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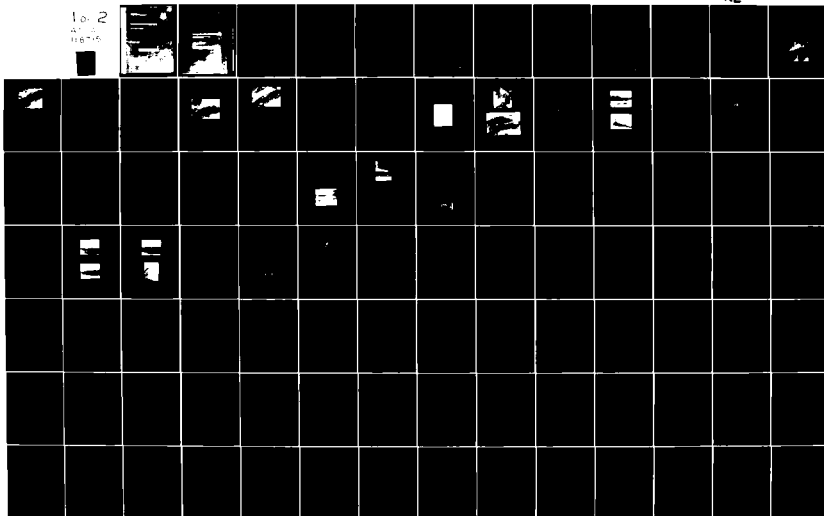
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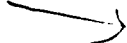
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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The AFGL instrumented MC-130E sampled thin cirrus clouds on 3, 4, and 5 February 1979. In some cases, there was no visible cirrus, but some particles were detected. During this period, the upper air pattern was dominated by southwest to northeast flow, while two surface systems moved from north to south. The first of these left thin cirrus in eastern New Mexico; the second pushed south to the Gulf of Mexico, leaving the cirrus studied on the previous two flights. Most of the particles observed were less than 100 μm . As a rule, the opacity of the cirrus seemed related more closely to the density | | |

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20. Abstract (Continued)

of particles in the 20- to 200- μ m range. On examination the form factor appeared to be higher (indicating more consistent sized particles) in cirrus of nonfrontal origin than in cirrus associated with strong surface weather systems. This report is the last in a series of cirrus particle distribution studies.

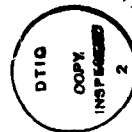
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Preface

This report examines cloud physics data obtained on 3, 4, and 5 February 1979. The flights continue the sequence begun in the previous report in the series.

The author thanks the aircrew of the 4950th Test Wing and the AFGL project crew, consisting of Lt Col Donald J. Varley (Ret), MSgt James F. Bush (Ret), SSgt Dennis L. LaGross, SRA R. L. Ames, and SRA Grant Matsuoka, all of AFGL/LYC at the time of the flights. Dr. Arnold A. Barnes and Mr. Morton Glass reviewed the manuscript and provided many helpful suggestions. Mr. Jim Lally and Mr. Terrance O'Toole of Digital Programming Services, Inc., provided the print-out. Finally, the author thanks Mrs. Patricia Sheehy for typing many versions of the manuscript.



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Cirrus Particle Distribution Study, Part 8

1. INTRODUCTION

This report, the last in a series, describes the flights made by MC-130E S/N 571 during 1978 and 1979 for investigation of tenuous clouds. The aircraft, operated and maintained by the 4950th Test Wing at Wright-Patterson AFB, Ohio, was equipped with cloud physics particle measuring instruments from the Cloud Physics Branch of the Meteorology Division of the Air Force Geophysics Laboratory (AFGL). The flights discussed in this report were conducted for the Air Force Weapons Laboratory (AFWL), in order to provide data on tenuous clouds for the Advanced Radiation Project.

Previous reports in this series have explored cirrus associated with upper level troughs,¹ frontal systems,²⁻⁴ surface storms,⁵ and nonfrontal cirrus.^{6,7} The current report looks at three flights through weak frontal and nonfrontal cirrus of varying consistencies. In addition, two reports^{8,9} explored the Marine Boundary Layer. Thus the series provides a look at a variety of tenuous clouds, both at high levels, and within one thousand feet of the Pacific Ocean.

Equipment on the MC-130E has been described by Varley.¹ The PMS 1-D and 2-D probes, together with other equipment, have been used throughout this program.

(Received for publication 28 October 1981)

Because of the large number of references cited above, they will not be listed here. See references, page 57.

The flights described here occurred on the three days after the last flight (2 February) discussed by Varley, Cohen, and Barnes,⁵ continuing investigation of the type of thin cirrus frequently found over the United States during periods of fair weather. Further, this report will include a look at subvisible cirrus associated with this type of cloud. Barnes¹⁰ and Ohtake et al,¹¹ among others, noted the existence of subvisible cirrus; Cohen and Barnes⁴ noted its existence during previous flights in this series.

The flights of 3 and 4 February departed from and returned to Kirtland AFB, New Mexico. On 3 February, the aircraft examined cirrus associated with a dissipating polar frontal boundary in northeastern New Mexico. This boundary provided the cirrus sampled on 2 February and reported in Part 7 of this series.⁵ On 4 February, the aircraft flew to southeastern New Mexico to sample cirrus formed ahead of an upper air trough. Sampling on 5 February was conducted during a flight from Kirtland AFB to Wright-Patterson AFB, Ohio. The aircraft flew through various types of cirrus resulting, at times, from the flow of air from the Gulf of Mexico above a shallow arctic air mass and, at other times, from upper air convergence.

A discussion of the weather on these three days follows. The data obtained from each flight will then be presented.

2. SYNOPTIC DISCUSSION OF CLOUD PHYSICS DATA 3,4, AND 5 FEBRUARY 1979

On the morning of 3 February, a continental polar high pressure area was centered in Nevada, and a weak ridge extended to a small high in Kansas. The southern boundary of this system was marked by a stationary front. By the time of the flight, this front was dissipating. Figure 1 shows the surface features at 1800Z on 3 February. The portion of the polar front from Arkansas to western Texas was not included on the National Weather Service analysis valid at 1800Z. However, it is included here in order to show the relationship of the dissipating front extending from New Mexico to Nevada and the active front which extended from a low in Ontario to Arkansas. Another outbreak of polar air was moving southward behind the front shown in South Dakota, Wyoming, and Montana. The

10. Barnes, A.A. (1980) Ice Particles in Clear Air, Communications a la VIII^{eme} Conference sur la Physic Des Nuages, Vol I, Clermont-Ferrand, France, 15-19 July 1980, pp 189-190, AFGL-TR-81-0009, AD A094444.
11. Ohtake, T., Jaweera, K.O.L.F., and Sakurai, K. (1978) Formation Mechanism of Ice Crystals in Cloudless Atmosphere, Proceedings of Conference on Cloud Physics and Atmospheric Electricity, Issaquah, Washington, 31 July - 4 August 1978, pp 122-125.

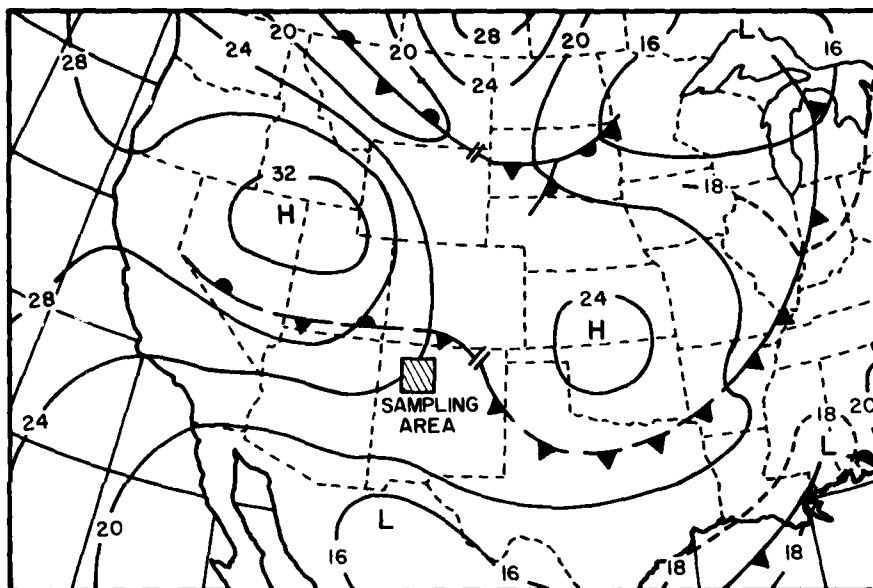


Figure 1. Surface Analysis 1800Z 3 February 1979

upper air pattern can be seen in Figure 2. The deep wave off the coast of Baja, California was to remain the dominant upper air feature throughout the period. A jet stream extended from El Paso, Texas to Little Rock, Arkansas, with maximum 500-mbar winds of 85 kt. As Figure 3 shows, much of the cloudiness in the area was found along the jet stream. Only a small amount of middle cloud remained along the dissipating surface frontal boundary in west Texas. The infrared photograph (Figure 4) shows even more dramatically how the higher clouds followed the jet stream. However, a small band of cirrus does branch off along the frontal boundary from Texas into northeastern New Mexico. This was the cirrus sampled by the flight of 3 February. A thin moist layer between 6 and 7 km on the Albuquerque sounding (Figure 5) and a thicker layer on the El Paso sounding (Figure 6) show the location of the cirrus layer. It was neither pure jet stream cirrus, nor purely frontal cirrus, but rather represented a combination of the two types of cloud. During the next 24 hours, the frontal boundary in west Texas continued to weaken and the previously mentioned front in South Dakota, Wyoming, and Montana became the dominant system. As Figure 7 shows, this front moved southeastward until by 2100Z it extended to Oklahoma, bringing with it a fresh outbreak of polar air. Comparison of Figures 8 and 9 with Figure 2 shows that the upper air pattern remained similar to that of 3 February. Although the jet stream had moved northward, the flow was still from the southwest to the northeast.

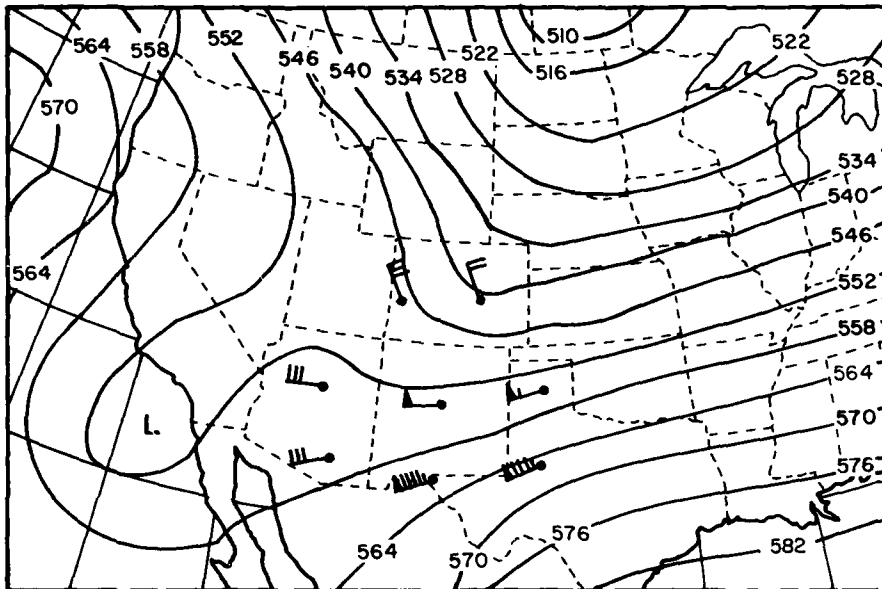


Figure 2. 500-Millibar Analysis 1200Z 3 February 1979

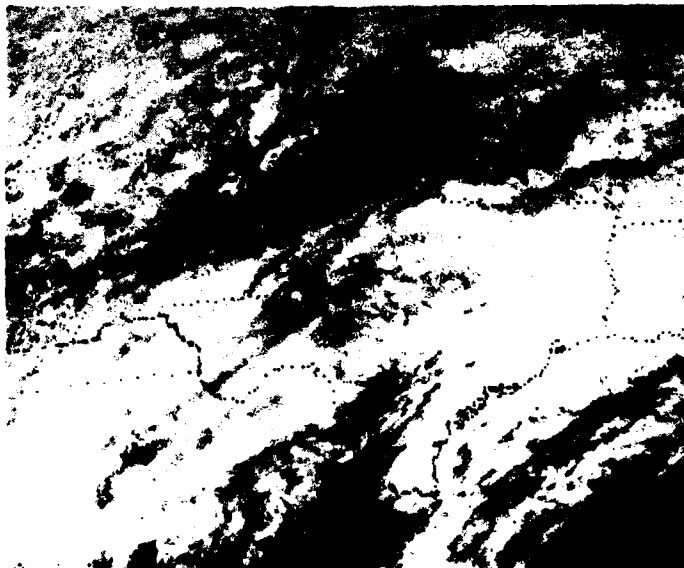


Figure 3. GOES East Visible Satellite Photo 1900Z 3 February 1979

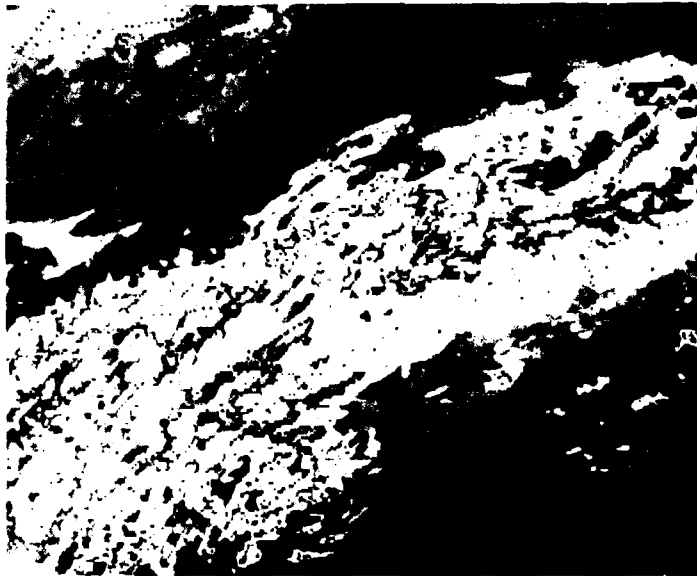


Figure 4. GOES East Infrared Satellite Photo 1930Z 3 February 1979

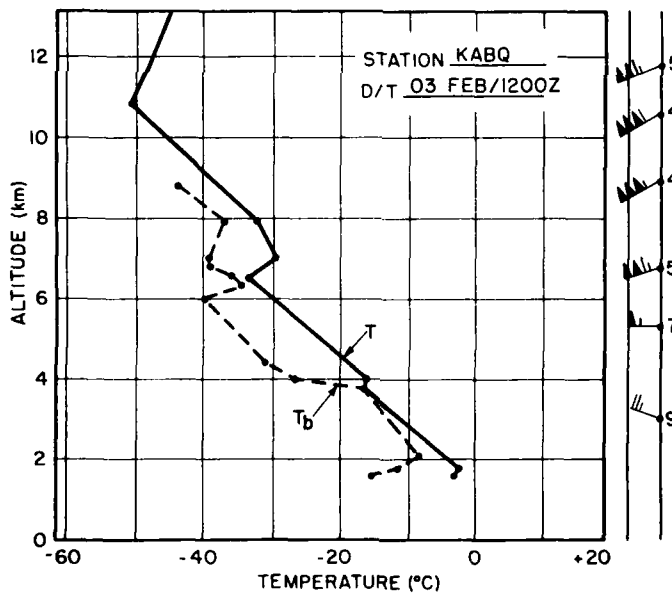


Figure 5. Albuquerque Sounding 1200Z 3 February 1979

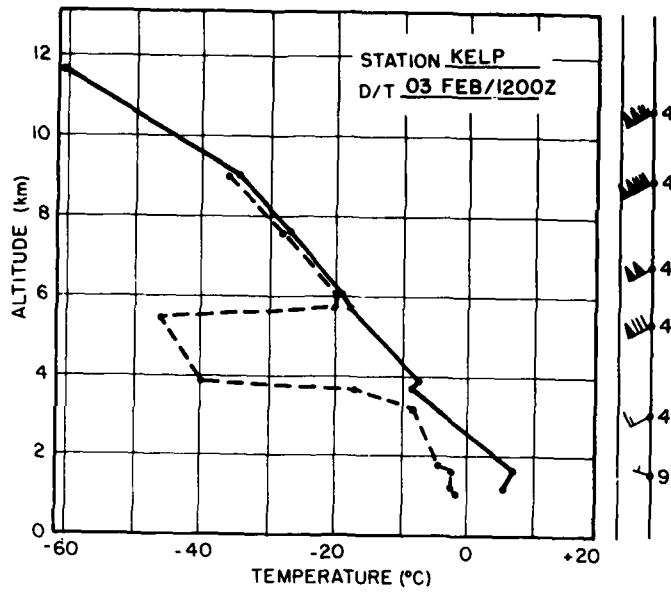


Figure 6. El Paso Sounding 1200Z 3 February 1979

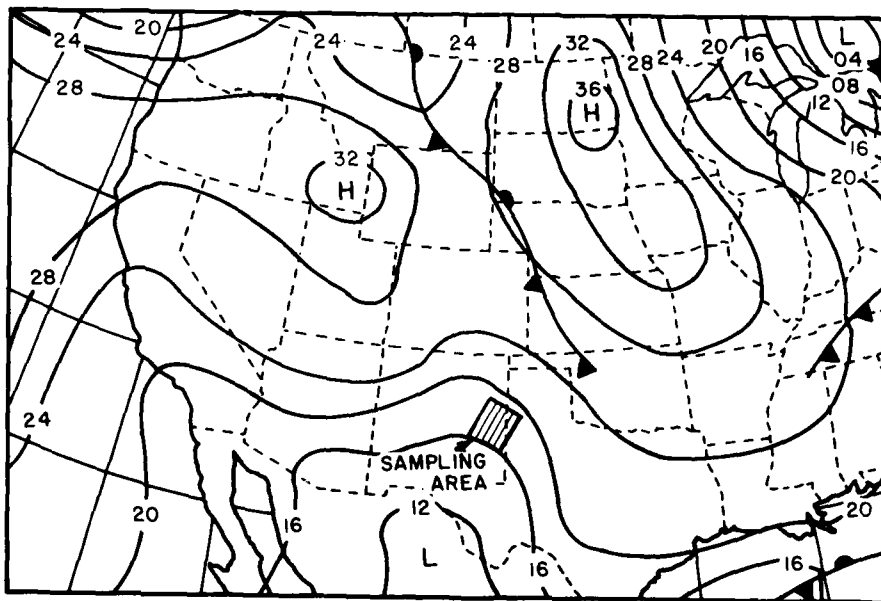


Figure 7. Surface Analysis 2100Z 4 February 1979

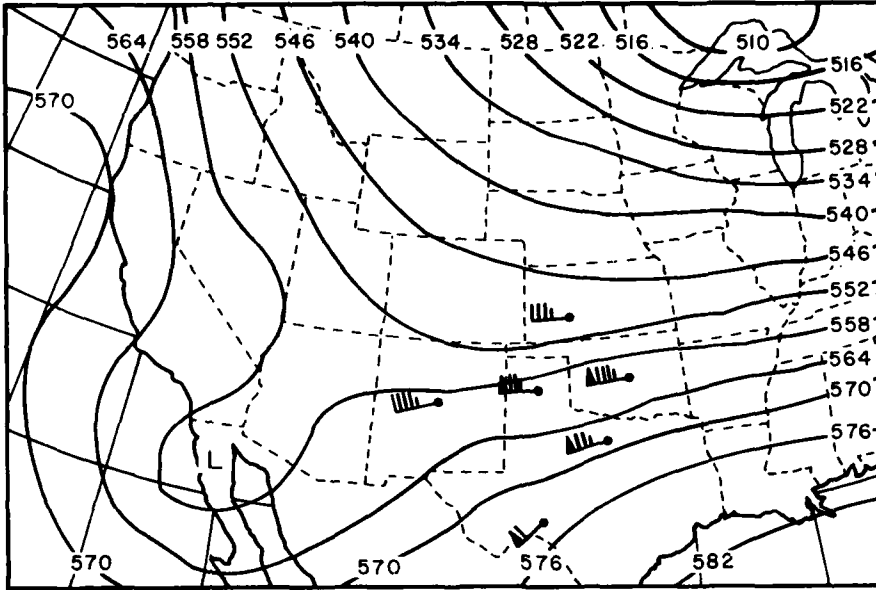


Figure 8. 500-Millibar Analysis 1200Z 4 February 1979

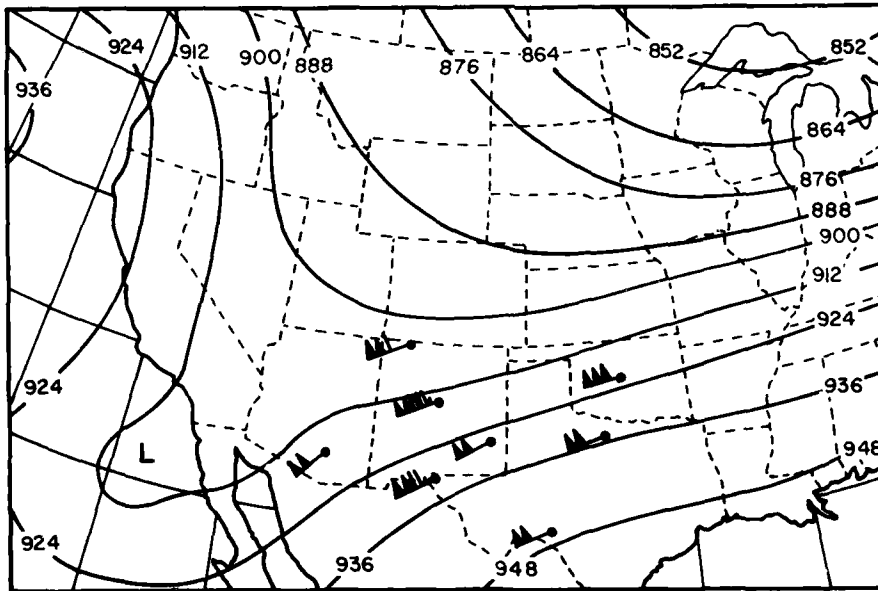


Figure 9. 300-Millibar Analysis 1200Z 4 February 1979

Extensive cloud cover existed along the jet stream from southeastern New Mexico to southern Missouri (Figure 10). However, no cirrus remained in northeastern New Mexico; therefore the aircraft flew in the cirrus band south of the jet stream. As the infrared photo in Figure 11 shows, this band of cirrus is clearly defined, and thus much more strongly associated with the jet stream than with the front. Only a few low clouds reveal the presence of the surface front (Figure 7) in western Kansas and Nebraska.

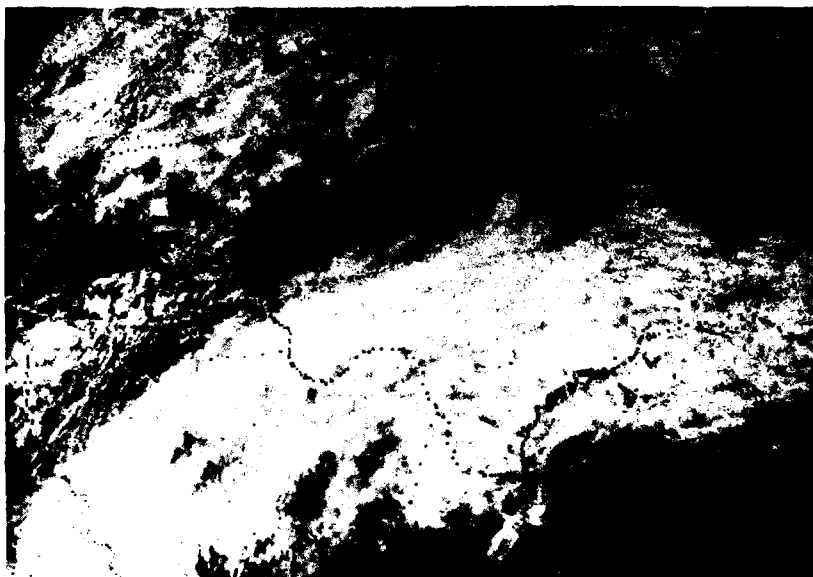


Figure 10. GOES East Visible Satellite Photo 2000Z 4 February 1979

The lack of wind shifts of over 20 degrees and the disappearance of the frontal inversion in the Albuquerque (Figure 12) and El Paso (Figure 13) soundings by 1200Z on 4 February indicate that the front had passed through the area. The polar high continued to push southward, and by 1800Z on 5 February, the polar air had moved south to the Gulf of Mexico. A weak boundary remained in western Kansas and Nebraska, but the main frontal activity was now in the Gulf of Mexico, as shown in Figure 14. Although the jet streams at 500 mbar and 300 mbar (Figures 15 and 16) were more diffuse, there was a strong flow from the west-southwest across the southern United States. The wave over the southwest had begun to weaken, but it still was a strong feature which influenced the circulation over the southwestern United States. The cloud pattern reflects the circulation

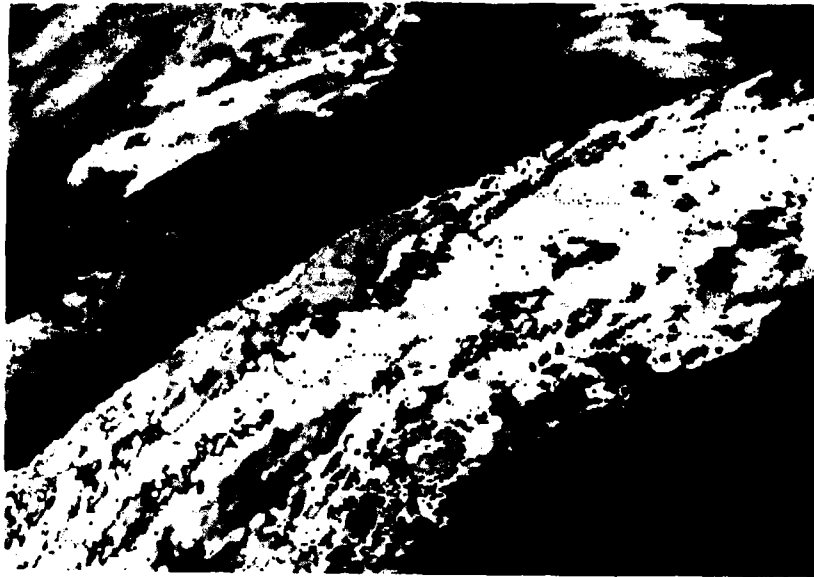


Figure 11. GOES East Infrared Satellite Photo 2030Z 4 February 1979

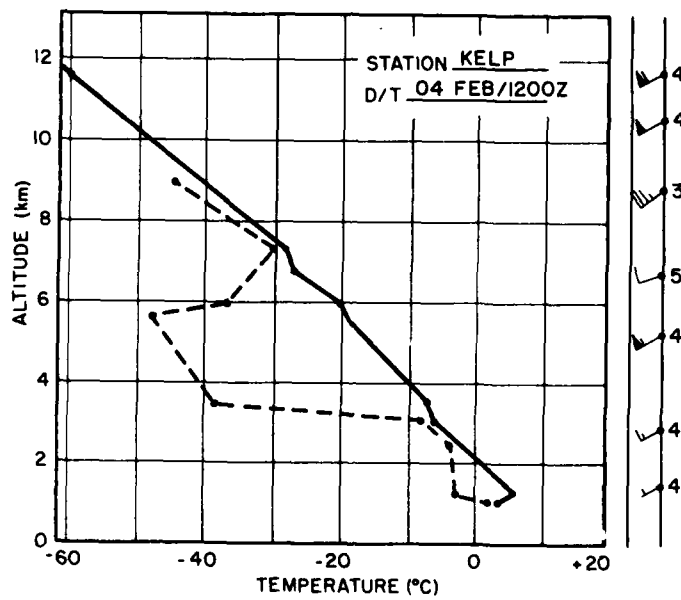


Figure 12. Albuquerque Sounding 1200Z 4 February 1979

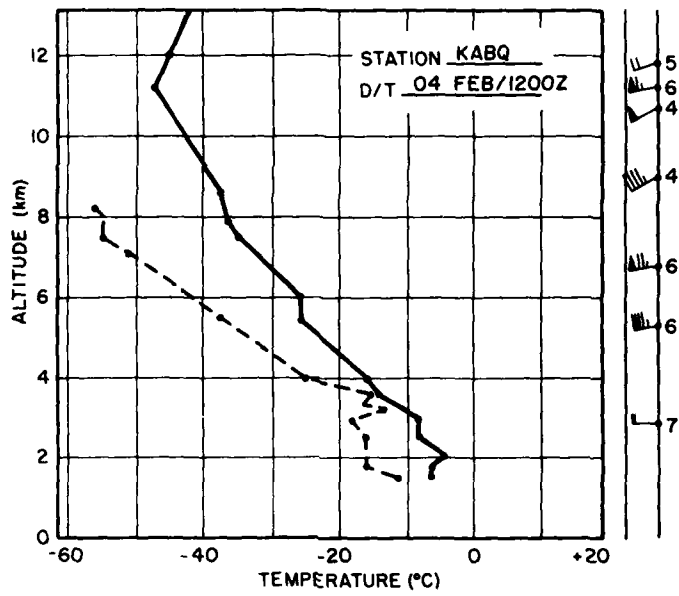


Figure 13. F1 Paso Sounding 1200Z 4 February 1979

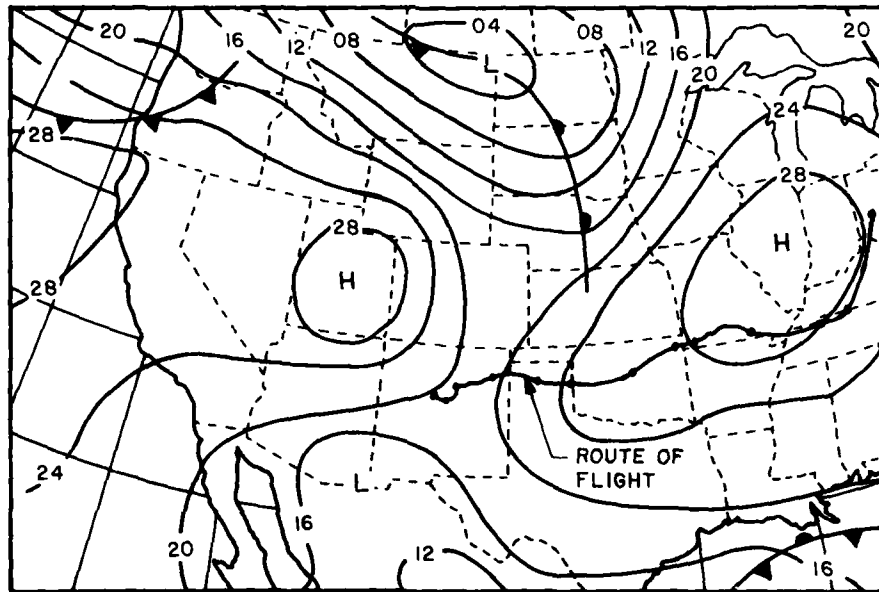


Figure 14. Surface Analysis 1800Z 5 February 1979

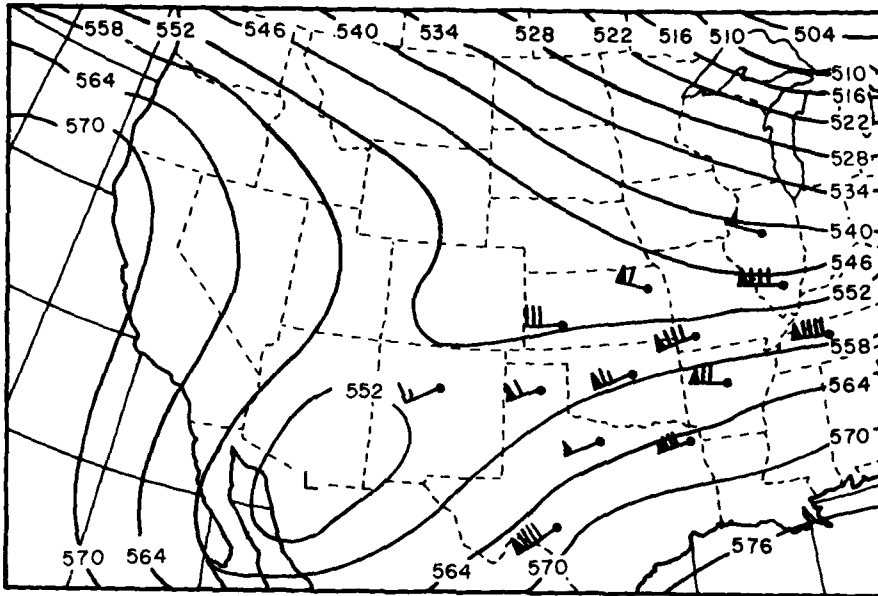


Figure 15. 500-Millibar Analysis 1200Z 5 February 1979

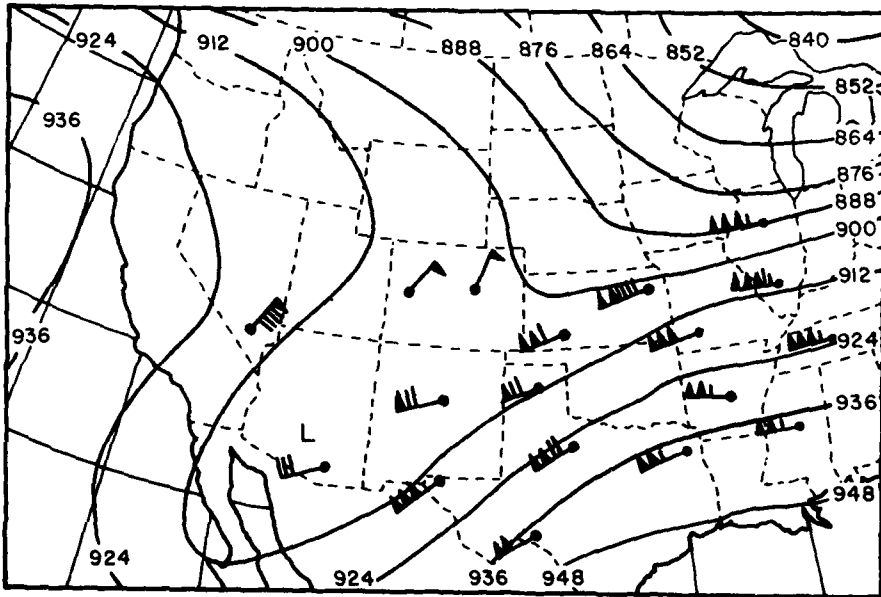


Figure 16. 300-Millibar Analysis 1200Z 5 February 1979

around this trough (Figure 17). The corresponding infrared photo (Figure 18) shows that the higher clouds were clearly influenced by this circulation. No GOES-East pictures were received, but a synchronous meteorological satellite (SMS-1) visible photo is presented in Figure 19. No rawinsonde data were available. The thick band of clouds in the southeastern United States was caused by overrunning of the warm front in the Gulf of Mexico; however, the strong winds aloft are reflected in the distinct northern edge of the cloud pattern. The path of the MC-130E during its flight on 5 February followed the northern edge of this cloud shield. Thus much of the cirrus sampled during this third and final flight represents the northern edge of the cloud shield caused by a stationary front. The aircraft flew from Kirtland AFB to Wright-Patterson AFB, following a route from Kirtland AFB to Oklahoma City, Oklahoma and Nashville, Tennessee, before proceeding to Wright-Patterson.



Figure 17. GOES West Visible Satellite Photo
1515Z 5 February 1979

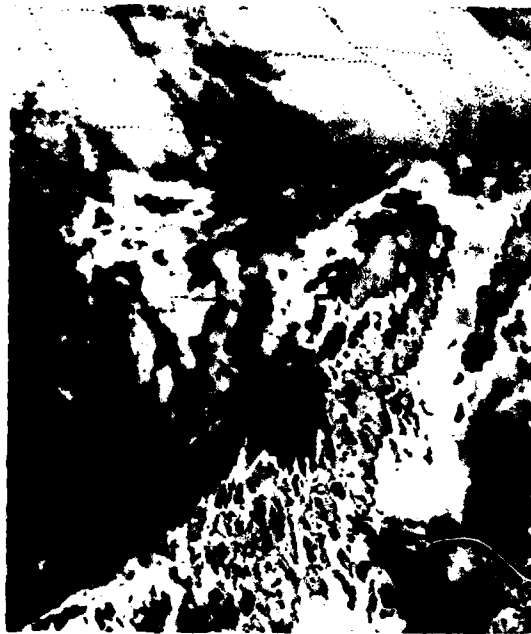


Figure 18. GOES West Infrared Satellite
Photo 1445Z 5 February 1979

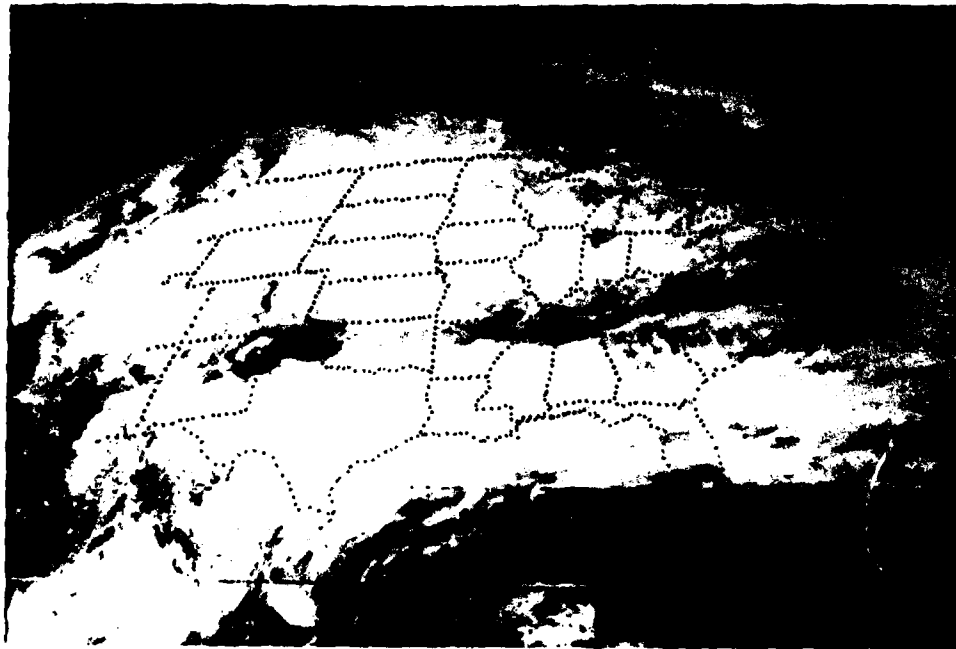


Figure 19. SMS-1 Satellite Photo 1930Z 5 February 1979

3. THE FLIGHT OF 3 FEBRUARY 1979

Leaving Kirtland AFB at 1804Z, the aircraft flew to an area northwest of Albuquerque at approximately 450 mbar (21,700 ft, 6.6 km). The track of the flight, mainly in thin cirrus, is shown in Figure 20. The horizon was rarely obscured, but filaments of cirrus almost invariably surrounded the plane. This is corroborated by the nose camera film and the Mission Director's notes. Figures 21 and 22 show the type of cirrus that predominated throughout the flight. The cirrostratus shown in Figure 21 (1905Z) was one of the few solid patches of cloud penetrated by the aircraft.

