NASA TECHNICAL NOTE

NASA TN D-7914

NASA TN D-7914

PRESSURE CONTACT SOUNDING DATA FOR NASA'S ATMOSPHERIC VARIABILITY EXPERIMENT (AVE II)

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION • WASHINGTON, D. C. • MARCH 1975

1. REPORT NO.	2. GOVERNMENT ACCESSION NO.	3. RECIPIENT'S CATALOG NO.
NASA TN D-7914		

4. TITLE AND SUBTITLE	5. REPORT DATE
Pressure Contact Sounding Data For NASA's Atmospheric Variability Experiment (AVE II)	March 1975
	6. PERFORMING ORGANIZATION CODE M137
7. AUTHOR(S) Henry E. Fuelberg* and Robert E. Turner	8. PERFORMING ORGANIZATION REPORT #
9. PERFORMING ORGANIZATION NAME AND ADDRESS George C. Marshall Space Flight Center Marshall Space Flight Center, Alabama 35812	10. WORK UNIT NO.
	11. CONTRACT OR GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS National Aeronautics and Space Administration Washington, D. C. 20546	13. TYPE OF REPORT & PERIOD COVERED Technical Note
	14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES

This report is published to make available a unique set of atmospheric data for research use by the scientific community. The project was conducted under the operational direction of Mr. Robert Turner, MSFC, for the Office of Applications, NASA Headquarters.

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16. ABSTRACT

This report describes the basic rawinsonde data at each pressure contact from the surface to sounding termination for the 54 stations participating in the AVE II pilot experiment which began 1200 GMT on May 11 and ended at 1200 GMT on May 12, 1974. Soundings were taken at three-hour intervals from stations within the United States east of about 105 deg west longitude. A brief discussion on methods of data reduction and estimates of data accuracy are given. Examples of the data records produced are shown. Complete records in tabulated form or on magnetic tape are available upon request to the NASA Marshall Space Flight Center. The AVE II pilot experiment was conducted as part of NASA's program to better understand and establish the extent of applications for meteorological satellite sensor data through correlative ground truth experiments and to provide basic experimental data for use in studies of atmospheric scales-of-motion interrelationships.

17. KEY WORDS	18. DISTRIBUTION STATEMENT
Rawinsonde Atmospheric Variability Meso-scale Synoptic	Cat. 46

19. SECURITY CLASSIF. (of this report)	20. SECURITY CLASSIF. (of this page)	21. NO. OF PAGES	22. PRICE
UNCLASSIFIED	UNCLASSIFIED	24	$3.25

MSFC - Form 3292 (Rev December 1972) For sale by National Technical Information Service, Springfield, Virginia 2215[illegible]

ACKNOWLEDGMENTS

Many people contributed directly or indirectly to the preparation of this report. The list is too long to acknowledge everyone. No less than approximately 20 people made substantial contributions in data processing, computer programming, analysis of data, and preparation proper of the report. Although names are not given, the authors are grateful to every person who worked diligently behind the scenes to accomplish an important and difficult task in record time.

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ABBREVIATIONS

AVE	Atmospheric Variability Experiment
FY	Fiscal year
GMT	Greenwich Meridian Time
gpm	geopotential meters
mb	millibars
mps	meters per second
NWS	National Weather Service

PRESSURE CONTACT SOUNDING DATA FOR NASA'S ATMOSPHERIC VARIABILITY EXPERIMENT (AVE II)

I. INTRODUCTION

The first NASA Atmospheric Variability Experiment (AVE I) was conducted during the period February 19 to 22, 1964. Scoggins and Smith [1,2] have presented data from the AVE I experiment, and a compilation of studies from AVE I has been presented by Scoggins et al. [3]. Results from this experiment demonstrated conclusively that systems with a time scale less than 12 hours are present and lead to large temporal and spatial variations in the observed structure of the atmosphere and in weather. AVE I demonstrated the need for additional experiments of this type in order to better understand physical processes in the atmosphere and their influence upon changes in local weather conditions.

The FY 75 NASA Atmospheric Variability Experiment (AVE) has been planned to consist of three separate observational periods [4]. The AVE observational periods will be similar to AVE I except that the periods during which observations are taken will be of a shorter duration and the method of data processing will be changed somewhat to take maximum advantage of the capabilities of the rawinsonde system. The observational period for AVE II, which was a pilot experiment, was conducted from 12 GMT on May 11 to 12 GMT on May 12, 1974. During this period, rawinsonde soundings were taken at 3-hr intervals over the eastern United States, east of approximately 105 deg west longitude. The purpose of this report is to present the rawinsonde data for the AVE II Pilot Experiment. Data from other sources such as satellite, radar, and surface stations are available and will be presented as appropriate in subsequent reports prepared from the analyses of the data.

The AVE III and AVE IV observational phases will be conducted in the Winter of 1974 and the Spring of 1975. The exact dates will depend upon the availability of the SMS and other satellites, synoptic conditions, coordination with other agencies participating in the AVE Project, and other factors.

II. THE AVE II PILOT EXPERIMENT

Fifty-four rawinsonde stations participated in the AVE II Pilot Experiment. These are shown in Figure 1, and a tabulated listing is presented in Table 1. Soundings were made at 3-hour intervals at each station beginning at 12 GMT on May 11 and ending at 12 GMT on May 12, 1974. The objectives of AVE II were to evaluate the accuracy and

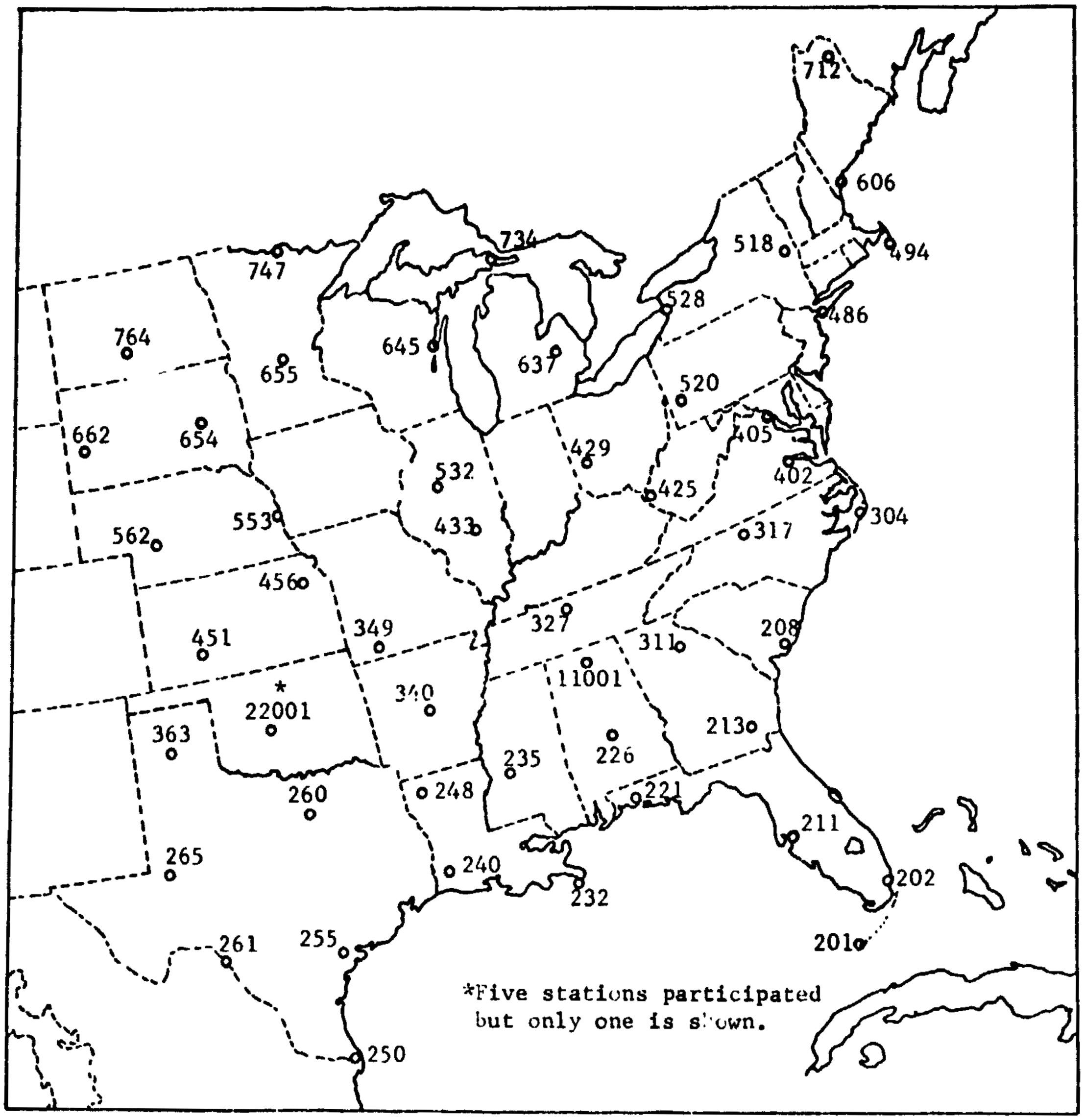

Figure 1. Rawinsonde stations for AVE II Pilot Experiment.

representativeness of quantitative satellite data, to investigate the structure and dynamics of the atmosphere associated with severe weather, and to investigate the temporal and spatial variability of atmospheric parameters/systems of a scale smaller than that normally detected from data measured at intervals of 12 hours. To achieve these objectives, it was desirable in the AVE II Pilot Experiment to obtain data during a period when convective activity was present, large horizontal temperature gradients existed, a jet stream was present, a variety of cloud conditions existed, and rapid changes in weather patterns could be expected during the period. We were fortunate to select a period in which all of these conditions existed, inasmuch as the National Weather Service required a 48-hour notice prior to the start of the observational period.

