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GROVES MODEL
ACCURACY STUDY

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by

Capt Matthew C. Peterson

AUGUST 1991

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13. Abstract: USAFETAC was tasked to review the scientific literature for studies of the Groves Neutral Density Climatology Model and compare the Groves Model with others in the 30-60 km range. The tasking included a request to investigate the merits of comparing accuracy of the Groves Model to rocketsonde data. USAFETAC analysts found the Groves Model to be state of the art for middle-atmospheric climatological models. In reviewing previous comparisons with other models and with space shuttle-derived atmospheric densities, good density vs altitude agreement was found in almost all cases. A simple technique involving comparison of the model with range reference atmospheres was found to be the most economical way to compare the Groves Model with rocketsonde data; an example of this type of analysis is provided in the report.

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PREFACE

This report describes the results of work done on USAFETAC Task #91013801, Groves Model Accuracy Study. The analyst was Capt Matthew C. Peterson, USAFETAC/DNE.

The project tasking, from USAFETAC/ECS, called for a review of the scientific literature for studies of the Groves Neutral Density Model and comparisons of the Groves Model with others in the 30-60 km range. ECS also asked DNE to investigate the merits of comparing the Groves Model to rocketsonde (ROCOB) data.

USAFETAC/DNE found that the Groves Neutral Density Model is state of the art for middle-atmospheric climatological models. In reviewing previous comparisons with other models and with shuttle-derived atmospheric densities, good density vs altitude agreement was found in almost all cases.

A simple technique involving comparison of the model with range reference atmospheres (RRAs) is the most economical way to compare ROCOB data to the Groves model. An example of this type of analysis is provided.

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1. INTRODUCTION

1.1. Purpose. This study answers a request to study the scientific literature and (1) evaluate the validity of the Groves Neutral Density Climatology Model (Groves 85) from 30-60 km; (2) compare Groves 85 to other models, and (3) examine the merits of comparing Groves 85 to rocketsonde observations (ROCOBs).

1.2 The Groves Neutral Density Model Defined. The Groves 85 Model is used routinely in USAFETAC's Improved Point Analysis Model (IPAM). To create this model, Dr. Gerald Vann Groves produced tabulations of atmospheric density based on data derived from satellite observations and modified by rocketsonde observations. "Neutral Density" as presented here refers to the monthly mean density in 10-degree latitude bands as a function of altitude. The Groves 85 Model zonal mean density tabulations are given in their entirety in Appendix A.

1.3 Contents and Organization. Chapter 2 describes studies found in the scientific literature on comparisons between Groves 85 and other reference atmospheres. Chapter 3 compares models of neutral atmospheric density with each other and with a limited set of independent data; it also gives the altitude, time, and latitudinal and logitudinal resolution of each model. Chapter 4 discusses why and how to best compare Groves 85 to rocketsonde data. Chapter 5 describes a method for comparing range reference atmospheres (RRAs) to Groves 85. Chapter 6 gives conclusions and recommendations. Appendices A-D provide atmospheric density profiles for each of the models in the comparions. Appendix E is a list of published RRAs.

2. STUDIES OF THE GROVES NEUTRAL DENSITY MODEL

2.1 General Discussion. Groves 85 is a modified version of a new reference atmosphere called "COSPAR International Reference Atmosphere 1986" (CIRA 86), which is based on data from the Nimbus 5 and Nimbus 6 satellites. For a full discussion of how Groves derived his model, see his *A Global Reference Atmosphere from 18 to 80 km*, described below.

2.2 "A Global Reference Atmosphere from 18 to 80 km" (Groves, 1985). This report discusses how the Groves model was derived and compares it to other reference atmospheres. It gives a numerical method for reproducing the tabulated atmospheric variables with an accuracy of better than 99 percent. This numerical technique is generally employed in computer-based Groves model representations to reduce storage space. Groves also lists references used to produce the model. Most of the report consists of tabulations of atmospheric variables. The zonal mean density tabulations are reproduced in Appendix A.

In his report, Groves compares his model to three other reference atmospheres: the 1978 Air Force Reference Atmosphere (AFRA 78), the 1972 COSPAR International Reference Atmosphere (CIRA 72), and the 1990 Southern Hemisphere Reference Middle Atmosphere (SHRMA 90), these are reproduced in Appendices B, C, and D. Since the satellite database contained temperatures, Groves compares temperature differences. Density is a derived quantity, assuming a hydrostatic atmosphere. The equation is:

$$\rho = \frac{MP}{RT}$$

where

ρ = density
M = mass
P = pressure
R = Gas constant
T = Temperature

At a fixed pressure level, differences in density vary with temperature difference, as

$$\delta\rho = \frac{-MP}{RT^2} \cdot \delta T$$

This relationship can be applied to Groves' comparisons to estimate the sign and relative magnitude of density difference between the various reference atmospheres. Groves (1985) gives a direct comparison of mean relative density deviations with AFRA 78. The average differences are 2-3%, with a maximum difference of 15% at 10° W.

2.3 "Middle Atmosphere Models and Comparison with Shuttle Reentry Density Data" (Champion, 1987). This article compares atmospheric density derived from space shuttle reentries to zonal means of atmospheric density in three models: Groves 85, AFRA 78, and CIRA 72. This study includes a meteorological profile based on unspecified amounts of rocketsonde data; it agrees fairly well with shuttle-derived densities.

Champion compares an instantaneous measurement of atmospheric density to estimates from zonally averaged, monthly mean models. Figures 1-4 compare the shuttle (STS) data to each of the three models. The ratio of shuttle-derived density to model density is plotted. Unfortunately, the figures only address the 50-60 km (as opposed to 30-60 km) portion of the region of interest. Below 60 km, shuttle and rocketsonde data are in fair agreement in all the figures, since both measure the variability of the real atmosphere. The model atmospheres, representing climatology, are necessarily smoother than the observed profiles. One cannot expect observed profiles to agree exactly with climatological means, but the *average* of many such profiles should agree. Figures 1-4 show several such comparisons. In Figures 1 and 2, the rocketsonde data correlates better with Groves 85 than with shuttle data. In Figure 3, both shuttle and rocketsonde correlate well with Groves 85, while in Figure 4 the shuttle-derived densities are closer to Groves 85 than the rocketsonde densities.

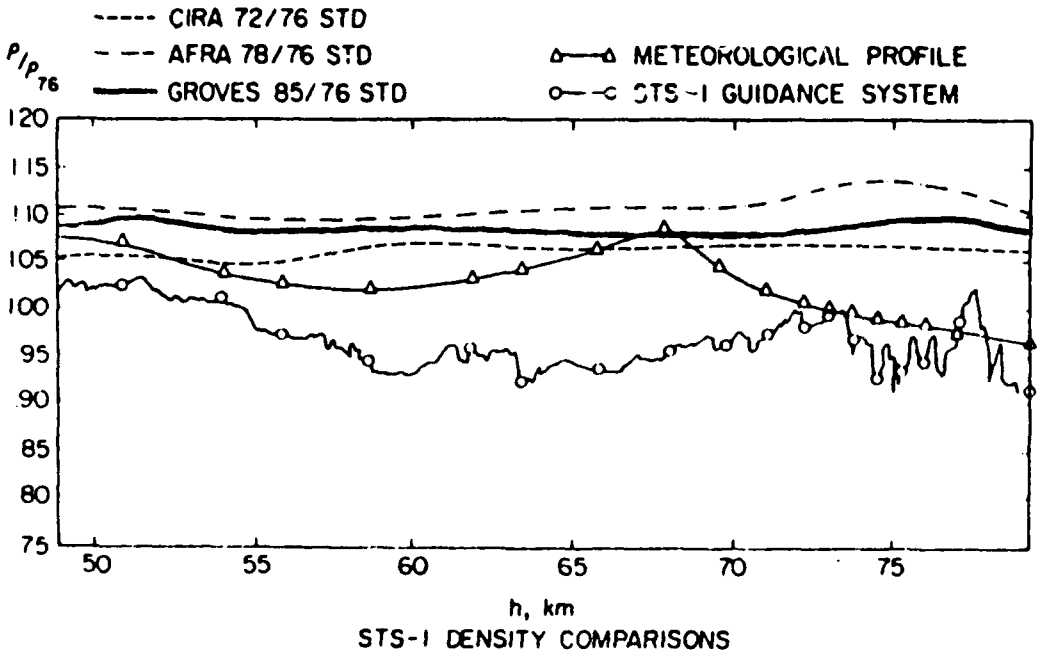

Figure 1. The ratio to the U.S. Standard 76 of density from drag on STS-1 during reentry, the meteorogical profile and the CIRA 72, AFRA 78, and Groves 85 model values (after Champion, 1987).

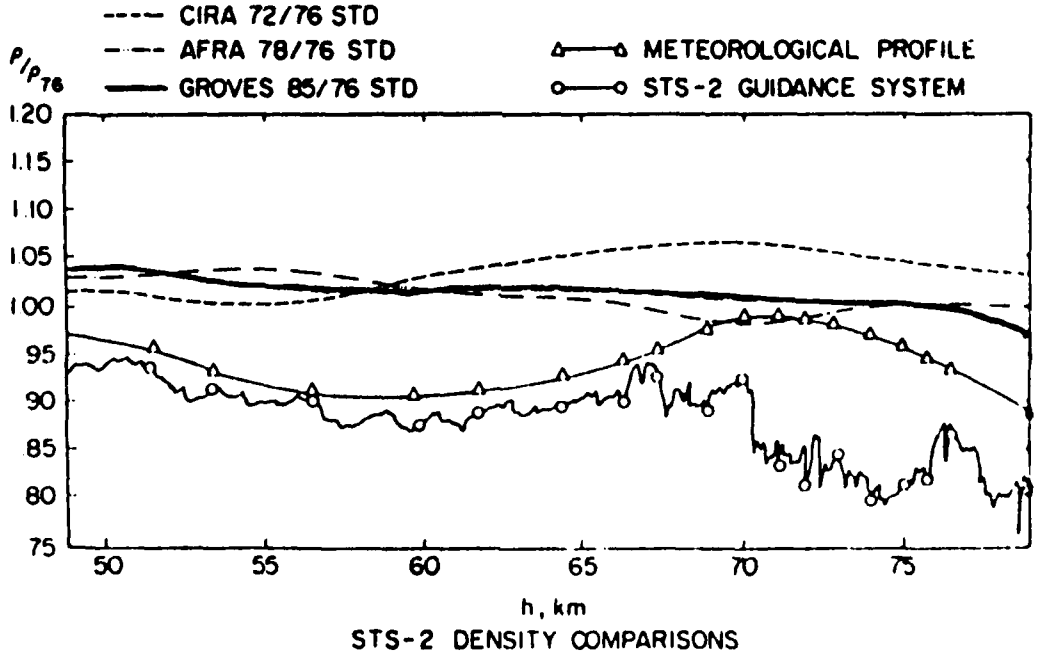

Figure 2. Same as Figure 1, but for reentry of STS-2 (after Champion, 1987).

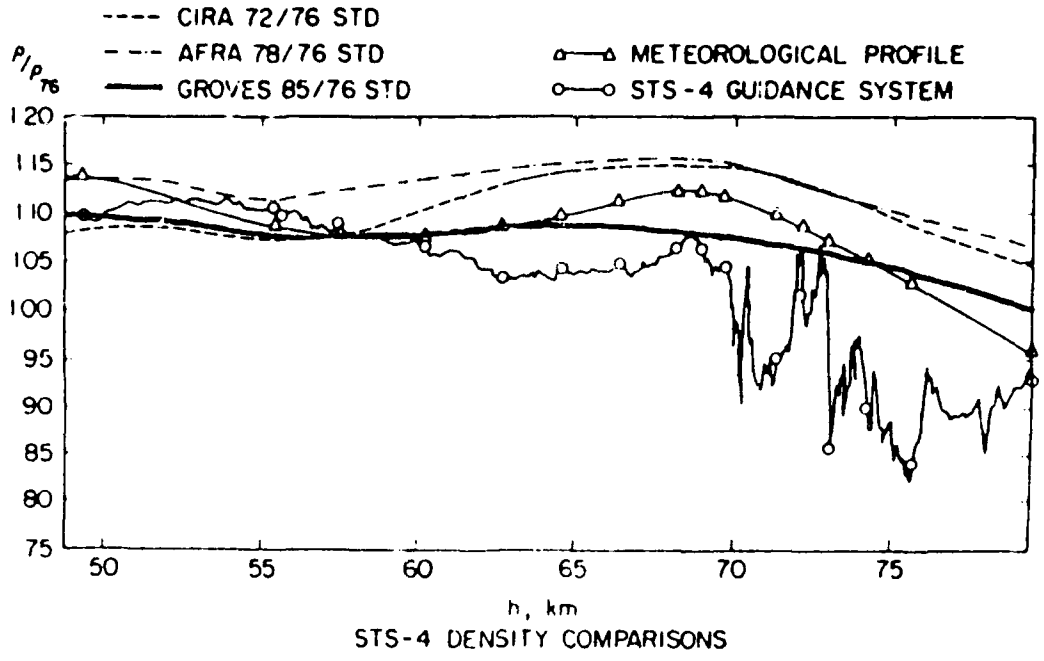

Figure 3. Same as Figure 1, but for reentry of STS-4 (after Champion, 1987).

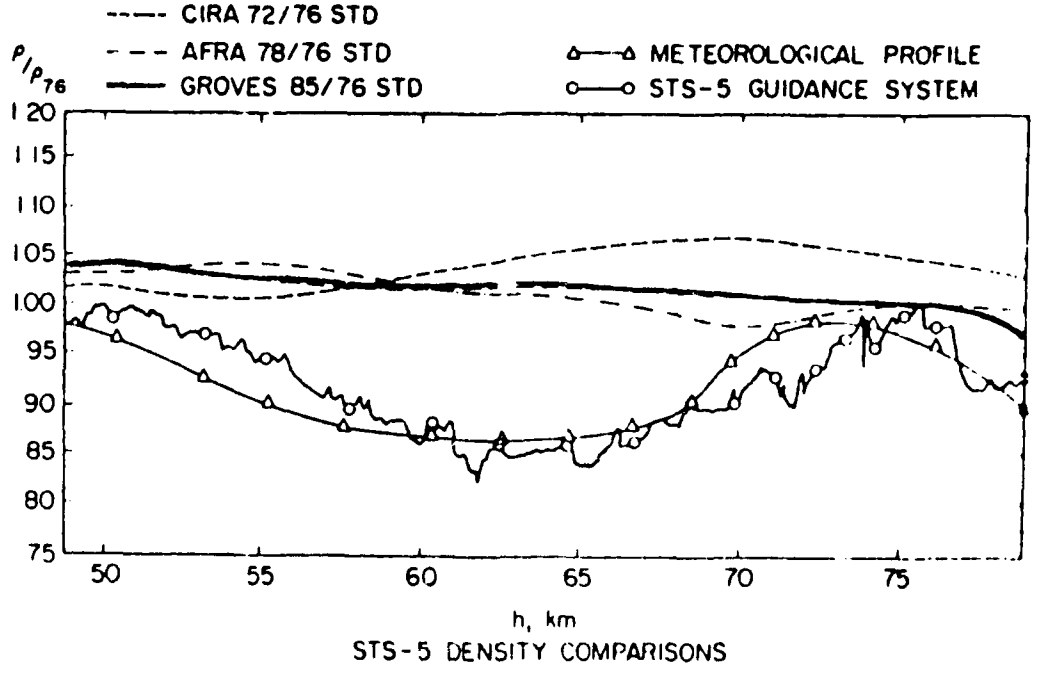

Figure 4. Same as Figure 1, but for reentry of STS-5 (after Champion, 1987).

Differences between Groves 85 and shuttle-derived densities are shown in Figure 5. All values are normalized to the 1976 U.S. Standard Atmosphere. AFRA 78 variability statistics are given to help determine whether or not the density differences are significant. All but one of the differences (STS-2 at 50 km) lie within the 99th percentile values of the AFRA 78 at 30° N. This means that the shuttle data is consistent with the natural data variability used to construct the neutral atmosphere models. Shuttle-derived densities are consistantly lower than Groves 85 densities, but it is unknown whether it is the shuttle drag coefficient or the model that should be changed (Champion, 1990).

	Groves 85-Shuttle Density Difference				99th Percentile Values from AFRA 78 @ 30° N	
Height	STS-1 (APR)	STS-2 (NOV)	STS-4 (JUL)	STS-3 (NOV)	(JAN)	(JUL)
50 km	-7%	-11%	0%	-4%	-9%	-7%
60 km	-16%	-14%	0%	-15%	-17%	-14%

Figure 5. Groves 85 vs Shuttle Atmospheric Densities. The 99th percentile low values are relative to the median.

Unfortunately, the Groves 85 and CIRA 76 models have no variability statistics, meaning that the expected ranges of atmospheric densities cannot be determined. This is a severe shortcoming in both these models. Having only mean densities seriously handicaps comparisons with individual observations.

Figures 6-8 compare the same shuttle reentry data to the AFRA 78, which includes mean, median, and low values that can be expected 10% and 1% of the time (90th and 99th percentiles). Since the AFRA 78 was incorporated into Groves 85 (see Chapter 3), Figures 6-8 give approximate values for the variability within the Groves model.

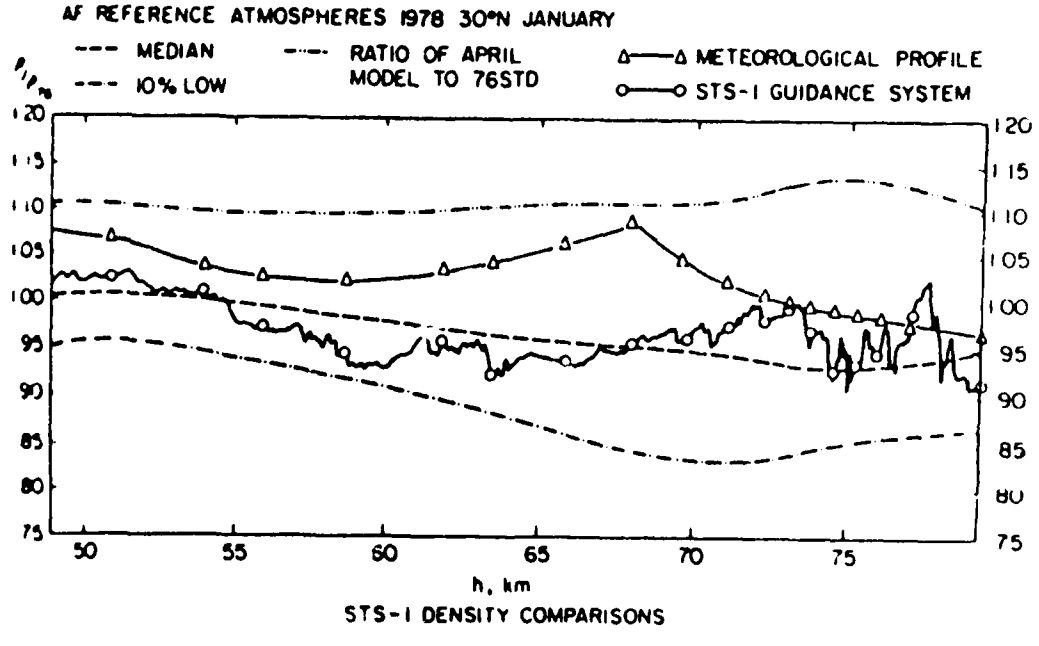

Figure 6. STS-1 density ratios, meteorological profile, and models specifying atmospheric variability (after Champion, 1987).

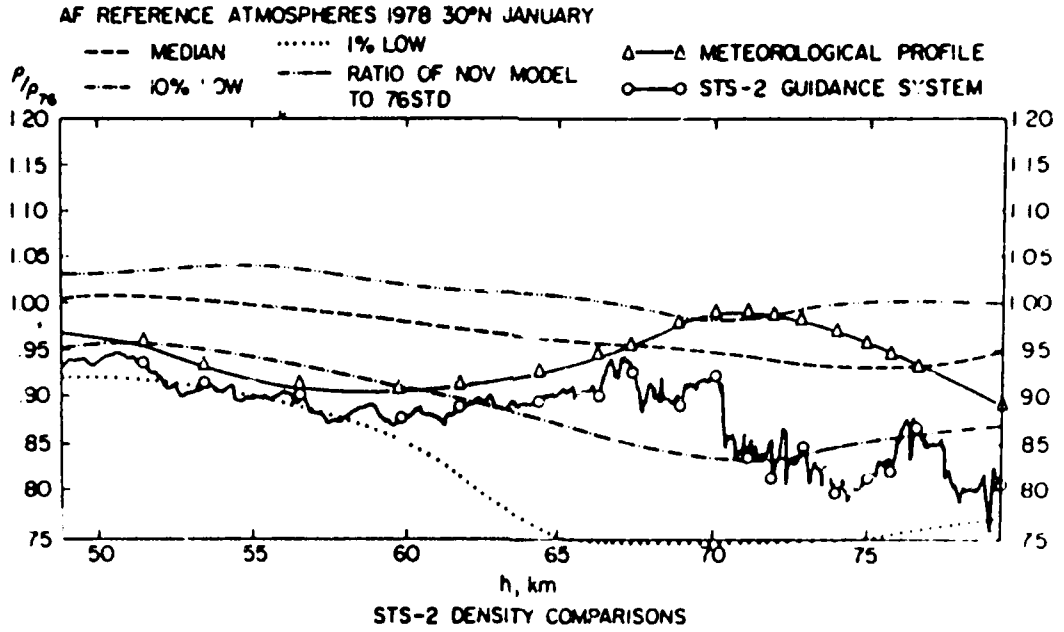

Figure 7. Same as Figure 1, but for STS-2 (after Champion, 1987).

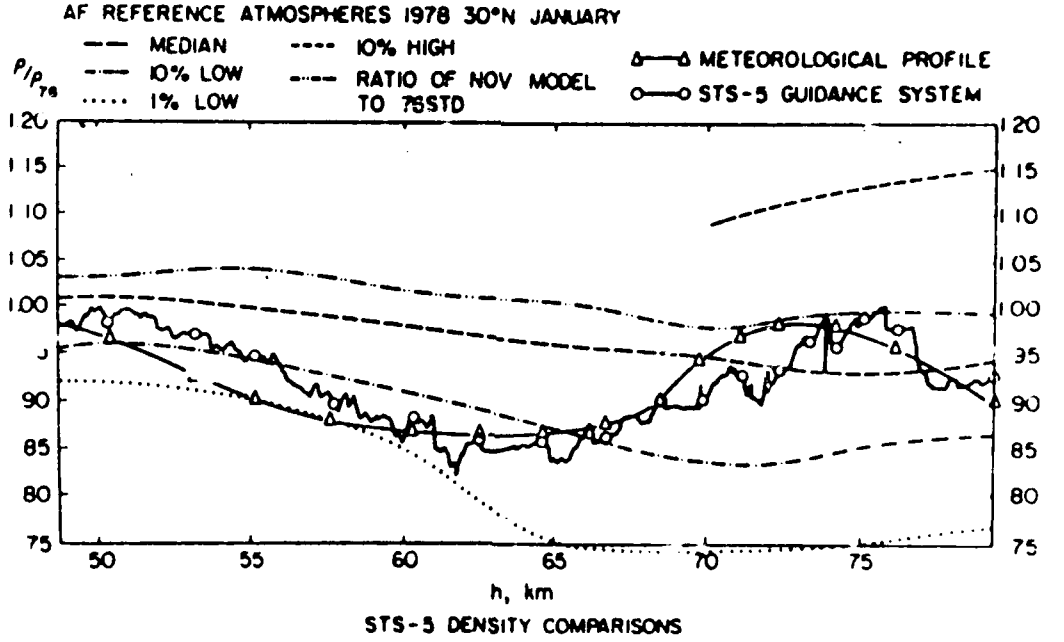

Figure 8. Same as Figure 1, but for STS-5 (after Champion, 1987).

3. MODEL COMPARISONS

3.1 General Discussion. Fundamental elements of the most recent reference atmospheres are shown in Figure 9. Groves 85 is the most comprehensive middle-atmospheric model available. It incorporates a worldwide satellite temperature database and several rocketsonde databases to produce the first global model of the middle atmosphere. The 1-km values are in good agreement with one test case--the Shemya RRA for January. Groves 85 1-km resolutions are obtained using averaged data; they do *not* represent measured densities. None of the models have diurnal or solar cycle dependence. All have been averaged by month.

Model	Data Source	Time Step	Altitude Step	Latitude Step	Longitude Step
Groves 85	Satellite ROCOB	Month	1 km	10° (80° N-80° S)	30° (Global)
CIRA 86[1]	Satellite	Month	5 km	10° (80° N-80° S)	NONE
CIRA 72[2]	ROCOB	Month	5 km	10° (0° N-70°)	NONE
AFRA 78	ROCOB	Month	5 km	15° (0° N-90° N)	Variable (10°,100°, 40° W)
SHRMA 90	ROCOB	Month	5 km	10° (0° S-70° S)	NONE
RRAs	Radiosonde ROCOB	Month	1-2 km	point analysis	point analysis

[1] *CIRA 86 uses MSIS 83 above 90 km.*
[2] *CIRA 72 uses the Jacchia Model above 90 km.*

Figure 9. Reference Atmosphere Elements.

3.2 Comparisons. Direct comparisons of Groves 85 with the other models yield relatively small differences because Groves 85 is based on four earlier reference atmospheres. Groves used the CIRA 86 satellite-derived reference atmosphere and an average of the AFRA 78, the CIRA 72, and the SHRMA 90, to produce his model.

Groves 85 uses more data to represent the middle atmosphere than any other technique currently available. Other models can be used for individual hemispheres with little or no longitudinal resolution. None of the models has better than monthly time resolution, 10 degrees of latitude resolution, or 30 degrees of longitude resolution. Point analysis may be done at the ROCOB sites.

Since all source data for Groves 85 has 5-km altitude resolution, be careful in using 1-km resolution with this model. It appears that the 1-km resolution was obtained by assuming a smoothly changing density, and not from direct interpolation. Caution should also be used with the longitude variation available in Groves 85--these values are derived solely from the satellite temperature database. Groves (1985) showed that yearly mean satellite temperatures differ from averaged, smoothed rocketsonde data by as much as 5° C. This discrepancy translates to average density differences between the AFRA 78 and Groves 85 of 3 percent for January at 140° W, 100° W, and 10° W, with a maximum difference of about 15 percent at 55 km at 10° W. Expect Groves 85 longitudinal density values to have additional variabilities of about 1 to 3 percent compared to the zonal mean density values alone.

4. ROCKETSONDE COMPARISONS

4.1 General Discussion. Questions naturally arise as to how accurately a climatological model approximates the real atmosphere. The problem in answering that question is that Groves 85 has incorporated all the main data sources, making independent comparisons difficult. Groves 85 has already been compared with the models upon which it was based (Groves, 1985), and with the longitudinal cases of AFRA 78 (Champion, 1987). Both were described in Chapter 2.

Rocketsondes are used to measure atmospheric variables up to about 60 km from 22 locations worldwide. Rocketsonde observations form the basis of AFRA 78, CIRA 72, and the mean zonal portion of Groves 85. Satellites measure the temperature and pressure of the atmosphere using remote sensing techniques; observations from NIMBUS 5 and 6 form the basis of the longitudinal portion of Groves 85.

Comparing Groves 85 to rocketsonde data is one way to assess the amount of variability. Differences are certain to occur as atmospheric density changes in time and space on scales smaller than those used in Groves 85. Density undergoes significant changes on time scales of days to years. Latitudinal density variability is greatest at 60 km, with a 60-percent variation in winter from equator to pole, and a 30-percent variation in summer (Cole, 1978). There is less information available on longitudinal density variability, but at 60° N in January, the density difference between 10° W and 140° W is a maximum of 16 percent at 45 km (Cole, 1978).

4.2 Benefits of Rocketsonde Comparisons. Since each rocketsonde observation represents a limited region in time and space, monthly averages of rocketsonde data over a long period of record could be compared to Groves. There are several RRAs in this format. Comparing Groves 85 with RRAs (rather than with individual rocketsonde data) is recommended because:

- RRAs have the same time resolution (monthly) as Groves
- RRAs have large periods of record and are statistically robust
- RRAs are available for 22 locations, but not all extend to 60 km

Groves 85 cannot reproduce an RRA exactly because of the model's relatively coarse spatial resolution. The atmospheric density portrayed in the RRAs should be compared to Groves 85 as a means of determining the expected amount of error when using Groves 85 to generate atmospheric density profiles. Published RRAs are listed in Appendix E.

5. SAMPLE GROVES 85--RANGE REFERENCE ATMOSPHERE (RRA) COMPARISON.

5.1 General Discussion. Unlike Groves 85, RRAs *do* contain statistics on the variability of atmospheric density. Comparing them will give an indication of the "ground truth" of Groves 85. RRAs have been published for about 22 stations, most in the northern hemisphere.

5.2 Shemya RRA vs Groves 85. Shemya lies at about 52° N, 174° E. Since the largest density variations occur in winter, January was chosen as the comparison month. The point-to-point comparison is shown in Figure 10. At all heights between 34 and 54 km, Groves 85 density values (ρ G) differed from the Shemya RRA mean density (ρ S) by less than one standard deviation (1-σ) of ρ S. From 30 to 32 km, Groves 85 density values exceeded the 1-σ values by 0.3 percent. No January statistics are available for Shemya above 54 km because of the lack of observations. The point-to-point comparison is listed in Figure 10, where

$$1\text{-}\sigma\ \%\rho S = \left(\frac{1\text{-}\sigma}{\rho S}\right) \cdot 100$$

$$Density\ Difference\ \%\rho S = \left(\frac{density\ difference}{\rho S}\right) \cdot 100$$

	SHEMYA RRA			GROVES 85	GROVES 85-SHEMYA RRA	
Ht (km)	ρS (gm/M^3)	1-σ (gm/M^3)	1-σ % ρS(%)	ρG (gm/M^3)	Density Difference (gm/M^3)	Density Difference %ρS (%)
30	17.95	0.59	3.3	18.59	-0.64	3.6
32	13.52	0.40	3.0	13.97	-0.45	3.3
34	10.05	0.40	4.0	10.43	-0.38	3.8
36	7.44	0.37	5.0	7.80	-0.36	4.8
38	5.56	0.33	5.9	5.78	-0.22	4.0
40	4.13	0.28	6.8	4.31	-0.18	4.4
42	3.10	0.25	8.1	3.19	-0.09	2.9
44	2.32	0.22	9.5	2.38	-0.06	2.6
46	1.73	0.18	10.4	1.79	-0.06	3.5
48	1.33	0.16	12.0	1.35	-0.02	1.5
50	1.00	0.13	13.0	1.03	-0.03	3.0
52	0.73	0.09	12.3	0.79	-0.06	8.2
54	0.57	0.07	12.3	0.61	-0.04	7.0

Figure 10. January Shemya RRA vs January Groves 85 (50°N, 180° E). Shemya RRA data for January is not available above 54 km. The tabular data given here is plotted in Figure 11.

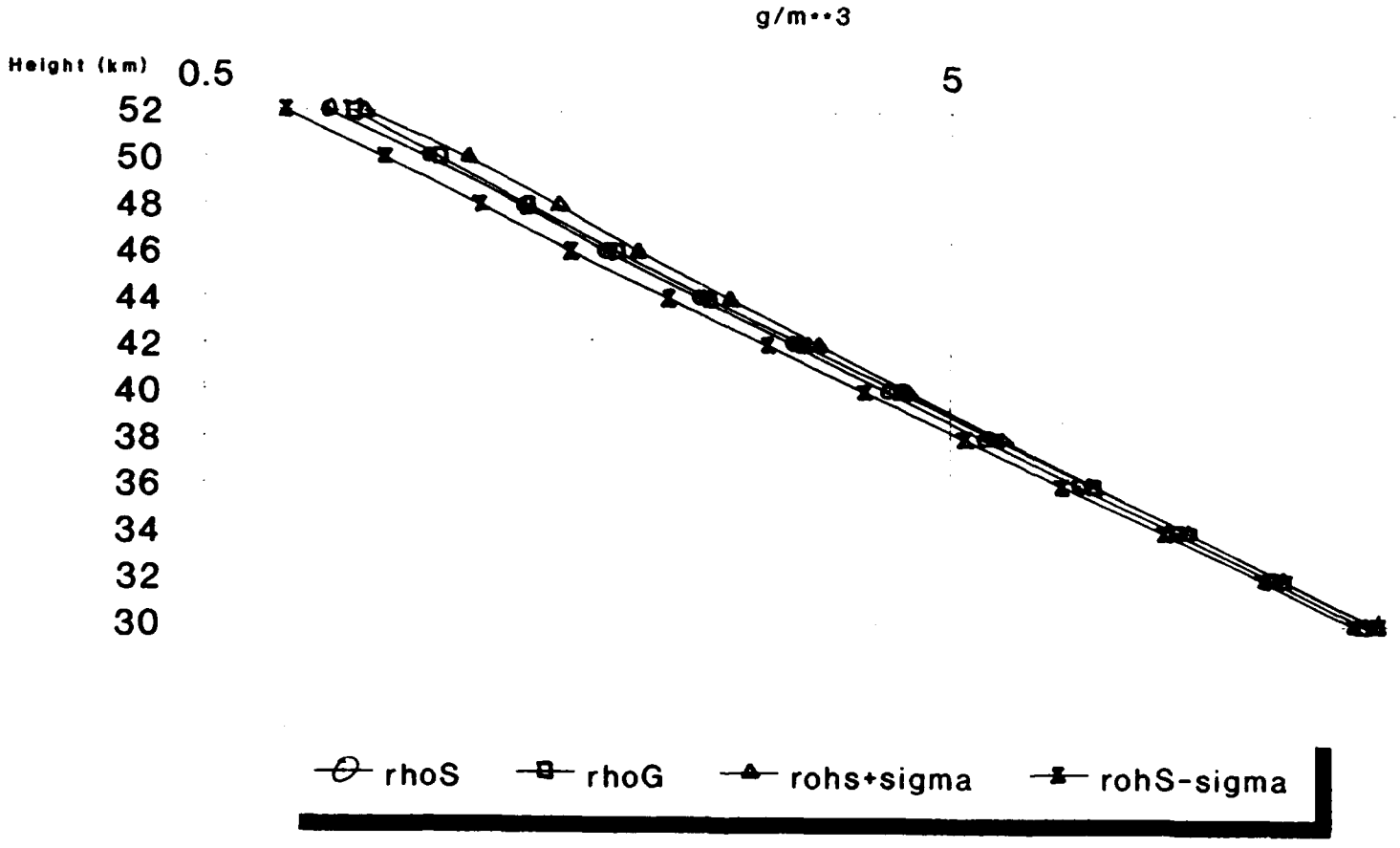

Figure 11. January Shemya RRA density vs January Groves 85 density (50° N, 180° E). Confidence interval is ± one sigma.

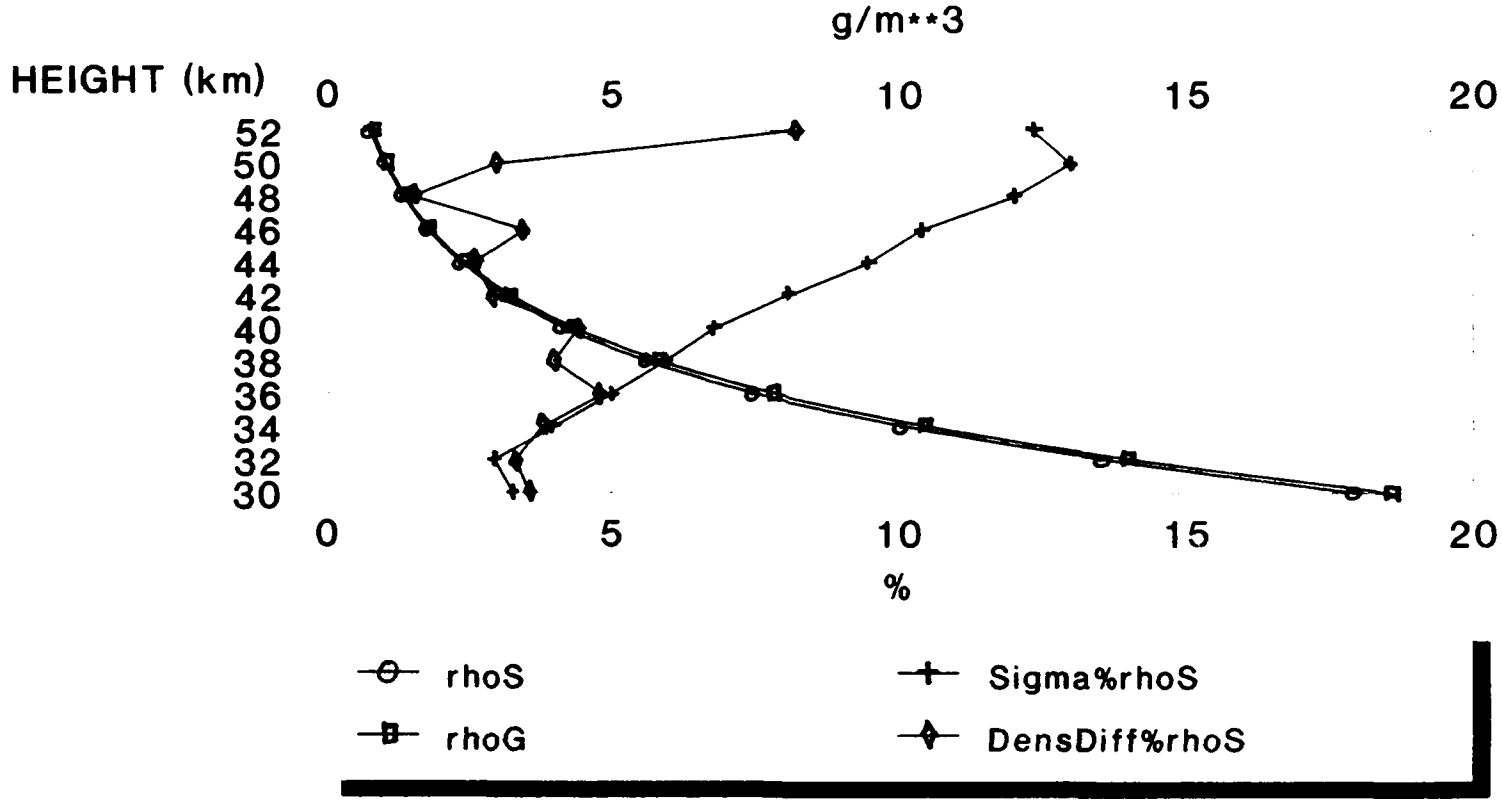

Figure 12. January density vs height for Shemya RRA and Groves 85 (50° N, 180° E). Density difference and sigma are shown as a percentage of Shemya's density.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions. Groves 85 represents the state of the art in middle-atmosphere climatological models. It is the first truly global middle-atmospheric model, and it has temporal and spatial coverage that equals or exceeds all previous models. The model's drawback is its inability to portray data variability, crucial when comparisons to other measurements are called for. Groves 85 is in good agreement with middle-atmospheric models developed since 1972 because it was derived from them. Groves 85 density values from 30-60 km are within data variability limits for two independent data sets: the shuttle-derived density and the Shemya RRA 1991.

6.2 Recommendations. Because Groves 85 is a blend of all the other available models, further study of Groves 85 or comparisons with other models is neither warranted nor recommended. We do, however, recommend detailed comparisons of Groves 85 with data from some of the other 20-odd RRAs. Such comparisons will provide "ground truth" verification of Groves 85 with no additional raw rocketsonde data analysis required.

BIBLIOGRAPHY

Champion, K.S.W., "Middle Atmosphere Models and Comparison with Shuttle Reentry Data," *Adv. Space Res.*, Vol 7, No. 10, pp. (10)77-(10)82, 1987.

Champion, K.S.W., "Middle Atmosphere Density Data and Comparison with Models," *Adv. Space Res.*, Vol 10, No. 6, pp (6)17-(6)26, 1990.

COESA, U.S. Standard Atmosphere, 1976, U.S. Government Printing Office, Washington, DC, 1976.

Cole, A.E. and A.J. Kantor, *Air Force Reference Atmospheres*, AFGL-TR-78-0051, ADA 058505, 1978.

"COSPAR International Reference Atmosphere (CIRA) 1972," *Academic Verlag*, Berlin, GDR, 1972.

Fleming, E.L.S., S. Chandra, J.J. Barnett, and M. Corney, "Zonal Mean Temperature, Pressure, Zonal Wind and Geopotential Height as Functions of Latitude," *Adv. Space Res.*, Vol 10, No. 12 pp (12)11-(12)59, 1990.

Groves, G.A., *A Global Reference Atmosphere from 18 to 80 km*, AFGL-TR-85-0129, ADA 162499, 1985.

Kushelkov, Yu P., "Southern Hemisphere Reference Middle Atmosphere," *Adv. Space Res.*, Vol 10, No. 12, pp (12)245-(12)263, 1990.

Range Reference Atmosphere, Shemya, USAF Environmental Technical Applications Center, USAFETAC/PR-91/003, 1991.

LIST OF ACRONYMS, INITIALISMS, AND ABBREVIATIONS

AFRA 78	Air Force Reference Atmosphere (1978)
CIRA 72	COSPAR International Reference Atmosphere (1972)
CIRA 86	COSPAR International Reference Atmosphere (1986)
COSPAR	Committee on Space Research
DNE	Electromagnetic Propagation Section of USAFETAC's Aerospace Sciences Branch
ECS	Special Projects Section of USAFETAC's Environmental Applications Branch
gm/M^3	grams per cubic meter
GROVES 85	Groves Neutral Density Model (1985)
km	kilometer
MSIS	Mass Spectrometer Incoherent Scatter
POR	Period of Record
ρG (rhoG)	density of Groves 85
ρS (rhoS)	density of Shemya RRA
ROCOB	Rocketsonde Observation
RRA	Range Reference Atmosphere
SHRMA 90	Southern Hemisphere Reference Model Atmosphere (1990)
STS	Space Transportation System
1-σ (1-sigma)	one standard deviation; includes 67% of all data points in a normally distributed set

APPENDIX A

GROVES 85

atmospheric density profiles

JANUARY

ZONAL MEAN DENSITY (KG/M CU)

KM	LAT = -80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	DEG
18	1.117	1.124	1.152	1.207	1.274	1.326	1.347	1.348	1.348	1.344	1.319	1.263	1.193	1.140	1.116	1.110	1.111	- 1
19	0.965	0.970	0.991	1.030	1.077	1.112	1.126	1.128	1.130	1.132	1.115	1.073	1.019	0.976	0.955	0.950	0.949	
20	8.318	8.359	8.512	8.793	9.116	9.349	9.437	9.453	9.487	9.512	9.402	9.090	8.674	8.330	8.142	8.070	8.042	- 2
21	7.165	7.197	7.308	7.507	7.730	7.883	7.934	7.942	7.969	7.992	7.915	7.686	7.372	7.096	6.923	6.827	6.768	
22	6.170	6.193	6.272	6.412	6.564	6.661	6.688	6.687	6.704	6.720	6.664	6.499	6.264	6.043	5.878	5.758	5.672	
23	5.313	5.328	5.384	5.480	5.580	5.640	5.650	5.642	5.648	5.656	5.617	5.499	5.327	5.147	4.988	4.849	4.742	
24	4.575	4.585	4.622	4.686	4.750	4.784	4.782	4.769	4.767	4.769	4.741	4.660	4.535	4.387	4.233	4.081	3.959	
25	3.942	3.947	3.970	4.010	4.049	4.064	4.055	4.038	4.031	4.029	4.010	3.956	3.866	3.743	3.594	3.435	3.305	
26	3.398	3.399	3.411	3.435	3.455	3.458	3.443	3.425	3.415	3.410	3.398	3.364	3.300	3.197	3.054	2.893	2.762	
27	2.931	2.929	2.934	2.944	2.952	2.946	2.929	2.910	2.898	2.893	2.886	2.866	2.820	2.732	2.597	2.440	2.311	
28	2.529	2.525	2.525	2.527	2.525	2.514	2.495	2.477	2.464	2.459	2.456	2.446	2.413	2.337	2.211	2.061	1.938	
29	2.185	2.179	2.175	2.171	2.162	2.148	2.128	2.111	2.099	2.094	2.094	2.090	2.066	2.001	1.885	1.744	1.630	
30	1.889	1.883	1.875	1.867	1.855	1.837	1.818	1.802	1.791	1.787	1.788	1.788	1.771	1.713	1.608	1.479	1.374	
31	1.634	1.628	1.619	1.608	1.593	1.574	1.556	1.541	1.531	1.528	1.530	1.532	1.518	1.468	1.374	1.257	1.162	
32	1.415	1.409	1.399	1.386	1.370	1.351	1.333	1.319	1.311	1.308	1.311	1.313	1.303	1.259	1.175	1.071	0.986	
33	1.226	1.221	1.211	1.197	1.180	1.161	1.144	1.131	1.124	1.123	1.125	1.127	1.118	1.080	1.006	0.914	0.838	
34	1.064	1.059	1.049	1.035	1.018	0.999	0.983	0.972	0.966	0.965	0.967	0.969	0.960	0.927	0.863	0.782	0.715	
35	9.245	9.196	9.104	8.966	8.794	8.617	8.465	8.361	8.311	8.302	8.319	8.330	8.252	7.964	7.404	6.699	6.121	- 3
36	8.041	7.998	7.911	7.777	7.611	7.441	7.299	7.205	7.162	7.157	7.169	7.171	7.097	6.846	6.363	5.753	5.250	
37	7.002	6.966	6.885	6.757	6.599	6.438	6.305	6.219	6.183	6.180	6.187	6.180	6.109	5.891	5.476	4.950	4.514	
38	6.106	6.075	6.002	5.881	5.731	5.579	5.455	5.377	5.346	5.344	5.347	5.333	5.265	5.074	4.719	4.267	3.890	
39	5.333	5.307	5.240	5.127	4.985	4.844	4.728	4.657	4.630	4.629	4.629	4.609	4.543	4.377	4.073	3.684	3.358	
40	4.664	4.643	4.583	4.478	4.345	4.213	4.106	4.040	4.017	4.017	4.013	3.990	3.926	3.781	3.520	3.186	2.904	
41	4.086	4.069	4.015	3.917	3.794	3.671	3.571	3.511	3.491	3.491	3.486	3.460	3.399	3.272	3.047	2.759	2.515	
42	3.585	3.572	3.523	3.433	3.318	3.204	3.112	3.057	3.039	3.039	3.033	3.006	2.948	2.836	2.642	2.393	2.181	
43	3.151	3.140	3.096	3.013	2.908	2.802	2.717	2.666	2.650	2.651	2.644	2.616	2.563	2.463	2.294	2.078	1.893	
44	2.774	2.766	2.726	2.650	2.552	2.455	2.376	2.329	2.315	2.316	2.309	2.283	2.232	2.143	1.996	1.807	1.645	
45	2.446	2.440	2.404	2.334	2.244	2.154	2.082	2.039	2.025	2.027	2.021	1.996	1.949	1.869	1.739	1.573	1.431	
46	2.161	2.156	2.124	2.059	1.976	1.894	1.827	1.787	1.775	1.777	1.772	1.749	1.705	1.633	1.517	1.371	1.246	
47	1.912	1.908	1.879	1.820	1.743	1.668	1.606	1.569	1.558	1.561	1.557	1.535	1.495	1.429	1.326	1.196	1.085	
48	1.695	1.691	1.664	1.610	1.540	1.471	1.414	1.380	1.370	1.373	1.370	1.351	1.314	1.253	1.160	1.044	0.946	
49	1.504	1.501	1.477	1.427	1.363	1.299	1.247	1.215	1.206	1.210	1.208	1.191	1.156	1.101	1.017	0.913	0.826	
50	1.337	1.334	1.311	1.266	1.207	1.149	1.101	1.072	1.064	1.068	1.067	1.052	1.019	0.968	0.892	0.799	0.721	
51	1.190	1.187	1.166	1.124	1.070	1.017	0.973	0.947	0.939	0.943	0.944	0.930	0.900	0.852	0.783	0.700	0.631	
52	1.060	1.057	1.038	0.999	0.950	0.901	0.861	0.837	0.830	0.835	0.836	0.823	0.795	0.751	0.688	0.613	0.552	
53	9.458	9.427	9.245	8.889	8.440	7.996	7.631	7.407	7.348	7.392	7.406	7.291	7.028	6.618	6.044	5.378	4.832	- 4
54	8.444	8.411	8.240	7.912	7.502	7.098	6.765	6.561	6.509	6.552	6.568	6.460	6.213	5.833	5.313	4.719	4.236	
55	7.543	7.509	7.348	7.045	6.671	6.303	6.001	5.816	5.770	5.811	5.827	5.725	5.491	5.140	4.671	4.143	3.717	
56	6.741	6.706	6.554	6.274	5.932	5.599	5.325	5.158	5.117	5.157	5.170	5.071	4.850	4.525	4.105	3.639	3.265	
57	6.027	5.990	5.846	5.587	5.275	4.973	4.726	4.576	4.540	4.577	4.586	4.488	4.278	3.981	3.606	3.197	2.870	
58	5.389	5.351	5.214	4.974	4.689	4.416	4.194	4.060	4.029	4.062	4.066	3.969	3.769	3.497	3.165	2.809	2.525	
59	4.819	4.779	4.649	4.426	4.166	3.919	3.721	3.602	3.575	3.604	3.602	3.504	3.315	3.068	2.776	2.468	2.223	
60	4.307	4.267	4.143	3.936	3.698	3.476	3.299	3.194	3.172	3.196	3.188	3.090	2.911	2.687	2.432	2.167	1.959	
61	3.849	3.808	3.689	3.497	3.279	3.079	2.923	2.832	2.813	2.833	2.818	2.720	2.551	2.349	2.128	1.903	1.726	
62	3.438	3.397	3.283	3.103	2.904	2.724	2.587	2.508	2.493	2.508	2.488	2.389	2.231	2.050	1.859	1.670	1.520	
63	3.068	3.027	2.918	2.750	2.567	2.407	2.286	2.219	2.208	2.219	2.193	2.095	1.947	1.785	1.623	1.464	1.339	
64	2.736	2.695	2.591	2.433	2.266	2.122	2.018	1.962	1.953	1.960	1.930	1.834	1.696	1.552	1.414	1.282	1.179	
65	2.437	2.397	2.297	2.150	1.996	1.868	1.778	1.731	1.725	1.729	1.696	1.602	1.474	1.347	1.231	1.121	1.036	
66	2.169	2.129	2.033	1.895	1.754	1.640	1.563	1.525	1.521	1.523	1.487	1.397	1.280	1.168	1.069	0.980	0.910	
67	1.928	1.888	1.797	1.667	1.538	1.437	1.371	1.341	1.340	1.339	1.302	1.217	1.109	1.011	0.928	0.855	0.798	
68	1.711	1.672	1.585	1.464	1.345	1.255	1.200	1.177	1.177	1.175	1.138	1.058	0.960	0.874	0.804	0.745	0.698	
69	1.515	1.478	1.395	1.282	1.173	1.094	1.048	1.031	1.032	1.029	0.993	0.919	0.831	0.755	0.697	0.647	0.610	
70	1.340	1.304	1.225	1.120	1.021	0.951	0.912	0.900	0.903	0.899	0.865	0.797	0.718	0.652	0.602	0.562	0.531	
71	1.182	1.148	1.074	0.975	0.885	0.824	0.792	0.784	0.788	0.784	0.752	0.690	0.620	0.563	0.521	0.487	0.462	
72	1.041	1.008	0.938	0.847	0.766	0.712	0.686	0.681	0.685	0.682	0.652	0.597	0.536	0.486	0.450	0.422	0.401	
73	9.137	8.825	8.176	7.340	6.604	6.134	5.923	5.895	5.941	5.909	5.648	5.162	4.623	4.189	3.880	3.642	3.465	- 5
74	7.995	7.704	7.104	6.340	5.679	5.270	5.099	5.087	5.134	5.106	4.878	4.456	3.989	3.613	3.346	3.143	2.992	
75	6.970	6.702	6.152	5.459	4.870	4.515	4.376	4.375	4.420	4.397	4.202	3.841	3.439	3.115	2.884	2.709	2.580	
76	6.052	5.808	5.308	4.685	4.165	3.859	3.745	3.749	3.790	3.772	3.610	3.304	2.962	2.684	2.484	2.333	2.221	
77	5.231	5.011	4.562	4.008	3.552	3.290	3.195	3.201	3.236	3.223	3.090	2.835	2.546	2.309	2.139	2.008	1.912	
78	4.497	4.303	3.905	3.418	3.022	2.798	2.719	2.722	2.750	2.741	2.634	2.424	2.183	1.984	1.840	1.729	1.647	
79	3.844	3.675	3.327	2.905	2.565	2.375	2.308	2.306	2.326	2.319	2.235	2.065	1.865	1.699	1.581	1.489	1.421	
80	3.264	3.120	2.821	2.460	2.172	2.013	1.954	1.946	1.957	1.951	1.887	1.749	1.585	1.450	1.356	1.285	1.230	