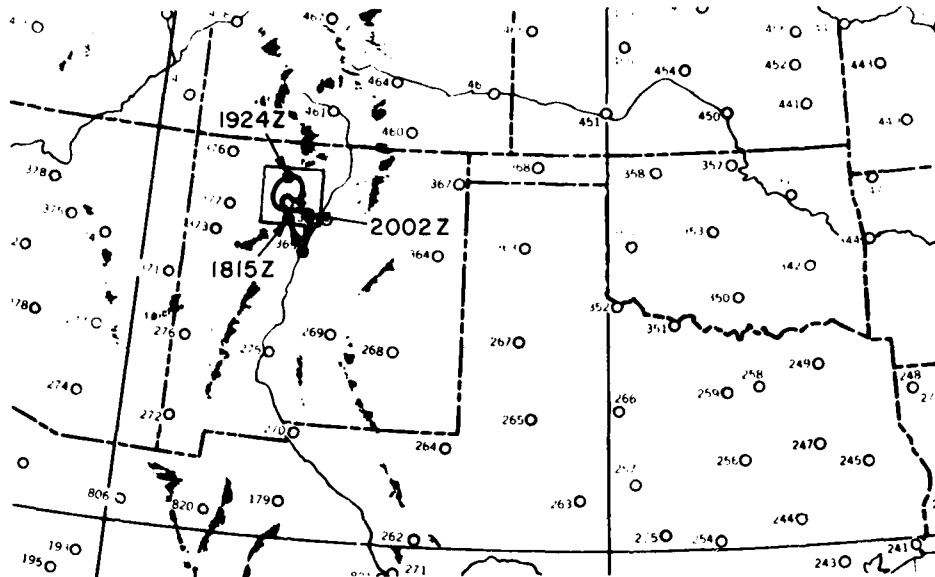


Figure 20. Track and Sampling Area of the 3 February 1979 Flight

3.1 Data Variations During the Flight

Figure 23 shows the altitude, temperature, cloud conditions, liquid water content (LWC), medium volume diameter (D_0), and particle density (NT) sensed by the airplane during the flight of 3 February. The nose camera film and the Mission Director's notes concur that the airplane was in or near thin cirrus clouds throughout the greater part of the flight. The liquid water content frequently approached 10^{-2} g m^{-3} , but the largest value recorded in Figure 23 is within half of an order



Figure 21. Cirrus Encountered at 1905Z on 3 February 1979

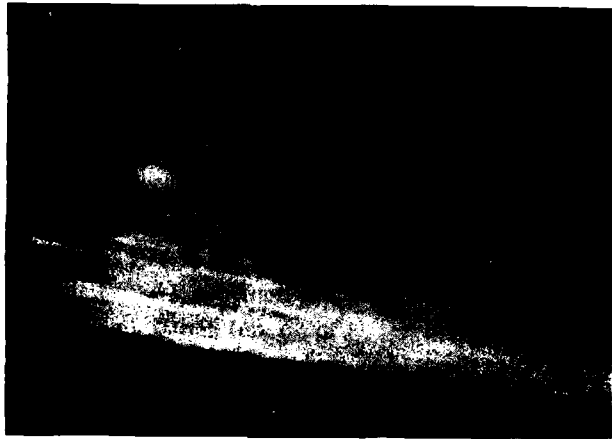


Figure 22. Cirrus Wisps Seen During the 3 February Flight

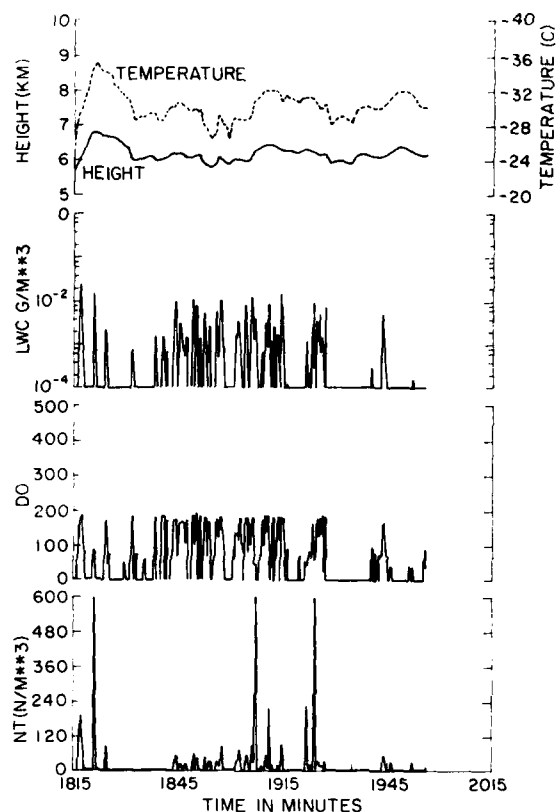


Figure 23. Altitude, Temperature, Liquid Water Content, Median Volume Diameter, and Number Density vs Time on 3 February 1979

of magnitude above this value. The median volume diameter approached $200 \mu\text{m}$ frequently, but never exceeded this value. Thus the cirrus observed was quite uniform, consistent both in particle size and liquid water content. Most of the particles recorded were in the scatter (2 to $30 \mu\text{m}$) and cloud probe (30 to $300 \mu\text{m}$) range. Only rarely were particles observed in the larger precipitation probe range (300 to $4500 \mu\text{m}$). Since the "total" values displayed here represent the sum of the cloud and precipitation probes, and since the precipitation probe recorded very few particles, the figure mainly reflects cloud probe data.

The form factor provides a measure of consistency of particle sizes in a given particle distribution. Varley¹² used it in the investigation of large scale storms. The maximum value of the form factor is 1, indicating that all of the particles in

12. Varley, D. J. (1980) *Microphysical Properties of a Large Scale Cloud System, 1-3 March 1978*, Environmental Research Papers, No. 690, AFGL-TR-80-0002, ADA 083140, 100 pp.

the sample fall into the same size category; a low value indicates a distribution with particles of many sizes. Figure 24 shows the form factor as a function of time on this flight. Whenever the aircraft was actually in clouds, the form factor was unusually high, frequently reaching values of 0.8 or 0.9, indicating that the particles were of a uniform size. Figure 24 shows many instances when the form factor was zero, but very few instances between 0.01 and 0.50. The zero form factors represent times when no particles were counted. As a rule, the cirrus observed on this flight, both visible and subvisible, shared a consistency of particle size and type.

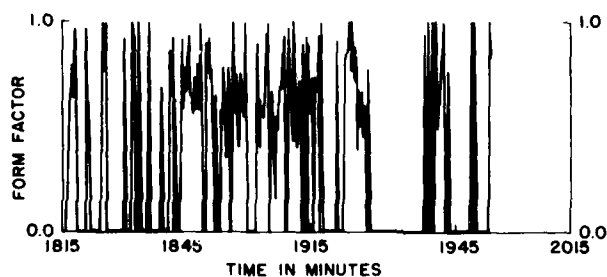


Figure 24. Form Factor vs Time on 3 February

To reiterate, the cirrus sampled on this mission was, in general, uniform, but thin. Particle size and liquid water content showed comparatively little variance, and the high form factors indicate that at a given time, the cirrus consisted of particles of approximately the same size.

Fifteen-second averages of data obtained on this flight, together with observations of the Mission Director, are presented in Appendix A.

3.2 Data for Particular Passes

Four 5-min periods have been selected for closer study. The first corresponds to a time during which neither the nose camera film, nor the Mission Director's report indicated the existence of cirrus. Nevertheless, particles were observed. The other three correspond to times when liquid water content (LWC), median particle size (DO), and particle density (or number total, NT) were high. These periods will now be discussed in more detail.

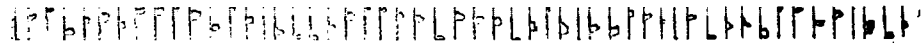
1. During the period from 1837 to 1842Z, the airplane appeared to be in clear air. There was considerable activity, however, as seen in Figure 25. Both

the axial scattering spectrometer probe and the cloud probe registered counts in most channels. There was a small number of particles in the 30- to 100- μm size range, but an increased number of particles between 100- and 350- μm size. Although much of the 2-D data were not usable, the sample offers a good idea of the uniformity of crystal size that the 1-D system shared. Cohen and Barnes⁴ noted an occurrence of particles in clear air during the flight of 5 April 1978. In that case and also in this, there were particles in a larger size range, but a lack of particles in the cloud probe range. As noted in that report, it is possible that the smaller particles were either evaporated or absorbed by the larger ones. A similar mechanism may have been operating at this time. There were cirrus clouds in the area, but none in the immediate vicinity of the airplane. Varley, Cohen, and Barnes⁵ noted that the Mission Director's observations of cirrus seemed more closely correlated to the density of particles than to either particle size or liquid water content. In this case, the density was the smallest of any of the cases examined on this flight; also there was the smallest LWC value. Although the median volume diameter is large, this is due to the lack of small particles rather than an increase in over-all particle size. Therefore, while it is tempting to say that this observation confirms that of the earlier report, no such definitive statement can be made at this time. It is, however, evident that a large variety of sizes and types of particles may be present without producing a visible cloud.

2. Figure 26 examines a period of time which followed closely that seen in Figure 25. At this time (1845 to 1850Z), however, both the Mission Director and the nose camera film observed clouds. Only the first channel of the precipitation probe reported any particles, but in this case there were many particles in the 30- to 100- μm portion of the cloud probe range. No precipitation probe data are recorded on the plot shown in Figure 26, since the program used to generate these data ignores the first channel of the precipitation probe if the second channel of that probe is zero. The particle density reported by the cloud probe increased by almost an order of magnitude in roughly 20 km. The LWC also increased sharply; in this case, by a factor of 7. As supported by 2-D data most of the particles observed were small snow and bullet rosettes. As in the previous example, the size of the particles remained quite uniform, confirming the large form factors observed.

3. During the period from 1904 to 1909Z, some of the thickest clouds observed on this flight were encountered. Although still thin when compared to cirrus of other flights, these clouds briefly obscured the horizon. As the 2-D data in Figure 27 show, there was a greater variety of particle shapes and sizes. The form factor of 0.33 confirms this. Again, there was an increase of particle density and liquid water content as compared to previous periods. Since all channels of the cloud probe, as well as the first two of the precipitation probe, reported

REPRESENTATIVE PMS
2-D CLOUD PROBE
SHADOWGRAPHS



AFWL CIRRUS STUDY BY AFOL
FLIGHT E79-11 ON 03 FEB 79 301 SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL START: 18:45:00

28

| PARTICLE SIZE DISTRIBUTIONS (NUMBER/M ³ -MM) | | | | | | PRESS (MB) |
|---|---------------|-----------|-------------|-----------|--------------|-----------------------|
| SIZE (MU) | SCATTER PROBE | SIZE (MU) | CLOUD PROBE | SIZE (MU) | PRECIP PROBE | 475.56 |
| 2 | 2.44E+05 | 26 | 0. | 413 | 1.00E+00 | ALT (KM) |
| 4 | 6.81E+05 | 47 | 5.82E+03 | 444 | 0. | 5.94 |
| 6 | 1.96E+06 | 67 | 4.38E+03 | 923 | 0. | T -30.65C |
| 8 | 2.48E+06 | 87 | 2.27E+03 | 1202 | 0. | FPT -30.0C |
| 10 | 2.30E+06 | 108 | 6.74E+02 | 1481 | 0. | TAS (M/S) |
| 12 | 2.39E+06 | 128 | 1.30E+03 | 1760 | 0. | 96.98 |
| 14 | 2.20E+06 | 148 | 2.32E+03 | 2039 | 0. | Z 1.40E-03 |
| 16 | 1.66E+06 | 169 | 2.98E+03 | 2318 | 0. | FORM F .76 |
| 18 | 1.70E+06 | 189 | 3.66E+03 | 2597 | 0. | |
| 20 | 1.62E+06 | 209 | 5.16E+03 | 2876 | 0. | |
| 22 | 1.02E+06 | 230 | 5.12E+03 | 3155 | 0. | |
| 24 | 1.25E+06 | 250 | 4.78E+03 | 3434 | 0. | |
| 26 | 1.31E+06 | 271 | 4.36E+03 | 3713 | 0. | |
| 28 | 1.02E+06 | 291 | 3.97E+03 | 3992 | 0. | NT(N/M ³) |
| 30 | 6.04E+05 | 311 | 3.62E+03 | 4271 | 0. | 1.0271E+03 |
| TOTALS | | | | | | |
| LWC | 1.37E-04 | | 4.93E-04 | | 6.20E-07 | 4.93E-04 |
| ICE R | 24 | | 116 | | 181 | 116 |

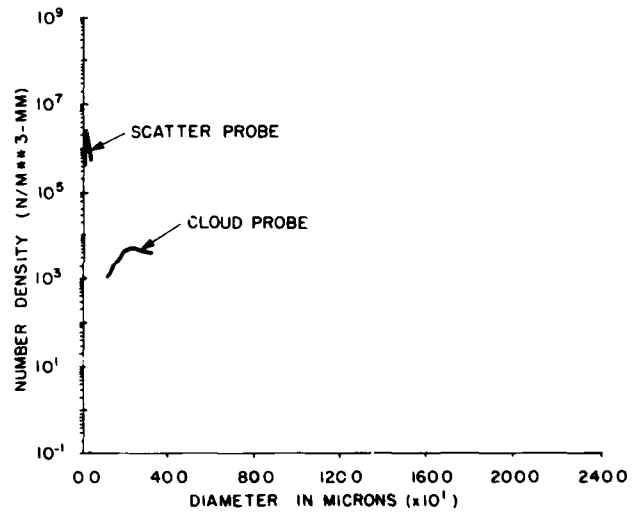


Figure 26. Particle Distribution: 3 February 1845-1850Z

data, the totals in Figure 27 reflect both. In spite of the addition of the precipitation probe data, the median volume diameter was lower than for either of the previous periods, owing to an increase in the number of smaller particles. The first two channels of the cloud probe registered over 10^5 particles per cubic meter, as against 10^3 in the earlier periods. This increase in particles may have caused the apparent thickness of clouds.

4. Figure 28 shows data from 1921 to 1926Z. During this time, the clouds were more uniform than in the previous period, but they never did achieve the opacity observed earlier. Liquid water content and density have increased but slightly over the last period. Most of the increase in density is attributed to an increase in particles in channels 3 to 10 (60 to 230 μm) of the cloud probe. The greater number of smaller particles can be seen in the 2-D data also. The median volume diameter (74 μm) for this period is smaller than that for any other period in this flight. Thus in this case, an increase in density did not lead to an increase in opacity; rather, it represented a more uniform texture.

4. THE FLIGHT OF 4 FEBRUARY 1979

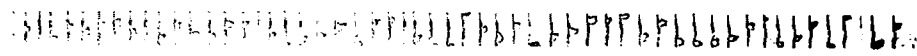
On 4 February 1979, the aircraft left Kirtland AFB at 2006Z. This flight examined a band of cirrus southeast of Albuquerque (see Figure 29 for area). The greater part of the flight took place near the 300-mbar surface (about 9 km), although the final part approached the 500-mbar level (5.5 km).

As noted earlier, there were no surface systems in the area. Therefore, the cirrus was more clearly delineated. During some periods, the aircraft was in solid thin cirrus, while at other times, the air was unusually clear. As Figures 30 and 31 show, the clouds had definite shapes. Much of the cirrus was above the aircraft; in some cases, fall-out from the higher clouds was also present.

4.1 Data Variations During the Flight

Figure 32 shows the height, temperature, LWC, DO, and NT values observed during the 4 February flight. There were several periods during which LWC, DO, and NT values were minimal; frequently, even the ASSP showed no data. From 2132 to 2156Z, the aircraft was in clear air below a solid deck of cirrostratus. Some fall-out observed early in this period will be examined in the next section. At other times, correlations between the visible cloud and the LWC, DO, and NT data were in good agreement.

REPRESENTATIVE PMS
2-D CLOUD PROBE
SHADOWGRAPHS



AFWL CIRRUS STUDY BY AFBL
FLIGHT E79-11 ON 03 FEB 79 301 SECOND AVERAGING
TYPE: BULL-ROBE INTERVAL START: 19:21:00

31

| PARTICLE SIZE DISTRIBUTIONS (NUMBER/M ³ -MM) | | | | | | PRESS (MB) |
|---|----------|------|----------|------|----------|-------------|
| SIZE | SCATTER | SIZE | CLOUD | SIZE | PRECIP | 469.95 |
| (MU) | PROBE | (MU) | PROBE | (MU) | PROBE | ALT (KN) |
| 2 | 7.03E+06 | 26 | 1.90E+05 | 413 | 2.00E+02 | 6.03 |
| 4 | 1.47E+07 | 47 | 1.02E+05 | 644 | 3.24E-01 | |
| 6 | 3.13E+06 | 67 | 1.09E+05 | 923 | 0. | T -31.32C |
| 8 | 4.24E+06 | 87 | 6.64E+04 | 1202 | 0. | |
| 10 | 3.51E+06 | 108 | 4.04E+04 | 1481 | 0. | FPT -29.5C |
| 12 | 5.29E+06 | 128 | 2.68E+04 | 1740 | 0. | |
| 14 | 3.07E+06 | 148 | 1.19E+04 | 2039 | 0. | TAS (K/S) |
| 16 | 4.71E+06 | 169 | 9.63E+03 | 2318 | 0. | 94.74 |
| 18 | 4.04E+06 | 189 | 6.80E+03 | 2597 | 0. | |
| 20 | 4.86E+06 | 209 | 4.65E+03 | 2876 | 0. | I 2.26E-03 |
| 22 | 4.41E+06 | 230 | 4.14E+03 | 3155 | 0. | |
| 24 | 4.49E+06 | 250 | 2.77E+03 | 3434 | 0. | FORM F .39 |
| 26 | 3.59E+06 | 271 | 2.81E+03 | 3713 | 0. | |
| 28 | 3.40E+06 | 291 | 2.85E+03 | 3992 | 0. | HT(M/M*0.3) |
| 30 | 2.00E+06 | 311 | 1.82E+03 | 4271 | 0. | 9.6426E+03 |
| | | | | | | TOTALS |
| LWC | 4.41E-04 | | 8.44E-04 | | 9.57E-05 | 7.60E-04 |
| MEAN D | 24 | | 67 | | 181 | 74 |

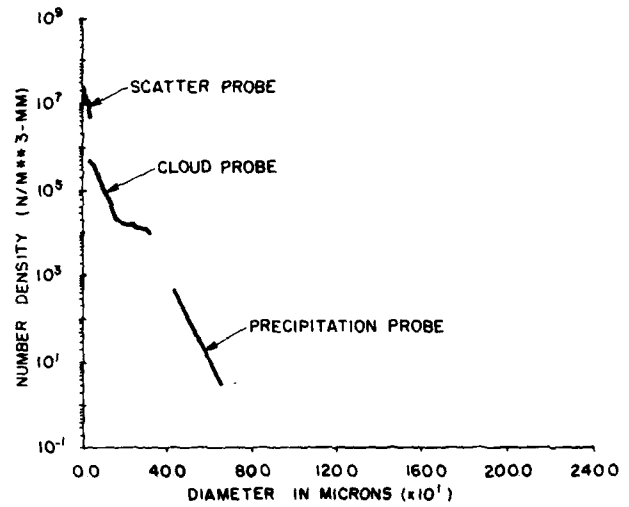


Figure 28. Particle Distribution: 3 February 1921-1926Z

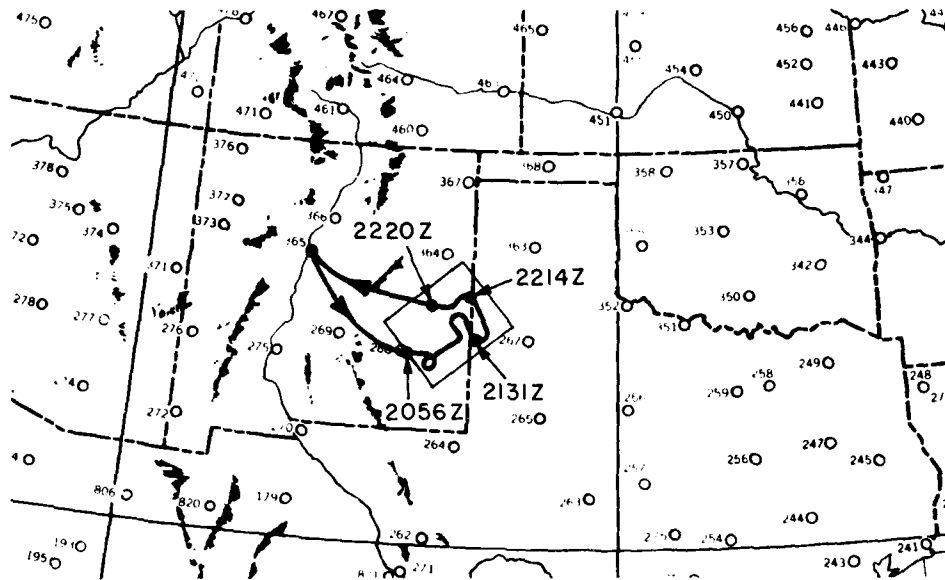


Figure 29. Track and Sampling Area of the 4 February Flight



Figure 30. Cirrostratus Clouds Typical of Those Present on 4 February



Figure 31. Higher Cirrostratus Clouds
Which May Have Provided Fall-out

The total lack of ASSP data, while not common, has occurred on previous flights. Barnes¹³ reported two kinds of subvisible cirrus: The first consists of ice crystals which have fallen from a higher layer; Cohen and Barnes⁴ found particles as large as 2000 μm in apparently clear air. The second type consists of smaller particles, generally less than 10 μm , which are present even on flights through cloudless skies. The absence of these small particles at temperatures below -20°C has been the exception. Thus the lack of any ASSP data indicates that even subvisible cirrus was absent.

The form factor (Figure 33) proved variable, but generally quite high while the airplane was in clouds. Notably, while the aircraft was in fall-out from the higher clouds, it was somewhat lower, reflecting a wider variety of sizes. Data obtained on this flight, together with the Mission Director's comments, are located in Appendix B.

13. Barnes, A. A. (1981) Observations of Ice Crystals in Clear, Journal de Recherches Atmospheriques, Vol 14, No.3-4, AFGL-TR-81-0347, AD A108914.

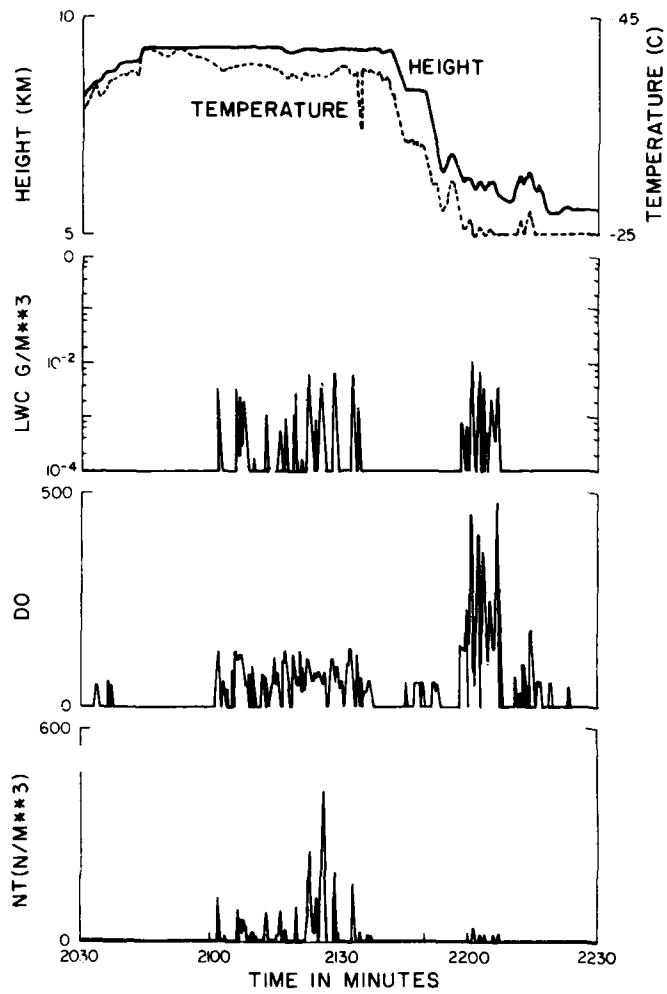


Figure 32. Altitude, Temperature, Liquid Water Content, Median Volume Diameter, and Number Density vs Time on 4 February

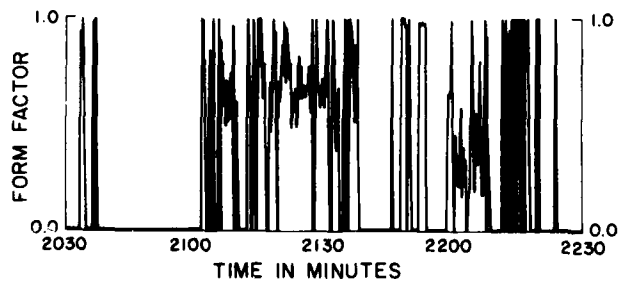


Figure 33. Form Factor vs Time on 4 February

4.2 Data for Particular Passes

Four periods of 5 min. each have been selected for closer study. In three of them the aircraft was in tenuous to thin cirrus; in the other period (2133 to 2138Z) the airplane was in clear air below a solid deck of cirrus.

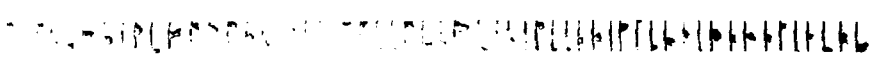
1. The aircraft was in cirrus almost constantly from 1955 to 2132Z. During the period from 2105 to 2110Z, the cirrus was less dense than at other times; Figure 34 shows some of the data observed. The particle distribution bears a similarity to distributions in the later periods of the 3 February flight. The density of particles in the cloud probe (40- to 400- μm) range is about $10^3/\text{m}^3\text{-mm}$. Particles in this size range seem to have a strong effect on whether the cirrus is visible or subvisible. As the 2-D data show, bullet rosettes were common among the ice crystals observed in this thin but visible cirrus cloud, exhibiting many different shapes.

2. Figure 35 gives a look at another portion of this same cloud band. At that time, however, (2122 to 2127Z), the cirrus was much more dense, as noted by both the in-flight observer and the nose camera film. Unlike the earlier time period, the cirrus was now dense enough to obscure the horizon and limit the visibility of the aircrew. As Figure 35 shows, particles in the cloud probe size range were more numerous. As an example, cloud probe channel 5 (centered at 108 μm) reported 4.31×10^3 particles per cubic meter from 2106 to 2111Z, but it was an order of magnitude higher ($4.30 \times 10^4/\text{m}^3$) from 2122 to 2127Z. As the 2-D data show, the particle shapes were not different. Particle density above 300 μm was unchanged, but the particle density in the 20 to 200- μm range strongly affected the opacity of the cirrus. As Figure 25 (in subvisible cirrus) shows, when the cirrus is even more tenuous, particle density at this size (Cloud Probe Channel 5) was only $4.48 \times 10^2/\text{m}^3$, yet another order of magnitude smaller.

3. From 2133 to 2138Z, the aircraft was in tenuous to subvisible cirrus, but a solid deck of cirrostratus appeared to be about 1000 to 2000 ft above the airplane. Although cirrus did not appear, the distribution (Figure 36) shows many particles in the 300- to 400- μm range and also a greater number of larger particles - compared to earlier samples examined on this flight. These were probably fall-out from the higher clouds. Perhaps the presence of the cirrostratus above (see Figure 30) made observation of tenuous cirrus at flight level difficult. The cirrostratus deck seen later (Figure 30) was above the airplane; this produced an excellent halo. The 2-D data show a greater variety of particle types and give some evidence that larger particles have fallen from the cirrostratus deck.

4. The last period examined looks at cirrostratus at a lower level. The airplane had descended from 9.3 km (31,000 ft) to 6.2 km (20,000 ft) for investigation of a lower layer of cloud. The cirrostratus appeared tenuous, much as it had during the first period (2106 to 2110Z). The density of particles, however, had

REPRESENTATIVE PMS
2 D CLOUD PROBE
SHADOWGRAPHS



AFWL CIARHS STUDY BY AFOL
FLIGHT E79-12 ON 04 FEB 79 301 SECONDS AVERAGING
TYPE: DULL-ROBE INTERVAL START: 21106:00

| PARTICLE SIZE DISTRIBUTIONS (NUMBER/NO-3-MM) | | | | | PRESS (MB) |
|--|---------------|-----------|-------------|-----------|--------------|
| SIZE (MU) | SCATTER PROBE | SIZE (MU) | CLOUD PROBE | SIZE (MU) | PRECIP PROBE |
| 2 | 1.70E+05 | 26 | 2.99E+04 | 413 | 2.36E+02 |
| 4 | 8.26E+05 | 47 | 2.33E+04 | 644 | 3.64E-01 |
| 6 | 1.75E+06 | 67 | 1.02E+04 | 923 | 0. |
| 8 | 4.34E+06 | 87 | 1.02E+04 | 1262 | 0. |
| 10 | 4.50E+06 | 100 | 4.31E+03 | 1481 | 0. |
| 12 | 3.11E+06 | 120 | 3.16E+03 | 1760 | 0. |
| 14 | 3.05E+06 | 140 | 3.77E+02 | 2639 | 0. |
| 16 | 2.63E+06 | 169 | 4.46E+02 | 2318 | 0. |
| 18 | 2.38E+06 | 189 | 4.14E+02 | 2597 | 0. |
| 20 | 2.01E+06 | 209 | 4.09E+02 | 2874 | 0. |
| 22 | 1.87E+06 | 230 | 4.41E+02 | 3155 | 0. |
| 24 | 1.42E+06 | 250 | 4.25E+02 | 3424 | 0. |
| 26 | 1.07E+06 | 271 | 3.91E+02 | 3713 | 0. |
| 28 | 9.04E+05 | 291 | 3.40E+02 | 3992 | 0. |
| 30 | 8.26E+05 | 311 | 2.29E+02 | 4271 | 0. |
| | | | | | TOTALS |
| LWC | 1.72E-04 | | 5.69E-04 | | 1.13E-04 |
| REB D | 22 | | 107 | | 101 |
| | | | | | 6.19E-04 |
| | | | | | 116 |

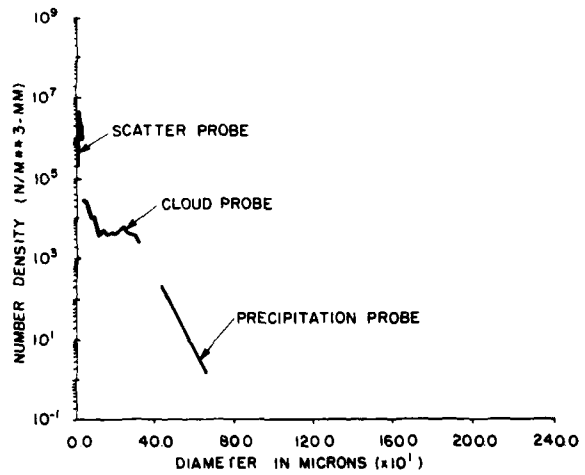


Figure 34. Particle Distribution: 4 February 2106-2111Z

REPRESENTATIVE PMS
2D CLOUD PROBE
SHADOWGRAPHS

AFUL CIRRUS STUDY BY AFGL
FLIGHT E77-12 QM 04 FEB 79 301 SECOND AVERAGING
TYPE: BULL-ROBE INTERVAL START: 21:22:00

37

| SIZE (MU) | PARTICLE SIZE DISTRIBUTIONS (NUMBER/N*3-HR) | | | | PRECIP PROBE | PRESS (MB) |
|-----------|---|-----------|-------------|-----------|--------------|------------|
| | SCATTER PROBE | SIZE (MU) | CLOUD PROBE | SIZE (MU) | | |
| 2 | 2.44E+05 | 26 | 1.14E+05 | 413 | 1.45E+00 | 315.14 |
| 4 | 2.05E+04 | 47 | 1.58E+05 | 444 | 0. | 8.83 |
| 6 | 4.98E+04 | 67 | 9.81E+04 | 923 | 0. | T -39.24C |
| 8 | 1.17E+07 | 87 | 5.99E+04 | 1282 | 0. | FPT -39.2C |
| 10 | 1.12E+07 | 100 | 4.30E+04 | 1481 | 0. | TAB (H/S) |
| 12 | 9.87E+04 | 120 | 4.55E+04 | 1760 | 0. | 124.14 |
| 14 | 8.52E+04 | 140 | 3.22E+04 | 2039 | 0. | Z 2.00E-03 |
| 16 | 5.95E+04 | 169 | 2.55E+04 | 2318 | 0. | FORM F .57 |
| 18 | 6.24E+04 | 189 | 1.89E+04 | 2597 | 0. | |
| 20 | 5.57E+04 | 209 | 1.10E+04 | 2876 | 0. | |
| 22 | 4.14E+04 | 230 | 8.72E+03 | 3155 | 0. | |
| 24 | 4.14E+04 | 250 | 7.14E+03 | 3434 | 0. | |
| 26 | 3.14E+04 | 271 | 5.02E+03 | 3713 | 0. | |
| 28 | 3.10E+04 | 291 | 3.51E+03 | 3992 | 0. | |
| 30 | 2.46E+04 | 311 | 2.46E+03 | 4271 | 0. | |
| TOTALS | | | | | | |
| LWC | 6.84E-04 | 1.35E-03 | 9.47E-07 | 1.35E-03 | | |
| REB D | 23 | 79 | 181 | 79 | | |

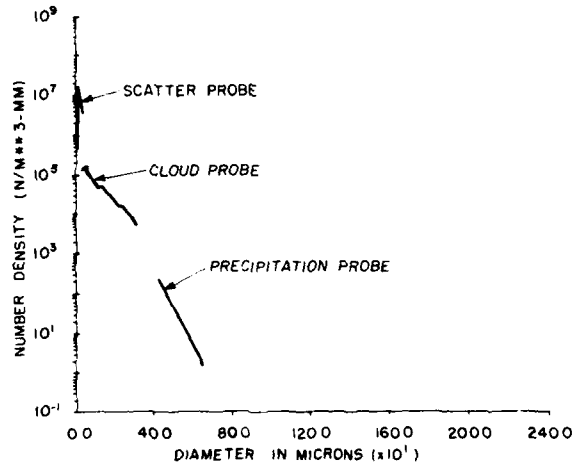


Figure 35. Particle Distribution: 4 February 2122-2127Z

REPRESENTATIVE PMS
2-D CLOUD PROBE
SHADOWGRAPHS



AFGL CIRRUS STUDY BY AFGL
FLIGHT E79-12 ON 04 FEB 79 301 SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL START: 22:01:00

| SIZE (MU) | PARTICLE SIZE DISTRIBUTIONS (NUMBER/M ³ -MM) | | | | PRECIP PROBE | PRESS (MB) | ALT (KM) | T (-24.61C) | FPT (-24.4C) | W (M/S) | Z (2.44E-01) | FORM F (.21) | HT (M/M=3) |
|-----------|---|-----------|-------------|-----------|--------------|------------|----------|-------------|--------------|--------------|--------------|--------------|------------|
| | SCATTER PROBE | SIZE (MU) | CLOUD PROBE | SIZE (MU) | | | | | | | | | |
| 2 | 1.47E+07 | 24 | 4.04E+03 | 413 | 4.04E+02 | 475.62 | 5.94 | | | | | | |
| 4 | 5.05E+07 | 47 | 1.90E+04 | 444 | 1.31E+02 | | | | | | | | |
| 6 | 5.15E+07 | 67 | 4.97E+03 | 923 | 5.38E+01 | | | | | | | | |
| 8 | 2.89E+07 | 87 | 7.09E+03 | 1262 | 1.52E+01 | | | | | | | | |
| 10 | 1.61E+07 | 108 | 3.41E+03 | 1481 | 2.13E+00 | | | | | | | | |
| 12 | 7.47E+06 | 128 | 2.09E+03 | 1740 | 3.62E-01 | | | | | | | | |
| 14 | 4.25E+06 | 148 | 1.64E+03 | 2039 | 0. | | | | | TAB (M/S) | | | |
| 16 | 3.11E+06 | 169 | 8.78E+02 | 2310 | 0. | | | | | 106.87 | | | |
| 18 | 3.32E+06 | 189 | 4.25E+02 | 2597 | 0. | | | | | | | | |
| 20 | 2.73E+06 | 209 | 7.90E+02 | 2876 | 0. | | | | | Z (2.44E-01) | | | |
| 22 | 2.70E+06 | 230 | 5.05E+02 | 3155 | 0. | | | | | | | | |
| 24 | 2.99E+06 | 250 | 5.50E+02 | 3434 | 0. | | | | | | | | |
| 26 | 2.36E+06 | 271 | 6.37E+02 | 3713 | 0. | | | | | | | | |
| 28 | 1.92E+06 | 291 | 7.34E+02 | 3992 | 0. | | | | | | | | |
| 30 | 9.27E+05 | 311 | 6.68E+02 | 4271 | 0. | | | | | | | | |
| TOTALS | | | | | | | | | | | | | |
| LMC | 3.34E-04 | | 1.14E-04 | | 1.42E-03 | | 1.73E-03 | | | | | | |
| MEB 9 | 22 | | 98 | | 378 | | 384 | | | | | | |

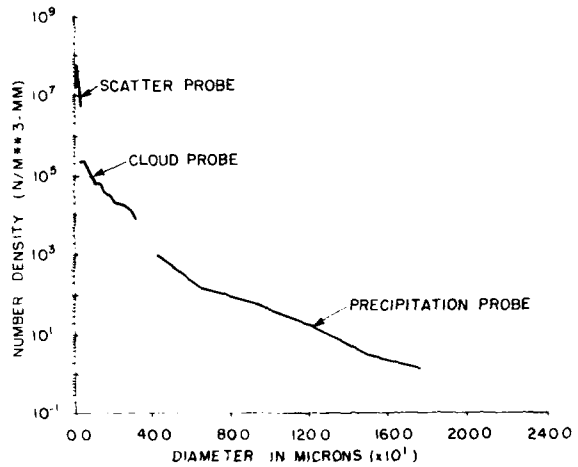


Figure 37. Particle Distribution: 4 February 2201-2206Z

increased substantially. This was especially true of the larger particles. As Figure 37 shows, particles as large as $1760\ \mu\text{m}$ were present. The 2-D data show that small snow was common, perhaps more so than bullet rosettes, although for consistency, the latter were used to process the 1-D data. Again, there were cloud layers above, and this may have made the cirrostratus at the flight level appear less dense.

5. THE FLIGHT OF 5 FEBRUARY 1979

The last flight of this series was the return of the C-130 to its home base, Wright-Patterson AFB, Ohio. The aircraft traversed a large amount of territory, both geographically and meteorologically (see Figures 14 and 38). During the first two hours, the aircraft sampled weak cirrus which was the result of convergence ahead of an upper air trough (which appeared as a cutoff low at 500 mbar - see Figure 15). Figures 39 and 40 show this cirrus. Later, the aircraft flew along the extreme northern boundary of the cloud shield of a stationary front. The front itself was 400 nmi south of the aircraft, but a continuous shield extended from the front. As Figure 41 shows, a cirrostratus layer was well-defined. During much of this time (approximately 1910 to 2020Z), there was a solid cloud shield south of the aircraft, while skies were clear to the north. During the last two hours of the flight, the aircraft moved into a strong polar continental air mass. Only very thin, wispy cirrus such as that in Figure 42 remained.

The aircraft flew at an altitude of 6 to 7 km (20,000 to 23,000 ft) throughout most of its journey. During the final portion, however, the airplane climbed to 9.2 km (30,000 ft) to sample the thin, wispy cirrus in the polar air.