TABLE 1. LIST OF RAWINSONDE STATIONS FOR AVE II PILOT EXPERIMENT

Station Number	Location
11001 (MSF)	Marshall Space Flight Center, Alabama
22001 (OUN)	Norman, Oklahoma
22002 (FSI)	Ft. Sill, Oklahoma
22003 (LNS)	Lindsay, Oklahoma
22004 (FTC)	Ft. Cobb, Oklahoma
22005 (CHK)	Chickasha, Oklahoma
201 (EYW)	Key West, Florida
202 (MIA)	Miami, Florida
208 (CHS)	Charleston, South Carolina
211 (TPA)	Tampa, Florida
213 (AYS)	Waycross, Georgia
221 (VPS)	Eglin AFB, Florida
226 (MGM)	Montgomery, Alabama
232 (BVE)	Boothville, Louisiana
235 (JAN)	Jackson, Mississippi
240 (LCH)	Lake Charles, Louisiana
248 (SHV)	Shreveport, Louisiana
250 (BRO)	Brownsville, Texas
255 (VCT)	Victoria, Texas
260 (SEP)	Stephenville, Texas
261 (DRT)	Del Rio, Texas
265 (MAF)	Midland, Texas
304 (HAT)	Hatteras, North Carolina
311 (AHN)	Athens, Georgia
317 (GSO)	Greensboro, North Carolina
327 (BNA)	Nashville, Tennessee
340 (LIT)	Little Rock, Arkansas
349 (UMN)	Monette, Missouri
363 (AMA)	Amarillo, Texas
402 (WAL)	Wallops Island, Virginia
405 (IAD)	Dulles Airport, Virginia
425 (HTS)	Huntington, West Virginia
429 (DAY)	Dayton, Ohio
433 (SLO)	Salem, Illinois
451 (DDC)	Dodge City, Kansas
456 (TOP)	Topeka, Kansas
486 (JFK)	Kennedy Airport, New York
494 (CHH)	Chatam, Massachusetts
518 (ALB)	Albany, New York
520 (PIT)	Pittsburg, Pennsylvania
528 (BUF)	Buffalo, New York
532 (PIA)	Peoria, Illinois
553 (OMA)	Omaha, Nebraska
562 (LBF)	North Platte, Nebraska
606 (PWM)	Portland, Maine
637 (FNT)	Flint, Michigan
645 (GRB)	Green Bay, Wisconsin
654 (HUR)	Huron, South Dakota
655 (STC)	St. Cloud, Minnesota
662 (RAP)	Rapid City, South Dakota
712 (CAR)	Caribou, Maine
734 (SSM)	Sault Ste Marie, Michigan
747 (INL)	International Falls, Minnesota
764 (BIS)	Bismarck, North Dakota

III. DISCUSSION OF BASIC DATA

A. Collection

All original rawinsonde records necessary for computing the soundings were sent to the Aerospace Environment Division, NASA Marshall Space Flight Center, Huntsville, Alabama, for processing. Most of these data were in excellent condition and arrived within three weeks after the experiment was conducted.

B. Methods of Processing

A technical report describing in detail the methods used to process the data has been prepared by Fuelberg [5]. The reduction process began with personnel from Texas A&M University and the Marshall Space Flight Center assembling in Huntsville in order to extract angle and ordinate data from strip charts and keypunch the data into computer cards. Ordinate data were extracted for every pressure contact, while angle data were extracted at 30-sec intervals, except for some NWS regularly scheduled soundings for which 60-sec data were available. The computer cards were sent to Texas A&M University where all soundings were calculated on an IBM 360/65 computer.

The keypunched data were carefully edited for errors by computing first differences of all keypunched values and then computing first differences of the thermodynamic and wind data determined at each pressure contact. Questionable data points were checked against the original strip chart records to insure that correct information had been extracted. Some errors were discovered after these checks were made and the input data corrected. These are listed in Table 2.

Thermodynamic data were computed for each pressure contact, while wind data were computed at 30-sec intervals by means of centered finite differences over a 1-min period and then smoothed and interpolated to each pressure contact. These detailed profiles were then interpolated for 25-mb intervals. The contact data are presented in this report, while the 25-mb data have been presented by Scoggins and Turner [5].

IV. DISCUSSION OF SOUNDING DATA

A. Accuracy Estimates

Estimates of the RMS errors in the thermodynamic quantities of the AVE II pilot data are based on the work of several investigators and are the same as those given by Scoggins and Smith [1] for the AVE I data. These are as follows:

TABLE 2. KNOWN ERRORS REMAINING IN THE REDUCED DATA OF THE AVE II PILOT EXPERIMENT

Station	Date/GMT	
221 Eglin AFB, Florida	All time periods	Azimuth angles are 180 deg out of phase. Correct derived wind direction and balloon azimuth location by 180 deg. U and V wind components are 180 deg out of phase.
250 Brownsville, Texas	12/0600	The baseline (surface) wind direction should be 140 deg. Correct U and V wind components accordingly.
260 Stephenville, Texas	All time periods	SEP on the raw data tape is indicated as station 259 instead of station 260. The error does not exist in other tapes.
261 Del Rio, Texas	11/1500	The surface pressure should be 966.9 mb. Pressure altitude may be corrected by subtracting 268 m from each value given.
261 Del Rio, Texas	11/2100	The surface wind direction should be 330 deg. Correct U and V wind components accordingly.
494 Chatam, Massachusetts	12/1200	The surface pressure should be 1013.7 mb. Pressure altitude may be corrected by subtracting 34 m from each value given.
520 Pittsburg, Pennsylvania	11/1600	The surface pressure should be 968.8 mb at contact 8.2. Correct pressure-altitude by subtracting 104 m from each value given. Contact 8 is nonexistent.
520 Pittsburg, Pennsylvania	12/1200	The surface pressure should be 961.3 mb. Pressure-altitude may be corrected by subtracting 21 m from each value given.
528 Buffalo, New York	12/0900	Abrupt change in elevation angle at 46 min after release. Cause unknown.
637 Flint, Michigan	11/1500	The surface pressure should be 979 3 mb. Add 52 m to correct pressure altitude.
734 Sault St. Marie, Michigan	All time periods	Sondes were released during light rain and/or fog in near freezing temperatures. Very high humidity values may be due to a faulty sensor and cannot be corrected.
747 International Falls, Montana	All time periods	
11001 Marshall Space Flight Center, Alabama	All time periods	Incorrect station elevation was used, subtract 12 m from all heights.
22004 Ft. Cobb, Oklahoma	12/0100	The surface pressure should be 961 7 mb. Add 93 m to all heights to correct pressure altitude.
All Stations	All time periods	Values of wind direction at 25-mb intervals (not contact data) are sometimes in error when interpolation about 0 deg was required. The U and V wind components are correct, however, and may be used to determine the correct wind direction.

Parameter	Approximate RMS Error
Temperature	1C
Pressure	1.3 mb surface to 400 mb; 1.1 mb between 400 and 100 mb; 0.7 mb between 100 and 10 mb
Humidity	10 percent
Pressure Altitude	10 gpm at 500 mb; 20 gpm at 300 mb; 50 gpm at 50 mb

The RMS errors for wind speed and direction were difficult to obtain and represent best estimates which were based upon experience, continuity of the data in space and time, numerous error analyses based upon different data reduction techniques, and intuition. The errors were also a function of tracking geometry which makes it difficult to present error estimates in a simple form. An error analysis by Fuelberg [6] indicates maximum RMS errors (based on the worst geometric tracking configuration) for the AVE II pilot data at 700 mb to be about 2.5 meters per second (mps) at an elevation angle of 10 deg and about 0.5 mps at an elevation angle of 40 deg. At 500 mb, the errors are 4.5 mps and 0.8 mps for the same elevation angles, and at 300 mb, the errors are 7.8 mps and 1.0 mps, respectively. After assuming typical values of scalar wind speed at the various levels, maximum RMS errors in wind direction were determined. The maximum RMS errors at 700 mb range from about 9.5 deg at an elevation of 10 deg to about 1.3 deg at an elevation angle of 40 deg. At 500 mb, the errors are 13.4 deg and 1.8 deg at the same elevation angles, while at 300 mb, the maximum errors are 18.0 deg and 2.5 deg, respectively. These values are the same as those given for the 25-mb data by Scoggins and Turner [5], although an additional interpolation step was needed to compute values at 25-mb intervals. The values are in agreement with those given by Scoggins and Smith [1] for the AVE I data as well as those previously presented by other authors.

