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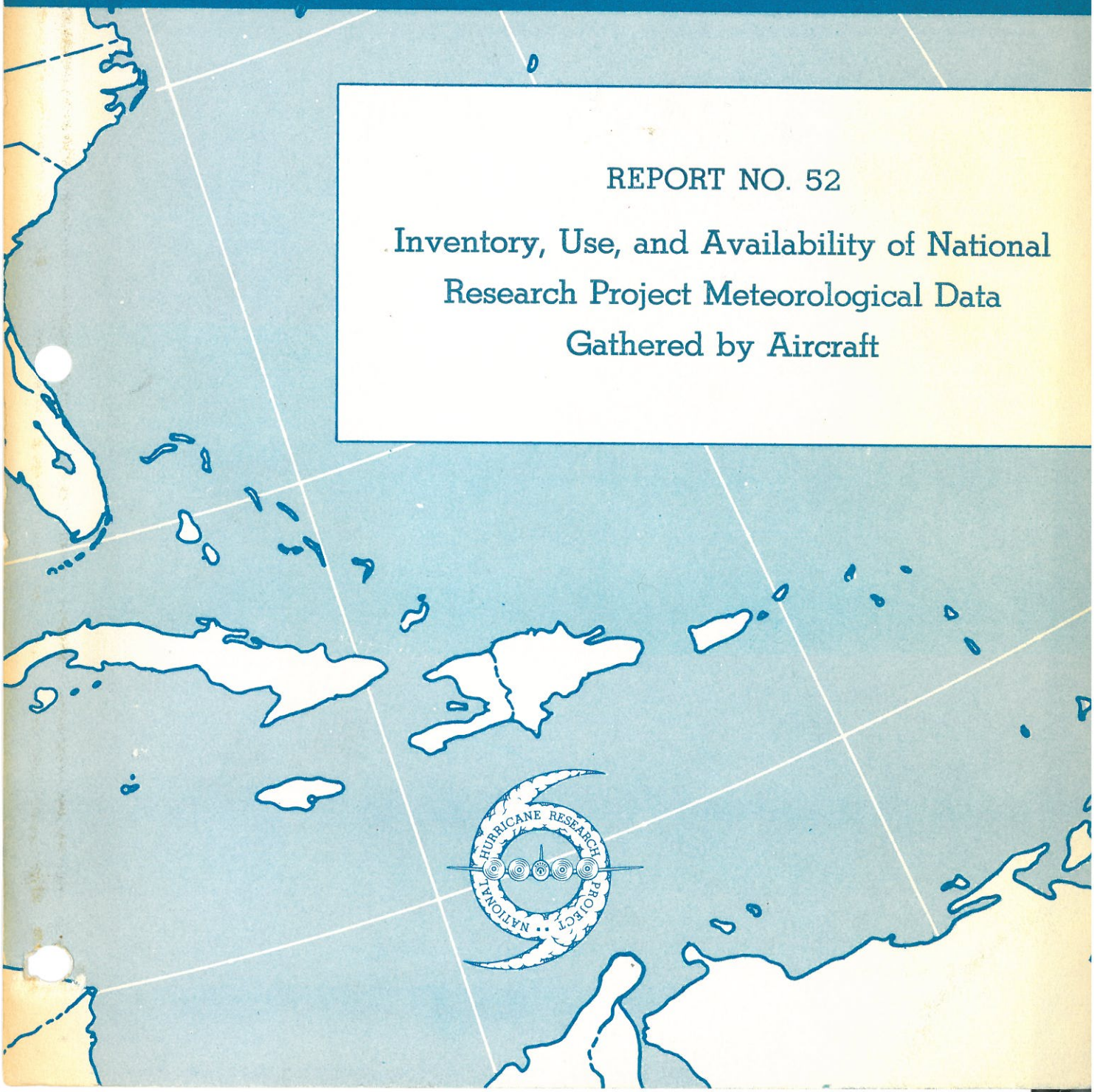
NATIONAL HURRICANE RESEARCH PROJECT



REPORT NO. 52

Inventory, Use, and Availability of National Research Project Meteorological Data Gathered by Aircraft

U. S. DEPARTMENT OF COMMERCE
Luther H. Hodges, Secretary
WEATHER BUREAU
F. W. Reichelderfer, Chief

NATIONAL HURRICANE RESEARCH PROJECT

REPORT NO. 52

Inventory, Use, and Availability of National Research Project Meteorological Data Gathered by Aircraft

by

H. F. Hawkins, F. E. Christensen, S. C. Pearce, and Staff
National Hurricane Research Project, Miami, Fla.

Washington, D. C.
April 1962

NATIONAL HURRICANE RESEARCH PROJECT REPORTS

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No. 49. Some properties of hurricane wind fields as deduced from trajectories. November 1961.
No. 50. Proceedings of the Second Technical Conference on Hurricanes, June 27-30, 1961, Miami Beach, Fla. March 1962.
No. 51. Concerning the general vertically averaged hydrodynamic equations with respect to basic storm equations. April 1962

FOREWORD

In late 1955 when the National Hurricane Research Project was launched it was immediately apparent that nowhere were the requisite data in existence which could be used to answer many of the questions necessary for a complete description or physical modeling of the hurricane. It was further recognized that instrumentation and technology had advanced to the state where heavily stressed aircraft could safely traverse the hurricane and record meteorological observations at an extremely rapid rate [13]. With two B-50's and a B-47 loaned, crewed, and maintained by the Air Weather Service, U. S. Air Force, the personnel of the National Hurricane Research Project and their contractors instrumented and flew these three planes during the hurricane seasons of 1956, 1957, and 1958.

The use of the airplane as an observing platform was not exactly a new artifice. But, it was not surprising that the more sophisticated observing and recording systems presented difficulties in operation, maintenance, and data interpretation. It would be premature to claim that all of the problems relative to these data have been completely solved. Nevertheless, within practical limits the data are now in such form and our experience factor is great enough that we feel justified in making them available to all researchers interested in exploiting their potential. Up until now the data have been used by personnel of the National Hurricane Research Project, its contractors and collaborators; i.e. those who have expressed an interest in using the new information [3, 4, 7, 8, 9, 10, 11, 14]. On the basis of such investigations as have already been completed it is felt that the data can stand critical scrutiny and will lend themselves readily to quite a variety of meteorological inquiries.

In view of the fact that the basic data gathering effort is still going on with new instrumentation systems and different planes, it is planned that as additional data become available and further instrumentation write-ups are advisable, supplements will be added to this original text.

PURPOSE OF THIS REPORT

This paper has been primarily designed to satisfy the requirements listed below.

1. To make known to meteorological researchers the area, date, and time over which National Hurricane Research Project aircraft have gathered meteorological information. In addition, information is provided as to: flight altitudes, sampling rates, and parameters available on each particular flight. Furthermore, the form in which the data are available is similarly indicated on the inventory listing. In connection with storm or hurricane flights, further information is displayed as to the positioning of the data relative to the moving storm center.

2. To discuss the instrumentation as it relates to: operating principles, calibration, characteristics, accuracy and post-flight calibration. It is not the current intent to supplant NHRP Report No. 11 [5] which discussed in considerable detail the instrumentation of the NHRP aircraft; rather, the

current objective is to review basic operations of the instruments and to bring up to date the calibrations which were promised in the introduction of NHRP Report No. 11. Furthermore, additional estimates of reliability and accuracy are made available based on actual operating experience with the various systems involved. Thus, this section is not designed to inform the instrument engineer but to acquaint the meteorologist using the data with the basic characteristics of the instruments with which the data were gathered and the known strong points or deficiencies of these instruments.

3. To indicate uses of the data. The section on data reduction explains in detail the exact processing to which the raw data have been subjected in order to ready them for meteorological usage. It outlines the formulae used in data reduction and the format in which the data are presented on the machine print-out.

In effect, then, this should become a working reference volume for the research meteorologist. In it he should be able to find out when and where on the globe as well as where in relation to a storm, flight data have been gathered, what parameters were measured and on what types of instruments, what were the calibration procedures used, what are the known characteristic strong points and weak points of the instruments, and what reductions have been made to the data in order to put them in usable meteorological form.

4. From the foregoing it is obvious that the overriding general purpose of the paper is to invite members of the meteorological community to make informed use of the millions of individual observations which have been gathered by NHRP aircraft in the tropical areas. We thus hope to spur research in this field by making readily accessible detailed data of a type not currently familiar to the meteorologist. Since collection of detailed meteorological research data by aircraft with improved instrumentation continues at the time of writing, we certainly welcome suggestions as to ways in which it can be gathered more efficiently, processed more accurately, and used more meaningfully. It should be borne in mind that most of the flights have been conducted with specific meteorological purposes in mind. In many cases particular flight patterns will answer a multiple of requirements but work with the data will strongly suggest that specific flight plans are more appropriate to solving one aspect of the problem than in solving all aspects. For this reason the suggestion of specific problems and procedures whereby the answers to these problems can be defined is both appropriate and appreciated.

R. Cecil Gentry, Director
National Hurricane Research Project
Miami, Florida

Page

TABLE OF CONTENTS

FOREWORD iii

1. INSTRUMENTATION AND MEASURED OR DERIVED PARAMETERS 1

A. NAVIGATION AND POSITIONING OF REPORTS 1

1. Basic Principles of Doppler Navigation 1

2. Accuracy 2

3. Calibration 2

4. Post-Flight Calibrations 2

5. Latitude and Longitude 2

6. Virtual Latitude and Longitude 3

7. Radial Distance 3

B. WIND MEASUREMENTS 4

1. Basic Principles of Operation of the Equipment 4

2. Accuracy and Response 4

3. Calibration 5

4. Post-Flight Calibration 5

5. Wind Direction and Speed 7

6. u and v Components of Wind 7

7. Smoothed Wind Direction and Speed 7

8. Relative Wind 7

9. Radial and Tangential Components of the Wind 7

10. Radial and Tangential Components of the Relative Wind .. 8

C. THERMOMETRY 8

1. Vortex Thermometer, ML-471/AMQ-8: Design and Operating Principles 8

2. Accuracy and Response 8

CONTENTS - cont.

Page

3. Calibration 10

4. Stagnation Thermometer, AN/AMQ-7 10

5. Temperature 10

6. Adjusted Temperature 10

D. PRESSURE MEASUREMENT 12

1. Meteorological Pitot-Static System 12

2. Accuracy 12

3. Calibration 12

4. Pressure Altitude 13

5. D-Value 13

6. Reference Pressure Altitude 13

7. Adjusted D-Value 13

8. Pressure 14

E. ABSOLUTE ALTITUDE 14

1. Method of Measurement 14

2. Accuracy 14

3. Radar Altitude 14

F. TIME 15

1. Master Timer 15

2. Accuracy 15

3. Time of Day 15

G. HYGROMETRY 15

1. Basic Principles of the Infrared Hygrometer 15

2. Accuracy and Response 15

3. Calibration 16

4. Humidities 16

CONTENTS - cont.

Page

H. ICING 16

I. RADAR 17

J. CLOUD PHOTOGRAPHY 17

K. DIGITAL RECORDING SYSTEM 18

1. Description 18

2. Reliability 19

L. PHOTOPANEL RECORDING SYSTEM 19

II. DATA REDUCTION AND PROCESSING 19

III. FORMAT OF DATA LISTING AND PLOT-OUTS 24

A. LISTINGS 24

B. PLOT-OUTS 24

1. Standard Meteorological Plots 24

2. Working Plot-Outs in Horizontal Plan 24

3. Radial Profiles 24

IV. SAMPLE OF DATA PROCESSING 31

V. PROCEDURE FOR SECURING COPIES OF DATA OR PLOT-OUTS ON LOAN OR FOR PERMANENT RETENTION 39

A. MICROFILM 39

B. ENLARGEMENTS OF MICROFILM 39

C. PRINT-OUT LOANS 39

D. PLOT-OUTS -- HORIZONTAL PLAN 40

E. TIME LAPSE RADAR FILM (35-mm.) 40

F. AIRBORNE TIME LAPSE CLOUD FILMS (16-mm. color) 40

VI. INVENTORY OF METEOROLOGICAL DATA GATHERED BY NATIONAL HURRICANE RESEARCH PROJECT AIRCRAFT 46

A. SUMMARY SHEETS 46

CONTENTS - cont.

Page

B. AIRCRAFT NAVIGATION TRACK 46

C. DETAILED FLIGHT PATTERNS (Composited) 46

VII. ACKNOWLEDGMENTS 47

REFERENCES 47

DATA SUMMARIES 49

INVENTORY, USE, AND AVAILABILITY OF NATIONAL HURRICANE RESEARCH PROJECT METEOROLOGICAL DATA GATHERED BY AIRCRAFT

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1. INSTRUMENTATION AND MEASURED OR DERIVED PARAMETERS

A. NAVIGATION AND POSITIONING OF REPORTS

The following discussions provide a limited working knowledge of the instrumentation system as seems necessary to allow the researcher to make knowing use of the data.

1. Basic Principles of Doppler Navigation

Latitude and Longitude: AN/APN-82. The latitude and longitude were continuously computed by the AN/APN-82 radar navigation set [1, 2, 5, 12, 15, 16.] The equipment measured ground speed and drift angle by evaluating the Doppler effects on microwaves reflected from the ground. It used these data and the aircraft heading measured by the N-1 compass system to make continuous dead reckoning computation of latitude and longitude. The system was automatic in operation and completely independent of visibility and ground based aids.

The computer was routinely set to the proper coordinates soon after take-off, using a known navigational fix. It could be corrected during flight whenever it did not agree with known coordinates. The navigational accuracy was dependent upon the accuracy of the N-1 compass system, the accuracy of ground speed and drift calibrations of the system, and the alignment of the antenna with respect to the aircraft. Another possible source of error occured because the magnetic variation had to be set into the system manually. The measured ground speed was affected by surface currents when the aircraft was used over water.

During normal operation, the equipment computed wind speed and direction, using true air speed from an A-2 true air speed computer, and its other measurements.

During periods when conditions were such that the radar signal returned from the ground was not usable, the system automatically switched to the "memory mode" of operation. While the equipment remained in the "memory mode" the ground speed and drift angle information were computed from the latest remembered wind values and the measured true air speed and heading information. Thus, while in this mode, the computed latitudes and longitudes were miscalculated if the wind changed from that remembered or if the true air speed information was inaccurate.

Since the latitude and longitude were continuous dead reckoning computations, errors incurred during "memory" operation were perpetuated

after return to normal operation. Some of the conditions which caused an automatic switch-over to "memory" operation were as follows:

a. Abnormal roll, or pitch of the aircraft.

b. Flight over abrupt cliffs or declivities when the aircraft was at low altitude.

c. Flight over a glass-smooth water surface.

2. Accuracy

The manufacturers stated, "accuracy is 2 percent of total distance traveled." It has been the experience of the National Hurricane Research Project that, under favorable conditions and careful operation, the accuracy was within 1 percent of total distance traveled.

3. Calibration

Electrical and physical alignment of the AN/APN-82 was checked by flying a long-range triangular course, the vertices of which were known geographical points. This flight pattern also served as a check of the N-1 compass system. Accuracy and repeatability of the N-1 compass system was $\pm$ 0.2 degrees as demonstrated by repeated ground swings.

4. Post-Flight Calibrations

Accuracy of the navigation has been improved by use of the film record of the radar PPI scope. Position has been determined at as frequent intervals as practicable and used as a basis for applying navigation corrections. Radio ranges, omni ranges, and Loran fixes have also been used to make the final navigation as accurate as possible. Thus, total error varies with the distance traveled between positive fixes.

5. Latitude and Longitude

Latitude and longitude as obtained aboard the aircraft by the APN-82 Doppler navigation system was punched into the data cards to the nearest quarter-minute. At the Research Center the navigation corrections obtained as described in preceding paragraphs were fed into the computer which had been programmed in such a way that the corrections to the latitude and longitude of individual reports could be interpolated as closely as desired. The aircraft position was first converted to degrees and thousandths of a degree. Since the navigation corrections were usually available at only a few selected times during the course of a mission, the assumption had to be made that the corrections were spread linearly between known time-points. In actual practice, and for convenience in the machine processing, the corrections between two given times were expressed in the form of a linear equation which expressed latitude or longitude as a function of time. In addition the machine program introduced a system of interpolations designed to eliminate unrealistic jogs in the path of the aircraft (caused by sudden changes in the discrete values at which the latitude and longitude were originally digitized).

The track of the storm was also expressed in the form of linear equations of latitude and longitude against time (see fig. 17). Thus the computer could determine for each recorded observation the position of the storm center, the geographical location of the aircraft, the position of the aircraft relative to the storm center, (virtual latitude and longitude), and radial distance of aircraft from storm center. Mutual adjustments and interpolations were made to ensure a smooth and continuous presentation of these parameters in the final print-out.

6. Virtual Latitude and Longitude

Virtual latitude and virtual longitude are coordinates giving the north-south and east-west distances in nautical miles between the aircraft and the storm center. These are obtained by subtracting the coordinates of the storm center from those of the aircraft, and changing the units to nautical miles; therefore, positive values of virtual latitude and longitude were obtained when the aircraft was flying in the northwest quadrant of the storm. In these computations it was assumed that the path of the storm center was straight and steady between known center positions; any minor oscillations that may have existed in the track of the storm are not recognized by the processing system. It is believed that the few center positions obtained by the research aircraft during the course of a mission were not adequate to detect any minor scale time variations in the track of the storm.

The compositing of the data was done about the geometric center of the radar eye. It is held that this, in a larger sense, is more meaningful than centering the observations on the actual wind center in the eye, the pressure minimum, the point or area of maximum temperature, or any other such feature. The radar eye-wall is the region containing the ring of maximum winds, usually the area of heaviest rain, the most severe turbulence and updraft, etc. Presumably, it is also the region of strongest low-level convergence and a focal ring in hurricane dynamics. For these reasons it is felt that compositing should be about the radar eye rather than any other more transitory or nebulous feature. That this is also the most satisfactory approach from the standpoint of procedure in data reduction is, indeed gratifying.

On occasion, when there was not a real "center" about which to composite the data, artificial virtual latitudes and longitudes were created by introducing the position of each observation relative to a fixed geographical point. This was done merely to make the data plotting easier. Such virtual coordinates were referred to as "actual virtual latitudes and longitudes". The print-outs of some synoptic flights into easterly waves or weak disturbances may contain such coordinates.

7. Radial Distance

Radial distance is the distance of the aircraft from the storm center, given by the square root of the sum of the squares of virtual latitude and longitude, disregarding the earth's curvature.

B. WIND MEASUREMENTS

1. Basic Principles of Operation of the Equipment

The APN-82 system, described in I.A.1, computed wind speed and direction unless it was in the "memory mode". The wind speed and direction computer of the APN-82 system solved the wind, air speed, ground speed vector triangle from the measured true air speed, heading, ground speed, and drift angle. The accuracy of the computed wind was dependent upon the accuracy of each of these. The true air speed was the one parameter used only in the wind computations. It did not normally enter into the latitude-longitude computations and, thus, its errors were not detected by navigational checks of the system. The true air speed computer used the static pressure and flush bulb temperature information to make the density ratio and compressibility corrections to the indicated air speeds measured from the pitot-static pressure differences.

The winds computed from the Doppler navigation possibly suffered from the fact that the ground speed determinations were made relative to the surface over which the plane was flown. If the surface, i.e. water, was subject to a net transport the winds and navigation were subjected to error, in effect, the computed wind was the true wind plus a vector equal and opposite to the net water motion. The error is assumed to be small for most purposes but realistic estimates of net water motion under hurricane conditions are not available. Further attempts to evaluate this quantity are scheduled.

2. Accuracy and Response

Aside from errors introduced in the computer, the air speed measurement was affected by the position errors of the pitot-static system. The NHRP aircraft were equipped with a means of setting corrections into the true air speeds measured by their APN-82 systems. Since these aircraft were nearly always operated at normal cruising speed, the true air speed corrections were determined for cruising speed at the operational altitudes and set into the system for subsequent flights.

The accuracy of the wind speed computer, assuming perfect input, is illustrated in figure 1. The response rate of the wind system, including the recording system, is shown in figure 2. The maximum response to a change in wind direction was reached in 4 seconds and was 2.6° per second. For changes in wind speed, a maximum response of 6.6 knots per second was reached in 3 seconds. Where the winds are not changing markedly in speed or direction, one may estimate that they are equivalent to a 3- to 5-second average.

Winds were less reliable when the airplane was in a turn or bank due to erroneous input caused by yaw and skid. The response rate of the computer also contributed to error when the airplane was in a turn and large drift angle changes were involved.

On the basis of Project experience with this equipment, it is felt that the measured winds are, in general, at least as accurate as those measured by the rawinsonde method. Vector accuracy of the tabulated wind

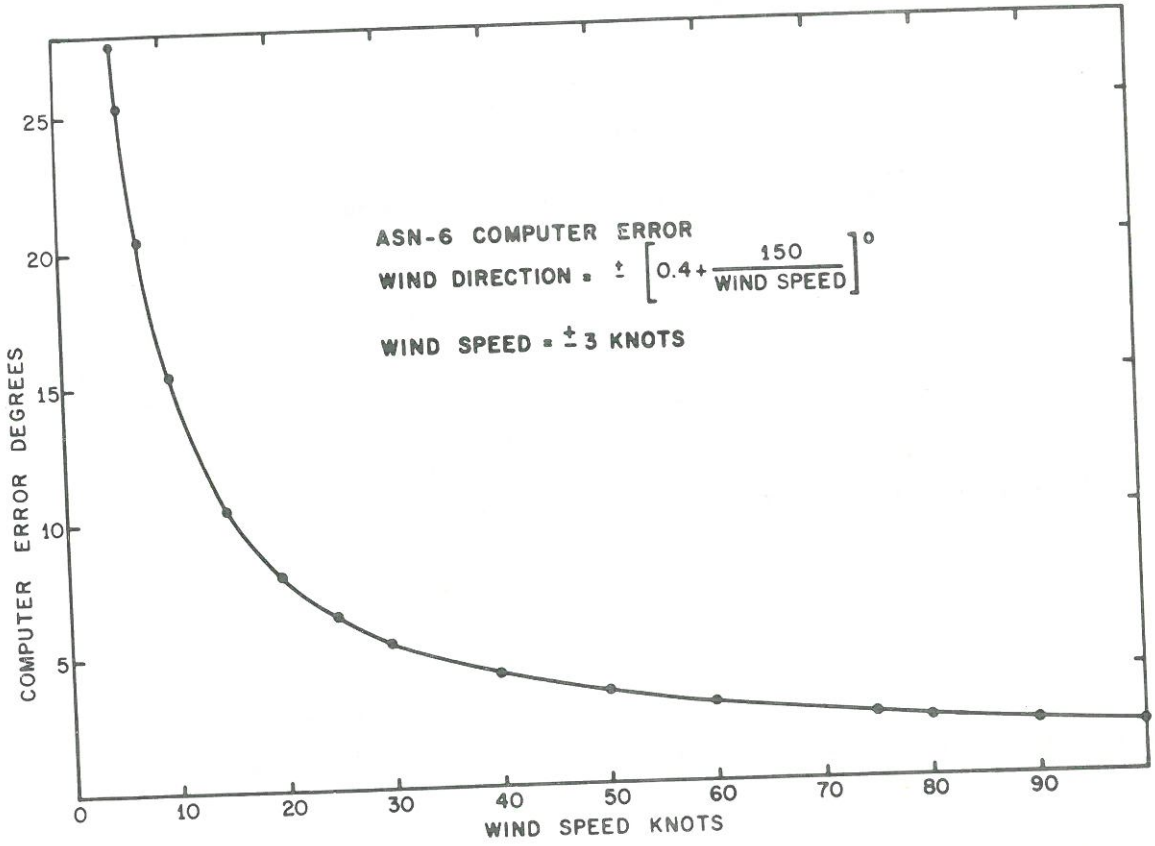


Figure 1. - Graph of computer wind direction error as a function of wind speed.

varies with wind speed, but at a speed of 30 knots or greater, vector error (after post-flight calibrations, described in 1.B.4.) is estimated to be less than 3 knots.

3. Calibration

Parameters making up the wind solution are: heading, ground speed, drift angle, and true air speed. Calibration of parameters involved in navigation has been discussed in Section 1.A.3. Calibration of the A-2 true air speed meter was based on the proven accuracy of the ground speed measurements which, for the purpose of calibration, were considered absolute. The airplane was flown on a short rectangular path while maintaining constant pressure altitude and indicated air speed. Recorded values of true air speed and ground speed for opposing sides of the rectangle were averaged. This simulated a no-wind condition in which true air speed and ground speed are equal.

4. Post-Flight Calibration

Detailed examination of recorded winds has shown that accuracy of wind could be improved over that obtainable by the technique described above. The

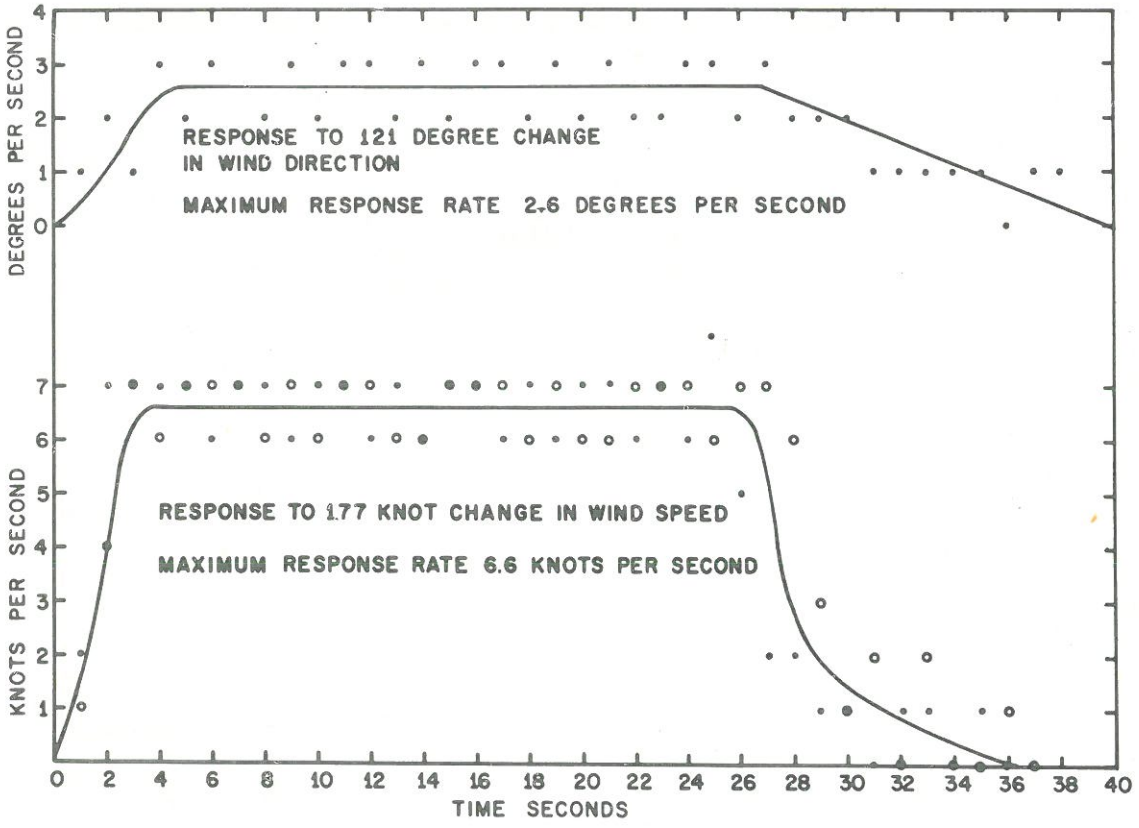


Figure 2. - Response of APN-82 system to changes in wind direction and speed.

recorded winds (punched in data cards to whole degrees and whole knots) have provided the data for post-flight calibration or refinement. The differences in the recorded winds before and after heading changes have been reduced to a minimum by applying an additional true air speed correction directed along the airplane heading. This correction for any specific flight was determined from the mean of the indicated values for all of the turn points in the flight. Errors introduced by erroneous true air speeds are seen as vector errors in the wind directed along the aircraft heading. In vector terms, the wind solution triangle may be expressed as

$$\vec{H} + \vec{W} = \vec{T}, \text{ or } \vec{W} = \vec{T} - \vec{H}$$

where $\vec{T}$ is the track vector, having direction of track angle and magnitude of ground speed; $\vec{W}$ is the wind vector, and $\vec{H}$ is the heading vector, having direction of heading and magnitude of true air speed. If the vector $\vec{H}$, fed into the APN-82 computer system, was in error by an amount of $\Delta\vec{H}$ (positive or negative, but along the vector $\vec{H}$), then the computed wind, $\vec{W}_c$, is given by

$$\vec{W}_c = \vec{T} - (\vec{H} + \Delta\vec{H}) = \vec{T} - \vec{H} - \vec{H} = \vec{W} - \Delta\vec{H},$$

or

$$\vec{W} = \vec{W} + \Delta\vec{H} .$$

Thus the computed wind, $\vec{W}_c$, would be in error by an amount equal vectorially to $\Delta\vec{H}$ (in this analysis it is assumed that $\vec{T}$ is accurate). Therefore, in practice, the correction estimated by calibration of the true air speed meter was applied directly as a correction to the computed wind. All these computations were done by electronic computer at the NHRP headquarters. Internally, the correction was broken into components and applied to the u and v components of the winds.

The correction processes caused a certain amount of "roughness" to appear in the output winds, especially at low wind speeds, so that the winds were smoothed vectorially by taking a centered five-card running mean to produce the "smoothed winds" included in the final print-out. The smoothed wind is more representative for many purposes and is preferred by many researchers.

5. Wind Direction and Speed

Winds as read into the computer were first converted into u and v components. After being corrected (see section 1.B.4), they were again converted to polar form and appear in data print-outs as unsmoothed wind direction and speed.

6. u and v Components of Wind

The u and v components of the winds, described in 1.B.5 were averaged over five (5) observations before tabulation, and thus represent the components of the smoothed wind. These smoothed components were used in all further calculations.

7. Smoothed Wind Direction and Speed

The u and v (above) components were converted to polar form and printed out as the smoothed wind.

8. Relative Wind

The motion of the storm was expressed as U and V components of storm motion. These components were then subtracted from the u and v wind components, resulting in the components of the wind relative to the moving storm center. These components were converted to polar form to give the relative wind and were also used to compute the radial and tangential components of the relative winds, described in 1.B.10.

9. Radial and Tangential Components of the Wind

At any point in the aircraft's flight it was desired to know the components of wind motion both along a radius line from the center of the storm and along a line tangent to a circle about the storm drawn through the aircraft position. The radial component, v_r, is considered positive outwards, and the tangential component, v_θ, is positive when cyclonic. These components were computed from the u and v components of the smoothed wind - and the location of the wind report relative to the storm center.

10. Radial and Tangential Components of the Relative Wind

The process described in 1.B.9 was used to obtain the radial and tangential components of the relative wind. The sign notation is also the same.

C. THERMOMETRY

1. Vortex Thermometer, ML-471/AMQ-8: Design and Operating Principles

The vortex probe was mounted outside of the airplane in a position at which the flow of air was not significantly disturbed by the motion of the airplane (fig. 3). It consisted of a cylindrical radiation shield containing a fixed spiral vane and a resistance wire thermometer. In flight, air flows axially into the housing and is forced by the vane to form a vortex around the sensing element. The vane was so designed as to produce cooling (as the air expanded at the center of vortex) which was equivalent to the dynamic heating caused by the ramming and spinning of the air when forced over the vanes. The manufacturer claimed that the spinning of the air made it impossible for water to come in contact with the temperature sensing element. No statement has been made concerning possible undesirable moist adiabatic or diabatic temperature changes in the probe due to liquid water or moisture gradients.

2. Accuracy and Response

It was stated by the manufacturer that the cooling effect at the center of the vortex compensated within $\pm$ 0.5°C. for dynamic heating in the air speed range of 0.2 to 0.65 Mach. The response time of the probe was found to be approximately 10 seconds. The servo system required about 22 seconds to slew through a 50° temperature change.

The manufacturer stated that rain, fog, and snow introduced no detectable error and that the effect of icing conditions was negligible until 3/16 inches of ice had built upon the probe. No provision was made for deicing the probe.

Possible effect of raindrops: It seems advisable that a cautionary note should be injected at this point. While tests have shown that it was highly unlikely that the temperature sensing element itself was wetted by raindrops, it has not been conclusively demonstrated that there was no effect on the temperature evaluations. Some of the airborne temperature observations seem to indicate that temperatures were below the anticipated values in heavy rain situations. It is possible that no matter what the design of the thermometer, a certain amount of ramming or compression of the air must take place before those droplets can be effectively removed; this could well apply to the vortex thermometers in which the droplets are carried past the entrance of the housing and, indeed, to practically all other airborne designs. If this effect is present, presumably it means that the compression is not dry adiabatic but lies somewhere between a dry adiabatic and moist adiabatic process. When this process is followed by a compensating or partially compensating expansion after the removal of the droplets, the process is a dry adiabatic expansion.

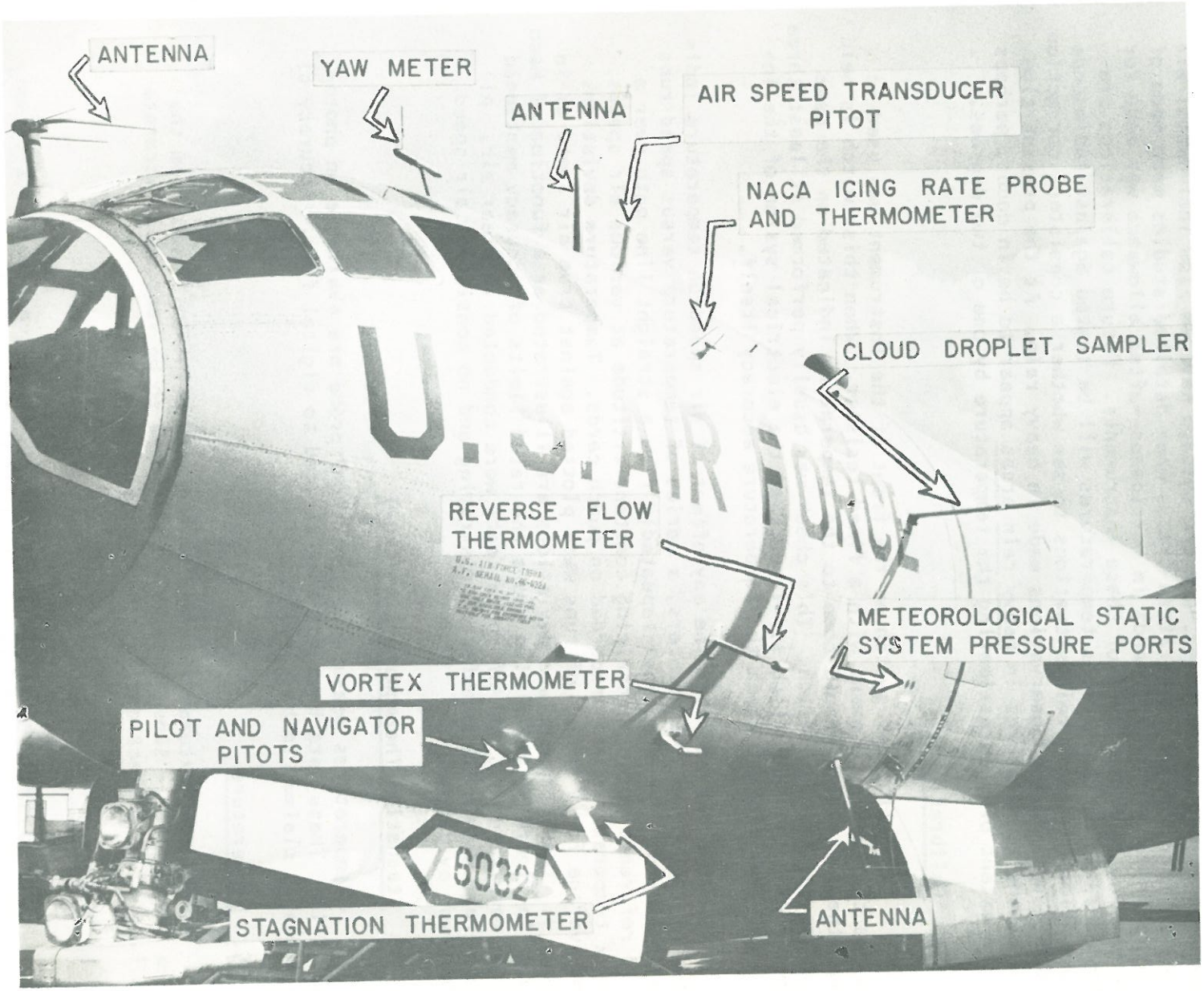


Figure 3. - Side view of B-50 showing sensing probes.

The net result would be to depress temperatures below those which characterize the air itself. The question currently unresolved is whether this effect is a common one and if so whether its magnitude is significant. Comparisons between the vortex, the AMQ-7, and the Chicago Reverse Flow Thermometer all revealed very similar temperature traces when detailed studies were made of flights in and out of rainbands in hurricanes--after allowance was made for the varying response times of these instruments. Future calibrations are planned in which the various temperatures will be tested against radiosonde observations in heavy rain situations to see whether a consistent correction can be developed for observations made in heavy rain. At the present time some of the temperatures in heavy rain areas appear to be in doubt, perhaps to the extent of underestimating the temperature by one or two degrees.

3. Calibration

A "calibrate" switch on the front of the instrument was used to replace the sensing element with a fixed resistor. When this switch is held down, the instrument should come to the temperature indicated on the case near the calibration switch. This check was usually performed at least three times during the NHRP flights. It checked the electrical system of the instrument, but did not check the temperature accuracy itself.

In order to determine any effect of air speed on temperature indicated by the vortex thermometers, a series of temperature versus speed runs was performed. The airplanes repeatedly flew a straight line path over a fixed reference point maintaining constant altitude at various air speeds. Vortex temperatures were recorded on punch cards. Temperature deviations from average for a series of runs were plotted against true air speed as in figure 4. These temperature deviations are illustrated as a function of Mach number in figure 5, which also shows the rated limits of accuracy mentioned by the manufacturer. All of these tests were conducted in clear air. All values fell within the manufacturer's rating and no consistent air speed effect was evidenced.

4. Stagnation Thermometer, AN/AMQ-7

Temperatures measured by the AMQ-7 probe are available on photopanel film. These data have not been reduced to digital form. Accuracy of the probe is claimed to be $\pm$ 1.0°C.

5. Temperature

The temperatures recorded in the data print-outs were from the vortex thermometer. Since they have been found to be reasonably accurate (see 1.C.1), no corrections have been applied to date.

6. Adjusted Temperature

Temperature was also adjusted to the reference pressure altitude (see 1.D.6) according to the lapse rate in the mean tropical atmosphere [6]

$$T_{adj} = T - \gamma(z_{po} - z_p)$$

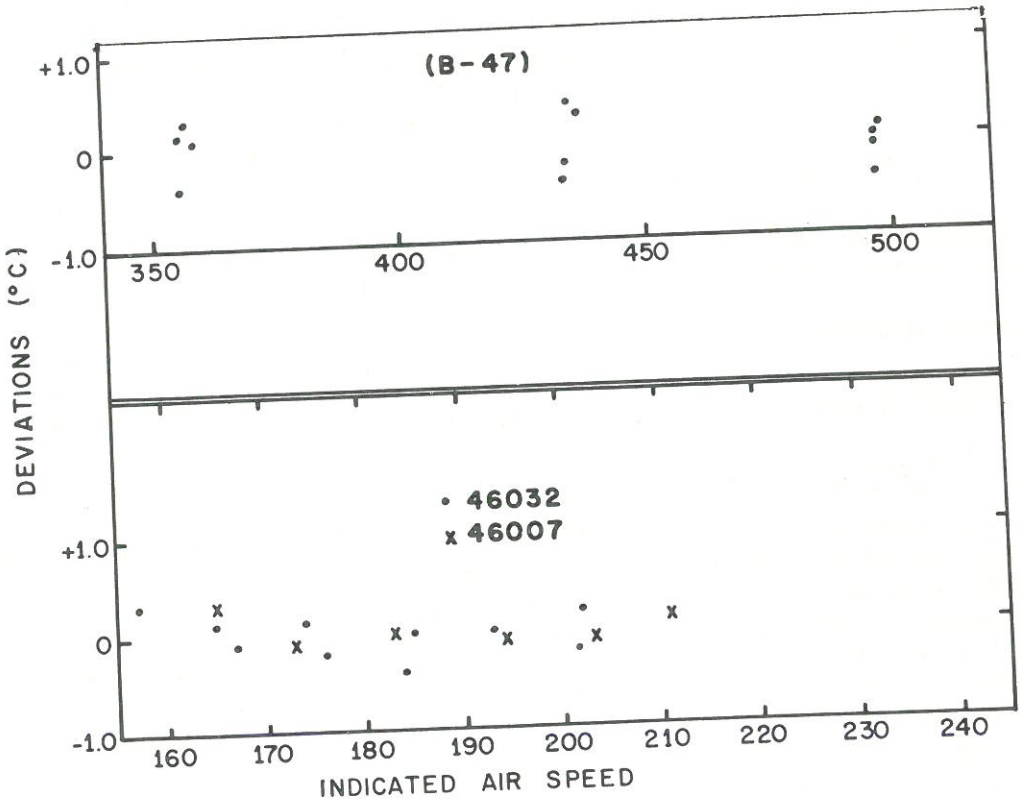


Figure 4. - Deviation from average of the temperature given by the vortex thermometer for a series of runs as a function of air speed; top graph for the B-47 jet and bottom one for the two B-50's (identification numbers 46032 and 46007, respectively).

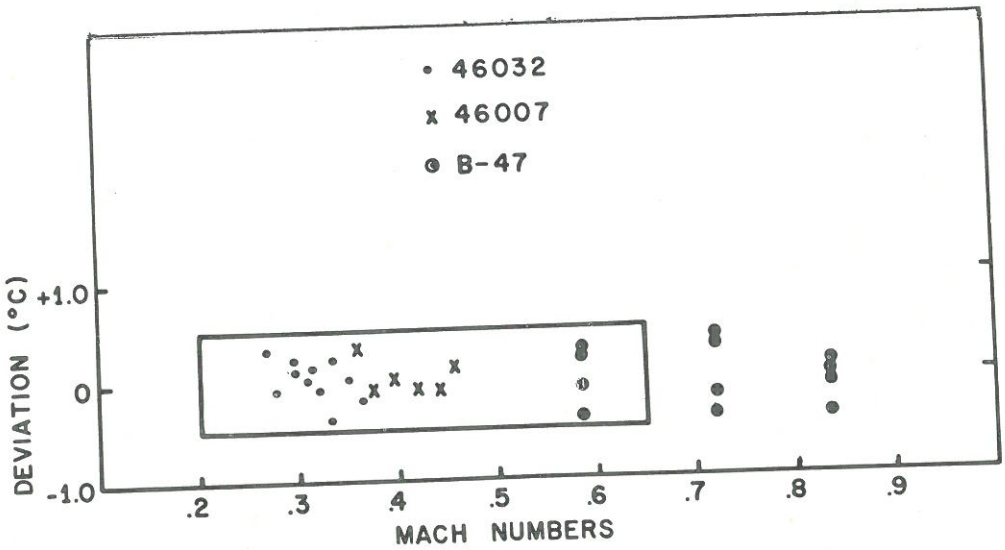


Figure 5. - Deviation from average of the temperature given by the AMQ-8 vortex thermometer as a function of Mach number. Data shown for all three aircraft. Limits of manufacturers claimed accuracy outlined.

where γ is the lapse rate. The following values were used for γ:

up to 22,000 ft. γ = 1.7°C./1000 ft.

above 30,000 ft. γ = 2.4°C./1000 ft.

To date there have been no flights between 22,000 ft. and 30,000 ft. and the lapse rate has not been established for that layer.

D. PRESSURE MEASUREMENT

1. Meteorological Pitot-Static System

The static pressure field surrounding an airplane in flight is appreciably disturbed by yaw. In a yaw an excess of static pressure is produced on one side of the aircraft and a pressure deficiency on the other side. In order to minimize the effect of yaw, two special static ports were provided on the NHRP aircraft for the meteorological instruments. They were located directly opposite each other and were united in one line leading to the meteorological instruments. The lines connecting the two static ports to the common static line were of equal length and capacity in order to correctly balance pressure excess at one port with the pressure deficiency present at the opposing static port.

The determination of the pressure altitude of an airplane is also compromised by the distortion of the air pressure field caused by the motion of the airplane. The difference between the true ambient air pressure and the pressure at the static ports is a function of the air speed and angle of attack of the airplane.

2. Accuracy

The Kolsman sensitive altimeter was rated accurate to 1.5 percent by the manufacturer. The NHRP laboratory calibrations indicated "2 percent" to be a more realistic value. Hysteresis and friction effects resulted in further uncertainties in pressure measurements. Altimeters on NHRP airplanes were subjected to frequent regular vibration to help minimize these effects.

After all corrections had been applied, pressure altitude was estimated accurate to $\pm$ 40 feet.

3. Calibration

Pressure altitude "position errors" can be calculated from the results of flight calibrations of the air speed measurements errors. This method was first used by NHRP, but it proved so time consuming that current calibration data could not be maintained if optimum use was to be made of the airplanes. All pressure altitude corrections have, therefore, been based on the results of multiple soundings. Radar altitude and temperature were considered as absolute for the purpose of the calibrations, and pressure altitude corrections were based on the validity of the hydrostatic equation used in nondisturbed areas of the flight pattern. Post-flight comparisons with radiosonde ascents have also been used.

4. Pressure Altitude

The pressure altitude was taken from an altimeter set to 29.92 inches. The error in pressure altitude, due to static error, was compounded by further errors occurring at different air speeds, but every effort was made to fly the aircraft at the same indicated air speed at all times so that a given set of corrections would apply to all flights. Accordingly, corrections were developed from hydrostatic considerations.

5. D-Value

The D-value was computed from the corrected radar altitude (see 1.E.) and pressure altitude (1.D.4):

$$D = z_r - z_p \text{ (in tens of feet)}$$

Both radar altitude and pressure altitude change constantly in the course of a flight as the airplane physically rises and falls in the atmosphere. The difference between these elements, denoted D-value, is fairly conservative and its variations are proportional to variations in height of a constant pressure surface.

The main source of uncertainty in the accuracy of the D-value was due to the radar altitude, which was recorded photographically and the heights could not be read to the desired accuracy in a thoroughly consistent fashion. A procedure was devised which made use of the computer facilities. A program was prepared by which the adjusted D-values were plotted graphically in a time sequence on the machine printer. (See figs. 14 and 15.) This graph was then scrutinized for unlikely jogs, and somewhat subjective hand-smoothing was introduced to the D-value curve. The necessary adjustments to achieve the smoothing were assigned to the pressure altitudes, which were then corrected as required. As a result of this smoothing it is believed that minor-scale fluctuations in the D-value curve were filtered out and only the broader-scale gradients should be relied upon.

6. Reference Pressure Altitude

No aircraft can be expected to maintain an altitude constant enough for use in observations. Therefore, the aircraft were flown to keep (usually, well) within 1000 feet of a reference level, and all parameters having appreciable temperature dependence (see 1.C.6 and 1.D.7) were adjusted to this reference level to eliminate variations due to vertical motion. The reference level for each flight (or portion of a flight) is indicated in the print-out to tens of feet.

7. Adjusted D-Value

The D-value described in 1.D.5, was adjusted to the reference level for the flight (1.D.6) according to the formula

$$D_{adj} = D + (z_{po} - z_p) \frac{(T - T_o)}{T_o}$$

where D_{adj} is the adjusted D-value in tens of feet; z_p is the pressure altitude, z_{po} is the reference pressure altitude (see 1.D.6); T is the temperature at flight level (1.C.5), and T_o is the temperature for the reference pressure altitude in the U. S. Standard Atmosphere (both in °A.).

8. Pressure

The pressure altitude is actually a measure of pressure alone, given by height in the U. S. Standard Atmosphere. The formulae used were:

for p greater than 234.5100 mb.,

$$z_p = 145{,}366.14 \left[1 - \frac{p}{1013.250}\ 0.190284\right] \text{ feet}$$

for p less than 234.5100 mb.,

$$z_p = 35{,}332.05 + 20{,}937.75\, \ell n\ \frac{234.5100}{p} \text{ feet}$$

Both of these formulae have been solved for p, expanded around convenient values in a Taylor's series. Thus, in effect, a set of polynomials was used to find a fast approximation for p, accurate to 1 foot in z_p.

E. ABSOLUTE ALTITUDE

1. Method of Measurement

Absolute altitude was measured on NHRP airplanes with a SCR-718 radio altimeter. The indicator unit presented the reference and echo pulses on a small oscilloscope. The angular separation between the pips is a function of altitude. The scope was photographed and the data reduced from an expanded projection of the film.

2. Accuracy

Manual recording of absolute altitude aboard the airplane was considered accurate to ± 50 feet. It is estimated that the use of an expanded projection increases the accuracy to ± 25 feet. This accuracy is reached under optimum conditions; the blip must be relatively steady, well defined photographically, and must not overlap the reference blip. Absence of any one or any combination of the preceding conditions will lower the accuracy of the radar altitudes. (See 1.D.5 for further comments concerning the accuracy.)

3. Radar Altitude

The absolute altitude was tabulated (in 10's of feet) in the data print-outs. Since the instrument proved difficult to read in a consistent fashion, certain correction procedures were used before the heights were tabulated finally (see 1.D.5).

F. TIME

1. Master Timer

The time signals which were recorded simultaneously with the meteorological data originated in a master timer which also served to control the card punching interval of the digital recording system. The primary element of the timer was a chronometrically governed timing motor. This motor turned a light-beam-interrupting-disc arranged to briefly illuminate two photo cells at 1-second intervals. The pulsed electric current from the photo-cells was amplified to drive a timing relay.

Second and minute pulses were used in relay circuits to provide suitable time signals for the various recording systems.

2. Accuracy

The timing system was as accurate as the timing motor which the manufacturer rated as accurate to ± 0.1 percent or, in terms of time, ± 36 seconds in 10 hours.

3. Time of Day

The several timing devices on board the aircraft were not always synchronized and they had to be made to agree. Time from the master timer was punched in the cards on board the aircraft as seconds elapsed from the beginning of the run or flight. This was later converted into "time of day". Thus, card time was made to agree with the photopanel clock at the beginning of the flight. Since the photopanel clock and the master timer ran at different speeds, time synchronization graphs were developed for each flight. These graphs also showed the differences in time from the clocks photographed with the radars and with the time lapse cloud camera (B-47 only) as well as the difference between the photopanel clock and card time. (See 1.I and 1.J.)

G. HYGROMETRY

1. Basic Principles of the Infrared Hygrometer

The infrared hygrometers used on NHRP airplanes were developed and constructed by the Instrumental Engineering Division of the U. S. Weather Bureau, Washington, D. C. These hygrometers measure absolute humidity by evaluation of the transmissivity of an air sample in selected narrow bands of infrared radiation [5].

2. Accuracy and Response

Accuracy of the humidity values can only be estimated. Use of the data indicates an accuracy of near ± 0.1 gram of water vapor per cubic meter at values near saturation. For humidities near 50 percent relative humidity, estimated accuracy is ± 0.5 gram per cubic meter. Dew point accuracy is a function of dew point because the relation between temperature and saturation vapor density is nonlinear.

The response time for the hygrometers with a step input ranging from the dry point, established with dry nitrogen (less than 8 grains of moisture per 1000 cubic feet expanded gas at normal temperature and pressure) to approximately 10 grams per cubic meter in flight test on a DC-6 is 4.5 seconds (for 3 percent of final value).

3. Calibration

Calibration data were furnished NHRP by the Instrumental Engineering Division of the Weather Bureau. In addition, NHRP calibrated these instruments on the ground by direct comparison with absolute humidity calculated from psychrometric measurements. Due to instrumental instabilities these methods proved unsatisfactory. This, it is now realized, was due to several factors; the decay of the lamp and detector cell, and the quantum-mechanical spectral-line broadening effect with increasing pressure. Thus, it has been found more practical to calibrate each flight empirically. The humidity figure (bit) recorded on board the aircraft was a measure of the amount of absorption by water vapor of infrared radiation passing through a ventilated chamber. An auxilliary program searched through each flight for the lowest temperature occurring at each "bit" value of humidity. These points were plotted versus the "bit" values and a reasonably smooth line drawn along the "cold" edge of these points. Notice was also taken of points in the flight where the aircraft entered clouds or heavy rain, and it has been assumed that these combinations of temperature and "bit" values were at or near saturation. This assumption then resulted in a curve of dew points versus bit-values since for each saturation temperature (dew point) there is a unique value of absolute humidity. Absolute humidity versus "bit" value was then determined. These values were entered in a table, loaded into the computer, and used for further calibrations. In effect, each flight, and often separate portions of each flight, was thus postcalibrated under the assumption that saturated conditions could be identified. This procedure automatically precludes the occurrence of super-saturation.

4. Humidities

Humidities were calculated in the following manner: the humidity table for the flight was constructed and entered as described in I.G.3. The value for each humidity figure (in bits) then describes a location in the table containing the dew point and the absolute humidity. The mixing ratio w was calculated by the formula

$$w = \frac{\rho_w RT}{p}$$

where ρ_w is the absolute humidity, R is the gas constant for dry air, T and p are the temperature and pressure of the ambient atmosphere.

H. ICING

Icing information as recorded on NHRP airplanes indicated only that icing had occurred since the previous observation was recorded. The probe was furnished by NACA. It was a U-shaped tube in which ten small holes had been drilled. An accumulation of ice, sufficient to seal the small holes,

would lead to a pressure anomaly in the probe activating an electrical heating circuit to de-ice the probe. The activation of the heating circuit was the event recorded.

I. RADAR

The AN/APS-23 radar was used in the NHRP aircraft primarily for cloud surveillance and flight control. This unit was an X-band (3 cm.) radar designed primarily for navigation and mapping purposes. It could be set for various ranges from 5 to 200 miles, and had a power output of 55 kw for ranges less than 80 miles, and 44 kw for greater ranges. The output pulse length was 3/8 microsecond for the ranges from 5 to 50 miles, 1 microsecond for those from 50 to 80 miles, and 5 microseconds for the greater ranges. The receiver sensitivity was 8 dbm. The half power limits of the antenna radiation lobe subtended angles of 1.5° in the horizontal and 55° in the vertical.

The power distribution in the vertical plane was shaped by the antenna into a cosecant squared pattern. The antenna rotated around a vertical axis and could be depressed to 14° below the horizontal. PPI scopes were used for echo presentation, and an 0-15 Fairchild camera was employed on the scope. It photographed the scope presentation, a clock, and a digital picture counter.

The AN/APS-64 radar was used in the NHRP B-47 aircraft. This set was very similar to the APS-23 except that a larger PPI scope was employed.

The clocks in the radar photographs had to be synchronized with the time given by the master timer (the time given in the data tabulations). This was done by the technicians at beginning of each flight. Time corrections were obtained for later portions of the flight by comparing the radar clock with the master timer at turn points in the flight. (See 1.F.3.)

J. CLOUD PHOTOGRAPHY

Time-lapse movies were filmed on board the two B-50 aircraft and also on board the B-47 aircraft. Sixteen-millimeter time-lapse cameras were used to make the cloud photographs. The focal length on all three cameras was 9.525 mm. The cameras were directed forward from the nose of the two B-50 aircraft, whereas the camera in the B-47 was directed to the left of the aircraft at an angle of 50° to the line of flight. Continuous photography was in effect for each aircraft mission except for breaks in the filming because of necessity to change magazines or to load the cameras with 100-foot film rolls. The time interval between frames in the cameras on the two B-50's was exactly 2 seconds; the time interval between frames in the camera on the B-47 was 1.5 seconds. In the B-47 there was a clock presentation in the film, but not in the B-50's. Synchronization of the cloud film and recorded data was achieved by timing the aircraft turns as seen in the cloud film. When the aircraft was in cloud for a considerable portion of the track, the synchronization of the cloud data became quite difficult. (See 1.F.3.)

K. DIGITAL RECORDING SYSTEM

1. Description

The digital recording system was used to record the routinely important meteorological data on standard 80-column punch cards. Its chief component was a modified IBM 523 gang punch. The main advantage of this rather complex recording method was that the data stored on the cards during flight could be readily printed out, plotted out, sorted, or even used in numerical computations as soon as the aircraft returned from a mission. Moreover, a digital recording system of this type introduced very little additional error into the measurements. The following information was recorded in pure binary code on punch cards:

Information	Data Source	Value of One Bit
Flight Identification	Manually Set	Units
Time	Master Timer	1 second
Latitude	APN-82	1/4 minute
Longitude	APN-82	1/4 minute
Wind Direction	APN-82	0.703124°
Wind Speed	APN-82	0.703125 knot
Temperature	Vortex	0.10°C.
Humidity	Infrared Hygrometer	Nonlinear, approximately 0.1 gram

In addition, certain events were recorded on punch cards both automatically and manually. These events and their method of recording control are as follow:

Event	Control
In Cloud	Manual
Turbulence	Manual
Light Rain	Manual
Heavy Rain	Manual
Cloud Cameras	Automatic
Icing	Automatic
Auxiliary Timer used	Automatic
APN-82 in "Memory"	Automatic
APN-82 on "Standby"	Automatic

With the exceptions of the flight identification, humidity, and time, the information occurred as shaft position analog data. It was converted to digital data by code wheels geared to shafts. This accounts for the odd increments used for wind direction. The cyclic nature of this parameter made the division of 360° into 512 bits necessary because there are 512 bits to one revolution of the standard code wheel used. The same increment was used for wind speed in order to simplify the design of the system.

The sampling rate could be selected on a basis of either time or distance traveled. Time rates were controlled by the master timer and

distance between samples controlled by an amplifier unit of the automatic navigation equipment. Any one of the following recording intervals could be selected:

Time

1, 2, 3, 4, 5, 6, 7, 10, 12, 15, 20, 30, 40, 50, or 60 seconds

Distance

0.2, 0.3, 0.4, 0.5, 0.6, 0.8, 1.0, 2.0, 3.0, 4.0, or 5.0 nautical miles

Data recorded on one punch card was sampled with a period of 0.5 seconds.

2. Reliability

Malfunction of electronic circuitry, card jam in the card feed mechanism, and failure of individual punch dies in the card punch were the main limitations of the digital recording system. Electronic malfunction could result in loss of an entire parameter or in spurious addition or subtraction of a binary bit in one or more binary channel. Failure of a punch die resulted in loss of a binary bit in the corresponding channel. Card jams resulted in loss of digital recording until the jam was cleared. Missing digital data were reproduced from photopanel film and key punched into cards wherever possible. Erroneous recording due to bit trouble was corrected by careful scrutiny of the data and by comparison with the photopanel film.

L. PHOTOPANEL RECORDING SYSTEM

The photopanel recording system was designed to back up the digital recording system as well as to record some parameters not digitized. Consequently, it displayed nearly all of the flight data (fig. 6). (The photopanel recording camera was activated from the same source that controlled the digital system in order to assure simultaneity between the two systems.) Table 1 shows the data photographed.

II. DATA REDUCTION AND PROCESSING

Some of the data from National Hurricane Research Project aircraft for the years 1956 through 1958 were originally recorded on binary-punch cards. These cards have now all been converted into decimal form and data for additional parameters from photopanel recordings have been entered on them.

The elements usually punched on the decimal cards were:

Flight Identification	Pressure Altitude
Time of Day	Temperature
Latitude	Humidity
Longitude	Events
Wind Direction and Speed	Card Count
Radar Altitude	

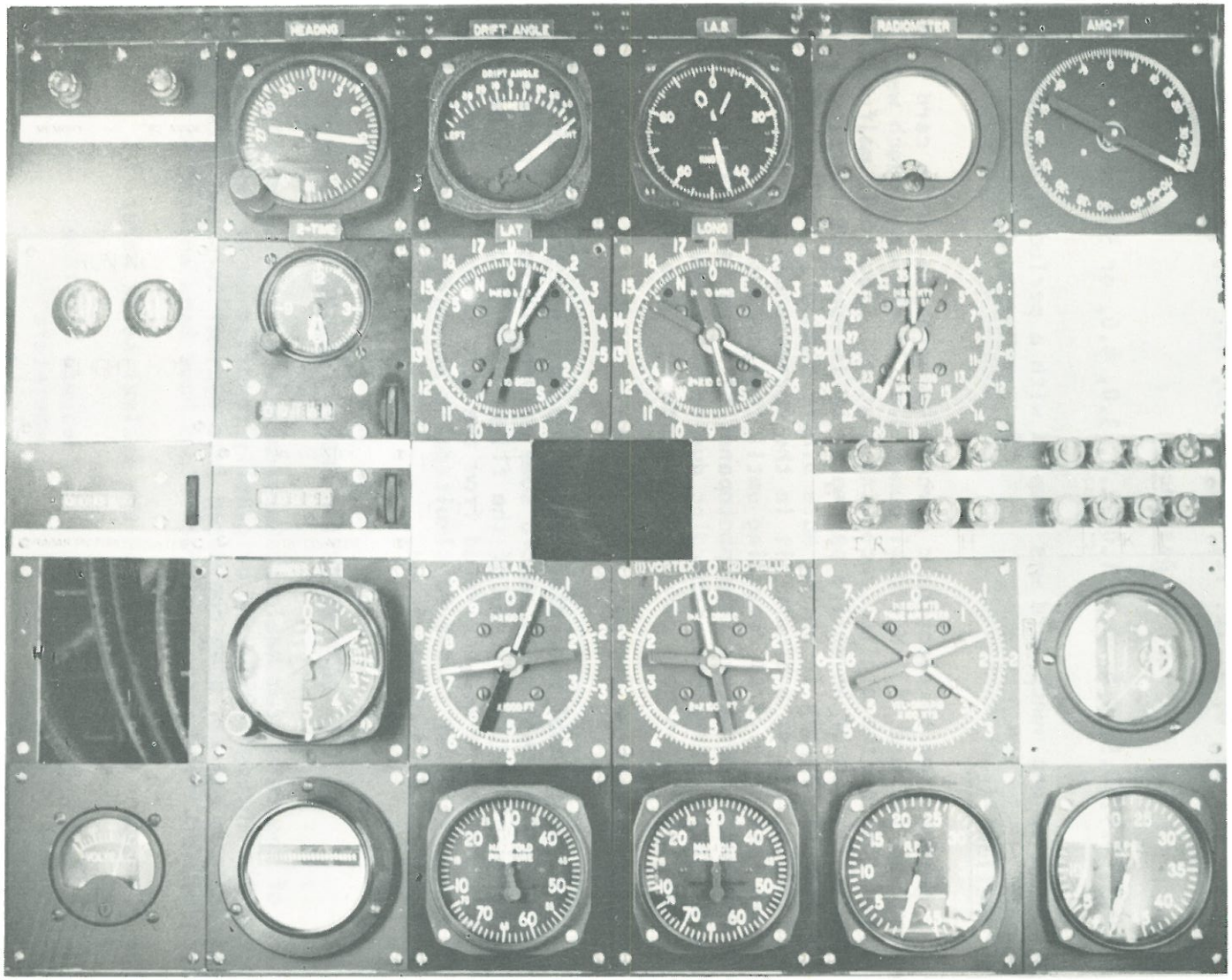


Figure 6. - Photograph of the photopanel display showing the various indicators.

Table 1. - Data photographed from the photopanel display.

PARAMETER	INDICATOR	SIGNAL SOURCE	REMARKS
Aircraft Heading	Component of N-1 System	N-1 Compass	--
Drift Angle	Component of APN-82	AN/APN-82	--
Indicated Air Speed	Kollsman I.A.S. Meter	Pitot and Static Lines	--
Temperature	Synchro Repeater	AMQ-7	--
Run Number	Nixie Lights	Master Control Panel	Numerically shaped filaments display selected numeral.
Time	Clock	(Self contained)	--
Time	Digital Counter	Master Timer	Seconds from beginning of digital record.
*Radar Picture Number	Digital Counter	O-15 Camera	Permits comparison of radar pictures with contemporary data.
Data or Card Counter	Digital Counter	Time and Distance Unit	Permits direct comparison of cards and photo data.
Latitude	Dual Synchro Repeater	Latitude Servo System	Two hands. Inner-minutes. Outer-degrees.
Longitude	Dual Synchro Repeater	Longitude Servo System	Two hands. Inner-minutes. Outer-degrees.
Wind Direction and Speed	Dual Synchro Repeater	Wind Direction and Speed Servo Systems	Two hands. Inner-knots. Outer-degrees.
Label Plaque	--	(Used for flight and aircraft identification.)	--

Table 1. - continued.

PARAMETER	INDICATOR	SIGNAL SOURCE	REMARKS
Absolute Altitude	Oscilloscope	SCR-718	--
Icing Rate	Indicator Light	NACA Icing Rate Recorder	Lights when the icing collector is being deiced.
AN/APN-82 Operation	Indicator Lights: A, B, C, D	AN/APN-82	Indicates: power to system; system failures, and memory mode operation.
Events	Indicator Lights: E to J	Meteorologist's Station	Switched on by meteorologist to record time of events of special interest.
Altitude	Kollsman Sensitive Altimeter	Balanced Static Pressure System	--
Temperature	Dual Synchro Repeater	ASQ-8	Two hands. Inner-temperature. Outer-"D"-value.
True Air Speed	Dual Synchro Repeater	AN/APN-82	Two hands. Inner-T.A.S. Outer-ground speed.
Ground Speed	Dual Synchro Repeater	AN/APN-82	Two hands. Inner-T.A.S. Outer-ground speed.
Humidity	Micrometer	Infrared Hygrometer	--
Power Voltage	Volt Meter	400 Cycle Power Bus	--
Power Frequency	Vibrating Reed Frequency Meter	400 Cycle Power Bus	--

Table 1. - continued.

PARAMETER	INDICATOR	SIGNAL SOURCE	REMARKS
*Manifold Pressure Engines 1 and 2	(Extensions of normal aircraft instrument system using identical indicators)	--	--
*Manifold Pressure Engines 3 and 4			
*RPM Engines 1 and 2			
*RPM Engines 3 and 4			
**Percent RPM			

*Not recorded on B-47 aircraft.

**Recorded <u>only</u> on B-47 aircraft.

These cards were read by the ground-based computer, the data were corrected and developed into the more useful forms described in Section I, and the results printed. (The record of events has not been altered from that recorded on the plane even though some are in error. Card count, which is running count from 00 to 99 and then repeating, has been used to correct the sequence of observations, but has not itself been corrected.)

III. FORMAT OF DATA LISTING AND PLOT-OUTS

A. LISTING

The completely processed flight data are available in two separate listings. Primary data reduction and listing was achieved in one final pass in the computer which produced the print-out format shown in figure 7. More explicit information on the contents is given in figure 8.

Supplementary data, relative humidity and adjusted dew point are provided on a secondary listing (see fig. 9). These additional items are considered more optional in nature but are quite important for some research projects and have proved to be convenient.

B. PLOT-OUTS

For actual analysis and research, the data have been or can be presented in a variety of ways:

1. Standard Meteorological Plots

For information purposes, figure 10 has been included to show the density and presentation of data when observations were recorded at a 2-second rate. This example from hurricane Cleo (1958) affords a graphic display of the detail possible.

2. Working Plot-Outs in Horizontal Plan

For research analysis one- or two-parameter plot-outs were prepared on a scale of 10 nautical miles = 1 inch. Figure 11 illustrates the plot of wind speed and wind direction for the 6400-foot (800-mb. level) flight through hurricane Cleo (1958) [7] . In the radial pass toward the northeast, two solid line-segments are shown just inside the 25 n. mi. radius. These lines show that portion of the flight track shown in an expanded scale in the preceding figure 10. Other elements plotted and analyzed in horizontal plan usually included: adjusted temperature, adjusted D-value, specific or relative humidity, and relative wind speed and direction.

3. Radial Profiles

For many purposes it was found advantageous to plot radial profiles of the various elements. Occasionally, averaged radial profiles were prepared. Where deemed advisable and justified, vertical superposition of such profiles was made to check vertical consistency. As an example, the working profile of actual winds (knots) in one of the radial passes made in hurricane Carrie on September 15, 1957, is included as figure 12.

SAMPLE PRINTOUT

FLIGHT NO. YMMDDX	TIME HHMMSSZ	LAT. & LONG. Degrees	WIND (Smoothed) Deg. & Kt.	RAD. & TAN. Comp. of wind (Smoothed) Kt.	U & V Comp. of wind (Smoothed) Kt.	RA & PA ALTITUDE Tens of feet	"D"	TEMP. °C	MIX. RATIO g kg^{-1}	DEW POINT °C	PRESS. Mb.
NAME OF STORM	CARD COUNT	VIRTUAL LAT. & LONG. N.Mi.	RELATIVE WIND (Smoothed) Deg. & Kt.	RAD. & TAN. Comp. of rel. wind (Smoothed) Kt.	WIND Deg. & Kt.	RADIAL DIST. N.Mi.	PA* REF. LVL. Tens of feet	"D" Adjusted to PA	TEMP. °C	ABS. HUM. g m^{-3}	HUM. BITS	EVENTS
80818A	175139	33.960 56.025	245 079	-003.2 +079.1	+071.7 +033.4	591	640	- 49	+14.3	11.9	+13.3	799.7
CLEO	02	- 23.0 - 9.6	254 069	+007.9 +068.9	245 079	24.9	640	- 49	+14.3	11.6	066 13 00 04	
80818A	175141	33.960 56.025	245 079	-003.2 +078.9	+071.5 +033.3	9999	640	+9999	+14.3	11.9	+13.3	799.7
CLEO	03	- 23.0 - 9.6	254 069	+008.0 +068.7	245 079	24.9	640	+9999	+14.3	11.6	066 12 00 04	
80818A	175143	33.956 56.025	245 079	-003.3 +078.5	+071.3 +032.9	592	640	- 48	+14.3	11.9	+13.3	799.7
CLEO	04	- 23.3 - 9.6	254 069	+007.9 +068.3	245 079	25.2	640	- 48	+14.3	11.6	066 12 00 04	
80818A	175145	33.956 56.025	245 078	-003.2 +078.2	+071.1 +032.8	9999	640	+9999	+14.3	11.9	+13.3	799.7
CLEO	05	- 23.3 - 9.6	254 069	+007.9 +068.1	245 078	25.2	640	+9999	+14.3	11.6	066 04 00 04	
80818A	175147	33.952 56.021	245 078	-002.7 +077.9	+071.0 +032.5	593	640	- 47	+14.4	12.0	+13.3	799.7
CLEO	06	- 23.5 - 9.8	254 068	+008.5 +067.8	246 078	25.5	640	- 47	+14.4	11.6	066 04 00 04	
80818A	175149	33.952 56.021	246 078	-002.4 +077.8	+071.0 +032.2	9999	640	+9999	+14.4	12.1	+13.5	799.7
CLEO	07	- 23.5 - 9.8	255 068	+008.7 +067.6	245 078	25.5	640	+9999	+14.4	11.7	065 04 00 04	
80818A	175151	33.952 56.021	246 078	-002.2 +077.6	+070.9 +031.9	594	640	- 46	+14.4	12.1	+13.5	799.7
CLEO	08	- 23.5 - 9.8	255 068	+009.0 +067.4	246 078	25.5	640	- 46	+14.4	11.7	065 04 00 04	
80818A	175153	33.948 56.017	246 078	-001.9 +077.5	+070.7 +031.8	9999	640	+9999	+14.4	12.1	+13.5	799.7
CLEO	09	- 23.8 - 10.0	255 068	+009.2 +067.3	246 078	25.8	640	+9999	+14.4	11.7	065 04 00 04	
80818A	175155	33.948 56.017	246 078	-001.4 +077.5	+070.9 +031.3	595	640	- 45	+14.4	12.0	+13.3	799.7
CLEO	10	- 23.8 - 10.0	255 068	+009.7 +067.3	246 077	25.8	640	- 45	+14.4	11.6	066 04 00 04	
80818A	175157	33.944 56.017	246 077	-001.4 +077.3	+070.9 +030.9	9999	640	+9999	+14.4	11.8	+13.2	799.7
CLEO	11	- 24.1 - 10.0	256 068	+009.8 +067.2	246 077	26.1	640	+9999	+14.4	11.5	067 04 00 04	
80818A	175159	33.944 56.017	247 077	-001.1 +077.1	+070.8 +030.6	596	640	- 44	+14.4	11.7	+13.0	799.7
CLEO	12	- 24.1 - 10.0	256 068	+010.0 +066.9	247 078	26.1	640	- 44	+14.4	11.3	068 04 00 04	
80818A	175201	33.944 56.017	247 077	-000.8 +077.1	+070.9 +030.3	9999	640	+9999	+14.3	11.9	+13.3	799.7
CLEO	13	- 24.1 - 10.0	256 068	+010.3 +066.9	247 077	26.1	640	+9999	+14.3	11.6	066 04 00 04	
80818A	175203	33.940 56.013	247 077	-000.3 +077.0	+071.0 +030.1	9999	640	+9999	+14.3	11.8	+13.2	799.7
CLEO	14	- 24.3 - 10.2	256 068	+010.8 +066.8	247 077	26.4	640	+9999	+14.3	11.5	067 04 00 04	
80818A	175205	33.940 56.013	247 077	-000.3 +076.8	+070.8 +030.0	9999	640	+9999	+14.3	11.8	+13.2	799.7
CLEO	15	- 24.3 - 10.2	256 068	+010.8 +066.6	247 077	26.4	640	+9999	+14.3	11.5	067 04 00 04	
80818A	175207	33.935 56.013	247 077	-000.6 +077.0	+070.8 +030.0	9999	640	+9999	+14.3	11.8	+13.2	799.7
CLEO	16	- 24.6 - 10.2	256 068	+010.6 +066.8	247 077	26.6	640	+9999	+14.3	11.5	067 04 00 04	
80818A	175209	33.935 56.013	247 077	-000.6 +077.0	+070.8 +030.0	9999	640	+9999	+14.3	11.8	+13.2	799.7
CLEO	17	- 24.6 - 10.2	256 068	+010.6 +066.8	247 077	26.6	640	+9999	+14.3	11.5	067 04 00 04	
80818A	175211	33.936 56.013	247 077	-000.6 +077.0	+070.8 +030.0	9999	640	+9999	+14.4	12.0	+13.3	799.7
CLEO	18	- 24.6 - 10.2	256 068	+010.6 +066.8	247 077	26.6	640	+9999	+14.4	11.6	066 04 00 04	
80818A	175213	33.931 56.008	247 077	-000.4 +076.6	+070.6 +029.9	9999	640	+9999	+14.4	12.0	+13.3	799.7
CLEO	19	- 24.9 - 10.4	256 067	+010.8 +066.5	247 077	27.0	640	+9999	+14.4	11.6	066 04 00 04	
80818A	175215	33.931 56.008	247 076	-000.1 +076.4	+070.5 +029.6	598	640	- 42	+14.4	12.0	+13.3	799.7
CLEO	20	- 24.9 - 10.4	257 067	+011.0 +066.2	247 077	27.0	640	- 42	+14.4	11.6	066 04 00 04	
80818A	175217	33.927 56.008	247 076	-000.3 +076.2	+070.4 +029.5	9999	640	+9999	+14.4	12.0	+13.3	799.7
CLEO	21	- 25.1 - 10.4	257 067	+010.8 +066.1	247 076	27.2	640	+9999	+14.4	11.6	066 04 00 04	
80818A	175219	33.927 56.008	247 076	-000.1 +076.3	+070.5 +029.3	9999	638	+9999	+14.5	11.9	+13.3	800.4
CLEO	22	- 25.1 - 10.4	257 067	+011.1 +066.1	248 076	27.2	640	+9999	+14.5	11.6	066 04 00 04	
80818A	175221	33.927 56.008	247 076	-000.1 +076.0	+070.3 +029.2	9999	640	+9999	+14.5	12.0	+13.3	799.7
CLEO	23	- 25.1 - 10.4	257 067	+011.1 +065.9	247 076	27.2	640	+9999	+14.5	11.6	066 04 00 04	
80818A	175223	33.923 56.004	248 076	+000.4 +076.0	+070.2 +028.9	9999	640	+9999	+14.6	12.0	+13.3	799.7
CLEO	24	- 25.4 - 10.6	257 067	+011.5 +065.8	248 077	27.5	640	+9999	+14.6	11.6	066 04 00 04	
80818A	175225	33.923 56.008	248 076	-000.1 +075.8	+070.0 +028.8	9999	640	+9999	+14.6	12.0	+13.3	799.7
CLEO	25	- 25.4 - 10.4	257 067	+011.1 +065.7	247 076	27.4	640	+9999	+14.6	11.6	066 04 00 04	
80818A	175227	33.919 56.004	248 075	+000.3 +075.5	+069.9 +028.5	9999	640	+9999	+14.6	12.2	+13.7	799.7
CLEO	26	- 25.7 - 10.6	257 066	+011.5 +065.4	248 075	27.8	640	+9999	+14.6	11.8	064 04 00 04	
80818A	175229	33.919 56.004	248 075	+000.4 +075.1	+069.6 +028.3	9999	640	+9999	+14.6	12.2	+13.7	799.7
CLEO	27	- 25.7 - 10.6	258 066	+011.6 +065.0	248 075	27.8	640	+9999	+14.6	11.8	064 04 00 04	
80818A	175231	33.915 56.004	248 075	+000.6 +074.9	+069.6 +027.8	9999	640	+9999	+14.7	12.2	+13.7	799.7
CLEO	28	- 25.9 - 10.6	258 066	+011.8 +064.8	248 075	28.0	640	+9999	+14.7	11.8	064 04 00 04	

Figure 7. - Sample of the hurricane data print-out prepared by NHRP for the 1956-1960 flights. More detailed explanation of the contents is shown in figure 8. In this and other data print-out charts, the abbreviations RA and PA are used for Radar Altitude and Pressure Altitude, respectively; and U and V for zonal and meridional wind components.

PROCESSED DATA FROM HURRICANE RESEARCH AIRCRAFT

EXPLANATION OF PRINTOUT FORMAT

FLIGHT NUMBER	TIME HHMMSS "Z"	LATITUDE AND LONGITUDE	WIND (Smoothed)	RADIAL AND TANGENTIAL COMPONENTS (Of smoothed wind)	U AND V COMPONENTS (Of smoothed wind)	RADAR ALTITUDE	PRESSURE ALTITUDE	D-VALUE	TEMPERATURE	MIXING RATIO	DEWPOINT	PRESSURE
Y: Last digit of year MM: Digits for month, 1-12 DD: Day of month X: Alphabetically, designates aircraft used	HH: Hours of 24 hr clock MM: Minutes SS: Seconds "Z": Greenwich Meridian Time	(In degrees to thousandths of a degree)	(In whole degrees & knots) The centered vector mean wind for 5 successive obs.	(To tenths of knots) + is radially outward and cyclonic − is radially inward and anticyclonic	(To tenths of knots) U East-West components of smoothed wind, winds from West + V North-South components of smoothed wind, winds from South +	(In tens of feet) RA or absolute altitude above terrain.	(In tens of feet) PA in (U.S. Standard Atmosphere).	(In tens of feet) Radar altitude minus pressure altitude. "D" = RA − PA	(To tenths of a °C) Temperature of ambient atmosphere at actual altitude of plane.	(To tenths of gm/kg) Amount of water vapor in ambient air in gm/kg of dry air.	(To tenths of a °C)	(To tenths of a mb.) Pressure at which observation was taken (corresponds to PA in the U.S. Standard Atmosphere)
80818A	175139	33.960 56.025	245 079	−003.2 +079.1	+071.7 +033.4	591	640	−49	+14.3	11.9	+13.3	799.7
CLEO	02	− 23.0 − 9.6	254 069	+007.9 +068.9	245 079	24.9	640	−49	+14.3	11.6	066	13 00 04
NAME OF STORM	**CARD COUNT**	**VIRTUAL LATITUDE AND LONGITUDE**	**RELATIVE WIND (Smoothed)**	**RADIAL AND TANGENTIAL COMPONENTS OF RELATIVE WIND (Smoothed)**	**WIND**	**RADIAL DISTANCE**	**PRESSURE ALTITUDE REF. LEVEL**	**ADJUSTED D-VALUE**	**ADJUSTED TEMPERATURE**	**ABSOLUTE HUMIDITY**	**HUMIDITY BITS**	**EVENTS**
Interagency assigned hurricane or storm name if any.	Number of observations in units with digits one hundred and higher omitted.	(To tenths of n.mi) Virt. Lat. − Distance north or south of moving storm center or other selected feature. Obs. N of center + signs., S − signs. Virt. Long. − Distance east or west of moving storm center or other selected feature. Obs. W of center + signs., E − signs. Signs by quadrants: Lat + Long + / Lat + Long −; Lat − Long + / Lat − Long −	(In whole degrees & knots) The wind obtained when storm motion is subtracted from the smoothed wind; i.e., the wind relative to the moving storm center.	(To tenths of knots) + is radially outward and cyclonic − is radially inward and anticyclonic	(In whole degrees & knots) The observed wind recorded at point of observation with no artificial smoothing.	(To tenths of n.mi) Distance to the storm center.	(In tens of feet) The mean flight level − to which adjustments in pertinent parameters are made.	(In tens of feet) Adjusted from flight PA to reference PA by formula.	(To tenths of a °C) Adjusted from flight PA to reference PA by formula.	(To tenths of gms) Water vapor in ambient air at flight altitude in grams/cubic meter.	Infra-red hygrometer reading from which humidity values were derived.	(Additive 2-digit groups) First set (manual) 00 = none of the following 01 = in cloud. 02 = in turbulence 04 = light pcpn. 08 = heavy pcpn. Second set (automatic) 00 = none of the following 01 = indicator shows icing 02 = back-up timer in use 04 = APN/B2 in memory mode* 08 = APN/B2 on standby** Third set (automatic) 00 = cloud camera inoperative 04 = cloud camera operative

·9999 − Means data missing, invalid, or unobtainable due to lack of particular instrumentation on this plane or flight.

* Winds not being computed, navigation being carried on using last computed wind.

** Winds being computed but navigational displacements not computed.

Figure 8. - Explanation of the information included in the processed data print-out.

FLIGHT NO. YMMDD	TIME HHMMSS "Z"	LAT. DEGREES	LONG. DEGREES	VIRTUAL LAT. N-S of CENTER IN (N.MI.)	VIRTUAL LONG. W-E of CENTER IN (N.MI.)	RAD. DIST. (N.MI.)	P.A. TENS OF FT.	P.A. REF. LVL. OF FT.	TEMP. °C	DEW POINT °C	ADJ. TEMP. °C	ADJ. DEW POINT °C	REL. HUM. %	MIX RATIO g Kg⁻¹	EVENTS	CARD COUNT
80818-A	1737.55	34.677	56.582	+ 23.2	+ 17.0	28.8	642	640	+16.0	+15.3	+16.0	+15.3	96	13.6	13	90
80818-A	1737.57	34.674	56.582	+ 23.0	+ 17.0	28.6	642	640	+16.0	+15.1	+16.0	+15.1	95	13.4	13	91
80818-A	1737.59	34.673	56.582	+ 22.9	+ 17.0	28.5	641	640	+16.0	+15.1	+16.0	+15.1	95	13.4	13	92
80818-A	1738.01	34.671	56.582	+ 22.8	+ 17.0	28.4	641	640	+16.0	+15.1	+16.0	+15.1	95	13.4	13	93
80818-A	1738.03	34.669	56.582	+ 22.7	+ 17.0	28.4	641	640	+16.0	+15.1	+16.0	+15.1	95	13.4	13	94
80818-A	1738.05	34.664	56.582	+ 22.4	+ 17.0	28.1	640	640	+16.0	+15.1	+16.0	+15.1	95	13.4	13	95
80818-A	1738.07	34.664	56.578	+ 22.4	+ 16.8	28.0	641	640	+16.0	+15.1	+15.9	+15.1	95	13.4	13	96
80818-A	1738.09	34.663	56.578	+ 22.3	+ 16.8	27.9	642	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	97
80818-A	1738.11	34.660	56.578	+ 22.1	+ 16.8	27.8	642	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	98
80818-A	1738.13	34.658	56.578	+ 22.0	+ 16.8	27.7	642	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	99
80818-A	1738.15	34.656	56.578	+ 21.8	+ 16.8	27.5	642	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	00
80818-A	1738.17	34.655	56.578	+ 21.8	+ 16.8	27.5	642	640	+15.9	+15.1	+16.0	+15.2	95	13.4	13	01
80818-A	1738.19	34.652	56.578	+ 21.6	+ 16.8	27.4	643	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	02
80818-A	1738.21	34.650	56.578	+ 21.5	+ 16.8	27.3	642	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	03
80818-A	1738.23	34.648	56.578	+ 21.4	+ 16.8	27.2	641	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	04
80818-A	1738.25	34.646	56.578	+ 21.2	+ 16.8	27.0	642	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	05
80818-A	1738.27	34.644	56.578	+ 21.1	+ 16.8	27.0	642	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	06
80818-A	1738.29	34.641	56.579	+ 20.9	+ 16.9	26.9	642	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	07
80818-A	1738.31	34.640	56.579	+ 20.8	+ 16.9	26.8	642	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	08
80818-A	1738.33	34.638	56.579	+ 20.7	+ 16.9	26.7	642	640	+15.9	+15.1	+15.9	+15.1	95	13.4	13	09
80818-A	1738.35	34.636	56.579	+ 20.6	+ 16.9	26.6	642	640	+15.9	+15.1	+16.0	+15.1	95	13.4	13	10
80818-A	1738.37	34.632	56.579	+ 20.3	+ 16.9	26.4	640	640	+16.0	+15.1	+16.1	+15.1	94	13.4	13	11
80818-A	1738.39	34.630	56.579	+ 20.2	+ 16.9	26.3	642	640	+16.1	+15.1	+16.2	+15.1	93	13.4	13	12
80818-A	1738.41	34.627	56.579	+ 20.0	+ 16.9	26.2	642	640	+16.2	+15.1	+16.3	+15.1	93	13.4	13	13
80818-A	1738.43	34.625	56.579	+ 19.9	+ 16.9	26.1	642	640	+16.3	+15.1	+16.3	+15.1	93	13.4	13	14
80818-A	1738.45	34.623	56.579	+ 19.8	+ 16.9	26.0	642	640	+16.3	+15.1	+16.4	+15.1	93	13.4	13	15
80818-A	1738.47	34.619	56.578	+ 19.5	+ 16.8	25.7	642	640	+16.4	+15.1	+16.4	+15.1	92	13.4	13	16
80818-A	1738.49	34.619	56.575	+ 19.5	+ 16.7	25.7	642	640	+16.4	+15.1	+16.5	+15.1	92	13.4	13	17
80818-A	1738.51	34.617	56.575	+ 19.4	+ 16.7	25.6	642	640	+16.5	+15.1	+16.5	+15.1	92	13.4	13	18
80818-A	1738.53	34.615	56.575	+ 19.3	+ 16.7	25.5	642	640	+16.5	+15.1	+16.5	+15.1	92	13.4	13	19
80818-A	1738.55	34.613	56.575	+ 19.1	+ 16.7	25.4	642	640	+16.5	+15.1	+16.5	+15.1	92	13.4	13	20
80818-A	1738.57	34.611	56.575	+ 19.0	+ 16.7	25.3	642	640	+16.5	+15.1	+16.5	+15.1	92	13.4	13	21
80818-A	1738.59	34.608	56.575	+ 18.8	+ 16.7	25.1	642	640	+16.5	+15.1	+16.5	+15.1	92	13.4	13	22
80818-A	1739.01	34.607	56.575	+ 18.7	+ 16.7	25.1	642	640	+16.5	+15.1	+16.6	+15.2	92	13.4	13	23
80818-A	1739.03	34.605	56.576	+ 18.6	+ 16.8	25.1	643	640	+16.5	+15.1	+16.6	+15.1	91	13.4	13	24
80818-A	1739.05	34.603	56.576	+ 18.5	+ 16.8	25.0	642	640	+16.6	+15.1	+16.6	+15.1	91	13.4	13	25
80818-A	1739.07	34.600	56.576	+ 18.3	+ 16.8	24.8	640	640	+16.6	+15.1	+16.6	+15.1	91	13.4	13	26
80818-A	1739.09	34.599	56.576	+ 18.2	+ 16.8	24.8	642	640	+16.6	+15.1	+16.6	+15.1	91	13.4	13	27
80818-A	1739.11	34.597	56.576	+ 18.1	+ 16.8	24.7	642	640	+16.6	+15.3	+16.6	+15.3	93	13.6	13	28
80818-A	1739.13	34.594	56.576	+ 17.9	+ 16.8	24.5	642	640	+16.6	+15.3	+16.7	+15.4	93	13.6	13	29
80818-A	1739.15	34.590	56.573	+ 17.7	+ 16.6	24.3	643	640	+16.6	+15.3	+16.6	+15.3	93	13.6	13	30
80818-A	1739.17	34.590	56.572	+ 17.6	+ 16.6	24.2	642	640	+16.6	+15.3	+16.6	+15.5	93	13.8	13	31
80818-A	1739.19	34.589	56.572	+ 17.6	+ 16.6	24.2	641	640	+16.6	+15.5	+16.6	+15.5	93	13.8	13	32
80818-A	1739.21	34.586	56.572	+ 17.4	+ 16.6	24.0	640	640	+16.6	+15.5	+16.7	+15.5	93	13.8	13	33
80818-A	1739.23	34.582	56.572	+ 17.2	+ 16.6	23.9	641	640	+16.7	+15.5	+16.7	+15.5	93	13.8	13	34
80818-A	1739.25	34.580	56.572	+ 17.0	+ 16.6	23.8	642	640	+16.7	+15.5	+16.7	+15.5	93	13.8	13	35
80818-A	1739.27	34.578	56.572	+ 16.9	+ 16.6	23.7	641	640	+16.7	+15.5	+16.7	+15.5	93	13.8	13	36
80818-A	1739.29	34.575	56.572	+ 16.7	+ 16.6	23.5	640	640	+16.7	+15.5	+16.7	+15.5	93	13.8	13	37
80818-A	1739.31	34.574	56.572	+ 16.7	+ 16.6	23.5	640	640	+16.7	+15.5	+16.7	+15.5	93	13.8	13	38
80818-A	1739.33	34.572	56.572	+ 16.5	+ 16.6	23.4	640	640	+16.7	+15.5	+16.7	+15.5	93	13.8	13	39
80818-A	1739.35	34.570	56.572	+ 16.4	+ 16.6	23.3	640	640	+16.7	+15.5	+16.7	+15.5	93	13.8	13	40
80818-A	1739.37	34.570	56.568	+ 16.4	+ 16.4	23.2	640	640	+16.7	+15.5	+16.7	+15.5	93	13.8	13	41
80818-A	1739.39	34.567	56.568	+ 16.2	+ 16.4	23.1	640	640	+16.7	+15.5	+16.8	+15.5	93	13.8	13	42
80818-A	1739.41	34.566	56.568	+ 16.1	+ 16.4	23.0	640	640	+16.8	+15.5	+16.8	+15.5	92	13.8	13	43
80818-A	1739.43	34.564	56.568	+ 16.0	+ 16.4	22.9	640	640	+16.8	+15.5	+16.8	+15.5	92	13.8	13	44
80818-A	1739.45	34.561	56.568	+ 15.8	+ 16.4	22.8	639	640	+16.8	+15.5	+16.8	+15.5	92	13.8	13	45
80818-A	1739.47	34.559	56.564	+ 15.7	+ 16.2	22.6	639	640	+16.8	+15.5	+16.8	+15.5	92	13.8	13	46
80818-A	1739.49	34.557	56.564	+ 15.5	+ 16.2	22.4	640	640	+16.8	+15.5	+16.8	+15.5	92	13.8	13	47

Figure 9. - Sample of the Supplementary processed data print-out prepared by NHRP for the 1956-1960 flights. (See figures 7 and 8 for additional explanation.)

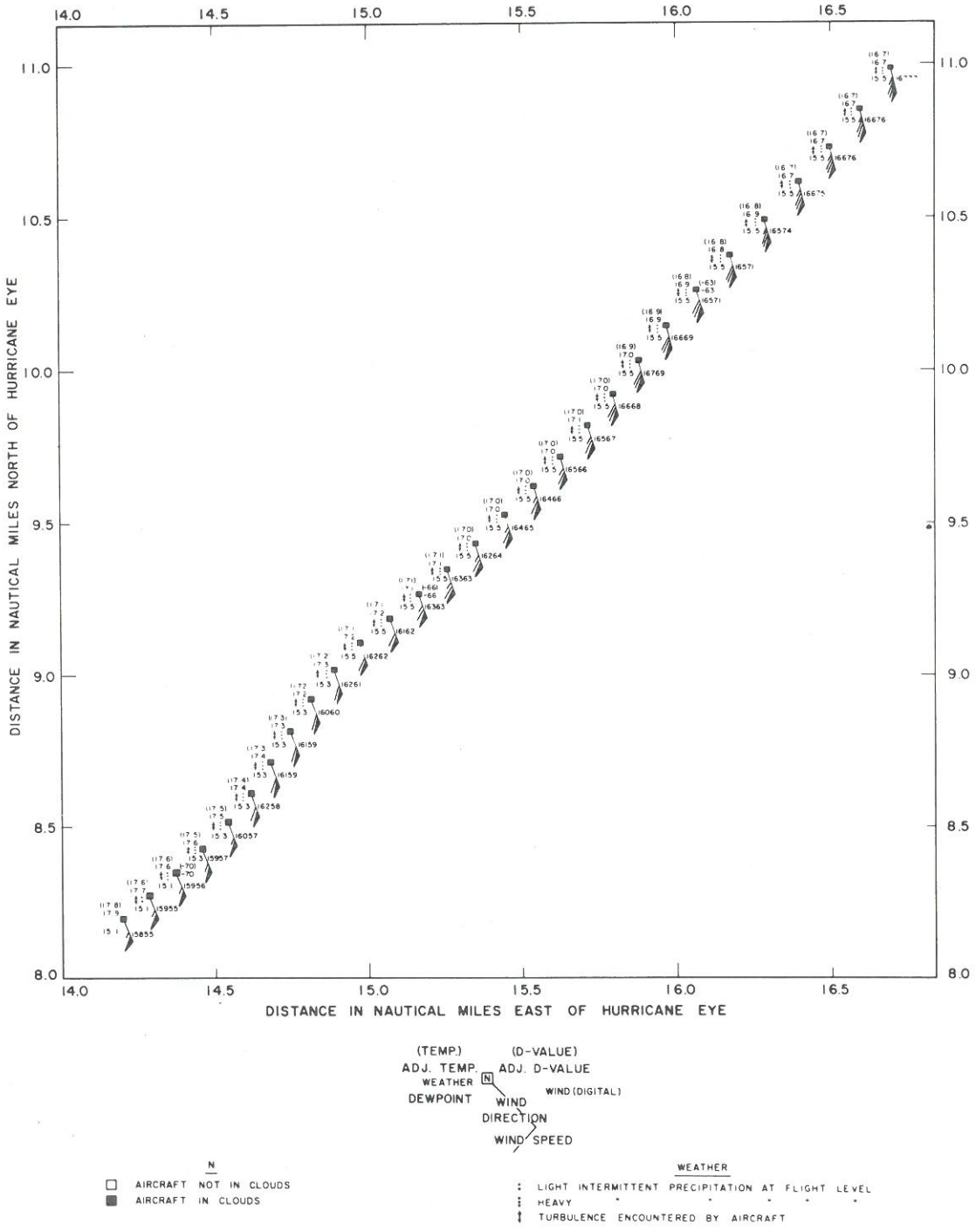


Figure 10. - Detailed plot-out of hurricane data gathered by NHRP near the eye wall of hurricane Cleo (1958). Observations shown above were taken at 2-second intervals.

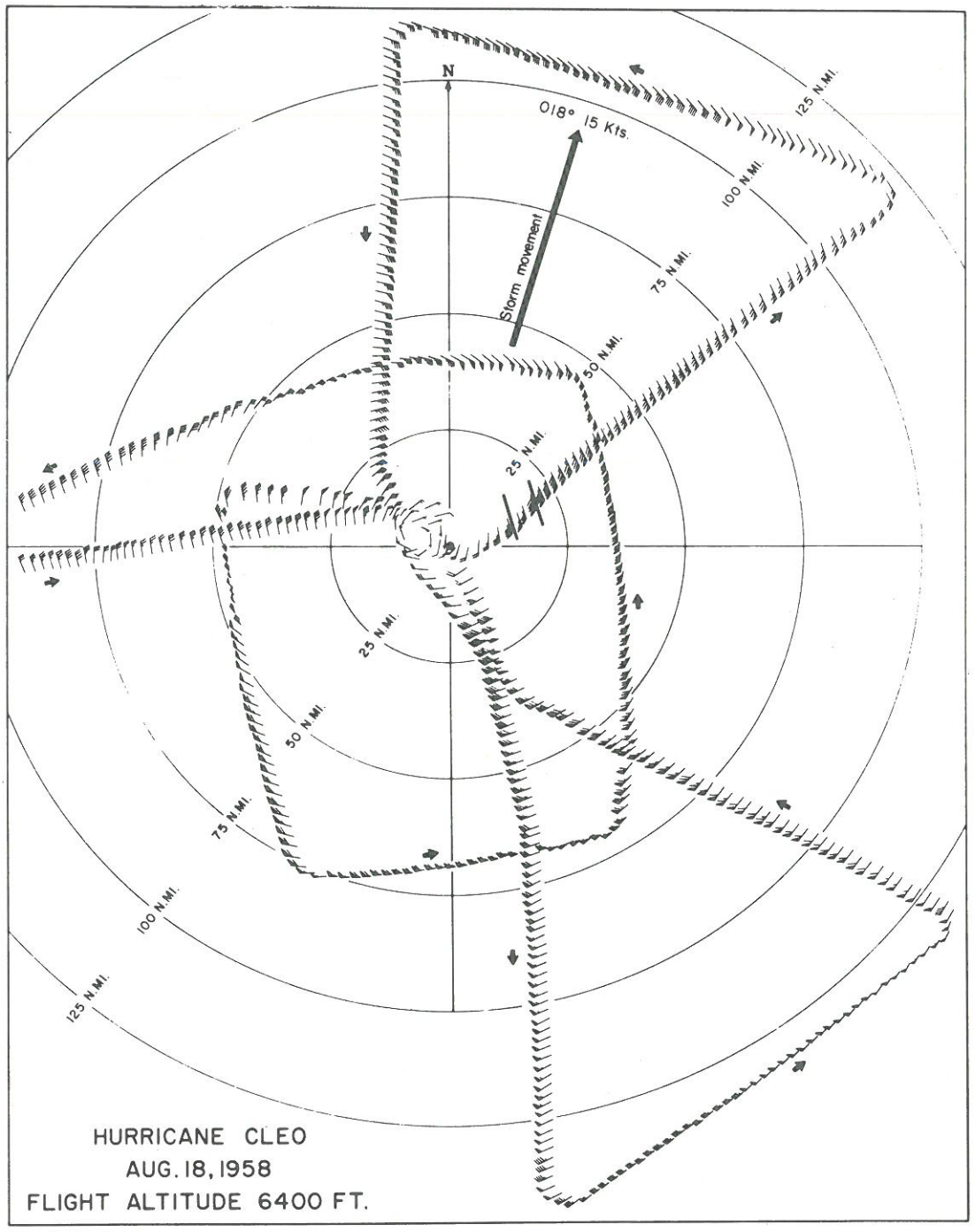


Figure 11. - Sample plot-out of actual winds from one research flight of $5\frac{1}{2}$ hours into hurricane Cleo (1958). Data composited around the storm center as seen by radar. All observations gathered in marked space near the eye along the radial pass toward the northeast are shown in an expanded scale in figure 10.

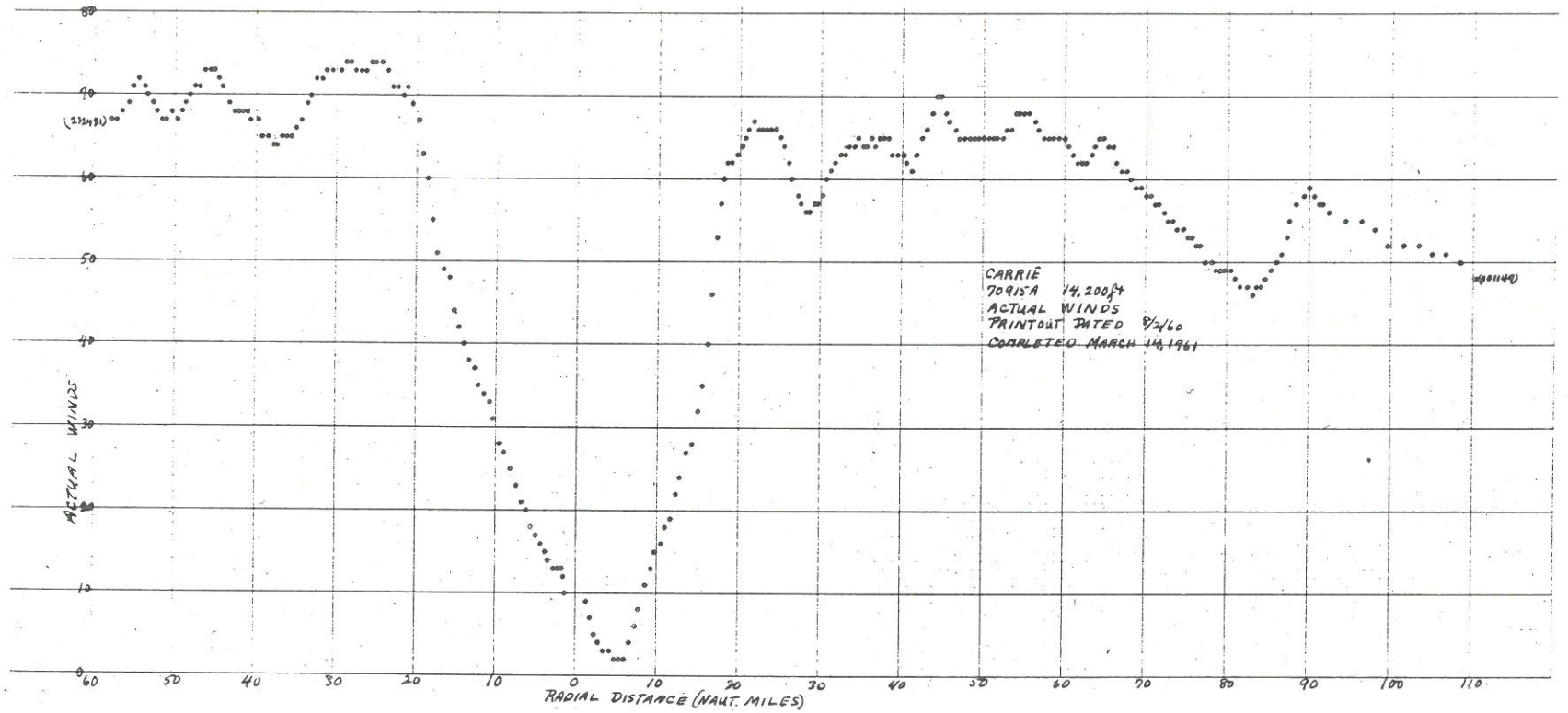


Figure 12. - Sample profile of wind speed (knots along a diameter pass into hurricane Carrie (1957).

IV. SAMPLE OF DATA PROCESSING

In order to illustrate the actual steps in data processing, the following items are offered from a portion of an actual flight which has been purposely distorted so that a variety of corrections could be illustrated in a short sample.

Figure 13 shows that portion of the data to be considered. It should be noted that elapsed time in seconds as recorded aboard the plane has already been reconstructed and that the early observations are shown at 1-minute intervals and the later observations are shown for 5-second intervals. Furthermore, the radar altitudes (z_r) have already been read from the photopanel and

FLT NO	TIME	LAT	LONG	RA	PA	T	NUM BITS	DD/FF	EVENTS	CC
80825B	215330	28 23.0	75 09.2	1640	1554	-00.5	168	141/033	07 00 04	06
80825B	215430	28 25.7	75 05.7	1641	1554	0.0	168	146/032	07 00 04	18
80825B	215530	28 28.0	75 02.5	1637	1550	-00.8	168	146/029	07 00 04	30
80825B	215630	28 29.7	74 58.7	1655	1564	-01.0	168	145/032	07 00 04	42
80825B	215730	28 33.2	74 57.2	1662	1571	-00.8	169	133/033	07 00 04	54
80825B	215830	28 36.5	74 59.7	1662	1570	-00.7	176	117/036	07 04 04	04
80825B	215930	28 36.7	75 04.5	1660	1567	-00.3	178	098/029	07 00 04	78
80825B	220030	28 34.7	75 08.5	1655	1567	-01.0	177	106/032	07 00 04	90
80825B	220130	28 32.7	75 12.7	1662	1573	-01.4	176	101/030	07 00 04	01
80825B	220230	28 30.0	75 15.7	1665	1572	-01.4	176	101/025	07 00 04	14
80825B	220310	28 27.7	75 17.5	1665	1572	-01.1	176	102/027	07 00 04	22
80825B	220315	28 27.5	75 17.5	1669	1572	-01.0	176	101/027	07 00 04	23
80825B	220320	27 27.2	75 17.7	1666	1572	-00.9	176	101/025	07 00 04	24
80825B	220325	28 27.0	75 18.0	1663	1572	-00.8	176	103/027	07 00 04	25
80825B	220330	28 26.7	75 18.2	1663	1572	-00.7	176	104/027	07 00 04	26
80825B	220335	28 26.5	75 18.5	1663	1572	-00.6	176	105/028	07 00 04	27
80825B	220340	28 26.0	75 18.5	1663	1572	1.0	176	104/029	07 00 04	28
80825B	220345	28 26.0	75 18.7	1663	1572	1.0	176	105/029	07 00 04	29
80825B	220350	28 25.5	75 19.0	1663	1572	1.0	176	105/027	07 00 04	30
80825B	220355	28 25.2	75 19.2	1663	1572	0.9	176	105/028	07 00 04	31
80825B	220400	28 25.0	75 19.5	1663	1572	-00.7	176	105/027	07 00 04	32
80825B	220405	28 24.7	75 19.5	1662	1572	-00.8	176	083/026	07 00 04	33
80825B	220410	28 24.5	75 19.7	1663	1572	-00.8	176	083/027	07 00 04	34
80825B	220415	28 24.2	75 20.0	1664	1572	-00.8	176	085/029	07 00 04	35
80825B	220420	28 24.0	75 20.2	1660	1571	-00.8	176	106/028	07 00 04	36
80825B	220425	28 23.7	75 20.5	1656	1570	-00.8	176	107/029	07 00 04	37
80825B	220430	28 23.5	75 20.5	1655	1568	-02.4	176	108/030	07 00 04	38
80825B	220435	28 23.2	75 20.7	1652	1564	-02.5	176	110/032	07 00 04	39
80825B	220440	28 23.0	75 21.0	1645	1560	-02.5	176	110/033	07 00 04	40
80825B	220445	28 22.5	75 21.2	1643	1558	-00.9	176	110/032	07 00 04	41
80825B	220450	28 22.2	75 21.5	1640	1555	-01.0	176	108/034	00 00 04	42

Figure 13. - Sample of original uncorrected listing of data recorded aboard the research aircraft. Underlined observations are obviously erroneous due to dropped "bits". Data shown was gathered by "B" aircraft on August 25, 1958 (80825B) in hurricane Daisy.

punched into the deck. The underlined values of temperature and wind direction were determined to be in error by scrutiny of the sequential values of temperature and wind direction. From the lists of possible values of "bits" which could be dropped in each element, these errors were corrected by adding that possible "bit" value which made the series of values continuous. Familiarity with the system and the normal variations in values when the observations were taken in rapid succession made the replacement of any sizable group of dropped "bit" values a relatively easy but time-consuming task.

Figure 14 shows the adjusted D-value plot-out routinely prepared on the computer. The values tabulated are for the 5-second observations only so the time between observations is a constant. These plot-outs were scanned for inconsistencies and the values of radar-altitude corrected so that relative smoothing was subjectively achieved. These corrections were made manually since errors in z_p or D-value could, on occasion, be quite sizable and smoothing alone would not necessarily produce acceptable profiles. The final D-value configuration is shown in figure 15 and illustrates the effect achieved by removing the inconsistencies. Further arithmetical smoothing may be desired in particular research undertakings but should properly be left to the investigator.

Presented in figure 16 is a listing of the corrected card deck with the aircraft headings added on the extreme right. It is noted that the aircraft made a turn between 215530 and 220230. Winds obtained during and immediately after the bank must be disregarded or used with reservation. Reliable wind values were obtained following completion of the turn after about a 6° azimuth change (relative to the storm center). Assuming that the wind shift on the average is equal to the change in azimuth, it can be seen that the winds listed in figure 16 changed a disportionate amount. By matching such changes on all available track changes for this flight, an average air speed correction of 7 kt. was determined. The effect of such a correction on this particular turn may be shown:

Time (GMT)	Measured Wind	True Heading	Re-evaluated Wind with TAS Correction of:		
			+5 Kt.	+7 Kt.	+9 Kt.
215330	141/33	057	133/34	129/35	126/35
220430	108/30	207	117/30	121/30	125/30

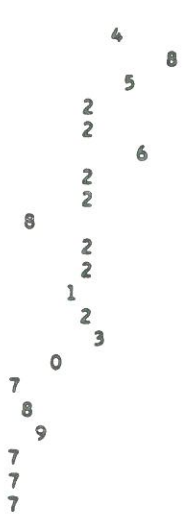
Thus, a "perfect correction" to a 6° change in wind direction was not achieved on this turn but it can not, in fact, be demanded of any one term unless the vortex is perfectly symmetrical and in steady state. All that can be required is that over the average of a great many track changes the average azimuth change must equal the average change in wind direction.

It was not practical to include enough data so that the construction of the saturation humidity graph could be illustrated. Calibration was achieved and a table constructed as described in Section 1.G.3. The computer, by table look-up, then listed absolute humidity, dew point, and mixing ratio for each listed bit-value from the infrared hygrometer (See Section 1.G.4). The original bit-value readings are also listed for possible study by other investigators.

ADJ. D-VALUE PLOT-OUT BEFORE CORRECTIONS

```
CONSTANT 195000 PAO   +0000001560          195        *0000        156
CONSTANT 195000 TOA   +0000002573          195        *0000       2573
CONSTANT 195000 PACON +0000000   8         195        *0000          8
```

"D"	ADJ."D"
+0085	0084
+0089	0088
+0086	0085
+0083	0082
+0083	0082
+0087	0086
+0083	0082
+0083	0082
+0079	0078
+0083	0082
+0083	0082
+0082	0081
+0083	0082
+0084	0083
+0081	0080
+0078	0077
+0079	0078
+0080	0079
+0077	0077
+0077	0077
+0077	0077



TIME	RA	PA	CC
220310	1665	1580	22
220315	1669	1580	23
220320	1666	1580	24
220325	1663	1580	25
220330	1663	1580	26
220335	1667	1580	27
220340	1663	1580	28
220345	1663	1580	29
220350	1659	1580	30
220355	1663	1580	31
220400	1663	1580	32
220405	1662	1580	33
220410	1663	1580	34
220415	1664	1580	35
220420	1660	1579	36
220425	1656	1578	37
220430	1655	1576	38
220435	1652	1572	39
220440	1645	1568	40
220445	1643	1566	41
220450	1640	1563	42

Figure 14. - Sample of unsmoothed observations of D-values printed in time-section form by the computer.

ADJ. D-VALUE PLOT-OUT AFTER CORRECTIONS

CONSTANT 195000 PAO +0000001560
CONSTANT 195000 TOA +0000002573
CONSTANT 195000 PACQN +0000000 8

195	*0000	156
195	*0000	2573
195	*0000	8

"D"	ADJ."D"
+0087	0086
+0087	0086
+0086	0085
+0085	0084
+0084	0083
+0084	0083
+0083	0082
+0083	0082
+0082	0081
+0083	0082
+0083	0082
+0083	0082
+0083	0082
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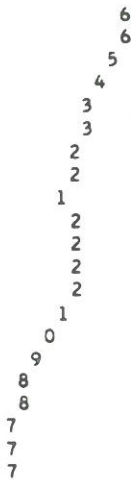
+0077	0077
+0077	0077



TIME	RA	PA	CC
220310	1667	1580	22
220315	1667	1580	23
220320	1666	1580	24
220325	1665	1580	25
220330	1664	1580	26
220335	1664	1580	27
220340	1663	1580	28
220345	1663	1580	29
220350	1662	1580	30
220355	1663	1580	31
220400	1663	1580	32
220405	1663	1580	33
220410	1663	1580	34
220415	1662	1580	35
220420	1660	1579	36
220425	1658	1578	37
220430	1655	1576	38
220435	1651	1572	39
220440	1645	1568	40
220445	1643	1566	41
220450	1640	1563	42

Figure 15. - Same data shown in figure 14, after D-value smoothing.

FLT NO.	TIME	LAT.	LONG.	RA	PA	T	NUM BITS	DD/FF	EVENTS	CC	TRUE HDG
80825B	215330	28 23.0	75 09.2	1640	1554	-00.5	168	141/033	07 00 04	06	087
80825B	215430	28 25.7	75 05.7	1641	1554	0.0	168	146/032	07 00 04	18	066
80825B	215530	28 28.0	75 02.5	1637	1550	-00.8	168	146/029	07 00 04	30	062
80825B	215630	28 29.7	74 58.7	1655	1564	-01.0	168	145/032	07 00 04	42	063
80825B	215730	28 33.2	74 57.2	1662	1571	-00.8	169	133/033	07 00 04	54	356
80825B	215830	28 36.5	74 59.7	1662	1570	-00.7	176	117/036	07 04 04	04	296
80825B	215930	28 36.7	75 04.5	1660	1567	-00.3	178	098/029	07 00 04	78	236
80825B	220030	28 34.7	75 08.5	1655	1567	-01.0	177	106/032	07 00 04	90	236
80825B	220130	28 32.7	75 12.7	1662	1573	-01.4	176	101/030	07 00 04	01	236
80825B	220230	28 30.0	75 15.7	1665	1572	-01.4	176	101/025	07 00 04	14	306
80825B	220310	28 27.7	75 17.5	1667	1572	-01.1	176	102/027	07 00 04	22	"
80825B	220315	28 27.5	75 17.5	1667	1572	-01.0	176	101/027	07 00 04	23	"
80825B	220320	27 27.2	75 17.7	1666	1572	-00.9	176	101/025	07 00 04	24	"
80825B	220325	28 27.0	75 18.0	1665	1572	-00.8	176	103/027	07 00 04	25	307
80825B	220330	28 26.7	75 18.2	1664	1572	-00.7	176	104/027	07 00 04	26	"
80825B	220335	28 26.5	75 18.5	1664	1572	-00.6	176	105/028	07 00 04	27	"
80825B	220340	28 26.0	75 18.5	1663	1572	-00.6	176	104/029	07 00 04	28	"
80825B	220345	28 26.0	75 18.7	1663	1572	-00.6	176	105/029	07 00 04	29	"
80825B	220350	28 25.5	75 19.0	1662	1572	-00.6	176	105/027	07 00 04	30	"
80825B	220355	28 25.2	75 19.2	1663	1572	-00.7	176	105/028	07 00 04	31	"
80825B	220400	28 25.0	75 19.5	1663	1572	-00.7	176	105/027	07 00 04	32	"
80825B	220405	28 24.7	75 19.5	1663	1572	-00.8	176	105/026	07 00 04	33	"
80825B	220410	28 24.5	75 19.7	1663	1572	-00.8	176	105/027	07 00 04	34	"
80825B	220415	28 24.2	75 20.0	1662	1572	-00.8	176	107/029	07 00 04	35	"
80825B	220420	28 24.0	75 20.2	1660	1571	-00.8	176	106/028	07 00 04	36	"
80825B	220425	28 23.7	75 20.5	1658	1570	-00.8	176	107/029	07 00 04	37	"
80825B	220430	28 23.5	75 20.5	1655	1568	-00.8	176	108/030	07 00 04	38	"
80825B	220435	28 23.2	75 20.7	1651	1564	-00.9	176	110/032	07 00 04	39	"
80825B	220440	28 23.0	75 21.0	1645	1560	-00.9	176	110/033	07 00 04	40	"
80825B	220445	28 22.5	75 21.2	1643	1558	-00.9	176	110/032	07 00 04	41	"
80825B	220450	28 22.2	75 21.5	1640	1555	-01.0	176	108/034	00 00 04	42	"

Figure 16. - Listing of same data shown in figure 13, after correction of erroneous readings and processing of D-values.

All acceptable navigational fixes were used to correct the automatic navigator and all acceptable radar fixes of the storm center (from post-flight film-examination) were used to determine the position of the plane relative to the storm as well as the storm position itself. Listed below are such records for a portion of flight-mission 80825B.

NAVIGATION CORRECTIONS			STORM POSITIONS		
Time	Latitude (Min.)	Longitude (Min.)	Time	Latitude	Longitude
2130	+4	+3	1800	27°14'	75°47'
2348	+17	+12	2030	27°30'	
			2145	27°35'	76°09'
			0100	27°49'	76°22'
			0200		76°27'
			0400	27°53'	76°32'

Graphs of the navigation corrections and of the storm position (against time) were routinely prepared. The navigation corrections had to be accepted as prepared by navigator during the flight unless inconsistencies were apparent. Since the Doppler navigator was subject to the error of net water transport and this quantity changed in the different quadrants, discontinuities were to be expected. With the storm positions, however, this was not true. Marked discontinuities were not accepted and relatively smooth plots of latitude and longitude against time were developed. Where data and navigational fixes were good, this seldom proved to be a problem. Where the data were less reliable, the prevailing philosophy was: (1) to place all emphasis on determining as accurately as possible the plane's position relative to the storm so that the compositing would be correct, and (2) to smooth the latitude and longitude fixes where necessary and where the data were in doubt so that discontinuities were not present. Consequently, the storm positions cannot be examined for minor oscillations in track except for those well documented cases where no smoothing was necessary. Until well substantiated evidence is forthcoming that abrupt discontinuities in hurricane trajectories are acceptable, this approach will have to govern the treatment of data where inconsistencies have to be resolved. Figure 17 presents a sample storm position graph for flight 80825B. It should be pointed out that all available data - ship reports, Navy and Air Force fixes, NHRP fixes, and any other available reports - were utilized in arriving at the final graph.