FEBRUARY

ZONAL MEAN DENSITY (KG/M CU)

KM	LAT = -80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	DEG
18	1.102	1.122	1.162	1.221	1.282	1.325	1.346	1.356	1.364	1.363	1.335	1.275	1.201	1.137	1.096	1.073	1.060	- 1
19	0.951	0.968	1.000	1.044	1.088	1.117	1.130	1.137	1.146	1.149	1.130	1.084	1.025	0.974	0.940	0.922	0.913	
20	8.197	8.331	8.584	8.920	9.232	9.420	9.491	9.537	9.611	9.640	9.519	9.181	8.732	8.324	8.043	7.877	7.786	- 2
21	7.058	7.162	7.359	7.615	7.837	7.953	7.980	8.001	8.055	8.087	8.000	7.760	7.430	7.113	6.869	6.700	6.592	
22	6.073	6.152	6.305	6.499	6.657	6.722	6.720	6.720	6.754	6.778	6.721	6.555	6.320	6.078	5.862	5.685	5.560	
23	5.223	5.282	5.401	5.549	5.659	5.690	5.668	5.654	5.673	5.688	5.650	5.540	5.378	5.193	5.002	4.820	4.681	
24	4.491	4.536	4.627	4.740	4.816	4.823	4.789	4.767	4.774	4.782	4.757	4.687	4.580	4.439	4.267	4.085	3.941	
25	3.862	3.895	3.966	4.051	4.102	4.094	4.055	4.027	4.026	4.030	4.014	3.972	3.902	3.794	3.641	3.465	3.322	
26	3.321	3.346	3.401	3.465	3.498	3.481	3.439	3.410	3.404	3.404	3.395	3.371	3.328	3.244	3.108	2.942	2.805	
27	2.857	2.876	2.919	2.967	2.986	2.963	2.922	2.893	2.885	2.884	2.878	2.867	2.840	2.774	2.654	2.501	2.373	
28	2.459	2.474	2.507	2.542	2.552	2.527	2.488	2.460	2.450	2.448	2.446	2.441	2.425	2.372	2.267	2.130	2.013	
29	2.117	2.129	2.155	2.180	2.183	2.158	2.122	2.096	2.086	2.084	2.084	2.083	2.071	2.028	1.937	1.816	1.712	
30	1.823	1.834	1.854	1.872	1.871	1.846	1.812	1.788	1.779	1.778	1.779	1.779	1.771	1.734	1.656	1.550	1.459	
31	1.572	1.582	1.597	1.609	1.605	1.581	1.551	1.529	1.520	1.520	1.521	1.522	1.514	1.483	1.416	1.325	1.247	
32	1.356	1.365	1.377	1.385	1.378	1.356	1.329	1.309	1.301	1.302	1.304	1.304	1.296	1.269	1.212	1.134	1.067	
33	1.171	1.179	1.189	1.193	1.185	1.165	1.141	1.123	1.116	1.117	1.119	1.118	1.110	1.085	1.037	0.972	0.914	
34	1.012	1.020	1.027	1.029	1.021	1.003	0.981	0.965	0.959	0.960	0.962	0.960	0.951	0.929	0.889	0.834	0.785	
35	8.761	8.832	8.890	8.890	8.807	8.646	8.453	8.303	8.247	8.265	8.286	8.257	8.157	7.959	7.616	7.156	6.742	- 3
36	7.591	7.657	7.703	7.691	7.609	7.466	7.294	7.157	7.107	7.127	7.147	7.109	7.004	6.824	6.533	6.147	5.796	
37	6.586	6.648	6.684	6.663	6.585	6.458	6.305	6.180	6.134	6.157	6.175	6.131	6.022	5.857	5.610	5.283	4.985	
38	5.723	5.779	5.807	5.781	5.708	5.596	5.459	5.345	5.304	5.327	5.343	5.295	5.185	5.034	4.821	4.544	4.289	
39	4.980	5.032	5.054	5.025	4.957	4.857	4.736	4.632	4.595	4.618	4.632	4.581	4.473	4.333	4.148	3.911	3.691	
40	4.340	4.388	4.405	4.375	4.313	4.224	4.116	4.022	3.989	4.010	4.022	3.970	3.865	3.736	3.574	3.368	3.177	
41	3.789	3.832	3.846	3.816	3.759	3.680	3.583	3.499	3.469	3.489	3.499	3.448	3.347	3.227	3.083	2.903	2.735	
42	3.313	3.352	3.364	3.335	3.282	3.213	3.126	3.050	3.024	3.042	3.050	3.000	2.905	2.794	2.664	2.504	2.355	
43	2.902	2.937	2.947	2.920	2.872	2.809	2.732	2.665	2.641	2.658	2.664	2.617	2.527	2.424	2.305	2.161	2.029	
44	2.546	2.578	2.586	2.561	2.517	2.461	2.393	2.333	2.312	2.327	2.332	2.287	2.203	2.107	1.998	1.867	1.749	
45	2.237	2.266	2.274	2.251	2.211	2.160	2.099	2.046	2.029	2.042	2.046	2.004	1.926	1.836	1.734	1.615	1.509	
46	1.969	1.995	2.002	1.982	1.945	1.899	1.845	1.799	1.784	1.796	1.798	1.760	1.687	1.603	1.508	1.398	1.302	
47	1.735	1.759	1.766	1.748	1.714	1.672	1.624	1.584	1.572	1.583	1.584	1.548	1.482	1.403	1.313	1.213	1.125	
48	1.532	1.554	1.560	1.544	1.513	1.475	1.432	1.398	1.388	1.398	1.398	1.365	1.304	1.230	1.144	1.053	0.974	
49	1.354	1.374	1.380	1.366	1.338	1.302	1.264	1.236	1.228	1.237	1.236	1.206	1.149	1.080	1.001	0.915	0.844	
50	1.199	1.217	1.223	1.210	1.184	1.151	1.118	1.094	1.088	1.096	1.095	1.067	1.015	0.950	0.876	0.797	0.733	
51	1.062	1.078	1.085	1.073	1.049	1.019	0.989	0.969	0.966	0.973	0.971	0.945	0.897	0.837	0.768	0.695	0.637	
52	9.423	9.568	9.630	9.531	9.307	9.029	8.765	8.599	8.581	8.646	8.622	8.378	7.934	7.372	6.732	6.073	5.555	- 4
53	8.366	8.497	8.556	8.468	8.261	8.004	7.770	7.634	7.630	7.690	7.661	7.433	7.022	6.499	5.909	5.314	4.852	
54	7.432	7.551	7.606	7.528	7.335	7.098	6.891	6.781	6.789	6.844	6.810	6.595	6.214	5.738	5.191	4.657	4.248	
55	6.607	6.713	6.765	6.693	6.514	6.296	6.113	6.025	6.041	6.092	6.055	5.851	5.496	5.051	4.562	4.087	3.728	
56	5.876	5.970	6.017	5.951	5.785	5.584	5.422	5.352	5.375	5.422	5.382	5.188	4.858	4.450	4.010	3.591	3.279	
57	5.227	5.311	5.351	5.289	5.135	4.951	4.808	4.753	4.781	4.823	4.781	4.596	4.289	3.917	3.525	3.159	2.890	
58	4.651	4.724	4.757	4.698	4.555	4.388	4.262	4.218	4.249	4.287	4.243	4.066	3.781	3.444	3.098	2.782	2.552	
59	4.138	4.201	4.227	4.169	4.037	3.886	3.775	3.741	3.772	3.807	3.761	3.592	3.328	3.024	2.722	2.452	2.257	
60	3.682	3.735	3.753	3.696	3.575	3.438	3.341	3.314	3.345	3.376	3.329	3.168	2.924	2.651	2.389	2.161	2.000	
61	3.275	3.319	3.330	3.273	3.160	3.039	2.954	2.933	2.963	2.989	2.942	2.789	2.563	2.321	2.096	1.906	1.773	
62	2.912	2.947	2.950	2.893	2.790	2.682	2.609	2.592	2.620	2.642	2.595	2.450	2.243	2.028	1.837	1.681	1.573	
63	2.588	2.615	2.611	2.553	2.459	2.364	2.301	2.287	2.312	2.331	2.284	2.148	1.959	1.769	1.608	1.481	1.396	
64	2.298	2.318	2.307	2.249	2.163	2.080	2.026	2.016	2.038	2.053	2.007	1.880	1.707	1.541	1.406	1.305	1.238	
65	2.039	2.052	2.036	1.978	1.898	1.826	1.782	1.773	1.793	1.804	1.759	1.642	1.486	1.340	1.228	1.148	1.097	
66	1.808	1.815	1.793	1.735	1.663	1.601	1.564	1.558	1.574	1.582	1.539	1.431	1.291	1.164	1.071	1.009	0.971	
67	1.601	1.603	1.576	1.519	1.453	1.401	1.371	1.366	1.380	1.385	1.344	1.246	1.120	1.009	0.933	0.885	0.858	
68	1.416	1.413	1.383	1.327	1.267	1.223	1.199	1.196	1.208	1.210	1.172	1.082	0.970	0.875	0.812	0.776	0.757	
69	1.250	1.244	1.211	1.157	1.103	1.066	1.047	1.046	1.055	1.055	1.020	0.939	0.840	0.757	0.706	0.678	0.665	
70	1.102	1.093	1.058	1.006	0.957	0.926	0.913	0.912	0.919	0.918	0.886	0.814	0.727	0.656	0.613	0.592	0.584	
71	9.689	9.575	9.227	8.725	8.287	8.033	7.939	7.945	8.000	7.977	7.680	7.046	6.284	5.670	5.313	5.159	5.106	- 5
72	8.498	8.370	8.025	7.552	7.159	6.951	6.889	6.904	6.946	6.915	6.649	6.094	5.432	4.903	4.604	4.486	4.454	
73	7.431	7.297	6.961	6.520	6.170	6.000	5.963	5.984	6.016	5.982	5.747	5.266	4.693	4.238	3.986	3.893	3.875	
74	6.475	6.341	6.021	5.615	5.304	5.166	5.148	5.172	5.197	5.163	4.959	4.546	4.053	3.662	3.448	3.373	3.362	
75	5.620	5.490	5.193	4.823	4.550	4.437	4.432	4.457	4.476	4.444	4.271	3.919	3.498	3.163	2.980	2.918	2.911	
76	4.855	4.735	4.464	4.133	3.893	3.801	3.803	3.826	3.841	3.814	3.670	3.373	3.015	2.729	2.574	2.522	2.516	
77	4.174	4.066	3.823	3.531	3.323	3.247	3.252	3.271	3.282	3.262	3.145	2.898	2.595	2.352	2.220	2.177	2.172	
78	3.568	3.474	3.262	3.000	2.830	2.766	2.770	2.782	2.790	2.778	2.688	2.483	2.227	2.023	1.913	1.878	1.875	
79	3.031	2.952	2.772	2.554	2.403	2.350	2.349	2.354	2.359	2.355	2.288	2.120	1.905	1.735	1.647	1.621	1.619	
80	2.557	2.494	2.344	2.162	2.036	1.990	1.982	1.977	1.980	1.984	1.938	1.802	1.622	1.482	1.415	1.399	1.400	

MARCH

ZONAL MEAN DENSITY (KG/M CU)

KM	LAT = -80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	DEG
18	1.077	1.104	1.149	1.208	1.265	1.308	1.334	1.349	1.353	1.343	1.311	1.262	1.209	1.161	1.118	1.077	1.045	- 1
19	0.930	0.952	0.989	1.035	1.078	1.108	1.124	1.132	1.136	1.131	1.109	1.073	1.032	0.995	0.961	0.928	0.902	
20	8.001	8.190	8.494	8.855	9.171	9.368	9.454	9.495	9.524	9.496	9.350	9.093	8.797	8.515	8.240	7.961	7.729	- 2
21	6.876	7.033	7.282	7.567	7.799	7.920	7.954	7.967	7.985	7.971	7.873	7.698	7.493	7.286	7.060	6.812	6.600	
22	5.903	6.033	6.237	6.463	6.632	6.700	6.700	6.693	6.703	6.695	6.631	6.515	6.380	6.231	6.044	5.822	5.627	
23	5.063	5.172	5.341	5.520	5.641	5.674	5.653	5.635	5.637	5.632	5.590	5.517	5.432	5.326	5.171	4.973	4.796	
24	4.341	4.433	4.573	4.715	4.802	4.812	4.780	4.754	4.751	4.747	4.721	4.677	4.625	4.550	4.422	4.248	4.091	
25	3.720	3.799	3.915	4.028	4.091	4.087	4.050	4.021	4.014	4.011	3.995	3.970	3.939	3.885	3.780	3.630	3.493	
26	3.187	3.256	3.353	3.443	3.488	3.477	3.438	3.409	3.400	3.397	3.389	3.375	3.356	3.315	3.229	3.103	2.987	
27	2.730	2.791	2.872	2.944	2.976	2.962	2.925	2.896	2.886	2.884	2.880	2.873	2.860	2.828	2.758	2.653	2.556	
28	2.338	2.392	2.461	2.519	2.542	2.527	2.494	2.466	2.455	2.454	2.453	2.449	2.439	2.412	2.354	2.269	2.190	
29	2.002	2.050	2.109	2.156	2.173	2.159	2.129	2.104	2.093	2.092	2.093	2.090	2.080	2.057	2.009	1.941	1.878	
30	1.715	1.757	1.808	1.846	1.859	1.847	1.821	1.798	1.787	1.788	1.790	1.787	1.776	1.753	1.714	1.661	1.611	
31	1.469	1.507	1.550	1.582	1.592	1.582	1.560	1.539	1.529	1.530	1.532	1.529	1.517	1.495	1.463	1.421	1.382	
32	1.258	1.292	1.330	1.356	1.365	1.357	1.338	1.319	1.310	1.311	1.314	1.310	1.296	1.276	1.248	1.215	1.186	
33	1.078	1.108	1.141	1.163	1.171	1.165	1.149	1.133	1.124	1.126	1.129	1.124	1.109	1.089	1.066	1.040	1.017	
34	0.924	0.951	0.980	0.999	1.006	1.002	0.989	0.974	0.966	0.968	0.971	0.966	0.950	0.930	0.910	0.890	0.873	
35	7.922	8.168	8.422	8.589	8.654	8.624	8.515	8.384	8.317	8.335	8.364	8.305	8.150	7.959	7.780	7.616	7.485	- 3
36	6.799	7.020	7.245	7.393	7.453	7.435	7.344	7.230	7.171	7.189	7.214	7.155	7.001	6.818	6.657	6.522	6.419	
37	5.841	6.038	6.239	6.371	6.429	6.419	6.344	6.245	6.193	6.211	6.233	6.173	6.024	5.850	5.704	5.589	5.505	
38	5.023	5.199	5.379	5.499	5.554	5.551	5.489	5.404	5.358	5.375	5.393	5.335	5.193	5.029	4.894	4.793	4.723	
39	4.324	4.483	4.645	4.754	4.806	4.808	4.758	4.685	4.645	4.660	4.675	4.619	4.486	4.333	4.207	4.116	4.053	
40	3.728	3.871	4.017	4.117	4.167	4.172	4.131	4.069	4.035	4.048	4.059	4.006	3.883	3.741	3.624	3.538	3.481	
41	3.219	3.348	3.481	3.573	3.620	3.627	3.594	3.542	3.513	3.524	3.532	3.482	3.369	3.238	3.128	3.047	2.993	
42	2.784	2.900	3.022	3.107	3.151	3.159	3.133	3.090	3.066	3.074	3.079	3.033	2.930	2.810	2.706	2.628	2.576	
43	2.412	2.517	2.629	2.707	2.748	2.757	2.736	2.701	2.681	2.688	2.691	2.648	2.555	2.445	2.347	2.271	2.221	
44	2.093	2.189	2.291	2.364	2.402	2.411	2.395	2.367	2.351	2.356	2.356	2.317	2.233	2.132	2.041	1.967	1.918	
45	1.820	1.907	2.002	2.069	2.104	2.113	2.101	2.079	2.066	2.070	2.067	2.031	1.957	1.865	1.779	1.708	1.660	
46	1.586	1.665	1.752	1.815	1.847	1.855	1.846	1.830	1.821	1.822	1.818	1.785	1.718	1.635	1.554	1.486	1.439	
47	1.384	1.457	1.537	1.596	1.625	1.632	1.626	1.614	1.608	1.608	1.602	1.571	1.512	1.437	1.361	1.296	1.251	
48	1.210	1.277	1.351	1.405	1.432	1.438	1.434	1.426	1.422	1.422	1.415	1.386	1.333	1.265	1.195	1.133	1.090	
49	1.060	1.121	1.190	1.240	1.264	1.270	1.267	1.263	1.261	1.260	1.252	1.225	1.178	1.116	1.051	0.993	0.952	
50	0.930	0.986	1.050	1.096	1.118	1.122	1.121	1.120	1.120	1.118	1.109	1.084	1.042	0.986	0.926	0.872	0.834	
51	8.174	8.685	9.273	9.703	9.897	9.935	9.931	9.941	9.956	9.938	9.835	9.602	9.223	8.723	8.172	7.668	7.315	- 4
52	7.193	7.659	8.200	8.598	8.772	8.801	8.805	8.833	8.861	8.840	8.732	8.513	8.173	7.722	7.218	6.756	6.433	
53	6.337	6.760	7.258	7.625	7.780	7.802	7.810	7.852	7.890	7.868	7.757	7.552	7.245	6.839	6.381	5.959	5.667	
54	5.588	5.972	6.427	6.765	6.904	6.919	6.930	6.982	7.028	7.005	6.893	6.700	6.422	6.057	5.642	5.262	4.999	
55	4.931	5.277	5.692	6.002	6.127	6.136	6.149	6.207	6.258	6.236	6.125	5.943	5.692	5.363	4.989	4.648	4.416	
56	4.354	4.664	5.041	5.324	5.436	5.441	5.454	5.516	5.570	5.548	5.439	5.269	5.040	4.744	4.409	4.107	3.903	
57	3.846	4.122	4.462	4.720	4.821	4.822	4.835	4.898	4.954	4.932	4.827	4.667	4.460	4.193	3.894	3.627	3.451	
58	3.397	3.642	3.947	4.181	4.272	4.271	4.283	4.345	4.400	4.380	4.279	4.130	3.941	3.702	3.436	3.202	3.051	
59	3.000	3.216	3.487	3.698	3.780	3.778	3.790	3.849	3.903	3.884	3.788	3.649	3.477	3.263	3.027	2.824	2.696	
60	2.649	2.837	3.077	3.267	3.341	3.339	3.350	3.406	3.457	3.438	3.348	3.220	3.064	2.871	2.663	2.488	2.380	
61	2.338	2.501	2.712	2.881	2.948	2.947	2.957	3.009	3.056	3.039	2.955	2.837	2.694	2.522	2.339	2.189	2.098	
62	2.062	2.202	2.386	2.536	2.597	2.597	2.606	2.654	2.697	2.680	2.603	2.475	2.365	2.211	2.051	1.922	1.847	
63	1.817	1.936	2.095	2.227	2.283	2.285	2.294	2.337	2.375	2.360	2.289	2.190	2.073	1.935	1.795	1.685	1.623	
64	1.600	1.701	1.837	1.952	2.003	2.007	2.017	2.055	2.088	2.073	2.009	1.919	1.813	1.691	1.568	1.475	1.424	
65	1.407	1.492	1.607	1.707	1.754	1.760	1.771	1.804	1.832	1.818	1.760	1.679	1.584	1.475	1.368	1.288	1.246	
66	1.236	1.307	1.404	1.490	1.532	1.541	1.553	1.582	1.605	1.591	1.539	1.467	1.381	1.284	1.191	1.123	1.088	
67	1.084	1.143	1.224	1.297	1.336	1.347	1.359	1.383	1.404	1.390	1.344	1.279	1.203	1.117	1.036	0.978	0.948	
68	0.950	0.998	1.065	1.127	1.162	1.176	1.189	1.211	1.225	1.213	1.172	1.115	1.046	0.970	0.899	0.850	0.825	
69	0.831	0.871	0.926	0.977	1.009	1.024	1.038	1.057	1.068	1.056	1.021	0.970	0.909	0.841	0.780	0.737	0.716	
70	7.262	7.585	8.032	8.453	8.740	8.909	9.058	9.218	9.293	9.181	8.876	8.430	7.885	7.294	6.761	6.391	6.206	- 5
71	6.333	6.598	6.956	7.300	7.557	7.737	7.891	8.026	8.073	7.970	7.708	7.320	6.838	6.318	5.855	5.534	5.370	
72	5.513	5.730	6.016	6.293	6.521	6.706	6.863	6.976	7.001	6.906	6.685	6.350	5.925	5.469	5.068	4.788	4.640	
73	4.789	4.968	5.194	5.415	5.616	5.802	5.957	6.051	6.058	5.973	5.790	5.503	5.131	4.732	4.384	4.139	4.004	
74	4.151	4.299	4.477	4.651	4.828	5.009	5.159	5.236	5.230	5.156	5.006	4.763	4.439	4.092	3.791	3.576	3.462	
75	3.588	3.712	3.852	3.988	4.142	4.314	4.456	4.517	4.501	4.439	4.320	4.117	3.836	3.537	3.277	3.087	2.973	
76	3.092	3.197	3.307	3.413	3.546	3.705	3.834	3.882	3.861	3.809	3.718	3.551	3.312	3.054	2.830	2.663	2.558	
77	2.656	2.745	2.833	2.916	3.028	3.172	3.286	3.320	3.297	3.257	3.191	3.056	2.854	2.634	2.442	2.295	2.198	
78	2.273	2.349	2.420	2.485	2.580	2.705	2.801	2.824	2.800	2.772	2.727	2.622	2.454	2.268	2.104	1.974	1.887	
79	1.936	2.001	2.060	2.113	2.192	2.296	2.373	2.386	2.363	2.346	2.319	2.241	2.104	1.948	1.808	1.695	1.616	
80	1.641	1.697	1.747	1.792	1.857	1.939	1.995	1.998	1.978	1.971	1.960	1.905	1.797	1.669	1.550	1.452	1.381	

APRIL

ZONAL MEAN DENSITY (KG/M CU)

KM LAT =	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80 DEG	
18	1.079	1.088	1.119	1.175	1.237	1.288	1.321	1.342	1.349	1.337	1.306	1.263	1.217	1.177	1.148	1.134	1.131	- 1
19	0.930	0.937	0.962	1.006	1.055	1.093	1.116	1.128	1.132	1.123	1.100	1.069	1.037	1.008	0.988	0.979	0.977	
20	7.984	8.052	8.263	8.616	8.989	9.259	9.405	9.476	9.489	9.420	9.262	9.049	8.827	8.632	8.492	8.425	8.416	- 2
21	6.826	6.905	7.094	7.376	7.652	7.834	7.921	7.959	7.961	7.908	7.798	7.659	7.516	7.387	7.289	7.241	7.235	
22	5.818	5.911	6.086	6.314	6.514	6.630	6.676	6.693	6.688	6.648	6.575	6.487	6.400	6.317	6.251	6.217	6.215	
23	4.947	5.052	5.218	5.405	5.549	5.618	5.636	5.637	5.628	5.600	5.553	5.502	5.451	5.399	5.356	5.336	5.339	
24	4.198	4.312	4.471	4.627	4.730	4.768	4.768	4.758	4.747	4.728	4.700	4.672	4.643	4.611	4.586	4.578	4.586	
25	3.557	3.676	3.827	3.960	4.036	4.053	4.042	4.026	4.013	4.001	3.987	3.973	3.956	3.936	3.924	3.927	3.940	
26	3.010	3.130	3.274	3.388	3.446	3.453	3.435	3.414	3.400	3.393	3.390	3.383	3.371	3.359	3.356	3.367	3.385	
27	2.545	2.662	2.796	2.897	2.944	2.946	2.926	2.902	2.887	2.885	2.888	2.885	2.874	2.865	2.869	2.887	2.908	
28	2.150	2.262	2.387	2.477	2.516	2.517	2.497	2.472	2.457	2.458	2.464	2.463	2.452	2.444	2.452	2.474	2.497	
29	1.816	1.920	2.035	2.116	2.152	2.154	2.135	2.110	2.096	2.098	2.107	2.105	2.093	2.085	2.095	2.119	2.143	
30	1.534	1.629	1.734	1.808	1.841	1.845	1.828	1.805	1.791	1.794	1.804	1.802	1.787	1.779	1.790	1.815	1.839	
31	1.296	1.382	1.476	1.543	1.576	1.582	1.568	1.546	1.533	1.537	1.547	1.544	1.528	1.519	1.529	1.554	1.576	
32	1.095	1.171	1.256	1.318	1.349	1.358	1.347	1.327	1.315	1.319	1.328	1.324	1.308	1.298	1.307	1.330	1.350	
33	0.925	0.993	1.069	1.125	1.156	1.166	1.158	1.140	1.130	1.134	1.142	1.137	1.121	1.111	1.118	1.138	1.156	
34	0.783	0.842	0.909	0.961	0.991	1.002	0.997	0.982	0.972	0.976	0.982	0.977	0.962	0.951	0.957	0.974	0.990	
35	6.630	7.146	7.738	8.207	8.497	8.622	8.590	8.444	8.381	8.412	8.467	8.413	8.264	8.162	8.205	8.345	8.475	- 3
36	5.622	6.068	6.590	7.016	7.293	7.424	7.411	7.308	7.238	7.263	7.306	7.253	7.114	7.016	7.041	7.152	7.257	
37	4.773	5.158	5.617	6.004	6.266	6.399	6.401	6.320	6.262	6.281	6.314	6.262	6.136	6.042	6.052	6.135	6.217	
38	4.059	4.390	4.793	5.144	5.390	5.522	5.536	5.475	5.427	5.442	5.465	5.416	5.303	5.214	5.211	5.269	5.330	
39	3.457	3.743	4.097	4.414	4.643	4.772	4.795	4.750	4.713	4.723	4.738	4.693	4.593	4.510	4.496	4.533	4.575	
40	2.951	3.196	3.507	3.794	4.006	4.129	4.160	4.129	4.100	4.107	4.115	4.074	3.987	3.911	3.897	3.906	3.932	
41	2.524	2.735	3.009	3.267	3.463	3.579	3.614	3.596	3.575	3.578	3.581	3.545	3.470	3.400	3.369	3.373	3.386	
42	2.163	2.346	2.587	2.819	2.999	3.108	3.146	3.138	3.123	3.124	3.123	3.090	3.026	2.963	2.927	2.919	2.922	
43	1.858	2.016	2.229	2.439	2.603	2.704	2.744	2.744	2.735	2.734	2.729	2.700	2.646	2.589	2.550	2.532	2.527	
44	1.599	1.737	1.925	2.114	2.264	2.358	2.398	2.404	2.399	2.397	2.390	2.365	2.319	2.267	2.22	2.203	2.191	
45	1.380	1.500	1.667	1.838	1.974	2.060	2.100	2.111	2.110	2.106	2.098	2.075	2.037	1.991	1.950	1.921	1.905	
46	1.194	1.299	1.448	1.601	1.725	1.804	1.843	1.859	1.859	1.855	1.845	1.825	1.793	1.752	1.711	1.680	1.661	
47	1.035	1.128	1.260	1.398	1.511	1.586	1.621	1.637	1.641	1.637	1.626	1.608	1.581	1.545	1.506	1.473	1.453	
48	0.900	0.981	1.099	1.224	1.326	1.392	1.428	1.446	1.451	1.447	1.436	1.420	1.397	1.365	1.328	1.295	1.274	
49	0.784	0.856	0.961	1.074	1.166	1.226	1.260	1.279	1.286	1.281	1.270	1.256	1.237	1.208	1.173	1.145	1.130	
50	0.685	0.748	0.842	0.944	1.028	1.082	1.114	1.133	1.141	1.136	1.125	1.112	1.096	1.071	1.038	1.007	0.987	
51	0.599	0.655	0.739	0.831	0.907	0.957	0.987	1.005	1.013	1.008	0.997	0.986	0.972	0.950	0.920	0.891	0.871	
52	5.249	5.743	6.494	7.325	8.0 5	8.466	8.744	8.927	9.005	8.96	8.849	8.744	8.632	8.441	8.165	7.890	7.706	- 4
53	4.608	5.044	5.714	6.463	7.090	7.500	7.757	7.933	8.010	7.965	7.857	7.761	7.666	7.500	7.249	6.996	6.825	
54	4.052	4.435	5.031	5.707	6.275	6.648	6.885	7.051	7.126	7.082	6.977	6.890	6.809	6.664	6.438	6.206	6.051	
55	3.567	3.903	4.432	5.041	5.556	5.894	6.112	6.268	6.339	6.296	6.195	6.115	6.047	5.921	5.717	5.507	5.366	
56	3.143	3.436	3.905	4.452	4.919	5.226	5.424	5.570	5.637	5.594	5.497	5.424	5.368	5.258	5.075	4.885	4.759	
57	2.771	3.025	3.440	3.930	4.353	4.631	4.812	4.947	5.009	4.967	4.875	4.808	4.761	4.666	4.502	4.331	4.219	
58	2.445	2.664	3.028	3.467	3.849	4.101	4.266	4.390	4.447	4.405	4.318	4.258	4.219	4.137	3.990	3.836	3.736	
59	2.157	2.345	2.664	3.055	3.400	3.628	3.777	3.891	3.942	3.902	3.820	3.766	3.734	3.663	3.531	3.393	3.306	
60	1.903	2.063	2.341	2.689	2.999	3.205	3.341	3.444	3.490	3.451	3.374	3.326	3.301	3.239	3.121	2.998	2.920	
61	1.679	1.814	2.055	2.363	2.641	2.828	2.950	3.044	3.084	3.047	2.976	2.934	2.914	2.860	2.754	2.644	2.575	
62	1.480	1.594	1.802	2.073	2.322	2.491	2.601	2.686	2.721	2.685	2.621	2.584	2.568	2.521	2.426	2.328	2.267	
63	1.304	1.399	1.578	1.816	2.038	2.190	2.290	2.363	2.395	2.362	2.304	2.272	2.259	2.218	2.134	2.046	1.993	
64	1.148	1.226	1.379	1.588	1.786	1.923	2.012	2.079	2.104	2.074	2.022	1.995	1.985	1.949	1.873	1.795	1.748	
65	1.010	1.074	1.204	1.386	1.562	1.685	1.765	1.823	1.845	1.817	1.772	1.749	1.741	1.709	1.642	1.572	1.531	
66	0.887	0.939	1.050	1.208	1.363	1.474	1.546	1.596	1.614	1.589	1.550	1.531	1.525	1.497	1.437	1.375	1.338	
67	0.778	0.821	0.915	1.051	1.187	1.287	1.351	1.395	1.409	1.387	1.355	1.339	1.334	1.308	1.255	1.201	1.169	
68	0.682	0.717	0.796	0.913	1.033	1.122	1.179	1.216	1.227	1.209	1.182	1.169	1.165	1.142	1.095	1.048	1.019	
69	0.597	0.625	0.692	0.792	0.897	0.977	1.028	1.058	1.066	1.051	1.030	1.020	1.015	0.995	0.95	0.913	0.888	
70	5.214	5.450	6.004	6.858	7.775	8.489	8.939	9.186	9.241	9.123	8.964	8.889	8.843	8.660	8.311	7.954	7.734	- 5
71	4.549	4.745	5.209	5.933	6.731	7.367	7.763	7.960	7.993	7.903	7.791	7.737	7.691	7.526	7.228	6.924	6.731	
72	3.963	4.128	4.515	5.128	5.818	6.384	6.729	6.881	6.896	6.832	6.761	6.726	6.680	6.532	6.280	6.023	5.855	
73	3.448	3.587	3.911	4.426	5.022	5.522	5.821	5.934	5.935	5.893	5.858	5.839	5.793	5.662	5.422	5.237	5.090	
74	2.994	3.114	3.384	3.816	4.327	4.768	5.025	5.105	5.093	5.071	5.065	5.061	5.016	4.902	4.729	4.550	4.423	
75	2.596	2.700	2.925	3.285	3.722	4.107	4.326	4.378	4.358	4.350	4.369	4.376	4.336	4.237	4.096	3.950	3.839	
76	2.247	2.337	2.524	2.824	3.196	3.529	3.712	3.742	3.716	3.720	3.756	3.775	3.740	3.657	3.544	3.424	3.327	
77	1.942	2.019	2.174	2.423	2.736	3.022	3.174	3.186	3.157	3.169	3.216	3.245	3.219	3.151	3.060	2.962	2.877	
78	1.674	1.740	1.868	2.073	2.336	2.577	2.701	2.701	2.671	2.686	2.741	2.777	2.762	2.709	2.637	2.554	2.480	
79	1.441	1.495	1.600	1.769	1.987	2.187	2.285	2.278	2.248	2.265	2.322	2.365	2.362	2.324	2.266	2.195	2.129	
80	1.236	1.279	1.364	1.503	1.682	1.845	1.921	1.908	1.880	1.896	1.952	2.002	2.012	1.988	1.940	1.877	1.817	

MAY

ZONAL MEAN DENSITY (KG/M CU)

KM	LAT = -80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80 DEG	
18	1.085	1.100	1.122	1.156	1.208	1.268	1.316	1.340	1.345	1.340	1.322	1.297	1.242	1.203	1.180	1.168	1.161	- 1
19	0.937	0.958	0.964	0.991	1.031	1.077	1.111	1.126	1.128	1.123	1.110	1.086	1.055	1.030	1.015	1.008	1.004	
20	7.984	8.112	8.272	8.489	8.794	9.125	9.365	9.460	9.459	9.419	9.331	9.166	8.964	8.806	8.725	8.685	8.652	- 2
21	6.741	6.906	7.087	7.276	7.499	7.730	7.894	7.953	7.943	7.911	7.854	7.750	7.624	7.530	7.488	7.468	7.446	
22	5.652	5.853	6.063	6.237	6.397	6.551	6.659	6.694	6.681	6.657	6.674	6.563	6.489	6.438	6.420	6.413	6.399	
23	4.718	4.944	5.177	5.344	5.462	5.560	5.626	5.644	5.630	5.615	5.599	5.568	5.528	5.502	5.500	5.502	5.495	
24	3.926	4.165	4.413	4.577	4.667	4.725	4.762	4.768	4.755	4.746	4.744	4.733	4.713	4.703	4.709	4.717	4.717	
25	3.262	3.502	3.754	3.917	3.990	4.023	4.039	4.036	4.024	4.022	4.028	4.029	4.021	4.019	4.029	4.042	4.047	
26	2.708	2.939	3.188	3.349	3.413	3.430	3.433	3.424	3.414	3.416	3.428	3.435	3.433	3.435	3.447	3.463	3.472	
27	2.249	2.465	2.703	2.860	2.920	2.929	2.923	2.911	2.902	2.908	2.923	2.933	2.934	2.936	2.949	2.966	2.978	
28	1.869	2.066	2.288	2.440	2.499	2.505	2.494	2.480	2.473	2.480	2.497	2.508	2.509	2.510	2.523	2.541	2.555	
29	1.555	1.731	1.935	2.079	2.138	2.144	2.132	2.117	2.111	2.120	2.136	2.147	2.147	2.147	2.159	2.177	2.193	
30	1.296	1.451	1.634	1.769	1.829	1.837	1.825	1.811	1.806	1.815	1.830	1.839	1.838	1.838	1.848	1.866	1.882	
31	1.083	1.217	1.379	1.504	1.564	1.575	1.565	1.552	1.548	1.557	1.570	1.578	1.576	1.574	1.583	1.600	1.616	
32	0.906	1.021	1.164	1.278	1.337	1.351	1.343	1.332	1.329	1.337	1.349	1.355	1.352	1.350	1.358	1.374	1.389	
33	0.760	0.858	0.982	1.086	1.143	1.160	1.155	1.146	1.143	1.150	1.160	1.164	1.161	1.159	1.165	1.180	1.194	
34	0.639	0.722	0.829	0.922	0.977	0.996	0.994	0.987	0.985	0.991	0.999	1.002	0.998	0.996	1.002	1.015	1.027	
35	5.391	6.082	6.996	7.828	8.357	8.542	8.568	8.516	8.503	8.552	8.615	8.631	8.595	8.573	8.621	8.735	8.850	- 3
36	4.557	5.134	5.913	6.650	7.148	7.365	7.394	7.359	7.351	7.390	7.438	7.445	7.412	7.391	7.433	7.531	7.632	
37	3.861	4.342	5.004	5.654	6.118	6.340	6.389	6.370	6.365	6.395	6.430	6.432	6.403	6.385	6.419	6.503	6.590	
38	3.281	3.680	4.241	4.812	5.241	5.464	5.528	5.522	5.520	5.543	5.567	5.566	5.540	5.526	5.555	5.625	5.699	
39	2.795	3.125	3.601	4.101	4.495	4.715	4.789	4.795	4.796	4.812	4.828	4.824	4.804	4.792	4.817	4.875	4.937	
40	2.387	2.661	3.063	3.501	3.860	4.074	4.156	4.171	4.173	4.184	4.194	4.190	4.173	4.166	4.186	4.233	4.284	
41	2.044	2.271	2.612	2.994	3.321	3.525	3.612	3.633	3.638	3.644	3.650	3.646	3.634	3.629	3.646	3.684	3.724	
42	1.754	1.943	2.232	2.566	2.862	3.056	3.145	3.170	3.176	3.180	3.182	3.179	3.17	3.169	3.182	3.212	3.245	
43	1.510	1.667	1.913	2.205	2.472	2.654	2.742	2.771	2.778	2.780	2.780	2.778	2.773	2.773	2.785	2.808	2.833	
44	1.302	1.434	1.643	1.899	2.139	2.310	2.396	2.426	2.433	2.434	2.434	2.432	2.431	2.433	2.442	2.460	2.478	
45	1.126	1.236	1.416	1.639	1.856	2.014	2.097	2.128	2.135	2.136	2.135	2.135	2.136	2.139	2.147	2.160	2.173	
46	0.976	1.069	1.223	1.419	1.614	1.760	1.839	1.869	1.877	1.877	1.876	1.877	1.880	1.885	1.891	1.900	1.910	
47	0.848	0.927	1.059	1.232	1.407	1.541	1.616	1.645	1.652	1.652	1.652	1.654	1.659	1.664	1.670	1.6 6	1.682	
48	0.739	0.805	0.920	1.072	1.229	1.352	1.422	1.450	1.457	1.457	1.457	1.460	1.466	1.472	1.477	1.481	1.485	
49	0.645	0.701	0.800	0.934	1.076	1.188	1.253	1.280	1.286	1.286	1.287	1.291	1.298	1.305	1.309	1.311	1.313	
50	0.564	0.612	0.698	0.817	0.944	1.046	1.106	1.131	1.137	1.137	1.139	1.144	1.151	1.158	1.161	1.163	1.163	
51	0.494	0.535	0.610	0.715	0.829	0.923	0.978	1.001	1.006	1.007	1.009	1.014	1.022	1.029	1.032	1.033	1.032	
52	4.334	4.691	5.346	6.272	7.296	8.147	8.658	8.868	8.917	8.921	8.942	9.000	9.081	9.149	9.180	9.182	9.176	- 4
53	3.807	4.118	4.689	5.508	6.425	7.200	7.670	7.863	7.907	7.910	7.932	7.992	8.074	8.141	8.172	8.173	8.164	
54	3.351	3.619	4.119	4.842	5.663	6.366	6.800	6.978	7.015	7.016	7.039	7.100	7.181	7.247	7.278	7.279	7.271	
55	2.952	3.185	3.622	4.260	4.993	5.631	6.030	6.194	6.226	6.224	6.246	6.307	6.386	6.452	6.483	6.486	6.479	
56	2.603	2.805	3.187	3.748	4.402	4.981	5.349	5.500	5.526	5.521	5.541	5.600	5.678	5.742	5.774	5.780	5.776	
57	2.297	2.472	2.805	3.299	3.880	4.404	4.743	4.883	4.904	4.895	4.914	4.970	5.045	5.108	5.141	5.150	5.149	
58	2.027	2.180	2.470	2.902	3.418	3.891	4.204	4.334	4.350	4.338	4.354	4 408	4.480	4.540	4.574	4.586	4.590	
59	1.790	1.923	2.175	2.552	3.008	3.435	3.724	3.845	3.856	3.841	3.854	3.905	3.973	4.031	4.066	4.082	4.089	
60	1.580	1.696	1.914	2.243	2.645	3.029	3.295	3.407	3.415	3.397	3.407	3.455	3.520	3.575	3.610	3.629	3.640	
61	1.394	1.495	1.685	1.970	2.323	2.667	2.911	3.015	3.020	3.000	3.008	3.053	3.114	3.167	3.202	3.224	3.237	
62	1.229	1.318	1.481	1.728	2.037	2.346	2.569	2.665	2.667	2.646	2.652	2.693	2.750	2.800	2.836	2.860	2.876	
63	1.083	1.160	1.302	1.515	1.785	2.060	2.263	2.351	2.351	2.330	2.335	2.373	2.425	2.472	2.507	2.533	2.552	
64	0.953	1.021	1.143	1.326	1.561	1.805	1.990	2.070	2.089	2.048	2.052	2.087	2.135	2.179	2. 3	2.241	2.261	
65	0.838	0.898	1.003	1.160	1.364	1.580	1.747	1.819	1.816	1.796	1.801	1.833	1.877	1.917	1.951	1.979	2.000	
66	0.736	0.789	0.880	1.014	1.190	1.381	1.530	1.594	1.590	1.573	1.579	1.607	1.646	1.683	1.716	1.745	1.767	
67	0.645	0.692	0.771	0.886	1.038	1.205	1.337	1.393	1.389	1.374	1.380	1.407	1.442	1.475	1.507	1.536	1.559	
68	0.565	0.606	0.674	0.773	0.904	1.050	1.165	1.214	1.210	1.198	1.205	1.230	1.260	1.291	1.321	1.350	1.372	
69	0.493	0.531	0.590	0.674	0.787	0.913	1.014	1.055	1.051	1.042	1.050	1.073	1.100	1.127	1.156	1.183	1.206	
70	0.430	0.464	0.515	0.587	0.684	0.793	0.880	0.914	0.910	0.904	0.914	0.935	0.958	0.982	1.010	1.038	1.059	
71	3.748	4.048	4.499	5.117	5.944	6.882	7.614	7.893	7.859	7.827	7.940	8.134	8.328	8.539	8.804	9.078	9.275	- 5
72	3.259	3.529	3.923	4.454	5.161	5.960	6.572	6.793	6.762	6.758	6.883	7.061	7.225	7.411	7.663	7.926	8.111	
73	2.830	3.072	3.418	3.873	4.476	5.152	5.658	5.826	5.798	5.818	5.953	6.117	6.254	6.419	6.657	6.909	7.081	
74	2.454	2.671	2.974	3.365	3.877	4.445	4.856	4.979	4.955	4.994	5.135	5.286	5.400	5.547	5.772	6.012	6.169	
75	2.126	2.319	2.584	2.918	3.352	3.825	4.155	4.240	4.219	4.272	4.417	4.554	4.650	4.782	4.995	5.220	5.362	
76	1.840	2.011	2.241	2.526	2.891	3.282	3.543	3.598	3.580	3.642	3.785	3.910	3.992	4.112	4.313	4.523	4.650	
77	1.591	1.741	1.940	2.180	2.485	2.806	3.009	3.041	3.026	3.093	3.230	3.344	3.415	3.526	3.715	3.909	4.020	
78	1.375	1.506	1.674	1.875	2.127	2.389	2.546	2.561	2.547	2.615	2.743	2.846	2.910	3.014	3.191	3.368	3.464	
79	1.189	1.300	1.440	1.615	1.811	2.023	2.144	2.148	2.136	2.199	2.317	2.408	2.468	2.568	2.733	2.892	2.974	
80	1.028	1.120	1.234	1.385	1.531	1.701	1.796	1.794	1.783	1.840	1.943	2.025	2.083	2.179	2.332	2.474	2.541	

JUNE

ZONAL MEAN DENSITY (KG/M CU)

