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Airborne Lidar Measurements of El Chichon Stratospheric Aerosols

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Preface

The results from one of five extensive lidar flight missions are presented in this report. One of the primary purposes of these missions was to determine the spatial distribution and aerosol characteristics of the El Chichon–produced stratospheric material. This particular mission covered 46°N to 46°S in October to November 1982. The other four missions took place in July 1982, January to February 1983, May 1983, and January 1984 and covered a wide range of latitudes.

This report contains representative profiles of lidar backscatter ratio, plots of integrated backscattering values versus latitude, and contours of backscatter mixing ratio versus altitude and latitude. In addition, tables containing numerical values of the backscatter ratio and backscattering function versus altitude are supplied for each profile. Although no attempt has been made to provide any scientific analysis with the data, this report is intended to give the results of the mission in a ready-to-use format.

The authors recognize the airborne lidar team of W. H. Fuller, Jr., and B. R. Rouse of the NASA Langley Research Center and W. H. Hunt and F. C. Diehl of Wyle Laboratories, whose dedicated efforts provided these data, and wish to thank the crew and supporting personnel at the NASA Wallops Flight Facility for providing excellent research airplane platforms for conducting these measurements. In addition, thanks go to the many groups at the various U.S. Air Force bases and the governments of Mexico, Panama, Peru, and Chile, which provided logistics support during this mission. Finally, the authors wish to express their appreciation to D. J. Hofmann and his group at the University of Wyoming for providing the dustsonde data.

Contents

Summary

A coordinated flight mission to determine the spatial distribution and aerosol characteristics of the El Chichon–produced stratospheric material is described. The mission covered 46°N to 46°S in October to November 1982. Measurement rendezvous between balloon-, airplane-, and satellite-borne sensors were accomplished. This report presents the lidar data from the flight mission.

Representative profiles of lidar backscatter ratio, plots of integrated backscattering values versus latitude, and contours of backscatter mixing ratio versus altitude and latitude are presented. In addition, tables containing numerical values of the backscatter ratio and backscattering function versus altitude are supplied for each profile. The bulk of the material produced by the El Chichon eruptions of late March–early April 1982 resided between latitudes from 5–7°S to 35–37°N and was concentrated above 21 km in a layer that peaked at 23 to 25 km. In this latitude region, peak backscatter ratios at a wavelength of 0.6943 μm were approximately 24. Material below 21 km was less massive but moved to the poles much more rapidly. Some material, for example, reached the Arctic region by late April. No attempt has been made in this report to give any detailed explanations or interpretations of the data. The report provides, in a ready-to-use format, the results of this mission to be used in atmospheric and climatic studies.

Introduction

The late March–early April 1982 eruptions of El Chichon in Mexico (17.3°N, 93.2°W) produced the largest enhancements of stratospheric aerosols in at least 20 years. Because of the effects of the eruption cloud from El Chichon and the need for characterizing the cloud spatially, an experimental survey flight was carried out in October to November 1982 to map its latitudinal distribution. A NASA Electra airplane, outfitted with a lidar system, a number of multispectral sun photometers, a Brewer spectrophotometer, and a multispectral zenith flux radiometer, was flown during the period from October 19 through November 7, 1982, between latitudes of 46°N and 46°S in a coordinated field campaign. (See fig. 1.) Simultaneous measurement rendezvous were planned and accomplished between balloon-, airplane-, and satellite-borne sensors. As part of another program, the Electra was outfitted with a number of in situ instruments for measuring the characteristics of the outgassing fumaroles of El Chichon.

This report presents the results of the lidar stratospheric measurements taken over the entire mission. A more detailed scientific analysis of the lidar measurements is contained in McCormick et al. (ref. 1) and McCormick and Swissler (ref. 2). A companion paper by Spinhirne (ref. 3) reported the results of the optical thickness measurements, and another companion paper by Swissler et al. (ref. 4) reported the comparison of the two data sets. Coordinated balloon-borne in situ measurements of aerosol size distribution were reported by Hofmann and Rosen (ref. 5).

Airborne Lidar System

The airborne lidar system used for the measurements presented in this report consists of a ruby laser, nominally emitting 1 joule/pulse at 0.5 pulse/second at a wavelength (λ) of 0.6943 μm during flight, and a 35.6-cm cassegrainian-configured receiving telescope. Two photomultipliers, electronically switched on at specific times after laser firing, are used to enhance dynamic range. The photomultiplier output signals are processed with an analog-to-digital converter and microprocessor computer, stored on magnetic tape, and displayed on an interactive terminal. The transmitted output divergence is 1.0 mrad, and the receiver field-of-view is 2.0 mrad. Two 40.6-cm quartz windows separated by 1 m are used in the top of the fuselage of the airplane. One window is used for the laser transmitter, and the other, for the telescope receiver. The signal becomes usable at 3 to 4 km above the altitude of the airplane. A detailed error analysis for this system is described in Russell et al. (ref. 6).

Flight Path

The flight path for the October to November 1982 mission is given in figure 1. Normally, the airborne lidar system must operate in darkness. However, under optimum conditions (no clouds, significant stratospheric loading, and good normalization), data can be obtained under early morning to midmorning and midafternoon to late afternoon sun angles. One-half the flight leg shown in figure 1 was to be flown at night with all latitudes being covered by lidar. As expected, overlying upper tropospheric clouds prevented measurements at some latitudes, but most latitudes were covered, and a remarkable amount of high-quality data were successfully recorded. Table A1 (in the appendix) contains an abbreviated flight log for the mission and lists the date, time, location, and flight altitude for those legs of the mission where good quality lidar data were obtained.

Lidar Profiles

The lidar backscatter ratio (or scattering ratio) is defined as

$$R(z) = 1 + \frac{f_A(z)}{f_M(z)} \tag{1}$$

where f_A is the aerosol backscattering function, or scattering function $(\text{km-sr})^{-1}$, and f_M is the molecular backscattering function, both at altitude z (ref. 7). Representative vertical profiles of lidar scattering ratio for the flight survey are shown in figures 2 to 43. The error bars reflect the 1-σ uncertainty in the derived scattering ratio. The tropopause height is indicated by an arrow. Tables A2 to A43 (in the appendix) contain numerical values of the aerosol scattering ratio and scattering function versus altitude for each of these profiles.

These profiles actually underestimate the scattering ratio (and scattering function) by up to 10 percent. In obtaining $R(z)$ from the lidar measurement, the transmission model used was based on background aerosol conditions. This systematic error is not reflected in the error bars. Later lidar flight missions used the lidar data to iteratively update the model to reflect the actual aerosol conditions.

The scattering ratio profiles, reported at 0.15-km intervals, have been smoothed over 0.3 km. The profiles were normalized to 1, a value which would be obtained only if no aerosols were present at some altitude within the normalization region. Occasionally, the numerical values of scattering ratio are less than 1, and the corresponding scattering function is negative. This occurs when the profile contains minima outside the normalization region. Minimum values of the scattering ratio and scattering function should be considered 1 and 0, respectively.

As shown in figures 2 through 43, the bulk of the material produced by the El Chichon eruptions resided between latitudes from 5–7°S to 35–37°N and was concentrated above 21 km in a layer that peaked at 23 to 25 km. In this latitude region, peak scattering ratios at $\lambda = 0.6943$ μm were approximately 24.

Integrated Backscattering

The integrated aerosol backscattering function is defined as

$$\int_{h_T}^{28\text{ km}} f_A(z)\, dz \qquad (2)$$

where f_A is the aerosol backscattering function $(\text{km-sr})^{-1}$ at altitude z, and h_T is the height of the tropopause at the location where the lidar data were taken. The integrated aerosol backscattering function for all usable lidar data from the October to November 1982 mission is plotted in figure 44. The solid lines represent values computed from profiles taken on the northbound flight, and the dashed lines represent values computed from profiles taken on the southbound flight. The northbound and southbound data, combined and averaged into 2.5° latitude bins, are shown in figure 45. A small correction to compensate for the use of a background transmission model (see Lidar Profiles) has been applied to the integrated aerosol backscattering values plotted in figures 44 and 45.

Contours of Backscatter Mixing Ratio

The backscatter mixing ratio is defined as f_A/f_M, or $R(z) - 1$. The symbol $R(z)$ was defined previously in equation (1). Contours of backscatter mixing ratio were plotted for all the southbound and northbound lidar data to determine the vertical as well as the latitudinal distribution of the El Chichon–produced aerosol. Figures 46 and 47 contain the southbound and northbound contours, respectively. The bulk of the material produced by the El Chichon eruptions of late March–early April 1982 is shown to reside above 21 km. Material below 21 km was less massive but moved to the poles much more rapidly. Some material, for example, reached the Arctic region by late April (ref. 1).

Optical Depth and Mass

By using the size distribution and index of refraction data from a coordinated balloon dustsonde measurement on October 23, 1982, (ref. 5), the total mass of material from El Chichon in the stratosphere at this time was calculated to be approximately 12 megatonnes (12 Tg). The conversion value from integrated backscattering to column density for this calculation was 18.3 g-sr/m^2 over most of the layer with a background model value of 23.9 g-sr/m^2 used over the highest southern latitudes, where there was a minimum effect due to El Chichon. Weighting these data by the surface area of the Earth for each latitude bin yields the mass loading. See McCormick and Swissler (ref. 2) and McCormick et al. (ref. 1) for more details.

Similarly, by using the aerosol characteristics determined from the dustsonde flight as representative of the aerosol over the most massive part of the stratospheric cloud, the value for converting integrated backscattering to optical depth was calculated to be 42.8 ± 7.4 sr. The conversion value for stratospheric background is 58.8 ± 2.5 sr. Using these values gave very good agreement with onboard sun photometer measurements (ref. 4). Peak optical depth values of about 0.14 at $\lambda = 0.6943$ μm were determined at low latitudes, where the upper layer resided.

Concluding Remarks

This report has presented a summary of the lidar data obtained during the October to November 1982 flight mission, which was conducted to determine the spatial distribution and aerosol characteristics of the El Chichon–produced stratospheric material. Vertical profiles of aerosol backscatter ratio were determined over

the latitudes of the flight (46°N to 46°S), which apparently covered the most massive portion of the cloud produced by El Chichon that existed at that time. The peak of the most massive layer was at 23 to 25 km and extended over latitudes from 5–7°S to 35–37°N. Peak backscatter ratio values at a wavelength of 0.6943 μm were about 24. Material below 21 km was less massive but moved to the poles much more rapidly. Some material, for example, reached the Arctic region by late April. Plots of integrated backscattering values versus latitude and contours of backscatter mixing ratio versus altitude and latitude further describe the latitudinal and vertical distribution of the El Chichon aerosol. In addition, tables containing numerical values of the backscatter ratio and backscattering function versus altitude have been supplied for each profile. Thus, the lidar data from this mission have been presented in a ready-to-use format for further scientific analysis.

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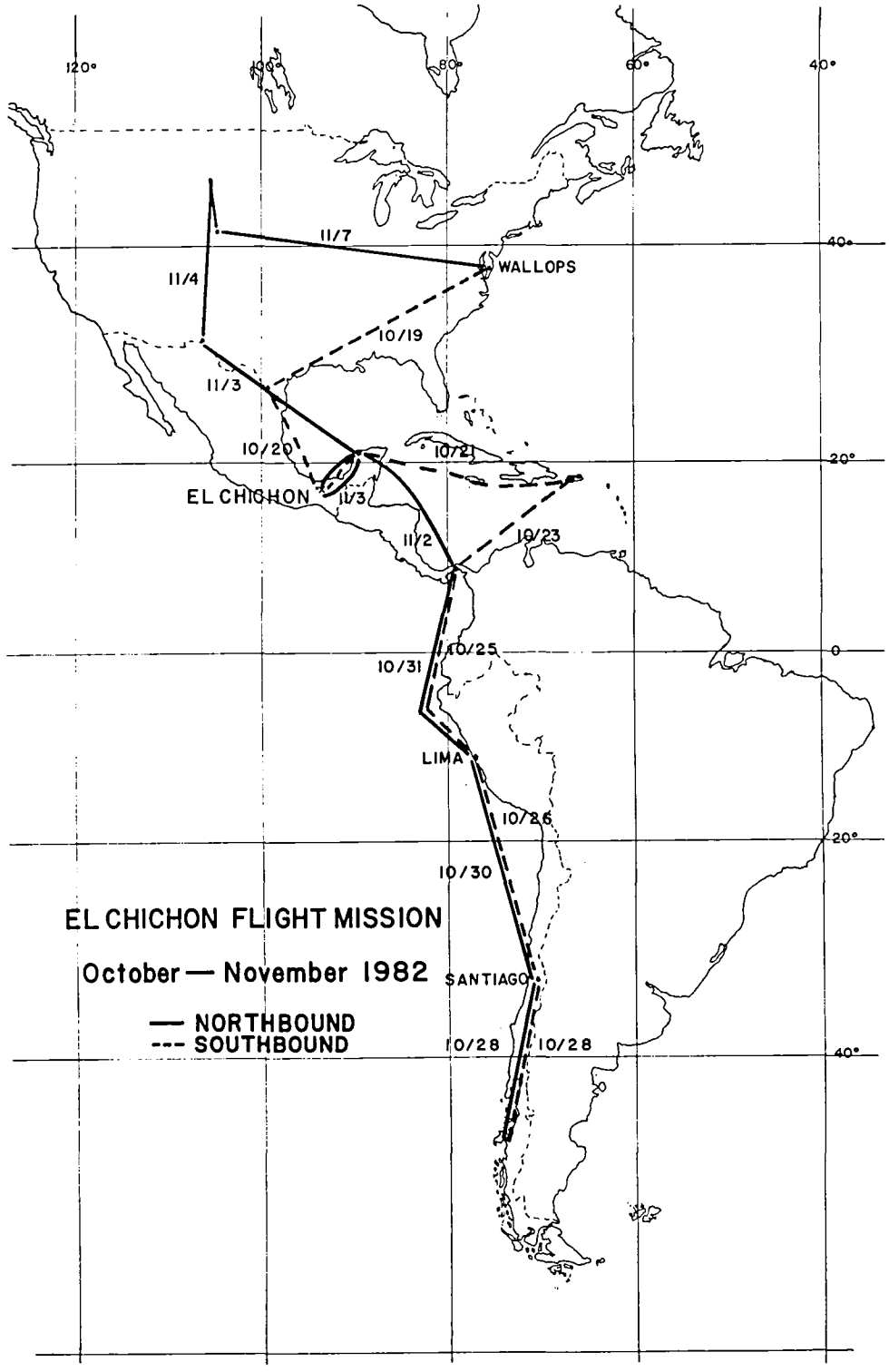

Figure 1. Flight path of NASA Electra airplane from October 19 to November 7, 1982.

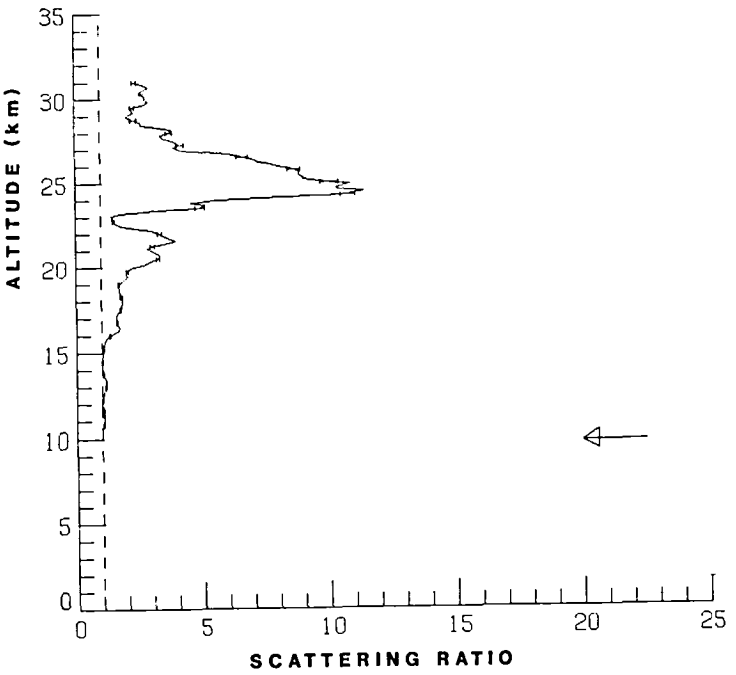

Figure 2. Lidar scattering-ratio profile taken on October 19, 1982, at GMT (Greenwich mean time) 0713-0733 between 37.3°N, 78.0°W and 37.1°N, 80.0°W.

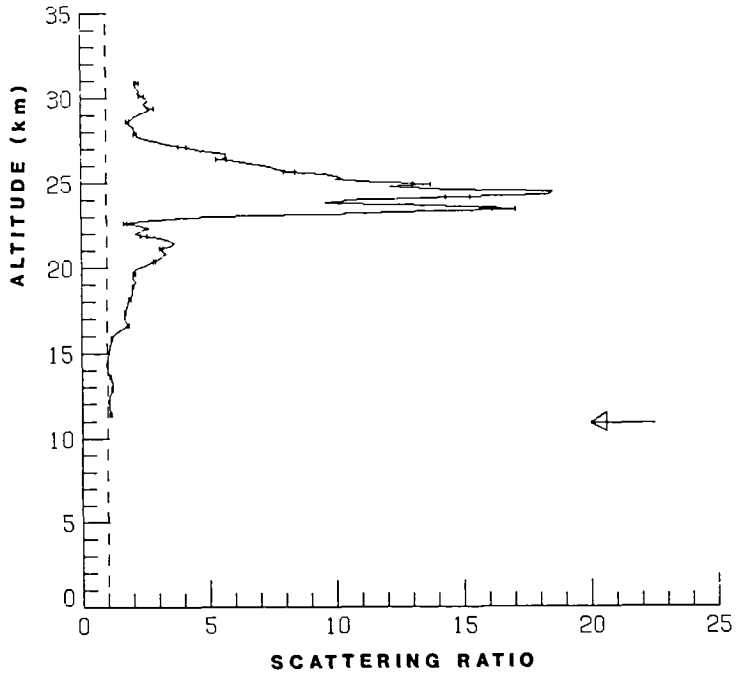

Figure 3. Lidar scattering-ratio profile taken on October 19, 1982, at GMT 0806-0827 between 36.3°N, 83.0°W and 35.3°N, 84.7°W.

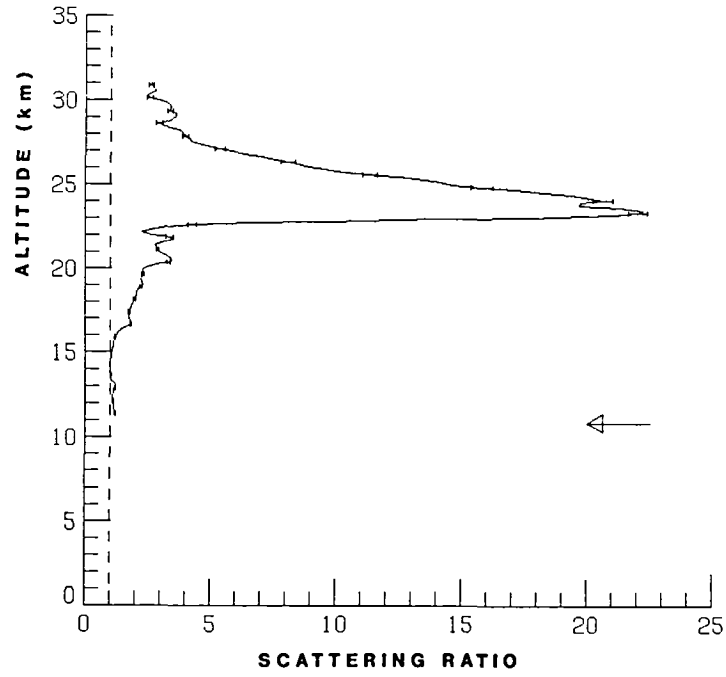

Figure 4. Lidar scattering-ratio profile taken on October 19, 1982, at GMT 0827-0849 between 35.3°N, 84.7°W and 34.2°N, 86.0°W.

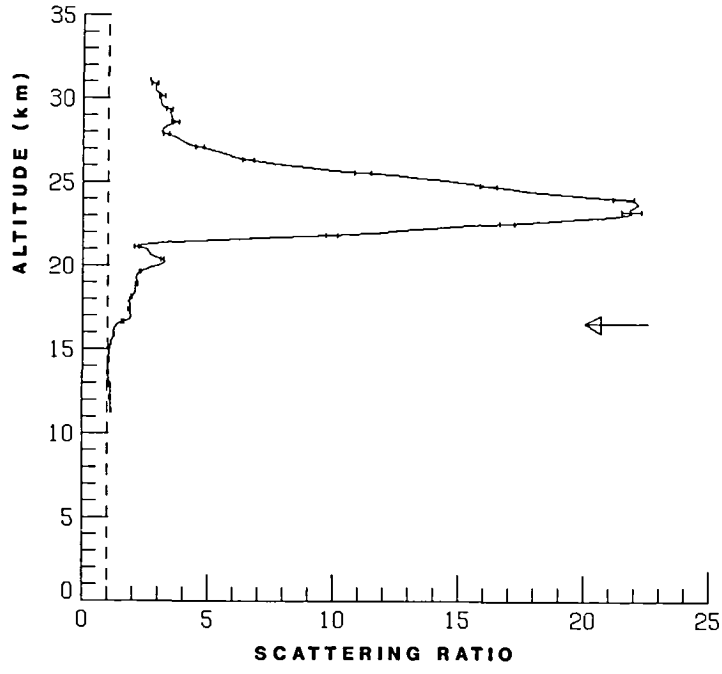

Figure 5. Lidar scattering-ratio profile taken on October 19, 1982, at GMT 0912-0934 between 33.1°N, 87.7°W and 32.3°N, 89.5°W.

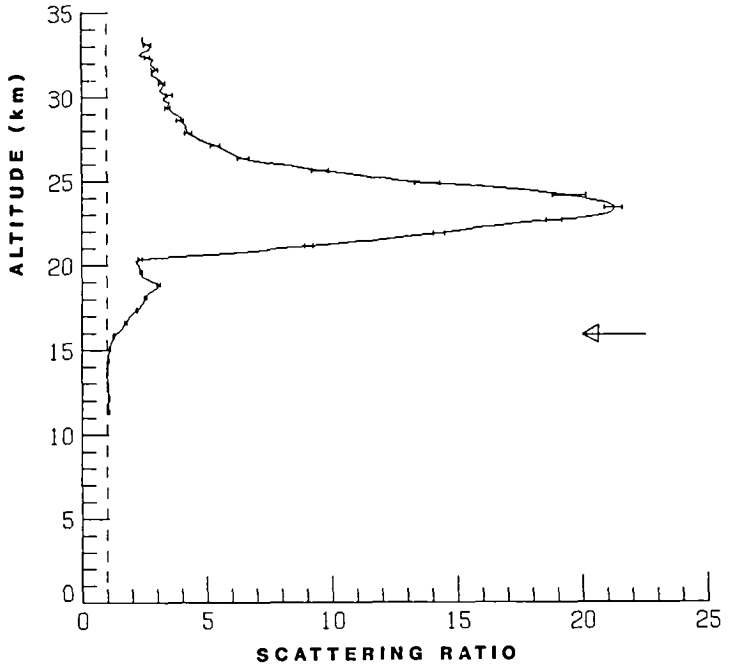

Figure 6. Lidar scattering-ratio profile taken on October 19, 1982, at GMT 1137-1158 between 26.3°N, 97.3°W and 26.9°N, 98.6°W.

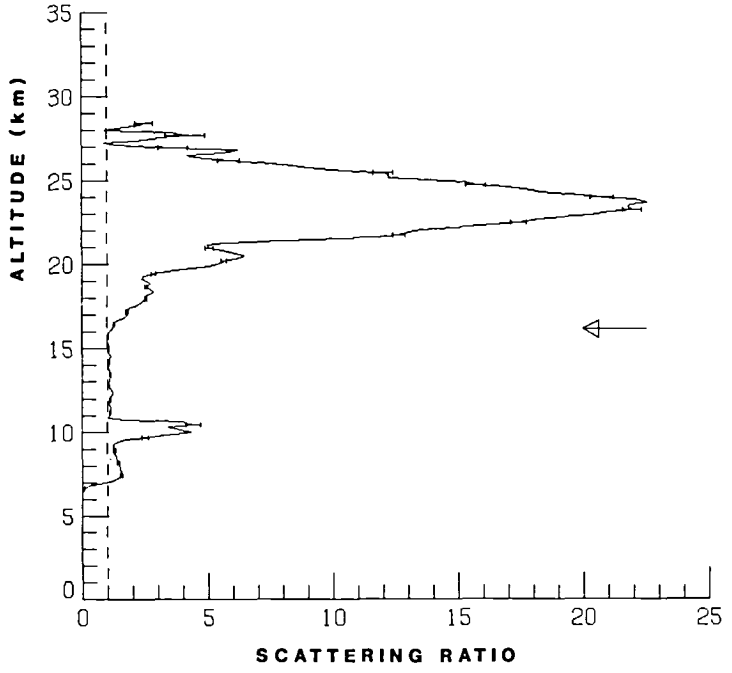

Figure 7. Lidar scattering-ratio profile taken on October 20, 1982, at GMT 2028-2042 between 21.8°N, 97.6°W and 20.7°N, 97.1°W.

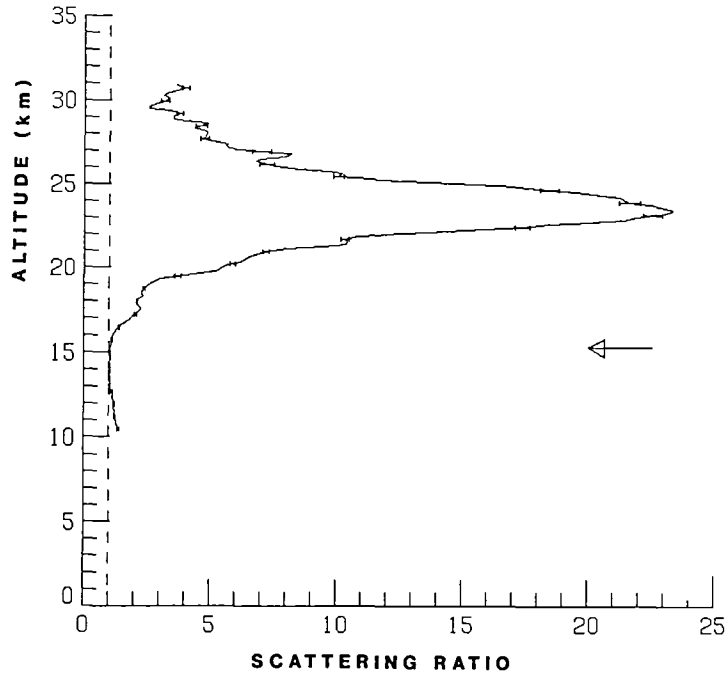

Figure 8. Lidar scattering-ratio profile taken on October 21, 1982, at GMT 2338-2345 between 19.5°N, 86.3°W and 19.2°N, 86.5°W.

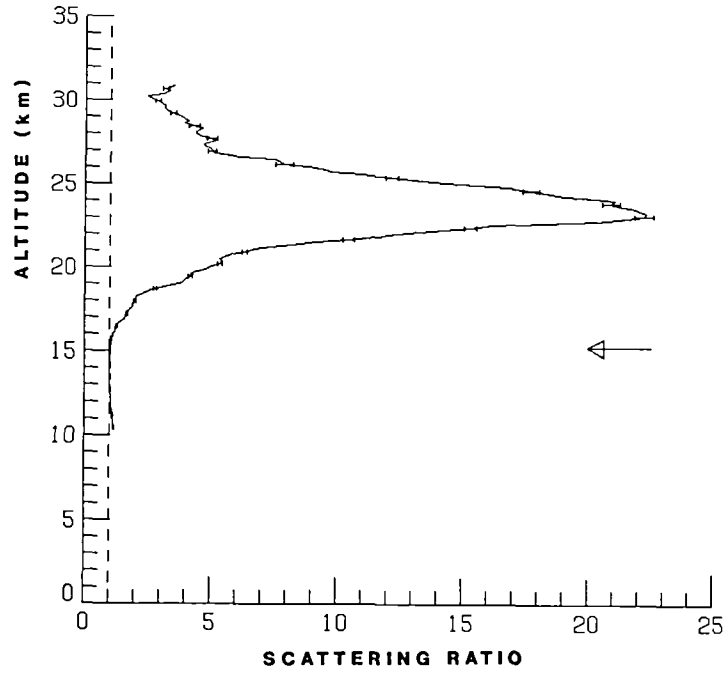

Figure 9. Lidar scattering-ratio profile taken on October 22, 1982, at GMT 0027-0037 between 17.4°N, 82.8°W and 17.4°N, 82.0°W.

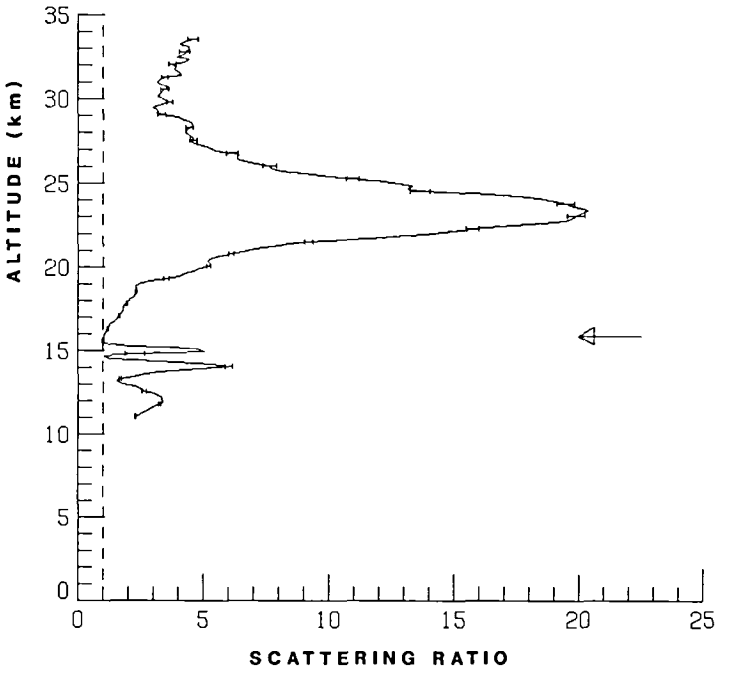

Figure 10. Lidar scattering-ratio profile taken on October 22, 1982, at GMT 0255-0307 between 18.1°N, 70.0°W and 18.4°N, 69.7°W.

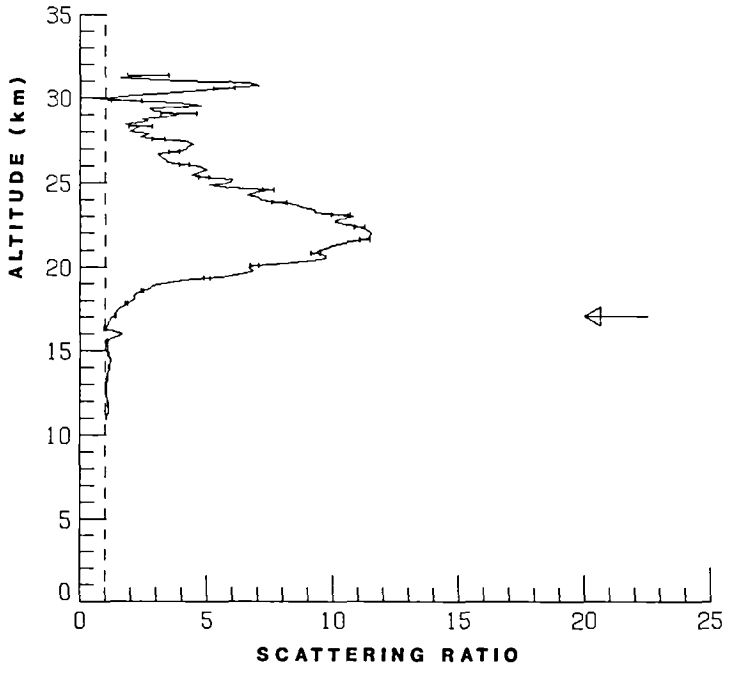

Figure 11. Lidar scattering-ratio profile taken on October 25, 1982, at GMT 1943-1947 between 4.1°S, 79.5°W and 4.4°S, 79.4°W.

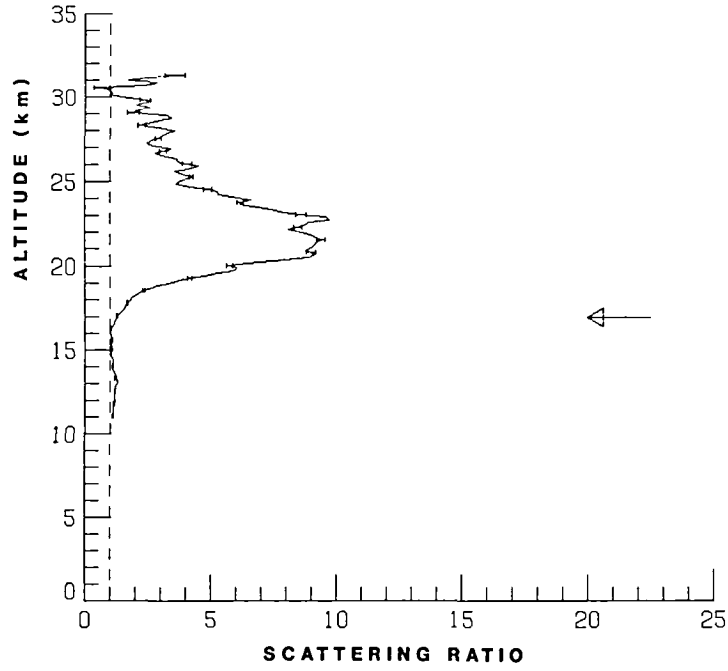

Figure 12. Lidar scattering-ratio profile taken on October 25, 1982, at GMT 2003-2010 between 5.6°S, 79.1°W and 6.1°S, 78.9°W.

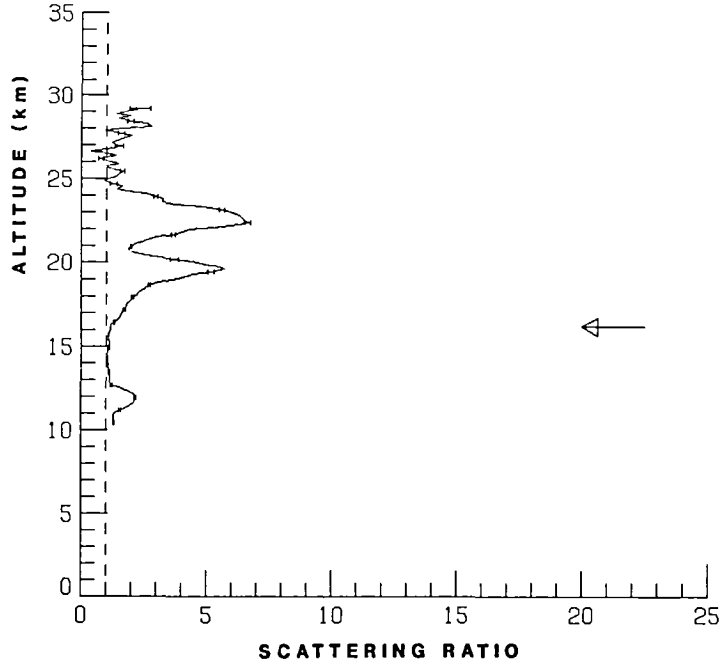

Figure 13. Lidar scattering-ratio profile taken on October 26, 1982, at GMT 1900-1914 between 18.3°S, 74.5°W and 19.4°S, 74.2°W.

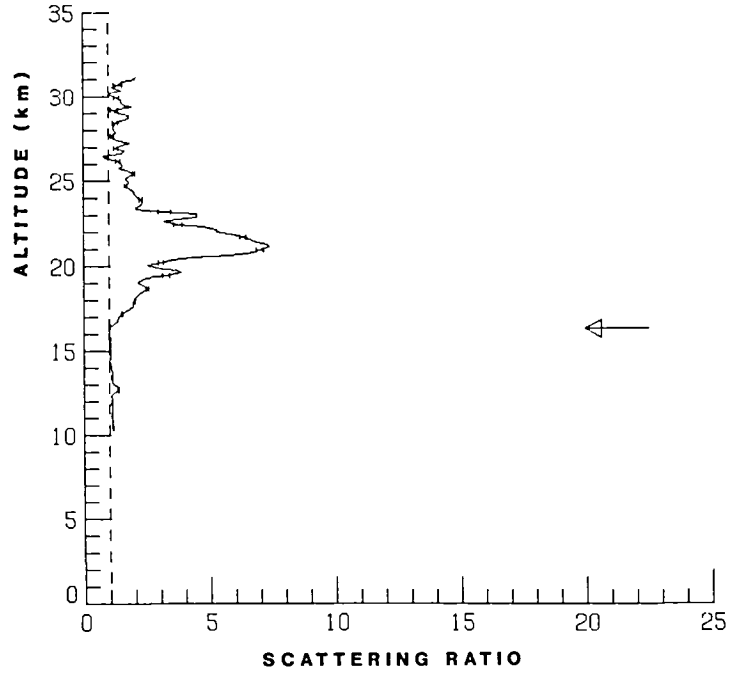

Figure 14. Lidar scattering-ratio profile taken on October 26, 1982, at GMT 2023-2043 between 24.6°S, 72.7°W and 26.3°S, 72.3°W.

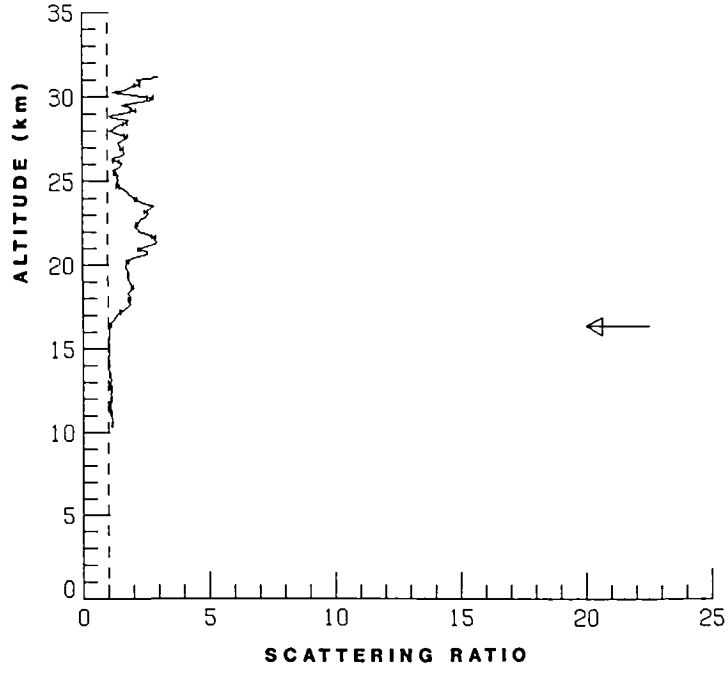

Figure 15. Lidar scattering-ratio profile taken on October 26, 1982, at GMT 2043-2103 between 26.3°S, 72.3°W and 28.0°S, 71.9°W.

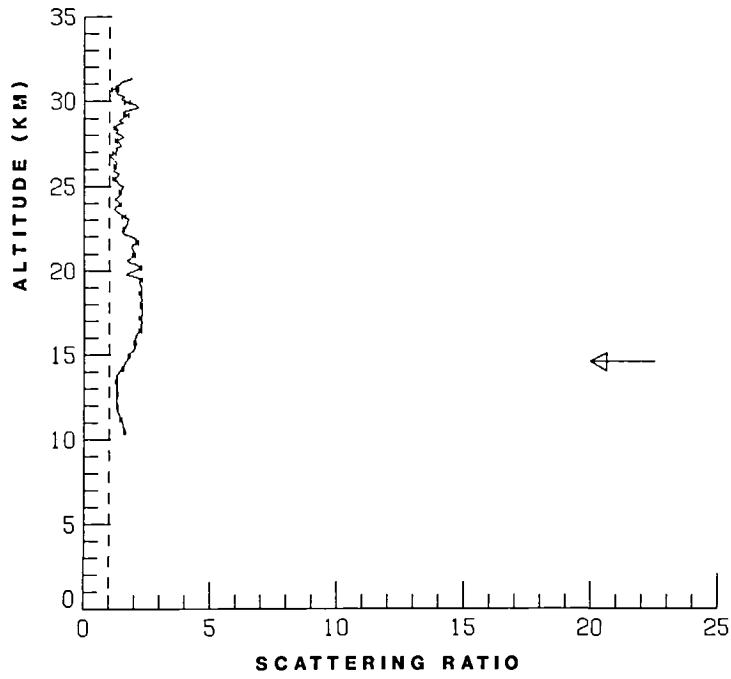

Figure 16. Lidar scattering-ratio profile taken on October 28, 1982, at GMT 2205-2229 between 35.0°S, 71.5°W and 36.7°S, 71.9°W.

