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Cloud-Encounter and Particle-Concentration Variabilities From GASP Data

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SUMMARY

Summary statistics, tabulations, and variability studies are presented for cloud-encounter data and particle concentration (number density) data taken as part of the National Aeronautics and Space Administration (NASA) Global Atmospheric Sampling Program (GASP) aboard commercial airliners. Cloud encounters are shown on about 15 percent of the 52 000 data samples used in this study; however, this value varies with season, latitude, and distance from the tropopause. Further, the probability of encountering clouds varies with synoptic weather systems. In agreement with classical storm models, the data show more clouds in the upper troposphere in anticyclones than in cyclones.

The number density of particles with a diameter greater than 3 μm also varies with time and location. The number of these particles encountered depends primarily on the horizontal extent of cloudiness, i.e., the percent of time per sampling interval spent in clouds. Thus, the variability of time in clouds and the variability of particle number density are closely related. Some examples of the utilization of the summary data in the estimation of the frequency of cloud encounter and laminar flow (LF) loss to be expected on long-range airline routes are presented.

INTRODUCTION

The extent and density of clouds in the atmosphere are matters of daily concern to nearly everyone, although clouds and their composition are of importance in a professional sense mostly to meteorologists and aviators. To the meteorologist clouds are, of course, the primary physical manifestation of storm systems in the troposphere and are direct harbingers of surface weather events (ref. 1). However, clouds also play an important role in less widely appreciated facets of meteorology. For example, the vertical air currents in clouds transport large amounts of heat and horizontal momentum through the atmosphere, thus influencing the development of large-scale storm systems. Also, the extent and density of cirrus clouds are major factors in the Earth's radiation balance (ref. 2) and may influence the long-period (climate) variations of global temperature (refs. 3 and 4).

Early aviators avoided clouds because they did not have instrument navigation aids and could easily get lost or disoriented in clouds. More recently, certain clouds have been avoided because of potentially hazardous turbulence or aircraft icing in them. Another cloud effect, providing the motivation for the studies reported herein, is the temporary loss of the low-drag characteristics of aircraft utilizing laminar-flow-control (LFC) wings when cloud particles sufficiently large and numerous are present (refs. 5 and 6). The loss of lift is due to turbulence generated in the boundary layer by the particles as they strike the wing surface. Cloud ice particles also cause aerodynamic problems for reentry vehicle nose cones penetrating cirrus clouds (ref. 7). Therefore, the U.S. Air Force has been pursuing a research effort on cirrus particle distributions. The instrumentation used for the collection of cirrus particles has been covered in references 8, 9, and 10.

The purpose of this report is to present results of cloud-encounter and particle-concentration (particle-number-density) analyses using data collected as part of the National Aeronautics and Space Administration (NASA) Global Atmospheric Sampling

Program (GASP), which obtained meteorological and atmospheric constituent data from March 1975 to June 1979 with instruments placed aboard a few commercial airliners in routine commercial service (refs. 11 to 13). The available cloud and particle data are described in the section entitled "Data." Results from the cloud-encounter analysis are then presented, followed by the results of the particle-concentration analyses. The report concludes with a brief example of how these data may be synthesized and applied to problems related to LFC aircraft. Appendix A is a description of GASP cloud and particle instrumentation; appendix B is a tabulation of individual flight summaries; appendix C presents cloud-encounter statistics for each cell in a geographic grid stratified by flight altitude; and appendix D presents cloud-encounter statistics with separation from the National Meteorological Center (NMC) tropopause as the independent variable. A summary of the cloud-encounter and particle-concentration analyses is presented in reference 14.

Use of trade names or names of manufacturers in this report does not constitute an official endorsement of such products or manufacturers, either expressed or implied, by the National Aeronautics and Space Administration.

SYMBOLS AND ABBREVIATIONS

To assist the reader, altitude measurements are given in U.S. Customary Units rather than in the International System of Units (SI). A waiver of SI Units has been granted for these measurements.

AFGL	Air Force Geophysics Laboratory
B747SP	Boeing 747, SP version
C	particle concentration, m^{-3}
CIV	clouds in vicinity (sum of all observations with TIC > 0 divided by total number of observations), percent
CLAYR	number of cloud patches encountered during a 256-second cloud-detector observation
D	diameter of particle, μm
EMD	equivalent melted diameter of particle, μm
GASP	global atmospheric sampling program
HND	Haneda International Airport, Tokyo, Japan
HNL	Honolulu International Airport, Hawaii
ICAO	International Civil Aviation Organization
ITCZ	intertropical convergence zone
LAX	Los Angeles International Airport, California
LF	laminar flow

LFC	laminar flow control
LHR	London Heathrow Airport, London, United Kingdom
N	number of observations, dimensionless
NMC	National Meteorological Center
P	probability, percent
PD4	total particle concentration for particles larger than 1.4 μm in diameter, particles/ m^3
PD5	same as PD4, but for particles larger than 3 μm in diameter
RHI	relative humidity with respect to ice saturation
TC	threshold concentration for cloud-particle detector (approximately 66 000 particles/ m^3)
TIC	time in clouds (total indicated time in clouds during an observation period divided by total observation time), percent
TICIC, TICIV	time in clouds with clouds in vicinity (as in TIC, but defined only for observations with clouds in vicinity, i.e., TICIV = TIC/CIV), percent
VLXXXX	designator for GASP archive tape number XXXX
ΔZ	altitude difference from tropopause, ft
ζ	relative vorticity, sec^{-1}

A bar over a symbol or abbreviation indicates the mean value.

Additional Symbols in Tables and Computer Printouts:

SIGMA	standard deviation of percentage of time in clouds, percent
PATCHES	number of cloud patches encountered in a sampling period, dimensionless
T(CLD)	temperature in clouds, $^{\circ}\text{C}$
P(TIC>0)	probability of being in clouds, percent
P(TIC \geq 10%)	probability of being in clouds at least 10 percent of time, percent
P(TIC \geq 25%)	as above, but 25 percent
P(TIC \geq 50%)	as above, but 50 percent
Z(CLD)	altitude in clouds, ft from mean sea level
Z(CLR)	altitude in clear air, ft from mean sea level
DZ(CLD)	distance from tropopause during flight in clouds, ft from mean sea level

DZ(CLR) distance from tropopause during flight in clear air, ft from mean sea level
SIGMA(PD5) standard deviation of PD5, m^{-3}
NOBS number of observations in a geographic cell for LF studies, dimensionless

DATA

The cloud-encounter and particle-concentration (particle-number-density) data used in this study were measured in the global atmospheric sampling program (GASP) from December 1975 to December 1977. These data are from GASP tapes VL0004 to VL0014, which have been archived at the National Climatic Center, Asheville, North Carolina. The contents and formats of these tapes are described in references 15 to 22.

The presence of clouds at cruise altitude was determined with a light-scattering particle counter (refs. 23, 24, and 15 to 22), hereinafter referred to as the "cloud detector." The GASP cloud and particle instrumentation is described further in appendix A. A cloud-detection threshold level was set based on visual observation of a light haze outside the aircraft. The same threshold level was used for all GASP instruments and resulted in an "in-cloud" registration whenever the local particle number density (for $D > 3 \mu m$) was greater than $66\ 000/m^3$. The sampling time for the cloud detector was 256 seconds (4 minutes 16 seconds, or approximately 66 km at 500 knots ground speed. At the end of each sampling cycle for the GASP system, the number of seconds (out of the last 256 seconds) which registered as "in-clouds" was recorded. Also, the number of cloud patches encountered during the sampling period was recorded; a new patch was registered if, having once entered a cloud ($C > 66\ 000/m^3$), the particle density fell below $8250/m^3$ or vice versa. (See discussion of CLAYR in refs. 15 to 22.)

During the first minute of each sampling period, the numbers of particles in selected size ranges were counted. Although GASP cloud data were first reported in December 1975 (ref. 15), particle count data were not reported until January 1977 because of a rather large uncertainty in the total particle count resulting from non-uniform illumination of the sample chamber, and high noise-to-signal ratio on channels measuring particles smaller than $1.4 \mu m$ in diameter (refs. 19 to 22). While three channels were reported for the particle counter, only the largest particle channel PD5 ($D > 3 \mu m$) has been used herein because only the largest particles are believed to be significant for laminar flow (LF) degradation.

The GASP data are recorded at nominal 5- or 10-minute intervals during flight above 20 kft. In addition to the basic GASP measurements, the tropopause pressure at each GASP data location has been time-and-space interpolated from the National Meteorological Center (NMC) grids, when available, and added to the archived tapes. Auxiliary meteorological data used herein, such as vorticity, have been computed from the NMC isobaric height fields for each GASP data location (ref. 25).

Before proceeding, it is necessary to establish some nomenclature which will be used repeatedly in the analyses to follow. First, it is convenient to separate GASP observation periods according to whether the indicated time in clouds during the observation period was equal to, or greater than, zero. The total indicated time in clouds divided by the total observation time gives the fraction of time in clouds (denoted TIC and always expressed as a percentage). Those observation periods with $TIC = 0$ are appropriately termed "in clear air" because none of the observation

periods had a particle concentration greater than the aforementioned $66\ 000/\text{m}^3$ threshold concentration (TC).

Those observation periods which had cloud particle concentrations exceeding the TC for some portion of the observation period (i.e., $0 < \text{TIC} \leq 100$) are interpreted to have clouds in the vicinity, and are denoted CIV. This is perhaps most easily understood by visualizing an airplane flying through a succession of cloudiness elements; i.e., for a low TIC, for example 10 to 40, the elements together would constitute a scattered cloud layer; for $\text{TIC} \geq 50$ or greater they would constitute a broken cloud layer; and for $\text{TIC} = 90$ to 100, they would constitute an overcast deck of clouds. If we consider only those observation periods indicative of some cloud presence, i.e., those with $\text{TIC} > 0$, and divide the TIC by the observation time in only those observation periods, we arrive at the fraction time in clouds with clouds in the vicinity (TICIV). All these are expressed as percentages in the analyses that follow.

From December 1975 to December 1977, 960 GASP flights gathered cloud-detection data samples (not necessarily cloud encounters). A summary of these flights, by month and contributing aircraft, is given in table I, and a monthly summary of the most common routes traveled (660 flights) is given in table II. Individual flight summaries and averaged data are listed in appendix B. It should be noted that particle-count data (PD5) were not reported until January 1977 and only 299 flights have PD5 data; therefore, these data are limited in comparison to the number of cloud-detector observations.

There were 52 164 cloud-detector observation periods, 256 seconds each, for a total of approximately 3700 hours in all. As shown in figure 1, these observations are most numerous in Northern Hemisphere midlatitudes but are fairly evenly distributed by season. The hatched areas in figure 1 show observation periods in the vicinity of clouds (CIV), that is, those with TIC greater than zero. The numbers above the bars indicate the percentage of observations in each interval which were in the vicinity of clouds (i.e., the portion of total area that is hatched divided by the total for each interval). Of the total 52 164 cloud-detector observation periods, 7647 (14.7 percent) were in the vicinity of clouds.

The distribution of cloud-detector observation periods as a function of pressure altitude (i.e., the altitude which corresponds to a given value of atmospheric pressure according to the ICAO Standard Atmosphere (also see ref. 26)), and as a function of distance from the NMC tropopause is given in figure 2. Because NMC tropopause data were occasionally not available, only 48 214 observations are represented in figure 2(b). This panel clearly illustrates that very few clouds are encountered in the stratosphere. In fact, the frequency of clouds in the stratosphere may be even less than indicated because, whereas the GASP data are local measurements, the tropopause pressures are interpolated from large-scale grids (2.5° latitude by 2.5° longitude \times 12 hours), and small-scale undulations of the tropopause may be missed by the NMC grid. The graphical results of figures 1 and 2 are summarized numerically in table III.

Cloud-encounter data are used herein as reported, with all observation periods given equal weight. However, because cloudiness (or the lack thereof) is associated with large-scale weather systems, it must be pointed out that not all observation periods are independent. For example, table IV shows that there is an 83.5-percent random chance that any 256-second observation period (i.e., a horizontal distance of 66 km at 500 knots) will be cloud-free, but that this probability increases to 95 percent if the previous observation period was clear, and to 96 percent if the previous two observations were in clear air.

Similarly, there is only a 16.5-percent random chance that any observation period will be in the vicinity of clouds ($TIC > 0$), compared with a 75-percent chance if the previous observation period was in the vicinity of clouds, and a 79-percent chance if the previous two observation periods were in the vicinity of clouds. This spatial persistence can also be verified subjectively by recalling that both clear and cloudy areas have areal extent as seen, for example, from a satellite as well as from the perspective of a ground observer.

Particle-concentration (PD5) data periods (fig. 3) have nearly the same distribution with latitude as the cloud-detector data, but there are relatively more observation periods in summer and fewer in spring. Also, slightly fewer of these data periods are in the vicinity of clouds (13.0 percent of the 20 100 total observations). The latter difference exists because a larger fraction of the PD5 observations were taken at high altitudes, which are more often in the stratosphere (see figs. 2 and 4). This difference reflects the influence on the data sample of the data subset that was gathered with a particular aircraft (B747SP), which more frequently operated at a relatively high cruise altitude.

CLOUD-ENCOUNTER ANALYSIS

Complete tabulations of the cloud-encounter statistics as functions of latitude, longitude, season (e.g., winter is December, January, and February), and pressure-altitude are given in appendix C, and are given in appendix D as functions of distance from the NMC tropopause. A map to provide geographical orientation for the latitude-longitude cells is given at the front of appendix C, and an explanation of data entries is provided at the beginning of appendices C and D. To the right of the individual grid box entries for each latitude, the results from all data in the latitude band are given under the heading "zonal mean." For convenience, these zonal means of each variable are summarized in tables V and VI as functions of altitude and latitude. While the tabulations and summaries herein were formatted for optimum usefulness to the LFC aircraft studies, it is anticipated that the results will be of interest to a broader segment of the scientific community. Therefore, the results of the analysis of cloud-encounter variability and the relation of these data to other meteorological variables are discussed in the subsequent paragraphs.

The percentages of observation periods with time in clouds greater than zero ($CIV > 0$) and the mean time in clouds TIC fall off rapidly above the tropopause, as shown in figure 5. However, the mean $TICIV$ and the mean time in clouds per patch (which are only defined for observations with $TIC > 0$) also fall off above the tropopause. The curves in figure 5 were drawn from data analyzed in 2-kft intervals with respect to the tropopause. Although the gradients in cloudiness are large in some regions, analyses in 5-kft layers with respect to the tropopause, as shown by the symbols, provide a representative mean result for each layer.

Figure 6 shows the cumulative frequency distributions (cfd) corresponding to the data shown in figure 5. These curves give the percentage of observations (on the ordinate) in which the TIC equaled or exceeded any given percentage TIC (on the abscissa).

Figures corresponding to 5 and 6, but as functions of flight pressure-altitude instead of distance from the tropopause, are given as figures 7(a) and 7(b), respectively. The decrease in cloudiness with altitude is primarily due to the increased likelihood of being in the stratosphere in the upper altitudes. In figure 7(b), the four points where $TIC = 0.4, 10, 25, \text{ and } 50$ are identified by symbols according to

pressure-altitude band. Since these points define the cfd sufficiently, all subsequent cfd curves and tabulations herein are based on these four points. Although all available data were used in preparing figures 5 to 7, it is not intended to imply that these are universal curves. In fact, there are significant variations in cloudiness with respect to both latitude and season, as discussed in this section.

Variations with latitude and season of the percentage of time in clouds (TIC) are presented in figure 8(a), for the pressure-altitude range of 33.5 to 38.5 kft and in figure 8(b) for all tropospheric data. Some of the variability in figure 8(a), especially at high latitudes, can be explained by seasonal variations of the mean height of the tropopause. Other features may be related to the global circulation or semipermanent circulation features (i.e., highs and lows).

The general seasonal displacements of maxima and minima in cloudiness are explained by the seasonal displacement of the intertropical convergence zone (ITCZ). This region of maximum cloudiness ranges between approximately 18° N in summer and 18° S in winter. The Hadley cells existing to the north and south of the ITCZ shift northward and southward along with the zone, resulting, for the Northern Hemisphere, in maximum descending motions (minimum cloudiness) near 35° N in summer and 15° N in winter. Thus, in figure 8, during winter the depressed values of cloud-encounter frequency in the 10° to 20° N interval and enhanced values south of 10° N are consistent with the zonal mean Hadley circulation, which has its axis near 10° N with descending motions to the north and ascending motions to the south of the axis (ref. 27). Meteorologists will recognize that the following additional specific features are consistent with the mean global circulation:

(1) The peak in mean cloudiness generally seems to occur near the subsolar latitude (Sun overhead at noon), lagging it by a few degrees. In winter the peak occurs near 15° S, in spring at 5° S, in summer at 15° N, and in autumn at 5° N. The inter-hemispheric symmetry in comparable seasons is striking (see also fig. 9) but not unexpected.

(2) A secondary maximum near 45° N is noted in all the curves in figures 8(b) and 9. This is believed to be the result of the increased frequency of cyclone encounter along the Northern Hemisphere polar front. The effect is largest in winter as would be expected, because the maximum intensity of the midlatitude baroclinic storm systems is achieved then. Indeed, for the winter season, the secondary and primary maxima are of equal magnitude. Because of the lack of airline routes at high latitudes in the Southern Hemisphere, no comparable relative maximum appears in the figures; nevertheless, one related to the Southern Hemisphere polar front might be expected from symmetry considerations, and is hinted at in figures 8(b) and 9.

(3) The magnitude of the principal maximum is fairly invariant for winter, spring, and summer, at about 18 to 22 percent probability of cloud encounter; for autumn, 12 percent is obtained.

(4) When the minima of cloud encounter are studied, it is seen that a latitudinal displacement also occurs during the year, with the latitude of the minimum point preceding the poleward or equatorward movement of the subsolar point. In winter, this feature is farthest south, at about 15° N. In spring, the point moves to 25° N; in summer it reaches 35° N, then retreats to 25° N again in autumn. The data for the Southern Hemisphere, although limited in latitudinal extent, suggest a relative minimum near 35° S in winter (Southern Hemisphere summer) and a flat minimum region near 25° S for the other seasons. The minima for each hemisphere and seasonal combination occur near a value of 1 to 3 percent.

From figures 10(a) to (d), the following conclusions were reached regarding the effects of altitude on average cloudiness encountered:

(1) In winter (fig. 10(a)) in the Northern Hemisphere, flight at altitudes higher than 5 kft below the tropopause usually results in a lower probability of cloud encounter than for flight altitudes more than 5 kft below it. It is interesting to note, however, that mean values for 30° to 40° N and 40° to 50° N show that, in terms of cloud avoidance, flight 10 to 15 kft below the tropopause is superior to flight at 5 to 10 kft below it. From this, it might be inferred that the most likely region for cloud formation is 5 to 10 kft below the tropopause at these latitudes. In the tropical region (20° N to 20° S), the layer 10 to 15 kft below the tropopause is again superior to the layer 5 to 10 kft below, but the relationship of these to the layer 0 to 5 kft below is unknown, since few flights operated as high as 0 to 5 kft below the very high tropical tropopause.

(2) In summer, with its decreased baroclinic but enhanced convective activity, one would expect the uppermost altitude bands to be the most cloud-free. This is seen in figure 10(c) for all latitudes poleward of 10° N. The ITCZ-associated maximum is apparent near 10° to 20° N. This trend toward decreasing cloudiness with altitude is also seen in winter in the Southern Hemisphere (fig. 10(a)), as would be expected from seasonal symmetry.

(3) In spring and autumn, a behavior composite of summer and winter is observed. In spring (fig. 10(b)), the superiority of the 10 to 15 kft layer to the 5- to 10-kft layer below the tropopause, noted previously for the winter data, is again observed (for 40° to 60° N and in the tropics), although the 0- to 5-kft band is best overall. In autumn (fig. 10(d)), the highest altitude band is slightly superior overall, but no comparisons are possible in the tropics because there are insufficient data in bands other than the one 10 to 15 kft below the tropopause.

The preceding results are consistent with the observations of Project Jet Stream and others (refs. 28 to 33), which showed a maximum occurrence of cirrus clouds from 3.3 to 6.6 kft below the tropopause at temperate latitudes. For tropical regions, it was reported in reference 34 that cirrus clouds are consistently 5 km or more below the tropopause, but that tropopauses in very high latitudes are occasionally exceeded in height by cirrus clouds.

Variations with season of the vertical profile of cloud-encounter frequency and the average time in clouds (TIC) for data at 40° to 50° N are shown in figure 11. The percentage of observations in the vicinity of clouds (CIV) decreases with height in winter and spring, but in summer there is a knee, with largest values at 33.5 to 38.5 kft. This latter feature may result from cirrus clouds blown off the tops of summer thunderstorms near the tropopause. The mean TICIV range is from 25 to 40 percent for spring, summer, and autumn. In the spring TICIV increases with altitude while TIC decreases, which suggests less haze or subvisible cirrus. The winter TICIV varies from 48 percent at low levels to 66 percent at the highest level. These large values may reflect the dense cirrostratus shields of large baroclinic systems most persistent during winter, e.g., the Icelandic and Aleutian storm systems.

As noted previously in connection with the persistence of cloudiness, cloudiness is related to large-scale storm systems (a general model is in ref. 35). An objective variable for separating the two fundamental dynamic regimes, cyclones and anticyclones, is the relative vorticity. Figure 12 shows the cumulative frequency distribution for all data separated only by the algebraic sign of the vorticity (cyclone flow has positive vorticity; anticyclone negative). The difference between these curves is the

same order of magnitude as the difference between the highest to lowest pressure-altitude bands in figure 7(b), and is larger than the difference between layers below the tropopause (fig. 6).

The difference in cloudiness between cyclonic and anticyclonic conditions with respect to distance from the tropopause (fig. 13) is striking, and is consistent with the ozone distributions in cyclones and anticyclones reported in references 14 and 36 and the known negative correlation between ozone and water vapor. (See ref. 36.) For the LFC application, this result indicates that conditions significantly different from the average of all data can be expected if specific flight routes are likely to encounter more cyclonic than anticyclonic circulation systems, or vice versa. This also suggests that further studies of probable cloud effects on airline operations using LFC-winged aircraft need to be at least in part route-specific, rather than cell-oriented, as in the current study. (See section "Examples of Application to LFC Aircraft Studies.")

Other trace constituents and meteorological variables measured by GASP during the time of the data analyzed herein (not all constituents were measured at all times) were water vapor, ozone, carbon monoxide, air temperature, and wind. An in-depth synoptic and statistical analysis of the interrelationship between clouds and these variables is beyond the scope of this study, but considerable insight is available from the distribution of mean values of these parameters with respect to the tropopause. Thus, in figures 14(a) and (b), relative humidity, temperature, carbon monoxide, and ozone have been shown both in clear air and in the vicinity of clouds. In figure 14(a), the relative humidity (RHI) is very high (>95 percent for flights 15 kft or more below the tropopause) in the vicinity of clouds, as would be expected. The mean air temperature in the vicinity of clouds is consistently cooler than in clear air, perhaps suggesting that clouds are more likely to form in cool air because less water vapor is required for saturation. However, as was shown previously (fig. 13), clouds tend to occur in areas of anticyclonic vorticity (i.e., in ridges) where there is a pattern of upward vertical motions and where the tropopause is generally higher and colder than in troughs. Thus, cirrus clouds form more readily in ridges, not only because it is colder there, but also because the pattern of vertical motions around cyclones tends to produce upward motions of sufficiently moist air from below.

The mean values of carbon monoxide and ozone with respect to distance from the tropopause are shown in figure 14(b) for data separated according to whether the observation was in clear air or in the vicinity of clouds. The CO concentration in clear air decreases monotonically with altitude. For the layer 10 to 15 kft below the tropopause, CO concentration in the vicinity of clouds is less than in clear air, but for altitudes higher than 10 kft below the tropopause, CO concentration in the vicinity of clouds is greater than in clear air.

It is apparent from figure 14(b) that concentrations of ozone are consistently smaller in the vicinity of clouds than in clear air. The ozone differences can be examined more closely in table VII, which presents the mean difference in ozone levels between clear and cloudy air as a function of season, latitude, and distance from the NMC tropopause. In 86 of the 93 cases in the table, the difference is positive ($[O_3]_{\text{Clear}} > [O_3]_{\text{Cloudy}}$). If attention is limited to cases where the lesser number of observations indicated by the subscripts is 10 or more, then 52 out of 55 differences are positive. Although this result is itself statistically significant at the 95-percent confidence level, it must be pointed out that not all grid points have the same difference or the same number of observations. Thus, when the individual grid-point differences are tested for significance and the ensemble of cases is considered,

the net result is found to be significant at the 99.9-percent level. Such levels of statistical significance are rarely encountered in meteorology, and usually point to a strong physical process.

Perhaps the simplest explanation for the strong anticorrelation between cirrus clouds and ozone at commercial-aircraft cruise altitudes is that cirrus clouds are associated with moist upward-moving air coming from the ozone-poor troposphere, and clear areas with dry downward-moving air coming from the ozone-rich stratosphere. This explanation is consistent with the vertical motions at the tropopause level expected in baroclinic storms (ref. 35) and with the previous observation that cloudiness in the upper troposphere is less, and the ozone greater, in a cyclone than in an anticyclone. (See figs. 12 and 13 and refs. 14 and 36.)

Even though the preceding explanation is straightforward, at least three other factors may influence the observed level of correlation between cirrus clouds and ozone. They are as follows:

(1) Sampling - The cloud and ozone data are from in situ GASP observations, but the tropopause data have been interpolated in time and space from the 2.5° latitude by 2.5° longitude NMC grid maps which are available only at 12-hour intervals. Thus, some of the high-frequency undulations of the tropopause (e.g., ref. 37) are probably missed by these maps. This leads to errors in the calculated height of the tropopause.

(2) Chemistry - Enhanced chemical and photochemical destruction of ozone may occur in the presence of high relative humidity. As reviewed in reference 38, ozone photochemistry is an area of very active research, and we leave assessment of this possibility to modelers working in the field.

(3) Mechanical destruction - Ozone is a relatively unstable gas and is known to dissociate on contact with a hard surface. The ice crystals and particles in a cloud provide a relatively large amount of surface area for ozone destruction.

As shown in figure 14(c)), the particle-number-density distributions of light-scattering particles with diameters greater than 1.4 and 3 μm (denoted PD4 and PD5, respectively), both in clear air and in the vicinity of clouds, are shown. The presence of clouds has a marked effect on the number density of particles in both size ranges, and the ratio of the mean PD4 to PD5 number densities ($D > 1.4 \mu\text{m}$ and $D > 3 \mu\text{m}$, respectively) is considerably larger in clear air than in the vicinity of clouds. Also, for data in the vicinity of clouds, note that a relative maximum of particle concentration exists 4 to 6 kft below the tropopause, consistent with the relative TICIV maximum in figure 3. For data in clear air, a relative maximum is observed just below (0 to 2 kft) the tropopause. The relationship between time in clouds and the number density of particles is examined in greater depth in the next section.

PARTICLE-CONCENTRATION ANALYSIS

As stated in the section entitled "Data," GASP cloud-detector data are available beginning in December 1975, but particle-number-density data (PD5) do not begin until January 1977. Therefore, a first concern with the PD5 data is to establish the degree to which statistics of this subset resemble statistics of the entire cloud-encounter data set. For this purpose, figures 15 and 16 are the counterparts of figures 8(a) and 11, except that only records for which PD5 data are available were used in figures 15 and 16. The main features of variability here, and in figures 3 and 4

compared with figures 1 and 2, are not changed, and it is concluded that the PD5 data subset is representative.

Figure 14(c) shows that particle concentrations are lower in clear air (TIC = 0) than in cloudy air (TIC > 0). Figure 17 shows the cumulative frequency distributions of all available PD5 data separated by the associated TIC values. Among observations in the vicinity of clouds ($0 < TIC \leq 100$), the probability of encountering any given particle density increases as the TIC percentage increases. However, this difference is small compared with the difference between clear and cloudy air shown by the TIC = 0 and TIC > 0 curves. For data in the vicinity of clouds, the variation of these distributions with pressure-altitude (fig. 18(a), or distance from the tropopause (fig. 18(b)), is smaller than the variation with season and latitude (fig. 19). Since all latitudes were included in constructing the seasonal curves (fig. 19(a)) and all seasons were included in constructing the latitudinal curves (fig. 19(b)), closer examination of these figures could lead to ambiguous conclusions because of possible sampling bias and is therefore not pursued here.

As mentioned in the section entitled "Introduction," the goal motivating this research is the derivation of the climatology (i.e., statistical behavior with location, season, altitude, etc.) of the particle number density to be encountered on airline routes worldwide, from which the economic feasibility of employing laminar-flow-control (LFC) wings may be assessed. In this regard, the PD5 data in the current investigation are most valuable when they pertain to flight conditions that are either totally in clear air or totally within clouds. This is because it is crucial to know whether the particle number density in clear air is, on the average, sufficiently high to make LFC impractical as a low-drag method. If such is the case, then the LF loss within clouds is almost certain to be prohibitive. If, however, the loss in clear air is not critical, then cloud encounter provides the limiting factor. Therefore, it is important to estimate the portion of the time that clouds will be encountered, as was examined in the section entitled "Cloud Encounter Analysis." Most estimates to date assume that all clouds always cause LF loss, but one purpose of the research for this report was to try to ascertain what subset, if any, of cloud encounters would not cause LF loss.

In this study, the PD5 data were examined with the aim of deriving statistics on particle concentrations to be encountered in clear air and cloudy air. The results are summarized in table VIII, which presents a composite of the overall particle encounter experience as a function of TIC. This table, from which figure 17 was plotted, includes all conditions from totally cloud-free to totally in-clouds. Partially cloudy conditions, those for $0 > TIC \geq 100$, provide estimates of the time-averaged particle environment encountered. Since loss (and resumption) of LF is an instantaneous effect, these values, which contain some time in and some time out of clouds are not directly applicable in determining the particle number density relevant to loss and/or resumption of LF.

Therefore, the left and right columns of table VIII represent the required in-clear and in-cloud information. The former is designated $PD5|_{Clear(TIC=0)}$. Since it is evident that the 100-percent TIC data are not sufficiently numerous to permit analysis, it is assumed that the $D > 3 \mu m$ particle number density in the vicinity of clouds can be modeled in terms of the time in clouds as follows:

$$\log PD5|_{CIV} = (\log PD5|_{Cloudy})(TIC/100) + \left[\log PD5|_{Clear(CIV)} \right] (1 - TIC/100) \quad (1)$$

The constants $\log PD5|_{\text{Cloudy}}$ and $\log PD5|_{\text{Clear(CIV)}}$ were obtained by regression analysis using all $TIC > 0$ data. The required $PD5|_{\text{Cloudy}}$ and $PD5|_{\text{Clear(CIV)}}$ are the antilogarithms of constants $\log PD5|_{\text{Cloudy}}$ and $\log PD5|_{\text{Clear(CIV)'}}$ respectively. The results of this analysis are presented in tables IX and X, which give $PD5|_{\text{Clear(TIC=0)}}$, $PD5|_{\text{Clear(CIV)}}$, and $PD5|_{\text{Cloudy}}$ as functions of altitude, distance from the tropopause, latitude, and season. From table IX and figure 20, it appears that the variation of these parameters with altitude or distance from the tropopause is small, except that a particle layer in clear air is evident at 0 to 5 kft below the tropopause (see also figs. 14(c) and 18(b)). Therefore, data from all altitudes have been used in table X and figures 21 and 22 to show the variability of these parameters with latitude and season. The $PD5|_{\text{Cloudy}}$ is dominant as expected, but it is interesting to note that $PD5|_{\text{Clear(CIV)}} > PD5|_{\text{Clear(TIC=0)}}$. That is, the particle density in clear air with clouds in the vicinity is greater than the particle density in clear air with no clouds around.

Using all the data with $TIC > 0$, equation (1) accounts for about one-third of the variance of $\log PD5$ on a global and annual basis. For the subsets in tables IX and X, the percentage of explained variance ranged from about 20 to nearly 50, but standard statistical tests showed that the regression coefficients for each subset were no different (at the 95-percent confidence level) from the values found using all data. Thus, table X shows that

$$PD5|_{\text{Clear(TIC=0)}} = (4.5 \pm 0.22)/m^3$$

$$PD5|_{\text{Clear(CIV)}} = (916 \pm 155)/m^3$$

$$PD5|_{\text{Cloudy}} = (1.12 \pm 0.28) \times 10^6/m^3$$

where the 95-percent level has been used for the statistical error estimates. This estimate of $PD5|_{\text{Cloudy}}$ is approximately four times larger than the log-mean of the 12 available measurements with $TIC = 100$ percent in table VIII. It suggests that both values should be reexamined as more data become available. The relation of these results to the laminar flow impact question is considered in the following section.

EXAMPLES OF APPLICATION TO LFC AIRCRAFT STUDIES

The motivation for analyzing the GASP data for cloud encounter statistics in the format previously discussed is the requirement for obtaining particle-concentration climatological data to be utilized in feasibility studies for a new airplane design in the long-range-transport category. The aircraft would use a laminar flow control (LFC) wing, offering promise of up to a 30-percent drag reduction over current wing designs (ref. 5). The particular need of cloud-encounter estimates for this class of aircraft stems from the fact that laminar flow (LF) is thought to be lost, albeit temporarily, whenever the aircraft is within clouds or ice-crystal concentrations containing a sufficiently large number density of hydrometeors larger than about 30- μm equivalent melted diameter. (See ref. 39 for definition of EMD.) Experience with the USAF X-21, an early LFC-winged research aircraft, seemed to show that LF was always

lost in visible clouds and sometimes within cirrus hazes. Motivated by the X-21 experience, Hall (ref. 6) derived, from aerodynamic considerations, the range of ice-particle fluxes which should cause significant loss of LF. Figure 23 is adapted from the Hall analysis and is presented as an example of the estimated LF degradation. Particle concentration (m^{-3}) is plotted on the ordinate, against the equivalent melted diameter (EMD) of the ice crystal. From this figure, the following observations may be made:

- (1) No loss of LF is expected to result from particles smaller than 33- μm EMD, regardless of their concentration, or from total particle concentrations less than 350/ m^3 , regardless of particle size.
- (2) Total loss of LF is expected if the concentration of particles equal to or larger than 33- μm EMD is greater than or equal to 1.9×10^5 particles/ m^3 (or if the concentration of particles larger than 60 μm is greater than or equal to $1.3 \times 10^5/m^3$). Similar conclusions can be reached in this manner for other particle sizes.
- (3) Between conditions in (1) and (2), partial loss of LF is expected (e.g., if the number density of particles equal to or larger than 33- μm EMD is greater than 800/ m^3 but less than $1.4 \times 10^5/m^3$, etc.). The threshold of LF loss is defined as a 10-percent loss in the Hall analysis.

The application task at hand, then, is to utilize GASP data for deriving or estimating the probability that particle number densities such as those noted in this section may be encountered in day-to-day operations. To estimate the probability and severity of LF loss in the presence of particles, it is necessary to know not only the probability P of cloud encounter, but also the particle number distribution within clouds of various types, in the vicinity of clouds, and in clear air. All the elements of the problem may be recognized in the following equation:

$$\begin{aligned}
 P(\text{LFC loss}) = & \left[P(\text{LFC loss}) \mid_{\text{Cloudy}} \right] \left[P(\text{Flight in clouds}) \right] \\
 & + \left[P(\text{LFC loss}) \mid_{\text{Clear}} \right] \left[P(\text{Flight in clear air}) \right] \quad (2)
 \end{aligned}$$

From the GASP data analyzed here, it can be seen that very good estimates of the probability of flight both within and outside of clouds ought to be forthcoming. The probabilities of LF degradation inside and outside of clouds are, however, not directly accessible from the GASP data analyzed herein, since these provide only the total number density of particles larger than 3- μm EMD. However, empirical particle-distribution data are available from missions carrying Knollenberg-probe-type instrumentation. The investigations of the U.S. Air Force Geophysics Laboratory (AFGL) are particularly valuable sources of these data (refs. 39 to 46). A study of these AFGL spectral data is now under way by NASA to attempt an empirical determination of the degree of predicted LF loss within each cloud type and/or synoptic situation. The general goal during that investigation has been to determine, under a variety of cloud conditions, the ratio of the number of particles larger than 3- μm EMD to the number of particles larger than 33- μm EMD. Results to date suggest that this ratio depends on the type of cloud encountered, and varies from about 10 for the thicker clouds to around 100 or more for very thin cirrus clouds (numerous very small crystals), with a modal value near 30. In practical usage then, the number of particles larger than the 33- μm EMD LFC-critical size could be estimated by dividing the number of particles

where $D > 3 \mu\text{m}$ (GASP PD5 measurement) by an appropriate empirical factor. In the paragraphs which follow, a factor of 10 is used to represent a worst case in clouds, and a factor of 100 is used to represent a worst case in clear air.

With these assumptions, the Hall criteria in figure 23 and the PD5 analyses in the section entitled "Particle Concentration Analysis" can be related in order to estimate the degree of LF loss to be expected, both in totally clear air and totally within clouds. First, we recall from figure 23 that the LFC-critical density of particles $>33 \mu\text{m}$ in diameter is $800/\text{m}^3$. Scaling this up by a factor of 100, the critical density of particles $>3 \mu\text{m}$ in diameter in clear air would be $8 \times 10^4/\text{m}^3$. From figure 17 and table VIII we find that this particle density was never encountered in clear air. Therefore, the assumption that no LF loss occurs in clear air seems appropriate.

The assumption of no LF loss in clear air does not totally agree with data taken during the X-21 program, in which some LF loss evidently occurred in very light haze. However, no particle-concentration measurements were taken in conjunction with the X-21 missions, so the particle densities in the haze were unknown, and unfortunately cannot be used to refine the assumption of no loss in clear air. It is reported in references 47 and 48 that local concentrations of large particles, resulting from particle fallout into the clear air, may be encountered during flight in otherwise clear air beneath cirrus cloud decks. The observations in reference 47, and calculations in reference 48, show that these particles can survive falls of several kilometers. However, it is believed that the concentrations of these particles will generally be too small to degrade LF, although the particles are large enough to cause a problem if encountered in sufficient concentration.

For a totally in-cloud situation, the curves for $\text{TIC} \geq 75$ in figure 17 suggest that the critical density ($D > 33\text{-}\mu\text{m}$ particles for a 10-percent LF loss, $800/\text{m}^3$ (or $8 \times 10^3/\text{m}^3$ GASP-equivalent measurement when the factor of 10 is used)), would be exceeded 100 percent of the time. Total loss of LFC (GASP-equivalent $C = 1.9 \times 10^6/\text{m}^3$ if the factor of 10 is again assumed) would be expected approximately 10 percent of the time. Thus, a significant degree of LFC loss within clouds is obviously predicted.

Ultimately, analyses such as these will aid in evaluating the economic viability of LFC application to transport aircraft. This will be done by identifying, given the design altitude constraints on the LFC transport (cruise altitudes between 30 and 45 kft), the percentage of time during cruise between various city pairs that loss of laminar flow would be expected as a function of altitude, season, and geographical location. Selected preliminary examples of this type of calculation are given in the following paragraphs. Pending final completion of NASA's study of the AFGL particle-distribution data, it will be assumed here that all cloud encounters cause temporary, total loss of LF, and that no LF loss occurs in clear air. Thus, the probability of LF loss is set equal to the probability of flight in clouds. (See eq. (2).)

With all the previous assumptions and restrictions in mind, the current data are utilized to estimate qualitatively the degree of LF loss on a few selected routes for the various seasons and altitude bands considered in the overall analysis. New York to London (JFK-LHR), New York to Los Angeles (JFK-LAX), and Los Angeles to Honolulu (LAX-HNL) are covered in table XI, and the longer Los Angeles to Tokyo (LAX-HND) route is covered in table XII. Data are given for both summer and winter seasons. This is done to give examples of the use of the data in appendix C in estimating the frequency of LF loss.

From table XI, for the JFK-LHR route, it would appear that all altitudes for which data exist are favorable in the summer. In the winter, the upper altitude band is the most favorable, with virtually no chance of cloud encounter en route. On this route, the worst performance would be expected in the winter in the middle altitude band; in that case, there is, on the average, a 32-percent probability of having some cloud encounters en route, and a 27-percent probability of being in clouds on at least 50 percent of the route. It is interesting to note that the lowest band appears better for this case, with only a 20-percent chance of being in clouds for over half the route indicated. However, care must be taken when making conclusions, as the data are limited.

The JFK-LAX route shows that there is a 25-percent or smaller probability of being in clouds more than 10 percent of the time in all altitude bands in the summer. Once again, the highest altitude is the most favorable. In the winter on this route, the uppermost band is virtually free of cloud encounters, but conditions worsen as the altitude band lowers.

The LAX-HNL route shows that none of the three altitude bands appears to cause an appreciable cloud-encounter problem for summer flights. In the winter, both lower altitude bands have a 20-percent probability of some cloud encounters en route; in the lower of these, there is a 9.3-percent chance of being in clouds on over half the route. For the middle band, this value reduces slightly, and if the uppermost band is selected, the probability of encountering clouds decreases markedly.

In the preceding examples, percentages were derived largely on the basis of one latitude-longitude cell (cells are depicted on the map at the start of appendix C), which included the appropriate city pair. The LAX-HND route (table XII) illustrates statistics on a longer route where several cells were traversed. Over this route, there is an appreciable advantage to be gained by operating at the highest altitude in both winter and summer. At these altitudes, and in all cells, the probability of being in clear air is at least 84 percent, whereas at the lower altitudes the probability of being in clear air drops to less than 60 percent in some cells.

If the composite larger cell of 40° to 60° N by 120° W to 150° E (route segment 7 of table XII) is considered to be representative of the bulk of this route, the most favorable conditions are expected at the highest altitude in winter (0.5 percent of the route in the vicinity of clouds). Also, the least favorable conditions are expected at medium altitudes in the summer (30 percent of the route in the vicinity of clouds). The larger cell consists of route segments 3 to 6, where the aircraft would be at cruise altitude. In both seasons, the higher altitude band is better. This is especially true in the winter, when the altitude increase places significantly more of the flight within the stratosphere.

The preceding sample analyses are only a first attempt at estimating the LF degradation problem. In a more comprehensive study, several more routes will be studied. Where blank data cells exist, data from the adjacent or surrounding cells would be extrapolated or interpolated carefully to provide estimates for the statistics in the data voids. The route studies discussed herein were performed on average data. Particularly on long range routes, the persistence of highs and lows (anti-cyclones and cyclones) needs to be considered; that is, it is not reasonable to assume that average conditions exist over the entirety of a route - one cell may be dominated by a cyclone, the next by an anticyclone, etc. Also, as mentioned previously, a

better estimate of the degree of LF loss in each type of cloud is being pursued in a separate effort. This will be factored into the GASP-based cloud-encounter statistics.

CONCLUDING REMARKS

The motivation for the study reported herein is the need for estimates of the ice-particle size distribution and number density existing at airliner cruise altitudes in the range of 25 000 to 45 000 ft (7.62 to 13.72 km) MSL. These estimates are needed for application to design of aircraft employing laminar flow control (LFC) as a drag-reduction aid. Accordingly, summary statistics, tabulations, and variability studies have been derived and presented for cloud-encounter data and particle-concentration data taken as part of the National Aeronautics and Space Administration (NASA) Global Atmospheric Sampling Program (GASP) aboard commercial airliners. The GASP data analyzed herein were from December 1975 to December 1977. A subsequent report is planned which will cover analysis of the entire body of GASP data, extending through June 1979.

From the portion of GASP data analyzed in the current report, about 52 000 cloud-detector observation periods of 256 seconds duration each (approximately 66 km horizontal extent at 500 knots) were available. On the average, cloud encounters were shown on about 15 percent of these data samples. However, this value varies with season, latitude, and distance from the tropopause. The probability of encountering clouds varies with synoptic weather systems. In agreement with classical storm models, the present data show relatively more cloudiness in the upper troposphere in anticyclones than in cyclones.

The number densities of particles with diameters larger than 1.4 and 3 μm were also sampled over a smaller data base beginning in January 1977; about 20 100 total observations made up this set. The particle-concentration data have nearly the same latitudinal distribution as the cloud-detector data, but relatively more observations in summer, fewer in spring, and more at higher altitudes. About 13 percent of the particle data were gathered in clouds or in the vicinity of clouds.

Because of the application to laminar flow control (LFC) aircraft, attention was concentrated on the concentration of particles larger than 3 μm . It was found that the number density of such particles also varies with time and location and is closely related to the horizontal extent of cloudiness.

Some examples of the utilization of the summary data in the estimation of the frequency of cloud encounter and laminar flow (LF) loss on long-range airline routes are presented. It is concluded that the probability of cloud encounter does depend on altitude and season with the uppermost altitude band (38.5 to 43.5 kft) clearly showing the most promise for cloud avoidance. Some data exist which suggest that the lowest altitude band (28.5 to 33.5 kft) may be superior to the middle band (33.5 to 38.5 kft), but the number of samples is small, and additional data and analysis are necessary.

Differences in cloudiness between anticyclonic and cyclonic conditions with respect to the distance from the tropopause were found to be striking. This suggests

that further studies of probable cloud effects on airline operations using LFC-winged aircraft need to be route-specific. This will be done by concentrating on the climatology of specific routes, each taken in its entirety. Results of this type of analysis will be compared with cell-oriented simulations, as presented in this study.

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TABLE I.- GASP CLOUD AND PARTICLE DATA THROUGH DECEMBER 1977
 BY MONTH AND CONTRIBUTING AIRCRAFT

Year	Month	Aircraft	Tape	File	Data (a)	Reference	
1975	December	N4711U	VL0004	1	C	15	
1976	January	N4711U	VL0004	1	C ↓	15	
		N655PA	VL0004	2		15	
	February	N4711U	VL0004	1		15	
		N655PA	VL0004	2		15	
	March	N4711U	VL0004	1		15	
			VL0005	1		16	
		N655PA	VL0004	2		15	
	April		VL0005	2		16	
		N4711U	VL0005	1		16	
		N655PA	VL0005	2		16	
	May	N4711U	VL0005	1		16	
		N655PA	VL0005	2		16	
	June	None			↓		
	July	None					
	August	VH-EBE	VL0006	3	C	17	
	September	N655PA	VL0006	1	C	17	
	October	None					
	November	VH-EBE	VL0008	2	C	18	
	December	VH-EBE	VL0008	2	↓	18	
		N533PA	VL0007	3	↓	18	
1977	January	N533PA	VL0007	3	C	18	
			VL0010	1	C,P	20	
		VH-EBE	VL0008	2	C	18	
	February		VL0011	1	C,P	21	
		VH-EBE	VL0011	1	↓	21	
		N533PA	VL0010	1		20	
	March	N533PA	VL0010	1		20	
		N533PA	VL0010	2		20	
	April	N533PA	VL0010	2		20	
		N533PA	VL0010	2		20	
	June	N533PA	VL0010	4		20	
	July	N533PA	VL0010	4		20	
	August	N533PA	VL0010	4		20	
	September	N533PA	VL0010	5		↓	20
	October	N533PA	VL0010	5		C	20
			VL0009	1 to 4		C,P	19
	November		VL0014	1	↓	22	
		N655PA	VL0014	3		22	
		N533PA	VL0014	1		22	
	December	N655PA	VL0014	3		22	
		N655PA	VL0014	3		22	

^aC represents cloud detector; P represents particle concentration.

TABLE II.- SUMMARY OF FLIGHTS WITH CLOUD-ENCOUNTER DATA BY ROUTE

Route	1976									1977																
	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
Chicago-California		5	5	6	8	13																				
California-Hawaii	4	5	26	4	16	10					3		10	2	4										4	
California-Northeast U.S.	2	1	6	1		2							5		1	1		4		1		1	2			
Hawaii-Chicago	2		1	6	12	6																				
Northeast U.S.-Europe		11		4	13					31							12		6	2	12	2	3			
California-Tokyo		1		2	1					1			3			1	14		1	6	8	12	8	2		
Western U.S.-Europe				2	3														30			1			4	
Seattle-California				2	2														2						4	
Seattle-Hawaii				4	6																				2	
New York-South America					1											6										
California-South America					3	1				2																
New York-Tokyo													3			1	15	1	3	9	9	11	4	1		
Southeast Asia-Europe		1		2	1			14		1	4	7	8	4								2				
Australia-Southeast Asia								14			4	8	10	5												
Hawaii-South Pacific			2							3	16	2	4	2		6									4	
South Pacific- Australia/New Zealand			2							3	10	2	4												2	
California-Australia/New Zealand											10	2	1	1		6		1	3		2	3				
East Australia/West Australia								4		1	3	6	3													
Total of above flights	8	24	42	33	66	32		32	35	18	69	38	26	6	35	29	37	25	19	38	22	6		20		
Total of all flights	8	30	49	50	86	45	0	0	66	50	0	29	128	60	51	13	36	54	38	29	21	42	37	8	30	
Total flights in table, 660																										
Total all flights, 960																										
Percentage of total flights in table, 69																										

TABLE III.- SUMMARY OF CLOUD-ENCOUNTER OBSERVATIONS

(a) Distance from NMC tropopause

		Over 15 000 ft below tropopause	15 000 to 10 000 ft below tropopause	10 000 to 5000 ft below tropopause	5000 to 0 ft below tropopause	0 to 5000 ft above tropopause	Over 5000 ft above tropopause	Total
Observations in vicinity of clouds	Winter	567	868	704	436	39	1	2 615
	Spring	6	542	731	589	88	10	1 966
	Summer	247	462	344	252	60	4	1 369
	Autumn	124	350	328	284	39	6	1 139
	Year	944	2230	2107	1561	226	21	7 089
Observations in clear air	Winter	2550	2581	1785	1489	1615	970	10 990
	Spring	232	1235	1986	2565	2656	1853	10 527
	Summer	982	1806	1051	1400	2535	2484	10 258
	Autumn	839	1532	1648	2225	1998	1108	9 350
	Year	4603	7154	6470	7679	8804	6415	41 125
Total		5547	9384	8577	9240	9030	6436	48 214

(b) Flight level (FL)

		Below 28.5 kft	28.5 to 33.5 kft	33.5 to 38.5 kft	38.5 to 43.5 kft	Above FL 43.5 kft	Total
Observations in vicinity of clouds	Winter	125	1 020	1 363	495	0	3 003
	Spring	97	384	946	701	0	2 128
	Summer	78	373	621	304	0	1 376
	Autumn	42	288	556	254	0	1 140
	Year	342	2 065	3 486	1 754	0	7 647
Observations in clear air	Winter	718	3 844	5 501	2 926	65	13 054
	Spring	387	1 183	4 843	4 732	2	11 147
	Summer	277	1 520	3 222	5 323	0	10 342
	Autumn	267	1 668	4 120	3 912	7	9 974
	Year	1649	8 215	17 686	16 893	74	44 517
Total		1991	10 280	21 172	18 647	74	52 164

TABLE IV.- PERSISTENCE OF CLOUD-ENCOUNTER DATA

Type of observation	Probability, percent, that present observation will be -		
	Clear	TIC > 0	TIC > 10
If previous observation was Random	83.5	16.5	12.2
If previous observation was Clear	95.0	5.0	2.5
TIC > 0	24.9	75.1	61.6
TIC > 10	17.5	82.5	72.9
If previous two observations were Clear	96.0	4.0	1.9
TIC > 0	21.0	79.0	66.0
TIC > 10	14.8	85.2	74.7

TABLE V.- SUMMARIES OF ZONAL-MEAN CLOUD-ENCOUNTER STATISTICS
 BY SEASON AS FUNCTIONS OF LATITUDE AND ALTITUDE

WINTER												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
	$\overline{TIC}, \%$											
38.5-43.5		0.0	0.0	8.1	.6	1.2	3.1	10.8	19.2	22.4	3.3	.8
33.5-38.5	0.0	0.0	10.1	10.0	10.1	8.2	3.7	14.4	12.6	11.6	4.9	3.5
28.5-33.5		.2	6.9	15.4	9.8	7.6	6.0	8.7	17.1	6.1	7.4	7.5
	$SIGMA, \%$											
38.5-43.5		0.0	0.0	24.3	5.4	8.9	11.0	24.1	30.0	31.0	13.1	7.2
33.5-38.5	0.0	0.0	26.7	25.5	25.1	20.7	13.9	26.8	25.0	25.7	17.6	15.3
28.5-33.5		1.7	19.4	29.6	24.0	21.6	20.7	20.3	27.4	17.1	20.9	21.2
	N											
38.5-43.5	0	54	215	483	721	328	280	249	258	317	136	380
33.5-38.5	14	126	367	698	1198	989	540	518	527	522	648	694
28.5-33.5	0	103	228	353	795	763	422	284	348	380	647	533
	$\overline{TICIC}, \%$											
38.5-43.5		0.0	0.0	66.2	23.3	33.7	20.8	43.5	47.2	41.3	26.5	36.4
33.5-38.5	0.0	0.0	58.6	47.9	49.1	37.3	36.2	41.6	37.5	45.7	40.2	41.7
28.5-33.5		17.6	43.5	48.4	45.1	47.8	59.4	35.2	36.4	29.4	42.6	39.8

TABLE V.- Continued

WINTER												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
P(TIC>0)												
38.5-43.5		0.0	0.0	12.2	2.5	3.7	15.0	24.9	40.7	54.3	12.5	2.1
33.5-38.5	0.0	0.0	17.2	20.9	20.5	21.8	10.2	34.6	33.6	25.5	12.2	8.5
28.5-33.5		1.0	15.8	31.7	21.8	16.0	10.2	24.6	46.8	20.8	17.3	18.9
P(TIC≥10%)												
38.5-43.5		0.0	0.0	10.8	1.1	2.7	8.6	20.1	34.5	43.8	6.6	1.6
33.5-38.5	0.0	0.0	14.2	15.8	16.3	17.2	7.8	26.1	24.7	20.1	8.5	6.3
28.5-33.5		1.0	14.0	25.2	17.6	13.6	9.2	18.3	34.2	14.2	12.5	13.9
P(TIC≥25%)												
38.5-43.5		0.0	0.0	10.1	1.0	1.5	5.7	16.1	29.1	32.2	5.1	.8
33.5-38.5	0.0	0.0	12.3	13.5	13.8	11.7	6.5	21.6	18.2	16.5	6.6	4.6
28.5-33.5		0.0	11.0	20.1	13.6	10.7	8.1	14.1	26.7	9.5	10.7	10.1
P(TIC≥50%)												
38.5-43.5		0.0	0.0	9.3	.6	.9	1.8	10.8	18.6	19.9	2.9	.5
33.5-38.5	0.0	0.0	10.1	9.7	10.2	7.1	3.0	13.9	11.6	11.7	4.8	3.6
28.5-33.5		0.0	6.1	16.7	9.8	7.3	5.7	7.7	15.5	3.9	7.9	7.1

TABLE V.- Continued

WINTER												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
PATCHES												
38.5-43.5		0.0	0.0	2.6	1.2	3.3	2.5	2.3	2.4	2.4	2.5	1.8
33.5-38.5	0.0	0.0	2.6	2.3	2.9	3.5	2.3	3.2	3.0	2.9	3.3	3.4
28.5-33.5		0.0	2.7	2.8	3.5	4.2	3.6	3.7	3.5	3.5	4.4	4.0
T (CLD)												
38.5-43.5		0.	0.	-69.	-64.	-64.	-58.	-57.	-57.	-62.	-59.	-62.
33.5-38.5	0.	0.	-65.	-61.	-56.	-54.	-49.	-45.	-43.	-44.	-47.	-50.
28.5-33.5		-56.	-57.	-53.	-48.	-45.	-36.	-36.	-34.	-34.	-38.	-42.
Z (CLD)												
38.5-43.5		0.0	0.0	39.5	39.2	39.2	40.2	39.9	40.4	41.4	39.9	40.3
33.5-38.5	0.0	0.0	36.1	35.8	35.5	35.4	36.5	36.0	35.4	35.9	36.1	35.2
28.5-33.5		33.0	31.8	31.4	32.0	32.2	32.4	32.4	31.6	31.7	32.4	31.7
Z (CLR)												
38.5-43.5		39.1	39.9	40.6	40.9	40.6	40.1	39.9	39.5	40.5	40.3	40.7
33.5-38.5	35.0	36.0	36.0	35.9	35.6	35.5	36.0	36.0	35.9	35.6	35.3	35.8
28.5-33.5		32.8	32.6	31.2	31.8	31.8	31.5	31.6	31.5	31.6	32.0	31.8

TABLE V.- Continued

SPRING												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
$\overline{TIC},\%$												
38.5-43.5		0.0	.0	3.8	4.8	2.2	16.1	16.5	20.0	14.0	.2	5.2
33.5-38.5	.1	.0	3.8	5.8	5.1	5.4	8.2	12.4	18.0	10.1	4.8	1.6
28.5-33.5	0.0	16.9	7.0	9.4	5.5	6.0	2.8	1.8	11.1	8.5	.5	19.4
$SIGMA,\%$												
38.5-43.5		0.0	.3	15.4	17.9	10.8	28.8	28.6	28.6	26.9	1.1	19.3
33.5-38.5	.3	.1	15.2	18.3	16.9	17.0	21.6	25.7	26.3	21.3	15.0	2.7
28.5-33.5	0.0	32.8	19.5	22.3	16.4	16.6	13.3	7.5	26.0	18.4	1.9	32.3
N												
38.5-43.5	0	186	1162	1392	1190	483	193	189	217	279	42	100
33.5-38.5	25	245	932	1649	1496	782	290	120	103	113	30	4
28.5-33.5	3	41	218	479	365	307	59	25	10	24	13	23
$\overline{TICIC},\%$												
38.5-43.5		0.0	3.1	38.2	44.2	25.4	39.5	40.0	37.4	38.2	4.5	57.3
33.5-38.5	1.6	.4	35.2	36.4	32.1	31.4	34.5	42.4	33.1	27.9	36.0	6.3
28.5-33.5	0.0	63.0	33.9	34.8	21.9	24.3	20.7	11.0	37.0	29.1	7.1	55.8

TABLE V.- Continued

SPRING												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
P(TIC>0)												
38.5-43.5		0.0	.5	10.1	10.8	8.5	40.9	41.3	53.5	36.6	4.8	9.0
33.5-38.5	4.0	2.4	10.9	15.8	15.8	17.1	23.8	29.2	54.4	36.3	13.3	25.0
28.5-33.5	0.0	26.8	20.6	26.9	25.2	24.8	13.6	16.0	30.0	29.2	7.7	34.8
P(TIC≥10%)												
38.5-43.5		0.0	0.0	7.0	7.9	4.6	32.1	29.6	39.2	27.2	0.0	9.0
33.5-38.5	0.0	0.0	7.1	11.1	10.4	11.3	14.8	25.0	42.7	22.1	10.0	0.0
28.5-33.5	0.0	22.0	14.2	19.2	12.9	14.0	5.1	4.0	30.0	16.7	0.0	30.4
P(TIC≥25%)												
38.5-43.5		0.0	0.0	5.4	6.6	3.3	20.2	25.4	30.4	19.4	0.0	6.0
33.5-38.5	0.0	0.0	5.8	8.5	7.6	8.7	11.7	18.3	25.2	14.2	10.0	0.0
28.5-33.5	0.0	22.0	10.1	13.4	7.7	10.1	3.4	4.0	10.0	16.7	0.0	26.1
P(TIC≥50%)												
38.5-43.5		0.0	0.0	3.9	4.5	1.9	14.5	14.8	18.9	13.3	0.0	5.0
33.5-38.5	0.0	0.0	3.5	4.9	4.3	4.5	7.6	10.8	14.6	7.1	3.3	0.0
28.5-33.5	0.0	19.5	6.0	8.4	4.1	4.2	1.7	0.0	10.0	8.3	0.0	21.7

TABLE V.- Continued

SPRING												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
PATCHES												
38.5-43.5		0.0	1.5	2.5	2.0	1.8	2.2	2.4	2.6	2.5	2.5	4.2
33.5-38.5	3.0	1.0	2.6	2.6	2.4	2.7	3.0	3.1	2.5	2.8	3.0	2.0
28.5-33.5	0.0	3.2	3.0	2.6	2.7	2.4	1.8	2.0	3.7	1.3	2.0	4.1
T (CLD)												
38.5-43.5		0.	-63.	-64.	-65.	-63.	-59.	-57.	-58.	-60.	-58.	-62.
33.5-38.5	-59.	-52.	-61.	-58.	-58.	-52.	-49.	-48.	-49.	-49.	-50.	-57.
28.5-33.5	0.	-57.	-54.	-50.	-47.	-43.	-39.	-36.	-34.	-34.	-34.	-49.
Z (CLD)												
38.5-43.5		0.0	38.9	39.1	39.8	40.1	40.1	39.7	40.0	40.5	38.9	39.0
33.5-38.5	35.0	35.7	35.9	36.1	36.1	35.9	36.4	36.4	36.8	36.3	35.9	35.8
28.5-33.5	0.0	32.9	32.4	31.8	31.7	31.8	32.8	31.5	31.0	30.6	30.0	33.0
Z (CLR)												
38.5-43.5		38.9	39.7	40.0	40.5	40.0	39.5	39.5	39.9	41.4	39.1	39.8
33.5-38.5	35.0	36.1	36.1	36.0	36.1	36.1	36.2	36.5	36.8	36.5	35.7	35.3
28.5-33.5	31.1	32.4	32.2	31.7	31.9	32.2	32.4	32.6	31.0	31.2	32.1	32.6

TABLE V.- Continued

SUMMER												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
$\overline{TIC},\%$												
38.5-43.5	0.0	.1	.1	2.6	1.8	1.2	5.7	26.3	37.9	9.8	.1	.0
33.5-38.5	.0	.3	2.0	10.1	5.0	0.0	24.7	9.6	8.7	.4	.6	.1
28.5-33.5			5.5	6.0	2.0	9.1	24.2	14.7	4.4	1.3	.5	4.4
$SIGMA,\%$												
38.5-43.5	0.0	1.9	1.8	11.7	8.7	6.7	19.2	35.4	33.8	20.7	.6	.3
33.5-38.5	.1	4.3	9.3	21.7	16.3	0.0	31.1	22.2	21.3	4.8	3.8	1.3
28.5-33.5			14.4	17.2	12.1	23.2	31.3	25.1	12.7	7.9	4.3	14.2
N												
38.5-43.5	135	1543	1722	1491	360	47	39	64	64	41	37	85
33.5-38.5	14	411	760	1027	535	122	141	118	119	141	178	268
28.5-33.5	0	0	65	135	380	371	182	133	185	155	176	102
$\overline{TICIC},\%$												
38.5-43.5	0.0	11.8	11.2	27.5	21.1	27.6	32.0	52.5	51.7	36.4	1.8	1.6
33.5-38.5	.4	13.0	21.7	33.3	34.7	0.0	42.0	35.5	43.1	20.4	13.8	13.5
28.5-33.5			16.2	29.8	45.1	40.4	44.5	33.0	24.6	29.0	12.1	27.9

TABLE V.- Continued

SUMMER												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
P(TIC>0)												
38.5-43.5	0.0	.6	1.0	9.6	8.6	4.3	17.9	50.0	73.4	26.8	5.4	2.4
33.5-38.5	7.1	2.7	9.1	30.3	14.4	0.0	58.9	27.1	20.2	2.1	4.5	.7
28.5-33.5			33.8	20.0	4.5	22.6	54.4	44.4	17.8	4.5	4.5	15.7
P(TIC≥10%)												
38.5-43.5	0.0	.1	.4	5.8	5.3	2.1	10.3	39.1	65.6	22.0	0.0	0.0
33.5-38.5	0.0	1.0	4.7	21.3	10.1	0.0	46.1	18.6	17.6	.7	2.8	.4
28.5-33.5			10.8	11.9	3.4	16.4	44.0	31.6	13.5	4.5	1.1	11.8
P(TIC≥25%)												
38.5-43.5	0.0	.1	.1	4.0	2.5	2.1	5.1	34.4	53.1	17.1	0.0	0.0
33.5-38.5	0.0	.5	2.9	15.3	7.3	0.0	39.0	14.4	13.4	.7	1.1	0.0
28.5-33.5			6.2	11.1	2.4	12.4	37.9	24.1	7.6	1.3	1.1	5.9
P(TIC≥50%)												
38.5-43.5	0.0	.1	0.0	2.1	.8	0.0	5.1	28.1	39.1	7.3	0.0	0.0
33.5-38.5	0.0	.2	1.1	8.9	4.1	0.0	24.1	7.6	7.6	.7	0.0	0.0
28.5-33.5			3.1	5.2	1.8	8.6	23.1	9.8	2.2	1.3	0.0	2.9

TABLE V.- Continued

SUMMER

LATITUDE: 75. 65. 55. 45. 35. 25. 15. 5. -5. -15. -25. -35.

ALT. (KFT)

PATCHES

38.5-43.5	0.0	1.7	2.1	1.4	1.9	0.0	1.0	1.7	0.0	0.0	0.0	0.0
33.5-38.5	0.0	1.0	1.2	2.0	1.7	0.0	3.5	2.2	3.9	.7	1.5	5.5
28.5-33.5			1.5	2.7	1.5	3.0	3.4	3.5	3.4	2.4	2.9	4.2

T (CLD)

38.5-43.5	0.	-62.	-60.	-62.	-59.	-55.	-55.	-57.	-56.	-56.	-43.	-55.
33.5-38.5	-45.	-56.	-55.	-53.	-48.	0.	-45.	-44.	-45.	-50.	-49.	-51.
28.5-33.5			-50.	-43.	-37.	-32.	-32.	-33.	-35.	-37.	-41.	-48.

Z (CLD)

38.5-43.5	0.0	39.1	39.5	40.3	40.5	41.0	39.6	39.7	39.0	39.0	39.0	41.0
33.5-38.5	36.9	35.7	36.4	36.4	36.0	0.0	36.1	35.3	35.4	37.0	35.7	35.1
28.5-33.5			31.2	30.3	31.0	32.4	31.7	30.6	31.5	32.3	31.8	31.3

Z (CLR)

38.5-43.5	39.3	39.6	40.2	40.7	41.2	42.3	40.6	39.3	39.0	39.0	39.0	41.2
33.5-38.5	36.9	36.3	36.5	36.1	35.5	34.9	35.2	35.2	35.0	35.4	35.5	36.0
28.5-33.5			31.8	31.3	31.4	31.8	31.1	31.2	31.8	32.0	31.5	31.9

TABLE V.- Continued

AUTUMN												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
	$\overline{TIC},\%$											
38.5-43.5	0.0	.0	.5	2.0	3.3	2.3	7.3	2.7	2.9	2.5	.0	.0
33.5-38.5	0.0	1.2	2.2	4.8	4.6	1.2	6.5	15.2	10.2	7.0	4.1	.0
28.5-33.5		44.6	3.2	5.3	3.7	5.1	5.7	12.2	12.9	4.9	15.8	8.8
	$SIGMA,\%$											
38.5-43.5	0.0	.7	4.0	9.8	14.5	9.9	18.3	11.4	14.7	13.9	.1	.3
33.5-38.5	0.0	5.7	10.9	16.1	16.4	6.5	20.0	27.0	23.6	19.1	17.7	.2
28.5-33.5		40.5	13.8	17.5	14.3	19.6	18.3	22.9	21.6	16.7	28.6	24.1
	N											
38.5-43.5	4	317	1187	1632	495	83	63	84	72	44	37	15
33.5-38.5	5	217	1502	1490	480	223	153	93	136	154	116	85
28.5-33.5	0	16	428	545	301	156	197	65	46	43	80	79
	$\overline{TICIC},\%$											
38.5-43.5	0.0	12.2	18.9	23.6	39.8	16.1	28.8	37.5	35.0	27.1	.8	2.0
33.5-38.5	0.0	19.7	31.9	32.1	31.7	17.8	41.2	38.1	46.1	32.7	67.5	.8
28.5-33.5		71.4	32.9	38.3	30.7	61.4	41.4	33.1	25.9	52.6	57.6	62.9

TABLE V.- Continued

AUTUMN												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
P(TIC>0)												
38.5-43.5	0.0	.3	2.4	8.3	8.3	14.5	25.4	7.1	8.3	9.1	2.7	1.9
33.5-38.5	0.0	6.0	6.8	14.8	14.6	6.7	15.7	39.8	22.1	21.4	6.0	4.7
28.5-33.5		62.5	9.8	17.9	12.0	8.3	13.7	36.9	50.0	9.3	27.5	13.9
P(TIC≥10%)												
38.5-43.5	0.0	.3	1.4	4.7	6.1	4.8	17.5	6.0	4.2	4.5	0.0	0.0
33.5-38.5	0.0	4.1	4.7	9.9	9.2	4.0	12.4	30.1	16.9	13.6	5.2	0.0
28.5-33.5		56.3	7.0	10.6	8.3	7.1	10.7	23.1	34.8	9.3	25.0	12.7
P(TIC≥25%)												
38.5-43.5	0.0	0.0	.7	2.1	4.6	3.6	11.1	4.8	4.2	2.3	0.0	0.0
33.5-38.5	0.0	2.3	3.4	6.8	6.5	1.8	7.8	22.6	16.9	10.4	5.2	0.0
28.5-33.5		56.3	4.0	8.3	5.3	5.8	7.6	20.0	19.6	9.3	25.0	11.4
P(TIC≥50%)												
38.5-43.5	0.0	0.0	.1	1.4	3.6	2.4	6.3	2.4	2.8	2.3	0.0	0.0
33.5-38.5	0.0	0.0	1.9	4.2	4.4	.4	5.9	14.0	10.3	5.8	4.3	0.0
28.5-33.5		50.0	3.0	4.6	3.0	5.8	5.6	10.8	8.7	4.7	17.5	10.1

TABLE V.- Concluded

AUTUMN												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
ALT. (KFT)												
PATCHES												
38.5-43.5	0.0	4.0	3.4	2.4	2.1	1.6	2.3	3.8	2.0	3.5	1.0	4.5
33.5-38.5	0.0	5.1	1.7	2.5	2.9	4.8	1.3	3.2	3.3	3.4	5.0	1.5
28.5-33.5		0.0	.1	1.8	2.1	4.0	2.4	4.6	3.6	8.0	6.4	4.2
T (CLD)												
38.5-43.5	0.	-59.	-63.	-62.	-56.	-59.	-58.	-56.	-57.	-56.	-56.	-53.
33.5-38.5	0.	-59.	-59.	-54.	-50.	-49.	-49.	-46.	-42.	-44.	-49.	-56.
28.5-33.5		-47.	-48.	-48.	-44.	-41.	-34.	-32.	-31.	-30.	-36.	-48.
Z (CLD)												
38.5-43.5	0.0	39.0	40.4	40.2	39.7	40.3	39.8	39.3	39.7	39.0	39.0	40.0
33.5-38.5	0.0	35.7	35.8	36.0	36.1	34.9	36.5	36.1	34.8	35.5	35.0	36.9
28.5-33.5		29.0	31.5	31.0	32.0	32.4	31.5	30.7	30.3	29.4	30.8	32.5
Z (CLR)												
38.5-43.5	40.9	39.0	40.2	40.4	41.0	40.0	39.8	39.5	39.1	40.3	40.3	40.0
33.5-38.5	36.9	36.6	35.6	35.9	35.6	35.2	35.7	35.9	35.5	35.6	35.6	36.0
28.5-33.5		29.0	32.1	32.0	31.8	31.7	30.8	30.4	31.0	31.9	31.7	32.5

TABLE VI.- SUMMARIES OF ZONAL-MEAN CLOUD-ENCOUNTER STATISTICS BY SEASON
AS FUNCTIONS OF LATITUDE AND DISTANCE FROM THE NMC TROPOPAUSE

WINTER

LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
TROP DIST(KFT)												
	$\overline{TIC},\%$											
0-5KFT ARV	0.0	.1	.4	1.8	0.0	0.0					0.0	0.0
0-5KFT BLO		0.0	19.9	17.5	8.7	6.2	0.0				0.0	1.6
5-10 "			20.7	27.7	15.1	6.2	3.2	14.0	23.3	25.3	3.4	5.0
10-15 "			36.2	21.4	7.4	9.6	3.3	11.8	14.6	17.9	10.2	4.7
	$SIGMA,\%$											
0-5KFT ARV	0.0	1.4	3.4	10.4	0.0	0.0					0.0	0.0
0-5KFT BLO		0.0	33.6	31.5	23.3	20.2	0.0				0.0	7.0
5-10 "			33.4	37.6	29.0	17.7	10.4	27.3	28.1	31.7	12.7	17.8
10-15 "			35.1	30.8	20.6	23.3	12.1	24.4	26.9	30.3	24.3	16.6
	N											
0-5KFT ARV	6	168	362	559	534	67	0	0	0	0	2	68
0-5KFT BLO	0	21	179	493	858	195	3	0	0	0	21	216
5-10 "	0	0	79	223	661	474	113	60	97	213	72	314
10-15 "	0	0	10	32	290	662	354	695	624	300	222	434
	$\overline{TICIC},\%$											
0-5KFT ARV	0.0	17.6	17.6	34.8	0.0	0.0					0.0	0.0
0-5KFT BLO		0.0	53.9	48.9	43.8	50.5	0.0				0.0	18.7
5-10 "			54.5	61.1	50.8	33.6	18.0	55.8	38.9	41.1	24.2	40.0
10-15 "			51.8	45.7	40.5	43.3	26.2	39.4	40.2	44.8	41.0	34.1

TABLE VI.- Continued

WINTER

LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
TROP DIST(KFT)												
P(TIC>0)												
0-5KFT ARV	0.0	.6	2.5	5.2	0.0	0.0					0.0	0.0
0-5KFT BLO		0.0	36.9	35.9	19.8	12.3	0.0				0.0	8.3
5-10 "			38.0	45.3	29.7	18.4	17.7	25.0	59.8	61.5	13.9	12.4
10-15 "			70.0	46.9	18.3	22.2	12.7	29.9	36.2	40.0	24.8	13.8
P(TIC≥10%)												
0-5KFT ARV	0.0	.6	1.7	3.6	0.0	0.0					0.0	0.0
0-5KFT BLO		0.0	30.7	27.4	14.7	9.7	0.0				0.0	6.0
5-10 "			30.4	39.9	25.1	14.3	9.7	23.3	50.5	49.8	6.9	8.6
10-15 "			50.0	40.6	13.4	17.8	8.2	22.4	27.2	31.3	17.1	9.0
P(TIC≥25%)												
0-5KFT ARV	0.0	0.0	.8	2.7	0.0	0.0					0.0	0.0
0-5KFT BLO		0.0	25.1	23.3	11.5	8.2	0.0				0.0	1.9
5-10 "			29.1	35.4	20.6	8.9	4.4	23.3	39.2	37.1	5.6	7.0
10-15 "			50.0	31.3	11.0	13.9	6.5	17.8	21.6	24.0	14.4	6.2
P(TIC≥50%)												
0-5KFT ARV	0.0	0.0	0.0	1.4	0.0	0.0					0.0	0.0
0-5KFT BLO		0.0	20.1	18.5	8.6	6.7	0.0				0.0	.9
5-10 "			19.0	30.0	15.3	4.2	.9	15.0	19.6	21.6	2.8	4.8
10-15 "			40.0	25.0	7.2	9.5	2.3	11.1	14.3	18.3	9.5	4.1

TABLE VI.- Continued

WINTER

LATITUDE: 75. 65. 55. 45. 35. 25. 15. 5. -5. -15. -25. -35.

TROP DIST(KFT)

PATCHES

0-5KFT ARV	0.0	0.0	1.0	2.5	0.0	0.0					0.0	0.0
0-5KFT BLO		0.0	2.8	2.3	2.7	2.9	0.0				0.0	2.8
5-10 "			2.9	2.9	3.3	3.3	2.7	2.9	1.8	2.1	2.5	3.8
10-15 "			6.0	2.7	3.0	3.6	3.0	3.1	3.0	2.7	2.7	3.3

T(CLD)

0-5KFT ARV	0.	-56.	-59.	-64.	0.	0.					0.	0.
0-5KFT BLO		0.	-63.	-62.	-57.	-56.	0.				0.	-53.
5-10 "			-58.	-53.	-51.	-55.	-57.	-62.	-60.	-63.	-56.	-48.
10-15 "			-36.	-48.	-46.	-51.	-53.	-46.	-42.	-48.	-48.	-44.

DZ(CLD)

0-5KFT ARV	0.0	.5	.8	1.5	0.0	0.0					0.0	0.0
0-5KFT BLO		0.0	-3.1	-2.9	-3.4	-3.4	0.0				0.0	-3.3
5-10 "			-6.9	-6.9	-7.4	-7.8	-8.8	-8.6	-8.7	-8.5	-9.4	-7.4
10-15 "			-12.1	-10.7	-11.5	-12.4	-11.9	-12.8	-13.2	-12.1	-12.6	-12.6

DZ(CLR)

0-5KFT ARV	2.6	2.7	2.5	2.2	2.2	1.7					1.0	2.3
0-5KFT BLO		-1.7	-2.1	-2.4	-2.6	-3.0	-3.1				-2.9	-3.2
5-10 "			-6.7	-7.0	-7.3	-7.9	-8.3	-8.9	-9.3	-8.7	-8.2	-7.5
10-15 "			-11.4	-10.8	-12.2	-12.5	-12.4	-12.8	-12.5	-12.5	-13.0	-12.3

TABLE VI.- Continued

SPRING

LATITUDE: 75. 65. 55. 45. 35. 25. 15. 5. -5. -15. -25. -35.

TROP DIST(KFT)

$\overline{TIC},\%$

0-5KFT ARV	0.0	.0	1.2	1.1	.5	0.0					0.0	0.0
0-5KFT BLO	.1	19.8	6.5	7.1	6.9	.8	0.0				0.0	0.0
5-10 "			8.6	16.4	6.5	3.8	9.5	18.8	21.4	0.0	0.0	3.5
10-15 "			0.0	11.0	8.0	7.0	12.1	14.0	18.3	12.1	5.5	25.3

SIGMA,%

0-5KFT ARV	0.0	.1	9.1	8.4	5.1	0.0					0.0	0.0
0-5KFT BLO	.4	34.7	18.7	20.0	20.5	5.7	0.0				0.0	0.0
5-10 "			21.8	29.4	18.6	13.0	26.1	31.5	30.6	0.0	0.0	8.3
10-15 "			0.0	21.5	21.5	19.9	25.4	27.3	26.4	25.2	16.7	38.7

N

0-5KFT ARV	10	205	853	1161	638	28	0	0	0	0	5	46
0-5KFT BLO	13	35	441	1227	1153	219	8	0	0	0	5	25
5-10 "	0	0	167	603	916	710	54	58	58	1	14	26
10-15 "	0	0	11	58	154	530	426	223	153	251	31	20

$\overline{TICIC},\%$

0-5KFT ARV	0.0	.4	38.9	29.4	21.2	0.0					0.0	0.0
0-5KFT BLO	1.6	69.2	30.4	36.2	37.2	14.3	0.0				0.0	0.0
5-10 "			37.8	42.6	30.2	24.7	46.5	40.3	41.3	0.0	0.0	15.0
10-15 "			0.0	26.6	31.0	32.4	37.0	44.5	33.8	34.6	34.0	72.3

TABLE VI.- Continued

SPRING

LATITUDE: 75. 65. 55. 45. 35. 25. 15. 5. -5. -15. -25. -35.

TROP DIST(KFT)

P(TIC>0)

0-5KFT ABV	0.0	2.4	3.0	3.8	2.4	0.0					0.0	0.0
0-5KFT BLO	7.7	28.6	21.5	10.7	18.6	5.9	0.0				0.0	0.0
5-10 "			22.8	38.5	21.4	15.4	20.4	46.6	51.7	0.0	0.0	23.1
10-15 "			0.0	41.4	26.0	21.5	32.9	31.4	54.2	35.1	16.1	35.0

P(TIC≥10%)

0-5KFT ABV	0.0	0.0	1.9	2.2	1.1	0.0					0.0	0.0
0-5KFT BLO	0.0	25.7	12.7	14.4	12.6	1.8	0.0				0.0	0.0
5-10 "			17.4	28.4	13.8	9.2	13.0	29.3	41.4	0.0	0.0	15.4
10-15 "			0.0	24.1	15.6	14.0	23.5	26.0	39.2	24.3	9.7	30.0

P(TIC≥25%)

0-5KFT ABV	0.0	0.0	1.6	1.5	.8	0.0					0.0	0.0
0-5KFT BLO	0.0	25.7	10.0	10.2	9.9	1.4	0.0				0.0	0.0
5-10 "			12.6	23.4	9.5	6.5	11.1	25.9	31.0	0.0	0.0	3.8
10-15 "			0.0	17.2	11.0	10.9	16.4	22.0	28.8	16.3	9.7	30.0

P(TIC≥50%)

0-5KFT ABV	0.0	0.0	1.2	1.0	.3	0.0					0.0	0.0
0-5KFT BLO	0.0	22.9	5.9	6.6	6.2	.9	0.0				0.0	0.0
5-10 "			7.2	15.3	5.5	2.7	9.3	19.0	20.7	0.0	0.0	0.0
10-15 "			0.0	8.6	7.8	5.7	11.0	12.6	15.7	11.2	6.5	30.0

TABLE VI.- Continued

SPRING

LATITUDE: 75. 65. 55. 45. 35. 25. 15. 5. -5. -15. -25. -35.

TROP DIST(KFT)

PATCHES

0-5KFT ARV	0.0	1.0	1.0	2.8	1.9	0.0					0.0	0.0
0-5KFT BLO	3.0	3.4	2.9	2.5	2.1	3.3	0.0				0.0	0.0
5-10 "			3.3	2.4	2.7	2.2	.8	2.2	2.4	0.0	0.0	4.2
10-15 "			0.0	3.0	2.1	2.6	2.7	2.8	2.2	2.5	3.2	2.9

T(CLD)

0-5KFT ARV	0.	-56.	-62.	-58.	-60.	0.					0.	0.
0-5KFT BLO	-59.	-57.	-60.	-61.	-61.	-58.	0.				0.	0.
5-10 "			-50.	-50.	-53.	-56.	-61.	-58.	-61.	0.	0.	-61.
10-15 "			0.	-45.	-45.	-47.	-52.	-52.	-53.	-57.	-47.	-53.

DZ(CLD)

0-5KFT ARV	0.0	2.5	1.0	1.7	1.2	0.0					0.0	0.0
0-5KFT BLO	-.7	-3.0	-2.8	-2.9	-2.9	-3.7	0.0				0.0	0.0
5-10 "			-6.7	-7.3	-7.1	-8.0	-8.8	-9.7	-8.9	0.0	0.0	-7.3
10-15 "			0.0	-12.4	-11.4	-12.2	-12.7	-11.7	-11.7	-13.2	-13.0	-12.8

DZ(CLR)

0-5KFT ARV	1.8	2.8	2.7	2.2	2.0	.6					1.4	1.5
0-5KFT BLO	-1.1	-2.4	-2.0	-2.1	-2.5	-2.9	-3.8				-2.8	-2.7
5-10 "			-6.6	-7.1	-7.1	-8.0	-9.1	-9.6	-9.6	-9.9	-7.2	-7.2
10-15 "			-11.8	-11.7	-11.7	-12.2	-12.6	-12.2	-11.9	-12.4	-13.3	-12.9

TABLE VI.- Continued

SUMMER												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
TROP DIST(KFT)												
	$\overline{TIC},\%$											
0-5KFT ARV	.0	.0	.3	1.1	0.0						0.0	.0
0-5KFT BLO		2.2	4.0	6.4	1.2	0.0					0.0	.9
5-10 "			7.9	8.2	4.0	0.0	1.0	40.3		0.0	.8	.8
10-15 "			10.2	11.3	5.4	5.4	24.4	14.8	10.9	1.8	.5	13.2
	$SIGMA,\%$											
0-5KFT ARV	.1	.2	3.4	7.9	0.0						0.0	.0
0-5KFT BLO		10.4	13.7	17.9	6.1	0.0					0.0	7.7
5-10 "			18.4	20.1	14.1	0.0	4.4	38.4		0.0	4.6	3.9
10-15 "			25.0	22.2	17.8	18.7	32.2	27.5	23.5	9.5	3.7	26.9
	N											
0-5KFT ARV	12	725	1291	567	38	0	0	0	0	0	2	112
0-5KFT BLO	0	116	335	839	96	2	0	0	0	0	3	152
5-10 "	0	0	92	661	221	30	20	15	0	1	69	143
10-15 "	0	0	7	318	486	180	173	164	358	335	307	47
	$\overline{TICIC},\%$											
0-5KFT ARV	.4	2.0	15.0	23.2	0.0						0.0	.4
0-5KFT BLO		15.0	22.6	35.2	14.6	0.0					0.0	18.0
5-10 "			25.9	31.0	26.7	0.0	20.4	55.0		0.0	14.4	13.1
10-15 "			71.4	31.1	40.2	46.5	44.4	38.5	41.3	31.8	11.6	62.1

TABLE VI.- Continued

SUMMER

LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
TROP DIST(KFT)												
P(TIC>0)												
0-5KFT ABV	8.3	.4	2.2	4.8	0.0						0.0	.9
0-5KFT BLO		14.7	17.9	18.1	8.3	0.0					0.0	5.3
5-10 "			30.4	26.5	14.9	0.0	5.0	73.3		0.0	5.8	6.3
10-15 "			14.3	36.2	13.4	11.7	54.9	38.4	26.3	5.7	3.9	21.3
P(TIC≥10%)												
0-5KFT ABV	0.0	0.0	1.0	2.6	0.0						0.0	0.0
0-5KFT BLO		5.2	8.4	13.8	3.1	0.0					0.0	2.6
5-10 "			17.4	17.1	9.0	0.0	5.0	53.3		0.0	2.4	3.5
10-15 "			14.3	23.3	10.1	9.4	43.9	26.2	22.1	4.8	1.3	21.3
P(TIC≥25%)												
0-5KFT ABV	0.0	0.0	.3	1.4	0.0						0.0	0.0
0-5KFT BLO		3.4	6.0	9.8	2.1	0.0					0.0	.7
5-10 "			12.0	12.7	5.9	0.0	0.0	53.3		0.0	1.4	.7
10-15 "			14.3	17.0	7.6	7.8	35.8	21.3	16.5	2.7	1.0	21.3
P(TIC≥50%)												
0-5KFT ABV	0.0	0.0	.1	.7	0.0						0.0	0.0
0-5KFT BLO		1.7	2.4	5.0	0.0	0.0					0.0	.7
5-10 "			5.4	7.6	2.7	0.0	0.0	40.0		0.0	0.0	0.0
10-15 "			14.3	10.4	5.3	5.0	24.3	13.4	9.8	1.5	0.0	14.9

TABLE VI.- Continued

SUMMFR

LATITUDE: 75. 65. 55. 45. 35. 25. 15. 5. -5. -15. -25. -35.

TROP DIST(KFT)

PATCHES

0-5KFT ARV	0.0	.3	1.4	1.5	0.0					0.0	0.0	
0-5KFT BLO		1.6	1.6	1.8	.8	0.0				0.0	3.3	
5-10 "			2.1	2.1	1.4	0.0	0.0	0.0		0.0	3.0	3.1
10-15 "			10.0	2.0	2.2	3.1	3.2	2.5	2.2	1.0	1.0	4.5

T(CLD)

0-5KFT ARV	-45.	-57.	-59.	-60.	0.					0.	-54.	
0-5KFT BLO		-59.	-55.	-58.	-56.	0.				0.	-54.	
5-10 "			-46.	-55.	-53.	0.	-66.	-61.		0.	-49.	-43.
10-15 "			-31.	-50.	-47.	-31.	-38.	-42.	-46.	-49.	-43.	-38.

DZ(CLD)

0-5KFT ARV	4.6	1.9	1.1	1.5	0.0					0.0	4.6	
0-5KFT BLO		-1.5	-2.2	-2.6	-3.0	0.0				0.0	-2.8	
5-10 "			-7.1	-7.4	-8.1	0.0	-7.8	-9.7		0.0	-8.0	-7.0
10-15 "			-10.7	-11.8	-12.5	-14.1	-13.6	-13.1	-12.7	-13.8	-12.7	-13.2

DZ(CLR)

0-5KFT ARV	4.7	3.1	2.8	2.1	3.0					.7	2.0	
0-5KFT BLO		-1.9	-1.9	-2.4	-3.3	-4.7				-1.6	-2.6	
5-10 "			-7.0	-7.6	-7.8	-7.6	-8.3	-9.8		-9.3	-8.3	-7.2
10-15 "			-11.1	-12.0	-12.9	-13.8	-13.5	-12.8	-13.2	-13.3	-12.5	-11.6

TABLE VI.- Continued

AUTUMN												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
TROP DIST(KFT)												
$\overline{TTC},\%$												
0-5KFT ARV	0.0	.8	.1	.7	0.0	0.0					0.0	.0
0-5KFT BLO		3.7	3.8	3.6	.4	.1					0.0	.5
5-10 "		76.1	5.8	6.7	2.3	4.0	0.0	2.3	33.3	0.0	0.0	3.4
10-15 "			3.2	5.5	7.0	3.7	10.1	12.4	8.7	3.6	4.5	19.9
$\overline{SIGMA},\%$												
0-5KFT ARV	0.0	4.8	3.0	5.5	0.0	0.0					0.0	.1
0-5KFT BLO		13.3	13.8	14.9	4.8	.2					0.0	4.7
5-10 "		31.6	19.5	18.2	11.7	18.2	0.0	10.0	47.1	0.0	0.0	14.3
10-15 "			10.9	16.9	19.9	14.1	24.3	24.7	21.4	12.9	18.6	34.6
N												
0-5KFT ARV	2	302	847	807	60	2	0	0	0	0	4	57
0-5KFT BLO	0	57	1035	1019	189	3	0	0	0	0	14	83
5-10 "	0	7	315	947	422	22	1	20	3	6	32	68
10-15 "	0	0	64	443	501	142	148	174	233	146	104	24
$\overline{TICTC},\%$												
0-5KFT ARV	0.0	23.7	30.6	23.0	0.0	0.0					0.0	.5
0-5KFT BLO		26.5	29.1	29.8	33.3	.4					0.0	15.2
5-10 "		88.8	48.1	31.2	30.6	87.5	0.0	45.9	100.0	0.0	0.0	45.6
10-15 "			22.9	32.8	34.5	24.8	45.1	38.5	38.4	26.3	59.1	68.2

TABLE VI.- Continued

AUTUMN												
LATITUDE:	75.	65.	55.	45.	35.	25.	15.	5.	-5.	-15.	-25.	-35.
TROP DIST(KFT)												
P(TIC>0)												
0-5KFT ABV	0.0	3.3	.5	2.9	0.0	0.0					0.0	5.3
0-5KFT BLO		14.0	13.0	12.2	1.1	33.3					0.0	3.6
5-10 "		85.7	12.1	21.6	7.6	4.5	0.0	5.0	33.3	0.0	0.0	7.4
10-15 "			14.1	16.9	20.2	14.8	22.3	32.2	22.7	13.7	7.7	29.2
P(TIC≥10%)												
0-5KFT ABV	0.0	2.6	.2	1.6	0.0	0.0					0.0	0.0
0-5KFT BLO		8.8	8.9	7.2	.5	0.0					0.0	1.2
5-10 "		85.7	9.8	14.5	4.5	4.5	0.0	5.0	33.3	0.0	0.0	5.9
10-15 "			9.4	12.4	14.0	7.0	18.2	23.0	16.3	8.9	5.8	25.0
P(TIC≥25%)												
0-5KFT ABV	0.0	1.7	.2	1.1	0.0	0.0					0.0	0.0
0-5KFT BLO		5.3	5.7	4.8	.5	0.0					0.0	1.2
5-10 "		85.7	7.3	10.7	3.6	4.5	0.0	5.0	33.3	0.0	0.0	4.4
10-15 "			4.7	8.4	9.6	5.6	13.5	19.5	14.6	5.5	5.8	25.0
P(TIC≥50%)												
0-5KFT ABV	0.0	0.0	.2	.5	0.0	0.0					0.0	0.0
0-5KFT BLO		3.5	2.9	3.2	.5	0.0					0.0	0.0
5-10 "		85.7	5.7	5.6	2.4	4.5	0.0	0.0	33.3	0.0	0.0	4.4
10-15 "			1.6	4.5	6.6	3.5	9.5	11.5	8.2	2.7	4.8	25.0

TABLE VI.- Concluded

AUTUMN

LATITUDE: 75. 65. 55. 45. 35. 25. 15. 5. -5. -15. -25. -35.