The reference level was set at 15,600 feet, about the mean flight altitude; values of T, D-value, etc. were adjusted by the computer to this level as long as they were within 1000 feet. (Ordinarily, fluctuations in flight altitude were 500 feet or less.) Pressure altitude correction had been previously determined to be +80 feet. The final (primary) data print-out is presented in figure 18 in the format explained in figure 8.

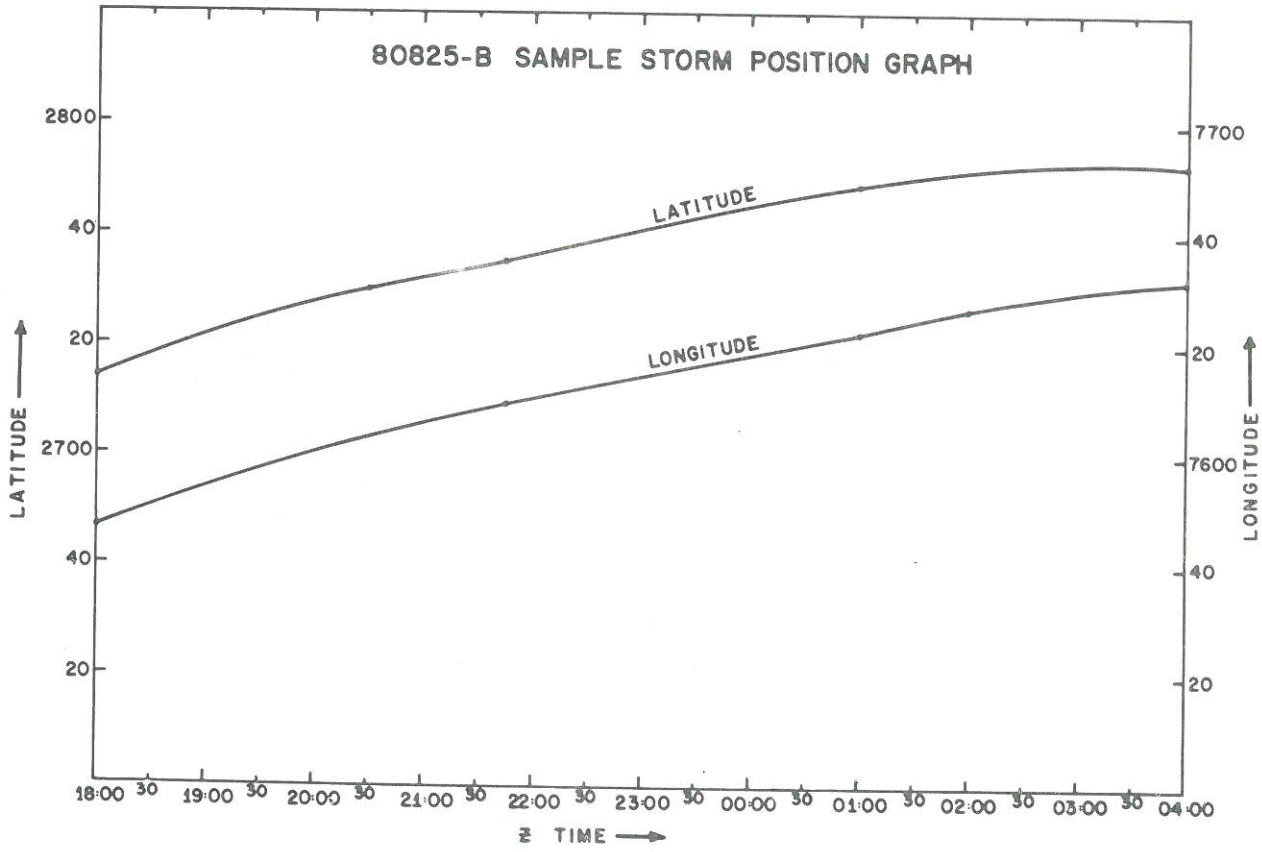


Figure 17. - Diagram depicting motion of hurricane Daisy, August 25, 1958, in terms of variations in latitude and longitude of storm center as a function of time.

PRIMARY FINAL PRINT-OUT

FLIGHT NO. YMMDD	TIME HHMMSS "Z"	LAT.	LONG.	WIND (smoothed) DEG.	KT.	RAD. Comp. of wind KT. (smoothed)	TAN.	U Comp. of wind KT. (smoothed)	V	RA ALTITUDE TENS OF FEET 9999 = msg. data	PA	"D"	TEMP. °C	MIX. RATIO g kg^{-1}	DEW POINT °C	PRES. mbs
NAME OF STORM	CARD COUNT	VIRTUAL LAT. N.MI. FROM CENTER	LONG.	REL. WIND DEG. (smoothed)	KT. (smoothed)	RAD. Comp. of rel wind KT. (smoothed)	TAN.	WIND DEG.	KT.	RAD. DIST. (N MI.)	PA REF. LVL	"D" Adjusted to PA REF. LVL	TEMP.	ABS. HUM. g m^{-3}	HUM. BITS	EVENTS
80825B	215330	28.487	75.230	132	032	-000.3	+032.4	-024.1	+021.7	1640	1562	+ 78	- 0.5	4.1	- 7.2	557.5
DAISY	06	+ 53.6	- 49.2	132	026	-000.1	+026.1	129	034	72.8	1560	+ 78	- 0.5	2.9	168	07 00 04
80825B	215430	28.534	75.172	132	032	-000.4	+032.5	-024.1	+021.8	1641	1562	+ 79	+ 0.0	4.1	- 7.2	557.5
DAISY	18	+ 56.3	- 52.3	133	026	-000.2	+026.2	134	033	76.8	1560	+ 79	+ 0.0	2.9	168	07 00 04
80825B	215530	28.573	75.119	131	032	-001.5	+031.5	-024.0	+020.5	1637	1558	+ 79	- 0.8	4.1	- 7.2	558.4
DAISY	30	+ 58.6	- 55.2	130	025	-001.3	+025.3	133	030	80.5	1560	+ 79	- 0.8	2.9	168	07 00 04
80825B	215630	28.604	75.058	129	030	-003.0	+030.2	-023.8	+018.9	1655	1572	+ 83	- 1.0	4.1	- 7.2	555.3
DAISY	42	+ 60.4	- 58.5	128	024	-002.7	+024.0	133	032	84.1	1560	+ 82	- 0.8	2.9	168	07 00 04
80825B	215730	28.664	75.034	124	029	-004.6	+028.2	-023.7	+015.9	1662	1579	+ 83	- 0.8	4.0	- 7.5	553.7
DAISY	54	+ 64.0	- 59.8	122	022	-004.3	+021.9	123	028	87.6	1560	+ 82	- 0.5	2.8	169	07 00 04
80825B	215830	28.720	75.077	121	028	-004.9	+027.7	-024.2	+014.3	1662	1578	+ 84	- 0.7	3.5	- 9.5	553.9
DAISY	04	+ 67.2	- 57.5	118	022	-004.9	+021.5	118	029	88.4	1560	+ 83	- 0.4	2.5	176	07 04 04
80825B	215930	28.726	75.157	116	027	-005.7	+026.4	-024.2	+011.9	1660	1575	+ 85	- 0.3	3.3	-10.0	554.6
DAISY	78	+ 67.5	- 53.4	112	021	-006.0	+020.1	109	024	86.1	1560	+ 84	+ 0.0	2.4	178	07 00 04
80825B	220030	28.694	75.225	115	026	-005.7	+025.5	-023.7	+010.9	1655	1575	+ 80	- 1.0	3.4	- 9.8	554.6
DAISY	90	+ 65.5	- 49.9	110	020	-006.1	+019.2	117	028	82.3	1560	+ 79	- 0.7	2.4	177	07 00 04
80825B	220130	28.662	75.297	115	026	-005.1	+025.1	-023.3	+010.6	1662	1581	+ 81	- 1.4	3.5	- 9.5	553.3
DAISY	01	+ 63.5	- 46.1	109	020	-005.7	+018.9	112	025	78.5	1560	+ 80	- 1.0	2.5	176	07 00 04
80825B	220230	28.618	75.348	116	026	-004.4	+025.6	-023.4	+011.3	1665	1580	+ 85	- 1.4	3.5	- 9.5	553.5
DAISY	14	+ 60.8	- 43.5	111	020	-005.0	+019.4	117	024	74.8	1560	+ 84	- 1.1	2.5	176	07 00 04
80825B	220310	28.581	75.378	116	025	-004.3	+024.8	-022.7	+010.9	1667	1580	+ 87	- 1.1	3.5	- 9.5	553.5
DAISY	22	+ 58.6	- 41.9	111	019	-004.9	+018.6	117	026	72.0	1560	+ 86	- 0.8	2.5	176	07 00 04
80825B	220315	28.577	75.378	117	025	-003.9	+025.0	-022.6	+011.4	1667	1580	+ 87	- 1.0	3.5	- 9.5	553.5
DAISY	23	+ 58.3	- 41.9	112	019	-004.5	+018.8	116	026	71.8	1560	+ 86	- 0.7	2.5	176	07 00 04
80825B	220320	27.573	75.382	117	026	-023.4	+010.8	-022.9	+011.8	1666	1580	+ 86	- 0.9	3.5	- 9.5	553.5
DAISY	24	- 1.9	- 41.9	113	020	-018.5	+006.9	117	024	41.9	1560	+ 85	- 0.6	2.5	176	07 00 04
80825B	220325	28.569	75.386	118	026	-003.6	+025.7	-023.0	+012.1	1665	1580	+ 85	- 0.8	3.5	- 9.5	553.5
DAISY	25	+ 57.8	- 41.5	114	020	-004.2	+019.5	118	026	71.2	1560	+ 84	- 0.5	2.5	176	07 00 04
80825B	220330	28.565	75.391	118	026	-003.4	+026.2	-023.3	+012.5	1664	1580	+ 84	- 0.7	3.5	- 9.5	553.5
DAISY	26	+ 57.5	- 41.3	114	020	-004.0	+020.0	119	026	70.8	1560	+ 83	- 0.4	2.5	176	07 00 04
80825B	220335	28.561	75.395	119	027	-003.4	+027.1	-024.0	+013.0	1664	1580	+ 84	- 0.6	3.5	- 9.5	553.5
DAISY	27	+ 57.3	- 41.1	115	021	-004.0	+020.9	119	027	70.5	1560	+ 83	- 0.3	2.5	176	07 00 04
80825B	220340	28.553	75.395	119	027	-003.3	+027.1	-023.9	+013.2	1663	1580	+ 83	- 0.6	3.5	- 9.5	553.5
DAISY	28	+ 56.8	- 41.1	115	021	-003.9	+020.9	118	028	70.1	1560	+ 82	- 0.3	2.5	176	07 00 04
80825B	220345	28.553	75.399	119	028	-003.2	+027.4	-024.1	+013.4	1663	1580	+ 83	- 0.6	3.5	- 9.5	553.5
DAISY	29	+ 56.8	- 40.9	116	022	-003.8	+021.2	119	028	70.0	1560	+ 82	- 0.3	2.5	176	07 00 04
80825B	220350	28.545	75.403	119	027	-003.2	+027.2	-023.9	+013.3	1662	1580	+ 82	- 0.6	3.5	- 9.5	553.5
DAISY	30	+ 56.3	- 40.6	116	021	-003.8	+021.0	120	026	69.4	1560	+ 81	- 0.3	2.5	176	07 00 04
80825B	220355	28.541	75.408	120	027	-002.9	+026.6	-023.3	+013.2	1663	1580	+ 83	- 0.7	3.5	- 9.5	553.5
DAISY	31	+ 56.1	- 40.4	116	021	-003.5	+020.4	119	027	69.1	1560	+ 82	- 0.4	2.5	176	07 00 04
80825B	220400	28.537	75.412	120	026	-002.7	+026.2	-022.9	+013.1	1663	1580	+ 83	- 0.7	3.5	- 9.5	553.5
DAISY	32	+ 55.9	- 40.2	116	020	-003.3	+020.0	120	026	68.9	1560	+ 82	- 0.4	2.5	176	07 00 04
80825B	220405	28.533	75.412	120	027	-002.8	+026.7	-023.3	+013.4	1663	1580	+ 83	- 0.8	3.5	- 9.5	553.5
DAISY	33	+ 55.6	- 40.2	117	021	-003.4	+020.5	120	026	68.6	1560	+ 82	- 0.5	2.5	176	07 00 04
80825B	220410	28.529	75.416	120	027	-002.6	+026.7	-023.2	+013.5	1663	1580	+ 83	- 0.8	3.5	- 9.5	553.5
DAISY	34	+ 55.4	- 40.0	117	021	-003.2	+020.5	120	026	68.3	1560	+ 82	- 0.5	2.5	176	07 00 04
80825B	220415	28.525	75.421	120	027	-002.6	+027.2	-023.6	+013.8	1662	1580	+ 82	- 0.8	3.5	- 9.5	553.5
DAISY	35	+ 55.1	- 39.7	117	021	-003.2	+021.0	121	029	67.9	1560	+ 81	- 0.5	2.5	176	07 00 04
80825B	220420	28.521	75.425	121	028	-002.6	+028.1	-024.3	+014.3	1660	1579	+ 81	- 0.8	3.5	- 9.5	553.7
DAISY	36	+ 54.8	- 39.5	118	022	-003.2	+021.8	120	028	67.6	1560	+ 80	- 0.5	2.5	176	07 00 04
80825B	220425	28.517	75.429	121	029	-002.4	+029.2	-025.1	+015.1	1658	1578	+ 80	- 0.8	3.5	- 9.5	553.9
DAISY	37	+ 54.6	- 39.3	118	023	-003.0	+023.0	121	029	67.3	1560	+ 79	- 0.5	2.5	176	07 00 04
80825B	220430	28.512	75.429	122	030	-002.4	+030.0	-025.7	+015.7	1655	1576	+ 79	- 0.8	3.5	- 9.5	554.4
DAISY	38	+ 54.3	- 39.3	119	024	-002.9	+023.8	121	030	67.0	1560	+ 78	- 0.5	2.5	176	07 00 04
80825B	220435	28.509	75.433	122	031	-002.2	+030.8	-026.3	+016.3	1651	1572	+ 79	- 0.9	3.4	- 9.5	555.3
DAISY	39	+ 54.1	- 39.1	120	025	-002.8	+024.6	123	032	66.8	1560	+ 78	- 0.7	2.5	176	07 00 04
80825B	220440	28.504	75.438	122	032	-002.4	+031.9	-027.3	+016.7	1645	1568	+ 77	- 0.9	3.4	- 9.5	556.2
DAISY	40	+ 53.8	- 38.8	119	026	-003.0	+025.7	122	033	66.3	1560	+ 77	- 0.8	2.5	176	07 00 04
80825B	220445	28.496	75.442	122	033	-002.4	+032.5	-027.7	+017.1	1643	1566	+ 77	- 0.9	3.4	- 9.5	556.6
DAISY	41	+ 53.3	- 38.6	120	026	-003.0	+026.3	123	032	65.8	1560	+ 77	- 0.8	2.5	176	07 00 04
80825B	220450	28.492	75.446	122	033	-002.6	+032.7	-028.0	+017.1	1640	1563	+ 77	- 1.0	3.4	- 9.5	557.3
DAISY	42	+ 53.1	- 38.5	119	027	-003.2	+026.5	120	034	65.6	1560	+ 77	- 0.9	2.5	176	00 00 04

Figure 18. - Final form of Primary print-out for data shown in figure 16.

V. PROCEDURE FOR SECURING COPIES OF DATA OR PLOT-OUTS ON LOAN OR FOR PERMANENT RETENTION

A. MICROFILM

The print-outs are available on 35 mm. microfilm. Positive copies of the microfilm may be ordered in whole or in part. Requests should be addressed to Director, National Hurricane Research Project, U. S. Weather Bureau, Room 517 Aviation Building, 3240 N. W. 27th Avenue, Miami 42, Florida. Contents of the individual microfilm rolls (100 ft.) are listed below. Data for other flights will be put on microfilm as soon as they are fully processed.

ROLL 1:

1957 - Carrie	1957 - Frieda	1958 - Cleo
70915A	70921A	80818A
70915B	70922B	80818B
70915C	70922C	80818C
70917A	70923A	
70917C	70923C	

ROLL 2:

1958 - Daisy
80825A
80825B
80825C
80826A
80826C
80827B

ROLL 3:

1958 - Daisy	1958 - Fifi
80827B	80908A
80827C	80908C
80828A	

B. ENLARGEMENTS OF MICROFILM

If it is deemed advisable to avoid microfilm reading, roll or collated prints (enlargements) can be secured in place of microfilms. The Copyflo process produces a clear black-and-white print which represents approximately a 4 to 3 reduction of the original standard print-out. Requests for Copyflo prints should be similarly addressed to Director, National Hurricane Research Project. Charges for this type of data duplication are naturally much more, but the work will be done at cost.

C. PRINT-OUT LOANS

A very limited number of duplicate print-outs of each flight are in existence at NHRP. It is planned to make individual print-outs available on loan for limited periods. On request of Director, NHRP, a given print-out (duplicate) will be mailed for 3-week retention. Prompt return at the end of this period is essential if this program is to prove effective.

D. PLOT-OUTS -- HORIZONTAL PLAN

Most of the primary data have been plotted out in horizontal plan. The most common scale used has been 10 n. mi. to the inch; on some occasions (mostly in the flights by the jet aircraft) 20 n. mi. to the inch has been employed to keep the working area of convenient size. It is thought that much duplication of plotting could be avoided if these "master plot-outs" were made available for teaching and research. To answer this need it is proposed to make available at duplication cost intermediate foil (or matte film) copies. The foils are relatively permanent and can be utilized to create Bruning or Ozalid copies for analysis.

List of Master Plot-outs available from final print-outs - and date of print-out follow in table 2. It should be noted that flight identification of the particular airplane in use was by letter, thus:

B-50 No. 46007 = A
B-50 No. 46032 = B
B-47 No. 115 = C

Alternatively, intermediate tissues can be used. The tissues have a more restricted shelf life but with careful handling may be used to make 40 or 50 copies of the masters.

E. TIME LAPSE RADAR FILM (35-mm.)

Reproductions available at cost.

F. AIRBORNE TIME LAPSE CLOUD FILMS (16-mm. color)

Reproductions available at cost.

Table 2. - List of master plot-outs.

Flight Identi-fication	PRINT-OUTS (by Date of Final Run)			AVAILABLE HORIZONTAL-PLAN, PLOT-OUTS									
	Primary	Secondary	Primary (Actual Virtual)	Levels (in U.S. Std.)	Rela-tive Winds	Radials of R.W.	Tangs. of R.W.	Actual Winds	Adj. "D"	Adj. "T"	Adj. "DP"	R.H.	W
70915A	5/10/61	None		1,600	x	x	x	x	x	x	None	None	None
		None		14,200	x	x	x	x	x	x	None	None	None
70915B	5/4/61	None		17,600	x	x	x	x	x	x	None	None	None
70915C	5/4/61	None		35,000	x	x	x	x	None	x	None	None	None
70917A	5/4/61	None		6,400	x	x	x	x	x	x	None	None	None
				11,000	x	x	x	x	x	x	None	None	None
70917C	5/4/61	None		35,000				x	None	x	None	None	None
70921A	6/23/61	None		1,600 Apch. &				x	x	x	None	None	None
				Exit				x	x	x	None	None	None
70922B	5/1/61	None		1,600				x	x	x	None	None	None
				4,780				x	x	x	None	None	None
70922C	4/27/61	None		35,000				x	None	x	None	None	None
70923A	5/2/61	None		1,600				x	x		None	None	None
				9,880				x	x	x	None	None	None
70923C	4/27/61	None		33,980				x	None	x	None	None	None
80813B	6/9/61	6/9/61		15,600 Apch. &				x	x				
				Exit				x	x				
80813C	7/10/61	None		35,000				x	x		None	None	None

Table 2. - continued.

Flight Identi-fication	PRINT-OUTS (by Date of Final Run)			AVAILABLE HORIZONTAL-PLAN, PLOT-OUTS									
	Primary	Secondary	Primary (Actual Virtual)	Levels (in U.S. Std.)	Rela-tive Winds	Radials of R.W.	Tangs. of R.W.	Actual Winds	Adj. "D"	Adj. "T"	Adj. "DP"	R.H.	W
80815A	6/22/61	9/14/60		6,400				x					
80815B	6/19/61	6/19/61		15,600				x					
80815C	6/27/61	None		33,980				x		x	None	None	None
80818A	6/16/60	4/5/60		6,400	x	x	x	x	x	x		x	x
				Apch. & Exit	x	x	x	x	x	x		x	
80818B	3/23/60	3/29/60		15,600	x	x	x	x	x	x		x	x
				Apch. & Exit	x	x	x	x	x	x		x	
80818C	3/30/60	None		35,000	x	x	x	x	x	x	None	None	None
				Apch. & Exit	x	x	x	x	x	x	None	None	None
80825A	7/19/60	4/13/60		1,600				x				x	
				2,800	x			x				x	
				5,500	x			x	x	x		x	
80825B	6/10/60	6/13/60		9,000	x								
				15,600	x			x	x	x			
80825C	7/26/60	None		35,000	x			x		x	None	None	None
80826A	4/25/61	5/2/61		1,600	x			x	x	x			
				3,000				x	x				
				6,400	x				x	x			
80826C	6/17/60	None		35,000	x			x	x	x	None	None	None

Table 2. - continued.

Flight Identi-fication	PRINT-OUTS (by Date of Final Run)			AVAILABLE HORIZONTAL-PLAN, PLOT-OUTS									
	Primary	Secondary	Primary (Actual Virtual)	Levels (In U.S. Std.)	Rela-tive Winds	Radials of R.W.	Tangs. of R.W.	Actual Winds	Adj. "D"	Adj. "T"	Adj. "DP"	R.H.	W
80827B	7/20/60	7/21/60		13,000	x			x	x	x		x	
				20,500	x			x	x	x		x	
80827C	7/22/60	None		34,200	x			x	x	x	None	None	None
80828A	7/19/60	7/21/60		13,000	x			x	x	x		x	
				17,600	x					x		x	
80831B	3/13/61	4/4/61		14,200				x	x	x			
				15,600				x					
				17,600				x	x				
80831C	9/22/60	None		35,000	x	x	x	x	x	x	None	None	None
80902A	5/16/61	6/29/60		8,200	x				x				
80902B	3/17/61	7/1/60		15,600				x	x				
				18,280				x	x				
				22,600				x	x				
80902C	3/29/61	None	5/31/60	34,200	x			x	x	x	None	None	None
80903C	4/28/61	None	5/22/61	35,000				x	x		None	None	None
80904A	3/24/61	11/10/60		6,400				x	x				
80905B	5/11/61	5/11/61		6,400				x					
				14,200				x					
				22,000				x					
80908A	2/15/61	2/21/61		13,000				x					
				15,600				x					

Table 2. - continued.

Flight Identi-fication	PRINT-OUTS (by Date of Final Run)			AVAILABLE HORIZONTAL-PLAN, PLOT-OUTS									
	Primary	Secondary	Primary (Actual Virtual)	Levels (in U.S. Std.)	Rela-tive Winds	Radials of R.W.	Tangs. of R.W.	Actual Winds	Adj. "D"	Adj. "T"	Adj. "DP"	R.H.	W
80908C	12/14/60	None		35,000				x			None	None	None
80914B	5/5/61	6/5/61	6/5/61	1,600				x					
				14,200				x					
				15,600				x					
80924B	9/18/61	9/18/61		3,000	x								
				6,400	x								
				9,880	x								
				13,000	x								
80925A	9/8/60	6/9/60		1,600	x	x	x	x	x	x		x	
				6,400	x	x	x	x	x	x		x	
80926A	9/12/60	5/19/60		6,400	x	x	x	x	x	x		x	
80926B	10/4/60	10/7/60		9,800	x	x	x	x	x	x		x	
				15,600	x	x	x	x	x	x		x	
80926C	3/24/61	None		34,200	x	x	x	x	x	x	None	None	None
80928C	12/8/60	None		35,000				x			None	None	None
81005A	11/7/60	6/24/60	11/7/60	11,500	x	x	x	x	x	x	x		
				Apch. & Exit	x	x	x	x	x	x	x		
81006A	12/9/60	6/27/60		8,200	x			x	x	x	x		
				14,200	x			x	x	x	x		
81006C	10/3/60	None	11/2/60	35,000	x			x	x	x	None	None	None

Table 2. - continued.

Flight Identi-fication	PRINT-OUTS (by Date of Final Run)			AVAILABLE HORIZONTAL-PLAN, PLOT-OUTS									
	Primary	Secondary	Primary (Actual Virtual)	Levels in U.S. Std.)	Rela-tive Winds	Radials of R.W.	Tangs. of R.W.	Actual Winds	Adj. "D"	Adj. "T"	Adj. "DP"	R.H.	W
81007C	10/5/60	None	11/3/60	35,000	x			x	x	x	None	None	None
81008A	2/23/61	8/29/60		1,600	x			x	x	x	x		
				2,800	x			x	x	x	x		
				8,200	x			x	x	x	x		
				11,500	x			x	x	x	x		
81009C	6/26/61	None		35,000				x			None	None	None

VI. INVENTORY OF METEOROLOGICAL DATA GATHERED BY NATIONAL HURRICANE RESEARCH PROJECT AIRCRAFT

Information on flights conducted during the period 1956-58 is presented in tabular and chart form at the end of this report. The manner of presentation is described below.

A. DATA SUMMARY SHEETS

These list the flight number, date, time, and pressure altitude and the kind of data tabulated and available. In the first season of activities the instrumentation was still being mounted and tested so that "complete" data sets are not available. Neither radar altitude (necessary for D-value) nor humidity records were operative until during the 1957 season. In post-flight calibrations, checking, listings, and general data processing, emphasis and priority have therefore been placed on the later more completely documented flights, particularly those into named storms.

In consequence, all of the data listed are obtainable; however, the form in which they are available is not necessarily the same for all flights. On some relatively unimportant flights it is possible the radio altimeter film records have not been read. In such cases the Summary Sheet will show that D-values are on record or obtainable from photopanel film only. Similar indications are used where appropriate for the other parameters.

Copies of photopanel film can be made available at cost of copying. Figure 6 shows the photopanel presentation. Photopanels were recorded at the same rate that cards were punched. The films have been used extensively in editing, correcting, and supplementing the cards punched out aboard the planes.

Time-lapse radar film can also be made available at the reproduction cost. The exposure rates have not been logged. They did, however, vary considerably. On the later flights 3 or 4 sweeps per minute were customarily photographed when meteorological targets of interest were on the scope.

B. AIRCRAFT NAVIGATION TRACK

These tracks show geographically where the data were collected. The data summary sheets list flight altitudes against time and where pertinent this same information is available on the Detailed Flight Patterns.

C. DETAILED FLIGHT PATTERNS (Composited)

These are shown only where relevant to illustrate the compositing of data about the moving storm center. They may be used to determine what data coverage (areally) of a storm is available, from what levels and over what time interval data at a given level were gathered, etc. In addition, the composited flight pattern may suggest particular ways in which the data may be used for research problems.

VII. ACKNOWLEDGMENTS

In a project such as this, acknowledgment can hardly be confined to the preparation of the present written report; and yet it is almost impossible to make complete recognition to all contributors to the data gathering and processing effort. We would like to make special mention of the interest and vision of Mr. R. H. Simpson, first director of the National Hurricane Research Project, who spearheaded the whole initial effort, and of the invaluable co-operation of the Air Weather Service in the data gathering effort. Mr. A. B. Arnett, Mr. Peter P. Chase, Mrs. Miree Moore, and Mr. R. H. Sourbeer made a sizable contribution to the preparation of this report.

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TYPE OF FLIGHT Hurricane BETSY DATE August 14, 1956

FLIGHT NO. 60814A DATA TABULATED FROM 1512
TO 2149

FLIGHT PRESSURE ALTITUDE 14,000 Ft. till 1944; 25,000 Ft. till 2149

DATA SAMPLING RATE:

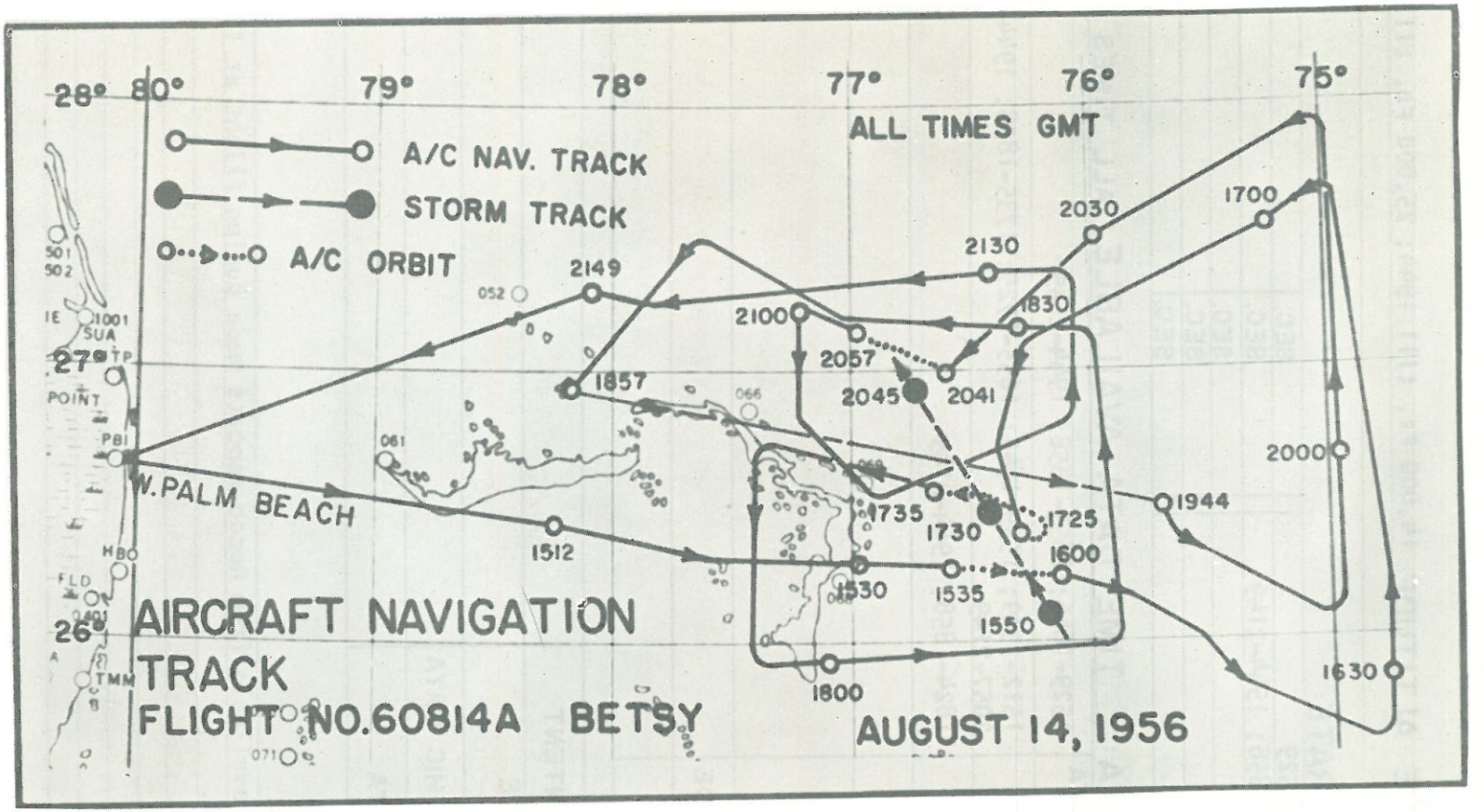
60	SEC.	1512-1529	SEC.	
10	SEC.	1529-1858; 1944-2149	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

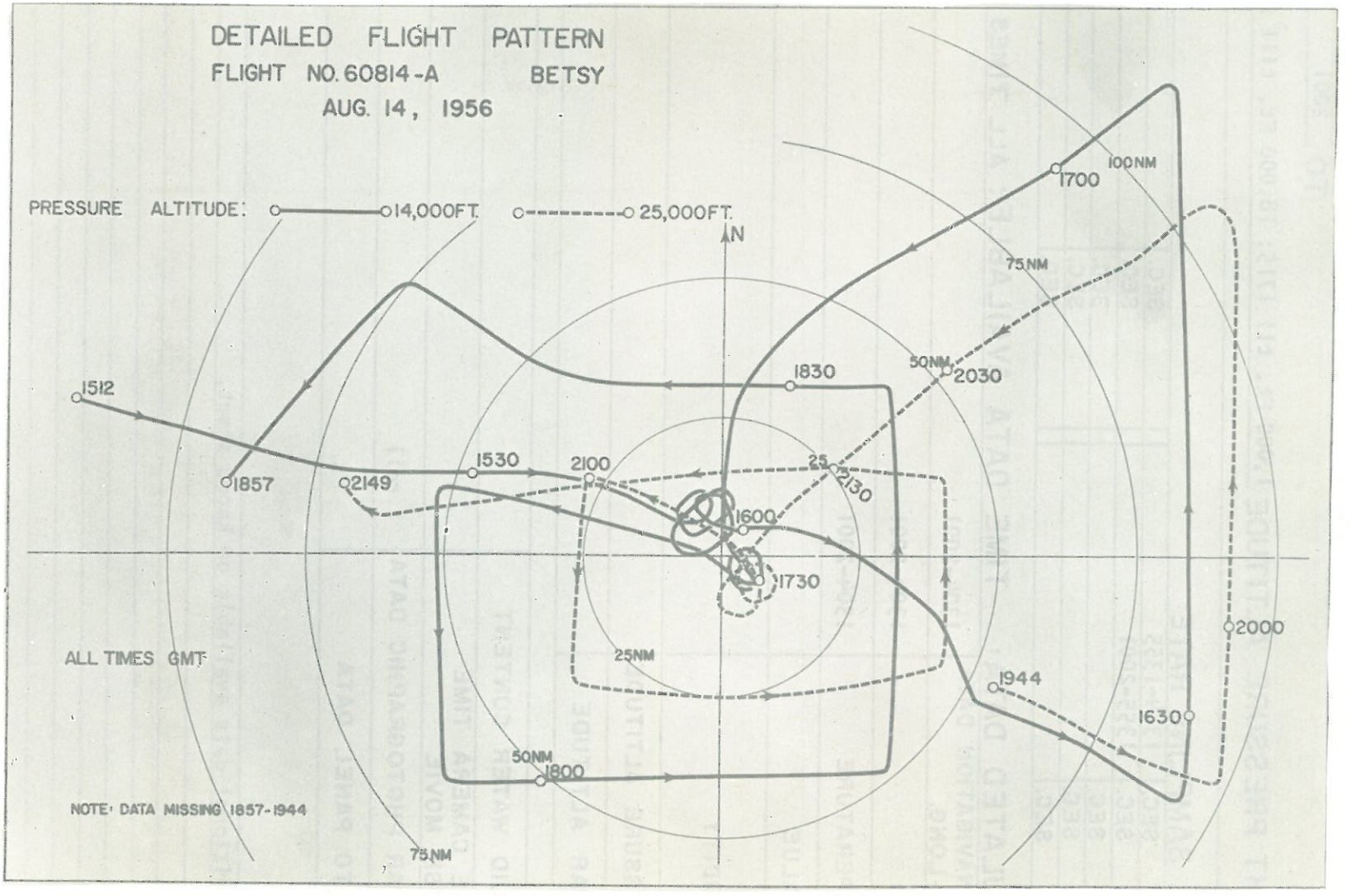
A/C NAVIGATION DATA LAT.-LONG.	1529-1646; 1655-1858; 1944-2149
WIND	1512-1539; 1559-1646; 1655-1725; 1735-1858; 1944-2041; 2057-2149
TEMPERATURE	1824-1858; 1944-2149
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	

Additional data available from Recco reports made during flight at 15-30 minute intervals.



28°
80°
79°
78°
77°
76°
75°
ALL TIMES GMT
A/C NAV. TRACK
STORM TRACK
A/C ORBIT
27°
26°
W.PALM BEACH
AIRCRAFT NAVIGATION
TRACK
FLIGHT NO.60814A BETSY
AUGUST 14, 1956
1700
2030
2130
2149
1830
2100
2057
2045
2041
1857
2000
1944
1735
1730
1725
1600
1512
1530
1535
1550
1800
1630


DETAILED FLIGHT PATTERN
FLIGHT NO. 60814-A BETSY
AUG. 14, 1956
PRESSURE ALTITUDE: 14,000FT. 25,000FT.
N
1512
1857
2149
1530
2100
1600
1730
1830
1700
2030
2130
1944
1630
2000
1800
100NM
75NM
50NM
25NM
25
ALL TIMES GMT
NOTE: DATA MISSING 1857-1944

TYPE OF FLIGHT Synoptic DATE August 18, 1956

FLIGHT NO. 60818A DATA TABULATED FROM 1304
TO 2001

FLIGHT PRESSURE ALTITUDE 1,000 Ft. till 1715; 18,000 Ft. till 2001

DATA SAMPLING RATE:

60	SEC.	1304-1355		SEC.	
30	SEC.	1355-2001		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1304-2001
WIND	1304-2001
TEMPERATURE	1304-2001
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

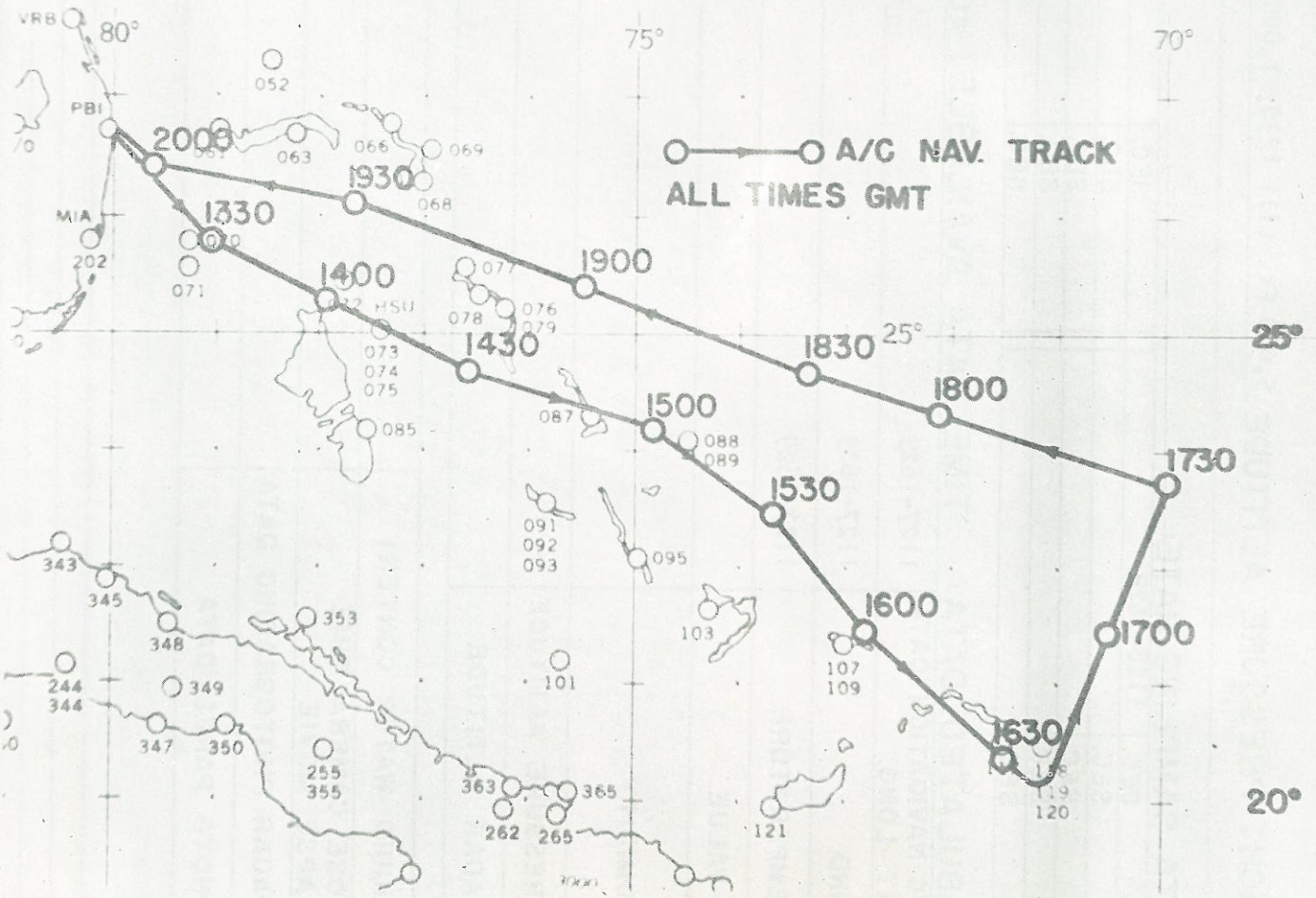
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	

Additional data available on Recco sheet.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 60818A SYNOPTIC

AUGUST 18, 1956



TYPE OF FLIGHT Synoptic DATE August 31, 1956

FLIGHT NO. 60831A DATA TABULATED FROM 1127
TO 1629

FLIGHT PRESSURE ALTITUDE 5,000 Ft. till 1230; 1,000 Ft. till 1629

DATA SAMPLING RATE:

60	SEC.	1128-1629		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

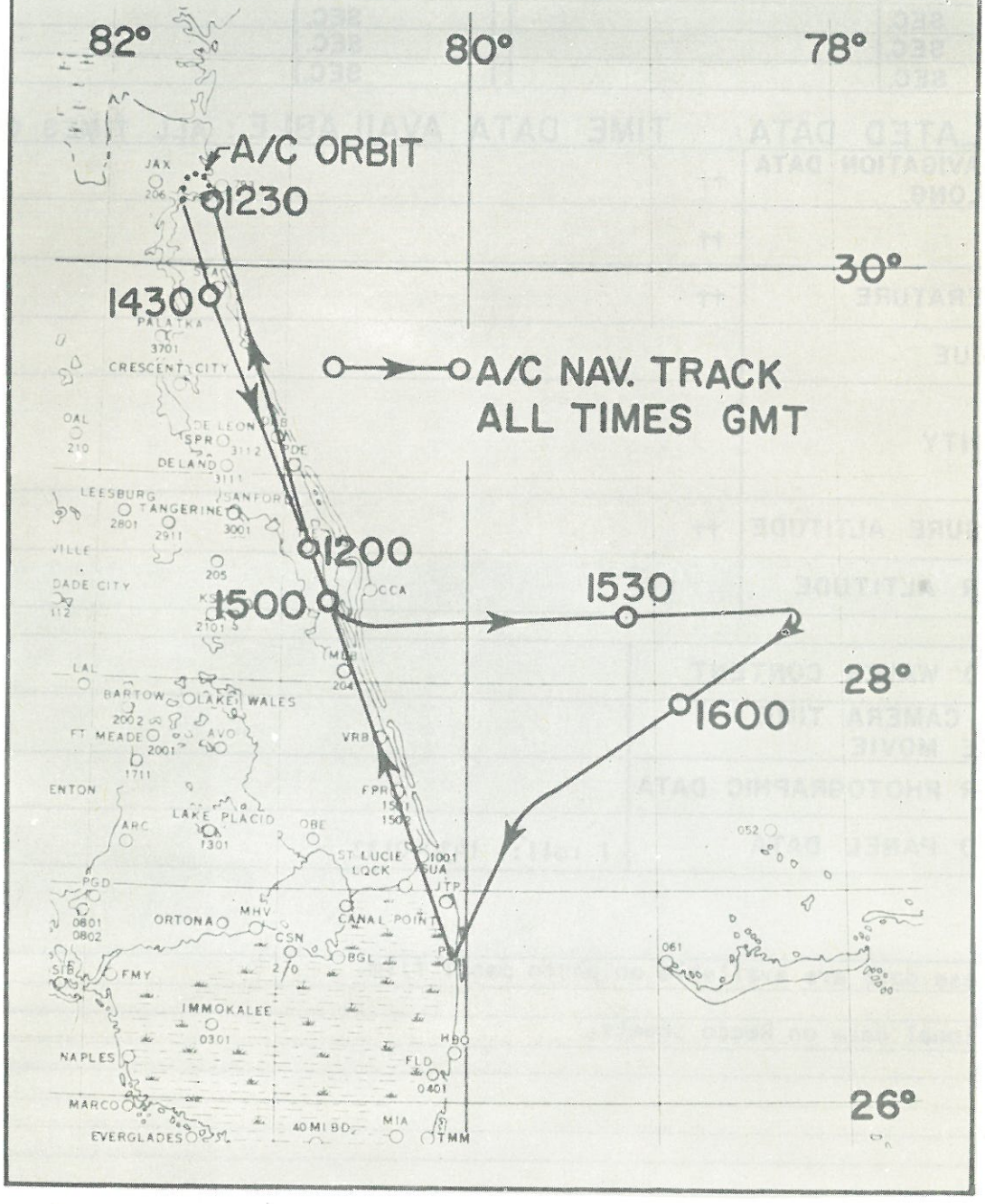
A/C NAVIGATION DATA LAT.-LONG.	1127-1629
WIND	1127-1629
TEMPERATURE	1127-1629
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 60831A SYNOPTIC

AUG. 31, 1956



TYPE OF FLIGHT Synoptic DATE September 4, 1956

FLIGHT NO. 60904A DATA TABULATED FROM _____
TO _____

FLIGHT PRESSURE ALTITUDE 4,000 Ft.

DATA SAMPLING RATE:

SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	††
WIND	††
TEMPERATURE	††
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1430-0132

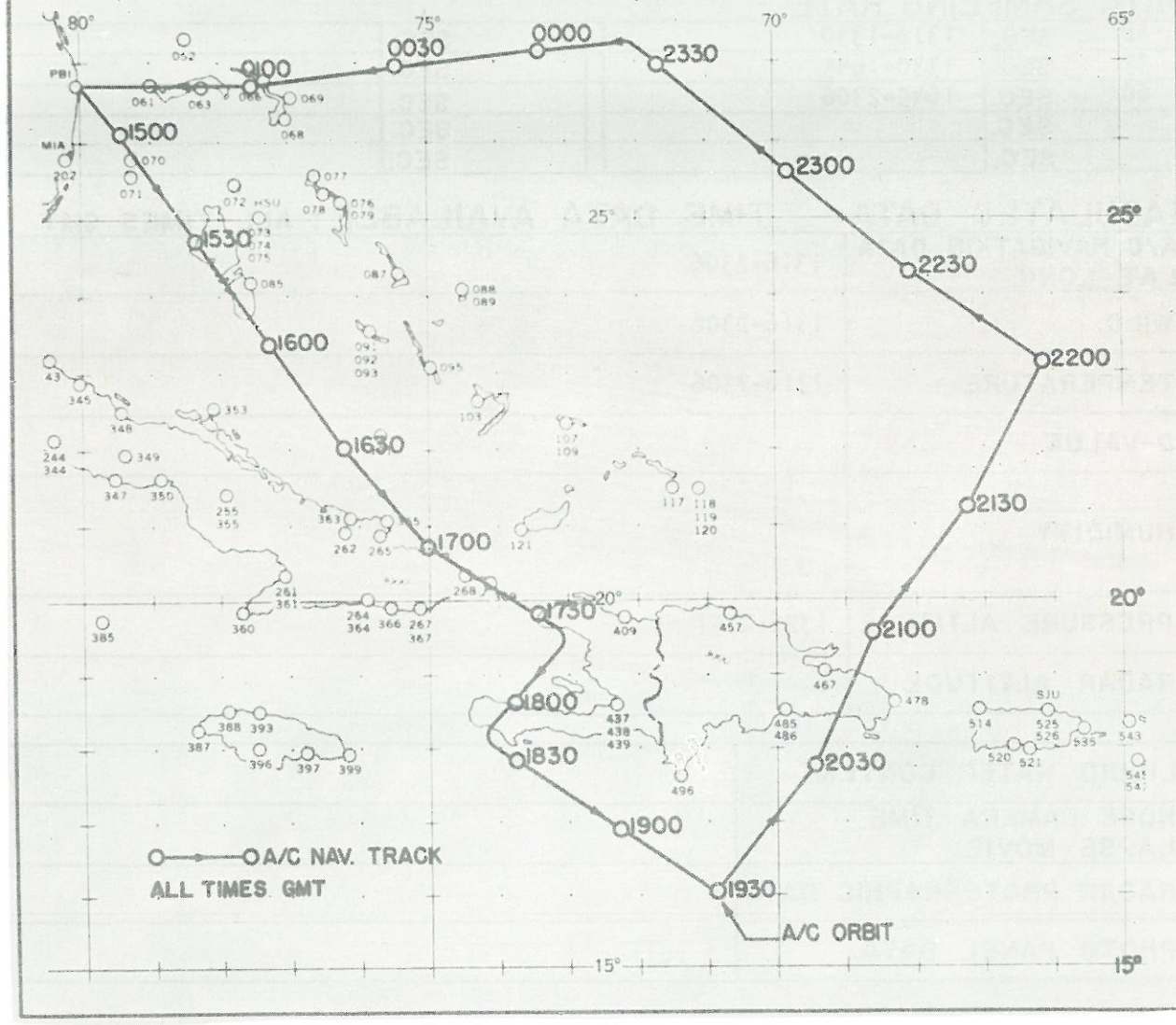
†† These data are available on photo panel film.

Additional data on Recco sheets.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 60904A SYNOPTIC

SEPT 4, 1956



TYPE OF FLIGHT Synoptic DATE September 6, 1956

FLIGHT NO. 60906A DATA TABULATED FROM 1316
TO 2306

FLIGHT PRESSURE ALTITUDE 1,000 Ft. till 1620; 14,000 Ft. till 2306

DATA SAMPLING RATE:

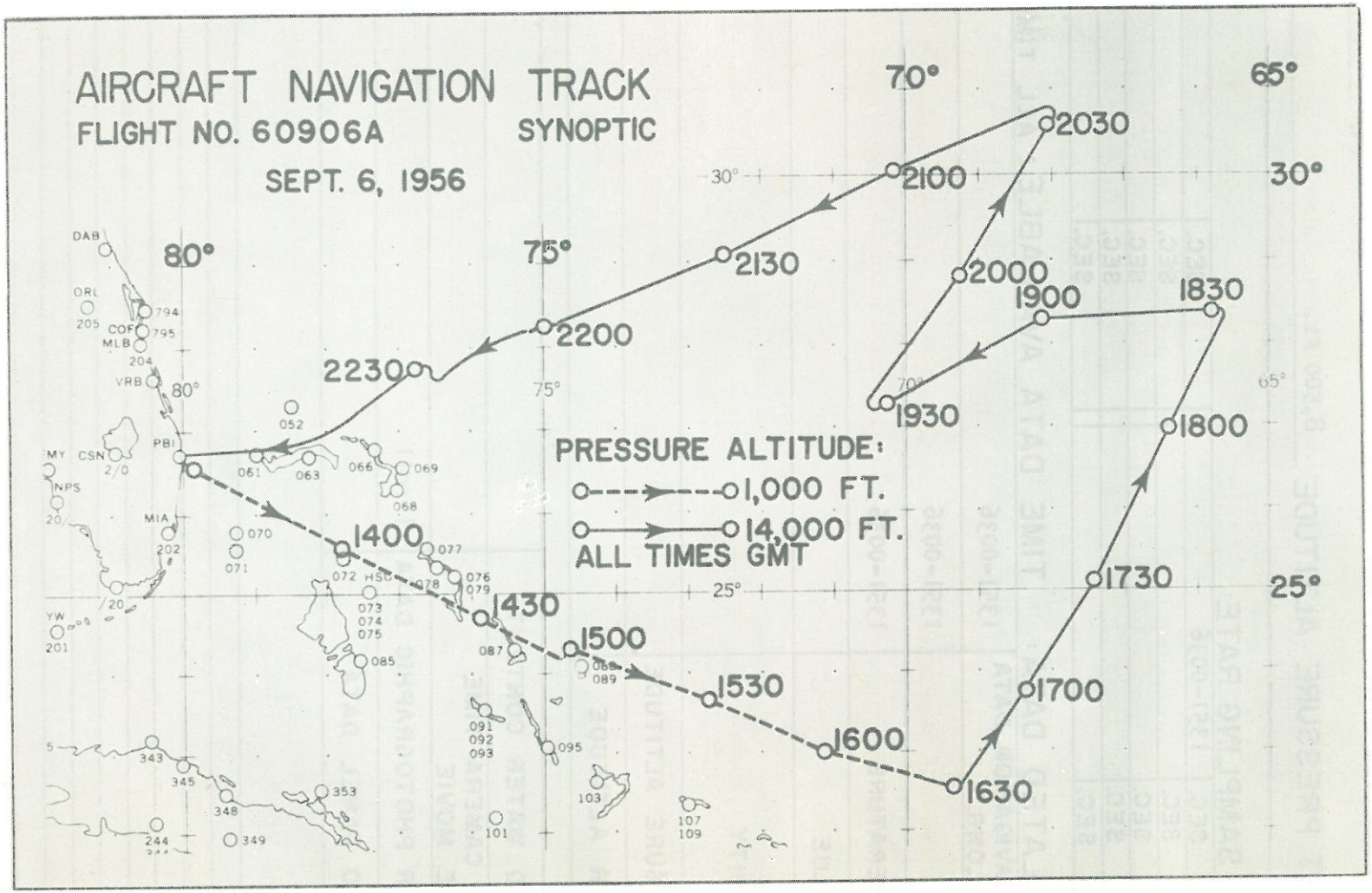
18	SEC.	1316-1330	SEC.	
55	SEC.	1330-1645	SEC.	
60	SEC.	1645-2306	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1316-2306
WIND	1316-2306
TEMPERATURE	1316-2306
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1326-2251
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll

Additional data available from Recco reports made during flight at 15-30 minute intervals.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 60906A
SYNOPTIC
SEPT. 6, 1956
PRESSURE ALTITUDE:
1,000 FT.
14,000 FT.
ALL TIMES GMT
1400
1430
1500
1530
1600
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
2200
2230
80°
75°
70°
65°
30°
25°
DAB
ORL
COF
MLB
VRB
PBI
MIA
CSN
NPS
YW
HSC

TYPE OF FLIGHT Tropical Storm DORA DATE September 11, 1956

FLIGHT NO. 60911A DATA TABULATED FROM 1351
TO 0036

FLIGHT PRESSURE ALTITUDE 8,500 Ft.

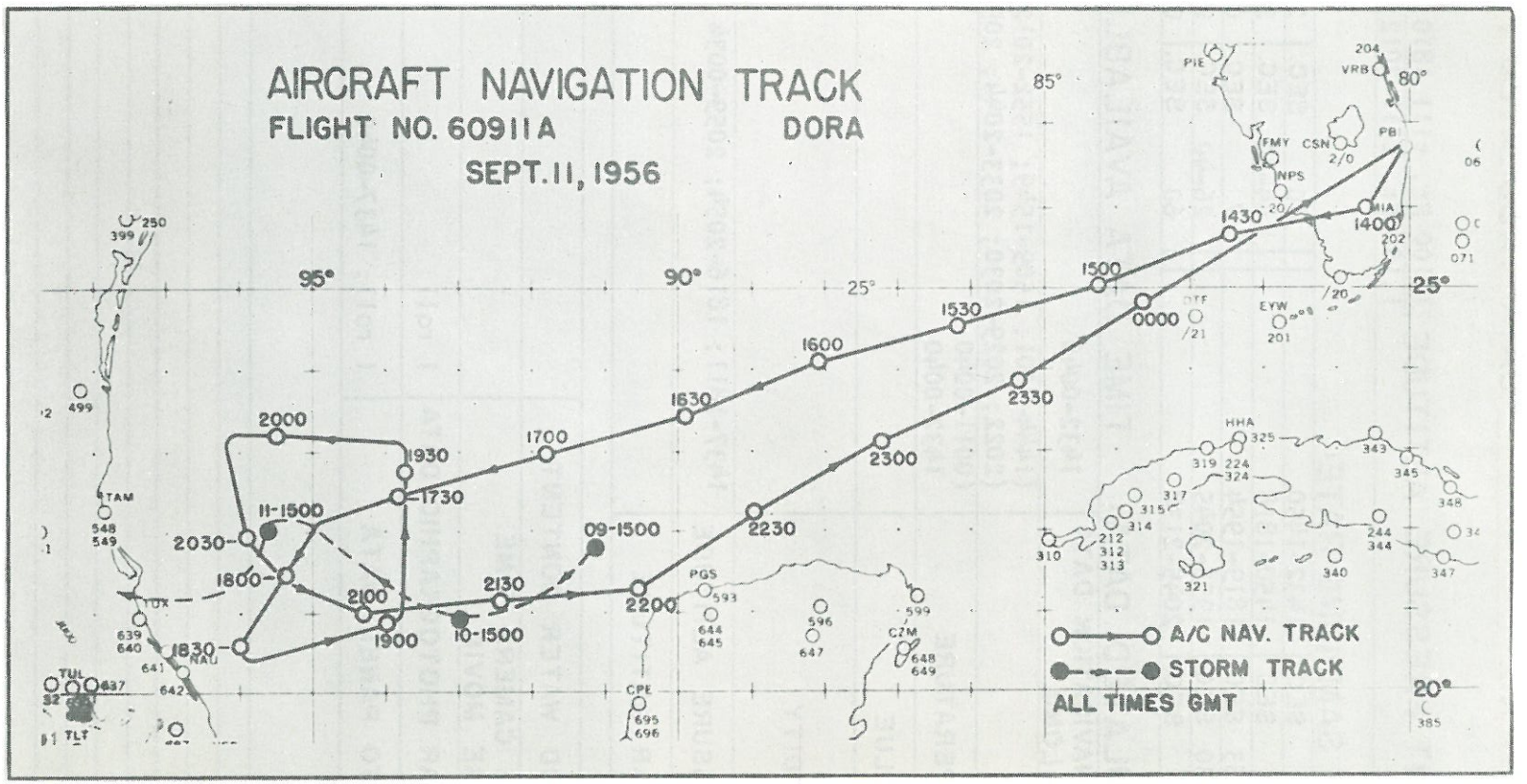
DATA SAMPLING RATE:

50 SEC.	1351-0036		SEC.	
SEC.			SEC.	
SEC.			SEC.	
SEC.			SEC.	
SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1351-0036
WIND	1351-0036
TEMPERATURE	1351-0036
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 60911A
DORA
SEPT. 11, 1956
95°
90°
85°
80°
25°
20°
1400
1430
1500
1530
1600
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
2200
2230
2300
2330
0000
09-1500
10-1500
11-1500
A/C NAV. TRACK
STORM TRACK
ALL TIMES GMT

TYPE OF FLIGHT Tropical Storm ETHEL DATE September 12, 1956

FLIGHT NO. 60912A DATA TABULATED FROM 1432
TO 0040

FLIGHT PRESSURE ALTITUDE 1,100 Ft. till 1810; 8,000 Ft. till 1908;
1,100 Ft. till 2012; 16,000 Ft. till 0040

DATA SAMPLING RATE:

30	SEC.	1432-1450	40	SEC.	2139-2202
55	SEC.	1450-1818	44-50	SEC.	2202-0008
45-53	SEC.	1819-1954	7	SEC.	0008-0024
15-30	SEC.	1955-2045	26-40	SEC.	0025-0027
14	SEC.	2045-2138	60	SEC.	0027-0040

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

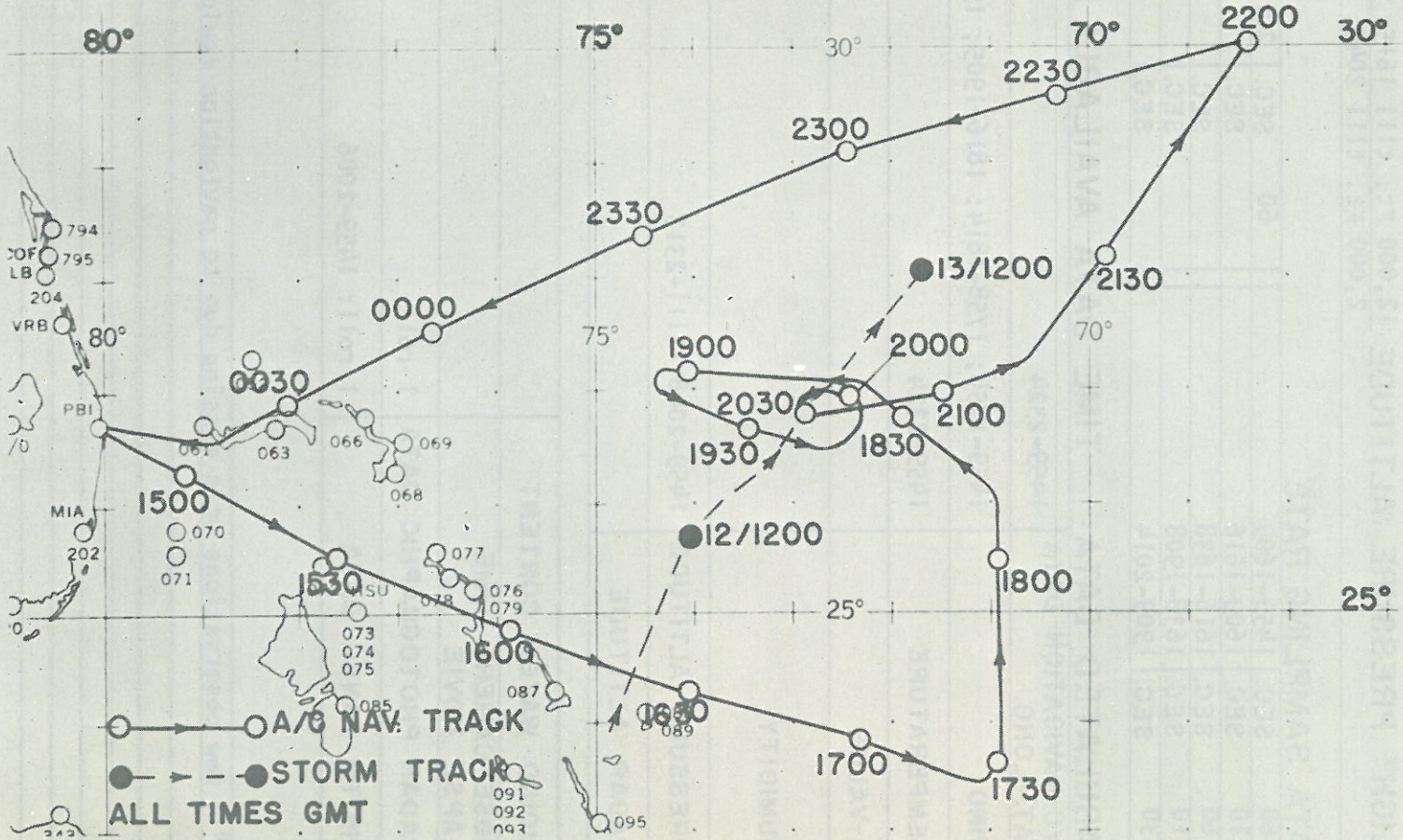
A/C NAVIGATION DATA LAT.-LONG.	1432-0040
WIND	(1444-1501; 1509-1549; 1552-2012; 2013-2015; 2017-(2022; 2029-2030; 2033-2044; 2053-2123; 2124-0010;
TEMPERATURE	(0011-0040. 1432-0040
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1437-1811; 1816-2054; 2059-0034
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1437-0040

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 60912A ETHEL

SEPT. 12, 1956



TYPE OF FLIGHT Tropical Storm ETHEL DATE September 13, 1956

FLIGHT NO. 60913A DATA TABULATED FROM 1459
TO 2324

FLIGHT PRESSURE ALTITUDE 12,000 Ft. till 1615; 10,000 Ft. till 1825; 2,000 Ft. till 2045; 18,000 Ft. till 2324

DATA SAMPLING RATE:

60	SEC.	1459-1609	60	SEC.	2014-2324
10	SEC.	1609-1616		SEC.	
60	SEC.	1616-1638		SEC.	
10	SEC.	1638-1908		SEC.	
30	SEC.	1909-2014		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1459-2324
WIND	1459-1754; 1758-1814; 1816-1905; 1910-2302 *
TEMPERATURE	1459-2324
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1459-2048; 2111-2313
RADAR ALTITUDE	

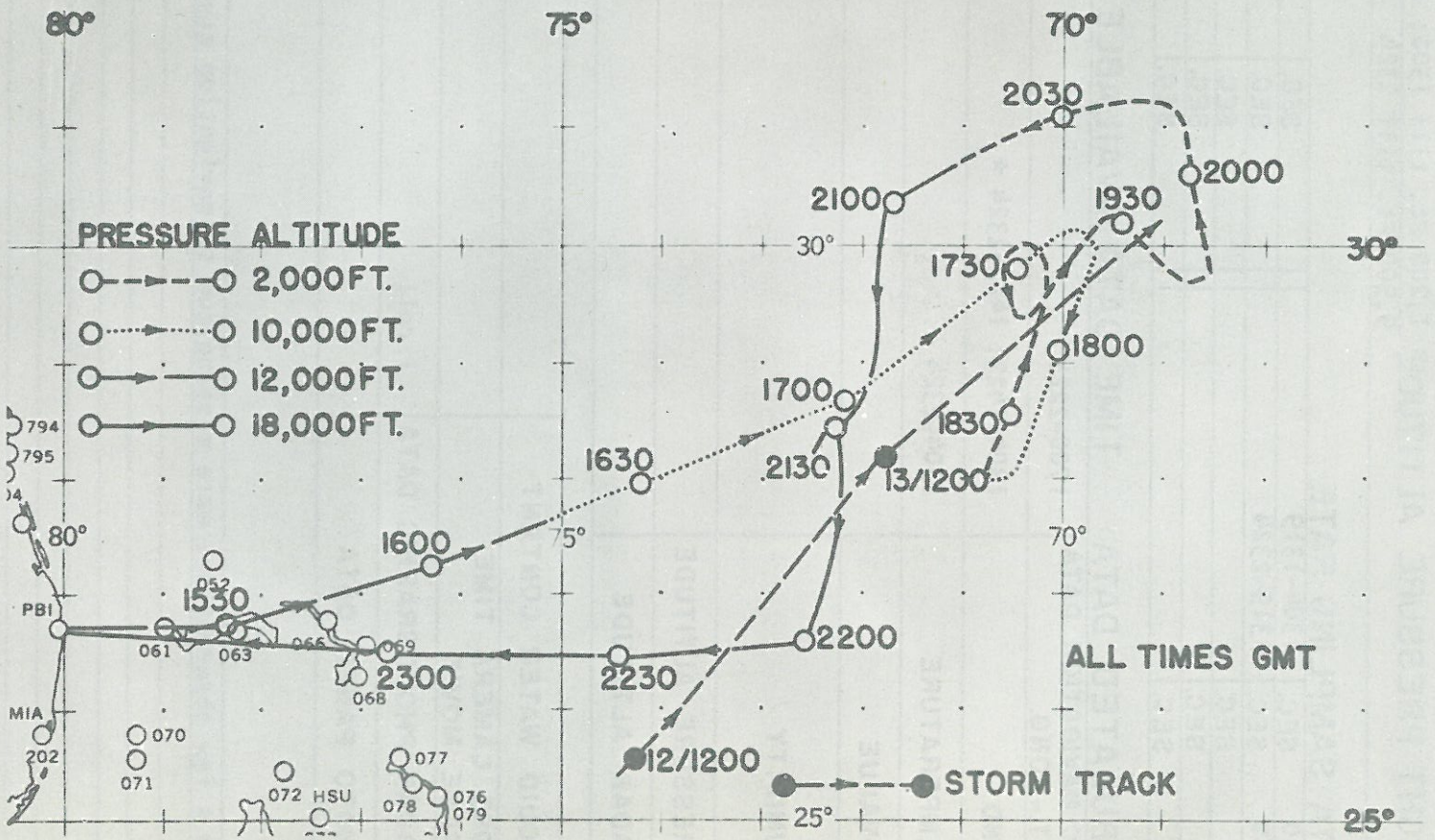
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1459-2006

* A few observations were missing due to navigation equipment in memory mode.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 60913A ETHEL

SEPT. 13, 1956



TYPE OF FLIGHT Hurricane FLOSSY DATE September 23, 1956

FLIGHT NO. 60923A DATA TABULATED FROM 1304
TO 2324

FLIGHT PRESSURE ALTITUDE 1,200 Ft. till 1500; 19,000 Ft. till 1800; 9,900 Ft. till 2324

DATA SAMPLING RATE:

30	SEC.	1304-1319		SEC.	
50	SEC.	1319-2324		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1700-2225
WIND	1304-1422; 1422-2324 *
TEMPERATURE	1304-2324
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

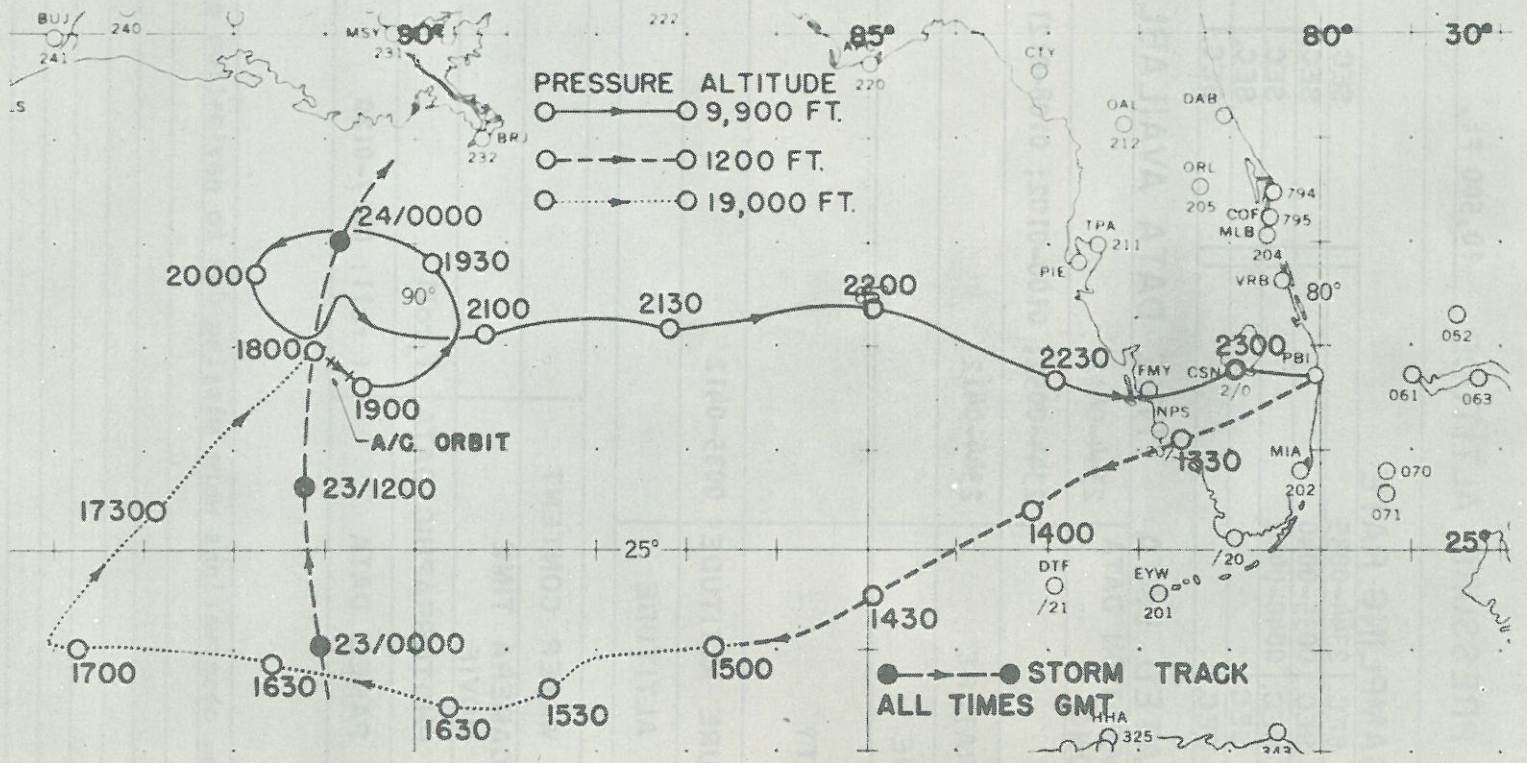
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	

* A few observations were missing due to navigation equipment in memory mode.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 60923A FLOSSY

SEPT. 23, 1956



TYPE OF FLIGHT Hurricane FLOSSY DATE September 24, 1956

FLIGHT NO. 60924A DATA TABULATED FROM 2344
TO 0412

FLIGHT PRESSURE ALTITUDE 10,500 Ft.

DATA SAMPLING RATE:

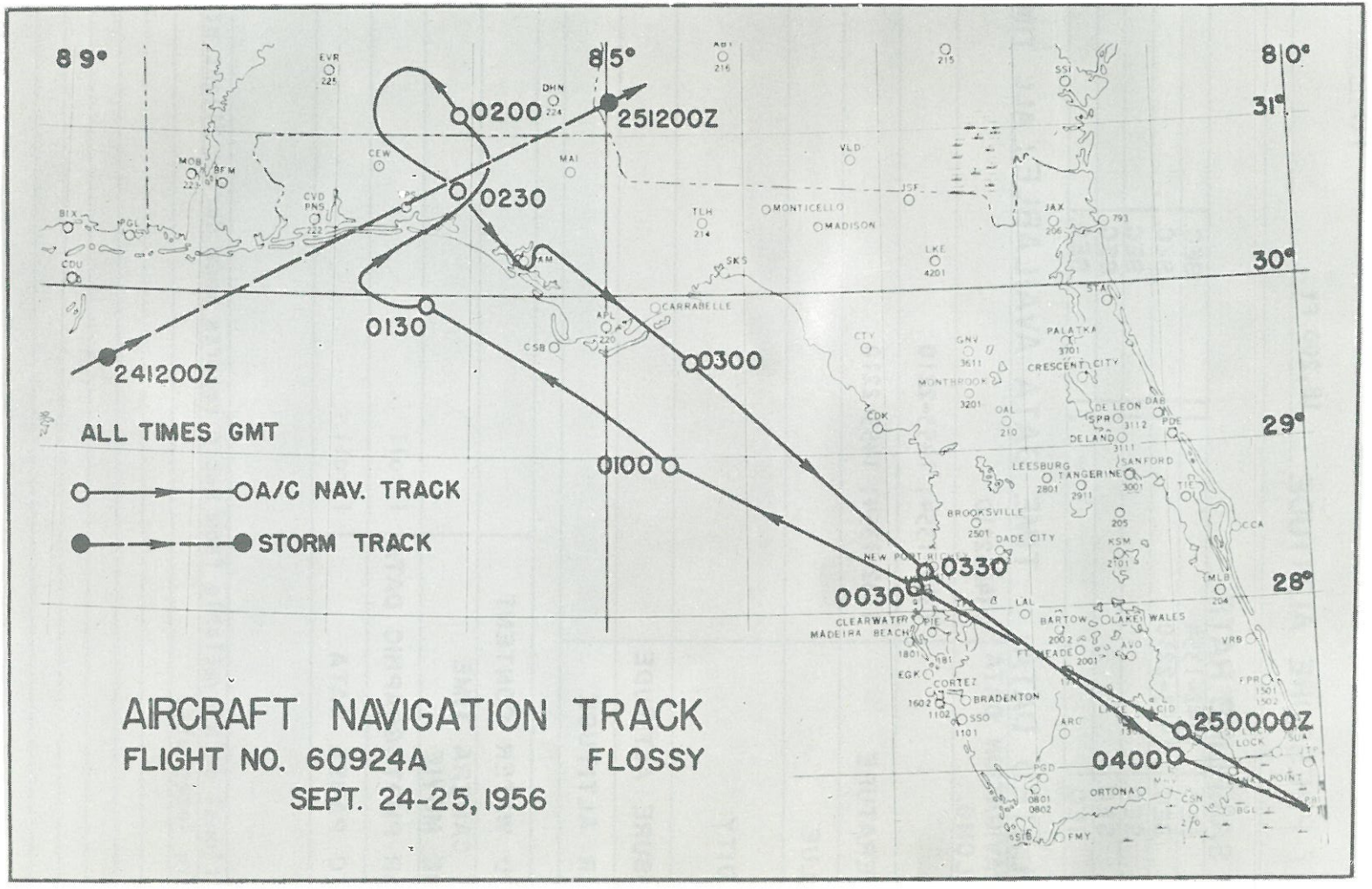
50	SEC.	2344-0035	SEC.	
10	SEC.	0035-0040	SEC.	
45-55	SEC.	0040-0412	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	2344-0412
WIND	2344-0052; 0100-0102; 0108-0121; 0128-0131; 0137-0338 *
TEMPERATURE	2344-0412
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	0035-0412
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 0017-0120

* A few observations were missing due to navigation equipment in memory mode.


89°
85°
80°
31°
30°
29°
28°
0200
251200Z
0230
0130
241200Z
0300
0100
0330
0030
250000Z
0400
ALL TIMES GMT
A/C NAV. TRACK
STORM TRACK
AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 60924A
FLOSSY
SEPT. 24-25, 1956

TYPE OF FLIGHT Synoptic DATE September 26, 1956

FLIGHT NO. 60926A DATA TABULATED FROM 1342
TO 2210

FLIGHT PRESSURE ALTITUDE 18,200 Ft.

DATA SAMPLING RATE:

50	SEC.	1342-1354		SEC.	
50	SEC.	1453-2210		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1342-2210
WIND	1342-1354; 1453-2210
TEMPERATURE	1342-1354; 1453-2210
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

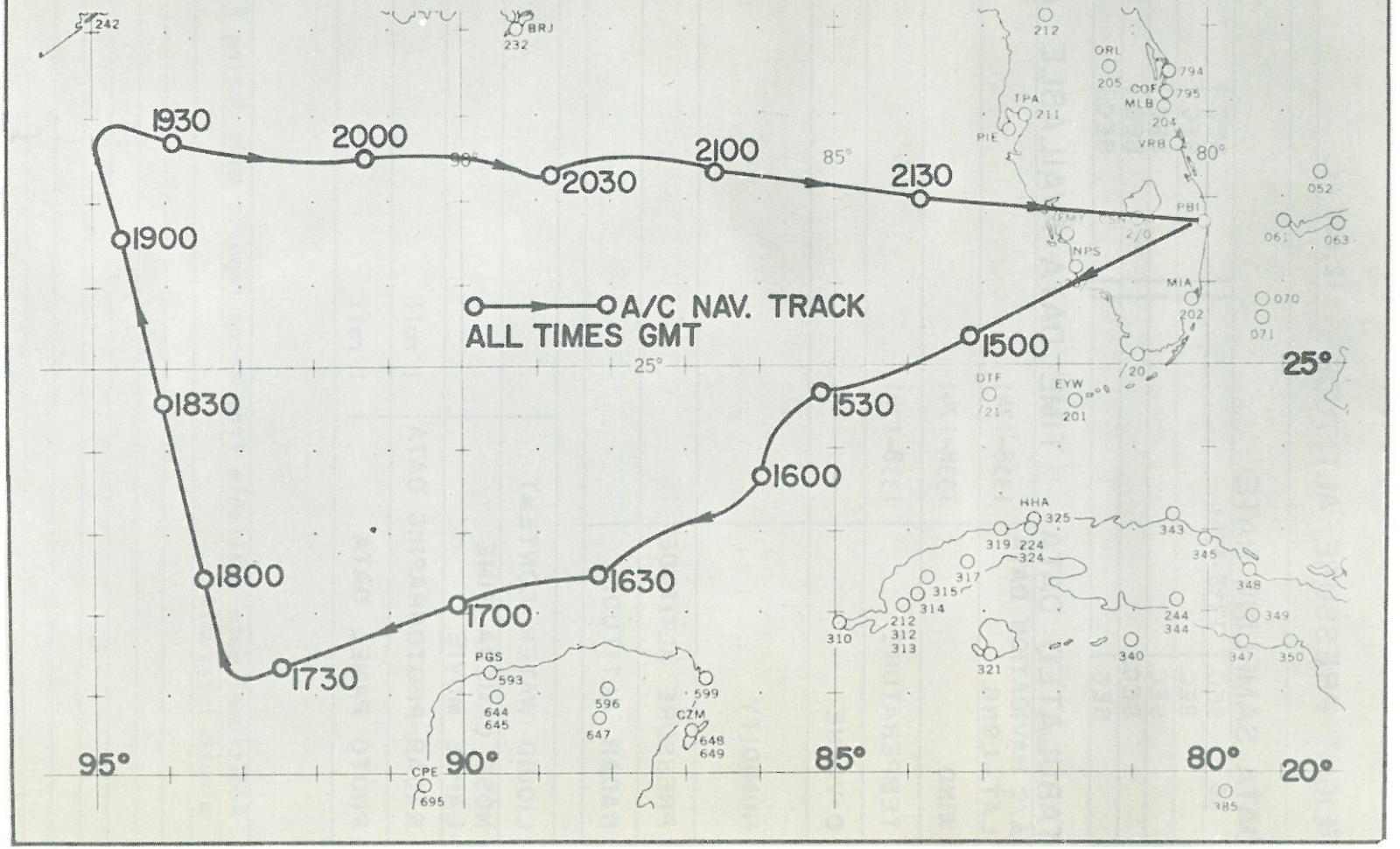
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll

Additional data available from Recco reports made during flight at 15-30 minute intervals.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 60926A SYNOPTIC

SEPT. 26, 1956



TYPE OF FLIGHT Synoptic DATE September 28, 1956

FLIGHT NO. 60928A DATA TABULATED FROM 1338
TO 1741

FLIGHT PRESSURE ALTITUDE 12,000 Ft.

DATA SAMPLING RATE:

50	SEC.	1338-1741		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1338-1741
WIND	1338-1741
TEMPERATURE	1338-1741
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

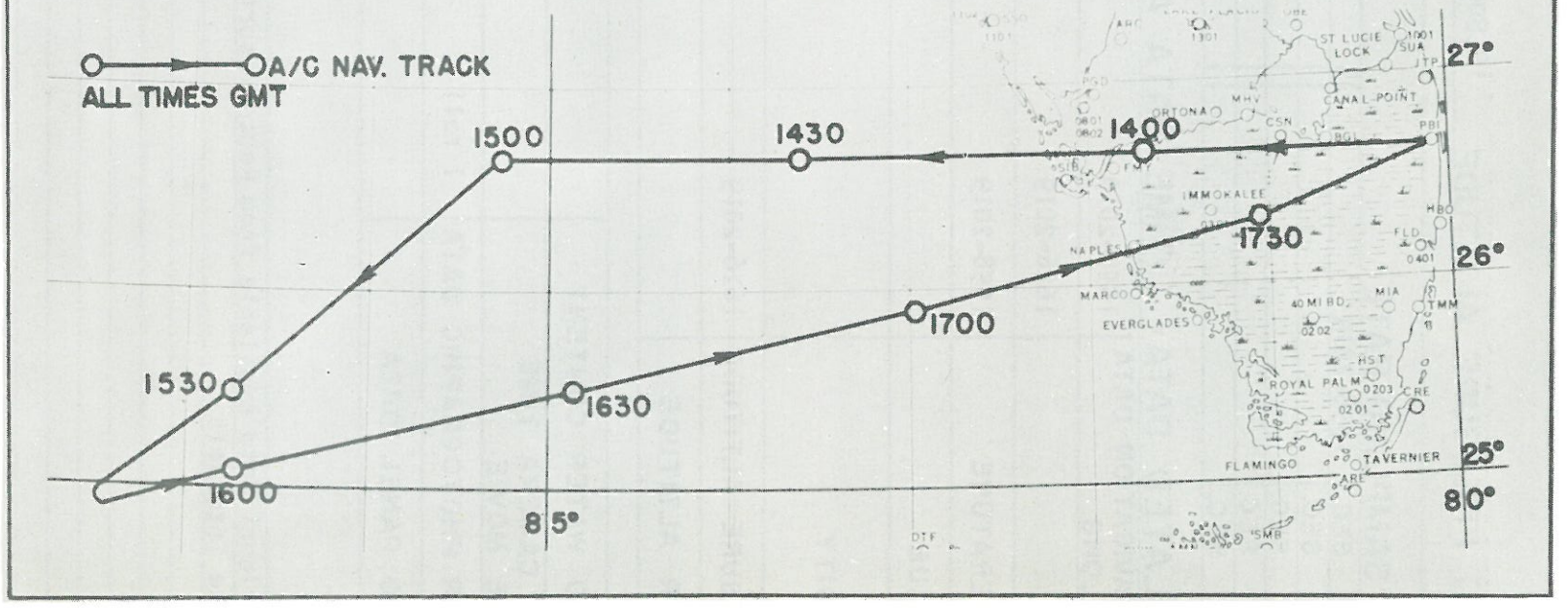
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll

Additional data available from Recco reports made during flight at 15-30 minute intervals.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 60928A SYNOPTIC

SEPT. 28, 1956



TYPE OF FLIGHT Synoptic · DATE October 5, 1956

FLIGHT NO. 61005A DATA TABULATED FROM 1558
TO 2019

FLIGHT PRESSURE ALTITUDE 18,800 Ft.

DATA SAMPLING RATE:

50	SEC.	1558-2019		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1558-2019
WIND	1626-2019
TEMPERATURE	1558-2019
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1626-2019
RADAR ALTITUDE	

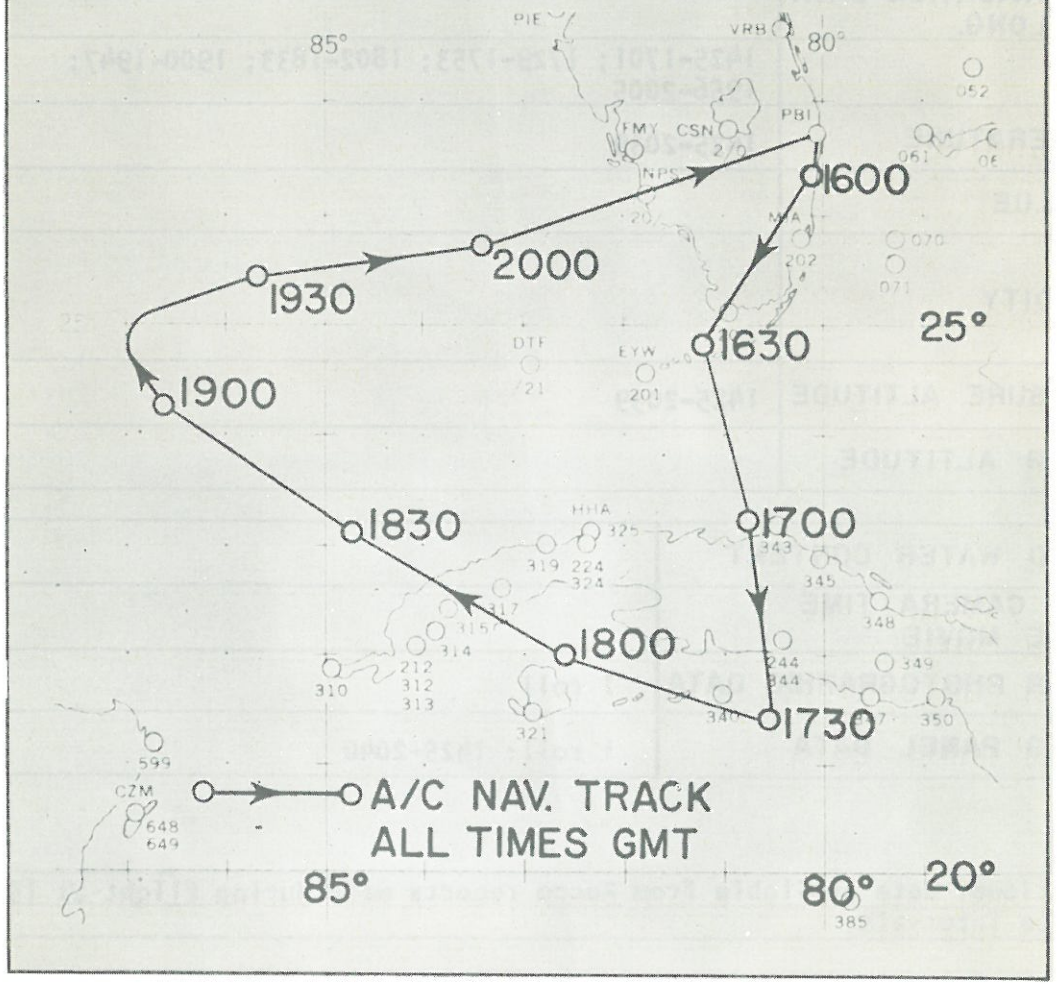
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	

Additional data available from Recco reports made during flight at 15-30 minute intervals.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 61005A SYNOPTIC

OCT. 5, 1956



TYPE OF FLIGHT Synoptic DATE October 5, 1956

FLIGHT NO. 61005B DATA TABULATED FROM 1425
TO 2039

FLIGHT PRESSURE ALTITUDE 10,000 Ft.

DATA SAMPLING RATE:

50	SEC.	1425-2022	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	
WIND	1425-1701; 1729-1753; 1802-1833; 1900-1947; 1956-2005
TEMPERATURE	1425-2039
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1425-2039
RADAR ALTITUDE	

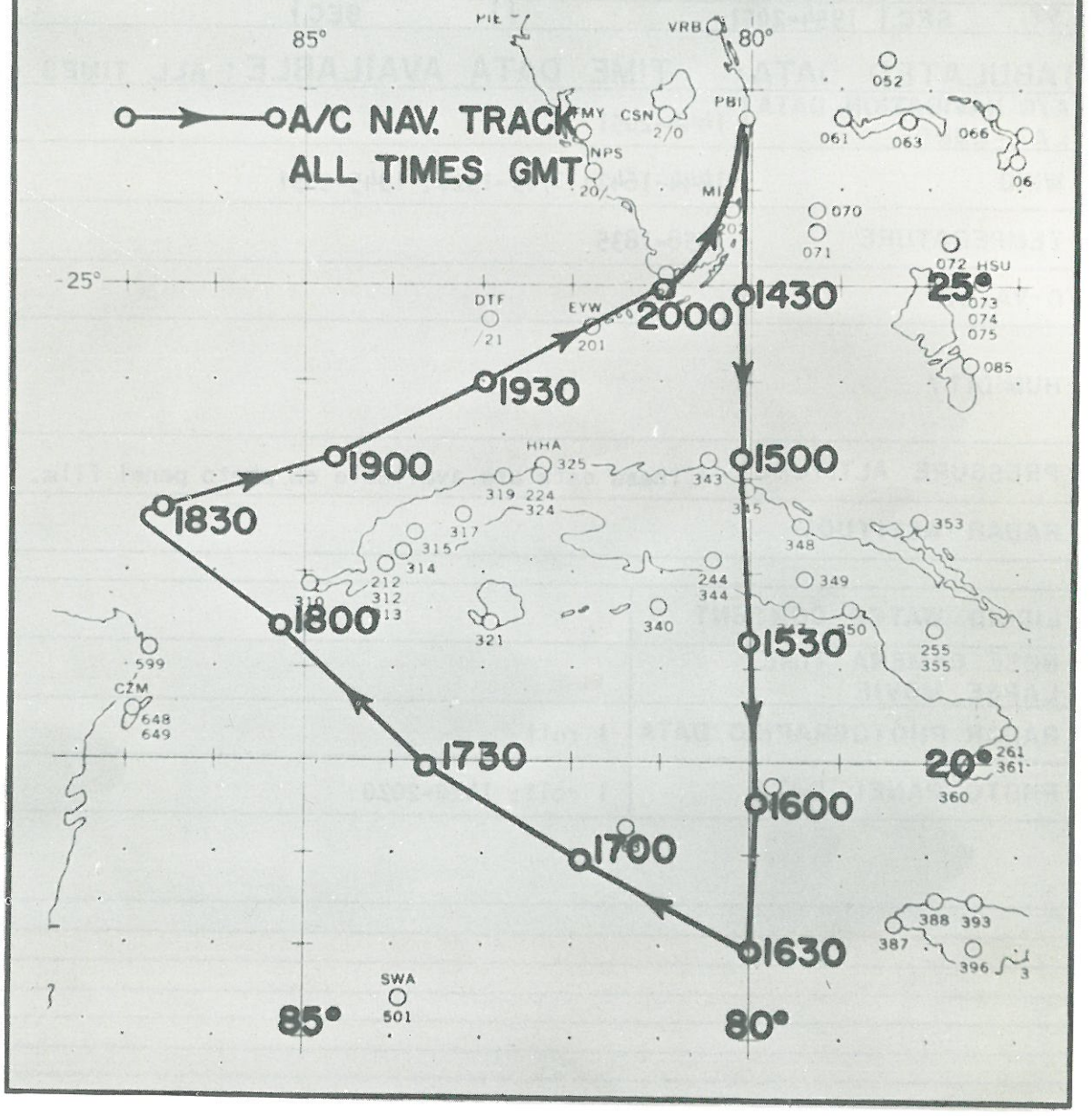
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1425-2040

Additional data available from Recco reports made during flight at 15-30 minute intervals.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 61005B **SYNOPTIC**

OCT. 5, 1956



TYPE OF FLIGHT Synoptic DATE October 11, 1956

FLIGHT NO. 61011B DATA TABULATED FROM 1444
TO 2051

FLIGHT PRESSURE ALTITUDE 2,000 Ft. till 1500: 18,000 Ft. till 1745; briefly at 21,500 Ft. ; 10,000 Ft. till 2051

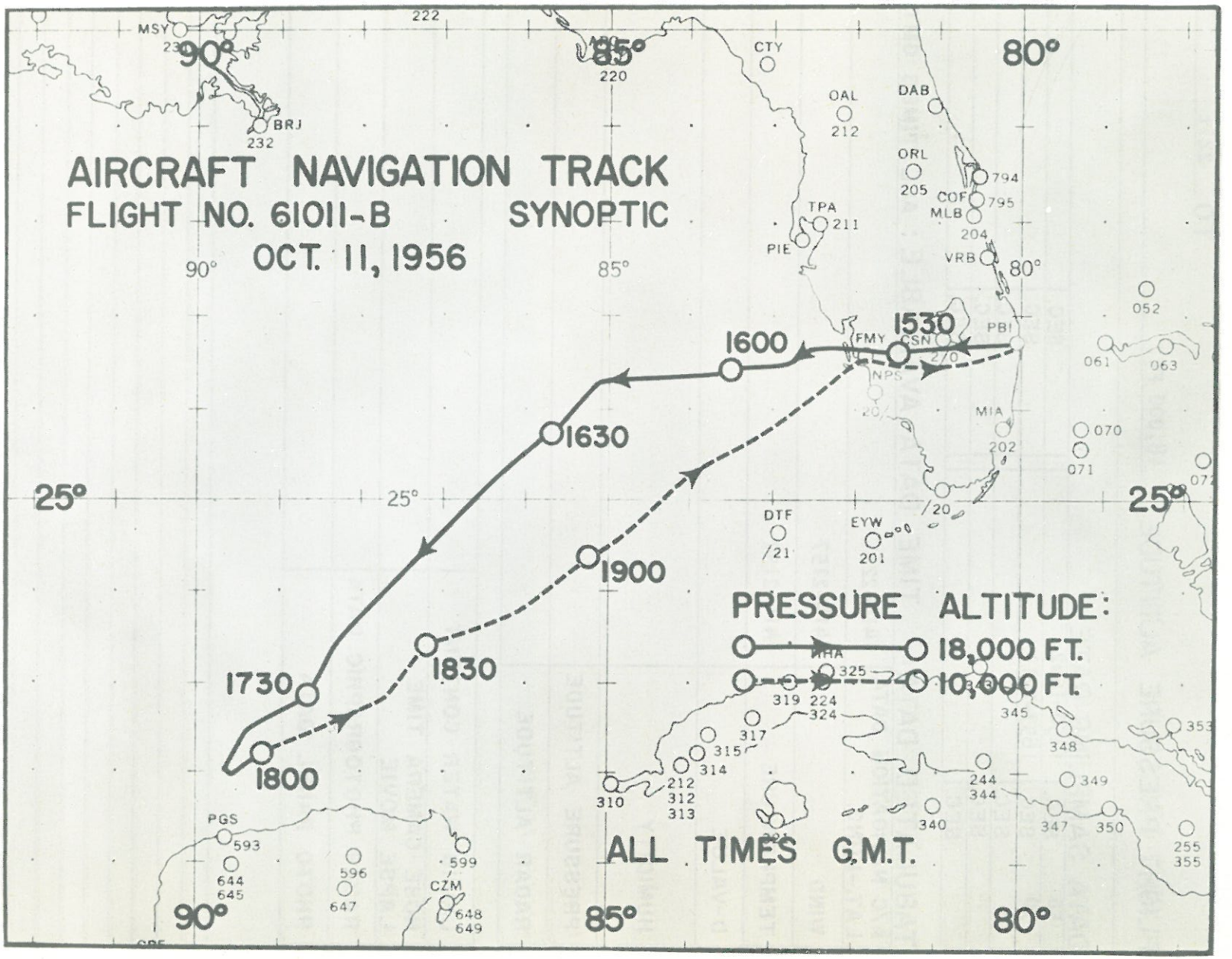
DATA SAMPLING RATE:

50	SEC.	1444-1642		SEC.	
1-60	SEC.	1719-1803		SEC.	
50	SEC.	1803-1928		SEC.	
1-60	SEC.	1945-1954		SEC.	
50	SEC.	1954-2051		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1444-2051
WIND	1444-1642; 1719-1928; 1945-2051
TEMPERATURE	1558-1835
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	†† These data are available on photo panel film.
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1420-2020


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61011-B SYNOPTIC
OCT. 11, 1956
PRESSURE ALTITUDE:
18,000 FT.
10,000 FT.
ALL TIMES G.M.T.
1530
1600
1630
1730
1800
1830
1900
90°
85°
80°
25°
MSY
BRJ
CTY
OAL
DAB
ORL
COF
MLB
VRB
TPA
PIE
FMY
CSN
PBI
NPS
MIA
DTF
EYW
PGS
CZM

TYPE OF FLIGHT Synoptic DATE October 12, 1956

FLIGHT NO. 61012A DATA TABULATED FROM 1350
TO 2211

FLIGHT PRESSURE ALTITUDE 18,000 Ft.

DATA SAMPLING RATE:

50	SEC.	1350-1642		SEC.	
50	SEC.	1657-2211		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

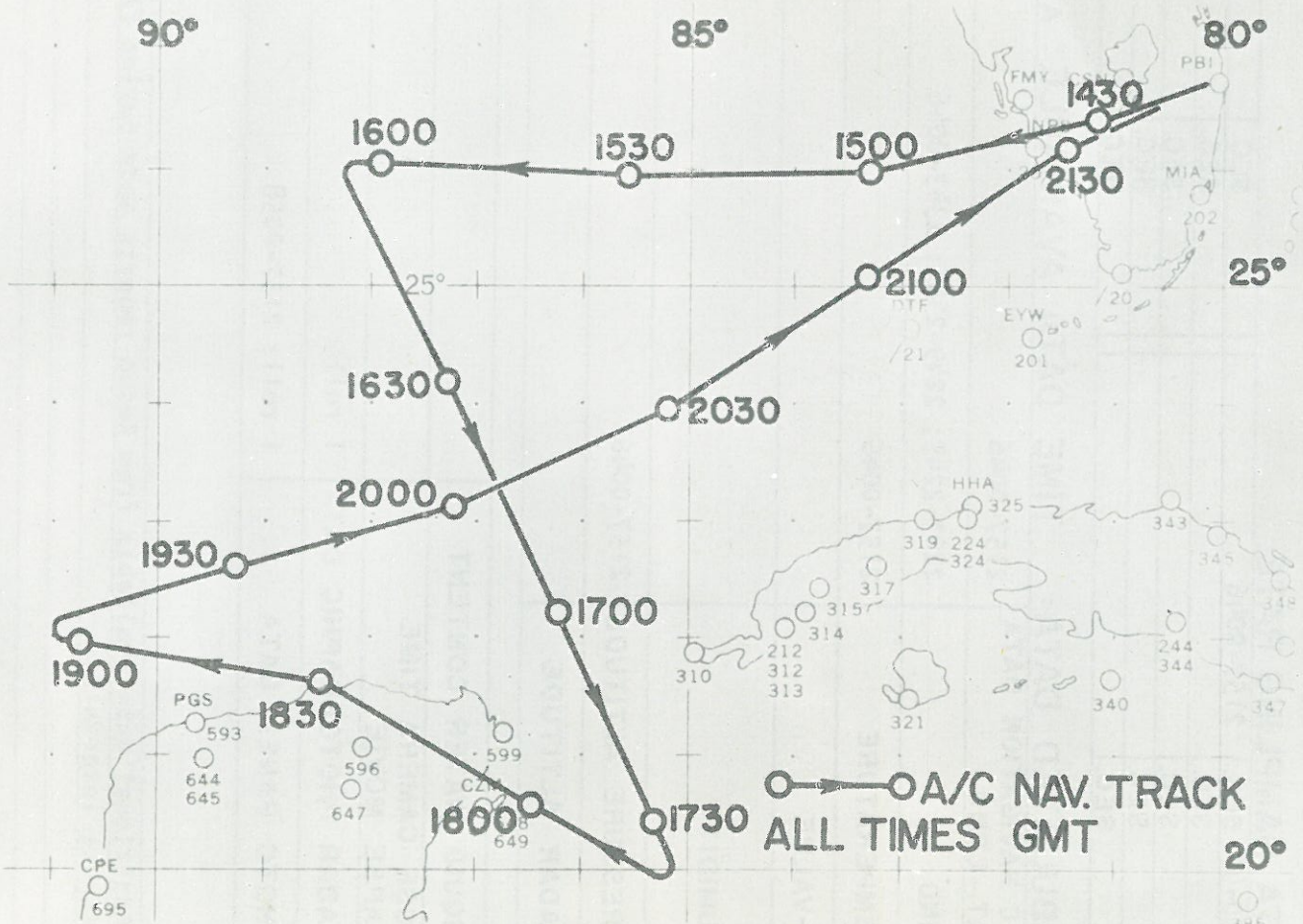
A/C NAVIGATION DATA LAT.-LONG.	1414-2211
WIND	1414-2157
TEMPERATURE	1414-2157
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 61012A SYNOPTIC

OCT. 12, 1956



TYPE OF FLIGHT Synoptic DATE October 14, 1956

FLIGHT NO. 61014A DATA TABULATED FROM 2157
TO 0046

FLIGHT PRESSURE ALTITUDE 1,600 Ft. till 2315; 18,000 Ft. till 0046

DATA SAMPLING RATE:

30-40 SEC.	2157-0046	SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	2157-0046
WIND	2203-2245; 2249-2341; 2343-0046
TEMPERATURE	2157-0046
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	2157-0046
RADAR ALTITUDE	

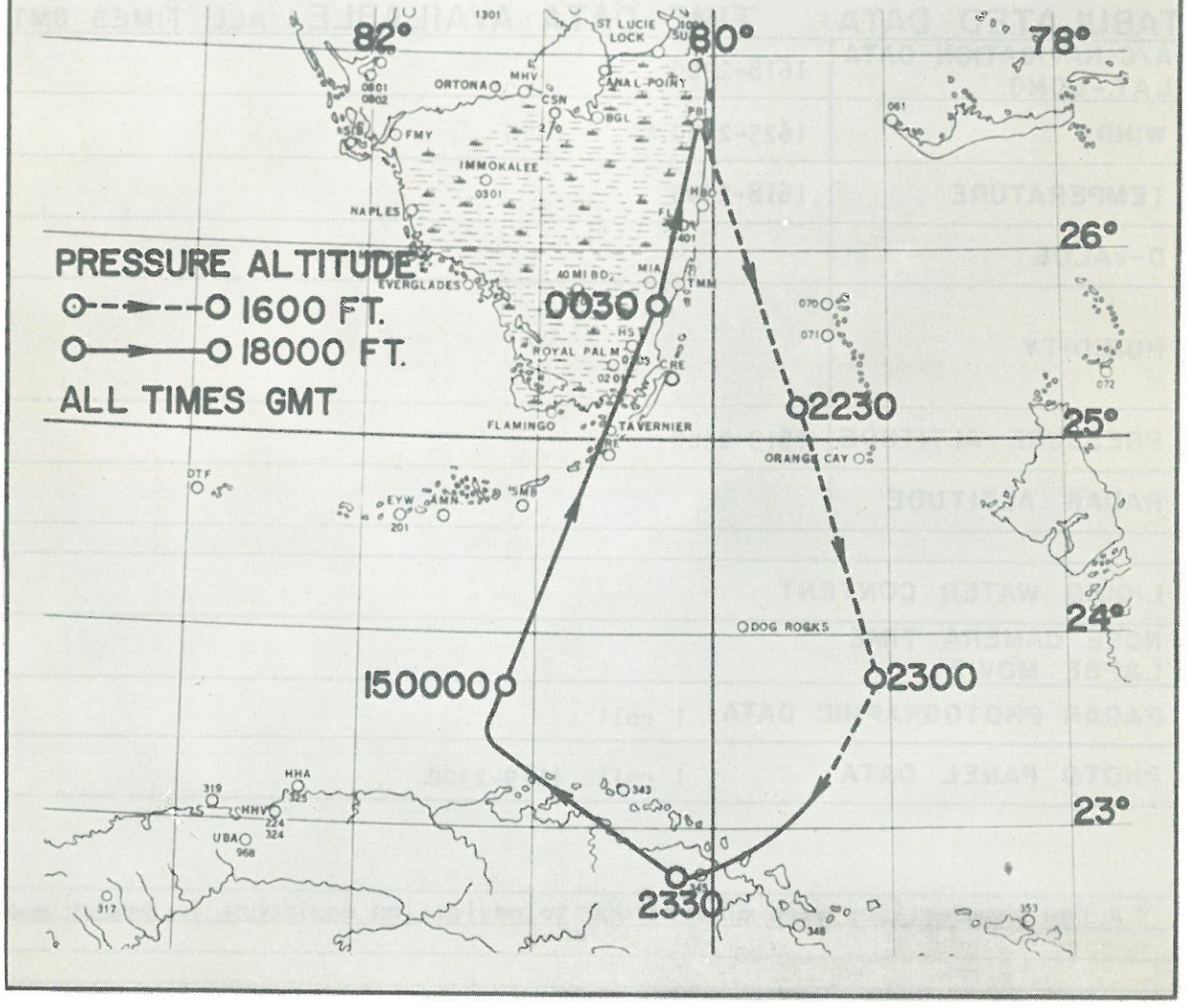
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 2137-0058

Additional data available from Recco reports made during flight at 15-30 minute intervals.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 61014A SYNOPTIC

OCT. 14-15, 1956



TYPE OF FLIGHT Synoptic DATE October 15, 1956

FLIGHT NO. 61015A DATA TABULATED FROM 1618
TO 2300

FLIGHT PRESSURE ALTITUDE 14,000 Ft.

DATA SAMPLING RATE:

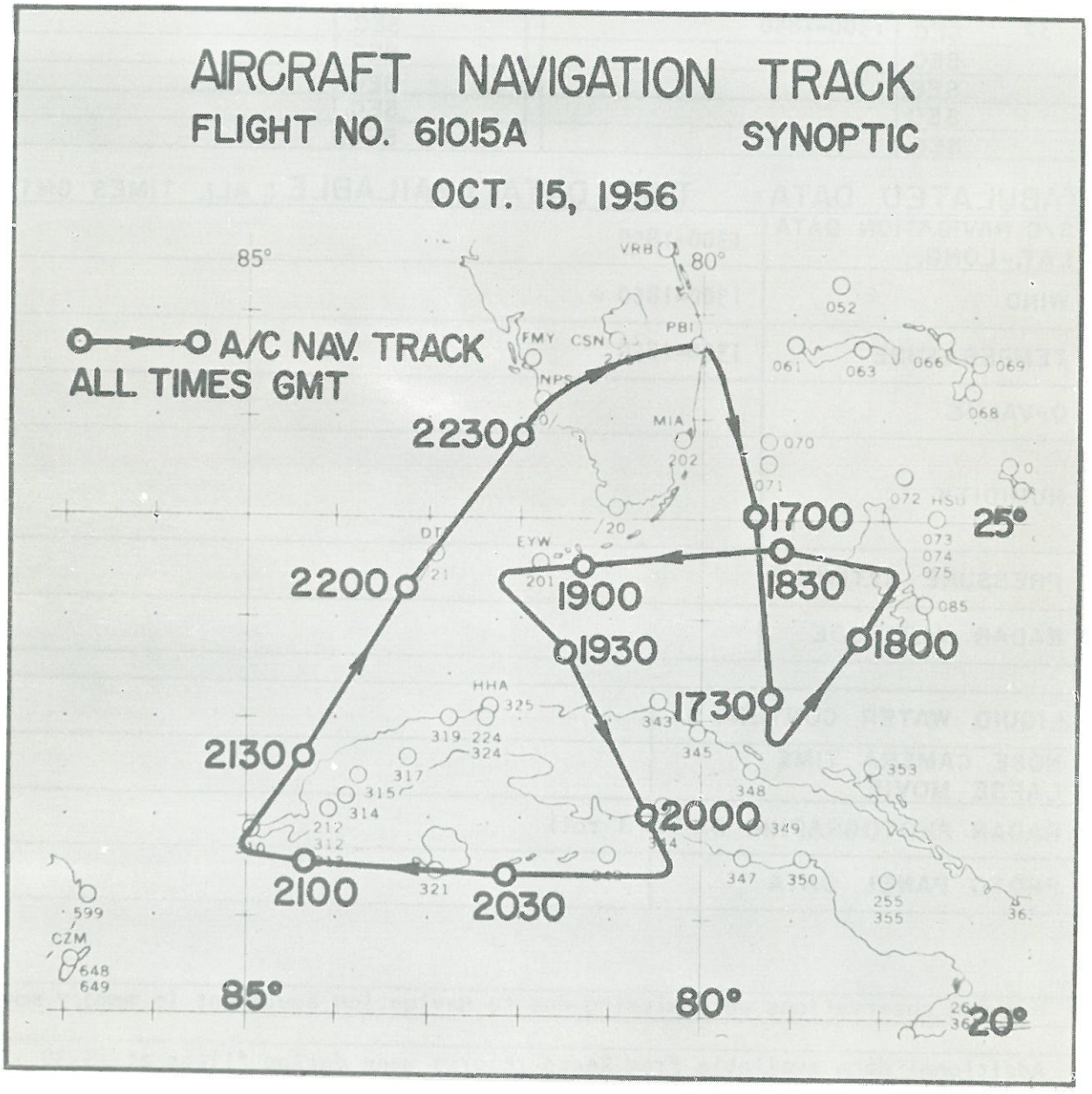
60	SEC.	1618-2243		SEC.	
30	SEC.	2243-2300		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1618-2300
WIND	1625-2300 *
TEMPERATURE	1618-2300
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1619-2300
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1619-2300

* A few observations were missing due to navigation equipment in memory mode.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61015A
SYNOPTIC
OCT. 15, 1956
A/C NAV. TRACK
ALL TIMES GMT
85°
80°
25°
20°
VRB
PBI
FMY
CSN
NPS
MIA
EYW
HHA
HSU
CZM
2230
2200
2130
2100
2030
2000
1930
1900
1830
1800
1730
1700

TYPE OF FLIGHT Synoptic DATE October 15, 1956

FLIGHT NO. 61015B DATA TABULATED FROM 1300
TO 1850

FLIGHT PRESSURE ALTITUDE 1,500 Ft. till 1635; 8,500 Ft. till 1850

DATA SAMPLING RATE:

30	SEC.	1300-1850		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1300-1850
WIND	1300-1850 *
TEMPERATURE	1300-1850
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	

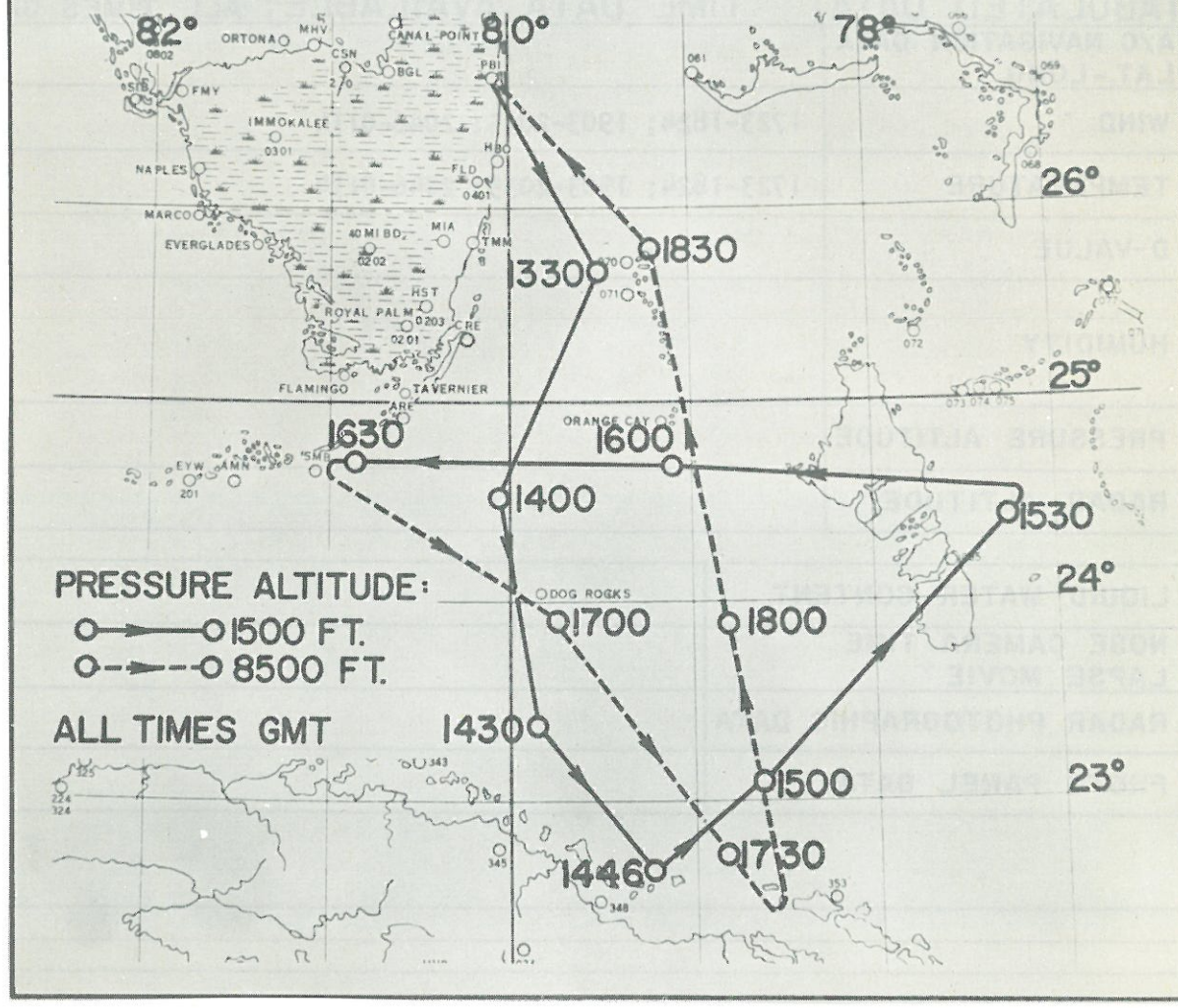
* A few observations were missing due to navigation equipment in memory mode.

Additional data available from Recco reports made during flight at 15-30 minute intervals.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 61015B SYNOPTIC

OCT. 15, 1956



TYPE OF FLIGHT Synoptic DATE October 17, 1956

FLIGHT NO. 61017A DATA TABULATED FROM 1723
TO 0114

FLIGHT PRESSURE ALTITUDE 18,000 Ft.