5.1 Data Variations During the Flight

Figure 43 shows variations in height, temperature, LWC, DO, and NT during the first half of the flight of 5 February. During the early portion of the flight (to approximately 1905Z), the cirrus was isolated; LWC, DO, and NT values dropped to zero temporarily as the aircraft moved through cloudless areas. Due to the middle and upper level convergence in the area, upward vertical motion was limited. Thus very few particles were found outside of the visible cirrus. Data presented in Figure 43 are continued in Figure 44. A second type of cirrus cloud (which marked the northern edge of the cloud shield of a front) provided varying values of LWC, DO, and NT, but only rarely did these values drop to zero. From 1911 to 1951Z, LWC values computed from cloud and precipitation probe data dropped to zero only twice, once for 15 sec and once for 90 sec. While fluctuations in the amount of moisture varied, there was almost always something to sample due to

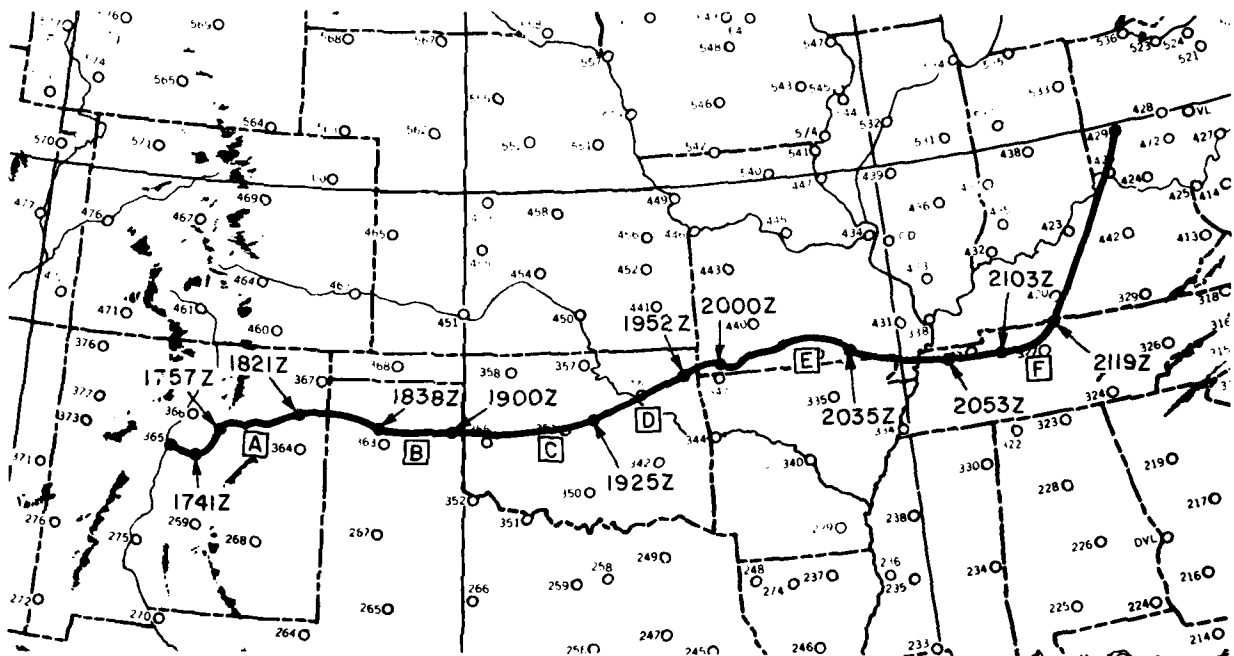




Figure 39. Cirrus Over Eastern New Mexico on 5 February



Figure 40. Cirrostratus Near the Texas-New Mexico Border



Figure 41. Cirrostratus Representing the Northern Edge of a Frontal Cloud Shield

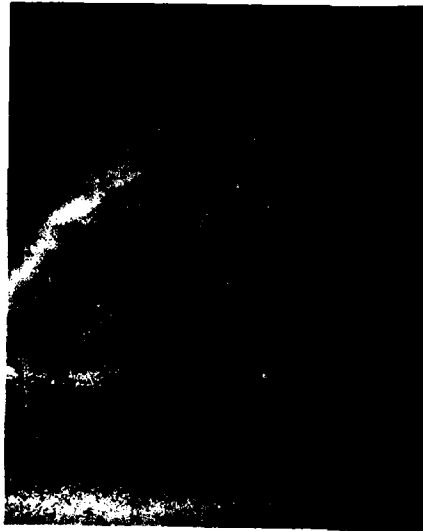


Figure 42. Cirrus Wisps in Continental Polar Air on 5 February

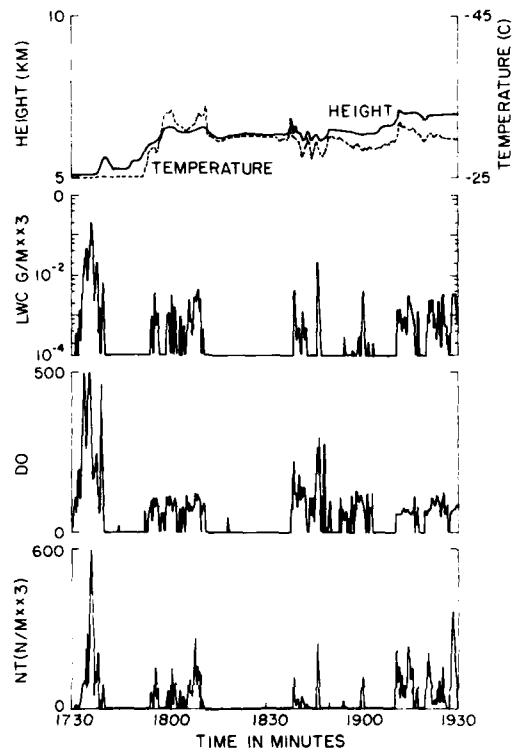


Figure 43. Altitude, Temperature, Liquid Water Content, Median Volume Diameter, and Number Density vs Time From 1730 to 1930Z on 5 February

the upward vertical motion along the frontal surface. The final section of the flight left the frontal boundary behind and moved into another area of predominantly descending motion. Again, the cirrus was more widely spaced and the air around the clouds contained very few particles.

The form factor during this time is presented in Figure 45 and continued in Figure 46. Both the early and late portions of the flight reveal widely fluctuating values of these form factors. Those in the last part of the flight (the polar high) tend to be higher, indicating a greater consistency of particle size in the cold high. During the middle part of the flight, the form factor was less variable in value, indicating less variety in the particle distribution as a function of time. The values were quite high, generally averaging about 0.70. The high form factors appear to be more common in cirrus less closely associated with surface features or associated with weak surface features. In an earlier report of this series,⁵ the flight of 2 February 1979 yielded fairly high form factors in the presence of only weak

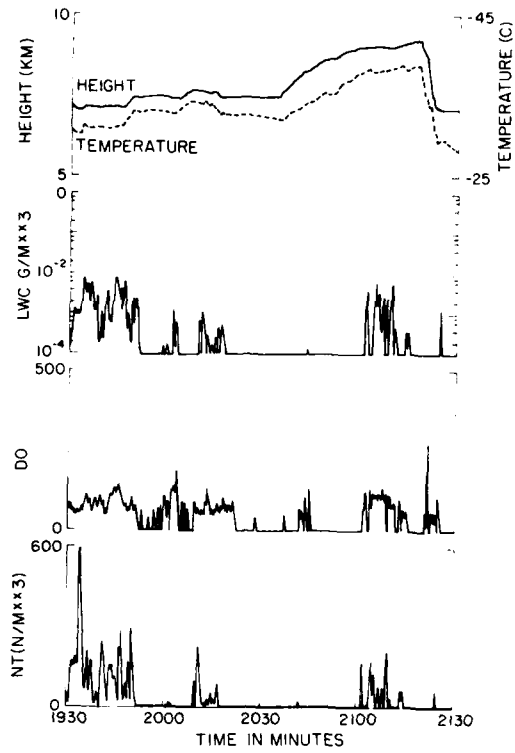


Figure 44. Altitude, Temperature, Liquid Water Content, Median Volume Diameter, and Number Density vs Time From 1930 to 2130Z on 5 February

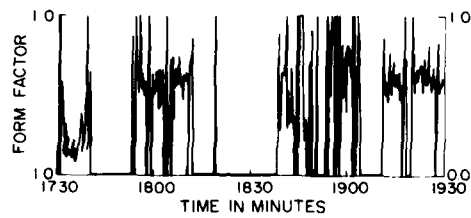


Figure 45. Form Factor vs Time From 1730 to 1930Z on 5 February

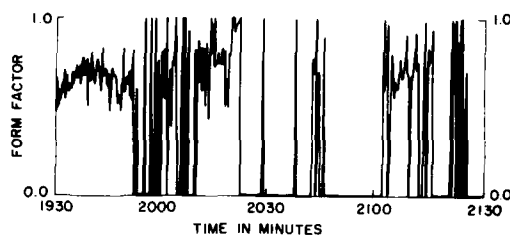


Figure 46. Form Factor vs Time From 1930 to 2130Z on 5 February

surface features, while the flights of 28 and 29 January yielded much lower form factors (generally 0.30 to 0.50) when dealing with a strong surface storm. The flights of 3 and 4 February 1979, discussed earlier, show results similar to those of 2 February. Both Varley¹² and Cohen¹⁴ reported much lower form factors when looking at large scale storms. Plank¹⁵ notes that the form factor is designed to indicate the type of particle distributions. Thus there is some evidence that cirrus associated with strong surface features will have a different, much less uniform distribution of particles than cirrus associated with either weak surface or upper air features. The middle section of the 5 February flight examined clouds which were formed from a surface feature, but by the time the cloud mass had arrived at 23,000 feet, it had lost the characteristically wide variety of particle sizes. Most probably the larger particles had precipitated out, leaving only smaller particles. Data and Mission Director's comments from this flight are in Appendix C.

5.2 Data for Particular Passes

Six passes of 5 minutes each were selected for closer examination. As Figure 38 shows, they provide a cross section of the data observed during this flight.

1. The first pass (1806-1811Z) occurred over eastern New Mexico, shortly after the airplane arrived at a flight level of 6.5 km (21,000 ft). The cirrus here was the result of convergence ahead of a 500-mbar cutoff low. It was visible, but

14. Cohen, I. D. (1981) Development of a Large Scale Cloud System, 23-27 March 1978, Environmental Research Papers, No. 739, AFGL-TR-81-0127, AD A106417, 112 pp.

15. Plank, V. G. (1977) Hydrometeor Data and Analytical-Theoretical Investigations Pertaining to the SAMS Rain Erosion Program of the 1972-73 Season at Wallops Island, Virginia. AFGL/SAMS Report No. 5, Environmental Research Papers No. 603, AFGL-TR-77-0149, AD A051193.

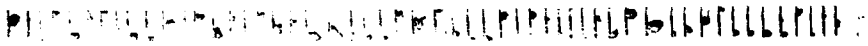
very thin. The particle distribution is shown in Figure 47. The number of particles and ice water content were greater than the two cases of subvisible cirrus observed on 3 and 4 February. The ice water content is similar to that observed in most of the passes which contained visible cirrus clouds. Notably there was more cirrus above, and this may have made the cirrus at the aircraft altitude more difficult to discern. The form factor was 0.49, a value higher than that observed with surface-storm related cirrus, but less than usually observed with nonsurface-storm related cirrus. A surface trough was present, but the upper air feature was probably responsible for the cirrus. The form factor decreased as the aircraft entered the frontal cirrus later in the flight.

2. At the time of the second pass, the airplane was near Amarillo, Texas. By 1838Z, the aircraft was just below a cirrostratus deck which represented the extreme northern edge of the cloud shield of the stationary front in the Gulf of Mexico. The thin cirrus at the aircraft altitude may have been supplemented by fall-out from the cirrostratus above. The form factor was considerably smaller (0.32) than before, and the precipitation probe was quite active, registering particles as large as $1200 \mu\text{m}$ (see Figure 48). The number of particles in the smaller size range had decreased.

3. The third data pass (1912 to 1917Z) occurred over western Oklahoma. The aircraft was flying parallel to the front in the Gulf of Mexico. To the right of the aircraft was a solid cirrus overcast, whereas the left (north) was clear. The aircraft was in thin but barely visible cirrus. As Figure 49 shows, most activity was confined to the ASSP and cloud probes. The activity at the smaller sizes of the cloud probe (20-200 μm) increased over the earlier passes. The medium volume diameter was smaller and the form factor higher, indicating a more uniform distribution of small particles. The larger particles may have precipitated out as they moved up the frontal boundary. Thus this high cirrus, which resulted from a surface front far to the south appeared to be changing character, becoming more like jet-stream generated cirrus.

4. The fourth data pass (1932-37Z) was in similar but heavier cirrus over eastern Oklahoma. As Figure 50 shows, the sizes of the particles had not increased, but the number of particles had. The aircraft was still in cirrus which represented the northern edge of the cloud shield of a stationary front; however, now the airplane was in a stronger area of the front. Figures 15 and 16 show that there was horizontal upper air divergence, implying strong upward vertical motion in this area. The median volume diameter had not changed, but the IWC had tripled. The nose camera film and Mission Director's notes both indicated that the clouds had thickened. This thicker cloud was a result of the increase in the number, rather than the size of the particles. The upward vertical motion of air may have inhibited the sublimation of some particles, increasing the particle density.

REPRESENTATIVE PMS
2-D CLOUD PROBE
SHADOWGRAPHS



AFWL CIRRUS STUDY BY AFBL
FLIGHT E79-13 ON 05 FEB 79 30) SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL START: 18:04:00

48

| PARTICLE SIZE DISTRIBUTIONS (NUMBER/M ³ -MM) | | | | | | PRESS (MB) |
|---|---------------|-----------|-------------|-----------|--------------|------------|
| SIZE (MM) | SCATTER PROBE | SIZE (MM) | CLOUD PROBE | SIZE (MM) | PRECIP PROBE | 458.06 |
| 2 | 5.01E+05 | 24 | 6.14E+04 | 413 | 3.11E+02 | MLT (KW) |
| 4 | 2.58E+06 | 47 | 1.20E+05 | 644 | 2.19E-01 | 8.21 |
| 6 | 3.90E+06 | 67 | 6.98E+04 | 923 | 0. | T -31.86C |
| 8 | 6.72E+06 | 87 | 5.58E+04 | 1202 | 0. | FPT -34.5C |
| 10 | 8.23E+06 | 108 | 4.94E+04 | 1481 | 0. | TAB (H/S) |
| 12 | 8.31E+06 | 128 | 3.35E+04 | 1750 | 0. | 106.45 |
| 14 | 8.04E+06 | 148 | 2.82E+04 | 2039 | 0. | Z 4.26E-03 |
| 16 | 7.35E+06 | 169 | 2.48E+04 | 2318 | 0. | FORN F .49 |
| 18 | 7.09E+06 | 189 | 1.88E+04 | 2597 | 0. | |
| 20 | 5.54E+06 | 209 | 1.48E+04 | 2876 | 0. | |
| 22 | 5.79E+06 | 230 | 1.14E+04 | 3155 | 0. | |
| 24 | 5.30E+06 | 250 | 9.41E+03 | 3434 | 0. | |
| 26 | 4.59E+06 | 271 | 7.41E+03 | 3713 | 0. | |
| 28 | 3.90E+06 | 291 | 5.83E+03 | 3992 | 0. | |
| 30 | 3.17E+06 | 311 | 3.58E+03 | 4271 | 0. | |
| | | | | | | TOTALS |
| LUC | 5.04E-04 | | 1.44E-03 | | 1.44E-04 | 1.61E-03 |
| MEB B | 24 | | 88 | | 181 | 92 |

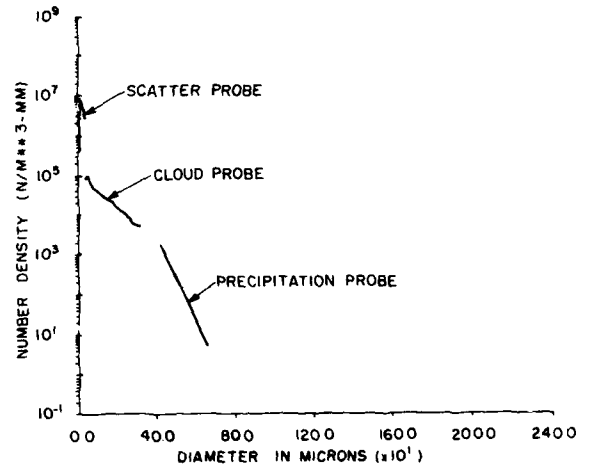


Figure 47. Particle Distribution: 5 February 1806-1811Z

REPRESENTATIVE PMS
2-D CLOUD PROBE
SHADOWGRAPHS

AFML CIRRUS STUDY BY AFBL
FLIGHT E79-13 ON 05 FEB 79 301 SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL START: 18:30:00

49

| PARTICLE SIZE DISTRIBUTIONS (NUMBER/N=3-MM) | | | | | | PRESS (MB) |
|---|----------|------|----------|------|----------|-------------------------|
| SIZE | SCATTER | SIZE | CLOUD | SIZE | PRECIP | 460.65 |
| (NU) | PROBE | (NU) | PROBE | (NU) | PROBE | |
| 2 | 1.94E+08 | 26 | 2.08E+04 | 413 | 4.48E+02 | 6.17 |
| 4 | 3.82E+08 | 47 | 3.91E+04 | 444 | 4.91E+01 | |
| 6 | 1.27E+08 | 67 | 1.47E+04 | 923 | 1.12E+00 | T -29.54C |
| 8 | 1.04E+07 | 87 | 1.10E+04 | 1202 | 8.37E-02 | |
| 10 | 7.11E+06 | 100 | 5.72E+03 | 1481 | 0. | FPT -28.6C |
| 12 | 6.77E+06 | 128 | 4.37E+03 | 1740 | 0. | |
| 14 | 6.48E+06 | 148 | 4.87E+03 | 2039 | 0. | TAG (N/B) |
| 16 | 5.56E+06 | 169 | 2.46E+03 | 2318 | 0. | 107.25 |
| 18 | 5.68E+06 | 189 | 3.42E+03 | 2597 | 0. | |
| 20 | 4.19E+06 | 209 | 2.55E+03 | 2876 | 0. | Z 1.42E-02 |
| 22 | 3.92E+06 | 230 | 3.04E+03 | 3155 | 0. | |
| 24 | 2.64E+06 | 250 | 3.98E+03 | 3434 | 0. | FORM F .32 |
| 26 | 2.57E+06 | 271 | 3.24E+03 | 3713 | 0. | |
| 28 | 1.38E+06 | 291 | 2.63E+03 | 3992 | 0. | |
| 30 | 1.07E+06 | 311 | 2.09E+03 | 4271 | 0. | NT(N/R=3) 2.2700E+03 |
| | | | | | | TOTALS |
| LWC | 4.01E-04 | | 4.09E-04 | | 5.55E-04 | 9.64E-04 |
| REB D | 20 | | 109 | | 199 | 156 |

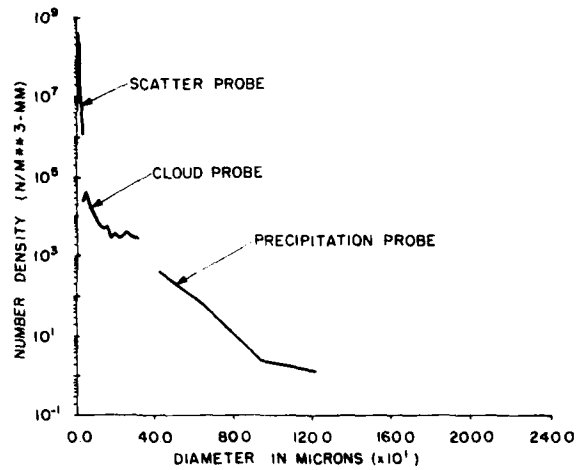


Figure 48. Particle Distribution: 5 February 1838-1842Z

REPRESENTATIVE PMS
2-D CLOUD PROBE
SHADOWGRAPHS

AFML CIRRUS STUDY BY AFBL
FLIGHT E79-13 ON 05 FEB 79 301 SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL START: 19:12:00

| SIZE (MU) | PARTICLE SIZE DISTRIBUTIONS (NUMBER/M ³ -MIN) | | | | PRECIP (MU) | PRESS (MM) |
|-----------|--|-----------|-------------|-----------|-------------|-------------|
| | SCATTER PROBE | SIZE (MU) | CLOUD PROBE | SIZE (MU) | | |
| 2 | 5.19E+05 | 26 | 1.05E+05 | 413 | 1.01E+00 | 425.32 |
| 4 | 3.41E+04 | 47 | 1.77E+05 | 444 | 0. | ALT (KH) |
| 6 | 6.57E+04 | 47 | 1.20E+05 | 923 | 0. | 6.75 |
| 8 | 9.25E+04 | 87 | 6.42E+04 | 1202 | 0. | 7 -31.03C |
| 10 | 8.54E+04 | 100 | 4.71E+04 | 1481 | 0. | FPT -31.4C |
| 12 | 7.34E+04 | 120 | 2.27E+04 | 1740 | 0. | |
| 14 | 6.42E+04 | 140 | 2.33E+04 | 2039 | 0. | TAB (H/S) |
| 16 | 6.02E+04 | 169 | 1.71E+04 | 2318 | 0. | 112.04 |
| 18 | 5.71E+04 | 189 | 1.75E+04 | 2597 | 0. | |
| 20 | 4.81E+04 | 209 | 7.95E+03 | 2874 | 0. | Z 1.19E-03 |
| 22 | 4.45E+04 | 230 | 5.63E+03 | 3155 | 0. | |
| 24 | 4.70E+04 | 250 | 4.60E+03 | 3434 | 0. | FORM F .54 |
| 26 | 4.14E+04 | 271 | 2.69E+03 | 3713 | 0. | |
| 28 | 2.59E+04 | 291 | 1.81E+03 | 3992 | 0. | NT (H/0003) |
| 30 | 2.44E+04 | 311 | 1.22E+03 | 4271 | 0. | 1.0513E+04 |
| | | | | | TOTALS | |
| LWC | 4.74E-04 | | 1.03E-03 | | 5.70E-07 | 1.03E-03 |
| MEB D | 24 | | 71 | | 181 | 71 |

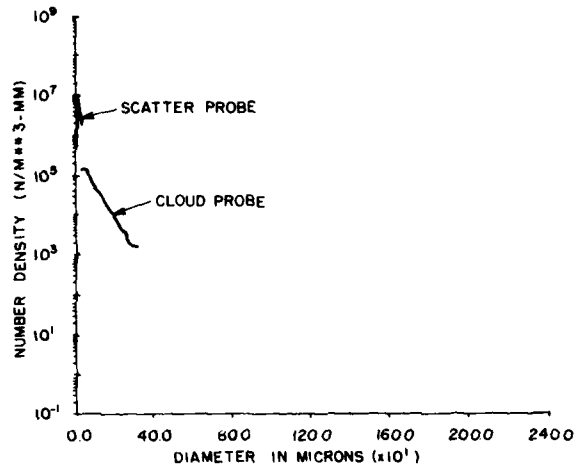


Figure 49. Particle Distribution: 5 February 1912-1917Z

REPRESENTATIVE PMS
2-D CLOUD PROBE
SHADOWGRAPHS

AFWL CIRRUS STUDY BY AFOL
FLIGHT E79-13 ON 05 FEB 79 301 SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL START: 19:32:00

51

| PARTICLE SIZE DISTRIBUTIONS (NUMBER/N=3-HR) | | | | | | PRESS (MB) |
|---|---------------|-----------|-------------|-----------|--------------|-------------|
| SIZE (MU) | SCATTER PROBE | SIZE (MU) | CLOUD PROBE | SIZE (MU) | PRECIP PROBE | 423.34 |
| 2 | 7.51E+05 | 26 | 3.69E+05 | 413 | 7.94E-01 | ALT (KM) |
| 4 | 5.24E+06 | 47 | 4.25E+05 | 444 | 0. | 6.78 |
| 6 | 8.09E+06 | 67 | 2.63E+05 | 923 | 0. | T -30.49C |
| 8 | 1.32E+07 | 87 | 1.81E+05 | 1202 | 0. | |
| 10 | 2.12E+07 | 100 | 1.46E+05 | 1481 | 0. | FPT -30.3C |
| 12 | 1.88E+07 | 128 | 1.12E+05 | 1760 | 0. | |
| 14 | 1.61E+07 | 148 | 7.41E+04 | 2039 | 0. | TAS (M/S) |
| 16 | 1.45E+07 | 169 | 5.80E+04 | 2318 | 0. | 110.55 |
| 18 | 1.44E+07 | 189 | 4.35E+04 | 2597 | 0. | |
| 20 | 1.25E+07 | 209 | 2.98E+04 | 2876 | 0. | Z 4.74E-03 |
| 22 | 1.34E+07 | 230 | 2.51E+04 | 3155 | 0. | |
| 24 | 1.25E+07 | 250 | 1.60E+04 | 3434 | 0. | FORM F .57 |
| 26 | 1.10E+07 | 271 | 1.12E+04 | 3713 | 0. | |
| 28 | 8.81E+06 | 291 | 7.89E+03 | 3992 | 0. | NT(N/W=0.3) |
| 30 | 7.18E+06 | 311 | 5.53E+03 | 4271 | 0. | 2.8469E+04 |
| TOTALS | | | | | | |
| LUC | 1.32E-03 | | 3.46E-03 | | 4.54E-07 | 3.46E-03 |
| REG # | 24 | | 77 | | 181 | 77 |

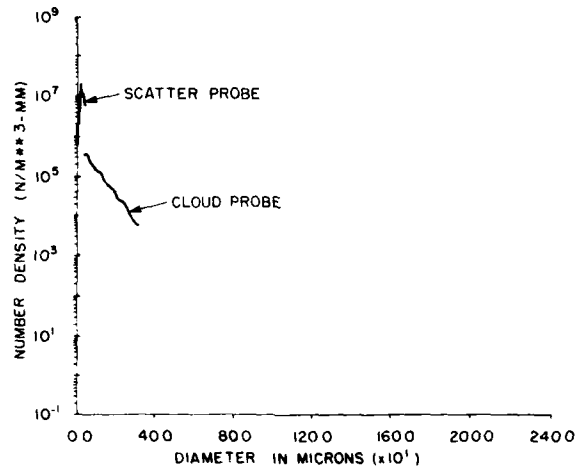
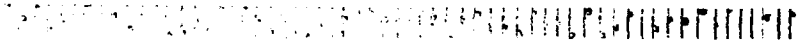


Figure 50. Particle Distribution: 5 February 1932-1937Z

REPRESENTATIVE PMS
2-D CLOUD PROBE
SHADOWGRAPHS



AFGL CIRRUS STUDY BY AFGL
FLIGHT E79-13 ON 05 FEB 79 301 SECOND AVERAGING
TYPE: BULL-ROBE INTERVAL START: 20:14:00

52

| SIZE (UM) | PARTICLE SIZE DISTRIBUTIONS (NUMBER/M ³ -MM) | | | | | PRESS (MB) | ALT (KM) |
|-----------|---|-----------|-------------|-----------|--------------|------------|----------|
| | SCATTER PROBE | SIZE (UM) | CLOUD PROBE | SIZE (UM) | PRECIP PROBE | | |
| 2 | 4.74E+05 | 26 | 3.70E+04 | 413 | 9.99E-02 | 401.01 | 7.14 |
| 4 | 1.51E+06 | 47 | 3.12E+04 | 644 | 0. | | |
| 6 | 2.23E+06 | 67 | 2.89E+04 | 923 | 0. | T | -32.57C |
| 8 | 1.79E+06 | 87 | 1.71E+04 | 1202 | 0. | | |
| 10 | 1.57E+06 | 106 | 1.22E+04 | 1481 | 0. | FPT | -32.0C |
| 12 | 1.42E+06 | 128 | 7.67E+03 | 1760 | 0. | | |
| 14 | 8.15E+05 | 148 | 5.30E+03 | 2039 | 0. | TAB | (N/S) |
| 16 | 9.14E+05 | 169 | 2.49E+03 | 2318 | 0. | | 115.99 |
| 18 | 7.85E+05 | 189 | 2.30E+03 | 2597 | 0. | | |
| 20 | 9.16E+05 | 209 | 1.15E+03 | 2876 | 0. | Z | 1.22E-04 |
| 22 | 8.17E+05 | 230 | 6.89E+02 | 3155 | 0. | | |
| 24 | 1.87E+06 | 250 | 1.27E+02 | 3434 | 0. | FORN F | .67 |
| 26 | 5.98E+05 | 271 | 7.92E+01 | 3713 | 0. | | |
| 28 | 7.25E+05 | 291 | 4.80E+01 | 3992 | 0. | NT(N/N+3) | |
| 30 | 4.73E+05 | 311 | 2.99E+01 | 4271 | 0. | 2.2280E+03 | |
| TOTALS | | | | | | | |
| LWC | 9.11E-05 | | 1.83E-04 | | 5.66E-08 | 1.83E-04 | |
| NEB B | 24 | | 62 | | 181 | | 62 |

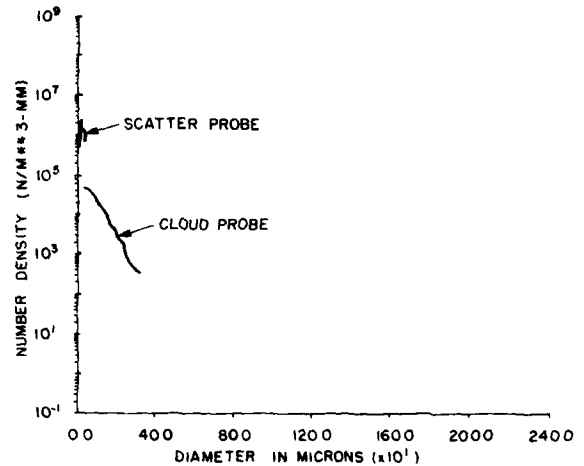
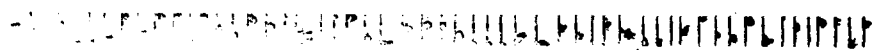


Figure 51. Particle Distribution: 5 February 2014-2019Z

REPRESENTATIVE PMS
2-D CLOUD PROBE
SHADOWGRAPHS



AFWL CIRRUS STUDY BY AFGL
FLIGHT E79-13 ON 05 FEB 79 301 SECOND AVERAGING
TYPE: BULL-ROBE INTERVAL START: 21:04:00

53

| SIZE (MU) | PARTICLE SIZE DISTRIBUTIONS (NUMBER/M ³ -MM) | | | | | PRESS (MB) | ALT (KM) |
|-----------|---|-----------|-------------|-----------|--------------|------------|-----------------------|
| | SCATTER PROBE | SIZE (MU) | CLOUD PROBE | SIZE (MU) | PRECIP PROBE | | |
| 2 | 5.42E+05 | 26 | 8.47E+04 | 413 | 4.10E+02 | 327.99 | 8.54 |
| 4 | 2.19E+04 | 47 | 6.65E+04 | 644 | 1.13E-01 | | |
| 6 | 4.40E+04 | 67 | 2.74E+04 | 923 | 0. | 1 | -37.67C |
| 8 | 9.43E+04 | 87 | 1.58E+04 | 1202 | 0. | | |
| 10 | 1.00E+07 | 100 | 8.09E+03 | 1401 | 0. | | FPT -37.0C |
| 12 | 7.73E+04 | 120 | 5.86E+03 | 1760 | 0. | | |
| 14 | 6.57E+04 | 140 | 9.22E+03 | 2039 | 0. | | TAS (M/S) |
| 16 | 5.43E+04 | 169 | 1.49E+04 | 2318 | 0. | | 132.12 |
| 18 | 6.10E+04 | 189 | 1.63E+04 | 2597 | 0. | | |
| 20 | 4.33E+04 | 209 | 1.69E+04 | 2876 | 0. | | Z 5.42E-03 |
| 22 | 4.05E+04 | 230 | 1.95E+04 | 3155 | 0. | | |
| 24 | 3.22E+04 | 250 | 1.34E+04 | 3434 | 0. | | FORN F .50 |
| 26 | 2.86E+04 | 271 | 1.12E+04 | 3713 | 0. | | |
| 28 | 2.22E+04 | 291 | 9.34E+03 | 3992 | 0. | | HT(M/M ³) |
| 30 | 1.87E+04 | 311 | 5.55E+03 | 4271 | 0. | | 4.9579E+03 |
| TOTALS | | | | | | | |
| LWC | 4.00E-04 | | 1.42E-03 | | 1.04E-04 | 1.61E-03 | |
| WSD | 23 | | 106 | | 181 | 110 | |

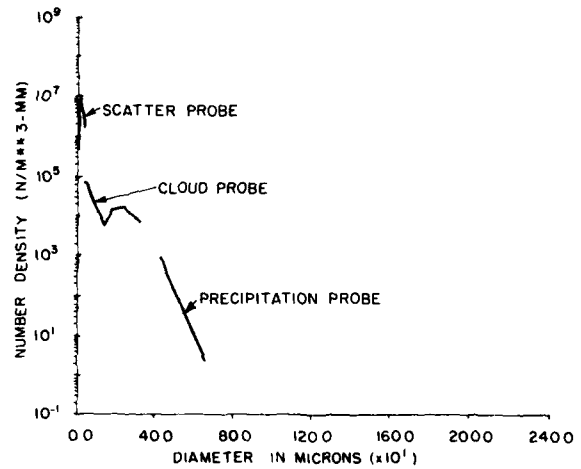


Figure 52. Particle Distribution: 5 February 2104-2109Z

5. As the airplane moved northeast, it entered an area of thin cirrus that was less closely associated with the front. Data taken over southern Missouri are displayed in Figure 51. The size range of the particles remains similar to that observed over Oklahoma, but the number of particles decreased. The median volume diameter dropped and the form factor rose. This indicates fewer particles of a more uniform, and generally smaller size. The cirrus here was more closely related to the upper air features than to the surface front. It may have originally been produced by the front, but if so, by this time it had lost most of the characteristics of frontal cirrus, resembling isolated jet stream cirrus.

6. The final data pass was taken near Nashville, Tennessee. It was in thin cirrostratus under another layer of cirrostratus. As Figure 52 shows, the number of particles in the lower channels of the cloud probe (20 to 200 μm) had remained similar to that of the last three data samples, but those in the higher channels of the cloud probe (200 to 400 μm) had increased. The result was a large increase in median volume diameter, a large increase in LWC, and a small decrease in form factor. The increase in 200- to 280- μm particles may have been the result of fall-out from the higher cloud layer. The altitude of this pass was 1.5 km (6000 ft) higher. As a result, the temperature was colder. The frontal surface was not in evidence, but the aircraft was in the midst of a band of strong winds. After leaving this area, the aircraft turned north and soon was in clear air.

6. CONCLUSIONS

This report has examined cirrus on three consecutive days in February 1979. In general, surface weather systems in the area were weak, although some surface weather boundaries were usually present. The upper air flow was dominated by southwesterly winds ahead of a long-wave trough. The resultant cirrus was thin. With very few exceptions, it was translucent, rarely obscuring the sky. When not in visible cloud, the aircraft often was in subvisible cirrus. There were periods during which the airplane was in clear air, with no data sensed by any of the probes.

The opacity of the cirrus seemed to be related to the number of particles in the 20- to 200- μm range. In cases of subvisible or barely visible cirrus, the number of particles in this range (the first 8 channels of the cloud probe) was generally 10^3 to 10^4 particles per channel in a 5-min average. In cases of visible cirrus, this figure was generally 10^4 to 10^6 particles per channel. An increase in the number of larger particles had a lesser effect on whether or not the cirrus was visible. In like manner, the opacity of visible cirrus was more closely related to the number of small particles rather than particle size.

Occasionally, the airplane flew beneath a deck of cirrostratus. During these times, there was an increase in the number of particles sensed. This was probably a result of larger ice crystals falling from the higher cloud layer. Often these distributions tended to have a greater number of large particles (500 μm or larger), as the smaller ones did not settle as rapidly, and sublimated faster.

7. ADDITIONAL COMMENT

All of the reports in this series of cirriform cloud studies have explored a variety of types, together with physical and microphysical properties as characterized. Particle spectra and liquid water content measurements for a cross section of visible and subvisible cirrus resulting from both frontal and nonfrontal cirrus are provided.

In their entirety, the reports have provided useful data. Beyond this objective, several observations have been noted in Section 6, as well as in corresponding sections of the other reports.

