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**Airborne Lidar Measurements
of El Chichon Stratospheric
Aerosols**

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and M. T. Osborn

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National Aeronautics
and Space Administration

Scientific and Technical
Information Branch

Preface

This is the second in a series of reports presenting results from five extensive lidar flight missions. 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 27°N to 76°N in January to February 1983. The results from the October to November 1982 mission, which covered 46°N to 46°S, were reported by McCormick and Osborn in NASA Reference Publication 1136, *Airborne Lidar Measurements of El Chichon Stratospheric Aerosols—October 1982 to November 1982*. The other three missions took place in July 1982, 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 Canadian and Greenland air bases 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.

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Summary

This report presents lidar data from a flight mission in January to February 1983 between 27°N and 76°N. One of the primary purposes of this mission was to determine the spatial distribution and aerosol characteristics of the El Chichon-produced stratospheric material. 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 most massive portion of the material produced by the El Chichon eruptions of late March-early April 1982, which was measured by this flight, resided between 35°N and 52°N. Peak backscatter ratios at a wavelength of 0.6943 μm decreased from 8 to 10 at the lower latitudes to 3 at the higher latitudes. Similarly, the altitudes of the peak scattering ratios decreased from about 20 km to 15 km with increasing latitude. Backscatter ratio profiles taken while crossing the polar vortex show that high-altitude material from El Chichon arrived at the north polar region sometime after the winter polar vortex was established. 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, one of the purposes of the January to February 1983 survey flight was to map its latitudinal distribution. A previous flight mission in October to November 1982 (ref. 1) had shown that this material was well dispersed north and south of the equator, but it was not known how much had reached the polar regions. The January to February 1983 flight mission had two additional objectives: to assist with the SAM II (Stratospheric Aerosol Measurement II) (ref. 2) correlative measurement program and, if possible, to locate and study the scattering characteristics of polar stratospheric clouds. To accomplish these goals, a NASA Electra airplane, outfitted with a lidar system, was flown during the period from January 27 to February 6, 1983, between latitudes of 27°N and 76°N. To assist with the execution of this mission, the SAM II data were made available in real time (approximately 12 hours delay), and a "quick-look" analysis was carried out. In this way, the airborne lidar could be directed to locations of special interest.

This report presents the results of the lidar stratospheric measurements taken over the entire mission. Although the mission failed to locate any polar stratospheric clouds, the other two mission objectives were accomplished. In addition, using real-time SAM II data, the airplane lidar was directed to take measurements while crossing the north polar vortex. More detailed scientific analyses of these results are contained in McCormick et al. (ref. 3).

Airborne Lidar System

The airborne lidar system used for the measurements presented in this report consists of a ruby laser, nominally emitting 1 joule per pulse at 1 pulse per 2 seconds 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. 4).

Flight Path

The flight path for the January to February 1983 mission is given in figure 1. The northbound and southbound flight legs are represented by solid lines and dashed lines, respectively. The flight leg on February 1, during which the airplane lidar flew west of Thule and returned along the same path, is represented by a single solid line.

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

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

where f_A is the aerosol backscattering function, or scattering function, and f_M is the molecular backscattering function, both in units of $(\text{km}\cdot\text{sr})^{-1}$ and both at altitude z (ref. 5). Representative vertical profiles of lidar scattering ratio for the flight survey are shown in figures 2 to 31. The error bars reflect the $1\text{-}\sigma$ uncertainty in the derived scattering ratio. The tropopause height is indicated by an arrow. Tables A2 to A31 (in the appendix) contain numerical values of the aerosol scattering ratio and scattering function versus altitude for each of these profiles.

The scattering-ratio profiles, reported at 0.15-km intervals, have been smoothed over 0.3 km. The minimum three-point running average over a specified altitude range was computed for each profile. The profiles were then normalized, so that this minimum was 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 the scattering ratio are less than 1, and the corresponding scattering functions are negative. This occurs near the normalization height and 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 31, the peak scattering ratios at $\lambda = 0.6943 \mu\text{m}$ decreased from a high of 8 to 10 at the lower latitudes to a low of 3 at 72°N , before increasing to 6 at 76°N . Similarly, the altitudes of the peak scattering ratios dropped from about 20 km at 27°N to about 15 km at 72°N . Dramatic changes in scattering-ratio profiles (especially above 18 km) were observed on February 1. These occurred because the flight path west of Thule crossed from inside to outside of the north polar vortex. From these profiles it can be inferred that the bulk of the higher altitude volcanic material (originally above 20 km at low latitudes) reached high latitudes sometime after the polar vortex was established. The material originally below about 20 km at low latitudes reached the Arctic region by the end of April 1982 (ref. 3).

Integrated Backscattering

The integrated aerosol backscattering function is defined as

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

where f_A is the aerosol backscattering function $(\text{km}\cdot\text{sr})^{-1}$ 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 January to February 1983 mission, except the February 1 flight leg west of Thule, is plotted in figure 32. The solid lines represent values computed from profiles taken on the northbound flight, and the dashed lines repre-

sent 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 33. Figures 32 and 33 show that the material produced by the El Chichon eruptions of late March-early April 1982 had moved northward since October 1982 (ref. 6). By January to February 1983, the amount of material at 75°N was roughly equal to the amount of material at 30°N , with the most massive portion of material between 35°N and 52°N .

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 34 and 35 contain the northbound and southbound contours, respectively. These figures clearly show that the altitude of the peak mixing ratio decreases with increasing latitude.

Optical Depth and Mass

By using the size distribution and index of refraction data from a six-channel dustsonde launch of January 28, 1983, at Laramie, Wyoming (41°N), an aerosol optical model was constructed. The model gives a conversion value from integrated backscattering to column density of $20.5 \text{ g}\cdot\text{sr}/\text{m}^2$ (ref. 7).

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 48 sr. Peak optical depth values of about 0.14 at $\lambda = 0.6943 \mu\text{m}$ were determined at 45°N . This value is as high as that measured at low latitudes during the October–November 1982 mission (ref. 6).

Concluding Remarks

This report has presented a summary of the lidar data obtained during the January to February 1983 flight mission. One purpose of this mission was to determine the spatial distribution of the El Chichon-produced stratospheric material. Vertical profiles of aerosol backscatter ratio were determined over the latitudes of the flight (27°N to 76°N). The peak scattering ratios at a wavelength of $0.6943 \mu\text{m}$ decreased from a high of 8 to 10 at the lower latitudes to a low of 3 at 72°N . Similarly, the altitudes of the peak scattering ratios decreased from about 20 km to 15 km with increasing latitude. Dramatic changes in the scattering ratios were observed as the flight path west of Thule crossed the

north polar vortex. These changes indicate that the higher altitude volcanic material had reached the north polar region sometime after the polar vortex was established. Plots of integrated backscattering values versus latitude show the most massive portion of the cloud produced by El Chichon resided between 35°N and 52°N, at least for the material that existed between the flight extremes of this particular mission. 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 the mission have been presented in a ready-to-use format for further scientific analysis.

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June 27, 1985

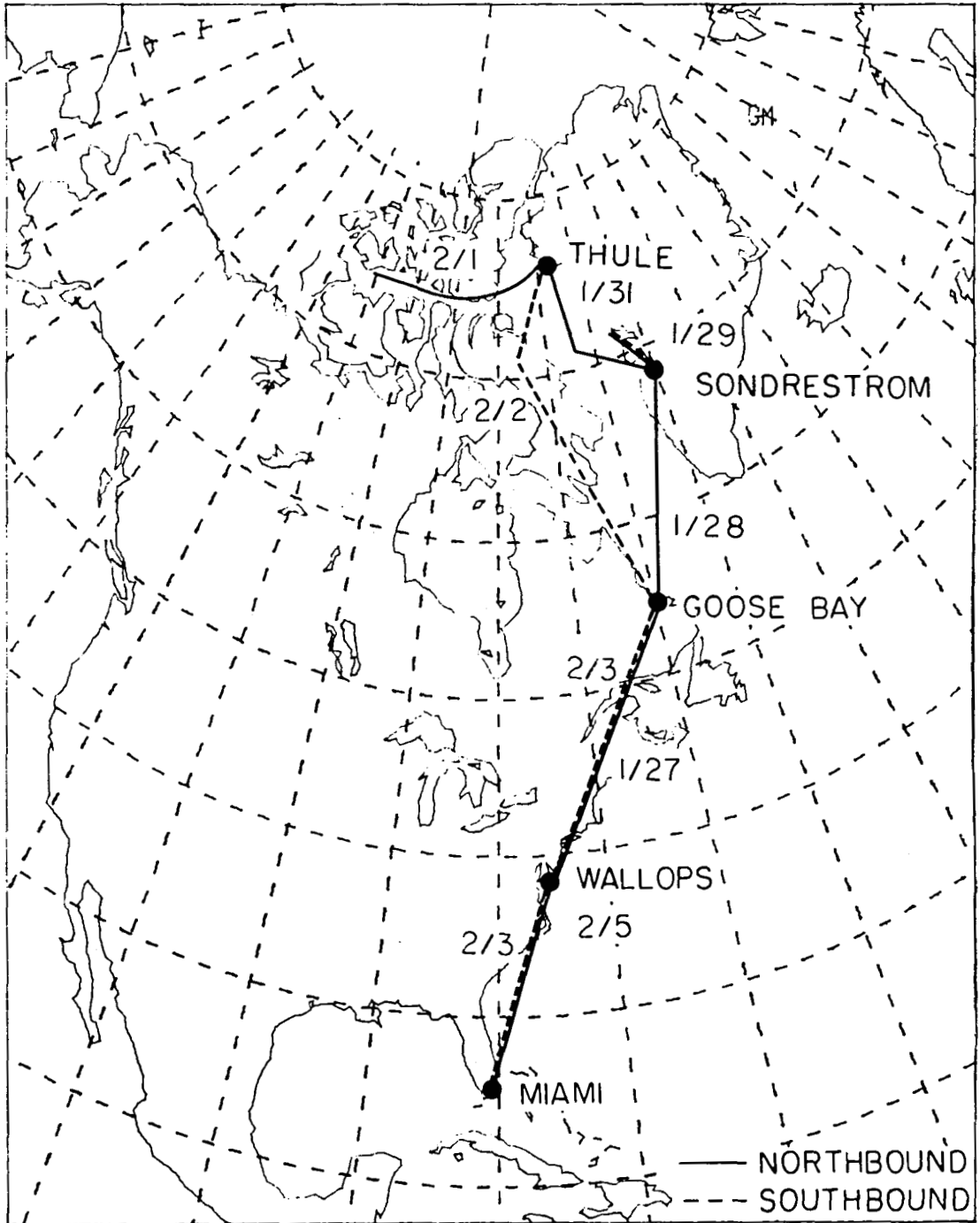


Figure 1. Flight path of NASA Electra airplane from January 27 to February 6, 1983.

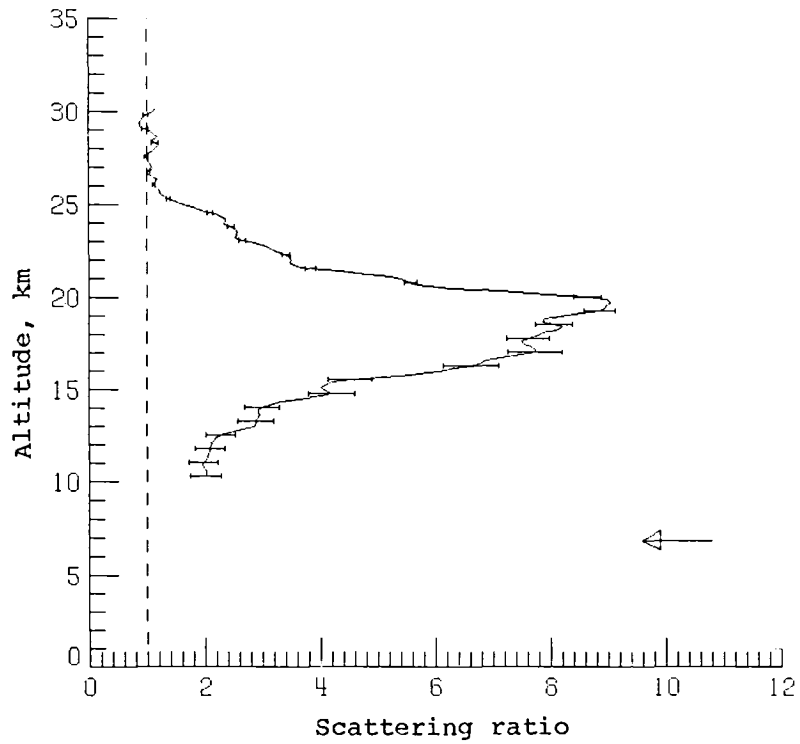


Figure 2. Lidar scattering-ratio profile taken on January 27, 1983, at GMT (Greenwich mean time) 2218–2234 between 47.3° N, 67.3° W and 48.8° N, 67.0° W.

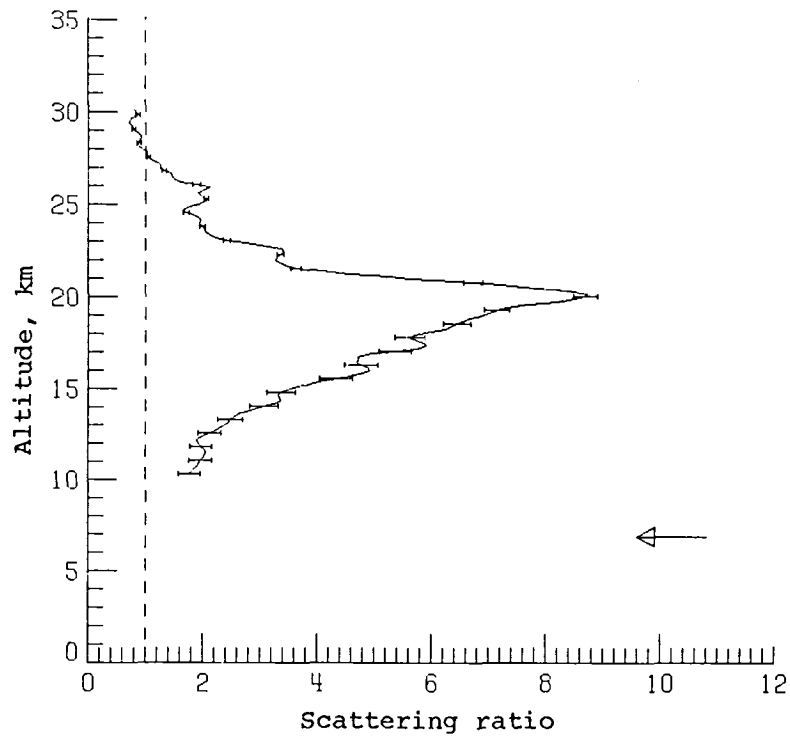


Figure 3. Lidar scattering-ratio profile taken on January 27, 1983, at GMT 2306–2322 between 51.3° N, 64.5° W and 52.4° N, 62.7° W.

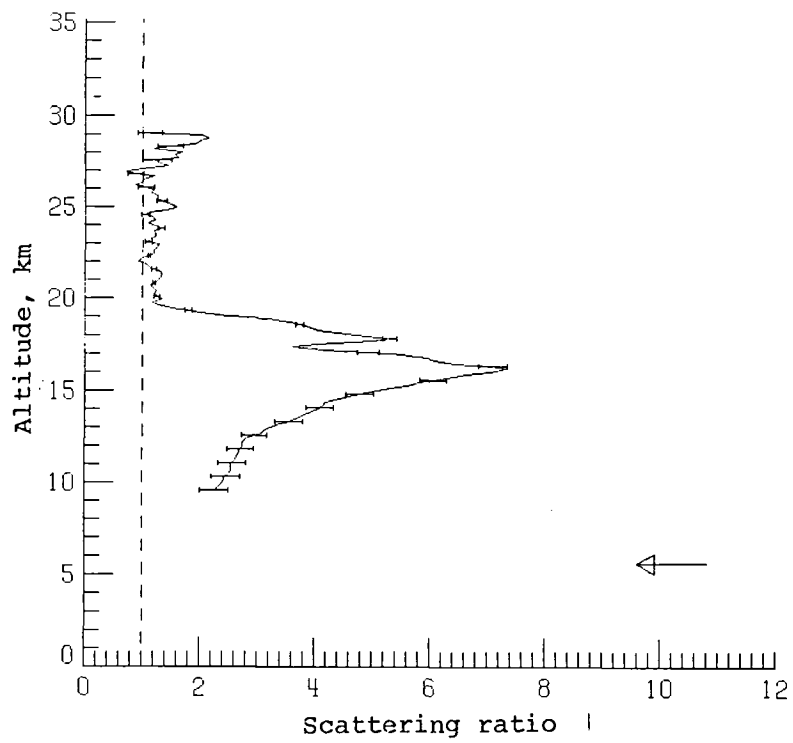


Figure 4. Lidar scattering-ratio profile taken on January 28, 1983, at GMT 1431-1443 between 58.7°N , 58.3°W and 59.6°N , 57.9°W .

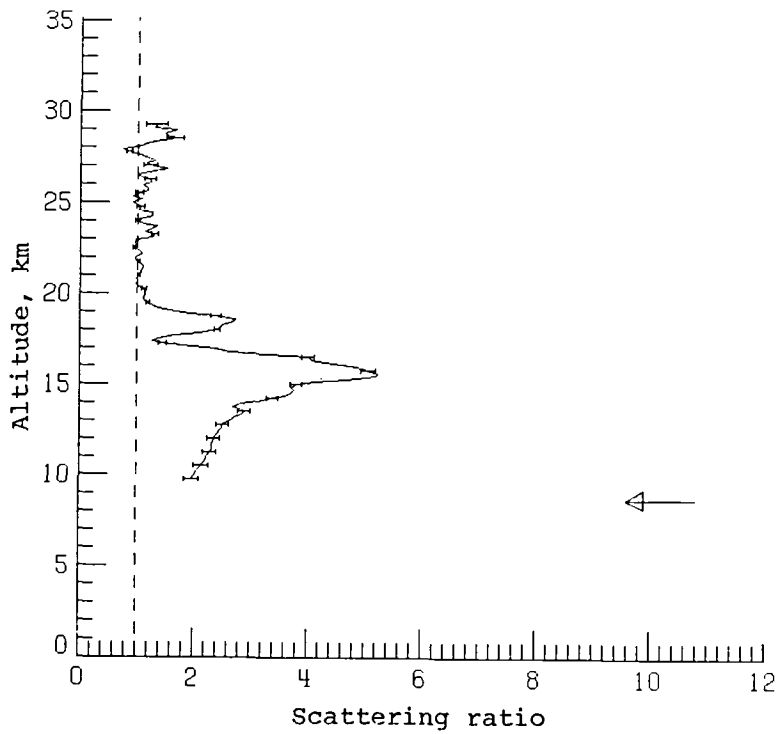


Figure 5. Lidar scattering-ratio profile taken on January 28, 1983, at GMT 1459-1509 between 60.8°N , 56.8°W and 61.6°N , 56.2°W .

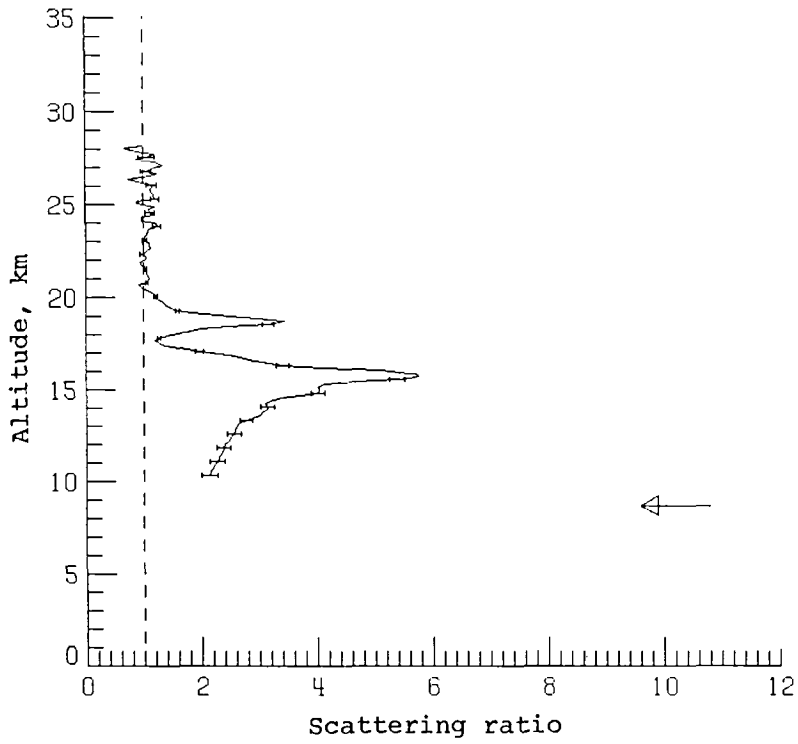


Figure 6. Lidar scattering-ratio profile taken on January 28, 1983, at GMT 1520-1530 between 62.5°N , 55.6°W and 63.3°N , 54.9°W .

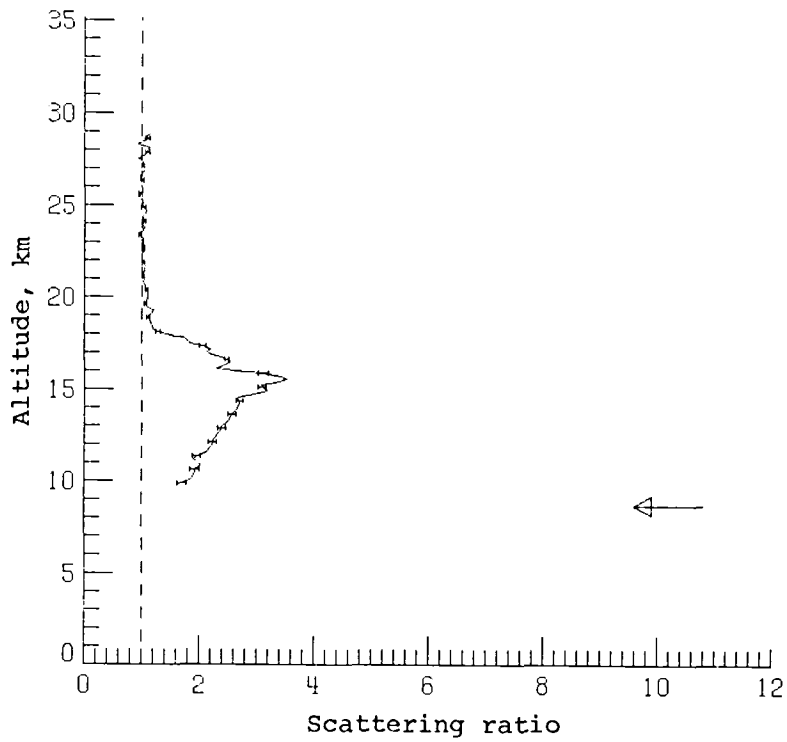


Figure 7. Lidar scattering-ratio profile taken on January 29, 1983, at GMT 1149-1156 between 69.4°N , 54.0°W and 69.9°N , 54.8°W .

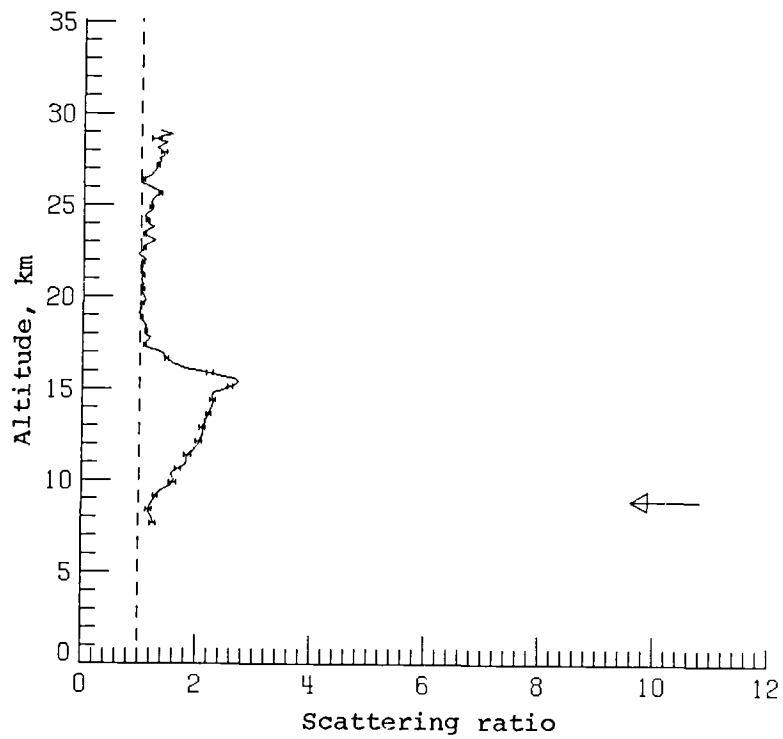


Figure 8. Lidar scattering-ratio profile taken on January 31, 1983, at GMT 1444-1503 between 71.4°N , 66.0°W and 72.7°N , 68.4°W .

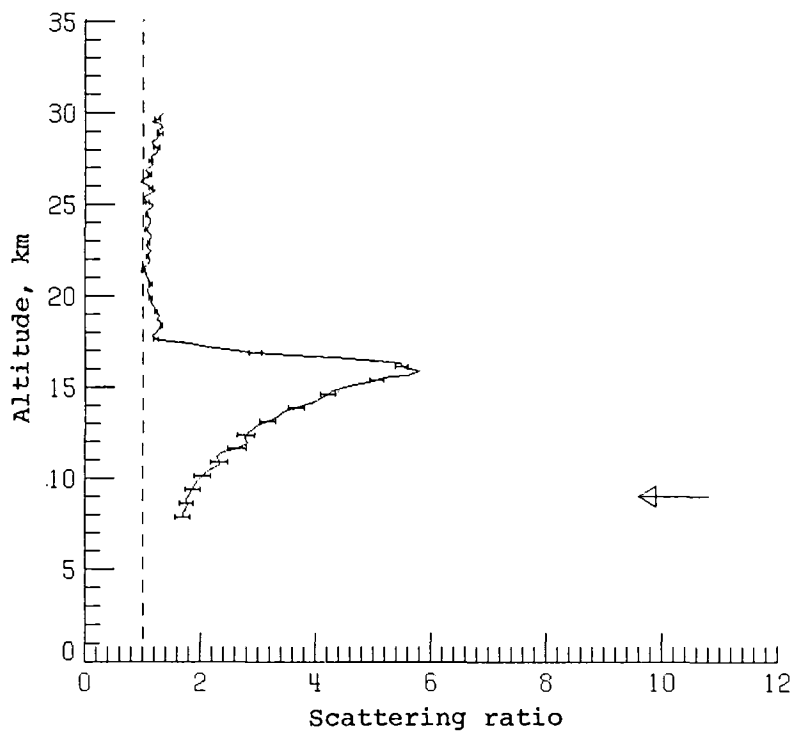


Figure 9. Lidar scattering-ratio profile taken on February 1, 1983, at GMT 1602-1615 between 76.2°N , 78.7°W and 76.0°N , 83.3°W .

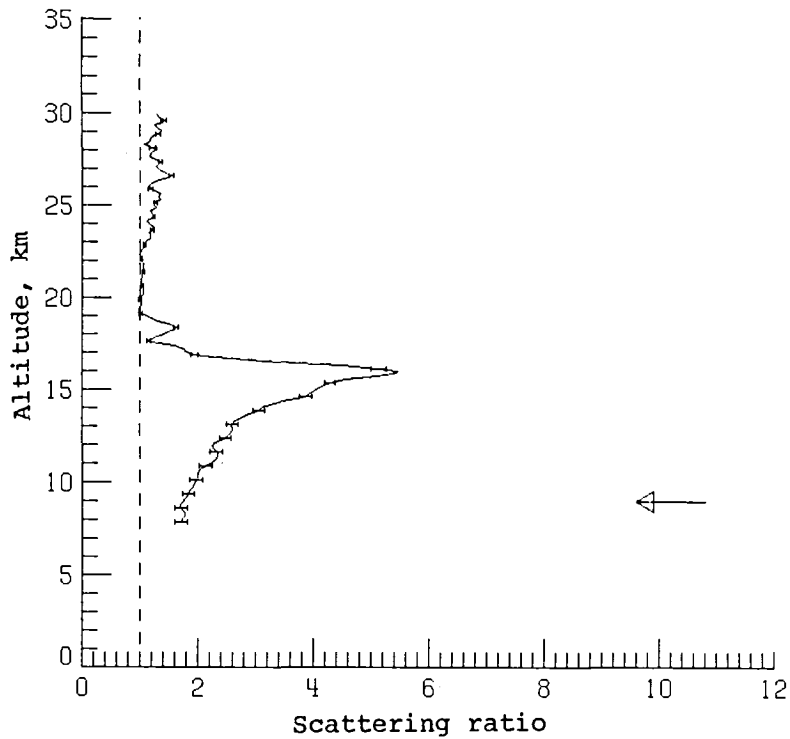


Figure 10. Lidar scattering-ratio profile taken on February 1, 1983, at GMT 1630–1644 between 75.5°N , 88.2°W and 75.0°N , 92.3°W .

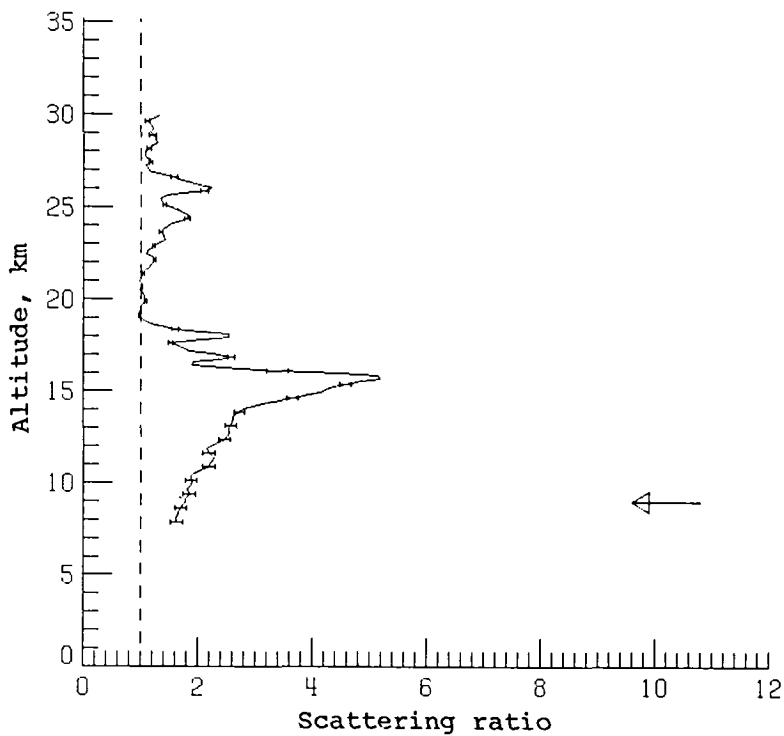


Figure 11. Lidar scattering-ratio profile taken on February 1, 1983, at GMT 1644–1653 between 75.0°N , 92.3°W and 74.8°N , 95.0°W .