B. Tabulated Data

An example of the available pressure contact data is presented in the appendix. The soundings are arranged by time and appear in ascending order by station number for each time. Station number and name, along with the time and date of rawinsonde release, are given at the top of each page. The three numbers in the upper right-hand side of each page are the number of pressure contacts computed, the minimum pressure obtained (mb), and an angle identifier with the value 0 for 30-sec angle input and 1 for 1-min angle input. An explanation of the column headings (Table A-1) and a list of missing soundings (Table A-2) are given in the appendix.

APPENDIX

EXAMPLE OF AVE II PRESSURE CONTACT DATA

This example is for Station No. 201, Key West, Florida, and Station No. 202, Miami, Florida, for the May 11, 1974, 1115 GMT observation. The same type data listing is available upon request for each station and for all observations taken during the observational period 1200 GMT on May 11, 1974 to 1200 GMT on May 12, 1974. Also available is the same data on magnetic tape for computer processing. These records are available upon request to:

NASA
George C. Marshall Space Flight Center
Aerospace Environment Division
Space Sciences Laboratory
Marshall Space Flight Center, Alabama 35812

TABLE A-1. EXPLANATION OF COLUMN HEADINGS OF TABULATED SOUNDING DATA FOR AVE II PILOT EXPERIMENT

TIME (MIN)	Time after balloon release.
CNTCT	Contact number.
HEIGHT (GPM)	Height of corresponding pressure surface in geopotential meters.
PRES (MB)	Pressure in millibars.
TEMP (DG C)	Ambient temperature in degrees Celsius.
DEW PT (DG C)	Dew point temperature in degrees Celsius.
DIR (DG)	Wind direction measured clockwise from true north. It is the direction from which the wind is blowing.
SPEED (M/SEC)	Scalar wind speed in meters per second.
U COMP (M/SEC)	The W-E wind component, positive toward the east and negative toward the west.
V COMP (M/SEC)	The S-N wind component, positive toward the north and negative toward the south.
POT T (DG K)	Potential temperature in degrees Kelvin.
E POT T (DG K)	Equivalent potential temperature in degrees Kelvin.
MX RTO (GM/KG)	Mixing ratio in grams per kilogram.
RH (PCT)	Relative humidity in percent.
RANGE (KM)	Distance balloon is from release point along a radius vector.
AZ (DG)	Direction toward balloon measured clockwise from true north.

NOTE: An asterisk following temperature indicates that time from release and/or temperature were linearly interpolated between the closest contact data; an asterisk following wind speed indicates an elevation angle less than 9 deg.

TABLE A-2. LIST OF MISSING SOUNDINGS IN AVE II PILOT EXPERIMENT

Soundings were not computed at the following stations and times for the stated reasons. Soundings are available at other stations for each of the 9 time periods.

Station	Date/Time	Reason for Omission
208, Charleston	12/0252	Technical problems in the reduction process.
226, Montgomery	11/1500	Ordinate data not available due to a malfunction in equipment.
255, Victoria	12/1115	Technical problems in the reduction process.
265, Midland	11/1200	Ordinate data not available due to a malfunction in equipment.
22003, Lindsay	12/0300-12/1200	Soundings not taken.
22004, Ft. Cobb	12/0300-12/1200	Soundings not taken.
22005, Chickasha	12/0300-12/1200	Soundings not taken.

STATION NO. 201
KEY WEST, FLA

11 MAY 1974
1115 GMT

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ANGLES ON THE HALF MINUTE HAVE BEEN LINEARLY INTERPOLATED FROM WHOLE MINUTE VALUES

TIME MIN	CNTCT	HEIGHT GPM	PRES MB	TEMP DG C	DEW PT DG C	DIR DG	SPEED M/SEC	U COMP M/SEC	V COMP M/SEC	POT T DG K	E POT T DG K	MX RTO GM/KG	RH PCT	RANGE KM	AZ DG
0.0	4.5	3.0	1012.4	25.4	22.7	140.0	8.8	-5.7	6.7	299.8	345.6	17.4	85.0	0.0	0.
0.1	5.0	25.9	1010.0	24.7	21.8	159.5	2.6	-0.9	2.5	299.3	342.5	16.5	83.6	0.7	322.
0.6	6.0	155.8	995.0	24.7	21.2	157.1	3.4	-1.3	3.1	300.5	343.2	16.2	80.8	0.7	323.
0.9	7.0	262.6	983.0	24.5	21.2	153.5	5.5	-2.4	4.9	301.3	344.6	16.4	81.8	0.7	324.
1.4	8.0	370.6	971.0	23.4	23.1	152.8	9.3	-4.3	8.3	301.5	350.6	18.7	98.4	1.0	326.
1.9	9.0	470.4	960.0	22.1	21.8	155.6	12.4	-5.1	11.3	301.0	346.9	17.4	98.4	1.3	328.
2.3	10.0	580.2	948.0	21.2	20.9	158.6	13.8	-5.0	12.9	301.1	345.2	16.7	98.2	1.6	330.
2.6	11.0	709.5	934.0	20.4	20.1	160.2	13.8	-4.7	13.0	301.4	343.9	16.1	98.1	1.9	331.
3.0	12.0	812.3	923.0	20.2	19.8	160.4	11.5	-3.9	10.9	302.2	344.7	16.0	97.9	2.2	333.
3.5	13.0	925.8	911.0	19.5	19.5	156.0	12.0	-4.9	10.9	303.0	345.4	15.9	97.0	2.5	333.
3.9	14.0	1030.9	900.0	19.1	18.6	154.4	14.2	-6.1	12.8	303.1	343.8	15.2	96.9	2.9	333.
4.1	15.0	1127.2	890.0	18.1	17.2	153.7	14.2	-6.3	12.7	302.9	340.5	14.0	94.6	3.0	333.
4.5	16.0	1263.6	876.0	18.1	17.0	152.0	11.9	-5.6	10.5	304.3	342.2	14.1	93.3	3.4	333.
5.0	17.0	1372.3	865.0	17.9	17.1	153.7	9.9	-4.4	8.9	305.2	344.0	14.4	95.2	3.7	333.
5.4	18.0	1482.2	854.0	17.1	16.4	155.4	11.0	-4.6	10.0	305.4	343.1	13.9	96.0	3.9	333.
5.7	19.0	1593.1	843.0	16.1	15.4	157.1	11.5	-4.5	10.6	305.3	341.3	13.2	95.8	4.1	333.
6.1	20.0	1694.8	833.0	15.1	14.6	159.9	11.7	-4.0	11.0	305.3	339.9	12.7	97.1	4.4	334.
6.5	21.0	1828.4	820.0	14.3	14.0	163.2	11.3	-3.3	10.8	305.8	339.6	12.4	97.8	4.7	334.
6.9	22.0	1942.8	809.0	13.6	13.4	168.5	12.5	-2.5	12.3	306.1	339.0	12.0	98.7	4.9	335.
7.3	23.0	2047.9	799.0	13.0	12.8	174.2	11.8	-1.2	11.7	306.5	338.7	11.7	98.6	5.3	336.
7.5	24.0	2154.7	788.0	11.9	11.6	177.7	11.1	-0.5	11.1	306.4	336.8	11.0	98.4	5.4	336.
8.0	25.0	2271.7	778.0	10.4	9.9	184.6	9.7	0.8	9.7	305.8	333.2	9.9	96.4	5.7	338.
8.4	26.0	2412.5	765.0	10.4	9.7	189.9	8.6	1.5	8.5	307.3	334.9	9.9	95.1	5.9	339.
8.9	27.0	2522.4	755.0	10.2	9.7	196.5	7.7	2.2	7.4	308.3	336.4	10.1	96.5	6.0	340.
9.3	28.0	2633.6	745.0	9.5	9.1	202.0	7.2	2.7	6.6	308.6	336.0	9.8	97.1	6.2	341.
9.6	29.0	2746.0	735.0	8.8	7.8	206.3	6.8	3.0	6.1	309.0	334.4	9.1	93.1	6.3	342.
9.9	30.0	2859.4	725.0	7.4	5.9	210.7	6.5	3.3	5.6	308.5	331.3	8.1	90.0	6.4	343.
10.5	31.0	2974.1	715.0	7.2	5.3	214.9	6.5	3.7	5.3	309.5	331.8	7.9	87.7	6.4	344.
10.7	32.0	3078.7	706.0	7.8	6.6	214.0	6.9	3.9	5.7	311.3	336.2	8.7	92.7	6.5	345.
11.1	33.0	3196.6	696.0	7.1	6.4	212.6	7.7	4.1	6.5	311.8	336.7	8.7	95.8	6.7	346.
11.5	34.0	3303.9	687.0	6.9	6.4	211.9	8.5	4.5	7.2	312.8	338.0	8.8	96.7	6.8	347.
11.8	35.0	3424.7	677.0	6.9	2.1	213.0	8.7	4.7	7.3	313.8	333.1	6.6	71.5	6.9	348.
12.1	36.0	3559.6	666.0	7.1	-2.2	213.9	8.7	4.9	7.2	315.3	329.9	4.9	51.7	7.1	349.
12.5	37.0	3671.4	657.0	6.9	-29.4	215.2	8.2	4.7	6.7	315.8	317.5	0.5	5.4	7.2	350.
12.9	38.0	3797.3	647.0	7.1	99.9	214.9	7.2	4.1	5.9	317.4	999.9	99.9	999.9	7.3	352.
13.4	39.0	3912.3	638.0	7.1	99.9	220.3	6.3	4.1	4.8	318.6	999.9	99.9	999.9	7.5	352.
13.8	40.0	4028.7	629.0	6.0	99.9	234.4	6.5	5.3	3.8	318.8	999.9	99.9	999.9	7.5	353.
14.4	41.0	4172.7	618.0	5.2	99.9	252.9	7.8	7.5	2.3	319.4	999.9	99.9	999.9	7.6	355.
14.8	42.0	4278.9	610.0	4.8	99.9	257.8	7.9	7.7	1.7	320.2	999.9	99.9	999.9	7.7	357.
15.1	43.0	4399.8	601.0	4.3	99.9	260.3	7.4	7.3	1.3	321.0	999.9	99.9	999.9	7.7	358.
15.5	44.0	4522.2	592.0	3.5	99.9	262.9	6.2	6.1	0.8	321.4	999.9	99.9	999.9	7.7	359.
15.9	45.0	4646.1	583.0	2.2	99.9	265.9	5.3	5.3	0.4	321.3	999.9	99.9	999.9	7.7	360.
16.4	46.0	4757.3	575.0	1.1	99.9	267.6	4.8	4.8	0.2	321.3	999.9	99.9	999.9	7.7	1.
16.8	47.0	4883.9	566.0	0.6	99.9	267.4	4.7	4.7	0.2	322.1	999.9	99.9	999.9	7.7	2.
17.2	48.0	4997.8	558.0	-0.5	99.9	267.6	4.8	4.8	0.2	322.1	999.9	99.9	999.9	7.7	3.