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Appendix A

3 February 1979 Data Tabulations

The data format used in the tabulations that follow is explained here. The date of the mission appears on the top line of each page. The comments provided are from the notes made during the flight by the Mission Director.

| | |
|------------|---|
| START TIME | Start time of sample. End was 14 sec later. Time in <i>UMT</i> . |
| ALT KM | Mean altitude of sample (km). |
| TEMP C | Mean temperature of sample ($^{\circ}\text{C}$). |
| LWC-SC | Liquid water content (in g/m^3) calculated over 2-27 μm range of the scattering probe. |
| G/M**3 | Grams per cubic meter. |
| LWC-CP | Liquid water content (in g/m^3) calculated over 26-4700 μm range of cloud and precip probes. |
| LWC % CLD | Percent of total water content of the LWC-CP column determined from cloud probe only. |
| DO UM | Medium volume diameter of equivalently melted particles. |
| NT N/M**3 | Particle number total per cubic meter over 47-4700 μm size range. |
| LMAX UM | Greatest size having > 1 particle $\text{m}^{-3} \text{mm}^{-1}$ (in μm). |
| FF | Form factor (see text). |

| 03 FEB 79 | | | | 15 SECOND AVERAGE | | | | | |
|------------|--------|--------|---------------|-------------------|---------|--------|-----------|---------|------|
| START TIME | ALT KN | TEMP C | LUC-SC B/M**3 | LUC-CP B/M**3 | LUC CLD | DO UH | NT M/M**3 | LMAX UH | FF |
| 18:00:47 | 1.6 | 3.1 | 0.00000 | .00001 | 100 | 22.85 | 0. | 26 | 0.00 |
| 18:01:02 | 1.6 | 3.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:01:17 | 1.6 | 3.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:01:32 | 1.6 | 3.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:01:47 | 1.6 | 3.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:02:02 | 1.6 | 3.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:02:17 | 1.6 | 3.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 18:02:32 | 1.6 | 3.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 18:02:47 | 1.6 | 3.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 |
| 18:03:02 | 1.6 | 3.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:03:17 | 1.6 | 3.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 18:03:32 | 1.6 | 3.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:03:47 | 1.6 | 3.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:04:02 | 1.6 | 3.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:04:17 | 1.6 | 1.1 | 0.00000 | 0.00000 | 0 | 275.70 | 1. | 444 | .92 |
| 18:04:32 | 1.5 | .1 | 0.00000 | .00001 | 87 | 65.63 | 48. | 413 | .57 |
| 18:04:47 | 1.6 | .0 | 0.00000 | .00001 | 100 | 33.34 | 480. | 47 | 1.00 |
| 18:05:02 | 1.6 | -.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 14 | 0.00 |
| 18:05:17 | 1.7 | -1.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:05:32 | 1.8 | -1.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:05:47 | 1.8 | -2.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:06:02 | 1.9 | -2.9 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 21 | 0.00 |
| 18:06:17 | 2.0 | -3.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 |
| 18:06:32 | 2.0 | -4.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 |
| 18:06:47 | 2.1 | -5.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 18:07:02 | 2.3 | -6.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 18:07:17 | 2.4 | -7.5 | 0.00000 | 0.00000 | 0 | 275.70 | 2. | 644 | .92 |
| 18:07:32 | 2.5 | -8.8 | 0.00000 | 0.00000 | 0 | 314.03 | 4. | 923 | .80 |
| 18:07:47 | 2.6 | -9.4 | 0.00000 | 0.00000 | 0 | 307.37 | 4. | 923 | .81 |
| 18:08:02 | 2.8 | -10.7 | 0.00000 | 0.00000 | 0 | 275.70 | 3. | 644 | .92 |
| 18:08:17 | 2.9 | -11.1 | 0.00000 | 0.00000 | 0 | 459.44 | 4. | 1202 | .68 |
| 18:08:32 | 3.0 | -12.0 | 0.00000 | 0.00000 | 0 | 275.70 | 5. | 644 | .92 |
| 18:08:47 | 3.2 | -12.9 | 0.00000 | 0.00000 | 0 | 489.03 | 3. | 1202 | .63 |
| 18:09:02 | 3.3 | -13.2 | 0.00000 | 0.00000 | 0 | 600.32 | 3. | 1491 | .68 |
| 18:09:17 | 3.4 | -13.3 | 0.00000 | 0.00000 | 0 | 437.00 | 4. | 1202 | .67 |
| 18:09:32 | 3.5 | -13.4 | 0.00000 | 0.00000 | 0 | 477.92 | 6. | 1202 | .49 |
| 18:09:47 | 3.6 | -13.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 |
| 18:10:02 | 3.8 | -14.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:10:17 | 3.9 | -15.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 18:10:32 | 4.0 | -16.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 18:10:47 | 4.1 | -16.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 18:11:02 | 4.2 | -17.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 |
| 18:11:17 | 4.3 | -17.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |

Takeoff from Kirtland AFB, NM

09

| | | 03 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|--------|-----------|----------------------------|----------------------------|-------------------------|---------|----------|------------------------|--------------------------|------------------------|--|
| START TIME | ALT KH | TEMP C | LWC-BC g/m ³ | LWC-CP g/m ³ | LWC g/m ³ | DO % | CLD % | WT g/m ³ | LNAX g/m ³ | FF g/m ³ | |
| 18:11:32 | 4.3 | -18.0 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 3 | 0.00 | |
| 18:11:47 | 4.4 | -18.6 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 3 | 0.00 | |
| 18:12:02 | 4.6 | -19.4 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 3 | 0.00 | |
| 18:12:17 | 4.7 | -20.5 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 3 | 0.00 | |
| 18:12:32 | 4.8 | -21.3 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 3 | 0.00 | |
| 18:12:47 | 4.8 | -21.8 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 3 | 0.00 | |
| 18:13:02 | 4.9 | -22.4 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 2 | 0.00 | |
| 18:13:17 | 5.0 | -23.1 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 2 | 0.00 | |
| 18:13:32 | 5.0 | -23.8 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 3 | 0.00 | |
| 18:13:47 | 5.1 | -24.1 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 2 | 0.00 | |
| 18:14:02 | 5.2 | -24.8 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 0 | 0.00 | |
| 18:14:17 | 5.3 | -25.2 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 0 | 0.00 | |
| 18:14:32 | 5.4 | -25.9 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 0 | 0.00 | |
| 18:14:47 | 5.4 | -26.3 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 0 | 0.00 | |
| 18:15:02 | 5.5 | -27.2 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 0 | 0.00 | |
| 18:15:17 | 5.6 | -27.9 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 0 | 0.00 | |
| 18:15:32 | 5.7 | -28.6 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 0 | 0.00 | |
| 18:15:47 | 5.7 | -29.0 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 0 | 0.00 | |
| 18:16:02 | 5.8 | -29.6 | .00000 | 0.00000 | 0 | 0.00 | 0 | 0. | 12 | 0.00 | |
| 18:16:17 | 5.8 | -30.1 | .00020 | .00044 | 100 | 68.49 | 4567. | 311 | .51 | | |
| 18:16:32 | 5.9 | -30.4 | .00032 | .00129 | 100 | 82.19 | 7436. | 311 | .66 | | |
| 18:16:47 | 5.9 | -30.6 | .00113 | .00657 | 99 | 114.01 | 13785. | 413 | .77 | | |
| 18:17:02 | 6.0 | -31.1 | .00128 | .00553 | 99 | 109.96 | 11918. | 413 | .80 | | |
| 18:17:17 | 6.0 | -31.4 | .00020 | .00168 | 99 | 128.24 | 2721. | 413 | .77 | | |
| 18:17:32 | 6.1 | -31.4 | .00011 | .00024 | 98 | 111.41 | 417. | 413 | .84 | | |
| 18:17:47 | 6.1 | -31.9 | .00010 | .00039 | 100 | 81.92 | 1523. | 250 | .86 | | |
| 18:18:02 | 6.2 | -32.3 | .00010 | .00002 | 100 | 68.74 | 123. | 148 | .99 | | |
| 18:18:17 | 6.2 | -32.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:18:32 | 6.3 | -32.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:18:47 | 6.4 | -32.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:19:02 | 6.4 | -33.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:19:17 | 6.5 | -34.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:19:32 | 6.5 | -34.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:19:47 | 6.5 | -34.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:20:02 | 6.5 | -35.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:20:17 | 6.5 | -35.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:20:32 | 6.5 | -35.6 | .00031 | .00204 | 100 | 59.71 | 25913. | 209 | .78 | | |
| 18:20:47 | 6.5 | -35.8 | .00260 | .00783 | 99 | 66.26 | 79000. | 413 | .57 | | |
| 18:21:02 | 6.5 | -36.1 | .00003 | 0.00000 | 0 | 0.00 | 0. | 25 | 0.00 | | |
| 18:21:17 | 6.5 | -35.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:21:32 | 6.5 | -35.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:21:47 | 6.5 | -35.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:22:02 | 6.5 | -35.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |

Mostly blue sky. Some Ci above

Will head into a brownish Ci layer in a minute

Entering very thin layer
Exit very thin layer

| | | 03 FEB 79 | | 15 SECOND AVERAGE | | | | | |
|------------|-----|-----------|---------|-------------------|-----|--------|--------|------|------|
| START TIME | ALT | TEMP | LUC-SC | LUC-CP | LUC | DO | NT | LMAX | FF |
| | KN | C | B/H**3 | B/H**3 | CLD | UH | N/H**3 | UH | |
| 18:22:17 | 6.5 | -35.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:22:32 | 6.5 | -35.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:22:47 | 6.4 | -34.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:23:02 | 6.4 | -34.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 18:23:17 | 6.4 | -34.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 7 | 0.00 |
| 18:23:32 | 6.4 | -34.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:23:47 | 6.4 | -35.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:24:02 | 6.4 | -35.0 | 0.00048 | 0.00150 | 100 | 81.20 | 8934. | 311 | .58 |
| 18:24:17 | 6.4 | -35.1 | 0.00015 | 0.00016 | 100 | 82.10 | 670. | 230 | .84 |
| 18:24:32 | 6.4 | -35.0 | 0.00002 | 0.00002 | 100 | 38.04 | 694. | 67 | .94 |
| 18:24:47 | 6.4 | -34.9 | 0.00001 | 0.00002 | 100 | 61.99 | 300. | 128 | .82 |
| 18:25:02 | 6.4 | -34.7 | 0.00000 | 0.00001 | 100 | 78.28 | 45. | 169 | 1.00 |
| 18:25:17 | 6.4 | -34.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:25:32 | 6.4 | -34.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:25:47 | 6.4 | -34.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:26:02 | 6.4 | -33.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:26:17 | 6.4 | -33.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:26:32 | 6.4 | -33.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:26:47 | 6.4 | -32.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:27:02 | 6.4 | -33.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:27:17 | 6.4 | -33.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:27:32 | 6.3 | -33.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:27:47 | 6.3 | -32.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:28:02 | 6.2 | -32.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:28:17 | 6.2 | -32.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:28:32 | 6.2 | -32.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:28:47 | 6.2 | -32.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:29:02 | 6.2 | -32.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:29:17 | 6.1 | -32.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:29:32 | 6.1 | -31.7 | 0.00056 | 0.00083 | 100 | 50.70 | 456. | 108 | .93 |
| 18:29:47 | 6.1 | -31.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:30:02 | 6.1 | -31.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 18:30:17 | 6.1 | -31.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 18:30:32 | 6.1 | -31.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 18:30:47 | 6.1 | -30.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 18:31:02 | 6.0 | -30.4 | 0.00000 | 0.00001 | 100 | 30.33 | 134. | 87 | 1.00 |
| 18:31:17 | 5.9 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 12 | 0.00 |
| 18:31:32 | 5.8 | -29.4 | 0.00000 | 0.00023 | 100 | 124.00 | 194. | 311 | .99 |
| 18:31:47 | 5.8 | -29.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 18:32:02 | 5.8 | -29.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 18:32:17 | 5.8 | -29.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 18:32:32 | 5.8 | -29.3 | 0.00000 | 0.00001 | 100 | 78.28 | 45. | 169 | 1.00 |
| 18:32:47 | 5.8 | -29.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |

62

Will skim tops of Ci.

In or on top of very thin cloud.

Very thin. Vis - 50 mi, getting very small counts

| | | 03 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|--------|-----------|------------------|-------------------|---------|--------|-----------|---------|-------|--|--|
| START TIME | ALT KM | TEMP C | LUC-BC 0/M**3 | LUC-CP 0/M**3 | LUC CLP | DO UK | NT N/M**3 | LMAX GN | FF GN | | |
| 18:33:02 | 5.8 | -29.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 18:33:17 | 5.8 | -29.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 18:33:32 | 5.9 | -29.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 18:33:47 | 5.9 | -29.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 18:34:02 | 5.9 | -29.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 18:34:17 | 5.9 | -29.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 12 | 0.00 | | |
| 18:34:32 | 5.9 | -29.3 | .00007 | 0.00000 | 0 | 0.00 | 0. | 9 | 0.00 | | |
| 18:34:47 | 5.9 | -29.5 | .00025 | .00001 | 100 | 50.53 | 133. | 07 | 1.00 | | |
| 18:35:02 | 5.9 | -29.7 | .00474 | .00003 | 100 | 42.84 | 750. | 140 | .45 | Should be in middle of the CI band soon. 35° 14' 106° 48', 19,800' | |
| 18:35:17 | 5.9 | -30.0 | .00119 | .00001 | 100 | 38.07 | 93. | 108 | 1.00 | | |
| 18:35:32 | 5.9 | -30.0 | .00030 | 0.00000 | 0 | 0.00 | 0. | 12 | 0.00 | Snow out | |
| 18:35:47 | 5.9 | -30.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 18:36:02 | 5.9 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:36:17 | 5.9 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:36:32 | 5.9 | -30.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:36:47 | 5.9 | -30.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 18:37:02 | 5.9 | -30.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 | | |
| 18:37:17 | 5.9 | -30.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:37:32 | 5.9 | -30.1 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 18:37:47 | 5.9 | -30.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 | Altitude 19,800 feet. A long, narrow brownish cloud is on our right. | |
| 18:38:02 | 5.8 | -29.7 | .00004 | .00037 | 100 | 116.62 | 601. | 311 | .06 | | |
| 18:38:17 | 5.8 | -29.4 | .00005 | .00017 | 100 | 127.26 | 311. | 311 | .79 | Much Cu below, but not a ceiling. Snow covered Mesa below. | |
| 18:38:32 | 5.8 | -29.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:38:47 | 5.8 | -29.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:39:02 | 5.8 | -29.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:39:17 | 5.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:39:32 | 5.8 | -29.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:39:47 | 5.9 | -29.7 | .00001 | 0.00000 | 0 | 0.00 | 0. | 25 | 0.00 | | |
| 18:40:02 | 5.9 | -29.3 | .00001 | .00018 | 100 | 132.11 | 149. | 311 | .94 | | |
| 18:40:17 | 5.9 | -29.1 | .00057 | .00034 | 100 | 132.00 | 379. | 311 | .91 | | |
| 18:40:32 | 5.8 | -29.4 | .00006 | .00026 | 100 | 132.15 | 774. | 311 | .57 | | |
| 18:40:47 | 5.9 | -30.0 | .00000 | .00050 | 100 | 134.00 | 82. | 311 | .99 | | |
| 18:41:02 | 5.9 | -30.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | Very thin. Filaments above us. Hard to tell visually when we are | |
| 18:41:17 | 5.9 | -30.5 | .00002 | .00018 | 100 | 111.18 | 464. | 311 | .76 | in or out of it. | |
| 18:41:32 | 5.9 | -30.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:41:47 | 6.0 | -30.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:42:02 | 6.0 | -31.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:42:17 | 6.0 | -30.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:42:32 | 6.0 | -30.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:42:47 | 6.0 | -30.8 | .00006 | .00004 | 100 | 77.20 | 378. | 189 | .75 | Filaments going by above us. Vis 7.5 mi. CI all quadrants. | |
| 18:43:02 | 6.0 | -30.7 | .00003 | .00004 | 100 | 83.40 | 185. | 189 | .89 | | |
| 18:43:17 | 6.0 | -30.9 | .00009 | .00042 | 100 | 115.14 | 1234. | 311 | .66 | Good stuff. Very thin. Mosa s on top of us. | |
| 18:43:32 | 6.0 | -31.1 | .00091 | .00170 | 99 | 118.90 | 2792. | 413 | .84 | | |

| START TIME | | 03 FEB 79 | | 15 SECOND AVERAGE | | | | HT | LMAX | FF |
|------------|------|-----------|---------|-------------------|-----|--------|-------|-----|------|----|
| ALT | TEMP | LUC-SC | LUC-CP | LUC | DO | WT | LMAX | FF | | |
| KN | C | S/H*03 | S/H*03 | CLB | UN | M/H*03 | UN | | | |
| 18:42:47 | 6.0 | -31.3 | .00021 | .00190 | 99 | 117.76 | 3944. | 413 | .74 | |
| 18:44:02 | 6.0 | -31.2 | .00024 | .00117 | 99 | 132.65 | 1436. | 413 | .87 | |
| 18:44:17 | 6.0 | -31.2 | .00005 | .00007 | 100 | 60.69 | 695. | 140 | .86 | |
| 18:44:32 | 6.0 | -31.0 | .00004 | .00016 | 100 | 83.36 | 734. | 209 | .88 | |
| 18:44:47 | 6.0 | -31.1 | .00014 | .00045 | 100 | 109.53 | 1239. | 311 | .89 | |
| 18:45:02 | 6.0 | -31.4 | .00016 | .00064 | 100 | 105.86 | 1317. | 311 | .86 | |
| 18:45:17 | 6.0 | -31.4 | .00018 | .00089 | 100 | 112.32 | 2072. | 311 | .75 | |
| 18:45:32 | 6.0 | -31.3 | .00012 | .00052 | 99 | 99.92 | 1866. | 413 | .71 | |
| 18:45:47 | 6.0 | -30.9 | .00002 | .00030 | 100 | 120.87 | 601. | 311 | .73 | |
| 18:46:02 | 6.0 | -30.9 | .00006 | .00024 | 100 | 94.03 | 538. | 311 | .85 | |
| 18:46:17 | 6.0 | -30.9 | .00009 | .00050 | 100 | 107.26 | 937. | 311 | .91 | |
| 18:46:32 | 5.9 | -30.7 | .00012 | .00052 | 100 | 100.53 | 1535. | 311 | .77 | |
| 18:46:47 | 5.9 | -30.6 | .00008 | .00059 | 100 | 96.98 | 1502. | 311 | .87 | |
| 18:47:02 | 5.9 | -30.2 | .00000 | .00031 | 100 | 103.00 | 402. | 311 | .89 | |
| 18:47:17 | 5.9 | -30.4 | .00001 | .00003 | 100 | 100.88 | 55. | 230 | 1.00 | |
| 18:47:32 | 5.9 | -30.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 18:47:47 | 5.9 | -30.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 18:48:02 | 5.9 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 18:48:17 | 5.9 | -30.4 | .00001 | .00000 | 0 | 0.00 | 0. | 21 | 0.00 | |
| 18:48:32 | 5.9 | -30.3 | .00000 | .00030 | 98 | 120.20 | 394. | 413 | .94 | |
| 18:48:47 | 5.9 | -30.7 | .00035 | .00209 | 99 | 132.52 | 2502. | 413 | .85 | |
| 18:49:02 | 5.9 | -30.6 | .00020 | .00130 | 99 | 120.20 | 2462. | 413 | .71 | |
| 18:49:17 | 5.9 | -30.6 | .00007 | .00010 | 100 | 97.99 | 258. | 230 | .94 | |
| 18:49:32 | 5.9 | -30.5 | .00009 | .00041 | 100 | 117.10 | 968. | 311 | .86 | |
| 18:49:47 | 5.9 | -30.3 | .00030 | .00147 | 100 | 129.79 | 2961. | 311 | .69 | |
| 18:50:02 | 5.9 | -30.2 | .00007 | .00071 | 99 | 114.33 | 1367. | 413 | .79 | |
| 18:50:17 | 5.9 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 18:50:32 | 5.9 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 18:50:47 | 5.9 | -29.9 | .00001 | .00025 | 100 | 133.73 | 602. | 311 | .56 | |
| 18:51:02 | 5.8 | -29.2 | .00003 | 0.00000 | 0 | 0.00 | 0. | 27 | 0.00 | |
| 18:51:17 | 5.8 | -28.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 18:51:32 | 5.8 | -28.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 18:51:47 | 5.7 | -28.4 | .00000 | .00001 | 77 | 51.67 | 136. | 413 | .34 | |
| 18:52:02 | 5.7 | -28.2 | .00034 | .00135 | 98 | 129.37 | 4264. | 413 | .50 | |
| 18:52:17 | 5.7 | -27.8 | .00007 | .00047 | 99 | 120.29 | 1479. | 413 | .62 | |
| 18:52:32 | 5.7 | -28.1 | .00001 | .00001 | 100 | 50.07 | 93. | 100 | 1.00 | |
| 18:52:47 | 5.6 | -27.7 | .00000 | .00004 | 100 | 70.43 | 642. | 109 | .61 | |
| 18:53:02 | 5.6 | -27.5 | .00007 | .00031 | 99 | 100.09 | 1018. | 413 | .49 | |
| 18:53:17 | 5.6 | -27.5 | .00016 | .00052 | 98 | 105.06 | 2019. | 413 | .54 | |
| 18:53:32 | 5.6 | -27.4 | .00019 | .00070 | 98 | 102.30 | 2434. | 413 | .69 | |
| 18:53:47 | 5.6 | -27.2 | .00002 | .00003 | 100 | 100.00 | 56. | 230 | 1.00 | |
| 18:54:02 | 5.6 | -27.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 18:54:17 | 5.6 | -27.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |

Every once in a while can see fibers of Ci go by.

Approaching another brownish layer. Very slight shadow from the Ci band.

Moving through the base of very thin brownish Ci Layer.

| | | 03 FEB 79 | | 15 SECOND AVERAGE | | | | | | | | | |
|----------|-----|-----------|---------|-------------------|-----|--------|--------|------|------|--|--|--|---|
| START | ALT | TEMP | LUC-SC | LUC-CP | LUC | DO | NT | LMAX | FF | | | | |
| TIME | RH | C | S/M**3 | S/M**3 | CLD | UM | M/M**3 | UM | | | | | |
| 18:54:32 | 5.7 | -27.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 18:54:47 | 5.7 | -27.8 | 0.00000 | 0.00001 | 100 | 58.07 | 89. | 108 | 1.00 | | | | |
| 18:55:02 | 5.7 | -28.0 | 0.00000 | 0.00003 | 100 | 72.41 | 576. | 189 | .57 | | | | Very thin cloud off to our right. |
| 18:55:17 | 5.8 | -28.9 | 0.00014 | 0.00055 | 97 | 122.11 | 1018. | 413 | .75 | | | | |
| 18:55:32 | 5.8 | -29.3 | 0.00034 | 0.00093 | 93 | 125.69 | 1899. | 413 | .69 | | | | Should be increasing counts now. Excellent vis; can see filaments going |
| 18:55:47 | 5.9 | -29.9 | 0.00020 | 0.00041 | 64 | 132.94 | 1739. | 644 | .46 | | | | by. Just a little haze in the air. |
| 18:56:02 | 5.9 | -29.4 | 0.00010 | 0.00031 | 78 | 113.56 | 1545. | 644 | .44 | | | | |
| 18:56:17 | 5.8 | -29.3 | 0.00011 | 0.00038 | 63 | 133.46 | 937. | 644 | .59 | | | | |
| 18:56:32 | 5.8 | -29.1 | 0.00029 | 0.00147 | 94 | 127.15 | 3203. | 413 | .71 | | | | |
| 18:56:47 | 5.8 | -28.8 | 0.00059 | 0.00267 | 92 | 128.99 | 6222. | 413 | .64 | | | | |
| 18:57:02 | 5.8 | -28.8 | 0.00062 | 0.00195 | 97 | 119.54 | 4894. | 413 | .66 | | | | |
| 18:57:17 | 5.8 | -28.7 | 0.00011 | 0.00043 | 69 | 128.51 | 1248. | 644 | .56 | | | | Vis even better - might have passed out of the thin cloud. |
| 18:57:32 | 5.8 | -28.7 | 0.00007 | 0.00031 | 99 | 98.82 | 1036. | 413 | .70 | | | | |
| 18:57:47 | 5.7 | -28.7 | 0.00002 | 0.00000 | 0 | 0.00 | 0. | 27 | 0.00 | | | | Air seems very clear. |
| 18:58:02 | 5.7 | -28.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 18:58:17 | 5.7 | -27.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 18:58:32 | 5.7 | -27.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 18:58:47 | 5.7 | -27.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 18:59:02 | 5.7 | -28.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 18:59:17 | 5.7 | -28.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | Should be getting back into the thin cloud soon. |
| 18:59:32 | 5.8 | -29.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 18:59:47 | 5.8 | -29.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:00:02 | 5.8 | -29.2 | 0.00001 | 0.00000 | 0 | 181.22 | 2. | 413 | 1.00 | | | | |
| 19:00:17 | 5.9 | -29.4 | 0.00002 | 0.00006 | 56 | 103.18 | 262. | 413 | .53 | | | | |
| 19:00:32 | 5.9 | -29.5 | 0.00007 | 0.00002 | 20 | 170.78 | 337. | 413 | .32 | | | | Entering very thin brownish layer of Ci. |
| 19:00:47 | 5.9 | -29.4 | 0.00019 | 0.00019 | 67 | 126.77 | 830. | 644 | .45 | | | | |
| 19:01:02 | 5.8 | -29.4 | 0.00055 | 0.00105 | 70 | 131.76 | 2093. | 644 | .66 | | | | |
| 19:01:17 | 5.8 | -29.3 | 0.00053 | 0.00101 | 64 | 131.62 | 4607. | 644 | .44 | | | | |
| 19:01:32 | 5.8 | -29.5 | 0.00037 | 0.00215 | 95 | 124.19 | 3445. | 413 | .80 | | | | |
| 19:01:47 | 5.8 | -29.5 | 0.00078 | 0.00191 | 85 | 112.12 | 7037. | 644 | .55 | | | | Vis is down to ~ 20 mi, but still sunny. |
| 19:02:02 | 5.8 | -29.3 | 0.00017 | 0.00044 | 91 | 123.50 | 1478. | 413 | .56 | | | | |
| 19:02:17 | 5.8 | -29.3 | 0.00006 | 0.00045 | 94 | 130.31 | 672. | 413 | .78 | | | | |
| 19:02:32 | 5.9 | -29.4 | 0.00003 | 0.00023 | 99 | 106.48 | 530. | 413 | .88 | | | | |
| 19:02:47 | 5.9 | -29.6 | 0.00012 | 0.00008 | 100 | 93.02 | 192. | 230 | .94 | | | | |
| 19:03:02 | 5.9 | -29.7 | 0.00001 | 0.00004 | 96 | 109.94 | 62. | 413 | .94 | | | | |
| 19:03:17 | 5.9 | -29.6 | 0.00007 | 0.00001 | 60 | 66.41 | 90. | 644 | .20 | | | | |
| 19:03:32 | 5.8 | -29.5 | 0.00005 | 0.00010 | 91 | 104.43 | 432. | 413 | .61 | | | | |
| 19:03:47 | 5.9 | -29.5 | 0.00066 | 0.00218 | 94 | 125.23 | 5201. | 413 | .66 | | | | Very thin. Hard to tell base. No shadow on ground. Will climb 1000 feet |
| 19:04:02 | 5.8 | -29.4 | 0.00016 | 0.00106 | 97 | 113.92 | 2486. | 413 | .70 | | | | to get into it. |
| 19:04:17 | 5.8 | -29.3 | 0.00006 | 0.00036 | 87 | 133.85 | 1187. | 413 | .52 | | | | |
| 19:04:32 | 5.8 | -29.3 | 0.00006 | 0.00012 | 42 | 153.58 | 776. | 644 | .35 | | | | |
| 19:04:47 | 5.8 | -29.5 | 0.00002 | 0.00002 | 79 | 77.04 | 113. | 413 | .54 | | | | |
| 19:05:02 | 5.9 | -30.0 | 0.00000 | 0.00005 | 64 | 101.72 | 576. | 644 | .19 | | | | |

| 03 FEB 79 | | | | | | | | | |
|-------------------|--------|--------|---------------------------|---------------------------|----------------|-----------------------|---------|-----|------|
| 15 SECOND AVERAGE | | | | | | | | | |
| START TIME | ALT KN | TEMP C | LWC-BC G/H ⁰⁰³ | LWC-CP G/H ⁰⁰³ | LWC. 30 CLD UH | HT N/H ⁰⁰³ | LMAX UH | FF | |
| 19:05:17 | 6.0 | -30.4 | .00025 | .00091 | 66 | 120.88 | 1895. | 644 | .64 |
| 19:05:32 | 6.0 | -30.9 | .00061 | .00267 | 98 | 115.75 | 5752. | 413 | .75 |
| 19:05:47 | 6.1 | -31.1 | .00042 | .00260 | 99 | 126.66 | 6180. | 413 | .65 |
| 19:06:02 | 6.1 | -31.6 | .00007 | .00031 | 99 | 100.22 | 1296. | 413 | .65 |
| 19:06:17 | 6.1 | -31.7 | .00004 | .00175 | 100 | 45.01 | 39050. | 230 | .74 |
| 19:06:32 | 6.1 | -31.9 | .00265 | .00357 | 100 | 45.34 | 72993. | 230 | .80 |
| 19:06:47 | 6.1 | -31.8 | .00050 | .00093 | 100 | 30.63 | 22000. | 148 | .97 |
| 19:07:02 | 6.2 | -32.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:07:17 | 6.2 | -32.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:07:32 | 6.2 | -32.0 | .00000 | .00003 | 100 | 82.07 | 101. | 189 | .97 |
| 19:07:47 | 6.1 | -32.0 | .00001 | .00009 | 100 | 84.37 | 277. | 209 | .99 |
| 19:08:02 | 6.2 | -32.1 | .00004 | .00007 | 100 | 66.70 | 747. | 209 | .68 |
| 19:08:17 | 6.2 | -32.5 | .00016 | .00013 | 100 | 70.98 | 1727. | 209 | .63 |
| 19:08:32 | 6.2 | -32.6 | .00005 | .00019 | 100 | 117.93 | 1113. | 311 | .47 |
| 19:08:47 | 6.2 | -32.9 | .00002 | .00003 | 73 | 102.46 | 61. | 413 | .75 |
| 19:09:02 | 6.2 | -33.2 | .00004 | .00012 | 91 | 133.34 | 263. | 413 | .63 |
| 19:09:17 | 6.2 | -33.0 | .00029 | .00076 | 65 | 130.75 | 2673. | 644 | .50 |
| 19:09:32 | 6.2 | -32.9 | .00077 | .00113 | 56 | 136.46 | 4605. | 644 | .45 |
| 19:09:47 | 6.2 | -32.9 | .00018 | .00095 | 82 | 126.31 | 2298. | 413 | .48 |
| 19:10:02 | 6.2 | -32.8 | .00006 | .00019 | 97 | 110.71 | 536. | 413 | .72 |
| 19:10:17 | 6.2 | -32.9 | .00009 | .00050 | 99 | 120.77 | 976. | 413 | .74 |
| 19:10:32 | 6.2 | -33.0 | .00146 | .00657 | 86 | 119.10 | 21827. | 644 | .57 |
| 19:10:47 | 6.2 | -32.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:11:02 | 6.2 | -33.0 | .00007 | .00022 | 81 | 129.51 | 2005. | 413 | .33 |
| 19:11:17 | 6.2 | -32.7 | .00015 | .00039 | 55 | 120.32 | 2109. | 923 | .20 |
| 19:11:32 | 6.2 | -32.8 | .00006 | .00020 | 97 | 124.01 | 256. | 413 | .89 |
| 19:11:47 | 6.2 | -32.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:12:02 | 6.2 | -32.9 | .00008 | .00045 | 95 | 134.34 | 381. | 413 | .97 |
| 19:12:17 | 6.2 | -32.8 | .00000 | 0.00000 | 0 | 0.00 | 0. | 9 | 0.00 |
| 19:12:32 | 6.2 | -32.8 | .00002 | .00025 | 92 | 100.66 | 745. | 413 | .67 |
| 19:12:47 | 6.2 | -32.6 | .00005 | .00057 | 99 | 115.12 | 2113. | 413 | .59 |
| 19:13:02 | 6.2 | -32.6 | .00012 | .00006 | 97 | 70.04 | 436. | 413 | .68 |
| 19:13:17 | 6.1 | -32.2 | .00000 | .00012 | 100 | 132.60 | 215. | 311 | .72 |
| 19:13:32 | 6.1 | -31.8 | 0.00000 | .00004 | 100 | 80.04 | 227. | 209 | .70 |
| 19:13:47 | 6.1 | -31.7 | .00013 | .00050 | 100 | 100.74 | 822. | 311 | .92 |
| 19:14:02 | 6.1 | -31.7 | .00032 | .00204 | 99 | 120.55 | 5796. | 413 | .75 |
| 19:14:17 | 6.1 | -31.9 | .00013 | .00120 | 100 | 111.15 | 2163. | 311 | .86 |
| 19:14:32 | 6.1 | -32.1 | .00015 | .00104 | 100 | 100.52 | 2204. | 311 | .80 |
| 19:14:47 | 6.1 | -32.2 | .00003 | .00002 | 100 | 82.21 | 113. | 189 | .93 |
| 19:15:02 | 6.1 | -32.2 | .00007 | .00001 | 100 | 71.07 | 53. | 148 | 1.00 |
| 19:15:17 | 6.1 | -32.1 | .00004 | 0.00000 | 0 | 0.00 | 0. | 10 | 0.00 |
| 19:15:32 | 6.1 | -32.1 | .00004 | .00012 | 100 | 83.43 | 426. | 250 | .86 |
| 19:15:47 | 6.1 | -32.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |

Very thin cloud now. Good. Should be in and out for awhile.

Going along a band. Cir to rt. cloud on left.

Near base of a very thin layer.

Generally out of most of it. Vis 100 mi.

Very, very thin cloud, pass in and out quickly.

Going through base of thin cloud now. Can see right through it.

09

| | | 03 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|--------|-----------|---------------|-------------------|---------|--------|-----------|---------|-------|--|--|
| START TIME | ALT KN | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | DO UM | MT N/M**3 | LMAX UM | FF UM | | |
| 19:16:02 | 4.1 | -31.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:16:17 | 4.1 | -31.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:16:32 | 4.1 | -31.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 19:16:47 | 4.1 | -31.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 19:17:02 | 4.1 | -31.8 | 0.00037 | 0.00000 | 0 | 0.00 | 0. | 25 | 0.00 | | |
| 19:17:17 | 4.1 | -31.9 | 0.00045 | 0.00000 | 0 | 0.00 | 0. | 9 | 0.00 | | |
| 19:17:32 | 4.1 | -31.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 19:17:47 | 4.1 | -31.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:18:02 | 4.1 | -31.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 19:18:17 | 4.1 | -31.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 19:18:32 | 4.1 | -31.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:18:47 | 4.1 | -31.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 | | |
| 19:19:02 | 4.0 | -31.2 | 0.00000 | 0.00000 | 100 | 70.85 | 547. | 189 | .91 | Enter thin cloud again. | |
| 19:19:17 | 4.0 | -31.5 | 0.00013 | 0.00000 | 0 | 0.00 | 0. | 11 | 0.00 | | |
| 19:19:32 | 4.1 | -32.0 | 0.00074 | 0.00000 | 0 | 0.00 | 0. | 12 | 0.00 | | |
| 19:19:47 | 4.1 | -32.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 7 | 0.00 | | |
| 19:20:02 | 4.1 | -31.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:20:17 | 4.1 | -32.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:20:32 | 4.1 | -32.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:20:47 | 4.1 | -32.0 | 0.00041 | 0.00090 | 100 | 52.29 | 14302. | 189 | .82 | | |
| 19:21:02 | 4.1 | -31.8 | 0.00025 | 0.00007 | 100 | 52.54 | 15444. | 148 | .83 | | |
| 19:21:17 | 4.1 | -31.9 | 0.00007 | 0.00011 | 100 | 46.45 | 2251. | 148 | .84 | Heavier. Brownish band on our left. | |
| 19:21:32 | 4.1 | -32.1 | 0.00000 | 0.00004 | 100 | 48.04 | 1384. | 128 | .84 | | |
| 19:21:47 | 4.1 | -32.2 | 0.00000 | 0.00001 | 100 | 84.44 | 47. | 189 | 1.00 | | |
| 19:22:02 | 4.1 | -32.2 | 0.00004 | 0.00024 | 100 | 73.65 | 1887. | 230 | .75 | | |
| 19:22:17 | 4.1 | -31.9 | 0.00000 | 0.00002 | 100 | 91.94 | 51. | 209 | 1.00 | Very thin layer coming up straight ahead. | |
| 19:22:32 | 4.1 | -31.9 | 0.00012 | 0.00047 | 100 | 79.69 | 2771. | 230 | .78 | | |
| 19:22:47 | 4.1 | -31.8 | 0.00011 | 0.00070 | 100 | 109.68 | 1374. | 311 | .86 | | |
| 19:23:02 | 4.0 | -31.5 | 0.00007 | 0.00036 | 100 | 85.75 | 1449. | 230 | .86 | | |
| 19:23:17 | 4.0 | -31.2 | 0.00312 | 0.00870 | 100 | 55.24 | ***** | 250 | .70 | | |
| 19:23:32 | 4.0 | -31.2 | 0.00007 | 0.00015 | 100 | 75.25 | 1063. | 250 | .66 | | |
| 19:23:47 | 4.0 | -31.0 | 0.00018 | 0.00033 | 100 | 81.52 | 1845. | 311 | .58 | | |
| 19:24:02 | 4.0 | -30.8 | 0.00032 | 0.00100 | 96 | 123.44 | 2523. | 413 | .64 | | |
| 19:24:17 | 4.0 | -30.6 | 0.00043 | 0.00107 | 77 | 123.54 | 2863. | 444 | .61 | | |
| 19:24:32 | 4.0 | -30.7 | 0.00036 | 0.00085 | 73 | 127.14 | 2535. | 444 | .56 | | |
| 19:24:47 | 4.0 | -30.7 | 0.00037 | 0.00099 | 77 | 123.53 | 2792. | 444 | .59 | | |
| 19:25:02 | 4.0 | -30.7 | 0.00017 | 0.00024 | 85 | 133.82 | 587. | 413 | .60 | | |
| 19:25:17 | 4.0 | -30.7 | 0.00033 | 0.00040 | 64 | 133.55 | 1404. | 444 | .46 | | |
| 19:25:32 | 4.0 | -30.6 | 0.00013 | 0.00044 | 93 | 133.70 | 1785. | 413 | .46 | | |
| 19:25:47 | 4.0 | -30.7 | 0.00010 | 0.00001 | 31 | 142.42 | 100. | 413 | .37 | | |
| 19:26:02 | 4.0 | -30.9 | 0.00001 | 0.00015 | 99 | 132.97 | 198. | 413 | .84 | In clear now. Only Cu topping at 19,000. Getting a few small counts. | |
| 19:26:17 | 4.0 | -31.0 | 0.00031 | 0.00109 | 96 | 125.22 | 1898. | 413 | .74 | | |
| 19:26:32 | 5.9 | -30.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |

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| | | 03 FEB 79 | | | | 15 SECOND AVERAGE | | | |
|------------|--------|-----------|--------------|--------------|---------|-------------------|----------|---------|-------|
| START TIME | ALT KM | TEMP C | LUC-SC B/H*3 | LUC-CP S/H*3 | LUC CLB | DO UM | WT N/H*3 | LMAX UM | FF UM |
| 19:26:47 | 5.9 | -29.9 | .00001 | 0.00000 | 0 | 0.00 | 0. | 19 | 0.00 |
| 19:27:02 | 5.9 | -29.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:27:17 | 5.8 | -29.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:27:32 | 5.8 | -28.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:27:47 | 5.8 | -28.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:28:02 | 5.8 | -28.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:28:17 | 5.8 | -29.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:28:32 | 5.8 | -29.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 12 | 0.00 |
| 19:28:47 | 5.8 | -29.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:29:02 | 5.8 | -29.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:29:17 | 5.8 | -29.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 |
| 19:29:32 | 5.8 | -29.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:29:47 | 5.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:30:02 | 5.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:30:17 | 5.8 | -29.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:30:32 | 5.8 | -29.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:30:47 | 5.8 | -29.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:31:02 | 5.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:31:17 | 5.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:31:32 | 5.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:31:47 | 5.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:32:02 | 5.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:32:17 | 5.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:32:32 | 5.8 | -29.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:32:47 | 5.8 | -29.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:33:02 | 5.8 | -29.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:33:17 | 5.8 | -28.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:33:32 | 5.8 | -28.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:33:47 | 5.8 | -29.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:34:02 | 5.8 | -29.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:34:17 | 5.9 | -29.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:34:32 | 5.9 | -30.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:34:47 | 5.9 | -30.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:35:02 | 5.9 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:35:17 | 6.0 | -30.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:35:32 | 6.0 | -30.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:35:47 | 6.0 | -30.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 9 | 0.00 |
| 19:36:02 | 6.0 | -30.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:36:17 | 6.0 | -30.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:36:32 | 6.0 | -30.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:36:47 | 6.0 | -31.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:37:02 | 6.0 | -31.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:37:17 | 6.0 | -31.0 | .00001 | 0.00000 | 0 | 0.00 | 0. | 21 | 0.00 |

| | | 03 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|-----|-----------|---------|-------------------|-----|--------|--------|------|------|--|--|
| START TIME | ALT | TEMP | LUC-BC | LUC-CP | LUC | DO | HT | LMAX | FF | | |
| | KR | C | G/H**3 | G/H**3 | CLB | UN | N/H**3 | UM | UM | | |
| 19:37:32 | 6.0 | -30.8 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:37:47 | 6.0 | -30.8 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:38:02 | 6.0 | -30.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:38:17 | 6.0 | -31.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:38:32 | 6.0 | -30.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:38:47 | 6.0 | -30.8 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:39:02 | 5.9 | -30.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:39:17 | 5.9 | -30.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 19:39:32 | 5.9 | -30.8 | .00003 | .00029 | 100 | 96.63 | 791. | 230 | .94 | | |
| 19:39:47 | 5.9 | -30.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:40:02 | 5.9 | -30.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:40:17 | 5.9 | -30.6 | .00000 | .00002 | 100 | 78.28 | 87. | 169 | 1.00 | | |
| 19:40:32 | 5.9 | -30.5 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 19:40:47 | 5.9 | -30.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:41:02 | 5.9 | -30.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:41:17 | 5.9 | -30.7 | .00000 | .00001 | 100 | 71.87 | 52. | 148 | 1.00 | | |
| 19:41:32 | 5.9 | -30.7 | .00000 | .00003 | 100 | 90.04 | 118. | 209 | .89 | | |
| 19:41:47 | 5.9 | -30.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 19:42:02 | 5.9 | -30.8 | .00000 | .00001 | 100 | 78.28 | 43. | 169 | 1.00 | | |
| 19:42:17 | 6.0 | -31.0 | .00001 | .00002 | 100 | 68.90 | 142. | 148 | .95 | | |
| 19:42:32 | 6.0 | -31.1 | .00026 | .00137 | 100 | 93.86 | 4667. | 311 | .72 | | |
| 19:42:47 | 6.0 | -31.1 | .00026 | .00148 | 100 | 102.94 | 4575. | 311 | .76 | | |
| 19:43:02 | 6.0 | -31.2 | .00024 | .00102 | 100 | 105.12 | 3121. | 311 | .71 | | |
| 19:43:17 | 6.0 | -31.3 | .00163 | .00051 | 100 | 89.44 | 2178. | 250 | .77 | | In the middle of a 500 foot thick cirrus deck. |
| 19:43:32 | 6.0 | -31.3 | .00008 | .00011 | 100 | 70.25 | 976. | 189 | .82 | | |
| 19:43:47 | 6.0 | -31.7 | .00007 | .00017 | 100 | 68.63 | 1434. | 169 | .85 | | |
| 19:44:02 | 6.1 | -31.8 | .00001 | .00001 | 100 | 65.15 | 66. | 128 | 1.00 | | |
| 19:44:17 | 6.1 | -31.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:44:32 | 6.1 | -32.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:44:47 | 6.1 | -32.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 | | |
| 19:45:02 | 6.1 | -32.2 | .00020 | .00008 | 100 | 41.37 | 2471. | 128 | .77 | | |
| 19:45:17 | 6.1 | -32.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | In thin Ci layer now. The brown changes to white as we get closer. |
| 19:45:32 | 6.1 | -32.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:45:47 | 6.1 | -32.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | Vis 100 mi. |
| 19:46:02 | 6.1 | -32.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:46:17 | 6.2 | -32.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:46:32 | 6.2 | -32.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:46:47 | 6.2 | -32.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:47:02 | 6.2 | -32.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:47:17 | 6.2 | -32.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 19:47:32 | 6.2 | -32.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 19:47:47 | 6.2 | -32.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | In clear now, parallel to a Ci band |
| 19:48:02 | 6.1 | -32.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |

Much Cu below the Ci we're approaching. 20,100 feet.