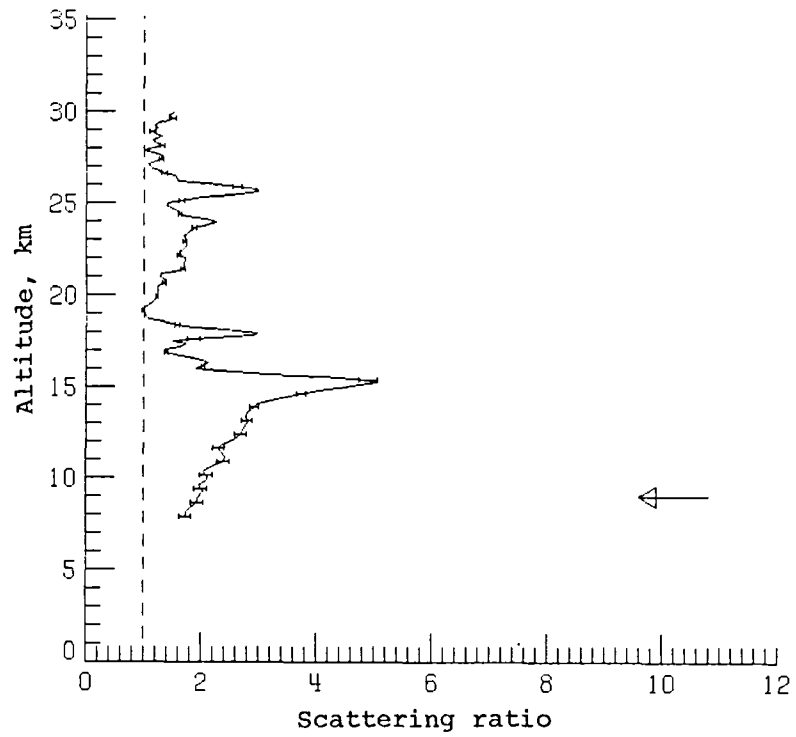


Figure 12. Lidar scattering-ratio profile taken on February 1, 1983, at GMT 1653-1702 between 74.8°N , 95.0°W and 74.9°N , 97.5°W .

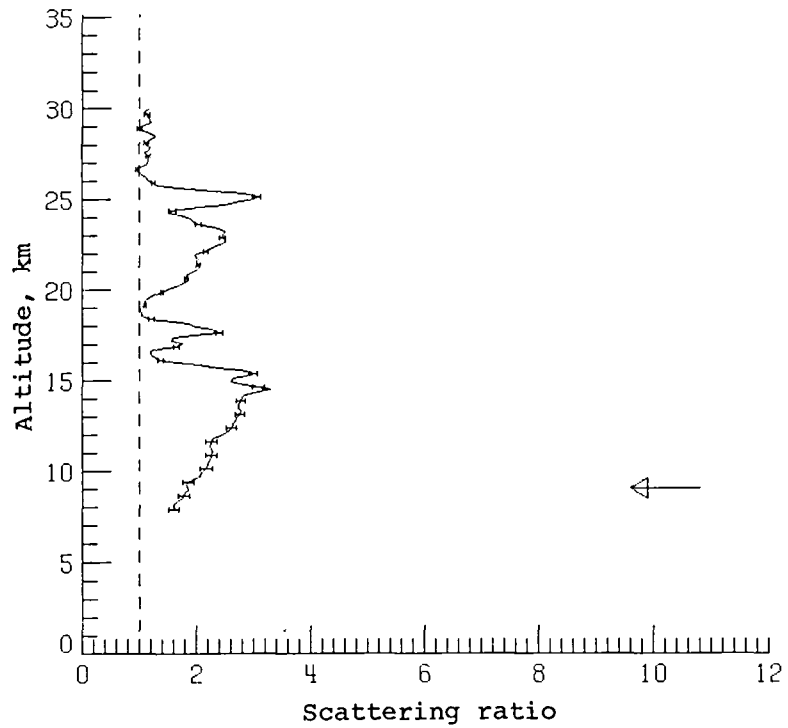


Figure 13. Lidar scattering-ratio profile taken on February 1, 1983, at GMT 1710-1718 between 75.1°N , 99.7°W and 75.2°N , 102.0°W .

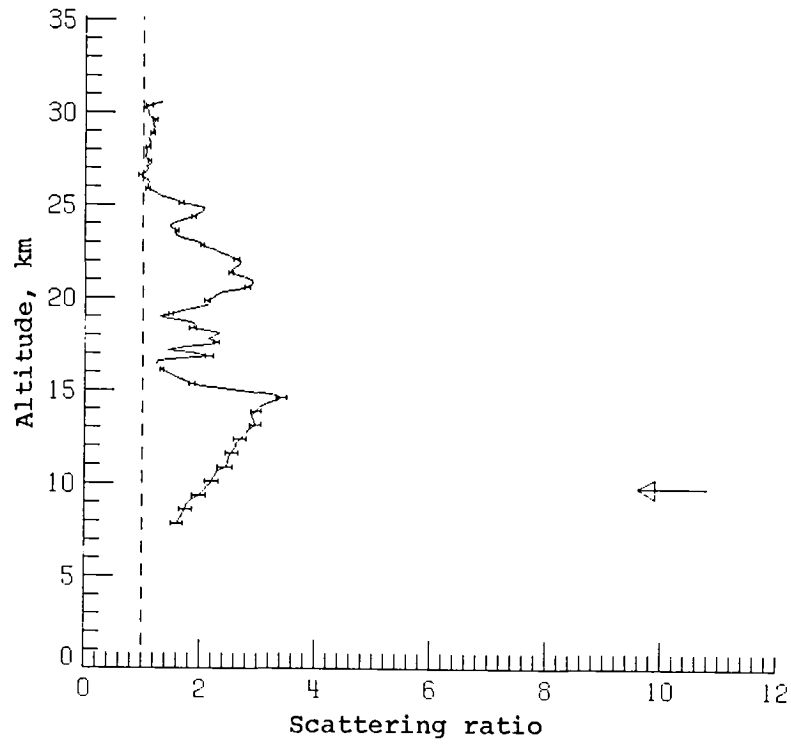


Figure 14. Lidar scattering-ratio profile taken on February 1, 1983, at GMT 1727-1736 between 75.3°N, 104.7°W and 75.3°N, 107.9°W.

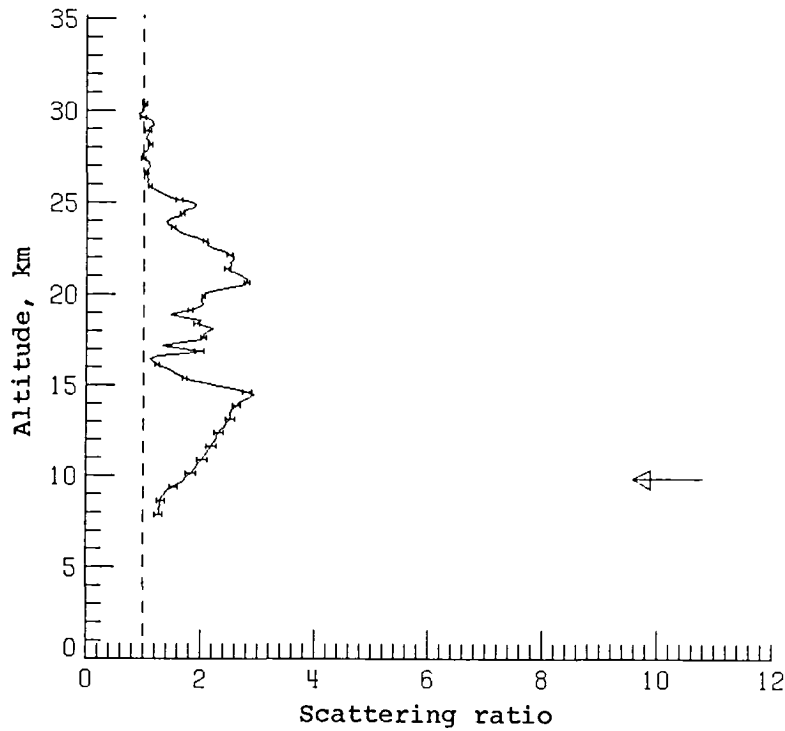


Figure 15. Lidar scattering-ratio profile taken on February 1, 1983, at GMT 1749-1801 between 75.4°N, 109.1°W and 75.3°N, 105.2°W.

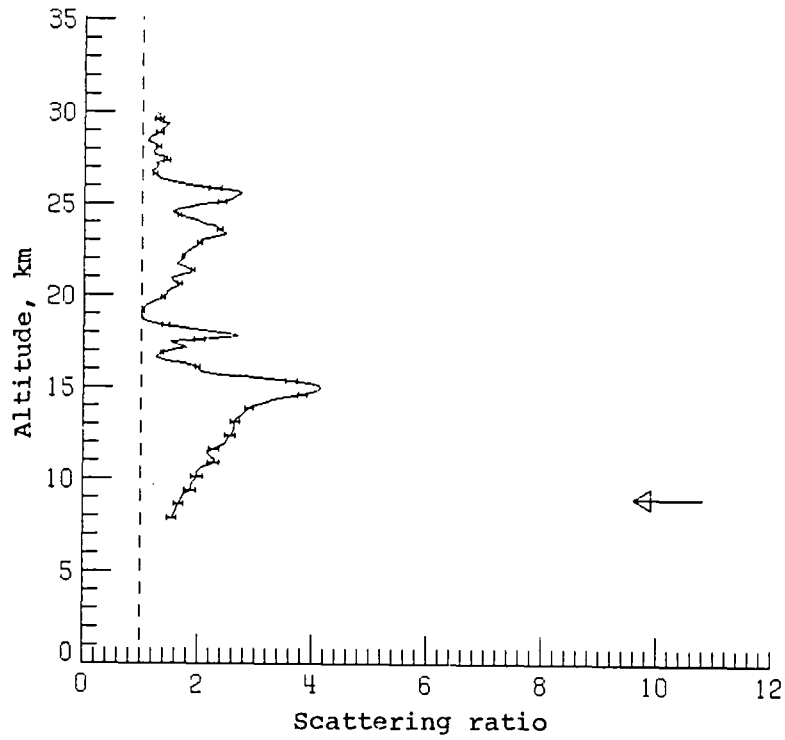


Figure 16. Lidar scattering-ratio profile taken on February 1, 1983, at GMT 1814-1826 between 75.1°N , 100.9°W and 74.9°N , 96.6°W .

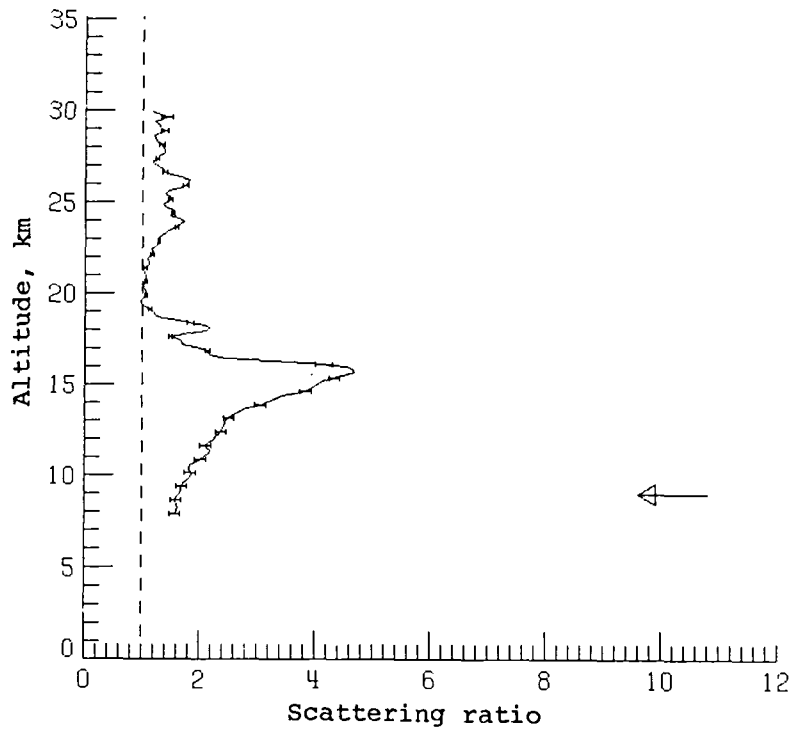


Figure 17. Lidar scattering-ratio profile taken on February 1, 1983, at GMT 1826-1839 between 74.9°N , 96.6°W and 74.9°N , 94.3°W .

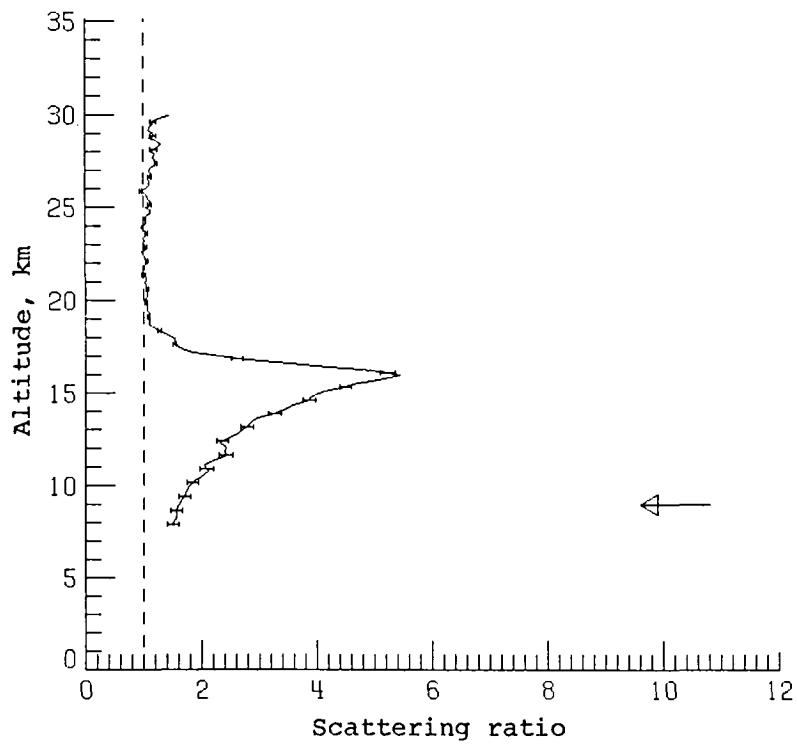


Figure 18. Lidar scattering-ratio profile taken on February 1, 1983, at GMT 1852–1905 between 75.5°N , 88.2°W and 75.9°N , 83.9°W .

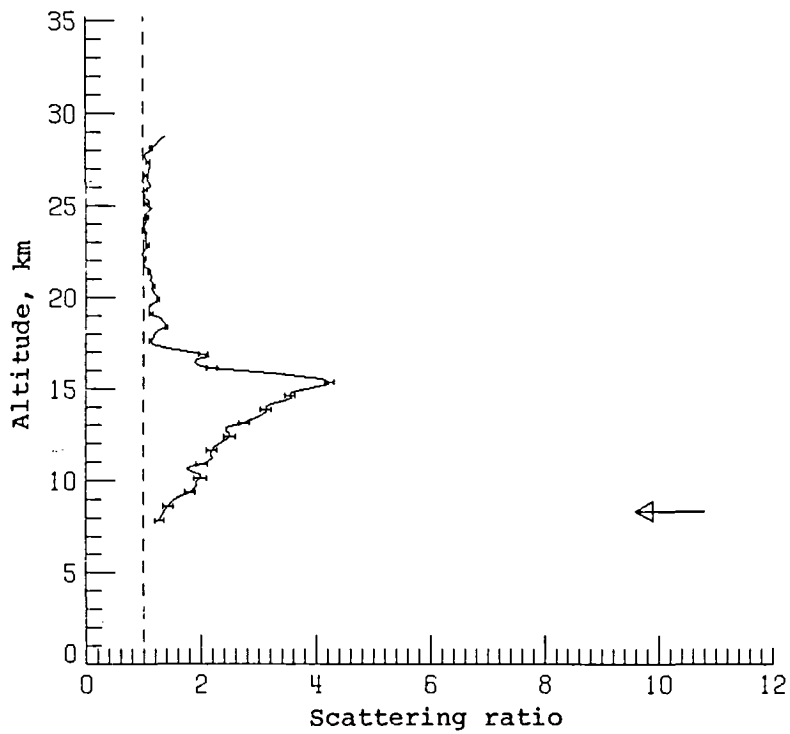


Figure 19. Lidar scattering-ratio profile taken on February 2, 1983, at GMT 1358–1409 between 75.2°N , 72.8°W and 74.5°N , 74.4°W .

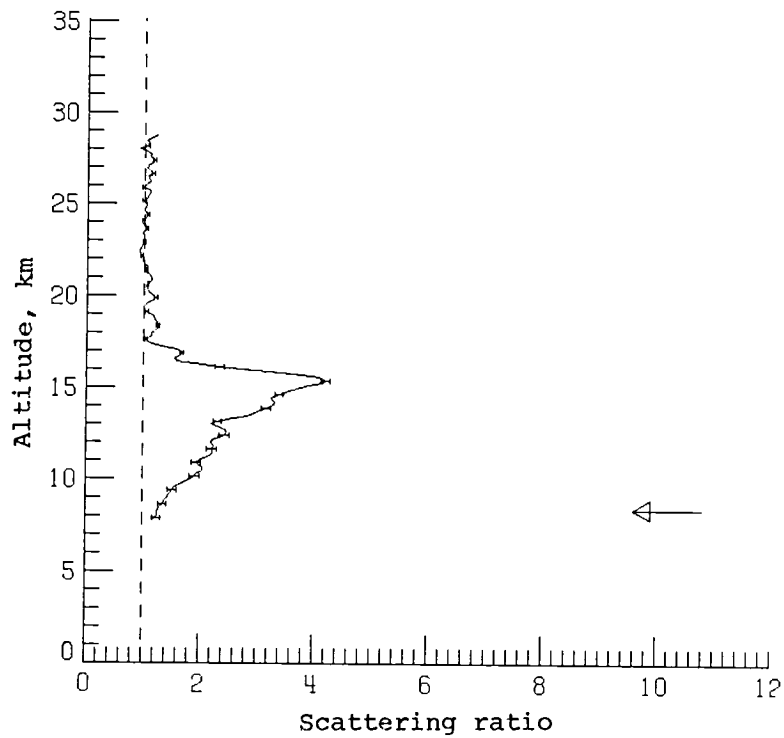


Figure 20. Lidar scattering-ratio profile taken on February 2, 1983, at GMT 1449–1455 between 72.0°N , 75.7°W and 71.7°N , 75.2°W .

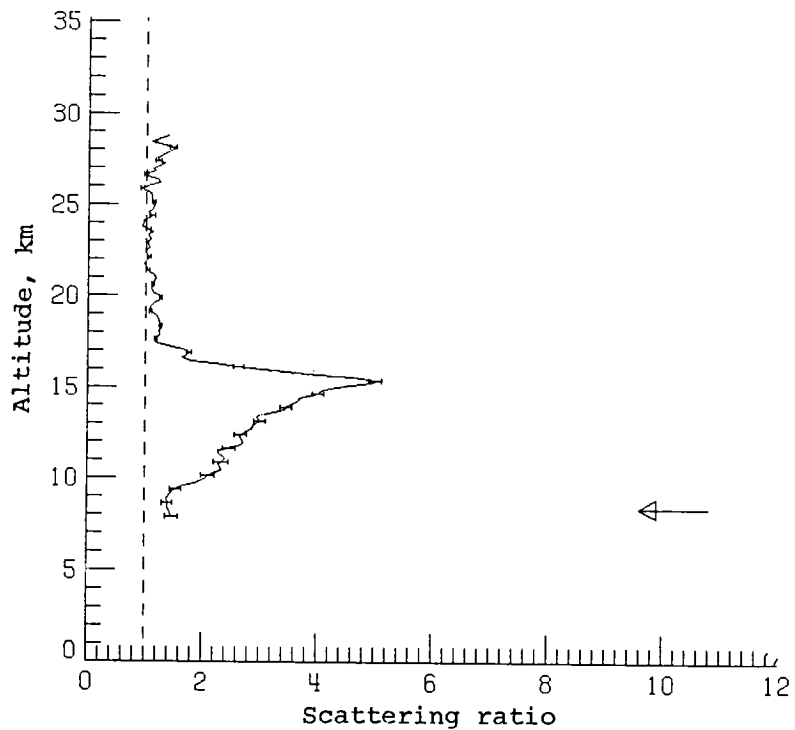


Figure 21. Lidar scattering-ratio profile taken on February 2, 1983, at GMT 1502–1509 between 71.2°N , 74.9°W and 70.8°N , 73.8°W .

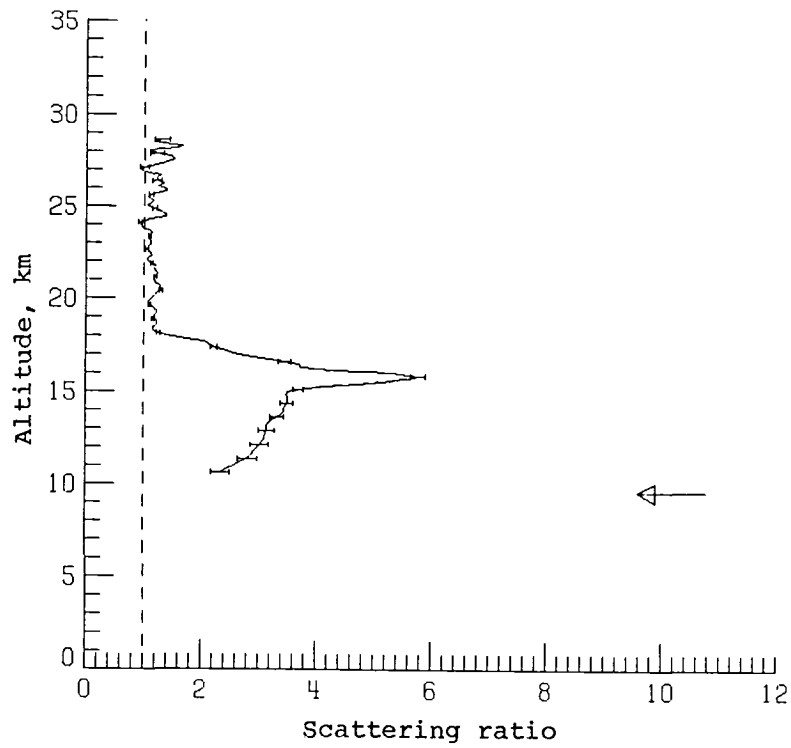


Figure 22. Lidar scattering-ratio profile taken on February 2, 1983, at GMT 1614–1626 between 67.2°N , 64.0°W and 66.5°N , 62.5°W .

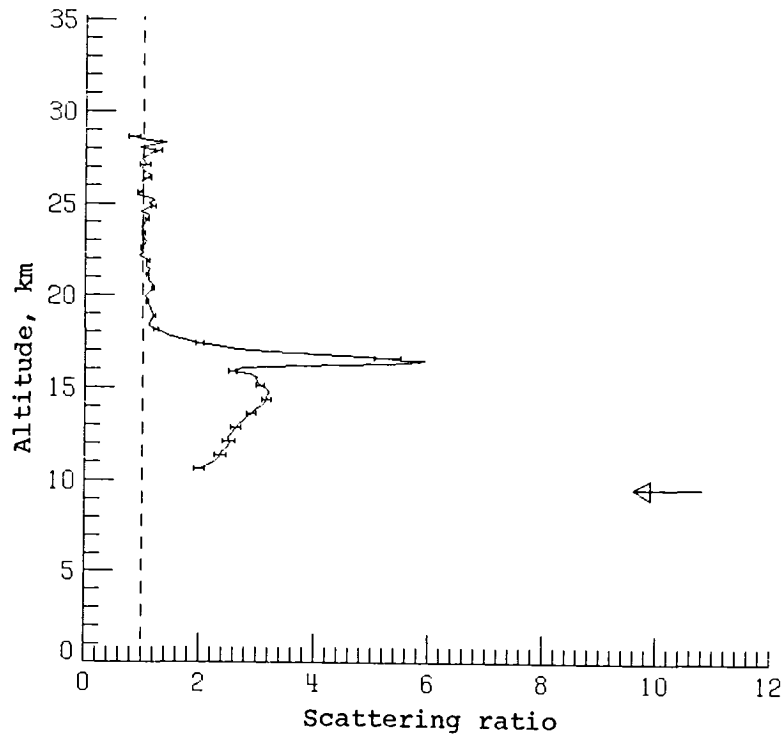


Figure 23. Lidar scattering-ratio profile taken on February 2, 1983, at GMT 1649–1701 between 65.0°N , 60.0°W and 64.2°N , 60.0°W .

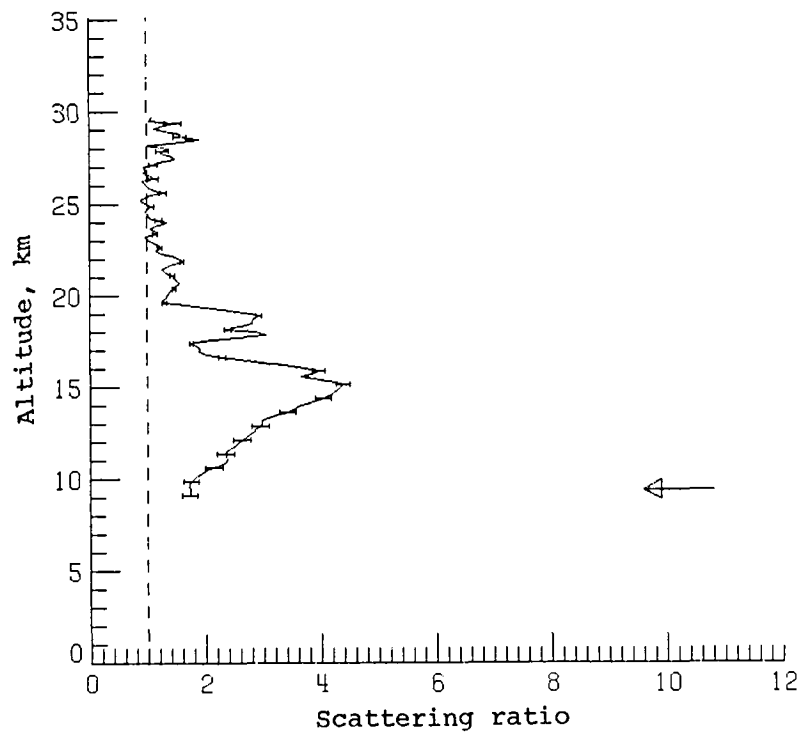


Figure 24. Lidar scattering-ratio profile taken on February 2, 1983, at GMT 1826–1842 between 58.4°N , 60.0°W and 57.2°N , 60.1°W .

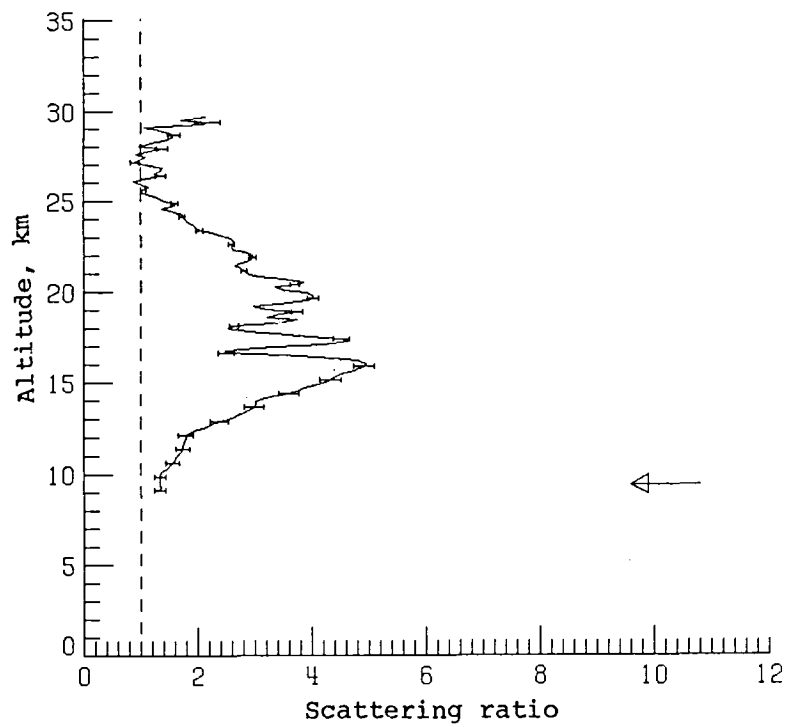


Figure 25. Lidar scattering-ratio profile taken on February 2, 1983, at GMT 1858–1913 between 56.0°N , 60.1°W and 54.9°N , 60.2°W .

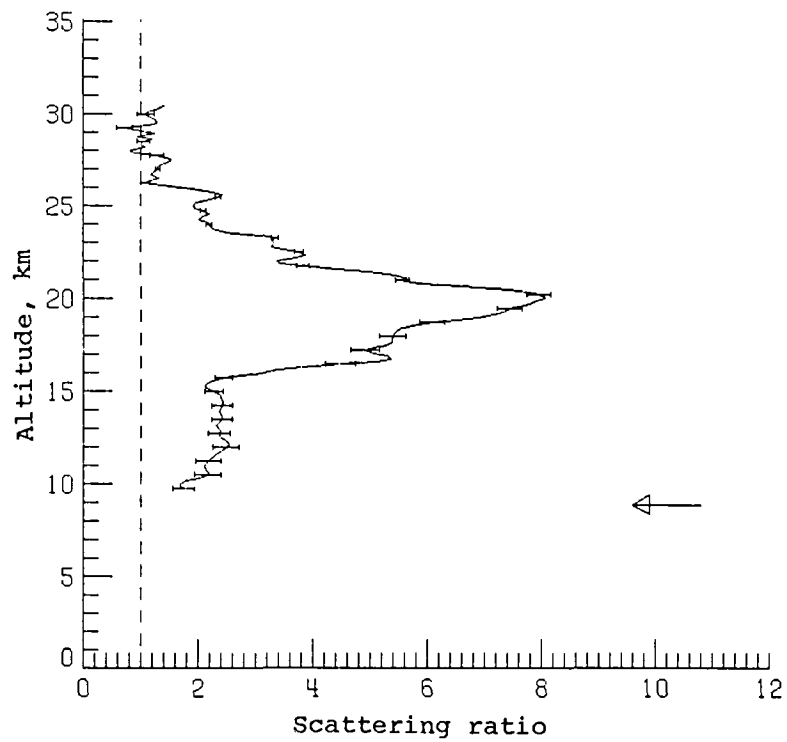


Figure 26. Lidar scattering-ratio profile taken on February 3, 1983, at GMT 2001–2020 between 42.8°N , 70.8°W and 41.6°N , 71.6°W .