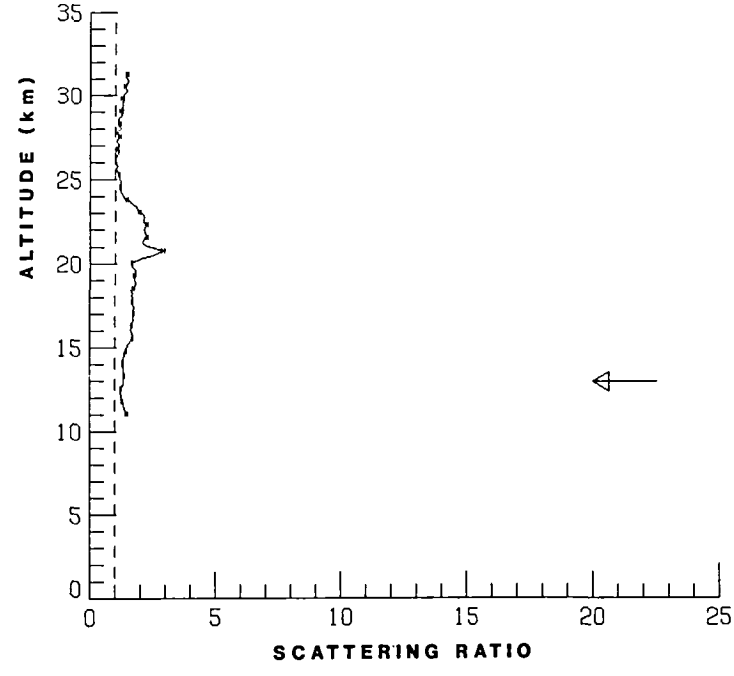

Figure 17. Lidar scattering-ratio profile taken on October 28, 1982, at GMT 2318-2358 between 40.2°S, 72.5°W and 42.9°S, 73.3°W.

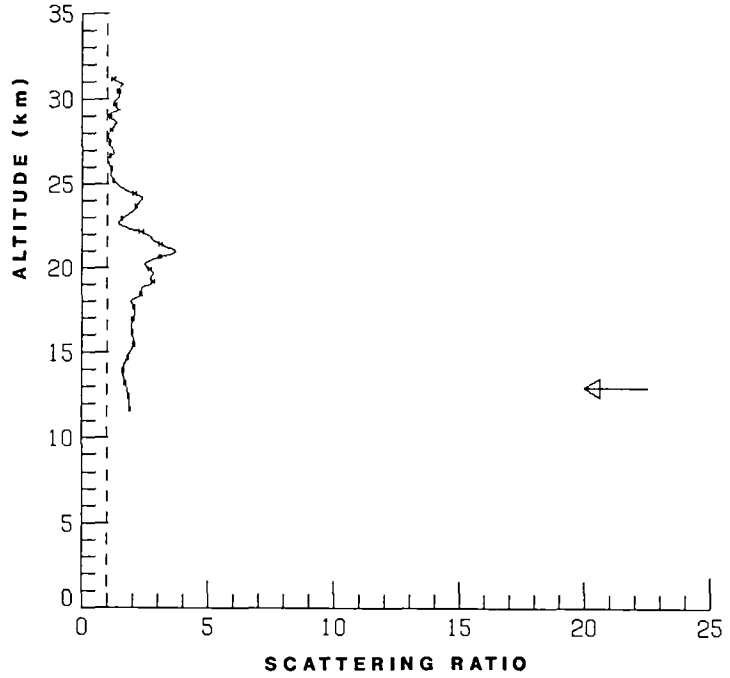

Figure 18. Lidar scattering-ratio profile taken on October 29, 1982, at GMT 0005-0034 between 43.4°S, 73.3°W and 45.4°S, 73.5°W.

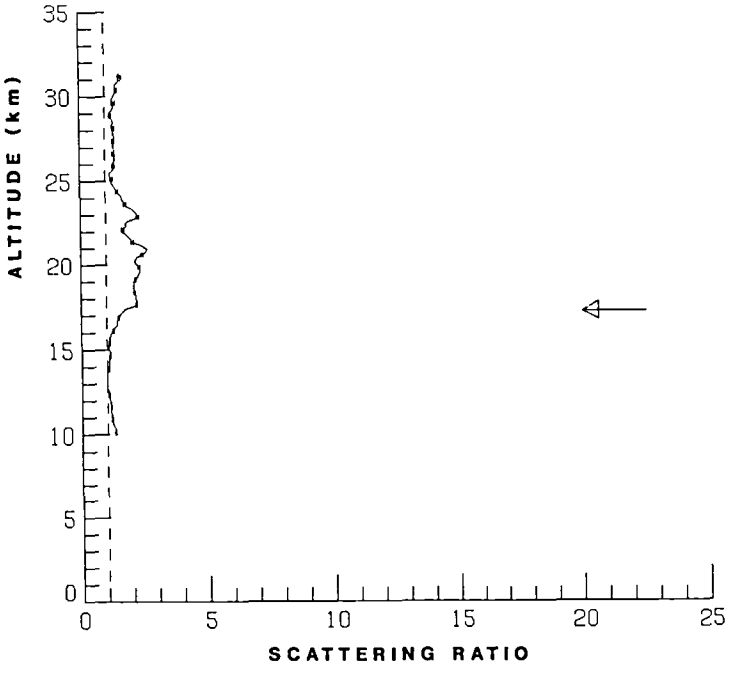

Figure 19. Lidar scattering-ratio profile taken on October 30, 1982, at GMT 0231-0305 between 32.0°S, 71.5°W and 29.5°S, 71.7°W.

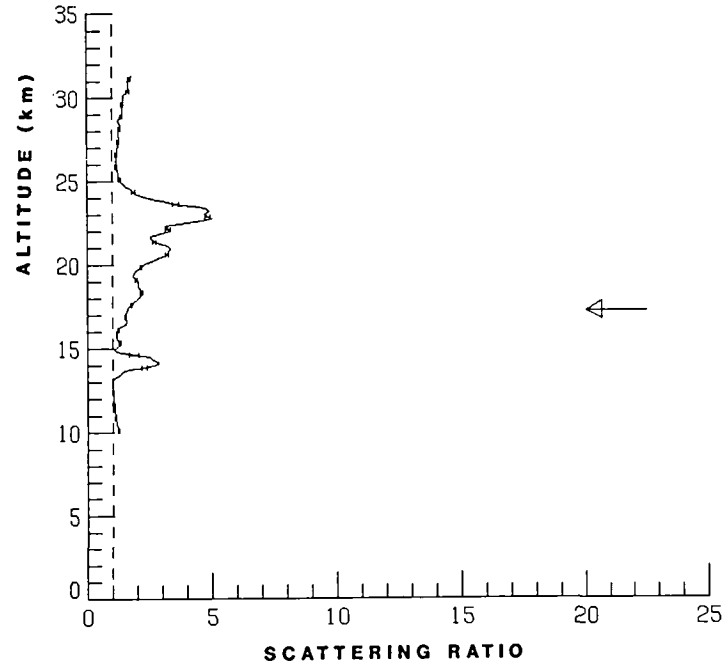

Figure 20. Lidar scattering-ratio profile taken on October 30, 1982, at GMT 0343-0417 between 26.7°S, 72.5°W and 23.9°S, 73.1°W.

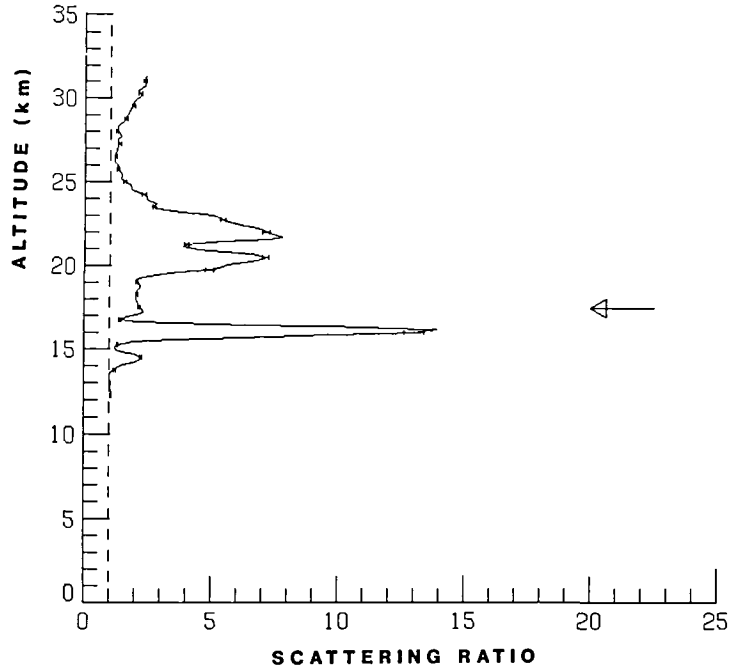

Figure 21. Lidar scattering-ratio profile taken on October 30, 1982, at GMT 0605-0623 between 15.3°S, 75.1°W and 14.3°S, 76.4°W.

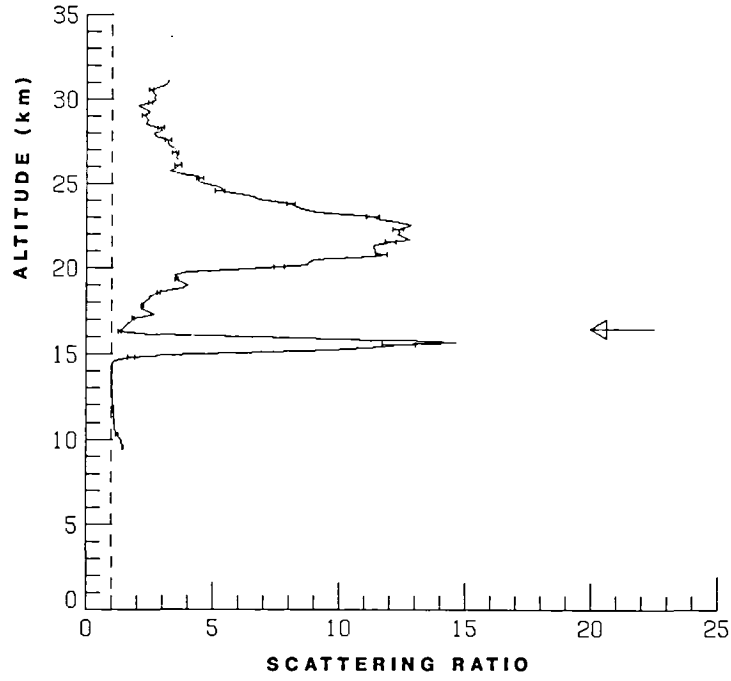

Figure 22. Lidar scattering-ratio profile taken on October 31, 1982, at GMT 0221-0228 between 7.9°S, 79.4°W and 7.4°S, 79.7°W.

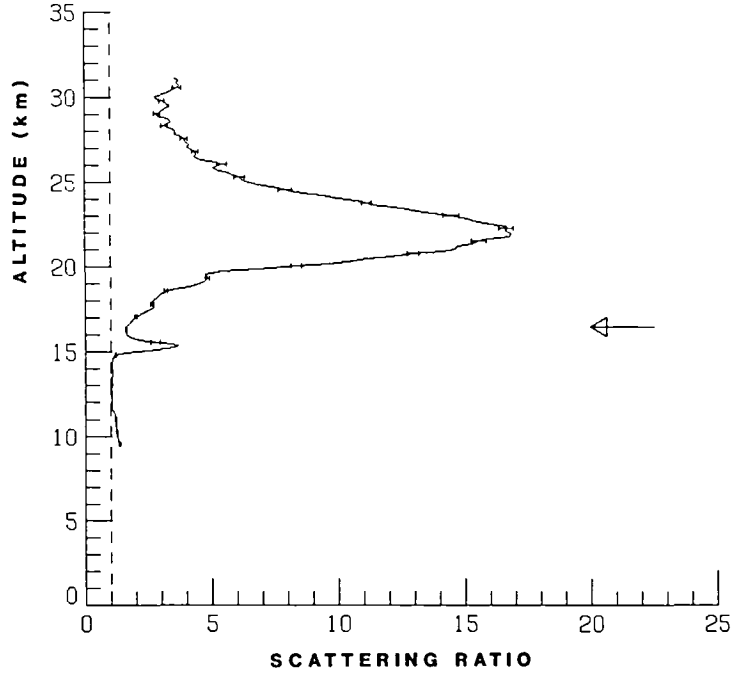

Figure 23. Lidar scattering-ratio profile taken on October 31, 1982, at GMT 0235-0242 between 6.9°S, 80.0°W and 6.6°S, 79.9°W.

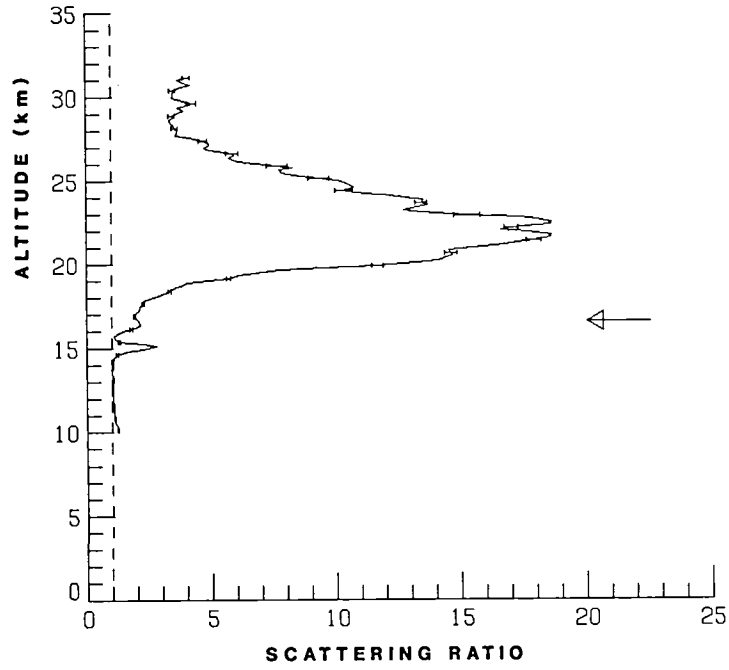

Figure 24. Lidar scattering-ratio profile taken on October 31, 1982, at GMT 0348-0355 between 2.1°S, 81.6°W and 1.5°S, 81.6°W.

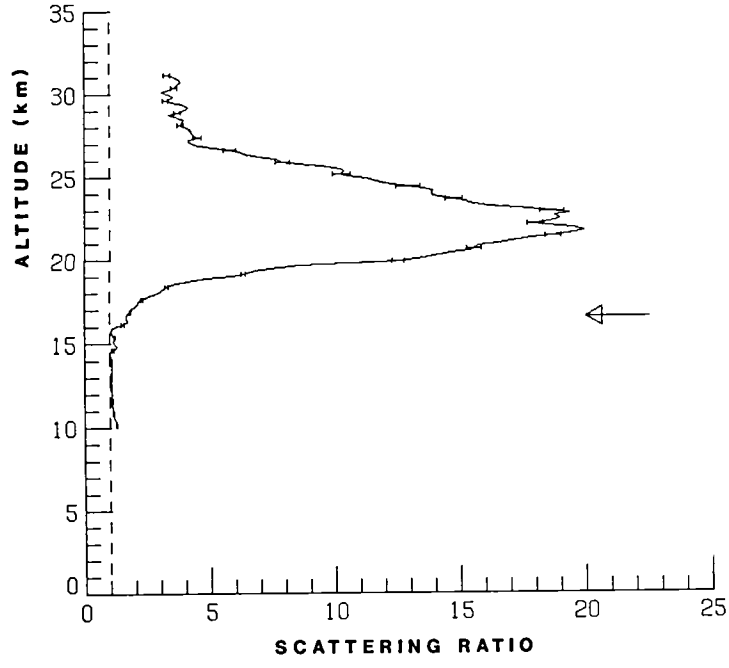

Figure 25. Lidar scattering-ratio profile taken on October 31, 1982, at GMT 0436-0443 between 1.3°N, 80.6°W and 1.6°N, 80.0°W.

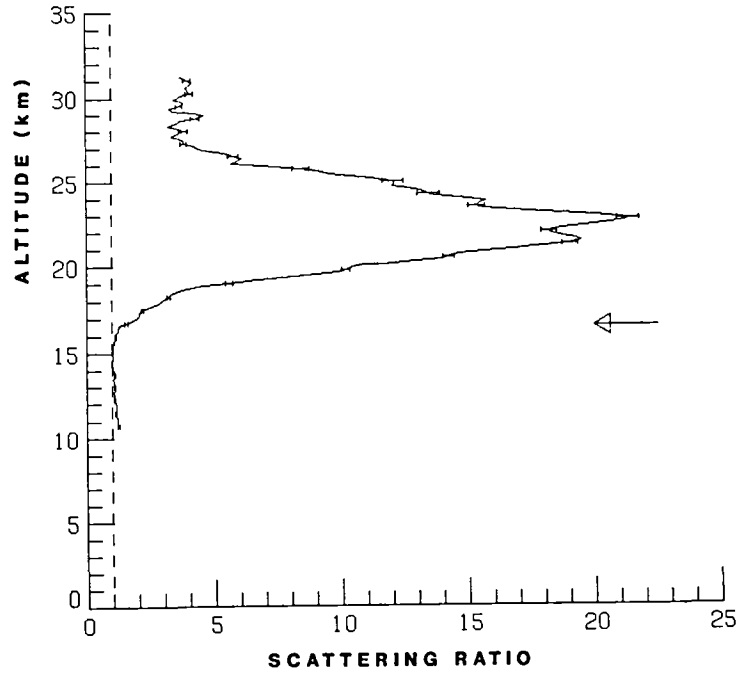

Figure 26. Lidar scattering-ratio profile taken on October 31, 1982, at GMT 0518-0526 between 4.1°N, 79.6°W and 4.8°N, 79.6°W.

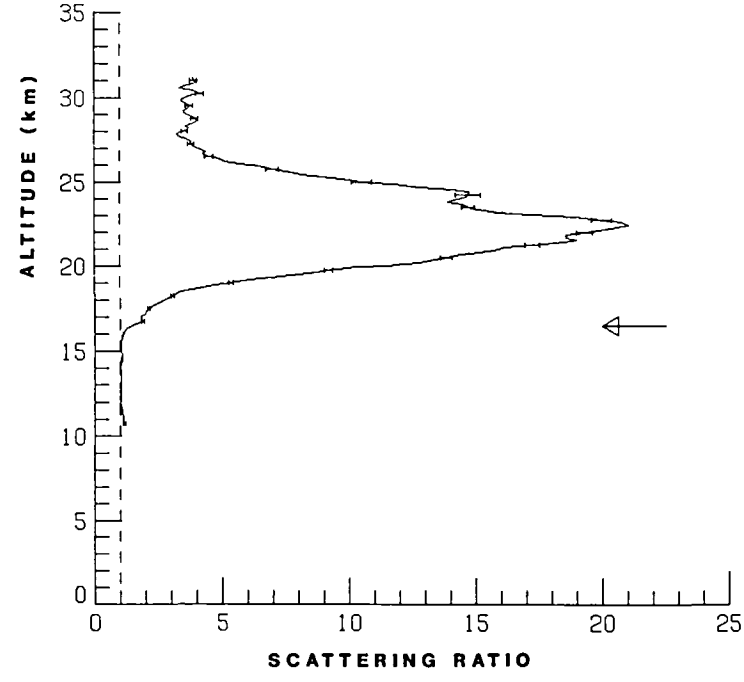

Figure 27. Lidar scattering-ratio profile taken on October 31, 1982, at GMT 0543-0552 between 6.0°N, 79.6°W and 6.8°N, 79.5°W.

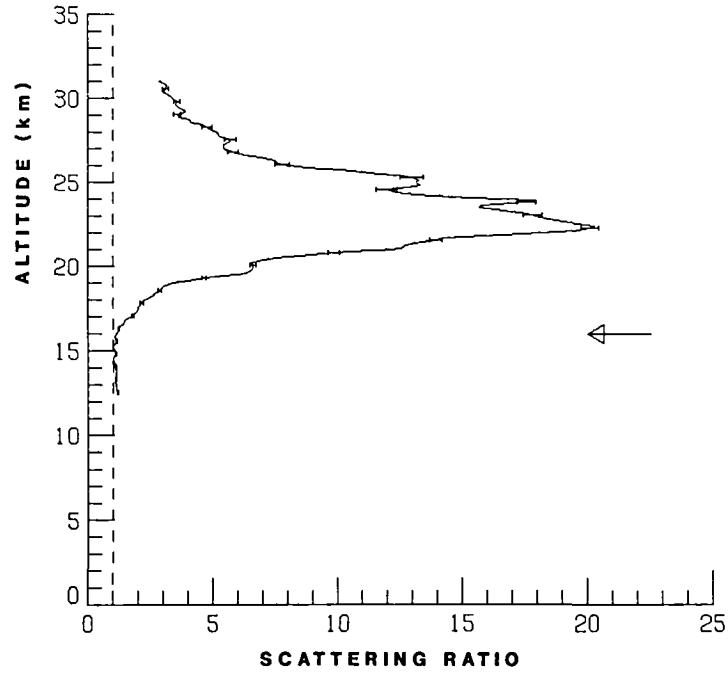

Figure 28. Lidar scattering-ratio profile taken on November 3, 1982, at GMT 0006-0011 between 15.5°N, 83.1°W and 15.9°N, 83.3°W.

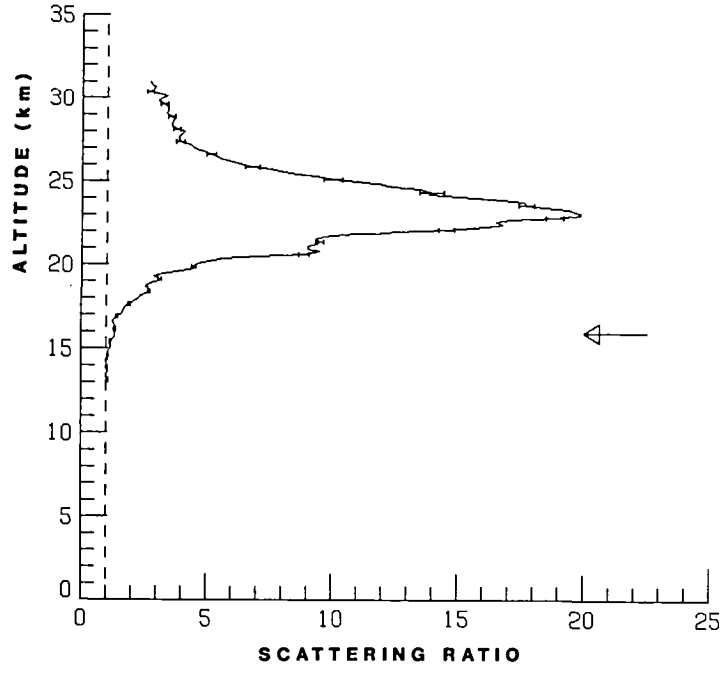

Figure 29. Lidar scattering-ratio profile taken on November 3, 1982, at GMT 0046-0051 between 18.2°N, 84.8°W and 18.6°N, 85.1°W.

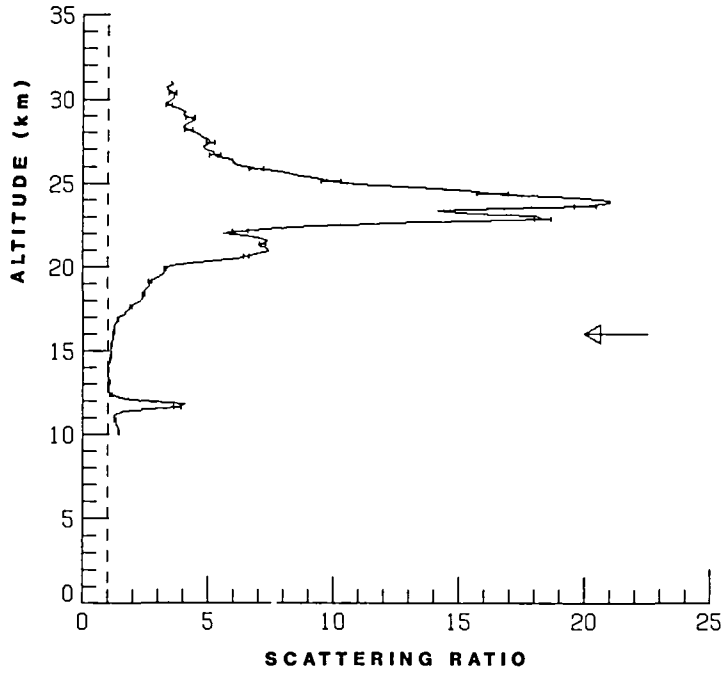

Figure 30. Lidar scattering-ratio profile taken on November 3, 1982, at GMT 0114-0122 between 20.0°N, 86.5°W and 20.4°N, 86.9°W.

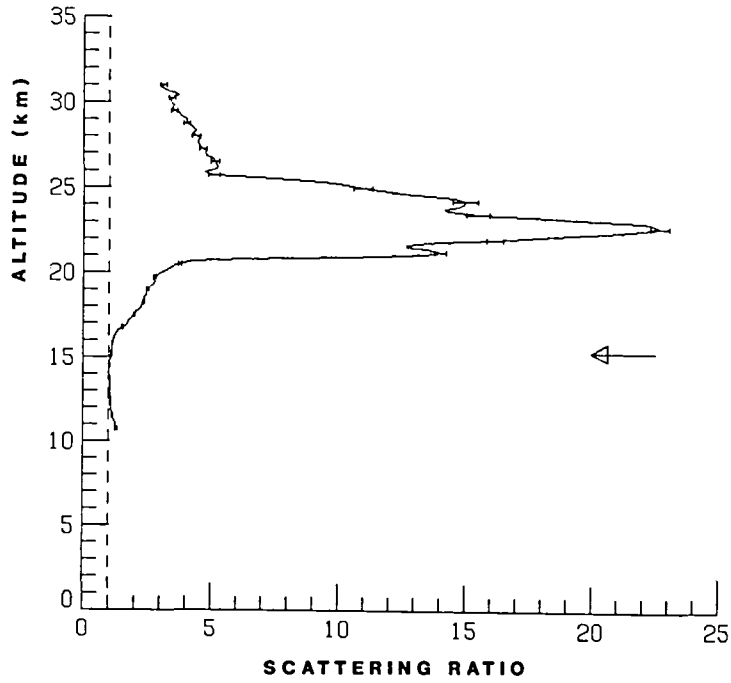

Figure 31. Lidar scattering-ratio profile taken on November 3, 1982, at GMT 2354-0005 between 24.0°N, 94.0°W and 24.3°N, 95.3°W.

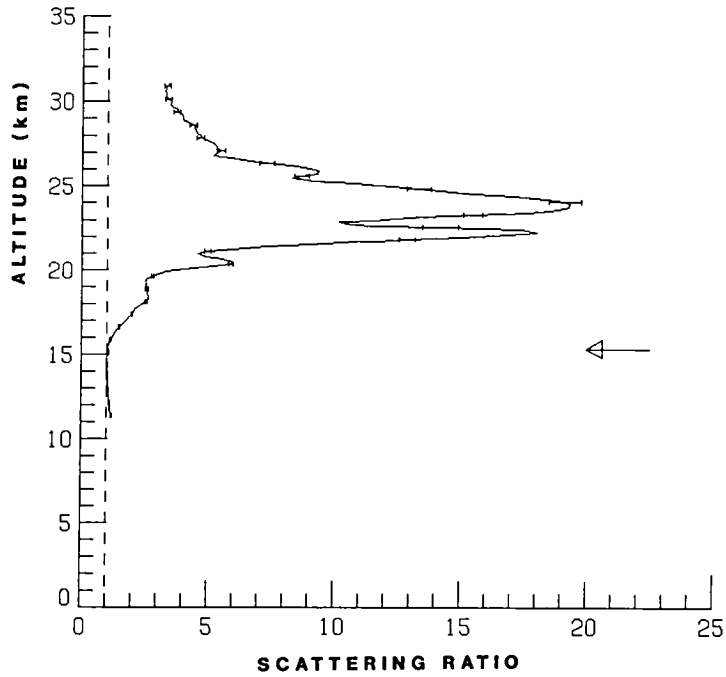

Figure 32. Lidar scattering-ratio profile taken on November 4, 1982, at GMT 0038-0059 between 25.8°N, 97.4°W and 26.8°N, 98.7°W.

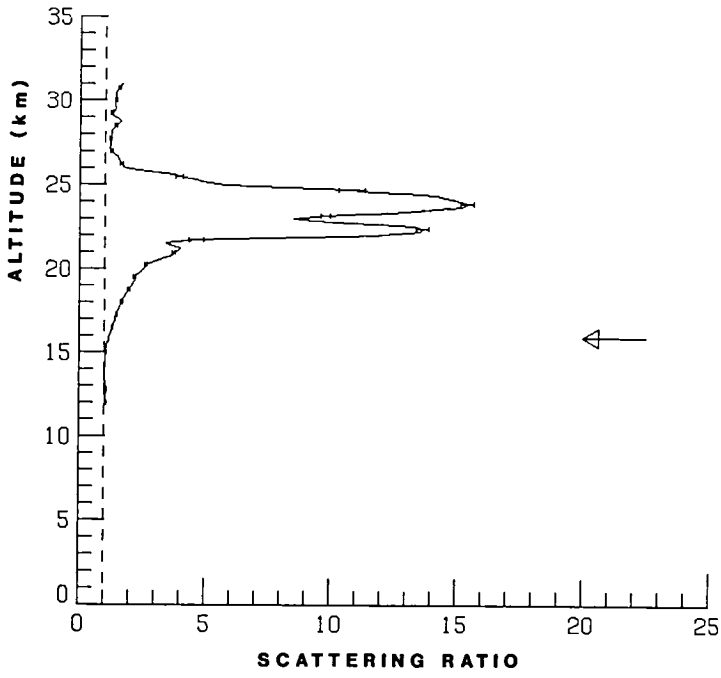

Figure 33. Lidar scattering-ratio profile taken on November 4, 1982, at GMT 0150-0210 between 29.9°N, 101.5°W and 30.7°N, 102.7°W.

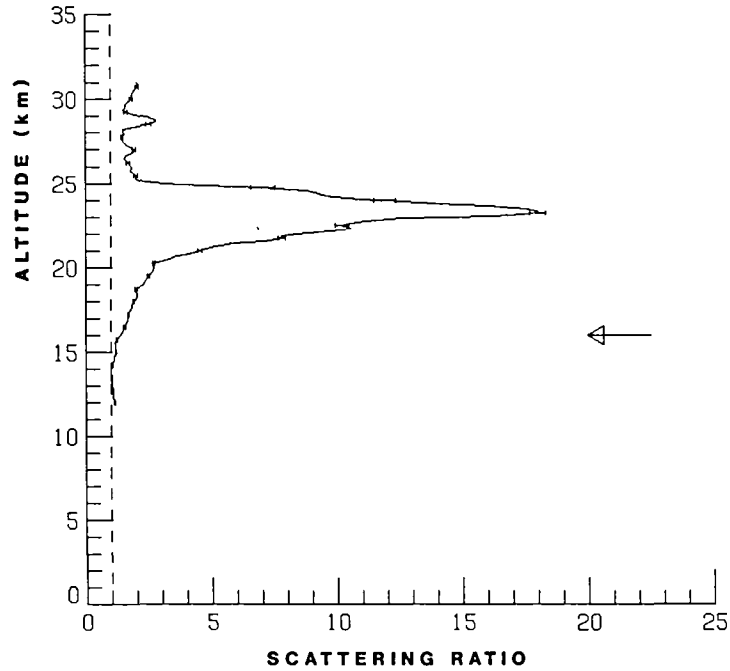

Figure 34. Lidar scattering-ratio profile taken on November 4, 1982, at GMT 0210-0230 between 30.7°N, 102.7°W and 31.3°N, 104.3°W.

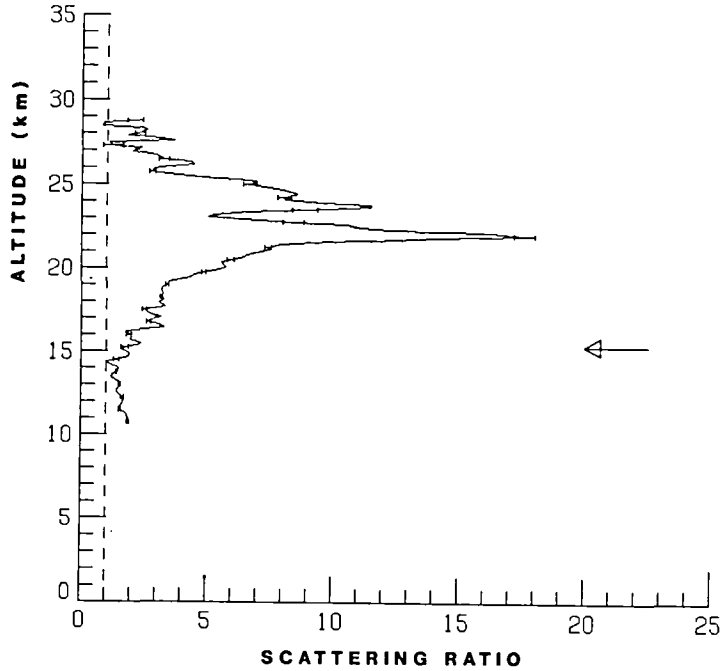

Figure 35. Lidar scattering-ratio profile taken on November 4, 1982, at GMT 1917-1921 between 33.5°N, 107.2°W and 33.9°N, 107.2°W.

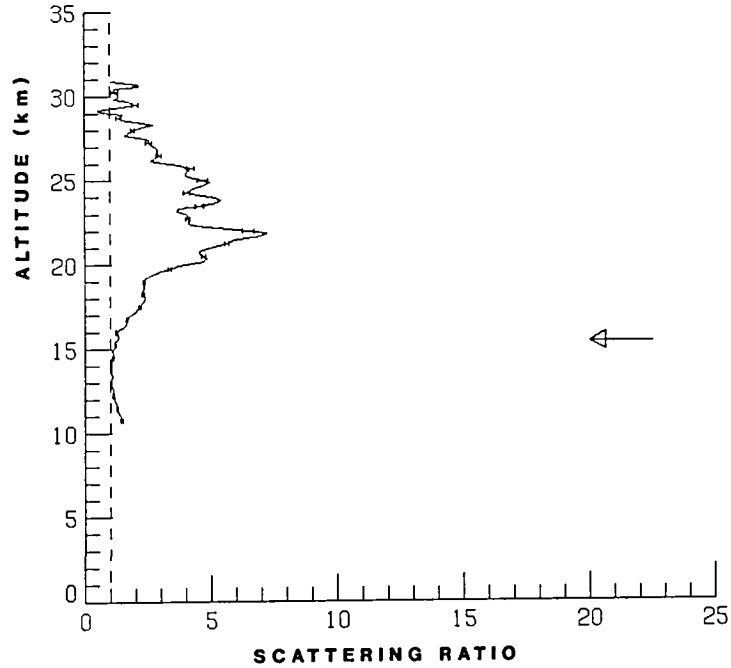

Figure 36. Lidar scattering-ratio profile taken on November 4, 1982, at GMT 1930-2004 between 34.6°N, 107.0°W and 37.1°N, 106.0°W.

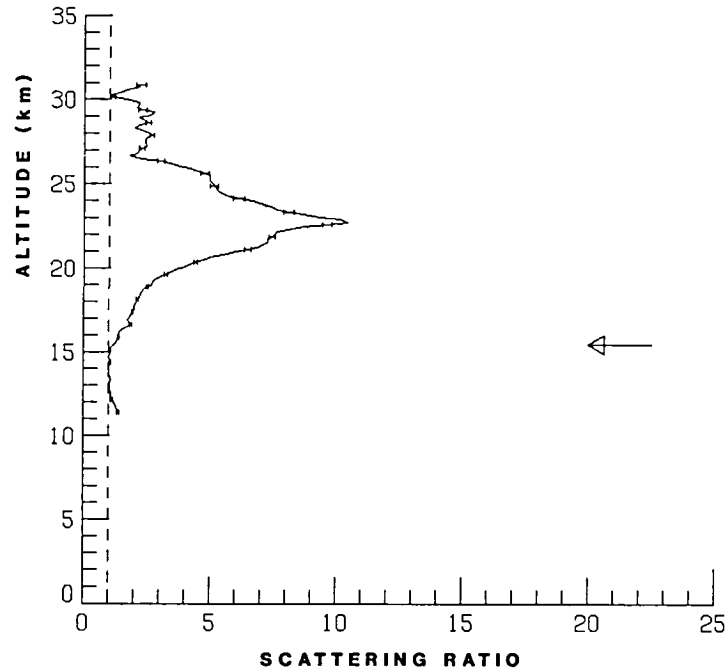

Figure 37. Lidar scattering-ratio profile taken on November 4, 1982, at GMT 2053-2122 between 40.5°N, 104.6°W and 42.5°N, 103.7°W.

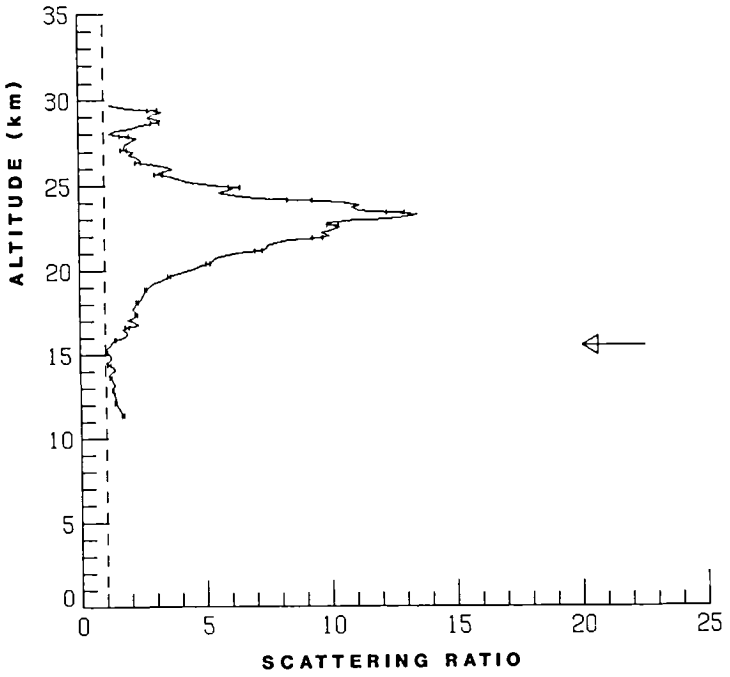

Figure 38. Lidar scattering-ratio profile taken on November 4, 1982, at GMT 2142-2151 between 43.8°N, 103.0°W and 44.3°N, 102.8°W.

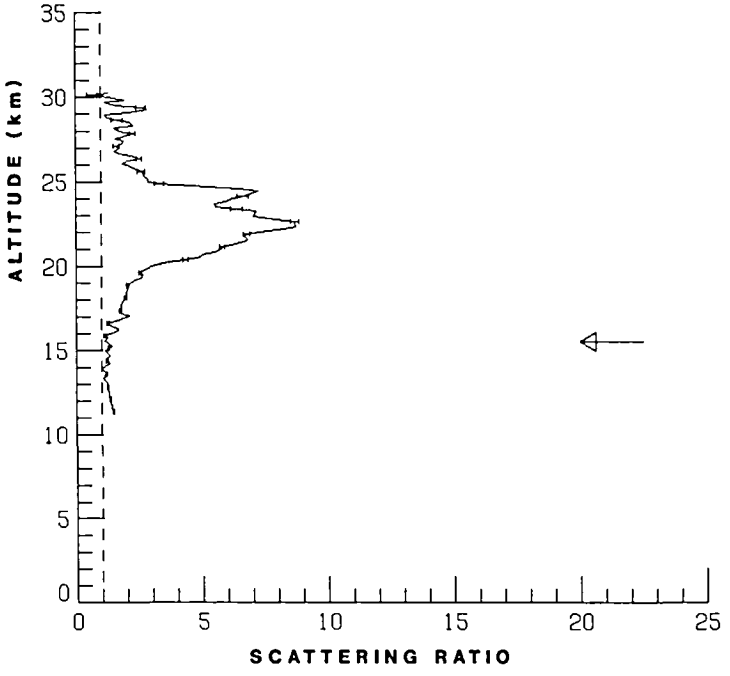

Figure 39. Lidar scattering-ratio profile taken on November 4, 1982, at GMT 2156-2204 between 44.5°N, 103.1°W and 44.7°N, 104.0°W.