KM	LAT = -80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80 DEG	
18	1.088	1.114	1.135	1.155	1.192	1.250	1.306	1.335	1.338	1.333	1.325	1.305	1.269	1.229	1.200	1.184	1.179	- 1
19	0.941	0.960	0.975	0.989	1.018	1.063	1.104	1.123	1.122	1.116	1.110	1.097	1.075	1.050	1.031	1.022	1.017	
20	7.965	8.174	8.344	8.474	8.692	9.023	9.320	9.445	9.418	9.358	9.315	9.244	9.115	8.968	8.861	8.802	8.772	- 2
21	6.646	6.898	7.118	7.260	7.424	7.659	7.871	7.954	7.922	7.869	7.843	7.812	7.745	7.666	7.609	7.578	7.559	
22	5.490	5.780	6.052	6.218	6.347	6.508	6.653	6.707	6.676	6.635	6.623	6.618	6.593	6.556	6.531	6.519	6.511	
23	4.506	4.817	5.129	5.322	5.432	5.538	5.632	5.664	5.639	5.609	5.608	5.620	5.619	5.609	5.603	5.604	5.605	
24	3.684	3.999	4.334	4.551	4.654	4.721	4.775	4.792	4.773	4.754	4.761	4.782	4.796	4.800	4.806	4.816	4.825	
25	3.006	3.311	3.653	3.886	3.989	4.030	4.056	4.062	4.049	4.039	4.051	4.076	4.098	4.110	4.121	4.137	4.152	
26	2.454	2.738	3.072	3.315	3.420	3.446	3.452	3.450	3.442	3.439	3.453	3.480	3.505	3.520	3.534	3.553	3.573	
27	2.005	2.263	2.579	2.822	2.931	2.950	2.942	2.936	2.932	2.934	2.950	2.976	3.000	3.016	3.031	3.052	3.075	
28	1.642	1.871	2.163	2.400	2.512	2.527	2.513	2.503	2.502	2.508	2.523	2.547	2.570	2.586	2.600	2.621	2.646	
29	1.349	1.548	1.812	2.037	2.150	2.166	2.149	2.138	2.139	2.147	2.162	2.183	2.204	2.218	2.231	2.253	2.278	
30	1.112	1.284	1.518	1.727	1.839	1.858	1.840	1.829	1.832	1.841	1.854	1.873	1.891	1.904	1.917	1.937	1.963	
31	0.920	1.066	1.272	1.463	1.572	1.593	1.578	1.568	1.571	1.580	1.592	1.608	1.624	1.636	1.647	1.667	1.691	
32	0.764	0.888	1.066	1.238	1.342	1.367	1.355	1.346	1.350	1.358	1.369	1.382	1.396	1.407	1.418	1.43[illegible]	459	
33	0.637	0.741	0.894	1.047	1.145	1.172	1.164	1.157	1.161	1.169	1.178	1.189	1.201	1.211	1.221	1.23[illegible]	1.259	
34	0.534	0.621	0.751	0.885	0.976	1.006	1.002	0.997	1.000	1.007	1.015	1.024	1.035	1.044	1.053	1.069	1.088	
35	4.487	5.214	6.317	7.485	8.313	8.630	8.630	8.596	8.627	8.687	8.751	8.832	8.923	9.007	9.101	9.244	9.412	- 3
36	3.788	4.396	5.325	6.333	7.083	7.407	7.442	7.425	7.452	7.501	7.556	7.625	7.706	7.785	7.876	8.007	8.152	
37	3.210	3.717	4.498	5.363	6.036	6.360	6.426	6.424	6.445	6.485	6.531	6.591	6.664	6.739	6.827	6.945	7.070	
38	2.730	3.153	3.808	4.547	5.147	5.466	5.555	5.566	5.582	5.613	5.653	5.706	5.772	5.844	5.928	6.035	6.142	
39	2.330	2.683	3.232	3.861	4.393	4.701	4.809	4.829	4.842	4.865	4.900	4.947	5.007	5.077	5.158	5.254	5.343	
40	1.995	2.291	2.751	3.285	3.754	4.049	4.169	4.197	4.206	4.223	4.253	4.296	4.352	4.419	4.497	4.583	4.657	
41	1.714	1.961	2.347	2.800	3.213	3.493	3.620	3.653	3.659	3.670	3.697	3.737	3.789	3.854	3.928	4.005	4.066	
42	1.476	1.685	2.009	2.393	2.756	3.018	3.148	3.185	3.187	3.195	3.220	3.257	3.306	3.368	3.439	3.507	3.557	
43	1.275	1.451	1.724	2.051	2.369	2.612	2.742	2.781	2.781	2.786	2.809	2.844	2.890	2.949	3.016	3.077	3.118	
44	1.104	1.253	1.484	1.762	2.042	2.266	2.393	2.432	2.431	2.434	2.455	2.488	2.531	2.587	2.651	2.706	2.738	
45	0.958	1.085	1.281	1.519	1.764	1.970	2.093	2.131	2.128	2.129	2.149	2.181	2.221	2.274	2.334	2.383	2.409	
46	0.833	0.942	1.108	1.312	1.529	1.717	1.833	1.869	1.866	1.866	1.885	1.915	1.953	2.003	2.060	2.103	2.124	
47	0.726	0.820	0.962	1.137	1.328	1.500	1.609	1.643	1.638	1.638	1.656	1.685	1.720	1.768	1.820	1.860	1.876	
48	0.634	0.715	0.837	0.989	1.157	1.313	1.414	1.446	1.441	1.440	1.458	1.485	1.518	1.562	1.611	1.647	1.660	
49	0.555	0.625	0.730	0.861	1.011	1.152	1.245	1.274	1.269	1.269	1.285	1.311	1.342	1.383	1.429	1.461	1.471	
50	0.487	0.547	0.638	0.753	0.885	1.013	1.098	1.125	1.119	1.119	1.135	1.159	1.188	1.226	1.269	1.298	1.306	
51	0.427	0.480	0.559	0.659	0.776	0.892	0.970	0.994	0.989	0.988	1.004	1.026	1.053	1.088	1.128	1.154	1.161	
52	0.376	0.421	0.490	0.578	0.682	0.787	0.858	0.879	0.874	0.874	0.888	0.910	0.934	0.967	1.003	1.028	1.034	
53	3.310	3.708	4.306	5.077	6.008	6.951	7.596	7.787	7.735	7.736	7.873	8.071	8.299	8.599	8.934	9.160	9.217	- 4
54	2.919	3.267	3.789	4.466	5.294	6.144	6.729	6.900	6.850	6.852	6.981	7.165	7.375	7.651	7.960	8.170	8.222	
55	2.577	2.882	3.338	3.932	4.668	5.433	5.965	6.118	6.070	6.072	6.193	6.363	6.556	6.809	7.095	7.291	7.341	
56	2.278	2.545	2.943	3.464	4.117	4.805	5.288	5.427	5.381	5.383	5.495	5.652	5.828	6.061	6.325	6.508	6.557	
57	2.015	2.250	2.597	3.052	3.630	4.249	4.688	4.814	4.770	4.771	4.875	5.026	5.181	5.394	5.639	5.811	5.859	
58	1.784	1.990	2.292	2.689	3.200	3.755	4.154	4.269	4.227	4.227	4.323	4.456	4.603	4.799	5.026	5.188	5.236	
59	1.579	1.761	2.024	2.369	2.818	3.316	3.678	3.784	3.745	3.743	3.830	3.952	4.087	4.266	4.477	4.631	4.679	
60	1.398	1.558	1.787	2.086	2.480	2.925	3.254	3.351	3.315	3.312	3.391	3.502	3.625	3.790	3.986	4.131	4.179	
61	1.238	1.380	1.578	1.835	2.[illegible]	2.576	2.876	2.965	2.931	2.927	2.998	3.100	3.212	3.364	3.546	3.684	3.731	
62	1.096	1.221	1.393	1.614	1.914	2.266	2.538	2.620	2.588	2.583	2.647	2.739	2.842	2.982	3.152	3.282	3.329	
63	0.969	1.080	1.229	1.418	1.678	1.991	2.236	2.311	2.281	2.275	2.333	2.417	2.511	2.640	2.798	2.921	2.968	
64	0.856	0.955	1.084	1.245	1.470	1.746	1.966	2.035	2.007	2.001	2.052	2.128	2.214	2.334	2.481	2.597	2.643	
65	0.756	0.843	0.955	1.092	1.286	1.528	1.725	1.788	1.763	1.756	1.801	1.870	1.949	2.059	2.196	2.306	2.351	
66	0.666	0.744	0.841	0.958	1.124	1.334	1.511	1.567	1.544	1.537	1.578	1.640	1.712	1.814	1.942	2.045	2.088	
67	0.586	0.655	0.740	0.839	0.982	1.166	1.320	1.370	1.349	1.343	1.379	1.435	1.501	1.595	1.713	1.810	1.852	
68	0.515	0.576	0.650	0.735	0.857	1.017	1.151	1.194	1.175	1.170	1.202	1.253	1.313	1.399	1.509	1.600	1.640	
69	0.451	0.506	0.570	0.643	0.747	0.885	1.001	1.037	1.021	1.016	1.045	1.090	1.145	1.225	1.326	1.411	1.449	
70	0.394	0.443	0.500	0.562	0.652	0.769	0.868	0.899	0.884	0.881	0.907	0.947	0.997	1.069	1.163	1.242	1.278	
71	0.344	0.387	0.437	0.492	0.568	0.668	0.751	0.776	0.763	0.761	0.784	0.820	0.865	0.931	1.017	1.091	1.129	
72	2.997	3.380	3.821	4.293	4.943	5.785	6.473	6.673	6.567	6.556	6.764	7.083	7.486	8.091	8.877	9.553	9.879	- 5
73	2.604	2.942	3.333	3.745	4.300	5.003	5.566	5.720	5.631	5.631	5.819	6.099	6.459	7.006	7.724	8.346	8.651	
74	2.259	2.556	2.901	3.262	3.734	4.317	4.770	4.885	4.810	4.822	4.991	5.237	5.555	6.048	6.700	7.269	7.552	
75	1.956	2.216	2.520	2.836	3.236	3.715	4.075	4.154	4.095	4.115	4.268	4.482	4.761	5.202	5.792	6.311	6.571	
76	1.692	1.918	2.185	2.458	2.795	3.187	3.468	3.523	3.473	3.501	3.639	3.824	4.066	4.458	4.989	5.459	5.696	
77	1.462	1.658	1.889	2.123	2.404	2.721	2.941	2.975	2.935	2.968	3.093	3.252	3.459	3.805	4.279	4.704	4.918	
78	1.263	1.432	1.629	1.825	2.056	2.312	2.482	2.502	2.470	2.507	2.620	2.755	2.931	3.233	3.655	4.035	4.225	
79	1.091	1.237	1.401	1.560	1.746	1.952	2.086	2.097	2.072	2.110	2.211	2.325	2.472	2.734	3.107	3.445	3.612	
80	0.943	1.068	1.202	1.323	1.468	1.635	1.743	1.758	1.730	1.769	1.859	1.954	2.076	2.300	2.628	2.925	3.070	

JULY

ZONAL MEAN DENSITY (KG/M CU)

KM LAT =	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80 DEG
18	1.094	1.111	1.128	1.151	1.192	1.253	1.310	1.340	1.341	1.331	1.325	1.316	1.293	1.256	1.220	1.200	1.195 - 1
19	0.943	0.955	0.968	0.985	1.019	1.067	1.111	1.130	1.126	1.116	1.110	1.106	1.094	1.072	1.050	1.036	1.033
20	7.861	8.050	8.241	8.424	8.693	9.060	9.380	9.514	9.468	9.372	9.329	9.324	9.277	9.156	9.019	8.932	8.907 - 2
21	6.423	6.691	6.974	7.196	7.419	7.684	7.914	8.009	7.969	7.892	7.866	7.883	7.881	7.823	7.743	7.690	7.675
22	5.187	5.512	5.872	6.140	6.336	6.523	6.681	6.749	6.720	6.664	6.651	6.683	6.707	6.688	6.644	6.615	6.610
23	4.165	4.516	4.925	5.233	5.416	5.545	5.648	5.695	5.679	5.641	5.639	5.678	5.717	5.720	5.699	5.686	5.691
24	3.340	3.690	4.119	4.455	4.634	4.724	4.784	4.816	4.809	4.787	4.792	4.834	4.879	4.895	4.888	4.886	4.899
25	2.683	3.014	3.439	3.788	3.969	4.033	4.062	4.081	4.082	4.072	4.081	4.122	4.170	4.192	4.192	4.198	4.218
26	2.164	2.465	2.868	3.217	3.400	3.449	3.456	3.466	3.472	3.471	3.482	3.521	3.567	3.591	3.595	3.607	3.632
27	1.755	2.020	2.391	2.729	2.914	2.955	2.948	2.950	2.959	2.964	2.976	3.011	3.055	3.079	3.085	3.099	3.128
28	1.432	1.661	1.994	2.314	2.496	2.534	2.519	2.516	2.527	2.534	2.547	2.578	2.618	2.641	2.648	2.664	2.695
29	1.176	1.371	1.664	1.960	2.138	2.176	2.156	2.150	2.161	2.170	2.182	2.210	2.246	2.267	2.275	2.292	2.323
30	0.973	1.137	1.391	1.660	1.830	1.869	1.849	1.840	1.850	1.861	1.871	1.896	1.928	1.948	1.955	1.972	2.003
31	0.810	0.947	1.165	1.405	1.565	1.605	1.587	1.577	1.587	1.597	1.606	1.628	1.656	1.674	1.682	1.699	1.728
32	0.679	0.792	0.978	1.190	1.338	1.379	1.363	1.354	1.362	1.372	1.380	1.399	1.424	1.441	1.449	1.465	1.492
33	0.572	0.665	0.823	1.008	1.143	1.184	1.172	1.164	1.171	1.179	1.187	1.203	1.226	1.241	1.249	1.264	1.289
34	0.494	0.561	0.694	0.855	0.976	1.017	1.009	1.002	1.007	1.015	1.021	1.036	1.056	1.070	1.078	1.093	1.114
35	4.119	4.756	5.874	7.254	8.337	8.716	8.690	8.629	8.676	8.738	8.797	8.923	9.104	9.241	9.325	9.453	9.646 - 3
36	3.518	4.046	4.985	6.165	7.120	7.504	7.490	7.443	7.480	7.533	7.585	7.697	7.860	7.989	8.072	8.191	8.357
37	3.014	3.454	4.243	5.247	6.083	6.447	6.461	6.428	6.457	6.500	6.547	6.647	6.793	6.916	7.000	7.108	7.250
38	2.590	2.959	3.622	4.475	5.202	5.542	5.579	5.558	5.580	5.615	5.657	5.747	5.880	5.997	6.080	6.178	6.297
39	2.230	2.543	3.102	3.824	4.453	4.767	4.822	4.812	4.829	4.856	4.894	4.976	5.097	5.208	5.290	5.379	5.478
40	1.925	2.191	2.664	3.276	3.818	4.106	4.173	4.172	4.184	4.206	4.241	4.315	4.425	4.530	4.612	4.691	4.772
41	1.664	1.893	2.295	2.813	3.279	3.542	3.616	3.623	3.631	3.648	3.679	3.747	3.848	3.948	4.027	4.098	4.164
42	1.441	1.639	1.983	2.422	2.822	3.060	3.139	3.151	3.157	3.169	3.198	3.260	3.352	3.446	3.523	3.587	3.640
43	1.249	1.423	1.717	2.091	2.435	2.649	2.729	2.745	2.748	2.758	2.784	2.840	2.925	3.014	3.088	3.145	3.188
44	1.085	1.237	1.491	1.810	2.106	2.298	2.378	2.395	2.397	2.404	2.428	2.480	2.557	2.641	2.711	2.763	2.797
45	0.944	1.078	1.298	1.571	1.827	1.999	2.076	2.094	2.095	2.099	2.121	2.169	2.240	2.318	2.385	2.431	2.458
46	0.822	0.941	1.132	1.368	1.589	1.743	1.816	1.834	1.834	1.837	1.857	1.900	1.966	2.039	2.102	2.143	2.164
47	0.717	0.822	0.990	1.193	1.386	1.524	1.592	1.610	1.608	1.610	1.628	1.668	1.728	1.796	1.855	1.893	1.909
48	0.627	0.720	0.867	1.044	1.213	1.336	1.399	1.415	1.413	1.414	1.431	1.467	1.522	1.585	1.640	1.674	1.687
49	0.549	0.631	0.760	0.915	1.064	1.174	1.231	1.246	1.243	1.244	1.259	1.293	1.343	1.401	1.451	1.482	1.494
50	0.482	0.555	0.668	0.804	0.935	1.034	1.086	1.100	1.096	1.096	1.110	1.141	1.186	1.240	1.287	1.315	1.324
51	0.424	0.488	0.588	0.707	0.823	0.912	0.960	0.971	0.967	0.967	0.980	1.008	1.050	1.098	1.142	1.168	1.176
52	0.373	0.430	0.518	0.623	0.726	0.806	0.849	0.859	0.855	0.854	0.866	0.892	0.930	0.974	1.014	1.038	1.046
53	3.294	3.792	4.564	5.494	6.415	7.136	7.525	7.612	7.566	7.556	7.665	7.900	8.245	8.651	9.017	9.238	9.307 - 4
54	2.913	3.350	4.027	4.848	5.670	6.320	6.673	6.748	6.700	6.689	6.788	7.003	7.316	7.686	8.022	8.227	8.293
55	2.581	2.962	3.556	4.280	5.013	5.600	5.920	5.985	5.936	5.924	6.016	6.212	6.495	6.842	7.140	7.332	7.395
56	2.290	2.623	3.142	3.778	4.431	4.962	5.254	5.309	5.261	5.249	5.333	5.511	5.768	6.073	6.357	6.536	6.599
57	2.034	2.324	2.776	3.335	3.914	4.394	4.660	4.710	4.663	4.650	4.727	4.889	5.121	5.399	5.661	5.829	5.890
58	1.809	2.061	2.454	2.941	3.454	3.887	4.132	4.177	4.132	4.119	4.189	4.335	4.545	4.798	5.040	5.199	5.259
59	1.609	1.829	2.169	2.593	3.044	3.434	3.659	3.702	3.660	3.647	3.710	3.842	4.031	4.261	4.486	4.637	4.696
60	1.431	1.623	1.917	2.283	2.679	3.029	3.237	3.278	3.239	3.226	3.282	3.401	3.571	3.782	3.991	4.135	4.192
61	1.273	1.440	1.694	2.008	2.353	2.667	2.859	2.899	2.863	2.850	2.901	3.007	3.160	3.353	3.548	3.685	3.742
62	1.132	1.277	1.496	1.764	2.063	2.343	2.520	2.560	2.528	2.515	2.560	2.655	2.792	2.969	3.152	3.283	3.338
63	1.005	1.132	1.320	1.548	1.806	2.054	2.217	2.257	2.229	2.216	2.256	2.340	2.463	2.625	2.797	2.923	2.976
64	0.891	1.003	1.163	1.357	1.578	1.797	1.946	1.986	1.962	1.950	1.983	2.057	2.168	2.318	2.480	2.599	2.651
65	0.789	0.887	1.024	1.188	1.376	1.569	1.705	1.744	1.723	1.712	1.741	1.805	1.905	2.043	2.195	2.310	2.360
66	0.697	0.783	0.901	1.038	1.199	1.367	1.490	1.528	1.511	1.501	1.524	1.580	1.669	1.796	1.940	2.050	2.098
67	0.614	0.690	0.791	0.907	1.043	1.189	1.299	1.336	1.322	1.312	1.332	1.380	1.459	1.577	1.712	1.816	1.863
68	0.540	0.606	0.693	0.791	0.906	1.032	1.130	1.165	1.154	1.145	1.160	1.201	1.272	1.381	1.508	1.607	1.652
69	0.474	0.532	0.607	0.689	0.786	0.895	0.981	1.013	1.005	0.997	1.009	1.043	1.107	1.206	1.325	1.419	1.462
70	0.415	0.465	0.530	0.600	0.682	0.775	0.850	0.879	0.873	0.866	0.875	0.903	0.960	1.051	1.161	1.250	1.292
71	0.362	0.406	0.462	0.521	0.591	0.670	0.734	0.760	0.757	0.750	0.756	0.780	0.830	0.913	1.016	1.099	1.139
72	0.316	0.354	0.402	0.453	0.512	0.579	0.633	0.656	0.654	0.648	0.652	0.672	0.716	0.791	0.886	0.964	1.002
73	2.743	3.072	3.486	3.927	4.431	4.991	5.449	5.645	5.632	5.584	5.611	5.771	6.155	6.835	7.698	8.423	8.786 - 5
74	2.379	2.661	3.020	3.401	3.830	4.298	4.677	4.842	4.836	4.797	4.814	4.944	5.278	5.885	6.668	7.336	7.678
75	2.060	2.301	2.610	2.940	3.305	3.695	4.005	4.140	4.139	4.108	4.118	4.224	4.512	5.051	5.754	6.364	6.684
76	1.780	1.986	2.252	2.536	2.846	3.168	3.419	3.528	3.529	3.506	3.513	3.599	3.847	4.319	4.945	5.497	5.792
77	1.536	1.712	1.940	2.182	2.442	2.707	2.910	2.995	2.997	2.961	2.989	3.060	3.270	3.680	4.231	4.724	4.994
78	1.323	1.475	1.668	1.871	2.086	2.304	2.467	2.533	2.533	2.525	2.535	2.595	2.772	3.122	3.602	4.038	4.281
79	1.138	1.270	1.433	1.598	1.772	1.950	2.083	2.133	2.131	2.129	2.144	2.196	2.343	2.638	3.050	3.431	3.646
80	0.977	1.095	1.231	1.358	1.493	1.639	1.749	1.787	1.783	1.786	1.807	1.854	1.974	2.219	2.568	2.897	3.083

AUGUST

ZONAL MEAN DENSITY (KG/M CU)

KM	LAT = -80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80 DEG	
18	1.187	1.168	1.147	1.149	1.190	1.259	1.323	1.353	1.352	1.337	1.323	1.309	1.284	1.251	1.217	1.194	1.182	- 1
19	1 022	1.005	0.984	0.983	1.017	1.073	1.122	1.143	1.138	1.124	1.114	1.105	1.091	1.070	1.047	1.030	1.021	
20	8.404	8.399	8.352	8.398	8.678	9.114	9.479	9.619	9.563	9.451	9.381	9.343	9.273	9.146	8.995	8.872	8.801	- 2
21	6.734	6.901	7.036	7.167	7.403	7.728	7.994	8.090	8.038	7.953	7.915	7.913	7.888	7.814	7.715	7.631	7.581	
22	5.323	5.613	5.898	6.112	6.320	6.555	6.742	6.807	6.764	6.704	6.692	6.714	6.717	6.676	6.612	6.557	6.526	
23	4.186	4.544	4.929	5.208	5.401	5.568	5.694	5.736	5.704	5.665	5.671	5.707	5.726	5.707	5.666	5.631	5.614	
24	3.296	3.677	4.113	4.435	4.621	4.739	4.819	4.844	4.822	4.800	4.816	4.859	4.887	4.880	4.854	4.834	4.828	
25	2.608	2.981	3.431	3.776	3.957	4.042	4.087	4.101	4.087	4.076	4.098	4.143	4.175	4.176	4.160	4.149	4.151	
26	2.080	2.426	2.864	3.213	3.392	3.455	3.476	3.480	3.472	3.470	3.493	3.537	3.571	3.576	3.566	3.561	3.568	
27	1.674	1.985	2.394	2.734	2.909	2.958	2.962	2.960	2.956	2.960	2.983	3.023	3.056	3.065	3.058	3.056	3.067	
28	1.362	1.635	2.004	2.327	2.496	2.536	2.530	2.523	2.523	2.529	2.551	2.587	2.618	2.628	2.623	2.624	2.636	
29	1.120	1.354	1.683	1.980	2.142	2.177	2.164	2.155	2.156	2.164	2.184	2.216	2.245	2.255	2.252	2.254	2.266	
30	0.930	1.130	1.416	1.686	1.838	1.870	1.855	1.844	1.846	1.855	1.872	1.899	1.926	1.936	1.935	1.937	1.949	
31	0.780	0.949	1.196	1.436	1.576	1.607	1.591	1.580	1.582	1.591	1.605	1.629	1.653	1.664	1.663	1.666	1.677	
32	0.660	0.801	1.013	1.224	1.352	1.382	1.367	1.355	1.358	1.366	1.378	1.399	1.420	1.431	1.431	1.434	1.444	
33	0.562	0.680	0.860	1.044	1.159	1.188	1.175	1.164	1.166	1.174	1.184	1.202	1.221	1.231	1.232	1.235	1.244	
34	0.482	0.581	0.733	0.892	0.994	1.022	1.011	1.001	1.003	1.009	1.018	1.034	1.051	1.061	1.063	1.065	1.073	
35	4.149	4.980	6.268	7.628	8.526	8.785	8.703	8.619	8.631	8.685	8.766	8.897	9.049	9.145	9.171	9.198	9.258	- 3
36	3.585	4.286	5.375	6.534	7.315	7.557	7.499	7.428	7.435	7.481	7.552	7.667	7.802	7.894	7.926	7.952	8.000	
37	3.106	3.701	4.623	5.606	6.279	6.503	6.467	6.409	6.412	6.450	6.513	6.615	6.735	6.822	6.859	6.885	6.921	
38	2.696	3.205	3.988	4.819	5.394	5.600	5.584	5.537	5.537	5.568	5.624	5.714	5.822	5.904	5.945	5.969	5.996	
39	2.342	2.782	3.449	4.151	4.640	4.827	4.826	4.791	4.787	4.813	4.864	4.944	5.039	5.117	5.161	5.184	5.202	
40	2.037	2.420	2.991	3.583	3.996	4.165	4.177	4.152	4.146	4.167	4.212	4.283	4.369	4.442	4.487	4.509	4.521	
41	1.773	2.108	2.600	3.100	3.448	3.599	3.621	3.604	3.597	3.613	3.653	3.717	3.794	3.863	3.908	3.929	3.935	
42	1.543	1.840	2.265	2.688	2.981	3.115	3.145	3.134	3.126	3.138	3.175	3.232	3.301	3.365	3.410	3.430	3.431	
43	1.345	1.608	1.978	2.336	2.582	2.702	2.736	2.731	2.723	2.732	2.764	2.815	2.877	2.937	2.981	2.999	2.996	
44	1.172	1.407	1.730	2.035	2.242	2.348	2.384	2.385	2.377	2.383	2.411	2.457	2.512	2.569	2.611	2.627	2.622	
45	1.023	1.233	1.517	1.777	1.952	2.046	2.085	2.088	2.079	2.083	2.107	2.148	2.198	2.250	2.291	2.305	2.297	
46	0.894	1.082	1.331	1.554	1.703	1.787	1.824	1.832	1.823	1.824	1.845	1.882	1.927	1.976	2.013	2.026	2.017	
47	0.783	0.951	1.170	1.362	1.489	1.564	1.603	1.610	1.602	1.601	1.619	1.652	1.693	1.737	1.772	1.783	1.773	
48	0.687	0.836	1.030	1.196	1.305	1.373	1.410	1.419	1.411	1.409	1.423	1.452	1.490	1.531	1.563	1.572	1.562	
49	0.604	0.737	0.908	1.052	1.147	1.207	1.244	1.253	1.245	1.241	1.253	1.279	1.313	1.351	1.380	1.388	1.377	
50	0.532	0.650	0.800	0.926	1.009	1.064	1.099	1.108	1.101	1.096	1.105	1.128	1.159	1.193	1.220	1.227	1.216	
51	0.470	0.574	0.707	0.817	0.889	0.939	0.972	0.982	0.975	0.969	0.976	0.996	1.024	1.056	1.080	1.086	1.075	
52	4.141	5.080	6.240	7.202	7.845	8.305	8.616	8.712	8.642	8.577	8.632	8.806	9.060	9.350	9.572	9.614	9.514	- 4
53	3.692	4.499	5.513	6.354	6.926	7.349	7.644	7.737	7.669	7.599	7.639	7.791	8.022	8.287	8.488	8.524	8.430	
54	3.282	3.988	4.871	5.606	6.117	6.508	6.786	6.875	6.809	6.736	6.763	6.897	7.106	7.348	7.530	7.561	7.474	
55	2.923	3.538	4.305	4.945	5.401	5.763	6.026	6.111	6.047	5.973	5.990	6.107	6.296	6.516	6.682	6.710	6.630	
56	2.606	3.140	3.803	4.359	4.766	5.102	5.350	5.431	5.370	5.296	5.305	5.407	5.578	5.779	5.931	5.956	5.884	
57	2.325	2.788	3.359	3.840	4.202	4.513	4.747	4.824	4.766	4.694	4.697	4.786	4.940	5.123	5.263	5.288	5.224	
58	2.075	2.474	2.965	3.379	3.700	3.987	4.207	4.281	4.226	4.157	4.156	4.235	4.372	4.538	4.668	4.695	4.640	
59	1.851	2.196	2.615	2.969	3.253	3.518	3.725	3.795	3.744	3.678	3.675	3.743	3.866	4.018	4.139	4.168	4.121	
60	1.649	1.947	2.304	2.606	2.855	3.098	3.292	3.359	3.312	3.251	3.247	3.306	3.415	3.553	3.667	3.699	3.660	
61	1.468	1.724	2.028	2.283	2.501	2.723	2.904	2.968	2.926	2.870	2.865	2.916	3.012	3.138	3.246	3.281	3.250	
62	1.304	1.525	1.783	1.998	2.187	2.388	2.557	2.618	2.581	2.530	2.525	2.569	2.653	2.767	2.871	2.910	2.886	
63	1.155	1.346	1.565	1.745	1.908	2.090	2.247	2.305	2.272	2.227	2.222	2.259	2.333	2.437	2.536	2.578	2.562	
64	1.022	1.186	1.372	1.522	1.662	1.825	1.970	2.025	1.997	1.958	1.953	1.984	2.048	2.143	2.238	2.283	2.273	
65	0.901	1.043	1.200	1.325	1.445	1.591	1.723	1.775	1.752	1.718	1.713	1.740	1.795	1.881	1.972	2.020	2.016	
66	0.793	0.916	1.048	1.152	1.254	1.384	1.504	1.553	1.535	1.506	1.501	1.522	1.570	1.648	1.735	1.786	1.787	
67	0.696	0.802	0.914	1.000	1.087	1.202	1.310	1.356	1.342	1.318	1.314	1.330	1.370	1.441	1.525	1.577	1.582	
68	0.609	0.700	0.795	0.867	0.941	1.042	1.139	1.182	1.172	1.152	1.148	1.160	1.194	1.258	1.337	1.390	1.400	
69	0.532	0.610	0.691	0.751	0.814	0.902	0.988	1.028	1.021	1.005	1.001	1.010	1.038	1.096	1.171	1.224	1.237	
70	0.464	0.531	0.599	0.649	0.704	0.781	0.856	0.892	0.889	0.876	0.872	0.877	0.900	0.953	1.024	1.076	1.091	
71	4.037	4.606	5.183	5.614	6.085	6.750	7.409	7.734	7.720	7.622	7.579	7.608	7.798	8.269	8.927	9.435	9.604	- 5
72	3.508	3.990	4.479	4.848	5.257	5.831	6.400	6.689	6.693	6.620	6.577	6.585	6.739	7.160	7.748	8.255	8.435	
73	3.045	3.450	3.865	4.184	4.540	5.033	5.520	5.773	5.791	5.738	5.696	5.687	5.812	6.186	6.741	7.202	7.387	
74	2.640	2.979	3.330	3.608	3.919	4.341	4.753	4.971	4.997	4.961	4.921	4.902	5.001	5.330	5.833	6.263	6.447	
75	2.285	2.569	2.867	3.109	3.380	3.739	4.085	4.269	4.298	4.275	4.241	4.214	4.293	4.580	5.031	5.425	5.603	
76	1.974	2.213	2.466	2.676	2.911	3.215	3.503	3.655	3.684	3.671	3.642	3.614	3.675	3.924	4.323	4.680	4.847	
77	1.702	1.905	2.120	2.301	2.502	2.758	2.995	3.118	3.142	3.137	3.116	3.089	3.138	3.350	3.698	4.016	4.171	
78	1.461	1.638	1.823	1.975	2.144	2.358	2.552	2.648	2.666	2.665	2.654	2.633	2.670	2.849	3.149	3.428	3.567	
79	1.249	1.404	1.567	1.693	1.829	2.006	2.165	2.237	2.246	2.249	2.249	2.235	2.265	2.412	2.667	2.908	3.030	
80	1.059	1.207	1.349	1.447	1.552	1.697	1.827	1.878	1.877	1.882	1.893	1.889	1.913	2.032	2.245	2.451	2.555	

SEPTEMBER ZONAL MEAN DENSITY (KG/M CU)

KM LAT =	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80 DEG	
18	1.136	1.083	1.065	1.112	1.201	1.280	1.325	1.345	1.351	1.343	1.323	1.298	1.266	1.224	1.179	1.151	1.143	- 1
19	0.961	0.924	0.912	0.953	1.026	1.089	1.122	1.134	1.136	1.129	1.116	1.100	1.079	1.049	1.015	0.993	0.987	
20	7.887	7.740	7.775	8.164	8.762	9.243	9.472	9.538	9.533	9.481	9.404	9.320	9.190	8.973	8.721	8.549	8.496	- 2
21	6.366	6.416	6.603	6.995	7.478	7.835	7.991	8.022	8.004	7.966	7.928	7.895	7.822	7.670	7.480	7.346	7.302	
22	5.097	5.288	5.594	5.994	6.386	6.643	6.743	6.753	6.739	6.703	6.693	6.694	6.660	6.553	6.410	6.306	6.270	
23	4.074	4.350	4.733	5.135	5.458	5.639	5.698	5.695	5.672	5.655	5.661	5.683	5.673	5.600	5.491	5.410	5.381	
24	3.264	3.581	4.002	4.399	4.670	4.794	4.823	4.813	4.793	4.783	4.799	4.831	4.837	4.787	4.703	4.646	4.617	
25	2.630	2.955	3.384	3.767	3.999	4.083	4.091	4.077	4.061	4.057	4.077	4.113	4.127	4.09[illegible]	4.029	3.978	3.961	
26	2.135	2.449	2.864	3.225	3.427	3.484	3.477	3.461	3.450	3.449	3.470	3.506	3.525	3.502	3.451	3.411	3.397	
27	1.749	2.038	2.426	2.761	2.938	2.977	2.961	2.945	2.938	2.940	2.960	2.996	3.013	2.997	2.957	2.924	2.913	
28	1.446	1.706	2.057	2.363	2.520	2.547	2.527	2.511	2.507	2.511	2.529	2.558	2.577	2.566	2.534	2.507	2.498	
29	1.206	1.435	1.748	2.022	2.161	2.182	2.159	2.145	2.143	2.148	2.164	2.188	2.206	2.198	2.172	2.150	2.142	
30	1.016	1.214	1.488	1.730	1.854	1.870	1.849	1.835	1.835	1.841	1.858	1.874	1.889	1.884	1.862	1.843	1.836	
31	0.863	1.033	1.269	1.481	1.591	1.605	1.585	1.572	1.573	1.579	1.590	1.606	1.619	1.615	1.597	1.580	1.574	
32	0.739	0.883	1.084	1.268	1.364	1.378	1.360	1.349	1.351	1.[illegible]6	1.365	1.378	1.388	1.385	1.370	1.355	1.349	
33	0.637	0.758	0.929	1.086	1.170	1.183	1.169	1.159	1.[illegible]61	1.166	1.173	1.183	1.192	1.189	1.176	1.163	1.156	
34	0.551	0.653	0.798	0.931	1.004	1.017	1.005	0.998	0.999	1.003	1.009	1.017	1.023	1.021	1.010	0.998	0.991	
35	4.797	5.654	6.863	7.985	8.618	8.747	8.657	8.593	8.603	8.640	8.687	8.751	8.799	8.776	8.680	8.570	8.500	- 3
36	4.188	4.907	5.919	6.859	7.400	7.527	7.464	7.412	7.418	7.448	7.487	7.537	7.572	7.550	7.466	7.365	7.291	
37	3.665	4.271	5.116	5.900	6.360	6.483	6.444	6.403	6.404	6.428	6.461	6.499	6.524	6.503	6.429	6.334	6.258	
38	3.213	3.726	4.432	5.083	5.471	5.589	5.571	5.539	5.537	5.555	5.582	5.612	5.629	5.608	5.542	5.453	5.375	
39	2.820	3.257	3.848	4.387	4.712	4.825	4.823	4.800	4.794	4.807	4.830	4.853	4.863	4.843	4.785	4.700	4.621	
40	2.478	2.851	3.348	3.793	4.065	4.171	4.183	4.167	4.159	4.167	4.186	4.204	4.209	4.190	4.137	4.056	3.977	
41	2.178	2.500	2.919	3.286	3.513	3.612	3.634	3.624	3.614	3.619	3.634	3.648	3.649	3.631	3.583	3.505	3.427	
42	1.916	2.195	2.550	2.853	3.041	3.133	3.163	3.159	3.147	3.149	3.161	3.172	3.170	3.153	3.108	3.034	2.957	
43	1.686	1.930	2.231	2.482	2.639	2.723	2.759	2.759	2.747	2.745	2.755	2.763	2.760	2.743	2.702	2.631	2.556	
44	1.485	1.698	1.956	2.164	2.295	2.372	2.411	2.415	2.403	2.399	2.406	2.411	2.407	2.391	2.353	2.286	2.212	
45	1.308	1.496	1.717	1.890	2.000	2.071	2.112	2.119	2.107	2.102	2.106	2.109	2.104	2.089	2.054	1.989	1.919	
46	1.154	1.319	1.509	1.655	1.747	1.813	1.854	1.863	1.852	1.845	1.848	1.849	1.843	1.829	1.796	1.734	1.667	
47	1.019	1.164	1.329	1.451	1.530	1.590	1.631	1.642	1.632	1.624	1.624	1.623	1.618	1.605	1.574	1.515	1.451	
48	0.900	1.028	1.171	1.275	1.343	1.397	1.437	1.449	1.441	1.432	1.430	1.428	1.423	1.411	1.381	1.326	1.265	
49	0.797	0.909	1.032	1.122	1.180	1.230	1.269	1.282	1.275	1.265	1.262	1.259	1.254	1.243	1.215	1.162	1.106	
50	0.706	0.804	0.911	0.988	1.040	1.086	1.123	1.136	1.129	1.120	1.115	1.111	1.106	1.096	1.070	1.021	0.968	
51	0.627	0.712	0.804	0.871	0.917	0.959	0.994	1.008	1.002	0.992	0.986	0.982	0.978	0.968	0.944	0.897	0.848	
52	5.573	6.306	7.102	7.682	8.095	8.486	8.817	8.954	8.905	8.805	8.736	8.692	8.650	8.565	8.331	7.902	7.450	- 4
53	4.960	5.588	6.273	6.778	7.151	7.514	7.825	7.959	7.916	7.817	7.743	7.697	7.659	7.582	7.343	6.965	6.551	
54	4.418	4.954	5.539	5.981	6.320	6.656	6.947	7.077	7.040	6.943	6.865	6.819	6.786	6.714	6.510	6.144	5.768	
55	3.939	4.392	4.890	5.276	5.584	5.896	6.168	6.292	6.260	6.166	6.088	6.042	6.013	5.947	5.758	5.424	5.083	
56	3.512	3.894	4.315	4.651	4.932	5.222	5.474	5.592	5.564	5.474	5.396	5.352	5.327	5.267	5.093	4.789	4.484	
57	3.132	3.450	3.805	4.097	4.353	4.621	4.856	4.966	4.941	4.855	4.781	4.740	4.717	4.662	4.503	4.230	3.957	
58	2.792	3.056	3.353	3.605	3.837	4.085	4.303	4.406	4.383	4.302	4.232	4.194	4.174	4.124	3.979	3.735	3.493	
59	2.487	2.705	2.951	3.168	3.378	3.607	3.808	3.903	3.882	3.807	3.742	3.708	3.690	3.643	3.513	3.297	3.085	
60	2.213	2.391	2.595	2.781	2.970	3.180	3.365	3.453	3.433	3.364	3.305	3.274	3.257	3.215	3.099	2.908	2.723	
61	1.966	2.112	2.279	2.437	2.606	2.799	2.969	3.049	3.030	2.968	2.915	2.887	2.871	2.832	2.729	2.564	2.404	
62	1.743	1.862	2.000	2.133	2.283	2.459	2.615	2.687	2.670	2.614	2.567	2.542	2.527	2.490	2.401	2.258	2.121	
63	1.542	1.639	1.752	1.864	1.997	2.157	2.298	2.363	2.348	2.299	2.257	2.235	2.220	2.186	2.108	1.986	1.869	
64	1.362	1.441	1.532	1.627	1.744	1.888	2.016	2.075	2.061	2.018	1.982	1.962	1.946	1.915	1.848	1.746	1.647	
65	1.199	1.264	1.339	1.418	1.520	1.650	1.765	1.818	1.805	1.768	1.738	1.719	1.703	1.674	1.618	1.532	1.449	
66	1.054	1.107	1.168	1.234	1.324	1.439	1.542	1.589	1.579	1.547	1.522	1.504	1.487	1.461	1.413	1.342	1.274	
67	0.924	0.968	1.017	1.073	1.151	1.254	1.345	1.387	1.378	1.352	1.331	1.314	1.296	1.272	1.232	1.175	1.118	
68	0.808	0.844	0.885	0.932	1.000	1.091	1.171	1.208	1.201	1.180	1.162	1.146	1.128	1.106	1.073	1.026	0.981	
69	0.705	0.735	0.769	0.809	0.869	0.948	1.018	1.050	1.045	1.029	1.014	0.998	0.979	0.959	0.932	0.895	0.858	
70	6.140	6.390	6.672	7.013	7.536	8.228	8.838	9.111	9.084	8.959	8.830	8.675	8.488	8.302	8.089	7.798	7.501	- 5
71	5.340	5.546	5.783	6.079	6.536	7.136	7.658	7.892	7.880	7.790	7.683	7.530	7.344	7.174	7.006	6.780	6.543	
72	4.636	4.807	5.007	5.266	5.666	6.183	6.625	6.823	6.824	6.744	6.675	6.526	6.342	6.189	6.057	5.884	5.696	
73	4.019	4.160	4.331	4.559	4.910	5.353	5.722	5.886	5.897	5.862	5.790	5.645	5.466	5.329	5.227	5.097	4.947	
74	3.480	3.596	3.743	3.945	4.252	4.628	4.932	5.066	5.084	5.069	5.011	4.873	4.703	4.580	4.503	4.405	4.285	
75	3.009	3.106	3.232	3.411	3.678	3.996	4.243	4.349	4.369	4.371	4.326	4.198	4.038	3.929	3.871	3.798	3.702	
76	2.597	2.679	2.789	2.946	3.177	3.443	3.641	3.721	3.741	3.754	3.722	3.606	3.459	3.363	3.320	3.266	3.187	
77	2.236	2.309	2.406	2.541	2.738	2.958	3.114	3.172	3.189	3.209	3.190	3.088	2.955	2.872	2.841	2.800	2.733	
78	1.921	1.989	2.074	2.188	2.352	2.533	2.654	2.691	2.702	2.727	2.719	2.634	2.517	2.446	2.424	2.392	2.334	
79	1.644	1.711	1.787	1.880	2.012	2.159	2.252	2.271	2.274	2.300	2.304	2.237	2.137	2.077	2.061	2.036	1.984	
80	1.399	1.470	1.539	1.609	1.711	1.829	1.899	1.903	1.897	1.922	1.937	1.889	1.807	1.757	1.746	1.725	1.677	

OCTOBER

ZONAL MEAN DENSITY (KG/M CU)

KM LAT =	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80 DEG	
18	1.102	1.085	1.095	1.149	1.227	1.289	1.322	1.336	1.342	1.339	1.322	1.290	1.245	1.191	1.143	1.110	1.096	- 1
19	0.941	0.931	0.941	0.985	1.046	1.092	1.114	1.122	1.126	1.127	1.117	1.095	1.062	1.021	0.983	0.957	0.945	
20	7.900	7.903	8.065	8.451	8.916	9.246	9.383	9.425	9.452	9.464	9.417	9.278	9.041	8.735	8.439	8.230	8.129	- 2
21	6.563	6.668	6.896	7.249	7.607	7.830	7.907	7.922	7.938	7.951	7.932	7.852	7.693	7.469	7.237	7.065	6.977	
22	5.423	5.605	5.887	6.219	6.495	6.638	6.671	6.669	6.676	6.688	6.686	6.647	6.546	6.385	6.203	6.059	5.982	
23	4.471	4.704	5.020	5.333	5.549	5.635	5.639	5.626	5.626	5.636	5.645	5.632	5.573	5.457	5.314	5.194	5.125	
24	3.689	3.947	4.279	4.573	4.744	4.791	4.777	4.757	4.753	4.761	4.775	4.780	4.748	4.664	4.551	4.450	4.388	
25	3.051	3.315	3.646	3.919	4.058	4.080	4.055	4.032	4.025	4.032	4.049	4.064	4.048	3.987	3.896	3.810	3.755	
26	2.533	2.790	3.108	3.357	3.471	3.479	3.449	3.425	3.416	3.423	3.442	3.460	3.454	3.408	3.334	3.261	3.211	
27	2.112	2.355	2.650	2.875	2.971	2.971	2.940	2.915	2.906	2.913	2.932	2.951	2.949	2.913	2.852	2.789	2.744	
28	1.771	1.993	2.261	2.461	2.542	2.540	2.510	2.487	2.478	2.484	2.503	2.521	2.519	2.490	2.439	2.384	2.342	
29	1.493	1.692	1.930	2.106	2.176	2.173	2.147	2.125	2.117	2.123	2.141	2.156	2.153	2.128	2.085	2.036	1.997	
30	1.266	1.441	1.650	1.802	1.862	1.861	1.839	1.819	1.812	1.818	1.834	1.846	1.842	1.818	1.781	1.737	1.700	
31	1.079	1.232	1.412	1.542	1.594	1.595	1.577	1.560	1.553	1.559	1.573	1.582	1.576	1.554	1.521	1.481	1.446	
32	0.925	1.056	1.210	1.320	1.365	1.368	1.354	1.340	1.333	1.340	1.352	1.357	1.349	1.328	1.298	1.262	1.228	
33	0.797	0.909	1.039	1.131	1.170	1.174	1.164	1.152	1.147	1.152	1.162	1.165	1.155	1.135	1.108	1.074	1.042	
34	0.689	0.784	0.893	0.969	1.003	1.008	1.002	0.992	0.988	0.993	1.001	1.001	0.990	0.971	0.946	0.914	0.884	
35	5.989	6.788	7.690	8.320	8.602	8.670	8.632	8.554	8.517	8.562	8.627	8.610	8.488	8.308	8.077	7.780	7.490	- 3
36	5.222	5.891	6.636	7.149	7.387	7.462	7.448	7.388	7.356	7.395	7.444	7.411	7.286	7.115	6.900	6.620	6.345	
37	4.569	5.127	5.737	6.152	6.352	6.431	6.434	6.390	6.364	6.395	6.430	6.387	6.261	6.099	5.899	5.635	5.375	
38	4.008	4.473	4.971	5.304	5.471	5.550	5.567	5.536	5.514	5.539	5.562	5.510	5.386	5.234	5.048	4.800	4.555	
39	3.525	3.911	4.316	4.581	4.720	4.798	4.825	4.804	4.786	4.805	4.817	4.761	4.641	4.499	4.324	4.092	3.862	
40	3.107	3.427	3.755	3.966	4.080	4.155	4.189	4.177	4.161	4.175	4.179	4.119	4.005	3.873	3.710	3.492	3.279	
41	2.743	3.009	3.275	3.441	3.534	3.605	3.644	3.638	3.625	3.634	3.631	3.570	3.462	3.340	3.189	2.985	2.787	
42	2.426	2.647	2.862	2.992	3.069	3.135	3.176	3.175	3.164	3.169	3.160	3.100	2.999	2.886	2.745	2.556	2.373	
43	2.149	2.332	2.506	2.608	2.671	2.732	2.773	2.777	2.768	2.769	2.756	2.697	2.604	2.500	2.369	2.193	2.024	
44	1.905	2.058	2.199	2.279	2.331	2.386	2.427	2.434	2.426	2.424	2.408	2.351	2.265	2.170	2.048	1.885	1.731	
45	1.692	1.819	1.934	1.996	2.039	2.089	2.129	2.137	2.131	2.126	2.108	2.054	1.975	1.888	1.775	1.625	1.483	
46	1.503	1.610	1.703	1.752	1.788	1.834	1.871	1.881	1.875	1.869	1.849	1.798	1.726	1.646	1.542	1.403	1.275	
47	1.337	1.426	1.502	1.541	1.571	1.613	1.648	1.659	1.653	1.646	1.626	1.578	1.512	1.439	1.342	1.215	1.099	
48	1.190	1.265	1.327	1.359	1.384	1.422	1.455	1.465	1.461	1.453	1.432	1.387	1.328	1.260	1.171	1.055	0.950	
49	1.059	1.122	1.174	1.200	1.222	1.255	1.286	1.296	1.293	1.284	1.264	1.222	1.168	1.106	1.024	0.918	0.823	
50	0.944	0.997	1.039	1.061	1.080	1.110	1.138	1.149	1.146	1.137	1.117	1.079	1.029	0.973	0.897	0.801	0.716	
51	0.841	0.885	0.921	0.939	0.956	0.983	1.009	1.019	1.017	1.008	0.989	0.954	0.909	0.857	0.788	0.700	0.624	
52	7.495	7.865	8.164	8.315	8.470	8.717	8.951	9.050	9.030	8.945	8.760	8.440	8.033	7.558	6.923	6.136	5.452	- 4
53	6.680	6.989	7.238	7.369	7.510	7.732	7.946	8.041	8.026	7.944	7.769	7.477	7.109	6.673	6.093	5.384	4.776	
54	5.953	6.209	6.416	6.532	6.660	6.861	7.055	7.146	7.135	7.057	6.894	6.628	6.294	5.895	5.367	4.731	4.193	
55	5.304	5.514	5.687	5.788	5.906	6.087	6.264	6.350	6.344	6.271	6.119	5.878	5.575	5.210	4.730	4.162	3.687	
56	4.722	4.894	5.037	5.127	5.235	5.398	5.559	5.641	5.638	5.570	5.430	5.212	4.938	4.604	4.169	3.664	3.246	
57	4.202	4.340	4.458	4.537	4.636	4.784	4.930	5.008	5.007	4.945	4.816	4.619	4.371	4.067	3.675	3.227	2.842	
58	3.735	3.846	3.943	4.012	4.102	4.235	4.367	4.441	4.443	4.386	4.268	4.091	3.867	3.590	3.237	2.843	2.524	
59	3.317	3.405	3.483	3.543	3.625	3.745	3.865	3.933	3.937	3.885	3.779	3.620	3.417	3.166	2.850	2.503	2.227	
60	2.942	3.011	3.073	3.125	3.199	3.307	3.415	3.479	3.484	3.437	3.341	3.199	3.016	2.788	2.507	2.204	1.965	
61	2.606	2.659	2.708	2.752	2.819	2.916	3.013	3.072	3.077	3.036	2.950	2.823	2.658	2.452	2.202	1.938	1.733	
62	2.305	2.345	2.383	2.420	2.480	2.567	2.654	2.707	2.713	2.676	2.600	2.487	2.338	2.153	1.932	1.703	1.528	
63	2.035	2.065	2.094	2.126	2.178	2.256	2.334	2.382	2.387	2.355	2.288	2.187	2.053	1.887	1.692	1.495	1.346	
64	1.794	1.816	1.838	1.864	1.910	1.980	2.049	2.091	2.096	2.068	2.010	1.920	1.799	1.650	1.480	1.311	1.184	
65	1.579	1.595	1.611	1.632	1.673	1.735	1.796	1.833	1.836	1.813	1.762	1.682	1.573	1.441	1.293	1.148	1.041	
66	1.387	1.399	1.410	1.427	1.463	1.518	1.572	1.603	1.605	1.586	1.542	1.471	1.373	1.255	1.127	1.004	0.914	
67	1.217	1.225	1.233	1.246	1.278	1.327	1.374	1.399	1.400	1.384	1.348	1.284	1.196	1.092	0.981	0.877	0.802	
68	1.065	1.072	1.077	1.088	1.116	1.159	1.199	1.218	1.219	1.206	1.175	1.120	1.040	0.948	0.853	0.766	0.702	
69	0.931	0.936	0.939	0.948	0.973	1.011	1.044	1.059	1.058	1.048	1.023	0.974	0.903	0.822	0.741	0.667	0.614	
70	8.132	8.170	8.186	8.254	8.472	8.807	9.085	9.187	9.166	9.094	8.896	8.463	7.824	7.113	6.424	5.810	5.364	- 5
71	7.090	7.121	7.128	7.181	7.374	7.667	7.893	7.953	7.922	7.874	7.720	7.340	6.769	6.147	5.564	5.053	4.680	
72	6.173	6.200	6.200	6.242	6.412	6.667	6.845	6.869	6.831	6.803	6.687	6.356	5.846	5.305	4.815	4.390	4.078	
73	5.368	5.392	5.388	5.421	5.570	5.789	5.926	5.919	5.875	5.864	5.782	5.495	5.041	4.572	4.161	3.810	3.549	
74	4.663	4.685	4.678	4.703	4.832	5.018	5.118	5.087	5.039	5.042	4.988	4.741	4.340	3.935	3.593	3.303	3.083	
75	4.045	4.066	4.057	4.074	4.184	4.340	4.409	4.360	4.309	4.323	4.292	4.082	3.730	3.382	3.098	2.859	2.674	
76	3.503	3.524	3.513	3.523	3.615	3.743	3.785	3.723	3.673	3.694	3.683	3.505	3.200	2.902	2.668	2.471	2.314	
77	3.030	3.050	3.038	3.040	3.114	3.216	3.237	3.167	3.119	3.146	3.148	3.001	2.738	2.484	2.293	2.130	1.997	
78	2.616	2.635	2.622	2.616	2.671	2.749	2.755	2.682	2.637	2.667	2.680	2.560	2.337	2.126	1.967	1.832	1.717	
79	2.253	2.272	2.258	2.244	2.281	2.337	2.330	2.259	2.218	2.249	2.269	2.174	1.988	1.813	1.682	1.569	1.471	
80	1.936	1.954	1.938	1.917	1.935	1.971	1.956	1.891	1.855	1.885	1.909	1.836	1.684	1.541	1.434	1.338	1.253	