TROP DIST(KFT)

PATCHES

0-5KFT ARV	0.0	5.6	.8	4.3	0.0	0.0					0.0	1.3
0-5KFT BLO		1.8	1.6	1.6	2.0	1.0					0.0	2.7
5-10 "		0.0	1.3	2.3	3.5	8.0	0.0	2.0	1.0	0.0	0.0	3.6
10-15 "			2.7	3.1	2.1	3.1	2.9	4.4	3.4	3.2	5.3	4.4

T(CLD)

0-5KFT ARV	0.	-58.	-50.	-63.	0.	0.					0.	-52.
0-5KFT BLO		-54.	-60.	-61.	-52.	-64.					0.	-59.
5-10 "		-47.	-44.	-54.	-51.	-47.	0.	-59.	-60.	0.	0.	-48.
10-15 "			-45.	-50.	-50.	-54.	-49.	-40.	-39.	-47.	-50.	-44.

DZ(CLD)

0-5KFT ARV	0.0	1.2	.8	1.2	0.0	0.0					0.0	3.1
0-5KFT BLO		-2.1	-2.1	-3.0	-4.4	-4.9					0.0	-2.8
5-10 "		-6.3	-7.8	-8.0	-8.2	-9.9	0.0	-8.8	-9.3	0.0	0.0	-7.8
10-15 "			-11.9	-11.9	-12.4	-12.3	-13.3	-12.6	-12.5	-13.9	-14.1	-13.3

DZ(CLR)

0-5KFT ARV	4.2	2.8	2.4	2.1	1.2	.6					1.6	2.9
0-5KFT BLO		-1.3	-2.3	-2.5	-3.0	-1.5					-2.6	-2.3
5-10 "		-5.8	-6.9	-7.6	-7.9	-8.7	-10.0	-9.4	-9.5	-9.8	-8.1	-7.5
10-15 "			-11.6	-12.1	-12.6	-12.9	-13.2	-12.0	-11.8	-12.9	-13.1	-12.1

TABLE VII.- AVERAGE OZONE IN CLEAR AIR (TIC = 0) MINUS AVERAGE OZONE
 IN VICINITY OF CLOUDS (TIC > 0), ppbv, BY LATITUDE, SEASON,
 AND DISTANCE FROM NMC TROPOPAUSE

[Subscript is smaller of $N_{(TIC=0)}$ and $N_{(TIC>0)}$]

Distance from tropopause (kft)	Winter	Latitude										
		60° N	40	20	0	20	40° S					
0 to 5 kft above		72 ₆	158 ₁₈									
0 to 5 kft below		89 ₅₉	50 ₉₉	50 ₁₁₂	70 ₁₈						96 ₁	
5 to 10 kft below		6 ₂₇	15 ₆₀	15 ₇₇	24 ₄₇	24 ₆	1 ₆	8 ₂₈	4 ₅₆	48 ₇	40 ₇	
10 to 15 kft below		-6 ₁	15 ₁₁	14 ₁₆	-1 ₇₇	6 ₃₆	6 ₆₄	5 ₅₇	7 ₄₉	22 ₂₀	10 ₉	
	Spring											
0 to 5 kft above		39 ₅	167 ₅	125 ₂₂	120 ₆							
0 to 5 kft below		98 ₁₀	83 ₄₄	113 ₁₂₃	54 ₁₂₄	116 ₁₂						
5 to 10 kft below			3 ₂₄	5 ₁₁₈	11 ₉₈	22 ₆₈	20 ₇	9 ₁₃	12 ₉		49 ₄	
10 to 15 kft below				16 ₉	15 ₂₄	29 ₉₉	9 ₈₃	3 ₃₇	4 ₁₆	-1 ₂₇	19 ₁	19 ₄
	Summer											
0 to 5 kft above		-39 ₂	209 ₁₅	124 ₁₆								
0 to 5 kft below		51 ₉	87 ₃₇	69 ₇₃	66 ₄						71 ₅	
5 to 10 kft below			19 ₁₀	30 ₉₃	25 ₁₉					24 ₂	20 ₅	
10 to 15 kft below				32 ₆₀	12 ₂₆		10 ₁	1 ₁₁	-2 ₃₇	-5 ₆	0 ₆	22 ₆
	Autumn											
0 to 5 kft above		155 ₇	143 ₁	95 ₁₃							-134 ₂	
0 to 5 kft below		91 ₂	26 ₈₁	42 ₆₃								
5 to 10 kft below			17 ₁₀	25 ₈₂	25 ₁₆						8 ₁	
10 to 15 kft below			16 ₂	7 ₃₈	13 ₂₇	7 ₆	13 ₁₁	2 ₆	5 ₂	13 ₃		

TABLE VIII.- CUMULATIVE FREQUENCY DISTRIBUTIONS FOR MEAN PARTICLE CONCENTRATIONS
FOR VARIOUS TIMES IN CLOUDS FOR GLOBAL ANNUAL DATA SET

PD5	Clear air (TIC = 0)	Mean particle concentrations for TIC in vicinity of clouds, percent, of -						
		>0	≥10	≥25	≥50	≥75	≥90	=100
0	32.0	89.6	93.8	96.9	98.5	100.	100.	100.
10 ²	12.0	85.7	91.2	95.5	97.7	100.	100.	100.
3 × 10 ²	5.8	82.6	89.0	94.1	97.5	100.	100.	100.
10 ³	2.6	79.1	87.0	92.6	96.9	100.	100.	100.
3 × 10 ³	1.3	74.5	84.1	90.8	96.4	100.	100.	100.
10 ⁴	.3	65.8	78.3	87.0	94.2	99.6	100.	100.
3 × 10 ⁴	.0	55.2	70.5	81.5	90.9	99.2	100.	100.
5 × 10 ⁴		48.5	64.8	75.9	87.6	98.5	100.	100.
7 × 10 ⁴		43.8	59.0	69.6	83.1	96.6	98.9	100.
10 ⁵		37.5	51.3	61.5	75.6	91.1	94.9	100.
3 × 10 ⁵		18.7	26.3	33.0	43.0	55.0	49.4	50.0
7 × 10 ⁵		8.2	11.7	15.0	19.6	27.2	15.7	.0
10 ⁶		4.7	6.8	8.8	11.9	16.8	8.4	
3 × 10 ⁶		.4	.6	.8	.9	1.3	.6	
$\overline{\text{PD5}}$	238	210 378	289 734	361 410	459 198	591 562	448 745	295 121
$\sigma(\text{PD5})$	8 590	440 555	503 501	555 904	602 560	660 693	479 733	83 946
N	17 580	2 636	1 851	1 364	872	471	178	12

TABLE IX.- VALUES OF LOG-MEAN OF PARTICLE CONCENTRATION PD5, BY ALTITUDE, FOR
IN-CLEAR-AIR, IN-VICINITY-OF-CLOUDS, AND IN-CLOUD CONDITIONS

(a) By pressure-altitude

Pressure-altitude, kft	N _(TIC=0)	log PD5 Clear air (TIC=0)	N _(CIV)	log PD5 Clear air (CIV)	log PD5 In-cloud
28.5 to 33.5	1 978	0.720 ± 0.064	485	2.943 ± 0.171	6.278 ± 0.252
33.5 to 38.5	6 168	.856 ± .039	1270	3.090 ± .100	5.988 ± .145
38.5 to 43.5	9 061	.464 ± .024	764	2.858 ± .149	5.938 ± .213
28.5 to 43.5	^a 17 207	^b 0.634 ± 0.021	^a 2519	^b 2.988 ± 0.074	^b 6.032 ± 0.109

(b) By distance from tropopause

Distance from tropopause, kft	N _(TIC=0)	log PD5 Clear air (TIC=0)	N _(CIV)	log PD5 Clear air (CIV)	log PD5 In-cloud
10 to 15 below	2 020	0.607 ± 0.061	653	2.671 ± 0.160	6.073 ± 0.234
5 to 10 below	1 659	.996 ± .079	659	3.050 ± .143	5.914 ± .207
0 to 5 below	2 457	1.263 ± .067	626	3.313 ± .121	5.953 ± .177
0 to 5 above	4 985	.621 ± .037	109	3.459 ± .306	5.718 ± .737
15 below to 5 above	^a 11 123	^b 0.816 ± 0.028	^a 2047	^b 3.044 ± 0.080	^b 5.959 ± 0.119

^aTotal.^bAverage.

TABLE X.- VALUES OF LOG-MEAN OF PARTICLE CONCENTRATION PD5, BY LATITUDE AND SEASON, FOR IN-CLEAR-AIR, IN-VICINITY-OF-CLOUD, AND IN-CLOUD CONDITIONS

Latitude band	N _(TIC=0)	log PD5 _{clear air(TIC=0)}	N _(CIV)	log PD5 _{clear air(CIV)}	log PD5 _{In-cloud}
Winter					
30° S	582	0.415 ± 0.093	53	2.047 ± 0.603	6.994 ± 0.915
30° to 0° S	997	.437 ± .073	316	2.587 ± .243	6.446 ± .303
0° to 30° N	1 257	.541 ± .069	156	2.611 ± .353	6.425 ± .397
30° to 60° N	1 716	.365 ± .057	264	2.950 ± .248	6.164 ± .247
60° N	290	.148 ± .029	1		
Global	4 842	.419 ± .033		2.664 ± .151	6.363 ± .173
Spring					
30° S	115	0.097 ± 0.034	20	3.029 ± 1.081	5.674 ± 1.048
30° to 0° S	354	.230 ± .107	164	2.094 ± .379	6.084 ± .666
0° to 30° N	455	.425 ± .119	155	2.558 ± .349	5.707 ± .490
30° to 60° N	2 328	.637 ± .064	240	3.179 ± .218	5.752 ± .294
60° N	41	.786 ± .057	0		
Global	3 293	.547 ± .051	579	2.678 ± .174	5.812 ± .251
Summer					
30° S	0		0		
30° to 0° S	0		0		
0° to 30° N	20	1.646 ± 0.211	2		
30° to 60° N	4 168	1.026 ± .048	601	3.325 ± 0.123	5.953 ± 0.224
60° N	1 580	.553 ± .067	22	3.096 ± .502	5.390 ± 1.866
Global	5 768	.899 ± .039	625	3.306 ± .119	5.957 ± .221
Autumn					
30° S	0		0		
30° to 0° S	0		0		
0° to 30° N	160	0.555 ± 0.191	33	2.782 ± 0.624	6.210 ± 1.120
30° to 60° N	3 130	.675 ± .047	589	3.146 ± .141	5.830 ± .248
60° N	387	.624 ± .040	20	3.544 ± .771	5.647 ± .871
Global	3 677	.664 ± .043	642	3.137 ± .135	5.841 ± .234
Annual					
30° S	697	0.363 ± 0.080	73	2.274 ± 0.520	6.481 ± 0.694
30° to 0° S	1 351	.382 ± .061	480	2.375 ± .207	6.383 ± .288
0° to 30° N	1 892	.526 ± .057	346	2.587 ± .229	6.130 ± .297
30° to 60° N	11 342	.749 ± .024	1694	3.195 ± .081	5.931 ± .125
60° N	2 298	.518 ± .051	43	3.262 ± .400	5.709 ± .745
Global	17 580	.652 ± .021	2636	2.962 ± .073	6.047 ± .107

TABLE XI.- PRELIMINARY ESTIMATES OF CLOUD-ENCOUNTER
STATISTICS ALONG THREE ROUTES

	NOBS			
CODE:	P(TIC > 0%), %	P(TIC ≥ 10%), %		
	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %		

Route	Summer						Latitude/ longitude cell on route (a)	Winter					
	Altitude band, kft							Altitude band, kft					
	28.5 to 33.5		33.5 to 38.5		38.5 to 43.5			28.5 to 33.5		33.5 to 38.5		38.5 to 43.5	
JFK-LHR	No data						50° to 60° N 30° to 75° W	50		89		12	
	0		0		0.8 0.8			20.0	16.0	31.5	27.0	0	0
	0		0		0.8 0.8			6.0	2.0	25.8	22.5	0	0
JKF-LAX	4		14		17		30° to 40° N 75° to 120° W	72		277		262	
	25.0	25.0	50.0	21.4	5.9	5.9		34.7	29.2	23.1	19.1	0.8	0.4
	0	0	7.1	0	0	0		25.0	18.1	17.0	12.3	0.4	0.4
LAX-HNL	7		29		41		20° to 30° N 120° to 165° W	259		869		320	
	0	0	0	0	0	0		20.8	17.0	20.4	15.5	3.8	2.8
	0	0	0	0	0	0		12.7	9.3	10.9	6.8	1.6	0.9

^aSee figure C1.

TABLE XII.- PRELIMINARY ESTIMATES OF CLOUD-ENCOUNTER STATISTICS

ALONG LOS ANGELES-TOKYO ROUTE

	NOBS			
CODE:	P(TIC > 0%), %	P(TIC ≥ 10%), %		
	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %		

Route segment (approximate) and [latitude/longitude cell] (see appendix C) (a)	Summer						Winter					
	Altitude band, kft						Altitude band, kft					
	28.5 to 33.5		33.5 to 38.5		38.5 to 43.5		28.5 to 33.5		33.5 to 38.5		38.5 to 43.5	
LAX - 35° N/120° W [30° to 40° N/75° to 120° W]	4		14		17		72		277		262	
	25.0	25.0	25.0	21.4	5.9	5.9	34.7	29.2	23.1	19.1	0.8	0.4
	0	0	7.1	0	0	0	25.0	18.1	17.0	12.3	0.4	0.4
35° N/120° W to 40° N/125° W [30° to 40° N/120° to 165° W]	30		130		173		267		682		351	
	23.2	16.7	9.2	5.0	6.4	3.5	22.8	17.6	21.3	16.6	4.6	2.0
	6.7	6.7	4.2	1.7	1.2	0	12.0	8.2	13.8	10.3	1.7	0.9
40° N/125° W to 50° N/145° W [40° to 50° N/120° to 165° W]	7		206		317		16		63		29	
	14.3	0	33.5	22.8	14.2	8.2	37.5	25.0	25.4	20.6	3.4	0
	0	0	15.5	5.8	4.4	1.3	12.5	6.3	17.6	4.8	0	0
50° N/145° W to 55° N/165° W [50° to 60° N/120° to 165° W]	No data		113		143		14		43		42	
			18.6	8.8	0	0	0	0	0	0	0	0
			5.3	0.8	0	0	0	0	0	0	0	0
55° N/165° W to 50° N/165° E [50° to 60° N/165° W to 150° E]	No data		111		366		No data		39		85	
			9.9	4.5	2.5	1.1			0	0	0	0
			0.9	0	0.5	0			0	0	0	0
50° N/165° E to 40° N/150° E [40° to 50° N/165° W to 150° E]	No data		352		384		No data		33		40	
			38.6	26.7	9.6	6.0			0	0	0	0
			18.8	12.2	3.9	1.8			0	0	0	0
Composite 3-6 35° N/120° W to 40° N/150° E [40° to 60° N/120° W to 150° E]	Insufficient data		782		1210		Insufficient data		178		196	
			30.3	19.9	7.5	4.4			9.0	7.3	0.5	0
			13.4	7.2	2.6	0.9			6.2	1.7	0	0
40° N/150° E - HND [30° to 40° N/150° to 105° E]	28		117		103		13		20		18	
	28.6	25.0	40.2	29.9	15.5	8.7	0	0	0	0	0	0
	25.0	17.9	23.1	15.4	3.9	2.9	0	0	0	0	0	0

^aSee figure C1.

APPENDIX A

GASP CLOUD AND PARTICLE INSTRUMENTATION

GASP cloud and particle data were obtained with a particle counter (Royco Instruments, Inc., model number 245), which used a forward light-scattering technique to measure the number of airborne particles larger than $0.3 \mu\text{m}$ in diameter. The operation was similar to that of the unit described in reference 23. As the air sample containing particles passed through the sensor, it was illuminated by a light beam, and light scattered by the particles in a forward direction was detected by a photomultiplier tube. Under normal operating conditions, each particle caused a pulse in the photomultiplier output. The particle concentration was determined by counting the number of output pulses during the counting period and then dividing that number by the corresponding sample volume flow during the same period, corrected to altitude-ambient conditions. Particle-counter volumetric flow rate was approximately 30 liters per minute and the counting period was normally 1 minute.

The particle count accumulated during the sampling period was separated (within the instrument) into five particle-diameter ranges - 0.3 to $0.45 \mu\text{m}$, 0.45 to $0.65 \mu\text{m}$, 0.65 to $1.4 \mu\text{m}$, 1.4 to $3.0 \mu\text{m}$, and $>3.0 \mu\text{m}$ - based on the amplitude of the pulse. Each instrument was calibrated by the manufacturer for particle-size detection. An aerosol generator and latex particles were used at NASA Lewis Research Center to check each instrument.

The GASP particle counters had two discrete output signals to indicate proper flight operation. One of these indicated that the light source had remained on during the full counting period, and the second verified that the automatic-gain adjustment was completed prior to each counting cycle. The sample flow rate through the sensing unit was measured with a choked venturi.

During laboratory evaluation of a flight-test prototype of this instrument, it was found that the sample volume was not receiving uniform illumination. This resulted in a substantial ambiguity in the number and sizes of particles counted. (See ref. 24.) A detailed mapping of the sample-volume light field was not made for any of the instruments flown on GASP airliners, nor has any attempt been made to correct or normalize the data. The particle-number density data reported herein are subject to variations between instruments due to differences in sample-volume illumination. These differences may be on the order of 200 percent to 70 percent ($\pm 1/2$ cycle) in particle count. (See refs. 19 to 22.)

APPENDIX B

INDIVIDUAL FLIGHT SUMMARIES

IM/ID/IY - date of departure (month/day/year)

DEP - airport of departure

ARR - airport of arrival

AVFL - average flight altitude, kft

EXHI - highest flight altitude, kft

EXLO - lowest flight altitude, kft

ALAT - average latitude (degrees N, minus is degrees S)

EXTN - northernmost data point

EXTS - southernmost data point

FLT TOT - includes all data on flight

IN CLR - in clear, only observations with time in cloud equal to zero

NOT CLR - only observations with time in cloud greater than zero

NUMBER OF OBSER. - CLD - cloud encounter data not missing
PD5 - cloud encounter data not missing and particle density data present
OZ - cloud encounter data not missing and ozone data present
H2O - cloud encounter data not missing and water vapor data present
H2S - cases where relative humidity equals 100 percent

AVERAGES FOR THE FLIGHT - %TIC - average percent time in cloud per data sample
PATCHES - average number of cloud patches per data sample
PD5 - average particle density, if available
(particles/m³)
OZ - average ozone mixing ratios (parts per billion by volume)
RH - average relative humidity
H2O - average water vapor mixing ratio (parts per million by volume)

TROPO. N - when available, number of observations in the troposphere (see text)

STRATO. N - when available, number of observations in the stratosphere (see text)

Note that the data are grouped into sets prefaced with the registration number (i.e., "tail number") of the aircraft obtaining the data (e.g., N4711U, N655PA, etc.).

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT			TROPO.			STRATO.			
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N	
(N4711U)																			
12/26/75	SFO HNL	322. 30.	350. 37.	225. 22.	FLT TOT:	31	0	31	0	0	4.1	.7	0.	28.	0.	0.	31	0	
					IN CLR:	22	0	22	0	0	0.0	0.0	0.	27.	0.	0.	22	0	
					NOT CLR:	9	0	9	0	0	14.3	2.6	0.	30.	0.	0.	9	0	
12/27/75	HNL ORD	366. 34.	408. 42.	210. 22.	FLT TOT:	53	0	53	0	0	8.8	.8	0.	66.	0.	0.	48	5	
					IN CLR:	37	0	37	0	0	0.0	0.0	0.	72.	0.	0.	32	5	
					NOT CLR:	16	0	16	0	0	29.3	2.7	0.	52.	0.	0.	16	0	
12/27/75	ORD HNL	346. 35.	351. 42.	210. 22.	FLT TOT:	57	0	57	0	0	12.2	1.4	0.	64.	0.	0.	50	7	
					IN CLR:	34	0	34	0	0	0.0	0.0	0.	79.	0.	0.	28	6	
					NOT CLR:	23	0	23	0	0	30.3	3.4	0.	41.	0.	0.	22	1	
12/28/75	HNL SFO	364. 30.	371. 36.	216. 22.	FLT TOT:	29	0	29	0	0	3.7	.2	0.	38.	0.	0.	29	0	
					IN CLR:	26	0	26	0	0	0.0	0.0	0.	38.	0.	0.	26	0	
					NOT CLR:	3	0	3	0	0	35.6	2.0	0.	33.	0.	0.	3	0	
12/29/75	SFO BOS	383. 43.	410. 44.	214. 38.	FLT TOT:	30	0	30	0	0	9.4	.7	0.	153.	0.	0.	13	17	
					IN CLR:	23	0	23	0	0	0.0	0.0	0.	190.	0.	0.	6	17	
					NOT CLR:	7	0	7	0	0	40.2	2.9	0.	31.	0.	0.	7	0	
12/30/75	BOS SFO	369. 41.	390. 43.	218. 38.	FLT TOT:	42	0	42	0	0	2.1	.0	0.	145.	0.	0.	12	11	
					IN CLR:	41	0	41	0	0	0.0	0.0	0.	147.	0.	0.	11	11	
					NOT CLR:	1	0	1	0	0	89.4	1.0	0.	35.	0.	0.	1	0	
12/30/75	SFO HNL	344. 32.	350. 38.	210. 23.	FLT TOT:	31	0	31	0	0	5.9	.5	0.	39.	0.	0.	0	0	
					IN CLR:	25	0	25	0	0	0.0	0.0	0.	38.	0.	0.	0	0	
					NOT CLR:	6	0	6	0	0	30.6	2.8	0.	43.	0.	0.	0	0	
12/31/75	HNL LAX	363. 29.	370. 34.	213. 22.	FLT TOT:	28	0	28	0	0	7.2	.7	0.	47.	0.	0.	0	0	
					IN CLR:	21	0	21	0	0	0.0	0.0	0.	52.	0.	0.	0	0	
					NOT CLR:	7	0	7	0	0	28.8	2.7	0.	33.	0.	0.	0	0	

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.			STRATO.	
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH	H2Ø	N	N
1/24/76	SFO ORD	362. 41.	370. 42.	212. 39.	FLT TØT:	19	0	19	19	0	.2	.2	0.	287.	21.	34.	1	18
					IN CLR:	18	0	18	18	0	0.0	0.0	0.	301.	18.	17.	0	18
					NØT CLR:	1	0	1	1	0	4.3	3.0	0.	45.	78.	341.	1	0
1/26/76	HNL SFO	358. 31.	371. 37.	210. 22.	FLT TØT:	32	0	32	32	0	2.1	.7	0.	40.	31.	41.	32	0
					IN CLR:	28	0	28	28	0	0.0	0.0	0.	39.	28.	36.	28	0
					NØT CLR:	4	0	4	4	0	16.7	5.3	0.	51.	55.	76.	4	0
1/26/76	SFO HNL	343. 30.	351. 37.	217. 22.	FLT TØT:	30	0	30	30	3	3.4	.2	0.	40.	46.	55.	30	0
					IN CLR:	28	0	28	28	1	0.0	0.0	0.	38.	42.	54.	28	0
					NØT CLR:	2	0	2	2	2	51.4	3.5	0.	63.	100.	67.	2	0
1/27/76	HNL LAX	324. 28.	330. 34.	203. 21.	FLT TØT:	34	0	34	34	4	.6	.2	0.	36.	46.	75.	34	0
					IN CLR:	30	0	30	30	0	0.0	0.0	0.	37.	39.	73.	30	0
					NØT CLR:	4	0	4	4	4	5.4	1.5	0.	35.	100.	85.	4	0
1/27/76	LAX HNL	341. 28.	351. 34.	186. 21.	FLT TØT:	34	0	34	34	0	0.0	0.0	0.	52.	33.	54.	34	0
					IN CLR:	34	0	34	34	0	0.0	0.0	0.	52.	33.	54.	34	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/28/76	HNL SFO	359. 30.	371. 37.	210. 22.	FLT TØT:	30	0	30	30	0	1.0	.4	0.	66.	24.	30.	30	0
					IN CLR:	27	0	27	27	0	0.0	0.0	0.	67.	23.	32.	27	0
					NØT CLR:	3	0	3	3	0	9.8	3.7	0.	52.	36.	14.	3	0
1/28/76	SFO ORD	356. 42.	411. 43.	213. 38.	FLT TØT:	27	0	27	24	15	5.0	.5	0.	78.	74.	31.	22	5
					IN CLR:	21	0	21	18	9	0.0	0.0	0.	98.	65.	33.	16	5
					NØT CLR:	6	0	6	6	6	22.5	2.3	0.	10.	100.	25.	6	0
1/29/76	ORD LAS	372. 38.	390. 42.	202. 36.	FLT TØT:	24	0	24	20	20	0.0	0.0	0.	48.	100.	38.	20	4
					IN CLR:	24	0	24	20	20	0.0	0.0	0.	48.	100.	38.	20	4
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/29/76	LAS ORD	360. 40.	410. 42.	211. 37.	FLT TØT:	20	0	20	17	9	.0	.0	0.	83.	73.	44.	14	6
					IN CLR:	19	0	19	16	8	0.0	0.0	0.	85.	72.	46.	13	6
					NØT CLR:	1	0	1	1	1	.8	1.0	0.	37.	100.	24.	1	0
1/30/76	ORD LAX	384. 39.	411. 42.	210. 35.	FLT TØT:	29	0	29	25	2	6.1	.1	0.	285.	29.	36.	3	26
					IN CLR:	26	0	26	23	1	0.0	0.0	0.	308.	27.	37.	1	25
					NØT CLR:	3	0	3	2	1	58.6	.7	0.	90.	60.	27.	2	1
1/31/76	LAX JFK	362. 40.	370. 42.	208. 35.	FLT TØT:	36	0	36	31	21	25.2	.9	0.	157.	79.	34.	21	15
					IN CLR:	21	0	21	18	8	0.0	0.0	0.	246.	64.	43.	6	15
					NØT CLR:	15	0	15	13	13	60.5	2.3	0.	33.	100.	20.	15	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			RH	H2O	TROPO. N	STRATO. N	
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5					OZ
(N655PA)																		
1/22/76	SFØ HND	343. 49.	370. 56.	205. 37.	FLT TOT:	72	0	72	0	0	1.1	.3	0.	338.	0.	0.	15	57
					IN CLR:	67	0	67	0	0	0.0	0.0	0.	362.	0.	0.	10	57
					NOT CLR:	5	0	5	0	0	15.8	3.8	0.	9.	0.	0.	5	0
1/23/76	HND HKG	307. 27.	311. 34.	219. 22.	FLT TOT:	30	0	30	0	0	0.0	0.0	0.	18.	0.	0.	30	0
					IN CLR:	30	0	30	0	0	0.0	0.0	0.	18.	0.	0.	30	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/23/76	HKG BKK	376. 13.	390. 22.	218. 8.	FLT TOT:	24	0	24	0	0	0.0	0.0	0.	10.	0.	0.	24	0
					IN CLR:	24	0	24	0	0	0.0	0.0	0.	10.	0.	0.	24	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/23/76	BKK DEL	337. 22.	351. 28.	212. 15.	FLT TOT:	22	0	22	0	0	7.6	.6	0.	36.	0.	0.	22	0
					IN CLR:	18	0	18	0	0	0.0	0.0	0.	36.	0.	0.	18	0
					NOT CLR:	4	0	4	0	0	41.7	3.5	0.	35.	0.	0.	4	0
1/24/76	DEL THR	343. 30.	350. 34.	216. 28.	FLT TOT:	25	0	25	0	0	24.1	2.2	0.	29.	0.	0.	25	0
					IN CLR:	9	0	9	0	0	0.0	0.0	0.	35.	0.	0.	9	0
					NOT CLR:	16	0	16	0	0	37.6	3.4	0.	25.	0.	0.	16	0
1/24/76	THR IST	297. 38.	310. 41.	215. 36.	FLT TOT:	12	0	12	0	0	0.0	0.0	0.	76.	0.	0.	12	0
					IN CLR:	12	0	12	0	0	0.0	0.0	0.	76.	0.	0.	12	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/24/76	IST FRA	283. 45.	310. 49.	213. 42.	FLT TOT:	15	0	15	0	0	.1	.1	0.	130.	0.	0.	11	4
					IN CLR:	14	0	14	0	0	0.0	0.0	0.	137.	0.	0.	10	4
					NOT CLR:	1	0	1	0	0	.8	1.0	0.	32.	0.	0.	1	0
1/24/76	LHR JFK	349. 53.	370. 57.	211. 41.	FLT TOT:	47	0	47	0	0	11.5	.6	0.	215.	0.	0.	21	26
					IN CLR:	36	0	36	0	0	0.0	0.0	0.	268.	0.	0.	10	26
					NOT CLR:	11	0	11	0	0	49.2	2.4	0.	41.	0.	0.	11	0
1/25/76	JFK LHR	326. 50.	330. 52.	206. 41.	FLT TOT:	36	0	36	0	0	8.9	.8	0.	36.	0.	0.	36	0
					IN CLR:	26	0	26	0	0	0.0	0.0	0.	33.	0.	0.	26	0
					NOT CLR:	10	0	10	0	0	32.1	2.8	0.	41.	0.	0.	10	0
1/26/76	LHR JFK	368. 46.	390. 50.	201. 41.	FLT TOT:	42	0	42	0	0	9.9	.6	0.	78.	0.	0.	42	0
					IN CLR:	31	0	31	0	0	0.0	0.0	0.	83.	0.	0.	31	0
					NOT CLR:	11	0	11	0	0	37.7	2.2	0.	62.	0.	0.	11	0
1/27/76	JFK FCØ	349. 47.	370. 51.	165. 41.	FLT TOT:	52	0	52	0	0	15.6	.6	0.	180.	0.	0.	31	21
					IN CLR:	32	0	32	0	0	0.0	0.0	0.	226.	0.	0.	16	16
					NOT CLR:	20	0	20	0	0	40.7	1.5	0.	108.	0.	0.	15	5

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.		STRATO.		
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N
1/27/76	FCO SNN	387. 49.	390. 52.	353. 43.	FLT TOT:	16	0	16	0	0	0.0	0.0	0.	354.	0.	0.	1	15
					IN CLR:	16	0	16	0	0	0.0	0.0	0.	354.	0.	0.	1	15
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/27/76	SNN JFK	362. 49.	391. 53.	201. 41.	FLT TOT:	44	0	44	0	0	57.4	2.3	0.	116.	0.	0.	37	7
					IN CLR:	12	0	12	0	0	0.0	0.0	0.	329.	0.	0.	5	7
					NOT CLR:	32	0	32	0	0	78.9	3.2	0.	37.	0.	0.	32	0
1/28/76	JFK FCO	359. 48.	390. 52.	208. 41.	FLT TOT:	52	0	52	0	0	44.3	1.4	0.	158.	0.	0.	34	18
					IN CLR:	23	0	23	0	0	0.0	0.0	0.	312.	0.	0.	7	16
					NOT CLR:	29	0	29	0	0	79.5	2.4	0.	36.	0.	0.	27	2
1/28/76	FCO JFK	329. 44.	390. 48.	203. 41.	FLT TOT:	66	0	66	0	0	22.9	1.1	0.	71.	0.	0.	66	0
					IN CLR:	39	0	39	0	0	0.0	0.0	0.	91.	0.	0.	39	0
					NOT CLR:	27	0	27	0	0	56.0	2.6	0.	41.	0.	0.	27	0
1/29/76	JFK LHR	362. 48.	371. 51.	212. 41.	FLT TOT:	43	0	43	0	0	14.4	.5	0.	204.	0.	0.	26	17
					IN CLR:	33	0	33	0	0	0.0	0.0	0.	250.	0.	0.	16	17
					NOT CLR:	10	0	10	0	0	62.0	2.0	0.	54.	0.	0.	10	0
1/30/76	LHR JFK	354. 53.	390. 57.	209. 42.	FLT TOT:	52	0	52	0	0	11.8	.6	0.	283.	0.	0.	25	27
					IN CLR:	40	0	40	0	0	0.0	0.0	0.	354.	0.	0.	13	27
					NOT CLR:	12	0	12	0	0	51.2	2.8	0.	44.	0.	0.	12	0
1/30/76	JFK FRA	341. 51.	370. 54.	209. 41.	FLT TOT:	45	0	45	0	0	15.0	1.6	0.	148.	0.	0.	24	21
					IN CLR:	32	0	32	0	0	0.0	0.0	0.	184.	0.	0.	11	21
					NOT CLR:	13	0	13	0	0	52.1	5.5	0.	60.	0.	0.	13	0
1/31/76	FRA JFK	331. 55.	350. 61.	209. 43.	FLT TOT:	54	0	54	0	0	7.8	.4	0.	253.	0.	0.	24	30
					IN CLR:	46	0	46	0	0	0.0	0.0	0.	289.	0.	0.	16	30
					NOT CLR:	8	0	8	0	0	52.8	2.9	0.	47.	0.	0.	8	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO			STRATO			
						CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ	RH	H20	N	N		
(N4711U)																				
2/	2/76	LAX	HNL	381. 28.	390. 34.	223. 21.	FLT TOT:	41	0	41	36	8	.3	.0	0.	104.	45.	34.	30	11
							IN CLR:	40	0	40	36	8	0.0	0.0	0.	106.	45.	34.	29	11
							NOT CLR:	1	0	1	0	0	12.9	1.0	0.	20.	0.	0.	1	0
2/	2/76	HNL	SFO	358. 30.	370. 37.	218. 22.	FLT TOT:	35	0	35	31	0	0.0	0.0	0.	94.	21.	37.	28	7
							IN CLR:	35	0	35	31	0	0.0	0.0	0.	94.	21.	37.	28	7
							NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/	2/76	SFO	HNL	342. 30.	351. 37.	216. 22.	FLT TOT:	36	0	36	30	15	0.0	0.0	0.	83.	63.	49.	36	0
							IN CLR:	36	0	36	30	15	0.0	0.0	0.	83.	63.	49.	36	0
							NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/	3/76	HNL	LAX	360. 29.	371. 33.	209. 21.	FLT TOT:	37	0	37	31	1	0.0	0.0	0.	92.	19.	21.	29	8
							IN CLR:	37	0	37	31	1	0.0	0.0	0.	92.	19.	21.	29	8
							NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/	3/76	LAX	JFK	355. 40.	370. 42.	200. 34.	FLT TOT:	34	0	34	28	17	1.5	.3	0.	118.	86.	48.	21	13
							IN CLR:	31	0	31	25	15	0.0	0.0	0.	122.	86.	42.	19	12
							NOT CLR:	3	0	3	3	2	16.7	3.7	0.	81.	83.	103.	2	1
2/	4/76	JFK	LAX	368. 37.	390. 40.	211. 34.	FLT TOT:	42	0	42	37	21	1.1	.2	0.	113.	69.	41.	25	17
							IN CLR:	37	0	37	33	17	0.0	0.0	0.	119.	65.	42.	20	17
							NOT CLR:	5	0	5	4	4	9.3	1.4	0.	65.	100.	39.	5	0
2/	5/76	LAX	HNL	341. 28.	350. 34.	199. 20.	FLT TOT:	39	0	39	35	25	13.7	.6	0.	74.	86.	62.	37	2
							IN CLR:	27	0	27	24	14	0.0	0.0	0.	81.	80.	44.	25	2
							NOT CLR:	12	0	12	11	11	44.6	1.9	0.	58.	100.	101.	12	0
2/	5/76	HNL	LAX	361. 28.	371. 34.	209. 21.	FLT TOT:	35	0	35	29	16	10.3	1.3	0.	128.	73.	55.	26	9
							IN CLR:	20	0	20	16	3	0.0	0.0	0.	198.	51.	48.	11	9
							NOT CLR:	15	0	15	13	13	23.9	3.1	0.	35.	100.	63.	15	0
2/	6/76	LAX	DEN	339. 37.	370. 39.	212. 34.	FLT TOT:	12	0	12	9	0	1.7	.1	0.	97.	34.	63.	3	9
							IN CLR:	11	0	11	8	0	0.0	0.0	0.	102.	33.	64.	2	9
							NOT CLR:	1	0	1	1	0	20.0	1.0	0.	39.	39.	56.	1	0
2/	6/76	LAX	HNL	339. 28.	350. 34.	221. 21.	FLT TOT:	33	0	33	28	8	5.7	.3	0.	149.	59.	71.	24	9
							IN CLR:	28	0	28	25	5	0.0	0.0	0.	171.	54.	67.	19	9
							NOT CLR:	5	0	5	3	3	37.6	2.2	0.	27.	100.	107.	5	0
2/	7/76	ITC	ORD	355. 31.	371. 41.	204. 20.	FLT TOT:	61	0	61	0	0	2.2	.3	0.	153.	0.	0.	27	34
							IN CLR:	55	0	55	0	0	0.0	0.0	0.	167.	0.	0.	21	34
							NOT CLR:	6	0	6	0	0	22.0	3.2	0.	23.	0.	0.	6	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O	
(N4711U)																		
2/10/76	SFO HNL	342. 31.	351. 38.	211. 22.	FLT TOT:	34	0	34	0	0	0.0	0.0	0.	34.	0.	0.	34	0
					IN CLR:	34	0	34	0	0	0.0	0.0	0.	34.	0.	0.	34	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/11/76	HNL LAX	322. 28.	330. 34.	202. 21.	FLT TOT:	29	0	29	0	0	0.0	0.0	0.	50.	0.	0.	29	0
					IN CLR:	29	0	29	0	0	0.0	0.0	0.	50.	0.	0.	29	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/11/76	LAX ORD	386. 37.	410. 41.	268. 34.	FLT TOT:	17	0	17	0	0	0.0	0.0	0.	173.	0.	0.	4	13
					IN CLR:	17	0	17	0	0	0.0	0.0	0.	173.	0.	0.	4	13
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/11/76	ORD LAX	376. 39.	390. 42.	217. 35.	FLT TOT:	24	0	24	0	0	0.0	0.0	0.	188.	0.	0.	9	15
					IN CLR:	24	0	24	0	0	0.0	0.0	0.	188.	0.	0.	9	15
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/12/76	LAX ITO	340. 28.	350. 34.	212. 21.	FLT TOT:	26	0	26	0	0	.4	.2	0.	58.	0.	0.	25	1
					IN CLR:	24	0	24	0	0	0.0	0.0	0.	59.	0.	0.	23	1
					NOT CLR:	2	0	2	0	0	5.5	2.0	0.	44.	0.	0.	2	0
2/13/76	ITO LAX	346. 28.	371. 34.	200. 21.	FLT TOT:	28	0	28	0	0	0.0	0.0	0.	55.	0.	0.	25	3
					IN CLR:	28	0	28	0	0	0.0	0.0	0.	55.	0.	0.	25	3
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/13/76	LAX ORD	354. 38.	371. 41.	218. 34.	FLT TOT:	18	0	18	0	0	0.0	0.0	0.	180.	0.	0.	2	16
					IN CLR:	18	0	18	0	0	0.0	0.0	0.	180.	0.	0.	2	16
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/13/76	ORD LAX	382. 39.	390. 42.	290. 35.	FLT TOT:	25	0	25	0	0	0.0	0.0	0.	130.	0.	0.	2	23
					IN CLR:	25	0	25	0	0	0.0	0.0	0.	130.	0.	0.	2	23
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/14/76	LAX ITO	377. 29.	393. 34.	201. 21.	FLT TOT:	29	0	29	0	0	0.0	0.0	0.	187.	0.	0.	20	9
					IN CLR:	29	0	29	0	0	0.0	0.0	0.	187.	0.	0.	20	9
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/15/76	ITO LAX	354. 27.	391. 34.	211. 20.	FLT TOT:	28	0	28	0	0	0.0	0.0	0.	184.	0.	0.	25	3
					IN CLR:	28	0	28	0	0	0.0	0.0	0.	184.	0.	0.	25	3
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/24/76	LAX JFK	380. 39.	410. 42.	214. 34.	FLT TOT:	31	0	31	30	15	.0	.0	0.	152.	87.	74.	5	26
					IN CLR:	30	0	30	29	14	0.0	0.0	0.	157.	87.	75.	4	26
					NOT CLR:	1	0	1	1	1	.4	1.0	0.	0.	100.	43.	1	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLØ EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO. N	STRATO. N				
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5			OZ	RH	H2O	
(N4711U)																		
2/25/76	JFK LAX	374. 39.	390. 41.	208. 34.	FLT TØT:	36	0	36	33	26	.0	.0	0.	180.	96.	45.	14	22
					IN CLR:	35	0	35	32	25	0.0	0.0	0.	184.	96.	46.	13	22
					NØT CLR:	1	0	1	1	1	1.2	1.0	0.	39.	100.	21.	1	0
2/26/76	LAX HNL	380. 29.	390. 34.	215. 21.	FLT TØT:	40	0	40	39	39	20.0	1.4	0.	49.	100.	40.	40	0
					IN CLR:	15	0	15	14	14	0.0	0.0	0.	59.	100.	26.	15	0
					NØT CLR:	25	0	25	25	25	32.0	2.2	0.	44.	100.	48.	25	0
2/26/76	HNL SFO	364. 29.	370. 35.	214. 22.	FLT TØT:	24	0	24	23	23	14.2	2.2	0.	44.	100.	31.	24	0
					IN CLR:	9	0	9	8	8	0.0	0.0	0.	46.	100.	29.	9	0
					NØT CLR:	15	0	15	15	15	22.7	3.5	0.	43.	100.	32.	15	0
2/26/76	SFO HNL	375. 30.	390. 37.	209. 23.	FLT TØT:	30	0	30	30	27	5.2	.8	0.	58.	96.	61.	30	0
					IN CLR:	21	0	21	21	18	0.0	0.0	0.	65.	95.	74.	21	0
					NØT CLR:	9	0	9	9	9	17.2	2.6	0.	43.	100.	32.	9	0
2/27/76	HNL LAX	363. 29.	370. 34.	238. 22.	FLT TØT:	26	0	26	26	26	29.6	2.1	0.	44.	100.	77.	26	0
					IN CLR:	7	0	7	7	7	0.0	0.0	0.	46.	100.	33.	7	0
					NØT CLR:	19	0	19	19	19	40.6	2.8	0.	43.	100.	94.	19	0
2/27/76	LAX ORD	330. 39.	370. 41.	209. 34.	FLT TØT:	21	0	21	21	21	59.7	1.9	0.	39.	100.	137.	21	0
					IN CLR:	2	0	2	2	2	0.0	0.0	0.	19.	100.	584.	2	0
					NØT CLR:	19	0	19	19	19	66.0	2.1	0.	41.	100.	90.	19	0
2/28/76	ORD JFK	331. 42.	370. 42.	212. 41.	FLT TØT:	8	0	8	7	6	6.3	0.0	0.	154.	99.	81.	3	5
					IN CLR:	7	0	7	6	5	0.0	0.0	0.	167.	99.	91.	2	5
					NØT CLR:	1	0	1	1	1	50.6	0.0	0.	66.	100.	20.	1	0
2/28/76	JFK LAX	359. 38.	390. 40.	213. 34.	FLT TØT:	37	0	37	37	31	4.2	.5	0.	75.	97.	64.	37	0
					IN CLR:	28	0	28	28	22	0.0	0.0	0.	79.	96.	75.	28	0
					NØT CLR:	9	0	9	9	9	17.4	2.0	0.	63.	100.	31.	9	0
2/29/76	LAX HNL	342. 28.	350. 34.	211. 21.	FLT TØT:	40	0	40	39	27	25.3	1.5	0.	42.	77.	74.	40	0
					IN CLR:	19	0	19	18	6	0.0	0.0	0.	51.	51.	82.	19	0
					NØT CLR:	21	0	21	21	21	48.2	2.8	0.	34.	100.	67.	21	0
2/29/76	HNL SFO	363. 30.	390. 37.	206. 22.	FLT TØT:	27	0	27	26	14	5.9	.1	0.	150.	78.	116.	13	14
					IN CLR:	25	0	25	24	12	0.0	0.0	0.	156.	76.	114.	11	14
					NØT CLR:	2	0	2	2	2	80.0	1.5	0.	69.	100.	135.	2	0
(N655PA)																		
2/ 1/76	JFK SFO	369. 42.	390. 43.	211. 38.	FLT TØT:	35	0	35	0	0	2.1	.0	0.	201.	0.	0.	15	20
					IN CLR:	33	0	33	0	0	0.0	0.0	0.	212.	0.	0.	13	20
					NØT CLR:	2	0	2	0	0	36.5	.5	0.	20.	0.	0.	2	0

1M/1D/1Y (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT				RH	H2O	TROPO. N	STRATO. N
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5				
2/ 3/76	SFO HNL	345. 30.	350. 37.	209. 22.	FLT TOT: IN CLR: NOT CLR:	33 33 0	0 0 0	33 33 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	75. 75. 0.	0. 0. 0.	0. 0. 0.	33 33 0	0 0 0
2/ 3/76	HNL GUM	347. 16.	351. 21.	210. 13.	FLT TOT: IN CLR: NOT CLR:	54 53 1	0 0 0	54 53 1	0 0 0	1.1 0.0 60.4	.0 0.0 1.0	0. 0. 0.	21. 21. 22.	0. 0. 0.	0. 0. 0.	54 53 1	0 0 0
2/ 3/76	GUM MNL	368. 14.	390. 15.	209. 14.	FLT TOT: IN CLR: NOT CLR:	21 15 6	0 0 0	21 15 6	0 0 0	2.0 0.0 7.1	.6 0.0 2.0	0. 0. 0.	7. 7. 6.	0. 0. 0.	0. 0. 0.	21 15 6	0 0 0
2/ 3/76	MNL HKG	298. 19.	391. 21.	219. 16.	FLT TOT: IN CLR: NOT CLR:	5 5 0	0 0 0	5 5 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	29. 29. 0.	0. 0. 0.	0. 0. 0.	5 5 0	0 0 0
2/ 4/76	HKG MNL	259. 18.	341. 22.	210. 16.	FLT TOT: IN CLR: NOT CLR:	6 6 0	0 0 0	6 6 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	33. 33. 0.	0. 0. 0.	0. 0. 0.	6 6 0	0 0 0
2/ 4/76	MNL GUM	358. 14.	371. 15.	211. 14.	FLT TOT: IN CLR: NOT CLR:	17 13 4	0 0 0	17 13 4	0 0 0	7.0 0.0 29.7	1.0 0.0 4.3	0. 0. 0.	5. 5. 6.	0. 0. 0.	0. 0. 0.	17 13 4	0 0 0
2/ 6/76	LAX HNL	345. 27.	353. 34.	213. 21.	FLT TOT: IN CLR: NOT CLR:	23 14 9	0 0 0	23 14 9	0 0 0	19.8 0.0 50.5	1.6 0.0 4.0	0. 0. 0.	67. 99. 18.	0. 0. 0.	0. 0. 0.	20 11 9	3 3 0
2/ 6/76	HNL PPG	346. 3.	370. 20.	206. -13.	FLT TOT: IN CLR: NOT CLR:	22 17 5	0 0 0	22 17 5	0 0 0	13.4 0.0 59.1	.9 0.0 4.0	0. 0. 0.	7. 7. 8.	0. 0. 0.	0. 0. 0.	11 6 5	0 0 0
2/ 6/76	PPG SYD	377. -27.	390. -18.	206. -34.	FLT TOT: IN CLR: NOT CLR:	21 18 3	0 0 0	21 18 3	0 0 0	6.5 0.0 45.8	.2 0.0 1.3	0. 0. 0.	45. 53. 0.	0. 0. 0.	0. 0. 0.	0 0 0	0 0 0
2/ 7/76	SYD PPG	315. -23.	330. -16.	211. -34.	FLT TOT: IN CLR: NOT CLR:	16 7 9	0 0 0	16 7 9	0 0 0	18.4 0.0 32.8	1.5 0.0 2.7	0. 0. 0.	11. 24. 0.	0. 0. 0.	0. 0. 0.	0 0 0	0 0 0
2/ 7/76	PPG HNL	351. 8.	351. 14.	351. 5.	FLT TOT: IN CLR: NOT CLR:	5 4 1	0 0 0	5 4 1	0 0 0	17.3 0.0 86.7	.8 0.0 4.0	0. 0. 0.	41. 49. 6.	0. 0. 0.	0. 0. 0.	5 4 1	0 0 0

APPENDIX B

IM/ID/IY (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROP0.			STRATO.	
						CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ	RH	H20	N	N
2/ 7/76	HNL LAX	302. 28.	330. 34.	195. 22.	FLT TOT:	10	0	10	0	0	18.1	.5	0.	24.	0.	0.	10	0
					IN CLR:	6	0	6	0	0	0.0	0.0	0.	34.	0.	0.	6	0
					NOT CLR:	4	0	4	0	0	45.2	1.3	0.	9.	0.	0.	4	0
2/ 8/76	LAX HNL	351. 26.	351. 31.	351. 21.	FLT TOT:	23	0	23	0	0	13.8	1.0	0.	17.	0.	0.	23	0
					IN CLR:	15	0	15	0	0	0.0	0.0	0.	19.	0.	0.	15	0
					NOT CLR:	8	0	8	0	0	39.7	3.0	0.	14.	0.	0.	8	0
2/ 9/76	HNL LAX	326. 29.	331. 34.	211. 21.	FLT TOT:	30	0	30	0	0	2.8	.2	0.	54.	0.	0.	30	0
					IN CLR:	28	0	28	0	0	0.0	0.0	0.	57.	0.	0.	28	0
					NOT CLR:	2	0	2	0	0	42.7	3.0	0.	18.	0.	0.	2	0
2/10/76	LAX HNL	345. 28.	351. 34.	212. 21.	FLT TOT:	34	0	34	0	0	.4	.2	0.	73.	0.	0.	30	4
					IN CLR:	32	0	32	0	0	0.0	0.0	0.	76.	0.	0.	28	4
					NOT CLR:	2	0	2	0	0	6.3	3.0	0.	23.	0.	0.	2	0
2/11/76	HNL SFO	324. 30.	330. 37.	214. 22.	FLT TOT:	31	0	31	0	0	2.6	.3	0.	32.	0.	0.	31	0
					IN CLR:	26	0	26	0	0	0.0	0.0	0.	32.	0.	0.	26	0
					NOT CLR:	5	0	5	0	0	16.3	1.8	0.	34.	0.	0.	5	0

IM/ID/IY (N4711U)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N	
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O
3/ 1/76	SFO HNL	343. 30.	350. 37.	210. 22.	FLT TOT:	36	0	36	36	32	13.3	.9	0.	103.	99.	102.	34	2
					IN CLR:	26	0	26	26	22	0.0	0.0	0.	128.	99.	88.	24	2
					NOT CLR:	10	0	10	10	10	47.7	3.1	0.	38.	100.	138.	10	0
3/ 2/76	HNL ORD	329. 35.	335. 42.	204. 22.	FLT TOT:	49	0	49	48	25	14.4	.7	0.	113.	75.	99.	36	13
					IN CLR:	34	0	34	34	11	0.0	0.0	0.	147.	65.	100.	21	13
					NOT CLR:	15	0	15	14	14	47.0	2.3	0.	36.	100.	96.	15	0
3/ 2/76	ORD LAS	379. 41.	391. 42.	216. 39.	FLT TOT:	17	0	17	16	9	26.8	.6	0.	239.	73.	32.	8	9
					IN CLR:	11	0	11	10	3	0.0	0.0	0.	339.	57.	40.	2	9
					NOT CLR:	6	0	6	6	6	76.0	1.8	0.	55.	100.	20.	6	0
3/ 3/76	LAS ORD	354. 40.	390. 42.	212. 37.	FLT TOT:	17	0	17	16	2	3.5	.1	0.	323.	51.	41.	5	12
					IN CLR:	16	0	16	16	2	0.0	0.0	0.	340.	51.	41.	4	12
					NOT CLR:	1	0	1	0	0	60.0	2.0	0.	43.	0.	0.	1	0
3/ 4/76	ORD HNL	347. 36.	390. 43.	204. 22.	FLT TOT:	62	0	62	60	30	10.8	.7	0.	140.	74.	46.	43	19
					IN CLR:	47	0	47	46	16	0.0	0.0	0.	166.	66.	39.	28	19
					NOT CLR:	15	0	15	14	14	44.8	2.9	0.	56.	100.	69.	15	0
3/ 5/76	HNL ORD	343. 35.	370. 42.	204. 22.	FLT TOT:	53	0	53	52	27	5.5	.3	0.	218.	62.	69.	30	23
					IN CLR:	39	0	39	38	13	0.0	0.0	0.	280.	48.	41.	16	23
					NOT CLR:	14	0	14	14	14	20.7	1.2	0.	45.	100.	142.	14	0
3/ 5/76	ORD YYZ	241. 43.	332. 43.	214. 42.	FLT TOT:	14	0	14	3	2	74.2	.4	0.	41.	84.	232.	14	0
					IN CLR:	3	0	3	3	2	0.0	0.0	0.	67.	84.	232.	3	0
					NOT CLR:	11	0	11	0	0	94.4	.5	0.	34.	0.	0.	11	0
3/ 5/76	YYZ ORD	334. 43.	390. 44.	215. 42.	FLT TOT:	5	0	5	5	2	0.0	0.0	0.	212.	56.	208.	3	2
					IN CLR:	5	0	5	5	2	0.0	0.0	0.	212.	56.	208.	3	2
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/ 5/76	ORD HNL	334. 37.	355. 44.	197. 22.	FLT TOT:	59	0	59	59	44	6.9	.7	0.	126.	87.	70.	56	3
					IN CLR:	47	0	47	47	32	0.0	0.0	0.	142.	83.	72.	44	3
					NOT CLR:	12	0	12	12	12	34.2	3.4	0.	62.	100.	60.	12	0
3/ 6/76	HNL LAX	358. 29.	370. 34.	209. 21.	FLT TOT:	30	0	30	30	25	7.4	1.5	0.	82.	97.	73.	30	0
					IN CLR:	21	0	21	21	16	0.0	0.0	0.	108.	95.	84.	21	0
					NOT CLR:	9	0	9	9	9	24.6	4.9	0.	21.	100.	49.	9	0
3/ 6/76	LAX ORD	348. 38.	370. 41.	203. 34.	FLT TOT:	21	0	21	21	5	0.0	0.0	0.	197.	60.	82.	13	8
					IN CLR:	21	0	21	21	5	0.0	0.0	0.	197.	60.	82.	13	8
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL	EXHI	EXLO	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROP0.			STRAT0.		
(N4711U)		ALAT	EXTN	EXTS	CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ	RH	H20	N	N	
3/ 6/76	ORD LAX	388.	411.	215.	FLT TOT:	22	0	22	22	0	0.0	0.0	0.	348.	28.	32.	2	20
		40.	42.	35.	IN CLR:	22	0	22	22	0	0.0	0.0	0.	348.	28.	32.	2	20
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/ 7/76	LAX ITO	382.	390.	214.	FLT TOT:	27	0	27	27	4	0.0	0.0	0.	174.	45.	48.	21	6
		29.	35.	23.	IN CLR:	27	0	27	27	4	0.0	0.0	0.	174.	45.	48.	21	6
(N655PA)					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/18/76	JFK SFO	334.	351.	203.	FLT TOT:	38	0	38	0	0	18.8	1.6	0.	110.	0.	0.	38	0
		40.	41.	38.	IN CLR:	22	0	22	0	0	0.0	0.0	0.	143.	0.	0.	22	0
					NOT CLR:	16	0	16	0	0	44.7	3.7	0.	64.	0.	0.	16	0
3/18/76	SFO HND	356.	390.	202.	FLT TOT:	76	0	76	0	0	0.0	0.0	0.	524.	0.	0.	4	72
		49.	57.	37.	IN CLR:	76	0	76	0	0	0.0	0.0	0.	524.	0.	0.	4	72
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/19/76	HND HKG	308.	311.	221.	FLT TOT:	28	0	28	0	0	0.0	0.0	0.	72.	0.	0.	28	0
		27.	34.	22.	IN CLR:	28	0	28	0	0	0.0	0.0	0.	72.	0.	0.	28	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/19/76	HKG BKK	336.	352.	204.	FLT TOT:	22	0	22	0	0	.6	.2	0.	40.	0.	0.	22	0
		13.	21.	8.	IN CLR:	20	0	20	0	0	0.0	0.0	0.	40.	0.	0.	20	0
					NOT CLR:	2	0	2	0	0	7.1	2.0	0.	33.	0.	0.	2	0
3/19/76	BKK DEL	336.	351.	209.	FLT TOT:	24	0	24	0	0	4.3	.5	0.	58.	0.	0.	24	0
		22.	28.	15.	IN CLR:	20	0	20	0	0	0.0	0.0	0.	59.	0.	0.	20	0
					NOT CLR:	4	0	4	0	0	26.0	2.8	0.	50.	0.	0.	4	0
3/20/76	DEL THR	337.	350.	206.	FLT TOT:	24	0	24	0	0	1.3	.1	0.	171.	0.	0.	24	0
		30.	35.	28.	IN CLR:	23	0	23	0	0	0.0	0.0	0.	176.	0.	0.	23	0
					NOT CLR:	1	0	1	0	0	30.6	2.0	0.	55.	0.	0.	1	0
3/20/76	THR IST	334.	351.	212.	FLT TOT:	16	0	16	0	0	0.0	0.0	0.	290.	0.	0.	8	8
		39.	40.	36.	IN CLR:	16	0	16	0	0	0.0	0.0	0.	290.	0.	0.	8	8
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/20/76	IST FRA	330.	351.	217.	FLT TOT:	16	0	16	0	0	0.0	0.0	0.	262.	0.	0.	4	12
		45.	49.	41.	IN CLR:	16	0	16	0	0	0.0	0.0	0.	262.	0.	0.	4	12
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/20/76	LHR JFK	371.	392.	200.	FLT TOT:	48	0	48	0	0	19.1	.8	0.	376.	0.	0.	27	21
		53.	57.	42.	IN CLR:	35	0	35	0	0	0.0	0.0	0.	486.	0.	0.	14	21
					NOT CLR:	13	0	13	0	0	70.4	3.1	0.	78.	0.	0.	13	0

IM/ID/IY (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N		
					CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø	
3/21/76	JFK LHR	326. 50.	332. 52.	195. 45.	FLT TØT:	36	0	36	0	0	29.5	1.1	0.	142.	0.	0.	36	0
					IN CLR:	18	0	18	0	0	0.0	0.0	0.	208.	0.	0.	18	0
					NØT CLR:	18	0	18	0	0	58.9	2.2	0.	76.	0.	0.	18	0
3/22/76	LHR JFK	369. 46.	390. 51.	209. 41.	FLT TØT:	50	0	50	0	0	12.3	.6	0.	226.	0.	0.	31	19
					IN CLR:	38	0	38	0	0	0.0	0.0	0.	276.	0.	0.	19	19
					NØT CLR:	12	0	12	0	0	51.4	2.3	0.	66.	0.	0.	12	0
3/23/76	JFK LHR	322. 50.	331. 53.	196. 41.	FLT TØT:	38	0	38	0	0	0.0	0.0	0.	174.	0.	0.	38	0
					IN CLR:	38	0	38	0	0	0.0	0.0	0.	174.	0.	0.	38	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/23/76	FRA IST	346. 45.	371. 49.	214. 41.	FLT TØT:	14	0	14	0	0	0.0	0.0	0.	496.	0.	0.	2	12
					IN CLR:	14	0	14	0	0	0.0	0.0	0.	496.	0.	0.	2	12
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/23/76	IST THR	283. 38.	291. 41.	209. 36.	FLT TØT:	16	0	16	0	0	0.0	0.0	0.	82.	0.	0.	16	0
					IN CLR:	16	0	16	0	0	0.0	0.0	0.	82.	0.	0.	16	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/23/76	THR DEL	363. 30.	372. 35.	221. 28.	FLT TØT:	21	0	21	0	0	.0	.0	0.	102.	0.	0.	21	0
					IN CLR:	20	0	20	0	0	0.0	0.0	0.	102.	0.	0.	20	0
					NØT CLR:	1	0	1	0	0	.4	1.0	0.	116.	0.	0.	1	0
3/24/76	DEL BKK	360. 21.	371. 28.	219. 15.	FLT TØT:	21	0	21	0	0	.3	.6	0.	73.	0.	0.	21	0
					IN CLR:	20	0	20	0	0	0.0	0.0	0.	72.	0.	0.	20	0
					NØT CLR:	1	0	1	0	0	5.9	12.0	0.	97.	0.	0.	1	0
3/24/76	BKK HKG	327. 13.	331. 21.	251. 8.	FLT TØT:	19	0	19	0	0	.3	.5	0.	49.	0.	0.	19	0
					IN CLR:	17	0	17	0	0	0.0	0.0	0.	50.	0.	0.	17	0
					NØT CLR:	2	0	2	0	0	2.5	5.0	0.	48.	0.	0.	2	0
3/25/76	HKG HND	351. 28.	371. 35.	213. 21.	FLT TØT:	22	0	22	0	0	0.0	0.0	0.	98.	0.	0.	20	2
					IN CLR:	22	0	22	0	0	0.0	0.0	0.	98.	0.	0.	20	2
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/25/76	HND SFØ	355. 41.	371. 44.	208. 35.	FLT TØT:	56	0	56	0	0	4.6	.6	0.	309.	0.	0.	25	31
					IN CLR:	45	0	45	0	0	0.0	0.0	0.	332.	0.	0.	17	28
					NØT CLR:	11	0	11	0	0	23.2	3.1	0.	213.	0.	0.	8	3
(N4711U)																		
3/30/76	HNL ORD	335. 36.	370. 42.	203. 22.	FLT TØT:	50	0	50	50	35	5.1	1.0	0.	253.	75.	93.	33	17
					IN CLR:	36	0	36	36	21	0.0	0.0	0.	319.	65.	73.	19	17
					NØT CLR:	14	0	14	14	14	18.1	3.4	0.	84.	100.	144.	14	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPØ.			STRATØ.	
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH	H2Ø	N	N
(N4711U)																		
3/30/76	ORD LAS	372. 40.	390. 42.	227. 37.	FLT TOT:	19	0	19	19	2	.6	.1	0.	556.	20.	45.	3	16
					IN CLR:	18	0	18	18	1	0.0	0.0	0.	583.	15.	39.	2	16
					NOT CLR:	1	0	1	1	1	10.6	2.0	0.	65.	100.	160.	1	0
3/30/76	LAS ORD	381. 39.	410. 41.	224. 37.	FLT TOT:	18	0	18	18	6	0.0	0.0	0.	493.	45.	69.	3	15
					IN CLR:	18	0	18	18	6	0.0	0.0	0.	493.	45.	69.	3	15
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/31/76	ORD HNL	343. 40.	351. 42.	205. 37.	FLT TOT:	28	0	28	27	13	.1	.0	0.	226.	68.	42.	15	13
					IN CLR:	27	0	27	26	12	0.0	0.0	0.	232.	67.	42.	14	13
					NOT CLR:	1	0	1	1	1	2.7	1.0	0.	80.	100.	42.	1	0
(N655PA)																		
3/25/76	SFO SEA	371. 43.	391. 47.	231. 39.	FLT TOT:	9	0	9	0	0	0.0	0.0	0.	307.	0.	0.	2	7
					IN CLR:	9	0	9	0	0	0.0	0.0	0.	307.	0.	0.	2	7
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/25/76	SEA LHR	343. 60.	371. 64.	223. 50.	FLT TOT:	53	0	53	0	0	.3	.1	0.	398.	0.	0.	7	46
					IN CLR:	47	0	47	0	0	0.0	0.0	0.	405.	0.	0.	6	41
					NOT CLR:	6	0	6	0	0	2.6	1.0	0.	347.	0.	0.	1	5
3/26/76	LHR SEA	343. 65.	391. 76.	224. 48.	FLT TOT:	65	0	65	0	0	.1	.1	0.	430.	0.	0.	32	33
					IN CLR:	60	0	60	0	0	0.0	0.0	0.	427.	0.	0.	29	31
					NOT CLR:	5	0	5	0	0	.9	1.8	0.	466.	0.	0.	3	2
3/27/76	SEA SFO	371. 41.	372. 44.	371. 39.	FLT TOT:	6	0	6	0	0	0.0	0.0	0.	643.	0.	0.	0	6
					IN CLR:	6	0	6	0	0	0.0	0.0	0.	643.	0.	0.	0	6
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/28/76	SFO HNL	343. 29.	351. 37.	250. 22.	FLT TOT:	30	0	30	0	0	1.1	.3	0.	95.	0.	0.	30	0
					IN CLR:	26	0	26	0	0	0.0	0.0	0.	99.	0.	0.	26	0
					NOT CLR:	4	0	4	0	0	8.3	2.5	0.	71.	0.	0.	4	0
3/28/76	HNL GUM	344. 16.	351. 20.	296. 13.	FLT TOT:	52	0	52	0	0	.0	.0	0.	70.	0.	0.	52	0
					IN CLR:	51	0	51	0	0	0.0	0.0	0.	71.	0.	0.	51	0
					NOT CLR:	1	0	1	0	0	.4	1.0	0.	27.	0.	0.	1	0
3/28/76	GUM MNL	346. 14.	350. 15.	298. 14.	FLT TOT:	14	0	14	0	0	.2	.3	0.	24.	0.	0.	14	0
					IN CLR:	10	0	10	0	0	0.0	0.0	0.	24.	0.	0.	10	0
					NOT CLR:	4	0	4	0	0	.7	1.0	0.	26.	0.	0.	4	0
3/28/76	MNL HKG	381. 19.	391. 21.	340. 17.	FLT TOT:	8	0	8	0	0	.3	.6	0.	27.	0.	0.	8	0
					IN CLR:	6	0	6	0	0	0.0	0.0	0.	28.	0.	0.	6	0
					NOT CLR:	2	0	2	0	0	1.4	2.5	0.	25.	0.	0.	2	0

IM/1D/1Y (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N	
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø
3/29/76	HKG MNL	355. 18.	371. 21.	293. 16.	FLT TØT:	7	0	7	0	0	.1	.1	0.	33.	0.	0.	7	0
					IN CLR:	6	0	6	0	0	0.0	0.0	0.	29.	0.	0.	6	0
					NØT CLR:	1	0	1	0	0	.4	1.0	0.	58.	0.	0.	1	0
3/29/76	GUM HNL	353. 19.	390. 21.	261. 14.	FLT TØT:	36	0	36	0	0	.1	.2	0.	52.	0.	0.	36	0
					IN CLR:	30	0	30	0	0	0.0	0.0	0.	53.	0.	0.	30	0
					NØT CLR:	6	0	6	0	0	.4	1.0	0.	48.	0.	0.	6	0
3/30/76	HNL SEA	366. 36.	371. 47.	222. 25.	FLT TØT:	31	0	31	0	0	.1	.2	0.	296.	0.	0.	31	0
					IN CLR:	25	0	25	0	0	0.0	0.0	0.	329.	0.	0.	25	0
					NØT CLR:	6	0	6	0	0	.7	1.2	0.	161.	0.	0.	6	0
3/30/76	SEA HNL	381. 32.	390. 44.	212. 21.	FLT TØT:	32	0	32	0	0	3.0	.1	0.	143.	0.	0.	20	12
					IN CLR:	29	0	29	0	0	0.0	0.0	0.	150.	0.	0.	19	10
					NØT CLR:	3	0	3	0	0	32.4	1.0	0.	76.	0.	0.	1	2
3/31/76	HNL SEA	338. 39.	351. 46.	331. 29.	FLT TØT:	27	0	27	0	0	.7	.8	0.	91.	0.	0.	17	10
					IN CLR:	23	0	23	0	0	0.0	0.0	0.	95.	0.	0.	13	10
					NØT CLR:	4	0	4	0	0	4.8	5.3	0.	69.	0.	0.	4	0
3/31/76	SEA HNL	349. 34.	352. 46.	320. 22.	FLT TØT:	24	0	24	0	0	.1	.1	0.	108.	0.	0.	18	6
					IN CLR:	22	0	22	0	0	0.0	0.0	0.	109.	0.	0.	18	4
					NØT CLR:	2	0	2	0	0	1.0	1.5	0.	102.	0.	0.	0	2

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.		STRATO.			
					CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH	H2Ø	N	N	
(N4711U)																		
4/ 1/76	HNL ORD	344.	370.	205.	FLT TØT:	58	0	58	0	0	.0	.0	0.	156.	0.	0.	37	21
		35.	42.	22.	IN CLR:	56	0	56	0	0	0.0	0.0	0.	159.	0.	0.	35	21
					NØT CLR:	2	0	2	0	0	.6	1.0	0.	81.	0.	0.	2	0
4/ 1/76	ORD SFØ	342.	351.	210.	FLT TØT:	28	0	28	0	0	1.6	.2	0.	150.	0.	0.	20	8
		41.	43.	36.	IN CLR:	26	0	26	0	0	0.0	0.0	0.	156.	0.	0.	18	8
					NØT CLR:	2	0	2	0	0	22.0	3.0	0.	79.	0.	0.	2	0
4/ 2/76	SFØ HNL	371.	390.	215.	FLT TØT:	34	0	34	33	23	4.4	.2	0.	187.	90.	52.	34	0
		30.	37.	22.	IN CLR:	28	0	28	27	17	0.0	0.0	0.	203.	88.	60.	28	0
					NØT CLR:	6	0	6	6	6	24.8	1.3	0.	109.	100.	15.	6	0
4/ 3/76	HNL LAX	363.	370.	213.	FLT TØT:	28	0	28	25	20	.1	.1	0.	139.	93.	33.	28	0
		27.	33.	21.	IN CLR:	27	0	27	24	19	0.0	0.0	0.	141.	93.	33.	27	0
					NØT CLR:	1	0	1	1	1	2.7	2.0	0.	88.	100.	24.	1	0
4/ 7/76	ORD HNL	341.	351.	213.	FLT TØT:	56	0	56	0	0	4.1	.4	0.	193.	0.	0.	49	7
		39.	45.	26.	IN CLR:	46	0	46	0	0	0.0	0.0	0.	219.	0.	0.	39	7
					NØT CLR:	10	0	10	0	0	23.2	2.0	0.	70.	0.	0.	10	0
4/ 8/76	HNL LAX	359.	370.	211.	FLT TØT:	29	0	29	28	27	2.2	.4	0.	79.	100.	70.	29	0
		29.	34.	22.	IN CLR:	24	0	24	23	22	0.0	0.0	0.	89.	100.	55.	24	0
					NØT CLR:	5	0	5	5	5	12.8	2.6	0.	32.	100.	136.	5	0
4/ 9/76	LAX DEN	345.	371.	214.	FLT TØT:	8	0	8	8	4	0.0	0.0	0.	97.	89.	163.	8	0
		37.	39.	35.	IN CLR:	8	0	8	8	4	0.0	0.0	0.	97.	89.	163.	8	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
4/ 9/76	DEN LAX	364.	389.	216.	FLT TØT:	9	0	9	9	2	1.2	.1	0.	159.	94.	158.	9	0
		37.	40.	35.	IN CLR:	8	0	8	8	1	0.0	0.0	0.	170.	94.	170.	8	0
					NØT CLR:	1	0	1	1	1	11.0	1.0	0.	78.	100.	59.	1	0
4/ 9/76	LAX HNL	307.	310.	205.	FLT TØT:	34	0	34	33	29	11.7	1.3	0.	66.	95.	235.	34	0
		28.	34.	21.	IN CLR:	19	0	19	19	15	0.0	0.0	0.	76.	92.	174.	19	0
					NØT CLR:	15	0	15	14	14	26.5	3.0	0.	55.	100.	318.	15	0
4/10/76	HNL ORD	350.	390.	206.	FLT TØT:	52	0	52	51	14	1.2	.0	0.	179.	78.	94.	42	10
		35.	42.	22.	IN CLR:	51	0	51	50	13	0.0	0.0	0.	182.	78.	91.	41	10
					NØT CLR:	1	0	1	1	1	61.6	2.0	0.	51.	100.	272.	1	0
4/10/76	ORD HNL	314.	350.	205.	FLT TØT:	17	0	17	17	8	1.2	.4	0.	124.	90.	170.	17	0
		44.	45.	42.	IN CLR:	15	0	15	15	6	0.0	0.0	0.	131.	89.	165.	15	0
					NØT CLR:	2	0	2	2	2	10.0	3.0	0.	75.	100.	205.	2	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPØ. N	STRATØ. N			
					CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ			RH	H2Ø	
(N4711U)																		
4/11/76	SFØ HNL	349. 30.	350. 37.	317. 22.	FLT TØT:	29	0	29	29	22	23.0	.8	0.	95.	95.	74.	27	2
					IN CLR:	15	0	15	15	8	0.0	0.0	0.	123.	90.	70.	13	2
					NOT CLR:	14	0	14	14	14	47.6	1.6	0.	65.	100.	78.	14	0
4/12/76	HNL ØRD	370. 40.	390. 42.	222. 34.	FLT TØT:	28	0	28	27	13	0.0	0.0	0.	246.	74.	59.	8	20
					IN CLR:	28	0	28	27	13	0.0	0.0	0.	246.	74.	59.	8	20
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
4/12/76	ØRD LAS	377. 41.	390. 42.	220. 39.	FLT TØT:	15	0	15	15	10	0.0	0.0	0.	252.	93.	54.	12	3
					IN CLR:	15	0	15	15	10	0.0	0.0	0.	252.	93.	54.	12	3
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
4/13/76	ØRD HNL	316. 42.	351. 42.	207. 40.	FLT TØT:	17	0	17	17	10	19.0	1.4	0.	179.	80.	135.	14	3
					IN CLR:	10	0	10	10	3	0.0	0.0	0.	241.	66.	142.	7	3
					NOT CLR:	7	0	7	7	7	46.2	3.4	0.	91.	100.	127.	7	0
4/14/76	HNL ØRD	323. 27.	330. 32.	204. 22.	FLT TØT:	27	0	27	26	16	1.7	.5	0.	68.	84.	185.	27	0
					IN CLR:	21	0	21	20	10	0.0	0.0	0.	71.	80.	180.	21	0
					NOT CLR:	6	0	6	6	6	7.8	2.2	0.	57.	100.	203.	6	0
4/14/76	ØRD SFØ	380. 41.	390. 42.	217. 38.	FLT TØT:	25	0	25	25	11	15.7	.9	0.	335.	61.	78.	12	13
					IN CLR:	19	0	19	19	6	0.0	0.0	0.	399.	50.	93.	6	13
					NOT CLR:	6	0	6	6	5	65.4	3.8	0.	133.	95.	30.	6	0
4/15/76	SFØ ØRD	359. 41.	390. 42.	214. 38.	FLT TØT:	20	0	20	20	1	9.5	.6	0.	360.	36.	68.	10	10
					IN CLR:	15	0	15	15	0	0.0	0.0	0.	455.	22.	27.	5	10
					NOT CLR:	5	0	5	5	1	38.1	2.2	0.	77.	81.	189.	5	0
4/17/76	SFØ HNL	363. 30.	390. 37.	211. 22.	FLT TØT:	30	0	30	4	4	0.0	0.0	0.	36.	100.	424.	30	0
					IN CLR:	30	0	30	4	4	0.0	0.0	0.	36.	100.	424.	30	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
4/17/76	HNL LAX	359. 29.	370. 34.	205. 21.	FLT TØT:	29	0	29	0	0	11.9	.1	0.	81.	0.	0.	29	0
					IN CLR:	23	0	23	0	0	0.0	0.0	0.	78.	0.	0.	23	0
					NOT CLR:	6	0	6	0	0	57.5	.7	0.	93.	0.	0.	6	0
4/18/76	LAX DEN	346. 36.	370. 38.	216. 34.	FLT TØT:	7	0	7	0	0	0.0	0.0	0.	194.	0.	0.	5	2
					IN CLR:	7	0	7	0	0	0.0	0.0	0.	194.	0.	0.	5	2
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
4/18/76	LAX HNL	343. 28.	350. 34.	213. 21.	FLT TØT:	34	0	34	0	0	7.6	.9	0.	84.	0.	0.	34	0
					IN CLR:	23	0	23	0	0	0.0	0.0	0.	85.	0.	0.	23	0
					NOT CLR:	11	0	11	0	0	23.5	2.9	0.	83.	0.	0.	11	0

APPENDIX B

IM/ID/IY (N4711U)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N		
					CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø	
4/19/76	HNL ORD	335. 31.	370. 39.	210. 22.	FLT TØT:	37	0	37	36	28	1.3	.1	0.	104.	92.	160.	35	2
					IN CLR:	33	0	33	32	24	0.0	0.0	0.	108.	91.	161.	31	2
					NØT CLR:	4	0	4	4	4	12.1	1.0	0.	72.	100.	152.	4	0
4/20/76	HNL ORD	340. 32.	370. 40.	208. 22.	FLT TØT:	40	0	40	40	35	1.3	.2	0.	85.	97.	147.	40	0
					IN CLR:	34	0	34	34	29	0.0	0.0	0.	84.	96.	147.	34	0
					NØT CLR:	6	0	6	6	6	8.7	1.5	0.	89.	100.	152.	6	0
4/20/76	ORD LAS	373. 40.	390. 42.	210. 37.	FLT TØT:	20	0	20	20	4	5.5	.4	0.	278.	55.	145.	7	13
					IN CLR:	18	0	18	18	2	0.0	0.0	0.	293.	50.	159.	5	13
					NØT CLR:	2	0	2	2	2	55.1	3.5	0.	146.	100.	23.	2	0
4/20/76	LAS ORD	354. 40.	370. 42.	213. 37.	FLT TØT:	19	0	19	19	8	21.7	.4	0.	141.	88.	159.	19	0
					IN CLR:	13	0	13	13	2	0.0	0.0	0.	158.	83.	121.	13	0
					NØT CLR:	6	0	6	6	6	68.8	1.3	0.	106.	100.	244.	6	0
4/21/76	ORD HNL	364. 41.	391. 43.	206. 35.	FLT TØT:	43	0	43	42	22	9.6	.8	0.	228.	73.	35.	32	11
					IN CLR:	30	0	30	29	9	0.0	0.0	0.	285.	61.	31.	20	10
					NØT CLR:	13	0	13	13	13	31.9	2.6	0.	98.	100.	46.	12	1
4/22/76	HNL SFØ	359. 32.	370. 37.	210. 22.	FLT TØT:	33	0	33	33	24	1.7	.2	0.	102.	91.	88.	33	0
					IN CLR:	27	0	27	27	18	0.0	0.0	0.	100.	89.	95.	27	0
					NØT CLR:	6	0	6	6	6	9.4	1.3	0.	110.	100.	52.	6	0
4/23/76	SFØ HNL	364. 30.	390. 37.	217. 22.	FLT TØT:	31	0	31	31	14	.1	.1	0.	98.	81.	76.	31	0
					IN CLR:	29	0	29	29	12	0.0	0.0	0.	99.	80.	76.	29	0
					NØT CLR:	2	0	2	2	2	1.8	1.5	0.	85.	100.	85.	2	0
4/23/76	HNL SFØ	357. 27.	370. 32.	205. 22.	FLT TØT:	18	0	18	18	13	1.5	.6	0.	108.	89.	69.	18	0
					IN CLR:	16	0	16	16	11	0.0	0.0	0.	108.	87.	72.	16	0
					NØT CLR:	2	0	2	2	2	13.7	5.0	0.	110.	100.	49.	2	0
4/25/76	HNL DTW	326. 38.	370. 42.	194. 29.	FLT TØT:	42	0	42	0	0	2.0	.3	0.	147.	0.	0.	37	5
					IN CLR:	39	0	39	0	0	0.0	0.0	0.	153.	0.	0.	34	5
					NØT CLR:	3	0	3	0	0	28.0	4.3	0.	72.	0.	0.	3	0
4/26/76	ORD HNL	341. 35.	351. 43.	187. 22.	FLT TØT:	60	0	60	60	8	5.7	.4	0.	220.	57.	57.	53	7
					IN CLR:	50	0	50	50	1	0.0	0.0	0.	247.	49.	51.	43	7
					NØT CLR:	10	0	10	10	7	34.3	2.2	0.	87.	98.	85.	10	0
4/27/76	HNL SFØ	359. 30.	370. 37.	211. 22.	FLT TØT:	29	0	29	28	13	0.0	0.0	0.	134.	86.	61.	29	0
					IN CLR:	29	0	29	28	13	0.0	0.0	0.	134.	86.	61.	29	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N	
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø
(N4711U)																		
4/28/76	SFO ORD	368.	410.	204.	FLT TØT:	22	0	22	22	14	8.4	.4	0.	156.	90.	78.	14	8
		41.	42.	38.	IN CLR:	17	0	17	17	9	0.0	0.0	0.	170.	88.	91.	9	8
					NØT CLR:	5	0	5	5	5	37.1	1.6	0.	108.	100.	33.	5	0
4/28/76	ORD SEA	382.	390.	217.	FLT TØT:	25	0	25	25	6	0.0	0.0	0.	457.	50.	31.	9	16
		46.	48.	42.	IN CLR:	25	0	25	25	6	0.0	0.0	0.	457.	50.	31.	9	16
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
4/29/76	SEA ORD	380.	410.	201.	FLT TØT:	21	0	21	21	3	0.0	0.0	0.	498.	38.	67.	5	16
		45.	47.	43.	IN CLR:	21	0	21	21	3	0.0	0.0	0.	498.	38.	67.	5	16
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
4/29/76	ORD LAX	367.	390.	216.	FLT TØT:	9	0	9	9	8	0.0	0.0	0.	183.	95.	77.	9	0
		40.	42.	39.	IN CLR:	9	0	9	9	8	0.0	0.0	0.	183.	95.	77.	9	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
(N655PA)																		
4/ 1/76	HNL SEA	312.	334.	290.	FLT TØT:	33	0	33	0	0	.5	.4	0.	134.	0.	0.	33	0
		35.	46.	23.	IN CLR:	25	0	25	0	0	0.0	0.0	0.	140.	0.	0.	25	0
					NØT CLR:	8	0	8	0	0	2.2	1.8	0.	114.	0.	0.	8	0
4/ 1/76	SEA HNL	327.	337.	305.	FLT TØT:	35	0	35	0	0	.0	.1	0.	141.	0.	0.	35	0
		36.	46.	22.	IN CLR:	32	0	32	0	0	0.0	0.0	0.	137.	0.	0.	32	0
					NØT CLR:	3	0	3	0	0	.4	1.0	0.	185.	0.	0.	3	0
4/ 2/76	HNL SEA	290.	292.	285.	FLT TØT:	34	0	34	0	0	3.6	.8	0.	88.	0.	0.	34	0
		36.	46.	23.	IN CLR:	24	0	24	0	0	0.0	0.0	0.	96.	0.	0.	24	0
					NØT CLR:	10	0	10	0	0	12.3	2.7	0.	68.	0.	0.	10	0
4/ 2/76	SEA HNL	378.	390.	291.	FLT TØT:	35	0	35	0	0	.6	0.0	0.	134.	0.	0.	27	8
		34.	46.	22.	IN CLR:	34	0	34	0	0	0.0	0.0	0.	135.	0.	0.	27	7
					NØT CLR:	1	0	1	0	0	22.4	0.0	0.	83.	0.	0.	0	1
4/ 3/76	HNL SEA	361.	371.	209.	FLT TØT:	32	0	32	0	0	2.3	.2	0.	93.	0.	0.	24	8
		37.	47.	23.	IN CLR:	27	0	27	0	0	0.0	0.0	0.	95.	0.	0.	19	8
					NØT CLR:	5	0	5	0	0	14.4	1.4	0.	86.	0.	0.	5	0
4/ 3/76	SEA HNL	372.	393.	196.	FLT TØT:	36	0	36	0	0	.0	.1	0.	273.	0.	0.	32	4
		35.	46.	22.	IN CLR:	35	0	35	0	0	0.0	0.0	0.	275.	0.	0.	31	4
					NØT CLR:	1	0	1	0	0	.8	2.0	0.	181.	0.	0.	1	0
4/ 4/76	HNL LAX	387.	392.	316.	FLT TØT:	27	0	27	0	0	.0	.1	0.	202.	0.	0.	22	5
		26.	32.	20.	IN CLR:	25	0	25	0	0	0.0	0.0	0.	197.	0.	0.	20	5
					NØT CLR:	2	0	2	0	0	.4	1.0	0.	266.	0.	0.	2	0

APPENDIX B

IM/1D/1Y	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			RH	H2O	TROPO. N	STRATO. N		
					CLD	PD5	0Z	H20	H2S	%TIC	PATCHES	PD5					0Z	
(N655PA)																		
4/ 5/76	LAX HNL	388. 28.	392. 34.	333. 21.	FLT TOT:	36	0	36	0	0	.0	.1	0.	190.	0.	0.	32	4
					IN CLR:	34	0	34	0	0	0.0	0.0	0.	191.	0.	0.	30	4
					NOT CLR:	2	0	2	0	0	.4	1.0	0.	165.	0.	0.	2	0
4/ 7/76	LAX GUA	332. 23.	371. 33.	203. 15.	FLT TOT:	25	0	25	0	0	8.9	.7	0.	55.	0.	0.	25	0
					IN CLR:	17	0	17	0	0	0.0	0.0	0.	60.	0.	0.	17	0
					NOT CLR:	8	0	8	0	0	27.8	2.1	0.	45.	0.	0.	8	0
4/ 8/76	GUA CCS	354. 12.	374. 14.	210. 11.	FLT TOT:	16	0	16	0	0	.5	.6	0.	48.	0.	0.	16	0
					IN CLR:	15	0	15	0	0	0.0	0.0	0.	45.	0.	0.	15	0
					NOT CLR:	1	0	1	0	0	7.5	9.0	0.	93.	0.	0.	1	0
4/ 8/76	CCS GIG	360. -6.	371. 10.	207. -22.	FLT TOT:	36	0	36	0	0	2.0	.3	0.	35.	0.	0.	11	0
					IN CLR:	32	0	32	0	0	0.0	0.0	0.	35.	0.	0.	11	0
					NOT CLR:	4	0	4	0	0	18.2	3.0	0.	39.	0.	0.	0	0
4/10/76	GIG JFK	325. 7.	350. 39.	204. -22.	FLT TOT:	55	0	55	0	0	7.6	.9	0.	73.	0.	0.	29	2
					IN CLR:	43	0	43	0	0	0.0	0.0	0.	81.	0.	0.	26	1
					NOT CLR:	12	0	12	0	0	34.7	4.0	0.	46.	0.	0.	3	1
4/10/76	JFK LHR	336. 49.	371. 52.	202. 41.	FLT TOT:	40	0	40	0	0	6.9	.3	0.	147.	0.	0.	40	0
					IN CLR:	37	0	37	0	0	0.0	0.0	0.	149.	0.	0.	37	0
					NOT CLR:	3	0	3	0	0	91.5	3.7	0.	113.	0.	0.	3	0
4/11/76	LHR JFK	342. 52.	390. 56.	201. 41.	FLT TOT:	49	0	49	0	0	7.1	.4	0.	266.	0.	0.	27	22
					IN CLR:	42	0	42	0	0	0.0	0.0	0.	297.	0.	0.	20	22
					NOT CLR:	7	0	7	0	0	50.0	2.9	0.	83.	0.	0.	7	0
4/12/76	JFK FCO	306. 47.	370. 51.	203. 41.	FLT TOT:	49	0	49	0	0	1.0	.3	0.	172.	0.	0.	38	11
					IN CLR:	44	0	44	0	0	0.0	0.0	0.	179.	0.	0.	33	11
					NOT CLR:	5	0	5	0	0	9.6	3.2	0.	114.	0.	0.	5	0
4/12/76	FCO JFK	361. 45.	390. 46.	194. 41.	FLT TOT:	56	0	56	0	0	.1	.1	0.	223.	0.	0.	41	15
					IN CLR:	52	0	52	0	0	0.0	0.0	0.	215.	0.	0.	39	13
					NOT CLR:	4	0	4	0	0	1.3	1.3	0.	328.	0.	0.	2	2
4/12/76	JFK FRA	331. 50.	341. 52.	207. 41.	FLT TOT:	45	0	45	0	0	.1	.1	0.	232.	0.	0.	38	7
					IN CLR:	40	0	40	0	0	0.0	0.0	0.	221.	0.	0.	34	6
					NOT CLR:	5	0	5	0	0	1.1	1.2	0.	314.	0.	0.	4	1
4/13/76	FRA JFK	367. 52.	391. 55.	218. 42.	FLT TOT:	54	0	54	0	0	1.6	.6	0.	405.	0.	0.	10	44
					IN CLR:	46	0	46	0	0	0.0	0.0	0.	432.	0.	0.	5	41
					NOT CLR:	8	0	8	0	0	10.6	3.8	0.	255.	0.	0.	5	3

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT				TROPO.		STRATO.		
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N
(N655PA)																		
4/14/76	JFK FRA	334.	371.	209.	FLT TOT:	44	0	44	0	0	0.0	0.0	0.	252.	0.	0.	21	23
		50.	53.	41.	IN CLR:	44	0	44	0	0	0.0	0.0	0.	252.	0.	0.	21	23
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
4/14/76	FRA JFK	373.	410.	296.	FLT TOT:	54	0	54	0	0	.0	.1	0.	488.	0.	0.	9	45
		56.	59.	43.	IN CLR:	53	0	53	0	0	0.0	0.0	0.	487.	0.	0.	9	44
					NOT CLR:	1	0	1	0	0	2.0	3.0	0.	553.	0.	0.	0	1
4/15/76	JFK FRA	345.	371.	205.	FLT TOT:	45	0	45	0	0	3.8	.4	0.	192.	0.	0.	35	10
		50.	53.	41.	IN CLR:	39	0	39	0	0	0.0	0.0	0.	198.	0.	0.	30	9
					NOT CLR:	6	0	6	0	0	28.4	3.0	0.	158.	0.	0.	5	1
4/16/76	FRA JFK	354.	371.	210.	FLT TOT:	44	0	44	0	0	.0	.0	0.	319.	0.	0.	26	18
		50.	53.	42.	IN CLR:	43	0	43	0	0	0.0	0.0	0.	313.	0.	0.	26	17
					NOT CLR:	1	0	1	0	0	.8	2.0	0.	564.	0.	0.	0	1
4/16/76	JFK FRA	333.	371.	279.	FLT TOT:	47	0	47	0	0	2.7	.2	0.	146.	0.	0.	41	6
		49.	53.	41.	IN CLR:	40	0	40	0	0	0.0	0.0	0.	148.	0.	0.	35	5
					NOT CLR:	7	0	7	0	0	18.3	1.3	0.	138.	0.	0.	6	1
4/17/76	FRA JFK	364.	391.	201.	FLT TOT:	55	0	55	0	0	5.1	1.0	0.	347.	0.	0.	29	26
		53.	58.	41.	IN CLR:	39	0	39	0	0	0.0	0.0	0.	425.	0.	0.	14	25
					NOT CLR:	16	0	16	0	0	17.6	3.3	0.	157.	0.	0.	15	1
4/18/76	JFK LHR	324.	340.	204.	FLT TOT:	38	0	38	0	0	.9	.7	0.	331.	0.	0.	20	18
		49.	53.	41.	IN CLR:	33	0	33	0	0	0.0	0.0	0.	316.	0.	0.	18	15
					NOT CLR:	5	0	5	0	0	6.8	5.2	0.	428.	0.	0.	2	3
4/19/76	FRA IST	356.	371.	220.	FLT TOT:	14	0	14	0	0	1.3	1.2	0.	360.	0.	0.	2	12
		45.	48.	41.	IN CLR:	11	0	11	0	0	0.0	0.0	0.	357.	0.	0.	2	9
					NOT CLR:	3	0	3	0	0	6.1	5.7	0.	370.	0.	0.	0	3
4/19/76	IST KHI	344.	371.	212.	FLT TOT:	34	0	34	0	0	14.9	1.8	0.	170.	0.	0.	32	2
		35.	40.	26.	IN CLR:	19	0	19	0	0	0.0	0.0	0.	168.	0.	0.	18	1
					NOT CLR:	15	0	15	0	0	33.9	4.1	0.	174.	0.	0.	14	1
4/20/76	KHI DEL	308.	331.	216.	FLT TOT:	5	0	5	0	0	12.9	2.0	0.	75.	0.	0.	5	0
		28.	29.	26.	IN CLR:	2	0	2	0	0	0.0	0.0	0.	71.	0.	0.	2	0
					NOT CLR:	3	0	3	0	0	21.4	3.3	0.	77.	0.	0.	3	0
4/20/76	DEL BKK	376.	411.	209.	FLT TOT:	23	0	23	0	0	0.0	0.0	0.	98.	0.	0.	23	0
		21.	28.	14.	IN CLR:	23	0	23	0	0	0.0	0.0	0.	98.	0.	0.	23	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N	
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø
(N655PA)																		
4/20/76	BKK HKG	334. 10.	371. 13.	210. 8.	FLT TØT:	6	0	6	0	0	0.0	0.0	0.	41.	0.	0.	6	0
					IN CLR:	6	0	6	0	0	0.0	0.0	0.	41.	0.	0.	6	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
4/21/76	HKG HND	360. 29.	371. 35.	213. 22.	FLT TØT:	19	0	19	0	0	26.6	1.2	0.	70.	0.	0.	19	0
					IN CLR:	8	0	8	0	0	0.0	0.0	0.	64.	0.	0.	8	0
					NØT CLR:	11	0	11	0	0	46.0	2.1	0.	75.	0.	0.	11	0
4/21/76	HND SFØ	363. 42.	391. 46.	203. 36.	FLT TØT:	47	0	47	0	0	5.7	.0	0.	258.	0.	0.	30	17
					IN CLR:	44	0	44	0	0	0.0	0.0	0.	270.	0.	0.	27	17
					NØT CLR:	3	0	3	0	0	88.9	.7	0.	80.	0.	0.	3	0
4/22/76	LHR SEA	359. 61.	371. 69.	291. 49.	FLT TØT:	62	0	62	0	0	.9	.2	0.	452.	0.	0.	17	45
					IN CLR:	58	0	58	0	0	0.0	0.0	0.	477.	0.	0.	13	45
					NØT CLR:	4	0	4	0	0	14.1	2.8	0.	79.	0.	0.	4	0
4/23/76	SEA SFØ	312. 43.	332. 46.	213. 40.	FLT TØT:	6	0	6	0	0	3.1	1.3	0.	111.	0.	0.	6	0
					IN CLR:	4	0	4	0	0	0.0	0.0	0.	118.	0.	0.	4	0
					NØT CLR:	2	0	2	0	0	9.2	4.0	0.	98.	0.	0.	2	0
4/23/76	LAX GUA	341. 24.	371. 33.	207. 15.	FLT TØT:	24	0	24	0	0	18.8	1.3	0.	85.	0.	0.	24	0
					IN CLR:	17	0	17	0	0	0.0	0.0	0.	99.	0.	0.	17	0
					NØT CLR:	7	0	7	0	0	64.4	4.6	0.	51.	0.	0.	7	0
4/24/76	GUA CCS	361. 12.	371. 14.	213. 10.	FLT TØT:	20	0	20	0	0	27.3	2.2	0.	62.	0.	0.	20	0
					IN CLR:	8	0	8	0	0	0.0	0.0	0.	60.	0.	0.	8	0
					NØT CLR:	12	0	12	0	0	45.5	3.7	0.	63.	0.	0.	12	0
4/24/76	CCS GIG	358. -4.	370. 10.	208. -22.	FLT TØT:	32	0	32	0	0	39.5	1.8	0.	33.	0.	0.	13	0
					IN CLR:	13	0	13	0	0	0.0	0.0	0.	34.	0.	0.	3	0
					NØT CLR:	19	0	19	0	0	66.6	3.1	0.	32.	0.	0.	10	0
4/24/76	GIG CCS	346. -1.	352. 10.	303. -15.	FLT TØT:	27	0	27	0	0	18.9	1.9	0.	33.	0.	0.	12	0
					IN CLR:	12	0	12	0	0	0.0	0.0	0.	30.	0.	0.	6	0
					NØT CLR:	15	0	15	0	0	34.1	3.5	0.	36.	0.	0.	6	0
4/25/76	MIA CCS	322. 14.	331. 18.	265. 11.	FLT TØT:	8	0	8	0	0	29.5	.5	0.	46.	0.	0.	8	0
					IN CLR:	3	0	3	0	0	0.0	0.0	0.	48.	0.	0.	3	0
					NØT CLR:	5	0	5	0	0	47.2	.8	0.	45.	0.	0.	5	0
4/25/76	CCS GIG	348. -2.	371. 10.	205. -15.	FLT TØT:	28	0	28	0	0	.6	.2	0.	41.	0.	0.	11	0
					IN CLR:	25	0	25	0	0	0.0	0.0	0.	39.	0.	0.	10	0
					NØT CLR:	3	0	3	0	0	5.8	2.0	0.	57.	0.	0.	1	0