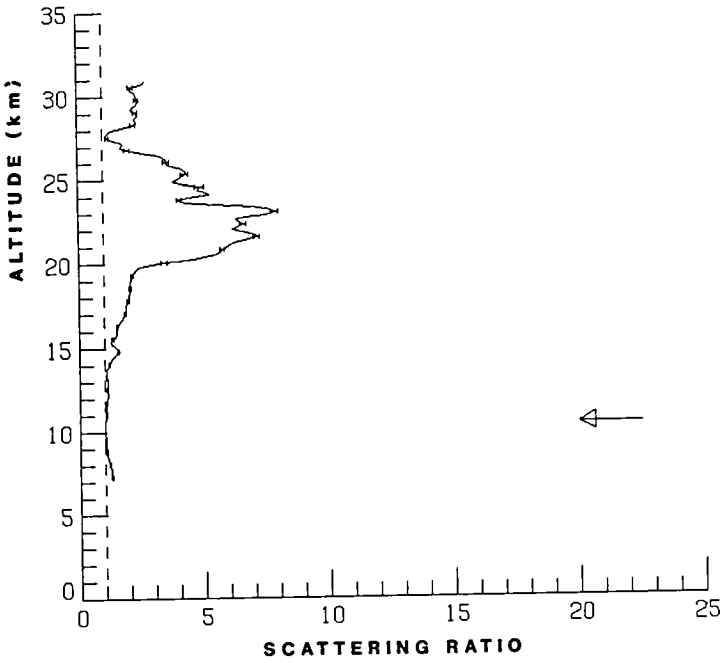

Figure 40. Lidar scattering-ratio profile taken on November 6, 1982, at GMT 0010-0037 at 41.1°N, 104.9°W.

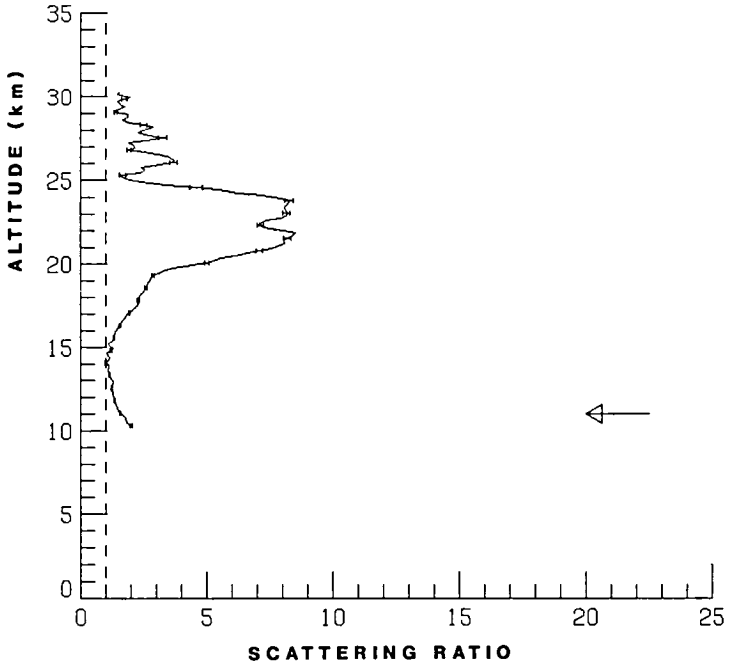

Figure 41. Lidar scattering-ratio profile taken on November 7, 1982, at GMT 2217-2237 between 41.3°N, 100.2°W and 41.4°N, 97.7°W.

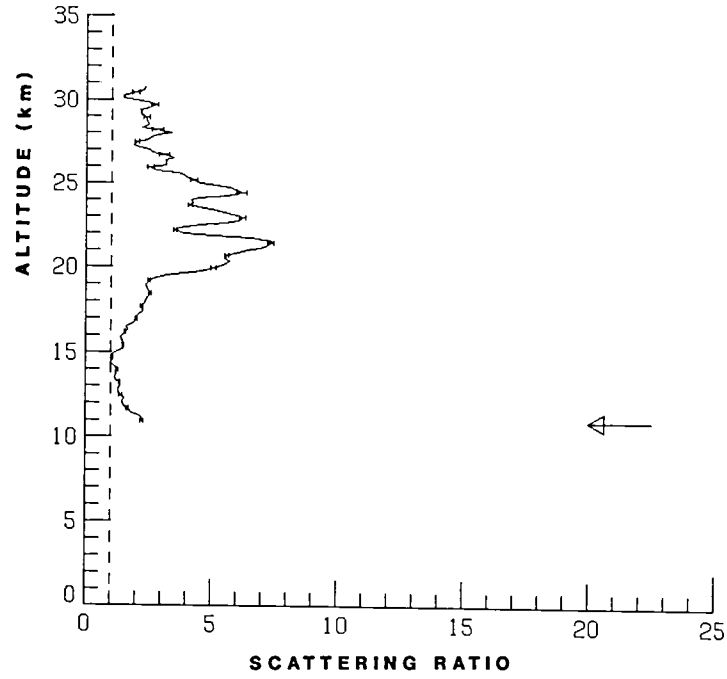

Figure 42. Lidar scattering-ratio profile taken on November 7, 1982, at GMT 2308-2318 between 41.5°N, 94.0°W and 41.5°N, 92.7°W.

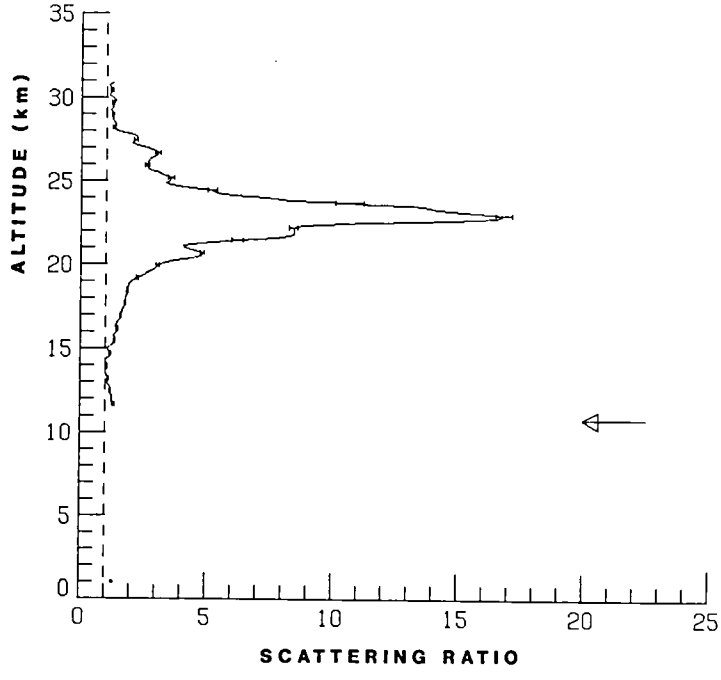

Figure 43. Lidar scattering-ratio profile taken on November 8, 1982, at GMT 0040-0101 between 40.2°N, 83.0°W and 39.7°N, 80.4°W.

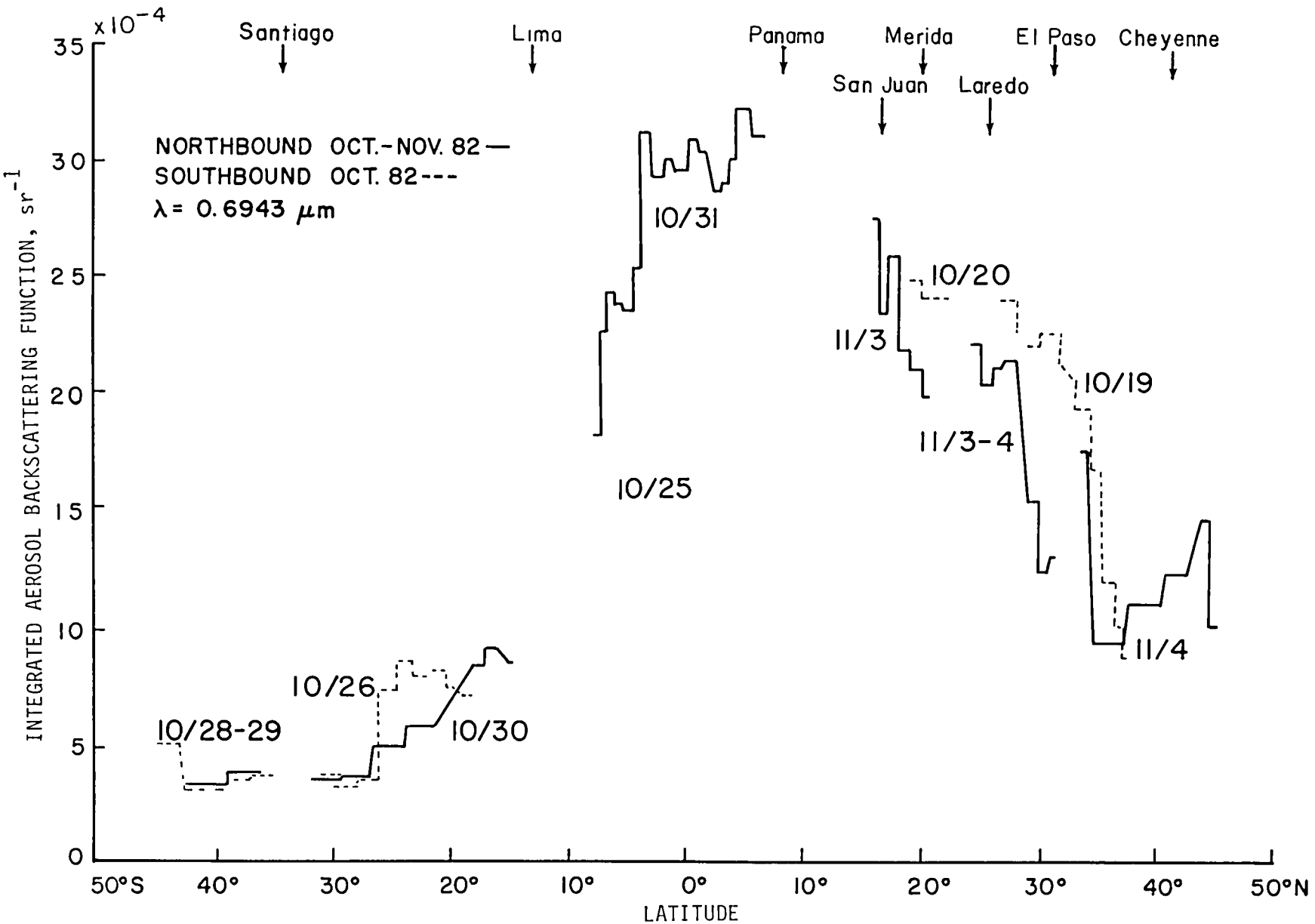

Figure 44. Integrated aerosol backscattering function from the tropopause through the stratospheric layer versus latitude for southbound and northbound flights.

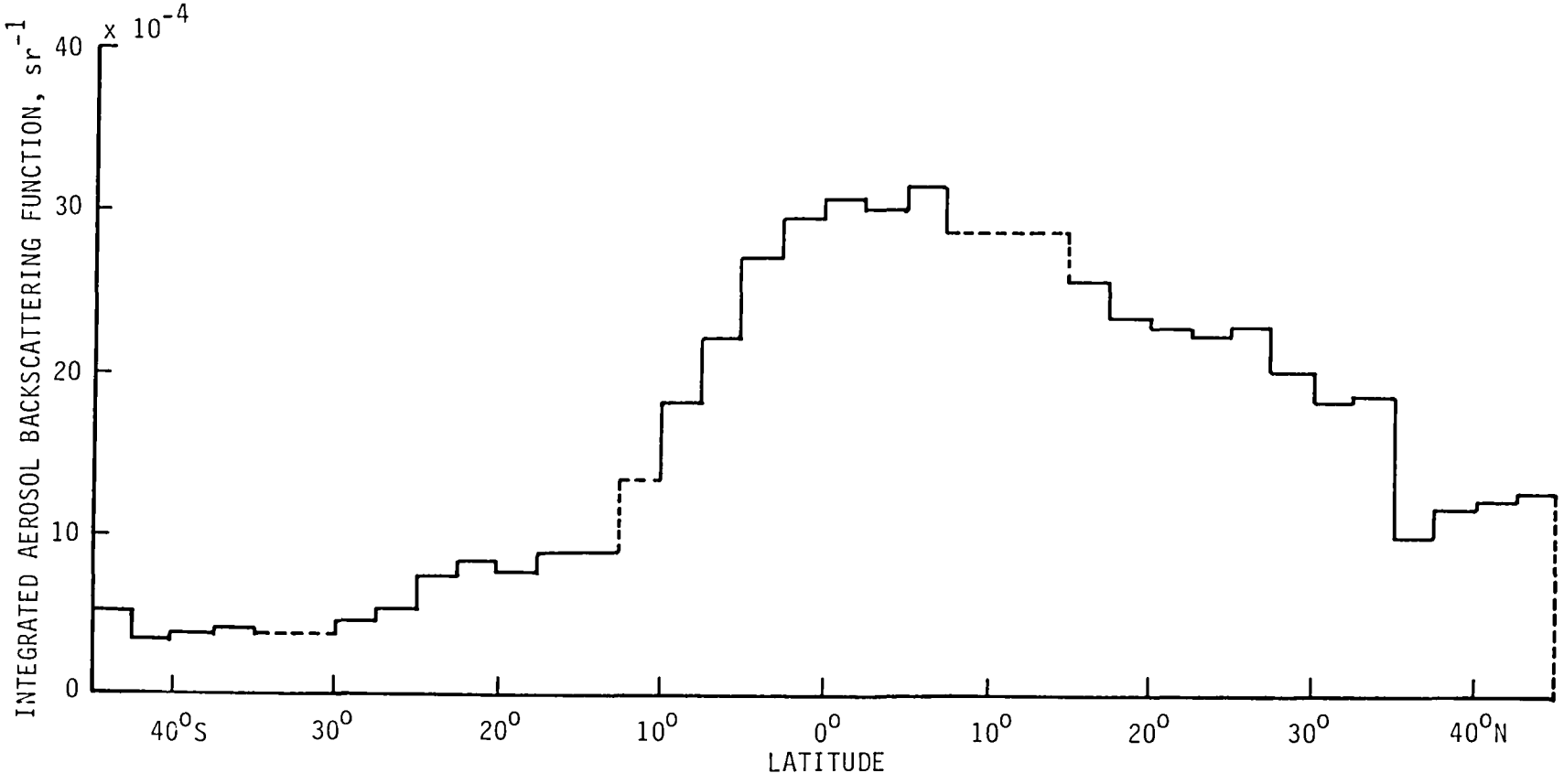

Figure 45. Integrated aerosol backscattering function averaged into 2.5° latitude bins (calculated from data in fig. 44). Dashed line represents interpolated data.

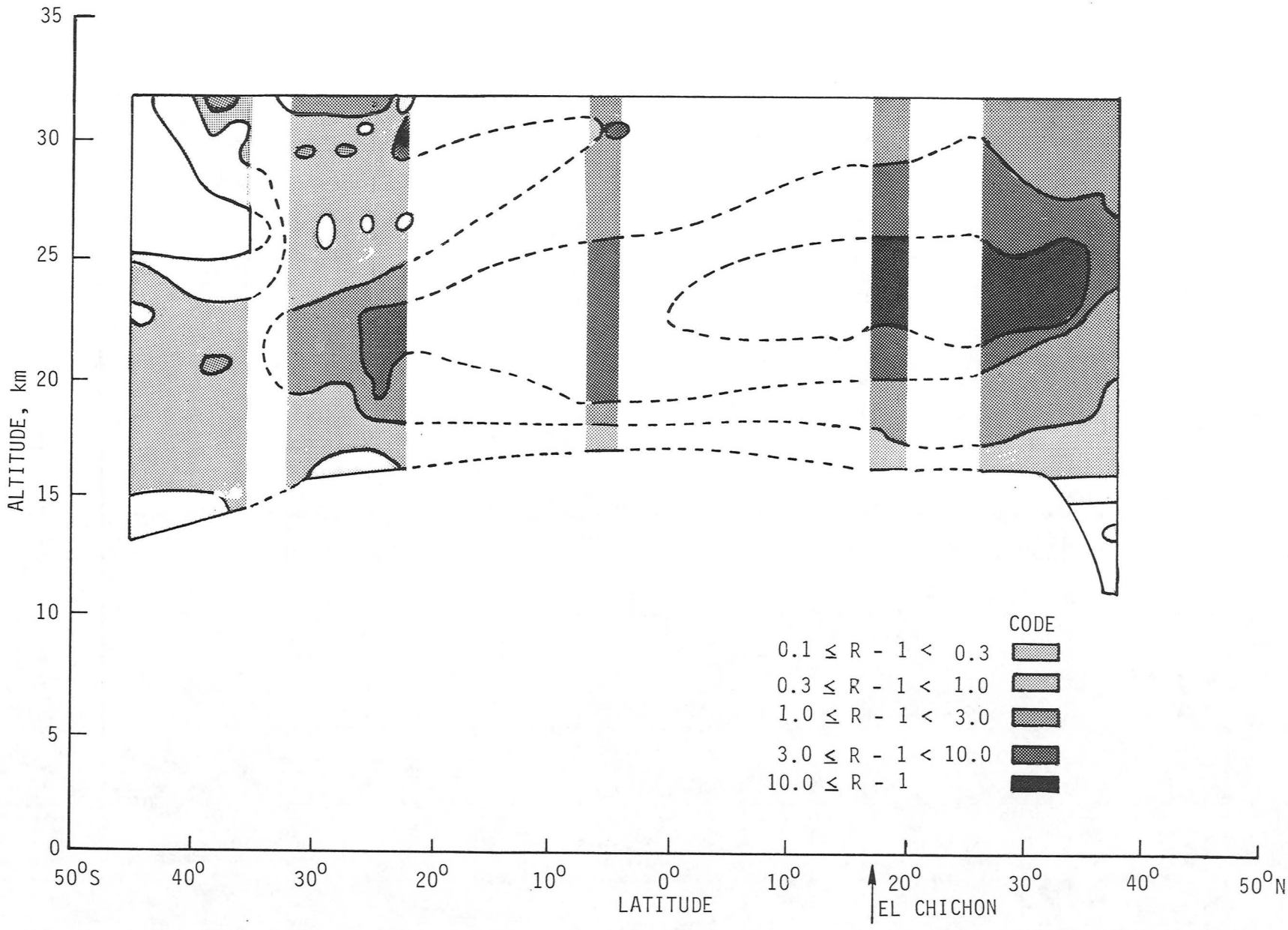

Figure 46. Contour of backscatter mixing ratio for data collected during southbound flight legs.

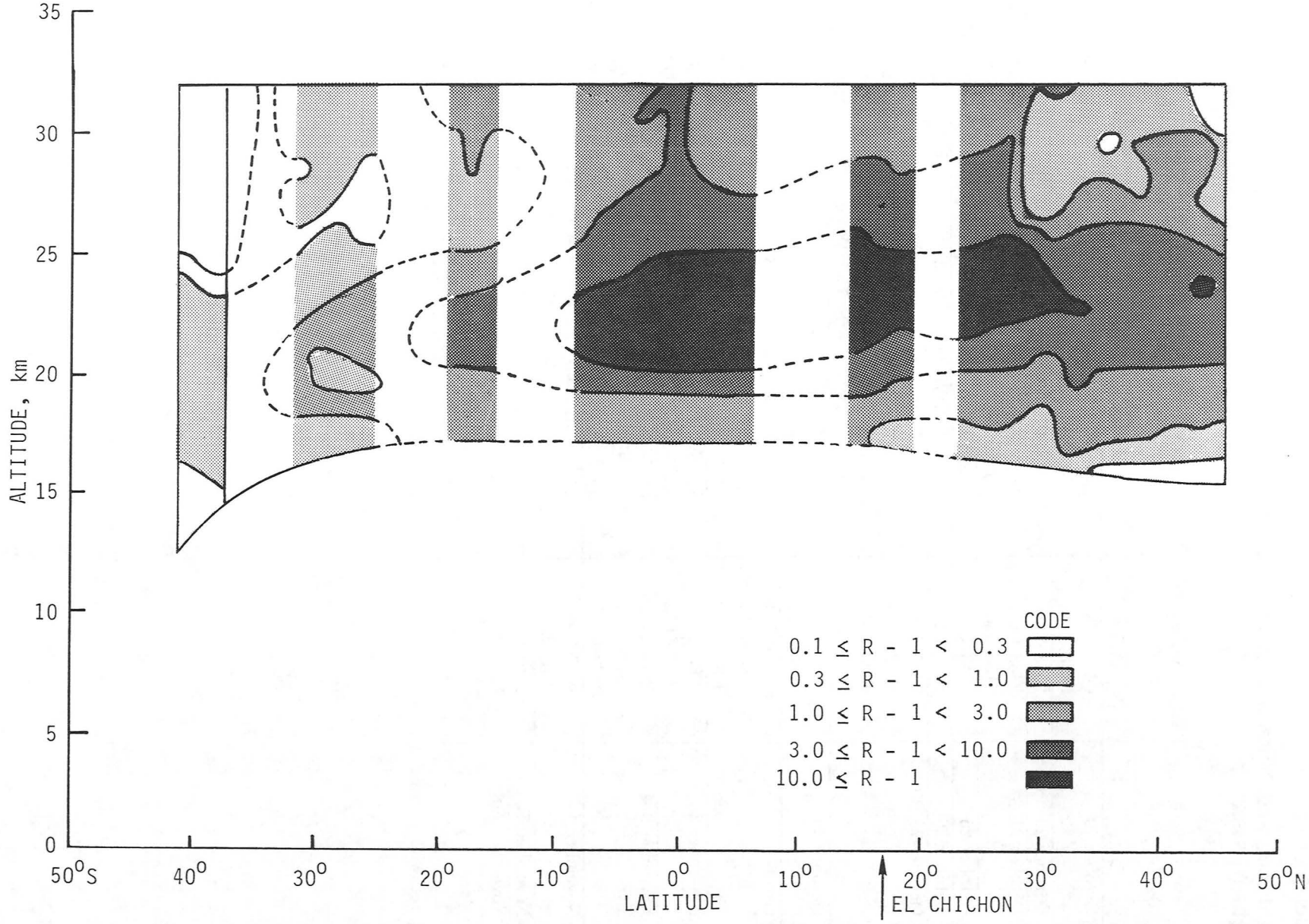

Figure 47. Contour of backscatter mixing ratio for data collected during northbound flight legs.

Appendix

Flight Log and Numerical Values of Scattering Ratios and Scattering Functions for Flight Mission

TABLE A1. FLIGHT LOG DURING LIDAR OPERATION

Date	GMT[a]	Location	Altitude, ft
October 19	0713–0754	37.3°N, 78.0°W–36.7°N, 81.8°W	20 000
	0806–1216	36.3°N, 83.0°W–27.6°N, 99.5°W	22 000
October 20	2028–2115	21.8°N, 97.6°W–18.9°N, 95.4°W	19 000
October 21–22	2338–0107	19.5°N, 86.3°W–17.7°N, 79.5°W	19 000
	0154–0307	18.0°N, 75.6°W–18.4°N, 69.7°W	21 000
October 25	1943–2010	4.1°S, 79.5°W–6.1°S, 78.9°W	21 000
October 26	1900–2142	18.3°S, 74.5°W–31.2°S, 71.2°W	19 000
October 28–29	2205–2306	35.0°S, 71.5°W–39.3°S, 72.5°W	19 000
	2318–2358	40.2°S, 72.5°W–42.9°S, 73.3°W	21 000
	0005–0034	43.4°S, 73.3°W–45.4°S, 73.5°W	23 000
	0124–0232	42.5°S, 73.2°W–35.8°S, 71.7°W	24 000
October 30	0231–0451	32.0°S, 71.5°W–21.3°S, 73.8°W	18 000
	0527–0623	18.3°S, 74.5°W–14.3°S, 76.4°W	20 000
October 31	0221–0249	7.9°S, 79.4°W–6.2°S, 80.2°W	16 000
	0254–0443	5.8°S, 80.4°W–1.6°N, 80.0°W	18 000
	0453–0552	2.2°N, 79.6°W–6.8°N, 79.5°W	20 000
November 3	0006–0037	15.5°N, 83.1°W–17.8°N, 84.3°W	16 000
	0046–0122	18.2°N, 84.8°W–20.4°N, 86.9°W	18 000
November 3–4	2354–0005	24.0°N, 94.0°W–24.3°N, 95.3°W	20 000
	0012–0119	24.5°N, 95.9°W–28.0°N, 99.8°W	22 000
	0129–0230	28.7°N, 100.3°W–31.3°N, 104.3°W	24 000
November 4	1917–2004	33.5°N, 107.2°W–37.1°N, 106.0°W	20 000
	2013–2210	37.7°N, 105.7°W–44.2°N, 104.2°W	22 000
November 6	0010–0115	41.1°N, 104.9°W	6 200
November 7–8	2201–2213	41.2°N, 102.0°W–41.3°N, 100.5°W	19 000
	2217–2258	41.3°N, 100.2°W–41.5°N, 95.0°W	21 000
	2308–0121	41.5°N, 94.0°W–39.1°N, 78.0°W	23 000

[a]Greenwich mean time.

TABLE A2. LIDAR DATA TAKEN ON OCTOBER 19, 1982, AT GMT 0713-0733 BETWEEN 37.3°N, 78.0°W AND 37.1°N, 80.0°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.760	1.066	.1090E-04	16.610	1.634	.4441E-04
10.910	1.083	.1347E-04	16.760	1.606	.4138E-04
11.060	1.097	.1542E-04	16.910	1.593	.3945E-04
11.210	1.103	.1608E-04	17.060	1.566	.3675E-04
11.360	1.097	.1478E-04	17.210	1.584	.3697E-04
11.510	1.075	.1126E-04	17.360	1.655	.4045E-04
11.660	1.065	.9476E-05	17.510	1.740	.4457E-04
11.810	1.044	.6254E-05	17.660	1.804	.4720E-04
11.960	1.015	.2045E-05	17.810	1.847	.4850E-04
12.110	1.010	.1368E-05	17.960	1.835	.4662E-04
12.260	1.015	.1979E-05	18.110	1.832	.4530E-04
12.410	1.036	.4742E-05	18.260	1.801	.4250E-04
12.560	1.067	.8650E-05	18.410	1.756	.3912E-04
12.710	1.091	.1145E-04	18.560	1.714	.3604E-04
12.860	1.109	.1342E-04	18.710	1.710	.3496E-04
13.010	1.130	.1558E-04	18.860	1.681	.3270E-04
13.160	1.146	.1718E-04	19.010	1.698	.3265E-04
13.310	1.160	.1832E-04	19.160	1.816	.3725E-04
13.460	1.148	.1665E-04	19.310	1.968	.4306E-04
13.610	1.100	.1094E-04	19.460	2.041	.4516E-04
13.760	1.053	.5694E-05	19.610	2.008	.4263E-04
13.910	1.027	.2815E-05	19.760	2.038	.4280E-04
14.060	1.004	.4565E-06	19.910	2.163	.4679E-04
14.210	1.000	0.	20.060	2.453	.5698E-04
14.360	1.015	.1497E-05	20.210	2.800	.6886E-04
14.510	1.019	.1815E-05	20.360	3.016	.7518E-04
14.660	1.019	.1795E-05	20.510	3.273	.8265E-04
14.810	1.026	.2423E-05	20.660	3.347	.8322E-04
14.960	1.048	.4292E-05	20.810	3.256	.7801E-04
15.110	1.069	.6059E-05	20.960	3.066	.6968E-04
15.260	1.079	.6769E-05	21.110	2.821	.5993E-04
15.410	1.100	.8370E-05	21.260	3.037	.6538E-04
15.560	1.120	.9871E-05	21.410	3.682	.8396E-04
15.710	1.143	.1149E-04	21.560	3.975	.9085E-04
15.860	1.211	.1658E-04	21.710	3.730	.8132E-04
16.010	1.330	.2538E-04	21.860	3.500	.7263E-04
16.160	1.496	.3733E-04	22.010	3.334	.6614E-04
16.310	1.664	.4881E-04	22.160	2.988	.5494E-04
16.460	1.696	.4999E-04	22.310	2.378	.3715E-04

TABLE A2. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.460	1.817	.2149E-04	28.310	3.297	.2394E-04
22.610	1.582	.1494E-04	28.460	2.675	.1706E-04
22.760	1.488	.1220E-04	28.610	2.587	.1580E-04
22.910	1.438	.1068E-04	28.760	2.334	.1298E-04
23.060	1.419	.9970E-05	28.910	2.032	.9816E-05
23.210	1.750	.1742E-04	29.060	2.122	.1043E-04
23.360	3.162	.4895E-04	29.210	2.315	.1194E-04
23.510	4.924	.8668E-04	29.360	2.240	.1102E-04
23.660	5.134	.8908E-04	29.510	2.296	.1125E-04
23.810	4.601	.7568E-04	29.660	2.787	.1516E-04
23.960	5.604	.9444E-04	29.810	2.911	.1585E-04
24.110	8.262	.1455E-03	29.960	2.775	.1439E-04
24.260	10.782	.1914E-03	30.110	2.777	.1408E-04
24.410	11.411	.1989E-03	30.260	2.671	.1294E-04
24.560	10.437	.1761E-03	30.410	2.629	.1233E-04
24.710	10.344	.1702E-03	30.560	2.752	.1296E-04
24.860	10.862	.1755E-03	30.710	2.902	.1375E-04
25.010	10.052	.1573E-03	30.860	2.698	.1200E-04
25.160	9.054	.1367E-03	31.010	2.384	.9560E-05
25.310	9.056	.1335E-03			
25.460	8.863	.1273E-03			
25.610	8.868	.1244E-03			
25.760	8.657	.1182E-03			
25.910	8.050	.1063E-03			
26.060	7.762	.9955E-04			
26.210	7.307	.9068E-04			
26.360	7.029	.8464E-04			
26.510	6.661	.7762E-04			
26.660	6.079	.6806E-04			
26.810	5.158	.5445E-04			
26.960	4.197	.4093E-04			
27.110	3.918	.3651E-04			
27.260	4.186	.3897E-04			
27.410	4.019	.3609E-04			
27.560	3.733	.3193E-04			
27.710	3.471	.2821E-04			
27.860	3.432	.2714E-04			
28.010	3.738	.2987E-04			
28.160	3.846	.3034E-04			

TABLE A3. LIDAR DATA TAKEN ON OCTOBER 19, 1982, AT GMT 0806-0827 BETWEEN 36.3°N, 83.0°W AND 35.3°N, 84.7°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.369	1.125	.1928E-04	17.219	1.722	.4582E-04
11.519	1.116	.1753E-04	17.369	1.724	.4475E-04
11.669	1.101	.1494E-04	17.519	1.762	.4592E-04
11.819	1.095	.1369E-04	17.669	1.810	.4757E-04
11.969	1.096	.1346E-04	17.819	1.823	.4713E-04
12.119	1.080	.1106E-04	17.969	1.852	.4757E-04
12.269	1.063	.8463E-05	18.119	1.908	.4941E-04
12.419	1.079	.1040E-04	18.269	1.973	.5159E-04
12.569	1.117	.1505E-04	18.419	2.013	.5238E-04
12.719	1.152	.1910E-04	18.569	1.989	.4983E-04
12.869	1.171	.2106E-04	18.719	1.983	.4833E-04
13.019	1.185	.2228E-04	18.869	2.022	.4899E-04
13.169	1.198	.2330E-04	19.019	2.090	.5095E-04
13.319	1.186	.2135E-04	19.169	2.120	.5102E-04
13.469	1.150	.1691E-04	19.319	2.061	.4713E-04
13.619	1.094	.1032E-04	19.469	2.060	.4592E-04
13.769	1.031	.3387E-05	19.619	2.077	.4553E-04
13.919	1.001	.1540E-06	19.769	2.040	.4285E-04
14.069	1.000	.8335E-08	19.919	2.170	.4703E-04
14.219	1.000	0.	20.069	2.414	.5540E-04
14.369	1.005	.5343E-06	20.219	2.660	.6344E-04
14.519	1.020	.1933E-05	20.369	2.872	.6974E-04
14.669	1.034	.3243E-05	20.519	3.024	.7353E-04
14.819	1.055	.5094E-05	20.669	3.210	.7830E-04
14.969	1.068	.6101E-05	20.819	3.342	.8090E-04
15.119	1.083	.7347E-05	20.969	3.183	.7353E-04
15.269	1.123	.1064E-04	21.119	3.130	.6993E-04
15.419	1.142	.1200E-04	21.269	3.496	.7991E-04
15.569	1.159	.1312E-04	21.419	3.678	.8360E-04
15.719	1.179	.1446E-04	21.569	3.482	.7555E-04
15.869	1.185	.1463E-04	21.719	3.086	.6191E-04
16.019	1.239	.1845E-04	21.869	2.460	.4224E-04
16.169	1.356	.2687E-04	22.019	2.112	.3136E-04
16.319	1.496	.3668E-04	22.169	2.387	.3814E-04
16.469	1.692	.4987E-04	22.319	2.647	.4416E-04
16.619	1.840	.5904E-04	22.469	2.236	.3233E-04
16.769	1.789	.5405E-04	22.619	1.730	.1860E-04
16.919	1.722	.4822E-04	22.769	2.371	.3408E-04
17.069	1.727	.4735E-04	22.919	3.995	.7258E-04

TABLE A3. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.069	6.782	.1366E-03	28.919	2.123	.1045E-04
23.219	12.050	.2546E-03	29.069	2.290	.1173E-04
23.369	16.667	.3520E-03	29.219	2.655	.1469E-04
23.519	16.329	.3358E-03	29.369	2.759	.1526E-04
23.669	12.487	.2453E-03	29.519	2.528	.1294E-04
23.819	9.655	.1802E-03	29.669	2.518	.1256E-04
23.969	11.128	.2058E-03	29.819	2.616	.1306E-04
24.119	14.856	.2750E-03	29.969	2.576	.1244E-04
24.269	18.420	.3376E-03	30.119	2.406	.1084E-04
24.419	18.580	.3328E-03	30.269	2.232	.9273E-05
24.569	14.526	.2500E-03	30.419	2.273	.9358E-05
24.719	12.202	.2022E-03	30.569	2.228	.8819E-05
24.869	13.450	.2195E-03	30.719	2.137	.7976E-05
25.019	12.366	.1957E-03	30.869	2.190	.8154E-05
25.169	10.094	.1529E-03	31.019	2.165	.7798E-05
25.319	10.254	.1519E-03			
25.469	9.644	.1386E-03			
25.619	8.217	.1130E-03			
25.769	7.803	.1040E-03			
25.919	7.462	.9649E-04			
26.069	6.907	.8614E-04			
26.219	6.150	.7334E-04			
26.369	5.547	.6324E-04			
26.519	5.696	.6378E-04			
26.669	5.686	.6218E-04			
26.819	4.998	.5180E-04			
26.969	4.405	.4309E-04			
27.119	4.010	.3720E-04			
27.269	3.423	.2925E-04			
27.419	2.993	.2349E-04			
27.569	2.582	.1822E-04			
27.719	2.219	.1370E-04			
27.869	2.153	.1266E-04			
28.019	2.139	.1222E-04			
28.169	2.098	.1151E-04			
28.319	2.024	.1047E-04			
28.469	1.886	.9852E-05			
28.619	1.838	.8177E-05			
28.769	2.013	.9653E-05			

TABLE A4. LIDAR DATA TAKEN ON OCTOBER 19, 1982, AT GMT 0827-0849 BETWEEN 35.3°N, 84.7°W AND 34.2°N, 86.0°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.369	1.190	.2931E-04	17.219	1.734	.4655E-04
11.519	1.178	.2675E-04	17.369	1.747	.4623E-04
11.669	1.144	.2119E-04	17.519	1.786	.4741E-04
11.819	1.130	.1871E-04	17.669	1.835	.4907E-04
11.969	1.127	.1784E-04	17.819	1.886	.5075E-04
12.119	1.109	.1507E-04	17.969	1.928	.5180E-04
12.269	1.086	.1163E-04	18.119	1.966	.5257E-04
12.419	1.095	.1255E-04	18.269	2.008	.5345E-04
12.569	1.114	.1464E-04	18.419	2.037	.5360E-04
12.719	1.134	.1684E-04	18.569	2.035	.5216E-04
12.869	1.171	.2100E-04	18.719	2.094	.5376E-04
13.019	1.207	.2497E-04	18.869	2.216	.5829E-04
13.169	1.161	.1890E-04	19.019	2.282	.5993E-04
13.319	1.055	.6285E-05	19.169	2.243	.5665E-04
13.469	1.011	.1187E-05	19.319	2.224	.5438E-04
13.619	1.016	.1798E-05	19.469	2.250	.5415E-04
13.769	1.012	.1265E-05	19.619	2.284	.5427E-04
13.919	1.005	.4879E-06	19.769	2.298	.5350E-04
14.069	1.004	.4301E-06	19.919	2.282	.5150E-04
14.219	1.000	0.	20.069	2.430	.5603E-04
14.369	1.001	.8687E-07	20.219	2.851	.7074E-04
14.519	1.017	.1597E-05	20.369	3.294	.8545E-04
14.669	1.036	.3362E-05	20.519	3.464	.8953E-04
14.819	1.045	.4155E-05	20.669	3.373	.8406E-04
14.969	1.059	.5320E-05	20.819	3.168	.7490E-04
15.119	1.082	.7189E-05	20.969	2.971	.6639E-04
15.269	1.117	.1006E-04	21.119	2.870	.6139E-04
15.419	1.135	.1138E-04	21.269	2.834	.5871E-04
15.569	1.136	.1122E-04	21.419	2.811	.5652E-04
15.719	1.149	.1206E-04	21.569	3.052	.6245E-04
15.869	1.189	.1490E-04	21.719	3.461	.7304E-04
16.019	1.254	.1965E-04	21.869	3.355	.6813E-04
16.169	1.337	.2550E-04	22.019	2.620	.4569E-04
16.319	1.426	.3148E-04	22.169	2.259	.3464E-04
16.469	1.605	.4360E-04	22.319	2.597	.4284E-04
16.619	1.812	.5705E-04	22.469	3.243	.5865E-04
16.769	1.841	.5761E-04	22.619	4.242	.8265E-04
16.919	1.767	.5120E-04	22.769	6.578	.1387E-03
17.069	1.741	.4824E-04	22.919	11.704	.2594E-03

TABLE A4. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.069	17.647	.3934E-03	28.919	3.451	.2282E-04
23.219	20.947	.4596E-03	29.069	3.589	.2354E-04
23.369	21.986	.4715E-03	29.219	3.570	.2282E-04
23.519	22.206	.4645E-03	29.369	3.350	.2038E-04
23.669	21.277	.4330E-03	29.519	3.359	.1999E-04
23.819	19.653	.3884E-03	29.669	3.395	.1981E-04
23.969	19.717	.3804E-03	29.819	3.293	.1853E-04
24.119	20.602	.3890E-03	29.969	2.915	.1511E-04
24.269	20.129	.3708E-03	30.119	2.528	.1178E-04
24.419	19.334	.3470E-03	30.269	2.406	.1059E-04
24.569	18.259	.3190E-03	30.419	2.622	.1193E-04
24.719	17.124	.2911E-03	30.569	2.793	.1288E-04
24.869	15.770	.2604E-03	30.719	2.661	.1165E-04
25.019	14.587	.2339E-03	30.869	2.614	.1106E-04
25.169	14.132	.2208E-03	31.019	2.605	.1074E-04
25.319	13.508	.2054E-03			
25.469	12.466	.1838E-03			
25.619	11.341	.1619E-03			
25.769	10.299	.1422E-03			
25.919	9.533	.1274E-03			
26.069	8.936	.1157E-03			
26.219	8.483	.1066E-03			
26.369	8.086	.9855E-04			
26.519	7.565	.8915E-04			
26.669	6.980	.7931E-04			
26.819	6.338	.6915E-04			
26.969	5.771	.6037E-04			
27.119	5.322	.5340E-04			
27.269	4.950	.4767E-04			
27.419	4.486	.4110E-04			
27.569	4.207	.3692E-04			
27.719	4.121	.3509E-04			
27.869	3.969	.3260E-04			
28.019	3.924	.3136E-04			
28.169	3.773	.2905E-04			
28.319	3.535	.2593E-04			
28.469	3.035	.2033E-04			
28.619	2.922	.1876E-04			
28.769	3.303	.2195E-04			

