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NWL Report No. 1859

CLIMATOLOGICAL WIND AND DENSITY DATA
FOR
TWENTY-FIVE USSR STATIONS
by

Myrtle D. France
Computation and Analysis Laboratory



U. S. NAVAL WEAPONS LABORATORY
DAHLGREN, VIRGINIA

Date: MAY 1963

U. S. Naval Weapons Laboratory
Dahlgren, Virginia

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ABSTRACT

Climatological wind and density data, by seasons, are presented for twenty-five USSR stations. Tabulations of means, standard deviations, and correlation coefficients, based on about ten years of statistical data over the period of 1950 to 1962, are given, by pressure levels (from surface to 100 millibars) for wind and by geometric heights (from surface to 16221 meters) for density. For purposes of description, graphical presentations of typical data are given for selected cases. These data were obtained from compilations and computations by the National Weather Records Center, Asheville.

DESCRIPTION OF DATA

1. Definitions of Data Coverage

Climatological wind and density data are presented in this report for twenty-five USSR stations (Figure 1 and Table 1). The data are based on measurements by means of operational radiosonde equipment taken for a period of approximately ten years. The twenty-five stations are located between north latitudes of about 40 and 69 degrees and between east longitudes of about 24 and 60 degrees. The wind observations were taken between January, 1950 and December, 1959; the density observations were taken between January, 1950 and January, 1962. Appendix A provides tables of mean seasonal wind components, standard deviations, and coefficients of correlation between levels, with respect to pressure level. Appendix B provides tables of mean seasonal densities, standard deviations, and coefficients of correlation between levels, with respect to geometric height.

For each combination of station and season, Appendix A provides a table of the following data for the wind at the surface and for pressure levels of 850, 700, 500, 300, 200, and 100 millibars:

- a. The mean wind components, north-south and east-west (knots).
- b. The standard deviations of the mean wind components (knots).
- c. The coefficients of correlation between levels.
- d. Number of observations (column heading designation OBSN) included in the data at each level for computation of the mean components and standard deviations.

In each table, the data contained in the columns headed by MEW are the mean east-west wind components (a negative component indicates a wind component from the west); the standard deviations of the east-west components are given in the columns headed by SEW. Correspondingly, the mean north-south wind components are given in the rows headed by MNS (a negative component indicates a wind component from the south); the standard deviations of the mean north-south components are given in the rows headed by SNS. The coefficients of correlation are presented by array, the rows and columns of which are arranged in accordance with the pressure levels. The coefficients of correlation for the east-west wind