IM/ID/IY (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO.		STRATO.
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N
4/26/76	GIG CCS	386. -3.	391. 10.	351. -16.	FLT TOT:	30	0	30	0	0	30.8	1.5	0.	37.	0.	0.	13	0
					IN CLR:	6	0	6	0	0	0.0	0.0	0.	26.	0.	0.	3	0
					NOT CLR:	24	0	24	0	0	38.5	1.9	0.	39.	0.	0.	10	0
4/26/76	CCS GUA	345. 13.	351. 14.	277. 12.	FLT TOT:	12	0	12	0	0	28.5	2.8	0.	54.	0.	0.	12	0
					IN CLR:	2	0	2	0	0	0.0	0.0	0.	56.	0.	0.	2	0
					NOT CLR:	10	0	10	0	0	34.2	3.4	0.	53.	0.	0.	10	0
4/26/76	GUA LAX	379. 24.	390. 33.	211. 15.	FLT TOT:	31	0	31	0	0	.3	.2	0.	99.	0.	0.	31	0
					IN CLR:	29	0	29	0	0	0.0	0.0	0.	99.	0.	0.	29	0
					NOT CLR:	2	0	2	0	0	4.7	2.5	0.	106.	0.	0.	2	0
4/27/76	SFØ HNL	344. 30.	352. 37.	213. 22.	FLT TOT:	34	0	34	0	0	.7	.1	0.	120.	0.	0.	34	0
					IN CLR:	32	0	32	0	0	0.0	0.0	0.	122.	0.	0.	32	0
					NOT CLR:	2	0	2	0	0	11.8	1.0	0.	94.	0.	0.	2	0
4/27/76	HNL GUM	344. 20.	351. 23.	207. 14.	FLT TOT:	50	0	50	0	0	6.8	.3	0.	84.	0.	0.	50	0
					IN CLR:	44	0	44	0	0	0.0	0.0	0.	88.	0.	0.	44	0
					NOT CLR:	6	0	6	0	0	56.4	2.7	0.	52.	0.	0.	6	0
4/29/76	SFØ SEA	372. 44.	390. 47.	274. 40.	FLT TOT:	8	0	8	0	0	1.2	.4	0.	350.	0.	0.	2	6
					IN CLR:	7	0	7	0	0	0.0	0.0	0.	390.	0.	0.	1	6
					NOT CLR:	1	0	1	0	0	9.4	3.0	0.	75.	0.	0.	1	0
4/29/76	SEA LHR	345. 62.	371. 69.	203. 49.	FLT TOT:	61	0	61	0	0	1.4	.2	0.	443.	0.	0.	26	35
					IN CLR:	56	0	56	0	0	0.0	0.0	0.	464.	0.	0.	22	34
					NOT CLR:	5	0	5	0	0	17.6	2.2	0.	203.	0.	0.	4	1
4/30/76	LHR SEA	349. 62.	371. 70.	206. 49.	FLT TOT:	66	0	66	0	0	14.9	.5	0.	345.	0.	0.	33	33
					IN CLR:	52	0	52	0	0	0.0	0.0	0.	414.	0.	0.	19	33
					NOT CLR:	14	0	14	0	0	70.4	2.6	0.	90.	0.	0.	14	0
4/30/76	LAX ITØ	342. 28.	350. 33.	213. 20.	FLT TOT:	43	0	28	35	28	4.9	.6	0.	114.	96.	129.	43	0
					IN CLR:	34	0	21	28	21	0.0	0.0	0.	116.	95.	103.	34	0
					NOT CLR:	9	0	7	7	7	23.6	2.9	0.	107.	100.	235.	9	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.			STRATO.		
						CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ	RH	H20	N	N	
(N4711U)																			
5/	1/76	IT0 LAX	370.	389.	208.	FLT TOT:	40	0	24	33	28	12.6	.8	0.	115.	96.	74.	40	0
			27.	34.	20.	IN CLR:	28	0	18	23	18	0.0	0.0	0.	122.	94.	61.	28	0
						NOT CLR:	12	0	6	10	10	41.9	2.5	0.	95.	100.	102.	12	0
5/	1/76	LAX ORD	362.	371.	252.	FLT TOT:	35	0	11	28	14	0.0	0.0	0.	129.	85.	45.	27	8
			39.	42.	34.	IN CLR:	35	0	11	28	14	0.0	0.0	0.	129.	85.	45.	27	8
						NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/	1/76	ORD PIT	296.	332.	218.	FLT TOT:	6	0	3	5	3	4.1	.7	0.	101.	93.	216.	6	0
			42.	42.	41.	IN CLR:	3	0	2	3	1	0.0	0.0	0.	93.	89.	271.	3	0
						NOT CLR:	3	0	1	2	2	8.2	1.3	0.	116.	100.	135.	3	0
5/	1/76	PIT ORD	288.	332.	189.	FLT TOT:	8	0	5	5	3	8.9	1.0	0.	128.	89.	265.	8	0
			41.	41.	41.	IN CLR:	4	0	4	3	2	0.0	0.0	0.	138.	87.	81.	4	0
						NOT CLR:	4	0	1	2	1	17.8	2.0	0.	86.	92.	541.	4	0
5/	1/76	ORD LAX	343.	351.	218.	FLT TOT:	27	0	18	22	13	0.0	0.0	0.	140.	90.	57.	27	0
			39.	42.	35.	IN CLR:	27	0	18	22	13	0.0	0.0	0.	140.	90.	57.	27	0
						NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/	2/76	LAX IT0	382.	390.	211.	FLT TOT:	51	0	16	42	30	11.8	.7	0.	175.	86.	64.	51	0
			28.	34.	20.	IN CLR:	34	0	12	28	16	0.0	0.0	0.	206.	78.	60.	34	0
						NOT CLR:	17	0	4	14	14	35.5	2.2	0.	82.	100.	71.	17	0
5/	3/76	IT0 LAX	358.	370.	208.	FLT TOT:	49	0	32	40	30	4.1	.4	0.	140.	86.	81.	49	0
			27.	33.	20.	IN CLR:	41	0	29	35	25	0.0	0.0	0.	148.	84.	83.	41	0
						NOT CLR:	8	0	3	5	5	25.3	2.8	0.	65.	100.	63.	8	0
5/	3/76	LAX ORD	358.	370.	209.	FLT TOT:	33	0	18	27	21	20.8	1.4	0.	104.	88.	47.	29	4
			38.	41.	34.	IN CLR:	12	0	4	9	3	0.0	0.0	0.	100.	65.	89.	8	4
						NOT CLR:	21	0	14	18	18	32.7	2.2	0.	106.	100.	26.	21	0
5/	3/76	ORD PIT	301.	331.	223.	FLT TOT:	6	0	3	5	1	0.0	0.0	0.	355.	38.	68.	3	3
			42.	42.	41.	IN CLR:	6	0	3	5	1	0.0	0.0	0.	355.	38.	68.	3	3
						NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/	3/76	PIT ORD	323.	391.	200.	FLT TOT:	8	0	4	6	1	0.0	0.0	0.	479.	30.	66.	3	5
			41.	41.	41.	IN CLR:	8	0	4	6	1	0.0	0.0	0.	479.	30.	66.	3	5
						NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/	3/76	ORD LAX	375.	390.	215.	FLT TOT:	36	0	15	28	22	8.3	.4	0.	231.	91.	51.	30	6
			39.	42.	35.	IN CLR:	26	0	9	20	14	0.0	0.0	0.	283.	88.	40.	20	6
						NOT CLR:	10	0	6	8	8	29.9	1.6	0.	152.	100.	78.	10	0

IM/ID/IY (N4711U)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH		
5/ 4/76 LAX ORD	385. 39.	410. 42.	218. 34.	FLT TØT:	34	0	11	27	19	.4	.2	0.	374.	95.	28.	16	18
				IN CLR:	31	0	11	24	16	0.0	0.0	0.	374.	94.	22.	13	18
				NØT CLR:	3	0	0	3	3	4.4	2.3	0.	0.	100.	76.	3	0
5/ 4/76 ORD PIT	294. 41.	330. 42.	219. 41.	FLT TØT:	7	0	4	0	0	0.0	0.0	0.	52.	0.	0.	7	0
				IN CLR:	7	0	4	0	0	0.0	0.0	0.	52.	0.	0.	7	0
				NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/ 4/76 PIT ORD	293. 41.	311. 41.	223. 41.	FLT TØT:	8	0	5	0	0	11.8	.4	0.	77.	0.	0.	8	0
				IN CLR:	5	0	4	0	0	0.0	0.0	0.	76.	0.	0.	5	0
				NØT CLR:	3	0	1	0	0	31.4	1.0	0.	78.	0.	0.	3	0
5/ 4/76 ORD LAX	375. 39.	390. 42.	192. 34.	FLT TØT:	39	0	17	0	0	9.4	1.0	0.	242.	0.	0.	39	0
				IN CLR:	25	0	11	0	0	0.0	0.0	0.	299.	0.	0.	25	0
				NØT CLR:	14	0	6	0	0	26.1	2.9	0.	137.	0.	0.	14	0
5/ 5/76 LAX ORD	358. 38.	410. 41.	209. 34.	FLT TØT:	27	0	15	0	0	15.1	1.2	0.	175.	0.	0.	27	0
				IN CLR:	11	0	5	0	0	0.0	0.0	0.	262.	0.	0.	11	0
				NØT CLR:	16	0	10	0	0	25.6	2.1	0.	131.	0.	0.	16	0
5/ 6/76 ORD LAS	380. 39.	410. 42.	214. 36.	FLT TØT:	34	0	22	0	0	0.0	0.0	0.	166.	0.	0.	25	9
				IN CLR:	34	0	22	0	0	0.0	0.0	0.	166.	0.	0.	25	9
				NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/ 6/76 LAS ORD	354. 40.	392. 42.	211. 37.	FLT TØT:	30	0	10	0	0	24.2	.8	0.	100.	0.	0.	30	0
				IN CLR:	17	0	3	0	0	0.0	0.0	0.	103.	0.	0.	17	0
				NØT CLR:	13	0	7	0	0	56.0	1.9	0.	98.	0.	0.	13	0
5/ 7/76 ORD HNL	340. 35.	350. 42.	208. 22.	FLT TØT:	89	0	48	0	0	.0	.0	0.	58.	0.	0.	89	0
				IN CLR:	88	0	48	0	0	0.0	0.0	0.	58.	0.	0.	88	0
				NØT CLR:	1	0	0	0	0	.8	1.0	0.	0.	0.	0.	1	0
5/ 8/76 ITO ORD	354. 33.	370. 41.	206. 21.	FLT TØT:	79	0	32	0	0	1.5	.3	0.	94.	0.	0.	79	0
				IN CLR:	70	0	26	0	0	0.0	0.0	0.	98.	0.	0.	70	0
				NØT CLR:	9	0	6	0	0	13.2	2.4	0.	76.	0.	0.	9	0
5/ 8/76 ORD LAS	374. 40.	390. 42.	215. 36.	FLT TØT:	32	0	20	0	0	1.6	.1	0.	351.	0.	0.	22	10
				IN CLR:	31	0	19	0	0	0.0	0.0	0.	365.	0.	0.	21	10
				NØT CLR:	1	0	1	0	0	52.2	2.0	0.	84.	0.	0.	1	0
5/ 8/76 LAS ORD	350. 39.	370. 41.	215. 37.	FLT TØT:	27	0	16	0	0	.6	.3	0.	259.	0.	0.	27	0
				IN CLR:	24	0	15	0	0	0.0	0.0	0.	272.	0.	0.	24	0
				NØT CLR:	3	0	1	0	0	5.0	2.3	0.	64.	0.	0.	3	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O	
(N4711U)																		
5/ 9/76	CLE ORD	284. 41.	310. 41.	217. 41.	FLT TOT:	5	0	3	0	0	0.0	0.0	0.	90.	0.	0.	5	0
					IN CLR:	5	0	3	0	0	0.0	0.0	0.	90.	0.	0.	5	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/ 9/76	ORD HNL	345. 35.	350. 42.	207. 22.	FLT TOT:	85	0	25	0	0	1.9	.3	0.	117.	0.	0.	85	0
					IN CLR:	71	0	21	0	0	0.0	0.0	0.	117.	0.	0.	71	0
					NOT CLR:	14	0	4	0	0	11.3	1.6	0.	120.	0.	0.	14	0
5/10/76	HNL LAX	368. 30.	407. 35.	190. 22.	FLT TOT:	52	0	16	0	0	1.3	.4	0.	74.	0.	0.	52	0
					IN CLR:	46	0	16	0	0	0.0	0.0	0.	74.	0.	0.	46	0
					NOT CLR:	6	0	0	0	0	11.2	3.2	0.	0.	0.	0.	6	0
5/11/76	LAX DEN	394. 37.	430. 39.	220. 34.	FLT TOT:	17	0	11	0	0	3.0	.2	0.	255.	0.	0.	7	10
					IN CLR:	16	0	10	0	0	0.0	0.0	0.	275.	0.	0.	6	10
					NOT CLR:	1	0	1	0	0	51.0	3.0	0.	60.	0.	0.	1	0
5/11/76	DEN LAX	362. 37.	409. 40.	220. 34.	FLT TOT:	16	0	11	0	0	36.4	1.8	0.	144.	0.	0.	16	0
					IN CLR:	4	0	3	0	0	0.0	0.0	0.	193.	0.	0.	4	0
					NOT CLR:	12	0	8	0	0	48.6	2.4	0.	126.	0.	0.	12	0
5/11/76	LAX HNL	349. 28.	350. 33.	279. 21.	FLT TOT:	46	0	7	0	0	7.2	.8	0.	67.	0.	0.	46	0
					IN CLR:	38	0	7	0	0	0.0	0.0	0.	67.	0.	0.	38	0
					NOT CLR:	8	0	0	0	0	41.5	4.9	0.	0.	0.	0.	8	0
5/12/76	HNL LAS	335. 29.	370. 35.	208. 21.	FLT TOT:	53	0	35	0	0	.3	.1	0.	76.	0.	0.	53	0
					IN CLR:	51	0	33	0	0	0.0	0.0	0.	78.	0.	0.	51	0
					NOT CLR:	2	0	2	0	0	7.1	1.5	0.	49.	0.	0.	2	0
5/12/76	LAX JFK	382. 41.	410. 43.	188. 34.	FLT TOT:	49	0	31	0	0	1.5	.0	0.	299.	0.	0.	18	31
					IN CLR:	46	0	28	0	0	0.0	0.0	0.	307.	0.	0.	15	31
					NOT CLR:	3	0	3	0	0	24.4	.7	0.	230.	0.	0.	3	0
5/13/76	JFK ORD	325. 41.	350. 41.	203. 40.	FLT TOT:	15	0	10	0	0	27.7	1.2	0.	80.	0.	0.	15	0
					IN CLR:	4	0	3	0	0	0.0	0.0	0.	80.	0.	0.	4	0
					NOT CLR:	11	0	7	0	0	37.8	1.6	0.	79.	0.	0.	11	0
5/13/76	ORD HNL	367. 32.	390. 42.	205. 21.	FLT TOT:	90	0	49	73	23	1.0	.1	0.	129.	76.	53.	90	0
					IN CLR:	85	0	46	70	20	0.0	0.0	0.	134.	75.	51.	85	0
					NOT CLR:	5	0	3	3	3	18.6	1.8	0.	46.	100.	100.	5	0
5/14/76	HNL ORD	342. 35.	370. 43.	207. 22.	FLT TOT:	83	0	37	0	0	5.4	.5	0.	105.	0.	0.	83	0
					IN CLR:	62	0	25	0	0	0.0	0.0	0.	132.	0.	0.	62	0
					NOT CLR:	21	0	12	0	0	21.3	2.0	0.	50.	0.	0.	21	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N	
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø
(N4711U)																		
5/14/76	ORD LAS	373. 39.	390. 42.	215. 36.	FLT TØT:	27	0	17	23	2	1.2	.3	0.	153.	45.	131.	18	9
					IN CLR:	26	0	16	22	1	0.0	0.0	0.	150.	42.	131.	17	9
					NØT CLR:	1	0	1	1	1	32.2	7.0	0.	195.	100.	124.	1	0
5/14/76	LAS ORD	351. 40.	370. 42.	211. 37.	FLT TØT:	24	0	14	0	0	0.0	0.0	0.	113.	0.	0.	24	0
					IN CLR:	24	0	14	0	0	0.0	0.0	0.	113.	0.	0.	24	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/15/76	CLE ORD	256. 41.	310. 42.	192. 41.	FLT TØT:	5	0	2	0	0	60.7	2.0	0.	41.	0.	0.	5	0
					IN CLR:	1	0	1	0	0	0.0	0.0	0.	34.	0.	0.	1	0
					NØT CLR:	4	0	1	0	0	75.9	2.5	0.	47.	0.	0.	4	0
5/15/76	ORD HNL	339. 34.	351. 42.	214. 22.	FLT TØT:	88	0	30	73	56	13.1	1.0	0.	79.	93.	94.	88	0
					IN CLR:	62	0	25	50	33	0.0	0.0	0.	82.	90.	85.	62	0
					NØT CLR:	26	0	5	23	23	44.4	3.5	0.	64.	100.	113.	26	0
5/16/76	JFK LAX	372. 39.	390. 42.	206. 35.	FLT TØT:	48	0	30	39	3	1.0	.1	0.	265.	31.	74.	27	21
					IN CLR:	47	0	29	38	2	0.0	0.0	0.	271.	29.	73.	26	21
					NØT CLR:	1	0	1	1	1	49.4	3.0	0.	94.	100.	131.	1	0
5/16/76	LAX HNL	372. 28.	390. 34.	209. 21.	FLT TØT:	55	0	14	46	11	0.0	0.0	0.	108.	75.	44.	55	0
					IN CLR:	55	0	14	46	11	0.0	0.0	0.	108.	75.	44.	55	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/28/76	SFO HNL	344. 30.	350. 37.	211. 22.	FLT TØT:	48	0	29	0	0	.2	.1	0.	80.	0.	0.	48	0
					IN CLR:	45	0	27	0	0	0.0	0.0	0.	79.	0.	0.	45	0
					NØT CLR:	3	0	2	0	0	3.3	2.3	0.	91.	0.	0.	3	0
5/28/76	HNL LAX	376. 30.	380. 34.	248. 24.	FLT TØT:	38	0	24	0	0	0.0	0.0	0.	92.	0.	0.	38	0
					IN CLR:	38	0	24	0	0	0.0	0.0	0.	92.	0.	0.	38	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/29/76	LAX HNL	355. 29.	360. 34.	213. 22.	FLT TØT:	48	0	31	0	0	.0	.0	0.	71.	0.	0.	48	0
					IN CLR:	47	0	31	0	0	0.0	0.0	0.	71.	0.	0.	47	0
					NØT CLR:	1	0	0	0	0	.8	1.0	0.	0.	0.	0.	1	0
(N655PA)																		
5/ 1/76	SFO LAX	269. 36.	292. 37.	214. 35.	FLT TØT:	6	0	2	0	0	0.0	0.0	0.	116.	0.	0.	6	0
					IN CLR:	6	0	2	0	0	0.0	0.0	0.	116.	0.	0.	6	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/ 1/76	LAX GUA	337. 23.	371. 33.	208. 15.	FLT TØT:	41	0	27	0	0	1.7	.1	0.	98.	0.	0.	41	0
					IN CLR:	36	0	24	0	0	0.0	0.0	0.	105.	0.	0.	36	0
					NØT CLR:	5	0	3	0	0	13.6	1.2	0.	46.	0.	0.	5	0

IM/ID/IY (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT				TROPO. N	STRATO. N			
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5			OZ	RH	H2O
5/ 2/76	GUA CCS	350.	371.	190.	FLT TOT:	31	0	20	0	0	28.3	1.5	0.	46.	0.	0.	31	0
		12.	15.	10.	IN CLR:	13	0	9	0	0	0.0	0.0	0.	47.	0.	0.	13	0
					NOT CLR:	18	0	11	0	0	48.8	2.6	0.	44.	0.	0.	18	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT			RH	H20	TROP0. N	STRAT0. N				
						CLD	PD5	OZ	H20	H2S	%TIC	PATCHES					PD5	OZ		
(VH-EBE)																				
8/	3/76	SYD	PER	347.	351.	270.	FLT TOT:	43	0	28	0	0	.6	.3	0.	79.	0.	0.	38	5
				-33.	-32.	-34.	IN CLR:	41	0	26	0	0	0.0	0.0	0.	82.	0.	0.	36	5
							NOT CLR:	2	0	2	0	0	13.5	5.5	0.	45.	0.	0.	2	0
8/	3/76	PER	BOM	329.	351.	244.	FLT TOT:	78	0	52	0	0	7.5	1.0	0.	50.	0.	0.	78	0
				-6.	17.	-31.	IN CLR:	50	0	32	0	0	0.0	0.0	0.	55.	0.	0.	50	0
							NOT CLR:	28	0	20	0	0	20.9	2.7	0.	42.	0.	0.	28	0
8/	3/76	BOM	LHR	319.	350.	233.	FLT TOT:	78	0	47	0	0	2.1	.3	0.	98.	0.	0.	68	10
				38.	52.	19.	IN CLR:	74	0	45	0	0	0.0	0.0	0.	100.	0.	0.	65	9
							NOT CLR:	4	0	2	0	0	41.7	6.3	0.	67.	0.	0.	3	1
8/	4/76	LHR	BOM	319.	330.	276.	FLT TOT:	84	0	53	0	0	10.2	.5	0.	79.	0.	0.	84	0
				36.	51.	21.	IN CLR:	67	0	41	0	0	0.0	0.0	0.	85.	0.	0.	67	0
							NOT CLR:	17	0	12	0	0	50.3	2.5	0.	59.	0.	0.	17	0
8/	4/76	BOM	PER	327.	341.	249.	FLT TOT:	87	0	54	0	0	0.0	0.0	0.	31.	0.	0.	87	0
				-7.	17.	-31.	IN CLR:	87	0	54	0	0	0.0	0.0	0.	31.	0.	0.	87	0
							NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/	5/76	PER	SYD	360.	370.	274.	FLT TOT:	30	0	20	0	0	0.0	0.0	0.	162.	0.	0.	8	22
				-34.	-33.	-35.	IN CLR:	30	0	20	0	0	0.0	0.0	0.	162.	0.	0.	8	22
							NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/	6/76	SYD	PER	354.	390.	260.	FLT TOT:	47	0	30	0	0	.4	.1	0.	120.	0.	0.	32	15
				-33.	-32.	-34.	IN CLR:	46	0	29	0	0	0.0	0.0	0.	122.	0.	0.	31	15
							NOT CLR:	1	0	1	0	0	18.8	4.0	0.	70.	0.	0.	1	0
8/	6/76	PER	BOM	307.	350.	199.	FLT TOT:	82	0	55	0	0	2.7	.2	0.	44.	0.	0.	82	0
				-5.	18.	-30.	IN CLR:	71	0	48	0	0	0.0	0.0	0.	45.	0.	0.	71	0
							NOT CLR:	11	0	7	0	0	20.2	1.5	0.	37.	0.	0.	11	0
8/	6/76	BOM	LHR	322.	351.	279.	FLT TOT:	70	0	45	0	0	.8	.2	0.	86.	0.	0.	59	11
				37.	51.	23.	IN CLR:	66	0	43	0	0	0.0	0.0	0.	87.	0.	0.	59	7
							NOT CLR:	4	0	2	0	0	13.1	2.8	0.	79.	0.	0.	0	4
8/	7/76	LHR	BOM	320.	330.	199.	FLT TOT:	88	0	58	0	0	.0	.0	0.	84.	0.	0.	88	0
				37.	51.	20.	IN CLR:	86	0	56	0	0	0.0	0.0	0.	84.	0.	0.	86	0
							NOT CLR:	2	0	2	0	0	1.8	1.0	0.	78.	0.	0.	2	0
8/	7/76	BOM	PER	308.	341.	205.	FLT TOT:	76	0	47	0	0	7.3	.8	0.	36.	0.	0.	76	0
				-6.	17.	-31.	IN CLR:	56	0	34	0	0	0.0	0.0	0.	36.	0.	0.	56	0
							NOT CLR:	20	0	13	0	0	27.7	3.2	0.	36.	0.	0.	20	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROP0.			STRATO.	
(VH-EBE)						CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ	RH	H20	N	N
8/ 8/76	PER SYD	362. -34.	370. -33.	268. -35.	FLT TOT:	32	0	20	0	0	0.0	0.0	0.	86.	0.	0.	24	8
					IN CLR:	32	0	20	0	0	0.0	0.0	0.	86.	0.	0.	24	8
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/ 9/76	SYD MEL	295. -36.	334. -35.	200. -37.	FLT TOT:	7	0	3	0	0	0.0	0.0	0.	108.	0.	0.	7	0
					IN CLR:	7	0	3	0	0	0.0	0.0	0.	108.	0.	0.	7	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/ 9/76	MEL BKK	322. -12.	352. 13.	191. -37.	FLT TOT:	81	0	54	0	0	0.0	0.0	0.	27.	0.	0.	81	0
					IN CLR:	81	0	54	0	0	0.0	0.0	0.	27.	0.	0.	81	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/ 9/76	BKK THR	313. 26.	351. 33.	236. 16.	FLT TOT:	62	0	39	0	0	4.9	.7	0.	37.	0.	0.	62	0
					IN CLR:	49	0	32	0	0	0.0	0.0	0.	39.	0.	0.	49	0
					NOT CLR:	13	0	7	0	0	23.3	3.2	0.	25.	0.	0.	13	0
8/10/76	THR ATH	342. 35.	370. 37.	205. 34.	FLT TOT:	33	0	21	0	0	0.0	0.0	0.	55.	0.	0.	33	0
					IN CLR:	33	0	21	0	0	0.0	0.0	0.	55.	0.	0.	33	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/10/76	ATH FCO	297. 39.	310. 41.	195. 38.	FLT TOT:	11	0	7	0	0	0.0	0.0	0.	90.	0.	0.	11	0
					IN CLR:	11	0	7	0	0	0.0	0.0	0.	90.	0.	0.	11	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/10/76	FCO ATH	313. 40.	330. 41.	213. 38.	FLT TOT:	10	0	7	0	0	0.0	0.0	0.	90.	0.	0.	10	0
					IN CLR:	10	0	7	0	0	0.0	0.0	0.	90.	0.	0.	10	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/11/76	ATH THR	327. 35.	330. 36.	262. 34.	FLT TOT:	30	0	19	0	0	0.0	0.0	0.	52.	0.	0.	30	0
					IN CLR:	30	0	19	0	0	0.0	0.0	0.	52.	0.	0.	30	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/11/76	THR BKK	322. 25.	330. 34.	243. 15.	FLT TOT:	63	0	41	0	0	18.1	1.6	0.	39.	0.	0.	63	0
					IN CLR:	37	0	23	0	0	0.0	0.0	0.	45.	0.	0.	37	0
					NOT CLR:	26	0	18	0	0	43.7	3.8	0.	30.	0.	0.	26	0
8/11/76	BKK MEL	315. -15.	330. 11.	235. -37.	FLT TOT:	90	0	58	0	0	1.0	.2	0.	29.	0.	0.	90	0
					IN CLR:	83	0	54	0	0	0.0	0.0	0.	28.	0.	0.	83	0
					NOT CLR:	7	0	4	0	0	12.5	2.9	0.	35.	0.	0.	7	0
8/11/76	MEL SYD	288. -35.	290. -34.	282. -36.	FLT TOT:	5	0	2	0	0	0.0	0.0	0.	42.	0.	0.	5	0
					IN CLR:	5	0	2	0	0	0.0	0.0	0.	42.	0.	0.	5	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TR0PG. N	STRATO. N	
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O
8/14/76	SYD MEL	339.	350.	293.	FLT TOT:	5	0	3	0	0	0.0	0.0	0.	90.	0.	0.	4	1
		-36.	-35.	-37.	IN CLR:	5	0	3	0	0	0.0	0.0	0.	90.	0.	0.	4	1
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/14/76	MEL BKK	318.	351.	244.	FLT TOT:	91	0	59	0	0	11.8	1.0	0.	28.	0.	0.	91	0
		-15.	13.	-37.	IN CLR:	67	0	42	0	0	0.0	0.0	0.	26.	0.	0.	67	0
					NOT CLR:	24	0	17	0	0	44.6	3.8	0.	33.	0.	0.	24	0
8/14/76	BKK THR	311.	350.	245.	FLT TOT:	66	0	40	0	0	0.0	0.0	0.	22.	0.	0.	66	0
		26.	35.	15.	IN CLR:	66	0	40	0	0	0.0	0.0	0.	22.	0.	0.	66	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/15/76	THR ATH	346.	351.	263.	FLT TOT:	29	0	17	0	0	0.0	0.0	0.	48.	0.	0.	29	0
		35.	37.	33.	IN CLR:	29	0	17	0	0	0.0	0.0	0.	48.	0.	0.	29	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/15/76	ATH FCO	330.	351.	221.	FLT TOT:	12	0	7	0	0	0.0	0.0	0.	89.	0.	0.	12	0
		39.	41.	38.	IN CLR:	12	0	7	0	0	0.0	0.0	0.	89.	0.	0.	12	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/15/76	FCO ATH	313.	330.	232.	FLT TOT:	10	0	6	0	0	9.4	.7	0.	52.	0.	0.	10	0
		40.	41.	38.	IN CLR:	6	0	4	0	0	0.0	0.0	0.	56.	0.	0.	6	0
					NOT CLR:	4	0	2	0	0	23.4	1.8	0.	45.	0.	0.	4	0
8/15/76	ATH THR	319.	331.	208.	FLT TOT:	31	0	19	0	0	0.0	0.0	0.	58.	0.	0.	31	0
		35.	37.	33.	IN CLR:	31	0	19	0	0	0.0	0.0	0.	58.	0.	0.	31	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/16/76	THR BKK	311.	330.	238.	FLT TOT:	67	0	43	0	0	12.8	.6	0.	43.	0.	0.	67	0
		26.	34.	14.	IN CLR:	49	0	30	0	0	0.0	0.0	0.	48.	0.	0.	49	0
					NOT CLR:	18	0	13	0	0	47.8	2.2	0.	32.	0.	0.	18	0
8/16/76	BKK MEL	337.	370.	239.	FLT TOT:	83	0	42	0	0	9.0	.8	0.	42.	0.	0.	77	6
		-15.	12.	-37.	IN CLR:	64	0	32	0	0	0.0	0.0	0.	49.	0.	0.	58	6
					NOT CLR:	19	0	10	0	0	39.1	3.6	0.	20.	0.	0.	19	0
8/16/76	MEL SYD	321.	370.	206.	FLT TOT:	6	0	3	0	0	.7	.2	0.	94.	0.	0.	4	2
		-35.	-34.	-36.	IN CLR:	5	0	3	0	0	0.0	0.0	0.	94.	0.	0.	3	2
					NOT CLR:	1	0	0	0	0	4.3	1.0	0.	0.	0.	0.	1	0
8/17/76	SYD MNL	334.	351.	256.	FLT TOT:	79	0	51	0	0	10.6	1.2	0.	29.	0.	0.	79	0
		-10.	13.	-33.	IN CLR:	57	0	36	0	0	0.0	0.0	0.	33.	0.	0.	57	0
					NOT CLR:	22	0	15	0	0	37.9	4.2	0.	18.	0.	0.	22	0

APPENDIX B

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT			TROPO.			STRATO.		
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N
8/17/76	MNL HKG	343. 19.	351. 21.	289. 16.	FLT TOT:	12	0	8	0	0	28.9	1.5	0.	20.	0.	0.	12	0
					IN CLR:	5	0	5	0	0	0.0	0.0	0.	22.	0.	0.	5	0
					NOT CLR:	7	0	3	0	0	49.5	2.6	0.	18.	0.	0.	7	0
8/17/76	HKG MNL	317. 18.	330. 21.	263. 16.	FLT TOT:	11	0	7	0	0	9.1	1.6	0.	31.	0.	0.	11	0
					IN CLR:	6	0	3	0	0	0.0	0.0	0.	29.	0.	0.	6	0
					NOT CLR:	5	0	4	0	0	20.0	3.6	0.	32.	0.	0.	5	0
8/17/76	MNL SYD	347. -10.	370. 13.	255. -33.	FLT TOT:	77	0	52	0	0	7.1	.5	0.	32.	0.	0.	77	0
					IN CLR:	61	0	44	0	0	0.0	0.0	0.	35.	0.	0.	61	0
					NOT CLR:	16	0	8	0	0	34.0	2.3	0.	18.	0.	0.	16	0
8/18/76	SYD DRW	347. -23.	352. -14.	273. -33.	FLT TOT:	37	0	24	0	0	0.0	0.0	0.	35.	0.	0.	37	0
					IN CLR:	37	0	24	0	0	0.0	0.0	0.	35.	0.	0.	37	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/18/76	DRW BKK	333. -1.	350. 13.	249. -11.	FLT TOT:	56	0	36	0	0	11.9	.7	0.	21.	0.	0.	56	0
					IN CLR:	43	0	28	0	0	0.0	0.0	0.	21.	0.	0.	43	0
					NOT CLR:	13	0	8	0	0	51.4	2.9	0.	18.	0.	0.	13	0
8/18/76	BKK DAM	311. 27.	351. 34.	209. 16.	FLT TOT:	82	0	55	0	0	4.6	.5	0.	38.	0.	0.	82	0
					IN CLR:	64	0	41	0	0	0.0	0.0	0.	42.	0.	0.	64	0
					NOT CLR:	18	0	14	0	0	21.2	2.5	0.	28.	0.	0.	18	0
8/19/76	DAM ATH	336. 35.	350. 37.	243. 34.	FLT TOT:	17	0	10	0	0	0.0	0.0	0.	69.	0.	0.	17	0
					IN CLR:	17	0	10	0	0	0.0	0.0	0.	69.	0.	0.	17	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/19/76	ATH BEG	299. 42.	310. 44.	271. 40.	FLT TOT:	6	0	2	0	0	.1	.2	0.	94.	0.	0.	6	0
					IN CLR:	5	0	1	0	0	0.0	0.0	0.	105.	0.	0.	5	0
					NOT CLR:	1	0	1	0	0	.4	1.0	0.	83.	0.	0.	1	0
8/19/76	BEG ORY	324. 47.	351. 48.	205. 45.	FLT TOT:	16	0	10	0	0	12.1	.8	0.	150.	0.	0.	16	0
					IN CLR:	11	0	7	0	0	0.0	0.0	0.	173.	0.	0.	11	0
					NOT CLR:	5	0	3	0	0	38.7	2.4	0.	95.	0.	0.	5	0
8/19/76	ORY BEG	328. 47.	331. 48.	289. 45.	FLT TOT:	15	0	9	0	0	0.0	0.0	0.	81.	0.	0.	15	0
					IN CLR:	15	0	9	0	0	0.0	0.0	0.	81.	0.	0.	15	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/19/76	BEG ATH	319. 41.	330. 43.	264. 39.	FLT TOT:	8	0	4	0	0	8.8	.9	0.	130.	0.	0.	8	0
					IN CLR:	7	0	4	0	0	0.0	0.0	0.	130.	0.	0.	7	0
					NOT CLR:	1	0	0	0	0	70.2	7.0	0.	0.	0.	0.	1	0

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPØ.			STRATØ.		
					CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH	H2Ø	N	N	
8/19/76	ATH DEL	306.	331.	243.	FLT TØT:	59	0	36	0	0	0.0	0.0	0.	62.	0.	0.	59	0
		32.	36.	28.	IN CLR:	59	0	36	0	0	0.0	0.0	0.	62.	0.	0.	59	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/20/76	DEL BKK	321.	331.	251.	FLT TØT:	35	0	23	0	0	14.4	1.7	0.	34.	0.	0.	35	0
		22.	28.	15.	IN CLR:	17	0	7	0	0	0.0	0.0	0.	31.	0.	0.	17	0
					NØT CLR:	18	0	16	0	0	27.9	3.3	0.	35.	0.	0.	18	0
8/20/76	BKK DRW	334.	370.	205.	FLT TØT:	53	0	35	0	0	7.7	.8	0.	20.	0.	0.	53	0
		-3.	11.	-12.	IN CLR:	39	0	25	0	0	0.0	0.0	0.	19.	0.	0.	39	0
					NØT CLR:	14	0	10	0	0	29.0	3.2	0.	21.	0.	0.	14	0
8/20/76	DRW SYD	344.	370.	223.	FLT TØT:	33	0	20	0	0	0.0	0.0	0.	40.	0.	0.	33	0
		-24.	-14.	-33.	IN CLR:	33	0	20	0	0	0.0	0.0	0.	40.	0.	0.	33	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/22/76	SYD BKK	346.	390.	267.	FLT TØT:	99	0	66	0	0	11.5	1.0	0.	34.	0.	0.	99	0
		-14.	13.	-33.	IN CLR:	73	0	49	0	0	0.0	0.0	0.	38.	0.	0.	73	0
					NØT CLR:	26	0	17	0	0	43.9	3.8	0.	22.	0.	0.	26	0
8/22/76	BKK ATH	334.	350.	223.	FLT TØT:	102	0	65	0	0	8.9	.6	0.	47.	0.	0.	102	0
		25.	37.	14.	IN CLR:	82	0	54	0	0	0.0	0.0	0.	52.	0.	0.	82	0
					NØT CLR:	20	0	11	0	0	45.1	3.3	0.	27.	0.	0.	20	0
8/23/76	ATH LHR	373.	391.	333.	FLT TØT:	29	0	18	0	0	0.0	0.0	0.	210.	0.	0.	23	6
		46.	52.	40.	IN CLR:	29	0	18	0	0	0.0	0.0	0.	210.	0.	0.	23	6
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/23/76	LHR ATH	363.	370.	325.	FLT TØT:	28	0	19	0	0	0.0	0.0	0.	146.	0.	0.	17	11
		46.	51.	39.	IN CLR:	28	0	19	0	0	0.0	0.0	0.	146.	0.	0.	17	11
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/23/76	ATH BKK	327.	370.	247.	FLT TØT:	104	0	70	0	0	13.5	1.3	0.	43.	0.	0.	104	0
		24.	36.	14.	IN CLR:	68	0	46	0	0	0.0	0.0	0.	50.	0.	0.	68	0
					NØT CLR:	36	0	24	0	0	39.1	3.8	0.	30.	0.	0.	36	0
8/24/76	BKK MEL	324.	370.	238.	FLT TØT:	87	0	58	0	0	7.4	.7	0.	120.	0.	0.	68	19
		-15.	12.	-38.	IN CLR:	70	0	48	0	0	0.0	0.0	0.	140.	0.	0.	51	19
					NØT CLR:	17	0	10	0	0	37.9	3.5	0.	21.	0.	0.	17	0
8/24/76	MEL SYD	300.	370.	219.	FLT TØT:	8	0	4	0	0	0.0	0.0	0.	200.	0.	0.	5	3
		-35.	-34.	-36.	IN CLR:	8	0	4	0	0	0.0	0.0	0.	200.	0.	0.	5	3
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

APPENDIX B

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N	
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O
8/25/76	SYD NOU	321. -29.	330. -23.	220. -34.	FLT TOT:	21	0	13	0	0	.4	.5	0.	87.	0.	0.	21	0
					IN CLR:	18	0	11	0	0	0.0	0.0	0.	96.	0.	0.	18	0
					NOT CLR:	3	0	2	0	0	2.5	3.3	0.	33.	0.	0.	3	0
8/25/76	NOU SYD	324. -29.	350. -23.	252. -34.	FLT TOT:	26	0	16	0	0	2.1	.4	0.	67.	0.	0.	26	0
					IN CLR:	23	0	14	0	0	0.0	0.0	0.	71.	0.	0.	23	0
					NOT CLR:	3	0	2	0	0	17.8	3.3	0.	42.	0.	0.	3	0
8/26/76	SYD CHC	321. -39.	331. -35.	199. -43.	FLT TOT:	22	0	14	0	0	1.1	.6	0.	176.	0.	0.	22	0
					IN CLR:	19	0	13	0	0	0.0	0.0	0.	185.	0.	0.	19	0
					NOT CLR:	3	0	1	0	0	8.1	4.7	0.	61.	0.	0.	3	0
8/26/76	CHC SYD	347. -39.	350. -35.	277. -43.	FLT TOT:	27	0	17	0	0	0.0	0.0	0.	194.	0.	0.	24	3
					IN CLR:	27	0	17	0	0	0.0	0.0	0.	194.	0.	0.	24	3
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/29/76	SYD BKK	322. -14.	351. 13.	193. -33.	FLT TOT:	99	0	57	0	0	0.0	0.0	0.	29.	0.	0.	99	0
					IN CLR:	99	0	57	0	0	0.0	0.0	0.	29.	0.	0.	99	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/29/76	BKK ATH	326. 24.	351. 37.	231. 14.	FLT TOT:	106	0	63	0	0	18.0	1.5	0.	33.	0.	0.	106	0
					IN CLR:	66	0	36	0	0	0.0	0.0	0.	42.	0.	0.	66	0
					NOT CLR:	40	0	27	0	0	47.8	4.1	0.	21.	0.	0.	40	0
8/30/76	ATH LHR	280. 46.	280. 52.	277. 40.	FLT TOT:	27	0	16	0	0	12.5	1.9	0.	72.	0.	0.	27	0
					IN CLR:	19	0	11	0	0	0.0	0.0	0.	74.	0.	0.	19	0
					NOT CLR:	8	0	5	0	0	42.4	6.4	0.	68.	0.	0.	8	0
8/30/76	LHR ATH	364. 46.	371. 51.	274. 39.	FLT TOT:	28	0	17	0	0	0.0	0.0	0.	135.	0.	0.	22	6
					IN CLR:	28	0	17	0	0	0.0	0.0	0.	135.	0.	0.	22	6
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/30/76	ATH BKK	329. 24.	371. 36.	241. 14.	FLT TOT:	103	0	68	0	0	26.7	1.7	0.	39.	0.	0.	103	0
					IN CLR:	57	0	36	0	0	0.0	0.0	0.	51.	0.	0.	57	0
					NOT CLR:	46	0	32	0	0	59.7	3.8	0.	25.	0.	0.	46	0
8/31/76	BKK MEL	343. -15.	371. 12.	215. -37.	FLT TOT:	89	0	56	0	0	2.3	.4	0.	80.	0.	0.	78	11
					IN CLR:	79	0	49	0	0	0.0	0.0	0.	85.	0.	0.	68	11
					NOT CLR:	10	0	7	0	0	20.7	3.3	0.	44.	0.	0.	10	0
8/31/76	MEL SYD	344. -36.	371. -35.	297. -37.	FLT TOT:	6	0	2	0	0	16.3	.7	0.	297.	0.	0.	2	4
					IN CLR:	4	0	2	0	0	0.0	0.0	0.	297.	0.	0.	0	4
					NOT CLR:	2	0	0	0	0	48.8	2.0	0.	0.	0.	0.	2	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPØ.			STRATO.		
					CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH	H2Ø	N	N	
(N655PA)																		
9/ 1/76	SFO LAX	275. 36.	289. 37.	225. 35.	FLT TØT:	5	0	3	0	0	0.0	0.0	0.	31.	0.	0.	5	0
					IN CLR:	5	0	3	0	0	0.0	0.0	0.	31.	0.	0.	5	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 1/76	LAX GUA	324. 23.	331. 32.	210. 15.	FLT TØT:	38	0	22	0	0	0.0	0.0	0.	57.	0.	0.	38	0
					IN CLR:	38	0	22	0	0	0.0	0.0	0.	57.	0.	0.	38	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 1/76	GUA CCS	353. 12.	370. 14.	254. 11.	FLT TØT:	26	0	17	0	0	0.0	0.0	0.	51.	0.	0.	26	0
					IN CLR:	26	0	17	0	0	0.0	0.0	0.	51.	0.	0.	26	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 2/76	CCS GIG	363. -6.	369. 10.	221. -22.	FLT TØT:	56	0	36	0	0	0.0	0.0	0.	52.	0.	0.	56	0
					IN CLR:	56	0	36	0	0	0.0	0.0	0.	52.	0.	0.	56	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 4/76	GIG PTY	364. -6.	390. 8.	267. -21.	FLT TØT:	66	0	33	0	0	0.0	0.0	0.	46.	0.	0.	66	0
					IN CLR:	66	0	33	0	0	0.0	0.0	0.	46.	0.	0.	66	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 4/76	PTY GUA	333. 12.	350. 14.	256. 9.	FLT TØT:	15	0	10	0	0	0.0	0.0	0.	44.	0.	0.	15	0
					IN CLR:	15	0	10	0	0	0.0	0.0	0.	44.	0.	0.	15	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 4/76	GUA LAX	367. 24.	390. 33.	296. 15.	FLT TØT:	43	0	28	0	0	0.0	0.0	0.	59.	0.	0.	43	0
					IN CLR:	43	0	28	0	0	0.0	0.0	0.	59.	0.	0.	43	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 5/76	SFO HND	326. 50.	330. 58.	243. 37.	FLT TØT:	110	0	68	0	0	0.0	0.0	0.	108.	0.	0.	92	18
					IN CLR:	110	0	68	0	0	0.0	0.0	0.	108.	0.	0.	92	18
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 6/76	HND HKG	381. 28.	390. 34.	264. 22.	FLT TØT:	32	0	19	0	0	2.5	.3	0.	64.	0.	0.	32	0
					IN CLR:	27	0	16	0	0	0.0	0.0	0.	62.	0.	0.	27	0
					NØT CLR:	5	0	3	0	0	16.2	1.8	0.	74.	0.	0.	5	0
9/ 6/76	HKG BKK	382. 12.	390. 21.	271. 8.	FLT TØT:	33	0	22	0	0	0.0	0.0	0.	33.	0.	0.	33	0
					IN CLR:	33	0	22	0	0	0.0	0.0	0.	33.	0.	0.	33	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 6/76	BKK DEL	342. 22.	353. 28.	246. 15.	FLT TØT:	33	0	19	0	0	0.0	0.0	0.	40.	0.	0.	33	0
					IN CLR:	33	0	19	0	0	0.0	0.0	0.	40.	0.	0.	33	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

APPENDIX B

IM/ID/IY (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O	
9/ 7/76	DEL THR	339. 30.	350. 35.	198. 28.	FLT TOT:	32	0	20	0	0	0.0	0.0	0.	43.	0.	0.	32	0
					IN CLR:	32	0	20	0	0	0.0	0.0	0.	43.	0.	0.	32	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 7/76	THR FRA	341. 42.	350. 50.	198. 36.	FLT TOT:	54	0	33	0	0	0.0	0.0	0.	79.	0.	0.	54	0
					IN CLR:	54	0	33	0	0	0.0	0.0	0.	79.	0.	0.	54	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 7/76	FRA LHR	352. 51.	390. 52.	280. 50.	FLT TOT:	6	0	2	0	0	.1	.2	0.	62.	0.	0.	6	0
					IN CLR:	5	0	2	0	0	0.0	0.0	0.	62.	0.	0.	5	0
					NOT CLR:	1	0	0	0	0	.4	1.0	0.	0.	0.	0.	1	0
9/ 7/76	LHR JFK	360. 50.	390. 53.	281. 42.	FLT TOT:	69	0	43	0	0	0.0	0.0	0.	86.	0.	0.	51	18
					IN CLR:	69	0	43	0	0	0.0	0.0	0.	86.	0.	0.	51	18
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 8/76	JFK LHR	343. 52.	370. 55.	227. 41.	FLT TOT:	64	0	41	0	0	0.0	0.0	0.	128.	0.	0.	37	27
					IN CLR:	64	0	41	0	0	0.0	0.0	0.	128.	0.	0.	37	27
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 9/76	LHR JFK	344. 48.	370. 52.	199. 41.	FLT TOT:	73	0	48	0	0	0.0	0.0	0.	93.	0.	0.	52	21
					IN CLR:	73	0	48	0	0	0.0	0.0	0.	93.	0.	0.	52	21
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/10/76	IAD LHR	346. 49.	349. 53.	252. 40.	FLT TOT:	63	0	39	0	0	0.0	0.0	0.	85.	0.	0.	53	10
					IN CLR:	63	0	39	0	0	0.0	0.0	0.	85.	0.	0.	53	10
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/10/76	LHR JFK	346. 51.	365. 55.	193. 39.	FLT TOT:	81	0	54	0	0	0.0	0.0	0.	98.	0.	0.	64	17
					IN CLR:	81	0	54	0	0	0.0	0.0	0.	98.	0.	0.	64	17
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/11/76	JFK LHR	357. 52.	369. 56.	227. 41.	FLT TOT:	70	0	42	0	0	0.0	0.0	0.	90.	0.	0.	60	10
					IN CLR:	70	0	42	0	0	0.0	0.0	0.	90.	0.	0.	60	10
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/12/76	LHR JFK	354. 48.	390. 52.	195. 41.	FLT TOT:	69	0	45	0	0	0.0	0.0	0.	83.	0.	0.	57	12
					IN CLR:	69	0	45	0	0	0.0	0.0	0.	83.	0.	0.	57	12
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/13/76	IAD LHR	332. 49.	340. 52.	253. 40.	FLT TOT:	67	0	40	0	0	0.0	0.0	0.	81.	0.	0.	67	0
					IN CLR:	67	0	40	0	0	0.0	0.0	0.	81.	0.	0.	67	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

APPENDIX B

IM/ID/IY (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROP0. N	STRATO. N	
						CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ	RH			H20
9/13/76	LHR IAD	369. 51.	390. 54.	272. 40.	FLT TOT:	69	0	46	0	0	0.0	0.0	0.	108.	0.	0.	47	22
					IN CLR:	69	0	46	0	0	0.0	0.0	0.	108.	0.	0.	47	22
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/14/76	JFK FRA	347. 52.	369. 56.	248. 42.	FLT TOT:	72	0	45	0	0	0.0	0.0	0.	103.	0.	0.	58	14
					IN CLR:	72	0	45	0	0	0.0	0.0	0.	103.	0.	0.	58	14
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/14/76	FRA JFK	355. 53.	390. 56.	226. 41.	FLT TOT:	77	0	50	0	0	0.0	0.0	0.	99.	0.	0.	52	25
					IN CLR:	77	0	50	0	0	0.0	0.0	0.	99.	0.	0.	52	25
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/15/76	JFK LHR	341. 49.	349. 53.	251. 41.	FLT TOT:	63	0	42	0	0	0.0	0.0	0.	74.	0.	0.	61	2
					IN CLR:	63	0	42	0	0	0.0	0.0	0.	74.	0.	0.	61	2
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/15/76	LHR BOS	369. 50.	390. 53.	230. 44.	FLT TOT:	73	0	48	0	0	0.0	0.0	0.	87.	0.	0.	61	12
					IN CLR:	73	0	48	0	0	0.0	0.0	0.	87.	0.	0.	61	12
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/15/76	BOS DTW	320. 43.	351. 43.	231. 43.	FLT TOT:	11	0	8	0	0	0.0	0.0	0.	57.	0.	0.	11	0
					IN CLR:	11	0	8	0	0	0.0	0.0	0.	57.	0.	0.	11	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/15/76	DTW BOS	344. 42.	370. 43.	196. 42.	FLT TOT:	10	0	6	0	0	0.0	0.0	0.	52.	0.	0.	10	0
					IN CLR:	10	0	6	0	0	0.0	0.0	0.	52.	0.	0.	10	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/16/76	BOS LHR	317. 50.	369. 53.	246. 44.	FLT TOT:	49	0	32	0	0	0.0	0.0	0.	75.	0.	0.	48	1
					IN CLR:	49	0	32	0	0	0.0	0.0	0.	75.	0.	0.	48	1
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/16/76	LHR BOS	359. 53.	389. 56.	282. 44.	FLT TOT:	71	0	39	0	0	0.0	0.0	0.	113.	0.	0.	43	28
					IN CLR:	71	0	39	0	0	0.0	0.0	0.	113.	0.	0.	43	28
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/16/76	BOS DTW	371. 43.	390. 43.	291. 43.	FLT TOT:	10	0	6	0	0	0.0	0.0	0.	73.	0.	0.	10	0
					IN CLR:	10	0	6	0	0	0.0	0.0	0.	73.	0.	0.	10	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/16/76	DTW BOS	350. 42.	369. 43.	269. 42.	FLT TOT:	10	0	6	0	0	0.0	0.0	0.	70.	0.	0.	10	0
					IN CLR:	10	0	6	0	0	0.0	0.0	0.	70.	0.	0.	10	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.			STRATO.		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N	
(N655PA)																		
9/17/76	BOS LHR	343.	350.	252.	FLT TOT:	56	0	35	0	0	0.0	0.0	0.	107.	0.	0.	48	8
		50.	53.	44.	IN CLR:	56	0	35	0	0	0.0	0.0	0.	107.	0.	0.	48	8
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/17/76	LHR IAD	341.	370.	254.	FLT TOT:	74	0	48	0	0	.0	.0	0.	92.	0.	0.	54	20
		53.	58.	40.	IN CLR:	72	0	46	0	0	0.0	0.0	0.	93.	0.	0.	52	20
					NOT CLR:	2	0	2	0	0	.6	1.0	0.	80.	0.	0.	2	0
9/18/76	JFK FRA	336.	369.	203.	FLT TOT:	72	0	47	0	0	0.0	0.0	0.	91.	0.	0.	55	17
		49.	52.	41.	IN CLR:	72	0	47	0	0	0.0	0.0	0.	91.	0.	0.	55	17
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/18/76	FRA JFK	327.	370.	252.	FLT TOT:	76	0	50	0	0	.0	.0	0.	69.	0.	0.	76	0
		54.	60.	42.	IN CLR:	74	0	49	0	0	0.0	0.0	0.	69.	0.	0.	74	0
					NOT CLR:	2	0	1	0	0	.4	1.0	0.	75.	0.	0.	2	0
9/18/76	JFK FRA	342.	369.	244.	FLT TOT:	65	0	43	0	0	.1	.2	0.	92.	0.	0.	49	16
		50.	52.	41.	IN CLR:	62	0	40	0	0	0.0	0.0	0.	87.	0.	0.	48	14
					NOT CLR:	3	0	3	0	0	1.7	3.3	0.	152.	0.	0.	1	2
9/19/76	FRA JFK	370.	390.	240.	FLT TOT:	76	0	49	0	0	0.0	0.0	0.	101.	0.	0.	40	36
		54.	58.	42.	IN CLR:	76	0	49	0	0	0.0	0.0	0.	101.	0.	0.	40	36
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/20/76	JFK FCO	332.	370.	269.	FLT TOT:	75	0	48	0	0	0.0	0.0	0.	60.	0.	0.	75	0
		45.	47.	41.	IN CLR:	75	0	48	0	0	0.0	0.0	0.	60.	0.	0.	75	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/20/76	FCO JFK	362.	370.	240.	FLT TOT:	89	0	57	0	0	0.0	0.0	0.	76.	0.	0.	64	25
		50.	56.	42.	IN CLR:	89	0	57	0	0	0.0	0.0	0.	76.	0.	0.	64	25
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/22/76	JFK FCO	344.	370.	199.	FLT TOT:	80	0	50	0	0	0.0	0.0	0.	61.	0.	0.	0	0
		45.	47.	41.	IN CLR:	80	0	50	0	0	0.0	0.0	0.	61.	0.	0.	0	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/22/76	FCO LHR	321.	350.	208.	FLT TOT:	16	0	9	0	0	0.0	0.0	0.	66.	0.	0.	0	0
		47.	51.	43.	IN CLR:	16	0	9	0	0	0.0	0.0	0.	66.	0.	0.	0	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/22/76	LHR JFK	337.	370.	200.	FLT TOT:	70	0	42	0	0	.0	.0	0.	80.	0.	0.	0	0
		48.	53.	41.	IN CLR:	69	0	41	0	0	0.0	0.0	0.	81.	0.	0.	0	0
					NOT CLR:	1	0	1	0	0	.4	1.0	0.	41.	0.	0.	0	0

IM/ID/IY (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.			STRATO.	
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N
9/24/76	IAD LHR	351. 49.	390. 53.	249. 40.	FLT TOT:	68	0	43	0	0	0.0	0.0	0.	85.	0.	0.	0	0
					IN CLR:	68	0	43	0	0	0.0	0.0	0.	85.	0.	0.	0	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/24/76	LHR IAD	358. 48.	369. 52.	267. 40.	FLT TOT:	80	0	51	0	0	0.0	0.0	0.	83.	0.	0.	0	0
					IN CLR:	80	0	51	0	0	0.0	0.0	0.	83.	0.	0.	0	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/25/76	JFK FRA	337. 50.	369. 52.	248. 41.	FLT TOT:	73	0	48	0	0	0.0	0.0	0.	62.	0.	0.	0	0
					IN CLR:	73	0	48	0	0	0.0	0.0	0.	62.	0.	0.	0	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/25/76	FRA JFK	342. 50.	371. 54.	204. 41.	FLT TOT:	84	0	56	0	0	0.0	0.0	0.	55.	0.	0.	0	0
					IN CLR:	84	0	56	0	0	0.0	0.0	0.	55.	0.	0.	0	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/25/76	JFK FRA	348. 50.	370. 52.	245. 41.	FLT TOT:	71	0	44	0	0	0.0	0.0	0.	69.	0.	0.	0	0
					IN CLR:	71	0	44	0	0	0.0	0.0	0.	69.	0.	0.	0	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/26/76	FRA JFK	334. 51.	350. 54.	240. 42.	FLT TOT:	81	0	52	0	0	0.0	0.0	0.	71.	0.	0.	0	0
					IN CLR:	81	0	52	0	0	0.0	0.0	0.	71.	0.	0.	0	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

APPENDIX B

1M/1D/1Y	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT				TROPØ. N	STRATØ. N			
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH	H2Ø		
(VH-EBE)																		
11/19/76	SFO HNL	348. 30.	350. 37.	271. 22.	FLT TOT: IN CLR: NOT CLR:	47	0	0	0	0	0.0	0.0	0.	0.	0.	0.	47	0
						47	0	0	0	0	0.0	0.0	0.	0.	0.	0.	47	0
						0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
11/19/76	HNL NAN	335. 1.	350. 19.	207. -17.	FLT TOT: IN CLR: NOT CLR:	64	0	0	0	0	0.0	0.0	0.	0.	0.	0.	64	0
						64	0	0	0	0	0.0	0.0	0.	0.	0.	0.	64	0
						0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
11/19/76	NAN SYD	361. -27.	390. -19.	262. -33.	FLT TOT: IN CLR: NOT CLR:	45	0	0	0	0	0.0	0.0	0.	0.	0.	0.	44	1
						45	0	0	0	0	0.0	0.0	0.	0.	0.	0.	44	1
						0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
11/21/76	SYD SIN	348. -18.	351. 0.	260. -34.	FLT TOT: IN CLR: NOT CLR:	81	0	0	0	0	0.0	0.0	0.	0.	0.	0.	81	0
						81	0	0	0	0	0.0	0.0	0.	0.	0.	0.	81	0
						0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
11/21/76	SIN BKK	338. 8.	350. 13.	261. 3.	FLT TOT: IN CLR: NOT CLR:	15	0	0	0	0	19.3	2.6	0.	0.	0.	0.	15	0
						7	0	0	0	0	0.0	0.0	0.	0.	0.	0.	7	0
						8	0	0	0	0	36.1	4.9	0.	0.	0.	0.	8	0
11/21/76	BKK BAH	326. 20.	350. 26.	237. 14.	FLT TOT: IN CLR: NOT CLR:	64	0	0	0	0	3.3	.3	0.	0.	0.	0.	64	0
						59	0	0	0	0	0.0	0.0	0.	0.	0.	0.	59	0
						5	0	0	0	0	42.0	3.4	0.	0.	0.	0.	5	0
11/22/76	BAH FRA	307. 38.	310. 49.	214. 27.	FLT TOT: IN CLR: NOT CLR:	59	0	0	0	0	9.8	1.3	0.	0.	0.	0.	59	0
						41	0	0	0	0	0.0	0.0	0.	0.	0.	0.	41	0
						18	0	0	0	0	32.1	4.3	0.	0.	0.	0.	18	0
11/22/76	FRA LHR	241. 51.	241. 52.	241. 50.	FLT TOT: IN CLR: NOT CLR:	6	0	0	0	0	.4	.3	0.	0.	0.	0.	6	0
						5	0	0	0	0	0.0	0.0	0.	0.	0.	0.	5	0
						1	0	0	0	0	2.4	2.0	0.	0.	0.	0.	1	0
11/22/76	LHR BOM	315. 37.	330. 51.	261. 20.	FLT TOT: IN CLR: NOT CLR:	87	0	0	0	0	16.4	1.2	0.	0.	0.	0.	87	0
						63	0	0	0	0	0.0	0.0	0.	0.	0.	0.	63	0
						24	0	0	0	0	59.5	4.4	0.	0.	0.	0.	24	0
11/23/76	BOM PER	326. -7.	360. 18.	253. -31.	FLT TOT: IN CLR: NOT CLR:	88	0	0	0	0	12.7	1.4	0.	0.	0.	0.	88	0
						57	0	0	0	0	0.0	0.0	0.	0.	0.	0.	57	0
						31	0	0	0	0	36.0	4.0	0.	0.	0.	0.	31	0
11/23/76	PER SYD	345. -34.	370. -33.	210. -35.	FLT TOT: IN CLR: NOT CLR:	37	0	0	0	0	.0	.0	0.	0.	0.	0.	37	0
						36	0	0	0	0	0.0	0.0	0.	0.	0.	0.	36	0
						1	0	0	0	0	.8	1.0	0.	0.	0.	0.	1	0

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.			STRATO.	
						CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ	RH	H20	N	N
11/24/76	SYD AKL	326. -36.	330. -34.	265. -37.	FLT TOT: IN CLR: NOT CLR:	21 18 3	0 0 0	0 0 0	0 0 0	0 0 0	5.3 0.0 37.1	.8 0.0 5.7	0. 0. 0.	0. 0. 0.	0. 0. 0.	21 18 3	0 0 0	
11/25/76	AKL SYD	372. -36.	390. -34.	307. -37.	FLT TOT: IN CLR: NOT CLR:	28 28 0	0 0 0	0 0 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	0. 0. 0.	0. 0. 0.	24 24 0	4 4 0	
11/26/76	SYD NAN	302. -26.	330. -19.	255. -33.	FLT TOT: IN CLR: NOT CLR:	31 15 16	0 0 0	0 0 0	0 0 0	0 0 0	37.5 0.0 72.7	3.1 0.0 5.9	0. 0. 0.	0. 0. 0.	0. 0. 0.	31 15 16	0 0 0	
11/26/76	NAN HNL	343. 2.	370. 20.	246. -16.	FLT TOT: IN CLR: NOT CLR:	59 42 17	0 0 0	0 0 0	0 0 0	0 0 0	10.9 0.0 37.8	1.4 0.0 4.8	0. 0. 0.	0. 0. 0.	0. 0. 0.	59 42 17	0 0 0	
11/26/76	HNL SFO	325. 30.	330. 37.	196. 22.	FLT TOT: IN CLR: NOT CLR:	43 34 9	0 0 0	0 0 0	0 0 0	0 0 0	10.1 0.0 48.3	.7 0.0 3.4	0. 0. 0.	0. 0. 0.	0. 0. 0.	43 34 9	0 0 0	
11/27/76	SFO HNL	347. 30.	350. 37.	271. 22.	FLT TOT: IN CLR: NOT CLR:	44 29 15	0 0 0	0 0 0	0 0 0	0 0 0	12.4 0.0 36.5	.9 0.0 2.7	0. 0. 0.	0. 0. 0.	0. 0. 0.	44 29 15	0 0 0	
11/27/76	HNL NAN	330. 1.	350. 19.	258. -17.	FLT TOT: IN CLR: NOT CLR:	61 51 10	0 0 0	0 0 0	0 0 0	0 0 0	4.8 0.0 29.5	.5 0.0 3.2	0. 0. 0.	0. 0. 0.	0. 0. 0.	61 51 10	0 0 0	
11/27/76	NAN SYD	341. -27.	350. -19.	269. -33.	FLT TOT: IN CLR: NOT CLR:	40 32 8	0 0 0	0 0 0	0 0 0	0 0 0	11.8 0.0 59.1	1.1 0.0 5.3	0. 0. 0.	0. 0. 0.	0. 0. 0.	40 32 8	0 0 0	
11/28/76	SYD SIN	329. -14.	350. 1.	247. -33.	FLT TOT: IN CLR: NOT CLR:	82 32 50	0 0 0	0 0 0	0 0 0	0 0 0	28.7 0.0 47.1	2.7 0.0 4.4	0. 0. 0.	0. 0. 0.	0. 0. 0.	82 32 50	0 0 0	
11/28/76	SIN BKK	337. 8.	351. 13.	246. 3.	FLT TOT: IN CLR: NOT CLR:	15 7 8	0 0 0	0 0 0	0 0 0	0 0 0	35.3 0.0 66.3	2.7 0.0 5.1	0. 0. 0.	0. 0. 0.	0. 0. 0.	15 7 8	0 0 0	
11/28/76	BKK BAH	307. 20.	310. 26.	211. 14.	FLT TOT: IN CLR: NOT CLR:	68 61 7	0 0 0	0 0 0	0 0 0	0 0 0	5.5 0.0 53.7	.4 0.0 3.6	0. 0. 0.	0. 0. 0.	0. 0. 0.	68 61 7	0 0 0	

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT				TROPØ. N	STRATØ. N			
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5			ØZ	RH	H2Ø
(VH-EBE)																		
11/29/76	BAH FRA	325. 37.	350. 49.	254. 27.	FLT TOT:	61	0	0	0	0	2.3	.3	0.	0.	0.	0.	61	0
					IN CLR:	53	0	0	0	0	0.0	0.0	0.	0.	0.	0.	53	0
					NOT CLR:	8	0	0	0	0	17.6	2.6	0.	0.	0.	0.	8	0
11/29/76	FRA LHR	240. 51.	240. 52.	238. 50.	FLT TOT:	7	0	0	0	0	51.5	2.0	0.	0.	0.	0.	7	0
					IN CLR:	2	0	0	0	0	0.0	0.0	0.	0.	0.	0.	2	0
					NOT CLR:	5	0	0	0	0	72.1	2.8	0.	0.	0.	0.	5	0
11/29/76	FRA BAH	327. 38.	330. 49.	262. 27.	FLT TOT:	46	0	0	0	0	2.1	.1	0.	0.	0.	0.	46	0
					IN CLR:	43	0	0	0	0	0.0	0.0	0.	0.	0.	0.	43	0
					NOT CLR:	3	0	0	0	0	32.9	1.7	0.	0.	0.	0.	3	0
11/30/76	BAH BKK	301. 19.	330. 25.	240. 14.	FLT TOT:	62	0	0	0	0	6.9	.5	0.	0.	0.	0.	62	0
					IN CLR:	54	0	0	0	0	0.0	0.0	0.	0.	0.	0.	54	0
					NOT CLR:	8	0	0	0	0	53.4	3.9	0.	0.	0.	0.	8	0
11/30/76	BKK SIN	289. 7.	290. 11.	279. 3.	FLT TOT:	14	0	0	0	0	0.0	0.0	0.	0.	0.	0.	14	0
					IN CLR:	14	0	0	0	0	0.0	0.0	0.	0.	0.	0.	14	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
11/30/76	SIN SYD	315. -18.	330. -0.	211. -34.	FLT TOT:	72	0	0	0	0	5.7	.7	0.	0.	0.	0.	72	0
					IN CLR:	59	0	0	0	0	0.0	0.0	0.	0.	0.	0.	59	0
					NOT CLR:	13	0	0	0	0	31.7	3.7	0.	0.	0.	0.	13	0
11/30/76	SYD MEL	341. -36.	350. -35.	295. -37.	FLT TOT:	6	0	0	0	0	0.0	0.0	0.	0.	0.	0.	6	0
					IN CLR:	6	0	0	0	0	0.0	0.0	0.	0.	0.	0.	6	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH		
12/ 1/76	MEL SYD	318. -35.	370. -34.	201. -37.	FLT TØT: IN CLR: NØT CLR:	6 6 0	0 0 0	0 0 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	0. 0. 0.	0. 0. 0.	6 6 0	0 0 0
12/ 2/76	SYD NAN	322. -26.	330. -19.	201. -33.	FLT TØT: IN CLR: NØT CLR:	33 25 8	0 0 0	0 0 0	0 0 0	0 0 0	3.2 0.0 13.3	1.1 0.0 4.4	0. 0. 0.	0. 0. 0.	0. 0. 0.	33 25 8	0 0 0
12/ 2/76	NAN HNL	344. 2.	370. 20.	255. -16.	FLT TØT: IN CLR: NØT CLR:	62 43 19	0 0 0	0 0 0	0 0 0	0 0 0	9.5 0.0 31.1	1.0 0.0 3.3	0. 0. 0.	0. 0. 0.	0. 0. 0.	62 43 19	0 0 0
12/ 2/76	HNL SFØ	326. 30.	330. 37.	217. 22.	FLT TØT: IN CLR: NØT CLR:	46 30 16	0 0 0	0 0 0	0 0 0	0 0 0	18.4 0.0 52.9	1.3 0.0 3.8	0. 0. 0.	0. 0. 0.	0. 0. 0.	46 30 16	0 0 0
12/ 3/76	SFØ HNL	347. 30.	350. 37.	285. 22.	FLT TØT: IN CLR: NØT CLR:	48 34 14	0 0 0	0 0 0	0 0 0	0 0 0	16.5 0.0 56.5	.9 0.0 3.1	0. 0. 0.	0. 0. 0.	0. 0. 0.	48 34 14	0 0 0
12/ 3/76	HNL NAN	295. 1.	310. 19.	257. -17.	FLT TØT: IN CLR: NØT CLR:	63 50 13	0 0 0	0 0 0	0 0 0	0 0 0	5.3 0.0 25.8	.6 0.0 2.8	0. 0. 0.	0. 0. 0.	0. 0. 0.	63 50 13	0 0 0
12/ 3/76	NAN SYD	309. -27.	311. -19.	267. -34.	FLT TØT: IN CLR: NØT CLR:	35 30 5	0 0 0	0 0 0	0 0 0	0 0 0	6.4 0.0 44.5	.8 0.0 5.4	0. 0. 0.	0. 0. 0.	0. 0. 0.	35 30 5	0 0 0
12/ 4/76	SYD MEL	334. -36.	350. -35.	262. -37.	FLT TØT: IN CLR: NØT CLR:	8 8 0	0 0 0	0 0 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	0. 0. 0.	0. 0. 0.	8 8 0	0 0 0
12/ 4/76	MEL SIN	340. -21.	350. -0.	243. -37.	FLT TØT: IN CLR: NØT CLR:	79 48 31	0 0 0	0 0 0	0 0 0	0 0 0	12.0 0.0 30.7	1.8 0.0 4.7	0. 0. 0.	0. 0. 0.	0. 0. 0.	79 48 31	0 0 0
12/ 4/76	SIN BKK	337. 8.	350. 13.	234. 3.	FLT TØT: IN CLR: NØT CLR:	15 5 10	0 0 0	0 0 0	0 0 0	0 0 0	19.3 0.0 29.0	3.8 0.0 5.7	0. 0. 0.	0. 0. 0.	0. 0. 0.	15 5 10	0 0 0
12/ 4/76	BKK DAM	313. 28.	350. 34.	236. 16.	FLT TØT: IN CLR: NØT CLR:	94 94 0	0 0 0	0 0 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	0. 0. 0.	0. 0. 0.	94 94 0	0 0 0

APPENDIX B

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROP0.			STRAT0.	
						CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ	RH	H20	N	N
12/ 5/76	DAM ATH	334. 35.	350. 37.	199. 34.	FLT TOT:	19	0	0	0	0	43.3	3.2	0.	0.	0.	0.	19	0
					IN CLR:	3	0	0	0	0	0.0	0.0	0.	0.	0.	0.	3	0
					NOT CLR:	16	0	0	0	0	51.4	3.8	0.	0.	0.	0.	16	0
12/ 5/76	ATH FCO	301. 39.	310. 42.	207. 38.	FLT TOT:	14	0	0	0	0	24.2	1.9	0.	0.	0.	0.	14	0
					IN CLR:	8	0	0	0	0	0.0	0.0	0.	0.	0.	0.	8	0
					NOT CLR:	6	0	0	0	0	56.5	4.5	0.	0.	0.	0.	6	0
12/ 5/76	FCO ATH	316. 40.	330. 41.	215. 38.	FLT TOT:	12	0	0	0	0	11.7	.7	0.	0.	0.	0.	9	3
					IN CLR:	10	0	0	0	0	0.0	0.0	0.	0.	0.	0.	7	3
					NOT CLR:	2	0	0	0	0	70.4	4.0	0.	0.	0.	0.	2	0
12/ 5/76	ATH THR	322. 35.	330. 37.	275. 34.	FLT TOT:	28	0	0	0	0	36.8	2.1	0.	0.	0.	0.	28	0
					IN CLR:	10	0	0	0	0	0.0	0.0	0.	0.	0.	0.	10	0
					NOT CLR:	18	0	0	0	0	57.3	3.3	0.	0.	0.	0.	18	0
12/ 6/76	THR BKK	327. 25.	331. 34.	258. 14.	FLT TOT:	59	0	0	0	0	1.1	.2	0.	0.	0.	0.	59	0
					IN CLR:	57	0	0	0	0	0.0	0.0	0.	0.	0.	0.	57	0
					NOT CLR:	2	0	0	0	0	33.3	5.0	0.	0.	0.	0.	2	0
12/ 6/76	BKK SIN	351. 7.	370. 12.	249. 3.	FLT TOT:	14	0	0	0	0	6.6	1.1	0.	0.	0.	0.	14	0
					IN CLR:	5	0	0	0	0	0.0	0.0	0.	0.	0.	0.	5	0
					NOT CLR:	9	0	0	0	0	10.2	1.8	0.	0.	0.	0.	9	0
12/ 6/76	SIN MEL	319. -20.	350. -0.	251. -37.	FLT TOT:	71	0	0	0	0	5.5	1.2	0.	0.	0.	0.	71	0
					IN CLR:	53	0	0	0	0	0.0	0.0	0.	0.	0.	0.	53	0
					NOT CLR:	18	0	0	0	0	21.6	4.6	0.	0.	0.	0.	18	0
12/ 6/76	MEL SYD	284. -35.	330. -34.	219. -36.	FLT TOT:	6	0	0	0	0	0.0	0.0	0.	0.	0.	0.	6	0
					IN CLR:	6	0	0	0	0	0.0	0.0	0.	0.	0.	0.	6	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/ 7/76	SYD AKL	326. -36.	330. -34.	263. -37.	FLT TOT:	21	0	0	0	0	6.6	1.0	0.	0.	0.	0.	21	0
					IN CLR:	17	0	0	0	0	0.0	0.0	0.	0.	0.	0.	17	0
					NOT CLR:	4	0	0	0	0	34.9	5.0	0.	0.	0.	0.	4	0
12/ 7/76	AKL SYD	343. -36.	350. -34.	244. -37.	FLT TOT:	26	0	0	0	0	5.9	.7	0.	0.	0.	0.	26	0
					IN CLR:	22	0	0	0	0	0.0	0.0	0.	0.	0.	0.	22	0
					NOT CLR:	4	0	0	0	0	38.5	4.3	0.	0.	0.	0.	4	0
12/ 8/76	SYD AKL	325. -36.	330. -34.	235. -37.	FLT TOT:	21	0	0	0	0	8.3	1.0	0.	0.	0.	0.	21	0
					IN CLR:	12	0	0	0	0	0.0	0.0	0.	0.	0.	0.	12	0
					NOT CLR:	9	0	0	0	0	19.3	2.4	0.	0.	0.	0.	9	0

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT				TROPO. N	STRATO. N	
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5			OZ
12/ 8/76	AKL SYD	338. -36.	350. -34.	238. -37.	FLT TOT: IN CLR: NOT CLR:	25 9 16	0 0 0	0 0 0	0 0 0	23.4 0.0 36.6	2.4 0.0 3.8	0. 0. 0.	0. 0. 0.	0. 0. 0.	25 9 16	0 0 0
12/ 9/76	SYD PER	353. -33.	370. -32.	260. -34.	FLT TOT: IN CLR: NOT CLR:	48 48 0	0 0 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	0. 0. 0.	0. 0. 0.	48 48 0	0 0 0
12/ 9/76	PER BOM	324. -7.	350. 18.	192. -31.	FLT TOT: IN CLR: NOT CLR:	90 75 15	0 0 0	0 0 0	0 0 0	4.5 0.0 27.1	.7 0.0 3.9	0. 0. 0.	0. 0. 0.	0. 0. 0.	90 75 15	0 0 0
12/ 9/76	BOM LHR	321. 36.	350. 52.	250. 19.	FLT TOT: IN CLR: NOT CLR:	110 101 9	0 0 0	0 0 0	0 0 0	3.8 0.0 47.0	.4 0.0 4.9	0. 0. 0.	0. 0. 0.	0. 0. 0.	96 87 9	14 14 0
12/10/76	LHR BOM	313. 37.	330. 51.	234. 20.	FLT TOT: IN CLR: NOT CLR:	85 59 26	0 0 0	0 0 0	0 0 0	16.0 0.0 52.2	2.0 0.0 6.5	0. 0. 0.	0. 0. 0.	0. 0. 0.	85 59 26	0 0 0
12/10/76	BOM PER	328. -7.	341. 18.	251. -31.	FLT TOT: IN CLR: NOT CLR:	88 79 9	0 0 0	0 0 0	0 0 0	1.0 0.0 9.5	.2 0.0 1.9	0. 0. 0.	0. 0. 0.	0. 0. 0.	88 79 9	0 0 0
12/11/76	PER SYD	347. -34.	370. -33.	241. -35.	FLT TOT: IN CLR: NOT CLR:	33 33 0	0 0 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	0. 0. 0.	0. 0. 0.	33 33 0	0 0 0
12/13/76	SYD NAN	287. -26.	290. -19.	218. -33.	FLT TOT: IN CLR: NOT CLR:	36 35 1	0 0 0	0 0 0	0 0 0	.2 0.0 7.5	.0 0.0 1.0	0. 0. 0.	0. 0. 0.	0. 0. 0.	0 0 0	0 0 0
12/13/76	NAN HNL	302. 2.	330. 20.	223. -16.	FLT TOT: IN CLR: NOT CLR:	63 50 13	0 0 0	0 0 0	0 0 0	4.8 0.0 23.4	1.0 0.0 5.0	0. 0. 0.	0. 0. 0.	0. 0. 0.	0 0 0	0 0 0
12/13/76	HNL SFØ	302. 30.	332. 37.	244. 22.	FLT TOT: IN CLR: NOT CLR:	45 45 0	0 0 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	0. 0. 0.	0. 0. 0.	0 0 0	0 0 0
12/14/76	SFØ HNL	357. 30.	360. 37.	271. 22.	FLT TOT: IN CLR: NOT CLR:	49 49 0	0 0 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	0. 0. 0.	0. 0. 0.	0. 0. 0.	0 0 0	0 0 0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL	EXHI	EXLO	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPØ.			STRATØ.	
(VH-EBE)		ALAT	EXTN	EXTS	CLD	PD5	OZ	H2Ø	H2S	%TIC	PATCHES	PD5	OZ	RH	H2Ø	N	N
12/14/76	HNL NAN	337.	350.	249.	FLT TØT:	59	0	0	0	31.5	1.9	0.	0.	0.	0.	0	0
		1.	19.	-17.	IN CLR:	31	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	28	0	0	0	66.4	4.0	0.	0.	0.	0.	0	0
12/14/76	NAN SYD	344.	350.	208.	FLT TØT:	41	0	0	0	.0	.0	0.	0.	0.	0.	0	0
		-28.	-19.	-34.	IN CLR:	40	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	1	0	0	0	2.0	1.0	0.	0.	0.	0.	0	0
12/15/76	SYD AKL	326.	330.	266.	FLT TØT:	21	0	0	0	.9	.1	0.	0.	0.	0.	0	0
		-36.	-34.	-37.	IN CLR:	20	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	1	0	0	0	18.4	3.0	0.	0.	0.	0.	0	0
12/15/76	AKL SYD	342.	351.	230.	FLT TØT:	27	0	0	0	23.9	1.1	0.	0.	0.	0.	0	0
		-36.	-33.	-37.	IN CLR:	17	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	10	0	0	0	64.5	2.9	0.	0.	0.	0.	0	0
12/15/76	SYD NAN	319.	330.	245.	FLT TØT:	32	0	0	0	8.2	.7	0.	0.	0.	0.	0	0
		-27.	-19.	-33.	IN CLR:	26	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	6	0	0	0	43.5	3.8	0.	0.	0.	0.	0	0
12/15/76	NAN HNL	336.	370.	250.	FLT TØT:	59	0	0	0	14.3	.7	0.	0.	0.	0.	0	0
		2.	20.	-16.	IN CLR:	44	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	15	0	0	0	56.2	2.9	0.	0.	0.	0.	0	0
12/16/76	HNL SFO	325.	330.	207.	FLT TØT:	39	0	0	0	7.5	1.3	0.	0.	0.	0.	0	0
		30.	37.	22.	IN CLR:	31	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	8	0	0	0	36.6	6.5	0.	0.	0.	0.	0	0
12/16/76	SFO HNL	281.	319.	257.	FLT TØT:	47	0	0	0	5.5	.6	0.	0.	0.	0.	0	0
		31.	37.	22.	IN CLR:	42	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	5	0	0	0	52.0	5.4	0.	0.	0.	0.	0	0
12/16/76	HNL NAN	298.	310.	238.	FLT TØT:	62	0	0	0	4.8	.8	0.	0.	0.	0.	0	0
		1.	19.	-17.	IN CLR:	51	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	11	0	0	0	27.1	4.3	0.	0.	0.	0.	0	0
12/16/76	NAN SYD	308.	310.	254.	FLT TØT:	41	0	0	0	8.7	.7	0.	0.	0.	0.	0	0
		-27.	-19.	-34.	IN CLR:	32	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	9	0	0	0	39.5	3.3	0.	0.	0.	0.	0	0
12/17/76	SYD KUL	338.	350.	192.	FLT TØT:	81	0	0	0	1.0	.1	0.	0.	0.	0.	0	0
		-16.	2.	-33.	IN CLR:	77	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
					NØT CLR:	4	0	0	0	20.1	2.3	0.	0.	0.	0.	0	0

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT			OZ	RH	H2O	TR0P0. N	STRAT0. N
						CLD	PD5	0Z	H20	H2S	%TIC	PATCHES					
12/17/76	KUL MEL	366. -19.	370. 2.	241. -37.	FLT TOT:	78	0	0	0	0	.4	.1	0.	0.	0.	0	0
					IN CLR:	76	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	2	0	0	0	0	15.1	2.5	0.	0.	0.	0	0
12/18/76	MEL KUL	329. -17.	350. 2.	228. -36.	FLT TOT:	77	0	0	0	0	1.1	.3	0.	0.	0.	0	0
					IN CLR:	68	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	9	0	0	0	0	9.7	2.6	0.	0.	0.	0	0
12/18/76	KUL SYD	366. -16.	390. 2.	249. -34.	FLT TOT:	79	0	0	0	0	3.6	.5	0.	0.	0.	0	0
					IN CLR:	68	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	11	0	0	0	0	25.8	3.9	0.	0.	0.	0	0
12/19/76	SYD CHC	333. -39.	350. -35.	258. -43.	FLT TOT:	22	0	0	0	0	2.0	.5	0.	0.	0.	0	0
					IN CLR:	19	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	3	0	0	0	0	14.9	3.3	0.	0.	0.	0	0
12/19/76	CHC SYD	345. -39.	350. -35.	281. -43.	FLT TOT:	25	0	0	0	0	3.2	.9	0.	0.	0.	0	0
					IN CLR:	21	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	4	0	0	0	0	20.1	5.8	0.	0.	0.	0	0
12/20/76	SYD SIN	335. -17.	351. 1.	197. -33.	FLT TOT:	80	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					IN CLR:	80	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
12/20/76	KUL BAH	313. 16.	350. 26.	237. 4.	FLT TOT:	77	0	0	0	0	10.5	.7	0.	0.	0.	0	0
					IN CLR:	60	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	17	0	0	0	0	47.6	3.2	0.	0.	0.	0	0
12/21/76	BAH BEG	301. 37.	350. 44.	199. 28.	FLT TOT:	44	0	0	0	0	4.9	1.0	0.	0.	0.	0	0
					IN CLR:	33	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	11	0	0	0	0	19.4	3.8	0.	0.	0.	0	0
12/21/76	BEG LHR	280. 49.	280. 52.	273. 45.	FLT TOT:	20	0	0	0	0	18.6	1.6	0.	0.	0.	0	0
					IN CLR:	14	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	6	0	0	0	0	62.0	5.3	0.	0.	0.	0	0
12/21/76	AMS BAH	325. 40.	330. 52.	199. 27.	FLT TOT:	57	0	0	0	0	4.8	.4	0.	0.	0.	0	0
					IN CLR:	50	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	7	0	0	0	0	38.8	3.0	0.	0.	0.	0	0
12/22/76	BAH KUL	325. 15.	330. 25.	253. 4.	FLT TOT:	69	0	0	0	0	17.8	1.3	0.	0.	0.	0	0
					IN CLR:	45	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
					NOT CLR:	24	0	0	0	0	51.2	3.6	0.	0.	0.	0	0