STATION NO. 201
KEY WEST, FLA

11 MAY 1974
1115 GMT
164 17. 1

ANGLES ON THE HALF MINUTE HAVE BEEN LINEARLY INTERPCLATED FROM WHOLE MINUTE VALUES

TIME MIN	CNTCT	HEIGHT GPM	PRES MB	TEMP DG C	DEW PT DG C	DIR DG	SPEED M/SEC	U COMP M/SEC	V COMP M/SEC	POT T DG K	E POT T DG K	MX RTO GM/KG	RH PCT	RANGE KM	AZ DG
17.6	49.0	5113.0	550.0	-1.3	99.9	268.9	4.9	4.9	0.1	322.6	999.9	99.9	999.9	7.7	3.
18.0	50.0	5244.1	541.0	-2.1	99.9	271.1	5.2	5.2	-0.1	323.2	999.9	99.9	999.9	7.8	4.
18.5	51.0	5391.9	531.0	-3.6	99.9	275.7	5.6	5.6	-0.6	323.0	999.9	99.9	999.9	7.8	5.
18.9	52.0	5511.5	523.0	-4.7	99.9	276.7	5.7	5.7	-0.7	323.2	999.9	99.9	999.9	7.8	6.
19.4	53.0	5632.4	515.0	-5.5	99.9	266.9	5.3	5.3	0.3	323.2	999.9	99.9	999.9	7.7	8.
19.8	54.0	5739.3	508.0	-7.0	99.9	247.6	4.8	4.4	1.8	323.0	999.9	99.9	999.9	7.7	9.
20.0	55.0	5862.8	500.0	-8.1	99.9	235.4	4.7	3.9	2.7	323.2	999.9	99.9	999.9	7.8	9.
20.5	56.0	6019.2	490.0	-9.5	99.9	229.4	4.3	3.3	2.8	323.3	999.9	99.9	999.9	8.0	9.
21.0	57.0	6146.2	482.0	-10.2	99.9	281.6	4.5	4.4	-0.9	323.9	999.9	99.9	999.9	8.1	9.
21.5	58.0	6258.5	475.0	-11.7	99.9	312.6	8.3	6.1	-5.6	323.5	999.9	99.9	999.9	8.0	11.
21.8	59.0	6388.5	467.0	-12.4	99.9	301.6	9.1	7.7	-4.8	324.2	999.9	99.9	999.9	7.6	16.
22.2	60.0	6503.5	460.0	-13.8	-40.5	298.0	8.7	7.7	-4.1	323.8	324.7	0.2	8.3	7.6	18.
22.6	61.0	6619.7	453.0	-15.2	-38.8	296.9	8.4	7.5	-3.8	323.5	324.6	0.3	11.1	7.5	20.
23.0	62.0	6754.0	445.0	-16.5	-36.5	295.4	8.1	7.3	-3.5	323.4	324.8	0.4	15.8	7.5	21.
23.5	63.0	6873.0	438.0	-17.4	-33.4	289.1	8.2	7.7	-2.7	323.9	325.7	0.5	23.0	7.5	23.
23.9	64.0	6993.5	431.0	-18.7	-32.4	284.7	8.8	8.5	-2.2	323.6	325.7	0.6	28.7	7.5	24.
24.2	65.0	7115.2	424.0	-19.9	-31.9	283.8	9.4	9.1	-2.2	323.6	325.7	0.6	33.3	7.5	26.
24.6	66.0	7274.0	415.0	-21.3	-35.9	284.8	10.0	9.6	-2.6	323.8	325.3	0.4	25.2	7.6	27.
25.1	67.0	7399.2	408.0	-22.5	-34.3	288.8	10.3	9.8	-3.3	323.9	325.6	0.5	33.1	7.7	30.
25.5	68.0	7507.7	402.0	-23.7	-44.8	291.6	10.6	9.8	-3.9	323.6	324.3	0.2	12.3	7.7	31.
25.9	69.0	7636.3	395.0	-22.9	99.9	292.8	11.1	10.2	-4.3	326.4	999.9	99.9	999.9	7.8	33.
26.5	70.0	7767.1	388.0	-23.9	99.9	293.1	11.8	10.9	-4.6	326.8	999.9	99.9	999.9	7.8	36.
26.9	71.0	7919.0	380.0	-24.7	99.9	292.6	12.2	11.2	-4.7	327.7	999.9	99.9	999.9	7.9	38.
27.5	72.0	8034.7	374.0	-25.5	99.9	291.6	12.5	11.6	-4.6	328.2	999.9	99.9	999.9	8.0	41.
27.8	73.0	8171.4	367.0	-26.7	99.9	291.6	12.7	11.8	-4.7	328.3	999.9	99.9	999.9	8.1	43.
28.3	74.0	8290.1	361.0	-27.9	99.9	292.2	13.1	12.1	-4.9	328.3	999.9	99.9	999.9	8.3	45.
28.7	75.0	8430.5	354.0	-28.9	99.9	293.0	13.5	12.4	-5.3	328.7	999.9	99.9	999.9	8.4	47.
29.1	76.0	8552.5	348.0	-30.0	99.9	293.7	14.0	12.9	-5.6	328.8	999.9	99.9	999.9	8.5	49.
29.5	77.0	8676.2	342.0	-30.8	99.9	294.0	14.7	13.4	-6.0	329.4	999.9	99.9	999.9	8.7	51.
29.9	78.0	8801.5	336.0	-32.0	99.9	293.8	15.4	14.1	-6.2	329.4	999.9	99.9	999.9	8.9	53.
30.4	79.0	8928.4	330.0	-33.4	99.9	293.7	16.3	14.9	-6.5	329.3	999.9	99.9	999.9	9.1	56.
30.7	80.0	9056.9	324.0	-34.6	99.9	294.1	16.8	15.4	-6.9	329.3	999.9	99.9	999.9	9.3	58.
31.4	81.0	9209.1	317.0	-36.1	99.9	296.2	17.9	16.1	-7.9	329.3	999.9	99.9	999.9	9.7	61.
31.6	82.0	9341.5	311.0	-37.1	-58.2	297.0	18.1	16.1	-8.2	329.6	329.8	0.0	8.9	9.8	62.
32.1	83.0	9453.3	306.0	-38.2	99.9	299.7	18.4	6.0	-9.1	329.7	999.9	99.9	999.9	10.1	65.
32.5	84.0	9589.3	300.0	-39.3	99.9	303.1	18.4	15.4	-10.0	330.0	999.9	99.9	999.9	10.4	67.
32.9	85.0	9727.4	294.0	-40.1	99.9	308.4	18.3	14.3	-11.4	330.7	999.9	99.9	999.9	10.7	69.
33.5	86.0	9868.1	288.0	-40.4	99.9	315.3	18.3	12.9	-13.0	332.3	999.9	99.9	999.9	10.9	72.
33.9	87.0	10011.6	282.0	-40.5	99.9	316.8	18.1	12.4	-13.2	334.1	999.9	99.9	999.9	11.1	74.
34.4	88.0	10133.2	277.0	-41.5	99.9	318.2	17.7	11.8	-13.2	334.4	999.9	99.9	999.9	11.4	77.
34.8	89.0	10256.6	272.0	-42.4	99.9	321.3	17.3	10.8	-13.5	334.9	999.9	99.9	999.9	11.6	78.
35.1	90.0	10407.1	266.0	-43.2	99.9	324.9	16.9	9.8	-13.9	335.8	999.9	99.9	999.9	11.8	80.
35.6	91.0	10534.5	261.0	-44.4	99.9	333.0	16.7	7.6	-14.8	335.9	999.9	99.9	999.9	12.0	82.
36.1	92.0	10663.9	256.0	-45.3	99.9	339.9	16.8	5.8	-15.8	336.5	999.9	99.9	999.9	12.1	84.
36.9	93.0	10795.5	251.0	-45.3	99.9	347.1	17.2	3.9	-16.8	338.4	999.9	99.9	999.9	12.3	88.