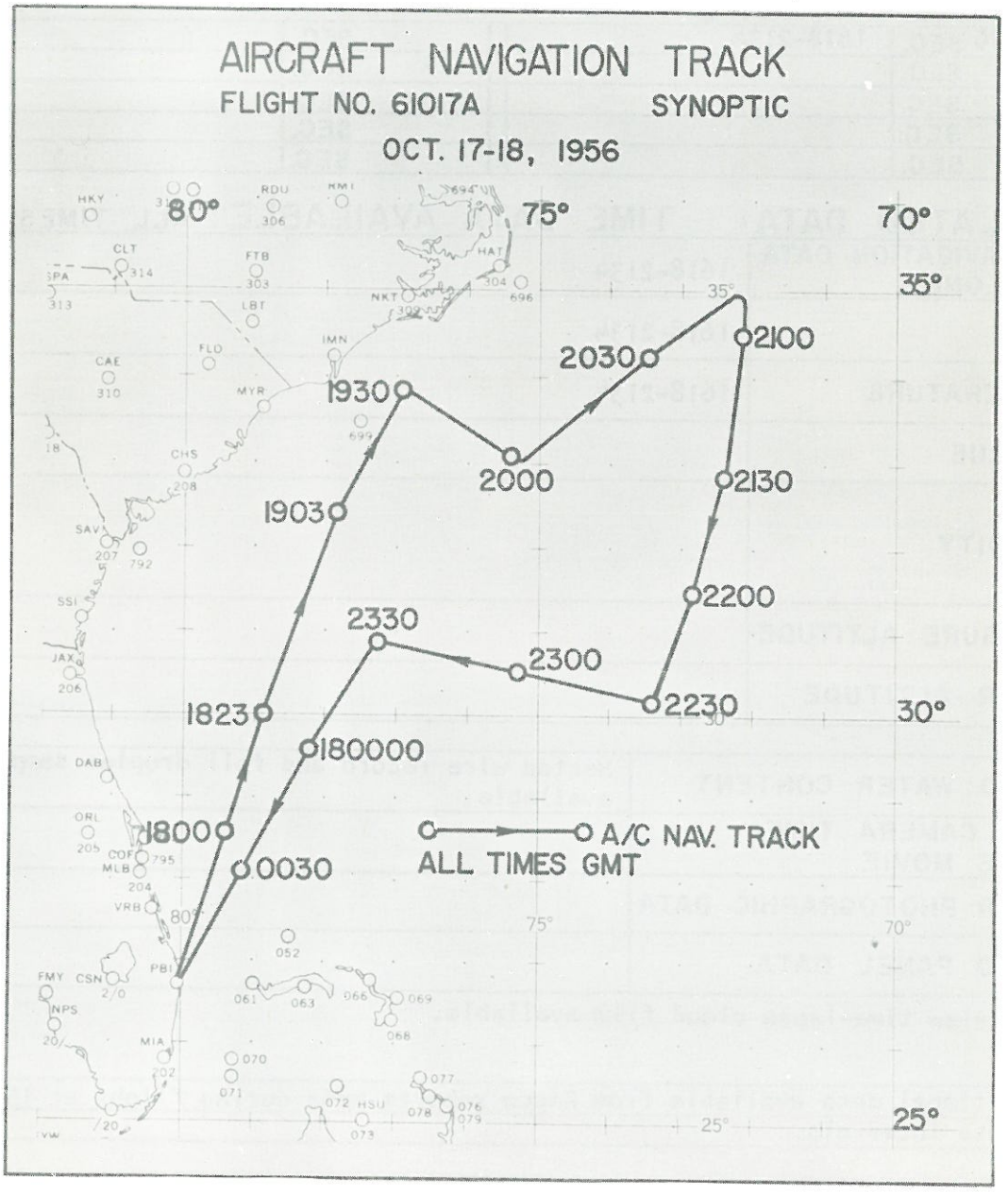
DATA SAMPLING RATE:

30	SEC.	1723-1824	1-2	SEC.	2046-2048
1-44	SEC.	1903-1912	20	SEC.	2048-2307
30-38	SEC.	1912-2002	1-60	SEC.	2307-0114
6	SEC.	2002-2010		SEC.	
20	SEC.	2010-2035		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	
WIND	1723-1824; 1903-2035; 2046-0114
TEMPERATURE	1723-1824; 1903-2035; 2046-0114
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61017A
SYNOPTIC
OCT. 17-18, 1956
80°
75°
70°
35°
30°
25°
1800
1823
1903
1930
2000
2030
2100
2130
2200
2230
2300
2330
180000
0030
A/C NAV. TRACK
ALL TIMES GMT
HKY
CLT
FTB
RDU
RMI
HAT
NKT
LBT
IMN
FLO
CAE
MYR
CHS
SAV
SSI
JAX
DAB
ORL
COF
MLB
VRB
PBI
FMY
CSN
NPS
MIA
HSU

TYPE OF FLIGHT Synoptic DATE October 19, 1956

FLIGHT NO. 61019A DATA TABULATED FROM 1618
TO 2134

FLIGHT PRESSURE ALTITUDE 7,500 Ft. till 1730; 9,000 Ft. till 1918;
7,500 Ft. till 2100; 6,000 Ft. till 2134

DATA SAMPLING RATE:

120-170 SEC.	1618-2134	SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

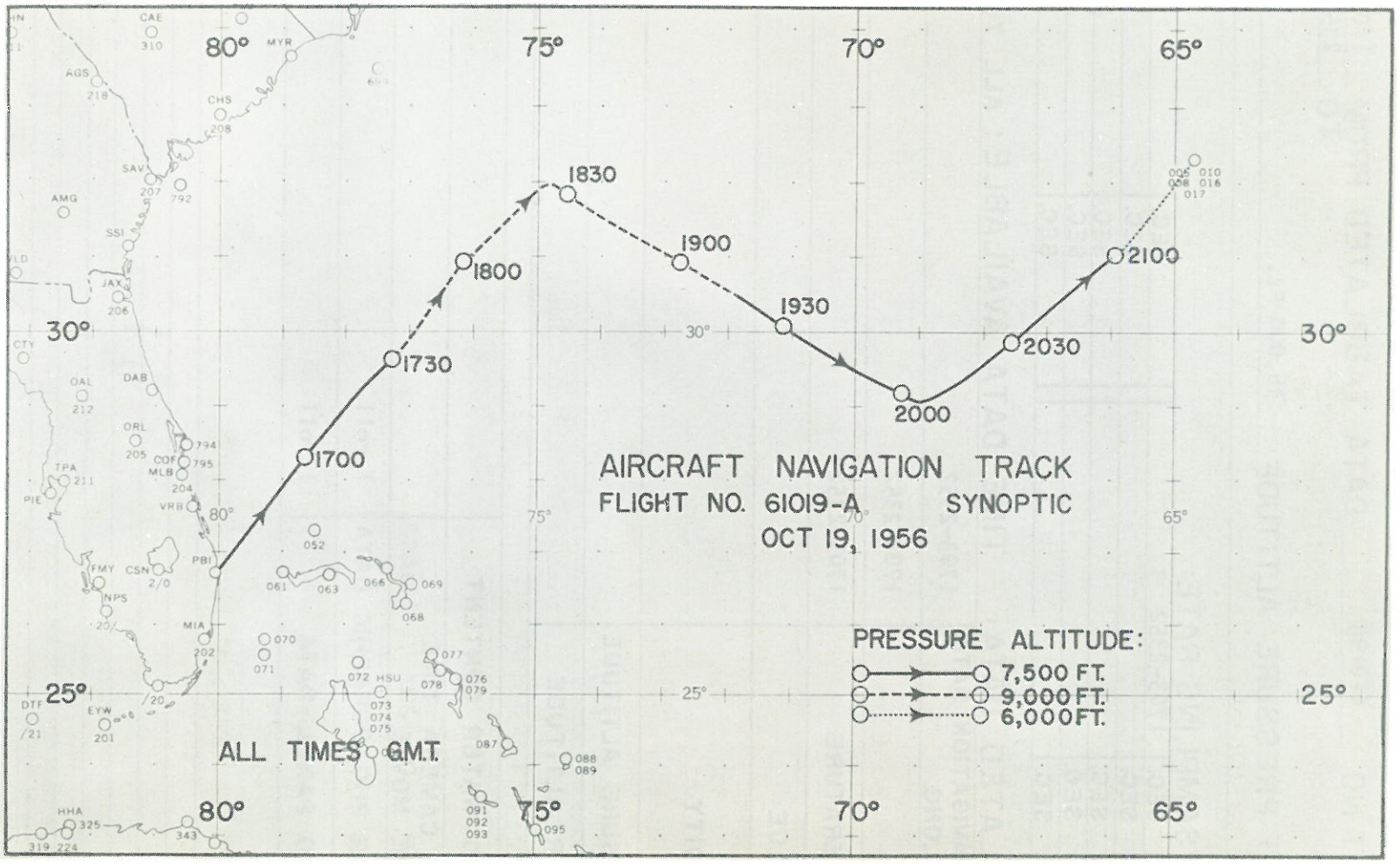
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1618-2134
WIND	1618-2134
TEMPERATURE	1618-2134
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	Heated wire record and foil droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	

Side view time-lapse cloud film available.

Additional data available from Recco reports made during flight at 15-30 minute intervals.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61019-A SYNOPTIC
OCT 19, 1956
PRESSURE ALTITUDE:
7,500 FT.
9,000 FT.
6,000 FT.
ALL TIMES G.M.T.
1700
1730
1800
1830
1900
1930
2000
2030
2100
80°
75°
70°
65°
30°
25°
MYR
CAE
AGS
CHS
SAV
AMG
SSI
JAX
CTY
OAL
DAB
ORL
COF
MLB
TPA
PIE
VRB
PBI
FMY
CSN
NPS
MIA
DTF
EYW
HHA
HSU

TYPE OF FLIGHT Synoptic DATE October 19, 1956

FLIGHT NO. 61019C DATA TABULATED FROM 1703
TO 2352

FLIGHT PRESSURE ALTITUDE 36,000 Ft.

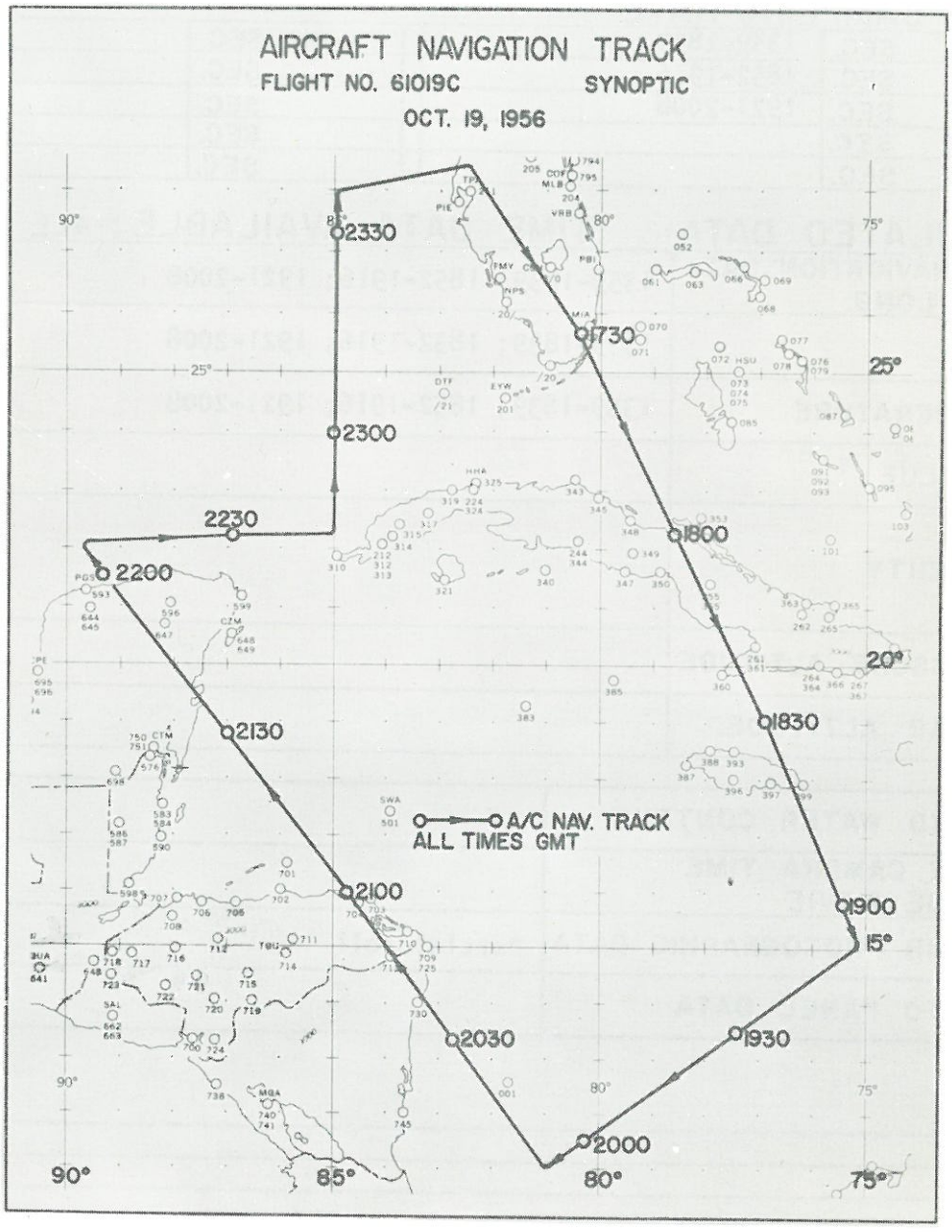
DATA SAMPLING RATE:

25	SEC.	1703-2352		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1703-2352
WIND	1703-2352
TEMPERATURE	1703-2352
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61019C
SYNOPTIC
OCT. 19, 1956
2330
2300
2230
2200
2130
2100
2030
2000
1930
1900
1830
1800
1730
A/C NAV. TRACK
ALL TIMES GMT
90°
85°
80°
75°
25°
20°
15°

TYPE OF FLIGHT Synoptic DATE October 30, 1956

FLIGHT NO. 61030C DATA TABULATED FROM 1359
TO 2008

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

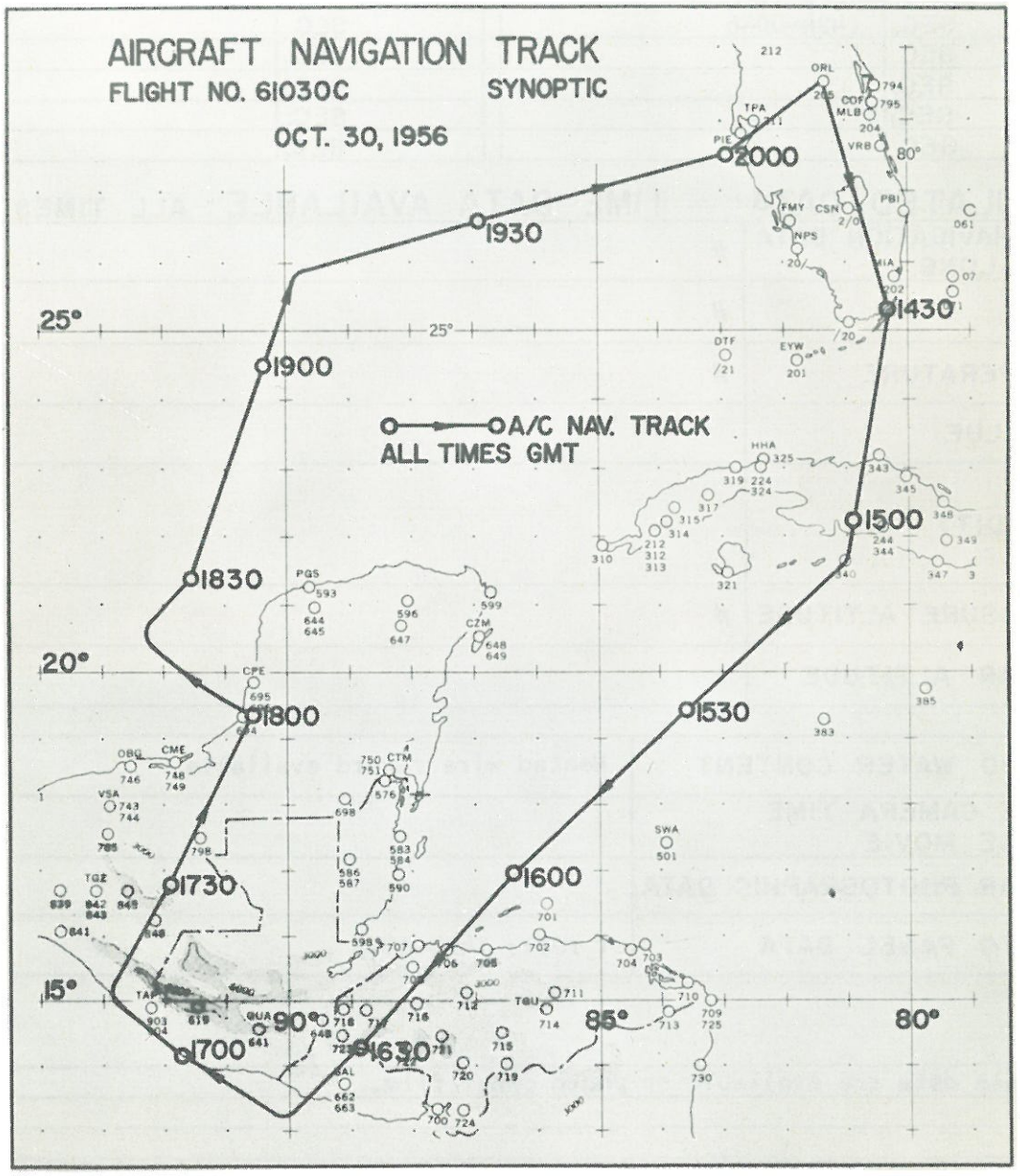
DATA SAMPLING RATE:

25	SEC.	1359-1839		SEC.	
25	SEC.	1852-1916		SEC.	
25	SEC.	1921-2008		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1359-1839; 1852-1916; 1921-2008
WIND	1359-1839; 1852-1916; 1921-2008
TEMPERATURE	1359-1839; 1852-1916; 1921-2008
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	Partial roll
PHOTO PANEL DATA	


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61030C
SYNOPTIC
OCT. 30, 1956
A/C NAV. TRACK
ALL TIMES GMT
1430
1500
1530
1600
1630
1700
1730
1800
1830
1900
1930
2000
25°
20°
15°
80°
85°
90°

TYPE OF FLIGHT CLOUD PHYSICS DATE October 31, 1956

FLIGHT NO. 61031B DATA TABULATED FROM _____
TO _____

FLIGHT PRESSURE ALTITUDE 6,000 Ft. (altitude varied frequently)

DATA SAMPLING RATE:

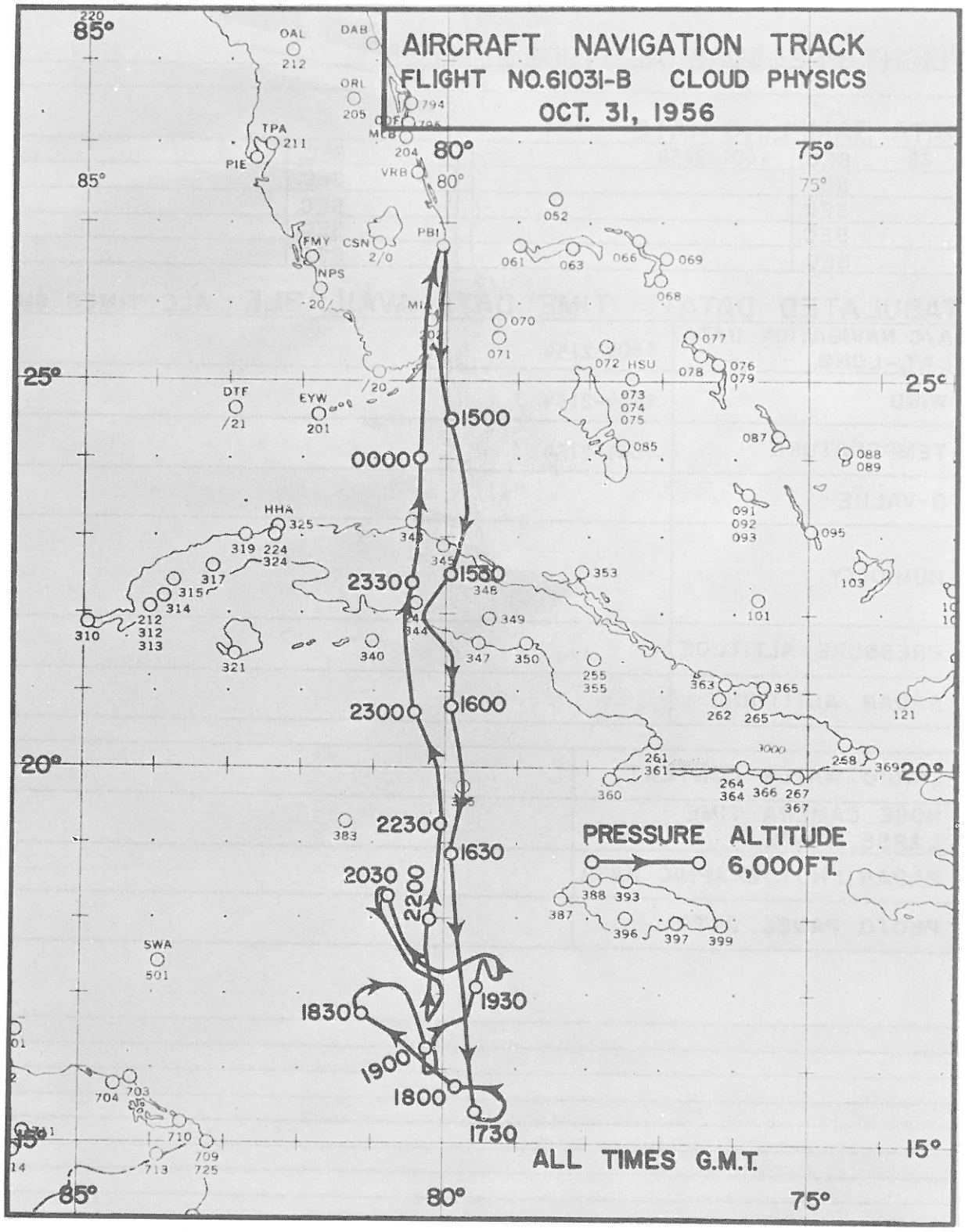
50	SEC.	1424-0046		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	#
WIND	#
TEMPERATURE	#
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	#
RADAR ALTITUDE	

LIQUID WATER CONTENT	Heated wire record available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1424-0046

These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO.61031-B CLOUD PHYSICS
OCT. 31, 1956
PRESSURE ALTITUDE
6,000FT.
ALL TIMES G.M.T.
0000
1500
1530
2330
1600
2300
2230
1630
2030
2200
1930
1830
1900
1800
1730
85°
80°
75°
25°
20°
15°
OAL
DAB
ORL
TPA
PIE
VRB
PBI
FMY
CSN
NPS
DTF
EYW
HHA
HSU
SWA

TYPE OF FLIGHT Synoptic DATE November 1, 1956

FLIGHT NO. 61101C DATA TABULATED FROM 1601
TO 2154

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

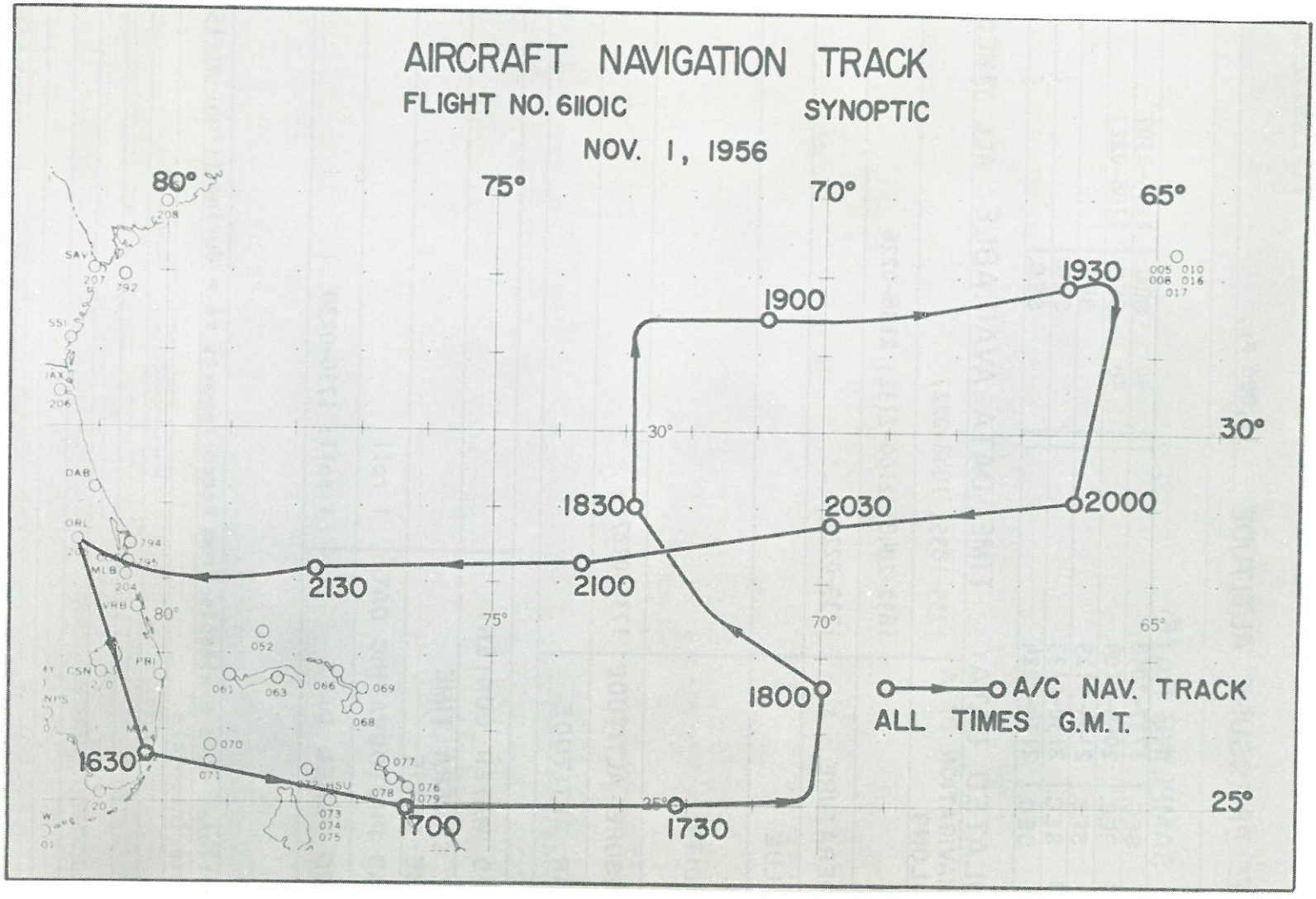
DATA SAMPLING RATE:

25	SEC.	1601-2154		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1601-2154
WIND	1704-2154
TEMPERATURE	1601-2154
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61101C
SYNOPTIC
NOV. 1, 1956
80°
75°
70°
65°
30°
25°
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
A/C NAV. TRACK
ALL TIMES G.M.T.

TYPE OF FLIGHT Hurricane GRETA DATE November 2, 1956

FLIGHT NO. 61102B DATA TABULATED FROM 1735
TO 0227

FLIGHT PRESSURE ALTITUDE 10,000 Ft.

DATA SAMPLING RATE:

50	SEC.	1737-2058	40	SEC.	2255-2307
4-50	SEC.	2059-2104	50	SEC.	2308-0227
10	SEC.	2104-2129		SEC.	
5-10	SEC.	2130-2133		SEC.	
10	SEC.	2134-2224		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1735-1835; 1848-0227
WIND	1832-2048; 2100-2132; 2138-0226
TEMPERATURE	1735-0227
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1735-0227
RADAR ALTITUDE	

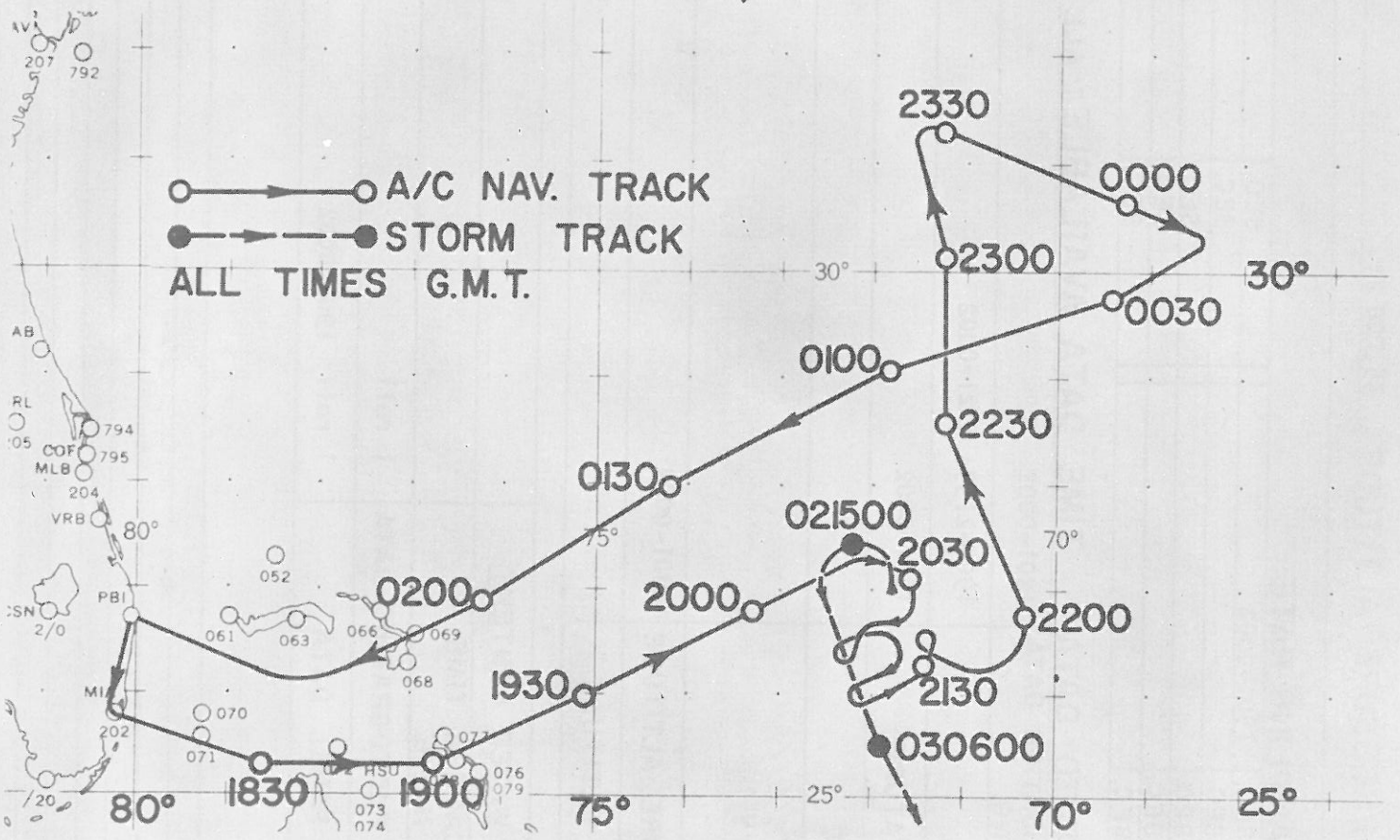
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1730-0230

Additional data available from Recco reports made during flight at 15-30 minute intervals.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 61102B GRETA

NOV. 2-3, 1956



TYPE OF FLIGHT Hurricane GRETA DATE November 2, 1956

FLIGHT NO. 61102C DATA TABULATED FROM 1901
TO 0002

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

25	SEC.	1901-0002		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

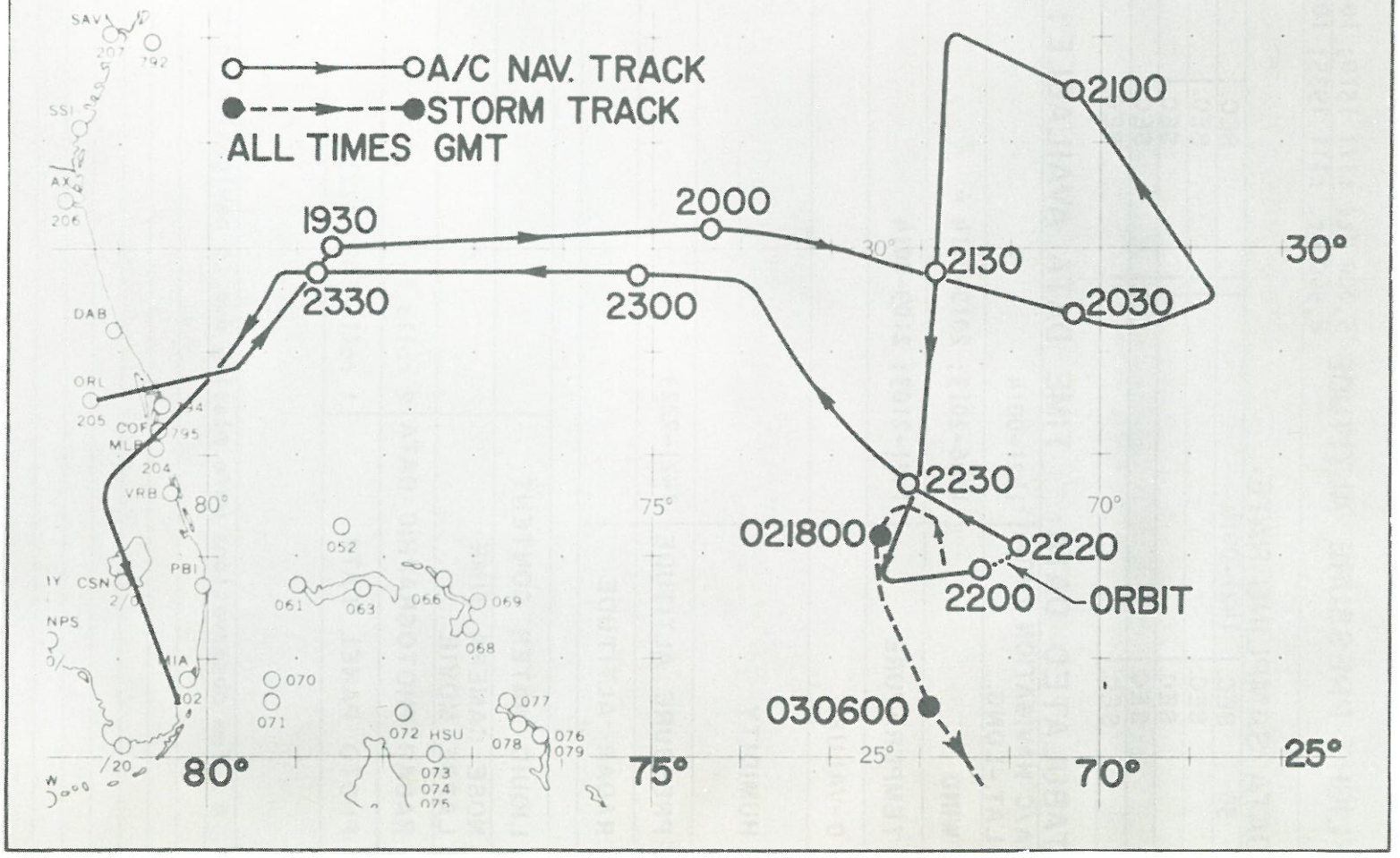
A/C NAVIGATION DATA LAT.-LONG.	1901-0002
WIND	1904-2153; 2221-0002
TEMPERATURE	1901-0002
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1901-0002
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1902-0002

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 61102C GRETA

NOV. 2, 1956



TYPE OF FLIGHT Hurricane GRETA DATE November 4, 1956

FLIGHT NO. 61104A DATA TABULATED FROM 1421
TO 0014

FLIGHT PRESSURE ALTITUDE 5,000 Ft. till 1510; 10,000 Ft. till 1850; 8,500 Ft. till 1935; 10,000 Ft. till 0014

DATA SAMPLING RATE:

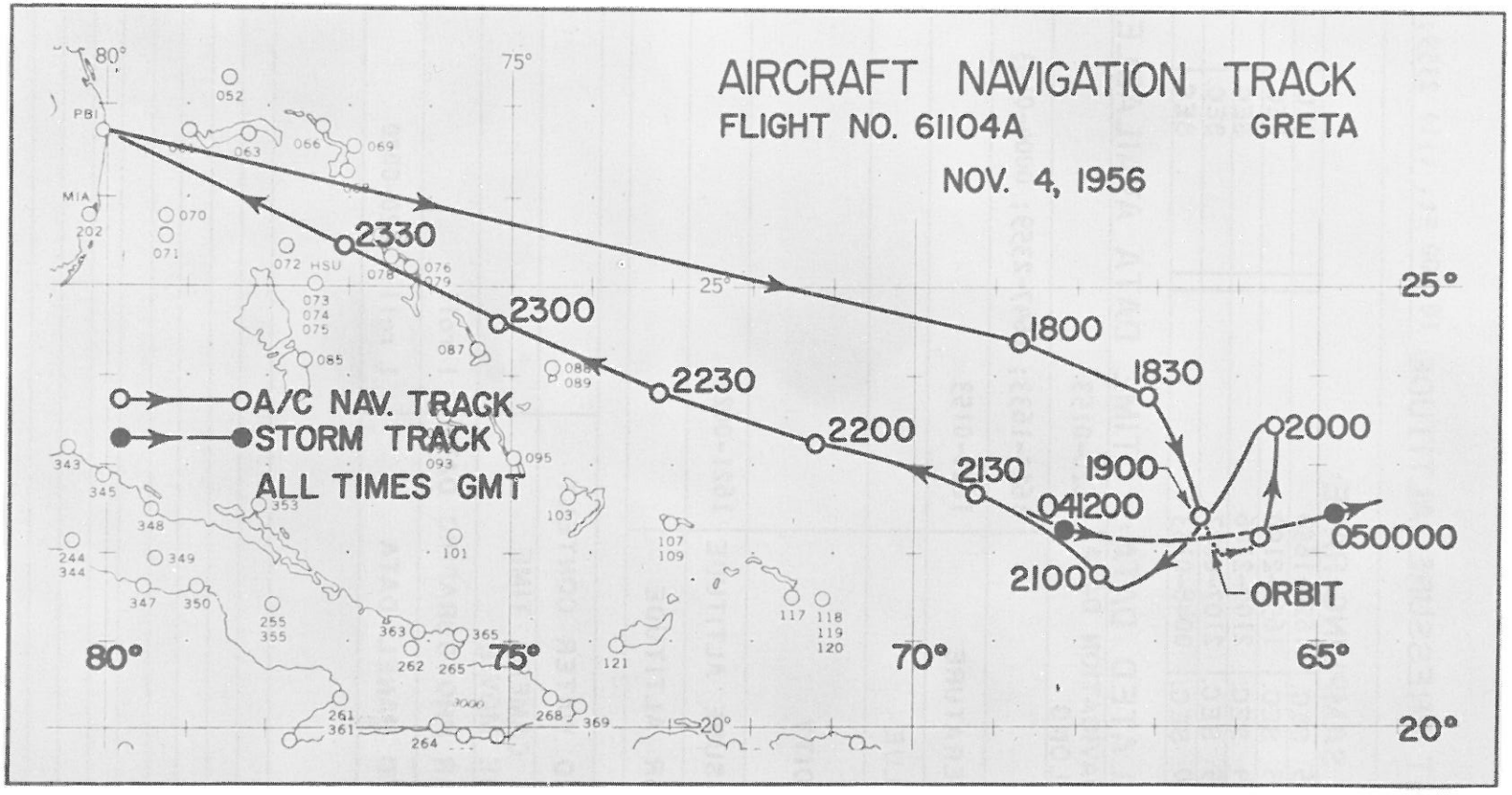
50	SEC.	1421-0014	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1421-0014
WIND	1746-2013; 2018-0014 *
TEMPERATURE	1421-2103; 2109-0014
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1421-2223
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls
PHOTO PANEL DATA	1 roll: 1420-2223

* A few observations were missing due to navigation equipment in memory mode.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61104A
GRETA
NOV. 4, 1956
A/C NAV. TRACK
STORM TRACK
ALL TIMES GMT
2330
2300
2230
2200
2130
2100
1800
1830
1900
2000
041200
050000
ORBIT
80°
75°
70°
65°
25°
20°
PBI
MIA
HSU

TYPE OF FLIGHT Hurricane GRETA DATE November 5, 1956

FLIGHT NO. 61105A DATA TABULATED FROM 1620
TO 0153

FLIGHT PRESSURE ALTITUDE 10,000 Ft. till 2359; 18,000 Ft. till 0153

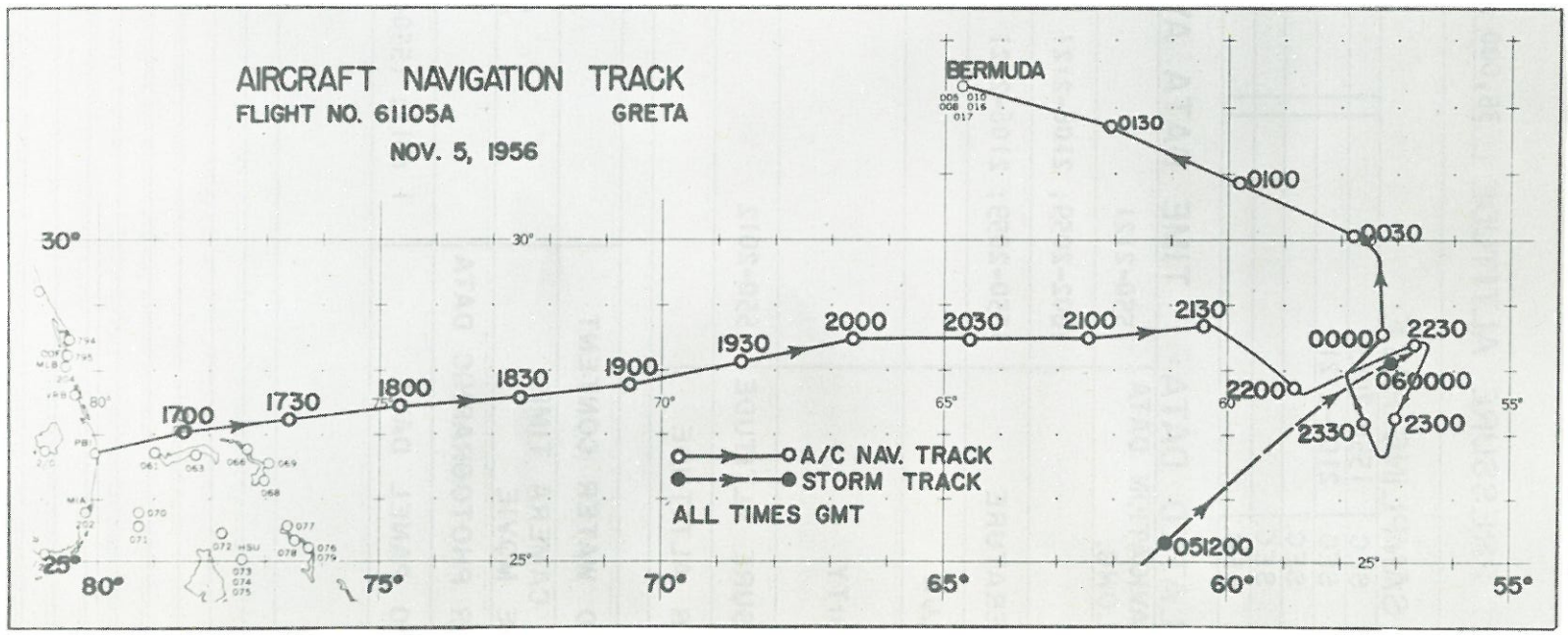
DATA SAMPLING RATE:

30-45 SEC.	1620-1650	SEC.	
47-53 SEC.	1650-2100	SEC.	
30-34 SEC.	2100-2106	SEC.	
14-25 SEC.	2107-0047	SEC.	
45-50 SEC.	0048-0153	SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1620-0153
WIND	1625-1633; 1647-2359; 0004-0153
TEMPERATURE	1620-0153
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1621-0025
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1620-0020


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61105A
GRETA
NOV. 5, 1956
BERMUDA
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
2200
2230
2300
2330
0000
0030
0100
0130
060000
051200
A/C NAV. TRACK
STORM TRACK
ALL TIMES GMT
30°
25°
80°
75°
70°
65°
60°
55°

TYPE OF FLIGHT Hurricane GRETA DATE November 5, 1956

FLIGHT NO. 61105C DATA TABULATED FROM 1550
TO 2121

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

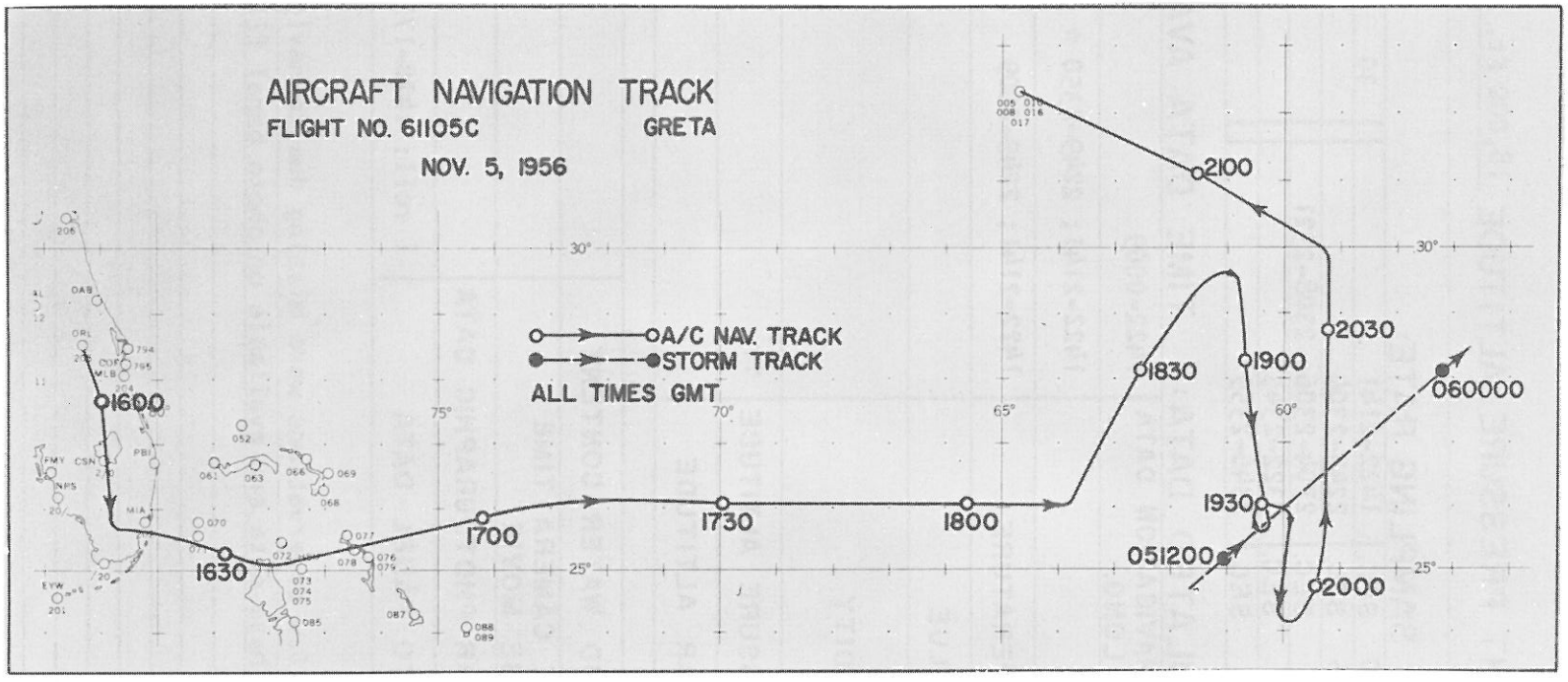
DATA SAMPLING RATE:

25	SEC.	1550-2059	SEC.	
25	SEC.	2106-2121	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1550-2121
WIND	1602-2059; 2106-2121
TEMPERATURE	1550-2059; 2106-2121
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1550-2012
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1550-2112


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61105C
GRETA
NOV. 5, 1956
A/C NAV. TRACK
STORM TRACK
ALL TIMES GMT
1600
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
051200
060000
30°
25°
75°
70°
65°
60°

TYPE OF FLIGHT Synoptic DATE November 13, 1956

FLIGHT NO. 61113A DATA TABULATED FROM 1422
TO 0009

FLIGHT PRESSURE ALTITUDE 18,000 Ft. till 2320; 10,000 Ft. till 0009

DATA SAMPLING RATE:

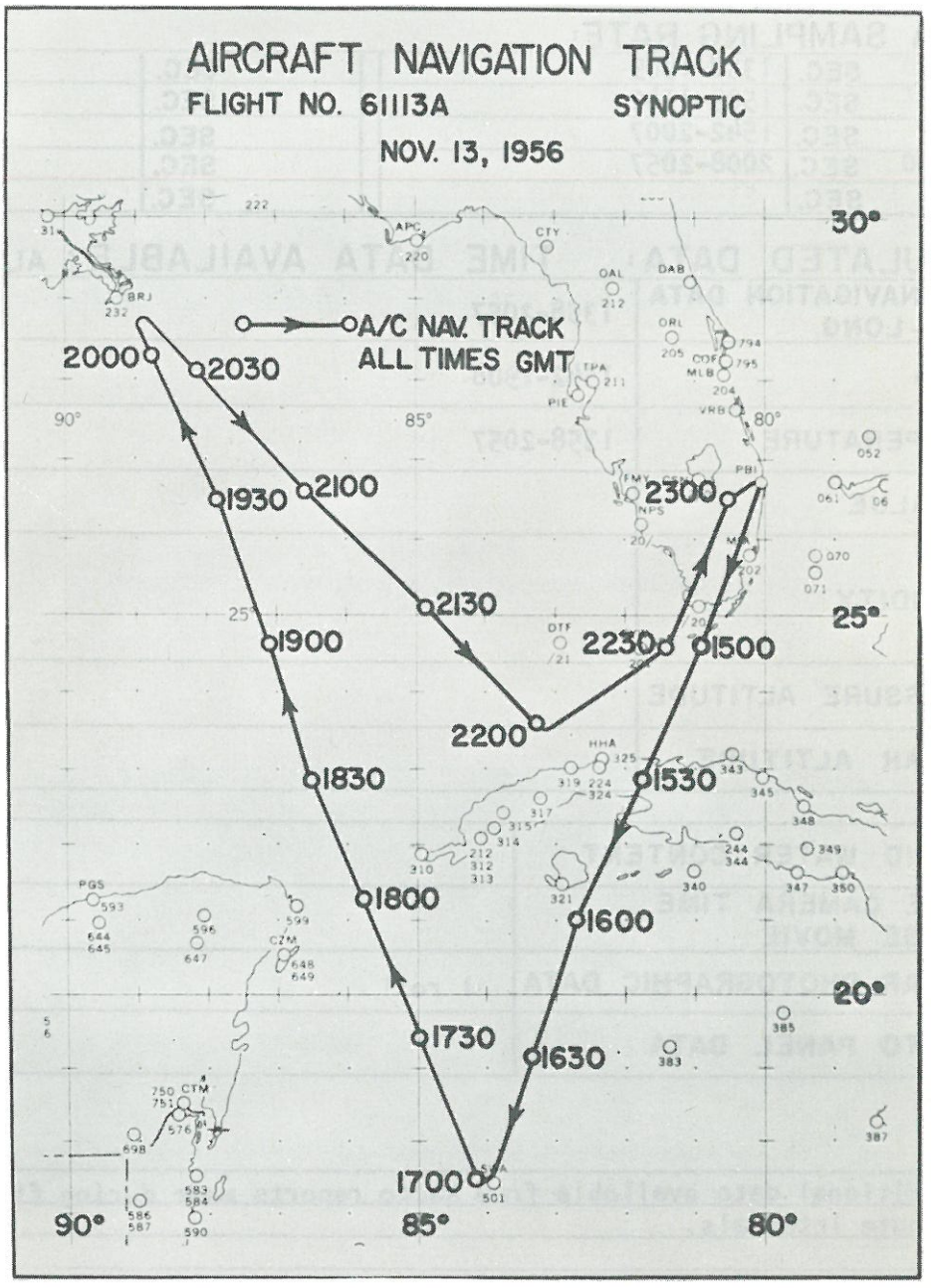
75-90	SEC.	1422-2141	30	SEC.	2359-0009
60-75	SEC.	2249-2304		SEC.	
10	SEC.	2304-2306; 2308-2321		SEC.	
50	SEC.	2322-2345		SEC.	
10	SEC.	2346-2359		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1422-0009
WIND	1422-2141; 2249-2350 *
TEMPERATURE	1422-2141; 2249-0009
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1420-1717

* A few observations were missing due to navigation equipment in memory mode.
†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61113A
SYNOPTIC
NOV. 13, 1956
A/C NAV. TRACK
ALL TIMES GMT
2000
2030
2100
2130
2200
2230
2300
1930
1900
1830
1800
1730
1700
1630
1600
1530
1500
30°
25°
20°
90°
85°
80°

TYPE OF FLIGHT Synoptic DATE November 17, 1956

FLIGHT NO. 61117C DATA TABULATED FROM 1358
TO 2057

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

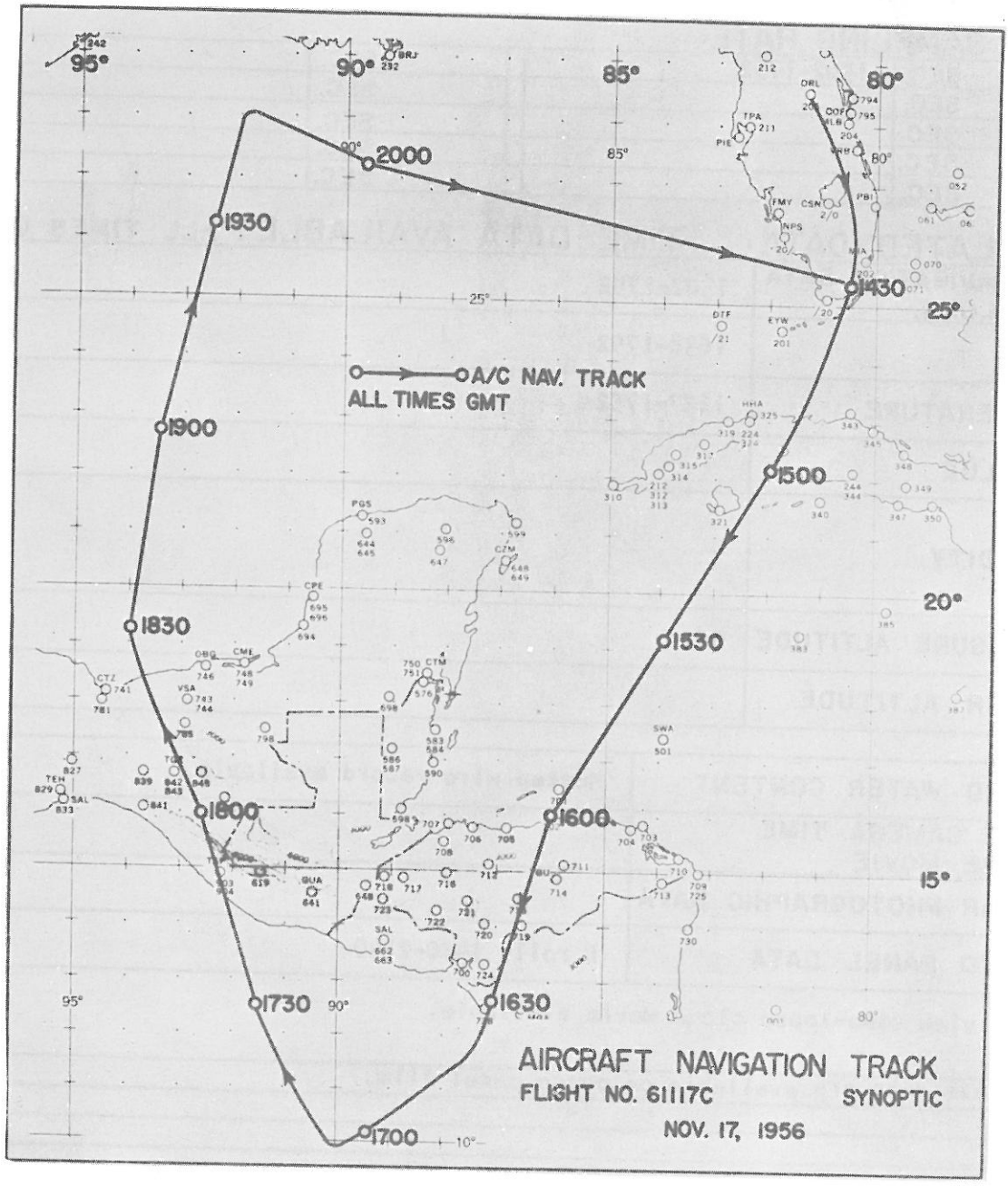
18	SEC.	1358-1509		SEC.	
35	SEC.	1509-1542		SEC.	
17	SEC.	1542-2007		SEC.	
16-60	SEC.	2008-2057		SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1358-2057
WIND	1542-1908
TEMPERATURE	1358-2057
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	

Additional data available from Recco reports made during flight at 15-30 minute intervals.


95°
90°
85°
80°
25°
20°
15°
10°
2000
1930
1900
1830
1800
1730
1700
1630
1600
1530
1500
1430
A/C NAV. TRACK
ALL TIMES GMT
AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61117C
SYNOPTIC
NOV. 17, 1956

TYPE OF FLIGHT Cloud Physics DATE November 19, 1956

FLIGHT NO. 61119B DATA TABULATED FROM 1502
TO 1752

FLIGHT PRESSURE ALTITUDE 6,700 Ft.

DATA SAMPLING RATE:

50	SEC.	1502-1752		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

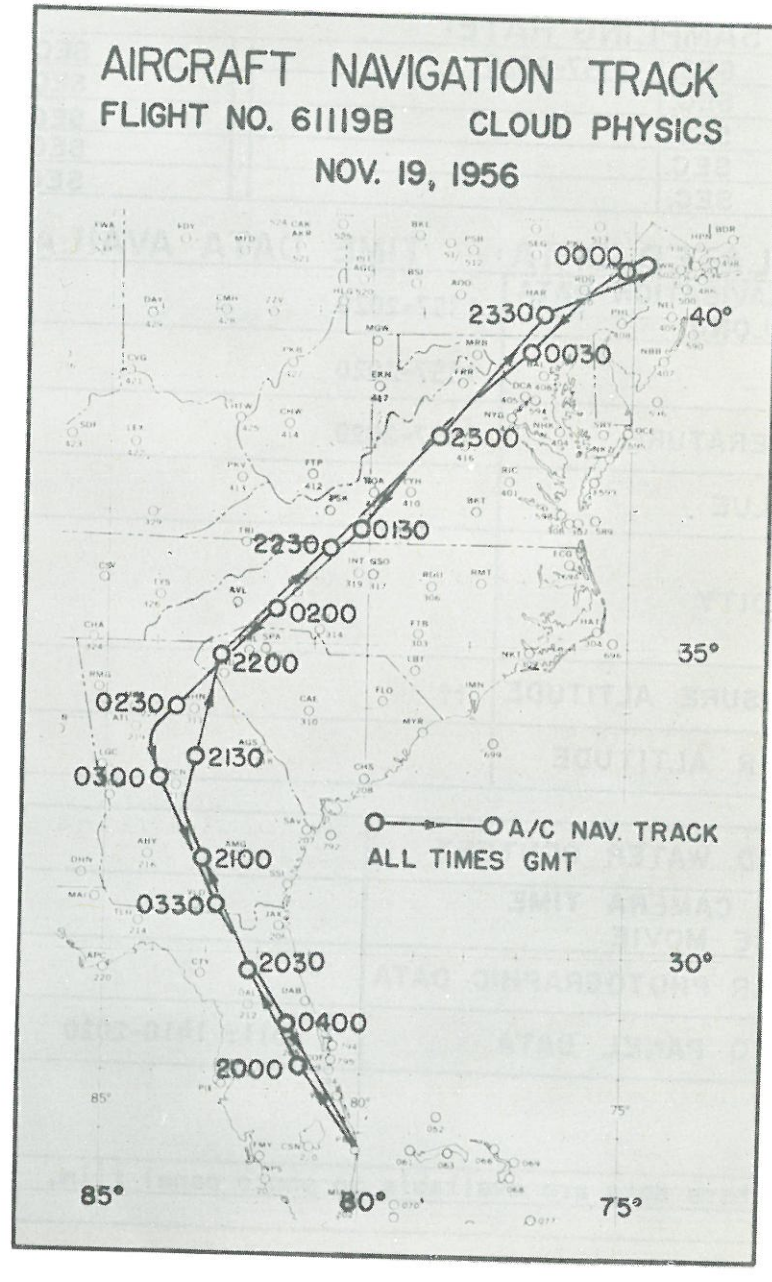
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1502-1752
WIND	1638-1752
TEMPERATURE	1637-1752
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	Heated wire record available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1430-2140

Side view time-lapse cloud movie available.

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61119B CLOUD PHYSICS
NOV. 19, 1956
0000
2330
0030
2300
0130
2230
0200
2200
0230
2130
0300
2100
0330
2030
0400
2000
40°
35°
30°
85°
80°
75°
A/C NAV. TRACK
ALL TIMES GMT

TYPE OF FLIGHT Synoptic DATE November 20, 1956

FLIGHT NO. 61120C DATA TABULATED FROM 1357
TO 2020

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

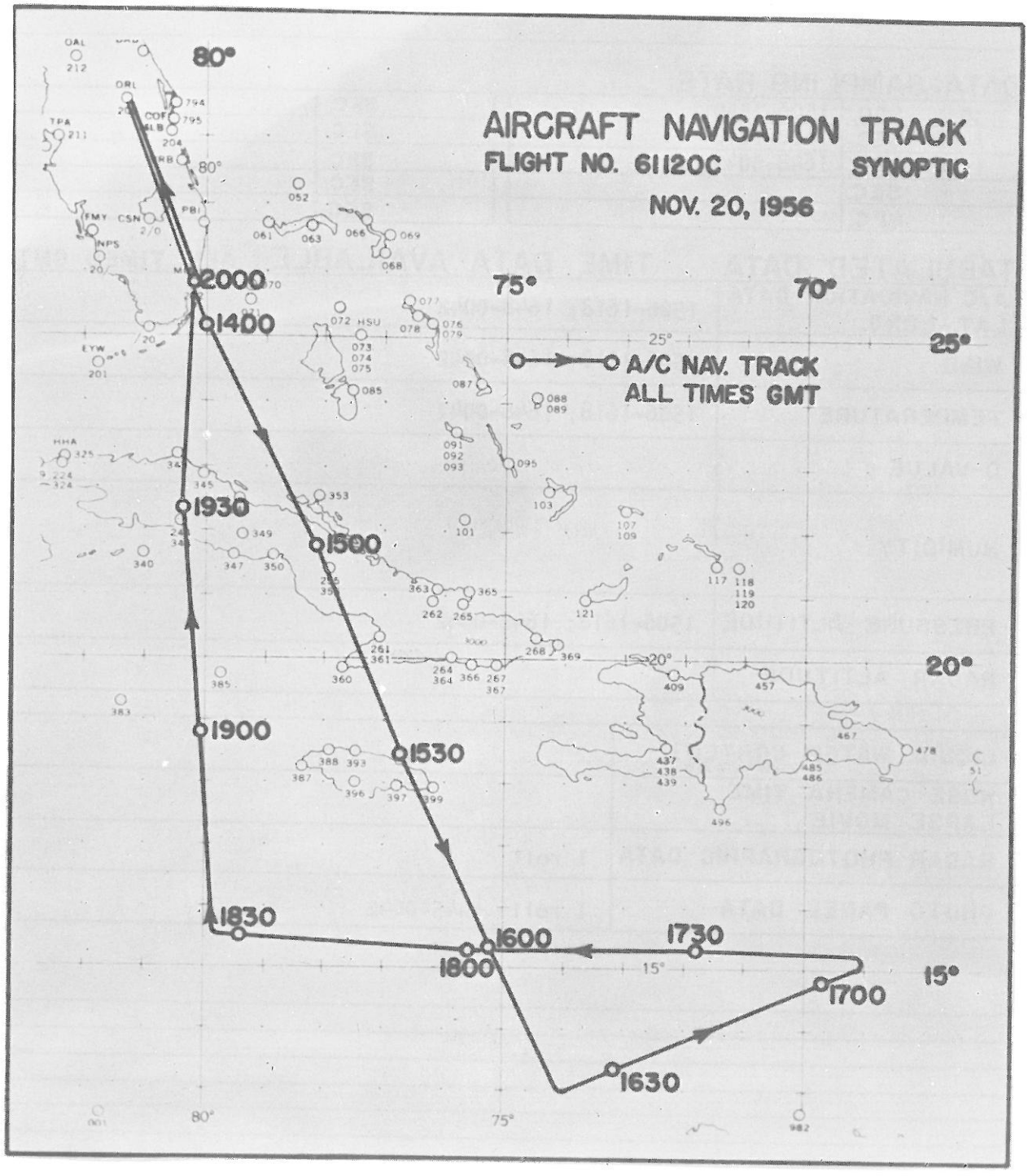
25	SEC.	1357-2020		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1357-2020
WIND	1357-2020
TEMPERATURE	1357-2020
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1410-2020

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61120C
SYNOPTIC
NOV. 20, 1956
A/C NAV. TRACK
ALL TIMES GMT
80°
75°
70°
25°
20°
15°
2000
1400
1930
1500
1900
1530
1830
1600
1800
1730
1700
1630

TYPE OF FLIGHT Synoptic DATE November 21, 1956

FLIGHT NO. 61121A DATA TABULATED FROM 1506
TO 0042

FLIGHT PRESSURE ALTITUDE 1,000 Ft. till 1558; 10,000 Ft. till 0042

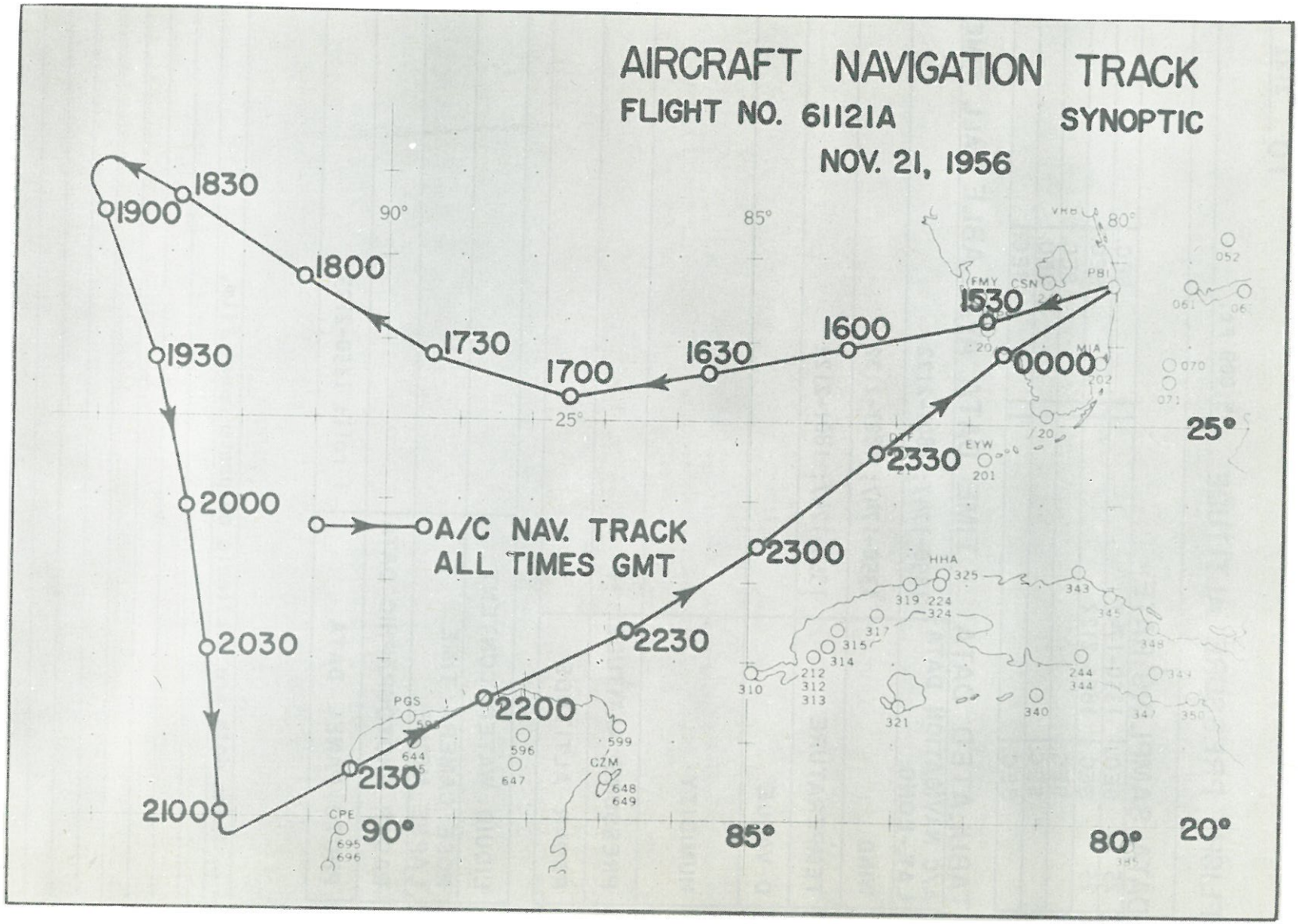
DATA SAMPLING RATE:

30	SEC.	1506-1559	SEC.	
1-60	SEC.	1600-1618	SEC.	
1-100	SEC.	1648-0042	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1506-1618; 1648-0042
WIND	1506-1618; 1648-0042
TEMPERATURE	1506-1618; 1648-0042
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1506-1618; 1648-0042
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1445-0042


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61121A
SYNOPTIC
NOV. 21, 1956
A/C NAV. TRACK
ALL TIMES GMT
1830
1900
1800
1730
1700
1630
1600
1530
0000
1930
2000
2030
2100
2130
2200
2230
2300
2330
90°
85°
80°
25°
20°
FMY
CSN
PBI
MIA
EYW
HHA
PGS
CZM
CPE

TYPE OF FLIGHT Synoptic DATE November 21, 1956

FLIGHT NO. 61121C DATA TABULATED FROM 1350
TO 2122

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

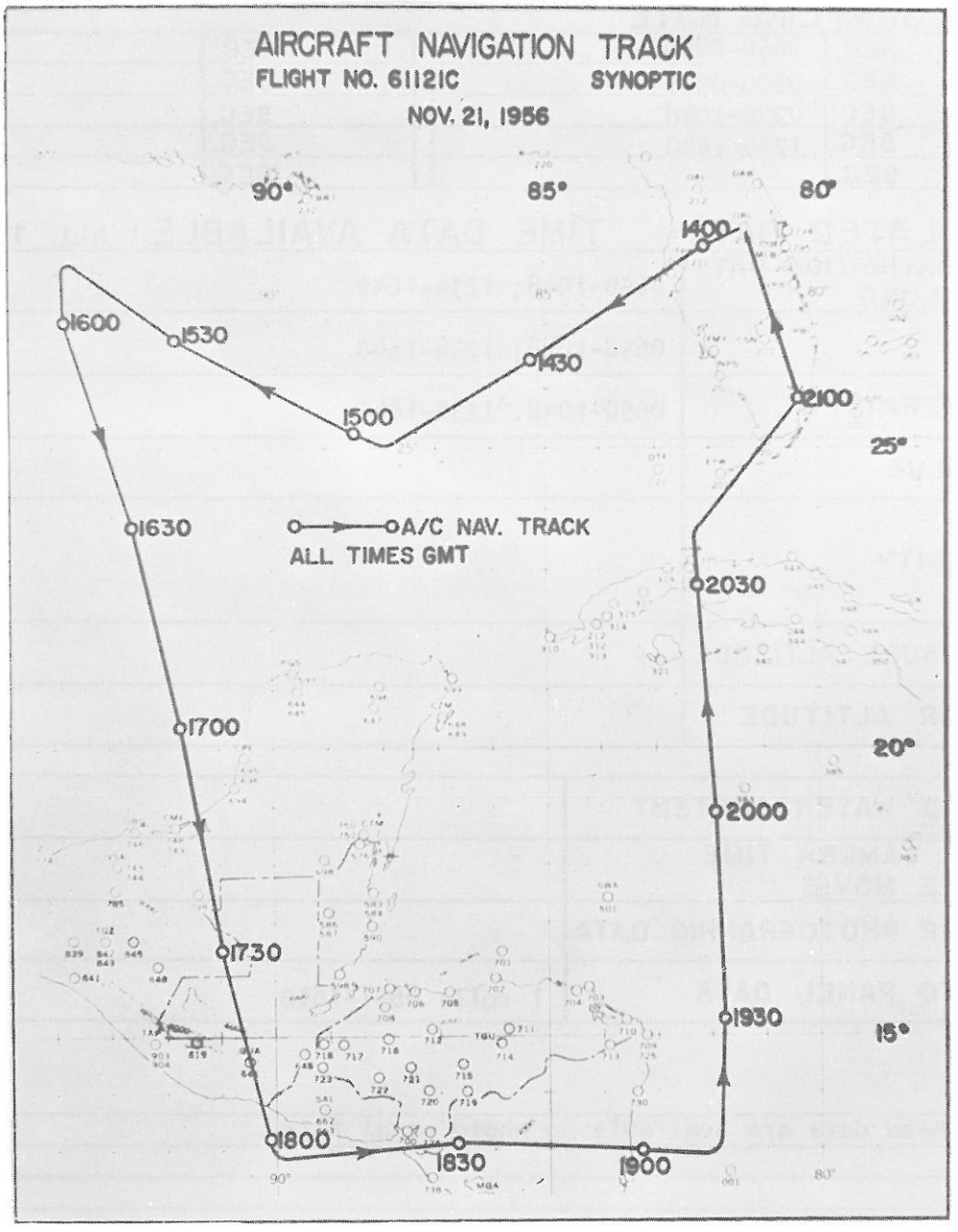
25	SEC.	1350-1747		SEC.	
25	SEC.	1801-2122		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1350-1747; 1801-2122
WIND	1350-1747; 1801-2122
TEMPERATURE	1350-1747; 1801-2122
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1350-2123

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61121C
SYNOPTIC
NOV. 21, 1956
90°
85°
80°
25°
20°
15°
1400
1430
1500
1530
1600
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
A/C NAV. TRACK
ALL TIMES GMT

TYPE OF FLIGHT Synoptic DATE November 29, 1956

FLIGHT NO. 61129B DATA TABULATED FROM 0650
TO 1640

FLIGHT PRESSURE ALTITUDE 5,000 Ft. till 0842; 9,000 Ft. till 1242; 16,000 Ft. till 1640

DATA SAMPLING RATE:

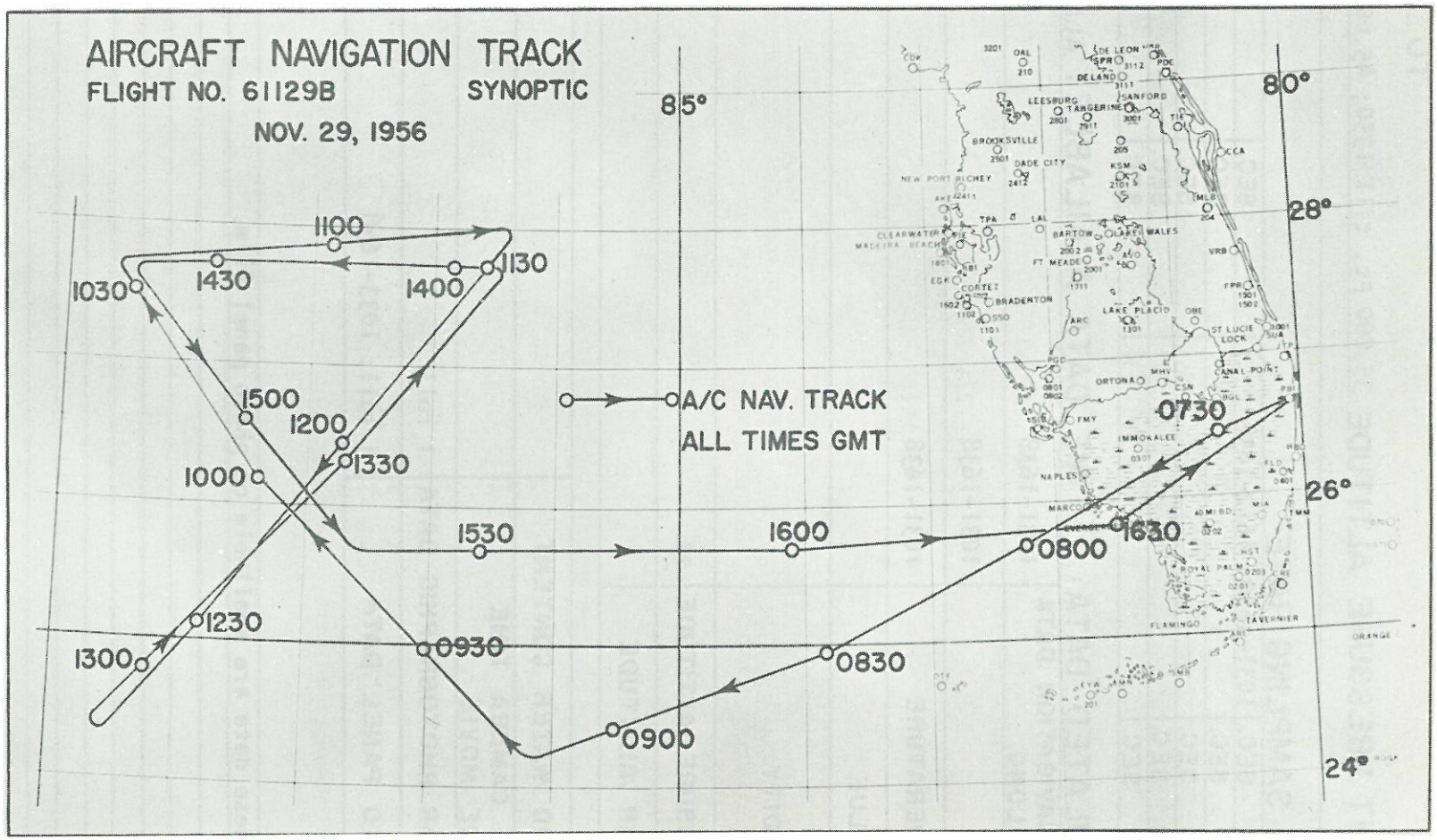
60	SEC.	0650-0800	SEC.	
50	SEC.	0800-0930	SEC.	
30	SEC.	0930-1048	SEC.	
50	SEC.	1234-1640	SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	0650-1048; 1234-1640
WIND	0650-1048; 1234-1640
TEMPERATURE	0650-1048; 1234-1640
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 0651-1610

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 61129B
SYNOPTIC
NOV. 29, 1956
85°
80°
28°
26°
24°
A/C NAV. TRACK
ALL TIMES GMT
1100
1130
1030
1430
1400
1500
1200
1330
1000
1530
1600
0730
0800
1630
1230
1300
0930
0830
0900
LEESBURG
TANGERINE
SANFORD
DELAND
BROOKSVILLE
DADE CITY
NEW PORT RICHEY
CLEARWATER
MADEIRA BEACH
BARTOW
LAKE WALES
FT MEADE
CORTEZ
BRADENTON
LAKE PLACID
ST LUCIE LOCK
CANAL POINT
ORTONA
IMMOKALEE
NAPLES
MARCO
EVERGLADES
ROYAL PALM
FLAMINGO
TAVERNIER

TYPE OF FLIGHT Synoptic DATE November 29, 1956

FLIGHT NO. 61129C DATA TABULATED FROM 1031
TO 1638

FLIGHT PRESSURE ALTITUDE 35,000 Ft. till 1350; 45,000 Ft. till 1630

DATA SAMPLING RATE:

25	SEC.	1031-1610; 1612-1638	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1031-1638
WIND	1031-1638
TEMPERATURE	1031-1638
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

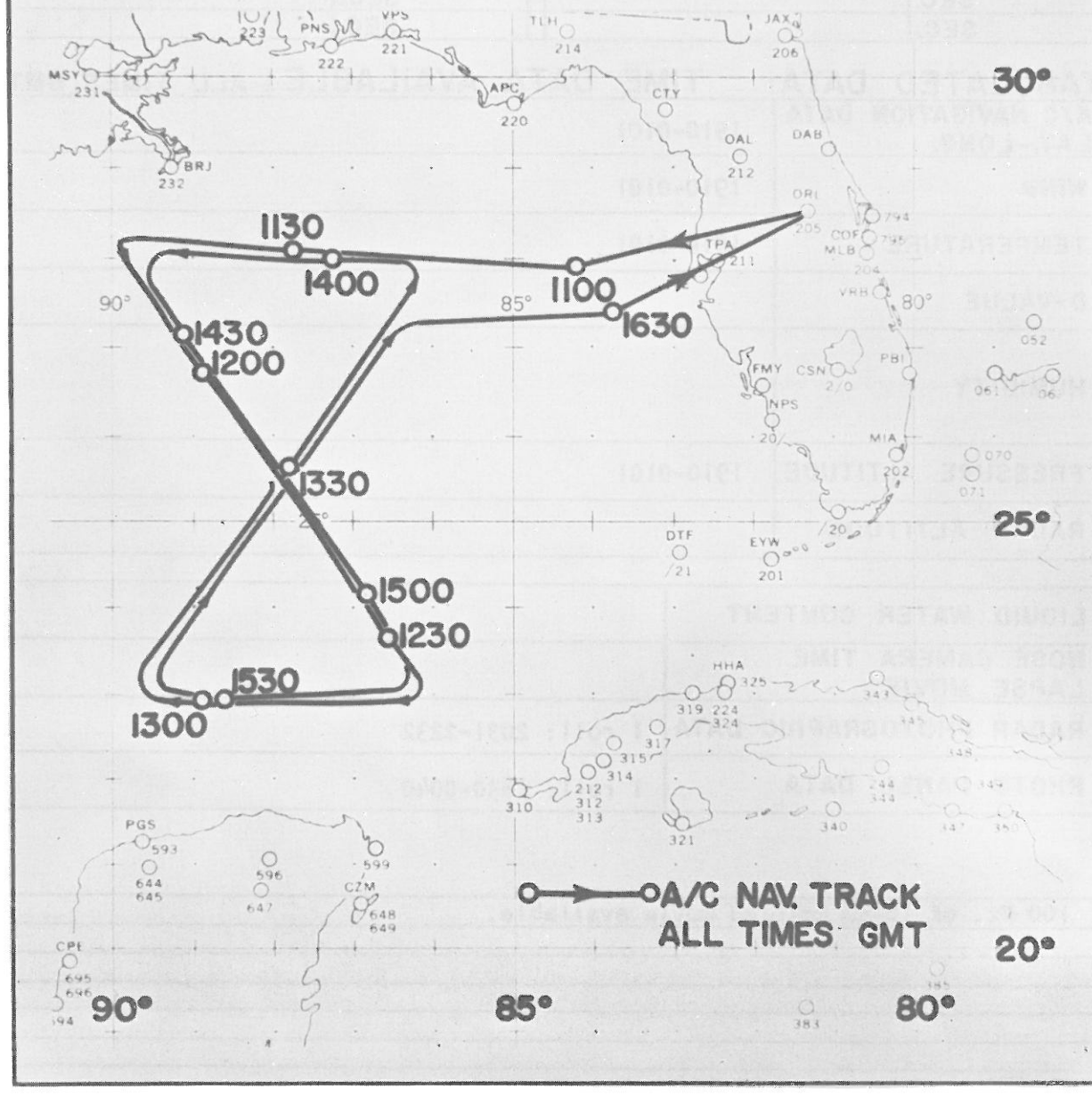
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1033-1648

†† These data are available on photo panel film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 61129C SYNOPTIC

NOV. 29, 1956



TYPE OF FLIGHT Hurricane AUDREY DATE June 27, 1957

FLIGHT NO. 70627C DATA TABULATED FROM 1910
TO 0101

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

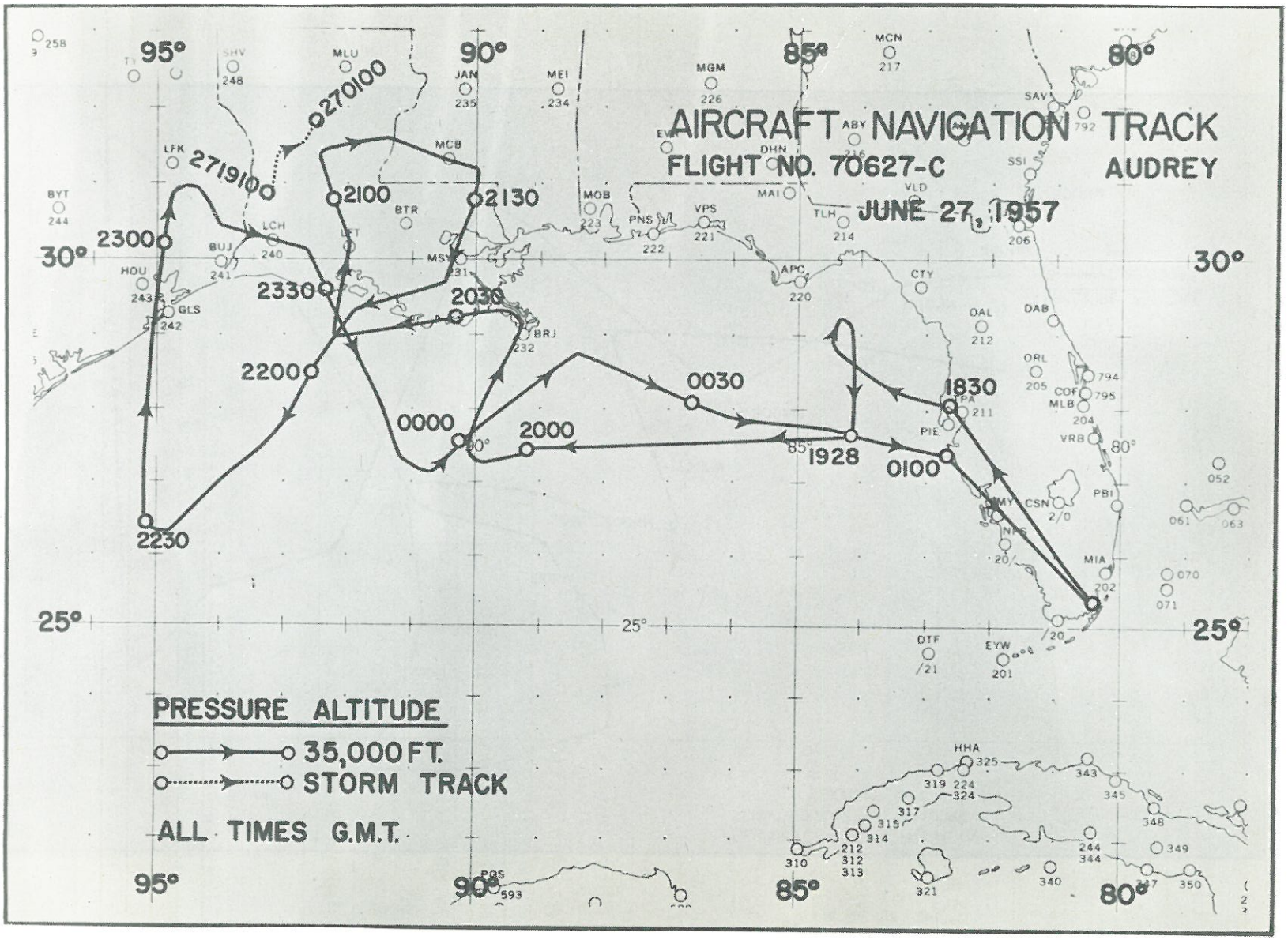
30	SEC.	1910-2055; 2057-2129	SEC.	
30	SEC.	2132-2245; 2248-0016	SEC.	
5	SEC.	0016-0029; 0031-0101	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

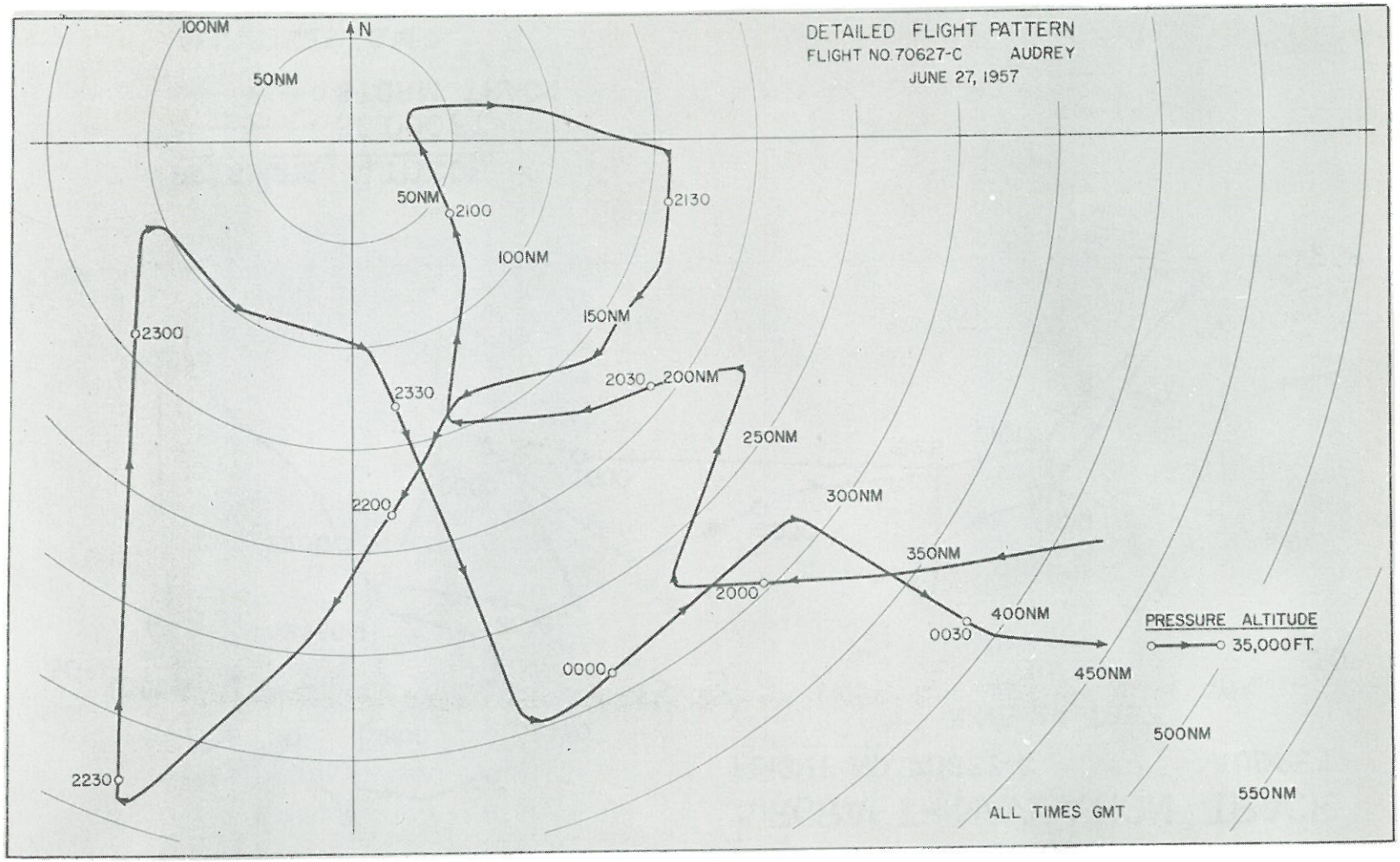
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1910-0101
WIND	1910-0101
TEMPERATURE	1910-0101
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1910-0101
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 2031-2232
PHOTO PANEL DATA	1 roll: 1830-0040

100 Ft. of 16-mm colored movie available.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70627-C
AUDREY
JUNE 27, 1957
PRESSURE ALTITUDE
35,000 FT.
STORM TRACK
ALL TIMES G.M.T.
95°
90°
85°
80°
30°
25°
2230
2300
2330
2200
2100
2130
2030
2000
0000
0030
1928
0100
1830
270100
271910


DETAILED FLIGHT PATTERN
FLIGHT NO. 70627-C AUDREY
JUNE 27, 1957
N
50NM
100NM
150NM
200NM
250NM
300NM
350NM
400NM
450NM
500NM
550NM
2100
2130
2300
2330
2200
2030
2000
0000
0030
2230
PRESSURE ALTITUDE
35,000 FT.
ALL TIMES GMT

TYPE OF FLIGHT Synoptic DATE July 3, 1957

FLIGHT NO. 70703C DATA TABULATED FROM 1514
TO 2158

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

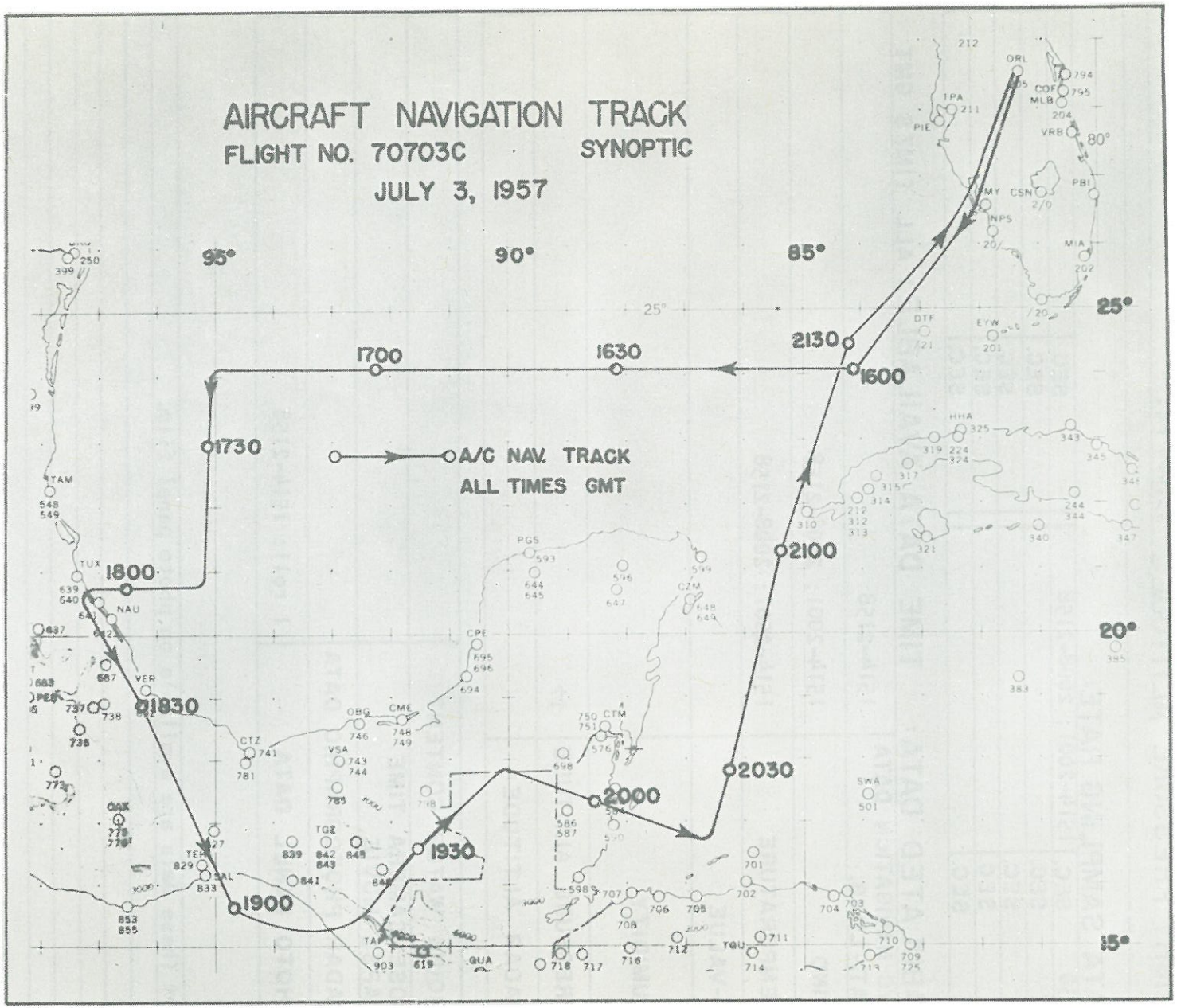
30 SEC.	1514-2001; 2008-2158		SEC.	
SEC.			SEC.	
SEC.			SEC.	
SEC.			SEC.	
SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1514-2158
WIND	1514-2001; 2008-2158
TEMPERATURE	1514-2001; 2008-2158
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1514-2158

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70703C
SYNOPTIC
JULY 3, 1957
A/C NAV. TRACK
ALL TIMES GMT
95°
90°
85°
80°
25°
20°
15°
1600
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130

TYPE OF FLIGHT Synoptic DATE July 11, 1957

FLIGHT NO. 70711C DATA TABULATED FROM 1804
TO 0047

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

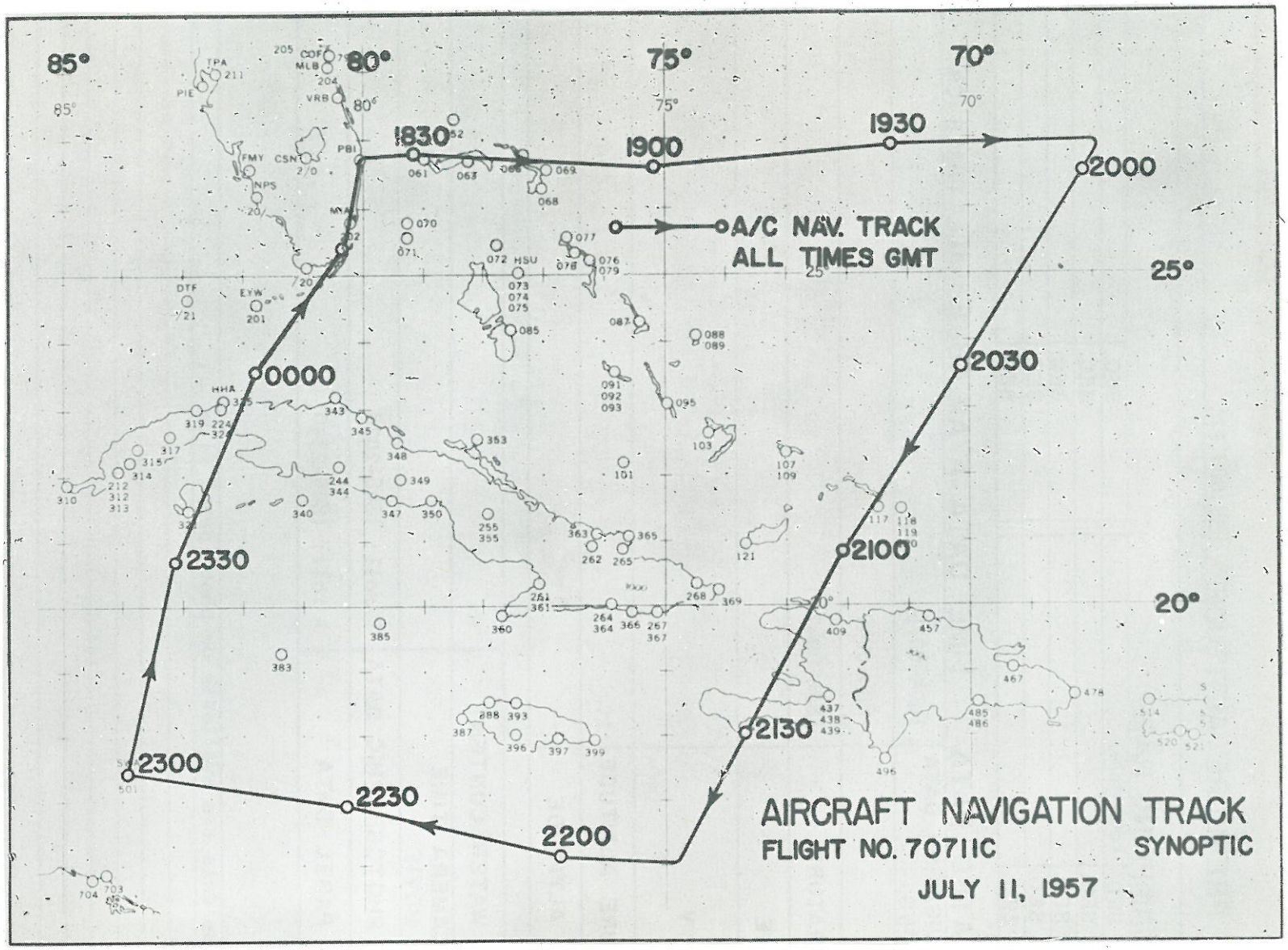
30	SEC.	1804-0047	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1804-0015
WIND	1804-0047
TEMPERATURE	1804-0047
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1848-2038
PHOTO PANEL DATA	1 roll: 1805-2340

†† These data are available on photo panel film.


85°
80°
75°
70°
25°
20°
1830
1900
1930
2000
2030
2100
2130
2200
2230
2300
2330
0000
A/C NAV. TRACK
ALL TIMES GMT
AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70711C
SYNOPTIC
JULY 11, 1957

TYPE OF FLIGHT Synoptic DATE July 15, 1957

FLIGHT NO. 70715C DATA TABULATED FROM
TO

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

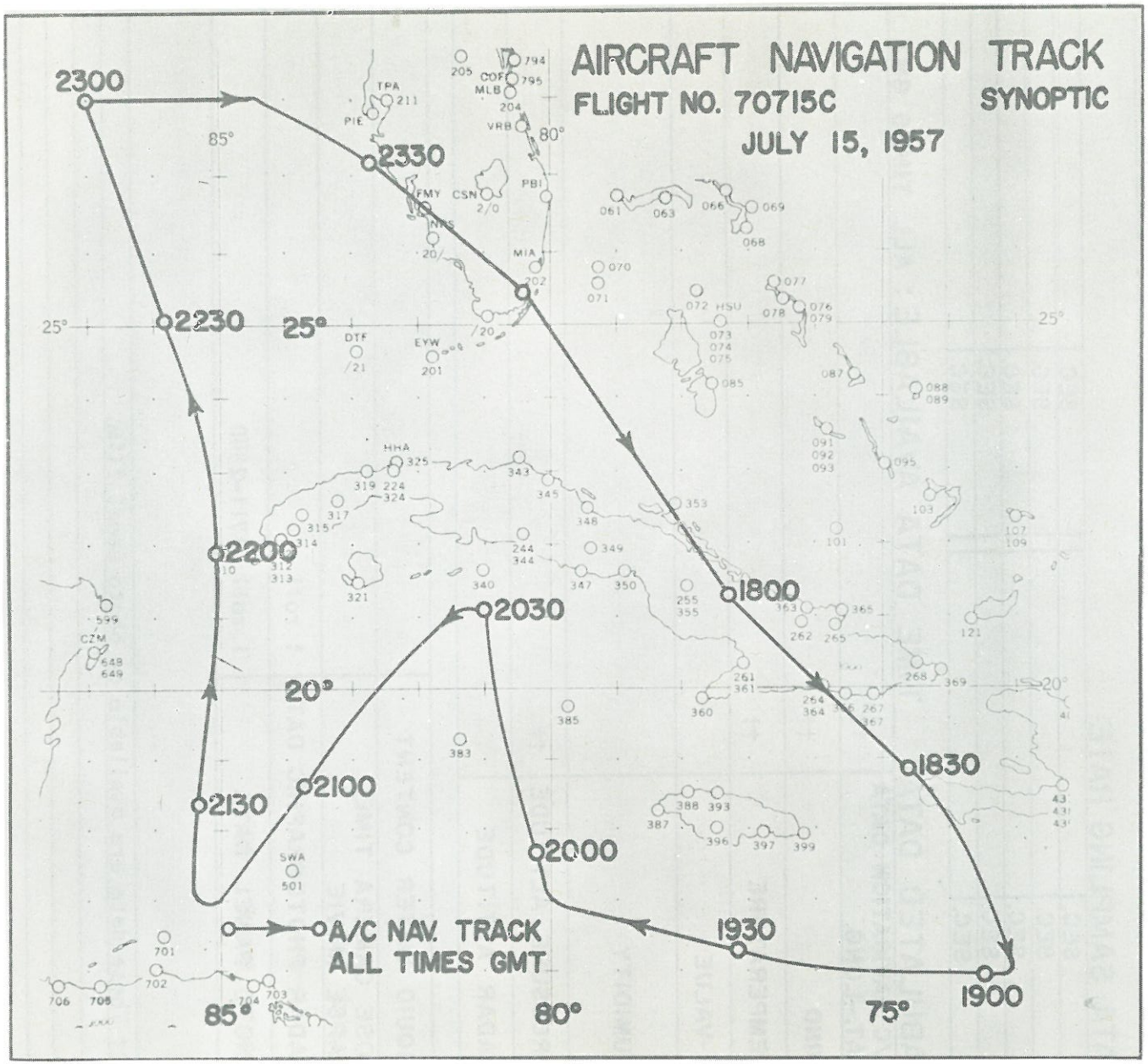
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	††
WIND	††
TEMPERATURE	††
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1711-2340

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70715C
SYNOPTIC
JULY 15, 1957
2300
2330
2230
2200
2130
2100
2030
2000
1930
1900
1830
1800
A/C NAV. TRACK
ALL TIMES GMT
85°
80°
75°
25°
20°
TPA
PIE
COF
MLB
VRB
PBI
FMY
CSN
MIA
DTF
EYW
HHA
HSU
CZM
SWA

TYPE OF FLIGHT Synoptic DATE July 21, 1957

FLIGHT NO. 70721C DATA TABULATED FROM 1249
TO 1935

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

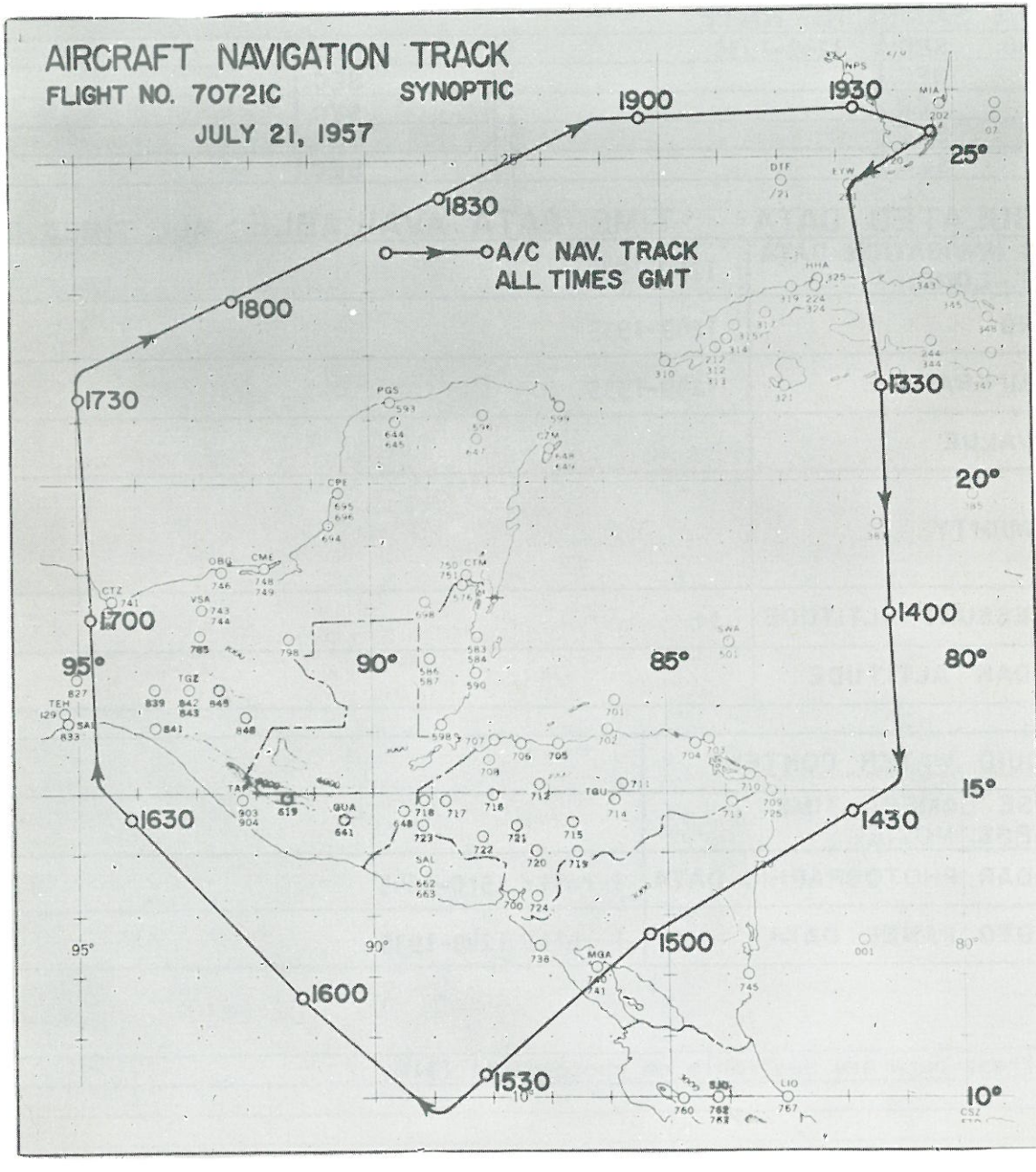
30 SEC.	1249-1935		SEC.	
SEC.			SEC.	
SEC.			SEC.	
SEC.			SEC.	
SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1249-1935
WIND	1249-1935
TEMPERATURE	1249-1935
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1510-1645
PHOTO PANEL DATA	1 roll: 1249-1935

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 7072IC
SYNOPTIC
JULY 21, 1957
A/C NAV. TRACK
ALL TIMES GMT
1900
1930
1830
1800
1730
1700
1630
1600
1530
1500
1430
1400
1330
25°
20°
15°
10°
95°
90°
85°
80°

TYPE OF FLIGHT Synoptic DATE July 23, 1957

FLIGHT NO. 70723C DATA TABULATED FROM 1409
TO 2036

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

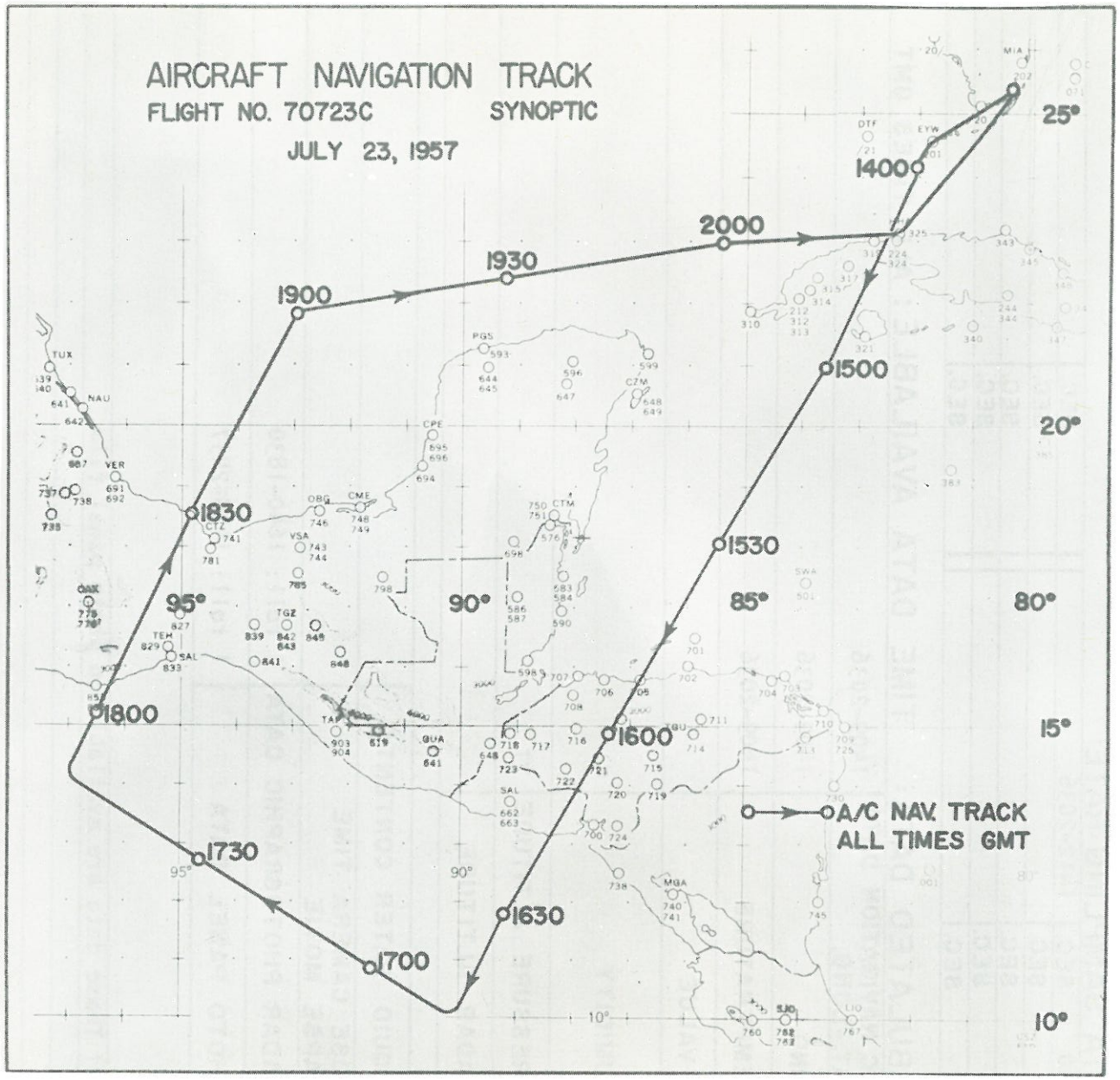
30	SEC.	1412-2036	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1409-2036
WIND	1409-2036
TEMPERATURE	1409-2036
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1640-1830
PHOTO PANEL DATA	1 roll: 1410-2037

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70723C
SYNOPTIC
JULY 23, 1957
1400
1500
1530
1600
1630
1700
1730
1800
1830
1900
1930
2000
25°
20°
15°
10°
95°
90°
85°
80°
A/C NAV. TRACK
ALL TIMES GMT

TYPE OF FLIGHT Synoptic DATE July 25, 1957

FLIGHT NO. 70725C DATA TABULATED FROM 1652
TO 0024

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

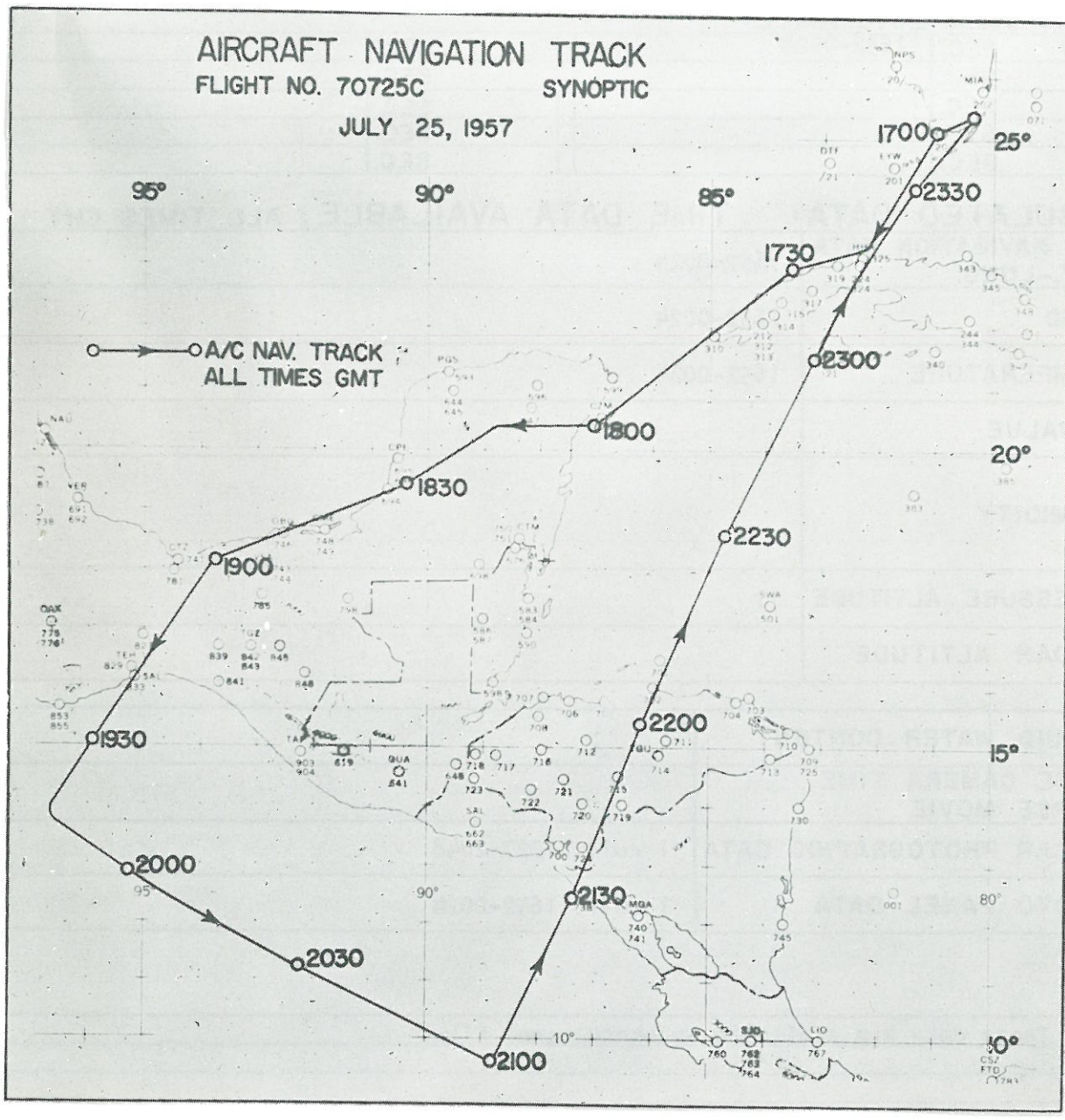
30 SEC.	1652-0024		SEC.	
SEC.			SEC.	
SEC.			SEC.	
SEC.			SEC.	
SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1652-0024
WIND	1652-0024
TEMPERATURE	1652-0024
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1927-2048
PHOTO PANEL DATA	1 roll: 1652-0024

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70725C
SYNOPTIC
JULY 25, 1957
A/C NAV. TRACK
ALL TIMES GMT
95°
90°
85°
25°
20°
15°
10°
1700
2330
1730
2300
1800
1830
2230
1900
2200
1930
2000
2130
2030
2100

TYPE OF FLIGHT Synoptic DATE August 1, 1957

FLIGHT NO. 70801A DATA TABULATED FROM 1319
TO 2018

FLIGHT PRESSURE ALTITUDE 10,000 Ft. till 1630; 20,000 Ft. till 1910;

DATA SAMPLING RATE:

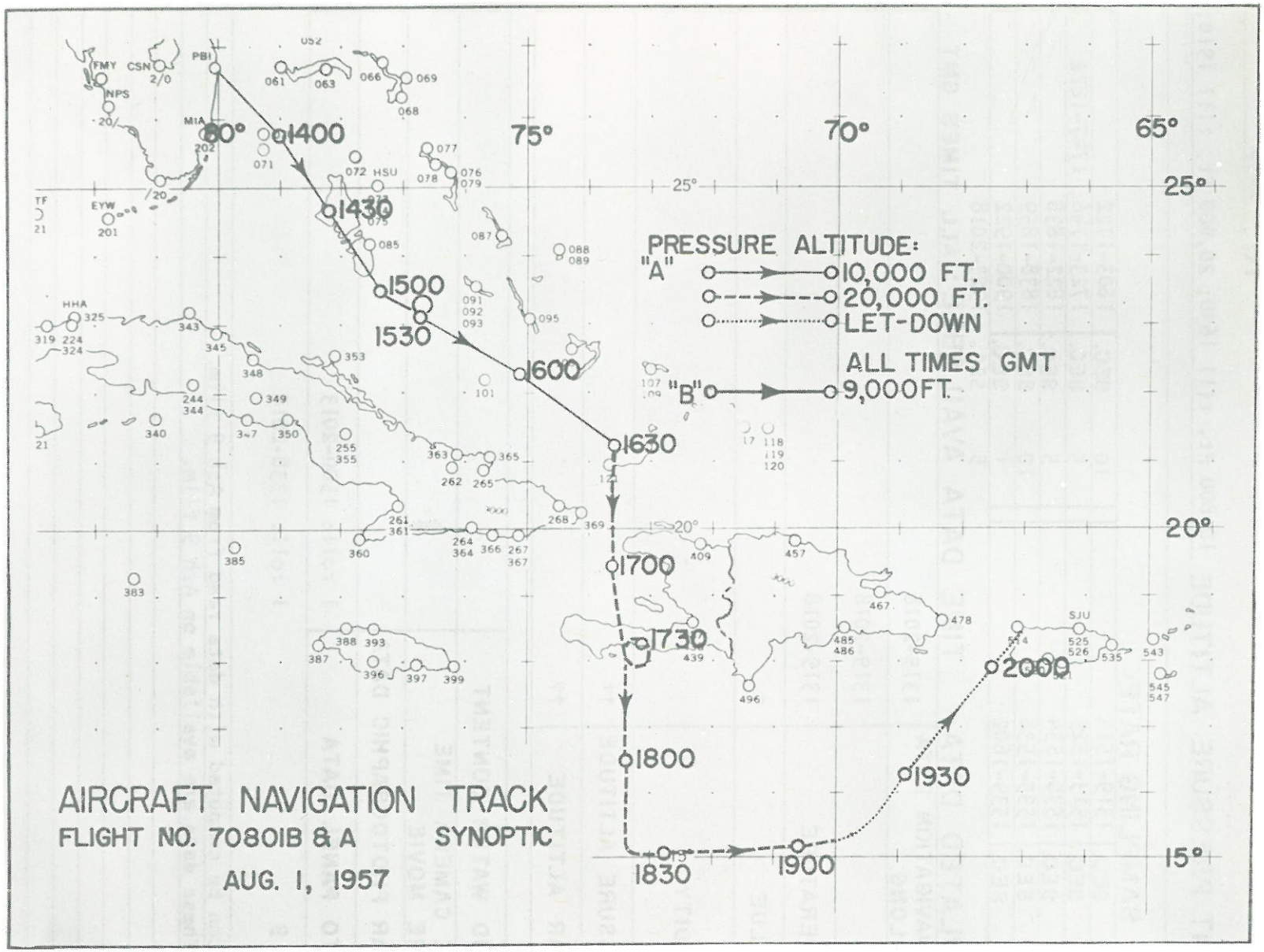
10	SEC.	1319-1512	10	SEC.	1603-1722
5	SEC.	1513-1529	5	SEC.	1723-1746; 1747-1822
10	SEC.	1530-1534	5	SEC.	1822-1838
5	SEC.	1535-1538	10	SEC.	1838-1859
1	SEC.	1539-1602	1	SEC.	1900-1922
			5	SEC.	1923-2018

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1319-2018
WIND	1319-2018
TEMPERATURE	1319-2018
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1500-2013
Ash 9	1 roll: 1338-2018

† Can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.