TABLE A5. LIDAR DATA TAKEN ON OCTOBER 19, 1982, AT GMT 0912-0934 BETWEEN 33.1°N, 87.7°W AND 32.3°N, 89.5°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.369	1.136	.2120E-04	17.219	1.861	.5674E-04
11.519	1.134	.2042E-04	17.369	1.842	.5407E-04
11.669	1.122	.1829E-04	17.519	1.871	.5442E-04
11.819	1.122	.1785E-04	17.669	1.863	.5251E-04
11.969	1.110	.1580E-04	17.819	1.849	.5028E-04
12.119	1.100	.1413E-04	17.969	1.886	.5111E-04
12.269	1.121	.1666E-04	18.119	1.929	.5217E-04
12.419	1.141	.1901E-04	18.269	1.998	.5457E-04
12.569	1.132	.1749E-04	18.419	2.071	.5701E-04
12.719	1.114	.1477E-04	18.569	2.083	.5617E-04
12.869	1.100	.1267E-04	18.719	2.082	.5465E-04
13.019	1.080	.9944E-05	18.869	2.140	.5609E-04
13.169	1.051	.6251E-05	19.019	2.148	.5501E-04
13.319	1.039	.4637E-05	19.169	2.126	.5260E-04
13.469	1.031	.3661E-05	19.319	2.127	.5130E-04
13.619	1.015	.1690E-05	19.469	2.173	.5200E-04
13.769	1.007	.7464E-06	19.619	2.266	.5471E-04
13.919	1.000	0.	19.769	2.456	.6128E-04
14.069	1.008	.8395E-06	19.919	2.764	.7236E-04
14.219	1.026	.2764E-05	20.069	3.101	.8396E-04
14.369	1.017	.1791E-05	20.219	3.251	.8767E-04
14.519	1.010	.9665E-06	20.369	3.161	.8200E-04
14.669	1.034	.3344E-05	20.519	2.912	.7069E-04
14.819	1.052	.5019E-05	20.669	2.662	.5988E-04
14.969	1.055	.5128E-05	20.819	2.617	.5679E-04
15.119	1.080	.7367E-05	20.969	2.541	.5279E-04
15.269	1.106	.9490E-05	21.119	2.133	.3787E-04
15.419	1.134	.1179E-04	21.269	2.383	.4507E-04
15.569	1.173	.1492E-04	21.419	3.532	.8047E-04
15.719	1.191	.1603E-04	21.569	5.404	.1365E-03
15.869	1.211	.1734E-04	21.719	7.837	.2067E-03
16.019	1.227	.1829E-04	21.869	9.889	.2621E-03
16.169	1.255	.2005E-04	22.019	11.412	.2994E-03
16.319	1.303	.2329E-04	22.169	12.634	.3263E-03
16.469	1.394	.2964E-04	22.319	13.827	.3509E-03
16.619	1.574	.4213E-04	22.469	15.330	.3823E-03
16.769	1.815	.5823E-04	22.619	16.874	.4131E-03
16.919	1.934	.6494E-04	22.769	18.260	.4381E-03
17.069	1.896	.6064E-04	22.919	19.750	.4642E-03

TABLE A5. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.069	21.084	.4849E-03	28.919	3.512	.2372E-04
23.219	21.772	.4891E-03	29.069	3.454	.2263E-04
23.369	21.828	.4784E-03	29.219	3.477	.2230E-04
23.519	21.759	.4650E-03	29.369	3.411	.2121E-04
23.669	21.968	.4581E-03	29.519	3.163	.1858E-04
23.819	22.084	.4493E-03	29.669	3.071	.1737E-04
23.969	21.969	.4358E-03	29.819	3.063	.1690E-04
24.119	21.489	.4157E-03	29.969	3.024	.1620E-04
24.269	20.227	.3807E-03	30.119	3.109	.1648E-04
24.419	18.780	.3437E-03	30.269	3.068	.1579E-04
24.569	17.799	.3170E-03	30.419	2.888	.1407E-04
24.719	16.947	.2937E-03	30.569	2.855	.1350E-04
24.869	16.122	.2719E-03	30.719	2.856	.1320E-04
25.019	15.385	.2524E-03	30.869	2.834	.1273E-04
25.169	14.430	.2300E-03	31.019	2.665	.1129E-04
25.319	13.448	.2081E-03	31.169	2.650	.1093E-04
25.469	12.391	.1859E-03			
25.619	11.123	.1613E-03			
25.769	9.902	.1384E-03			
25.919	8.955	.1207E-03			
26.069	8.043	.1044E-03			
26.219	7.135	.8873E-04			
26.369	6.570	.7863E-04			
26.519	6.081	.7002E-04			
26.669	5.764	.6409E-04			
26.819	5.444	.5839E-04			
26.969	5.004	.5139E-04			
27.119	4.635	.4555E-04			
27.269	4.220	.3942E-04			
27.419	3.992	.3577E-04			
27.569	3.851	.3329E-04			
27.719	3.610	.2976E-04			
27.869	3.305	.2567E-04			
28.019	3.133	.2321E-04			
28.169	3.175	.2310E-04			
28.319	3.274	.2360E-04			
28.469	3.504	.2537E-04			
28.619	3.647	.2619E-04			
28.769	3.561	.2476E-04			

TABLE A6. LIDAR DATA TAKEN ON OCTOBER 19, 1982, AT GMT 1137-1158 BETWEEN 26.3°N, 97.3°W AND 26.9°N, 98.6°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.369	1.053	.8320E-05	17.219	2.077	.7181E-04
11.519	1.042	.6428E-05	17.369	2.191	.7743E-04
11.669	1.038	.5654E-05	17.519	2.291	.8189E-04
11.819	1.044	.6441E-05	17.669	2.370	.8478E-04
11.969	1.056	.8185E-05	17.819	2.443	.8709E-04
12.119	1.060	.8558E-05	17.969	2.508	.8880E-04
12.269	1.054	.7572E-05	18.119	2.535	.8816E-04
12.419	1.052	.7079E-05	18.269	2.582	.8863E-04
12.569	1.043	.5842E-05	18.419	2.711	.9347E-04
12.719	1.041	.5362E-05	18.569	2.887	.1006E-03
12.869	1.041	.5275E-05	18.719	3.024	.1051E-03
13.019	1.039	.4888E-05	18.869	3.070	.1045E-03
13.169	1.036	.4409E-05	19.019	2.896	.9301E-04
13.319	1.017	.2071E-05	19.169	2.642	.7830E-04
13.469	1.000	0.	19.319	2.462	.6779E-04
13.619	1.010	.1195E-05	19.469	2.390	.6265E-04
13.769	1.025	.2871E-05	19.619	2.365	.5982E-04
13.919	1.042	.4755E-05	19.769	2.318	.5615E-04
14.069	1.052	.5742E-05	19.919	2.281	.5307E-04
14.219	1.060	.6401E-05	20.069	2.249	.5029E-04
14.369	1.068	.7109E-05	20.219	2.151	.4505E-04
14.519	1.048	.4954E-05	20.369	2.342	.5106E-04
14.669	1.040	.4035E-05	20.519	3.888	.1069E-03
14.819	1.072	.7040E-05	20.669	5.839	.1741E-03
14.969	1.111	.1062E-04	20.819	6.922	.2076E-03
15.119	1.120	.1115E-04	20.969	7.930	.2368E-03
15.269	1.123	.1120E-04	21.119	9.071	.2690E-03
15.419	1.150	.1335E-04	21.269	10.092	.2954E-03
15.569	1.202	.1752E-04	21.419	11.151	.3216E-03
15.719	1.230	.1951E-04	21.569	12.340	.3503E-03
15.869	1.252	.2085E-04	21.719	13.377	.3727E-03
16.019	1.390	.3161E-04	21.869	14.259	.3893E-03
16.169	1.540	.4272E-04	22.019	14.942	.3991E-03
16.319	1.611	.4723E-04	22.169	15.726	.4110E-03
16.469	1.668	.5042E-04	22.319	16.721	.4278E-03
16.619	1.745	.5490E-04	22.469	17.671	.4424E-03
16.769	1.815	.5854E-04	22.619	18.847	.4617E-03
16.919	1.888	.6222E-04	22.769	20.015	.4797E-03
17.069	1.967	.6609E-04	22.919	20.731	.4853E-03

TABLE A6. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.069	21.124	.4825E-03	28.919	3.835	.2662E-04
23.219	21.240	.4732E-03	29.069	3.682	.2460E-04
23.369	21.230	.4611E-03	29.219	3.557	.2292E-04
23.519	21.228	.4496E-03	29.369	3.437	.2134E-04
23.669	20.958	.4325E-03	29.519	3.443	.2090E-04
23.819	20.419	.4103E-03	29.669	3.510	.2098E-04
23.969	19.910	.3896E-03	29.819	3.276	.1858E-04
24.119	19.448	.3710E-03	29.969	3.271	.1811E-04
24.269	18.757	.3485E-03	30.119	3.509	.1954E-04
24.419	17.714	.3202E-03	30.269	3.266	.1725E-04
24.569	16.656	.2927E-03	30.419	3.141	.1592E-04
24.719	15.288	.2608E-03	30.569	3.218	.1611E-04
24.869	13.789	.2278E-03	30.719	3.257	.1602E-04
25.019	12.802	.2052E-03	30.869	3.222	.1541E-04
25.169	12.016	.1869E-03	31.019	3.157	.1461E-04
25.319	11.279	.1702E-03	31.169	2.982	.1311E-04
25.469	10.431	.1525E-03	31.319	2.786	.1155E-04
25.619	9.540	.1347E-03	31.469	2.834	.1159E-04
25.769	8.950	.1224E-03	31.619	2.914	.1182E-04
25.919	8.332	.1102E-03	31.769	2.939	.1170E-04
26.069	7.512	.9554E-04	31.919	2.806	.1066E-04
26.219	6.798	.8301E-04	32.069	2.804	.1040E-04
26.369	6.478	.7656E-04	32.219	2.855	.1045E-04
26.519	6.225	.7127E-04	32.369	2.643	.9048E-05
26.669	5.997	.6657E-04	32.519	2.338	.7202E-05
26.819	5.793	.6237E-04	32.669	2.459	.7675E-05
26.969	5.569	.5809E-04	32.819	2.701	.8746E-05
27.119	5.363	.5419E-04	32.969	2.767	.8876E-05
27.269	5.081	.4952E-04	33.119	2.655	.8125E-05
27.419	4.808	.4515E-04	33.269	2.441	.6914E-05
27.569	4.626	.4200E-04	33.419	2.448	.6791E-05
27.719	4.408	.3856E-04	33.569	2.475	.6762E-05
27.869	4.266	.3610E-04			
28.019	4.220	.3477E-04			
28.169	4.158	.3332E-04			
28.319	4.171	.3268E-04			
28.469	4.057	.3078E-04			
28.619	3.927	.2879E-04			
28.769	3.991	.2874E-04			

TABLE A7. LIDAR DATA TAKEN ON OCTOBER 20, 1982, AT GMT 2028-2042 BETWEEN 21.8°N, 97.6°W AND 20.7°N, 97.1°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
7.305	1.452	.1110E-03	13.155	1.088	.1107E-04
7.455	1.525	.1269E-03	13.305	1.124	.1521E-04
7.605	1.526	.1251E-03	13.455	1.091	.1103E-04
7.755	1.505	.1181E-03	13.605	1.067	.7938E-05
7.905	1.480	.1107E-03	13.755	1.050	.5795E-05
8.055	1.450	.1020E-03	13.905	1.037	.4249E-05
8.205	1.421	.9385E-04	14.055	1.061	.6852E-05
8.355	1.388	.8519E-04	14.205	1.057	.6207E-05
8.505	1.355	.7674E-04	14.355	1.065	.6921E-05
8.655	1.324	.6886E-04	14.505	1.105	.1100E-04
8.805	1.301	.6307E-04	14.655	1.082	.8409E-05
8.955	1.283	.5822E-04	14.805	1.037	.3746E-05
9.105	1.254	.5156E-04	14.955	1.054	.5264E-05
9.255	1.236	.4712E-04	15.105	1.095	.9072E-05
9.405	1.341	.6705E-04	15.255	1.053	.4998E-05
9.555	1.725	.1402E-03	15.405	1.000	0.
9.705	2.507	.2865E-03	15.555	1.002	.1379E-06
9.855	3.682	.5008E-03	15.705	1.022	.1961E-05
10.005	4.349	.6142E-03	15.855	1.059	.5020E-05
10.155	3.931	.5278E-03	16.005	1.089	.7430E-05
10.305	3.421	.4283E-03	16.155	1.151	.1234E-04
10.455	4.399	.5905E-03	16.305	1.238	.1907E-04
10.605	3.997	.5113E-03	16.455	1.256	.2008E-04
10.755	1.707	.1184E-03	16.605	1.336	.2572E-04
10.905	1.031	.5066E-05	16.755	1.546	.4063E-04
11.055	1.079	.1275E-04	16.905	1.723	.5236E-04
11.205	1.096	.1531E-04	17.055	1.834	.5877E-04
11.355	1.133	.2074E-04	17.205	1.794	.5444E-04
11.505	1.124	.1902E-04	17.355	1.830	.5536E-04
11.655	1.069	.1041E-04	17.505	2.071	.6947E-04
11.805	1.050	.7393E-05	17.655	2.240	.7828E-04
11.955	1.089	.1290E-04	17.805	2.421	.8728E-04
12.105	1.146	.2084E-04	17.955	2.543	.9219E-04
12.255	1.188	.2650E-04	18.105	2.504	.8741E-04
12.405	1.198	.2740E-04	18.255	2.672	.9453E-04
12.555	1.135	.1827E-04	18.405	2.818	.1000E-03
12.705	1.042	.5572E-05	18.555	2.702	.9112E-04
12.855	1.035	.4577E-05	18.705	2.548	.8057E-04
13.005	1.073	.9285E-05	18.855	2.713	.8671E-04

TABLE A7. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
19.005	2.565	.7700E-04	24.855	15.273	.2543E-03
19.155	2.383	.6618E-04	25.005	13.826	.2230E-03
19.305	2.473	.6852E-04	25.155	12.252	.1910E-03
19.455	2.835	.8297E-04	25.305	12.255	.1864E-03
19.605	3.670	.1174E-03	25.455	12.037	.1784E-03
19.755	4.374	.1442E-03	25.605	9.957	.1413E-03
19.905	5.063	.1689E-03	25.755	9.040	.1238E-03
20.055	5.513	.1824E-03	25.905	8.476	.1124E-03
20.205	5.658	.1830E-03	26.055	7.095	.8943E-04
20.355	6.277	.2016E-03	26.205	5.869	.6973E-04
20.505	6.438	.2019E-03	26.355	4.518	.4917E-04
20.655	6.133	.1853E-03	26.505	4.193	.4356E-04
20.805	5.620	.1625E-03	26.655	5.632	.6171E-04
20.955	5.072	.1396E-03	26.805	6.212	.6784E-04
21.105	5.000	.1337E-03	26.955	3.635	.3350E-04
21.255	5.665	.1520E-03	27.105	1.371	.4609E-05
21.405	8.139	.2268E-03	27.255	.909	-.1098E-05
21.555	11.371	.3212E-03	27.405	2.184	.1403E-04
21.705	12.670	.3524E-03	27.555	3.143	.2481E-04
21.855	13.067	.3552E-03	27.705	4.119	.3527E-04
22.005	13.536	.3597E-03	27.855	3.540	.2806E-04
22.155	14.849	.3874E-03	28.005	.906	-.1015E-05
22.305	16.412	.4202E-03	28.155	1.428	.4509E-05
22.455	17.457	.4374E-03	28.305	2.342	.1382E-04
22.605	18.259	.4472E-03	28.455	2.467	.1475E-04
22.755	19.166	.4589E-03			
22.905	20.289	.4750E-03			
23.055	21.076	.4819E-03			
23.205	21.944	.4901E-03			
23.355	21.805	.4746E-03			
23.505	21.885	.4644E-03			
23.655	22.544	.4670E-03			
23.805	22.076	.4454E-03			
23.955	20.737	.4067E-03			
24.105	19.419	.3705E-03			
24.255	18.324	.3401E-03			
24.405	17.953	.3248E-03			
24.555	16.993	.2991E-03			
24.705	15.720	.2687E-03			

TABLE A8. LIDAR DATA TAKEN ON OCTOBER 21, 1982, AT GMT 2338-2345 BETWEEN 19.5°N, 86.3°W AND 19.2°N, 86.5°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.455	1.369	.6391E-04	16.305	1.295	.2357E-04
10.605	1.341	.5801E-04	16.455	1.395	.3090E-04
10.755	1.312	.5222E-04	16.605	1.512	.3908E-04
10.905	1.275	.4518E-04	16.755	1.649	.4829E-04
11.055	1.247	.3980E-04	16.905	1.771	.5584E-04
11.205	1.235	.3726E-04	17.055	1.910	.6413E-04
11.355	1.222	.3448E-04	17.205	2.053	.7222E-04
11.505	1.201	.3068E-04	17.355	2.169	.7809E-04
11.655	1.179	.2684E-04	17.505	2.261	.8199E-04
11.805	1.168	.2479E-04	17.655	2.199	.7592E-04
11.955	1.171	.2471E-04	17.805	2.078	.6643E-04
12.105	1.158	.2252E-04	17.955	2.098	.6588E-04
12.255	1.136	.1904E-04	18.105	2.149	.6712E-04
12.405	1.127	.1744E-04	18.255	2.342	.7631E-04
12.555	1.114	.1541E-04	18.405	2.307	.7236E-04
12.705	1.083	.1098E-04	18.555	2.293	.6968E-04
12.855	1.061	.7935E-05	18.705	2.369	.7184E-04
13.005	1.050	.6318E-05	18.855	2.491	.7611E-04
13.155	1.054	.6798E-05	19.005	2.632	.8102E-04
13.305	1.047	.5756E-05	19.155	2.738	.8393E-04
13.455	1.021	.2529E-05	19.305	2.992	.9356E-04
13.605	1.016	.1860E-05	19.455	3.707	.1237E-03
13.755	1.030	.3462E-05	19.605	4.593	.1596E-03
13.905	1.034	.3913E-05	19.755	5.160	.1797E-03
14.055	1.033	.3720E-05	19.905	5.352	.1829E-03
14.205	1.011	.1237E-05	20.055	5.530	.1852E-03
14.355	1.000	0.	20.205	5.845	.1926E-03
14.505	1.026	.2678E-05	20.355	6.269	.2037E-03
14.655	1.034	.3454E-05	20.505	6.372	.2020E-03
14.805	1.028	.2822E-05	20.655	6.491	.2009E-03
14.955	1.036	.3486E-05	20.805	6.866	.2090E-03
15.105	1.027	.2602E-05	20.955	7.163	.2140E-03
15.255	1.040	.3729E-05	21.105	7.981	.2363E-03
15.405	1.085	.7750E-05	21.255	9.414	.2775E-03
15.555	1.102	.9116E-05	21.405	10.343	.3003E-03
15.705	1.112	.9762E-05	21.555	10.391	.2942E-03
15.855	1.133	.1139E-04	21.705	10.289	.2836E-03
16.005	1.168	.1409E-04	21.855	10.772	.2907E-03
16.155	1.214	.1749E-04	22.005	11.777	.3125E-03

TABLE A8. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.155	13.524	.3540E-03	28.005	4.814	.4114E-04
22.305	15.817	.4081E-03	28.155	4.794	.3993E-04
22.455	17.321	.4381E-03	28.305	4.337	.3428E-04
22.605	18.393	.4550E-03	28.455	4.603	.3612E-04
22.755	20.051	.4857E-03	28.605	4.817	.3734E-04
22.905	21.321	.5049E-03	28.755	4.015	.2878E-04
23.055	21.890	.5059E-03	28.905	3.510	.2338E-04
23.205	22.483	.5070E-03	29.055	3.520	.2291E-04
23.355	23.167	.5098E-03	29.205	3.762	.2450E-04
23.505	23.280	.4994E-03	29.355	3.384	.2064E-04
23.655	23.006	.4807E-03	29.505	2.558	.1316E-04
23.805	22.408	.4558E-03	29.655	2.557	.1284E-04
23.955	21.577	.4272E-03	29.805	2.893	.1523E-04
24.105	21.345	.4123E-03	29.955	3.168	.1703E-04
24.255	21.206	.3997E-03	30.105	3.327	.1783E-04
24.405	20.463	.3758E-03	30.255	3.105	.1574E-04
24.555	19.512	.3489E-03	30.405	3.203	.1608E-04
24.705	18.418	.3204E-03	30.555	3.614	.1862E-04
24.855	17.107	.2893E-03	30.705	3.975	.2068E-04
25.005	15.461	.2535E-03	30.855	3.628	.1783E-04
25.155	13.665	.2167E-03			
25.305	11.369	.1732E-03			
25.455	10.043	.1475E-03			
25.605	10.180	.1461E-03			
25.755	9.675	.1348E-03			
25.905	8.458	.1131E-03			
26.055	7.603	.9774E-04			
26.205	7.209	.8972E-04			
26.355	6.786	.8162E-04			
26.505	6.965	.8213E-04			
26.655	7.903	.9276E-04			
26.805	8.186	.9423E-04			
26.955	7.003	.7682E-04			
27.105	5.720	.5895E-04			
27.255	5.610	.5619E-04			
27.405	5.657	.5538E-04			
27.555	5.078	.4733E-04			
27.705	4.739	.4234E-04			
27.855	4.777	.4175E-04			

TABLE A9. LIDAR DATA TAKEN ON OCTOBER 22, 1982, AT GMT 0027-0037 BETWEEN 17.4°N, 82.8°W AND 17.4°N, 82.0°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.455	1.162	.2808E-04	16.305	1.227	.1817E-04
10.605	1.144	.2442E-04	16.455	1.266	.2081E-04
10.755	1.129	.2157E-04	16.605	1.337	.2573E-04
10.905	1.117	.1918E-04	16.755	1.461	.3424E-04
11.055	1.103	.1665E-04	16.905	1.569	.4121E-04
11.205	1.092	.1458E-04	17.055	1.626	.4410E-04
11.355	1.086	.1345E-04	17.205	1.681	.4673E-04
11.505	1.075	.1148E-04	17.355	1.741	.4951E-04
11.655	1.059	.8841E-05	17.505	1.828	.5382E-04
11.805	1.047	.6899E-05	17.655	1.919	.5819E-04
11.955	1.042	.6124E-05	17.805	1.926	.5707E-04
12.105	1.041	.5839E-05	17.955	1.990	.5938E-04
12.255	1.033	.4655E-05	18.105	2.022	.5969E-04
12.405	1.024	.3229E-05	18.255	2.090	.6196E-04
12.555	1.017	.2290E-05	18.405	2.253	.6939E-04
12.705	1.014	.1792E-05	18.555	2.491	.8035E-04
12.855	1.004	.5494E-06	18.705	2.780	.9336E-04
13.005	1.003	.3824E-06	18.855	3.279	.1163E-03
13.155	1.005	.5889E-06	19.005	3.705	.1343E-03
13.305	1.007	.8244E-06	19.155	3.863	.1382E-03
13.455	1.018	.2112E-05	19.305	4.012	.1414E-03
13.605	1.019	.2236E-05	19.455	4.175	.1450E-03
13.755	1.017	.1972E-05	19.605	4.227	.1434E-03
13.905	1.020	.2229E-05	19.755	4.397	.1468E-03
14.055	1.025	.2851E-05	19.905	4.730	.1567E-03
14.205	1.017	.1840E-05	20.055	4.992	.1632E-03
14.355	1.006	.6825E-06	20.205	5.318	.1717E-03
14.505	1.013	.1352E-05	20.355	5.398	.1701E-03
14.655	1.010	.1029E-05	20.505	5.313	.1622E-03
14.805	1.000	0.	20.655	5.500	.1646E-03
14.955	1.006	.6233E-06	20.805	5.837	.1723E-03
15.105	1.028	.2648E-05	20.955	6.302	.1841E-03
15.255	1.039	.3696E-05	21.105	6.720	.1936E-03
15.405	1.042	.3867E-05	21.255	7.332	.2088E-03
15.555	1.047	.4189E-05	21.405	8.213	.2318E-03
15.705	1.079	.6902E-05	21.555	9.134	.2548E-03
15.855	1.111	.9487E-05	21.705	10.434	.2880E-03
16.005	1.139	.1166E-04	21.855	11.503	.3125E-03
16.155	1.193	.1577E-04	22.005	11.976	.3183E-03

TABLE A9. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.155	12.795	.3333E-03	28.005	4.394	.3661E-04
22.305	14.191	.3633E-03	28.155	4.396	.3574E-04
22.455	15.295	.3837E-03	28.305	4.619	.3718E-04
22.605	16.165	.3967E-03	28.455	4.296	.3304E-04
22.755	18.146	.4371E-03	28.605	3.919	.2855E-04
22.905	20.345	.4807E-03	28.755	4.085	.2945E-04
23.055	21.504	.4965E-03	28.905	3.932	.2732E-04
23.205	22.215	.5007E-03	29.055	3.692	.2447E-04
23.355	22.310	.4901E-03	29.205	3.464	.2186E-04
23.505	22.062	.4721E-03	29.355	3.217	.1920E-04
23.655	21.892	.4564E-03	29.505	3.142	.1810E-04
23.805	21.160	.4292E-03	29.655	3.151	.1773E-04
23.955	20.888	.4129E-03	29.805	2.989	.1601E-04
24.105	21.036	.4060E-03	29.955	2.863	.1463E-04
24.255	20.230	.3804E-03	30.105	2.547	.1185E-04
24.405	19.052	.3485E-03	30.255	2.477	.1104E-04
24.555	18.298	.3260E-03	30.405	3.061	.1504E-04
24.705	17.690	.3071E-03	30.555	3.335	.1663E-04
24.855	16.797	.2837E-03	30.705	3.176	.1513E-04
25.005	15.542	.2549E-03	30.855	3.488	.1688E-04
25.155	14.308	.2277E-03			
25.305	12.979	.2001E-03			
25.455	12.157	.1819E-03			
25.605	11.010	.1593E-03			
25.755	9.732	.1357E-03			
25.905	9.542	.1295E-03			
26.055	8.861	.1164E-03			
26.205	7.893	.9961E-04			
26.355	7.701	.9453E-04			
26.505	7.493	.8941E-04			
26.655	6.179	.6959E-04			
26.805	5.175	.5475E-04			
26.955	4.993	.5110E-04			
27.105	4.940	.4921E-04			
27.255	4.699	.4508E-04			
27.405	4.667	.4361E-04			
27.555	5.131	.4795E-04			
27.705	4.986	.4514E-04			
27.855	4.505	.3874E-04			

TABLE A10. LIDAR DATA TAKEN ON OCTOBER 22, 1982, AT GMT 0255-0307 BETWEEN 18.1°N, 70.0°W AND 18.4°N, 69.7°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.064	2.274	.2074E-03	16.914	1.576	.4157E-04
11.214	2.457	.2332E-03	17.064	1.640	.4488E-04
11.364	2.650	.2595E-03	17.214	1.703	.4788E-04
11.514	2.841	.2845E-03	17.364	1.776	.5142E-04
11.664	3.038	.3095E-03	17.514	1.807	.5195E-04
11.814	3.255	.3366E-03	17.664	1.853	.5333E-04
11.964	3.370	.3477E-03	17.814	1.944	.5740E-04
12.114	3.343	.3378E-03	17.964	1.988	.5834E-04
12.264	3.299	.3257E-03	18.114	2.075	.6171E-04
12.414	3.037	.2835E-03	18.264	2.266	.7063E-04
12.564	2.632	.2230E-03	18.414	2.303	.7065E-04
12.714	2.485	.1993E-03	18.564	2.313	.6917E-04
12.864	2.283	.1690E-03	18.714	2.342	.6876E-04
13.014	1.809	.1046E-03	18.864	2.301	.6495E-04
13.164	1.556	.7060E-04	19.014	2.398	.6802E-04
13.314	1.676	.8427E-04	19.164	2.834	.8693E-04
13.464	2.162	.1421E-03	19.314	3.519	.1163E-03
13.614	2.727	.2073E-03	19.464	4.005	.1352E-03
13.764	3.269	.2675E-03	19.614	4.276	.1436E-03
13.914	4.822	.4423E-03	19.764	4.571	.1524E-03
14.064	6.010	.5692E-03	19.914	4.877	.1613E-03
14.214	5.371	.4872E-03	20.064	5.210	.1706E-03
14.364	3.221	.2418E-03	20.214	5.274	.1687E-03
14.514	1.276	.2938E-04	20.364	5.148	.1595E-03
14.664	1.021	.2200E-05	20.514	5.266	.1598E-03
14.814	2.274	.1292E-03	20.664	5.606	.1682E-03
14.964	5.035	.3999E-03	20.814	6.107	.1816E-03
15.114	4.760	.3641E-03	20.964	6.532	.1916E-03
15.264	2.044	.9876E-04	21.114	7.037	.2037E-03
15.414	1.035	.3247E-05	21.264	7.747	.2218E-03
15.564	1.000	0.	21.414	8.435	.2381E-03
15.714	1.004	.3573E-06	21.564	9.219	.2564E-03
15.864	1.036	.3094E-05	21.714	10.686	.2943E-03
16.014	1.083	.7023E-05	21.864	12.543	.3417E-03
16.164	1.138	.1133E-04	22.014	13.847	.3704E-03
16.314	1.169	.1353E-04	22.164	14.941	.3916E-03
16.464	1.204	.1603E-04	22.314	15.752	.4036E-03
16.614	1.305	.2327E-04	22.464	16.844	.4223E-03
16.764	1.451	.3348E-04	22.614	18.552	.4557E-03

TABLE A10. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.764	19.470	.4671E-03	28.614	4.517	.3449E-04
22.914	19.783	.4628E-03	28.764	4.232	.3094E-04
23.064	19.881	.4531E-03	28.914	3.948	.2755E-04
23.214	20.060	.4456E-03	29.064	3.334	.2129E-04
23.364	20.361	.4409E-03	29.214	3.223	.1980E-04
23.514	20.179	.4255E-03	29.364	3.173	.1889E-04
23.664	19.717	.4045E-03	29.514	3.011	.1706E-04
23.814	19.486	.3892E-03	29.664	3.377	.1970E-04
23.964	19.070	.3710E-03	29.814	3.649	.2143E-04
24.114	18.417	.3492E-03	29.964	3.488	.1964E-04
24.264	17.587	.3248E-03	30.114	3.200	.1696E-04
24.414	15.733	.2818E-03	30.264	3.238	.1684E-04
24.564	13.663	.2365E-03	30.414	3.356	.1730E-04
24.714	13.171	.2220E-03	30.564	3.457	.1762E-04
24.864	13.341	.2198E-03	30.714	3.610	.1827E-04
25.014	12.802	.2053E-03	30.864	3.246	.1535E-04
25.164	11.909	.1854E-03	31.014	3.175	.1451E-04
25.314	10.949	.1651E-03	31.164	3.311	.1506E-04
25.464	10.054	.1467E-03	31.314	3.458	.1565E-04
25.614	9.009	.1268E-03	31.464	4.126	.1945E-04
25.764	8.072	.1093E-03	31.614	4.050	.1854E-04
25.914	7.669	.1007E-03	31.764	3.879	.1710E-04
26.064	7.642	.9794E-04	31.914	3.936	.1705E-04
26.214	7.097	.8780E-04	32.064	3.767	.1570E-04
26.364	6.484	.7712E-04	32.214	4.239	.1796E-04
26.514	6.350	.7348E-04	32.364	4.402	.1843E-04
26.664	6.408	.7251E-04	32.514	3.958	.1566E-04
26.814	6.163	.6758E-04	32.664	4.285	.1700E-04
26.964	5.510	.5763E-04	32.814	4.247	.1642E-04
27.114	5.250	.5302E-04	32.964	4.435	.1698E-04
27.264	4.958	.4820E-04	33.114	4.428	.1656E-04
27.414	4.535	.4202E-04	33.264	4.091	.1459E-04
27.564	4.602	.4181E-04	33.414	4.301	.1522E-04
27.714	4.586	.4063E-04	33.564	4.573	.1610E-04
27.864	4.400	.3760E-04			
28.014	4.304	.3567E-04			
28.164	4.344	.3525E-04			
28.314	4.438	.3538E-04			
28.464	4.588	.3604E-04			

TABLE A11. LIDAR DATA TAKEN ON OCTOBER 25, 1982, AT GMT 1943-1947 BETWEEN 4.1°S, 79.5°W AND 4.4°S, 79.4°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.064	1.038	.6193E-05	16.914	1.264	.1934E-04
11.214	1.095	.1514E-04	17.064	1.391	.2784E-04
11.364	1.126	.1985E-04	17.214	1.412	.2854E-04
11.514	1.130	.2014E-04	17.364	1.462	.3115E-04
11.664	1.134	.2039E-04	17.514	1.560	.3672E-04
11.814	1.117	.1757E-04	17.664	1.738	.4712E-04
11.964	1.101	.1481E-04	17.814	1.842	.5230E-04
12.114	1.084	.1217E-04	17.964	1.981	.5926E-04
12.264	1.058	.8191E-05	18.114	2.170	.6879E-04
12.414	1.051	.7192E-05	18.264	2.116	.6382E-04
12.564	1.036	.4994E-05	18.414	2.262	.7022E-04
12.714	1.024	.3196E-05	18.564	2.459	.7898E-04
12.864	1.048	.6305E-05	18.714	2.730	.9097E-04
13.014	1.057	.7452E-05	18.864	2.886	.9522E-04
13.164	1.057	.7219E-05	19.014	3.276	.1126E-03
13.314	1.077	.9601E-05	19.164	4.023	.1451E-03
13.464	1.077	.9474E-05	19.314	5.003	.1864E-03
13.614	1.088	.1067E-04	19.464	5.911	.2219E-03
13.764	1.128	.1517E-04	19.614	6.542	.2428E-03
13.914	1.150	.1741E-04	19.764	6.835	.2480E-03
14.064	1.148	.1688E-04	19.914	6.662	.2335E-03
14.214	1.175	.1961E-04	20.064	6.875	.2350E-03
14.364	1.226	.2479E-04	20.214	8.056	.2738E-03
14.514	1.202	.2165E-04	20.364	9.179	.3079E-03
14.664	1.121	.1267E-04	20.514	9.701	.3177E-03
14.814	1.113	.1155E-04	20.664	9.705	.3087E-03
14.964	1.101	.1005E-04	20.814	9.327	.2881E-03
15.114	1.078	.7574E-05	20.964	9.380	.2829E-03
15.264	1.074	.7026E-05	21.114	9.787	.2894E-03
15.414	1.057	.5345E-05	21.264	9.995	.2891E-03
15.564	1.044	.3991E-05	21.414	10.628	.3019E-03
15.714	1.166	.1477E-04	21.564	11.270	.3142E-03
15.864	1.545	.4734E-04	21.714	11.423	.3111E-03
16.014	1.683	.5804E-04	21.864	11.503	.3058E-03
16.164	1.267	.2215E-04	22.014	11.445	.2967E-03
16.314	1.000	0.	22.164	11.298	.2854E-03
16.464	1.104	.8213E-05	22.314	11.047	.2717E-03
16.614	1.121	.9325E-05	22.464	10.639	.2543E-03
16.764	1.157	.1182E-04	22.614	10.094	.2341E-03

TABLE A11. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.764	10.110	.2288E-03	28.614	2.654	.1635E-04
22.914	10.774	.2395E-03	28.764	2.443	.1393E-04
23.064	10.282	.2219E-03	28.914	3.728	.2573E-04
23.214	9.297	.1935E-03	29.064	3.878	.2651E-04
23.364	9.258	.1879E-03	29.214	2.911	.1719E-04
23.514	8.846	.1742E-03	29.364	2.732	.1521E-04
23.664	8.518	.1629E-03	29.514	4.767	.3233E-04
23.814	7.877	.1453E-03	29.664	3.860	.2397E-04
23.964	7.181	.1275E-03	29.814	1.830	.6791E-05
24.114	7.052	.1219E-03	29.964	.771	-.1830E-05
24.264	6.611	.1104E-03	30.114	2.137	.8876E-05
24.414	6.994	.1151E-03	30.264	3.293	.1748E-04
24.564	7.435	.1207E-03	30.414	4.755	.2796E-04
24.714	5.933	.9034E-04	30.564	5.654	.3385E-04
24.864	5.140	.7404E-04	30.714	7.030	.4283E-04
25.014	5.978	.8694E-04	30.864	6.674	.3935E-04
25.164	5.989	.8508E-04	31.014	3.906	.1969E-04
25.314	4.872	.6448E-04	31.164	1.578	.3821E-05
25.464	4.422	.5565E-04	31.314	2.685	.1089E-04
25.614	4.754	.5962E-04			
25.764	5.005	.6211E-04			
25.914	4.740	.5664E-04			
26.064	4.118	.4611E-04			
26.214	3.474	.3573E-04			
26.364	3.388	.3367E-04			
26.514	3.217	.3053E-04			
26.664	3.089	.2809E-04			
26.814	3.707	.3556E-04			
26.964	4.177	.4075E-04			
27.114	4.252	.4073E-04			
27.264	4.465	.4239E-04			
27.414	4.203	.3827E-04			
27.564	3.065	.2410E-04			
27.714	2.370	.1562E-04			
27.864	2.705	.1897E-04			
28.014	1.957	.1040E-04			
28.164	2.178	.1251E-04			
28.314	2.398	.1439E-04			
28.464	1.779	.7889E-05			

TABLE A12. LIDAR DATA TAKEN ON OCTOBER 25, 1982, AT GMT 2003-2010 BETWEEN 5.6°S, 79.1°W AND 6.1°S, 78.9°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.064	1.114	.1859E-04	16.914	1.260	.1900E-04
11.214	1.107	.1710E-04	17.064	1.290	.2065E-04
11.364	1.113	.1784E-04	17.214	1.368	.2548E-04
11.514	1.124	.1927E-04	17.364	1.492	.3318E-04
11.664	1.126	.1917E-04	17.514	1.574	.3767E-04
11.814	1.164	.2461E-04	17.664	1.621	.3963E-04
11.964	1.191	.2806E-04	17.814	1.697	.4330E-04
12.114	1.164	.2379E-04	17.964	1.778	.4702E-04
12.264	1.159	.2266E-04	18.114	1.887	.5214E-04
12.414	1.159	.2229E-04	18.264	1.988	.5653E-04
12.564	1.178	.2448E-04	18.414	2.186	.6599E-04
12.714	1.206	.2775E-04	18.564	2.334	.7221E-04
12.864	1.193	.2558E-04	18.714	2.551	.8155E-04
13.014	1.307	.3995E-04	18.864	2.866	.9518E-04
13.164	1.295	.3767E-04	19.014	3.343	.1160E-03
13.314	1.211	.2649E-04	19.164	3.729	.1310E-03
13.464	1.230	.2825E-04	19.314	4.165	.1474E-03
13.614	1.172	.2072E-04	19.464	4.752	.1695E-03
13.764	1.111	.1314E-04	19.614	5.300	.1884E-03
13.914	1.098	.1142E-04	19.764	5.859	.2065E-03
14.064	1.101	.1155E-04	19.914	6.034	.2076E-03
14.214	1.119	.1338E-04	20.064	5.747	.1899E-03
14.364	1.112	.1229E-04	20.214	6.423	.2104E-03
14.514	1.083	.8911E-05	20.364	7.906	.2599E-03
14.664	1.043	.4470E-05	20.514	8.863	.2871E-03
14.814	1.033	.3361E-05	20.664	9.144	.2888E-03
14.964	1.068	.6751E-05	20.814	8.972	.2758E-03
15.114	1.068	.6593E-05	20.964	8.798	.2633E-03
15.264	1.040	.3780E-05	21.114	9.035	.2647E-03
15.414	1.025	.2348E-05	21.264	9.121	.2610E-03
15.564	1.057	.5213E-05	21.414	9.227	.2579E-03
15.714	1.065	.5746E-05	21.564	9.367	.2559E-03
15.864	1.056	.4852E-05	21.714	9.177	.2441E-03
16.014	1.018	.1558E-05	21.864	8.968	.2320E-03
16.164	1.000	0.	22.014	8.643	.2171E-03
16.314	1.044	.3578E-05	22.164	8.101	.1968E-03
16.464	1.124	.9858E-05	22.314	8.468	.2020E-03
16.614	1.185	.1432E-04	22.464	8.711	.2035E-03
16.764	1.214	.1609E-04	22.614	8.874	.2027E-03