NOVEMBER

ZONAL MEAN DENSITY (KG/M CU)

KM LAT =	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80 DEG	
18	1.037	1.082	1.146	1.222	1.296	1.350	1.372	1.369	1.363	1.360	1.343	1.299	1.236	1.181	1.144	1.120	1.102	- 1
19	0.895	0.933	0.986	1.044	1.099	1.137	1.150	1.146	1.141	1.142	1.133	1.102	1.055	1.012	0.983	0.963	0.949	
20	7.687	8.015	8.455	8.920	9.323	9.575	9.640	9.592	9.500	9.576	9.333	9.322	9.986	8.663	8.429	8.263	8.142	- 2
21	6.590	6.872	7.245	7.615	7.908	8.067	8.088	8.040	8.016	8.034	8.015	7.879	7.645	7.403	7.213	7.070	6.969	
22	5.642	5.884	6.200	6.497	6.708	6.802	6.796	6.750	6.731	6.746	6.742	6.659	6.501	6.321	6.163	6.037	5.949	
23	4.828	5.036	5.302	5.541	5.693	5.742	5.720	5.678	5.661	5.673	5.677	5.632	5.529	5.394	5.260	5.146	5.065	
24	4.132	4.309	4.532	4.724	4.832	4.854	4.824	4.786	4.770	4.779	4.788	4.768	4.703	4.601	4.485	4.379	4.303	
25	3.538	3.688	3.874	4.027	4.104	4.109	4.078	4.043	4.028	4.034	4.046	4.042	4.002	3.923	3.821	3.721	3.647	
26	3.033	3.160	3.313	3.432	3.487	3.484	3.454	3.423	3.409	3.412	3.426	3.431	3.406	3.344	3.252	3.157	3.084	
27	2.602	2.709	2.834	2.927	2.965	2.958	2.931	2.905	2.891	2.893	2.907	2.916	2.901	2.848	2.766	2.675	2.602	
28	2.236	2.325	2.426	2.497	2.523	2.516	2.493	2.470	2.457	2.459	2.472	2.482	2.471	2.425	2.350	2.263	2.192	
29	1.924	1.999	2.079	2.132	2.149	2.142	2.124	2.105	2.093	2.094	2.106	2.116	2.105	2.064	1.995	1.913	1.844	
30	1.659	1.720	1.784	1.822	1.833	1.827	1.814	1.797	1.786	1.787	1.798	1.805	1.794	1.757	1.693	1.615	1.549	
31	1.432	1.483	1.532	1.559	1.565	1.561	1.551	1.537	1.528	1.529	1.538	1.542	1.530	1.494	1.435	1.363	1.301	
32	1.239	1.280	1.318	1.336	1.338	1.336	1.329	1.318	1.310	1.311	1.318	1.319	1.305	1.271	1.217	1.150	1.091	
33	1.073	1.107	1.136	1.146	1.146	1.145	1.141	1.132	1.125	1.126	1.131	1.130	1.113	1.081	1.031	0.969	0.915	
34	9.311	9.592	9.801	9.853	9.836	9.830	9.807	9.739	9.683	9.692	9.726	9.683	9.508	9.197	8.739	8.174	7.679	- 3
35	8.094	8.323	8.474	8.486	8.456	8.455	8.447	8.396	8.350	8.359	8.376	8.311	8.126	7.829	7.409	6.896	6.447	
36	7.047	7.234	7.341	7.325	7.285	7.287	7.288	7.251	7.216	7.223	7.226	7.144	6.952	6.669	6.285	5.822	5.418	
37	6.147	6.299	6.372	6.336	6.290	6.293	6.301	6.274	6.248	6.253	6.244	6.148	5.955	5.686	5.336	4.921	4.560	
38	5.370	5.494	5.541	5.493	5.444	5.445	5.457	5.440	5.420	5.423	5.404	5.300	5.108	4.855	4.537	4.165	3.844	
39	4.700	4.801	4.829	4.774	4.722	4.722	4.736	4.725	4.711	4.712	4.685	4.576	4.388	4.151	3.862	3.531	3.247	
40	4.120	4.203	4.217	4.158	4.106	4.105	4.118	4.112	4.102	4.101	4.069	3.958	3.777	3.556	3.294	3.000	2.750	
41	3.617	3.685	3.691	3.631	3.580	3.576	3.588	3.585	3.579	3.577	3.541	3.430	3.257	3.052	2.816	2.554	2.335	
42	3.181	3.237	3.237	3.178	3.128	3.122	3.133	3.132	3.128	3.124	3.086	2.979	2.815	2.625	2.412	2.180	1.988	
43	2.802	2.849	2.844	2.788	2.741	2.733	2.741	2.741	2.738	2.734	2.695	2.592	2.438	2.264	2.071	1.866	1.698	
44	2.472	2.511	2.504	2.452	2.407	2.397	2.404	2.404	2.402	2.397	2.358	2.260	2.117	1.957	1.783	1.602	1.456	
45	2.184	2.217	2.209	2.160	2.118	2.108	2.112	2.112	2.110	2.105	2.067	1.975	1.843	1.696	1.539	1.380	1.252	
46	1.933	1.961	1.952	1.908	1.869	1.857	1.859	1.858	1.857	1.851	1.816	1.730	1.608	1.473	1.333	1.192	1.080	
47	1.713	1.736	1.728	1.687	1.652	1.639	1.639	1.638	1.636	1.630	1.597	1.518	1.406	1.283	1.157	1.033	0.935	
48	1.520	1.540	1.531	1.495	1.462	1.450	1.448	1.446	1.444	1.438	1.407	1.335	1.232	1.120	1.007	0.897	0.812	
49	1.350	1.367	1.359	1.327	1.297	1.284	1.281	1.278	1.276	1.270	1.242	1.176	1.082	0.980	0.879	0.782	0.708	
50	1.201	1.216	1.208	1.179	1.151	1.139	1.135	1.131	1.128	1.123	1.098	1.037	0.952	0.860	0.769	0.684	0.619	
51	1.069	1.082	1.075	1.048	1.023	1.011	1.006	1.002	0.999	0.994	0.971	0.917	0.839	0.755	0.674	0.599	0.543	
52	9.525	9.633	9.566	9.329	9.102	8.987	8.931	8.880	8.851	8.810	8.601	8.106	7.401	6.647	5.921	5.259	4.767	- 4
53	8.493	8.584	8.519	8.306	8.100	7.990	7.929	7.876	7.846	7.810	7.623	7.175	6.536	5.856	5.209	4.627	4.198	
54	7.577	7.652	7.590	7.396	7.210	7.104	7.042	6.987	6.959	6.927	6.759	6.354	5.776	5.163	4.587	4.076	3.703	
55	6.762	6.822	6.762	6.586	6.416	6.316	6.253	6.200	6.173	6.145	5.994	5.628	5.105	4.554	4.043	3.595	3.270	
56	6.035	6.083	6.023	5.863	5.708	5.614	5.552	5.500	5.476	5.451	5.315	4.984	4.511	4.018	3.565	3.173	2.890	
57	5.386	5.422	5.363	5.216	5.075	4.987	4.926	4.877	4.856	4.835	4.712	4.411	3.985	3.543	3.144	2.801	2.556	
58	4.806	4.831	4.772	4.638	4.509	4.426	4.367	4.322	4.304	4.286	4.174	3.901	3.517	3.123	2.771	2.473	2.260	
59	4.286	4.302	4.243	4.119	4.001	3.924	3.869	3.827	3.812	3.797	3.695	3.447	3.101	2.751	2.441	2.182	1.997	
60	3.820	3.827	3.768	3.654	3.547	3.474	3.423	3.385	3.373	3.361	3.267	3.042	2.731	2.420	2.149	1.924	1.764	
61	3.401	3.401	3.343	3.238	3.140	3.072	3.024	2.991	2.982	2.971	2.885	2.680	2.401	2.126	1.890	1.695	1.557	
62	3.025	3.019	2.961	2.865	2.775	2.713	2.669	2.639	2.637	2.623	2.545	2.358	2.108	1.866	1.660	1.491	1.372	
63	2.688	2.676	2.619	2.530	2.449	2.392	2.351	2.325	2.320	2.312	2.240	2.072	1.848	1.634	1.456	1.310	1.207	
64	2.385	2.369	2.313	2.231	2.158	2.106	2.068	2.045	2.041	2.035	1.969	1.817	1.617	1.430	1.275	1.150	1.061	
65	2.112	2.093	2.039	1.964	1.898	1.851	1.817	1.795	1.793	1.787	1.728	1.590	1.413	1.249	1.115	1.007	0.931	
66	1.868	1.847	1.794	1.726	1.667	1.625	1.593	1.573	1.571	1.566	1.513	1.390	1.233	1.089	0.974	0.881	0.815	
67	1.649	1.626	1.576	1.514	1.461	1.424	1.395	1.376	1.374	1.370	1.323	1.213	1.074	0.949	0.850	0.770	0.713	
68	1.453	1.430	1.382	1.325	1.278	1.245	1.219	1.201	1.198	1.195	1.154	1.056	0.934	0.825	0.740	0.672	0.622	
69	1.278	1.254	1.209	1.157	1.116	1.088	1.063	1.046	1.042	1.040	1.004	0.919	0.811	0.717	0.644	0.586	0.542	
70	1.122	1.099	1.056	1.009	0.973	0.948	0.926	0.909	0.904	0.903	0.872	0.798	0.704	0.623	0.560	0.510	0.472	
71	9.833	9.606	9.207	8.778	8.466	8.253	8.048	7.875	7.825	7.816	7.562	6.917	6.102	5.401	4.868	4.434	4.103	- 5
72	8.597	8.382	8.010	7.621	7.349	7.168	6.980	6.808	6.749	6.746	6.539	5.987	5.283	4.680	4.226	3.852	3.562	
73	7.502	7.301	6.957	6.603	6.366	6.212	6.040	5.869	5.803	5.805	5.642	5.174	4.568	4.052	3.666	3.344	3.089	
74	6.532	6.348	6.030	5.708	5.500	5.370	5.212	5.044	4.973	4.979	4.854	4.463	3.945	3.505	3.178	2.900	2.675	
75	5.676	5.509	5.217	4.923	4.740	4.629	4.484	4.321	4.247	4.257	4.165	3.841	3.401	3.028	2.752	2.512	2.314	
76	4.921	4.772	4.505	4.237	4.073	3.976	3.844	3.688	3.614	3.626	3.563	3.298	2.927	2.612	2.379	2.174	1.999	
77	4.256	4.125	3.882	3.637	3.489	3.403	3.282	3.136	3.064	3.078	3.037	2.823	2.513	2.249	2.054	1.877	1.724	
78	3.672	3.558	3.339	3.114	2.978	2.899	2.789	2.655	2.588	2.603	2.579	2.408	2.151	1.932	1.769	1.618	1.484	
79	3.159	3.062	2.866	2.659	2.531	2.457	2.358	2.237	2.176	2.191	2.180	2.045	1.835	1.654	1.518	1.390	1.274	
80	2.710	2.627	2.453	2.264	2.142	2.070	1.980	1.874	1.821	1.836	1.833	1.727	1.557	1.409	1.298	1.190	1.090	

DECEMBER

ZONAL MEAN DENSITY (KG/M CU)

KM	LAT = -80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	DEG
18	1.097	1.117	1.157	1.222	1.301	1.363	1.386	1.378	1.367	1.362	1.345	1.296	1.226	1.166	1.132	1.117	1.109	- 1
19	0.947	0.962	0.994	1.043	1.099	1.141	1.155	1.149	1.143	1.143	1.134	1.099	1.047	1.000	0.972	0.958	0.951	
20	8.160	8.287	8.531	8.893	9.291	9.577	9.659	9.609	9.527	9.597	9.544	9.297	8.906	8.540	8.308	8.185	8.114	- 2
21	7.031	7.132	7.318	7.584	7.864	8.053	8.096	8.054	8.034	8.057	8.027	7.850	7.561	7.280	7.085	6.964	6.883	
22	6.057	6.134	6.275	6.468	6.662	6.784	6.802	6.765	6.750	6.770	6.751	6.626	6.416	6.201	6.033	5.908	5.813	
23	5.217	5.276	5.379	5.516	5.649	5.725	5.727	5.694	5.681	5.695	5.682	5.595	5.445	5.281	5.133	5.000	4.889	
24	4.495	4.537	4.610	4.705	4.794	4.839	4.832	4.802	4.789	4.797	4.788	4.729	4.625	4.499	4.365	4.223	4.100	
25	3.874	3.903	3.952	4.015	4.071	4.097	4.085	4.058	4.045	4.047	4.040	4.002	3.931	3.835	3.710	3.562	3.429	
26	3.340	3.358	3.389	3.428	3.462	3.473	3.459	3.436	3.422	3.421	3.416	3.392	3.345	3.270	3.153	3.001	2.863	
27	2.881	2.891	2.908	2.929	2.947	2.949	2.935	2.914	2.901	2.897	2.893	2.879	2.849	2.789	2.678	2.527	2.388	
28	2.487	2.491	2.497	2.505	2.511	2.509	2.495	2.476	2.464	2.458	2.455	2.447	2.429	2.379	2.275	2.126	1.990	
29	2.148	2.148	2.146	2.145	2.143	2.137	2.124	2.108	2.097	2.091	2.087	2.084	2.072	2.029	1.931	1.789	1.659	
30	1.857	1.853	1.846	1.839	1.832	1.824	1.812	1.798	1.788	1.782	1.779	1.777	1.768	1.731	1.639	1.505	1.384	
31	1.607	1.601	1.590	1.579	1.569	1.560	1.549	1.537	1.528	1.527	1.519	1.517	1.511	1.476	1.391	1.266	1.155	
32	1.393	1.385	1.372	1.357	1.346	1.336	1.326	1.316	1.308	1.303	1.299	1.298	1.291	1.259	1.180	1.066	0.966	
33	1.208	1.199	1.185	1.169	1.156	1.147	1.138	1.129	1.122	1.117	1.114	1.111	1.104	1.074	1.001	0.899	0.809	
34	1.049	1.040	1.025	1.009	0.996	0.986	0.978	0.971	0.965	0.961	0.957	0.953	0.945	0.915	0.850	0.758	0.678	
35	9.116	9.032	8.888	8.723	8.589	8.497	8.424	8.359	8.311	8.275	8.237	8.191	8.092	7.808	7.212	6.400	5.705	- 3
36	7.936	7.855	7.716	7.557	7.426	7.337	7.270	7.213	7.173	7.143	7.105	7.048	6.937	6.663	6.124	5.412	4.809	
37	6.918	6.843	6.712	6.560	6.434	6.349	6.286	6.237	6.204	6.179	6.141	6.075	5.954	5.689	5.205	4.583	4.064	
38	6.039	5.970	5.849	5.706	5.587	5.505	5.446	5.402	5.375	5.355	5.318	5.246	5.116	4.862	4.428	3.888	3.444	
39	5.279	5.218	5.107	4.974	4.862	4.783	4.728	4.688	4.666	4.650	4.614	4.538	4.403	4.160	3.771	3.305	2.926	
40	4.623	4.568	4.467	4.345	4.240	4.165	4.113	4.076	4.058	4.045	4.011	3.933	3.795	3.564	3.217	2.815	2.493	
41	4.054	4.006	3.915	3.803	3.705	3.634	3.584	3.550	3.534	3.525	3.494	3.416	3.278	3.059	2.749	2.403	2.131	
42	3.561	3.519	3.438	3.336	3.245	3.178	3.130	3.098	3.084	3.077	3.049	2.973	2.837	2.630	2.354	2.056	1.826	
43	3.133	3.096	3.024	2.932	2.847	2.784	2.738	2.707	2.695	2.691	2.665	2.592	2.460	2.266	2.020	1.763	1.569	
44	2.761	2.729	2.665	2.581	2.503	2.446	2.400	2.370	2.359	2.356	2.334	2.265	2.139	1.957	1.737	1.516	1.352	
45	2.437	2.410	2.353	2.277	2.205	2.149	2.107	2.078	2.067	2.066	2.048	1.984	1.863	1.695	1.497	1.307	1.168	
46	2.154	2.131	2.081	2.012	1.946	1.893	1.852	1.825	1.814	1.815	1.799	1.740	1.627	1.471	1.294	1.129	1.011	
47	1.908	1.888	1.843	1.780	1.719	1.670	1.631	1.605	1.594	1.596	1.584	1.530	1.424	1.280	1.121	0.978	0.878	
48	1.692	1.674	1.634	1.578	1.522	1.476	1.439	1.413	1.403	1.405	1.396	1.347	1.249	1.116	0.974	0.849	0.764	
49	1.502	1.487	1.452	1.400	1.349	1.306	1.271	1.246	1.236	1.238	1.232	1.188	1.098	0.975	0.848	0.739	0.666	
50	1.336	1.323	1.291	1.244	1.197	1.157	1.124	1.099	1.090	1.093	1.088	1.049	0.966	0.854	0.740	0.645	0.582	
51	1.190	1.178	1.149	1.106	1.063	1.026	0.995	0.971	0.962	0.965	0.962	0.928	0.851	0.749	0.647	0.564	0.510	
52	1.060	1.050	1.023	0.985	0.945	0.911	0.881	0.859	0.850	0.853	0.851	0.821	0.751	0.659	0.567	0.493	0.447	
53	9.463	9.369	9.124	8.767	8.404	8.088	7.814	7.601	7.513	7.546	7.540	7.265	6.633	5.793	4.974	4.329	3.926	- 4
54	8.452	8.364	8.139	7.811	7.478	7.188	6.932	6.732	6.648	6.679	6.680	6.433	5.858	5.100	4.370	3.803	3.452	
55	7.555	7.472	7.263	6.961	6.656	6.390	6.152	5.964	5.885	5.916	5.920	5.695	5.173	4.491	3.843	3.345	3.039	
56	6.756	6.677	6.482	6.203	5.925	5.681	5.462	5.286	5.213	5.242	5.246	5.040	4.566	3.955	3.382	2.945	2.678	
57	6.044	5.968	5.785	5.528	5.273	5.050	4.848	4.686	4.618	4.645	4.648	4.458	4.027	3.482	2.976	2.594	2.361	
58	5.409	5.334	5.161	4.924	4.691	4.488	4.303	4.154	4.093	4.117	4.117	3.939	3.548	3.063	2.620	2.286	2.083	
59	4.839	4.767	4.604	4.383	4.171	3.987	3.817	3.682	3.627	3.649	3.645	3.477	3.122	2.692	2.305	2.015	1.838	
60	4.329	4.258	4.103	3.900	3.706	3.538	3.385	3.262	3.213	3.234	3.225	3.065	2.742	2.363	2.027	1.776	1.622	
61	3.871	3.801	3.655	3.466	3.289	3.138	2.998	2.888	2.846	2.864	2.850	2.698	2.405	2.072	1.781	1.565	1.430	
62	3.459	3.391	3.252	3.077	2.916	2.779	2.653	2.555	2.519	2.535	2.517	2.371	2.106	1.813	1.564	1.378	1.261	
63	3.088	3.021	2.890	2.728	2.581	2.458	2.345	2.258	2.228	2.242	2.220	2.080	1.840	1.585	1.371	1.212	1.111	
64	2.754	2.689	2.565	2.415	2.281	2.170	2.070	1.993	1.968	1.980	1.955	1.822	1.605	1.383	1.201	1.066	0.979	
65	2.454	2.391	2.273	2.134	2.012	1.913	1.823	1.756	1.736	1.747	1.719	1.594	1.398	1.205	1.051	0.936	0.861	
66	2.182	2.122	2.011	1.883	1.772	1.682	1.603	1.545	1.529	1.539	1.509	1.391	1.216	1.049	0.919	0.821	0.756	
67	1.938	1.880	1.776	1.657	1.557	1.477	1.407	1.356	1.344	1.353	1.323	1.213	1.056	0.912	0.802	0.720	0.663	
68	1.718	1.662	1.565	1.456	1.364	1.293	1.231	1.188	1.178	1.186	1.157	1.056	0.916	0.792	0.699	0.630	0.581	
69	1.519	1.467	1.377	1.276	1.192	1.129	1.075	1.038	1.031	1.038	1.010	0.918	0.794	0.687	0.609	0.550	0.508	
70	1.341	1.292	1.208	1.115	1.040	0.983	0.936	0.904	0.899	0.906	0.880	0.796	0.688	0.596	0.530	0.480	0.443	
71	1.180	1.135	1.057	0.972	0.904	0.854	0.813	0.786	0.782	0.788	0.764	0.690	0.595	0.517	0.461	0.419	0.386	
72	1.037	0.994	0.923	0.845	0.783	0.739	0.704	0.680	0.677	0.683	0.662	0.597	0.515	0.448	0.401	0.364	0.336	
73	9.077	8.689	8.030	7.318	6.767	6.382	6.076	5.873	5.849	5.902	5.722	5.156	4.447	3.878	3.484	3.167	2.913	- 5
74	7.924	7.571	6.969	6.321	5.828	5.491	5.228	5.052	5.031	5.079	4.928	4.445	3.839	3.357	3.023	2.749	2.524	
75	6.894	6.576	6.029	5.443	5.002	4.709	4.484	4.331	4.311	4.354	4.231	3.823	3.310	2.903	2.621	2.383	2.185	
76	5.980	5.693	5.198	4.671	4.279	4.026	3.833	3.699	3.678	3.716	3.618	3.280	2.850	2.508	2.269	2.063	1.888	
77	5.166	4.910	4.467	3.994	3.648	3.430	3.265	3.148	3.125	3.158	3.083	2.806	2.448	2.162	1.960	1.783	1.631	
78	4.444	4.219	3.824	3.404	3.099	2.913	2.773	2.669	2.644	2.671	2.615	2.391	2.096	1.858	1.689	1.539	1.408	
79	3.807	3.610	3.261	2.890	2.624	2.466	2.347	2.255	2.227	2.249	2.207	2.028	1.787	1.590	1.451	1.326	1.215	
80	3.245	3.075	2.770	2.445	2.215	2.081	1.980	1.898	1.868	1.883	1.854	1.712	1.515	1.354	1.241	1.140	1.050	

S HEMISPHERE (DENSITY)/(ZONAL MEAN DENSITY) - 1 (%)

KM LAT=	LONGITUDE 180 DEG -80	-70	-60	-50	-40	-30	-20	LONGITUDE 150 W -80	-70	-60	-50	-40	-30	-20	LONGITUDE 120 W -80	-70	-60	-50	-40	-30	-20	LONGITUDE 90 W -80	-70	-60	-50	-40	-30	-20DEG
APRIL																												
18	0	1	2	2	1	0	1	1	1	2	2	1	0	0	1	2	2	2	1	0	0	1	2	2	1	0	0	0
20	0	1	2	2	1	0	1	1	2	3	2	1	0	0	1	2	2	2	1	0	0	1	2	2	1	0	0	0
24	1	2	2	2	1	0	1	2	2	3	2	1	1	0	2	2	3	2	1	0	0	1	2	2	1	0	0	0
28	2	3	3	2	1	1	1	3	3	3	2	1	1	0	2	3	2	2	1	0	0	1	2	1	0	0	0	0
32	3	3	3	2	1	0	0	3	4	3	2	1	1	0	2	3	2	1	0	0	0	1	1	0	0	0	0	0
36	3	3	2	1	0	0	0	3	3	2	0	0	0	1	2	2	1	0	0	0	0	1	0	-1	-1	0	0	0
40	2	2	1	0	0	0	0	2	2	0	-1	0	0	1	2	1	-1	-1	-1	0	0	1	0	-2	-2	-1	0	0
44	1	1	0	-1	-1	0	0	1	1	-1	-1	-1	0	1	1	0	-2	-2	-1	0	1	1	-1	-2	-2	0	0	0
48	1	0	0	-1	-1	0	0	1	0	-1	-2	-1	0	1	1	-1	-2	-2	-1	0	1	0	-1	-2	-2	0	0	0
52	1	0	-1	-1	-1	0	1	1	-1	-2	-2	-1	0	1	0	-1	-2	-2	-1	0	1	0	-1	-2	-2	-1	0	0
56	0	-1	-1	-2	-1	0	1	0	-1	-2	-2	-1	0	1	0	-2	-3	-3	-1	0	1	0	-2	-2	-2	-1	0	0
60	0	-1	-2	-2	-1	0	1	0	-2	-3	-3	-1	0	1	-1	-2	-3	-3	-1	0	1	-1	-2	-2	-2	-1	0	1
64	-1	-2	-3	-3	-1	0	1	-1	-3	-3	-3	-1	0	1	-1	-3	-3	-3	-1	0	1	-1	-2	-2	-1	0	1	1
68	-1	-2	-4	-3	-2	0	1	-1	-3	-4	-3	-1	0	1	-1	-3	-3	-2	0	1	1	-1	-2	-1	-1	0	1	1
72	-2	-3	-4	-3	-1	0	1	-2	-3	-4	-2	0	1	1	-1	-3	-3	-2	0	1	1	0	-1	-1	0	1	1	1
76	-2	-3	-4	-3	-1	0	1	-2	-3	-3	-2	0	1	1	-1	-2	-2	-1	1	1	1	0	-1	-1	0	1	1	1
80	-2	-3	-4	-3	-1	1	1	-2	-2	-3	-2	0	1	1	-1	-2	-2	-1	1	1	1	1	-1	0	0	1	1	1
MAY																												
18	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1	2	2	1	1	0	0	1	2	2	1	1	0	0
20	0	0	0	0	0	0	0	1	1	1	1	0	1	0	1	2	2	1	1	0	0	1	2	2	1	1	0	0
24	1	1	1	1	0	1	0	2	2	2	1	1	1	0	2	2	2	1	1	0	0	1	2	1	1	0	0	0
28	2	3	3	1	1	1	0	3	3	3	1	1	1	0	2	2	2	1	0	0	0	1	1	0	0	0	0	0
32	3	4	4	2	1	0	0	3	3	3	2	0	0	0	2	2	1	0	0	0	0	0	-1	-2	-2	-1	0	0
36	3	4	5	3	1	0	0	2	3	2	1	0	0	0	1	0	-1	-1	-1	0	0	0	-2	-4	-3	-2	0	0
40	2	3	4	2	0	0	0	1	2	1	0	-1	-1	0	0	-1	-2	-2	-1	-1	0	-1	-3	-4	-3	-2	0	0
44	2	3	3	1	0	-1	-1	1	1	0	-1	-1	-1	0	0	-1	-2	-2	-2	-1	0	-1	-3	-4	-3	-1	0	1
48	1	2	2	1	-1	-1	-1	0	0	0	-1	-2	-1	-1	0	-2	-2	-3	-2	-1	0	-1	-3	-3	-3	-1	0	1
52	1	2	1	0	-1	-1	-1	0	0	-1	-2	-2	-2	-1	-1	-2	-3	-3	-2	-1	0	-1	-3	-3	-3	-1	0	1
56	1	1	1	-1	-2	-2	-1	0	-1	-2	-2	-2	-2	-1	-1	-2	-3	-3	-2	-1	0	-2	-3	-4	-3	-1	0	1
60	1	0	0	-1	-2	-2	-2	-1	-2	-2	-3	-3	-2	-1	-2	-3	-4	-3	-2	-1	0	-2	-3	-4	-2	0	0	1
64	0	0	-1	-2	-2	-2	-1	-1	-2	-3	-3	-2	-2	-1	-2	-4	-4	-3	-1	-1	0	-2	-4	-3	-2	0	1	1
68	0	-1	-1	-2	-2	-2	-1	-2	-3	-3	-3	-2	-1	-1	-2	-4	-4	-3	-1	0	0	-3	-4	-3	-1	1	1	1
72	0	-1	-2	-2	-2	-1	-1	-2	-3	-3	-3	-2	-1	0	-2	-4	-4	-2	-1	0	0	-3	-4	-3	-1	1	1	1
76	0	-1	-2	-2	-2	-1	-1	-2	-3	-3	-3	-1	0	0	-2	-4	-4	-2	0	1	1	-3	-3	-3	0	1	1	1
80	0	-1	-1	-2	-2	0	-1	-1	-3	-3	-2	-1	0	0	-2	-3	-3	-2	0	1	1	-2	-3	-2	0	2	1	1
JUNE																												
18	0	1	2	1	1	1	1	1	2	2	2	1	1	0	2	2	2	1	1	1	0	2	2	2	1	0	0	-1
20	0	1	2	1	1	1	1	1	2	2	2	1	1	0	2	3	2	2	1	1	0	2	2	2	1	0	0	-1
24	2	2	3	2	1	1	1	2	3	3	2	1	1	0	3	4	3	2	1	0	0	2	3	2	1	0	0	0
28	3	3	4	2	1	1	0	3	4	4	2	1	1	0	3	4	3	1	1	0	0	2	2	1	0	0	0	0
32	2	4	4	2	1	1	0	3	4	4	2	1	0	0	3	3	3	1	0	0	0	1	1	0	0	-1	0	0
36	2	3	3	2	1	0	0	2	4	3	1	0	0	0	2	2	2	1	0	0	0	1	0	0	-1	-1	0	0
40	2	3	2	1	0	0	0	2	3	2	1	0	0	1	2	2	1	0	-1	0	0	1	0	0	-1	-1	0	0
44	1	2	2	0	0	0	1	2	2	2	1	0	0	1	2	2	1	0	-1	0	0	1	0	0	-1	-1	-1	0
48	1	2	1	0	0	0	1	1	2	1	0	0	1	1	1	1	0	0	0	0	0	1	0	-1	-1	-1	-1	0
52	1	2	1	0	0	0	0	1	2	1	0	0	0	1	1	1	0	0	0	0	0	0	0	-1	-1	-1	-1	0
56	1	1	0	-1	-1	0	0	1	1	0	0	0	0	0	1	0	-1	0	0	0	0	0	-1	-1	0	-1	0	0
60	0	0	-1	-2	-1	0	0	0	0	-1	-1	0	1	1	0	0	-1	0	1	1	0	1	-1	-1	0	0	0	0
64	-1	-1	-2	-2	-1	1	1	0	-1	-1	-1	1	1	1	0	-1	-1	0	1	1	0	1	-1	0	0	0	0	0
68	-1	-2	-2	-2	0	2	2	-1	-1	-1	-1	1	3	2	0	-1	-1	0	2	2	1	1	0	0	1	1	0	-1
72	-1	-2	-2	-2	0	3	3	-1	-2	-2	-1	2	4	3	1	-1	-1	0	2	2	1	2	0	0	1	1	-1	-1
76	-2	-2	-3	-2	1	4	4	-1	-1	-1	0	2	4	3	1	-1	0	1	2	2	1	2	0	1	1	1	-1	-2
80	-1	-2	-2	-2	1	5	4	0	-1	-1	0	3	4	3	1	0	0	1	2	2	1	2	1	1	1	0	-1	-2
JULY																												
18	-2	-1	0	1	-1	0	0	-1	0	2	2	0	0	0	0	2	3	2	1	1	0	1	3	4	2	1	0	0
20	-2	-1	1	2	0	0	0	-1	1	2	2	1	1	0	1	2	3	2	1	1	1	2	3	4	2	1	0	0
24	1	2	3	3	1	1	0	2	4	4	3	1	1	0	3	4	4	3	1	1	0	2	4	4	1	1	0	0
29	2	4	5	5	2	1	0	3	5	4	4	2	1	1	3	4	3	2	1	0	0	2	3	3	0	0	0	0
32	2	3	4	5	3	1	0	2	3	2	2	1	1	0	2	2	2	0	0	0	0	1	1	1	-1	-1	-1	0
36	1	2	1	1	1	1	0	1	2	-1	-1	-1	0	0	1	1	0	-2	-2	-1	0	0	0	0	-2	-2	-1	0
40	0	0	-1	-2	-2	-1	-1	0	0	-3	-4	-4	-2	0	0	-1	-2	-4	-3	-1	0	0	-1	-1	-3	-2	-1	0
44	0	-1	-3	-3	-3	-2	-1	0	-2	-4	-6	-6	-2	-1	-1	-2	-3	-4	-4	-1	0	-1	-2	-1	-2	-1	0	1
48	0	-2	-4	-6	-6	-3	-1	-1	-2	-5	-6	-6	-3	-1	-1	-2	-3	-5	-3	-1	0	-1	-2	-1	-2	-1	0	1
52	0	-2	-5	-6	-6	-3	-2	-1	-3	-5	-7	-6	-3	-1	-1	-3	-4	-5	-3	-1	0	-1	-2	-2	-2	0	0	1
56	0	-2	-6	-7	-7	-4	-2	-1	-3	-7	-8	-6	-3	-1	-1	-3	-5	-5	-3	-1	0	-2	-3	-2	-2	0	1	1
60	-1	-3	-7	-8	-7	-4	-2	-1	-4	-8	-8	-6	-3	-1	-2	-4	-5	-6	-3	-1	0	-2	-3	-2	-2	0	1	1
64	-1	-4	-8	-9	-7	-4	-2	-2	-5	-9	-9	-6	-3	-1	-2	-4	-6	-6	-4	-3	0	1	-2	-3	-1	-1	1	2	1
68	-2	-4	-8	-9	-7	-3	-1	-3	-5	-9	-9	-6	-2	0	-3	-5	-6	-5	-2	0	1	-3	-3	-1	0	2	2	1
72	-2	-5	-8	-9	-6	-3	-1	-3	-6	-9	-9	-6	-1	0	-3	-5	-6	-5	-2	1	1	-3	-3	0	1	3	2	1
76	-3	-5	-8	-9	-6	-2	-1	-4	-6	-9	-9	-5	-1	0	-4	-6	-5	-4	-1	1	1	-3	-2	0	1	3	3	1
80	-3	-5	-8	-9	-6	-2	-1	-4	-6	-9	-9	-5	-1	0	-4	-4	-5	-4	-1	1	1	-2	-2	1	2	3	2	1

S HEMISPHERE (DENSITY)/(ZONAL MEAN DENSITY) - 1 (%)

KM LAT=	LONGITUDE 60 W -80	-70	-60	-50	-40	-30	-20	LONGITUDE 30 W -80	-70	-60	-50	-40	-30	-20	LONGITUDE 0 DEG -80	-70	-60	-50	-40	-30	-20	LONGITUDE 30 E -80	-70	-60	-50	-40	-30	-20DEG
APRIL																												
18	1	1	1	0	0	0	0	1	1	0	0	-1	0	0	0	0	-1	-1	-1	0	0	-1	-1	-2	-2	0	0	0
20	1	1	1	0	0	0	0	0	1	0	-1	-1	0	0	0	0	-1	-1	-1	0	0	-1	-1	-2	-2	-1	0	0
24	1	1	0	0	0	0	0	0	0	-1	-1	-1	-1	0	-1	-1	-2	-1	-1	-1	0	-1	-2	-2	-2	-1	0	0
28	0	0	0	-1	-1	0	0	-1	-1	-1	-1	-1	-1	0	-2	-2	-2	-1	-1	-1	0	-2	-3	-2	-1	-1	0	0
32	0	-1	-1	-1	-1	0	0	-1	-2	-2	-1	-1	-1	0	-2	-3	-2	-1	-1	-1	0	-2	-3	-2	-1	0	0	0
36	-1	-1	-2	-1	-1	0	0	-2	-2	-2	-1	0	-1	0	-2	-2	-1	0	0	0	0	-2	-2	-1	0	0	0	0
40	0	-1	-2	-1	0	0	0	-1	-1	-1	0	0	0	0	-1	-1	0	1	1	0	0	-2	-1	1	1	1	0	0
44	0	-1	-1	-1	0	0	0	-1	0	0	1	1	0	0	-1	0	1	2	1	0	0	-1	0	2	2	1	0	0
48	0	-1	-1	0	0	0	0	0	0	1	1	1	0	0	0	1	2	2	1	0	0	-1	1	2	2	1	0	0
52	0	-1	-1	0	0	0	0	0	0	1	2	1	0	0	0	1	2	2	2	0	-1	0	1	2	2	1	0	-1
56	-1	-1	-1	0	0	0	0	0	0	1	2	1	0	0	0	1	2	3	2	0	-1	0	2	3	3	1	0	-1
60	-1	-1	-1	0	0	0	0	0	1	2	2	1	0	0	0	2	3	3	2	0	-1	1	2	3	3	2	0	-1
64	0	0	0	1	1	1	0	0	2	2	1	1	0	0	0	3	4	4	2	0	-1	1	3	4	3	2	0	-1
68	0	0	1	1	1	1	1	0	2	3	3	2	1	0	1	4	5	4	2	0	-1	1	3	4	4	2	0	-1
72	0	1	2	2	1	1	1	1	3	4	4	2	1	0	1	4	5	5	2	0	-1	1	4	5	4	2	0	-1
76	1	1	2	2	1	1	1	1	3	5	4	2	0	0	1	5	6	5	2	0	-1	1	4	5	4	1	0	-1
80	1	1	2	2	1	1	1	1	4	5	4	2	0	0	1	5	6	5	2	0	-1	1	4	4	3	1	0	-1
MAY																												
18	0	1	1	1	0	-1	-1	-1	0	0	0	0	-1	-1	-1	-1	-1	0	0	0	0	0	-1	-1	-1	0	0	0
20	0	1	1	1	0	-1	-1	-1	-1	0	0	0	-1	-1	-1	-1	-1	-1	0	0	0	0	-1	-1	-1	0	0	0
24	0	0	0	0	0	-1	-1	-2	-2	-2	-1	0	-1	-1	-2	-3	-2	-1	0	0	0	-2	-2	-2	-1	0	0	0
28	-1	-2	-2	-1	-1	-1	0	-2	-4	-3	-2	-1	-1	0	-3	-4	-3	-1	0	0	0	-3	-3	-2	-1	0	0	0
32	-1	-3	-4	-3	-1	-1	0	-3	-5	-5	-3	-1	0	0	-3	-5	-4	-2	0	0	0	-3	-3	-2	-1	0	0	0
36	-2	-4	-5	-4	-1	0	0	-3	-5	-6	-3	-1	0	0	-3	-4	-4	-2	0	0	0	-2	-3	-2	0	1	0	0
40	-2	-4	-5	-3	-1	0	1	-2	-4	-5	-2	0	1	1	-2	-3	-3	-1	1	1	0	-2	-2	-1	0	1	0	0
44	-2	-3	-4	-2	0	1	1	-2	-3	-3	-1	1	1	1	-2	-2	-2	0	1	1	1	-1	-1	-1	0	1	0	0
48	-2	-3	-3	-2	0	1	1	-2	-2	-2	-1	1	1	1	-2	-2	-1	0	1	1	1	-1	0	0	0	0	0	0
52	-2	-3	-3	-1	1	1	1	-2	-2	-2	0	1	1	1	-2	-1	-1	0	1	1	1	-1	0	1	1	1	0	0
56	-2	-3	-3	-1	1	2	1	-2	-2	-1	0	1	2	1	-1	-1	0	1	1	1	1	0	1	1	1	1	1	1
60	-2	-3	-2	-1	1	2	1	-2	-1	-1	1	2	2	1	-1	0	1	2	1	1	1	0	1	2	2	1	1	0
64	-2	-3	-2	0	2	2	1	-2	-1	0	2	2	2	1	-1	1	2	2	1	1	1	1	2	3	2	1	0	0
68	-3	-2	-1	1	2	1	1	-2	-1	1	2	2	1	1	-1	1	2	3	1	0	0	1	3	3	2	1	0	0
72	-3	-2	-1	1	2	1	1	-2	0	2	3	2	1	0	-1	2	3	3	1	0	0	1	3	3	2	0	0	0
76	-2	-2	0	2	2	1	1	-2	0	2	3	2	0	0	0	2	3	3	1	-1	-1	1	3	3	2	0	-1	-1
80	-2	-2	0	2	2	1	1	-2	0	2	3	2	0	0	0	1	3	3	0	-1	-1	1	2	2	1	0	-1	-1
JUNE																												
18	1	1	1	0	-1	-1	-1	-1	0	0	0	-1	-1	-1	-2	-2	-1	0	0	0	0	-2	-2	-2	-1	0	0	0
20	1	1	1	0	-1	-1	-1	-1	-1	0	0	-1	-1	-1	-2	-2	-1	-1	0	-1	0	-2	-2	-2	-1	0	0	0
24	1	1	0	-1	-1	-1	-1	-1	-2	-1	-1	-1	-1	-1	-2	-3	-2	-1	-1	-1	0	-3	-3	-3	-1	0	0	0
28	0	-1	-1	-1	-1	-1	0	-2	-3	-3	-2	-2	-1	0	-3	-4	-4	-2	-1	-1	0	-3	-4	-4	-2	-1	0	0
32	0	-1	-2	-2	-1	-1	0	-2	-3	-3	-3	-2	-1	0	-3	-4	-4	-3	-1	-1	0	-3	-3	-3	-2	-1	0	0
36	0	-2	-2	-2	-1	0	0	-1	-3	-3	-3	-1	0	0	-2	-3	-3	-2	-1	0	0	-2	-3	-2	-1	0	0	0
40	0	-1	-2	-2	-1	0	0	-1	-2	-2	-1	0	0	0	-2	-2	-2	-1	1	1	0	-2	-2	-1	0	1	1	0
44	0	-1	-1	-1	-1	0	0	-1	-2	-1	0	0	0	0	-2	-2	-1	1	2	1	0	-2	-1	-1	1	2	1	0
48	0	-1	-1	-1	-1	-1	0	-1	-2	-1	0	1	0	0	-2	-1	0	1	2	1	1	-2	-1	0	2	2	1	0
52	0	-1	-1	-1	-1	0	0	-1	-1	0	0	1	1	0	-1	-1	0	2	2	2	1	-1	0	1	2	3	2	1
56	0	-1	0	0	-1	0	0	-1	-1	1	1	1	1	0	-1	0	1	2	2	2	1	-1	0	1	2	3	2	1
60	0	-1	0	1	0	0	0	0	0	1	2	1	0	0	-1	1	2	3	2	1	1	-1	1	2	3	2	1	1
64	1	0	1	1	0	-1	-1	0	1	2	2	0	-1	-1	0	1	3	3	1	0	0	-1	2	3	3	2	1	0
68	1	0	1	1	0	-2	-2	1	1	3	2	0	-1	-2	0	2	3	3	1	0	-1	-1	2	3	3	1	0	0
72	2	1	2	2	0	-2	-3	1	2	3	3	0	-2	-2	0	2	4	3	1	-1	-1	0	2	3	3	1	0	-1
76	2	1	2	2	0	-3	-3	1	2	3	3	0	-3	-3	0	3	4	4	1	-2	-2	0	2	3	3	1	-1	-1
80	2	1	2	2	0	-3	-3	1	2	4	3	0	-3	-3	0	2	4	4	1	-2	-2	-1	2	3	3	1	-1	-1
JULY																												
18	1	2	3	1	1	0	-1	0	1	1	0	0	0	-1	0	-1	-1	0	0	0	-1	0	-1	-3	-1	0	1	0
20	1	3	3	1	1	0	-1	0	1	1	0	0	-1	-1	0	-1	-1	-1	0	0	-1	0	-2	-3	-2	0	0	0
24	1	2	3	0	0	-1	-1	0	-1	-1	-2	-1	-1	-1	-2	-4	-4	-3	-1	0	-1	-2	-5	-6	-3	-1	0	0
28	0	0	1	-2	-1	-1	0	-1	-3	-3	-4	-2	-1	-1	-2	-5	-7	-5	-2	-1	-1	-2	-5	-8	-4	-2	-1	0
32	0	-1	-1	-3	-2	-1	0	-1	-3	-4	-5	-2	-1	0	-1	-4	-6	-6	-3	-1	0	-1	-4	-6	-4	-2	-1	0
36	0	-1	-1	-3	-2	-1	0	-1	-2	-3	-4	-2	0	0	-1	-3	-5	-5	-2	0	0	-1	-2	-4	-3	-1	0	0
40	-1	-2	-1	-2	-1	0	1	-1	-2	-2	-3	-1	0	0	0	-1	-3	-2	-1	0	0	1	0	-1	0	1	1	0
44	-1	-2	-1	-1	1	1	1	0	-1	-2	-1	1	1	1	0	0	-1	0	1	1	0	1	1	1	2	2	1	0
48	-1	-2	0	-1	1	1	1	-1	-1	-1	0	2	1	1	0	0	0	0	1	2	2	0	1	2	2	4	3	2	1
52	-1	-2	-1	-1	1	1	1	-1	-1	-1	0	1	2	2	1	0	1	1	2	3	2	1	1	3	3	5	4	2	1
56	-2	-2	0	0	2	2	1	-1	0	1	1	3	2	1	1	2	2	3	3	2	1	2	3	4	6	5	3	1
60	-2	-2	0	1	3	2	1	-1	0	2	3	4	2	1	1	2	3	4	4	3	1	2	4	5	6	5	3	1
64	-2	-1	2	2	4	3	1	0	1	3	3	4	3	1	1	3	3	4	4	2	1	3	4	4	6	4	2	1
68	-1	-1	2	3	4	3	1	0	1	3	4	4	2	0	2	3	3	4	3	1	0	3	4	4	6	2	1	0
72	-1	0	3	4	5	3	1	1	1	4	4	4	2	0	2	3	3	3	2	1	-1	3	4	3	3	1	0	-1
76	-1	0	4	5	5	3	1	1	2	4	4	4	1	-1	2	3	3	2	1	0	-1	4	4	3	2	0	-1	-1
80	-1	0	4	5	5	2	1	1	1	3	4	4	1	0	3	2	2	1	1	0	-1	3	4	2	2	0	-1	-1