STATION NO. 201
KEY WEST, FLA

11 MAY 1974
1115 GMT

164 17. [illegible]

ANGLES ON THE HALF MINUTE HAVE BEEN LINEARLY INTERPOLATED FROM WHOLE MINUTE VALUES

TIME MIN	CNTCT	HEIGHT GPM	PRES MB	TEMP DG C	DEW PT DG C	DIR DG	SPEED M/SEC	U COMP M/SEC	V COMP M/SEC	POT T DG K	E POT T DG K	MX RTO GM/KG	RH PCT	RANGE KM	AZ DG
37.0	94.0	10[illegible]9.6	246.0	-46.0	99.9	347.9	17.3	3.6	-16.9	339.2	999.9	99.9	999.9	12.3	88.
37.5	95.0	1106[illegible]	241.0	-47.1	99.9	352.0	17.1	2.4	-16.9	339.6	999.9	99.9	999.9	12.3	91.
37.9	96.0	11204.4	236.0	-48.3	[illegible]	354.6	16.7	1.6	-16.6	339.9	999.9	99.9	999.9	12.4	93.
38.1	97.0	11345.1	231.0	-49.2	99.[illegible]	355.6	16.6	1.3	-16.5	340.5	999.9	99.9	999.9	12.4	94.
38.8	98.0	11488.5	226.0	-49.8	99.[illegible]	356.1	16.6	1.1	-16.5	341.7	999.9	99.9	999.9	12.5	97.
39.2	99.0	11605.3	222.0	-49.8	99.9	354.4	17.0	1.7	-16.9	343.5	999.9	99.9	999.9	12.6	99.
39.6	100.0	11754.0	217.0	-50.8	99.9	352.4	17.5	2.3	-17.4	344.3	999.9	99.9	999.9	12.7	100.
40.2	101.0	11905.3	212.0	-52.4	99.9	350.5	17.9	3.0	-17.6	344.1	999.9	99.9	999.9	12.9	103.
40.6	102.0	12059.1	207.0	-53.8	99.9	350.2	17.8	3.0	-17.5	344.1	999.9	99.9	999.9	13.1	105.
41.1	103.0	12184.2	203.0	-54.7	99.9	349.9	17.4	3.1	-17.2	344.7	999.9	99.9	999.9	13.4	107.
41.5	104.0	12311.3	199.0	-55.7	99.9	348.4	17.0	3.4	-16.6	345.1	999.9	99.9	999.9	13.6	108.
42.0	105.0	12440.2	195.0	-57.1	99.9	343.0	16.7	4.9	-15.9	344.9	999.9	99.9	999.9	13.8	110.
42.5	106.0	12604.2	190.0	-58.1	99.9	339.1	17.2	6.1	-16.1	345.8	999.9	99.9	999.9	14.1	112.
42.9	107.0	12737.9	186.0	-59.0	99.9	340.3	18.2	6.1	-17.2	346.4	999.9	99.9	999.9	14.5	113.
43.4	108.0	12873.8	182.0	-60.7	99.9	342.0	19.7	6.1	-18.7	345.9	999.9	99.9	999.9	14.8	115.
43.8	109.0	13011.9	178.0	-61.1	99.9	341.0	20.5	6.7	-19.4	347.4	999.9	99.9	999.9	15.1	116.
44.4	110.0	13152.5	174.0	-62.8	99.9	339.0	20.7	7.5	-19.4	346.8	999.9	99.9	999.9	15.7	118.
44.6	111.0	13295.7	170.0	-63.2	99.9	339.2	20.5	7.3	-19.2	348.5	999.9	99.9	999.9	15.9	118.
45.2	112.0	13441.6	166.0	-64.6	99.9	343.7	19.0	5.3	-18.2	348.5	999.9	99.9	999.9	16.5	120.
45.6	113.0	13590.5	162.0	-64.6	99.9	347.1	17.8	4.0	-17.3	350.6	999.9	99.9	999.9	16.8	121.
46.1	114.0	13743.0	158.0	-65.0	99.9	347.8	16.3	3.4	-15.9	352.8	999.9	99.9	999.9	17.1	123.
46.5	115.0	13859.6	155.0	-65.5	99.9	345.4	15.3	3.8	-14.8	353.3	999.9	99.9	999.9	17.3	123.
47.0	116.0	14058.3	150.0	-66.7	99.9	340.4	14.5	4.9	-13.6	355.2	999.9	99.9	999.9	17.7	124.
47.5	117.0	14180.4	147.0	-66.9	99.9	334.3	14.3	6.2	-12.9	356.8	999.9	99.9	999.9	18.0	125.
47.9	118.0	14304.9	144.0	-67.2	99.9	329.9	14.4	7.2	-12.5	358.6	999.9	99.9	999.9	18.4	126.
48.2	119.0	14474.8	140.0	-67.2	99.9	327.9	14.2	7.5	-12.0	361.5	999.9	99.9	999.9	18.6	126.
48.7	120.0	14605.5	137.0	-67.4	99.9	326.9	12.7	6.9	-10.6	363.3	999.9	99.9	999.9	19.1	126.
49.0	121.0	14738.3	134.0	-69.2	99.9	327.9	11.1	5.9	-9.4	362.4	999.9	99.9	999.9	19.3	127.
49.5	122.0	14873.2	131.0	-70.3	99.9	328.7	8.0	4.1	-6.8	362.7	999.9	99.9	999.9	19.5	127.
50.0	123.0	15010.5	128.0	-71.3	99.9	316.5	5.7	3.9	-4.1	363.4	999.9	99.9	999.9	19.7	127.
50.5	124.0	15199.2	124.0	-69.2	99.9	287.2	5.6	5.3	-1.6	370.6	999.9	99.9	999.9	19.9	127.
51.0	125.0	15296.4	122.0	-69.2	99.9	270.2	7.7	7.7	-0.0	372.3	999.9	99.9	999.9	19.9	127.
51.5	126.0	15495.0	118.0	-70.3	99.9	270.1	9.3	9.3	-0.0	373.7	999.9	99.9	999.9	20.2	126.
52.0	127.0	15648.4	115.0	-69.2	99.9	280.6	9.2	9.1	-1.7	378.6	999.9	99.9	999.9	20.4	126.
52.5	128.0	15806.4	112.0	-69.2	99.9	296.1	9.2	8.3	-4.1	381.5	999.9	99.9	999.9	20.7	126.
52.9	129.0	15968.6	109.0	-69.2	99.9	302.6	10.4	8.7	-5.6	384.5	999.9	99.9	999.9	20.9	126.
53.5	130.0	16079.2	107.0	-69.2	99.9	304.9	11.7	9.6	-6.7	386.5	999.9	99.9	999.9	21.3	126.
53.9	131.0	16306.8	103.0	-69.2	99.9	304.2	10.6	8.8	-6.0	390.8	999.9	99.9	999.9	21.7	126.
54.4	132.0	16483.4	100.0	-69.4	99.9	303.4	7.9	6.6	-4.4	393.6	999.9	99.9	999.9	22.0	125.
54.9	133.0	16603.9	98.0	-69.6	99.9	305.1	5.5	4.5	-3.2	395.5	999.9	99.9	999.9	22.1	125.
55.4	134.0	16788.9	95.0	-70.3	99.9	309.6	4.7	3.6	-3.0	397.6	999.9	99.9	999.9	22.2	125.
55.9	135.0	16915.0	93.0	-71.3	99.9	312.1	5.0	3.7	-3.3	398.2	999.9	99.9	999.9	22.4	125.
56.5	136.0	17108.7	90.0	-71.5	99.9	312.0	5.9	4.4	-3.9	401.4	999.9	99.9	999.9	22.5	126.
57.0	137.0	17308.9	87.0	-71.5	99.9	312.4	5.8	4.3	-3.9	405.3	999.9	99.9	999.9	22.8	126.
57.5	138.0	17515.5	84.0	-72.8	99.9	315.4	4.7	3.3	-3.3	406.9	999.9	99.9	999.9	23.0	126.

