously, precipitation which occurs during a period when Plant Bowen is not in operation cannot be attributed to the plant. A positive correlation between the magnitude of a potential effect and the plant's generation output is plausible. The hourly electrical generation at Plant Bowen is obtained from the Georgia Power Company; subsequently, the average generation rate during a storm is calculated from these data.

Computer-generated contour plots of precipitation amounts for each storm within the METER-ORNL network are useful for gaining an overall picture of the rainfall patterns, as exemplified by a typical plot in Fig. 7. Each of the 49 crosses represents a raingage station, with the location of Plant Bowen indicated by the cross within the circle near the center of the network. The contours, which depict lines of equal precipitation (in inches), are drawn by linear interpolation of the

amounts at the stations. The numerical interval between contours is based on the difference between maximum and minimum precipitation amounts. The amounts for stations with missing data are estimated by a computer routine from values at surrounding stations. Additional information is included with each contour plot, most of which has been described earlier in this section or is self-explanatory. The stations are numbered sequentially across a row, Station #1 being in the upper left corner and Station #49 in the lower right corner. Note that if the maximum or minimum amount of precipitation occurs at more than one station, the station number which is largest is printed; also, stations with missing data (which are computer-estimated) are not included in the averages or the number of stations with precipitation. The arrows match the corresponding surface and upper-air wind directions: the dashed arrow is the prevailing or prior surface wind, the dotted arrow is the surface wind during the storm, and the solid arrow is the upper-air wind during the storm.

STRATIFICATION

The complete information describing the first ninety-eight precipitation events over the METER-ORNL network appears in the Appendix. In this section several stratifications of the available data are attempted for the purpose of summarizing the key elements of the general climatology of the METER-ORNL network area.

Table 1 presents the frequency distribution of all precipitation events according to the ten different storm types. Also included are the average rainfall amount and average number of stations with rainfall for each type. Since the time period covered includes the spring and summer seasons, it is not surprising that the "air mass" type dominates this stratification with over a quarter of the total number of storms. As expected, the average rainfall and the average number of stations with rainfall for this type are both low. Noteworthy is the large percentage of stationary front and squall line storms, with the latter also accounting for a large percentage of the total rain volume. Tables 2 and 3 present the same stratification for the individual spring and summer seasons.

Table 4 presents the stratification of all storm events according to mean and maximum rainfall amounts. Six ranges of rainfall amounts are used for this classification. The majority of storms has low mean rainfall reflecting the predominance of "warm" season type precipitation. For the maximum precipitation a secondary peak appears in the 0.50-1.00 in range. The stratifications for the individual spring and summer seasons are displayed in Tables 5 and 6.

Table 1. Frequency Distribution of Precipitation Events for
Period February 22-August 31, 1978 by Storm Type

Storm type	Number of storms	Average rainfall (in)	Average number of stations with rainfall
Stationary Front	19	0.17	24
Occluded Front	3	0.62	41
Cold Front	7	0.27	33
Warm Front	1	0.64	49
Pre- and Post-Frontal	9	0.20	27
Squall Line	18	0.55	35
Squall Zone	8	0.38	38
Low Pressure Center	2	0.34	49
Air Mass	26	0.05	12
Cold Air Mass	5	0.07	33
Total	98		

Table 2. Frequency Distribution of Precipitation Events for
Period February 22-May 31, 1978 (Spring) by Storm Type

Storm type	Number of storms	Average rainfall (in)	Average number of stations with rainfall
Stationary Front	6	0.39	46
Occluded Front	3	0.62	41
Cold Front	1	0.56	49
Warm Front	1	0.64	49
Pre- and Post-Frontal	3	0.23	37
Squall Line	8	0.66	40
Squall Zone	0	--	--
Low Pressure Center	2	0.34	49
Air Mass	5	0.01	12
Cold Air Mass	5	0.07	33
Total	34		

Table 3. Frequency Distribution of Precipitation Events for
Period June 1-August 31, 1978 (Summer) by Storm Type

Storm type	Number of storms	Average rainfall (in)	Average number of stations with rainfall
Stationary Front	13	0.06	15
Occluded Front	0	--	--
Cold Front	6	0.22	30
Warm Front	0	--	--
Pre- and Post-Frontal	6	0.19	23
Squall Line	10	0.46	32
Squall Zone	8	0.38	38
Low Pressure Center	0	--	--
Air Mass	21	0.05	12
Cold Air Mass	0	--	--
Total	64		

Table 4. Frequency Distribution of Precipitation
Events for Period February 22-August 31, 1978
by Mean and Maximum Storm Rainfall Amounts

Rainfall Amount (in)	Number of Storms Mean Rainfall	Number of Storms Maximum Rainfall
0.0 < p ≤ 0.10	56	24
0.10 < p ≤ 0.25	11	8
0.25 < p ≤ 0.50	18	17
0.50 < p ≤ 1.00	7	22
1.00 < p ≤ 2.00	6	20
2.00 < p	0	7

Table 5. Frequency Distribution of Precipitation
Events for Period February 22-May 31, 1978 (Spring)
by Mean and Maximum Storm Rainfall Amounts

Rainfall Amount (in)	Number of Storms Mean Rainfall	Number of Storms Maximum Rainfall
0.0 < p ≤ 0.10	15	9
0.10 < p ≤ 0.25	3	2
0.25 < p ≤ 0.50	8	9
0.50 < p ≤ 1.00	5	8
1.00 < p ≤ 2.00	3	3
2.00 < p	0	3

Table 6. Frequency Distribution of Precipitation
Events for Period June 1-August 31, 1978 (Summer)
by Mean and Maximum Storm Rainfall Amounts

Rainfall Amount (in)	Number of Storms Mean Rainfall	Number of Storms Maximum Rainfall
0.0 < p ≤ 0.10	41	15
0.10 < p ≤ 0.25	8	6
0.25 < p ≤ 0.50	10	8
0.50 < p ≤ 1.00	2	14
1.00 < p ≤ 2.00	3	17
2.00 < p	0	4

Knowledge of wind direction statistics is considered important in this study in view of several planned statistical investigations utilizing control and target areas.⁴ Table 7 contains the stratification of the precipitation events by surface wind direction and for the two seasons (spring and summer). The surface winds considered in this

Table 7. Frequency Distribution of Precipitation Events for
Period February 22-August 31, 1978 by Surface Wind
Direction Immediately Prior to Rainstorms

Wind Direction	Spring (2/22-5/31/1978)	Summer (6/1-8/31/1978)	Total (2/22-8/31/1978)
N	0	1	1
NNE	0	2	2
NE	2	4	6
ENE	2	5	7
E	5	7	12
ESE	3	7	10
SE	3	3	6
SSE	1	3	4
S	7	4	11
SSW	1	2	3
SW	5	4	9
WSW	0	5	5
W	1	5	6
WNW	0	4	4
NW	3	7	10
NNW	1	1	2
Total	34	64	98

stratification are the ones immediately prior to the rainstorms. The results confirm earlier findings⁴ regarding the predominant easterly and northwesterly directions. Table 8 presents the stratification of the precipitation events according to upper-air wind direction. The sizable west-southwesterly component agrees with National Weather Service (NWS) long term statistical data.

Table 9 contains the stratification of the precipitation events by the electrical output of the power plant (in MW). Since it is observed that this output often varies considerably from day to day it is felt that this additional parameterization will enhance the statistical quest

Table 8. Frequency Distribution of Precipitation Events for Period February 22-August 31, 1978 by Upper-Air Wind Direction during Storms

Wind Direction	Spring (2/22-5/31/1978)	Summer (6/1-8/31/1978)	Total (2/22-8/31/1978)
N	0	2	2
NNE	1	0	1
NE	0	1	1
ENE	1	0	1
E	0	0	0
ESE	0	0	0
SE	0	0	0
SSE	0	1	1
S	0	9	9
SSW	2	4	6
SW	6	6	12
WSW	14	10	24
W	4	7	11
WNW	2	11	13
NW	3	5	8
NNW	1	8	9
Total	34	64	98

Table 9. Frequency Distribution of Precipitation Events for Period February 22-August 31, 1978 by Electrical Output of Plant Bowen

Electrical Output (MW)	Spring (2/22-5/31/1978)	Summer (6/1-8/31/1978)	Total (2/22-8/31/1978)
500 < EO < 750	0	1	1
750 < EO < 1000	2	0	2
1000 < EO < 1250	1	5	6
1250 < EO < 1500	8	8	16
1500 < EO < 1750	6	13	19
1750 < EO < 2000	5	23	28
2000 < EO < 2250	10	6	16
2250 < EO < 2500	2	8	10
Total	34	64	98

for effects. The results indicate a peak in the 1751-2000 MWe range which represents approximately the 60% level of the power plant's full electrical capacity.

ACKNOWLEDGMENTS

The preparation of this report was supported by the Department of Energy (Division of Advanced Nuclear Systems and Projects and Office of Health and Environmental Research) as part of the program on the Meteorological Effects of Thermal Energy Releases. The authors are indebted to Lincoln Jung for his invaluable assistance in the data acquisition and processing and to the Engineering Technology Division's Reports Office for the professional graphic arts work.

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METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 1

2/28/78

MAX. PRECIP. - 0.43 IN. AT ST. 48
 MIN. PRECIP. - 0.09 IN. AT ST. 6
 AVG. PRECIP. - 0.28 IN.
 * STATIONS OPERATING - 39
 AVG. OF STA. WITH PRECIP. - 0.28 IN.
 * STATIONS WITH PRECIP - 39

STORM BEGAN DAY 28 AT 300
 STORM ENDED DAY 28 AT 1900
 STORM DURATION 16.0 HRS.

STORM TYPE - STATIONARY FRONT
 PREVAILING SURFACE WIND - NE
 UPPER AIR WIND DIRECTION - WSW
 PLANT BOWEN POWER OUTPUT - 1262 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 2/28 0400 EST

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT.

PREVAILING SURFACE WINDS FROM THE NE

Storm No. 1 Synoptic Type STATIONARY FRONT

Started: 2/28 0400 1978 (EST)

Ended: 2/28 1800 1978 (EST)

Map during middle of storm: 2/28 1300 EST

Map during end of storm: 2/28 1900 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 1 Synoptic Type STATIONARY FRONT

Started: 2/28 0400 1978 (EST)

Ended: 2/28 1800 1978 (EST)

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 2

3/2/78

MAX. PRECIP. - 0.53 IN. AT ST. 21
 MIN. PRECIP. - 0.34 IN. AT ST. 25
 AVG. PRECIP. - 0.43 IN.
 * STATIONS OPERATING - 42
 AVG. OF STA. WITH PRECIP. - 0.43 IN.
 * STATIONS WITH PRECIP - 42

STORM BEGAN DAY 2 AT 830
 STORM ENDED DAY 3 AT 1200
 STORM DURATION 27.5 HRS.

STORM TYPE - POST FRONTAL (STAT)
 PREVAILING SURFACE WIND - ENE
 UPPER AIR WIND DIRECTION - WSW
 PLANT BOILER POWER OUTPUT - 1800 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4791 ETD

POST-FRONTAL

(STATIONARY)

Storm No. 2 Synoptic Type (STATIONARY)
 Started: 3/2 0930 1978 (EST)
 Ended: 3/3 1200 1978 (EST)

Map closest to starting time of storm: 3/2 1000 EST

Remarks: STATIONARY FRONT DEVELOPED ALONG GA-FL BORDER ~ 3/2
1600 EST. FRONT IS ORIENTED WSW-ENE. JUST OUTSIDE THE LOWER RIGHT
CORNER OF THE 2 MAPS ON THE RIGHT.

PREVAILING SURFACE WINDS FROM THE ENE

Map during middle of storm: 3/2 2200 EST

Map during end of storm: 3/3 1000 EST

Storm No. 2 Synoptic Type POST-FRONTAL (STATIONARY)
 Started: 3/2 0930 1978 (EST)
 Ended: 3/3 1200 1978 (EST)

850 MB

700 MB

500 MB

Time: 3/2 1900 EST

Remarks: Upper-air winds from the WSW

(WINDS FROM 3/3 0700 ES- INCLUDED IN THIS AVERAGE)

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 2 Synoptic Type POST-FRONTAL (STATIONARY)
 Started: 3/2 0930 1978 (EST)
 Ended: 3/3 1200 1978 (EST)

850 MB

700 MB

500 MB

Time: 3/3 0700 EST

Remarks: _____

UPPER-AIR WINDS FROM THE WSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 3

3/5/78

MAX. PRECIP. - 0.03 IN. AT ST. 30
 MIN. PRECIP. - 0.00 IN. AT ST. 48
 AVG. PRECIP. - 0.01 IN.
 * STATIONS OPERATING - 40
 AVG. OF STP. WITH PRECIP. - 0.02 IN.
 * STATIONS WITH PRECIP - 19

STORM BEGAN DAY 5 AT 1700
 STORM ENDED DAY 5 AT 2100
 STORM DURATION 4.0 HRS.

STORM TYPE - COLD AIR MASS
 PREVAILING SURFACE WIND - SW
 UPPER AIR WIND DIRECTION - W
 PLANT BOWEN POWER OUTPUT - 1575 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4794 ETD

Storm No. 3 Synoptic Type COLD AIR MASS
 Started: 3/5 1700 1978 (EST)
 Ended: 3/5 2100 1978 (EST)

Map closest to starting time of storm: 3/5 1600 EST

Remarks: THE EXISTENCE OF THIS STORM WAS CONFIRMED BY THE NWS
COOPERATIVE STATION AT CARTERSVILLE.

PREVAILING SURFACE WINDS FROM THE SW

Map during middle of storm: _____ EST

Map during end of storm: 3/5 1900 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 3 Synoptic Type COLD AIR MASS
 Started: 3/5 1700 1978 (EST)
 Ended: 3/5 2100 1978 (EST)

850 MB

700 MB

500 MB

Time: 3/5 1900 EST

Remarks: Upper-air winds from the W

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4796 ETD

Storm No. 4 Synoptic Type STATIONARY FRONT
 Started: 3/7 1100 1978 (EST)
 Ended: 3/7 1530 1978 (EST)

Map closest to starting time of storm: 3/7 1000 EST

Remarks: STATIONARY FRONT DEVELOPED ~ 3/7 1100 EST

PREVAILING SURFACE WINDS FROM THE NW

Map during middle of storm: _____ EST

Map during end of storm: 3/7 1300 EST

Ended: 3/7 1530 1978 (EST)

Time: 3/7 0700 EST

Remarks: Upper-air winds from the SW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4798 ETD

Map closest to starting time of storm: 3/7 1900 EST

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT.

PREVAILING SURFACE WINDS FROM THE SE

Storm No. 5 Synoptic Type STATIONARY FRONT
 Started: 3/7 1730 1978 (EST)
 Ended: 3/8 1700 1978 (EST)

Map during middle of storm: 3/8 0700 EST

Map during end of storm: 3/8 1300 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 5 Synoptic Type STATIONARY FRONT

Started: 3/7 1730 1978 (EST)

Ended: 3/8 1700 1978 (EST)

850 MB

700 MB

500 MB

Time: 3/7 1900 EST

Remarks: Upper-air winds from the SW

(WINDS FROM 3/8 0700 EST INCLUDED IN THIS AVERAGE)

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 5 Synoptic Type STATIONARY FRONT

Started: 3/7 1730 1978 (EST)

Ended: 3/8 1700 1978 (EST)

850 MB

700 MB

500 MB

Time: 3/8 0700 EST

Remarks: Upper-air winds from the SW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 3/9 1000 EST

Remarks: MOST OF PRECIPITATION OCCURRED ~ 3/9 0830-2100 EST. THE SOUTHERN LOW INTENSIFIED AND MOVED UP THE ATLANTIC COAST. DISAGREED WITH NWS ANALYSIS OF FRONT.

PREVAILING SURFACE WINDS FROM THE E

Storm No. 6 Synoptic Type OCCCLUDED FRONT
 Started: 3/9 0830 1978 (EST)
 Ended: 3/10 1300 1978 (EST)

Map during middle of storm: 3/9 2200 EST

Map during end of storm: 3/10 1300 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 6 Synoptic Type OCCLUDED FRONT
 Started: 3/E 0830 1978 (EST)
 Ended: 3/10 1300 1978 (EST)

850 MB

700 MB

500 MB

Time: 3/9 0700 EST

Remarks: Upper-air winds from the SSW
(WINDS FROM 3/9 1900 EST INCLUDED IN THIS AVERAGE)
WINDS AT 3/10 0700 EST WERE CHECKED, BUT NOT INCLUDED SINCE
LITTLE PRECIPITATION OCCURRED + THE DIRECTION OF THE WINDS
HAD SHIFTED CONSIDERABLY.

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 6 Synoptic Type OCCLUDED FRONT
 Started: 3/9 0830 1978 (EST)
 Ended: 3/10 1300 1978 (EST)

MISSING

MISSING

47

850 MB

700 MB

500 MB

Time: 3/9 1900 EST

Remarks: Upper-air winds from the SSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 7

3/12/78

MAX. PRECIP. - 0.08 IN. AT ST. 5
 MIN. PRECIP. - 0.00 IN. AT ST. 47
 AVG. PRECIP. - 0.01 IN.
 * STATIONS OPERATING - 40
 AVG. OF STA. WITH PRECIP. - 0.03 IN.
 * STATIONS WITH PRECIP - 9

STORM BEGAN DAY 12 AT 300
 STORM ENDED DAY 12 AT 1100
 STORM DURATION 8.0 HRS.

STORM TYPE - PRE-FRONTAL (COLD)
 PREVAILING SURFACE WIND - SSW
 UPPER AIR WIND DIRECTION - WSW
 PLANT BOWER POWER OUTPUT - 1275 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4804 ETD

Map closest to starting time of storm: 3/12 0400 EST

Remarks: MOST OF PRECIPITATION OCCURRED ~ 3/12 0300-0500 EST. SQUALL
LINE HAS DISSIPATED IN ALABAMA BY ~ 3/12 0400 EST. DISAGREED WITH
NWS ANALYSIS OF FRONTS.