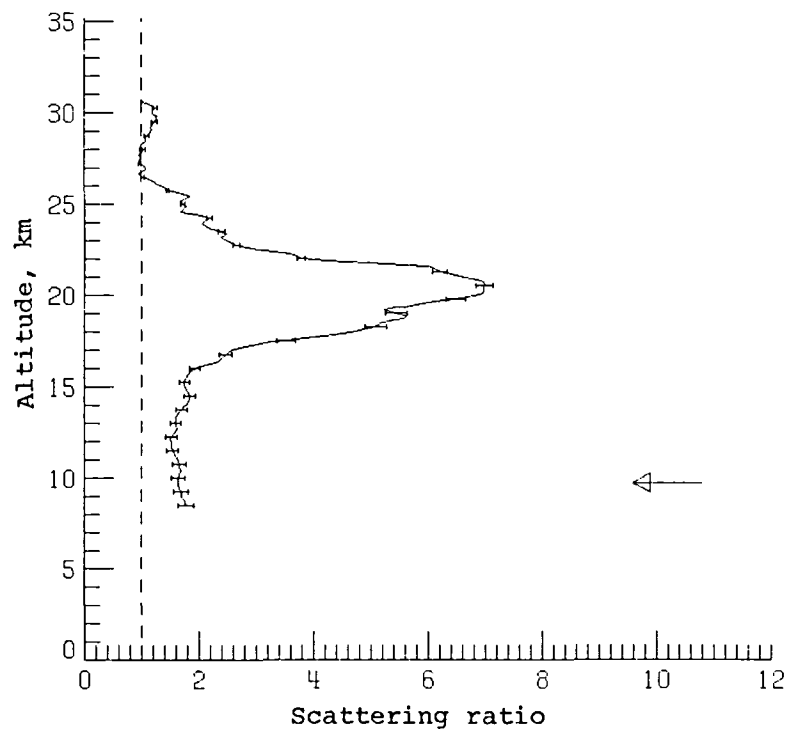


Figure 27. Lidar scattering-ratio profile taken on February 4, 1983, at GMT 0012–0027 between 35.0°N , 78.1°W and 34.3°N , 78.7°W .

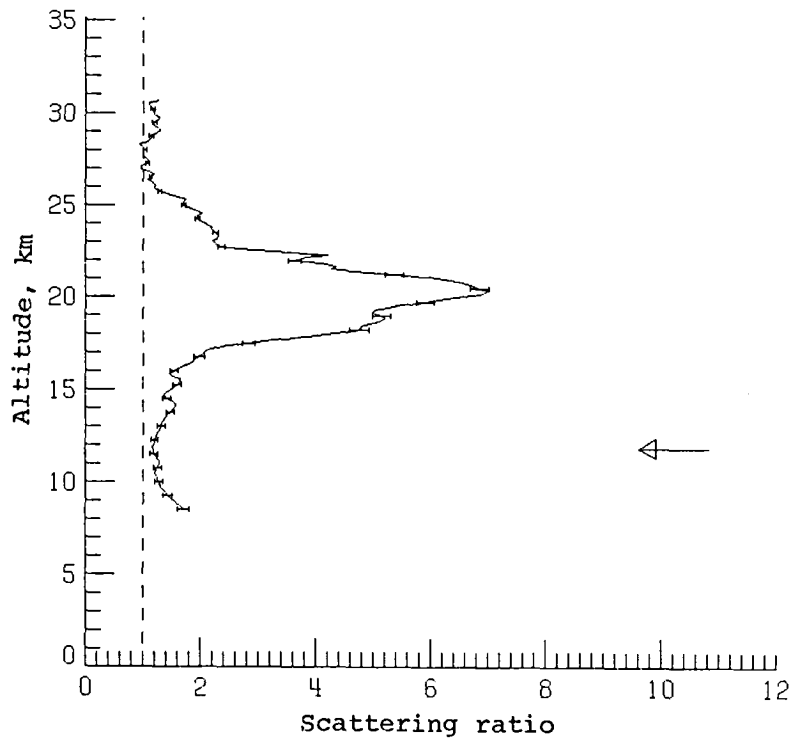


Figure 28. Lidar scattering-ratio profile taken on February 4, 1983, at GMT 0059-0111 between 32.6°N , 80.3°W and 31.8°N , 80.8°W .

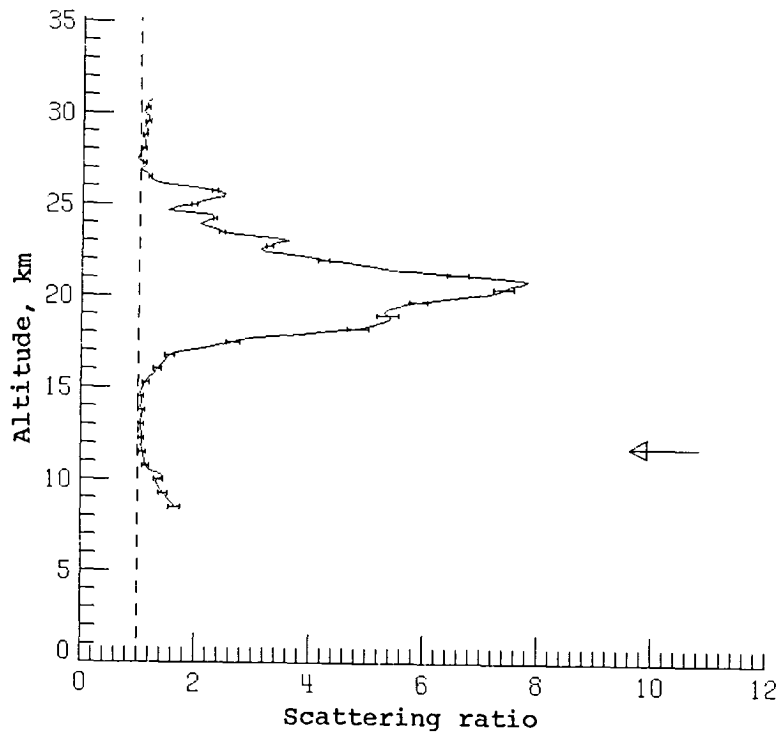


Figure 29. Lidar scattering-ratio profile taken on February 4, 1983, at GMT 0149-0202 between 28.8°N , 80.9°W and 27.7°N , 80.5°W .

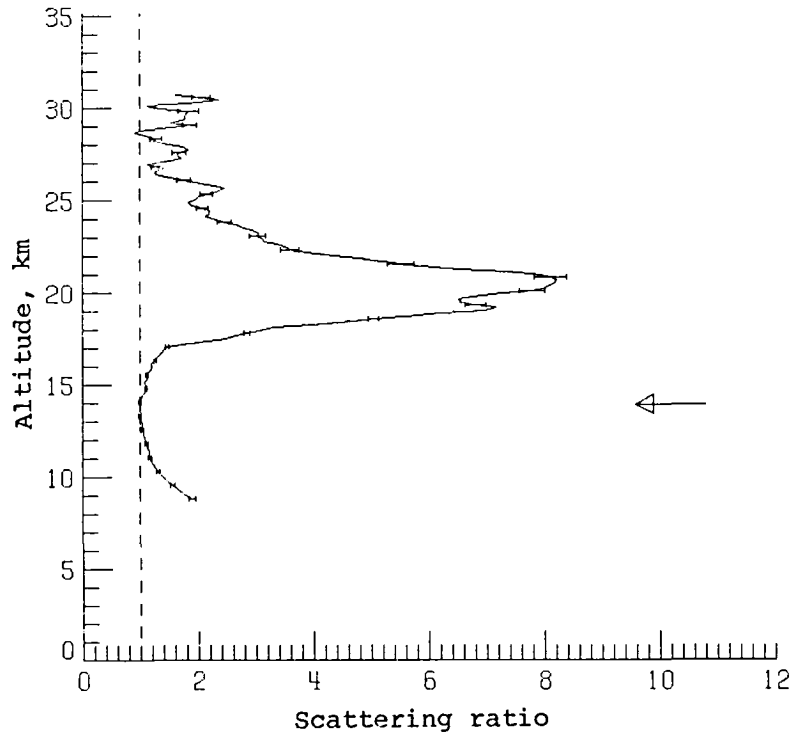


Figure 30. Lidar scattering-ratio profile taken on February 5, 1983, at GMT 2240-2257 between 27.1° N, 80.6° W and 28.3° N, 81.2° W.

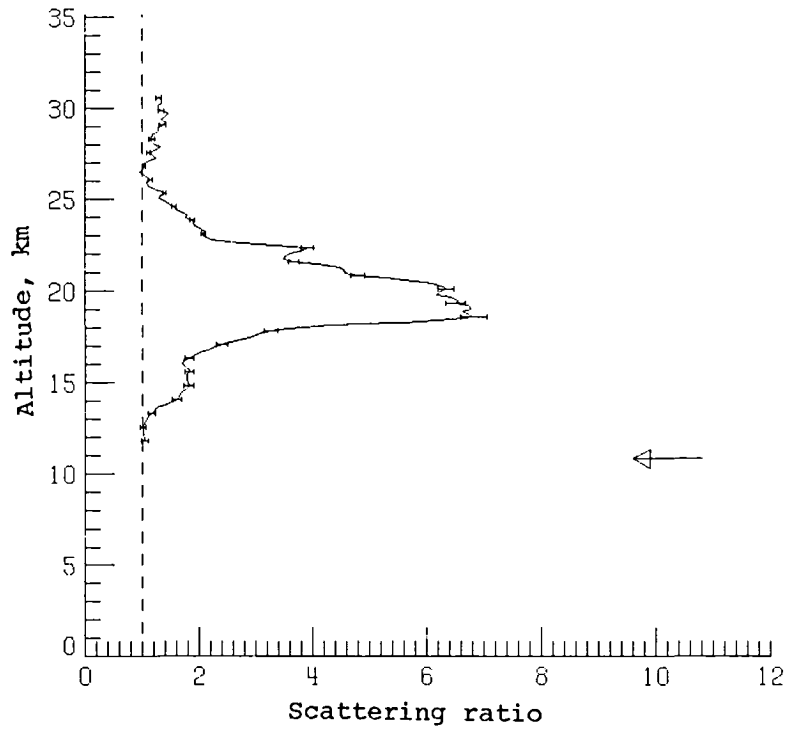


Figure 31. Lidar scattering-ratio profile taken on February 5, 1983, at GMT 2358-0007 between 33.5° N, 79.5° W and 34.1° N, 78.9° W.

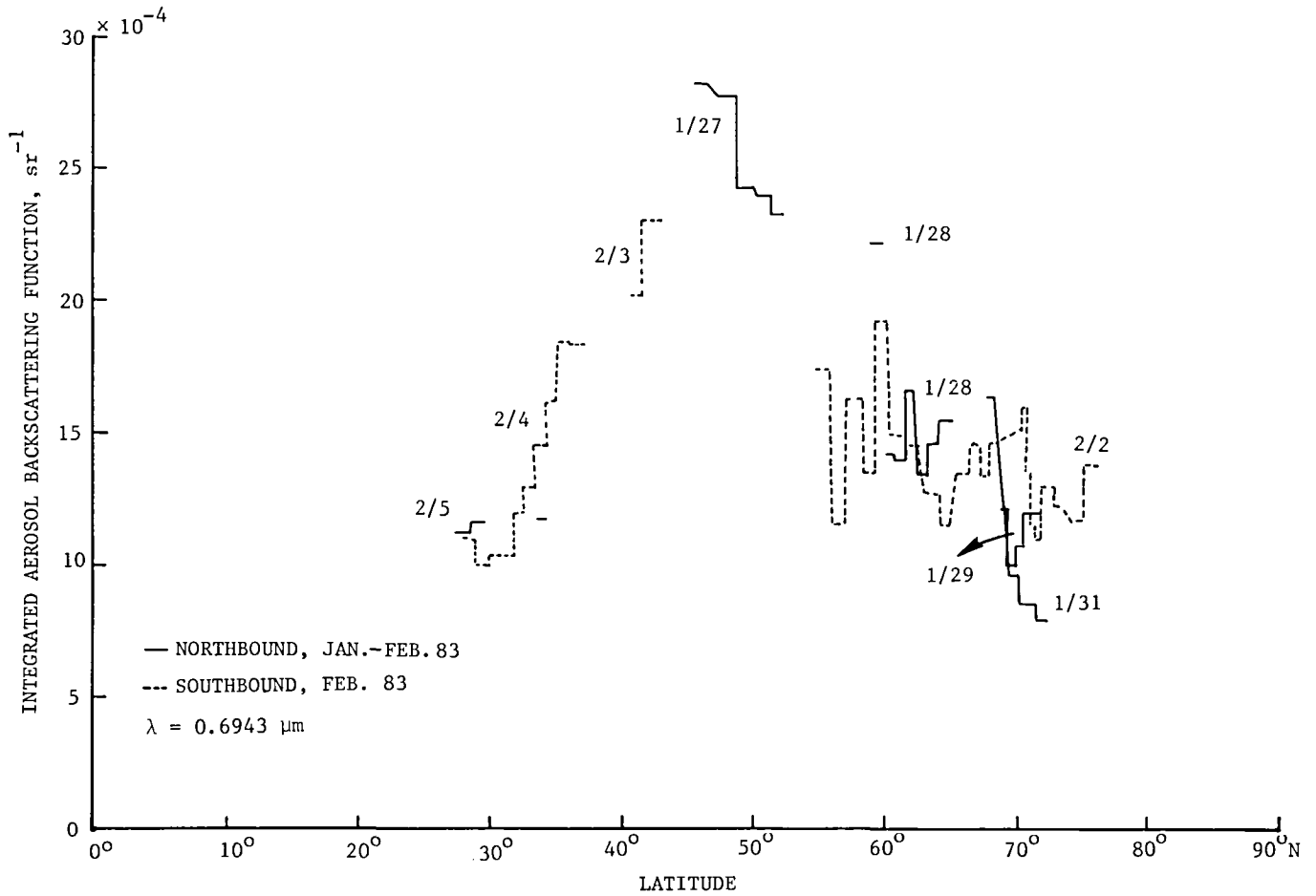


Figure 32. Integrated aerosol backscattering function from the tropopause through the stratospheric layer versus latitude for northbound and southbound flights.

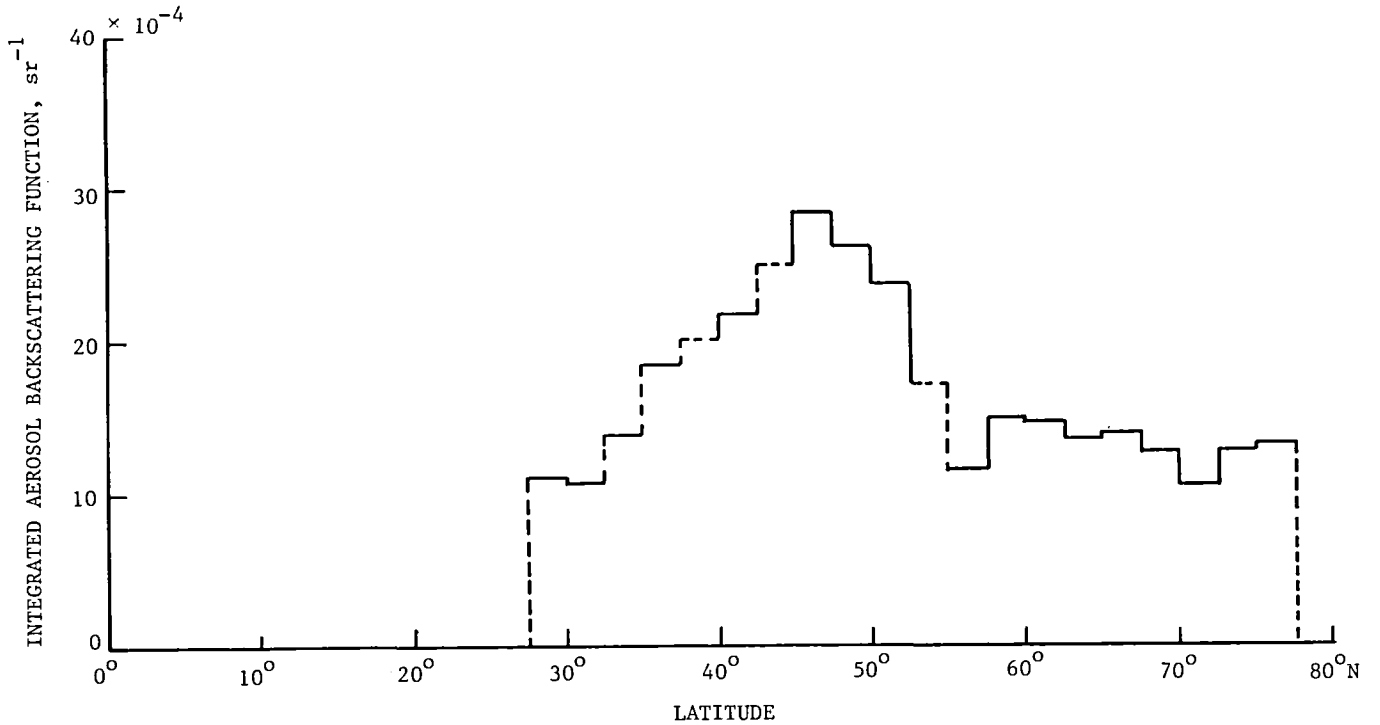


Figure 33. Integrated aerosol backscattering function averaged into 2.5° latitude bins (calculated from data in fig. 32). Dashed line represents interpolated data.

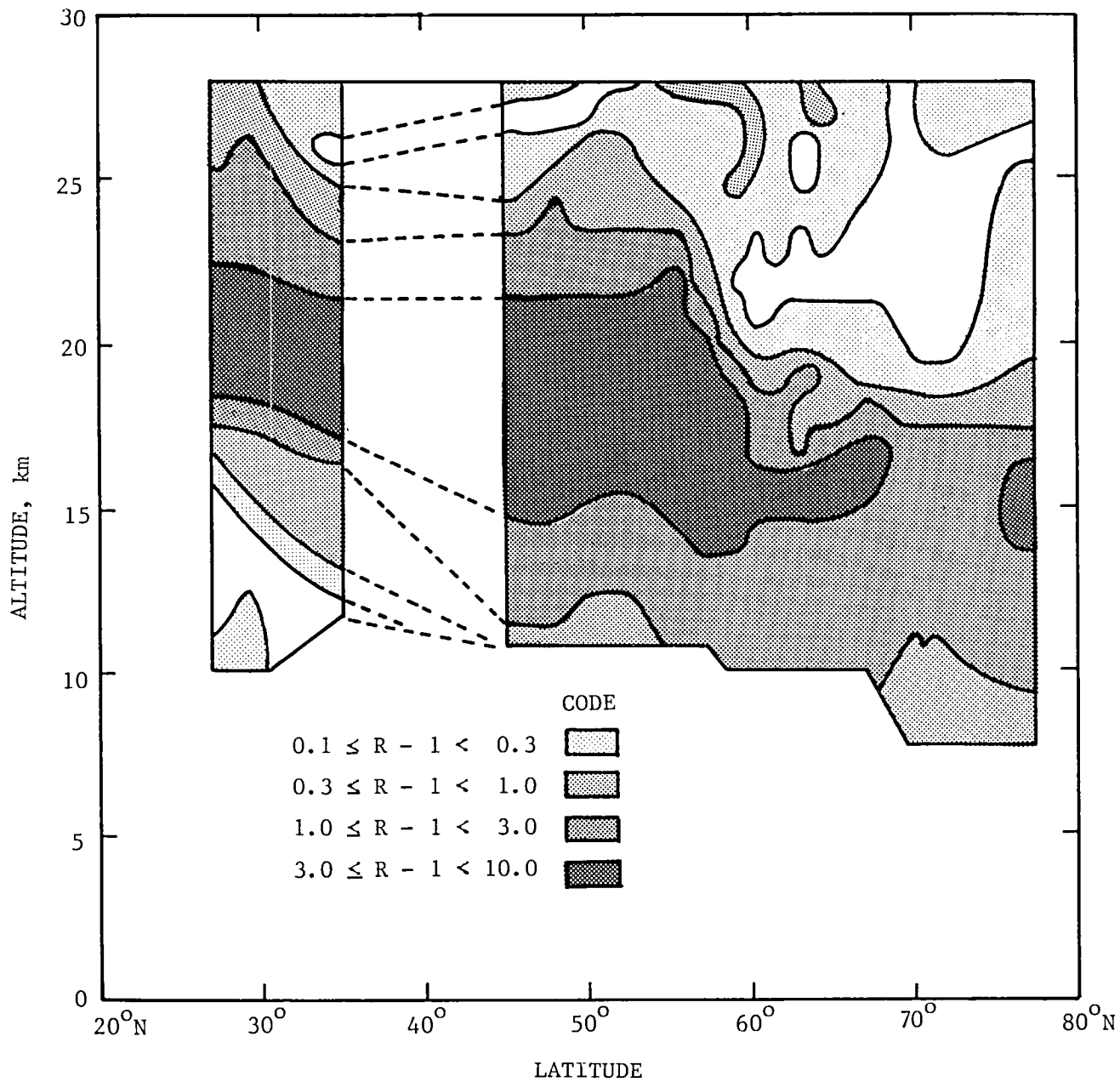


Figure 34. Contour of backscatter mixing ratio for data collected during northbound flight legs.

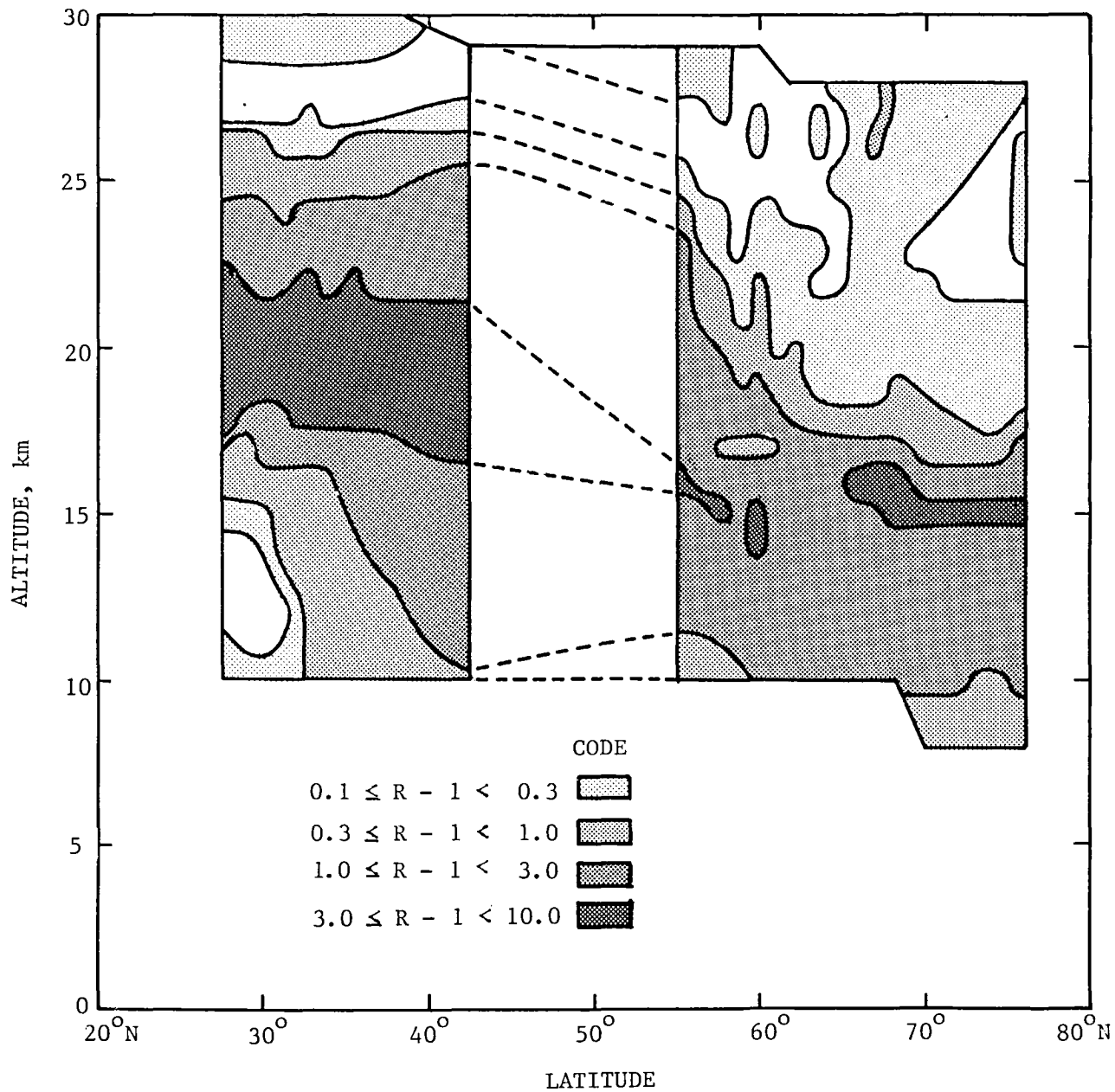


Figure 35. Contour of backscatter mixing ratio for data collected during southbound flight legs.

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
January 27	2158-2322	45.6°N, 68.5°W-54.2°N, 62.7°W	21 000
January 28	1341-1443	55.0°N, 60.1°W-59.6°N, 57.9°W	21 000
	1446-1516	60.0°N, 57.9°W-62.1°N, 55.8°W	23 000
	1520-1550	62.5°N, 55.6°W-65.0°N, 53.4°W	25 000
January 29	1140-1222	68.8°N, 53.1°W-71.8°N, 57.7°W	17 000
	1227-1300	71.8°N, 57.7°W-69.6°N, 54.4°W	17 000
	1305-1331	69.5°N, 54.3°W-71.5°N, 57.3°W	17 000
	1341-1418	71.8°N, 57.7°W-69.7°N, 54.5°W	17 000
January 31	1207-1337	67.7°N, 53.0°W-72.2°N, 67.3°W	17 000
	1345-1416	72.3°N, 67.5°W-70.1°N, 63.8°W	17 000
	1424-1503	70.1°N, 63.8°W-72.7°N, 68.4°W	17 000
February 1	1546-1743	76.5°N, 72.9°W-75.3°N, 110.0°W	18 000
	1749-1931	75.4°N, 109.1°W-76.4°N, 75.0°W	18 000
February 2	1345-1519	76.0°N, 70.4°W-70.3°N, 72.3°W	18 000
	1601-1714	68.7°N, 67.8°W-63.3°N, 60.0°W	27 000
	1723-1913	62.6°N, 60.0°W-54.9°N, 60.2°W	22 000
February 3-4	2001-2035	42.8°N, 70.8°W-40.7°N, 72.5°W	24 000
	2341-0202	37.2°N, 76.0°W-27.7°N, 80.5°W	20 000
February 5-6	2240-0007	27.1°N, 80.6°W-34.1°N, 78.9°W	21 000

^a Greenwich mean time.

TABLE A2. LIDAR DATA TAKEN ON JANUARY 27, 1983, AT GMT 2218-2234 BETWEEN 47.3°N, 67.3°W AND 48.8°N, 67.0°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
10.314	2.016	.1576E-03	16.164	6.344	.3436E-03
10.464	2.013	.1534E-03	16.314	6.618	.3535E-03
10.614	2.015	.1503E-03	16.464	6.769	.3552E-03
10.764	1.989	.1430E-03	16.614	6.891	.3548E-03
10.914	1.951	.1344E-03	16.764	7.121	.3608E-03
11.064	1.973	.1343E-03	16.914	7.472	.3732E-03
11.214	2.017	.1372E-03	17.064	7.731	.3798E-03
11.364	2.040	.1371E-03	17.214	7.746	.3724E-03
11.514	2.067	.1374E-03	17.364	7.664	.3599E-03
11.664	2.082	.1361E-03	17.514	7.547	.3460E-03
11.814	2.081	.1329E-03	17.664	7.494	.3358E-03
11.964	2.097	.1318E-03	17.814	7.611	.3344E-03
12.114	2.124	.1319E-03	17.964	7.746	.3339E-03
12.264	2.157	.1327E-03	18.114	7.867	.3325E-03
12.414	2.208	.1354E-03	18.264	8.089	.3355E-03
12.564	2.284	.1407E-03	18.414	8.191	.3328E-03
12.714	2.423	.1522E-03	18.564	8.062	.3194E-03
12.864	2.656	.1731E-03	18.714	7.860	.3033E-03
13.014	2.852	.1892E-03	18.864	7.899	.2982E-03
13.164	2.906	.1904E-03	19.014	8.172	.3031E-03
13.314	2.895	.1851E-03	19.164	8.514	.3104E-03
13.464	2.922	.1836E-03	19.314	8.848	.3169E-03
13.614	2.952	.1825E-03	19.464	8.945	.3137E-03
13.764	2.945	.1778E-03	19.614	8.977	.3078E-03
13.914	2.934	.1730E-03	19.764	9.048	.3036E-03
14.064	3.004	.1754E-03	19.914	8.988	.2946E-03
14.214	3.144	.1835E-03	20.064	8.632	.2752E-03
14.364	3.318	.1941E-03	20.214	7.942	.2447E-03
14.514	3.633	.2157E-03	20.364	7.142	.2116E-03
14.664	4.010	.2412E-03	20.514	6.275	.1776E-03
14.814	4.200	.2508E-03	20.664	5.682	.1540E-03
14.964	4.105	.2381E-03	20.814	5.565	.1468E-03
15.114	4.026	.2269E-03	20.964	5.484	.1409E-03
15.264	4.083	.2262E-03	21.114	5.238	.1301E-03
15.414	4.201	.2297E-03	21.264	4.829	.1149E-03
15.564	4.515	.2467E-03	21.414	4.322	.9742E-04
15.714	5.097	.2813E-03	21.564	3.826	.8098E-04
15.864	5.693	.3152E-03	21.714	3.582	.7231E-04
16.014	6.067	.3330E-03	21.864	3.480	.6788E-04

TABLE A2. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
22.014	3.493	.6667E-04	27.864	1.093	.9771E-06
22.164	3.457	.6422E-04	28.014	1.141	.1452E-05
22.314	3.409	.6154E-04	28.164	1.194	.1953E-05
22.464	3.273	.5674E-04	28.314	1.137	.1351E-05
22.614	3.169	.5292E-04	28.464	1.108	.1034E-05
22.764	3.074	.4944E-04	28.614	1.182	.1704E-05
22.914	2.890	.4403E-04	28.764	1.113	.1033E-05
23.064	2.662	.3785E-04	28.914	1.057	.5043E-06
23.214	2.544	.3435E-04	29.064	.962	-.3303E-06
23.364	2.561	.3395E-04	29.214	.871	-.1095E-05
23.514	2.573	.3340E-04	29.364	.871	-.1073E-05
23.664	2.544	.3200E-04	29.514	.891	-.8823E-06
23.814	2.464	.2962E-04	29.664	.946	-.4243E-06
23.964	2.338	.2643E-04	29.814	.986	-.1080E-06
24.114	2.367	.2635E-04	29.964	1.071	.5393E-06
24.264	2.358	.2556E-04	30.114	1.134	.9899E-06
24.414	2.246	.2289E-04			
24.564	2.096	.1966E-04			
24.714	1.949	.1660E-04			
24.864	1.787	.1344E-04			
25.014	1.634	.1057E-04			
25.164	1.487	.7928E-05			
25.314	1.378	.6001E-05			
25.464	1.299	.4640E-05			
25.614	1.218	.3296E-05			
25.764	1.224	.3308E-05			
25.914	1.158	.2280E-05			
26.064	1.114	.1608E-05			
26.214	1.135	.1860E-05			
26.364	1.175	.2343E-05			
26.514	1.107	.1402E-05			
26.664	1.004	.4568E-07			
26.814	1.036	.4497E-06			
26.964	1.092	.1128E-05			
27.114	1.068	.8054E-06			
27.264	1.037	.4324E-06			
27.414	1.008	.8932E-07			
27.564	.986	-.1510E-06			
27.714	1.006	.6224E-07			