PRESSURE ALTITUDE:
"A" 10,000 FT.
20,000 FT.
LET-DOWN
ALL TIMES GMT
"B" 9,000FT.
80°
75°
70°
65°
25°
20°
15°
1400
1430
1500
1530
1600
1630
1700
1730
1800
1830
1900
1930
2000
PBI
MIA
FMY
CSN
NPS
EYW
HSU
HHA
SJU
AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 7080IB & A
SYNOPTIC
AUG. 1, 1957

TYPE OF FLIGHT Synoptic DATE August 1, 1957

FLIGHT NO. 70801B DATA TABULATED FROM 1315
TO 2018

FLIGHT PRESSURE ALTITUDE 9,000 Ft.

DATA SAMPLING RATE:

5-10	SEC.	1315-1513	10	SEC.	1736-1823
1-10	SEC.	1514-1538	1	SEC.	1824-1836; 1837-2018
1	SEC.	1539-1559		SEC.	
10	SEC.	1600-1720		SEC.	
5	SEC.	1721-1735		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1315-2018
WIND	1315-2018
TEMPERATURE	1315-2018
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1540-1735
PHOTO PANEL DATA	1 roll: 1315-1900

Ash 9 1 roll: 1330-1710
Side camera time-lapse movie available

† Can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.

TYPE OF FLIGHT Synoptic DATE August 1, 1957

FLIGHT NO. 70801C DATA TABULATED FROM 1620
TO 1946

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

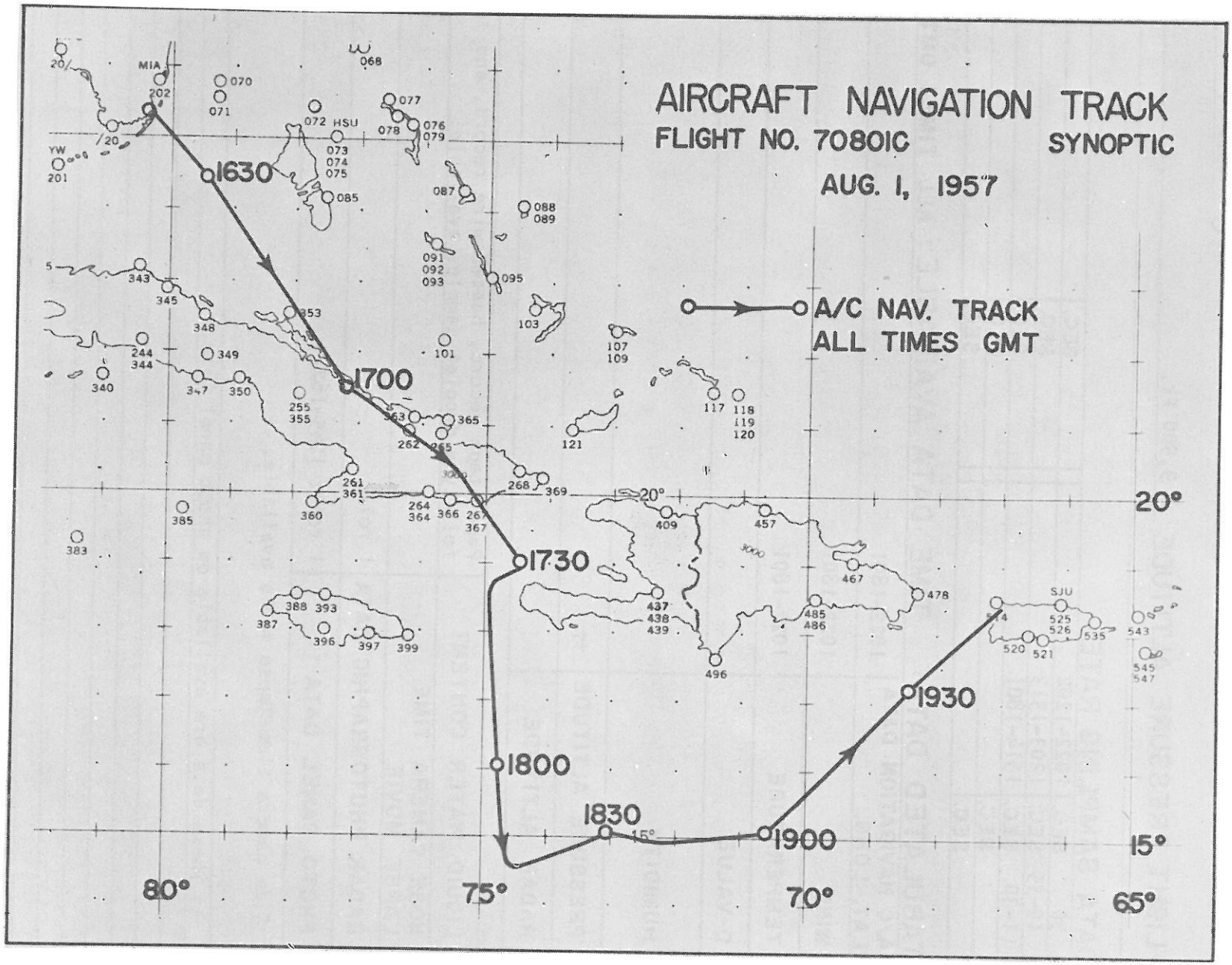
30	SEC.	1620-1946		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1620-1946
WIND	1620-1946
TEMPERATURE	1620-1946
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1944-2032

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 7080IC
SYNOPTIC
AUG. 1, 1957
A/C NAV. TRACK
ALL TIMES GMT
1630
1700
1730
1800
1830
1900
1930
20°
15°
80°
75°
70°
65°
MIA
HSU
SJU
YW

TYPE OF FLIGHT Synoptic DATE August 4, 1957

FLIGHT NO. 70804B DATA TABULATED FROM 1022
TO 1801

FLIGHT PRESSURE ALTITUDE 9,500 Ft.

DATA SAMPLING RATE:

30 SEC.	1022-1202		SEC.	
10-35 SEC.	1203-1313		SEC.	
1-30 SEC.	1314-1801		SEC.	
SEC.			SEC.	
SEC.			SEC.	

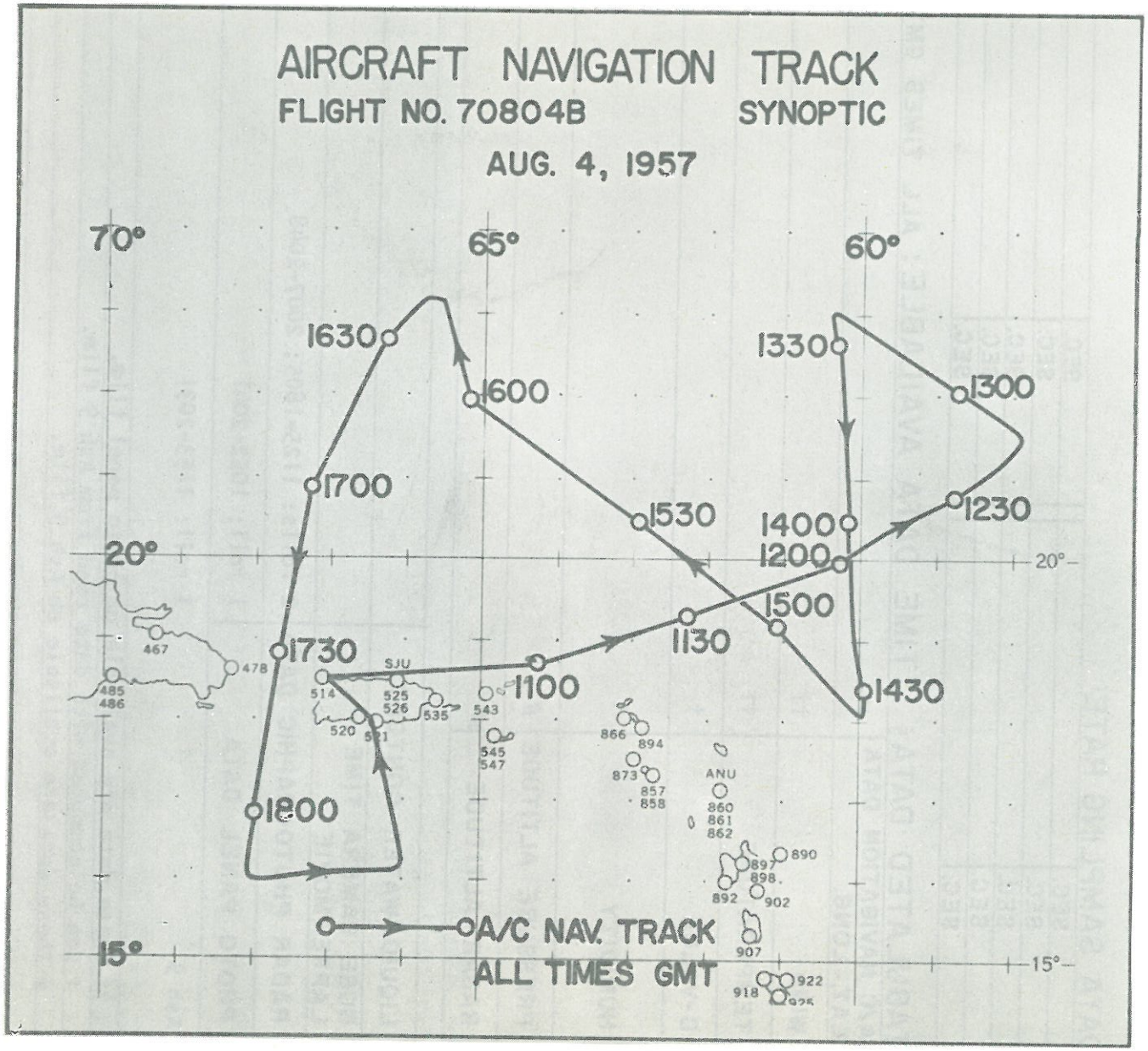
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1022-1801
WIND	1022-1801
TEMPERATURE	1022-1801
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1045-1627

Side camera time-lapse movie available.

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70804B
SYNOPTIC
AUG. 4, 1957
70°
65°
60°
20°
15°
1630
1600
1330
1300
1700
1530
1400
1230
1200
1500
1130
1730
1100
1430
1800
SJU
ANU
467
478
485
486
514
520
521
525
526
535
543
545
547
866
894
873
857
858
860
861
862
890
897
898
892
902
907
918
922
A/C NAV. TRACK
ALL TIMES GMT

TYPE OF FLIGHT Synoptic DATE August 7, 1957

FLIGHT NO. 70807A DATA TABULATED FROM --
TO --

FLIGHT PRESSURE ALTITUDE 18,000 Ft.

DATA SAMPLING RATE:

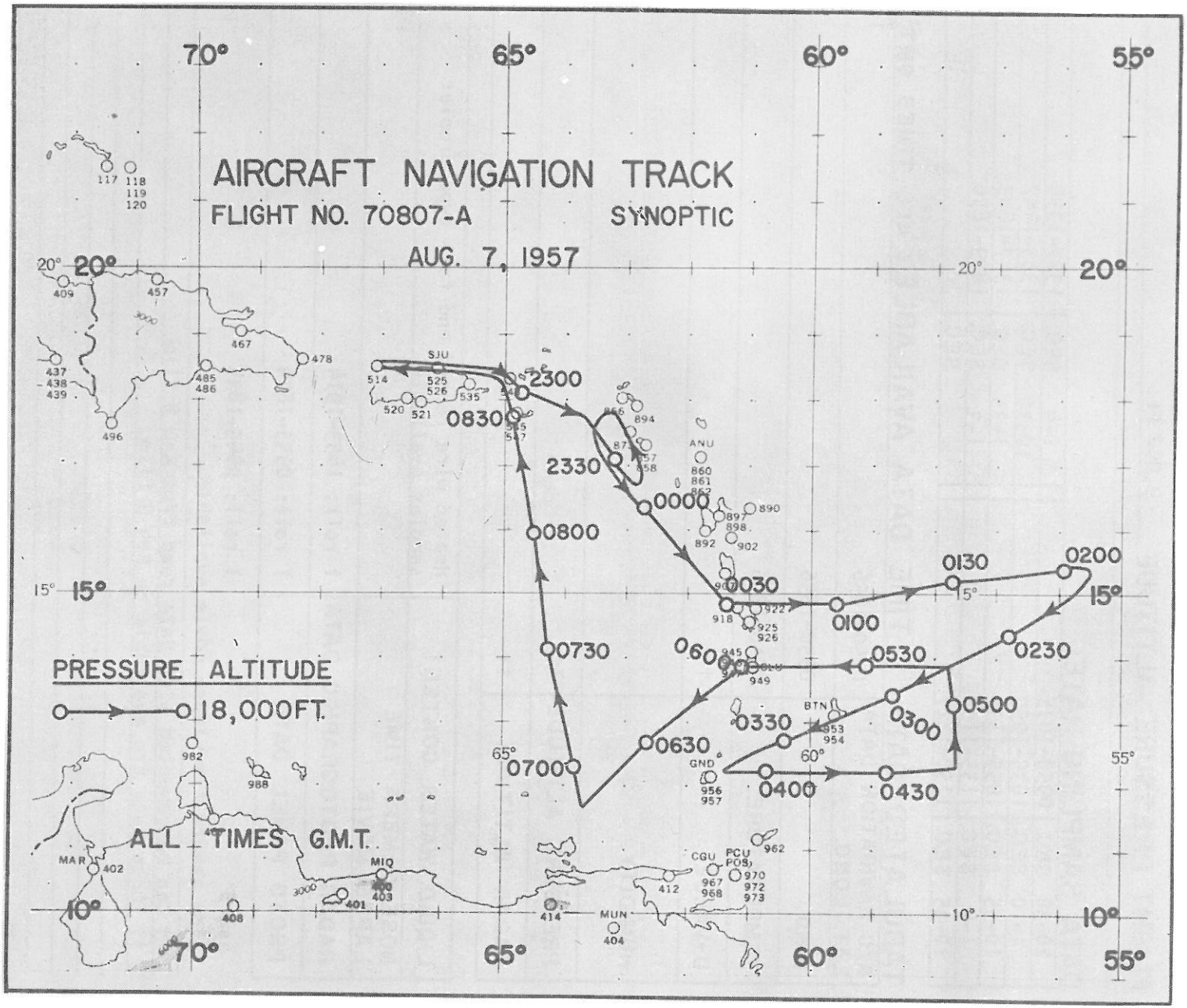
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	††
WIND	††
TEMPERATURE	††
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	#
RADAR ALTITUDE	#

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls: 1125-1805; 2007-2048
PHOTO PANEL DATA	1 roll: 1052-2041
Ash 9	1 roll: 1153-2031

†† These data are available on photo panel film.
† Can be computed with data read from Ash 9 film.
# These data are available on Ash 9 film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70807-A
SYNOPTIC
AUG. 7, 1957
PRESSURE ALTITUDE
18,000FT.
ALL TIMES G.M.T.
70°
65°
60°
55°
20°
15°
10°
2300
0830
2330
0000
0800
0030
0130
0200
0100
0730
0600
0530
0230
0500
0330
0300
0630
0700
0400
0430
SJU
ANU
BTN
GND
MAR
MIQ
CGU
PCU
MUN

TYPE OF FLIGHT Synoptic DATE August 7, 1957

FLIGHT NO. 70807B DATA TABULATED FROM 0950
TO 1856

FLIGHT PRESSURE ALTITUDE 9,000 Ft.

DATA SAMPLING RATE:

20-30 SEC.	0950-1035	1-4 SEC.	1327-1335
1-10 SEC.	1035-1055	10-30 SEC.	1335-1347
10-35 SEC.	1055-1135	1-35 SEC.	1347-1809
1-4 SEC.	1135-1150	1-3 SEC.	1809-1856
10-35 SEC.	1150-1327	SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	0950-1856
WIND	0950-1856
TEMPERATURE	0950-1856
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Heated wire record and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1453-1914
PHOTO PANEL DATA	1 roll: 0953-1824

Ash 9 1 roll: 0945-1825

Side camera time-lapse movie available.

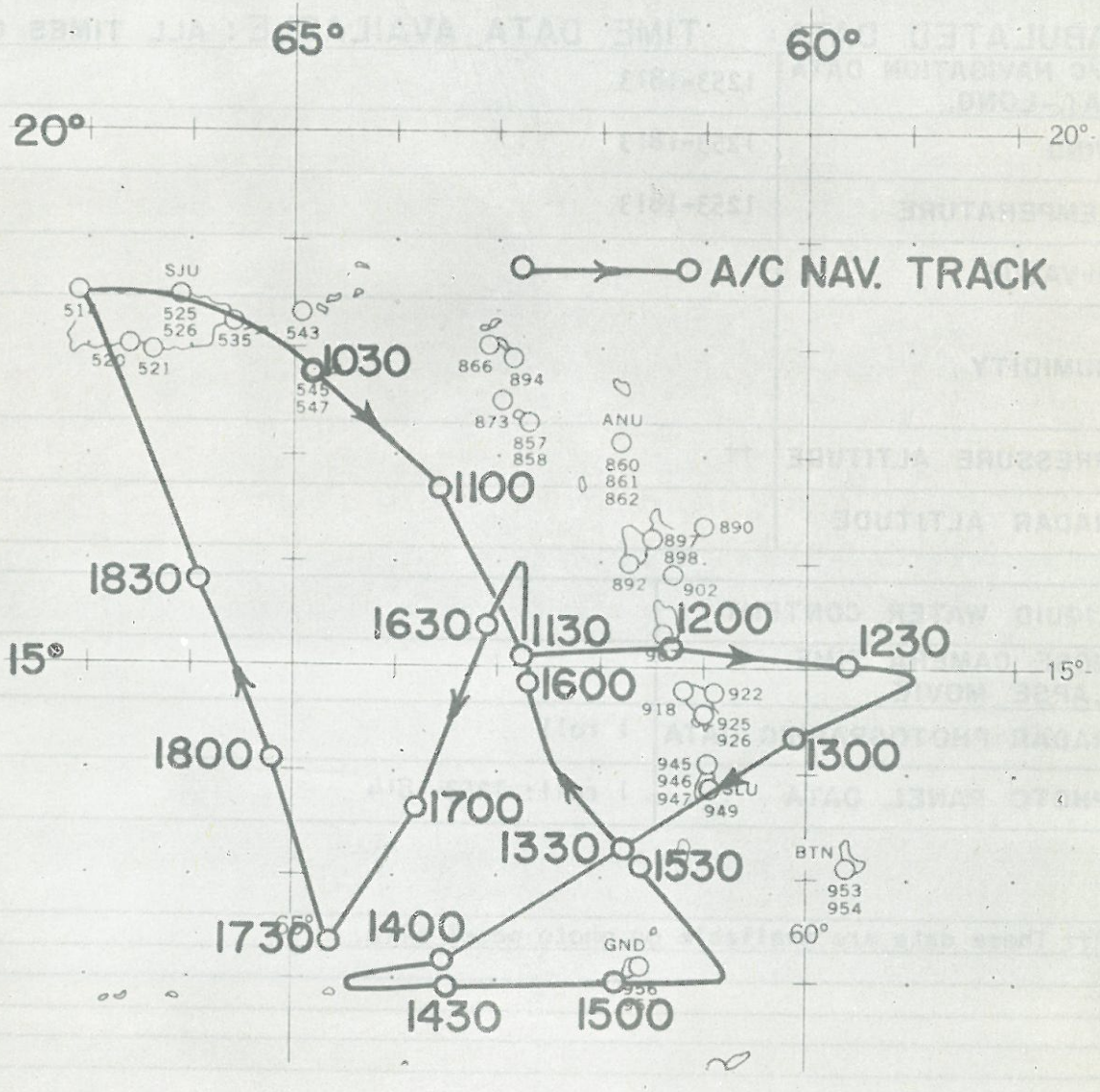
† Can be computed with data read from Ash 9 film.

†† These data are available on Ash 9 film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 70807B SYNOPTIC

AUG. 7, 1957



TYPE OF FLIGHT Synoptic DATE August 7, 1957

FLIGHT NO. 70807C DATA TABULATED FROM 1253
TO 1813

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

0-6 SEC.	1253-1313	SEC.	
20-35 SEC.	1313-1813	SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1253-1813
WIND	1253-1813
TEMPERATURE	1253-1813
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

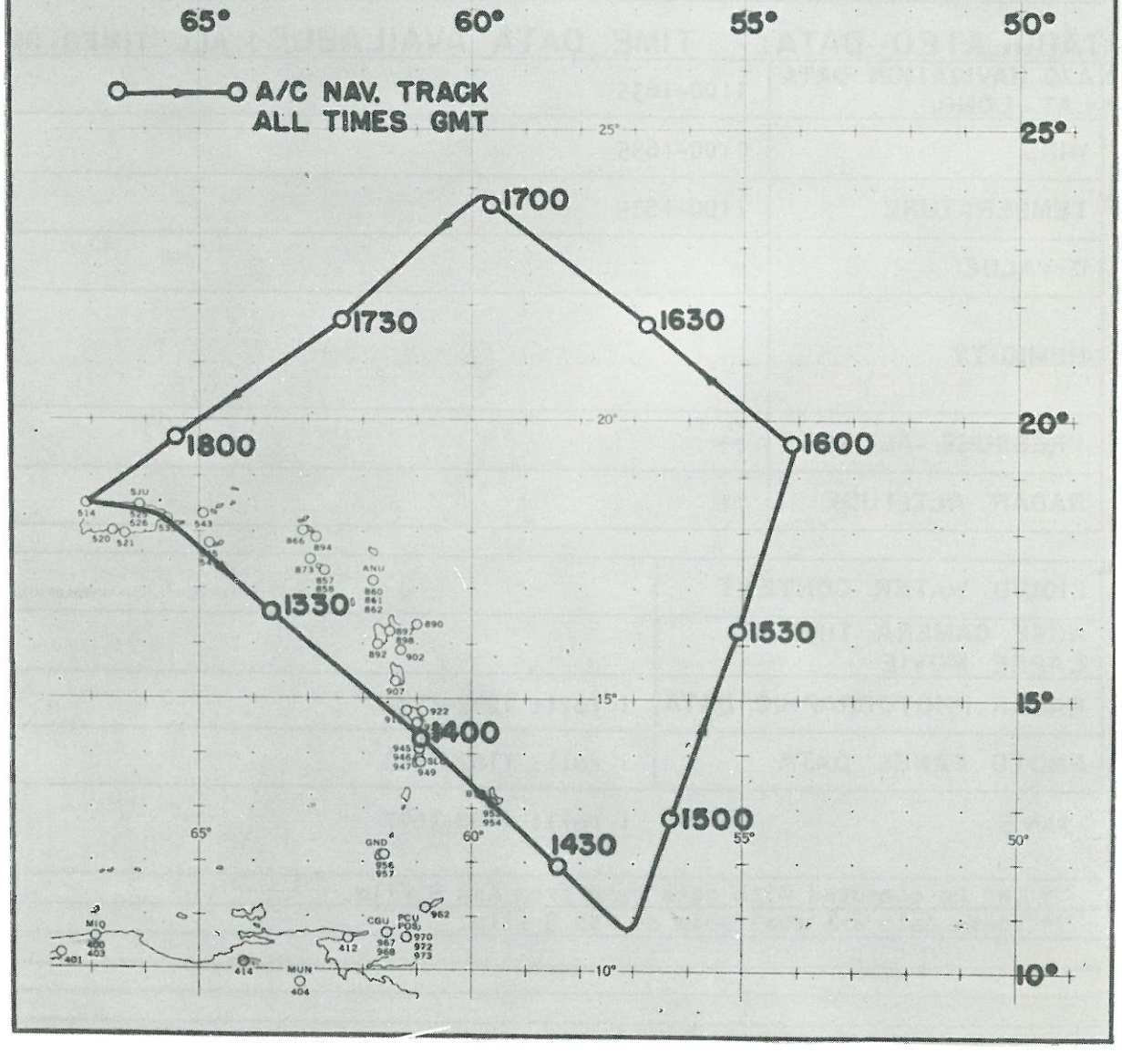
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1253-1814

†† These data are available on photo panel film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 70807C SYNOPTIC

AUG. 7, 1957



TYPE OF FLIGHT Synoptic DATE August 9, 1957

FLIGHT NO. 70809A DATA TABULATED FROM 1100
TO 1635

FLIGHT PRESSURE ALTITUDE 18,000Ft. to 1420; 10,000 Ft. to 1635

DATA SAMPLING RATE:

20-35	SEC.	1100-1152	SEC.	
5	SEC.	1152-1215	SEC.	
1-5	SEC.	1215-1453	SEC.	
2-6	SEC.	1453-1635	SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1100-1635
WIND	1100-1635
TEMPERATURE	1100-1635
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1238-1342
PHOTO PANEL DATA	1 roll: 1102-1648

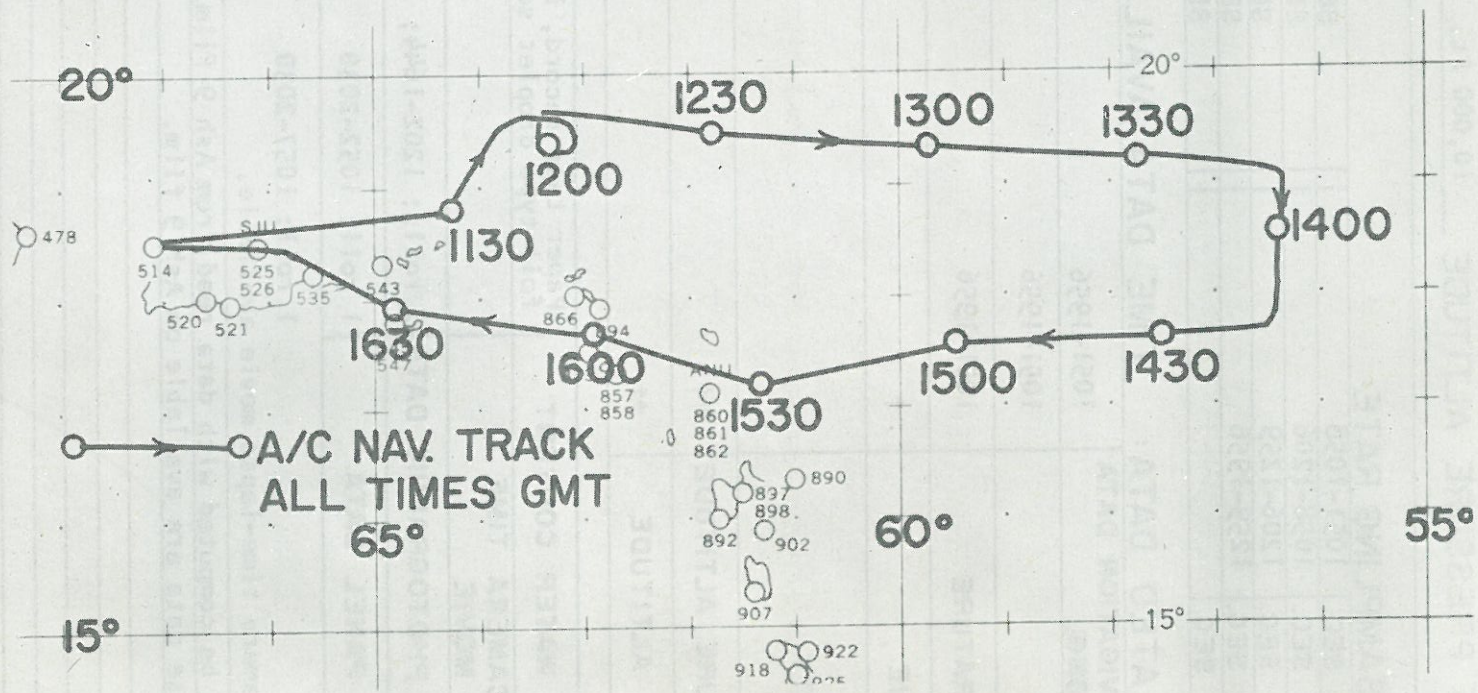
Ash 9 1 roll: 1102-1647

† Can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 70809A SYNOPTIC

AUG. 9, 1957



TYPE OF FLIGHT Synoptic DATE August 9, 1957

FLIGHT NO. 70809B DATA TABULATED FROM 1051
TO 1956

FLIGHT PRESSURE ALTITUDE 10,000 Ft.

DATA SAMPLING RATE:

16	SEC.	1051-1058	SEC.	
26-28	SEC.	1058-1206	SEC.	
1-10	SEC.	1206-1259	SEC.	
3-15	SEC.	1259-1956	SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1051-1956
WIND	1051-1956
TEMPERATURE	1051-1956
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls: 1202-1644; 1646-1955
PHOTO PANEL DATA	1 roll: 1052-2030

Ash 9 1 roll: 1057-2030

Side camera time-lapse movie available.

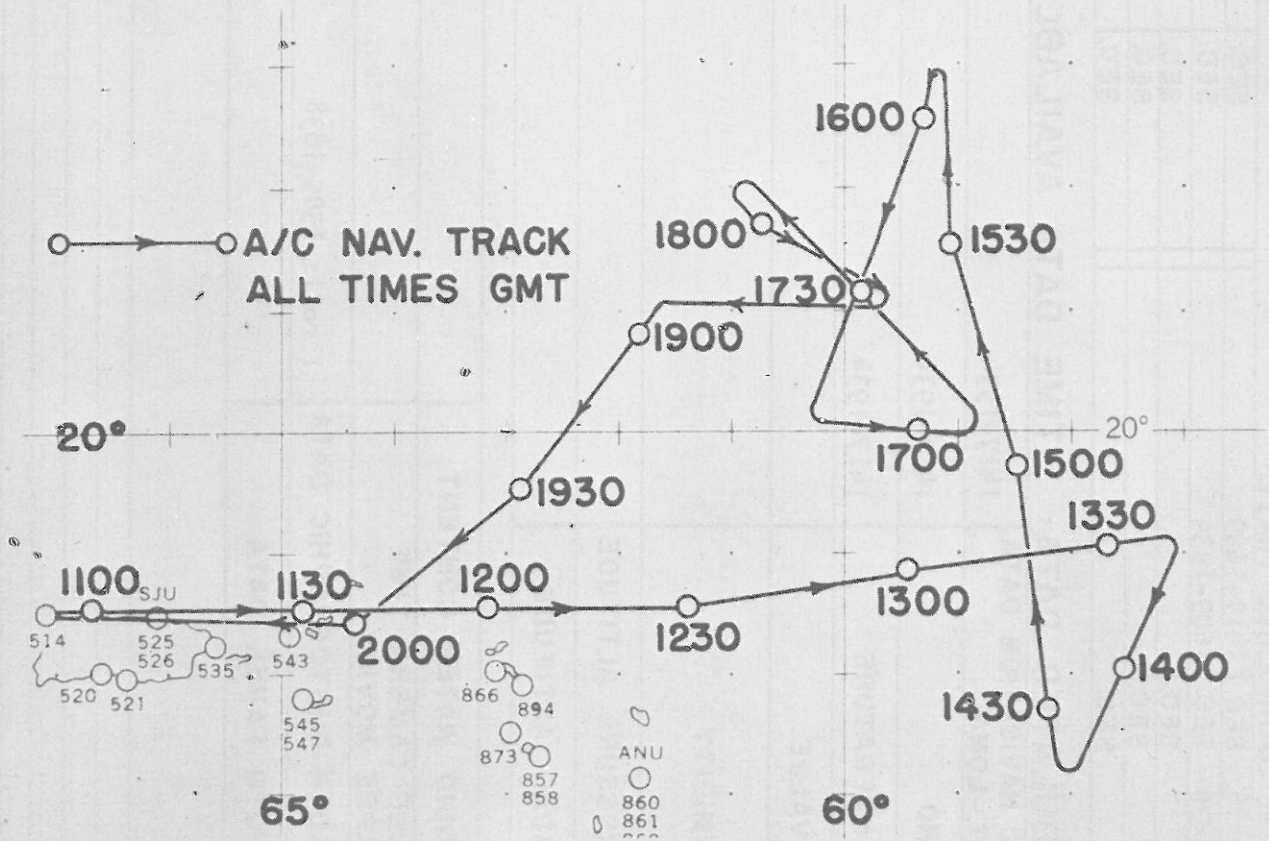
† Can be computed with data read from Ash 9 film.

†† These data are available on Ash 9 film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 70809B SYNOPTIC

AUG. 9, 1957



TYPE OF FLIGHT Synoptic DATE August 9, 1957

FLIGHT NO. 70809c DATA TABULATED FROM 1417
TO 1934

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

15-35	SEC.	1417-1609		SEC.	
25-30	SEC.	1609-1934		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

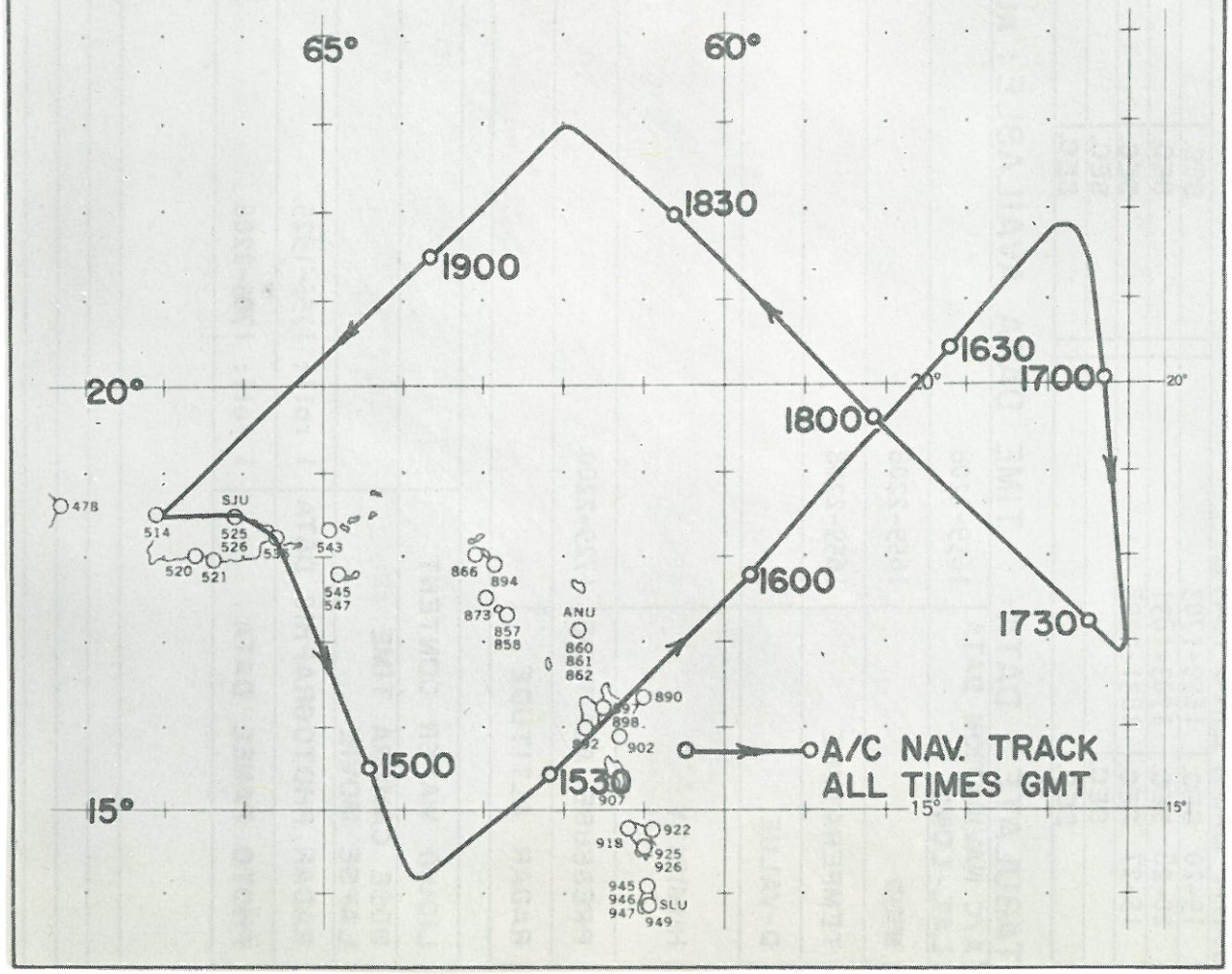
A/C NAVIGATION DATA LAT.-LONG.	1417-1934
WIND	1417-1934
TEMPERATURE	1417-1934
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1505-1838
PHOTO PANEL DATA	

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 70809C SYNOPTIC

AUG. 9, 1957



TYPE OF FLIGHT Synoptic DATE August 11, 1957

FLIGHT NO. 70811C DATA TABULATED FROM 1659
TO 2208

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

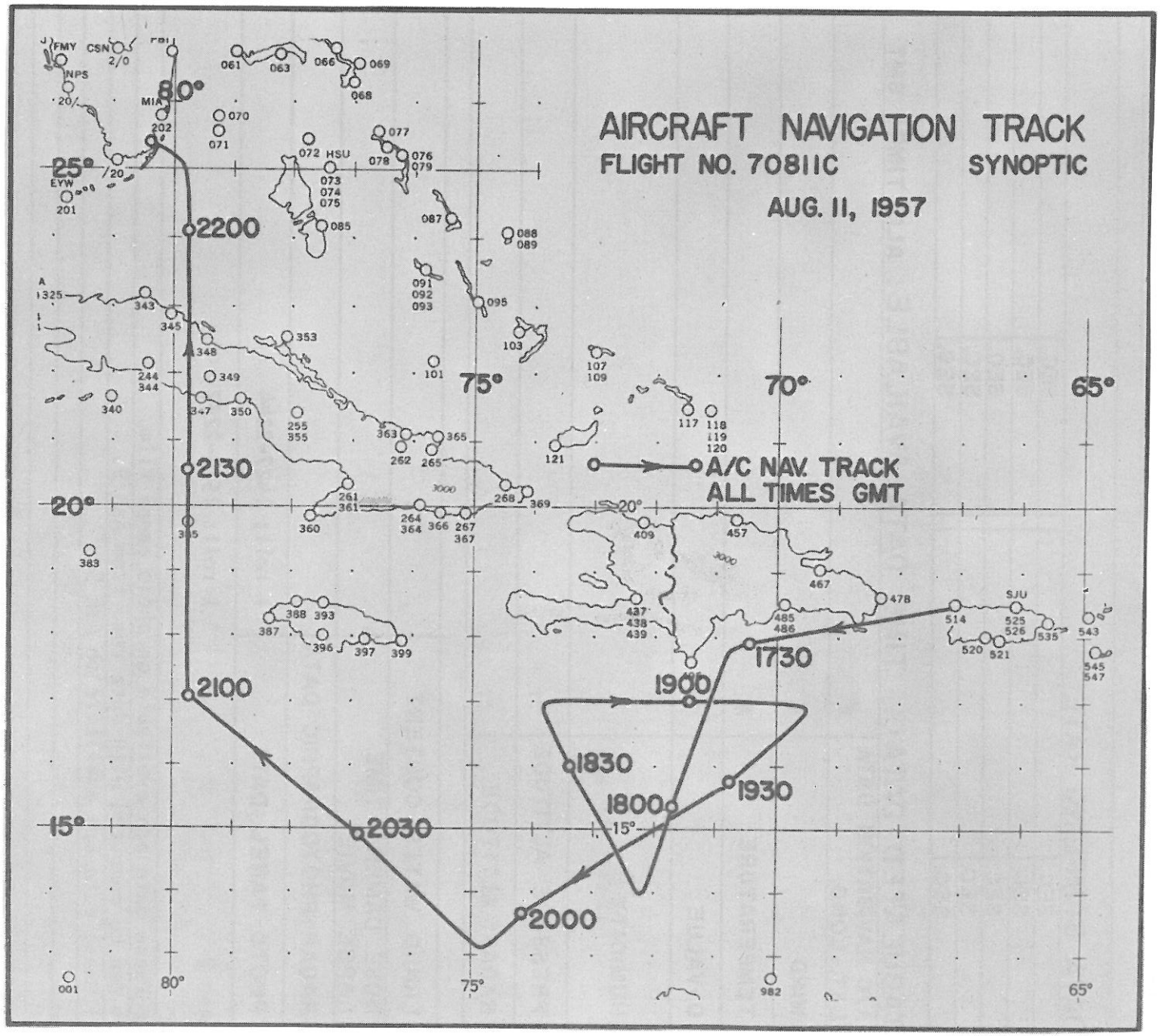
DATA SAMPLING RATE:

19-20 SEC.	1659-1703	SEC.	
20-28 SEC.	1703-1831	SEC.	
15-27 SEC.	1831-2208	SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1659-2208
WIND	1659-2208
TEMPERATURE	1659-2208
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1729-2200
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1755-1925
PHOTO PANEL DATA	1 roll: 1703-2206


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70811C
SYNOPTIC
AUG. 11, 1957
A/C NAV. TRACK
ALL TIMES GMT
2200
2130
2100
2030
2000
1930
1900
1830
1800
1730
80°
75°
70°
65°
25°
20°
15°

TYPE OF FLIGHT Synoptic DATE August 22, 1957

FLIGHT NO. 70822A DATA TABULATED FROM _____
TO _____

FLIGHT PRESSURE ALTITUDE 1,600 Ft.; briefly at 4,000 Ft.

DATA SAMPLING RATE:

SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

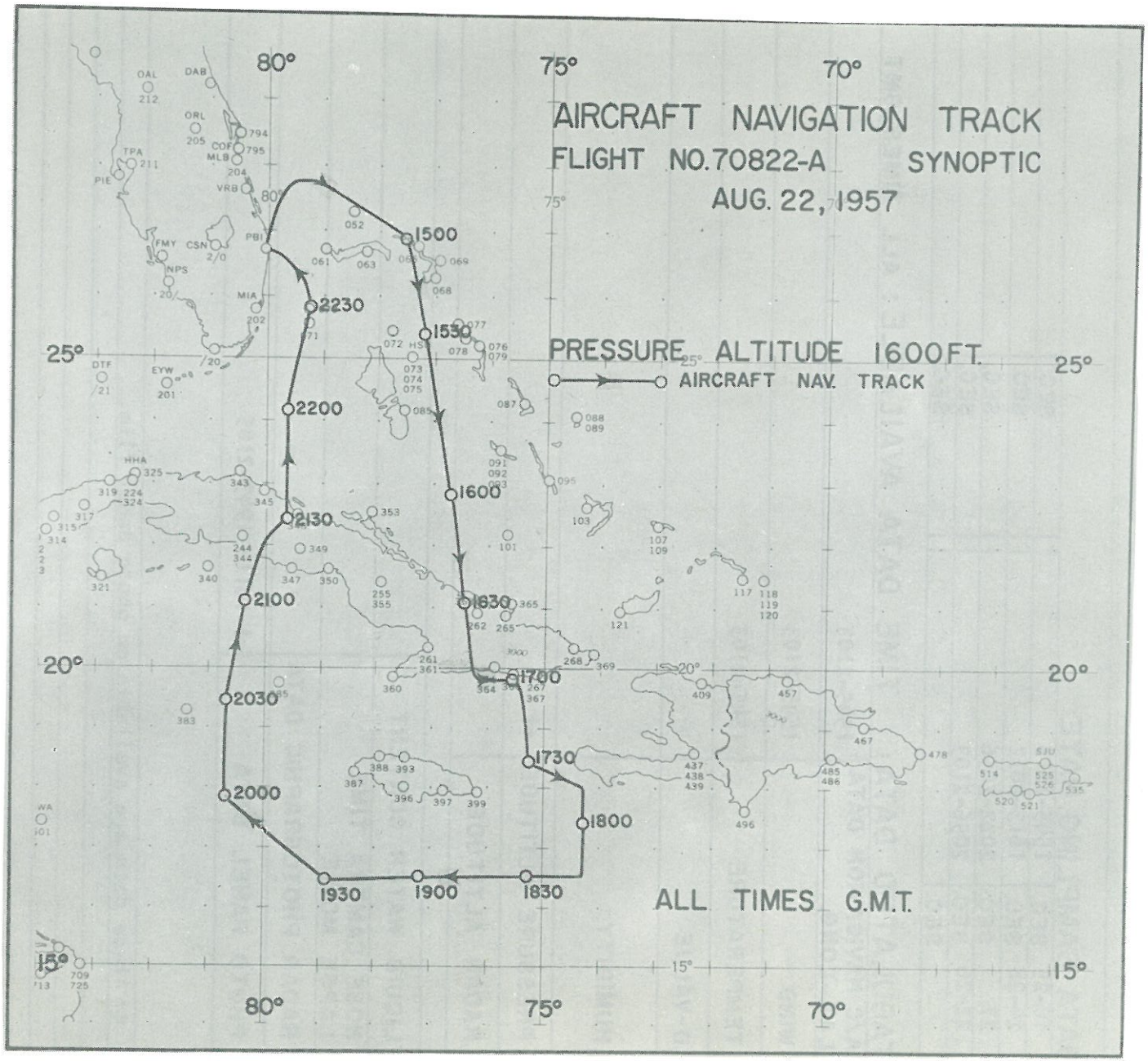
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	#
WIND	#
TEMPERATURE	#
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1427-2244

Ash 9 1 roll: 1519-2237

These data are available on photo panel film.
† Can be computed with data read from Ash 9.
†† These data are available on Ash 9.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO.70822-A SYNOPTIC
AUG. 22, 1957
PRESSURE ALTITUDE 1600FT.
AIRCRAFT NAV. TRACK
ALL TIMES G.M.T.
80°
75°
70°
25°
20°
15°
1500
1530
1600
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
2200
2230
OAL
DAB
ORL
COF
MLB
TPA
PIE
VRB
PBI
FMY
CSN
INPS
MIA
DTF
EYW
HHA
WA
SJU

TYPE OF FLIGHT Synoptic DATE August 23, 1957

FLIGHT NO. 70823C DATA TABULATED FROM 1545
TO 2103

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

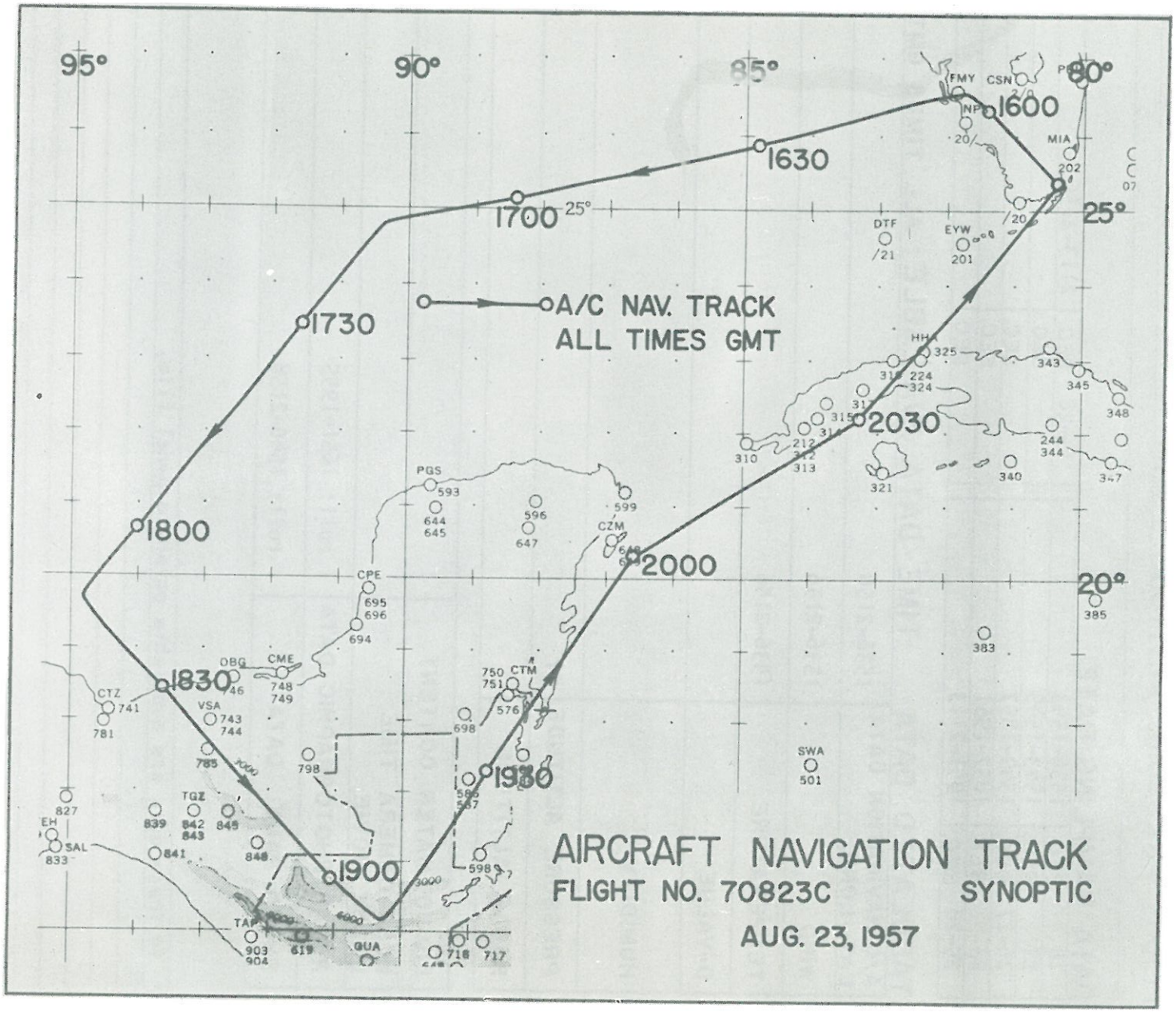
10-25 SEC.	1545-1613		SEC.	
24-28 SEC.	1613-2022		SEC.	
27 SEC.	2022-2056		SEC.	
22-26 SEC.	2056-2103		SEC.	
SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1545-2103
WIND	1545-2103
TEMPERATURE	1545-2103
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1943-2105

†† These data are available on photo panel film.


95°
90°
85°
80°
25°
20°
1600
1630
1700
1730
1800
1830
1900
1930
2000
2030
A/C NAV. TRACK
ALL TIMES GMT
FMY
CSN
NPA
MIA
DTF
EYW
HHI
PGS
CPE
OBG
CME
CTZ
VSA
TGZ
SAL
TAP
GUA
CZM
CTM
SWA
AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70823C
SYNOPTIC
AUG. 23, 1957

TYPE OF FLIGHT Synoptic DATE August 27, 1957

FLIGHT NO. 70827C DATA TABULATED FROM 1536
TO 2156

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

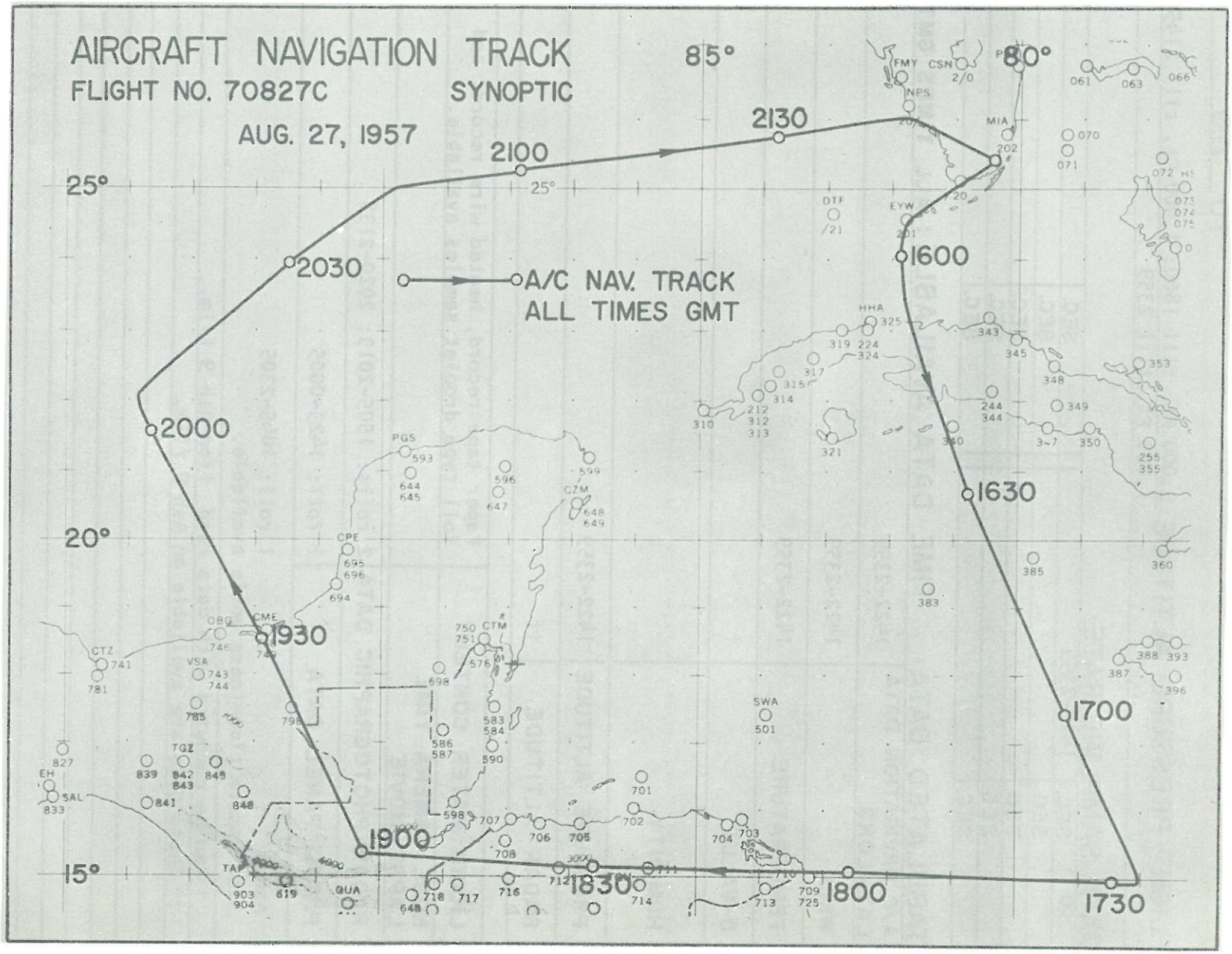
18	SEC.	1536-1543	17-28	SEC.	2113-2156
22	SEC.	1543-1549		SEC.	
26-27	SEC.	1549-1857		SEC.	
25	SEC.	1857-1951		SEC.	
25-28	SEC.	1951-2113		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1536-2156
WIND	1536-2156
TEMPERATURE	1536-2156
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1651-1955
PHOTO PANEL DATA	1 roll: 1540-2158

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70827C
SYNOPTIC
AUG. 27, 1957
A/C NAV. TRACK
ALL TIMES GMT
85°
80°
25°
20°
15°
1730
1700
1630
1600
1800
1830
1900
1930
2000
2030
2100
2130
FMY
CSN
NPS
MIA
DTF
EYW
HHA
PGS
CPE
CZM
CTM
OBG
CME
CTZ
VSA
TGZ
EH
SAL
TAP
QUA
SWA

TYPE OF FLIGHT Synoptic DATE August 29, 1957

FLIGHT NO. 70829B DATA TABULATED FROM 1422
TO 2359

FLIGHT PRESSURE ALTITUDE 9,000 Ft. till 1800; 1,000 Ft. till 2145; 7,000 Ft. till 2359

DATA SAMPLING RATE:

20	SEC.	1422-2359		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

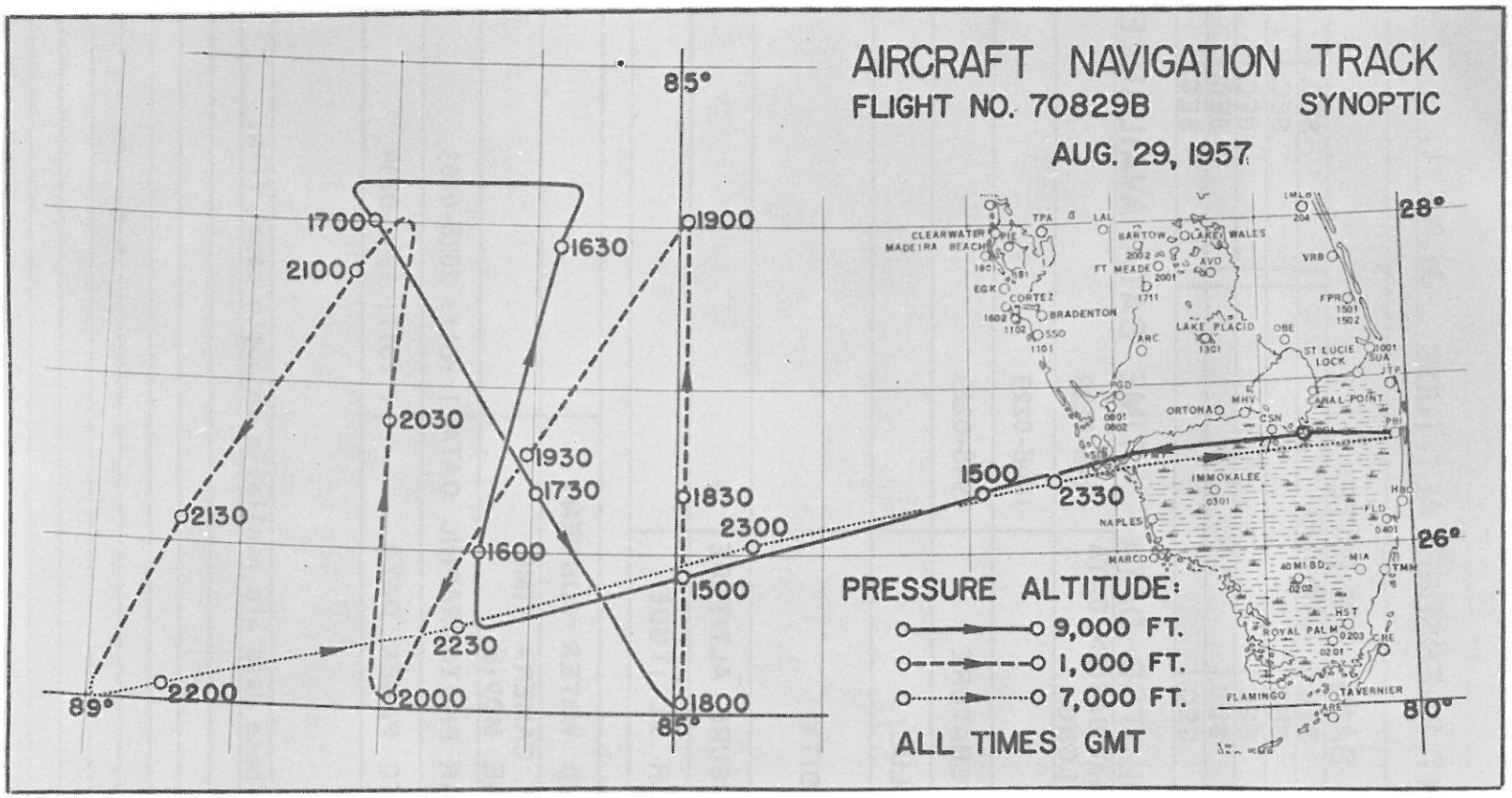
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1422-2359
WIND	1422-2359
TEMPERATURE	1422-2359
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	1422-2359
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls: 1505-2013; 2020-2138
PHOTO PANEL DATA	1 roll: 1423-0005

Ash 9 1 roll: 1445-2305
Side camera time-lapse movie available.

† Can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70829B
SYNOPTIC
AUG. 29, 1957
PRESSURE ALTITUDE:
9,000 FT.
1,000 FT.
7,000 FT.
ALL TIMES GMT
85°
89°
28°
26°
80°
1700
2100
1630
1900
2030
1930
1730
1830
2130
1600
2300
1500
2230
2200
2000
1800
1500
2330
CLEARWATER
MADEIRA BEACH
TPA
LAL
BARTOW
LAKELAND
WALES
FT MEADE
AVO
EGK
CORTEZ
BRADENTON
SSO
ARC
LAKE PLACID
OBE
ST LUCIE LOCK
SUA
JTP
PGD
ORTONA
MHV
CSN
ANAL POINT
PBI
IMMOKALEE
NAPLES
MARCO
MIA
TMM
HBO
FLD
40 MI BD
HST
ROYAL PALM
CHE
FLAMINGO
TAVERNIER
ARK
VRB
FPR
LMLR

TYPE OF FLIGHT Synoptic DATE August 29, 1957

FLIGHT NO. 70829C DATA TABULATED FROM 1948
TO 0229

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

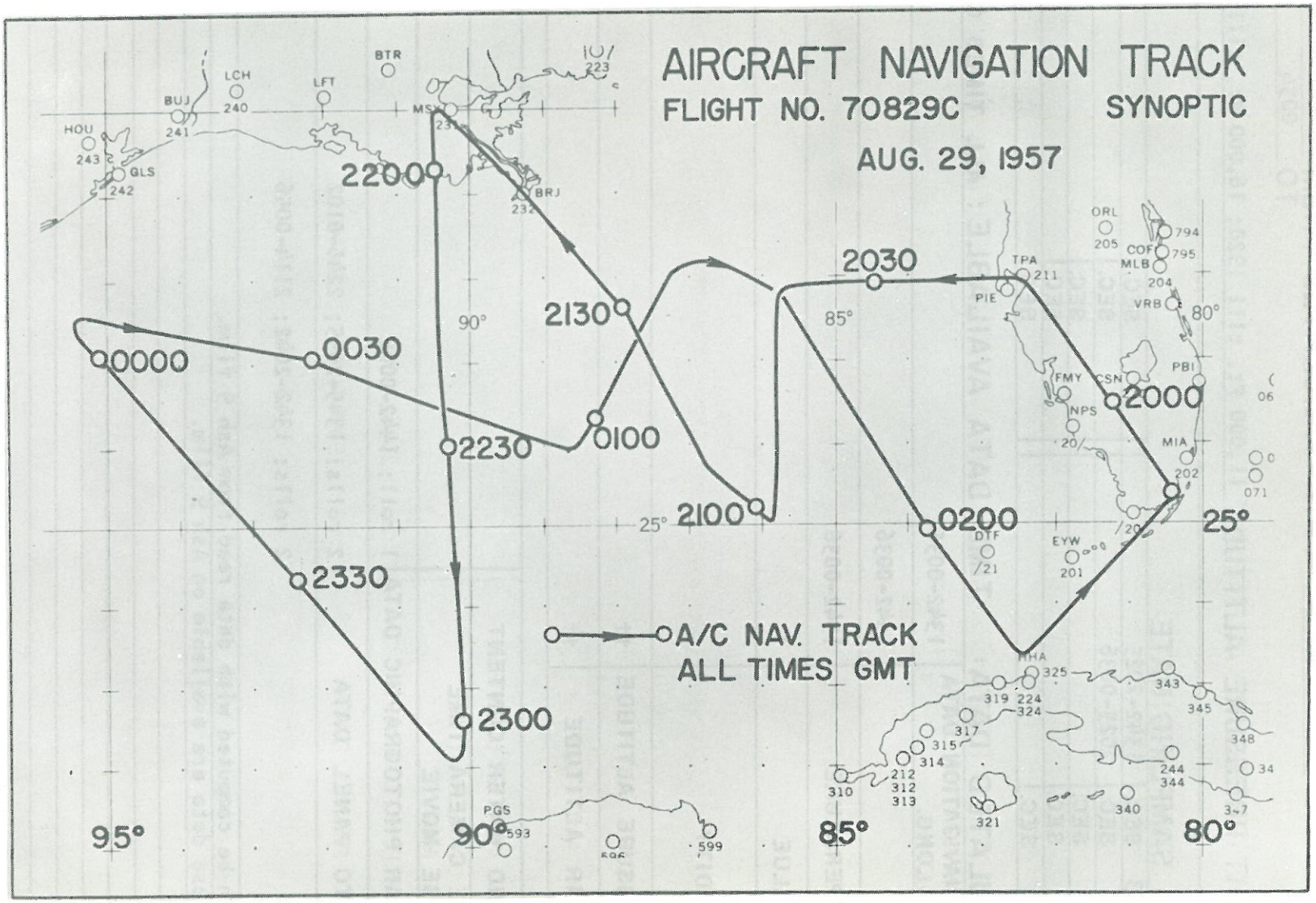
20	SEC.	1948-0229		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1948-0229
WIND	1948-0229
TEMPERATURE	1948-0229
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 2028-0203
PHOTO PANEL DATA	1 roll: 1949-0234

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70829C
SYNOPTIC
AUG. 29, 1957
A/C NAV. TRACK
ALL TIMES GMT
0000
0030
2230
2300
2330
2200
2130
0100
2100
2030
0200
2000
95°
90°
85°
80°
25°
HOU
GLS
BUJ
LCH
LFT
BTR
MSY
BRJ
TPA
PIE
ORL
COF
MLB
VRB
FMY
NPS
CSN
PBI
MIA
DTF
EYW
THA
PGS

TYPE OF FLIGHT Synoptic DATE September 6, 1957

FLIGHT NO. 70906A DATA TABULATED FROM 1342
TO 0036

FLIGHT PRESSURE ALTITUDE 11,000 Ft. till 1920; 16,000 Ft. till 0036

DATA SAMPLING RATE:

42-43	SEC.	1342-2025		SEC.	
45	SEC.	2025-0036		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1342-0036
WIND	1342-0036
TEMPERATURE	1342-0036
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1442-0005
PHOTO PANEL DATA	2 rolls: 1345-2055; 2246-0102
Ash 9	2 rolls: 1342-2042; 2114-0056

† Can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.

TYPE OF FLIGHT Synoptic DATE September 6, 1957

FLIGHT NO. 70906B DATA TABULATED FROM 1354
TO 0042

FLIGHT PRESSURE ALTITUDE 5,000 Ft. till 1920; 20,500 Ft. till 0042

DATA SAMPLING RATE:

42-43	SEC.	1354-1943	SEC.	
44-47	SEC.	1943-0042	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1324-0042
WIND	1324-0042
TEMPERATURE	1324-0042
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Heated wire record and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1858-2359
PHOTO PANEL DATA	2 rolls: 1354-2040; 2112-0043

Ash 9 2 rolls: 1356-2035; 2050-2323

Side camera time-lapse movie available.

† Can be computed with data read from Ash 9 film.

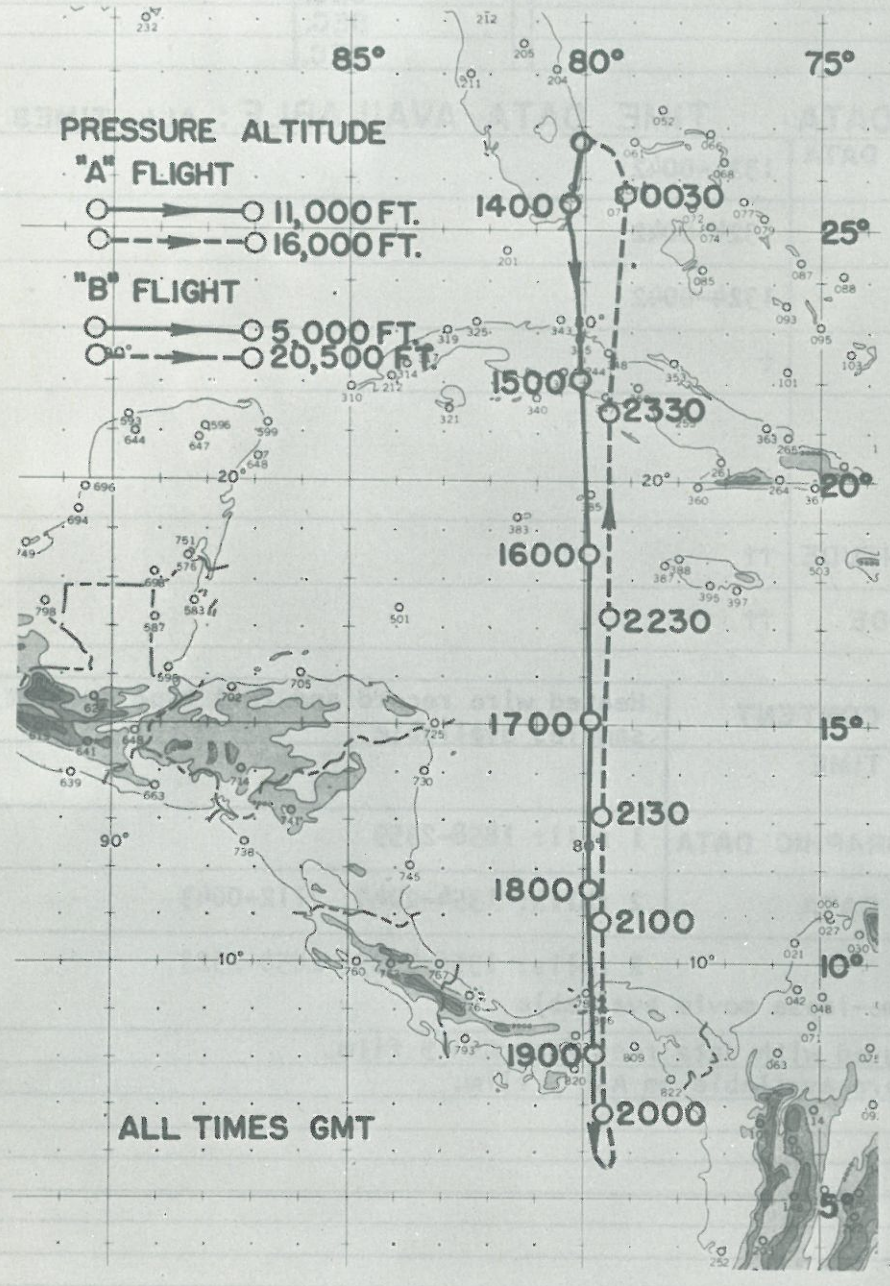
†† These data are available on Ash 9 film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 70906A SYNOPTIC

70906B (Plotted)

SEPT. 6, 1957



TYPE OF FLIGHT Synoptic DATE September 6, 1957

FLIGHT NO. 70906C DATA TABULATED FROM 1437
TO 2039

FLIGHT PRESSURE ALTITUDE 31,500 Ft. till 1730; 38,500 Ft. till 2039

DATA SAMPLING RATE:

21-28 SEC.	1437-2039	SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

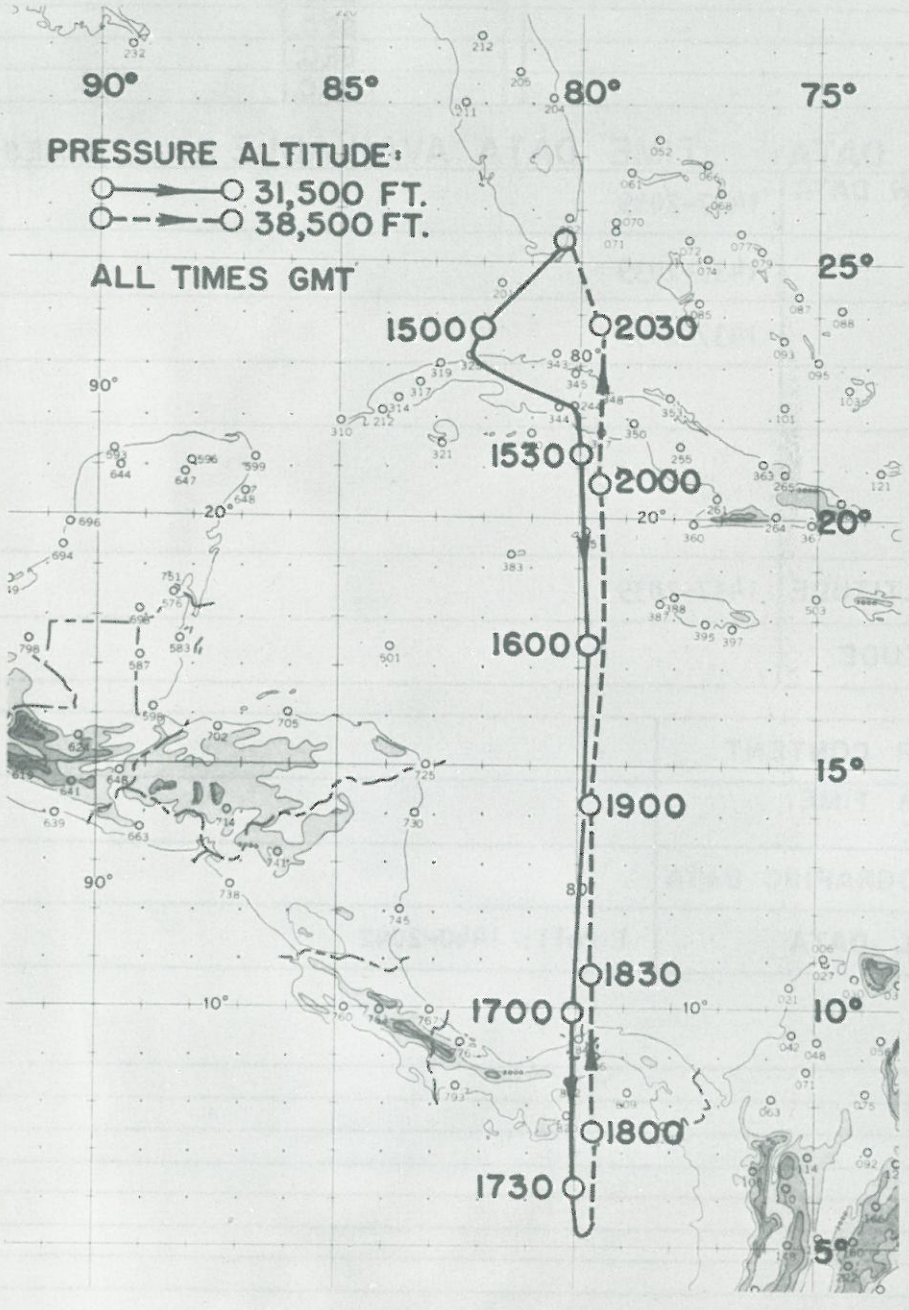
A/C NAVIGATION DATA LAT.-LONG.	1437-2039
WIND	1437-2039
TEMPERATURE	1437-2039
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1437-2039
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1440-2042

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 70906C SYNOPTIC

SEPT. 6, 1957



TYPE OF FLIGHT Synoptic DATE September 14, 1957

FLIGHT NO. 70914A DATA TABULATED FROM 0134
TO 0507

FLIGHT PRESSURE ALTITUDE 9,000 Ft.

DATA SAMPLING RATE:

60	SEC.	0134-0507	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	0134-0507
WIND	0134-0507
TEMPERATURE	0134-0507
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 0128-0407
PHOTO PANEL DATA	1 roll: 0135-0507
Ash 9	1 roll: 0133-0507

† Can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.

TYPE OF FLIGHT Synoptic DATE September 14, 1957

FLIGHT NO. 70914B DATA TABULATED FROM 0409
TO 0755

FLIGHT PRESSURE ALTITUDE 18,000 Ft.

DATA SAMPLING RATE:

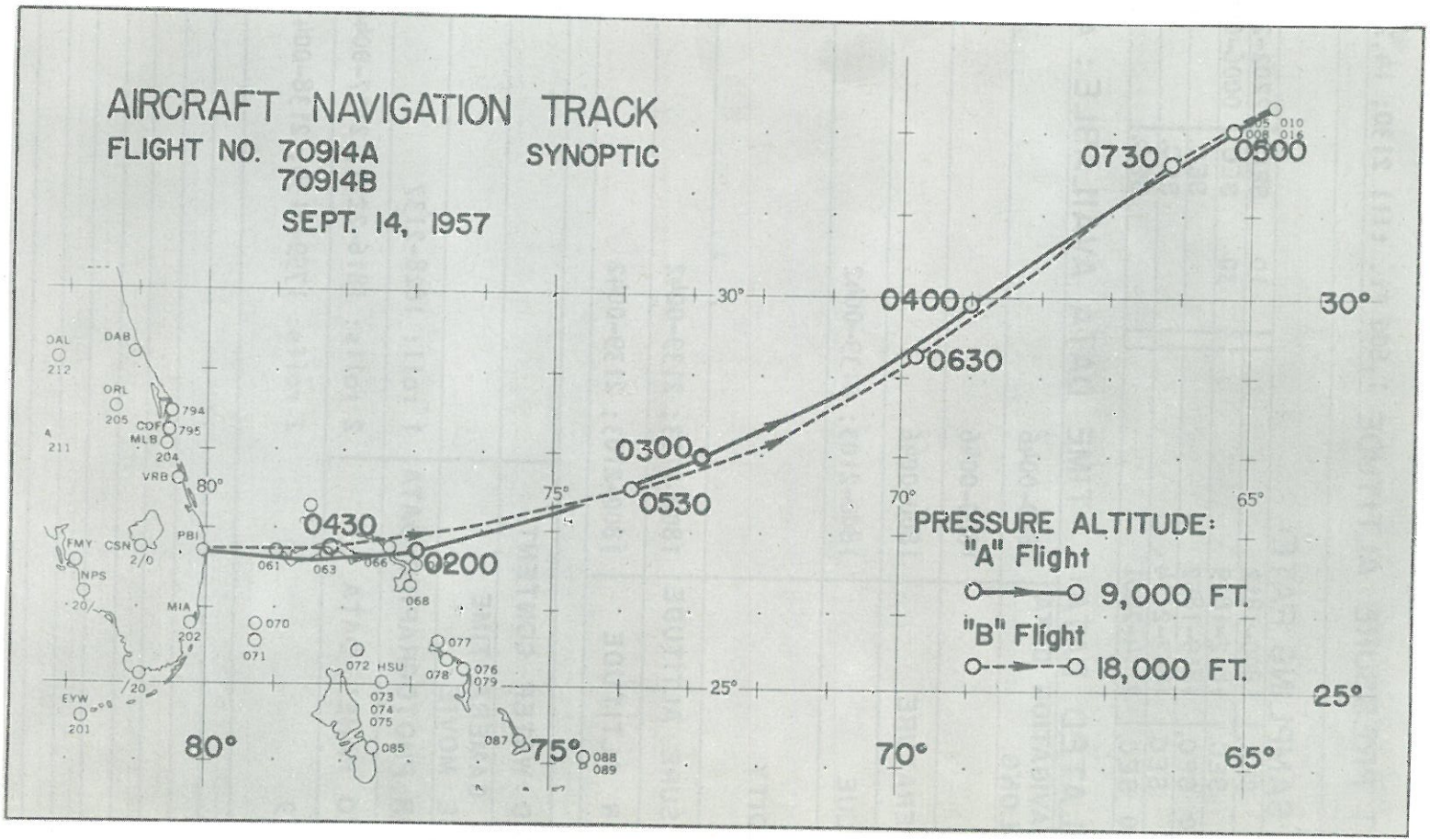
10-15	SEC.	0409-0755		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	0409-0755
WIND	0409-0755
TEMPERATURE	0409-0755
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Paper tape record and heated wire record available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 0410-0440
PHOTO PANEL DATA	1 roll: 0402-0755
Ash 9	1 roll: 0402-0755

† Can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70914A
70914B
SYNOPTIC
SEPT. 14, 1957
PRESSURE ALTITUDE:
"A" Flight
9,000 FT.
"B" Flight
18,000 FT.
0200
0300
0400
0430
0500
0530
0630
0730
30°
25°
80°
75°
70°
65°
DAB
ORL
CDF
MLB
VRB
PBI
MIA
FMY
CSN
NPS
EYW
HSU

TYPE OF FLIGHT Hurricane CARRIE DATE September 15, 1957

FLIGHT NO. 70915A DATA TABULATED FROM 1800
TO 0046

FLIGHT PRESSURE ALTITUDE 1,600 Ft. till 2130; 14,200 Ft. till 0046

DATA SAMPLING RATE:

30	SEC.	1800-1812	10	SEC.	2202-2233; 2237-0006
5	SEC.	1812-1819	30	SEC.	0006-0046
20-30	SEC.	1819-1852		SEC.	
10	SEC.	1852-2114		SEC.	
20-30	SEC.	2114-2201		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

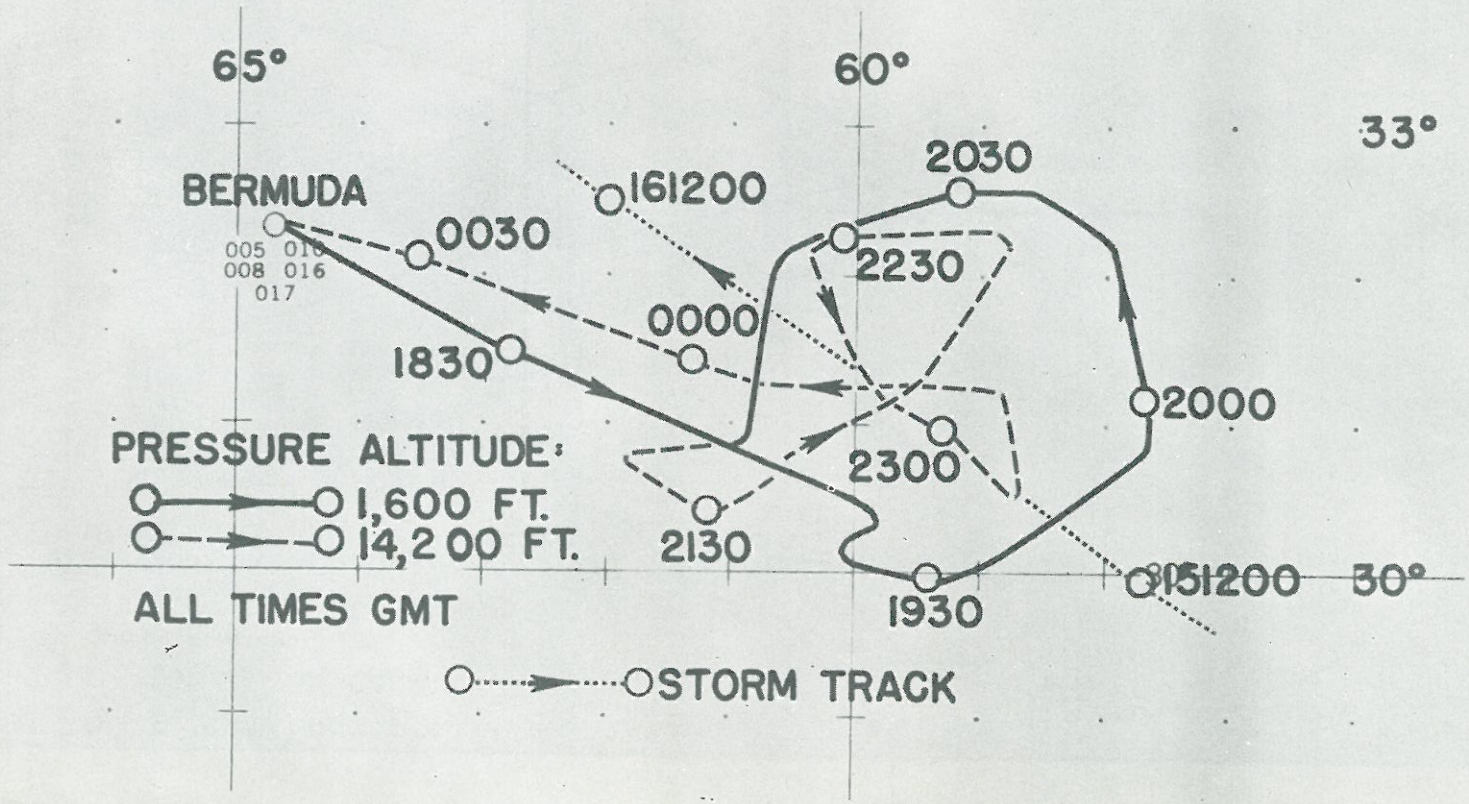
A/C NAVIGATION DATA LAT.-LONG.	1800-0046
WIND	1800-0046
TEMPERATURE	1800-0046
D-VALUE	1800-2103; 2139-0042
HUMIDITY	
PRESSURE ALTITUDE	1800-2113; 2139-0042
RADAR ALTITUDE	1800-2103; 2139-0042

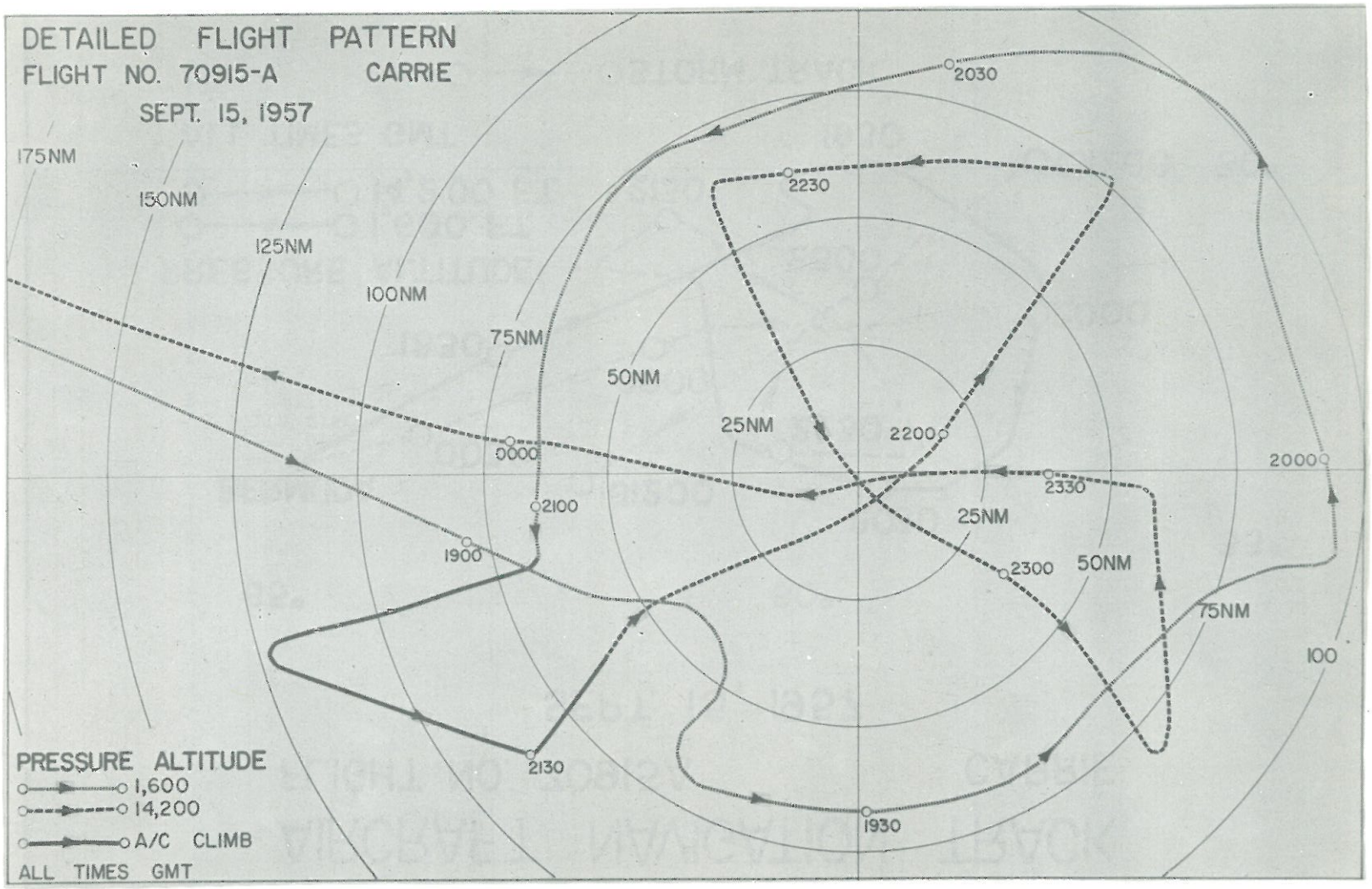
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1828-2137
PHOTO PANEL DATA	2 rolls: 1816-2217; 2127-0046
Ash 9	2 rolls: 1759-2130; 2138-0043

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 70915A CARRIE

SEPT. 15, 1957




DETAILED FLIGHT PATTERN
FLIGHT NO. 70915-A CARRIE
SEPT. 15, 1957
175NM
150NM
125NM
100NM
75NM
50NM
25NM
25NM
50NM
75NM
100
2030
2230
2200
2000
2330
2300
2100
1900
2130
1930
PRESSURE ALTITUDE
1,600
14,200
A/C CLIMB
ALL TIMES GMT

TYPE OF FLIGHT Hurricane CARRIE DATE September 15, 1957

FLIGHT NO. 70915B DATA TABULATED FROM 1802
TO 2058

FLIGHT PRESSURE ALTITUDE 17,600 Ft.

DATA SAMPLING RATE:

60	SEC.	1802-1852	SEC.	
2-10	SEC.	1853-2025	SEC.	
60	SEC.	2031-2058	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

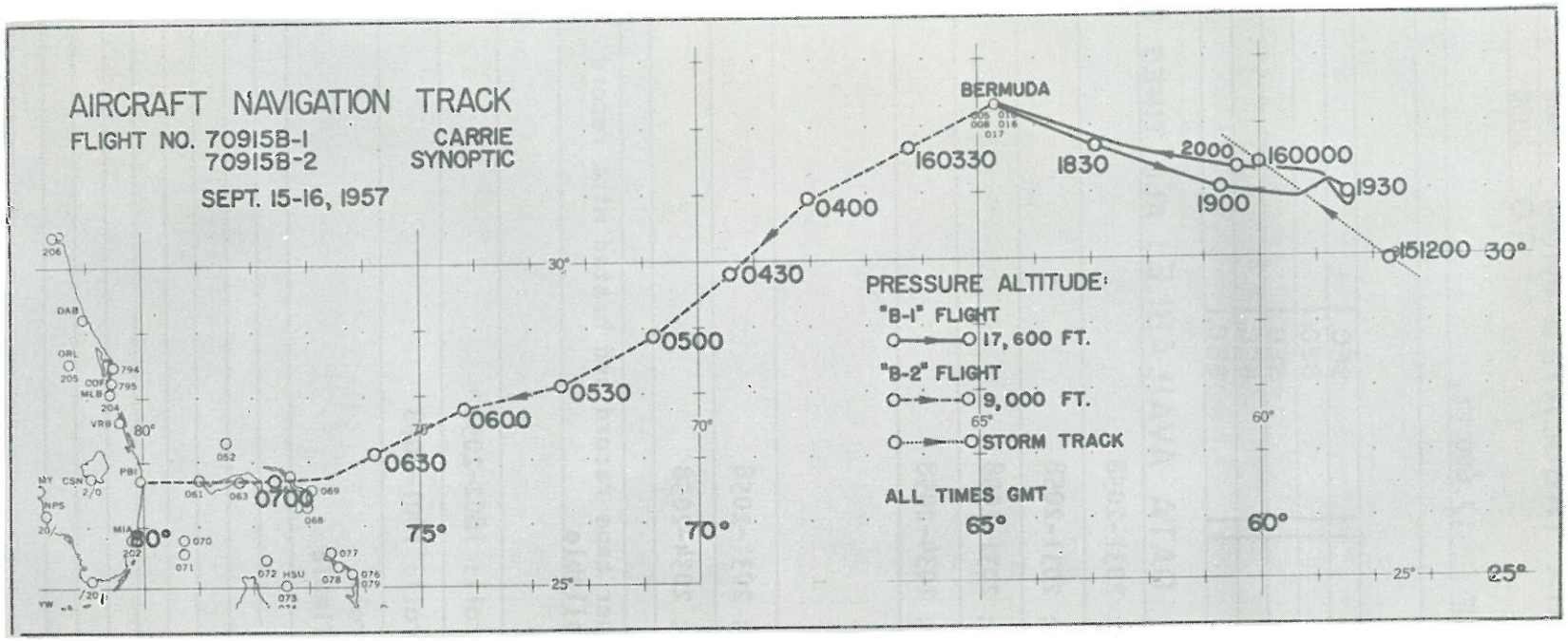
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

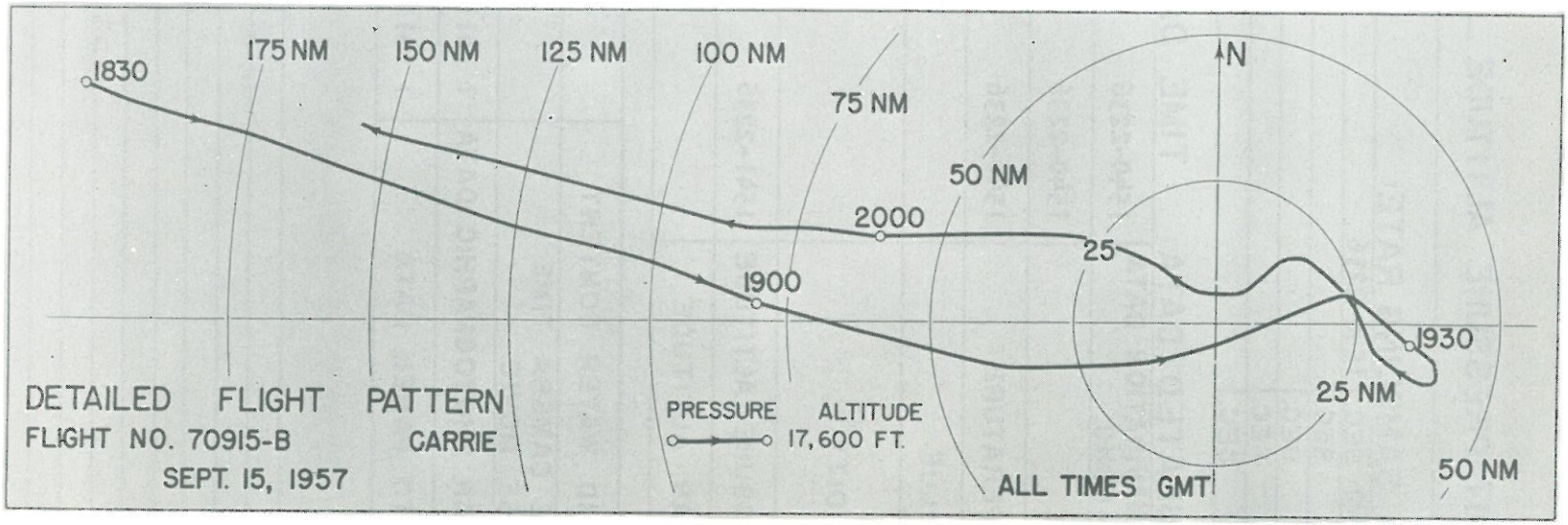
A/C NAVIGATION DATA LAT.-LONG.	1802-2025; 2031-2058
WIND	1802-2025; 2031-2058
TEMPERATURE	1802-2025; 2031-2058
D-VALUE	1802-2025; 2034-2058
HUMIDITY	
PRESSURE ALTITUDE	1801-2025; 2031-2058
RADAR ALTITUDE	1802-2025; 2034-2058

LIQUID WATER CONTENT	Paper tape record and heated wire record available
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1802-2058
PHOTO PANEL DATA	1 roll: 1801-2058

Ash 9 1 roll

Side camera time-lapse movie available


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70915B-1
70915B-2
CARRIE
SYNOPTIC
SEPT. 15-16, 1957
BERMUDA
160330
1830
2000
160000
1930
1900
151200
0400
0430
0500
0530
0600
0630
0700
PRESSURE ALTITUDE:
"B-1" FLIGHT
17,600 FT.
"B-2" FLIGHT
9,000 FT.
STORM TRACK
ALL TIMES GMT
80°
75°
70°
65°
60°
30°
25°
DAB
ORL
MLB
VRB
PBI
MIA
HSU


1830
175 NM
150 NM
125 NM
100 NM
75 NM
50 NM
N
2000
25
1900
1930
25 NM
50 NM
DETAILED FLIGHT PATTERN
FLIGHT NO. 70915-B
CARRIE
SEPT. 15, 1957
PRESSURE ALTITUDE
17,600 FT.
ALL TIMES GMT

TYPE OF FLIGHT Hurricane CARRIE DATE September 15, 1957

FLIGHT NO. 70915C DATA TABULATED FROM 1540
TO 2236

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

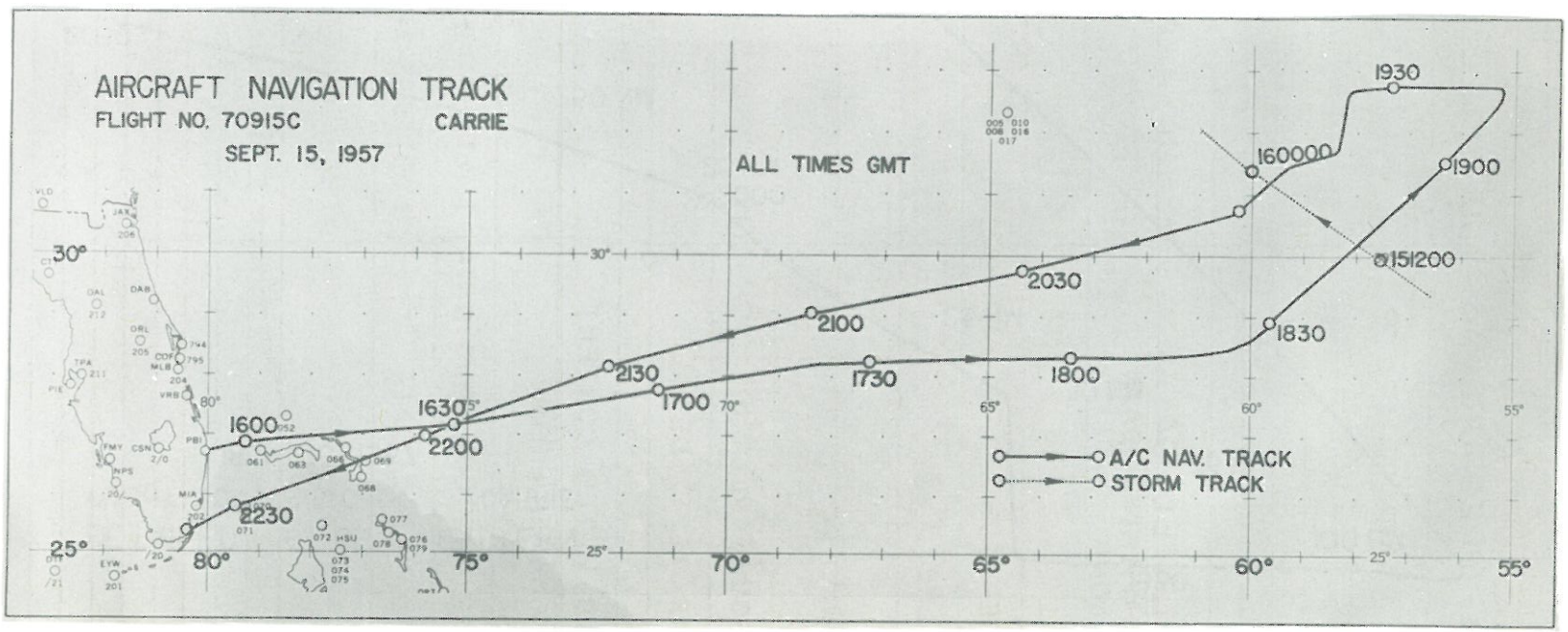
DATA SAMPLING RATE:

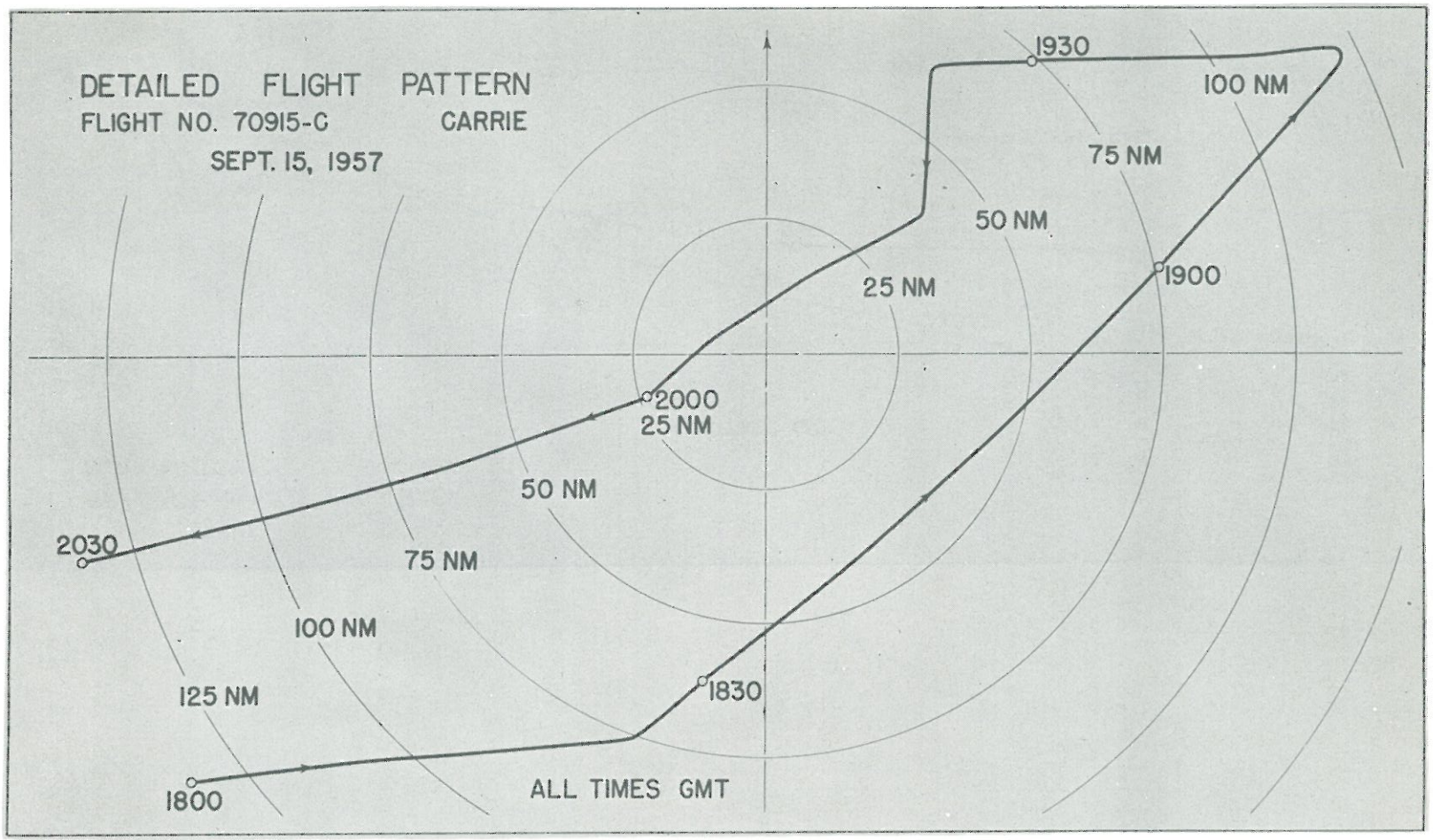
30-40 SEC.	1540-2236	SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1540-2236
WIND	1540-2236
TEMPERATURE	1540-2236
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1541-2236
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1645-2040
PHOTO PANEL DATA	1 roll: 1542-2237


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70915C
CARRIE
SEPT. 15, 1957
ALL TIMES GMT
1600
1630
2200
2230
2130
1700
2100
1730
2030
1800
160000
1830
151200
1930
1900
A/C NAV. TRACK
STORM TRACK
30°
25°
80°
75°
70°
65°
60°
55°


DETAILED FLIGHT PATTERN
FLIGHT NO. 70915-C
CARRIE
SEPT. 15, 1957
1930
100 NM
75 NM
50 NM
25 NM
1900
2000
25 NM
50 NM
2030
75 NM
100 NM
125 NM
1830
1800
ALL TIMES GMT

TYPE OF FLIGHT Synoptic DATE September 16, 1957

FLIGHT NO. 70916A DATA TABULATED FROM 1028
TO 1949

FLIGHT PRESSURE ALTITUDE 14,000 Ft.