STATION NO. 201
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164 17. 1

ANGLES ON THE HALF MINUTE HAVE BEEN LINEARLY INTERPOLATED FROM WHOLE MINUTE VALUES

TIME MIN	CNTCT	HEIGHT GPM	PRES MB	TEMP DG C	DEW PT DG C	DIR DG	SPEED M/SEC	U COMP M/SEC	V COMP M/SEC	POT T DG K	E POT T DG K	MX RTO GM/KG	RH PCT	RANGE KM	AZ DG
58.1	139.0	17656.9	82.0	-72.8	99.9	323.6	3.5	2.1	-2.9	409.7	999.9	99.9	999.9	23.0	126.
58.7	140.0	17876.3	79.0	-71.5	99.9	333.4	3.2	1.4	-2.9	416.7	999.9	99.9	999.9	23.2	126.
59.4	141.0	18106.3	76.0	-69.2	99.9	346.9	3.0	0.7	-2.9	426.3	999.9	99.9	999.9	23.3	126.
60.0	142.0	18265.7	74.0	-68.9	99.9	5.3	3.0	-0.3	-2.9	430.0	999.9	99.9	999.9	23.3	126.
60.7	143.0	18513.1	71.0	-69.2	99.9	39.4	4.5	-2.8	-3.5	434.6	999.9	99.9	999.9	23.4	126.
61.4	144.0	18683.8	69.0	-69.2	99.9	61.2	7.4	-6.5	-3.6	438.2	999.9	99.9	999.9	23.3	127.
62.0	145.0	18951.6	66.0	-65.9	99.9	81.6	9.2	-9.1	-1.3	451.0	999.9	99.9	999.9	23.3	128.
62.7	146.0	19139.0	64.0	-64.6	99.9	105.2	9.4	-9.1	2.5	457.7	999.9	99.9	999.9	22.8	128.
63.4	147.0	19433.5	61.0	-62.8	99.9	124.3	7.6	-6.3	4.3	468.1	999.9	99.9	999.9	22.4	129.
64.1	148.0	19638.8	59.0	-63.0	99.9	129.7	4.7	-3.6	3.0	472.1	999.9	99.9	999.9	22.1	129.
64.9	149.0	19959.9	56.0	-63.2	99.9	92.0	3.6	-3.6	0.1	478.8	999.9	99.9	999.9	22.0	129.
65.5	150.0	20184.7	54.0	-60.9	99.9	83.6	6.0	-5.9	-0.7	489.1	999.9	99.9	999.9	21.9	129.
66.5	151.0	20419.9	52.0	-60.0	99.9	86.2	8.4	-8.3	-0.6	496.6	999.9	99.9	999.9	21.5	130.
67.1	152.0	20664.8	50.0	-60.0	99.9	71.7	7.8	-7.4	-2.4	502.2	999.9	99.9	999.9	21.3	130.
67.9	153.0	21050.7	47.0	-60.5	99.9	63.2	9.7	-8.7	-4.4	509.9	999.9	99.9	999.9	21.3	131.
68.8	154.0	21323.1	45.0	-58.1	99.9	74.0	11.9	-11.4	-3.3	522.0	999.9	99.9	999.9	21.0	133.
69.7	155.0	21610.1	43.0	-57.1	99.9	75.0	11.0	-10.6	-2.8	531.4	999.9	99.9	999.9	20.6	134.
70.5	156.0	21911.8	41.0	-56.7	99.9	61.8	10.7	-9.5	-5.1	539.6	999.9	99.9	999.9	20.4	136.
71.4	157.0	22229.8	39.0	-55.5	99.9	65.4	10.3	-9.3	-4.3	550.4	999.9	99.9	999.9	20.3	137.
72.5	158.0	22742.0	36.0	-53.8	99.9	80.2	9.7	-9.6	-1.6	567.5	999.9	99.9	999.9	20.0	139.
73.5	159.0	23110.3	34.0	-52.5	99.9	78.8	7.2	-7.0	-1.4	580.3	999.9	99.9	999.9	19.7	140.
74.5	160.0	23502.5	32.0	-52.0	99.9	89.7	6.9	-6.9	-0.0	591.8	999.9	99.9	999.9	19.5	141.
75.5	161.0	23921.1	30.0	-51.4	99.9	73.7	5.1	-4.9	-1.4	604.5	999.9	99.9	999.9	19.3	142.
76.9	162.0	24370.5	28.0	-50.1	99.9	47.4	7.3	-5.3	-4.9	620.1	999.9	99.9	999.9	19.3	143.
78.4	163.0	25111.4	25.0	-49.8	99.9	59.0	6.2	-5.3	-3.2	641.4	999.9	99.9	999.9	19.3	145.
79.7	164.0	25658.7	23.0	-48.3	99.9	57.7	4.6	-3.9	-2.5	661.4	999.9	99.9	999.9	19.2	147.
81.1	165.0	26261.9	21.0	-45.3	99.9	39.8	3.9	-2.5	-3.0	687.9	999.9	99.9	999.9	19.4	148.
83.0	166.0	26928.8	19.0	-46.0	99.9	40.4	4.2	-2.7	-3.2	705.6	999.9	99.9	999.9	19.5	149.
85.0	167.0	27671.2	17.0	-44.6	99.9	999.9	99.9	99.9	99.9	733.1	999.9	99.9	999.9	999.9	999.

STATION NO. 202
MIAMI, FLA

11 MAY 1974
1115 GMT

161 12. 1

ANGLES ON THE HALF MINUTE HAVE BEEN LINEARLY INTERPOLATED FROM WHOLE MINUTE VALUES

TIME MIN	CNTCT	HEIGHT GPM	PRES MB	TEMP DG C	DEW PT DG C	DIR DG	SPEED M/SEC	U COMP M/SEC	V COMP M/SEC	POT T DG K	E POT T DG K	MX RTO GM/KG	RH PCT	RANGE KM	AZ DG
0.0	4.7	4.0	1013.3	25.6	20.6	130.0	8.8	-6.7	5.7	299.7	340.0	15.3	74.0	0.0	0.
0.1	5.0	41.4	1009.0	24.1	19.4	255.7	3.0	2.9	0.7	299.4	335.8	14.2	74.7	0.7	315.
0.6	6.0	164.1	995.0	23.7	19.8	232.2	2.5	2.0	1.5	299.2	338.3	14.8	79.1	0.6	317.
1.0	7.0	270.3	983.0	22.8	19.4	157.0	5.0	-2.0	4.6	299.3	337.9	14.6	81.5	0.6	323.
1.4	8.0	377.5	971.0	21.6	19.5	142.1	10.0	-6.1	7.9	299.2	338.4	14.9	87.7	0.9	322.
1.8	9.0	476.6	960.0	20.5	18.3	143.7	11.3	-6.7	9.1	299.0	335.6	13.9	86.8	1.2	322.
2.1	10.0	576.3	949.0	19.5	17.8	147.3	11.6	-6.2	9.7	298.8	334.7	13.6	89.9	1.4	322.
2.6	11.0	704.5	935.0	18.4	17.5	153.1	12.1	-5.5	10.8	299.0	334.9	13.6	94.7	1.7	324.
2.9	12.0	806.3	924.0	17.6	16.9	152.9	12.0	-5.5	10.7	299.1	334.0	13.2	95.7	1.9	325.
3.2	13.0	909.0	913.0	17.3	14.8	152.7	10.6	-4.8	9.4	299.7	330.8	11.7	84.8	2.1	326.
3.5	14.0	1022.4	901.0	19.2	-7.4	152.6	8.5	-3.9	7.6	301.6	308.7	2.4	15.7	2.3	326.
3.9	15.0	1118.3	891.0	19.5	5.0	141.9	9.2	-5.7	7.2	303.2	320.5	6.2	38.6	2.5	327.
4.3	16.0	1254.4	877.0	18.8	7.1	131.5	10.2	-7.6	6.8	304.1	324.2	7.2	46.3	2.7	326.
4.5	17.0	1352.7	867.0	18.0	-0.4	126.9	10.8	-8.7	6.5	303.8	316.1	4.3	28.8	2.9	325.
4.9	18.0	1461.6	856.0	16.3	6.3	127.5	8.7	-6.9	5.3	303.5	323.1	7.0	51.4	3.1	323.
5.3	19.0	1571.7	845.0	16.3	6.1	132.9	8.2	-6.0	5.5	304.6	324.2	7.0	50.6	3.3	323.
5.6	20.0	1672.9	835.0	15.3	0.7	137.4	7.7	-5.2	5.7	304.3	318.1	4.8	36.9	3.4	322.
6.0	21.0	1805.7	822.0	15.3	-10.3	143.1	6.0	-3.6	4.8	305.4	311.7	2.1	16.0	3.6	322.
6.4	22.0	1898.8	813.0	15.1	-10.5	152.2	5.3	-2.5	4.7	306.1	312.5	2.1	16.0	3.7	323.
6.7	23.0	2013.8	802.0	13.9	-5.4	164.2	4.6	-1.2	4.4	306.2	315.5	3.2	25.6	3.8	323.
7.0	24.0	2119.4	792.0	13.1	-0.7	182.8	3.9	0.2	3.9	306.6	319.9	4.6	38.4	3.9	323.
7.5	25.0	2226.1	782.0	12.4	-2.0	210.1	4.0	2.0	3.5	306.8	319.2	4.2	36.8	3.9	325.
7.9	26.0	2355.5	770.0	11.4	-3.4	218.0	4.7	2.9	3.7	307.1	318.4	3.9	35.2	4.0	326.
8.5	27.0	2464.7	760.0	10.5	3.6	216.7	5.9	3.5	4.7	307.6	326.2	6.6	62.4	3.9	329.
8.9	28.0	2574.9	750.0	9.4	3.7	215.3	6.6	3.8	5.4	307.5	326.5	6.7	67.4	4.1	331.
9.0	29.0	2686.4	740.0	9.6	-8.1	215.0	6.8	3.9	5.6	308.5	316.9	2.8	27.9	4.1	331.
9.4	30.0	2787.9	731.0	9.6	-8.9	216.2	7.1	4.2	5.7	309.5	317.6	2.7	26.2	4.2	333.
9.7	31.0	2902.1	721.0	9.6	-11.4	216.9	7.0	4.2	5.6	310.7	317.5	2.2	21.3	4.2	335.
10.1	32.0	3006.0	712.0	8.7	99.9	217.6	6.7	4.1	5.3	310.6	999.9	99.9	999.9	4.3	337.
10.4	33.0	3122.8	702.0	8.7	99.9	218.0	6.5	4.0	5.1	311.8	999.9	99.9	999.9	4.4	338.
10.9	34.0	3229.1	693.0	7.8	99.9	220.5	6.5	4.3	5.0	312.0	999.9	99.9	999.9	4.5	340.
11.2	35.0	3336.6	684.0	7.4	99.9	223.0	6.9	4.7	5.0	312.8	999.9	99.9	999.9	4.5	342.
11.6	36.0	3469.9	673.0	7.8	99.9	226.8	7.5	5.4	5.1	314.6	999.9	99.9	999.9	4.6	344.
11.9	37.0	3580.7	664.0	7.6	99.9	230.0	8.0	6.1	5.1	315.6	999.9	99.9	999.9	4.7	345.
12.3	38.0	3692.7	655.0	6.9	99.9	233.5	8.4	6.8	5.0	316.1	999.9	99.9	999.9	4.8	347.
12.7	39.0	3806.0	646.0	6.0	99.9	235.6	8.7	7.2	4.9	316.3	999.9	99.9	999.9	4.8	350.
13.1	40.0	3920.6	637.0	5.1	99.9	236.4	8.8	7.3	4.8	316.6	999.9	99.9	999.9	4.9	352.
13.6	41.0	4062.3	626.0	4.3	99.9	237.8	8.6	7.3	4.6	317.2	999.9	99.9	999.9	5.1	355.
13.9	42.0	4166.7	618.0	3.4	99.9	240.1	8.5	7.4	4.3	317.4	999.9	99.9	999.9	5.1	356.
14.4	43.0	4285.6	609.0	3.4	99.9	245.4	8.5	7.7	3.5	318.7	999.9	99.9	999.9	5.2	359.
14.6	44.0	4406.0	600.0	2.4	99.9	247.5	8.5	7.8	3.2	319.0	999.9	99.9	999.9	5.3	360.
15.0	45.0	4514.2	592.0	1.8	99.9	251.6	8.5	8.1	2.7	319.4	999.9	99.9	999.9	5.3	2.
15.3	46.0	4637.4	583.0	1.0	99.9	254.1	8.5	8.2	2.3	319.9	999.9	99.9	999.9	5.4	3.
15.7	47.0	4748.1	575.0	-0.2	99.9	257.2	8.3	8.1	1.8	319.8	999.9	99.9	999.9	5.5	6.
16.0	48.0	4874.1	566.0	-0.8	99.9	259.6	8.1	7.9	1.5	320.5	999.9	99.9	999.9	5.5	7.