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT			TROP0.			STRATO.			
						CLD	PD5	0Z	H20	H2S	%TIC	PATCHES	PD5	0Z	RH	H20	N	N	
12/22/76	SIN SYD	338. -17.	370. -0.	248. -34.	FLT TOT: IN CLR: NOT CLR:	71 63 8	0 0 0	0 0 0	0 0 0	0 0 0	5.5 0.0 48.8	.5 0.0 4.3	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	0 0 0	0 0 0	0 0 0
12/23/76	SYD NAN	324. -27.	330. -19.	251. -33.	FLT TOT: IN CLR: NOT CLR:	33 5 28	0 0 0	0 0 0	0 0 0	0 0 0	63.0 0.0 74.3	4.1 0.0 4.8	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	33 5 28	0 0 0	0 0 0
12/23/76	NAN HNL	348. 2.	370. 20.	255. -16.	FLT TOT: IN CLR: NOT CLR:	59 44 15	0 0 0	0 0 0	0 0 0	0 0 0	9.7 0.0 38.3	1.2 0.0 4.7	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	59 44 15	0 0 0	0 0 0
12/23/76	HNL SF0	327. 30.	330. 37.	259. 22.	FLT TOT: IN CLR: NOT CLR:	46 30 16	0 0 0	0 0 0	0 0 0	0 0 0	14.3 0.0 41.3	1.5 0.0 4.4	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	46 30 16	0 0 0	0 0 0
12/24/76	SF0 HNL	346. 30.	350. 37.	254. 22.	FLT TOT: IN CLR: NOT CLR:	50 35 15	0 0 0	0 0 0	0 0 0	0 0 0	18.6 0.0 62.1	1.8 0.0 6.1	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	50 35 15	0 0 0	0 0 0
12/24/76	HNL NAN	346. 2.	350. 19.	219. -17.	FLT TOT: IN CLR: NOT CLR:	63 41 22	0 0 0	0 0 0	0 0 0	0 0 0	19.5 0.0 55.8	1.6 0.0 4.7	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	63 41 22	0 0 0	0 0 0
12/24/76	NAN SYD	374. -27.	390. -19.	278. -33.	FLT TOT: IN CLR: NOT CLR:	39 22 17	0 0 0	0 0 0	0 0 0	0 0 0	19.0 0.0 43.6	2.1 0.0 4.8	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	39 22 17	0 0 0	0 0 0
12/25/76	SYD NAN	323. -27.	330. -19.	214. -33.	FLT TOT: IN CLR: NOT CLR:	34 16 18	0 0 0	0 0 0	0 0 0	0 0 0	23.9 0.0 45.1	2.5 0.0 4.7	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	34 16 18	0 0 0	0 0 0
12/25/76	NAN HNL	349. 2.	370. 20.	260. -16.	FLT TOT: IN CLR: NOT CLR:	63 45 18	0 0 0	0 0 0	0 0 0	0 0 0	12.6 0.0 44.0	1.2 0.0 4.3	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	63 45 18	0 0 0	0 0 0
12/25/76	HNL SF0	329. 30.	330. 37.	269. 22.	FLT TOT: IN CLR: NOT CLR:	46 23 23	0 0 0	0 0 0	0 0 0	0 0 0	27.9 0.0 55.8	1.6 0.0 3.1	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	46 23 23	0 0 0	0 0 0
12/26/76	SF0 HNL	348. 30.	350. 36.	275. 22.	FLT TOT: IN CLR: NOT CLR:	46 22 24	0 0 0	0 0 0	0 0 0	0 0 0	25.2 0.0 48.4	1.3 0.0 2.6	0. 0. 0.	0. 0. 0.	0. 0. 0.	0. 0. 0.	46 22 24	0 0 0	0 0 0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPQ. N	STRATO. N		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O	
12/26/76	HNL NAN	347. 1.	350. 19.	266. -17.	FLT TOT:	59	0	0	0	0	8.1	.7	0.	0.	0.	0.	59	0
					IN CLR:	49	0	0	0	0	0.0	0.0	0.	0.	0.	0.	49	0
					NOT CLR:	10	0	0	0	0	48.0	4.1	0.	0.	0.	0.	10	0
12/26/76	NAN SYD	370. -27.	390. -19.	271. -34.	FLT TOT:	41	0	0	0	0	7.5	.2	0.	0.	0.	0.	41	0
					IN CLR:	35	0	0	0	0	0.0	0.0	0.	0.	0.	0.	35	0
					NOT CLR:	6	0	0	0	0	50.9	1.7	0.	0.	0.	0.	6	0
12/27/76	SYD AKL	324. -36.	330. -34.	248. -37.	FLT TOT:	23	0	0	0	0	14.4	1.0	0.	0.	0.	0.	23	0
					IN CLR:	16	0	0	0	0	0.0	0.0	0.	0.	0.	0.	16	0
					NOT CLR:	7	0	0	0	0	47.3	3.1	0.	0.	0.	0.	7	0
12/27/76	AKL SYD	309. -36.	310. -34.	274. -37.	FLT TOT:	27	0	0	0	0	19.6	1.4	0.	0.	0.	0.	27	0
					IN CLR:	16	0	0	0	0	0.0	0.0	0.	0.	0.	0.	16	0
					NOT CLR:	11	0	0	0	0	48.0	3.5	0.	0.	0.	0.	11	0
12/28/76	SYD MEL	335. -36.	351. -35.	290. -37.	FLT TOT:	7	0	0	0	0	0.0	0.0	0.	0.	0.	0.	7	0
					IN CLR:	7	0	0	0	0	0.0	0.0	0.	0.	0.	0.	7	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/28/76	MEL PER	343. -35.	350. -33.	197. -37.	FLT TOT:	36	0	0	0	0	0.0	0.0	0.	0.	0.	0.	36	0
					IN CLR:	36	0	0	0	0	0.0	0.0	0.	0.	0.	0.	36	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/28/76	PER BOM	334. -7.	350. 17.	251. -31.	FLT TOT:	87	0	0	0	0	14.3	1.1	0.	0.	0.	0.	87	0
					IN CLR:	65	0	0	0	0	0.0	0.0	0.	0.	0.	0.	65	0
					NOT CLR:	22	0	0	0	0	56.4	4.2	0.	0.	0.	0.	22	0
12/28/76	BOM LHR	311. 37.	350. 52.	211. 19.	FLT TOT:	113	0	0	0	0	17.1	.9	0.	0.	0.	101	12	
					IN CLR:	80	0	0	0	0	0.0	0.0	0.	0.	0.	0.	68	12
					NOT CLR:	33	0	0	0	0	58.4	3.2	0.	0.	0.	0.	33	0
12/29/76	LHR FRA	230. 51.	230. 51.	230. 50.	FLT TOT:	5	0	0	0	0	0.0	0.0	0.	0.	0.	0.	5	0
					IN CLR:	5	0	0	0	0	0.0	0.0	0.	0.	0.	0.	5	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/29/76	FRA BAH	314. 38.	330. 49.	251. 27.	FLT TOT:	53	0	0	0	0	5.5	.2	0.	0.	0.	0.	53	0
					IN CLR:	46	0	0	0	0	0.0	0.0	0.	0.	0.	0.	46	0
					NOT CLR:	7	0	0	0	0	41.3	1.6	0.	0.	0.	0.	7	0
12/30/76	BAH BKK	331. 19.	370. 25.	264. 14.	FLT TOT:	56	0	0	0	0	17.6	.5	0.	0.	0.	0.	56	0
					IN CLR:	44	0	0	0	0	0.0	0.0	0.	0.	0.	0.	44	0
					NOT CLR:	12	0	0	0	0	82.1	2.5	0.	0.	0.	0.	12	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROP0.			STRATO.		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N	
(VH-EBE)																		
12/30/76	BKK SIN	358. 7.	370. 12.	267. 3.	FLT T0T:	15	0	0	0	0	0.0	0.0	0.	0.	0.	0.	15	0
					IN CLR:	15	0	0	0	0	0.0	0.0	0.	0.	0.	0.	15	0
					N0T CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/30/76	SIN SYD	334. -17.	350. 0.	257. -34.	FLT T0T:	76	0	0	0	0	10.9	1.0	0.	0.	0.	0.	76	0
					IN CLR:	51	0	0	0	0	0.0	0.0	0.	0.	0.	0.	51	0
					N0T CLR:	25	0	0	0	0	33.3	3.2	0.	0.	0.	0.	25	0
12/30/76	SYD MEL	328. -36.	350. -35.	242. -37.	FLT T0T:	7	0	0	0	0	1.1	.3	0.	0.	0.	0.	7	0
					IN CLR:	5	0	0	0	0	0.0	0.0	0.	0.	0.	0.	5	0
					N0T CLR:	2	0	0	0	0	3.7	1.0	0.	0.	0.	0.	2	0
12/31/76	MEL SYD	301. -35.	330. -34.	190. -36.	FLT T0T:	6	0	0	0	0	0.0	0.0	0.	0.	0.	0.	6	0
					IN CLR:	6	0	0	0	0	0.0	0.0	0.	0.	0.	0.	6	0
					N0T CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
(N533PA)																		
12/13/76	JFK DFW	425. 37.	430. 40.	342. 34.	FLT T0T:	32	0	0	0	0	0.0	0.0	0.	0.	0.	0.	6	26
					IN CLR:	32	0	0	0	0	0.0	0.0	0.	0.	0.	0.	6	26
					N0T CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/13/76	DFW HNL	413. 31.	430. 34.	289. 22.	FLT T0T:	80	0	52	0	0	0.0	0.0	0.	104.	0.	0.	51	29
					IN CLR:	80	0	52	0	0	0.0	0.0	0.	104.	0.	0.	51	29
					N0T CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/14/76	HNL PPG	410. 3.	430. 20.	294. -13.	FLT T0T:	51	0	33	0	0	33.9	1.1	0.	23.	0.	0.	51	0
					IN CLR:	16	0	9	0	0	0.0	0.0	0.	23.	0.	0.	16	0
					N0T CLR:	35	0	24	0	0	49.4	1.7	0.	23.	0.	0.	35	0
12/14/76	PPG PPT	402. -16.	410. -15.	304. -17.	FLT T0T:	25	0	16	0	0	11.7	1.1	0.	24.	0.	0.	25	0
					IN CLR:	16	0	10	0	0	0.0	0.0	0.	24.	0.	0.	16	0
					N0T CLR:	9	0	6	0	0	32.5	3.0	0.	23.	0.	0.	9	0
12/14/76	PPT PPG	419. -16.	430. -15.	238. -17.	FLT T0T:	30	0	19	14	11	13.5	1.1	0.	22.	96.	199.	30	0
					IN CLR:	19	0	12	6	5	0.0	0.0	0.	23.	98.	435.	19	0
					N0T CLR:	11	0	7	8	6	36.9	3.1	0.	20.	95.	21.	11	0
12/15/76	PPG HNL	409. 3.	431. 20.	256. -13.	FLT T0T:	53	0	34	0	0	12.7	.8	0.	22.	0.	0.	53	0
					IN CLR:	32	0	22	0	0	0.0	0.0	0.	23.	0.	0.	32	0
					N0T CLR:	21	0	12	0	0	32.2	2.0	0.	19.	0.	0.	21	0
12/15/76	HNL DFW	337. 30.	340. 33.	248. 22.	FLT T0T:	72	0	48	0	0	.0	.1	0.	61.	0.	0.	72	0
					IN CLR:	71	0	48	0	0	0.0	0.0	0.	61.	0.	0.	71	0
					N0T CLR:	1	0	0	0	0	3.5	4.0	0.	0.	0.	0.	1	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPO. N	STRATO. N			
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ			RH	H2O	
(N533PA)																		
12/15/76	DFW JFK	327. 36.	331. 39.	271. 33.	FLT TOT:	25	0	17	0	0	3.5	.4	0.	59.	0.	0.	25	0
					IN CLR:	23	0	16	0	0	0.0	0.0	0.	60.	0.	0.	23	0
					NOT CLR:	2	0	1	0	0	43.3	5.5	0.	51.	0.	0.	2	0
12/15/76	JFK SFO	346. 41.	350. 43.	209. 38.	FLT TOT:	56	0	36	0	0	6.5	.3	0.	118.	0.	0.	26	29
					IN CLR:	45	0	29	0	0	0.0	0.0	0.	134.	0.	0.	15	29
					NOT CLR:	11	0	7	0	0	33.2	1.7	0.	50.	0.	0.	11	0
12/16/76	SFO AKL	386. 4.	410. 37.	277. -34.	FLT TOT:	121	0	77	0	0	11.5	.6	0.	50.	0.	0.	121	0
					IN CLR:	84	0	51	0	0	0.0	0.0	0.	64.	0.	0.	84	0
					NOT CLR:	37	0	26	0	0	37.6	1.9	0.	24.	0.	0.	37	0
12/16/76	AKL SYD	423. -36.	430. -34.	340. -37.	FLT TOT:	27	0	15	0	0	.5	.1	0.	149.	0.	0.	25	2
					IN CLR:	25	0	14	0	0	0.0	0.0	0.	153.	0.	0.	23	2
					NOT CLR:	2	0	1	0	0	6.1	1.5	0.	89.	0.	0.	2	0
12/17/76	SYD AKL	402. -36.	409. -34.	321. -37.	FLT TOT:	21	0	14	0	0	2.1	.0	0.	167.	0.	0.	15	6
					IN CLR:	20	0	13	0	0	0.0	0.0	0.	174.	0.	0.	14	6
					NOT CLR:	1	0	1	0	0	43.5	1.0	0.	80.	0.	0.	1	0
12/17/76	AKL SFO	385. 2.	430. 37.	269. -36.	FLT TOT:	126	0	81	0	0	3.4	.3	0.	57.	0.	0.	112	14
					IN CLR:	110	0	71	0	0	0.0	0.0	0.	61.	0.	0.	96	14
					NOT CLR:	16	0	10	0	0	27.2	2.6	0.	25.	0.	0.	16	0
12/18/76	SFO AKL	366. 1.	390. 37.	282. -36.	FLT TOT:	136	0	89	0	0	6.1	.5	0.	58.	0.	0.	136	0
					IN CLR:	110	0	71	0	0	0.0	0.0	0.	64.	0.	0.	110	0
					NOT CLR:	26	0	18	0	0	32.0	2.4	0.	34.	0.	0.	26	0
12/18/76	AKL SYD	393. -36.	410. -34.	232. -37.	FLT TOT:	29	0	19	0	0	0.0	0.0	0.	267.	0.	0.	4	25
					IN CLR:	29	0	19	0	0	0.0	0.0	0.	267.	0.	0.	4	25
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/19/76	SYD SFO	374. 3.	431. 37.	251. -34.	FLT TOT:	142	0	89	0	0	4.7	.5	0.	77.	0.	0.	126	16
					IN CLR:	113	0	70	0	0	0.0	0.0	0.	86.	0.	0.	97	16
					NOT CLR:	29	0	19	0	0	23.1	2.3	0.	42.	0.	0.	29	0
12/19/76	SFO JFK	411. 41.	430. 42.	224. 38.	FLT TOT:	47	0	31	0	0	.9	.2	0.	189.	0.	0.	3	44
					IN CLR:	46	0	31	0	0	0.0	0.0	0.	189.	0.	0.	2	44
					NOT CLR:	1	0	0	0	0	41.2	9.0	0.	0.	0.	0.	1	0
12/20/76	JFK DFW	348. 37.	350. 40.	318. 34.	FLT TOT:	36	0	23	0	0	7.5	1.4	0.	110.	0.	0.	36	0
					IN CLR:	28	0	18	0	0	0.0	0.0	0.	126.	0.	0.	28	0
					NOT CLR:	8	0	5	0	0	34.0	6.4	0.	50.	0.	0.	8	0

APPENDIX B

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPØ.		STRATØ.		
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH	H2Ø	N	N
12/20/76	DFW HNL	347. 32.	350. 38.	190. 22.	FLT TØT:	86	0	49	45	10	11.6	1.3	0.	95.	73.	64.	72	14
					IN CLR:	53	0	33	28	3	0.0	0.0	0.	113.	62.	65.	39	14
					NØT CLR:	33	0	16	17	7	30.1	3.4	0.	58.	92.	64.	33	0
12/21/76	HNL PPG	403. 3.	410. 20.	196. -14.	FLT TØT:	56	0	36	46	14	8.3	.7	0.	39.	80.	32.	56	0
					IN CLR:	40	0	28	35	6	0.0	0.0	0.	37.	75.	30.	40	0
					NØT CLR:	16	0	8	11	8	29.1	2.5	0.	43.	98.	39.	16	0
12/21/76	PPG PPT	400. -16.	410. -15.	297. -17.	FLT TØT:	25	0	16	20	14	31.5	1.3	0.	59.	94.	63.	25	0
					IN CLR:	12	0	8	10	4	0.0	0.0	0.	68.	89.	96.	12	0
					NØT CLR:	13	0	8	10	10	60.6	2.5	0.	50.	100.	31.	13	0
12/21/76	PPT PPG	427. -16.	430. -15.	347. -17.	FLT TØT:	27	0	17	0	0	20.0	1.2	0.	67.	0.	0.	27	0
					IN CLR:	11	0	8	0	0	0.0	0.0	0.	70.	0.	0.	11	0
					NØT CLR:	16	0	9	0	0	33.7	2.1	0.	64.	0.	0.	16	0
12/21/76	PPG HNL	401. 3.	413. 19.	314. -13.	FLT TØT:	44	0	26	0	0	1.2	.3	0.	40.	0.	0.	44	0
					IN CLR:	39	0	23	0	0	0.0	0.0	0.	40.	0.	0.	39	0
					NØT CLR:	5	0	3	0	0	10.4	2.6	0.	45.	0.	0.	5	0
12/22/76	HNL DFW	426. 29.	450. 33.	280. 22.	FLT TØT:	66	0	45	0	0	0.0	0.0	0.	160.	0.	0.	42	24
					IN CLR:	66	0	45	0	0	0.0	0.0	0.	160.	0.	0.	42	24
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/22/76	DFW JFK	438. 37.	450. 39.	314. 33.	FLT TØT:	24	0	0	0	0	0.0	0.0	0.	0.	0.	0.	2	22
					IN CLR:	24	0	0	0	0	0.0	0.0	0.	0.	0.	0.	2	22
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/22/76	JFK SFO	347. 41.	350. 43.	240. 38.	FLT TØT:	56	0	27	0	0	19.2	.9	0.	143.	0.	0.	33	23
					IN CLR:	39	0	16	0	0	0.0	0.0	0.	209.	0.	0.	16	23
					NØT CLR:	17	0	11	0	0	63.1	3.1	0.	47.	0.	0.	17	0
12/23/76	SFO AKL	377. 1.	430. 37.	250. -35.	FLT TØT:	134	0	22	0	0	7.8	.6	0.	91.	0.	0.	121	13
					IN CLR:	112	0	21	0	0	0.0	0.0	0.	94.	0.	0.	99	13
					NØT CLR:	22	0	1	0	0	47.3	3.4	0.	18.	0.	0.	22	0
12/23/76	AKL SYD	419. -36.	432. -34.	312. -37.	FLT TØT:	23	0	0	0	0	2.4	.1	0.	0.	0.	0.	13	10
					IN CLR:	21	0	0	0	0	0.0	0.0	0.	0.	0.	0.	11	10
					NØT CLR:	2	0	0	0	0	27.1	1.5	0.	0.	0.	0.	2	0
12/24/76	SYD AKL	399. -36.	410. -35.	284. -37.	FLT TØT:	12	0	6	0	0	4.9	.3	0.	179.	0.	0.	8	4
					IN CLR:	10	0	6	0	0	0.0	0.0	0.	179.	0.	0.	6	4
					NØT CLR:	2	0	0	0	0	29.6	2.0	0.	0.	0.	0.	2	0

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O	
12/24/76	AKL SFØ	387. 6.	410. 37.	330. -35.	FLT TOT:	116	0	74	0	0	8.8	.8	0.	45.	0.	0.	116	0
					IN CLR:	81	0	53	0	0	0.0	0.0	0.	49.	0.	0.	81	0
					NOT CLR:	35	0	21	0	0	29.3	2.6	0.	35.	0.	0.	35	0
12/25/76	SFØ AKL	391. 0.	450. 37.	235. -36.	FLT TOT:	141	0	93	0	0	7.7	.7	0.	63.	0.	0.	141	0
					IN CLR:	100	0	65	0	0	0.0	0.0	0.	66.	0.	0.	100	0
					NOT CLR:	41	0	28	0	0	26.3	2.4	0.	57.	0.	0.	41	0
12/25/76	AKL SYD	421. -36.	430. -34.	281. -37.	FLT TOT:	28	0	16	22	1	0.0	0.0	0.	121.	63.	42.	28	0
					IN CLR:	28	0	16	22	1	0.0	0.0	0.	121.	63.	42.	28	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/26/76	SYD SFØ	377. -2.	410. 37.	272. -34.	FLT TOT:	143	0	94	0	0	8.0	.3	0.	81.	0.	0.	116	27
					IN CLR:	115	0	76	0	0	0.0	0.0	0.	92.	0.	0.	88	27
					NOT CLR:	28	0	18	0	0	41.0	1.7	0.	34.	0.	0.	28	0
12/26/76	SFØ JFK	404. 41.	411. 42.	202. 39.	FLT TOT:	46	0	32	35	14	5.8	.6	0.	234.	72.	19.	2	44
					IN CLR:	37	0	25	27	6	0.0	0.0	0.	279.	63.	21.	2	35
					NOT CLR:	9	0	7	8	8	29.7	3.0	0.	76.	100.	13.	0	9
12/27/76	JFK DFW	342. 37.	350. 40.	193. 33.	FLT TOT:	32	0	21	0	0	13.3	1.0	0.	87.	0.	0.	25	7
					IN CLR:	20	0	11	0	0	0.0	0.0	0.	110.	0.	0.	13	7
					NOT CLR:	12	0	10	0	0	35.6	2.6	0.	61.	0.	0.	12	0
12/27/76	DFW HNL	339. 30.	351. 34.	269. 21.	FLT TOT:	95	0	13	0	0	16.4	1.0	0.	62.	0.	0.	95	0
					IN CLR:	52	0	9	0	0	0.0	0.0	0.	62.	0.	0.	52	0
					NOT CLR:	43	0	4	0	0	36.2	2.2	0.	62.	0.	0.	43	0
12/28/76	HNL PPG	385. 3.	390. 20.	198. -14.	FLT TOT:	54	0	35	0	0	0.0	0.0	0.	35.	0.	0.	54	0
					IN CLR:	54	0	35	0	0	0.0	0.0	0.	35.	0.	0.	54	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/28/76	PPG PPT	418. -16.	430. -15.	304. -17.	FLT TOT:	25	0	17	0	0	48.8	1.3	0.	45.	0.	0.	25	0
					IN CLR:	1	0	1	0	0	0.0	0.0	0.	36.	0.	0.	1	0
					NOT CLR:	24	0	16	0	0	50.8	1.3	0.	45.	0.	0.	24	0
12/28/76	PPT PPG	424. -16.	430. -15.	330. -17.	FLT TOT:	29	0	19	0	0	35.3	1.6	0.	37.	0.	0.	29	0
					IN CLR:	7	0	5	0	0	0.0	0.0	0.	43.	0.	0.	7	0
					NOT CLR:	22	0	14	0	0	46.6	2.0	0.	35.	0.	0.	22	0
12/28/76	PPG HNL	408. 3.	414. 19.	310. -13.	FLT TOT:	46	0	30	38	12	9.6	1.4	0.	30.	79.	31.	46	0
					IN CLR:	29	0	19	24	1	0.0	0.0	0.	32.	68.	29.	29	0
					NOT CLR:	17	0	11	14	11	26.0	3.8	0.	27.	97.	34.	17	0

APPENDIX B

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT			TROPO.		STRATO.			
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N
12/29/76 HNL DFW		421. 31.	430. 35.	314. 22.	FLT TOT:	67	0	44	53	0	.0	.0	0.	137.	46.	15.	20	47
					IN CLR:	66	0	43	53	0	0.0	0.0	0.	139.	46.	15.	19	47
					NOT CLR:	1	0	1	0	0	.8	1.0	0.	63.	0.	0.	1	0
12/29/76 DFW JFK		398. 37.	410. 39.	240. 33.	FLT TOT:	22	0	14	17	0	0.0	0.0	0.	492.	23.	19.	4	18
					IN CLR:	22	0	14	17	0	0.0	0.0	0.	492.	23.	19.	4	18
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/29/76 JFK SFO		416. 41.	434. 43.	316. 38.	FLT TOT:	54	0	0	0	0	.3	.1	0.	0.	0.	0.	1	53
					IN CLR:	53	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	53
					NOT CLR:	1	0	0	0	0	17.3	3.0	0.	0.	0.	0.	1	0
12/30/76 SFO AKL		379. 1.	414. 37.	259. -36.	FLT TOT:	145	0	97	115	3	12.1	.7	0.	63.	54.	35.	140	5
					IN CLR:	102	0	68	79	1	0.0	0.0	0.	73.	48.	32.	97	5
					NOT CLR:	43	0	29	36	2	40.7	2.4	0.	39.	68.	41.	43	0
12/30/76 AKL SYD		417. -36.	430. -34.	201. -37.	FLT TOT:	28	0	15	21	1	0.0	0.0	0.	314.	47.	18.	18	10
					IN CLR:	28	0	15	21	1	0.0	0.0	0.	314.	47.	18.	18	10
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/31/76 SYD AKL		362. -36.	371. -34.	207. -37.	FLT TOT:	24	0	16	20	4	0.0	0.0	0.	175.	65.	35.	24	0
					IN CLR:	24	0	16	20	4	0.0	0.0	0.	175.	65.	35.	24	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/31/76 AKL SFO		385. 2.	412. 37.	197. -36.	FLT TOT:	131	0	14	19	0	8.3	.4	0.	80.	72.	71.	121	10
					IN CLR:	106	0	13	18	0	0.0	0.0	0.	80.	71.	71.	96	10
					NOT CLR:	25	0	1	1	0	43.2	2.1	0.	82.	96.	78.	25	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N				
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O			
(N533PA)																				
1/	1/77	SFO	AKL	386. 1.	410. 37.	270. -36.	FLT TOT:	140	0	91	115	36	5.4	.4	0.	64.	71.	40.	133	7
							IN CLR:	122	0	80	100	24	0.0	0.0	0.	70.	67.	39.	115	7
							NOT CLR:	18	0	11	15	12	42.0	3.3	0.	24.	99.	44.	18	0
1/	1/77	AKL	SYD	416. -36.	437. -34.	276. -37.	FLT TOT:	17	0	5	0	0	0.0	0.0	0.	176.	0.	0.	17	0
							IN CLR:	17	0	5	0	0	0.0	0.0	0.	176.	0.	0.	17	0
							NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/	2/77	SYD	SFO	400. 12.	410. 36.	330. -33.	FLT TOT:	70	0	45	0	0	2.0	.2	0.	94.	0.	0.	57	13
							IN CLR:	66	0	42	0	0	0.0	0.0	0.	99.	0.	0.	53	13
							NOT CLR:	4	0	3	0	0	34.2	3.3	0.	23.	0.	0.	4	0
(VH-EBE)																				
1/	1/77	SYD	MNL	340. -11.	351. 13.	253. -33.	FLT TOT:	75	0	0	0	0	25.7	2.1	0.	0.	0.	0.	75	0
							IN CLR:	29	0	0	0	0	0.0	0.0	0.	0.	0.	0.	29	0
							NOT CLR:	46	0	0	0	0	41.8	3.4	0.	0.	0.	0.	46	0
1/	1/77	MNL	HKG	341. 19.	350. 21.	283. 16.	FLT TOT:	11	0	0	0	0	.5	.2	0.	0.	0.	0.	11	0
							IN CLR:	10	0	0	0	0	0.0	0.0	0.	0.	0.	0.	10	0
							NOT CLR:	1	0	0	0	0	5.5	2.0	0.	0.	0.	0.	1	0
1/	1/77	HKG	MNL	318. 19.	330. 21.	257. 17.	FLT TOT:	8	0	0	0	0	3.8	1.1	0.	0.	0.	0.	8	0
							IN CLR:	6	0	0	0	0	0.0	0.0	0.	0.	0.	0.	6	0
							NOT CLR:	2	0	0	0	0	15.3	4.5	0.	0.	0.	0.	2	0
1/	1/77	MNL	SYD	347. -10.	396. 13.	221. -33.	FLT TOT:	76	0	0	0	0	22.1	2.0	0.	0.	0.	0.	76	0
							IN CLR:	36	0	0	0	0	0.0	0.0	0.	0.	0.	0.	36	0
							NOT CLR:	40	0	0	0	0	42.0	3.8	0.	0.	0.	0.	40	0
1/	2/77	SYD	CHC	301. -39.	330. -35.	257. -42.	FLT TOT:	19	0	0	0	0	25.3	2.5	0.	0.	0.	0.	19	0
							IN CLR:	10	0	0	0	0	0.0	0.0	0.	0.	0.	0.	10	0
							NOT CLR:	9	0	0	0	0	53.3	5.2	0.	0.	0.	0.	9	0
1/	2/77	CHC	SYD	367. -39.	390. -35.	286. -43.	FLT TOT:	25	0	0	0	0	14.5	1.2	0.	0.	0.	0.	25	0
							IN CLR:	19	0	0	0	0	0.0	0.0	0.	0.	0.	0.	19	0
							NOT CLR:	6	0	0	0	0	60.3	4.8	0.	0.	0.	0.	6	0
1/	4/77	SYD	MNL	337. -11.	351. 13.	257. -33.	FLT TOT:	72	0	0	0	0	0.0	0.0	0.	0.	0.	0.	72	0
							IN CLR:	72	0	0	0	0	0.0	0.0	0.	0.	0.	0.	72	0
							NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/	4/77	MNL	HKG	334. 19.	350. 21.	252. 16.	FLT TOT:	12	0	0	0	0	0.0	0.0	0.	0.	0.	0.	12	0
							IN CLR:	12	0	0	0	0	0.0	0.0	0.	0.	0.	0.	12	0
							NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPØ.			STRATØ.		
(VH-EBE)					CLD	PD5	OZ	H2Ø	H2S	%TIC	PATCHES	PD5	OZ	RH	H2Ø	N	N	N
1/ 4/77	HKG MNL	321. 19.	330. 21.	263. 16.	FLT TOT:	10	0	0	0	0	1.3	.2	0.	0.	0.	0.	10	0
					IN CLR:	8	0	0	0	0	0.0	0.0	0.	0.	0.	0.	8	0
					NOT CLR:	2	0	0	0	0	6.5	1.0	0.	0.	0.	0.	2	0
1/ 4/77	MNL SYD	343. -9.	370. 13.	190. -33.	FLT TOT:	78	0	0	0	0	17.3	1.1	0.	0.	0.	0.	78	0
					IN CLR:	53	0	0	0	0	0.0	0.0	0.	0.	0.	0.	53	0
					NOT CLR:	25	0	0	0	0	54.1	3.5	0.	0.	0.	0.	25	0
1/ 5/77	SYD NAN	324. -26.	330. -19.	239. -33.	FLT TOT:	35	0	0	0	0	.0	.0	0.	0.	0.	0.	35	0
					IN CLR:	34	0	0	0	0	0.0	0.0	0.	0.	0.	0.	34	0
					NOT CLR:	1	0	0	0	0	.4	1.0	0.	0.	0.	0.	1	0
1/ 5/77	NAN HNL	344. 2.	370. 20.	251. -16.	FLT TOT:	61	0	0	0	0	5.8	1.0	0.	0.	0.	0.	61	0
					IN CLR:	45	0	0	0	0	0.0	0.0	0.	0.	0.	0.	45	0
					NOT CLR:	16	0	0	0	0	22.2	3.8	0.	0.	0.	0.	16	0
1/ 5/77	HNL SFO	329. 30.	330. 37.	301. 22.	FLT TOT:	43	0	0	0	0	16.8	1.4	0.	0.	0.	0.	43	0
					IN CLR:	26	0	0	0	0	0.0	0.0	0.	0.	0.	0.	26	0
					NOT CLR:	17	0	0	0	0	42.4	3.5	0.	0.	0.	0.	17	0
1/ 6/77	SFO HNL	348. 30.	350. 37.	267. 22.	FLT TOT:	44	0	0	0	0	17.5	1.3	0.	0.	0.	0.	44	0
					IN CLR:	27	0	0	0	0	0.0	0.0	0.	0.	0.	0.	27	0
					NOT CLR:	17	0	0	0	0	45.4	3.2	0.	0.	0.	0.	17	0
1/ 6/77	HNL NAN	292. 1.	310. 19.	253. -17.	FLT TOT:	56	0	0	0	0	.8	.1	0.	0.	0.	0.	56	0
					IN CLR:	54	0	0	0	0	0.0	0.0	0.	0.	0.	0.	54	0
					NOT CLR:	2	0	0	0	0	22.5	4.0	0.	0.	0.	0.	2	0
1/ 6/77	NAN SYD	346. -27.	350. -19.	266. -33.	FLT TOT:	38	0	0	0	0	14.6	1.1	0.	0.	0.	0.	38	0
					IN CLR:	31	0	0	0	0	0.0	0.0	0.	0.	0.	0.	31	0
					NOT CLR:	7	0	0	0	0	79.3	6.0	0.	0.	0.	0.	7	0
1/ 7/77	SYD PER	345. -33.	351. -32.	261. -34.	FLT TOT:	39	0	0	0	0	7.0	.6	0.	0.	0.	0.	39	0
					IN CLR:	33	0	0	0	0	0.0	0.0	0.	0.	0.	0.	33	0
					NOT CLR:	6	0	0	0	0	45.8	3.7	0.	0.	0.	0.	6	0
1/ 7/77	PER BOM	324. -7.	350. 18.	240. -31.	FLT TOT:	87	0	0	0	0	2.8	.4	0.	0.	0.	0.	87	0
					IN CLR:	74	0	0	0	0	0.0	0.0	0.	0.	0.	0.	74	0
					NOT CLR:	13	0	0	0	0	18.8	2.5	0.	0.	0.	0.	13	0
1/ 7/77	BOM LHR	325. 37.	350. 52.	206. 19.	FLT TOT:	101	0	0	0	0	2.6	.3	0.	0.	0.	0.	78	23
					IN CLR:	91	0	0	0	0	0.0	0.0	0.	0.	0.	0.	71	20
					NOT CLR:	10	0	0	0	0	26.0	3.2	0.	0.	0.	0.	7	3

IM/1D/1Y (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				RH	H2O	TROPO. N	STRATO. N	
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ					
1/ 8/77	LHR BOM	310. 37.	370. 51.	249. 20.	FLT TOT:	86	0	0	0	0	12.5	1.1	0.	0.	0.	0.	81	5
					IN CLR:	66	0	0	0	0	0.0	0.0	0.	0.	0.	61	5	
					NOT CLR:	20	0	0	0	0	53.9	4.7	0.	0.	0.	20	0	
1/ 8/77	BOM PER	327. -7.	340. 17.	227. -31.	FLT TOT:	85	0	0	0	0	1.7	.3	0.	0.	0.	0.	85	0
					IN CLR:	77	0	0	0	0	0.0	0.0	0.	0.	0.	77	0	
					NOT CLR:	8	0	0	0	0	17.6	3.0	0.	0.	0.	8	0	
1/ 9/77	PER SYD	364. -34.	370. -33.	275. -35.	FLT TOT:	37	0	0	0	0	.1	.0	0.	0.	0.	0.	37	0
					IN CLR:	36	0	0	0	0	0.0	0.0	0.	0.	0.	36	0	
					NOT CLR:	1	0	0	0	0	4.7	1.0	0.	0.	0.	1	0	

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPO.		STRATO.		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N	
(N533PA)																		
1/21/77	JFK HND	381.	410.	277.	FLT TOT:	148	148	94	123	0	.3	.0	.175E+03	472.	24.	14.	14	134
		54.	65.	37.	IN CLR:	145	145	93	122	0	0.0	0.0	.430E+00	475.	23.	14.	11	134
					NOT CLR:	3	3	1	1	0	13.1	1.7	.863E+04	183.	65.	27.	3	0
1/22/77	HND LAX	407.	430.	217.	FLT TOT:	94	94	61	78	0	0.0	0.0	.269E+01	413.	13.	16.	2	92
		37.	39.	35.	IN CLR:	94	94	61	78	0	0.0	0.0	.269E+01	413.	13.	16.	2	92
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/22/77	LAX HND	388.	410.	209.	FLT TOT:	116	116	77	97	3	2.3	.2	.390E+04	550.	27.	15.	9	107
		47.	55.	35.	IN CLR:	110	110	73	92	1	0.0	0.0	.222E+02	576.	24.	15.	9	101
					NOT CLR:	6	6	4	5	2	45.3	3.2	.751E+05	75.	94.	13.	0	6
1/23/77	HND JFK	388.	410.	269.	FLT TOT:	129	129	83	106	0	.1	.0	.169E+01	490.	13.	14.	4	125
		51.	60.	36.	IN CLR:	128	128	83	105	0	0.0	0.0	.170E+01	490.	12.	13.	3	125
					NOT CLR:	1	1	0	1	0	18.8	3.0	0.	0.	26.	39.	1	0
1/25/77	JFK BAH	389.	411.	283.	FLT TOT:	120	120	37	100	7	14.6	.4	.287E+05	302.	41.	14.	30	90
		40.	46.	27.	IN CLR:	98	98	34	82	0	0.0	0.0	.496E+02	324.	31.	14.	8	90
					NOT CLR:	22	22	3	18	7	79.8	2.1	.156E+06	61.	85.	14.	22	0
1/26/77	BAH JFK	359.	429.	200.	FLT TOT:	157	157	0	128	11	13.8	.7	.480E+05	0.	44.	33.	62	95
		46.	57.	27.	IN CLR:	120	120	0	97	4	0.0	0.0	.699E+03	0.	35.	27.	28	92
					NOT CLR:	37	37	0	31	7	58.6	3.0	.201E+06	0.	71.	50.	34	3
1/28/77	JFK HND	382.	430.	206.	FLT TOT:	134	134	0	113	0	0.0	0.0	.384E+01	0.	18.	17.	15	119
		54.	62.	37.	IN CLR:	134	134	0	113	0	0.0	0.0	.384E+01	0.	18.	17.	15	119
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/29/77	HND LAX	401.	430.	201.	FLT TOT:	100	100	59	84	0	.0	.0	.105E+02	381.	15.	18.	15	85
		38.	40.	34.	IN CLR:	99	99	58	83	0	0.0	0.0	.106E+02	383.	15.	18.	15	84
					NOT CLR:	1	1	1	1	0	.4	1.0	0.	253.	14.	17.	0	1
(VH-EBE)																		
1/19/77	SYD SIN	354.	390.	260.	FLT TOT:	76	76	50	0	0	14.5	1.1	.481E+05	46.	0.	0.	76	0
		-17.	1.	-33.	IN CLR:	54	54	34	0	0	0.0	0.0	.820E+01	55.	0.	0.	54	0
					NOT CLR:	22	22	16	0	0	50.0	3.7	.166E+06	27.	0.	0.	22	0
1/19/77	KUL BAH	338.	350.	222.	FLT TOT:	79	79	49	0	0	0.0	0.0	.142E+02	58.	0.	0.	79	0
		12.	25.	3.	IN CLR:	79	79	49	0	0	0.0	0.0	.142E+02	58.	0.	0.	79	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
1/20/77	BAH FRA	337.	351.	277.	FLT TOT:	63	63	41	0	0	7.0	.6	.781E+05	162.	0.	0.	21	42
		38.	49.	27.	IN CLR:	54	54	35	0	0	0.0	0.0	.636E+02	178.	0.	0.	13	41
					NOT CLR:	9	9	6	0	0	49.3	4.3	.546E+06	70.	0.	0.	8	1

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TR0P0. N	STRAT0. N	
						CLD	PD5	0Z	H20	H2S	%TIC	PATCHES	PD5	0Z	RH			H20
1/20/77	FRA LHR	240. 51.	240. 52.	240. 50.	FLT T0T:	6	6	3	0	0	59.2	6.7	.342E+06	31.	0.	0.	6	0
					IN CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0	
					N0T CLR:	6	6	3	0	0	59.2	6.7	.342E+06	31.	0.	0.	6	0
1/20/77	AMS ATH	306. 46.	331. 52.	199. 39.	FLT T0T:	26	26	16	0	0	12.7	.7	.237E+05	73.	0.	0.	26	0
					IN CLR:	17	17	9	0	0	0.0	0.0	.108E+03	87.	0.	0.	17	0
					N0T CLR:	9	9	7	0	0	36.7	2.0	.683E+05	55.	0.	0.	9	0
1/21/77	ATH BAH	288. 32.	290. 36.	227. 27.	FLT T0T:	34	34	22	0	0	0.0	0.0	.748E+02	69.	0.	0.	34	0
					IN CLR:	34	34	22	0	0	0.0	0.0	.748E+02	69.	0.	0.	34	0
					N0T CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0	
1/21/77	BAH SIN	317. 14.	331. 25.	287. 2.	FLT T0T:	70	70	47	0	0	1.7	.3	.964E+02	57.	0.	0.	70	0
					IN CLR:	64	64	44	0	0	0.0	0.0	.212E+02	59.	0.	0.	64	0
					N0T CLR:	6	6	3	0	0	19.5	3.5	.899E+03	32.	0.	0.	6	0
1/21/77	SIN SYD	309. -17.	331. -0.	199. -34.	FLT T0T:	72	72	47	0	0	13.4	.7	.391E+05	50.	0.	0.	72	0
					IN CLR:	54	54	36	0	0	0.0	0.0	.980E+01	57.	0.	0.	54	0
					N0T CLR:	18	18	11	0	0	53.8	2.7	.156E+06	30.	0.	0.	18	0
1/21/77	SYD MEL	319. -36.	351. -35.	195. -37.	FLT T0T:	7	7	3	0	0	0.0	0.0	.461E+01	117.	0.	0.	7	0
					IN CLR:	7	7	3	0	0	0.0	0.0	.461E+01	117.	0.	0.	7	0
					N0T CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0	
1/22/77	MEL SYD	345. -36.	371. -35.	284. -37.	FLT T0T:	5	5	2	0	0	0.0	0.0	.131E+02	82.	0.	0.	5	0
					IN CLR:	5	5	2	0	0	0.0	0.0	.131E+02	82.	0.	0.	5	0
					N0T CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0	
1/23/77	PER BOM	350. 11.	351. 18.	345. 3.	FLT T0T:	22	22	14	0	0	27.9	1.5	.201E+06	47.	0.	0.	22	0
					IN CLR:	13	13	8	0	0	0.0	0.0	.123E+02	54.	0.	0.	13	0
					N0T CLR:	9	9	6	0	0	68.1	3.6	.492E+06	39.	0.	0.	9	0
1/23/77	BOM LHR	331. 35.	350. 51.	253. 19.	FLT T0T:	107	107	71	0	0	13.3	.6	.318E+05	82.	0.	0.	96	11
					IN CLR:	76	76	49	0	0	0.0	0.0	.178E+03	88.	0.	0.	65	11
					N0T CLR:	31	31	22	0	0	45.9	1.9	.109E+06	68.	0.	0.	31	0
1/24/77	LHR BOM	340. 32.	371. 39.	330. 21.	FLT T0T:	50	50	33	0	0	6.2	.4	.107E+05	76.	0.	0.	42	8
					IN CLR:	44	44	29	0	0	0.0	0.0	.451E+03	77.	0.	0.	36	8
					N0T CLR:	6	6	4	0	0	51.8	3.5	.860E+05	70.	0.	0.	6	0
1/24/77	BOM PER	324. -8.	340. 18.	194. -31.	FLT T0T:	75	75	45	0	0	6.3	.9	.422E+05	50.	0.	0.	75	0
					IN CLR:	60	60	39	0	0	0.0	0.0	.230E+02	53.	0.	0.	60	0
					N0T CLR:	15	15	6	0	0	31.7	4.5	.211E+06	33.	0.	0.	15	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPO.	STRATO.		
(VH-EBE)						CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ	RH	H20	N	N
1/25/77	PER SYD	356. -34.	371. -33.	199. -35.	FLT TOT: IN CLR: NOT CLR:	36 36 0	36 36 0	18 18 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	.720E+01 .720E+01 0.	129. 129. 0.	0. 0. 0.	0. 0. 0.	36 36 0	0 0 0
1/27/77	MEL PER	348. -35.	350. -33.	279. -38.	FLT TOT: IN CLR: NOT CLR:	36 36 0	36 36 0	16 16 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	.117E+02 .117E+02 0.	84. 84. 0.	0. 0. 0.	0. 0. 0.	36 36 0	0 0 0
1/27/77	PER MRU	267. -23.	267. -21.	266. -25.	FLT TOT: IN CLR: NOT CLR:	14 14 0	14 14 0	9 9 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	.872E+01 .872E+01 0.	76. 76. 0.	0. 0. 0.	0. 0. 0.	14 14 0	0 0 0
1/27/77	MRU JNB	304. -24.	310. -21.	193. -26.	FLT TOT: IN CLR: NOT CLR:	30 19 11	30 19 11	15 12 3	0 0 0	0 0 0	14.3 0.0 38.9	1.5 0.0 4.0	.124E+06 .652E+01 .338E+06	46. 47. 43.	0. 0. 0.	0. 0. 0.	30 19 11	0 0 0
1/28/77	JNB MRU	324. -22.	330. -21.	204. -24.	FLT TOT: IN CLR: NOT CLR:	21 14 7	21 14 7	14 9 5	0 0 0	0 0 0	5.8 0.0 17.3	1.1 0.0 3.4	.184E+05 .112E+02 .552E+05	70. 68. 73.	0. 0. 0.	0. 0. 0.	21 14 7	0 0 0
1/28/77	MRU PER	314. -28.	321. -21.	245. -32.	FLT TOT: IN CLR: NOT CLR:	65 61 4	65 61 4	38 36 2	0 0 0	0 0 0	1.3 0.0 20.9	.0 0.0 .8	.301E+03 .103E+02 .473E+04	69. 71. 49.	0. 0. 0.	0. 0. 0.	65 61 4	0 0 0
1/29/77	PER MEL	359. -35.	370. -33.	201. -38.	FLT TOT: IN CLR: NOT CLR:	30 30 0	30 30 0	8 8 0	0 0 0	0 0 0	0.0 0.0 0.0	0.0 0.0 0.0	.109E+02 .109E+02 0.	61. 61. 0.	0. 0. 0.	0. 0. 0.	30 30 0	0 0 0
1/29/77	MEL SYD	313. -35.	370. -34.	220. -37.	FLT TOT: IN CLR: NOT CLR:	7 2 5	7 2 5	3 1 2	0 0 0	0 0 0	43.8 0.0 61.3	3.3 0.0 4.6	.140E+06 .627E+03 .195E+06	57. 24. 74.	0. 0. 0.	0. 0. 0.	7 2 5	0 0 0
1/30/77	SYD SIN	340. -17.	351. 1.	214. -33.	FLT TOT: IN CLR: NOT CLR:	69 56 13	69 56 13	27 18 9	0 0 0	0 0 0	9.8 0.0 52.0	.7 0.0 3.9	.366E+05 .908E+01 .194E+06	42. 48. 29.	0. 0. 0.	0. 0. 0.	69 56 13	0 0 0
1/30/77	SIN BKK	341. 8.	350. 12.	267. 3.	FLT TOT: IN CLR: NOT CLR:	15 11 4	15 11 4	3 3 0	0 0 0	0 0 0	11.9 0.0 44.5	.9 0.0 3.3	.369E+05 .520E+02 .138E+06	47. 47. 0.	0. 0. 0.	0. 0. 0.	15 11 4	0 0 0
1/30/77	BKK BAH	308. 19.	310. 24.	249. 14.	FLT TOT: IN CLR: NOT CLR:	58 50 8	58 50 8	20 14 6	0 0 0	0 0 0	4.2 0.0 30.1	.8 0.0 5.9	.302E+05 .754E+01 .219E+06	38. 32. 53.	0. 0. 0.	0. 0. 0.	58 50 8	0 0 0

IM/1D/1Y (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N	
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O
1/31/77 BAH FRA		328.	350.	233.	FLT TOT:	66	66	37	0	0	2.1	.4	.786E+04	154.	0.	0.	60	6
					IN CLR:	60	60	34	0	0	0.0	0.0	.313E+02	164.	0.	0.	54	6
					NOT CLR:	6	6	3	0	0	22.6	4.5	.862E+05	40.	0.	0.	6	0
1/31/77 FRA BAH		289.	292.	239.	FLT TOT:	42	42	24	0	0	9.7	.6	.351E+05	52.	0.	0.	42	0
					IN CLR:	34	34	19	0	0	0.0	0.0	.324E+02	52.	0.	0.	34	0
					NOT CLR:	8	8	5	0	0	51.0	3.0	.184E+06	52.	0.	0.	8	0

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPØ.		STRATO.		
						CLD	PD5	OZ	H2Ø	H2S	%TIC	PATCHES	PD5	OZ	RH	H2Ø	N	N
2/ 1/77 BAH BKK		327. 19.	331. 25.	261. 14.	FLT TØT:	62	62	40	0	0	0.0	0.0	.772E+01	42.	0.	0.	62	0
					IN CLR:	62	62	40	0	0	0.0	0.0	.772E+01	42.	0.	0.	62	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/ 1/77 SIN SYD		322. -17.	351. -0.	237. -33.	FLT TØT:	73	73	24	0	0	2.4	.5	.618E+04	63.	0.	0.	73	0
					IN CLR:	65	65	24	0	0	0.0	0.0	.562E+02	63.	0.	0.	65	0
					NØT CLR:	8	8	0	0	0	21.7	4.5	.559E+05	0.	0.	0.	8	0
2/ 2/77 MEL PER		383. -35.	390. -33.	291. -38.	FLT TØT:	35	35	12	0	0	.7	.3	.515E+04	79.	0.	0.	35	0
					IN CLR:	34	34	12	0	0	0.0	0.0	.684E+01	79.	0.	0.	34	0
					NØT CLR:	1	1	0	0	0	23.9	10.0	.180E+06	0.	0.	0.	1	0
2/ 4/77 MRU PER		344. -28.	370. -21.	239. -32.	FLT TØT:	68	68	4	0	0	3.5	.3	.159E+05	70.	0.	0.	68	0
					IN CLR:	62	62	4	0	0	0.0	0.0	.621E+01	70.	0.	0.	62	0
					NØT CLR:	6	6	0	0	0	39.3	3.0	.180E+06	0.	0.	0.	6	0
2/ 6/77 SYD AKL		323. -36.	330. -34.	248. -37.	FLT TØT:	23	23	16	0	0	3.4	.7	.139E+05	65.	0.	0.	23	0
					IN CLR:	18	18	14	0	0	0.0	0.0	.161E+02	69.	0.	0.	18	0
					NØT CLR:	5	5	2	0	0	15.6	3.0	.637E+05	43.	0.	0.	5	0
2/ 6/77 AKL SYD		308. -36.	310. -34.	272. -37.	FLT TØT:	24	24	16	0	0	11.8	1.1	.151E+06	60.	0.	0.	24	0
					IN CLR:	18	18	10	0	0	0.0	0.0	.565E+02	65.	0.	0.	18	0
					NØT CLR:	6	6	6	0	0	47.1	4.5	.602E+06	52.	0.	0.	6	0
2/11/77 SYD NAN		326. -27.	330. -19.	250. -33.	FLT TØT:	29	29	17	0	0	12.9	1.6	.323E+05	53.	0.	0.	29	0
					IN CLR:	23	23	14	0	0	0.0	0.0	.411E+02	62.	0.	0.	23	0
					NØT CLR:	6	6	3	0	0	62.5	7.5	.156E+06	12.	0.	0.	6	0
2/11/77 NAN HNL		357. 1.	371. 19.	254. -16.	FLT TØT:	59	59	36	0	0	4.9	.5	.336E+05	32.	0.	0.	59	0
					IN CLR:	50	50	30	0	0	0.0	0.0	.182E+02	35.	0.	0.	50	0
					NØT CLR:	9	9	6	0	0	32.4	3.4	.220E+06	18.	0.	0.	9	0
2/11/77 HNL SFØ		368. 30.	371. 36.	295. 22.	FLT TØT:	41	41	26	0	0	49.1	2.1	.244E+06	66.	0.	0.	41	0
					IN CLR:	14	14	9	0	0	0.0	0.0	.706E+01	102.	0.	0.	14	0
					NØT CLR:	27	27	17	0	0	74.6	3.2	.371E+06	47.	0.	0.	27	0
2/12/77 SFØ HNL		348. 30.	350. 37.	270. 22.	FLT TØT:	51	51	33	0	0	34.4	2.3	.285E+06	55.	0.	0.	51	0
					IN CLR:	23	23	13	0	0	0.0	0.0	.241E+02	81.	0.	0.	23	0
					NØT CLR:	28	28	20	0	0	62.7	4.1	.520E+06	39.	0.	0.	28	0
2/12/77 HNL NAN		336. 1.	350. 19.	220. -17.	FLT TØT:	59	59	37	0	0	1.8	.2	.984E+04	27.	0.	0.	59	0
					IN CLR:	55	55	35	0	0	0.0	0.0	.977E+01	27.	0.	0.	55	0
					NØT CLR:	4	4	2	0	0	27.1	3.3	.145E+06	14.	0.	0.	4	0

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPØ. N	STRATØ. N		
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH	H2Ø		
2/12/77	NAN SYD	345. -27.	350. -20.	235. -34.	FLT TØT:	34	34	23	0	0	4.0	.8	.545E+04	43.	0.	0.	34	0
					IN CLR:	25	25	18	0	0	0.0	0.0	.909E+01	48.	0.	0.	25	0
					NØT CLR:	9	9	5	0	0	15.0	3.0	.206E+05	26.	0.	0.	9	0
2/13/77	SYD SIN	341. -17.	351. 1.	188. -33.	FLT TØT:	75	75	51	0	0	20.6	1.5	.719E+05	45.	0.	0.	75	0
					IN CLR:	44	44	30	0	0	0.0	0.0	.377E+02	59.	0.	0.	44	0
					NØT CLR:	31	31	21	0	0	49.7	3.7	.174E+06	25.	0.	0.	31	0
2/13/77	SIN BKK	337. 8.	350. 13.	262. 3.	FLT TØT:	14	14	7	0	0	.2	.1	.139E+02	20.	0.	0.	14	0
					IN CLR:	13	13	6	0	0	0.0	0.0	.125E+02	22.	0.	0.	13	0
					NØT CLR:	1	1	1	0	0	2.4	1.0	.326E+02	13.	0.	0.	1	0
2/13/77	BKK BAH	304. 20.	310. 26.	193. 14.	FLT TØT:	66	66	41	0	0	1.0	.3	.140E+04	50.	0.	0.	66	0
					IN CLR:	64	64	40	0	0	0.0	0.0	.436E+02	50.	0.	0.	64	0
					NØT CLR:	2	2	1	0	0	33.9	8.5	.449E+05	16.	0.	0.	2	0
2/14/77	BAH FRA	316. 41.	350. 49.	226. 30.	FLT TØT:	43	43	14	0	0	7.0	1.1	.108E+06	245.	0.	0.	33	10
					IN CLR:	30	30	10	0	0	0.0	0.0	.115E+03	314.	0.	0.	20	10
					NØT CLR:	13	13	4	0	0	23.1	3.5	.355E+06	73.	0.	0.	13	0
2/14/77	FRA LHR	240. 51.	240. 52.	240. 50.	FLT TØT:	6	6	3	0	0	0.0	0.0	.261E+03	53.	0.	0.	6	0
					IN CLR:	6	6	3	0	0	0.0	0.0	.261E+03	53.	0.	0.	6	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/14/77	FRA BAH	347. 38.	370. 49.	200. 27.	FLT TØT:	59	59	30	0	0	4.4	.2	.111E+05	119.	0.	0.	42	17
					IN CLR:	53	53	27	0	0	0.0	0.0	.445E+03	125.	0.	0.	36	17
					NØT CLR:	6	6	3	0	0	42.9	1.7	.105E+06	59.	0.	0.	6	0
2/15/77	BAH BKK	348. 19.	370. 26.	247. 14.	FLT TØT:	63	63	41	0	0	0.0	0.0	.148E+02	47.	0.	0.	63	0
					IN CLR:	63	63	41	0	0	0.0	0.0	.148E+02	47.	0.	0.	63	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/15/77	BKK SIN	351. 7.	370. 12.	229. 2.	FLT TØT:	16	16	10	0	0	7.1	.8	.103E+05	18.	0.	0.	16	0
					IN CLR:	11	11	6	0	0	0.0	0.0	.543E+02	14.	0.	0.	11	0
					NØT CLR:	5	5	4	0	0	22.6	2.6	.328E+05	25.	0.	0.	5	0
2/15/77	SIN SYD	346. -20.	370. 0.	249. -34.	FLT TØT:	51	51	25	0	0	16.5	1.9	.423E+05	49.	0.	0.	25	0
					IN CLR:	31	31	17	0	0	0.0	0.0	.161E+03	56.	0.	0.	10	0
					NØT CLR:	20	20	8	0	0	42.1	4.8	.108E+06	34.	0.	0.	15	0
2/15/77	SYD MEL	329. -36.	351. -35.	285. -37.	FLT TØT:	6	6	3	0	0	0.0	0.0	.111E+02	32.	0.	0.	0	0
					IN CLR:	6	6	3	0	0	0.0	0.0	.111E+02	32.	0.	0.	0	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

APPENDIX B

IM/ID/IY (VH-EBE)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N	
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH	H2Ø		
2/16/77	MEL SYD	335. -36.	370. -35.	271. -36.	FLT TØT:	5	5	3	0	0	0.0	0.0	.642E+01	37.	0.	0.	0	0
					IN CLR:	5	5	3	0	0	0.0	0.0	.642E+01	37.	0.	0.	0	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/16/77	SYD MEL	320. -36.	350. -35.	227. -37.	FLT TØT:	6	6	2	0	0	0.0	0.0	.535E+01	61.	0.	0.	0	0
					IN CLR:	6	6	2	0	0	0.0	0.0	.535E+01	61.	0.	0.	0	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/16/77	MEL PER	382. -35.	390. -33.	244. -38.	FLT TØT:	35	35	23	0	0	0.0	0.0	.103E+02	90.	0.	0.	0	0
					IN CLR:	35	35	23	0	0	0.0	0.0	.103E+02	90.	0.	0.	0	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/17/77	PER MRU	331. -28.	361. -21.	227. -32.	FLT TØT:	69	69	46	0	0	0.0	0.0	.630E+01	53.	0.	0.	0	0
					IN CLR:	69	69	46	0	0	0.0	0.0	.630E+01	53.	0.	0.	0	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/17/77	MRU JNB	309. -24.	310. -21.	272. -26.	FLT TØT:	30	30	19	0	0	.0	.1	.744E+02	43.	0.	0.	0	0
					IN CLR:	29	29	19	0	0	0.0	0.0	.117E+02	43.	0.	0.	0	0
					NØT CLR:	1	1	0	0	0	1.2	3.0	.189E+04	0.	0.	0.	0	0
2/18/77	JNB MRU	338. -24.	370. -21.	255. -26.	FLT TØT:	35	35	23	0	0	1.3	.2	.147E+03	48.	0.	0.	0	0
					IN CLR:	33	33	21	0	0	0.0	0.0	.870E+01	46.	0.	0.	0	0
					NØT CLR:	2	2	2	0	0	22.4	4.0	.244E+04	60.	0.	0.	0	0
2/18/77	MRU PER	360. -28.	380. -21.	218. -32.	FLT TØT:	67	67	43	0	0	0.0	0.0	.429E+01	50.	0.	0.	0	0
					IN CLR:	67	67	43	0	0	0.0	0.0	.429E+01	50.	0.	0.	0	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/19/77	PER MEL	362. -35.	371. -33.	261. -38.	FLT TØT:	30	30	19	0	0	.5	.1	.267E+02	92.	0.	0.	0	0
					IN CLR:	29	29	18	0	0	0.0	0.0	.265E+02	94.	0.	0.	0	0
					NØT CLR:	1	1	1	0	0	16.1	2.0	.310E+02	66.	0.	0.	0	0
2/19/77	MEL SYD	311. -36.	330. -34.	259. -37.	FLT TØT:	5	5	3	0	0	0.0	0.0	0.	52.	0.	0.	0	0
					IN CLR:	5	5	3	0	0	0.0	0.0	0.	52.	0.	0.	0	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/19/77	SYD NAN	324. -26.	331. -19.	218. -33.	FLT TØT:	35	35	23	0	0	3.0	.8	.450E+04	68.	0.	0.	0	0
					IN CLR:	30	30	20	0	0	0.0	0.0	.172E+02	75.	0.	0.	0	0
					NØT CLR:	5	5	3	0	0	21.2	5.8	.314E+05	17.	0.	0.	0	0
2/19/77	NAN HNL	364. 2.	371. 20.	256. -16.	FLT TØT:	61	61	38	0	0	1.7	.3	.545E+04	24.	0.	0.	0	0
					IN CLR:	57	57	35	0	0	0.0	0.0	.286E+01	24.	0.	0.	0	0
					NØT CLR:	4	4	3	0	0	26.0	4.0	.830E+05	25.	0.	0.	0	0

IM/ID/IY	DEP-ARR	AVFL	EXHI	EXLO	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPO.	STRATO.			
(VH-EBE)		ALAT	EXTN	EXTS	CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ	RH	H20	N	N	
2/19/77	HNL SFO	380. 30.	390. 36.	269. 22.	FLT TOT:	43	43	27	0	0	0.0	0.0	.535E+01	54.	0.	0.	0	0
					IN CLR:	43	43	27	0	0	0.0	0.0	.535E+01	54.	0.	0.	0	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
2/20/77	SFO HNL	346. 30.	350. 37.	252. 22.	FLT TOT:	49	49	15	0	0	1.0	.2	.121E+05	29.	0.	0.	0	0
					IN CLR:	48	48	15	0	0	0.0	0.0	.251E+02	29.	0.	0.	0	0
					NOT CLR:	1	1	0	0	0	47.5	9.0	.593E+06	0.	0.	0.	0	0
2/20/77	HNL NAN	345. 1.	350. 19.	248. -17.	FLT TOT:	60	60	38	0	0	.8	.2	.360E+04	22.	0.	0.	0	0
					IN CLR:	54	54	34	0	0	0.0	0.0	.831E+01	23.	0.	0.	0	0
					NOT CLR:	6	6	4	0	0	7.8	1.5	.360E+05	16.	0.	0.	0	0
2/20/77	NAN SYD	325. -27.	351. -19.	213. -34.	FLT TOT:	41	41	24	0	0	22.3	2.9	.202E+06	34.	0.	0.	0	0
					IN CLR:	19	19	10	0	0	0.0	0.0	.511E+01	40.	0.	0.	0	0
					NOT CLR:	22	22	14	0	0	41.5	5.3	.377E+06	29.	0.	0.	0	0
2/21/77	SYD MEL	336. -36.	351. -35.	282. -37.	FLT TOT:	5	5	2	0	0	20.3	3.2	.531E+05	93.	0.	0.	0	0
					IN CLR:	3	3	1	0	0	0.0	0.0	0.	111.	0.	0.	0	0
					NOT CLR:	2	2	1	0	0	50.8	8.0	.133E+06	75.	0.	0.	0	0
2/21/77	MEL SIN	361. -20.	390. -0.	265. -37.	FLT TOT:	73	73	47	0	0	23.5	1.6	.173E+06	41.	0.	0.	0	0
					IN CLR:	48	48	32	0	0	0.0	0.0	.106E+02	50.	0.	0.	0	0
					NOT CLR:	25	25	15	0	0	68.5	4.6	.506E+06	23.	0.	0.	0	0
2/21/77	SIN BKK	343. 8.	350. 12.	267. 3.	FLT TOT:	15	15	9	0	0	2.5	.2	.280E+03	26.	0.	0.	0	0
					IN CLR:	13	13	8	0	0	0.0	0.0	.352E+02	27.	0.	0.	0	0
					NOT CLR:	2	2	1	0	0	18.6	1.5	.187E+04	22.	0.	0.	0	0
2/21/77	BKK THR	328. 26.	349. 35.	252. 15.	FLT TOT:	73	73	39	0	0	14.3	2.0	.101E+06	61.	0.	0.	0	0
					IN CLR:	45	45	21	0	0	0.0	0.0	.117E+03	64.	0.	0.	0	0
					NOT CLR:	28	28	18	0	0	37.4	5.3	.262E+06	59.	0.	0.	0	0
2/22/77	THR ATH	347. 35.	349. 37.	294. 34.	FLT TOT:	35	35	21	0	0	2.8	.0	.810E+04	148.	0.	0.	0	0
					IN CLR:	33	33	20	0	0	0.0	0.0	.203E+02	152.	0.	0.	0	0
					NOT CLR:	2	2	1	0	0	48.4	.5	.142E+06	64.	0.	0.	0	0
2/22/77	ATH FCO	340. 39.	350. 42.	265. 38.	FLT TOT:	14	14	8	0	0	66.0	2.5	.166E+06	57.	0.	0.	0	0
					IN CLR:	2	2	1	0	0	0.0	0.0	.323E+02	75.	0.	0.	0	0
					NOT CLR:	12	12	7	0	0	77.0	2.9	.193E+06	55.	0.	0.	0	0
2/22/77	ATH THR	326. 35.	330. 36.	265. 34.	FLT TOT:	33	33	21	0	0	4.8	.4	.253E+05	99.	0.	0.	0	0
					IN CLR:	26	26	18	0	0	0.0	0.0	.771E+02	109.	0.	0.	0	0
					NOT CLR:	7	7	3	0	0	22.6	2.0	.119E+06	35.	0.	0.	0	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPO. N	STRATO. N	
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ			RH
(VH-EBE)																	
2/23/77	THR BKK	339.	370.	260.	FLT TOT:	56	56	33	0	0	20.7	1.0	.643E+05	48.	0.	0.	0
		25.	34.	15.	IN CLR:	37	37	22	0	0	0.0	0.0	.623E+03	45.	0.	0.	0
					NOT CLR:	19	19	11	0	0	61.1	3.1	.188E+06	53.	0.	0.	0
2/23/77	BKK SIN	283.	290.	202.	FLT TOT:	15	15	9	0	0	0.0	0.0	.615E+01	24.	0.	0.	0
		7.	12.	2.	IN CLR:	15	15	9	0	0	0.0	0.0	.615E+01	24.	0.	0.	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
2/24/77	SIN MEL	314.	350.	235.	FLT TOT:	75	75	49	0	0	11.4	.6	.342E+05	44.	0.	0.	0
		-20.	-0.	-37.	IN CLR:	58	58	37	0	0	0.0	0.0	.180E+02	53.	0.	0.	0
					NOT CLR:	17	17	12	0	0	50.3	2.5	.151E+06	16.	0.	0.	0
(N533PA)																	
2/ 2/77	JFK SFO	421.	430.	196.	FLT TOT:	55	55	0	45	1	0.0	0.0	.134E+02	0.	23.	22.	3
		43.	45.	38.	IN CLR:	55	55	0	45	1	0.0	0.0	.134E+02	0.	23.	22.	3
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
2/ 3/77	AKL SYD	386.	390.	326.	FLT TOT:	27	27	0	22	5	.2	.1	.615E+00	0.	90.	28.	27
		-36.	-34.	-37.	IN CLR:	26	26	0	21	4	0.0	0.0	.638E+00	0.	90.	28.	26
					NOT CLR:	1	1	0	1	1	6.3	3.0	0.	0.	100.	26.	1
2/ 4/77	SYD AKL	396.	410.	213.	FLT TOT:	25	25	0	20	8	1.3	.2	.127E+04	0.	90.	85.	17
		-36.	-34.	-37.	IN CLR:	22	22	0	18	8	0.0	0.0	0.	0.	91.	22.	14
					NOT CLR:	3	3	0	2	0	10.6	2.0	.106E+05	0.	88.	649.	3
2/ 4/77	AKL SFO	377.	410.	278.	FLT TOT:	125	125	0	104	7	11.4	.6	.518E+05	0.	44.	55.	115
		1.	36.	-36.	IN CLR:	101	101	0	84	0	0.0	0.0	.338E+02	0.	34.	38.	91
					NOT CLR:	24	24	0	20	7	59.3	3.0	.270E+06	0.	87.	125.	24

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPØ N	STRATØ N			
					CLD	PD5	OZ	H2Ø	H2S	%TIC	PATCHES	PD5	OZ			RH	H2Ø	
(N533PA)																		
3/23/77	BAH JFK	386. 47.	410. 58.	200. 29.	FLT TØT:	134	134	92	113	1	.6	.1	.953E+02	420.	21.	12.	0	0
					IN CLR:	130	130	90	110	0	0.0	0.0	.826E+02	427.	18.	10.	0	0
					NØT CLR:	4	4	2	3	1	21.2	3.0	.508E+03	101.	100.	69.	0	0
3/25/77	HND LAX	393. 47.	431. 52.	208. 35.	FLT TØT:	50	50	24	41	11	9.4	1.1	.152E+05	395.	44.	12.	0	0
					IN CLR:	35	35	15	29	1	0.0	0.0	0.	593.	21.	9.	0	0
					NØT CLR:	15	15	9	12	10	31.2	3.8	.507E+05	66.	98.	18.	0	0
3/26/77	HND JFK	352. 46.	370. 50.	261. 41.	FLT TØT:	54	54	35	45	4	3.9	.4	.272E+04	213.	61.	21.	0	0
					IN CLR:	45	45	28	37	1	0.0	0.0	.129E+03	224.	54.	18.	0	0
					NØT CLR:	9	9	7	8	3	23.3	2.7	.157E+05	168.	93.	33.	0	0
3/28/77	JFK DFW	420. 37.	433. 40.	217. 33.	FLT TØT:	29	29	0	23	8	10.5	.5	.245E+05	0.	54.	13.	0	0
					IN CLR:	23	23	0	18	3	0.0	0.0	.900E+01	0.	41.	14.	0	0
					NØT CLR:	6	6	0	5	5	50.7	2.3	.118E+06	0.	100.	10.	0	0
3/28/77	DFW HNL	408. 30.	421. 35.	272. 21.	FLT TØT:	85	85	0	70	1	0.0	0.0	.184E+01	0.	18.	12.	0	0
					IN CLR:	85	85	0	70	1	0.0	0.0	.184E+01	0.	18.	12.	0	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/29/77	HNL PPG	386. 4.	389. 20.	315. -13.	FLT TØT:	50	50	0	40	15	8.8	1.2	.515E+05	0.	69.	56.	0	0
					IN CLR:	29	29	0	24	3	0.0	0.0	.156E+02	0.	52.	36.	0	0
					NØT CLR:	21	21	0	16	12	20.8	2.9	.123E+06	0.	95.	86.	0	0
3/29/77	PPG PPT	416. -16.	431. -15.	327. -17.	FLT TØT:	25	25	0	22	21	24.8	1.3	.390E+05	0.	98.	35.	0	0
					IN CLR:	12	12	0	10	9	0.0	0.0	.518E+03	0.	95.	38.	0	0
					NØT CLR:	13	13	0	12	12	47.7	2.5	.745E+05	0.	100.	32.	0	0
3/29/77	PPT PPG	416. -16.	431. -14.	218. -17.	FLT TØT:	25	25	0	21	16	16.4	1.0	.277E+05	0.	95.	123.	0	0
					IN CLR:	16	16	0	13	8	0.0	0.0	.177E+02	0.	92.	188.	0	0
					NØT CLR:	9	9	0	8	8	45.5	2.9	.769E+05	0.	100.	19.	0	0
3/29/77	PPG HNL	404. 3.	410. 20.	234. -13.	FLT TØT:	50	50	0	41	27	20.2	1.6	.344E+05	0.	87.	44.	0	0
					IN CLR:	21	21	0	18	7	0.0	0.0	.605E+01	0.	73.	56.	0	0
					NØT CLR:	29	29	0	23	20	34.8	2.8	.593E+05	0.	99.	35.	0	0
3/30/77	HNL DFW	418. 30.	431. 34.	221. 22.	FLT TØT:	64	64	0	54	0	0.0	0.0	.355E+01	0.	15.	17.	0	0
					IN CLR:	64	64	0	54	0	0.0	0.0	.355E+01	0.	15.	17.	0	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
3/30/77	DFW JFK	404. 37.	410. 39.	345. 33.	FLT TØT:	22	22	0	19	0	.2	.0	.129E+01	0.	23.	15.	0	0
					IN CLR:	21	21	0	18	0	0.0	0.0	.135E+01	0.	20.	12.	0	0
					NØT CLR:	1	1	0	1	0	3.5	1.0	0.	0.	84.	53.	0	0

APPENDIX B

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N	
						CLD	PD5	OZ	H2Ø	H2S	%TIC	PATCHES	PD5	OZ	RH			H2Ø
3/30/77	JFK SFO	347. 43.	350. 45.	227. 38.	FLT TOT:	58	58	0	48	2	.1	.0	.690E+01	0.	28.	22.	0	0
					IN CLR:	57	57	0	47	2	0.0	0.0	.702E+01	0.	27.	21.	0	0
					NOT CLR:	1	1	0	1	0	5.1	2.0	0.	0.	56.	68.	0	0
3/31/77	SFO AKL	383. -3.	390. 37.	263. -9.	FLT TOT:	18	18	0	14	13	13.7	2.2	.530E+05	0.	100.	53.	0	0
					IN CLR:	10	10	0	7	6	0.0	0.0	.832E+02	0.	99.	52.	0	0
					NOT CLR:	8	8	0	7	7	30.7	4.9	.119E+06	0.	100.	54.	0	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			RH	H2O	TROPO. N	STRATO. N	
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5					OZ
(N533PA)																	
4/ 6/77	JFK JFK	383. 45.	431. 48.	255. 42.	FLT TOT:	19	0	0	0	0	0.0	0.0	0.	0.	0.	4	15
					IN CLR:	19	0	0	0	0	0.0	0.0	0.	0.	0.	4	15
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0
4/ 6/77	JFK HND	391. 55.	430. 65.	278. 37.	FLT TOT:	151	0	0	0	0	.0	.0	0.	0.	0.	3	148
					IN CLR:	150	0	0	0	0	0.0	0.0	0.	0.	0.	2	148
					NOT CLR:	1	0	0	0	0	2.7	1.0	0.	0.	0.	1	0
4/ 7/77	HND LAX	390. 40.	410. 44.	236. 35.	FLT TOT:	100	0	0	0	0	3.6	.1	0.	0.	0.	49	51
					IN CLR:	91	0	0	0	0	0.0	0.0	0.	0.	0.	40	51
					NOT CLR:	9	0	0	0	0	39.5	1.0	0.	0.	0.	9	0
4/ 7/77	LAX HND	384. 50.	432. 58.	261. 35.	FLT TOT:	117	0	0	0	0	.2	.0	0.	0.	0.	16	101
					IN CLR:	115	0	0	0	0	0.0	0.0	0.	0.	0.	14	101
					NOT CLR:	2	0	0	0	0	10.4	1.5	0.	0.	0.	2	0
4/ 8/77	HND JFK	376. 52.	410. 60.	206. 36.	FLT TOT:	131	0	0	0	0	1.1	.1	0.	0.	0.	31	100
					IN CLR:	125	0	0	0	0	0.0	0.0	0.	0.	0.	25	100
					NOT CLR:	6	0	0	0	0	24.4	2.0	0.	0.	0.	6	0
4/ 9/77	JFK GIG	365. 8.	370. 39.	196. -23.	FLT TOT:	97	0	0	0	0	10.9	.8	0.	0.	0.	92	5
					IN CLR:	67	0	0	0	0	0.0	0.0	0.	0.	0.	62	5
					NOT CLR:	30	0	0	0	0	35.2	2.5	0.	0.	0.	30	0
4/10/77	GIG JFK	388. 9.	390. 39.	260. -22.	FLT TOT:	99	0	0	0	0	7.6	.7	0.	0.	0.	89	10
					IN CLR:	76	0	0	0	0	0.0	0.0	0.	0.	0.	66	10
					NOT CLR:	23	0	0	0	0	32.5	2.9	0.	0.	0.	23	0
4/10/77	JFK HND	348. 53.	351. 64.	216. 36.	FLT TOT:	144	0	0	0	0	2.6	.2	0.	0.	0.	35	109
					IN CLR:	133	0	0	0	0	0.0	0.0	0.	0.	0.	24	109
					NOT CLR:	11	0	0	0	0	33.4	2.3	0.	0.	0.	11	0
4/11/77	HND LAX	368. 41.	370. 44.	271. 34.	FLT TOT:	96	0	0	0	0	17.7	1.5	0.	0.	0.	52	44
					IN CLR:	57	0	0	0	0	0.0	0.0	0.	0.	0.	25	32
					NOT CLR:	39	0	0	0	0	43.6	3.6	0.	0.	0.	27	12
4/11/77	LAX HND	393. 47.	431. 55.	290. 35.	FLT TOT:	122	0	0	0	0	3.3	.5	0.	0.	0.	38	84
					IN CLR:	104	0	0	0	0	0.0	0.0	0.	0.	0.	20	84
					NOT CLR:	18	0	0	0	0	22.2	3.2	0.	0.	0.	18	0
4/12/77	HND JFK	347. 46.	370. 51.	265. 36.	FLT TOT:	127	0	0	0	0	7.8	.5	0.	0.	0.	74	53
					IN CLR:	102	0	0	0	0	0.0	0.0	0.	0.	0.	49	53
					NOT CLR:	25	0	0	0	0	39.7	2.8	0.	0.	0.	25	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT				TROP0. N	STRAT0. N		
						CLD	PD5	0Z	H20	H2S	%TIC	PATCHES	PD5			0Z	RH
4/13/77	JFK HND	386. 54.	431. 65.	264. 37.	FLT TOT:	147	0	0	0	0	.9	.2	0.	0.	0.	46	101
					IN CLR:	136	0	0	0	0	0.0	0.0	0.	0.	0.	35	101
					NOT CLR:	11	0	0	0	0	11.5	2.5	0.	0.	0.	11	0
4/14/77	HND LAX	367. 41.	370. 45.	205. 35.	FLT TOT:	95	0	0	0	0	5.5	.6	0.	0.	0.	63	32
					IN CLR:	77	0	0	0	0	0.0	0.0	0.	0.	0.	45	32
					NOT CLR:	18	0	0	0	0	29.0	3.3	0.	0.	0.	18	0
4/14/77	LAX HND	387. 47.	390. 55.	286. 35.	FLT TOT:	125	0	0	0	0	8.4	.3	0.	0.	0.	55	70
					IN CLR:	101	0	0	0	0	0.0	0.0	0.	0.	0.	31	70
					NOT CLR:	24	0	0	0	0	43.6	1.8	0.	0.	0.	24	0
4/15/77	HND JFK	377. 52.	410. 60.	270. 36.	FLT TOT:	130	0	0	0	0	6.7	.5	0.	0.	0.	40	90
					IN CLR:	101	0	0	0	0	0.0	0.0	0.	0.	0.	12	89
					NOT CLR:	29	0	0	0	0	29.9	2.2	0.	0.	0.	28	1
4/16/77	JFK GIG	368. 9.	371. 39.	291. -21.	FLT TOT:	94	0	0	0	0	5.8	.7	0.	0.	0.	86	8
					IN CLR:	62	0	0	0	0	0.0	0.0	0.	0.	0.	54	8
					NOT CLR:	32	0	0	0	0	17.0	1.9	0.	0.	0.	32	0
4/17/77	GIG JFK	388. 9.	430. 40.	235. -22.	FLT TOT:	101	0	0	0	0	13.6	.9	0.	0.	0.	81	20
					IN CLR:	63	0	0	0	0	0.0	0.0	0.	0.	0.	43	20
					NOT CLR:	38	0	0	0	0	36.2	2.3	0.	0.	0.	38	0
4/17/77	JFK HND	383. 53.	431. 64.	281. 37.	FLT TOT:	153	0	0	0	0	3.8	.2	0.	0.	0.	41	112
					IN CLR:	142	0	0	0	0	0.0	0.0	0.	0.	0.	30	112
					NOT CLR:	11	0	0	0	0	53.2	3.5	0.	0.	0.	11	0
4/18/77	HND LAX	403. 46.	414. 52.	210. 35.	FLT TOT:	93	0	0	0	0	.8	.2	0.	0.	0.	33	60
					IN CLR:	89	0	0	0	0	0.0	0.0	0.	0.	0.	29	60
					NOT CLR:	4	0	0	0	0	19.5	5.5	0.	0.	0.	4	0
4/19/77	LAX HND	395. 39.	432. 43.	200. 35.	FLT TOT:	125	0	0	0	0	8.8	.6	0.	0.	0.	99	26
					IN CLR:	93	0	0	0	0	0.0	0.0	0.	0.	0.	72	21
					NOT CLR:	32	0	0	0	0	34.3	2.3	0.	0.	0.	27	5
4/19/77	HND JFK	374. 51.	390. 59.	278. 37.	FLT TOT:	126	0	0	0	0	13.1	1.0	0.	0.	0.	57	69
					IN CLR:	93	0	0	0	0	0.0	0.0	0.	0.	0.	34	59
					NOT CLR:	33	0	0	0	0	49.9	3.7	0.	0.	0.	23	10
4/20/77	JFK HND	378. 53.	411. 61.	276. 37.	FLT TOT:	124	0	0	0	0	1.9	.2	0.	0.	0.	29	95
					IN CLR:	115	0	0	0	0	0.0	0.0	0.	0.	0.	21	94
					NOT CLR:	9	0	0	0	0	26.5	2.1	0.	0.	0.	8	1

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT			OZ	RH	H20	TROP0. N	STRAT0. N		
					CLD	PD5	OZ	H20	H2S	%TIC	PATCHES						PD5	
4/21/77	HND LAX	386. 43.	390. 48.	295. 35.	FLT TOT:	92	0	0	0	0	.6	.1	0.	0.	0.	60	32	
					IN CLR:	88	0	0	0	0	0.0	0.0	0.	0.	0.	56	32	
					NOT CLR:	4	0	0	0	0	14.6	2.5	0.	0.	0.	4	0	
4/21/77	LAX HND	389. 50.	411. 59.	298. 35.	FLT TOT:	120	0	0	0	0	1.7	.2	0.	0.	0.	26	94	
					IN CLR:	111	0	0	0	0	0.0	0.0	0.	0.	0.	17	94	
					NOT CLR:	9	0	0	0	0	22.4	2.2	0.	0.	0.	9	0	
4/22/77	HND JFK	368. 50.	390. 59.	200. 36.	FLT TOT:	135	0	0	0	0	4.4	.3	0.	0.	0.	44	91	
					IN CLR:	113	0	0	0	0	0.0	0.0	0.	0.	0.	29	84	
					NOT CLR:	22	0	0	0	0	27.1	1.6	0.	0.	0.	15	7	
4/23/77	JFK GIG	381. 9.	410. 39.	271. -22.	FLT TOT:	93	0	0	0	0	14.5	.9	0.	0.	0.	93	0	
					IN CLR:	65	0	0	0	0	0.0	0.0	0.	0.	0.	65	0	
					NOT CLR:	28	0	0	0	0	48.2	3.0	0.	0.	0.	28	0	
4/24/77	GIG JFK	394. 8.	410. 39.	257. -22.	FLT TOT:	99	0	0	0	0	23.7	1.0	0.	0.	0.	99	0	
					IN CLR:	47	0	0	0	0	0.0	0.0	0.	0.	0.	47	0	
					NOT CLR:	52	0	0	0	0	45.1	1.9	0.	0.	0.	52	0	
4/24/77	JFK HND	371. 52.	390. 61.	205. 37.	FLT TOT:	151	0	0	0	0	6.5	.4	0.	0.	0.	63	88	
					IN CLR:	129	0	0	0	0	0.0	0.0	0.	0.	0.	41	88	
					NOT CLR:	22	0	0	0	0	44.8	2.8	0.	0.	0.	22	0	
4/25/77	HND JFK	383. 53.	410. 63.	243. 36.	FLT TOT:	134	0	0	0	0	6.1	.4	0.	0.	0.	20	114	
					IN CLR:	113	0	0	0	0	0.0	0.0	0.	0.	0.	10	103	
					NOT CLR:	21	0	0	0	0	39.1	2.5	0.	0.	0.	10	11	
4/26/77	JFK HND	358. 51.	370. 59.	279. 37.	FLT TOT:	145	145	92	0	0	3.7	.3	.520E+04	345.	0.	0.	87	58
					IN CLR:	128	128	83	0	0	0.0	0.0	.874E+03	373.	0.	0.	70	58
					NOT CLR:	17	17	9	0	0	31.6	2.6	.378E+05	87.	0.	0.	17	0
4/27/77	HND LAX	374. 40.	390. 44.	296. 35.	FLT TOT:	97	97	59	0	0	10.0	.2	.131E+05	367.	0.	0.	52	45
					IN CLR:	75	75	47	0	0	0.0	0.0	.659E+03	434.	0.	0.	30	45
					NOT CLR:	22	22	12	0	0	44.1	.9	.557E+05	104.	0.	0.	22	0
4/27/77	LAX HND	375. 45.	411. 51.	200. 35.	FLT TOT:	115	115	68	0	0	11.2	.4	.253E+05	429.	0.	0.	59	56
					IN CLR:	95	95	56	0	0	0.0	0.0	.604E+03	506.	0.	0.	39	56
					NOT CLR:	20	20	12	0	0	64.5	2.3	.142E+06	69.	0.	0.	20	0
4/28/77	HND JFK	361. 52.	410. 59.	200. 37.	FLT TOT:	128	128	84	0	0	5.8	.3	.170E+05	521.	0.	0.	28	100
					IN CLR:	111	111	74	0	0	0.0	0.0	.350E+02	578.	0.	0.	12	99
					NOT CLR:	17	17	10	0	0	43.9	2.2	.128E+06	99.	0.	0.	16	1

APPENDIX B

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TR0P0.		STRAT0.	
						CLD	PD5	0Z	H20	H2S	%TIC	PATCHES	PD5	0Z	RH	H20	N	N
4/29/77	JFK HND	374. 53.	410. 63.	218. 37.	FLT TOT:	148	148	96	0	0	0.0	0.0	.340E+03	527.	0.	0.	36	112
					IN CLR:	148	148	96	0	0	0.0	0.0	.340E+03	527.	0.	0.	36	112
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
4/30/77	HND LAX	361. 41.	370. 46.	280. 35.	FLT TOT:	90	90	58	0	0	12.4	.5	.256E+05	283.	0.	0.	57	33
					IN CLR:	66	66	41	0	0	0.0	0.0	.203E+03	365.	0.	0.	35	31
					NOT CLR:	24	24	17	0	0	46.5	2.0	.955E+05	83.	0.	0.	22	2
4/30/77	LAX HND	390. 49.	410. 58.	287. 35.	FLT TOT:	113	113	76	0	0	3.2	.1	.744E+04	642.	0.	0.	13	100
					IN CLR:	107	107	73	0	0	0.0	0.0	.164E+02	662.	0.	0.	7	100
					NOT CLR:	6	6	3	0	0	60.0	1.2	.140E+06	163.	0.	0.	6	0

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLØ EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N	
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø
5/ 1/77	HND JFK	387.	410.	252.	FLT TØT:	130	130	79	0	0	1.4	.1	.261E+04	614.	0.	0.	14	116
		50.	59.	35.	IN CLR:	123	123	79	0	0	0.0	0.0	.230E+02	614.	0.	0.	7	116
					NØT CLR:	7	7	0	0	0	26.0	2.4	.480E+05	0.	0.	0.	7	0
5/ 2/77	JFK DFW	422.	429.	274.	FLT TØT:	29	29	18	0	0	2.0	.1	.625E+04	304.	0.	0.	2	27
		37.	40.	34.	IN CLR:	27	27	17	0	0	0.0	0.0	.451E+02	318.	0.	0.	1	26
					NØT CLR:	2	2	1	0	0	28.6	1.5	.901E+05	74.	0.	0.	1	1
5/ 2/77	DFW HNL	410.	420.	326.	FLT TØT:	78	78	52	0	0	4.6	.2	.510E+04	309.	0.	0.	43	35
		31.	35.	21.	IN CLR:	64	64	44	0	0	0.0	0.0	.294E+03	341.	0.	0.	29	35
					NØT CLR:	14	14	8	0	0	25.7	1.4	.271E+05	138.	0.	0.	14	0
5/ 3/77	HNL PPG	400.	430.	260.	FLT TØT:	52	52	30	0	0	22.6	1.0	.287E+05	37.	0.	0.	52	0
		3.	20.	-13.	IN CLR:	30	30	16	0	0	0.0	0.0	.183E+03	42.	0.	0.	30	0
					NØT CLR:	22	22	14	0	0	53.5	2.5	.676E+05	32.	0.	0.	22	0
5/ 3/77	PPG PPT	398.	410.	265.	FLT TØT:	27	27	16	0	0	.4	.1	.823E+04	28.	0.	0.	27	0
		-16.	-15.	-17.	IN CLR:	24	24	14	0	0	0.0	0.0	0.	29.	0.	0.	24	0
					NØT CLR:	3	3	2	0	0	3.9	1.0	.741E+05	22.	0.	0.	3	0
5/ 3/77	PPT PPG	423.	430.	255.	FLT TØT:	28	28	18	0	0	1.6	.3	.192E+03	35.	0.	0.	28	0
		-16.	-15.	-17.	IN CLR:	23	23	15	0	0	0.0	0.0	0.	35.	0.	0.	23	0
					NØT CLR:	5	5	3	0	0	8.8	1.8	.108E+04	38.	0.	0.	5	0
5/ 3/77	PPG HNL	405.	410.	275.	FLT TØT:	51	51	32	0	0	5.9	.6	.702E+04	40.	0.	0.	51	0
		3.	20.	-13.	IN CLR:	40	40	26	0	0	0.0	0.0	.103E+02	36.	0.	0.	40	0
					NØT CLR:	11	11	6	0	0	27.4	3.0	.325E+05	61.	0.	0.	11	0
5/ 4/77	HNL DFW	380.	390.	247.	FLT TØT:	72	72	44	0	0	11.7	.4	.257E+05	101.	0.	0.	66	6
		30.	33.	22.	IN CLR:	62	62	38	0	0	0.0	0.0	.591E+02	109.	0.	0.	56	6
					NØT CLR:	10	10	6	0	0	84.5	2.9	.185E+06	53.	0.	0.	10	0
5/ 4/77	DFW JFK	415.	430.	329.	FLT TØT:	24	24	15	0	0	23.5	.9	.314E+05	233.	0.	0.	13	11
		37.	39.	33.	IN CLR:	12	12	8	0	0	0.0	0.0	.257E+02	314.	0.	0.	1	11
					NØT CLR:	12	12	7	0	0	47.1	1.8	.628E+05	142.	0.	0.	12	0
5/ 4/77	JFK SFØ	414.	435.	242.	FLT TØT:	57	57	38	0	0	4.1	.2	.592E+04	302.	0.	0.	21	36
		42.	43.	38.	IN CLR:	48	48	34	0	0	0.0	0.0	.267E+02	324.	0.	0.	12	36
					NØT CLR:	9	9	4	0	0	25.7	1.4	.374E+05	117.	0.	0.	9	0
5/ 5/77	SFØ AKL	376.	392.	239.	FLT TØT:	141	141	91	0	0	6.1	.5	.938E+04	78.	0.	0.	126	15
		1.	37.	-36.	IN CLR:	115	115	77	0	0	0.0	0.0	.622E+02	86.	0.	0.	100	15
					NØT CLR:	26	26	14	0	0	32.9	2.8	.506E+05	34.	0.	0.	26	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N		
					CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø	
(N533PA)																		
5/ 5/77	AKL SYD	382.	391.	243.	FLT TØT:	31	31	19	0	0	1.7	.1	0.	89.	0.	0.	18	13
		-36.	-34.	-37.	IN CLR:	30	30	19	0	0	0.0	0.0	0.	89.	0.	0.	17	13
					NØT CLR:	1	1	0	0	0	51.4	4.0	0.	0.	0.	0.	1	0.
5/ 6/77	SYD AKL	400.	410.	281.	FLT TØT:	21	21	13	0	0	.0	.0	.158E+01	98.	0.	0.	2	19
		-36.	-34.	-37.	IN CLR:	20	20	13	0	0	0.0	0.0	0.	98.	0.	0.	1	19
					NØT CLR:	1	1	0	0	0	.8	1.0	.331E+02	0.	0.	0.	1	0
5/ 6/77	AKL SFØ	381.	410.	257.	FLT TØT:	128	128	85	0	0	5.7	.5	.714E+04	127.	0.	0.	110	18
		5.	37.	-36.	IN CLR:	102	102	68	0	0	0.0	0.0	.137E+03	151.	0.	0.	85	17
					NØT CLR:	26	26	17	0	0	27.9	2.7	.346E+05	34.	0.	0.	25	1
5/ 8/77	SFØ JFK	389.	410.	198.	FLT TØT:	50	50	31	0	0	1.1	.1	.228E+04	356.	0.	0.	4	46
		41.	42.	38.	IN CLR:	49	49	31	0	0	0.0	0.0	.996E+02	356.	0.	0.	4	45
					NØT CLR:	1	1	0	0	0	53.7	3.0	.109E+06	0.	0.	0.	0	1
5/ 9/77	JFK DFW	417.	430.	264.	FLT TØT:	26	26	15	0	0	.9	.0	.245E+04	472.	0.	0.	2	24
		37.	40.	33.	IN CLR:	24	24	14	0	0	0.0	0.0	.187E+02	503.	0.	0.	0	24
					NØT CLR:	2	2	1	0	0	12.2	.5	.316E+05	39.	0.	0.	2	0
5/ 9/77	DFW HNL	405.	420.	224.	FLT TØT:	86	86	55	0	0	2.9	.3	.204E+05	262.	0.	0.	37	49
		32.	38.	22.	IN CLR:	79	79	50	0	0	0.0	0.0	.633E+02	278.	0.	0.	30	49
					NØT CLR:	7	7	5	0	0	35.1	4.0	.250E+06	102.	0.	0.	7	0
5/10/77	HNL PPG	398.	410.	313.	FLT TØT:	49	49	30	0	0	17.8	.9	.146E+05	29.	0.	0.	49	0
		4.	20.	-13.	IN CLR:	25	25	16	0	0	0.0	0.0	.270E+03	35.	0.	0.	25	0
					NØT CLR:	24	24	14	0	0	36.4	1.9	.295E+05	23.	0.	0.	24	0
5/10/77	PPG PPT	400.	410.	244.	FLT TØT:	20	20	13	0	0	5.1	.9	.603E+04	29.	0.	0.	20	0
		-16.	-15.	-17.	IN CLR:	13	13	8	0	0	0.0	0.0	.519E+01	30.	0.	0.	13	0
					NØT CLR:	7	7	5	0	0	14.5	2.4	.172E+05	28.	0.	0.	7	0
5/10/77	PPT PPG	421.	430.	299.	FLT TØT:	30	30	16	0	0	15.2	1.1	.222E+05	39.	0.	0.	30	0
		-16.	-15.	-17.	IN CLR:	18	18	11	0	0	0.0	0.0	.645E+02	39.	0.	0.	18	0
					NØT CLR:	12	12	5	0	0	37.9	2.7	.554E+05	39.	0.	0.	12	0
5/10/77	PPG HNL	408.	430.	290.	FLT TØT:	48	48	32	0	0	30.5	1.3	.626E+05	32.	0.	0.	48	0
		3.	20.	-13.	IN CLR:	21	21	15	0	0	0.0	0.0	.454E+01	31.	0.	0.	21	0
					NØT CLR:	27	27	17	0	0	54.1	2.3	.111E+06	33.	0.	0.	27	0
5/11/77	HNL DFW	393.	411.	339.	FLT TØT:	66	66	45	0	0	10.7	.3	.732E+04	232.	0.	0.	37	29
		31.	34.	22.	IN CLR:	49	49	34	0	0	0.0	0.0	.545E+02	298.	0.	0.	20	29
					NØT CLR:	17	17	11	0	0	41.4	1.2	.282E+05	29.	0.	0.	17	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ N	STRATØ N	
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø
(N533PA)	5/11/77 DFW JFK	398. 37.	410. 39.	223. 33.	FLT TØT:	24	24	16	0	0	1.1	.1	.113E+02	348.	0.	0.	2	22
					IN CLR:	22	22	15	0	0	0.0	0.0	.124E+02	369.	0.	0.	0	22
					NØT CLR:	2	2	1	0	0	12.7	1.5	0.	38.	0.	0.	2	0
5/13/77 JFK LHR	387. 47.	390. 51.	308. 41.	FLT TØT:	64	64	42	0	0	.4	.1	.158E+04	563.	0.	0.	2	62	
				IN CLR:	62	62	41	0	0	0.0	0.0	.205E+01	570.	0.	0.	1	61	
				NØT CLR:	2	2	1	0	0	13.1	2.5	.506E+05	292.	0.	0.	1	1	
5/14/77 LHR JFK	397. 53.	430. 57.	201. 41.	FLT TØT:	73	73	47	0	0	0.0	0.0	.211E+02	524.	0.	0.	3	70	
				IN CLR:	73	73	47	0	0	0.0	0.0	.211E+02	524.	0.	0.	3	70	
				NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0	
5/15/77 JFK LHR	369. 46.	371. 51.	308. 41.	FLT TØT:	61	61	40	0	0	0.0	0.0	.112E+02	346.	0.	0.	20	41	
				IN CLR:	61	61	40	0	0	0.0	0.0	.112E+02	346.	0.	0.	20	41	
				NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0	
5/15/77 LHR JFK	388. 54.	391. 58.	280. 42.	FLT TØT:	72	72	49	0	0	0.0	0.0	.445E+01	418.	0.	0.	1	71	
				IN CLR:	72	72	49	0	0	0.0	0.0	.445E+01	418.	0.	0.	1	71	
				NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0	
5/16/77 JFK DFW	399. 36.	430. 39.	206. 33.	FLT TØT:	10	10	4	0	0	5.1	.5	0.	90.	0.	0.	6	4	
				IN CLR:	9	9	4	0	0	0.0	0.0	0.	90.	0.	0.	5	4	
				NØT CLR:	1	1	0	0	0	50.6	5.0	0.	0.	0.	0.	1	0	
5/16/77 DFW HNL	390. 30.	401. 35.	235. 21.	FLT TØT:	40	40	25	0	0	0.0	0.0	.450E+02	128.	0.	0.	30	10	
				IN CLR:	40	40	25	0	0	0.0	0.0	.450E+02	128.	0.	0.	30	10	
				NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0	
5/17/77 HNL PPG	398. 4.	410. 19.	382. -13.	FLT TØT:	15	15	4	0	0	3.0	.5	.268E+05	37.	0.	0.	15	0	
				IN CLR:	13	13	4	0	0	0.0	0.0	.250E+01	37.	0.	0.	13	0	
				NØT CLR:	2	2	0	0	0	22.5	3.5	.201E+06	0.	0.	0.	2	0	
5/17/77 PPG PPT	410. -16.	410. -15.	410. -17.	FLT TØT:	5	5	0	0	0	1.0	.8	.394E+02	0.	0.	0.	5	0	
				IN CLR:	2	2	0	0	0	0.0	0.0	0.	0.	0.	0.	2	0	
				NØT CLR:	3	3	0	0	0	1.7	1.3	.657E+02	0.	0.	0.	3	0	
5/17/77 PPT PPG	416. -16.	430. -15.	278. -17.	FLT TØT:	11	11	7	0	0	.1	.1	.276E+03	67.	0.	0.	11	0	
				IN CLR:	10	10	7	0	0	0.0	0.0	.304E+03	67.	0.	0.	10	0	
				NØT CLR:	1	1	0	0	0	1.6	1.0	0.	0.	0.	0.	1	0	
5/17/77 PPG HNL	404. 4.	410. 17.	304. -13.	FLT TØT:	16	16	10	0	0	37.1	1.4	.652E+05	19.	0.	0.	16	0	
				IN CLR:	4	4	2	0	0	0.0	0.0	.768E+01	40.	0.	0.	4	0	
				NØT CLR:	12	12	8	0	0	49.5	1.8	.869E+05	13.	0.	0.	12	0	