DATA SAMPLING RATE:

60-75 SEC.	1028-1449	SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

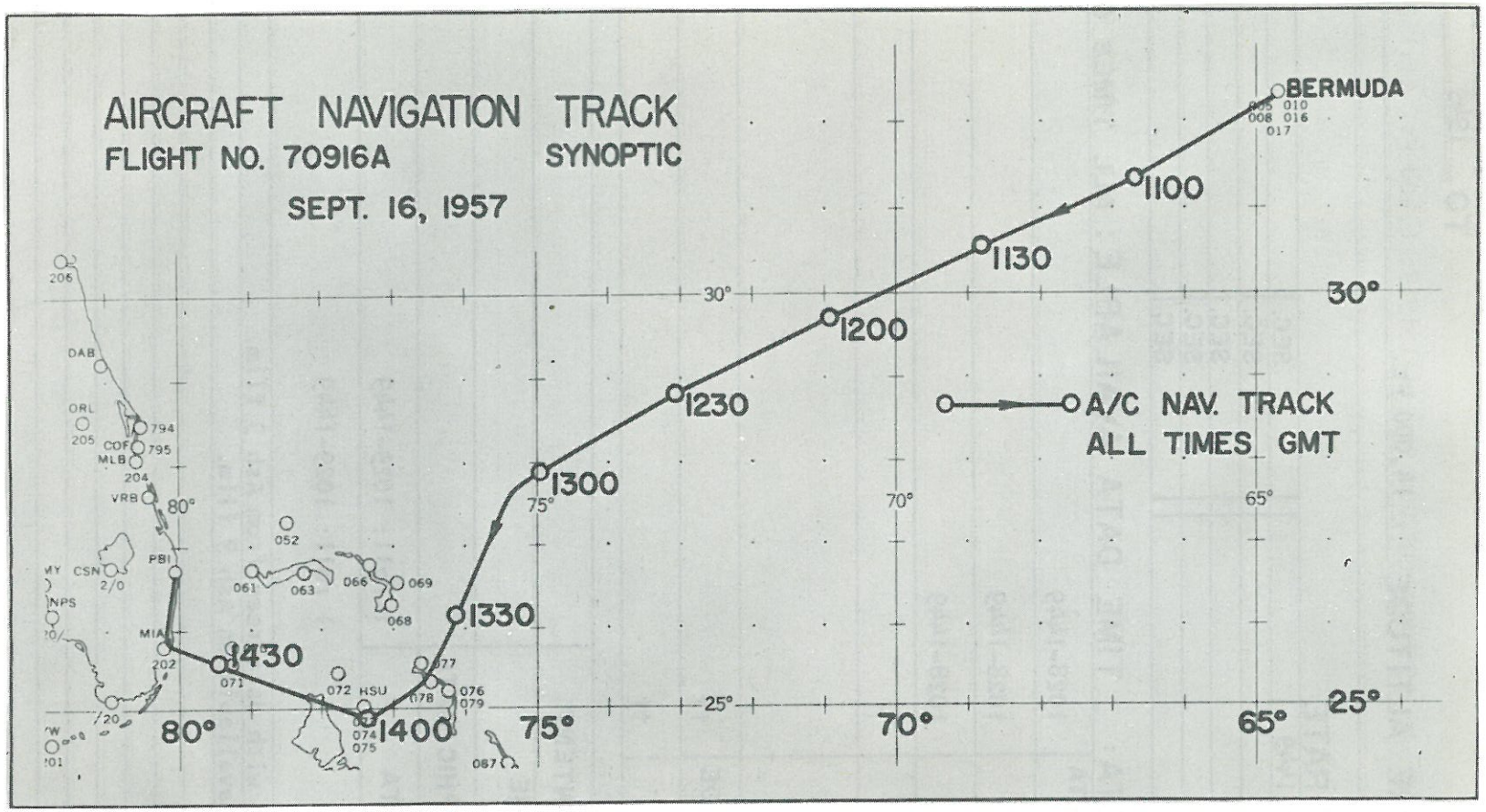
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1028-1449
WIND	1028-1449
TEMPERATURE	1028-1449
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1029-1449

Ash 9 1 roll: 1029-1449

† Can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70916A
SYNOPTIC
SEPT. 16, 1957
BERMUDA
1100
1130
1200
1230
1300
1330
1400
1430
A/C NAV. TRACK
ALL TIMES GMT
30°
25°
80°
75°
70°
65°
DAB
ORL
COF
MLB
VRB
PBI
MIA
HSU

TYPE OF FLIGHT Hurricane Carrie DATE September 17, 1957

FLIGHT NO. 70917A DATA TABULATED FROM 1201
TO 2138

FLIGHT PRESSURE ALTITUDE 11,000 Ft. till 1917; 6,400 Ft. till 2138

DATA SAMPLING RATE:

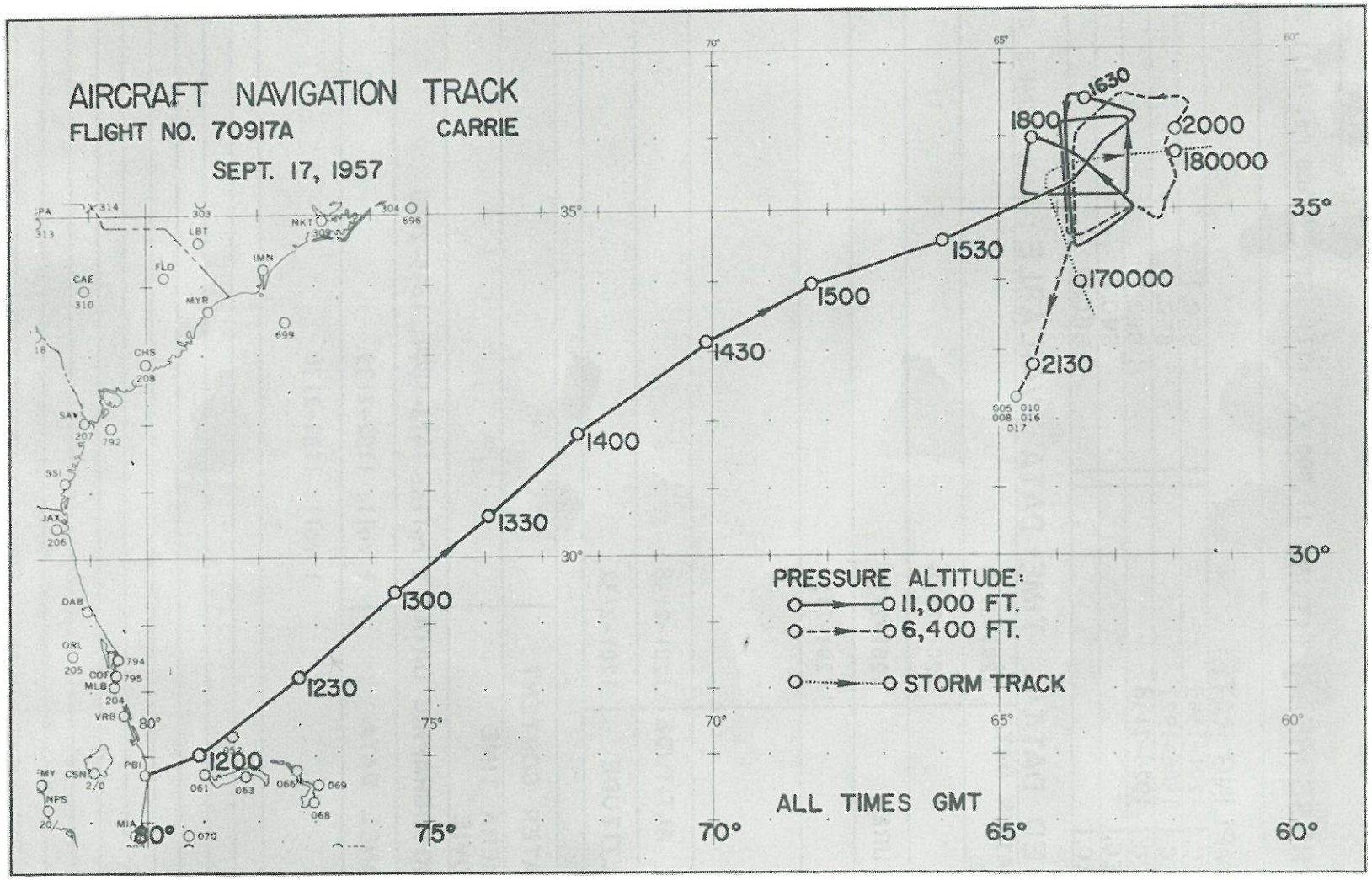
60-68	SEC.	1201-1545		SEC.	
10-18	SEC.	1546-1927		SEC.	
25-35	SEC.	1928-2138		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

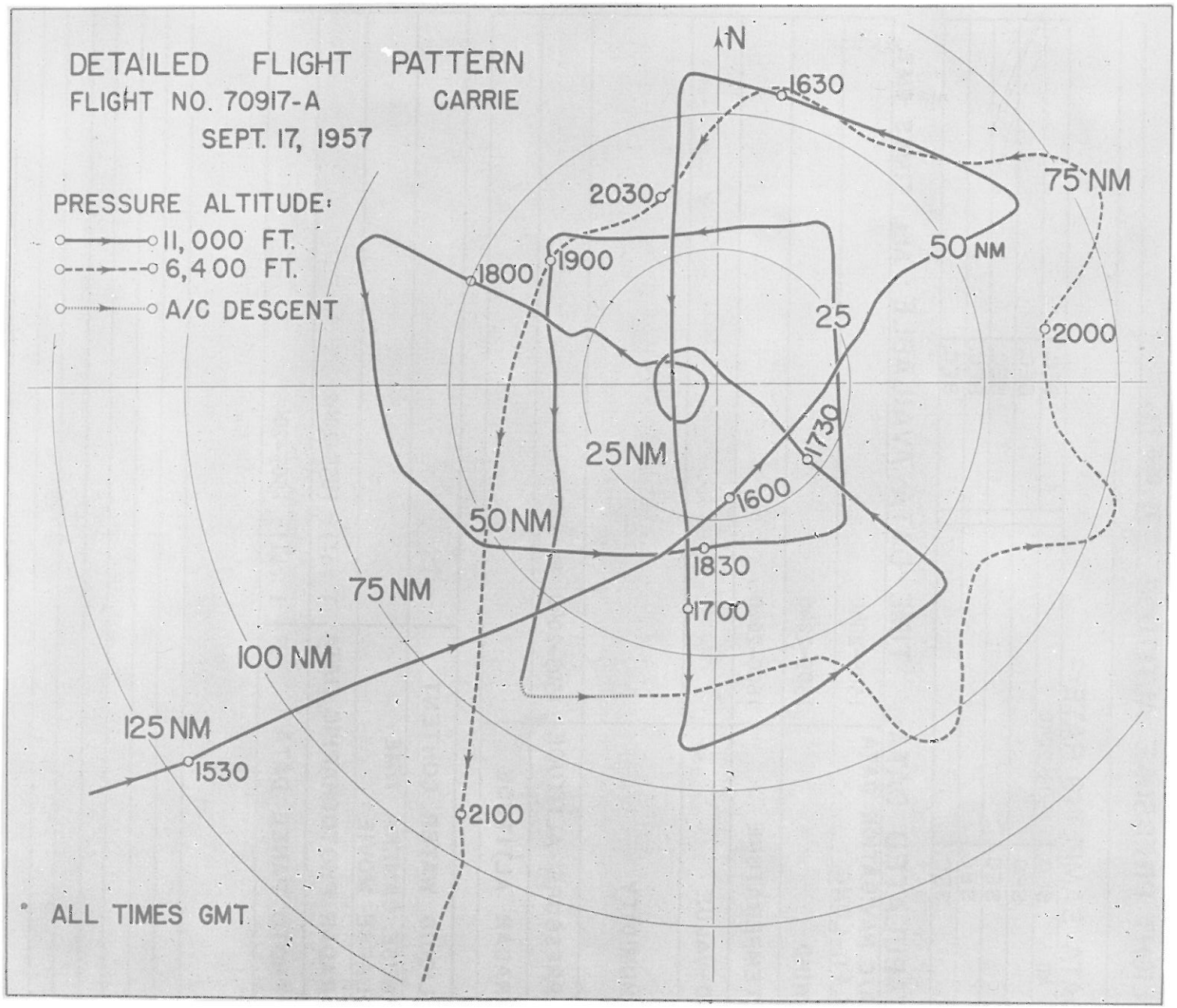
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1201-2138
WIND	1201-2138
TEMPERATURE	1201-2138
D-VALUE	1201-2132
HUMIDITY	
PRESSURE ALTITUDE	1201-2138
RADAR ALTITUDE	1201-2132

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls: 1413-1844; 1845-2006
PHOTO PANEL DATA	1 roll: 1152-2139

Ash 9 1 roll: 1152-2138


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70917A
CARRIE
SEPT. 17, 1957
1200
1230
1300
1330
1400
1430
1500
1530
1630
1800
2000
180000
170000
2130
PRESSURE ALTITUDE:
11,000 FT.
6,400 FT.
STORM TRACK
ALL TIMES GMT
80°
75°
70°
65°
60°
35°
30°
LBT
FLO
IMN
MYR
CAE
CHS
SAV
SSI
JAX
DAB
ORL
COF
MLB
VRB
PBI
MIA
CSN
NKT


DETAILED FLIGHT PATTERN
FLIGHT NO. 70917-A
CARRIE
SEPT. 17, 1957
PRESSURE ALTITUDE:
11,000 FT.
6,400 FT.
A/C DESCENT
N
1630
2030
1900
1800
75 NM
50 NM
25
2000
25 NM
1730
1600
50 NM
1830
75 NM
1700
100 NM
125 NM
1530
2100
ALL TIMES GMT

TYPE OF FLIGHT Hurricane CARRIE DATE September 17, 1957

FLIGHT NO. 70917C DATA TABULATED FROM 1505
TO 2040

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

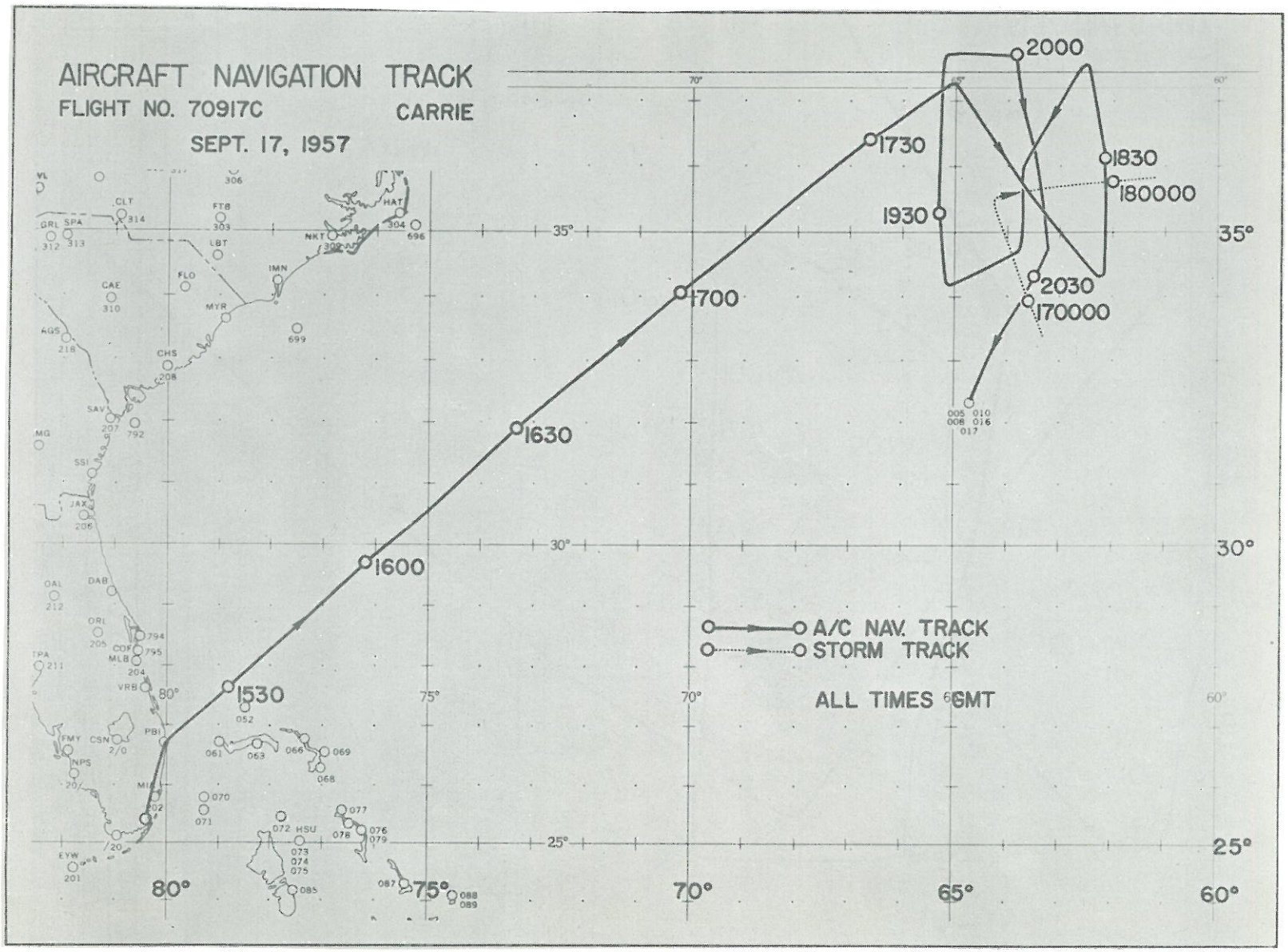
DATA SAMPLING RATE:

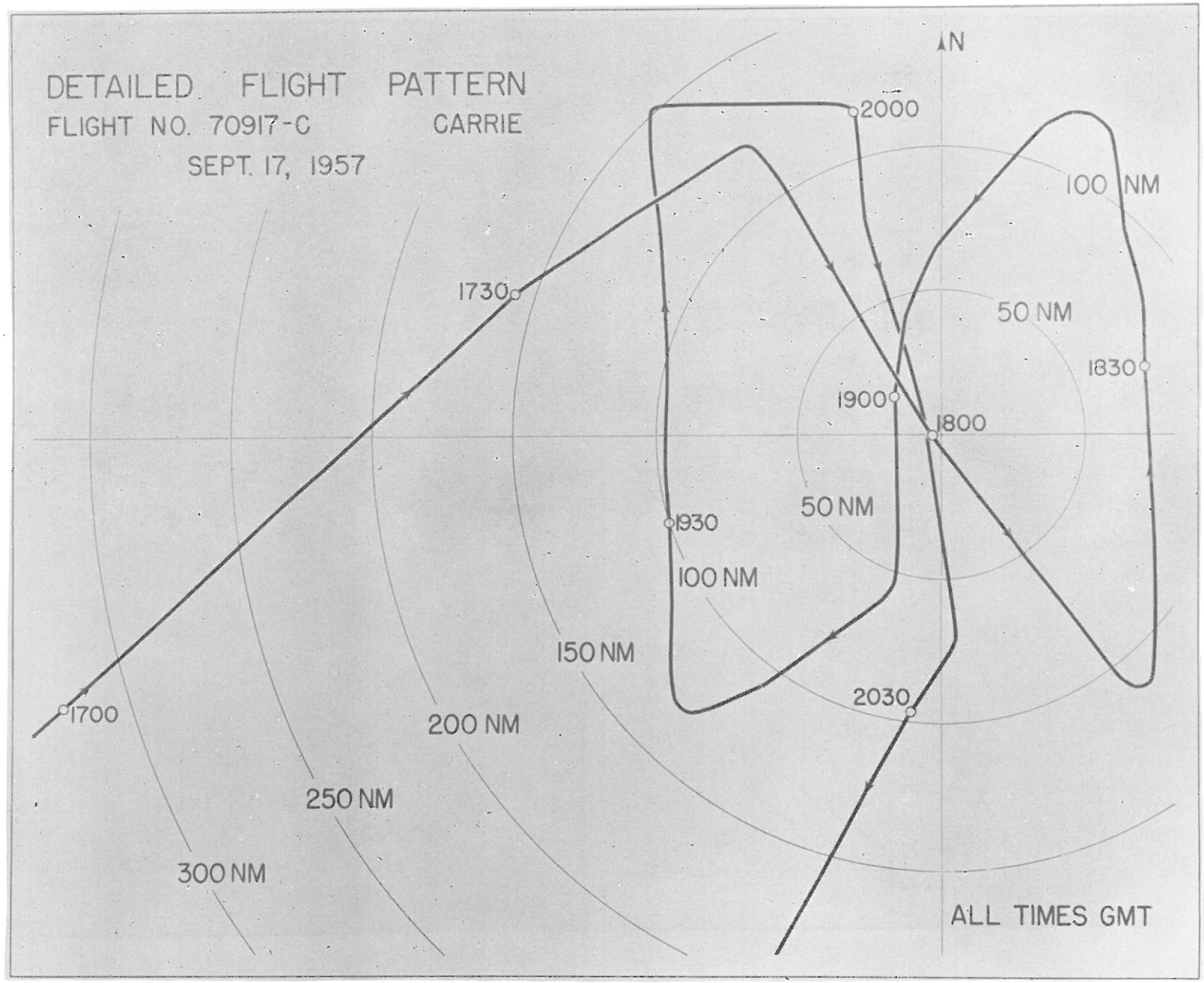
40	SEC.	1505-2040		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1505-2040
WIND	1505-2040
TEMPERATURE	1600-2040
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1505-2040
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1855-2042
PHOTO PANEL DATA	1 roll: 1505-2045


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70917C
CARRIE
SEPT. 17, 1957
1530
1600
1630
1700
1730
1830
1930
2000
2030
180000
170000
A/C NAV. TRACK
STORM TRACK
ALL TIMES GMT
80°
75°
70°
65°
60°
35°
30°
25°


DETAILED FLIGHT PATTERN
FLIGHT NO. 70917-C
CARRIE
SEPT. 17, 1957
N
2000
100 NM
1730
50 NM
1830
1900
1800
1930
50 NM
100 NM
150 NM
2030
1700
200 NM
250 NM
300 NM
ALL TIMES GMT

TYPE OF FLIGHT Hurricane Frieda DATE September 21, 1957

FLIGHT NO. 70921A DATA TABULATED FROM 2020
TO 0407

FLIGHT PRESSURE ALTITUDE 1,200 Ft. till 0400; 8,000 Ft. till 0650

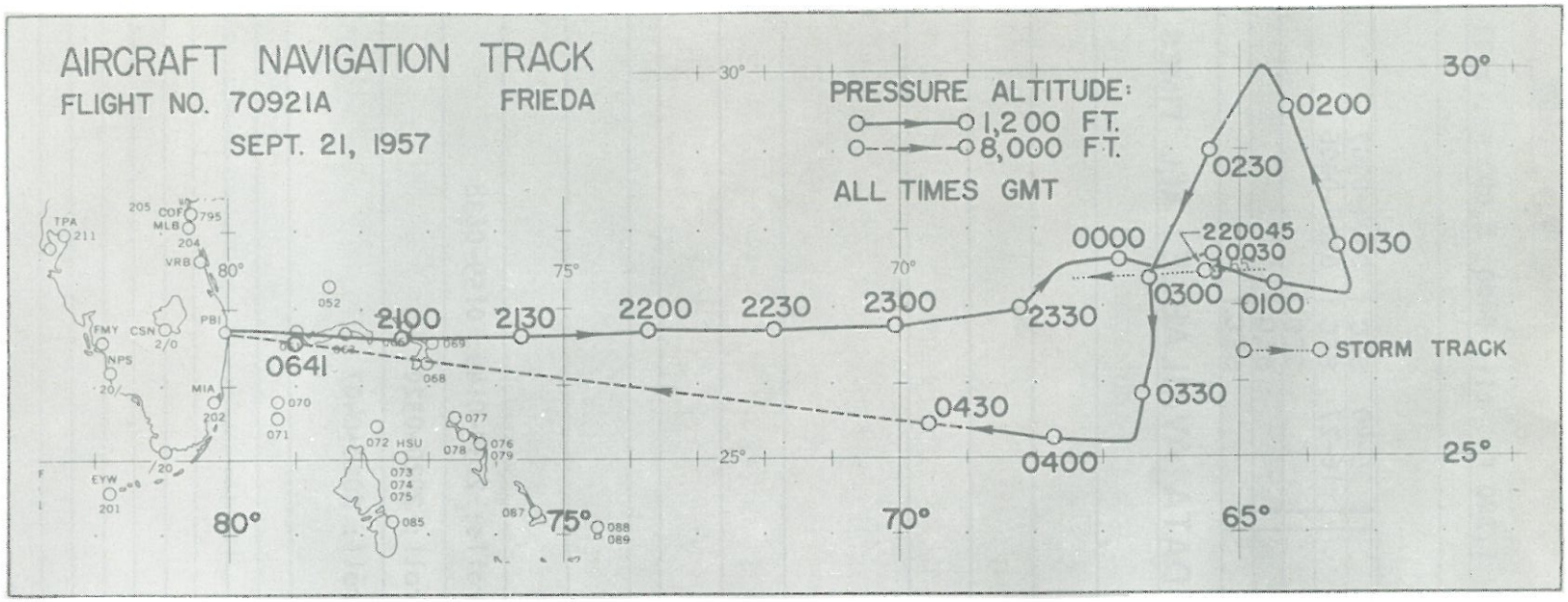
DATA SAMPLING RATE:

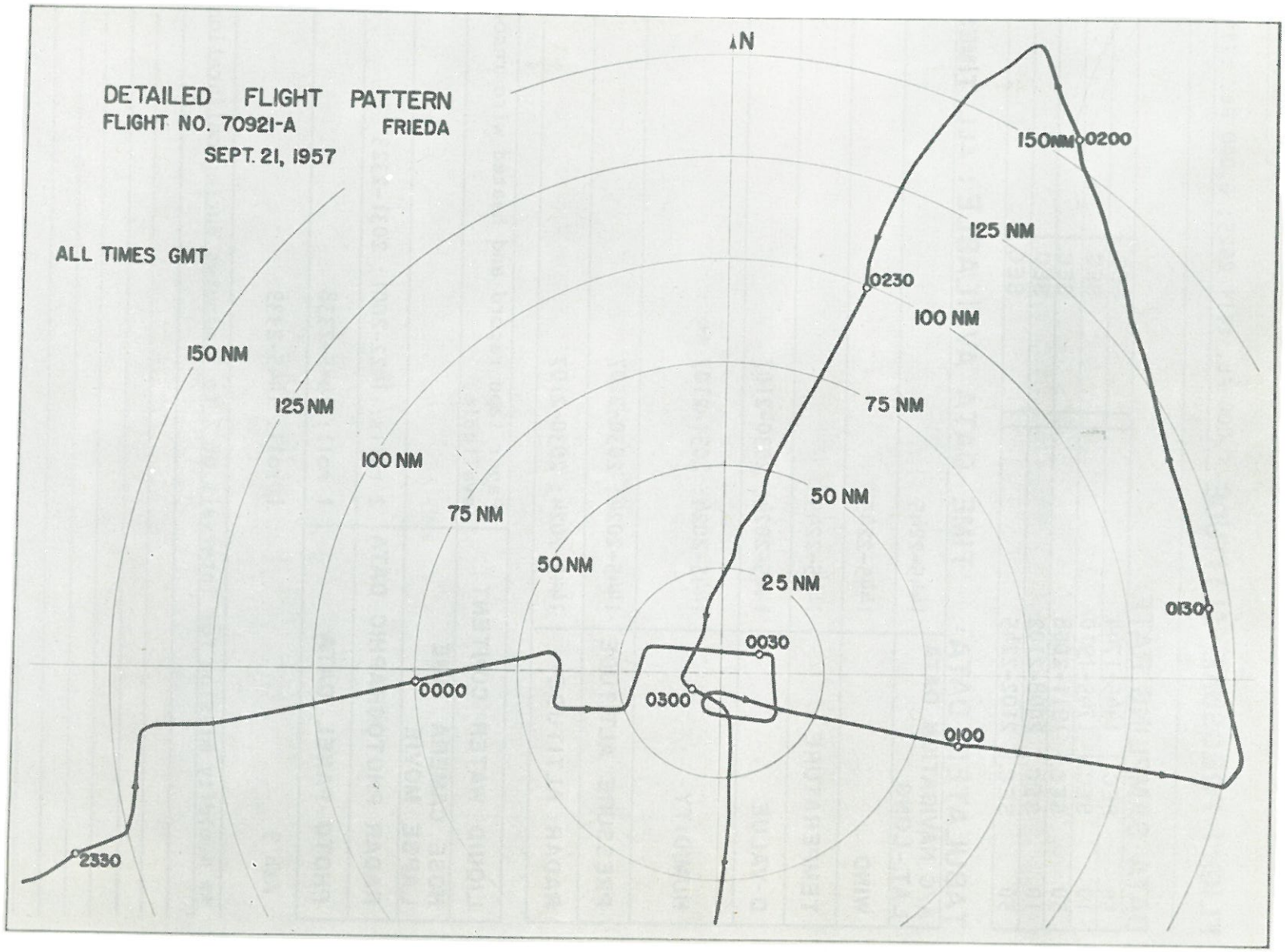
20 SEC.	2020-2034	35-40 SEC.	0304-0307
35-38 SEC.	2035-2315	16-27 SEC.	0308-0406
16-18 SEC.	2316-2328	SEC.	
8-10 SEC.	2328-0047	SEC.	
16-20 SEC.	0048-0303	SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	2020-0407
WIND	2020-0407
TEMPERATURE	2020-0407
D-VALUE	2034-0407
HUMIDITY	
PRESSURE ALTITUDE	2034-0407
RADAR ALTITUDE	2034-0407

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls: 2130-0149; 0159-0638
PHOTO PANEL DATA	1 roll: 2020-0320
Ash 9	1 roll: 2020-0407


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70921A
FRIEDA
SEPT. 21, 1957
PRESSURE ALTITUDE:
1,200 FT.
8,000 FT.
ALL TIMES GMT
STORM TRACK
0641
2100
2130
2200
2230
2300
2330
0000
0030
0100
0130
0200
0230
0300
0330
0400
0430
220045
30°
25°
80°
75°
70°
65°
TPA
COF
MLB
VRB
PBI
FMY
CSN
NPS
MIA
EYW
HSU


DETAILED FLIGHT PATTERN
FLIGHT NO. 70921-A
FRIEDA
SEPT. 21, 1957
ALL TIMES GMT
N
150 NM
125 NM
100 NM
75 NM
50 NM
25 NM
2330
0000
0030
0300
0100
0130
0200
0230

TYPE OF FLIGHT Hurricane Frieda DATE September 22, 1957

FLIGHT NO. 70922B DATA TABULATED FROM 1445
TO 2245

FLIGHT PRESSURE ALTITUDE 1,000 Ft. till 2025; 6,000 Ft. till 2245

DATA SAMPLING RATE:

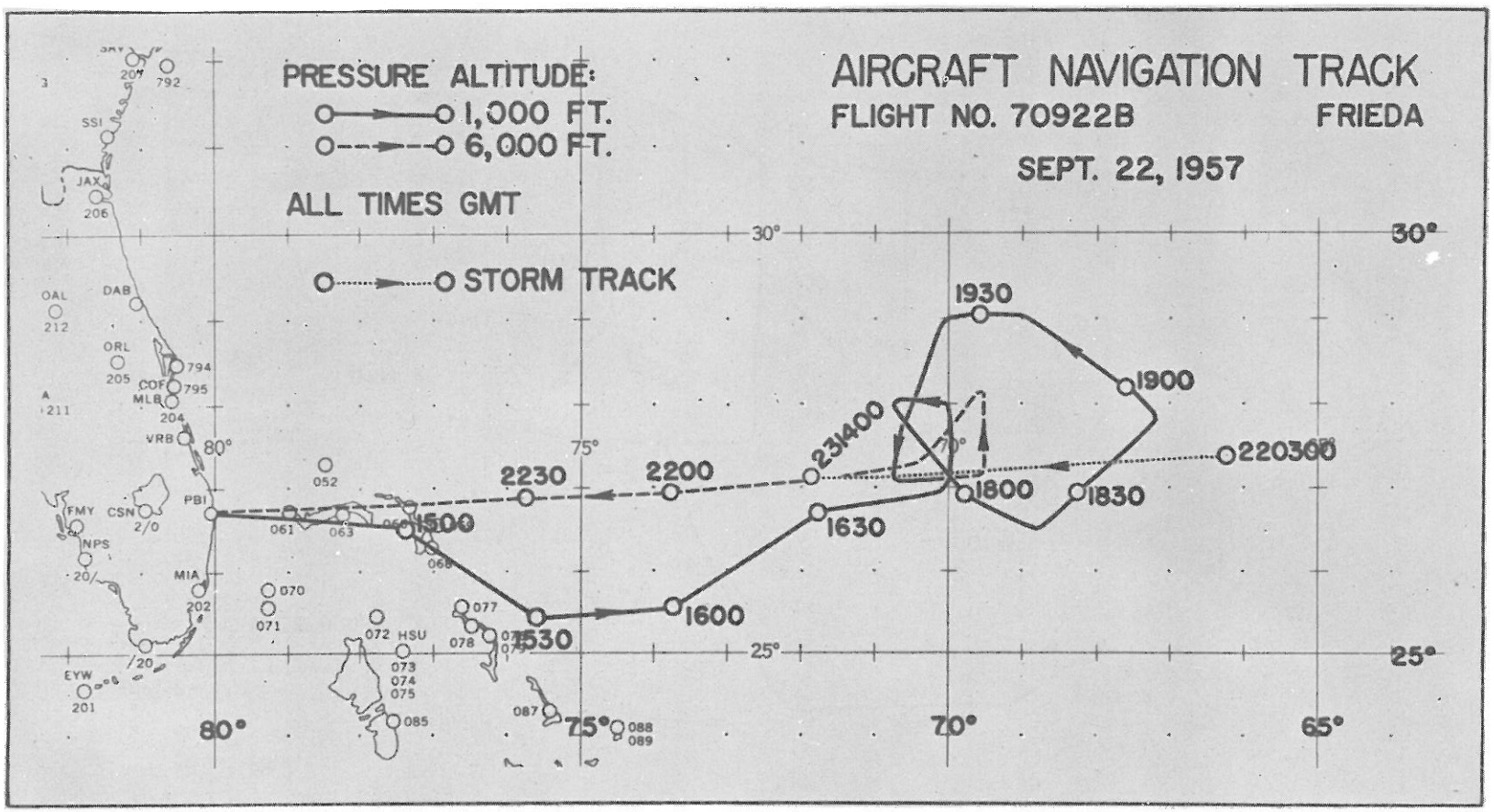
50	SEC.	1445-1744		SEC.	
10	SEC.	1745-1910		SEC.	
50	SEC.	1911-2008		SEC.	
10	SEC.	2008-2102		SEC.	
50	SEC.	2102-2245		SEC.	

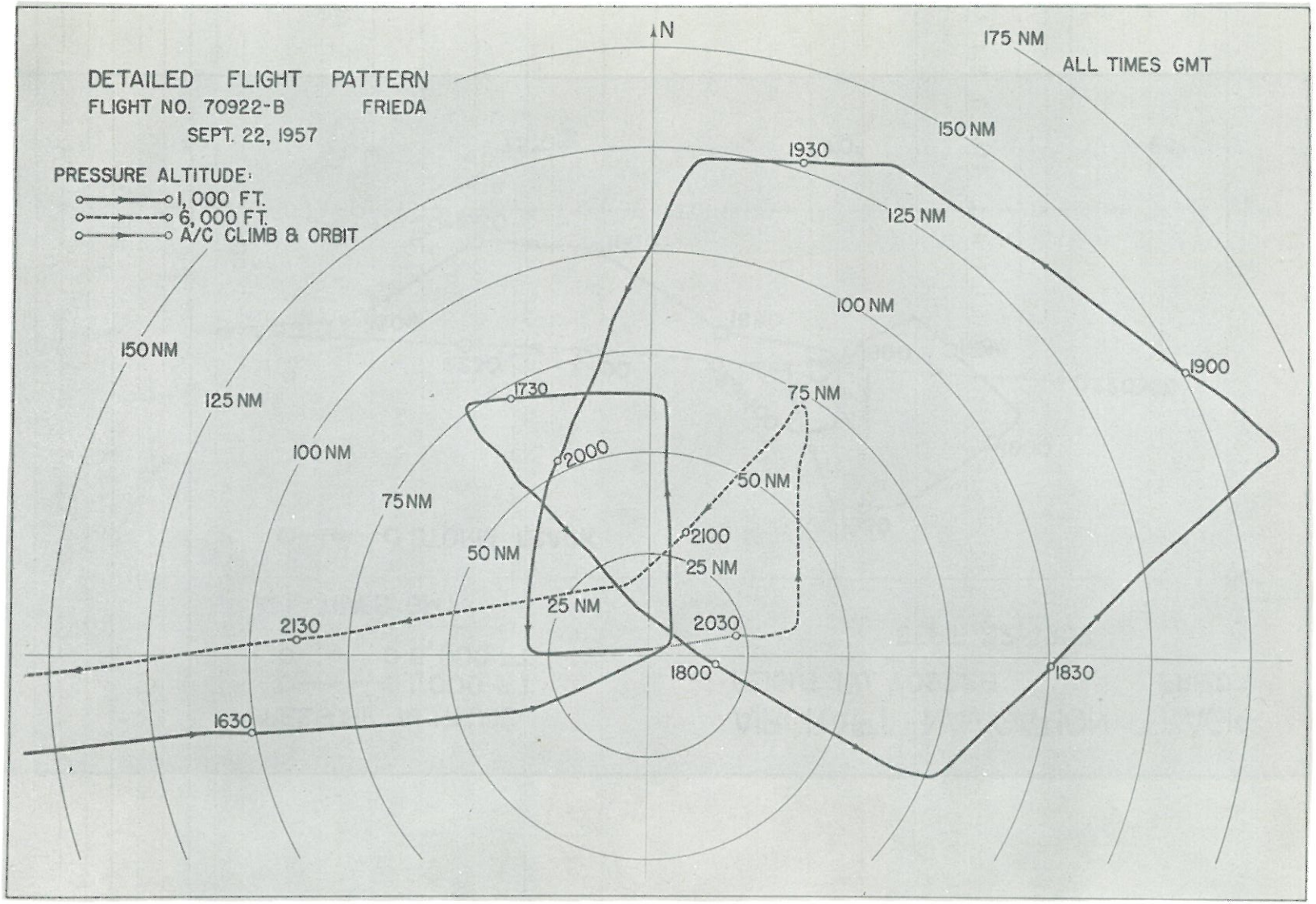
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1445-2245
WIND	1445-2245
TEMPERATURE	1445-2245
D-VALUE	1445-2024; 2030-2107
HUMIDITY	1445-2024; 2031-2107 **
PRESSURE ALTITUDE	1445-2024; 2030-2107
RADAR ALTITUDE	1445-2024; 2030-2107

LIQUID WATER CONTENT	Paper tape record and heated wire record available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls: 1422-2001; 2031-2323
PHOTO PANEL DATA	1 roll: 1445-2338
Ash 9	1 roll: 1445-2339

** Humidity missing for intervals of 2 to 3 minutes during calibration.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70922B
FRIEDA
SEPT. 22, 1957
PRESSURE ALTITUDE:
1,000 FT.
6,000 FT.
ALL TIMES GMT
STORM TRACK
1930
1900
231400
220300
2230
2200
1800
1830
1630
1500
1600
1530
30°
25°
80°
75°
70°
65°
SSI
JAX
206
OAL
212
DAB
ORL
205
COF
MLB
204
VRB
PBI
FMY
CSN
2/0
NPS
MIA
202
EYW
201
052
061
063
070
071
072
HSU
073
074
075
077
078
085
087
088
089
792
794
795


DETAILED FLIGHT PATTERN
FLIGHT NO. 70922-B FRIEDA
SEPT. 22, 1957
PRESSURE ALTITUDE:
1,000 FT.
6,000 FT.
A/C CLIMB & ORBIT
N
ALL TIMES GMT
175 NM
150 NM
125 NM
100 NM
75 NM
50 NM
25 NM
1930
1900
1830
1800
2030
2100
2000
1730
2130
1630

TYPE OF FLIGHT Hurricane FRIEDA DATE September 22, 1957

FLIGHT NO. 70922C DATA TABULATED FROM 1505
TO 1714

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

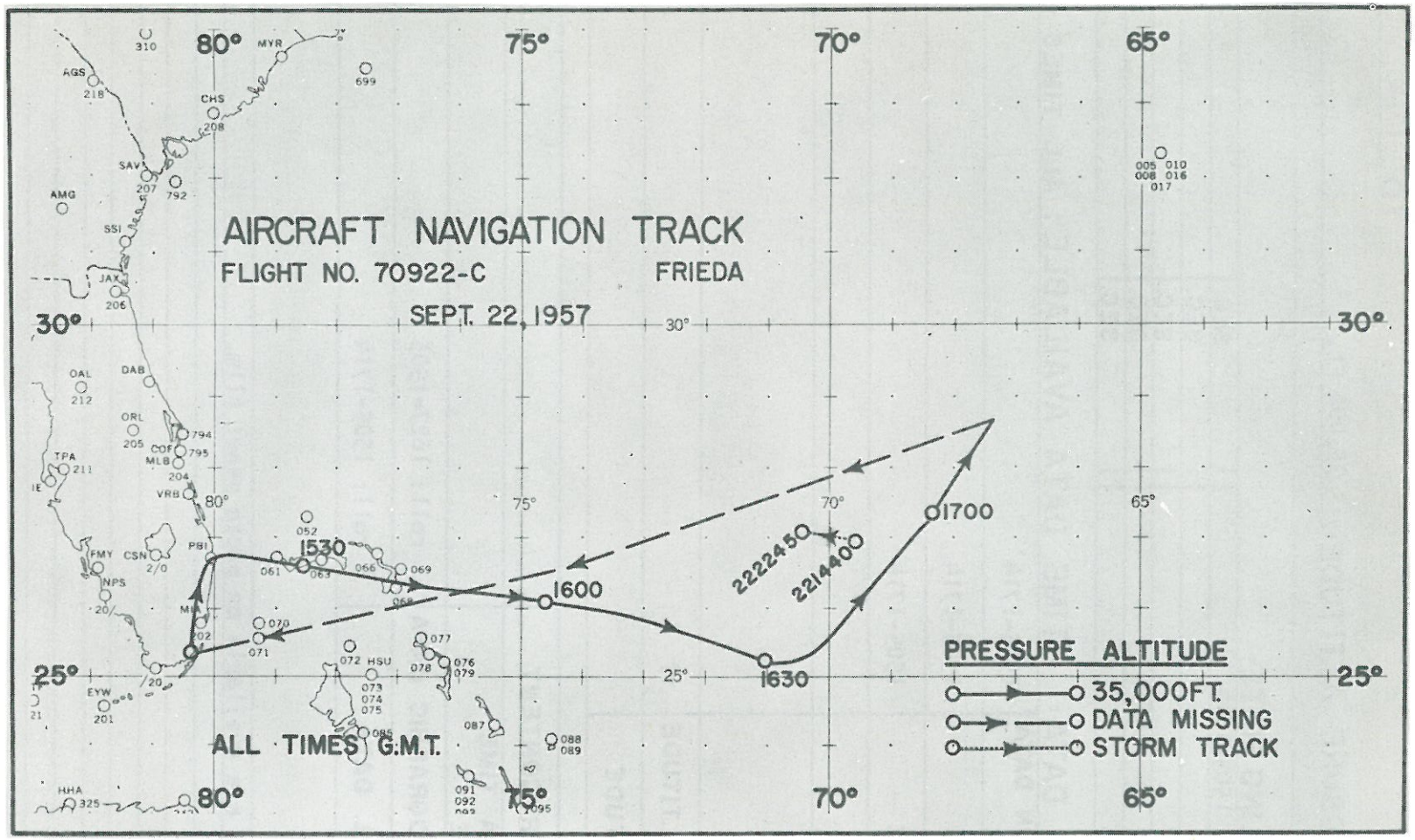
20-40 SEC.	1505-1714	SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

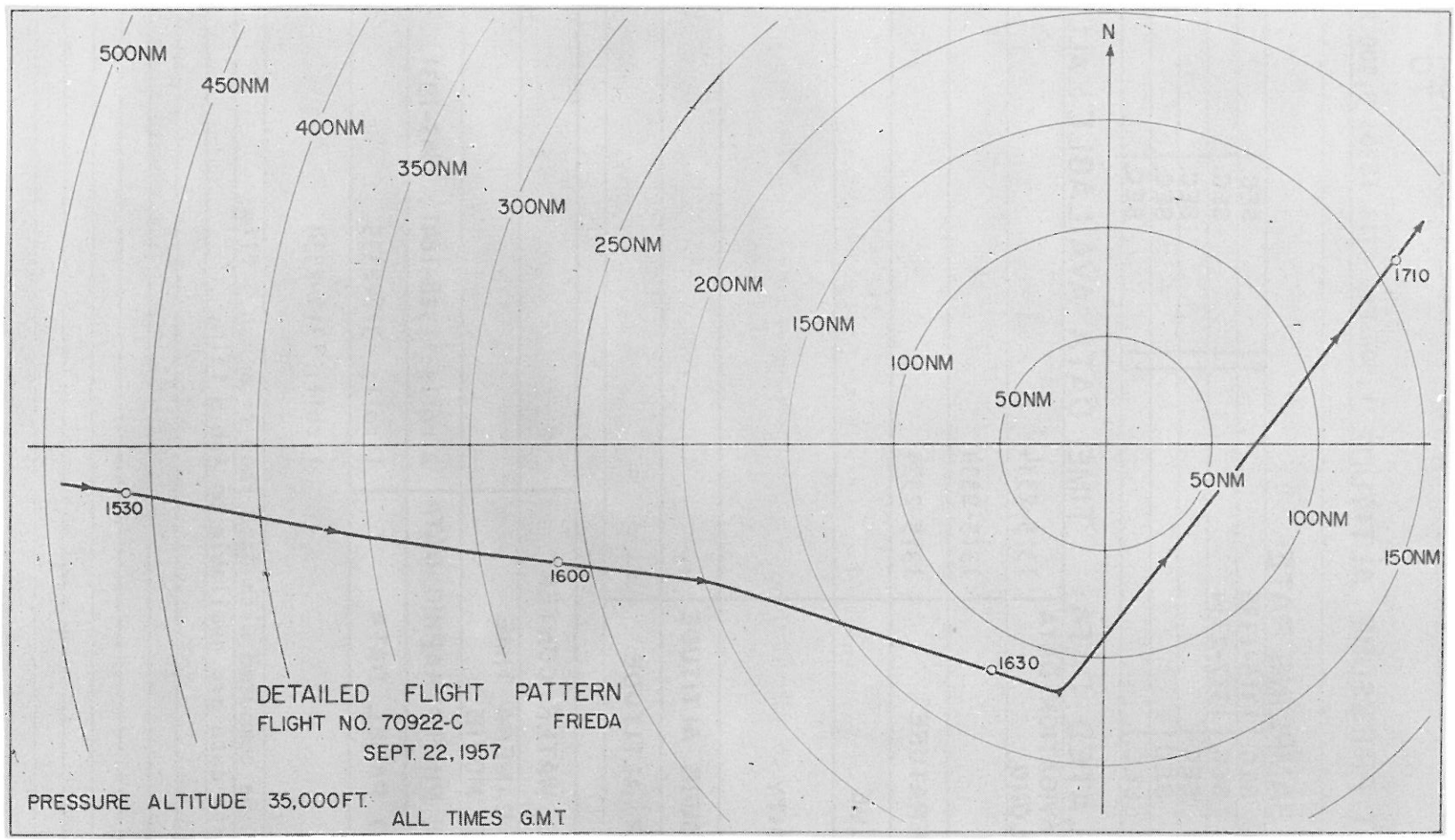
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1505-1714
WIND	1505-1714
TEMPERATURE	1505-1714
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1627-1905
PHOTO PANEL DATA	1 roll: 1505-1714

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70922-C
FRIEDA
SEPT. 22, 1957
80°
75°
70°
65°
30°
25°
1530
1600
1630
1700
2222450
2214400
PRESSURE ALTITUDE
35,000FT.
DATA MISSING
STORM TRACK
ALL TIMES G.M.T.
MYR
AGS
CHS
SAV
AMG
SSI
JAX
OAL
DAB
ORL
TPA
COF
MLB
VRB
PBI
FMY
CSN
NPS
MIA
EYW
HSU
HHA


N
500NM
450NM
400NM
350NM
300NM
250NM
200NM
150NM
100NM
50NM
50NM
100NM
150NM
1530
1600
1630
1710
DETAILED FLIGHT PATTERN
FLIGHT NO. 70922-C FRIEDA
SEPT. 22, 1957
PRESSURE ALTITUDE 35,000FT.
ALL TIMES G.M.T.

TYPE OF FLIGHT Hurricane Frieda DATE September 23, 1957

FLIGHT NO. 70923A DATA TABULATED FROM 1315
TO 2334

FLIGHT PRESSURE ALTITUDE 1,500 Ft. till 1830; 9,500 Ft. till 2334

DATA SAMPLING RATE:

10-50	SEC.	1315-1336	SEC.	
30	SEC.	1337-2334	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1315-2334
WIND	1315-2334
TEMPERATURE	1315-2334
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls: 1328-1841; 1843-1931
PHOTO PANEL DATA	1 roll: 1316-2335

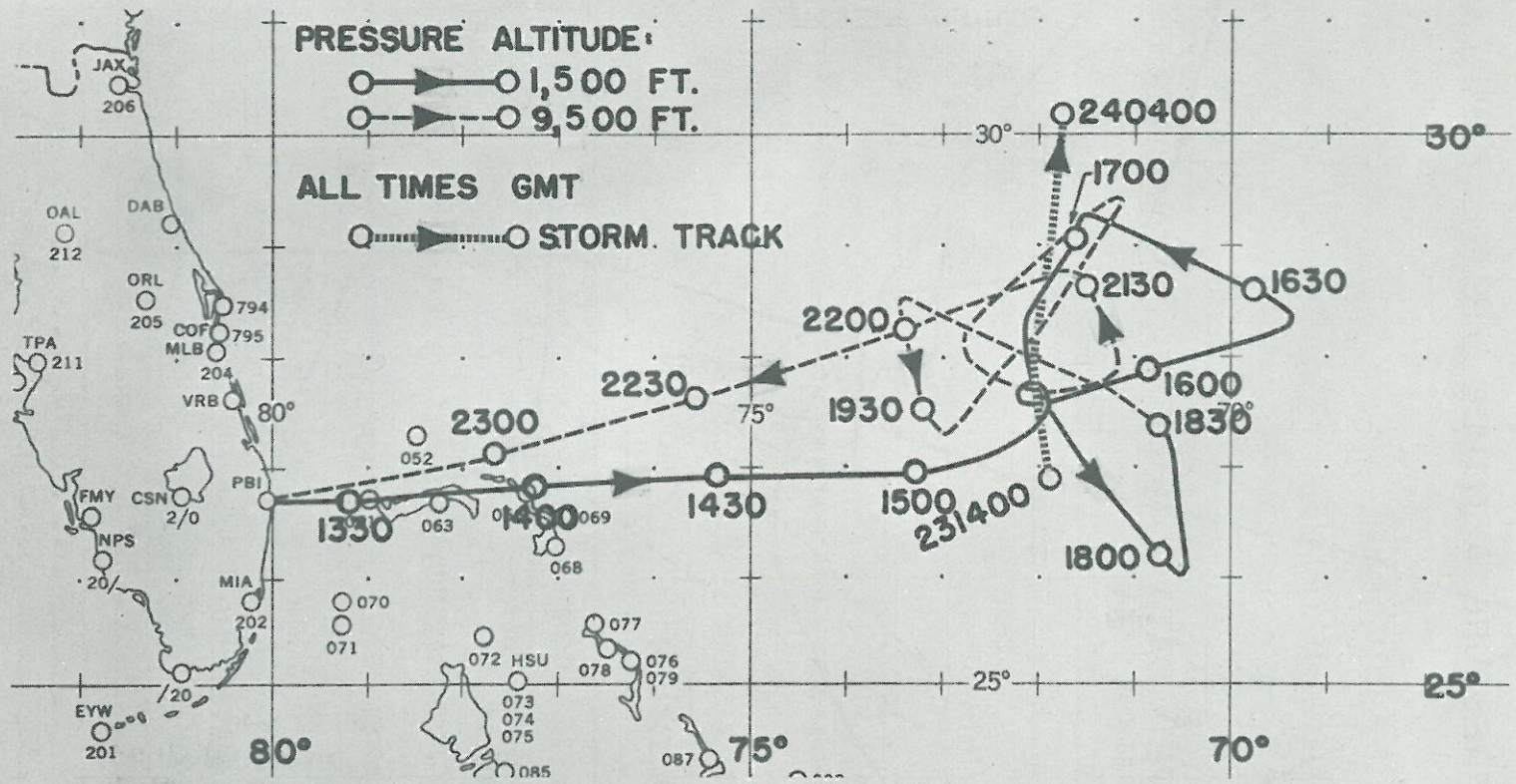
Ash 9 1 roll: 1316-2334

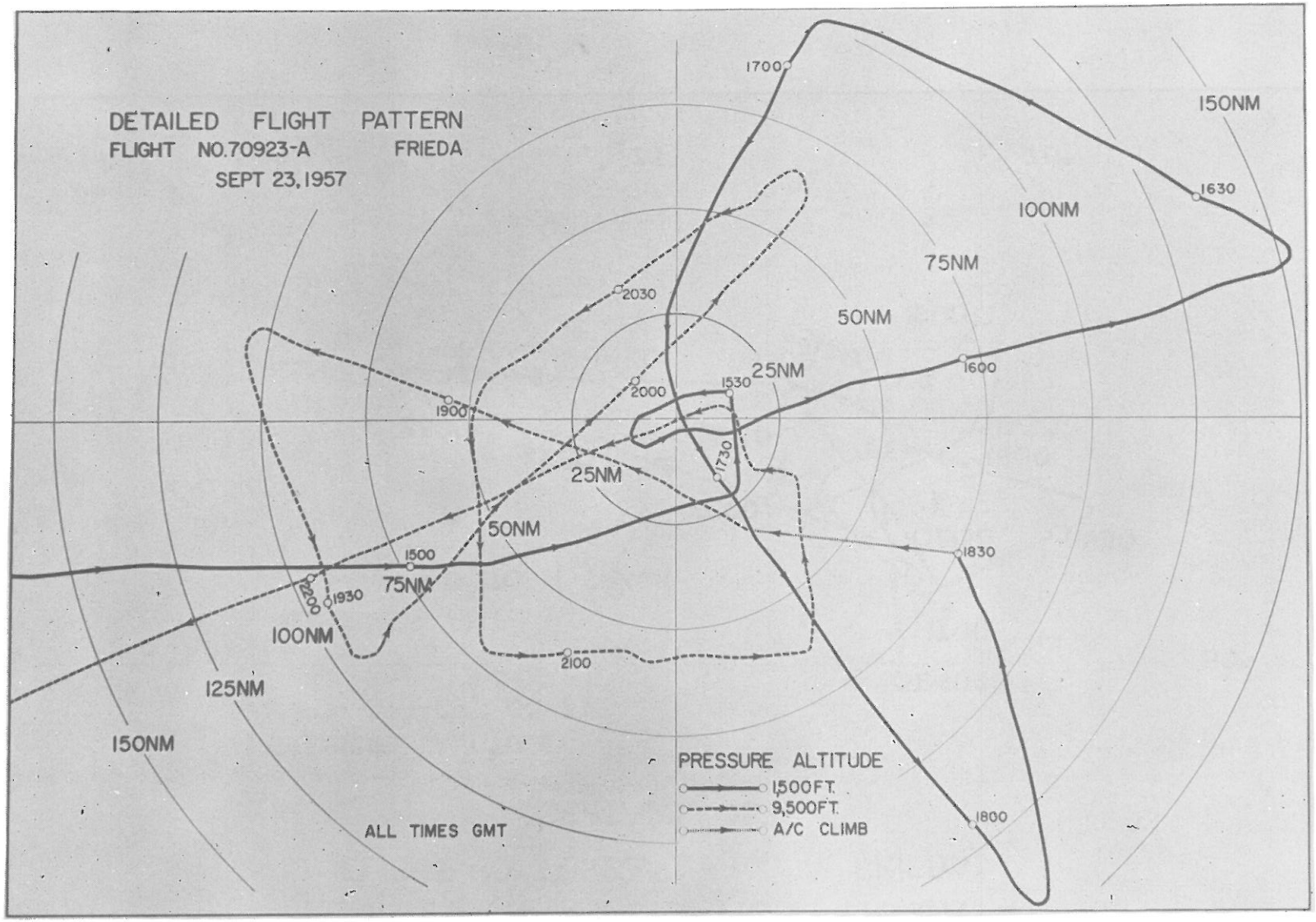
† Can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 70923A FRIEDA

SEPT. 23, 1957




DETAILED FLIGHT PATTERN
FLIGHT NO.70923-A FRIEDA
SEPT 23, 1957
150NM
100NM
75NM
50NM
25NM
25NM
50NM
75NM
100NM
125NM
150NM
1700
1630
1600
1830
1800
1730
1530
2000
2030
1900
1500
1930
2200
2100
PRESSURE ALTITUDE
1,500FT.
9,500FT.
A/C CLIMB
ALL TIMES GMT

TYPE OF FLIGHT Hurricane FRIEDA DATE September 23, 1957

FLIGHT NO. 70923C DATA TABULATED FROM 1753
TO 2325

FLIGHT PRESSURE ALTITUDE 34,800 Ft.

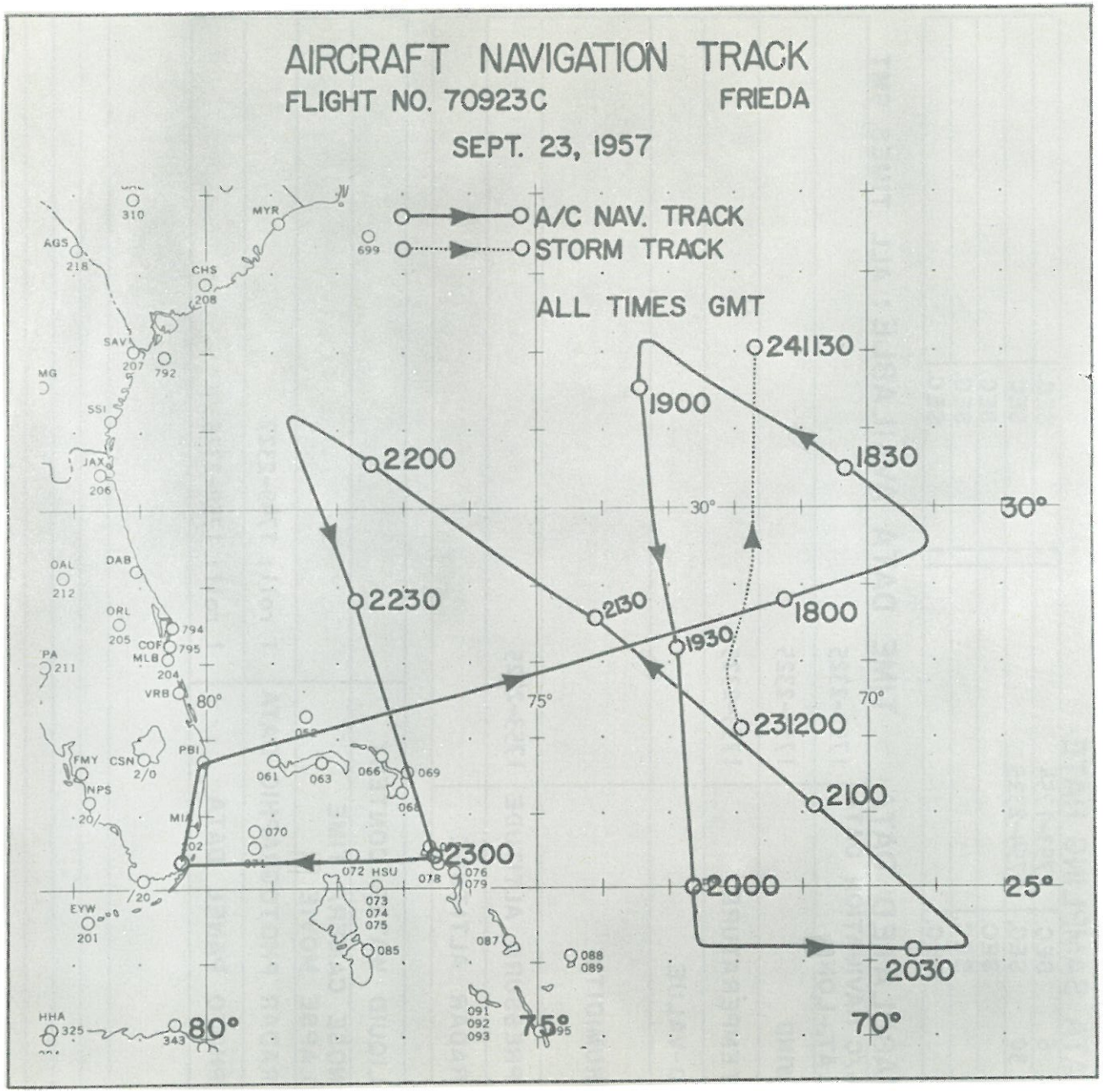
DATA SAMPLING RATE:

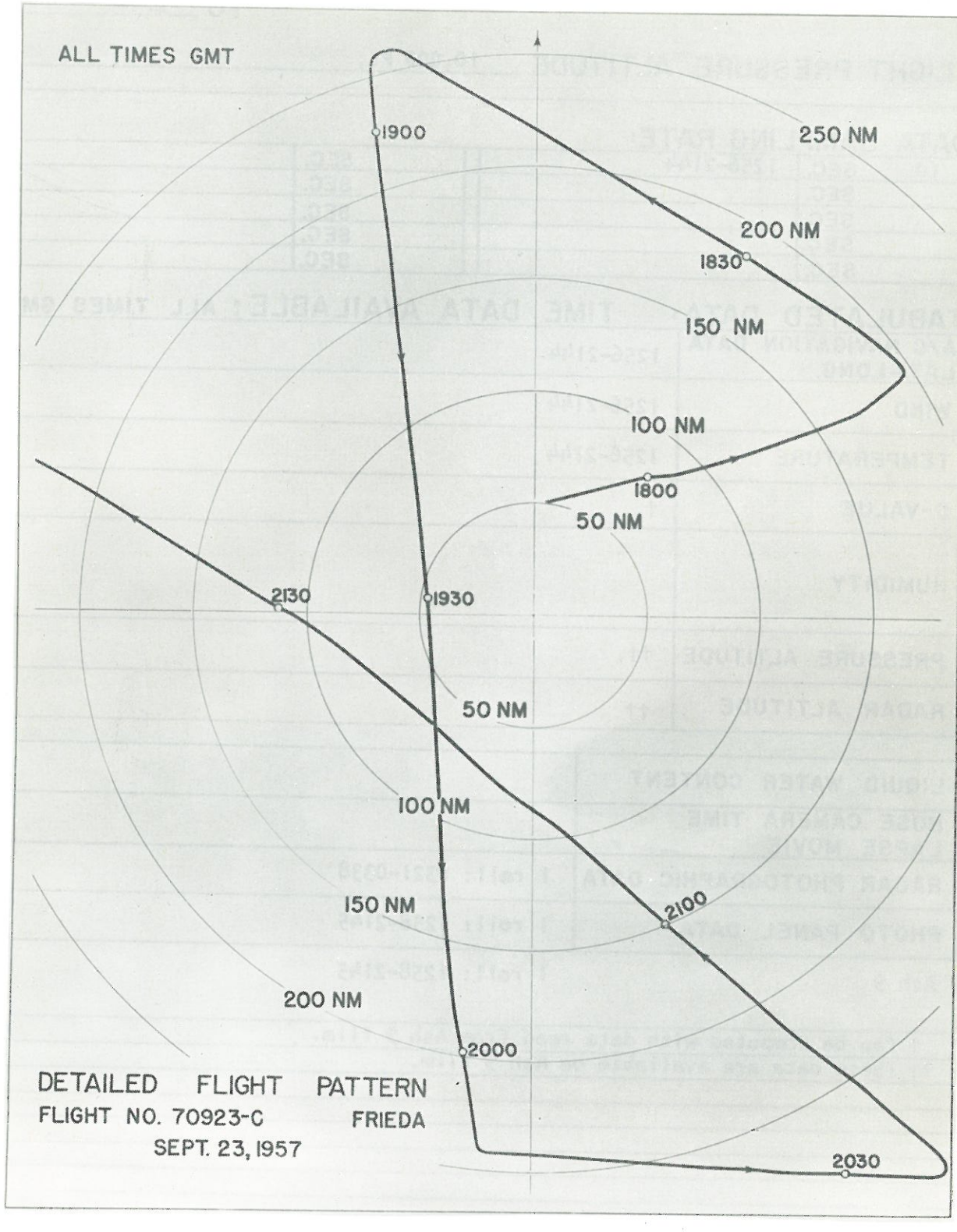
6	SEC.	1753-1754	SEC.	
30	SEC.	1754-2325	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1753-2325
WIND	1753-2325
TEMPERATURE	1753-2325
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1753-2325
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1749-2327
PHOTO PANEL DATA	1 roll: 1750-2325


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 70923C
FRIEDA
SEPT. 23, 1957
A/C NAV. TRACK
STORM TRACK
ALL TIMES GMT
241130
1900
1830
2200
30°
30°
2230
2130
1800
1930
80°
75°
70°
231200
2100
2300
2000
25°
2030
80°
75°
70°
MYR
AGS
CHS
SAV
MG
SSI
JAX
OAL
DAB
ORL
COF
MLB
PA
VRB
PBI
FMY
CSN
NPS
MIA
EYW
HHA
HSU



DETAILED FLIGHT PATTERN
FLIGHT NO. 70923-C FRIEDA
SEPT. 23, 1957

TYPE OF FLIGHT Synoptic DATE October 5, 1957

FLIGHT NO. 71005A DATA TABULATED FROM 1256
TO 2144

FLIGHT PRESSURE ALTITUDE 10,000 Ft.

DATA SAMPLING RATE:

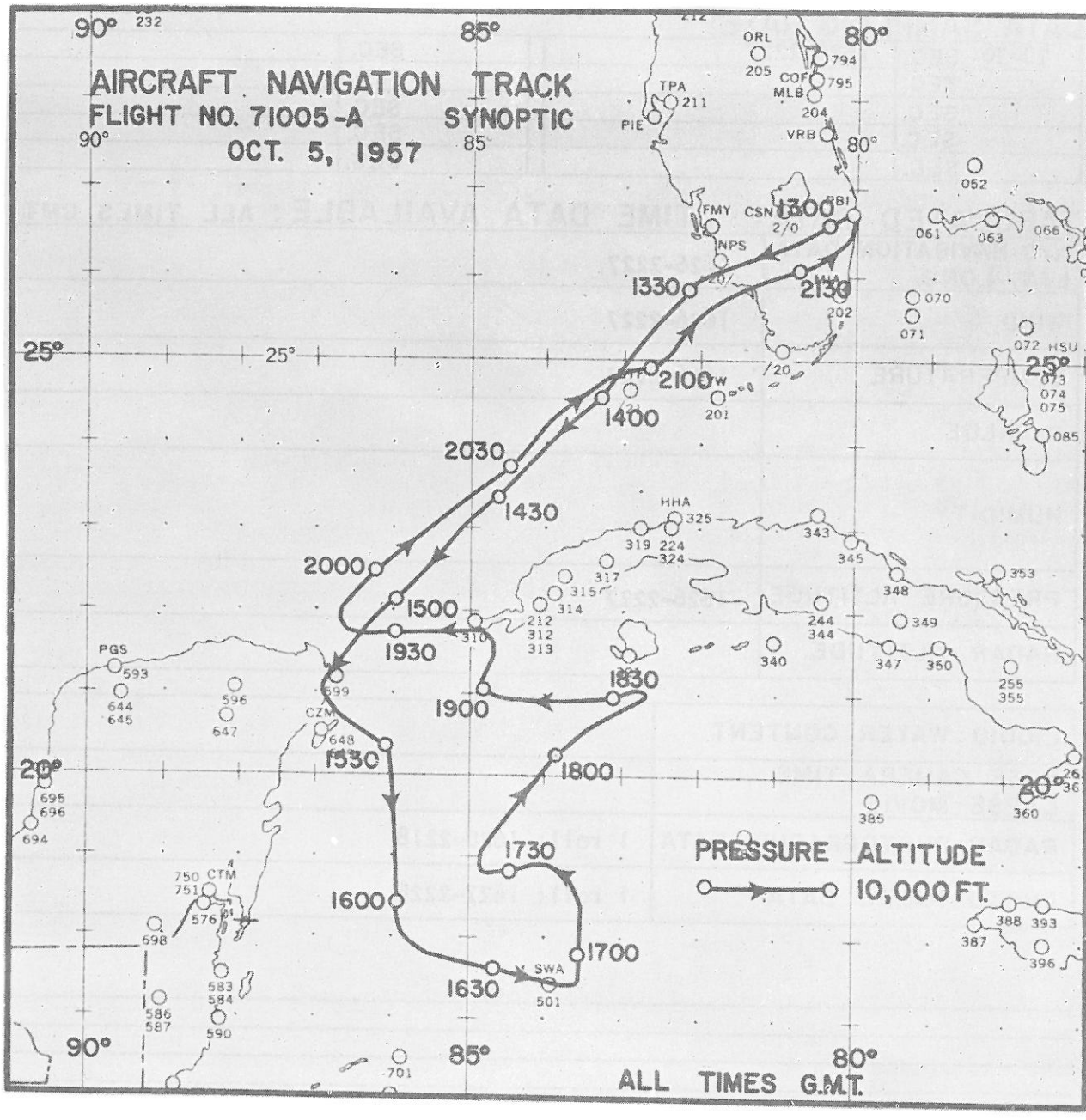
10	SEC.	1256-2144		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1256-2144
WIND	1256-2144
TEMPERATURE	1256-2144
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 0321-0338
PHOTO PANEL DATA	1 roll: 1258-2145
Ash 9	1 roll: 1258-2145

† Can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 71005-A SYNOPTIC
OCT. 5, 1957
PRESSURE ALTITUDE
10,000 FT.
ALL TIMES G.M.T.
90°
85°
80°
25°
20°
1300
1330
1400
1430
1500
1530
1600
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
ORL
TPA
PIE
COF
MLB
VRB
FMY
CSN
NPS
HHA
PGS
CZM
CTM
SWA
HSU

TYPE OF FLIGHT Synoptic DATE October 5, 1957

FLIGHT NO. 71005C DATA TABULATED FROM 1626
TO 2227

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

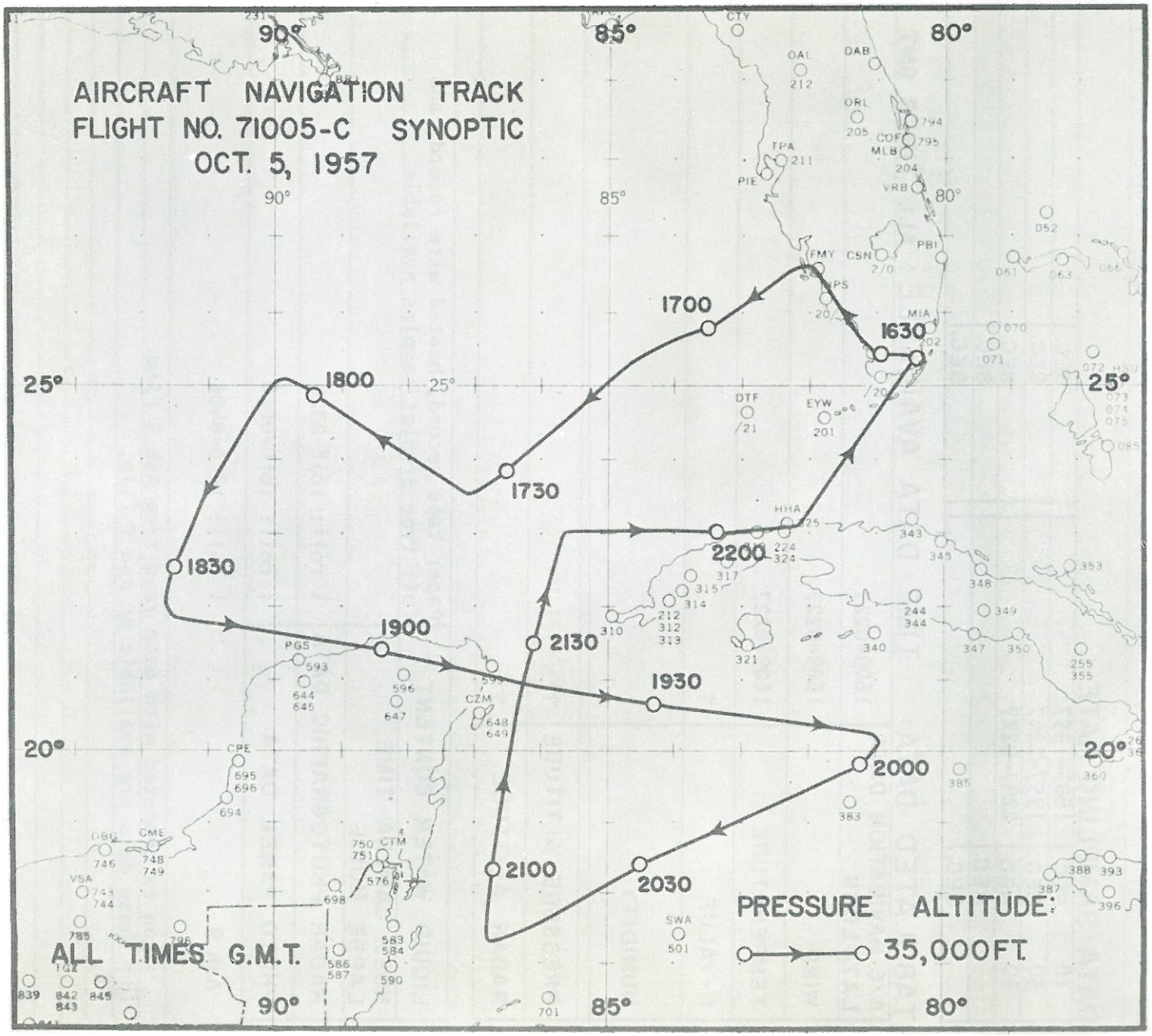
DATA SAMPLING RATE:

20-30 SEC.	1626-2227	SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1626-2227
WIND	1626-2227
TEMPERATURE	1626-2227
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	1626-2227
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1620-2218
PHOTO PANEL DATA	1 roll: 1627-2228


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 71005-C SYNOPTIC
OCT. 5, 1957
90°
85°
80°
25°
20°
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
2200
PRESSURE ALTITUDE:
35,000FT.
ALL TIMES G.M.T.

TYPE OF FLIGHT Synoptic DATE October 25, 1957

FLIGHT NO. 71025B DATA TABULATED FROM 1609
TO 0227

FLIGHT PRESSURE ALTITUDE 10,000 Ft.

DATA SAMPLING RATE:

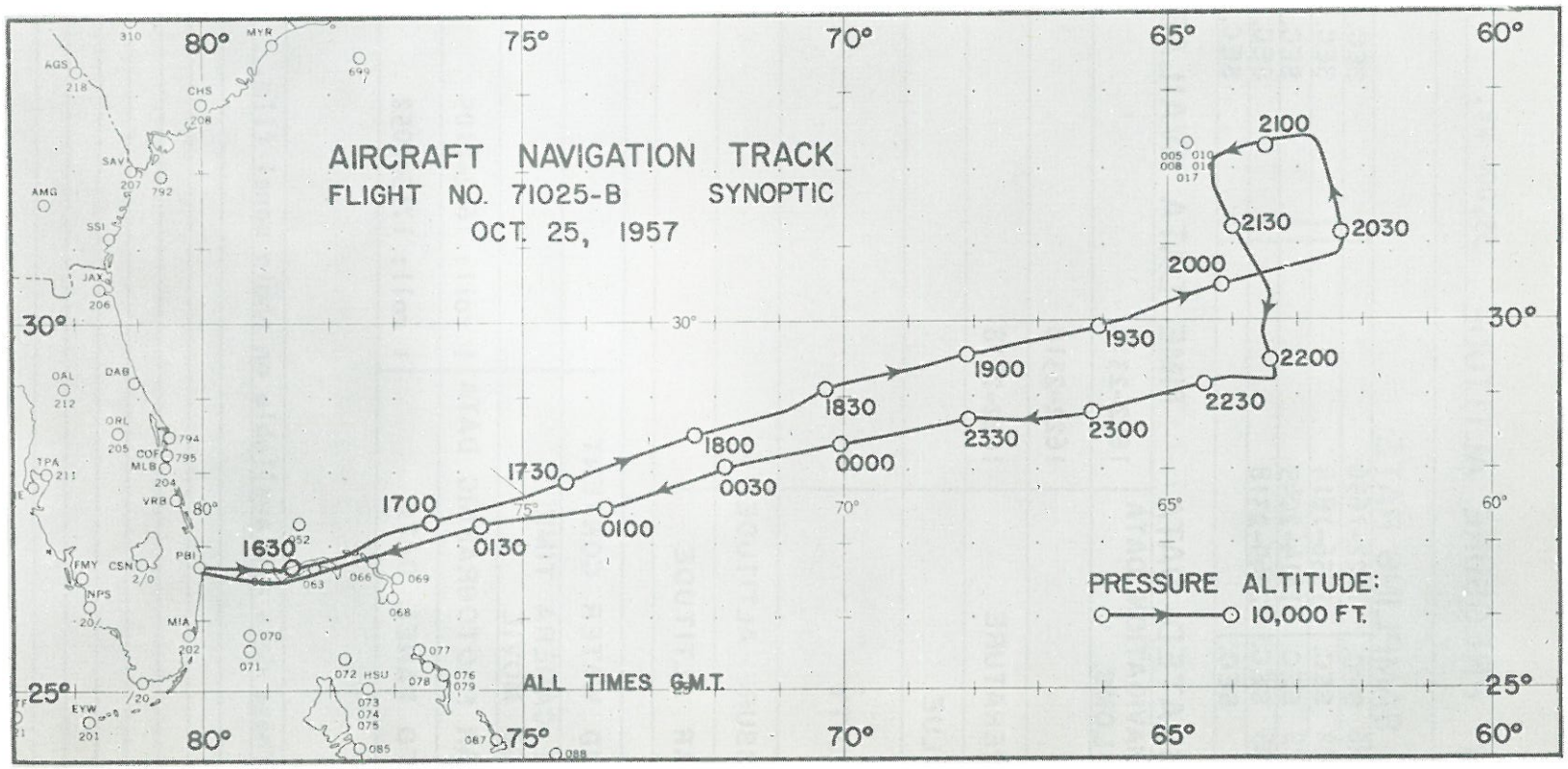
10	SEC.	1609-1957		SEC.	
50	SEC.	1957-2247		SEC.	
10	SEC.	2247-0227		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1609-0227
WIND	1609-0227
TEMPERATURE	1609-0227
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1618-2326
PHOTO PANEL DATA	1 roll: 1610-0226
Ash 9	1 roll: 1810-0401

† can be computed with data read from Ash 9 film.
†† These data are available on Ash 9 film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 71025-B SYNOPTIC
OCT. 25, 1957
ALL TIMES G.M.T.
PRESSURE ALTITUDE:
10,000 FT.
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
2200
2230
2300
2330
0000
0030
0100
0130
80°
75°
70°
65°
60°
30°
25°

TYPE OF FLIGHT Synoptic DATE October 25, 1957

FLIGHT NO. 71025C DATA TABULATED FROM 1622
TO 2318

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

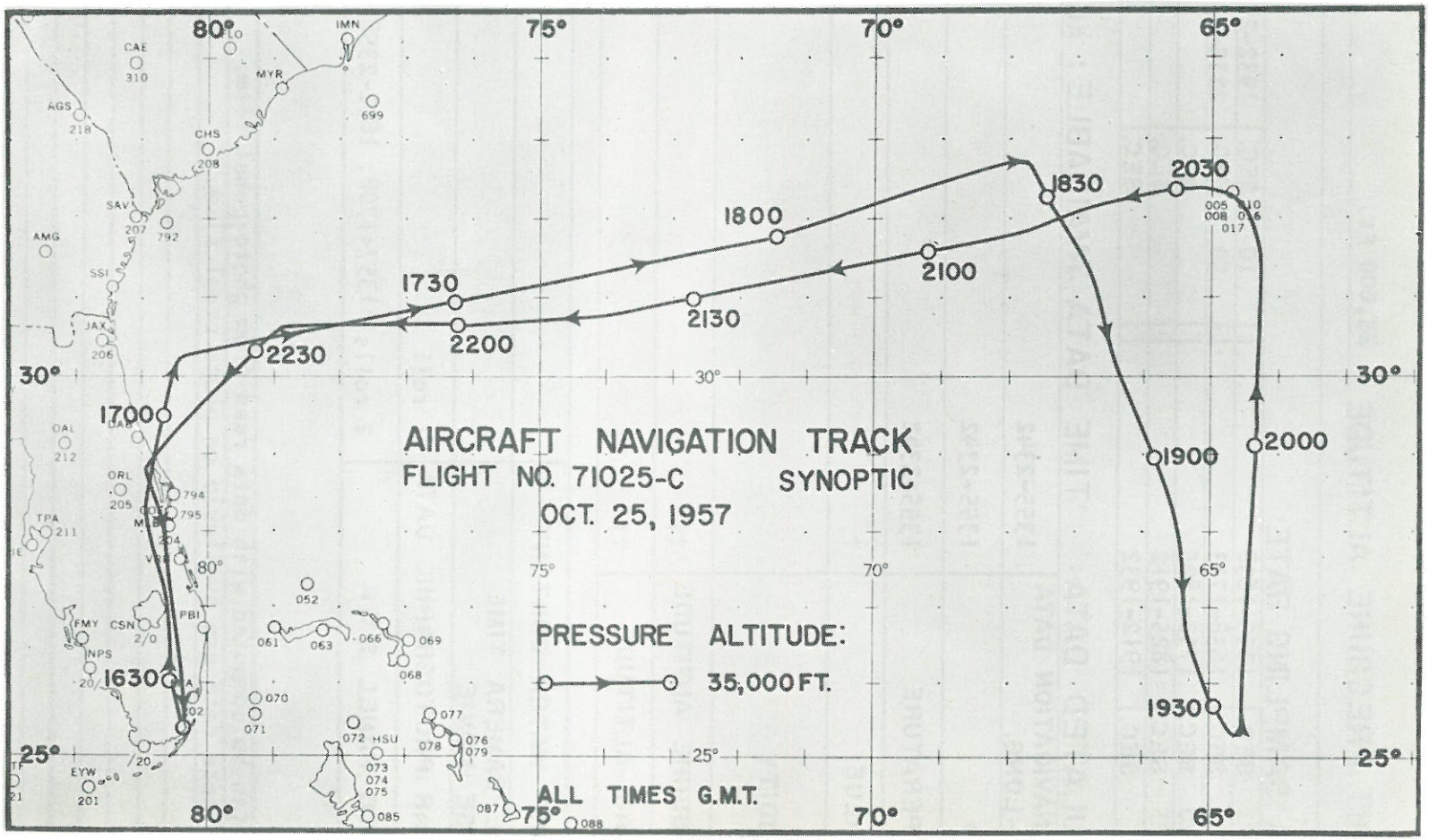
25-26 SEC.	1622-1656	SEC.	
30-32 SEC.	1656-1814	SEC.	
21-29 SEC.	1814-2049	SEC.	
20-25 SEC.	2049-2318	SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1622-2318
WIND	1622-2318
TEMPERATURE	1622-2318
D-VALUE	
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1642-2105
PHOTO PANEL DATA	1 roll: 1715-2052

†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 71025-C SYNOPTIC
OCT. 25, 1957
PRESSURE ALTITUDE:
35,000 FT.
ALL TIMES G.M.T.
1700
1630
1730
1800
1830
1900
1930
2000
2030
2100
2130
2200
2230
80°
75°
70°
65°
30°
25°

TYPE OF FLIGHT Synoptic DATE July 7, 1958

FLIGHT NO. 80707A DATA TABULATED FROM 1355
TO 2342

FLIGHT PRESSURE ALTITUDE 23,000 Ft.

DATA SAMPLING RATE:

10	SEC.	1355-1638	10	SEC.	1932-2233
2	SEC.	1638-1733	50	SEC.	2233-2342
5-10	SEC.	1733-1825		SEC.	
2	SEC.	1825-1912		SEC.	
5	SEC.	1912-1932		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1355-2342
WIND	1355-2342
TEMPERATURE	1355-2342
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

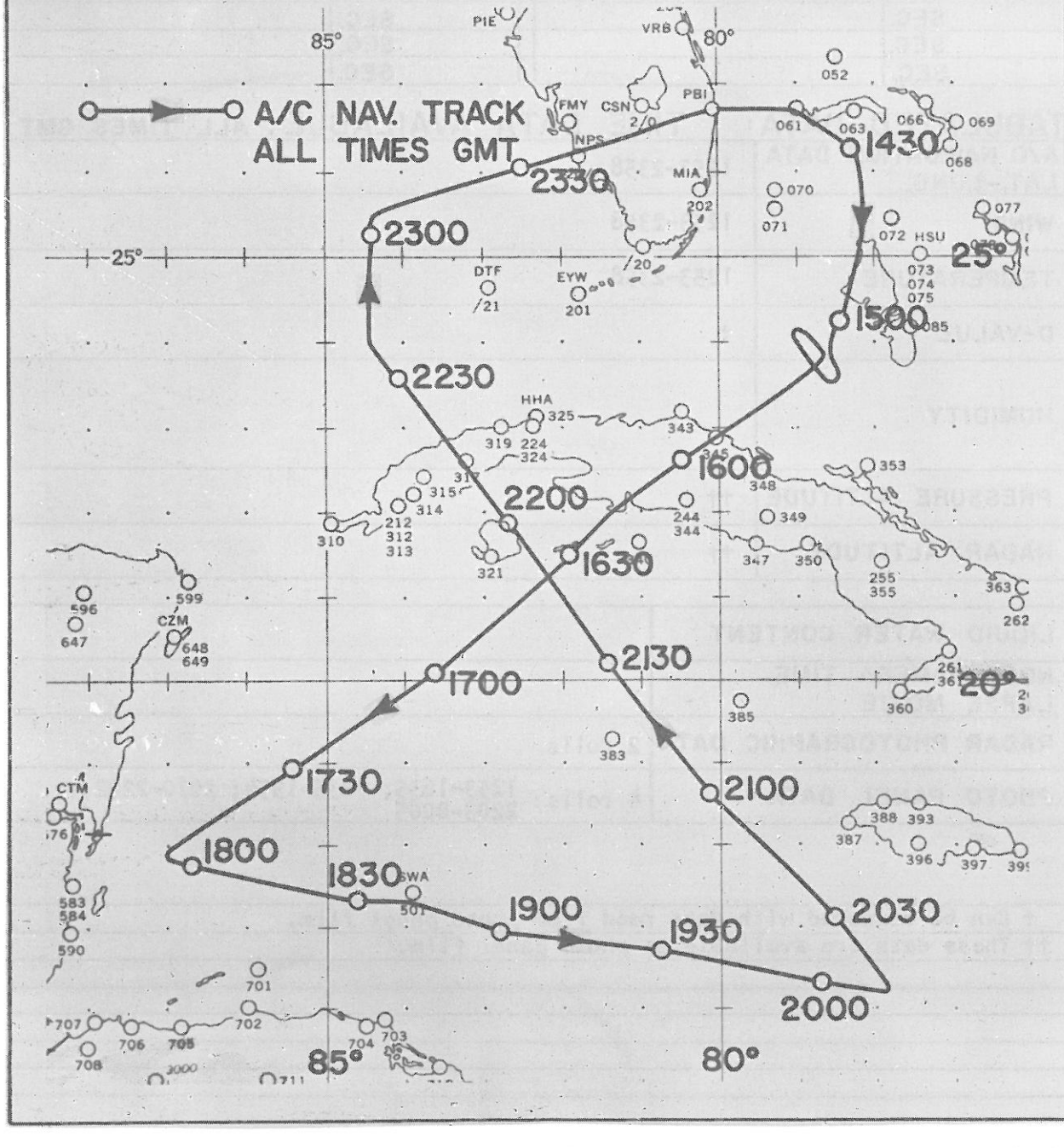
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	2 rolls: 1357-1708; 1852-2358

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80707A SYNOPTIC

JULY 7, 1958



TYPE OF FLIGHT Synoptic DATE July 22, 1958

FLIGHT NO. 80722A DATA TABULATED FROM 1253
TO 2358

FLIGHT PRESSURE ALTITUDE 5,600 Ft.

DATA SAMPLING RATE:

10	SEC.	1253-1812		SEC.	
5	SEC.	1812-2358		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1253-2358
WIND	1253-2358
TEMPERATURE	1253-2358
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

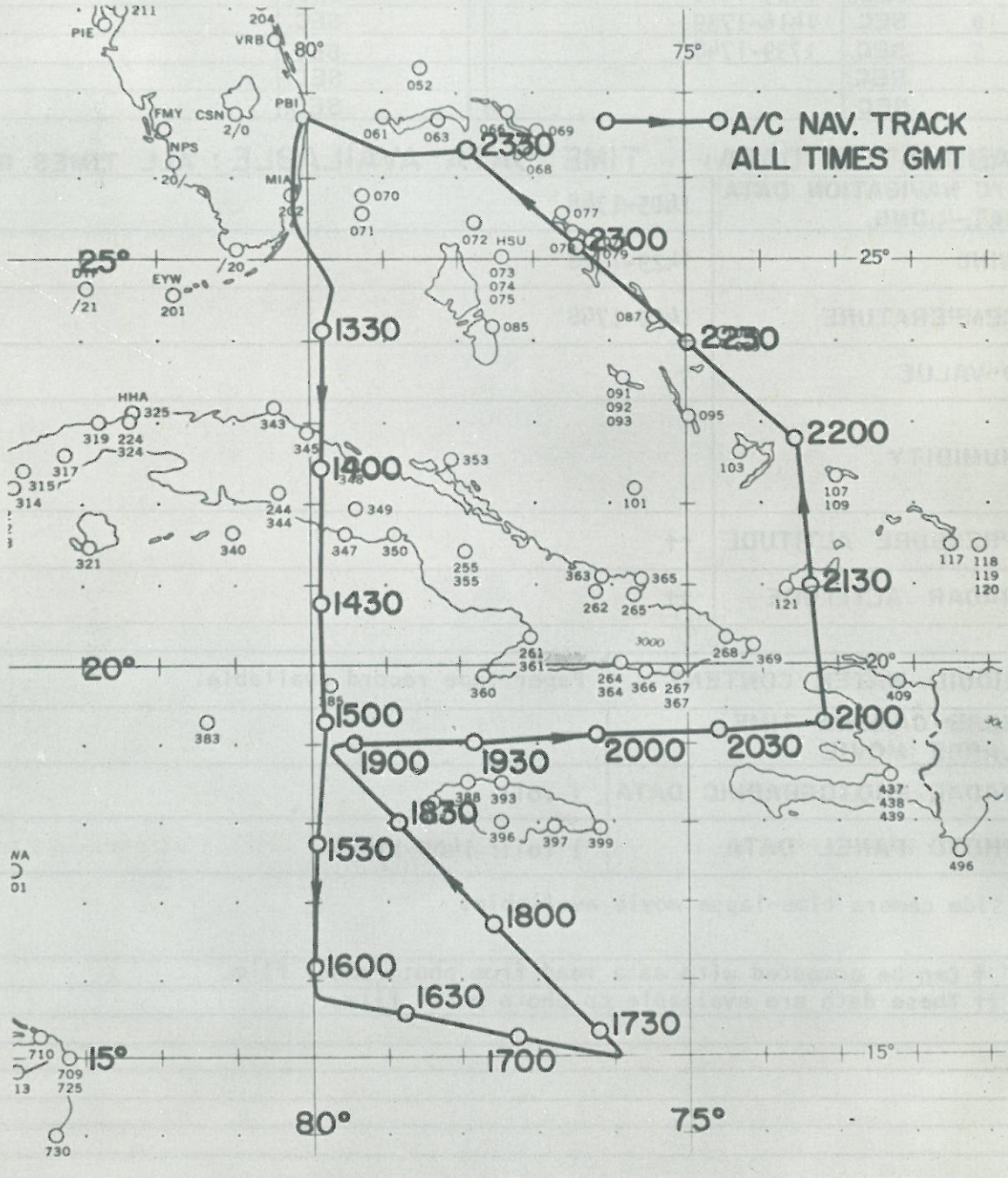
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls
PHOTO PANEL DATA	4 rolls: 1253-1635; 1635-1954; 2010-2202; 2203-0005

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80722A SYNOPTIC

JULY 22, 1958



TYPE OF FLIGHT Synoptic DATE July 24, 1958

FLIGHT NO. 80724B DATA TABULATED FROM 1405
TO 1748

FLIGHT PRESSURE ALTITUDE 18,500 Ft.

DATA SAMPLING RATE:

5	SEC.	1405-1416	SEC.	
10	SEC.	1416-1739	SEC.	
5	SEC.	1739-1748	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

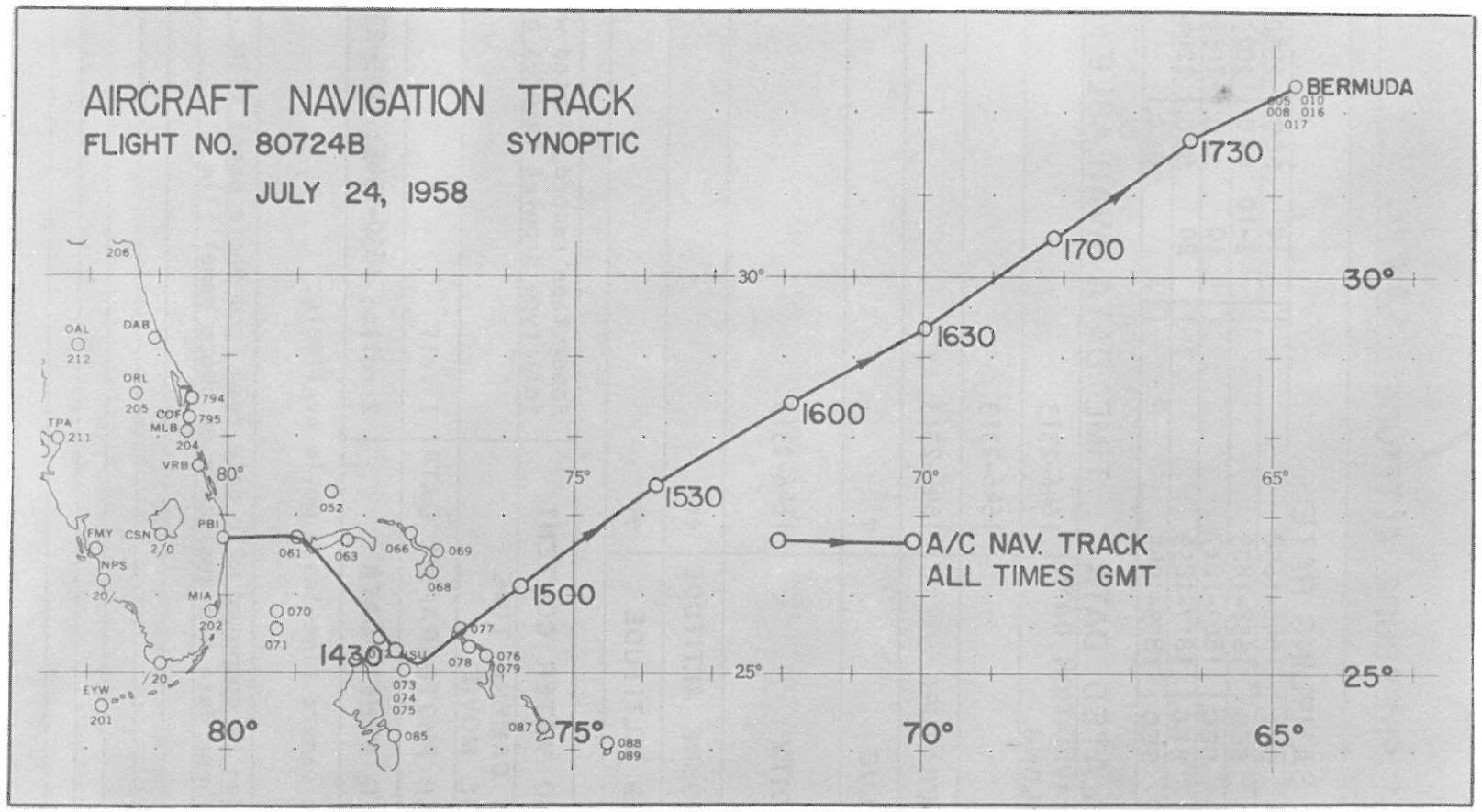
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1405-1748
WIND	1429-1628
TEMPERATURE	1405-1748
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Paper tape record available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	1 roll: 1405-1748

Side camera time-lapse movie available.

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80724B
SYNOPTIC
JULY 24, 1958
BERMUDA
1730
1700
1630
1600
1530
1500
1430
A/C NAV. TRACK
ALL TIMES GMT
30°
25°
80°
75°
70°
65°
206
OAL
212
DAB
ORL
205
794
COF
795
MLB
204
TPA
211
VRB
PBI
FMY
CSN
2/0
NPS
20
MIA
202
20
EYW
201
052
061
063
066
069
068
070
071
077
078
076
079
ISU
073
074
075
085
087
088
089
005
010
008
016
017

TYPE OF FLIGHT Synoptic DATE July 25, 1958

FLIGHT NO. 80725B DATA TABULATED FROM 1646
TO 2313

FLIGHT PRESSURE ALTITUDE 5,000 Ft.

DATA SAMPLING RATE:

5	SEC.	1646-1658	10	SEC.	1950-2027
10	SEC.	1658-1803	2-10	SEC.	2027-2056
2	SEC.	1803-1817	10	SEC.	2056-2204
10	SEC.	1817-1859	20	SEC.	2204-2313
2-10	SEC.	1859-1945		SEC.	

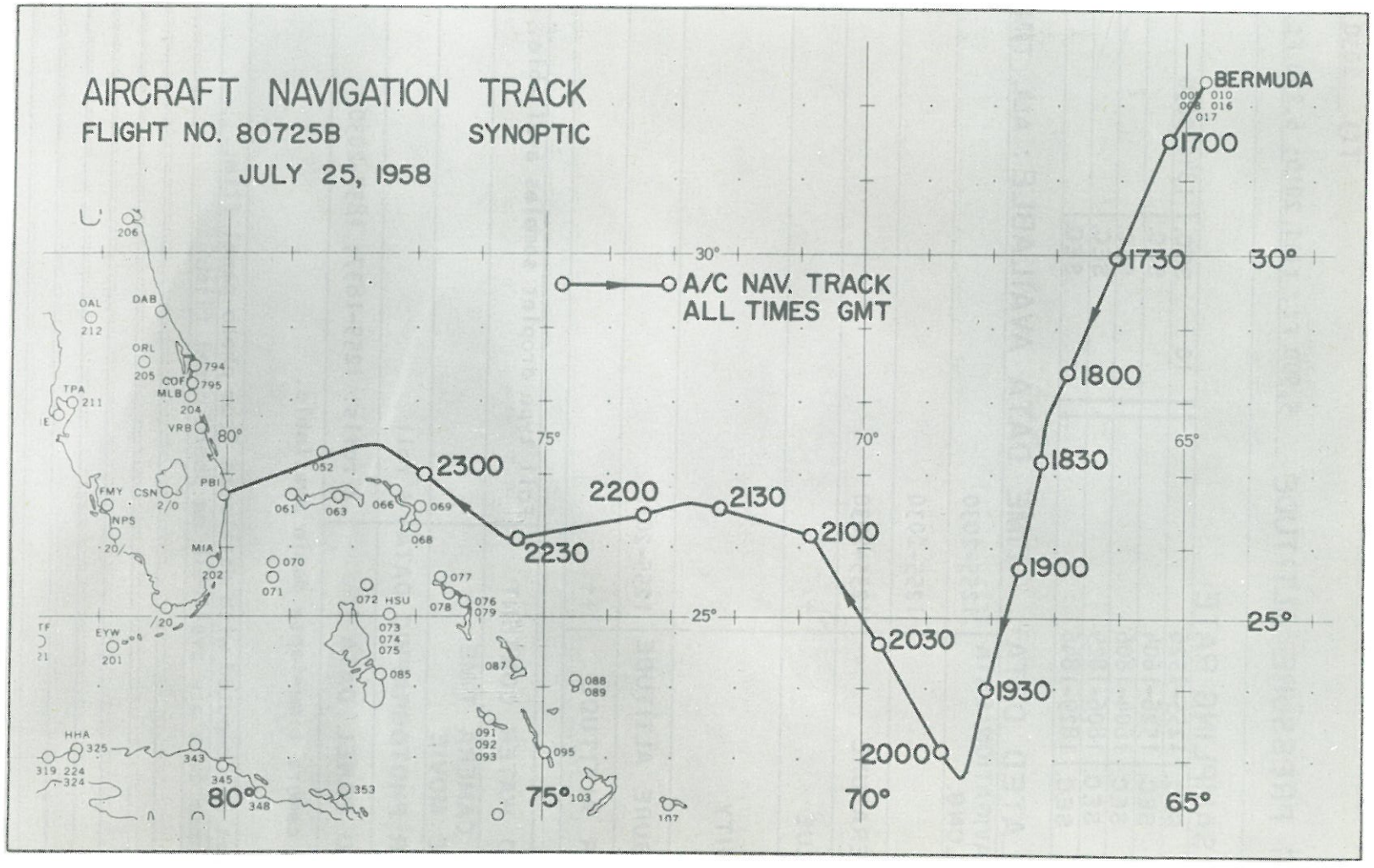
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1646-2313
WIND	1646-2313
TEMPERATURE	1646-2313
D-VALUE	†
HUMIDITY	1646-2313
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	2 rolls: 1650-1949; 1949-2313

Side camera time-lapse movie available.

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80725B
SYNOPTIC
JULY 25, 1958
A/C NAV. TRACK
ALL TIMES GMT
BERMUDA
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
2200
2230
2300
30°
25°
80°
75°
70°
65°
206
OAL
212
DAB
ORL
205
794
COF
795
MLB
204
TPA
211
VRB
PBI
FMY
CSN
2/0
NPS
20/
MIA
202
/20
EYW
201
HHA
325
319
224
324
343
345
348
353
052
061
063
066
069
068
070
071
072
HSU
073
074
075
077
078
076
079
085
087
088
089
091
092
093
095
103
107
010
016
017

TYPE OF FLIGHT Synoptic DATE August 8, 1958

FLIGHT NO. 80808A DATA TABULATED FROM 1255
TO 2030

FLIGHT PRESSURE ALTITUDE 5,500 Ft. till 2010; 6,200 Ft. till 2030

DATA SAMPLING RATE:

30	SEC.	1255-1526	10	SEC.	1846-2030
10	SEC.	1526-1604		SEC.	
30	SEC.	1604-1806		SEC.	
10	SEC.	1806-1829		SEC.	
1-3	SEC.	1829-1846		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1255-2030
WIND	1255-2030
TEMPERATURE	1255-2030
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	1255-2030
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	2 rolls: 1255-1837; 1837-2030

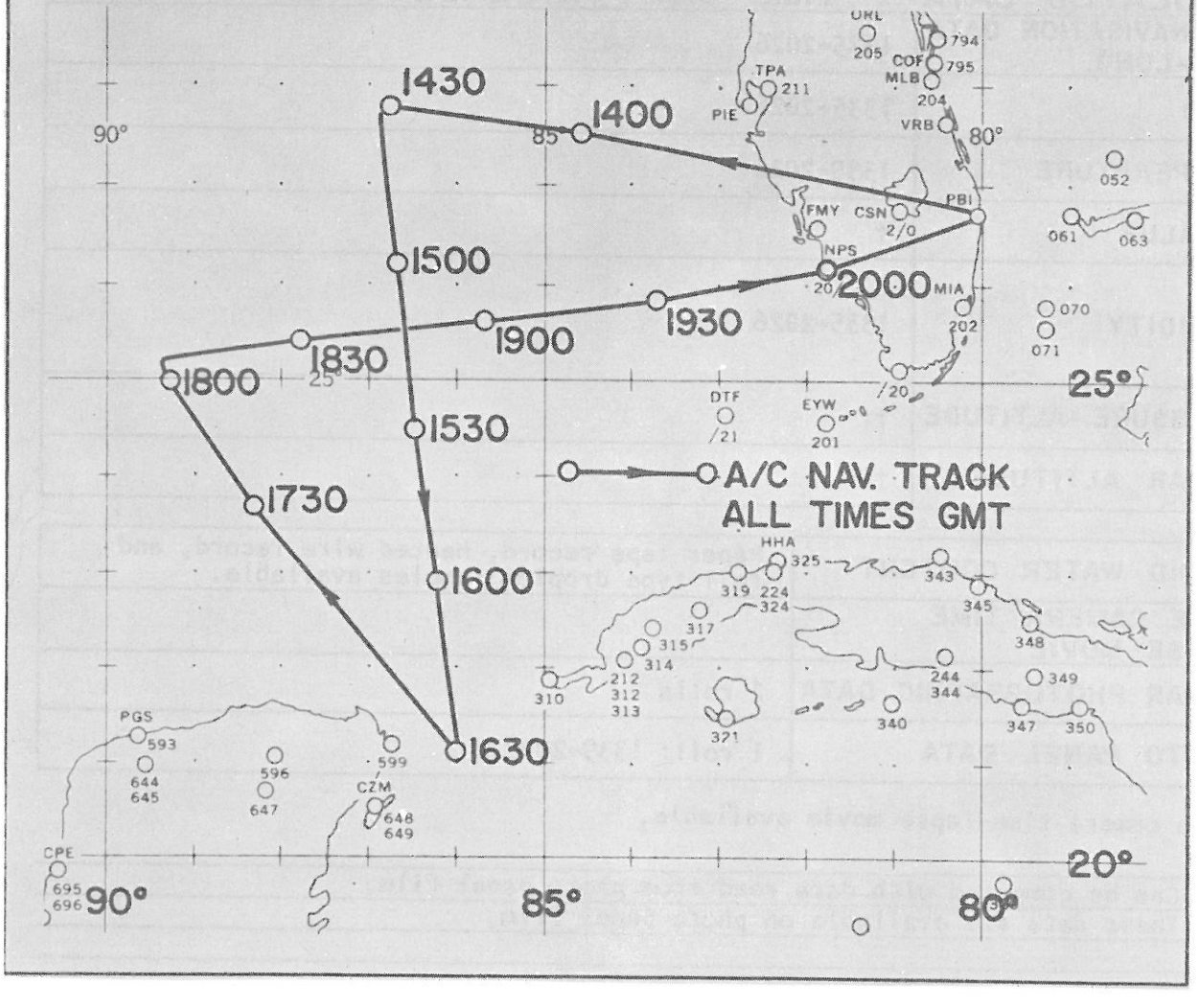
Side camera time-lapse movie available.

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80808A SYNOPTIC

AUG. 8, 1958



TYPE OF FLIGHT Synoptic DATE August 8, 1958

FLIGHT NO. 80808B DATA TABULATED FROM 1335
TO 2026

FLIGHT PRESSURE ALTITUDE 15,000 Ft.

DATA SAMPLING RATE:

20	SEC.	1335-2026		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1335-2026
WIND	1335-2026
TEMPERATURE	1335-2026
D-VALUE	†
HUMIDITY	1335-2026
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls
PHOTO PANEL DATA	1 roll: 1339-2039

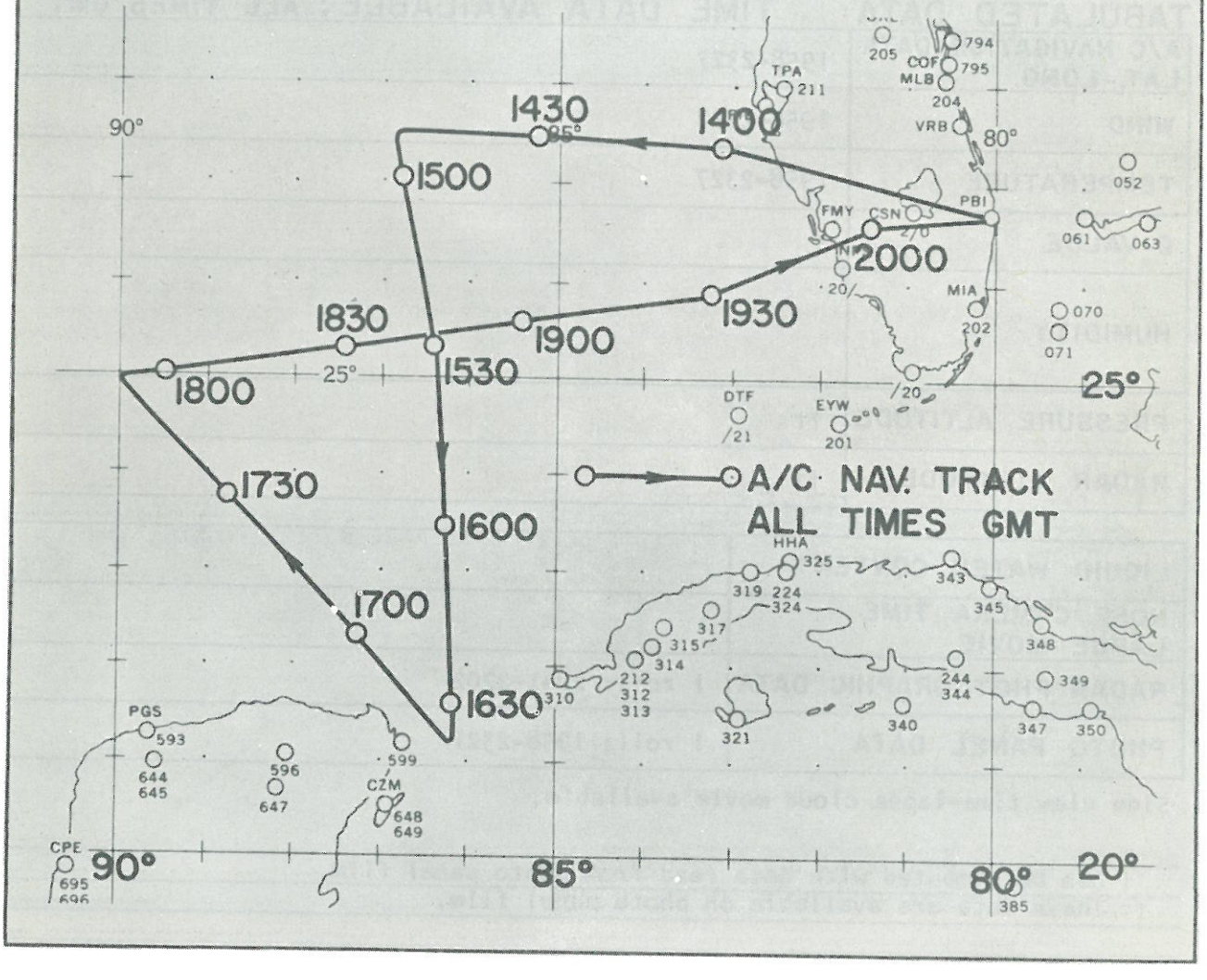
Side camera time-lapse movie available.

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80808B SYNOPTIC

AUG. 8, 1958



TYPE OF FLIGHT Synoptic DATE August 12, 1958

FLIGHT NO. 80812A DATA TABULATED FROM 1958
TO 2327

FLIGHT PRESSURE ALTITUDE 15,000 Ft.

DATA SAMPLING RATE:

50	SEC.	1958-2327	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

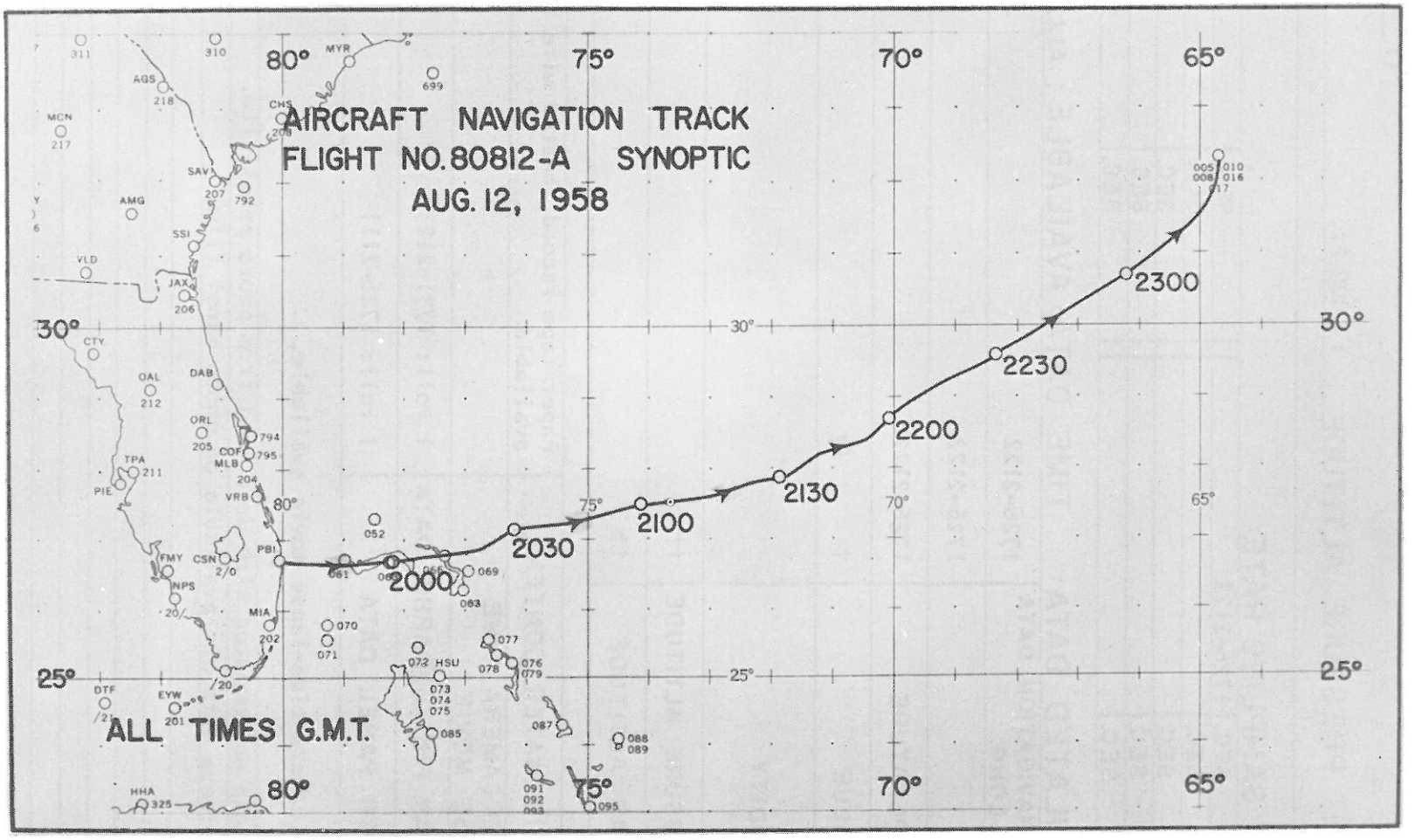
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1958-2327
WIND	1958-2327
TEMPERATURE	1958-2327
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 2041-2202
PHOTO PANEL DATA	1 roll: 1958-2321

Side view time-lapse cloud movie available.

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80812-A SYNOPTIC
AUG. 12, 1958
ALL TIMES G.M.T.
80°
75°
70°
65°
30°
25°
2000
2030
2100
2130
2200
2230
2300
MYR
AGS
MCN
SAV
AMG
SSI
VLD
JAX
CTY
OAL
DAB
ORL
COF
MLB
TPA
PIE
VRB
PBI
FMY
CSN
NPS
MIA
DTF
EYW
HSU
HHA

TYPE OF FLIGHT Synoptic DATE August 12, 1958

FLIGHT NO. 80812B DATA TABULATED FROM 1726
TO 2122

FLIGHT PRESSURE ALTITUDE 13,000 Ft.

DATA SAMPLING RATE:

50	SEC.	1726-2122		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

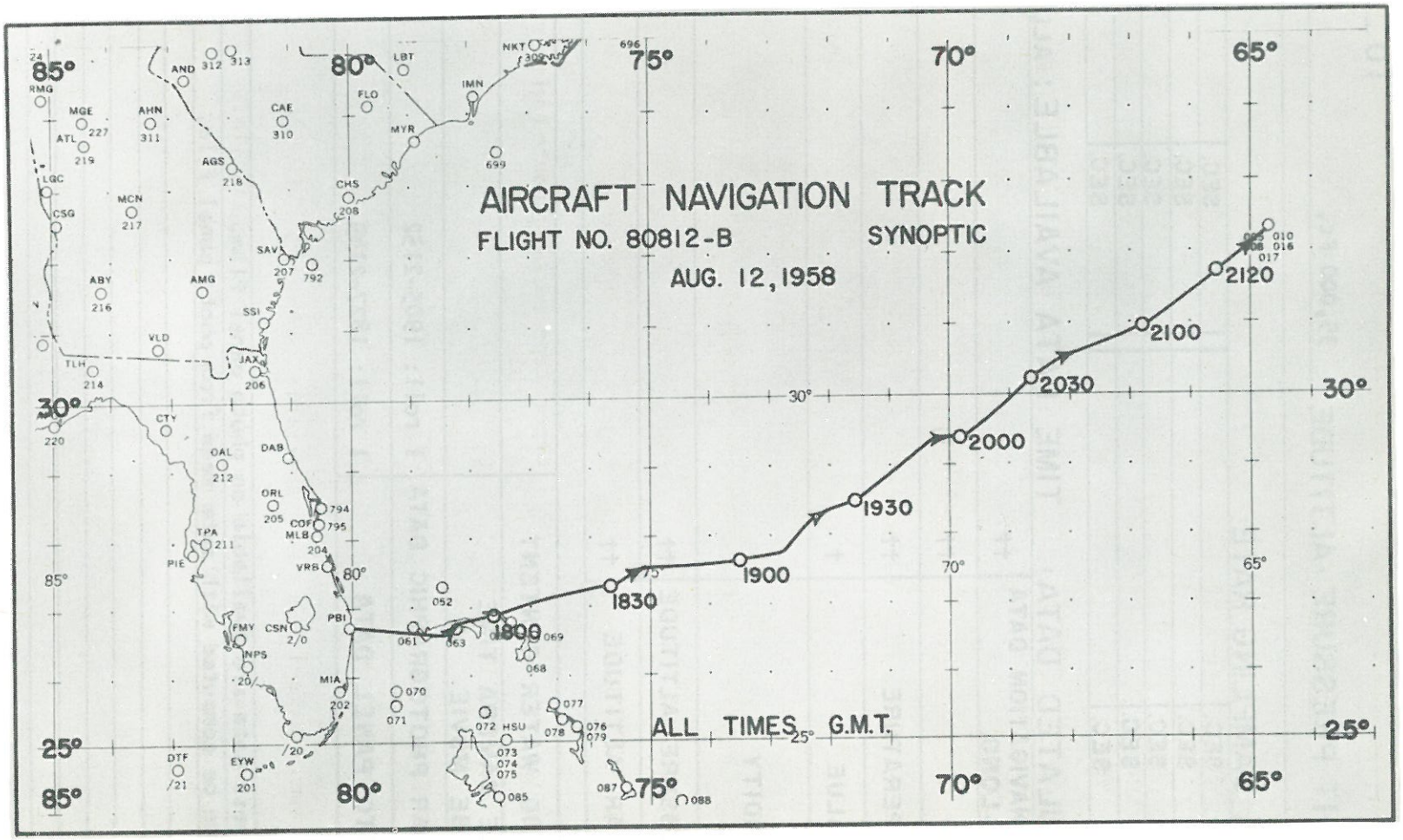
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1726-2122
WIND	1726-2122
TEMPERATURE	1726-2122
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	Paper tape record, heated wire record available
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1731-2123
PHOTO PANEL DATA	1 roll: 1726-2111

Side camera time-lapse movie available.

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80812-B
SYNOPTIC
AUG. 12, 1958
ALL TIMES G.M.T.
1800
1830
1900
1930
2000
2030
2100
2120
85°
80°
75°
70°
65°
30°
25°
RMG
MGE
ATL
LGC
CSG
AND
AHN
CAE
AGS
MCN
ABY
AMG
SAV
SSI
VLD
TLH
JAX
CTY
OAL
DAB
ORL
COF
MLB
TPA
PIE
VRB
PBI
FMY
CSN
INPS
MIA
DTF
EYW
LBT
FLO
MYR
CHS
IMN
NKT
HSU

TYPE OF FLIGHT Synoptic DATE August 12, 1958

FLIGHT NO. 80812C DATA TABULATED FROM _____
TO _____

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

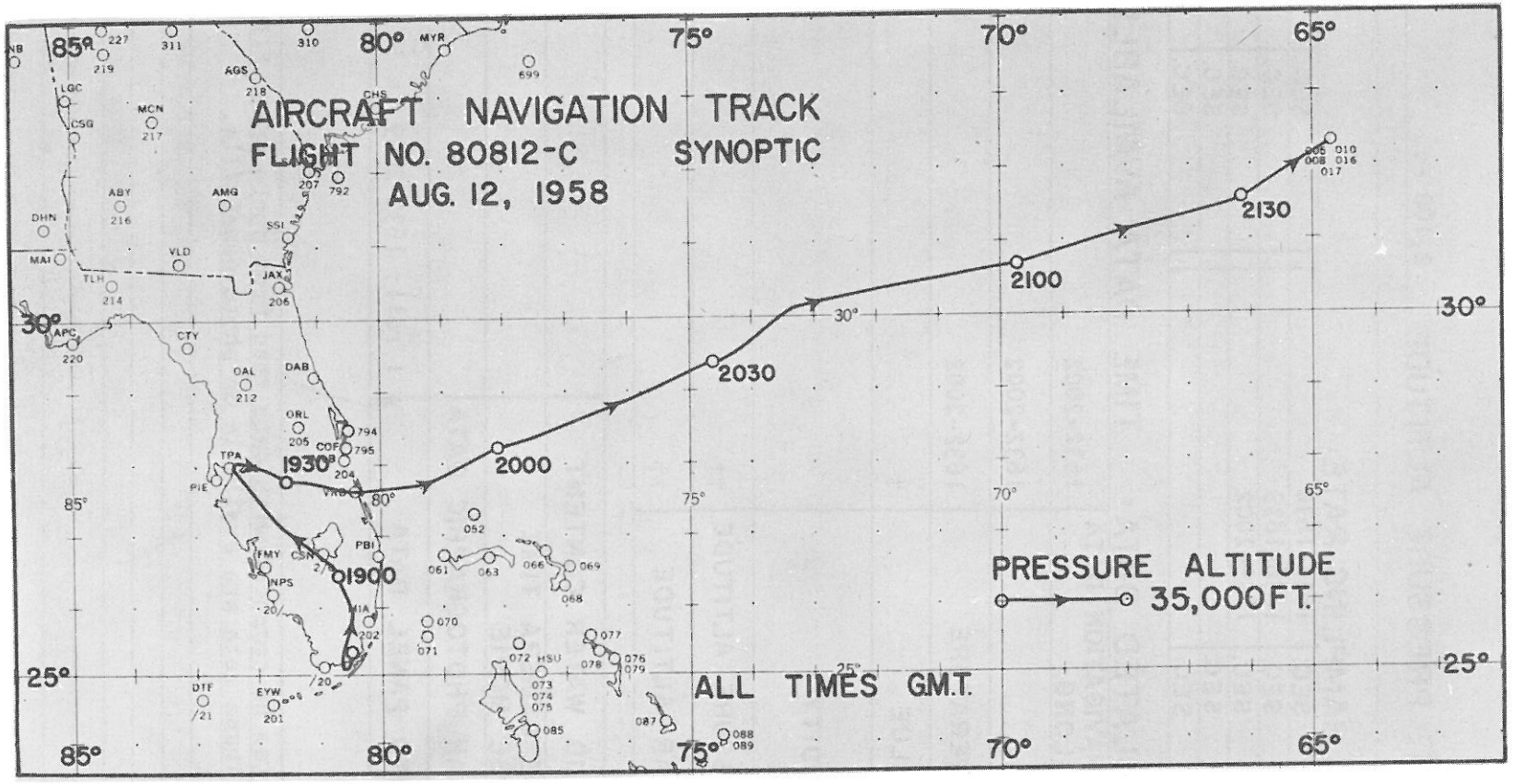
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	††
WIND	††
TEMPERATURE	††
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1905-2152
PHOTO PANEL DATA	1 roll: 1827-2149

†† These data are available on photo panel film.
† Can be computed with data read from photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80812-C SYNOPTIC
AUG. 12, 1958
PRESSURE ALTITUDE
35,000 FT.
ALL TIMES G.M.T.
1900
1930
2000
2030
2100
2130
85°
80°
75°
70°
65°
30°
25°

TYPE OF FLIGHT Tropical Storm BECKY DATE August 13, 1958

FLIGHT NO. 80813A DATA TABULATED FROM 1632
TO 2002

FLIGHT PRESSURE ALTITUDE 2,100 Ft.

DATA SAMPLING RATE:

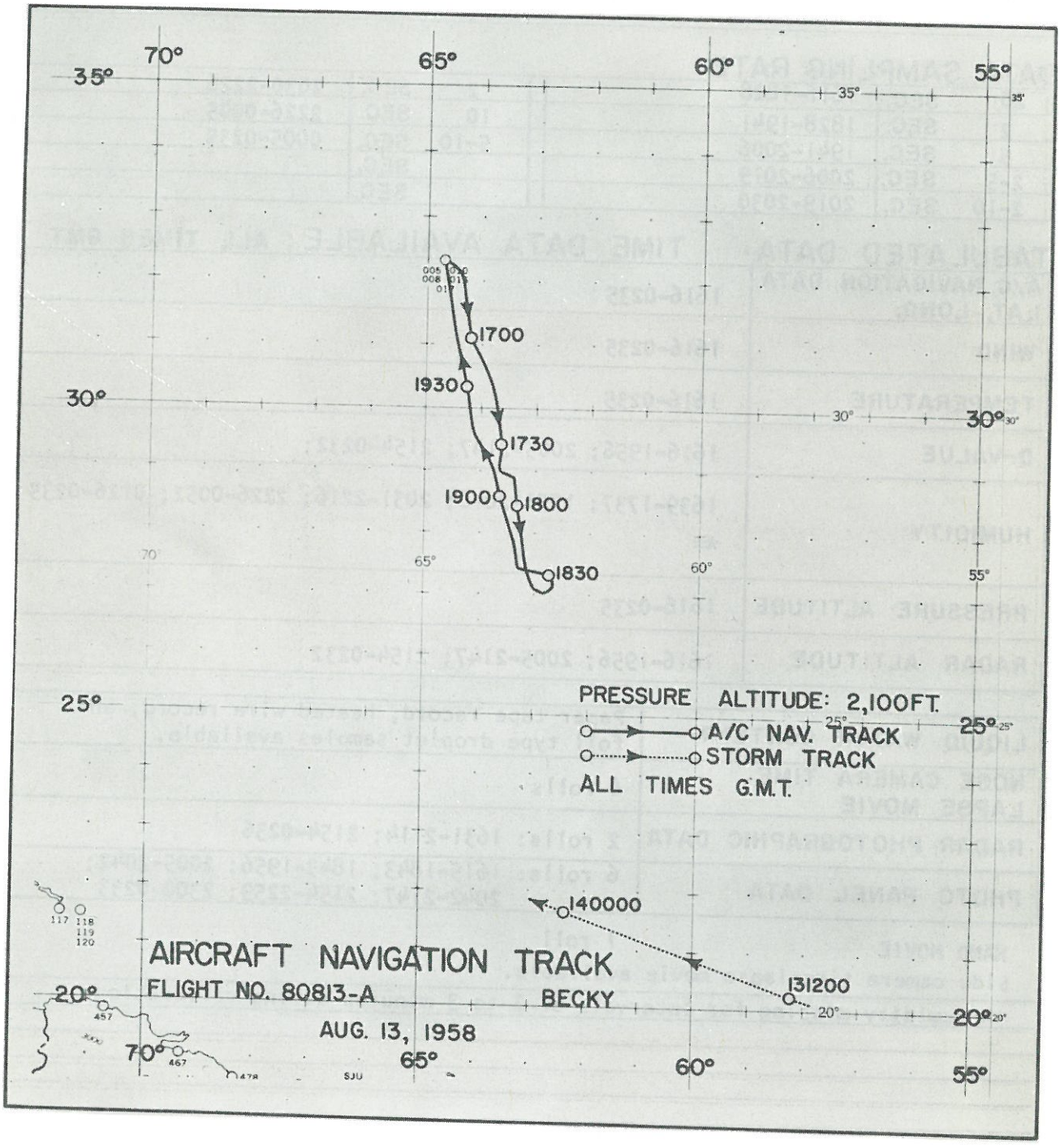
20	SEC.	1632-1636		SEC.	
30	SEC.	1636-1839		SEC.	
10	SEC.	1839-2002		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1632-2002
WIND	1632-2002
TEMPERATURE	1632-2002
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1632-2009

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.