PREVAILING SURFACE WINDS FROM THE SSW

Storm No. 7 Synoptic Type PRE-FRONTAL (COLD)

Started: 3/12 0300 1978 (EST)

Ended: 3/12 1000 1978 (EST)

Map during middle of storm: 3/12 0700 EST

Map during end of storm: 3/12 1000 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 7 Synoptic Type PRE-FRONTAL (COLD)
 Started: 3/12 0300 1978 (EST)
 Ended: 3/12 1000 1978 (EST)

850 MB

700 MB

500 MB

Time: 3/12 0700 EST

Remarks: Upper-air winds from the WSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 3/14 0400 EST

Remarks: MOST OF PRECIPITATION OCCURRED ~ 3/14 0500-0600 EST.
DISAGREED WITH NWS ANALYSIS OF FRONT. PREVAILING SURFACE
WINDS FROM THE S

Storm No. 8 Synoptic Type SQUALL LINE
Started: 3/14 0400 1978 (EST)
Ended: 3/14 0600 1978 (EST)

Map during middle of storm: 3/14 0700 EST

Map during end of storm: 3/14 1000 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4807 ETD

Storm No. 8 Synoptic Type SQUALL LINE
 Started: 3/14 0400 1978 (EST)
 Ended: 3/14 0800 1978 (EST)

850 MB

700 MB

500 MB

Time: 3/14 0700 EST

Remarks: Upper-air winds from the WSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 3/21 1600 EST

Remarks: MOST OF PRECIPITATION OCCURRED ~1630-1700 EST.

DISAGREED WITH NWS ANALYSIS OF FRONT. PREVAILING SURFACE

WINDS FROM THE SW

Storm No.	9	Synoptic Type	SQUALL LINE
Started:	3/21 1600		1978 (EST)
Ended:	3/21 2200		1978 (EST)

Map during middle of storm: 3/21 1900 EST

Map during end of storm: 3/21 2200 EST

Storm No.	9	Synoptic Type	SQUALL LINE
Started:	3/21 1600		1978 (EST)
Ended:	3/21 2200		1978 (EST)

850 MB

700 MB

500 MB

Time: 3/21 1900 EST

Remarks Upper-air winds from the W

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 10

3/25/78

MAX. PRECIP. - 0.44 IN. AT ST. 31
 MIN. PRECIP. - 0.00 IN. AT ST. 48
 AVG. PRECIP. - 0.14 IN.
 * STATIONS OPERATING - 42
 AVG. OF STA. WITH PRECIP. - 0.17 IN.
 * STATIONS WITH PRECIP - 35

STORM BEGAN DAY 25 AT 1500
 STORM ENDED DAY 25 AT 2100
 STORM DURATION 6.0 HRS.

STORM TYPE - OCCLUDED FRONT
 PREVAILING SURFACE WIND - S
 UPPER AIR WIND DIRECTION - SW
 PLANT BOWEN POWER OUTPUT - 1511 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 3/25 1600 EST

Remarks: DISAGREED W TH NWS ANALYSIS OF FRON'S.

MOST OF PRECIPITATION OCCURRED ~ 1800-1830 EST

PREVAILING SURFACE WINDS FROM THE S

Storm No. 10 Synoptic Type OCCLUDED FRONT
 Started: 3/25 1500 1978 (EST)
 Ended: 3/25 2000 1978 (EST)

Map during middle of storm: EST

Map during end of storm: 3/25 1900 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 10 Synoptic Type OCCLUDED FRONT

Started: 3/25 1500 1978 (EST)

Ended: 3/25 2000 1978 (EST)

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 11 Synoptic Type OCCLUDED FRONT
 Started: 3/25 2300 1978 (EST)
 Ended: 3/26 0100 1978 (EST)

Map closest to starting time of storm: 3/25 2200 EST

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONTS.

PREVAILING SURFACE WINDS FROM THE NW

Map during middle of storm: EST

Map during end of storm: 3/26 0100 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 11 Synoptic Type OCCLUDED FRONT
 Started: 3/25 2300 1978 (EST)
 Ended: 3/25 0100 1978 (EST)

850 MB

MISSING

700 MB

500 MB

Time: 3/26 0700 EST

Remarks: Upper-air winds from the SW
UPPER-AIR WINDS CALCULATED FROM AVERAGE OF 850 MB AND
500 MB MAPS AT 3/25 1900 EST AND 3/26 0700 EST FOR STORM NC. 11.

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 12

4/11/78

MAX. PRECIP. - 0.73 IN. AT ST. 49
 MIN. PRECIP. - 0.44 IN. AT ST. 46
 AVG. PRECIP. - 0.55 IN.
 * STATIONS OPERATING - 43
 AVG. OF STA. WITH PRECIP. - 0.55 IN.
 * STATIONS WITH PRECIP - 43

STORM BEGAN DAY 11 AT 200
 STORM ENDED DAY 11 AT 2300
 STORM DURATION 21.0 HRS.

STORM TYPE - COLD FRONT
 PREVAILING SURFACE WIND - S
 UPPER AIR WIND DIRECTION - WSW
 PLANT BOWEN POWER OUTPUT - 1589 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4808 ETD

Map closest to starting time of storm: 4/11 0400 EST

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT.

PREVAILING SURFACE WINDS FROM THE S

Storm No. 12 Synoptic Type COLD FRONT
 Started: 4/11 0300 1978 (EST)
 Ended: 4/11 1900 1978 (EST)

Map during middle of storm: 4/11 1000 EST

Map during end of storm: 4/11 1900 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 12 Synoptic Type COLD FRONT
 Started: 4/11 0300 1978 (EST)
 Ended: 4/11 1900 1978 (EST)

850 MB

700 MB

500 MB

Time: 4/11 0700 EST

Remarks: Upper-air winds from the WSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 13

4/12/78

MAX. PRECIP. - 0.41 IN. AT ST. 41
 MIN. PRECIP. - 0.19 IN. AT ST. 7
 AVG. PRECIP. - 0.30 IN.
 * STATIONS OPERATING - 43
 AVG. CF STA. WITH PRECIP. - 0.30 IN.
 * STATIONS WITH PRECIP - 43

STORM BEGAN DAY 12 AT 1700
 STORM ENDED DAY 13 AT 1000
 STORM DURATION 17.0 HRS.

STORM TYPE - POST-FRONTAL (STAT)
 PREVAILING SURFACE WIND - S
 UPPER AIR WIND DIRECTION - WSW
 PLANT BOWEN POWER OUTPUT - 1300 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4810 ETD

POST-FRONTAL
(STATIONARY)

Storm No. 13 Synoptic Type POST-FRONTAL (STATIONARY)
 Started: 4/12 1700 1978 (EST)
 Ended: 4/13 1000 1978 (EST)

Map closest to starting time of storm: 4/12 1900 EST

Remarks: COLD FRONT HAS ALMOST DISSIPATED BY 4/13 1000 EST.

PREVAILING SURFACE WINDS FROM THE S.

Map during middle of storm: 4/13 0100 EST

Map during end of storm: 4/13 1000 EST

Storm No.	13	Synoptic Type	POST-FRONTAL (STATIONARY)
Started:	4/12	1700	1978 (EST)
Ended:	4/13	1000	1978 (EST)

850 MB

700 MB

500 MB

Time: 4/12 1900 EST

Remarks: Upper-air winds from the WSW

(INCLUDES INSPECTION OF MAPS AT 4/13 0700 EST)

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 14

4/18/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4812 ETD

Map closest to starting time of storm: 4/18 0700 EST

Remarks: SEVERAL SQUALL LINES PASSED THROUGH THE NETWORK IN RAPID SUCCESSION. DISAGREED WITH NWS ANALYSIS OF FRONT.
PREVAILING SURFACE WINDS FROM THE SE

Storm No. 14 Synoptic Type SQUALL LINE
Started: 4/18 0500 1978 (EST)
Ended: 4/18 0300 1978 (EST)

Map during middle of storm: 4/18 1600 EST

Map during end of storm: 4/19 0100 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4813 ETD

Storm No. 14 Synoptic Type SQUALL LINE
 Started: 4/18 0500 1978 (EST)
 Ended: 4/19 0300 1978 (EST)

850 MB

700 MB

500 MB

Time: 4/18 1900 EST

Remarks: Upper-air winds from the WSW
(INCLUDES INSPECTION OF MAPS AT 4/18 0700 EST)

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 78-4814 ETD

Map closest to starting time of storm: 4/24 1600 EST

Remarks: MOST OF PRECIPITATION OCCURRED BETWEEN 4/24 2200-4/25 0000.

DISAGREED WITH NWS ANALYSIS OF FRONT.

PREVAILING SURFACE WINDS FROM THE SW

Storm No. 15 Synoptic Type SQUALL LINE
 Started: 4/24 1500 1978 (EST)
 Ended: 4/25 0400 1978 (EST)

Map during middle of storm: 4/24 2200 EST

Map during end of storm: 4/25 0400 EST

850 MB

700 MB

500 MB

Time: 4/24 1900 EST

Remarks: Upper-air winds from the WSW

4

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4818 ETD

LOW PRESSURE

CENTER

Storm No. 16 Synoptic Type _____
 Started: 4/25 0730 1978 (EST)
 Ended: 4/25 1900 1978 (EST)

Map closest to starting time of storm: 4/25 0700 EST

Remarks: PREVAILING SURFACE WINDS FROM THE S

Map during middle of storm: 4/25 1300 EST

Map during end of storm: 4/25 1900 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4817 ETD

Storm No. 16 Synoptic Type LOW PRESSURE CENTER
 Started: 4/25 0730 1978 (EST)
 Ended: 4/25 1900 1978 (EST)

850 MB

700 MB

500 MB

Time: 4/25 0700 EST

Remarks: Upper-air winds from the WSW

(INCLUDES INSPECTION OF MAPS AT 4/25 1900 EST)

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4848 ETD

Map closest to starting time of storm: 4/26 0100 EST

Remarks: PREVAILING SURFACE WINDS FROM THE NW

Storm No. 17 Synoptic Type COLD AIR MASS
 Started: 4/26 0200 1978 (EST)
 Ended: 4/26 1000 1978 (EST)

Map during middle of storm: 4/26 0400 EST

Map during end of storm: 4/26 0700 EST

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 17 Synoptic Type COLD AIR MASS
 Started: 4/26 0200 1978 (EST)
 Ended: 4/26 1000 1978 (EST)

850 MB

700 MB

500 MB

Time: 4/26 0700 EST

Remarks: Upper-air winds from the NWW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4820 ETD

Map closest to starting time of storm: 4/26 1300 EST

Remarks: CENTER OF LOW PRESSURE SYSTEM IS POSITIONED IN EASTERN
NORTH CAROLINA AT 4/26 1300 EST.
PREVAILING SURFACE WINDS FROM THE NNW

Storm No. 18 Synoptic Type COLD AIR MASS
 Started: 4/26 1400 1978 (EST)
 Ended: 4/26 2030 1978 (EST)

Map during middle of storm: 4/26 1600 EST

Map during end of storm: 4/26 1900 EST

ORNL-DWG 79-4821 ETD

500 MB

Remarks: Upper-air winds from the NNE

500 MB MAP IS MISSING

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 19

4/30/78

MAX. PRECIP. - 1.27 IN. AT ST. 44
 MIN. PRECIP. - 0.51 IN. AT ST. 16
 AVG. PRECIP. - 0.91 IN.
 * STATIONS OPERATING - 45
 AVG. OF STA. WITH PRECIP. - 0.91 IN.
 * STATIONS WITH PRECIP - 45

STORM BEGAN DAY 30 AT 1330
 STORM ENDED DAY 1 AT 1500
 STORM DURATION 25.5 HRS.

STORM TYPE - STATIONARY FRONT
 PREVAILING SURFACE WIND - SW
 UPPER AIR WIND DIRECTION - W
 PLANT BOWEN POWER OUTPUT - 1277 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4822 ETD

Map closest to starting time of storm: 4/30 1400 EDT

Remarks: DISAGREED WITH NWS ANALYSIS; COLD FRONT IS WEAK

PREVAILING SURFACE WINDS FROM THE SW

Storm No. 19 Synoptic Type STATIONARY FRONT
 Started: 4/30 1330 1978 (EDT)
 Ended: 5/1 1500 1978 (EDT)

Map during middle of storm: 5/1 0200 EDT

Map during end of storm: 5/1 1400 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STOFMS

Storm No. 19 Synoptic Type STATIONARY FRONT

Started: 4/30 1330 1978 (EDT)

Ended: E/1 1500 1978 (EDT)

850 MB

700 MB

500 MB

Time: 4/30 2000 EDT

Remarks: Upper-air winds from the W

(INCLUDES INSPECTION OF MAPS AT 5/1 0800 EDT)

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4824 ETD

Map closest to starting time of storm: 5/3 1100 EDT

Remarks: STATIONARY FRONT IS ~300 MILES TO THE SOUTH; THE UPPER-LEVEL
TROUGH WAS PROBABLY THE MAJOR CAUSE OF THE PRECIPITATION.

PREVAILING SURFACE WINDS FROM THE E

Storm No. 20 Synoptic Type COLD AIR MASS
Started: 5/3 1200 1978 (EDT)
Ended: 5/3 2000 1978 (EDT)

Map during middle of storm: 5/3 1700 EDT

Map during end of storm: 5/3 2000 EDT

ORNL-DWG 79-4825 ETD

Storm No. 20 Synoptic Type COLD AIR MASS
 Started: 5/3 1200 1978 (EDT)
 Ended: 5/3 2000 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/3 2000 EDT

Remarks: Upper-air winds from the SSW

500 MB MAP IS MISSING

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 21

5/4/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4826 ETD
LOW PRESSURE
CENTER

Map closest to starting time of storm: 5/3 2300 EDT

Remarks: MOST OF PRECIPITATION OCCURRED BETWEEN 5/4 0500-0800 EDT.

DISAGREED WITH NWS ANALYSIS.

PREVAILING SURFACE WINDS FROM THE ESE

Storm No. 21 Synoptic Type CENTER
Started: 5/4 0000 1978 (EDT)
Ended: 5/4 1800 1978 (EDT)

Map during middle of storm: 5/4 0800 EDT

Map during end of storm: 5/4 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4827 ETD

Storm No. 21 Synoptic Type LOW PRESSURE CENTER
 Started: 5/4 0000 1978 (EDT)
 Ended: 5/4 1800 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/4 0800 EDT

Remarks: Upper-air winds from the SW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 22

5/7/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4828 ETD

Map closest to starting time of storm: 5/7 0800 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT. A SECONDARY STATIONARY
FRONT FORMED IN CENTRAL GEORGIA ~ 5/7 1400 EDT.
PREVAILING SURFACE WINDS FROM THE ENE.

Storm No. 22 Synoptic Type STATIONARY FRONT
 Started: 5/7 0900 1978 (EDT)
 Ended: 5/7 1800 1978 (EDT)

Map during middle of storm: 5/7 1400 EDT

Map during end of storm: 5/7 1700 EDT

Ended: 5/7 1800 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/7 0800 EDT

Remarks: Upper-air winds from the SW

[illegible]

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 23

5/8/78

MAX. PRECIP. - 3.07 IN. AT ST. 30
 MIN. PRECIP. - 0.63 IN. AT ST. 49
 AVG. PRECIP. - 1.62 IN.
 * STATIONS OPERATING - 46
 AVG. OF STA. WITH PRECIP. - 1.62 IN.
 * STATIONS WITH PRECIP - 46

STORM BEGAN DAY 8 AT 1200
 STORM ENDED DAY 8 AT 2200
 STORM DURATION 10.0 HRS.

STORM TYPE - SQUALL LINE
 PREVAILING SURFACE WIND - S
 UPPER AIR WIND DIRECTION - WSW
 PLANT BOWEN POWER OUTPUT - 2240 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4830 ETD

Storm No. 23 Synoptic Type SQUALL LINE
 Started: 5/8 1200 1978 (EDT)
 Ended: 5/8 2100 1978 (EDT)

Map during middle of storm: 5/8 1700 EDT

Map during end of storm: 5/8 2000 EDT

Map closest to starting time of storm: E/8 1100 EDT

Remarks: HEAVIEST PRECIPITATION OCCURRED ~ 5/8 1700-1900 EDT.

DISAGREED WITH NWS ANALYSIS OF FRONTS.

PREVAILING SURFACE WINDS FROM THE S

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4831 ETD

Storm No. 23 Synoptic Type SQUALL LINE
 Started: 5/8 1200 1978 (EDT)
 Ended: 5/8 2100 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/8 2000 EDT

Remarks: Upper-air winds from the WSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 24

5/12/78

MAX. PRECIP. - 0.06 IN. AT ST. 48
 MIN. PRECIP. - 0.01 IN. AT ST. 4
 AVG. PRECIP. - 0.04 IN.
 * STATIONS OPERATING - 46
 AVG. OF STA. WITH PRECIP. - 0.04 IN.
 * STATIONS WITH PRECIP - 46

STORM BEGAN DAY 12 AT 800
 STORM ENDED DAY 12 AT 1000
 STORM DURATION 2.0 HRS.

STORM TYPE - AIR MASS
 PRIOR SURFACE WIND - SE
 SURFACE WIND DIRECTION - SE
 UPPER AIR WIND DIRECTION - WSW
 PLANT BOWEN POWER OUTPUT - 2221 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4832 ETD

Map closest to starting time of storm: 5/12 0800 EDT

Remarks: _____

Storm No.	24	Synoptic Type	AIR MASS
Started:	5/12	0800	1978 (EDT)
Ended:	5/12	1000	1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 5/12 1100 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4833 ETD

Storm No. 24 Synoptic Type AIR MASS
 Started: 5/12 0800 1978 (EDT)
 Ended: 5/12 1000 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/12 0800 EDT

Remarks: Upper-air winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4834 ETD

Storm No. 24 Synoptic Type AIR MASS
 Started: 5/12 0800 1978 (EDT)
 Ended: 5/12 1000 1978 (EDT)

Remarks: Surface winds from the SE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4835 ETD

Storm No. 24 Synoptic Type AIR MASS

Started: 5/12 0800 1978 (EDT)

Ended: 5/12 1000 1978 (EDT)

Remarks: Surface winds from the SE

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4836 ETD

Map closest to starting time of storm: 5/12 1700 EDT

Remarks: _____

Storm No. 25 Synoptic Type AIR MASS
 Started: 5/12 1700 1978 (EDT)
 Ended: 5/12 1900 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 5/12 2000 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4837 ETD

Storm No. 2E Synoptic Type AIR MASS
 Started: 5/12 1700 1978 (EDT)
 Ended: 5/12 1900 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/12 2000 EDT

Remarks: Upper-air winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4838 ETD
 Storm No. 25 Synoptic Type AIR MASS
 Started: 5/12 1700 1978 (EDT)
 Ended: 5/12 1900 1978 (EDT)

Remarks: Surface winds from the S

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4839 ETD
 Storm No. 25 Synoptic Type AIR MASS
 Started: 5/12 1700 1978 (EDT)
 Ended: 5/12 1900 1978 (EDT)

Remarks: Surface winds from the S

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 26

5/13/78

MAX. PRECIP. - 0.58 IN. AT ST. 15
 MIN. PRECIP. - 0.17 IN. AT ST. 37
 AVG. PRECIP. - 0.34 IN.
 * STATIONS OPERATING - 46
 AVG. OF STA. WITH PRECIP. - 0.34 IN.
 * STATIONS WITH PRECIP - 46

STORM BEGAN DAY 13 AT 0
 STORM ENDED DAY 13 AT 800
 STORM DURATION 8.0 HRS.