TABLE A12. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.764	9.695	.2184E-03	28.614	2.977	.1955E-04
22.914	9.569	.2100E-03	28.764	3.407	.2325E-04
23.064	8.581	.1812E-03	28.914	3.259	.2131E-04
23.214	7.905	.1611E-03	29.064	1.898	.8268E-05
23.364	7.420	.1461E-03	29.214	2.009	.9075E-05
23.514	6.936	.1318E-03	29.364	2.528	.1343E-04
23.664	6.154	.1117E-03	29.514	2.033	.8867E-05
23.814	6.163	.1091E-03	29.664	2.487	.1246E-04
23.964	6.563	.1147E-03	29.814	2.369	.1121E-04
24.114	5.816	.9700E-04	29.964	1.770	.6155E-05
24.264	5.305	.8466E-04	30.114	.965	-.2761E-06
24.414	5.249	.8162E-04	30.264	1.093	.7098E-06
24.564	4.863	.7245E-04	30.414	.904	-.7132E-06
24.714	4.192	.5846E-04	30.564	.659	-.2483E-05
24.864	3.633	.4710E-04	30.714	2.352	.9604E-05
25.014	3.694	.4705E-04	30.864	2.840	.1276E-04
25.164	4.034	.5174E-04	31.014	1.693	.4692E-05
25.314	4.224	.5370E-04	31.164	2.640	.1085E-04
25.464	3.911	.4733E-04	31.314	3.551	.1648E-04
25.614	3.596	.4123E-04			
25.764	4.082	.4779E-04			
25.914	4.508	.5312E-04			
26.064	4.047	.4506E-04			
26.214	3.695	.3892E-04			
26.364	3.632	.3712E-04			
26.514	3.219	.3055E-04			
26.664	2.810	.2433E-04			
26.814	3.092	.2748E-04			
26.964	3.426	.3112E-04			
27.114	2.696	.2125E-04			
27.264	2.442	.1764E-04			
27.414	2.631	.1949E-04			
27.564	2.900	.2218E-04			
27.714	3.042	.2327E-04			
27.864	3.241	.2495E-04			
28.014	3.552	.2773E-04			
28.164	2.902	.2019E-04			
28.314	2.210	.1255E-04			
28.464	2.487	.1505E-04			

TABLE A13. LIDAR DATA TAKEN ON OCTOBER 26, 1982, AT GMT 1900-1914 BETWEEN 18.3°S, 74.5°W AND 19.4°S, 74.2°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.455	1.317	.5516E-04	16.305	1.173	.1421E-04
10.605	1.307	.5256E-04	16.455	1.298	.2402E-04
10.755	1.294	.4952E-04	16.605	1.441	.3476E-04
10.905	1.273	.4519E-04	16.755	1.528	.4045E-04
11.055	1.327	.5323E-04	16.905	1.588	.4375E-04
11.205	1.542	.8676E-04	17.055	1.628	.4535E-04
11.355	1.797	.1256E-03	17.205	1.702	.4912E-04
11.505	1.975	.1510E-03	17.355	1.775	.5264E-04
11.655	2.100	.1675E-03	17.505	1.802	.5287E-04
11.805	2.150	.1723E-03	17.655	1.891	.5696E-04
11.955	2.174	.1726E-03	17.805	2.007	.6247E-04
12.105	2.138	.1648E-03	17.955	2.056	.6354E-04
12.255	1.987	.1405E-03	18.105	2.249	.7292E-04
12.405	1.806	.1129E-03	18.255	2.304	.7382E-04
12.555	1.507	.6972E-04	18.405	2.434	.7879E-04
12.705	1.199	.2686E-04	18.555	2.587	.8457E-04
12.855	1.105	.1388E-04	18.705	2.719	.8890E-04
13.005	1.107	.1386E-04	18.855	3.090	.1052E-03
13.155	1.125	.1590E-04	19.005	3.612	.1282E-03
13.305	1.112	.1399E-04	19.155	4.050	.1460E-03
13.455	1.101	.1233E-04	19.305	4.456	.1613E-03
13.605	1.067	.8119E-05	19.455	5.155	.1891E-03
13.755	1.057	.6737E-05	19.605	5.728	.2098E-03
13.905	1.068	.7867E-05	19.755	5.524	.1958E-03
14.055	1.029	.3317E-05	19.905	4.923	.1656E-03
14.205	1.028	.3158E-05	20.055	4.455	.1422E-03
14.355	1.030	.3320E-05	20.205	3.712	.1089E-03
14.505	1.000	0.	20.355	2.881	.7360E-04
14.655	1.023	.2406E-05	20.505	2.379	.5262E-04
14.805	1.056	.5731E-05	20.655	2.008	.3750E-04
14.955	1.101	.1007E-04	20.805	1.883	.3204E-04
15.105	1.122	.1198E-04	20.955	1.977	.3457E-04
15.255	1.120	.1150E-04	21.105	2.144	.3947E-04
15.405	1.095	.8913E-05	21.255	2.427	.4805E-04
15.555	1.068	.6275E-05	21.405	2.644	.5397E-04
15.705	1.083	.7454E-05	21.555	2.983	.6348E-04
15.855	1.119	.1043E-04	21.705	3.665	.8320E-04
16.005	1.159	.1367E-04	21.855	4.048	.9280E-04
16.155	1.154	.1298E-04	22.005	4.298	.9793E-04

TABLE A13. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.155	5.246	.1230E-03	28.005	1.669	.7332E-05
22.305	6.294	.1495E-03	28.155	2.812	.1939E-04
22.455	6.637	.1553E-03	28.305	2.644	.1716E-04
22.605	6.458	.1466E-03	28.455	1.967	.9852E-05
22.755	6.371	.1407E-03	28.605	1.504	.5011E-05
22.905	6.290	.1351E-03	28.755	1.938	.9109E-05
23.055	5.917	.1225E-03	28.905	1.406	.3851E-05
23.205	5.613	.1121E-03	29.055	1.966	.8930E-05
23.355	4.891	.9219E-04	29.205	2.323	.1194E-04
23.505	3.672	.6173E-04			
23.655	3.248	.5066E-04			
23.805	3.245	.4933E-04			
23.955	2.948	.4173E-04			
24.105	2.564	.3268E-04			
24.255	1.848	.1728E-04			
24.405	1.434	.3622E-05			
24.555	1.613	.1188E-04			
24.705	1.262	.4957E-05			
24.855	.900	-.1837E-05			
25.005	1.050	.9003E-06			
25.155	1.354	.6211E-05			
25.305	1.505	.8625E-05			
25.455	1.640	.1066E-04			
25.605	1.104	.1690E-05			
25.755	.999	-.2317E-07			
25.905	1.450	.6953E-05			
26.055	.991	-.1298E-06			
26.205	.766	-.3447E-05			
26.355	1.356	.5104E-05			
26.505	1.017	.2318E-06			
26.655	.375	-.8522E-05			
26.805	1.231	.3078E-05			
26.955	1.503	.6532E-05			
27.105	1.211	.2676E-05			
27.255	1.411	.5084E-05			
27.405	1.642	.7751E-05			
27.555	1.986	.1162E-04			
27.705	1.575	.6619E-05			
27.855	.945	-.6182E-06			

TABLE A14. LIDAR DATA TAKEN ON OCTOBER 26, 1982, AT GMT 2023-2043 BETWEEN 24.6°S, 72.7°W AND 26.3°S, 72.3°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.455	1.154	.2684E-04	16.305	1.000	0.
10.605	1.132	.2265E-04	16.455	1.044	.3567E-05
10.755	1.116	.1957E-04	16.605	1.199	.1565E-04
10.905	1.106	.1759E-04	16.755	1.317	.2427E-04
11.055	1.098	.1602E-04	16.905	1.353	.2629E-04
11.205	1.097	.1555E-04	17.055	1.410	.2958E-04
11.355	1.104	.1644E-04	17.205	1.508	.3556E-04
11.505	1.113	.1743E-04	17.355	1.650	.4416E-04
11.655	1.118	.1800E-04	17.505	1.839	.5525E-04
11.805	1.109	.1635E-04	17.655	1.939	.6004E-04
11.955	1.109	.1599E-04	17.805	1.969	.6012E-04
12.105	1.118	.1706E-04	17.955	2.019	.6132E-04
12.255	1.100	.1418E-04	18.105	2.036	.6047E-04
12.405	1.098	.1376E-04	18.255	2.135	.6428E-04
12.555	1.188	.2589E-04	18.405	2.207	.6632E-04
12.705	1.364	.4907E-04	18.555	2.376	.7333E-04
12.855	1.356	.4713E-04	18.705	2.549	.8011E-04
13.005	1.170	.2210E-04	18.855	2.391	.6997E-04
13.155	1.106	.1354E-04	19.005	2.162	.5702E-04
13.305	1.104	.1304E-04	19.155	2.211	.5792E-04
13.455	1.096	.1174E-04	19.305	2.439	.6717E-04
13.605	1.112	.1342E-04	19.455	3.269	.1032E-03
13.755	1.107	.1269E-04	19.605	3.874	.1275E-03
13.905	1.087	.1011E-04	19.755	3.656	.1149E-03
14.055	1.063	.7187E-05	19.905	2.907	.8049E-04
14.205	1.034	.3747E-05	20.055	2.523	.6267E-04
14.355	1.019	.2024E-05	20.205	3.065	.8288E-04
14.505	1.023	.2455E-05	20.355	3.554	.9995E-04
14.655	1.037	.3874E-05	20.505	4.292	.1257E-03
14.805	1.027	.2759E-05	20.655	5.822	.1794E-03
14.955	1.021	.2061E-05	20.805	6.799	.2105E-03
15.105	1.029	.2879E-05	20.955	7.019	.2130E-03
15.255	1.027	.2579E-05	21.105	7.387	.2205E-03
15.405	1.028	.2668E-05	21.255	7.316	.2126E-03
15.555	1.025	.2335E-05	21.405	6.901	.1937E-03
15.705	1.013	.1170E-05	21.555	6.566	.1782E-03
15.855	1.004	.3740E-06	21.705	6.337	.1666E-03
16.005	1.009	.7693E-06	21.855	5.773	.1453E-03
16.155	1.008	.6425E-06	22.005	5.287	.1273E-03

TABLE A14. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.155	5.290	.1239E-03	28.005	1.200	.2189E-05
22.305	4.802	.1074E-03	28.155	1.153	.1641E-05
22.455	3.756	.7590E-04	28.305	1.242	.2525E-05
22.605	3.228	.5985E-04	28.455	1.263	.2683E-05
22.755	3.681	.7022E-04	28.605	1.608	.6043E-05
22.905	4.485	.8901E-04	28.755	1.789	.7664E-05
23.055	4.496	.8709E-04	28.905	1.790	.7485E-05
23.205	3.217	.5386E-04	29.055	1.269	.2486E-05
23.355	2.095	.2595E-04	29.205	1.219	.1974E-05
23.505	2.069	.2470E-04	29.355	1.908	.8000E-05
23.655	2.288	.2903E-04	29.505	1.590	.5069E-05
23.805	2.344	.2953E-04	29.655	1.481	.4038E-05
23.955	2.259	.2697E-04	29.805	1.506	.4144E-05
24.105	2.099	.2297E-04	29.955	1.326	.2604E-05
24.255	2.011	.2061E-04	30.105	1.057	.4446E-06
24.405	1.962	.1912E-04	30.255	1.029	.2183E-06
24.555	1.798	.1546E-04	30.405	1.508	.3778E-05
24.705	1.673	.1272E-04	30.555	1.119	.8643E-06
24.855	1.781	.1439E-04	30.705	1.383	.2714E-05
25.005	1.743	.1335E-04	30.855	1.544	.3757E-05
25.155	1.665	.1165E-04	31.005	2.026	.6919E-05
25.305	1.844	.1443E-04	31.155	2.067	.7022E-05
25.455	1.992	.1654E-04			
25.605	1.736	.1196E-04			
25.755	1.437	.6926E-05			
25.905	1.549	.8486E-05			
26.055	1.512	.7717E-05			
26.205	1.389	.5713E-05			
26.355	.889	-.1591E-05			
26.505	.802	-.2771E-05			
26.655	1.509	.6940E-05			
26.805	1.612	.8142E-05			
26.955	1.294	.3813E-05			
27.105	1.489	.6202E-05			
27.255	1.831	.1028E-04			
27.405	1.438	.5291E-05			
27.555	1.124	.1457E-05			
27.705	1.134	.1539E-05			
27.855	1.278	.3123E-05			

TABLE A15. LIDAR DATA TAKEN ON OCTOBER 26, 1982, AT GMT 2043-2103 BETWEEN 26.3°S, 72.3°W AND 28.0°S, 71.9°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.455	1.157	.2730E-04	16.305	1.045	.3733E-05
10.605	1.153	.2620E-04	16.455	1.090	.7275E-05
10.755	1.153	.2574E-04	16.605	1.160	.1261E-04
10.905	1.144	.2377E-04	16.755	1.237	.1818E-04
11.055	1.122	.1987E-04	16.905	1.295	.2193E-04
11.205	1.099	.1594E-04	17.055	1.365	.2631E-04
11.355	1.086	.1349E-04	17.205	1.480	.3363E-04
11.505	1.080	.1246E-04	17.355	1.660	.4484E-04
11.655	1.086	.1314E-04	17.505	1.805	.5307E-04
11.805	1.104	.1551E-04	17.655	1.859	.5493E-04
11.955	1.122	.1791E-04	17.805	1.831	.5156E-04
12.105	1.107	.1550E-04	17.955	1.840	.5053E-04
12.255	1.097	.1380E-04	18.105	1.884	.5162E-04
12.405	1.114	.1592E-04	18.255	1.806	.4563E-04
12.555	1.124	.1709E-04	18.405	1.832	.4570E-04
12.705	1.119	.1606E-04	18.555	1.942	.5021E-04
12.855	1.097	.1279E-04	18.705	1.957	.4950E-04
13.005	1.092	.1200E-04	18.855	1.872	.4386E-04
13.155	1.111	.1408E-04	19.005	1.845	.4148E-04
13.305	1.102	.1277E-04	19.155	1.832	.3982E-04
13.455	1.073	.8926E-05	19.305	1.811	.3784E-04
13.605	1.034	.4099E-05	19.455	1.809	.3682E-04
13.755	1.017	.1962E-05	19.605	1.780	.3461E-04
13.905	1.025	.2877E-05	19.755	1.745	.3223E-04
14.055	1.026	.2902E-05	19.905	1.709	.2992E-04
14.205	1.034	.3815E-05	20.055	1.734	.3022E-04
14.355	1.015	.1670E-05	20.205	1.794	.3185E-04
14.505	1.000	0.	20.355	1.962	.3764E-04
14.655	1.030	.3099E-05	20.505	2.223	.4668E-04
14.805	1.043	.4429E-05	20.655	2.567	.5831E-04
14.955	1.034	.3373E-05	20.805	2.572	.5707E-04
15.105	1.036	.3508E-05	20.955	2.254	.4440E-04
15.255	1.037	.3532E-05	21.105	2.498	.5170E-04
15.405	1.018	.1683E-05	21.255	2.929	.6493E-04
15.555	1.016	.1441E-05	21.405	2.960	.6435E-04
15.705	1.042	.3786E-05	21.555	2.846	.5910E-04
15.855	1.035	.3040E-05	21.705	2.836	.5731E-04
16.005	1.035	.2968E-05	21.855	2.558	.4743E-04
16.155	1.038	.3226E-05	22.005	2.269	.3769E-04

TABLE A15. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.155	2.209	.3500E-04	28.005	1.085	.9263E-06
22.305	2.084	.3062E-04	28.155	1.238	.2547E-05
22.455	2.155	.3181E-04	28.305	1.420	.4386E-05
22.605	2.289	.3463E-04	28.455	1.700	.7130E-05
22.755	2.314	.3442E-04	28.605	1.845	.8405E-05
22.905	2.489	.3804E-04	28.755	1.235	.2280E-05
23.055	2.618	.4032E-04	28.905	1.081	.7685E-06
23.205	2.529	.3715E-04	29.055	1.748	.6915E-05
23.355	2.654	.3918E-04	29.205	2.013	.9144E-05
23.505	2.842	.4255E-04	29.355	1.957	.8431E-05
23.655	2.600	.3606E-04	29.505	1.577	.4957E-05
23.805	2.244	.2733E-04	29.655	2.059	.8886E-05
23.955	2.136	.2435E-04	29.805	2.834	.1502E-04
24.105	1.978	.2043E-04	29.955	2.712	.1368E-04
24.255	1.825	.1681E-04	30.105	1.792	.6179E-05
24.405	1.806	.1602E-04	30.255	1.194	.1479E-05
24.555	1.642	.1243E-04	30.405	1.665	.4940E-05
24.705	1.397	.7499E-05	30.555	1.920	.6677E-05
24.855	1.370	.6813E-05	30.705	2.190	.8429E-05
25.005	1.408	.7332E-05	30.855	2.330	.9188E-05
25.155	1.382	.6700E-05	31.005	2.158	.7806E-05
25.305	1.404	.6914E-05	31.155	3.002	.1318E-04
25.455	1.281	.4692E-05			
25.605	1.217	.3529E-05			
25.755	1.423	.6698E-05			
25.905	1.494	.7630E-05			
26.055	1.572	.8618E-05			
26.205	1.338	.4966E-05			
26.355	1.205	.2944E-05			
26.505	1.543	.7596E-05			
26.655	1.677	.9238E-05			
26.805	1.607	.8072E-05			
26.955	1.557	.7242E-05			
27.105	1.470	.5961E-05			
27.255	1.437	.5406E-05			
27.405	1.521	.6291E-05			
27.555	1.734	.8656E-05			
27.705	1.729	.8387E-05			
27.855	1.305	.3422E-05			

TABLE A16. LIDAR DATA TAKEN ON OCTOBER 28, 1982, AT GMT 2205-2229 BETWEEN 35.0°S, 71.5°W AND 36.7°S, 71.9°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.455	1.599	.1038E-03	16.305	2.120	.8765E-04
10.605	1.567	.9648E-04	16.455	2.203	.9205E-04
10.755	1.542	.9057E-04	16.605	2.249	.9335E-04
10.905	1.527	.8655E-04	16.755	2.264	.9209E-04
11.055	1.503	.8122E-04	16.905	2.295	.9191E-04
11.205	1.466	.7392E-04	17.055	2.255	.8681E-04
11.355	1.415	.6467E-04	17.205	2.218	.8212E-04
11.505	1.377	.5780E-04	17.355	2.274	.8370E-04
11.655	1.350	.5275E-04	17.505	2.298	.8308E-04
11.805	1.330	.4888E-04	17.655	2.274	.7948E-04
11.955	1.315	.4579E-04	17.805	2.236	.7514E-04
12.105	1.300	.4286E-04	17.955	2.255	.7438E-04
12.255	1.299	.4205E-04	18.105	2.223	.7063E-04
12.405	1.306	.4214E-04	18.255	2.283	.7220E-04
12.555	1.310	.4184E-04	18.405	2.271	.6966E-04
12.705	1.324	.4284E-04	18.555	2.232	.6585E-04
12.855	1.307	.3989E-04	18.705	2.194	.6216E-04
13.005	1.281	.3573E-04	18.855	2.237	.6275E-04
13.155	1.277	.3456E-04	19.005	2.242	.6144E-04
13.305	1.275	.3354E-04	19.155	2.207	.5817E-04
13.455	1.270	.3227E-04	19.305	2.164	.5471E-04
13.605	1.280	.3287E-04	19.455	2.239	.5675E-04
13.755	1.300	.3447E-04	19.605	2.056	.4714E-04
13.905	1.330	.3719E-04	19.755	1.684	.2975E-04
14.055	1.403	.4445E-04	19.905	1.764	.3242E-04
14.205	1.517	.5574E-04	20.055	2.087	.4494E-04
14.355	1.599	.6320E-04	20.205	2.227	.4943E-04
14.505	1.624	.6427E-04	20.355	2.083	.4253E-04
14.655	1.680	.6851E-04	20.505	1.775	.2965E-04
14.805	1.743	.7319E-04	20.655	1.711	.2654E-04
14.955	1.768	.7389E-04	20.805	1.891	.3241E-04
15.105	1.841	.7910E-04	20.955	1.973	.3448E-04
15.255	1.951	.8736E-04	21.105	1.965	.3333E-04
15.405	2.004	.9015E-04	21.255	1.934	.3144E-04
15.555	2.005	.8820E-04	21.405	1.868	.2848E-04
15.705	1.989	.8488E-04	21.555	1.931	.2977E-04
15.855	2.002	.8400E-04	21.705	2.069	.3331E-04
16.005	2.024	.8393E-04	21.855	2.040	.3158E-04
16.155	2.058	.8472E-04	22.005	1.835	.2471E-04

TABLE A16. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.155	1.585	.1687E-04	28.005	1.457	.4984E-05
22.305	1.500	.1406E-04	28.155	1.270	.2875E-05
22.455	1.571	.1564E-04	28.305	1.351	.3650E-05
22.605	1.665	.1774E-04	28.455	1.206	.2098E-05
22.755	1.692	.1800E-04	28.605	1.312	.3094E-05
22.905	1.694	.1758E-04	28.755	1.527	.5112E-05
23.055	1.731	.1805E-04	28.905	1.369	.3500E-05
23.205	1.572	.1377E-04	29.055	1.556	.5145E-05
23.355	1.397	.9311E-05	29.205	1.657	.5940E-05
23.505	1.289	.6607E-05	29.355	1.521	.4603E-05
23.655	1.208	.4635E-05	29.505	1.853	.7356E-05
23.805	1.262	.5684E-05	29.655	2.132	.9537E-05
23.955	1.417	.8816E-05	29.805	2.006	.8284E-05
24.105	1.336	.6936E-05	29.955	1.680	.5468E-05
24.255	1.210	.4224E-05	30.105	1.470	.3693E-05
24.405	1.335	.6565E-05	30.255	1.599	.4599E-05
24.555	1.440	.8425E-05	30.405	1.338	.2536E-05
24.705	1.418	.7800E-05	30.555	1.246	.1800E-05
24.855	1.520	.9453E-05	30.705	1.206	.1475E-05
25.005	1.553	.9803E-05	30.855	1.254	.1774E-05
25.155	1.392	.6791E-05	31.005	1.434	.2964E-05
25.305	1.296	.4992E-05	31.155	1.503	.3351E-05
25.455	1.157	.2589E-05	31.305	1.891	.5800E-05
25.605	1.333	.5339E-05			
25.755	1.369	.5784E-05			
25.905	1.172	.2619E-05			
26.055	1.200	.2979E-05			
26.205	1.223	.3244E-05			
26.355	1.283	.4007E-05			
26.505	1.215	.2974E-05			
26.655	1.110	.1480E-05			
26.805	1.000	0.			
26.955	1.201	.2587E-05			
27.105	1.272	.3414E-05			
27.255	1.229	.2811E-05			
27.405	1.460	.5512E-05			
27.555	1.395	.4619E-05			
27.705	1.251	.2869E-05			
27.855	1.545	.6089E-05			

TABLE A17. LIDAR DATA TAKEN ON OCTOBER 28, 1982, AT GMT 2318-2358 BETWEEN 40.2°S, 72.5°W AND 42.9°S, 73.3°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.064	1.456	.7123E-04	16.914	1.727	.4716E-04
11.214	1.433	.6629E-04	17.064	1.732	.4640E-04
11.364	1.393	.5894E-04	17.214	1.729	.4512E-04
11.514	1.347	.5100E-04	17.364	1.740	.4475E-04
11.664	1.314	.4517E-04	17.514	1.707	.4173E-04
11.814	1.285	.4014E-04	17.664	1.665	.3835E-04
11.964	1.261	.3596E-04	17.814	1.674	.3800E-04
12.114	1.233	.3142E-04	17.964	1.690	.3799E-04
12.264	1.207	.2742E-04	18.114	1.681	.3663E-04
12.414	1.191	.2474E-04	18.264	1.688	.3615E-04
12.564	1.216	.2738E-04	18.414	1.640	.3287E-04
12.714	1.282	.3507E-04	18.564	1.713	.3575E-04
12.864	1.323	.3921E-04	18.714	1.780	.3816E-04
13.014	1.331	.3943E-04	18.864	1.777	.3707E-04
13.164	1.341	.3969E-04	19.014	1.770	.3584E-04
13.314	1.338	.3855E-04	19.164	1.757	.3441E-04
13.464	1.329	.3672E-04	19.314	1.756	.3349E-04
13.614	1.326	.3567E-04	19.464	1.789	.3411E-04
13.764	1.316	.3378E-04	19.614	1.781	.3294E-04
13.914	1.310	.3242E-04	19.764	1.702	.2887E-04
14.064	1.302	.3086E-04	19.914	1.611	.2452E-04
14.214	1.306	.3053E-04	20.064	1.641	.2511E-04
14.364	1.330	.3214E-04	20.214	1.821	.3137E-04
14.514	1.357	.3394E-04	20.364	2.124	.4191E-04
14.664	1.384	.3564E-04	20.514	2.479	.5377E-04
14.814	1.432	.3913E-04	20.664	2.760	.6245E-04
14.964	1.468	.4136E-04	20.814	2.883	.6515E-04
15.114	1.489	.4216E-04	20.964	2.571	.5302E-04
15.264	1.533	.4486E-04	21.114	2.156	.3807E-04
15.414	1.613	.5043E-04	21.264	2.080	.3467E-04
15.564	1.687	.5519E-04	21.414	2.135	.3556E-04
15.714	1.688	.5389E-04	21.564	2.236	.3776E-04
15.864	1.659	.5042E-04	21.714	2.218	.3629E-04
16.014	1.638	.4769E-04	21.864	2.147	.3334E-04
16.164	1.628	.4581E-04	22.014	2.138	.3227E-04
16.314	1.645	.4594E-04	22.164	2.208	.3341E-04
16.464	1.667	.4638E-04	22.314	2.234	.3329E-04
16.614	1.692	.4700E-04	22.464	2.121	.2949E-04
16.764	1.701	.4651E-04	22.614	2.125	.2888E-04

TABLE A17. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.764	2.172	.2934E-04	28.614	1.144	.1425E-05
22.914	2.070	.2613E-04	28.764	1.239	.2314E-05
23.064	1.943	.2245E-04	28.914	1.259	.2449E-05
23.214	1.880	.2043E-04	29.064	1.229	.2120E-05
23.364	1.836	.1895E-04	29.214	1.258	.2328E-05
23.514	1.722	.1595E-04	29.364	1.300	.2642E-05
23.664	1.594	.1280E-04	29.514	1.298	.2571E-05
23.814	1.454	.9546E-05	29.664	1.308	.2592E-05
23.964	1.350	.7177E-05	29.814	1.277	.2276E-05
24.114	1.277	.5545E-05	29.964	1.288	.2311E-05
24.264	1.211	.4126E-05	30.114	1.384	.3015E-05
24.414	1.198	.3790E-05	30.264	1.466	.3572E-05
24.564	1.201	.3753E-05	30.414	1.421	.3147E-05
24.714	1.219	.4001E-05	30.564	1.359	.2623E-05
24.864	1.219	.3905E-05	30.714	1.450	.3211E-05
25.014	1.186	.3236E-05	30.864	1.503	.3510E-05
25.164	1.159	.2696E-05	31.014	1.445	.3031E-05
25.314	1.131	.2172E-05	31.164	1.424	.2824E-05
25.464	1.096	.1550E-05	31.314	1.468	.3040E-05
25.614	1.061	.9712E-06			
25.764	1.075	.1161E-05			
25.914	1.027	.4120E-06			
26.064	1.000	0.			
26.214	1.011	.1545E-06			
26.364	1.028	.4016E-06			
26.514	1.112	.1540E-05			
26.664	1.129	.1737E-05			
26.814	1.085	.1116E-05			
26.964	1.123	.1577E-05			
27.114	1.108	.1349E-05			
27.264	1.058	.7073E-06			
27.414	1.115	.1374E-05			
27.564	1.163	.1905E-05			
27.714	1.085	.9682E-06			
27.864	1.102	.1134E-05			
28.014	1.190	.2073E-05			
28.164	1.160	.1698E-05			
28.314	1.177	.1842E-05			
28.464	1.144	.1466E-05			

TABLE A18. LIDAR DATA TAKEN ON OCTOBER 29, 1982, AT GMT 0005-0034 BETWEEN 43.4°S, 73.3°W AND 45.4°S, 73.5°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.674	1.896	.1287E-03	17.524	2.051	.6197E-04
11.824	1.895	.1259E-03	17.674	2.043	.6009E-04
11.974	1.891	.1228E-03	17.824	1.999	.5620E-04
12.124	1.879	.1185E-03	17.974	1.926	.5093E-04
12.274	1.863	.1140E-03	18.124	1.993	.5332E-04
12.424	1.853	.1103E-03	18.274	2.202	.6306E-04
12.574	1.830	.1051E-03	18.424	2.331	.6824E-04
12.724	1.804	.9966E-04	18.574	2.342	.6719E-04
12.874	1.781	.9474E-04	18.724	2.354	.6616E-04
13.024	1.746	.8859E-04	18.874	2.435	.6840E-04
13.174	1.714	.8302E-04	19.024	2.694	.7875E-04
13.324	1.691	.7875E-04	19.174	2.813	.8225E-04
13.474	1.664	.7404E-04	19.324	2.711	.7571E-04
13.624	1.641	.6994E-04	19.474	2.769	.7637E-04
13.774	1.628	.6717E-04	19.624	2.845	.7769E-04
13.924	1.621	.6480E-04	19.774	2.800	.7397E-04
14.074	1.632	.6442E-04	19.924	2.673	.6704E-04
14.224	1.667	.6633E-04	20.074	2.528	.5977E-04
14.374	1.709	.6884E-04	20.224	2.494	.5698E-04
14.524	1.761	.7213E-04	20.374	2.583	.5891E-04
14.674	1.804	.7445E-04	20.524	2.761	.6393E-04
14.824	1.844	.7629E-04	20.674	3.082	.7373E-04
14.974	1.894	.7889E-04	20.824	3.448	.8458E-04
15.124	1.943	.8128E-04	20.974	3.699	.9095E-04
15.274	1.988	.8306E-04	21.124	3.611	.8582E-04
15.424	2.029	.8446E-04	21.274	3.334	.7484E-04
15.574	2.048	.8402E-04	21.424	3.113	.6609E-04
15.724	2.032	.8074E-04	21.574	2.901	.5798E-04
15.874	1.987	.7544E-04	21.724	2.766	.5255E-04
16.024	1.964	.7188E-04	21.874	2.731	.5023E-04
16.174	1.977	.7112E-04	22.024	2.594	.4511E-04
16.324	1.977	.6948E-04	22.174	2.329	.3669E-04
16.474	1.972	.6751E-04	22.324	1.931	.2509E-04
16.624	1.978	.6637E-04	22.474	1.614	.1614E-04
16.774	1.982	.6508E-04	22.624	1.470	.1204E-04
16.924	2.008	.6529E-04	22.774	1.476	.1190E-04
17.074	2.030	.6517E-04	22.924	1.567	.1383E-04
17.224	2.068	.6598E-04	23.074	1.716	.1702E-04
17.374	2.077	.6501E-04	23.224	1.870	.2017E-04

TABLE A18. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.374	1.982	.2221E-04	29.224	1.310	.2790E-05
23.524	2.088	.2400E-04	29.374	1.489	.4302E-05
23.674	2.114	.2399E-04	29.524	1.344	.2956E-05
23.824	2.203	.2525E-04	29.674	1.304	.2551E-05
23.974	2.282	.2626E-04	29.824	1.247	.2029E-05
24.124	2.373	.2747E-04	29.974	1.381	.3051E-05
24.274	2.336	.2612E-04	30.124	1.457	.3580E-05
24.424	2.049	.2004E-04	30.274	1.441	.3377E-05
24.574	1.803	.1498E-04	30.424	1.425	.3178E-05
24.724	1.605	.1103E-04	30.574	1.427	.3115E-05
24.874	1.474	.8441E-05	30.724	1.525	.3742E-05
25.024	1.384	.6680E-05	30.874	1.613	.4268E-05
25.174	1.236	.4011E-05	31.024	1.473	.3220E-05
25.324	1.189	.3136E-05	31.174	1.224	.1491E-05
25.474	1.142	.2297E-05	31.324	1.352	.2287E-05
25.624	1.137	.2166E-05			
25.774	1.179	.2773E-05			
25.924	1.142	.2142E-05			
26.074	1.082	.1204E-05			
26.224	1.032	.4599E-06			
26.374	1.000	0.			
26.524	1.014	.1934E-06			
26.674	1.119	.1594E-05			
26.824	1.234	.3070E-05			
26.974	1.224	.2873E-05			
27.124	1.161	.2014E-05			
27.274	1.118	.1442E-05			
27.424	1.113	.1352E-05			
27.574	1.159	.1859E-05			
27.724	1.046	.5298E-06			
27.874	1.027	.3048E-06			
28.024	1.075	.8191E-06			
28.174	1.153	.1622E-05			
28.324	1.241	.2498E-05			
28.474	1.274	.2779E-05			
28.624	1.354	.3508E-05			
28.774	1.305	.2946E-05			
28.924	1.126	.1187E-05			
29.074	1.011	.9794E-07			

TABLE A19. LIDAR DATA TAKEN ON OCTOBER 30, 1982, AT GMT 0231-0305 BETWEEN 32.0°S, 71.5°W AND 29.5°S, 71.7°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.150	1.315	.5686E-04	16.000	1.193	.1658E-04
10.300	1.283	.5033E-04	16.150	1.258	.2159E-04
10.450	1.253	.4429E-04	16.300	1.348	.2848E-04
10.600	1.229	.3929E-04	16.450	1.403	.3219E-04
10.750	1.212	.3577E-04	16.600	1.422	.3292E-04
10.900	1.193	.3203E-04	16.750	1.454	.3439E-04
11.050	1.169	.2756E-04	16.900	1.494	.3637E-04
11.200	1.148	.2381E-04	17.050	1.533	.3806E-04
11.350	1.133	.2111E-04	17.200	1.618	.4282E-04
11.500	1.133	.2071E-04	17.350	1.764	.5137E-04
11.650	1.130	.1992E-04	17.500	2.016	.6635E-04
11.800	1.123	.1848E-04	17.650	2.194	.7569E-04
11.950	1.113	.1673E-04	17.800	2.219	.7500E-04
12.100	1.095	.1385E-04	17.950	2.165	.6960E-04
12.250	1.078	.1115E-04	18.100	2.147	.6650E-04
12.400	1.065	.9135E-05	18.250	2.134	.6380E-04
12.550	1.039	.5445E-05	18.400	2.105	.6037E-04
12.700	1.013	.1710E-05	18.550	2.082	.5735E-04
12.850	1.010	.1378E-05	18.700	2.067	.5499E-04
13.000	1.009	.1230E-05	18.850	2.071	.5369E-04
13.150	1.003	.3696E-06	19.000	2.103	.5380E-04
13.300	1.000	0.	19.150	2.149	.5458E-04
13.450	1.000	.2221E-07	19.300	2.232	.5694E-04
13.600	1.007	.8894E-06	19.450	2.307	.5880E-04
13.750	1.024	.2840E-05	19.600	2.326	.5806E-04
13.900	1.056	.6593E-05	19.750	2.335	.5688E-04
14.050	1.078	.8989E-05	19.900	2.292	.5355E-04
14.200	1.091	.1027E-04	20.050	2.172	.4730E-04
14.350	1.100	.1107E-04	20.200	2.126	.4423E-04
14.500	1.111	.1201E-04	20.350	2.157	.4422E-04
14.650	1.122	.1292E-04	20.500	2.236	.4595E-04
14.800	1.109	.1123E-04	20.650	2.406	.5090E-04
14.950	1.077	.7732E-05	20.800	2.588	.5601E-04
15.100	1.058	.5679E-05	20.950	2.612	.5542E-04
15.250	1.076	.7298E-05	21.100	2.446	.4847E-04
15.400	1.113	.1067E-04	21.250	2.233	.4029E-04
15.550	1.133	.1226E-04	21.400	2.045	.3327E-04
15.700	1.138	.1239E-04	21.550	1.947	.2940E-04
15.850	1.158	.1391E-04	21.700	1.868	.2626E-04

TABLE A19. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
21.850	1.731	.2157E-04	27.700	1.320	.3592E-05
22.000	1.626	.1800E-04	27.850	1.325	.3572E-05
22.150	1.676	.1895E-04	28.000	1.349	.3742E-05
22.300	1.771	.2108E-04	28.150	1.338	.3550E-05
22.450	1.741	.1974E-04	28.300	1.305	.3121E-05
22.600	1.868	.2255E-04	28.450	1.315	.3159E-05
22.750	2.140	.2888E-04	28.600	1.285	.2784E-05
22.900	2.252	.3091E-04	28.750	1.198	.1889E-05
23.050	2.226	.2951E-04	28.900	1.192	.1793E-05
23.200	2.135	.2663E-04	29.050	1.228	.2079E-05
23.350	1.990	.2266E-04	29.200	1.280	.2496E-05
23.500	1.848	.1892E-04	29.350	1.342	.2984E-05
23.650	1.753	.1638E-04	29.500	1.356	.3030E-05
23.800	1.666	.1411E-04	29.650	1.349	.2911E-05
23.950	1.642	.1327E-04	29.800	1.288	.2343E-05
24.100	1.628	.1267E-04	29.950	1.325	.2587E-05
24.250	1.545	.1071E-04	30.100	1.390	.3034E-05
24.400	1.456	.8740E-05	30.250	1.445	.3379E-05
24.550	1.373	.6985E-05	30.400	1.461	.3422E-05
24.700	1.318	.5807E-05	30.550	1.432	.3134E-05
24.850	1.269	.4783E-05	30.700	1.432	.3065E-05
25.000	1.266	.4624E-05	30.850	1.544	.3767E-05
25.150	1.238	.4037E-05	31.000	1.650	.4401E-05
25.300	1.157	.2591E-05	31.150	1.616	.4079E-05
25.450	1.169	.2716E-05	31.300	1.583	.3771E-05
25.600	1.296	.4656E-05			
25.750	1.364	.5584E-05			
25.900	1.328	.4905E-05			
26.050	1.352	.5125E-05			
26.200	1.386	.5485E-05			
26.350	1.373	.5176E-05			
26.500	1.328	.4438E-05			
26.650	1.348	.4589E-05			
26.800	1.359	.4629E-05			
26.950	1.335	.4219E-05			
27.100	1.337	.4157E-05			
27.250	1.315	.3798E-05			
27.400	1.342	.4025E-05			
27.550	1.356	.4091E-05			

TABLE A20. LIDAR DATA TAKEN ON OCTOBER 30, 1982, AT GMT 0343-0417 BETWEEN 26.7°S, 72.5°W AND 23.9°S, 73.1°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.150	1.221	.3993E-04	16.000	1.182	.1564E-04
10.300	1.192	.3411E-04	16.150	1.213	.1782E-04
10.450	1.179	.3123E-04	16.300	1.342	.2801E-04
10.600	1.160	.2744E-04	16.450	1.538	.4303E-04
10.750	1.137	.2316E-04	16.600	1.581	.4535E-04
10.900	1.123	.2041E-04	16.750	1.525	.3976E-04
11.050	1.111	.1821E-04	16.900	1.528	.3884E-04
11.200	1.100	.1608E-04	17.050	1.547	.3904E-04
11.350	1.088	.1400E-04	17.200	1.596	.4133E-04
11.500	1.081	.1266E-04	17.350	1.619	.4164E-04
11.650	1.066	.1016E-04	17.500	1.684	.4469E-04
11.800	1.055	.8287E-05	17.650	1.777	.4928E-04
11.950	1.052	.7765E-05	17.800	1.863	.5310E-04
12.100	1.037	.5365E-05	17.950	1.993	.5928E-04
12.250	1.022	.3135E-05	18.100	2.138	.6598E-04
12.400	1.021	.2973E-05	18.250	2.186	.6672E-04
12.550	1.017	.2361E-05	18.400	2.178	.6433E-04
12.700	1.007	.1000E-05	18.550	2.113	.5900E-04
12.850	1.003	.4022E-06	18.700	2.025	.5279E-04
13.000	1.004	.4918E-06	18.850	2.038	.5202E-04
13.150	1.000	0.	19.000	2.035	.5049E-04
13.300	1.116	.1468E-04	19.150	1.952	.4521E-04
13.450	1.310	.3858E-04	19.300	1.852	.3935E-04
13.600	1.433	.5284E-04	19.450	1.873	.3925E-04
13.750	1.677	.8113E-04	19.600	1.935	.4093E-04
13.900	2.272	.1495E-03	19.750	2.027	.4375E-04
14.050	2.832	.2113E-03	19.900	2.149	.4764E-04
14.200	2.850	.2094E-03	20.050	2.311	.5288E-04
14.350	2.603	.1779E-03	20.200	2.540	.6046E-04
14.500	2.489	.1614E-03	20.350	2.796	.6865E-04
14.650	1.860	.9108E-04	20.500	3.053	.7634E-04
14.800	1.151	.1566E-04	20.650	3.197	.7951E-04
14.950	1.079	.8018E-05	20.800	3.261	.7974E-04
15.100	1.191	.1883E-04	20.950	3.346	.8066E-04
15.250	1.337	.3246E-04	21.100	3.225	.7457E-04
15.400	1.290	.2733E-04	21.250	2.924	.6287E-04
15.550	1.182	.1673E-04	21.400	2.700	.5414E-04
15.700	1.148	.1329E-04	21.550	2.538	.4776E-04
15.850	1.154	.1354E-04	21.700	2.552	.4697E-04