TABLE A3. LIDAR DATA TAKEN ON JANUARY 27, 1983, at GMT 2306-2322 BETWEEN 51.3°N, 64.5°W AND 52.4°N, 62.7°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
10.314	1.769	.1192E-03	16.164	4.876	.2493E-03
10.464	1.809	.1226E-03	16.314	4.775	.2375E-03
10.614	1.865	.1280E-03	16.464	4.708	.2282E-03
10.764	1.907	.1312E-03	16.614	4.712	.2236E-03
10.914	1.942	.1331E-03	16.764	4.726	.2196E-03
11.064	1.964	.1331E-03	16.914	4.942	.2273E-03
11.214	1.995	.1343E-03	17.064	5.367	.2464E-03
11.364	2.037	.1366E-03	17.214	5.738	.2615E-03
11.514	2.068	.1375E-03	17.364	5.907	.2650E-03
11.664	2.028	.1293E-03	17.514	5.861	.2569E-03
11.814	1.970	.1192E-03	17.664	5.702	.2431E-03
11.964	1.934	.1122E-03	17.814	5.623	.2339E-03
12.114	1.893	.1048E-03	17.964	5.705	.2329E-03
12.264	1.921	.1056E-03	18.114	5.978	.2410E-03
12.414	2.017	.1140E-03	18.264	6.227	.2474E-03
12.564	2.122	.1229E-03	18.414	6.339	.2470E-03
12.714	2.218	.1303E-03	18.564	6.435	.2459E-03
12.864	2.308	.1368E-03	18.714	6.540	.2450E-03
13.014	2.389	.1419E-03	18.864	6.685	.2457E-03
13.164	2.455	.1453E-03	19.014	6.876	.2483E-03
13.314	2.488	.1454E-03	19.164	7.066	.2506E-03
13.464	2.534	.1466E-03	19.314	7.145	.2482E-03
13.614	2.625	.1519E-03	19.464	7.313	.2492E-03
13.764	2.770	.1618E-03	19.614	7.706	.2588E-03
13.914	2.930	.1727E-03	19.764	8.177	.2708E-03
14.064	3.062	.1804E-03	19.914	8.497	.2765E-03
14.214	3.242	.1919E-03	20.064	8.690	.2773E-03
14.364	3.356	.1972E-03	20.214	8.719	.2721E-03
14.514	3.350	.1924E-03	20.364	8.397	.2548E-03
14.664	3.329	.1866E-03	20.514	7.813	.2293E-03
14.814	3.369	.1857E-03	20.664	7.225	.2048E-03
14.964	3.484	.1904E-03	20.814	6.732	.1843E-03
15.114	3.659	.1994E-03	20.964	6.070	.1593E-03
15.264	3.879	.2112E-03	21.114	5.297	.1319E-03
15.414	4.106	.2229E-03	21.264	4.590	.1077E-03
15.564	4.330	.2337E-03	21.414	4.109	.9117E-04
15.714	4.573	.2453E-03	21.564	3.635	.7551E-04
15.864	4.801	.2553E-03	21.714	3.486	.6963E-04
16.014	4.911	.2571E-03	21.864	3.355	.6447E-04

TABLE A3. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
22.014	3.285	.6110E-04	27.864	1.024	.2570E-06
22.164	3.295	.5998E-04	28.014	.946	-.5521E-06
22.314	3.358	.6023E-04	28.164	.870	-.1313E-05
22.464	3.411	.6018E-04	28.314	.880	-.1181E-05
22.614	3.374	.5793E-04	28.464	.910	-.8652E-06
22.764	3.121	.5057E-04	28.614	.913	-.8159E-06
22.914	2.757	.4093E-04	28.764	.891	-.9988E-06
23.064	2.424	.3242E-04	28.914	.839	-.1434E-05
23.214	2.215	.2705E-04	29.064	.789	-.1836E-05
23.364	2.122	.2440E-04	29.214	.774	-.1925E-05
23.514	2.054	.2238E-04	29.364	.721	-.2319E-05
23.664	2.015	.2104E-04	29.514	.717	-.2293E-05
23.814	1.995	.2013E-04	29.664	.754	-.1947E-05
23.964	1.934	.1846E-04	29.814	.858	-.1099E-05
24.114	1.952	.1836E-04	29.964	.845	-.1173E-05
24.264	1.947	.1781E-04	30.114	.805	-.1440E-05
24.414	1.842	.1547E-04			
24.564	1.709	.1271E-04			
24.714	1.668	.1169E-04			
24.864	1.761	.1300E-04			
25.014	1.919	.1532E-04			
25.164	2.069	.1739E-04			
25.314	2.065	.1691E-04			
25.464	1.979	.1519E-04			
25.614	1.918	.1389E-04			
25.764	2.019	.1505E-04			
25.914	2.117	.1612E-04			
26.064	1.884	.1245E-04			
26.214	1.603	.8284E-05			
26.364	1.499	.6699E-05			
26.514	1.464	.6080E-05			
26.664	1.438	.5599E-05			
26.814	1.324	.4050E-05			
26.964	1.263	.3204E-05			
27.114	1.266	.3168E-05			
27.264	1.223	.2589E-05			
27.414	1.108	.1230E-05			
27.564	1.044	.4867E-06			
27.714	1.029	.3160E-06			

TABLE A4. LIDAR DATA TAKEN ON JANUARY 28, 1983, AT GMT 1431-1443 BETWEEN 58.7°N, 58.3°W AND 59.6°N, 57.9°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
9.564	2.255	.2133E-03	15.414	5.802	.3430E-03
9.714	2.305	.2169E-03	15.564	6.047	.3526E-03
9.864	2.360	.2212E-03	15.714	6.296	.3618E-03
10.014	2.401	.2230E-03	15.864	6.626	.3759E-03
10.164	2.424	.2217E-03	16.014	7.050	.3953E-03
10.314	2.448	.2206E-03	16.164	7.326	.4042E-03
10.464	2.497	.2231E-03	16.314	7.081	.3800E-03
10.614	2.535	.2238E-03	16.464	6.430	.3318E-03
10.764	2.532	.2187E-03	16.614	6.080	.3036E-03
10.914	2.536	.2145E-03	16.764	5.970	.2904E-03
11.064	2.563	.2134E-03	16.914	5.567	.2610E-03
11.214	2.598	.2134E-03	17.064	4.933	.2198E-03
11.364	2.644	.2147E-03	17.214	4.131	.1711E-03
11.514	2.666	.2125E-03	17.364	3.627	.1404E-03
11.664	2.677	.2092E-03	17.514	4.030	.1583E-03
11.814	2.707	.2081E-03	17.664	4.983	.2035E-03
11.964	2.737	.2070E-03	17.814	5.297	.2147E-03
12.114	2.746	.2034E-03	17.964	4.898	.1905E-03
12.264	2.757	.2000E-03	18.114	4.385	.1618E-03
12.414	2.812	.2017E-03	18.264	4.059	.1429E-03
12.564	2.932	.2102E-03	18.414	3.883	.1317E-03
12.714	3.052	.2182E-03	18.564	3.734	.1221E-03
12.864	3.123	.2207E-03	18.714	3.562	.1119E-03
13.014	3.220	.2256E-03	18.864	3.180	.9312E-04
13.164	3.385	.2371E-03	19.014	2.499	.6262E-04
13.314	3.546	.2475E-03	19.164	2.010	.4124E-04
13.464	3.646	.2517E-03	19.314	1.802	.3203E-04
13.614	3.751	.2560E-03	19.464	1.493	.1926E-04
13.764	3.853	.2597E-03	19.614	1.284	.1085E-04
13.914	4.005	.2676E-03	19.764	1.188	.7038E-05
14.064	4.085	.2686E-03	19.914	1.339	.1236E-04
14.214	4.137	.2672E-03	20.064	1.254	.9058E-05
14.364	4.189	.2657E-03	20.214	1.208	.7252E-05
14.514	4.333	.2717E-03	20.364	1.233	.7927E-05
14.664	4.588	.2861E-03	20.514	1.208	.6926E-05
14.814	4.781	.2949E-03	20.664	1.148	.4808E-05
14.964	4.982	.3039E-03	20.814	1.197	.6247E-05
15.114	5.302	.3211E-03	20.964	1.253	.7854E-05
15.264	5.578	.3342E-03	21.114	1.323	.9786E-05

TABLE A4. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
21.264	1.337	.9960E-05	27.114	1.112	.1255E-05
21.414	1.319	.9214E-05	27.264	1.445	.4851E-05
21.564	1.197	.5566E-05	27.414	1.254	.2705E-05
21.714	1.117	.3227E-05	27.564	1.248	.2566E-05
21.864	1.063	.1686E-05	27.714	1.627	.6325E-05
22.014	.933	-.1763E-05	27.864	1.563	.5532E-05
22.164	1.004	.1139E-06	28.014	1.681	.6522E-05
22.314	1.115	.2885E-05	28.164	1.205	.1916E-05
22.464	1.209	.5125E-05	28.314	1.488	.4435E-05
22.614	1.197	.4706E-05	28.464	1.914	.8096E-05
22.764	1.240	.5607E-05	28.614	1.991	.8554E-05
22.914	1.282	.6451E-05	28.764	2.138	.9572E-05
23.064	1.102	.2270E-05	28.914	2.044	.8558E-05
23.214	1.114	.2483E-05	29.064	1.130	.1040E-05
23.364	1.228	.4840E-05			
23.514	1.223	.4610E-05			
23.664	1.197	.3978E-05			
23.814	1.323	.6352E-05			
23.964	1.227	.4359E-05			
24.114	1.105	.1973E-05			
24.264	1.226	.4117E-05			
24.414	1.179	.3182E-05			
24.564	1.057	.9837E-06			
24.714	1.121	.2045E-05			
24.864	1.525	.8658E-05			
25.014	1.582	.9361E-05			
25.164	1.468	.7342E-05			
25.314	1.323	.4944E-05			
25.464	1.261	.3884E-05			
25.614	1.257	.3726E-05			
25.764	1.168	.2376E-05			
25.914	1.174	.2400E-05			
26.064	1.059	.7949E-06			
26.214	.887	-.1480E-05			
26.364	1.004	.5397E-07			
26.514	1.028	.3484E-06			
26.664	1.207	.2501E-05			
26.814	.888	-.1322E-05			
26.964	.718	-.3246E-05			

TABLE A5. LIDAR DATA TAKEN ON JANUARY 28, 1983, AT GMT 1459-1509 BETWEEN 60.8°N, 56.8°W AND 61.6°N, 56.2°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
9.724	1.965	.1654E-03	15.574	5.237	.2852E-03
9.874	1.995	.1663E-03	15.724	5.068	.2674E-03
10.024	2.018	.1661E-03	15.874	4.966	.2545E-03
10.174	2.042	.1658E-03	16.024	4.757	.2354E-03
10.324	2.085	.1685E-03	16.174	4.312	.2026E-03
10.474	2.135	.1719E-03	16.324	4.075	.1837E-03
10.624	2.168	.1727E-03	16.474	4.011	.1756E-03
10.774	2.201	.1732E-03	16.624	3.316	.1319E-03
10.924	2.229	.1731E-03	16.774	2.620	.9008E-04
11.074	2.249	.1717E-03	16.924	2.394	.7566E-04
11.224	2.280	.1717E-03	17.074	1.987	.5233E-04
11.374	2.311	.1717E-03	17.224	1.456	.2359E-04
11.524	2.324	.1693E-03	17.374	1.273	.1378E-04
11.674	2.329	.1659E-03	17.524	1.388	.1911E-04
11.824	2.345	.1639E-03	17.674	1.656	.3148E-04
11.974	2.353	.1610E-03	17.824	2.091	.5105E-04
12.124	2.384	.1607E-03	17.974	2.406	.6421E-04
12.274	2.416	.1605E-03	18.124	2.472	.6556E-04
12.424	2.463	.1619E-03	18.274	2.497	.6504E-04
12.574	2.498	.1618E-03	18.424	2.698	.7196E-04
12.724	2.509	.1592E-03	18.574	2.745	.7215E-04
12.874	2.563	.1611E-03	18.724	2.385	.5584E-04
13.024	2.650	.1661E-03	18.874	1.931	.3664E-04
13.174	2.727	.1698E-03	19.024	1.674	.2586E-04
13.324	2.836	.1763E-03	19.174	1.389	.1455E-04
13.474	2.891	.1773E-03	19.324	1.271	.9892E-05
13.624	2.794	.1643E-03	19.474	1.183	.6505E-05
13.774	2.703	.1524E-03	19.624	1.112	.3867E-05
13.924	2.842	.1610E-03	19.774	1.130	.4371E-05
14.074	3.112	.1803E-03	19.924	1.146	.4794E-05
14.224	3.384	.1987E-03	20.074	1.150	.4786E-05
14.374	3.596	.2113E-03	20.224	1.122	.3809E-05
14.524	3.703	.2149E-03	20.374	1.016	.4758E-06
14.674	3.753	.2138E-03	20.524	.990	-.2973E-06
14.824	3.729	.2070E-03	20.674	.994	-.1808E-06
14.974	3.793	.2069E-03	20.824	.971	-.8201E-06
15.124	4.112	.2251E-03	20.974	1.018	.4805E-06
15.274	4.683	.2601E-03	21.124	1.051	.1353E-05
15.424	5.209	.2902E-03	21.274	1.066	.1726E-05

TABLE A5. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
21.424	1.099	.2499E-05	27.274	1.293	.2933E-05
21.574	1.074	.1827E-05	27.424	1.147	.1441E-05
21.724	1.023	.5542E-06	27.574	1.033	.3142E-06
21.874	.954	-.1069E-05	27.724	.846	-.1451E-05
22.024	.975	-.5670E-06	27.874	.739	-.2405E-05
22.174	1.085	.1891E-05	28.024	.991	-.8277E-07
22.324	1.045	.9795E-06	28.174	1.162	.1435E-05
22.474	.938	-.1304E-05	28.324	1.291	.2516E-05
22.624	.986	-.2942E-06	28.474	1.652	.5526E-05
22.774	.966	-.6848E-06	28.624	1.527	.4373E-05
22.924	.989	-.2051E-06	28.774	1.478	.3888E-05
23.074	1.269	.5074E-05	28.924	1.672	.5349E-05
23.224	1.301	.5532E-05	29.074	1.306	.2390E-05
23.374	1.147	.2631E-05	29.224	1.335	.2561E-05
23.524	1.236	.4108E-05			
23.674	1.343	.5801E-05			
23.824	1.095	.1563E-05			
23.974	.994	-.9906E-07			
24.124	1.100	.1562E-05			
24.274	1.257	.3900E-05			
24.424	1.269	.3990E-05			
24.574	1.022	.3142E-06			
24.724	1.051	.7249E-06			
24.874	1.003	.4074E-07			
25.024	.925	-.1019E-05			
25.174	1.072	.9594E-06			
25.324	.929	-.9275E-06			
25.474	1.036	.4622E-06			
25.624	1.176	.2210E-05			
25.774	1.171	.2108E-05			
25.924	1.094	.1132E-05			
26.074	1.241	.2840E-05			
26.224	1.214	.2474E-05			
26.374	1.056	.6338E-06			
26.524	.990	-.1095E-06			
26.674	1.300	.3260E-05			
26.824	1.521	.5541E-05			
26.974	1.225	.2347E-05			
27.124	1.163	.1669E-05			

TABLE A6. LIDAR DATA TAKEN ON JANUARY 28, 1983, AT GMT 1520–1530 BETWEEN 62.5°N, 55.6°W AND 63.3°N, 54.9°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
10.333	2.135	.1760E-03	16.183	4.098	.1892E-03
10.483	2.162	.1758E-03	16.333	3.411	.1438E-03
10.633	2.189	.1755E-03	16.483	3.065	.1203E-03
10.783	2.217	.1752E-03	16.633	2.827	.1039E-03
10.933	2.247	.1753E-03	16.783	2.606	.8914E-04
11.083	2.274	.1748E-03	16.933	2.317	.7137E-04
11.233	2.299	.1741E-03	17.083	1.978	.5174E-04
11.383	2.321	.1727E-03	17.233	1.638	.3294E-04
11.533	2.356	.1731E-03	17.383	1.387	.1951E-04
11.683	2.381	.1720E-03	17.533	1.269	.1321E-04
11.833	2.384	.1684E-03	17.683	1.198	.9471E-05
11.983	2.403	.1666E-03	17.833	1.273	.1277E-04
12.133	2.451	.1682E-03	17.983	1.490	.2232E-04
12.283	2.499	.1696E-03	18.133	1.738	.3282E-04
12.433	2.529	.1689E-03	18.283	1.992	.4305E-04
12.583	2.558	.1680E-03	18.433	2.466	.6205E-04
12.733	2.579	.1664E-03	18.583	3.159	.8913E-04
12.883	2.602	.1649E-03	18.733	3.438	.9817E-04
13.033	2.622	.1631E-03	18.883	2.962	.7707E-04
13.183	2.664	.1634E-03	19.033	2.290	.4941E-04
13.333	2.778	.1705E-03	19.183	1.830	.3101E-04
13.483	2.931	.1809E-03	19.333	1.589	.2143E-04
13.633	3.029	.1856E-03	19.483	1.436	.1545E-04
13.783	3.065	.1845E-03	19.633	1.384	.1327E-04
13.933	3.141	.1868E-03	19.783	1.327	.1102E-04
14.083	3.135	.1819E-03	19.933	1.219	.7194E-05
14.233	3.095	.1743E-03	20.083	1.214	.6836E-05
14.383	3.171	.1765E-03	20.233	1.151	.4698E-05
14.533	3.379	.1889E-03	20.383	1.064	.1936E-05
14.683	3.728	.2115E-03	20.533	.957	-.1260E-05
14.833	4.015	.2283E-03	20.683	.925	-.2173E-05
14.983	4.039	.2248E-03	20.833	1.053	.1493E-05
15.133	4.020	.2181E-03	20.983	1.103	.2805E-05
15.283	4.111	.2194E-03	21.133	1.089	.2367E-05
15.433	4.653	.2515E-03	21.283	1.062	.1621E-05
15.583	5.383	.2946E-03	21.433	1.032	.8171E-06
15.733	5.769	.3130E-03	21.583	1.041	.1005E-05
15.883	5.729	.3030E-03	21.733	.962	-.9062E-06
16.033	5.096	.2563E-03	21.883	.934	-.1550E-05

TABLE A6. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
22.033	1.042	.9687E-06	27.883	.882	-.1086E-05
22.183	1.032	.7112E-06	28.033	.677	-.2909E-05
22.333	.973	-.5901E-06	28.183	.982	-.1568E-06
22.483	1.063	.1334E-05			
22.633	1.127	.2602E-05			
22.783	1.100	.1983E-05			
22.933	1.091	.1757E-05			
23.083	1.028	.5346E-06			
23.233	1.026	.4849E-06			
23.383	1.055	.9790E-06			
23.533	1.084	.1454E-05			
23.683	1.096	.1623E-05			
23.833	1.231	.3792E-05			
23.983	1.213	.3407E-05			
24.133	.972	-.4375E-06			
24.283	.989	-.1735E-06			
24.433	1.172	.2544E-05			
24.583	1.112	.1617E-05			
24.733	1.099	.1405E-05			
24.883	1.207	.2875E-05			
25.033	.902	-.1338E-05			
25.183	.896	-.1386E-05			
25.333	1.202	.2641E-05			
25.483	1.185	.2368E-05			
25.633	1.150	.1887E-05			
25.783	1.116	.1423E-05			
25.933	1.159	.1911E-05			
26.083	1.148	.1746E-05			
26.233	.924	-.8797E-06			
26.383	.738	-.2968E-05			
26.533	1.130	.1436E-05			
26.683	1.235	.2550E-05			
26.833	1.053	.5665E-06			
26.983	1.201	.2092E-05			
27.133	1.331	.3375E-05			
27.283	1.226	.2256E-05			
27.433	.881	-.1163E-05			
27.583	1.061	.5824E-06			
27.733	1.177	.1657E-05			

TABLE A7. LIDAR DATA TAKEN ON JANUARY 29, 1983, AT GMT 1149-1156 BETWEEN 69.4°N, 54.0°W AND 69.9°N, 54.8°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
9.845	1.706	.1214E-03	15.695	3.419	.1605E-03
9.995	1.792	.1328E-03	15.845	3.107	.1363E-03
10.145	1.853	.1394E-03	15.995	2.623	.1024E-03
10.295	1.890	.1418E-03	16.145	2.303	.8015E-04
10.445	1.919	.1427E-03	16.295	2.422	.8530E-04
10.595	1.926	.1401E-03	16.445	2.523	.8908E-04
10.745	1.979	.1444E-03	16.595	2.475	.8412E-04
10.895	2.025	.1476E-03	16.745	2.406	.7819E-04
11.045	1.960	.1348E-03	16.895	2.214	.6582E-04
11.195	1.892	.1222E-03	17.045	2.143	.6038E-04
11.345	1.951	.1273E-03	17.195	2.201	.6189E-04
11.495	2.072	.1399E-03	17.345	2.055	.5297E-04
11.645	2.147	.1461E-03	17.495	1.841	.4116E-04
11.795	2.189	.1479E-03	17.645	1.807	.3851E-04
11.945	2.217	.1478E-03	17.795	1.736	.3422E-04
12.095	2.231	.1459E-03	17.945	1.505	.2290E-04
12.245	2.249	.1444E-03	18.095	1.286	.1264E-04
12.395	2.286	.1451E-03	18.245	1.200	.8623E-05
12.545	2.324	.1459E-03	18.395	1.175	.7363E-05
12.695	2.357	.1461E-03	18.545	1.155	.6365E-05
12.845	2.385	.1456E-03	18.695	1.148	.5918E-05
12.995	2.407	.1444E-03	18.845	1.112	.4356E-05
13.145	2.460	.1464E-03	18.995	1.112	.4243E-05
13.295	2.527	.1495E-03	19.145	1.184	.6804E-05
13.445	2.549	.1480E-03	19.295	1.190	.6842E-05
13.595	2.568	.1463E-03	19.445	1.099	.3457E-05
13.745	2.596	.1455E-03	19.595	1.064	.2165E-05
13.895	2.642	.1462E-03	19.745	1.086	.2865E-05
14.045	2.689	.1469E-03	19.895	1.100	.3239E-05
14.195	2.708	.1451E-03	20.045	1.091	.2870E-05
14.345	2.695	.1406E-03	20.195	1.098	.2993E-05
14.495	2.641	.1329E-03	20.345	1.085	.2551E-05
14.645	2.752	.1385E-03	20.495	1.062	.1789E-05
14.795	3.048	.1582E-03	20.645	1.055	.1560E-05
14.945	3.182	.1644E-03	20.795	1.025	.6796E-06
15.095	3.090	.1535E-03	20.945	1.034	.9162E-06
15.245	3.085	.1493E-03	21.095	1.028	.7236E-06
15.395	3.315	.1617E-03	21.245	1.026	.6669E-06
15.545	3.514	.1711E-03	21.395	1.036	.8892E-06

TABLE A7. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
21.545	1.047	.1136E-05	27.395	1.027	.2468E-06
21.695	1.051	.1209E-05	27.545	.935	-.5877E-06
21.845	1.027	.6241E-06	27.695	1.038	.3367E-06
21.995	1.002	.5458E-07	27.845	1.102	.8789E-06
22.145	1.001	.1097E-07	27.995	1.124	.1046E-05
22.295	.998	-.3862E-07	28.145	1.136	.1119E-05
22.445	1.010	.2149E-06	28.295	.934	-.5305E-06
22.595	1.029	.5833E-06	28.445	1.008	.5966E-07
22.745	1.042	.8334E-06	28.595	1.103	.7896E-06
22.895	1.017	.3346E-06	28.745	1.085	.6399E-06
23.045	1.023	.4213E-06	28.895	1.146	.1073E-05
23.195	1.017	.3029E-06			
23.345	.961	-.6836E-06			
23.495	.955	-.7758E-06			
23.645	1.025	.4207E-06			
23.795	1.035	.5721E-06			
23.945	1.007	.1144E-06			
24.095	1.038	.5991E-06			
24.245	1.013	.1916E-06			
24.395	.994	-.9146E-07			
24.545	1.063	.9091E-06			
24.695	1.075	.1068E-05			
24.845	1.019	.2655E-06			
24.995	.992	-.1061E-06			
25.145	1.025	.3260E-06			
25.295	.979	-.2772E-06			
25.445	.947	-.6716E-06			
25.595	.972	-.3404E-06			
25.745	1.009	.1098E-06			
25.895	1.005	.6086E-07			
26.045	1.000	.2305E-08			
26.195	1.040	.4468E-06			
26.345	1.012	.1291E-06			
26.495	.988	-.1247E-06			
26.645	.975	-.2643E-06			
26.795	1.031	.3203E-06			
26.945	1.064	.6323E-06			
27.095	1.020	.1992E-06			
27.245	1.026	.2440E-06			

TABLE A8. LIDAR DATA TAKEN ON JANUARY 31, 1983, AT GMT 1444-1503 BETWEEN 71.4°N, 66.0°W AND 72.7°N, 68.4°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.595	1.254	.6012E-04	13.445	2.172	.1117E-03
7.745	1.250	.5802E-04	13.595	2.203	.1118E-03
7.895	1.233	.5310E-04	13.745	2.220	.1108E-03
8.045	1.206	.4599E-04	13.895	2.246	.1103E-03
8.195	1.182	.3977E-04	14.045	2.266	.1094E-03
8.345	1.176	.3763E-04	14.195	2.289	.1087E-03
8.495	1.180	.3759E-04	14.345	2.275	.1050E-03
8.645	1.190	.3883E-04	14.495	2.261	.1013E-03
8.795	1.227	.4541E-04	14.645	2.262	.9901E-04
8.945	1.263	.5143E-04	14.795	2.302	.9965E-04
9.095	1.281	.5365E-04	14.945	2.435	.1072E-03
9.245	1.313	.5850E-04	15.095	2.581	.1152E-03
9.395	1.363	.6625E-04	15.245	2.675	.1191E-03
9.545	1.444	.7915E-04	15.395	2.720	.1194E-03
9.695	1.531	.9232E-04	15.545	2.652	.1118E-03
9.845	1.585	.9926E-04	15.695	2.453	.9599E-04
9.995	1.598	.9910E-04	15.845	2.228	.7917E-04
10.145	1.583	.9418E-04	15.995	2.013	.6372E-04
10.295	1.565	.8908E-04	16.145	1.805	.4943E-04
10.445	1.582	.8949E-04	16.295	1.644	.3859E-04
10.595	1.666	.1000E-03	16.445	1.557	.3253E-04
10.745	1.767	.1123E-03	16.595	1.472	.2690E-04
10.895	1.806	.1153E-03	16.745	1.417	.2320E-04
11.045	1.818	.1143E-03	16.895	1.413	.2241E-04
11.195	1.827	.1129E-03	17.045	1.325	.1719E-04
11.345	1.840	.1119E-03	17.195	1.170	.8751E-05
11.495	1.874	.1138E-03	17.345	1.088	.4406E-05
11.645	1.932	.1184E-03	17.495	1.095	.4636E-05
11.795	1.983	.1221E-03	17.645	1.143	.6812E-05
11.945	2.010	.1225E-03	17.795	1.174	.8084E-05
12.095	2.036	.1227E-03	17.945	1.094	.4272E-05
12.245	2.058	.1224E-03	18.095	1.102	.4489E-05
12.395	2.077	.1217E-03	18.245	1.103	.4443E-05
12.545	2.093	.1206E-03	18.395	1.101	.4256E-05
12.695	2.096	.1179E-03	18.545	1.071	.2924E-05
12.845	2.099	.1154E-03	18.695	1.030	.1204E-05
12.995	2.109	.1136E-03	18.845	1.025	.9640E-06
13.145	2.131	.1132E-03	18.995	1.006	.2309E-06
13.295	2.143	.1116E-03	19.145	.987	-.4616E-06

TABLE A8. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.295	1.025	.9008E-06	25.145	1.172	.2249E-05
19.445	1.016	.5713E-06	25.295	1.208	.2640E-05
19.595	1.028	.9461E-06	25.445	1.232	.2874E-05
19.745	1.076	.2512E-05	25.595	1.336	.4050E-05
19.895	1.079	.2536E-05	25.745	1.321	.3770E-05
20.045	1.037	.1161E-05	25.895	1.220	.2513E-05
20.195	1.025	.7663E-06	26.045	1.118	.1311E-05
20.345	1.035	.1027E-05	26.195	.999	-.1414E-07
20.495	1.027	.7856E-06	26.345	1.037	.3868E-06
20.645	1.043	.1204E-05	26.495	1.104	.1074E-05
20.795	1.024	.6713E-06	26.645	1.181	.1818E-05
20.945	.994	-.1502E-06	26.795	1.211	.2066E-05
21.095	1.041	.1060E-05	26.945	1.254	.2420E-05
21.245	1.033	.8319E-06	27.095	1.289	.2678E-05
21.395	1.027	.6761E-06	27.245	1.283	.2558E-05
21.545	1.027	.6413E-06	27.395	1.347	.3053E-05
21.695	1.029	.6831E-06	27.545	1.322	.2766E-05
21.845	1.045	.1028E-05	27.695	1.407	.3397E-05
21.995	1.072	.1601E-05	27.845	1.388	.3159E-05
22.145	1.038	.8220E-06	27.995	1.332	.2631E-05
22.295	.954	-.9805E-06	28.145	1.277	.2137E-05
22.445	1.008	.1745E-06	28.295	1.364	.2738E-05
22.595	1.067	.1335E-05	28.445	1.449	.3291E-05
22.745	1.039	.7708E-06	28.595	1.258	.1840E-05
22.895	1.131	.2505E-05	28.745	1.347	.2415E-05
23.045	1.246	.4578E-05	28.895	1.535	.3628E-05
23.195	1.173	.3138E-05	29.045	1.337	.2225E-05
23.345	1.064	.1136E-05			
23.495	1.059	.1018E-05			
23.645	1.122	.2045E-05			
23.795	1.212	.3475E-05			
23.945	1.137	.2191E-05			
24.095	1.106	.1660E-05			
24.245	1.118	.1796E-05			
24.395	1.060	.8966E-06			
24.545	1.127	.1842E-05			
24.695	1.179	.2520E-05			
24.845	1.172	.2360E-05			
24.995	1.175	.2341E-05			