STORM TYPE - SQUALL LINE
 PRIOR SURFACE WIND - SSE
 SURFACE WIND DIRECTION - SSW
 UPPER AIR WIND DIRECTION - WSW
 PLANT BOWEN POWER OUTPUT - 1685 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5226 ETD

Map closest to starting time of storm: 5/12 2300 EDT
 Remarks: MOST OF PRECIPITATION OCCURRED BETWEEN 5/13 0200-0400 EDT.

DISAGREED WITH NWS ANALYSIS

Storm No. 26 Synoptic Type SQUALL LINE
 Started: 5/13 0000 1978 (EDT)
 Ended: 5/13 0700 1978 (EDT)

Map during middle of storm: 5/13 0200 EDT

Map during end of storm: 5/13 0500 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5227 ETD

Storm No. 26 Synoptic Type SQUALL LINE
 Started: 5/13 0000 1978 (EDT)
 Ended: 5/13 0700 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/13 0800 EDT

Remarks: Upper-air winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5228 ETD

Storm No. 26 Synoptic Type SQUALL LINE

Started: 5/13 0000 1978 (EDT)

Ended: 5/13 0700 1978 (EDT)

Remarks: Surface winds from the SSE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5229 (PART A) ETD

Storm No. 26 Synoptic Type SQUALL LINE

Started: 5/13 0000 1978 (EDT)

Ended: 5/13 0700 1978 (EDT)

Remarks: Surface winds from the SSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5229 (PART B) ETD

Storm No. 26 Synoptic Type SQUALL LINE

Started: 5/13 0000 1978 (EDT)

Ended: 5/13 0700 1978 (EDT)

Remarks: Surface winds from the SSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STCRMS

ORNL-DWG 79-5230 ETD

Map closest to starting time of storm: 5/15 0500 EDT

Remarks: PRECIPITATION RESULTED PRIMARILY FROM THE CLOSED

UPPER-AIR LOW.

Storm No. 27 Synoptic Type COLD AIR MASS
 Started: 5/15 0430 1978 (EDT)
 Ended: 5/15 0700 1978 (EDT)

Map during middle of storm: EDT

Map during end of storm: 5/15 0800 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5231 ETD

Storm No. 27 Synoptic Type COLD AIR MASS
 Started: 5/15 0430 1978 (EDT)
 Ended: 5/15 0700 1978 (EDT)

850 MB

700 MB

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5232 ETD

Storm No. 27 Synoptic Type COLD AIR MASS

Started: 5/15 0430 1978 (EDT)

Ended: 5/15 0700 1978 (EDT)

Remarks: Surface winds from the SW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5233 ETD

Storm No. 27 Synoptic Type COLD AIR MASS

Started: 5/15 0430 1978 (EDT)

Ended: 5/15 0700 1978 (EDT)

Remarks: Surface winds from the WSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 78-5234 ETD

Map closest to starting time of storm: 5/18 0200 EDT

Remarks: _____

Storm No. 28 Synoptic Type STATIONARY FRONT
 Started: 5/18 0330 1978 (EDT)
 Ended: 5/18 1100 1978 (EDT)

Map during middle of storm: 5/18 0500 EDT

Map during end of storm: 5/18 1100 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5235 ETD

Storm No. 2E Synoptic Type STATIONARY FRONT

Started: 5/18 0330 1978 (EDT)

Ended: 5/18 1100 1978 (EDT)

850 MB

700 MB

500 MB MAP IS MISSING

500 MB

Time: 5/18 0800 EDT

Remarks: Upper-air winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5236 ETD
 Storm No. 28 Synoptic Type STATIONARY FRONT
 Started: 5/18 0330 1978 (EDT)
 Ended: 5/18 1100 1978 (EDT)

Remarks: Surface winds from the NE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5237 (PART A) ETD
STATIONARY
FRONT
Storm No. 28 Synoptic Type
Started 5/18 0330 1978 (EDT)
Ended: 5/18 1100 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5237 (PART B) ETD
STATIONARY

Storm No. 28 Synoptic Type FRONT

Started: 5/18 0330 1978 (EDT)

Ended: 5/18 1100 1978 (EDT)

Remarks: Surface winds from the ESE

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 29

5/20/78

ORNL-DWG 79-5238 ETD

SQUALL LINE IN ALABAMA HAS DISSIPATED BY 5/20 2000 EDT.

Storm No. 29 Synoptic Type AIR MASS
 Started: 5/20 1800 1978 (EDT)
 Ended: 5/20 1900 1978 (EDT)

Map during middle of storm: EDT

Map during end of storm: 5/20 2000 EDT

ORNL-DWG 79-5239 ETD

Started: 5/20 1800 1978 (EDT)

Ended: 5/20 1900 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/20 2000 EDT

Remarks: Upper-air winds from the NW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5240 ETD

Storm No. 29 Synoptic Type AIR MASS

Started: 5/20 1800 1978 (EDT)

Ended: 5/20 1900 1978 (EDT)

Remarks: Surface winds from the W

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5241 ETD

Storm No. 29 Synoptic Type AIR MASS

Started: 5/20 1800 1978 (EDT)

Ended: 5/20 1900 1978 (EDT)

5/20 1800
Bowen
#1
5/20 1900

5/20 1800
Site
#11
5/20 1900

5/20 1800
Site #41
5/20 1900

Remarks: Surface winds from the WNW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 5/23 1400 EDT

Remarks: DISAGREED WITH NWS ANALYSIS CF FRONT

Storm No. 30 Synoptic Type WARM FRONT
 Started: 5/23 150C 1978 (EDT)
 Ended: 5/23 190C 1978 (EDT)

Map during middle of storm: 5/23 1700 EDT

Map during end of storm: 5/23 2000 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 30 Synoptic Type WARM FRONT
 Started: 5/23 1500 1978 (EDT)
 Ended: 5/23 1900 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/23 2000 EDT

Remarks: Upper-air winds from the W

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4443 ETD

Storm No. 30 Synoptic Type WARM FRONT
 Started: 5/23 1500 1978 (EDT)
 Ended: 5/23 1900 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4442 ETD

Storm No. 30 Synoptic Type WARM FRONT
 Started: 5/23 1500 1978 (EDT)
 Ended: 5/23 1900 1978 (EDT)

Remarks: Surface winds from the WSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 31

5/27/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4444 ETD

Map closest to starting time of storm: 5/27 0200 EDT

Remarks: _____

Storm No. 31 Synoptic Type AIR MASS
 Started: 5/27 0230 1978 (EDT)
 Ended: 5/27 0500 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 5/27 0500 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No.	<u>31</u>	Synoptic Type	<u>AIR MASS</u>
Started:	<u>5/27 0230</u>		<u>1978 (EDT)</u>
Ended:	<u>5/27 0500</u>		<u>1978 (EDT)</u>

850 MB

700 MB

500 MB

Time: 5/27 0800 EDT

Remarks: Upper-air winds from the ENE

(850 MB IS FROM THE SSE, 700 MB AND 500 MB ARE
FROM THE NNE)

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4447 ETD

Storm No. 31 Synoptic Type AIR MASS
 Started: 5/27 0230 1978 (EDT)
 Ended: 5/27 0500 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4446 ETD

Storm No. 31 Synoptic Type AIR MASS
 Startec: 5/27 0230 1978 (EDT)
 Ended: 5/27 0500 1978 (EDT)

Remarks: Surface winds from the ESE

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 32

5/28/78

MAX. PRECIP. - 0.29 IN. AT ST. 1
 MIN. PRECIP. - 0.00 IN. AT ST. 49
 AVG. PRECIP. - 0.01 IN.
 * STATIONS OPERATING - 46
 AVG. OF STA. WITH PRECIP. - 0.16 IN.
 * STATIONS WITH PRECIP - 3

STORM BEGAN DAY 28 AT 600
 STORM ENDED DAY 28 AT 900
 STORM DURATION 3.0 HRS.

STORM TYPE - AIR MASS
 PRIOR SURFACE WIND - E
 SURFACE WIND DIRECTION - NE
 UPPER AIR WIND DIRECTION - WNW
 PLANT BOWEN POWER OUTPUT - 2107 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 5/28 0200 EDT

Remarks: THE MAP OF 5/28 0500 EDT IS MISSING

Storm No.	32	Synoptic Type	AIR MASS
Started:	5/28 0600		1978 (EDT)
Ended:	5/28 0300		1978 (EDT)

Map during middle of storm: EDT

Map during end of storm: 5/28 0800 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 32 Synoptic Type AIR MASS
 Started: 5/28 0600 1978 (EDT)
 Ended: 5/28 0800 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/28 0800 EDT

Remarks: Upper-air winds from the WNW

(850 MB IS FROM THE SW, 700 MB AND 500 MB

ARE FROM THE NNW)

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4451 ETD

Storm No. 32 Synoptic Type AIR MASS
 Started: 5/28 0600 1978 (EDT)
 Ended: 5/28 0800 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4450 ETD

Storm No. 32 Synoptic Type AIR MASS

Started: 5/28 0600 1978 (EDT)

Ended: 5/28 0800 1978 (EDT)

Remarks: Surface winds from the NE

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 33

5/28/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4452 ETD

Storm No. 33 Synoptic Type SQUALL LINE
 Started: 5/28 1500 1978 (EDT)
 Ended: 5/28 1830 1978 (EDT)

Map closest to starting time of storm: 5/23 1400 EDT

Remarks: EXAMINATION OF THE MAP FOR 5/28 2000 EDT REVEALED 1.30 in.
OF RAIN AT THE ATLANTA WSFO DURING THE PREVIOUS 3 HOURS, GIVING
FURTHER SUPPORT TO THE SYNOPTIC TYPE BEING A SQUALL LINE

Map during middle of storm: _____ EDT

Map during end of storm: 5/28 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 33 Synoptic Type SQUALL LINE
 Started: 5/28 1500 1978 (EDT)
 Ended: 5/28 1830 1978 (EDT)

850 MB

700 MB

500 MB

Time: 5/28 2000 EDT

Remarks: Upper-air winds from the NW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4455 ETD

Storm No. 33 Synoptic Type SQUALL LINE
 Started: 5/28 1500 1978 (EDT)
 Ended: 5/28 1830 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4454 ETD

Storm No. 33 Synoptic Type SQUALL LINE

Started: 5/28 1500 1978 (EDT)

Ended: 5/28 1830 1978 (EDT)

Remarks: Surface winds from the ESE

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 34

5/28/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4456 ETD

Map closest to starting time of storm: 5/28 2000 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF SQUALL LINES

SQUALL LINES HAVE ALMOST DISSIPATED BY 5/28 2300 EDT

Storm No. 34 Synoptic Type SQUALL LINE
 Started: 5/28 2100 1978 (EDT)
 Ended: 5/29 0200 1978 (EDT)

Map during middle of storm: 5/28 2300 EDT

Map during end of storm: 5/29 0200 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4457 ETD

Storm No. 34 Synoptic Type SQUALL LINE
 Started: 5/28 2100 1978 (EDT)
 Ended: 5/29 0200 1978 (EDT)

MAPS ARE WITH THE

STORM OF 5/28/78

1500-1830 EDT

850 MB

700 MB

500 MB

Time: 5/28 2000 EDT

Remarks: Upper-air winds from the NW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4459 ETD

Storm No. 34 Synoptic Type SQUALL LINE

Started: 5/28 2100 1978 (EDT)

Ended: 5/29 0200 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4458 ETD

Storm No. 34 Synoptic Type SQUALL LINE

Started: 5/28 2100 1978 (EDT)

Ended: 5/29 0200 1978 (EDT)

Remarks: Surface winds from the SE

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 6/2 1100 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT.

FRONT HAS ALMOST STALLED OUT BY 6/2 1700

Storm No. 35 Synoptic Type PRE-FRONTAL (COLD)

Started: 6/2 1200 1978 (EDT)

Ended: 6/2 1600 1978 (EDT)

Map during middle of storm: 6/2 1400 EDT

Map during end of storm: 6/2 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 35 Synoptic Type PRE-FRONTAL (COLD)
 Started: 6/2 1200 1978 (EDT)
 Ended: 6/2 1600 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/2 0300 EDT

Remarks: Upper-air winds from the SW

(INCLUDES INSPECTION OF MAPS AT 6/2 2000 EDT)

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4483 ETD
 Storm No. 35 Synoptic Type PRE-FRONTAL
 Started: 6/2 1200 1978 (EDT) (COLD)
 Ended: 6/2 1600 1978 (EDT)

Remarks: Surface winds from the S

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4462 ETD

(COLD)

Storm No. 35 Synoptic Type PRE-FRONTAL

Started: 6/2 1200 1978 (EDT)

Ended: 6/2 1600 1978 (EDT)

Remarks: Surface winds from the NE

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 6/2 2000 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT

Storm No. 36 Synoptic Type COLD FRONT
 Started: 6/2 1900 1978 (EDT)
 Ended: 6/3 C300 1978 (EDT)

Map during middle of storm: 6/2 2300 EDT

Map during end of storm: 6/3 0200 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 36 Synoptic Type COLD FRONT
 Started: 6/2 1900 1978 (EDT)
 Ended: 6/3 0300 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/2 2000 EDT

Remarks: Upper-air winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4487 ETD

Storm No. 36 Synoptic Type COLD FRONT
 Started: 6/2 1900 1978 (EDT)
 Ended: 6/3 0300 1978 (EDT)

Remarks: Surface winds from the NE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 78-4468 (PART 3)

Storm No. 36 Synoptic Type COLD FRONT ETD

Started: 6/2 1900 1978 (EDT)

Ended: 6/3 0300 1978 (EDT)

Remarks: Surface winds from the SW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4466 (PART 8) ETD

Storm No. 35 Synoptic Type COLD FRONT
 Started: 6/2 1900 1978 (EDT)
 Ended: 6/3 0300 1978 (EDT)

Remarks: Surface winds from the SW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 6/3 1400 EDT

Remarks: _____

Storm No. 37 Synoptic Type COLD FRONT
 Started: 3/3 1300 1978 (EDT)
 Ended: 3/3 1830 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 6/3 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 37 Synoptic Type COLD FRONT
 Started: 6/3 1300 1978 (EDT)
 Ended: 6/3 1830 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/3 2000 EDT

Remarks: Upper-air winds from the WNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG. 79-4471 ETD

Storm No. 37 Synoptic Type COLD FRONT

Started: 6/3 1300 1978 (EDT)

Ended: 6/3 1830 1978 (EDT)

Remarks: Surface winds from the NW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4470 ETD

Storm No. 37 Synoptic Type COLD FRONT

Started: 6/3 1300 1978 (EDT)

Ended: 6/3 1830 1978 (EDT)

Remarks: Surface winds from the NNW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 38

6/6/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4472 ETD

Storm No. 38 Synoptic Type STATIONARY FRONT
 Started: 6/6 1300 1978 (EDT)
 Ended: 6/6 1430 1978 (EDT)

Map during middle of storm: _____ EDT

Map closest to starting time of storm: 6/6 1400 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT

Map during end of storm: _____ EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 38 Synoptic Type STATIONARY FRONT
 Started: E/E 1300 1978 (EDT)
 Ended: E/E 1430 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/6 0800 EDT

Remarks: Upper-air winds from the WSW

(INCLUDES INSPECTION OF MAPS AT 6/6 2000)

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4475 ETD

Storm No. 38 Synoptic Type STAT. FRONT

Started: 6/6 1300 1978 (EDT)

Ended: 6/6 1430 1978 (EDT)

Remarks: Surface winds from the NE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4474 ETD

Storm No. 38 Synoptic Type STAT. FRONT
 Started: 6/6 1300 1978 (EDT)
 Ended: 6/6 1430 1978 (EDT)

Remarks: Surface winds from the SSE

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 6/6 2000 EDT

Remarks: MOST OF PRECIPITATION OCCURRED 6/7 1600-2200 EDT.