In the middle of a 500 foot thick cirrus deck.

In thin Ci layer now. The brown changes to white as we get closer.

Vis 100 mi.

In clear now, parallel to a Ci band

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| 03 FEB 79 | | | | | | | | | |
|-------------------|--------|--------|-------------------------|-------------------------|---------|-------|---------------------|---------|-------|
| 15 SECOND AVERAGE | | | | | | | | | |
| START TIME | ALT KM | TEMP C | LWC-SC g/m ³ | LWC-CP g/m ³ | LWC CLD | DO UN | NT M/M ³ | LNAX UN | FF UN |
| 19:48:17 | 4.2 | -32.8 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:48:32 | 4.2 | -32.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:48:47 | 4.2 | -32.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:49:02 | 4.1 | -32.5 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:49:17 | 4.1 | -32.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 16 | 0.00 |
| 19:49:32 | 4.1 | -32.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:49:47 | 4.1 | -32.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:50:02 | 4.1 | -32.6 | .00001 | 0.00000 | 0 | 0.00 | 0. | 10 | 0.00 |
| 19:50:17 | 4.1 | -32.7 | .00003 | .00003 | 100 | 41.68 | 290. | 120 | 1.29 |
| 19:50:32 | 4.1 | -32.3 | .00001 | .00002 | 100 | 46.62 | 351. | 87 | .97 |
| 19:50:47 | 4.1 | -32.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:51:02 | 4.1 | -31.9 | .00210 | .00014 | 100 | 41.27 | 2863. | 108 | 1.08 |
| 19:51:17 | 4.1 | -32.1 | .00000 | .00001 | 100 | 42.38 | 223. | 67 | 1.00 |
| 19:51:32 | 4.0 | -31.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:51:47 | 4.0 | -31.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:52:02 | 4.0 | -31.4 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:52:17 | 4.0 | -31.1 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:52:32 | 4.0 | -31.1 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 19:52:47 | 4.0 | -31.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:53:02 | 4.0 | -31.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:53:17 | 4.0 | -30.8 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:53:32 | 4.0 | -30.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:53:47 | 4.0 | -31.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:54:02 | 3.9 | -30.8 | .00013 | 0.00000 | 0 | 0.00 | 0. | 14 | 0.00 |
| 19:54:17 | 3.9 | -30.9 | .00001 | 0.00000 | 0 | 0.00 | 0. | 7 | 0.00 |
| 19:54:32 | 3.9 | -30.9 | .00004 | .00002 | 100 | 91.96 | 49. | 209 | 1.00 |
| 19:54:47 | 4.0 | -30.9 | .00216 | .00002 | 100 | 38.00 | 604. | 87 | .83 |
| 19:55:02 | 4.0 | -31.1 | .00040 | .00001 | 100 | 38.07 | 93. | 108 | 1.00 |
| 19:55:17 | 4.0 | -30.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 19:55:32 | 4.0 | -30.7 | .00013 | 0.00000 | 0 | 0.00 | 0. | 12 | 0.00 |
| 19:55:47 | 4.0 | -31.0 | .00424 | .00015 | 100 | 48.14 | 1790. | 148 | 1.12 |
| 19:56:02 | 4.0 | -31.3 | .00001 | 0.00000 | 0 | 0.00 | 0. | 25 | 0.00 |
| 19:56:17 | 4.0 | -31.2 | .00000 | .00004 | 100 | 38.07 | 1336. | 87 | .87 |
| 19:56:32 | 4.0 | -31.1 | .00058 | .00004 | 100 | 48.69 | 790. | 108 | .94 |
| 19:56:47 | 4.0 | -31.2 | .00994 | .00001 | 100 | 33.34 | 485. | 47 | 1.00 |
| 19:57:02 | 4.0 | -31.1 | .00667 | .00005 | 100 | 47.36 | 800. | 87 | 1.12 |
| 19:57:17 | 3.9 | -30.8 | .00233 | .00002 | 100 | 41.89 | 199. | 120 | .93 |
| 19:57:32 | 4.0 | -30.9 | .00259 | .00004 | 100 | 50.67 | 1469. | 148 | .74 |
| 19:57:47 | 4.0 | -31.0 | .00370 | .00001 | 100 | 42.38 | 217. | 67 | 1.00 |
| 19:58:02 | 4.0 | -30.9 | .00759 | .00004 | 100 | 41.97 | 1402. | 87 | .86 |
| 19:58:17 | 3.9 | -30.7 | .00117 | .00001 | 100 | 50.53 | 127. | 87 | 1.00 |
| 19:58:32 | 4.0 | -30.8 | .00250 | .00003 | 100 | 39.65 | 457. | 67 | 1.54 |
| 19:58:47 | 3.9 | -30.6 | .00014 | 0.00000 | 0 | 0.00 | 0. | 9 | 0.00 |

Should begin to get counts soon. Must be in it now. Fibrous elements going by.

In the C1 band. Near tops. Brownish C1, horizontal vis low.

Nothing on snowstick

Skimming tops. Can see through to ground, but there's probably shadow on ground. Fibrous elements going by.

Occasionally go through a top that is higher than others.

Still skimming tops

Still right on top. Not an even flat top, but sticks up in various places.

Can see through to ground, but short range is 3 to 4 mi.

| 03 FEB 79 | | | | | | | | | |
|-------------------|--------|--------|-----------------|-----------------|------------|----------|-------------|------------|------|
| 15 SECOND AVERAGE | | | | | | | | | |
| START TIME | ALT KN | TEMP C | LUC-BC 0/M+3 | LUC-CP 0/M+3 | LUC CLB | DO UN | HT M/M+3 | LNAX UM | FF |
| 19:59:02 | 5.9 | -30.4 | .00105 | .00001 | 100 | 42.38 | 222. | 67 | 1.00 |
| 19:59:17 | 5.9 | -30.2 | .00212 | .00003 | 100 | 48.59 | 499. | 87 | .97 |
| 19:59:32 | 5.9 | -30.0 | .00312 | .00001 | 100 | 65.15 | 69. | 128 | 1.00 |
| 19:59:47 | 5.8 | -29.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 3 | 0.00 |
| 20:00:02 | 5.8 | -28.9 | .00438 | .00002 | 100 | 91.96 | 52. | 209 | 1.00 |
| 20:00:17 | 5.9 | -29.4 | .00992 | .00011 | 100 | 60.87 | 877. | 250 | .63 |
| 20:00:32 | 5.9 | -30.4 | .00145 | 0.00000 | 0 | 0.00 | 0. | 23 | 0.00 |
| 20:00:47 | 5.9 | -30.8 | .00749 | .00001 | 100 | 58.07 | 87. | 108 | 1.00 |
| 20:01:02 | 5.9 | -30.5 | .00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 |
| 20:01:17 | 5.9 | -30.5 | .00052 | 0.00000 | 0 | 0.00 | 0. | 23 | 0.00 |
| 20:01:32 | 5.9 | -30.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 5 | 0.00 |
| 20:01:47 | 5.9 | -30.8 | .00257 | .00002 | 100 | 37.91 | 688. | 47 | .94 |
| 20:02:02 | 5.9 | -30.8 | .00145 | .00002 | 100 | 54.43 | 550. | 108 | .73 |
| 20:02:17 | 5.9 | -30.7 | .01283 | .00011 | 100 | 49.81 | 1980. | 209 | .66 |
| 20:02:32 | 5.9 | -30.2 | .00092 | .00192 | 100 | 47.30 | 40130. | 209 | .77 |
| 20:02:47 | 5.9 | -30.1 | 0.00000 | 0.00002 | 100 | 58.47 | 178. | 108 | 1.00 |
| 20:03:02 | 5.9 | -30.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:03:17 | 5.9 | -30.5 | .00214 | .00001 | 100 | 58.07 | 87. | 108 | 1.00 |
| 20:03:32 | 5.9 | -30.2 | .00180 | 0.00000 | 0 | 0.00 | 0. | 16 | 0.00 |
| 20:03:47 | 5.9 | -30.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:04:02 | 5.9 | -30.4 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 20:04:17 | 5.9 | -30.6 | .00154 | .00299 | 100 | 41.89 | 70145. | 230 | .88 |
| 20:04:32 | 5.9 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:04:47 | 5.9 | -30.7 | .00028 | 0.00000 | 0 | 0.00 | 0. | 14 | 0.00 |
| 20:05:02 | 5.9 | -30.8 | .00223 | .00001 | 100 | 58.07 | 87. | 108 | 1.00 |
| 20:05:17 | 5.9 | -30.8 | .00001 | 0.00000 | 0 | 0.00 | 0. | 9 | 0.00 |
| 20:05:32 | 6.0 | -31.1 | .00317 | .00005 | 100 | 52.68 | 892. | 128 | .80 |
| 20:05:47 | 6.0 | -31.2 | .00156 | .00005 | 100 | 63.68 | 371. | 148 | .97 |
| 20:06:02 | 5.9 | -31.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:06:17 | 5.9 | -30.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:06:32 | 5.8 | -29.8 | .00000 | .00001 | 100 | 78.28 | 42. | 149 | 1.00 |
| 20:06:47 | 5.6 | -28.5 | .00025 | .00076 | 99 | 114.25 | 2863. | 413 | .59 |
| 20:07:02 | 5.4 | -27.1 | .00001 | .00001 | 100 | 78.28 | 44. | 149 | 1.00 |
| 20:07:17 | 5.3 | -26.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |

Very thin, but now getting thicker. Even at that the ground is bright below. Very near tops. Bright blue looking just above tops.

Still right near top of cirrostratus. The Cu below gives a shadow, but the cirrus doesn't.

Still going through tops of Cs, brownish.

Now going into a band of brownish cloud
Now we have come out. Vis 100 mi

Appendix B

4 February 1979 Data Tabulations

The format is the same as that used in Appendix A.

| 04 FEB '79 | | | | | | | | | |
|-------------------|--------|--------|---------------|---------------|---------|--------|-----------|---------|-------|
| 15 SECOND AVERAGE | | | | | | | | | |
| START TIME | ALT KM | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | DD UM | NT W/M**3 | LMAX UM | FF UM |
| 21:02:15 | 9.3 | -40.2 | .00002 | .00011 | 100 | 133.50 | 150. | 311 | .78 |
| 21:02:30 | 9.3 | -40.3 | .00001 | .00000 | 0 | 0.00 | 0. | 22 | 0.00 |
| 21:02:45 | 9.4 | -40.4 | .00000 | .00000 | 0 | 0.00 | 0. | 14 | 0.00 |
| 21:03:00 | 9.4 | -40.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:03:15 | 9.4 | -40.5 | .00002 | .00004 | 100 | 58.89 | 430. | 148 | .86 |
| 21:03:30 | 9.4 | -40.5 | .00001 | .00007 | 100 | 46.82 | 1268. | 128 | .91 |
| 21:03:45 | 9.4 | -40.6 | .00000 | .00001 | 100 | 22.85 | 0. | 26 | 0.00 |
| 21:04:00 | 9.4 | -40.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:04:15 | 9.4 | -40.6 | 0.00000 | .00001 | 100 | 42.38 | 169. | 67 | 1.00 |
| 21:04:30 | 9.4 | -40.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:04:45 | 9.4 | -40.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:05:00 | 9.4 | -40.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:05:15 | 9.4 | -40.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:05:30 | 9.4 | -40.7 | 0.00000 | .00001 | 100 | 84.44 | 35. | 189 | 1.00 |
| 21:05:45 | 9.4 | -40.7 | .00001 | .00000 | 0 | 0.00 | 0. | 20 | 0.00 |
| 21:06:00 | 9.4 | -40.7 | .00002 | .00021 | 100 | 133.74 | 216. | 311 | .90 |
| 21:06:15 | 9.4 | -40.7 | .00102 | .00204 | 84 | 120.12 | 8014. | 644 | .60 |
| 21:06:30 | 9.4 | -40.7 | .00004 | .00016 | 100 | 125.55 | 289. | 311 | .80 |
| 21:06:45 | 9.4 | -40.7 | .00031 | .00118 | 99 | 100.14 | 3859. | 413 | .66 |
| 21:07:00 | 9.4 | -40.7 | .00056 | .00210 | 83 | 113.91 | 5600. | 644 | .63 |
| 21:07:15 | 9.4 | -40.7 | .00014 | .00033 | 94 | 123.11 | 1463. | 413 | .49 |
| 21:07:30 | 9.4 | -40.7 | .00025 | .00117 | 99 | 113.38 | 2971. | 413 | .72 |
| 21:07:45 | 9.4 | -40.7 | .00074 | .00142 | 78 | 116.92 | 5360. | 644 | .52 |
| 21:08:00 | 9.4 | -40.8 | .00013 | .00044 | 99 | 97.27 | 3271. | 413 | .52 |
| 21:08:15 | 9.4 | -40.8 | .00011 | .00028 | 99 | 56.07 | 4220. | 413 | .75 |
| 21:08:30 | 9.4 | -40.9 | .00006 | .00004 | 100 | 50.66 | 492. | 209 | .64 |
| 21:08:45 | 9.4 | -40.9 | .00000 | .00001 | 100 | 46.65 | 266. | 87 | .97 |
| 21:09:00 | 9.4 | -40.9 | .00000 | .00000 | 0 | 0.00 | 0. | 8 | 0.00 |
| 21:09:15 | 9.4 | -40.9 | .00003 | .00004 | 100 | 70.41 | 605. | 148 | .70 |
| 21:09:30 | 9.4 | -40.9 | .00001 | .00005 | 100 | 76.46 | 612. | 189 | .64 |
| 21:09:45 | 9.4 | -40.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:10:00 | 9.4 | -41.0 | .00002 | .00016 | 100 | 95.47 | 1138. | 250 | .58 |
| 21:10:15 | 9.4 | -41.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:10:30 | 9.4 | -41.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:10:45 | 9.4 | -40.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:11:00 | 9.4 | -40.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:11:15 | 9.4 | -40.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:11:30 | 9.4 | -40.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:11:45 | 9.4 | -40.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:12:00 | 9.4 | -40.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 21:12:15 | 9.4 | -40.8 | .00000 | .00001 | 100 | 65.15 | 99. | 128 | 1.00 |
| 21:12:30 | 9.4 | -40.7 | 0.00000 | .00001 | 100 | 71.07 | 39. | 148 | 1.00 |
| 21:12:45 | 9.4 | -40.7 | .00011 | .00039 | 100 | 68.93 | 3651. | 230 | .74 |

Little tuft above us coming up. We'll get a piece of it.

A couple of hundred feet under a tuft. No particle count.

Out from under it. Still no particle count.

Clear to right. Thin tufts of Ci going by above. Getting some counts now.

Banking to left toward the heavy Ci.

Heavy Ci straight ahead, but we're continuing turn.

Can see tufts going by on its side. Small segments going by closer to us.

CL

| START TIME | #4 FEB 79 | | | | 15 SECOND AVERAGE | | | | NT | LMAX | FF |
|------------|-----------|--------|--------------|--------------|-------------------|--------|--------|-----|------|------|----|
| | ALT KM | TEMP C | LUC-SC G/M+3 | LUC-CP G/M+3 | LUC CLD | DD UM | N/M+3 | UM | | | |
| 21:13:00 | 9.4 | -40.7 | .00028 | .00107 | 100 | 73.04 | 7867. | 311 | .60 | | |
| 21:13:15 | 9.4 | -40.6 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:13:30 | 9.4 | -40.5 | .00000 | .00001 | 100 | 65.15 | 50. | 128 | 1.00 | | |
| 21:13:45 | 9.4 | -40.5 | .00000 | .00001 | 100 | 42.38 | 168. | 67 | 1.00 | | |
| 21:14:00 | 9.4 | -40.4 | .00000 | .00000 | 0 | 0.00 | 0. | 12 | 0.00 | | |
| 21:14:15 | 9.4 | -40.4 | .00001 | .00003 | 100 | 42.38 | 769. | 108 | .84 | | |
| 21:14:30 | 9.4 | -40.4 | .00001 | .00001 | 100 | 33.34 | 362. | 47 | 1.00 | | |
| 21:14:45 | 9.4 | -40.4 | .00001 | .00002 | 100 | 58.87 | 273. | 169 | .76 | | |
| 21:15:00 | 9.4 | -40.4 | .00001 | .00001 | 100 | 58.07 | 69. | 108 | 1.00 | | |
| 21:15:15 | 9.4 | -40.4 | .00004 | .00011 | 100 | 118.67 | 145. | 311 | .86 | | |
| 21:15:30 | 9.4 | -40.3 | .00004 | .00012 | 100 | 47.71 | 2525. | 189 | .74 | | |
| 21:15:45 | 9.4 | -40.3 | .00005 | .00020 | 100 | 85.77 | 1016. | 311 | .61 | | |
| 21:16:00 | 9.4 | -40.2 | .00015 | .00024 | 100 | 62.89 | 3313. | 209 | .78 | | |
| 21:16:15 | 9.4 | -39.8 | .00027 | .00055 | 100 | 58.91 | 8896. | 209 | .68 | | |
| 21:16:30 | 9.3 | -39.7 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:16:45 | 9.3 | -39.5 | .00000 | .00000 | 0 | 0.00 | 0. | 14 | 0.00 | | |
| 21:17:00 | 9.3 | -39.4 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:17:15 | 9.3 | -39.5 | .00001 | .00016 | 100 | 108.91 | 977. | 311 | .90 | | |
| 21:17:30 | 9.3 | -39.6 | .00037 | .00090 | 99 | 96.83 | 3178. | 413 | .71 | | |
| 21:17:45 | 9.3 | -39.6 | .00007 | .00011 | 84 | 134.49 | 435. | 413 | .47 | | |
| 21:18:00 | 9.3 | -39.7 | .00000 | .00001 | 100 | 65.15 | 52. | 128 | 1.00 | | |
| 21:18:15 | 9.3 | -39.6 | .00001 | .00001 | 100 | 65.15 | 52. | 128 | 1.00 | | |
| 21:18:30 | 9.3 | -39.7 | .00002 | .00002 | 100 | 35.79 | 217. | 108 | .75 | | |
| 21:18:45 | 9.3 | -39.8 | .00000 | .00001 | 100 | 38.09 | 553. | 67 | .64 | | |
| 21:19:00 | 9.3 | -39.8 | .00001 | .00000 | 0 | 0.00 | 0. | 28 | 0.00 | | |
| 21:19:15 | 9.3 | -39.7 | .00000 | .00000 | 0 | 0.00 | 0. | 14 | 0.00 | | |
| 21:19:30 | 9.3 | -39.6 | .00040 | .00118 | 99 | 126.23 | 2428. | 413 | .72 | | |
| 21:19:45 | 9.3 | -39.6 | .00004 | .00014 | 100 | 125.95 | 432. | 311 | .67 | | |
| 21:20:00 | 9.3 | -39.5 | .00004 | .00282 | 100 | 101.81 | 964. | 311 | .67 | | |
| 21:20:15 | 9.3 | -39.6 | .00001 | .00003 | 100 | 54.93 | 407. | 128 | .89 | | |
| 21:20:30 | 9.3 | -39.4 | .00001 | .00005 | 100 | 51.85 | 893. | 169 | .74 | | |
| 21:20:45 | 9.3 | -39.2 | .00002 | .00002 | 100 | 61.87 | 127. | 128 | .99 | | |
| 21:21:00 | 9.3 | -39.5 | .00005 | .00004 | 100 | 45.63 | 859. | 169 | .68 | | |
| 21:21:15 | 9.4 | -40.1 | .00003 | .00017 | 100 | 134.00 | 144. | 311 | .99 | | |
| 21:21:30 | 9.4 | -40.1 | .00000 | .00001 | 100 | 38.07 | 547. | 67 | .94 | | |
| 21:21:45 | 9.4 | -40.1 | .00001 | .00008 | 100 | 92.86 | 389. | 250 | .79 | | |
| 21:22:00 | 9.4 | -40.0 | .00002 | .00017 | 100 | 67.00 | 1100. | 209 | .71 | | |
| 21:22:15 | 9.4 | -39.9 | .00004 | .00009 | 100 | 46.56 | 393. | 128 | .78 | | |
| 21:22:30 | 9.3 | -39.7 | .00031 | .00067 | 99 | 79.91 | 5474. | 311 | .87 | | |
| 21:22:45 | 9.3 | -39.7 | .00054 | .00172 | 99 | 94.15 | 9418. | 413 | .65 | | |
| 21:23:00 | 9.3 | -39.6 | .00130 | .00400 | 99 | 100.70 | 25300. | 413 | .64 | | |
| 21:23:15 | 9.3 | -39.6 | .00009 | .00263 | 99 | 114.22 | 9119. | 413 | .61 | | |
| 21:23:30 | 9.3 | -39.6 | .00020 | .00040 | 100 | 41.57 | 3917. | 240 | .68 | | |

Very thin segment coming up. Can see right through.

Now out of it.

In clear now.

Going under some thin cloud. Hard to say how much higher it is. Probably getting some fall-out. Some fibrous CI 5000 feet below us.

Can see more stuff going by above us.

Seems to be CI below - at least, ice crystal type.

Still going under very thin tufts, probably not visible from ground at all.

Clouds like tufts of thin cotton above us.

Now only blue sky above us.

Between layers predominantly.

Now in lighter cloud. Good stuff. Can see blue sky under and over a

CI band ahead. Will go under it soon.

| START | | 04 FEB 79 | | | | 15 SECOND AVERAGE | | | | | | | |
|----------|-----|-----------|---------|---------|-----|-------------------|--------|------|------|--|--|--|--|
| TIME | ALT | TEMP | LWC-SC | LWC-CP | LWC | DO | NT | LMAX | FF | | | | |
| | FM | C | G/N**3 | G/N**3 | CLB | UM | N/N**3 | UM | | | | | |
| 20:51:30 | 9.3 | -42.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:51:45 | 9.3 | -42.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:52:00 | 9.3 | -42.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:52:15 | 9.4 | -42.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:52:30 | 9.4 | -42.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:52:45 | 9.4 | -42.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:53:00 | 9.3 | -42.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:53:15 | 9.3 | -42.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:53:30 | 9.3 | -41.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:53:45 | 9.3 | -41.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:54:00 | 9.4 | -42.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:54:15 | 9.3 | -41.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:54:30 | 9.4 | -41.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:54:45 | 9.4 | -41.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:55:00 | 9.4 | -41.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:55:15 | 9.4 | -41.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:55:30 | 9.4 | -41.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:55:45 | 9.4 | -41.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:56:00 | 9.4 | -41.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:56:15 | 9.4 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:56:30 | 9.4 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:56:45 | 9.4 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:57:00 | 9.4 | -41.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:57:15 | 9.4 | -41.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:57:30 | 9.4 | -41.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:57:45 | 9.4 | -41.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | | | |
| 20:58:00 | 9.4 | -41.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:58:15 | 9.4 | -41.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:58:30 | 9.4 | -41.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:58:45 | 9.4 | -41.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:59:00 | 9.4 | -41.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:59:15 | 9.4 | -41.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:59:30 | 9.4 | -41.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 20:59:45 | 9.4 | -41.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 21:00:00 | 9.4 | -41.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | | | |
| 21:00:15 | 9.4 | -40.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 21:00:30 | 9.4 | -40.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 21:00:45 | 9.4 | -40.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 21:01:00 | 9.4 | -40.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 21:01:15 | 9.4 | -40.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 21:01:30 | 9.4 | -40.4 | 0.00000 | 0.00001 | 100 | 71.07 | 39. | 148 | 1.00 | | | | |
| 21:01:45 | 9.3 | -40.1 | 0.00100 | 0.00351 | 99 | 99.71 | 11541. | 413 | .73 | | | | |
| 21:02:00 | 9.4 | -40.2 | 0.00000 | 0.00291 | 100 | 120.36 | 4096. | 311 | .81 | | | | |

CI above and to the right.

Hdg 045°, but in turn. No cloud ahead but CI off to our right. Shadows below the CI. It's 10 mi off to our right. The very thin good stuff is a couple thousand ft above us, but can't reach it.

In clear air now, with thin cloud on the right. Under thin cloud but approaching lower heavy band ahead.

Tufts of thin cloud now. Looks like cotton.

| START TIME | 04 FEB 79 | | 15 SECOND AVERAGE | | | | NT | LMAX | FF |
|------------|-----------|--------|-------------------|---------------|---------|-------|----|--------|----|
| | ALT KM | TEMP C | LUC-SC G/M**3 | LUC-CF G/M**3 | LUC CLD | DO UH | | | |
| 20:40:45 | 9.0 | -40.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 0.00 | |
| 20:41:00 | 9.0 | -40.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 0.00 | |
| 20:41:15 | 9.0 | -40.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:41:30 | 9.0 | -40.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:41:45 | 9.0 | -40.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:42:00 | 9.0 | -40.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:42:15 | 9.0 | -40.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:42:30 | 9.0 | -39.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:42:45 | 9.1 | -40.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:43:00 | 9.1 | -40.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:43:15 | 9.2 | -41.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:43:30 | 9.3 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:43:45 | 9.3 | -41.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:44:00 | 9.3 | -42.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:44:15 | 9.3 | -42.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:44:30 | 9.3 | -42.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:44:45 | 9.3 | -42.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:45:00 | 9.3 | -42.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:45:15 | 9.3 | -42.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:45:30 | 9.3 | -42.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:45:45 | 9.3 | -42.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:46:00 | 9.3 | -42.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:46:15 | 9.3 | -42.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:46:30 | 9.3 | -41.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:46:45 | 9.3 | -42.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:47:00 | 9.3 | -42.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 0.00 | |
| 20:47:15 | 9.3 | -41.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:47:30 | 9.3 | -41.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:47:45 | 9.1 | -41.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:48:00 | 9.3 | -41.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:48:15 | 9.3 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:48:30 | 9.3 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:48:45 | 9.3 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:49:00 | 9.3 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:49:15 | 9.3 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:49:30 | 9.3 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:49:45 | 9.3 | -41.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:50:00 | 9.3 | -41.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:50:15 | 9.3 | -41.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:50:30 | 9.4 | -41.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:50:45 | 9.4 | -41.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:51:00 | 9.4 | -41.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 20:51:15 | 9.4 | -41.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |

77

Over Roswell 30,200', Ci close to us - maybe 1000' above us. Running along a band of Ci to our left.

| | | 04 FEB 79 | | 15 SECOND AVERAGE | | | | | |
|------------|--------|-----------|---------------|-------------------|---------|-------|-----------|---------|-------|
| START TIME | ALT KM | TEMP C | LUC-SC G/M**3 | LUC-CP G/M**3 | LUC CLD | DD UM | WT N/M**3 | LMAX UM | FF UM |
| 20:30:00 | 8.2 | -36.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 20:30:15 | 8.3 | -37.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 20:30:30 | 8.3 | -37.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 20:30:45 | 8.3 | -37.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 20:31:00 | 8.4 | -37.4 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 20:31:15 | 8.4 | -37.4 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 20:31:30 | 8.4 | -37.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 |
| 20:31:45 | 8.5 | -38.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 20:32:00 | 8.5 | -38.1 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 20:32:15 | 8.5 | -38.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 20:32:30 | 8.5 | -38.4 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 20:32:45 | 8.5 | -38.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 20:33:00 | 8.6 | -38.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:33:15 | 8.6 | -38.3 | 0.00000 | .00001 | 100 | 38.08 | 550. | 67 | .94 |
| 20:33:30 | 8.6 | -38.0 | .00000 | .00002 | 100 | 56.33 | 314. | 108 | .91 |
| 20:33:45 | 8.6 | -37.8 | .00000 | .00001 | 100 | 50.53 | 103. | 87 | 1.00 |
| 20:34:00 | 8.6 | -37.8 | .00000 | .00001 | 100 | 38.11 | 471. | 87 | .83 |
| 20:34:15 | 8.7 | -38.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 20:34:30 | 8.7 | -38.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 |
| 20:34:45 | 8.7 | -38.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:35:00 | 8.7 | -38.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:35:15 | 8.7 | -38.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:35:30 | 8.8 | -39.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:35:45 | 8.8 | -39.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:36:00 | 8.8 | -39.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:36:15 | 8.8 | -39.3 | 0.00000 | .00001 | 100 | 61.05 | 122. | 128 | .99 |
| 20:36:30 | 8.8 | -39.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:36:45 | 8.8 | -39.4 | 0.00000 | .00001 | 100 | 50.53 | 103. | 87 | 1.00 |
| 20:37:00 | 8.8 | -39.3 | 0.00000 | .00002 | 100 | 50.53 | 307. | 87 | 1.00 |
| 20:37:15 | 8.9 | -39.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:37:30 | 8.9 | -39.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:37:45 | 8.9 | -39.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:38:00 | 8.9 | -39.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:38:15 | 9.0 | -39.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:38:30 | 9.0 | -39.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:38:45 | 9.0 | -39.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:39:00 | 9.0 | -39.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:39:15 | 9.0 | -39.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:39:30 | 9.0 | -39.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:39:45 | 9.0 | -39.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:40:00 | 9.0 | -39.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:40:15 | 9.0 | -39.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 20:40:30 | 9.0 | -40.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 |

27,000 feet. Getting closer to C1, but it's still far away. Scattered Cu below.

| 04 FEB 79 | | | | | | | | | | |
|-------------------|--------|--------|---------------|---------------|---------|--------|-----------|---------|------|--|
| 15 SECOND AVERAGE | | | | | | | | | | |
| START TIME | ALT KN | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | DO UM | NT W/M**3 | LMAX UM | FF | |
| 21:23:45 | 9.3 | -39.8 | .00014 | .00035 | 100 | 88.95 | 3038. | 311 | .49 | |
| 21:24:00 | 9.4 | -39.9 | .00004 | .00006 | 100 | 58.22 | 1203. | 189 | .60 | |
| 21:24:15 | 9.4 | -39.9 | .00011 | .00021 | 100 | 75.92 | 1281. | 209 | .83 | |
| 21:24:30 | 9.4 | -39.9 | .00042 | .00096 | 100 | 69.22 | 11897. | 250 | .62 | |
| 21:24:45 | 9.4 | -39.9 | .00003 | .00010 | 100 | 73.16 | 636. | 230 | .79 | |
| 21:25:00 | 9.4 | -39.9 | .00002 | .00009 | 100 | 69.73 | 549. | 250 | .71 | |
| 21:25:15 | 9.3 | -39.7 | .00033 | .00071 | 100 | 81.42 | 4856. | 311 | .64 | |
| 21:25:30 | 9.3 | -39.6 | .00059 | .00156 | 100 | 79.76 | 9374. | 311 | .69 | |
| 21:25:45 | 9.3 | -39.6 | .00060 | .00205 | 100 | 81.04 | 13394. | 311 | .64 | Many white tufts drifting by over us. |
| 21:26:00 | 9.3 | -39.6 | .00143 | .00444 | 100 | 68.63 | 42585. | 311 | .68 | |
| 21:26:15 | 9.3 | -39.8 | .00145 | .00372 | 100 | 66.46 | 38113. | 311 | .69 | Very thin stuff; no texture. |
| 21:26:30 | 9.3 | -39.9 | .00053 | .00105 | 100 | 49.00 | 20268. | 209 | .78 | |
| 21:26:45 | 9.3 | -39.9 | .00004 | .00000 | 100 | 93.28 | 548. | 250 | .58 | |
| 21:27:00 | 9.3 | -40.0 | .00001 | .00001 | 100 | 54.43 | 429. | 108 | .73 | |
| 21:27:15 | 9.3 | -40.0 | .00000 | .00001 | 100 | 78.28 | 33. | 169 | 1.00 | |
| 21:27:30 | 9.3 | -40.0 | .00001 | .00000 | 0 | 0.00 | 0. | 24 | 0.00 | |
| 21:27:45 | 9.3 | -40.0 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 21:28:00 | 9.3 | -40.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 21:28:15 | 9.3 | -40.2 | .00000 | .00001 | 100 | 58.07 | 68. | 108 | 1.00 | |
| 21:28:30 | 9.3 | -40.3 | .00038 | .00113 | 98 | 120.49 | 2476. | 413 | .72 | |
| 21:28:45 | 9.3 | -40.3 | .00054 | .00253 | 99 | 107.93 | 7817. | 413 | .68 | |
| 21:29:00 | 9.3 | -40.4 | .00181 | .00668 | 99 | 111.42 | 19436. | 413 | .68 | |
| 21:29:15 | 9.3 | -40.5 | .00066 | .00190 | 99 | 89.90 | 10407. | 413 | .58 | Very thin stuff above us. |
| 21:29:30 | 9.3 | -40.5 | .00009 | .00023 | 100 | 53.05 | 4297. | 230 | .66 | Going under a tuft in a minute. |
| 21:29:45 | 9.3 | -40.5 | .00000 | .00003 | 100 | 79.08 | 309. | 230 | .73 | |
| 21:30:00 | 9.3 | -40.4 | .00000 | .00005 | 100 | 96.43 | 445. | 230 | .58 | Flying under a tuft now - or are we? primarily off our rt wing. |
| 21:30:15 | 9.3 | -40.4 | .00002 | .00002 | 100 | 90.21 | 205. | 209 | .60 | |
| 21:30:30 | 9.3 | -40.4 | .00003 | .00001 | 100 | 42.38 | 167. | 67 | 1.00 | |
| 21:30:45 | 9.3 | -40.5 | .00000 | .00002 | 100 | 65.63 | 256. | 148 | .80 | Mostly blue sky now, but a few filaments of Ci. |
| 21:31:00 | 9.3 | -40.5 | .00000 | .00001 | 100 | 58.07 | 68. | 108 | 1.00 | |
| 21:31:15 | 9.4 | -40.6 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 21:31:30 | 9.4 | -40.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 21:31:45 | 9.3 | -40.4 | .00001 | .00000 | 0 | 0.00 | 0. | 24 | 0.00 | |
| 21:32:00 | 9.3 | -40.1 | .00013 | .00001 | 100 | 33.34 | 354. | 47 | 1.00 | |
| 21:32:15 | 9.3 | -39.9 | .00000 | .00002 | 100 | 100.88 | 42. | 230 | 1.00 | |
| 21:32:30 | 9.3 | -39.7 | .00005 | .00003 | 93 | 99.66 | 76. | 413 | .84 | Going thru very thin Ci - at its base. Vis excellent. Sunny above, |
| 21:32:45 | 9.3 | -40.1 | .00010 | .00015 | 95 | 111.34 | 393. | 413 | .69 | but the cloud is a type of cirrus. Very thin streaks in it. |
| 21:33:00 | 9.3 | -40.3 | .00126 | .00169 | 54 | 137.44 | 9135. | 923 | .38 | |
| 21:33:15 | 9.3 | -40.2 | .00211 | .00451 | 69 | 126.67 | 16136. | 644 | .50 | |
| 21:33:30 | 9.3 | -40.3 | .00046 | .00113 | 100 | 71.03 | 8857. | 311 | .69 | |
| 21:33:45 | 9.3 | -39.2 | .00001 | .00000 | 0 | 0.00 | 0. | 18 | 0.00 | Out of it. |
| 21:34:00 | 9.3 | -39.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 21:34:15 | 9.3 | -35.4 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |

| | | 04 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|-----|-----------|--------|-------------------|-----|--------|--------|------|------|--|--|
| START TIME | ALT | TEMP | LUC-SC | LUC-CP | LUC | DO | NT | LMAX | FF | | |
| | KM | C | G/M**3 | G/M**3 | CLD | UM | N/M**3 | UM | | | |
| 21:34:30 | 9.3 | -34.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:34:45 | 9.3 | -35.3 | 0.0056 | 0.0131 | 81 | 126.04 | 2619. | 644 | .70 | | |
| 21:35:00 | 9.3 | -40.4 | 0.0022 | 0.0000 | 100 | 30.22 | 1579. | 128 | 1.33 | | |
| 21:35:15 | 9.3 | -40.4 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:35:30 | 9.3 | -40.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:35:45 | 9.3 | -40.3 | 0.0001 | 0.0001 | 100 | 65.15 | 54. | 128 | 1.00 | | |
| 21:36:00 | 9.3 | -40.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:36:15 | 9.3 | -40.1 | 0.0001 | 0.0001 | 100 | 22.85 | 0. | 26 | 0.00 | | |
| 21:36:30 | 9.3 | -40.1 | 0.0003 | 0.0003 | 100 | 36.85 | 594. | 87 | 1.17 | | |
| 21:36:45 | 9.3 | -40.1 | 0.0002 | 0.0003 | 100 | 37.01 | 557. | 108 | 1.09 | | |
| 21:37:00 | 9.3 | -40.1 | 0.0003 | 0.0003 | 100 | 46.82 | 532. | 108 | .93 | | |
| 21:37:15 | 9.3 | -40.1 | 0.0001 | 0.0011 | 100 | 43.63 | 1400. | 250 | .51 | | |
| 21:37:30 | 9.3 | -40.1 | 0.0002 | 0.0006 | 100 | 49.50 | 647. | 189 | .88 | | |
| 21:37:45 | 9.3 | -39.9 | 0.0001 | 0.0005 | 100 | 57.25 | 867. | 189 | .63 | | |
| 21:38:00 | 9.3 | -39.8 | 0.0000 | 0.0001 | 100 | 42.38 | 173. | 87 | 1.00 | | |
| 21:38:15 | 9.3 | -39.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:38:30 | 9.3 | -40.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:38:45 | 9.3 | -40.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:39:00 | 9.3 | -40.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:39:15 | 9.3 | -39.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:39:30 | 9.2 | -39.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:39:45 | 9.3 | -39.4 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:40:00 | 9.3 | -39.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:40:15 | 9.3 | -39.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:40:30 | 9.3 | -39.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:40:45 | 9.3 | -39.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:41:00 | 9.3 | -39.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:41:15 | 9.3 | -39.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:41:30 | 9.3 | -38.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:41:45 | 9.3 | -38.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:42:00 | 9.2 | -38.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:42:15 | 9.1 | -38.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:42:30 | 9.0 | -37.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:42:45 | 9.0 | -37.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 21:43:00 | 8.9 | -36.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:43:15 | 8.9 | -36.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:43:30 | 8.8 | -35.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 21:43:45 | 8.7 | -35.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 21:44:00 | 8.6 | -34.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 21:44:15 | 8.6 | -34.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 21:44:30 | 8.5 | -34.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 21:44:45 | 8.4 | -34.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 21:45:00 | 8.4 | -33.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | | |

No clouds to the right. On left Cs above, Ac below. Under Ci ceiling now. But only ~ 1000' thick. Sun bright through it.