GEOGRAPHICAL LOCATION OF TWENTY-FIVE STATIONS

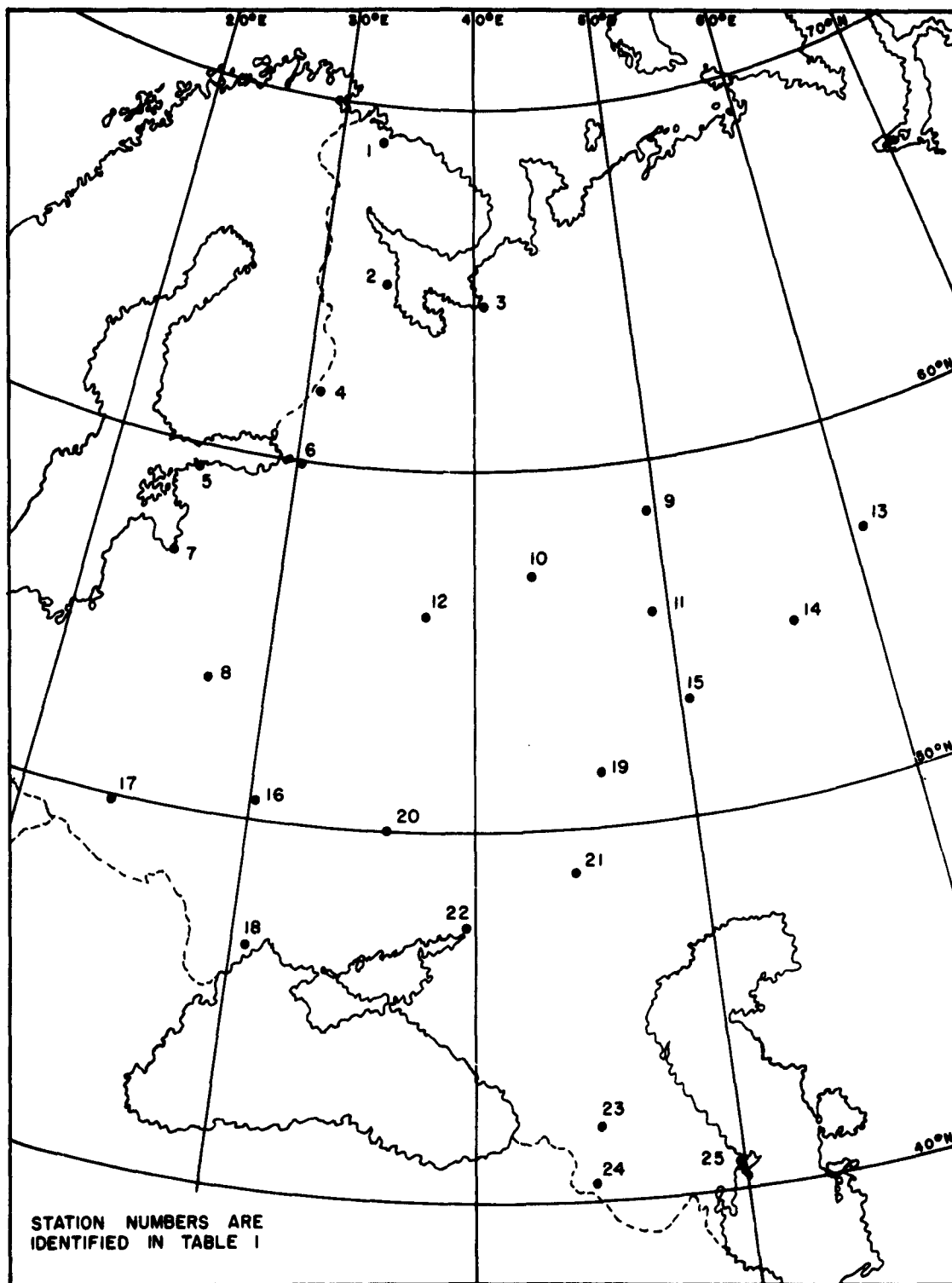


FIGURE 1

TABLE 1

STATION DESIGNATION AND OBSERVATIONAL RECORD SUMMARY

Station Name	WMO*	Figure 1 Symbol	Geographic Location		Altitude of Station Above Mean Sea Level Meters	Observational Summary		
			Latitude (N)	Longitude (E)		Type** Rate**	Period of Record Wind	Density
			Deg	Min				
Murmansk	22113	1	68	58	46	6	1/50- 1/62	1/50- 1/62
			33	03		13		
Kem Port	22522	2	64	59	10	6	10/50- 1/62	10/50- 1/62
			34	47		13		
Arkhangelsk	22550	3	64	35	13	6	1/50- 1/62	1/50- 1/62
			40	30		23		
Sortovola	22802	4	61	43	18	6	1/50- 1/62	1/50- 1/62
			30	43		23		
Tallin	26038	5	59	25	44	6	1/50-12/59	1/50- 1/62
			24	48		12		
Leningrad Town	26063	6	59	58	4	6	1/50-12/59	1/50- 1/62
			30	18		12		
Riga	26422	7	56	58	3	6	1/50-12/59	1/50- 1/62
			24	04		12		
Minsk	26850	8	53	52	234	6	2/56-12/59	4/50- 1/62
			27	32		22		

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TABLE 1 (Continued)

Station Name	WMO*	Figure 1 Symbol	Geographic Location		Altitude of Station Above Mean Sea Level Meters	Observational Summary			
			Latitude (N)	Longitude (E)		Type**	Period of Record	Wind	Density
			Deg	Min		Rate**			
Kirov	27196	9	58	39	172	6	1/50-12/59	1/50- 1/62	
			49	37		22			
Strigino	27553	10	56	13	82	6	2/53-12/59	2/53- 1/62	
			43	49		22			
Kazan	27595	11	55	47	122	6	7/55-12/59	2/53- 1/62	
			49	11		23			
Moscow	27612	12	55	45	156	6	1/50-12/59	1/50- 1/62	
			37	34		12			
Sverdlovsk	28440	13	56	48	237	6	1/50-12/59	1/50- 1/62	
			60	38		12			
Ufa	28722	14	54	45	197	6	1/50-12/59	1/50- 1/62	
			56	00		22			
Kuibishev	28900	15	53	14	44	6	2/56-12/59	2/53- 1/62	
			50	10		22			
Kyeu	33345	16	50	24	179	6	1/50-12/59	1/50- 1/62	
			30	27		13			
Lvov	33393	17	49	49	325	6	1/50-12/59	1/50- 1/62	
			23	57		13			

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TABLE 1 (Continued)

Station Name	WMO*	Figure 1 Symbol	Geographic Location		Altitude of Station Above Mean Sea Level Meters	Observational Summary		
			Latitude (N)	Longitude (E)		Type**	Period of Record	Density
			Deg	Min		Rate**	Wind	
Odessa	33837	18	46	29	64	6	3/53-12/59	1/50- 1/62
			30	38		13		
Saratov	34172	19	51	34	156	6	2/50-12/59	2/50- 1/62
			46	02		22		
Kharkov	34300	20	49	56	152	6	2/53-12/59	2/53- 1/62
			36	17		13		
Voroponovo	34560	21	48	41	145	2	2/50-12/59	1/50- 1/62
			44	21		22		
Rostov Na Donu	34731	22	47	15	77	6	1/50-12/59	1/50- 1/62
			39	49		12		
Tbilisi	37549	23	41	41	490	6	1/50-12/59	1/50- 1/62
			44	57		22		
Yerevan	37789	24	40	08	907	6	1/50-12/59	1/50- 1/62
			44	28		22		
Baku	37860	25	41	00	---	2	7/55-12/59	10/51- 1/62
			49	00		22		

*Number designation by the World Meteorological Organization (WMO).