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TIME MIN	CNTCT	HEIGHT GPM	PRES MB	TEMP DG C	DEW PT DG C	DIR DG	SPEED M/SEC	U COMP M/SEC	V COMP M/SEC	POT T DG K	E POT T DG K	MX RTO GM/KG	RH PCT	RANGE KM	AZ DG
16.4	49.0	5001.6	557.0	-2.2	99.9	264.4	7.6	7.6	0.7	320.3	999.9	99.9	999.9	5.6	9.
16.7	50.0	5116.3	549.0	-2.4	99.9	269.6	7.3	7.3	0.0	321.4	999.9	99.9	999.9	5.6	10.
17.0	51.0	5261.8	539.0	-3.8	99.9	276.0	7.0	7.0	-0.7	321.5	999.9	99.9	999.9	5.7	11.
17.5	52.0	5379.6	531.0	-4.5	99.9	285.1	6.6	6.4	-1.7	321.9	999.9	99.9	999.9	5.6	14.
17.8	53.0	5498.8	523.0	-5.4	99.9	286.7	6.2	5.9	-1.8	322.2	999.9	99.9	999.9	5.6	15.
18.1	54.0	5604.3	516.0	-6.3	99.9	287.8	5.8	5.6	-1.8	322.4	999.9	99.9	999.9	5.6	16.
18.5	55.0	5726.3	508.0	-6.9	-33.0	287.1	5.5	5.2	-1.6	323.1	324.7	0.5	10.3	5.6	17.
18.9	56.0	5865.4	499.0	-8.3	-27.0	286.5	5.6	5.4	-1.6	323.2	326.0	0.8	20.3	5.6	18.
19.4	57.0	5990.5	491.0	-9.7	-29.4	285.8	6.0	5.8	-1.6	322.9	325.2	0.7	18.1	5.6	20.
19.7	58.0	6117.0	483.0	-10.9	-28.3	286.0	6.2	5.9	-1.7	323.0	325.6	0.8	22.2	5.6	22.
20.1	59.0	6229.0	476.0	-11.9	-28.9	287.5	6.4	6.1	-1.9	323.1	325.6	0.7	22.7	5.6	23.
20.5	60.0	6342.2	469.0	-12.5	-28.3	291.4	6.9	6.4	-2.5	323.2	325.9	0.8	26.0	5.7	24.
20.9	61.0	6456.7	462.0	-14.0	-28.8	297.3	7.9	7.1	-3.6	323.2	325.8	0.8	27.1	5.7	26.
21.4	62.0	6572.3	455.0	-15.4	-30.1	303.0	8.9	7.5	-4.8	322.9	325.2	0.7	26.8	5.6	29.
21.7	63.0	6706.1	447.0	-16.1	-28.9	305.7	8.8	7.1	-5.1	323.7	326.3	0.8	31.9	5.6	31.
22.1	64.0	6824.7	440.0	-17.4	-27.8	308.9	8.2	6.4	-5.2	323.4	326.4	0.9	39.7	5.6	33.
22.5	65.0	6927.4	434.0	-18.3	-28.8	311.0	7.5	5.7	-4.9	323.6	326.4	0.8	38.8	5.6	35.
23.0	66.0	7083.6	425.0	-19.5	-30.1	308.2	7.8	6.1	-4.8	324.0	326.5	0.7	38.3	5.5	37.
23.5	67.0	7206.7	418.0	-20.8	-32.6	303.2	8.6	7.2	-4.7	323.8	325.7	0.5	30.4	5.6	39.
23.8	68.0	7331.3	411.0	-21.8	-32.6	300.7	8.8	7.5	-4.5	324.2	326.2	0.6	36.6	5.6	41.
24.2	69.0	7439.6	405.0	-22.2	-27.2	298.1	8.7	7.7	-4.1	325.0	328.5	1.0	63.3	5.6	43.
24.6	70.0	7567.7	398.0	-22.8	-27.9	296.2	8.5	7.6	-3.7	325.8	329.1	1.0	63.2	5.7	45.
25.0	71.0	7716.5	390.0	-23.4	-28.4	295.2	8.1	7.3	-3.4	327.0	330.2	0.9	62.8	5.8	47.
25.4	72.0	7829.8	384.0	-24.4	-29.3	294.6	7.8	7.1	-3.3	327.0	330.1	0.9	63.9	5.9	49.
25.9	73.0	7963.6	377.0	-25.5	-30.2	292.6	7.7	7.1	-3.0	327.4	330.2	0.8	64.6	5.9	51.
26.4	74.0	8079.8	371.0	-26.4	-31.1	289.5	8.0	7.6	-2.7	327.6	330.3	0.8	64.2	6.0	53.
26.8	75.0	8197.4	365.0	-27.6	-31.7	288.1	8.3	7.9	-2.6	327.6	330.1	0.7	67.9	6.2	54.
27.0	76.0	8316.4	359.0	-28.8	-32.5	287.7	8.4	8.0	-2.5	327.5	329.9	0.7	70.0	6.3	55.
27.5	77.0	8457.1	352.0	-29.8	-32.9	286.8	8.5	8.1	-2.4	328.0	330.3	0.7	74.1	6.4	57.
27.9	78.0	8559.0	347.0	-30.5	-36.5	282.9	8.7	8.5	-1.9	328.4	330.1	0.5	55.5	6.5	58.
28.5	79.0	8682.8	341.0	-31.4	-38.0	276.3	9.1	9.1	-1.0	328.8	330.3	0.4	51.6	6.7	60.
28.7	80.0	8808.2	335.0	-32.5	-39.3	275.7	9.1	9.0	-0.9	329.0	330.4	0.4	50.4	6.9	60.
29.1	81.0	8956.8	328.0	-33.4	-40.3	275.0	8.9	8.8	-0.8	329.7	331.0	0.3	49.5	7.1	61.
29.5	82.0	9086.3	322.0	-34.2	-40.9	275.6	8.4	8.3	-0.8	330.4	331.6	0.3	50.2	7.2	62.
29.9	83.0	9217.6	316.0	-35.5	-41.8	274.4	8.2	8.2	-0.6	330.3	331.4	0.3	51.9	7.4	63.
30.4	84.0	9350.7	310.0	-36.7	-42.8	273.5	8.4	8.3	-0.5	330.4	331.4	0.3	52.9	7.6	64.
30.8	85.0	9463.0	305.0	-38.1	-43.9	276.5	8.6	8.5	-1.0	330.1	331.0	0.2	53.7	7.8	65.
31.3	86.0	9622.6	298.0	-39.0	-44.8	284.8	8.9	8.6	-2.3	330.9	331.8	0.2	53.5	8.0	66.
31.6	87.0	9738.5	293.0	-39.4	-45.1	291.2	9.2	8.6	-3.3	331.9	332.8	0.2	54.1	8.1	67.
32.0	88.0	9879.9	287.0	-40.4	99.9	300.2	9.9	8.5	-5.0	332.6	999.9	99.9	999.9	8.3	67.
32.5	89.0	9999.6	282.0	-41.1	99.9	310.0	10.9	8.3	-7.0	333.3	999.9	99.9	999.9	8.4	69.
32.9	90.0	10145.4	276.0	-42.2	99.9	316.8	11.5	7.9	-8.4	333.8	999.9	99.9	999.9	8.6	71.
33.4	91.0	10268.9	271.0	-42.9	99.9	324.2	11.8	6.9	-9.6	334.5	999.9	99.9	999.9	8.7	73.
33.6	92.0	10394.3	266.0	-43.6	99.9	326.8	11.9	6.5	-9.9	335.3	999.9	99.9	999.9	8.8	74.
34.1	93.0	10521.9	261.0	-43.9	99.9	332.2	11.7	5.5	-10.4	336.7	999.9	99.9	999.9	8.9	77.