Bit halo around sun; contrail goes through it.

| START TIME | | #4 FEB 79 | | | | 15 SECOND AVERAGE | | | | | |
|------------|------|-----------|--------|--------|-----|-------------------|------|----------|--|---|--|
| AL7 | TEMP | LWC-SC | LWC-CF | LWC | DD | WT | LMAX | FF | | | |
| KM | C | G/M**3 | G/M**3 | CLD | UM | M/M**3 | UM | | | | |
| 21:45:15 | 8.3 | -33.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 0.00 | | | |
| 21:45:30 | 8.4 | -33.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 0.00 | | | |
| 21:45:45 | 8.4 | -33.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 0.00 | | | |
| 21:46:00 | 8.3 | -33.4 | 0.0000 | 0.0000 | 100 | 58.07 | 73. | 100 1.00 | | | |
| 21:46:15 | 8.3 | -33.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 0.00 | | Seem to be some fallstreaks below us. | |
| 21:46:30 | 8.4 | -33.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 0.00 | | | |
| 21:46:45 | 8.3 | -33.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 0.00 | | | |
| 21:47:00 | 8.3 | -33.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:47:15 | 8.3 | -33.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:47:30 | 8.3 | -33.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:47:45 | 8.3 | -33.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 0.00 | | | |
| 21:48:00 | 8.3 | -33.1 | 0.0000 | 0.0002 | 100 | 57.40 | 122. | 120 1.55 | | | |
| 21:48:15 | 8.4 | -33.2 | 0.0000 | 0.0001 | 100 | 58.53 | 216. | 87 1.00 | | | |
| 21:48:30 | 8.4 | -33.3 | 0.0000 | 0.0001 | 100 | 58.07 | 74. | 100 1.00 | | | |
| 21:48:45 | 8.3 | -33.3 | 0.0000 | 0.0001 | 100 | 58.07 | 72. | 100 1.00 | | | |
| 21:49:00 | 8.3 | -33.3 | 0.0000 | 0.0008 | 100 | 52.90 | 969. | 120 .95 | | | |
| 21:49:15 | 8.3 | -33.3 | 0.0000 | 0.0003 | 100 | 58.21 | 295. | 120 .96 | | | |
| 21:49:30 | 8.3 | -33.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 0.00 | | | |
| 21:49:45 | 8.2 | -32.5 | 0.0000 | 0.0001 | 100 | 54.53 | 173. | 100 .90 | | | |
| 21:50:00 | 8.1 | -32.3 | 0.0000 | 0.0001 | 100 | 58.53 | 105. | 87 1.00 | | | |
| 21:50:15 | 8.0 | -32.0 | 0.0000 | 0.0001 | 100 | 58.07 | 71. | 100 1.00 | | Still a halo around sun. | |
| 21:50:30 | 7.9 | -31.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:50:45 | 7.8 | -31.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:51:00 | 7.6 | -30.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:51:15 | 7.4 | -30.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:51:30 | 7.3 | -29.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:51:45 | 7.3 | -29.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:52:00 | 7.2 | -30.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:52:15 | 7.1 | -29.9 | 0.0000 | 0.0001 | 100 | 58.07 | 71. | 100 1.00 | | | |
| 21:52:30 | 6.9 | -29.6 | 0.0000 | 0.0003 | 100 | 56.90 | 318. | 100 .90 | | | |
| 21:52:45 | 6.8 | -29.2 | 0.0000 | 0.0001 | 100 | 58.53 | 216. | 87 1.00 | | | |
| 21:53:00 | 6.7 | -28.6 | 0.0000 | 0.0001 | 100 | 33.34 | 190. | 47 1.00 | | | |
| 21:53:15 | 6.6 | -28.0 | 0.0000 | 0.0003 | 100 | 54.49 | 177. | 100 .90 | | | |
| 21:53:30 | 6.5 | -27.5 | 0.0000 | 0.0002 | 100 | 54.46 | 190. | 100 .90 | | | |
| 21:53:45 | 6.5 | -27.1 | 0.0000 | 0.0002 | 100 | 54.53 | 180. | 100 .90 | | | |
| 21:54:00 | 6.5 | -27.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 0.00 | | | |
| 21:54:15 | 6.5 | -27.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:54:30 | 6.6 | -27.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | | | |
| 21:54:45 | 6.6 | -27.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 0.00 | | Not much sun anymore (covered by higher Cs) | |
| 21:55:00 | 6.6 | -28.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 0.00 | | | |
| 21:55:15 | 6.7 | -28.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 0.00 | | | |
| 21:55:30 | 6.8 | -29.4 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 0.00 | | | |
| 21:55:45 | 6.8 | -29.4 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 0.00 | | | |

| START TIME | | 04 FEB 79 | | 15 SECOND AVERAGE | | | | LMAX FF | |
|------------|------|-----------|--------|-------------------|-----|--------|-------|----------|--|
| ALT | TEMP | LWC-SC | LWC-CP | LWC | DO | VI | LMAX | FF | |
| KM | C | G/M**3 | G/M**3 | CLD | UM | N/M**3 | UM | UM | |
| 21:56:00 | 6.8 | -29.9 | .00000 | .00000 | 0 | 0.00 | 0. | 2 0.00 | |
| 21:56:15 | 6.8 | -29.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 21:56:30 | 6.8 | -29.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 21:56:45 | 6.7 | -29.3 | .00000 | .00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 21:57:00 | 6.7 | -29.8 | .00000 | .00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 21:57:15 | 6.6 | -28.4 | .00000 | .00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 21:57:30 | 6.5 | -27.7 | .00000 | .00000 | 0 | 0.00 | 0. | 4 0.00 | |
| 21:57:45 | 6.4 | -27.2 | .00001 | .00000 | 0 | 0.00 | 0. | 16 0.00 | |
| 21:58:00 | 6.4 | -26.7 | .00000 | .00000 | 0 | 0.00 | 0. | 2 0.00 | |
| 21:58:15 | 6.4 | -26.4 | .00000 | .00000 | 0 | 0.00 | 0. | 10 0.00 | |
| 21:58:30 | 6.3 | -25.8 | .00000 | .00000 | 0 | 0.00 | 0. | 10 0.00 | |
| 21:58:45 | 6.2 | -25.4 | .00019 | .00037 | 46 | 147.59 | 1672. | 644 .43 | |
| 21:59:00 | 6.2 | -25.4 | .00007 | .00026 | 47 | 145.33 | 464. | 644 .65 | |
| 21:59:15 | 6.2 | -25.3 | .00001 | .00013 | 56 | 133.17 | 242. | 644 .65 | |
| 21:59:30 | 6.3 | -25.8 | .00007 | .00008 | 51 | 140.25 | 166. | 644 .65 | |
| 21:59:45 | 6.3 | -26.1 | .00002 | .00007 | 100 | 134.00 | 73. | 311 .99 | |
| 22:00:00 | 6.3 | -26.2 | .00004 | .00016 | 25 | 188.24 | 374. | 644 .56 | |
| 22:00:15 | 6.3 | -26.2 | .00070 | .00006 | 39 | 230.70 | 1269. | 644 .13 | |
| 22:00:30 | 6.3 | -26.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 22:00:45 | 6.2 | -25.4 | .00004 | .00008 | 37 | 159.99 | 323. | 644 .47 | |
| 22:01:00 | 6.1 | -24.8 | .00017 | .00028 | 28 | 181.86 | 2182. | 923 .29 | |
| 22:01:15 | 6.1 | -24.4 | .00157 | .00021 | 1 | 451.06 | 3887. | 1760 .22 | |
| 22:01:30 | 6.1 | -24.3 | .00001 | .00031 | 13 | 275.12 | 2468. | 1282 .23 | |
| 22:01:45 | 6.1 | -24.6 | .00011 | .00007 | 81 | 81.20 | 737. | 644 .23 | |
| 22:02:00 | 6.2 | -25.1 | .00004 | .00013 | 92 | 118.01 | 401. | 413 .39 | |
| 22:02:15 | 6.2 | -25.6 | .00016 | .00002 | 60 | 53.12 | 245. | 644 .16 | |
| 22:02:30 | 6.2 | -25.6 | .00011 | .00010 | 14 | 208.87 | 472. | 923 .41 | |
| 22:02:45 | 6.2 | -25.3 | .00045 | .00007 | 2 | 301.57 | 2051. | 1282 .21 | |
| 22:03:00 | 6.2 | -25.0 | .00090 | .00012 | 1 | 402.73 | 1286. | 1760 .33 | |
| 22:03:15 | 6.2 | -23.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 22:03:30 | 6.1 | -24.2 | .00000 | .00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 22:03:45 | 6.1 | -24.1 | .00004 | .00004 | 32 | 251.67 | 347. | 923 .17 | |
| 22:04:00 | 6.1 | -24.3 | .00059 | .00021 | 5 | 365.45 | 2466. | 1282 .21 | |
| 22:04:15 | 6.1 | -24.6 | .00004 | .00000 | 0 | 275.70 | 6. | 644 .92 | |
| 22:04:30 | 6.2 | -24.9 | .00002 | .00000 | 0 | 181.22 | 2. | 413 1.00 | |
| 22:04:45 | 6.2 | -25.4 | .00009 | .00011 | 22 | 187.53 | 301. | 644 .57 | |
| 22:05:00 | 6.2 | -25.3 | .00010 | .00005 | 57 | 93.10 | 525. | 644 .19 | |
| 22:05:15 | 6.2 | -25.2 | .00003 | .00017 | 93 | 117.40 | 624. | 413 .56 | |
| 22:05:30 | 6.2 | -25.2 | .00024 | .00010 | 12 | 233.99 | 842. | 1282 .34 | |
| 22:05:45 | 6.2 | -24.6 | .00126 | .00023 | 10 | 250.77 | 1750. | 1282 .31 | |
| 22:06:00 | 6.2 | -24.7 | .00142 | .00015 | 43 | 154.06 | 556. | 644 .42 | |
| 22:06:15 | 6.1 | -24.6 | .00007 | .00021 | 60 | 132.89 | 268. | 644 .81 | |
| 22:06:30 | 6.0 | -23.7 | .00011 | .00025 | 45 | 140.11 | 935. | 644 .48 | |

Going thru tops of heavy AC. Banking to left.

Good. Just passed thru fallstreak

Ahead and down can see 10 mi, but must be passing through haze.

Sky very dark above. Can see thru thin stuff to ground.

Briefly in a big cloud. Giant particles on 2-D display.

Blue sky to left. Dark cloud on right. Will go thru more fallstreaks.

Hard to tell when you're in the fallstreaks. Vis ahead ~ 10 mi. most of time

| | | 04 FEB 78 | | 15 SECOND AVERAGE | | | | | | | |
|------------|--------|-----------|---------------|-------------------|---------|--------|-----------|---------|------|--|--|
| START TIME | ALT KM | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | DD UM | NI N/M**3 | LMAX UM | FF | | |
| 22:06:45 | 5.9 | -23.1 | .00017 | .00014 | 34 | 244.60 | 1644. | 923 | .16 | | |
| 22:07:00 | 5.9 | -22.9 | .00031 | .00009 | 6 | 310.88 | 1133. | 1202 | .25 | | |
| 22:07:15 | 5.9 | -22.7 | .00059 | .00008 | 2 | 481.43 | 1822. | 1760 | .18 | | |
| 22:07:30 | 5.9 | -22.7 | .00060 | .00003 | 100 | 89.05 | 90. | 209 | .99 | | |
| 22:07:45 | 5.9 | -22.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:08:00 | 5.8 | -22.5 | .00004 | 0.00000 | 0 | 275.70 | 1. | 644 | .92 | Very thin stuff just below us. I guess we're in the tops of As deck. | |
| 22:08:15 | 5.8 | -22.4 | .00004 | .00003 | 95 | 90.40 | 479. | 413 | .38 | | |
| 22:08:30 | 5.8 | -22.3 | .00007 | 0.00000 | 0 | 0.00 | 0. | 14 | 0.00 | | |
| 22:08:45 | 5.8 | -22.3 | .00075 | 0.00000 | 0 | 0.00 | 0. | 14 | 0.00 | In and out of thin stuff. | |
| 22:09:00 | 5.8 | -21.8 | .00009 | 0.00000 | 0 | 0.00 | 0. | 10 | 0.00 | | |
| 22:09:15 | 5.8 | -21.7 | .00016 | 0.00000 | 0 | 0.00 | 0. | 14 | 0.00 | | |
| 22:09:30 | 5.8 | -21.7 | .00016 | 0.00000 | 0 | 0.00 | 0. | 14 | 0.00 | | |
| 22:09:45 | 5.8 | -21.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | Into thicker, foggy cloud - but out quickly. | |
| 22:10:00 | 5.8 | -21.7 | .00001 | 0.00000 | 0 | 0.00 | 0. | 26 | 0.00 | | |
| 22:10:15 | 5.8 | -22.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:10:30 | 5.9 | -22.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:10:45 | 5.9 | -22.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:11:00 | 6.1 | -23.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:11:15 | 6.1 | -24.4 | .00001 | 0.00000 | 0 | 0.00 | 0. | 20 | 0.00 | | |
| 22:11:30 | 6.2 | -25.0 | .00000 | .00001 | 100 | 65.15 | 63. | 128 | 1.00 | | |
| 22:11:45 | 6.3 | -25.6 | .00000 | .00002 | 100 | 75.49 | 103. | 169 | .96 | | |
| 22:12:00 | 6.4 | -26.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:12:15 | 6.3 | -26.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:12:30 | 6.3 | -25.7 | .00064 | .00001 | 100 | 33.34 | 436. | 47 | 1.00 | | |
| 22:12:45 | 6.2 | -24.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 16 | 0.00 | | |
| 22:13:00 | 6.2 | -25.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 22:13:15 | 6.3 | -25.7 | 0.00000 | .00004 | 100 | 99.27 | 92. | 230 | .95 | | |
| 22:13:30 | 6.3 | -26.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:13:45 | 6.4 | -26.5 | .00000 | .00002 | 9 | 91.96 | 47. | 209 | 1.00 | | |
| 22:14:00 | 6.5 | -27.0 | .00003 | .00001 | 100 | 33.34 | 444. | 47 | 1.00 | In and out of very thin As for a long time. | |
| 22:14:15 | 6.5 | -27.2 | .00002 | 0.00000 | 0 | 0.00 | 0. | 28 | 0.00 | | |
| 22:14:30 | 6.4 | -26.9 | .00006 | .00002 | 100 | 54.50 | 198. | 108 | .98 | | |
| 22:14:45 | 6.4 | -26.4 | .00258 | 0.00000 | 0 | 0.00 | 0. | 14 | 0.00 | | |
| 22:15:00 | 6.3 | -26.0 | 0.00000 | 0.00000 | 0 | 181.22 | 1. | 413 | 1.00 | | |
| 22:15:15 | 6.2 | -25.1 | 0.00000 | .00003 | 83 | 91.11 | 92. | 644 | .42 | | |
| 22:15:30 | 6.1 | -24.4 | 0.00000 | 0.00000 | 0 | 181.22 | 1. | 413 | 1.00 | No longer under higher layers. | |
| 22:15:45 | 6.0 | -23.5 | 0.00000 | .00001 | 56 | 53.50 | 121. | 413 | .29 | | |
| 22:16:00 | 6.1 | -23.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:16:15 | 6.1 | -24.2 | 0.00000 | .00001 | 100 | 50.53 | 126. | 87 | 1.00 | | |
| 22:16:30 | 6.2 | -24.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | In hazy though relatively clear air. | |
| 22:16:45 | 6.1 | -23.9 | 0.00000 | .00001 | 100 | 50.07 | 79. | 108 | 1.00 | | |
| 22:17:00 | 6.0 | -23.2 | 0.00000 | .00001 | 100 | 50.07 | 79. | 108 | 1.00 | | |
| 22:17:15 | 6.0 | -22.7 | 0.00000 | .00003 | 100 | 54.56 | 395. | 108 | .98 | | |

| | | 04 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|--------|-----------|---------------|-------------------|---------|-------|-----------|---------|-------|---|--|
| START TIME | ALT KM | TEMP C | LUC-SC G/M**3 | LUC-CP G/M**3 | LUC CLD | DO UH | MT N/M**3 | LMAX UH | FF UH | | |
| 22:17:30 | 5.9 | -22.2 | 0.00000 | 0.00001 | 100 | 58.07 | 81. | 100 | 1.00 | | |
| 22:17:45 | 5.8 | -21.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:18:00 | 5.7 | -20.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 22:18:15 | 5.6 | -20.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:18:30 | 5.6 | -19.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 12 | 0.00 | | |
| 22:18:45 | 5.5 | -19.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:19:00 | 5.5 | -19.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:19:15 | 5.5 | -19.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | Very hazy air. | |
| 22:19:30 | 5.5 | -19.6 | 0.00000 | 0.00001 | 100 | 58.07 | 85. | 100 | 1.00 | | |
| 22:19:45 | 5.5 | -19.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 10 | 0.00 | | |
| 22:20:00 | 5.5 | -19.4 | 0.00000 | 0.00001 | 100 | 58.07 | 82. | 100 | 1.00 | | |
| 22:20:15 | 5.5 | -19.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 | | |
| 22:20:30 | 5.5 | -19.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:20:45 | 5.5 | -19.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:21:00 | 5.5 | -19.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:21:15 | 5.5 | -19.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:21:30 | 5.6 | -19.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:21:45 | 5.6 | -19.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 22:22:00 | 5.6 | -19.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:22:15 | 5.6 | -20.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 22:22:30 | 5.6 | -20.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:22:45 | 5.6 | -20.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | Now out into blue sky again. Leaving cloudy air behind. | |
| 22:23:00 | 5.6 | -20.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 22:23:15 | 5.6 | -20.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 | | |
| 22:23:30 | 5.6 | -20.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 22:23:45 | 5.6 | -20.4 | 0.00000 | 0.00001 | 100 | 50.53 | 87. | 87 | 1.00 | | |
| 22:24:00 | 5.6 | -20.1 | 0.00000 | 0.00001 | 100 | 50.53 | 84. | 87 | 1.00 | | |
| 22:24:15 | 5.6 | -19.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 22:24:30 | 5.6 | -20.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:24:45 | 5.6 | -20.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:25:00 | 5.6 | -20.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:25:15 | 5.6 | -20.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 22:25:30 | 5.6 | -20.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 22:25:45 | 5.6 | -20.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 22:26:00 | 5.6 | -20.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 22:26:15 | 5.6 | -20.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 22:26:30 | 5.6 | -20.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 22:26:45 | 5.6 | -20.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:27:00 | 5.6 | -20.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 22:27:15 | 5.6 | -20.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:27:30 | 5.6 | -20.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 22:27:45 | 5.6 | -20.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 22:28:00 | 5.6 | -21.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |

In hazy air, but not much cloud. The Ci is 10-15000' up. Can see grids of roads below

Very hazy air.

Now out into blue sky again. Leaving cloudy air behind.

Appendix C

5 February 1979 Data Tabulations

The format is the same as that used in Appendix A.

| 05 FEB 79 15 SECOND AVERAGE | | | | | | | | | | |
|-----------------------------|--------|--------|---------------|---------------|---------|--------|-----------|---------|-------|---|
| START TIME | ALT KM | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | DO UM | NT N/M**3 | LMAX UM | FF UM | |
| 17:30:00 | 2.5 | -7.5 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:30:15 | 2.6 | -7.7 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:30:30 | 2.7 | -8.0 | .00000 | .00001 | 100 | 33.34 | 432. | 47 | 1.00 | |
| 17:30:45 | 2.8 | -7.7 | .00000 | .00001 | 100 | 22.85 | 0. | 26 | 0.00 | |
| 17:31:00 | 2.9 | -8.3 | .00004 | .00004 | 100 | 49.15 | 791. | 189 | .39 | |
| 17:31:15 | 3.1 | -9.0 | .03391 | .00027 | 77 | 113.86 | 1055. | 644 | .50 | |
| 17:31:30 | 3.2 | -8.9 | .02495 | .00020 | 97 | 78.00 | 1513. | 644 | .49 | |
| 17:31:45 | 3.3 | -8.0 | .00005 | .00002 | 80 | 57.62 | 365. | 413 | .35 | |
| 17:32:00 | 3.4 | -8.5 | .00005 | .00014 | 54 | 113.30 | 808. | 1202 | .14 | |
| 17:32:15 | 3.5 | -9.1 | .00019 | .00026 | 20 | 195.40 | 1179. | 923 | .33 | |
| 17:32:30 | 3.6 | -9.9 | .00031 | .00028 | 30 | 175.62 | 1837. | 1202 | .16 | |
| 17:32:45 | 3.7 | -10.1 | .00010 | .00011 | 51 | 104.91 | 1108. | 1202 | .11 | |
| 17:33:00 | 3.7 | -10.7 | .00051 | .00131 | 33 | 172.63 | 7276. | 1202 | .24 | |
| 17:33:15 | 3.8 | -11.2 | .00203 | .00137 | 14 | 293.25 | 10259. | 2039 | .14 | |
| 17:33:30 | 3.9 | -11.9 | .00183 | .00080 | 6 | 340.67 | 8229. | 2039 | .15 | |
| 17:33:45 | 4.0 | -12.5 | .00203 | .00082 | 4 | 442.07 | 10460. | 2318 | .14 | |
| 17:34:00 | 4.0 | -12.9 | .00407 | .00142 | 3 | 497.65 | 16540. | 3155 | .14 | |
| 17:34:15 | 4.1 | -13.3 | .00509 | .00214 | 4 | 435.87 | 28442. | 3434 | .11 | |
| 17:34:30 | 4.2 | -13.9 | .00163 | .00088 | 13 | 263.42 | 7618. | 1481 | .23 | Small snow on snowstick. |
| 17:34:45 | 4.3 | -14.4 | .00232 | .00143 | 7 | 343.93 | 13173. | 3155 | .11 | |
| 17:35:00 | 4.4 | -15.2 | .00420 | .00146 | 3 | 413.93 | 19005. | 2318 | .17 | |
| 17:35:15 | 4.4 | -16.0 | .00595 | .00216 | 3 | 431.95 | 29679. | 2876 | .13 | |
| 17:35:30 | 4.5 | -16.8 | .00621 | .00276 | 4 | 452.37 | 20113. | 4271 | .08 | |
| 17:35:45 | 4.6 | -17.5 | .01402 | .00039 | 4 | 502.14 | 04502. | 3434 | .13 | |
| 17:36:00 | 4.7 | -18.0 | .01004 | .00386 | 3 | 422.59 | 40157. | 2876 | .16 | |
| 17:36:15 | 4.8 | -18.4 | .00374 | .00183 | 9 | 207.40 | 10406. | 1760 | .20 | |
| 17:36:30 | 4.8 | -18.9 | .00172 | .00096 | 20 | 205.70 | 7272. | 1202 | .25 | |
| 17:36:45 | 4.9 | -19.1 | .00070 | .00070 | 35 | 164.02 | 4521. | 923 | .35 | |
| 17:37:00 | 4.9 | -19.6 | .00233 | .00337 | 40 | 157.92 | 13557. | 1202 | .39 | |
| 17:37:15 | 5.0 | -20.3 | .00147 | .00255 | 32 | 173.99 | 9574. | 1202 | .33 | |
| 17:37:30 | 5.1 | -20.8 | .00300 | .00425 | 21 | 214.00 | 20954. | 1760 | .19 | |
| 17:37:45 | 5.1 | -21.2 | .00394 | .00299 | 17 | 249.57 | 21942. | 2597 | .13 | |
| 17:38:00 | 5.2 | -21.6 | .00112 | .00097 | 29 | 177.25 | 4890. | 1481 | .20 | |
| 17:38:15 | 5.2 | -22.0 | .00006 | .00024 | 68 | 110.60 | 972. | 644 | .46 | |
| 17:38:30 | 5.3 | -22.3 | .00046 | .00100 | 75 | 115.32 | 3373. | 923 | .50 | |
| 17:38:45 | 5.3 | -22.8 | .00010 | .00007 | 98 | 69.97 | 561. | 413 | .70 | |
| 17:39:00 | 5.4 | -23.4 | .00003 | .00001 | 100 | 50.07 | 76. | 100 | 1.00 | |
| 17:39:15 | 5.5 | -23.9 | .00040 | .00014 | 2 | 462.40 | 2335. | 2039 | .16 | |
| 17:39:30 | 5.5 | -24.5 | .00160 | .00267 | 42 | 154.14 | 9400. | 1202 | .39 | Getting into good thin cloud. Altitude 17,600 feet. |
| 17:39:45 | 5.6 | -25.1 | .00025 | .00000 | 83 | 111.12 | 3714. | 644 | .51 | |
| 17:40:00 | 5.6 | -25.7 | .00007 | .00017 | 100 | 64.03 | 2040. | 100 | .65 | |
| 17:40:15 | 5.6 | -25.2 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:40:30 | 5.6 | -24.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |

| START TIME | ALT FM | 85 PER 74 | | 15 SECOND AVERAGE | | | | NT W/M**3 | LMAX UM | FF UM |
|------------|--------|-----------|---------------|-------------------|---------|-------|----|-----------|---------|-------|
| | | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | OO UM | UM | | | |
| 17:40:45 | 5.5 | -24.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:41:00 | 5.5 | -24.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:41:15 | 5.4 | -23.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:41:30 | 5.4 | -23.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:41:45 | 5.3 | -22.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:42:00 | 5.3 | -22.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:42:15 | 5.2 | -21.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:42:30 | 5.2 | -21.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:42:45 | 5.2 | -21.4 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:43:00 | 5.2 | -21.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:43:15 | 5.2 | -21.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:43:30 | 5.2 | -21.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:43:45 | 5.2 | -21.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:44:00 | 5.2 | -21.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:44:15 | 5.2 | -21.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:44:30 | 5.2 | -21.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:44:45 | 5.2 | -21.7 | 0.0000 | 0.0001 | 100 | 22.85 | 0. | 26 | 0.00 | |
| 17:45:00 | 5.2 | -21.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:45:15 | 5.2 | -22.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:45:30 | 5.2 | -22.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 6 | 0.00 | |
| 17:45:45 | 5.3 | -22.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:46:00 | 5.2 | -22.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:46:15 | 5.2 | -22.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:46:30 | 5.2 | -22.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 6 | 0.00 | |
| 17:46:45 | 5.3 | -22.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:47:00 | 5.2 | -21.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:47:15 | 5.2 | -21.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:47:30 | 5.2 | -21.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:47:45 | 5.3 | -22.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:48:00 | 5.3 | -22.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:48:15 | 5.4 | -23.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:48:30 | 5.5 | -23.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 10 | 0.00 | |
| 17:48:45 | 5.5 | -24.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:49:00 | 5.5 | -24.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:49:15 | 5.5 | -24.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:49:30 | 5.5 | -24.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:49:45 | 5.5 | -24.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:50:00 | 5.5 | -23.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 17:50:15 | 5.5 | -23.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:50:30 | 5.5 | -23.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 17:50:45 | 5.5 | -23.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:51:00 | 5.5 | -23.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 17:51:15 | 5.5 | -24.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 6 | 0.00 | |

87

Seems like a long contrail type cloud to our left. Will go over and fly along it. It extends W-E.

In clear air, bright blue sky above.

| 05 FEB 79 15 SECOND AVERAGE | | | | | | | | | | | |
|-----------------------------|--------|--------|---------------|---------------|---------|--------|-----------|---------|-------|--|--|
| START TIME | ALT KM | TEMP C | LUC-SC G/M**3 | LUC-CP G/M**3 | LUC CLD | DO UM | HT N/M**3 | LMAX UM | FF UM | | |
| 17:51:30 | 5.6 | -24.7 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 17:51:45 | 5.7 | -25.2 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 17:52:00 | 5.7 | -25.4 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | Getting closer to the long W-E cloud, climbing. |
| 17:52:15 | 5.7 | -26.0 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 17:52:30 | 5.8 | -26.2 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 17:52:45 | 5.8 | -26.3 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 17:53:00 | 5.9 | -26.8 | .00000 | .00002 | 100 | 68.87 | 178. | 148 | .88 | | |
| 17:53:15 | 6.0 | -27.7 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 17:53:30 | 6.0 | -27.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 17:53:45 | 6.0 | -28.4 | .00001 | .00000 | 0 | 0.00 | 0. | 26 | 0.00 | | |
| 17:54:00 | 6.0 | -28.5 | .00000 | .00001 | 100 | 50.53 | 122. | 87 | 1.00 | | |
| 17:54:15 | 6.0 | -28.5 | .00010 | .00014 | 100 | 70.15 | 1462. | 209 | .70 | | |
| 17:54:30 | 6.0 | -28.5 | .00028 | .00058 | 99 | 64.31 | 6497. | 413 | .68 | | |
| 17:54:45 | 6.1 | -28.6 | .00029 | .00094 | 100 | 97.40 | 4937. | 311 | .60 | | |
| 17:55:00 | 6.1 | -28.9 | .00010 | .00059 | 99 | 99.53 | 3781. | 413 | .51 | | In clear air, banking to fly parallel to the cloud. Very thin cloud. |
| 17:55:15 | 6.1 | -28.9 | .00001 | .00001 | 100 | 33.34 | 437. | 47 | 1.00 | | |
| 17:55:30 | 6.1 | -28.9 | .00015 | .00017 | 99 | 89.68 | 704. | 413 | .83 | | |
| 17:55:45 | 6.1 | -28.9 | .00141 | .00344 | 97 | 105.77 | 15005. | 413 | .58 | | |
| 17:56:00 | 6.1 | -28.0 | .00038 | .00091 | 100 | 75.87 | 8509. | 311 | .53 | | |
| 17:56:15 | 6.1 | -28.7 | .00031 | .00051 | 100 | 90.10 | 2895. | 311 | .63 | | |
| 17:56:30 | 6.2 | -29.7 | .00025 | .00074 | 99 | 107.57 | 4216. | 413 | .51 | | |
| 17:56:45 | 6.2 | -29.4 | .00053 | .00109 | 98 | 83.78 | 7616. | 413 | .56 | | |
| 17:57:00 | 6.2 | -29.9 | .00008 | .00014 | 100 | 74.42 | 1553. | 230 | .59 | | |
| 17:57:15 | 6.3 | -30.6 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 17:57:30 | 6.3 | -30.8 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | Can see blue sky thru the thin Ci cloud. |
| 17:57:45 | 6.4 | -31.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 17:58:00 | 6.4 | -31.8 | .00000 | .00001 | 100 | 58.07 | 95. | 108 | 1.00 | | Little pieces of thin Ci all around us. Can see it most easily against blue sky. |
| 17:58:15 | 6.5 | -32.2 | .00000 | .00001 | 100 | 50.53 | 125. | 87 | 1.00 | | |
| 17:58:30 | 6.5 | -32.6 | .00003 | .00005 | 100 | 69.86 | 875. | 209 | .56 | | |
| 17:58:45 | 6.5 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 14 | 0.00 | | |
| 17:59:00 | 6.5 | -33.0 | .00000 | .00000 | 0 | 0.00 | 0. | 16 | 0.00 | | |
| 17:59:15 | 6.5 | -33.0 | .00003 | .00007 | 94 | 76.68 | 529. | 413 | .64 | | Heavier cloud, but still hard to tell when you're in it. Vis is excellent. |
| 17:59:30 | 6.5 | -32.9 | .00036 | .00096 | 97 | 110.83 | 3058. | 413 | .64 | | |
| 17:59:45 | 6.5 | -32.6 | .00046 | .00060 | 84 | 95.53 | 3014. | 644 | .50 | | |
| 18:00:00 | 6.6 | -33.1 | .00054 | .00126 | 97 | 90.24 | 7298. | 413 | .58 | | Still in thin Ci. |
| 18:00:15 | 6.6 | -33.2 | .00027 | .00076 | 99 | 84.57 | 4870. | 413 | .56 | | |
| 18:00:30 | 6.6 | -32.8 | .00011 | .00035 | 100 | 112.38 | 1645. | 011 | .54 | | |
| 18:00:45 | 6.6 | -33.4 | .00002 | .00004 | 100 | 88.17 | 310. | 209 | .65 | | |
| 18:01:00 | 6.5 | -33.0 | .00007 | .00020 | 00 | 00.00 | 14384. | 114 | .65 | | |
| 18:01:15 | 6.5 | -32.7 | .00012 | .00020 | 100 | 73.68 | 2035. | 311 | .41 | | |
| 18:01:30 | 6.5 | -31.0 | .00011 | .00070 | 07 | 65.69 | 861. | 413 | .56 | | Slightly less blue sky overhead. Probably getting a few pieces from above. |
| 18:01:45 | 6.5 | -32.0 | .00009 | .00144 | 84 | 93.93 | 915. | 644 | .44 | | |
| 18:02:00 | 6.4 | -31.7 | .00075 | .00170 | 07 | 99.15 | 9041. | 413 | .54 | | Nothing below us. Ci doesn't cast a shadow on the ground. |

| | | 05 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|-----|-----------|---------|-------------------|--------|--------|--------|-----|------|--|--|
| START TIME | ALT | TEMP | LUC-SC | LUC-CP | LUC DO | HI | LMAX | FF | | | |
| | KM | C | G/M**3 | G/M**3 | CLD UN | N/M**3 | UN | UN | | | |
| 18:02:15 | 6.4 | -31.7 | .00031 | .00086 | 97 | 107.48 | 4067. | 413 | .55 | | |
| 18:02:30 | 6.4 | -31.6 | .00021 | .00017 | 100 | 78.07 | 1404. | 230 | .66 | | |
| 18:02:45 | 6.4 | -31.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:03:00 | 6.4 | -31.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:03:15 | 6.4 | -31.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:03:30 | 6.4 | -31.3 | .00002 | .00001 | 100 | 42.38 | 201. | 67 | 1.00 | | |
| 18:03:45 | 6.4 | -31.2 | .00051 | .00095 | 99 | 71.71 | 7385. | 413 | .52 | | |
| 18:04:00 | 6.4 | -31.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:04:15 | 6.4 | -31.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:04:30 | 6.4 | -31.3 | .00009 | .00018 | 100 | 77.98 | 2714. | 311 | .33 | | |
| 18:04:45 | 6.3 | -30.9 | .00020 | .00052 | 100 | 70.94 | 4417. | 311 | .45 | | |
| 18:05:00 | 6.3 | -30.7 | .00006 | .00006 | 100 | 44.06 | 1501. | 140 | .72 | | |
| 18:05:15 | 6.3 | -30.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:05:30 | 6.3 | -30.8 | .00000 | .00002 | 100 | 82.36 | 164. | 189 | .77 | | |
| 18:05:45 | 6.3 | -30.7 | .00005 | .00017 | 100 | 119.09 | 1767. | 311 | .36 | | |
| 18:06:00 | 6.3 | -30.9 | .00009 | .00040 | 100 | 60.02 | 4706. | 311 | .46 | | |
| 18:06:15 | 6.4 | -31.0 | .00049 | .00079 | 100 | 67.25 | 8449. | 311 | .57 | | |
| 18:06:30 | 6.4 | -31.5 | .00077 | .00225 | 90 | 92.44 | 11201. | 644 | .54 | | |
| 18:06:45 | 6.4 | -31.5 | .00021 | .00053 | 100 | 72.02 | 5145. | 230 | .67 | | |
| 18:07:00 | 6.4 | -31.4 | .00022 | .00051 | 100 | 63.00 | 5954. | 250 | .59 | | |
| 18:07:15 | 6.4 | -31.4 | .00038 | .00077 | 99 | 79.98 | 6555. | 413 | .57 | | |
| 18:07:30 | 6.4 | -31.5 | .00021 | .00031 | 100 | 61.74 | 3955. | 209 | .75 | | |
| 18:07:45 | 6.4 | -31.6 | .00038 | .00051 | 100 | 59.47 | 5895. | 250 | .71 | | |
| 18:08:00 | 6.5 | -31.8 | .00140 | .00202 | 100 | 72.16 | 26566. | 311 | .60 | | |
| 18:08:15 | 6.5 | -32.4 | .00115 | .00269 | 99 | 80.97 | 21558. | 413 | .55 | | |
| 18:08:30 | 6.5 | -32.2 | .00063 | .00271 | 99 | 117.66 | 9678. | 413 | .60 | | |
| 18:08:45 | 6.5 | -32.4 | .00051 | .00160 | 82 | 115.60 | 7894. | 644 | .47 | | |
| 18:09:00 | 6.5 | -33.0 | .00124 | .00364 | 99 | 95.22 | 15019. | 413 | .63 | | |
| 18:09:15 | 6.5 | -32.6 | .00110 | .00330 | 88 | 109.77 | 11575. | 644 | .59 | | |
| 18:09:30 | 6.5 | -32.7 | .00127 | .00361 | 99 | 102.69 | 13732. | 413 | .64 | | |
| 18:09:45 | 6.5 | -32.8 | .00050 | .00112 | 99 | 104.61 | 4042. | 413 | .64 | | |
| 18:10:00 | 6.5 | -32.5 | .00093 | .00223 | 100 | 81.26 | 12992. | 311 | .61 | | |
| 18:10:15 | 6.5 | -32.6 | .00003 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:10:30 | 6.5 | -32.5 | .00002 | .00015 | 100 | 60.79 | 2734. | 250 | .47 | | |
| 18:10:45 | 6.6 | -33.0 | .00016 | .00037 | 100 | 72.27 | 3042. | 250 | .67 | | |
| 18:11:00 | 6.6 | -33.8 | .00001 | .00008 | 100 | 90.74 | 413. | 209 | .74 | | |
| 18:11:15 | 6.6 | -34.0 | .00004 | .00008 | 100 | 71.01 | 636. | 230 | .69 | | |
| 18:11:30 | 6.5 | -33.1 | 0.00000 | 0.00003 | 100 | 60.98 | 324. | 140 | .88 | | |
| 18:11:45 | 6.4 | -31.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:12:00 | 6.3 | -30.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:12:15 | 6.3 | -30.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:12:30 | 6.3 | -30.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:12:45 | 6.3 | -30.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |

In clr air, but another piece coming soon.

Vis excellent, but decreases ahead.

Another fibrous piece ahead. Blue sky everywhere

Can see thin stuff going by against blue sky, just barely see it going by.

Very thin Ci. Vis ahead ~ 10 mi. A little more restricted that direction

Fragments of Ci go by but they have very few particles. Much blue sky everywhere.

06

| START TIME | ALT KH | TEMP C | #5 FEB 79 | | 15 SECOND AVERAGE | | LWC CLD | DU UH | WT N/H**3 | LNAX UH | FF |
|------------|--------|--------|---------------|---------------|-------------------|-------|---------|-------|-----------|---------|----|
| | | | LWC-SC G/H**3 | LWC-CP G/H**3 | LWC | DU | | | | | |
| 18:13:00 | 6.3 | -31.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:13:15 | 6.3 | -31.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:13:30 | 6.3 | -30.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:13:45 | 6.3 | -30.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:14:00 | 6.2 | -30.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:14:15 | 6.2 | -30.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:14:30 | 6.2 | -29.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:14:45 | 6.2 | -29.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:15:00 | 6.2 | -29.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:15:15 | 6.2 | -29.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:15:30 | 6.2 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:15:45 | 6.2 | -29.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:16:00 | 6.2 | -29.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:16:15 | 6.2 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:16:30 | 6.2 | -29.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:16:45 | 6.2 | -29.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:17:00 | 6.3 | -29.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:17:15 | 6.3 | -29.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:17:30 | 6.3 | -29.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:17:45 | 6.3 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:18:00 | 6.3 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:18:15 | 6.3 | -30.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:18:30 | 6.3 | -30.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:18:45 | 6.3 | -30.2 | 0.00000 | 0.00001 | 100 | 50.53 | 90. | 07 | 1.00 | | |
| 18:19:00 | 6.3 | -30.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:19:15 | 6.3 | -30.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:19:30 | 6.3 | -30.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:19:45 | 6.3 | -30.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:20:00 | 6.3 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:20:15 | 6.3 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:20:30 | 6.3 | -30.4 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:20:45 | 6.3 | -30.5 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:21:00 | 6.3 | -30.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:21:15 | 6.3 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:21:30 | 6.3 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:21:45 | 6.3 | -30.5 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:22:00 | 6.3 | -30.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:22:15 | 6.3 | -30.5 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:22:30 | 6.3 | -30.5 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:22:45 | 6.3 | -30.5 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:23:00 | 6.3 | -30.5 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:23:15 | 6.3 | -30.5 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |
| 18:23:30 | 6.3 | -30.5 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 0.00 | 0. | 0.00 | |

| | | 05 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|--------|-----------|---------------|-------------------|---------|-------|-----------|---------|----|--|--|
| START TIME | ALT KN | TEMP C | LUC-SC G/M**3 | LUC-CP G/M**3 | LUC CLD | DO UN | NT N/M**3 | LMAX UH | FF | | |
| 18:23:45 | 6.3 | -30.5 | .00001 | 0.00000 | 0 | 0.00 | 0. | 6 0.00 | | | |
| 18:24:00 | 6.3 | -30.5 | .00001 | 0.00000 | 0 | 0.00 | 0. | 6 0.00 | | | |
| 18:24:15 | 6.3 | -30.5 | .00001 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:24:30 | 6.3 | -30.5 | .00001 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:24:45 | 6.3 | -30.3 | .00001 | 0.00000 | 0 | 0.00 | 0. | 6 0.00 | | | |
| 18:25:00 | 6.3 | -30.3 | .00001 | 0.00000 | 0 | 0.00 | 0. | 6 0.00 | | | |
| 18:25:15 | 6.3 | -30.3 | .00001 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:25:30 | 6.3 | -30.3 | .00001 | 0.00000 | 0 | 0.00 | 0. | 6 0.00 | | | |
| 18:25:45 | 6.3 | -30.3 | .00002 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:26:00 | 6.3 | -30.4 | .00002 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:26:15 | 6.3 | -30.4 | .00003 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:26:30 | 6.3 | -30.3 | .00002 | 0.00000 | 0 | 0.00 | 0. | 6 0.00 | | | |
| 18:26:45 | 6.3 | -30.3 | .00002 | 0.00000 | 0 | 0.00 | 0. | 6 0.00 | | | |
| 18:27:00 | 6.3 | -30.2 | .00002 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:27:15 | 6.3 | -30.2 | .00002 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:27:30 | 6.3 | -30.2 | .00002 | 0.00000 | 0 | 0.00 | 0. | 6 0.00 | | | |
| 18:27:45 | 6.3 | -30.3 | .00002 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:28:00 | 6.3 | -30.3 | .00002 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:28:15 | 6.3 | -30.3 | .00002 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:28:30 | 6.3 | -30.3 | .00002 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:28:45 | 6.3 | -30.3 | .00003 | 0.00000 | 0 | 0.00 | 0. | 6 0.00 | | | |
| 18:29:00 | 6.3 | -30.2 | .00004 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:29:15 | 6.3 | -30.2 | .00003 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:29:30 | 6.3 | -30.2 | .00003 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:29:45 | 6.3 | -30.2 | .00004 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:30:00 | 6.3 | -30.2 | .00002 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:30:15 | 6.3 | -30.2 | .00004 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:30:30 | 6.3 | -30.2 | .00005 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:30:45 | 6.3 | -30.2 | .00005 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:31:00 | 6.3 | -30.1 | .00005 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:31:15 | 6.3 | -30.1 | .00006 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:31:30 | 6.3 | -30.3 | .00007 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:31:45 | 6.3 | -30.2 | .00006 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:32:00 | 6.3 | -30.2 | .00007 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:32:15 | 6.3 | -30.2 | .00007 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:32:30 | 6.3 | -30.3 | .00007 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:32:45 | 6.3 | -30.4 | .00007 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:33:00 | 6.3 | -30.3 | .00008 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:33:15 | 6.3 | -30.3 | .00006 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:33:30 | 6.3 | -30.2 | .00005 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:33:45 | 6.3 | -29.9 | .00004 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |
| 18:34:00 | 6.3 | -29.4 | .00003 | 0.00000 | 0 | 0.00 | 0. | 6 0.00 | | | |
| 18:34:15 | 6.3 | -29.5 | .00002 | 0.00000 | 0 | 0.00 | 0. | 8 0.00 | | | |

A little haz - getting a little data in axial probe. Ahead vis = ~ 10 mi.