TABLE A9. LIDAR DATA TAKEN ON FEBRUARY 1, 1983, AT GMT 1602-1615 BETWEEN 76.2°N, 78.7°W AND 76.0°N, 83.3°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.692	.1582E-03	13.750	3.507	.2271E-03
8.050	1.703	.1575E-03	13.900	3.654	.2345E-03
8.200	1.727	.1595E-03	14.050	3.841	.2448E-03
8.350	1.759	.1630E-03	14.200	3.975	.2500E-03
8.500	1.772	.1620E-03	14.350	4.064	.2511E-03
8.650	1.758	.1552E-03	14.500	4.154	.2521E-03
8.800	1.757	.1514E-03	14.650	4.213	.2505E-03
8.950	1.784	.1531E-03	14.800	4.286	.2498E-03
9.100	1.816	.1555E-03	14.950	4.438	.2549E-03
9.250	1.840	.1563E-03	15.100	4.668	.2653E-03
9.400	1.863	.1569E-03	15.250	4.891	.2746E-03
9.550	1.890	.1579E-03	15.400	5.064	.2801E-03
9.700	1.922	.1598E-03	15.550	5.287	.2885E-03
9.850	1.957	.1618E-03	15.700	5.644	.3052E-03
10.000	1.996	.1644E-03	15.850	5.808	.3085E-03
10.150	2.043	.1681E-03	16.000	5.614	.2891E-03
10.300	2.095	.1722E-03	16.150	5.495	.2750E-03
10.450	2.165	.1789E-03	16.300	5.473	.2672E-03
10.600	2.261	.1891E-03	16.450	5.065	.2371E-03
10.750	2.333	.1951E-03	16.600	4.315	.1888E-03
10.900	2.335	.1908E-03	16.750	3.594	.1443E-03
11.050	2.304	.1820E-03	16.900	2.950	.1059E-03
11.200	2.306	.1781E-03	17.050	2.425	.7557E-04
11.350	2.362	.1814E-03	17.200	2.125	.5822E-04
11.500	2.473	.1917E-03	17.350	1.826	.4176E-04
11.650	2.638	.2083E-03	17.500	1.469	.2311E-04
11.800	2.788	.2221E-03	17.650	1.224	.1074E-04
11.950	2.820	.2208E-03	17.800	1.163	.7644E-05
12.100	2.775	.2104E-03	17.950	1.212	.9683E-05
12.250	2.774	.2054E-03	18.100	1.266	.1183E-04
12.400	2.790	.2025E-03	18.250	1.330	.1427E-04
12.550	2.825	.2017E-03	18.400	1.319	.1344E-04
12.700	2.910	.2061E-03	18.550	1.294	.1209E-04
12.850	2.962	.2065E-03	18.700	1.240	.9588E-05
13.000	3.035	.2089E-03	18.850	1.276	.1078E-04
13.150	3.161	.2163E-03	19.000	1.254	.9654E-05
13.300	3.281	.2227E-03	19.150	1.223	.8269E-05
13.450	3.365	.2252E-03	19.300	1.197	.7114E-05
13.600	3.428	.2255E-03	19.450	1.171	.6013E-05

TABLE A9. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	1.149	.5106E-05	25.450	1.046	.6242E-06
19.750	1.138	.4638E-05	25.600	1.140	.1872E-05
19.900	1.131	.4270E-05	25.750	1.202	.2636E-05
20.050	1.101	.3222E-05	25.900	1.121	.1540E-05
20.200	1.083	.2599E-05	26.050	1.051	.6418E-06
20.350	1.089	.2718E-05	26.200	.954	-.5629E-06
20.500	1.118	.3514E-05	26.350	.995	-.6223E-07
20.650	1.130	.3783E-05	26.500	1.123	.1423E-05
20.800	1.110	.3109E-05	26.650	1.111	.1260E-05
20.950	1.086	.2388E-05	26.800	1.046	.5076E-06
21.100	1.069	.1868E-05	26.950	1.076	.8234E-06
21.250	1.053	.1395E-05	27.100	1.161	.1694E-05
21.400	1.010	.2604E-06	27.250	1.138	.1416E-05
21.550	1.030	.7531E-06	27.400	1.131	.1321E-05
21.700	1.079	.1933E-05	27.550	1.140	.1371E-05
21.850	1.114	.2722E-05	27.700	1.166	.1586E-05
22.000	1.119	.2789E-05	27.850	1.244	.2286E-05
22.150	1.083	.1885E-05	28.000	1.255	.2331E-05
22.300	1.096	.2137E-05	28.150	1.225	.2005E-05
22.450	1.140	.3037E-05	28.300	1.152	.1326E-05
22.600	1.087	.1838E-05	28.450	1.158	.1341E-05
22.750	1.060	.1248E-05	28.600	1.248	.2058E-05
22.900	1.096	.1941E-05	28.750	1.272	.2204E-05
23.050	1.111	.2192E-05	28.900	1.284	.2249E-05
23.200	1.159	.3068E-05	29.050	1.244	.1880E-05
23.350	1.117	.2208E-05	29.200	1.337	.2539E-05
23.500	1.073	.1349E-05	29.350	1.305	.2244E-05
23.650	1.061	.1110E-05	29.500	1.162	.1165E-05
23.800	1.092	.1624E-05	29.650	1.252	.1771E-05
23.950	1.122	.2097E-05	29.800	1.292	.1997E-05
24.100	1.123	.2072E-05	29.950	1.341	.2284E-05
24.250	1.091	.1494E-05			
24.400	1.057	.9226E-06			
24.550	1.054	.8530E-06			
24.700	1.085	.1311E-05			
24.850	1.158	.2369E-05			
25.000	1.166	.2434E-05			
25.150	1.069	.9865E-06			
25.300	1.013	.1831E-06			

TABLE A10. LIDAR DATA TAKEN ON FEBRUARY 1, 1983, AT GMT 1630-1644 BETWEEN 75.5°N, 88.2°W AND 75.0°N, 92.3°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.714	.1632E-03	13.750	2.966	.1780E-03
8.050	1.739	.1656E-03	13.900	3.056	.1816E-03
8.200	1.772	.1693E-03	14.050	3.127	.1833E-03
8.350	1.771	.1657E-03	14.200	3.255	.1895E-03
8.500	1.743	.1559E-03	14.350	3.463	.2019E-03
8.650	1.707	.1449E-03	14.500	3.701	.2159E-03
8.800	1.707	.1415E-03	14.650	3.872	.2239E-03
8.950	1.738	.1442E-03	14.800	3.949	.2242E-03
9.100	1.775	.1478E-03	14.950	4.016	.2236E-03
9.250	1.814	.1516E-03	15.100	4.103	.2244E-03
9.400	1.842	.1530E-03	15.250	4.172	.2239E-03
9.550	1.860	.1527E-03	15.400	4.297	.2272E-03
9.700	1.902	.1562E-03	15.550	4.548	.2387E-03
9.850	1.949	.1604E-03	15.700	4.948	.2594E-03
10.000	1.963	.1590E-03	15.850	5.378	.2809E-03
10.150	1.973	.1568E-03	16.000	5.463	.2796E-03
10.300	1.992	.1561E-03	16.150	5.128	.2525E-03
10.450	2.006	.1545E-03	16.300	4.517	.2101E-03
10.600	2.013	.1518E-03	16.450	3.716	.1584E-03
10.750	2.050	.1537E-03	16.600	2.871	.1066E-03
10.900	2.134	.1621E-03	16.750	2.270	.7064E-04
11.050	2.231	.1719E-03	16.900	1.938	.5094E-04
11.200	2.301	.1775E-03	17.050	1.784	.4157E-04
11.350	2.331	.1773E-03	17.200	1.755	.3908E-04
11.500	2.331	.1733E-03	17.350	1.595	.3008E-04
11.650	2.315	.1672E-03	17.500	1.317	.1561E-04
11.800	2.269	.1577E-03	17.650	1.146	.7024E-05
11.950	2.237	.1500E-03	17.800	1.233	.1088E-04
12.100	2.293	.1533E-03	17.950	1.357	.1628E-04
12.250	2.397	.1618E-03	18.100	1.489	.2172E-04
12.400	2.483	.1677E-03	18.250	1.597	.2583E-04
12.550	2.541	.1703E-03	18.400	1.617	.2603E-04
12.700	2.580	.1705E-03	18.550	1.472	.1938E-04
12.850	2.592	.1675E-03	18.700	1.317	.1270E-04
13.000	2.588	.1630E-03	18.850	1.204	.7947E-05
13.150	2.598	.1600E-03	19.000	1.118	.4489E-05
13.300	2.636	.1597E-03	19.150	1.017	.6425E-06
13.450	2.714	.1632E-03	19.300	.980	-.7137E-06
13.600	2.840	.1709E-03	19.450	1.002	.8539E-07

TABLE A10. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	1.012	.4167E-06	25.450	1.329	.4517E-05
19.750	1.025	.6457E-06	25.600	1.357	.4780E-05
19.900	.999	-.2605E-07	25.750	1.274	.3563E-05
20.050	1.013	.4292E-06	25.900	1.179	.2289E-05
20.200	1.055	.1727E-05	26.050	1.166	.2066E-05
20.350	1.058	.1759E-05	26.200	1.202	.2459E-05
20.500	1.052	.1549E-05	26.350	1.314	.3725E-05
20.650	1.036	.1034E-05	26.500	1.486	.5635E-05
20.800	1.017	.4702E-06	26.650	1.545	.6167E-05
20.950	1.023	.6296E-06	26.800	1.420	.4647E-05
21.100	1.033	.9037E-06	26.950	1.334	.3605E-05
21.250	1.040	.1043E-05	27.100	1.279	.2942E-05
21.400	1.065	.1669E-05	27.250	1.313	.3222E-05
21.550	1.051	.1283E-05	27.400	1.352	.3536E-05
21.700	1.051	.1260E-05	27.550	1.242	.2370E-05
21.850	1.051	.1218E-05	27.700	1.162	.1548E-05
22.000	1.021	.4940E-06	27.850	1.207	.1936E-05
22.150	1.014	.3094E-06	28.000	1.267	.2436E-05
22.300	1.005	.1015E-06	28.150	1.221	.1970E-05
22.450	.996	-.9530E-07	28.300	1.085	.7359E-06
22.600	1.047	.1004E-05	28.450	1.156	.1327E-05
22.750	1.076	.1565E-05	28.600	1.209	.1731E-05
22.900	1.082	.1659E-05	28.750	1.216	.1763E-05
23.050	1.128	.2536E-05	28.900	1.315	.2487E-05
23.200	1.189	.3651E-05	29.050	1.385	.2976E-05
23.350	1.178	.3365E-05	29.200	1.328	.2472E-05
23.500	1.155	.2870E-05	29.350	1.256	.1884E-05
23.650	1.205	.3704E-05	29.500	1.409	.2941E-05
23.800	1.236	.4167E-05	29.650	1.413	.2894E-05
23.950	1.178	.3068E-05	29.800	1.326	.2236E-05
24.100	1.126	.2125E-05	29.950	1.294	.1964E-05
24.250	1.155	.2558E-05			
24.400	1.238	.3829E-05			
24.550	1.198	.3123E-05			
24.700	1.190	.2921E-05			
24.850	1.288	.4336E-05			
25.000	1.241	.3536E-05			
25.150	1.269	.3859E-05			
25.300	1.370	.5189E-05			

TABLE A11. LIDAR DATA TAKEN ON FEBRUARY 1, 1983, AT GMT 1644-1653 BETWEEN 75.0° N, 92.3° W AND 74.8° N, 95.0° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.629	.1439E-03	13.750	2.657	.1501E-03
8.050	1.625	.1400E-03	13.900	2.724	.1523E-03
8.200	1.641	.1407E-03	14.050	2.802	.1552E-03
8.350	1.658	.1415E-03	14.200	2.967	.1652E-03
8.500	1.686	.1439E-03	14.350	3.210	.1811E-03
8.650	1.702	.1438E-03	14.500	3.433	.1945E-03
8.800	1.744	.1489E-03	14.650	3.665	.2077E-03
8.950	1.787	.1536E-03	14.800	3.932	.2229E-03
9.100	1.783	.1493E-03	14.950	4.137	.2326E-03
9.250	1.812	.1512E-03	15.100	4.263	.2360E-03
9.400	1.850	.1546E-03	15.250	4.374	.2381E-03
9.550	1.819	.1453E-03	15.400	4.573	.2463E-03
9.700	1.823	.1425E-03	15.550	4.866	.2602E-03
9.850	1.880	.1488E-03	15.700	5.188	.2752E-03
10.000	1.899	.1484E-03	15.850	5.161	.2670E-03
10.150	1.884	.1424E-03	16.000	4.482	.2181E-03
10.300	1.875	.1377E-03	16.150	3.394	.1464E-03
10.450	1.906	.1391E-03	16.300	2.444	.8627E-04
10.600	1.994	.1490E-03	16.450	1.906	.5282E-04
10.750	2.104	.1615E-03	16.600	1.913	.5202E-04
10.900	2.185	.1693E-03	16.750	2.380	.7675E-04
11.050	2.223	.1707E-03	16.900	2.587	.8616E-04
11.200	2.252	.1707E-03	17.050	2.254	.6647E-04
11.350	2.273	.1696E-03	17.200	1.854	.4419E-04
11.500	2.250	.1627E-03	17.350	1.715	.3616E-04
11.650	2.193	.1517E-03	17.500	1.645	.3179E-04
11.800	2.153	.1432E-03	17.650	1.517	.2484E-04
11.950	2.188	.1441E-03	17.800	2.061	.4964E-04
12.100	2.291	.1531E-03	17.950	2.547	.7049E-04
12.250	2.399	.1620E-03	18.100	2.530	.6795E-04
12.400	2.463	.1654E-03	18.250	2.038	.4492E-04
12.550	2.513	.1672E-03	18.400	1.594	.2504E-04
12.700	2.549	.1671E-03	18.550	1.339	.1394E-04
12.850	2.538	.1619E-03	18.700	1.171	.6828E-05
13.000	2.541	.1582E-03	18.850	1.046	.1785E-05
13.150	2.578	.1579E-03	19.000	.985	-.5551E-06
13.300	2.602	.1564E-03	19.150	.977	-.8686E-06
13.450	2.620	.1543E-03	19.300	.990	-.3767E-06
13.600	2.626	.1510E-03	19.450	.994	-.2127E-06

TABLE A11. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	1.001	.3960E-07	25.450	1.335	.4600E-05
19.750	1.050	.1669E-05	25.600	1.446	.5979E-05
19.900	1.073	.2400E-05	25.750	1.725	.9483E-05
20.050	1.052	.1646E-05	25.900	2.114	.1422E-04
20.200	1.060	.1883E-05	26.050	2.242	.1548E-04
20.350	1.016	.4870E-06	26.200	2.027	.1249E-04
20.500	.973	-.7905E-06	26.350	1.915	.9682E-05
20.650	1.011	.3075E-06	26.500	1.665	.7716E-05
20.800	1.018	.5073E-06	26.650	1.578	.6551E-05
20.950	.989	-.2992E-06	26.800	1.309	.3419E-05
21.100	.998	-.5365E-07	26.950	1.142	.1537E-05
21.250	1.017	.4360E-06	27.100	1.116	.1224E-05
21.400	1.035	.8904E-06	27.250	1.084	.8635E-06
21.550	1.075	.1892E-05	27.400	1.167	.1675E-05
21.700	1.130	.3187E-05	27.550	1.169	.1662E-05
21.850	1.175	.4195E-05	27.700	1.082	.7851E-06
22.000	1.216	.5036E-05	27.850	1.073	.6824E-06
22.150	1.241	.5495E-05	28.000	1.083	.7602E-06
22.300	1.193	.4292E-05	28.150	1.147	.1307E-05
22.450	1.103	.2242E-05	28.300	1.190	.1657E-05
22.600	1.118	.2500E-05	28.450	1.284	.2417E-05
22.750	1.178	.3692E-05	28.600	1.269	.2230E-05
22.900	1.215	.4344E-05	28.750	1.252	.2037E-05
23.050	1.311	.6162E-05	28.900	1.201	.1593E-05
23.200	1.415	.8027E-05	29.050	1.184	.1421E-05
23.350	1.395	.7463E-05	29.200	1.216	.1627E-05
23.500	1.379	.7006E-05	29.350	1.195	.1435E-05
23.650	1.353	.6381E-05	29.500	1.159	.1140E-05
23.800	1.394	.6960E-05	29.650	1.123	.8624E-06
23.950	1.461	.7954E-05	29.800	1.238	.1629E-05
24.100	1.537	.9049E-05	29.950	1.328	.2194E-05
24.250	1.701	.1156E-04			
24.400	1.808	.1300E-04			
24.550	1.844	.1329E-04			
24.700	1.764	.1175E-04			
24.850	1.621	.9340E-05			
25.000	1.529	.7777E-05			
25.150	1.403	.5785E-05			
25.300	1.366	.5142E-05			

TABLE A12. LIDAR DATA TAKEN ON FEBRUARY 1, 1983, AT GMT 1653-1702 BETWEEN 74.8°N, 95.0°W AND 74.9°N, 97.5°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.722	.1650E-03	13.750	2.879	.1702E-03
8.050	1.738	.1653E-03	13.900	2.919	.1695E-03
8.200	1.769	.1687E-03	14.050	2.979	.1705E-03
8.350	1.813	.1748E-03	14.200	3.155	.1811E-03
8.500	1.875	.1836E-03	14.350	3.378	.1949E-03
8.650	1.927	.1900E-03	14.500	3.541	.2031E-03
8.800	1.944	.1888E-03	14.650	3.734	.2131E-03
8.950	1.951	.1857E-03	14.800	4.036	.2308E-03
9.100	2.001	.1909E-03	14.950	4.385	.2510E-03
9.250	2.039	.1935E-03	15.100	4.736	.2702E-03
9.400	1.997	.1813E-03	15.250	5.060	.2865E-03
9.550	1.967	.1715E-03	15.400	4.904	.2691E-03
9.700	2.019	.1765E-03	15.550	4.121	.2100E-03
9.850	2.092	.1847E-03	15.700	3.135	.1403E-03
10.000	2.121	.1851E-03	15.850	2.317	.8450E-04
10.150	2.084	.1747E-03	16.000	1.929	.5818E-04
10.300	2.045	.1644E-03	16.150	2.027	.6283E-04
10.450	2.093	.1679E-03	16.300	2.113	.6648E-04
10.600	2.201	.1801E-03	16.450	2.012	.5900E-04
10.750	2.305	.1910E-03	16.600	1.764	.4351E-04
10.900	2.387	.1982E-03	16.750	1.537	.2984E-04
11.050	2.424	.1988E-03	16.900	1.391	.2124E-04
11.200	2.402	.1912E-03	17.050	1.386	.2049E-04
11.350	2.361	.1814E-03	17.200	1.648	.3353E-04
11.500	2.323	.1722E-03	17.350	1.732	.3702E-04
11.650	2.302	.1656E-03	17.500	1.526	.2590E-04
11.800	2.367	.1698E-03	17.650	1.874	.4195E-04
11.950	2.476	.1791E-03	17.800	2.905	.8910E-04
12.100	2.574	.1865E-03	17.950	2.989	.9064E-04
12.250	2.642	.1901E-03	18.100	2.433	.6365E-04
12.400	2.686	.1907E-03	18.250	1.867	.3752E-04
12.550	2.715	.1896E-03	18.400	1.579	.2440E-04
12.700	2.733	.1870E-03	18.550	1.337	.1383E-04
12.850	2.766	.1859E-03	18.700	1.089	.3561E-05
13.000	2.792	.1840E-03	18.850	1.022	.8654E-06
13.150	2.791	.1793E-03	19.000	1.012	.4547E-06
13.300	2.775	.1733E-03	19.150	.984	-.5933E-06
13.450	2.777	.1692E-03	19.300	1.004	.1464E-06
13.600	2.812	.1683E-03	19.450	1.081	.2830E-05

TABLE A12. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	1.165	.5649E-05	25.450	2.525	.2091E-04
19.750	1.200	.6694E-05	25.600	2.981	.2653E-04
19.900	1.227	.7410E-05	25.750	2.955	.2557E-04
20.050	1.248	.7917E-05	25.900	2.618	.2065E-04
20.200	1.241	.7510E-05	26.050	2.103	.1375E-04
20.350	1.239	.7258E-05	26.200	1.603	.7337E-05
20.500	1.253	.7508E-05	26.350	1.560	.6655E-05
20.650	1.346	.1002E-04	26.500	1.547	.6346E-05
20.800	1.386	.1092E-04	26.650	1.349	.3955E-05
20.950	1.275	.7592E-05	26.800	1.204	.2255E-05
21.100	1.293	.7904E-05	26.950	1.115	.1241E-05
21.250	1.516	.1359E-04	27.100	1.077	.8117E-06
21.400	1.680	.1749E-04	27.250	1.199	.2050E-05
21.550	1.706	.1779E-04	27.400	1.298	.2994E-05
21.700	1.702	.1721E-04	27.550	1.312	.3063E-05
21.850	1.714	.1708E-04	27.700	1.214	.2052E-05
22.000	1.711	.1662E-04	27.850	1.022	.2041E-06
22.150	1.609	.1388E-04	28.000	1.151	.1378E-05
22.300	1.626	.1393E-04	28.150	1.317	.2830E-05
22.450	1.688	.1496E-04	28.300	1.182	.1584E-05
22.600	1.736	.1563E-04	28.450	1.152	.1293E-05
22.750	1.745	.1545E-04	28.600	1.323	.2683E-05
22.900	1.716	.1450E-04	28.750	1.190	.1541E-05
23.050	1.716	.1416E-04	28.900	1.154	.1215E-05
23.200	1.695	.1344E-04	29.050	1.238	.1839E-05
23.350	1.787	.1487E-04	29.200	1.190	.1432E-05
23.500	1.818	.1512E-04	29.350	1.267	.1966E-05
23.650	1.882	.1593E-04	29.500	1.415	.2983E-05
23.800	2.119	.1974E-04	29.650	1.496	.3483E-05
23.950	2.259	.2171E-04	29.800	1.432	.2957E-05
24.100	2.077	.1815E-04	29.950	1.522	.3488E-05
24.250	1.763	.1257E-04			
24.400	1.632	.1018E-04			
24.550	1.598	.9410E-05			
24.700	1.526	.8090E-05			
24.850	1.405	.6092E-05			
25.000	1.416	.6118E-05			
25.150	1.646	.9274E-05			
25.300	2.004	.1409E-04			

TABLE A13. LIDAR DATA TAKEN ON FEBRUARY 1, 1983, AT GMT 1710-1718 BETWEEN 75.1°N, 99.7°W AND 75.2°N, 102.0°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.615	.1407E-03	13.750	2.764	.1597E-03
8.050	1.602	.1348E-03	13.900	2.782	.1574E-03
8.200	1.620	.1360E-03	14.050	2.791	.1543E-03
8.350	1.680	.1461E-03	14.200	2.848	.1553E-03
8.500	1.752	.1578E-03	14.350	3.108	.1728E-03
8.650	1.783	.1604E-03	14.500	3.293	.1833E-03
8.800	1.809	.1617E-03	14.650	3.083	.1624E-03
8.950	1.857	.1674E-03	14.800	2.742	.1325E-03
9.100	1.849	.1618E-03	14.950	2.592	.1181E-03
9.250	1.822	.1530E-03	15.100	2.640	.1166E-03
9.400	1.862	.1566E-03	15.250	2.863	.1315E-03
9.550	1.960	.1704E-03	15.400	2.996	.1376E-03
9.700	2.051	.1820E-03	15.550	2.771	.1191E-03
9.850	2.084	.1834E-03	15.700	2.386	.9111E-04
10.000	2.112	.1835E-03	15.850	2.036	.6649E-04
10.150	2.167	.1880E-03	16.000	1.664	.4157E-04
10.300	2.199	.1886E-03	16.150	1.370	.2266E-04
10.450	2.207	.1854E-03	16.300	1.243	.1450E-04
10.600	2.235	.1852E-03	16.450	1.196	.1141E-04
10.750	2.258	.1841E-03	16.600	1.205	.1169E-04
10.900	2.266	.1809E-03	16.750	1.345	.1918E-04
11.050	2.276	.1782E-03	16.900	1.649	.3521E-04
11.200	2.265	.1725E-03	17.050	1.760	.4028E-04
11.350	2.246	.1659E-03	17.200	1.569	.2946E-04
11.500	2.253	.1630E-03	17.350	1.607	.3068E-04
11.650	2.261	.1603E-03	17.500	1.965	.4754E-04
11.800	2.302	.1617E-03	17.650	2.398	.6712E-04
11.950	2.410	.1711E-03	17.800	2.290	.6033E-04
12.100	2.527	.1810E-03	17.950	1.992	.4522E-04
12.250	2.590	.1841E-03	18.100	1.864	.3836E-04
12.400	2.615	.1827E-03	18.250	1.581	.2513E-04
12.550	2.634	.1806E-03	18.400	1.208	.8750E-05
12.700	2.658	.1789E-03	18.550	1.044	.1820E-05
12.850	2.695	.1784E-03	18.700	1.045	.1805E-05
13.000	2.724	.1770E-03	18.850	1.028	.1103E-05
13.150	2.757	.1759E-03	19.000	1.034	.1290E-05
13.300	2.771	.1729E-03	19.150	1.096	.3548E-05
13.450	2.746	.1663E-03	19.300	1.102	.3692E-05
13.600	2.749	.1624E-03	19.450	1.115	.4058E-05

TABLE A13. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	1.203	.6959E-05	25.450	2.305	.1789E-04
19.750	1.293	.9805E-05	25.600	1.674	.9029E-05
19.900	1.400	.1307E-04	25.750	1.348	.4555E-05
20.050	1.530	.1690E-04	25.900	1.251	.3203E-05
20.200	1.635	.1978E-04	26.050	1.144	.1797E-05
20.350	1.763	.2323E-04	26.200	1.112	.1368E-05
20.500	1.864	.2566E-04	26.350	1.041	.4865E-06
20.650	1.834	.2419E-04	26.500	.978	-.2503E-06
20.800	1.831	.2352E-04	26.650	.964	-.4023E-06
20.950	1.891	.2462E-04	26.800	1.057	.6314E-06
21.100	2.012	.2730E-04	26.950	1.139	.1501E-05
21.250	2.066	.2808E-04	27.100	1.151	.1588E-05
21.400	2.027	.2642E-04	27.250	1.154	.1583E-05
21.550	2.004	.2520E-04	27.400	1.167	.1675E-05
21.700	2.023	.2507E-04	27.550	1.103	.1012E-05
21.850	1.985	.2357E-04	27.700	1.169	.1615E-05
22.000	1.996	.2328E-04	27.850	1.195	.1825E-05
22.150	2.166	.2660E-04	28.000	1.121	.1104E-05
22.300	2.254	.2793E-04	28.150	1.115	.1023E-05
22.450	2.345	.2925E-04	28.300	1.201	.1751E-05
22.600	2.494	.3171E-04	28.450	1.284	.2411E-05
22.750	2.498	.3104E-04	28.600	1.188	.1558E-05
22.900	2.451	.2938E-04	28.750	1.067	.5457E-06
23.050	2.465	.2899E-04	28.900	1.009	.7116E-07
23.200	2.500	.2902E-04	29.050	1.078	.6031E-06
23.350	2.403	.2651E-04	29.200	1.205	.1545E-05
23.500	2.220	.2253E-04	29.350	1.174	.1283E-05
23.650	2.028	.1855E-04	29.500	1.133	.9550E-06
23.800	1.943	.1665E-04	29.650	1.121	.8466E-06
23.950	1.910	.1569E-04	29.800	1.104	.7144E-06
24.100	1.720	.1214E-04	29.950	1.166	.1107E-05
24.250	1.518	.8533E-05			
24.400	1.582	.9373E-05			
24.550	2.038	.1634E-04			
24.700	2.493	.2297E-04			
24.850	2.765	.2653E-04			
25.000	2.494	.2929E-04			
25.150	3.056	.2952E-04			
25.300	2.845	.2589E-04			

TABLE A14. LIDAR DATA TAKEN ON FEBRUARY 1, 1983, AT GMT 1727-1736 BETWEEN 75.3°N, 104.7°W AND 75.3°N, 107.9°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.603	.1423E-03	13.750	2.919	.1803E-03
8.050	1.646	.1496E-03	13.900	2.969	.1804E-03
8.200	1.666	.1514E-03	14.050	3.023	.1807E-03
8.350	1.692	.1544E-03	14.200	3.085	.1817E-03
8.500	1.721	.1578E-03	14.350	3.196	.1865E-03
8.650	1.746	.1601E-03	14.500	3.359	.1954E-03
8.800	1.759	.1596E-03	14.650	3.405	.1942E-03
8.950	1.788	.1624E-03	14.800	3.231	.1757E-03
9.100	1.843	.1700E-03	14.950	2.849	.1420E-03
9.250	1.905	.1788E-03	15.100	2.385	.1037E-03
9.400	1.982	.1901E-03	15.250	2.029	.7510E-04
9.550	2.048	.1988E-03	15.400	1.844	.6006E-04
9.700	2.077	.2000E-03	15.550	1.711	.4934E-04
9.850	2.115	.2022E-03	15.700	1.590	.3995E-04
10.000	2.171	.2068E-03	15.850	1.507	.3348E-04
10.150	2.195	.2054E-03	16.000	1.411	.2643E-04
10.300	2.218	.2037E-03	16.150	1.331	.2075E-04
10.450	2.254	.2042E-03	16.300	1.283	.1733E-04
10.600	2.286	.2040E-03	16.450	1.247	.1470E-04
10.750	2.343	.2074E-03	16.600	1.259	.1503E-04
10.900	2.432	.2153E-03	16.750	1.660	.3739E-04
11.050	2.477	.2161E-03	16.900	2.143	.6315E-04
11.200	2.482	.2115E-03	17.050	1.849	.4577E-04
11.350	2.494	.2081E-03	17.200	1.444	.2332E-04
11.500	2.513	.2058E-03	17.350	1.749	.3837E-04
11.650	2.550	.2056E-03	17.500	2.160	.5791E-04
11.800	2.588	.2057E-03	17.650	2.272	.6193E-04
11.950	2.611	.2037E-03	17.800	2.140	.5420E-04
12.100	2.628	.2009E-03	17.950	2.219	.5661E-04
12.250	2.653	.1991E-03	18.100	2.313	.5956E-04
12.400	2.696	.1995E-03	18.250	2.126	.4988E-04
12.550	2.751	.2009E-03	18.400	1.863	.3735E-04
12.700	2.803	.2019E-03	18.550	1.900	.3806E-04
12.850	2.833	.2004E-03	18.700	1.847	.3501E-04
13.000	2.895	.2021E-03	18.850	1.459	.1854E-04
13.150	2.954	.2032E-03	19.000	1.309	.1217E-04
13.300	2.949	.1976E-03	19.150	1.481	.1851E-04
13.450	2.924	.1902E-03	19.300	1.688	.2586E-04
13.600	2.907	.1838E-03	19.450	1.869	.3193E-04