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPØ.		STRATO.	
(N533PA)						CLD	PD5	OZ	H2Ø	H2S	%TIC	PATCHES	PD5	OZ	RH	H2Ø	N	N
5/18/77	HNL DFW	400. 27.	411. 32.	370. 22.	FLT TOT: IN CLR: NOT CLR:	23	23	11	0	0	0.0	0.0	.114E+02	243.	0.	0.	14	9
						23	23	11	0	0	0.0	0.0	.114E+02	243.	0.	0.	14	9
						0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/18/77	DFW JFK	404. 37.	410. 39.	367. 33.	FLT TOT: IN CLR: NOT CLR:	7	7	3	0	0	10.3	.9	.428E+05	150.	0.	0.	5	2
						5	5	3	0	0	0.0	0.0	0.	150.	0.	0.	4	1
						2	2	0	0	0	35.9	3.0	.150E+06	0.	0.	0.	1	1
5/18/77	JFK SFO	396. 42.	430. 43.	241. 38.	FLT TOT: IN CLR: NOT CLR:	22	22	8	0	0	4.6	.6	.524E+04	236.	0.	0.	5	17
						17	17	6	0	0	0.0	0.0	.432E+02	309.	0.	0.	4	13
						5	5	2	0	0	20.1	2.8	.229E+05	20.	0.	0.	1	4
5/19/77	SFO AKL	365. -2.	391. 37.	234. -36.	FLT TOT: IN CLR: NOT CLR:	58	58	31	0	0	8.8	.6	.413E+05	48.	0.	0.	58	0
						45	45	24	0	0	0.0	0.0	.182E+03	50.	0.	0.	45	0
						13	13	7	0	0	39.3	2.5	.184E+06	38.	0.	0.	13	0
5/19/77	AKL SYD	411. -36.	430. -34.	389. -37.	FLT TOT: IN CLR: NOT CLR:	11	11	7	0	0	7.6	2.0	.914E+04	115.	0.	0.	10	1
						7	7	4	0	0	0.0	0.0	.140E+02	165.	0.	0.	6	1
						4	4	3	0	0	20.8	5.5	.251E+05	49.	0.	0.	4	0
5/20/77	SYD AKL	380. -36.	410. -34.	201. -37.	FLT TOT: IN CLR: NOT CLR:	13	13	8	0	0	.5	.2	.246E+01	119.	0.	0.	13	0
						12	12	7	0	0	0.0	0.0	.267E+01	133.	0.	0.	12	0
						1	1	1	0	0	6.3	2.0	0.	21.	0.	0.	1	0
5/20/77	AKL SFO	368. -2.	410. 33.	318. -35.	FLT TOT: IN CLR: NOT CLR:	52	52	33	0	0	11.1	.9	.128E+05	48.	0.	0.	50	2
						38	38	23	0	0	0.0	0.0	.540E+02	50.	0.	0.	36	2
						14	14	10	0	0	41.4	3.4	.474E+05	43.	0.	0.	14	0
5/21/77	SFO AKL	376. -2.	391. 36.	337. -35.	FLT TOT: IN CLR: NOT CLR:	66	66	46	0	0	3.4	.6	.325E+05	52.	0.	0.	66	0
						56	56	38	0	0	0.0	0.0	.292E+02	54.	0.	0.	56	0
						10	10	8	0	0	22.5	3.8	.214E+06	45.	0.	0.	10	0
5/21/77	AKL SYD	382. -36.	391. -34.	281. -37.	FLT TOT: IN CLR: NOT CLR:	14	14	4	0	0	0.0	0.0	0.	85.	0.	0.	11	3
						14	14	4	0	0	0.0	0.0	0.	85.	0.	0.	11	3
						0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
5/22/77	SYD SFO	373. 1.	410. 37.	263. -33.	FLT TOT: IN CLR: NOT CLR:	55	55	34	0	0	5.5	.4	.116E+05	64.	0.	0.	54	1
						45	45	29	0	0	0.0	0.0	.401E+03	69.	0.	0.	44	1
						10	10	5	0	0	30.2	2.2	.622E+05	40.	0.	0.	10	0
5/22/77	SFO JFK	370. 41.	372. 42.	370. 38.	FLT TOT: IN CLR: NOT CLR:	24	24	16	0	0	17.8	1.2	.495E+05	121.	0.	0.	18	6
						13	13	10	0	0	0.0	0.0	.728E+02	148.	0.	0.	8	5
						11	11	6	0	0	38.9	2.6	.108E+06	75.	0.	0.	10	1

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPQ. N	STRATQ. N	
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O
5/23/77	JFK BAH	384.	410.	214.	FLT TOT:	76	76	49	0	0	.1	.0	.496E+03	295.	0.	0.	30	46
		41.	48.	27.	IN CLR:	73	73	49	0	0	0.0	0.0	.176E+02	295.	0.	0.	27	46
					NOT CLR:	3	3	0	0	0	2.6	1.0	.121E+05	0.	0.	0.	3	0
5/25/77	BAH JFK	377.	410.	194.	FLT TOT:	81	81	50	0	0	2.0	.2	.976E+04	348.	0.	0.	34	47
		44.	54.	28.	IN CLR:	77	77	47	0	0	0.0	0.0	.231E+02	358.	0.	0.	31	46
					NOT CLR:	4	4	3	0	0	39.5	3.3	.197E+06	193.	0.	0.	3	1
5/26/77	DTW LHR	393.	410.	270.	FLT TOT:	36	36	20	0	0	1.7	.3	.816E+02	543.	0.	0.	5	31
		47.	51.	42.	IN CLR:	33	33	19	0	0	0.0	0.0	.199E+01	560.	0.	0.	3	30
					NOT CLR:	3	3	1	0	0	20.1	3.0	.957E+03	217.	0.	0.	2	1
5/27/77	LHR DTW	382.	391.	216.	FLT TOT:	38	38	19	0	0	.8	.0	.529E+03	360.	0.	0.	6	32
		51.	56.	43.	IN CLR:	36	36	17	0	0	0.0	0.0	.682E+01	389.	0.	0.	4	32
					NOT CLR:	2	2	2	0	0	16.1	.5	.994E+04	121.	0.	0.	2	0
5/28/77	BOS LHR	370.	370.	369.	FLT TOT:	16	16	3	0	0	.5	.1	.582E+04	221.	0.	0.	8	8
		47.	50.	43.	IN CLR:	15	15	2	0	0	0.0	0.0	.303E+02	303.	0.	0.	7	8
					NOT CLR:	1	1	1	0	0	8.2	2.0	.927E+05	58.	0.	0.	1	0
5/28/77	LHR BOS	389.	392.	353.	FLT TOT:	31	31	17	0	0	0.0	0.0	.629E+01	383.	0.	0.	1	30
		53.	56.	44.	IN CLR:	31	31	17	0	0	0.0	0.0	.629E+01	383.	0.	0.	1	30
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0	
5/29/77	BOS LHR	380.	390.	273.	FLT TOT:	15	15	5	0	0	.6	.2	.104E+04	422.	0.	0.	6	9
		50.	52.	44.	IN CLR:	14	14	5	0	0	0.0	0.0	.109E+04	422.	0.	0.	5	9
					NOT CLR:	1	1	0	0	0	9.4	3.0	.401E+03	0.	0.	0.	1	0
5/29/77	LHR BOS	401.	430.	267.	FLT TOT:	37	37	18	0	0	0.0	0.0	.893E+01	449.	0.	0.	3	34
		53.	55.	44.	IN CLR:	37	37	18	0	0	0.0	0.0	.893E+01	449.	0.	0.	3	34
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0	
5/30/77	JFK LHR	397.	410.	338.	FLT TOT:	28	0	0	0	0	0.0	0.0	0.	0.	0.	0.	2	26
		49.	52.	42.	IN CLR:	28	0	0	0	0	0.0	0.0	0.	0.	0.	0.	2	26
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0	
5/31/77	LHR JFK	408.	420.	320.	FLT TOT:	39	39	26	0	0	0.0	0.0	.426E+01	450.	0.	0.	3	36
		52.	56.	43.	IN CLR:	39	39	26	0	0	0.0	0.0	.426E+01	450.	0.	0.	3	36
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0	

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL	EXHI	EXLO		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPØ.		STRATØ.	
		ALAT	EXTN	EXTS		CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH	H2Ø	N	N
(N533PA)																		
6/ 3/77	JFK HND	391.	430.	205.	FLT TØT:	149	149	98	0	0	3.6	.4	.251E+04	276.	0.	0.	55	94
		50.	60.	35.	IN CLR:	134	134	87	0	0	0.0	0.0	.149E+03	300.	0.	0.	46	88
					NØT CLR:	15	15	11	0	0	36.2	3.7	.236E+05	88.	0.	0.	9	6
6/ 4/77	HND LAX	389.	410.	257.	FLT TØT:	94	94	62	0	0	6.9	1.0	.131E+05	186.	0.	0.	72	22
		39.	42.	35.	IN CLR:	72	72	48	0	0	0.0	0.0	.319E+03	221.	0.	0.	50	22
					NØT CLR:	22	22	14	0	0	29.6	4.1	.547E+05	67.	0.	0.	22	0
6/ 4/77	LAX SEA	380.	390.	253.	FLT TØT:	15	15	8	0	0	1.3	.6	.463E+02	42.	0.	0.	15	0
		42.	47.	36.	IN CLR:	12	12	6	0	0	0.0	0.0	.165E+02	50.	0.	0.	12	0
					NØT CLR:	3	3	2	0	0	6.5	3.0	.166E+03	20.	0.	0.	3	0
6/ 9/77	SEA SFØ	397.	410.	271.	FLT TØT:	17	17	10	0	0	4.7	.5	.188E+05	348.	0.	0.	3	14
		44.	48.	39.	IN CLR:	15	15	9	0	0	0.0	0.0	.190E+03	381.	0.	0.	1	14
					NØT CLR:	2	2	1	0	0	40.2	4.5	.159E+06	52.	0.	0.	2	0
6/10/77	SFØ LHR	393.	410.	288.	FLT TØT:	93	93	60	0	0	5.7	.3	.107E+05	444.	0.	0.	14	79
		58.	67.	39.	IN CLR:	83	83	54	0	0	0.0	0.0	.180E+02	487.	0.	0.	4	79
					NØT CLR:	10	10	6	0	0	53.3	2.7	.991E+05	58.	0.	0.	10	0
6/10/77	LHR SEA	396.	429.	283.	FLT TØT:	94	94	59	0	0	0.0	0.0	.306E+01	512.	0.	0.	4	90
		63.	70.	48.	IN CLR:	94	94	59	0	0	0.0	0.0	.306E+01	512.	0.	0.	4	90
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
6/11/77	SEA LHR	397.	410.	295.	FLT TØT:	83	83	55	0	0	1.8	.3	.334E+04	431.	0.	0.	7	76
		60.	65.	48.	IN CLR:	76	76	51	0	0	0.0	0.0	.345E+01	459.	0.	0.	1	75
					NØT CLR:	7	7	4	0	0	21.7	3.4	.396E+05	81.	0.	0.	6	1
6/11/77	LHR SFØ	387.	410.	267.	FLT TØT:	105	105	67	0	0	.2	.1	.433E+01	426.	0.	0.	2	103
		59.	69.	38.	IN CLR:	103	103	67	0	0	0.0	0.0	.217E+01	426.	0.	0.	0	103
					NØT CLR:	2	2	0	0	0	11.0	3.0	.116E+03	0.	0.	0.	2	0
6/12/77	SFØ LHR	394.	411.	285.	FLT TØT:	94	94	63	0	0	2.9	.4	.664E+04	330.	0.	0.	12	82
		54.	64.	38.	IN CLR:	83	83	55	0	0	0.0	0.0	.245E+02	355.	0.	0.	7	76
					NØT CLR:	11	11	8	0	0	25.2	3.0	.566E+05	158.	0.	0.	5	6
6/12/77	LHR SEA	402.	430.	304.	FLT TØT:	90	90	59	0	0	.5	.0	.244E+03	424.	0.	0.	1	89
		64.	73.	49.	IN CLR:	88	88	58	0	0	0.0	0.0	.352E+00	424.	0.	0.	0	88
					NØT CLR:	2	2	1	0	0	22.9	2.0	.110E+05	447.	0.	0.	1	1
6/13/77	SEA LHR	390.	411.	249.	FLT TØT:	89	89	56	0	0	2.5	.2	.223E+05	389.	0.	0.	5	84
		58.	64.	48.	IN CLR:	85	85	54	0	0	0.0	0.0	.147E+02	401.	0.	0.	1	84
					NØT CLR:	4	4	2	0	0	56.5	4.5	.496E+06	50.	0.	0.	4	0

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.				AVERAGES FOR THE FLIGHT			RH	H2O	TROPØ. N	STRATØ. N			
					CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES					PD5	ØZ	
6/13/77	LHR SFO	394.	410.	212.	FLT TØT:	111	111	73	0	0	.4	.0	.628E+03	473.	0.	0.	3	108
		61.	73.	39.	IN CLR:	109	109	72	0	0	0.0	0.0	.233E+01	478.	0.	0.	1	108
					NØT CLR:	2	2	1	0	0	23.1	1.5	.347E+05	98.	0.	0.	2	0
6/17/77	SFO LHR	396.	410.	306.	FLT TØT:	106	106	67	0	0	3.1	0.0	.129E+05	486.	0.	0.	14	92
		54.	62.	38.	IN CLR:	95	95	64	0	0	0.0	0.0	.905E+02	505.	0.	0.	5	90
					NØT CLR:	11	11	3	0	0	30.2	0.0	.124E+06	76.	0.	0.	9	2
6/17/77	LHR SEA	387.	391.	195.	FLT TØT:	100	100	66	0	0	.3	0.0	.114E+03	543.	0.	0.	9	91
		62.	69.	48.	IN CLR:	98	98	65	0	0	0.0	0.0	.674E+02	550.	0.	0.	7	91
					NØT CLR:	2	2	1	0	0	16.1	0.0	.242E+04	101.	0.	0.	2	0
6/18/77	SEA LHR	377.	391.	269.	FLT TØT:	83	83	56	0	0	.1	0.0	.117E+03	528.	0.	0.	3	80
		63.	68.	51.	IN CLR:	81	81	54	0	0	0.0	0.0	.933E+02	533.	0.	0.	2	79
					NØT CLR:	2	2	2	0	0	3.3	0.0	.107E+04	388.	0.	0.	1	1
6/18/77	LHR SFO	396.	410.	242.	FLT TØT:	112	112	72	0	0	.4	0.0	.463E+03	471.	0.	0.	12	100
		56.	62.	39.	IN CLR:	108	108	70	0	0	0.0	0.0	.866E+02	481.	0.	0.	10	98
					NØT CLR:	4	4	2	0	0	11.9	0.0	.106E+05	119.	0.	0.	2	2
6/19/77	SFO LHR	392.	411.	250.	FLT TØT:	98	98	65	0	0	2.2	0.0	.118E+05	464.	0.	0.	18	80
		58.	67.	39.	IN CLR:	89	89	61	0	0	0.0	0.0	.448E+02	485.	0.	0.	11	78
					NØT CLR:	9	9	4	0	0	24.0	0.0	.128E+06	150.	0.	0.	7	2
6/20/77	SEA LHR	391.	410.	356.	FLT TØT:	78	78	44	0	0	1.1	0.0	.716E+04	553.	0.	0.	5	73
		64.	69.	53.	IN CLR:	77	77	44	0	0	0.0	0.0	.132E+03	553.	0.	0.	5	72
					NØT CLR:	1	1	0	0	0	83.1	0.0	.548E+06	0.	0.	0.	0	1
6/20/77	LHR SFO	387.	393.	194.	FLT TØT:	110	110	74	0	0	3.8	0.0	.707E+04	451.	0.	0.	19	91
		58.	67.	38.	IN CLR:	96	96	65	0	0	0.0	0.0	.101E+03	491.	0.	0.	9	87
					NØT CLR:	14	14	9	0	0	30.1	0.0	.549E+05	160.	0.	0.	10	4
6/21/77	SFO LHR	392.	410.	275.	FLT TØT:	94	94	60	0	0	8.7	0.0	.145E+06	427.	0.	0.	32	62
		53.	60.	38.	IN CLR:	76	76	47	0	0	0.0	0.0	.362E+03	500.	0.	0.	14	62
					NØT CLR:	18	18	13	0	0	45.5	0.0	.755E+06	162.	0.	0.	18	0
6/21/77	LHR SEA	400.	430.	195.	FLT TØT:	96	96	61	0	0	.0	0.0	.122E+03	491.	0.	0.	5	91
		62.	68.	49.	IN CLR:	95	95	60	0	0	0.0	0.0	.561E+02	495.	0.	0.	5	90
					NØT CLR:	1	1	1	0	0	3.5	0.0	.643E+04	252.	0.	0.	0	1
6/22/77	SEA LHR	394.	410.	289.	FLT TØT:	89	89	60	0	0	0.0	0.0	.600E+02	481.	0.	0.	16	73
		62.	69.	48.	IN CLR:	89	89	60	0	0	0.0	0.0	.600E+02	481.	0.	0.	16	73
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0	

APPENDIX B

IM/1D/1Y	DEP-ARR	AVFL	EXHI	EXLO		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ.	STRATØ.	
(N533PA)		ALAT	EXTN	EXTS		CLD	PD5	OZ	H2Ø	H2S	%TIC	PATCHES	PD5	OZ	RH	H2Ø	N	N
6/22/77	LHR SFØ	384.	410.	263.	FLT TØT:	111	111	71	0	0	.2	0.0	.499E+04	424.	0.	0.	23	88
		58.	67.	38.	IN CLR:	110	110	70	0	0	0.0	0.0	.122E+03	427.	0.	0.	23	87
					NØT CLR:	1	1	1	0	0	20.0	0.0	.540E+06	176.	0.	0.	0	1
6/ 1/77	JFK HND	388.	430.	349.	FLT TØT:	46	0	16	0	0	1.2	.2	0.	375.	0.	0.	16	30
		53.	65.	37.	IN CLR:	43	0	15	0	0	0.0	0.0	0.	396.	0.	0.	13	30
					NØT CLR:	3	0	1	0	0	18.3	2.3	0.	52.	0.	0.	3	0
6/ 2/77	HND JFK	382.	410.	345.	FLT TØT:	29	0	13	0	0	1.5	.1	0.	321.	0.	0.	6	23
		46.	50.	37.	IN CLR:	26	0	12	0	0	0.0	0.0	0.	341.	0.	0.	3	23
					NØT CLR:	3	0	1	0	0	14.5	1.3	0.	76.	0.	0.	3	0
6/19/77	LHR SEA	402.	430.	301.	FLT TØT:	67	67	38	0	0	0.0	0.0	.608E+02	526.	0.	0.	2	65
		59.	62.	52.	IN CLR:	67	67	38	0	0	0.0	0.0	.608E+02	526.	0.	0.	2	65
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
6/25/77	SEA LHR	392.	410.	245.	FLT TØT:	92	92	56	0	0	0.0	0.0	.699E+02	484.	0.	0.	10	82
		61.	67.	49.	IN CLR:	92	92	56	0	0	0.0	0.0	.699E+02	484.	0.	0.	10	82
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
6/25/77	LHR SFØ	385.	410.	190.	FLT TØT:	106	106	53	0	0	.9	0.0	.375E+04	507.	0.	0.	20	86
		62.	77.	38.	IN CLR:	99	99	51	0	0	0.0	0.0	.298E+02	512.	0.	0.	14	85
					NØT CLR:	7	7	2	0	0	14.0	0.0	.564E+05	379.	0.	0.	6	1
6/26/77	SFØ LHR	385.	411.	291.	FLT TØT:	95	0	0	0	0	2.4	0.0	0.	0.	0.	0.	18	77
		58.	67.	39.	IN CLR:	87	0	0	0	0	0.0	0.0	0.	0.	0.	0.	10	77
					NØT CLR:	8	0	0	0	0	28.3	0.0	0.	0.	0.	0.	8	0
6/26/77	LHR SEA	401.	430.	185.	FLT TØT:	90	0	0	0	0	0.0	0.0	0.	0.	0.	0.	2	88
		65.	77.	48.	IN CLR:	90	0	0	0	0	0.0	0.0	0.	0.	0.	0.	2	88
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
6/27/77	SEA LHR	393.	410.	299.	FLT TØT:	89	0	0	0	0	.0	0.0	0.	0.	0.	0.	3	86
		60.	67.	48.	IN CLR:	88	0	0	0	0	0.0	0.0	0.	0.	0.	0.	3	85
					NØT CLR:	1	0	0	0	0	.4	0.0	0.	0.	0.	0.	0	1
6/27/77	LHR SFØ	381.	410.	254.	FLT TØT:	114	0	0	0	0	2.1	0.0	0.	0.	0.	0.	21	93
		60.	70.	38.	IN CLR:	107	0	0	0	0	0.0	0.0	0.	0.	0.	0.	14	93
					NØT CLR:	7	0	0	0	0	34.1	0.0	0.	0.	0.	0.	7	0
6/28/77	SFØ LHR	384.	410.	241.	FLT TØT:	99	0	0	0	0	1.2	0.0	0.	0.	0.	0.	19	80
		57.	65.	39.	IN CLR:	97	0	0	0	0	0.0	0.0	0.	0.	0.	0.	17	80
					NØT CLR:	2	0	0	0	0	59.2	0.0	0.	0.	0.	0.	2	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL	EXHI	EXLO	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.			STRATO.		
(N533PA)		ALAT	EXTN	EXTS	CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N	
6/28/77	LHR SEA	387.	410.	304.	FLT TOT:	97	0	0	0	0	1.8	0.0	0.	0.	0.	0.	4	93
		64.	73.	49.	IN CLR:	92	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	92
					NOT CLR:	5	0	0	0	0	34.0	0.0	0.	0.	0.	0.	4	1
6/29/77	SEA LHR	395.	410.	296.	FLT TOT:	89	0	0	0	0	1.0	0.0	0.	0.	0.	0.	7	82
		57.	61.	48.	IN CLR:	86	0	0	0	0	0.0	0.0	0.	0.	0.	0.	4	82
					NOT CLR:	3	0	0	0	0	30.6	0.0	0.	0.	0.	0.	3	0
6/29/77	LHR SFO	385.	410.	220.	FLT TOT:	107	0	0	0	0	3.8	0.0	0.	0.	0.	0.	20	87
		60.	69.	39.	IN CLR:	95	0	0	0	0	0.0	0.0	0.	0.	0.	0.	9	86
					NOT CLR:	12	0	0	0	0	34.0	0.0	0.	0.	0.	0.	11	1
6/30/77	SFO AKL	370.	392.	240.	FLT TOT:	136	0	0	0	0	12.4	0.0	0.	0.	0.	0.	136	0
		1.	37.	-36.	IN CLR:	103	0	0	0	0	0.0	0.0	0.	0.	0.	0.	103	0
					NOT CLR:	33	0	0	0	0	51.0	0.0	0.	0.	0.	0.	33	0
6/30/77	AKL SYD	422.	430.	364.	FLT TOT:	29	0	0	0	0	0.0	0.0	0.	0.	0.	0.	1	28
		-36.	-34.	-37.	IN CLR:	29	0	0	0	0	0.0	0.0	0.	0.	0.	0.	1	28
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

IM/1D/1Y	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLØ EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO	STRATO			
(N533PA)					CLD	PD5	OZ	H2Ø	H2S	%TIC	PATCHES	PD5	OZ	RH	H2Ø	N	N
7/ 1/77	SYD AKL	361. -36.	370. -34.	244. -37.	FLT TOT:	21	0	0	0	0.0	0.0	0.	0.	0.	0.	5	16
					IN CLR:	21	0	0	0	0.0	0.0	0.	0.	0.	0.	5	16
					NOT CLR:	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
7/ 1/77	AKL SFO	388. 3.	420. 37.	293. -36.	FLT TOT:	122	0	0	0	5.6	0.0	0.	0.	0.	0.	122	0
					IN CLR:	106	0	0	0	0.0	0.0	0.	0.	0.	0.	106	0
					NOT CLR:	16	0	0	0	42.5	0.0	0.	0.	0.	0.	16	0
7/ 2/77	SFO AKL	367. -0.	390. 37.	270. -36.	FLT TOT:	136	0	0	0	8.4	0.0	0.	0.	0.	0.	136	0
					IN CLR:	103	0	0	0	0.0	0.0	0.	0.	0.	0.	103	0
					NOT CLR:	33	0	0	0	34.5	0.0	0.	0.	0.	0.	33	0
7/ 2/77	AKL SYD	423. -36.	430. -34.	324. -37.	FLT TOT:	26	0	0	0	.0	0.0	0.	0.	0.	0.	1	25
					IN CLR:	25	0	0	0	0.0	0.0	0.	0.	0.	0.	1	24
					NOT CLR:	1	0	0	0	.4	0.0	0.	0.	0.	0.	0	1
7/ 3/77	SYD SFO	392. 1.	430. 37.	202. -34.	FLT TOT:	149	0	0	0	8.1	0.0	0.	0.	0.	0.	149	0
					IN CLR:	119	0	0	0	0.0	0.0	0.	0.	0.	0.	119	0
					NOT CLR:	30	0	0	0	40.1	0.0	0.	0.	0.	0.	30	0
7/ 3/77	SFO JFK	407. 41.	410. 42.	318. 38.	FLT TOT:	46	0	0	0	0.0	0.0	0.	0.	0.	0.	46	0
					IN CLR:	46	0	0	0	0.0	0.0	0.	0.	0.	0.	46	0
					NOT CLR:	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
7/ 4/77	JFK HND	395. 55.	430. 65.	256. 37.	FLT TOT:	139	0	0	0	0.0	0.0	0.	0.	0.	0.	52	87
					IN CLR:	139	0	0	0	0.0	0.0	0.	0.	0.	0.	52	87
					NOT CLR:	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
7/ 5/77	HND LAX	393. 42.	429. 46.	213. 35.	FLT TOT:	87	0	0	0	7.4	0.0	0.	0.	0.	0.	69	18
					IN CLR:	62	0	0	0	0.0	0.0	0.	0.	0.	0.	44	18
					NOT CLR:	25	0	0	0	25.8	0.0	0.	0.	0.	0.	25	0
7/ 5/77	LAX HND	386. 49.	391. 55.	197. 36.	FLT TOT:	116	0	0	0	.9	0.0	0.	0.	0.	0.	46	70
					IN CLR:	113	0	0	0	0.0	0.0	0.	0.	0.	0.	43	70
					NOT CLR:	3	0	0	0	33.5	0.0	0.	0.	0.	0.	3	0
7/ 6/77	HND JFK	384. 47.	411. 51.	279. 36.	FLT TOT:	120	0	0	0	7.5	0.0	0.	0.	0.	0.	89	31
					IN CLR:	94	0	0	0	0.0	0.0	0.	0.	0.	0.	64	30
					NOT CLR:	26	0	0	0	34.4	0.0	0.	0.	0.	0.	25	1
7/ 7/77	JFK CPH	400. 53.	411. 58.	303. 41.	FLT TOT:	74	0	0	0	.0	0.0	0.	0.	0.	0.	10	64
					IN CLR:	73	0	0	0	0.0	0.0	0.	0.	0.	0.	9	64
					NOT CLR:	1	0	0	0	.4	0.0	0.	0.	0.	0.	1	0

IM/ID/1Y (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O	
7/ 7/77	CPH JFK	407. 55.	430. 60.	200. 41.	FLT TOT:	75	0	0	0	0	.1	0.0	0.	0.	0.	0.	9	66
					IN CLR:	72	0	0	0	0	0.0	0.0	0.	0.	0.	0.	6	66
					NOT CLR:	3	0	0	0	0	3.1	0.0	0.	0.	0.	0.	3	0
7/ 8/77	JFK HND	376. 55.	410. 65.	248. 37.	FLT TOT:	135	135	86	0	0	.8	0.0	.156E+04	381.	0.	0.	42	93
					IN CLR:	128	128	82	0	0	0.0	0.0	.947E+02	394.	0.	0.	36	92
					NOT CLR:	7	7	4	0	0	16.1	0.0	.283E+05	107.	0.	0.	6	1
7/ 9/77	HND LAX	393. 42.	410. 47.	281. 35.	FLT TOT:	90	90	61	0	0	2.9	0.0	.155E+05	177.	0.	0.	63	27
					IN CLR:	78	78	52	0	0	0.0	0.0	.119E+04	187.	0.	0.	58	20
					NOT CLR:	12	12	9	0	0	22.1	0.0	.108E+06	120.	0.	0.	5	7
7/ 9/77	LAX HND	376. 43.	410. 49.	261. 35.	FLT TOT:	116	116	74	0	0	3.6	0.0	.156E+05	139.	0.	0.	116	0
					IN CLR:	99	99	62	0	0	0.0	0.0	.140E+04	147.	0.	0.	99	0
					NOT CLR:	17	17	12	0	0	24.7	0.0	.984E+05	98.	0.	0.	17	0
7/10/77	HND JFK	378. 51.	410. 60.	218. 36.	FLT TOT:	133	133	85	0	0	6.9	0.0	.310E+05	310.	0.	0.	59	74
					IN CLR:	105	105	71	0	0	0.0	0.0	.478E+03	357.	0.	0.	35	70
					NOT CLR:	28	28	14	0	0	32.5	0.0	.145E+06	73.	0.	0.	24	4
7/11/77	JFK CPH	368. 57.	370. 63.	288. 41.	FLT TOT:	72	72	46	0	0	0.0	0.0	.206E+03	296.	0.	0.	29	43
					IN CLR:	72	72	46	0	0	0.0	0.0	.206E+03	296.	0.	0.	29	43
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
7/11/77	CPH JFK	391. 54.	430. 58.	293. 42.	FLT TOT:	79	79	52	0	0	.1	0.0	.287E+03	323.	0.	0.	25	54
					IN CLR:	75	75	50	0	0	0.0	0.0	.372E+02	333.	0.	0.	21	54
					NOT CLR:	4	4	2	0	0	2.4	0.0	.497E+04	80.	0.	0.	4	0
7/11/77	JFK BAH	394. 42.	411. 48.	278. 28.	FLT TOT:	100	100	67	0	0	6.7	0.0	.124E+05	200.	0.	0.	9	0
					IN CLR:	84	84	57	0	0	0.0	0.0	.554E+02	219.	0.	0.	0	0
					NOT CLR:	16	16	10	0	0	41.7	0.0	.772E+05	96.	0.	0.	9	0
7/12/77	BAH JFK	382. 46.	430. 55.	203. 27.	FLT TOT:	138	138	90	0	0	1.5	0.0	.231E+04	257.	0.	0.	85	53
					IN CLR:	134	134	87	0	0	0.0	0.0	.140E+03	259.	0.	0.	83	51
					NOT CLR:	4	4	3	0	0	53.4	0.0	.750E+05	207.	0.	0.	2	2
7/14/77	JFK HND	350. 54.	370. 65.	205. 36.	FLT TOT:	85	85	54	0	0	3.3	0.0	.727E+04	298.	0.	0.	39	46
					IN CLR:	78	78	50	0	0	0.0	0.0	.207E+03	315.	0.	0.	32	46
					NOT CLR:	7	7	4	0	0	40.5	0.0	.860E+05	83.	0.	0.	7	0
7/15/77	HND JFK	376. 47.	411. 51.	260. 35.	FLT TOT:	111	111	76	0	0	8.8	0.0	.511E+05	171.	0.	0.	90	21
					IN CLR:	80	80	54	0	0	0.0	0.0	.205E+03	207.	0.	0.	60	20
					NOT CLR:	31	31	22	0	0	31.5	0.0	.182E+06	82.	0.	0.	30	1

APPENDIX B

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N	
						CLD	PD5	OZ	H2Ø	H2S	%TIC	PATCHES	PD5	OZ	RH			H2Ø
7/16/77	JFK CPH	394. 49.	410. 54.	296. 41.	FLT TOT:	40	40	25	0	0	.4	0.0	.201E+04	210.	0.	0.	22	18
					IN CLR:	37	37	24	0	0	0.0	0.0	.154E+03	215.	0.	0.	19	18
					NOT CLR:	3	3	1	0	0	5.6	0.0	.248E+05	89.	0.	0.	3	0
7/16/77	CPH JFK	380. 57.	391. 63.	304. 42.	FLT TOT:	80	80	54	0	0	1.2	0.0	.154E+04	394.	0.	0.	23	57
					IN CLR:	78	78	53	0	0	0.0	0.0	.793E+02	397.	0.	0.	21	57
					NOT CLR:	2	2	1	0	0	46.7	0.0	.585E+05	223.	0.	0.	2	0
7/17/77	JFK HND	380. 55.	432. 66.	217. 37.	FLT TOT:	143	143	88	0	0	1.8	0.0	.884E+04	321.	0.	0.	62	81
					IN CLR:	130	130	78	0	0	0.0	0.0	.199E+03	350.	0.	0.	49	81
					NOT CLR:	13	13	10	0	0	20.2	0.0	.953E+05	90.	0.	0.	13	0
7/18/77	HND LAX	374. 45.	390. 51.	284. 35.	FLT TOT:	53	53	36	0	0	1.8	0.0	.741E+04	152.	0.	0.	47	6
					IN CLR:	43	43	29	0	0	0.0	0.0	.246E+04	164.	0.	0.	37	6
					NOT CLR:	10	10	7	0	0	9.6	0.0	.287E+05	103.	0.	0.	10	0
7/18/77	LAX HND	365. 38.	390. 38.	285. 35.	FLT TOT:	49	49	31	0	0	1.4	0.0	.916E+04	58.	0.	0.	49	0
					IN CLR:	43	43	27	0	0	0.0	0.0	.264E+03	60.	0.	0.	43	0
					NOT CLR:	6	6	4	0	0	11.8	0.0	.729E+05	45.	0.	0.	6	0
7/19/77	HND JFK	381. 47.	410. 53.	211. 35.	FLT TOT:	124	124	80	0	0	4.3	0.0	.256E+05	231.	0.	0.	79	45
					IN CLR:	89	89	58	0	0	0.0	0.0	.997E+03	272.	0.	0.	45	44
					NOT CLR:	35	35	22	0	0	15.2	0.0	.881E+05	124.	0.	0.	34	1
7/28/77	JFK HND	397. 53.	431. 63.	289. 37.	FLT TOT:	118	118	71	0	0	1.7	0.0	.497E+04	277.	0.	0.	51	67
					IN CLR:	109	109	67	0	0	0.0	0.0	.177E+03	287.	0.	0.	45	64
					NOT CLR:	9	9	4	0	0	21.7	0.0	.630E+05	118.	0.	0.	6	3

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.		STRATO.			
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N	
(N533PA)																		
8/16/77	JFK HND	379. 54.	431. 65.	225. 37.	FLT TOT:	138	138	86	0	0	7.3	.6	.319E+05	172.	0.	0.	58	80
					IN CLR:	112	112	72	0	0	0.0	0.0	.572E+03	195.	0.	0.	32	80
					NOT CLR:	26	26	14	0	0	38.9	2.9	.167E+06	54.	0.	0.	26	0
8/17/77	HND LAX	388. 42.	412. 45.	280. 35.	FLT TOT:	97	97	61	0	0	10.6	.8	.406E+05	133.	0.	0.	68	29
					IN CLR:	71	71	45	0	0	0.0	0.0	.109E+03	166.	0.	0.	42	29
					NOT CLR:	26	26	16	0	0	39.7	3.0	.151E+06	39.	0.	0.	26	0
8/17/77	LAX HND	373. 45.	390. 52.	203. 35.	FLT TOT:	113	113	74	0	0	6.0	1.3	.391E+05	138.	0.	0.	81	32
					IN CLR:	85	85	58	0	0	0.0	0.0	.138E+05	165.	0.	0.	53	32
					NOT CLR:	28	28	16	0	0	24.4	5.3	.116E+06	40.	0.	0.	28	0
8/18/77	HND JFK	383. 54.	411. 67.	313. 37.	FLT TOT:	98	98	49	0	0	2.2	.3	.280E+05	246.	0.	0.	32	66
					IN CLR:	89	89	48	0	0	0.0	0.0	.396E+02	249.	0.	0.	23	66
					NOT CLR:	9	9	1	0	0	24.2	3.0	.305E+06	104.	0.	0.	9	0
8/19/77	JFK HND	381. 54.	430. 63.	275. 37.	FLT TOT:	148	148	79	0	0	.2	.1	.583E+03	208.	0.	0.	65	83
					IN CLR:	139	139	75	0	0	0.0	0.0	.741E+02	214.	0.	0.	57	82
					NOT CLR:	9	9	4	0	0	3.2	1.6	.844E+04	93.	0.	0.	8	1
8/20/77	HND LAX	392. 40.	411. 43.	281. 35.	FLT TOT:	84	84	52	0	0	9.9	.8	.711E+05	91.	0.	0.	83	1
					IN CLR:	66	66	42	0	0	0.0	0.0	.190E+03	104.	0.	0.	65	1
					NOT CLR:	18	18	10	0	0	46.4	3.5	.331E+06	36.	0.	0.	18	0
8/20/77	LAX HND	365. 48.	370. 55.	209. 35.	FLT TOT:	105	105	68	0	0	2.9	.2	.111E+05	224.	0.	0.	50	55
					IN CLR:	99	99	66	0	0	0.0	0.0	.113E+03	229.	0.	0.	45	54
					NOT CLR:	6	6	2	0	0	51.4	4.2	.193E+06	55.	0.	0.	5	1
8/21/77	HND JFK	380. 54.	411. 67.	258. 36.	FLT TOT:	123	123	54	0	0	6.0	.3	.111E+05	259.	0.	0.	56	67
					IN CLR:	106	106	51	0	0	0.0	0.0	.342E+03	270.	0.	0.	39	67
					NOT CLR:	17	17	3	0	0	43.6	1.9	.783E+05	72.	0.	0.	17	0
8/22/77	JFK CPH	396. 51.	411. 56.	313. 41.	FLT TOT:	64	64	42	0	0	1.1	.1	.335E+04	267.	0.	0.	6	58
					IN CLR:	61	61	41	0	0	0.0	0.0	.214E+02	271.	0.	0.	3	58
					NOT CLR:	3	3	1	0	0	23.0	2.0	.710E+05	107.	0.	0.	3	0
8/22/77	CPH JFK	398. 56.	411. 62.	200. 41.	FLT TOT:	76	76	50	0	0	0.0	0.0	.315E+02	334.	0.	0.	5	71
					IN CLR:	76	76	50	0	0	0.0	0.0	.315E+02	334.	0.	0.	5	71
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
8/23/77	JFK BAH	397. 43.	411. 50.	286. 28.	FLT TOT:	119	119	81	0	0	.6	.2	.351E+04	155.	0.	0.	75	44
					IN CLR:	115	115	79	0	0	0.0	0.0	.302E+02	156.	0.	0.	72	43
					NOT CLR:	4	4	2	0	0	17.6	6.8	.104E+06	117.	0.	0.	3	1

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO.	STRATO.	
(N533PA)					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N
8/24/77	BAH JFK	386. 46.	430. 57.	246. 27.	FLT TOT:	145	145	95	0	0	0.0	0.0	.341E+02	220.	0.	0.	95
					IN CLR:	145	145	95	0	0	0.0	0.0	.341E+02	220.	0.	0.	95
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0
8/25/77	JFK HND	381. 53.	430. 65.	243. 37.	FLT TOT:	141	141	93	0	0	3.3	.5	.140E+05	178.	0.	0.	77
					IN CLR:	120	120	82	0	0	0.0	0.0	.184E+03	196.	0.	0.	75
					NOT CLR:	21	21	11	0	0	21.9	3.2	.928E+05	45.	0.	0.	2
8/26/77	HND LAX	384. 42.	411. 47.	274. 35.	FLT TOT:	87	87	51	0	0	12.1	1.1	.328E+05	52.	0.	0.	0
					IN CLR:	57	57	37	0	0	0.0	0.0	.802E+02	56.	0.	0.	0
					NOT CLR:	30	30	14	0	0	35.2	3.3	.950E+05	40.	0.	0.	0
8/26/77	LAX HND	379. 46.	411. 55.	236. 35.	FLT TOT:	116	116	74	0	0	1.9	.5	.630E+04	134.	0.	0.	47
					IN CLR:	103	103	64	0	0	0.0	0.0	.138E+03	151.	0.	0.	47
					NOT CLR:	13	13	10	0	0	16.7	4.3	.551E+05	20.	0.	0.	0
8/27/77	HND JFK	363. 44.	411. 50.	237. 35.	FLT TOT:	106	106	67	0	0	5.2	.7	.173E+05	117.	0.	0.	17
					IN CLR:	89	89	56	0	0	0.0	0.0	.106E+03	128.	0.	0.	17
					NOT CLR:	17	17	11	0	0	32.4	4.4	.107E+06	59.	0.	0.	0
8/28/77	JFK HND	385. 52.	430. 60.	258. 37.	FLT TOT:	140	140	92	0	0	.5	.1	.167E+04	223.	0.	0.	99
					IN CLR:	135	135	88	0	0	0.0	0.0	.145E+03	230.	0.	0.	99
					NOT CLR:	5	5	4	0	0	15.0	2.6	.430E+05	81.	0.	0.	0
8/29/77	HND LAX	391. 42.	410. 47.	261. 35.	FLT TOT:	91	91	57	0	0	1.3	.3	.234E+04	115.	0.	0.	8
					IN CLR:	86	86	53	0	0	0.0	0.0	.108E+03	119.	0.	0.	8
					NOT CLR:	5	5	4	0	0	23.5	4.6	.407E+05	56.	0.	0.	0
8/29/77	LAX HND	384. 47.	410. 55.	206. 35.	FLT TOT:	108	108	70	0	0	.3	.2	.447E+03	173.	0.	0.	50
					IN CLR:	102	102	65	0	0	0.0	0.0	.138E+03	182.	0.	0.	50
					NOT CLR:	6	6	5	0	0	5.6	3.5	.571E+04	48.	0.	0.	0
8/30/77	HND JFK	396. 45.	430. 50.	266. 36.	FLT TOT:	115	115	73	0	0	6.4	.7	.316E+05	149.	0.	0.	41
					IN CLR:	97	97	61	0	0	0.0	0.0	.663E+02	164.	0.	0.	41
					NOT CLR:	18	18	12	0	0	41.0	4.3	.202E+06	73.	0.	0.	0
8/31/77	JFK HND	389. 55.	430. 65.	271. 37.	FLT TOT:	137	137	92	0	0	3.2	.2	.120E+05	237.	0.	0.	95
					IN CLR:	127	127	87	0	0	0.0	0.0	.630E+02	247.	0.	0.	95
					NOT CLR:	10	10	5	0	0	44.0	2.8	.164E+06	54.	0.	0.	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N	
						CLD	PD5	Ø2	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø
9/ 1/77	HND LAX	396. 43.	430. 47.	206. 34.	FLT TØT:	103	103	69	0	0	1.6	.5	.371E+04	138.	0.	0.	61	42
					IN CLR:	93	93	63	0	0	0.0	0.0	.990E+02	141.	0.	0.	56	37
					NØT CLR:	10	10	6	0	0	16.5	5.0	.373E+05	102.	0.	0.	5	5
9/ 1/77	LAX HND	397. 47.	410. 54.	281. 35.	FLT TØT:	120	120	82	0	0	.9	.2	.939E+04	233.	0.	0.	49	71
					IN CLR:	114	114	78	0	0	0.0	0.0	.131E+03	241.	0.	0.	43	71
					NØT CLR:	6	6	4	0	0	18.6	3.3	.185E+06	69.	0.	0.	6	0
9/ 2/77	HND JFK	377. 46.	410. 51.	215. 35.	FLT TØT:	129	129	84	0	0	3.8	.7	.107E+05	181.	0.	0.	83	46
					IN CLR:	107	107	70	0	0	0.0	0.0	.866E+02	204.	0.	0.	61	46
					NØT CLR:	22	22	14	0	0	22.3	3.9	.624E+05	66.	0.	0.	22	0
9/ 3/77	JFK CPH	395. 52.	410. 56.	235. 41.	FLT TØT:	71	71	46	0	0	4.1	.4	.239E+05	237.	0.	0.	21	50
					IN CLR:	62	62	42	0	0	0.0	0.0	.235E+02	253.	0.	0.	12	50
					NØT CLR:	9	9	4	0	0	32.2	3.2	.188E+06	70.	0.	0.	9	0
9/ 3/77	CPH JFK	375. 57.	411. 64.	244. 41.	FLT TØT:	83	83	53	0	0	2.3	.5	.942E+04	312.	0.	0.	9	74
					IN CLR:	75	75	47	0	0	0.0	0.0	.559E+02	337.	0.	0.	9	66
					NØT CLR:	8	8	6	0	0	23.8	5.1	.972E+05	118.	0.	0.	0	8
9/ 4/77	JFK CPH	394. 52.	410. 56.	187. 41.	FLT TØT:	72	72	45	0	0	0.0	0.0	.202E+02	258.	0.	0.	13	59
					IN CLR:	72	72	45	0	0	0.0	0.0	.202E+02	258.	0.	0.	13	59
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/ 4/77	CPH JFK	401. 56.	430. 62.	200. 41.	FLT TØT:	78	78	49	0	0	.2	.0	.848E+02	359.	0.	0.	6	72
					IN CLR:	77	77	49	0	0	0.0	0.0	.828E+02	359.	0.	0.	6	71
					NØT CLR:	1	1	0	0	0	16.9	2.0	.239E+03	0.	0.	0.	0	1
9/ 6/77	JFK HND	388. 54.	431. 65.	235. 37.	FLT TØT:	152	152	99	0	0	.6	.1	.163E+04	202.	0.	0.	78	74
					IN CLR:	148	148	95	0	0	0.0	0.0	.113E+03	208.	0.	0.	74	74
					NØT CLR:	4	4	4	0	0	22.1	4.3	.577E+05	74.	0.	0.	4	0
9/ 7/77	HND LAX	390. 46.	411. 54.	240. 35.	FLT TØT:	102	102	61	0	0	3.7	.4	.996E+04	129.	0.	0.	73	29
					IN CLR:	92	92	55	0	0	0.0	0.0	.120E+03	133.	0.	0.	63	29
					NØT CLR:	10	10	6	0	0	37.8	3.7	.100E+06	87.	0.	0.	10	0
9/ 7/77	LAX HND	384. 40.	430. 43.	280. 35.	FLT TØT:	115	115	74	0	0	1.2	.3	.336E+04	89.	0.	0.	98	17
					IN CLR:	103	103	65	0	0	0.0	0.0	.237E+03	92.	0.	0.	90	13
					NØT CLR:	12	12	9	0	0	11.7	3.3	.302E+05	69.	0.	0.	8	4
9/ 8/77	HND JFK	383. 51.	431. 59.	198. 36.	FLT TØT:	117	117	77	0	0	4.6	.6	.340E+05	199.	0.	0.	50	67
					IN CLR:	99	99	67	0	0	0.0	0.0	.183E+03	218.	0.	0.	37	62
					NØT CLR:	18	18	10	0	0	30.0	3.6	.220E+06	73.	0.	0.	13	5

APPENDIX B

1M/1D/1Y	DEP-ARR	AVFL	EXHI	EXLO	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.		STRATO.			
(N533PA)		ALAT	EXTN	EXTS	CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N	
9/ 9/77	JFK CPH	375.	410.	216.	FLT TOT:	67	67	46	0	0	6.7	.7	.370E+05	214.	0.	0.	25	42
		53.	56.	42.	IN CLR:	58	58	40	0	0	0.0	0.0	.838E+02	236.	0.	0.	16	42
					NOT CLR:	9	9	6	0	0	49.7	5.0	.275E+06	63.	0.	0.	9	0
9/ 9/77	CPH JFK	402.	430.	207.	FLT TOT:	83	83	56	0	0	0.0	0.0	.184E+02	290.	0.	0.	11	72
		56.	62.	41.	IN CLR:	83	83	56	0	0	0.0	0.0	.184E+02	290.	0.	0.	11	72
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/10/77	JFK HND	379.	430.	267.	FLT TOT:	143	143	93	0	0	2.0	.3	.474E+04	163.	0.	0.	80	63
		55.	65.	37.	IN CLR:	126	126	80	0	0	0.0	0.0	.682E+03	185.	0.	0.	63	63
					NOT CLR:	17	17	13	0	0	16.5	2.2	.349E+05	28.	0.	0.	17	0
9/11/77	HND LAX	388.	410.	278.	FLT TOT:	107	107	72	0	0	4.2	.5	.935E+04	101.	0.	0.	84	23
		45.	50.	35.	IN CLR:	88	88	57	0	0	0.0	0.0	.636E+02	118.	0.	0.	65	23
					NOT CLR:	19	19	15	0	0	23.4	3.1	.524E+05	39.	0.	0.	19	0
9/11/77	LAX HND	382.	390.	254.	FLT TOT:	109	109	73	0	0	1.7	.5	.360E+04	95.	0.	0.	102	7
		41.	45.	35.	IN CLR:	94	94	62	0	0	0.0	0.0	.494E+02	103.	0.	0.	87	7
					NOT CLR:	15	15	11	0	0	12.2	3.7	.258E+05	48.	0.	0.	15	0
9/12/77	HND JFK	384.	410.	204.	FLT TOT:	121	121	74	0	0	5.7	.5	.151E+05	150.	0.	0.	59	62
		52.	60.	36.	IN CLR:	101	101	59	0	0	0.0	0.0	.755E+02	179.	0.	0.	39	62
					NOT CLR:	20	20	15	0	0	34.7	2.9	.909E+05	39.	0.	0.	20	0
9/13/77	JFK HND	389.	430.	277.	FLT TOT:	150	150	98	0	0	.6	.1	.209E+04	238.	0.	0.	30	120
		55.	67.	37.	IN CLR:	145	145	94	0	0	0.0	0.0	.676E+02	245.	0.	0.	25	120
					NOT CLR:	5	5	4	0	0	18.4	4.2	.609E+05	88.	0.	0.	5	0
9/14/77	HND LAX	398.	430.	250.	FLT TOT:	99	99	67	0	0	4.4	1.1	.106E+05	133.	0.	0.	71	28
		46.	55.	35.	IN CLR:	74	74	51	0	0	0.0	0.0	.347E+02	154.	0.	0.	46	28
					NOT CLR:	25	25	16	0	0	17.3	4.3	.418E+05	64.	0.	0.	25	0
9/14/77	LAX HND	391.	430.	290.	FLT TOT:	106	106	69	0	0	.0	.0	.255E+03	78.	0.	0.	106	0
		39.	42.	35.	IN CLR:	105	105	68	0	0	0.0	0.0	.403E+02	78.	0.	0.	105	0
					NOT CLR:	1	1	1	0	0	2.4	4.0	.228E+05	62.	0.	0.	1	0
9/15/77	HND JFK	382.	410.	273.	FLT TOT:	118	118	79	0	0	4.4	.5	.178E+05	166.	0.	0.	57	61
		53.	62.	36.	IN CLR:	99	99	66	0	0	0.0	0.0	.125E+03	188.	0.	0.	38	61
					NOT CLR:	19	19	13	0	0	27.6	2.8	.110E+06	54.	0.	0.	19	0
9/16/77	JFK HND	377.	410.	216.	FLT TOT:	145	145	96	0	0	7.1	.6	.171E+05	100.	0.	0.	122	23
		50.	60.	35.	IN CLR:	118	118	76	0	0	0.0	0.0	.545E+02	110.	0.	0.	95	23
					NOT CLR:	27	27	20	0	0	37.9	3.1	.915E+05	62.	0.	0.	27	0

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			RH	H20	TROPO. N	STRATO. N	
						CLD	PD5	0Z	H20	H2S	%TIC	PATCHES	PD5					0Z
9/17/77	HND LAX	410. 37.	410. 38.	410. 36.	FLT T0T:	6	6	2	0	0	0.0	0.0	0.	6.	0.	0.	6	0
					IN CLR:	6	6	2	0	0	0.0	0.0	0.	6.	0.	0.	6	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/20/77	JFK HND	391. 53.	430. 65.	245. 35.	FLT T0T:	148	148	101	0	0	.8	.1	.126E+04	169.	0.	0.	85	63
					IN CLR:	138	138	93	0	0	0.0	0.0	.381E+03	180.	0.	0.	75	63
					NOT CLR:	10	10	8	0	0	12.2	1.6	.133E+05	47.	0.	0.	10	0
9/21/77	HND LAX	386. 47.	410. 49.	369. 42.	FLT T0T:	62	62	33	0	0	3.9	.4	.180E+05	95.	0.	0.	56	6
					IN CLR:	53	53	29	0	0	0.0	0.0	.359E+02	103.	0.	0.	47	6
					NOT CLR:	9	9	4	0	0	26.6	2.7	.124E+06	38.	0.	0.	9	0
9/23/77	JFK HND	377. 54.	411. 63.	270. 37.	FLT T0T:	149	0	97	0	0	1.9	.3	0.	167.	0.	0.	70	79
					IN CLR:	137	0	88	0	0	0.0	0.0	0.	178.	0.	0.	60	77
					NOT CLR:	12	0	9	0	0	23.3	4.1	0.	58.	0.	0.	10	2
9/24/77	HND LAX	397. 44.	429. 50.	276. 35.	FLT T0T:	102	0	66	0	0	.1	.2	0.	108.	0.	0.	84	18
					IN CLR:	96	0	62	0	0	0.0	0.0	0.	108.	0.	0.	79	17
					NOT CLR:	6	0	4	0	0	2.4	3.2	0.	105.	0.	0.	5	1
9/24/77	LAX HND	374. 42.	410. 45.	318. 35.	FLT T0T:	109	0	63	0	0	.8	.2	0.	133.	0.	0.	90	19
					IN CLR:	101	0	57	0	0	0.0	0.0	0.	141.	0.	0.	82	19
					NOT CLR:	8	0	6	0	0	10.8	2.8	0.	58.	0.	0.	8	0
9/25/77	HND JFK	358. 45.	410. 52.	198. 35.	FLT T0T:	132	0	87	0	0	1.4	.1	0.	138.	0.	0.	74	58
					IN CLR:	126	0	84	0	0	0.0	0.0	0.	142.	0.	0.	69	57
					NOT CLR:	6	0	3	0	0	30.7	3.0	0.	40.	0.	0.	5	1
9/26/77	BOS LHR	406. 50.	411. 52.	291. 43.	FLT T0T:	50	0	32	0	0	.0	.0	0.	301.	0.	0.	3	47
					IN CLR:	49	0	31	0	0	0.0	0.0	0.	297.	0.	0.	3	46
					NOT CLR:	1	0	1	0	0	.4	1.0	0.	428.	0.	0.	0	1
9/26/77	LHR BOS	402. 53.	430. 56.	339. 44.	FLT T0T:	68	0	42	0	0	.8	.1	0.	254.	0.	0.	15	53
					IN CLR:	65	0	41	0	0	0.0	0.0	0.	257.	0.	0.	13	52
					NOT CLR:	3	0	1	0	0	19.1	2.3	0.	160.	0.	0.	2	1
9/27/77	BOS LHR	404. 50.	411. 52.	209. 43.	FLT T0T:	58	0	36	0	0	7.7	.5	0.	184.	0.	0.	34	24
					IN CLR:	43	0	29	0	0	0.0	0.0	0.	209.	0.	0.	19	24
					NOT CLR:	15	0	7	0	0	29.7	2.1	0.	80.	0.	0.	15	0
9/27/77	LHR BOS	398. 51.	430. 54.	275. 43.	FLT T0T:	75	0	45	0	0	2.4	.3	0.	144.	0.	0.	35	40
					IN CLR:	71	0	43	0	0	0.0	0.0	0.	147.	0.	0.	35	36
					NOT CLR:	4	0	2	0	0	45.0	6.3	0.	81.	0.	0.	0	4

APPENDIX B

IM/ID/IY (N533PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.		STRATO.			
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N	
9/27/77 BOS DTW		385. 43.	430. 43.	231. 43.	FLT TOT:	8	0	5	0	0	0.0	0.0	0.	138.	0.	0.	2	6
					IN CLR:	8	0	5	0	0	0.0	0.0	0.	138.	0.	0.	2	6
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/27/77 DTW BOS		328. 42.	330. 43.	311. 42.	FLT TOT:	9	0	5	0	0	0.0	0.0	0.	124.	0.	0.	9	0
					IN CLR:	9	0	5	0	0	0.0	0.0	0.	124.	0.	0.	9	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/28/77 BOS LHR		403. 50.	410. 53.	234. 43.	FLT TOT:	49	0	31	0	0	.2	.1	0.	167.	0.	0.	9	40
					IN CLR:	48	0	31	0	0	0.0	0.0	0.	167.	0.	0.	8	40
					NOT CLR:	1	0	0	0	0	10.2	3.0	0.	0.	0.	0.	1	0
9/28/77 LHR JFK		397. 53.	410. 56.	268. 42.	FLT TOT:	76	0	49	0	0	0.0	0.0	0.	208.	0.	0.	17	59
					IN CLR:	76	0	49	0	0	0.0	0.0	0.	208.	0.	0.	17	59
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
9/28/77 JFK SFO		419. 40.	430. 40.	231. 38.	FLT TOT:	54	0	34	0	0	.0	.0	0.	92.	0.	0.	41	13
					IN CLR:	53	0	34	0	0	0.0	0.0	0.	92.	0.	0.	40	13
					NOT CLR:	1	0	0	0	0	2.0	1.0	0.	0.	0.	0.	1	0
9/29/77 SFO AKL		381. 2.	410. 37.	322. -36.	FLT TOT:	132	0	80	0	0	3.5	.4	0.	47.	0.	0.	122	10
					IN CLR:	114	0	71	0	0	0.0	0.0	0.	49.	0.	0.	104	10
					NOT CLR:	18	0	9	0	0	25.6	3.3	0.	26.	0.	0.	18	0
9/29/77 AKL SYD		369. -36.	391. -34.	245. -37.	FLT TOT:	21	0	13	0	0	.0	.0	0.	202.	0.	0.	4	17
					IN CLR:	20	0	12	0	0	0.0	0.0	0.	194.	0.	0.	4	16
					NOT CLR:	1	0	1	0	0	.4	1.0	0.	293.	0.	0.	0	1
9/30/77 SYD AKL		404. -36.	412. -34.	319. -37.	FLT TOT:	22	0	14	0	0	.2	.4	0.	152.	0.	0.	1	21
					IN CLR:	21	0	14	0	0	0.0	0.0	0.	152.	0.	0.	1	20
					NOT CLR:	1	0	0	0	0	3.5	8.0	0.	0.	0.	0.	0	1
9/30/77 AKL SFO		393. 2.	413. 37.	268. -36.	FLT TOT:	116	0	74	0	0	2.7	.2	0.	59.	0.	0.	105	11
					IN CLR:	104	0	68	0	0	0.0	0.0	0.	60.	0.	0.	94	10
					NOT CLR:	12	0	6	0	0	26.6	1.8	0.	41.	0.	0.	11	1

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			RH	H2O	TROPO. N	STRATO. N		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5					OZ	
(N533PA)																		
10/ 1/77	SFO AKL	373.	390.	232.	FLT TOT:	117	0	77	0	0	.7	.3	0.	59.	0.	0.	108	9
		-1.	37.	-36.	IN CLR:	108	0	72	0	0	0.0	0.0	0.	61.	0.	0.	99	9
					NOT CLR:	9	0	5	0	0	8.6	3.4	0.	32.	0.	0.	9	0
10/ 1/77	AKL SYD	404.	411.	327.	FLT TOT:	27	0	17	0	0	1.6	.3	0.	327.	0.	0.	2	25
		-36.	-34.	-37.	IN CLR:	25	0	16	0	0	0.0	0.0	0.	324.	0.	0.	1	24
					NOT CLR:	2	0	1	0	0	22.2	3.5	0.	379.	0.	0.	1	1
10/ 2/77	SYD SFO	376.	410.	238.	FLT TOT:	121	0	80	0	0	5.0	.6	0.	68.	0.	0.	103	18
		2.	37.	-34.	IN CLR:	91	0	62	0	0	0.0	0.0	0.	80.	0.	0.	73	18
					NOT CLR:	30	0	18	0	0	20.1	2.4	0.	26.	0.	0.	30	0
10/ 2/77	SFO JFK	384.	410.	315.	FLT TOT:	23	0	14	0	0	.6	.5	0.	107.	0.	0.	23	0
		40.	41.	38.	IN CLR:	22	0	13	0	0	0.0	0.0	0.	109.	0.	0.	22	0
					NOT CLR:	1	0	1	0	0	13.3	12.0	0.	79.	0.	0.	1	0
10/ 3/77	JFK HND	382.	430.	209.	FLT TOT:	132	0	80	0	0	.2	.2	0.	208.	0.	0.	43	89
		54.	65.	37.	IN CLR:	127	0	77	0	0	0.0	0.0	0.	207.	0.	0.	41	86
					NOT CLR:	5	0	3	0	0	4.9	4.6	0.	226.	0.	0.	2	3
10/ 4/77	HND LAX	400.	410.	304.	FLT TOT:	95	0	61	0	0	7.0	.9	0.	139.	0.	0.	50	45
		43.	48.	35.	IN CLR:	80	0	52	0	0	0.0	0.0	0.	154.	0.	0.	35	45
					NOT CLR:	15	0	9	0	0	44.5	5.7	0.	48.	0.	0.	15	0
10/28/77	SFO LHR	384.	430.	290.	FLT TOT:	42	0	0	0	0	1.6	.1	0.	0.	0.	0.	3	39
		66.	88.	40.	IN CLR:	41	0	0	0	0	0.0	0.0	0.	0.	0.	0.	2	39
					NOT CLR:	1	0	0	0	0	65.5	3.0	0.	0.	0.	0.	1	0
10/29/77	LHR CPT	383.	430.	283.	FLT TOT:	42	0	0	0	0	5.8	.7	0.	0.	0.	0.	38	4
		8.	50.	-33.	IN CLR:	35	0	0	0	0	0.0	0.0	0.	0.	0.	0.	31	4
					NOT CLR:	7	0	0	0	0	35.0	4.0	0.	0.	0.	0.	7	0
10/29/77	CPT AKL	384.	430.	307.	FLT TOT:	60	0	10	0	0	.4	.0	0.	425.	0.	0.	9	51
		-64.	-36.	-88.	IN CLR:	59	0	9	0	0	0.0	0.0	0.	465.	0.	0.	8	51
					NOT CLR:	1	0	1	0	0	23.5	1.0	0.	64.	0.	0.	1	0
10/30/77	AKL SFO	393.	410.	315.	FLT TOT:	46	0	2	0	0	7.7	.7	0.	112.	0.	0.	46	0
		-0.	35.	-35.	IN CLR:	35	0	2	0	0	0.0	0.0	0.	112.	0.	0.	35	0
					NOT CLR:	11	0	0	0	0	32.4	2.7	0.	0.	0.	0.	11	0
(N533PA)																		
10/17/77	JFK HND	388.	431.	190.	FLT TOT:	145	0	95	0	0	0.0	0.0	0.	261.	0.	0.	18	127
		54.	65.	37.	IN CLR:	145	0	95	0	0	0.0	0.0	0.	261.	0.	0.	18	127
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL	EXHI	EXLO	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT			TROPO.			STRATO.		
(N533PA)		ALAT	EXTN	EXTS	CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N	
10/18/77	HND LAX	387.	410.	210.	FLT TOT:	76	0	50	0	0	7.5	.4	0.	118.	0.	0.	44	32
		43.	47.	35.	IN CLR:	64	0	43	0	0	0.0	0.0	0.	132.	0.	0.	32	32
					NOT CLR:	12	0	7	0	0	47.5	2.7	0.	35.	0.	0.	12	0
10/18/77	LAX HND	390.	450.	285.	FLT TOT:	122	0	82	0	0	0.0	0.0	0.	244.	0.	0.	38	84
		47.	54.	35.	IN CLR:	122	0	82	0	0	0.0	0.0	0.	244.	0.	0.	38	84
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
10/19/77	HND LAX	381.	390.	268.	FLT TOT:	82	0	52	0	0	8.7	1.0	0.	102.	0.	0.	68	14
		42.	45.	35.	IN CLR:	56	0	38	0	0	0.0	0.0	0.	118.	0.	0.	42	14
					NOT CLR:	26	0	14	0	0	27.5	3.3	0.	57.	0.	0.	26	0
10/19/77	LAX HND	394.	430.	287.	FLT TOT:	119	0	80	0	0	.1	.1	0.	243.	0.	0.	31	88
		48.	55.	35.	IN CLR:	117	0	78	0	0	0.0	0.0	0.	247.	0.	0.	30	87
					NOT CLR:	2	0	2	0	0	5.5	5.0	0.	101.	0.	0.	1	1
10/20/77	HND JFK	384.	410.	309.	FLT TOT:	116	0	75	0	0	.0	.0	0.	180.	0.	0.	47	69
		47.	51.	36.	IN CLR:	115	0	75	0	0	0.0	0.0	0.	180.	0.	0.	46	69
					NOT CLR:	1	0	0	0	0	.4	1.0	0.	0.	0.	0.	1	0
(N655PA)																		
10/ 5/77	SFO YVR	292.	310.	196.	FLT TOT:	16	16	0	0	0	.9	0.0	.197E+04	0.	0.	0.	16	0
		40.	42.	38.	IN CLR:	14	14	0	0	0	0.0	0.0	.150E+04	0.	0.	0.	14	0
					NOT CLR:	2	2	0	0	0	7.1	0.0	.525E+04	0.	0.	0.	2	0
10/ 6/77	YVR HND	356.	391.	272.	FLT TOT:	104	104	0	0	0	5.6	0.0	.164E+05	0.	0.	0.	104	0
		41.	49.	35.	IN CLR:	86	86	0	0	0	0.0	0.0	.233E+03	0.	0.	0.	86	0
					NOT CLR:	18	18	0	0	0	32.2	0.0	.936E+05	0.	0.	0.	18	0
10/ 7/77	HND SFO	362.	391.	219.	FLT TOT:	88	88	0	0	0	7.4	0.0	.175E+05	0.	0.	0.	85	3
		45.	50.	36.	IN CLR:	61	61	0	0	0	0.0	0.0	.983E+02	0.	0.	0.	58	3
					NOT CLR:	27	27	0	0	0	24.2	0.0	.569E+05	0.	0.	0.	27	0
10/ 7/77	SFO HND	357.	391.	267.	FLT TOT:	112	112	0	0	0	14.9	0.0	.453E+05	0.	0.	0.	112	0
		38.	41.	35.	IN CLR:	63	63	0	0	0	0.0	0.0	.122E+02	0.	0.	0.	63	0
					NOT CLR:	49	49	0	0	0	34.1	0.0	.104E+06	0.	0.	0.	49	0
10/ 8/77	HND HKG	345.	351.	250.	FLT TOT:	37	37	0	0	0	.3	0.0	.511E+01	0.	0.	0.	37	0
		28.	34.	22.	IN CLR:	35	35	0	0	0	0.0	0.0	.541E+01	0.	0.	0.	35	0
					NOT CLR:	2	2	0	0	0	6.3	0.0	0.	0.	0.	0.	2	0
10/ 8/77	HKG BKK	310.	310.	310.	FLT TOT:	27	27	0	0	0	5.4	0.0	.110E+05	0.	0.	0.	27	0
		12.	20.	8.	IN CLR:	22	22	0	0	0	0.0	0.0	.555E+01	0.	0.	0.	22	0
					NOT CLR:	5	5	0	0	0	29.2	0.0	.595E+05	0.	0.	0.	5	0

IM/ID/IY (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPO. N	STRATO. N		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O	
10/ 8/77	BKK KHI	324. 20.	351. 25.	282. 14.	FLT TOT:	40	40	0	0	0	2.7	0.0	.223E+05	0.	0.	0.	40	0
					IN CLR:	35	35	0	0	0	0.0	0.0	.181E+03	0.	0.	0.	35	0
					NOT CLR:	5	5	0	0	0	21.6	0.0	.177E+06	0.	0.	0.	5	0
10/ 9/77	KHI THR	385. 30.	390. 34.	311. 26.	FLT TOT:	23	23	0	0	0	0.0	0.0	.711E+01	0.	0.	0.	23	0
					IN CLR:	23	23	0	0	0	0.0	0.0	.711E+01	0.	0.	0.	23	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
10/ 9/77	THR FRA	334. 42.	391. 50.	217. 37.	FLT TOT:	49	49	0	0	0	5.5	0.0	.201E+05	0.	0.	0.	28	21
					IN CLR:	41	41	0	0	0	0.0	0.0	.863E+03	0.	0.	0.	20	21
					NOT CLR:	8	8	0	0	0	33.4	0.0	.119E+06	0.	0.	0.	8	0
10/ 9/77	FRA LHR	303. 51.	311. 52.	286. 50.	FLT TOT:	5	5	0	0	0	5.1	0.0	.218E+05	0.	0.	0.	5	0
					IN CLR:	2	2	0	0	0	0.0	0.0	0.	0.	0.	0.	2	0
					NOT CLR:	3	3	0	0	0	8.5	0.0	.364E+05	0.	0.	0.	3	0
10/ 9/77	LHR JFK	343. 54.	370. 57.	268. 46.	FLT TOT:	68	68	0	0	0	21.5	0.0	.581E+05	0.	0.	0.	43	25
					IN CLR:	39	39	0	0	0	0.0	0.0	.741E+01	0.	0.	0.	16	23
					NOT CLR:	29	29	0	0	0	50.4	0.0	.136E+06	0.	0.	0.	27	2
10/11/77	JFK LHR	306. 55.	331. 62.	235. 42.	FLT TOT:	59	59	0	0	0	25.8	0.0	.845E+05	0.	0.	0.	53	6
					IN CLR:	35	35	0	0	0	0.0	0.0	.310E+02	0.	0.	0.	29	6
					NOT CLR:	24	24	0	0	0	63.5	0.0	.208E+06	0.	0.	0.	24	0
10/11/77	LHR FRA	277. 52.	290. 52.	228. 52.	FLT TOT:	5	5	0	0	0	5.8	0.0	.323E+05	0.	0.	0.	5	0
					IN CLR:	1	1	0	0	0	0.0	0.0	0.	0.	0.	0.	1	0
					NOT CLR:	4	4	0	0	0	7.3	0.0	.404E+05	0.	0.	0.	4	0
10/11/77	FRA THR	299. 42.	332. 48.	290. 36.	FLT TOT:	44	44	0	0	0	9.4	0.0	.340E+05	0.	0.	0.	44	0
					IN CLR:	29	29	0	0	0	0.0	0.0	.499E+02	0.	0.	0.	29	0
					NOT CLR:	15	15	0	0	0	27.5	0.0	.997E+05	0.	0.	0.	15	0
10/11/77	THR DEL	326. 30.	331. 34.	259. 28.	FLT TOT:	26	26	0	0	0	0.0	0.0	.334E+02	0.	0.	0.	26	0
					IN CLR:	26	26	0	0	0	0.0	0.0	.334E+02	0.	0.	0.	26	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0	0	
10/12/77	DEL BKK	362. 21.	371. 28.	217. 14.	FLT TOT:	31	31	0	0	0	1.5	0.0	.326E+04	0.	0.	0.	31	0
					IN CLR:	27	27	0	0	0	0.0	0.0	.209E+02	0.	0.	0.	27	0
					NOT CLR:	4	4	0	0	0	11.8	0.0	.251E+05	0.	0.	0.	4	0
10/12/77	BKK HKG	361. 13.	371. 21.	193. 8.	FLT TOT:	32	32	0	0	0	21.5	0.0	.882E+05	0.	0.	0.	32	0
					IN CLR:	14	14	0	0	0	0.0	0.0	.229E+02	0.	0.	0.	14	0
					NOT CLR:	18	18	0	0	0	38.1	0.0	.157E+06	0.	0.	0.	18	0

APPENDIX B

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ. N	STRATØ. N	
						CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH			H2O
(N655PA)																		
10/13/77	HKG HND	361.	371.	212.	FLT TOT:	28	28	0	0	0	.8	0.0	.130E+04	0.	0.	0.	28	0
		29.	35.	22.	IN CLR:	26	26	0	0	0	0.0	0.0	.265E+02	0.	0.	0.	26	0
					NOT CLR:	2	2	0	0	0	10.6	0.0	.178E+05	0.	0.	0.	2	0
10/13/77	HND SFO	358.	371.	200.	FLT TOT:	84	84	0	0	0	6.9	0.0	.167E+05	0.	0.	0.	80	4
		43.	45.	37.	IN CLR:	67	67	0	0	0	0.0	0.0	.914E+01	0.	0.	0.	63	4
					NOT CLR:	17	17	0	0	0	34.0	0.0	.823E+05	0.	0.	0.	17	0
(N533PA)																		
10/31/77	SFO JFK	347.	350.	330.	FLT TOT:	47	47	30	0	0	12.8	1.8	.110E+06	90.	0.	0.	36	11
		41.	42.	38.	IN CLR:	32	32	20	0	0	0.0	0.0	.472E+02	117.	0.	0.	21	11
					NOT CLR:	15	15	10	0	0	40.1	5.7	.345E+06	37.	0.	0.	15	0
10/31/77	JFK HND	381.	410.	250.	FLT TOT:	138	138	89	22	1	4.0	.3	.201E+05	183.	47.	89.	37	101
		54.	65.	36.	IN CLR:	125	125	81	21	1	0.0	0.0	.701E+02	197.	44.	43.	24	101
					NOT CLR:	13	13	8	1	0	43.0	3.5	.213E+06	39.	100.	1042.	13	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPØ. N	STRATO. N			
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ			RH	H2Ø	
(N533PA)																			
11/	1/77	HND LAX	390.	409.	329.	FLT TØT:	97	97	64	0	0	.6	.2	.135E+04	115.	0.	0.	48	49
			44.	48.	35.	IN CLR:	92	92	59	0	0	0.0	0.0	.141E+03	120.	0.	0.	43	49
						NØT CLR:	5	5	5	0	0	11.9	3.2	.235E+05	60.	0.	0.	5	0
11/	1/77	LAX HND	379.	410.	309.	FLT TØT:	120	120	80	1	0	0.0	0.0	.157E+02	79.	70.	203.	101	19
			39.	43.	35.	IN CLR:	120	120	80	1	0	0.0	0.0	.157E+02	79.	70.	203.	101	19
						NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
11/	2/77	HND JFK	374.	411.	223.	FLT TØT:	121	121	79	0	0	1.1	.1	.198E+04	183.	0.	0.	51	70
			51.	59.	37.	IN CLR:	117	117	76	0	0	0.0	0.0	.843E+02	187.	0.	0.	47	70
						NØT CLR:	4	4	3	0	0	33.3	1.8	.573E+05	83.	0.	0.	4	0
(N655PA)																			
11/21/77	JFK LHR	345.	351.	262.	FLT TØT:	71	71	47	0	0	15.0	0.0	.221E+05	127.	0.	0.	49	22	
		52.	55.	41.	IN CLR:	42	42	27	0	0	0.0	0.0	.323E+02	173.	0.	0.	20	22	
					NØT CLR:	29	29	20	0	0	36.7	0.0	.540E+05	65.	0.	0.	29	0	
11/22/77	LHR IAD	365.	390.	249.	FLT TØT:	75	75	50	0	0	19.3	0.0	.628E+05	105.	0.	0.	61	14	
		49.	52.	40.	IN CLR:	31	31	20	0	0	0.0	0.0	.361E+03	149.	0.	0.	17	14	
					NØT CLR:	44	44	30	0	0	33.0	0.0	.107E+06	75.	0.	0.	44	0	
11/23/77	IAD LHR	359.	371.	276.	FLT TØT:	61	61	41	0	0	17.9	0.0	.430E+05	102.	0.	0.	41	20	
		50.	54.	40.	IN CLR:	40	40	26	0	0	0.0	0.0	.210E+02	134.	0.	0.	20	20	
					NØT CLR:	21	21	15	0	0	52.1	0.0	.125E+06	46.	0.	0.	21	0	
11/23/77	FRA THR	352.	370.	266.	FLT TØT:	41	41	25	0	0	0.0	0.0	.105E+02	126.	0.	0.	29	12	
		41.	48.	36.	IN CLR:	41	41	25	0	0	0.0	0.0	.105E+02	126.	0.	0.	29	12	
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0	
11/24/77	THR FRA	368.	391.	251.	FLT TØT:	57	57	36	0	0	.5	0.0	.135E+02	130.	0.	0.	27	30	
		41.	49.	36.	IN CLR:	56	56	35	0	0	0.0	0.0	.113E+02	134.	0.	0.	26	30	
					NØT CLR:	1	1	1	0	0	26.3	0.0	.137E+03	0.	0.	0.	1	0	

IM/ID/IY	DEP-ARR	AVFL	EXHI	EXLO		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT					TROPØ.	STRATØ.	
						CLD	PD5	ØZ	H2Ø	H2S	%TIC	PATCHES	PD5	ØZ	RH			H2Ø
(N655PA)																		
12/ 7/77	SFO SEA	380.	390.	301.	FLT TØT:	11	11	8	0	0	0.0	0.0	.244E+02	119.	0.	0.	4	7
		43.	46.	39.	IN CLR:	11	11	8	0	0	0.0	0.0	.244E+02	119.	0.	0.	4	7
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/ 7/77	SEA LHR	329.	331.	253.	FLT TØT:	95	95	63	0	0	0.0	0.0	.483E+01	238.	0.	0.	5	90
		57.	62.	48.	IN CLR:	95	95	63	0	0	0.0	0.0	.483E+01	238.	0.	0.	5	90
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/ 8/77	LHR SEA	341.	370.	240.	FLT TØT:	92	92	56	0	0	1.1	0.0	.366E+04	239.	0.	0.	21	71
		62.	70.	48.	IN CLR:	86	86	52	0	0	0.0	0.0	.539E+02	253.	0.	0.	15	71
					NØT CLR:	6	6	4	0	0	16.8	0.0	.554E+05	59.	0.	0.	6	0
12/ 9/77	SEA SFO	348.	370.	226.	FLT TØT:	10	10	6	0	0	15.6	0.0	.628E+04	41.	0.	0.	10	0
		43.	46.	39.	IN CLR:	5	5	3	0	0	0.0	0.0	.404E+02	45.	0.	0.	5	0
					NØT CLR:	5	5	3	0	0	31.2	0.0	.125E+05	38.	0.	0.	5	0
12/ 9/77	SFO SEA	358.	391.	195.	FLT TØT:	11	11	8	0	0	5.6	0.0	.357E+05	77.	0.	0.	4	7
		43.	46.	39.	IN CLR:	9	9	7	0	0	0.0	0.0	.670E+03	78.	0.	0.	3	6
					NØT CLR:	2	2	1	0	0	30.8	0.0	.194E+06	64.	0.	0.	1	1
12/ 9/77	SEA LHR	325.	330.	234.	FLT TØT:	90	90	47	0	0	3.6	0.0	.262E+05	228.	0.	0.	9	81
		57.	62.	48.	IN CLR:	81	81	46	0	0	0.0	0.0	.889E+01	232.	0.	0.	3	78
					NØT CLR:	9	9	1	0	0	36.4	0.0	.262E+06	51.	0.	0.	6	3
12/10/77	LHR SEA	349.	390.	265.	FLT TØT:	94	94	52	0	0	.2	0.0	.194E+04	249.	0.	0.	10	84
		63.	70.	49.	IN CLR:	92	92	51	0	0	0.0	0.0	.177E+01	252.	0.	0.	10	82
					NØT CLR:	2	2	1	0	0	9.2	0.0	.910E+05	93.	0.	0.	0	2
12/11/77	SEA SFO	348.	370.	266.	FLT TØT:	12	12	7	0	0	19.9	0.0	.151E+06	69.	0.	0.	7	5
		43.	46.	39.	IN CLR:	7	7	5	0	0	0.0	0.0	0.	79.	0.	0.	4	3
					NØT CLR:	5	5	2	0	0	47.7	0.0	.363E+06	44.	0.	0.	3	2
12/11/77	SFO LAX	271.	291.	195.	FLT TØT:	5	5	2	0	0	3.1	0.0	.526E+04	35.	0.	0.	5	0
		36.	37.	35.	IN CLR:	3	3	1	0	0	0.0	0.0	0.	45.	0.	0.	3	0
					NØT CLR:	2	2	1	0	0	7.6	0.0	.132E+05	24.	0.	0.	2	0
12/11/77	LAX PPT	373.	390.	258.	FLT TØT:	80	80	49	0	0	8.0	0.0	.280E+05	32.	0.	0.	80	0
		8.	33.	-16.	IN CLR:	66	66	40	0	0	0.0	0.0	.197E+02	33.	0.	0.	66	0
					NØT CLR:	14	14	9	0	0	45.7	0.0	.160E+06	23.	0.	0.	14	0
12/12/77	PPT PPG	380.	391.	272.	FLT TØT:	29	29	17	0	0	0.0	0.0	.557E+01	31.	0.	0.	29	0
		-16.	-15.	-17.	IN CLR:	29	29	17	0	0	0.0	0.0	.557E+01	31.	0.	0.	29	0
					NØT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0

IM/ID/IY	DEP-ARR	AVFL ALAT	EXHI EXTN	EXL0 EXTS		NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPO N	STRATO N		
						CLD	PD5	OZ	H20	H2S	%TIC	PATCHES	PD5	OZ			RH	H20
(N655PA)																		
12/12/77	PPG HNL	373. 4.	390. 20.	256. -12.	FLT TOT:	50	50	32	0	0	15.6	0.0	.170E+06	27.	0.	0.	50	0
					IN CLR:	35	35	22	0	0	0.0	0.0	.426E+02	28.	0.	0.	35	0
					NOT CLR:	15	15	10	0	0	52.1	0.0	.567E+06	24.	0.	0.	15	0
12/12/77	HNL SEA	367. 35.	390. 47.	263. 23.	FLT TOT:	45	45	30	0	0	3.0	0.0	.287E+04	59.	0.	0.	39	6
					IN CLR:	42	42	28	0	0	0.0	0.0	.794E+02	59.	0.	0.	36	6
					NOT CLR:	3	3	2	0	0	45.1	0.0	.420E+05	56.	0.	0.	3	0
12/13/77	SEA FAI	343. 57.	351. 64.	266. 49.	FLT TOT:	29	29	18	0	0	0.0	0.0	.724E+02	196.	0.	0.	15	14
					IN CLR:	29	29	18	0	0	0.0	0.0	.724E+02	196.	0.	0.	15	14
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/13/77	FAI SEA	366. 57.	370. 64.	291. 49.	FLT TOT:	27	27	17	0	0	0.0	0.0	.209E+02	259.	0.	0.	1	26
					IN CLR:	27	27	17	0	0	0.0	0.0	.209E+02	259.	0.	0.	1	26
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/13/77	SEA HNL	373. 34.	391. 47.	203. 22.	FLT TOT:	62	62	39	0	0	3.9	0.0	.250E+05	73.	0.	0.	56	6
					IN CLR:	57	57	37	0	0	0.0	0.0	.839E+01	74.	0.	0.	51	6
					NOT CLR:	5	5	2	0	0	48.3	0.0	.310E+06	52.	0.	0.	5	0
12/14/77	HNL LAX	372. 28.	380. 34.	254. 21.	FLT TOT:	45	45	30	0	0	.5	0.0	.101E+02	36.	0.	0.	45	0
					IN CLR:	44	44	29	0	0	0.0	0.0	.962E+01	35.	0.	0.	44	0
					NOT CLR:	1	1	1	0	0	23.5	0.0	.306E+02	65.	0.	0.	1	0
12/15/77	LAX HNL	345. 25.	350. 32.	255. 20.	FLT TOT:	54	54	34	0	0	0.0	0.0	.235E+01	35.	0.	0.	54	0
					IN CLR:	54	54	34	0	0	0.0	0.0	.235E+01	35.	0.	0.	54	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/15/77	HNL NAN	307. 1.	312. 19.	229. -17.	FLT TOT:	54	54	32	0	0	6.1	0.0	.723E+05	29.	0.	0.	54	0
					IN CLR:	46	46	28	0	0	0.0	0.0	.463E+01	30.	0.	0.	46	0
					NOT CLR:	8	8	4	0	0	41.3	0.0	.488E+06	21.	0.	0.	8	0
12/15/77	NAN SYD	346. -27.	351. -19.	264. -34.	FLT TOT:	41	41	26	0	0	3.2	0.0	.177E+05	67.	0.	0.	41	0
					IN CLR:	32	32	19	0	0	0.0	0.0	.408E+02	63.	0.	0.	32	0
					NOT CLR:	9	9	7	0	0	14.7	0.0	.807E+05	77.	0.	0.	9	0
12/16/77	SYD MEL	358. -36.	390. -35.	290. -37.	FLT TOT:	7	7	3	0	0	1.7	0.0	.454E+01	150.	0.	0.	7	0
					IN CLR:	6	6	2	0	0	0.0	0.0	.530E+01	155.	0.	0.	6	0
					NOT CLR:	1	1	1	0	0	11.8	0.0	0.	139.	0.	0.	1	0
12/16/77	MEL SYD	289. -36.	293. -35.	281. -36.	FLT TOT:	5	5	2	0	0	.4	0.0	.493E+03	32.	0.	0.	5	0
					IN CLR:	4	4	2	0	0	0.0	0.0	.160E+02	32.	0.	0.	4	0
					NOT CLR:	1	1	0	0	0	2.0	0.0	.240E+04	0.	0.	0.	1	0

APPENDIX B

IM/ID/IY (N655PA)	DEP-ARR	AVFL ALAT	EXHI EXTN	EXLO EXTS	NUMBER OF OBSER.					AVERAGES FOR THE FLIGHT				TROPQ.		STRATO.		
					CLD	PD5	OZ	H2O	H2S	%TIC	PATCHES	PD5	OZ	RH	H2O	N	N	
12/16/77 SYD NAN		344. -27	365. -19.	250. -33.	FLT TOT:	33	33	21	0	0	2.4	0.0	.182E+04	71.	0.	0.	33	0
					IN CLR:	27	27	18	0	0	0.0	0.0	.116E+03	72.	0.	0.	27	0
					NOT CLR:	6	6	3	0	0	12.9	0.0	.947E+04	62.	0.	0.	6	0
12/16/77 NAN HNL		354. 1.	370. 20.	241. -16.	FLT TOT:	61	61	39	0	0	7.8	0.0	.311E+05	29.	0.	0.	61	0
					IN CLR:	44	44	29	0	0	0.0	0.0	.284E+01	32.	0.	0.	44	0
					NOT CLR:	17	17	10	0	0	27.8	0.0	.111E+06	20.	0.	0.	17	0
12/16/77 HNL LAX		335. 29.	341. 34.	249. 22.	FLT TOT:	37	37	20	0	0	0.0	0.0	.302E+02	53.	0.	0.	37	0
					IN CLR:	37	37	20	0	0	0.0	0.0	.302E+02	53.	0.	0.	37	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/17/77 LAX HNL		347. 28.	351. 33.	262. 21.	FLT TOT:	59	59	36	0	0	0.0	0.0	.428E+01	54.	0.	0.	59	0
					IN CLR:	59	59	36	0	0	0.0	0.0	.428E+01	54.	0.	0.	59	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/17/77 HNL PPG		330. 3.	350. 19.	251. -13.	FLT TOT:	43	43	26	0	0	14.3	0.0	.348E+05	26.	0.	0.	43	0
					IN CLR:	24	24	15	0	0	0.0	0.0	.959E+02	28.	0.	0.	24	0
					NOT CLR:	19	19	11	0	0	32.4	0.0	.786E+05	23.	0.	0.	19	0
12/17/77 PPG PPT		317. -16.	330. -15.	212. -18.	FLT TOT:	24	24	15	0	0	0.0	0.0	.138E+02	36.	0.	0.	24	0
					IN CLR:	24	24	15	0	0	0.0	0.0	.138E+02	36.	0.	0.	24	0
					NOT CLR:	0	0	0	0	0	0.0	0.0	0.	0.	0.	0.	0	0
12/18/77 PPT LAX		374. 9.	391. 33.	290. -15.	FLT TOT:	76	76	51	0	0	8.9	0.0	.294E+05	35.	0.	0.	76	0
					IN CLR:	59	59	40	0	0	0.0	0.0	.136E+03	37.	0.	0.	59	0
					NOT CLR:	17	17	11	0	0	39.6	0.0	.131E+06	28.	0.	0.	17	0
12/18/77 LAX SFO		305. 36.	350. 37.	203. 34.	FLT TOT:	7	7	4	0	0	1.1	0.0	.103E+04	52.	0.	0.	7	0
					IN CLR:	5	5	3	0	0	0.0	0.0	.143E+04	54.	0.	0.	5	0
					NOT CLR:	2	2	1	0	0	3.7	0.0	.334E+02	45.	0.	0.	2	0

APPENDIX C

CLOUD-ENCOUNTER STATISTICS AS FUNCTIONS OF LATITUDE, LONGITUDE, SEASON, AND ALTITUDE

This appendix is a tabulation of statistics for several quantities related to cloud encounter over the geographic area covered by the GASP flights. A geographic grid (latitude/longitude) was chosen which had cells small enough to uncover significant geographic variability but large enough to obtain an adequate number of samples for statistical analyses. The grid chosen appears as figure C1. Subsequent pages of this appendix give statistical data within each grid element in accordance with the code. The season and altitude range appear at the top of each page. Appendix D presents similar data described in terms of altitude separation from the tropopause.