S HEMISPHERE

(DENSITY)/(ZONAL MEAN DENSITY) - 1 (%)

KM LAT=	LONGITUDE 60 E							LONGITUDE 90 E							LONGITUDE 120 E							LONGITUDE 150 E						
	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20DEG
APRIL																												
18	-1	-2	-3	-2	-1	0	0	-1	-2	-2	-2	-1	0	0	-1	-2	-1	-1	0	0	0	-1	0	0	0	0	0	1
20	-1	-2	-3	-2	0	0	0	-1	-2	-2	-2	-1	0	0	-1	-1	-1	-1	0	0	0	-1	0	0	0	0	0	1
24	-2	-3	-3	-2	0	0	0	-2	-2	-2	-1	0	0	0	-1	-1	-1	-1	0	0	0	0	0	1	1	0	0	0
28	-2	-3	-2	-1	0	0	0	-2	-2	-2	-1	0	0	0	-1	-1	0	0	0	0	0	1	1	1	1	0	0	0
32	-2	-2	-1	-1	0	0	0	-2	-2	-1	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	0	0	0
36	-2	-2	0	0	0	0	0	-1	-1	0	0	0	0	0	0	0	1	1	0	0	0	1	2	1	1	0	0	0
40	-1	-1	1	1	1	0	0	-1	0	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
44	-1	0	1	1	1	0	0	-1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-1	0	0
48	-1	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	-1	-1	0	0
52	0	1	2	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	-1	0	0	0	0	0	-1	-1	0	0
56	0	1	2	2	1	0	-1	0	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	-1	-1	0	0
60	1	2	3	2	1	0	-1	1	1	1	1	0	0	0	0	0	0	0	-1	0	0	0	0	-1	-1	-1	0	0
64	1	2	3	2	1	0	-1	1	1	1	0	0	0	-1	0	0	-1	-1	-1	0	0	0	-1	-2	-2	-2	0	0
68	1	2	3	2	1	-1	-1	1	1	0	0	-1	-1	-1	0	-1	-2	-2	-2	-1	0	-1	-2	-3	-3	-2	0	0
72	2	2	2	1	0	-1	-1	1	0	-1	-1	-1	-1	-1	0	-2	-3	-3	-2	-1	0	-1	-2	-4	-3	-2	0	0
76	1	2	2	1	0	-1	-2	1	-1	-1	-2	-2	-1	-1	0	-2	-3	-4	-3	-1	0	-1	-3	-4	-4	-2	0	0
80	1	1	1	1	0	-1	-2	0	-1	-2	-2	-2	-2	-1	-1	-3	-4	-4	-3	-1	0	-2	-3	-4	-4	-2	0	1
MAY																												
18	0	0	-1	-1	0	0	0	0	0	-1	-1	0	0	0	0	-1	-1	-1	0	0	0	0	-1	-1	0	0	0	0
20	0	0	-1	-1	0	0	0	0	0	-1	-1	0	0	0	0	-1	-1	-1	0	0	0	0	-1	-1	0	0	0	0
24	-1	-1	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	-1	-1	0	0	0	0	0	0	1	1	0	0	0	0	1	2	2	1	0	0	0	2	2	2	1	0	0	0
32	-1	-1	0	1	0	0	0	0	1	2	1	0	0	0	1	3	4	2	1	0	0	2	4	4	2	1	0	0
36	-1	0	1	1	1	0	0	1	2	3	2	1	0	0	2	4	5	3	1	0	0	3	5	5	3	1	0	0
40	0	0	1	1	1	0	0	1	2	3	2	1	0	0	2	4	5	3	1	0	0	2	4	5	3	1	0	-1
44	0	1	1	1	0	0	0	2	2	3	2	1	0	0	2	3	4	3	1	0	-1	2	4	4	3	1	0	-1
48	0	1	1	1	0	0	0	2	2	3	2	1	0	0	2	3	4	3	1	0	-1	2	3	3	2	0	-1	-1
52	1	1	2	1	1	0	0	2	2	3	2	1	0	0	2	3	3	2	1	0	-1	2	3	3	2	0	-1	-1
56	1	2	2	2	1	0	0	2	3	3	2	1	0	0	3	3	3	2	1	0	-1	2	2	2	1	0	-1	-1
60	2	2	3	2	1	0	0	3	3	3	2	1	0	0	3	3	3	2	0	0	0	2	2	2	1	-1	-1	-1
64	2	3	3	2	1	0	0	3	3	3	1	0	0	0	3	3	2	1	0	0	0	2	2	1	0	-1	-1	-1
68	3	3	3	1	0	0	0	3	3	2	1	0	0	0	3	3	2	0	0	0	0	2	1	0	-1	-1	-1	-1
72	3	3	2	1	0	0	0	3	3	2	0	0	0	0	3	3	1	-1	-1	0	0	2	1	0	-1	-1	-1	-1
76	3	3	2	0	0	0	0	3	3	1	-1	0	0	0	3	2	1	-1	-1	0	0	1	1	0	-1	-1	0	-1
80	2	3	1	0	-1	-1	0	3	3	0	-1	0	0	0	2	2	0	-1	-1	0	0	1	1	0	-1	-1	0	0
JUNE																												
18	-1	-2	-3	-1	0	1	1	0	-1	-3	-2	-1	0	1	0	-1	-1	-1	-1	0	0	0	0	0	0	0	0	0
20	-1	-2	-3	-1	0	1	1	0	-2	-3	-1	-1	0	1	0	-1	-1	-1	-1	0	0	0	0	0	0	0	0	0
24	-2	-3	-3	-1	0	0	0	-1	-2	-2	-1	0	0	0	0	-1	-1	0	0	0	0	1	1	1	1	0	0	0
28	-3	-3	-3	-1	0	0	0	-2	-1	-1	0	0	0	0	0	0	1	1	1	1	0	1	2	2	2	1	1	0
32	-2	-2	-2	0	0	0	0	-1	-1	0	1	1	0	0	0	1	1	2	1	1	0	1	2	3	2	1	1	0
36	-2	-2	-1	0	0	0	0	-1	-1	0	1	1	0	0	0	1	1	2	1	0	0	1	2	2	2	1	0	0
40	-2	-1	-1	1	1	0	0	-1	-1	0	1	0	0	-1	0	0	0	0	0	0	-1	1	2	2	1	0	0	0
44	-1	-1	-1	1	1	0	0	-1	-1	-1	0	-1	-1	-1	0	0	0	-1	-1	-1	-1	1	1	1	0	-1	0	0
48	-1	-1	0	1	1	0	0	0	0	-1	0	-1	-1	-1	0	0	0	-1	-2	-1	-1	1	1	1	-1	-1	-1	0
52	-1	0	0	1	1	0	0	0	0	0	-1	-1	-1	-1	0	0	0	-1	-2	-2	-1	1	1	0	-1	-1	-1	0
56	-1	0	1	1	1	0	0	0	0	-1	-1	-1	-1	-1	0	0	-1	-2	-2	-2	-1	1	0	-1	-2	-2	-1	-1
60	0	1	1	1	1	0	0	0	0	-1	-1	-1	-1	-1	0	0	-2	-2	-3	-2	-1	0	0	-1	-2	-2	-1	-1
64	0	1	1	1	1	0	0	0	0	-1	-1	-1	-1	-1	0	-1	-2	-3	-3	-2	-1	0	-1	-2	-3	-2	-1	0
68	0	1	1	1	0	0	0	0	0	-1	-2	-2	-1	0	0	-1	-3	-3	-3	-1	0	-1	-2	-3	-3	-2	0	1
72	0	1	1	1	0	-1	0	0	0	-2	-2	-2	-1	0	0	-2	-3	-4	-3	-1	1	-1	-2	-3	-4	-2	1	2
76	0	1	0	0	-1	-1	-1	0	-1	-2	-3	-2	-1	0	-1	-2	-4	-4	-3	-1	1	-1	-3	-4	-4	-1	2	3
80	-1	1	0	0	-1	-1	-1	-1	-1	-3	-3	-3	-2	0	-1	-2	-4	-4	-3	0	1	-1	-3	-4	-4	-1	2	3
JULY																												
18	1	-1	-3	-2	0	1	1	1	-1	-3	-2	-1	0	1	0	-1	-2	-2	-1	-1	0	-2	-1	-1	0	-1	-1	0
20	1	-2	-4	-2	0	0	1	0	-1	-3	-2	-1	0	1	-1	-1	-2	-1	-1	-1	0	-2	-1	0	0	-1	-1	0
24	-2	-5	-6	-3	-1	0	0	-2	-3	-3	-2	-1	0	0	-1	0	0	0	0	0	0	0	1	2	2	1	0	0
28	-2	-4	-5	-3	-1	0	0	-2	-2	-1	0	0	0	0	-1	1	3	2	1	0	0	0	3	5	4	2	1	0
32	-1	-3	-3	-1	-1	-1	0	-1	-1	1	2	1	0	0	-1	1	5	5	3	1	0	0	3	5	6	3	2	0
36	0	-1	0	1	1	0	0	0	1	4	5	3	1	0	0	2	6	7	4	1	0	0	2	4	5	3	1	0
40	1	1	2	3	3	1	0	0	2	5	7	4	1	0	0	2	5	6	4	1	0	0	1	2	2	1	0	-1
44	1	3	4	5	4	2	0	1	3	6	7	5	1	0	0	2	4	5	3	0	0	0	0	0	0	-1	-1	-1
48	2	3	5	6	4	2	1	1	3	6	7	4	1	0	0	2	4	4	2	0	0	0	0	-1	-2	-3	-2	-1
52	2	4	6	7	5	2	1	1	3	6	6	4	1	0	1	2	3	2	1	-1	-1	0	0	-2	-3	-4	-3	-1
56	2	4	6	7	5	2	1	2	4	6	6	4	1	0	1	2	3	2	0	-1	-1	0	0	-2	-4	-5	-3	-2
60	2	4	6	7	5	2	1	2	4	6	6	3	0	0	1	2	2	1	-1	-2	-1	0	-1	-3	-4	-5	-4	-2
64	3	5	6	7	4	1	0	2	4	6	6	2	0	0	1	2	3	1	-1	-2	-1	0	-1	-3	-5	-5	-3	-2
68	3	5	6	6	3	0	0	3	4	6	5	2	0	0	1	2	2	1	-1	-2	-1	-1	-2	-3	-4	-5	-3	-1
72	4	5	5	5	1	0	0	3	4	6	5	1	-1	0	1	2	2	2	-1	-1	0	-1	-2	-4	-4	-4	-2	-1
76	4	5	5	4	1	-1	0	3	4	6	5	1	0	0	1	2	2	2	0	-1	0	-1	-2	-4	-4	-4	-2	-1
80	4	5	5	4	1	-1	0	3	4	6	6	2	0	0	1	2	3	3	0	-1	0	-1	-2	-3	-4	-3	-2	0

S HEMISPHERE

(DENSITY)/(ZONAL MEAN DENSITY) - 1 (%)

KM LAT=	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20DEG
	LONGITUDE 180 DEG							LONGITUDE 150 W							LONGITUDE 120 W							LONGITUDE 90 W						
AUGUST																												
18	-1	-4	-4	-3	-2	-1	0	0	0	1	2	1	1	0	1	4	7	6	3	2	0	2	5	7	6	3	1	0
20	-2	-4	-4	-3	-1	0	0	0	0	2	2	1	1	0	2	5	7	6	3	2	0	3	7	8	6	3	1	0
24	3	2	0	0	0	0	0	4	5	4	3	2	1	0	5	7	7	5	3	1	0	3	6	5	3	2	1	0
28	4	6	5	2	1	1	0	4	6	5	3	2	1	0	3	5	4	2	1	1	0	1	2	1	0	0	0	0
32	4	6	6	4	2	1	0	4	5	4	2	1	1	0	2	2	0	-1	-1	0	0	0	-1	-2	-3	-2	-1	0
36	4	5	5	4	2	1	0	3	3	2	0	0	0	0	1	1	-2	-4	-3	-1	0	-1	-2	-4	-4	-3	-1	0
40	4	4	3	2	1	0	0	2	2	-1	-2	-2	-1	0	1	-1	-3	-5	-4	-2	0	-1	-2	-4	-4	-3	-1	0
44	3	3	0	-1	-1	-1	0	2	0	-3	-4	-4	-2	0	0	-2	-4	-5	-4	-2	0	-2	-3	-3	-3	-2	0	0
48	3	2	-2	-3	-2	-2	-1	1	-1	-4	-5	-4	-2	0	-1	-3	-4	-5	-4	-1	0	-2	-3	-3	-2	-1	0	0
52	2	1	-3	-4	-3	-2	-1	0	-2	-5	-6	-4	-2	-1	-1	-3	-5	-5	-3	-1	0	-2	-4	-3	-2	0	1	1
56	1	0	-4	-4	-3	-2	-1	-1	-2	-5	-5	-4	-2	0	-2	-4	-5	-4	-2	0	1	-2	-4	-3	-1	0	2	1
60	1	-1	-5	-5	-3	-2	-1	-1	-3	-6	-5	-3	-2	0	-2	-4	-4	-3	-2	0	1	-2	-3	-1	1	1	2	2
64	0	-1	-5	-5	-2	-2	-1	0	-3	-5	-5	-3	-1	0	-1	-3	-3	-1	-1	1	1	-1	-2	1	3	2	2	1
68	1	-2	-6	-5	-2	-1	0	0	-2	-5	-4	-3	-1	0	0	-1	-1	0	0	1	1	0	0	3	5	4	2	1
72	1	-2	-5	-5	-2	-1	0	1	-1	-4	-4	-2	-1	0	1	0	1	1	1	1	1	1	3	5	6	5	2	1
76	2	-1	-5	-5	-3	-1	1	2	0	-3	-3	-2	0	0	2	2	2	2	2	1	1	2	4	7	7	5	3	1
80	2	-1	-5	-5	-3	-1	1	3	1	-2	-3	-2	0	1	4	4	3	3	2	2	1	3	6	8	8	6	3	1
SEPTEMBER																												
18	-2	3	7	6	3	2	1	0	4	8	6	4	2	1	2	5	7	6	3	1	0	3	6	6	5	2	1	0
20	-1	4	7	6	3	2	1	1	6	8	6	4	2	1	4	6	7	5	3	1	0	5	7	6	4	2	0	0
24	3	7	8	6	3	2	1	3	7	8	5	3	1	1	3	5	5	4	2	1	0	2	3	3	2	1	0	0
28	3	7	8	5	3	1	1	2	5	5	4	2	1	0	0	1	1	1	1	0	0	-1	-2	-2	-1	-1	-1	0
32	2	5	6	4	2	1	1	0	2	2	1	1	0	0	-2	-2	-2	-2	-1	0	0	-3	-5	-5	-4	-2	-1	0
36	1	3	4	2	1	1	0	-1	0	0	-1	0	0	1	-3	-4	-5	-4	-2	0	0	-4	-6	-7	-5	-3	-1	0
40	0	2	2	1	0	0	0	-3	-2	-2	-2	-1	0	1	-4	-5	-6	-5	-2	0	1	-5	-7	-7	-6	-3	0	0
44	-1	0	1	0	0	0	1	-4	-4	-3	-3	-1	0	1	-6	-7	-6	-4	-2	0	1	-6	-8	-7	-5	-2	0	0
48	-2	-1	0	0	-1	0	1	-5	-5	-3	-3	-1	0	1	-6	-7	-6	-4	-1	1	1	-6	-8	-6	-4	-1	1	1
52	-2	-1	0	0	-1	0	1	-5	-5	-3	-2	-1	1	1	-7	-7	-6	-3	-1	1	1	-6	-7	-5	-3	-1	1	1
56	-2	-1	0	-1	-1	0	1	-5	-5	-3	-2	-1	1	1	-7	-7	-5	-3	-1	1	1	-6	-7	-5	-3	0	1	1
60	-3	-3	-2	-2	-2	0	1	-6	-6	-4	-3	-1	1	1	-7	-7	-5	-3	-1	1	1	-6	-6	-3	-2	0	2	1
64	-4	-5	-3	-3	-2	-1	1	-6	-7	-5	-3	-1	1	1	-6	-7	-4	-2	0	1	1	-5	-5	-2	0	1	2	1
68	-5	-6	-5	-4	-2	0	1	-6	-7	-5	-3	-1	1	1	-6	-6	-4	-2	0	2	2	-4	-3	0	1	1	2	1
72	-5	-7	-5	-4	-2	0	1	-6	-7	-5	-3	-1	1	2	-5	-5	-3	-1	0	2	2	-2	-2	1	2	2	2	1
76	-5	-7	-5	-4	-2	0	1	-5	-7	-5	-3	-1	1	2	-4	-5	-2	-1	1	2	2	-1	-1	2	2	2	2	1
80	-5	-6	-5	-4	-2	0	1	-5	-6	-4	-3	-1	2	2	-3	-4	-2	0	1	2	2	0	0	2	3	3	2	1
OCTOBER																												
18	1	2	3	2	1	1	0	3	6	7	5	3	1	0	4	7	7	5	3	1	0	4	6	4	3	1	0	0
20	1	3	4	3	1	1	0	4	7	7	5	3	1	0	5	8	7	5	2	1	0	4	5	4	3	1	0	0
24	4	6	6	3	2	1	0	5	8	7	5	3	1	0	5	7	6	4	2	1	0	3	4	3	2	1	0	0
28	5	8	8	4	2	1	0	5	8	7	4	2	1	0	3	5	5	3	1	0	0	1	1	0	0	0	0	0
32	5	9	9	5	3	1	0	4	7	7	4	2	1	0	2	3	3	2	1	0	0	-1	-1	-2	-2	-1	0	0
36	5	8	9	5	2	1	0	4	6	6	3	1	0	0	1	2	2	0	0	0	0	-1	-2	-4	-3	-2	0	0
40	4	7	8	4	2	0	0	3	5	6	3	1	0	0	1	2	1	0	-1	0	0	-1	-3	-4	-3	-2	0	0
44	4	6	6	3	1	0	0	3	5	5	2	0	0	0	1	2	1	0	-1	0	1	-1	-3	-4	-3	-2	0	0
48	3	6	5	2	1	0	0	2	5	5	2	0	0	1	1	2	1	0	-1	0	1	-1	-3	-3	-3	-2	0	0
52	3	5	4	1	0	0	0	2	5	4	1	0	0	1	1	2	1	0	-1	0	1	-1	-2	-3	-3	-2	0	1
56	2	4	3	0	-1	0	0	2	4	3	0	-1	0	1	0	2	1	-1	-1	0	1	-1	-2	-3	-2	-1	0	1
60	2	2	1	-1	-1	0	0	1	3	2	0	-1	0	1	0	1	1	-1	-1	0	1	-1	-1	-2	-2	-1	0	1
64	1	1	1	-1	-1	0	0	0	2	2	0	0	0	1	0	1	1	0	0	1	1	-1	-1	-1	-1	0	1	1
68	1	1	0	-1	0	0	1	0	2	2	0	0	1	1	0	1	1	0	0	1	1	-1	-1	-1	0	0	1	1
72	0	1	0	-1	0	1	1	0	2	2	1	0	1	1	0	2	2	1	1	1	1	-1	0	0	0	0	0	1
76	1	1	0	0	0	1	1	1	3	3	1	1	1	1	0	2	3	1	1	1	1	0	0	0	0	0	0	0
80	1	1	1	0	0	1	1	1	3	3	1	1	1	1	1	3	3	2	1	1	1	0	0	1	1	0	0	0
NOVEMBER																												
18	0	0	1	1	1	0	0	1	2	3	2	1	0	0	2	3	4	3	1	0	-1	2	4	4	3	1	0	-1
20	0	0	1	1	1	0	0	1	2	3	2	1	0	0	2	3	4	3	1	0	-1	2	4	4	3	1	0	-1
24	1	2	2	2	1	0	0	1	2	2	2	1	0	0	1	2	2	2	1	0	0	1	2	2	1	0	0	0
28	2	3	3	2	1	0	0	1	2	2	1	1	0	0	1	1	1	0	0	0	0	0	0	-1	-1	0	0	0
32	2	3	3	2	1	0	0	1	1	1	0	0	0	0	0	0	-1	-1	0	0	0	-1	-2	-2	-2	-1	0	0
36	2	2	2	1	0	0	0	1	1	0	0	0	0	0	0	-1	-1	-1	0	0	0	-1	-2	-2	-2	0	0	0
40	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	-1	-1	-1	0	0	0	-1	-2	-2	-1	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	-1	-1	0	0	0	0
48	-1	-1	-1	-1	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
52	-1	-2	-2	-1	0	0	0	-1	-1	-1	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	1	0	0
56	-1	-2	-2	-1	0	0	0	-1	-1	-1	0	0	0	0	0	1	1	1	1	0	0	1	2	1	1	1	0	0
60	-1	-2	-2	-1	-1	0	0	-1	-1	-1	0	0	0	0	0	1	1	1	1	0	0	1	2	2	2	1	0	0
64	-2	-2	-2	-1	-1	0	0	-1	-1	-1	0	0	0	0	0	1	1	1	1	0	0	1	2	2	2	1	0	0
68	-2	-3	-2	-1	-1	0	0	-1	-1	-1	0	0	0	0	0	1	1	2	1	0	0	1	2	2	2	1	0	0
72	-2	-2	-2	-1	0	0	0	-1	-1	0	0	0	0	0	0	1	2	2	1	0	0	2	2	2	2	1	0	0
76	-2	-2	-2	-1	0	0	0	-1	0	0	1	0	0	0	1	1	2	2	1	0	0	2	3	2	2	1	0	0
80	-2	-2	-2	-1	0	0	0	-1	0	1	1	1	0	0	1	2	2	2	1	1	0	2	3	2	2	0	0	0

S HEMISPHERE

(DENSITY)/(ZONAL MEAN DENSITY) - 1 (%)

KM LAT=	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20DEG
	LONGITUDE 60 W							LONGITUDE 30 W							LONGITUDE 0 DEG							LONGITUDE 30 E						
AUGUST																												
18	1	3	4	2	1	0	-1	0	0	0	-1	-1	-1	-1	-1	-2	-2	-2	-2	-1	-1	-1	-1	0	0	0	0	0
20	2	4	3	2	1	0	-1	0	0	-1	-2	-1	-1	-1	-1	-2	-2	-2	-2	-1	-1	-1	-2	-1	0	0	0	0
24	1	1	1	0	0	-1	0	-2	-3	-3	-2	-1	-1	-1	-4	-5	-4	-2	-1	-1	-1	-4	-5	-3	-1	0	0	0
28	-1	-2	-2	-2	-1	-1	0	-3	-4	-4	-2	-1	-1	0	-4	-5	-4	-2	-1	0	0	-4	-5	-4	-1	0	0	0
32	-2	-3	-4	-3	-1	-1	0	-3	-4	-4	-1	0	0	0	-3	-5	-3	-1	0	0	0	-3	-4	-3	-1	0	0	0
36	-2	-3	-4	-3	-1	0	0	-3	-4	-3	0	1	1	0	-3	-4	-2	1	1	1	0	-3	-3	-2	0	0	0	0
40	-2	-3	-3	-2	0	1	0	-3	-3	-2	1	2	2	1	-3	-3	-1	2	2	1	1	-3	-2	-1	0	0	0	0
44	-3	-3	-2	0	1	1	1	-3	-3	-1	2	3	2	1	-3	-3	0	2	2	1	0	-2	-1	0	1	0	0	0
48	-3	-3	-2	1	2	2	1	-3	-3	0	3	3	2	1	-2	-2	1	2	2	1	0	-1	0	2	2	0	0	0
52	-3	-3	-1	1	2	2	1	-2	-2	0	3	3	2	0	-2	-1	1	3	2	1	0	-1	1	3	3	1	0	0
56	-2	-3	-1	2	2	2	1	-2	-1	1	3	3	2	1	-1	0	2	3	2	0	0	0	1	3	2	1	0	0
60	-2	-1	1	3	3	3	1	-1	0	2	3	3	1	1	-1	1	2	2	1	0	0	0	1	2	1	0	-1	-1
64	-1	0	3	5	4	3	1	-1	1	3	4	2	1	0	-1	1	2	1	0	-1	-1	0	1	1	-1	-2	-2	-1
68	0	2	5	6	5	2	1	0	2	4	4	2	0	0	-1	1	1	-1	-2	-2	-1	-1	0	0	-3	-4	-3	-1
72	1	3	7	7	5	2	0	0	2	4	4	1	-1	-1	-2	0	0	-2	-3	-3	-2	-2	-2	-2	-4	-5	-3	-2
76	2	4	8	8	5	2	0	0	2	4	3	1	-1	-2	-2	-1	-1	-2	-4	-4	-2	-3	-3	-3	-5	-6	-3	-2
80	2	5	8	8	5	1	0	0	1	3	3	0	-2	-2	-3	-3	-2	-3	-5	-4	-3	-5	-5	-4	-5	-6	-4	-2
SEPTEMBER																												
18	4	6	5	3	1	0	0	3	3	1	0	-1	-1	-1	1	-1	-4	-4	-2	-1	-1	-1	-6	-9	-7	-3	-1	-1
20	5	6	4	2	0	0	0	3	2	1	-1	-1	-1	-1	0	-3	-5	-4	-2	-1	-1	-3	-7	-9	-	-	-1	-1
24	0	0	0	0	-1	-1	-1	-2	-3	-2	-2	-2	-1	-1	-3	-5	-5	-4	2	-1	0	-4	-7	-8	-		-1	0
28	-2	-4	-4	-2	-2	-1	-1	-3	-5	-5	-3	-2	-1	0	-2	-5	-5	-4	-2	-1	0	-2	-4	-5	-		-1	0
32	-3	-6	-7	-5	-3	-1	0	-3	-5	-6	-4	-2	-1	0	-1	-3	-4	-3	-2	-1	0	0	-1	-2	-2	-1	0	0
36	-4	-6	-7	-5	-3	-1	0	-2	-5	-5	-4	-2	-1	0	0	-2	-3	-2	-1	0	0	2	1	0	0	0	0	0
40	-4	-6	-7	-5	-2	0	0	-2	-4	-4	-3	-1	0	0	1	0	-1	0	0	0	0	3	3	2	2	1	0	0
44	-4	-6	-5	-3	-1	0	0	-2	-3	-2	-1	0	0	0	1	1	1	1	1	0	0	4	4	3	2	1	0	0
48	-4	-6	-4	-2	0	1	0	-1	-2	-1	0	1	0	0	2	2	1	1	1	0	0	5	5	3	2	1	0	-1
52	-4	-5	-3	-1	0	1	0	-1	-1	0	0	1	1	0	2	3	2	2	2	0	-1	5	5	3	2	1	0	-1
56	-4	-4	-2	-1	1	1	1	0	0	0	1	2	1	0	3	3	2	2	2	0	0	5	5	3	2	1	0	-1
60	-3	-2	0	1	1	1	1	1	2	3	2	2	1	0	4	5	4	3	2	1	0	6	6	3	2	2	0	-1
64	-2	0	2	2	2	2	1	2	4	5	4	3	1	0	5	6	5	4	3	1	0	6	6	3	2	2	0	-1
68	0	1	4	4	2	2	1	3	6	6	5	3	1	0	5	8	6	4	3	1	-1	6	7	3	2	1	0	-1
72	1	3	5	5	3	1	0	4	7	7	5	3	1	-1	6	8	6	4	2	0	-1	6	6	3	2	1	-1	-1
76	2	4	6	5	3	1	0	4	7	8	6	3	1	-1	5	8	6	4	2	0	-1	5	6	3	1	1	-1	-1
80	2	5	6	6	4	1	0	4	7	8	6	3	1	-1	5	8	6	4	2	0	-1	4	5	2	1	0	-1	-1
OCTOBER																												
18	2	2	1	0	0	-1	0	0	-1	-2	-1	-1	-1	0	-2	-3	-3	-2	-1	-1	0	-2	-4	-	-2	-1	0	0
20	2	2	1	0	-1	-1	0	-1	-2	-2	-2	-1	-1	0	-2	-4	-4	-2	-1	-1	0	-3	-5	-4	-3	-1	0	0
24	0	-1	-1	-1	-1	-1	0	-3	-5	-4	-3	-2	-1	0	-4	-6	-5	-3	-2	-1	0	-5	-6	-5	-3	-1	0	0
28	-2	-4	-4	-2	-1	-1	0	-4	-7	-7	-4	-2	-1	0	-5	-8	-7	-4	-2	-1	0	-5	-7	-6	-3	-2	-1	0
32	-3	-6	-7	-4	-2	-1	0	-4	-8	-8	-6	-3	-1	0	-5	-8	-8	-5	-3	-1	0	-4	-6	-6	-3	-2	-1	0
36	-3	-6	-8	-5	-2	-1	0	-4	-8	-9	-6	-3	-1	0	-4	-7	-7	-5	-2	-1	0	-3	-5	-4	-3	-1	-1	0
40	-3	-6	-8	-6	-2	-1	0	-4	-7	-9	-6	-2	-1	0	-4	-6	-6	-4	-2	-1	0	-3	-4	-3	-1	-1	0	0
44	-3	-6	-7	-5	-2	0	0	-4	-7	-8	-5	-2	0	0	-3	-6	-5	-3	-1	0	0	-2	-3	-2	0	0	0	0
48	-3	-6	-7	-5	-2	0	0	-4	-7	-7	-4	-1	0	0	-3	-5	-4	-2	0	0	0	-2	-2	-1	1	1	0	0
52	-3	-5	-6	-4	-1	0	0	-3	-6	-6	-3	-1	0	0	-3	-4	-3	-1	0	0	0	-2	-1	0	2	1	0	-1
56	-3	-5	-5	-3	-1	0	0	-3	-5	-5	-2	0	0	0	-2	-3	-2	0	1	0	0	-1	-1	1	2	2	0	-1
60	-2	-3	-4	-2	0	0	1	-2	-4	-3	-1	0	0	0	-2	-2	0	1	1	0	0	-1	0	2	3	2	0	-1
64	-2	-3	-3	-1	0	0	1	-2	-3	-2	0	1	0	0	-1	-1	1	2	1	0	0	0	1	3	3	1	0	-1
68	-1	-2	-2	-1	0	0	0	-1	-2	-1	0	0	0	0	-1	0	1	1	1	-1	-1	0	1	3	2	1	-1	-1
72	-1	-2	-2	-1	0	0	0	-1	-2	-1	0	0	-1	-1	0	0	1	1	0	-1	-1	0	1	2	2	0	-1	-1
76	-1	-2	-2	-1	0	0	0	-1	-2	-2	-1	0	-1	-1	-1	0	0	1	0	-1	-1	0	1	2	1	0	-1	-1
80	-1	-2	-2	-1	0	-1	-1	-1	-2	-2	-1	0	-1	-1	-1	-1	0	0	0	-1	-1	0	1	2	1	0	-1	-1
NOVEMBER																												
18	2	3	3	2	0	-1	-1	1	1	1	0	-1	-1	0	0	-1	-2	-2	-1	0	0	-1	-3	-3	-3	-1	0	0
20	1	3	2	1	0	-1	0	1	1	0	0	-1	-1	0	-1	-1	-2	-2	-1	0	0	-1	-3	-3	-3	-1	0	0
24	0	1	0	0	-1	-1	0	-1	-1	-1	-1	-1	-1	0	-1	-2	-3	-2	-1	0	0	-2	-3	-3	-2	-1	0	0
28	-1	-2	-2	-2	-1	0	0	-2	-3	-3	-2	-1	-1	0	-2	-3	-3	-2	-1	0	0	-2	-3	-2	-2	-1	0	0
32	-2	-3	-3	-2	-1	0	0	-2	-3	-4	-3	-1	0	0	-2	-3	-3	-2	-1	0	0	-2	-2	-1	-1	0	0	0
36	-1	-3	-3	-2	-1	0	0	-2	-3	-3	-2	-1	0	-1	-2	-3	-2	-2	-1	-1	-1	-1	-1	-1	0	0	0	0
40	-1	-2	-2	-2	0	0	0	-1	-2	-2	-2	-1	0	-1	-1	-2	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0
44	0	-1	-1	-1	0	0	0	0	-1	-1	-1	0	0	-1	-1	0	0	-1	-1	-1	0	0	0	1	0	0	0	0
48	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	-1	-1	0	0	1	1	0	0	0	0
52	1	1	1	1	0	0	0	1	1	1	0	0	0	0	1	1	1	0	0	0	0	0	1	1	0	0	0	0
56	1	2	1	1	0	0	0	1	2	1	0	0	0	0	1	2	1	0	-1	0	0	0	1	1	0	0	0	0
60	1	2	2	1	1	0	0	1	2	2	1	0	0	0	1	2	1	0	-1	-1	0	0	1	1	0	-1	0	0
64	2	2	2	1	1	0	0	2	2	2	1	0	0	0	1	2	1	0	-1	-1	0	0	1	1	0	-1	0	0
68	2	3	2	1	1	0	0	2	2	2	0	0	-1	0	1	2	1	0	-1	-1	0	0	1	1	0	-1	0	0
72	2	3	2	1	0	0	0	2	2	1	0	-1	-1	0	1	2	1	0	-1	-1	0	0	1	1	0	-1	0	0
76	2	3	2	1	0	0	0	2	2	1	0	-1	-1	0	1	2	1	-1	-1	-1	0	0	1	1	0	0	0	0
80	2	3	1	1	0	0	0	2	2	1	0	-1	-1	0	1	1	1	-1	-1	-1	0	0	1	1	0	0	0	0

S HEMISPHERE

(DENSITY)/(ZONAL MEAN DENS..T) - 1 (%)

KM LAT=	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20	-80	-70	-60	-50	-40	-30	-20
	LONGITUDE 60 E							LONGITUDE 90 E							LONGITUDE 120 E							LONGITUDE 150 E						
AUGUST																												
18	0	1	1	1	1	1	1	0	0	-1	-1	0	1	1	-1	-2	-5	-4	-2	3	0	-1	-5	-7	-6	-3	-1	0
20	0	0	0	1	1	1	1	0	0	-1	-1	0	1	1	-1	-3	-5	-4	-2	0	0	-2	-5	-6	-5	-2	-1	0
24	-3	-4	-2	0	0	0	0	-2	-3	-2	-1	0	0	0	-1	-2	-3	-3	-1	0	0	1	-1	-3	-3	-1	0	0
28	-3	-4	-3	-1	0	0	0	-1	-2	-2	-1	-1	0	0	1	1	0	-1	0	0	0	2	3	3	1	0	0	0
32	-2	-3	-2	-1	-1	0	0	-1	-1	0	-1	-1	-1	0	1	2	3	2	0	0	0	3	5	5	4	2	1	0
36	-2	-2	-1	-1	-1	-1	0	0	0	1	0	-1	-1	-1	2	3	4	3	1	0	0	3	5	6	5	3	1	0
40	-1	-1	0	0	-1	-1	0	1	2	2	1	0	-1	-1	3	4	4	3	2	0	0	4	5	5	4	2	1	0
44	-1	1	2	1	0	0	0	1	3	4	2	1	0	0	3	4	4	3	2	1	0	4	4	3	2	2	0	0
48	0	2	3	2	0	0	0	2	4	4	3	1	1	0	3	5	4	3	2	1	0	4	4	2	1	1	0	-1
52	1	2	4	3	1	0	0	2	4	5	3	2	1	0	3	4	3	2	1	0	0	3	3	1	-1	-1	-1	-1
56	1	2	4	3	1	0	0	2	4	4	3	1	0	0	3	4	3	1	1	0	-1	2	2	0	-1	-1	-1	-1
60	1	2	3	1	0	0	0	2	3	4	2	1	0	0	2	3	2	1	1	0	0	2	2	-1	-2	-1	1	-1
64	0	1	2	0	-1	-1	-1	1	2	2	1	0	0	0	2	2	1	1	1	1	0	1	1	-2	-2	0	-1	0
68	-1	0	0	-1	-2	-1	-1	0	1	1	1	1	1	0	1	1	0	1	2	1	1	1	0	-3	-2	0	0	0
72	-2	-2	-1	-3	-3	-1	-1	-1	-1	0	0	1	1	1	0	0	-1	0	2	2	1	1	-1	-4	-2	0	1	1
76	-3	-3	-2	-3	-3	-1	0	-2	-1	-1	0	1	2	1	0	-1	-2	0	3	2	2	1	-1	-4	-3	0	1	1
80	-4	-4	-3	-3	-3	-1	0	-3	-2	-1	0	1	2	1	-1	-1	-2	0	3	2	2	1	-1	-4	-3	0	1	1
SEPTEMBER																												
18	-2	-8	-12	-8	-4	-1	0	-3	-8	-9	-6	-3	-1	0	3	-4	-4	-2	-1	0	0	-3	0	3	3	1	1	1
20	-4	-9	-11	-8	-4	-1	0	-4	-8	-9	-6	-3	-1	0	-3	-4	-3	-2	-1	0	0	-2	1	3	3	2	1	1
24	-3	-7	-8	-6	-3	-1	0	-2	-4	-5	-4	-2	0	0	0	0	0	0	0	0	0	2	4	5	4	2	1	1
28	0	-3	-4	-3	-1	0	0	1	0	0	0	0	0	0	2	3	4	3	1	1	0	3	6	7	5	3	1	0
32	1	1	1	1	0	0	0	2	3	4	3	2	1	0	3	5	6	5	3	1	0	3	6	8	6	4	1	0
36	3	3	3	3	2	0	0	4	5	6	5	2	1	0	3	6	7	6	3	1	0	3	5	7	5	2	1	0
40	4	5	4	4	2	0	0	4	6	6	5	2	0	0	4	6	7	5	2	0	0	2	4	6	4	2	0	0
44	5	6	4	3	1	0	-1	5	6	5	4	1	0	-1	4	5	6	4	1	0	-1	2	3	4	2	1	0	0
48	6	6	4	2	1	-1	-1	6	6	5	3	0	-1	-1	4	5	5	3	0	-1	-1	2	3	3	2	0	-1	0
52	6	6	3	2	0	-1	-1	6	6	4	2	0	-1	-1	4	5	4	2	0	-1	-1	2	3	3	1	0	-1	0
56	6	5	3	1	0	-1	-1	6	5	3	1	-1	-2	-1	4	4	3	1	-1	-2	-1	1	2	2	1	-1	-1	0
60	6	5	2	1	0	-1	-1	5	4	2	0	-1	-2	-1	3	2	1	0	-2	-2	-1	0	0	0	-1	-2	-1	0
64	6	5	1	1	0	-1	-1	4	3	0	-1	-1	-2	-1	2	1	0	-1	-2	-2	-1	-1	-2	-2	-2	-3	-2	0
68	5	4	0	0	0	-1	-1	3	1	-1	-2	-2	-2	-1	0	-1	-2	-2	-3	-3	-1	-3	-4	-3	-3	-3	-1	0
72	4	3	0	-1	-1	-1	-1	2	0	-2	-2	-2	-2	-1	-1	-2	-3	-3	-3	-2	-1	-4	-5	-4	-4	-3	-1	0
76	4	3	-1	-1	-1	-2	-1	1	-1	-3	-3	-2	-2	-1	-2	-3	-4	-3	-3	-2	-1	-4	-5	-5	-4	-3	-1	0
80	3	2	-1	-2	-1	-2	-1	0	-1	-3	-3	-2	-2	-1	-2	-4	-4	-4	-3	-2	-1	-4	-5	-5	-4	-3	-1	0
OCTOBER																												
18	-3	-4	-5	-3	-1	0	0	-3	-5	-5	-3	-1	0	0	-3	-4	-4	-1	-1	0	0	-2	-2	-1	0	0	0	1
20	-3	-5	-5	-3	-1	0	0	-3	-5	-5	-3	-1	0	0	-2	-3	-3	-2	-1	0	0	-1	-1	0	0	0	0	1
24	-4	-5	-5	-3	-1	0	0	-2	-3	-3	-2	-1	0	0	0	0	-1	-1	0	0	0	2	3	3	1	1	1	0
28	-3	-4	-4	-2	-1	0	0	-1	-1	-1	0	0	0	0	2	3	3	1	1	1	0	4	6	4	3	2	1	0
32	-2	-3	-2	-1	0	0	0	0	1	1	1	1	0	0	3	5	5	4	2	1	0	5	8	8	5	3	1	0
36	-2	-2	-1	0	0	0	0	1	2	2	3	2	1	0	3	5	6	4	3	1	0	5	8	8	5	3	1	0
40	-1	-1	0	1	1	0	0	1	2	3	3	2	1	0	3	5	5	4	2	1	0	4	7	7	5	3	1	0
44	-1	0	1	2	1	0	0	1	2	3	3	2	0	0	3	4	4	3	2	1	0	4	6	5	3	2	0	0
48	0	0	2	2	1	0	0	1	2	2	2	1	0	0	3	3	3	2	1	0	0	3	5	4	2	1	0	0
52	0	1	2	3	1	0	-1	1	1	2	2	1	0	0	2	2	1	1	1	0	0	3	4	2	1	0	0	0
56	0	1	2	3	2	0	-1	1	1	1	2	1	0	-1	2	1	0	0	0	0	0	3	2	1	0	-1	0	0
60	0	1	2	3	1	0	-1	1	1	0	1	0	0	-1	2	0	-1	-1	-1	-1	-1	2	1	0	-1	-1	-1	0
64	1	1	2	2	1	0	-1	1	0	0	0	0	0	-1	2	-1	-2	-1	-1	0	-1	1	0	-1	-2	-1	0	0
68	1	1	2	2	1	0	-1	1	0	-1	0	0	0	-1	1	-1	-3	-2	-1	0	0	1	-1	-2	-2	-1	0	0
72	0	1	2	1	0	-1	-1	0	0	-1	0	0	0	0	1	-2	-3	-2	-1	0	0	1	-1	-2	-2	-1	0	0
76	0	1	1	1	0	-1	-1	0	-1	-1	-1	-1	-1	0	0	-2	-3	-2	-1	0	0	0	-1	-2	-2	0	1	1
80	0	0	1	1	0	-1	-1	0	-1	-1	-1	-1	-1	0	0	-2	-3	-2	-1	0	0	0	-1	-2	-2	0	1	1
NOVEMBER																												
18	-2	-3	-4	-3	-1	0	0	-2	-3	-3	-2	0	0	1	-1	-2	-2	-1	0	0	1	-1	-1	-1	0	0	0	1
20	-2	-3	-4	-3	-1	0	0	-1	-3	-3	-2	0	0	1	-1	-2	-2	-1	0	0	1	-1	-1	0	0	0	0	1
24	-1	-2	-2	-2	0	0	0	-1	-1	-1	-1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0
28	-1	-1	-1	0	0	0	0	0	1	1	1	1	0	0	1	2	2	2	1	0	0	2	3	3	2	1	0	0
32	-1	0	1	1	0	0	0	1	2	3	2	1	0	0	2	3	4	3	1	0	0	2	4	4	3	1	0	0
36	0	0	1	1	0	0	0	1	2	3	2	1	0	0	2	3	4	3	1	0	0	2	3	3	2	1	0	0
40	0	1	2	1	0	0	0	1	2	3	2	1	0	0	1	2	3	2	1	0	0	1	2	2	1	0	0	0
44	0	1	1	1	0	0	0	0	1	2	1	0	0	0	1	1	1	1	0	0	0	1	0	0	0	0	0	0
48	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	-1	0	0	0	0	0	0	-1	-1	-1	0	0	0
52	0	0	1	0	0	0	0	0	-1	0	0	0	0	0	-1	-2	-1	-1	0	0	0	-1	-2	-2	-1	0	0	0
56	0	0	1	0	0	0	0	0	-1	-1	0	0	0	0	-1	-2	-2	-1	0	0	0	-1	-3	-2	-1	-1	0	0
60	0	0	0	0	0	0	0	0	-1	-1	0	0	0	0	-1	-2	-2	-1	0	0	0	-1	-3	-3	-2	-1	0	0
64	0	0	0	0	0	0	0	-1	-1	-1	0	0	0	0	-1	-3	-2	-1	0	0	0	-2	-3	-3	-2	-1	0	0
68	0	0	0	0	0	0	0	-1	-2	-1	-1	0	0	0	-1	-3	-2	-1	0	0	0	-2	-3	-3	-2	-1	0	0
72	0	0	0	0	0	0	0	-1	-2	-1	-1	0	1	0	-1	-3	-3	-1	0	0	0	-2	-3	-3	-2	0	0	0
76	-1	0	0	0	0	0	1	-1	-2	-1	-1	0	1	0	-1	-3	-3	-1	0	0	0	-2	-3	-3	-2	0	0	0
80	-1	0	0	0	0	0	1	-1	-2	-1	-1	0	0	0	-1	-3	-3	-1	0	0	0	-2	-3	-3	-1	0	0	0

N HEMISPHERE

(DENSITY)/(ZONAL MEAN DENSITY) - 1 (%)