TABLE A14. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	2.128	.4047E-04	25.450	1.355	.5100E-05
19.750	2.166	.4089E-04	25.600	1.247	.3469E-05
19.900	2.109	.3799E-04	25.750	1.189	.2597E-05
20.050	2.237	.4138E-04	25.900	1.079	.1057E-05
20.200	2.269	.4148E-04	26.050	1.083	.1090E-05
20.350	2.409	.4499E-04	26.200	1.108	.1388E-05
20.500	2.650	.5145E-04	26.350	1.081	.1017E-05
20.650	2.802	.5490E-04	26.500	.979	-.2625E-06
20.800	2.890	.5627E-04	26.650	.960	-.4787E-06
20.950	2.904	.5537E-04	26.800	1.061	.7190E-06
21.100	2.795	.5098E-04	26.950	1.084	.9615E-06
21.250	2.630	.4525E-04	27.100	1.061	.6803E-06
21.400	2.521	.4125E-04	27.250	1.133	.1459E-05
21.550	2.549	.4103E-04	27.400	1.114	.1219E-05
21.700	2.597	.4132E-04	27.550	1.032	.3979E-06
21.850	2.677	.4239E-04	27.700	1.047	.4789E-06
22.000	2.707	.4216E-04	27.850	1.062	.6842E-06
22.150	2.623	.3916E-04	28.000	1.069	.6740E-06
22.300	2.509	.3556E-04	28.150	1.085	.8162E-06
22.450	2.373	.3161E-04	28.300	1.129	.1204E-05
22.600	2.252	.2816E-04	28.450	1.121	.1106E-05
22.750	2.122	.2465E-04	28.600	1.075	.6685E-06
22.900	2.031	.2213E-04	28.750	1.120	.1046E-05
23.050	1.948	.1989E-04	28.900	1.161	.1379E-05
23.200	1.745	.1527E-04	29.050	1.188	.1570E-05
23.350	1.578	.1157E-04	29.200	1.201	.1644E-05
23.500	1.572	.1119E-04	29.350	1.158	.1264E-05
23.650	1.581	.1109E-04	29.500	1.209	.1629E-05
23.800	1.488	.9093E-05	29.650	1.201	.1537E-05
23.950	1.487	.8867E-05	29.800	1.108	.6053E-06
24.100	1.618	.1099E-04	29.950	1.076	.5528E-06
24.250	1.735	.1276E-04	30.100	1.076	.5409E-06
24.400	1.878	.1489E-04	30.250	1.028	.1977E-06
24.550	1.960	.1590E-04	30.400	1.101	.6861E-06
24.700	2.039	.1680E-04	30.550	1.314	.2097E-05
24.850	2.060	.1674E-04			
25.000	1.875	.1350E-04			
25.150	1.668	.1007E-04			
25.300	1.537	.7907E-05			

TABLE A15. LIDAR DATA TAKEN ON FEBRUARY 1, 1983, AT GMT 1749-1801 BETWEEN 75.4° N, 109.1° W AND 75.3° N, 105.2° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.273	.6435E-04	13.750	2.583	.1487E-03
8.050	1.272	.6288E-04	13.900	2.633	.1497E-03
8.200	1.279	.6337E-04	14.050	2.681	.1502E-03
8.350	1.297	.6611E-04	14.200	2.771	.1543E-03
8.500	1.307	.6726E-04	14.350	2.877	.1595E-03
8.650	1.307	.6597E-04	14.500	2.937	.1605E-03
8.800	1.324	.6811E-04	14.650	2.823	.1473E-03
8.950	1.358	.7384E-04	14.800	2.576	.1241E-03
9.100	1.397	.8001E-04	14.950	2.328	.1019E-03
9.250	1.449	.8871E-04	15.100	2.056	.7909E-04
9.400	1.528	.1022E-03	15.250	1.834	.6087E-04
9.550	1.629	.1193E-03	15.400	1.725	.5160E-04
9.700	1.694	.1288E-03	15.550	1.629	.4367E-04
9.850	1.731	.1325E-03	15.700	1.534	.3616E-04
10.000	1.788	.1390E-03	15.850	1.434	.2865E-04
10.150	1.835	.1434E-03	16.000	1.324	.2087E-04
10.300	1.874	.1462E-03	16.150	1.241	.1513E-04
10.450	1.913	.1487E-03	16.300	1.153	.9347E-05
10.600	1.939	.1490E-03	16.450	1.121	.7197E-05
10.750	1.973	.1503E-03	16.600	1.270	.1567E-04
10.900	2.024	.1539E-03	16.750	1.755	.4278E-04
11.050	2.063	.1557E-03	16.900	1.982	.5426E-04
11.200	2.095	.1563E-03	17.050	1.562	.3028E-04
11.350	2.125	.1568E-03	17.200	1.347	.1822E-04
11.500	2.156	.1572E-03	17.350	1.686	.3514E-04
11.650	2.189	.1577E-03	17.500	2.007	.5030E-04
11.800	2.224	.1586E-03	17.650	2.045	.5087E-04
11.950	2.258	.1590E-03	17.800	2.053	.5007E-04
12.100	2.279	.1578E-03	17.950	2.127	.5233E-04
12.250	2.286	.1549E-03	18.100	2.225	.5559E-04
12.400	2.320	.1552E-03	18.250	2.053	.4665E-04
12.550	2.369	.1572E-03	18.400	1.937	.4055E-04
12.700	2.419	.1590E-03	18.550	2.006	.4255E-04
12.850	2.447	.1582E-03	18.700	1.761	.3142E-04
13.000	2.479	.1577E-03	18.850	1.487	.1966E-04
13.150	2.520	.1580E-03	19.000	1.625	.2465E-04
13.300	2.528	.1549E-03	19.150	1.820	.3157E-04
13.450	2.520	.1503E-03	19.300	1.971	.3653E-04
13.600	2.535	.1480E-03	19.450	2.045	.3840E-04

TABLE A15. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	2.029	.3694E-04	25.450	1.351	.5043E-05
19.750	2.030	.3609E-04	25.600	1.223	.3134E-05
19.900	2.053	.3604E-04	25.750	1.159	.2174E-05
20.050	2.088	.3639E-04	25.900	1.106	.1419E-05
20.200	2.232	.4028E-04	26.050	1.066	.8683E-06
20.350	2.547	.4938E-04	26.200	1.085	.1088E-05
20.500	2.776	.5538E-04	26.350	1.066	.8328E-06
20.650	2.802	.5490E-04	26.500	1.031	.3851E-06
20.800	2.811	.5391E-04	26.650	1.048	.5783E-06
20.950	2.734	.5044E-04	26.800	1.082	.9546E-06
21.100	2.643	.4668E-04	26.950	1.118	.1350E-05
21.250	2.504	.4174E-04	27.100	1.104	.1163E-05
21.400	2.473	.3995E-04	27.250	1.076	.8348E-06
21.550	2.534	.4064E-04	27.400	1.006	.6712E-07
21.700	2.526	.3950E-04	27.550	.986	-.1439E-06
21.850	2.582	.4000E-04	27.700	1.007	.7653E-07
22.000	2.581	.3904E-04	27.850	1.076	.7574E-06
22.150	2.503	.3627E-04	28.000	1.075	.7348E-06
22.300	2.418	.3341E-04	28.150	1.122	.1163E-05
22.450	2.269	.2921E-04	28.300	1.096	.9018E-06
22.600	2.124	.2528E-04	28.450	1.043	.3886E-06
22.750	2.132	.2487E-04	28.600	1.086	.7727E-06
22.900	2.080	.2318E-04	28.750	1.091	.7970E-06
23.050	1.924	.1937E-04	28.900	1.079	.6727E-06
23.200	1.774	.1586E-04	29.050	1.094	.7895E-06
23.350	1.626	.1253E-04	29.200	1.178	.1453E-05
23.500	1.580	.1133E-04	29.350	1.157	.1257E-05
23.650	1.520	.9921E-05	29.500	1.119	.9265E-06
23.800	1.423	.7889E-05	29.650	.983	-.1275E-06
23.950	1.393	.7146E-05	29.800	.926	-.5530E-06
24.100	1.481	.8550E-05	29.950	.984	-.1192E-06
24.250	1.662	.1150E-04	30.100	.983	-.1203E-06
24.400	1.680	.1153E-04	30.250	1.044	.3064E-06
24.550	1.723	.1197E-04	30.400	1.026	.1801E-06
24.700	1.881	.1424E-04	30.550	.979	-.1396E-06
24.850	1.915	.1445E-04			
25.000	1.837	.1292E-04			
25.150	1.629	.9478E-05			
25.300	1.426	.6263E-05			

TABLE A16. LIDAR DATA TAKEN ON FEBRUARY 1, 1983, AT GMT 1814-1826 BETWEEN 75.1° N, 100.9° W AND 74.9° N, 96.6° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.545	.1247E-03	13.750	2.847	.1673E-03
8.050	1.576	.1290E-03	13.900	2.894	.1673E-03
8.200	1.601	.1318E-03	14.050	3.007	.1729E-03
8.350	1.624	.1341E-03	14.200	3.166	.1820E-03
8.500	1.639	.1342E-03	14.350	3.318	.1900E-03
8.650	1.660	.1353E-03	14.500	3.535	.2027E-03
8.800	1.694	.1389E-03	14.650	3.823	.2201E-03
8.950	1.713	.1392E-03	14.800	4.036	.2308E-03
9.100	1.739	.1410E-03	14.950	4.113	.2308E-03
9.250	1.795	.1481E-03	15.100	4.092	.2236E-03
9.400	1.858	.1560E-03	15.250	3.933	.2070E-03
9.550	1.879	.1560E-03	15.400	3.625	.1809E-03
9.700	1.876	.1517E-03	15.550	3.032	.1367E-03
9.850	1.912	.1542E-03	15.700	2.361	.8946E-04
10.000	1.957	.1580E-03	15.850	2.044	.6697E-04
10.150	1.974	.1569E-03	16.000	1.999	.6260E-04
10.300	1.989	.1555E-03	16.150	1.982	.6010E-04
10.450	2.009	.1550E-03	16.300	1.764	.4566E-04
10.600	2.070	.1604E-03	16.450	1.445	.2596E-04
10.750	2.174	.1719E-03	16.600	1.261	.1485E-04
10.900	2.256	.1794E-03	16.750	1.296	.1644E-04
11.050	2.272	.1775E-03	16.900	1.357	.1936E-04
11.200	2.223	.1668E-03	17.050	1.565	.2996E-04
11.350	2.158	.1543E-03	17.200	1.784	.4056E-04
11.500	2.154	.1502E-03	17.350	1.601	.3038E-04
11.650	2.266	.1610E-03	17.500	1.512	.2525E-04
11.800	2.395	.1733E-03	17.650	2.009	.4842E-04
11.950	2.461	.1773E-03	17.800	2.673	.7827E-04
12.100	2.503	.1781E-03	17.950	2.540	.7021E-04
12.250	2.528	.1770E-03	18.100	2.070	.4753E-04
12.400	2.556	.1760E-03	18.250	1.745	.3224E-04
12.550	2.599	.1767E-03	18.400	1.418	.1762E-04
12.700	2.620	.1749E-03	18.550	1.115	.4713E-05
12.850	2.623	.1708E-03	18.700	1.011	.4578E-06
13.000	2.627	.1670E-03	18.850	.993	-.2892E-06
13.150	2.642	.1643E-03	19.000	.996	-.1529E-06
13.300	2.670	.1630E-03	19.150	1.014	.5239E-06
13.450	2.743	.1659E-03	19.300	1.035	.1265E-05
13.600	2.806	.1678E-03	19.450	1.077	.2710E-05

TABLE A16. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	1.187	.6420E-05	25.450	2.617	.2218E-04
19.750	1.277	.9267E-05	25.600	2.738	.2327E-04
19.900	1.368	.1203E-04	25.750	2.670	.2183E-04
20.050	1.431	.1375E-04	25.900	2.270	.1621E-04
20.200	1.431	.1343E-04	26.050	1.808	.1007E-04
20.350	1.512	.1557E-04	26.200	1.555	.6752E-05
20.500	1.647	.1923E-04	26.350	1.302	.3592E-05
20.650	1.658	.1908E-04	26.500	1.278	.3223E-05
20.800	1.535	.1514E-04	26.650	1.221	.2502E-05
20.950	1.521	.1439E-04	26.800	1.154	.1702E-05
21.100	1.710	.1917E-04	26.950	1.232	.2507E-05
21.250	1.862	.2272E-04	27.100	1.273	.2674E-05
21.400	1.889	.2286E-04	27.250	1.244	.2508E-05
21.550	1.735	.1845E-04	27.400	1.427	.4285E-05
21.700	1.626	.1535E-04	27.550	1.418	.4105E-05
21.850	1.688	.1646E-04	27.700	1.228	.2186E-05
22.000	1.719	.1680E-04	27.850	1.196	.1835E-05
22.150	1.719	.1639E-04	28.000	1.238	.2170E-05
22.300	1.756	.1684E-04	28.150	1.279	.2491E-05
22.450	1.791	.1719E-04	28.300	1.201	.1746E-05
22.600	1.880	.1868E-04	28.450	1.098	.6329E-06
22.750	1.962	.1993E-04	28.600	1.145	.1205E-05
22.900	2.001	.2027E-04	28.750	1.206	.1669E-05
23.050	2.041	.2060E-04	28.900	1.292	.2306E-05
23.200	2.234	.2387E-04	29.050	1.336	.2595E-05
23.350	2.461	.2762E-04	29.200	1.407	.3066E-05
23.500	2.408	.2600E-04	29.350	1.469	.3451E-05
23.650	2.347	.2433E-04	29.500	1.303	.2175E-05
23.800	2.279	.2258E-04	29.650	1.286	.2020E-05
23.950	2.053	.1816E-04	29.800	1.315	.2159E-05
24.100	1.954	.1608E-04	29.950	1.261	.1742E-05
24.250	1.798	.1314E-04			
24.400	1.647	.1042E-04			
24.550	1.539	.8483E-05			
24.700	1.623	.9588E-05			
24.850	1.854	.1284E-04			
25.000	2.048	.1539E-04			
25.150	2.392	.2000E-04			
25.300	2.573	.2208E-04			

TABLE A17. LIDAR DATA TAKEN ON FEBRUARY 1, 1983, AT GMT 1826-1839 BETWEEN 74.9° N, 96.6° W AND 74.9° N, 94.3° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.572	.1309E-03	13.750	2.899	.1720E-03
8.050	1.608	.1362E-03	13.900	3.061	.1821E-03
8.200	1.615	.1350E-03	14.050	3.194	.1890E-03
8.350	1.597	.1284E-03	14.200	3.290	.1924E-03
8.500	1.583	.1224E-03	14.350	3.448	.2006E-03
8.650	1.584	.1197E-03	14.500	3.664	.2129E-03
8.800	1.604	.1209E-03	14.650	3.847	.2219E-03
8.950	1.643	.1255E-03	14.800	3.943	.2236E-03
9.100	1.681	.1298E-03	14.950	3.993	.2219E-03
9.250	1.687	.1279E-03	15.100	4.083	.2230E-03
9.400	1.691	.1255E-03	15.250	4.167	.2250E-03
9.550	1.724	.1285E-03	15.400	4.325	.2292E-03
9.700	1.778	.1348E-03	15.550	4.536	.2379E-03
9.850	1.837	.1415E-03	15.700	4.686	.2422E-03
10.000	1.862	.1423E-03	15.850	4.646	.2340E-03
10.150	1.838	.1351E-03	16.000	4.531	.2212E-03
10.300	1.810	.1275E-03	16.150	4.148	.1926E-03
10.450	1.817	.1254E-03	16.300	3.268	.1355E-03
10.600	1.855	.1282E-03	16.450	2.450	.8458E-04
10.750	1.931	.1362E-03	16.600	2.176	.6698E-04
10.900	2.026	.1466E-03	16.750	2.148	.6384E-04
11.050	2.101	.1536E-03	16.900	2.145	.6218E-04
11.200	2.156	.1577E-03	17.050	1.950	.5036E-04
11.350	2.171	.1560E-03	17.200	1.692	.3585E-04
11.500	2.126	.1466E-03	17.350	1.678	.3425E-04
11.650	2.104	.1403E-03	17.500	1.614	.3024E-04
11.800	2.158	.1438E-03	17.650	1.491	.2357E-04
11.950	2.235	.1498E-03	17.800	1.825	.3861E-04
12.100	2.290	.1529E-03	17.950	2.127	.5136E-04
12.250	2.336	.1547E-03	18.100	2.172	.5206E-04
12.400	2.370	.1549E-03	18.250	2.106	.4787E-04
12.550	2.401	.1549E-03	18.400	1.846	.3567E-04
12.700	2.428	.1541E-03	18.550	1.510	.2097E-04
12.850	2.441	.1517E-03	18.700	1.283	.1135E-04
13.000	2.455	.1493E-03	18.850	1.203	.7937E-05
13.150	2.502	.1504E-03	19.000	1.177	.6740E-05
13.300	2.585	.1548E-03	19.150	1.125	.4646E-05
13.450	2.674	.1594E-03	19.300	1.025	.9138E-06
13.600	2.768	.1642E-03	19.450	.985	-.5217E-06

TABLE A17. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	.990	-.3597E-06	25.450	1.408	.5595E-05
19.750	1.020	.6588E-06	25.600	1.467	.6256E-05
19.900	1.056	.1844E-05	25.750	1.640	.8365E-05
20.050	1.057	.1812E-05	25.900	1.741	.9457E-05
20.200	1.039	.1207E-05	26.050	1.792	.9870E-05
20.350	1.014	.4403E-06	26.200	1.811	.9870E-05
20.500	.993	-.1949E-06	26.350	1.653	.7759E-05
20.650	1.055	.1582E-05	26.500	1.486	.5632E-05
20.800	1.059	.1678E-05	26.650	1.384	.4354E-05
20.950	1.054	.1495E-05	26.800	1.345	.3811E-05
21.100	1.032	.8533E-06	26.950	1.282	.3048E-05
21.250	1.011	.2820E-06	27.100	1.190	.1999E-05
21.400	1.049	.1266E-05	27.250	1.171	.1761E-05
21.550	1.116	.2901E-05	27.400	1.257	.2582E-05
21.700	1.111	.2723E-05	27.550	1.306	.2998E-05
21.850	1.109	.2609E-05	27.700	1.385	.3683E-05
22.000	1.118	.2752E-05	27.850	1.375	.3504E-05
22.150	1.171	.3897E-05	28.000	1.348	.3176E-05
22.300	1.171	.3797E-05	28.150	1.332	.2957E-05
22.450	1.162	.3513E-05	28.300	1.236	.2058E-05
22.600	1.242	.5140E-05	28.450	1.216	.1834E-05
22.750	1.279	.5780E-05	28.600	1.200	.1660E-05
22.900	1.286	.5799E-05	28.750	1.291	.2359E-05
23.050	1.289	.5725E-05	28.900	1.376	.2975E-05
23.200	1.337	.6526E-05	29.050	1.300	.2314E-05
23.350	1.428	.8092E-05	29.200	1.306	.2305E-05
23.500	1.488	.9018E-05	29.350	1.213	.1567E-05
23.650	1.589	.1063E-04	29.500	1.366	.2632E-05
23.800	1.654	.1154E-04	29.650	1.423	.2966E-05
23.950	1.711	.1226E-04	29.800	1.269	.1840E-05
24.100	1.637	.1073E-04	29.950	1.173	.1160E-05
24.250	1.488	.8033E-05			
24.400	1.536	.8630E-05			
24.550	1.534	.8408E-05			
24.700	1.420	.6456E-05			
24.850	1.363	.5451E-05			
25.000	1.418	.6145E-05			
25.150	1.475	.6819E-05			
25.300	1.475	.6665E-05			

TABLE A18. LIDAR DATA TAKEN ON FEBRUARY 1, 1983, AT GMT 1852-1905 BETWEEN 75.5° N, 88.2° W AND 75.9° N, 83.9° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.507	.1160E-03	13.750	3.110	.1911E-03
8.050	1.526	.1178E-03	13.900	3.260	.1997E-03
8.200	1.551	.1210E-03	14.050	3.405	.2072E-03
8.350	1.567	.1219E-03	14.200	3.502	.2103E-03
8.500	1.564	.1184E-03	14.350	3.577	.2112E-03
8.650	1.559	.1144E-03	14.500	3.732	.2184E-03
8.800	1.574	.1148E-03	14.650	3.863	.2232E-03
8.950	1.606	.1183E-03	14.800	3.908	.2211E-03
9.100	1.631	.1204E-03	14.950	3.986	.2214E-03
9.250	1.658	.1225E-03	15.100	4.150	.2278E-03
9.400	1.693	.1259E-03	15.250	4.318	.2342E-03
9.550	1.723	.1282E-03	15.400	4.506	.2416E-03
9.700	1.740	.1282E-03	15.550	4.708	.2495E-03
9.850	1.765	.1293E-03	15.700	4.955	.2599E-03
10.000	1.798	.1318E-03	15.850	5.261	.2734E-03
10.150	1.841	.1355E-03	16.000	5.434	.2778E-03
10.300	1.897	.1412E-03	16.150	5.233	.2590E-03
10.450	1.977	.1501E-03	16.300	4.781	.2259E-03
10.600	2.068	.1601E-03	16.450	4.192	.1862E-03
10.750	2.118	.1636E-03	16.600	3.549	.1452E-03
10.900	2.070	.1530E-03	16.750	3.050	.1140E-03
11.050	2.031	.1439E-03	16.900	2.620	.8799E-04
11.200	2.099	.1498E-03	17.050	2.180	.6254E-04
11.350	2.230	.1639E-03	17.200	1.841	.4353E-04
11.500	2.363	.1774E-03	17.350	1.652	.3297E-04
11.650	2.417	.1802E-03	17.500	1.590	.2907E-04
11.800	2.402	.1741E-03	17.650	1.530	.2546E-04
11.950	2.413	.1715E-03	17.800	1.536	.2507E-04
12.100	2.399	.1658E-03	17.950	1.533	.2431E-04
12.250	2.328	.1537E-03	18.100	1.408	.1812E-04
12.400	2.356	.1534E-03	18.250	1.331	.1433E-04
12.550	2.481	.1636E-03	18.400	1.263	.1109E-04
12.700	2.584	.1710E-03	18.550	1.177	.7286E-05
12.850	2.664	.1751E-03	18.700	1.109	.4362E-05
13.000	2.723	.1769E-03	18.850	1.096	.3734E-05
13.150	2.787	.1788E-03	19.000	1.087	.3298E-05
13.300	2.845	.1802E-03	19.150	1.079	.2938E-05
13.450	2.882	.1792E-03	19.300	1.094	.3388E-05
13.600	2.967	.1827E-03	19.450	1.052	.1844E-05

TABLE A18. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	1.056	.1904E-05	25.450	1.071	.9684E-06
19.750	1.070	.2337E-05	25.600	1.068	.9132E-06
19.900	1.045	.1477E-05	25.750	1.018	.2305E-06
20.050	1.047	.1511E-05	25.900	.968	-.4045E-06
20.200	1.053	.1644E-05	26.050	1.061	.7646E-06
20.350	1.062	.1871E-05	26.200	1.100	.1223E-05
20.500	1.077	.2273E-05	26.350	1.101	.1206E-05
20.650	1.058	.1687E-05	26.500	1.074	.8640E-06
20.800	1.034	.9661E-06	26.650	1.101	.1146E-05
20.950	1.023	.6411E-06	26.800	1.145	.1598E-05
21.100	1.033	.8853E-06	26.950	1.095	.1022E-05
21.250	1.040	.1051E-05	27.100	1.113	.1196E-05
21.400	1.011	.2766E-06	27.250	1.171	.1758E-05
21.550	1.005	.1347E-06	27.400	1.214	.2146E-05
21.700	1.019	.4677E-06	27.550	1.194	.1906E-05
21.850	1.025	.5985E-06	27.700	1.155	.1487E-05
22.000	1.060	.1400E-05	27.850	1.196	.1832E-05
22.150	1.052	.1195E-05	28.000	1.146	.1331E-05
22.300	1.022	.4867E-06	28.150	1.180	.1603E-05
22.450	1.003	.7288E-07	28.300	1.254	.2209E-05
22.600	.981	-.3929E-06	28.450	1.293	.2489E-05
22.750	1.040	.8367E-06	28.600	1.228	.1892E-05
22.900	1.038	.7602E-06	28.750	1.100	.8064E-06
23.050	1.009	.1817E-06	28.900	1.175	.1382E-05
23.200	1.014	.2641E-06	29.050	1.155	.1197E-05
23.350	1.006	.1224E-06	29.200	1.077	.5783E-06
23.500	1.032	.5888E-06	29.350	1.124	.9137E-06
23.650	1.064	.1160E-05	29.500	1.164	.1178E-05
23.800	1.006	.1121E-06	29.650	1.166	.1167E-05
23.950	.962	-.6613E-06	29.800	1.260	.1784E-05
24.100	1.032	.5393E-06	29.950	1.442	.2957E-05
24.250	1.031	.5134E-06			
24.400	1.016	.2556E-06			
24.550	1.054	.8531E-06			
24.700	1.127	.1956E-05			
24.850	1.114	.1707E-05			
25.000	1.046	.6816E-06			
25.150	1.117	.1680E-05			
25.300	1.127	.1789E-05			

TABLE A19. LIDAR DATA TAKEN ON FEBRUARY 2, 1983, AT GMT 1358-1409 BETWEEN 75.2° N, 72.8°W AND 74.5°N, 74.4°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.283	.6501E-04	13.750	3.133	.1978E-03
8.050	1.306	.6869E-04	13.900	3.135	.1935E-03
8.200	1.340	.7488E-04	14.050	3.139	.1895E-03
8.350	1.365	.7868E-04	14.200	3.242	.1941E-03
8.500	1.392	.8255E-04	14.350	3.469	.2089E-03
8.650	1.428	.8816E-04	14.500	3.587	.2139E-03
8.800	1.476	.9567E-04	14.650	3.548	.2058E-03
8.950	1.528	.1036E-03	14.800	3.576	.2034E-03
9.100	1.610	.1170E-03	14.950	3.745	.2117E-03
9.250	1.727	.1363E-03	15.100	4.027	.2261E-03
9.400	1.810	.1483E-03	15.250	4.222	.2367E-03
9.550	1.872	.1559E-03	15.400	4.242	.2322E-03
9.700	1.924	.1613E-03	15.550	4.096	.2163E-03
9.850	1.923	.1572E-03	15.700	3.711	.1847E-03
10.000	1.936	.1557E-03	15.850	3.214	.1471E-03
10.150	1.991	.1610E-03	16.000	2.694	.1098E-03
10.300	2.005	.1594E-03	16.150	2.190	.7517E-04
10.450	1.884	.1368E-03	16.300	1.948	.5842E-04
10.600	1.756	.1143E-03	16.450	1.895	.5380E-04
10.750	1.829	.1223E-03	16.600	1.949	.5563E-04
10.900	2.022	.1471E-03	16.750	2.145	.6545E-04
11.050	2.145	.1611E-03	16.900	2.038	.5787E-04
11.200	2.190	.1636E-03	17.050	1.704	.3828E-04
11.350	2.184	.1591E-03	17.200	1.429	.2270E-04
11.500	2.171	.1537E-03	17.350	1.218	.1124E-04
11.650	2.195	.1533E-03	17.500	1.138	.6921E-05
11.800	2.237	.1550E-03	17.650	1.121	.5925E-05
11.950	2.291	.1580E-03	17.800	1.171	.8149E-05
12.100	2.371	.1640E-03	17.950	1.181	.8448E-05
12.250	2.458	.1704E-03	18.100	1.228	.1035E-04
12.400	2.501	.1714E-03	18.250	1.303	.1342E-04
12.550	2.498	.1671E-03	18.400	1.403	.1736E-04
12.700	2.432	.1561E-03	18.550	1.375	.1575E-04
12.850	2.435	.1529E-03	18.700	1.330	.1352E-04
13.000	2.588	.1653E-03	18.850	1.293	.1170E-04
13.150	2.750	.1780E-03	19.000	1.202	.7861E-05
13.300	2.370	.1859E-03	19.150	1.130	.4915E-05
13.450	2.981	.1925E-03	19.300	1.100	.3683E-05
13.600	3.085	.1979E-03	19.450	1.090	.3253E-05

TABLE A19. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	1.120	.4237E-05	25.450	1.018	.2303E-06
19.750	1.198	.6813E-05	25.600	1.018	.2231E-06
19.900	1.254	.8521E-05	25.750	.988	-.1529E-06
20.050	1.248	.8113E-05	25.900	1.031	.3753E-06
20.200	1.207	.6624E-05	26.050	1.117	.1367E-05
20.350	1.153	.4776E-05	26.200	1.091	.1032E-05
20.500	1.150	.4557E-05	26.350	1.078	.8681E-06
20.650	1.178	.5275E-05	26.500	1.086	.9320E-06
20.800	1.162	.4682E-05	26.650	1.047	.4975E-06
20.950	1.121	.3427E-05	26.800	1.094	.9615E-06
21.100	1.134	.3697E-05	26.950	1.109	.1081E-05
21.250	1.117	.3144E-05	27.100	1.119	.1157E-05
21.400	1.095	.2482E-05	27.250	1.112	.1052E-05
21.550	1.093	.2393E-05	27.400	1.084	.7681E-06
21.700	1.015	.3801E-06	27.550	1.040	.3553E-06
21.850	.995	-.1321E-06	27.700	1.016	.1375E-06
22.000	1.034	.6180E-06	27.850	1.069	.5850E-06
22.150	1.019	.4304E-06	28.000	1.134	.1102E-05
22.300	.989	-.2431E-06	28.150	1.136	.1094E-05
22.450	.990	-.2198E-06	28.300	1.218	.1705E-05
22.600	1.026	.5637E-06	28.450	1.256	.1952E-05
22.750	1.074	.1553E-05	28.600	1.311	.2309E-05
22.900	1.068	.1395E-05	28.750	1.385	.2781E-05
23.050	1.044	.8728E-06			
23.200	1.040	.7759E-06			
23.350	1.046	.8735E-06			
23.500	1.067	.1226E-05			
23.650	1.001	.1186E-07			
23.800	.987	-.2210E-06			
23.950	1.012	.2040E-06			
24.100	1.043	.7151E-06			
24.250	1.063	.1019E-05			
24.400	1.053	.8363E-06			
24.550	1.043	.6597E-06			
24.700	1.086	.1276E-05			
24.850	1.147	.2130E-05			
25.000	1.053	.7495E-06			
25.150	1.058	.7952E-06			
25.300	1.085	.1140E-05			

TABLE A20. LIDAR DATA TAKEN ON FEBRUARY 2, 1983, AT GMT 1449-1455 BETWEEN 72.0° N, 75.7° W AND 71.7° N, 75.2° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.243	.5587E-04	13.750	3.046	.1898E-03
8.050	1.253	.5679E-04	13.900	3.151	.1950E-03
8.200	1.267	.5885E-04	14.050	3.294	.2033E-03
8.350	1.287	.6195E-04	14.200	3.319	.2008E-03
8.500	1.317	.6667E-04	14.350	3.267	.1918E-03
8.650	1.350	.7208E-04	14.500	3.287	.1890E-03
8.800	1.376	.7551E-04	14.650	3.395	.1935E-03
8.950	1.410	.8056E-04	14.800	3.565	.2025E-03
9.100	1.468	.8988E-04	14.950	3.692	.2076E-03
9.250	1.504	.9447E-04	15.100	3.904	.2188E-03
9.400	1.518	.9487E-04	15.250	4.166	.2326E-03
9.550	1.567	.1013E-03	15.400	4.199	.2291E-03
9.700	1.655	.1143E-03	15.550	4.094	.2161E-03
9.850	1.758	.1292E-03	15.700	3.800	.1908E-03
10.000	1.851	.1416E-03	15.850	3.218	.1474E-03
10.150	1.904	.1468E-03	16.000	2.714	.1110E-03
10.300	1.969	.1536E-03	16.150	2.341	.8475E-04
10.450	2.045	.1618E-03	16.300	1.901	.5553E-04
10.600	2.048	.1584E-03	16.450	1.586	.3524E-04
10.750	1.983	.1450E-03	16.600	1.555	.3252E-04
10.900	1.944	.1360E-03	16.750	1.640	.3655E-04
11.050	2.024	.1442E-03	16.900	1.674	.3757E-04
11.200	2.144	.1574E-03	17.050	1.605	.3288E-04
11.350	2.210	.1626E-03	17.200	1.388	.2053E-04
11.500	2.216	.1596E-03	17.350	1.158	.8153E-05
11.650	2.214	.1557E-03	17.500	1.065	.3273E-05
11.800	2.234	.1546E-03	17.650	1.043	.2105E-05
11.950	2.209	.1480E-03	17.800	1.137	.6569E-05
12.100	2.221	.1460E-03	17.950	1.145	.6756E-05
12.250	2.332	.1557E-03	18.100	1.216	.9796E-05
12.400	2.434	.1637E-03	18.250	1.256	.1132E-04
12.550	2.466	.1636E-03	18.400	1.253	.1091E-04
12.700	2.438	.1568E-03	18.550	1.235	.9887E-05
12.850	2.302	.1387E-03	18.700	1.192	.7854E-05
13.000	2.192	.1241E-03	18.850	1.171	.6839E-05
13.150	2.303	.1326E-03	19.000	1.128	.4990E-05
13.300	2.577	.1568E-03	19.150	1.044	.1655E-05
13.450	2.824	.1772E-03	19.300	.995	-.1885E-06
13.600	2.978	.1878E-03	19.450	1.012	.4418E-06