APPENDIX C

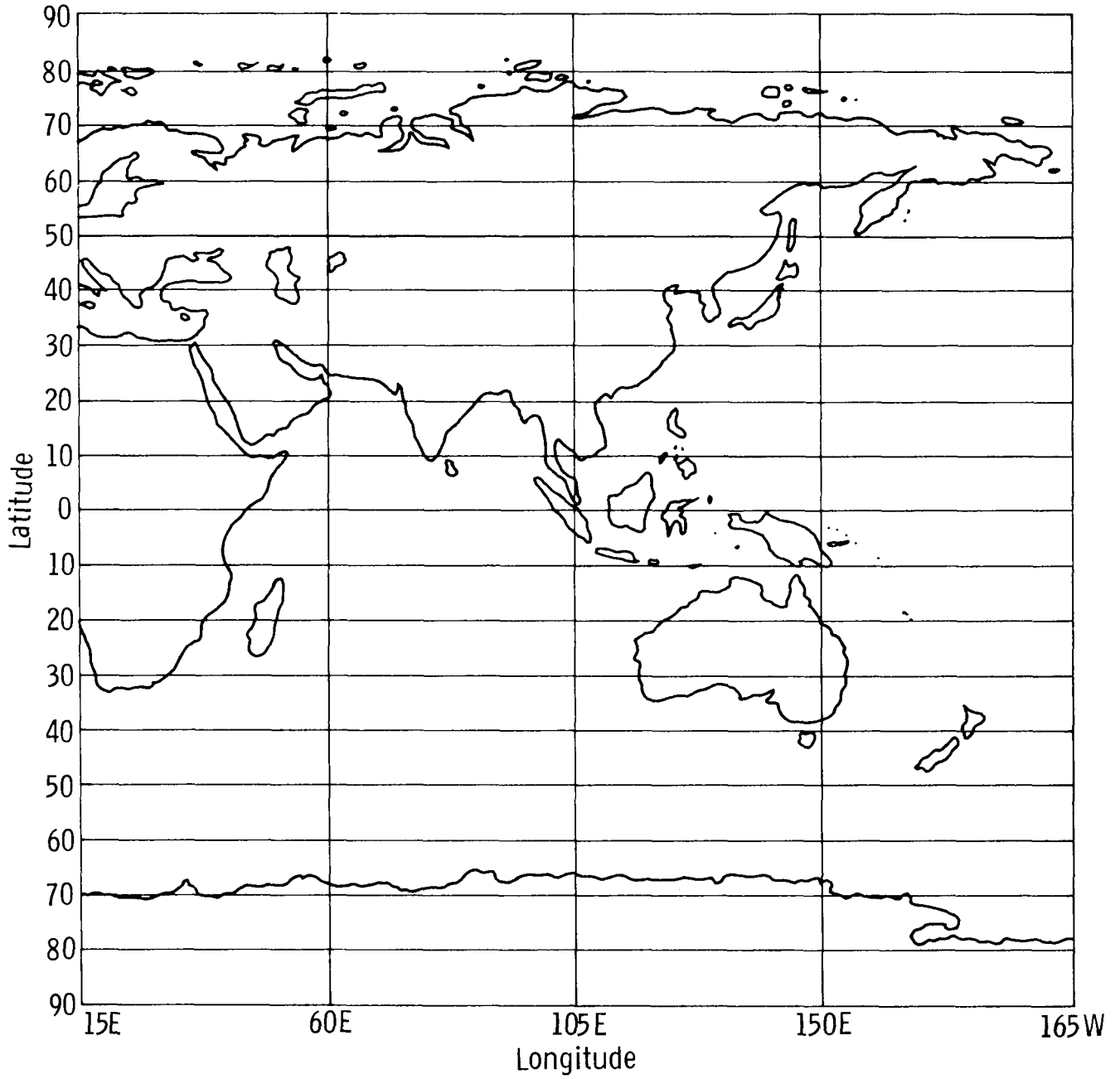
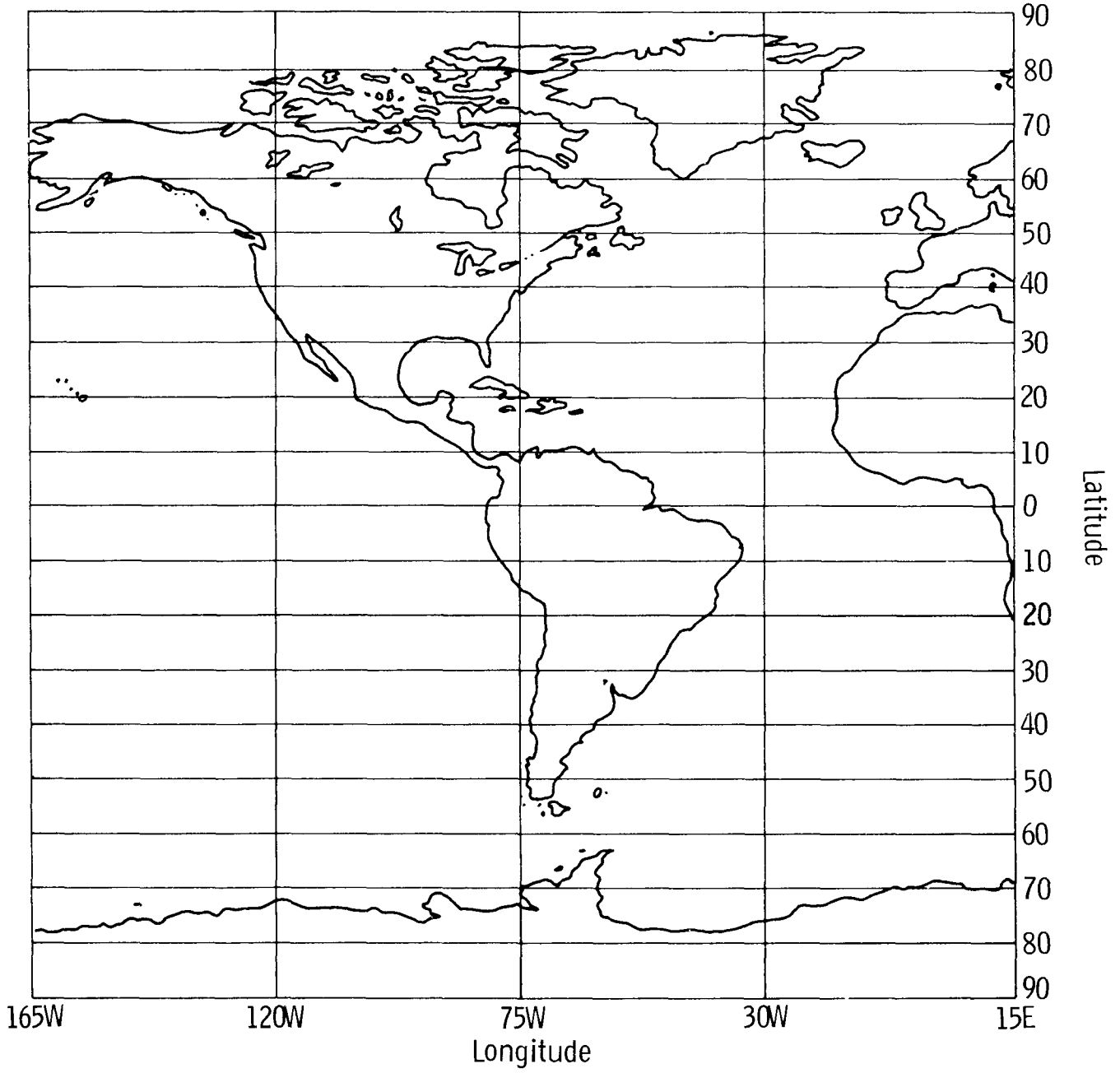


Figure C1.- Map of cell structure used in

APPENDIX C



cloud encounter and particle-concentration analyses.

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APPENDIX C

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	$\text{T}(\text{CLD}), ^\circ\text{C}$
	$\text{P}(\text{TIC} > 0), \%$	$\overline{\Delta\text{Z}}(\text{CLD}), \text{kft}$	$\overline{\Delta\text{Z}}(\text{CLR}), \text{kft}$
	$\text{P}(\text{TIC} \geq 10\%), \%$	$\text{P}(\text{TIC} \geq 25\%), \%$	$\text{P}(\text{TIC} \geq 50\%), \%$

Explanation of entries (see text for additional detail):

- $\overline{\text{TIC}}, \%$ - average percent of time in clouds for all observations
- $\text{SIGMA}(\text{TIC}), \%$ - standard deviation of time in clouds for all observations
- N - total number of observations
- $\overline{\text{TICIC}}, \%$ - average percent of time in clouds for observations made in clouds (i.e., excluding observations with $\text{TIC} = 0$)
- PATCHES - average number of cloud patches for observations made in clouds
- $\text{T}(\text{CLD})$ - average temperature ($^\circ\text{C}$) for observations made in clouds
- $\text{P}(\text{TIC} > 0), \%$ - probability (expressed in percent) that any observation had TIC greater than zero
- $\overline{\Delta\text{Z}}(\text{CLD}), \text{kft}$ - average distance above (minus numbers indicate below) the time- and-space-interpolated NMC tropopause for observations made in clouds
- $\overline{\Delta\text{Z}}(\text{CLR}), \text{kft}$ - average distance above the NMC tropopause for observations made in clear air (i.e., for $\text{TIC} = 0$)
- $\text{P}(\text{TIC} \geq 10\%), \%$ - probability (expressed in percent) that any observation had TIC greater than 10 percent. Other entries similar, but for 25 percent and 50 percent limits of TIC

APPENDIX C

Winter
28.5 - 33.5 kft

CODE:	$\overline{\text{TIC}}$, %	SIGMA(TIC), %	N
	$\overline{\text{TICIC}}$, %	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					
50°N					
40°N	14.6 28.7 163 45.8 3.2 -52. 31.9 -5.3 -5.0 24.5 19.0 15.3				
30°N	9.4 23.8 441 47.9 3.9 -48. 19.7 -7.4 -5.8 16.3 13.2 9.8		0.0 0.0 13 0.0 0.0 0. 0.0 0.0 -8.4 0.0 0.0 0.0		
20°N	7.0 20.3 169 47.5 4.8 -45. 14.8 -14.3-14.7 13.6 10.1 6.5	7.2 21.7 310 52.0 5.2 -43. 13.9 -16.6-16.7 11.9 10.3 6.8	0.0 0.0 25 0.0 0.0 0. 0.0 0.0-14.9 0.0 0.0 0.0		
10°N		7.6 23.2 316 63.2 3.4 -36. 12.0 -19.8-19.8 10.8 10.4 7.3	2.6 6.3 25 16.5 4.3 -37. 16.0 -20.0-19.5 16.0 0.0 0.0	0.0 0.0 7 0.0 0.0 0. 0.0 0.0-21.5 0.0 0.0 0.0	
0°		6.6 18.1 157 33.4 3.8 -36. 19.7 -14.6-16.1 14.6 10.2 6.4	24.0 28.7 39 42.6 3.9 -37. 56.4 -15.1-16.1 48.7 38.5 20.5	6.0 16.4 82 28.8 3.4 -33. 20.7 -14.2-14.8 12.2 11.0 4.9	
10°S		11.8 19.8 27 18.7 2.6 -38. 63.0 -17.3-16.0 22.2 18.5 7.4	26.5 31.4 151 43.6 3.9 -33. 60.9 -15.7-17.5 50.3 42.4 27.2	9.5 21.4 170 29.9 3.1 -34. 31.8 -15.7-16.1 21.8 14.1 6.5	
20°S		1.6 5.9 52 14.0 4.7 -37. 11.5 -19.9-20.5 5.8 1.9 0.0	2.6 9.5 125 19.1 4.0 -32. 13.6 -20.1-21.1 8.0 4.0 1.6	10.4 22.3 181 34.2 3.3 -34. 30.4 -18.8-19.3 22.1 16.0 7.2	
30°S	5.6 15.8 101 28.3 3.8 -36. 19.8 -18.9-17.8 11.9 8.9 3.0	4.5 14.6 71 32.0 2.1 -41. 14.1 -17.2-18.5 11.3 7.0 4.2	1.7 9.9 216 51.0 5.1 -39. 3.2 -19.8-19.1 2.8 2.8 2.3	13.6 28.0 259 47.1 4.7 -39. 29.0 -17.8-15.6 21.2 18.9 15.4	
40°S		0.0 0.0 28 0.0 0.0 0. 0.0 0.0-17.6 0.0 0.0 0.0	3.9 14.1 156 29.2 4.7 -41. 13.5 -13.7-16.4 9.0 5.8 3.2	9.7 24.2 349 42.5 3.8 -42. 22.9 -11.5-11.4 17.2 12.9 9.5	

APPENDIX C

Winter
28.5 - 33.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -2 0.0 0.0 0.0	0.0 0.0 16 0.0 0.0 0. 0.0 0.0 3.9 0.0 0.0 0.0	0.0 0.0 61 0.0 0.0 0. 0.0 0.0 1.9 0.0 0.0 0.0	.7 3.5 25 17.6 0.0 -56. 4.0 .5 -1 4.0 0.0 0.0	.2 1.7 103 17.6 0.0 -56. 1.0 .5 1.7 1.0 0.0 0.0		70°N
0.0 0.0 14 0.0 0.0 0. 0.0 0.0 2.3 0.0 0.0 0.0	2.3 10.9 50 37.6 0.0 -52. 6.0 -2.0 2.9 6.0 4.0 2.0	4.5 12.0 50 22.6 3.0 -58. 20.0 -2.3 .8 16.0 6.0 2.0	10.8 24.6 114 53.4 3.0 -57. 20.2 -5.3 -1.0 18.4 17.5 10.5	6.9 19.4 228 43.5 2.7 -57. 15.8 -4.1 .6 14.0 11.0 6.1		60°N
10.5 22.9 16 28.0 3.2 -48. 37.5 -6.9 -4.2 25.0 12.5 6.3	22.0 31.9 29 53.1 1.6 -52. 41.4 -5.5 -2.6 37.9 31.0 24.1	11.0 23.7 52 38.3 2.1 -53. 28.8 -8.7 -5.6 23.1 15.4 13.5	17.8 33.4 93 61.4 2.8 -56. 29.0 -6.3 -3.1 23.7 22.6 20.4	15.4 29.6 353 48.4 2.8 -53. 31.7 -6.1 -4.3 25.2 20.1 16.7		50°N
8.9 22.4 267 39.0 3.7 -49. 22.8 -7.8 -7.5 17.6 12.0 8.2	17.5 30.4 72 50.3 1.4 -45. 34.7 -9.4 -8.2 29.2 25.0 18.1		0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -2.7 0.0 0.0 0.0	9.8 24.0 795 45.1 3.5 -48. 21.8 -7.8 -6.6 17.6 13.6 9.8		40°N
9.3 23.1 259 44.5 3.1 -46. 20.8 -13.3 -13.6 17.0 12.7 9.3				7.6 21.6 763 47.8 4.2 -45. 16.0 -14.2 -15.2 13.6 10.7 7.3		30°N
1.1 9.7 74 83.9 8.0 -40. 1.4 -15.6 -20.7 1.4 1.4 1.4				6.0 20.7 422 59.4 3.6 -36. 10.2 -19.6 -19.9 9.2 8.1 5.7		20°N
0.0 0.0 6 0.0 0.0 0. 0.0 0.0 -19.3 0.0 0.0 0.0				8.7 20.3 284 35.2 3.7 -36. 24.6 -14.8 -15.9 18.3 14.1 7.7		10°N
				17.1 27.4 348 36.4 3.5 -34. 46.8 -15.9 -16.4 34.2 26.7 15.5		0°
1.6 7.3 22 34.9 0.0 -29. 4.5 -22.8 -19.0 4.5 4.5 0.0				6.1 17.1 380 29.4 3.5 -34. 20.8 -19.2 -20.1 14.2 9.5 3.9		10°S
				7.4 20.9 647 42.6 4.4 -38. 17.3 -18.1 -17.8 12.5 10.7 7.9		20°S
				7.5 21.2 533 39.8 4.0 -42. 18.9 -12.0 -13.2 13.9 10.1 7.1		30°S
						40°S

APPENDIX C

Spring
28.5 - 33.5 kft

	\overline{TIC} , %	SIGMA(TIC), %	N
CODE:	\overline{TICIC} , %	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					
50°N				0.0 0.0 21 0.0 0.0 0. 0.0 0.0 1.8 0.0 0.0 0.0	
40°N			16.1 12.0 3 16.1 2.7 -47. 100.0 -7.3 0.0 66.7 33.3 0.0	28.7 38.6 18 57.3 2.0 -48. 50.0 -8.5 -3.1 38.9 38.9 27.8	
30°N	5.2 17.1 29 21.6 5.4 -52. 24.1 -2.3 -5.1 10.3 6.9 3.4		11.7 26.9 44 34.4 1.4 -45. 34.1 -8.5 -9.1 18.2 15.9 11.4	.1 .1 6 .4 1.0 -48. 16.7 1.6 2.1 0.0 0.0 0.0	
20°N		13.6 13.3 7 23.7 3.0 -47. 57.1 -11.3-13.7 42.9 42.9 0.0	3.4 11.3 24 40.8 6.0 -37. 8.3 -16.0-14.4 8.3 8.3 0.0		
10°N		0.0 0.0 4 0.0 0.0 0. 0.0 0.0-15.6 0.0 0.0 0.0	.2 1.0 18 4.3 8.0 -41. 5.6 -14.0-14.7 0.0 0.0 0.0	.0 .1 25 .4 1.0 -40. 8.0 -14.4-13.8 0.0 0.0 0.0	
0°		0.0 0.0 2 0.0 0.0 0. 0.0 0.0-14.5 0.0 0.0 0.0	.2 .3 5 .8 2.0 -41. 20.0 -14.5-14.5 0.0 0.0 0.0		
10°S				5.7 13.1 9 25.7 1.0 -31. 22.2 -22.6-20.7 11.1 11.1 0.0	
20°S				0.0 0.0 9 0.0 0.0 0. 0.0 0.0-17.6 0.0 0.0 0.0	
30°S				19.4 32.3 23 55.8 4.1 -49. 34.8 -16.0 -9.8 30.4 26.1 21.7	
40°S					

APPENDIX C

Spring
28.5 - 33.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
			0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -3.1 0.0 0.0 0.0		0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -3.1 0.0 0.0 0.0	80°N
	.0 .1 17 .4 1.0 -60. 5.9 .5 -.5 0.0 0.0 0.0		28.8 38.6 24 69.2 3.4 -57. 41.7 -3.0 -2.6 37.5 37.5 33.3		16.9 32.8 41 63.0 3.2 -57. 26.8 -2.7 -1.5 22.0 22.0 19.5	70°N
50.4 42.1 5 84.1 4.3 -53. 60.0 -8.3 2.1 60.0 60.0 60.0	5.0 11.9 39 17.8 2.5 -53. 28.2 -5.8 -2.9 12.8 10.3 0.0	14.8 29.2 44 54.1 2.2 -55. 27.3 -4.7 -5.1 22.7 20.5 18.2	3.9 12.5 109 22.5 3.6 -55. 17.4 -5.0 -5.0 11.9 5.5 1.8		7.0 19.5 218 33.9 3.0 -54. 20.6 -5.3 -3.8 14.2 10.1 6.0	60°N
3.3 11.9 79 17.6 3.1 -52. 19.0 -4.5 -2.1 7.6 6.3 2.5	10.9 23.1 242 36.0 2.7 -49. 30.2 -7.3 -5.2 23.1 15.7 9.5	7.8 21.1 132 35.5 2.3 -51. 22.0 -6.1 -4.2 15.9 9.8 7.6	0.0 0.0 5 0.0 0.0 0. 0.0 0.0 -6.1 0.0 0.0 0.0		9.4 22.3 479 34.8 2.6 -50. 26.9 -6.8 -4.2 19.2 13.4 8.4	50°N
3.2 10.7 233 15.3 2.4 -47. 20.6 -8.6 -7.9 9.0 4.3 1.7	12.0 22.8 50 30.1 3.7 -46. 40.0 -8.0 -6.4 28.0 18.0 10.0	4.6 6.5 3 13.7 3.0 -46. 33.3 -5.6 -7.0 33.3 0.0 0.0			5.5 16.4 365 21.9 2.7 -47. 25.2 -7.8 -7.4 12.9 7.7 4.1	40°N
5.3 14.7 237 20.5 2.2 -43. 25.7 -13.0-12.1 13.1 8.9 3.8	10.8 26.4 39 47.0 2.8 -45. 23.1 -12.3-11.6 17.9 12.8 10.3				6.0 16.6 307 24.3 2.4 -43. 24.8 -12.9-12.3 14.0 10.1 4.2	30°N
0.0 0.0 2 0.0 0.0 0. 0.0 0.0-18.2 0.0 0.0 0.0	1.4 1.4 2 2.7 1.0 -36. 50.0 -16.9-14.0 0.0 0.0 0.0	19.7 31.3 8 39.4 .8 -39. 50.0 -14.8-15.2 37.5 25.0 12.5			2.8 13.3 59 20.7 1.8 -39. 13.6 -14.8-14.5 5.1 3.4 1.7	20°N
		2.4 8.7 18 14.4 2.0 -34. 16.7 -17.4-16.6 5.6 5.6 0.0			1.8 7.5 25 11.0 2.0 -36. 16.0 -16.7-16.0 4.0 4.0 0.0	10°N
		11.1 26.0 10 37.0 3.7 -34. 30.0 0.0 0.0 30.0 10.0 10.0			11.1 26.0 10 37.0 3.7 -34. 30.0 0.0 0.0 30.0 10.0 10.0	0°
.7 .9 2 2.0 1.0 -37. 33.3 -19.6 0.0 0.0 0.0 0.0		12.5 22.6 12 37.6 1.5 -34. 33.3 0.0 0.0 25.0 25.0 16.7			8.5 18.4 24 29.1 1.3 -34. 29.2 -21.1-20.7 16.7 16.7 8.3	10°S
		1.8 3.1 4 7.1 2.0 -34. 25.0 -20.9-21.0 0.0 0.0 0.0			.5 1.9 13 7.1 2.0 -34. 7.7 -20.9-18.5 0.0 0.0 0.0	20°S
					19.4 32.3 23 55.8 4.1 -49. 34.8 -16.0 -9.8 30.4 26.1 21.7	30°S
						40°S

APPENDIX C

Summer
28.5 - 33.5 kft

	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
CODE:	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					
50°N	4.4 16.9 66 26.5 2.6 -45. 16.7 -5.6 -9.7 6.1 6.1 4.5				
40°N	.0 .0 296 .4 1.0 -35. .3 -10.5-17.7 0.0 0.0 0.0	0.0 0.0 1 0.0 0.0 0. 0.0 0.0-23.0 0.0 0.0 0.0	19.3 34.7 28 67.5 1.0 -35. 28.6 -14.8-17.9 25.0 25.0 17.9	0.0 0.0 19 0.0 0.0 0. 0.0 0.0-14.2 0.0 0.0 0.0	
30°N	0.0 0.0 76 0.0 0.0 0. 0.0 0.0-19.0 0.0 0.0 0.0	11.8 25.8 286 40.8 3.0 -32. 29.0 -18.0-17.8 21.3 16.1 11.2	1.4 1.4 2 2.7 1.0 -29. 50.0 -20.9-18.7 0.0 0.0 0.0		
20°N		23.8 31.0 168 44.5 3.4 -32. 53.6 -17.9-18.0 43.5 37.5 23.2	28.9 34.6 14 44.9 3.6 -34. 64.3 -17.1-16.5 50.0 42.9 21.4		
10°N		14.9 25.5 102 32.4 3.7 -32. 46.1 -17.7-17.6 32.4 24.5 9.8	13.8 23.7 31 35.7 2.5 -37. 38.7 -15.2-15.6 29.0 22.6 9.7		
0°		4.3 9.8 52 18.6 4.0 -35. 23.1 -14.1-14.1 19.2 5.8 0.0	4.4 13.7 133 28.0 3.0 -35. 15.8 -13.8-13.8 11.3 8.3 3.0		
10°S		7.8 17.8 26 29.0 2.4 -37. 26.9 -13.8-14.1 26.9 7.7 7.7	0.0 0.0 129 0.0 0.0 0. 0.0 0.0-13.7 0.0 0.0 0.0		
20°S			.6 4.6 155 17.8 2.6 -39. 3.2 -13.3-12.2 1.3 1.3 0.0	.4 1.1 21 2.5 3.3 -43. 14.3 -11.3-11.8 0.0 0.0 0.0	
30°S			5.1 15.2 75 29.1 4.2 -48. 17.3 -7.2 -4.9 13.3 8.0 2.7	2.5 10.6 27 22.7 4.0 -49. 11.1 -6.3 -5.4 7.4 3.7 3.7	
40°S					

APPENDIX C

Summer
28.5 - 33.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z(CLD)}$, kft	$\overline{\Delta Z(CLR)}$, kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
						70°N
	1.2 2.2 15 3.5 2.0 -55. 33.3 -1.4 -4 0.0 0.0 0.0		6.8 16.2 50 20.0 1.3 -48. 34.0 -4.4 -4.7 -14.0 8.0 4.0		5.5 14.4 65 16.2 1.5 -50. 33.8 -3.7 -3.7 10.8 6.2 3.1	60°N
.7 1.8 7 5.1 2.0 -41. 14.3 -6.8 -8.9 0.0 0.0 0.0	2.5 8.7 14 17.3 2.5 -34. 14.3 -18.6-14.2 7.1 7.1 0.0	13.2 22.7 11 36.4 .8 -37. 36.4 -15.7-13.5 27.3 27.3 18.2	8.9 18.8 37 36.4 3.7 -46. 24.3 -4.5 -5.6 21.6 18.9 5.4		6.0 17.2 135 29.8 2.7 -43. 20.0 -7.8 -9.3 11.9 11.1 5.2	50°N
6.8 19.5 30 29.2 2.0 -39. 23.3 -13.7-18.1 16.7 6.7 6.7	5.6 9.7 4 22.4 3.0 -36. 25.0 -17.8-18.0 25.0 0.0 0.0		0.0 0.0 2 0.0 0.0 0. 0.0 0.0-16.7 0.0 0.0 0.0		2.0 12.1 380 45.1 1.5 -37. 4.5 -14.2-17.6 3.4 2.4 1.8	40°N
0.0 0.0 7 0.0 0.0 0. 0.0 0.0-18.9 0.0 0.0 0.0					9.1 23.2 371 40.4 3.0 -32. 27.6 -18.0-18.2 16.4 12.4 8.6	30°N
					24.2 31.3 182 44.5 3.4 -32. 54.4 -17.8-17.9 44.0 37.9 23.1	20°N
					14.7 25.1 133 33.0 3.5 -33. 44.4 -17.2-17.1 31.6 24.1 9.8	10°N
					4.4 12.7 185 24.6 3.4 -35. 17.8 -13.9-13.9 13.5 7.6 2.2	0°
					1.3 7.9 155 29.0 2.4 -37. 4.5 -13.8-13.8 4.5 1.3 1.3	10°S
					.5 4.3 176 12.1 2.9 -41. 4.5 -12.6-12.2 1.1 1.1 0.0	20°S
					4.4 14.2 102 27.9 4.2 -48. 15.7 -7.1 -5.0 11.8 6.9 2.9	30°S
						40°S

APPENDIX C

Autumn
28.5 - 33.5 kft

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					0.0 0.0 30 0.0 0.0 0. 0.0 0.0 -3.4 0.0 0.0 0.0
50°N	17.9 26.6 71 35.3 3.0 -46. 50.7 -9.3 -8.2 40.8 29.6 12.7		0.0 0.0 8 0.0 0.0 0. 0.0 0.0 -11.2 0.0 0.0 0.0		0.0 0.0 37 0.0 0.0 0. 0.0 0.0 -9.4 0.0 0.0 0.0
40°N	2.3 13.2 120 73.1 3.3 -54. 3.1 -7.9 -9.6 3.1 3.1 2.3		4.7 16.7 63 29.9 3.9 -37. 15.9 -15.9 -15.7 9.5 6.3 3.2		0.0 0.0 14 0.0 0.0 0. 0.0 0.0 -10.5 0.0 0.0 0.0
30°N	1.9 12.8 46 43.9 4.5 -47. 4.3 -10.0 -17.9 2.2 2.2 2.2	7.0 22.9 70 70.4 4.4 -39. 10.0 -16.5 -19.3 8.6 8.6 8.6	20.8 0.0 1 20.8 0.0 -34. 100.0 -20.8 0.0 100.0 0.0 0.0		
20°N		7.1 20.4 154 42.1 2.5 -34. 16.9 -17.0 -18.7 13.0 9.7 7.1	1.6 5.8 14 22.4 0.0 -32. 7.1 -20.0 -20.3 7.1 0.0 0.0		0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -18.8 0.0 0.0 0.0
10°N		16.2 26.1 32 36.9 4.5 -30. 43.8 -13.4 -16.7 31.3 25.0 12.5	.6 1.6 8 4.7 1.0 -32. 12.5 -13.4 -18.7 0.0 0.0 0.0		13.0 22.0 21 30.4 5.1 -35. 42.9 -13.4 -15.4 23.8 23.8 14.3
0°		1.2 2.7 7 4.1 2.0 -31. 28.6 -13.3 -13.6 0.0 0.0 0.0	22.1 26.4 23 31.7 4.1 -29. 69.6 -14.6 -15.2 56.5 34.8 17.4		5.0 9.5 16 15.8 2.4 -37. 31.3 -14.1 -14.4 18.8 6.3 0.0
10°S			1.4 7.1 28 38.0 8.0 -31. 3.6 -18.6 -18.2 3.6 3.6 0.0		12.3 26.0 14 57.5 8.0 -30. 21.4 -19.8 -17.1 21.4 21.4 14.3
20°S			18.8 29.4 42 52.6 6.3 -36. 35.7 -18.4 -16.9 31.0 31.0 19.0		12.9 27.5 37 68.2 6.6 -35. 18.9 -18.8 -16.1 18.9 18.9 16.2
30°S	0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -12.8 0.0 0.0 0.0		0.0 0.0 31 0.0 0.0 0. 0.0 0.0 -10.5 0.0 0.0 0.0		15.0 30.1 46 62.9 4.2 -48. 23.9 -9.6 -6.1 21.7 19.6 17.4
40°S					

APPENDIX C

Autumn
28.5 - 33.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
		1.3 3.3 7 9.4 0.0 -48. 14.3 -9 -2.8 0.0 0.0 0.0	78.3 18.0 9 78.3 0.0 -47. 100.0 -5.2 0.0 100.0 100.0 88.9		44.6 40.5 16 71.4 0.0 -47. 62.5 -4.8 -2.8 56.3 56.3 50.0	70°N
0.0 0.0 30 0.0 0.0 0. 0.0 0.0 -0. 0.0 0.0 0.0	0.0 0.0 7 0.0 0.0 0. 0.0 0.0 -2.1 0.0 0.0 0.0	4.4 16.7 122 48.6 .1 -46. 9.0 -4.8 -2.1 8.2 5.7 4.9	3.5 13.9 239 27.4 .1 -49. 13.0 -4.5 -4.5 8.4 4.2 2.9		3.2 13.8 428 32.9 .1 -48. 9.8 -4.6 -3.3 7.0 4.0 3.0	60°N
6.3 20.0 40 28.0 0.0 -49. 22.4 -7.1 -5.8 10.2 6.1 6.1	2.9 12.5 39 56.5 1.0 -45. 5.1 -12.9 -8.4 5.1 5.1 5.1	3.4 15.3 265 53.7 .2 -50. 6.4 -8.8 -8.6 5.7 5.3 3.4	4.1 14.2 76 30.9 2.1 -50. 13.2 -7.7 -6.5 9.2 6.6 2.6		5.3 17.5 545 38.3 1.8 -48. 13.9 -8.8 -8.2 10.6 8.3 4.6	50°N
6.1 16.1 76 23.2 1.2 -46. 26.3 -11.6-10.9 17.1 9.2 5.7	2.6 7.7 19 24.7 1.0 -48. 10.5 -9.6-13.2 10.5 5.3 0.0				3.7 14.3 301 30.7 2.1 -44. 12.0 -12.2-11.4 8.3 5.3 3.0	40°N
9.8 26.2 20 65.4 4.0 -47. 15.0 -14.8-16.7 15.0 10.0 10.0	0.0 0.0 19 0.0 0.0 0. 0.0 0.0-16.0 0.0 0.0 0.0				5.1 19.6 156 61.4 4.0 -41. 8.3 -15.4-18.1 7.1 5.8 5.8	30°N
0.0 0.0 13 0.0 0.0 0. 0.0 0.0-16.8 0.0 0.0 0.0	0.0 0.0 14 0.0 0.0 0. 0.0 0.0-16.8 0.0 0.0 0.0				5.7 18.3 197 41.4 2.4 -34. 13.7 -17.1-18.5 10.7 7.6 5.6	20°N
	0.0 0.0 3 0.0 0.0 0. 0.0 0.0-16.0 0.0 0.0 0.0	0.0 0.0 1 0.0 0.0 0. 0.0 0.0-20.5 0.0 0.0 0.0			12.2 22.9 65 33.1 4.6 -32. 36.9 -13.4-16.7 23.1 20.0 10.8	10°N
					12.9 21.6 46 25.9 3.6 -31. 50.0 -14.4-14.5 34.8 19.6 8.7	0°
		0.0 0.0 1 0.0 0.0 0. 0.0 0.0-14.5 0.0 0.0 0.0			4.9 16.7 43 52.6 8.0 -30. 9.3 -19.5-17.8 9.3 9.3 4.7	10°S
		0.0 0.0 1 0.0 0.0 0. 0.0 0.0-14.5 0.0 0.0 0.0			15.8 28.6 80 57.6 6.4 -36. 27.5 -18.5-16.4 25.0 25.0 17.5	20°S
					8.8 24.1 79 62.9 4.2 -48. 13.9 -9.6 -8.3 12.7 11.4 10.1	30°S
						40°S

APPENDIX C

Winter
33.5 - 38.5 kft

	\overline{TIC} , %	SIGMA(TIC), %	N
CODE:	\overline{TICIC} , %	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					0.0 0.0 39 0.0 0.0 0. 0.0 0.0 4.3 0.0 0.0 0.0
50°N	7.8 21.5 114 35.5 2.6 -61. 21.9 -2.5 -1.2 14.9 8.8 7.9		0.0 0.0 6 0.0 0.0 0. 0.0 0.0 10.7 0.0 0.0 0.0		0.0 0.0 33 0.0 0.0 0. 0.0 0.0 5.1 0.0 0.0 0.0
40°N	9.2 23.6 186 47.8 3.3 -54. 19.4 -6.6 -3.4 15.1 12.4 9.1		0.0 0.0 20 0.0 0.0 0. 0.0 0.0 1.5 0.0 0.0 0.0		0.0 0.0 32 0.0 0.0 0. 0.0 0.0 1.0 0.0 0.0 0.0
30°N	0.0 0.0 32 0.0 0.0 0. 0.0 0.0-10.4 0.0 0.0 0.0	17.3 25.0 82 36.3 4.1 -54. 47.6 -8.3 -8.6 42.7 25.6 13.4	0.0 0.0 6 0.0 0.0 0. 0.0 0.0-16.4 0.0 0.0 0.0		
20°N	0.0 0.0 1 0.0 0.0 0. 0.0 0.0-18.1 0.0 0.0 0.0	.7 5.0 148 19.5 6.0 -46. 3.4 -15.8-16.6 2.0 1.4 .7	3.6 12.9 43 19.2 3.1 -49. 18.6 -12.4-15.0 7.0 7.0 2.3		0.0 0.0 60 0.0 0.0 0. 0.0 0.0-12.6 0.0 0.0 0.0
10°N		10.9 24.0 147 33.4 3.4 -45. 32.7 -14.3-14.4 20.4 15.0 8.8	24.9 33.2 40 55.4 3.4 -43. 45.0 -14.6-14.4 37.5 37.5 30.0		16.9 28.8 202 48.0 3.6 -45. 35.1 -13.1-13.2 30.7 24.8 17.3
0°		23.1 31.4 70 40.4 3.2 -42. 57.1 -15.1-14.5 42.9 32.9 22.9	12.2 22.9 180 33.2 3.5 -43. 36.7 -14.2-14.1 27.8 18.3 8.9		12.7 26.5 194 41.1 2.2 -44. 30.9 -13.0-13.1 21.6 17.5 13.4
10°S		0.0 0.0 55 0.0 0.0 0. 0.0 0.0-18.4 0.0 0.0 0.0	10.0 23.7 251 44.6 3.6 -42. 22.3 -15.9-16.9 17.5 14.3 9.2		16.7 30.3 203 47.6 2.6 -46. 35.0 -13.3-13.0 27.6 22.7 18.2
20°S	0.0 0.0 11 0.0 0.0 0. 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 96 0.0 0.0 0. 0.0 0.0-15.9 0.0 0.0 0.0	1.1 8.1 300 32.7 4.7 -46. 3.3 -16.6-17.5 2.0 1.7 1.0		11.8 26.0 241 41.2 3.1 -47. 28.6 -14.1-15.1 20.3 15.8 11.6
30°S		0.0 0.0 28 0.0 0.0 0. 0.0 0.0-14.1 0.0 0.0 0.0	1.9 11.4 480 45.5 4.2 -50. 4.2 -11.1-11.8 3.3 2.3 1.9		8.3 22.4 186 39.7 2.9 -50. 21.0 -7.6 -8.8 15.1 11.3 8.6
40°S					

APPENDIX C

Winter
33.5 - 38.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
		0.0 0.0 14 0.0 0.0 0. 0.0 0.0 4.6 0.0 0.0 0.0			0.0 0.0 14 0.0 0.0 0. 0.0 0.0 4.6 0.0 0.0 0.0	80°N
0.0 0.0 4.0 0.0 0.0 0. 0.0 0.0 4.0 0.0 0.0 0.0	0.0 0.0 62 0.0 0.0 0. 0.0 0.0 4.9 0.0 0.0 0.0	0.0 0.0 24 0.0 0.0 0. 0.0 0.0 3.5 0.0 0.0 0.0			0.0 0.0 126 0.0 0.0 0. 0.0 0.0 4.3 0.0 0.0 0.0	70°N
0.0 0.0 4.7 0.0 0.0 0. 0.0 0.0 1.7 0.0 0.0 0.0	.0 .1 84 .8 1.0 -63. 1.2 -1.1 2.0 0.0 0.0 0.0	21.8 37.2 89 69.4 2.9 -66. 31.5 -3.3 3.2 27.0 25.8 22.5	15.6 30.7 112 51.4 2.5 -65. 30.4 -3.5 .3 25.0 19.6 15.2		10.1 26.7 367 58.6 2.6 -65. 17.2 -3.3 2.1 14.2 12.3 10.1	60°N
9.2 20.9 63 36.2 1.2 -62. 25.4 -6.6 -8.2 20.6 17.5 4.8	2.6 11.3 223 19.6 2.1 -60. 13.5 -2.6 1.6 5.8 4.0 2.2	23.8 37.2 164 68.4 2.5 -62. 34.8 -4.6 1.2 31.7 31.1 25.0	11.0 27.0 95 57.8 2.4 -61. 18.9 -1.8 .5 15.8 13.7 10.5		10.0 25.5 698 47.9 2.3 -61. 20.9 -3.1 1.1 15.8 13.5 9.7	50°N
10.2 25.3 68.2 48.0 2.9 -56. 21.3 -6.0 -4.6 16.6 13.8 10.3	12.1 27.1 277 52.3 2.8 -58. 23.1 -4.7 -3.5 19.1 17.0 12.3		67.5 0.0 1 67.5 4.0 -53. 100.0 0.0 0.0 100.0 100.0 100.0		10.1 25.1 1198 49.1 2.9 -56. 20.5 -5.7 -3.8 16.3 13.8 10.2	40°N
7.7 20.5 86.9 37.6 3.4 -53. 20.4 -10.2-10.9 15.5 10.9 6.8					8.2 20.7 989 37.3 3.5 -54. 21.8 -10.0-10.9 17.2 11.7 7.1	30°N
6.1 17.7 28.8 41.5 1.7 -50. 14.6 -14.4-15.6 12.5 10.4 4.9					3.7 13.9 540 36.2 2.3 -49. 10.2 -14.2-15.5 7.8 6.5 3.0	20°N
11.2 22.8 12.9 34.3 2.3 -49. 32.6 -12.9-13.2 21.7 19.4 9.3					14.4 26.8 518 41.6 3.2 -45. 34.6 -13.5-13.6 26.1 21.6 13.9	10°N
4.3 14.3 8.3 32.6 3.1 -48. 13.3 -12.2-12.6 9.6 7.2 3.4					12.6 25.0 527 37.5 3.0 -43. 33.6 -13.9-13.3 24.7 18.2 11.6	0°
15.4 21.3 1.7 33.3 .7 -46. 46.2 -15.5-16.4 38.5 30.8 7.7					11.6 25.7 522 45.7 2.9 -44. 25.5 -14.5-15.7 20.1 16.5 11.7	10°S
					4.9 17.6 648 40.2 3.3 -47. 12.2 -14.2-16.5 8.5 6.6 4.8	20°S
					3.5 15.3 694 41.7 3.4 -50. 8.5 -8.9-11.2 6.3 4.6 3.6	30°S
						40°S

APPENDIX C

Spring
33.5 - 38.5 kft

	\overline{TIC} , %	SIGMA(TIC), %	N
CODE:	\overline{TICIC} , %	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					0.0 0.0 8 0.0 0.0 0. 0.0 0.0 5.8 0.0 0.0 0.0
60°N					9.4 22.9 200 46.9 2.1 -63. 20.0 -.4 3.0 17.0 14.5 9.5
50°N	.1 .3 33 1.2 1.5 -54. 6.1 1.9 1.3 0.0 0.0 0.0		9.3 23.2 30 39.9 3.7 -54. 23.3 -6.2 .5 20.0 10.0 6.7		8.6 23.9 346 48.9 2.4 -57. 17.6 -4.2 1.1 13.6 11.3 9.2
40°N	5.6 19.0 70 35.7 2.8 -58. 15.7 -3.5 -3.3 10.0 7.1 4.3	0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -8.7 0.0 0.0 0.0	15.7 27.1 129 38.1 1.9 -57. 41.1 -5.3 -2.5 32.6 24.0 13.2		.8 7.1 80 21.6 1.0 -61. 3.8 -3.0 -3 1.3 1.3 1.3
30°N	0.0 0.0 8 0.0 0.0 0. 0.0 0.0-15.0 0.0 0.0 0.0	1.7 7.1 65 22.0 4.6 -53. 7.7 -9.9 -7.6 4.6 4.6 0.0	3.9 14.1 22 17.2 2.8 -49. 22.7 -10.3 -8.3 9.1 4.5 4.5		.1 .6 34 2.0 1.0 -47. 5.9 -11.1-12.4 0.0 0.0 0.0
20°N		0.0 0.0 17 0.0 0.0 0. 0.0 0.0-10.4 0.0 0.0 0.0	.1 .3 32 .6 1.0 -44. 15.6 -12.2-11.4 0.0 0.0 0.0		6.2 21.3 54 55.9 2.7 -45. 11.1 -12.3-11.9 9.3 7.4 7.4
10°N		0.0 0.0 5 0.0 0.0 0. 0.0 0.0-11.0 0.0 0.0 0.0	2.4 4.2 6 7.1 2.0 -46. 33.3 -12.8-12.6 16.7 0.0 0.0		0.0 0.0 11 0.0 0.0 0. 0.0 0.0-11.8 0.0 0.0 0.0
0°					18.5 26.7 31 35.9 2.5 -50. 51.6 -12.8-13.5 45.2 25.8 12.9
10°S					4.7 13.3 29 22.5 3.0 -50. 20.7 -16.3-16.5 10.3 6.9 3.4
20°S					.1 .4 18 2.0 1.0 -50. 5.6 -18.6-11.8 0.0 0.0 0.0
30°S					1.6 2.7 4 6.3 2.0 -57. 25.0 -8.7 -4.9 0.0 0.0 0.0
40°S					

APPENDIX C

Spring
33.5 - 38.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
	0.0 0.0 8 0.0 0.0 0. 0.0 0.0 2.2 0.0 0.0 0.0	.1 .4 14 1.6 3.0 -59. 7.1 -7 1.8 0.0 0.0 0.0	0.0 0.0 3 0.0 0.0 0. 0.0 0.0 .1 0.0 0.0 0.0	.1 .3 25 1.6 3.0 -59. 4.0 -7 1.7 0.0 0.0 0.0		80°N
0.0 0.0 77 0.0 0.0 0. 0.0 0.0 4.4 0.0 0.0 0.0	.0 .1 93 .4 1.0 -47. 3.2 6.1 5.1 0.0 0.0 0.0	.0 .1 58 .4 1.0 -57. 5.2 2.6 3.1 0.0 0.0 0.0	0.0 0.0 13 0.0 0.0 0. 0.0 0.0 .3 0.0 0.0 0.0	.0 .1 245 .4 1.0 -52. 2.4 4.4 4.2 0.0 0.0 0.0		70°N
2.0 10.5 187 29.4 3.4 -63. 7.0 -2.2 2.0 3.7 3.2 1.6	2.7 11.3 230 22.9 2.6 -60. 11.7 -3.6 .9 6.1 4.3 1.7	.0 .2 102 1.3 2.3 -44. 2.9 4.0 1.8 0.0 0.0 0.0	3.3 15.6 213 37.2 3.0 -60. 8.9 -2.6 -1 5.2 4.2 3.3	3.8 15.2 932 35.2 2.6 -61. 10.9 -1.7 1.6 7.1 5.8 3.5		60°N
6.3 17.8 323 29.0 3.4 -60. 21.7 -5.3 .2 13.6 9.3 4.3	5.0 16.2 680 35.3 2.3 -58. 14.1 -4.1 -1.1 10.4 8.4 4.0	2.4 13.5 160 32.3 1.5 -55. 7.5 -1.2 -.7 3.8 3.1 1.9	5.5 17.4 77 32.4 3.3 -60. 16.9 -2.8 -2 11.7 7.8 3.9	5.8 18.3 1649 36.4 2.6 -58. 15.8 -4.3 -.2 11.1 8.5 4.9		50°N
3.4 13.4 801 25.6 2.6 -57. 13.4 -5.2 -4.7 7.4 5.4 2.7	6.4 19.4 368 38.6 2.5 -60. 16.6 -3.7 -2.6 12.5 9.0 5.7	.0 .1 47 .4 1.0 -38. 2.1 2.0 -3.6 0.0 0.0 0.0		5.1 16.9 1496 32.1 2.4 -58. 15.8 -4.7 -3.7 10.4 7.6 4.3		40°N
6.3 18.5 591 32.2 2.6 -53. 19.6 -9.4 -8.8 13.0 10.0 5.2	20.5 29.4 8 54.8 4.0 -53. 37.5 -13.1-11.2 37.5 37.5 25.0	2.1 9.6 54 38.4 5.3 -49. 5.6 -12.8-12.3 5.6 3.7 1.9		5.4 17.0 782 31.4 2.7 -52. 17.1 -9.6 -9.2 11.3 8.7 4.5		30°N
5.3 12.8 37 28.0 4.6 -50. 18.9 -13.4-13.7 13.5 10.9 0.0	15.3 27.1 81 38.8 3.3 -49. 39.5 -12.2-11.5 28.4 22.2 14.8	8.8 23.1 69 31.8 2.4 -50. 27.5 -13.1-14.2 14.5 11.6 8.7		8.2 21.6 290 34.5 3.0 -49. 23.8 -12.6-12.4 14.8 11.7 7.6		20°N
2.3 5.8 22 16.7 2.7 -44. 13.6 -14.8-13.1 13.6 0.0 0.0		18.7 30.3 76 47.4 3.2 -49. 39.5 -12.0-13.0 34.2 28.9 17.1		12.4 25.7 120 42.4 3.1 -48. 29.2 -12.3-12.8 25.0 18.3 10.8		10°N
		17.7 26.1 72 31.9 2.5 -49. 55.6 -12.8-12.1 41.7 25.0 15.3		18.0 26.3 103 33.1 2.5 -49. 54.4 -12.8-13.0 42.7 25.2 14.6		0°
		12.0 23.1 84 28.8 2.7 -49. 41.7 -15.4-15.6 26.2 16.7 8.3		10.1 21.3 113 27.9 2.8 -49. 36.3 -15.6-16.1 22.1 14.2 7.1		10°S
		11.8 21.9 12 47.3 3.7 -49. 25.0 -15.3-15.8 25.0 25.0 8.3		4.8 15.0 30 36.0 3.0 -50. 13.3 -16.1-12.9 10.0 10.0 3.3		20°S
				1.6 2.7 4 6.3 2.0 -57. 25.0 -8.7 -4.9 0.0 0.0 0.0		30°S
						40°S

APPENDIX C

Summer
33.5 - 38.5 kft

	\overline{TIC} , %	SIGMA(TIC), %	N
CODE:	\overline{TICIC} , %	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z(CLD)}$, kft	$\overline{\Delta Z(CLR)}$, kft
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N				1.6 6.6 18 29.0 7.0 -58. 5.6 -4.4 -8 5.6 5.6 0.0	
60°N				1.2 4.9 111 12.3 .1 -57. 9.9 -.7 2.2 4.5 .9 0.0	
50°N	0.0 0.0 81 0.0 0.0 0. 0.0 0.0 -3.0 0.0 0.0 0.0		.3 1.0 26 3.7 2.0 -44. 7.7 -14.5 -9.7 0.0 0.0 0.0	12.9 24.4 352 33.5 1.9 -52. 38.6 -8.3 -5.5 26.7 18.8 12.2	
40°N	0.0 0.0 22.0 0.0 0.0 0. 0.0 0.0 -15.5 0.0 0.0 0.0		16.5 27.9 117 41.0 2.0 -46. 40.2 -13.9 -12.4 29.9 23.1 15.4	6.7 15.1 53 29.4 1.8 -52. 22.6 -11.2 -11.8 18.9 11.3 3.8	
30°N	0.0 0.0 5.6 0.0 0.0 0. 0.0 0.0 -16.1 0.0 0.0 0.0	0.0 0.0 35 0.0 0.0 0. 0.0 0.0 -16.1 0.0 0.0 0.0	0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -17.1 0.0 0.0 0.0		
20°N		32.6 32.3 91 45.0 3.8 -45. 72.5 -14.3 -15.0 61.5 51.6 31.9	37.5 30.7 13 44.3 3.6 -42. 84.6 -14.9 -17.0 69.2 61.5 38.5		
10°N		10.1 22.7 70 32.0 2.6 -43. 31.4 -15.3 -14.7 18.6 12.9 8.6	5.2 12.5 25 26.0 2.6 -43. 20.0 -15.0 -14.3 16.0 12.0 0.0		
0°		0.0 0.0 20 0.0 0.0 0. 0.0 0.0 -12.8 0.0 0.0 0.0	9.2 21.9 96 42.3 4.5 -44. 21.9 -12.4 -12.4 18.8 14.6 8.3	48.8 24.2 3 48.8 0.0 -52. 100.0 -15.4 0.0 100.0 66.7 33.3	
10°S		0.0 0.0 31 0.0 0.0 0. 0.0 0.0 -13.0 0.0 0.0 0.0	.0 .1 79 .8 2.0 -49. 1.3 -11.1 -12.2 0.0 0.0 0.0	1.9 10.1 31 30.2 0.0 -50. 6.5 -15.5 -14.5 3.2 3.2 3.2	
20°S		0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -13.0 0.0 0.0 0.0	.0 .4 134 4.3 2.0 -51. .7 -8.7 -10.6 0.0 0.0 0.0	2.6 7.5 41 15.1 1.4 -48. 17.1 -11.6 -15.4 12.2 4.9 0.0	
30°S			.1 1.4 205 13.5 5.5 -51. 1.0 -5.7 -1.6 .5 0.0 0.0	0.0 0.0 63 0.0 0.0 0. 0.0 0.0 -2.5 0.0 0.0 0.0	
40°S					

APPENDIX C

Summer
33.5 - 38.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
		0.0 0.0 7 0.0 0.0 0. 0.0 0.0 5.5 0.0 0.0 0.0		.1 .1 7 .4 0.0 -45. 14.3 4.6 4.6 0.0 0.0 0.0	.0 .1 14 .4 0.0 -45. 7.1 4.6 5.1 0.0 0.0 0.0	80°N
.0 .1 50 .4 1.0 -57. 3.4 -2.1 .5 0.0 0.0 0.0	.7 6.4 165 14.2 .3 -55. 4.8 .0 2.2 1.8 .6 .6	0.0 0.0 71 0.0 0.0 0. 0.0 0.0 4.7 0.0 0.0 0.0	0.0 0.0 98 0.0 0.0 0. 0.0 0.0 2.8 0.0 0.0 0.0	.3 4.3 411 13.0 1.0 -56. 2.7 -.8 2.4 1.0 .5 .2		70°N
3.8 12.4 113 20.2 .9 -56. 18.6 -2.3 .7 8.8 5.3 .9	2.2 10.5 384 28.2 2.0 -55. 7.8 -2.8 1.2 4.9 3.4 1.8	0.0 0.0 17 0.0 0.0 0. 0.0 0.0 4.9 0.0 0.0 0.0	.7 4.8 135 13.0 .4 -54. 5.2 -3.8 -.2 1.5 1.5 0.0	2.0 9.3 760 21.7 1.2 -55. 9.1 -2.4 1.1 4.7 2.9 1.1		60°N
9.6 19.5 206 28.6 3.0 -55. 33.5 -7.0 -6.3 22.8 15.5 5.8	11.7 23.6 258 37.2 1.2 -53. 31.4 -6.3 -6.3 23.3 18.2 10.9	11.3 23.0 56 39.4 1.8 -52. 28.6 -7.3 -3.3 23.2 17.9 12.5	3.6 12.7 48 24.5 2.4 -55. 14.6 0.0 -.7 10.4 4.2 2.1	10.1 21.7 1027 33.3 2.0 -53. 30.3 -7.3 -5.3 21.3 15.3 8.9		50°N
2.6 11.4 120 28.7 1.0 -49. 9.2 -11.0-12.0 5.0 4.2 1.7	5.3 8.5 14 10.6 .4 -56. 50.0 -4.2 -5.5 21.4 7.1 0.0		0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -4.2 0.0 0.0 0.0	5.0 16.3 535 34.7 1.7 -48. 14.4 -12.2-13.7 10.1 7.3 4.1		40°N
0.0 0.0 20 0.0 0.0 0. 0.0 0.0-17.4 0.0 0.0 0.0				0.0 0.0 122 0.0 0.0 0. 0.0 0.0-16.4 0.0 0.0 0.0		30°N
.7 1.9 37 4.2 0.0 -46. 16.2 -18.0-17.7 0.0 0.0 0.0				24.7 31.1 141 42.0 3.5 -45. 58.9 -14.6-16.5 46.1 39.0 24.1		20°N
13.2 27.6 23 60.5 0.0 -49. 21.7 -12.9-15.8 21.7 21.7 13.0				9.6 22.2 118 35.5 2.2 -44. 27.1 -14.9-14.8 18.6 14.4 7.6		10°N
				8.7 21.3 119 43.1 3.9 -45. 20.2 -12.8-12.5 17.6 13.4 7.6		0°
				.4 4.8 141 20.4 .7 -50. 2.1 -14.0-12.9 .7 .7 .7		10°S
				.6 3.8 178 13.8 1.5 -49. 4.5 -11.2-11.6 2.8 1.1 0.0		20°S
				.1 1.3 268 13.5 5.5 -51. .7 -5.7 -1.8 .4 0.0 0.0		30°S
						40°S

APPENDIX C

Autumn
33.5 - 38.5 kft

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -1.0 0.0 0.0 0.0
60°N					3.2 12.6 101 27.0 3.4 -53. 11.9 -5.9 -1.7 6.9 4.0 4.0
50°N	.4 2.1 57 11.4 3.5 -57. 3.5 -7.4 -4.0 3.5 0.0 0.0		4.8 14.3 20 47.6 1.5 -49. 10.0 -12.2-10.7 10.0 10.0 0.0		7.0 17.5 399 26.4 2.8 -52. 26.6 -9.2 -7.7 16.3 10.3 6.3
40°N	0.0 0.0 71 0.0 0.0 0. 0.0 0.0 -8.5 0.0 0.0 0.0		9.5 22.5 129 33.2 3.4 -48. 28.7 -12.4-13.0 18.6 14.0 9.3		6.2 16.9 73 25.3 2.1 -51. 24.7 -12.9-11.8 16.4 8.2 5.5
30°N	0.0 0.0 12 0.0 0.0 0. 0.0 0.0-17.4 0.0 0.0 0.0	0.0 0.0 81 0.0 0.0 0. 0.0 0.0-15.8 0.0 0.0 0.0	.0 .3 37 1.6 1.0 -40. 2.7 -18.9-16.9 0.0 0.0 0.0		
20°N		6.2 16.7 35 27.1 1.1 -48. 22.9 -15.1-15.6 20.0 5.7 2.9	30.2 36.2 17 64.3 0.0 -50. 47.1 -15.5-15.1 47.1 41.2 35.3		0.0 0.0 3 0.0 0.0 0. 0.0 0.0-14.7 0.0 0.0 0.0
10°N		38.7 34.1 20 55.3 4.9 -43. 70.0 -13.1-15.0 65.0 55.0 45.0	8.8 7.7 8 10.0 0.0 -49. 87.5 -15.2-15.3 50.0 0.0 0.0		14.4 26.4 36 37.1 3.5 -48. 38.9 -12.1-12.6 27.8 25.0 11.1
0°		40.3 20.8 12 43.9 3.9 -41. 91.7 -12.2-13.3 83.3 83.3 33.3	20.2 32.7 44 55.6 3.2 -42. 36.4 -11.7-11.9 29.5 29.5 22.7		.2 .9 50 3.3 2.0 -50. 6.0 -13.9-12.8 0.0 0.0 0.0
10°S		6.6 15.2 19 25.3 3.4 -40. 26.3 -12.4-12.3 21.1 10.5 5.3	13.7 27.3 39 41.1 3.4 -41. 33.3 -15.1-14.8 20.5 20.5 12.8		7.3 18.3 57 27.9 3.5 -48. 26.3 -15.1-15.1 15.8 10.5 5.3
20°S		0.0 0.0 1 0.0 0.0 0. 0.0 0.0-13.2 0.0 0.0 0.0	0.0 0.0 43 0.0 0.0 0. 0.0 0.0-10.6 0.0 0.0 0.0		6.7 22.4 70 67.5 5.9 -49. 10.0 -14.1-12.2 8.6 8.6 7.1
30°S	0.0 0.0 ? 0.0 0.0 0. 0.0 0.0 -4.2 0.0 0.0 0.0		.0 .1 36 .8 1.0 -61. 2.8 -2.4 -3.9 0.0 0.0 0.0		.1 .2 47 .8 1.7 -54. 6.4 .2 -3.2 0.0 0.0 0.0
40°S					

APPENDIX C

Autumn
33.5 - 38.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
0.0 0.0 5 0.0 0.0 0. 0.0 0.0 5.0 0.0 0.0 0.0					0.0 0.0 5 0.0 0.0 0. 0.0 0.0 5.0 0.0 0.0 0.0	80°N
.5 3.4 107 19.5 7.3 -57. 2.8 -1.0 2.6 2.8 .9 0.0	.1 .7 79 3.5 1.5 -64. 2.5 -.4 2.5 0.0 0.0 0.0	2.7 3.9 3 8.2 3.0 -55. 33.3 3.8 4.4 0.0 0.0 0.0	7.0 13.5 26 26.1 5.4 -58. 26.9 1.1 1.9 23.1 15.4 0.0		1.2 5.7 217 19.7 5.1 -59. 6.0 .6 2.5 4.1 2.3 0.0	70°N
0.0 0.0 37 0.0 0.0 0. 0.0 0.0 2.4 0.0 0.0 0.0	4.0 13.6 204 31.6 3.2 -56. 12.7 -2.6 .1 9.8 6.9 2.5	1.3 8.7 516 37.2 .1 -61. 3.5 -1.8 -1.4 2.7 2.1 1.2	2.2 11.4 644 31.2 1.2 -62. 7.1 -1.8 -1.9 4.5 3.4 2.0		2.2 10.9 1502 31.9 1.7 -59. 6.8 -2.5 -1.3 4.7 3.4 1.9	60°N
4.8 15.9 222 29.7 1.1 -58. 16.2 -7.1 -5.4 9.5 6.8 4.5	7.7 19.3 190 34.7 4.0 -53. 22.1 -7.1 -3.9 17.4 11.6 6.3	2.8 15.0 511 55.6 1.0 -57. 5.1 -5.0 -4.2 4.1 3.7 2.7	2.3 11.6 91 29.4 2.0 -57. 7.7 -6.4 -5.4 4.4 3.3 2.2		4.8 16.1 1490 32.1 2.5 -54. 14.8 -7.9 -5.5 9.9 6.8 4.2	50°N
2.9 14.3 184 35.6 2.5 -51. 8.2 -11.6-10.4 4.3 3.8 2.7	0.0 0.0 17 0.0 0.0 0. 0.0 0.0 -7.0 0.0 0.0 0.0	0.0 0.0 1 0.0 0.0 0. 0.0 0.0-12.3 0.0 0.0 0.0	0.0 0.0 5 0.0 0.0 0. 0.0 0.0 -4.4 0.0 0.0 0.0		4.6 16.4 480 31.7 2.9 -50. 14.6 -12.3-10.7 9.2 6.5 4.4	40°N
1.7 5.6 80 12.5 5.5 -50. 13.8 -14.4-14.8 7.5 2.5 0.0	0.0 0.0 9 0.0 0.0 0. 0.0 0.0-14.2 0.0 0.0 0.0		31.8 26.8 4 42.4 3.3 -48. 75.0 -15.7-14.7 75.0 50.0 25.0		1.2 6.5 223 17.8 4.8 -49. 6.7 -15.0-15.7 4.0 1.8 .4	30°N
5.0 18.4 51 32.2 2.6 -48. 15.7 -15.0-15.7 7.8 5.9 3.0	0.0 0.0 40 0.0 0.0 0. 0.0 0.0-14.7 0.0 0.0 0.0	0.0 0.0 7 0.0 0.0 0. 0.0 0.0-13.4 0.0 0.0 0.0			6.5 20.0 153 41.2 1.3 -49. 15.7 -15.2-15.2 12.4 7.8 5.9	20°N
3.6 12.3 13 23.3 .5 -51. 15.4 -14.4-13.4 7.7 7.7 0.0		0.0 0.0 16 0.0 0.0 0. 0.0 0.0-14.0 0.0 0.0 0.0			15.2 27.0 93 38.1 3.2 -46. 39.8 -13.2-13.5 30.1 22.6 14.0	10°N
		0.0 0.0 30 0.0 0.0 0. 0.0 0.0-12.2 0.0 0.0 0.0			10.2 23.6 136 46.1 3.3 -42. 22.1 -12.1-12.4 16.9 16.9 10.3	0°
		0.0 0.0 39 0.0 0.0 0. 0.0 0.0-12.3 0.0 0.0 0.0			7.0 19.1 154 32.7 3.4 -44. 21.4 -14.7-13.8 13.6 10.4 5.8	10°S
		0.0 0.0 2 0.0 0.0 0. 0.0 0.0-12.5 0.0 0.0 0.0			4.1 17.7 116 67.5 5.9 -49. 6.0 -14.1-11.6 5.2 5.2 4.3	20°S
					.0 .2 85 .8 1.5 -56. 4.7 -.4 -3.5 0.0 0.0 0.0	30°S
						40°S

APPENDIX C

Winter
38.5 - 43.5 kft

CODE:	\overline{TIC} , %	SIGMA(TIC), %	N
	\overline{TICIC} , %	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					0.0 0.0 14 0.0 0.0 0. 0.0 0.0 7.2 0.0 0.0 0.0
60°N					0.0 0.0 85 0.0 0.0 0. 0.0 0.0 6.5 0.0 0.0 0.0
50°N	34.8 39.3 ?? 76.5 2.5 -70. 45.5 -2.7 -.8 45.5 45.5 45.5		0.0 0.0 29 0.0 0.0 0. 0.0 0.0 10.5 0.0 0.0 0.0	0.0 0.0 40 0.0 0.0 0. 0.0 0.0 9.5 0.0 0.0 0.0	
40°N	0.0 0.0 36 0.0 0.0 0. 0.0 0.0 2.0 0.0 0.0 0.0		0.0 0.0 18 0.0 0.0 0. 0.0 0.0 9.2 0.0 0.0 0.0	0.0 0.0 53 0.0 0.0 0. 0.0 0.0 5.1 0.0 0.0 0.0	
30°N	0.0 0.0 .8 0.0 0.0 0. 0.0 0.0 .0 0.0 0.0 0.0				
20°N		0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -6.4 0.0 0.0 0.0	1.5 5.5 27 10.2 2.3 -56. 14.8 -7.6 -5.9 3.7 3.7 0.0		
10°N		0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -7.1 0.0 0.0 0.0	0.0 0.0 7 0.0 0.0 0. 0.0 0.0 -7.4 0.0 0.0 0.0	10.2 23.8 35 59.2 1.3 -64. 17.1 -7.9-10.4 17.1 17.1 11.4	
0°			61.7 29.6 32 65.8 3.7 -53. 93.8 -10.9-10.9 87.5 84.4 65.6	18.9 27.8 118 41.4 2.0 -60. 45.8 -8.9-10.1 39.8 30.5 16.1	
10°S			53.4 32.1 7 62.3 5.8 -52. 85.7 0.0 0.0 85.7 71.4 57.1	20.3 29.4 178 38.4 2.2 -60. 52.8 -9.5-10.0 41.6 29.2 16.9	
20°S			.1 .2 26 .8 1.5 -58. 7.7 -12.9-14.3 0.0 0.0 0.0	4.1 14.5 110 29.9 2.7 -59. 13.6 -9.9 -7.8 8.2 6.4 3.6	
30°S			0.0 0.0 75 0.0 0.0 0. 0.0 0.0 -6.6 0.0 0.0 0.0	1.0 8.0 305 36.4 1.8 -62. 2.6 -4.8 -2.7 2.0 1.0 .7	
40°S					

APPENDIX C

Winter
38.5 - 43.5 kft

CODE:

$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
0.0 0.0 4.0 0.0 0.0 0. 0.0 0.0 5.9 0.0 0.0 0.0					0.0 0.0 54 0.0 0.0 0. 0.0 0.0 6.1 0.0 0.0 0.0	70°N
0.0 0.0 4.7 0.0 0.0 0. 0.0 0.0 6.1 0.0 0.0 0.0	0.0 0.0 32 0.0 0.0 0. 0.0 0.0 7.2 0.0 0.0 0.0	0.0 0.0 12 0.0 0.0 0. 0.0 0.0 5.5 0.0 0.0 0.0	0.0 0.0 44 0.0 0.0 0. 0.0 0.0 4.7 0.0 0.0 0.0		0.0 0.0 215 0.0 0.0 0. 0.0 0.0 6.1 0.0 0.0 0.0	60°N
.1 .3 29 1.6 0.0 -59. 3.4 1.3 .5 0.0 0.0 0.0	1.0 7.3 266 26.9 2.8 -68. 3.8 1.5 5.6 1.9 1.9 .8	41.5 42.2 41 73.9 3.0 -69. 56.1 -4.3 3.3 53.7 48.8 46.3	20.9 36.2 56 77.9 2.2 -70. 26.8 -2.1 3.5 26.8 25.0 25.0		8.1 24.3 483 66.2 2.6 -69. 12.2 -2.4 5.5 10.8 10.1 9.3	50°N
1.0 6.8 351 21.9 1.2 -64. 4.6 -1.6 1.8 2.0 1.7 .9	.3 4.3 262 34.7 1.0 -66. .8 -2.1 1.4 .4 .4 .4		0.0 0.0 1 0.0 0.0 0. 0.0 0.0 5.2 0.0 0.0 0.0		.6 5.4 721 23.3 1.2 -64. 2.5 -1.6 2.2 1.1 1.0 .6	40°N
1.3 9.0 320 33.7 3.3 -64. 3.8 -5.8 -6.7 2.8 1.6 .9					1.2 8.9 328 33.7 3.3 -64. 3.7 -5.8 -6.0 2.7 1.5 .9	30°N
3.3 11.4 251 22.0 2.6 -58. 15.1 -11.0 -11.4 9.2 6.0 2.0					3.1 11.0 280 20.8 2.5 -58. 15.0 -10.6 -10.8 8.6 5.7 1.8	20°N
11.4 24.6 205 41.8 2.4 -56. 27.3 -11.5 -11.4 21.5 16.6 11.7					10.8 24.1 249 43.5 2.3 -57. 24.9 -11.2 -11.0 20.1 16.1 10.8	10°N
6.9 18.9 102 35.3 1.9 -56. 19.4 -10.2 -10.0 13.0 11.1 7.4					19.2 30.0 258 47.2 2.4 -57. 40.7 -9.5 -10.6 34.5 29.1 18.6	0°
23.6 32.0 137 43.3 2.3 -64. 54.5 -8.3 -10.7 44.7 34.1 22.0					22.4 31.0 317 41.3 2.4 -62. 54.3 -9.0 -10.3 43.8 32.2 19.9	10°S
					3.3 13.1 136 26.5 2.5 -59. 12.5 -10.3 -8.0 6.6 5.1 2.9	20°S
					.8 7.2 380 36.4 1.8 -62. 2.1 -4.8 -3.1 1.6 .8 .5	30°S
						40°S

APPENDIX C

Spring
38.5 - 43.5 kft

	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
CODE:	$\overline{\text{TICIC}}, \%$	PATCHES	$\text{T}(\text{CLD}), ^\circ\text{C}$
	$\text{P}(\text{TIC} > 0), \%$	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	$\text{P}(\text{TIC} \geq 10\%), \%$	$\text{P}(\text{TIC} \geq 25\%), \%$	$\text{P}(\text{TIC} \geq 50\%), \%$

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					0.0 0.0 36 0.0 0.0 0. 0.0 0.0 6.4 0.0 0.0 0.0
60°N					0.0 0.0 354 0.0 0.0 0. 0.0 0.0 5.8 0.0 0.0 0.0
50°N	0.0 0.0 22 0.0 0.0 0. 0.0 0.0 4.5 0.0 0.0 0.0		0.0 0.0 98 0.0 0.0 0. 0.0 0.0 5.0 0.0 0.0 0.0		5.0 17.8 309 46.4 2.7 -64. 10.7 -5.1 3.3 8.1 6.8 5.5
40°N	0.0 0.0 34 0.0 0.0 0. 0.0 0.0 .6 0.0 0.0 0.0		16.0 33.3 106 65.2 2.4 -63. 24.5 -6.0 2.9 20.8 19.8 16.0		5.9 19.9 37 36.6 1.7 -61. 16.2 -8.2 -7.4 10.8 5.4 5.4
30°N	0.0 0.0 5 0.0 0.0 0. 0.0 0.0-12.5 0.0 0.0 0.0	0.0 0.0 4 0.0 0.0 0. 0.0 0.0 -4.7 0.0 0.0 0.0	0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -7.9 0.0 0.0 0.0		.1 .1 6 .4 1.0 -57. 16.7 -8.8 -9.1 0.0 0.0 0.0
20°N		0.0 0.0 8 0.0 0.0 0. 0.0 0.0 -3.9 0.0 0.0 0.0	.7 .8 4 1.4 2.5 -55. 50.0 -8.3 -8.5 0.0 0.0 0.0		
10°N					17.1 27.0 38 36.2 2.9 -58. 47.4 -9.9-10.0 31.6 26.3 15.8
0°					15.1 25.1 110 33.2 2.6 -60. 45.5 -9.8-11.3 31.8 22.7 13.6
10°S					11.2 22.6 106 30.4 2.8 -59. 36.8 -13.1-12.6 25.5 17.0 9.4
20°S					.2 1.2 38 4.5 2.5 -58. 5.3 -12.2 -9.5 0.0 0.0 0.0
30°S					5.2 19.3 100 57.3 4.2 -62. 9.0 -10.0 -1.3 9.0 6.0 5.0
40°S					

APPENDIX C

Spring
38.5 - 43.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
0.0 0.0 13.8 0.0 0.0 0. 0.0 0.0 5.7 0.0 0.0 0.0	0.0 0.0 12 0.0 0.0 0. 0.0 0.0 3.3 0.0 0.0 0.0				0.0 0.0 186 0.0 0.0 0. 0.0 0.0 5.7 0.0 0.0 0.0	70°N
.0 .3 237 2.2 1.3 -63. 1.7 .2 5.4 0.0 0.0 0.0	0.0 0.0 175 0.0 0.0 0. 0.0 0.0 4.4 0.0 0.0 0.0	.0 .1 214 .8 1.0 -60. .5 2.2 6.2 0.0 0.0 0.0	.1 .7 182 9.4 3.0 -65. .5 -1.2 4.3 0.0 0.0 0.0		.0 .3 1162 3.1 1.5 -63. .5 .3 5.4 0.0 0.0 0.0	60°N
3.4 13.6 215 28.5 3.1 -65. 12.1 -1.5 -.3 7.4 5.1 2.8	5.0 16.9 492 38.8 1.9 -64. 12.8 -1.9 2.8 10.0 7.1 4.9	3.0 14.9 214 35.1 3.2 -60. 8.4 .8 5.3 3.7 3.7 3.3	0.0 0.0 42 0.0 0.0 0. 0.0 0.0 4.4 0.0 0.0 0.0		3.8 15.4 1392 38.2 2.5 -64. 10.1 -2.3 3.0 7.0 5.4 3.9	50°N
1.5 8.5 406 18.7 1.6 -66. 7.9 -2.4 -.1 3.4 2.0 1.0	4.8 17.6 560 50.1 2.1 -65. 9.6 -2.7 1.4 8.4 7.3 4.8	9.3 23.8 47 43.6 1.6 -67. 21.3 -6.0 1.9 14.9 14.9 8.5			4.8 17.9 1190 44.2 2.0 -65. 10.8 -3.8 .7 7.9 6.6 4.5	40°N
2.4 11.5 405 28.9 1.8 -63. 8.1 -7.8 -4.8 4.7 3.7 2.2	.6 1.9 16 4.7 2.5 -62. 12.5 -6.2 -8.8 0.0 0.0 0.0	1.7 6.8 45 15.0 1.4 -65. 11.1 -6.6 -9.0 6.7 2.2 0.0			2.2 10.8 483 25.4 1.8 -63. 8.5 -7.6 -5.5 4.6 3.3 1.9	30°N
18.4 30.3 123 41.1 2.1 -60. 44.7 -11.9-12.2 36.6 22.0 17.1	0.0 0.0 8 0.0 0.0 0. 0.0 0.0 -9.9 0.0 0.0 0.0	17.1 28.9 50 38.8 2.3 -56. 44.0 -12.9-13.1 34.0 24.0 14.0			16.1 28.8 193 39.5 2.2 -59. 40.9 -12.1-11.4 32.1 20.2 14.5	20°N
18.1 30.2 90 42.9 2.5 -57. 42.2 -11.0-11.7 33.3 26.7 15.6		13.8 27.0 61 38.2 1.9 -56. 36.1 -10.1-10.9 23.0 23.0 13.1			16.5 28.6 189 40.0 2.4 -57. 41.3 -10.5-11.1 29.6 25.4 14.8	10°N
7.0 17.0 39 27.4 4.3 -56. 25.6 -11.0-11.2 17.9 10.3 5.1		35.3 32.5 68 42.9 2.4 -56. 82.4 -10.4-11.1 63.2 54.4 35.3			20.0 28.6 217 37.4 2.6 -58. 53.5 -10.2-11.3 39.2 30.4 18.9	0°
10.0 23.5 120 35.4 2.6 -64. 28.3 -11.6-11.6 19.2 13.3 10.8		28.4 35.9 53 51.9 2.1 -56. 54.7 -13.2-12.6 49.1 37.7 26.4			14.0 26.9 279 38.2 2.5 -60. 36.6 -12.7-12.2 27.2 19.4 13.3	10°S
		0.0 0.0 4 0.0 0.0 0. 0.0 0.0-12.7 0.0 0.0 0.0			.2 1.1 42 4.5 2.5 -58. 4.8 -12.2 -9.8 0.0 0.0 0.0	20°S
					5.2 19.3 100 57.3 4.2 -62. 9.0 -10.0 -1.3 9.0 6.0 5.0	30°S
						40°S

APPENDIX C

Summer
38.5 - 43.5 kft

	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
CODE:	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N				0.0 0.0 51 0.0 0.0 0. 0.0 0.0 5.4 0.0 0.0 0.0	
60°N				.4 3.5 366 15.1 4.0 -62. 2.5 .1 4.2 1.1 .5 0.0	
50°N	0.0 0.0 41 0.0 0.0 0. 0.0 0.0 -2.4 0.0 0.0 0.0		3.4 13.9 100 42.7 2.9 -64. 8.0 -7.7 -4.5 6.0 6.0 5.0	2.6 11.5 384 26.8 1.6 -60. 9.6 -7.1 -1.5 6.0 3.9 1.8	
40°N	0.0 0.0 41 0.0 0.0 0. 0.0 0.0 -12.6 0.0 0.0 0.0		3.6 13.2 103 23.3 2.3 -58. 15.5 -10.1 -7.9 8.7 3.9 2.9	4.8 13.5 26 41.7 3.0 -53. 11.5 -10.4 -10.1 11.5 11.5 0.0	
30°N	9.2 16.6 6 27.6 0.0 -55. 33.3 0.0 -13.2 16.7 16.7 0.0				
20°N		27.5 35.5 4 27.5 1.8 -52. 100.0 -13.3 0.0 50.0 25.0 25.0			
10°N		65.6 27.8 11 65.6 4.9 -53. 100.0 -12.1 0.0 100.0 81.8 72.7	.7 .9 3 2.0 1.0 -53. 33.3 -10.1 -10.1 0.0 0.0 0.0	38.1 30.2 8 50.8 0.0 -59. 75.0 -10.8 -10.6 62.5 62.5 37.5	
0°				23.5 28.7 37 39.5 0.0 -56. 59.5 -13.3 -11.4 48.6 32.4 24.3	
10°S				9.8 20.7 41 36.4 0.0 -56. 26.8 -14.0 -13.1 22.0 17.1 7.3	
20°S				.1 .6 36 3.5 0.0 -56. 2.8 -13.9 -11.4 0.0 0.0 0.0	
30°S			0.0 0.0 11 0.0 0.0 0. 0.0 0.0 -8.4 0.0 0.0 0.0	.0 .3 74 1.6 0.0 -55. 2.7 -1.7 3.1 0.0 0.0 0.0	
40°S					

APPENDIX C

Summer
38.5 - 43.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
	0.0 0.0 49 0.0 0.0 0. 0.0 0.0 7.6 0.0 0.0 0.0	0.0 0.0 79 0.0 0.0 0. 0.0 0.0 7.2 0.0 0.0 0.0	0.0 0.0 7 0.0 0.0 0. 0.0 0.0 7.0 0.0 0.0 0.0		0.0 0.0 135 0.0 0.0 0. 0.0 0.0 7.4 0.0 0.0 0.0	80°N
.5 4.7 237 14.3 2.1 -62. 3.4 -1.6 3.4 .9 .9 .4	0.0 0.0 430 0.0 0.0 0. 0.0 0.0 6.3 0.0 0.0 0.0	.0 .0 534 .8 0.0 -52. .2 5.1 6.7 0.0 0.0 0.0	.0 .2 295 3.5 0.0 -65. .3 1.7 5.6 0.0 0.0 0.0		.1 1.9 1543 11.8 1.7 -62. .6 -.6 5.9 .1 .1 .1	70°N
0.0 0.0 147 0.0 0.0 0. 0.0 0.0 2.6 0.0 0.0 0.0	.0 .7 442 9.6 0.0 -62. .5 -1.6 4.9 .2 0.0 0.0	.1 1.7 262 18.6 0.0 -67. .8 1.5 5.4 .8 0.0 0.0	.0 .3 509 2.0 .2 -56. 1.0 5.1 4.8 0.0 0.0 0.0		.1 1.8 1722 11.2 2.1 -60. 1.0 1.5 4.6 .4 .1 0.0	60°N
3.0 11.1 317 20.8 2.0 -63. 14.2 -4.3 -.9 8.2 4.4 1.7	3.7 14.0 387 32.9 .6 -62. 11.4 -3.3 -.4 7.5 5.7 3.6	1.3 9.8 176 24.5 .1 -56. 5.1 -6.7 .8 1.7 1.1 1.1	0.0 0.0 86 0.0 0.0 0. 0.0 0.0 2.0 0.0 0.0 0.0		2.6 11.7 1491 27.5 1.4 -62. 9.6 -5.0 -.9 5.8 4.0 2.1	50°N
.8 4.7 177 13.3 .6 -62. 6.4 -8.6 -3.9 3.5 1.2 0.0	.6 2.6 17 11.0 6.0 -60. 5.9 -10.4 -8.7 5.9 0.0 0.0				1.8 8.7 360 21.1 1.9 -59. 8.6 -9.6 -6.3 5.3 2.5 .8	40°N
0.0 0.0 41 0.0 0.0 0. 0.0 0.0 -8.7 0.0 0.0 0.0					1.2 6.7 47 27.6 0.0 -55. 4.3 0.0 -8.7 2.1 2.1 0.0	30°N
3.3 14.4 35 38.0 0.0 -59. 8.6 -12.4 -10.7 5.7 2.9 2.9					5.7 19.2 39 32.0 1.0 -55. 17.9 -12.9 -10.3 10.3 5.1 5.1	20°N
15.5 30.6 47 46.6 0.0 -59. 33.3 -10.4 -12.1 21.4 19.0 16.7					26.3 35.4 64 52.5 1.7 -57. 50.0 -11.0 -11.9 39.1 34.4 28.1	10°N
57.7 30.0 27 62.4 0.0 -56. 92.6 -11.6 -11.4 88.9 81.5 59.7					37.9 33.8 64 51.7 0.0 -56. 73.4 -12.4 -11.4 65.6 53.1 39.1	0°
					9.8 20.7 41 36.4 0.0 -56. 26.8 -14.0 -13.1 22.0 17.1 7.3	10°S
			0.0 0.0 1 0.0 0.0 -29. 100.0 0.0 .1 0.0 0.0 0.0		.1 .6 37 1.8 0.0 -43. 5.4 -13.9 -11.4 0.0 0.0 0.0	20°S
					.0 .3 85 1.6 0.0 -55. 2.4 -1.7 1.6 0.0 0.0 0.0	30°S
						40°S

APPENDIX C

Autumn
38.5 - 43.5 kft

	\overline{TIC} , %	SIGMA(TIC), %	N
CODE:	\overline{TICIC} , %	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N				0.0 0.0 59 0.0 0.0 0. 0.0 0.0 7.2 0.0 0.0 0.0	
60°N				.2 2.6 363 13.9 3.8 -56. 1.4 -4.4 3.7 .6 .3 0.0	
50°N	0.0 0.0 45 0.0 0.0 0. 0.0 0.0 2.7 0.0 0.0 0.0		2.8 9.7 91 28.5 2.3 -62. 9.9 -7.6 -1.3 8.8 5.5 1.1	.8 4.5 522 12.6 3.4 -59. 6.1 -8.0 -1.3 2.3 1.0 0.0	
40°N	0.0 0.0 13 0.0 0.0 0. 0.0 0.0 -12.5 0.0 0.0 0.0		6.0 20.4 156 49.1 1.8 -57. 12.2 -11.1 -7.9 9.0 8.3 6.4	4.8 15.7 142 36.0 1.9 -56. 13.4 -11.4 -9.3 10.6 7.0 5.6	
30°N		0.0 0.0 8 0.0 0.0 0. 0.0 0.0 -14.3 0.0 0.0 0.0	4.2 12.4 19 19.9 2.0 -52. 21.1 -12.9 -13.4 10.5 5.3 5.3		
20°N		0.0 0.0 4 0.0 0.0 0. 0.0 0.0 -11.7 0.0 0.0 0.0	0.0 0.0 14 0.0 0.0 0. 0.0 0.0 -13.1 0.0 0.0 0.0		
10°N		0.0 0.0 4 0.0 0.0 0. 0.0 0.0 -12.5 0.0 0.0 0.0	0.0 0.0 8 0.0 0.0 0. 0.0 0.0 -12.5 0.0 0.0 0.0	21.8 30.9 3 65.5 4.0 -55. 33.3 -10.4 -13.8 33.3 33.3 33.3	
0°				7.5 22.1 10 37.3 2.5 -56. 20.0 -13.4 -13.0 10.0 10.0 10.0	
10°S				2.8 14.7 39 27.1 3.5 -56. 10.3 -13.4 -11.9 5.1 2.6 2.6	
20°S				.0 .1 33 .8 1.0 -56. 3.0 -13.8 -9.1 0.0 0.0 0.0	
30°S	0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -10.0 0.0 0.0 0.0			.0 .3 104 2.0 4.5 -53. 1.9 5.4 2.9 0.0 0.0 0.0	
40°S					

APPENDIX C

Autumn
38.5 - 43.5 kft

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z(CLD)}$, kft	$\overline{\Delta Z(CLR)}$, kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
			0.0 0.0 4 0.0 0.0 0. 0.0 0.0 7.7 0.0 0.0 0.0		0.0 0.0 4 0.0 0.0 0. 0.0 0.0 7.7 0.0 0.0 0.0	80°N
.1 1.0 161 12.2 4.0 -59. .6 -2.8 3.6 .6 0.0 0.0	0.0 0.0 14 0.0 0.0 0. 0.0 0.0 3.4 0.0 0.0 0.0	0.0 0.0 27 0.0 0.0 0. 0.0 0.0 7.3 0.0 0.0 0.0	0.0 0.0 56 0.0 0.0 0. 0.0 0.0 5.6 0.0 0.0 0.0		.0 .7 317 12.2 4.0 -59. .3 -2.8 4.9 .3 0.0 0.0	70°N
1.1 5.2 205 16.6 3.8 -66. 6.3 -2.3 2.7 3.9 1.5 0.0	0.0 0.0 109 0.0 0.0 0. 0.0 0.0 5.0 0.0 0.0 0.0	.0 .1 278 1.2 2.0 -51. .7 7.5 4.1 0.0 0.0 0.0	1.1 6.9 232 28.9 3.0 -66. 3.9 -2.0 3.7 3.0 1.7 .4		.5 4.0 1187 18.9 3.4 -63. 2.4 -1.9 3.7 1.4 .7 .1	60°N
2.1 9.8 490 19.3 2.4 -64. 10.8 -3.1 -2.7 5.3 3.3 1.6	2.4 10.5 189 29.9 2.8 -64. 7.9 -2.6 .6 5.8 4.2 1.6	3.7 15.3 286 41.2 1.2 -66. 9.1 -2.1 .3 6.6 5.6 3.8	.5 1.5 9 4.7 0.0 -64. 11.1 -2.1 2.5 0.0 0.0 0.0		2.0 9.8 1632 23.6 2.4 -63. 8.3 -4.3 -3.3 4.7 3.1 1.4	50°N
.0 .1 130 1.2 1.5 -58. 1.5 -4.9 -3.3 0.0 0.0 0.0	.2 1.8 54 13.3 12.0 -51. 1.9 -5.5 -3.6 1.9 0.0 0.0				3.3 14.5 495 39.8 2.1 -56. 8.3 -10.8 -6.6 6.1 4.6 3.6	40°N
2.7 10.9 42 14.2 1.4 -63. 19.0 -10.1 -9.2 4.8 4.8 2.4	0.0 0.0 13 0.0 0.0 0. 0.0 0.0 -11.3 0.0 0.0 0.0		0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -13.5 0.0 0.0 0.0		2.3 9.9 83 16.1 1.6 -59. 14.5 -11.1 -11.1 4.8 3.6 2.4	30°N
11.7 22.1 39 30.4 2.3 -58. 38.5 -12.6 -12.1 28.2 17.9 10.3			.8 1.8 6 4.7 2.0 -56. 16.7 -14.5 -14.3 0.0 0.0 0.0		7.3 18.3 63 28.8 2.3 -58. 25.4 -12.7 -12.6 17.5 11.1 6.3	20°N
1.0 6.4 45 23.1 1.5 -57. 4.4 -9.6 -10.3 2.2 2.2 0.0	0.0 0.0 8 0.0 0.0 0. 0.0 0.0 -10.1 0.0 0.0 0.0	0.0 0.0 11 0.0 0.0 0. 0.0 0.0 -10.5 0.0 0.0 0.0	22.7 22.4 5 37.8 5.3 -55. 60.0 -12.1 -10.9 60.0 40.0 20.0		2.7 11.4 84 37.5 3.8 -56. 7.1 -11.0 -10.7 6.0 4.8 2.4	10°N
2.9 14.8 47 33.8 1.8 -58. 8.5 -10.6 -10.5 4.3 4.3 2.1		0.0 0.0 9 0.0 0.0 0. 0.0 0.0 -10.3 0.0 0.0 0.0	0.0 0.0 6 0.0 0.0 0. 0.0 0.0 -11.7 0.0 0.0 0.0		2.9 14.7 72 35.0 2.0 -57. 8.3 -11.5 -10.9 4.2 4.2 2.8	0°
			0.0 0.0 5 0.0 0.0 0. 0.0 0.0 -10.7 0.0 0.0 0.0		2.5 13.9 44 27.1 3.5 -56. 9.1 -13.4 -11.8 4.5 2.3 2.3	10°S
			0.0 0.0 4 0.0 0.0 0. 0.0 0.0 -11.2 0.0 0.0 0.0		.0 .1 37 .8 1.0 -56. 2.7 -13.8 -9.3 0.0 0.0 0.0	20°S
					.0 .3 105 2.0 4.5 -53. 1.9 5.4 2.8 0.0 0.0 0.0	30°S
						40°S

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APPENDIX D

CLOUD-ENCOUNTER STATISTICS AS FUNCTIONS OF LATITUDE, LONGITUDE,
SEASON, AND DISTANCE FROM THE NMC TROPOPAUSE

This appendix is a tabulation of statistics for several quantities related to cloud encounter over the geographic area covered by the GASP flights. The latitude/longitude grid chosen appears as figure C1. Subsequent pages of this appendix give statistical data within each grid element in accordance with the following code. The season and distance from the tropopause appear at the top of each page.

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	$\text{T}(\text{CLD}), ^\circ\text{C}$
	$\text{P}(\text{TIC} > 0), \%$	$\overline{\Delta\text{Z}}(\text{CLD}), \text{kft}$	$\overline{\Delta\text{Z}}(\text{CLR}), \text{kft}$
	$\text{P}(\text{TIC} \geq 10\%), \%$	$\text{P}(\text{TIC} \geq 25\%), \%$	$\text{P}(\text{TIC} \geq 50\%), \%$

Explanation of entries. Entries are identical to those in appendix C.