KM LAT=	20	30	40	50	60	70	80	20	30	40	50	60	70	80	20	30	40	50	60	70	80	20	30	40	50	60	70	80DEG
	LONGITUDE 180 DEG							LONGITUDE 150 W							LONGITUDE 120 W							LONGITUDE 90 W						
SEPTEMBER																												
18	0	0	1	1	1	1	0	0	0	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	-1	-1	-1
20	0	0	1	1	1	1	0	0	0	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	-1	-1	0
24	0	0	1	1	1	1	0	0	0	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	-1	0
28	0	1	1	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	1	1	1	1	1	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	1	1	1	1	1	1	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	1	1	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	1	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	1	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	1	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	1	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	1	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
68	1	1	1	0	0	0	0	1	1	1	1	0	0	-1	0	1	0	1	1	0	0	0	0	0	0	0	0	0
72	1	1	1	0	0	0	0	1	1	1	1	1	0	-1	0	1	1	1	1	0	0	0	0	0	1	0	0	0
76	1	1	1	0	0	0	0	1	1	1	1	1	0	-1	0	1	1	1	1	0	0	0	1	0	1	0	0	0
80	1	1	1	0	0	0	0	1	1	1	1	1	0	-1	1	1	1	1	1	0	0	0	1	0	1	0	0	0
OCTOBER																												
18	0	1	1	-1	-1	-1	-1	0	0	1	0	0	-1	-1	0	0	1	1	0	-1	-1	0	-1	0	0	-1	-1	0
20	0	1	1	0	-1	-1	-1	0	0	1	0	0	-1	-1	0	0	1	1	0	-1	-1	0	0	0	0	0	-1	0
24	0	1	1	0	0	-1	-1	0	1	1	1	1	0	-1	0	0	1	1	1	0	0	0	0	0	1	1	0	0
28	1	1	1	1	1	1	0	0	1	1	2	2	1	0	0	0	1	1	2	1	1	0	0	0	1	1	1	1
32	0	1	1	3	3	3	1	0	1	1	2	3	3	2	0	0	0	1	2	2	2	0	0	0	0	1	1	1
36	0	0	1	4	6	6	3	0	0	1	2	4	5	3	0	0	0	0	1	2	2	0	0	-1	-1	-1	0	0
40	0	0	1	4	7	8	5	0	0	0	1	4	5	3	0	0	-1	-2	-1	1	1	0	0	-1	-3	-4	-3	-2
44	0	0	0	4	8	9	6	0	0	-1	0	3	4	3	0	0	-2	-3	-3	-2	0	0	0	-2	-5	-6	-6	-3
48	0	-1	0	3	7	9	5	0	-1	-1	-1	1	3	2	0	0	-2	-4	-4	-3	-1	0	0	-2	-5	-8	-7	-4
52	0	-1	0	3	7	8	5	0	-1	-2	-1	1	2	2	0	-1	-2	-5	-5	-4	-2	0	0	-3	-6	-8	-8	-4
56	0	-1	0	2	6	7	5	0	-1	-2	-2	0	0	1	0	-1	-3	-5	-6	-6	-3	1	0	-3	-7	-9	-9	-5
60	0	-1	-1	2	5	6	4	0	-1	-2	-3	-1	-1	0	1	-1	-3	-6	-7	-6	-3	1	0	-3	-7	-10	-9	-5
64	0	-1	-1	1	4	5	4	0	-1	-3	-3	-2	-1	0	1	-1	-4	-6	-7	-6	-4	1	0	-3	-7	-9	-8	-5
68	0	-1	-2	0	3	4	4	0	-2	-3	-4	-2	-1	0	0	-1	-4	-6	-7	-5	-3	1	0	-3	-7	-9	-7	-5
72	0	-2	-2	0	2	4	3	0	-2	-3	-4	-3	-1	0	0	-1	-4	-6	-6	-5	-3	0	0	-3	-7	-8	-7	-5
76	0	-1	-2	-1	2	4	3	0	-2	-3	-4	-2	0	0	0	-1	-4	-6	-6	-4	-3	0	0	-3	-6	-8	-6	-5
80	0	-1	-2	-1	2	4	3	0	-1	-3	-3	-2	0	0	0	-1	-3	-5	-6	-3	-2	1	0	-2	-6	-7	-5	-4
NOVEMBER																												
18	1	2	1	-1	-1	-2	-1	0	1	2	1	0	-1	-1	-1	0	2	1	0	-1	-1	-1	-1	1	1	0	-1	-1
20	1	1	1	-1	-1	-1	-1	0	1	2	1	0	-1	-1	-1	0	2	2	1	-1	-1	-1	0	1	1	1	0	0
24	1	2	2	0	0	0	0	0	1	2	2	2	1	0	0	0	1	2	2	1	1	-1	0	0	1	1	1	1
28	1	2	2	3	3	3	2	1	1	2	3	5	5	3	0	0	1	2	4	5	4	0	0	0	1	2	4	3
32	0	1	3	6	8	7	4	0	0	1	5	9	10	6	0	0	0	2	6	8	6	0	-1	-1	0	3	5	5
36	0	0	2	8	12	12	7	0	0	0	6	12	13	9	0	-1	-1	2	7	10	7	0	-1	-2	-1	2	4	4
40	-1	-1	2	9	15	15	9	0	-1	0	5	12	15	9	0	-1	-2	1	6	9	7	0	-1	-3	-2	0	2	2
44	-1	-1	1	8	15	15	9	-1	-2	-1	4	11	13	9	-1	-2	-2	1	5	7	5	0	-1	-3	-3	-2	0	1
48	-1	-2	1	7	14	15	9	-1	-2	-1	4	10	12	8	-1	-2	-2	1	4	6	4	0	-2	-3	-3	-2	-1	0
52	-2	-2	0	7	14	14	9	-1	-2	-1	4	10	11	7	-1	-2	-2	1	4	5	4	0	-2	-3	-3	-3	-2	-1
56	-2	-2	0	6	14	15	8	-2	-2	-1	4	9	11	7	-1	-2	-2	0	2	4	3	0	-1	-3	-4	-4	-3	-2
60	-2	-2	-1	6	13	14	8	-2	-2	-2	3	8	9	6	-1	-2	-3	-1	1	2	2	0	-2	-4	-5	-6	-5	-2
64	-2	-2	-1	5	12	13	7	-2	-2	-2	2	6	7	4	-1	-2	-3	-2	-1	0	1	0	-2	-4	-6	-7	-6	-3
68	-1	-1	-1	4	10	11	6	1	-1	-2	1	4	5	3	-1	-2	-3	-3	-3	-1	0	0	-1	-3	-6	-8	-7	-3
72	-1	-1	0	3	8	10	5	-1	-1	-1	0	2	4	2	-1	-1	-3	-4	-4	-3	-1	0	-1	-3	-6	-8	-7	-3
76	0	0	0	3	6	8	4	-1	-1	-1	-1	1	3	2	-1	-1	-2	-3	-4	-3	-1	0	-1	-3	-5	-7	-7	-3
80	0	0	0	2	5	7	4	0	0	-1	-1	1	2	1	0	-1	-2	-3	-4	-3	-1	0	-1	-2	-5	-7	-7	-3
DECEMBER																												
18	1	2	-1	-4	4	-2	0	0	1	0	-3	-4	-3	-1	-1	0	0	-1	-3	-4	-2	-1	0	1	0	-2	-3	-2
20	1	2	0	-4	-4	-2	0	0	1	0	-2	-3	-2	-1	0	0	0	-1	-2	-3	-2	-1	0	1	1	-1	-2	-2
24	1	2	1	-1	0	0	1	1	2	2	1	2	2	1	0	1	2	2	2	1	1	-1	0	2	2	1	1	0
28	1	2	3	4	6	6	3	0	2	3	6	8	9	5	0	1	3	5	7	8	5	0	0	1	3	4	4	3
32	0	1	4	9	12	12	6	0	1	4	10	15	15	8	0	0	2	7	11	12	7	0	-1	0	1	4	5	4
36	0	0	5	13	18	16	8	0	0	3	11	19	16	9	0	-1	0	5	11	11	6	0	-1	-3	-3	0	2	2
40	-1	0	4	14	19	17	9	-1	-1	1	9	17	16	8	-1	-2	-3	1	7	7	4	0	-2	-5	-7	-5	-2	0
44	-1	-1	3	12	18	16	9	-1	-2	-1	6	13	12	7	-1	-3	-5	-3	2	3	3	0	-2	-7	-10	-8	-5	-1
48	-1	-1	2	9	15	14	9	-1	-3	-3	3	9	9	6	-1	-4	-7	-6	-1	1	2	0	-2	-7	-11	-9	-6	-2
52	-1	-2	1	8	13	12	8	-1	-3	-4	1	7	7	5	-1	-4	-7	-7	-3	0	1	0	-2	-7	-11	-9	-6	-3
56	-1	-2	0	6		11	8	-1	-4	-4	-1	5	6	5	-1	-4	-8	-8	-4	-2	0	0	-2	-7	-11	-10	-8	-3
60	-1	-2	-1	4	9	10	8	-1	-4	-5	-2	2	4	4	-1	-4	-8	-9	-6	-3	0	0	-1	-7	-11	-11	-9	-4
64	-1	-2	-1	3	7	9	7	-1	-3	-5	-3	1	3	4	-1	-3	-7	-9	-6	-4	-1	0	-1	-6	-10	-11	-9	-5
68	-1	-2	-2	2	6	8	7	-1	-3	-5	-3	0	3	4	-1	-2	-6	-8	-6	-4	-1	0	0	-5	-9	-10	-9	-5
72	0	-2	-2	1	5	8	7	-1	-2	-5	-3	0	2	3	0	-2	-6	-7	-6	-4	-1	0	0	-4	-8	-9	-8	-5
76	0	-1	-2	1	4	7	6	0	-2	-4	-2	0	3	3	0	-1	-6	-6	-5	-3	-1	0	1	-4	-7	-8	-8	-5
80	0	-1	-2	1	4	6	6	0	-1	-4	-1	1	3	3	0	-1	-6	-5	-4	-3	-1	1	1	-4	-6	-7	-7	-4

N HEMISPHERE (DENSITY)/(ZONAL MEAN DENSITY) - 1 (%)

KM LAT=	20	30	40	50	60	70	80	20	30	40	50	60	70	80	20	30	40	50	60	70	80	20	30	40	50	60	70	BODEG
	LONGITUDE 60 W							LONGITUDE 30 W							LONGITUDE 0 DEG							LONGITUDE 30 E						
SEPTEMBER																												
18	0	-1	0	0	-1	-1	0	-1	-1	0	0	-1	-1	0	-1	-1	-1	0	0	0	0	0	-1	-1	0	1	1	0
20	0	-1	0	0	-1	-1	0	-1	-1	0	0	-1	-1	0	-1	-1	0	0	0	0	0	0	-1	-1	0	1	1	0
24	0	0	0	0	-1	-1	0	-1	-1	0	0	0	0	0	-1	-1	0	0	0	0	0	0	-1	-1	0	1	1	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	-1	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	0
40	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-1	-1	0	0	0	0	0	-1	-1	-1	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	0	0	0	0	-1	-1	-1	0
48	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	0	0	0	0	-1	-1	-1	0	0	0	0	0	-1	-1	0
52	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	0	0	0	0	-1	-1	-1	0	0	0	0	0	-1	-1	0
56	0	0	0	-1	-1	0	0	0	0	0	-1	-1	-1	0	0	0	0	0	-1	-1	0	0	0	0	0	0	0	0
60	0	0	0	-1	-1	0	0	0	0	0	-1	-1	-1	0	0	0	0	0	-1	-1	0	0	0	0	0	0	0	0
64	0	0	0	-1	-1	0	1	0	0	0	-1	-1	0	0	0	0	0	0	-1	-1	0	0	0	0	0	0	0	0
68	0	0	0	-1	0	0	1	0	0	0	-1	-1	0	1	0	0	0	0	-1	-1	0	-1	0	0	0	0	0	0
72	0	0	0	0	0	0	1	0	0	0	-1	-1	0	1	0	0	0	0	-1	-1	0	-1	-1	0	0	0	0	0
76	0	0	0	0	0	0	1	0	0	0	-1	-1	0	1	0	0	0	0	-1	-1	0	-1	-1	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	-1	-1	0	0	0	0	0	0	-1	0	0	-1	-1	0	0	0	0	0
OCTOBER																												
18	0	-1	0	0	0	0	1	-1	-1	0	1	1	2	2	-1	-1	0	1	2	3	2	-1	-1	-1	1	2	2	1
20	0	-1	0	1	0	1	1	-1	-1	0	1	2	2	2	-1	-1	0	1	2	3	2	-1	-1	-1	1	2	2	1
24	0	-1	0	1	1	1	1	-1	-1	0	1	2	3	2	-1	-1	0	1	3	3	2	0	-1	-1	0	1	2	1
28	0	0	0	1	2	2	2	0	-1	0	1	2	3	2	0	-1	0	1	2	2	1	0	-1	-1	-1	0	0	0
32	0	0	0	0	1	1	1	0	0	0	0	1	1	1	0	0	0	0	0	1	0	0	0	-1	-2	-2	-2	-1
36	0	0	-1	-1	-1	-1	-1	0	0	0	-1	-1	-2	-1	0	0	0	-1	-2	-2	-2	0	0	0	-2	-3	-4	-2
40	0	0	-1	-3	-5	-5	-3	0	0	0	-2	-4	-5	-4	0	1	0	-2	-4	-5	-4	0	0	0	-2	-4	-5	-3
44	0	0	-1	-4	-7	-7	-5	0	1	-1	-3	-6	-8	-5	0	1	0	-2	-5	-7	-4	0	1	1	-1	-4	-5	-3
48	0	0	-2	-5	-8	-9	-5	1	1	-1	-4	-7	-8	-5	0	1	0	-2	-6	-7	-5	0	1	1	0	-3	-4	-3
52	1	0	-2	-6	-9	-9	-5	1	1	0	-4	-8	-9	-5	0	1	1	-2	-6	-7	-4	0	1	1	1	-2	-4	-2
56	1	0	-2	-6	-10	-10	-6	1	1	0	-4	-9	-9	-5	0	1	1	-2	-6	-7	-4	0	1	2	1	-1	-3	-2
60	1	1	-2	-7	-10	-10	-6	1	1	0	-4	-8	-9	-5	1	1	1	-1	-5	-6	-3	0	1	2	2	-1	-2	-1
64	1	1	-2	-6	-10	-9	-6	1	2	0	-4	-8	-8	-5	1	2	2	-1	-4	-6	-3	0	1	3	3	0	-1	-1
68	1	1	-2	-6	-9	-8	-5	1	2	0	-3	-7	-7	-4	1	2	2	0	-4	-5	-3	0	1	3	3	1	-1	-1
72	1	1	-1	-5	-8	-7	-5	2	2	1	-2	-6	-6	-4	1	2	3	1	-3	-4	-2	0	2	3	4	1	-1	-1
76	1	1	-1	-4	-7	-6	-5	2	2	1	-2	-5	-5	-4	1	2	3	1	-2	-3	-2	0	1	3	4	1	-1	-1
80	1	1	-1	-4	-7	-5	-4	1	2	2	-1	-5	-4	-4	1	2	3	2	-2	-3	-3	0	1	3	3	1	-2	-1
NOVEMBER																												
18	-1	-1	0	1	1	1	0	-1	-1	0	2	2	2	1	-1	-2	0	3	3	3	2	-1	-2	0	2	3	3	2
20	-1	-1	0	1	1	1	0	-1	-1	0	2	2	3	1	-1	-2	0	3	3	4	2	-1	-2	0	2	3	3	1
24	-1	-1	0	1	2	2	1	-1	-1	0	2	3	3	2	-1	-1	0	2	3	3	1	-1	-1	-1	1	1	1	0
28	-1	-1	0	1	2	3	2	-1	-1	0	1	2	2	1	-1	-1	-1	0	1	0	0	0	-1	-1	-2	-2	-3	-2
32	0	-1	-1	-1	1	2	2	0	0	-1	-1	-1	-1	-1	0	0	-1	-2	-3	-4	-3	0	0	-2	-4	-7	-7	-5
36	0	-1	-2	-3	-2	-1	0	0	0	-2	-4	-5	-5	-3	0	0	-2	-5	-7	-8	-5	0	1	-1	-6	-10	-10	-7
40	0	-1	-3	-4	-5	-4	-2	0	0	-3	-6	-8	-8	-5	1	1	-2	-7	-10	-10	-7	1	1	-1	-7	-11	-11	-8
44	0	-1	-3	-5	-6	-6	-3	1	0	-3	-7	-9	-9	-6	1	1	-2	-7	-11	-11	-7	1	2	0	-6	-11	-11	-7
48	0	-1	-3	-5	-7	-7	-4	1	0	-3	-7	-10	-10	-6	1	1	-2	-7	-12	-11	-7	1	2	0	-5	-11	-11	-7
52	0	-1	-3	-6	-8	-7	-4	1	0	-3	-8	-11	-11	-6	2	2	-1	-7	-12	-12	-7	2	3	1	-5	-10	-10	-6
56	1	-1	-3	-7	-10	-9	-5	1	1	-3	-8	-13	-12	-7	2	2	-1	-7	-12	-12	-7	2	3	2	-4	-10	-10	-6
60	1	-1	-4	-8	-11	-10	-5	2	1	-2	-9	-13	-12	-6	2	3	0	-7	-12	-11	-6	2	4	3	-3	-8	-9	-5
64	1	0	-3	-8	-11	-10	-5	2	1	-2	-8	-13	-11	-6	2	3	1	-6	-11	-10	-5	2	3	3	-2	-7	-7	-4
68	1	0	-3	-8	-11	-10	-5	1	1	-1	-7	-11	-10	-5	2	2	1	-5	-9	-9	-5	1	3	3	-1	-5	-6	-3
72	1	0	-2	-7	-10	-9	-4	1	1	-1	-6	-10	-9	-5	1	2	1	-4	-7	-7	-4	1	2	3	0	-3	-4	-3
76	1	0	-2	-6	-9	-8	-4	1	1	0	-5	-8	-8	-4	1	2	1	-3	-6	-6	-3	0	2	2	0	-2	-3	-2
80	0	0	-1	-5	-8	-7	-4	1	1	0	-4	-6	-6	-3	1	2	2	-2	-4	-4	-3	0	2	2	1	-1	-2	-2
DECEMBER																												
18	-1	0	2	2	0	-1	-1	-1	0	3	5	4	2	0	-1	-1	3	6	6	4	1	-1	-2	1	5	7	4	2
20	-1	0	2	3	1	-1	-1	-1	0	3	5	4	2	1	-1	-1	2	6	6	4	1	-1	-2	0	4	6	4	2
24	-1	0	1	2	2	1	0	-1	-1	1	3	3	2	1	-1	-1	0	3	4	3	1	-1	-2	-1	1	2	2	0
28	-1	-1	0	1	1	1	1	-1	-1	-1	-1	-1	-1	-1	0	-1	-2	-2	-1	-2	-2	0	-1	-2	-3	-4	-4	-3
32	0	-1	-2	-3	-3	-2	0	0	-1	-3	-5	-5	-5	-3	0	-1	-3	-5	-7	-7	-4	0	0	-3	-6	-8	-8	-5
36	0	-1	-4	-7	-7	-6	-2	0	-1	-4	-8	-10	-9	-4	1	0	-3	-7	-10	-9	-6	1	1	-1	-6	-10	-10	-6
40	0	-1	-5	-10	-11	-8	-3	1	0	-3	-9	-11	-10	-5	1	1	-1	-7	-10	-10	-6	1	2	0	-5	-9	-9	-7
44	0	-1	-5	-11	-12	-9	-4	1	1	-2	-8	-11	-10	-6	1	2	1	-4	-9	-9	-6	1	2	2	-2	-6	-8	-6
48	1	0	-4	-10	-12	-9	-5	1	2	0	-7	-10	-10	-6	1	3	3	-2	-7	-9	-6	1	2	3	0	-4	-7	-6
52	1	0	-3	-9	-11	-9	-5	1	3	1	-5	-9	-9	-6	1	3	4	-1	-6	-8	-6	1	2	4	2	-3	-5	-5
56	1	1	-3	-9	-12	-10	-5	2	3	3	-4	-9	-9	-6	2	4	5	1	-5	-7	-5	1	2	4	3	-1	-4	-4
60	1	2	-2	-8	-12	-10	-6	2	4	3	-3	-9	-9	-6	2	4	6	2	-4	-6	-5	1	2	5	4	0	-3	-4
64	1	2	-1	-7	-11	-10	-6	2	4	4	-2	-8	-9	-6	1	4	7	3	-3	-5	-4	1	2	5	5	1	-2	-3
68	1	3	0	-6	-10	-10	-6	2	4	5	-1	-6	-8	-5	1	4	7	4	-2	-4	-4	0	2	5	5	2	-1	-2
72	1	3	1	-5	-9	-9	-6	2	5	6	0	-5	-7	-5	1	4	7	4	0	-4	-3	0	1	5	5	3	0	-2
76	1	3	1	-4	-8	-9	-5	2	5	6	1	-4	-6	-4	1	4	8	5	0	-3	-3	0	1	4	5	3	0	-2
80	1	3	2	-4	-7	-7	-5	2	5	7	1	-3	-5	-4	1	4	8	5	1	-2	-2	0	1	5	5	3	0	-1

N HEMISPHERE

(DENSITY)/(ZONAL MEAN DENSITY) - 1 (%)

KM LAT=	LONGITUDE 60 E							LONGITUDE 90 E							LONGITUDE 120 E							LONGITUDE 150 E						
	20	30	40	50	60	70	80	20	30	40	50	60	70	80	20	30	40	50	60	70	80	20	30	40	50	60	70	BODE6
SEPTEMBER																												
18	0	0	-1	0	0	0	0	1	1	0	-1	-1	0	0	1	1	0	-1	-1	0	0	0	1	0	0	0	0	0
20	0	0	-1	-1	0	0	0	1	1	0	-1	-1	0	0	1	1	0	-1	-1	0	0	0	1	0	0	0	0	0
24	0	0	-1	-1	0	0	0	0	0	0	-1	-1	-1	0	0	1	0	-1	-1	-1	0	0	1	0	0	0	0	0
28	0	0	-1	-1	-1	0	0	0	0	0	-1	-1	-1	0	0	0	0	0	-1	-1	0	0	0	0	0	0	0	0
32	0	-1	-1	-1	-1	-1	0	0	0	0	-1	-1	-1	-1	0	0	0	0	-1	-1	0	0	0	0	1	0	0	0
36	0	-1	-1	-1	-1	-1	-1	0	-1	0	0	-1	-1	-1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
40	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	-1	-1	0	0	0	0	0	0	0	0	0	0	1	1	1	0
44	-1	-1	-1	0	-1	-1	0	-1	-1	-1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0
48	-1	-1	-1	0	0	0	0	0	-1	-1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0
52	0	-1	0	0	0	0	0	0	-1	-1	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0
56	0	-1	0	0	0	0	0	0	-1	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0
60	0	-1	0	0	1	0	0	0	-1	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0
64	-1	-1	0	0	0	0	0	-1	-1	-1	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
68	-1	-1	0	0	0	0	0	-1	-1	-1	0	1	1	0	0	-1	-1	0	0	1	0	0	0	0	0	0	0	0
72	-1	-1	-1	0	0	0	0	-1	-1	-1	0	0	0	0	-1	-1	-1	-1	0	0	0	0	0	0	0	0	0	0
76	-1	-1	-1	0	0	0	0	-1	-2	-1	0	0	0	0	-1	-1	-1	-1	0	0	0	0	0	0	-1	0	0	0
80	-1	-1	-1	0	0	0	0	-1	-2	-1	0	0	0	0	0	-1	-1	-1	0	0	0	1	0	0	-1	0	0	0
OCTOBER																												
18	0	0	-1	0	1	1	0	1	1	-1	-1	-1	-1	-1	1	1	0	-2	-2	-1	-1	1	1	0	-2	-2	-1	-1
20	0	0	-1	0	1	1	0	1	1	-1	-1	-1	-1	-1	1	1	0	-2	-2	-2	-1	1	1	0	-2	-2	-2	-1
24	0	0	-1	-1	-1	-1	0	0	0	-1	-2	-3	-3	-2	1	1	0	-2	-3	-3	-2	1	1	1	-1	-2	-2	-2
28	0	0	-1	-2	-3	-3	-1	0	0	-1	-3	-4	-4	-2	0	0	0	-2	-3	-3	-2	1	1	1	0	-1	-1	-1
32	0	0	-1	-3	-4	-4	-2	0	0	-1	-3	-4	-5	-2	0	0	0	-1	-2	-3	-2	0	0	1	1	1	0	0
36	0	0	-1	-2	-4	-4	-2	-1	-1	0	-1	-3	-3	-2	0	0	0	1	1	0	0	0	0	1	3	4	4	2
40	0	0	0	-1	-3	-3	-2	-1	-1	1	1	0	0	0	-1	-1	1	3	4	4	3	0	0	1	5	8	8	5
44	0	0	1	1	-1	-2	-1	-1	0	1	3	4	3	2	-1	-1	2	5	8	8	5	0	0	1	6	10	11	6
48	0	0	2	2	1	0	0	-1	0	2	4	6	5	3	-1	-1	2	6	10	10	6	0	-1	1	6	11	12	7
52	0	0	2	3	2	1	1	-1	0	2	5	7	7	4	-1	-1	2	6	11	11	6	0	-1	1	6	11	12	7
56	-1	0	2	4	4	3	1	-1	0	2	6	9	9	5	-1	-1	2	7	12	13	7	-1	-1	1	6	11	12	7
60	-1	0	3	5	5	4	2	-1	0	3	7	10	10	5	-1	-1	2	8	12	13	7	-1	-1	1	6	10	11	7
64	-1	0	3	5	6	4	2	-1	0	3	7	10	9	5	-1	-1	2	7	11	12	6	-1	-1	1	5	9	10	6
68	-1	1	3	6	6	4	2	-1	0	3	7	9	8	4	-1	-1	2	6	10	10	6	-1	-1	0	4	8	9	6
72	-1	1	3	5	6	3	2	-1	0	2	6	9	7	4	-1	-1	1	5	9	9	6	-1	-1	0	3	7	8	6
76	-1	1	3	5	5	2	2	-1	0	2	5	8	5	4	-1	-1	1	4	8	7	5	-1	-1	-1	2	6	7	5
80	-1	0	2	4	5	1	2	-1	0	1	4	7	4	3	-1	-1	0	4	7	6	5	-1	-1	-1	2	6	6	4
NOVEMBER																												
18	0	-1	-1	0	0	1	1	1	0	-2	-3	-2	-1	0	2	1	-2	-4	-4	-2	-1	2	2	-1	-3	-3	-2	-1
20	0	-1	-1	0	0	1	0	1	0	-2	-3	-3	-2	-1	2	1	-2	-4	-4	-3	-1	2	2	0	-3	-3	-2	-1
24	0	-1	-2	-2	-2	-2	-1	1	0	-2	-4	-5	-4	-2	1	1	-1	-4	-5	-4	-2	1	2	0	-2	-3	-2	-1
28	0	-1	-2	-4	-6	-6	-4	0	0	-2	-4	-7	-7	-5	0	0	0	-2	-5	-5	-3	1	1	1	1	0	-1	-1
32	0	0	-2	-5	-9	-10	-6	0	0	0	-4	-8	-9	-6	0	0	1	0	-3	-5	-3	0	1	3	4	3	2	0
36	0	1	0	-5	-10	-11	-7	0	0	1	-2	-7	-9	-6	0	0	3	3	0	-2	-2	0	0	4	7	8	6	3
40	1	1	1	-4	-10	-11	-7	0	1	3	0	-4	-6	-4	-1	1	4	6	4	1	0	-1	0	4	9	11	9	5
44	1	2	2	-3	-8	-9	-6	0	2	4	2	-2	-4	-3	0	1	4	7	6	4	2	-1	0	3	9	13	12	6
48	1	3	2	-2	-7	-8	-5	0	2	4	3	0	-2	-2	-1	1	4	7	7	5	3	-1	-1	3	8	13	12	7
52	1	3	3	-1	-6	-7	-4	0	2	4	3	1	-1	-1	-1	0	3	7	8	6	3	-2	-1	2	8	13	12	7
56	2	3	4	1	-4	-6	-3	0	2	4	5	3	1	0	-1	0	3	7	10	8	4	-2	-2	1	8	14	14	7
60	2	3	4	2	-2	-4	-2	0	1	4	6	5	3	1	-1	-1	3	8	12	9	4	-2	-2	1	8	15	14	7
64	1	2	4	3	0	-3	-2	0	1	4	7	7	4	1	-1	-1	2	8	12	10	5	-2	-2	0	7	14	14	7
68	1	2	4	4	1	-1	-1	0	0	3	7	7	4	2	0	-1	2	8	12	10	5	-1	-1	0	7	13	13	6
72	0	1	3	4	2	0	0	0	0	2	6	7	5	2	0	-1	1	7	11	9	5	0	-1	0	6	11	12	6
76	0	0	2	3	2	0	0	0	-1	1	5	7	4	2	0	-1	1	6	10	9	4	0	-1	0	5	10	10	5
80	0	0	2	3	2	1	0	0	-1	1	4	6	4	2	-1	-1	0	5	8	7	4	0	-1	0	4	8	9	5
DECEMBER																												
18	0	-2	-2	2	4	3	1	1	-1	-3	-2	0	1	1	2	1	-3	-5	-3	0	1	2	2	-2	-5	-5	-1	1
20	0	-2	-2	1	3	2	1	1	-1	-3	-3	-1	0	0	2	1	-3	-5	-4	-1	0	2	2	-1	-5	-5	-2	0
24	0	-2	-3	-2	-1	-1	-1	1	-1	-3	-4	-5	-4	-2	1	1	-2	-5	-5	-4	-2	1	2	0	-3	-3	-2	-1
28	0	-1	-3	-5	-7	-7	-4	0	0	-2	-5	-8	-8	-5	0	0	-1	-3	-5	-6	-3	1	1	1	0	0	0	0
32	0	0	-2	-6	-10	-10	-6	0	0	-1	-5	-9	-9	-5	0	0	1	-1	-4	-5	-3	0	1	3	4	5	3	2
36	0	1	0	-5	-10	-10	-6	0	1	1	-3	-8	-8	-4	0	1	3	2	-1	-2	-1	0	0	4	9	9	7	4
40	0	2	1	-3	-8	-8	-5	0	1	2	0	-5	-5	-3	0	1	4	5	3	2	2	-1	0	5	11	12	11	6
44	0	2	2	0	-5	-6	-5	0	1	3	2	-1	-1	-1	0	1	4	7	6	5	4	-1	0	5	11	14	13	8
48	0	1	2	1	-2	-4	-4	0	1	3	3	1	1	0	0	1	4	7	7	7	4	0	0	4	11	15	13	8
52	0	1	2	2	-1	-2	-3	0	1	2	4	3	2	0	0	1	3	7	8	8	5	0	0	4	10	12	12	8
56	0	1	2	3	1	-1	-2	0	0	2	4	4	3	1	0	0	3	7	9	9	5	-1	0	3	9	12	12	8
60	0	1	2	4	3	0	-2	0	0	1	5	6	5	1	-1	0	2	7	9	9	5	-1	-1	2	8	11	12	8
64	0	0	2	5	4	1	-1	-1	-1	0	5	6	5	2	-1	-1	1	6	9	9	5	-1	-1	1	6	10	11	8
68	0	-1	1	4	4	2	-1	-1	-2	-1	4	6	5	2	-1	-2	0	4	8	8	5	-1	-1	0	4	8	10	7
72	-1	-1	1	4	4	2	-1	-1	-2	-1	2	5	4	2	-1	-2	-1	3	6	7	5	0	-2	-1	3	7	9	7
76	-1	-2	0	3	4	2	-1	-1	-2	-2	1	4	4	1	-1	-3	-2	1	4	6	4	0	-2	-1	2	5	8	6
80	-1	-2	0	2	3	1	-1	-1	-3	-3	0	2	2	1	-1	-3	-2	0	2	5	3	0	-2	-1	1	4	7	6

N HEMISPHERE (DENSITY)/(ZONAL MEAN DENSITY) - 1 (%)

KM LAT=	LONGITUDE 180 DEG 20	30	40	50	60	70	80	LONGITUDE 150 W 20	30	40	50	60	70	80	LONGITUDE 120 W 20	30	40	50	60	70	80	LONGITUDE 90 W 20	30	40	50	60	70	80DEG
JANUARY																												
16	1	1	-1	-3	-4	-5	-3	0	0	0	-1	-1	-4	-3	0	0	0	0	-1	-3	-3	0	1	1	0	-1	-2	-2
20	1	1	-1	-2	-2	-4	-3	0	1	0	0	0	-3	-3	0	0	1	1	0	-2	-2	0	1	1	0	-1	-2	-1
24	1	1	1	2	3	3	1	0	1	2	3	4	3	2	0	1	1	2	2	1	1	0	0	1	0	-2	-1	0
28	1	2	3	6	11	12	7	0	1	3	6	11	11	7	0	1	2	3	4	5	4	0	0	0	-1	-3	-2	0
32	0	2	5	11	18	19	11	0	1	4	9	15	17	10	0	0	1	3	4	6	5	0	-1	-1	-3	-5	-4	-1
36	0	1	6	14	22	23	12	0	1	3	9	17	18	11	0	-1	0	1	3	6	5	0	-1	-3	-5	-7	-6	-2
40	0	1	5	14	23	23	13	0	0	2	8	15	17	10	0	-2	-2	-1	1	4	4	0	-2	-4	-7	-9	-7	-3
44	0	0	3	11	20	21	12	-1	-1	-1	4	11	14	9	-1	-2	-4	-4	-3	1	2	0	-2	-5	-8	-9	-8	-4
48	0	-1	1	8	16	18	12	-1	-2	-3	1	8	10	7	-1	-3	-5	-5	-3	-1	1	0	-2	-5	-8	-10	-9	-5
52	-1	-1	0	5	13	15	10	-1	-3	-4	-1	5	7	6	-1	-3	-6	-7	-5	-3	0	0	-1	-5	-8	-10	-9	-6
56	-1	-2	-2	3	10	12	9	-1	-3	-5	-3	2	5	5	-1	-3	-7	-8	-6	-4	-1	0	-1	-5	-9	-10	-9	-6
60	-1	-2	-2	2	8	10	8	-1	-4	-6	-5	-1	3	5	-1	-3	-7	-9	-7	-4	-1	0	-1	-5	-8	-10	-9	-6
64	-1	-2	-2	0	5	7	7	-1	-4	-5	-6	-2	2	4	-1	-3	-6	-9	-7	-4	-1	0	-1	-4	-7	-8	-7	-5
68	-1	-2	-2	-1	3	6	5	-1	-3	-5	-5	-2	2	3	-1	-3	-6	-7	-6	-3	-1	0	0	-4	-5	-6	-6	-4
72	-1	-2	-2	-1	2	5	4	-1	-3	-4	-5	-2	2	2	0	-2	-5	-6	-4	-2	-1	1	0	-3	-4	-4	-4	-3
76	-1	-2	-2	0	2	5	4	-1	-3	-4	-4	-1	3	2	0	-2	-5	-5	-3	0	0	1	0	-3	-3	-2	-2	-2
80	-1	-2	-2	0	3	5	4	-1	-2	-4	-2	0	3	2	0	-1	-4	-3	-1	1	0	1	0	-3	-2	-1	-1	-1
FEBRUARY																												
16	2	1	0	-1	-2	-1	0	1	0	1	0	-1	-1	-2	0	0	1	0	-1	-2	-3	-1	0	1	-1	-1	-3	-3
20	2	1	1	0	-1	-1	0	2	1	1	1	0	-1	-2	0	0	0	0	0	-2	-3	-2	0	0	-1	0	-2	-3
24	1	0	0	1	3	3	1	0	1	1	2	5	3	2	0	1	2	2	3	1	1	0	1	2	1	-1	-1	0
28	0	1	2	4	7	8	4	1	1	2	5	9	9	6	1	0	1	3	5	6	5	0	0	0	1	0	1	2
32	0	2	4	8	12	12	7	0	1	4	8	13	14	8	1	0	1	4	6	8	6	0	-1	-1	-1	0	1	2
36	0	1	3	9	16	15	9	0	1	3	8	15	15	8	0	0	1	3	6	8	5	0	-1	-1	-1	-3	1	2
40	0	0	3	8	16	15	9	0	0	2	6	13	14	8	0	0	0	2	4	7	4	0	0	-2	-2	-3	0	1
44	0	1	1	6	13	13	7	0	0	1	5	11	10	6	-1	0	1	1	3	4	4	0	-1	-1	-3	-4	-1	1
48	0	0	1	5	11	11	7	0	0	0	3	7	8	5	0	-1	-1	0	0	2	2	0	-1	-2	-4	-5	-2	0
52	0	0	-1	4	10	10	7	0	0	-1	2	6	6	4	0	0	-1	-1	-1	1	1	0	-1	-1	-5	-6	-4	-1
56	0	-1	0	4	8	8	6	0	-1	-1	1	4	4	3	0	-1	-2	-2	-2	-1	1	0	-1	-3	-5	-7	-5	-1
60	0	-1	-1	3	7	6	6	0	-1	-2	1	2	2	3	-1	-1	-2	-3	-3	-2	0	0	-1	-2	-6	-7	-5	-2
64	0	-1	-1	2	5	5	5	0	-1	-1	0	1	1	2	0	-2	-2	-3	-4	-3	0	0	-1	-3	-5	-7	-5	-1
68	0	-1	-1	1	3	3	4	0	0	-1	0	0	0	2	0	-1	-1	-2	-4	-2	0	-1	-1	-2	-5	-6	-4	-2
72	0	0	-1	1	2	2	3	0	0	0	0	0	-1	1	0	0	0	-1	-3	-2	0	0	-1	-1	-4	-5	-3	-1
76	0	0	0	0	1	1	3	0	0	0	1	0	0	1	0	0	0	-1	-3	-1	0	0	-1	-2	-3	-3	-1	-1
80	0	0	-1	0	1	0	1	1	1	0	1	1	-1	0	0	1	1	0	-1	-1	0	0	-1	0	-2	-3	0	0
MARCH																												
16	1	1	-1	-2	-1	0	0	0	1	0	0	1	1	0	0	0	1	0	-1	-1	0	-1	0	0	-1	-3	-3	-1
20	1	1	-1	-1	0	1	1	0	1	1	0	1	2	1	0	0	1	0	0	0	0	-1	0	0	-1	-3	-2	-1
24	1	1	1	1	3	4	3	0	1	2	3	4	5	4	0	1	2	2	2	3	2	0	0	1	0	0	0	1
28	1	1	2	4	7	8	6	1	1	3	5	8	9	6	0	1	2	4	6	7	5	0	0	1	2	3	3	2
32	0	1	3	7	11	12	7	0	1	3	7	12	13	8	0	1	2	5	9	10	7	0	0	0	2	4	5	3
36	0	1	3	8	12	13	8	0	1	2	7	13	14	9	0	0	1	5	9	10	7	0	0	-1	1	4	5	4
40	0	0	2	7	12	12	8	0	0	1	6	11	13	9	0	0	0	3	7	9	7	0	-1	-1	0	2	3	3
44	0	0	1	5	9	10	6	0	0	0	4	9	10	7	0	-1	-1	1	5	6	5	0	-1	-2	-2	-1	1	2
48	0	-1	0	3	7	8	5	0	-1	-1	2	6	7	5	0	-1	-2	0	2	4	3	0	-1	-3	-3	-3	-1	0
52	0	-1	-1	2	6	7	4	0	-1	-1	1	4	5	4	0	-1	-2	-2	0	2	2	0	-1	-3	-4	-4	-3	0
56	-1	-1	-1	1	5	5	3	-1	-1	-2	-1	2	4	3	0	-1	-3	-3	-1	0	1	0	-1	-3	-5	-5	-4	-1
60	-1	-1	-2	0	3	3	2	-1	-2	-2	-2	0	2	2	0	-2	-3	-4	-3	-1	1	0	-1	-3	-5	-5	-4	-1
64	0	-1	-2	-1	0	1	1	-1	-2	-3	-3	-2	0	1	0	-2	-3	-4	-4	-2	0	0	-1	-3	-4	-4	-3	-1
68	0	-1	-2	-2	-2	-1	0	0	-2	-3	-3	-3	-1	0	0	-2	-3	-4	-3	-2	0	0	-1	-2	-3	-2	-2	0
72	0	-1	-3	-3	-3	-2	-1	0	-1	-3	-3	-3	-2	0	0	-1	-2	-3	-3	-2	0	0	-1	-2	-2	-2	-1	0
76	0	-1	-3	-3	-3	-2	-2	0	-1	-3	-3	-3	-2	0	0	-1	-2	-2	-2	-1	0	0	-1	-1	-1	-1	-1	1
80	0	-1	-3	-3	-3	-3	-2	0	-1	-2	-2	-2	-1	0	0	-1	-2	-2	-1	-1	1	0	-1	-1	-1	-1	-1	1
APRIL																												
16	0	1	0	-1	-1	0	0	0	1	1	1	1	1	0	0	0	1	2	2	1	0	0	0	1	2	1	1	0
20	0	1	0	-1	-1	0	0	0	1	1	1	1	1	0	0	0	1	2	2	1	0	0	0	1	2	2	1	0
24	0	1	1	0	0	0	0	0	1	1	2	2	1	1	0	0	1	2	2	2	1	0	0	0	1	1	1	0
28	0	1	1	1	1	1	1	0	1	2	2	2	2	1	0	0	1	2	2	2	1	0	0	0	1	1	1	1
32	0	1	1	2	2	1	1	0	1	1	3	3	2	1	0	0	1	1	1	2	1	0	0	0	0	1	1	1
36	0	0	1	2	2	2	1	0	1	1	2	3	2	1	0	1	1	1	2	2	1	0	0	0	0	0	1	1
40	0	0	0	1	2	2	1	1	1	1	1	2	2	1	0	1	0	1	1	2	1	0	0	0	0	0	0	0
44	0	0	0	0	1	2	1	1	1	0	0	1	2	1	0	1	0	0	1	1	1	0	0	0	0	0	0	0
48	1	0	0	0	1	1	1	1	1	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0
52	1	0	-1	-1	0	1	1	1	1	0	-1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
56	1	0	-1	-1	0	1	1	1	1	0	-1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
60	1	1	0	-1	0	1	1	1	1	0	0	0	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0
64	1	1	0	0	0	1	1	1	1	0	0	1	1	1	1	1	0	0	1	1	1	0	0	0	0	0	0	1
68	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	0	0	0	0	0	1
72	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1
76	1	0	0	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	1	1	0	1	1	0	0	0	1
80	1	0	0	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	0	1	1	0	0	0	0	0	0	0

N HEMISPHERE (DENSITY)/(ZONAL MEAN DENSITY) - 1 (%)

KM LAT=	20	30	40	50	60	70	80	20	30	40	50	60	70	80	20	30	40	50	60	70	80	20	30	40	50	60	70	80DEG
	LONGITUDE 60 W							LONGITUDE 30 W							LONGITUDE 0 DEG							LONGITUDE 30 E						
JANUARY																												
18	0	1	2	0	-1	1	0	-1	0	2	2	2	4	2	-1	-1	2	4	6	6	4	-1	-2	1	4	7	7	4
20	0	1	2	0	-1	0	0	-1	0	2	2	2	3	2	-1	-1	1	3	5	6	4	-1	-2	0	4	6	6	4
24	0	0	0	-1	-3	-2	-1	-1	-1	0	0	0	0	0	-1	-1	0	1	3	3	1	-1	-1	-1	1	3	2	1
28	0	-1	-1	-3	-6	-6	-3	0	-1	-1	-2	-4	-5	-3	0	-1	-1	-1	-2	-3	-3	0	-1	-2	-2	-3	-4	-4
32	0	-1	-2	-5	-9	-9	-5	0	-1	-2	-4	-7	-9	-6	0	0	-2	-3	-5	-7	-6	0	0	-2	-5	-7	-8	-6
36	0	-1	-3	-7	-11	-11	-6	0	0	-2	-5	-9	-11	-8	0	0	-1	-4	-8	-10	-8	0	0	-2	-6	-9	-11	-8
40	0	-1	-3	-7	-12	-12	-7	1	1	-1	-5	-10	-12	-9	1	1	0	-4	-9	-11	-9	0	1	-1	-5	-10	-11	-8
44	0	0	-2	-7	-12	-12	-8	1	2	1	-4	-10	-13	-9	1	2	2	-2	-9	-11	-9	0	1	1	-3	-8	-10	-8
48	1	1	-1	-6	-11	-12	-8	1	2	2	-3	-9	-12	-9	1	3	3	-1	-7	-10	-8	0	1	2	-1	-6	-8	-6
52	1	1	-1	-6	-11	-12	-9	1	3	3	-2	-8	-11	-9	1	3	4	1	-5	-9	-7	0	2	3	1	-4	-6	-5
56	1	1	0	-5	-10	-11	-9	1	3	4	0	-7	-10	-8	1	3	5	2	-4	-7	-6	0	2	3	2	-2	-4	-3
60	1	2	0	-4	-8	-10	-8	1	3	4	1	-5	-8	-7	1	3	5	3	-3	-6	-5	0	1	3	2	-1	-3	-2
64	1	2	0	-2	-6	-8	-7	1	3	4	2	-3	-7	-6	1	2	5	3	-2	-4	-4	0	1	3	2	-1	-2	-2
68	1	2	0	-1	-4	-6	-5	1	3	4	2	-2	-5	-5	0	2	4	3	-1	-3	-3	0	1	3	2	-1	-1	-2
72	1	2	0	0	-2	-5	-4	1	2	3	2	-1	-4	-4	0	1	4	2	-1	-3	-3	0	0	3	1	-2	-2	-2
76	1	2	0	0	-1	-3	-3	1	2	3	2	-1	-3	-3	0	1	4	2	-2	-3	-3	0	0	3	0	-3	-2	-2
80	1	2	1	0	-1	-2	-2	1	2	4	2	-1	-3	-2	0	2	4	1	-3	-3	-3	0	1	3	0	-3	-3	-3
FEBRUARY																												
18	-1	0	1	0	0	-2	0	-1	0	1	2	1	1	3	0	0	2	4	2	4	4	0	-1	1	3	3	5	2
20	-2	0	1	0	0	-2	0	-1	0	2	2	1	1	3	0	0	2	4	2	4	4	0	-1	1	3	3	4	2
24	0	0	1	1	-2	-1	0	0	-1	0	1	0	1	0	-1	-1	0	2	3	2	1	-1	-1	-1	1	3	1	0
28	-1	0	0	0	-2	-2	0	-1	0	0	0	0	-1	-2	-1	0	0	0	1	-1	-3	0	-1	-1	-1	-1	-3	-3
32	0	-1	-2	-3	-3	-3	-1	-1	0	-1	-2	-2	-4	-3	-1	0	0	-1	-3	-4	-4	0	0	-1	-3	-6	-6	-5
36	0	-1	-2	-4	-6	-4	-1	0	-1	-2	-4	-4	-5	-3	0	0	-2	-3	-3	-6	-5	0	0	-1	-4	-6	-9	-7
40	0	0	-3	-4	-6	-5	-1	0	-1	-2	-5	-6	-6	-4	0	-1	-1	-4	-6	-8	-6	0	0	-1	-4	-7	-9	-8
44	0	-1	-2	-5	-7	-5	-2	0	-1	-3	-6	-8	-7	-5	0	0	-2	-4	-6	-8	-7	0	1	0	-3	-6	-9	-8
48	0	-1	-2	-6	-8	-6	-2	0	0	-2	-6	-8	-8	-5	0	0	-1	-3	-6	-8	-7	0	1	1	-1	-5	-8	-7
52	0	-1	-2	-6	-8	-7	-3	0	0	-2	-6	-8	-8	-5	0	1	-1	-3	-6	-8	-6	0	1	1	0	-4	-6	-6
56	0	0	-2	-7	-9	-7	-3	0	1	-1	-6	-8	-8	-4	0	1	1	-3	-5	-7	-6	0	1	2	0	-3	-5	-6
60	0	-1	-3	-7	-8	-7	-3	1	0	-2	-6	-7	-7	-4	1	1	-1	-3	-4	-6	-5	0	2	2	1	-1	-3	-5
64	0	-1	-3	-6	-7	-5	-2	0	0	-2	-5	-5	-5	-3	0	1	0	-2	-2	-4	-4	1	2	2	2	1	-2	-4
68	0	-2	-3	-5	-5	-4	-2	0	-1	-3	-4	-3	-3	-2	1	1	-1	0	0	-2	-3	1	2	2	3	2	-1	-3
72	-1	-2	-3	-4	-4	-2	-1	0	-1	-3	-3	-1	0	-1	0	0	-1	0	2	0	-2	1	2	2	3	3	0	-3
76	-1	-2	-3	-3	-1	0	-1	0	-1	-2	-2	1	1	0	0	0	0	1	3	1	-1	1	2	3	3	3	1	-2
80	0	-2	-2	-3	-1	2	1	0	-2	-3	-1	2	3	1	0	0	-1	2	5	2	-1	0	2	2	3	3	0	-2
MARCH																												
18	-1	0	0	-1	-3	-2	-1	-1	-1	0	1	1	1	1	-1	-1	1	4	6	5	2	-1	-1	2	6	7	5	2
20	-1	0	0	-1	-2	-2	0	-1	-1	0	1	1	1	1	-1	-1	1	4	5	4	2	-1	-1	1	5	6	4	1
24	-1	0	0	0	-1	-1	0	-1	-1	0	1	1	0	0	-1	-1	0	2	3	1	-1	-1	-1	0	2	2	0	-2
28	0	0	0	0	0	0	0	0	-1	-1	0	0	-1	-2	0	-1	-1	-1	-2	-3	-3	0	-1	-2	-3	-5	-6	-5
32	0	0	-1	0	0	0	0	0	-1	-1	-2	-2	-3	-3	0	0	-2	-4	-6	-7	-6	0	-1	-2	-6	-9	-10	-7
36	0	-1	-1	-1	-1	-1	0	0	0	-2	-3	-5	-5	-4	0	0	-2	-5	-8	-9	-6	0	0	-2	-6	-11	-12	-8
40	0	-1	-2	-3	-3	-2	-1	0	0	-2	-4	-6	-6	-4	0	1	-1	-5	-8	-9	-6	0	1	-1	-5	-9	-10	-7
44	0	-1	-2	-4	-5	-4	-1	0	0	-2	-5	-7	-6	-3	0	1	0	-4	-7	-7	-4	0	1	1	-2	-6	-7	-5
48	0	-1	-3	-5	-6	-5	-2	0	0	-1	-5	-7	-6	-3	0	1	1	-3	-6	-6	-3	0	2	2	0	-4	-5	-3
52	0	0	-3	-6	-7	-6	-2	1	1	-1	-5	-7	-6	-3	1	1	1	-2	-5	-5	-3	0	2	3	1	-2	-3	-2
56	1	0	-3	-6	-7	-6	-2	1	1	-1	-4	-7	-6	-3	1	2	1	-1	-4	-4	-2	0	2	3	3	0	-2	-1
60	1	0	-2	-5	-6	-5	-2	1	1	-1	-4	-5	-5	-2	1	2	2	0	-2	-3	-1	0	2	4	4	1	0	0
64	1	0	-2	-4	-5	-4	-2	1	1	0	-2	-4	-3	-1	1	2	2	1	-1	-1	0	0	2	4	4	2	2	1
68	0	0	-2	-3	-3	-3	-1	1	1	0	-1	-2	-1	0	1	2	2	1	1	1	1	0	2	4	4	3	3	2
72	0	0	-1	-2	-2	-1	0	1	1	0	-1	0	0	1	1	2	2	2	2	3	2	0	2	4	4	4	4	3
76	0	0	-1	-1	-1	0	1	0	0	1	0	0	1	1	0	1	2	2	2	3	3	0	2	4	4	4	4	3
80	0	0	-1	-1	0	0	1	0	0	1	0	1	2	2	0	1	3	2	3	4	3	0	2	4	4	4	4	3
APRIL																												
18	0	-1	0	1	1	1	0	-1	-1	-1	1	2	1	0	-1	-1	-1	1	2	1	0	0	-1	-1	1	1	1	0
20	0	-1	0	1	1	1	0	-1	-1	-1	1	1	1	0	-1	-1	-1	0	2	1	0	0	-1	-1	0	1	0	0
24	0	-1	0	1	1	1	0	-1	-1	-1	0	1	1	0	0	-1	-1	0	1	0	0	0	-1	-1	0	0	0	0
28	0	0	-1	0	0	0	0	0	-1	-1	-1	0	0	0	0	-1	-1	-1	-1	0	0	0	0	-1	-1	-1	-1	0
32	0	0	-1	-1	0	0	0	0	0	-1	-1	-1	-1	0	0	0	-1	-1	-2	-1	-1	0	0	0	-1	-2	-2	-1
36	0	0	0	-1	-1	0	0	0	0	0	-1	-2	-2	-1	0	0	0	-1	-2	-2	-1	0	0	0	-1	-2	-2	-1
40	0	0	0	-1	-1	-1	0	0	0	0	-1	-2	-2	-1	0	0	0	-1	-2	-2	-1	0	0	0	-1	-2	-2	-1
44	0	0	0	0	-1	-1	0	0	0	1	0	-1	-2	-1	0	0	1	0	-1	-2	-1	0	0	0	0	-1	-2	-1
48	0	0	0	0	-1	-1	0	0	0	1	0	-1	-2	-1	0	0	1	1	-1	-2	-1	0	0	1	1	0	-1	-1
52	0	0	1	0	-1	-1	-1	0	0	1	1	-1	-1	-1	0	0	1	1	0	-1	-1	0	0	1	1	0	-1	-1
56	0	0	1	0	0	-1	-1	0	0	1	1	0	-1	-1	0	0	1	1	0	-1	-1	-1	0	1	1	0	-1	-1
60	0	0	1	1	0	0	0	0	0	1	1	0	-1	-1	0	0	1	1	0	-1	-1	-1	0	0	1	0	-1	-1
64	0	0	1	1	0	0	0	0	0	1	1	0	-1	-1	0	0	1	1	0	-1	-1	0	-1	0	0	0	-1	-1
68	0	0	1	1	0	0	0	0	0	1	1	0	-1	-1	0	0	0	1	0	-1	-1	0	-1	0	0	0	-1	-1
72	0	0	0	1	0	0	0	0	0	0	1	0	-1	-1	0	0	0	1	0	-1	-1	0	-1	0	0	0	-1	-1
76	0	0	0	1	0	0	0	0	0	0	1	0	-1	-1	0	0	0	1	0	-1	-1	0	0	0	0	-1	-1	-1
80	0	0	0	1	0	-1	0	0	0	0	1	0	-1	-1	-1	0	0	1	0	-1	-1	-1	0	0	0	-1	-1	-1