TABLE A20. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	1.082	.2875E-05	25.450	1.084	.1093E-05
19.750	1.185	.6351E-05	25.600	1.107	.1359E-05
19.900	1.208	.6988E-05	25.750	1.075	.9240E-06
20.050	1.139	.4557E-05	25.900	.981	-.2325E-06
20.200	1.089	.2828E-05	26.050	1.034	.3986E-06
20.350	1.059	.1834E-05	26.200	1.102	.1158E-05
20.500	1.049	.1494E-05	26.350	1.070	.7792E-06
20.650	1.071	.2115E-05	26.500	1.069	.7467E-06
20.800	1.137	.3958E-05	26.650	1.149	.1567E-05
20.950	1.144	.4083E-05	26.800	1.083	.8456E-06
21.100	1.100	.2756E-05	26.950	1.038	.3814E-06
21.250	1.031	.8476E-06	27.100	1.085	.8214E-06
21.400	1.039	.1023E-05	27.250	1.153	.1440E-05
21.550	1.063	.1610E-05	27.400	1.170	.1565E-05
21.700	1.008	.1950E-06	27.550	1.091	.8138E-06
21.850	.990	-.2443E-06	27.700	1.124	.1081E-05
22.000	.998	-.4008E-07	27.850	1.045	.3782E-06
22.150	.959	-.9606E-06	28.000	.914	-.7090E-06
22.300	.918	-.1846E-05	28.150	1.041	.3318E-06
22.450	.917	-.1824E-05	28.300	1.089	.6971E-06
22.600	.953	-.1010E-05	28.450	1.044	.3363E-06
22.750	.983	-.3604E-06	28.600	1.133	.9833E-06
22.900	.993	-.1434E-06	28.750	1.227	.1642E-05
23.050	1.005	.9237E-07			
23.200	1.000	-.2195E-08			
23.350	.974	-.4893E-06			
23.500	.996	-.6609E-07			
23.650	1.034	.6151E-06			
23.800	1.016	.2744E-06			
23.950	.963	-.6328E-06			
24.100	.963	-.6174E-06			
24.250	1.046	.7389E-06			
24.400	1.061	.9551E-06			
24.550	1.009	.1328E-06			
24.700	1.004	.5555E-07			
24.850	1.047	.6869E-06			
25.000	1.045	.6287E-06			
25.150	.991	-.1300E-06			
25.300	1.051	.6809E-06			

TABLE A21. LIDAR DATA TAKEN ON FEBRUARY 2, 1983, AT GMT 1502-1509 BETWEEN 71.2°N, 74.9°W AND 70.8°N, 73.8°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
7.900	1.465	.1068E-03	13.750	3.448	.2271E-03
8.050	1.438	.9845E-04	13.900	3.454	.2225E-03
8.200	1.415	.9148E-04	14.050	3.562	.2269E-03
8.350	1.395	.8515E-04	14.200	3.659	.2302E-03
8.500	1.391	.8241E-04	14.350	3.694	.2279E-03
8.650	1.392	.8069E-04	14.500	3.834	.2343E-03
8.800	1.389	.7827E-04	14.650	4.019	.2439E-03
8.950	1.400	.7848E-04	14.800	4.083	.2434E-03
9.100	1.433	.8303E-04	14.950	4.225	.2488E-03
9.250	1.472	.8855E-04	15.100	4.598	.2710E-03
9.400	1.549	.1006E-03	15.250	4.949	.2901E-03
9.550	1.689	.1232E-03	15.400	5.012	.2874E-03
9.700	1.864	.1508E-03	15.550	4.653	.2552E-03
9.850	2.004	.1711E-03	15.700	4.012	.2052E-03
10.000	2.055	.1755E-03	15.850	3.456	.1631E-03
10.150	2.101	.1788E-03	16.000	3.046	.1326E-03
10.300	2.238	.1962E-03	16.150	2.630	.1030E-03
10.450	2.334	.2064E-03	16.300	2.203	.7410E-04
10.600	2.300	.1964E-03	16.450	1.798	.4792E-04
10.750	2.271	.1874E-03	16.600	1.643	.3769E-04
10.900	2.332	.1918E-03	16.750	1.728	.4159E-04
11.050	2.393	.1961E-03	16.900	1.762	.4245E-04
11.200	2.360	.1871E-03	17.050	1.662	.3596E-04
11.350	2.288	.1730E-03	17.200	1.459	.2429E-04
11.500	2.290	.1693E-03	17.350	1.246	.1271E-04
11.650	2.469	.1884E-03	17.500	1.168	.8465E-05
11.800	2.676	.2100E-03	17.650	1.177	.8698E-05
11.950	2.718	.2104E-03	17.800	1.234	.1119E-04
12.100	2.674	.2003E-03	17.950	1.231	.1076E-04
12.250	2.662	.1942E-03	18.100	1.240	.1089E-04
12.400	2.670	.1907E-03	18.250	1.279	.1234E-04
12.550	2.755	.1958E-03	18.400	1.264	.1140E-04
12.700	2.856	.2024E-03	18.550	1.233	.9773E-05
12.850	2.888	.2012E-03	18.700	1.222	.9110E-05
13.000	2.937	.2017E-03	18.850	1.208	.8269E-05
13.150	3.001	.2036E-03	19.000	1.140	.5429E-05
13.300	2.970	.1958E-03	19.150	1.083	.3138E-05
13.450	2.989	.1932E-03	19.300	1.084	.3093E-05
13.600	3.254	.2140E-03	19.450	1.095	.3421E-05

TABLE A21. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
19.600	1.154	.5417E-05	25.450	1.103	.1337E-05
19.750	1.246	.8472E-05	25.600	1.071	.6981E-06
19.900	1.265	.8894E-05	25.750	.979	-.2637E-06
20.050	1.207	.6786E-05	25.900	.935	-.7840E-06
20.200	1.120	.3848E-05	26.050	1.087	.1013E-05
20.350	1.093	.2914E-05	26.200	1.233	.2647E-05
20.500	1.120	.3639E-05	26.350	1.192	.2129E-05
20.650	1.121	.3594E-05	26.500	1.016	.1770E-06
20.800	1.164	.4765E-05	26.650	.989	-.1186E-06
20.950	1.185	.5241E-05	26.800	1.154	.1575E-05
21.100	1.138	.3800E-05	26.950	1.128	.1275E-05
21.250	1.076	.2053E-05	27.100	1.233	.2262E-05
21.400	1.032	.8532E-06	27.250	1.323	.3045E-05
21.550	.992	-.1988E-06	27.400	1.213	.1954E-05
21.700	.986	-.3580E-06	27.550	1.195	.1744E-05
21.850	1.006	.1531E-06	27.700	1.289	.2515E-05
22.000	1.041	.9751E-06	27.850	1.390	.3304E-05
22.150	1.049	.1150E-05	28.000	1.487	.4017E-05
22.300	1.004	.8454E-07	28.150	1.456	.3662E-05
22.450	.996	-.9611E-07	28.300	1.240	.1879E-05
22.600	1.050	.1083E-05	28.450	1.105	.8018E-06
22.750	1.043	.8933E-06	28.600	1.269	.1993E-05
22.900	1.027	.5493E-06	28.750	1.376	.2717E-05
23.050	1.089	.1765E-05			
23.200	1.054	.1051E-05			
23.350	1.032	.5948E-06			
23.500	1.127	.2333E-05			
23.650	1.042	.7512E-06			
23.800	.940	-.1051E-05			
23.950	.968	-.5460E-06			
24.100	.955	-.7463E-06			
24.250	1.033	.5366E-06			
24.400	1.109	.1703E-05			
24.550	1.049	.7504E-06			
24.700	1.098	.1459E-05			
24.850	1.132	.1910E-05			
25.000	1.125	.1759E-05			
25.150	1.130	.1780E-05			
25.300	1.105	.1397E-05			

TABLE A22. LIDAR DATA TAKEN ON FEBRUARY 2, 1983, AT GMT 1614-1626 BETWEEN 67.2° N, 64.0° W AND 66.5° N, 62.5° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
10.643	2.341	.1984E-03	16.493	3.696	.1584E-03
10.793	2.429	.2064E-03	16.643	3.451	.1406E-03
10.943	2.518	.2142E-03	16.793	3.043	.1144E-03
11.093	2.598	.2201E-03	16.943	2.767	.9663E-04
11.243	2.696	.2282E-03	17.093	2.558	.8322E-04
11.393	2.808	.2377E-03	17.243	2.383	.7213E-04
11.543	2.864	.2394E-03	17.393	2.220	.6207E-04
11.693	2.897	.2380E-03	17.543	2.127	.5591E-04
11.843	2.930	.2365E-03	17.693	2.054	.5099E-04
11.993	2.972	.2361E-03	17.843	1.743	.3503E-04
12.143	3.021	.2363E-03	17.993	1.398	.1831E-04
12.293	3.063	.2357E-03	18.143	1.245	.1099E-04
12.443	3.091	.2333E-03	18.293	1.157	.6881E-05
12.593	3.097	.2286E-03	18.443	1.163	.6956E-05
12.743	3.112	.2248E-03	18.593	1.229	.9551E-05
12.893	3.134	.2219E-03	18.743	1.228	.9253E-05
13.043	3.139	.2171E-03	18.893	1.157	.6232E-05
13.193	3.139	.2121E-03	19.043	1.179	.6904E-05
13.343	3.173	.2105E-03	19.193	1.218	.8212E-05
13.493	3.244	.2122E-03	19.343	1.213	.7814E-05
13.643	3.321	.2144E-03	19.493	1.155	.5558E-05
13.793	3.396	.2162E-03	19.643	1.104	.3636E-05
13.943	3.439	.2149E-03	19.793	1.088	.2980E-05
14.093	3.441	.2100E-03	19.943	1.124	.4097E-05
14.243	3.460	.2067E-03	20.093	1.166	.5422E-05
14.393	3.491	.2044E-03	20.243	1.229	.7215E-05
14.543	3.497	.2001E-03	20.393	1.290	.8902E-05
14.693	3.495	.1953E-03	20.543	1.283	.8478E-05
14.843	3.484	.1899E-03	20.693	1.255	.7450E-05
14.993	3.508	.1872E-03	20.843	1.196	.5593E-05
15.143	3.694	.1964E-03	20.993	1.184	.5118E-05
15.293	4.143	.2237E-03	21.143	1.205	.5551E-05
15.443	4.723	.2587E-03	21.293	1.236	.6224E-05
15.593	5.147	.2814E-03	21.443	1.198	.5083E-05
15.743	5.518	.2993E-03	21.593	1.189	.4740E-05
15.893	5.774	.3087E-03	21.743	1.210	.5126E-05
16.043	5.310	.2722E-03	21.893	1.141	.3347E-05
16.193	4.308	.2039E-03	22.043	1.065	.1511E-05
16.343	3.732	.1645E-03	22.193	1.085	.1926E-05

TABLE A22. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
22.343	1.133	.2926E-05	28.193	1.565	.4504E-05
22.493	1.101	.2163E-05	28.343	1.656	.5089E-05
22.643	1.054	.1135E-05	28.493	1.171	.1294E-05
22.793	1.085	.1730E-05	28.643	1.310	.2278E-05
22.943	1.115	.2299E-05			
23.093	1.113	.2190E-05			
23.243	1.100	.1893E-05			
23.393	1.097	.1785E-05			
23.543	1.144	.2591E-05			
23.693	1.095	.1670E-05			
23.843	.989	-.1931E-06			
23.993	.946	-.9041E-06			
24.143	.935	-.1053E-05			
24.293	1.105	.1665E-05			
24.443	1.389	.5986E-05			
24.593	1.371	.5569E-05			
24.743	1.231	.3373E-05			
24.893	1.177	.2516E-05			
25.043	1.063	.8729E-06			
25.193	1.115	.1558E-05			
25.343	1.161	.2124E-05			
25.493	1.067	.8543E-06			
25.643	1.115	.1440E-05			
25.793	1.387	.4706E-05			
25.943	1.384	.4548E-05			
26.093	1.241	.2782E-05			
26.243	1.342	.3840E-05			
26.393	1.222	.2426E-05			
26.543	1.219	.2327E-05			
26.693	1.289	.2999E-05			
26.843	1.079	.7936E-06			
26.993	.924	-.7452E-06			
27.143	.997	-.2700E-07			
27.293	1.293	.2736E-05			
27.443	1.393	.3571E-05			
27.593	1.515	.4556E-05			
27.743	1.463	.3991E-05			
27.893	1.212	.1782E-05			
28.043	1.105	.8572E-06			

TABLE A23. LIDAR DATA TAKEN ON FEBRUARY 2, 1983, AT GMT 1649-1701 BETWEEN 65.0° N, 60.0° W AND 64.2° N, 60.0° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
10.643	1.991	.1466E-03	16.493	5.922	.2893E-03
10.793	2.118	.1614E-03	16.643	5.264	.2447E-03
10.943	2.197	.1688E-03	16.793	4.106	.1740E-03
11.093	2.276	.1759E-03	16.943	3.221	.1215E-03
11.243	2.334	.1796E-03	17.093	2.655	.8840E-04
11.393	2.360	.1787E-03	17.243	2.303	.6796E-04
11.543	2.388	.1783E-03	17.393	1.990	.5034E-04
11.693	2.437	.1802E-03	17.543	1.726	.3602E-04
11.843	2.483	.1817E-03	17.693	1.574	.2779E-04
11.993	2.513	.1812E-03	17.843	1.428	.2019E-04
12.143	2.509	.1765E-03	17.993	1.323	.1486E-04
12.293	2.498	.1711E-03	18.143	1.224	.1003E-04
12.443	2.522	.1698E-03	18.293	1.119	.5217E-05
12.593	2.556	.1696E-03	18.443	1.114	.4879E-05
12.743	2.592	.1695E-03	18.593	1.137	.5705E-05
12.893	2.633	.1697E-03	18.743	1.169	.6867E-05
13.043	2.686	.1711E-03	18.893	1.206	.8148E-05
13.193	2.736	.1721E-03	19.043	1.169	.6543E-05
13.343	2.786	.1730E-03	19.193	1.137	.5162E-05
13.493	2.843	.1743E-03	19.343	1.141	.5170E-05
13.643	2.899	.1754E-03	19.493	1.096	.3424E-05
13.793	2.953	.1761E-03	19.643	1.087	.3037E-05
13.943	3.006	.1767E-03	19.793	1.072	.2444E-05
14.093	3.075	.1785E-03	19.943	1.045	.1493E-05
14.243	3.145	.1802E-03	20.093	1.089	.2883E-05
14.393	3.161	.1773E-03	20.243	1.140	.4404E-05
14.543	3.163	.1733E-03	20.393	1.174	.5350E-05
14.693	3.203	.1725E-03	20.543	1.176	.5284E-05
14.843	3.202	.1683E-03	20.693	1.140	.4075E-05
14.993	3.134	.1593E-03	20.843	1.102	.2913E-05
15.143	3.055	.1498E-03	20.993	1.096	.2658E-05
15.293	3.006	.1428E-03	21.143	1.088	.2380E-05
15.443	2.987	.1381E-03	21.293	1.104	.2731E-05
15.593	2.992	.1351E-03	21.443	1.117	.3013E-05
15.743	2.853	.1228E-03	21.593	1.060	.1505E-05
15.893	2.573	.1017E-03	21.743	1.054	.1325E-05
16.043	2.736	.1096E-03	21.893	1.092	.2198E-05
16.193	3.742	.1690E-03	22.043	1.022	.5034E-06
16.343	5.220	.2541E-03	22.193	.940	-.1365E-05

TABLE A23. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
22.343	1.000	.6728E-08	28.193	1.148	.1177E-05
22.493	.988	-.2574E-06	28.343	1.393	.3048E-05
22.643	.974	-.5475E-06	28.493	.955	-.3368E-06
22.793	1.039	.8038E-06	28.643	.842	-.1165E-05
22.943	1.061	.1205E-05			
23.093	1.024	.4612E-06			
23.243	1.000	-.2186E-08			
23.393	1.015	.2674E-06			
23.543	1.009	.1560E-06			
23.693	.989	-.1871E-06			
23.843	1.003	.4439E-07			
23.993	1.044	.7390E-06			
24.143	1.071	.1145E-05			
24.293	1.093	.1469E-05			
24.443	1.079	.1217E-05			
24.593	.967	-.4979E-06			
24.743	1.066	.9590E-06			
24.893	1.181	.2582E-05			
25.043	1.108	.1499E-05			
25.193	1.191	.2576E-05			
25.343	1.146	.1921E-05			
25.493	.907	-.1197E-05			
25.643	.947	-.6566E-06			
25.793	1.003	.3165E-07			
25.943	.993	-.7886E-07			
26.093	.992	-.8680E-07			
26.243	.981	-.2096E-06			
26.393	1.068	.7440E-06			
26.543	1.134	.1425E-05			
26.693	1.062	.6451E-06			
26.843	.992	-.7915E-07			
26.993	.974	-.2538E-06			
27.143	1.030	.2877E-06			
27.293	1.022	.2016E-06			
27.443	.977	-.2094E-06			
27.593	1.036	.3164E-06			
27.743	1.122	.1053E-05			
27.893	1.252	.2118E-05			
28.043	.943	-.4643E-06			

TABLE A24. LIDAR DATA TAKEN ON FEBRUARY 2, 1983, AT GMT 1826--1842 BETWEEN 58.4°N, 60.0°W and 57.2°N, 60.1°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
9.119	1.735	.1478E-03	14.969	4.332	.2702E-03
9.269	1.736	.1451E-03	15.119	4.380	.2677E-03
9.419	1.733	.1417E-03	15.269	4.254	.2517E-03
9.569	1.721	.1367E-03	15.419	3.856	.2158E-03
9.719	1.725	.1347E-03	15.569	3.667	.1968E-03
9.869	1.752	.1369E-03	15.719	3.892	.2085E-03
10.019	1.792	.1413E-03	15.869	3.969	.2089E-03
10.169	1.860	.1498E-03	16.019	3.733	.1878E-03
10.319	1.936	.1594E-03	16.169	3.381	.1597E-03
10.469	2.024	.1702E-03	16.319	2.981	.1298E-03
10.619	2.143	.1857E-03	16.469	2.596	.1021E-03
10.769	2.267	.2009E-03	16.619	2.302	.8128E-04
10.919	2.352	.2094E-03	16.769	2.047	.6383E-04
11.069	2.375	.2081E-03	16.919	1.901	.5362E-04
11.219	2.366	.2018E-03	17.069	1.911	.5297E-04
11.369	2.351	.1950E-03	17.219	1.856	.4856E-04
11.519	2.370	.1929E-03	17.369	1.769	.4262E-04
11.669	2.438	.1977E-03	17.519	1.954	.5160E-04
11.819	2.514	.2030E-03	17.669	2.544	.8153E-04
11.969	2.579	.2065E-03	17.819	3.062	.1063E-03
12.119	2.637	.2089E-03	17.969	2.871	.9392E-04
12.269	2.707	.2125E-03	18.119	2.402	.6858E-04
12.419	2.789	.2173E-03	18.269	2.501	.7152E-04
12.569	2.841	.2183E-03	18.419	2.824	.8466E-04
12.719	2.883	.2178E-03	18.569	2.824	.8249E-04
12.869	2.958	.2210E-03	18.719	2.843	.8122E-04
13.019	2.973	.2172E-03	18.869	2.936	.8309E-04
13.169	2.975	.2122E-03	19.019	2.810	.7569E-04
13.319	3.077	.2180E-03	19.169	2.441	.5672E-04
13.469	3.254	.2311E-03	19.319	2.133	.4497E-04
13.619	3.417	.2420E-03	19.469	1.687	.2658E-04
13.769	3.519	.2464E-03	19.619	1.308	.1160E-04
13.919	3.608	.2492E-03	19.769	1.266	.9777E-05
14.069	3.747	.2564E-03	19.919	1.341	.1219E-04
14.219	3.910	.2654E-03	20.069	1.365	.1276E-04
14.369	4.040	.2708E-03	20.219	1.390	.1331E-04
14.519	4.136	.2728E-03	20.369	1.469	.1561E-04
14.669	4.215	.2732E-03	20.519	1.490	.1590E-04
14.819	4.285	.2727E-03	20.669	1.555	.1759E-04

TABLE A24. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
20.819	1.522	.1613E-04	26.669	.945	-.6499E-06
20.969	1.470	.1418E-04	26.819	.985	-.1765E-06
21.119	1.445	.1309E-04	26.969	.942	-.6488E-06
21.269	1.315	.9057E-05	27.119	1.109	.1189E-05
21.419	1.267	.7481E-05	27.269	1.207	.2193E-05
21.569	1.317	.8659E-05	27.419	1.475	.4898E-05
21.719	1.454	.1211E-04	27.569	1.435	.4368E-05
21.869	1.611	.1591E-04	27.719	1.248	.2431E-05
22.019	1.587	.1492E-04	27.869	1.269	.2564E-05
22.169	1.435	.1080E-04	28.019	1.369	.3430E-05
22.319	1.234	.5664E-05	28.169	1.030	.2705E-06
22.469	1.152	.3587E-05	28.319	1.430	.3782E-05
22.619	1.222	.5117E-05	28.469	1.896	.7684E-05
22.769	1.224	.5033E-05	28.619	1.578	.4823E-05
22.919	1.095	.2084E-05	28.769	1.596	.4848E-05
23.069	.999	-.1253E-07	28.919	1.291	.2304E-05
23.219	.979	-.4456E-06	29.069	1.111	.8541E-06
23.369	1.142	.2895E-05	29.219	1.302	.2265E-05
23.519	1.153	.3057E-05	29.369	1.453	.3313E-05
23.669	1.056	.1095E-05	29.519	1.049	.3470E-06
23.819	1.136	.2579E-05	29.669	1.082	.5690E-06
23.969	1.331	.6142E-05			
24.119	1.204	.3695E-05			
24.269	1.047	.8334E-06			
24.419	1.021	.3538E-06			
24.569	.974	-.4430E-06			
24.719	1.006	.9529E-07			
24.869	1.063	.1006E-05			
25.019	1.001	.2334E-07			
25.169	.910	-.1382E-05			
25.319	.920	-.1195E-05			
25.469	1.046	.6647E-06			
25.619	1.277	.3921E-05			
25.769	1.138	.1905E-05			
25.919	1.020	.2668E-06			
26.069	.982	-.2331E-06			
26.219	.920	-.1023E-05			
26.369	1.112	.1392E-05			
26.519	1.078	.9427E-06			

TABLE A25. LIDAR DATA TAKEN ON FEBRUARY 2, 1983 AT GMT 1858-1913 BETWEEN 56.0°N, 60.1°W and 54.9°N, 60.2°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
9.119	.958	-.8358E-05	14.969	2.923	.1559E-03
9.269	.972	-.5508E-05	15.119	2.986	.1573E-03
9.419	.966	-.6516E-05	15.269	3.016	.1560E-03
9.569	.960	-.7553E-05	15.419	3.091	.1580E-03
9.719	.961	-.7168E-05	15.569	3.219	.1638E-03
9.869	.958	-.7578E-05	15.719	3.323	.1674E-03
10.019	.961	-.6879E-05	15.869	3.374	.1671E-03
10.169	.992	-.1480E-05	16.019	3.367	.1640E-03
10.319	1.041	.7045E-05	16.169	3.275	.1526E-03
10.469	1.090	.1504E-04	16.319	2.983	.1299E-03
10.619	1.119	.1932E-04	16.469	2.366	.8737E-04
10.769	1.136	.2152E-04	16.619	1.700	.4370E-04
10.919	1.149	.2313E-04	16.769	1.682	.4156E-04
11.069	1.187	.2835E-04	16.919	2.266	.7536E-04
11.219	1.222	.3266E-04	17.069	2.855	.1078E-03
11.369	1.237	.3418E-04	17.219	3.146	.1217E-03
11.519	1.243	.3421E-04	17.369	3.056	.1139E-03
11.669	1.251	.3443E-04	17.519	2.688	.9132E-04
11.819	1.266	.3561E-04	17.669	2.284	.6779E-04
11.969	1.269	.3518E-04	17.819	1.966	.4976E-04
12.119	1.267	.3410E-04	17.969	1.712	.3573E-04
12.269	1.318	.3960E-04	18.119	1.783	.3828E-04
12.419	1.419	.5085E-04	18.269	2.246	.5939E-04
12.569	1.518	.6141E-04	18.419	2.515	.7031E-04
12.719	1.598	.6917E-04	18.569	2.163	.5260E-04
12.869	1.675	.7614E-04	18.719	2.309	.5768E-04
13.019	1.780	.8587E-04	18.869	2.513	.6496E-04
13.169	1.894	.9605E-04	19.019	2.152	.4818E-04
13.319	1.979	.1028E-03	19.169	1.999	.4070E-04
13.469	2.048	.1075E-03	19.319	2.291	.5126E-04
13.619	2.093	.1095E-03	19.469	2.631	.6306E-04
13.769	2.107	.1083E-03	19.619	2.697	.6393E-04
13.919	2.100	.1051E-03	19.769	2.694	.6218E-04
14.069	2.156	.1079E-03	19.919	2.633	.5845E-04
14.219	2.324	.1207E-03	20.069	2.360	.4750E-04
14.369	2.500	.1336E-03	20.219	2.246	.4254E-04
14.519	2.592	.1385E-03	20.369	2.481	.4928E-04
14.669	2.672	.1420E-03	20.519	2.586	.5149E-04
14.819	2.798	.1492E-03	20.669	2.341	.4249E-04

TABLE A25. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
20.819	2.049	.3243E-04	26.659	.905	-.1115E-05
20.969	1.910	.2746E-04	26.819	.920	-.9143E-06
21.119	1.881	.2594E-04	26.969	.717	-.3161E-05
21.269	1.837	.2404E-04	27.119	.599	-.4367E-05
21.419	1.774	.2170E-04	27.269	.643	-.3782E-05
21.569	1.857	.2344E-04	27.419	.723	-.2854E-05
21.719	1.968	.2583E-04	27.569	.611	-.3908E-05
21.869	1.972	.2532E-04	27.719	.773	-.2222E-05
22.019	1.973	.2473E-04	27.869	.915	-.6091E-06
22.169	1.879	.2180E-04	28.019	.652	-.3229E-05
22.319	1.745	.1803E-04	28.169	.788	-.1920E-05
22.469	1.733	.1731E-04	28.319	.929	-.6223E-06
22.619	1.725	.1672E-04	28.469	1.035	.3023E-06
22.769	1.759	.1708E-04	28.619	1.054	.4525E-06
22.919	1.715	.1570E-04	28.769	.989	-.9142E-07
23.069	1.617	.1322E-04	28.919	.854	-.1157E-05
23.219	1.505	.1056E-04	29.069	.709	-.2241E-05
23.369	1.362	.7385E-05	29.219	1.382	.2870E-05
23.519	1.322	.6421E-05	29.369	1.446	.3259E-05
23.669	1.280	.5449E-05	29.519	1.148	.1052E-05
23.819	1.227	.4303E-05	29.669	1.415	.2875E-05
23.969	1.186	.3441E-05			
24.119	1.153	.2768E-05			
24.269	1.162	.2857E-05			
24.419	1.020	.3463E-06			
24.569	.915	-.1423E-05			
24.719	1.064	.1059E-05			
24.869	1.067	.1071E-05			
25.019	.924	-.1193E-05			
25.169	.865	-.2058E-05			
25.319	.780	-.3283E-05			
25.469	.663	-.4913E-05			
25.619	.696	-.4313E-05			
25.769	.754	-.3392E-05			
25.919	.650	-.4701E-05			
26.069	.580	-.5502E-05			
26.219	.762	-.3036E-05			
26.369	.891	-.1354E-05			
26.519	.821	-.2164E-05			

TABLE A26. LIDAR DATA TAKEN ON FEBRUARY 3, 1983, AT GMT 2001–2020 BETWEEN 42.8°N, 70.8°W and 41.6°N, 71.6°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
9.729	1.803	.1428E-03	15.579	2.285	.9685E-04
9.879	1.759	.1319E-03	15.729	2.473	.1087E-03
10.029	1.745	.1266E-03	15.879	2.790	.1293E-03
10.179	1.837	.1390E-03	16.029	3.160	.1527E-03
10.329	2.067	.1732E-03	16.179	3.417	.1671E-03
10.479	2.230	.1953E-03	16.329	3.826	.1909E-03
10.629	2.233	.1914E-03	16.479	4.511	.2318E-03
10.779	2.192	.1809E-03	16.629	5.126	.2662E-03
10.929	2.171	.1737E-03	16.779	5.390	.2768E-03
11.079	2.187	.1722E-03	16.929	5.332	.2669E-03
11.229	2.231	.1745E-03	17.079	5.097	.2467E-03
11.379	2.272	.1762E-03	17.229	4.931	.2313E-03
11.529	2.324	.1794E-03	17.379	5.084	.2349E-03
11.679	2.398	.1852E-03	17.529	5.314	.2424E-03
11.829	2.470	.1905E-03	17.679	5.411	.2423E-03
11.979	2.541	.1953E-03	17.829	5.405	.2364E-03
12.129	2.585	.1965E-03	17.979	5.412	.2314E-03
12.279	2.575	.1910E-03	18.129	5.437	.2275E-03
12.429	2.510	.1791E-03	18.279	5.474	.2241E-03
12.579	2.427	.1656E-03	18.429	5.560	.2231E-03
12.729	2.410	.1600E-03	18.579	5.743	.2266E-03
12.879	2.432	.1590E-03	18.729	6.090	.2375E-03
13.029	2.403	.1523E-03	18.879	6.526	.2517E-03
13.179	2.362	.1447E-03	19.029	6.895	.2623E-03
13.329	2.393	.1447E-03	19.179	7.170	.2680E-03
13.479	2.454	.1478E-03	19.329	7.325	.2683E-03
13.629	2.462	.1454E-03	19.479	7.457	.2675E-03
13.779	2.426	.1388E-03	19.629	7.635	.2684E-03
13.929	2.412	.1346E-03	19.779	7.792	.2683E-03
14.079	2.426	.1330E-03	19.929	7.918	.2669E-03
14.229	2.454	.1328E-03	20.079	8.060	.2659E-03
14.379	2.473	.1317E-03	20.229	7.962	.2561E-03
14.529	2.456	.1275E-03	20.379	7.758	.2427E-03
14.679	2.428	.1224E-03	20.529	7.425	.2252E-03
14.829	2.396	.1171E-03	20.679	6.602	.1916E-03
14.979	2.310	.1076E-03	20.829	5.862	.1622E-03
15.129	2.204	.9677E-04	20.979	5.556	.1484E-03
15.279	2.144	.9002E-04	21.129	5.641	.1475E-03
15.429	2.179	.9082E-04	21.279	5.445	.1378E-03