APPENDIX D

Winter
10 to 15 kft
below tropopause

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					
50°N	48.8 37.6 6 73.2 5.5 -40. 66.7 -10.6-10.3 66.7 66.7 50.0				
40°N	8.3 20.5 81 33.5 3.7 -44. 24.7 -11.5-12.1 16.0 12.3 7.4		0.0 0.0 8 0.0 0.0 0. 0.0 0.0-12.6 0.0 0.0 0.0		
30°N	4.7 17.1 58 45.8 3.8 -48. 10.3 -12.2-12.7 10.3 5.2 3.4	7.1 21.4 84 59.5 4.6 -49. 11.9 -11.6-12.5 10.7 10.7 8.3	0.0 0.0 22 0.0 0.0 0. 0.0 0.0-14.0 0.0 0.0 0.0		
20°N		2.4 10.1 31 37.3 7.5 -32. 6.5 -12.9-13.3 6.5 3.2 3.2	5.3 17.3 21 27.6 3.0 -51. 19.0 -10.8-11.8 9.5 9.5 4.8	0.0 0.0 50 0.0 0.0 0. 0.0 0.0-11.8 0.0 0.0 0.0	
10°N		7.9 20.5 182 34.1 4.0 -42. 23.1 -13.5-13.9 15.4 11.5 6.6	27.2 32.1 55 48.2 3.5 -39. 56.4 -14.0-13.5 47.3 41.8 29.1	11.9 24.2 185 30.2 3.4 -43. 30.3 -12.7-12.9 23.8 17.8 10.8	
0°		23.6 32.5 67 45.1 3.1 -42. 52.2 -13.8-13.8 40.3 34.3 23.9	31.6 32.1 145 45.3 3.7 -40. 69.7 -13.4-13.4 59.3 47.6 31.7	8.8 21.6 239 31.4 2.1 -42. 28.0 -13.0-12.9 17.2 13.0 7.5	
10°S			33.8 36.5 34 57.4 3.7 -40. 58.8 -13.4-13.5 50.0 47.1 35.3	17.6 29.8 232 42.5 2.5 -49. 41.4 -11.8-12.1 32.3 23.3 18.1	
20°S	9.2 21.6 14 42.7 2.0 -32. 21.4 -15.0-14.0 14.3 14.3 7.1	0.0 0.0 8 0.0 0.0 0. 0.0 0.0-14.6 0.0 0.0 0.0	.3 1.6 30 3.4 2.0 -52. 10.0 -13.2-13.6 0.0 0.0 0.0	12.4 26.5 170 43.2 2.7 -48. 28.8 -12.5-12.6 21.2 17.6 11.8	
30°S		0.0 0.0 10 0.0 0.0 0. 0.0 0.0-13.6 0.0 0.0 0.0	2.4 11.5 247 27.7 4.3 -44. 8.5 -12.9-12.4 4.9 2.8 1.6	8.3 21.7 177 37.5 2.7 -43. 22.0 -12.4-12.0 15.3 11.3 7.9	
40°S					

APPENDIX D

Winter
10 to 15 kft
below tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN		
						80°N	
						70°N	
						60°N	
				36.2 35.1 10 51.8 6.0 -36. 70.0 -12.1-11.4 50.0 50.0 40.0		36.2 35.1 10 51.8 6.0 -36. 70.0 -12.1-11.4 50.0 50.0 40.0	60°N
0.0 0.0 1 0.0 0.0 0. 0.0 0.0-13.0 0.0 0.0 0.0	46.5 44.5 2 46.5 2.0 -40. 100.0 -11.3 0.0 50.0 50.0 50.0	11.2 19.7 22 30.8 1.8 -53. 36.4 -10.7-10.7 31.8 18.2 13.6	52.5 0.0 1 52.5 0.0 -54. 100.0 -10.1 0.0 100.0 100.0 100.0		21.4 30.8 32 45.7 2.7 -48. 46.9 -10.7-10.8 40.6 31.3 25.0	50°N	
8.3 22.1 146 45.0 2.6 -49. 18.5 -11.4-12.2 15.1 12.3 8.2	4.8 17.6 55 43.7 2.8 -41. 10.9 -11.7-12.2 7.3 7.3 5.5				7.4 20.6 290 40.5 3.0 -46. 18.3 -11.5-12.2 13.4 11.0 7.2	40°N	
11.0 24.5 490 41.9 3.5 -51. 26.3 -12.4-12.4 20.7 16.1 10.8					9.6 23.3 662 43.3 3.6 -51. 22.2 -12.4-12.5 17.8 13.9 9.5	30°N	
3.9 12.9 252 25.5 2.8 -54. 15.5 -11.9-12.5 9.9 7.9 2.4					3.3 12.1 354 26.2 3.0 -53. 12.7 -11.9-12.4 8.2 6.5 2.3	20°N	
11.3 23.8 273 38.9 2.3 -53. 28.9 -12.0-11.8 21.2 17.2 10.6					11.8 24.4 695 39.4 3.1 -46. 29.9 -12.8-12.8 22.4 17.8 11.1	10°N	
4.8 16.3 173 36.2 2.5 -51. 13.3 -11.6-11.6 9.2 6.9 5.2					14.6 26.9 624 40.2 3.0 -42. 36.2 -13.2-12.5 27.2 21.6 14.3	0°	
4.4 17.4 34 37.7 1.0 -50. 11.8 -13.1-13.0 5.9 5.9 2.0					17.9 30.3 300 44.8 2.7 -48. 40.0 -12.1-12.5 31.3 24.0 18.3	10°S	
					10.2 24.3 222 41.0 2.7 -48. 24.8 -12.6-13.0 17.1 14.4 9.5	20°S	
					4.7 16.6 434 34.1 3.3 -44. 13.8 -12.6-12.3 9.0 6.2 4.1	30°S	
						40°S	

APPENDIX D

Spring
10 to 15 kft
below tropopause

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					
50°N	0.0 0.0 1 0.0 0.0 0. 0.0 0.0-11.0 0.0 0.0 0.0			19.1 24.1 11 26.3 2.6 -59. 72.7 -12.4-11.8 36.4 36.4 9.1	
40°N	0.0 0.0 2 0.0 0.0 0. 0.0 0.0-11.2 0.0 0.0 0.0		26.1 35.8 32 52.1 1.7 -48. 50.0 -11.3-12.3 43.8 34.4 28.1	.6 1.6 16 4.7 3.0 -59. 12.5 -13.7-13.4 0.0 0.0 0.0	
30°N	0.0 0.0 9 0.0 0.0 0. 0.0 0.0-12.7 0.0 0.0 0.0	4.8 9.7 20 19.4 3.2 -50. 25.0 -12.5-11.7 15.0 15.0 0.0	.1 .3 21 .8 1.0 -45. 9.5 -11.3-13.3 0.0 0.0 0.0	.1 .7 28 3.5 1.0 -44. 3.6 -12.5-13.0 0.0 0.0 0.0	
20°N		0.0 0.0 9 0.0 0.0 0. 0.0 0.0-12.2 0.0 0.0 0.0	.2 .7 38 1.2 2.2 -44. 15.8 -12.5-12.4 0.0 0.0 0.0	4.3 17.9 79 42.0 2.3 -44. 10.1 -12.8-12.5 6.3 5.1 5.1	
10°N		0.0 0.0 6 0.0 0.0 0. 0.0 0.0-12.4 0.0 0.0 0.0	1.4 3.3 11 5.0 2.0 -44. 27.3 -13.3-13.6 9.1 0.0 0.0	9.7 24.6 20 64.6 7.3 -55. 15.0 -10.7-11.5 15.0 15.0 10.0	
0°				14.3 24.6 48 36.0 2.2 -54. 39.6 -12.1-12.8 33.3 20.8 10.4	
10°S				8.7 20.0 87 27.1 2.8 -58. 32.2 -13.1-12.6 20.7 11.5 8.0	
20°S				.4 1.5 22 4.5 2.5 -58. 9.1 -12.2-13.2 0.0 0.0 0.0	
30°S				25.3 38.7 20 72.3 2.9 -53. 35.0 -12.8-12.9 30.0 30.0 30.0	
40°S					

APPENDIX D

Spring
10 to 15 kft
below tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
						70°N
		0.0 0.0 3	0.0 0.0 8		0.0 0.0 11	60°N
		0.0 0.0 0.	0.0 0.0 0.		0.0 0.0 0.	
		0.0 0.0-12.5	0.0 0.0-11.5		0.0 0.0-11.8	
		0.0 0.0 0.0	0.0 0.0 0.0		0.0 0.0 0.0	
4.0 5.7 5	15.6 25.4 26	.2 .5 15			11.0 21.5 58	50°N
6.7 4.7 -54.	36.8 3.3 -33.	1.4 1.0 -35.			26.6 3.0 -45.	
60.0 -12.2-13.7	42.3 -12.1-11.8	13.3 -14.2-11.3			41.4 -12.4-11.7	
20.0 0.0 0.0	34.6 23.1 15.4	0.0 0.0 0.0			24.1 17.2 8.6	40°N
3.1 11.6 76	6.8 16.4 24	0.0 0.0 4			8.0 21.5 154	
14.6 2.4 -44.	27.2 1.7 -38.	0.0 0.0 0.			31.0 2.1 -45.	
21.1 -11.1-11.7	25.0 -11.7-11.5	0.0 0.0-11.4			26.0 -11.4-11.7	
7.9 3.9 1.3	16.7 12.5 8.3	0.0 0.0 0.0			15.6 11.0 7.8	30°N
7.9 21.0 367	16.3 30.1 36	2.4 10.1 49			7.0 19.9 530	
31.7 2.4 -47.	49.0 3.1 -47.	38.4 5.3 -49.			32.4 2.6 -47.	
24.8 -12.1-12.0	33.3 -12.5-12.5	6.1 -12.8-12.7			21.5 -12.2-12.2	
15.8 12.3 6.3	27.8 22.2 16.7	6.1 4.1 2.0			14.0 10.9 5.7	20°N
16.8 27.6 114	16.2 27.7 81	15.3 28.4 105			12.1 25.4 426	
38.2 2.7 -58.	41.0 3.4 -47.	36.6 2.2 -52.			37.0 2.7 -52.	
43.9 -12.5-13.1	39.5 -12.4-11.6	41.9 -13.1-13.2			32.9 -12.7-12.6	
36.0 21.9 14.0	29.6 23.5 16.0	28.6 21.0 13.3			23.5 16.4 11.0	10°N
15.7 28.6 77		15.6 28.4 109			14.0 27.3 223	
48.2 2.3 -56.		43.7 2.9 -50.			44.5 2.8 -52.	
32.5 -11.6-12.7		35.8 -11.7-12.2			31.4 -11.7-12.2	
29.9 24.7 14.3		28.4 24.8 13.8			26.0 22.0 12.6	0°
4.7 14.1 24		25.3 28.2 79			18.3 26.4 153	
30.3 2.8 -56.		33.3 2.2 -53.			33.8 2.2 -53.	
15.4 -11.0-11.7		75.9 -11.6-11.3			54.2 -11.7-11.9	
11.5 7.7 3.4		51.9 40.5 22.8			39.2 28.8 15.7	10°S
5.2 15.8 85		23.3 33.4 79			12.1 25.2 251	
23.4 2.3 -64.		44.9 2.3 -54.			34.6 2.5 -57.	
22.4 -11.6-11.6		51.9 -13.9-13.4			35.1 -13.2-12.4	
11.8 7.1 5.9		41.8 31.6 20.3			24.3 16.3 11.2	20°S
		17.9 27.2 9			5.5 16.7 31	
		53.6 3.7 -39.			34.0 3.2 -47.	
		33.3 -13.6-13.4			16.1 -13.0-13.3	
		33.3 33.3 22.2			9.7 9.7 6.5	30°S
					25.3 38.7 20	
					72.3 2.9 -53.	
					35.0 -12.8-12.9	
					30.0 30.0 30.0	40°S

APPENDIX D

Summer
10 to 15 kft
below tropopause

CODE:

$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					
50°N	4.1 16.8 32 43.8 5.0 -37. 9.4 -11.8-11.8 6.3 6.3 3.1		.4 1.1 10 3.5 1.0 -46. 10.0 -13.4-11.8 0.0 0.0 0.0	16.7 25.2 119 32.5 1.8 -51. 51.3 -11.8-11.8 36.1 26.1 14.3	
40°N	.0 .7 213 5.1 .5 -29. .9 -10.9-13.4 0.0 0.0 0.0		16.3 29.5 120 49.0 2.2 -46. 33.3 -12.8-12.4 25.8 22.5 18.3	6.0 14.7 56 30.3 2.7 -51. 19.6 -12.5-12.1 16.1 10.7 3.6	
30°N	0.0 0.0 47 0.0 0.0 0. 0.0 0.0-13.8 0.0 0.0 0.0	7.9 22.1 123 46.5 3.1 -31. 17.1 -14.1-14.0 13.8 11.4 7.3	0.0 0.0 1 0.0 0.0 0. 0.0 0.0-14.4 0.0 0.0 0.0		
20°N		26.0 32.6 143 44.8 3.2 -38. 58.0 -13.6-13.9 47.6 37.8 25.9	33.4 31.4 12 40.0 3.2 -37. 83.3 -13.2-13.9 58.3 58.3 33.3		
10°N		17.2 29.9 85 38.6 3.4 -39. 44.7 -13.4-13.3 29.4 23.5 15.3	8.7 19.2 35 27.7 2.5 -39. 31.4 -13.2-12.9 20.0 14.3 5.7	48.7 31.6 4 65.0 0.0 -56. 75.0 -11.6-11.3 75.0 75.0 50.0	
0°		3.1 8.5 72 18.6 4.0 -35. 16.7 -14.1-13.6 13.9 4.2 0.0	6.4 17.8 229 35.2 3.8 -39. 18.3 -13.1-13.2 14.4 10.9 5.2	22.5 29.7 31 43.6 0.0 -56. 51.6 -12.6-11.4 41.9 32.3 25.8	
10°S		3.1 11.9 65 29.0 2.4 -37. 10.8 -13.8-13.6 10.8 3.1 3.1	.0 .1 211 .8 2.0 -49. .5 -11.1-13.1 0.0 0.0 0.0	6.8 17.8 59 36.4 0.0 -56. 18.6 -14.0-13.4 15.3 11.9 5.1	
20°S		0.0 0.0 4 0.0 0.0 0. 0.0 0.0-13.4 0.0 0.0 0.0	.4 3.6 245 17.8 2.6 -39. 2.0 -13.3-12.5 .8 .8 0.0	.9 3.9 57 8.3 1.7 -48. 10.5 -12.2-12.2 3.5 1.8 0.0	
30°S			19.5 31.1 29 62.8 5.0 -38. 31.0 -13.3-11.3 31.0 31.0 20.7	3.1 12.8 18 55.7 0.0 -41. 5.6 -12.0-11.9 5.6 5.6 5.6	
40°S					

APPENDIX D

Summer
10 to 15 kft
below tropopause

CODE:

$\overline{\text{TIC}}, \%$	SIGMA(TIC), %	N
$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
						70°N
						60°N
				10.2 25.0 7 71.4 10.0 -31. 14.3 -10.7-11.1 14.3 14.3 14.3	10.2 25.0 7 71.4 10.0 -31. 14.3 -10.7-11.1 14.3 14.3 14.3	50°N
7.4 15.9 59 19.8 3.0 -53. 37.3 -11.5-12.5 18.6 8.5 5.1	11.0 23.2 76 39.7 1.6 -47. 27.6 -11.8-12.2 19.7 17.1 13.2	15.6 26.7 12 37.3 0.0 -50. 41.7 -12.3-11.7 25.0 25.0 16.7	.5 1.2 10 2.5 4.0 -36. 20.0 -11.6-11.6 0.0 0.0 0.0	11.3 22.2 318 31.1 2.0 -50. 36.2 -11.8-12.0 23.3 17.0 10.4		40°N
3.3 13.5 90 27.1 1.3 -47. 12.2 -11.6-12.5 8.9 4.4 2.2	1.6 3.8 7 11.0 6.0 -60. 14.3 -10.4-11.3 14.3 0.0 0.0			5.4 17.8 486 40.2 2.2 -47. 13.4 -12.5-12.9 10.1 7.6 5.3		30°N
0.0 0.0 0 0.0 0.0 0. 0.0 0.0-11.1 0.0 0.0 0.0				5.4 18.7 180 46.5 3.1 -31. 11.7 -14.1-13.8 9.4 7.8 5.0		20°N
5.2 19.4 18 46.9 0.0 -55. 11.1 -14.7-11.9 5.6 5.6 5.6				24.4 32.2 173 44.4 3.2 -38. 54.9 -13.6-13.5 43.9 35.8 24.3		10°N
11.5 24.7 40 41.9 0.0 -53. 27.5 -12.1-12.0 20.0 17.5 12.5				14.8 27.5 164 38.5 2.5 -42. 38.4 -13.1-12.8 26.2 21.3 13.4		0°
57.3 30.5 26 62.0 0.0 -56. 92.3 -11.4-11.4 88.5 80.8 57.7				10.9 23.5 358 41.3 2.2 -46. 26.3 -12.7-13.2 22.1 16.5 9.8		10°S
				1.8 9.5 335 31.8 1.0 -49. 5.7 -13.8-13.3 4.8 2.7 1.5		20°S
				0.0 0.0 1 0.0 0.0 -29. 100.0 0.0 .1 0.0 0.0 0.0	.5 3.7 307 11.6 1.9 -43. 3.9 -12.7-12.5 1.3 1.0 0.0	30°S
					13.2 26.9 47 62.1 4.5 -38. 21.3 -13.2-11.6 21.3 21.3 14.9	40°S

APPENDIX D

Autumn
10 to 15 kft
below tropopause

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					
50°N				6.0 15.4 24 36.1 5.5 -54. 16.7 -11.9-11.8 16.7 8.3 4.2	
40°N	29.3 32.3 10 46.4 4.3 -46. 63.2 -11.2-11.2 57.9 42.1 26.3		5.6 15.4 17 47.6 1.5 -49. 11.8 -12.2-11.8 11.8 11.8 0.0	6.9 17.0 187 27.0 3.3 -52. 25.7 -12.0-12.2 17.6 10.7 5.9	
30°N	0.0 0.0 56 0.0 0.0 0. 0.0 0.0-12.4 0.0 0.0 0.0		10.8 24.9 165 37.9 3.1 -49. 28.5 -12.3-12.8 19.4 15.2 10.3	7.0 18.5 116 28.8 1.0 -54. 24.1 -12.7-12.5 16.4 8.6 6.9	
20°N	5.1 17.5 13 33.1 3.0 -41. 15.4 -12.1-13.2 7.7 7.7 7.7	0.0 0.0 27 0.0 0.0 0. 0.0 0.0-13.4 0.0 0.0 0.0	4.2 12.4 19 19.9 2.0 -52. 21.1 -12.9-13.4 10.5 5.3 5.3		
10°N		17.7 32.2 44 64.8 3.7 -37. 27.3 -13.6-13.6 27.3 22.7 18.2	0.0 0.0 15 0.0 0.0 0. 0.0 0.0-13.0 0.0 0.0 0.0	0.0 0.0 2 0.0 0.0 0. 0.0 0.0-14.5 0.0 0.0 0.0	
0°		27.4 32.3 43 45.3 5.0 -35. 60.5 -12.8-13.5 48.8 39.5 25.6	.4 1.4 11 4.7 1.0 -32. 9.1 -13.4-12.8 0.0 0.0 0.0	16.5 26.5 52 35.8 4.1 -43. 46.2 -12.5-12.6 30.8 28.8 15.4	
10°S		25.9 25.1 19 37.8 3.6 -39. 68.4 -12.4-13.6 52.6 52.6 21.1	21.7 31.4 63 47.1 3.8 -36. 46.0 -12.5-12.2 38.1 33.3 22.2	2.3 10.2 62 17.5 2.5 -45. 12.9 -13.3-12.4 4.8 3.2 1.6	
20°S		6.6 15.2 19 25.3 3.4 -40. 26.3 -12.4-12.3 21.1 10.5 5.3	4.8 13.3 20 23.8 4.3 -42. 20.0 -14.8-14.5 10.0 10.0 5.0	4.7 15.6 65 27.7 2.7 -52. 16.9 -14.2-13.0 10.8 6.2 3.1	
30°S		0.0 0.0 1 0.0 0.0 0. 0.0 0.0-13.2 0.0 0.0 0.0	0.0 0.0 27 0.0 0.0 0. 0.0 0.0-13.6 0.0 0.0 0.0	7.8 23.8 61 59.1 5.3 -50. 13.1 -14.1-12.7 9.8 9.8 8.2	
40°S			.5 1.4 9 4.3 2.0 -40. 11.1 -14.8-12.5 0.0 0.0 0.0	31.5 39.4 15 78.8 4.8 -45. 40.0 -13.0-11.8 40.0 40.0 40.0	

APPENDIX D

Autumn
10 to 15 kft
below tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
						70°N
0.0 0.0 1 0.0 0.0 0. 0.0 0.0-10.6 0.0 0.0 0.0		0.0 0.0 14 0.0 0.0 0. 0.0 0.0-11.3 0.0 0.0 0.0	2.5 7.7 25 12.3 .4 -37. 20.0 -12.0-11.8 8.0 4.0 0.0		3.2 10.9 64 22.9 2.7 -45. 14.1 -11.9-11.6 9.4 4.7 1.6	60°N
1.8 12.0 42 84.3 0.0 -55. 2.1 -10.2-12.1 2.1 2.1 2.1	10.4 24.9 38 39.6 1.9 -49. 26.3 -12.3-12.0 18.4 13.2 7.9	.2 2.6 114 14.1 .5 -45. 1.8 -12.0-12.1 .9 .9 0.0	0.0 0.0 20 0.0 0.0 0. 0.0 0.0-11.2 0.0 0.0 0.0		5.5 16.9 443 32.8 3.1 -50. 16.9 -11.9-12.1 12.4 8.4 4.5	50°N
6.2 19.0 141 35.1 1.5 -48. 17.7 -12.3-12.8 12.8 9.2 5.7	.9 4.2 22 20.0 1.0 -44. 4.5 -11.8-12.1 4.5 0.0 0.0	0.0 0.0 1 0.0 0.0 0. 0.0 0.0-12.3 0.0 0.0 0.0			7.0 19.9 501 34.5 2.1 -50. 20.2 -12.4-12.6 14.0 9.6 6.6	40°N
6.0 18.0 62 25.0 3.4 -56. 24.2 -12.2-12.6 11.3 9.7 4.8	0.0 0.0 19 0.0 0.0 0. 0.0 0.0-12.5 0.0 0.0 0.0		0.0 0.0 2 0.0 0.0 0. 0.0 0.0-14.1 0.0 0.0 0.0		3.7 14.1 142 24.8 3.1 -54. 14.8 -12.3-12.9 7.0 5.6 3.5	30°N
13.6 25.4 52 35.3 2.5 -56. 38.5 -13.1-12.7 28.8 19.2 11.5	0.0 0.0 21 0.0 0.0 0. 0.0 0.0-12.9 0.0 0.0 0.0	0.0 0.0 8 0.0 0.0 0. 0.0 0.0-13.5 0.0 0.0 0.0	.8 1.8 6 4.7 2.0 -56. 16.7 -14.5-14.3 0.0 0.0 0.0		10.1 24.3 148 45.1 2.9 -49. 22.3 -13.3-13.2 18.2 13.5 9.5	20°N
.0 .1 35 .4 1.0 -53. 5.7 -12.5-11.3 0.0 0.0 0.0	0.0 0.0 10 0.0 0.0 0. 0.0 0.0-11.2 0.0 0.0 0.0	0.0 0.0 18 0.0 0.0 0. 0.0 0.0-11.2 0.0 0.0 0.0	22.7 22.4 5 37.8 5.3 -55. 60.0 -12.1-10.9 60.0 40.0 20.0		12.4 24.7 174 38.5 4.4 -40. 32.2 -12.6-12.0 23.0 19.5 11.5	10°N
.8 3.9 44 11.8 2.0 -57. 6.8 -11.0-10.6 2.3 2.3 0.0		0.0 0.0 39 0.0 0.0 0. 0.0 0.0-11.8 0.0 0.0 0.0	0.0 0.0 6 0.0 0.0 0. 0.0 0.0-11.7 0.0 0.0 0.0		8.7 21.4 233 38.4 3.4 -39. 22.7 -12.5-11.8 16.3 14.6 8.2	0°
		0.0 0.0 40 0.0 0.0 0. 0.0 0.0-12.4 0.0 0.0 0.0	0.0 0.0 2 0.0 0.0 0. 0.0 0.0-11.9 0.0 0.0 0.0		3.6 12.9 146 26.3 3.2 -47. 13.7 -13.9-12.9 8.9 5.5 2.7	10°S
		0.0 0.0 11 0.0 0.0 0. 0.0 0.0-13.9 0.0 0.0 0.0	0.0 0.0 4 0.0 0.0 0. 0.0 0.0-11.2 0.0 0.0 0.0		4.5 18.6 104 59.1 5.3 -50. 7.7 -14.1-13.1 5.8 5.8 4.8	20°S
					19.9 34.6 24 68.2 4.4 -44. 29.2 -13.3-12.1 25.0 25.0 25.0	30°S
						40°S

APPENDIX D

Winter
5 to 10 kft
below tropopause

CODE:	\overline{TIC} , %	SIGMA(TIC), %	N
	\overline{TICIC} , %	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					
50°N	14.2 29.4 75 50.6 3.7 -50. 28.0 -6.7 -6.9 21.3 17.3 16.0				
40°N	17.9 30.4 180 51.9 4.2 -47. 34.4 -7.5 -7.4 30.0 24.4 17.8		0.0 0.0 7 0.0 0.0 0. 0.0 0.0 -6.2 0.0 0.0 0.0		
30°N	14.5 29.4 23 66.9 4.2 -45. 21.7 -7.9 -8.1 21.7 21.7 13.0	13.4 23.9 48 40.1 3.9 -56. 33.3 -7.7 -7.6 31.3 20.8 10.4	0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -8.7 0.0 0.0 0.0		
20°N		0.0 0.0 8 0.0 0.0 0. 0.0 0.0 -7.7 0.0 0.0 0.0	1.6 5.3 32 8.4 2.8 -55. 18.8 -8.4 -6.3 3.1 3.1 0.0		
10°N		0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -7.1 0.0 0.0 0.0	0.0 0.0 7 0.0 0.0 0. 0.0 0.0 -6.8 0.0 0.0 0.0	14.1 28.3 22 59.2 1.3 -64. 27.3 -7.9 -9.2 27.3 27.3 18.2	
0°				24.0 28.8 83 40.6 1.8 -61. 59.0 -8.7 -9.3 51.8 38.6 20.5	
10°S				22.1 30.2 107 38.8 1.9 -62. 57.0 -8.8 -8.8 44.9 32.7 16.8	
20°S	14.1 14.1 ? 28.2 3.0 -11. 50.0 -9.3 -7.5 50.0 50.0 0.0			3.0 12.5 70 23.7 2.4 -60. 12.9 -9.4 -8.2 5.7 4.3 2.9	
30°S			3.5 15.0 104 52.2 5.1 -50. 6.7 -7.8 -8.0 6.7 5.8 3.8	5.7 19.0 210 37.3 3.5 -48. 15.2 -7.3 -7.2 9.5 7.6 5.2	
40°S					

APPENDIX D

Winter
5 to 10 kft
below tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
						70°N
		66.2 42.0 7	16.3 28.8 72		20.7 33.4 79	60°N
		92.7 1.8 -65.	46.9 3.1 -57.		54.5 2.9 -58.	
		71.4 -6.1 -5.4	34.7 -7.0 -6.8		38.0 -6.9 -6.7	
		71.4 71.4 71.4	26.4 25.0 13.9		30.4 29.1 19.0	
16.7 26.2 17	21.0 29.9 36	48.8 41.4 58	33.5 41.3 37		27.7 37.6 223	50°N
31.6 2.1 -46.	47.2 2.6 -45.	72.5 2.7 -59.	77.4 3.2 -55.		61.1 2.9 -53.	
52.9 -6.9 -7.6	44.4 -6.5 -6.7	67.2 -7.1 -7.7	43.2 -7.3 -6.7		45.3 -6.9 -7.0	
35.3 23.5 17.6	41.7 10.6 19.4	63.8 62.1 51.7	40.5 40.5 40.5		39.9 35.4 30.0	
12.4 27.3 34.5	19.1 10.9 129				15.1 29.0 661	40°N
48.6 3.1 -53.	53.5 2.3 -52.				50.8 3.3 -51.	
25.5 -7.4 -7.4	35.7 -7.3 -7.0				29.7 -7.4 -7.3	
20.6 16.2 12.5	31.8 27.9 20.2				25.1 20.6 15.3	
4.9 15.5 40.0					6.2 17.7 474	30°N
29.5 3.0 -56.					33.6 3.3 -55.	
16.5 -7.8 -7.9					18.4 -7.8 -7.9	
12.0 6.8 3.0					14.3 8.9 4.2	
4.2 12.3 7.3					3.2 10.4 113	20°N
22.1 2.6 -58.					18.0 2.7 -57.	
19.2 -9.0 -9.3					17.7 -8.8 -8.3	
13.7 5.5 1.4					9.7 4.4 .9	
16.6 29.4 29					14.0 27.3 60	10°N
53.6 3.9 -61.					55.8 2.9 -62.	
31.0 -9.1 -9.6					25.0 -8.6 -8.9	
27.6 27.6 17.2					23.3 23.3 15.0	
19.0 22.7 14					23.3 28.1 97	0°
29.6 1.8 -59.					38.9 1.8 -60.	
64.3 -9.1 -9.5					59.8 -8.7 -9.3	
42.9 42.9 14.3					50.5 39.2 19.6	
28.5 32.9 106					25.3 31.7 213	10°S
43.1 2.3 -64.					41.1 2.1 -63.	
66.0 -8.1 -8.5					61.5 -8.5 -8.7	
54.7 41.5 26.4					49.8 37.1 21.6	
					3.4 12.7 72	20°S
					24.2 2.5 -56.	
					13.9 -9.4 -8.2	
					6.9 5.6 2.8	
					5.0 17.8 314	30°S
					40.0 3.8 -48.	
					12.4 -7.4 -7.5	
					8.6 7.0 4.8	40°S

APPENDIX D

Spring
5 to 10 kft
below tropopause

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					
50°N	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 -7.0 0.0 0.0 0.0		26.7 26.8 7 26.7 3.6 -50. 100.0 -7.8 0.0 71.4 28.6 14.3	31.2 38.0 86 51.6 2.0 -56. 60.5 -6.9 -6.6 45.3 40.7 32.6	
40°N	.9 3.2 3.2 7.5 3.0 -55. 12.5 -6.6 -7.2 3.1 0.0 0.0	0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -8.7 0.0 0.0 0.0	21.1 31.3 86 40.2 2.5 -53. 52.3 -7.7 -7.4 38.4 31.4 17.4	8.6 23.2 15 32.3 1.3 -61. 26.7 -6.0 -6.8 20.0 6.7 6.7	
30°N		2.5 8.8 44 27.0 4.8 -51. 9.1 -8.1 -8.0 6.8 6.8 0.0	4.4 15.1 19 28.1 4.0 -51. 15.8 -9.6 -7.8 10.5 5.3 5.3	.1 .1 12 .4 1.0 -53. 16.7 -9.2 -9.0 0.0 0.0 0.0	
20°N		0.0 0.0 12 0.0 0.0 0. 0.0 0.0 -8.7 0.0 0.0 0.0	.3 .6 10 1.4 2.5 -55. 20.0 -8.3 -9.4 0.0 0.0 0.0		
10°N		0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -9.8 0.0 0.0 0.0		9.3 22.2 19 25.3 2.3 -60. 36.8 -9.5 -9.5 15.8 10.5 10.5	
0°				11.4 22.5 46 29.1 1.9 -62. 39.1 -9.0 -9.6 26.1 17.4 8.7	
10°S				0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -9.9 0.0 0.0 0.0	
20°S				0.0 0.0 13 0.0 0.0 0. 0.0 0.0 -7.2 0.0 0.0 0.0	
30°S				3.5 8.3 26 15.0 4.2 -61. 23.1 -7.3 -7.2 15.4 3.8 0.0	
40°S					

APPENDIX D

Spring
5 to 10 kft
below tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
						70°N
84.1 11.4 7 84.1 4.3 -53. 100.0 -8.3 0.0 100.0 100.0 100.0	6.8 13.6 44 25.0 3.3 -55. 27.3 -6.9 -6.0 20.5 13.6 0.0	17.1 31.5 27 65.9 2.1 -55. 25.9 -6.0 -6.8 25.9 22.2 22.2	4.5 15.8 93 26.4 3.7 -45. 17.2 -6.5 -6.8 10.8 6.5 3.2		8.6 21.8 167 37.8 3.3 -50. 22.8 -6.7 -6.6 17.4 12.6 7.2	60°N
16.9 26.0 88 32.3 3.7 -58. 52.3 -6.9 -6.7 35.2 27.3 12.5	15.3 28.5 306 44.7 2.2 -44. 34.3 -7.6 -7.2 26.8 22.9 14.1	9.8 24.5 85 41.7 1.5 -51. 23.5 -7.2 -7.0 16.5 11.8 10.6	.3 .9 23 3.1 1.0 -49. 8.7 -7.5 -7.8 0.0 0.0 0.0		16.4 29.4 603 42.6 2.4 -50. 38.5 -7.3 -7.1 28.4 23.4 15.3	50°N
3.9 14.0 59 23.6 2.6 -54. 16.6 -6.9 -7.1 9.2 5.7 3.2	9.5 22.5 152 39.1 3.3 -47. 24.3 -7.2 -7.2 19.1 13.8 9.2	5.5 13.5 32 25.2 2.4 -64. 21.9 -7.3 -7.7 15.6 12.5 3.1			6.5 18.6 916 30.2 2.7 -53. 21.4 -7.1 -7.1 13.8 9.5 5.5	40°N
4.1 13.7 58 25.7 2.1 -56. 16.1 -8.0 -8.0 9.8 7.0 3.1	.4 1.6 24 4.7 2.5 -62. 8.3 -6.2 -8.7 0.0 0.0 0.0	2.7 8.6 27 18.5 1.5 -64. 14.8 -7.2 -8.4 11.1 3.7 0.0			3.8 13.0 710 24.7 2.2 -56. 15.4 -8.0 -8.0 9.2 6.5 2.7	30°N
41.9 41.4 12 71.9 .3 -66. 58.3 -8.6 -8.5 58.3 50.0 41.7	.3 .9 16 2.7 1.0 -51. 12.5 -10.0 -9.5 0.0 0.0 0.0	0.0 0.0 4 0.0 0.0 0. 0.0 0.0 -8.6 0.0 0.0 0.0			9.5 26.1 54 46.5 .8 -61. 20.4 -8.8 -9.1 13.0 11.1 9.3	20°N
25.2 37.3 14 50.3 2.9 -60. 50.0 -9.4 -9.3 35.7 28.6 21.4		23.3 32.6 24 43.0 1.8 -56. 54.2 -9.9 -10.0 37.5 37.5 25.0			18.8 31.5 58 40.3 2.2 -58. 46.6 -9.7 -9.6 29.3 25.9 19.0	10°N
		59.7 26.8 12 59.7 3.2 -60. 100.0 -8.9 0.0 100.0 83.3 66.7			21.4 30.6 58 41.3 2.4 -61. 51.7 -8.9 -9.6 41.4 31.0 20.7	0°
					0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -9.9 0.0 0.0 0.0	10°S
		0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -8.0 0.0 0.0 0.0			0.0 0.0 14 0.0 0.0 0. 0.0 0.0 -7.2 0.0 0.0 0.0	20°S
					3.5 8.3 26 15.0 4.2 -61. 23.1 -7.3 -7.2 15.4 3.8 0.0	30°S
						40°S

APPENDIX D

Summer
5 to 10 kft
below tropopause

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N				17.3 17.3 2 34.5 0.0 -51. 50.0 -6.3 -9.0 50.0 50.0 0.0	
50°N	3.2 14.2 4.0 26.3 3.0 -45. 12.2 -5.9 -7.4 4.1 4.1 4.1		5.9 17.9 58 42.7 2.9 -64. 13.8 -7.7 -7.2 10.3 10.3 8.6	13.7 26.2 181 36.0 2.2 -54. 38.1 -7.2 -7.2 26.5 18.8 13.3	
40°N	0.0 0.0 1.0 0.0 0.0 0. 0.0 0.0 -8.2 0.0 0.0 0.0		6.8 19.3 67 30.5 2.2 -52. 22.4 -8.8 -7.9 13.4 9.0 6.0	5.6 13.9 26 36.1 0.0 -54. 15.4 -7.2 -7.6 15.4 11.5 0.0	
30°N					
20°N		0.0 0.0 4 0.0 0.0 0. 0.0 0.0 -7.9 0.0 0.0 0.0			
10°N				27.5 24.5 4 36.7 0.0 -61. 75.0 -10.0 -9.9 50.0 50.0 25.0	
0°					
10°S			0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -9.3 0.0 0.0 0.0		
20°S			.1 .6 54 4.3 2.0 -51. 1.9 -8.7 -8.2 0.0 0.0 0.0	3.6 9.3 15 17.8 3.3 -48. 20.0 -7.8 -8.5 13.3 6.7 0.0	
30°S			.9 4.4 107 16.5 4.2 -45. 5.6 -7.0 -7.3 3.7 .9 0.0	.5 2.1 36 6.3 1.0 -40. 8.3 -7.1 -7.1 2.8 0.0 0.0	
40°S					

APPENDIX D

Summer
5 to 10 kft
below tropopause

CODE:

$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
$\overline{\text{TICIC}}, \%$	PATCHES	$T(\text{CLD}), ^\circ\text{C}$
$P(\text{TIC} > 0), \%$	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
$P(\text{TIC} \geq 10\%), \%$	$P(\text{TIC} \geq 25\%), \%$	$P(\text{TIC} \geq 50\%), \%$

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
						70°N
0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -7.0 0.0 0.0 0.0	7.2 14.5 26 20.7 2.6 -49. 34.6 -7.6 -7.0 23.1 11.5 3.8		8.2 20.1 61 28.0 2.1 -44. 29.5 -6.9 -6.9 14.8 11.5 6.6		7.9 18.4 92 25.9 2.1 -46. 30.4 -7.1 -7.0 17.4 12.0 5.4	60°N
7.3 15.3 140 21.6 2.9 -58. 33.6 -7.3 -7.4 20.7 14.3 2.1	5.9 17.2 169 29.2 .9 -56. 20.1 -7.5 -8.1 12.4 8.9 5.9	8.0 20.9 42 42.1 .4 -50. 19.0 -9.0 -7.8 11.9 11.9 11.9	4.3 13.6 22 31.9 1.7 -40. 13.6 -7.7 -7.1 9.1 9.1 4.5		8.2 20.1 661 31.0 2.1 -55. 26.5 -7.4 -7.6 17.1 12.7 7.6	50°N
2.5 11.4 91 20.7 1.3 -53. 12.1 -7.9 -7.6 5.5 3.3 2.7	2.9 7.6 18 17.1 0.0 -55. 16.7 -6.3 -8.1 11.1 5.6 0.0				4.0 14.1 221 26.7 1.4 -53. 14.9 -8.1 -7.8 9.0 5.9 2.7	40°N
0.0 0.0 30 0.0 0.0 0. 0.0 0.0 -7.6 0.0 0.0 0.0					0.0 0.0 30 0.0 0.0 0. 0.0 0.0 -7.6 0.0 0.0 0.0	30°N
1.3 4.9 16 20.4 0.0 -66. 6.3 -7.8 -8.4 6.3 0.0 0.0					1.0 4.4 20 20.4 0.0 -66. 5.0 -7.8 -8.3 5.0 0.0 0.0	20°N
45.0 41.4 11 61.9 0.0 -61. 72.7 -9.6 -9.7 54.5 54.5 45.5					40.3 38.4 15 55.0 0.0 -61. 73.3 -9.7 -9.8 53.3 53.3 40.0	10°N
						0°
						10°S
					0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -9.3 0.0 0.0 0.0	20°S
					.8 4.6 69 14.4 3.0 -49. 5.8 -8.0 -8.3 2.9 1.4 0.0	30°S
					.8 3.9 143 13.1 3.1 -43. 6.3 -7.0 -7.2 3.5 .7 0.0	40°S

APPENDIX D

Autumn
5 to 10 kft
below tropopause

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					4.4 15.6 48 30.0 2.7 -52. 14.6 -6.9 -6.9 8.3 6.3 6.3
50°N	10.2 20.3 77 28.3 2.5 -47. 36.1 -8.4 -8.1 27.8 18.1 5.6		9.2 15.7 28 28.5 2.3 -62. 32.1 -7.6 -7.9 28.6 17.9 3.6		6.6 16.8 267 24.5 2.8 -54. 27.0 -8.2 -8.0 15.0 9.7 5.2
40°N	3.2 15.5 92 73.1 3.3 -54. 4.3 -7.9 -7.5 4.3 4.3 3.3		3.6 14.5 97 34.8 2.4 -54. 10.3 -8.6 -7.8 6.2 5.2 4.1		3.3 12.6 80 37.7 6.7 -54. 8.8 -8.8 -8.8 7.5 6.3 3.8
30°N	17.5 35.0 5 87.5 8.0 -47. 20.0 -9.9 -9.7 20.0 20.0 20.0		0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -7.5 0.0 0.0 0.0		
20°N					
10°N					
0°					
10°S					0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -9.6 0.0 0.0 0.0
20°S			0.0 0.0 6 0.0 0.0 0. 0.0 0.0 -7.5 0.0 0.0 0.0		0.0 0.0 26 0.0 0.0 0. 0.0 0.0 -8.2 0.0 0.0 0.0
30°S	0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -9.6 0.0 0.0 0.0		0.0 0.0 24 0.0 0.0 0. 0.0 0.0 -7.2 0.0 0.0 0.0		5.4 17.9 42 45.6 3.6 -48. 11.9 -7.8 -7.6 9.5 7.1 7.1
40°S					

APPENDIX D

Autumn
5 to 10 kft
below tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC \geq 10%), %	P(TIC \geq 25%), %	P(TIC \geq 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
		0.0 0.0 1	88.8 6.2 6		76.1 31.6 7	70°N
		0.0 0.0 0.	88.8 0.0 -47.		88.8 0.0 -47.	
		0.0 0.0 -5.8	100.0 -6.3 0.0		85.7 -6.3 -5.8	
		0.0 0.0 0.0	100.0 100.0 100.0		85.7 85.7 85.7	60°N
1.0 2.9 10	0.0 0.0 3	4.2 16.5 82	7.4 22.2 172		5.8 19.5 315	
9.8 1.0 -64.	0.0 0.0 0.	48.6 0.0 -45.	55.1 1.3 -41.		48.1 1.3 -44.	
10.0 -7.0 -8.0	0.0 0.0 -5.2	8.5 -7.4 -7.3	13.4 -8.2 -6.7		12.1 -7.8 -6.9	
0.0 0.0 0.0	0.0 0.0 0.0	8.5 4.9 3.7	11.6 9.3 7.0		9.8 7.3 5.7	50°N
8.3 21.2 145	7.2 17.7 122	4.4 17.2 245	7.2 19.0 68		6.7 18.2 947	
32.6 .6 -56.	36.5 4.5 -55.	53.3 .9 -52.	28.7 1.9 -51.		31.2 2.3 -54.	
25.5 -8.0 -7.4	19.7 -7.4 -7.4	8.2 -7.9 -7.5	25.0 -7.7 -7.1		21.6 -8.0 -7.6	
15.2 11.7 8.3	16.4 13.1 5.7	6.9 6.5 4.5	14.7 11.8 5.9		14.5 10.7 5.6	40°N
.2 1.2 127	2.0 6.5 23		0.0 0.0 3		2.3 11.7 422	
3.6 1.8 -46.	15.2 4.3 -41.		0.0 0.0 0.		30.6 3.5 -51.	
6.3 -7.9 -7.7	13.0 -7.0 -7.4		0.0 0.0 -7.7		7.6 -8.2 -7.9	
.8 0.0 0.0	8.7 4.3 0.0		0.0 0.0 0.0		4.5 3.6 2.4	30°N
0.0 0.0 12	0.0 0.0 4				4.0 18.2 22	
0.0 0.0 0.	0.0 0.0 0.				87.5 8.0 -47.	
0.0 0.0 -8.2	0.0 0.0 -9.5				4.5 -9.9 -8.7	
0.0 0.0 0.0	0.0 0.0 0.0				4.5 4.5 4.5	20°N
	0.0 0.0 1				0.0 0.0 1	
	0.0 0.0 0.				0.0 0.0 0.	
	0.0 0.0 -10.0				0.0 0.0 -10.0	
	0.0 0.0 0.0				0.0 0.0 0.0	10°N
2.4 10.2 19	0.0 0.0 1				2.3 10.0 20	
45.9 2.0 -59.	0.0 0.0 0.				45.9 2.0 -59.	
5.3 -8.8 -9.4	0.0 0.0 -10.0				5.0 -8.8 -9.4	
5.3 5.3 0.0	0.0 0.0 0.0				5.0 5.0 0.0	0°
33.3 47.1 3					33.3 47.1 3	
100.0 1.0 -60.					100.0 1.0 -60.	
33.3 -9.3 -9.5					33.3 -9.3 -9.5	
33.3 33.3 33.3					33.3 33.3 33.3	10°S
			0.0 0.0 3		0.0 0.0 6	
			0.0 0.0 0.		0.0 0.0 0.	
			0.0 0.0 -9.9		0.0 0.0 -9.8	
			0.0 0.0 0.0		0.0 0.0 0.0	20°S
					0.0 0.0 32	
					0.0 0.0 0.	
					0.0 0.0 -8.1	
					0.0 0.0 0.0	30°S
					3.4 14.3 68	
					45.6 3.6 -48.	
					7.4 -7.8 -7.5	
					5.9 4.4 4.4	40°S

APPENDIX D

Winter
0 to 5 kft
below tropopause

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	$T(\text{CLD}), ^\circ\text{C}$
	$P(\text{TIC} > 0), \%$	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	$P(\text{TIC} \geq 10\%), \%$	$P(\text{TIC} \geq 25\%), \%$	$P(\text{TIC} \geq 50\%), \%$

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N					
50°N	16.3 30.0 160 46.6 2.5 -61. 35.0 -2.9 -2.5 27.5 21.3 18.1				
40°N	7.0 21.1 199 44.7 3.1 -54. 15.6 -3.7 -2.7 12.6 8.5 7.5		0.0 0.0 11 0.0 0.0 0. 0.0 0.0 -3.1 0.0 0.0 0.0	0.0 0.0 7 0.0 0.0 0. 0.0 0.0 -3.5 0.0 0.0 0.0	
30°N	0.0 0.0 6 0.0 0.0 0. 0.0 0.0 -1.7 0.0 0.0 0.0	0.0 0.0 6 0.0 0.0 0. 0.0 0.0 -3.9 0.0 0.0 0.0			
20°N					
10°N					
0°					
10°S					
20°S				0.0 0.0 21 0.0 0.0 0. 0.0 0.0 -2.9 0.0 0.0 0.0	
30°S			.6 3.8 38 23.9 10.0 -59. 2.6 -3.0 -4.0 2.6 0.0 0.0	1.8 7.5 178 18.4 2.4 -53. 9.6 -3.3 -3.0 6.7 2.2 1.1	
40°S					

APPENDIX D

Winter
0 to 5 kft
below tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
						70°N
0.0 0.0 7 0.0 0.0 0. 0.0 0.0 -7 0.0 0.0 0.0		0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -6 0.0 0.0 0.0	0.0 0.0 17 0.0 0.0 0. 0.0 0.0 -1.9 0.0 0.0 0.0		0.0 0.0 21 0.0 0.0 0. 0.0 0.0 -1.7 0.0 0.0 0.0	
0.0 0.0 11 0.0 0.0 0. 0.0 0.0 -5 0.0 0.0 0.0	3.0 13.4 28 27.7 .3 -54. 10.7 -2.4 -1.6 7.1 3.6 3.6	34.5 39.2 47 60.0 3.5 -64. 57.4 -3.2 -2.4 51.1 42.6 34.0	20.0 33.3 93 51.5 2.5 -63. 38.7 -3.1 -2.5 31.2 25.8 20.4		19.9 33.6 179 53.9 2.8 -63. 36.9 -3.1 -2.1 30.7 25.1 20.1	60°N
5.4 12.7 37 33.6 0.0 -60. 16.2 -2.9 -2.0 16.2 16.2 0.0	7.0 18.2 97 21.1 2.1 -60. 33.0 -2.8 -1.8 14.4 10.3 6.2	34.2 39.6 92 64.2 2.5 -65. 53.3 -3.0 -2.2 46.7 43.5 37.0	18.8 33.7 107 59.3 2.2 -64. 31.8 -2.8 -2.9 26.2 23.4 20.6		17.5 31.5 493 48.9 2.3 -62. 35.9 -2.9 -2.4 27.4 23.3 18.5	50°N
9.4 23.8 42.0 40.9 2.6 -58. 22.8 -3.3 -2.5 16.1 12.6 9.1	9.7 25.1 210 49.8 2.6 -59. 19.5 -3.3 -2.5 15.2 13.3 9.5		0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -2.7 0.0 0.0 0.0		8.7 23.3 858 43.8 2.7 -57. 19.8 -3.4 -2.6 14.7 11.5 8.6	40°N
6.6 20.8 18.3 50.5 2.9 -56. 13.1 -3.4 -3.1 10.4 8.7 7.1					6.2 20.2 195 50.5 2.9 -56. 12.3 -3.4 -3.0 9.7 8.2 6.7	30°N
0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -3.1 0.0 0.0 0.0					0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -3.1 0.0 0.0 0.0	20°N
						10°N
						0°
						10°S
						20°S
					0.0 0.0 21 0.0 0.0 0. 0.0 0.0 -2.9 0.0 0.0 0.0	30°S
					1.6 7.0 216 18.7 2.8 -53. 8.3 -3.3 -3.2 6.0 1.9 .9	40°S

APPENDIX D

Spring
0 to 5 kft
below tropopause

	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
CODE:	$\overline{\text{TICIC}}, \%$	PATCHES	$T(\text{CLD}), ^\circ\text{C}$
	$P(\text{TIC} > 0), \%$	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	$P(\text{TIC} \geq 10\%), \%$	$P(\text{TIC} \geq 25\%), \%$	$P(\text{TIC} \geq 50\%), \%$

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N				19.8 27.5 44 43.5 3.3 -62. 45.5 -1.6 -1.6 40.9 34.1 20.5	
50°N	0.0 0.0 4 0.0 0.0 0. 0.0 0.0 -2.7 0.0 0.0 0.0		6.4 20.2 22 46.9 3.0 -55. 13.6 -3.5 -1.9 13.6 9.1 4.5	8.5 22.5 165 48.4 2.6 -63. 17.6 -2.4 -1.8 15.2 11.5 9.7	
40°N	9.7 24.6 57 38.8 3.8 -57. 25.0 -2.2 -2.7 17.3 13.5 7.7		19.7 34.3 87 51.9 1.5 -61. 37.9 -2.5 -2.3 29.9 25.3 19.5	3.5 15.6 42 48.6 .7 -63. 7.1 -2.2 -1.6 4.8 4.8 4.8	
30°N		0.0 0.0 16 0.0 0.0 0. 0.0 0.0 -3.3 0.0 0.0 0.0	0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -4.9 0.0 0.0 0.0		
20°N		0.0 0.0 7 0.0 0.0 0. 0.0 0.0 -3.7 0.0 0.0 0.0			
10°N					
0°					
10°S					
20°S				0.0 0.0 5 0.0 0.0 0. 0.0 0.0 -2.8 0.0 0.0 0.0	
30°S				0.0 0.0 35 0.0 0.0 0. 0.0 0.0 -2.7 0.0 0.0 0.0	
40°S					

APPENDIX D

Spring
0 to 5 kft
below tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
		.2 .5 9 1.6 3.0 -59. 11.1 -7 -4 0.0 0.0 0.0	0.0 0.0 4 0.0 0.0 0. 0.0 0.0 -2.4 0.0 0.0 0.0		.1 .4 13 1.6 3.0 -59. 7.7 -7 -1.1 0.0 0.0 0.0	80°N
	0.0 0.0 6 0.0 0.0 0. 0.0 0.0 -2.6 0.0 0.0 0.0	0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -2 0.0 0.0 0.0	24.7 37.2 28 69.2 3.4 -57. 35.7 -3.0 -2.5 32.1 32.1 28.6		19.8 34.7 35 69.2 3.4 -57. 28.6 -3.0 -2.4 25.7 25.7 22.9	70°N
6.5 17.8 59 27.5 3.2 -63. 23.7 -2.1 -1.0 11.9 10.2 5.1	4.4 14.8 116 20.6 2.2 -60. 21.6 -3.2 -2.0 8.6 6.9 3.4	3.5 14.7 54 37.6 2.2 -55. 9.3 -3.7 -2.3 5.6 5.6 3.7	5.5 18.2 168 29.9 3.2 -59. 18.5 -3.3 -2.2 10.7 7.1 4.8		6.5 18.7 441 30.4 2.9 -60. 21.5 -2.8 -2.0 12.7 10.0 5.9	60°N
3.6 13.5 239 21.3 2.6 -61. 17.2 -3.2 -2.0 8.8 5.0 2.5	8.0 20.6 617 37.1 2.3 -61. 21.6 -2.8 -2.2 16.7 12.0 7.3	6.9 21.9 156 41.7 3.3 -60. 16.7 -3.0 -2.5 11.5 8.3 7.1	13.2 24.1 24 31.6 2.5 -61. 41.7 -3.2 -2.2 29.2 20.8 8.3		7.1 20.0 1227 36.2 2.5 -61. 19.7 -2.9 -2.1 14.4 10.2 6.6	50°N
2.5 10.6 529 19.7 2.1 -61. 12.9 -2.9 -2.9 5.9 4.2 1.5	9.6 23.6 419 42.7 2.3 -62. 22.4 -3.0 -2.2 17.7 13.8 8.8	11.4 29.6 24 68.3 .5 -68. 16.7 -3.5 -2.3 12.5 12.5 12.5			6.9 20.5 1153 37.2 2.1 -61. 18.6 -2.9 -2.5 12.6 9.9 6.2	40°N
.9 6.0 195 15.4 3.5 -57. 6.2 -3.6 -2.9 2.1 1.5 1.0	0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -4.8 0.0 0.0 0.0	.1 .3 6 .8 1.0 -66. 16.7 -4.2 -2.4 0.0 0.0 0.0			.8 5.7 219 14.3 3.3 -58. 5.9 -3.7 -2.9 1.8 1.4 .9	30°N
0.0 0.0 1 0.0 0.0 0. 0.0 0.0 -4.7 0.0 0.0 0.0					0.0 0.0 8 0.0 0.0 0. 0.0 0.0 -3.8 0.0 0.0 0.0	20°N
						10°N
						0°
						10°S
					0.0 0.0 5 0.0 0.0 0. 0.0 0.0 -2.8 0.0 0.0 0.0	20°S
					0.0 0.0 35 0.0 0.0 0. 0.0 0.0 -2.7 0.0 0.0 0.0	30°S
						40°S

APPENDIX D

Summer
0 to 5 kft
below tropopause

	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
CODE:	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W	
80°N						
70°N				2.9 8.7 10 29.0 7.0 -58. 10.0 -4.4 -3.1 10.0 10.0 0.0		
60°N				1.1 4.1 47 6.5 0.0 -60. 17.0 -1.5 -1.5 4.3 0.0 0.0		
50°N	2.1 12.1 65 33.4 2.5 -47. 6.2 -3.8 -2.1 3.1 3.1 1.5		0.0 0.0 42 0.0 0.0 0. 0.0 0.0 -3.5 0.0 0.0 0.0	4.3 14.0 251 27.5 1.5 -58. 15.5 -2.7 -2.3 10.4 6.4 3.6		
40°N	0.0 0.0 4 0.0 0.0 0. 0.0 0.0 -3.5 0.0 0.0 0.0		.1 .7 25 3.5 0.0 -58. 4.0 -4.0 -3.6 0.0 0.0 0.0			
30°N						
20°N						
10°N						
0°						
10°S						
20°S			0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -1.6 0.0 0.0 0.0			
30°S			1.3 9.3 102 22.0 2.3 -54. 5.9 -2.6 -2.7 2.9 1.0 1.0	.3 1.5 50 6.3 6.0 -53. 4.0 -3.4 -2.5 2.0 0.0 0.0		
40°S						

APPENDIX D

Summer
0 to 5 kft
below tropopause

CODE:

$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
1.7 8.7 67 11.5 1.9 -61. 14.9 -1.7 -2.0 3.0 3.0 1.5	4.6 16.3 24 18.6 .2 -56. 25.0 -.6 -.7 12.5 4.2 4.2		0.0 0.0 15 0.0 0.0 0. 0.0 0.0 -2.0 0.0 0.0 0.0		2.2 10.4 116 15.0 1.6 -59. 14.7 -1.5 -1.9 5.2 3.4 1.7	70°N
5.8 15.4 68 21.8 1.0 -56. 26.5 -2.7 -1.9 11.8 8.8 1.5	4.3 14.6 128 25.9 2.1 -57. 16.4 -1.5 -1.7 8.6 6.3 3.9	0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -.3 0.0 0.0 0.0	4.1 14.2 89 28.1 2.8 -50. 14.6 -3.0 -2.4 7.9 6.7 2.2		4.0 13.7 335 22.6 1.6 -55. 17.9 -2.2 -1.9 8.4 6.0 2.4	60°N
6.3 16.7 195 33.1 2.7 -59. 19.0 -3.2 -2.6 14.9 9.7 4.1	14.5 25.7 159 41.2 .6 -59. 35.2 -2.1 -2.2 28.3 22.6 12.6	4.4 16.9 61 38.1 4.1 -57. 11.5 -2.6 -2.5 9.8 4.9 3.3	5.2 15.9 66 37.8 3.7 -49. 13.6 -3.1 -1.9 12.1 9.1 3.0		6.4 17.9 839 35.2 1.8 -58. 18.1 -2.6 -2.4 13.8 9.8 5.0	50°N
1.6 7.7 57 29.9 1.0 -54. 5.3 -3.2 -3.2 3.5 3.5 0.0	2.9 4.3 8 5.8 .8 -57. 50.0 -2.6 -1.7 12.5 0.0 0.0		0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -4.2 0.0 0.0 0.0		1.2 6.1 96 14.6 .8 -56. 8.3 -3.0 -3.3 3.1 2.1 0.0	40°N
0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -4.7 0.0 0.0 0.0					0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -4.7 0.0 0.0 0.0	30°N
						20°N
						10°N
						0°
						10°S
						20°S
					0.0 0.0 3 0.0 0.0 0. 0.0 0.0 -1.6 0.0 0.0 0.0	30°S
					.9 7.7 152 18.0 3.3 -54. 5.3 -2.8 -2.6 2.6 .7 .7	40°S

APPENDIX D

Autumn
0 to 5 kft
below tropopause

CODE:	$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N				0.0 0.0 2 0.0 0.0 0. 0.0 0.0 -1.0 0.0 0.0 0.0	
60°N				.4 2.3 83 7.7 2.0 -58. 4.8 -1.5 -2.4 1.2 0.0 0.0	
50°N	0.0 0.0 37 0.0 0.0 0. 0.0 0.0 -2.1 0.0 0.0 0.0		0.0 0.0 47 0.0 0.0 0. 0.0 0.0 -2.6 0.0 0.0 0.0	.4 2.4 293 7.5 2.3 -59. 5.5 -2.6 -2.6 1.0 0.0 0.0	
40°N	0.0 0.0 33 0.0 0.0 0. 0.0 0.0 -3.4 0.0 0.0 0.0		0.0 0.0 33 0.0 0.0 0. 0.0 0.0 -3.3 0.0 0.0 0.0	0.0 0.0 19 0.0 0.0 0. 0.0 0.0 -2.5 0.0 0.0 0.0	
30°N					
20°N					
10°N					
0°					
10°S					
20°S			0.0 0.0 9 0.0 0.0 0. 0.0 0.0 -3.0 0.0 0.0 0.0	0.0 0.0 5 0.0 0.0 0. 0.0 0.0 -1.9 0.0 0.0 0.0	
30°S	0.0 0.0 7 0.0 0.0 0. 0.0 0.0 -4.7 0.0 0.0 0.0		.0 .1 28 .8 1.0 -61. 3.6 -2.4 -2.3 0.0 0.0 0.0	.8 5.9 53 22.4 3.5 -58. 3.8 -3.1 -2.2 1.9 1.9 0.0	
40°S					

APPENDIX D

Autumn
0 to 5 kft
below tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
						80°N
						70°N
.7 2.9 34 12.2 5.5 -57. 5.9 -3.2 -1.1 5.9 0.0 0.0	.6 1.7 12 3.5 1.5 -64. 16.7 -.4 -1.3 0.0 0.0 0.0	1.6 3.5 6 9.4 0.0 -48. 16.7 -.9 -2.2 0.0 0.0 0.0	57.1 15.0 3 57.1 0.0 -48. 100.0 -3.0 0.0 100.0 100.0 66.7	3.7 13.3 57 26.5 1.8 -54. 14.0 -2.1 -1.3 8.8 5.3 3.5		
3.1 8.6 67 17.2 4.0 -66. 17.9 -1.9 -1.8 11.9 4.5 0.0	6.0 16.3 137 31.6 7.2 -56. 19.0 -2.6 -1.5 14.6 10.2 3.6	2.5 12.0 302 37.1 .1 -60. 6.6 -1.7 -2.0 5.0 4.0 2.3	4.8 15.8 446 29.1 1.0 -60. 16.4 -2.2 -2.8 10.8 6.7 4.0	3.8 13.8 1035 29.1 1.6 -60. 13.0 -2.1 -2.3 8.9 5.7 2.9		60°N
4.3 13.8 225 20.7 2.0 -64. 20.9 -2.6 -2.2 11.1 6.7 3.6	3.7 12.7 119 25.8 3.0 -57. 14.3 -3.7 -2.2 10.1 5.0 3.4	8.3 24.3 255 51.5 .3 -62. 16.1 -3.4 -2.5 12.2 10.6 8.2	1.2 6.2 48 19.5 1.0 -59. 6.3 -3.5 -3.4 4.2 2.1 0.0	3.6 14.9 1019 29.8 1.6 -61. 12.2 -3.0 -2.5 7.2 4.8 3.2		50°N
1.0 7.8 70 33.3 2.0 -52. 2.9 -4.4 -3.0 1.4 1.4 1.4	0.0 0.0 34 0.0 0.0 0. 0.0 0.0 -2.6 0.0 0.0 0.0			.4 4.8 189 33.3 2.0 -52. 1.1 -4.4 -3.0 .5 .5 .5		40°N
.1 .2 3 .4 1.0 -64. 33.3 -4.9 -1.5 0.0 0.0 0.0				.1 .2 3 .4 1.0 -64. 33.3 -4.9 -1.5 0.0 0.0 0.0		30°N
						20°N
						10°N
						0°
						10°S
						20°S
					0.0 0.0 14 0.0 0.0 0. 0.0 0.0 -2.6 0.0 0.0 0.0	30°S
					.5 4.7 83 15.2 2.7 -59. 3.6 -2.8 -2.3 1.2 1.2 0.0	40°S

APPENDIX D

Winter
0 to 5 kft
above tropopause

CODE:	\overline{TIC} , %	SIGMA(TIC), %	N
	\overline{TICIC} , %	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N				0.0 0.0 3 0.0 0.0 0. 0.0 0.0 4.7 0.0 0.0 0.0	
60°N				0.0 0.0 42 0.0 0.0 0. 0.0 0.0 4.0 0.0 0.0 0.0	
50°N	.5 2.9 3A 9.4 2.5 -62. 5.3 .7 .7 2.6 0.0 0.0			0.0 0.0 23 0.0 0.0 0. 0.0 0.0 4.3 0.0 0.0 0.0	
40°N	0.0 0.0 73 0.0 0.0 0. 0.0 0.0 1.3 0.0 0.0 0.0		0.0 0.0 10 0.0 0.0 0. 0.0 0.0 2.0 0.0 0.0 0.0	0.0 0.0 44 0.0 0.0 0. 0.0 0.0 2.8 0.0 0.0 0.0	
30°N	0.0 0.0 12 0.0 0.0 0. 0.0 0.0 1.6 0.0 0.0 0.0				
20°N					
10°N					
0°					
10°S					
20°S				0.0 0.0 2 0.0 0.0 0. 0.0 0.0 1.0 0.0 0.0 0.0	
30°S				0.0 0.0 68 0.0 0.0 0. 0.0 0.0 2.3 0.0 0.0 0.0	
40°S					

APPENDIX D

Winter
0 to 5 kft
above tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
		0.0 0.0 6 0.0 0.0 0. 0.0 0.0 2.6 0.0 0.0 0.0			0.0 0.0 6 0.0 0.0 0. 0.0 0.0 2.6 0.0 0.0 0.0	80°N
0.0 0.0 34 0.0 0.0 0. 0.0 0.0 3.5 0.0 0.0 0.0	0.0 0.0 41 0.0 0.0 0. 0.0 0.0 3.6 0.0 0.0 0.0	0.0 0.0 76 0.0 0.0 0. 0.0 0.0 2.1 0.0 0.0 0.0	1.3 4.5 14 17.6 0.0 -56. 7.1 .5 .8 7.1 0.0 0.0		.1 1.4 168 17.6 0.0 -56. .6 .5 2.7 .6 0.0 0.0	70°N
0.0 0.0 47 0.0 0.0 0. 0.0 0.0 2.5 0.0 0.0 0.0	.3 3.1 97 30.6 0.0 -55. 1.0 0.0 2.7 1.0 1.0 0.0	1.5 6.1 57 14.1 1.3 -60. 10.5 .4 2.2 5.3 1.8 0.0	.4 2.9 119 21.8 .5 -59. 1.7 2.6 2.0 1.7 .8 0.0		.4 3.4 362 17.6 1.0 -59. 2.5 .8 2.5 1.7 .8 0.0	60°N
6.7 20.4 56 37.5 1.9 -63. 17.9 1.8 1.5 12.5 8.9 5.4	1.2 7.7 254 27.4 2.6 -66. 4.3 1.7 2.5 2.4 2.4 .8	.9 8.6 91 82.7 9.0 -59. 1.1 .2 2.3 1.1 1.1 1.1	2.4 11.8 97 46.2 2.2 -63. 5.2 .9 1.8 5.2 3.1 2.1		1.8 10.4 559 34.8 2.5 -64. 5.2 1.5 2.2 3.6 2.7 1.4	50°N
0.0 0.0 18A 0.0 0.0 0. 0.0 0.0 2.2 0.0 0.0 0.0	0.0 0.0 219 0.0 0.0 0. 0.0 0.0 2.3 0.0 0.0 0.0				0.0 0.0 534 0.0 0.0 0. 0.0 0.0 2.2 0.0 0.0 0.0	40°N
0.0 0.0 55 0.0 0.0 0. 0.0 0.0 1.8 0.0 0.0 0.0					0.0 0.0 67 0.0 0.0 0. 0.0 0.0 1.7 0.0 0.0 0.0	30°N
						20°N
						10°N
						0°
						10°S
						20°S
					0.0 0.0 2 0.0 0.0 0. 0.0 0.0 1.0 0.0 0.0 0.0	30°S
					0.0 0.0 68 0.0 0.0 0. 0.0 0.0 2.3 0.0 0.0 0.0	40°S

APPENDIX D

Spring
0 to 5 kft
above tropopause

CODE:	$\overline{\text{TIC}}, \%$	SIGMA(TIC), %	N
	$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N					
60°N				3.9 16.2 260 50.2 1.0 -63. 7.7 .8 2.8 6.2 5.4 3.8	
50°N	.1 .3 30 1.2 1.5 -54. 6.7 1.9 1.9 0.0 0.0 0.0		0.0 0.0 37 0.0 0.0 0. 0.0 0.0 2.5 0.0 0.0 0.0	2.9 14.7 251 52.0 3.7 -58. 5.6 2.1 2.4 4.4 3.6 3.6	
40°N	.3 1.7 25 8.6 8.0 -49. 4.0 0.0 1.4 0.0 0.0 0.0		1.6 6.7 61 19.3 1.8 -61. 8.2 1.6 2.7 4.9 3.3 0.0	.0 .1 50 .4 1.0 -48. 2.0 1.6 1.8 0.0 0.0 0.0	
30°N					
20°N					
10°N					
0°					
10°S					
20°S				0.0 0.0 5 0.0 0.0 0. 0.0 0.0 1.4 0.0 0.0 0.0	
30°S				0.0 0.0 46 0.0 0.0 0. 0.0 0.0 1.5 0.0 0.0 0.0	
40°S					

APPENDIX D

Spring
0 to 5 kft
above tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
	0.0 0.0 8 0.0 0.0 0. 0.0 0.0 2.2 0.0 0.0 0.0			0.0 0.0 2 0.0 0.0 0. 0.0 0.0 .3 0.0 0.0 0.0	0.0 0.0 10 0.0 0.0 0. 0.0 0.0 1.8 0.0 0.0 0.0	80°N
0.0 0.0 87 0.0 0.0 0. 0.0 0.0 3.1 0.0 0.0 0.0	.0 .1 59 .4 1.0 -53. 3.4 2.3 2.8 0.0 0.0 0.0	.0 .1 50 .4 1.0 -57. 6.0 2.6 2.8 0.0 0.0 0.0		0.0 0.0 9 0.0 0.0 0. 0.0 0.0 1.4 0.0 0.0 0.0	.0 .1 205 .4 1.0 -56. 2.4 2.5 2.8 0.0 0.0 0.0	70°N
.0 .2 163 1.8 1.5 -62. 1.2 1.2 2.7 0.0 0.0 0.0	.0 .0 177 .4 1.0 -54. .6 1.9 2.6 0.0 0.0 0.0	.0 .1 88 .6 1.0 -56. 2.3 1.4 2.6 0.0 0.0 0.0		.0 .1 165 1.6 2.0 -53. .6 1.9 2.4 0.0 0.0 0.0	1.2 9.1 853 38.9 1.0 -62. 3.0 1.0 2.7 1.9 1.6 1.2	60°N
1.0 7.2 260 25.1 2.0 -62. 3.8 1.5 1.9 1.9 1.5 .8	.4 3.5 384 17.6 2.0 -62. 2.3 .6 2.1 1.6 .5 0.0	.4 3.7 136 7.5 1.7 -49. 5.1 2.8 2.5 .7 .7 0.0		1.6 10.8 63 50.6 8.5 -59. 3.2 1.6 2.7 3.2 1.6 1.6	1.1 8.4 1161 29.4 2.8 -58. 3.8 1.7 2.2 2.2 1.5 1.0	50°N
.8 7.8 196 32.1 1.6 -65. 2.6 .7 2.1 1.0 1.0 1.0	.2 2.2 281 25.7 1.0 -68. .7 1.7 1.9 .7 .4 0.0	.0 .1 25 .4 1.0 -38. 4.0 2.0 2.2 0.0 0.0 0.0			.5 5.1 638 21.2 1.9 -60. 2.4 1.2 2.0 1.1 .8 .3	40°N
0.0 0.0 24 0.0 0.0 0. 0.0 0.0 .6 0.0 0.0 0.0		0.0 0.0 4 0.0 0.0 0. 0.0 0.0 .6 0.0 0.0 0.0			0.0 0.0 28 0.0 0.0 0. 0.0 0.0 .6 0.0 0.0 0.0	30°N
						20°N
						10°N
						0°
						10°S
						20°S
					0.0 0.0 5 0.0 0.0 0. 0.0 0.0 1.4 0.0 0.0 0.0	30°S
					0.0 0.0 46 0.0 0.0 0. 0.0 0.0 1.5 0.0 0.0 0.0	40°S

APPENDIX D

Summer
0 to 5 kft
above tropopause

CODE:	\overline{TIC} , %	SIGMA(TIC), %	N
	\overline{TICIC} , %	PATCHES	T(CLD), °C
	P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
	P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N				0.0 0.0 28 0.0 0.0 0. 0.0 0.0 2.4 0.0 0.0 0.0	
60°N				.7 4.2 284 16.8 3.4 -60. 3.9 1.0 2.9 2.1 .7 0.0	
50°N	0.0 0.0 27 0.0 0.0 0. 0.0 0.0 1.5 0.0 0.0 0.0		0.0 0.0 12 0.0 0.0 0. 0.0 0.0 2.0 0.0 0.0 0.0	0.0 0.0 153 0.0 0.0 0. 0.0 0.0 2.0 0.0 0.0 0.0	
40°N					
30°N					
20°N					
10°N					
0°					
10°S					
20°S			0.0 0.0 2 0.0 0.0 0. 0.0 0.0 .7 0.0 0.0 0.0		
30°S			0.0 0.0 84 0.0 0.0 0. 0.0 0.0 1.7 0.0 0.0 0.0	.0 .1 28 .4 0.0 -54. 3.6 4.6 3.0 0.0 0.0 0.0	
40°S					

APPENDIX D

Summer
0 to 5 kft
above tropopause

CODE:

\overline{TIC} , %	SIGMA(TIC), %	N
\overline{TICIC} , %	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}$ (CLD), kft	$\overline{\Delta Z}$ (CLR), kft
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W			75°W			30°W			15°E	ZONAL MEAN		
	0.0	0.0	2	0.0	0.0	3	.1	.1	7	.0	.1	12	80°N
	0.0	0.0	0.	0.0	0.0	0.	.4	0.0	-45.	.4	0.0	-45.	
	0.0	0.0	4.9	0.0	0.0	4.8	14.3	4.6	4.6	8.3	4.6	4.7	
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	13.0	.0	.1	231	0.0	0.0	143	.0	.3	184	70°N	
0.0	0.0	0.	1.2	.5	-53.	0.0	0.0	0.	3.5	0.0	-65.		
0.0	0.0	2.7	.9	2.0	3.0	0.0	0.0	3.8	.5	1.7	3.3		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
.2	1.5	171	.4	4.4	430	.3	2.5	118	.1	.4	288	60°N	
11.0	0.0	-58.	21.6	.3	-58.	18.6	0.0	-62.	2.9	.2	-59.		
1.8	.2	2.8	1.6	.8	2.6	1.7	1.5	2.9	1.7	2.0	2.8		
1.2	0.0	0.0	.7	.5	.2	1.7	0.0	0.0	0.0	0.0	0.0		
2.4	13.2	106	2.0	10.0	149	.0	.1	74	1.5	5.2	46	50°N	
25.3	0.0	-64.	27.6	2.2	-60.	.8	1.0	-57.	13.8	3.0	-54.		
9.4	2.7	2.0	7.4	1.0	2.0	1.4	.1	2.6	10.9	.4	2.0		
4.7	1.9	1.9	4.7	3.4	1.3	0.0	0.0	0.0	6.5	2.2	0.0		
0.0	0.0	38										40°N	
0.0	0.0	0.											
0.0	0.0	3.0											
0.0	0.0	0.0											
												30°N	
												20°N	
												10°N	
												0°	
												10°S	
												20°S	
									0.0	0.0	2		
									0.0	0.0	0.		
									0.0	0.0	.7		
									0.0	0.0	0.0		
									.0	.0	112	30°S	
									.4	0.0	-54.		
									.9	4.6	2.0		
									0.0	0.0	0.0		
												40°S	

APPENDIX D

Autumn
0 to 5 kft
above tropopause

CODE:

$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

	15°E	60°E	105°E	150°E	165°W
80°N					
70°N				0.0 0.0 5 0.0 0.0 0. 0.0 0.0 4.0 0.0 0.0 0.0	
60°N				.0 .0 143 .4 1.0 -57. .7 1.1 2.9 0.0 0.0 0.0	
50°N	0.0 0.0 5.0 0.0 0.0 0. 0.0 0.0 2.7 0.0 0.0 0.0		0.0 0.0 24 0.0 0.0 0. 0.0 0.0 2.0 0.0 0.0 0.0	.0 .2 143 2.7 4.0 -51. .7 .9 2.3 0.0 0.0 0.0	
40°N	0.0 0.0 7 0.0 0.0 0. 0.0 0.0 .9 0.0 0.0 0.0		0.0 0.0 3 0.0 0.0 0. 0.0 0.0 .9 0.0 0.0 0.0	0.0 0.0 2 0.0 0.0 0. 0.0 0.0 2.5 0.0 0.0 0.0	
30°N					
20°N					
10°N					
0°					
10°S					
20°S				0.0 0.0 4 0.0 0.0 0. 0.0 0.0 1.6 0.0 0.0 0.0	
30°S				.0 .1 57 .5 1.3 -52. 5.3 3.1 2.9 0.0 0.0 0.0	
40°S					

APPENDIX D

Autumn
0 to 5 kft
above tropopause

CODE:

$\overline{\text{TIC}}, \%$	$\text{SIGMA}(\text{TIC}), \%$	N
$\overline{\text{TICIC}}, \%$	PATCHES	T(CLD), °C
P(TIC > 0), %	$\overline{\Delta Z}(\text{CLD}), \text{kft}$	$\overline{\Delta Z}(\text{CLR}), \text{kft}$
P(TIC ≥ 10%), %	P(TIC ≥ 25%), %	P(TIC ≥ 50%), %

165°W	120°W	75°W	30°W	15°E	ZONAL MEAN	
0.0 0.0 2 0.0 0.0 0. 0.0 0.0 4.2 0.0 0.0 0.0					0.0 0.0 2 0.0 0.0 0. 0.0 0.0 4.2 0.0 0.0 0.0	80°N
.3 2.6 166 23.1 7.5 -58. 1.2 .3 2.7 1.2 .6 0.0	0.0 0.0 76 0.0 0.0 0. 0.0 0.0 3.0 0.0 0.0 0.0	4.1 4.1 2 8.2 3.0 -55. 50.0 3.8 3.8 0.0 0.0 0.0	3.4 10.1 53 26.1 5.4 -58. 13.2 1.1 3.1 11.3 7.5 0.0		.8 4.8 302 23.7 5.6 -58. 3.3 1.2 2.8 2.6 1.7 0.0	70°N
0.0 0.0 121 0.0 0.0 0. 0.0 0.0 2.4 0.0 0.0 0.0	0.0 0.0 108 0.0 0.0 0. 0.0 0.0 2.2 0.0 0.0 0.0	.5 5.3 265 60.6 0.0 -51. .8 .2 2.2 .8 .8 .8	.0 .1 210 .8 2.0 -42. .5 1.9 2.4 0.0 0.0 0.0		.1 3.0 847 30.6 .8 -50. .5 .8 2.4 .2 .2 .2	60°N
.3 2.4 282 7.7 3.5 -63. 3.5 .8 1.7 .7 .4 0.0	2.1 10.7 122 36.2 4.7 -62. 5.7 2.3 2.4 4.9 3.3 1.6	1.1 7.0 179 39.4 5.4 -67. 2.8 .4 2.1 2.8 2.2 1.1	0.0 0.0 7 0.0 0.0 0. 0.0 0.0 2.8 0.0 0.0 0.0		.7 5.5 807 23.0 4.3 -63. 2.9 1.2 2.1 1.6 1.1 .5	50°N
0.0 0.0 35 0.0 0.0 0. 0.0 0.0 1.3 0.0 0.0 0.0	0.0 0.0 11 0.0 0.0 0. 0.0 0.0 1.3 0.0 0.0 0.0		0.0 0.0 2 0.0 0.0 0. 0.0 0.0 .7 0.0 0.0 0.0		0.0 0.0 60 0.0 0.0 0. 0.0 0.0 1.2 0.0 0.0 0.0	40°N
0.0 0.0 2 0.0 0.0 0. 0.0 0.0 .6 0.0 0.0 0.0					0.0 0.0 2 0.0 0.0 0. 0.0 0.0 .6 0.0 0.0 0.0	30°N
						20°N
						10°N
						0°
						10°S
						20°S
					0.0 0.0 4 0.0 0.0 0. 0.0 0.0 1.6 0.0 0.0 0.0	30°S
					.0 .1 57 .5 1.3 -52. 5.3 3.1 2.9 0.0 0.0 0.0	40°S

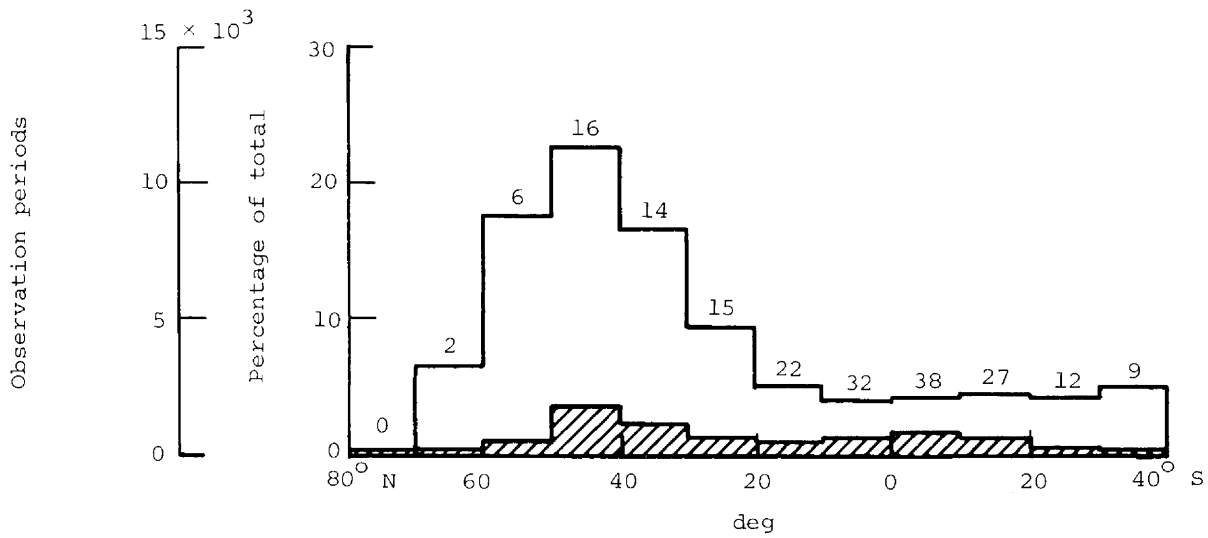
REFERENCES

1. Brooks, Charles F.: The Use of Clouds in Forecasting. *Compendium of Meteorology*, Thomas F. Malone, ed., American Meteorol. Soc., 1951, pp. 1167-1178.
2. Platt, C. M. R.: Remote Sounding of High Clouds: I. Calculation of Visible and Infrared Optical Properties From Lidar and Radiometer Measurements. *J. Appl. Meteorol.*, vol. 18, no. 9, Sept. 1979, pp. 1130-1143.
3. Schneider, Stephen H.: Cloudiness as a Global Climatic Feedback Mechanism: The Effects on the Radiation Balance and Surface Temperature of Variations in Cloudiness. *J. Atmos. Sci.*, vol. 29, no. 8, Nov. 1972, pp. 1413-1422.
4. Cess, Robert D.: Climate Change: An Appraisal of Atmospheric Feedback Mechanisms Employing Zonal Climatology. *J. Atmos. Sci.*, vol. 33, no. 10, Oct. 1976, pp. 1831-1843.
5. Braslow, Albert L.; and Muraca, Ralph J.: A Perspective of Laminar-Flow Control. AIAA Paper 78-1528, Aug. 1978.
6. Hall, G. R.: On the Mechanics of Transition Produced by Particles Passing Through an Initially Laminar Boundary Layer and the Estimated Effect on the LFC Performance of the X-21 Aircraft. Northrop Corp., Oct. 1964.
7. Conover, John H.; and Bunting, James T.: Estimates From Satellites of Weather Erosion Parameters for Reentry Systems. AFGL-TR-77-0260, U.S. Air Force, Nov. 29, 1977. (Available from DTIC as AD A053 654.)
8. Barnes, Arnold A., Jr.: New Cloud Physics Instrumentation Requirements. AFGL-TR-78-0093, U.S. Air Force, Apr. 17, 1978. (Available from DTIC as AD A053 235.)
9. Dyer, Rosemary M.; and Barnes, Arnold A., Jr.: The Microphysics of Ice Clouds - A Survey. AFGL-TR-79-0103, U.S. Air Force, May 8, 1979. (Available from DTIC as AD A077 020.)
10. Hallett, John: Characteristics of Atmospheric Ice Particles: A Survey of Techniques. AFGL-TR-80-0308, U.S. Air Force, Sept. 1980. (Available from DTIC as AD A093 927.)
11. Perkins, Porter; and Gustafsson, Ulf R. C.: An Automated Atmospheric Sampling System Operating on 747 Airliners. NASA TM X-71790, 1975.
12. Gauntner, Daniel J.; Holdeman, J. D.; Briehl, Daniel; and Humenik, Francis M.: Description and Review of Global Measurements of Atmospheric Species From GASP. NASA TM-73781, 1977.
13. Perkins, Porter J.; and Papathakos, Leonidas C.: Global Sensing of Gaseous and Aerosol Trace Species Using Automated Instrumentation on 747 Airliners. NASA TM-73810, 1977.
14. Nastrom, G. D.; Holdeman, J. D.; and Davis, R. E.: Cloud Encounter and Particle Density Variabilities From GASP Data. AIAA-81-0308, Jan. 1981.

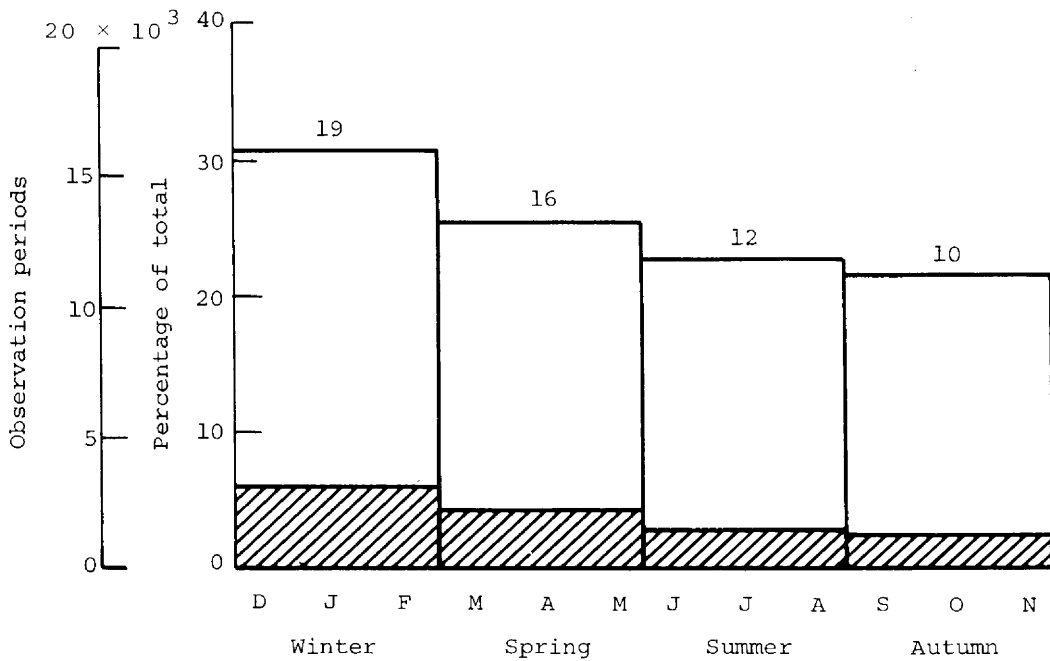
15. Holdeman, J. D.; Humenik, F. M.; and Lezberg, E. A.: NASA Global Atmospheric Sampling Program (GASP) Data Report for Tape VL0004. NASA TM X-73574, 1976.
16. Holdeman, J. D.; and Humenik, F. M.: NASA Global Atmospheric Sampling Program (GASP) Data Report for Tape VL0005. NASA TM X-73608, 1977.
17. Gauntner, Daniel J.; Holdeman, J. D.; and Humenik, Francis M.: NASA Global Atmospheric Sampling Program (GASP) Data Report for Tape VL0006. NASA TM-73727, 1977.
18. Holdeman, J. D.; Gauntner, Daniel J.; Humenik, Francis M.; and Briehl, Daniel: NASA Global Atmospheric Sampling Program (GASP) Data Report for Tapes VL0007 & VL0008. NASA TM-73784, 1977.
19. Holdeman, J. D.; Dudzinski, Thomas J.; Nyland, Ted W.; and Tiefermann, Marvin W.: NASA Global Atmospheric Sampling Program (GASP) Data Report for Tape VL0009. NASA TM-79058, 1978.
20. Holdeman, J. D.; Dudzinski, Thomas J.; Tiefermann, Marvin W.; and Nyland, Ted W.: NASA Global Atmospheric Sampling Program (GASP) Data Report for Tapes VL0010 & VL0012. NASA TM-79061, 1979.
21. Holdeman, J. D.; Dudzinski, Thomas J.; and Tiefermann, Marvin W.: NASA Global Atmospheric Sampling Program (GASP) Data Report for Tapes VL0011 and VL0013. NASA TM-81462, 1980.
22. Briehl, Daniel; Dudzinski, Thomas J.; and Liu, David C.: NASA Global Atmospheric Sampling Program (GASP) Data Report for Tape VL0014. NASA TM-81579, 1980.
23. Liu, Benjamin Y. H.; Berglund, Richard N.; and Agarwal, Jugal K.: Experimental Studies of Optical Particle Counters. Atmos. Environ., vol. 8, no. 7, July 1974, pp. 717-732.
24. Reck, Gregory M.; Briehl, Daniel; and Nyland, Ted W.: In Situ Measurements of Arctic Atmospheric Trace Constituents From an Aircraft. NASA TN D-8491, 1977.
25. Nastrom, G. D.: Variability and Transport of Ozone at the Tropopause From the First Year of GASP Data. NASA CR-135176, 1977.
26. Huschke, Ralph E., ed.: Glossary of Meteorology. American Meteorol. Soc., 1959.
27. Newell, Reginald E.; Kidson, John W.; Vincent, Dayton G.; and Boer, George J.: The General Circulation of the Tropical Atmosphere. Volume 1. MIT Press, c.1972.
28. Endlich, R. M.; Harney, Patrick; McLean, G. S.; Rados, Robert M.; Tibbets, O. J.; and Widger, W. K., Jr.: Project Jet Stream - The Observation and Analysis of the Detailed Structure of the Atmosphere Near the Tropopause. Bull. American Meteorol. Soc., vol. 35, no. 4, Apr. 1954, pp. 143-153.
29. McLean, George S.: Cloud Distributions in the Vicinity of Jet Streams. Bull. American Meteorol. Soc., vol. 38, no. 10, Dec. 1957, pp. 579-583.

30. Endlich, R. M.; and McLean, G. S.: Analyzing and Forecasting Meteorological Conditions in the Upper Troposphere and Lower Stratosphere. AFCRC-TN-60-262, U.S. Air Force, Apr. 1960.
31. Murgatroyd, R. J.; and Goldsmith, P.: High Cloud Over Southern England. Prof. Notes No. 119 (M.O. 524S), Meteorol. Off., British Air Ministry, 1956.
32. James, D. G.: Investigations Relating to Cirrus Cloud. Meteorol. Mag., vol. 86, no. 1015, Jan. 1957, pp. 1-12.
33. Clodman, J.: Some Statistical Aspects of Cirrus Cloud. Mon. Weather Rev., vol. 85, no. 2, Feb. 1957, pp. 37-41.
34. Graves, Maurice E.: Aircraft Reports of Cirriform Clouds on Certain High Latitude Routes and California to Honolulu. Mon. Weather Rev., vol. 96, no. 11, Nov. 1968, pp. 809-812.
35. Palmen, E.; and Newton, C. W.: Atmospheric Circulation Systems - Their Structure and Physical Interpretation. Academic Press, Inc., 1969.
36. Holdeman, J. D.; Nastrom, G. D.; and Falconer, P. D.: An Analysis of the First Two Years of GASP Data. NASA TM-73817, 1977.
37. Danielsen, E. F.: Stratospheric Source for Unexpectedly Large Values of Ozone Measured Over the Pacific Ocean During GAMETAG, August 1977. J. Geophys. Res., vol. 85, no. C1, Jan. 20, 1980, pp. 401-412.
38. Hudson, Robert D.; and Reed, Edith I., eds.: The Stratosphere: Present and Future. NASA RP-1049, 1979.
39. Varley, D. J.: Cirrus Particle Distribution Study, Part 1. AFGL-TR-78-0192, U.S. Air Force, Aug. 7, 1978. (Available from DTIC as A061 485.)
40. Plank, Vernon G.: Hydrometeor Parameters Determined From the Radar Data of the SAMS Rain Erosion Program - AFCRL/SAMS Report No. 2. AFCRL-TR-74-0249, U.S. Air Force, May 15, 1974. (Available from DTIC as AD A005 391.)
41. Varley, D. J.: Cirrus Particle Distribution Study, Part 2. AFGL-TR-78-0248, U.S. Air Force, Oct. 10, 1978. (Available from DTIC as AD A063 807.)
42. Varley, Donald J.: Cirrus Particle Distribution Study, Part 3. AFGL-TR-78-0305, U.S. Air Force, Dec. 11, 1978. (Available from DTIC as AD A066 975.)
43. Varley, D. J.; and Barnes, A. A., Jr.: Cirrus Particle Distribution Study, Part 4. AFGL-TR-79-0134, U.S. Air Force, June 18, 1979. (Available from DTIC as AD A074 763.)
44. Cohen, Ian D.: Cirrus Particle Distribution Study, Part 5. AFGL-TR-79-0155, U.S. Air Force, July 13, 1979. (Available from DTIC as AD A077 361.)
45. Cohen, Ian D.; and Barnes, Arnold A., Jr.: Cirrus Particle Distribution Study, Part 6. AFGL-TR-80-0261, U.S. Air Force, Sept. 4, 1980.

46. Varley, Donald J.; Cohen, Ian D.; and Barnes, Arnold A., Jr.: Cirrus Particle Distribution Study, Part 7. AFGL-TR-80-0324, U.S. Air Force, Oct. 16, 1980.
47. Barnes, A. A., Jr.: Ice Particles in Clear Air. Communications From the Eighth International Conference on Physics of Clouds (Clermont-Ferrand - France), July 15-19, 1980.
48. Braham, Roscoe R., Jr.; and Spyers-Duran, Paul: Survival of Cirrus Crystals in Clear Air. J. Appl. Meteorol., vol. 6, no. 6, Dec. 1967, pp. 1053-1061.