70°
65°
60°
55°
35°
30°
25°
20°
1700
1930
1730
1900
1800
1830
PRESSURE ALTITUDE: 2,100FT.
A/C NAV. TRACK
STORM TRACK
ALL TIMES G.M.T.
140000
131200
AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80813-A
BECKY
AUG. 13, 1958
SJU

TYPE OF FLIGHT Tropical Storm BECKY DATE August 13, 1958

FLIGHT NO. 80813B DATA TABULATED FROM 1616
TO 0235

FLIGHT PRESSURE ALTITUDE 15,600 Ft.

DATA SAMPLING RATE:

20	SEC.	1616-1828	2	SEC.	2030-2226
2	SEC.	1828-1941	10	SEC.	2226-0005
5	SEC.	1941-2006	5-10	SEC.	0005-0235
2-5	SEC.	2006-2019		SEC.	
2-10	SEC.	2019-2030		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

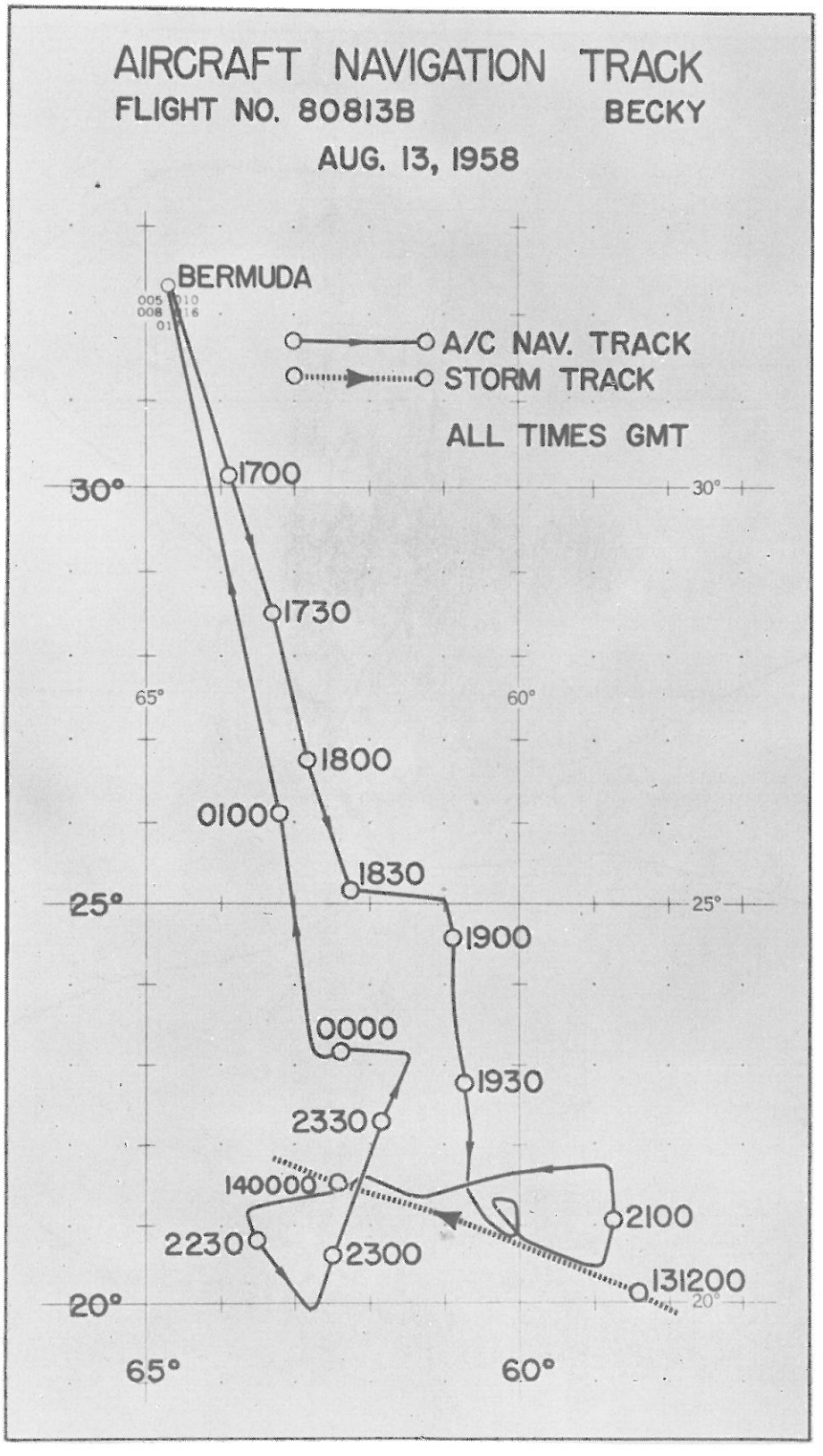
A/C NAVIGATION DATA LAT.-LONG.	1616-0235
WIND	1616-0235
TEMPERATURE	1616-0235
D-VALUE	1616-1956; 2005-2147; 2154-0232;
HUMIDITY	1639-1737; 1751-2018; 2031-2216; 2226-0052; 0126-0235 **
PRESSURE ALTITUDE	1616-0235
RADAR ALTITUDE	1616-1956; 2005-2147; 2154-0232

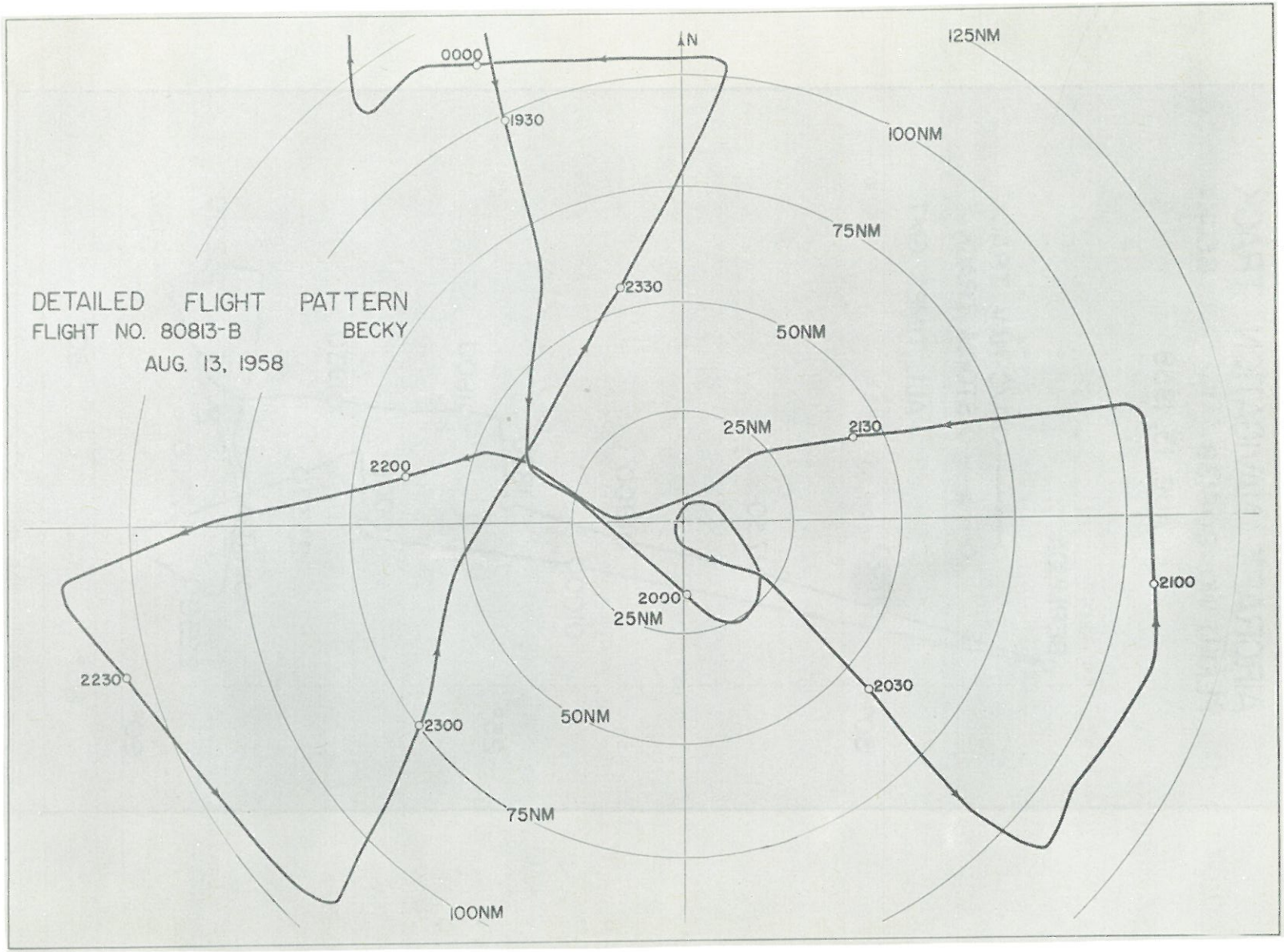
LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	6 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1631-2114; 2154-0236
PHOTO PANEL DATA	6 rolls: 1615-1843; 1843-1956; 2005-2042; 2042-2147; 2154-2259; 2300-0233

HAND MOVIE 1 roll

Side camera time-lapse movie available.

** Humidity missing for intervals of 2 to 3 minutes during calibration.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80813B
BECKY
AUG. 13, 1958
BERMUDA
A/C NAV. TRACK
STORM TRACK
ALL TIMES GMT
1700
1730
1800
1830
1900
1930
2100
131200
2300
2330
0000
0100
140000
2230
30°
25°
20°
65°
60°


DETAILED FLIGHT PATTERN
FLIGHT NO. 80813-B BECKY
AUG. 13, 1958
N
125NM
100NM
75NM
50NM
25NM
0000
1930
2330
2130
2200
2000
2100
2030
2230
2300

TYPE OF FLIGHT Tropical Storm BECKY DATE August 13, 1958

FLIGHT NO. 80813C DATA TABULATED FROM 1834
TO 0038

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

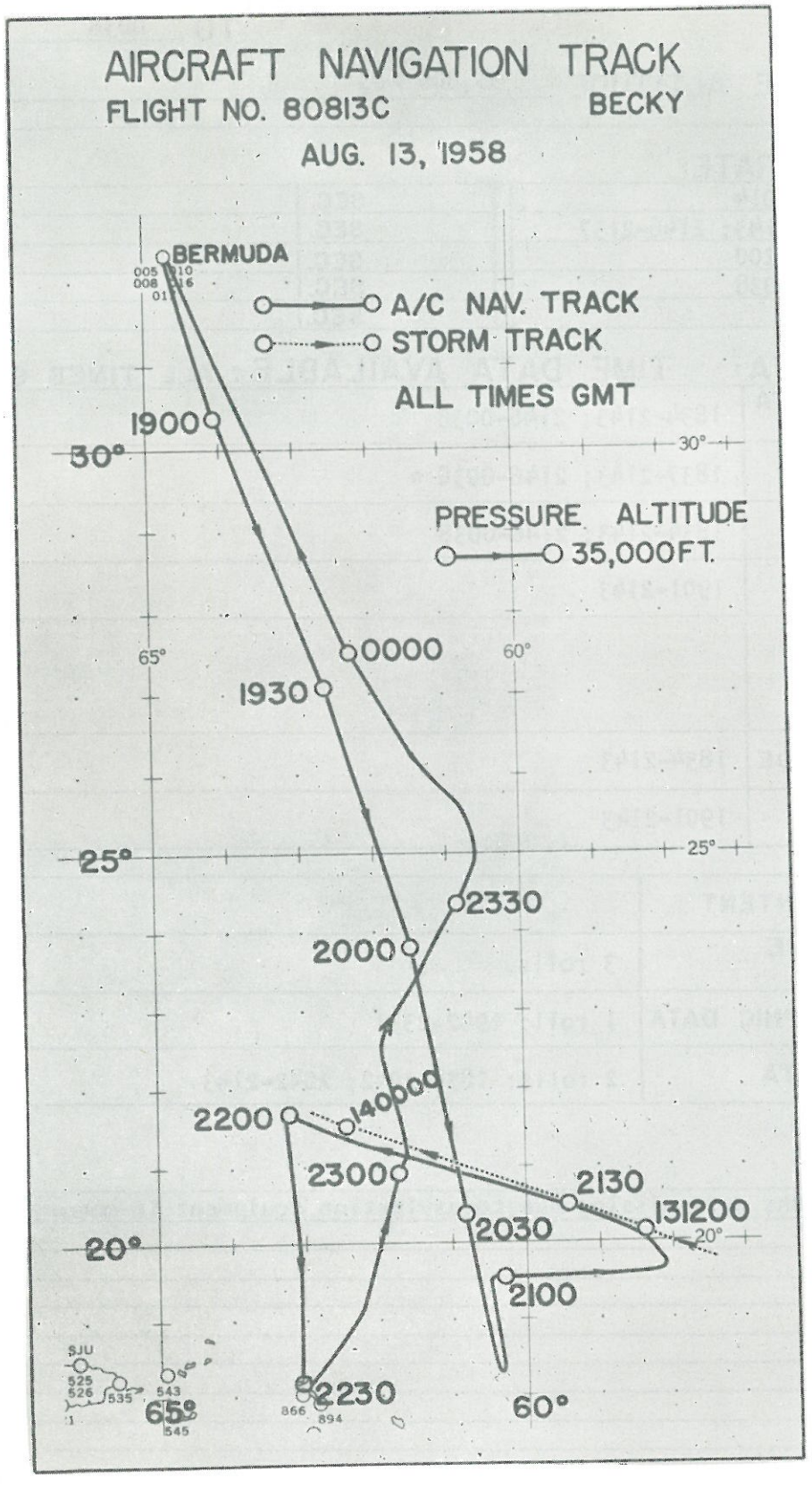
15	SEC.	1834-2014		SEC.	
2	SEC.	2014-2143; 2146-2157		SEC.	
15	SEC.	2157-2200		SEC.	
10	SEC.	2200-0038		SEC.	
	SEC.			SEC.	

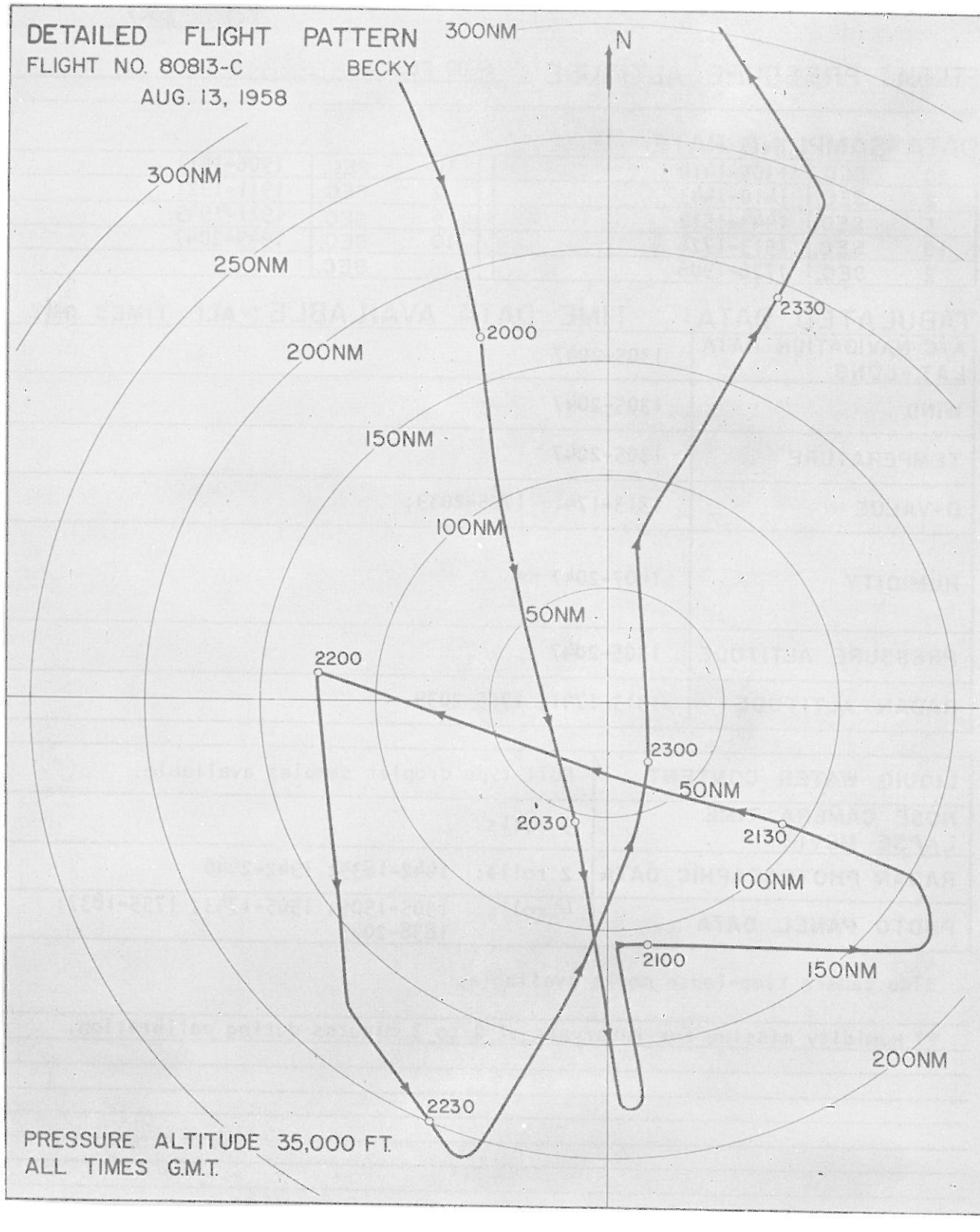
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1834-2143; 2146-0038
WIND	1837-2143; 2146-0038 *
TEMPERATURE	1834-2143; 2146-0038
D-VALUE	1901-2143
HUMIDITY	
PRESSURE ALTITUDE	1834-2143
RADAR ALTITUDE	1901-2143

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	3 rolls
RADAR PHOTOGRAPHIC DATA	1 roll: 1942-2331
PHOTO PANEL DATA	2 rolls: 1834-2042; 2042-2143

* A few observations were missing due to navigation equipment in memory mode.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80813C
BECKY
AUG. 13, 1958
BERMUDA
A/C NAV. TRACK
STORM TRACK
ALL TIMES GMT
PRESSURE ALTITUDE
35,000FT.
1900
1930
0000
2000
2330
2200
140000
2300
2130
131200
2030
2100
2230
30°
25°
20°
65°
60°
SJU


DETAILED FLIGHT PATTERN
FLIGHT NO. 80813-C
AUG. 13, 1958
BECKY
N
300NM
250NM
200NM
150NM
100NM
50NM
2000
2330
2200
2300
2030
2130
2100
2230
PRESSURE ALTITUDE 35,000 FT.
ALL TIMES G.M.T.

TYPE OF FLIGHT Tropical Storm BECKY DATE August 15, 1958

FLIGHT NO. 80815A DATA TABULATED FROM 1305
TO 2047

FLIGHT PRESSURE ALTITUDE 6400 Ft.

DATA SAMPLING RATE:

20	SEC.	1305-1410	10	SEC.	1906-1911
2	SEC.	1410-1443	2	SEC.	1911-1921
5	SEC.	1443-1512	5	SEC.	1921-1949
10	SEC.	1513-1726	10	SEC.	1949-2047
2	SEC.	1726-1906		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1305-2047
WIND	1305-2047
TEMPERATURE	1305-2047
D-VALUE	1313-1741; 1755-2039;
HUMIDITY	1407-2047 **
PRESSURE ALTITUDE	1305-2047
RADAR ALTITUDE	1313-1741; 1755-2039

LIQUID WATER CONTENT	Foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	5 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1442-1835; 1942-2040
PHOTO PANEL DATA	4 rolls: 1305-1505; 1505-1743; 1755-1837; 1838-2049

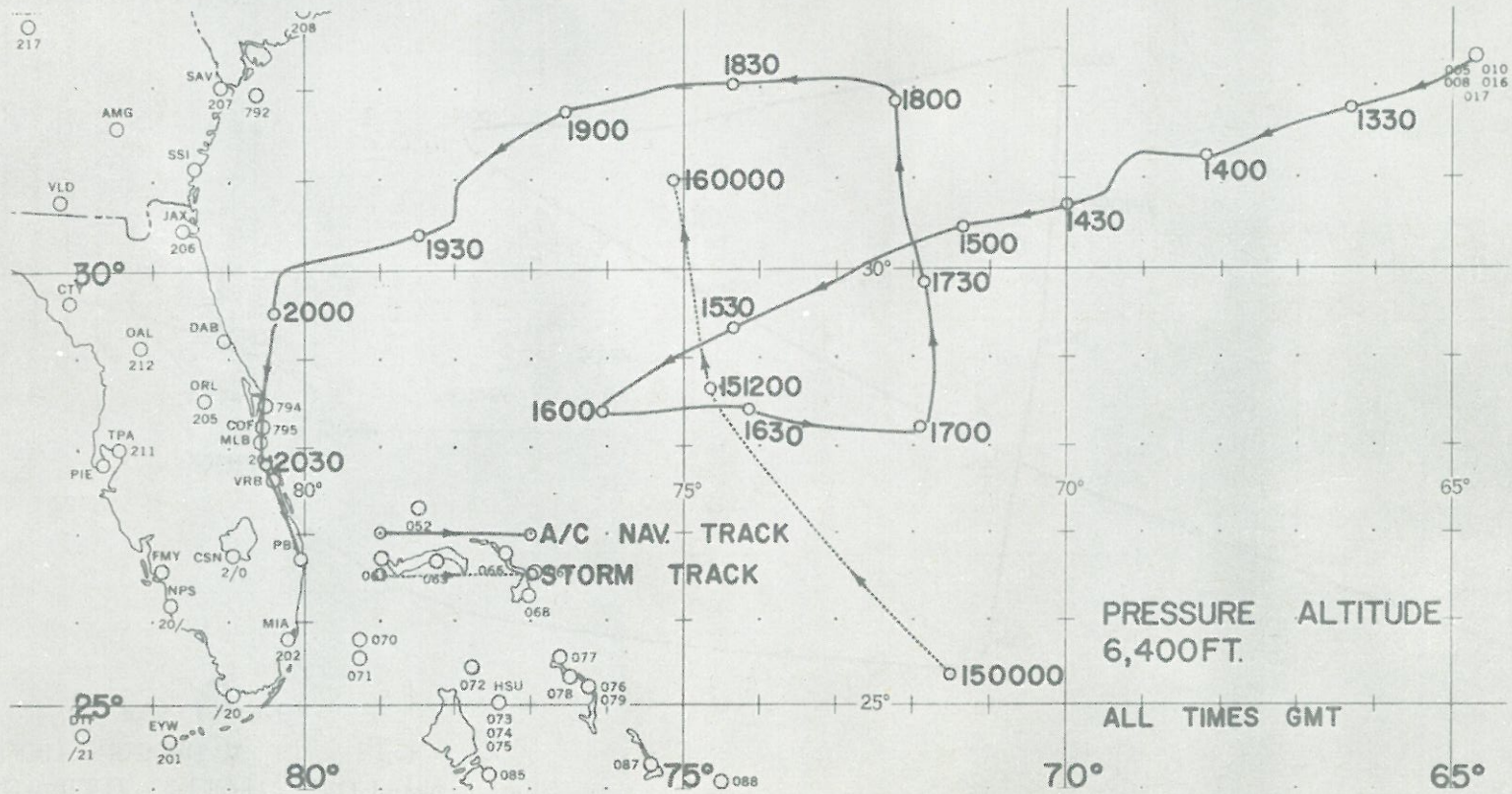
Side camera time-lapse movie available.

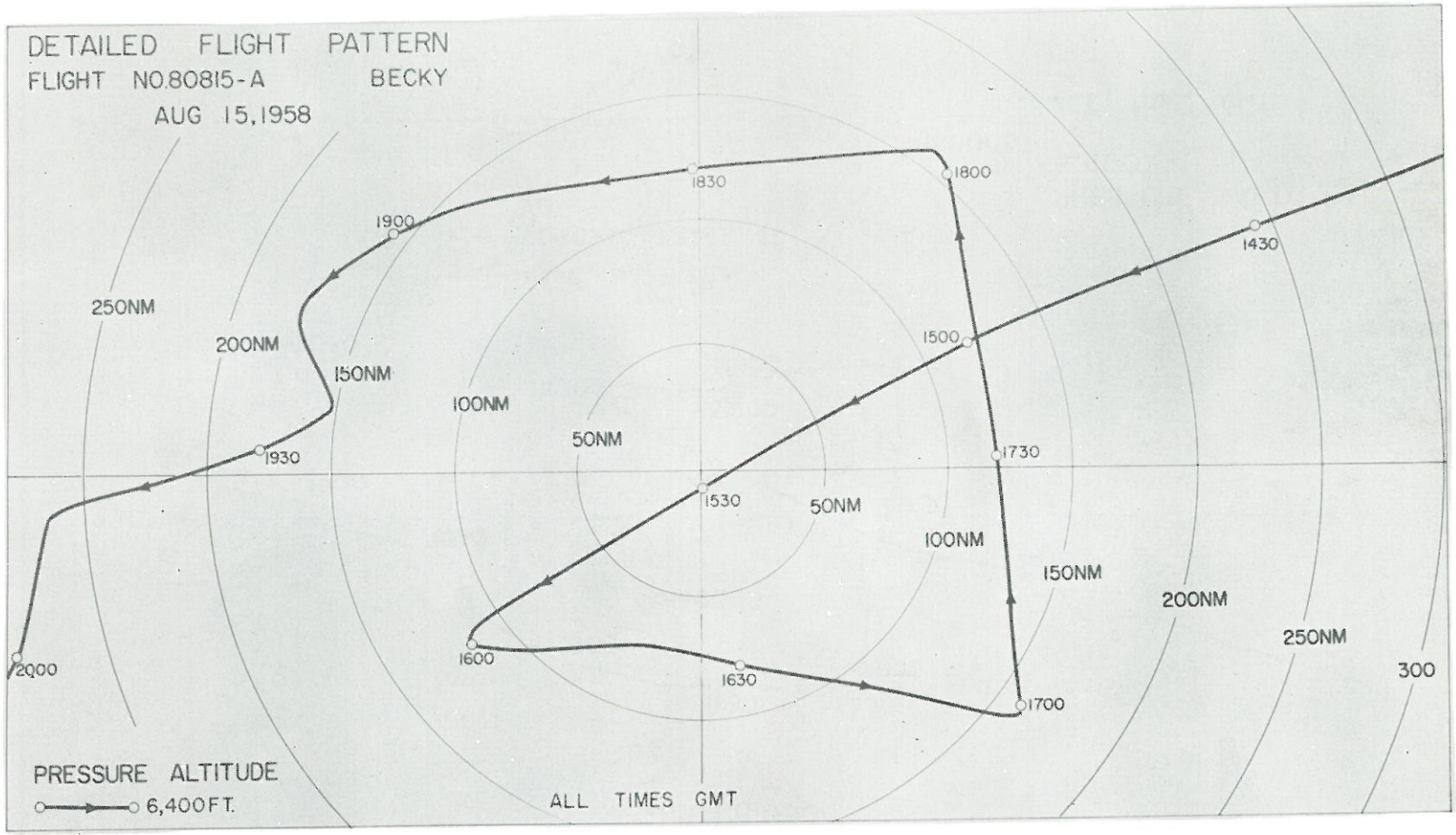
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80815-A BECKY

AUG 15, 1958




DETAILED FLIGHT PATTERN
FLIGHT NO.80815-A BECKY
AUG 15,1958
250NM
200NM
150NM
100NM
50NM
50NM
100NM
150NM
200NM
250NM
300
1830
1800
1900
1430
1500
1930
1730
1530
2000
1600
1630
1700
PRESSURE ALTITUDE
6,400FT.
ALL TIMES GMT

TYPE OF FLIGHT Tropical Storm BECKY DATE August 15, 1958

FLIGHT NO. 80815B DATA TABULATED FROM 1254
TO 2039

FLIGHT PRESSURE ALTITUDE 15,600 Ft.

DATA SAMPLING RATE:

5	SEC.	1254-1304		SEC.	
10	SEC.	1304-2039		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1255-2039
WIND	1254-2039
TEMPERATURE	1254-2039
D-VALUE	1254-2037
HUMIDITY	1356-2026 **
PRESSURE ALTITUDE	1254-2039
RADAR ALTITUDE	1254-2037

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	6 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1506-1631; 1645-2038
PHOTO PANEL DATA	2 rolls: 1255-1610; 1610-2037

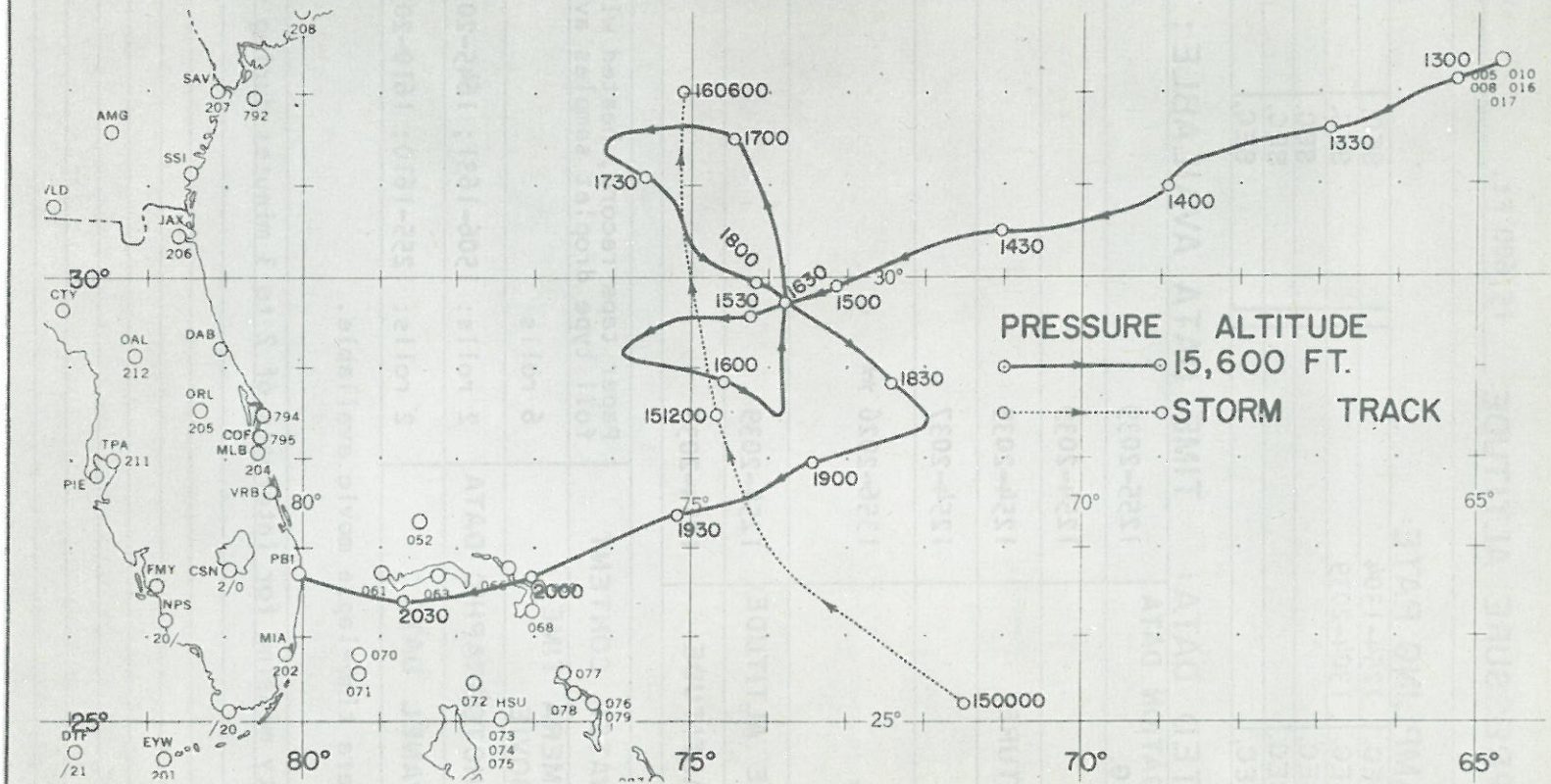
Side camera time-lapse movie available.

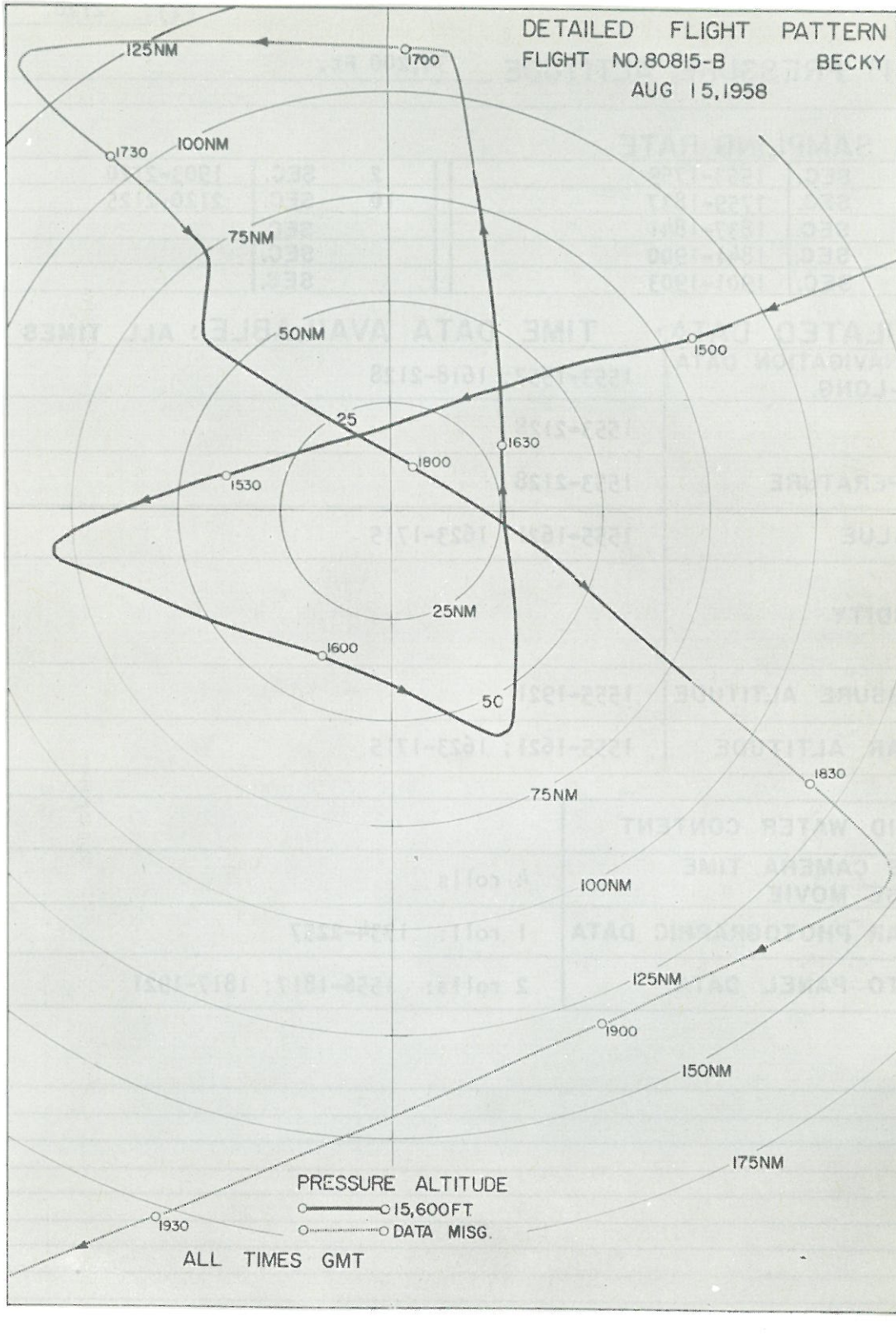
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80815-B BECKY

AUG 15, 1958




DETAILED FLIGHT PATTERN
FLIGHT NO.80815-B BECKY
AUG 15,1958
125NM
1700
1730
100NM
75NM
50NM
1500
25
1630
1800
1530
25NM
1600
50
1830
75NM
100NM
125NM
1900
150NM
175NM
1930
PRESSURE ALTITUDE
15,600FT
DATA MISG.
ALL TIMES GMT

TYPE OF FLIGHT Tropical Storm BECKY DATE August 15, 1958

FLIGHT NO. 80815C DATA TABULATED FROM 1553
TO 2128

FLIGHT PRESSURE ALTITUDE 34,200 Ft.

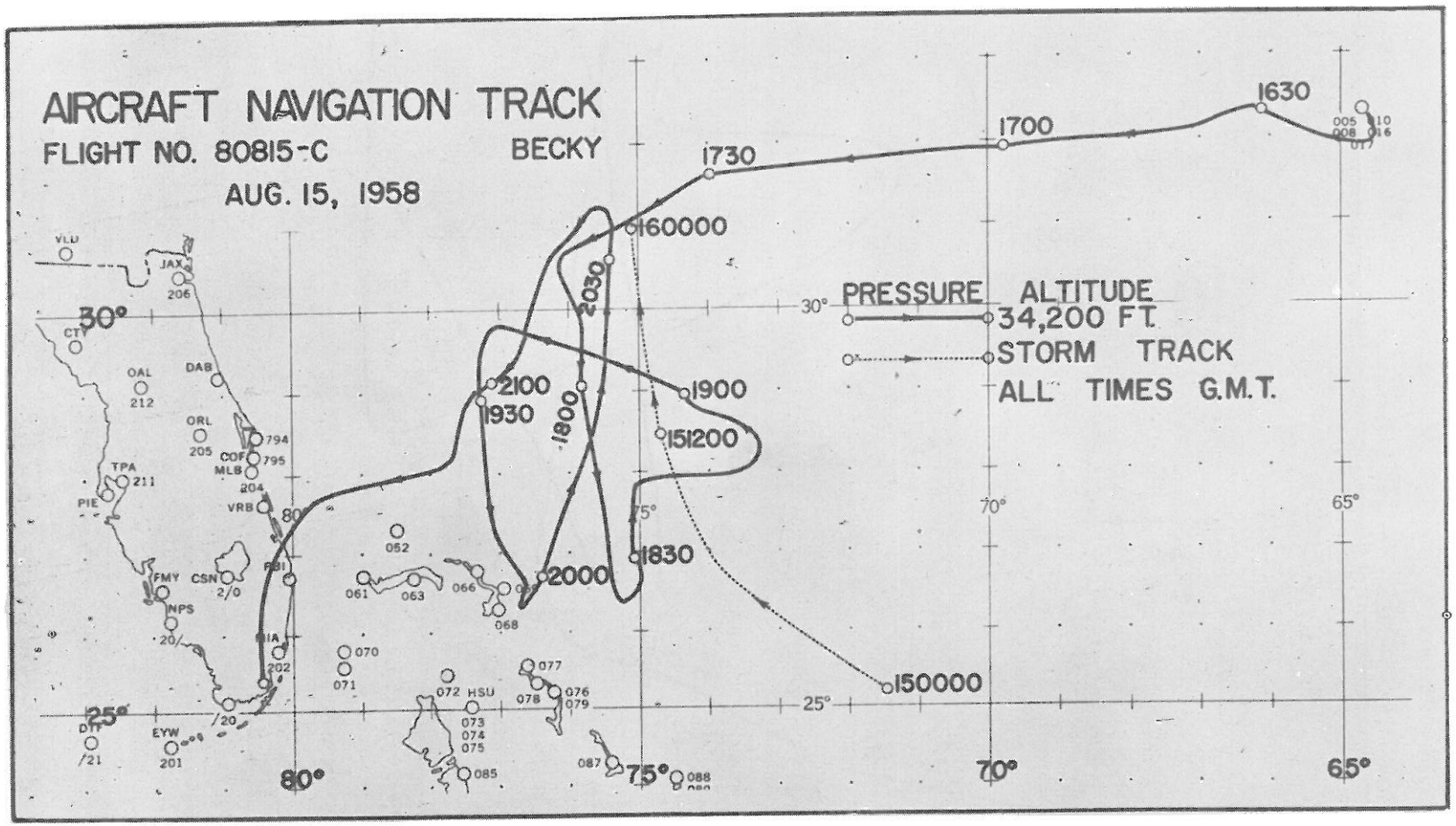
DATA SAMPLING RATE:

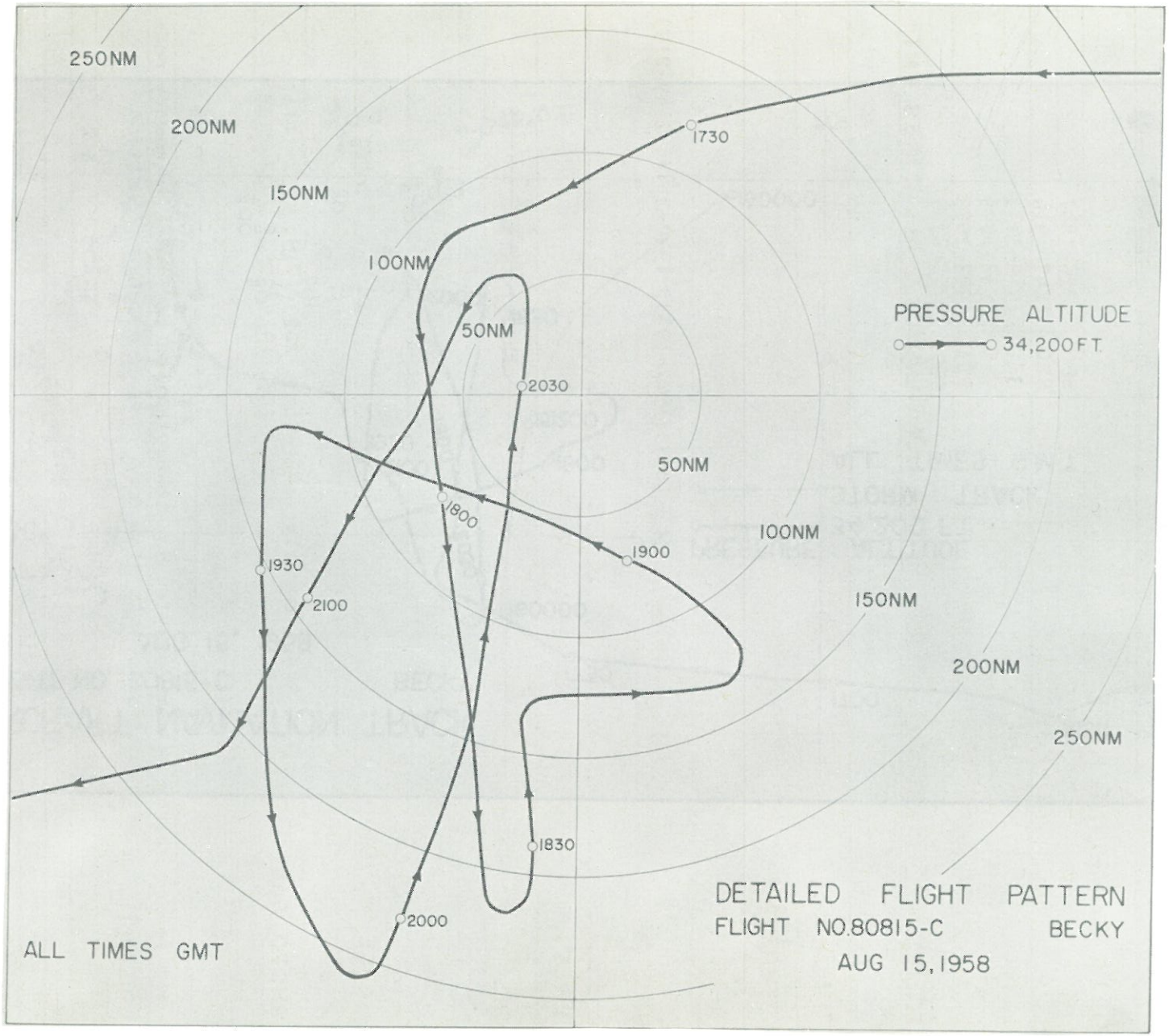
10	SEC.	1553-1759	2	SEC.	1903-2120
2	SEC.	1759-1837	10	SEC.	2120-2125
10	SEC.	1837-1841		SEC.	
2	SEC.	1841-1900		SEC.	
10	SEC.	1901-1903		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1553-1557; 1618-2128
WIND	1553-2128
TEMPERATURE	1553-2128
D-VALUE	1555-1621; 1623-1715
HUMIDITY	
PRESSURE ALTITUDE	1555-1921
RADAR ALTITUDE	1555-1621; 1623-1715

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	4 rolls
RADAR PHOTOGRAPHIC DATA	1 roll: 1734-2257
PHOTO PANEL DATA	2 rolls: 1556-1817; 1817-1921


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80815-C
BECKY
AUG. 15, 1958
PRESSURE ALTITUDE
34,200 FT.
STORM TRACK
ALL TIMES G.M.T.
1630
1700
1730
160000
2030
2100
1930
1800
1900
151200
1830
2000
150000
30°
25°
80°
75°
70°
65°
VLD
JAX
206
CT
OAL
212
DAB
ORL
205
COF
794
795
MLB
204
TPA
211
PIE
VRB
FMY
CSN
2/0
NPS
20/
FBI
MIA
202
/20
DTF
/21
EYW
201
052
061
063
066
068
070
071
072
HSU
073
074
075
077
078
076
079
085
087
088


250NM
200NM
150NM
100NM
50NM
50NM
100NM
150NM
200NM
250NM
1730
2030
1800
1900
1930
2100
1830
2000
PRESSURE ALTITUDE
34,200 FT
DETAILED FLIGHT PATTERN
FLIGHT NO.80815-C
BECKY
AUG 15, 1958
ALL TIMES GMT

TYPE OF FLIGHT Hurricane CLEO DATE August 18, 1958

FLIGHT NO. 80818A DATA TABULATED FROM 1421
TO 2304

FLIGHT PRESSURE ALTITUDE 6,400 Ft.

DATA SAMPLING RATE:

20	SEC.	1421-1527	2	SEC.	1725-1847
10	SEC.	1527-1535	5	SEC.	1847-1914
5	SEC.	1535-1559	3	SEC.	1914-1933
2	SEC.	1559-1652	20	SEC.	1933-1943
5	SEC.	1652-1725	3	SEC.	1943-2059
			10	SEC.	2059-2304

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1421-2304
WIND	1421-2223; 2230-2304 *
TEMPERATURE	1421-2304
D-VALUE	1421-1610; 1614-1718; 1725-1908; 1913-2243
HUMIDITY	1421-1424; 1519-1833; 1902-1933; 1940-2137; 2149-2153; 2244-2304 **
PRESSURE ALTITUDE	1421-2304
RADAR ALTITUDE	1421-1610; 1614-1718; 1725-1908; 1913-2243

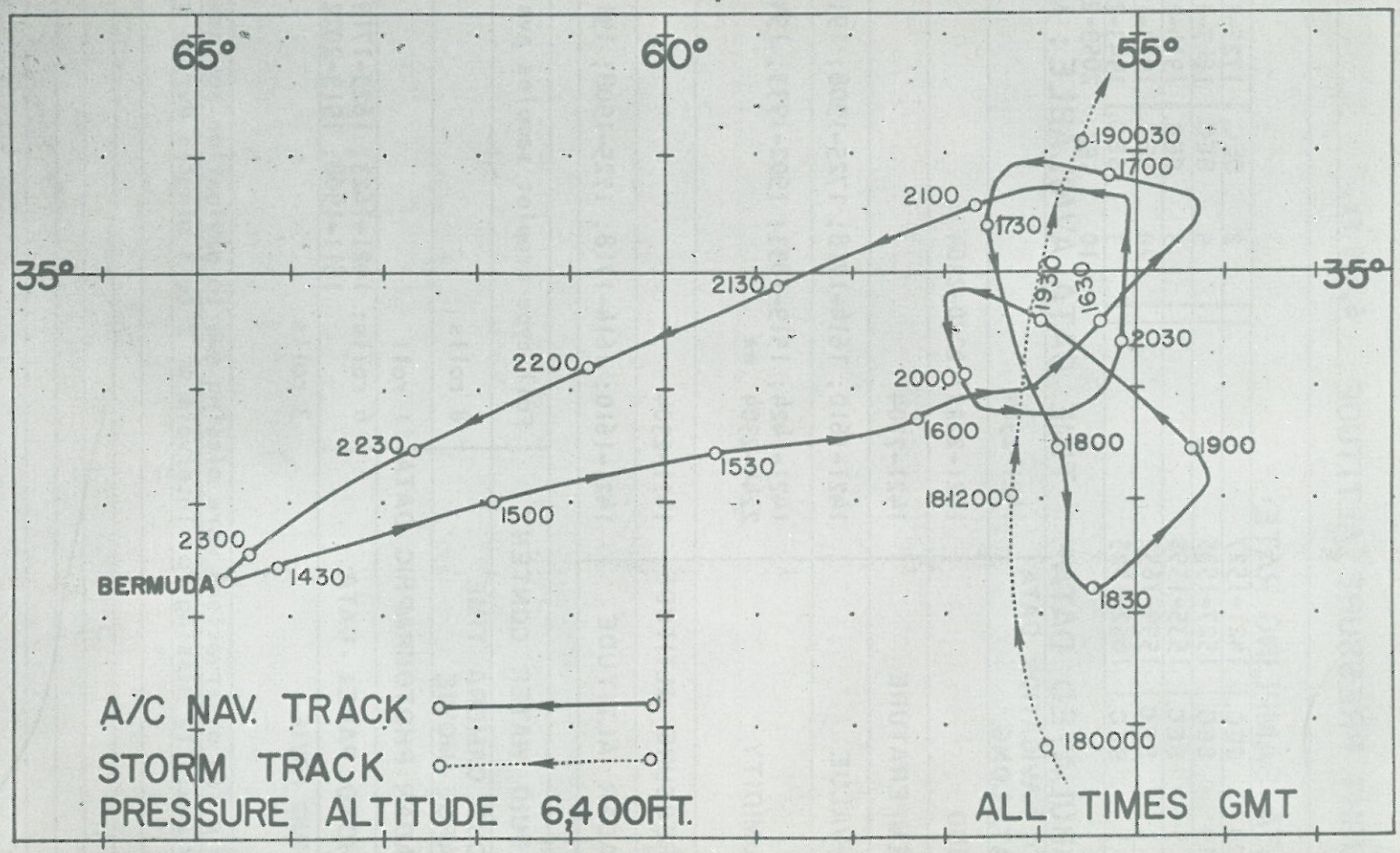
LIQUID WATER CONTENT	Foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	8 rolls
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	6 rolls: 1421-1623; 1623-1719; 1732-1811; 1811-1908; 1913-2022; 2023-2308
HAND MOVIE	3 rolls

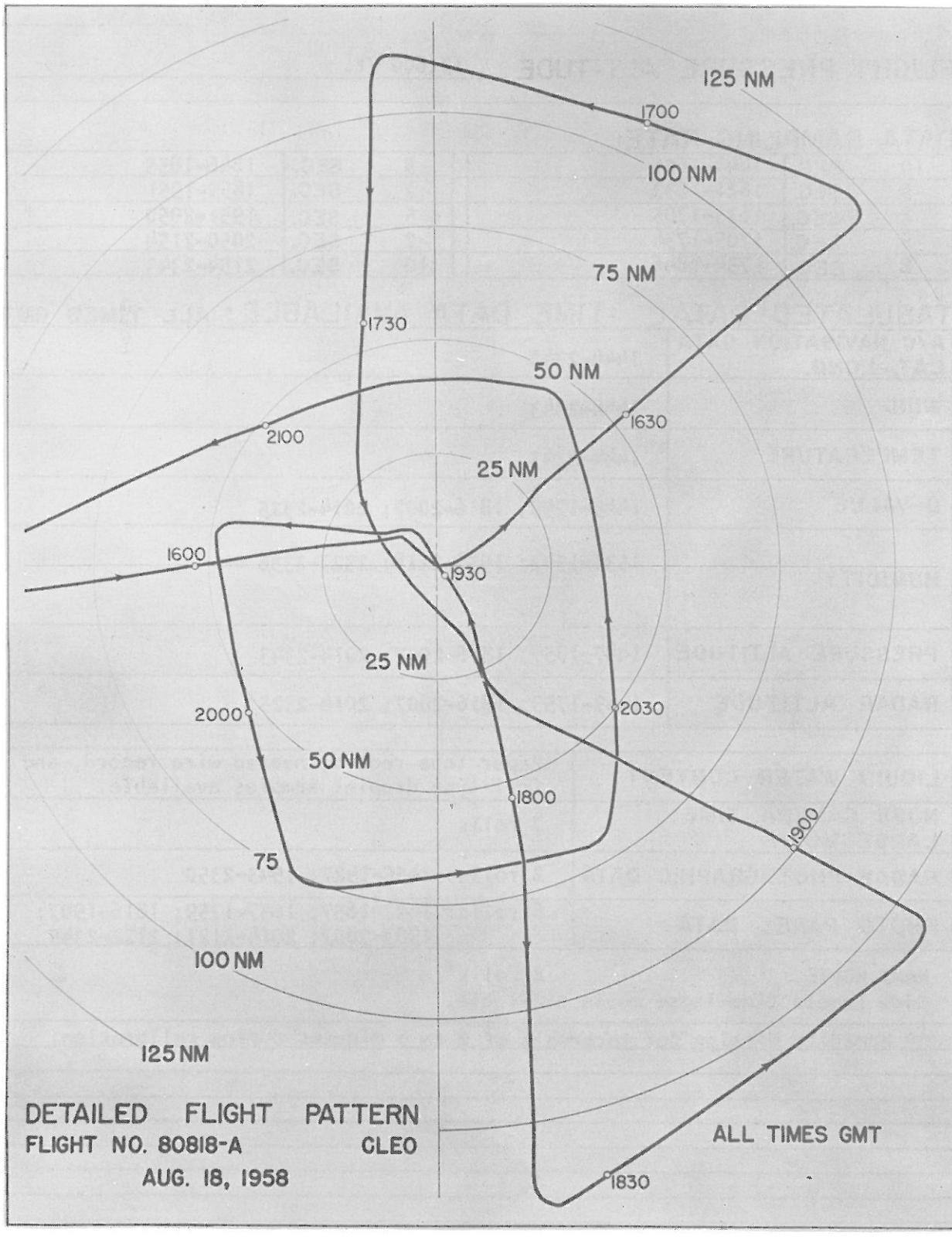
* A few observations were missing due to navigation equipment in memory mode.
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80818-A CLEO

AUGUST 18, 1958





DETAILED FLIGHT PATTERN
FLIGHT NO. 80818-A CLEO
AUG. 18, 1958

TYPE OF FLIGHT Hurricane CLEO DATE August 18, 1958

FLIGHT NO. 80818B DATA TABULATED FROM 1444
TO 2343

FLIGHT PRESSURE ALTITUDE 15,600 Ft.

DATA SAMPLING RATE:

10	SEC.	1444-1621	5	SEC.	1846-1855
5	SEC.	1621-1633	2	SEC.	1855-1951
2	SEC.	1633-1705	5	SEC.	1951-2050
5	SEC.	1705-1734	2	SEC.	2050-2154
2	SEC.	1734-1846	10	SEC.	2154-2343

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1444-2343
WIND	1444-2343
TEMPERATURE	1444-2343
D-VALUE	1449-1759; 1816-2007; 2014-2325
HUMIDITY	1538-1547; 1558-2218; 2327-2336 **
PRESSURE ALTITUDE	1447-1759; 1816-2007; 2014-2343
RADAR ALTITUDE	1449-1759; 1816-2007; 2014-2325

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	7 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1455-1927; 1943-2350
PHOTO PANEL DATA	6 rolls: 1447-1657; 1657-1759; 1816-1907; 1907-2007; 2014-2121; 2122-2345

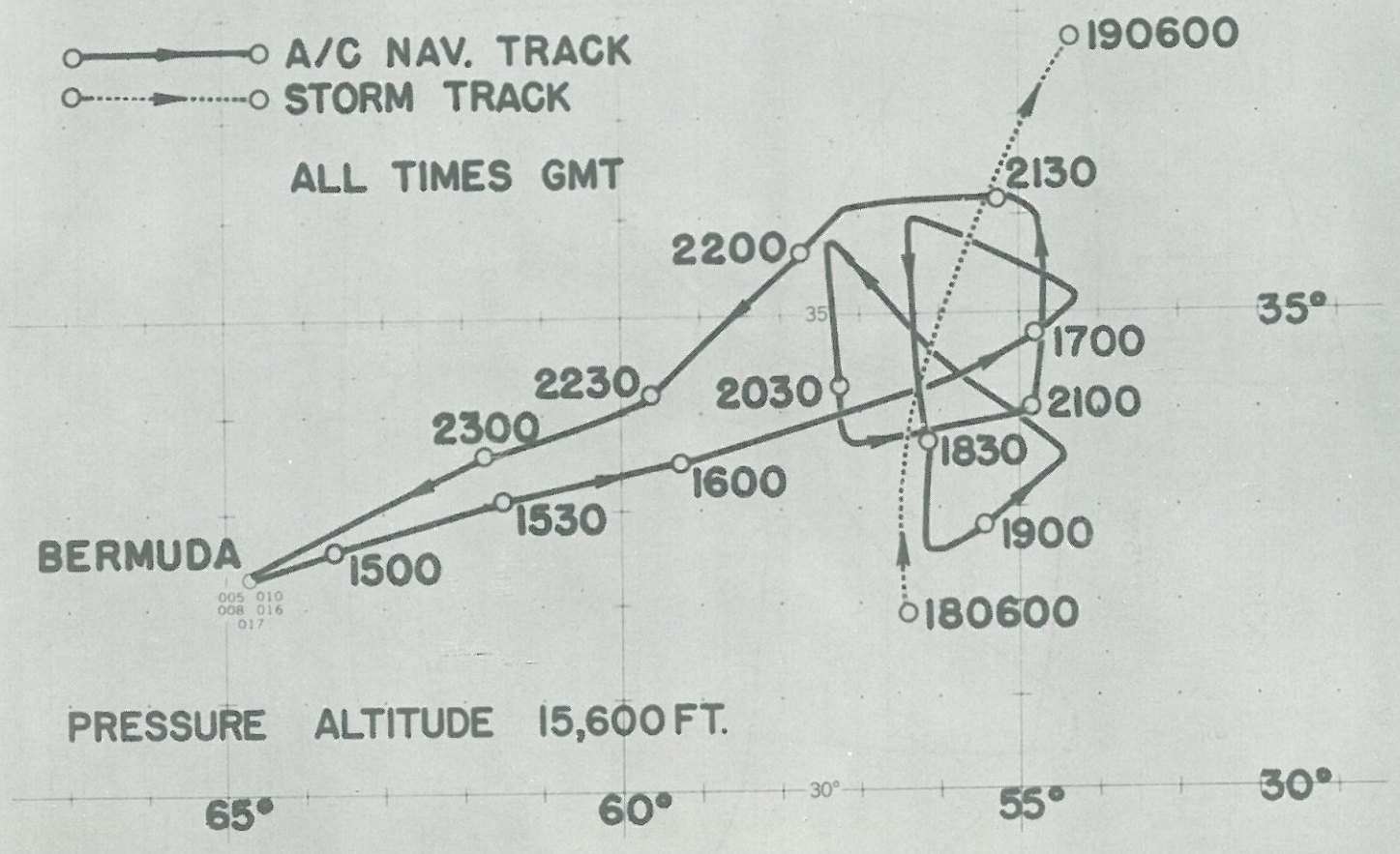
HAND MOVIE 2 rolls
Side Camera time-lapse movie available.

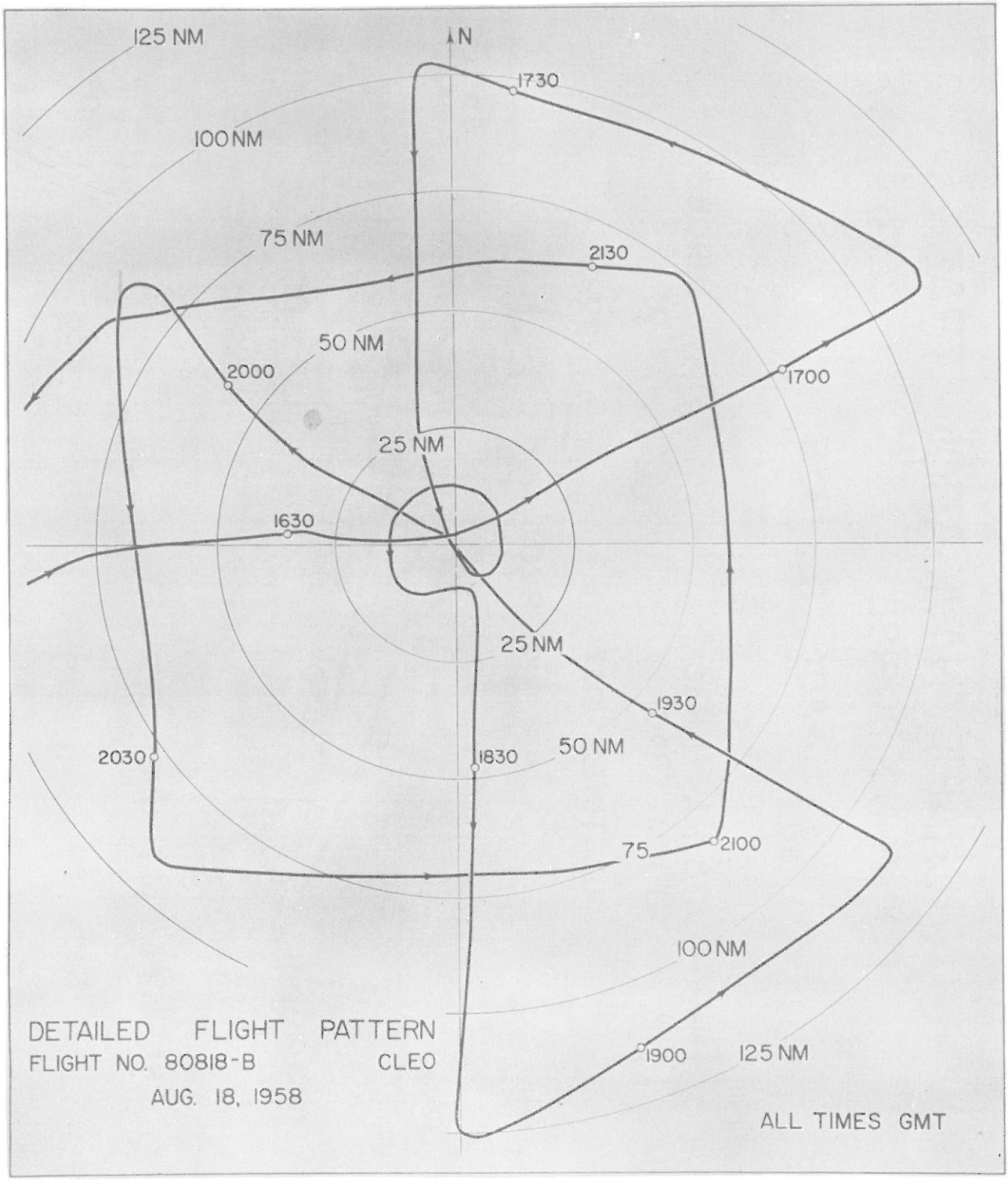
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80818B CLEO

AUG. 18, 1958





DETAILED FLIGHT PATTERN
FLIGHT NO. 80818-B CLEO
AUG. 18, 1958

TYPE OF FLIGHT Hurricane CLEO DATE August 18, 1958

FLIGHT NO. 80818c DATA TABULATED FROM 1609
TO 2040

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

15	SEC.	1609-1652	2	SEC.	1801-1951
2	SEC.	1652-1712	5-15	SEC.	1951-2040
10	SEC.	1712-1717		SEC.	
2	SEC.	1717-1758		SEC.	
2-10	SEC.	1758-1801		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

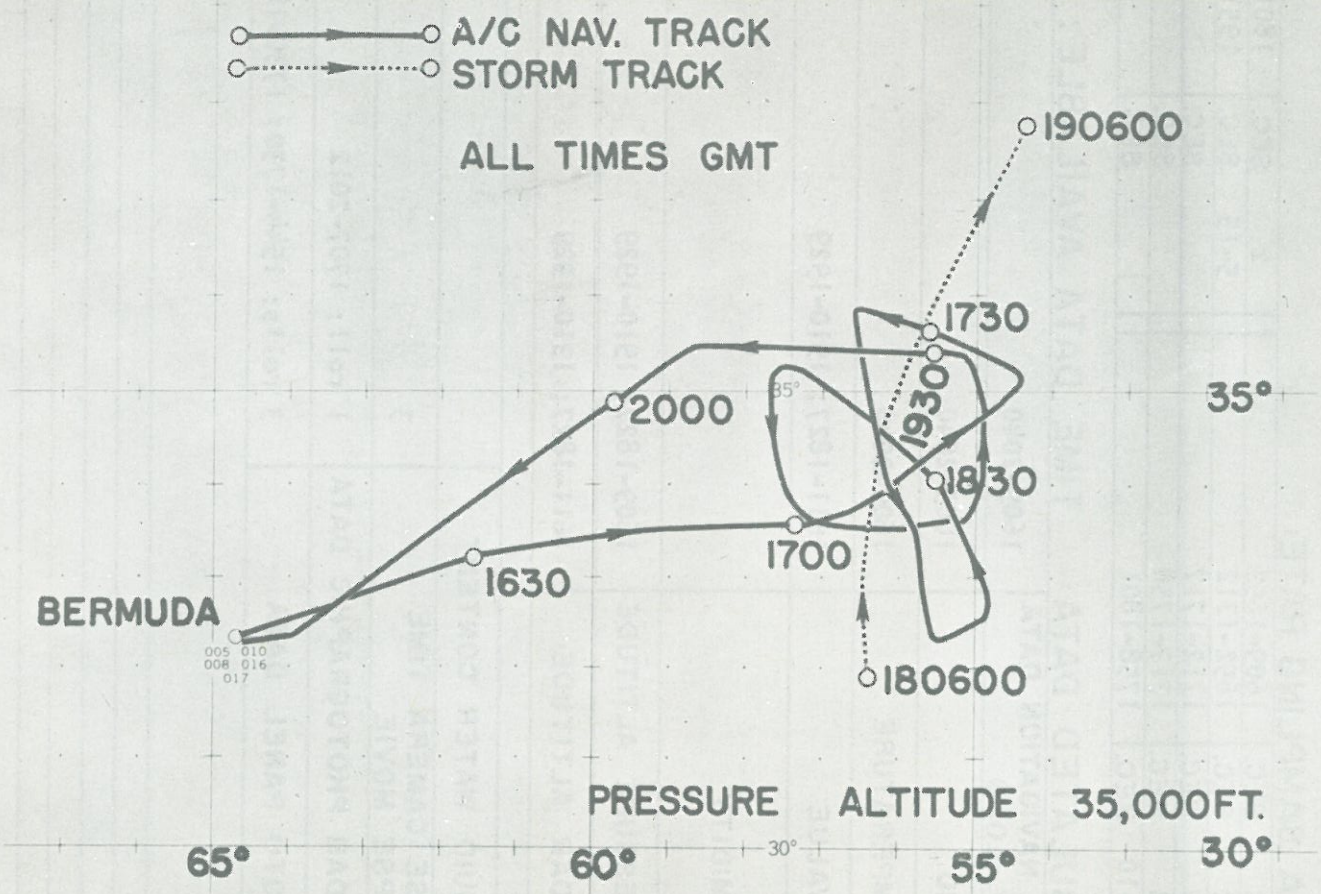
A/C NAVIGATION DATA LAT.-LONG.	1609-2040
WIND	1609-2040
TEMPERATURE	1609-2040
D-VALUE	1611-1827; 1910-1929
HUMIDITY	
PRESSURE ALTITUDE	1609-1827; 1910-1929
RADAR ALTITUDE	1611-1827; 1910-1929

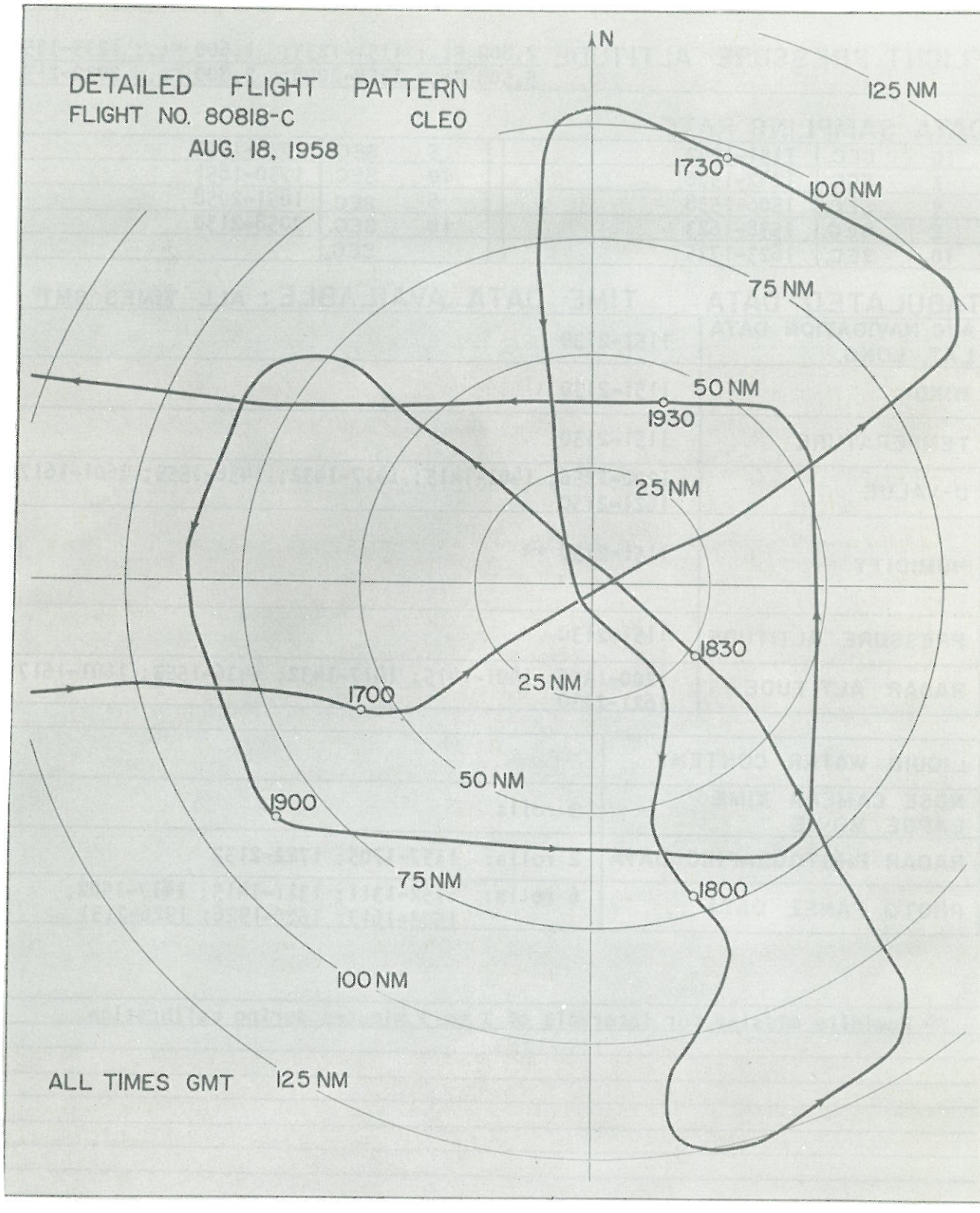
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	3
RADAR PHOTOGRAPHIC DATA	1 roll: 1707-2012
PHOTO PANEL DATA	3 rolls: 1544-1730; 1730-1827; 1910-1929

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80818C CLEO

AUG. 18, 1958




DETAILED FLIGHT PATTERN
FLIGHT NO. 80818-C
CLEO
AUG. 18, 1958
N
125 NM
100 NM
75 NM
50 NM
25 NM
1730
1930
1830
1700
1900
1800
ALL TIMES GMT

TYPE OF FLIGHT Hurricane DAISY DATE August 25, 1958

FLIGHT NO. 80825A DATA TABULATED FROM 1151
TO 2130

FLIGHT PRESSURE ALTITUDE 2,800 Ft.: 1151-1233; 1,600 Ft.: 1233-1358; 5,500 Ft.: 1358-2008; 2,800 Ft.: 2030-2130

DATA SAMPLING RATE:

10	SEC.	1151-1242	5	SEC.	1725-1750
2	SEC.	1242-1506	10	SEC.	1750-1851
5	SEC.	1506-1538	5	SEC.	1851-2058
2	SEC.	1538-1623	10	SEC.	2058-2130
10	SEC.	1623-1725		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1151-2130
WIND	1151-2130
TEMPERATURE	1151-2130
D-VALUE	1200-1356; 1401-1415; 1417-1432; 1436-1559; 1601-1617; 1621-2130
HUMIDITY	1151-2130 **
PRESSURE ALTITUDE	1151-2130
RADAR ALTITUDE	1200-1356; 1401-1415; 1417-1432; 1436-1559; 1601-1617; 1621-2130

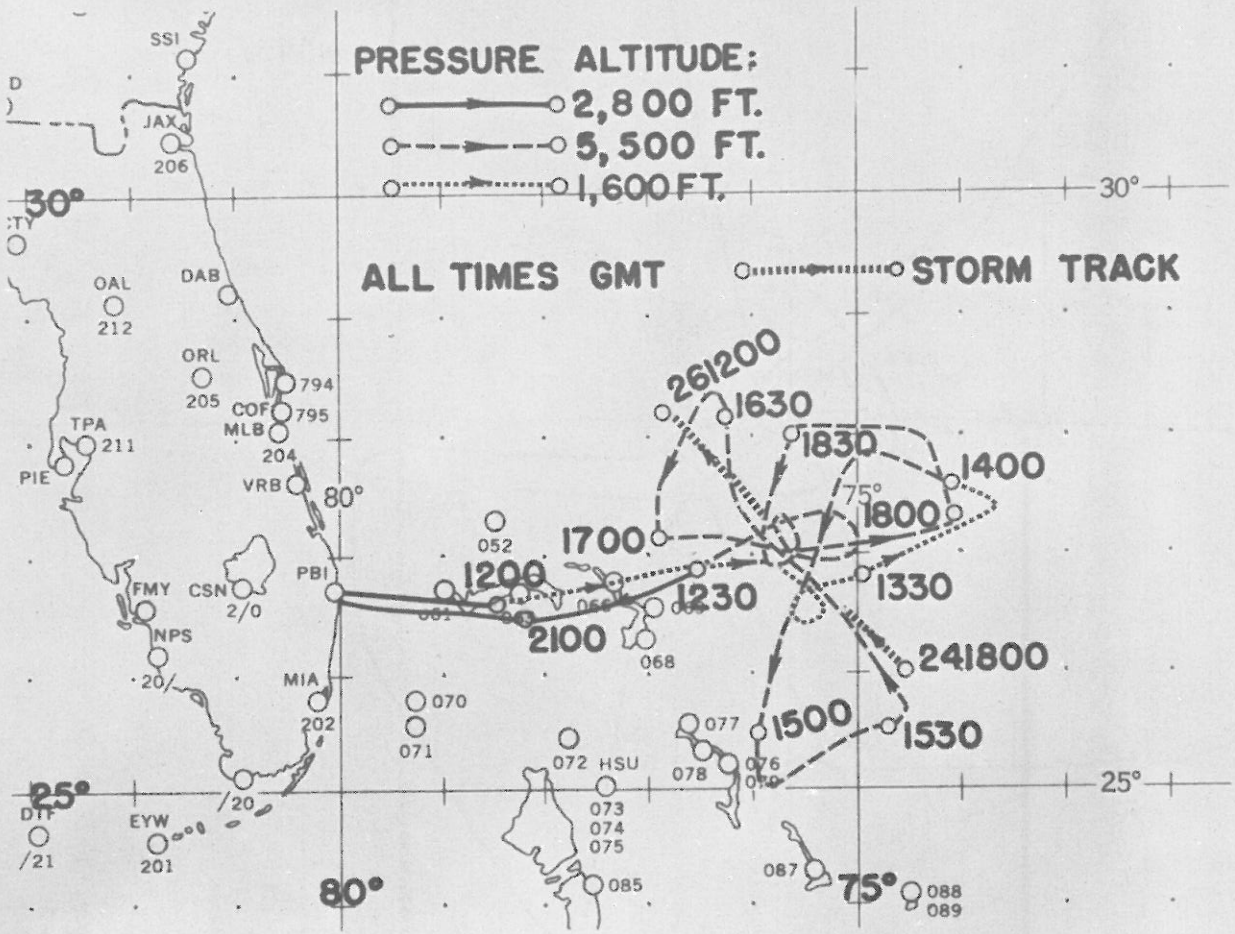
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	3 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1157-1705; 1722-2132
PHOTO PANEL DATA	6 rolls: 1152-1311; 1311-1415; 1417-1502; 1503-1617; 1620-1926; 1926-2131

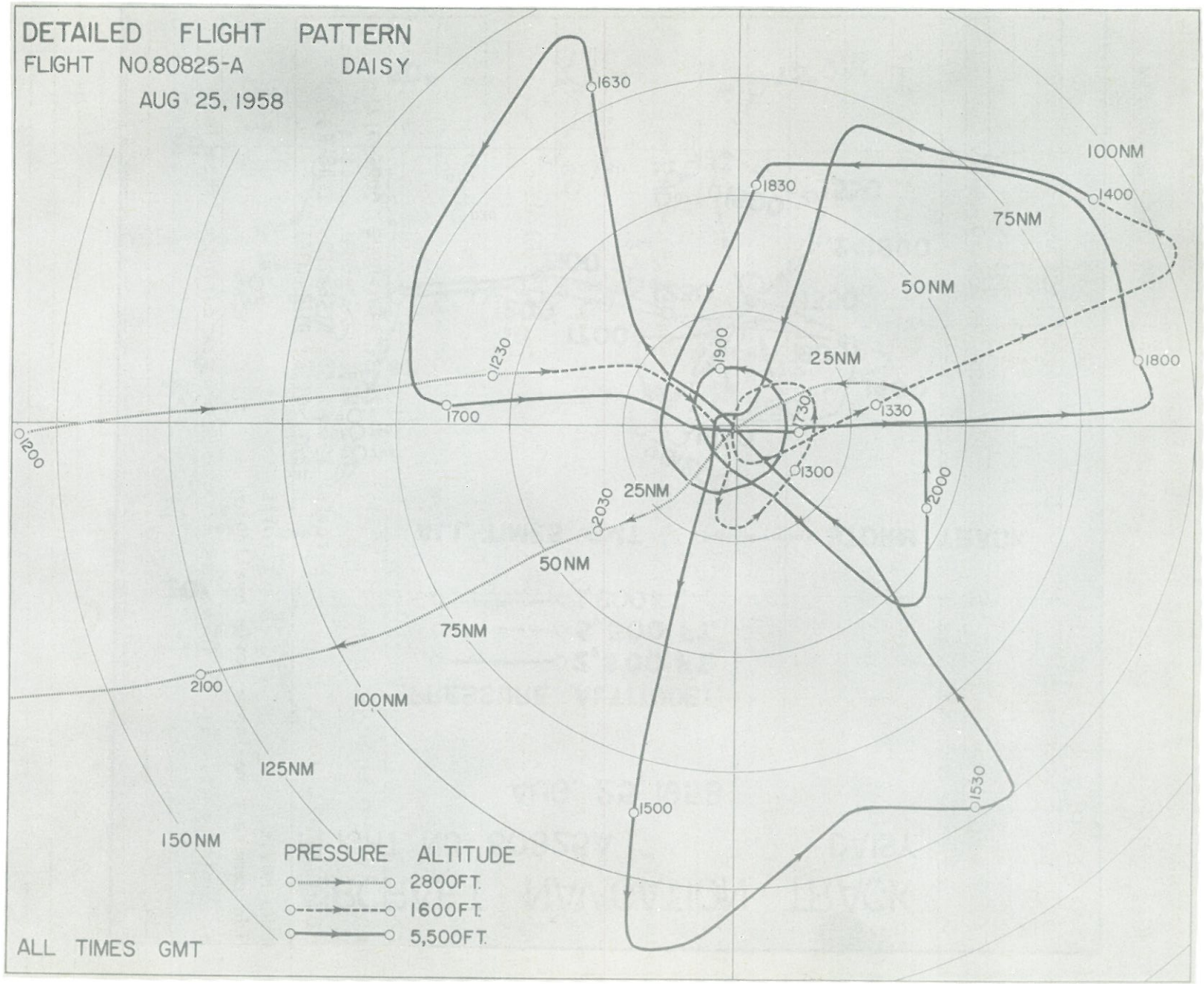
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80825A DAISY

AUG. 25, 1958




DETAILED FLIGHT PATTERN
FLIGHT NO.80825-A DAISY
AUG 25, 1958
1630
1830
1400
1800
1230
1900
1700
1730
1330
1200
1300
2000
2030
2100
1500
1530
25NM
50NM
75NM
100NM
125NM
150NM
PRESSURE ALTITUDE
2800FT.
1600FT.
5,500FT.
ALL TIMES GMT

TYPE OF FLIGHT Hurricane DAISY DATE August 25, 1958

FLIGHT NO. 80825B DATA TABULATED FROM 1957
TO 0345

FLIGHT PRESSURE ALTITUDE 15,600 Ft. till 0300; then 9,000 Ft. till 0345

DATA SAMPLING RATE:

10	SEC.	1957-2048	2	SEC.	2255-2333
5	SEC.	2048-2109	10	SEC.	2333-2336
2	SEC.	2109-2142	2	SEC.	2336-2352
5	SEC.	2142-2213	5	SEC.	2352-0345
3	SEC.	2213-2255		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1957-0345
WIND	1957-0345
TEMPERATURE	1957-0345
D-VALUE	2003-2228; 2248-2336; 2337-0118; 0141-0256
HUMIDITY	2048-0217; 0226-0230; 0244-0254; 0301-0345 **
PRESSURE ALTITUDE	1958-2228; 2248-0118; 0141-0345
RADAR ALTITUDE	2003-2228; 2248-2336; 2337-0118; 0141-0256

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	5 rolls
RADAR PHOTOGRAPHIC DATA	5 rolls: 2117-2253; 2301-0002; 0005-0121; 0124-0231; 0233-0341
PHOTO PANEL DATA	5 rolls: 1958-2158; 2158-2229; 2248-2337; 2337-0118; 0142-0351

HAND MOVIE 2 rolls

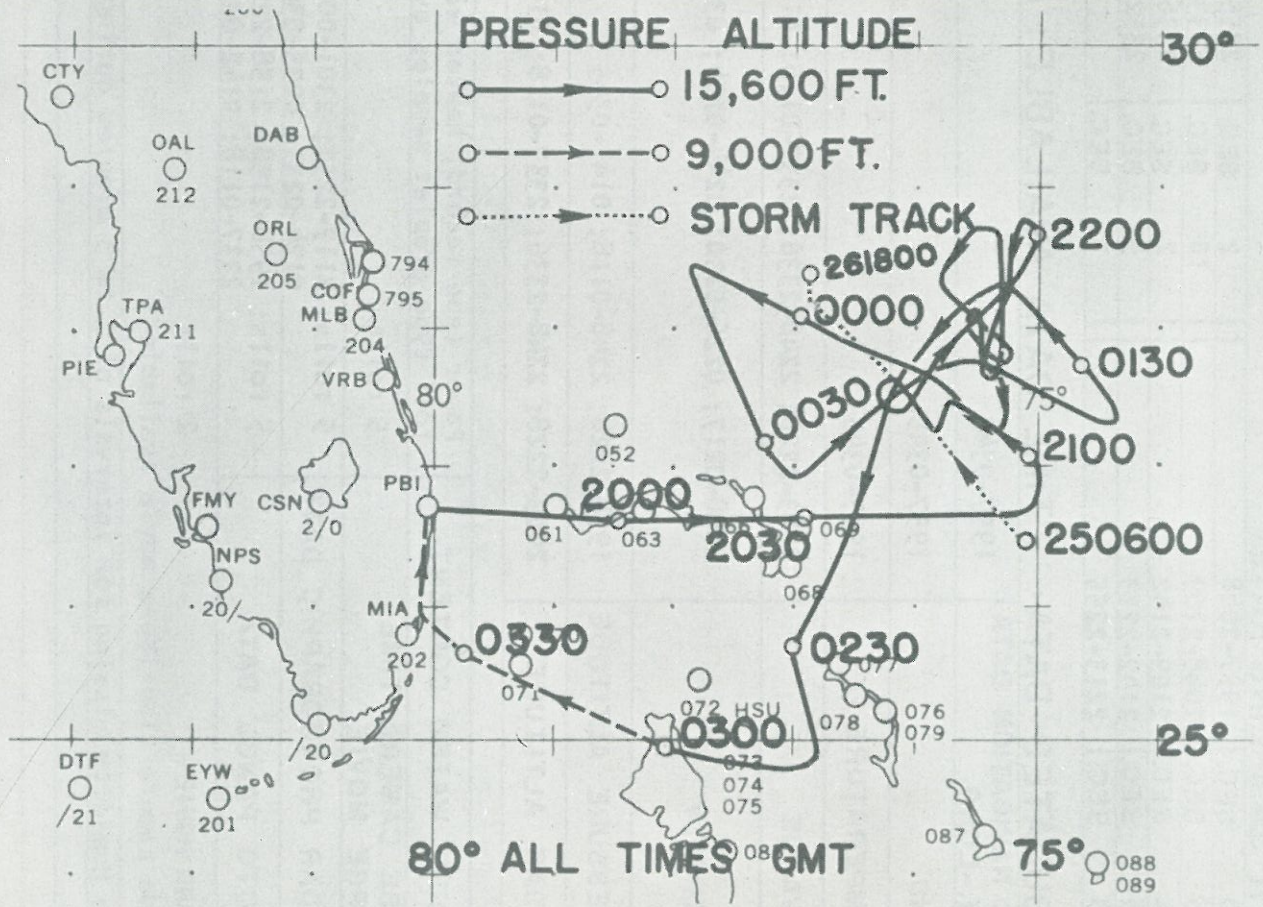
Side camera time-lapse movie available.

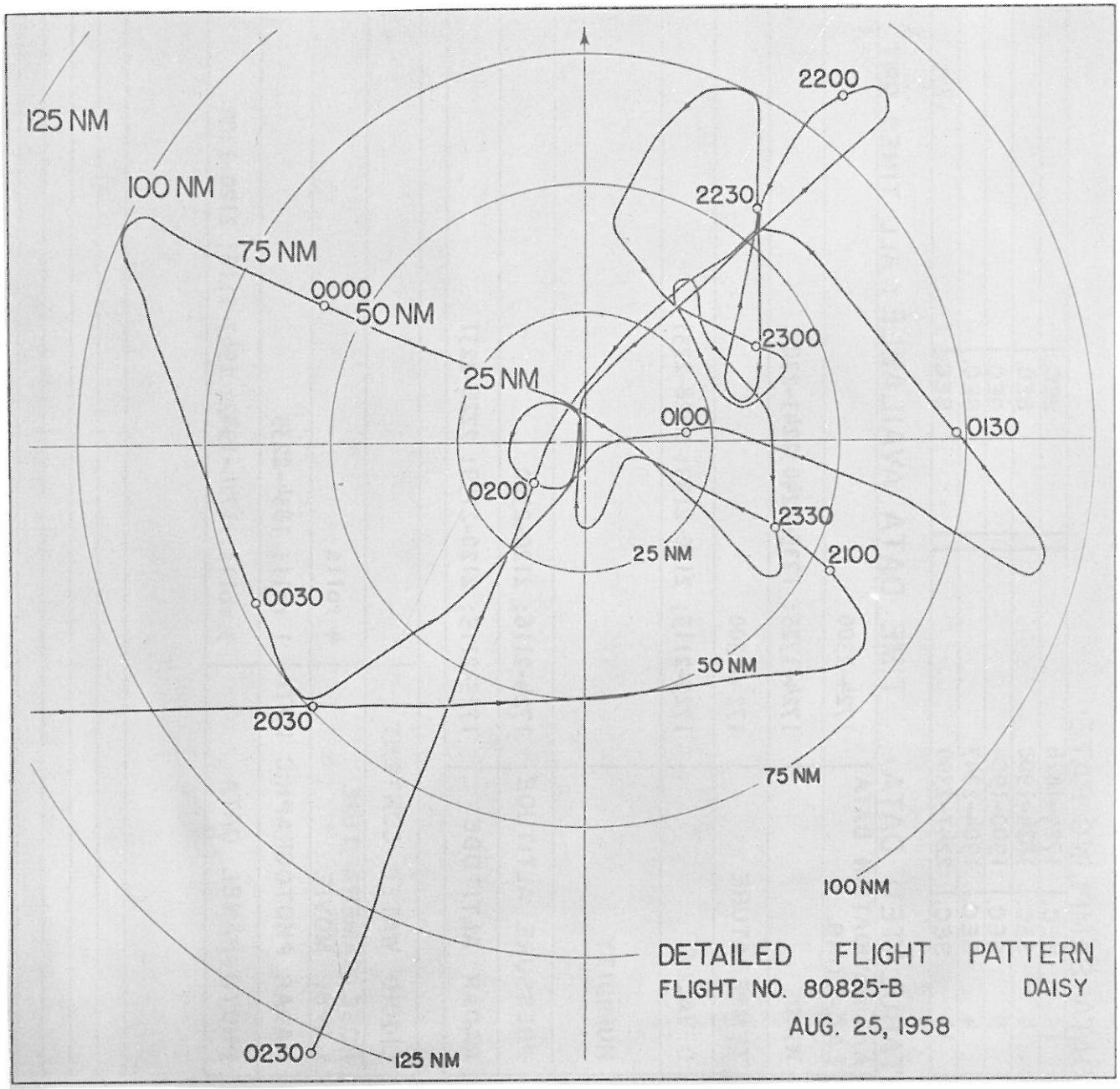
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80825B DAISY

AUG. 25, 1958




125 NM
100 NM
75 NM
50 NM
25 NM
25 NM
50 NM
75 NM
100 NM
125 NM
2200
2230
2300
2330
2100
0130
0100
0200
0000
0030
2030
0230
DETAILED FLIGHT PATTERN
FLIGHT NO. 80825-B
DAISY
AUG. 25, 1958

TYPE OF FLIGHT Hurricane DAISY DATE August 25, 1958

FLIGHT NO. 80825C DATA TABULATED FROM 1724
TO 2300

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

15	SEC.	1724-1824		SEC.	
4	SEC.	1824-1900		SEC.	
8	SEC.	1900-1904		SEC.	
4	SEC.	1904-2247		SEC.	
15	SEC.	2247-2300		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

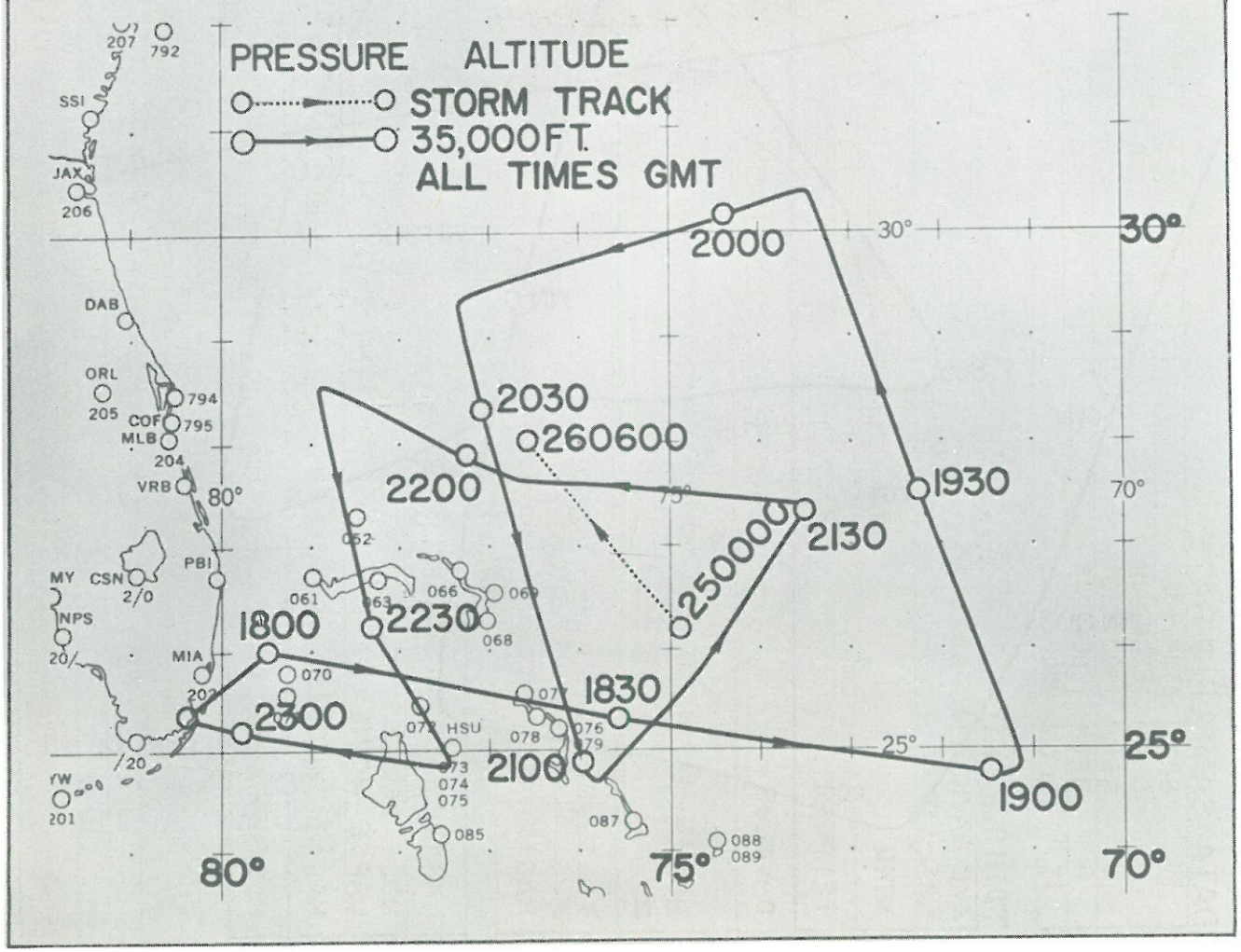
A/C NAVIGATION DATA LAT.-LONG.	1724-2300
WIND	1724-1725; 1735-2240;2243-2300
TEMPERATURE	1724-2300
D-VALUE	1725-2115; 2120-2159; 2228-2231
HUMIDITY	
PRESSURE ALTITUDE	1724-2116; 2120-2300
RADAR ALTITUDE	1725-2115; 2120-2159; 2228-2231

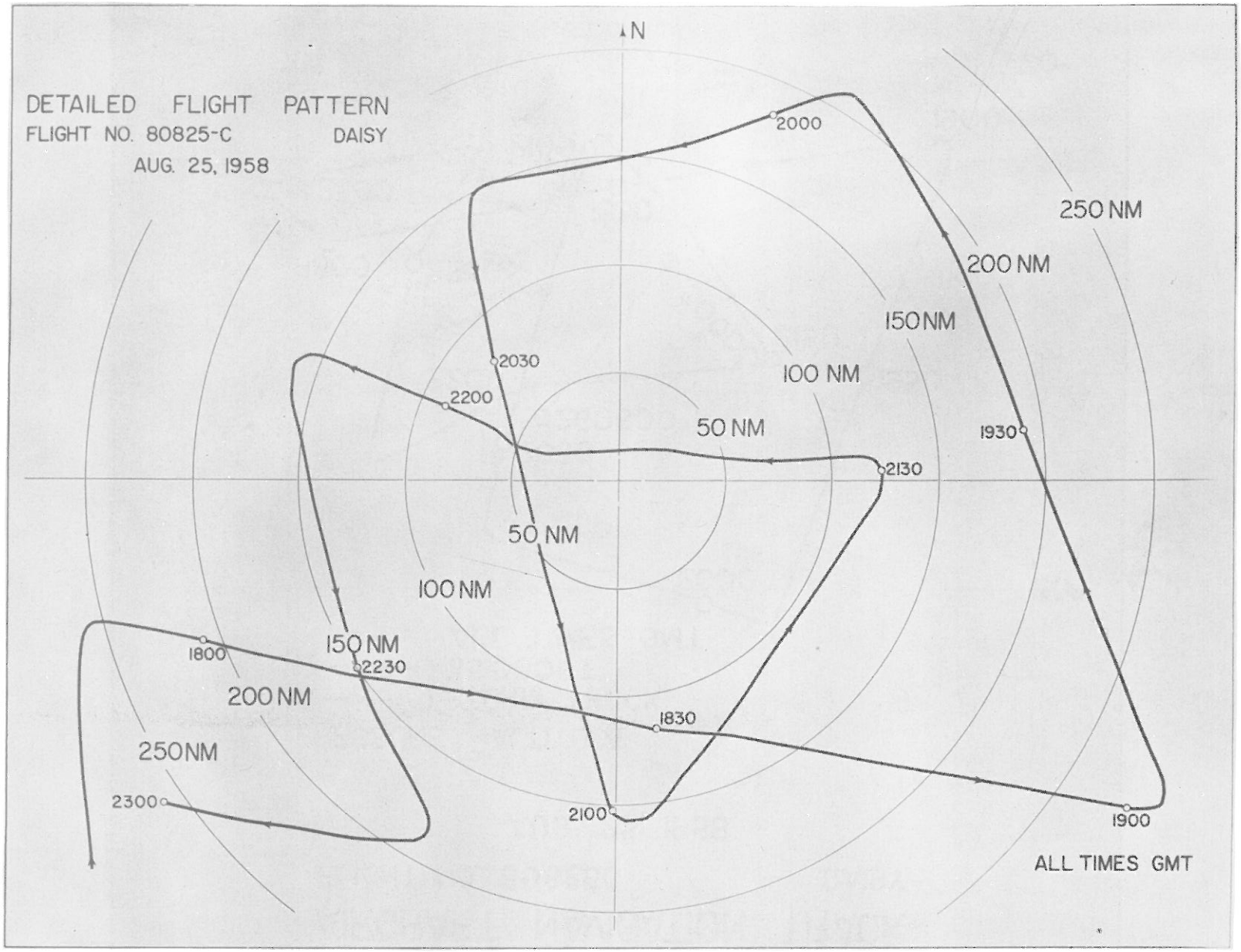
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	4 rolls
RADAR PHOTOGRAPHIC DATA	1 roll: 1834-2239
PHOTO PANEL DATA	3 rolls: 1724-1947; 1947-2116; 2120-2300

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80825C DAISY

AUG. 25, 1958




DETAILED FLIGHT PATTERN
FLIGHT NO. 80825-C
DAISY
AUG. 25, 1958
N
250 NM
200 NM
150 NM
100 NM
50 NM
50 NM
100 NM
150 NM
200 NM
250 NM
2000
2030
2200
2130
1930
1800
2230
1830
2300
2100
1900
ALL TIMES GMT

TYPE OF FLIGHT Hurricane DAISY DATE August 26, 1958

FLIGHT NO. 80826A DATA TABULATED FROM 1712
TO 0235

FLIGHT PRESSURE ALTITUDE 1,600 Ft. till 2106; 3,000 Ft. till 2315
6,400 Ft. till 0235

DATA SAMPLING RATE:

10	SEC.	1712-1745	10	SEC.	0204-0235
5	SEC.	1745-1751		SEC.	
2	SEC.	1751-2128		SEC.	
5	SEC.	2128-2210		SEC.	
2	SEC.	2210-0204		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1712-0235
WIND	1712-0235 *
TEMPERATURE	1712-0235
D-VALUE	1730-1924; 1930-2110; 2114-2315; 2316-2321; 2328-0208
HUMIDITY	1712-0235 **
PRESSURE ALTITUDE	1712-0235
RADAR ALTITUDE	1730-1924; 1930-2110; 2114-2315; 2316-2321; 2328-0208

LIQUID WATER CONTENT	Foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	6 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1731-2152; 2207-2313
PHOTO PANEL DATA	9 rolls: 1712-1837; 1837-1925; 1927-2016; 2016-2111; 2114-2226; 2226-2322; 2324-0016; 0016-0108; 0109-0236

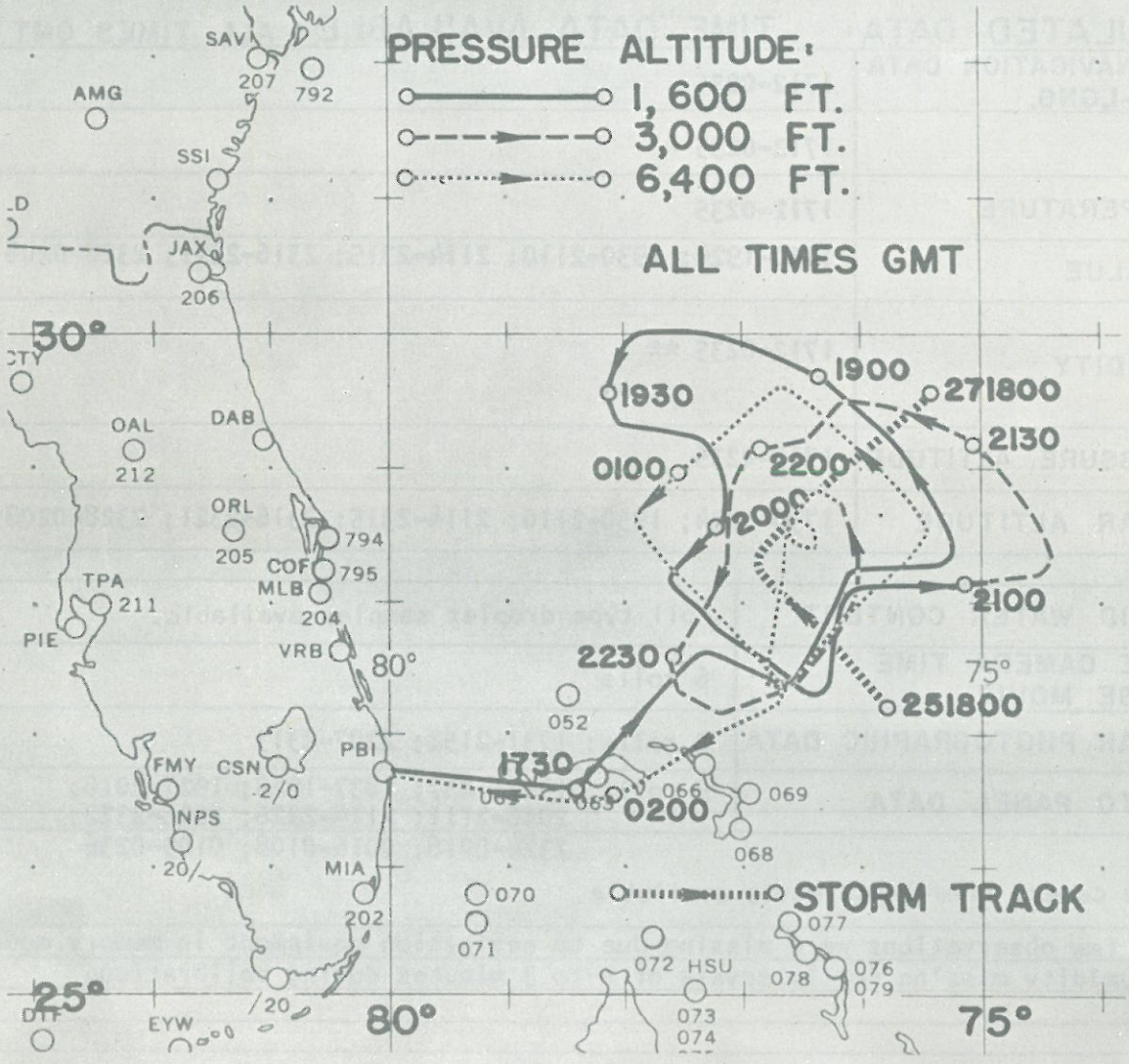
Side camera time-lapse movie available.

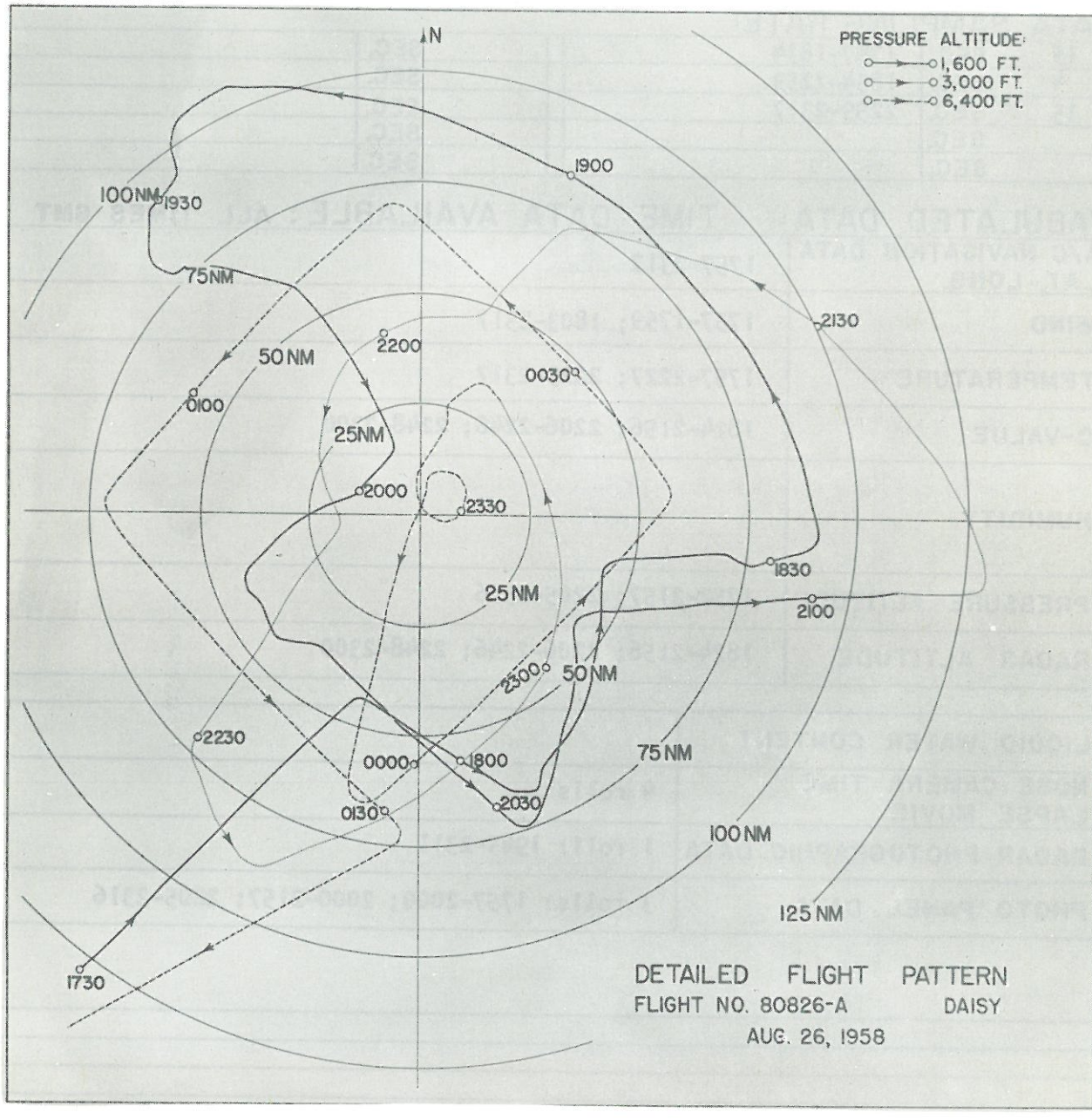
* A few observations were missing due to navigation equipment in memory mode.
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80826A DAISY

AUG. 26, 1958




N
PRESSURE ALTITUDE:
1,600 FT.
3,000 FT.
6,400 FT.
100 NM
75 NM
50 NM
25 NM
25 NM
50 NM
75 NM
100 NM
125 NM
1930
1900
2130
2200
0030
0100
2000
2330
1830
2100
2300
2230
0000
1800
2030
0130
1730
DETAILED FLIGHT PATTERN
FLIGHT NO. 80826-A
DAISY
AUG. 26, 1958

TYPE OF FLIGHT Hurricane DAISY DATE August 26, 1958

FLIGHT NO. 80826C DATA TABULATED FROM 1757
TO 2317

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

15	SEC.	1757-1834		SEC.	
4	SEC.	1834-2259		SEC.	
15	SEC.	2259-2317		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

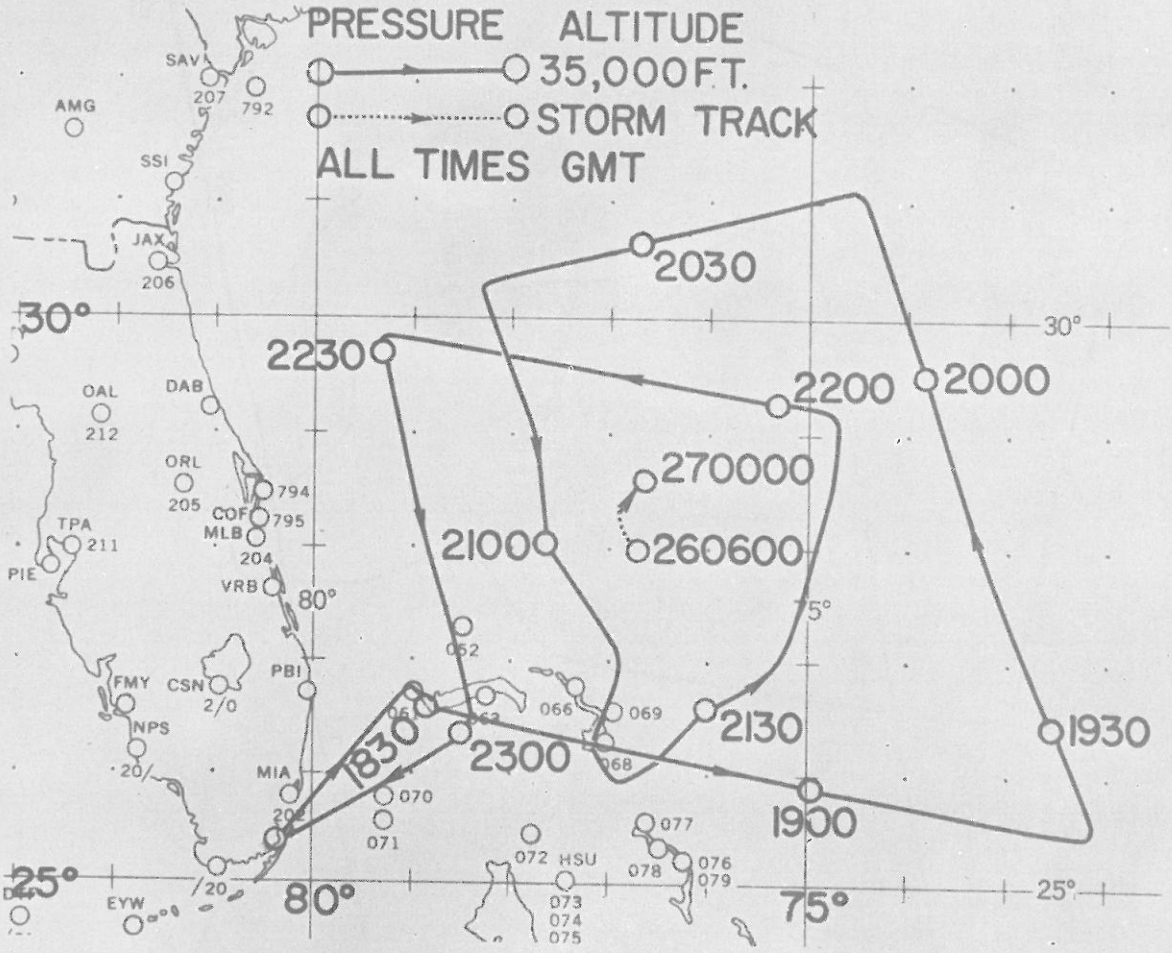
A/C NAVIGATION DATA LAT.-LONG.	1757-2317
WIND	1757-1759; 1803-2317
TEMPERATURE	1757-2227; 2229-2317
D-VALUE	1824-2156; 2206-2246; 2248-2300
HUMIDITY	
PRESSURE ALTITUDE	1757-2157; 2205-2316
RADAR ALTITUDE	1824-2156; 2206-2246; 2248-2300

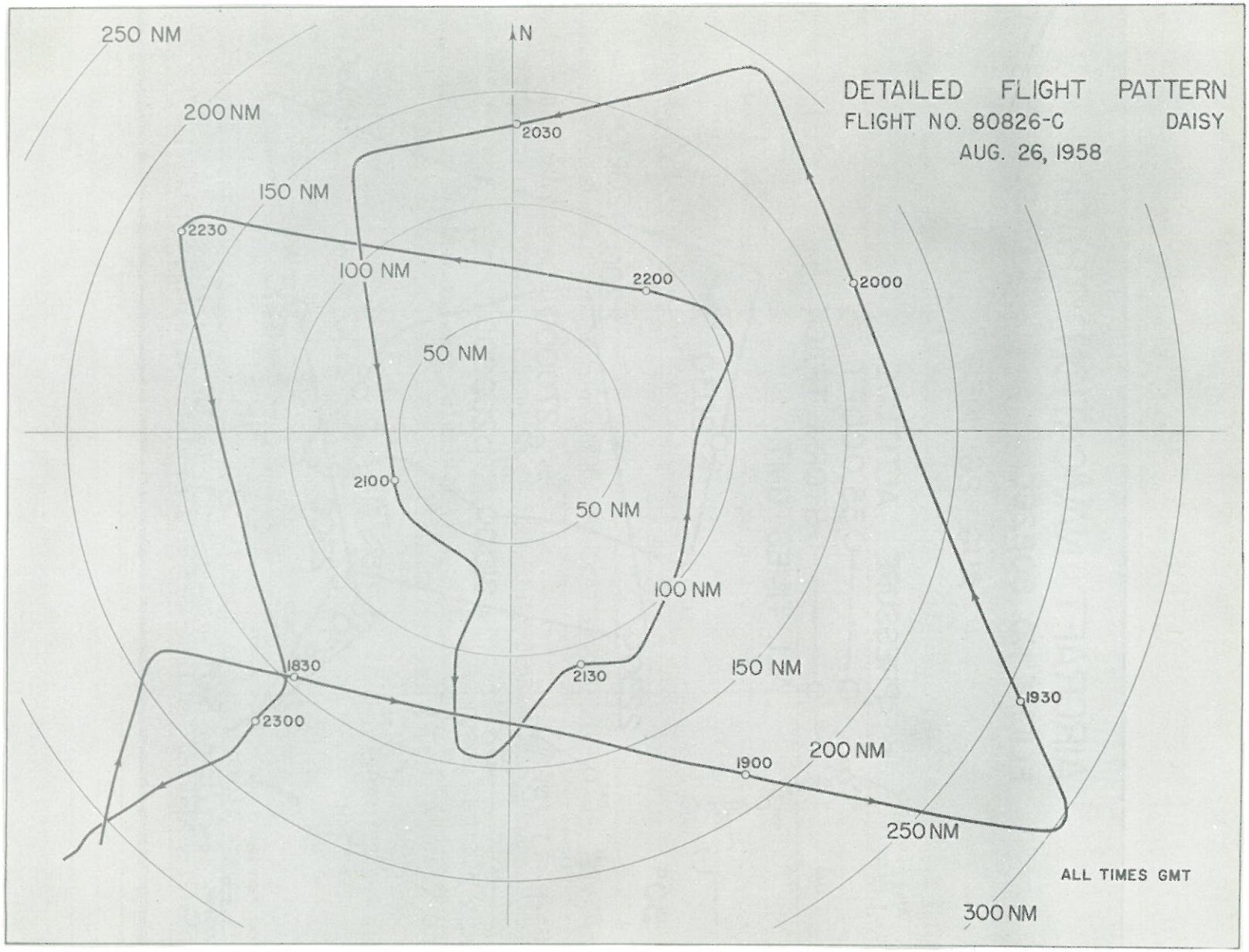
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	4 rolls
RADAR PHOTOGRAPHIC DATA	1 roll: 1945-2311
PHOTO PANEL DATA	3 rolls: 1757-2000; 2000-2157; 2205-2316

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80826C DAISY

AUG. 26, 1958




DETAILED FLIGHT PATTERN
FLIGHT NO. 80826-C
DAISY
AUG. 26, 1958
N
250 NM
200 NM
150 NM
100 NM
50 NM
50 NM
100 NM
150 NM
200 NM
250 NM
300 NM
2030
2230
2200
2000
2100
2130
1830
2300
1900
1930
ALL TIMES GMT

TYPE OF FLIGHT Hurricane DAISY DATE August 27, 1958

FLIGHT NO. 80827B DATA TABULATED FROM 1501
TO 2225

FLIGHT PRESSURE ALTITUDE 13,000 Ft. till 1930; 20,500 Ft. 1940-2225

DATA SAMPLING RATE:

10	SEC.	1501-1552	SEC.	
3	SEC.	1552-1600	SEC.	
2	SEC.	1600-2052	SEC.	
5	SEC.	2052-2225	SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1501-2225
WIND	1501-1737; 1748-2021; 2050-2224 *
TEMPERATURE	1501-2225
D-VALUE	1505-1716; 1718-1904; 1907-1946; 1948-2048; 2050-2053; 2055-2223
HUMIDITY	1511-1650; 1656-1721; 1740-1823; 1836-1855; 1902-1944; 2116-2220 **
PRESSURE ALTITUDE	1501-1716; 1718-1904; 1907-2055; 2055-2223
RADAR ALTITUDE	1505-1716; 1718-1904; 1907-1946; 1948-2048; 2050-2053; 2055-2223

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	7 rolls
RADAR PHOTOGRAPHIC DATA	5 rolls: 1507-1632; 1635-1724; 1726-1835; 1838-1953; 1956-2117
PHOTO PANEL DATA	7 rolls: 1444-1628; 1628-1716; 1718-1757; 1757-1904; 1906-1959; 1959-2053; 2054-2225

Hand Movie 3 rolls
Side camera time-lapse movie available.