TABLE A20. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
21.850	2.958	.5779E-04	27.700	1.256	.2877E-05
22.000	3.339	.6728E-04	27.850	1.253	.2784E-05
22.150	3.236	.6270E-04	28.000	1.263	.2822E-05
22.300	3.135	.5838E-04	28.150	1.281	.2951E-05
22.450	3.716	.7239E-04	28.300	1.337	.3450E-05
22.600	4.588	.9324E-04	28.450	1.290	.2904E-05
22.750	5.006	.1015E-03	28.600	1.239	.2336E-05
22.900	4.829	.9455E-04	28.750	1.299	.2857E-05
23.050	4.728	.8975E-04	28.900	1.377	.3520E-05
23.200	4.879	.9103E-04	29.050	1.404	.3692E-05
23.350	4.753	.8587E-04	29.200	1.422	.3769E-05
23.500	4.226	.7197E-04	29.350	1.418	.3645E-05
23.650	3.530	.5500E-04	29.500	1.374	.3187E-05
23.800	2.986	.4209E-04	29.650	1.407	.3387E-05
23.950	2.570	.3244E-04	29.800	1.450	.3665E-05
24.100	2.185	.2389E-04	29.950	1.451	.3588E-05
24.250	1.930	.1829E-04	30.100	1.475	.3694E-05
24.400	1.837	.1605E-04	30.250	1.541	.4109E-05
24.550	1.720	.1347E-04	30.400	1.636	.4720E-05
24.700	1.533	.9722E-05	30.550	1.663	.4809E-05
24.850	1.399	.7095E-05	30.700	1.681	.4827E-05
25.000	1.336	.5838E-05	30.850	1.651	.4512E-05
25.150	1.280	.4745E-05	31.000	1.627	.4242E-05
25.300	1.243	.4007E-05	31.150	1.706	.4672E-05
25.450	1.233	.3752E-05	31.300	1.784	.5066E-05
25.600	1.200	.3139E-05			
25.750	1.174	.2672E-05			
25.900	1.177	.2651E-05			
26.050	1.185	.2692E-05			
26.200	1.171	.2438E-05			
26.350	1.161	.2228E-05			
26.500	1.144	.1949E-05			
26.650	1.150	.1983E-05			
26.800	1.206	.2655E-05			
26.950	1.219	.2763E-05			
27.100	1.236	.2907E-05			
27.250	1.239	.2879E-05			
27.400	1.248	.2914E-05			
27.550	1.280	.3218E-05			

TABLE A21. LIDAR DATA TAKEN ON OCTOBER 30, 1982, AT GMT 0605-0623 BETWEEN 15.3°S, 75.1°W AND 14.3°S, 76.4°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
12.260	1.083	.1169E-04	18.110	2.044	.6133E-04
12.410	1.070	.9743E-05	18.260	2.084	.6193E-04
12.560	1.057	.7718E-05	18.410	2.097	.6095E-04
12.710	1.053	.7047E-05	18.560	2.136	.6133E-04
12.860	1.050	.6544E-05	18.710	2.212	.6361E-04
13.010	1.035	.4538E-05	18.860	2.210	.6180E-04
13.160	1.011	.1338E-05	19.010	2.094	.5440E-04
13.310	1.000	0.	19.160	2.076	.5204E-04
13.460	1.008	.1007E-05	19.310	2.346	.6335E-04
13.610	1.053	.6417E-05	19.460	2.841	.8433E-04
13.760	1.208	.2448E-04	19.610	3.711	.1209E-03
13.910	1.327	.3778E-04	19.760	4.922	.1702E-03
14.060	1.528	.5991E-04	19.910	5.406	.1860E-03
14.210	1.959	.1069E-03	20.060	5.576	.1880E-03
14.360	2.258	.1372E-03	20.210	6.276	.2109E-03
14.510	2.250	.1332E-03	20.360	6.973	.2323E-03
14.660	1.979	.1022E-03	20.510	7.122	.2317E-03
14.810	1.505	.5156E-04	20.660	6.600	.2063E-03
14.960	1.229	.2289E-04	20.810	5.506	.1616E-03
15.110	1.195	.1898E-04	20.960	4.487	.1218E-03
15.260	1.313	.2983E-04	21.110	3.888	.9818E-04
15.410	1.937	.8745E-04	21.260	4.001	.9934E-04
15.560	3.471	.2254E-03	21.410	5.407	.1420E-03
15.710	6.186	.4626E-03	21.560	7.231	.1955E-03
15.860	9.612	.7512E-03	21.710	7.780	.2071E-03
16.010	13.026	.1026E-02	21.860	7.410	.1906E-03
16.160	13.929	.1078E-02	22.010	7.152	.1781E-03
16.310	11.563	.8615E-03	22.160	6.972	.1684E-03
16.460	6.504	.4390E-03	22.310	6.636	.1547E-03
16.610	2.120	.8738E-04	22.460	6.110	.1365E-03
16.760	1.416	.3151E-04	22.610	5.670	.1215E-03
16.910	1.708	.5221E-04	22.760	5.425	.1121E-03
17.060	2.090	.7811E-04	22.910	5.218	.1040E-03
17.210	2.349	.9398E-04	23.060	4.733	.8963E-04
17.360	2.273	.8619E-04	23.210	3.809	.6566E-04
17.510	2.164	.7661E-04	23.360	2.901	.4325E-04
17.660	2.118	.7155E-04	23.510	2.718	.3807E-04
17.810	2.081	.6724E-04	23.660	2.819	.3923E-04
17.960	2.046	.6322E-04	23.810	2.607	.3375E-04

TABLE A21. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.960	2.443	.2955E-04	29.810	1.962	.7827E-05
24.110	2.450	.2897E-04	29.960	2.058	.8410E-05
24.260	2.323	.2580E-04	30.110	2.214	.9429E-05
24.410	2.019	.1939E-04	30.260	2.150	.8729E-05
24.560	1.825	.1533E-04	30.410	2.074	.7965E-05
24.710	1.823	.1492E-04	30.560	2.233	.8934E-05
24.860	1.737	.1303E-04	30.710	2.378	.9759E-05
25.010	1.565	.9750E-05	30.860	2.371	.9488E-05
25.160	1.437	.7365E-05	31.010	2.354	.9158E-05
25.310	1.445	.7319E-05	31.160	2.358	.8973E-05
25.460	1.453	.7267E-05	31.310	2.420	.9169E-05
25.610	1.357	.5593E-05			
25.760	1.288	.4395E-05			
25.910	1.271	.4042E-05			
26.060	1.231	.3364E-05			
26.210	1.172	.2438E-05			
26.360	1.164	.2271E-05			
26.510	1.203	.2747E-05			
26.660	1.206	.2717E-05			
26.810	1.255	.3294E-05			
26.960	1.270	.3405E-05			
27.110	1.285	.3509E-05			
27.260	1.353	.4249E-05			
27.410	1.279	.3284E-05			
27.560	1.297	.3414E-05			
27.710	1.428	.4813E-05			
27.860	1.369	.4056E-05			
28.010	1.260	.2789E-05			
28.160	1.285	.2985E-05			
28.310	1.289	.2966E-05			
28.460	1.374	.3744E-05			
28.610	1.543	.5315E-05			
28.760	1.606	.5796E-05			
28.910	1.614	.5732E-05			
29.060	1.717	.6543E-05			
29.210	1.750	.6690E-05			
29.360	1.799	.6961E-05			
29.510	1.892	.7600E-05			
29.660	1.916	.7620E-05			

TABLE A22. LIDAR DATA TAKEN ON OCTOBER 31, 1982, AT GMT 0221-0228 BETWEEN 7.9°S, 79.4°W AND 7.4°S, 79.7°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
9.541	1.432	.8264E-04	15.391	10.990	.9309E-03
9.691	1.414	.7789E-04	15.541	12.385	.1038E-02
9.841	1.396	.7327E-04	15.691	14.638	.1216E-02
9.991	1.363	.6609E-04	15.841	12.568	.1009E-02
10.141	1.289	.5174E-04	15.991	6.537	.4727E-03
10.291	1.203	.3583E-04	16.141	2.505	.1257E-03
10.441	1.153	.2647E-04	16.291	1.311	.2537E-04
10.591	1.131	.2238E-04	16.441	1.419	.3349E-04
10.741	1.112	.1872E-04	16.591	1.495	.3870E-04
10.891	1.105	.1738E-04	16.741	1.642	.4878E-04
11.041	1.102	.1658E-04	16.891	1.730	.5397E-04
11.191	1.097	.1541E-04	17.041	1.845	.6071E-04
11.341	1.083	.1298E-04	17.191	2.374	.9601E-04
11.491	1.071	.1094E-04	17.341	2.657	.1126E-03
11.641	1.074	.1118E-04	17.491	2.375	.9090E-04
11.791	1.059	.8793E-05	17.641	2.182	.7601E-04
11.941	1.039	.5717E-05	17.791	2.199	.7498E-04
12.091	1.040	.5724E-05	17.941	2.218	.7407E-04
12.241	1.035	.4889E-05	18.091	2.327	.7847E-04
12.391	1.030	.4194E-05	18.241	2.486	.8546E-04
12.541	1.036	.4863E-05	18.391	2.544	.8634E-04
12.691	1.038	.5060E-05	18.541	2.844	.1003E-03
12.841	1.022	.2897E-05	18.691	3.282	.1206E-03
12.991	1.000	0.	18.841	3.766	.1420E-03
13.141	1.000	.9956E-08	18.991	4.014	.1503E-03
13.291	1.014	.1777E-05	19.141	3.797	.1355E-03
13.441	1.019	.2297E-05	19.291	3.565	.1207E-03
13.591	1.011	.1348E-05	19.441	3.593	.1186E-03
13.741	1.014	.1618E-05	19.591	3.516	.1118E-03
13.891	1.027	.3105E-05	19.741	3.973	.1283E-03
14.041	1.042	.4722E-05	19.891	5.697	.1969E-03
14.191	1.051	.5610E-05	20.041	7.633	.2701E-03
14.341	1.040	.4351E-05	20.191	8.738	.3061E-03
14.491	1.042	.4462E-05	20.341	8.778	.2989E-03
14.641	1.135	.1401E-04	20.491	8.996	.2986E-03
14.791	1.754	.7674E-04	20.641	10.618	.3491E-03
14.941	3.105	.2094E-03	20.791	11.702	.3783E-03
15.091	5.933	.4803E-03	20.941	11.424	.3588E-03
15.241	9.725	.8310E-03	21.091	11.397	.3484E-03

TABLE A22. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
21.241	11.383	.3388E-03	27.091	3.462	.3053E-04
21.391	11.435	.3316E-03	27.241	3.257	.2733E-04
21.541	12.047	.3418E-03	27.391	3.209	.2613E-04
21.691	12.776	.3549E-03	27.541	3.218	.2563E-04
21.841	12.623	.3410E-03	27.691	2.962	.2214E-04
21.991	12.343	.3241E-03	27.841	2.700	.1874E-04
22.141	12.404	.3173E-03	27.991	2.677	.1806E-04
22.291	12.343	.3073E-03	28.141	2.939	.2039E-04
22.441	12.686	.3083E-03	28.291	2.914	.1966E-04
22.591	12.853	.3045E-03	28.441	2.532	.1537E-04
22.741	12.241	.2812E-03	28.591	2.327	.1300E-04
22.891	11.768	.2623E-03	28.741	2.423	.1363E-04
23.041	11.329	.2450E-03	28.891	2.367	.1278E-04
23.191	10.282	.2144E-03	29.041	2.258	.1149E-04
23.341	9.143	.1832E-03	29.191	2.466	.1308E-04
23.491	8.537	.1651E-03	29.341	2.459	.1271E-04
23.641	8.315	.1560E-03	29.491	2.156	.9836E-05
23.791	8.073	.1469E-03	29.641	2.046	.8690E-05
23.941	7.397	.1297E-03	29.791	2.494	.1213E-04
24.091	6.779	.1145E-03	29.941	2.723	.1366E-04
24.241	6.591	.1082E-03	30.091	2.652	.1280E-04
24.391	6.048	.9541E-04	30.241	2.726	.1306E-04
24.541	5.286	.7914E-04	30.391	2.642	.1213E-04
24.691	5.372	.7886E-04	30.541	2.538	.1110E-04
24.841	5.269	.7522E-04	30.691	2.801	.1270E-04
24.991	4.648	.6280E-04	30.841	3.080	.1432E-04
25.141	4.425	.5759E-04	30.991	3.221	.1494E-04
25.291	4.479	.5715E-04	31.141	3.238	.1470E-04
25.441	4.420	.5488E-04			
25.591	3.757	.4323E-04			
25.741	3.287	.3503E-04			
25.891	3.484	.3716E-04			
26.041	3.605	.3807E-04			
26.191	3.705	.3862E-04			
26.341	3.675	.3731E-04			
26.491	3.559	.3487E-04			
26.641	3.571	.3422E-04			
26.791	3.514	.3268E-04			
26.941	3.529	.3211E-04			

TABLE A23. LIDAR DATA TAKEN ON OCTOBER 31, 1982, AT GMT 0235-0242 BETWEEN 6.9°S, 80.0°W AND 6.6°S, 79.9°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
9.541	1.354	.6771E-04	15.391	3.654	.2473E-03
9.691	1.302	.5683E-04	15.541	2.774	.1617E-03
9.841	1.274	.5072E-04	15.691	2.168	.1042E-03
9.991	1.256	.4655E-04	15.841	1.870	.7588E-04
10.141	1.246	.4412E-04	15.991	1.623	.5322E-04
10.291	1.244	.4296E-04	16.141	1.614	.5124E-04
10.441	1.225	.3896E-04	16.291	1.618	.5049E-04
10.591	1.207	.3535E-04	16.441	1.630	.5033E-04
10.741	1.205	.3442E-04	16.591	1.674	.5265E-04
10.891	1.189	.3117E-04	16.741	1.786	.5973E-04
11.041	1.174	.2814E-04	16.891	1.876	.6475E-04
11.191	1.172	.2740E-04	17.041	2.011	.7268E-04
11.341	1.164	.2571E-04	17.191	2.162	.8119E-04
11.491	1.120	.1848E-04	17.341	2.308	.8890E-04
11.641	1.048	.7243E-05	17.491	2.574	.1041E-03
11.791	1.026	.3931E-05	17.641	2.722	.1107E-03
11.941	1.039	.5660E-05	17.791	2.639	.1025E-03
12.091	1.046	.6569E-05	17.941	2.608	.9779E-04
12.241	1.062	.8692E-05	18.091	2.713	.1013E-03
12.391	1.049	.6740E-05	18.241	2.890	.1087E-03
12.541	1.022	.2969E-05	18.391	2.951	.1091E-03
12.691	1.000	0.	18.541	3.190	.1191E-03
12.841	1.018	.2310E-05	18.691	3.532	.1338E-03
12.991	1.065	.8399E-05	18.841	4.105	.1594E-03
13.141	1.057	.7173E-05	18.991	4.494	.1743E-03
13.291	1.036	.4426E-05	19.141	4.688	.1787E-03
13.441	1.052	.6307E-05	19.291	4.825	.1801E-03
13.591	1.067	.7996E-05	19.441	4.783	.1730E-03
13.741	1.076	.8951E-05	19.591	4.742	.1662E-03
13.891	1.067	.7728E-05	19.741	5.407	.1902E-03
14.041	1.041	.4597E-05	19.891	6.826	.2442E-03
14.191	1.032	.3517E-05	20.041	8.373	.3003E-03
14.341	1.057	.6171E-05	20.191	9.669	.3430E-03
14.491	1.070	.7437E-05	20.341	10.375	.3603E-03
14.641	1.073	.7609E-05	20.491	11.153	.3791E-03
14.791	1.173	.1757E-04	20.641	12.103	.4030E-03
14.941	1.568	.5650E-04	20.791	12.988	.4237E-03
15.091	2.457	.1419E-03	20.941	14.139	.4522E-03
15.241	3.550	.2429E-03	21.091	14.641	.4572E-03

TABLE A23. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
21.241	14.752	.4488E-03	27.091	4.075	.3814E-04
21.391	15.293	.4542E-03	27.241	4.108	.3764E-04
21.541	15.584	.4513E-03	27.391	4.000	.3549E-04
21.691	15.982	.4515E-03	27.541	3.935	.3391E-04
21.841	16.780	.4630E-03	27.691	3.849	.3215E-04
21.991	16.891	.4540E-03	27.841	3.600	.2867E-04
22.141	16.665	.4359E-03	27.991	3.581	.2779E-04
22.291	16.663	.4244E-03	28.141	3.507	.2636E-04
22.441	16.670	.4134E-03	28.291	3.167	.2226E-04
22.591	16.021	.3859E-03	28.441	3.267	.2274E-04
22.741	15.384	.3599E-03	28.591	3.420	.2372E-04
22.891	15.128	.3442E-03	28.741	3.280	.2183E-04
23.041	14.486	.3199E-03	28.891	2.903	.1779E-04
23.191	13.736	.2942E-03	29.041	2.879	.1716E-04
23.341	13.151	.2733E-03	29.191	3.042	.1822E-04
23.491	12.548	.2530E-03	29.341	3.152	.1875E-04
23.641	11.794	.2302E-03	29.491	3.366	.2013E-04
23.791	11.142	.2106E-03	29.641	3.242	.1864E-04
23.941	10.746	.1976E-03	29.791	3.071	.1681E-04
24.091	10.022	.1787E-03	29.941	2.839	.1458E-04
24.241	9.436	.1632E-03	30.091	2.810	.1402E-04
24.391	8.636	.1443E-03	30.241	3.193	.1659E-04
24.541	7.940	.1281E-03	30.391	3.376	.1756E-04
24.691	7.681	.1205E-03	30.541	3.669	.1926E-04
24.841	7.104	.1076E-03	30.691	3.764	.1948E-04
24.991	6.495	.9459E-04	30.841	3.671	.1839E-04
25.141	6.260	.8846E-04	30.991	3.693	.1811E-04
25.291	6.119	.8409E-04	31.141	3.600	.1708E-04
25.441	5.856	.7793E-04			
25.591	5.695	.7361E-04			
25.741	5.221	.6464E-04			
25.891	5.075	.6097E-04			
26.041	5.419	.6459E-04			
26.191	5.196	.5990E-04			
26.341	4.621	.5050E-04			
26.491	4.322	.4527E-04			
26.641	4.425	.4559E-04			
26.791	4.375	.4388E-04			
26.941	4.261	.4141E-04			

TABLE A24. LIDAR DATA TAKEN ON OCTOBER 31, 1982, AT GMT 0348-0355 BETWEEN 2.1°S, 81.6°W AND 1.5°S, 81.6°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.150	1.235	.4225E-04	16.000	1.424	.3643E-04
10.300	1.209	.3688E-04	16.150	1.781	.6575E-04
10.450	1.173	.3008E-04	16.300	2.121	.9244E-04
10.600	1.146	.2493E-04	16.450	2.113	.8994E-04
10.750	1.129	.2165E-04	16.600	2.028	.8091E-04
10.900	1.111	.1834E-04	16.750	1.941	.7188E-04
11.050	1.103	.1675E-04	16.900	1.899	.6669E-04
11.200	1.092	.1462E-04	17.050	1.976	.7027E-04
11.350	1.067	.1055E-04	17.200	2.085	.7587E-04
11.500	1.050	.7633E-05	17.350	2.130	.7671E-04
11.650	1.044	.6707E-05	17.500	2.181	.7785E-04
11.800	1.042	.6248E-05	17.650	2.254	.8024E-04
11.950	1.033	.4806E-05	17.800	2.302	.8093E-04
12.100	1.033	.4672E-05	17.950	2.558	.9397E-04
12.250	1.040	.5666E-05	18.100	2.920	.1125E-03
12.400	1.035	.4788E-05	18.250	3.132	.1213E-03
12.550	1.033	.4540E-05	18.400	3.305	.1273E-03
12.700	1.050	.6671E-05	18.550	3.484	.1331E-03
12.850	1.054	.7064E-05	18.700	3.730	.1421E-03
13.000	1.051	.6586E-05	18.850	4.013	.1523E-03
13.150	1.045	.5638E-05	19.000	4.835	.1983E-03
13.300	1.038	.4700E-05	19.150	5.668	.2226E-03
13.450	1.016	.1981E-05	19.300	6.070	.2348E-03
13.600	1.000	0.	19.450	6.704	.2566E-03
13.750	1.002	.2085E-06	19.600	7.727	.2939E-03
13.900	1.012	.1375E-05	19.750	9.507	.3610E-03
14.050	1.028	.3191E-05	19.900	11.654	.4391E-03
14.200	1.057	.6305E-05	20.050	13.198	.4983E-03
14.350	1.083	.8989E-05	20.200	14.065	.5079E-03
14.500	1.104	.1102E-04	20.350	14.434	.5072E-03
14.650	1.215	.2220E-04	20.500	14.659	.5009E-03
14.800	1.612	.6202E-04	20.650	14.576	.4844E-03
14.950	2.241	.1232E-03	20.800	14.515	.4700E-03
15.100	2.779	.1729E-03	20.950	15.459	.4901E-03
15.250	2.264	.1204E-03	21.100	16.720	.5193E-03
15.400	1.295	.2755E-04	21.250	17.238	.5229E-03
15.550	1.109	.1001E-04	21.400	17.888	.5300E-03
15.700	1.104	.9284E-05	21.550	18.531	.5363E-03
15.850	1.254	.2229E-04	21.700	18.577	.5240E-03

TABLE A24. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
21.850	17.663	.4842E-03	27.700	3.603	.2889E-04
22.000	16.602	.4419E-03	27.850	3.609	.2831E-04
22.150	16.981	.4411E-03	28.000	3.684	.2846E-04
22.300	18.540	.4719E-03	28.150	3.536	.2629E-04
22.450	18.564	.4606E-03	28.300	3.479	.2513E-04
22.600	17.981	.4340E-03	28.450	3.390	.2368E-04
22.750	17.360	.4075E-03	28.600	3.333	.2259E-04
22.900	15.219	.3452E-03	28.750	3.444	.2314E-04
23.050	13.441	.2944E-03	28.900	3.428	.2247E-04
23.200	12.718	.2703E-03	29.050	3.665	.2411E-04
23.350	13.271	.2758E-03	29.200	3.901	.2566E-04
23.500	13.680	.2778E-03	29.350	3.682	.2318E-04
23.650	13.407	.2650E-03	29.500	4.036	.2565E-04
23.800	13.480	.2597E-03	29.650	4.233	.2671E-04
23.950	12.735	.2382E-03	29.800	3.741	.2213E-04
24.100	11.868	.2152E-03	29.950	3.454	.1937E-04
24.250	10.775	.1888E-03	30.100	3.475	.1910E-04
24.400	10.308	.1754E-03	30.250	3.519	.1900E-04
24.550	10.723	.1787E-03	30.400	3.450	.1806E-04
24.700	10.564	.1714E-03	30.550	3.792	.2012E-04
24.850	10.282	.1623E-03	30.700	4.171	.2234E-04
25.000	10.060	.1545E-03	30.850	3.807	.1933E-04
25.150	9.294	.1380E-03	31.000	3.686	.1808E-04
25.300	8.295	.1184E-03	31.150	4.026	.1992E-04
25.450	7.814	.1078E-03			
25.600	7.711	.1036E-03			
25.750	8.240	.1090E-03			
25.900	7.621	.9725E-04			
26.050	6.365	.7686E-04			
26.200	5.924	.6880E-04			
26.350	5.695	.6398E-04			
26.500	5.929	.6562E-04			
26.650	5.836	.6292E-04			
26.800	4.949	.5023E-04			
26.950	4.690	.4589E-04			
27.100	4.907	.4749E-04			
27.250	4.880	.4611E-04			
27.400	4.658	.4249E-04			
27.550	4.171	.3601E-04			

TABLE A25. LIDAR DATA TAKEN ON OCTOBER 31, 1982, AT GMT 0436-0443 BETWEEN 1.3°N, 80.6°W AND 1.6°N, 80.0°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.150	1.269	.4838E-04	16.000	1.226	.1939E-04
10.300	1.238	.4206E-04	16.150	1.518	.4356E-04
10.450	1.207	.3594E-04	16.300	1.701	.5783E-04
10.600	1.181	.3102E-04	16.450	1.658	.5317E-04
10.750	1.156	.2628E-04	16.600	1.652	.5135E-04
10.900	1.135	.2238E-04	16.750	1.728	.5561E-04
11.050	1.131	.2126E-04	16.900	1.822	.6102E-04
11.200	1.120	.1916E-04	17.050	1.872	.6280E-04
11.350	1.100	.1562E-04	17.200	1.991	.6932E-04
11.500	1.089	.1372E-04	17.350	2.132	.7689E-04
11.650	1.096	.1448E-04	17.500	2.185	.7810E-04
11.800	1.102	.1511E-04	17.650	2.281	.8197E-04
11.950	1.103	.1513E-04	17.800	2.558	.9678E-04
12.100	1.101	.1457E-04	17.950	2.844	.1113E-03
12.250	1.080	.1127E-04	18.100	3.049	.1200E-03
12.400	1.076	.1059E-04	18.250	3.174	.1236E-03
12.550	1.066	.8986E-05	18.400	3.268	.1252E-03
12.700	1.062	.8288E-05	18.550	3.606	.1397E-03
12.850	1.077	.1012E-04	18.700	4.143	.1636E-03
13.000	1.088	.1126E-04	18.850	4.814	.1928E-03
13.150	1.081	.1015E-04	19.000	5.936	.2424E-03
13.300	1.079	.9786E-05	19.150	6.333	.2544E-03
13.450	1.079	.9516E-05	19.300	6.809	.2691E-03
13.600	1.074	.8829E-05	19.450	7.410	.2884E-03
13.750	1.082	.9568E-05	19.600	8.569	.3307E-03
13.900	1.084	.9653E-05	19.750	10.515	.4038E-03
14.050	1.084	.9444E-05	19.900	12.551	.4761E-03
14.200	1.059	.6461E-05	20.050	13.552	.5024E-03
14.350	1.019	.2030E-05	20.200	13.978	.5045E-03
14.500	1.000	0.	20.350	14.612	.5139E-03
14.650	1.127	.1315E-04	20.500	15.381	.5273E-03
14.800	1.275	.2781E-04	20.650	15.542	.5189E-03
14.950	1.225	.2231E-04	20.800	15.704	.5114E-03
15.100	1.146	.1414E-04	20.950	16.482	.5248E-03
15.250	1.190	.1808E-04	21.100	17.286	.5381E-03
15.400	1.175	.1636E-04	21.250	17.781	.5403E-03
15.550	1.090	.8220E-05	21.400	18.675	.5547E-03
15.700	1.058	.5168E-05	21.550	19.542	.5672E-03
15.850	1.091	.8006E-05	21.700	19.933	.5645E-03

TABLE A25. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
21.850	19.483	.5371E-03	27.700	4.249	.3606E-04
22.000	18.462	.4946E-03	27.850	4.228	.3502E-04
22.150	17.982	.4688E-03	28.000	4.013	.3196E-04
22.300	18.734	.4771E-03	28.150	3.834	.2938E-04
22.450	18.957	.4709E-03	28.300	3.932	.2972E-04
22.600	18.734	.4532E-03	28.450	3.956	.2929E-04
22.750	19.347	.4570E-03	28.600	3.607	.2525E-04
22.900	18.642	.4283E-03	28.750	3.383	.2256E-04
23.050	17.289	.3855E-03	28.900	3.697	.2496E-04
23.200	16.131	.3490E-03	29.050	4.039	.2749E-04
23.350	15.333	.3222E-03	29.200	4.132	.2770E-04
23.500	15.264	.3125E-03	29.350	3.998	.2505E-04
23.650	14.752	.2937E-03	29.500	3.498	.2111E-04
23.800	13.906	.2686E-03	29.650	3.230	.1842E-04
23.950	13.871	.2613E-03	29.800	3.524	.2038E-04
24.100	13.925	.2560E-03	29.950	3.402	.1896E-04
24.250	13.592	.2432E-03	30.100	3.099	.1619E-04
24.400	12.940	.2250E-03	30.250	3.379	.1794E-04
24.550	12.036	.2028E-03	30.400	3.588	.1908E-04
24.700	11.698	.1918E-03	30.550	3.711	.1954E-04
24.850	11.309	.1802E-03	30.700	3.838	.1999E-04
25.000	10.529	.1625E-03	30.850	3.747	.1892E-04
25.150	10.270	.1542E-03	31.000	3.573	.1732E-04
25.300	10.375	.1521E-03	31.150	3.303	.1515E-04
25.450	10.255	.1465E-03			
25.600	9.478	.1309E-03			
25.750	8.536	.1135E-03			
25.900	7.909	.1015E-03			
26.050	7.615	.9476E-04			
26.200	6.954	.8320E-04			
26.350	6.350	.7292E-04			
26.500	6.223	.6952E-04			
26.650	5.801	.6247E-04			
26.800	4.823	.4863E-04			
26.950	4.355	.4171E-04			
27.100	4.166	.3848E-04			
27.250	4.180	.3778E-04			
27.400	4.501	.4066E-04			
27.550	4.327	.3777E-04			

TABLE A26. LIDAR DATA TAKEN ON OCTOBER 31, 1982, AT GMT 0518-0526 BETWEEN 4.1°N, 79.6°W AND 4.8°N, 79.6°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.760	1.255	.4284E-04	16.610	1.282	.2212E-04
10.910	1.225	.3712E-04	16.760	1.571	.4353E-04
11.060	1.203	.3290E-04	16.910	1.862	.6385E-04
11.210	1.196	.3120E-04	17.060	1.980	.7050E-04
11.360	1.184	.2889E-04	17.210	2.063	.7417E-04
11.510	1.159	.2453E-04	17.360	2.082	.7335E-04
11.660	1.150	.2276E-04	17.510	2.217	.8005E-04
11.810	1.156	.2317E-04	17.660	2.488	.9507E-04
11.960	1.156	.2281E-04	17.810	2.708	.1059E-03
12.110	1.141	.2018E-04	17.960	2.878	.1131E-03
12.260	1.117	.1656E-04	18.110	3.059	.1204E-03
12.410	1.098	.1353E-04	18.260	3.221	.1261E-03
12.560	1.088	.1195E-04	18.410	3.323	.1280E-03
12.710	1.095	.1271E-04	18.560	3.576	.1378E-03
12.860	1.109	.1430E-04	18.710	3.943	.1529E-03
13.010	1.108	.1380E-04	18.860	4.569	.1801E-03
13.160	1.086	.1080E-04	19.010	5.608	.2259E-03
13.310	1.064	.7859E-05	19.160	6.713	.2720E-03
13.460	1.054	.6530E-05	19.310	7.723	.3108E-03
13.610	1.069	.8166E-05	19.460	8.610	.3417E-03
13.760	1.091	.1058E-04	19.610	9.874	.3870E-03
13.910	1.088	.1003E-04	19.760	10.194	.3894E-03
14.060	1.056	.6259E-05	19.910	10.464	.3893E-03
14.210	1.033	.3583E-05	20.060	10.952	.3976E-03
14.360	1.013	.1432E-05	20.210	12.520	.4470E-03
14.510	1.005	.5217E-06	20.360	13.944	.4878E-03
14.660	1.022	.2222E-05	20.510	14.264	.4855E-03
14.810	1.021	.2159E-05	20.660	14.674	.4871E-03
14.960	1.000	0.	20.810	15.651	.5087E-03
15.110	1.004	.4208E-06	20.960	16.810	.5350E-03
15.260	1.032	.3078E-05	21.110	18.072	.5631E-03
15.410	1.055	.5113E-05	21.260	19.059	.5806E-03
15.560	1.069	.6307E-05	21.410	19.513	.5801E-03
15.710	1.085	.7591E-05	21.560	19.309	.5592E-03
15.860	1.110	.9601E-05	21.710	18.829	.5307E-03
16.010	1.131	.1121E-04	21.860	18.295	.5018E-03
16.160	1.180	.1517E-04	22.010	18.224	.4870E-03
16.310	1.247	.2031E-04	22.160	18.763	.4895E-03
16.460	1.243	.1957E-04	22.310	19.622	.5002E-03

TABLE A26. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.460	20.354	.5067E-03	28.310	3.259	.2286E-04
22.610	21.239	.5164E-03	28.460	3.444	.2418E-04
22.760	21.363	.5064E-03	28.610	3.734	.2644E-04
22.910	20.066	.4622E-03	28.760	4.288	.3108E-04
23.060	18.741	.4191E-03	28.910	4.611	.3337E-04
23.210	17.399	.3776E-03	29.060	4.268	.2952E-04
23.360	15.708	.3301E-03	29.210	3.409	.2127E-04
23.510	15.375	.3144E-03	29.360	3.300	.1985E-04
23.660	15.497	.3091E-03	29.510	3.685	.2266E-04
23.810	15.768	.3069E-03	29.660	3.848	.2349E-04
23.960	15.074	.2853E-03	29.810	3.724	.2196E-04
24.110	13.802	.2531E-03	29.960	3.451	.1932E-04
24.260	13.469	.2405E-03	30.110	3.705	.2084E-04
24.410	13.182	.2292E-03	30.260	4.049	.2296E-04
24.560	12.688	.2145E-03	30.410	4.020	.2224E-04
24.710	12.092	.1985E-03	30.560	3.898	.2085E-04
24.860	12.129	.1943E-03	30.710	4.058	.2152E-04
25.010	12.088	.1888E-03	30.860	4.180	.2187E-04
25.160	11.253	.1703E-03	31.010	3.985	.2007E-04
25.310	10.387	.1521E-03	31.160	3.711	.1781E-04
25.460	9.643	.1366E-03			
25.610	9.136	.1254E-03			
25.760	8.458	.1121E-03			
25.910	6.900	.8652E-04			
26.060	5.705	.6730E-04			
26.210	5.866	.6788E-04			
26.360	6.105	.6947E-04			
26.510	5.799	.6378E-04			
26.660	5.396	.5712E-04			
26.810	4.819	.4851E-04			
26.960	4.408	.4232E-04			
27.110	4.241	.3934E-04			
27.260	3.838	.3367E-04			
27.410	3.819	.3269E-04			
27.560	3.660	.3016E-04			
27.710	3.375	.2632E-04			
27.860	3.574	.2789E-04			
28.010	3.839	.3007E-04			
28.160	3.528	.2617E-04			

TABLE A27. LIDAR DATA TAKEN ON OCTOBER 31, 1982, AT GMT 0543-0552 BETWEEN 6.0°N, 79.6°W AND 6.8°N, 79.5°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.760	1.166	.2786E-04	16.610	1.668	.5249E-04
10.910	1.144	.2377E-04	16.760	1.892	.6806E-04
11.060	1.128	.2086E-04	16.910	1.828	.6132E-04
11.210	1.112	.1788E-04	17.060	1.844	.6071E-04
11.360	1.089	.1392E-04	17.210	1.998	.6965E-04
11.510	1.074	.1137E-04	17.360	2.057	.7165E-04
11.660	1.061	.9306E-05	17.510	2.126	.7410E-04
11.810	1.030	.4506E-05	17.660	2.286	.8214E-04
11.960	1.018	.2581E-05	17.810	2.447	.8973E-04
12.110	1.028	.4031E-05	17.960	2.610	.9696E-04
12.260	1.037	.5152E-05	18.110	2.861	.1088E-03
12.410	1.042	.5855E-05	18.260	3.061	.1170E-03
12.560	1.048	.6501E-05	18.410	3.236	.1232E-03
12.710	1.041	.5415E-05	18.560	3.623	.1403E-03
12.860	1.029	.3764E-05	18.710	4.093	.1607E-03
13.010	1.027	.3447E-05	18.860	4.702	.1868E-03
13.160	1.043	.5423E-05	19.010	5.370	.2142E-03
13.310	1.041	.5096E-05	19.160	6.075	.2416E-03
13.460	1.035	.4220E-05	19.310	6.953	.2752E-03
13.610	1.037	.4440E-05	19.460	7.715	.3015E-03
13.760	1.034	.3905E-05	19.610	8.729	.3371E-03
13.910	1.006	.7220E-06	19.760	9.215	.3480E-03
14.060	1.000	0.	19.910	10.305	.3828E-03
14.210	1.033	.3576E-05	20.060	11.748	.4294E-03
14.360	1.058	.6227E-05	20.210	12.773	.4569E-03
14.510	1.069	.7286E-05	20.360	13.381	.4666E-03
14.660	1.071	.7308E-05	20.510	13.861	.4708E-03
14.810	1.070	.7096E-05	20.660	14.405	.4775E-03
14.960	1.044	.4319E-05	20.810	15.178	.4923E-03
15.110	1.012	.1149E-05	20.960	15.743	.4989E-03
15.260	1.005	.5214E-06	21.110	16.180	.5007E-03
15.410	1.030	.2767E-05	21.260	17.249	.5224E-03
15.560	1.045	.4109E-05	21.410	18.549	.5499E-03
15.710	1.068	.6081E-05	21.560	18.997	.5496E-03
15.860	1.095	.8347E-05	21.710	18.563	.5228E-03
16.010	1.126	.1078E-04	21.860	18.568	.5097E-03
16.160	1.204	.1717E-04	22.010	19.313	.5178E-03
16.310	1.265	.2182E-04	22.160	20.074	.5257E-03
16.460	1.366	.2955E-04	22.310	20.568	.5256E-03

TABLE A27. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.460	21.039	.5246E-03	28.310	3.601	.2632E-04
22.610	20.808	.5054E-03	28.460	3.793	.2763E-04
22.760	19.992	.4723E-03	28.610	4.058	.2957E-04
22.910	18.908	.4341E-03	28.760	3.950	.2789E-04
23.060	17.229	.3834E-03	28.910	3.738	.2530E-04
23.210	15.691	.3429E-03	29.060	3.530	.2285E-04
23.360	15.088	.3162E-03	29.210	3.510	.2217E-04
23.510	14.711	.2999E-03	29.360	3.726	.2353E-04
23.660	14.496	.2877E-03	29.510	3.730	.2304E-04
23.810	13.929	.2687E-03	29.660	3.581	.2128E-04
23.960	14.105	.2656E-03	29.810	3.432	.1961E-04
24.110	14.631	.2695E-03	29.960	3.471	.1948E-04
24.260	14.698	.2642E-03	30.110	3.695	.2076E-04
24.410	14.757	.2588E-03	30.260	4.133	.2360E-04
24.560	14.070	.2398E-03	30.410	3.901	.2136E-04
24.710	12.825	.2116E-03	30.560	3.324	.1673E-04
24.860	11.794	.1884E-03	30.710	3.499	.1758E-04
25.010	10.503	.1618E-03	30.860	3.992	.2058E-04
25.160	9.723	.1449E-03	31.010	3.910	.1956E-04
25.310	8.942	.1287E-03	31.160	3.873	.1888E-04
25.460	8.160	.1131E-03			
25.610	7.539	.1008E-03			
25.760	7.017	.9045E-04			
25.910	6.512	.8083E-04			
26.060	5.689	.6707E-04			
26.210	5.118	.5745E-04			
26.360	4.900	.5307E-04			
26.510	4.495	.4645E-04			
26.660	4.253	.4226E-04			
26.810	4.357	.4264E-04			
26.960	4.206	.3981E-04			
27.110	3.862	.3474E-04			
27.260	3.792	.3312E-04			
27.410	3.802	.3250E-04			
27.560	3.628	.2980E-04			
27.710	3.320	.2571E-04			
27.860	3.261	.2449E-04			
28.010	3.554	.2705E-04			
28.160	3.695	.2790E-04			