STATIONARY FRONT IS WEAK: MOST DETECTABLE BY DEWPOINT
DIFFERENCES

Storm No. 39 Synoptic Type SQUALL ZONE

Startec: 6/6 2000 1978 (EDT)

Ended: 6/8 0100 1978 (EDT)

Map during middle of storm: 6/7 1700 EDT

Map during end of storm: 6/8 0200 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 39 Synoptic Type SQUALL ZONE
 Started: 6/6 2000 1978 (EDT)
 Ended: 6/8 0100 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/7 2000 EDT

Remarks: Upper-air winds from the WSW

(INCLUDES INSPECTION OF MAPS AT 6/6 2000 AND 6/7 0800)

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4479 ETD

Storm No. 39 Synoptic Type SQUALL ZONE
 Started: 6/6 2000 1978 (EDT)
 Ended: 6/8 0100 1978 (EDT)

6/6 1830
 Bowen
 #1
 6/6
 2000

6/6 1830
 Site
 #11
 6/6 2000

6/6 1830
 Site
 #41
 6/6 2000

Remarks: Surface winds from the SE

METER-CRNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4478 (PART A) ETD

Storm No. 39 Synoptic Type SQUALL ZONE

Started: 6/6 2000 1978 (EDT)

Ended: 6/8 0100 1978 (EDT)

Remarks: Surface winds from the NNW

METEF-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4478 (PART B) ETD

Storm No. 39 Synoptic Type SQUALL ZONE

Started: 6/6 2000 1978 (EDT)

Ended: 6/8 0100 1978 (EDT)

Remarks: Surface winds from the VNW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4478 (PART C) ETD

Storm No. 39 Synoptic Type SQUALL ZONE

Started: 6/6 2000 1978 (EDT)

Ended: 6/8 0100 1978 (EDT)

Remarks: Surface winds from the NNW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4478 (PART D) ETD

Storm No. 39 Synoptic Type SQUALL ZONE

Started: 6/6 2000 1978 (EDT)

Ended: 6/8 0100 1978 (EDT)

Remarks: Surface winds from the NNW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4478 (PART E) ETD

Storm No. 39 Synoptic Type SQUALL ZONE

Started: 6/6 2000 1978 (EDT)

Ended: 6/8 0100 1978 (EDT)

Remarks: Surface winds from the NNW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4478 (PART F) ETD

Storm No. 39 Synoptic Type SQUALL ZONE

Started: 3/6 2000 1978 (EDT)

Ended: 3/8 0100 1978 (EDT)

Remarks: Surface winds from the NNW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 6/8 0500 EDT

Remarks: WIDESPREAD AREA OF PRECIPITATION

Storm No. 40 Synoptic Type PRE-FRONTAL (COLD)
 Started: 6/8 0430 1978 (EDT)
 Ended: 6/8 2300 1978 (EDT)

Map during middle of storm: 6/8 1400 EDT

Map during end of storm: 6/8 2300 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 40 Synoptic Type PRE-FRONTAL (COLD)

Started: 6/8 0430 1978 (EDT)

Ended: 6/8 2300 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/8 0800 EDT

Remarks: Upper-air winds from the SW

WINDS SHIFTED SLIGHTLY TO WSW AT 6/8 2000 EDT

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4483 ETD
PRE-FRONTAL
(COLD)

Storm No. 40 Synoptic Type
Started: 6/8 0430 1978 (EDT)
Ended: 6/8 2300 1978 (EDT)

6/8 0300
Bower
#1
6/8 0430

6/8 0300
Site
#11
6/8 0430

6/8 0300
Site
#41
6/8 0430

Remarks: Surface winds from the SE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4482 (PART A) ETD

PRE-FRONTAL

Storm No. 40 Synoptic Type (COLD)

Started: 6/8 0430 1978 (EDT)

Ended: 6/8 2300 1978 (EDT)

Remarks: Surface winds from the SSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4482 (PART B) ETD
PRE-FRONTAL
Storm No. 40 Synoptic Type (COLD)
Started: 6/8 0430 1978 (EDT)
Ended: 6/8 2300 1978 (EDT)

Remarks: Surface winds from the SSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4482 (PART C) ETD
PRE-FRONTAL

Storm No. 40 Synoptic Type (COLD)

Started: 6/8 0430 1978 (EDT)

Ended: 6/8 2300 1978 (EDT)

Remarks: Surface winds from the SSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4482 (PART D) ETD

PRE-FRONTAL

Storm No. 40 Synoptic Type (COLD)

Started: 6/8 0430 1978 (EDT)

Ended: 6/8 2300 1978 (EDT)

Remarks: Surface winds from the SSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

ORNL-DWG 79-4484 ETD

Map closest to starting time of storm: 6/9 1100 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT

Map during middle of storm: 6/9 1400 EDT

Map during end of storm: 6/9 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 41 Synoptic Type COLD FRONT
 Started: 6/9 1230 1978 (EDT)
 Ended: 6/9 1700 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/9 2000 EDT

Remarks: Upper-air winds from the W

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4487 ETD

Storm: No. 41 Synoptic Type COLD FRONT

Started: 6/9 1230 1978 (EDT)

Ended: 6/9 1700 1978 (EDT)

Remarks: Surface winds from the NW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4486 ETD

Storm No. 41 Synoptic Type COLD FRONT

Started: 6/9 1230 1978 (EDT)

Ended: 6/9 1700 1978 (EDT)

Remarks: Surface winds from the NW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4488 ETD

Storm No. 42 Synoptic Type AIR MASS
 Started: 6/11 1600 1978 (EDT)
 Ended: 6/11 1900 1978 (EDT)

Map closest to starting time of storm: 6/11 1700 EDT

Remarks: STATIONARY FRONT HAS ALMOST DISSIPATED.

PRECIPITATION WITHIN NETWORK WAS LIMITED; ONLY SEVERAL
STATIONS RECEIVED PRECIPITATION

Map during middle of storm: _____ EDT

Map during end of storm: 6/11 2000 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 42 Synoptic Type AIR MASS
 Started: 6/11 1600 1978 (EDT)
 Ended: 6/11 1900 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/11 2000 EDT

Remarks: Upper-air winds from the WNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4491 ETD

Storm No. 42 Synoptic Type AIR MASS
 Started: 6/11 1600 1978 (EDT)
 Ended: 6/11 1900 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4490 ETD

Storm No. 42 Synoptic Type AIR MASS

Started: 6/11 1600 1978 (EDT)

Ended: 6/11 1900 1978 (EDT)

Remarks: Surface winds from the NW (ONLY BOWEN NO. 1 CONSIDERED SINCE NO PRECIPITATION AT OTHERS)

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 43

6/12/78

MAX. PRECIP. - 2.71 IN. AT ST. 45
 MIN. PRECIP. - 0.00 IN. AT ST. 48
 AVG. PRECIP. - 0.48 IN.
 * STATIONS OPERATING - 41
 AVG. OF STA. WITH PRECIP. - 0.53 IN.
 * STATIONS WITH PRECIP - 37

STORM BEGAN DAY 12 AT 900
 STORM ENDED DAY 12 AT 2000
 STORM DURATION 11.0 HRS.

STORM TYPE -- SQUALL LINE
 PRIOR SURFACE WIND - E
 SURFACE WIND DIRECTION - NW
 UPPER AIR WIND DIRECTION - NW
 PLANT BOWEN POWER OUTPUT - 2235 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4492 ETD

Map closest to starting time of storm: 6/12 0800 EDT

Remarks: MOST OF PRECIPITATION OCCURRED ~1400-1700 EDT

Storm No. 43 Synoptic Type SQUALL LINE
 Started: 3/12 0900 1978 (EDT)
 Ended: 3/12 1900 1978 (EDT)

Map during middle of storm: 6/12 1400 EDT

Map during end of storm: 6/12 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 43 Synoptic Type SQUALL LINE
 Started: 6/12 0900 1978 (EDT)
 Ended: 6/12 1900 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/12 2000 EDT

Remarks: Upper-air winds from the NW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4498 ETD
 Storm No. 43 Synoptic Type SQUALL LINE
 Started: 6/12 0900 1978 (EDT)
 Ended: 6/12 1900 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4497 (PART A) ETD

Storm No. 43 Synoptic Type SQUALL LINE
 Started: 6/12 0900 1978 (EDT)
 Ended: 6/12 1900 1978 (EDT)

Remarks: Surface winds from the NW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4497 (PART B) ETD

Storm No. 43 Synoptic Type SQUALL LINE

Started: 6/12 0900 1978 (EDT)

Ended: 6/12 1900 1978 (EDT)

Remarks: Surface winds from the NW

SYNOPTIC SJRFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 6/12 2000 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT

Storm No. 44 Synoptic Type COLD FRONT
 Started: 6/12 2100 1978 (EDT)
 Ended: 6/13 0230 1978 (EDT)

Map during middle of storm: 6/12 2300 EDT

Map during end of storm: 6/13 0200 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 44 Synoptic Type COLD FRONT
 Started: 6/12 2100 1978 (EDT)
 Ended: 6/13 0230 1978 (EDT)

MAPS ARE WITH THE

6/12 0900-1900 EDT

STORM

850 MB

700 MB

500 MB

Time: 6/12 2000 EDT

Remarks: Upper-air winds from the NW

METER-CRNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No. 44 Synoptic Type COLD FRONT
 Started: 6/12 2100 1978 (EDT)
 Ended: 6/13 0230 1978 (EDT)

Remarks: Surface winds from the SSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4501 ETD

Storm No. 44 Synoptic Type COLD FRONT
 Started: 6/12 2100 1978 (EDT)
 Ended: 6/13 0230 1978 (EDT)

Remarks: Surface winds from the N

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 45

5/13/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4503 ETD

Storm No. 45 Synoptic Type POST-FRONTAL (COLD)
 Started: 6/13 0745 1978 (EDT)
 Ended: 6/13 0900 1978 (EDT)

Map closest to starting time of storm: 6/13 0800 EDT

Remarks: PRECIPITATION OCCURRED AT STATIONS NO. 31 AND NO. 32 ONLY

Map during middle of storm: EDT

Map during end of storm: 6/13 1100 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 45 Synoptic Type POST-FRONTAL (COLD)

Started: 3/13 0745 1978 (EDT)

Ended: 5/13 0900 1978 (EDT)

850 MB:

700 MB

500 MB

Time: 6/13 0800 EDT

Remarks: Upper-air winds from the NW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG. 79-4508 ETB
POST-FRONTAL

Storm No. 45 Synoptic Type (COLD)
Started: 6/13 0745 1978 (EDT)
Ended: 6/13 0900 1978 (EDT)

Remarks: Surface winds from the NW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4505 ETD
POST-FRONTAL

Storm No. 45 Synoptic Type (COLD)
Started: 6/13 0745 1978 (EDT)
Ended: 6/13 0900 1978 (EDT)

6/13 0745
Bowen
• #1
6/13 0900

6/13 0745
Site
#11
6/13 0900

6/13 0745
Site
#41
6/13 0900

Remarks: Surface winds from the NNW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 46

6/20/78

MAX. PRECIP. - 0.51 IN. AT ST. 5
 MIN. PRECIP. - 0.00 IN. AT ST. 49
 AVG. PRECIP. - 0.15 IN.
 * STATIONS OPERATING - 42
 AVG. OF STA. WITH PRECIP. - 0.17 IN.
 * STATIONS WITH PRECIP - 37

STORM BEGAN DAY 20 AT 200
 STORM ENDED DAY 20 AT 1100
 STORM DURATION 9.0 HRS.

STORM TYPE - STATIONARY FRONT
 PRIOR SURFACE WIND - E
 SURFACE WIND DIRECTION - ENE
 UPPER AIR WIND DIRECTION - S
 PLANT BOWEN POWER OUTPUT - 2340 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4507 ETD

Map closest to starting time of storm: 6/20 0200 EDT

Remarks: DISAGREED SLIGHTLY WITH NWS ANALYSIS OF FRONT

Storm No. 46 Synoptic Type STATIONARY FRONT
 Started: 6/20 0200 1978 (EDT)
 Ended: 6/20 1000 1978 (EDT)

Map during middle of storm: 6/20 0500 EDT

Map during end of storm: 6/20 0800 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 46 Synoptic Type STATIONARY FRONT

Started: 6/20 0200 1978 (EDT)

Ended: 6/20 1000 1978 (EDT)

850 MB

MISSING

500 MB

700 MB

Time: 6/20 0800 EDT

Remarks: Upper-air winds from the S

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No. 46 Synoptic Type STAT. FRONT
 Started: 6/20 0200 1978 (EDT)
 Ended: 6/20 1000 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4509 (PART A) ETD

Storm No. 46 Synoptic Type STAT. FRONT
 Started: 6/20 0200 1978 (EDT)
 Ended: 6/20 1000 1978 (EDT)

Remarks: Surface winds from the ENE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4509 (PART B) ETD

Storm No. 46 Synoptic Type STAT. FRONT

Started: 6/20 0200 1978 (EDT)

Ended: 6/20 1000 1978 (EDT)

Remarks: Surface winds from the ENE

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 47

6/20/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4511 ETD

Map closest to starting time of storm: 6/20 1400 EDT

Remarks: SQUALL LINES HAVE ALMOST DISSIPATED BY 6/20 2000

THE SQUALL LINE PASSING THROUGH THE NETWORK WAS QUITE WEAK

Storm No. 47 Synoptic Type SQUALL LINE
 Started: 6/20 300 1978 (EDT)
 Ended: 6/20 2030 1978 (EDT)

Map during middle of storm: 6/20 1700 EDT

Map during end of storm: 6/20 2000 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No.	47	Synoptic Type	SQUALL LINE
Started:	6/20 1300		1978 (EDT)
Ended:	6/20 2030		1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/20 2000 EDT

Remarks: Upper-air winds from the W

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4514 ETD

Storm No. 47 Synoptic Type SQUALL LINE

Started: 6/20 1300 1978 (EDT)

Ended: 6/20 2030 1978 (EDT)

Remarks: Surface winds from the ENE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4513 (PART A) E

Storm No. 47 Synoptic Type SQUALL LINE

Started: 6/20 1300 1978 (EDT)

Ended: 6/20 2030 1978 (EDT)

Remarks: Surface winds from the N

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4513 (PART B) ETD

Storm No. 47 Synoptic Type SQUALL LINE

Started: 6/20 1300 1978 (EDT)

Ended: 6/20 2030 1978 (EDT)

Remarks Surface winds from the N

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 6/21 1400 EDT

Remarks: MOST OF PRECIPITATION OCCURRED ~1500-1600 EDT DURING DEVELOPING STAGE OF SQUALL LINE.

DISAGREED WITH NWS ANALYSIS OF FRONT

Storm No. 48 Synoptic Type SQUALL LINE
 Started: 6/21 1300 1978 (EDT)
 Ended: 6/21 1700 1978 (EDT)

Map during middle of storm: EDT

Map during end of storm: 6/21 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 48 Synoptic Type SQUALL LINE
 Started: 6/21 1300 1978 (EDT)
 Ended: 6/21 1700 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/21 2000 EDT

Remarks: Upper-air winds from the WNW

[illegible]

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No. 48 Synoptic Type SQUALL LINE
 Started: 6/21 1300 1978 (EDT)
 Ended: 6/21 1700 1978 (EDT)

Remarks: Surface winds from the W

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4517 ETD

Storm No. 48 Synoptic Type SQUALL LINE

Started: 6/21 1300 1978 (EDT)

Ended: 6/21 1700 1978 (EDT)

Remarks: Surface winds from the NW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 6/22 2000 EDT

Remarks: _____

Storm No. 49 Synoptic Type STATIONARY FRONT
 Started: 6/22 2000 1978 (EDT)
 Ended: 6/22 2100 1978 (EDT)

Map during middle of storm: EDT

Map during end of storm: 6/22 2300 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 49 Synoptic Type STATIONARY FRONT
 Started: 6'22 2000 1978 (EDT)
 Ended: 6'22 2100 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/22 2000 EDT

Remarks: Upper-air winds from the NW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4522 ETD
STATIONARY

Storm No. 49 Synoptic Type FRONT
Started: 6/22 2000 1978 (EDT)
Ended: 6/22 2100 1978 (EDT)

Remarks: Surface winds from the NW

ORNL-DWG 79-4521 ETD

METER-ORNL WINDSET DATA DURING STORMS

STATIONARY
Storm No. 49 Synoptic Type FRONT
Started: 6/22 2000 1978 (EDT)
Ended: 6/22 2100 1978 (EDT)

Remarks: Surface winds from the N

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 6/26 1400 EDT

Remarks: STATIONARY FRONT HAS ALMOST DISSIPATED

Storm No 50 Synoptic Type SQUALL ZONE
 Started: 6/26 1500 1978 (EDT)
 Ended: 6/26 2000 1978 (EDT)

Map during middle of storm: 6/26 1700 EDT

Map during end of storm: 6/26 2000 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 50 Synoptic Type SQUALL_ZONE
 Started: 6/26 1500 1978 (EDT)
 Ended: 6/26 2000 1978 (EDT)

850 MB

700 MB

500 MB

Time: 6/26 2000 EDT

Remarks: Upper-air winds from the NNW

THE INDIVIDUAL COMPONENTS, HOWEVER, WERE WSW AT 850 MB,

N AT 700 MB, AND NNE AT 500 MB

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4526 ETD

Storm No. 50 Synoptic Type SQUALL ZONE
 Startec: 6/26 1500 1978 (EDT)
 Ended: 6/26 2000 1978 (EDT)

Remarks: Surface winds from the WNW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4525 ETD

Storm No. 50 Synoptic Type SQUALL ZONE

Started: 6/26 1500 1978 (EDT)

Ended: 6/26 2000 1978 (EDT)

Remarks: Surface winds from the WNW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 51

7/2/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4527 ETD

Storm No. 51 Synoptic Type AIR MASS
 Started: 7/2 1430 1978 (EDT)
 Ended: 7/2 1630 1978 (EDT)

Map closest to starting time of storm: 7/2 1400 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF COLD FRONT

Map during middle of storm: _____ EDT

Map during end of storm: 7/2 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No.	<u>51</u>	Synoptic Type	<u>AIR MASS</u>
Started:	<u>7/2 1430</u>		<u>1978 (EDT)</u>
Ended:	<u>7/2 1630</u>		<u>1978 (EDT)</u>

850 MB

700 MB

500 MB

Time: 7/2 2000 EDT

Remarks: Upper-air winds from the WNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No. 51 Synoptic Type AIR MASS
 Started: 7/2 1430 1978 (EDT)
 Ended: 7/2 1630 1978 (EDT)

Remarks: Surface winds from the W

ORNL-DWG 79-4529 ETD

Started: 7/2 1430 1978 (EDT)

Ended: 7/2 1630 1978 (EDT)

Remarks: Surface winds from the NW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 7/3 0200 EDT

Remarks: VERY SMALL AMOUNTS AT ALL STATIONS WHICH HAD
PRECIPITATION. SQUALL LINE HAS ALMOST DISSIPATED BY 7/3 0800

Storm No. 52 Synoptic Type SQUALL LINE
 Started: 7/3 C230 1978 (EDT)
 Ended: 7/3 1015 1978 (EDT)

Map during middle of storm: 7/3 0800 EDT

Map during end of storm: 7/3 1100 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 52 Synoptic Type SQUALL LINE
 Started: 7/3 0230 1978 (EDT)
 Ended: 7/3 1015 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/3 0800 EDT

Remarks: Upper-air winds from the WNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4534 ETD

Storm No. 52 Synoptic Type SQUALL LIN

Started: 7/3 0230 1978 (EDT)

Ended: 7/3 1015 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4533 (PART A) ETD

Storm No. 52 Synoptic Type SQUALL LINE

Started: 7/3 0230 1978 (EDT)

Ended: 7/3 1015 1978 (EDT)

Remarks: Surface winds from the WNW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4533 (PART B) ETD

Storm No. 52 Synoptic Type SQUALL LINE

Started: 7/3 0230 1978 (EDT)

Ended: 7/3 1015 1978 (EDT)

Remarks: Surface winds from the WNW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 53

7/3/78

0230-1015 STORM.