No clouds here, but it is a little hazy.
Very thin. Thin haze obscures vis in all directions, especially ahead.

Bright blue sky.

In a very thin haze, but no real cloud.

| START TIME | | #5 FEB 79 | | 15 SECOND AVERAGE | | | | | |
|------------|------|-----------|--------|-------------------|-----|--------|--------|------|------|
| ALT | TEMP | LWC-SC | LWC-CP | LWC | DO | NT | LMAX | FF | |
| KM | C | G/M**3 | G/M**3 | CLD | UN | N/M**3 | UM | | |
| 18:34:30 | 6.3 | -29.5 | .00001 | 0.00000 | 0 | 0.00 | 0. | 8 | 0.00 |
| 18:34:45 | 6.3 | -29.7 | .00001 | 0.00000 | 0 | 0.00 | 0. | 8 | 0.00 |
| 18:35:00 | 6.3 | -29.7 | .00001 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 |
| 18:35:15 | 6.3 | -29.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 |
| 18:35:30 | 6.3 | -29.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 |
| 18:35:45 | 6.4 | -29.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 |
| 18:36:00 | 6.4 | -29.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 18:36:15 | 6.4 | -29.8 | .00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 |
| 18:36:30 | 6.4 | -29.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 |
| 18:36:45 | 6.3 | -29.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 |
| 18:37:00 | 6.3 | -29.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 18:37:15 | 6.3 | -29.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 |
| 18:37:30 | 6.5 | -30.8 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 18:37:45 | 6.7 | -32.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 10 | 0.00 |
| 18:38:00 | 6.7 | -32.6 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 18:38:15 | 6.7 | -32.5 | .00000 | 0.00000 | 0 | 0.00 | 0. | 14 | 0.00 |
| 18:38:30 | 6.7 | -32.0 | .00001 | .00003 | 100 | 90.05 | 109. | 209 | .89 |
| 18:38:45 | 6.6 | -30.2 | .00000 | .00000 | 100 | 71.11 | 1061. | 209 | .64 |
| 18:39:00 | 6.6 | -30.1 | .00153 | .00180 | 42 | 159.00 | 12085. | 1202 | .27 |
| 18:39:15 | 6.6 | -31.0 | .00241 | .00069 | 15 | 225.40 | 6590. | 923 | .29 |
| 18:39:30 | 6.6 | -30.9 | .00069 | .00136 | 72 | 122.00 | 3645. | 644 | .58 |
| 18:39:45 | 6.6 | -31.2 | .00000 | .00022 | 99 | 111.35 | 715. | 413 | .65 |
| 18:40:00 | 6.4 | -30.0 | .00011 | .00029 | 100 | 123.00 | 831. | 311 | .65 |
| 18:40:15 | 6.4 | -29.4 | .00042 | .00035 | 100 | 87.11 | 1836. | 311 | .63 |
| 18:40:30 | 6.4 | -29.6 | .00076 | .00040 | 99 | 73.95 | 3711. | 413 | .65 |
| 18:40:45 | 6.4 | -29.0 | .00042 | .00042 | 99 | 133.70 | 440. | 413 | .89 |
| 18:41:00 | 6.3 | -29.0 | .00000 | 0.00000 | 0 | 181.22 | 0. | 413 | 1.00 |
| 18:41:15 | 6.2 | -28.2 | .00002 | .00004 | 76 | 100.38 | 668. | 413 | .29 |
| 18:41:30 | 6.2 | -27.5 | .00024 | .00053 | 76 | 121.07 | 1712. | 644 | .54 |
| 18:41:45 | 6.2 | -27.2 | .00075 | .00069 | 54 | 136.01 | 4522. | 644 | .34 |
| 18:42:00 | 6.2 | -28.0 | .00029 | .00030 | 86 | 110.44 | 3501. | 413 | .37 |
| 18:42:15 | 6.2 | -28.5 | .00000 | .00021 | 62 | 132.96 | 1620. | 644 | .35 |
| 18:42:30 | 6.3 | -28.7 | .00000 | .00025 | 97 | 133.31 | 481. | 413 | .68 |
| 18:42:45 | 6.3 | -28.0 | .00000 | .00046 | 93 | 121.18 | 1197. | 413 | .64 |
| 18:43:00 | 6.4 | -29.3 | .00012 | .00005 | 53 | 86.00 | 740. | 413 | .29 |
| 18:43:15 | 6.4 | -29.4 | .00039 | .00010 | 92 | 66.57 | 1617. | 413 | .35 |
| 18:43:30 | 6.4 | -29.7 | .00001 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 |
| 18:43:45 | 6.4 | -29.6 | .00002 | 0.00000 | 0 | 0.00 | 0. | 24 | 0.00 |
| 18:44:00 | 6.4 | -28.4 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 18:44:15 | 6.2 | -27.0 | .00000 | .00004 | 100 | 100.00 | 50. | 250 | 1.00 |
| 18:44:30 | 6.2 | -27.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 |
| 18:44:45 | 6.2 | -27.0 | .00000 | .00004 | 100 | 99.50 | 171. | 230 | .69 |
| 18:45:00 | 6.2 | -29.1 | .00000 | .00001 | 100 | 58.07 | 83. | 100 | 1.00 |

Heading toward more cloud. In it now.

Out of it about now.

Can see occasional filaments go by above. Heavier now.

Seem to be near base of a Ci layer ~ 1000 feet thick.

Out of most of it now, but still getting counts.

| | | 05 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|--------|-----------|---------------|-------------------|---------|--------|-----------|---------|------|--|--|
| START TIME | ALT KM | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | DO UM | NT N/M**3 | LMAX UM | FF | | |
| 18:45:15 | 6.3 | -28.3 | .00003 | .00002 | 100 | 91.96 | 47. | 209 | 1.00 | | |
| 18:45:30 | 6.3 | -28.8 | .00003 | .00004 | 100 | 109.00 | 57. | 250 | 1.00 | | |
| 18:45:45 | 6.3 | -28.9 | .00000 | .00002 | 100 | 33.34 | 062. | 47 | 1.00 | | |
| 18:46:00 | 6.4 | -29.3 | .00002 | .00012 | 95 | 134.36 | 101. | 413 | .97 | | |
| 18:46:15 | 6.4 | -29.4 | .00134 | .00058 | 29 | 184.60 | 6169. | 923 | .24 | | |
| 18:46:30 | 6.3 | -28.8 | .00576 | .00232 | 10 | 266.98 | 24932. | 2039 | .21 | | |
| 18:46:45 | 6.2 | -28.3 | .00433 | .00179 | 15 | 243.03 | 14201. | 1760 | .24 | | |
| 18:47:00 | 6.2 | -28.4 | .00191 | .00143 | 27 | 100.21 | 7439. | 1202 | .35 | | |
| 18:47:15 | 6.2 | -28.1 | 0.00000 | 0.00001 | 10 | 297.51 | 212. | 923 | .11 | | |
| 18:47:30 | 6.2 | -27.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:47:45 | 6.2 | -28.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:48:00 | 6.2 | -27.9 | .00010 | .00007 | 93 | 106.93 | 650. | 413 | .42 | Good visibility. Bright sun, no clouds below. | |
| 18:48:15 | 6.1 | -27.5 | .00003 | .00007 | 96 | 92.01 | 335. | 413 | .71 | | |
| 18:48:30 | 6.2 | -27.8 | .00002 | 0.00000 | 0 | 0.00 | 0. | 28 | 0.00 | | |
| 18:48:45 | 6.2 | -28.1 | .00003 | 0.00000 | 0 | 275.70 | 1. | 644 | .92 | | |
| 18:49:00 | 6.3 | -28.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:49:15 | 6.3 | -28.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:49:30 | 6.4 | -29.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | Still very bright. The cloud we went thru didn't seem very thick at all, but we did get precip data. | |
| 18:49:45 | 6.4 | -29.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:50:00 | 6.5 | -29.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:50:15 | 6.5 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:50:30 | 6.5 | -30.1 | 0.00000 | .00003 | 100 | 100.88 | 49. | 230 | 1.00 | | |
| 18:50:45 | 6.5 | -30.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:51:00 | 6.5 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:51:15 | 6.5 | -30.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:51:30 | 6.5 | -29.9 | .00001 | 0.00000 | 0 | 0.00 | 0. | 26 | 0.00 | | |
| 18:51:45 | 6.5 | -29.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:52:00 | 6.5 | -29.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:52:15 | 6.5 | -29.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:52:30 | 6.5 | -29.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:52:45 | 6.5 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:53:00 | 6.5 | -29.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 6 | 0.00 | Heading for a long piece of Ci. Will turn right and go along it. | |
| 18:53:15 | 6.5 | -29.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:53:30 | 6.5 | -29.8 | 0.00000 | .00001 | 100 | 42.10 | 195. | 67 | 1.00 | | |
| 18:53:45 | 6.5 | -29.8 | 0.00000 | .00004 | 100 | 109.00 | 75. | 250 | 1.00 | | |
| 18:54:00 | 6.5 | -29.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 18:54:15 | 6.5 | -29.6 | .00001 | .00007 | 100 | 77.56 | 427. | 209 | .94 | | |
| 18:54:30 | 6.5 | -29.3 | .00000 | .00011 | 100 | 79.31 | 401. | 230 | .91 | | |
| 18:54:45 | 6.5 | -29.3 | .00019 | .00028 | 100 | 75.32 | 1953. | 311 | .50 | | |
| 18:55:00 | 6.5 | -29.4 | .00003 | .00008 | 100 | 42.91 | 1193. | 108 | 1.25 | | |
| 18:55:15 | 6.5 | -29.4 | .00007 | .00002 | 100 | 38.00 | 530. | 87 | .93 | | |
| 18:55:30 | 6.5 | -29.1 | .00000 | .00002 | 100 | 38.00 | 539. | 87 | .83 | | |
| 18:55:45 | 6.5 | -29.3 | .00000 | .00001 | 100 | 45.15 | 59. | 128 | .86 | | |

| | | 05 FEB 74 | | 15 SECOND AVERAGE | | | | | | | | | |
|------------|--------|-----------|---------------|-------------------|---------|--------|-----------|---------|-------|--|--|--|--|
| START TIME | ALT KM | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | DO UR | NT N/M**3 | LMAX UM | FF UM | | | | |
| 18:56:00 | 6.5 | -29.2 | .00001 | .00000 | 0 | 0.00 | 0. | 24 | 0.00 | | | | |
| 18:56:15 | 6.4 | -29.1 | .00000 | .00000 | 0 | 0.00 | 0. | 12 | 0.00 | | | | |
| 18:56:30 | 6.4 | -29.0 | .00000 | .00001 | 100 | 42.38 | 201. | 67 | 1.00 | | | | |
| 18:56:45 | 6.4 | -29.1 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | | | |
| 18:57:00 | 6.4 | -29.0 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 18:57:15 | 6.4 | -28.8 | .00000 | .00013 | 100 | 116.65 | 213. | 311 | .87 | | | | |
| 18:57:30 | 6.4 | -28.7 | .00000 | .00002 | 100 | 91.94 | 44. | 289 | 1.00 | | | | |
| 18:57:45 | 6.4 | -29.1 | .00000 | .00000 | 0 | 0.00 | 0. | 10 | 0.00 | | | | |
| 18:58:00 | 6.4 | -29.1 | .00000 | .00000 | 0 | 0.00 | 0. | 6 | 0.00 | | | | |
| 18:58:15 | 6.4 | -29.2 | .00003 | .00003 | 100 | 90.13 | 127. | 209 | .82 | | | | |
| 18:58:30 | 6.4 | -29.3 | .00000 | .00001 | 87 | 58.60 | 81. | 413 | .49 | | | | |
| 18:58:45 | 6.4 | -29.2 | .00000 | .00013 | 100 | 133.54 | 215. | 311 | .72 | | | | |
| 18:59:00 | 6.4 | -28.8 | .00005 | .00013 | 92 | 121.31 | 258. | 413 | .72 | | | | |
| 18:59:15 | 6.4 | -28.9 | .00005 | .00022 | 92 | 133.32 | 321. | 413 | .76 | | | | |
| 18:59:30 | 6.4 | -28.5 | .00005 | .00003 | 78 | 91.80 | 240. | 413 | .39 | | | | |
| 18:59:45 | 6.4 | -28.5 | .00005 | .00030 | 99 | 111.11 | 607. | 413 | .82 | | | | |
| 19:00:00 | 6.3 | -28.6 | .00009 | .00000 | 100 | 98.65 | 388. | 230 | .71 | | | | |
| 19:00:15 | 6.3 | -28.3 | .00031 | .00100 | 98 | 119.52 | 1875. | 413 | .80 | | | | |
| 19:00:30 | 6.4 | -28.4 | .00070 | .00207 | 99 | 108.34 | 7115. | 413 | .76 | | | | |
| 19:00:45 | 6.4 | -28.6 | .00125 | .00302 | 99 | 100.15 | 12139. | 413 | .73 | | | | |
| 19:01:00 | 6.4 | -28.5 | .00058 | .00131 | 100 | 86.24 | 8073. | 311 | .66 | | | | |
| 19:01:15 | 6.4 | -28.7 | .00004 | .00003 | 100 | 62.26 | 960. | 148 | .61 | | | | |
| 19:01:30 | 6.4 | -28.7 | .00006 | .00001 | 100 | 65.15 | 60. | 128 | 1.00 | | | | |
| 19:01:45 | 6.4 | -28.7 | .00001 | .00000 | 0 | 0.00 | 0. | 22 | 0.00 | | | | |
| 19:02:00 | 6.4 | -28.7 | .00000 | .00001 | 100 | 65.15 | 59. | 128 | 1.00 | | | | |
| 19:02:15 | 6.4 | -28.7 | .00005 | .00022 | 100 | 121.11 | 553. | 311 | .67 | | | | |
| 19:02:30 | 6.4 | -28.8 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:02:45 | 6.4 | -28.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:03:00 | 6.4 | -28.7 | .00000 | .00001 | 100 | 71.87 | 47. | 148 | 1.00 | | | | |
| 19:03:15 | 6.4 | -28.7 | .00000 | .00003 | 100 | 76.96 | 196. | 169 | .84 | | | | |
| 19:03:30 | 6.3 | -28.4 | .00002 | .00003 | 100 | 55.25 | 349. | 169 | .86 | | | | |
| 19:03:45 | 6.4 | -28.5 | .00002 | .00019 | 99 | 122.42 | 341. | 413 | .78 | | | | |
| 19:04:00 | 6.4 | -28.7 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:04:15 | 6.4 | -28.6 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:04:30 | 6.4 | -28.6 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:04:45 | 6.4 | -28.7 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:05:00 | 6.4 | -28.8 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:05:15 | 6.4 | -28.7 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:05:30 | 6.5 | -28.6 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:05:45 | 6.5 | -28.7 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:06:00 | 6.5 | -28.8 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:06:15 | 6.6 | -28.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | | | |
| 19:06:30 | 6.6 | -29.0 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | | | |

The long CI cloud is off our left wing tip now. Probably now in clear air.

Main cloud is off our left wing probably a mile away. We seem to be in clear air. Main cloud is outside of our area.

No clouds above. Headed CI 10 miles away.

95

| START TIME | 05 FEB 79 | | 15 SECOND AVERAGE | | | | HT | LMAX | FF |
|------------|-----------|--------|-------------------|--------------|---------|--------|--------|---------|----|
| | ALT KM | TEMP C | LUC-SC G/N*3 | LUC-CP G/N*3 | LUC CLD | DO UM | | | |
| 19:06:45 | 6.6 | -29.1 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:07:00 | 6.6 | -29.1 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:07:15 | 6.6 | -29.2 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:07:30 | 6.6 | -29.3 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:07:45 | 6.6 | -29.2 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:08:00 | 6.6 | -29.2 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:08:15 | 6.6 | -29.2 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:08:30 | 6.6 | -29.2 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:08:45 | 6.6 | -29.3 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:09:00 | 6.7 | -29.3 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:09:15 | 6.7 | -29.3 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:09:30 | 6.7 | -29.4 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:09:45 | 6.7 | -29.3 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:10:00 | 6.7 | -29.3 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:10:15 | 6.7 | -29.3 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:10:30 | 6.8 | -29.8 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:10:45 | 6.8 | -29.8 | .0000 | 0.0000 | 0 | 0.00 | 0. | 4 0.00 | |
| 19:11:00 | 6.8 | -30.0 | .0013 | .0015 | 100 | 48.65 | 2551. | 169 .86 | |
| 19:11:15 | 6.9 | -30.6 | .0076 | .0150 | 100 | 68.21 | 22553. | 311 .62 | |
| 19:11:30 | 7.1 | -31.7 | .0047 | .0066 | 100 | 56.82 | 9853. | 311 .55 | |
| 19:11:45 | 7.1 | -31.7 | .0052 | .0099 | 100 | 59.68 | 11476. | 311 .49 | |
| 19:12:00 | 7.1 | -32.0 | .0076 | .0127 | 99 | 63.26 | 16011. | 413 .59 | |
| 19:12:15 | 7.1 | -31.8 | .0065 | .0131 | 99 | 76.00 | 14083. | 413 .54 | |
| 19:12:30 | 7.0 | -31.3 | .0026 | .0040 | 100 | 77.47 | 3311. | 311 .45 | |
| 19:12:45 | 7.0 | -31.4 | .0052 | .0080 | 100 | 54.58 | 12563. | 311 .52 | |
| 19:13:00 | 7.0 | -31.5 | .0035 | .0057 | 100 | 57.57 | 8399. | 189 .78 | |
| 19:13:15 | 7.0 | -31.5 | .0045 | .0062 | 100 | 67.60 | 7185. | 311 .55 | |
| 19:13:30 | 7.0 | -31.5 | .0020 | .0043 | 99 | 78.60 | 4864. | 413 .49 | |
| 19:13:45 | 7.0 | -31.4 | .0030 | .0081 | 100 | 72.26 | 8116. | 311 .50 | |
| 19:14:00 | 7.0 | -31.2 | .0039 | .0060 | 99 | 69.94 | 6197. | 413 .63 | |
| 19:14:15 | 7.0 | -31.8 | .0012 | .0030 | 100 | 61.30 | 3522. | 289 .72 | |
| 19:14:30 | 7.0 | -31.2 | .0061 | .0131 | 100 | 75.17 | 12484. | 250 .61 | |
| 19:14:45 | 7.0 | -31.1 | .0018 | .0035 | 100 | 83.21 | 2369. | 311 .56 | |
| 19:15:00 | 7.0 | -30.9 | .0074 | .0189 | 100 | 68.98 | 2830. | 311 .61 | |
| 19:15:15 | 7.0 | -30.9 | .0075 | .0178 | 100 | 68.34 | 9350. | 250 .64 | |
| 19:15:30 | 7.0 | -31.2 | .0057 | .0145 | 99 | 80.45 | 10504. | 413 .55 | |
| 19:15:45 | 7.0 | -31.1 | .0051 | .0129 | 100 | 72.79 | 11896. | 311 .56 | |
| 19:16:00 | 7.1 | -31.2 | .0037 | .0100 | 100 | 57.53 | 1490. | 250 .64 | |
| 19:16:15 | 7.1 | -31.3 | .0024 | .0057 | 100 | 74.51 | 5200. | 311 .48 | |
| 19:16:30 | 7.1 | -31.1 | .0030 | .0082 | 100 | 70.50 | 7857. | 311 .58 | |
| 19:16:45 | 7.0 | -31.1 | .0002 | .0017 | 100 | 114.66 | 984. | 311 .48 | |
| 19:17:00 | 7.0 | -30.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 0.00 | |
| 19:17:15 | 7.0 | -30.5 | .0006 | .0000 | 100 | 61.75 | 1456. | 250 .53 | |

Looks like solid cloud ahead 20 mi.

In thin Cl.

| 05 FEB 79 15 SECOND AVERAGE | | | | | | | | | | | |
|-----------------------------|--------|--------|---------------|---------------|---------|--------|-----------|---------|-------|---|--|
| START TIME | ALT KA | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | DO UM | WT N/M**3 | LMAX UM | FF UM | | |
| 19:17:30 | 7.0 | -30.4 | .00017 | .00006 | 100 | 32.51 | 1547. | 87 | 1.26 | | |
| 19:17:45 | 7.0 | -30.3 | .00039 | .00124 | 100 | 81.16 | 8379. | 311 | .54 | Much blue sky above us. | |
| 19:18:00 | 7.0 | -30.7 | .00010 | .00014 | 100 | 53.54 | 2742. | 169 | .74 | Flying right along the edge of the clouds. | |
| 19:18:15 | 6.9 | -30.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:18:30 | 6.9 | -30.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:18:45 | 6.8 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:19:00 | 6.8 | -29.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:19:15 | 6.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:19:30 | 6.8 | -29.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:19:45 | 6.8 | -29.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 19:20:00 | 6.8 | -29.9 | 0.00000 | .00001 | 100 | 71.87 | 48. | 148 | 1.00 | | |
| 19:20:15 | 6.9 | -30.1 | .00002 | .00008 | 100 | 54.05 | 1809. | 189 | .60 | | |
| 19:20:30 | 6.9 | -30.2 | .00047 | .00064 | 100 | 60.37 | 7457. | 209 | .77 | | |
| 19:20:45 | 7.0 | -30.6 | .00039 | .00107 | 100 | 54.29 | 17798. | 311 | .51 | | |
| 19:21:00 | 7.0 | -30.5 | .00046 | .00069 | 100 | 55.22 | 12200. | 250 | .64 | | |
| 19:21:15 | 7.0 | -30.4 | .00079 | .00222 | 100 | 73.31 | 20933. | 311 | .59 | Right now the cloud is pretty thick. Vis left is very good, but can't see much to the right at all. | |
| 19:21:30 | 7.0 | -30.6 | .00061 | .00115 | 100 | 67.12 | 10830. | 311 | .63 | | |
| 19:21:45 | 7.0 | -30.5 | .00059 | .00159 | 100 | 79.60 | 9230. | 311 | .67 | | |
| 19:22:00 | 7.0 | -30.4 | .00063 | .00242 | 99 | 97.06 | 10725. | 413 | .61 | | |
| 19:22:15 | 7.0 | -30.2 | .00005 | .00231 | 99 | 110.25 | 7509. | 413 | .65 | | |
| 19:22:30 | 7.0 | -30.1 | .00014 | .00043 | 97 | 102.02 | 1148. | 413 | .70 | | |
| 19:22:45 | 7.0 | -30.2 | .00026 | .00076 | 99 | 99.41 | 3162. | 413 | .70 | Still relatively heavy. Blue sky upward. | |
| 19:23:00 | 7.0 | -30.2 | .00020 | .00059 | 100 | 83.90 | 3220. | 250 | .71 | | |
| 19:23:15 | 7.0 | -30.3 | .00010 | .00051 | 100 | 94.68 | 2723. | 250 | .68 | Back into lighter cloud. Will move left to get into thinner stuff. | |
| 19:23:30 | 7.0 | -30.4 | .00009 | .00026 | 99 | 110.27 | 1452. | 413 | .51 | | |
| 19:23:45 | 7.0 | -30.5 | .00014 | .00044 | 98 | 115.23 | 1010. | 413 | .74 | | |
| 19:24:00 | 7.0 | -30.3 | .00044 | .00141 | 99 | 112.21 | 1898. | 413 | .70 | | |
| 19:24:15 | 7.0 | -30.2 | .00069 | .00211 | 98 | 104.97 | 10232. | 413 | .56 | | |
| 19:24:30 | 7.0 | -30.1 | .00010 | .00032 | 100 | 81.64 | 2417. | 250 | .67 | | |
| 19:24:45 | 7.0 | -30.2 | .00015 | .00035 | 99 | 88.39 | 7201. | 413 | .56 | | |
| 19:25:00 | 7.0 | -30.0 | .00000 | .00016 | 100 | 50.72 | 2686. | 169 | .83 | | |
| 19:25:15 | 7.0 | -30.2 | .00057 | .00209 | 98 | 3.27 | 9311. | 413 | .59 | | |
| 19:25:30 | 7.0 | -30.1 | .00121 | .00332 | 90 | 94.65 | 15650. | 413 | .60 | | |
| 19:25:45 | 7.0 | -30.1 | .00037 | .00126 | 90 | 124.96 | 1885. | 413 | .61 | | |
| 19:26:00 | 7.0 | -30.1 | .00010 | .00040 | 100 | 50.70 | 5982. | 311 | .53 | Can begin to see down to ground. Very thin filaments are going by. | |
| 19:26:15 | 7.0 | -30.0 | .00022 | .00057 | 100 | 74.76 | 5064. | 311 | .57 | Flying parallel to big Ci band. | |
| 19:26:30 | 7.0 | -30.0 | .00016 | .00026 | 100 | 59.73 | 3256. | 230 | .68 | | |
| 19:26:45 | 7.0 | -29.9 | .00000 | .00010 | 100 | 65.22 | 3336. | 250 | .56 | | |
| 19:27:00 | 7.0 | -29.9 | .00011 | .00033 | 100 | 85.23 | 1588. | 311 | .61 | The sun shines brightly on low stratus now. | |
| 19:27:15 | 7.0 | -29.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 24 | 0.00 | | |
| 19:27:30 | 7.0 | -29.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 19:27:45 | 7.0 | -29.9 | .00006 | .00002 | 100 | 10.00 | 539. | 87 | .93 | | |
| 19:28:00 | 7.0 | -30.0 | .00031 | .00045 | 100 | 50.65 | 7218. | 230 | .67 | | |

| | | 05 FEB 70 | | 15 SECOND AVERAGE | | | | | | | |
|------------|--------|-----------|---------------|-------------------|------------|--------|-----------|---------|-------|---|--|
| START TIME | ALT KM | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC-00 CLD | 00 UM | NT M/M**3 | LMAX UM | FF UM | | |
| 19:28:15 | 7.0 | -29.9 | .00050 | .00085 | 100 | 53.83 | 13198. | 250 | .66 | Moving into thicker Ci. | |
| 19:28:30 | 7.0 | -29.5 | .00146 | .00371 | 99 | 77.93 | 34300. | 413 | .51 | | |
| 19:28:45 | 7.0 | -29.7 | .00168 | .00375 | 100 | 69.94 | 36071. | 311 | .55 | | |
| 19:29:00 | 7.0 | -29.8 | .00158 | .00325 | 99 | 70.75 | 33368. | 413 | .57 | | |
| 19:29:15 | 7.0 | -30.0 | .00134 | .00324 | 99 | 78.78 | 23658. | 413 | .56 | | |
| 19:29:30 | 7.0 | -30.2 | .00138 | .00328 | 99 | 83.33 | 19851. | 413 | .59 | | |
| 19:29:45 | 7.0 | -30.2 | .00047 | .00086 | 100 | 70.64 | 8373. | 311 | .60 | | |
| 19:30:00 | 7.0 | -30.3 | .00015 | .00051 | 100 | 74.06 | 4937. | 311 | .46 | Blue sky with filaments going by. | |
| 19:30:15 | 7.0 | -30.3 | .00086 | .00014 | 100 | 76.19 | 1501. | 209 | .66 | | |
| 19:30:30 | 7.0 | -30.3 | .00016 | .00029 | 100 | 83.48 | 2731. | 311 | .47 | | |
| 19:30:45 | 7.0 | -30.2 | .00027 | .00038 | 100 | 67.05 | 4198. | 311 | .50 | | |
| 19:31:00 | 7.0 | -30.1 | .00048 | .00108 | 100 | 81.47 | 7698. | 311 | .58 | | |
| 19:31:15 | 7.0 | -30.1 | .00078 | .00135 | 100 | 67.85 | 16081. | 311 | .54 | | |
| 19:31:30 | 7.0 | -30.1 | .00091 | .00119 | 100 | 60.55 | 15877. | 311 | .59 | Vis ahead ~ 10 mi. | |
| 19:31:45 | 7.0 | -30.2 | .00066 | .00099 | 100 | 57.35 | 15537. | 250 | .63 | Very, very thin Ci. | |
| 19:32:00 | 7.0 | -30.3 | .00049 | .00117 | 100 | 59.18 | 15564. | 311 | .59 | | |
| 19:32:15 | 7.0 | -30.3 | .00068 | .00104 | 100 | 53.22 | 17163. | 250 | .71 | | |
| 19:32:30 | 7.0 | -30.2 | .00009 | .00121 | 100 | 54.53 | 19204. | 311 | .53 | | |
| 19:32:45 | 7.0 | -30.3 | .00075 | .00099 | 100 | 56.47 | 15485. | 250 | .68 | A little heavier now. Still thin; vis ahead 7-10 mi. | |
| 19:33:00 | 7.0 | -30.7 | .00069 | .00119 | 100 | 54.77 | 17146. | 311 | .61 | | |
| 19:33:15 | 7.1 | -30.9 | .00091 | .00153 | 100 | 53.59 | 25491. | 311 | .62 | Very thin. Very bright blue above. | |
| 19:33:30 | 7.1 | -31.1 | .00259 | .00545 | 100 | 61.85 | 64340. | 311 | .58 | | |
| 19:33:45 | 7.1 | -31.2 | .00290 | .00693 | 100 | 59.24 | 95204. | 311 | .61 | | |
| 19:34:00 | 7.1 | -31.0 | .00251 | .00639 | 100 | 67.23 | 67092. | 311 | .62 | | |
| 19:34:15 | 7.1 | -31.0 | .00195 | .00439 | 100 | 69.34 | 24031. | 311 | .59 | Just about in middle of Ci layer at 23,200 feet. 62 miles from Tulsa. | |
| 19:34:30 | 7.1 | -30.8 | .00149 | .00371 | 100 | 69.71 | 3007. | 250 | .70 | | |
| 19:34:45 | 7.1 | -30.8 | .00175 | .00520 | 100 | 77.47 | 10034. | 311 | .62 | Vis ~ 5 mi. | |
| 19:35:00 | 7.1 | -30.8 | .00148 | .00520 | 100 | 84.94 | 7362. | 311 | .68 | | |
| 19:35:15 | 7.1 | -31.0 | .00108 | .00372 | 99 | 93.67 | 15391. | 413 | .68 | | |
| 19:35:30 | 7.1 | -30.8 | .00054 | .00173 | 100 | 92.62 | 6826. | 311 | .70 | | |
| 19:35:45 | 7.1 | -30.8 | .00093 | .00455 | 99 | 111.74 | 11097. | 413 | .74 | | |
| 19:36:00 | 7.1 | -30.9 | .00107 | .00539 | 99 | 107.02 | 16732. | 413 | .68 | | |
| 19:36:15 | 7.1 | -30.9 | .00166 | .00562 | 100 | 97.46 | 20904. | 311 | .70 | | |
| 19:36:30 | 7.1 | -30.7 | .00090 | .00262 | 100 | 79.87 | 15620. | 311 | .69 | | |
| 19:36:45 | 7.1 | -30.3 | .00037 | .00136 | 100 | 89.61 | 5935. | 311 | .72 | | |
| 19:37:00 | 7.1 | -30.6 | .00044 | .00118 | 100 | 83.29 | 7949. | 311 | .62 | | |
| 19:37:15 | 7.1 | -30.8 | .00055 | .00138 | 100 | 63.55 | 14487. | 230 | .77 | | |
| 19:37:30 | 7.1 | -31.0 | .00060 | .00125 | 100 | 58.45 | 16926. | 209 | .79 | | |
| 19:37:45 | 7.1 | -31.0 | .00075 | .00214 | 100 | 70.91 | 16609. | 250 | .71 | | |
| 19:38:00 | 7.1 | -31.1 | .00052 | .00260 | 100 | 86.46 | 12398. | 311 | .67 | | |
| 19:38:15 | 7.1 | -31.0 | .00044 | .00122 | 100 | 91.88 | 4822. | 311 | .70 | | |
| 19:38:30 | 7.1 | -30.9 | .00017 | .00018 | 100 | 80.29 | 845. | 250 | .79 | | |
| 19:38:45 | 7.1 | -30.9 | .00008 | .00022 | 100 | 84.94 | 1450. | 311 | .50 | | |

| START TIME | 05 FEB 79 | | 15 SECOND AVERAGE | | | | WT | LMAX | FF |
|------------|-----------|-------|-------------------|--------|-----|--------|--------|---------|----|
| | ALT | TEMP | LWC-SC | LWC-CP | LWC | DB | | | |
| TIME | KM | C | G/M**3 | G/M**3 | CLD | UM | N/M**3 | UM | |
| 19:39:00 | 7.1 | -30.9 | .00009 | .00025 | 100 | 75.05 | 1704. | 230 .73 | |
| 19:39:15 | 7.1 | -30.9 | .00000 | .00029 | 100 | 93.43 | 1320. | 250 .70 | |
| 19:39:30 | 7.1 | -30.9 | .00030 | .00112 | 100 | 88.43 | 5980. | 311 .64 | |
| 19:39:45 | 7.1 | -30.7 | .00010 | .00024 | 100 | 97.21 | 801. | 250 .82 | |
| 19:40:00 | 7.1 | -30.8 | .00011 | .00038 | 99 | 107.35 | 1171. | 413 .75 | |
| 19:40:14 | 7.1 | -30.8 | .00049 | .00127 | 100 | 91.46 | 4995. | 311 .70 | |
| 19:40:29 | 7.1 | -30.8 | .00056 | .00170 | 100 | 80.94 | 9220. | 311 .64 | |
| 19:40:44 | 7.1 | -30.7 | .00115 | .00330 | 100 | 81.41 | 19874. | 311 .65 | |
| 19:40:59 | 7.1 | -30.8 | .00121 | .00369 | 100 | 79.37 | 24881. | 311 .61 | |
| 19:41:14 | 7.1 | -30.9 | .00086 | .00202 | 100 | 61.63 | 23480. | 250 .71 | |
| 19:41:29 | 7.1 | -30.9 | .00051 | .00117 | 100 | 54.77 | 17269. | 209 .77 | |
| 19:41:44 | 7.1 | -30.9 | .00049 | .00072 | 100 | 49.22 | 12632. | 230 .75 | |
| 19:41:59 | 7.1 | -30.9 | .00043 | .00071 | 100 | 54.93 | 12531. | 199 .74 | |
| 19:42:14 | 7.1 | -31.0 | .00031 | .00054 | 100 | 68.23 | 5486. | 250 .63 | |
| 19:42:29 | 7.1 | -31.0 | .00020 | .00055 | 100 | 86.60 | 3609. | 311 .58 | |
| 19:42:44 | 7.1 | -31.0 | .00020 | .00076 | 100 | 101.73 | 1896. | 311 .84 | |
| 19:42:59 | 7.1 | -31.1 | .00041 | .00178 | 99 | 111.42 | 5254. | 413 .67 | |
| 19:43:14 | 7.1 | -31.1 | .00140 | .00549 | 99 | 115.26 | 13925. | 473 .70 | |
| 19:43:29 | 7.1 | -31.1 | .00151 | .00602 | 99 | 111.07 | 15457. | 413 .72 | |
| 19:43:44 | 7.1 | -31.1 | .00212 | .00641 | 99 | 110.83 | 15663. | 413 .69 | |
| 19:43:59 | 7.1 | -31.1 | .00178 | .00556 | 86 | 118.73 | 15092. | 644 .62 | |
| 19:44:14 | 7.1 | -31.0 | .00199 | .00651 | 98 | 125.05 | 15623. | 413 .67 | |
| 19:44:29 | 7.1 | -31.1 | .00139 | .00442 | 99 | 118.07 | 10719. | 413 .70 | |
| 19:44:44 | 7.1 | -31.2 | .00132 | .00370 | 95 | 120.91 | 13206. | 413 .56 | |
| 19:44:59 | 7.1 | -31.1 | .00149 | .00214 | 78 | 127.12 | 9736. | 644 .46 | |
| 19:45:14 | 7.1 | -31.0 | .00124 | .00304 | 96 | 120.96 | 10724. | 413 .63 | |
| 19:45:29 | 7.1 | -31.2 | .00055 | .00256 | 99 | 110.09 | 5563. | 413 .73 | |
| 19:45:44 | 7.1 | -31.2 | .00027 | .00124 | 100 | 116.19 | 2982. | 311 .71 | |
| 19:45:59 | 7.1 | -31.4 | .00141 | .00517 | 99 | 98.15 | 9278. | 413 .69 | |
| 19:46:14 | 7.2 | -31.6 | .00103 | .00589 | 100 | 95.50 | 7707. | 311 .70 | |
| 19:46:29 | 7.2 | -31.8 | .00136 | .00385 | 100 | 86.32 | 19491. | 311 .67 | |
| 19:46:44 | 7.2 | -32.1 | .00153 | .00570 | 99 | 88.51 | 28607. | 413 .65 | |
| 19:46:59 | 7.3 | -32.2 | .00045 | .00123 | 100 | 75.69 | 11441. | 311 .50 | |
| 19:47:14 | 7.3 | -32.3 | .00025 | .00041 | 100 | 75.75 | 2863. | 311 .57 | |
| 19:47:29 | 7.3 | -32.4 | .00017 | .00039 | 100 | 80.15 | 3131. | 311 .53 | |
| 19:47:44 | 7.3 | -32.4 | .00039 | .00096 | 99 | 78.67 | 9260. | 413 .52 | |
| 19:47:59 | 7.4 | -32.6 | .00037 | .00046 | 100 | 58.31 | 6579. | 311 .47 | |
| 19:48:14 | 7.4 | -32.7 | .00050 | .00046 | 100 | 50.64 | 8659. | 230 .62 | |
| 19:48:29 | 7.4 | -32.0 | .00033 | .00039 | 100 | 58.96 | 3571. | 230 .63 | |
| 19:48:44 | 7.4 | -33.1 | .00011 | .00018 | 100 | 66.04 | 1641. | 189 .84 | |
| 19:48:59 | 7.4 | -33.0 | .00069 | .00232 | 100 | 82.53 | 15419. | 311 .57 | |
| 19:49:14 | 7.4 | -32.9 | .00074 | .00213 | 100 | 75.41 | 17021. | 311 .63 | |
| 19:49:29 | 7.4 | -33.0 | .00027 | .00092 | 100 | 100.74 | 3621. | 311 .64 | |

Ci band on the right is 5 mi away, but it does not have a shadow.