KM LAT=	LONGITUDE 60 E							LONGITUDE 90 E							LONGITUDE 120 E							LONGITUDE 150 E						
	20	30	40	50	60	70	80	20	30	40	50	60	70	80	20	30	40	50	60	70	80	20	30	40	50	60	70	80DEG
JANUARY																												
10	-1	-1	0	2	4	5	3	0	-1	-2	-1	-1	0	1	1	1	-2	-4	-5	-3	-1	1	1	-2	-4	-6	-5	-3
20	-1	-1	-1	2	3	4	3	0	-1	-2	-2	-2	-1	0	1	1	-2	-4	-5	-4	-2	1	1	-2	-4	-5	-5	-3
24	0	-1	-1	-1	-1	-1	-1	0	-1	-2	-3	-4	-4	-2	1	0	-1	-3	-4	-3	-2	1	1	0	-1	-1	0	0
28	0	-1	-2	-4	-6	-7	-4	0	0	-3	-4	-6	-6	-3	0	0	0	-1	-2	-1	0	1	1	2	3	6	6	4
32	0	-1	-3	-6	-9	-10	-6	0	0	-2	-5	-7	-7	-4	0	0	1	1	1	1	1	0	1	4	7	12	12	7
36	0	0	-2	-7	-10	-11	-6	0	0	-1	-4	-7	-6	-3	0	0	2	3	4	3	3	0	1	5	10	16	16	9
40	0	0	-2	-6	-9	-10	-6	0	0	-1	-3	-5	-4	-2	0	0	2	4	6	6	4	0	1	5	12	18	18	10
44	0	0	0	-3	-7	-7	-5	0	0	0	0	-1	-1	0	0	0	2	5	8	9	6	0	1	4	11	18	18	11
48	0	0	0	-1	-4	-5	-3	0	0	0	1	1	1	2	0	0	2	6	9	10	7	0	0	3	9	16	18	11
52	0	0	1	1	-1	-3	-2	0	0	1	2	3	3	3	0	0	2	6	9	11	7	0	0	2	8	14	14	11
56	0	0	2	2	0	-1	0	0	0	1	3	4	4	3	0	0	2	6	10	11	7	0	0	1	7	13	14	9
60	0	0	2	2	1	0	0	0	0	2	3	5	5	3	0	1	2	6	10	10	6	0	0	1	6	12	12	8
64	0	0	2	2	1	1	0	0	1	2	3	5	4	2	0	1	2	6	9	8	5	0	0	1	5	10	10	7
68	0	0	2	1	1	1	0	0	1	1	3	4	3	2	0	1	1	5	8	6	4	0	0	1	4	8	7	6
72	0	0	1	1	0	0	-1	0	1	1	2	3	2	1	0	1	1	4	6	4	3	-1	-1	0	3	6	6	5
76	0	0	1	0	-1	-1	-1	0	0	1	2	2	0	1	0	0	1	3	5	3	3	-1	-1	0	3	5	5	4
80	0	0	1	-1	-2	-3	-2	0	0	0	1	1	-1	0	0	0	0	3	4	2	2	-1	-1	0	2	5	4	4
FEBRUARY																												
10	-1	-1	-1	1	2	3	0	-1	0	-2	-3	0	0	-1	0	0	-2	-4	-2	-2	0	2	1	-1	-3	-3	-2	1
20	0	-1	-2	0	2	2	-1	-1	-1	-3	-3	-1	-1	-1	0	0	-2	-4	-3	-2	0	1	1	0	-3	-3	-2	1
24	-1	0	-1	-1	-2	-2	-1	0	0	-1	-3	-5	-4	-2	1	0	-1	-3	-5	-3	-2	1	0	-1	-2	-2	0	0
28	1	-1	-2	-4	-6	-7	-4	1	-1	-2	-5	-9	-8	-4	0	0	-1	-3	-6	-4	-2	0	1	1	1	1	3	1
32	1	-1	-2	-5	-9	-9	-6	1	-1	-3	-4	-9	-9	-5	0	0	-1	-3	-4	-4	-2	0	1	2	3	5	4	3
36	0	0	-1	-5	-10	-11	-8	0	0	-1	-4	-10	-9	-5	0	0	1	0	-3	-2	0	0	1	2	5	8	7	5
40	0	0	-1	-4	-8	-9	-7	0	1	0	-2	-6	-7	-4	0	1	1	2	0	0	2	0	0	3	7	10	9	7
44	0	0	1	-1	-5	-8	-6	0	0	2	1	-3	-3	-1	0	0	2	3	3	3	3	1	0	1	6	9	10	7
48	0	0	2	1	-3	-5	-5	0	0	2	2	0	0	-1	0	0	2	4	6	6	4	0	0	1	5	11	10	7
52	0	1	3	2	-1	-3	-4	0	0	3	4	3	2	0	0	0	2	4	7	7	5	0	0	0	5	10	10	8
56	0	1	2	3	1	-1	-3	0	0	2	4	4	4	1	0	0	2	5	8	8	5	0	0	1	5	9	9	7
60	0	2	4	4	2	0	-3	0	1	4	5	5	4	1	0	0	2	5	7	8	5	0	-1	0	5	8	9	7
64	1	2	4	4	3	1	-2	0	1	3	5	4	4	1	0	1	2	4	5	6	5	0	0	0	3	6	7	6
68	0	2	4	4	2	1	-2	0	1	4	4	3	3	0	0	0	1	3	3	4	4	0	-1	0	2	4	5	5
72	1	2	4	4	2	0	-2	0	1	3	3	0	1	0	0	0	1	1	0	2	3	0	-1	-1	0	2	3	4
76	0	2	3	3	0	-1	-2	0	1	2	1	-1	-1	-1	0	0	0	-1	-1	0	1	0	0	-1	-1	1	1	3
80	0	2	4	2	0	-2	-2	0	0	2	0	-3	-2	-1	0	-1	0	-2	-3	-1	1	0	-1	-2	-1	-1	0	2
MARCH																												
10	0	0	1	3	3	2	0	0	0	-1	-1	-2	-2	-2	1	1	-2	-4	-5	-4	-2	1	1	-2	-4	-3	-2	-1
20	0	0	1	3	2	1	0	0	0	-1	-1	-3	-3	-2	1	1	-2	-4	-5	-4	-2	1	1	-2	-4	-3	-2	-1
24	0	-1	-1	-1	-2	-4	-3	0	0	-2	-3	-5	-6	-3	1	0	-2	-4	-5	-4	-2	1	1	-1	-2	-1	0	1
28	0	-1	-2	-5	-8	-8	-6	0	-1	-2	-5	-8	-8	-4	0	0	-1	-3	-4	-4	-1	0	1	1	1	2	3	3
32	0	-1	-2	-7	-11	-12	-7	0	-1	-2	-5	-9	-9	-5	0	0	0	-1	-3	-3	-1	0	1	2	3	5	5	4
36	0	0	-2	-6	-11	-12	-8	0	0	-1	-4	-8	-9	-5	0	0	1	0	-2	-2	-1	0	0	2	5	7	6	4
40	0	0	0	-4	-8	-10	-7	0	0	0	-2	-5	-7	-5	0	0	1	2	1	0	-1	0	0	2	5	7	7	4
44	0	1	2	-1	-4	-6	-5	0	0	1	1	-2	-3	-3	0	0	1	3	2	1	0	0	0	1	4	7	6	3
48	0	1	3	2	-1	-3	-3	0	1	2	3	1	-1	-2	0	0	1	3	4	2	0	0	-1	0	3	6	6	3
52	0	1	3	4	1	-1	-2	0	1	3	4	3	1	-1	0	0	1	4	5	3	1	0	-1	0	3	6	6	3
56	0	1	4	5	3	1	-1	0	0	3	5	4	2	0	0	0	1	4	5	4	1	0	-1	0	3	6	5	2
60	0	2	4	6	4	2	0	0	0	3	6	5	3	0	0	-1	1	4	5	4	0	-1	-1	0	2	6	6	1
64	0	2	4	6	5	3	1	0	1	3	5	5	3	0	0	0	1	3	4	2	-1	0	-1	-1	1	2	2	0
68	0	2	4	6	5	4	1	0	1	3	5	5	2	-1	0	0	1	2	3	1	-2	0	-1	-1	0	0	0	-1
72	0	2	4	5	5	3	1	0	1	3	4	4	1	-1	0	0	0	1	1	-1	-3	0	-1	-2	-1	-1	-2	-3
76	0	1	4	4	4	3	1	0	1	2	3	2	0	-1	0	0	0	0	0	-2	-3	0	-1	-2	-2	-2	-3	-3
80	0	1	4	4	4	2	1	0	0	2	2	1	-1	-1	-1	0	-1	0	-1	-3	-3	-1	-1	-3	-2	-3	-3	-4
APRIL																												
10	0	0	0	0	-1	-1	0	1	1	0	-2	-2	-2	0	1	1	0	-3	-3	-2	0	1	1	0	-2	-3	-1	0
20	0	0	0	0	-1	-1	0	1	1	0	-2	-3	-2	-1	1	1	0	-2	-3	-2	0	0	1	0	-1	-2	-1	0
24	0	0	-1	-1	-1	-1	0	0	0	0	-2	-2	-2	-1	0	1	0	-2	-3	-2	0	0	1	0	-1	-2	-1	0
28	0	0	-1	-1	-2	-1	-1	0	0	-1	-1	-2	-2	-1	0	0	0	-1	-2	-1	0	0	0	0	0	0	0	0
32	0	0	-1	-1	-2	-1	-1	0	0	-1	-1	-2	-1	-1	0	0	0	0	0	0	0	0	0	0	1	1	1	0
36	0	0	-1	-1	-2	-1	-1	0	-1	-1	-1	-1	-1	0	0	-1	-1	0	0	0	0	0	0	0	1	2	1	1
40	0	0	0	-1	-1	-1	-1	0	-1	-1	-1	0	0	0	0	-1	-1	0	1	1	0	0	0	0	1	2	1	1
44	0	0	0	0	-1	-1	-1	0	-1	-1	0	0	0	0	0	-1	-1	0	1	1	0	0	0	0	1	1	1	1
48	0	0	0	0	0	0	0	0	-1	-1	0	0	0	0	0	-1	-1	0	0	1	1	0	0	0	1	1	1	1
52	0	0	0	0	0	0	0	0	-1	-1	0	0	0	0	0	-1	-1	-1	0	1	1	0	0	-1	-1	0	1	1
56	-1	-1	0	0	0	0	0	0	-1	-1	0	0	0	0	0	-1	-1	-1	0	1	1	0	0	-1	-1	0	0	1
60	-1	-1	0	0	0	0	0	-1	-1	-1	-1	0	0	0	0	0	-1	-1	-1	0	1	0	0	0	-1	0	0	1
64	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	0	0	0	0	-1	-1	-1	0	1	0	0	0	0	0	0	1
68	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2	-1	0	0	0	0	-1	-1	-1	0	0	0	0	0	0	0	1	0
72	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2	-1	0	0	0	0	-1	-1	-1	0	0	0	0	0	0	0	1	0
76	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2	-1	0	0	0	0	-1	-1	0	0	0	0	0	0	0	1	1	0
80	-1	0	-1	-1	-1	-1	-1	0	-1	-1	-2	-1	0	0	0	0	-1	-1	0	0	0	0	0	0	0	0	0	0

APPENDIX B

AFRA 78

atmospheric density profiles

Table 4a. Median, High, and Low Percentile Values of Densities Given as Percentage Departures From U.S. Standard Atmosphere 1976 for January and July at 30°N

Altitude (km)	Median (% of Std)	1%		10%		20%		U.S. Std Density (kg m^{-3})
		High	Low	High	Low	High	Low	
J A N U A R Y								
5	-1	+1	-3	0	-2	0	-2	7.3643-1
10	+1	+4	-3	+3	-1	+2	0	4.1351
15	+7	+15	-1	+12	+4	+10	+5	1.9476
20	+3	+7	-2	+5	+1	+4	+2	8.8910-2
25	-2	+4	-6	+3	-4	+1	-2	4.0084
30	-4	+2	-10	-2	-8	-3	-6	1.8410
35	-3	+3	-12	0	-8	-1	-6	8.4634-3
40	-1	+2	-10	+1	-7	0	-5	3.9957
45	0	+8	-10	+3	-7	+2	-5	1.9663
50	+1	+12	-8	+7	-4	+5	-2	1.0269
55	0	+9	-10	+5	-6	+3	-4	5.6810-4
60	-2	+12	-15	+5	-9	+2	-6	3.0968
65	-4	+21	-25	+13	-13	+7	-6	1.6321
70	-5	+16	-26	+9	-17	+6	-12	8.2828-5
75	-7	+21	-25	+13	-15	+8	-10	3.9921
80	-4	+21	-22	+15	-13	+8	-7	1.8458
J U L Y								
5	-3	0	-5	-1	-4	-2	-4	7.3643-1
10	+1	+3	-1	+2	0	+2	0	4.1351
15	+16	+20	+11	+17	+13	+17	+14	1.9476
20	+8	+11	+14	+10	+5	+9	+6	8.8910-2
25	+4	+9	0	+7	+2	+6	+3	4.0084
30	+3	+7	-1	+5	+1	+4	+2	1.8410
35	+6	+10	+2	+8	+3	+7	+4	8.4634-3
40	+9	+15	+2	+11	+5	+10	+7	3.9957
45	+12	+19	+4	+14	+7	+13	+9	1.9663
50	+13	+23	+6	+17	+8	+15	+10	1.0269
55	+11	+20	+2	+15	+5	+13	+7	5.6810-4
60	+13	+24	-1	+21	+3	+19	+7	3.0968
65	+15	+43	-6	+38	0	+30	+6	1.6321
70	+15	+32	-9	+23	+1	+20	+8	8.2828-5
75	+10	+24	-11	+20	-6	+15	+1	3.9921
80	+6	+22	-15	+17	-6	+14	+1	1.8458

Table 4b. Median, High, and Low Percentile Values of Densities Given as Percentage Departures From U.S. Standard Atmosphere 1976 for January and July at 45°N (Cont)

Altitude (km)	Median (% of Std)	1%		10%		20%		U.S. Std Density (kg m^{-3})
		High	Low	High	Low	High	Low	
J A N U A R Y								
5	0	+4	-3	+3	-2	+2	-1	7.3643-1
10	-2	+6	-10	+3	-6	+1	-4	4.1351
15	-3	+4	-12	+1	-8	-1	-6	1.9476
20	-2	+2	-8	0	-6	-1	-5	8.8910-2
25	-2	+2	-8	0	-6	-1	-5	4.0084
30	-5	+1	-17	-2	-13	-4	-9	1.8410
35	-6	+2	-20	-2	-16	-4	-12	8.4634-3
40	-8	+5	-23	0	-17	-4	-13	3.9957
45	-9	+8	-22	+2	-16	-3	-14	1.9663
50	-8	+11	-20	+4	-16	-3	-14	1.0269
55	-9	+9	-25	+2	-18	-4	-16	5.6810-4
60	-12	+7	-28	0	-23	-7	-20	3.0968
65	-14	0	-38	-5	-34	-10	-28	1.6321
70	-15	+2	-38	-9	-30	-12	-26	8.2828-5
75	-16	-3	-38	-9	-30	-12	-26	3.9921
80	-23	-2	-42	-8	-36	-10	-30	1.8458
J U L Y								
5	-2	+1	-5	-1	-4	-1	-3	7.3643-1
10	0	+3	-4	+2	-2	+1	-1	4.1351
15	+8	+17	+2	+15	+4	+13	+5	1.9476
20	+6	+11	0	+8	+2	+7	+3	8.8910-3
25	+7	+10	+4	+9	+5	+8	+6	4.0084
30	+7	+12	0	+9	+2	+8	+4	1.8410
35	+9	+16	0	+12	+3	+10	+6	8.4634-3
40	+13	+21	+4	+16	+8	+14	+10	3.9957
45	+15	+26	+6	+20	+10	+18	+12	1.9663
50	+17	+31	+9	+25	+12	+21	+14	1.0269
55	+17	+32	+8	+25	+11	+22	+14	5.6810-4
60	+19	+30	+4	+26	+10	+24	+13	3.0968
65	+20	+40	+4	+35	+10	+30	+13	1.6321
70	+20	+37	0	+32	+9	+27	+12	8.2828-5
75	+19	+40	-2	+30	+7	+26	+11	3.9921
80	+14	+32	-4	+30	+4	+25	+9	1.8458

Table 4c. Median, High, and Low Percentile Values of Densities Given as Percentage Departures From U.S. Standard Atmosphere 1976 for January and July at 60°N (Cont)

Altitude (km)	Median (% of Std)	1%		10%		20%		U.S. Std Density ($kg\ m^{-3}$)
		High	Low	High	Low	High	Low	
JANUARY								
5	+1	+6	-3	+4	-1	+2	0	7.3643-1
10	-6	+3	-15	+2	-15	-3	-10	4.1351
15	-9	-2	-15	-5	-12	-6	-11	1.9476
20	-8	-1	-15	-5	-11	-6	-10	8.8910-2
25	-7	+3	-16	-2	-12	-4	-10	4.0084
30	-10	+7	-32	+2	-18	-2	-15	1.8410
35	-12	+8	-35	+3	-27	-3	-19	8.4634-3
40	-15	+10	-36	+5	-30	-4	-20	3.9957
45	-21	+12	-39	+5	-34	-10	-24	1.9663
50	-26	+14	-43	+3	-36	-15	-29	1.0269
55	-32	+9	-48	-10	-39	-20	-35	5.6810-4
60	-36	+4	-54	-12	-40	-25	-39	3.0968
65	-36	-5	-50	-16	-46	-27	-42	1.6321
70	-37	-12	-54	-25	-49	-32	-43	8.2828-5
75	-35	-10	-53	-24	-47	-30	-42	3.9921
80	-28	-11	-53	-17	-47	-21	-40	1.8458
JULY								
5	-2	+2	-5	+1	-4	0	-3	7.3643-1
10	0	+7	-8	+4	-5	+2	-3	4.1351
15	0	+6	-7	+3	-4	+2	-2	1.9476
20	+3	+7	-2	+6	0	+5	+1	8.8910-2
25	+5	+8	+1	+7	+2	+6	+3	4.0084
30	+7	+12	-1	+9	+2	+8	+4	1.8410
35	+10	+18	0	+14	+3	+12	+7	8.4634-3
40	+15	+23	+5	+19	+10	+17	+12	3.9957
45	+20	+28	+7	+25	+13	+23	+16	1.9663
50	+25	+35	+10	+30	+16	+28	+22	1.0269
55	+27	+35	+11	+30	+16	+29	+22	5.6810-4
60	+28	+42	+11	+39	+16	+33	+22	3.0968
65	+35	+50	+11	+44	+18	+39	+28	1.6321
70	+42	+52	+12	+46	+20	+44	+30	8.2828-5
75	+44	+58	+12	+52	+20	+48	+35	3.9921
80	+40	+56	+10	+50	+18	+44	+30	1.8458

Table 4d. Median, High, and Low Percentile Values of Densities Given as Percentage Departures From U.S. Standard Atmosphere 1976 for January and July at 75°N (Cont)

Altitude (km)	Median (% of Std)	1%		10%		20%		U.S. Std Density (kg m^{-3})
		High	Low	High	Low	High	Low	
				J A N U A R Y				
5	+2	+6	-1	+5	0	+4	+1	7.3643-1
10	-8	+2	-18	-3	-13	-5	-10	4.1351
15	-10	-1	-18	-6	-14	-8	-13	1.9476
20	-12	-1	-22	-6	-17	-8	-15	8.8910-2
25	-15	-2	-28	-8	-20	-10	-18	4.0084
30	-21	-4	-36	-9	-26	-16	-24	1.8410
35	-25	0	-43	-10	-32	-16	-30	8.4634-3
40	-29	+4	-48	-9	-38	-16	-38	3.9957
45	-33	+8	-52	-6	-45	-16	-39	1.9663
50	-38	+4	-56	-8	-48	-20	-42	1.0269
55	-44	+5	-65	-10	-56	-23	-50	5.6810-4
60	-46	0	-70	-16	-60	-32	-55	3.0968
65	-47	+1	-66	-27	-62	-35	-58	1.6321
70	-48	-1	-69	-21	-62	-35	-60	8.2828-5
75	-45	-10	-65	-25	-57	-35	-53	3.9921
80	-40	-8	-55	-24	-50	-34	-45	1.8458
				J U L Y				
5	1	+4	-2	+3	-1	+2	0	7.3643-1
10	-4	+5	-12	+3	-10	0	-7	4.1351
15	-4	+2	-9	0	-7	-2	-6	1.9476
20	+1	+6	-4	+4	-2	+3	-1	8.8910-2
25	+1	+10	-8	+6	-3	+5	-2	4.0084
30	+7	+13	+2	+10	+5	+8	+6	1.8410
35	+12	+25	+3	+18	+8	+16	+10	8.4634-3
40	+19	+27	+6	+23	+13	+21	+16	3.9957
45	+25	+35	+10	+30	+18	+28	+21	1.9663
50	+27	+40	+10	+35	+20	+32	+24	1.0269
55	+32	+42	+10	+39	+20	+35	+25	5.6810-4
60	+37							3.0968
65	+48	(Insufficient data above 55 km in summer)						1.6321
70	+60							8.2828-5
75	+67							3.9921
80	+64							1.8458

Table A2. Monthly Density (kg m^{-3}) at the Equator

Alt (km)	J	F	M	A	M	J	J	A	S	O	N	D	
0.000	1.1761	1.1742	1.1717	1.1716	1.1742	1.1771	1.1797	1.1796	1.1776	1.1769	1.1761	1.1761	+0*
2.000	9.6636	9.6625	9.6516	9.6565	9.6684	9.6890	9.7077	9.6830	9.6819	9.6821	9.6695	9.6813	-1
4.000	7.8839	7.8935	7.8913	7.8992	7.9022	7.9163	7.9287	7.8931	7.9027	7.9068	7.8926	7.9100	
6.000	6.3834	6.3981	6.4010	6.4096	6.4073	6.4162	6.4239	6.4236	6.4273	6.4329	6.4213	6.4111	
8.000	5.1518	5.1659	5.1475	5.1728	5.1505	5.1555	5.1594	5.2083	5.1998	5.2053	5.1980	5.1514	
10.000	4.1779	4.1858	4.1732	4.1737	4.1738	4.1761	4.1775	4.1751	4.1608	4.1652	4.1612	4.1728	
12.000	3.3404	3.3434	3.3366	3.3219	3.3355	3.3357	3.3352	3.3342	3.3258	3.3261	3.3246	3.3330	
14.000	2.6276	2.6271	2.6246	2.6032	2.6223	2.6210	2.6191	2.6198	2.6161	2.6135	2.6137	2.6189	
16.000	1.9873	1.9791	1.9850	1.9726	1.9864	1.9679	1.9556	2.5973	1.9748	1.9701	1.9679	1.9704	
18.000	1.4185	1.4092	1.4156	1.4115	1.3951	1.3836	1.3723	1.9639	1.3855	1.3779	1.3973	1.3979	
20.000	0.9761	0.9697	0.9729	0.9725	0.9641	0.9602	0.9525	1.3786	0.9604	0.9524	0.9584	0.9579	
22.000	6.7966	6.7523	6.7705	6.7816	6.7424	6.7395	6.6925	9.5602	6.7484	6.6793	6.6703	6.6608	-2
24.000	4.7853	4.7541	4.7672	4.7828	4.7680	4.7808	4.7926	6.7114	4.8184	4.7657	4.7167	4.6947	
26.000	3.4046	3.3824	3.3939	3.4092	3.4072	3.4255	3.4691	4.7768	3.4673	3.4279	3.4065	3.3863	
28.000	2.4462	2.4304	2.4485	2.4585	2.4690	2.4916	2.5265	3.4645	2.5135	2.4848	2.4775	2.4720	
30.000	1.7766	1.7640	1.7883	1.7923	1.8063	1.8293	1.8509	2.5274	1.8351	1.8144	1.8140	1.8147	
32.000	1.3103	1.2966	1.3150	1.3165	1.3304	1.3506	1.3637	1.8541	1.3490	1.3343	1.3367	1.3393	
34.000	0.9715	0.9594	0.9732	0.9741	0.9862	1.0026	1.0103	1.0139	0.9981	0.9885	0.9914	0.9933	
36.000	7.2401	7.1431	7.2270	7.2575	7.3557	7.4817	7.5248	7.5560	7.4325	7.3687	7.4047	7.3869	-3
38.000	5.3993	5.3548	5.3796	5.4428	5.5307	5.6114	5.6332	5.6449	5.5743	5.5256	5.5596	5.5255	
40.000	4.0487	4.0382	4.0377	4.1077	4.1845	4.2293	4.2381	4.2390	4.2028	4.1672	4.1954	4.1564	
42.000	3.0546	3.0610	3.0890	3.1189	3.1800	3.2026	3.2037	3.2007	3.1851	3.1613	3.1815	3.1434	
44.000	2.3182	2.3317	2.3774	2.4044	2.4270	2.4364	2.4293	2.4294	2.4257	2.4237	2.4240	2.3897	
46.000	1.7692	1.7846	1.8353	1.8624	1.8599	1.8616	1.8493	1.8534	1.8569	1.8643	1.8553	1.8259	
48.000	1.3760	1.3832	1.4316	1.4527	1.4411	1.4392	1.4275	1.4382	1.4483	1.4467	1.4422	1.4188	
50.000	1.0753	1.0814	1.1198	1.1352	1.1252	1.1216	1.1125	1.1208	1.1297	1.1295	1.1255	1.1073	
52.000	8.4906	8.5425	8.8540	8.9597	8.8156	8.8095	8.7481	8.8223	8.9223	8.9199	8.8841	8.7273	-4
54.000	6.7090	6.7529	7.0059	7.0759	6.9232	6.9061	6.8831	6.9488	7.0523	7.0493	7.0179	6.8832	
56.000	5.2860	5.3245	5.5231	5.5694	5.5201	5.4470	5.4137	5.4543	5.5504	5.5537	5.5257	5.4140	
58.000	4.1600	4.1976	4.3377	4.3781	4.3786	4.3181	4.2874	4.3027	4.3489	4.3709	4.3441	4.2541	
60.000	3.2586	3.2926	3.4187	3.4619	3.4504	3.3999	3.3722	3.3869	3.3917	3.4219	3.3976	3.3312	
62.000	2.5402	2.5693	2.6800	2.7184	2.7002	2.6578	2.6331	2.6467	2.6535	2.6779	2.6432	2.6108	
64.000	1.9702	1.9940	2.0871	2.1189	2.0976	2.0617	2.0402	2.0525	2.0697	2.0863	2.0534	2.0323	
66.000	1.5200	1.5387	1.6141	1.6387	1.6198	1.5872	1.5679	1.5787	1.6002	1.6118	1.5948	1.5706	
68.000	1.1663	1.1803	1.2392	1.2568	1.2403	1.2123	1.1961	1.2082	1.2256	1.2341	1.2271	1.2046	
70.000	8.8979	8.9974	9.4882	9.5682	9.4057	9.1696	9.0350	9.1744	9.2919	9.3589	9.3476	9.1656	-5
72.000	6.8278	6.8779	7.2021	7.2109	7.0592	6.8177	6.7522	6.8822	6.8976	7.0241	7.0429	6.9509	
74.000	5.2406	5.2482	5.4076	5.3759	5.2393	4.9755	4.9325	4.9008	5.0349	5.1671	5.1871	5.2138	
76.000	3.9678	3.9531	4.0125	3.9611	3.7079	3.5306	3.4623	3.4906	3.6220	3.6738	3.6716	3.7795	
78.000	2.8323	2.8692	2.8397	2.7561	2.5956	2.5101	2.4394	2.4867	2.5758	2.6127	2.6048	2.6677	
80.000	2.0164	2.0158	2.0056	1.9224	1.8270	1.7879	1.7251	1.7719	1.8322	1.8585	1.8521	1.8898	
82.000	1.4358	1.4190	1.4087	1.3465	1.2928	1.2759	1.2285	1.2628	1.3036	1.3222	1.3225	1.3534	
84.000	1.0226	1.0009	0.9843	0.9471	0.9196	0.9122	0.8809	0.9002	0.9276	0.9409	0.9483	0.9705	
86.000	7.3229	7.0744	6.9182	6.7014	6.6394	6.5442	6.3733	6.4536	6.6029	6.6974	6.8284	7.0067	-6
88.000	5.2827	5.0165	4.8902	4.7692	4.8281	4.7969	4.6691	4.6629	4.7007	4.7680	4.9444	5.1068	
90.000	3.7900	3.5721	3.4758	3.4132	3.5063	3.4931	3.3898	3.3497	3.3472	3.3951	3.5660	3.6967	

*Power of 10 by which preceding numbers should be multiplied.

Table A2. (Continued) Monthly Density (kg m^{-3}) at 15°N

Alt (km)	J	F	M	A	M	J	J	A	S	O	N	D	
0.000	1.1891	1.1891	1.1885	1.1857	1.1830	1.1751	1.1751	1.1784	1.1831	1.1816	1.1860	1.1897	+0*
2.000	9.7230	9.7350	9.7361	9.7223	9.7095	9.6224	9.6694	9.6336	9.6689	9.6775	9.7192	9.7159	-1
4.000	7.8982	7.9156	7.9204	7.9159	7.9122	7.8792	7.8986	7.8849	7.9119	7.9044	7.9095	7.8848	
6.000	6.4218	6.4360	6.4124	6.4388	6.3983	6.4129	6.4017	6.4019	6.4211	6.4133	6.4225	6.4181	
8.000	5.2127	5.2200	5.1861	5.2202	5.1572	5.1879	5.1685	5.2011	5.1981	5.1764	5.1933	5.2023	
10.000	4.1820	4.1841	4.1713	4.1823	4.1766	4.1901	4.1875	4.1900	4.1872	4.1790	4.1767	4.1898	
12.000	3.3114	3.3097	3.3164	3.3066	3.3341	3.3379	3.3444	3.3298	3.3265	3.3274	3.3325	3.3287	
14.000	2.5835	2.5792	2.5957	2.5754	2.6179	2.6177	2.6275	2.6057	2.6014	2.6080	2.5967	2.6039	
16.000	1.9567	1.9466	1.9465	1.9299	1.9468	1.9724	1.9493	1.9564	1.9413	1.9722	1.9445	1.9486	
18.000	1.4158	1.4044	1.4063	1.3954	1.3811	1.3843	1.3730	1.3765	1.3644	1.3810	1.3863	1.4080	
20.000	9.6547	9.6140	9.5617	9.5265	9.5163	9.6289	9.5976	9.5919	9.4990	9.5802	9.5556	9.6527	-2
22.000	6.6802	6.6669	6.6700	6.6002	6.6509	6.7789	6.7780	6.7639	6.7524	6.7278	6.6743	6.7082	
24.000	4.7721	4.6991	4.7602	4.6845	4.7404	4.8526	4.8334	4.8752	4.8385	4.8169	4.7512	4.7691	
26.000	3.4372	3.3834	3.4237	3.3930	3.4360	3.5243	3.5029	3.5381	3.4917	3.4765	3.4211	3.4561	
28.000	2.4921	2.4536	2.4809	2.4733	2.5064	2.5743	2.5552	2.5826	2.5369	2.5268	2.4817	2.5193	
30.000	1.8183	1.7915	1.8106	1.8140	1.8395	1.8908	1.8743	1.8957	1.8552	1.8489	1.8130	1.8467	
32.000	1.3348	1.3166	1.3304	1.3383	1.3560	1.3963	1.3823	1.3990	1.3652	1.3617	1.3334	1.3611	
34.000	0.9857	0.9737	0.9839	0.9929	1.0051	1.0365	1.0248	1.0378	1.0107	1.0091	0.9871	1.0085	
36.000	7.2933	7.2456	7.3173	7.4043	7.4963	7.7094	7.6366	7.7384	7.5217	7.5165	7.3538	7.4894	-3
38.000	5.4221	5.4162	5.4691	5.5315	5.6241	5.7656	5.7168	5.7875	5.6253	5.6298	5.5108	5.5713	
40.000	4.0598	4.0723	4.1141	4.1592	4.2436	4.3371	4.2984	4.3503	4.2315	4.2419	4.1535	4.1739	
42.000	3.0605	3.0797	3.1140	3.1468	3.2195	3.2808	3.2475	3.2872	3.2099	3.2145	3.1478	3.1481	
44.000	2.3396	2.3430	2.3846	2.4043	2.4695	2.5100	2.4650	2.4964	2.4471	2.4664	2.4075	2.4091	
46.000	1.7981	1.8038	1.8404	1.8595	1.9081	1.9290	1.8795	1.9051	1.8374	1.9011	1.8535	1.8533	
48.000	1.3906	1.3931	1.4243	1.4412	1.4801	1.4907	1.4450	1.4779	1.4502	1.4728	1.4388	1.4341	
50.000	1.0856	1.0891	1.1140	1.1262	1.1550	1.1617	1.1250	1.1512	1.1311	1.1498	1.1233	1.1196	
52.000	8.5422	8.6118	8.8170	8.8794	9.0768	9.1240	8.8047	9.0470	8.9383	9.1029	8.8840	8.8638	-4
54.000	6.7568	6.8140	6.9831	7.0044	7.1359	7.1519	6.9145	7.1525	7.0676	7.2119	7.0311	7.0225	
56.000	5.3239	5.3760	5.5146	5.5228	5.6166	5.6448	5.4579	5.6294	5.5670	5.6898	5.5424	5.5371	
58.000	4.1913	4.2390	4.3539	4.3594	4.4643	4.4796	4.3247	4.4414	4.3732	4.4754	4.3552	4.3441	
60.000	3.2837	3.3245	3.4177	3.4507	3.5242	3.5295	3.4028	3.4821	3.4163	3.4993	3.4040	3.3904	
62.000	2.5592	2.5925	2.6666	2.7007	2.7619	2.7598	2.6574	2.7102	2.6660	2.7270	2.6521	2.6317	
64.000	1.9835	2.0098	2.0674	2.0987	2.1478	2.1404	2.0588	2.0932	2.0699	2.1125	2.0552	2.0312	
66.000	1.5285	1.5483	1.5921	1.6186	1.6565	1.6457	1.5815	1.6035	1.5934	1.6230	1.5812	1.5584	
68.000	1.1730	1.1850	1.2174	1.2384	1.2663	1.2536	1.2038	1.2177	1.2152	1.2360	1.2072	1.1882	
70.000	8.9430	9.0078	9.2403	9.3944	9.5898	9.4544	9.0750	9.1613	9.1774	9.3244	9.1429	9.0004	-5
72.000	6.7570	6.8095	6.9672	7.0488	7.1755	6.9830	6.6490	6.7859	6.8086	6.9050	6.8335	6.7617	
74.000	5.0487	5.1126	5.2128	5.2331	5.3061	5.0675	4.8263	4.9183	4.9777	5.0394	5.0502	5.0401	
76.000	3.7482	3.8035	3.8623	3.8493	3.7552	3.5024	3.4821	3.5371	3.5523	3.6236	3.7067	3.7314	
78.000	2.7644	2.8020	2.7905	2.7309	2.6614	2.5516	2.4867	2.5107	2.4926	2.5767	2.6496	2.7153	
80.000	2.0059	1.9882	1.9741	1.9355	1.8898	1.8157	1.7763	1.7826	1.7568	1.8326	1.8926	1.9477	
82.000	1.4343	1.3947	1.3851	1.3584	1.3444	1.2982	1.2690	1.2658	1.2548	1.3036	1.3522	1.3974	
84.000	1.0258	0.9820	0.9748	0.9568	0.9582	0.9300	0.9068	0.8991	0.8974	0.9276	0.9662	1.0028	
86.000	7.3799	6.9773	6.8885	6.7706	6.8673	6.7364	6.6002	6.4203	6.4281	6.6017	6.9065	7.2750	-6
88.000	5.3488	4.9796	4.8868	4.8129	4.9259	4.8678	4.7844	4.6153	4.6124	4.6993	4.9375	5.2657	
90.000	3.8549	3.5546	3.4801	3.4364	3.5341	3.5010	3.4399	3.3005	3.3059	3.3458	3.5305	3.7936	

*Power of 10 by which preceding numbers should be multiplied.

Table A2. (Continued) Monthly Density (kg m^{-3}) at 30°N

Alt (km)	J	F	M	A	M	J	J	A	S	O	N	D	
0.000	1.2363	1.2374	1.2254	1.2113	1.1967	1.1815	1.1717	1.1812	1.1906	1.2063	1.2272	1.2412	+0*
2.000	9.9321	9.9995	9.9833	9.8903	9.7789	9.7177	9.7103	9.7298	9.7778	9.8598	9.9355	9.9640	-1
4.000	8.1234	8.0317	8.0740	8.0172	7.9370	7.9095	7.9314	7.9165	7.9216	8.0015	7.9960	8.1328	
6.000	6.5793	6.5175	6.5443	6.4947	6.4561	6.4461	6.4266	6.4116	6.4410	6.4897	6.5231	6.5748	
8.000	5.2712	5.2333	5.2478	5.2446	5.2468	5.2450	5.2149	5.1897	5.2388	5.2471	5.2631	5.2592	
10.000	4.1727	4.1529	4.1583	4.1832	4.2102	4.2145	4.1827	4.1542	4.2076	4.1912	4.1940	4.1578	
12.000	3.2591	3.2525	3.2614	3.2908	3.3302	3.3387	3.3109	3.2844	3.3315	3.3023	3.2957	3.2445	
14.000	2.4310	2.4400	2.4211	2.4578	2.5104	2.5614	2.5823	2.5610	2.5245	2.5021	2.4657	2.4252	
16.000	1.7992	1.8152	1.7907	1.8223	1.8736	1.8918	1.9214	1.9391	1.8918	1.8579	1.8295	1.7985	
18.000	1.3073	1.3232	1.3042	1.3288	1.3334	1.3324	1.3521	1.3726	1.3416	1.3313	1.3308	1.3085	
20.000	9.1885	9.3448	9.2420	9.3798	9.4314	9.4489	9.5807	9.7276	9.4437	9.3893	9.3105	9.1626	-2
22.000	6.5057	6.5396	6.5878	6.6703	6.7219	6.7492	6.8380	6.9395	6.7096	6.6771	6.5737	6.4746	
24.000	4.6425	4.7486	4.7261	4.7883	4.8258	4.8543	4.9144	4.9750	4.8442	4.8106	4.7278	4.6703	
26.000	3.3411	3.4176	3.4019	3.4617	3.4888	3.5147	3.5556	3.5805	3.5181	3.4862	3.4211	3.3869	
28.000	2.4296	2.4660	2.4657	2.5195	2.5392	2.5611	2.5891	2.6082	2.5684	2.5398	2.4889	2.4672	
30.000	1.7760	1.7918	1.7994	1.8456	1.8600	1.8777	1.8969	1.9066	1.8847	1.8599	1.8201	1.8051	
32.000	1.3015	1.3111	1.3219	1.3603	1.3710	1.3848	1.3981	1.4021	1.3897	1.3687	1.3377	1.3174	
34.000	0.[illegible]	0.9658	0.9772	1.0092	1.0165	1.0271	1.0363	1.0371	1.0297	1.0122	0.9879	0.9673	
36.000	7.[illegible]	7.1606	7.2681	7.5300	7.5805	7.6606	7.7248	7.7143	7.6465	7.4956	7.2966	7.1493	-3
38.000	5.2832	5.3416	5.4572	5.6476	5.6857	5.7332	5.7729	5.7691	5.7018	5.5731	5.4098	5.3205	
40.000	3.9559	4.0084	4.0935	4.2575	4.288	4.3144	4.3456	4.3368	4.2751	4.1689	4.0383	3.9829	
42.000	2.9787	3.0285	3.1016	3.2253	3.2506	3.2704	3.2867	3.2765	3.2225	3.1366	3.0342	2.9983	
44.000	2.2549	2.3003	2.3608	2.4632	2.4756	2.4917	2.5144	2.4931	2.4415	2.3732	2.2941	2.2693	
46.000	1.7174	1.7645	1.8156	1.8890	1.8998	1.9120	1.9321	1.9052	1.8655	1.8063	1.7542	1.7264	
48.000	1.3334	1.3713	1.4043	1.4582	1.4703	1.4805	1.4931	1.4669	1.4387	1.3971	1.3557	1.3367	
50.000	1.0354	1.0662	1.0925	1.1360	1.1470	1.1555	1.1632	1.1412	1.1178	1.0869	1.0562	1.0390	
52.000	8.1503	8.4296	8.5675	8.8895	9.0140	9.0680	9.1197	8.9669	8.7797	8.5800	8.3656	8.1775	-4
54.000	6.4162	6.6343	6.7496	7.0239	7.0844	7.1385	7.1504	7.0462	6.8964	6.7740	6.6276	6.4367	
56.000	5.0251	5.1915	5.2972	5.5281	5.5717	5.6430	5.6185	5.5331	5.4015	5.3200	5.2145	5.0451	
58.000	3.9109	4.0399	4.1572	4.3441	4.4100	4.4711	4.4591	4.3630	4.2233	4.1526	4.0630	3.9369	
60.000	3.0303	3.1297	3.2462	3.4001	3.4702	3.5207	3.5152	3.4181	3.2872	3.2253	3.1512	3.0581	
62.000	2.3371	2.4134	2.5211	2.6471	2.7140	7542	2.7514	2.6596	2.5606	2.4920	2.4322	2.3606	
64.000	1.7939	1.8521	1.9468	2.0495	2.1088	2 1397	2.1373	2.0545	1.9867	1.9149	1.8679	1.8129	
66.000	1.3701	1.4143	1.4945	1.5776	1.6275	1.6502	1.6469	1.5749	1.5300	1.4632	1.4263	1.3860	
68.000	1.0410	1.0744	1.1401	1.2075	1.2469	1.2628	1.2581	1.1975	1.1691	1.1114	1.0809	1.0548	
70.000	7.8672	8.1182	8.5806	9.1854	9.4816	9.5846	9.5234	9.0149	8.8592	8.3906	8.1523	7.9887	-5
72.000	5.8499	6.0103	6.3997	6.9386	7.1514	7.2108	7.0578	6.6283	6.6461	6.2932	6.1185	5.9902	
74.000	4.3090	4.4334	4.7576	5.2032	5.3477	5.3464	5.1557	4.8531	4.8470	4.6880	4.5690	4.4606	
76.000	3.1989	3.2837	3.5250	3.8718	3.9626	3.8869	3.7497	3.5380	3.5249	3.4675	3.3941	3.3276	
78.000	2.3840	2.4535	2.6029	2.8279	2.8524	2.8129	2.7148	2.5678	2.5560	2.5022	2.5078	2.4814	
80.000	1.7683	1.8247	1.9153	2.0362	2.0469	2.0263	1.9564	1.8551	1.8480	1.8032	1.8425	1.8106	
82.000	1.3053	1.3507	1.4043	1.4640	1.4643	1.4526	1.4031	1.3339	1.3321	1.2925	1.3250	1.3579	
84.000	0.9587	0.9948	1.0259	1.0512	1.0441	1.0362	1.0013	0.9545	0.9573	0.9264	0.9521	0.9961	
86.000	7.0051	7.2907	7.4503	7.5368	7.3941	7.3541	7.1100	6.7960	6.8064	6.6420	6.[illegible]131	7.1568	-6
88.000	5.0910	5.3146	5.3928	5.3958	5.2002	5.1918	5.0219	4.8137	4.8349	4.7628	4.9192	5.1319	
90.000	3.6793	3.8531	3.8919	3.8574	3.6581	3.6418	3.5279	3.3531	3.4351	3.4160	3.5369	3.6807	

*Power of 10 by which preceding numbers should be multiplied.

Table A2. (Continued) Monthly Density (kg m^{-3}) at 45°N

Alt (km)	J	F	M	A	M	J	J	A	S	O	N	D	
0.000	1.3013	1.2964	1.2911	1.2678	1.2409	1.2246	1.2003	1.2092	1.2286	1.2474	1.2757	1.2982	-0*
2.000	1.0357	1.0327	1.0260	1.0117	0.9978	0.9880	0.9780	0.9808	0.9937	1.0122	1.0238	1.0307	
4.000	8.2700	8.2680	8.2008	8.1340	8.0776	8.0351	7.9946	8.0167	8.0814	8.1810	8.2219	8.2463	-1
6.000	6.6018	6.6266	6.5670	6.5615	6.5572	6.5050	6.4769	6.5200	6.5372	6.5738	6.5896	6.6180	
8.000	5.2114	5.2478	5.2017	5.2336	5.2611	5.2114	5.2145	5.2455	5.2326	5.2270	5.2247	5.2487	
10.000	4.0631	4.1007	4.0711	4.1224	4.1662	4.1272	4.1502	4.1697	4.1399	4.1081	4.0934	4.1081	
12.000	2.9928	2.9983	3.0655	3.1158	3.1565	3.2268	3.2612	3.2702	3.2332	3.1874	3.0953	3.0218	
14.000	2.2009	2.1917	2.2408	2.2808	2.3107	2.3927	2.4580	2.4239	2.3941	2.3246	2.2759	2.2190	
16.000	1.6165	1.6024	1.6383	1.6700	1.6918	1.7468	1.7932	1.7670	1.7453	1.6946	1.6705	1.6242	
18.000	1.1859	1.1718	1.1980	1.2229	1.2389	1.2698	1.3021	1.2821	1.2700	1.2356	1.2173	1.1860	
20.000	8.6716	8.5707	8.7629	8.9578	9.0750	9.2105	9.4313	9.2800	9.1969	9.0114	8.8711	8.6623	-2
22.000	6.3254	6.2700	6.4105	6.5625	6.5913	6.7030	6.8564	6.7415	6.6808	6.5238	6.4319	6.3278	
24.000	4.6148	4.5614	4.6558	4.7676	4.8118	4.8944	5.0062	4.9153	4.8680	4.7364	4.6730	4.6233	
26.000	3.3675	3.3195	3.3906	3.4649	3.5192	3.5854	3.6673	3.5885	3.5578	3.4493	3.4027	3.3787	
28.000	2.4375	2.4231	2.4719	2.5294	2.5647	2.6217	2.6835	2.6290	2.6037	2.5196	2.4832	2.4695	
30.000	1.7546	1.7740	1.7961	1.8516	1.8661	1.9162	1.9638	1.9347	1.9011	1.8460	1.8161	1.7793	
32.000	1.2715	1.2918	1.3132	1.3540	1.3682	1.4101	1.4460	1.4299	1.3958	1.3512	1.3226	1.2883	
34.000	0.9272	0.9458	0.9659	0.9968	1.0106	1.0443	1.0712	1.0613	1.0304	0.9890	0.9672	0.9383	
36.000	6.7763	6.9486	7.1288	7.3817	7.5165	7.7763	7.9815	7.8759	7.6459	7.2803	7.0842	6.8619	-3
38.000	4.9797	5.1227	5.2786	5.4858	5.6312	5.8198	5.9797	5.8650	5.6876	5.3888	5.1979	5.0382	
40.000	3.6876	3.8051	3.9371	4.1059	4.2482	4.3835	4.5040	4.3937	4.2542	4.0101	3.8391	3.7135	
42.000	2.7508	2.8671	2.9571	3.1075	3.2231	3.3220	3.4100	3.3105	3.2000	2.9879	2.8447	2.7561	
44.000	2.0662	2.1719	2.2518	2.3692	2.4588	2.5469	2.5946	2.5082	2.4200	2.2277	2.1135	2.0648	
46.000	1.5752	1.6518	1.7286	1.8139	1.8990	1.9666	1.9836	1.9105	1.8397	1.6836	1.5834	1.4800	
48.000	1.2119	1.2623	1.3314	1.4007	1.4799	1.5237	1.5315	1.4770	1.4163	1.2809	1.2116	1.1807	
50.000	0.9399	0.9784	1.0360	1.0933	1.1583	1.1932	1.1971	1.1513	1.1005	0.9928	0.9366	0.9096	
52.000	7.3740	7.6494	8.1353	8.6128	9.1485	9.4382	9.3670	9.0326	8.6487	7.7601	7.2773	7.0590	-4
54.000	5.8169	6.0041	6.4162	6.8140	7.2567	7.5021	7.4642	7.1701	6.8288	6.1403	5.7427	5.5995	
56.000	4.5435	4.6940	5.0392	5.3690	5.7333	5.9366	5.9294	5.6626	5.3674	4.8317	4.5120	4.3849	
58.000	3.5198	3.6499	3.9433	4.2210	4.5230	4.6759	4.6911	4.4483	4.2104	3.7897	3.5329	3.3985	
60.000	2.7172	2.8272	3.0713	3.3023	3.5505	3.6652	3.6881	3.4774	3.2841	2.9575	2.7551	2.6253	
62.000	2.0900	2.1812	2.3805	2.5703	2.7726	2.8664	2.8804	2.7078	2.5465	2.2944	2.1369	2.0212	
64.000	1.6016	1.6760	1.8357	1.9898	2.1535	2.2348	2.2339	2.0939	1.9623	1.7597	1.6321	1.5507	
66.000	1.2227	1.2824	1.4040	1.5319	1.6631	1.7299	1.7196	1.6073	1.5022	1.3402	1.2421	1.1855	
68.000	0.9297	0.9769	1.0649	1.1670	1.2768	1.3291	1.3134	1.2242	1.1422	1.0161	0.9425	0.9030	
70.000	7.0413	7.4091	8.0490	8.8452	9.7765	1.0130	9.9476	9.2481	8.6218	7.6683	7.1291	6.8527	-5
72.000	5.2477	5.5195	6.0607	6.6727	7.4424	7.6552	7.4673	6.9249	6.4584	5.7589	5.3752	5.1631	
74.000	3.9033	4.1028	4.5461	5.0094	5.6171	5.7328	5.5522	5.1369	4.7714	4.3034	4.0979	3.8771	
76.000	2.9301	3.0635	3.3966	3.7419	4.1802	4.2518	4.0732	3.7357	3.4675	3.1991	3.1069	2.9091	
78.000	2.2067	2.3040	2.5275	2.7806	3.0756	3.1056	2.9407	2.6801	2.5118	2.3654	2.3127	2.1838	
80.000	1.6538	1.7257	1.8730	2.0551	2.2461	2.2448	2.1061	1.9133	1.8136	1.7391	1.6763	1.6312	
82.000	1.2290	1.2870	1.3854	1.5152	1.6275	1.6074	1.4957	1.3589	1.3050	1.2508	1.2153	1.2120	
84.000	0.9069	0.9556	1.0201	1.1105	1.1697	1.1394	1.0528	0.9601	0.9358	0.8998	0.8812	0.8851	
86.000	6.6705	7.0640	7.4687	8.0774	8.3349	7.9914	7.3426	6.7476	6.6878	6.4750	6.3919	6.4294	-6
88.000	4.8902	5.1972	5.4354	5.7400	5.7625	5.4369	5.0703	4.7154	4.7620	4.6600	4.6368	4.6712	
90.000	3.5731	3.8054	3.8715	4.0433	3.9767	3.6577	3.3925	3.2763	3.3565	3.3544	3.3643	3.3945	

*Power of 10 by which preceding numbers should be multiplied.