Storm No. 53 Synoptic Type AIR MASS
 Started: 7/3 1315 1978 (EDT)
 Ended: 7/3 1500 1978 (EDT)

A hand-drawn map showing various locations marked with numbers and letters. The map includes labels such as "92 085", "65 012", "71 LQZ", "82 079", "85 101", "73 070", "85 090", "70 070", "85 074", "69 074", "71 096", "71 014", "78 110", "94 098", "70 098", "96 098", "97 093", "85 093", "85 093". A central location is marked with a square and labeled "71 096".

Map during end of storm: 7/3 1700 EDT

Storm No. 53 Synoptic Type AIR MASS
 Started: 7/3 1315 1978 (EDT)
 Ended: 7/3 1500 1978 (EDT)

0230-1015 EDT

500 MB

Time: 7/3 0800 EDT

Remarks: Upper-air winds from the WNW

261

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4538 ETD

Storm No. 53 Synoptic Type AIR MASS
 Started: 7/3 1315 1978 (EDT)
 Ended: 7/3 1500 1978 (EDT)

Remarks: Surface winds from the W

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4537 ETD

Storm No. 53 Synoptic Type AIR MASS
 Started: 7/3 1315 1978 (EDT)
 Ended: 7/3 1500 1978 (EDT)

Remarks: Surface winds from the WNW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 54

7/3/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4539 EDT

Map closest to starting time of storm: 7/3 2000 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT. THIS STORM
CONSISTED OF A MINUTE AMOUNT OF PRECIPITATION AT A SINGLE
STATION (# 40); HENCE, THE CLASSIFICATION OF AIR MASS.

Storm No.	54	Synoptic Type	AIR MASS
Started:	7/3 2000		1978 (EDT)
Ended:	7/3 2100		1978 (EDT)

Map during middle of storm: EDT

Map during end of storm: 7/3 2300 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 54 Synoptic Type AIR MASS
 Started: 7/3 2000 1978 (EDT)
 Ended: 7/3 2100 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/3 2000 EDT

Remarks: Upper-air winds from the WNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4542 ETD

Storm No. 54 Synoptic Type AIR MASS

Started: 7/3 2000 1978 (EDT)

Ended: 7/3 2100 1978 (EDT)

Remarks: Surface winds from the WNW

METER-ORNL WINDSET DATA DURING STOFMS

Storm No. 54 Synoptic Type AIR MASS
 Started: 7/3 2000 1978 (EDT)
 Ended: 7/3 2100 1978 (EDT)

Remarks: Surface winds from the NW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4543 ETD

Storm No. 55 Synoptic Type SQUALL LINE
 Started: 7/9 1900 1978 (EDT)
 Ended: 7/9 2230 1978 (EDT)

Map closest to starting time of storm: 7/9 2000 EDT
 Remarks: STATIONARY FRONT NORTH OF SQUALL LINE HAS ALMOST
COMPLETELY DISSIPATED

Map during middle of storm: _____ EDT

Map during end of storm: 7/9 2300 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 55 Synoptic Type SQUALL LINE
 Started: 7/9 1900 1978 (EDT)
 Ended: 7/9 2230 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/9 2000 EDT

Remarks: Upper-air winds from the NW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4548 ETD

Storm No. 55 Synoptic Type SQUALL LINE
 Started: 7/9 1900 1978 (EDT)
 Ended: 7/9 2230 1978 (EDT)

Remarks: Surface winds from the WNW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4545 ETD

Storm No. 55 Synoptic Type SQUALL LINE

Started: 7/9 1900 1978 (EDT)

Ended: 7/9 2230 1978 (EDT)

Remarks: Surface winds from the NE

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4547 ETD

Map closest to starting time of storm: 7/10 1700 EDT

Remarks: _____

Storm No. 56 Synoptic Type SQUALL LINE
 Started: 7/10 1715 1978 (EDT)
 Ended: 7/10 2045 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 7/10 2000 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 56 Synoptic Type SQUALL LINE
 Started: 7/10 1715 1978 (EDT)
 Ended: 7/10 2045 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/10 2000 EDT

Remarks: Upper-air winds from the NNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4550 ETD

Storm No. 56 Synoptic Type SQUALL LINE
 Started: 7/10 1715 1978 (EDT)
 Ended: 7/10 2045 1978 (EDT)

Remarks: Surface winds from the N

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4549 ETD

Storm No. 56 Synoptic Type SQUALL LINE

Started: 7/10 1715 1978 (EDT)

End: 7/10 2045 1978 (EDT)

Remarks: Surface winds from the ESE

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 7/11 1400 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT

Storm No. 57 Synoptic Type STATIONARY FRONT
 Started: 7/11 1345 1978 (EDT)
 Ended: 7/11 1545 1978 (EDT)

Map during middle of storm: EDT

Map during end of storm: 7/11 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 57 Synoptic Type STATIONARY FRONT

Started: 7/11 1345 1978 (EDT)

Ended: 7/11 1545 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/11 2000 EDT

Remarks: Upper-air winds from the NNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4554 ETO
STATIONARY

Storm No. 57 Synoptic Type FRONT
Started: 7/11 1345 1978 (EDT)
Ended: 7/11 1545 1978 (EDT)

Remarks: Surface winds from the NW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 78-4553 ETD

STATIONARY

Storm No. 57 Synoptic Type FRONT

Started: 7/11 1345 1978 (EDT)

Ended: 7/11 1545 1978 (EDT)

Remarks: Surface winds from the WNW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4555 ETD

Map closest to starting time of storm: 7/14 0500 EDT

Remarks: _____

Storm No. 58 Synoptic Type AIR MASS
 Started: 7/14 0630 1978 (EDT)
 Ended: 7/14 0900 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 7/14 0800 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4556 ETD

Storm No. 58 Synoptic Type AIR MASS
 Started: 7/14 0630 1978 (EDT)
 Ended: 7/14 0900 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7:14 0800 EDT

Remarks: Upper-air winds from the W
(S'W AT 850 MB, UNDETEFMINED AT 700 MB, AND NW AT 500 MB)

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4559 ETD

Storm No. 58 Synoptic Type AIR MASS
 Started: 7/14 0630 1978 (EDT)
 Ended: 7/14 0900 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4867 ETD

Storm No. 58 Synoptic Type AIR MASS
 Started: 7/14 0630 1978 (EDT)
 Ended: 7/14 0900 1978 (EDT)

7/14 0500
 Site
 #41
 7/14 0630

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4657 ETD

Storm No. 58 Synoptic Type AIR MASS
 Started: 7/14 0630 1978 (EDT)
 Ended: 7/14 0900 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4558 ETD

Storm No. 58 Synoptic Type AIR MASS
Started: 7/14 0630 1978 (EDT)
Ended 7/14 0900 1978 (EDT)

Remarks: Surface w nds frcm the E

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4560 ETD

Map closest to starting time of storm: 7/14 1100 EDT

Remarks: COLD FRONT HAS DISSIPATED SW OF THE KY-OH LINE AT 7/14 1100.

Storm No.	59	Synoptic Type	AIR MASS
Started:	7/14 1215		1978 (EDT)
Ended:	7/14 1630		1978 (EDT)

Map during middle of storm: 7/14 1400 EDT

Map during end of storm: 7/14 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No.	59	Synoptic Type	AIR MASS
Started:	7/14 1215	1978 (EDT)	
Ended:	7/14 1630	1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/14 2000 EDT

Remarks: Upper-air winds from the WNW

(W AT 850 MB, UNDETERMINED AT 700 MB, AND NW AT 500 MB)

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4564 ETD
 Storm No. 59 Synoptic Type AIR MASS
 Started: 7/4 1215 1978 (EDT)
 Ended: 7/4 1630 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 78-4585 ETD

Storm No. 59 Synoptic Type AIR MASS

Started: 7/14 1215 1978 (EDT)

Ended: 7/14 1630 1978 (EDT)

7/14 1045
Site
#41
7/14 1215

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4562 ETD

Storm No. 59 Synoptic Type AIR MASS
 Started: 7/14 1215 1978 (EDT)
 Ended: 7/14 1630 1978 (EDT)

Remarks: Surface w nds from the WSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4563 ETD

Storm No.	<u>59</u>	Synoptic Type	<u>AIR MASS</u>
Started:	<u>7/14 1215</u>		<u>1978 (EDT)</u>
Ended:	<u>7/14 1630</u>		<u>1978 (EDT)</u>

Remarks: Surface winds from the WSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4566 ETD

Map closest to starting time of storm: 7/15 0500 EDT

Remarks: MAP FOR 7/15 1400 WAS MISSING; LATER FOUND BUT NOT USED.

FRONT HAS DISSIPATED (SHOULD NOT HAVE BEEN DRAWN IN THE
7/15 0500 MAP)

Storm No.	60	Synoptic Type	AIR MASS
Started:	7/15 0600		1978 (EDT)
Ended:	7/15 1400		1978 (EDT)

Map during middle of storm: 7/15 0800 EDT

Map during end of storm: 7/15 1100 EDT

Storm No. 60 Synoptic Type AIR MASS
 Started: 7/15 0600 1978 (EDT)
 Ended: 7/15 1400 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/15 0800 EDT

Remarks: Upper-air winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4570 ETD

Storm No. 60 Synoptic Type AIR MASS
 Started: 7/15 0600 1978 (EDT)
 Ended: 7/15 1400 1978 (EDT)

Remarks: Surface winds from the ENE

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4571 ETD

Storm No.	<u>60</u>	Synoptic Type	<u>AIR MASS</u>
Started:	<u>7/15 0600</u>		<u>1978 (EDT)</u>
Ended:	<u>7/15 1400</u>		<u>1978 (EDT)</u>

Remarks: Surface winds from the ENE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4568 (PART A) ETD

Storm No. 60 Synoptic Type AIR MASS
 Started: 7/15 0600 1978 (EDT)
 Ended: 7/15 1400 1978 (EDT)

Remarks: Surface winds from the SW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4568 (PART B) ETD

Storm No. 60 Synoptic Type AIR MASS
 Started: 7/15 0600 1978 (EDT)
 Ended: 7/15 1400 1978 (EDT)

Remarks: Surface winds from the SW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4569 (PART A) ETD
 Storm No. 60 Synoptic Type AIR MASS
 Started: 7/15 0600 1978 (EDT)
 Ended: 7/15 1400 1978 (EDT)

Remarks: Surface winds from the SW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 78-4569 (PART B) ETD

Storm No. 60 Synoptic Type AIR MASS
 Started: 7/15 0600 1978 (EDT)
 Ended: 7/15 1400 1978 (EDT)

Remarks: Surface winds from the SW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 7/15 1700 EDT

Remarks: MOST OF PRECIPITATION OCCURRED ~7/15 1730-2000

THE FRONT IS WEAK; DISAGREED WITH THE NWS ANALYSIS OF FRONT.

Storm No.	61	Synoptic Type	SQUALL ZONE
Started:	7/15	1715	1978 (EDT)
Ended:	7/16	0015	1978 (EDT)

Map during middle of storm: 7/15 2000 EDT

Map during end of storm: 7/15 2300 EDT

Storm No. 61 Synoptic Type SQUALL ZONE
 Started: 7/15 1715 1978 (EDT)
 Ended: 7/16 0015 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/15 2000 EDT

Remarks: Lpper-air winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4578 ETD

Storm No. 61 Synoptic Type SQUALL ZONE
 Started 7/15 1715 1978 (EDT)
 Ended: 7/16 0015 1978 (EDT)

Remarks: Surface winds from the SE

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No. 61 Synoptic Type SQUALL ZONE
 Started: 7/15 1715 1978 (EDT)
 Ended: 7/16 0015 1978 (EDT)

Remarks: Surface winds from the SE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 78-4574 (PART A) ETD

Storm No. 61 Synoptic Type SQUALL ZONE

Started: 7/15 1715 1978 (EDT)

Ended: 7/16 0015 1978 (EDT)

Remarks: Surface winds from the N

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4574 (PART 8) ETL

Storm No. 61 Synoptic Type SQUALL ZONE

Started: 7/15 1715 1978 (EDT)

Ended: 7/16 0015 1978 (EDT)

Remarks: Surface winds from the N

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4575 (PART A) ETD

Storm No. E1 Synoptic Type SQUALL ZONE

Started: 7/15 1715 1978 (EDT)

Ended: 7/16 0015 1978 (EDT)

Remarks: Surface winds from the N

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4576 (PART B) ETD

Storm No. 61 Synoptic Type SQUALL ZONE

Started: 7/15 1715 1978 (EDT)

Ended: 7/16 0015 1978 (EDT)

Remarks: Surface winds from the N

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 62

7/16/78

MAX. PRECIP. - 0.15 IN. AT ST. 34
MIN. PRECIP. - 0.00 IN. AT ST. 18
AVG. PRECIP. - 0.01 IN.
* STATIONS OPERATING - 47
AVG. OF STA. WITH PRECIP. - 0.06 IN.
* STATIONS WITH PRECIP - 5

STORM BEGAN DAY 16 AT 300
STORM ENDED DAY 16 AT 515
STORM DURATION 2.3 HRS.

STORM TYPE - PRE-FRONTAL (STAT)
PRIOR SURFACE WIND - ENE
SURFACE WIND DIRECTION - ENE
UPPER AIR WIND DIRECTION - W
PLANT BOWEN POWER OUTPUT - 543 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

PRE-FRONTAL
(STATIONARY)

Storm No. 62 Synoptic Type _____
 Started: 7/16 0300 1978 (EDT)
 Ended: 7/16 0415 1978 (EDT)

Map closest to starting time of storm: 7/16 0200 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT

Map during middle of storm: _____ EDT

Map during end of storm: 7/16 0500 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No.	E2	Synoptic Type	PRE-FRONTAL (STATIONARY)
Started:	7/16	C300	1978 (EDT)
Ended:	7/16	0415	1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/16 0800 EDT

Remarks: Upper-air winds from the W

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4582 ETD
PRE-FRONTAL
(STATIONARY)

Storm No. 62 Synoptic Type STATIONARY
Started: 7/16 0300 1978 (EDT)
Ended: 7/16 0415 1978 (EDT)

Remarks: Surface winds from the ENE

ORNL-DWG 79-4583 ETD

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No 62 Synoptic Type PRE-FRONTAL
(STATIONARY)
Started: 7/16 0300 1978 (EDT)
Ended: 7/16 0415 1978 (EDT)

Remarks: Surface winds from the ENE

METEOR-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4580 ETD
PRE-FRONTAL

Storm No. 62 Synoptic Type (STATIONARY)

Started: 7/16 0300 1978 (EDT)

Ended: 7/16 0415 1978 (EDT)

Remarks: Surface winds from the ENE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4581 ETD

PRE-FRONTAL
(STATIONARY)

Storm No. 62 Synoptic Type STATIONARY

Started: 7/16 0300 1978 (EDT)

Ended: 7/16 0415 1978 (EDT)

Remarks: Surface winds from the ENE

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 7/23 1400 EDT

Remarks: _____

Storm No.	63	Synoptic Type	AIR MASS
Started:	7/23	1330	1978 (EDT)
Ended:	7/23	1800	1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 7/23 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 63 Synoptic Type AIR MASS
 Started: 7/23 1330 1978 (EDT)
 Ended: 7/23 1800 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/23 2000 EDT

Remarks: Upper-air winds from the SSW

ORNL-DWG 79-4587 ETD

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No. 63 Synoptic Type AIR MASS
Started: 7/23 1330 1978 (EDT)
Ended: 7/23 1800 1978 (EDT)

Remarks: Surface winds from the WNW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4588 ETD

Storm No. 63 Synoptic Type AIR MASS
 Started: 7/23 1330 1978 (EDT)
 Ended: 7/23 1800 1978 (EDT)

Remarks: Surface winds from the SSE

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 64

7/23/78

MAX. PRECIP. - 0.04 IN. AT ST. 23
MIN. PRECIP. - 0.00 IN. AT ST. 48
AVG. PRECIP. - 0.00 IN.
* STATIONS OPERATING - 44
AVG. OF STA. WITH PRECIP. - 0.03 IN.
* STATIONS WITH PRECIP - 2

STORM BEGAN DAY 23 AT 2045
STORM ENDED DAY 23 AT 2130
STORM DURATION 0.8 HRS.

STORM TYPE - AIR MASS
PRIOR SURFACE WIND - ESE
SURFACE WIND DIRECTION - NE
UPPER AIR WIND DIRECTION - SSW
PLANT BOWEN POWER OUTPUT - 1830 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-4588 ETD

Storm No. 64 Synoptic Type AIR MASS
 Started: 7/23 2045 1978 (EDT)
 Ended: 7/23 2130 1978 (EDT)

Map closest to starting time of storm: 7/23 2000 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT.

Map during middle of storm: EDT

Map during end of storm: 7/23 2300 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 64 Synoptic Type AIR MASS
 Started: 7/23 2045 1978 (EDT)
 Ended: 7/23 2130 1978 (EDT)

NOTE: MAPS ARE WITH THE 7/23/78 1330 - 1800 EDT STORM

850 MB

700 MB

500 MB

Time: 7/23 2000 EDT

Remarks: Upper-air winds from the SSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No. 64 Synoptic Type AIR MASS
 Started: 7/23 2045 1978 (EDT)
 Ended: 7/23 2130 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4590 ETD

Storm No. 64 Synoptic Type AIR MASS
Started: 7/23 2045 1978 (EDT)
Ended: 7/23 2130 1978 (EDT)

7/23 2045
BOWEN #1
7/23 2130

7/23 2045
BOWEN #2
7/23 2130

7/23 2045
Site #11
7/23 2130

Remarks: Surface winds from the NE

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

Map closest to starting time of storm: 7/24 1400 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT.

THIS STORM IS COMPOSED OF SEVERAL DIFFERENT CONVECTIVE ENTITIES.

Storm No. 65 Synoptic Type AIR MASS
 Started: 7/24 1300 1978 (EDT)
 Ended: 7/24 2130 1978 (EDT)

Map during middle of storm: 7/24 1700 EDT

Map during end of storm: 7/24 2000 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 65 Synoptic Type AIR MASS
 Started: 7/24 1300 1978 (EDT)
 Ended: 7/24 2130 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/24 2000 EDT

Remarks: Upper-air winds from the SW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-4595 ETD

Storm No. 65 Synoptic Type AIR MASS
 Started: 7/24 1300 1978 (EDT)
 Ended: 7/24 2130 1978 (EDT)

Remarks: Surface winds from the SW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4594 (PART A) ETD

Storm No. 65 Synoptic Type AIR MASS

Started: 7/24 1300 1978 (EDT)

Ended: 7/24 2130 1978 (EDT)

Remarks: Surface winds from the SE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4594 (PART B) ETD

Storm No. 65 Synoptic Type AIR MASS
 Started: 7/24 1300 1978 (EDT)
 Ended: 7/24 2130 1978 (EDT)

Remarks: Surface winds from the SE

METER - ORNL NETWORK PRECIPITATION CONTOURS

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT.