TABLE A26. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
21.429	4.987	.1206E-03	27.279	1.351	.4105E-05
21.579	4.428	.1012E-03	27.429	1.519	.5913E-05
21.729	3.837	.8176E-04	27.579	1.527	.5870E-05
21.879	3.420	.6805E-04	27.729	1.275	.2983E-05
22.029	3.384	.6541E-04	27.879	.902	-.1042E-05
22.179	3.708	.7251E-04	28.029	.824	-.1825E-05
22.329	3.885	.7537E-04	28.179	1.086	.8735E-06
22.479	3.761	.7039E-04	28.329	.992	-.8201E-07
22.629	3.489	.6192E-04	28.479	1.041	.3981E-06
22.779	3.283	.5543E-04	28.629	1.195	.1832E-05
22.929	3.314	.5483E-04	28.779	.945	-.5076E-06
23.079	3.298	.5313E-04	28.929	1.240	.2153E-05
23.229	3.334	.5266E-04	29.079	1.013	.1163E-06
23.379	3.129	.4686E-04	29.229	.724	-.2357E-05
23.529	2.596	.3428E-04	29.379	1.120	.9965E-06
23.679	2.323	.2773E-04	29.529	1.288	.2339E-05
23.829	2.243	.2542E-04	29.679	1.261	.2068E-05
23.979	2.189	.2374E-04	29.829	1.153	.1186E-05
24.129	2.157	.2253E-04	29.979	1.090	.6801E-06
24.279	2.025	.1949E-04	30.129	1.112	.8286E-06
24.429	2.083	.2008E-04	30.279	1.261	.1884E-05
24.579	2.210	.2190E-04	30.429	1.406	.2857E-05
24.729	2.083	.1912E-04			
24.879	1.944	.1627E-04			
25.029	1.927	.1558E-04			
25.179	1.959	.1574E-04			
25.329	2.135	.1818E-04			
25.479	2.355	.2118E-04			
25.629	2.412	.2153E-04			
25.779	2.241	.1846E-04			
25.929	1.901	.1309E-04			
26.079	1.522	.7399E-05			
26.229	1.087	.1210E-05			
26.379	1.154	.2083E-05			
26.529	1.318	.4187E-05			
26.679	1.174	.2233E-05			
26.829	1.213	.2679E-05			
26.979	1.301	.3686E-05			
27.129	1.300	.3585E-05			

TABLE A27. LIDAR DATA TAKEN ON FEBRUARY 4, 1983, AT GMT 0012-0027 BETWEEN 35.0°N, 78.1°W and 34.3°N, 78.7°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
8.510	1.781	.1674E-03	14.360	1.835	.7948E-04
8.660	1.756	.1593E-03	14.510	1.845	.7853E-04
8.810	1.731	.1513E-03	14.660	1.811	.7380E-04
8.960	1.708	.1439E-03	14.810	1.787	.7017E-04
9.110	1.696	.1391E-03	14.960	1.762	.6660E-04
9.260	1.686	.1345E-03	15.110	1.747	.6393E-04
9.410	1.664	.1275E-03	15.260	1.744	.6238E-04
9.560	1.645	.1215E-03	15.410	1.758	.6227E-04
9.710	1.634	.1171E-03	15.560	1.790	.6359E-04
9.860	1.636	.1151E-03	15.710	1.824	.6494E-04
10.010	1.648	.1150E-03	15.860	1.853	.6588E-04
10.160	1.660	.1148E-03	16.010	1.930	.7041E-04
10.310	1.672	.1146E-03	16.160	2.124	.8332E-04
10.460	1.676	.1130E-03	16.310	2.293	.9385E-04
10.610	1.667	.1091E-03	16.460	2.367	.9684E-04
10.760	1.657	.1052E-03	16.610	2.427	.9862E-04
10.910	1.647	.1013E-03	16.760	2.470	.9920E-04
11.060	1.627	.9602E-04	16.910	2.534	.1010E-03
11.210	1.596	.8938E-04	17.060	2.649	.1060E-03
11.360	1.561	.8236E-04	17.210	2.829	.1147E-03
11.510	1.536	.7691E-04	17.360	3.095	.1282E-03
11.660	1.518	.7286E-04	17.510	3.526	.1509E-03
11.810	1.520	.7150E-04	17.660	4.017	.1759E-03
11.960	1.523	.7032E-04	17.810	4.367	.1916E-03
12.110	1.507	.6667E-04	17.960	4.631	.2017E-03
12.260	1.515	.6623E-04	18.110	4.898	.2113E-03
12.410	1.560	.7045E-04	18.260	5.085	.2161E-03
12.560	1.605	.7442E-04	18.410	5.166	.2151E-03
12.710	1.617	.7423E-04	18.560	5.309	.2171E-03
12.860	1.596	.7009E-04	18.710	5.582	.2252E-03
13.010	1.587	.6756E-04	18.860	5.641	.2226E-03
13.160	1.591	.6647E-04	19.010	5.450	.2082E-03
13.310	1.600	.6602E-04	19.160	5.238	.1934E-03
13.460	1.629	.6769E-04	19.310	5.432	.1974E-03
13.610	1.663	.6979E-04	19.460	5.806	.2088E-03
13.760	1.695	.7149E-04	19.610	6.126	.2173E-03
13.910	1.740	.7461E-04	19.760	6.482	.2267E-03
14.060	1.792	.7822E-04	19.910	6.800	.2340E-03
14.210	1.813	.7868E-04	20.060	6.970	.2350E-03

TABLE A27. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
20.210	6.980	.2297E-03	26.060	1.283	.4110E-05
20.360	6.983	.2242E-03	26.210	1.232	.3298E-05
20.510	6.993	.2190E-03	26.360	1.140	.1944E-05
20.660	6.990	.2133E-03	26.510	1.029	.3941E-06
20.810	6.863	.2035E-03	26.660	.954	-.6089E-06
20.960	6.658	.1913E-03	26.810	1.017	.2190E-06
21.110	6.419	.1786E-03	26.960	1.085	.1069E-05
21.260	6.216	.1675E-03	27.110	1.051	.6280E-06
21.410	6.130	.1605E-03	27.260	.973	-.3247E-06
21.560	6.039	.1537E-03	27.410	.988	-.1390E-06
21.710	5.325	.1285E-03	27.560	1.008	.9650E-07
21.860	4.249	.9409E-04	27.710	.964	-.4029E-06
22.010	3.798	.7895E-04	27.860	1.012	.1298E-06
22.160	3.678	.7365E-04	28.010	1.027	.2909E-06
22.310	3.488	.6668E-04	28.160	1.003	.2809E-07
22.460	3.159	.5637E-04	28.310	1.025	.2508E-06
22.610	2.845	.4695E-04	28.460	1.076	.7524E-06
22.760	2.665	.4128E-04	28.610	1.071	.6817E-06
22.910	2.535	.3708E-04	28.760	1.109	.1021E-05
23.060	2.431	.3369E-04	28.910	1.156	.1434E-05
23.210	2.401	.3215E-04	29.060	1.177	.1579E-05
23.360	2.486	.3322E-04	29.210	1.166	.1452E-05
23.510	2.396	.3042E-04	29.360	1.195	.1664E-05
23.660	2.186	.2519E-04	29.510	1.231	.1924E-05
23.810	2.111	.2304E-04	29.660	1.265	.2148E-05
23.960	2.068	.2164E-04	29.810	1.274	.2171E-05
24.110	2.121	.2218E-04	29.960	1.206	.1591E-05
24.260	2.189	.2297E-04	30.110	1.195	.1473E-05
24.410	1.960	.1811E-04	30.260	1.234	.1725E-05
24.560	1.683	.1259E-04	30.410	1.147	.1055E-05
24.710	1.713	.1282E-04	30.560	1.021	.1505E-06
24.860	1.781	.1372E-04	30.710	.992	-.5572E-07
25.010	1.716	.1229E-04			
25.160	1.677	.1135E-04			
25.310	1.786	.1287E-04			
25.460	1.841	.1345E-04			
25.610	1.631	.9844E-05			
25.760	1.463	.7061E-05			
25.910	1.390	.5811E-05			

TABLE A28. LIDAR DATA TAKEN ON FEBRUARY 4, 1983, AT GMT 0059-0111 BETWEEN 32.6° N, 80.3° W and 31.8° N, 80.8° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
8.510	1.694	.1496E-03	14.360	1.491	.4743E-04
8.660	1.635	.1346E-03	14.510	1.406	.3832E-04
8.810	1.585	.1219E-03	14.660	1.368	.3398E-04
8.960	1.530	.1066E-03	14.810	1.391	.3540E-04
9.110	1.467	.9417E-04	14.960	1.463	.4102E-04
9.260	1.414	.8209E-04	15.110	1.545	.4723E-04
9.410	1.376	.7319E-04	15.260	1.594	.5043E-04
9.560	1.341	.6512E-04	15.410	1.644	.5343E-04
9.710	1.306	.5729E-04	15.560	1.631	.5123E-04
9.860	1.280	.5149E-04	15.710	1.522	.4152E-04
10.010	1.265	.4785E-04	15.860	1.465	.3616E-04
10.160	1.239	.4233E-04	16.010	1.538	.4097E-04
10.310	1.211	.3674E-04	16.160	1.643	.4792E-04
10.460	1.204	.3480E-04	16.310	1.737	.5376E-04
10.610	1.214	.3583E-04	16.460	1.839	.5971E-04
10.760	1.248	.4065E-04	16.610	1.905	.6286E-04
10.910	1.288	.4618E-04	16.760	1.969	.6573E-04
11.060	1.289	.4552E-04	16.910	2.049	.6941E-04
11.210	1.254	.3917E-04	17.060	2.080	.6979E-04
11.360	1.215	.3238E-04	17.210	2.175	.7412E-04
11.510	1.189	.2789E-04	17.360	2.453	.8942E-04
11.660	1.176	.2542E-04	17.510	2.829	.1099E-03
11.810	1.168	.2380E-04	17.660	3.232	.1309E-03
11.960	1.180	.2500E-04	17.810	3.639	.1510E-03
12.110	1.197	.2665E-04	17.960	4.023	.1689E-03
12.260	1.205	.2723E-04	18.110	4.472	.1893E-03
12.410	1.218	.2823E-04	18.260	4.754	.1998E-03
12.560	1.236	.2987E-04	18.410	4.789	.1968E-03
12.710	1.261	.3224E-04	18.560	4.928	.1990E-03
12.860	1.292	.3532E-04	18.710	5.110	.2030E-03
13.010	1.307	.3621E-04	18.860	5.191	.2018E-03
13.160	1.329	.3793E-04	19.010	5.139	.1943E-03
13.310	1.358	.4040E-04	19.160	4.973	.1818E-03
13.460	1.375	.4129E-04	19.310	5.022	.1794E-03
13.610	1.412	.4441E-04	19.460	5.231	.1840E-03
13.760	1.472	.4966E-04	19.610	5.508	.1911E-03
13.910	1.515	.5304E-04	19.760	5.889	.2020E-03
14.060	1.553	.5571E-04	19.910	6.230	.2107E-03
14.210	1.556	.5480E-04	20.060	6.555	.2181E-03

TABLE A28. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
20.210	6.838	.2235E-03	26.060	1.218	.3146E-05
20.360	6.972	.2228E-03	26.210	1.177	.2486E-05
20.510	6.645	.2126E-03	26.360	1.084	.1148E-05
20.660	6.678	.2014E-03	26.510	1.120	.1613E-05
20.810	6.542	.1917E-03	26.660	1.171	.2237E-05
20.960	6.339	.1801E-03	26.810	1.082	.1047E-05
21.110	5.964	.1633E-03	26.960	.969	-.3844E-06
21.260	5.363	.1400E-03	27.110	.967	-.4050E-06
21.410	4.664	.1146E-03	27.260	1.064	.7618E-06
21.560	4.265	.9960E-04	27.410	1.087	.1005E-05
21.710	4.334	.9917E-04	27.560	1.042	.4712E-06
21.860	4.091	.8968E-04	27.710	1.001	.1561E-07
22.010	3.627	.7432E-04	27.860	.992	-.8246E-07
22.160	3.830	.7806E-04	28.010	1.029	.3025E-06
22.310	4.192	.8587E-04	28.160	.971	-.2971E-06
22.460	3.554	.6700E-04	28.310	.938	-.6199E-06
22.610	2.669	.4268E-04	28.460	1.085	.8294E-06
22.760	2.360	.3393E-04	28.610	1.132	.1260E-05
22.910	2.236	.3007E-04	28.760	1.141	.1316E-05
23.060	2.209	.2867E-04	28.910	1.246	.2245E-05
23.210	2.288	.2980E-04	29.060	1.308	.2747E-05
23.360	2.308	.2949E-04	29.210	1.264	.2297E-05
23.510	2.249	.2747E-04	29.360	1.172	.1458E-05
23.660	2.188	.2548E-04	29.510	1.202	.1675E-05
23.810	2.184	.2478E-04	29.660	1.287	.2321E-05
23.960	2.101	.2248E-04	29.810	1.277	.2191E-05
24.110	1.997	.1984E-04	29.960	1.192	.1482E-05
24.260	1.945	.1835E-04	30.110	1.156	.1178E-05
24.410	1.940	.1782E-04	30.260	1.156	.1148E-05
24.560	2.016	.1877E-04	30.410	1.093	.6667E-06
24.710	1.948	.1710E-04	30.560	1.099	.6952E-06
24.860	1.774	.1361E-04	30.710	1.261	.1787E-05
25.010	1.708	.1215E-04			
25.160	1.705	.1180E-04			
25.310	1.742	.1212E-04			
25.460	1.596	.9487E-05			
25.610	1.411	.6388E-05			
25.760	1.294	.4458E-05			
25.910	1.209	.3064E-05			

TABLE A29. LIDAR DATA TAKEN ON FEBRUARY 4, 1983, AT GMT 0149-0202 BETWEEN 28.8° N, 80.9° W and 27.7° N, 80.5° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
8.510	1.647	.1395E-03	14.360	1.066	.6356E-05
8.660	1.601	.1274E-03	14.510	1.055	.5193E-05
8.810	1.555	.1157E-03	14.660	1.048	.4477E-05
8.960	1.517	.1060E-03	14.810	1.059	.5345E-05
9.110	1.480	.9668E-04	14.960	1.078	.6918E-05
9.260	1.441	.8736E-04	15.110	1.107	.9252E-05
9.410	1.403	.7841E-04	15.260	1.140	.1191E-04
9.560	1.365	.6972E-04	15.410	1.166	.1375E-04
9.710	1.335	.6286E-04	15.560	1.197	.1600E-04
9.860	1.317	.5829E-04	15.710	1.256	.2034E-04
10.010	1.361	.6514E-04	15.860	1.304	.2367E-04
10.160	1.443	.7857E-04	16.010	1.332	.2527E-04
10.310	1.393	.6847E-04	16.160	1.375	.2795E-04
10.460	1.242	.4140E-04	16.310	1.430	.3136E-04
10.610	1.161	.2689E-04	16.460	1.468	.3333E-04
10.760	1.141	.2305E-04	16.610	1.498	.3457E-04
10.910	1.123	.1969E-04	16.760	1.541	.3669E-04
11.060	1.112	.1761E-04	16.910	1.713	.4717E-04
11.210	1.104	.1601E-04	17.060	1.978	.6320E-04
11.360	1.096	.1444E-04	17.210	2.214	.7658E-04
11.510	1.084	.1244E-04	17.360	2.438	.8851E-04
11.660	1.070	.1016E-04	17.510	2.638	.9839E-04
11.810	1.067	.9504E-05	17.660	2.881	.1103E-03
11.960	1.063	.8702E-05	17.810	3.328	.1332E-03
12.110	1.051	.6900E-05	17.960	3.822	.1577E-03
12.260	1.054	.7090E-05	18.110	4.331	.1816E-03
12.410	1.059	.7698E-05	18.260	4.826	.2036E-03
12.560	1.051	.6416E-05	18.410	5.073	.2116E-03
12.710	1.041	.5110E-05	18.560	5.163	.2109E-03
12.860	1.038	.4632E-05	18.710	5.311	.2129E-03
13.010	1.044	.5162E-05	18.860	5.403	.2120E-03
13.160	1.050	.5739E-05	19.010	5.353	.2043E-03
13.310	1.051	.5776E-05	19.160	5.286	.1961E-03
13.460	1.060	.6640E-05	19.310	5.316	.1925E-03
13.610	1.071	.7610E-05	19.460	5.431	.1927E-03
13.760	1.056	.5910E-05	19.610	5.621	.1958E-03
13.910	1.046	.4711E-05	19.760	5.879	.2016E-03
14.060	1.050	.5063E-05	19.910	6.349	.2154E-03
14.210	1.057	.5598E-05	20.060	6.668	.2225E-03

TABLE A29. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
20.210	7.035	.2310E-03	26.060	1.561	.8084E-05
20.360	7.289	.2347E-03	26.210	1.301	.4241E-05
20.510	7.376	.2319E-03	26.360	1.185	.2546E-05
20.660	7.503	.2307E-03	26.510	1.163	.2191E-05
20.810	7.733	.2329E-03	26.660	1.112	.1471E-05
20.960	7.792	.2291E-03	26.810	1.018	.2301E-06
21.110	7.341	.2086E-03	26.960	1.021	.2560E-06
21.260	6.574	.1788E-03	27.110	1.091	.1112E-05
21.410	5.819	.1507E-03	27.260	1.069	.8197E-06
21.560	5.284	.1307E-03	27.410	.962	-.4407E-06
21.710	5.093	.1218E-03	27.560	.969	-.3510E-06
21.860	4.670	.1064E-03	27.710	.997	-.3852E-07
22.010	4.220	.9108E-04	27.860	1.000	-.3430E-08
22.160	3.988	.8241E-04	28.010	1.055	.5810E-06
22.310	3.610	.7021E-04	28.160	1.071	.7335E-06
22.460	3.208	.5793E-04	28.310	1.079	.7966E-06
22.610	3.112	.5403E-04	28.460	1.085	.8357E-06
22.760	3.264	.5646E-04	28.610	1.060	.5758E-06
22.910	3.400	.5837E-04	28.760	1.076	.7123E-06
23.060	3.593	.6150E-04	28.910	1.129	.1176E-05
23.210	3.337	.5405E-04	29.060	1.113	.1008E-05
23.360	2.702	.3840E-04	29.210	1.082	.7169E-06
23.510	2.438	.3164E-04	29.360	1.103	.8787E-06
23.660	2.317	.2825E-04	29.510	1.130	.1081E-05
23.810	2.169	.2446E-04	29.660	1.141	.1142E-05
23.960	2.066	.2177E-04	29.810	1.141	.1111E-05
24.110	2.181	.2351E-04	29.960	1.076	.5889E-06
24.260	2.309	.2542E-04	30.110	1.065	.4892E-06
24.410	2.254	.2376E-04	30.260	1.124	.9085E-06
24.560	1.882	.1630E-04	30.410	1.124	.8871E-06
24.710	1.497	.8965E-05	30.560	1.112	.7828E-06
24.860	1.651	.1144E-04	30.710	1.178	.1220E-05
25.010	1.955	.1638E-04			
25.160	2.092	.1827E-04			
25.310	2.258	.2054E-04			
25.460	2.455	.2317E-04			
25.610	2.490	.2314E-04			
25.760	2.311	.1986E-04			
25.910	1.968	.1431E-04			

TABLE A30. LIDAR DATA TAKEN ON FEBRUARY 5, 1983, AT GMT 2240-2257 BETWEEN 27.1°N, 80.6°W and 28.3°N, 81.2°W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
8.814	1.896	.1871E-03	14.664	1.092	.8898E-05
8.964	1.816	.1676E-03	14.814	1.094	.8908E-05
9.114	1.741	.1494E-03	14.964	1.090	.8346E-05
9.264	1.680	.1350E-03	15.114	1.084	.7587E-05
9.414	1.623	.1216E-03	15.264	1.091	.8010E-05
9.564	1.567	.1085E-03	15.414	1.132	.1139E-04
9.714	1.505	.9468E-04	15.564	1.124	.1044E-04
9.864	1.444	.8163E-04	15.714	1.145	.1197E-04
10.014	1.393	.7099E-04	15.864	1.197	.1586E-04
10.164	1.346	.6122E-04	16.014	1.196	.1542E-04
10.314	1.307	.5330E-04	16.164	1.210	.1612E-04
10.464	1.274	.4666E-04	16.314	1.251	.1885E-04
10.614	1.243	.4062E-04	16.464	1.285	.2086E-04
10.764	1.215	.3532E-04	16.614	1.330	.2359E-04
10.914	1.189	.3051E-04	16.764	1.386	.2685E-04
11.064	1.172	.2713E-04	16.914	1.424	.2879E-04
11.214	1.161	.2495E-04	17.064	1.468	.3097E-04
11.364	1.151	.2294E-04	17.214	1.727	.4696E-04
11.514	1.136	.2029E-04	17.364	2.160	.7304E-04
11.664	1.121	.1780E-04	17.514	2.485	.9120E-04
11.814	1.109	.1577E-04	17.664	2.660	.9939E-04
11.964	1.092	.1309E-04	17.814	2.855	.1083E-03
12.114	1.082	.1138E-04	17.964	3.056	.1170E-03
12.264	1.070	.9518E-05	18.114	3.311	.1283E-03
12.414	1.053	.7015E-05	18.264	3.970	.1608E-03
12.564	1.045	.5942E-05	18.414	4.654	.1929E-03
12.714	1.038	.4859E-05	18.564	5.052	.2084E-03
12.864	1.033	.4188E-05	18.714	5.549	.2278E-03
13.014	1.020	.2487E-05	18.864	6.211	.2541E-03
13.164	1.002	.2503E-06	19.014	6.981	.2840E-03
13.314	.998	-.2133E-06	19.164	7.172	.2853E-03
13.464	1.013	.1467E-05	19.314	6.812	.2616E-03
13.614	1.008	.9474E-06	19.464	6.561	.2438E-03
13.764	.993	-.7316E-06	19.614	6.542	.2366E-03
13.914	.998	-.1929E-06	19.764	6.761	.2395E-03
14.064	1.000	-.3265E-07	19.914	7.271	.2538E-03
14.214	1.006	.6748E-06	20.064	7.803	.2661E-03
14.364	1.039	.3982E-05	20.214	7.994	.2684E-03
14.514	1.069	.6875E-05	20.364	8.105	.2655E-03

TABLE A30. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
20.514	8.203	.2621E-03	26.364	1.274	.3740E-05
20.664	8.228	.2563E-03	26.514	1.258	.3435E-05
20.814	8.121	.2461E-03	26.664	1.364	.4737E-05
20.964	7.964	.2345E-03	26.814	1.301	.3829E-05
21.114	7.388	.2096E-03	26.964	1.141	.1751E-05
21.264	6.543	.1772E-03	27.114	1.533	.6454E-05
21.414	5.890	.1523E-03	27.264	1.711	.8410E-05
21.564	5.532	.1376E-03	27.414	1.635	.7330E-05
21.714	5.203	.1243E-03	27.564	1.678	.7633E-05
21.864	4.809	.1098E-03	27.714	1.848	.9329E-05
22.014	4.360	.9437E-04	27.864	1.757	.8128E-05
22.164	3.905	.7951E-04	28.014	1.502	.5262E-05
22.314	3.604	.6944E-04	28.164	1.233	.2382E-05
22.464	3.557	.6644E-04	28.314	1.276	.2774E-05
22.614	3.381	.6029E-04	28.464	1.187	.1823E-05
22.764	3.159	.5326E-04	28.614	.925	-.7145E-06
22.914	3.125	.5109E-04	28.764	.983	-.1544E-06
23.064	3.039	.4777E-04	28.914	1.550	.4986E-05
23.214	3.054	.4690E-04	29.064	1.866	.7665E-05
23.364	2.963	.4367E-04	29.214	1.545	.4712E-05
23.514	2.804	.3910E-04	29.364	1.776	.6547E-05
23.664	2.660	.3506E-04	29.514	1.777	.6398E-05
23.814	2.468	.3025E-04	29.664	1.794	.6382E-05
23.964	2.324	.2663E-04	29.814	1.843	.6620E-05
24.114	2.147	.2253E-04	29.964	1.331	.2540E-05
24.264	2.200	.2300E-04	30.114	1.141	.1052E-05
24.414	2.200	.2245E-04	30.264	1.825	.6028E-05
24.564	2.078	.1969E-04	30.414	2.365	.9733E-05
24.714	1.898	.1600E-04	30.564	2.065	.7413E-05
24.864	1.836	.1454E-04	30.714	1.615	.4178E-05
25.014	1.950	.1614E-04			
25.164	2.018	.1687E-04			
25.314	2.153	.1866E-04			
25.464	2.315	.2076E-04			
25.614	2.451	.2237E-04			
25.764	2.281	.1927E-04			
25.914	1.957	.1406E-04			
26.064	1.762	.1092E-04			
26.214	1.547	.7648E-05			

TABLE A31. LIDAR DATA TAKEN ON FEBRUARY 5, 1983, AT GMT 2358-0007 BETWEEN 33.5° N, 79.5° W and 34.1° N, 78.9° W

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
11.814	1.036	.5048E-05	17.664	3.063	.1198E-03
11.964	1.032	.4460E-05	17.814	3.262	.1279E-03
12.114	1.030	.4038E-05	17.964	3.564	.1412E-03
12.264	1.030	.3963E-05	18.114	4.313	.1776E-03
12.414	1.024	.3082E-05	18.264	5.469	.2334E-03
12.564	1.013	.1693E-05	18.414	6.440	.2766E-03
12.714	1.021	.2663E-05	18.564	6.829	.2892E-03
12.864	1.063	.7613E-05	18.714	6.731	.2774E-03
13.014	1.089	.1062E-04	18.864	6.632	.2660E-03
13.164	1.106	.1229E-04	19.014	6.787	.2667E-03
13.314	1.159	.1814E-04	19.164	6.737	.2579E-03
13.464	1.198	.2208E-04	19.314	6.511	.2418E-03
13.614	1.246	.2680E-04	19.464	6.550	.2376E-03
13.764	1.376	.4013E-04	19.614	6.441	.2272E-03
13.914	1.526	.5497E-04	19.764	6.179	.2110E-03
14.064	1.598	.6111E-04	19.914	6.241	.2083E-03
14.214	1.635	.6356E-04	20.064	6.334	.2069E-03
14.364	1.670	.6559E-04	20.214	6.307	.2009E-03
14.514	1.710	.6801E-04	20.364	6.103	.1884E-03
14.664	1.777	.7283E-04	20.514	5.810	.1732E-03
14.814	1.810	.7435E-04	20.664	5.304	.1511E-03
14.964	1.792	.7113E-04	20.814	4.801	.1301E-03
15.114	1.774	.6796E-04	20.964	4.579	.1194E-03
15.264	1.778	.6684E-04	21.114	4.552	.1156E-03
15.414	1.780	.6565E-04	21.264	4.472	.1101E-03
15.564	1.819	.6740E-04	21.414	4.086	.9541E-04
15.714	1.814	.6554E-04	21.564	3.678	.8074E-04
15.864	1.748	.5899E-04	21.714	3.498	.7341E-04
16.014	1.694	.5349E-04	21.864	3.521	.7223E-04
16.164	1.719	.5428E-04	22.014	3.622	.7325E-04
16.314	1.813	.5995E-04	22.164	3.844	.7743E-04
16.464	1.899	.6451E-04	22.314	3.906	.7713E-04
16.614	2.009	.7053E-04	22.464	3.322	.6010E-04
16.764	2.133	.7714E-04	22.614	2.519	.3833E-04
16.914	2.279	.8480E-04	22.764	2.221	.3004E-04
17.064	2.395	.9007E-04	22.914	2.086	.2604E-04
17.214	2.538	.9669E-04	23.064	2.083	.2532E-04
17.364	2.784	.1092E-03	23.214	2.100	.2507E-04
17.514	2.957	.1167E-03	23.364	2.021	.2268E-04

TABLE A31. Concluded

Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹	Altitude, km	Scattering ratio	Scattering function, (km-sr) ⁻¹
23.514	1.925	.2004E-04	29.364	1.338	.2831E-05
23.664	1.907	.1916E-04	29.514	1.396	.3241E-05
23.814	1.879	.1813E-04	29.664	1.452	.3605E-05
23.964	1.767	.1544E-04	29.814	1.338	.2633E-05
24.114	1.771	.1515E-04	29.964	1.271	.2061E-05
24.264	1.671	.1287E-04	30.114	1.285	.2117E-05
24.414	1.582	.1089E-04	30.264	1.350	.2532E-05
24.564	1.566	.1034E-04	30.414	1.338	.2388E-05
24.714	1.479	.8537E-05	30.564	1.292	.2012E-05
24.864	1.397	.6915E-05			
25.014	1.292	.4970E-05			
25.164	1.322	.5346E-05			
25.314	1.391	.6334E-05			
25.464	1.306	.4843E-05			
25.614	1.186	.2868E-05			
25.764	1.101	.1522E-05			
25.914	1.089	.1316E-05			
26.064	1.139	.1997E-05			
26.214	1.108	.1516E-05			
26.364	1.014	.1869E-06			
26.514	.961	-.5226E-06			
26.664	1.026	.3320E-06			
26.814	1.031	.3953E-06			
26.964	1.024	.3019E-06			
27.114	1.117	.1411E-05			
27.264	1.230	.2717E-05			
27.414	1.175	.2014E-05			
27.564	1.112	.1264E-05			
27.714	1.224	.2456E-05			
27.864	1.312	.3335E-05			
28.014	1.226	.2363E-05			
28.164	1.155	.1578E-05			
28.314	1.167	.1663E-05			
28.464	1.161	.1565E-05			
28.614	1.209	.1982E-05			
28.764	1.287	.2651E-05			
28.914	1.285	.2574E-05			
29.064	1.359	.3162E-05			
29.214	1.420	.3607E-05			

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16. Abstract A NASA Electra airplane, outfitted with a lidar system, was flown in January to February 1983 between the latitudes of 27°N and 76°N. One of the primary purposes of this mission was to determine the spatial distribution and aerosol characteristics of the El Chichon-produced stratospheric material. This report presents the lidar data from that 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 largest amount of material produced by the El Chichon eruptions of late March-early April 1982, which was measured by this flight, resided between 35°N and 52°N. Peak backscatter ratios at a wavelength of 0.6943 μm decreased from 8 to 10 at the lower latitudes to 3 at the higher latitudes. Backscatter ratio profiles taken while crossing the polar vortex show that the high-altitude material from El Chichon arrived at the north polar region sometime after the winter polar vortex was established. This report presents the results of this mission in a ready-to-use format for atmospheric and climatic studies.					
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