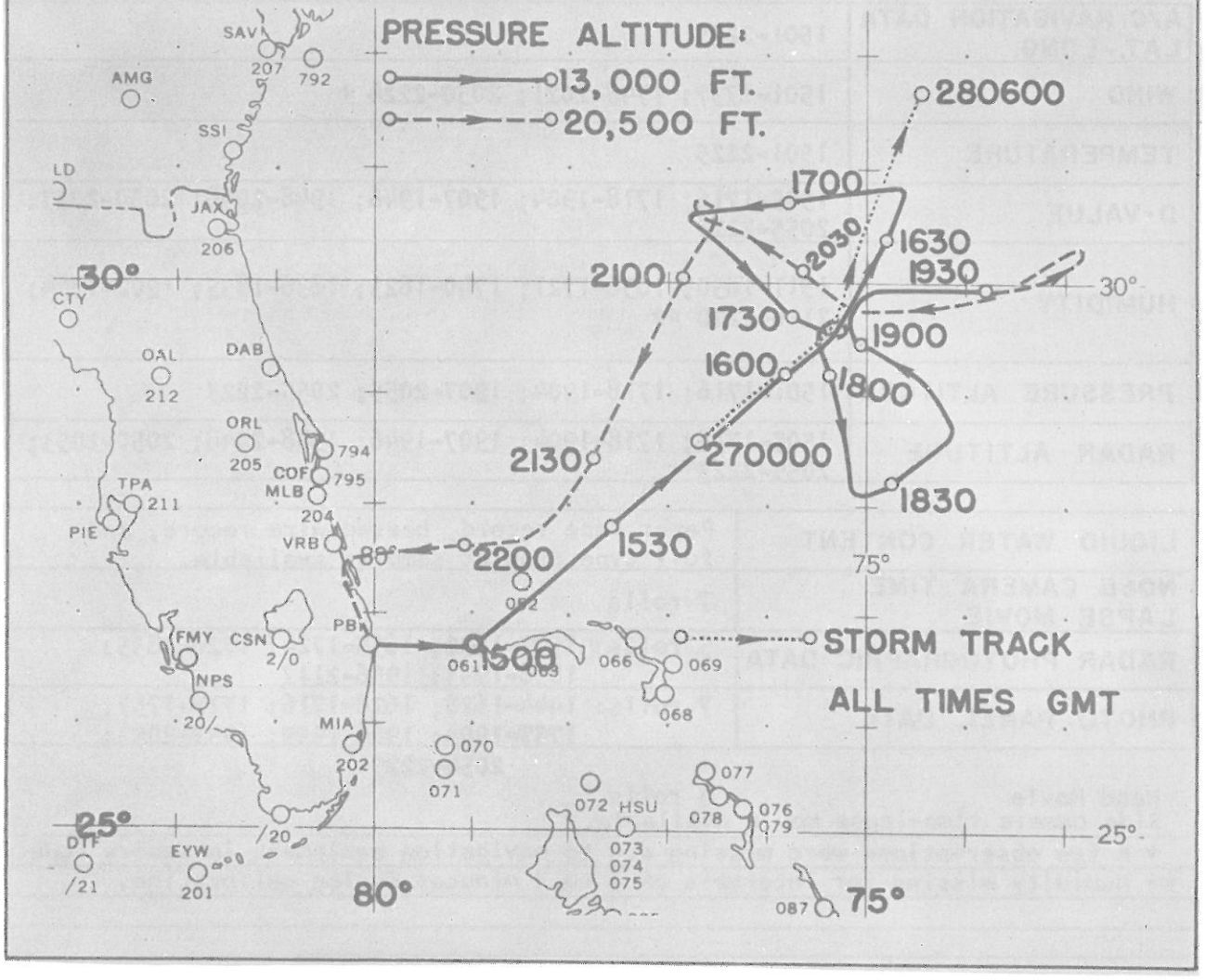
* A few observations were missing due to navigation equipment in memory mode.

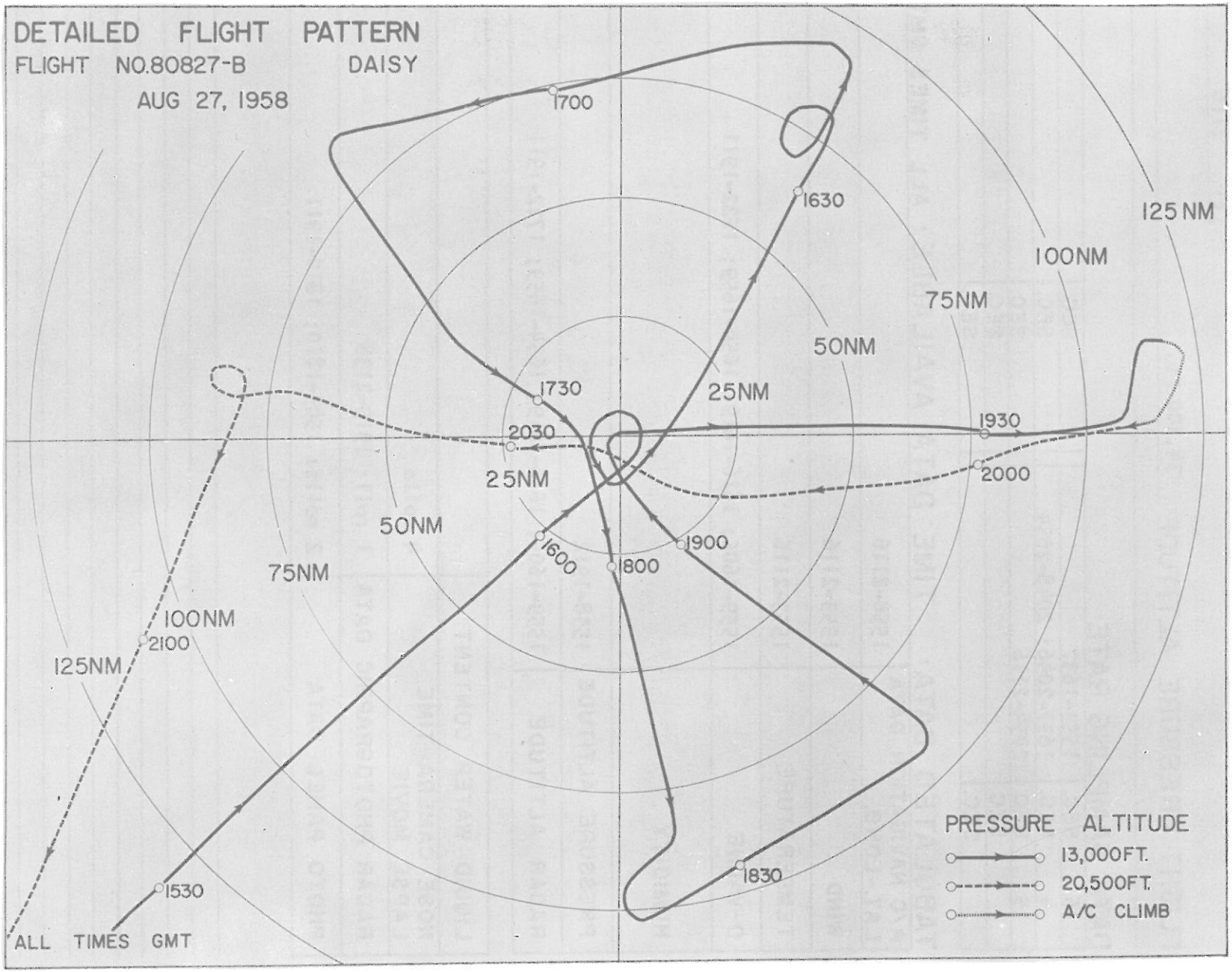
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80827B DAISY

AUG. 27, 1958




DETAILED FLIGHT PATTERN
FLIGHT NO.80827-B DAISY
AUG 27, 1958
1700
1630
125 NM
100NM
75NM
50NM
25NM
1730
2030
1930
2000
25NM
50NM
75NM
100NM
125NM
1600
1800
1900
2100
1530
1830
PRESSURE ALTITUDE
13,000FT.
20,500FT.
A/C CLIMB
ALL TIMES GMT

TYPE OF FLIGHT Hurricane DAISY DATE August 27, 1958

FLIGHT NO. 80827C DATA TABULATED FROM 1553
TO 2116

FLIGHT PRESSURE ALTITUDE 34,200 Ft.

DATA SAMPLING RATE:

15	SEC.	1553-1637		SEC.	
4	SEC.	1637-2046; 2048-2054		SEC.	
15	SEC.	2054-2116		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

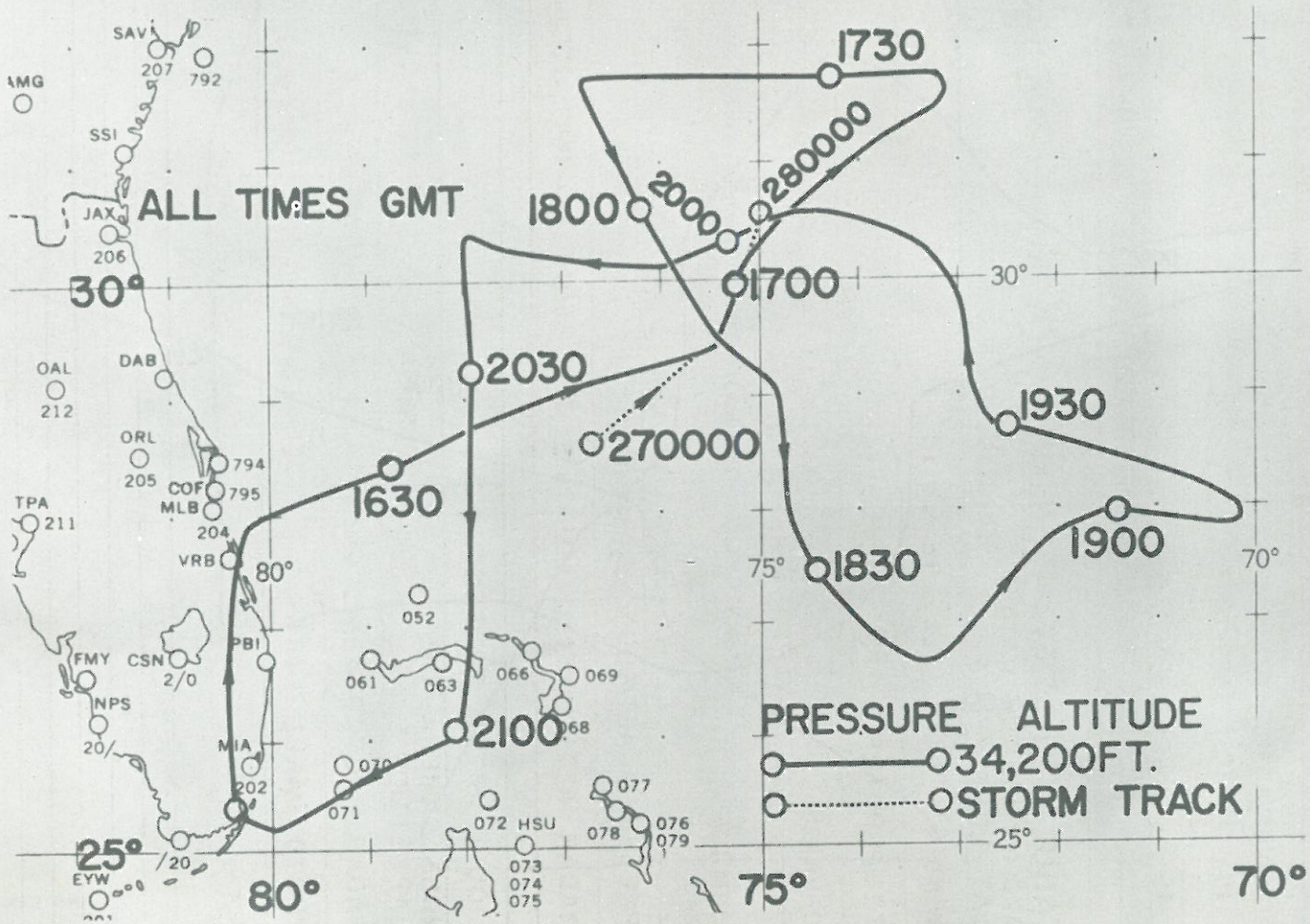
A/C NAVIGATION DATA LAT.-LONG.	1558-2116
WIND	1553-2116
TEMPERATURE	1553-2116
D-VALUE	1559-1605; 1616-1619; 1654-1659; 1722-1911
HUMIDITY	
PRESSURE ALTITUDE	1558-1912
RADAR ALTITUDE	1559-1605; 1616-1619; 1654-1659; 1722-1911

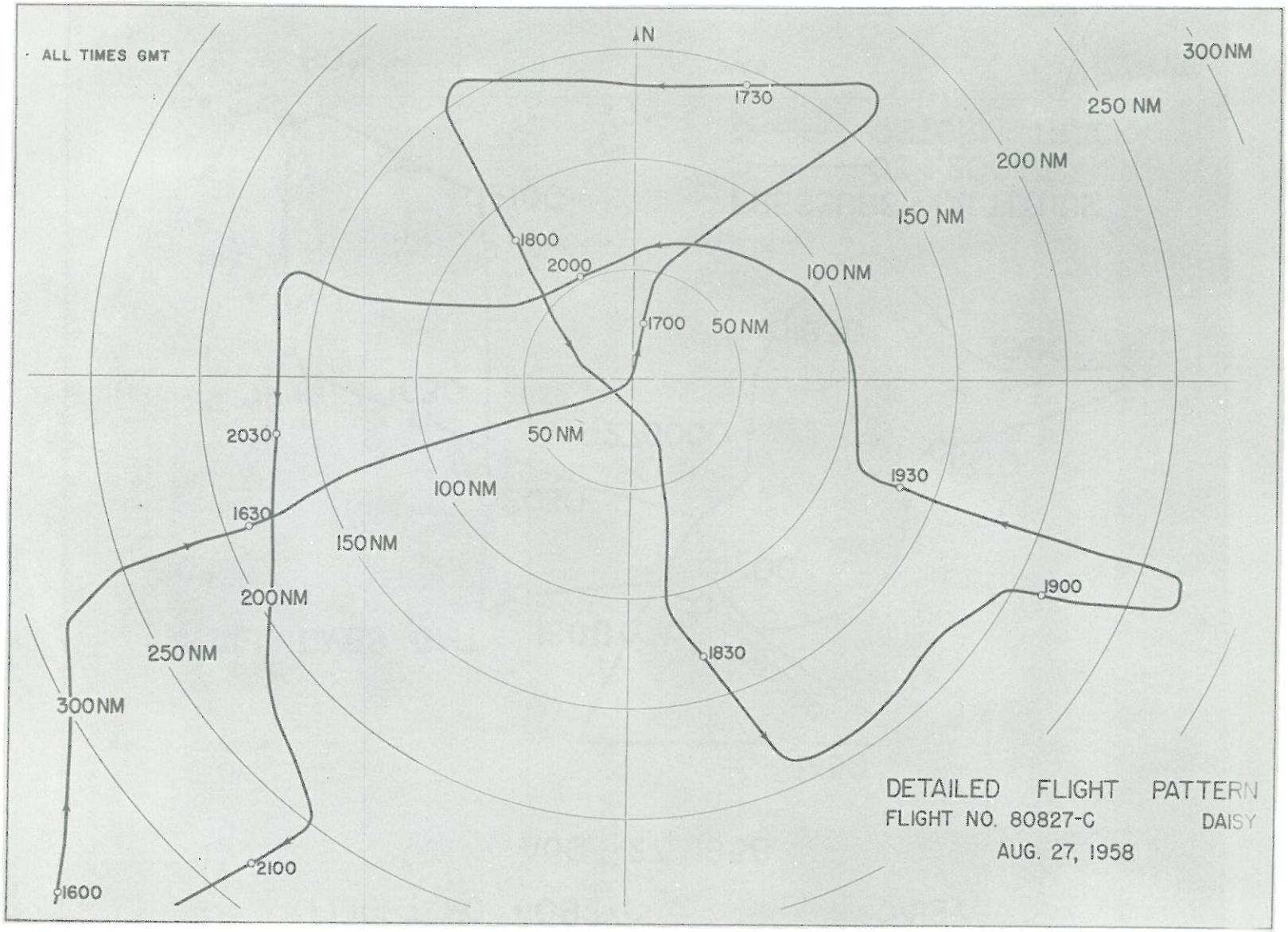
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	4 rolls
RADAR PHOTOGRAPHIC DATA	1 roll: 1919-2138
PHOTO PANEL DATA	2 rolls: 1545-1810; 1810-1911

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80827C DAISY

AUG. 27, 1958




ALL TIMES GMT
N
300 NM
250 NM
200 NM
150 NM
100 NM
50 NM
1730
1800
2000
1700
1930
1900
1830
2030
1630
2100
1600
DETAILED FLIGHT PATTERN
FLIGHT NO. 80827-C
DAISY
AUG. 27, 1958

TYPE OF FLIGHT Hurricane DAISY DATE August 28, 1958

FLIGHT NO. 80828A DATA TABULATED FROM 1437
TO 2026

FLIGHT PRESSURE ALTITUDE 13,000 Ft. till 1953; 17,600 Ft. till 2026

DATA SAMPLING RATE:

12	SEC.	1437-1649		SEC.	
6	SEC.	1649-1653		SEC.	
2	SEC.	1653-2011		SEC.	
6	SEC.	2011-2026		SEC.	
	SEC.			SEC.	

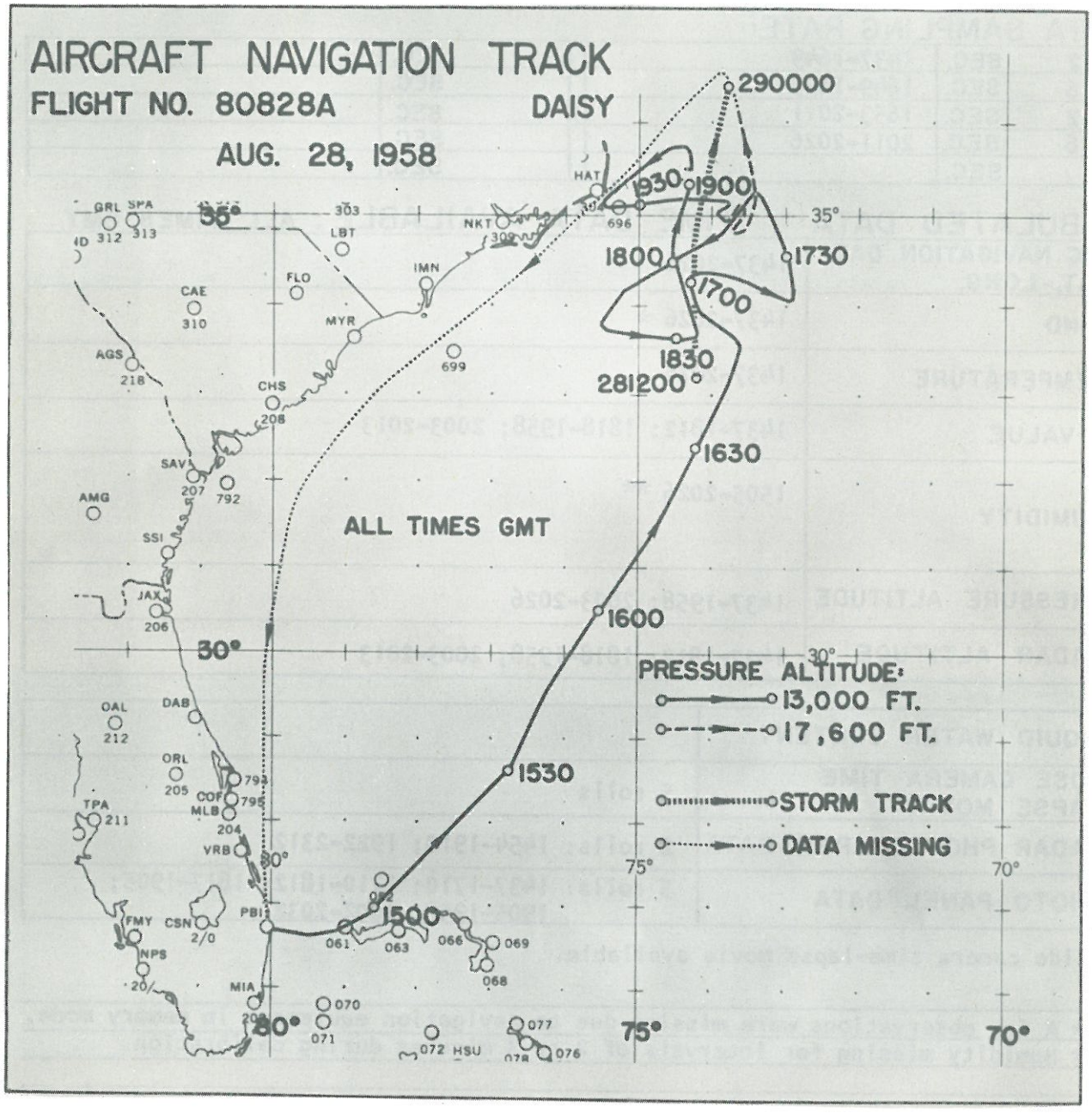
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

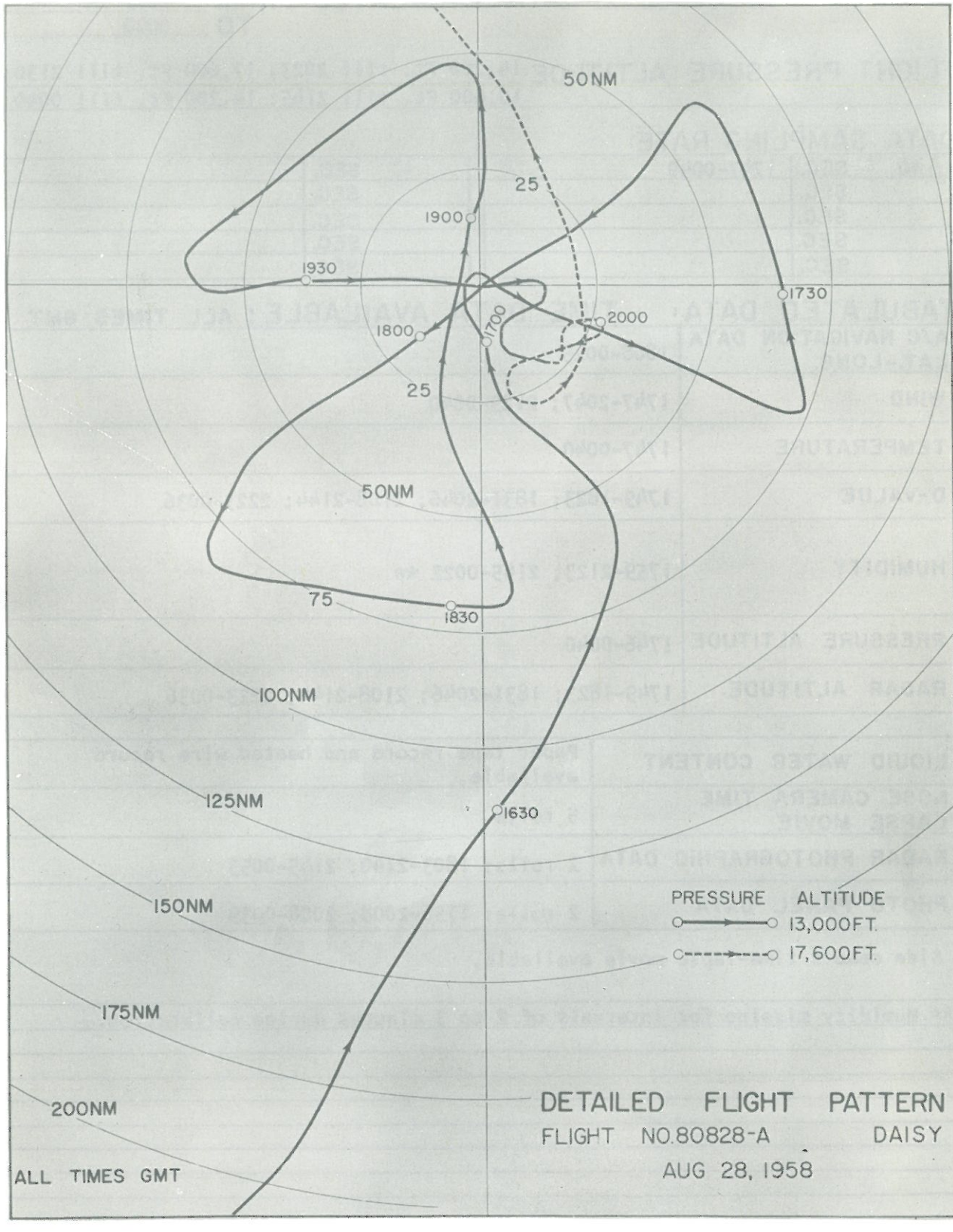
A/C NAVIGATION DATA LAT.-LONG.	1437-2026
WIND	1437-2026 *
TEMPERATURE	1437-2026
D-VALUE	1437-1812; 1818-1958; 2003-2013
HUMIDITY	1505-2026 **
PRESSURE ALTITUDE	1437-1958; 2003-2026
RADAR ALTITUDE	1437-1812; 1818-1958; 2003-2013

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	5 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1454-1910; 1922-2312
PHOTO PANEL DATA	5 rolls: 1437-1710; 1710-1812; 1817-1905; 1905-1958; 2002-2032

Side camera time-lapse movie available.

* A few observations were missing due to navigation equipment in memory mode.
** Humidity missing for intervals of 2 to 3 minutes during calibration.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80828A
DAISY
AUG. 28, 1958
ALL TIMES GMT
PRESSURE ALTITUDE:
13,000 FT.
17,600 FT.
STORM TRACK
DATA MISSING
290000
1930
1900
1800
1730
1700
1830
281200
1630
1600
1530
1500
35°
30°
75°
70°
GRL
SPA
312
313
LBT
NKT
HAT
696
FLO
IMN
CAE
310
MYR
699
AGS
218
CHS
208
SAV
207
792
AMG
SSI
JAX
206
OAL
212
DAB
ORL
205
COF
MLB
204
TPA
211
VRB
PBI
FMY
CSN
2/0
NPS
MIA
061
063
066
069
068
070
071
072
HSU
077
076


50NM
25
1900
1930
1730
2000
1800
1700
25
50NM
75
1830
100NM
125NM
1630
150NM
175NM
200NM
PRESSURE ALTITUDE
13,000FT.
17,600FT.
DETAILED FLIGHT PATTERN
FLIGHT NO.80828-A
DAISY
AUG 28, 1958
ALL TIMES GMT

TYPE OF FLIGHT Hurricane ELLA DATE August 31, 1958

FLIGHT NO. 80831B DATA TABULATED FROM 1747
TO 0040

FLIGHT PRESSURE ALTITUDE 14,200 Ft. till 2023; 17,600 Ft. till 2130; 15,600 Ft. till 2145; 14,200 Ft. till 0040

DATA SAMPLING RATE:

10	SEC.	1747-0040		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

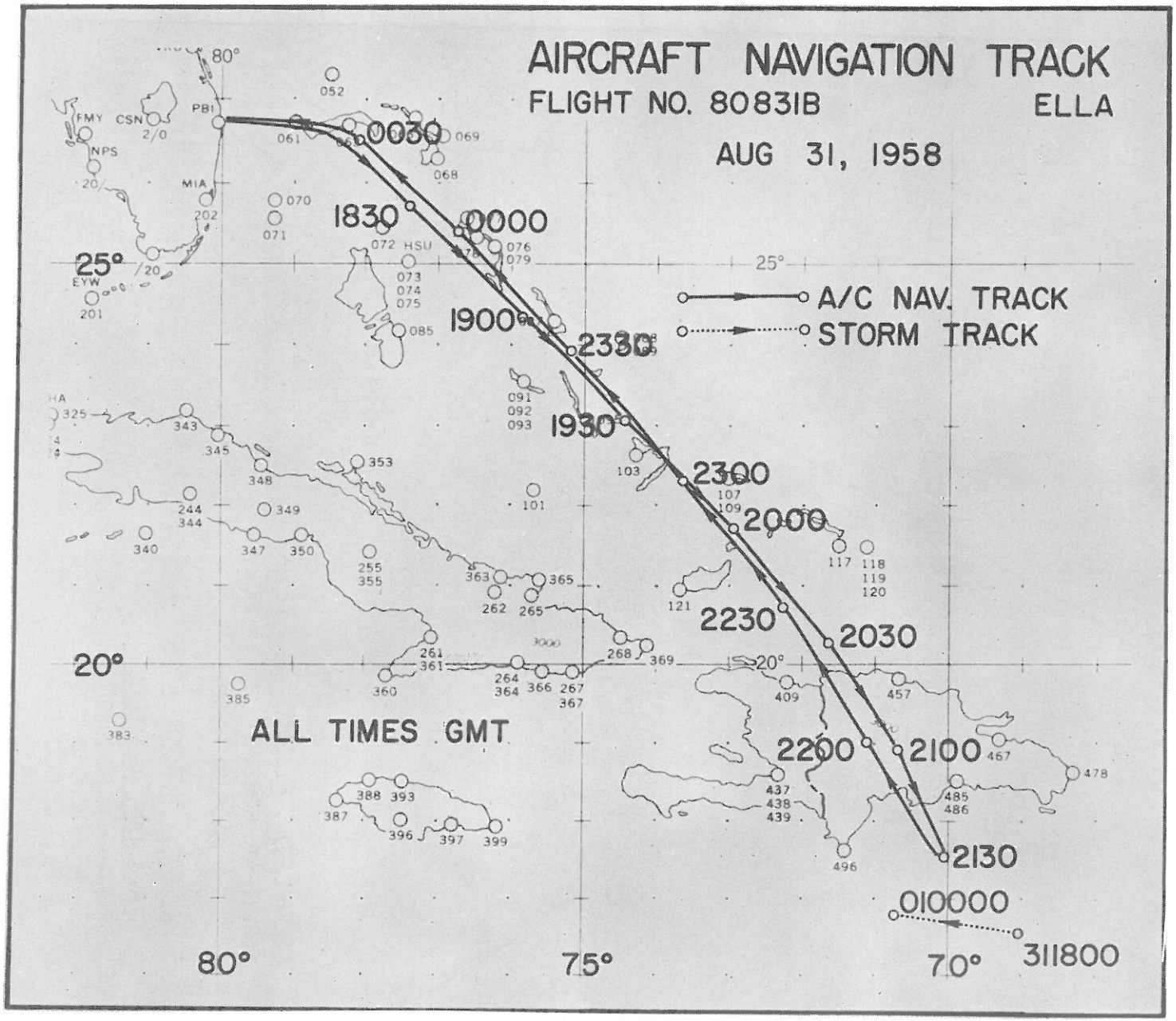
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

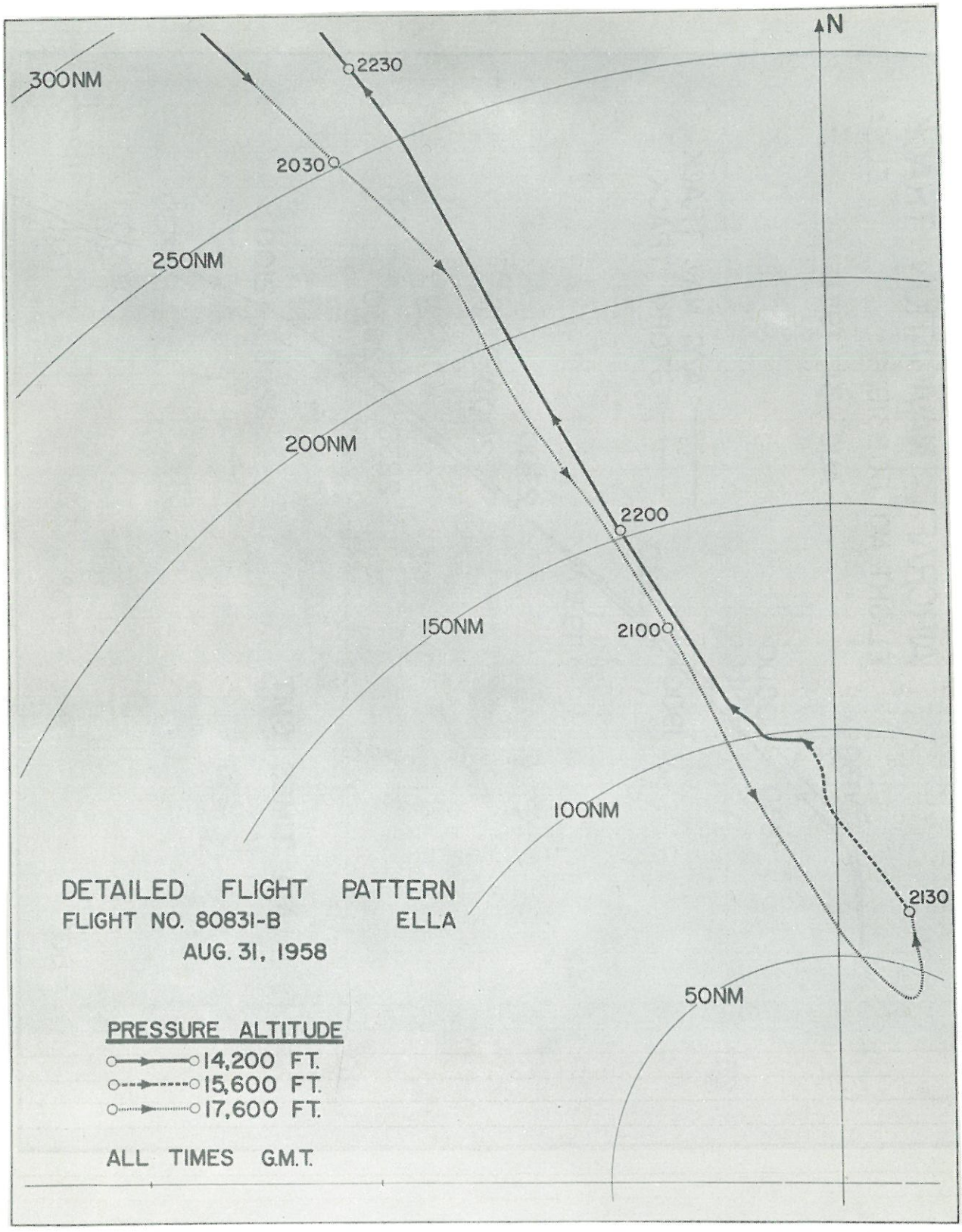
A/C NAVIGATION DATA LAT.-LONG.	1808-0025
WIND	1747-2047; 2129-0040
TEMPERATURE	1747-0040
D-VALUE	1749-1823; 1831-2046; 2108-2144; 2223-0036
HUMIDITY	1759-2123; 2145-0022 **
PRESSURE ALTITUDE	1746-0040
RADAR ALTITUDE	1749-1823; 1831-2046; 2108-2144; 2223-0036

LIQUID WATER CONTENT	Paper tape record and heated wire record available.
NOSE CAMERA TIME LAPSE MOVIE	5 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1803-2140; 2145-0053
PHOTO PANEL DATA	2 rolls: 1756-2008; 2008-0039

Side camera time-lapse movie available.

** Humidity missing for intervals of 2 to 3 minutes during calibration.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80831B
ELLA
AUG 31, 1958
A/C NAV. TRACK
STORM TRACK
ALL TIMES GMT
0030
1830
0000
1900
2330
1930
2300
2000
2230
2030
2200
2100
2130
010000
311800
80°
75°
70°
25°
20°
PBI
FMY
CSN
NPS
MIA
EYW
HSU


N
300NM
250NM
200NM
150NM
100NM
50NM
2230
2030
2200
2100
2130
DETAILED FLIGHT PATTERN
FLIGHT NO. 80831-B
ELLA
AUG. 31, 1958
PRESSURE ALTITUDE
14,200 FT.
15,600 FT.
17,600 FT.
ALL TIMES G.M.T.

TYPE OF FLIGHT Hurricane ELLA DATE August 31, 1958

FLIGHT NO. 80831C DATA TABULATED FROM 1735
TO 2150

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

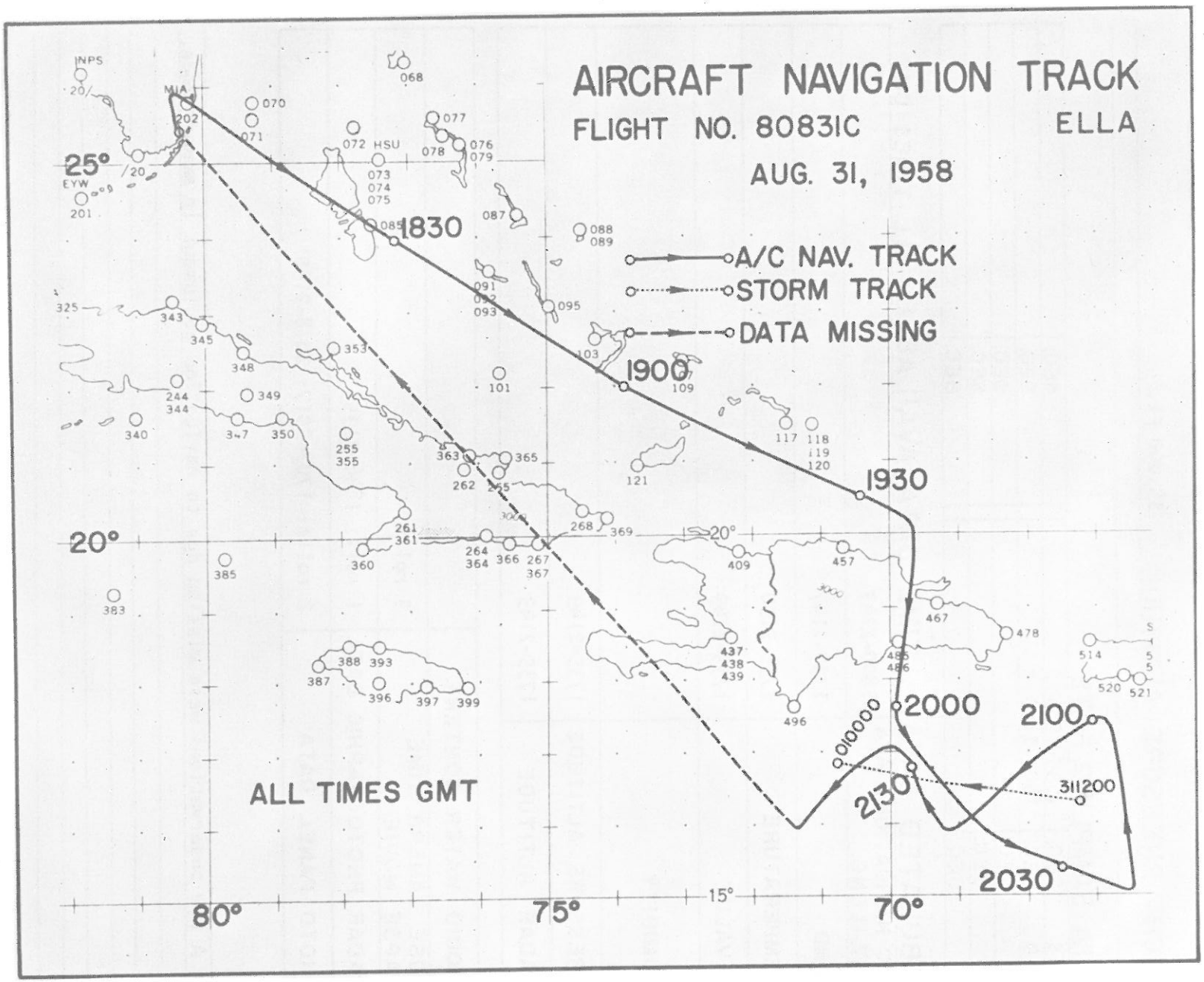
15	SEC.	1735-1904		SEC.	
4	SEC.	1904-2150		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

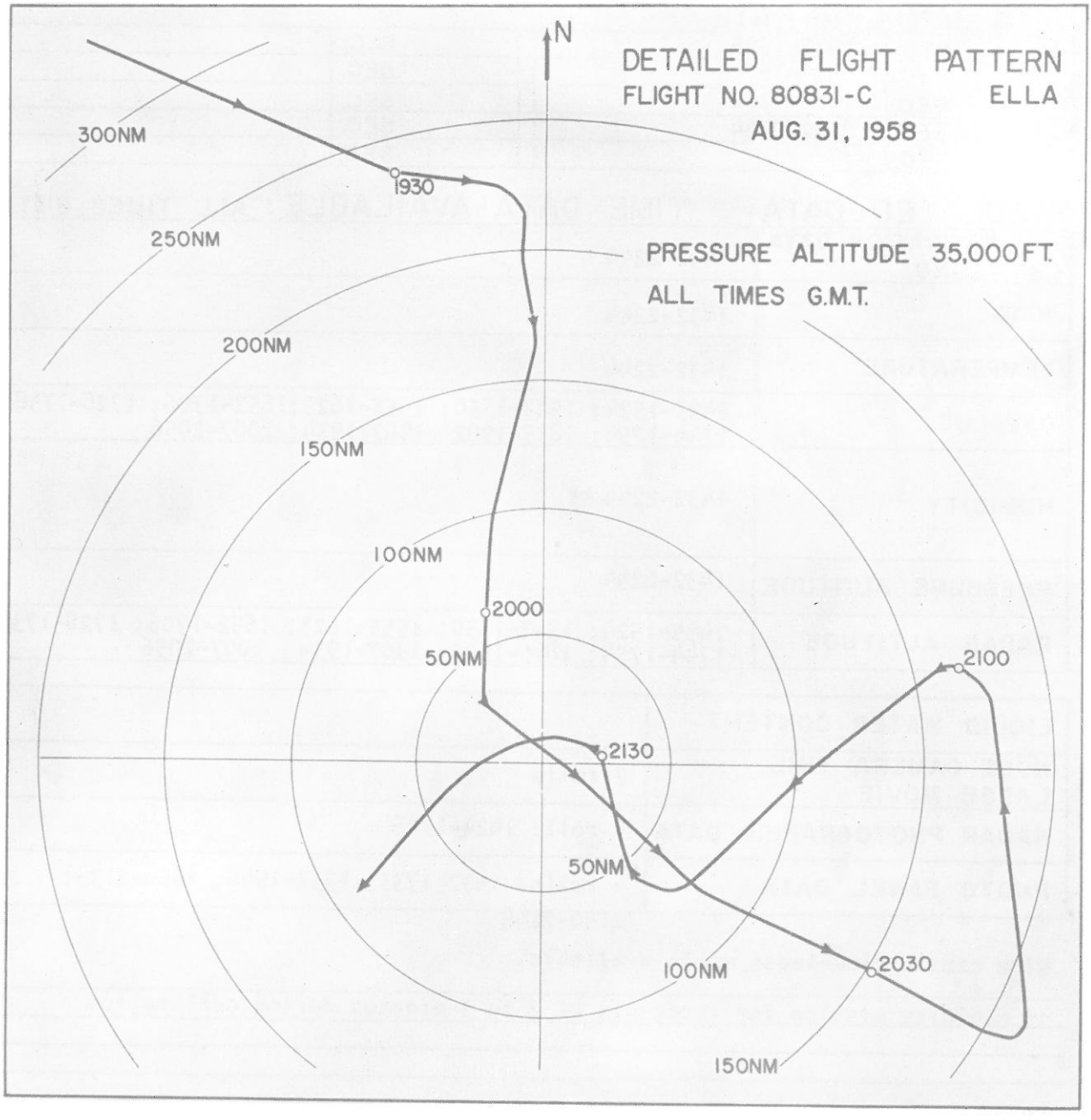
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1800-2147
WIND	1735-2147 *
TEMPERATURE	1735-2150
D-VALUE	1735-2149
HUMIDITY	
PRESSURE ALTITUDE	1735-2149
RADAR ALTITUDE	1735-2149

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	3 rolls
RADAR PHOTOGRAPHIC DATA	1 roll: 1848-2135
PHOTO PANEL DATA	2 rolls: 1707-2017; 2018-2150

* A few observations were missing due to navigation equipment in memory mode.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80831C
ELLA
AUG. 31, 1958
A/C NAV. TRACK
STORM TRACK
DATA MISSING
ALL TIMES GMT
1830
1900
1930
2000
2100
2130
2030
010000
311200
25°
20°
15°
80°
75°
70°
MIA
HSU
EYW
INPS


N
DETAILED FLIGHT PATTERN
FLIGHT NO. 80831-C
ELLA
AUG. 31, 1958
PRESSURE ALTITUDE 35,000 FT.
ALL TIMES G.M.T.
300NM
250NM
200NM
150NM
100NM
50NM
1930
2000
2130
2100
2030
50NM
100NM
150NM

TYPE OF FLIGHT Hurricane ELLA DATE September 2, 1958

FLIGHT NO. 80902A DATA TABULATED FROM 1432
TO 2244

FLIGHT PRESSURE ALTITUDE 8,200 Ft.

DATA SAMPLING RATE:

20	SEC.	1432-1508		SEC.	
10	SEC.	1508-1620		SEC.	
5	SEC.	1620-2222		SEC.	
20	SEC.	2222-2244		SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1432-2244
WIND	1432-2244
TEMPERATURE	1432-2244
D-VALUE	1435-1524; 1543-1550; 1555-1623;1652-1706; 1728-1738; 1744-1754; 1815-1902; 1907-1934; 2007-2056
HUMIDITY	1432-2244 **
PRESSURE ALTITUDE	1432-2244
RADAR ALTITUDE	1435-1524; 1543-1550; 1555-1623; 1652-1706; 1728-1738; 1744-1754; 1815-1902; 1907-1934 ; 2007-2056

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	7 rolls
RADAR PHOTOGRAPHIC DATA	1 roll: 1424-1936
PHOTO PANEL DATA	4 rolls: 1432-1731; 1732-1946; 1950-2139; 2140-2248

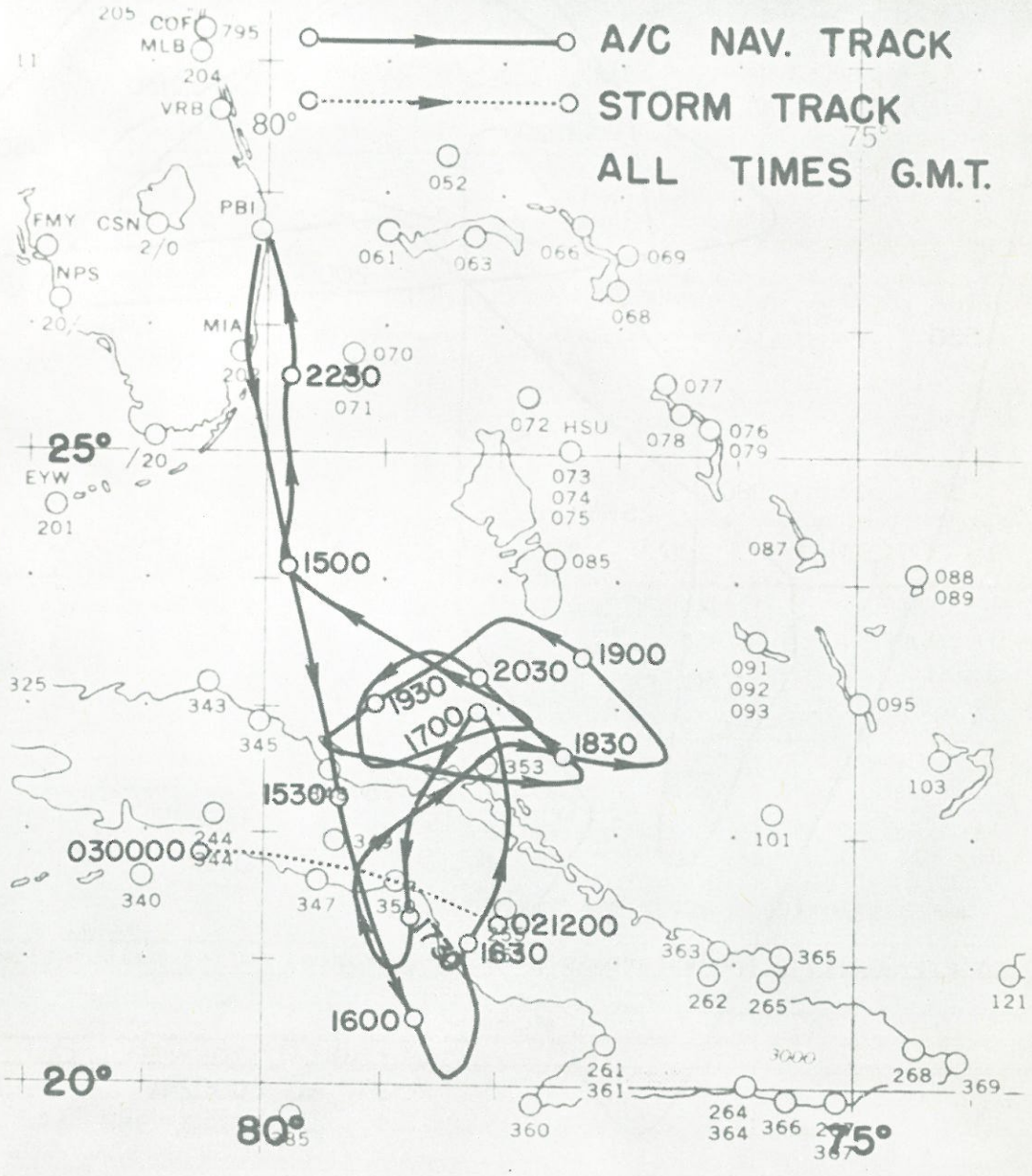
Side camera time-lapse movie available.

** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80902-A ELLA

SEPT 2, 1958



N
ALL TIMES GMT
1900
2030
2130
1930
1700
150 NM
125 NM
2000
100
1530
75 NM
50NM
1800
25 NM
25 NM
1730
50 NM
1630
75 NM
100 NM
125 NM
1600
DETAILED FLIGHT PATTERN
FLIGHT NO. 80902-A
ELLA
SEPT. 2, 1958

TYPE OF FLIGHT Hurricane ELLA DATE September 2, 1958

FLIGHT NO. 80902B DATA TABULATED FROM 1350
TO 2017

FLIGHT PRESSURE ALTITUDE 15,600 Ft. till 1832; 22,600 Ft. till 1928; 18,280 Ft. till 2017

DATA SAMPLING RATE:

10	SEC.	1350-1532		SEC.	
5	SEC.	1532-1711		SEC.	
2	SEC.	1711-1828		SEC.	
5	SEC.	1828-2001		SEC.	
15	SEC.	2001-2017		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1350-2017
WIND	1350-2017
TEMPERATURE	1350-2017
D-VALUE	1350-1455; 1508-1512; 1558-1625; 1636-1643; 1654-1705; 1711-1749; 1808-1817; 1820-1842; 1854-2017
HUMIDITY	1440-1638; 1654-1809; 1815-1840; 1930-1951; 1954-2001 **
PRESSURE ALTITUDE	1350-2017
RADAR ALTITUDE	1350-1455; 1508-1512; 1558-1625; 1636-1643; 1654-1705; 1711-1749; 1808-1817; 1820-1842; 1854-2017

LIQUID WATER CONTENT	Paper tape record available.
NOSE CAMERA TIME LAPSE MOVIE	4 rolls
RADAR PHOTOGRAPHIC DATA	4 rolls: 1404-1553; 1555-1657; 1702-1801; 1803-1921
PHOTO PANEL DATA	4 rolls: 1315-1640; 1640-1750; 1753-1855; 1855-2017

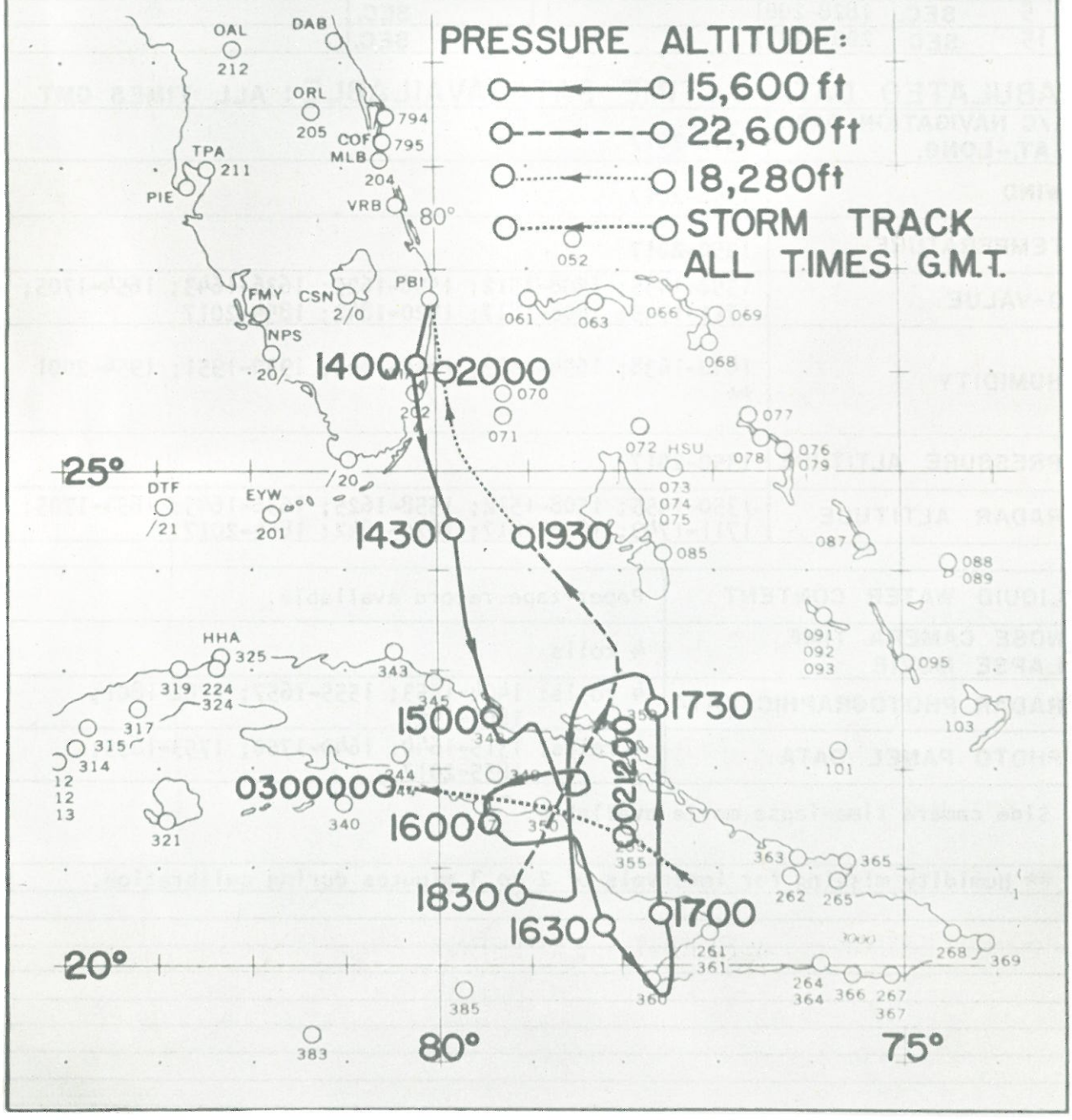
Side camera time-lapse movie available.

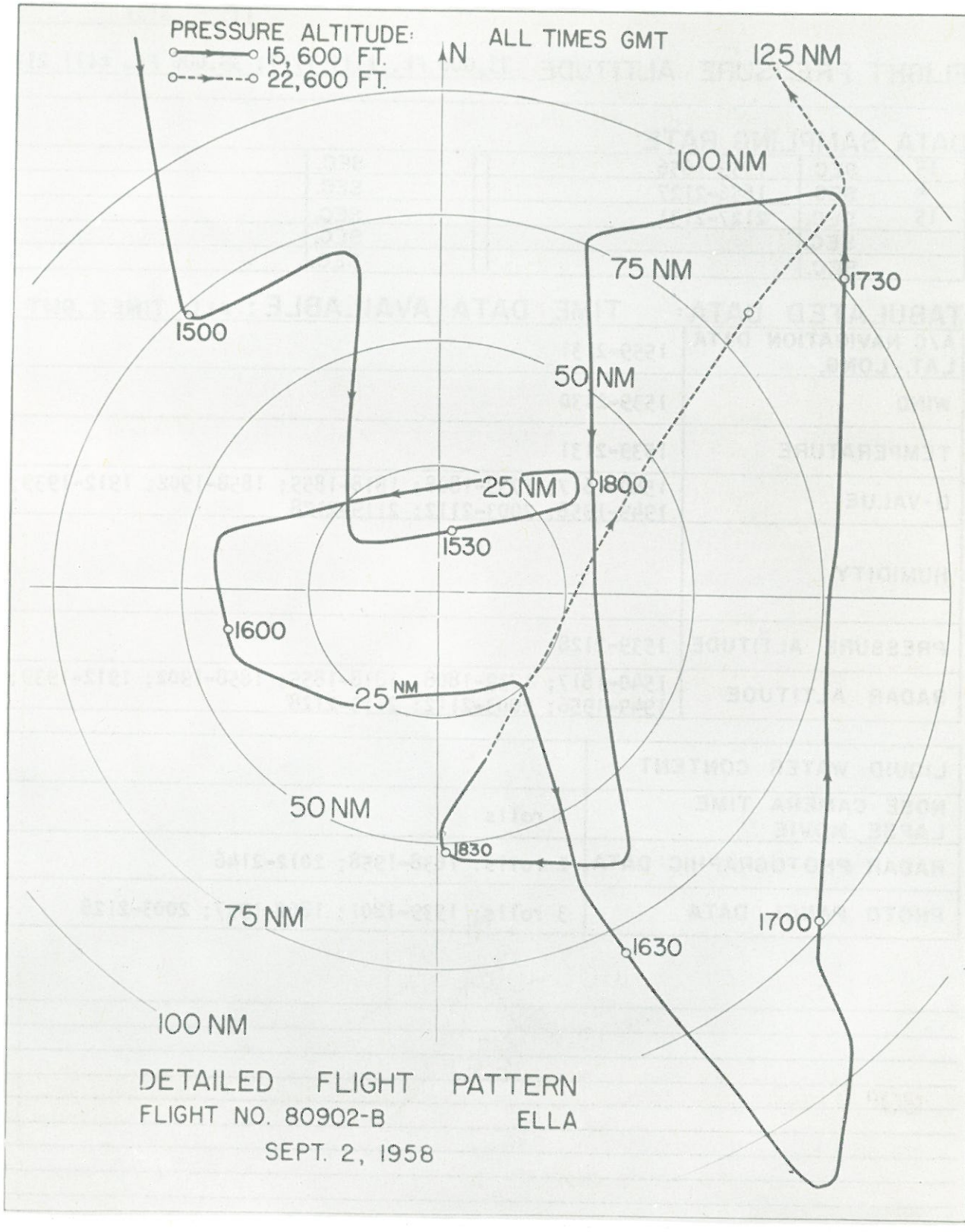
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80902-B ELLA

SEPT 2, 1958





DETAILED FLIGHT PATTERN
FLIGHT NO. 80902-B ELLA
SEPT. 2, 1958

TYPE OF FLIGHT Hurricane ELLA DATE September 2, 1958

FLIGHT NO. 80902C DATA TABULATED FROM 1539
TO 2131

FLIGHT PRESSURE ALTITUDE 33,000 Ft. till 1717; 35,000 Ft. till 2131

DATA SAMPLING RATE:

15	SEC.	1539-1656		SEC.	
4	SEC.	1656-2127		SEC.	
15	SEC.	2127-2131		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

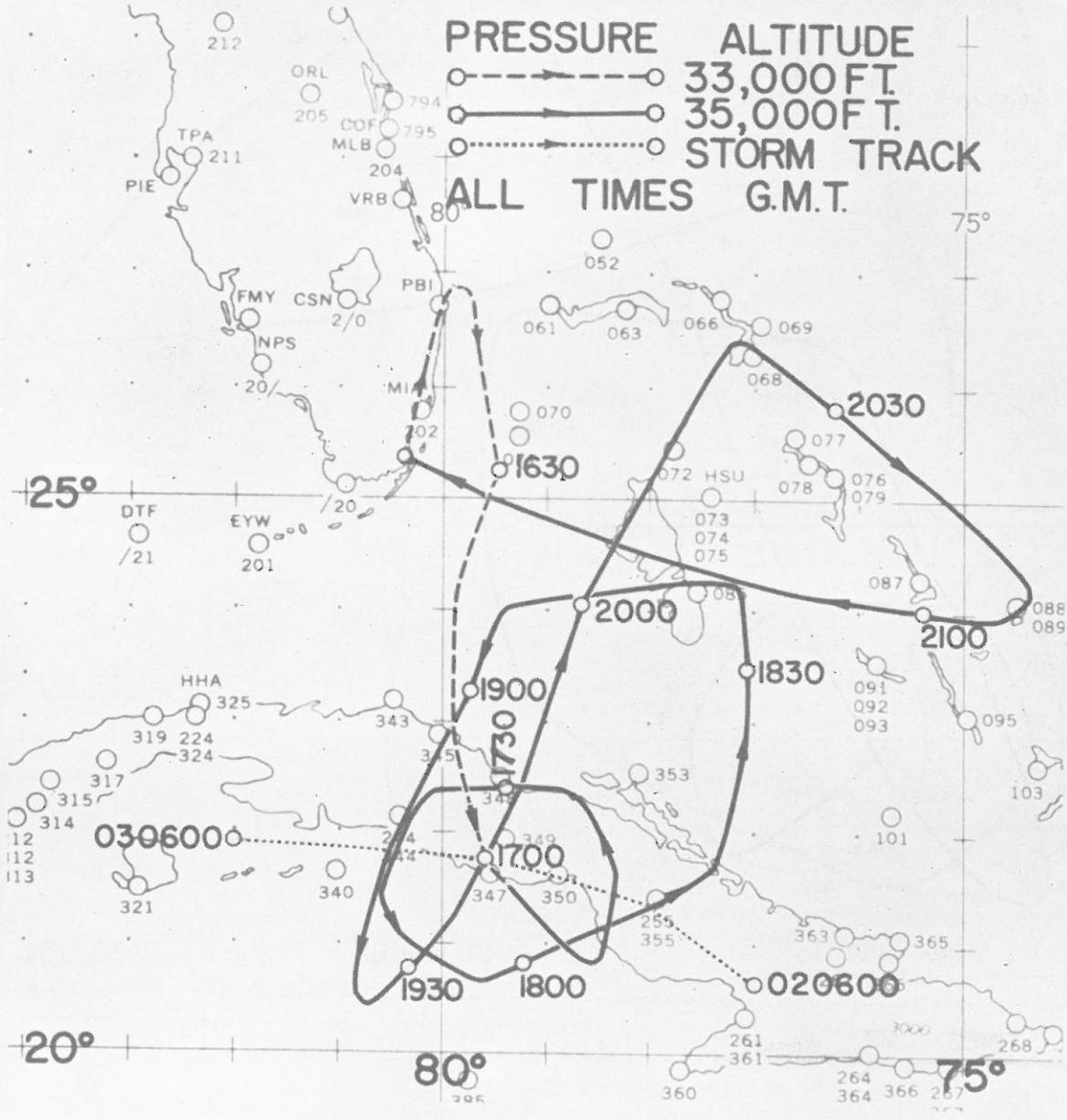
A/C NAVIGATION DATA LAT.-LONG.	1559-2131
WIND	1539-2130
TEMPERATURE	1539-2131
D-VALUE	1540-1617; 1739-1808; 1818-1855; 1858-1902; 1912-1939; 1949-1956; 2003-2112; 2119-2128
HUMIDITY	
PRESSURE ALTITUDE	1539-2128
RADAR ALTITUDE	1540-1617; 1739-1808; 1818-1855; 1858-1902; 1912-1939; 1949-1956; 2003-2112; 2119-2128

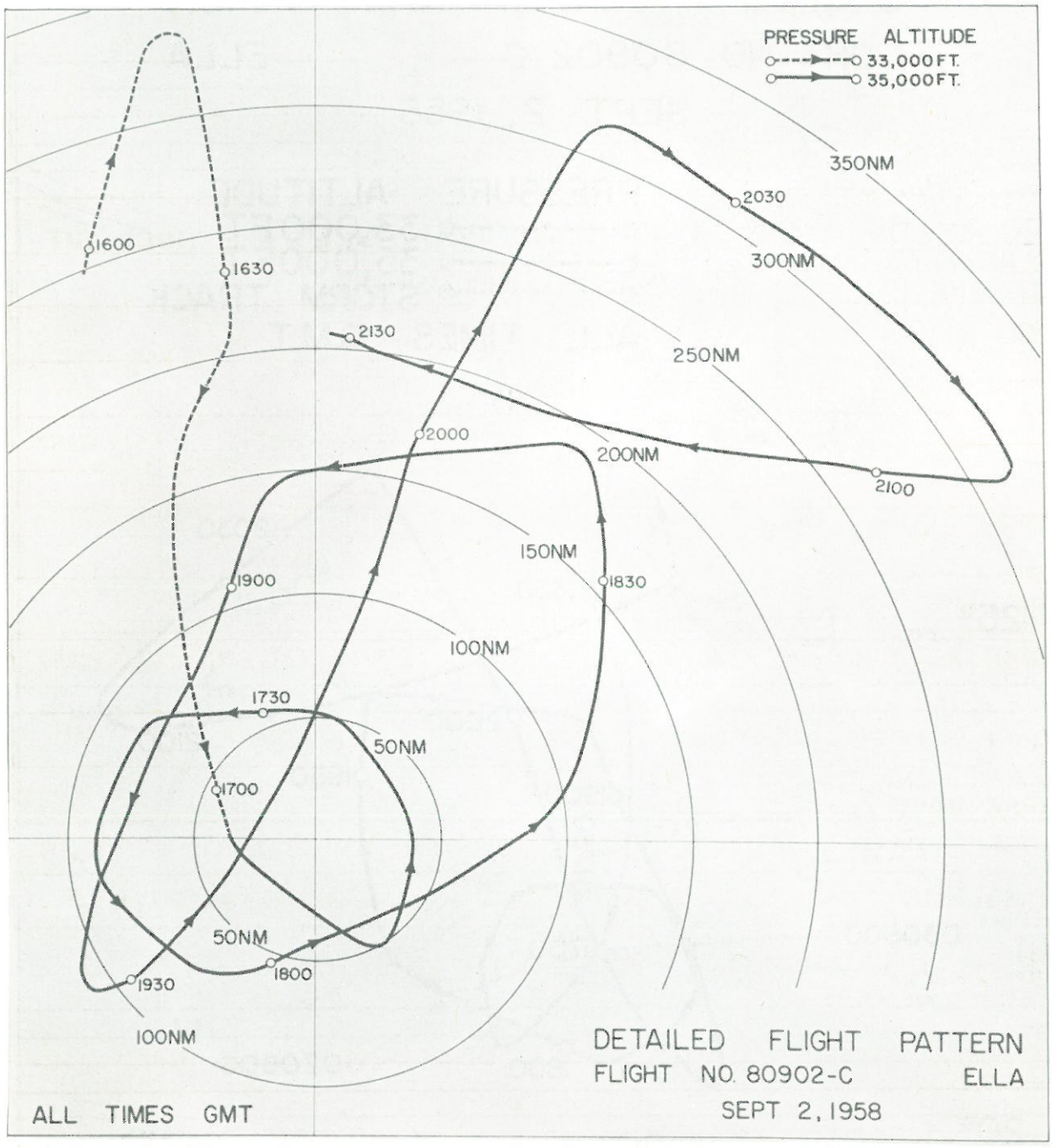
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	5 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1638-1958; 2012-2146
PHOTO PANEL DATA	3 rolls: 1539-1801; 1802-1957; 2003-2128

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80902-C ELLA

SEPT. 2, 1958




PRESSURE ALTITUDE
33,000 FT.
35,000 FT.
350NM
300NM
250NM
200NM
150NM
100NM
50NM
50NM
100NM
1600
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
DETAILED FLIGHT PATTERN
FLIGHT NO. 80902-C
ELLA
SEPT 2, 1958
ALL TIMES GMT

TYPE OF FLIGHT Hurricane ELLA DATE September 3, 1958

FLIGHT NO. 80903C DATA TABULATED FROM 1659-2142;
TO 2156-2301

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

15	SEC.	1659-1844		SEC.	
4	SEC.	1844-1915		SEC.	
8	SEC.	1915-2142; 2156-2301		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

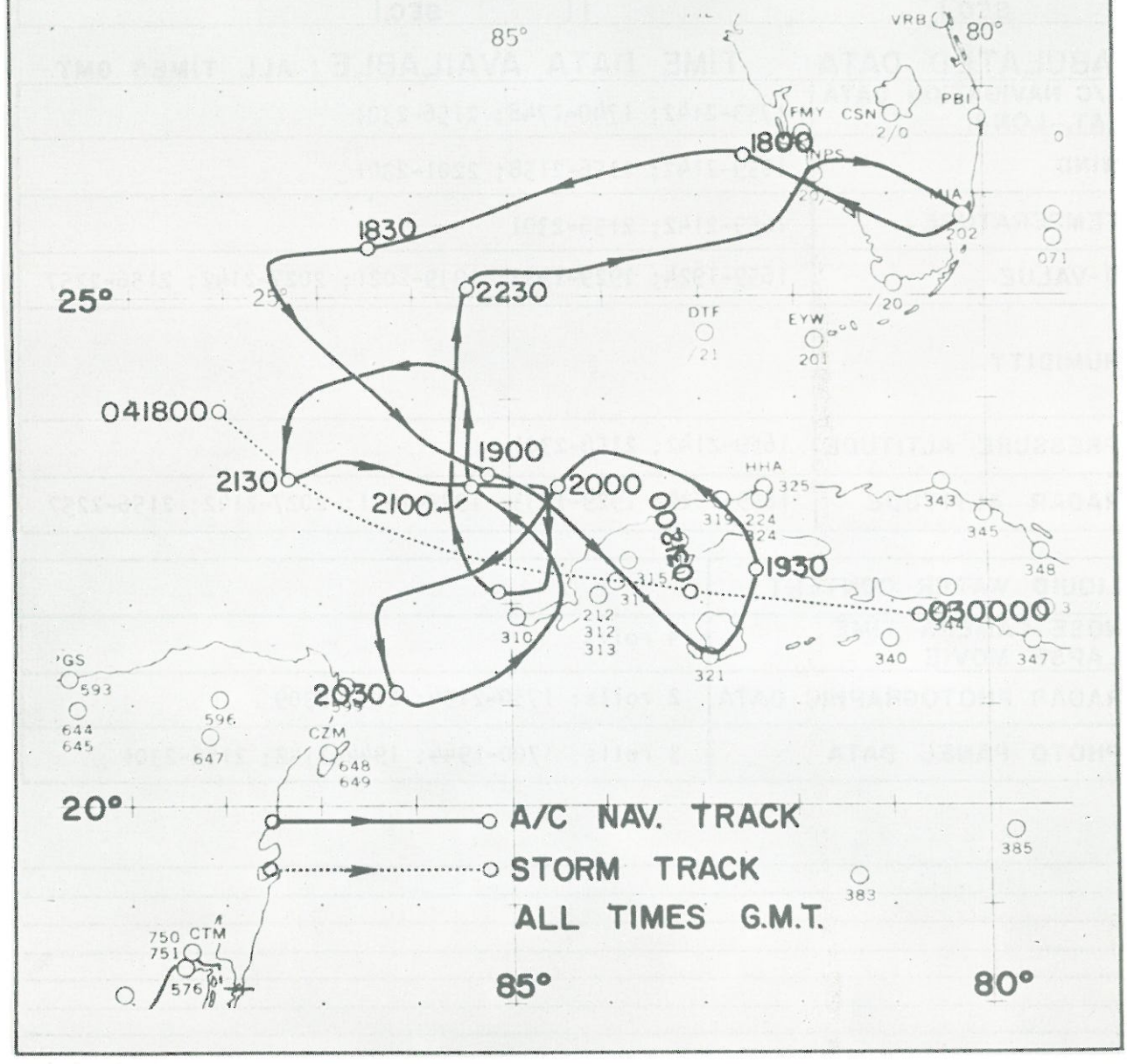
A/C NAVIGATION DATA LAT.-LONG.	1753-2142; 1740-1748; 2156-2301
WIND	1659-2142; 2156-2158; 2201-2301
TEMPERATURE	1659-2142; 2156-2301
D-VALUE	1659-1924; 1929-1933; 1939-2021; 2027-2142; 2156-2257
HUMIDITY	
PRESSURE ALTITUDE	1659-2142; 2156-2301
RADAR ALTITUDE	1659-1924; 1929-1933; 1939-2021; 2027-2142; 2156-2257

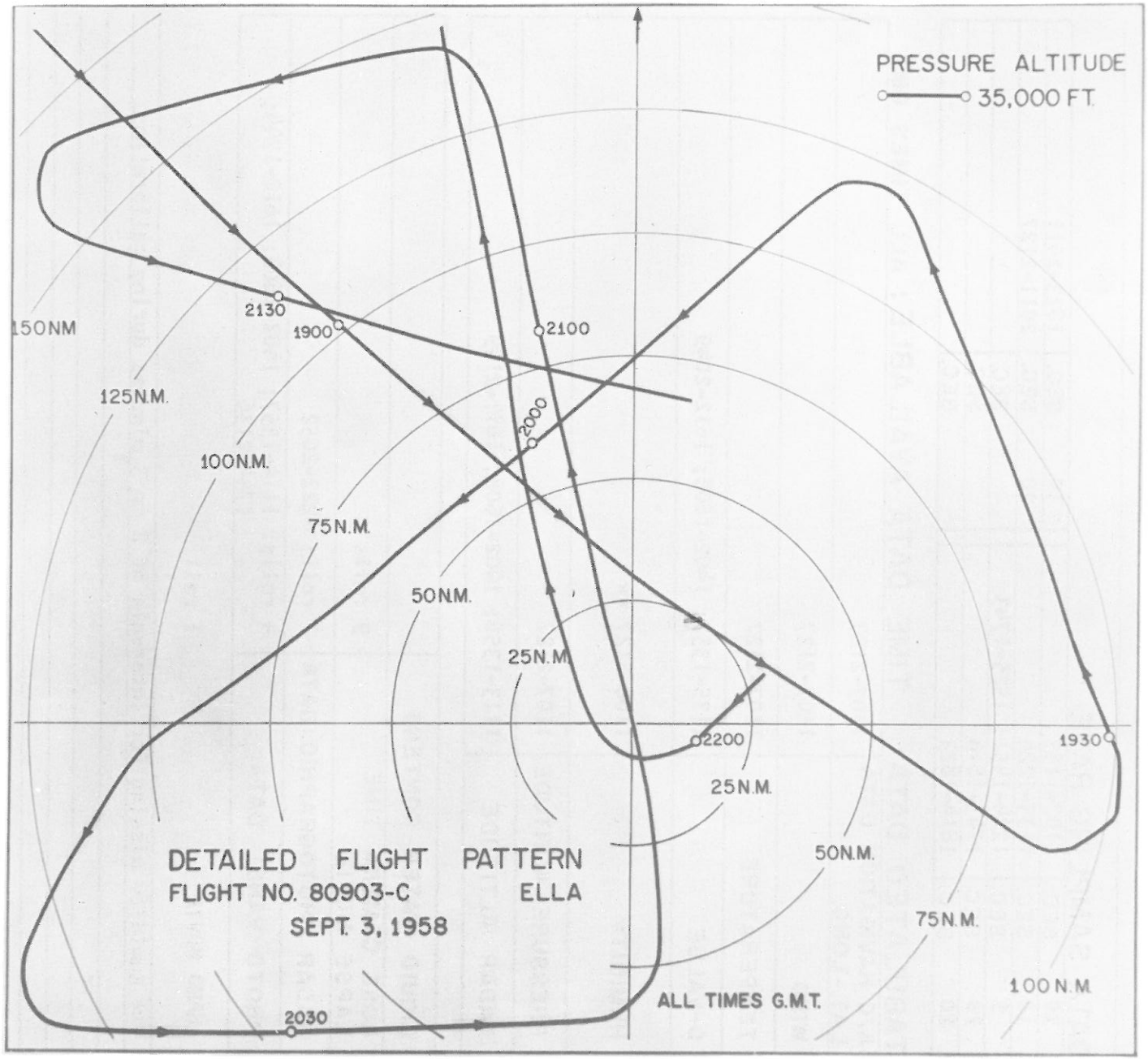
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	4 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1730-2154; 2158-2309
PHOTO PANEL DATA	3 rolls: 1700-1944; 1944-2142; 2156-2301

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80903-C ELLA

SEPT. 3, 1958




PRESSURE ALTITUDE
35,000 FT.
150NM
125N.M.
100N.M.
75N.M.
50N.M.
25N.M.
25N.M.
50N.M.
75N.M.
100N.M.
2130
1900
2100
2000
2200
1930
2030
DETAILED FLIGHT PATTERN
FLIGHT NO. 80903-C
ELLA
SEPT. 3, 1958
ALL TIMES G.M.T.

TYPE OF FLIGHT Hurricane ELLA DATE September 4, 1958

FLIGHT NO. 80904A DATA TABULATED FROM 1107
TO 2127

FLIGHT PRESSURE ALTITUDE 6,400 Ft.

DATA SAMPLING RATE:

20	SEC.	1107-1133	10	SEC.	1823-2011
10	SEC.	1133-1224	20	SEC.	2011-2127
5	SEC.	1224-1451; 1525-1743		SEC.	
10	SEC.	1743-1814		SEC.	
20	SEC.	1814-1823		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1107-2127
WIND	1107-2127
TEMPERATURE	1107-2127
D-VALUE	1135-1357; 1402-1608; 1612-2049
HUMIDITY	1108-2127 **
PRESSURE ALTITUDE	1107-2127
RADAR ALTITUDE	1113-1356; 1402-1608; 1611-2149

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	9 rolls
RADAR PHOTOGRAPHIC DATA	1 roll: 1222-2052
PHOTO PANEL DATA	4 rolls: 1114-1357; 1402-1608; 1612-1744; 1744-2136

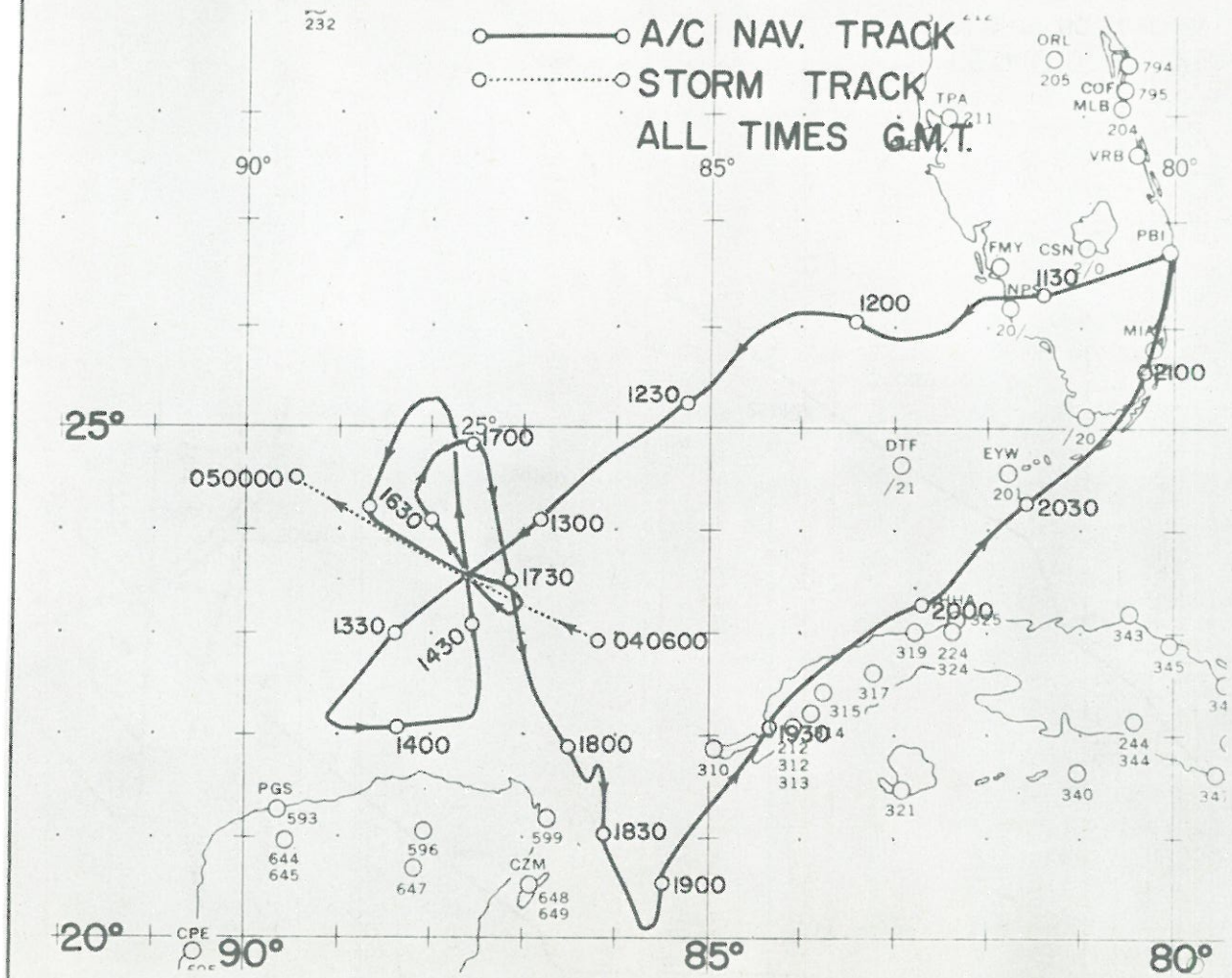
HAND MOVIE 1 roll

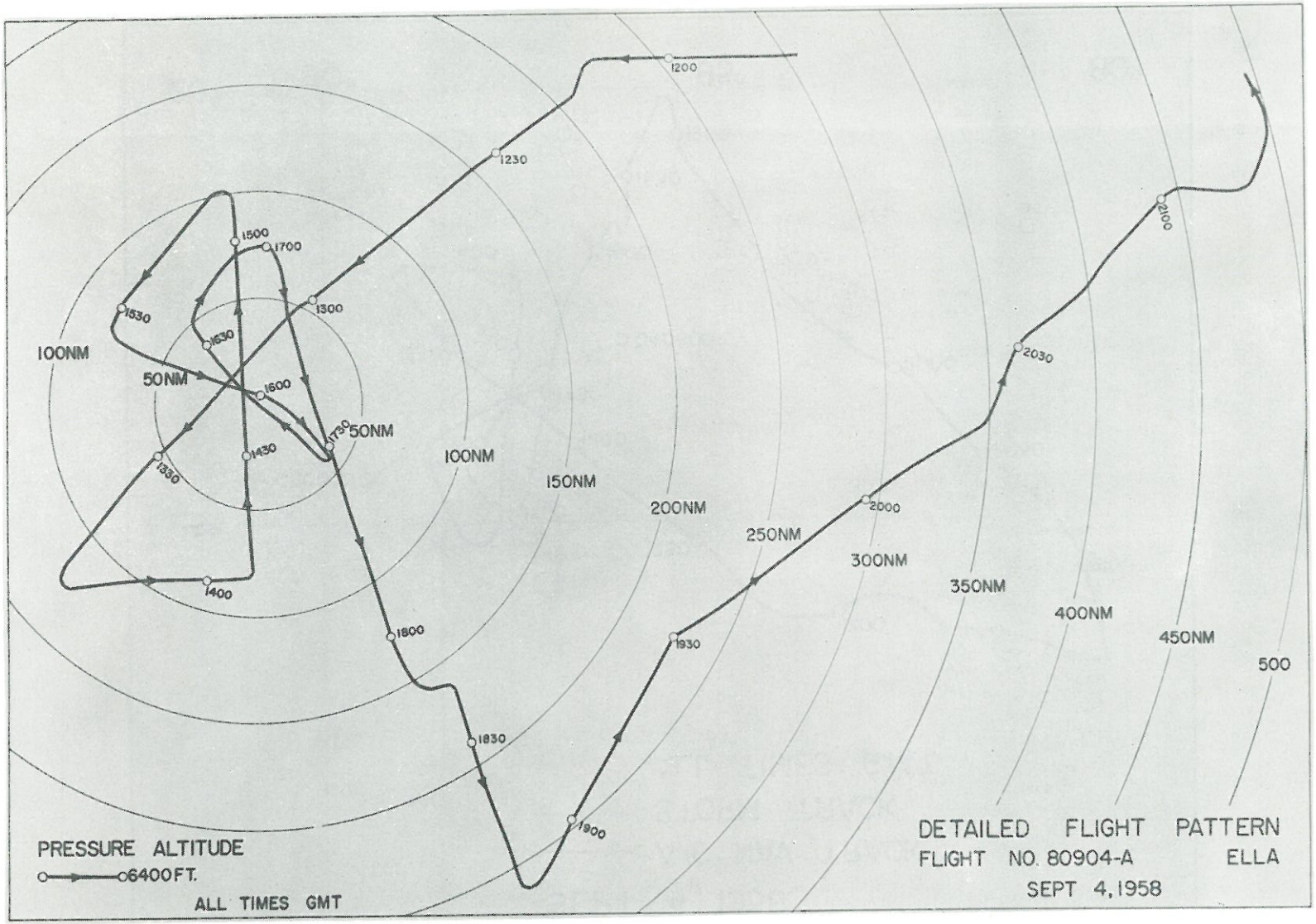
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80904-A ELLA

SEPT 4, 1958




1200
1230
1300
1330
1400
1430
1500
1530
1600
1630
1700
1730
1800
1830
1900
1930
2000
2030
2100
100NM
50NM
50NM
100NM
150NM
200NM
250NM
300NM
350NM
400NM
450NM
500
PRESSURE ALTITUDE
6400FT.
ALL TIMES GMT
DETAILED FLIGHT PATTERN
FLIGHT NO. 80904-A
ELLA
SEPT 4, 1958

TYPE OF FLIGHT Hurricane ELLA DATE September 5, 1958

FLIGHT NO. 80905B DATA TABULATED FROM 1506
TO 0032

FLIGHT PRESSURE ALTITUDE 6,400 Ft. till 1545; 14,200 Ft. till 1600; 22,000 Ft. till 2054; 14,200 Ft. till 0008; 6,400 Ft. till 0032

DATA SAMPLING RATE:

10	SEC.	1506-1723		SEC.	
5	SEC.	1723-2237		SEC.	
10	SEC.	2237-0032		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1506-0032
WIND	1506-0032
TEMPERATURE	1506-0032
D-VALUE	1506-2023; 2026-0006
HUMIDITY	
PRESSURE ALTITUDE	1506-0032
RADAR ALTITUDE	1506-2023; 2026-0006

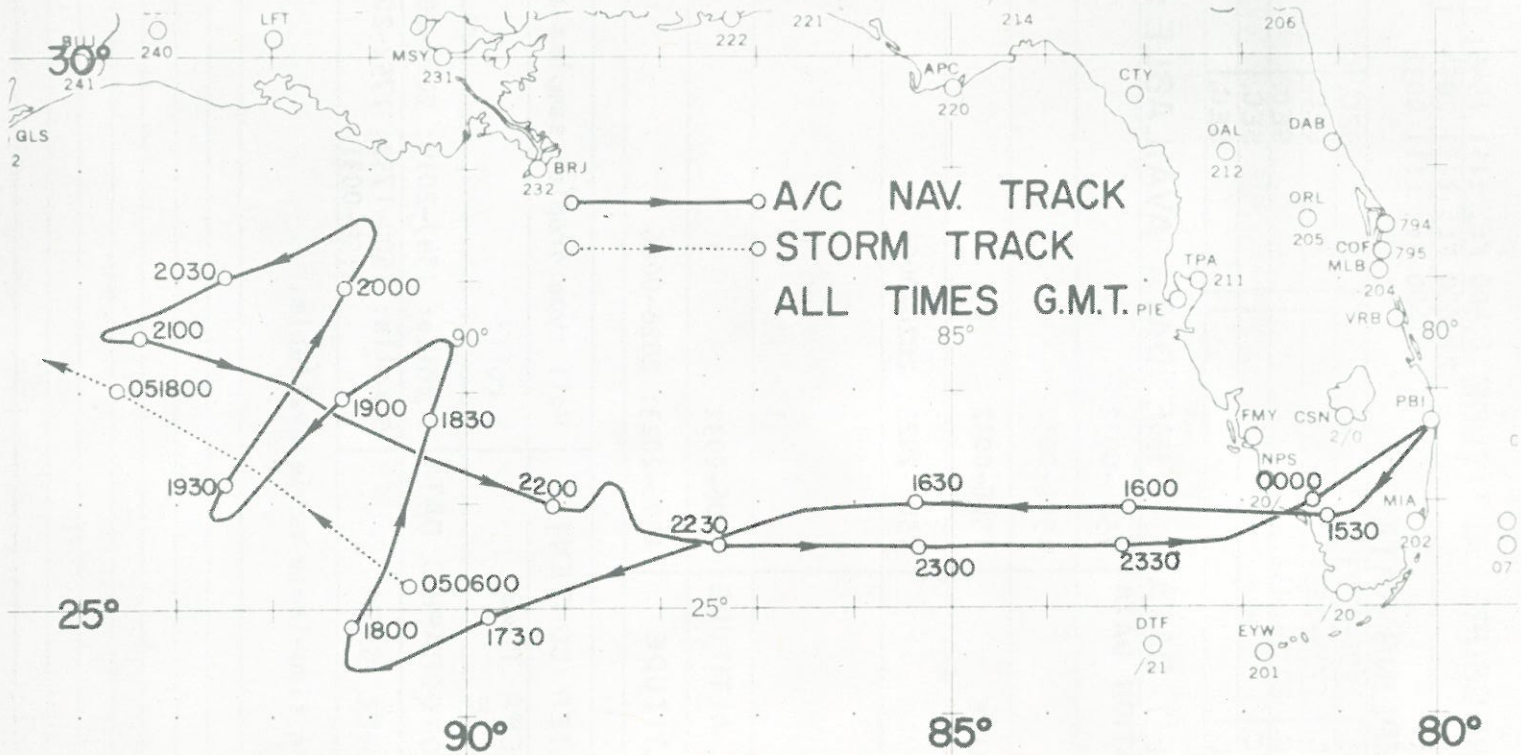
LIQUID WATER CONTENT	Foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	5 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1547-2019; 2029-0027
PHOTO PANEL DATA	4 rolls: 1504-1752; 1752-2022; 2025-2154; 2154-0031

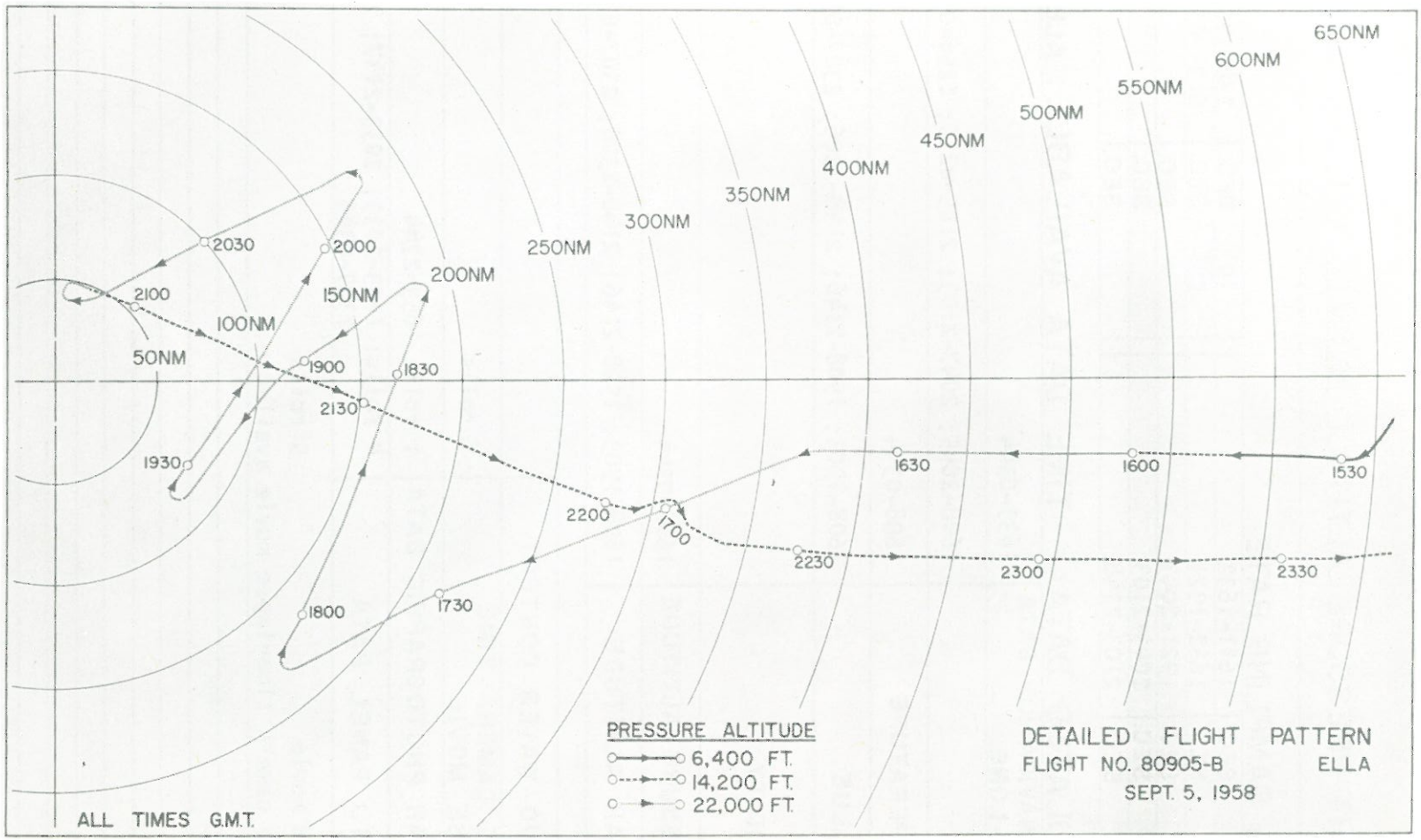
Side camera time-lapse movie available.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80905-B ELLA

SEPT. 5, 1958




650NM
600NM
550NM
500NM
450NM
400NM
350NM
300NM
250NM
200NM
150NM
100NM
50NM
2030
2000
2100
1900
1830
2130
1930
2200
1700
1630
1600
1530
2230
2300
2330
1800
1730
PRESSURE ALTITUDE
6,400 FT.
14,200 FT.
22,000 FT.
DETAILED FLIGHT PATTERN
FLIGHT NO. 80905-B
ELLA
SEPT. 5, 1958
ALL TIMES G.M.T.

TYPE OF FLIGHT Hurricane FIFI DATE September 8, 1958

FLIGHT NO. 80908A DATA TABULATED FROM 1608
TO 0344

FLIGHT PRESSURE ALTITUDE 15,600 Ft. till 1900; 13,000 Ft. till 0344

DATA SAMPLING RATE:

20	SEC.	1611-1632	10	SEC.	2348-0135
10	SEC.	1632-1921	20	SEC.	0135-0344
6	SEC.	1921-2043		SEC.	
2	SEC.	2043-2103		SEC.	
5	SEC.	2103-2348		SEC.	

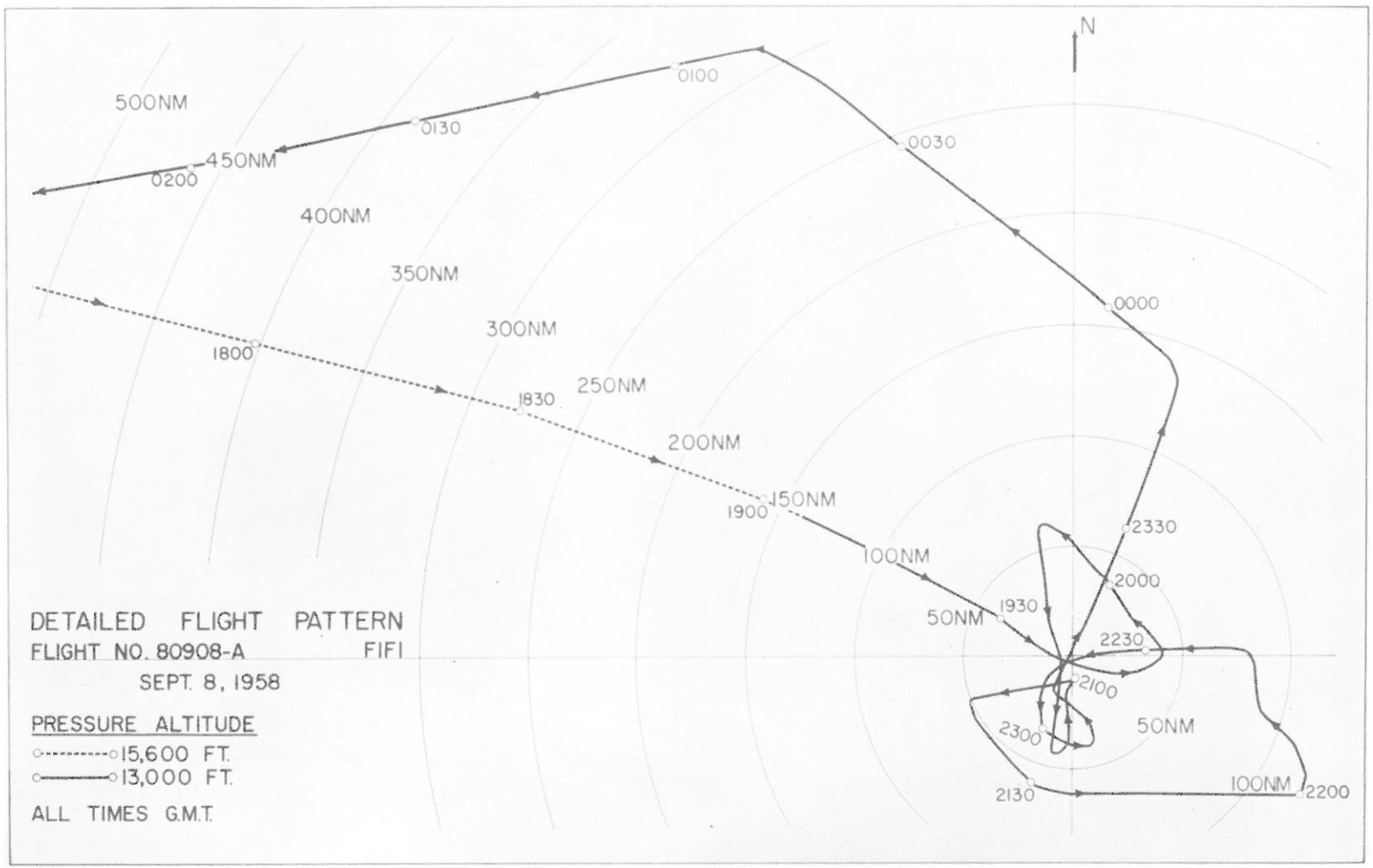
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

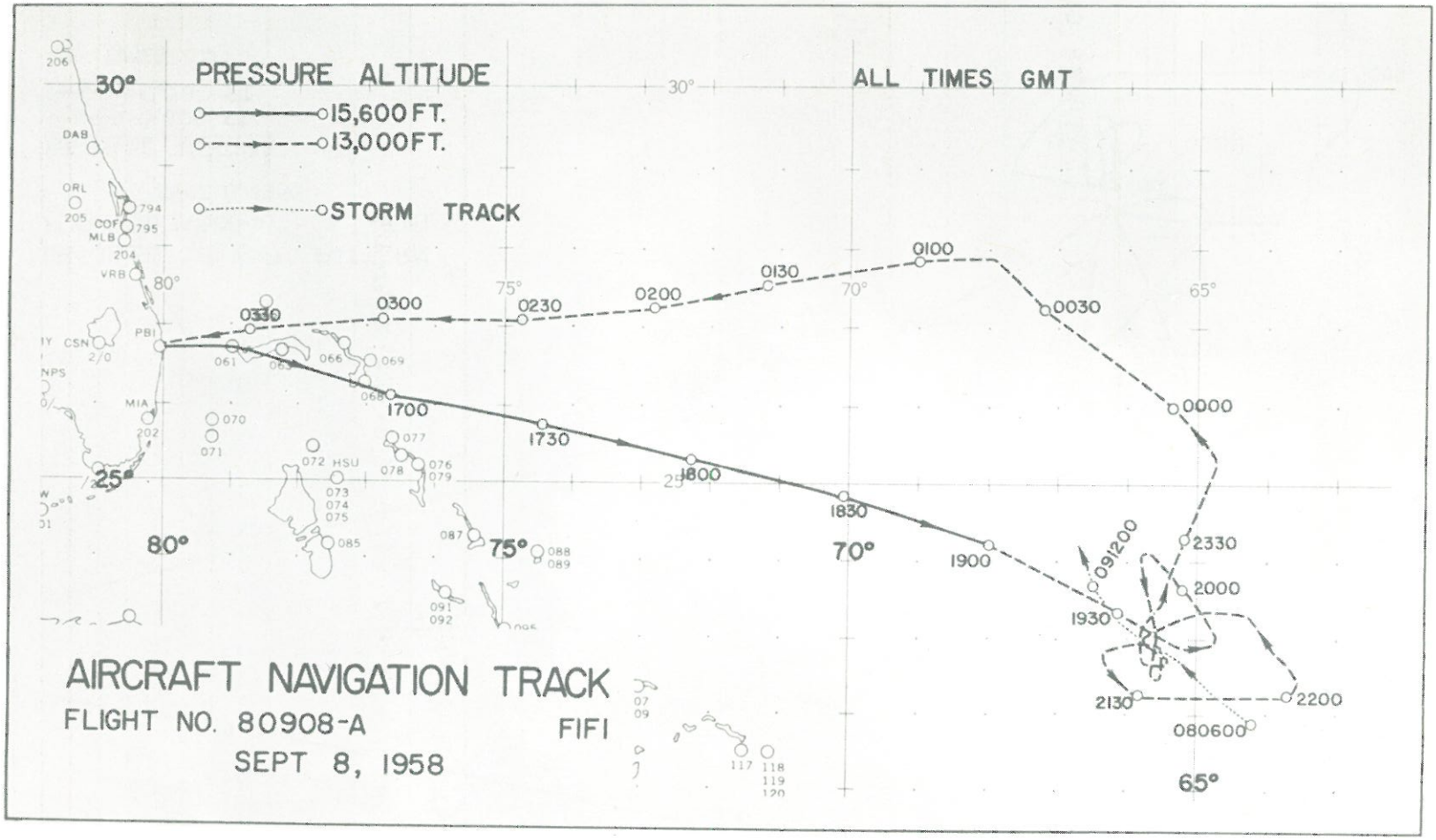
A/C NAVIGATION DATA LAT.-LONG.	1633-0344
WIND	1608-2045; 2047-2103; 2105-0215; 0256-0344
TEMPERATURE	1608-0344
D-VALUE	1608-1903; 1908-2146; 2148-2306; 2307-0344
HUMIDITY	
PRESSURE ALTITUDE	1608-0344
RADAR ALTITUDE	1608-1903; 1908-2146; 2148-2306; 2307-0344

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	7 rolls
RADAR PHOTOGRAPHIC DATA	1 roll: 1653-2244
PHOTO PANEL DATA	4 rolls: 1603-2033; 2033-2147; 2148-2307; 2307-0346

Hand Movie 5 rolls

Side camera time-lapse movie available.


N
500NM
450NM
400NM
350NM
300NM
250NM
200NM
150NM
100NM
50NM
50NM
100NM
0100
0130
0200
0030
0000
1800
1830
1900
2330
2000
1930
2230
2100
2300
2130
2200
DETAILED FLIGHT PATTERN
FLIGHT NO. 80908-A FIFI
SEPT. 8, 1958
PRESSURE ALTITUDE
15,600 FT.
13,000 FT.
ALL TIMES G.M.T.



AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80908-A

SEPT 8, 1958

FIFI

TYPE OF FLIGHT FIFI DATE September 8, 1958

FLIGHT NO. 80908c DATA TABULATED FROM 1658
TO 2251

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

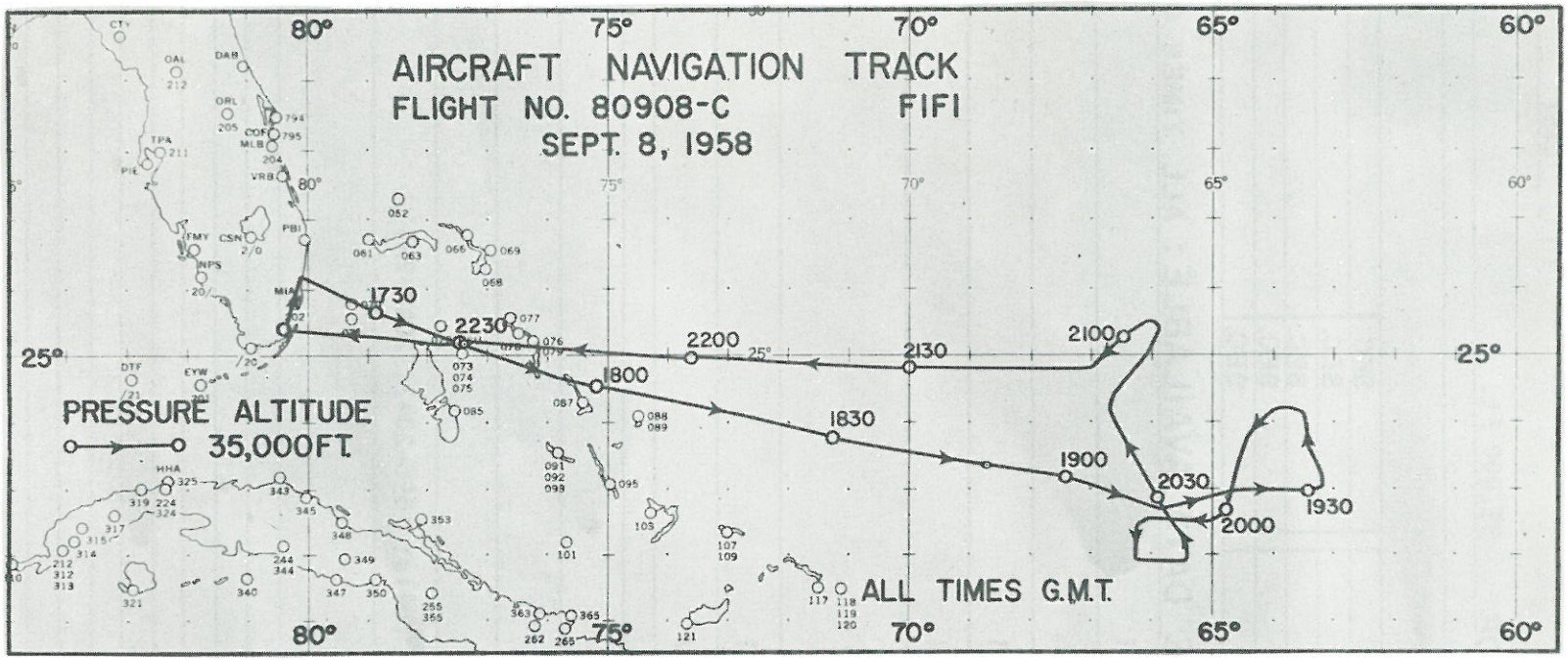
DATA SAMPLING RATE:

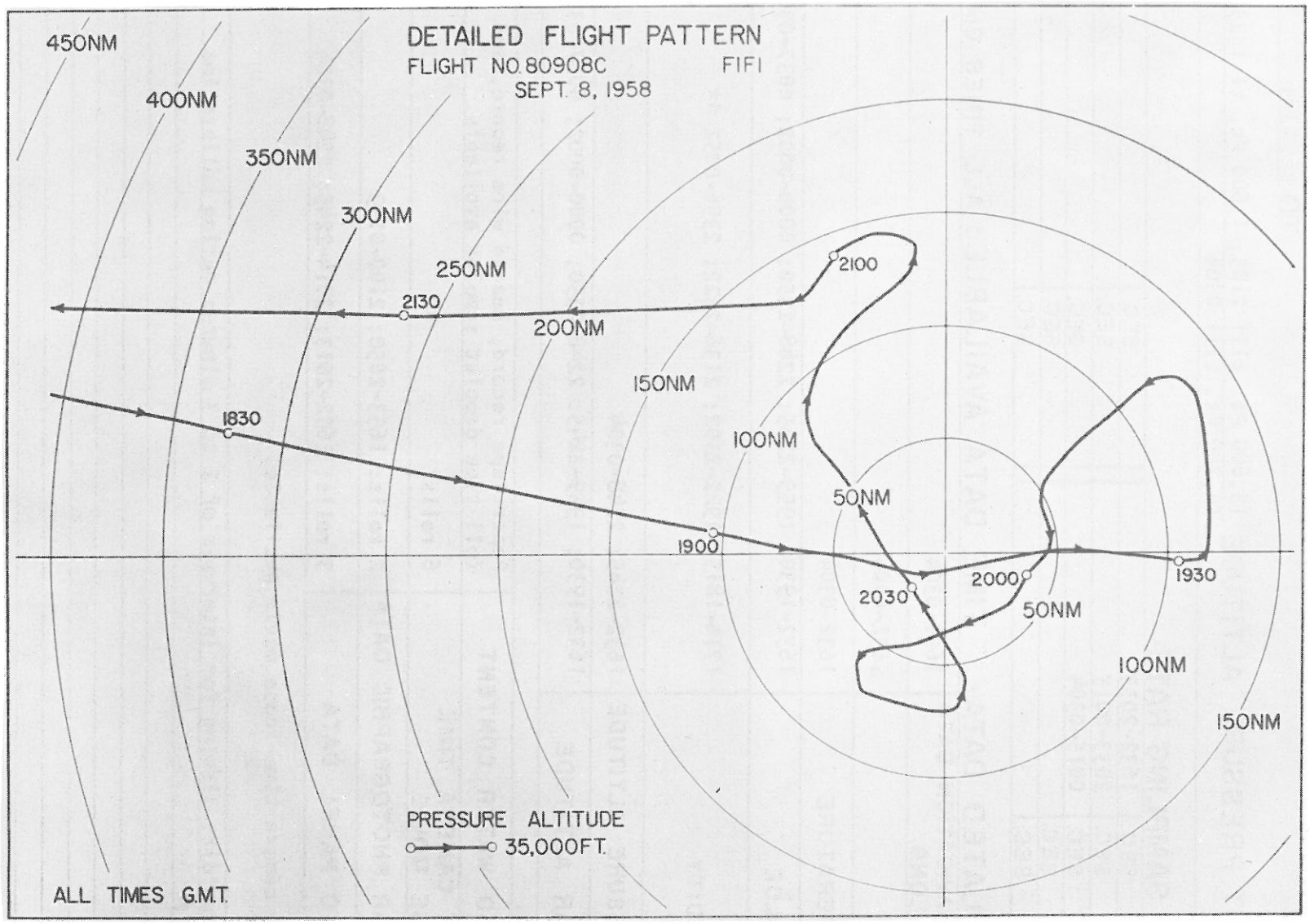
15	SEC.	1658-1708	SEC.	
22-39	SEC.	1708-1727	SEC.	
14-19	SEC.	1727-1807	SEC.	
5-15	SEC.	1807-2138	SEC.	
16	SEC.	2138-2251	SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1717-2251
WIND	1706-2244
TEMPERATURE	1658-2251
D-VALUE	1658-2251
HUMIDITY	
PRESSURE ALTITUDE	1658-2251
RADAR ALTITUDE	1658-2251

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	2 rolls: 1658-2042; 2042-2251


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80908-C FIFI
SEPT. 8, 1958
PRESSURE ALTITUDE
35,000FT.
ALL TIMES G.M.T.
80°
75°
70°
65°
60°
25°
1730
1800
1830
1900
1930
2000
2030
2100
2130
2200
2230


DETAILED FLIGHT PATTERN
FLIGHT NO. 80908C
FIFI
SEPT. 8, 1958
450NM
400NM
350NM
300NM
250NM
200NM
150NM
100NM
50NM
50NM
100NM
150NM
1830
1900
2030
2000
1930
2130
2100
PRESSURE ALTITUDE
35,000FT.
ALL TIMES G.M.T.

TYPE OF FLIGHT Tropical Storm GERDA DATE September 14, 1958

FLIGHT NO. 80914B DATA TABULATED FROM 1632
TO 0304

FLIGHT PRESSURE ALTITUDE 15,600 Ft. till 2103; 1,600 Ft. till 2347; 14,200 Ft. till 0304

DATA SAMPLING RATE:

10	SEC.	1632-2033		SEC.	
5	SEC.	2033-0015		SEC.	
10	SEC.	0015-0304		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

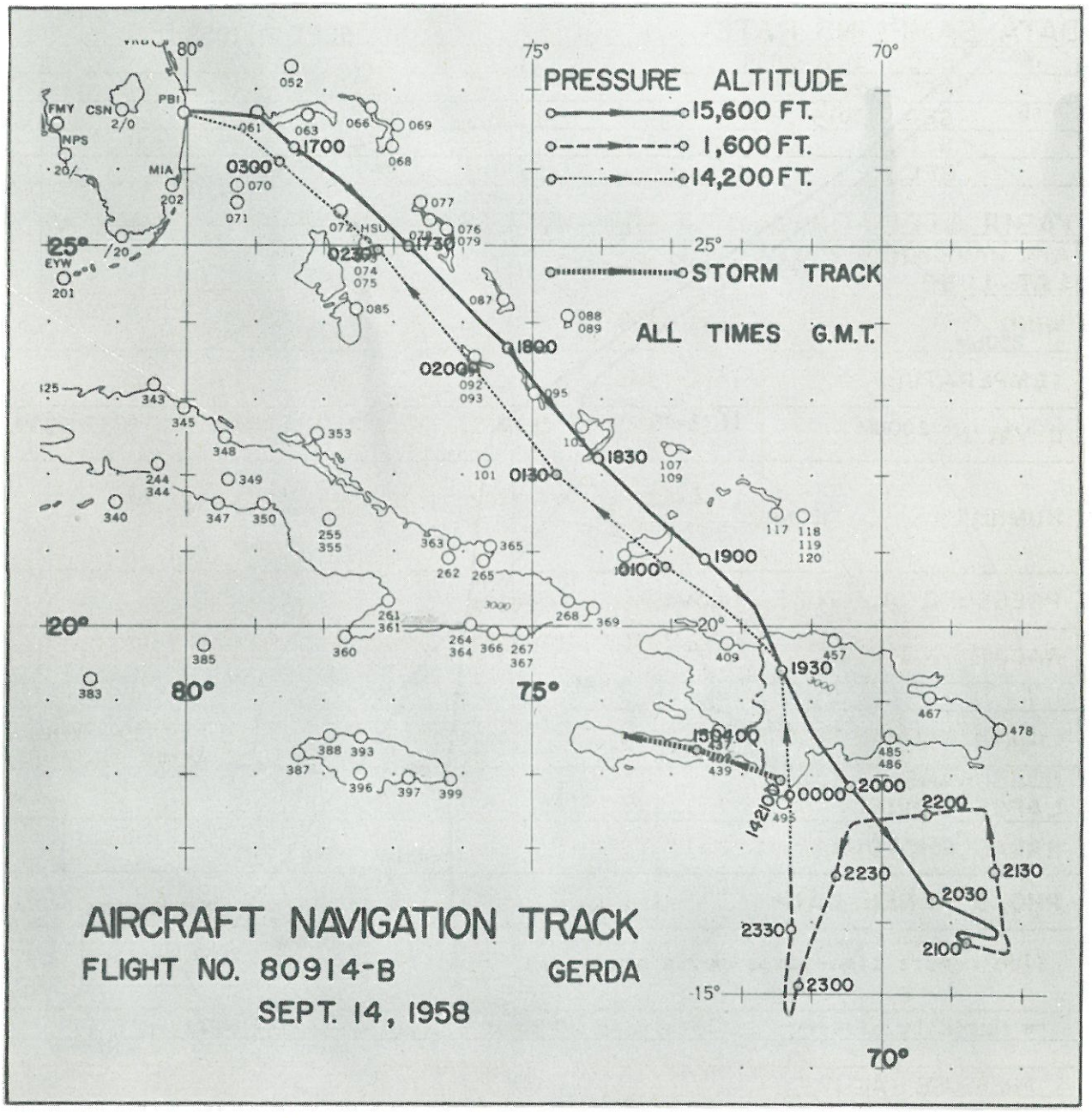
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

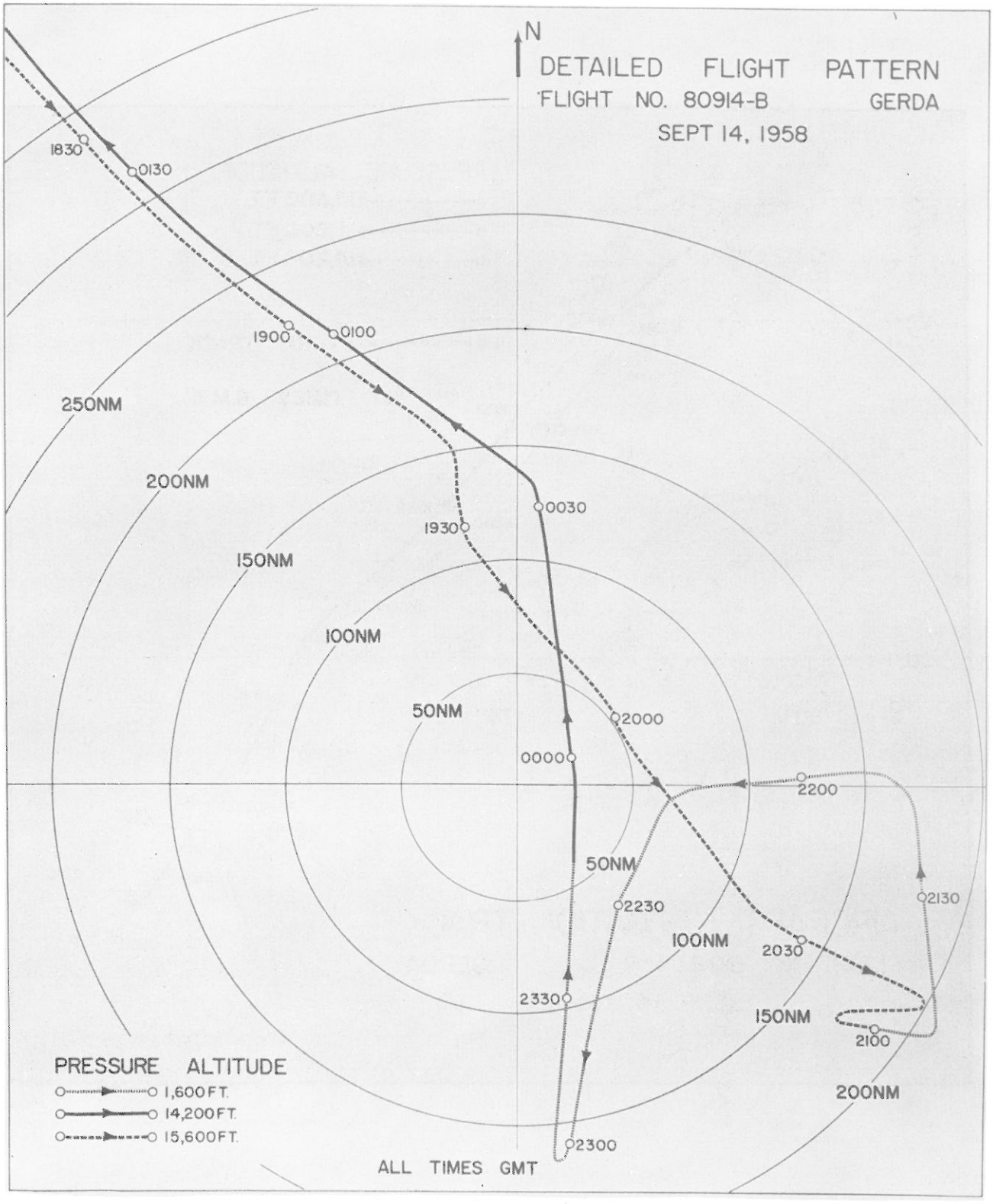
A/C NAVIGATION DATA LAT.-LONG.	1650-0304
WIND	1632-0304
TEMPERATURE	1632-0304
D-VALUE	1632-1930; 1959-2245; 2248-2350; 0000-0002; 0037-0304
HUMIDITY	1714-1815; 1922-2102; 2136-2322; 2356-0052 **
PRESSURE ALTITUDE	1632-2245; 2248-0304
RADAR ALTITUDE	1632-1930; 1959-2245; 2248-2350; 0000-0002; 0037-0304

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	6 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1653-2050; 2100-0159
PHOTO PANEL DATA	3 rolls: 1632-2013; 2014-2245; 2248-0304

Side camera time-lapse movie available.