Map during end of storm: 7/25 2000 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 66 Synoptic Type COLD FRONT
 Started: 7/25 1500 1978 (EDT)
 Ended: 7/25 2100 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/25 2000 EDT

Remarks: Upper-air winds from the WNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-1599 ETD

Storm No. 66 Synoptic Type COLD FRONT
 Started: 7/25 1500 1978 (EDT)
 Ended: 7/25 2100 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-4598 ETD

Storm No. 66 Synoptic Type COLD FRONT

Started: 7/25 1500 1978 (EDT)

Ended: 7/25 2100 1978 (EDT)

Remarks: Surface winds from the NNW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5178 ETD

Storm No. 67 Synoptic Type AIR MASS
 Started: 7/26 1600 1978 (EDT)
 Ended: 7/26 2000 1978 (EDT)

Map closest to starting time of storm: 7/26 1700 EDT

Remarks: ONLY SEVERAL OF THE NETWORK STATIONS HAD PRECIPITATION
FROM A CELL WHICH MOVED FROM SSE TO NNW. PRECIPITATION AMOUNTS
AT NWS STATIONS IN CENTRAL AND SOUTHERN GA WERE VERY SMALL.

Map during middle of storm: _____ EDT

Map during end of storm: 7/26 2000 EDT

ORNL-DWG 79-5179 ETD

Storm No. 67 Synoptic Type AIR MASS

Started: 7/26 1600 1978 (EDT)

Ended: 7/26 2000 1978 (EDT)

730 MB

500 MB

Time: 7/26 2000 EDT

Remarks: Upper-air winds from the WSW

(NOTE THAT UPPER-AIR WINDS WERE WEAK AND VARIABLE,

SO THAT THIS ESTIMATE OF DIRECTION MAY NOT BE ACCURATE.]

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5180 ETD

Storm No. 67 Synoptic Type AIR MASS

Started: 7/26 1600 1978 (EDT)

Ended: 7/26 2000 1978 (EDT)

METE 3-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5181 ETD

Storm No. 67 Synoptic Type AIR MASS
 Started: 7/26 1600 1978 (EDT)
 Ended: 7/26 2000 1978 (EDT)

Remarks: Surface winds from the S

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPT C SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5182 ETD

PRE-FRONTAL
(STATIONARY)

Storm No. 68 Synoptic Type PRE-FRONTAL (STATIONARY)
 Started: 7/27 1030 1978 (EDT)
 Ended: 7/27 1900 1978 (EDT)

Map closest to starting time of storm: 7/27 1100 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT. STATIONARY
FRONT WAS WEAK.

Map during middle of storm: 7/27 1400 EDT

Map during end of storm: 7/27 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5183 ETD

Storm No. 68 Synoptic Type PRE-FRONTAL (STATIONARY)
 Started: 7/27 1030 1978 (EDT)
 Ended: 7/27 1900 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/27 2000 EDT

Remarks: Upper-air winds from the WSW
(INCLUDES INSPECTION OF MAPS AT 7/27 0800 EDT)

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5184 ETD
 Storm No 68 Synoptic Type PRE-FRONTAL (STATIONARY)
 Started: 7/27 1030 1978 (EDT)
 Ended: 7/27 1900 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5185 (PART A) ETD
 PRE-FRONTAL
 Storm No. 68 Synoptic Type (STATIONARY)
 Started: 7/27 1030 1978 (EDT)
 Ended: 7/27 1900 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5185 (PART B) ETD

Storm No. 68 Synoptic Type PRE-FRONTAL
(STATIONARY)

Started: 7/27 1030 1978 (EDT)

Ended: 7/27 1900 1978 (EDT)

Remarks: Surface winds from the E

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5186 ETD

Storm No. 69 Synoptic Type STATIONARY FRONT
 Started 7/28 1800 1978 (EDT)
 Ended: 7/28 1900 1978 (EDT)

Map closest to starting time of storm: 7/28 1700 EDT

Remarks: ONLY 3 NETWORK STATIONS HAD PRECIPITATION. THE POSITION OF
THE FRONT HAS BEEN SELECTED PRIMARILY THROUGH AN EXAMINATION OF
THE DEWPOINT VALUES. DISAGREED WITH NWS ANALYSIS OF FRONT.

Map during middle of storm: _____ EDT

Map during end of storm: 7/28 2000 EDT

ORNL-DWG 79-5187 ETD

Started: 7/28 1800 1978 (EDT)

Ended: 7/28 1900 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/28 2000 EDT

Remarks: Upper-air winds from the WNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5188 ETD

Storm No. 69 Synoptic Type STATIONARY FRONT

Started: 7/28 1800 1978 (EDT)

Ended: 7/28 1900 1978 (EDT)

Remarks: Surface winds from the W

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5189 ETD

STATIONARY

Storm No. 69 Synoptic Type FRONT

Started: 7/28 1800 1978 (EDT)

Ended: 7/28 1900 1978 (EDT)

7/28 1800
Site
#1
7/28 1900

7/28 1800
Site
#41
7/28 1900

359

Remarks: Surface winds from the W

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5190 ETD

Map closest to starting time of storm: 7/30 2000 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT. THE FRONT WAS
200 MILES FROM THE NETWORK DURING THE STORM.

Storm No. 70 Synoptic Type AIR MASS
 Started: 7/30 2000 1978 (EDT)
 Ended: 7/31 0030 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 7/30 2300 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5191 ETD

Storm No. 70 Synoptic Type AIR MASS
 Started: 7/30 2000 1978 (FDT)
 Ended: 7/31 0030 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/30 2000 EDT

Remarks: Upper-air winds from the W

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5192 ETD

Storm No. 70 Synoptic Type AIR MASS
 Started: 7/30 2000 1978 (EDT)
 Ended: 7/31 0030 1978 (EDT)

Remarks: Surface winds from the W

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 78-5193 ETD

Storm No. 70 Synoptic Type AIR MASS
 Started: 7/30 2000 1978 (EDT)
 Ended: 7/31 0030 1978 (EDT)

Remarks: Surface winds from the SW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 71

7/31/78

MAX. PRECIP. - 1.08 IN. AT ST. 16
 MIN. PRECIP. - 0.06 IN. AT ST. 42
 AVG. PRECIP. - 0.34 IN.
 * STATIONS OPERATING - 45
 AVG. OF STA. WITH PRECIP. - 0.34 IN.
 * STATIONS WITH PRECIP - 45

STORM BEGAN DAY 31 AT 1500
 STORM ENDED DAY 31 AT 2300
 STORM DURATION 8.0 HRS.

STORM TYPE - SQUALL ZONE
 PRIOR SURFACE WIND - SW
 SURFACE WIND DIRECTION - SSW
 UPPER AIR WIND DIRECTION - WNW
 PLANT BOILER POWER OUTPUT - 1756 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 78-5194 ETD

Map closest to starting time of storm: 7/31 1400 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT.

Storm No. 71 Synoptic Type SQUALL ZONE
 Started: 7/31 1500 1978 (EDT)
 Ended: 7/31 2200 1978 (EDT)

Map during middle of storm: 7/31 1700 EDT

Map during end of storm: 7/31 2000 EDT

ORNL-DWG 79-5195 ETD

Started: 7/31 1500 1978 (EDT)

Ended: 7/31 2200 1978 (EDT)

850 MB

700 MB

500 MB

Time: 7/31 2000 EDT

Remarks: Upper-air winds from the WNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5196 ETD

Storm No. 71 Synoptic Type SQUALL ZONE

Started: 7/31 1500 1978 (EDT)

Ended: 7/31 2200 1978 (EDT)

Remarks: Surface winds from the SW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5197 (PART A) ETD

Storm No. 71 Synoptic Type SQUALL ZONE

Started: 7/31 1500 1978 (EDT)

Ended: 7/31 2200 1978 (EDT)

Remarks: Surface winds from the SSW

METER-CRNL WINDSET DATA DURING STORMS

OFNL-DWG 79-5197 (PART B) ETD

Storm No. 71 Synoptic Type SQUALL ZONE

Started: 7/31 1500 1978 (EDT)

Ended: 7/31 2200 1978 (EDT)

Remarks: Surface winds from the SSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5198 ETD

Map closest to starting time of storm: 8/3 1100 EDT

Remarks: SURFACE MAP FOR 8/3 1400 EDT IS MISSING. STATIONARY FRONT
WAS MORE THAN 150 MILES FROM THE NETWORK. MOST OF PRECIPITATION
OCCURRED BETWEEN 8/3 1600-1800 EDT.

Storm No. 72 Synoptic Type SQUALL ZONE
 Startec: 8/3 1300 1978 (EDT)
 Ended: 8/3 2030 1978 (EDT)

Map during middle of storm: 8/3 1700 EDT

Map during end of storm: 8/3 2000 EDT

ORNL-DWG 79-5199 ETD

Ended: 8/3 2030 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/3 2000 EDT

Remarks: Upper-air winds from the NE

THIS ESTIMATE OF DIRECTION MAY NOT BE ACCURATE SINCE

UPPER-AIR WINDS WERE WEAK AND VARIABLE.

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 78-5200-ETD

Storm No. 72 Synoptic Type SQUALL ZONE

Started: 8/3 1300 1978 (EDT)

Ended: 8/3 2030 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5201 (PART A) ETD

Storm No. 72 Synoptic Type SQUALL ZONE

Started: 8/3 1300 1978 (EDT)

Ended: 8/3 2030 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5201 (PART B) ETD

Storm No. 72 Synoptic Type SQUALL ZONE

Started: 8/3 1300 1978 (EDT)

Ended: 8/3 2030 1978 (EDT)

Remarks: Surface winds from the E

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5202 ETD

Map closest to starting time of storm: 8/4 0800 EDT

Remarks: _____

Storm No. 73 Synoptic Type STATIONARY FRONT
 Started: 8/4 0900 1978 (EDT)
 Ended: 8/4 1700 1978 (EDT)

Map during middle of storm: 8/4 1400 EDT

Map during end of storm: 8/4 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5203 ETD

Storm No. 73 Synoptic Type STATIONARY FRONT

Started: 8/4 0900 1978 (EDT)

Ended: 8/4 1700 1978 (EDT)

350 MB

700 MB

500 MB

Time: 8/4 0800 EDT

Remarks: Upper-air winds from the SSE

NOTE THAT UPPER-AIR WINDS WERE WEAK AND VARIABLE.

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5204 ETD
STATIONARY

Storm No. 73 Synoptic Type FRONT

Started: 8/4 0900 1978 (EDT)

Ended: 8/4 1700 1978 (EDT)

Remarks: Surface winds from the NE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5205 (PART A) ETD
STATIONARY

Storm No. 73 Synoptic Type FRONT

Started: 8/4 0900 1978 (EDT)

Ended: 8/4 1700 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5205 (PART B) ETD
STATIONARY
Storm No. 73 Synoptic Type FRONT
Started: 8/4 0900 1978 (EDT)
Ended: 8/4 1700 1978 (EDT)

Remarks: Surface winds from the E

SYNOPTIC SL RFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5206 ETD

Storm No. 74 Synoptic Type STATIONARY FRONT
 Started: 8/4 2300 1978 (EDT)
 Ended: 8/5 0000 1978 (EDT)

Map during middle of storm: _____ EDT

Map closest to starting time of storm: 8/4 2300 EDT

Remarks: THE ONLY STATIONS WITH PRECIPITATION WERE ALONG THE
WESTERN EDGE OF THE NETWORK. SURFACE MAP AT 8/5 0200 EDT
IS WITH STORM # 75.

Map during end of storm: _____ EDT

ORNL-DWG 79-5207 ETD

Ended: 8/5 0000 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/4 2000 EDT

Remarks: Upper-air winds from the S

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 78-5208 ETD
STATIONARY

Storm No 74 Synoptic Type FRONT

Started: 8/4 2300 1978 (EDT)

Ended: 8/5 0000 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5209 ETD
STATIONARY

Storm No. 74 Synoptic Type FRONT

Started: 8/4 2300 1978 (EDT)

Ended: 8/5 0000 1978 (EDT)

8/4 2300
Bowen
#1
8/5 0000

8/4 2300
Bowen
#2
8/5 0000

8/4 2300
Site
#41
8/5 0000

Remarks: Surface winds from the E

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 75

8/5/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5210 ETD

Storm No. 75 Synoptic Type PRE-FRONTAL (STATIONARY)

Started: 8/5 0300 1978 (EDT)

Ended: 8/5 0400 1978 (EDT)

Map closest to starting time of storm: 8/5 0200 EDT

Remarks: ONLY ONE STATION HAD PRECIPITATION (# 28). DISAGREED

WITH NWS ANALYSIS OF FRONT.

Map during middle of storm: _____ EDT

Map during end of storm: 8/5 0500 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5211 ETD

Storm No. 75 Synoptic Type PRE-FRONTAL (STATIONARY)
 Started: 8/5 0300 1978 (EDT)
 Ended: 8/5 0400 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/E 0800 EDT

Remarks: Upper-air winds from the S

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5212 ETD

Storm No. 75 Synoptic Type PRE-FRONTAL
 Started: 8/5 0300 (STATIONARY)
 Ended: 8/5 0400 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5213 ETD

PRE-FRONTAL

Storm No. 75 Synoptic Type (STATIONARY)

Started: 8/5 0300 1978 (EDT)

Ended: 8/5 0400 1978 (EDT)

Remarks: Surface winds from the E

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 76

8/5/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5214 ETD

Map closest to starting time of storm: 8/5 0800 EDT

Remarks: THE NWS ANALYSIS INCLUDED A WARM FRONT WHICH WAS
ORIENTED SW-NE THROUGH CENTRAL GEORGIA; THIS ANALYSIS
DOES NOT CONSIDER THAT FRONT TO EXIST.

Storm No. 76 Synoptic Type STATIONARY FRONT
 Started: 8/5 0900 1978 (EDT)
 Ended: 8/6 0100 1978 (EDT)

Map during middle of storm: 8/5 1700 EDT

Map during end of storm: 8/5 2300 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5215 ETD

Storm No. 76 Synoptic Type STATIONARY FRONT

Started: 8/5 0900 1978 (EDT)

Ended: 8/6 0100 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/5 2000 EDT

Remarks: Upper-air winds from the S

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 78-5215 ETD
STATIONARY

Storm No. 76 Synoptic Type FRONT

Started: 8/5 0900 1978 (EDT)

Ended: 8/6 0100 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5217 (PART A) ETD
STATIONARY

Storm No. 76 Synoptic Type FRONT

Started: 8/5 0900 1978 (EDT)

Ended: 8/6 0100 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5217 (PART B) ETD

STATIONARY

Storm No. 76 Synoptic Type FRONT

Started 8/5 0900 1978 (EDT)

Ended: 8/6 0100 1978 (EDT)

Remarks: Surface winds from the ESE

METER - ORNL NETWORK PRECIPITATION CONTOURS

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5217 (PART C) ETD
STATIONARY
Storm No. 76 Synoptic Type FRONT
Started: 8/5 0900 1978 (EDT)
Ended: 8/6 0100 1978 (EDT)

Remarks: Surface winds from the ESE

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 78-5218 ETD

Storm No. 77 Synoptic Type STATIONARY FRONT
 Started: 8/6 1100 1978 (EDT)
 Ended: 8/6 1400 1978 (EDT)

Map closest to starting time of storm: 8/6 1100 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT.