TABLE A28. LIDAR DATA TAKEN ON NOVEMBER 3, 1982, AT GMT 0006-0011 BETWEEN 15.5°N, 83.1°W AND 15.9°N, 83.3°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
12.541	1.178	.2418E-04	18.391	2.604	.8839E-04
12.691	1.144	.1918E-04	18.541	2.858	.9954E-04
12.841	1.113	.1478E-04	18.691	2.969	.1026E-03
12.991	1.113	.1459E-04	18.841	3.009	.1018E-03
13.141	1.104	.1309E-04	18.991	3.374	.1171E-03
13.291	1.107	.1326E-04	19.141	4.014	.1447E-03
13.441	1.138	.1673E-04	19.291	4.622	.1692E-03
13.591	1.133	.1582E-04	19.441	5.506	.2049E-03
13.741	1.136	.1591E-04	19.591	6.291	.2341E-03
13.891	1.123	.1413E-04	19.741	6.513	.2373E-03
14.041	1.101	.1136E-04	19.891	6.576	.2336E-03
14.191	1.103	.1142E-04	20.041	6.573	.2272E-03
14.341	1.040	.4335E-05	20.191	6.465	.2168E-03
14.491	1.000	0.	20.341	6.784	.2233E-03
14.641	1.054	.5568E-05	20.491	7.520	.2450E-03
14.791	1.090	.9132E-05	20.641	8.458	.2727E-03
14.941	1.069	.6857E-05	20.791	9.808	.3138E-03
15.091	1.027	.2578E-05	20.941	11.353	.3595E-03
15.241	1.006	.5389E-06	21.091	12.552	.3911E-03
15.391	1.080	.7419E-05	21.241	12.718	.3867E-03
15.541	1.135	.1223E-04	21.391	13.070	.3883E-03
15.691	1.098	.8660E-05	21.541	13.914	.4050E-03
15.841	1.082	.7050E-05	21.691	14.287	.4062E-03
15.991	1.143	.1210E-04	21.841	15.800	.4411E-03
16.141	1.224	.1854E-04	21.991	18.131	.4977E-03
16.291	1.243	.1959E-04	22.141	19.422	.5218E-03
16.441	1.270	.2135E-04	22.291	20.057	.5262E-03
16.591	1.399	.3081E-04	22.441	20.233	.5177E-03
16.741	1.439	.3292E-04	22.591	19.593	.4879E-03
16.891	1.557	.4061E-04	22.741	18.722	.4533E-03
17.041	1.797	.5652E-04	22.891	18.238	.4298E-03
17.191	1.864	.5960E-04	23.041	17.774	.4077E-03
17.341	1.973	.6526E-04	23.191	17.254	.3852E-03
17.491	2.018	.6634E-04	23.341	16.619	.3608E-03
17.641	2.047	.6636E-04	23.491	15.651	.3299E-03
17.791	2.141	.7035E-04	23.641	15.735	.3235E-03
17.941	2.204	.7216E-04	23.791	17.540	.3540E-03
18.091	2.321	.7696E-04	23.941	17.859	.3518E-03
18.241	2.617	.9162E-04	24.091	15.293	.2910E-03

TABLE A28. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
24.241	13.142	.2413E-03	30.091	3.317	.1786E-04
24.391	12.383	.2207E-03	30.241	3.171	.1634E-04
24.541	11.962	.2074E-03	30.391	3.011	.1477E-04
24.691	12.780	.2175E-03	30.541	3.092	.1500E-04
24.841	13.296	.2215E-03	30.691	3.140	.1498E-04
24.991	13.116	.2130E-03	30.841	3.118	.1447E-04
25.141	13.269	.2105E-03	30.991	2.823	.1216E-04
25.291	12.955	.2001E-03			
25.441	12.349	.1854E-03			
25.591	11.339	.1648E-03			
25.741	10.139	.1422E-03			
25.891	8.705	.1170E-03			
26.041	7.758	.1001E-03			
26.191	7.483	.9371E-04			
26.341	7.449	.9097E-04			
26.491	6.863	.8071E-04			
26.641	6.258	.7064E-04			
26.791	5.787	.6277E-04			
26.941	5.504	.5765E-04			
27.091	5.428	.5534E-04			
27.241	5.410	.5379E-04			
27.391	5.631	.5514E-04			
27.541	5.696	.5458E-04			
27.691	5.384	.4974E-04			
27.841	5.217	.4670E-04			
27.991	5.157	.4493E-04			
28.141	4.928	.4145E-04			
28.291	4.764	.3877E-04			
28.441	4.584	.3604E-04			
28.591	4.139	.3080E-04			
28.741	4.026	.2899E-04			
28.891	3.612	.2443E-04			
29.041	3.567	.2343E-04			
29.191	3.892	.2577E-04			
29.341	3.816	.2449E-04			
29.491	3.585	.2194E-04			
29.641	3.485	.2059E-04			
29.791	3.540	.2055E-04			
29.941	3.408	.1902E-04			

TABLE A29. LIDAR DATA TAKEN ON NOVEMBER 3, 1982, AT GMT 0046-0051 BETWEEN 18.2°N, 84.8°W AND 18.6°N, 85.1°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
13.150	1.044	.5576E-05	19.000	3.065	.1017E-03
13.300	1.021	.2557E-05	19.150	3.117	.1015E-03
13.450	1.012	.1408E-05	19.300	2.883	.8781E-04
13.600	1.025	.2955E-05	19.450	3.229	.1011E-03
13.750	1.030	.3458E-05	19.600	3.995	.1323E-03
13.900	1.006	.6563E-06	19.750	4.471	.1492E-03
14.050	1.000	0.	19.900	4.473	.1452E-03
14.200	1.010	.1075E-05	20.050	4.606	.1468E-03
14.350	1.024	.2643E-05	20.200	5.033	.1598E-03
14.500	1.053	.5557E-05	20.350	5.631	.1785E-03
14.650	1.048	.4997E-05	20.500	7.056	.2272E-03
14.800	1.073	.7345E-05	20.650	8.828	.2857E-03
14.950	1.107	.1053E-04	20.800	9.459	.3009E-03
15.100	1.149	.1439E-04	20.950	9.018	.2780E-03
15.250	1.149	.1409E-04	21.100	8.985	.2699E-03
15.400	1.165	.1523E-04	21.250	9.377	.2760E-03
15.550	1.269	.2431E-04	21.400	9.450	.2714E-03
15.700	1.316	.2788E-04	21.550	9.344	.2613E-03
15.850	1.315	.2720E-04	21.700	9.640	.2637E-03
16.000	1.307	.2590E-04	21.850	10.843	.2929E-03
16.150	1.330	.2724E-04	22.000	12.554	.3352E-03
16.300	1.347	.2800E-04	22.150	14.519	.3823E-03
16.450	1.273	.2152E-04	22.300	16.070	.4154E-03
16.600	1.255	.1965E-04	22.450	16.757	.4234E-03
16.750	1.315	.2362E-04	22.600	16.510	.4063E-03
16.900	1.407	.2964E-04	22.750	17.048	.4098E-03
17.050	1.618	.4372E-04	22.900	18.814	.4435E-03
17.200	1.683	.4702E-04	23.050	19.925	.4569E-03
17.350	1.701	.4693E-04	23.200	19.825	.4454E-03
17.500	1.797	.5185E-04	23.350	19.321	.4225E-03
17.650	1.908	.5746E-04	23.500	18.401	.3912E-03
17.800	2.086	.6681E-04	23.650	17.701	.3660E-03
17.950	2.255	.7508E-04	23.800	17.588	.3544E-03
18.100	2.394	.8107E-04	23.950	16.734	.3278E-03
18.250	2.565	.8852E-04	24.100	15.037	.2854E-03
18.400	2.696	.9327E-04	24.250	13.845	.2548E-03
18.550	2.653	.8841E-04	24.400	13.931	.2503E-03
18.700	2.553	.8074E-04	24.550	13.519	.2365E-03
18.850	2.706	.8631E-04	24.700	12.411	.2104E-03

TABLE A29. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
24.850	11.828	.1948E-03	30.700	2.929	.1348E-04
25.000	10.964	.1749E-03	30.850	2.744	.1189E-04
25.150	10.007	.1543E-03	31.000	2.712	.1140E-04
25.300	9.348	.1395E-03			
25.450	8.528	.1228E-03			
25.600	7.886	.1096E-03			
25.750	7.539	.1016E-03			
25.900	6.792	.8778E-04			
26.050	6.305	.7846E-04			
26.200	5.983	.7191E-04			
26.350	5.493	.6328E-04			
26.500	5.357	.5988E-04			
26.650	5.143	.5558E-04			
26.800	4.850	.5041E-04			
26.950	4.559	.4549E-04			
27.100	4.374	.4210E-04			
27.250	4.263	.3974E-04			
27.400	3.922	.3473E-04			
27.550	3.891	.3355E-04			
27.700	3.889	.3273E-04			
27.850	3.995	.3311E-04			
28.000	4.075	.3319E-04			
28.150	3.783	.2932E-04			
28.300	3.594	.2668E-04			
28.450	3.570	.2580E-04			
28.600	3.607	.2554E-04			
28.750	3.695	.2578E-04			
28.900	3.546	.2377E-04			
29.050	3.376	.2165E-04			
29.200	3.406	.2141E-04			
29.350	3.435	.2115E-04			
29.500	3.435	.2064E-04			
29.650	3.261	.1871E-04			
29.800	3.041	.1648E-04			
29.950	3.134	.1683E-04			
30.100	3.390	.1839E-04			
30.250	3.076	.1560E-04			
30.400	2.705	.1250E-04			
30.550	2.892	.1354E-04			

TABLE A30. LIDAR DATA TAKEN ON NOVEMBER 3, 1982, AT GMT 0114-0122 BETWEEN 20.0°N, 86.5°W AND 20.4°N, 86.9°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.150	1.440	.7926E-04	16.000	1.215	.1814E-04
10.300	1.404	.7165E-04	16.150	1.234	.1929E-04
10.450	1.362	.6313E-04	16.300	1.233	.1877E-04
10.600	1.340	.5838E-04	16.450	1.252	.1987E-04
10.750	1.326	.5510E-04	16.600	1.309	.2379E-04
10.900	1.288	.4789E-04	16.750	1.370	.2769E-04
11.050	1.262	.4267E-04	16.900	1.392	.2852E-04
11.200	1.289	.4630E-04	17.050	1.494	.3493E-04
11.350	1.618	.9726E-04	17.200	1.669	.4606E-04
11.500	2.596	.2465E-03	17.350	1.771	.5158E-04
11.650	3.783	.4222E-03	17.500	1.865	.5628E-04
11.800	4.102	.4621E-03	17.650	1.910	.5755E-04
11.950	2.825	.2669E-03	17.800	2.039	.6390E-04
12.100	1.648	.9310E-04	17.950	2.262	.7550E-04
12.250	1.386	.5448E-04	18.100	2.383	.8043E-04
12.400	1.141	.1958E-04	18.250	2.403	.7936E-04
12.550	1.060	.8206E-05	18.400	2.421	.7815E-04
12.700	1.037	.4982E-05	18.550	2.475	.7890E-04
12.850	1.035	.4578E-05	18.700	2.538	.7999E-04
13.000	1.048	.6130E-05	18.850	2.658	.8390E-04
13.150	1.048	.6048E-05	19.000	2.653	.8141E-04
13.300	1.036	.4508E-05	19.150	2.686	.8078E-04
13.450	1.015	.1865E-05	19.300	2.909	.8901E-04
13.600	1.012	.1383E-05	19.450	3.102	.9540E-04
13.750	1.028	.3299E-05	19.600	3.237	.9879E-04
13.900	1.018	.2103E-05	19.750	3.272	.9765E-04
14.050	1.000	0.	19.900	3.296	.9602E-04
14.200	1.037	.4114E-05	20.050	3.480	.1009E-03
14.350	1.064	.6971E-05	20.200	4.228	.1279E-03
14.500	1.076	.8013E-05	20.350	5.395	.1694E-03
14.650	1.122	.1264E-04	20.500	6.152	.1933E-03
14.800	1.138	.1396E-04	20.650	6.511	.2012E-03
14.950	1.139	.1371E-04	20.800	7.008	.2137E-03
15.100	1.137	.1323E-04	20.950	7.413	.2223E-03
15.250	1.149	.1403E-04	21.100	7.343	.2144E-03
15.400	1.158	.1460E-04	21.250	7.051	.1994E-03
15.550	1.174	.1573E-04	21.400	7.160	.1979E-03
15.700	1.214	.1893E-04	21.550	7.368	.1994E-03
15.850	1.194	.1676E-04	21.700	7.136	.1873E-03

TABLE A30. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
21.850	6.495	.1635E-03	27.700	4.762	.4261E-04
22.000	5.611	.1338E-03	27.850	4.640	.4025E-04
22.150	6.267	.1489E-03	28.000	4.408	.3678E-04
22.300	7.793	.1872E-03	28.150	4.204	.3376E-04
22.450	9.135	.2186E-03	28.300	3.980	.3064E-04
22.600	11.998	.2881E-03	28.450	4.064	.3076E-04
22.750	15.604	.3729E-03	28.600	4.294	.3227E-04
22.900	18.339	.4317E-03	28.750	4.473	.3322E-04
23.050	18.047	.4137E-03	28.900	4.263	.3046E-04
23.200	15.554	.3443E-03	29.050	4.014	.2747E-04
23.350	14.168	.3037E-03	29.200	4.090	.2749E-04
23.500	16.740	.3539E-03	29.350	3.894	.2513E-04
23.650	20.014	.4167E-03	29.500	3.611	.2213E-04
23.800	21.011	.4275E-03	29.650	3.415	.1998E-04
23.950	21.011	.4169E-03	29.800	3.336	.1887E-04
24.100	19.593	.3780E-03	29.950	3.501	.1972E-04
24.250	17.647	.3303E-03	30.100	3.625	.2020E-04
24.400	16.330	.2968E-03	30.250	3.635	.1979E-04
24.550	15.342	.2709E-03	30.400	3.573	.1887E-04
24.700	14.027	.2401E-03	30.550	3.390	.1711E-04
24.850	11.897	.1960E-03	30.700	3.352	.1644E-04
25.000	10.510	.1669E-03	30.850	3.572	.1754E-04
25.150	9.885	.1522E-03	31.000	3.498	.1663E-04
25.300	9.269	.1382E-03			
25.450	8.685	.1254E-03			
25.600	8.173	.1142E-03			
25.750	7.680	.1038E-03			
25.900	6.911	.8960E-04			
26.050	6.205	.7699E-04			
26.200	6.014	.7236E-04			
26.350	5.945	.6965E-04			
26.500	5.427	.6084E-04			
26.650	5.268	.5726E-04			
26.800	5.199	.5498E-04			
26.950	4.917	.5007E-04			
27.100	4.805	.4747E-04			
27.250	4.920	.4774E-04			
27.400	5.072	.4841E-04			
27.550	4.996	.4637E-04			

TABLE A31. LIDAR DATA TAKEN ON NOVEMBER 3, 1982, AT GMT 2354-0005 BETWEEN 24.0°N, 94.0°W AND 24.3°N, 95.3°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.760	1.299	.4891E-04	16.610	1.371	.2712E-04
10.910	1.267	.4288E-04	16.760	1.531	.3779E-04
11.060	1.251	.3949E-04	16.910	1.695	.4823E-04
11.210	1.220	.3394E-04	17.060	1.762	.5146E-04
11.360	1.184	.2794E-04	17.210	1.801	.5269E-04
11.510	1.156	.2318E-04	17.360	1.900	.5771E-04
11.660	1.128	.1874E-04	17.510	1.983	.6137E-04
11.810	1.097	.1389E-04	17.660	2.061	.6453E-04
11.960	1.073	.1026E-04	17.810	2.159	.6862E-04
12.110	1.076	.1048E-04	17.960	2.265	.7296E-04
12.260	1.075	.1017E-04	18.110	2.294	.7271E-04
12.410	1.067	.8924E-05	18.260	2.353	.7403E-04
12.560	1.066	.8655E-05	18.410	2.385	.7382E-04
12.710	1.060	.7651E-05	18.560	2.395	.7239E-04
12.860	1.047	.5919E-05	18.710	2.448	.7320E-04
13.010	1.029	.3629E-05	18.860	2.462	.7202E-04
13.160	1.025	.3015E-05	19.010	2.510	.7249E-04
13.310	1.034	.3998E-05	19.160	2.612	.7539E-04
13.460	1.028	.3257E-05	19.310	2.732	.7893E-04
13.610	1.024	.2758E-05	19.460	2.776	.7884E-04
13.760	1.021	.2393E-05	19.610	2.738	.7517E-04
13.910	1.004	.4713E-06	19.760	2.795	.7566E-04
14.060	1.000	0.	19.910	2.955	.8025E-04
14.210	1.011	.1186E-05	20.060	3.133	.8531E-04
14.360	1.015	.1502E-05	20.210	3.294	.8941E-04
14.510	1.008	.7586E-06	20.360	3.505	.9512E-04
14.660	1.013	.1289E-05	20.510	3.755	.1019E-03
14.810	1.038	.3668E-05	20.660	4.283	.1183E-03
14.960	1.084	.7931E-05	20.810	6.272	.1852E-03
15.110	1.108	.9959E-05	20.960	10.265	.3174E-03
15.260	1.107	.9612E-05	21.110	13.383	.4136E-03
15.410	1.131	.1147E-04	21.260	14.031	.4244E-03
15.560	1.131	.1130E-04	21.410	13.488	.3965E-03
15.710	1.128	.1076E-04	21.560	12.702	.3623E-03
15.860	1.141	.1156E-04	21.710	12.706	.3533E-03
16.010	1.165	.1326E-04	21.860	13.959	.3814E-03
16.160	1.199	.1566E-04	22.010	16.161	.4350E-03
16.310	1.252	.1938E-04	22.160	17.902	.4728E-03
16.460	1.291	.2187E-04	22.310	19.155	.4951E-03

TABLE A31. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.460	20.593	.5210E-03	28.310	4.413	.3485E-04
22.610	21.966	.5436E-03	28.460	4.352	.3342E-04
22.760	22.654	.5474E-03	28.610	4.215	.3130E-04
22.910	22.410	.5276E-03	28.760	4.039	.2888E-04
23.060	21.992	.5044E-03	28.910	4.026	.2809E-04
23.210	20.276	.4516E-03	29.060	3.980	.2701E-04
23.360	17.542	.3778E-03	29.210	3.800	.2478E-04
23.510	15.502	.3229E-03	29.360	3.739	.2367E-04
23.660	14.356	.2900E-03	29.510	3.549	.2150E-04
23.810	14.189	.2792E-03	29.660	3.446	.2015E-04
23.960	14.724	.2834E-03	29.810	3.538	.2041E-04
24.110	14.939	.2809E-03	29.960	3.477	.1945E-04
24.260	14.983	.2749E-03	30.110	3.423	.1858E-04
24.410	14.593	.2607E-03	30.260	3.466	.1846E-04
24.560	13.606	.2359E-03	30.410	3.688	.1965E-04
24.710	12.523	.2104E-03	30.560	3.558	.1826E-04
24.860	11.701	.1907E-03	30.710	3.245	.1565E-04
25.010	10.960	.1731E-03	30.860	3.051	.1396E-04
25.160	10.297	.1577E-03	31.010	3.125	.1412E-04
25.310	9.785	.1454E-03			
25.460	8.824	.1263E-03			
25.610	6.796	.9132E-04			
25.760	5.091	.6288E-04			
25.910	4.769	.5652E-04			
26.060	5.067	.5952E-04			
26.210	5.265	.6090E-04			
26.360	5.194	.5842E-04			
26.510	5.166	.5665E-04			
26.660	5.075	.5410E-04			
26.810	4.847	.4987E-04			
26.960	4.777	.4780E-04			
27.110	4.785	.4678E-04			
27.260	4.682	.4443E-04			
27.410	4.555	.4188E-04			
27.560	4.507	.4034E-04			
27.710	4.497	.3928E-04			
27.860	4.562	.3907E-04			
28.010	4.430	.3673E-04			
28.160	4.277	.3427E-04			

TABLE A32. LIDAR DATA TAKEN ON NOVEMBER 4, 1982, AT GMT 0038-0059 BETWEEN 25.8°N, 97.4°W AND 26.8°N, 98.7°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.369	1.179	.2716E-04	17.219	1.890	.5850E-04
11.519	1.163	.2426E-04	17.369	1.974	.6230E-04
11.669	1.145	.2119E-04	17.519	2.037	.6465E-04
11.819	1.131	.1876E-04	17.669	2.075	.6526E-04
11.969	1.118	.1657E-04	17.819	2.195	.7066E-04
12.119	1.101	.1394E-04	17.969	2.387	.7986E-04
12.269	1.086	.1165E-04	18.119	2.546	.8668E-04
12.419	1.070	.9260E-05	18.269	2.624	.8874E-04
12.569	1.064	.8360E-05	18.419	2.625	.8646E-04
12.719	1.056	.7164E-05	18.569	2.598	.8281E-04
12.869	1.050	.6251E-05	18.719	2.594	.8045E-04
13.019	1.044	.5466E-05	18.869	2.565	.7700E-04
13.169	1.043	.5133E-05	19.019	2.537	.7363E-04
13.319	1.042	.4949E-05	19.169	2.523	.7110E-04
13.469	1.039	.4560E-05	19.319	2.503	.6838E-04
13.619	1.036	.4072E-05	19.469	2.596	.7075E-04
13.769	1.027	.3020E-05	19.619	2.783	.7699E-04
13.919	1.029	.3148E-05	19.769	3.014	.8471E-04
14.069	1.014	.1512E-05	19.919	3.318	.9501E-04
14.219	1.000	0.	20.069	4.046	.1216E-03
14.369	1.006	.6378E-06	20.219	5.154	.1616E-03
14.519	1.011	.1113E-05	20.369	5.871	.1846E-03
14.669	1.016	.1544E-05	20.519	5.957	.1831E-03
14.819	1.018	.1756E-05	20.669	5.541	.1634E-03
14.969	1.031	.2922E-05	20.819	4.924	.1377E-03
15.119	1.053	.4901E-05	20.969	4.583	.1226E-03
15.269	1.056	.5030E-05	21.119	4.950	.1317E-03
15.419	1.054	.4749E-05	21.269	5.952	.1610E-03
15.569	1.074	.6390E-05	21.419	7.288	.1993E-03
15.719	1.103	.8629E-05	21.569	8.994	.2471E-03
15.869	1.149	.1218E-04	21.719	10.839	.2965E-03
16.019	1.219	.1755E-04	21.869	12.853	.3483E-03
16.169	1.283	.2217E-04	22.019	14.998	.4010E-03
16.319	1.338	.2596E-04	22.169	16.829	.4421E-03
16.469	1.408	.3055E-04	22.319	18.015	.4633E-03
16.619	1.494	.3609E-04	22.469	17.369	.4346E-03
16.769	1.581	.4135E-04	22.619	14.154	.3405E-03
16.919	1.694	.4810E-04	22.769	10.651	.2436E-03
17.069	1.806	.5438E-04	22.919	10.158	.2253E-03

TABLE A32. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.069	11.891	.2613E-03	28.919	3.967	.2750E-04
23.219	13.446	.2911E-03	29.069	3.956	.2675E-04
23.369	15.454	.3296E-03	29.219	3.910	.2571E-04
23.519	17.687	.3710E-03	29.369	3.719	.2346E-04
23.669	18.825	.3864E-03	29.519	3.756	.2321E-04
23.819	19.249	.3857E-03	29.669	3.562	.2107E-04
23.969	19.307	.3775E-03	29.819	3.457	.1973E-04
24.119	19.095	.3640E-03	29.969	3.488	.1951E-04
24.269	18.321	.3400E-03	30.119	3.382	.1823E-04
24.419	17.101	.3084E-03	30.269	3.311	.1728E-04
24.569	15.504	.2710E-03	30.419	3.294	.1675E-04
24.719	14.158	.2399E-03	30.569	3.248	.1602E-04
24.869	13.294	.2187E-03	30.719	3.280	.1587E-04
25.019	12.287	.1959E-03	30.869	3.334	.1586E-04
25.169	10.848	.1668E-03	31.019	3.401	.1593E-04
25.319	9.154	.1347E-03			
25.469	8.277	.1173E-03			
25.619	8.663	.1205E-03			
25.769	9.273	.1270E-03			
25.919	9.336	.1248E-03			
26.069	9.004	.1169E-03			
26.219	8.209	.1028E-03			
26.369	7.283	.8739E-04			
26.519	6.637	.7653E-04			
26.669	5.858	.6439E-04			
26.819	5.181	.5412E-04			
26.969	5.311	.5449E-04			
27.119	5.461	.5505E-04			
27.269	5.346	.5237E-04			
27.419	5.245	.4994E-04			
27.569	5.162	.4782E-04			
27.719	4.883	.4356E-04			
27.869	4.650	.3997E-04			
28.019	4.664	.3918E-04			
28.169	4.520	.3676E-04			
28.319	4.440	.3507E-04			
28.469	4.417	.3402E-04			
28.619	4.361	.3267E-04			
28.769	4.221	.3057E-04			

TABLE A33. LIDAR DATA TAKEN ON NOVEMBER 4, 1982, AT GMT 0150-0210 BETWEEN 29.9°N, 101.5°W AND 30.7°N, 102.7°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.979	1.072	.9772E-05	17.829	1.611	.3538E-04
12.129	1.056	.7468E-05	17.979	1.664	.3753E-04
12.279	1.055	.7175E-05	18.129	1.705	.3882E-04
12.429	1.056	.7158E-05	18.279	1.751	.4030E-04
12.579	1.063	.7948E-05	18.429	1.822	.4299E-04
12.729	1.079	.9803E-05	18.579	1.889	.4531E-04
12.879	1.074	.9032E-05	18.729	1.950	.4716E-04
13.029	1.055	.6580E-05	18.879	2.018	.4929E-04
13.179	1.034	.4017E-05	19.029	2.090	.5141E-04
13.329	1.011	.1237E-05	19.179	2.138	.5232E-04
13.479	1.000	0.	19.329	2.188	.5324E-04
13.629	1.003	.3057E-06	19.479	2.177	.5138E-04
13.779	1.013	.1453E-05	19.629	2.192	.5075E-04
13.929	1.012	.1230E-05	19.779	2.362	.5648E-04
14.079	1.013	.1376E-05	19.929	2.499	.6057E-04
14.229	1.022	.2275E-05	20.079	2.565	.6164E-04
14.379	1.031	.3103E-05	20.229	2.644	.6313E-04
14.529	1.036	.3501E-05	20.379	2.819	.6805E-04
14.679	1.035	.3380E-05	20.529	3.046	.7460E-04
14.829	1.047	.4395E-05	20.679	3.390	.8494E-04
14.979	1.054	.4907E-05	20.829	3.662	.9226E-04
15.129	1.058	.5214E-05	20.979	3.748	.9288E-04
15.279	1.074	.6474E-05	21.129	3.916	.9613E-04
15.429	1.096	.8203E-05	21.279	3.988	.9608E-04
15.579	1.135	.1129E-04	21.429	3.593	.8132E-04
15.729	1.165	.1350E-04	21.579	3.430	.7432E-04
15.879	1.183	.1458E-04	21.729	4.624	.1081E-03
16.029	1.205	.1605E-04	21.879	7.432	.1871E-03
16.179	1.255	.1946E-04	22.029	10.554	.2711E-03
16.329	1.299	.2236E-04	22.179	12.548	.3196E-03
16.479	1.322	.2347E-04	22.329	13.529	.3382E-03
16.629	1.339	.2409E-04	22.479	13.628	.3324E-03
16.779	1.374	.2595E-04	22.629	13.265	.3149E-03
16.929	1.418	.2823E-04	22.779	11.946	.2741E-03
17.079	1.433	.2852E-04	22.929	9.339	.2037E-03
17.229	1.476	.3057E-04	23.079	8.500	.1786E-03
17.379	1.517	.3237E-04	23.229	9.778	.2039E-03
17.529	1.552	.3369E-04	23.379	11.350	.2345E-03
17.679	1.585	.3477E-04	23.529	12.940	.2639E-03

TABLE A33. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.679	14.179	.2840E-03	29.529	1.429	.3633E-05
23.829	15.220	.2989E-03	29.679	1.394	.3256E-05
23.979	15.399	.2955E-03	29.829	1.380	.3065E-05
24.129	15.121	.2830E-03	29.979	1.406	.3202E-05
24.279	14.735	.2688E-03	30.129	1.434	.3335E-05
24.429	14.152	.2513E-03	30.279	1.431	.3233E-05
24.579	12.919	.2224E-03	30.429	1.407	.2986E-05
24.729	10.803	.1786E-03	30.579	1.446	.3193E-05
24.879	8.201	.1281E-03	30.729	1.549	.3833E-05
25.029	5.764	.8277E-04	30.879	1.636	.4335E-05
25.179	4.897	.6595E-04	31.029	1.682	.4540E-05
25.329	4.646	.6040E-04			
25.479	3.941	.4757E-04			
25.629	3.769	.4375E-04			
25.779	3.062	.3181E-04			
25.929	2.012	.1524E-04			
26.079	1.695	.1023E-04			
26.229	1.662	.9506E-05			
26.379	1.571	.8011E-05			
26.529	1.537	.7349E-05			
26.679	1.487	.6515E-05			
26.829	1.382	.4987E-05			
26.979	1.258	.3287E-05			
27.129	1.176	.2195E-05			
27.279	1.203	.2463E-05			
27.429	1.216	.2562E-05			
27.579	1.215	.2493E-05			
27.729	1.227	.2570E-05			
27.879	1.237	.2616E-05			
28.029	1.252	.2712E-05			
28.179	1.235	.2476E-05			
28.329	1.313	.3209E-05			
28.479	1.426	.4267E-05			
28.629	1.547	.5352E-05			
28.779	1.626	.5975E-05			
28.929	1.521	.4854E-05			
29.079	1.309	.2813E-05			
29.229	1.249	.2209E-05			
29.379	1.360	.3122E-05			

TABLE A34. LIDAR DATA TAKEN ON NOVEMBER 4, 1982, AT GMT 0210-0230 BETWEEN 30.7°N, 102.7°W AND 31.3°N, 104.3°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.979	1.133	.1815E-04	17.829	1.850	.4926E-04
12.129	1.109	.1451E-04	17.979	1.900	.5083E-04
12.279	1.091	.1196E-04	18.129	1.984	.5419E-04
12.429	1.090	.1153E-04	18.279	2.049	.5628E-04
12.579	1.081	.1027E-04	18.429	2.035	.5410E-04
12.729	1.059	.7256E-05	18.579	1.998	.5089E-04
12.879	1.050	.6112E-05	18.729	2.008	.5008E-04
13.029	1.055	.6566E-05	18.879	2.127	.5458E-04
13.179	1.044	.5144E-05	19.029	2.276	.6018E-04
13.329	1.021	.2361E-05	19.179	2.358	.6242E-04
13.479	1.006	.6343E-06	19.329	2.428	.6399E-04
13.629	1.005	.5148E-06	19.479	2.518	.6630E-04
13.779	1.000	0.	19.629	2.574	.6697E-04
13.929	1.009	.9444E-06	19.779	2.658	.6878E-04
14.079	1.041	.4271E-05	19.929	2.709	.6906E-04
14.229	1.063	.6446E-05	20.079	2.722	.6782E-04
14.379	1.088	.8753E-05	20.229	2.707	.6552E-04
14.529	1.115	.1124E-04	20.379	2.986	.7429E-04
14.679	1.137	.1304E-04	20.529	3.349	.8563E-04
14.829	1.155	.1445E-04	20.679	3.633	.9355E-04
14.979	1.170	.1547E-04	20.829	4.136	.1087E-03
15.129	1.155	.1384E-04	20.979	4.539	.1196E-03
15.279	1.156	.1360E-04	21.129	4.805	.1255E-03
15.429	1.162	.1384E-04	21.279	5.170	.1341E-03
15.579	1.162	.1355E-04	21.429	5.841	.1518E-03
15.729	1.214	.1746E-04	21.579	7.095	.1864E-03
15.879	1.295	.2358E-04	21.729	7.819	.2034E-03
16.029	1.382	.2985E-04	21.879	7.809	.1981E-03
16.179	1.456	.3488E-04	22.029	8.435	.2110E-03
16.329	1.496	.3708E-04	22.179	9.741	.2419E-03
16.479	1.545	.3980E-04	22.329	10.569	.2583E-03
16.629	1.604	.4297E-04	22.479	10.224	.2428E-03
16.779	1.642	.4449E-04	22.629	10.564	.2456E-03
16.929	1.658	.4446E-04	22.779	11.133	.2537E-03
17.079	1.681	.4485E-04	22.929	12.589	.2830E-03
17.229	1.699	.4488E-04	23.079	16.253	.3633E-03
17.379	1.725	.4540E-04	23.229	18.031	.3957E-03
17.529	1.782	.4768E-04	23.379	18.004	.3853E-03
17.679	1.825	.4907E-04	23.529	17.588	.3666E-03

TABLE A34. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.679	16.040	.3241E-03	29.529	1.567	.4801E-05
23.829	14.021	.2737E-03	29.679	1.589	.4873E-05
23.979	11.938	.2245E-03	29.829	1.673	.5431E-05
24.129	10.378	.1879E-03	29.979	1.809	.6372E-05
24.279	9.583	.1679E-03	30.129	1.823	.6331E-05
24.429	9.146	.1557E-03	30.279	1.840	.6310E-05
24.579	8.784	.1452E-03	30.429	1.904	.6629E-05
24.729	7.061	.1104E-03	30.579	1.954	.6827E-05
24.879	4.749	.6670E-04	30.729	2.071	.7482E-05
25.029	3.071	.3598E-04	30.879	2.129	.7698E-05
25.179	2.120	.1900E-04	31.029	2.043	.6946E-05
25.329	1.990	.1640E-04			
25.479	1.997	.1613E-04			
25.629	1.898	.1419E-04			
25.779	1.799	.1232E-04			
25.929	1.834	.1256E-04			
26.079	1.781	.1149E-04			
26.229	1.697	.1001E-04			
26.379	1.614	.8617E-05			
26.529	1.540	.7393E-05			
26.679	1.622	.8312E-05			
26.829	1.863	.1127E-04			
26.979	1.948	.1208E-04			
27.129	1.796	.9908E-05			
27.279	1.633	.7684E-05			
27.429	1.511	.6054E-05			
27.579	1.441	.5107E-05			
27.729	1.466	.5266E-05			
27.879	1.525	.5797E-05			
28.029	1.518	.5575E-05			
28.179	1.508	.5339E-05			
28.329	1.917	.9413E-05			
28.479	2.507	.1510E-04			
28.629	2.812	.1773E-04			
28.779	2.792	.1711E-04			
28.929	2.470	.1370E-04			
29.079	1.948	.8630E-05			
29.229	1.602	.5352E-05			
29.379	1.509	.4416E-05			

TABLE A35. LIDAR DATA TAKEN ON NOVEMBER 4, 1982, AT GMT 1917-1921 BETWEEN 33.5°N, 107.2°W AND 33.9°N, 107.2°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.760	1.888	.1462E-03	16.610	3.102	.1497E-03
10.910	1.886	.1433E-03	16.760	2.671	.1160E-03
11.060	1.825	.1310E-03	16.910	2.887	.1277E-03
11.210	1.825	.1288E-03	17.060	3.185	.1441E-03
11.360	1.704	.1078E-03	17.210	2.803	.1159E-03
11.510	1.540	.8132E-04	17.360	2.568	.9822E-04
11.660	1.540	.7982E-04	17.510	2.491	.9099E-04
11.810	1.618	.8974E-04	17.660	3.332	.1387E-03
11.960	1.653	.9309E-04	17.810	3.246	.1302E-03
12.110	1.687	.9618E-04	17.960	3.083	.1177E-03
12.260	1.631	.8660E-04	18.110	3.277	.1254E-03
12.410	1.505	.6787E-04	18.260	3.160	.1160E-03
12.560	1.423	.5570E-04	18.410	3.250	.1177E-03
12.710	1.425	.5479E-04	18.560	3.206	.1125E-03
12.860	1.545	.6883E-04	18.710	3.178	.1083E-03
13.010	1.556	.6872E-04	18.860	3.247	.1089E-03
13.160	1.495	.5994E-04	19.010	3.409	.1138E-03
13.310	1.342	.4056E-04	19.160	3.504	.1153E-03
13.460	1.199	.2313E-04	19.310	3.925	.1313E-03
13.610	1.264	.3002E-04	19.460	4.335	.1459E-03
13.760	1.397	.4422E-04	19.610	4.486	.1487E-03
13.910	1.487	.5308E-04	19.760	4.868	.1608E-03
14.060	1.408	.4350E-04	19.910	5.490	.1820E-03
14.210	1.179	.1862E-04	20.060	5.771	.1884E-03
14.360	1.000	0.	20.210	5.679	.1802E-03
14.510	1.396	.3938E-04	20.360	5.587	.1721E-03
14.660	1.865	.8393E-04	20.510	5.930	.1804E-03
14.810	1.896	.8491E-04	20.660	6.495	.1960E-03
14.960	1.892	.8253E-04	20.810	6.584	.1942E-03
15.110	1.578	.5221E-04	20.960	6.972	.2026E-03
15.260	1.737	.6509E-04	21.110	7.509	.2154E-03
15.410	2.371	.1182E-03	21.260	7.419	.2071E-03
15.560	2.246	.1050E-03	21.410	7.969	.2193E-03
15.710	1.961	.7903E-04	21.560	9.138	.2498E-03
15.860	2.014	.8151E-04	21.710	10.937	.2975E-03
16.010	1.907	.7120E-04	21.860	14.088	.3821E-03
16.160	1.778	.5967E-04	22.010	17.576	.4720E-03
16.310	2.443	.1080E-03	22.160	16.263	.4239E-03
16.460	3.296	.1678E-03	22.310	12.309	.3063E-03

TABLE A35. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.460	11.117	.2672E-03	28.310	2.419	.1451E-04
22.610	10.562	.2464E-03	28.460	.820	-.1799E-05
22.760	8.431	.1867E-03	28.610	.875	-.1223E-05
22.910	6.430	.1331E-03	28.760	2.094	.1042E-04
23.060	5.059	.9700E-04			
23.210	5.298	.1002E-03			
23.360	6.539	.1259E-03			
23.510	8.875	.1746E-03			
23.660	11.488	.2268E-03			
23.810	11.484	.2211E-03			
23.960	9.602	.1770E-03			
24.110	8.083	.1423E-03			
24.260	8.073	.1387E-03			
24.410	8.587	.1451E-03			
24.560	8.345	.1372E-03			
24.710	7.976	.1271E-03			
24.860	7.243	.1110E-03			
25.010	6.698	.9892E-04			
25.160	6.965	.1011E-03			
25.310	6.209	.8614E-04			
25.460	4.683	.5943E-04			
25.610	3.447	.3854E-04			
25.760	2.784	.2742E-04			
25.910	2.860	.2790E-04			
26.060	3.463	.3607E-04			
26.210	4.458	.4942E-04			
26.360	4.319	.4630E-04			
26.510	3.247	.3059E-04			
26.660	3.040	.2711E-04			
26.810	2.762	.2287E-04			
26.960	2.017	.1289E-04			
27.110	2.389	.1719E-04			
27.260	1.229	.2763E-05			
27.410	1.064	.7602E-06			
27.560	3.663	.3068E-04			
27.710	3.130	.2396E-04			
27.860	1.831	.9126E-05			
28.010	2.284	.1377E-04			
28.160	2.592	.1667E-04			