Table A2. (Continued) Monthly Density (kg m^{-3}) at 60°N

Alt (km)	J	F	M	A	M	J	J	A	S	O	N	D	
0.000	1.3742	1.3771	1.3504	1.3116	1.2759	1.2460	1.2252	1.2391	1.2530	1.2795	1.3252	1.3612	+0*
2.000	1.0590	1.0531	1.0468	1.0375	1.0224	1.0032	0.9987	1.0013	1.0109	1.0240	1.0420	1.0506	
4.000	8.3466	8.2236	8.2647	8.1648	8.1400	8.0276	8.0757	8.0380	8.0993	8.1419	8.1571	8.2489	-1
6.000	6.6507	6.6143	6.5980	6.5709	6.5891	6.5121	6.5120	6.4808	6.5515	6.5407	6.5825	6.6288	
8.000	5.2286	5.2457	5.2023	5.2213	5.2650	5.2207	5.2231	5.2270	5.2356	5.1931	5.2399	5.2518	
10.000	3.8811	3.9081	3.9351	3.9711	4.0191	4.1306	4.1345	4.1573	4.1275	4.0696	3.9774	3.9074	
12.000	2.8353	2.8612	2.8850	2.9216	2.9630	3.0496	3.0546	3.0673	3.0327	2.9860	2.9119	2.8566	
14.000	2.0717	2.0952	2.1156	2.1499	2.1849	2.2518	2.2570	2.2633	2.2286	2.1912	2.1323	2.0888	
16.000	1.5172	1.5377	1.5529	1.5823	1.6114	1.6630	1.6679	1.6704	1.6380	1.6082	1.5643	1.5321	
18.000	1.1126	1.1300	1.1406	1.1648	1.1886	1.2284	1.2329	1.2330	1.2041	1.1821	1.1488	1.1257	
20.000	8.1486	8.2940	8.3754	8.5768	8.7702	9.0756	9.1149	9.1036	8.8538	8.7162	8.4292	8.2566	-2
22.000	5.9605	6.0801	6.1194	6.3162	6.4719	6.6644	6.7399	6.7029	6.5112	6.4173	6.1788	6.0447	
24.000	4.3545	4.4077	4.4766	4.6523	4.7768	4.8773	4.9463	4.9001	4.7893	4.6790	4.5249	4.4171	
26.000	3.1592	3.2025	3.2792	3.4129	3.4967	3.5855	3.6143	3.5974	3.4822	3.4076	3.2946	3.2008	
28.000	2.2814	2.3327	2.4052	2.4976	2.5471	2.6474	2.6556	2.6521	2.5426	2.4879	2.3897	2.3061	
30.000	1.6522	1.7034	1.7664	1.8336	1.8668	1.9630	1.9598	1.9631	1.8650	1.8208	1.7377	1.6664	
32.000	1.2000	1.2469	1.2869	1.3391	1.3763	1.4557	1.4495	1.4565	1.3740	1.3358	1.2667	1.2076	
34.000	0.8740	0.9136	0.9416	0.9836	1.0174	1.0806	1.0791	1.0795	1.0167	0.9760	0.9257	0.8776	
36.000	6.3791	6.7134	6.9018	7.2550	7.5622	8.0763	8.0839	8.0505	7.5149	7.1469	6.7626	6.3826	-3
38.000	4.6657	4.9172	5.0698	5.3740	5.6583	6.0751	6.0918	6.0393	5.5856	5.2620	4.9411	4.6467	
40.000	3.4235	3.5938	3.7494	4.0089	4.2610	4.5981	4.6169	4.5564	4.1759	3.8948	3.6266	3.3977	
42.000	2.4799	2.6462	2.7909	3.0108	3.2285	3.5086	3.5184	3.4565	3.1397	2.8883	2.6612	2.4817	
44.000	1.8100	1.9624	2.0904	2.2758	2.4690	2.6985	2.6955	2.6384	2.3734	2.1543	1.9637	1.8229	
46.000	1.3411	1.4750	1.5776	1.7371	1.9001	2.0836	2.0908	2.0347	1.8129	1.6164	1.4546	1.3471	
48.000	1.0088	1.1174	1.1997	1.3395	1.4679	1.6227	1.6358	1.5755	1.3904	1.2197	1.0813	1.0013	
50.000	0.7615	0.8497	0.9206	1.0396	1.1506	1.2763	1.2850	1.2333	1.0786	0.9386	0.8112	0.7485	
52.000	5.8134	6.5302	7.1419	8.1322	9.1234	1.0041	1.0150	9.6703	8.4777	7.2462	6.2339	5.7016	-4
54.000	4.4471	5.0306	5.5847	6.4353	7.2619	8.0256	8.0867	7.7055	6.6921	5.6554	4.8263	4.3569	
56.000	3.4051	3.8907	4.3816	5.1181	5.7573	6.4097	6.4179	6.1120	5.2564	4.4337	3.7477	3.3298	
58.000	2.6086	3.0035	3.4255	4.0501	4.5463	5.0945	5.0734	4.8251	4.1075	3.4585	2.9002	2.5595	
60.000	1.9982	2.3146	2.6684	3.1882	3.5752	4.0288	3.9941	3.7903	3.1924	2.6836	2.2364	1.9670	
62.000	1.5522	1.8049	2.0922	2.4960	2.7995	3.1693	3.1454	2.9621	2.4673	2.0710	1.7182	1.5087	
64.000	1.2002	1.3991	1.6293	1.9429	2.1884	2.4794	2.4948	2.3284	1.8956	1.5788	1.3064	1.1549	
66.000	0.9162	1.0676	1.2507	1.4984	1.7160	1.9490	1.9607	1.8146	1.4474	1.1915	0.9853	0.8792	
68.000	6.9199	8.0393	9.4559	1.1456	1.3350	1.5243	1.5256	1.4010	1.0981	8.9728	7.4328	6.6638	-5
70.000	5.2271	6.0489	7.0830	8.7179	1.0298	1.1795	1.1742	1.0691	8.2285	6.7413	5.6237	5.0512	
72.000	3.9583	4.5477	5.3013	6.6024	7.8720	9.0218	8.9324	8.0215	6.1190	5.0531	4.3044	3.8898	
74.000	3.0319	3.4164	3.9645	4.9755	5.9590	6.8131	6.7071	5.9628	4.5286	3.7788	3.2795	2.9856	
76.000	2.3122	2.5763	2.9623	3.7359	4.4638	5.0735	4.9649	4.3890	3.3350	2.8382	2.4868	2.2796	
78.000	1.7555	1.9525	2.2419	2.7954	3.3061	3.7199	3.6178	3.1967	2.4436	2.1236	1.8764	1.7311	
80.000	1.3267	1.4728	1.6914	2.0773	2.4189	2.6809	2.5905	2.3002	1.7810	1.5808	1.4072	1.3072	
82.000	0.9979	1.1056	1.2682	1.5325	1.7464	1.8952	1.8162	1.6163	1.2910	1.1705	1.0342	0.9812	
84.000	7.4677	8.2579	9.4471	1.1220	1.2424	1.2684	1.1999	1.1270	9.3055	8.5777	7.6034	7.1992	-6
86.000	5.4751	6.1358	6.9894	8.1494	8.4736	8.3494	7.8678	7.7959	6.6680	6.1893	5.5905	5.2098	
88.000	4.0150	4.5345	5.1342	5.8691	5.7493	5.4682	5.1588	5.3473	4.7491	4.4668	4.1114	3.7862	
90.000	2.9448	3.2813	3.7264	4.1894	3.8579	3.5545	3.3563	3.6356	3.3349	3.2244	3.0241	2.7631	

*Power of 10 by which preceding numbers should be multiplied.

Table A2. (Continued) Monthly Density (kg m^{-3}) at 75°N

Alt (km)	J	F	M	A	M	J	J	A	S	O	N	D	
0.000	1.4244	1.2490	1.4255	1.3884	1.3412	1.2944	1.2778	1.2829	1.3044	1.3385	1.3945	1.4048	+0
2.000	1.0711	1.0708	1.0726	1.0635	1.0385	1.0188	1.0032	1.0102	1.0333	1.0425	1.0649	1.0588	
4.000	8.4810	8.4653	8.4620	8.4225	8.3396	8.2133	8.1533	8.1578	8.3049	8.3111	8.4473	8.4352	-1
6.000	6.6428	6.6767	6.6382	6.6274	6.6260	6.6112	6.5568	6.5806	6.6047	6.6134	6.6301	6.6435	
8.000	5.1417	5.1954	5.1469	5.1557	5.2034	5.2545	5.2120	5.2427	5.1920	5.1955	5.1435	5.1666	
10.000	3.8185	3.8058	3.7952	3.7924	3.8663	3.9232	3.9747	3.9914	3.9118	3.8648	3.8069	3.8294	
12.000	2.7984	2.7836	2.7640	2.7756	2.8360	2.8856	2.9399	2.9387	2.8656	2.8327	2.7823	2.7979	
14.000	2.0452	2.0327	2.0163	2.0475	2.0985	2.1442	2.1773	2.1669	2.1153	2.0766	2.0383	2.0411	
16.000	1.4905	1.4851	1.4866	1.5106	1.5565	1.5935	1.6192	1.6035	1.5617	1.5226	1.5008	1.4866	
18.000	1.0832	1.0881	1.0972	1.1147	1.1547	1.1845	1.2043	1.1896	1.1566	1.1252	1.1021	1.0810	
20.000	7.8497	7.9389	8.0763	8.2281	8.5689	8.8069	8.9601	8.8276	8.5668	8.2945	8.0721	7.8486	-2
22.000	5.6510	5.6650	5.8559	6.0742	6.3595	6.5361	6.6671	6.5516	6.3189	6.0980	5.8955	5.6887	
24.000	4.0226	4.0308	4.2537	4.4850	4.7207	4.8464	4.9618	4.8632	4.6562	4.4711	4.2800	4.1164	
26.000	2.8697	2.8806	3.0959	3.3122	3.4968	3.5729	3.6569	3.6107	3.4316	3.2395	3.0744	2.9736	
28.000	2.0517	2.0675	2.2537	2.4465	2.5756	2.6270	2.6803	2.6440	2.5295	2.3289	2.2123	2.1091	
30.000	1.4615	1.4901	1.6363	1.7839	1.9034	1.9437	1.9781	1.9374	1.8379	1.6807	1.5948	1.5029	
32.000	1.0400	1.0784	1.1934	1.3068	1.3992	1.4468	1.4694	1.4291	1.3423	1.2175	1.1415	1.0762	
34.000	0.7448	0.7835	0.8741	0.9621	1.0320	1.0832	1.0985	1.0609	0.9859	0.8852	0.8188	0.7744	
36.000	5.3685	5.7154	6.4298	7.1172	7.6652	8.1550	8.2646	7.9245	7.2799	6.4248	5.9104	5.5993	-3
38.000	3.8925	4.1848	4.7489	5.2896	5.7318	6.1727	6.2554	5.9538	5.4034	4.6616	4.2916	4.0667	
40.000	2.8388	3.0755	3.5166	3.9134	4.3137	4.6964	4.7601	4.4985	4.0308	3.4080	3.1341	2.9667	
42.000	2.0819	2.2545	2.6007	2.9155	3.2665	3.5910	3.6410	3.4174	2.9986	2.5095	2.3016	2.1736	
44.000	1.5352	1.6579	1.9354	2.1882	2.4882	2.7591	2.7989	2.6097	2.2458	1.8607	1.6994	1.5854	
46.000	1.1379	1.2272	1.4490	1.6540	1.9061	2.1297	2.1619	2.0029	1.6941	1.3888	1.2612	1.1640	
48.000	0.8477	0.9140	1.0911	1.2586	1.4681	1.6547	1.7007	1.5607	1.2903	1.0431	0.9337	0.8608	
50.000	0.6347	0.6848	0.8262	0.9812	1.1540	1.3067	1.3408	1.2247	1.0057	0.7882	0.6959	0.6410	
52.000	4.7744	5.1610	6.3010	7.6739	9.0963	1.0321	1.0572	9.6119	7.8408	6.0836	5.2682	4.8051	-4
54.000	3.6259	3.9513	4.8968	6.0473	7.2261	8.2082	8.3501	7.5795	6.1133	4.7098	4.0583	3.6834	
56.000	2.7964	3.0720	3.8594	4.8196	5.8083	6.5954	6.6864	6.0187	4.8107	3.7001	3.1681	2.8594	
58.000	2.1707	2.4156	3.0588	3.8208	4.6442	5.2754	5.3337	4.7640	3.8419	2.9235	2.4857	2.2274	
60.000	1.6796	1.8890	2.4093	3.0122	3.6929	4.1995	4.2378	3.7797	3.0476	2.2949	1.9385	1.7278	
62.000	1.2952	1.4686	1.8854	2.3609	2.9195	3.3264	3.3550	3.0215	2.4002	1.7889	1.5021	1.3344	
64.000	0.9954	1.1348	1.4653	1.8391	2.2940	2.6212	2.7023	2.3958	1.8759	1.3842	1.1317	1.0105	
66.000	0.7587	0.8547	1.1168	1.4234	1.7909	2.0770	2.1552	1.8831	1.4542	1.0476	0.8474	0.7621	
68.000	0.5695	0.6396	0.8386	1.0840	1.3886	1.6487	1.7003	1.4661	1.1132	0.7798	0.6354	0.5756	
70.000	0.4284	0.4793	0.6292	0.8218	1.0773	1.2934	1.3256	1.1299	0.8354	0.5805	0.4771	0.4352	
72.000	0.3275	0.3595	0.4717	0.6203	0.8300	1.0014	1.0199	0.8611	0.6238	0.4323	0.3634	0.3341	
74.000	2.5119	2.7366	3.5342	4.6613	6.3218	7.6421	7.7331	6.4839	4.6342	3.2416	2.7747	2.5709	-5
76.000	1.9182	2.0781	2.6632	3.4859	4.7551	5.7370	5.7676	4.8177	3.4238	2.4457	2.1089	1.9691	
78.000	1.4583	1.5725	2.0190	2.6145	3.5280	4.2280	4.2228	3.5278	2.5154	1.8363	1.5956	1.5009	
80.000	1.1037	1.1854	1.5215	1.9477	2.5783	3.0511	3.0274	2.5337	1.8373	1.3719	1.1944	1.1383	
82.000	0.8313	0.8903	1.1394	1.4389	1.8347	2.1493	2.1187	1.7436	1.3338	1.0196	0.8831	0.8589	
84.000	0.6231	0.6660	0.8476	1.0535	1.2648	1.4190	1.3730	1.1917	0.9623	0.7537	0.6531	0.6384	
86.000	4.6052	4.9627	6.2629	7.6418	8.6457	9.0227	8.7593	8.0891	6.8971	5.4678	4.8309	4.6455	-6
88.000	3.3735	3.6825	4.5941	5.4874	5.8566	5.7209	5.5760	5.4506	4.9096	3.9511	3.5739	3.3953	
90.000	2.4717	2.7209	3.3259	3.8701	3.9301	3.6171	3.5420	3.6450	3.4370	2.8557	2.6445	2.4922	

Power of 10 by which preceding numbers should be multiplied.

Table A2. (Continued) Monthly Density (kg m^{-3}) at 90°N

Alt (km)	J	F	M	A	M	J	J	A	S	O	N	D	
0.000	1.4910	1.4736	1.4674	1.4297	1.3632	1.3005	1.2919	1.2932	1.3399	1.3981	1.4436	1.4513	+0
2.000	1.0854	1.0862	1.0902	1.0745	1.0483	1.0325	1.0120	1.0232	1.0340	1.0617	1.0716	1.0775	
4.000	8.4962	8.5334	8.5042	8.4831	8.3705	8.2737	8.1528	8.2143	8.3097	8.4294	8.4884	8.4572	-1
6.000	6.6028	6.6353	6.6233	6.6313	6.6166	6.5974	6.5576	6.5880	6.6079	6.6221	6.6514	6.6131	
8.000	5.0740	5.1020	5.1018	5.1285	5.1732	5.2016	5.2124	5.2212	5.1939	5.1425	5.1507	5.1093	
10.000	3.7553	3.7623	3.7401	3.7669	3.8556	3.9168	3.9519	3.9568	3.9092	3.7877	3.8036	3.7788	
12.000	2.7457	2.7419	2.7124	2.7470	2.8022	2.8576	2.9076	2.9041	2.8612	2.7569	2.7735	2.7582	
14.000	2.0020	2.0047	2.0035	2.0262	2.0820	2.1273	2.1645	2.1376	2.1132	2.0434	2.0278	2.0094	
16.000	1.4674	1.4770	1.4761	1.4947	1.5472	1.5839	1.6116	1.5931	1.5611	1.5107	1.4908	1.4611	
18.000	1.0692	1.0820	1.0846	1.1029	1.1499	1.1795	1.2001	1.1865	1.1586	1.1140	1.0927	1.0603	
20.000	7.7432	7.8797	7.9188	8.1399	8.5488	8.7853	8.9390	8.8325	8.5878	8.1936	7.9853	7.6805	-2
22.000	5.4786	5.5633	5.7172	6.0084	6.3563	6.5447	6.6592	6.5709	6.3403	6.0101	5.8172	5.5520	
24.000	3.8768	3.9415	4.1372	4.4260	4.7270	4.8765	4.9618	4.8854	4.6682	4.3964	4.2141	3.9991	
26.000	2.7438	2.8024	3.0007	3.2438	3.4855	3.6016	3.6647	3.5904	3.4377	3.1819	3.0256	2.8642	
28.000	1.9256	1.9995	2.1814	2.3849	2.5782	2.6615	2.7081	2.6471	2.5321	2.3031	2.1727	2.0519	
30.000	1.3392	1.4195	1.5838	1.7589	1.9132	1.9751	2.0097	1.9581	1.8653	1.6673	1.5542	1.4702	
32.000	9.3378	1.0118	1.1421	1.3011	1.4206	1.4718	1.4975	1.4479	1.3545	1.1889	1.1004	1.0348	
34.000	0.6584	0.7267	0.8297	0.9631	1.0506	1.0872	1.1062	1.0633	0.9886	0.8528	0.7844	0.7336	
36.000	4.6932	5.2574	6.0700	7.1019	7.8221	8.0955	8.2372	7.8741	7.2571	6.1550	5.6272	5.2399	-3
38.000	3.3786	3.8298	4.4705	5.2700	5.8812	6.0765	6.1828	5.8773	5.3555	4.4688	4.0619	3.7697	
40.000	2.4805	2.8085	3.3137	3.9347	4.4498	4.5959	4.6763	4.4201	3.9628	3.2409	2.9496	2.7307	
42.000	1.8316	2.0781	2.4747	2.9550	3.3818	3.5163	3.5829	3.3573	2.9468	2.3687	2.1527	1.9913	
44.000	1.3589	1.5505	1.8685	2.2319	2.5811	2.7191	2.7782	2.5959	2.2097	1.7450	1.5756	1.4613	
46.000	1.0128	1.1614	1.4157	1.6949	1.9781	2.1106	2.1604	2.0112	1.6671	1.2952	1.1610	1.0790	
48.000	0.7582	0.8733	1.0763	1.2970	1.5221	1.6527	1.6911	1.5680	1.2659	0.9767	0.8610	0.8013	
50.000	0.5700	0.6592	0.8209	1.0104	1.1856	1.3061	1.3332	1.2259	0.9580	0.7482	0.6440	0.5985	
52.000	0.4338	0.5015	0.6321	0.7872	0.9287	1.0323	1.0511	0.9586	0.7522	0.5732	0.4913	0.4558	
54.000	3.3209	3.8492	4.8914	6.1347	7.2768	8.1611	8.2891	7.4978	5.8004	4.3930	3.7490	3.4798	-4

Power of 10 by which preceding numbers should be multiplied.

Table B2. Density (kg m^{-3}) in January for 60°N and 75°N at Specified Longitudes

Altitude	60°N			75°N		
(km)	10°W	100°W	140°W	10°W	140°W	
0.000	1.2555	1.4400	1.3075	1.3608	1.4681	+0*
2.000	1.0219	1.0829	1.0412	1.0612	1.0880	
4.000	8.2374	8.4250	8.2788	8.3467	8.4007	-1
6.000	6.5693	6.5882	6.6212	6.5870	6.5674	
8.000	5.1775	5.0972	5.2271	5.1341	5.1802	
10.000	4.0275	3.8155	3.9010	3.8527	3.8306	
12.000	2.9382	2.7874	2.8660	2.8103	2.7832	
14.000	2.1438	2.0367	2.1061	2.0473	2.0226	
16.000	1.5645	1.4954	1.5479	1.4895	1.4701	
18.000	1.1508	1.0963	1.1379	1.0822	1.0688	
20.000	8.4435	8.0254	8.3672	7.9325	7.8198	-2
22.000	6.2514	5.8655	6.2233	5.8370	5.7198	
24.000	4.5969	4.2802	4.6120	4.2589	4.1721	
26.000	3.2519	3.0803	3.3352	3.0083	2.9732	
28.000	2.3090	2.2230	2.4190	2.0881	2.1291	
30.000	1.6474	1.6094	1.7610	1.4600	1.5325	
32.000	1.1808	1.1689	1.2865	1.0284	1.1085	
34.000	8.5018	8.4851	9.4326	7.2973	8.0574	-3
36.000	6.1087	6.1851	6.9392	5.2134	5.8840	
38.000	4.4174	4.5282	5.1221	3.7332	4.3165	
40.000	3.2158	3.3069	3.7944	2.6943	3.1806	
42.000	2.3561	2.4296	2.8208	1.9597	2.3537	
44.000	1.7370	1.7967	2.1031	1.4361	1.7491	
46.000	1.2881	1.3370	1.5724	1.0599	1.3059	
48.000	0.9607	1.0100	1.1790	0.7959	0.9788	
50.000	7.2057	7.6608	8.8318	6.0021	7.3628	-4
52.000	5.4328	5.8578	6.6017	4.5369	5.5581	
54.000	4.1700	4.4858	4.9924	3.4462	4.2473	

*Power of 10 by which preceding numbers should be multiplied.

APPENDIX C

SHRMA 90

atmospheric density profiles

SOUTHERN HEMISPHERE REFERENCE MIDDLE ATMOSPHERE. Density (10 g/m)

Height (km)	Month J	F	M	A	M	J	J	A	S	O	N	D	n
						0°							
80	193	193	195	190	184	180	177	181	184	189	187	190	-4
75	429	433	440	434	426	411	404	412	420	429	426	423	-4
70	875	890	913	908	897	876	862	877	902	908	898	877	-4
65	168	173	178	178	177	173	170	172	178	178	176	170	-3
60	312	324	332	334	334	326	321	324	333	334	331	318	-3
55	568	587	605	611	614	599	589	594	611	614	608	583	-3
50	105	107	110	112	112	110	108	109	111	112	111	108	-2
45	199	200	205	209	211	208	205	206	209	209	208	203	-2
40	399	399	401	407	413	412	410	410	412	412	408	405	-2
35	837	839	838	843	849	851	857	861	855	851	844	843	-2
30	181	181	180	181	182	184	185	185	184	182	180	181	-1
25	404	402	402	400	404	407	408	410	409	405	402	404	-1
20	967	970	970	963	956	955	959	962	960	959	959	962	-1
						10°S							
80	196	195	195	193	186	181	178	182	184	191	189	192	-4
75	434	434	438	436	426	411	404	413	418	431	426	429	-4
70	882	888	909	913	898	874	858	878	893	909	895	890	-4
65	170	173	176	178	176	173	170	172	176	178	176	173	-3
60	317	324	331	336	334	329	323	326	332	334	331	323	-3
55	578	590	605	617	614	603	592	597	609	614	607	593	-3
50	106	108	110	112	112	110	108	110	111	112	111	110	-2
45	201	202	206	210	212	210	206	206	208	209	208	205	-2
40	402	402	406	412	415	416	411	413	412	412	409	409	-2
35	840	842	845	849	853	858	859	864	857	852	845	848	-2
30	181	181	182	181	183	185	185	186	185	182	181	182	-1
25	406	404	404	404	405	408	408	412	410	407	404	404	-1
20	967	971	971	962	953	952	956	959	957	956	957	962	-1
						20°S							
80	197	198	196	192	184	178	177	180	183	193	192	192	-4
75	437	437	433	431	417	404	398	404	413	430	432	432	-4
70	891	895	898	895	877	854	842	856	876	898	903	900	-4
65	174	175	176	175	173	170	168	170	174	177	178	177	-3
60	327	331	331	331	328	324	322	323	329	333	335	332	-3
55	602	606	607	608	606	599	594	596	604	612	613	609	-3
50	110	111	111	111	111	110	109	110	110	112	112	111	-2
45	206	208	209	210	210	209	208	208	208	209	209	207	-2
40	409	411	413	416	414	415	414	415	414	414	412	411	-2
35	851	858	863	860	857	859	865	867	865	858	851	852	-2
30	182	184	184	184	184	185	186	187	186	184	183	183	-1
25	406	409	407	407	407	408	410	413	412	410	407	407	-1
20	956	963	960	951	944	942	947	950	949	949	950	953	-1
						30°S							
80	200	198	191	184	175	168	163	171	180	190	195	189	-4
75	446	437	422	410	387	374	365	379	399	424	435	446	-4
70	920	906	877	847	808	782	771	798	843	882	915	937	-4
65	181	178	173	166	160	156	156	160	168	173	180	184	-3
60	344	339	328	317	306	301	301	309	319	329	337	344	-3
55	632	622	602	558	569	560	562	577	592	607	614	629	-3
50	114	114	111	108	106	104	105	107	110	111	111	114	-2
45	212	214	211	207	203	201	202	205	207	207	208	211	-2
40	418	420	419	414	409	406	407	411	414	412	409	415	-2
35	864	871	870	864	858	854	857	865	868	858	850	854	-2
30	184	187	185	185	184	185	185	186	187	186	184	184	-1
25	408	411	408	408	405	407	409	412	413	412	407	408	-1
20	940	951	944	932	924	920	923	925	928	930	931	935	-1

Height (km)	Month J	F	M	A	M	J	J	A	S	O	N	D	
						40°S							
80	210	199	183	169	160	150	146	154	174	189	201	201	-4
75	472	443	402	371	348	329	324	340	382	422	450	469	-4
70	977	929	847	768	718	678	675	716	803	878	948	978	-4
65	193	185	169	152	142	134	136	145	160	173	185	192	-3
60	363	350	324	293	274	260	264	282	307	328	346	357	-3
55	658	638	599	548	518	495	504	536	573	605	626	648	-3
50	118	116	111	103	984	946	954	101	107	111	114	116	-2
45	220	218	211	200	192	188	189	195	203	208	212	215	-2
40	429	428	419	404	394	386	388	397	405	412	416	421	-2
35	878	884	872	852	842	834	834	844	854	859	856	862	-2
30	187	188	186	184	183	182	182	184	186	186	184	185	-1
25	407	411	408	404	402	401	401	402	407	408	405	404	-1
20	910	922	919	907	894	886	885	886	893	898	900	902	-1
						50°S							
80	230	204	174	149	137	126	125	136	162	188	209	225	-4
75	513	456	382	323	291	268	271	297	353	418	473	508	-4
70	106	956	806	671	594	542	559	624	740	871	988	105	-3
65	206	190	163	134	116	106	111	126	148	171	191	204	-3
60	383	358	314	261	226	206	216	247	286	326	356	377	-3
55	686	648	584	501	441	399	415	472	542	605	642	676	-3
50	122	117	108	958	858	780	802	897	101	110	116	120	-2
45	225	219	206	189	173	160	161	175	191	207	215	222	-2
40	438	431	413	385	366	341	342	356	382	408	419	431	-2
35	895	889	862	822	799	764	754	764	802	841	857	876	-2
30	188	188	185	179	177	172	170	169	175	181	183	185	-1
25	405	407	401	394	390	385	381	383	388	395	398	399	-1
20	880	889	884	873	856	845	842	840	852	859	864	870	-1
						60°S							
80	255	214	169	136	119	112	110	122	147	183	220	248	-4
75	565	476	371	293	249	231	235	266	320	405	495	554	-4
70	114	98.1	77.3	60.2	50.2	46.3	47.9	55.2	66.3	84.2	102	113	-3
65	218	191	154	119	97.6	89.2	93.9	110	132	166	197	216	-3
60	400	360	297	232	189	172	181	212	254	316	363	392	-3
55	707	650	558	446	370	333	345	404	475	584	653	696	-3
50	125	117	103	86.5	72.3	64.5	65.4	75.4	87.8	106	118	123	-2
45	232	220	199	174	147	132	131	145	165	198	218	227	-2
40	448	430	401	362	317	288	278	292	326	384	422	440	-2
35	907	884	843	781	713	654	618	627	677	778	854	892	-2
30	189	187	181	173	163	153	145	143	149	165	179	186	-1
25	401	400	392	380	368	357	343	337	340	362	380	395	-1
20	851	855	849	833	815	802	789	776	777	793	812	838	-1
						70°S							
80	280	224	165	127	109	99.6	97.9	112	134	170	231	281	-4
75	618	493	360	270	222	203	206	240	289	373	515	624	-4
70	122	99.5	74.3	54.8	43.9	40.1	41.4	49.2	59.5	77.0	104	122	-3
65	229	191	147	108	84.5	76.7	80.4	97.1	118	152	199	228	-3
60	411	358	282	209	163	147	153	185	227	288	367	410	-3
55	726	648	528	400	315	283	289	348	424	531	659	721	-3
50	128	116	98.2	77.1	61.6	54.4	54.1	63.6	77.4	96.5	118	128	-2
45	237	219	191	156	124	109	106	119	145	179	219	235	-2
40	456	428	387	328	270	237	222	236	279	344	422	454	-2
35	919	881	815	718	618	542	498	505	573	685	849	913	-2
30	190	186	175	162	147	132	120	118	125	143	174	187	-1
25	399	392	381	363	343	327	300	292	291	316	362	391	-1
20	835	825	813	798	781	763	736	718	710	729	765	817	-1

APPENDIX D

CIRA 72

atmospheric density profiles

Table 26b. Densities (kg/m^3) 25 to 110 km. Insert decimal point on the right of the three digits and multiply by 10^N

KM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	N
0 DEGREES N													
25	400	400	399	398	396	397	400	400	399	398	396	397	-4
30	178	178	178	178	178	177	178	178	178	178	178	177	-4
35	820	823	827	829	829	826	820	823	827	829	829	828	-5
40	404	403	400	406	411	411	404	403	400	406	411	411	-5
45	207	205	204	208	212	210	207	205	204	208	212	210	-5
50	108	108	109	112	113	111	108	108	109	112	113	111	-5
55	585	591	605	623	621	606	585	591	605	623	621	606	-6
60	327	334	340	352	350	339	327	334	340	352	350	339	-6
65	182	182	185	189	193	187	182	182	185	189	193	187	-6
70	952	943	931	958	984	980	952	943	931	958	984	980	-7
75	444	444	440	440	444	447	444	444	440	440	444	447	-7
80	195	198	195	193	191	193	195	198	195	193	191	193	-7
85	850	845	841	826	838	851	850	845	841	826	838	851	-8
90	370	360	361	368	384	384	370	360	361	368	384	384	-8
95	148	147*	153*	159*	163*	160*	148	147*	153*	159*	163*	160*	-8
100	580	610*	644*	673*	663*	636*	580	610*	644*	673*	663*	636*	-9
105	242	264*	279*	282*	262*	252*	242	264*	279*	282*	262*	252*	-9
110	108	125*	131*	126*	111*	106*	108	125*	131*	126*	111*	106*	-9
10 DEGREES N													
25	393	393	387	394	400	400	399	403	400	394	394	390	-4
30	175	174	175	179	180	178	179	179	180	178	177	175	-4
35	815	813	811	823	832	835	840	845	841	832	831	821	-5
40	400	393	397	406	414	413	410	410	406	405	406	405	-5
45	203	201	202	208	212	211	208	208	206	206	208	207	-5
50	107	106	109	112	114	112	109	108	109	110	111	109	-5
55	581	592	604	622	628	617	591	593	600	611	609	598	-6
60	325	332	343	350	351	341	328	326	336	341	343	332	-6
65	179	181	182	186	191	189	183	182	181	184	188	185	-6
70	926	914	912	942	985	989	954	933	945	945	960	951	-7
75	431	425	417	435	458	463	446	455	460	448	439	435	-7
80	190	189	186	190	200	202	196	203	212	202	192	189	-7
85	832	812*	793	821	872	870	846	699	922	883	849	841	-8
90	365	343*	345	364	383	380	370	384	403	396	390	374	-8
95	146*	140*	140	157	166*	158	148	161	169*	169*	162	156	-8
100	574*	571*	591*	648*	670*	633*	591	658*	721*	719*	668	617	-9
105	236*	246*	249*	265*	266*	256*	247	287*	318*	310*	270*	244*	-9
110	106*	114*	117*	116*	112*	109*	112	133*	151*	142*	116*	103*	-9

* TEMPERATURE DATA LACKING (i.e. LESS THAN TWO DATA POINTS WITHIN ABOUT ONE MONTH AND 10 DEG LATITUDE)

VALUES FROM 25-55KM ARE BASED ON DATA AT LONGITUDES 70-160 DEG W
VALUES APPLY TO THE FIRST DAY OF EACH MONTH
(1KG/M CU = 10POWER(-3)GM/CC)

Table 26b. Densities (kg/m^3) 25 to 110 km (Contd.)

KM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	N
20 DEGREES N													
25	392	386	388	386	391	395	401	406	399	391	389	385	-4
30	173	172	174	174	177	180	182	184	181	179	177	177	-4
35	805	799	805	822	835	845	856	853	854	839	828	809	-5
40	386	386	390	402	411	412	415	417	412	404	399	392	-5
45	196	195	198	205	209	209	209	206	208	204	201	196	-5
50	104	104	106	110	112	111	111	110	110	108	107	105	-5
55	575	580	591	610	624	619	609	594	606	598	585	576	-6
60	320	325	331	340	344	343	338	330	328	329	329	321	-6
65	174	174	174	179	184	188	186	179	179	177	179	175	-6
70	906	873	863	903	958	968	955	930	939	928	926	918	-7
75	421	408	400	435	465	458	440	440	468	455	436	422	-7
80	187	185	183	196	208	204	195	202	217	211	197	189	-7
85	809	817	803	864	897	869	836	889	967	928	861	808	-8
90	349*	347	350	382	390	372	358	390	417	409	386	366	-8
95	139*	139	142	163*	166*	152	142	158	174*	170*	156	149	-8
100	560*	574	583	669*	665*	616*	581	659*	741*	731*	651	605*	-9
105	234*	249*	247*	269*	270*	252*	245	281*	332*	322*	272*	239*	-9
110	104*	114*	114*	115*	115*	113*	113	129*	154*	150*	125*	106*	-9
30 DEGREES N													
25	381	379	380	383	389	392	402	406	400	395	391	384	-4
30	171	171	172	174	177	181	185	185	185	181	178	172	-4
35	800	791	802	814	830	848	863	872	863	843	823	801	-5
40	374	375	382	396	402	414	419	420	415	408	389	381	-5
45	189	187	191	198	204	209	211	210	208	202	194	191	-5
50	100	099	101	106	109	112	112	111	109	106	102	101	-5
55	554	545	555	582	608	622	615	609	600	584	560	555	-6
60	302	303	305	323	334	347	343	336	326	321	309	305	-6
65	164	161	161	168	180	188	188	182	175	167	165	164	-6
70	837	809	800	864	930	969	946	925	895	873	846	859	-7
75	403	382	384	416	457	461	434	431	432	418	401	409	-7
80	180	177	177	196	207	204	191	194	196	192	183	184	-7
85	791	785	796	872	894	863	804	850	865	842	796	794	-8
90	339*	342	345	388	375	355	329	351	361	361	345	347	-8
95	138*	137	139	159*	151	134*	122	139	147	147	141	145	-8
100	571*	574	574	654*	602*	535*	500	583	633	631	593	609*	-9
105	244*	247*	248	265*	246*	224*	215	252	280*	276*	260*	256*	-9
110	107*	113*	110	114*	107*	104*	103	112	127*	132*	123*	114*	-9

* TEMPERATURE DATA LACKING (I.E. LESS THAN TWO DATA POINTS WITHIN ABOUT ONE MONTH AND 10 DEG LATITUDE)

VALUES FROM 25-55KM ARE BASED ON DATA AT LONGITUDES 70-160 DEG W
VALUES APPLY TO THE FIRST DAY OF EACH MONTH
(1KG/M CU = 10POWER(-3)GM/CC)

Table 26b. Densities (kg/m^3) 25 to 110 km (Contd.)

KM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	N
40 DEGREES N													
25	377	382	381	379	384	396	406	408	401	400	391	384	-4
30	171	173	174	173	177	182	186	188	185	182	178	172	-4
35	791	790	787	798	816	848	881	882	873	845	816	789	-5
40	367	368	371	384	396	413	426	429	418	402	382	369	-5
45	180	181	183	192	202	210	217	219	211	199	185	180	-5
50	094	095	096	103	109	114	116	117	112	104	096	095	-5
55	511	521	524	565	605	631	641	642	620	574	522	510	-6
60	277	284	288	311	338	356	357	353	340	313	286	279	-6
65	146	149	150	164	179	193	195	192	178	164	149	146	-6
70	075	076	076	084	094	100	100	096	088	081	075	075	-6
75	365	364	368	409	456	474	468	445	409	372	354	361	-7
80	171	171	174	195	211	211	203	197	180	167	160	169	-7
85	760*	766	778	871	903	865	824	816	762	722	703	749	-8
90	333*	341	340	373	366	335	302	305	302	303	304	327	-8
95	141*	142	138	147	131	109	102	114	122	128	128	141*	-8
100	622*	598	578	603	510	412	399	479	526	534	555	627*	-9
105	271*	257*	247	253	210	171	178	214*	233*	237	252*	281*	-9
110	119*	116*	110	108	094	083	086	096*	104*	110*	119*	126*	-9
50 DEGREES N													
25	382	391	390	378	381	399	407	403	403	402	392	380	-4
30	176	178	177	173	176	183	187	188	185	184	179	177	-4
35	812	799	795	793	811	851	891	895	872	836	815	811	-5
40	371	366	368	381	395	416	437	440	424	393	372	372	-5
45	177	176	180	192	201	215	226	225	214	193	178	176	-5
50	089	090	094	103	110	117	121	120	114	101	090	087	-5
55	467	483	509	565	616	649	672	666	631	550	473	458	-6
60	248	261	276	314	344	368	374	370	347	297	253	242	-6
65	131	136	145	165	184	202	207	201	183	155	132	126	-6
70	066	069	074	085	096	106	108	102	090	075	065	064	-6
75	330	338	358	412	469	511	524	488	419	349	313	318	-7
80	157	160	172	200	221	232	231	216	184	155	144	150	-7
85	722*	738	776	889*	941	945	894	843	744	669	654	691	-8
90	320*	331	346*	374*	365*	333	297	287	282	277	283	302	-8
95	143*	145*	141*	139*	119*	096	090	101	111*	119	124	136*	-8
100	645*	619*	589*	560*	439*	330	333	408*	464*	502	559*	633*	-9
105	294*	266*	251*	234*	178*	136	143	182*	202*	220*	259*	305*	-9
110	128*	118*	112*	107*	085*	067	070	081*	088*	100*	121*	137*	-9

* TEMPERATURE DATA LACKING (i.e. LESS THAN TWO DATA POINTS WITHIN ABOUT ONE MONTH AND 10 DEG LATITUDE)

VALUES FROM 25-55KM ARE BASED ON DATA AT LONGITUDES 70-160 DEG W
VALUES APPLY TO THE FIRST DAY OF EACH MONTH
(1KG/M CU = 10POWER(-3) GM/CC)

Table 26b. Densities (kg/m^3) 25 to 110 km (Contd.)

KM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	N
60 DEGREES N													
25	395	387	381	375	385	397	407	411	401	395	393	390	-4
30	179	175	173	171	178	183	190	192	186	180	178	173	-4
35	813	804	785	802	823	870	903	907	871	827	805	805	-5
40	361	366	365	377	399	426	444	445	422	390	367	362	-5
45	168	173	177	187	201	219	230	227	212	189	173	166	-5
50	081	085	090	098	109	119	125	122	113	097	085	080	-5
55	420	446	479	541	606	669	695	673	616	529	451	418	-6
60	218	235	253	294*	341	379	393	379	339	282	239	218	-6
65	115	122	134	155*	183*	209	219	208	182	149	124	113	-6
70	058	061	067	079*	095*	110*	117	110	093	074	063	058	-6
75	289	300	325	389*	466*	547*	587	542	451	358	303	287	-7
80	137	141	155	186*	225*	257*	265	244	200	164	144	138	-7
85	063	065	072	085*	098*	104*	103	091	081	071	066	063	-7
90	283	295	323*	353*	372*	350*	314	293	300	298	294*	286	-8
95	131*	133*	136*	135*	119*	099*	091*	096	113*	128	131*	131	-8
100	593*	578*	559*	522*	424*	328*	310*	360*	459*	546	606*	619	-9
105	278*	254*	241*	224*	173*	132*	130*	154*	196*	239*	282*	302*	-9
110	124*	114*	111*	106*	085*	066*	062*	068*	083*	104*	129*	137*	-9
70 DEGREES N													
25	403	377	354	376	398	403	413	423	407	382	387	399	-4
30	176	168	162	174	181	187	194	196	188	175	173	176	-4
35	772	765	755	793	857	897	919	924	873	810	792	776	-5
40	338	348	350	364	399	436	452	445	416	378	361	348	-5
45	153	162	170	175	200	223	231	225	205	183	169	158	-5
50	072	077	084	087	104	120	125	120	108	093	084	076	-5
55	367	390	439	485	586	673	700	665	587	505	453	400	-6
60	192	203	233	264*	324*	380*	400	373	323	271	241	214	-6
65	100	105	121	139*	178*	213*	225	207	175	142	127	111	-6
70	050	052	059	070*	091*	113*	122	112	092	072	064	055	-6
75	241	245	282*	341*	467*	560*	625	568	454	345	299	269	-7
80	110	111	129*	162*	224*	275*	291	261	209	157	137	125	-7
85	050	049	059*	073*	099*	113*	114*	101	087*	071*	063*	057	-7
90	225	222	255*	301*	365*	365*	332*	321	329*	302*	288*	260	-8
95	103*	099*	108*	115*	122*	105*	094*	099*	123*	140*	132*	120*	-8
100	474*	439*	451*	445*	422*	345*	305*	349*	479*	553*	602*	563*	-9
105	224*	195*	200*	192*	178*	140*	125*	142*	197*	241*	281*	272*	-9
110	101*	089*	094*	095*	088*	069*	058*	062*	080*	101*	125*	124*	-9

* TEMPERATURE DATA LACKING (I.E., LESS THAN TWO DATA POINTS WITHIN ABOUT ONE MONTH AND 10 DEG LATITUDE)

VALUES FROM 25-55KM ARE BASED ON DATA AT LONGITUDES 70-160 D G W AND DEPEND ON LONGITUDE AT HIGH LATITUDES IN WINTER. THE 60 AND 70 DEG N VALUES ARE BASED ON FORT CHURCHILL (94 DEG W) AND FORT GREELY (146 DEG W) AND AT 25-35KM ON RADIOSONDE DATA FOR 115 DEG W VALUES APPLY TO THE FIRST DAY OF EACH MONTH

(1KG/M CU = 10POWER(-3)GM/CC)

APPENDIX E

Previously Published RRAs

PREVIOUSLY PUBLISHED RANGE REFERENCE ATMOSPHERES

Capt Kennedy, Florida (Part I), Document 104-63, 16 April 1963
(AD 451 780).*

White Sands Missile Range, New Mexico (Part I), Document 104-63, 28 June 1964
(AD 451 781).*

Fort Churchill, Manitoba (Part I), Document 372-63, 7 August 1964
(AD 634 727).

Eniwetok, Marshall Islands (Part I), Document 104-63, 1 September 1964
(AD 479 264).*

Fort Greely Missile Range, Alaska (Part I), Document 373-63, 6 October 1964
(AD 634 726).

Eglin Gulf Test Range, Florida (Part I), Document 104-63, 25 January 1965
(AD 472 601).*

Point Arguello, California (Part I), Document 104-63, April 1965
(AD 472 602).*

Wallops Island Test Range (Part I), Document 104-63, 10 July 1965
(AD 474 071).*

Ascension Island, South Atlantic (Part I), Document 104-63, July 1966
(AD 645 591).*

Johnston Island Test Site (Part I), Document 104-63, January 1970
(AD 782 652).*

Lihue, Kauai, Hawaii (Part I), Document 104-63, January 1970
(AD 782 653).*

Cape Kennedy, Florida (Part II), Document 104-63, September 1971
(AD 753 581).*

White Sands Missile Range (Part II), Document 104-63, September 1971
(AD 782 654).*

Wallops Island Test Range (Part II), Document 104-63, September 1971.*

Fort Greely Missile Range (Part II), Document 104-63, September 1971.*

Edwards AFB (Part I), Document 104-63, September 1972
(AD 782 651).*

Kwajalein Missile Range, Marshall Islands (Part I), Document 105-63, October 1974.*

Kwajalein Missile Range, Document 360-82, 1982
(AD-A123424).

Cape Canaveral, Florida, Document 361-83, February 1983
(AD-A125553).

Vandenberg AFB, California, Document 362-83, 1983
(AD-A128125).

Dugway, Utah, Document 363-83, June 1983
(AD-A131110).

Wallops Island Test Range, Virginia, Document 364-83, July 1983
(AD-A131327).

White Sands Missile Range, New Mexico, Document 365-83, August 1983
(AD-A132471).

Edwards AFB, California, Document 366-83, August 1983
(AD-A132487).

Eglin AFB, Florida, Document 367-83, 1983
(AD-A133506).

Taquac, Guam Island, Document 368-83, 1983
(AD-A133618).

Point Mugu, California, Document 369-83, 1983
(AD-A134186).

Barking Sands, Hawaii, Document 370-83, 1983
(AD-A137406).

Ascension Island, Document 371-84, 1984
(AD-A138470).

* *No longer available from RCC.*

Wake Island, USAFETAC/PR-90/007, November 1990
(AD-A231715)

Nellis, USAFETAC/PR-90/008, December 1990
(AD-A231926)

Shemya, USAFETAC/PR 91/003, January 1991
(AD-A232813)

Thule, USAFETAC/PR-91/006, February 1991
(AD-A232831)

Fairbanks, USAFETAC/PR-91/007, February 1991
(AD-Pending)