** Humidity missing for intervals of 2 to 3 minutes during calibration.


PRESSURE ALTITUDE
15,600 FT.
1,600 FT.
14,200 FT.
STORM TRACK
ALL TIMES G.M.T.
AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80914-B
GERDA
SEPT. 14, 1958
80°
75°
70°
25°
20°
15°
FMY
CSN
NPS
PBI
MIA
EYW
HSU
1700
0300
1730
0230
1800
0200
1830
0130
1900
0100
1930
150400
0000
2000
2200
2230
2130
2030
2100
2330
2300


N
DETAILED FLIGHT PATTERN
FLIGHT NO. 80914-B
GERDA
SEPT 14, 1958
1830
0130
1900
0100
250NM
200NM
0030
1930
150NM
100NM
50NM
2000
0000
2200
50NM
2230
2130
100NM
2030
2330
150NM
2100
200NM
2300
PRESSURE ALTITUDE
1,600 FT.
14,200 FT.
15,600 FT.
ALL TIMES GMT

TYPE OF FLIGHT Hurricane HELENE DATE September 24, 1958

FLIGHT NO. 80924B DATA TABULATED FROM 1443
TO 2209

FLIGHT PRESSURE ALTITUDE 9,000 Ft. till 1650; 6,400 Ft. till 1713;
3,000 Ft. till 1722; 6,400 Ft. till 1746;
13,000 Ft. till 2209

DATA SAMPLING RATE:

10	SEC.	1443-1629		SEC.	
5	SEC.	1629-1647		SEC.	
2	SEC.	1647-2039		SEC.	
10	SEC.	2039-2141		SEC.	
30	SEC.	2141-2209		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1443-2209
WIND	1443-1706; 1708-1711; 1712-1714; 1717-1727; 1729-1735; 1735-1736; 1737-2203
TEMPERATURE	1443-2209
D-VALUE	1452-1510; 1515-1701; 1703-1704; 1715-1723; 1724-1749; 1751-1758; 1801-1941; 1944-2158
HUMIDITY	1552-2209 **
PRESSURE ALTITUDE	1452-1758; 1801-1941; 1944-2209
RADAR ALTITUDE	1452-1510; 1515-1701; 1703-1704; 1715-1723; 1724-1749; 1751-1758; 1801-1941; 1944-2158

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	7 rolls
RADAR PHOTOGRAPHIC DATA	6 rolls: 1453-1608; 1613-1723; 1749-1854; 1858-2007; 2012-2126; 2130-2211
PHOTO PANEL DATA	5 rolls: 1452-1702; 1702-1757; 1801-1846; 1846-1941; 1944-2208

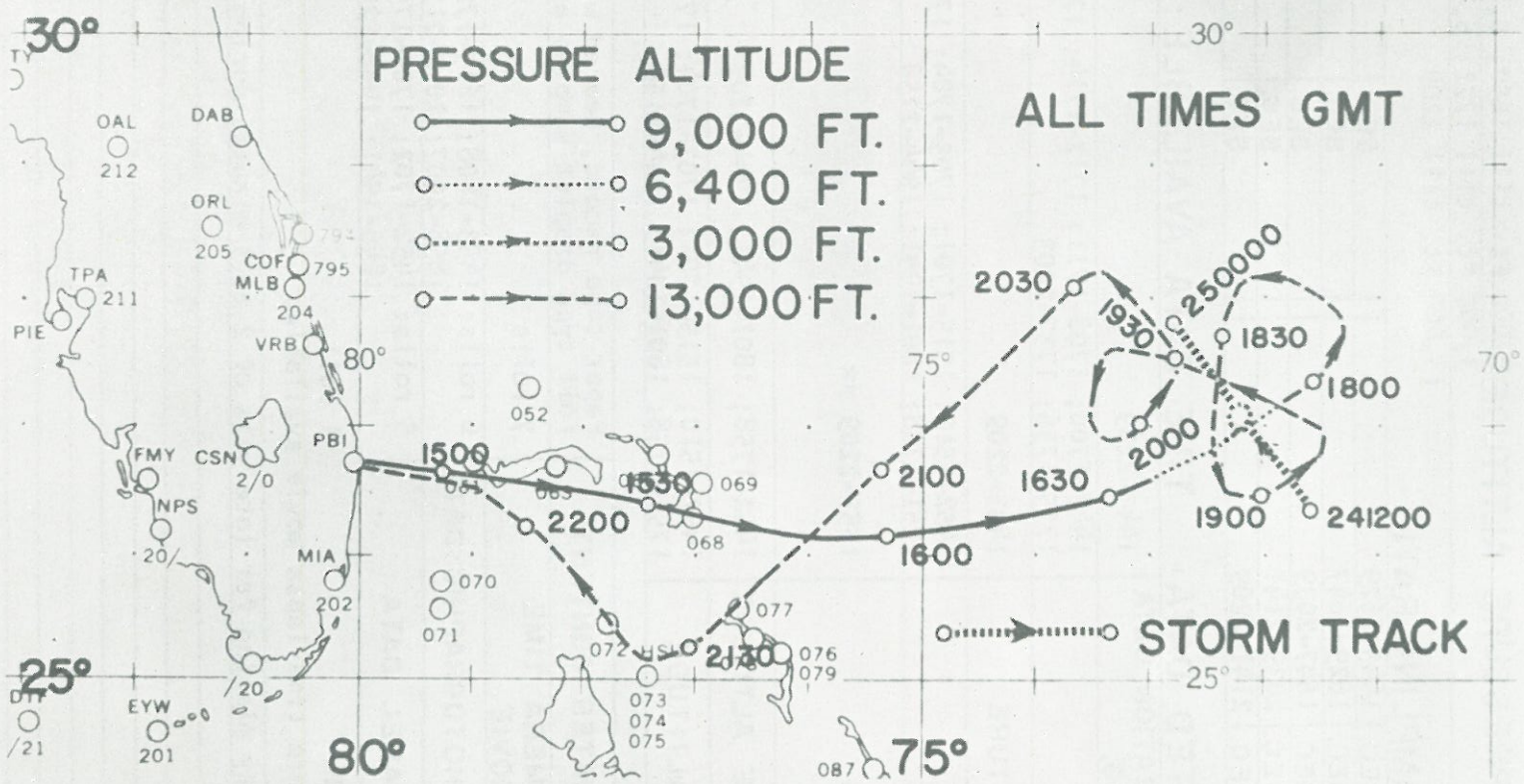
Hand Movie 1 roll
Side camera time-lapse movie available.

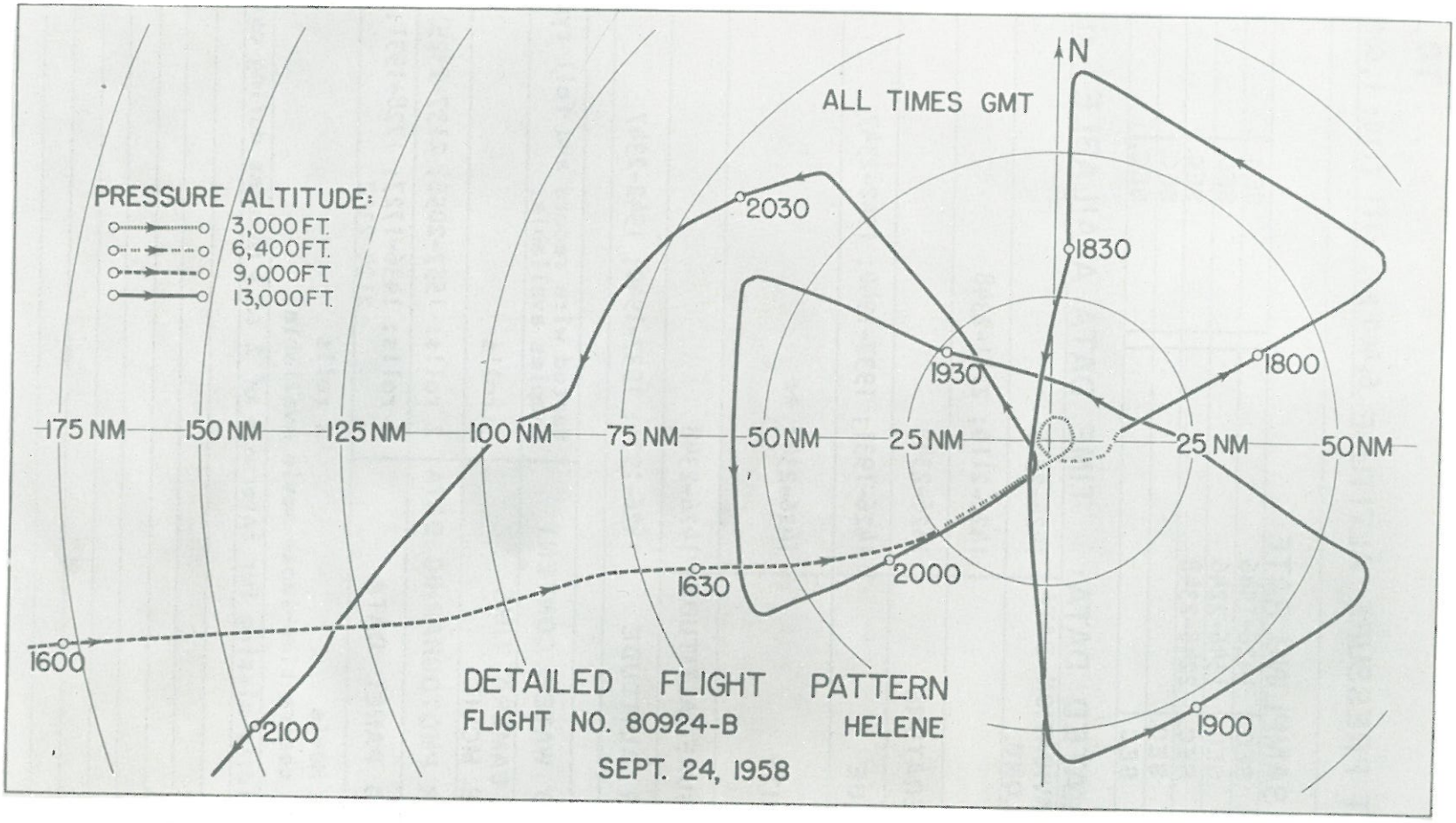
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80924-B HELENE

SEPT. 24, 1958




N
ALL TIMES GMT
PRESSURE ALTITUDE:
3,000 FT.
6,400 FT.
9,000 FT.
13,000 FT.
175 NM
150 NM
125 NM
100 NM
75 NM
50 NM
25 NM
25 NM
50 NM
1600
2100
1630
2000
2030
1930
1830
1800
1900
DETAILED FLIGHT PATTERN
FLIGHT NO. 80924-B
HELENE
SEPT. 24, 1958

TYPE OF FLIGHT Hurricane HELENE DATE September 25, 1958

FLIGHT NO. 80925A DATA TABULATED FROM 1426
TO 2348

FLIGHT PRESSURE ALTITUDE 6,400 Ft. till 2110; 1,600 Ft. till 2248;

DATA SAMPLING RATE:

20	SEC.	1426-1546		SEC.	
5	SEC.	1546-2246		SEC.	
15	SEC.	2246-2348		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1426-2348
WIND	1426-2110; 2111-2348
TEMPERATURE	1426-2348
D-VALUE	1426-1931; 1937-1940; 1942-2347
HUMIDITY	1426-2347 **
PRESSURE ALTITUDE	1426-2348
RADAR ALTITUDE	1426-1931; 1937-1940; 1942-2347

LIQUID WATER CONTENT	Heated wire record and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	5 rolls
RADAR PHOTOGRAPHIC DATA	2 rolls: 1557-2056; 2137-2325
PHOTO PANEL DATA	4 rolls: 1436-1727; 1728-1931; 1936-2124; 2124-2352

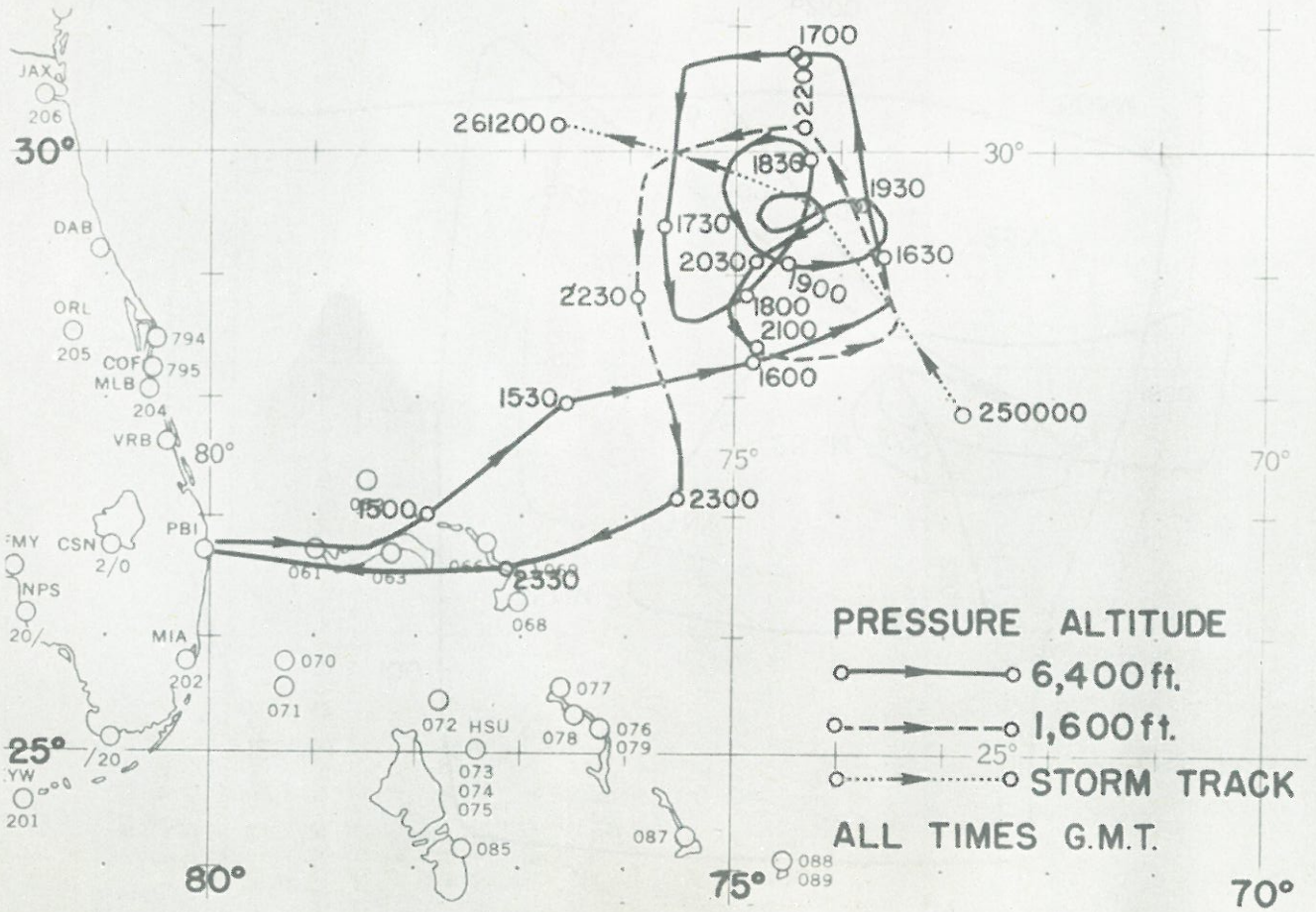
Hand Movie 2 rolls
Side camera time-lapse movie available.

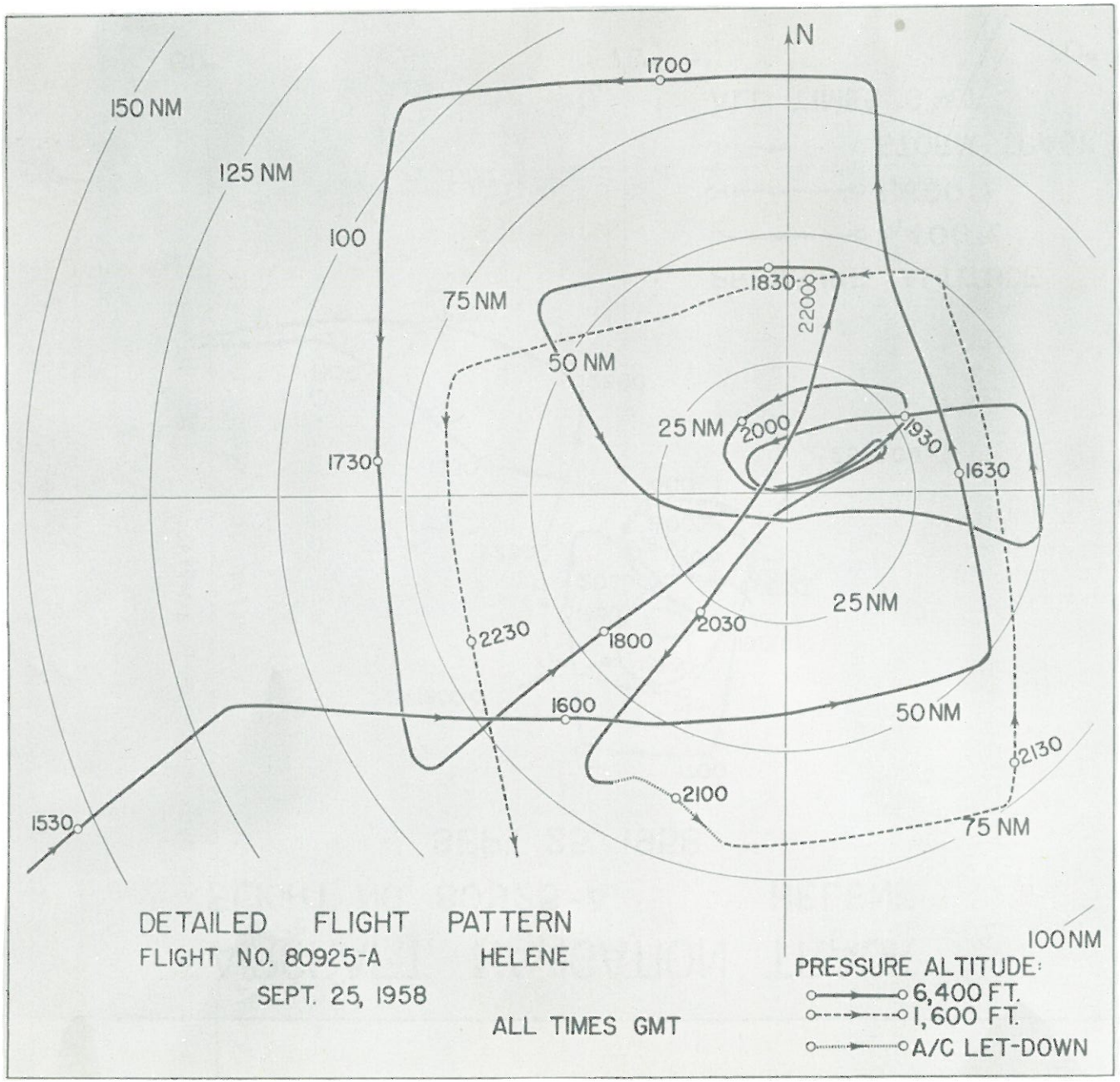
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80925-A HELENE

SEPT 25, 1958





DETAILED FLIGHT PATTERN

FLIGHT NO. 80925-A HELENE

SEPT. 25, 1958

ALL TIMES GMT

TYPE OF FLIGHT Hurricane HELENE DATE September 26, 1958

FLIGHT NO. 80926A DATA TABULATED FROM 1622
TO 2118

FLIGHT PRESSURE ALTITUDE 6,400 Ft.

DATA SAMPLING RATE:

15	SEC.	1622-1740	SEC.	
6	SEC.	1740-2038	SEC.	
12	SEC.	2038-2118	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1731-2056
WIND	1622-2002; 2010-2056
TEMPERATURE	1622-2118
D-VALUE	1622-1945; 1947-2118
HUMIDITY	1626-2109 **
PRESSURE ALTITUDE	1622-2118
RADAR ALTITUDE	1622-1945; 1947-2118

LIQUID WATER CONTENT	Heated wire record and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	5 rolls
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	2 rolls: 1622-1945; 1947-2139

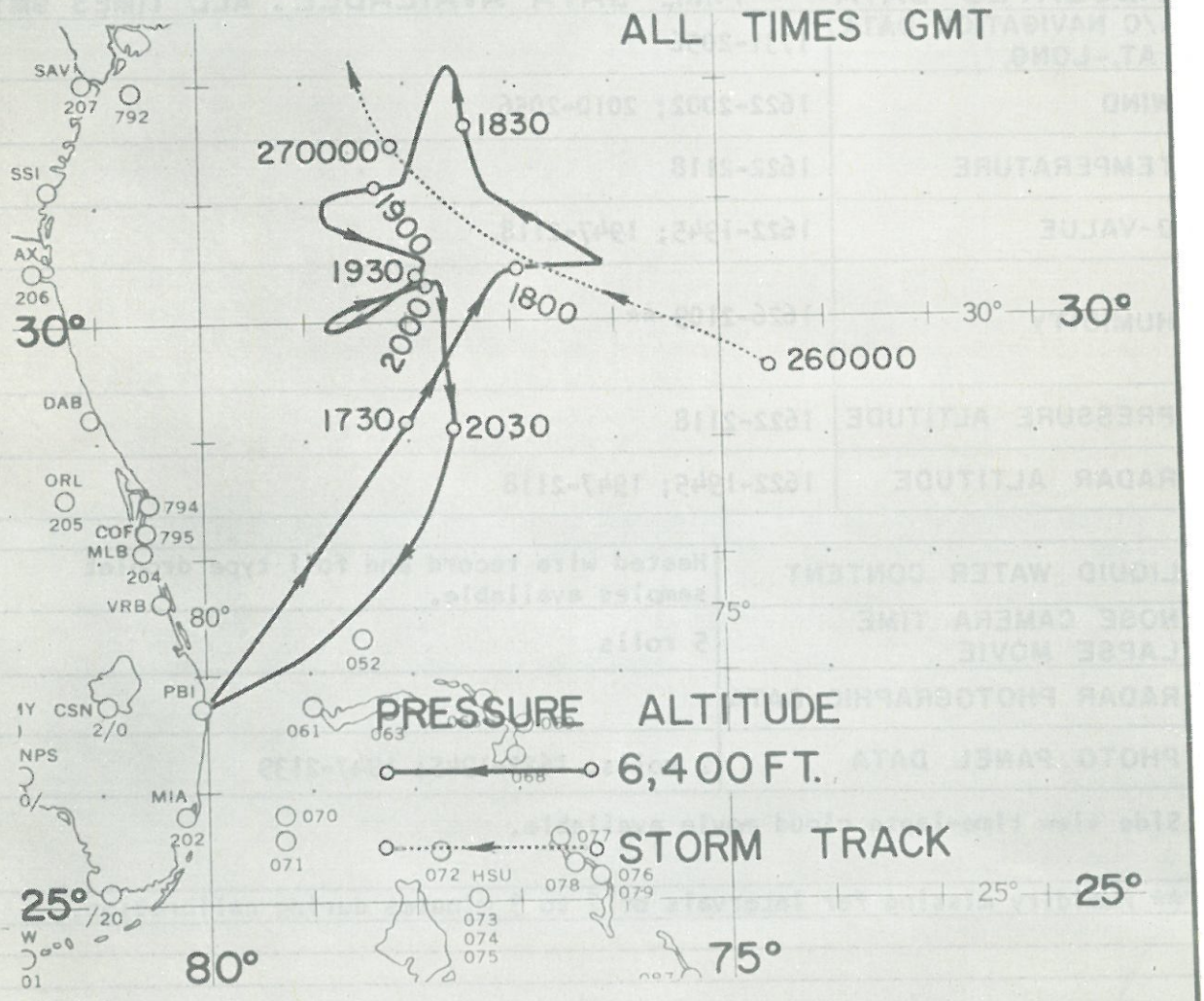
Side view time-lapse cloud movie available.

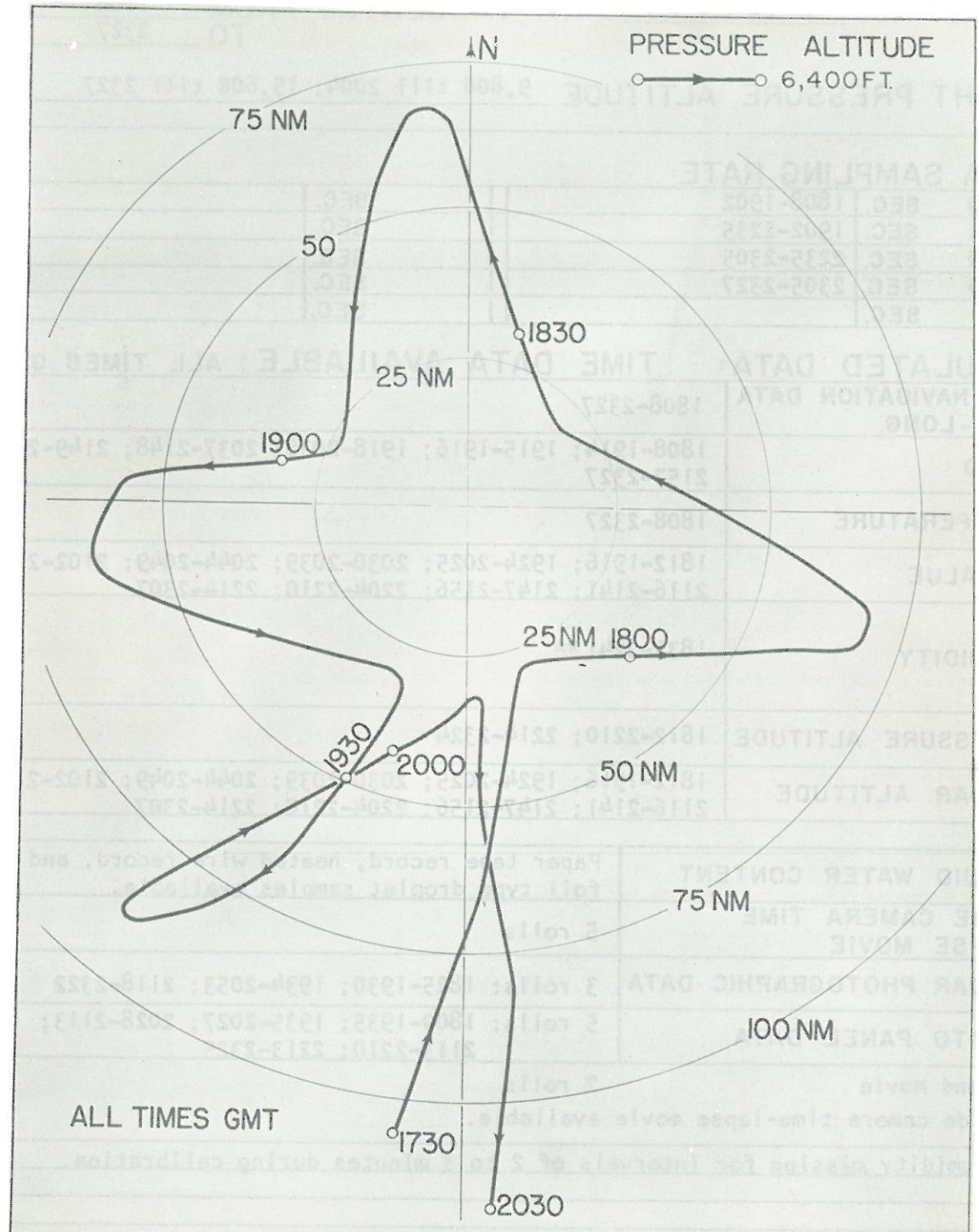
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80926-A HELENE

SEPT 26, 1958





DETAILED FLIGHT PATTERN

FLIGHT NO. 80926-A HELENE

SEPT. 26, 1958

TYPE OF FLIGHT Hurricane HELENE DATE September 26, 1958

FLIGHT NO. 80926B DATA TABULATED FROM 1808
TO 2327

FLIGHT PRESSURE ALTITUDE 9,800 till 2004; 15,600 till 2327

DATA SAMPLING RATE:

10	SEC.	1808-1902		SEC.	
2	SEC.	1902-2235		SEC.	
10	SEC.	2235-2305		SEC.	
30	SEC.	2305-2327		SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1808-2327
WIND	1808-1914; 1915-1916; 1918-2036; 2037-2148; 2149-2155; 2157-2327
TEMPERATURE	1808-2327
D-VALUE	1812-1916; 1924-2025; 2030-2039; 2044-2049; 2102-2110; 2116-2141; 2147-2156; 2204-2210; 2214-2307
HUMIDITY	1831-2241 **
PRESSURE ALTITUDE	1812-2210; 2214-2324
RADAR ALTITUDE	1812-1916; 1924-2025; 2030-2039; 2044-2049; 2102-2110; 2116-2141; 2147-2156; 2204-2210; 2214-2307

LIQUID WATER CONTENT	Paper tape record, heated wire record, and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	5 rolls
RADAR PHOTOGRAPHIC DATA	3 rolls: 1825-1930; 1934-2053; 2118-2322
PHOTO PANEL DATA	5 rolls: 1809-1935; 1935-2027; 2028-2113; 2113-2210; 2213-2325

Hand Movie 2 rolls

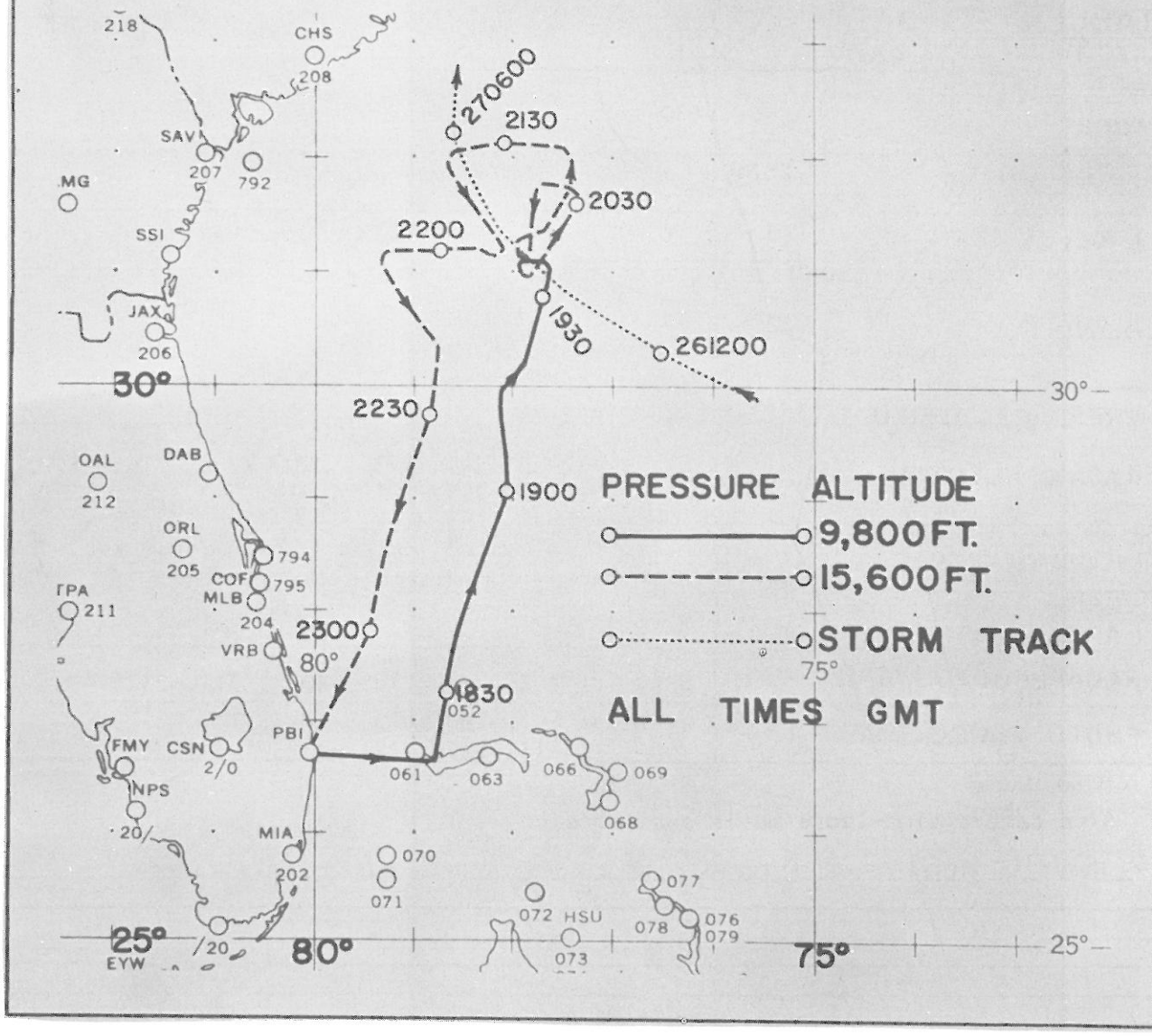
Side camera time-lapse movie available.

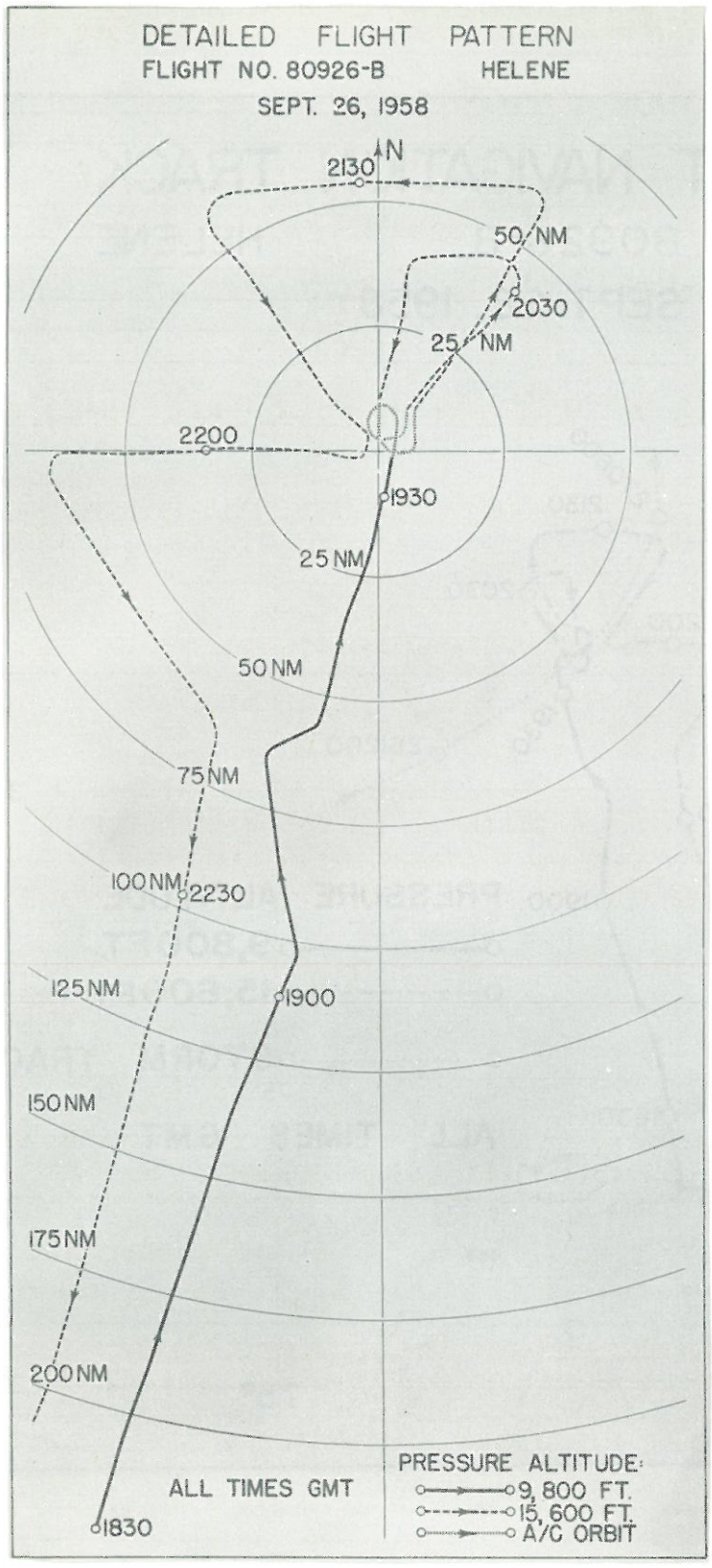
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80926-B HELENE

SEPT. 26, 1958




DETAILED FLIGHT PATTERN
FLIGHT NO. 80926-B HELENE
SEPT. 26, 1958
N
2130
50 NM
2030
25 NM
2200
1930
25 NM
50 NM
75 NM
100 NM
2230
125 NM
1900
150 NM
175 NM
200 NM
1830
ALL TIMES GMT
PRESSURE ALTITUDE:
9,800 FT.
15,600 FT.
A/C ORBIT

TYPE OF FLIGHT Hurricane HELENE DATE September 26, 1958

FLIGHT NO. 80926C DATA TABULATED FROM 1601
TO 2010

FLIGHT PRESSURE ALTITUDE 34,200 Ft.

DATA SAMPLING RATE:

15	SEC.	1601-1656		SEC.	
5	SEC.	1656-1826		SEC.	
10	SEC.	1826-1834; 1836-1848		SEC.	
5	SEC.	1848-1938		SEC.	
15	SEC.	1938-2010		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

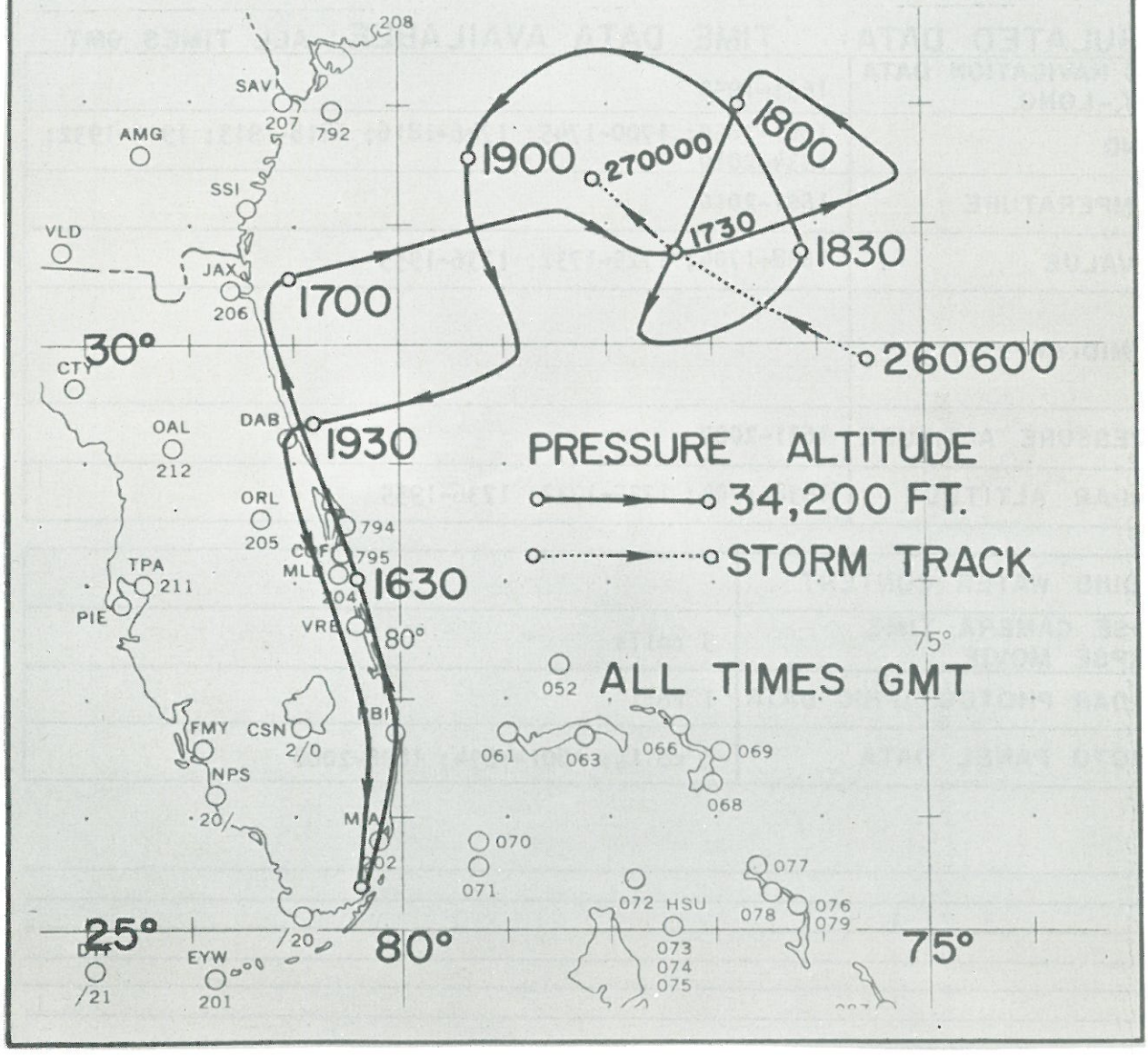
A/C NAVIGATION DATA LAT.-LONG.	1631-1955
WIND	1601-1650; 1700-1745; 1746-1816; 1818-1913; 1916-1932; 1934-2010
TEMPERATURE	1601-2010
D-VALUE	1638-1704; 1725-1732; 1736-1955
HUMIDITY	
PRESSURE ALTITUDE	1631-2007
RADAR ALTITUDE	1638-1704; 1725-1732; 1736-1955

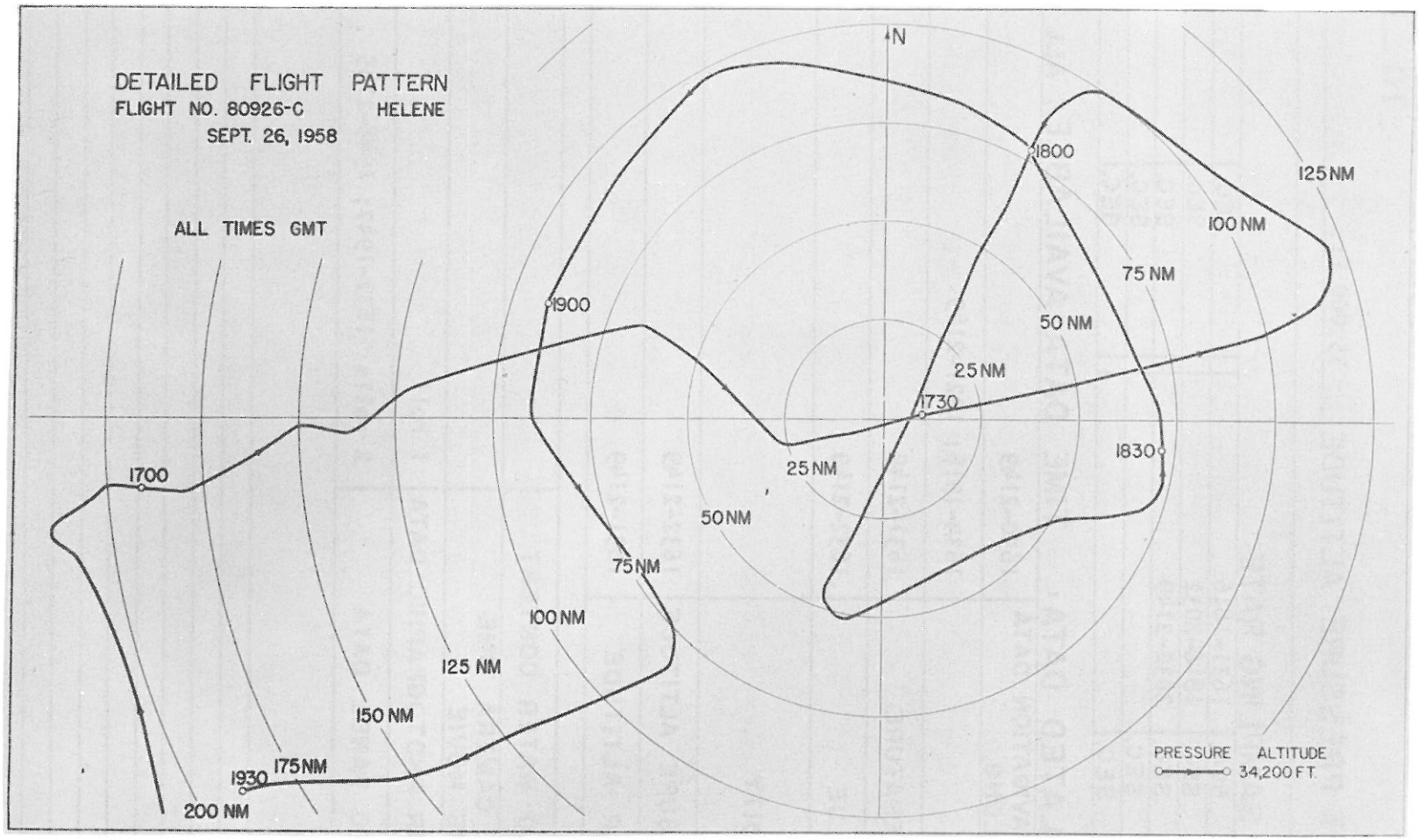
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	3 rolls
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	2 rolls: 1601-1834; 1836-2008

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 80926-C HELENE

SEPT 26, 1958




DETAILED FLIGHT PATTERN
FLIGHT NO. 80926-C HELENE
SEPT. 26, 1958
ALL TIMES GMT
N
1800
1900
1730
1830
1700
1930
25 NM
50 NM
75 NM
100 NM
125 NM
150 NM
175 NM
200 NM
PRESSURE ALTITUDE
34,200 FT.

TYPE OF FLIGHT Hurricane ILSA DATE September 28, 1958

FLIGHT NO. 80928C DATA TABULATED FROM 1631
TO 2149

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

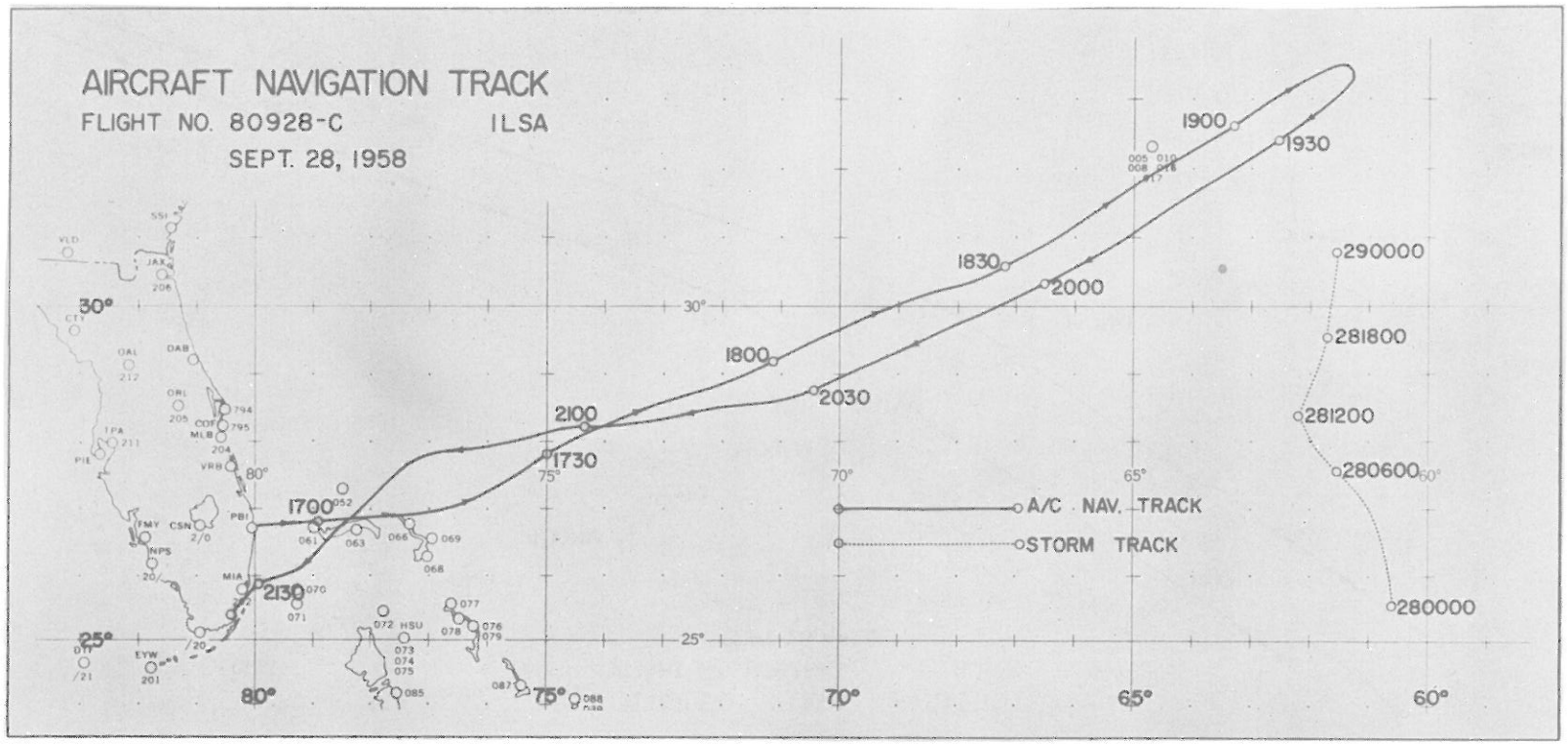
DATA SAMPLING RATE:

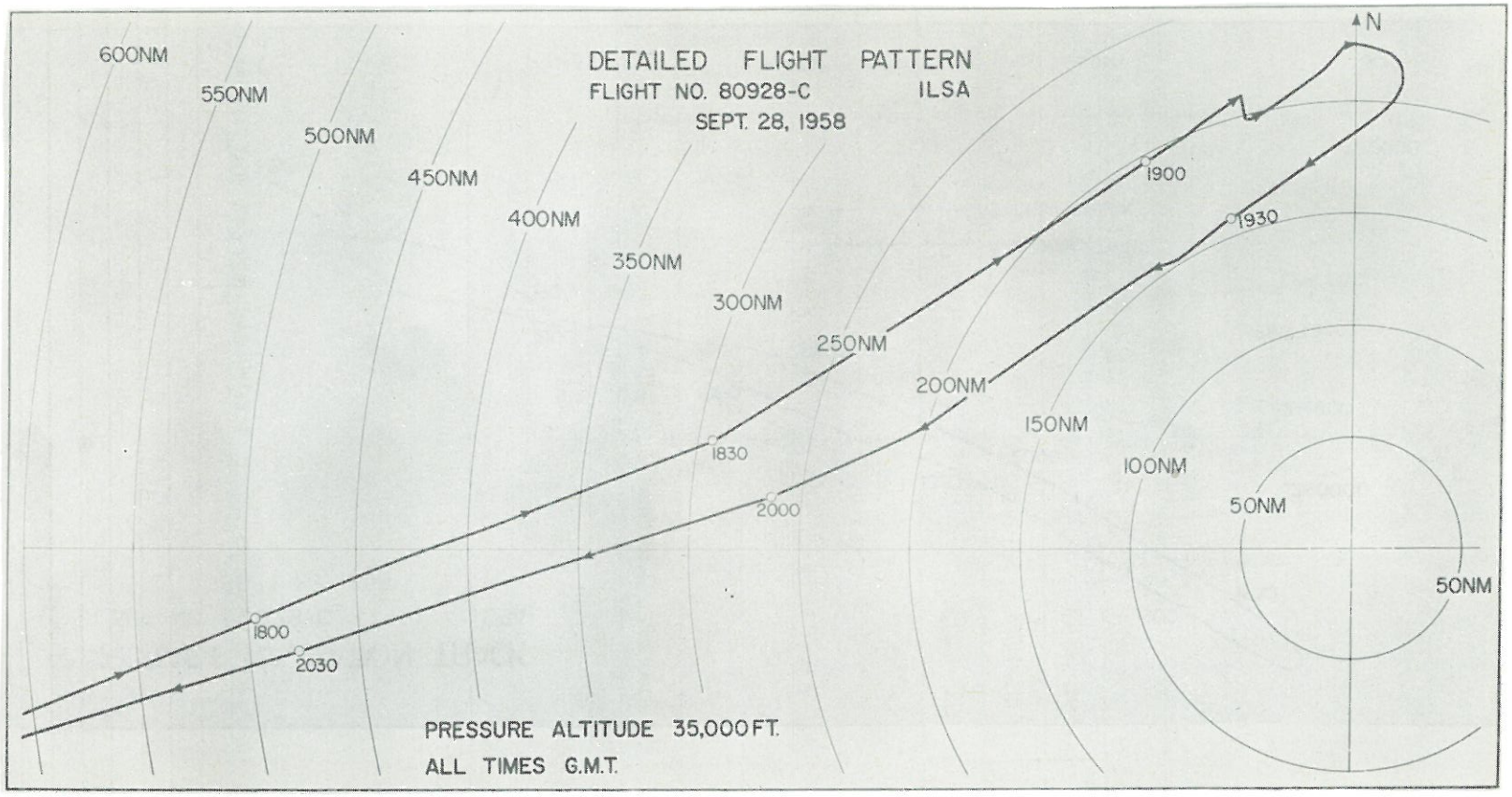
15	SEC.	1631-1816		SEC.	
5	SEC.	1816-2032		SEC.	
15	SEC.	2032-2149		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1650-2149
WIND	1634-1918; 1921-2149
TEMPERATURE	1631-2149
D-VALUE	1632-2149
HUMIDITY	
PRESSURE ALTITUDE	1632-2149
RADAR ALTITUDE	1631-2149

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	2 rolls: 1632-1947; 1948-2145


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 80928-C
ILSA
SEPT. 28, 1958
A/C NAV. TRACK
STORM TRACK
1700
1730
1800
1830
1900
1930
2000
2030
2100
2130
290000
281800
281200
280600
280000
30°
25°
80°
75°
70°
65°
60°


DETAILED FLIGHT PATTERN
FLIGHT NO. 80928-C
ILSA
SEPT. 28, 1958
N
600NM
550NM
500NM
450NM
400NM
350NM
300NM
250NM
200NM
150NM
100NM
50NM
50NM
1800
2030
1830
2000
1900
1930
PRESSURE ALTITUDE 35,000 FT.
ALL TIMES G.M.T.

TYPE OF FLIGHT Hurricane JANICE DATE October 5, 1958

FLIGHT NO. 81005A DATA TABULATED FROM 1508
TO 2159

FLIGHT PRESSURE ALTITUDE 11,500 Ft.

DATA SAMPLING RATE:

20	SEC.	1508-1608		SEC.	
10	SEC.	1608-2104		SEC.	
20	SEC.	2104-2138		SEC.	
60	SEC.	2138-2159		SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1548-2159
WIND	1508-1806; 1811-2159
TEMPERATURE	1508-2159
D-VALUE	1508-1610; 1617-1858; 1905-2016; 2039-2159
HUMIDITY	1508-2159 **
PRESSURE ALTITUDE	1508-2159
RADAR ALTITUDE	1508-1610; 1617-1858; 1905-2016; 2039-2159

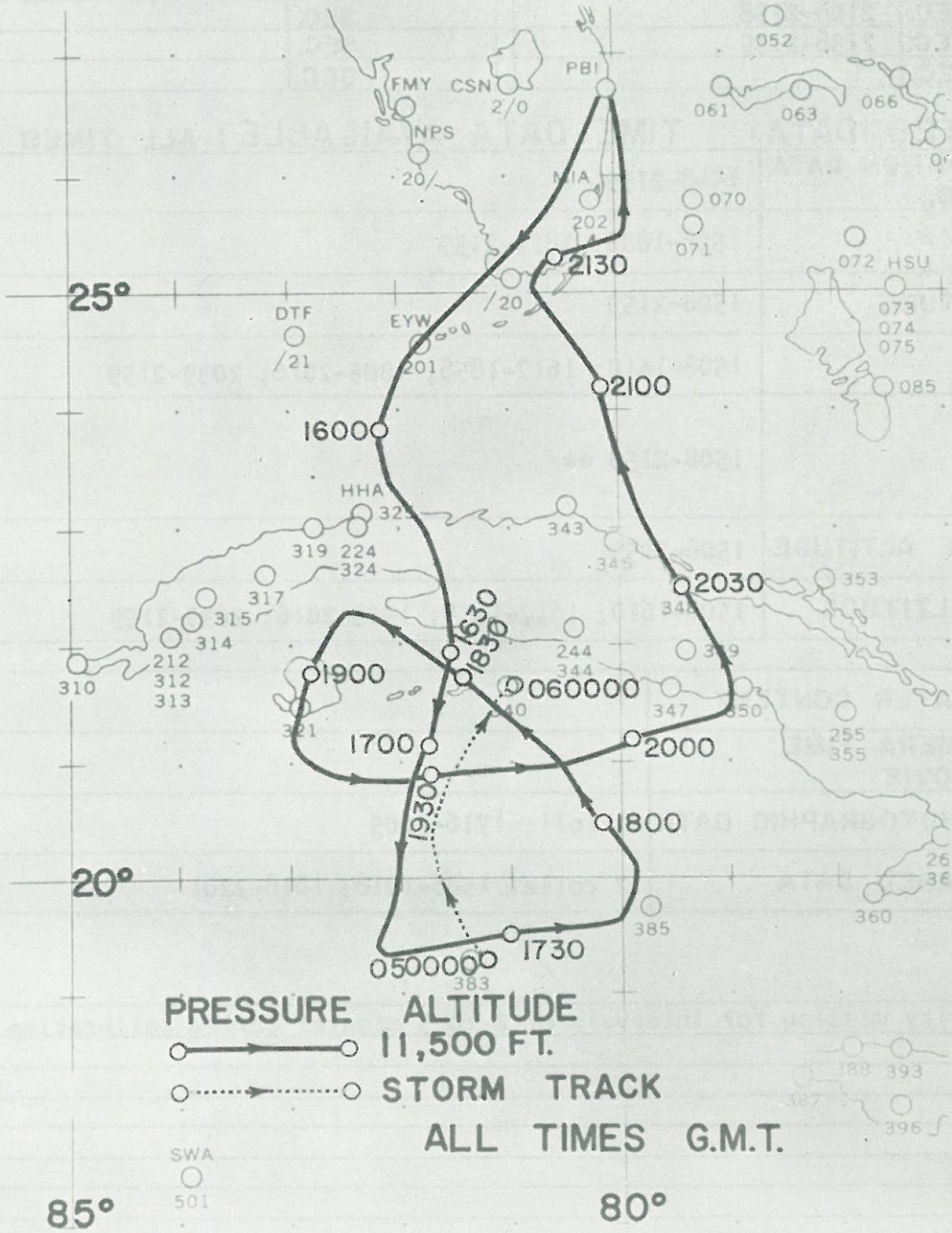
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1716-2005
PHOTO PANEL DATA	2 rolls: 1506-1818; 1818-2201

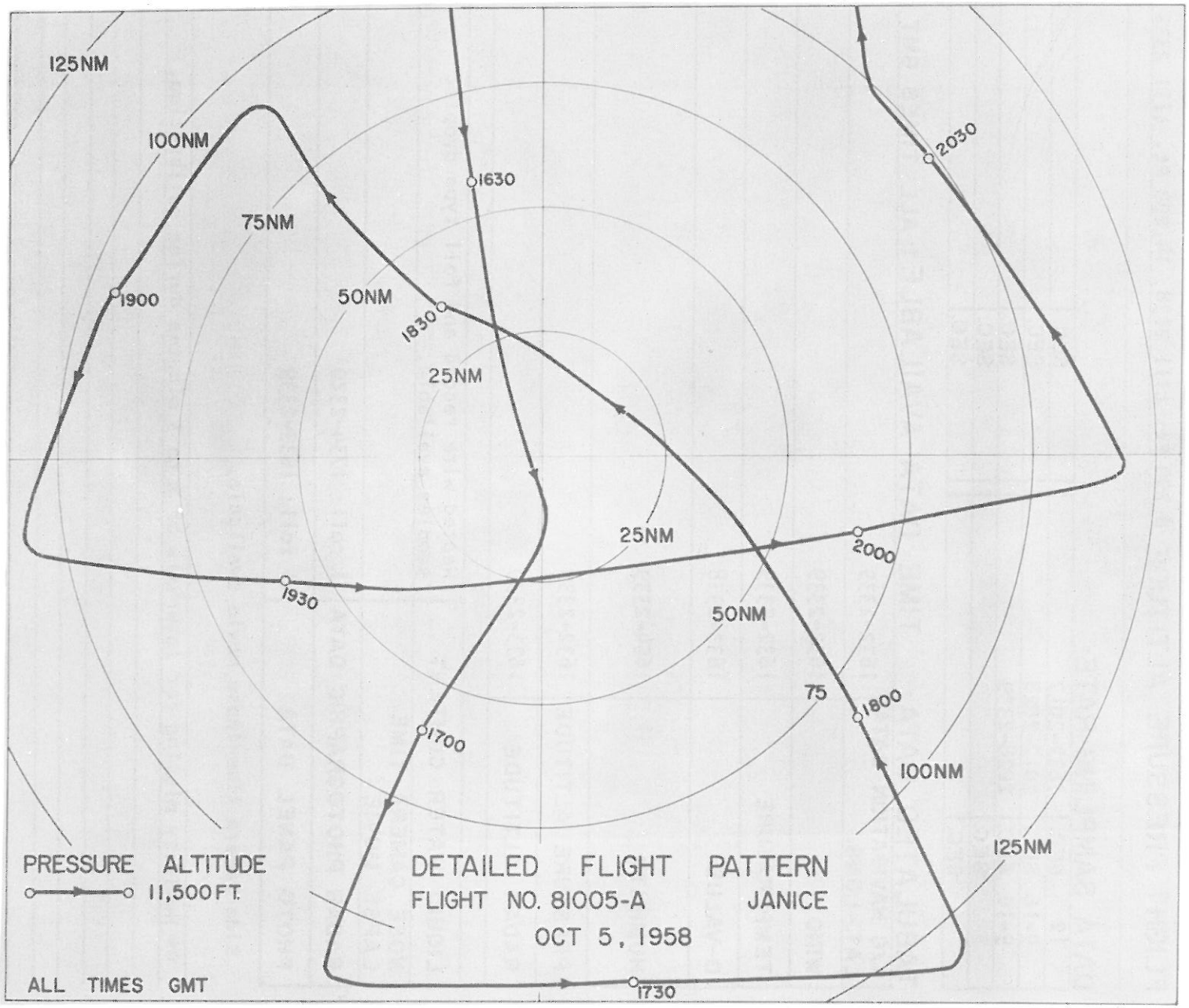
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 81005-A JANICE

OCT. 5, 1958




125NM
100NM
75NM
50NM
25NM
1630
1900
1830
2030
25NM
2000
1930
50NM
75
1800
1700
100NM
125NM
1730
PRESSURE ALTITUDE
11,500 FT.
DETAILED FLIGHT PATTERN
FLIGHT NO. 81005-A
JANICE
OCT 5, 1958
ALL TIMES GMT

TYPE OF FLIGHT Hurricane JANICE DATE October 6, 1958

FLIGHT NO. 81006A DATA TABULATED FROM 1632
TO 2339

FLIGHT PRESSURE ALTITUDE 8,200 Ft. till 2138; 14,200 Ft. till 2339

DATA SAMPLING RATE:

12 SEC.	1632-2017	SEC.	
9-16 SEC.	2017-2028	SEC.	
9-10 SEC.	2028-2339	SEC.	
SEC.		SEC.	
SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1632-2339
WIND	1632-2339
TEMPERATURE	1632-2339
D-VALUE	1633-2338
HUMIDITY	1654-2339 **
PRESSURE ALTITUDE	1632-2339
RADAR ALTITUDE	1633-2339

LIQUID WATER CONTENT	Heated wire record and foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1734-2320
PHOTO PANEL DATA	1 roll: 1633-2339

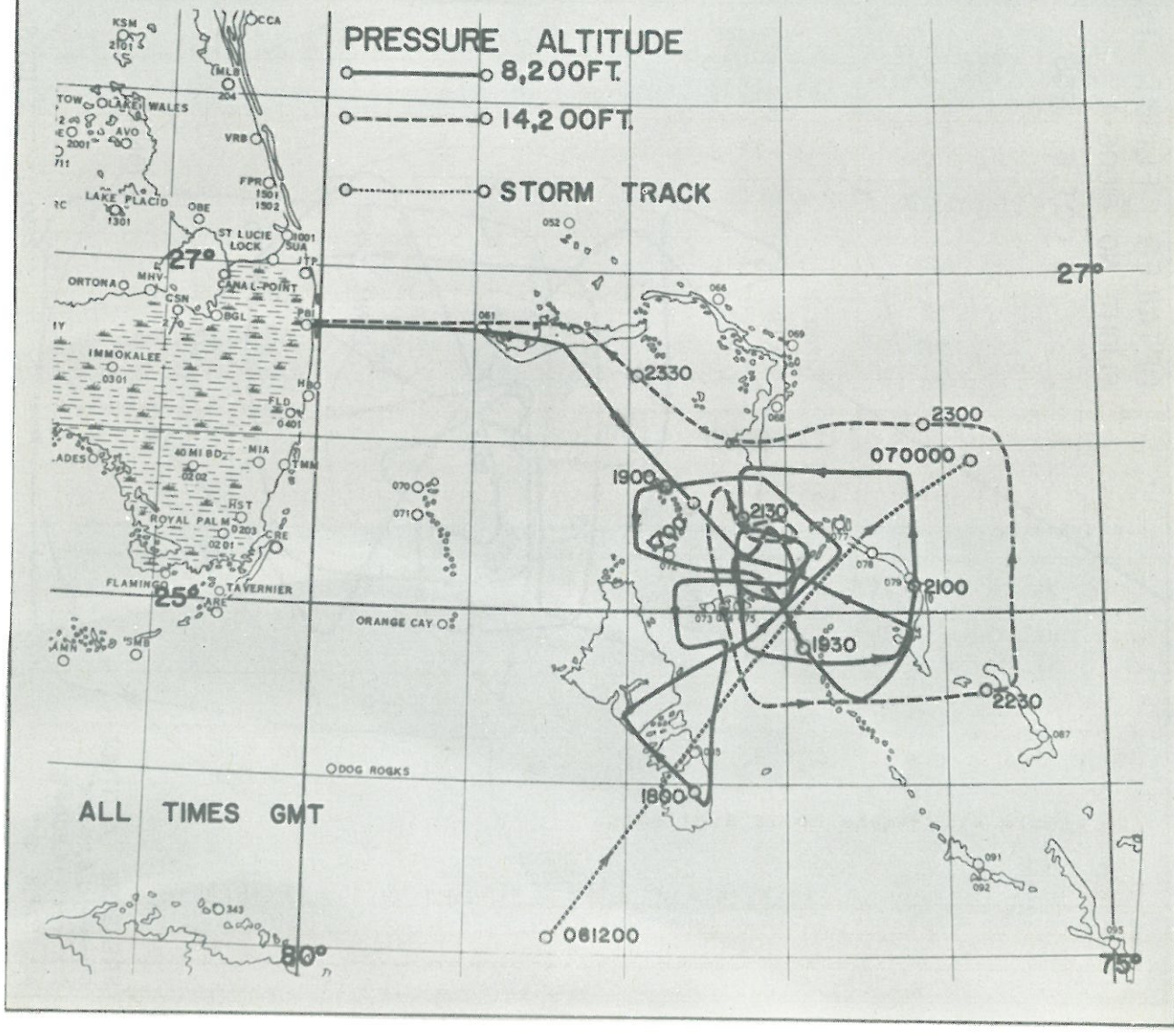
Side camera time-lapse movie available.

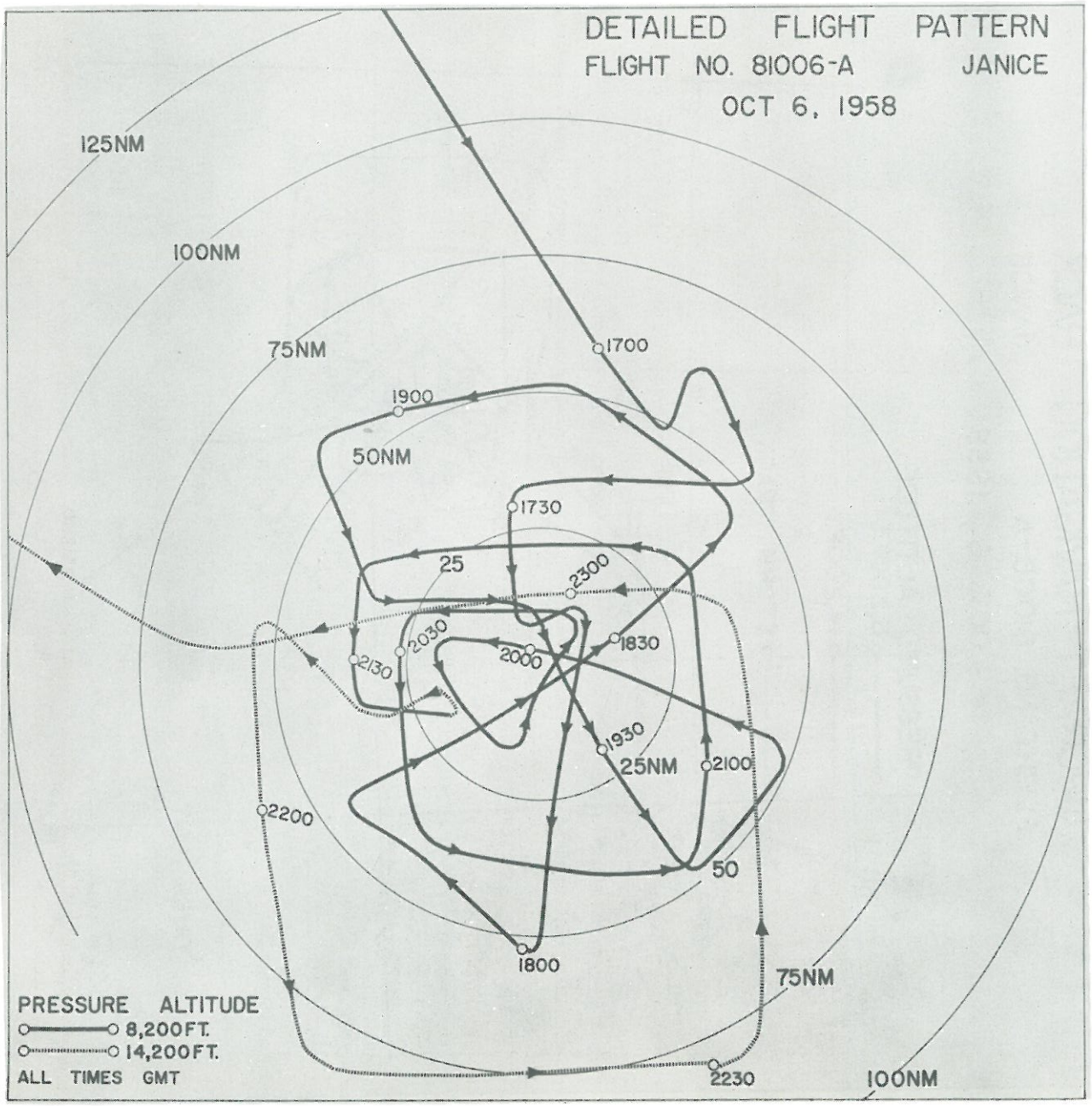
** Humidity missing for intervals of 2 to 3 minutes during calibration.

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 81006-A JANICE

OCT. 6, 1958




DETAILED FLIGHT PATTERN
FLIGHT NO. 81006-A
JANICE
OCT 6, 1958
125NM
100NM
75NM
50NM
25NM
25
50
75NM
100NM
1700
1900
1730
2300
1830
2030
2130
2000
1930
2100
2200
1800
2230
PRESSURE ALTITUDE
8,200FT.
14,200FT.
ALL TIMES GMT

TYPE OF FLIGHT Hurricane JANICE DATE October 6, 1958

FLIGHT NO. 81006C DATA TABULATED FROM 1643
TO 1939

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

15	SEC.	1643-1709	SEC.	
5	SEC.	1709-1731	SEC.	
10	SEC.	1731-1939	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

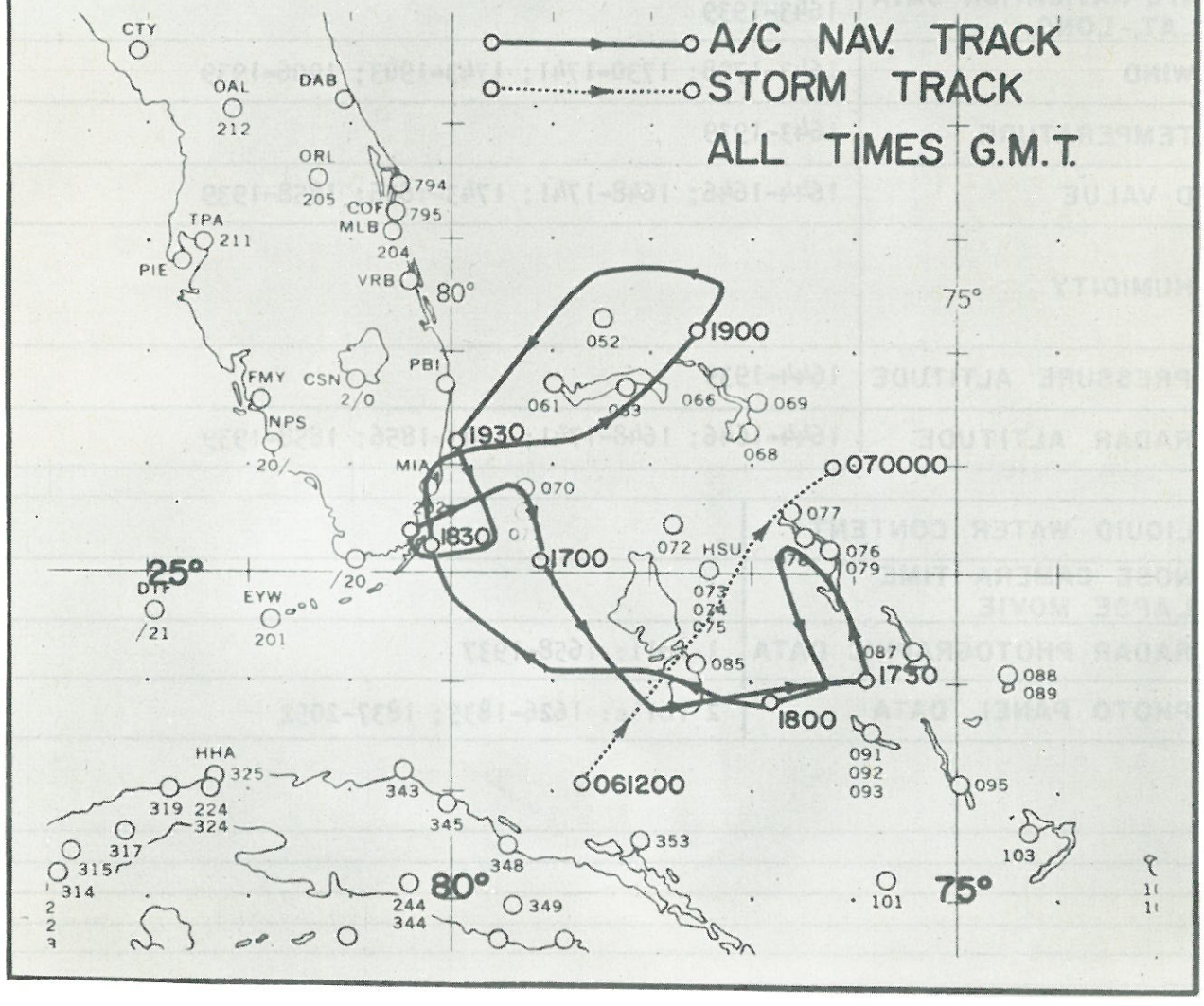
A/C NAVIGATION DATA LAT.-LONG.	1643-1939
WIND	1643-1728; 1730-1741; 1743-1903; 1906-1939
TEMPERATURE	1643-1939
D-VALUE	1644-1646; 1648-1741; 1743-1856; 1858-1939
HUMIDITY	
PRESSURE ALTITUDE	1644-1939
RADAR ALTITUDE	1644-1646; 1648-1741; 1743-1856; 1858-1939

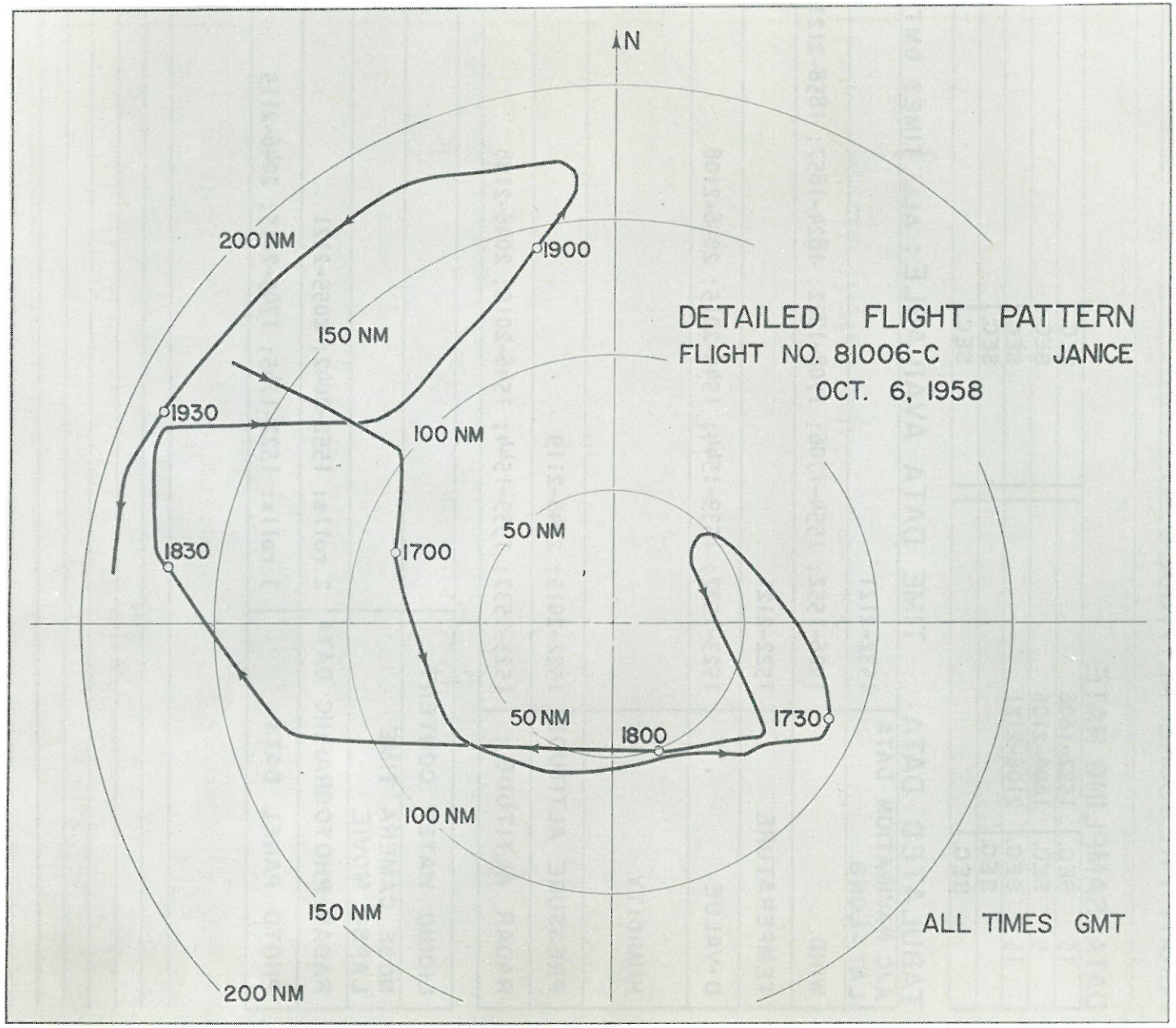
LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll: 1658-1937
PHOTO PANEL DATA	2 rolls: 1626-1835; 1837-2052

AIRCRAFT NAVIGATION TRACK

FLIGHT NO. 81006-C JANICE

OCT. 6, 1958




N
DETAILED FLIGHT PATTERN
FLIGHT NO. 81006-C
JANICE
OCT. 6, 1958
200 NM
150 NM
100 NM
50 NM
50 NM
100 NM
150 NM
200 NM
1900
1930
1830
1700
1800
1730
ALL TIMES GMT

TYPE OF FLIGHT Hurricane JANICE DATE October 7, 1958

FLIGHT NO. 81007C DATA TABULATED FROM 1522
TO 2121

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

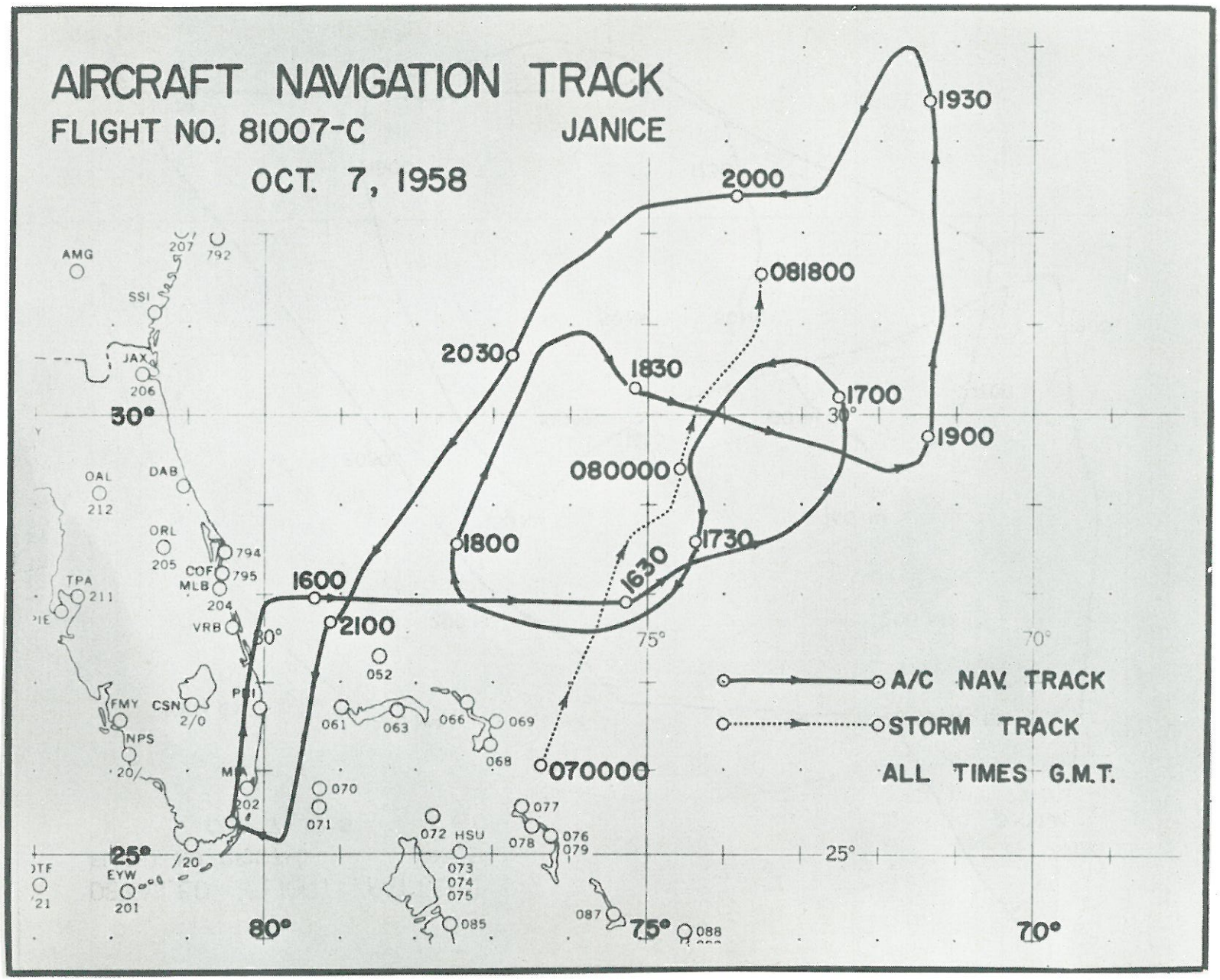
DATA SAMPLING RATE:

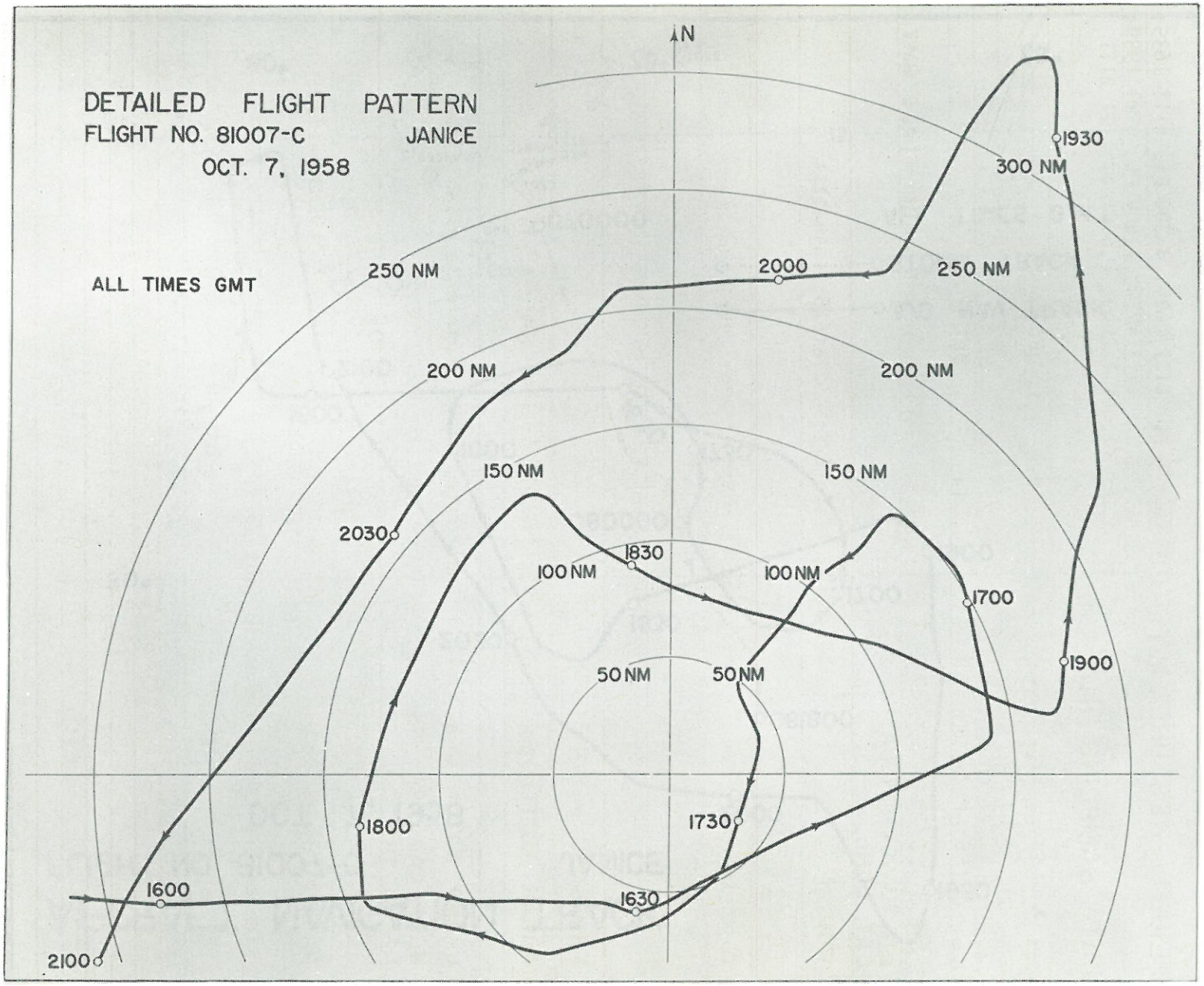
15	SEC.	1522-1606		SEC.	
5	SEC.	1606-2106		SEC.	
15	SEC.	2106-2121		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1532-2121
WIND	1526-1552; 1554-1706; 1708-1822; 1824-1857; 1858-2121
TEMPERATURE	1522-2121
D-VALUE	1523-1537; 1539-1544; 1546-2015; 2046-2108
HUMIDITY	
PRESSURE ALTITUDE	1522-2015; 2046-2119
RADAR ALTITUDE	1523-1537; 1539-1544; 1546-2015; 2046-2108

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls: 1552-2042; 2055-2121
PHOTO PANEL DATA	3 rolls: 1522-1745; 1745-2015; 2046-2119


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 81007-C
JANICE
OCT. 7, 1958
1930
2000
081800
2030
1830
1700
1900
080000
1800
1730
1630
1600
2100
070000
A/C NAV. TRACK
STORM TRACK
ALL TIMES G.M.T.
AMG
SSI
JAX
206
OAL
212
DAB
ORL
205
794
COF
795
MLB
204
TPA
211
VRB
FMY
CSN
2/0
NPS
PBI
MIA
202
EYW
201
052
061
063
066
069
068
070
071
072
HSU
073
074
075
077
078
076
079
085
087
088
30°
25°
80°
75°
70°


DETAILED FLIGHT PATTERN
FLIGHT NO. 81007-C JANICE
OCT. 7, 1958
ALL TIMES GMT
N
300 NM
250 NM
200 NM
150 NM
100 NM
50 NM
1930
2000
2030
1830
1700
1900
1800
1730
1600
1630
2100

TYPE OF FLIGHT Hurricane JANICE DATE October 8, 1958

FLIGHT NO. 81008A DATA TABULATED FROM 1051
TO 2111

FLIGHT PRESSURE ALTITUDE 11,500 Ft. till 1620; 8,200 Ft. till 1635; 11,500 Ft. till 1750; 1,600 Ft. till 1930; 8,200 Ft. till 2045; 1,600 Ft. till 2111

DATA SAMPLING RATE:

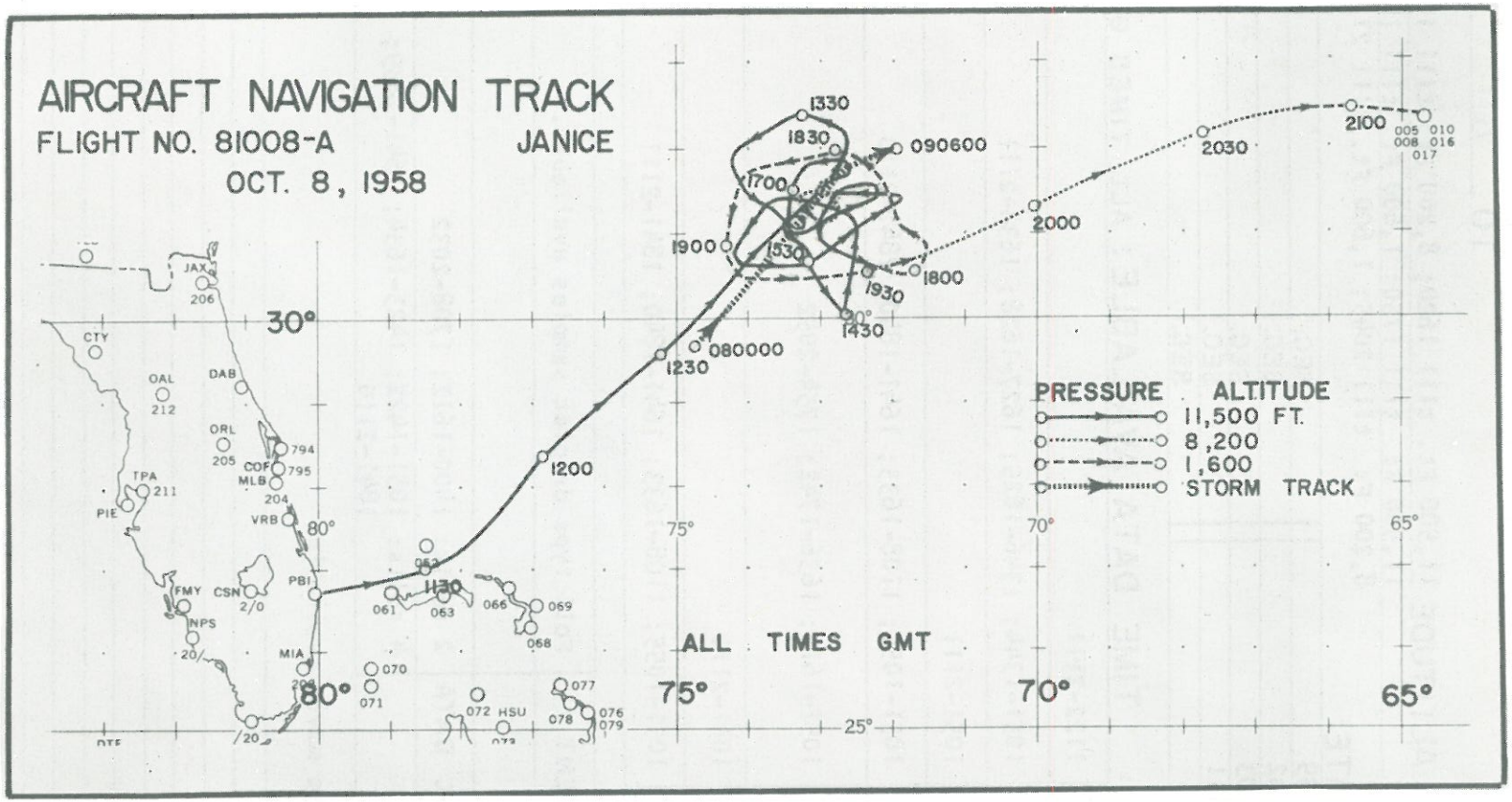
12	SEC.	1051-1139	SEC.	
10	SEC.	1139-1242	SEC.	
5	SEC.	1242-2003	SEC.	
5-6	SEC.	2003-2111	SEC.	
	SEC.		SEC.	

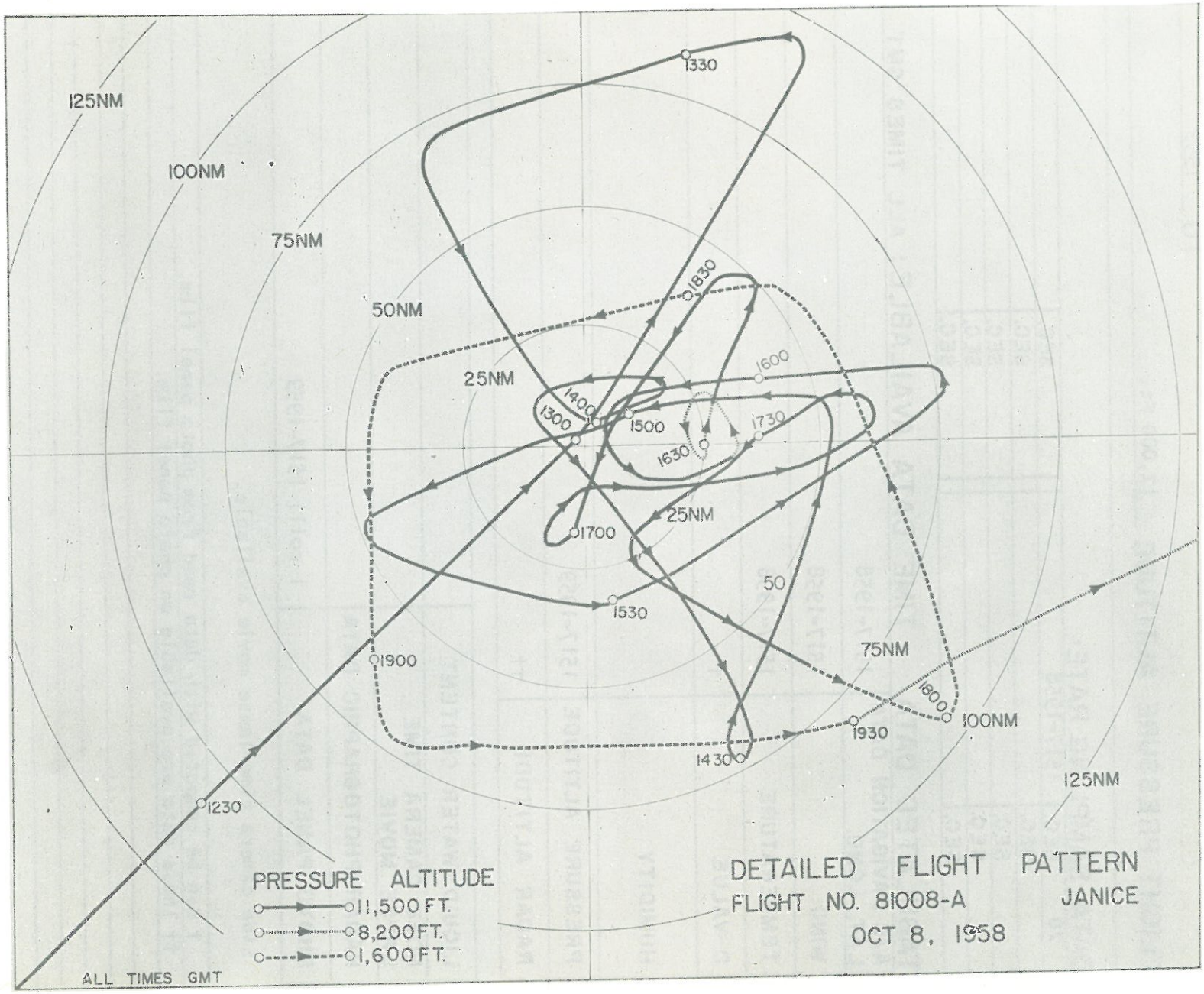
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1122-2111
WIND	1051-1344; 1346-1625; 1627-1628; 1634-2111
TEMPERATURE	1051-2111
D-VALUE	1051-1055; 1108-1633; 1641-1840; 1841-2110
HUMIDITY	1051-1614; 1636-1742; 1754-2052
PRESSURE ALTITUDE	1051-2111
RADAR ALTITUDE	1051-1055; 1108-1633; 1641-1840; 1841-2111

LIQUID WATER CONTENT	Foil type droplet samples available.
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	2 rolls: 1400-1612; 1708-2032
PHOTO PANEL DATA	4 rolls: 1051-1422; 1423-1634; 1641-1839; 1841-2110

Side camera time-lapse movie available.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 81008-A
JANICE
OCT. 8, 1958
PRESSURE ALTITUDE
11,500 FT.
8,200
1,600
STORM TRACK
ALL TIMES GMT
30°
80°
75°
70°
65°
25°
JAX
206
CTY
OAL
212
DAB
ORL
205
794
COF
795
MLB
204
TPA
211
PIE
VRB
PBI
FMY
CSN
2/0
NPS
MIA
HSU
1330
1830
090600
1700
1900
1530
1800
1930
1430
080000
1230
1200
1130
2100
2030
2000
005 010
008 016
017
061
063
066
069
068
070
071
072
077
078
076
079


125NM
100NM
75NM
50NM
25NM
1330
1830
1600
1400
1300
1500
1730
1630
1700
25NM
50
1530
75NM
1900
1800
100NM
1930
1430
125NM
1230
PRESSURE ALTITUDE
11,500 FT.
8,200 FT.
1,600 FT.
ALL TIMES GMT
DETAILED FLIGHT PATTERN
FLIGHT NO. 81008-A
JANICE
OCT 8, 1958

TYPE OF FLIGHT Synoptic DATE October 9, 1958

FLIGHT NO. 81009A DATA TABULATED FROM 1517
TO 1959

FLIGHT PRESSURE ALTITUDE 12,000 Ft.

DATA SAMPLING RATE:

20	SEC.	1517-1958	SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	
	SEC.		SEC.	

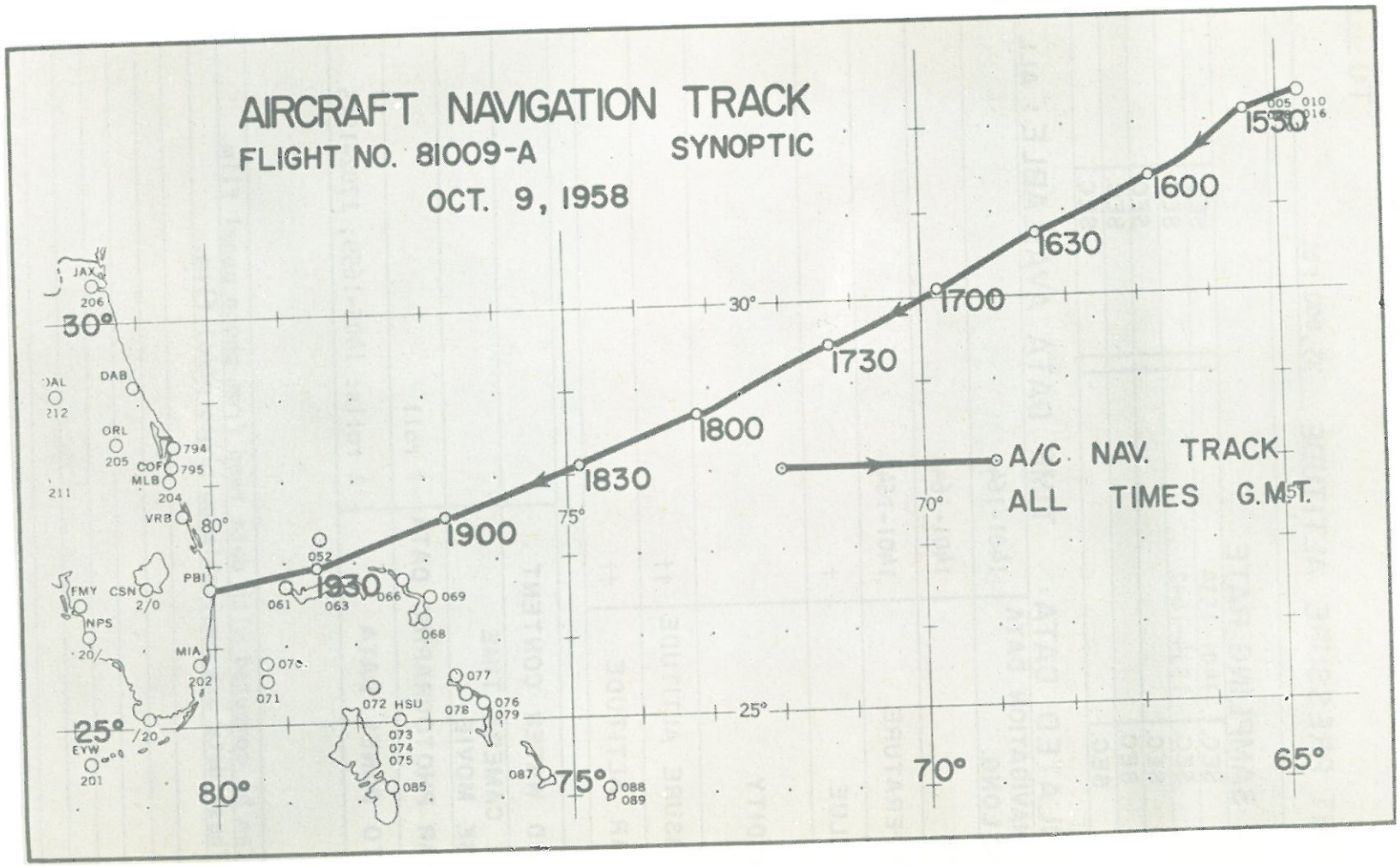
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1517-1958
WIND	1517-1958
TEMPERATURE	1517-1958
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	1517-1959
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	
PHOTO PANEL DATA	1 roll: 1517-1959

Side camera time-lapse movie available.

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 81009-A
SYNOPTIC
OCT. 9, 1958
A/C NAV. TRACK
ALL TIMES G.M.T.
1530
1600
1630
1700
1730
1800
1830
1900
1930
30°
25°
80°
75°
70°
65°
JAX
206
DAB
ORL
205
COF
794
795
MLB
204
VRB
PBI
FMY
CSN
2/0
NPS
MIA
202
EYW
201
052
061
063
066
069
068
070
071
072
HSU
073
074
075
077
076
078
079
085
087
088
089
005
010
016

TYPE OF FLIGHT Hurricane JANICE DATE October 9, 1958

FLIGHT NO. 81009C DATA TABULATED FROM 1401
TO 1641

FLIGHT PRESSURE ALTITUDE 35,000 Ft.

DATA SAMPLING RATE:

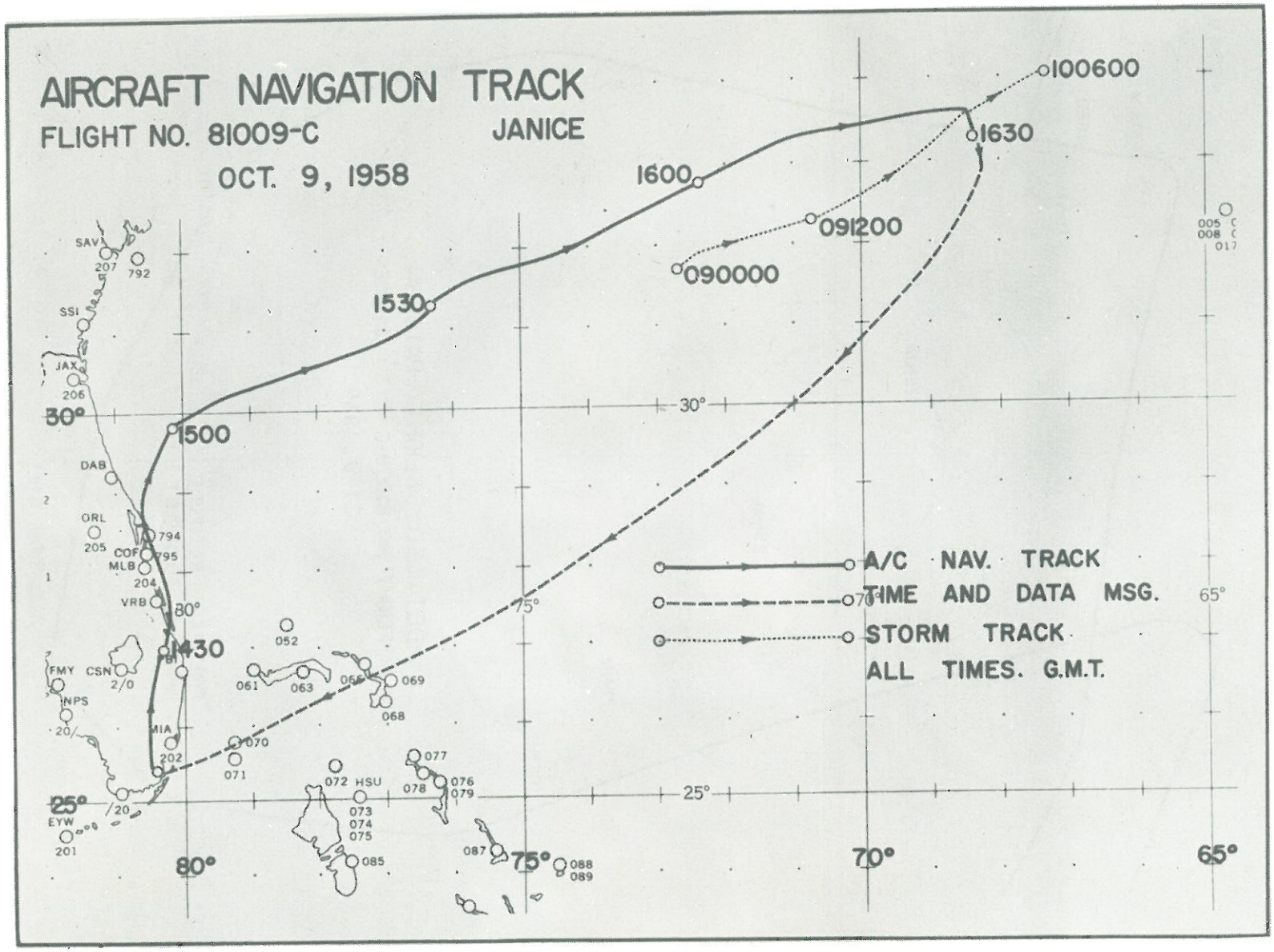
15	SEC.	1401-1534		SEC.	
5	SEC.	1534-1642		SEC.	
	SEC.			SEC.	
	SEC.			SEC.	
	SEC.			SEC.	

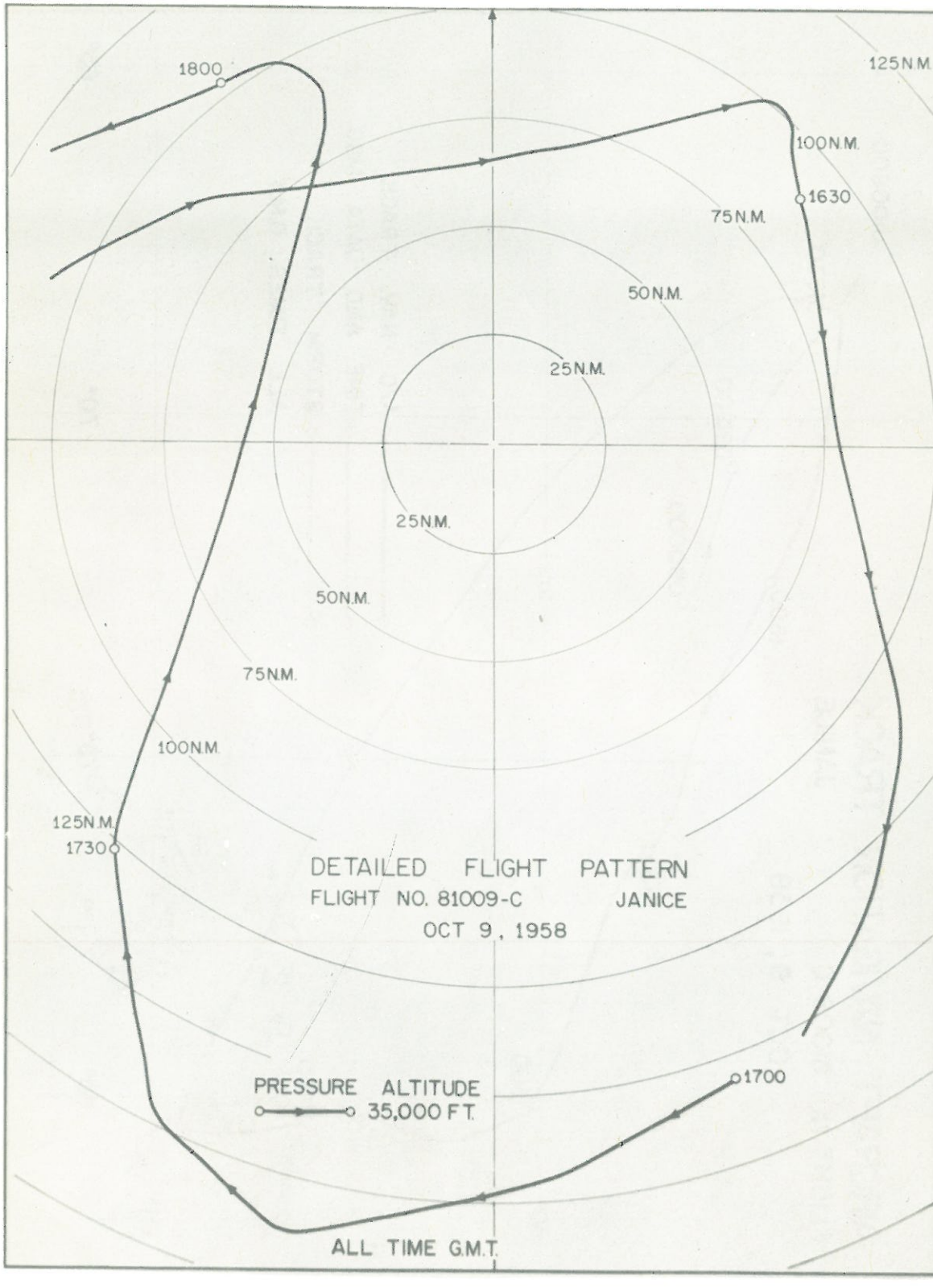
TABULATED DATA: TIME DATA AVAILABLE: ALL TIMES GMT

A/C NAVIGATION DATA LAT.-LONG.	1401-1641
WIND	1401-1641
TEMPERATURE	1401-1641
D-VALUE	†
HUMIDITY	
PRESSURE ALTITUDE	††
RADAR ALTITUDE	††

LIQUID WATER CONTENT	
NOSE CAMERA TIME LAPSE MOVIE	
RADAR PHOTOGRAPHIC DATA	1 roll
PHOTO PANEL DATA	2 rolls: 1405-1659; 1702-1915

† Can be computed with data read from photo panel film.
†† These data are available on photo panel film.


AIRCRAFT NAVIGATION TRACK
FLIGHT NO. 81009-C
JANICE
OCT. 9, 1958
100600
1630
1600
091200
090000
1530
1500
1430
30°
25°
80°
75°
70°
65°
A/C NAV. TRACK
TIME AND DATA MSG.
STORM TRACK
ALL TIMES. G.M.T.
SAV
207
792
SSI
JAX
206
DAB
ORL
205
COF
794
795
MLB
204
VRB
FMY
CSN
2/0
INPS
MIA
202
EYW
201
052
061
063
066
069
068
070
071
072
HSU
073
074
075
077
078
076
079
085
087
088
089


1800
125N.M.
100N.M.
1630
75N.M.
50N.M.
25N.M.
25N.M.
50N.M.
75N.M.
100N.M.
125N.M.
1730
DETAILED FLIGHT PATTERN
FLIGHT NO. 81009-C JANICE
OCT 9, 1958
PRESSURE ALTITUDE
35,000 FT.
1700
ALL TIME G.M.T.

USCOMM-WB-DC

TR 3170 (52)
Hawkins, Christensen, Pearce
INVENTORY, USE, and AVAILABILITY
OF NATIONAL RESEARCH PROJECT METE-
OROLOGICAL DATA GATHERED BY
AIRCRAFT