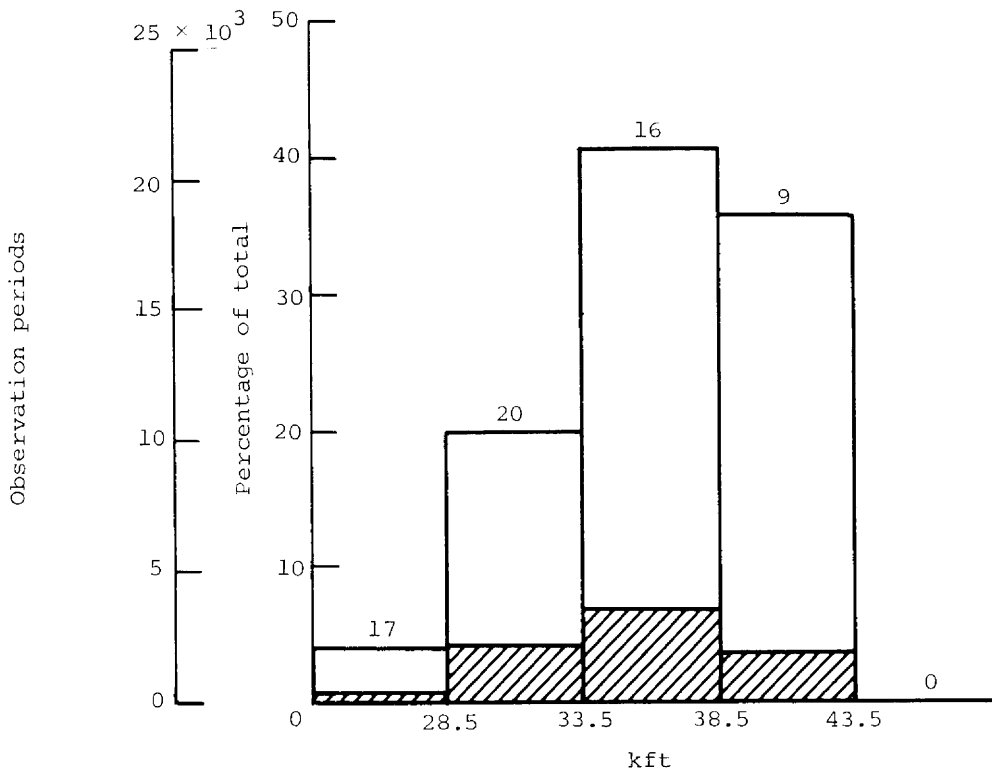


(a) By latitude.

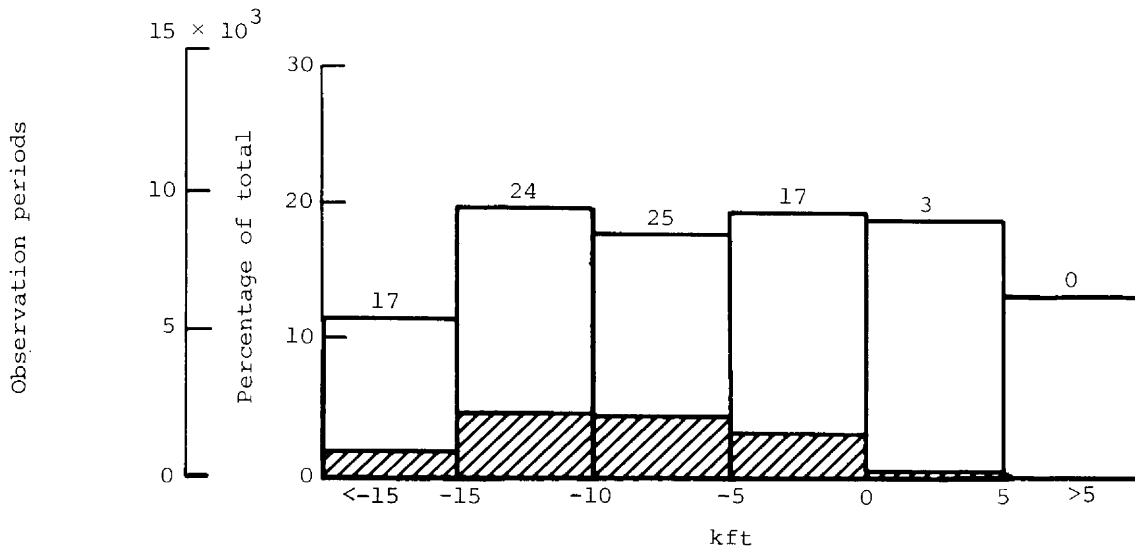


(b) By season.

Figure 1.- Distribution of cloud-detector observation periods by latitude and season. Crosshatching denotes observation periods with TIC > 0. Numbers above bars are percentage CIV for each interval.

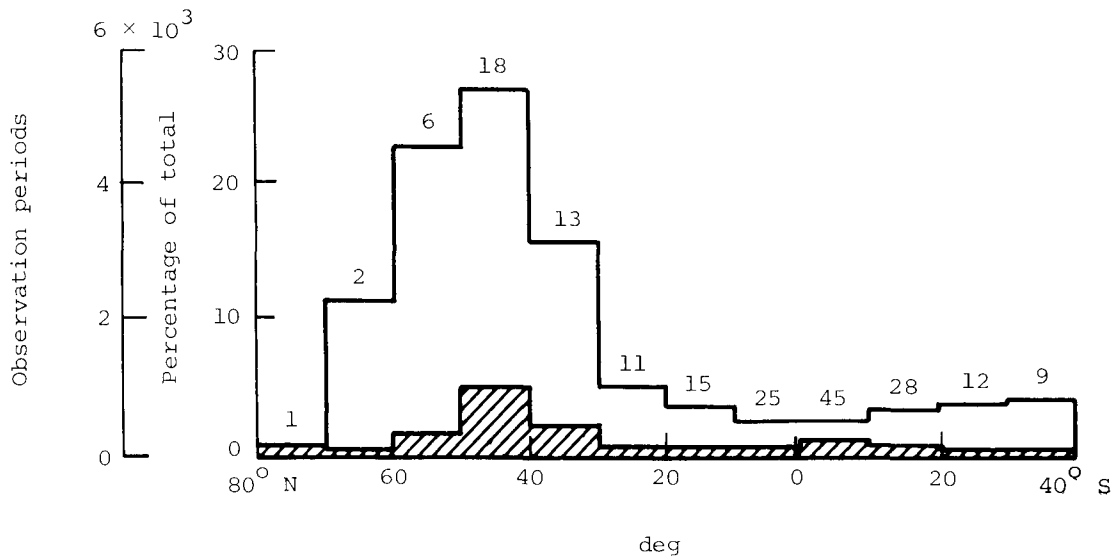


(a) By pressure-altitude.

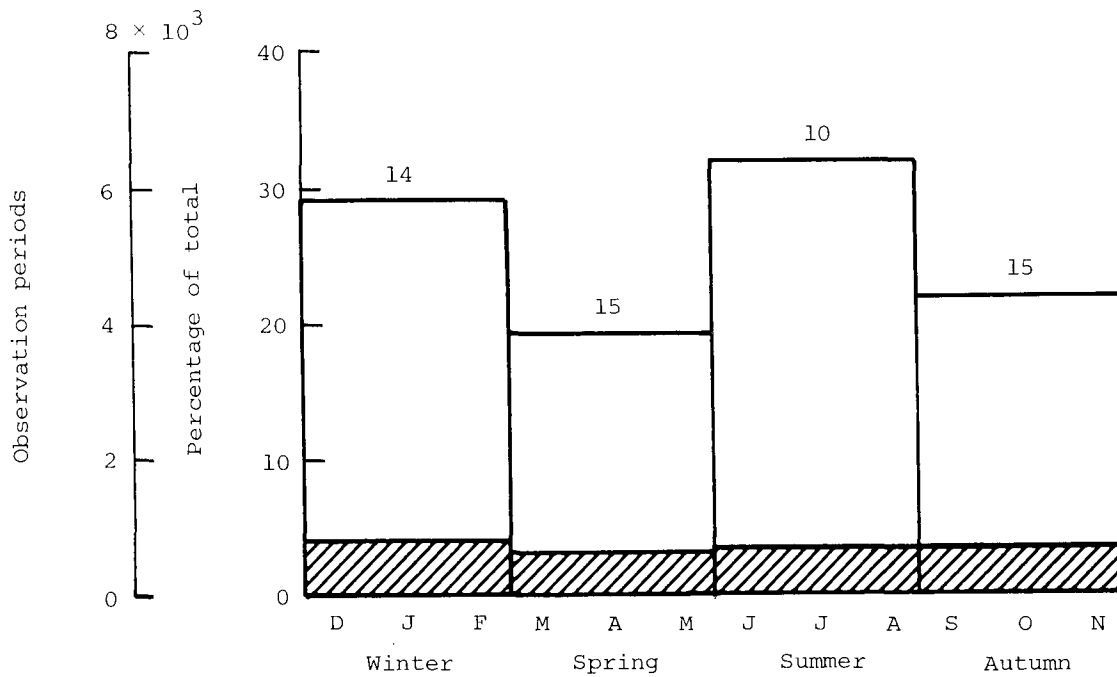


(b) By distance from tropopause.

Figure 2.- Distribution of cloud-detector observation periods by altitude and distance from tropopause. Crosshatching denotes observation periods with TIC > 0. Numbers above bars are percentage CIV for each interval.

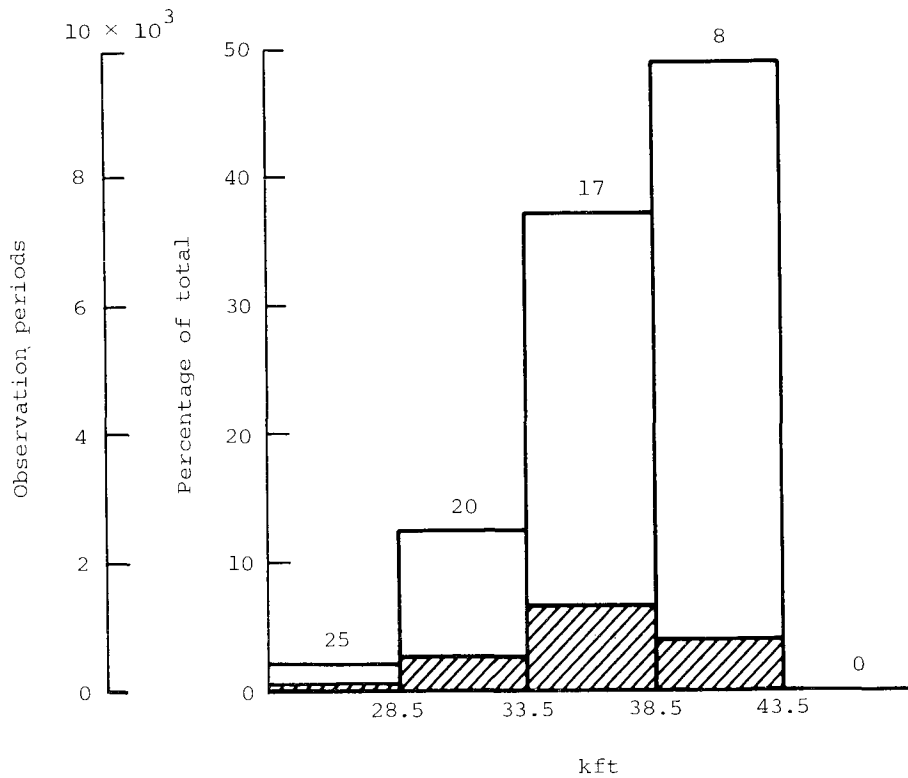


(a) By latitude.

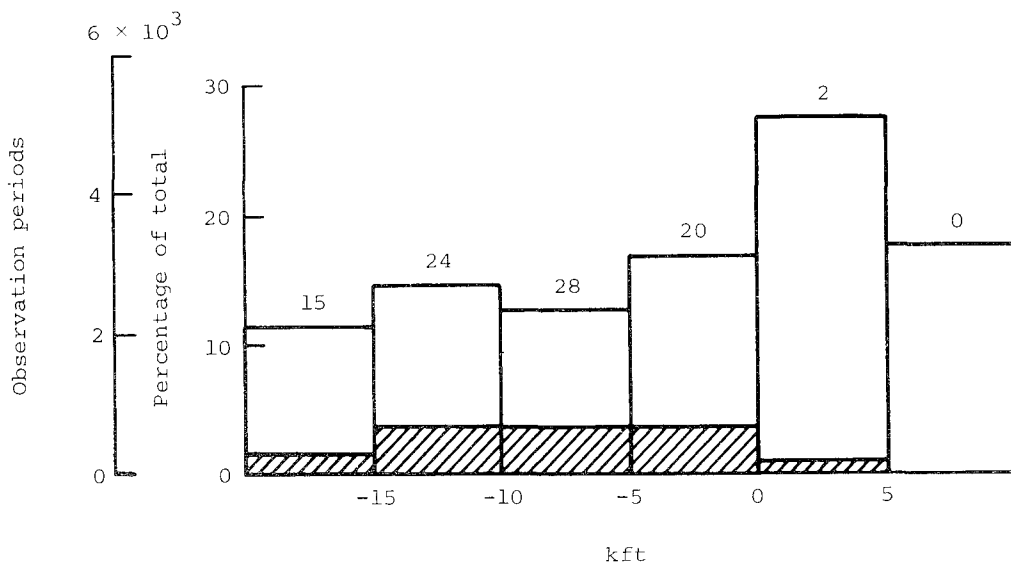


(b) By season.

Figure 3.- Distribution of cloud-detector observation periods with accompanying particle-concentration data by latitude and season. Numbers above bars are percentage CIV for each interval.



(a) By pressure-altitude.



(b) By distance from tropopause.

Figure 4.- Distribution of cloud-detector observation periods with accompanying particle-concentration data by altitude and distance from tropopause. Numbers above bars are percentage CIV for each interval.

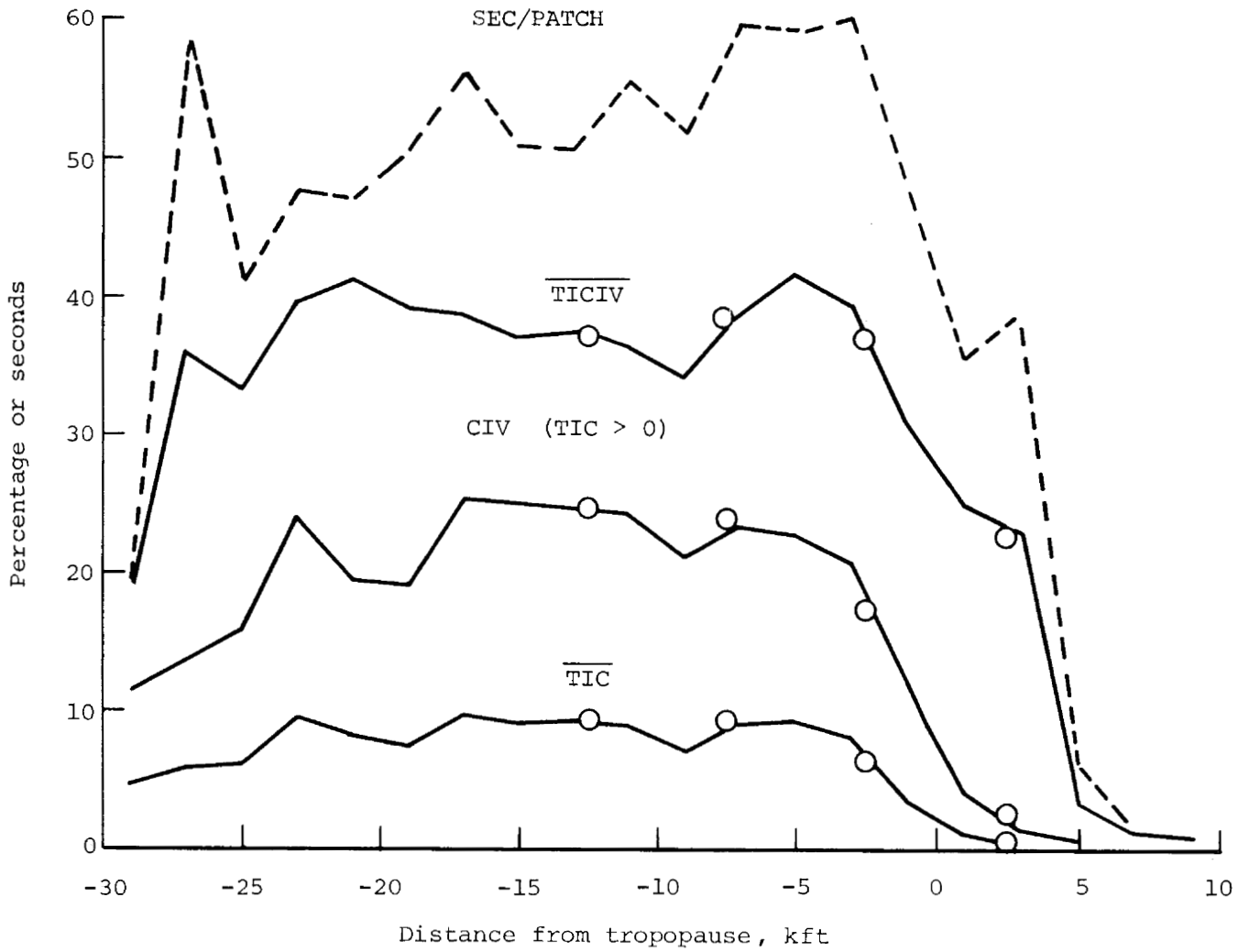


Figure 5.- Variation of global annual means of cloudiness parameters with distance from tropopause. Circles denote means for 5-kft layers.

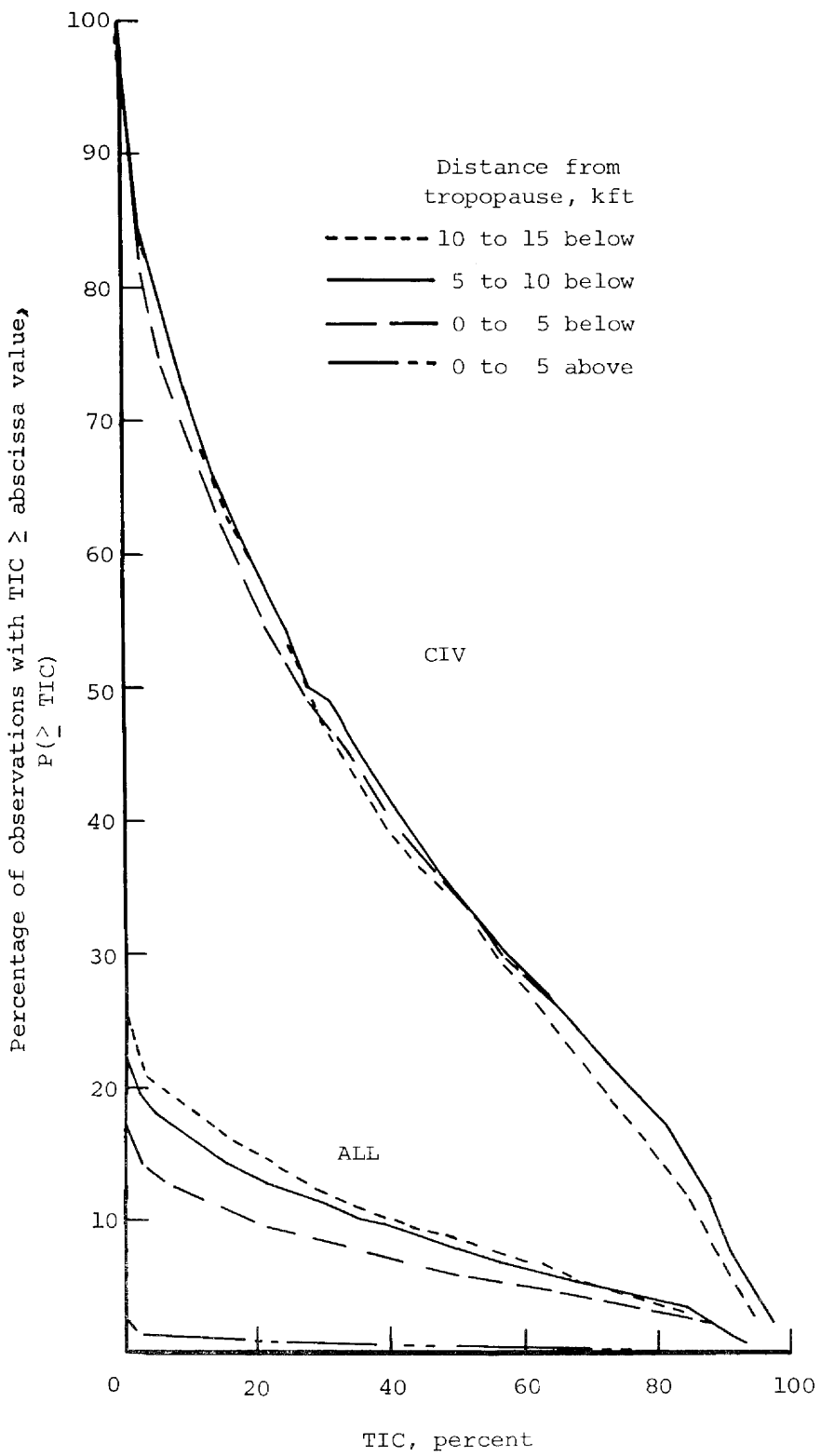
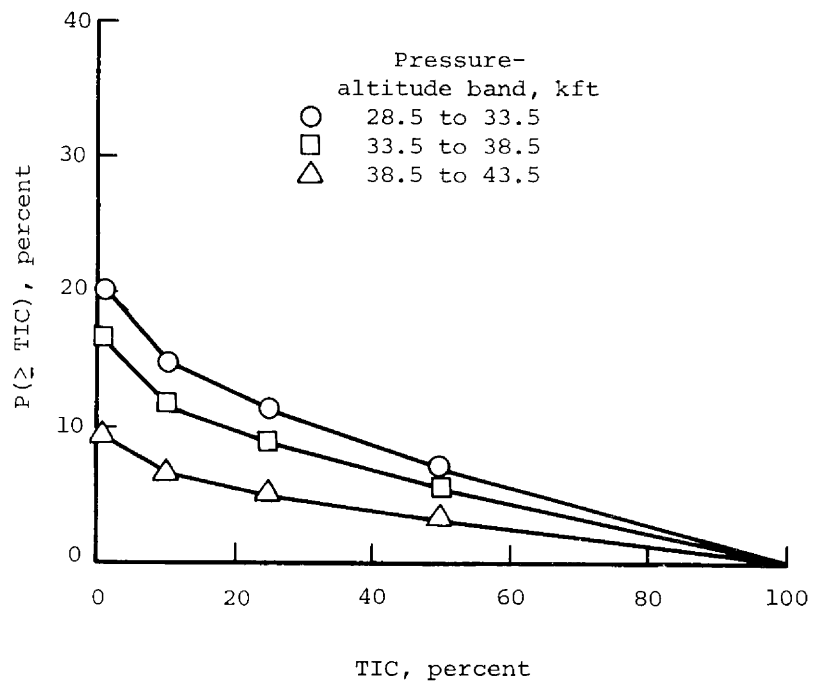
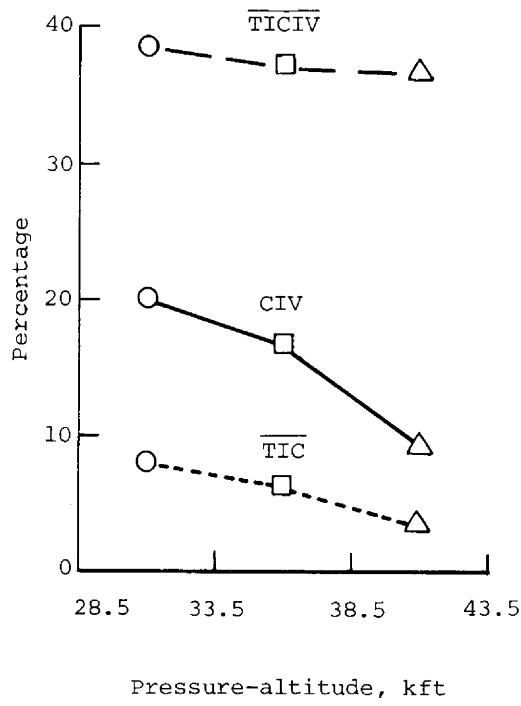


Figure 6.- Cloudiness cumulative frequency distribution; global annual mean.



(a) Cloudiness parameters.

(b) Cumulative probability distributions.

Figure 7.- Variation of cloudiness with pressure-altitude; global annual mean.

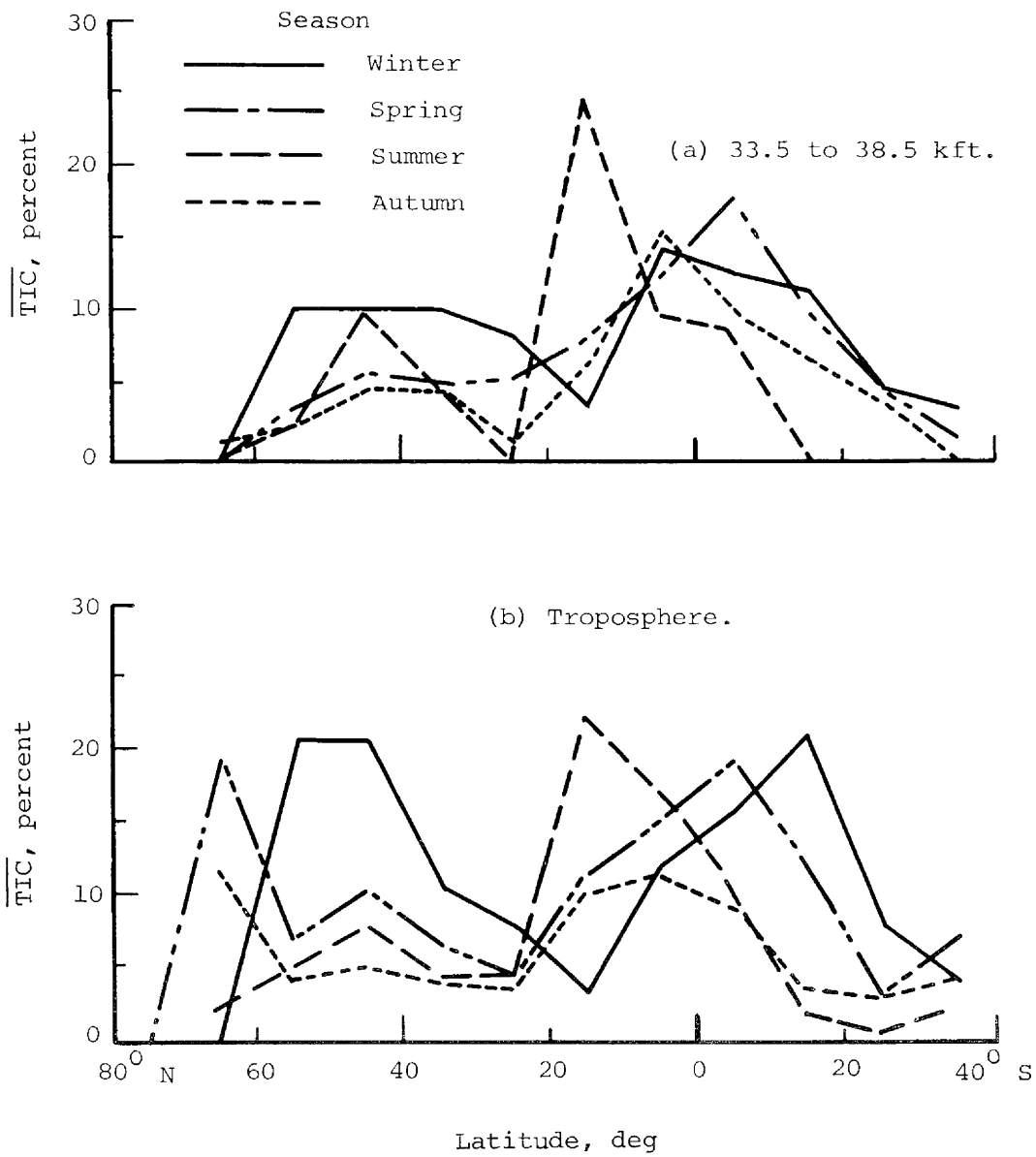


Figure 8.- Variation of average percentage of time in clouds with latitude by season.

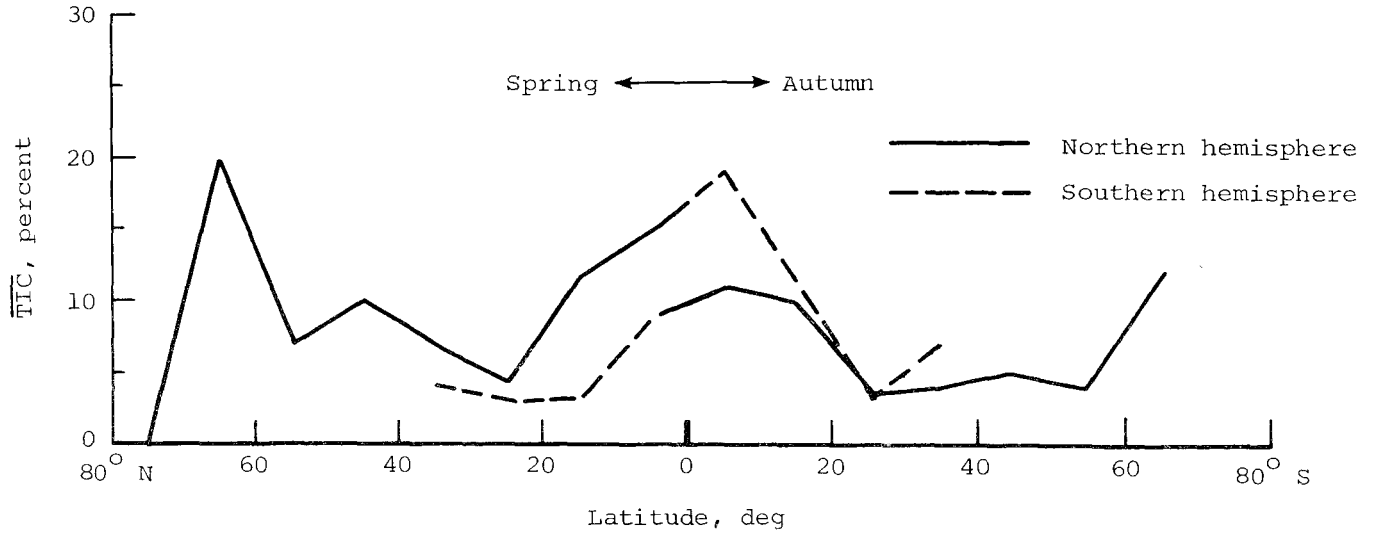
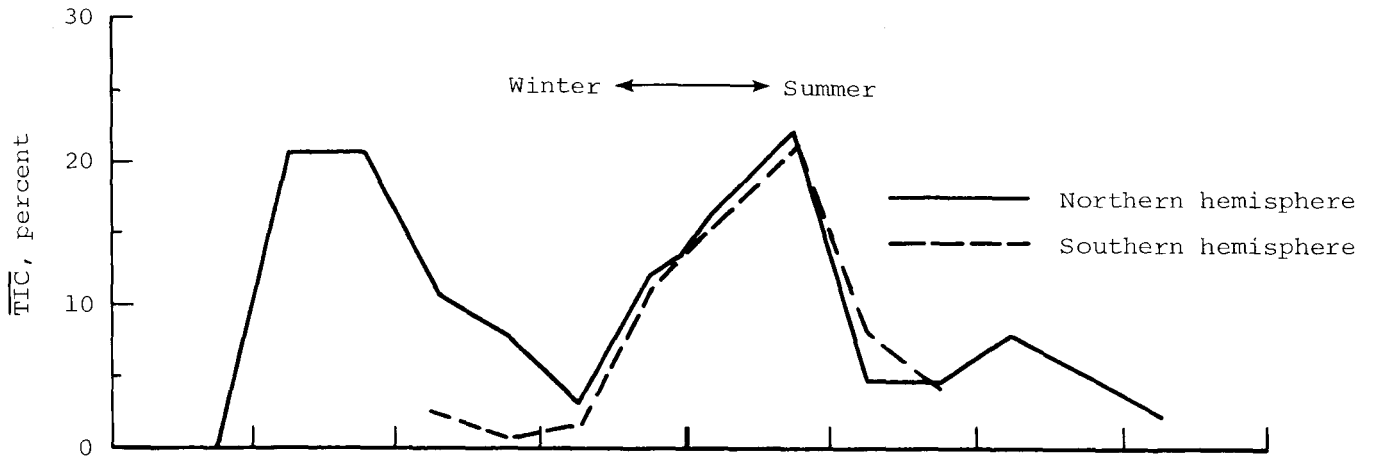


Figure 9.- Seasonal symmetry of average time in clouds with latitude.

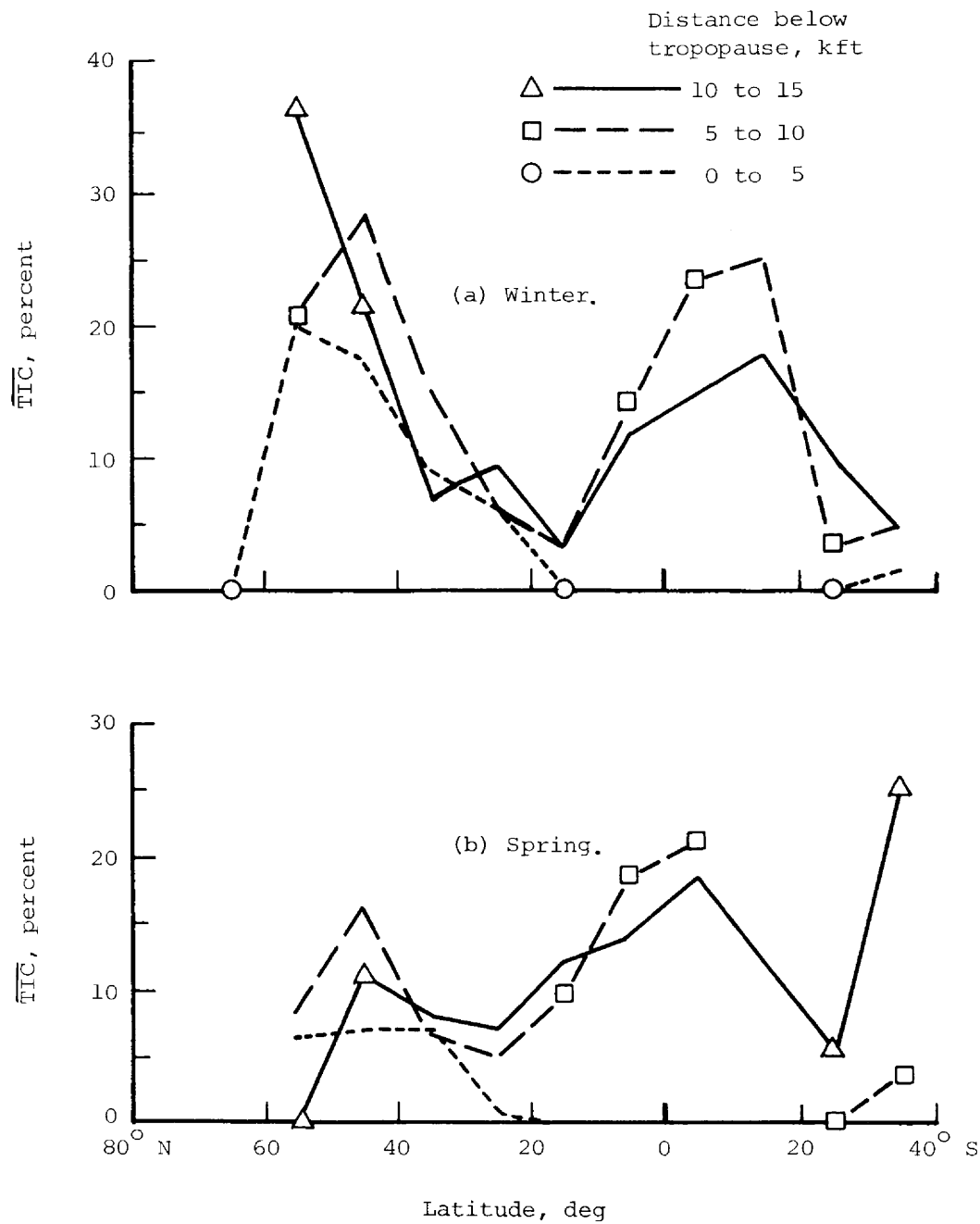


Figure 10.- Variation of average time in clouds with latitude by season and distance from tropopause. Symbols denote intervals with fewer than 100 observations.

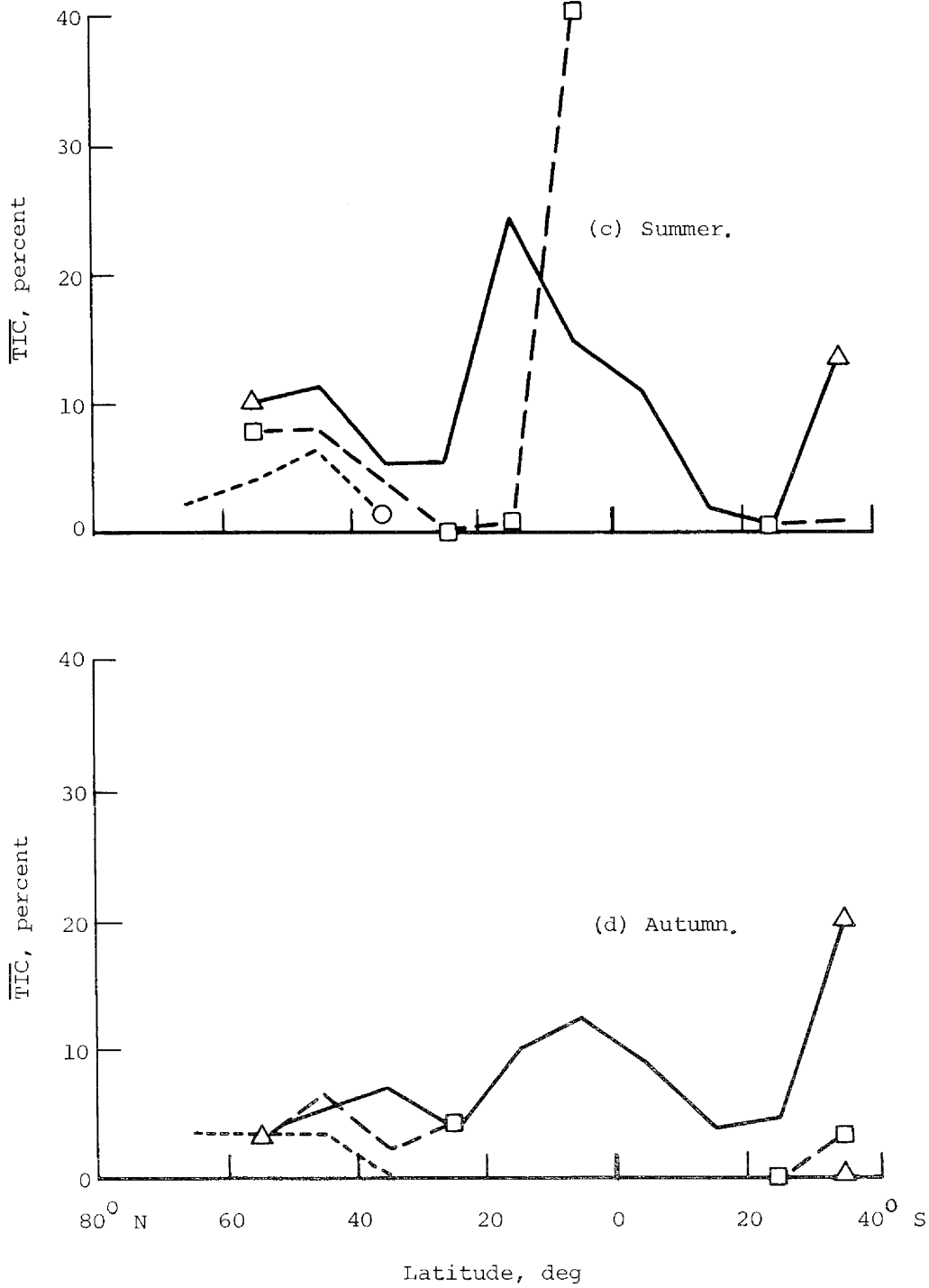
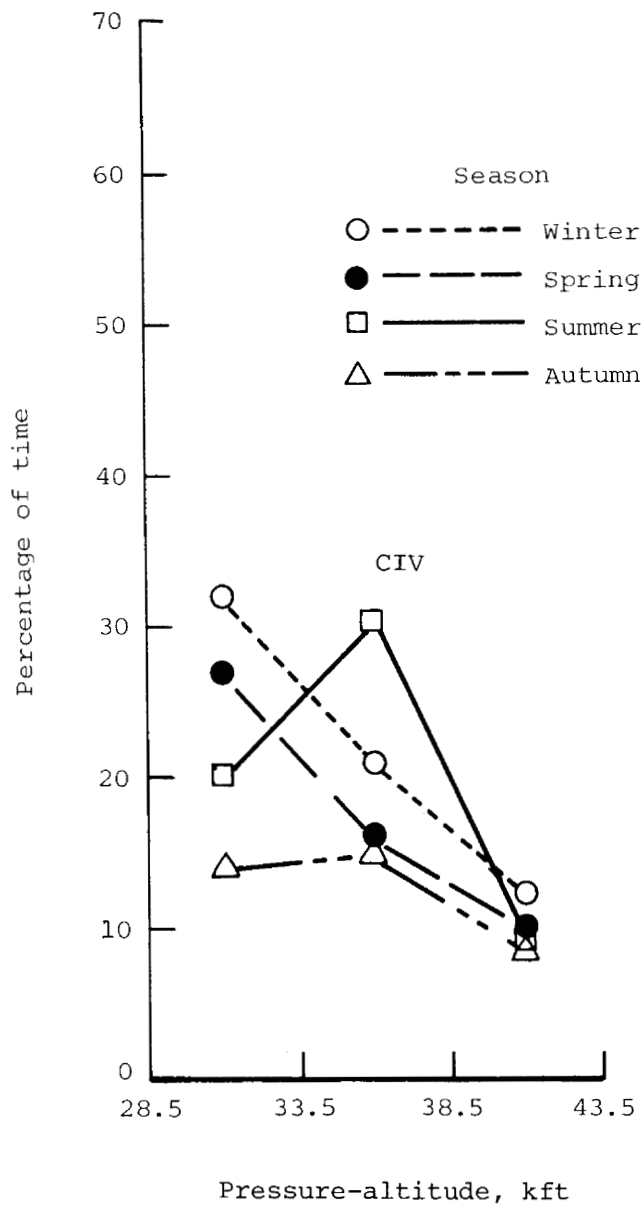
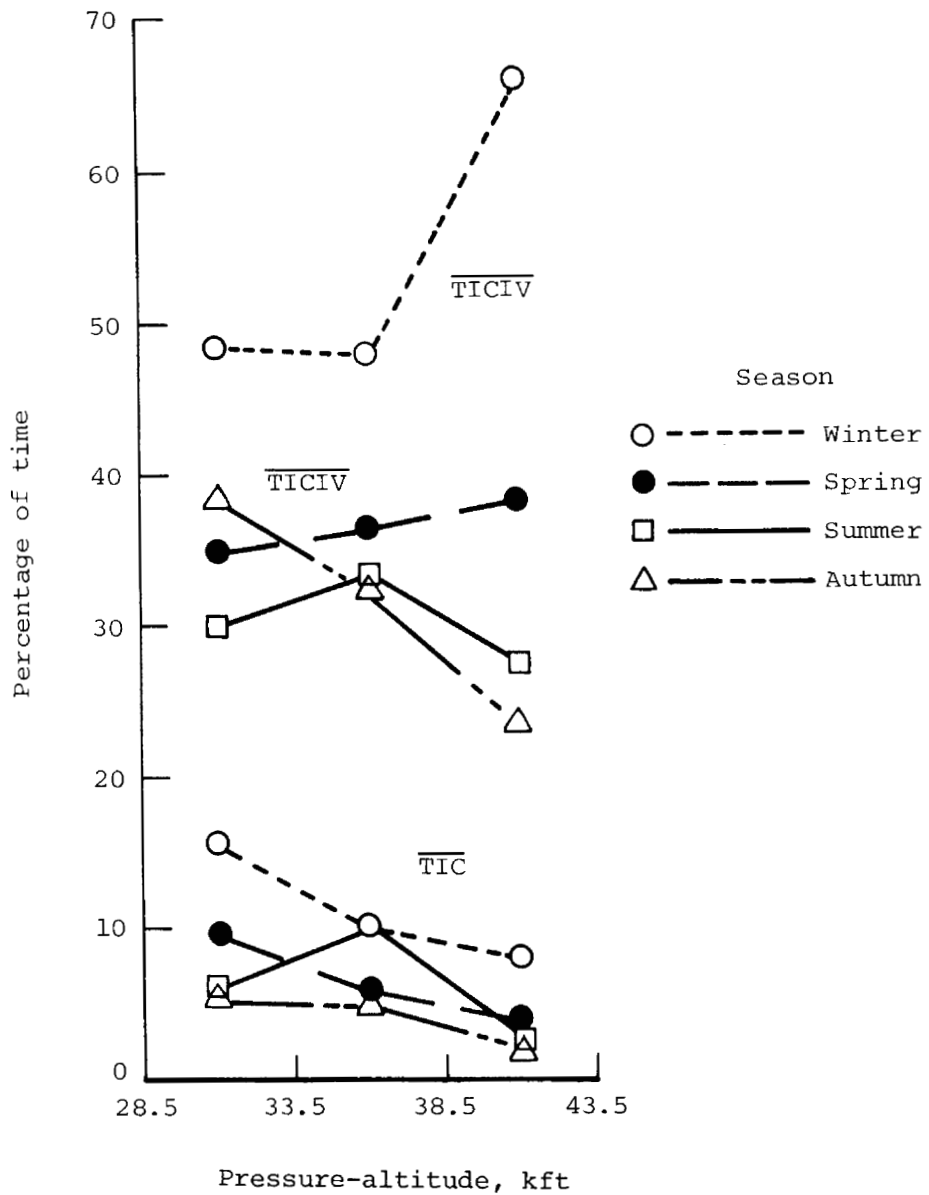


Figure 10.- Concluded.



(a) Clouds in vicinity.

Figure 11.- Variation of cloudiness parameters with pressure-altitude by season at 40° to 50° N latitude.



(b) Time in clouds.

Figure 11.- Concluded.

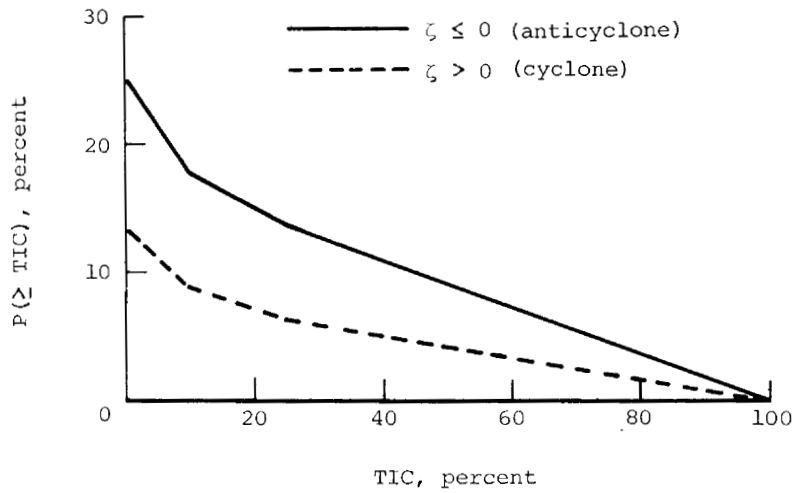
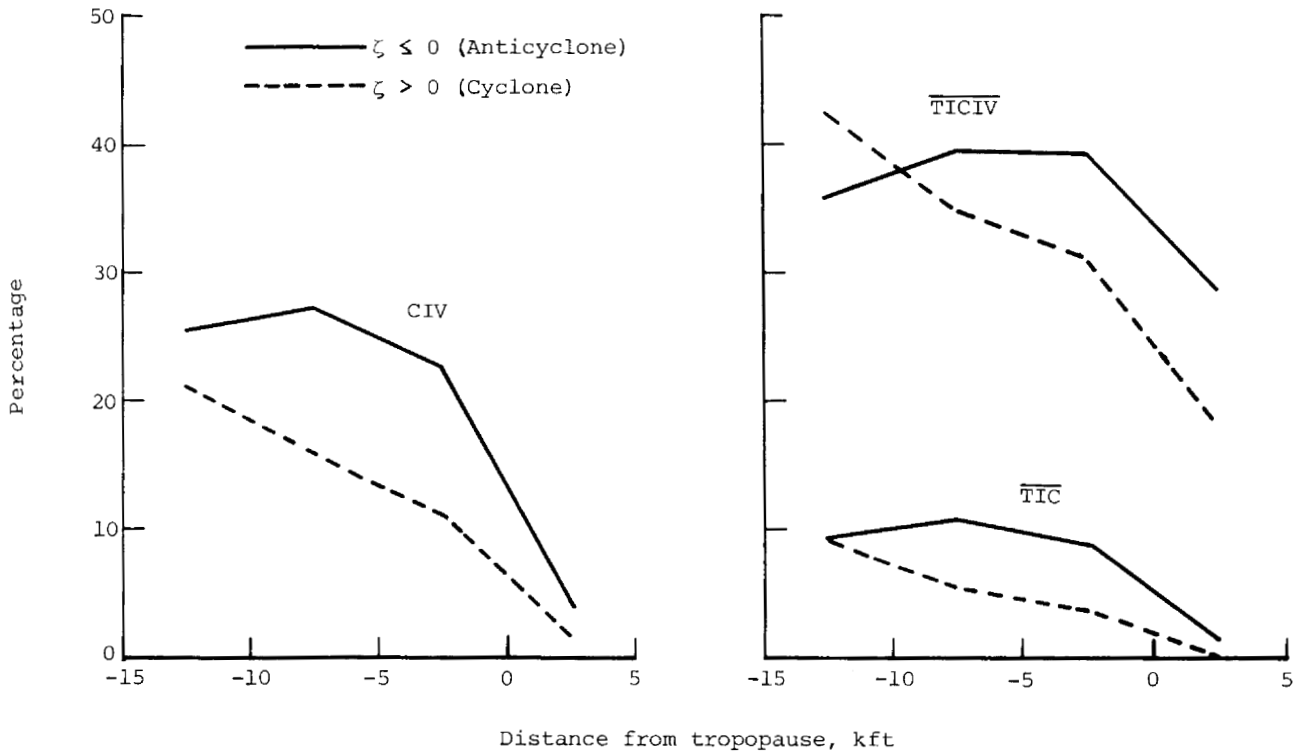


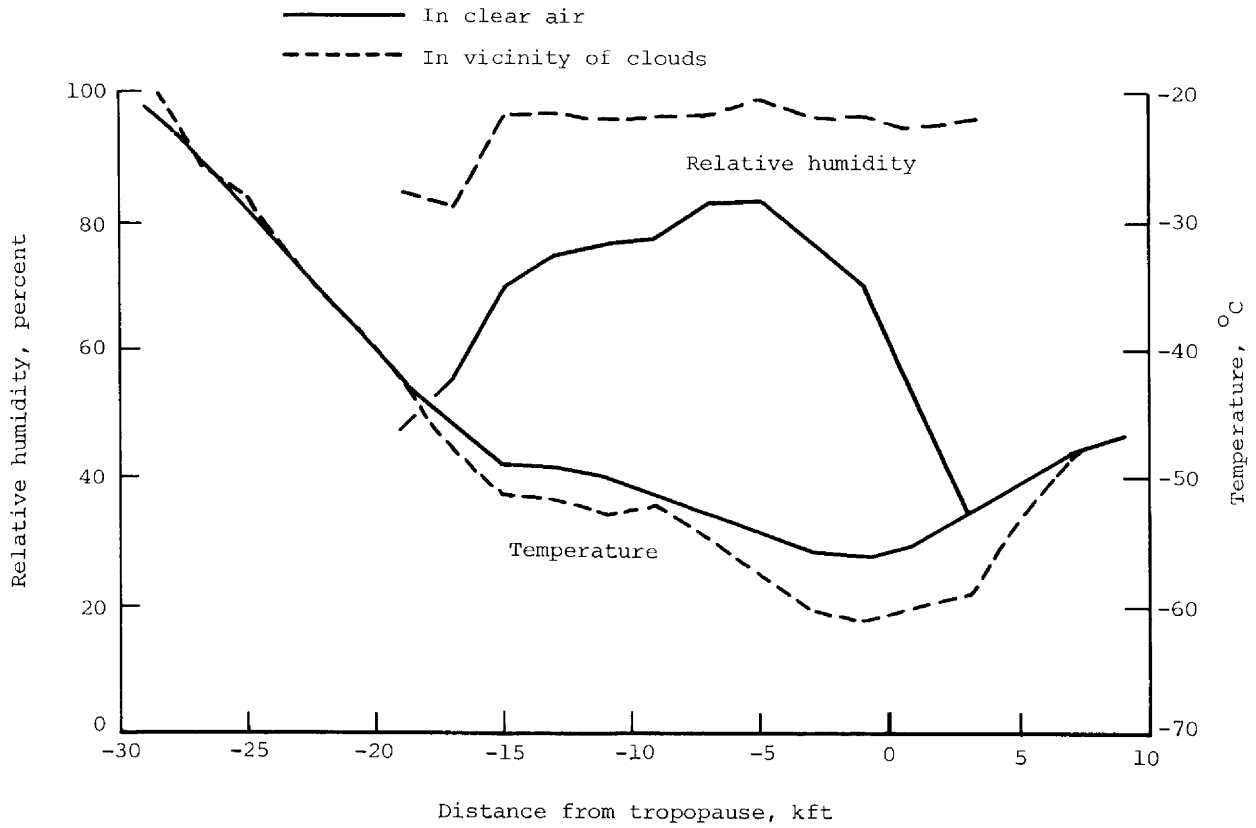
Figure 12.- Cloudiness cumulative frequency distribution 0 to 10 kft below tropopause in cyclones and anticyclones.



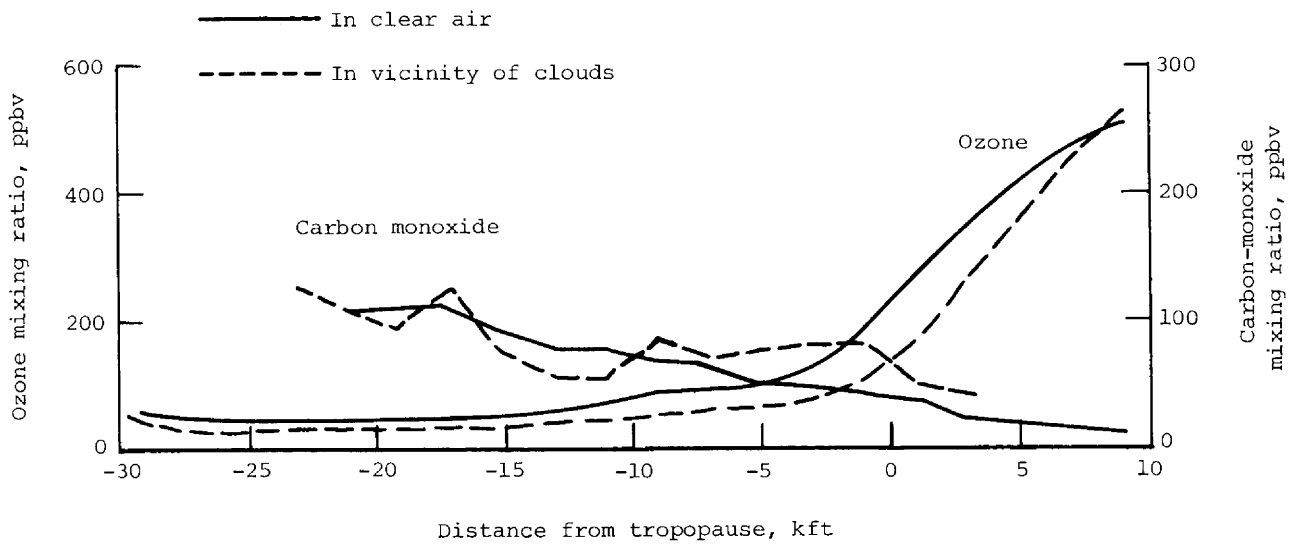
(a) Clouds in vicinity.

(b) Time in clouds.

Figure 13.- Variation of cloudiness parameters with respect to tropopause for cyclones and anticyclones.

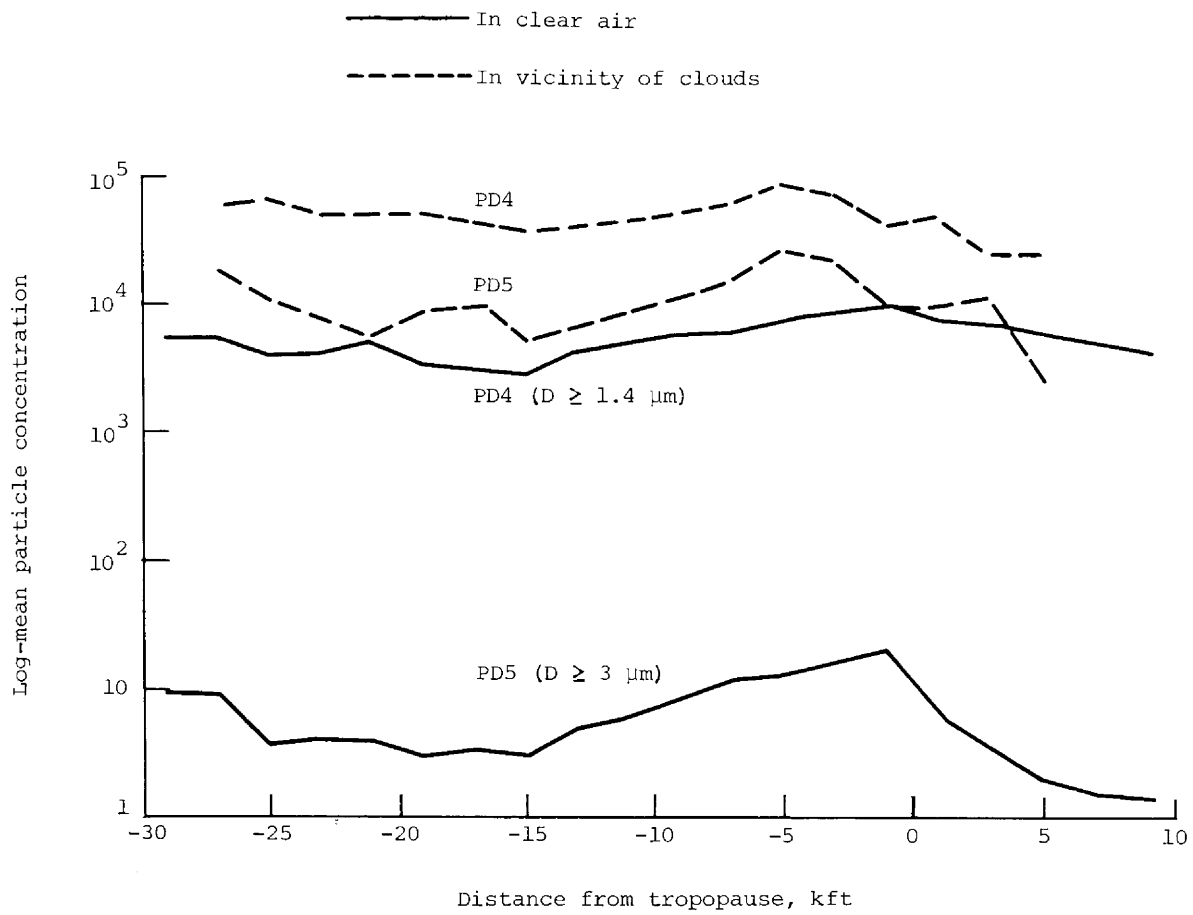


(a) Relative humidity and temperature.



(b) Ozone and carbon monoxide.

Figure 14.- Variation of atmospheric constituents with respect to tropopause.



(c) Concentration of particles.

Figure 14.- Concluded.

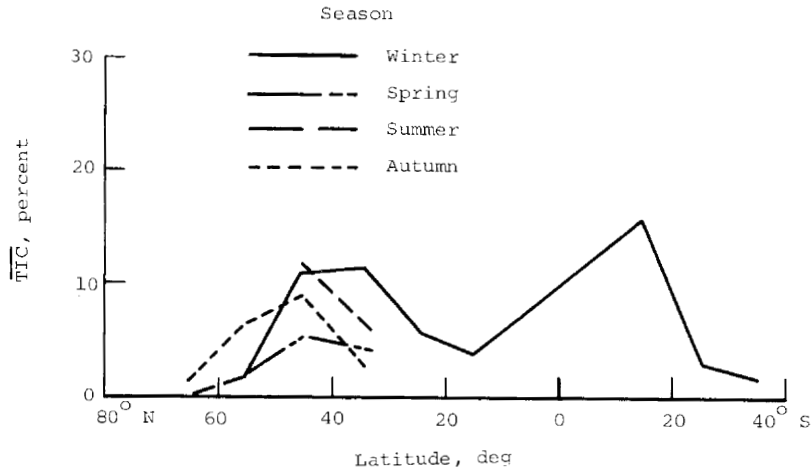


Figure 15.- Variation of average time in clouds with latitude by season. Only data with corresponding PD5 used (N = 7410).

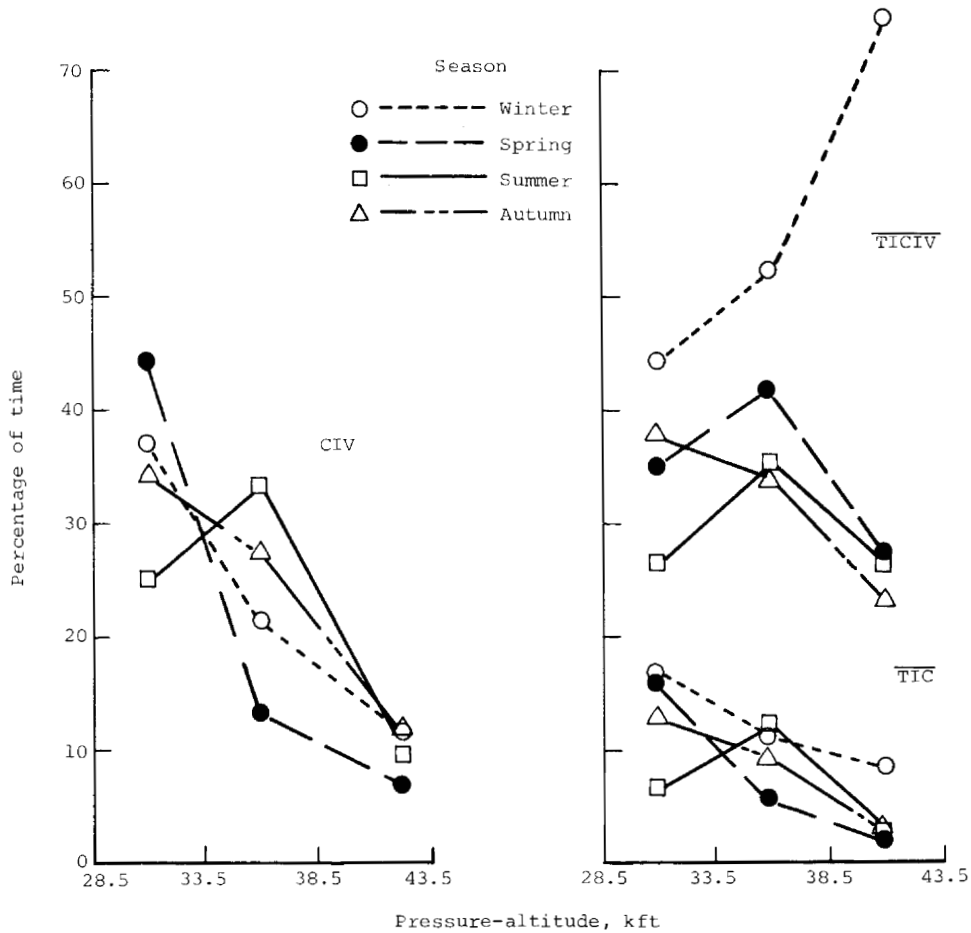


Figure 16.- Variation of cloudiness parameters with altitude by season at 40° to 50° N. Only data with corresponding PD5 used. (Also see fig. 11.)

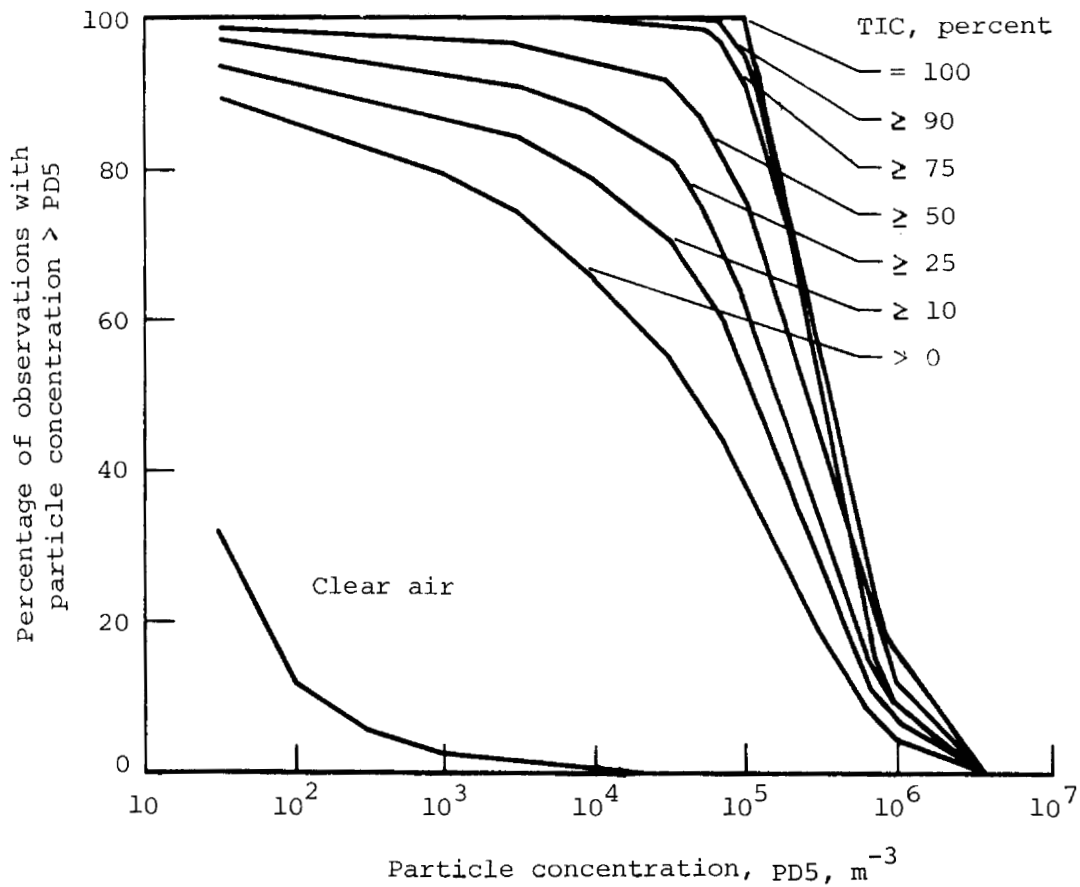
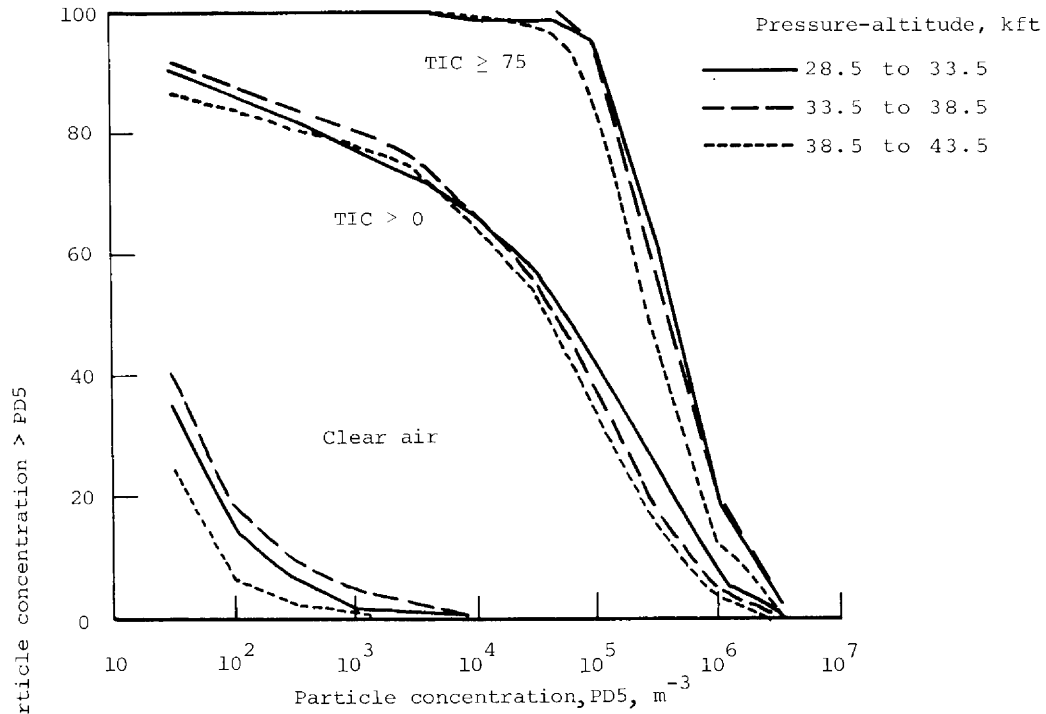
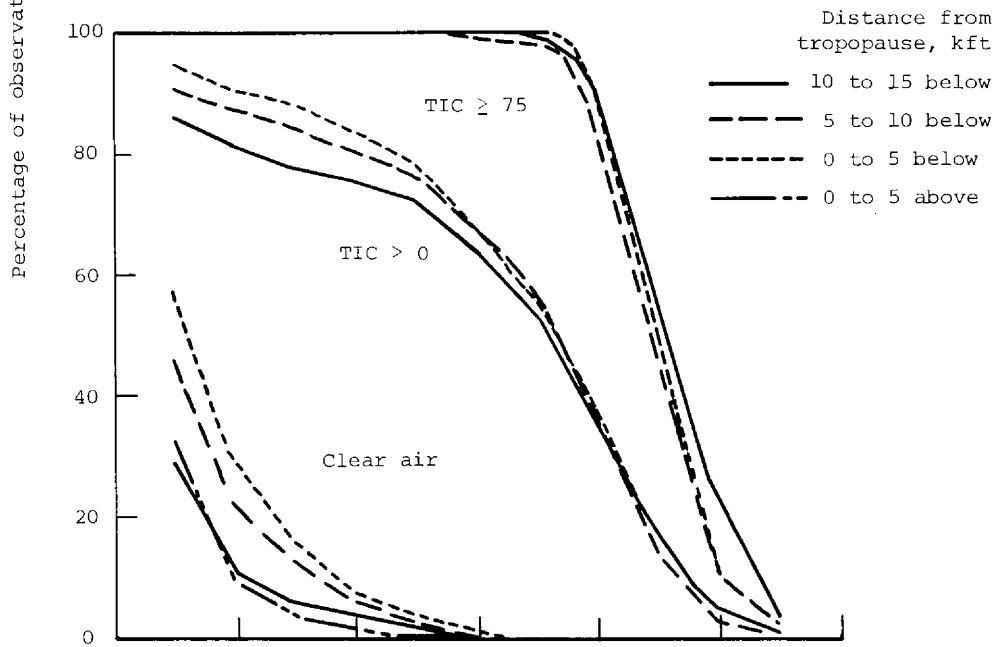


Figure 17.- Cumulative frequency distributions for particles $\geq 3 \mu\text{m}$ in diameter, in and out of clouds.



(a) Pressure-altitude.



(b) Distance from tropopause.

Figure 18.- Cumulative frequency distributions for particles $>3 \mu\text{m}$ in diameter, in and out of clouds.

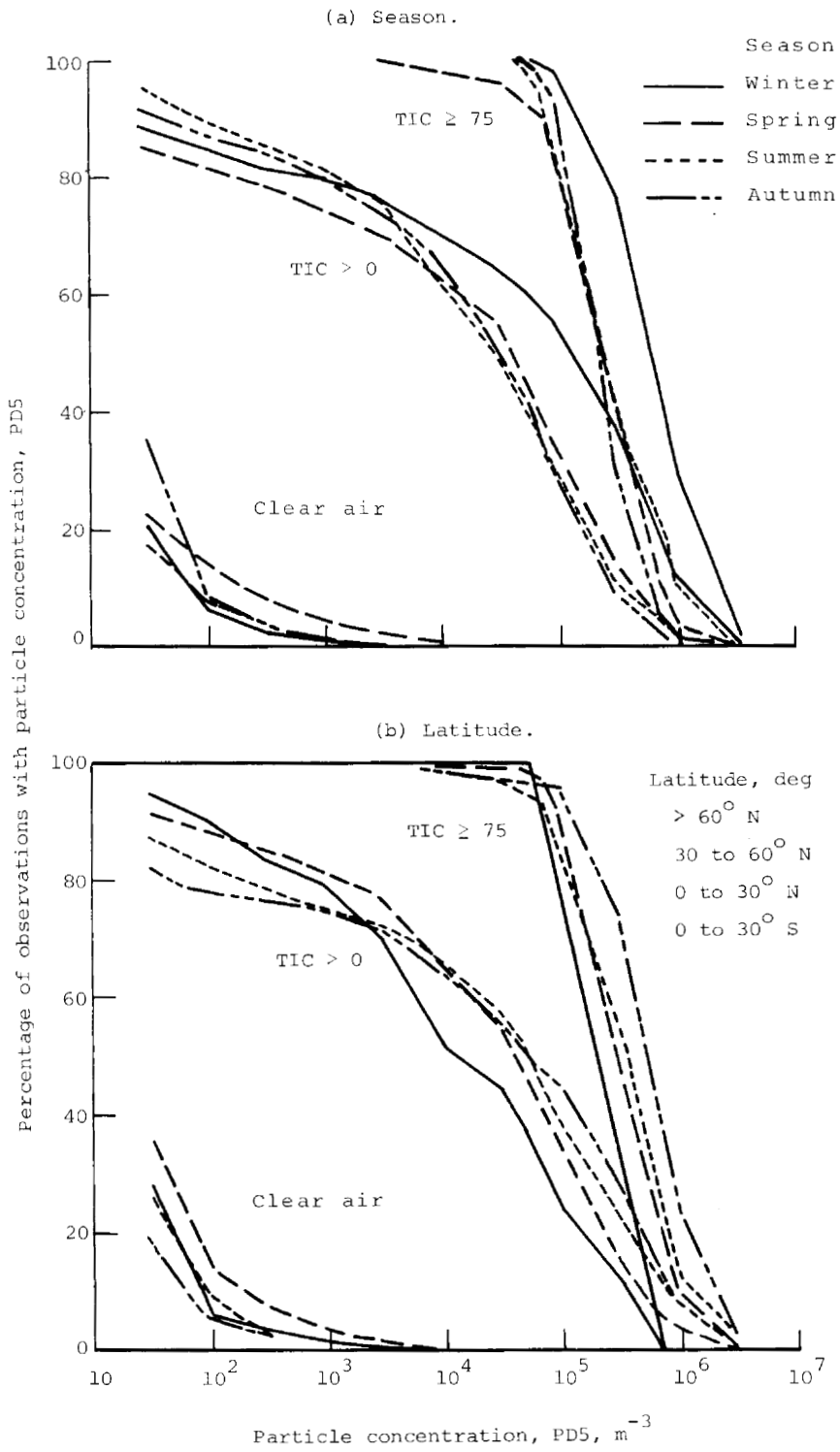
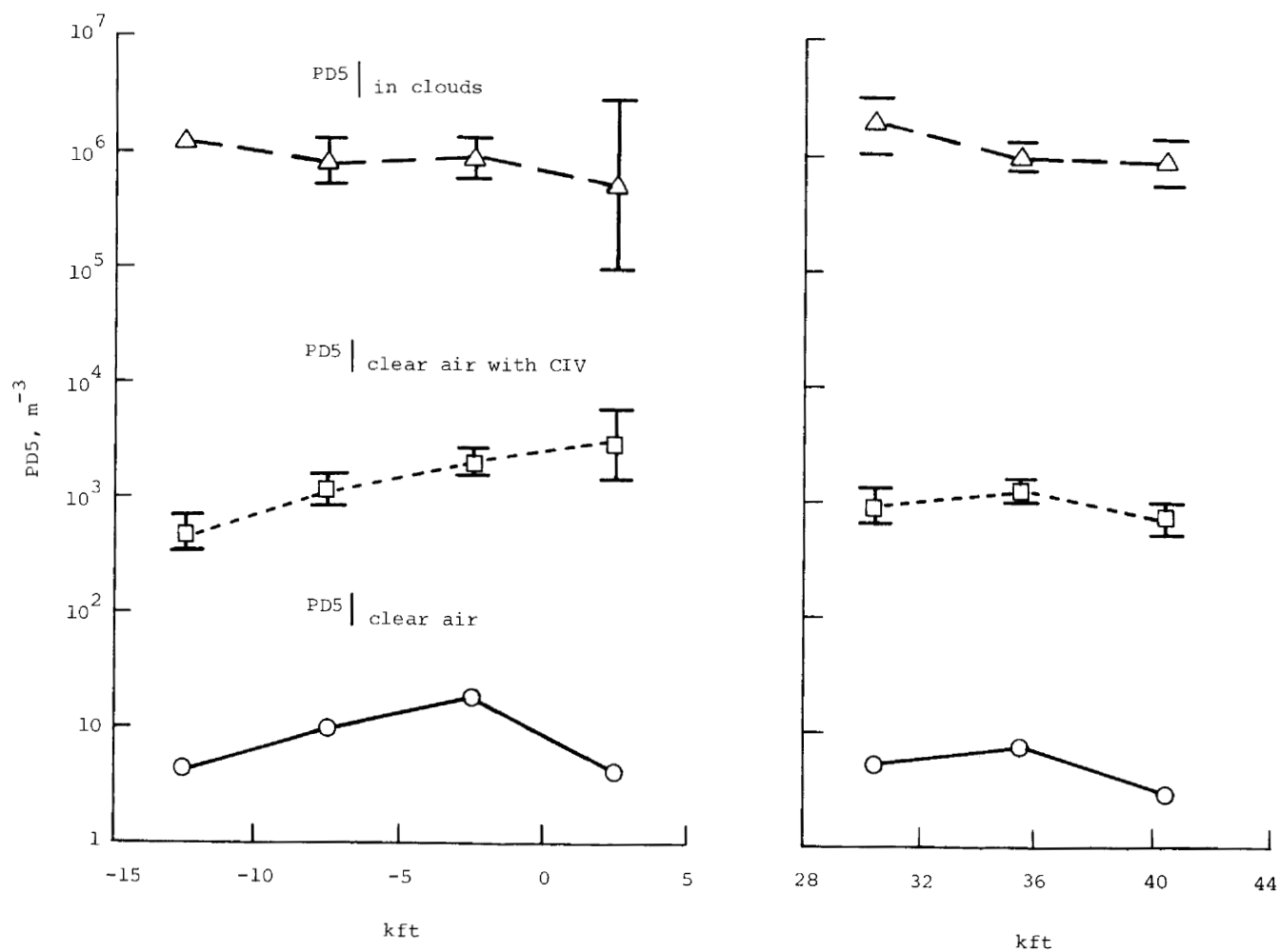


Figure 19.- Cumulative frequency distributions for particles $>3 \mu m$ in diameter, in and out of clouds.



(a) Distance from tropopause.

(b) Pressure-altitude.

Figure 20.- Variation of log-mean of particle concentration PD5 with altitude.

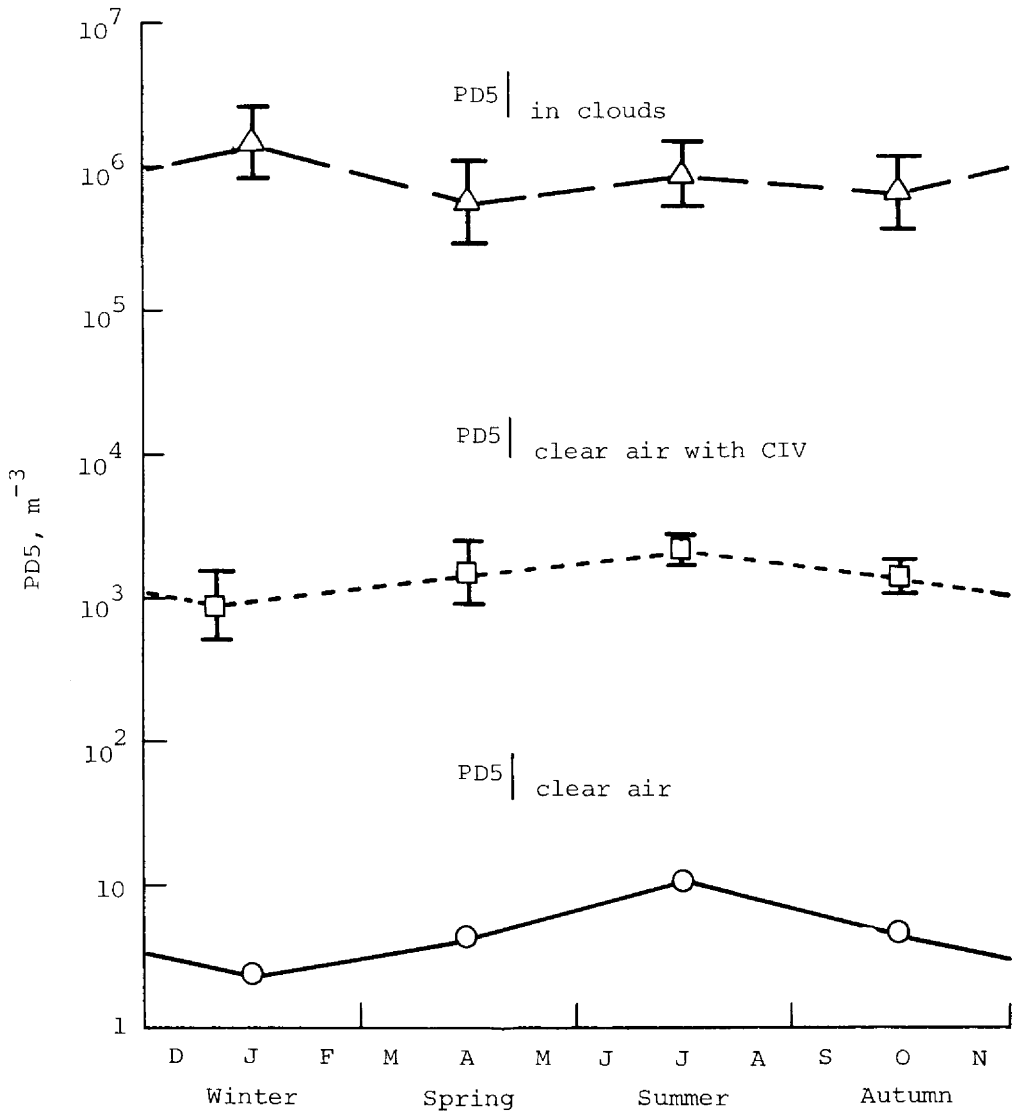


Figure 21.- Variation of log-mean of particle concentration PD5 with season at 30° to 60° N latitude.

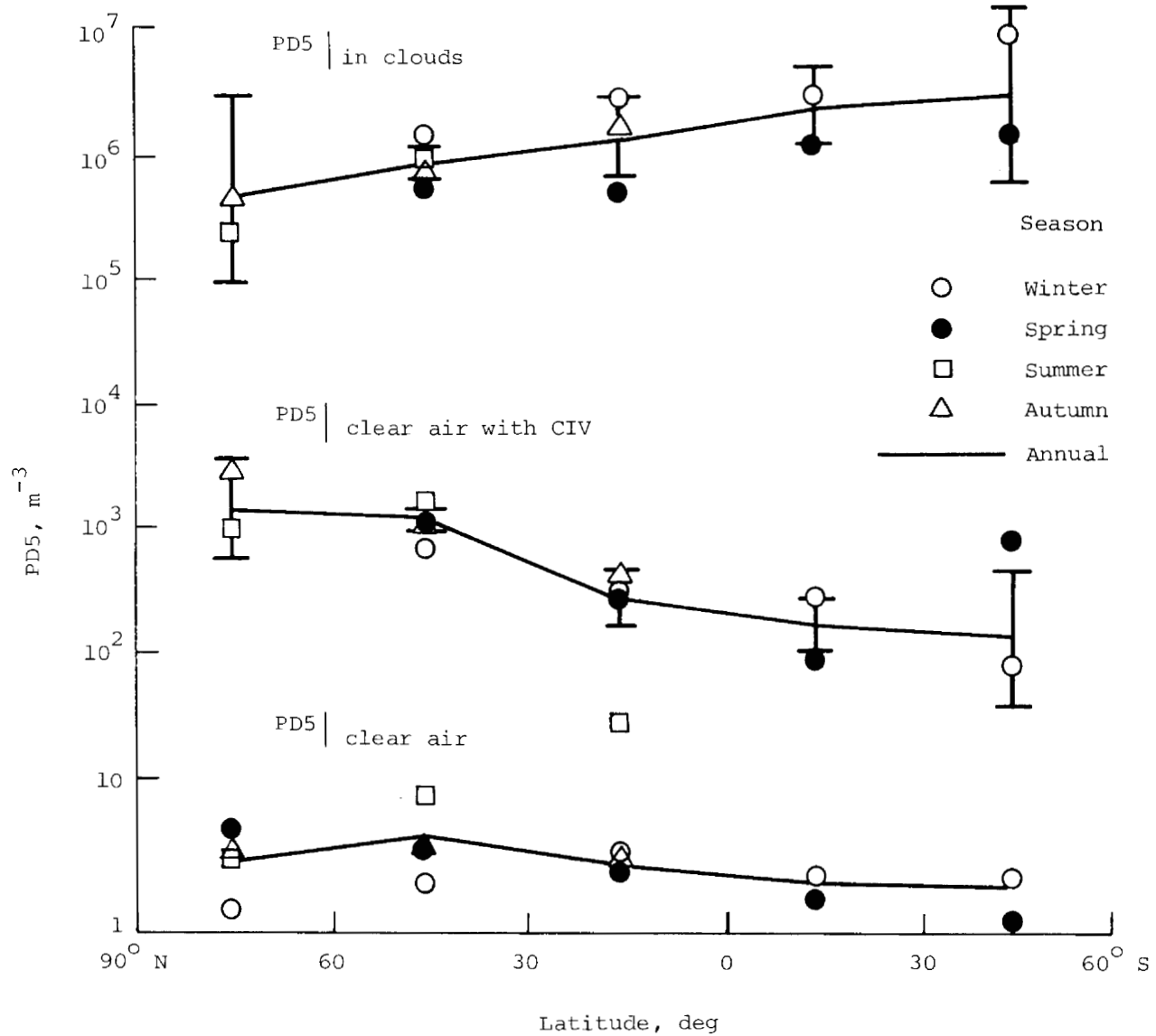


Figure 22.- Variation of log-mean of particle concentration PD5 with latitude by season.

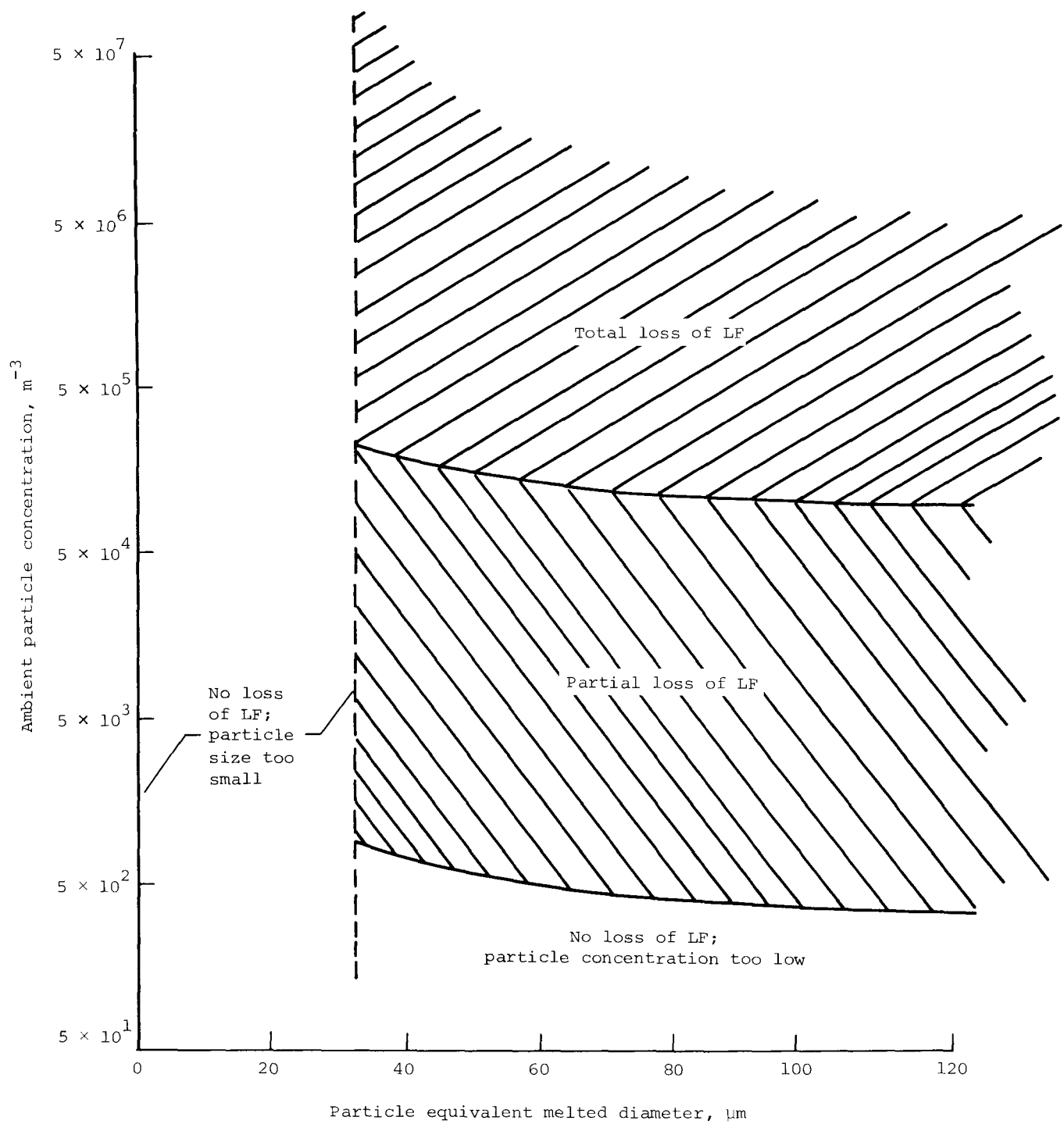


Figure 23.- Estimated LF degradation within clouds at 40 kft and 0.75 Mach.

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16. Abstract Summary statistics, tabulations, and variability studies are presented for cloud-encounter and particle-concentration data taken as part of the National Aeronautics and Space Administration (NASA) Global Atmospheric Sampling Program (GASP). Cloud encounter was experienced in about 15 percent of the data samples; however, the percentage varies with season, latitude, and altitude (particularly distance from the tropopause). In agreement with classical storm models, the data show more clouds in the upper troposphere in anticyclones than in cyclones. The concentration of particles with a diameter greater than 3 μm also varies with time and location, depending primarily on the horizontal extent of cloudiness. Some examples of the application of the statistical data to the estimation of the frequency of cloud encounter and laminar-flow loss to be expected on long-range airline routes are also presented.					
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