Map during middle of storm: _____ EDT

Map during end of storm: 8/6 1400 EDT

ORNL-DWG 79-5219 ETD

Started: 8/6 1100 1978 (EDT)

Ended: 8/6 1400 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/6 0800 EDT

Remarks: Upper-air winds from the S

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5220 ETD
 Storm No. 77 Synoptic Type STATIONARY FRONT
 Started: 8/6 1100 1978 (EDT)
 Ended: 8/6 1400 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5221 ETD

Storm No. 77 Synoptic Type STATIONARY
 Started: 3/6 1100 FRONT 1978 (EDT)
 Ended: 3/6 1400 1978 (EDT)

Remarks: Surface winds from the W

STORM NO. 78

8/6/78

MAX. PRECIP. - 3.93 IN. AT ST. 5
MIN. PRECIP. - 0.46 IN. AT ST. 16
AVG. PRECIP. - 1.75 IN.
* STATIONS OPERATING - 44
AVG. OF STA. WITH PRECIP. - 1.75 IN.
* STATIONS WITH PRECIP - 44

STORM BEGAN DAY	6 AT 1600
STORM ENDED DAY	7 AT 2330
STORM DURATION	31.5 HRS.

```
STORM TYPE - SQUALL LINE
PRIOR SURFACE WIND - NE
SURFACE WIND DIRECTION - E
UPPER AIR WIND DIRECTION - SSW
PLANT BOWEN POWER OUTPUT - 1512 MW
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SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5222 ETD

Storm No. 78 Synoptic Type SQUALL LINE
 Started: 8/6 1700 1978 (EDT)
 Ended: 8/7 2330 1978 (EDT)

Map during middle of storm: 8/6 2300 EDT

Map during end of storm: 8/7 2000 EDT

Map closest to starting time of storm: 8/6 1700 EDT

Remarks: MOST OF PRECIPITATION OCCURRED BETWEEN 8/6 2000 AND 8/7 0000
EDT. THE SQUALL LINE WHICH WAS RESPONSIBLE FOR THE LARGE AMOUNTS
OF PRECIPITATION OCCURRED FOR A FEW HOURS, WHILE THE STATIONARY
FRONT WHICH CAUSED THE LIGHTER STEADY RAIN WAS PRESENT THE
ENTIRE PERIOD.

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5223 ETD

Storm No. 78 Synoptic Type SQUALL LINE
 Started: 8/6 1700 1978 (EDT)
 Ended: 8/7 2330 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/7 0800 EDT

Remarks: Upper-air winds from the SSW
(INCLUDES INSPECTION OF MAPS AT 8/6 2000 EDT AND
8/7 2000 EDT.)

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5224 ETD

Storm No. 78 Synoptic Type SQUALL LINE

Started: 8/6 1700 1978 (EDT)

Ended: 8/7 2330 1978 (EDT)

807

Remarks: Surface winds from the NE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5225 (PART A) ETD

Storm No. 78 Synoptic Type SQUALL LINE

Started: 8/6 1700 1978 (EDT)

Ended: 8/7 2330 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5225 (PART B) ETD

Storm No. 78 Synoptic Type SQUALL LINE

Started: 8/6 1700 1978 (EDT)

Ended: 8/7 2330 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5225 (PART C) ETD

Storm No. 78 Synoptic Type SQUALL LINE

Started: 8/6 1700 1978 (EDT)

Ended: 8/7 2330 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 78-5225 (PART D) ETD

Storm No. 78 Synoptic Type SQUALL LINE

Started: 8/6 1700 1978 (EDT)

Ended: 8/7 2330 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 78-5225 (PART E) 578

Storm No. 78 Synoptic Type SQUALL LINE

Started: 8/6 1700 1978 (EDT)

Ended: 8/7 2330 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5225 (PART F) ETD

Storm No. 78 Synoptic Type SQUALL LINE

Started: 8/6 1700 1978 (EDT)

Ended: 8/7 2330 1978 (EDT)

Remarks: Surface winds from the E

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 79

8/8/78

MAX. PRECIP. - 1.12 IN. AT ST. 30
 MIN. PRECIP. - 0.00 IN. AT ST. 49
 AVG. PRECIP. - 0.15 IN.
 * STATIONS OPERATING - 48
 AVG. OF STA. WITH PRECIP. - 0.29 IN.
 * STATIONS WITH PRECIP - 25

STORM BEGAN DAY 8 AT 1100
 STORM ENDED DAY 8 AT 1700
 STORM DURATION 6.0 HRS.

STORM TYPE - STATIONARY FRONT
 PRIOR SURFACE WIND - E
 SURFACE WIND DIRECTION - ENE
 UPPER AIR WIND DIRECTION - S
 PLANT BOWEN POWER OUTPUT - 1637 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 78-5138 ETD

Storm No. 79 Synoptic Type STATIONARY FRONT
 Started: 3/8 1100 1978 (EDT)
 Ended: 3/8 1500 1978 (EDT)

Map closest to starting time of storm: 8/8 1100 EDT
 Remarks: THE TEMPERATURE GRADIENT ACROSS THE FRONT WAS WEAK.

Map during middle of storm: _____ EDT

Map during end of storm: 8/8 1400 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5139 ETD

Storm No. 79 Synoptic Type STATIONARY FRONT

Started: 8/8 1100 1978 (EDT)

Ended: 8/8 1500 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/8 0800 EDT

Remarks: Upper-air winds from the S

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5140 ETD

Storm No. 79 Synoptic Type STATIONARY FRONT
 Started: 8/8 1100 1978 (EDT)
 Ended: 8/8 1500 1978 (EDT).

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5141 ETD

Storm No. 79 Synoptic Type STATIONARY FRONT
 Started: 8/8 1100 1978 (EDT)
 Ended: 8/8 1500 1978 (EDT)

Remarks: Surface winds from the ENE

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5142 ETD

Map closest to starting time of storm: 8/9 0500 EDT

Remarks: _____

Storm No. 80 Synoptic Type SQUALL LINE

Started: 8/9 0600 1978 (EDT)

Ended: 8/9 1700 1978 (EDT)

Map during middle of storm: 8/9 1100 EDT

Map during end of storm: 8/9 1700 EDT

ORNL-DWG 79-5143 ETD

Storm No. 80 Synoptic Type SQUALL LINE
 Started: 8/9 0600 1978 (EDT)
 Ended: 8/9 1700 1978 (EDT)

500 MB

Time: 8/9 0800 EDT

Remarks: Upper-air winds from the S

422

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 78-5144 ETD

Storm No. 80 Synoptic Type SQUALL LINE

Started: 8/9 0600 1978 (EDT)

Ended: 8/9 1700 1978 (EDT)

Remarks: Surface winds from the ENE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5145 (PART A) ETD

Storm No. 80 Synoptic Type SQUALL LINE

Started: 8/9 0600 1978 (EDT)

Ended: 8/9 1700 1978 (EDT)

Remarks: Surface winds from the N

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5145 (PART B) ETD

Storm No. 80 Synopti: Type SQUALL LINE

Started: 8/9 0600 1978 (EDT)

Ended: 8/9 1700 1978 (EDT)

Remarks: Surface winds from the N

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 81

8/10/78

MAX. PRECIP. - 0.03 IN. AT ST. 13
 MIN. PRECIP. - 0.00 IN. AT ST. 49
 AVG. PRECIP. - 0.00 IN.
 * STATIONS OPERATING - 47
 AVG. OF STA. WITH PRECIP. - 0.02 IN.
 * STATIONS WITH PRECIP - 3

STORM BEGAN DAY 10 AT 300
 STORM ENDED DAY 10 AT 630
 STORM DURATION 3.5 HRS.

STORM TYPE - AIR MASS
 PRIOR SURFACE WIND - ENE
 SURFACE WIND DIRECTION - E
 UPPER AIR WIND DIRECTION - S
 PLANT BOWEN POWER OUTPUT - 1359 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5148 ETD

Storm No. 81 Synoptic Type AIR MASS

Started: 8/10 0300 1978 (EDT)

Ended: 8/10 0630 1978 (EDT)

Map closest to starting time of storm: 8/10 0200 EDT

Remarks: ONLY 3 NETWORK STATIONS HAD PRECIPITATION.

Map during middle of storm: EDT

Map during end of storm: 8/10 0500 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5147 ETD

Storm No. 81 Synoptic Type AIR MASS
 Started: 8/10 0300 1978 (EDT)
 Ended: 8/10 0630 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/10 0800 EDT

Remarks: Upper-air winds from the S

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 78-5148 ETD

Storm No. 81 Synoptic Type AIR MASS

Started: 8/10 0300 1978 (EDT)

Ended: 8/10 0630 1978 (EDT)

Remarks: Surface winds from the ENE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5149 ETD

Storm No. 81 Synoptic Type AIR MASS
 Started: 8/10 0300 1978 (EDT)
 Ended: 8/10 0630 1978 (EDT)

Remarks: Surface winds from the E

8/10/78

STORM TYPE - AIR MASS
PRIOR SURFACE WIND - ESE
SURFACE WIND DIRECTION - SE
UPPER AIR WIND DIRECTION - S
PLANT BOWEN POWER OUTPUT - 1800 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5150 ETD

Map closest to starting time of storm: 8/10 0600 EDT

Remarks: THE TROUGH OF LOW PRESSURE WHICH WAS ORIENTED WSW-ENE THROUGH CENTRAL GEORGIA COULD POSSIBLY BE ANALYZED AS A WEAK STATIONARY FRONT; HOWEVER, THE CLASSIFICATION OF THE STORM AS AN AIR MASS STORM IS FELT TO BE MORE APPROPRIATE.

Storm No. 82 Synoptic Type AIR MASS
Started: 8/10 0900 1978 (EDT)
Ended: 8/10 1700 1978 (EDT)

Map during middle of storm: 8/10 1100 EDT

ORNL-DWG 79-5151 ETD

Ended: 8/10 1700 1978 (EDT)

STORM # 81

500 MB

Time: 8/10 0800 EDT

Remarks: Upper-air winds from the S

433

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5152 ETD

Storm No. 82 Synoptic Type AIR MASS
 Started: 8/10 0900 1978 (EDT)
 Ended: 8/10 1700 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5153 (PART A) ETD

Storm No. 82 Synoptic Type AIR MASS

Started: 8/10 0900 1978 (EDT)

Ended: 8/10 1700 1978 (EDT)

Remarks: Surface winds from the SE

METEOR-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5153 (PART B) ETD

Storm No. 82 Synoptic Type AIR MASS

Started: 8/10 0900 1978 (EDT)

Ended: 8/10 1700 1978 (EDT)

Remarks: Surface winds from the SE

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 83

8/11/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5154 ETD

Map closest to starting time of storm: 8/11 1100 EDT

Remarks: THE TROUGH OF LOW PRESSURE AT 8/11 1100 EDT SHOULD PROBABLY
BE ANALYZED AS A STATIONARY FRONT; IT WAS GREATER THAN 150 MILES
FROM THE NETWORK. HOWEVER, SO THAT THE STORM WAS CLASSIFIED
AS AN AIR MASS STORM.

Storm No. 83 Synoptic Type AIR MASS
 Started: 8/11 1000 1978 (EDT)
 Ended: 8/11 2030 1978 (EDT)

Map during middle of storm: 8/11 1400 EDT

Map during end of storm: 8/11 2000 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5155 ETD

Storm No. 83 Synoptic Type AIR MASS
 Started: 8/11 1000 1978 (EDT)
 Ended: 8/11 2030 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/11 2000 EDT

Remarks: Upper-air winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5156 ETD

Storm No. 83 Synoptic Type AIR MASS

Started: 8/11 1000 1978 (EDT)

Ended: 8/11 2030 1978 (EDT)

440

Remarks: Surface winds from the SSE. (INCLUDED INSPECTION OF SURFACE MAPS.)

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5157 (PART A) ETD

Storm No. 83 Synoptic Type AIR MASS

Started: 8/11 1000 1978 (EDT)

Ended: 8/11 2030 1978 (EDT)

Remarks: Surface winds from the S. (INCLUDED INSPECTION OF SURFACE MAPS.)

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5157 (PART B) ETD

Storm No. 83 Synoptic Type AIR MASS

Started: 8/11 1000 1978 (EDT)

Ended: 8/11 2030 1978 (EDT)

Remarks: Surface winds from the S. (INCLUDED INSPECTION OF SURFACE MAPS.)

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 84

8/12/78

MAX. PRECIP. - 0.77 IN. AT ST. 49
 MIN. PRECIP. - 0.00 IN. AT ST. 42
 AVG. PRECIP. - 0.17 IN.
 * STATIONS OPERATING - 47
 AVG. OF STA. WITH PRECIP. - 0.21 IN.
 * STATIONS WITH PRECIP - 39

STORM BEGAN DAY 12 AT 1100
 STORM ENDED DAY 12 AT 1800
 STORM DURATION 7.0 HRS.

STORM TYPE - SQUALL ZONE
 PRIOR SURFACE WIND - S
 SURFACE WIND DIRECTION - SSE
 UPPER AIR WIND DIRECTION - WSW
 PLANT BOWEN POWER OUTPUT - 1472 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5158 ETD

Map closest to starting time of storm: 8/12 1:00 EDT

Remarks: STATIONARY FRONT TO THE NORTH WAS WEAK.

Storm No. 84 Synoptic Type SQUALL ZONE
 Started: 8/12 1100 1978 (EDT)
 Ended: 8/12 1700 1978 (EDT)

Map during middle of storm: 8/12 1400 EDT

Map during end of storm: 8/12 1700 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5159 ETD

Storm No. 84 Synoptic Type SQUALL ZONE
 Started: 8/12 1100 1978 (EDT)
 Ended: 8/12 1700 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/12 0800 EDT

Remarks: Upper-air winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5160 ETD

Storm No. 84 Synoptic Type SQUALL ZONE

Started: 8/12 1100 1978 (EDT)

Ended: 8/12 1700 1978 (EDT)

Remarks: Surface winds from the S. (INCLUDED INSPECTION OF SURFACE MAPS.)

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5161 ETD

Storm No. 84 Synoptic Type SQUALL ZONE

Started: 8/12 1100 1978 (EDT)

Ended: 8/12 1700 1978 (EDT)

Remarks: Surface winds from the SSE. (INCLUDED INSPECTION OF SURFACE MAPS.)

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5162 ETD

Map closest to starting time of storm: 8/12 2000 EDT

Remarks: A SQUALL ZONE PRECEDED THE SQUALL LINE.

Storm No. 85 Synoptic Type SQUALL LINE

Started: 8/12 1900 1978 (EDT)

Ended: 8/13 0000 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 8/12 2300 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5163 ETD

Storm No. 85 Synoptic Type SQUALL LINE
 Started: 8/12 1900 1978 (EDT)
 Ended: 8/13 0000 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/12 2000 EDT

Remarks: Upper-air winds from the W

450

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5164 ETD

Storm No. 85 Synoptic Type SQUALL LINE

Started: 8/12 1900 1978 (EDT)

Ended: 8/13 0000 1978 (EDT)

451

Remarks: Surface winds from the SSE. (INCLUDED INSPECTION OF SURFACE MAPS.)

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5165 ETD

Storm No. 85 Synoptic Type SQUALL LINE

Started: 8/12 1900 1978 (EDT)

Ended: 8/13 0000 1978 (EDT)

Remarks: Surface winds from the W. (INCLUDED INSPECTION OF SURFACE MAPS.)

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 86

8/14/78

MAX. PRECIP. - 0.03 IN. AT ST. 19
 MIN. PRECIP. - 0.00 IN. AT ST. 49
 AVG. PRECIP. - 0.00 IN.
 * STATIONS OPERATING - 46
 AVG. OF STA. WITH PRECIP. - 0.03 IN.
 * STATIONS WITH PRECIP - 1

STORM BEGAN DAY 14 AT 1930
 STORM ENDED DAY 14 AT 2030
 STORM DURATION 1.0 HRS.

STORM TYPE - STATIONARY FRONT
 PRIOR SURFACE WIND - SSW
 SURFACE WIND DIRECTION - SSW
 UPPER AIR WIND DIRECTION - WSW
 PLANT BOWEN POWER OUTPUT - 1836 MW

SYNOPTIC SLRFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5166 ETD

Storm No. 86 Synoptic Type STATIONARY FRONT
 Started: 8/14 1930 1978 (EDT)
 Ended: 8/14 2030 1978 (EDT)

Map during middle of storm: _____ EDT

Map closest to starting time of storm: 8/14 2000 EDT

Remarks: ONLY STATION # 19 HAD PRECIPITATION. DISAGREED WITH NWS
ANALYSIS OF FRONT.

Map during end of storm: _____ EDT

ORNL-DWG 79-5167 ETD

Started: 8/14 1930 1978 (EDT)

Ended: 8/14 2030 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/14 2000 EDT

Remarks: Upper-air winds from the WSW

455

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5168 ETD

Storm No. 86 Synoptic Type STATIONARY
Started: 8/14 1930 1978 (EDT)
Ended: 8/14 2030 1978 (EDT)

Remarks: Surface winds from the SSW. (INCLUDED INSPECTION OF SURFACE MAPS.)

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5169 ETD

Storm No. 86 Synoptic Type STATIONARY
FRONT
Started: 8/14 1930 1978 (EDT)
Ended: 8/14 2030 1978 (EDT)

Remarks: Surface winds from the SSW. (NCLUDED INSPECTION OF SURFACE MAPS.)

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 87

8/15/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5170 ETD

Storm No. 87 Synoptic Type AIR MASS
 Started: 8/15 0430 1978 (EDT)
 Ended: 8/15 0530 1978 (EDT)

Map during middle of storm: _____ EDT

Map closest to starting time of storm: 8/15 0500 EDT

Remarks: ONLY STATION NO. 1 HAD PRECIPITATION.

STATIONARY FRONT HAS DISSIPATED BY 8/15 0500 EDT.

Map during end of storm: _____ EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-OFNL NETWORK STORMS

ORNL-DWG 79-5171 ETD

Storm No. 87 Synoptic Type AIR MASS
 Started: 8/15 0430 1978 (EDT)
 Ended: 8/15 0530 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/15 0800 EDT

Remarks: Upper-air winds from the SW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG-79-5172 ETD
Storm No. 87 Synoptic Type AIR MASS
Started: 8/15 0430 1978 (EDT)
Ended: 8/15 0530 1978 (EDT)

Remarks: Surface winds from the S (INCLUDED INSPECTION OF SURFACE MAPS)

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5173 ETD

Storm No. 87 Synoptic Type AIR MASS

Started: 8/15 0430 1978 (EDT)

Ended: 8/15 0530 1978 (EDT)

462

Remarks: Surface winds from the S (INCLUDED INSPECTION OF SURFACE MAPS)

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 88

8/15/78

MAX. PRECIP. - 0.99 IN. AT ST. 29
 MIN. PRECIP. - 0.00 IN. AT ST. 28
 AVG. PRECIP. - 0.21 IN.
 * STATIONS OPERATING - 45
 AVG. OF STA. WITH PRECIP. - 0.29 IN.
 * STATIONS WITH PRECIP - 33

STORM BEGAN DAY 15 AT 1130
 STORM ENDED DAY 15 AT 2330
 STORM DURATION 12.0 HRS.

STORM TYPE - SMALL ZONE
 PRIOR SURFACE WIND - SW
 SURFACE WIND DIRECTION - E
 UPPER AIR WIND DIRECTION - SW
 PLANT BOWEN POWER OUTPUT - 1829 MW

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5174 ETD

Map closest to starting time of storm: 8/15 1100 EDT

Remarks: _____

Storm No. 8E Synoptic Type SQUALL ZONE
 Started: 8/15 1130 1978 (EDT)
 Ended: 8/15 2330 1978 (EDT)

Map during mid'd'e of storm: 8/15 1700 EDT

Map during end of storm: 8/15 2300 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5175 ETD

Storm No. 88 Synoptic Type SQUALL ZONE

Started: 8/15 1130 1978 (EDT)

Ended: 8/15 2330 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/15 2000 EDT