TABLE A36. LIDAR DATA TAKEN ON NOVEMBER 4, 1982, AT GMT 1930-2004 BETWEEN 34.6°N, 107.0°W AND 37.1°N, 106.0°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.760	1.462	.7602E-04	16.610	1.627	.4467E-04
10.910	1.417	.6746E-04	16.760	1.656	.4557E-04
11.060	1.377	.5982E-04	16.910	1.734	.4966E-04
11.210	1.337	.5256E-04	17.060	1.866	.5712E-04
11.360	1.302	.4623E-04	17.210	1.990	.6364E-04
11.510	1.278	.4179E-04	17.360	2.083	.6786E-04
11.660	1.238	.3523E-04	17.510	2.162	.7092E-04
11.810	1.199	.2895E-04	17.660	2.249	.7434E-04
11.960	1.183	.2606E-04	17.810	2.321	.7658E-04
12.110	1.146	.2049E-04	17.960	2.384	.7823E-04
12.260	1.114	.1571E-04	18.110	2.370	.7548E-04
12.410	1.126	.1697E-04	18.260	2.310	.7036E-04
12.560	1.138	.1815E-04	18.410	2.300	.6803E-04
12.710	1.101	.1306E-04	18.560	2.327	.6765E-04
12.860	1.052	.6576E-05	18.710	2.330	.6613E-04
13.010	1.032	.4018E-05	18.860	2.319	.6390E-04
13.160	1.037	.4475E-05	19.010	2.338	.6319E-04
13.310	1.079	.9313E-05	19.160	2.371	.6312E-04
13.460	1.068	.7896E-05	19.310	2.527	.6853E-04
13.610	1.000	0.	19.460	2.763	.7714E-04
13.760	1.011	.1258E-05	19.610	3.040	.8699E-04
13.910	1.060	.6567E-05	19.760	3.359	.9805E-04
14.060	1.062	.6586E-05	19.910	3.712	.1099E-03
14.210	1.026	.2686E-05	20.060	4.210	.1268E-03
14.360	1.042	.4267E-05	20.210	4.713	.1430E-03
14.510	1.099	.9817E-05	20.360	4.847	.1444E-03
14.660	1.128	.1246E-04	20.510	4.711	.1358E-03
14.810	1.089	.8389E-05	20.660	4.527	.1258E-03
14.960	1.103	.9538E-05	20.810	4.538	.1231E-03
15.110	1.201	.1821E-04	20.960	4.845	.1304E-03
15.260	1.180	.1589E-04	21.110	5.275	.1414E-03
15.410	1.171	.1474E-04	21.260	5.626	.1493E-03
15.560	1.285	.2403E-04	21.410	5.903	.1543E-03
15.710	1.343	.2822E-04	21.560	6.384	.1652E-03
15.860	1.278	.2233E-04	21.710	7.004	.1797E-03
16.010	1.231	.1813E-04	21.860	7.203	.1811E-03
16.160	1.358	.2743E-04	22.010	6.470	.1558E-03
16.310	1.551	.4129E-04	22.160	5.278	.1188E-03
16.460	1.625	.4566E-04	22.310	4.415	.9249E-04

TABLE A36. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.460	4.125	.8255E-04	28.310	2.689	.1727E-04
22.610	4.146	.8104E-04	28.460	2.283	.1281E-04
22.760	4.086	.7755E-04	28.610	1.456	.4441E-05
22.910	4.095	.7583E-04	28.760	1.365	.3472E-05
23.060	4.002	.7174E-04	28.910	1.494	.4589E-05
23.210	3.680	.6247E-04	29.060	.718	-.2557E-05
23.360	3.716	.6175E-04	29.210	.538	-.4093E-05
23.510	4.548	.7866E-04	29.360	1.460	.3977E-05
23.660	5.248	.9185E-04	29.510	2.010	.8538E-05
23.810	5.360	.9194E-04	29.660	1.751	.6193E-05
23.960	5.154	.8549E-04	29.810	1.149	.1200E-05
24.110	4.473	.6976E-04	29.960	1.349	.2745E-05
24.260	4.047	.5973E-04	30.110	1.347	.2667E-05
24.410	4.213	.6146E-04	30.260	1.180	.1348E-05
24.560	4.414	.6375E-04	30.410	1.178	.1306E-05
24.710	4.647	.6646E-04	30.560	2.125	.8043E-05
24.860	4.955	.7035E-04	30.710	2.088	.7595E-05
25.010	4.670	.6371E-04	30.860	1.034	.2302E-06
25.160	4.140	.5320E-04			
25.310	4.018	.4991E-04			
25.460	3.996	.4836E-04			
25.610	4.120	.4914E-04			
25.760	4.187	.4899E-04			
25.910	3.763	.4146E-04			
26.060	3.097	.3071E-04			
26.210	2.611	.2303E-04			
26.360	2.771	.2470E-04			
26.510	2.934	.2633E-04			
26.660	2.877	.2495E-04			
26.810	2.876	.2435E-04			
26.960	2.851	.2346E-04			
27.110	2.643	.2034E-04			
27.260	2.526	.1844E-04			
27.410	2.556	.1837E-04			
27.560	2.128	.1300E-04			
27.710	1.600	.6751E-05			
27.860	1.769	.8447E-05			
28.010	1.900	.9657E-05			
28.160	2.282	.1343E-04			

TABLE A37. LIDAR DATA TAKEN ON NOVEMBER 4, 1982, AT GMT 2053-2122 BETWEEN 40.5°N, 104.6°W AND 42.5°N, 103.7°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.369	1.371	.5624E-04	17.219	1.870	.5545E-04
11.519	1.347	.5155E-04	17.369	1.940	.5834E-04
11.669	1.311	.4531E-04	17.519	2.006	.6084E-04
11.819	1.256	.3663E-04	17.669	2.009	.5944E-04
11.969	1.194	.2725E-04	17.819	2.057	.6063E-04
12.119	1.128	.1768E-04	17.969	2.078	.6028E-04
12.269	1.093	.1254E-04	18.119	2.132	.6164E-04
12.419	1.092	.1214E-04	18.269	2.189	.6307E-04
12.569	1.089	.1153E-04	18.419	2.242	.6417E-04
12.719	1.061	.7664E-05	18.569	2.299	.6539E-04
12.869	1.011	.1339E-05	18.719	2.373	.6745E-04
13.019	1.000	0.	18.869	2.506	.7215E-04
13.169	1.046	.5490E-05	19.019	2.650	.7713E-04
13.319	1.064	.7401E-05	19.169	2.713	.7813E-04
13.469	1.023	.2656E-05	19.319	2.789	.7964E-04
13.619	1.001	.7823E-07	19.469	2.996	.8669E-04
13.769	1.019	.2115E-05	19.619	3.237	.9477E-04
13.919	1.003	.2994E-06	19.769	3.358	.9747E-04
14.069	1.008	.8835E-06	19.919	3.620	.1057E-03
14.219	1.049	.4980E-05	20.069	3.934	.1154E-03
14.369	1.046	.4585E-05	20.219	4.152	.1210E-03
14.519	1.024	.2341E-05	20.369	4.387	.1268E-03
14.669	1.018	.1668E-05	20.519	4.684	.1346E-03
14.819	1.027	.2473E-05	20.669	5.002	.1426E-03
14.969	1.036	.3282E-05	20.819	5.438	.1542E-03
15.119	1.058	.5191E-05	20.969	5.965	.1682E-03
15.269	1.100	.8708E-05	21.119	6.457	.1802E-03
15.419	1.192	.1635E-04	21.269	6.854	.1885E-03
15.569	1.271	.2255E-04	21.419	7.137	.1927E-03
15.719	1.348	.2835E-04	21.569	7.268	.1919E-03
15.869	1.394	.3139E-04	21.719	7.271	.1871E-03
16.019	1.391	.3042E-04	21.869	7.430	.1871E-03
16.169	1.403	.3066E-04	22.019	7.479	.1838E-03
16.319	1.515	.3835E-04	22.169	7.622	.1832E-03
16.469	1.689	.5006E-04	22.319	8.048	.1901E-03
16.619	1.859	.6077E-04	22.469	8.677	.2018E-03
16.769	1.799	.5507E-04	22.619	9.595	.2203E-03
16.919	1.745	.5001E-04	22.769	10.400	.2349E-03
17.069	1.829	.5422E-04	22.919	10.148	.2229E-03

TABLE A37. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.069	9.290	.1969E-03	28.919	2.166	.1086E-04
23.219	8.658	.1774E-03	29.069	2.622	.1475E-04
23.369	8.080	.1599E-03	29.219	2.736	.1541E-04
23.519	7.669	.1468E-03	29.369	2.296	.1123E-04
23.669	7.420	.1378E-03	29.519	2.076	.9097E-05
23.819	7.100	.1277E-03	29.669	2.148	.9481E-05
23.969	6.654	.1155E-03	29.819	2.148	.9252E-05
24.119	6.116	.1021E-03	29.969	1.649	.5105E-05
24.269	5.702	.9168E-04	30.119	1.112	.8599E-06
24.419	5.468	.8508E-04	30.269	1.076	.5731E-06
24.569	5.290	.7980E-04	30.419	1.517	.3782E-05
24.719	5.211	.7651E-04	30.569	1.694	.4958E-05
24.869	5.134	.7336E-04	30.719	2.166	.8134E-05
25.019	5.090	.7091E-04	30.869	2.227	.8356E-05
25.169	4.971	.6725E-04			
25.319	4.955	.6542E-04			
25.469	4.976	.6424E-04			
25.619	4.758	.5930E-04			
25.769	4.481	.5366E-04			
25.919	4.166	.4767E-04			
26.069	3.753	.4049E-04			
26.219	3.369	.3403E-04			
26.369	3.027	.2845E-04			
26.519	2.246	.1707E-04			
26.669	1.805	.1076E-04			
26.819	2.069	.1396E-04			
26.969	2.186	.1512E-04			
27.119	2.286	.1600E-04			
27.269	2.473	.1788E-04			
27.419	2.424	.1689E-04			
27.569	2.437	.1663E-04			
27.719	2.469	.1660E-04			
27.869	2.666	.1837E-04			
28.019	2.583	.1704E-04			
28.169	2.258	.1321E-04			
28.319	1.994	.1020E-04			
28.469	2.153	.1155E-04			
28.619	2.526	.1492E-04			
28.769	2.389	.1325E-04			

TABLE A38. LIDAR DATA TAKEN ON NOVEMBER 4, 1982, AT GMT 2142-2151 BETWEEN 43.8°N, 103.0°W AND 44.3°N, 102.8°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.369	1.662	.1003E-03	17.219	2.175	.7489E-04
11.519	1.604	.8985E-04	17.369	2.237	.7678E-04
11.669	1.526	.7678E-04	17.519	2.266	.7656E-04
11.819	1.483	.6917E-04	17.669	2.146	.6749E-04
11.969	1.436	.6129E-04	17.819	2.173	.6728E-04
12.119	1.363	.5002E-04	17.969	2.248	.6973E-04
12.269	1.359	.4832E-04	18.119	2.311	.7137E-04
12.419	1.387	.5105E-04	18.269	2.427	.7571E-04
12.569	1.348	.4490E-04	18.419	2.494	.7720E-04
12.719	1.317	.4009E-04	18.569	2.530	.7705E-04
12.869	1.264	.3267E-04	18.719	2.594	.7828E-04
13.019	1.286	.3455E-04	18.869	2.631	.7814E-04
13.169	1.331	.3916E-04	19.019	2.749	.8175E-04
13.319	1.333	.3858E-04	19.169	2.906	.8693E-04
13.469	1.262	.2976E-04	19.319	3.158	.9605E-04
13.619	1.207	.2295E-04	19.469	3.446	.1062E-03
13.769	1.142	.1537E-04	19.619	3.571	.1089E-03
13.919	1.253	.2691E-04	19.769	3.819	.1165E-03
14.069	1.377	.3920E-04	19.919	4.251	.1311E-03
14.219	1.333	.3383E-04	20.069	4.535	.1391E-03
14.369	1.155	.1537E-04	20.219	4.784	.1452E-03
14.519	1.057	.5583E-05	20.369	5.107	.1538E-03
14.669	1.205	.1948E-04	20.519	5.299	.1571E-03
14.819	1.244	.2273E-04	20.669	5.433	.1580E-03
14.969	1.147	.1340E-04	20.819	5.695	.1631E-03
15.119	1.056	.5000E-05	20.969	6.313	.1800E-03
15.269	1.000	0.	21.119	7.133	.2026E-03
15.419	1.124	.1053E-04	21.269	7.461	.2081E-03
15.569	1.212	.1764E-04	21.419	7.492	.2038E-03
15.719	1.273	.2224E-04	21.569	7.812	.2085E-03
15.869	1.388	.3093E-04	21.719	8.346	.2192E-03
16.019	1.691	.5380E-04	21.869	9.492	.2471E-03
16.169	1.891	.6788E-04	22.019	9.978	.2547E-03
16.319	1.858	.6393E-04	22.169	9.669	.2398E-03
16.469	1.723	.5249E-04	22.319	10.011	.2430E-03
16.619	1.872	.6169E-04	22.469	10.359	.2460E-03
16.769	2.326	.9143E-04	22.619	10.096	.2331E-03
16.919	2.179	.7918E-04	22.769	9.922	.2230E-03
17.069	1.930	.6085E-04	22.919	11.022	.2442E-03

TABLE A38. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.069	12.771	.2796E-03	28.919	2.763	.1642E-04
23.219	13.459	.2885E-03	29.069	2.884	.1713E-04
23.369	12.609	.2621E-03	29.219	3.283	.2026E-04
23.519	11.167	.2238E-03	29.369	2.938	.1679E-04
23.669	10.892	.2123E-03	29.519	1.923	.7809E-05
23.819	11.163	.2127E-03	29.669	1.247	.2041E-05
23.969	10.505	.1942E-03			
24.119	8.783	.1554E-03			
24.269	7.016	.1173E-03			
24.419	6.068	.9651E-04			
24.569	5.591	.8540E-04			
24.719	6.043	.9163E-04			
24.869	6.177	.9188E-04			
25.019	5.235	.7341E-04			
25.169	4.298	.5584E-04			
25.319	4.048	.5041E-04			
25.469	3.606	.4211E-04			
25.619	3.177	.3435E-04			
25.769	3.201	.3392E-04			
25.919	3.693	.4054E-04			
26.069	3.515	.3698E-04			
26.219	2.829	.2627E-04			
26.369	2.363	.1913E-04			
26.519	2.472	.2017E-04			
26.669	2.309	.1750E-04			
26.819	2.002	.1308E-04			
26.969	2.162	.1480E-04			
27.119	1.778	.9683E-05			
27.269	1.786	.9543E-05			
27.419	1.870	.1031E-04			
27.569	2.057	.1224E-04			
27.719	2.272	.1437E-04			
27.869	1.804	.8866E-05			
28.019	1.193	.2080E-05			
28.169	1.510	.5360E-05			
28.319	2.103	.1132E-04			
28.469	2.475	.1477E-04			
28.619	3.041	.1995E-04			
28.769	3.256	.2153E-04			

TABLE A39. LIDAR DATA TAKEN ON NOVEMBER 4, 1982, AT GMT 2156-2204 BETWEEN 44.5°N, 103.1°W AND 44.7°N, 104.0°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.369	1.489	.7400E-04	17.219	1.705	.4495E-04
11.519	1.437	.6497E-04	17.369	1.751	.4664E-04
11.669	1.424	.6179E-04	17.519	1.807	.4882E-04
11.819	1.394	.5645E-04	17.669	1.792	.4663E-04
11.969	1.353	.4961E-04	17.819	1.814	.4670E-04
12.119	1.346	.4769E-04	17.969	1.894	.4995E-04
12.269	1.295	.3971E-04	18.119	1.961	.5232E-04
12.419	1.292	.3848E-04	18.269	2.005	.5330E-04
12.569	1.274	.3540E-04	18.419	2.014	.5237E-04
12.719	1.192	.2420E-04	18.569	2.032	.5193E-04
12.869	1.224	.2771E-04	18.719	2.036	.5088E-04
13.019	1.252	.3052E-04	18.869	2.031	.4942E-04
13.169	1.150	.1776E-04	19.019	2.183	.5531E-04
13.319	1.097	.1125E-04	19.169	2.349	.6152E-04
13.469	1.135	.1533E-04	19.319	2.568	.6980E-04
13.619	1.184	.2046E-04	19.469	2.667	.7237E-04
13.769	1.113	.1227E-04	19.619	2.541	.6530E-04
13.919	1.000	0.	19.769	2.627	.6726E-04
14.069	1.121	.1260E-04	19.919	2.876	.7564E-04
14.219	1.319	.3244E-04	20.069	3.125	.8362E-04
14.369	1.223	.2218E-04	20.219	3.622	.1006E-03
14.519	1.181	.1765E-04	20.369	4.341	.1251E-03
14.669	1.343	.3259E-04	20.519	4.868	.1413E-03
14.819	1.270	.2510E-04	20.669	5.039	.1439E-03
14.969	1.134	.1215E-04	20.819	5.510	.1567E-03
15.119	1.278	.2471E-04	20.969	5.809	.1629E-03
15.269	1.437	.3799E-04	21.119	5.811	.1589E-03
15.419	1.267	.2271E-04	21.269	6.208	.1677E-03
15.569	1.126	.1049E-04	21.419	6.686	.1785E-03
15.719	1.240	.1952E-04	21.569	6.820	.1781E-03
15.869	1.138	.1100E-04	21.719	6.712	.1705E-03
16.019	1.326	.2540E-04	21.869	6.788	.1684E-03
16.169	1.675	.5141E-04	22.019	7.325	.1794E-03
16.319	1.649	.4833E-04	22.169	8.294	.2017E-03
16.469	1.351	.2551E-04	22.319	8.760	.2093E-03
16.619	1.244	.1727E-04	22.469	8.700	.2024E-03
16.769	1.560	.3863E-04	22.619	8.701	.1974E-03
16.919	1.895	.6010E-04	22.769	7.972	.1742E-03
17.069	2.120	.7326E-04	22.919	7.104	.1487E-03

TABLE A39. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.069	7.145	.1460E-03	28.919	1.151	.1404E-05
23.219	7.151	.1425E-03	29.069	2.079	.9812E-05
23.369	6.406	.1221E-03	29.219	2.827	.1622E-04
23.519	5.580	.1006E-03	29.369	2.610	.1395E-04
23.669	5.559	.9786E-04	29.519	1.576	.4874E-05
23.819	5.942	.1034E-03	29.669	1.164	.1354E-05
23.969	6.263	.1076E-03	29.819	1.979	.7887E-05
24.119	6.648	.1127E-03	29.969	1.296	.2332E-05
24.269	6.921	.1154E-03	30.119	.671	-.2528E-05
24.419	7.230	.1186E-03	30.269	1.298	.2237E-05
24.569	6.482	.1020E-03			
24.719	4.628	.6593E-04			
24.869	3.322	.4122E-04			
25.019	2.855	.3216E-04			
25.169	2.856	.3142E-04			
25.319	2.733	.2867E-04			
25.469	2.657	.2678E-04			
25.619	2.609	.2538E-04			
25.769	2.428	.2202E-04			
25.919	2.148	.1729E-04			
26.069	1.890	.1309E-04			
26.219	2.034	.1485E-04			
26.369	2.538	.2158E-04			
26.519	2.367	.1873E-04			
26.669	1.758	.1014E-04			
26.819	1.560	.7314E-05			
26.969	1.707	.9013E-05			
27.119	1.623	.7752E-05			
27.269	1.830	.1008E-04			
27.419	1.905	.1073E-04			
27.569	1.571	.6605E-05			
27.719	1.983	.1111E-04			
27.869	2.257	.1386E-04			
28.019	1.768	.8270E-05			
28.169	1.522	.5483E-05			
28.319	2.291	.1325E-04			
28.469	2.185	.1187E-04			
28.619	1.644	.6293E-05			
28.769	1.261	.2493E-05			

TABLE A40. LIDAR DATA TAKEN ON NOVEMBER 6, 1982, AT GMT 0010-0037 AT 41.1°N, 104.9°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
7.304	1.271	.6801E-04	13.154	1.111	.1244E-04
7.454	1.262	.6441E-04	13.304	1.080	.8794E-05
7.604	1.248	.5993E-04	13.454	1.076	.8176E-05
7.754	1.230	.5449E-04	13.604	1.068	.7190E-05
7.904	1.209	.4874E-04	13.754	1.062	.6395E-05
8.054	1.189	.4334E-04	13.904	1.129	.1296E-04
8.204	1.168	.3788E-04	14.054	1.189	.1853E-04
8.354	1.133	.2943E-04	14.204	1.231	.2218E-04
8.504	1.097	.2103E-04	14.354	1.295	.2768E-04
8.654	1.080	.1694E-04	14.504	1.357	.3279E-04
8.804	1.072	.1507E-04	14.654	1.468	.4196E-04
8.954	1.064	.1319E-04	14.804	1.550	.4822E-04
9.104	1.050	.1002E-04	14.954	1.525	.4500E-04
9.254	1.043	.8433E-05	15.104	1.423	.3548E-04
9.404	1.048	.9332E-05	15.254	1.307	.2519E-04
9.554	1.038	.7177E-05	15.404	1.267	.2138E-04
9.704	1.021	.3908E-05	15.554	1.334	.2617E-04
9.854	1.011	.1964E-05	15.704	1.444	.3398E-04
10.004	1.001	.2530E-06	15.854	1.504	.3770E-04
10.154	1.001	.2516E-06	16.004	1.495	.3621E-04
10.304	1.000	0.	16.154	1.486	.3476E-04
10.454	1.007	.1210E-05	16.304	1.529	.3695E-04
10.604	1.013	.2219E-05	16.454	1.592	.4034E-04
10.754	1.021	.3385E-05	16.604	1.657	.4367E-04
10.904	1.043	.6728E-05	16.754	1.738	.4793E-04
11.054	1.059	.9164E-05	16.904	1.801	.5073E-04
11.204	1.065	.9753E-05	17.054	1.831	.5134E-04
11.354	1.055	.8176E-05	17.204	1.867	.5229E-04
11.504	1.062	.8968E-05	17.354	1.883	.5196E-04
11.654	1.076	.1073E-04	17.504	1.890	.5111E-04
11.804	1.082	.1136E-04	17.654	1.907	.5081E-04
11.954	1.091	.1234E-04	17.804	1.953	.5211E-04
12.104	1.109	.1433E-04	17.954	1.999	.5328E-04
12.254	1.125	.1613E-04	18.104	2.007	.5244E-04
12.404	1.113	.1423E-04	18.254	2.021	.5187E-04
12.554	1.096	.1183E-04	18.404	2.046	.5183E-04
12.704	1.111	.1343E-04	18.554	2.033	.5001E-04
12.854	1.139	.1634E-04	18.704	2.047	.4945E-04
13.004	1.139	.1596E-04	18.854	2.057	.4876E-04

TABLE A40. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
19.004	2.069	.4811E-04	24.854	3.795	.4966E-04
19.154	2.104	.4851E-04	25.004	3.942	.5101E-04
19.304	2.133	.4859E-04	25.154	4.107	.5258E-04
19.454	2.191	.4990E-04	25.304	4.280	.5416E-04
19.604	2.298	.5305E-04	25.454	4.354	.5404E-04
19.754	2.382	.5517E-04	25.604	4.182	.5004E-04
19.904	2.673	.6520E-04	25.754	3.869	.4402E-04
20.054	3.397	.9117E-04	25.904	3.597	.3889E-04
20.204	4.364	.1249E-03	26.054	3.557	.3737E-04
20.354	5.052	.1469E-03	26.204	3.522	.3596E-04
20.504	5.444	.1573E-03	26.354	3.380	.3312E-04
20.654	5.659	.1610E-03	26.504	3.091	.2842E-04
20.804	5.753	.1604E-03	26.654	2.592	.2114E-04
20.954	5.928	.1625E-03	26.804	1.986	.1278E-04
21.104	6.066	.1631E-03	26.954	1.695	.8805E-05
21.254	6.258	.1654E-03	27.104	1.772	.9550E-05
21.404	6.650	.1736E-03	27.254	1.753	.9093E-05
21.554	7.119	.1836E-03	27.404	1.445	.5250E-05
21.704	7.080	.1782E-03	27.554	1.183	.2109E-05
21.854	6.527	.1582E-03	27.704	1.139	.1561E-05
22.004	6.171	.1446E-03	27.854	1.233	.2565E-05
22.154	6.345	.1460E-03	28.004	1.391	.4200E-05
22.304	6.588	.1491E-03	28.154	1.776	.8142E-05
22.454	6.468	.1425E-03	28.304	2.232	.1262E-04
22.604	6.266	.1345E-03	28.454	2.358	.1360E-04
22.754	6.711	.1420E-03	28.604	2.286	.1257E-04
22.904	7.513	.1581E-03	28.754	2.347	.1286E-04
23.054	7.660	.1627E-03	28.904	2.400	.1305E-04
23.204	7.728	.1559E-03	29.054	2.322	.1204E-04
23.354	7.009	.1359E-03	29.204	2.180	.1050E-04
23.504	5.420	.9768E-04	29.354	2.198	.1041E-04
23.654	4.285	.7090E-04	29.504	2.388	.1178E-04
23.804	4.058	.6448E-04	29.654	2.406	.1166E-04
23.954	4.430	.7057E-04	29.804	2.371	.1110E-04
24.104	5.235	.8503E-04	29.954	2.387	.1097E-04
24.254	5.115	.8062E-04	30.104	2.321	.1020E-04
24.404	4.771	.7210E-04	30.254	2.284	.9689E-05
24.554	4.863	.7208E-04	30.404	2.122	.8270E-05
24.704	4.302	.6012E-04	30.554	2.149	.8274E-05

TABLE A41. LIDAR DATA TAKEN ON NOVEMBER 7, 1982, AT GMT 2217-2237 BETWEEN 41.3°N, 100.2°W AND 41.4°N, 97.7°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.314	1.991	.1763E-03	16.164	1.496	.3632E-04
10.464	1.888	.1553E-03	16.314	1.552	.3954E-04
10.614	1.811	.1389E-03	16.464	1.601	.4196E-04
10.764	1.771	.1291E-03	16.614	1.676	.4607E-04
10.914	1.672	.1100E-03	16.764	1.747	.4968E-04
11.064	1.564	.9030E-04	16.914	1.833	.5404E-04
11.214	1.495	.7761E-04	17.064	1.941	.5957E-04
11.364	1.454	.6952E-04	17.214	2.051	.6488E-04
11.514	1.431	.6453E-04	17.364	2.152	.6941E-04
11.664	1.396	.5798E-04	17.514	2.260	.7407E-04
11.814	1.362	.5189E-04	17.664	2.329	.7623E-04
11.964	1.334	.4685E-04	17.814	2.305	.7302E-04
12.114	1.301	.4118E-04	17.964	2.286	.7019E-04
12.264	1.278	.3723E-04	18.114	2.355	.7218E-04
12.414	1.268	.3498E-04	18.264	2.457	.7573E-04
12.564	1.247	.3145E-04	18.414	2.533	.7775E-04
12.714	1.252	.3142E-04	18.564	2.564	.7732E-04
12.864	1.283	.3448E-04	18.714	2.614	.7778E-04
13.014	1.236	.2799E-04	18.864	2.670	.7844E-04
13.164	1.164	.1899E-04	19.014	2.736	.7951E-04
13.314	1.138	.1567E-04	19.164	2.779	.7942E-04
13.464	1.120	.1328E-04	19.314	2.866	.8121E-04
13.614	1.095	.1031E-04	19.464	3.090	.8866E-04
13.764	1.131	.1379E-04	19.614	3.329	.9628E-04
13.914	1.119	.1230E-04	19.764	3.717	.1095E-03
14.064	1.000	0.	19.914	4.422	.1345E-03
14.214	1.063	.6234E-05	20.064	4.999	.1532E-03
14.364	1.160	.1545E-04	20.214	5.238	.1582E-03
14.514	1.100	.9388E-05	20.364	5.572	.1664E-03
14.664	1.056	.5158E-05	20.514	6.120	.1816E-03
14.814	1.205	.1849E-04	20.664	6.607	.1942E-03
14.964	1.277	.2434E-04	20.814	7.089	.2059E-03
15.114	1.131	.1128E-04	20.964	7.537	.2158E-03
15.264	1.110	.9967E-05	21.114	7.894	.2222E-03
15.414	1.283	.2325E-04	21.264	8.096	.2234E-03
15.564	1.319	.2562E-04	21.414	8.046	.2165E-03
15.714	1.332	.2607E-04	21.564	8.186	.2156E-03
15.864	1.387	.2973E-04	21.714	8.389	.2165E-03
16.014	1.434	.3253E-04	21.864	8.514	.2150E-03

TABLE A41. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.014	8.022	.1962E-03	27.864	2.308	.1433E-04
22.164	7.281	.1713E-03	28.014	2.520	.1626E-04
22.314	7.129	.1633E-03	28.164	2.898	.1973E-04
22.464	7.088	.1583E-03	28.314	2.494	.1524E-04
22.614	7.325	.1606E-03	28.464	1.921	.9173E-05
22.764	7.937	.1720E-03	28.614	1.684	.6653E-05
22.914	8.182	.1739E-03	28.764	1.872	.8281E-05
23.064	8.154	.1691E-03	28.914	1.854	.7920E-05
23.214	8.121	.1644E-03	29.064	1.398	.3598E-05
23.364	8.076	.1595E-03	29.214	1.425	.3760E-05
23.514	8.137	.1571E-03	29.364	1.739	.6373E-05
23.664	8.269	.1562E-03	29.514	1.591	.4980E-05
23.814	8.246	.1520E-03	29.664	1.452	.3717E-05
23.964	7.938	.1421E-03	29.814	1.724	.5816E-05
24.114	7.194	.1238E-03	29.964	1.957	.7499E-05
24.264	6.252	.1025E-03	30.114	1.475	.3633E-05
24.414	5.475	.8526E-04	30.264	1.532	.3977E-05
24.564	4.590	.6676E-04			
24.714	3.415	.4383E-04			
24.864	2.434	.2541E-04			
25.014	1.978	.1692E-04			
25.164	1.640	.1081E-04			
25.314	1.659	.1086E-04			
25.464	2.376	.2213E-04			
25.614	2.532	.2406E-04			
25.764	2.402	.2149E-04			
25.914	3.119	.3171E-04			
26.064	3.682	.3918E-04			
26.214	3.693	.3840E-04			
26.364	3.557	.3559E-04			
26.514	3.233	.3035E-04			
26.664	2.527	.2027E-04			
26.814	1.912	.1182E-04			
26.964	2.167	.1476E-04			
27.114	2.079	.1333E-04			
27.264	1.919	.1109E-04			
27.414	2.865	.2196E-04			
27.564	3.259	.2596E-04			
27.714	2.697	.1904E-04			

TABLE A42. LIDAR DATA TAKEN ON NOVEMBER 7, 1982, AT GMT 2308-2318 BETWEEN 41.5°N, 94.0°W AND 41.5°N, 92.7°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
10.924	2.230	.2013E-03	16.774	1.932	.6189E-04
11.074	2.241	.1985E-03	16.924	1.987	.6390E-04
11.224	2.175	.1839E-03	17.074	2.009	.6378E-04
11.374	1.979	.1498E-03	17.224	2.142	.7040E-04
11.524	1.805	.1205E-03	17.374	2.252	.7533E-04
11.674	1.680	.9960E-04	17.524	2.246	.7315E-04
11.824	1.551	.7889E-04	17.674	2.208	.6920E-04
11.974	1.445	.6221E-04	17.824	2.296	.7243E-04
12.124	1.460	.6284E-04	17.974	2.372	.7477E-04
12.274	1.523	.6985E-04	18.124	2.413	.7514E-04
12.424	1.381	.4963E-04	18.274	2.478	.7671E-04
12.574	1.274	.3490E-04	18.424	2.525	.7720E-04
12.724	1.301	.3738E-04	18.574	2.498	.7396E-04
12.874	1.339	.4112E-04	18.724	2.420	.6832E-04
13.024	1.384	.4555E-04	18.874	2.366	.6404E-04
13.174	1.352	.4076E-04	19.024	2.421	.6499E-04
13.324	1.223	.2523E-04	19.174	2.485	.6617E-04
13.474	1.170	.1876E-04	19.324	2.682	.7307E-04
13.624	1.226	.2442E-04	19.474	3.167	.9176E-04
13.774	1.214	.2253E-04	19.624	3.857	.1180E-03
13.924	1.258	.2656E-04	19.774	4.541	.1425E-03
14.074	1.252	.2543E-04	19.924	5.061	.1593E-03
14.224	1.070	.6869E-05	20.074	5.331	.1656E-03
14.374	1.000	0.	20.224	5.593	.1712E-03
14.524	1.028	.2593E-05	20.374	5.721	.1715E-03
14.674	1.026	.2436E-05	20.524	5.499	.1594E-03
14.824	1.007	.6136E-06	20.674	5.585	.1585E-03
14.974	1.168	.1477E-04	20.824	5.887	.1650E-03
15.124	1.376	.3226E-04	20.974	6.356	.1766E-03
15.274	1.481	.4041E-04	21.124	6.937	.1911E-03
15.424	1.480	.3941E-04	21.274	7.173	.1940E-03
15.574	1.517	.4144E-04	21.424	7.343	.1946E-03
15.724	1.432	.3390E-04	21.574	7.378	.1911E-03
15.874	1.359	.2752E-04	21.724	6.542	.1621E-03
16.024	1.476	.3562E-04	21.874	4.990	.1140E-03
16.174	1.568	.4159E-04	22.024	3.868	.8001E-04
16.324	1.655	.4684E-04	22.174	3.527	.6884E-04
16.474	1.618	.4311E-04	22.324	3.673	.7109E-04
16.624	1.770	.5242E-04	22.474	4.522	.9146E-04

TABLE A42. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
22.624	5.505	.1142E-03	28.474	2.452	.1444E-04
22.774	6.043	.1248E-03	28.624	2.404	.1363E-04
22.924	6.214	.1261E-03	28.774	2.370	.1298E-04
23.074	5.988	.1177E-03	28.924	2.376	.1273E-04
23.224	5.499	.1037E-03	29.074	2.146	.1036E-04
23.374	5.181	.9409E-04	29.224	2.182	.1043E-04
23.524	4.700	.8130E-04	29.374	2.145	.9863E-05
23.674	4.121	.6698E-04	29.524	2.439	.1210E-04
23.824	4.264	.6839E-04	29.674	2.701	.1397E-04
23.974	4.183	.6510E-04	29.824	2.598	.1281E-04
24.124	4.469	.6924E-04	29.974	1.971	.7604E-05
24.274	5.579	.8922E-04	30.124	1.466	.3562E-05
24.424	6.181	.9856E-04	30.274	1.464	.3461E-05
24.574	6.050	.9376E-04	30.424	1.933	.6801E-05
24.724	5.725	.8563E-04	30.574	2.243	.8840E-05
24.874	5.166	.7371E-04	30.724	2.337	.9289E-05
25.024	4.537	.6108E-04			
25.174	4.278	.5526E-04			
25.324	4.024	.4976E-04			
25.474	3.875	.4619E-04			
25.624	3.638	.4137E-04			
25.774	2.761	.2695E-04			
25.924	2.533	.2291E-04			
26.074	3.154	.3142E-04			
26.224	3.160	.3076E-04			
26.374	3.129	.2960E-04			
26.524	3.476	.3360E-04			
26.674	3.080	.2756E-04			
26.824	2.611	.2084E-04			
26.974	2.506	.1902E-04			
27.124	2.117	.1378E-04			
27.274	1.875	.1054E-04			
27.424	2.009	.1186E-04			
27.574	2.434	.1646E-04			
27.724	2.584	.1775E-04			
27.874	2.834	.2007E-04			
28.024	3.362	.2524E-04			
28.174	2.808	.1886E-04			
28.324	2.223	.1246E-04			

TABLE A43. LIDAR DATA TAKEN ON NOVEMBER 8, 1982, AT GMT 0040-0101 BETWEEN 40.2°N, 83.0°W AND 39.7°N, 80.4°W

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
11.674	1.341	.4892E-04	17.524	1.762	.4418E-04
11.824	1.268	.3757E-04	17.674	1.776	.4386E-04
11.974	1.253	.3464E-04	17.824	1.790	.4354E-04
12.124	1.247	.3299E-04	17.974	1.795	.4271E-04
12.274	1.195	.2542E-04	18.124	1.825	.4323E-04
12.424	1.173	.2208E-04	18.274	1.868	.4429E-04
12.574	1.189	.2354E-04	18.424	1.853	.4246E-04
12.724	1.171	.2089E-04	18.574	1.871	.4233E-04
12.874	1.098	.1168E-04	18.724	1.930	.4417E-04
13.024	1.084	.9816E-05	18.874	1.979	.4546E-04
13.174	1.101	.1145E-04	19.024	2.057	.4802E-04
13.324	1.064	.7152E-05	19.174	2.249	.5545E-04
13.474	1.012	.1326E-05	19.324	2.465	.6358E-04
13.624	1.019	.2057E-05	19.474	2.630	.6918E-04
13.774	1.039	.4024E-05	19.624	2.804	.7487E-04
13.924	1.049	.4992E-05	19.774	2.957	.7939E-04
14.074	1.032	.3217E-05	19.924	3.070	.8209E-04
14.224	1.000	0.	20.074	3.261	.8767E-04
14.374	1.052	.4905E-05	20.224	3.792	.1058E-03
14.524	1.151	.1403E-04	20.374	4.433	.1273E-03
14.674	1.175	.1588E-04	20.524	4.806	.1379E-03
14.824	1.105	.9311E-05	20.674	4.841	.1359E-03
14.974	1.092	.7975E-05	20.824	4.554	.1227E-03
15.124	1.181	.1534E-04	20.974	4.133	.1055E-03
15.274	1.274	.2274E-04	21.124	4.089	.1015E-03
15.424	1.340	.2763E-04	21.274	4.807	.1220E-03
15.574	1.368	.2926E-04	21.424	6.247	.1640E-03
15.724	1.336	.2618E-04	21.574	7.781	.2068E-03
15.874	1.387	.2944E-04	21.724	8.465	.2221E-03
16.024	1.473	.3526E-04	21.874	8.518	.2182E-03
16.174	1.452	.3293E-04	22.024	8.484	.2119E-03
16.324	1.395	.2814E-04	22.174	8.452	.2058E-03
16.474	1.444	.3080E-04	22.324	8.778	.2096E-03
16.624	1.508	.3432E-04	22.474	11.321	.2713E-03
16.774	1.567	.3739E-04	22.624	14.781	.3534E-03
16.924	1.618	.3973E-04	22.774	16.530	.3885E-03
17.074	1.642	.4020E-04	22.924	16.826	.3862E-03
17.224	1.680	.4152E-04	23.074	15.739	.3509E-03
17.374	1.723	.4302E-04	23.224	14.204	.3067E-03

TABLE A43. Concluded

Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$	Altitude, km	Scattering ratio	Scattering function, $(km\text{-}sr)^{-1}$
23.374	13.855	.2913E-03	29.224	1.146	.1299E-05
23.524	13.232	.2704E-03	29.374	1.232	.2020E-05
23.674	10.683	.2088E-03	29.524	1.271	.2298E-05
23.824	8.372	.1551E-03	29.674	1.242	.2006E-05
23.974	7.356	.1305E-03	29.824	1.362	.2935E-05
24.124	6.091	.1020E-03	29.974	1.246	.1948E-05
24.274	5.436	.8672E-04	30.124	1.107	.8258E-06
24.424	5.221	.8053E-04	30.274	1.178	.1348E-05
24.574	4.403	.6335E-04	30.424	1.208	.1533E-05
24.724	3.580	.4686E-04	30.574	1.155	.1118E-05
24.874	3.376	.4212E-04	30.724	1.124	.8758E-06
25.024	3.546	.4405E-04	30.874	1.234	.1608E-05
25.174	3.578	.4352E-04			
25.324	3.368	.3901E-04			
25.474	3.127	.3419E-04			
25.624	2.836	.2881E-04			
25.774	2.650	.2526E-04			
25.924	2.618	.2417E-04			
26.074	2.659	.2419E-04			
26.224	2.706	.2427E-04			
26.374	2.812	.2515E-04			
26.524	2.992	.2701E-04			
26.674	3.064	.2734E-04			
26.824	2.967	.2545E-04			
26.974	2.615	.2041E-04			
27.124	2.267	.1564E-04			
27.274	2.055	.1272E-04			
27.424	2.148	.1353E-04			
27.574	2.270	.1462E-04			
27.724	2.122	.1262E-04			
27.874	1.741	.8139E-05			
28.024	1.405	.4341E-05			
28.174	1.291	.3047E-05			
28.324	1.381	.3902E-05			
28.474	1.344	.3444E-05			
28.624	1.243	.2378E-05			
28.774	1.234	.2232E-05			
28.924	1.241	.2243E-05			
29.074	1.231	.2105E-05			

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16. Abstract

A coordinated flight mission to determine the spatial distribution and aerosol characteristics of the El Chichon–produced stratospheric aerosol was flown in October to November 1982. The mission covered 46°N to 46°S and included rendezvous between balloon-, airplane-, and satellite-borne sensors. This report presents the lidar data from the flight mission. Representative profiles of lidar backscatter ratio, plots of the integrated backscattering function versus latitude, and contours of backscatter mixing ratio versus altitude and latitude are given. In addition, tables containing numerical values of the backscatter ratio and backscattering function versus altitude are supplied for each profile. The bulk of the material produced by the El Chichon eruptions of late March–early April 1982 resided between latitudes from 5–7°S to 35–37°N and was concentrated above 21 km in a layer that peaked at 23 to 25 km. In this latitude region, peak scattering ratios at a wavelength of 0.6943 μm were approximately 24. This report presents the results of this mission in a ready-to-use format for atmospheric and climatic studies.

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