Ci probably wouldn't look so thick from the ground.

Into heavier Ci. Vis now 3-4 mi, but still can see through to ground.

Very heavy, but blue skies are visible thru thin Ci.

Can see tops of Ci to our right; blue sky above the Ci.

Much white in all directions, but up - there its blue sky.

At the tops of the Cs. Farmland is still relatively bright.

AD-A118 715 AIR FORCE GEOPHYSICS LAB HANSCOM AFB MA
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05 FEB 79 15 SECONDB AVERAGE

| START TIME | ALT KM | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC DB | CLD UM | HT M/M**3 | LMAX UM | FF |
|------------|--------|--------|---------------|---------------|--------|--------|-----------|---------|------|
| 19:49:44 | 7.4 | -33.0 | .00014 | .00054 | 100 | 03.14 | 3118. | 311 | .67 |
| 19:49:59 | 7.4 | -33.0 | .00092 | .00218 | 100 | 59.86 | 29714. | 311 | .63 |
| 19:50:14 | 7.4 | -33.0 | .00092 | .00139 | 99 | 57.12 | 21033. | 413 | .70 |
| 19:50:29 | 7.4 | -32.9 | .00052 | .00147 | 100 | 70.72 | 13432. | 311 | .55 |
| 19:50:44 | 7.4 | -32.9 | .00066 | .00126 | 100 | 61.26 | 15431. | 230 | .72 |
| 19:50:59 | 7.4 | -32.8 | .00012 | .00018 | 99 | 55.91 | 2677. | 413 | .52 |
| 19:51:14 | 7.4 | -32.9 | .00012 | .00016 | 100 | 52.97 | 3191. | 169 | .71 |
| 19:51:29 | 7.4 | -32.8 | .00004 | .00004 | 100 | 44.66 | 920. | 188 | .82 |
| 19:51:44 | 7.4 | -32.7 | .00001 | .00000 | 0 | 0.00 | 0. | 24 | 0.00 |
| 19:51:59 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 18 | 0.00 |
| 19:52:14 | 7.4 | -32.8 | .00001 | .00000 | 0 | 0.00 | 0. | 20 | 0.00 |
| 19:52:29 | 7.4 | -33.1 | .00000 | .00002 | 100 | 58.74 | 517. | 169 | .61 |
| 19:52:44 | 7.4 | -33.0 | .00000 | .00000 | 0 | 0.00 | 0. | 10 | 0.00 |
| 19:52:59 | 7.4 | -33.0 | .00000 | .00000 | 0 | 0.00 | 0. | 10 | 0.00 |
| 19:53:14 | 7.4 | -32.8 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:53:29 | 7.4 | -33.0 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:53:44 | 7.4 | -33.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:53:59 | 7.4 | -33.1 | .00000 | .00000 | 0 | 0.00 | 0. | 14 | 0.00 |
| 19:54:14 | 7.4 | -33.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:54:29 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:54:44 | 7.4 | -32.7 | .00000 | .00001 | 100 | 33.34 | 385. | 47 | 1.00 |
| 19:54:59 | 7.5 | -33.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:55:14 | 7.4 | -33.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:55:29 | 7.4 | -33.0 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:55:44 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:55:59 | 7.4 | -33.0 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:56:14 | 7.4 | -33.0 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:56:29 | 7.4 | -32.9 | .00000 | .00001 | 100 | 58.07 | 74. | 108 | 1.00 |
| 19:56:44 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:56:59 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:57:14 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:57:29 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:57:44 | 7.4 | -32.9 | .00000 | .00001 | 100 | 65.15 | 55. | 128 | 1.00 |
| 19:57:59 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 10 | 0.00 |
| 19:58:14 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:58:29 | 7.4 | -32.9 | .00004 | .00014 | 100 | 70.10 | 1332. | 230 | .61 |
| 19:58:44 | 7.4 | -32.9 | .00003 | .00007 | 100 | 49.63 | 168. | 169 | .77 |
| 19:58:59 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:59:14 | 7.4 | -32.9 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 |
| 19:59:29 | 7.4 | -32.7 | .00002 | .00004 | 100 | 90.14 | 119. | 100 | .82 |
| 19:59:44 | 7.4 | -32.8 | .00004 | .00017 | 100 | 91.23 | 447. | 250 | .48 |
| 19:59:59 | 7.4 | -32.8 | .00005 | .00005 | 100 | 106.57 | 144. | 250 | .94 |
| 20:00:14 | 7.4 | -32.8 | .00005 | .00005 | 100 | 89.51 | 352. | 169 | .79 |

Now breaking out into thin Ci. Almost in clear air now. The Ci band is 5 mi off our rt wing tip.

Very clear air.

In clr air, Ci band is off to rt, 5-10 mi.

Moving over to right to get closer to Ci.

| 05 FEB 79 15 SECOND AVERAGE | | | | | | | | | | |
|-----------------------------|--------|--------|---------------|---------------|---------|--------|--------|-------------|-------|---|
| START TIME | ALT KM | TEMP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | DD UM | NT | LMAX M/M**3 | FF UM | |
| 20:00:29 | 7.4 | -32.7 | .00002 | .00003 | 88 | 90.98 | 163. | 413 | .53 | |
| 20:00:44 | 7.4 | -32.8 | .00000 | .00001 | 100 | 33.34 | 415. | 47 | 1.00 | Bulk of cloud is off rt wing, banking to rt to get into it. |
| 20:00:59 | 7.4 | -32.6 | .00001 | .00003 | 100 | 89.87 | 87. | 209 | .99 | |
| 20:01:14 | 7.4 | -32.7 | .00000 | .00000 | 0 | 0.00 | 0. | 6 | 0.00 | |
| 20:01:29 | 7.4 | -32.5 | .00003 | .00001 | 86 | 43.82 | 198. | 413 | .32 | |
| 20:01:44 | 7.4 | -32.8 | .00005 | .00020 | 96 | 108.41 | 853. | 413 | .57 | Very thin. |
| 20:01:59 | 7.4 | -33.0 | .00037 | .00106 | 92 | 126.30 | 2078. | 413 | .71 | Heavier cloud coming up. Contrail aloft. |
| 20:02:14 | 7.4 | -32.9 | .00005 | .00015 | 97 | 123.05 | 1340. | 413 | .38 | |
| 20:02:29 | 7.4 | -33.0 | .00013 | .00038 | 96 | 131.77 | 669. | 413 | .74 | |
| 20:02:44 | 7.4 | -32.9 | .00010 | .00057 | 99 | 115.75 | 1325. | 413 | .72 | |
| 20:02:59 | 7.4 | -32.9 | .00006 | .00032 | 99 | 120.17 | 390. | 413 | .94 | |
| 20:03:14 | 7.4 | -32.9 | .00002 | .00000 | 0 | 181.22 | 3. | 413 | 1.00 | |
| 20:03:29 | 7.5 | -33.1 | .00000 | .00001 | 100 | 84.44 | 41. | 189 | 1.00 | CI is the only cloud here. Can see rt 30 mi. |
| 20:03:44 | 7.5 | -33.6 | .00000 | .00000 | 0 | 0.00 | 0. | 14 | 0.00 | |
| 20:03:59 | 7.5 | -33.6 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:04:14 | 7.5 | -33.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | Brownish cloud off left wing tip. |
| 20:04:29 | 7.5 | -33.5 | .00000 | .00000 | 0 | 0.00 | 0. | 18 | 0.00 | |
| 20:04:44 | 7.5 | -33.6 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:04:59 | 7.6 | -34.0 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:05:14 | 7.6 | -34.0 | .00000 | .00004 | 100 | 86.84 | 125. | 209 | .99 | Just about at altitude of top of brown cloud to left. |
| 20:05:29 | 7.6 | -34.0 | .00001 | .00000 | 0 | 0.00 | 0. | 20 | 0.00 | |
| 20:05:44 | 7.6 | -34.1 | .00000 | .00002 | 100 | 91.96 | 43. | 209 | 1.00 | |
| 20:05:59 | 7.6 | -34.3 | .00002 | .00003 | 100 | 72.86 | 180. | 169 | .98 | |
| 20:06:14 | 7.6 | -34.2 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | Very thin patches occasionally go by. |
| 20:06:29 | 7.7 | -34.4 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:06:44 | 7.7 | -34.6 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:06:59 | 7.7 | -34.5 | .00000 | .00002 | 100 | 61.78 | 165. | 128 | .93 | To the left, the sky is bright blue; to the rt, higher CI are 4000 to 5000 feet above us. |
| 20:07:14 | 7.7 | -34.3 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:07:29 | 7.7 | -34.2 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:07:44 | 7.7 | -34.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:07:59 | 7.7 | -34.1 | .00001 | .00000 | 0 | 0.00 | 0. | 26 | 0.00 | |
| 20:08:14 | 7.7 | -34.1 | .00000 | .00000 | 0 | 0.00 | 0. | 16 | 0.00 | |
| 20:08:29 | 7.7 | -34.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:08:44 | 7.7 | -34.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:08:59 | 7.7 | -34.2 | .00001 | .00003 | 100 | 90.14 | 121. | 209 | .82 | |
| 20:09:14 | 7.7 | -34.1 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:09:29 | 7.6 | -34.0 | .00003 | .00002 | 100 | 54.42 | 483. | 108 | .73 | |
| 20:09:44 | 7.7 | -34.0 | .00015 | .00010 | 100 | 37.90 | 2807. | 128 | .88 | |
| 20:09:59 | 7.6 | -33.9 | .00044 | .00065 | 100 | 63.68 | 9453. | 230 | .64 | |
| 20:10:14 | 7.6 | -34.0 | .00019 | .00056 | 100 | 60.01 | 7040. | 209 | .76 | |
| 20:10:29 | 7.6 | -34.2 | .00007 | .00012 | 100 | 70.39 | 874. | 209 | .84 | We're on dividing line between cloudy air to rt and clr air to left except for the brown long thin cloud. |
| 20:10:44 | 7.6 | -34.2 | .00044 | .00076 | 100 | 60.50 | 12785. | 311 | .56 | |
| 20:10:59 | 7.6 | -34.2 | .00073 | .00105 | 100 | 44.94 | 22476. | 189 | .84 | |

| 05 FEB 70 15 SECOND AVERAGE | | | | | | | | | | |
|-----------------------------|--------|--------|---------------|---------------|---------|--------|-----------|---------|------|--|
| START TIME | ALT KH | TENP C | LWC-SC G/M**3 | LWC-CP G/M**3 | LWC CLD | DO UM | NT N/M**3 | LMAX UM | FF | |
| 20:11:14 | 7.6 | -34.2 | .00069 | .00105 | 100 | 50.06 | 18878. | 209 | .78 | |
| 20:11:29 | 7.6 | -34.2 | .00033 | .00045 | 100 | 48.23 | 9358. | 250 | .61 | |
| 20:11:44 | 7.6 | -34.2 | .00026 | .00039 | 100 | 52.72 | 5516. | 311 | .47 | |
| 20:11:59 | 7.6 | -33.7 | .00007 | .00010 | 100 | 54.72 | 1669. | 148 | .86 | |
| 20:12:14 | 7.6 | -33.5 | .00005 | .00023 | 100 | 81.23 | 1763. | 209 | .76 | |
| 20:12:29 | 7.6 | -33.8 | .00002 | .00011 | 100 | 82.92 | 546. | 230 | .79 | |
| 20:12:44 | 7.6 | -33.8 | .00011 | .00028 | 100 | 92.35 | 978. | 311 | .67 | |
| 20:12:59 | 7.6 | -33.8 | .00000 | .00013 | 100 | 126.75 | 913. | 311 | .42 | |
| 20:13:14 | 7.6 | -33.9 | .00008 | .00014 | 100 | 66.79 | 823. | 189 | 1.02 | |
| 20:13:29 | 7.6 | -33.9 | .00002 | .00012 | 100 | 66.12 | 1356. | 169 | .79 | |
| 20:13:44 | 7.6 | -33.8 | .00002 | .00006 | 100 | 50.61 | 967. | 108 | .95 | |
| 20:13:59 | 7.6 | -33.7 | .00009 | .00016 | 100 | 49.61 | 3240. | 148 | .81 | High Ci off rt., off left mostly blue sky. Ahead sunny, but a little hazy. |
| 20:14:14 | 7.6 | -33.6 | .00006 | .00002 | 100 | 58.07 | 149. | 108 | 1.00 | |
| 20:14:29 | 7.6 | -33.6 | .00002 | .00005 | 100 | 62.67 | 888. | 148 | .71 | |
| 20:14:44 | 7.6 | -33.5 | .00001 | .00005 | 100 | 64.76 | 631. | 189 | .72 | |
| 20:14:59 | 7.5 | -33.2 | .00013 | .00024 | 100 | 46.36 | 5276. | 189 | .74 | |
| 20:15:14 | 7.5 | -32.8 | .00006 | .00015 | 99 | 58.79 | 1684. | 413 | .74 | Very thin Ci here. Bright sun on ground, with just a little haze. |
| 20:15:29 | 7.5 | -32.5 | .00003 | .00016 | 100 | 56.37 | 2196. | 189 | .81 | |
| 20:15:44 | 7.5 | -32.7 | .00006 | .00026 | 100 | 63.32 | 3219. | 209 | .74 | |
| 20:15:59 | 7.5 | -32.7 | .00018 | .00042 | 100 | 76.05 | 2563. | 250 | .75 | |
| 20:16:14 | 7.5 | -32.8 | .00006 | .00010 | 100 | 76.98 | 872. | 189 | .74 | |
| 20:16:29 | 7.5 | -32.8 | .00003 | .00012 | 100 | 78.88 | 676. | 209 | .83 | Brown band on left has flat top. |
| 20:16:44 | 7.5 | -32.7 | .00017 | .00032 | 100 | 68.61 | 2824. | 230 | .74 | |
| 20:16:59 | 7.5 | -32.7 | .00030 | .00049 | 100 | 58.60 | 6193. | 209 | .77 | |
| 20:17:14 | 7.5 | -32.7 | .00026 | .00053 | 100 | 50.61 | 8783. | 209 | .81 | |
| 20:17:29 | 7.5 | -32.7 | .00014 | .00024 | 100 | 76.15 | 1884. | 311 | .49 | |
| 20:17:44 | 7.5 | -32.6 | .00007 | .00015 | 100 | 66.20 | 1668. | 230 | .64 | Very thin. Vis good in all directions, but haze everywhere. Higher Ci |
| 20:17:59 | 7.5 | -32.7 | .00003 | .00005 | 100 | 96.53 | 325. | 230 | .66 | off our right but it stops overhead. Mostly blue sky out left, |
| 20:18:14 | 7.5 | -32.6 | .00002 | .00005 | 100 | 96.85 | 671. | 230 | .48 | except for brown band. |
| 20:18:29 | 7.5 | -32.6 | .00006 | .00007 | 100 | 65.07 | 664. | 189 | .80 | |
| 20:18:44 | 7.5 | -32.5 | .00004 | .00007 | 100 | 83.51 | 410. | 209 | .77 | |
| 20:18:59 | 7.5 | -32.5 | .00002 | .00004 | 100 | 63.73 | 345. | 148 | .94 | |
| 20:19:14 | 7.5 | -32.5 | .00003 | .00001 | 100 | 78.28 | 37. | 169 | 1.00 | |
| 20:19:29 | 7.5 | -32.5 | .00001 | .00005 | 100 | 66.97 | 313. | 148 | .99 | |
| 20:19:44 | 7.5 | -32.5 | .00002 | .00002 | 100 | 68.75 | 100. | 148 | .99 | Thick Ci on right. sunny to the left. A brownish layer casts a shadow |
| 20:19:59 | 7.5 | -32.6 | .00001 | .00003 | 100 | 73.64 | 159. | 189 | .98 | on ground. Still sunny near airplane. |
| 20:20:14 | 7.5 | -32.7 | .00001 | .00002 | 100 | 75.49 | 92. | 169 | .96 | |
| 20:20:29 | 7.5 | -32.6 | .00000 | .00002 | 100 | 75.49 | 92. | 169 | .96 | |
| 20:20:44 | 7.5 | -32.5 | .00000 | .00002 | 100 | 61.87 | 131. | 128 | .99 | |
| 20:20:59 | 7.5 | -32.4 | .00000 | .00001 | 100 | 84.44 | 39. | 189 | 1.00 | |
| 20:21:14 | 7.5 | -32.3 | .00000 | .00004 | 100 | 86.75 | 119. | 209 | .98 | |
| 20:21:29 | 7.5 | -32.4 | .00000 | .00001 | 100 | 50.53 | 111. | 87 | 1.00 | |
| 20:21:44 | 7.5 | -32.4 | .00000 | .00000 | 9 | 0.00 | 0. | 14 | 0.00 | |

| | | 05 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|--------|-----------|--------------|-------------------|---------|-------|----------|---------|-------|--|--|
| START TIME | ALT KM | TEMP C | LUC-SC 0/M*3 | LUC-CP 0/M*3 | LUC CLD | DD UN | WT N/M*3 | LHAX UM | FF UM | | |
| 20:21:59 | 7.5 | -32.4 | .00000 | .00000 | 0 | 0.00 | 0. | 14 | 0.00 | | |
| 20:22:14 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:22:29 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:22:44 | 7.5 | -32.4 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:22:59 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:23:14 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:23:29 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:23:44 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:23:59 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 20:24:14 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 20:24:29 | 7.5 | -32.3 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | Sun shines brightly through a higher Ci layer, but no halo. | |
| 20:24:44 | 7.5 | -32.3 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 20:24:59 | 7.5 | -32.4 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 20:25:14 | 7.5 | -32.4 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 20:25:29 | 7.5 | -32.4 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 20:25:44 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 20:25:59 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 20:26:14 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 20:26:29 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 18 | 0.00 | | |
| 20:26:44 | 7.5 | -32.5 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:26:59 | 7.5 | -32.4 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 20:27:14 | 7.5 | -32.4 | .00000 | .00000 | 0 | 0.00 | 0. | 10 | 0.00 | | |
| 20:27:29 | 7.5 | -32.4 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 20:27:44 | 7.5 | -32.3 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 20:27:59 | 7.5 | -32.3 | .00001 | .00002 | 100 | 27.15 | 398. | 47 | 1.00 | On the right is a flat top of a Ci layer. Another Ci layer is above it. | |
| 20:28:14 | 7.5 | -32.4 | .00000 | .00001 | 100 | 33.34 | 400. | 47 | 1.00 | | |
| 20:28:29 | 7.5 | -32.3 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | Many Ci filaments going by b=low. We are 1000 feet above them. | |
| 20:28:44 | 7.5 | -32.3 | .00000 | .00000 | 0 | 0.00 | 0. | 8 | 0.00 | | |
| 20:28:59 | 7.5 | -32.2 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | Can see reflection of sun on particles some distance below. A white spot | |
| 20:29:14 | 7.5 | -32.3 | .00001 | .00000 | 0 | 0.00 | 0. | 22 | 0.00 | below moves with the plane. | |
| 20:29:29 | 7.5 | -32.3 | .00000 | .00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:29:44 | 7.5 | -32.3 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | Fragments like strung out cotton going by 1000 feet above us. | |
| 20:29:59 | 7.5 | -32.2 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | We may not get data from them. Looks dark ahead. | |
| 20:30:14 | 7.5 | -32.2 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 20:30:29 | 7.5 | -32.3 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 20:30:44 | 7.5 | -32.2 | .00000 | .00000 | 0 | 0.00 | 0. | 4 | 0.00 | Blue sky to left, H1 Ci to right filters sun. | |
| 20:30:59 | 7.5 | -32.2 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 20:31:14 | 7.5 | -32.2 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 20:31:29 | 7.5 | -32.2 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 20:31:44 | 7.5 | -32.1 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 20:31:59 | 7.5 | -32.0 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |
| 20:32:14 | 7.5 | -32.0 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | Can still see reflection of sun in thin stuff below. | |
| 20:32:29 | 7.5 | -32.1 | .00000 | .00000 | 0 | 0.00 | 0. | 2 | 0.00 | | |

| START TIME | | 05 FEB 79 | | 15 SECOND AVERAGE | | | | WT | LMAX | FF |
|------------|------|-----------|--------|-------------------|-----|--------|-------|-----|------|----|
| ALT | TEMP | LWC-SC | LWC-CP | LWC | DO | WT | LMAX | FF | | |
| KM | C | G/M**3 | G/M**3 | CLD | UN | N/M**3 | UN | | | |
| 20:32:44 | 7.5 | -32.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 20:32:59 | 7.5 | -32.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 20:33:14 | 7.5 | -31.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:33:29 | 7.5 | -31.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:33:44 | 7.5 | -32.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:33:59 | 7.5 | -32.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:34:14 | 7.5 | -32.1 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 20:34:29 | 7.5 | -32.1 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:34:44 | 7.5 | -31.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 20:34:59 | 7.6 | -31.8 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 20:35:14 | 7.6 | -31.8 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 20:35:29 | 7.6 | -31.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:35:44 | 7.6 | -32.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:35:59 | 7.6 | -32.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 20:36:14 | 7.7 | -32.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 20:36:29 | 7.7 | -32.4 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 20:36:44 | 7.7 | -32.5 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:36:59 | 7.7 | -32.7 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 20:37:14 | 7.8 | -32.9 | .00000 | .00001 | 100 | 42.30 | 187. | 67 | 1.00 | |
| 20:37:29 | 7.8 | -33.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:37:44 | 7.8 | -33.0 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:37:59 | 7.9 | -32.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 20:38:14 | 7.9 | -32.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:38:29 | 7.9 | -32.9 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:38:44 | 7.9 | -33.1 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 20:38:59 | 7.9 | -33.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 20:39:14 | 7.9 | -33.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:39:29 | 8.0 | -33.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:39:44 | 8.0 | -33.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:39:59 | 8.1 | -33.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:40:14 | 8.1 | -33.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:40:29 | 8.1 | -33.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | |
| 20:40:44 | 8.1 | -33.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:40:59 | 8.1 | -33.3 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:41:14 | 8.2 | -33.5 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:41:29 | 8.2 | -33.5 | .00000 | 0.00000 | 0 | 0.00 | 0. | 2 | 0.00 | |
| 20:41:44 | 8.2 | -33.5 | .00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:41:59 | 8.2 | -33.6 | .00000 | .00003 | 100 | 49.55 | 350. | 169 | .79 | |
| 20:42:14 | 8.2 | -33.7 | .00001 | .00002 | 100 | 35.91 | 865. | 120 | .66 | |
| 20:42:29 | 8.2 | -33.8 | .00003 | .00009 | 100 | 45.47 | 2163. | 120 | .76 | |
| 20:42:44 | 8.3 | -34.0 | .00005 | .00005 | 100 | 54.70 | 963. | 169 | .72 | |
| 20:42:59 | 8.3 | -34.1 | .00004 | .00005 | 100 | 62.18 | 328. | 169 | 1.10 | |
| 20:43:14 | 8.3 | -34.2 | .00000 | 0.00000 | 0 | 0.00 | 0. | 4 | 0.00 | |

Ac or As below us tops out at 5000 feet below.

Ahead to the left there is a break between As and Ci, but hard to distinguish on right.

| | | 05 FEB 79 | | 15 SECOND AVERAGE | | | | NT | LMAX | FF |
|------------|--------|-----------|---------------|-------------------|---------|--------|--------|-----|------|----|
| START TIME | ALT KN | TEMP C | LUC-SC G/M**3 | LUC-CP G/M**3 | LUC CLD | DO UR | N/M**3 | UM | | |
| 20:43:29 | 0.3 | -34.2 | 0.00002 | 0.00000 | 0 | 0.00 | 0. | 20 | 0.00 | |
| 20:43:44 | 0.3 | -34.2 | 0.00001 | 0.00014 | 100 | 85.21 | 758. | 250 | .71 | |
| 20:43:59 | 0.3 | -34.1 | 0.00005 | 0.00003 | 100 | 99.55 | 159. | 230 | .69 | |
| 20:44:14 | 0.3 | -34.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:44:29 | 0.4 | -34.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:44:44 | 0.4 | -34.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:44:59 | 0.4 | -34.3 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 24 | 0.00 | |
| 20:45:14 | 0.4 | -34.4 | 0.00000 | 0.00009 | 100 | 132.95 | 108. | 311 | .89 | |
| 20:45:29 | 0.4 | -34.4 | 0.00001 | 0.00000 | 0 | 0.00 | 0. | 26 | 0.00 | |
| 20:45:44 | 0.4 | -34.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:45:59 | 0.5 | -34.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:46:14 | 0.5 | -34.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:46:29 | 0.5 | -34.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:46:44 | 0.5 | -34.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:46:59 | 0.5 | -35.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:47:14 | 0.5 | -35.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:47:29 | 0.5 | -35.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:47:44 | 0.6 | -35.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:47:59 | 0.6 | -35.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:48:14 | 0.6 | -35.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:48:29 | 0.6 | -35.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:48:44 | 0.6 | -35.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:48:59 | 0.6 | -35.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:49:14 | 0.6 | -35.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:49:29 | 0.7 | -35.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:49:44 | 0.6 | -35.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:49:59 | 0.7 | -35.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:50:14 | 0.7 | -35.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:50:29 | 0.7 | -35.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:50:44 | 0.7 | -35.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:50:59 | 0.7 | -35.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:51:14 | 0.7 | -35.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:51:29 | 0.7 | -35.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:51:44 | 0.7 | -35.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:51:59 | 0.7 | -35.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:52:14 | 0.7 | -35.6 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:52:29 | 0.7 | -35.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:52:44 | 0.7 | -35.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:52:59 | 0.7 | -35.8 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:53:14 | 0.8 | -36.2 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:53:29 | 0.8 | -36.3 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:53:44 | 0.9 | -36.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |
| 20:53:59 | 0.8 | -36.5 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | |

| | | 05 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|-----|-----------|---------|-------------------|-----|--------|--------|------|------|--|--|
| START TIME | ALT | TEMP | LUC-SC | LUC-CP | LUC | DD | NI | LMAX | FF | | |
| | AM | C | G/M+3 | G/M+3 | CLD | UM | N/M+3 | UM | | | |
| 20:54:14 | 8.0 | -36.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:54:29 | 8.0 | -36.4 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:54:44 | 8.9 | -36.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:54:59 | 8.9 | -36.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:55:14 | 8.9 | -36.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:55:29 | 8.9 | -36.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:55:44 | 8.9 | -36.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:55:59 | 8.9 | -37.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:56:14 | 8.9 | -37.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:56:29 | 8.9 | -37.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:56:44 | 8.9 | -36.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:56:59 | 8.9 | -37.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:57:14 | 8.9 | -37.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:57:29 | 9.0 | -37.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:57:44 | 9.0 | -37.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:57:59 | 9.0 | -37.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:58:14 | 9.0 | -37.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:58:29 | 9.0 | -37.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 4 | 0.00 | | |
| 20:58:44 | 9.0 | -37.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:58:59 | 9.0 | -37.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:59:14 | 9.0 | -37.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:59:29 | 9.0 | -37.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:59:44 | 9.0 | -37.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 20:59:59 | 9.0 | -37.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:00:14 | 9.0 | -38.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:00:29 | 9.0 | -38.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:00:44 | 9.0 | -38.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 6 | 0.00 | | |
| 21:00:59 | 9.0 | -38.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:01:14 | 9.0 | -38.1 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:01:29 | 9.0 | -38.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:01:44 | 9.0 | -38.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:01:59 | 9.0 | -38.2 | .00005 | .00014 | 100 | 63.40 | 979. | 169 | 1.01 | | |
| 21:02:14 | 9.0 | -38.2 | .00059 | .00100 | 99 | 72.95 | 16078. | 413 | .63 | | |
| 21:02:29 | 9.0 | -38.4 | .00124 | .00390 | 100 | 90.35 | 16737. | 311 | .67 | | |
| 21:02:44 | 9.0 | -38.3 | .00012 | .00051 | 100 | 125.40 | 1310. | 311 | .66 | | |
| 21:02:59 | 9.0 | -38.2 | .00002 | .00004 | 100 | 00.20 | 129. | 209 | .97 | | |
| 21:03:14 | 9.0 | -38.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:03:29 | 9.0 | -38.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:03:44 | 9.0 | -38.1 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:03:59 | 9.1 | -38.1 | .00003 | .00007 | 100 | 00.29 | 874. | 230 | .51 | | |
| 21:04:14 | 9.1 | -38.1 | .00001 | .00000 | 100 | 132.49 | 125. | 311 | .00 | | |
| 21:04:29 | 9.1 | -38.1 | .00000 | .00032 | 100 | 83.17 | 1946. | 230 | .74 | | |
| 21:04:44 | 9.1 | -38.0 | .00020 | .00077 | 100 | 102.11 | 3294. | 311 | .64 | | |

Still between As (top ~ 22,000') and Ci 2-3000 feet above us. We're in relatively cloud free air.

Ci filaments going by ~ 1000' above.

| | | 05 FEB 79 | | 15 SECOND AVERAGE | | | | | |
|------------|--------|-----------|---------------|-------------------|---------------|-----------|---------|---------|--|
| START TIME | ALT KN | TEMP C | LUC-SC G/M**3 | LUC-CP G/M**3 | LUC DO CLD UN | NT N/M**3 | LMAX UM | FF UM | |
| 21:04:59 | 9.1 | -30.0 | .00068 | .00244 | 83 | 114.97 | 9159. | 644 .50 | |
| 21:05:14 | 9.1 | -30.0 | .00137 | .00509 | 98 | 114.80 | 17647. | 413 .65 | |
| 21:05:29 | 9.0 | -30.2 | .00052 | .00154 | 98 | 104.79 | 5644. | 413 .61 | |
| 21:05:44 | 9.0 | -30.1 | .00045 | .00170 | 99 | 110.39 | 4374. | 413 .63 | |
| 21:05:59 | 9.0 | -30.1 | .00093 | .00321 | 100 | 105.19 | 13119. | 311 .61 | |
| 21:06:14 | 9.0 | -30.2 | .00070 | .00230 | 99 | 108.57 | 6995. | 413 .69 | |
| 21:06:29 | 9.0 | -30.2 | .00032 | .00140 | 100 | 111.21 | 3761. | 311 .70 | |
| 21:06:44 | 9.0 | -30.3 | .00026 | .00061 | 99 | 105.32 | 1426. | 413 .77 | |
| 21:06:59 | 9.0 | -30.3 | .00013 | .00034 | 100 | 118.45 | 916. | 311 .68 | |
| 21:07:14 | 9.0 | -30.4 | .00014 | .00092 | 99 | 114.91 | 2603. | 413 .66 | |
| 21:07:29 | 9.0 | -30.3 | .00002 | .00264 | 99 | 100.04 | 8061. | 413 .60 | |
| 21:07:44 | 9.0 | -30.3 | .00045 | .00179 | 99 | 104.69 | 5673. | 413 .71 | |
| 21:07:59 | 9.0 | -30.4 | .00003 | .00011 | 100 | 131.85 | 174. | 311 .79 | |
| 21:08:14 | 9.0 | -30.4 | .00001 | .00009 | 100 | 132.51 | 99. | 311 .91 | |
| 21:08:29 | 9.0 | -30.4 | .00022 | .00092 | 100 | 95.40 | 3567. | 311 .69 | |
| 21:08:44 | 9.0 | -30.4 | .00037 | .00230 | 100 | 104.01 | 7001. | 311 .69 | |
| 21:08:59 | 9.0 | -30.4 | .00007 | .00034 | 100 | 109.43 | 1573. | 311 .69 | |
| 21:09:14 | 9.0 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 21:09:29 | 9.0 | -30.4 | .00004 | .00033 | 100 | 100.02 | 1400. | 311 .55 | |
| 21:09:44 | 9.0 | -30.5 | .00054 | .00209 | 100 | 91.47 | 11957. | 311 .67 | |
| 21:09:59 | 9.0 | -30.5 | .00149 | .00564 | 100 | 102.63 | 20336. | 311 .66 | |
| 21:10:14 | 9.0 | -30.4 | .00194 | .00300 | 100 | 104.72 | 17367. | 311 .69 | |
| 21:10:29 | 9.1 | -30.6 | .00107 | .00349 | 99 | 103.11 | 9407. | 413 .76 | |
| 21:10:44 | 9.1 | -30.6 | .00001 | .00004 | 100 | 83.34 | 256. | 209 .92 | |
| 21:10:59 | 9.1 | -30.6 | .00002 | .00007 | 100 | 64.52 | 870. | 169 .70 | |
| 21:11:14 | 9.1 | -30.6 | .00015 | .00044 | 100 | 71.41 | 4025. | 230 .70 | |
| 21:11:29 | 9.1 | -30.7 | .00010 | .00023 | 100 | 80.20 | 1514. | 230 .75 | |
| 21:11:44 | 9.1 | -30.7 | .00003 | .00016 | 100 | 87.20 | 842. | 230 .75 | |
| 21:11:59 | 9.1 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 21:12:14 | 9.1 | -30.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 10 0.00 | |
| 21:12:29 | 9.1 | -30.9 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 21:12:44 | 9.1 | -30.0 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 21:12:59 | 9.1 | -30.7 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 12 0.00 | |
| 21:13:14 | 9.1 | -30.6 | .00001 | .00004 | 100 | 94.71 | 242. | 230 .74 | |
| 21:13:29 | 9.1 | -30.4 | .00001 | .00004 | 100 | 72.00 | 201. | 169 .98 | |
| 21:13:44 | 9.1 | -30.4 | .00002 | .00001 | 100 | 41.99 | 714. | 128 .82 | |
| 21:13:59 | 9.1 | -30.4 | 0.00000 | 0.00000 | 0 | 0.00 | 0. | 0 0.00 | |
| 21:14:14 | 9.1 | -30.3 | .00010 | .00013 | 100 | 55.09 | 2210. | 169 .81 | |
| 21:14:29 | 9.1 | -30.4 | .00022 | .00037 | 100 | 52.24 | 6230. | 169 .04 | |
| 21:14:44 | 9.1 | -30.3 | .00013 | .00016 | 100 | 52.64 | 3202. | 169 .74 | |
| 21:14:59 | 9.1 | -30.4 | .00017 | .00022 | 100 | 44.44 | 4494. | 109 .01 | |
| 21:15:14 | 9.1 | -30.5 | .00020 | .00036 | 99 | 52.57 | 6201. | 413 .78 | |
| 21:15:29 | 9.1 | -30.4 | .00004 | .00011 | 100 | 59.91 | 1132. | 140 .94 | |

CI above us is nearly overcast, but is thin. Sun in cockpit. Grey sky, the blue is hidden. Getting 2-D updates.

Vis is about 40 mi. As undercast; CI overcast.

Lot of CI filaments going by above us. Now into thin CI.

Thinned out above us.

Can see filaments floating by against blue sky.

| START TIME | | 05 FEB 79 | | 15 SECOND AVERAGE | | | | | | | |
|------------|------|-----------|--------|-------------------|-----|--------|-------|-----|------|--|--|
| ALT | TEMP | LWC-SC | LWC-CP | LWC | DD | HT | LMAX | FF | | | |
| KN | C | G/M+3 | G/M+3 | CLD | UM | N/M+3 | UM | | | | |
| 21:15:44 | 9.2 | -30.3 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:15:59 | 9.2 | -30.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:16:14 | 9.2 | -30.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:16:29 | 9.2 | -30.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:16:44 | 9.2 | -30.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:16:59 | 9.2 | -30.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:17:14 | 9.2 | -30.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:17:29 | 9.2 | -30.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:17:44 | 9.2 | -30.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:17:59 | 9.2 | -30.8 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:18:14 | 9.2 | -30.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:18:29 | 9.1 | -30.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:18:44 | 9.0 | -37.4 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:18:59 | 9.0 | -36.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:19:14 | 8.9 | -36.4 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:19:29 | 8.8 | -35.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:19:44 | 8.8 | -35.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:19:59 | 8.8 | -35.0 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:20:14 | 8.7 | -34.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:20:29 | 8.6 | -34.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:20:44 | 8.4 | -34.2 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:20:59 | 8.3 | -33.9 | 0.0000 | 0.0000 | 100 | 58.07 | 48. | 100 | 1.00 | | |
| 21:21:14 | 8.1 | -33.9 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:21:29 | 7.9 | -34.1 | 0.0000 | 0.0001 | 100 | 54.52 | 116. | 100 | .98 | | |
| 21:21:44 | 7.7 | -33.9 | 0.0000 | 0.0000 | 0 | 275.70 | 0. | 644 | .92 | | |
| 21:21:59 | 7.6 | -33.2 | 0.0000 | 0.0000 | 100 | 42.30 | 113. | 67 | 1.00 | | |
| 21:22:14 | 7.5 | -32.2 | 0.0000 | 0.0000 | 100 | 58.07 | 46. | 100 | 1.00 | | |
| 21:22:29 | 7.4 | -31.4 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:22:44 | 7.3 | -30.9 | 0.0000 | 0.0001 | 100 | 56.87 | 219. | 128 | .87 | | |
| 21:22:59 | 7.3 | -30.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 24 | 0.00 | | |
| 21:23:14 | 7.2 | -30.5 | 0.0000 | 0.0001 | 100 | 46.66 | 190. | 87 | .97 | | |
| 21:23:29 | 7.2 | -30.0 | 0.0000 | 0.0002 | 100 | 54.53 | 241. | 100 | .98 | | |
| 21:23:44 | 7.1 | -29.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:23:59 | 7.1 | -29.5 | 0.0000 | 0.0001 | 100 | 58.07 | 50. | 100 | 1.00 | | |
| 21:24:14 | 7.1 | -29.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:24:29 | 7.1 | -29.7 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:24:44 | 7.1 | -29.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 16 | 0.00 | | |
| 21:24:59 | 7.1 | -29.7 | 0.0000 | 0.0037 | 99 | 101.36 | 1200. | 413 | .71 | | |
| 21:25:14 | 7.1 | -29.6 | 0.0030 | 0.0132 | 99 | 105.60 | 6452. | 413 | .56 | | |
| 21:25:29 | 7.1 | -29.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:25:44 | 7.1 | -29.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:25:59 | 7.1 | -29.6 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |
| 21:26:14 | 7.1 | -29.5 | 0.0000 | 0.0000 | 0 | 0.00 | 0. | 0 | 0.00 | | |

Flying over almost complete Ac undercast, but soon it will disappear to reveal the ground. Ac extends E-W.

Have passed over E-W cloud line. Can see the ground everywhere now.

Beginning to descend.

Can see shadow from contrail that goes out in straight line away.

A couple of Ci fragments going by.

Appendix D

List of Abbreviations

| | |
|-------------------|--|
| Ac | Alto cumulus |
| AFB | Air Force Base |
| AFGL | Air Force Geophysics Laboratory |
| AFWL | Air Force Weapons Laboratory |
| Alt | Altitude (above mean sea level unless otherwise specified) |
| ART | Airborne Radiation Technology |
| ASSP | Axial Scattering Spectrometer Probe |
| AS | Altostratus |
| C | Cloud (or droplet) Probe |
| °C | Temperature in degrees Celsius |
| Cc | Cirrocumulus |
| Ci | Cirrus |
| Cs | Cirrostratus |
| Do | Median Volume Diameter |
| FF | Form factor |
| GOES | Geostationary Operational Environmental Satellite |
| G-m ⁻³ | Grams per cubic meter |
| Hdg | Aircraft Heading |
| IAS | Indicated Airspeed |
| IWC | Ice Water Content |
| KABQ | Albuquerque, N. M. |

| | |
|---------------|---|
| KELP | El Paso, Texas |
| km | kilometer |
| LWC | Liquid Water Content |
| L_{max} | Maximum Particle Diameter |
| m | meter |
| mbar | millibar |
| μm | micron ($=10^{-6}$ m) |
| mm | millimeter ($=10^{-3}$ m) |
| MSL | Mean Sea Level |
| MST | Mountain Standard Time |
| NT | Particle Density |
| 1-D | One-Dimensional Particle Measuring System |
| P | Precipitation probe |
| T | temperature |
| TAS | True Air Speed |
| 2-D | Two-Dimensional Particle Measuring System |
| vis | visibility |
| UMT or Z | Universal (or Greenwich) Mean Time |
| Z | Calculated Radar Reflectivity |
| ~ | Approximately |

END

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DTIC