Remarks: Upper-air winds from the SW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 78-5176 ETD

Storm No. 88 Synoptic Type SQUALL ZONE

Started: 8/15 1130 1978 (EDT)

Ended: 8/15 2330 1978 (EDT)

Remarks: Surface winds from the SW. (INCLUDED INSPECTION OF SURFACE MAPS.)

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 78-5177 (PART A) ETD

Storm No. 88 Synoptic Type SQUALL ZONE

Started: 8/15 1130 1978 (EDT)

Ended: 8/15 2330 1978 (EDT)

467

Remarks: Surface winds from the E. (INCLUDED INSPECTION OF SURFACE MAPS.)

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5177 (PART B) ETD

Storm No. 88 Synoptic Type SQUALL ZONE

Started: 8/15 1130 1978 (EDT)

Ended: 8/15 2330 1978 (EDT)

Remarks: Surface winds from the E (INCLJDED INSPECTION OF SURFACE MAPS)

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5177 (PART C) ETD

Storm No. 88 Synoptic Type SQUALL ZONE

Started: 8/15 1130 1978 (EDT)

Ended: 8/15 2330 1978 (EDT)

Remarks: Surface winds from the E. (INCLUDED INSPECTION OF SURFACE MAPS.)

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5242 ETD

Map closest to starting time of storm: 8/16 1400 EDT

Remarks: _____

Storm No. 89 Synoptic Type SQUALL ZONE
Started: 8/16 1200 1978 (EDT)
Ended: 8/17 0200 1978 (EDT)

Map during middle of storm: 8/16 2000 EDT

Map during end of storm: 8/17 0200 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-OF-NL NETWORK STORMS

Storm No. 89 Synoptic Type SQUALL ZONE
 Started: 8/16 1200 1978 (EDT)
 Ended: 8/17 0200 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8-16 2000 EDT

Remarks: Upper-air winds from the W

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No. 89 ORNL-DWG 79-5244 (PART A) ETD
 Synoptic Type SQUALL ZONE
 Started: 8/16 1200 1978 (EDT)
 Ended: 8/17 0200 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 78-5244 (PART B) ETD
 Storm No. 89 Synoptic Type SQUALL ZONE
 Started: 8/16 1200 1978 (EDT)
 Endec: 8/17 0200 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5245 (PART A) ETD

Storm No. 89 Synoptic Type SQUALL ZONE

Started: 8/16 1200 1978 (EDT)

Ended: 8/17 0200 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 78-5245 (PART B) ETD

Storm No. 89 Synoptic Type SQUALL ZONE

Started: 8/16 1200 1978 (EDT)

Endec: 8/17 0200 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5245 (PART C) FTD

Storm No. 89 Synoptic Type SQUALL ZONE

Started: 8/16 1200 1978 (EDT)

Ended: 8/17 0200 1978 (EDT)

477

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA DURING STCRMS

ORNL-DWG 79-5245 (PART D) - ETD

Storm No. 89 Synoptic Type SQUALL ZONE

Started: 8/16 1200 1978 (EDT)

Ended: 8/17 0200 1978 (EDT)

Remarks: Surface winds from the WSW

ORNL-DWG 79-5245 (PART E) ETD

Started: 8/16 1200 1978 (EDT)

Ended: 8/17 0200 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5245 (PART F) ETD
 Storm No. 89 Synoptic Type SQUALL ZONE
 Started: 8/16 1200 1978 (EDT)
 Ended: 8/17 0200 1978 (EDT)

Remarks: Surface winds from the WSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 90

8/18/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5246 ETD

Storm No. 90 Synoptic Type STATIONARY FRONT
 Startec: 8/18 1730 1978 (EDT)
 Ended: 8/18 1930 1978 (EDT)

Map closest to starting time of storm: 8/18 1700 EDT

Remarks: THE FRONT WAS DISSIPATING AT 8/18 2000 EDT

DISAGREED WITH NWS ANALYSIS OF FRONT

Map during middle of storm: _____ EDT

Map during end of storm: 8/18 2000 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

Storm No. 90 Synoptic Type STATIONARY FRONT

Started: 8/18 1730 1978 (EDT)

Ended: 8/18 1930 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/18 2000 EDT

Remarks: Upper-air winds from the NNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 78-5248 (PART A) ETD
 Storm No. 90 Synoptic Type STATIONARY
 Started: 8/18 1730 FRONT 1978 (EDT)
 Ended: 8/18 1930 1978 (EDT)

Remarks: Surface winds from the NW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 78-5248 (PART B) ETD
 Storm No. 90 Synoptic Type STATIONARY
 Started: 8/18 1730 1978 (EDT)
 Ended: 8/18 1930 1978 (EDT)

Remarks: Surface winds from the NW

METE 3-ORNL WINDSET DATA DURING STORMS.

ORNL-DWG 79-5249 (PART A) ETD
STATIONARY
Storm No. 90 Synoptic Type FRONT
Started: 8/18 1730 1978 (EDT)
Ended: 8/18 1930 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5249 (PART B) ETD

Storm No. 90 Synoptic Type STATIONARY
FRONT

Started: 8/18 1730 1978 (EDT)

Ended: 8/18 1930 1978 (EDT)

Remarks: Surface winds from the E

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5250 ETD

Storm No. 91 Synoptic Type COLD FRONT
 Started: 8/20 1700 1978 (EDT)
 Ended: 8/20 2100 1978 (EDT)

Map closest to starting time of storm: 8/20 1700 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT

Map during middle of storm: _____ EDT

Map during end of storm: 8/20 2000 EDT

Storm No.	91	Synoptic Type	COLD FRONT
Startec:	8/20 1700		1978 (EDT)
Ended:	8/20 2100		1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/20 2000 EDT

Remarks: Upper-air winds from the N

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5252 (PART A) ETD

Storm No. 91 Synoptic Type COLD FRONT
 Started: 8/20 1700 1978 (EDT)
 Ended: 8/20 2100 1978 (EDT)

Remarks: Surface winds from the NW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5252 (PART B) ETD
Storm No. 91 Synoptic Type COLD FRONT
Started 8/20 1700 1978 (EDT)
Ended: 8/20 2100 1978 (EDT)

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5253 (PART A) ETD

Storm No. 91 Synoptic Type COLD FRONT

Started: 8/20 1700 1978 (EDT)

Ended: 8/20 2100 1978 (EDT)

Remarks: Surface winds from the NW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5253 (PART B) ETD

Storm No. 91 Synoptic Type COLD FRONT

Started: 8/20 1700 1978 (EDT)

Ended: 8/20 2100 1978 (EDT)

Remarks: Surface winds from the NW

8/22/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5254 ETD

Map closest to starting time of storm: 8/22 1100 EDT

Remarks: _____

Storm No. 92 Synoptic Type AIR MASS
 Started: 8/22 1000 1978 (EDT)
 Ended: 8/22 1600 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 8/22 1400 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5255 ETD

Storm No. 92 Synoptic Type AIR MASS
 Started: 8/22 1000 1978 (EDT)
 Ended: 8/22 1600 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/22 0800 EDT

Remarks: Upper-air winds from the N (INCLUDES INSPECTION OF MAPS
AT 8/22 2000 EDT).

WINDS WERE LIGHT AND VARIABLE

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No. 92 ORNL-DWG 79-5256 (PART A) ETD
 Synoptic Type AIR MASS
 Started: 8/22 1000 1978 (EDT)
 Ended: 8/22 1600 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

Storm No. 92 ORNL-DWG 79-5256 (PART B) ETD
 Synoptic Type AIR MASS
 Started: 8/22 1000 1978 (EDT)
 Ended: 8/22 1600 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5257 (PART A) ETD
 Storm No. 92 Synoptic Type AIR MASS
 Started: 8/22 1000 1978 (EDT)
 Ended: 8/22 1600 1978 (EDT)

Remarks: Surface winds from the ESE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5257 (PART B) ETD

Storm No. 92 Synoptic Type AIR MASS

Started: 8/22 1000 1978 (EDT)

Ended: 8/22 1600 1978 (EDT)

Remarks: Surface winds from the ESE

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5258 ETD

Map closest to starting time of storm: 8/26 0200 EDT

Remarks: THE SQUALL LINE HAD ALMOST COMPLETELY DISSIPATED BY
THE TIME IT REACHED THE METER-ORNL NETWORK

Storm No. 93 Synoptic Type SQUALL LINE

Started: 8/26 0130 1978 (EDT)

Ended: 8/26 0400 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 8/26 0500 EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5259 ETD

Storm No. 93 Synoptic Type SQUALL LINE
 Started: 8/26 0130 1978 (EDT)
 Ended: 8/26 0400 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/25 2000 EDT

Remarks: Upper-air winds from the NNW

UPPER-AIR MAPS AT 8/26 0800 EDT WERE MISSING

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5260 (PART A) ETD
 Storm No. 93 Synoptic Type SQUALL LINE
 Started: 8/26 0130 1978 (EDT)
 Ended: 8/26 0400 1978 (EDT)

Remarks: Surface winds from the NNE

THE SURFACE WINDS WERE QUITE VARIABLE

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5260 (PART B) ETD
 Storm No. 93 Synoptic Type SQUALL LINE
 Started: 8/26 0130 1978 (EDT)
 Ended: 8/26 0400 1978 (EDT)

506

Remarks: Surface winds from the NNE

THE SURFACE WINDS WERE CU TE VARIABLE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5261 (PART A) ETD
 Storm No. 93 Synoptic Type SQUALL LINE
 Started: 8/26 0130 1978 (EDT)
 Ended: 8/26 0400 1978 (EDT)

Remarks: Surface winds from the WNW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5281 (PART B) ETD

Storm No. 93 Synoptic Type SQUALL LINE

Started: 8/26 0130 1978 (EDT)

Ended: 8/26 0400 1978 (EDT)

Remarks: Surface winds from the WNW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 94

8/26/78

MAX. PRECIP. - 0.03 IN. AT ST. 39
 MIN. PRECIP. - 0.00 IN. AT ST. 49
 AVG. PRECIP. - 0.00 IN.
 * STATIONS OPERATING - 45
 AVG. OF STA. WITH PRECIP. - 0.02 IN.
 * STATIONS WITH PRECIP - 5

STORM BEGAN DAY 26 AT 1300
 STORM ENDED DAY 26 AT 1400
 STORM DURATION 1.0 HRS.

STORM TYPE - AIR MASS
 PRIOR SURFACE WIND - NNW
 SURFACE WIND DIRECTION - NW
 UPPER AIR WIND DIRECTION - NNW
 PLANT BOWEN POWER OUTPUT - 1830 MW

SYNOPT C SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5262 EDT

Storm No. 94 Synoptic Type AIR MASS
 Started: 8/26 1300 1978 (EDT)
 Ended: 8/26 1400 1978 (EDT)

Map during middle of storm: _____ EDT

Map closest to starting time of storm: 8/26 1400 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT

Map during end of storm: _____ EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5263 ETD

Storm No. 94 Synoptic Type AIR MASS
 Started: 8/26 1300 1978 (EDT)
 Ended: 8/26 1400 1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/26 2000 EDT

Remarks: Upper-air winds from the NNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5284 (PART A) ETD
 Storm No. 94 Synoptic Type AIR MASS
 Started: 8/26 1300 1978 (EDT)
 Ended: 8/26 1400 1978 (EDT)

Remarks: Surface winds from the NNW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5264 (PART B) ETD
 Storm No. 94 Synoptic Type AIR MASS
 Started: 8/26 1300 1978 (EDT)
 Ended: 8/26 1400 1978 (EDT)

Remarks: Surface winds from the NNW

METER-JRNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5265 (PART A) ETD
 Storm No. 94 Synoptic Type AIR MASS
 Started: 8/26 1300 1978 (EDT)
 Ended: 8/26 1400 1978 (EDT)

Remarks: Surface winds from the NW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 78-5265 (PART B) ETD

Storm No. 94 Synoptic Type AIR MASS

Started: 8/26 1300 1978 (EDT)

Ended: 8/26 1400 1978 (EDT)

Remarks: Surface winds from the NW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 95

8/27/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5266 ETD

Map closest to starting time of storm: 8/27 0200 EDT

Remarks: _____

Storm No. 95 Synoptic Type AIR MASS
 Started: 8/27 0130 1978 (EDT)
 Ended: 8/27 0400 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 8/27 0500 EDT

Γ Γ Γ Γ Γ Γ

500 MB

Remarks: Upper-air winds from the NNW
THE MAPS ARE WITH STORM NO. 94.
UPPER-AIR MAPS AT 8/27 0800 EDT WERE MISSING.

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5268 (PART A) ETD
 Storm No. 95 Synoptic Type AIR MASS
 Started: 8/27 0130 1978 (EDT)
 Ended: 8/27 0400 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5288 (PART 8) ETD
 Storm No. 95 Synoptic Type AIR MASS
 Started: 8/27 0130 1978 (EDT)
 Ended: 8/27 0400 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5289 (PART A) ETD

Storm No. 95 Synoptic Type AIR MASS

Started: 8/27 0130 1978 (EDT)

Ended: 8/27 0400 1978 (EDT)

Remarks: Surface winds from the E

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5269 (PART B) ETD
 Storm No. 95 Synoptic Type AIR MASS
 Startec: 8/27 0130 1978 (EDT)
 Ended: 8/27 0400 1978 (EDT)

Remarks: Surface winds from the E

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 96

8/27/78

MAX. PRECIP. - 0.03 IN. AT ST. 21
 MIN. PRECIP. - 0.00 IN. AT ST. 49
 AVG. PRECIP. - 0.00 IN.
 * STATIONS OPERATING - 44
 AVG. OF STA. WITH PRECIP. - 0.03 IN.
 * STATIONS WITH PRECIP - 1

STORM BEGAN DAY 27 AT 630
 STORM ENDED DAY 27 AT 830
 STORM DURATION 2.0 HRS.

STORM TYPE - AIR MASS
 PRIOR SURFACE WIND - NNE
 SURFACE WIND DIRECTION - SSW
 UPPER AIR WIND DIRECTION - NNW
 PLANT BOWEN POWER OUTPUT - 1691 MW

ORNL-DWG 79-5270 ETD

Map during middle of storm: EDT

Map during end of storm: _____ EDT

ORNL-DWG 79-5271 ETD

Storm No. 96 Synoptic Type: AIR MASS
 Started: 8/27 0630 1978 (EDT)
 Ended: 8/27 0730 1978 (EDT)

500 MB

Time: 8/26 2000 EDT

Remarks: Upper-air winds from the NNW

THE MAPS ARE WITH STORM NO. 94.

UPPER-AIR MAPS AT 8/27 0800 EDT WERE MISSING.

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5272 (PART A) ETD
 Storm No. 96 Synoptic Type AIR MASS
 Started: 8/27 0630 1978 (EDT)
 Ended: 8/27 0730 1978 (EDT)

Remarks: Surface winds from the NNE

THE WIND DIRECTION VARIED CONSIDERABLY BETWEEN WINDSETS.

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5272 (PART B) ETD
Storm No. 96 Synoptic Type AIR MASS
Started: 8/27 0630 1978 (EDT)
Ended: 8/27 0730 1978 (EDT)

Remarks: Surface winds from the NNE

THE WIND DIRECTION VARIED CONSIDERABLY BETWEEN WINDSETS.

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5273 (PART A) ETD

Storm No. 96 Synoptic Type AIR MASS

Started: 8/27 0630 1978 (EDT)

Ended: 8/27 0730 1978 (EDT)

Remarks: Surface winds from the SSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5273 (PART B) ETD

Storm No. 96 Synoptic Type AIR MASS

Started: 8/27 0630 1978 (EDT)

Ended: 8/27 0730 1978 (EDT)

Remarks: Surface winds from the SSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5274 ETD

Map closest to starting time of storm: 8/29 1400 EDT

Remarks: DISAGREED WITH NWS ANALYSIS OF FRONT

Storm No. 97 Synoptic Type STATIONARY FRONT

Started: 8/29 1530 1978 (EDT)

Ended: 8/29 1800 1978 (EDT)

Map during middle of storm: _____ EDT

Map during end of storm: 8/29 1700 EDT

Ended: 8.29 1800 1978 (EDT)

850 MB

70G MB

500 MB

Time: 8/29 2000 EDT

Remarks: Upper-air winds from the SSW

[illegible]

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5276 (PART A) ETD
 Storm No. 97 Synoptic Type STATIONARY
 Started: 8/29 1530 1978 (EDT)
 Ended: 8/29 1800 1978 (EDT)

Remarks: Surface winds from the SW

METER-JRNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5276 (PART B) ETD

Storm No. 97 Synoptic Type STATIONARY

Started: 8/29 1530 FRONT
1978 (EDT)

Endec: 8/29 1800 1978 (EDT)

Remarks: Surface winds from the SW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5277 (PART A) ETD
STATIONARY

Storm No. 97 Synoptic Type FRONT

Started: 8/29 1530 1978 (EDT)

Ended: 8/29 1800 1978 (EDT)

Remarks: Surface winds from the WSW

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5277 (PART B) ETD
STATIONARY

Storm No. 97 Synoptic Type FRONT

Started: 8/29 1530 1978 (EDT)

Ended: 8/29 1800 1978 (EDT)

Remarks: Surface winds from the WSW

METER - ORNL NETWORK PRECIPITATION CONTOURS

STORM NO. 98

8/30/78

SYNOPTIC SURFACE MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5278 ETD

Storm No. 98 Synoptic Type AIR MASS
 Started: 8/30 2000 1978 (EDT)
 Ended: 8/30 2100 1978 (EDT)

Map during middle of storm: _____ EDT

Map closest to starting time of storm: 8/30 2000 EDT

Remarks: ONLY STATION NO. 16 HAD PRECIPITAT ON.

Map during end of storm: _____ EDT

SYNOPTIC UPPER-AIR MAPS DURING METER-ORNL NETWORK STORMS

ORNL-DWG 79-5279 ETD

Storm No.	98	Synoptic Type	AIR MASS
Started:	8/30 2000		1978 (EDT)
Ended:	8/30 2100		1978 (EDT)

850 MB

700 MB

500 MB

Time: 8/30 2000 EDT

Remarks: Upper-air winds from the SW

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5280 (PART A) ETD
 Storm No. 98 Synoptic Type AIR MASS
 Started: 8/30 2000 1978 (EDT)
 Ended: 8/30 2100 1978 (EDT)

Remarks: Surface winds from the SSE

METER-ORNL WINDSET DATA IMMEDIATELY PRIOR TO STORMS

ORNL-DWG 79-5280 (PART B) ETD
 Storm No. 98 Synoptic Type AIR MASS
 Started: 8/30 2000 1978 (EDT)
 Ended: 8/30 2100 1978 (EDT)

Remarks: Surface winds from the SSE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5281 (PART A) ETD

Storm No. 98 Synoptic Type AIR MASS

Started: 8/30 2000 1978 (EDT)

Ended: 8/30 2100 1978 (EDT)

Remarks: Surface winds from the SE

METER-ORNL WINDSET DATA DURING STORMS

ORNL-DWG 79-5281 (PART B) ETD

Storm No. 98 Synoptic Type AIR MASS

Started: 8/30 2000 1978 (EDT)

Ended: 8/30 2100 1978 (EDT)

Remarks: Surface winds from the SE

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