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34.5	94.0	10651.5	256.0	-44.7	99.9	335.1	11.7	4.9	-10.6	337.3	999.9	99.9	999.9	8.9	78.
35.0	95.0	10783.4	251.0	-45.0	99.9	336.2	12.2	4.9	-11.2	338.8	999.9	99.9	999.9	9.0	80.
35.5	96.0	10944.7	245.0	-46.1	99.9	336.4	13.1	5.2	-12.0	339.5	999.9	99.9	999.9	9.1	83.
36.0	97.0	11081.5	240.0	-47.1	99.9	337.5	14.0	5.3	-12.9	339.9	999.9	99.9	999.9	9.2	85.
36.5	98.0	11220.7	235.0	-47.5	99.9	339.5	15.0	5.2	-14.0	340.9	999.9	99.9	999.9	9.3	88.
36.9	99.0	11362.4	230.0	-48.6	99.9	341.5	16.0	5.1	-15.2	341.9	999.9	99.9	999.9	9.5	90.
37.3	100.0	11477.5	226.0	-49.5	99.9	343.3	17.2	5.0	-16.5	342.2	999.9	99.9	999.9	9.6	92.
37.8	101.0	11653.3	220.0	-50.9	99.9	344.9	18.8	4.9	-18.2	342.8	999.9	99.9	999.9	9.8	95.
38.3	102.0	11772.3	216.0	-52.4	99.9	346.0	20.2	4.9	-19.6	342.2	999.9	99.9	999.9	10.0	98.
38.6	103.0	11923.3	211.0	-53.8	99.9	346.7	20.7	4.8	-20.1	342.3	999.9	99.9	999.9	10.1	100.
39.1	104.0	12046.0	207.0	-54.8	99.9	347.8	20.9	4.4	-20.5	342.7	999.9	99.9	999.9	10.4	104.
39.6	105.0	12170.5	203.0	-55.7	99.9	348.9	20.8	4.0	-20.4	343.0	999.9	99.9	999.9	10.7	107.
40.0	106.0	12296.8	199.0	-57.2	99.9	349.5	20.6	3.8	-20.3	342.6	999.9	99.9	999.9	10.9	109.
40.5	107.0	12425.0	195.0	-58.1	99.9	349.8	20.6	3.6	-20.3	343.3	999.9	99.9	999.9	11.2	112.
40.9	108.0	12588.4	190.0	-58.8	99.9	350.0	20.7	3.6	-20.4	344.7	999.9	99.9	999.9	11.5	114.
41.4	109.0	12721.8	186.0	-59.3	99.9	350.6	20.7	3.4	-20.4	346.0	999.9	99.9	999.9	11.9	116.
41.7	110.0	12857.5	182.0	-60.7	99.9	351.2	20.4	3.1	-20.2	345.8	999.9	99.9	999.9	12.1	118.
42.4	111.0	13030.4	177.0	-62.0	99.9	352.5	19.9	2.6	-19.7	346.5	999.9	99.9	999.9	12.6	121.
42.9	112.0	13136.0	174.0	-62.5	99.9	352.5	19.8	2.6	-19.7	347.3	999.9	99.9	999.9	12.9	122.
43.3	113.0	13279.3	170.0	-62.9	99.9	351.5	19.4	2.9	-19.2	349.0	999.9	99.9	999.9	13.3	124.
43.6	114.0	13425.4	166.0	-64.4	99.9	350.2	18.7	3.2	-18.4	348.8	999.9	99.9	999.9	13.5	126.
44.1	115.0	13574.6	162.0	-64.2	99.9	345.6	16.7	4.2	-16.2	351.6	999.9	99.9	999.9	13.9	127.
44.8	116.0	13727.5	158.0	-64.4	99.9	333.6	15.7	7.0	-14.0	353.8	999.9	99.9	999.9	14.4	129.
45.1	117.0	13884.3	154.0	-64.4	99.9	328.9	16.3	8.4	-13.9	356.4	999.9	99.9	999.9	14.7	129.
45.7	118.0	14004.2	151.0	-65.4	99.9	324.0	18.5	10.8	-14.9	356.7	999.9	99.9	999.9	15.3	130.
46.1	119.0	14167.1	147.0	-66.6	99.9	323.4	19.8	11.8	-15.9	357.4	999.9	99.9	999.9	15.7	130.
46.5	120.0	14291.3	144.0	-68.3	99.9	324.4	20.7	12.1	-16.8	356.6	999.9	99.9	999.9	16.2	130.
47.0	121.0	14460.4	140.0	-68.3	99.9	327.0	21.3	11.6	-17.9	359.5	999.9	99.9	999.9	16.9	131.
47.5	122.0	14590.3	137.0	-68.3	99.9	330.7	20.8	10.2	-18.1	361.7	999.9	99.9	999.9	17.5	132.
47.9	123.0	14723.1	134.0	-68.5	99.9	334.2	19.0	8.3	-17.1	363.6	999.9	99.9	999.9	18.0	132.
48.5	124.0	14905.2	130.0	-67.5	99.9	338.9	15.0	5.4	-14.0	368.7	999.9	99.9	999.9	18.5	133.
48.9	125.0	15046.2	127.0	-66.6	99.9	338.3	11.6	4.3	-10.8	372.6	999.9	99.9	999.9	18.8	134.
49.5	126.0	15239.9	123.0	-66.4	99.9	330.4	7.7	3.8	-6.7	376.4	999.9	99.9	999.9	19.1	134.
50.0	127.0	15388.7	120.0	-68.3	99.9	319.8	6.7	4.3	-5.1	375.7	999.9	99.9	999.9	19.3	134.
50.5	128.0	15539.3	117.0	-71.9	99.9	312.0	6.8	5.1	-4.6	371.8	999.9	99.9	999.9	19.5	134.
50.9	129.0	15692.0	114.0	-73.1	99.9	305.5	6.6	5.3	-3.8	372.4	999.9	99.9	999.9	19.7	134.
51.5	130.0	15848.3	111.0	-73.1	99.9	293.4	5.8	5.3	-2.3	375.2	999.9	99.9	999.9	19.9	134.
52.1	131.0	16063.4	107.0	-73.1	99.9	283.7	5.3	5.1	-1.2	379.2	999.9	99.9	999.9	20.1	133.
52.6	132.0	16174.3	105.0	-71.9	99.9	283.3	5.7	5.6	-1.3	383.5	999.9	99.9	999.9	20.2	133.
53.2	133.0	16345.2	102.0	-71.9	99.9	288.9	7.3	6.9	-2.4	386.7	999.9	99.9	999.9	20.3	133.
53.7	134.0	16521.2	99.0	-71.5	99.9	291.2	8.1	7.6	-2.9	390.0	999.9	99.9	999.9	20.6	133.
54.3	135.0	16703.1	96.0	-70.7	99.9	291.9	7.6	7.0	-2.8	395.7	999.9	99.9	999.9	20.9	132.
54.9	136.0	16891.4	93.0	-70.7	99.9	296.7	6.3	5.6	-2.8	399.3	999.9	99.9	999.9	21.1	132.
55.5	137.0	17085.3	90.0	-69.6	99.9	309.3	4.6	3.6	-2.9	405.3	999.9	99.9	999.9	21.3	132.
56.4	138.0	17356.7	86.0	-70.7	99.9	329.5	2.7	1.4	-2.3	408.3	999.9	99.9	999.9	21.5	132.

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NASA-Langley, 1975