**See text for definition (pages 4 and 5).

data are tabulated below the main diagonal of the array whereas the coefficients of correlation for the north-south data are tabulated above the main diagonal of the array.

For each combination of station and season, Appendix B provides a table of the following data for the density at the surface and at geometric heights of 1458, 3014, 5579, 7193, 9177, 11806, 13638, and 16221 meters:

- a. The mean air density (kilograms mass per cubic meter).
- b. The standard deviation of the mean air density (kilograms mass per cubic meter).
- c. The coefficients of correlation between levels.
- d. Number of observations (column heading designation OBSN) included in the data at each altitude for computation of the means and standard deviations.
- e. The number designation for identification of each level.

In each table, the data contained in the rows headed by M are the mean air densities; the standard deviations, multiplied by 10, are contained in the rows headed by Sx10. The coefficients of correlation are presented by array, the rows and columns of which are arranged in accordance with the geometric heights.

The data of Appendices A and B are identified by a code number indicating the station number as used in Figure 1, the season, and the type of data, either wind or density. Within each appendix, the first major grouping is by station number (1 through 25) and the second major grouping is by season (winter, spring, summer, and fall, in that order, with symbols W, Sp, Su, and F, respectively). For example, in Appendix A the first table is identified by the code W-1 W, where the first W designates wind (common to all tables in Appendix A), the 1 represents the station number (in accordance with Figure 1), and the second W indicates that the data apply to the winter season. The second table of Appendix A is therefore coded W-1Sp, the third table W-1Su, and the fourth table W-1F.

2. Equations for Computation of Wind and Density Means, Standard Deviations, and Coefficients of Correlation

The following equations are among those employed by the National Weather Records Center in the computation of the data given in Appendices A and B:

$$\text{Mean} = \frac{\sum_i X_i}{N}$$

$$\text{Standard Deviation} = \sqrt{\frac{N \sum_i X_i^2 - (\sum_i X_i)^2}{N(N-1)}}$$

$$\text{Coefficient of Correlation (between } i\text{th and } j\text{th levels)} = \frac{(N \sum_{ij} X_i X_j) (\sum_i X_i \sum_j X_j)}{\sqrt{N \sum_i X_i^2 - (\sum_i X_i)^2} \sqrt{N \sum_j X_j^2 - (\sum_j X_j)^2}}$$

where,

X_i = individual observation of data (wind or density) at the i th level

N = the number of observations (i.e., the number of soundings)

The value of N used in the computations of the means and standard deviations is in most instances greater than that employed for the computation of the correlation coefficients, since the latter require that data be available for both levels of each combination (ij) within a given sounding.

The density data were computed from observations of temperature, pressure, and relative humidity as follows:

$$\rho = \frac{0.3486 (P - 0.377 E_s \text{ RH})}{T_K}$$

where,

ρ = air density in kilograms mass per cubic meter

P = air pressure in millibars

E_s = saturation vapor pressure, at temperature T_K , in millibars

RH = relative humidity (e.g., for RH of 50 percent, use 0.50 in the equation)

T_K = air temperature in degrees Kelvin

It should be noted that the density data were procured at fixed pressure levels, however, the data were processed for presentation versus geometric height; that is to say the density data were not simply tabulated versus the geometric height associated with the standard atmosphere at the particular pressure level. In general, this conversion is obtained by use of the following integral, in the absence of direct measurements of the altitudes at which the observations are made:

$$h = h_0 - \frac{R}{g} \int_{P_0}^P \frac{T(P)}{P} dP$$

where,

- h = geometric altitude (h_0 is the surface altitude)
- R = universal gas constant
- g = acceleration due to gravity
- T (P) = air temperature as a function of pressure level
- P = air pressure (P_0 is the surface pressure)

3. Locations of Stations and Observational Record Summary

The latitudes and longitudes of the twenty-five USSR stations, for which data are given in this report, are listed in Table 1 and shown geographically in Figure 1. The stations are listed in Table 1 by name and WMO number (World Meteorological Organization; the number designations are given in Reference 1) together with the geographical co-ordinates, altitudes of the stations above mean sea level, and periods of record for both the wind and density data. Also given in Table 1 are numbers indicating the type of observation and the observation rate code, applicable to both the wind and density data (specific details of the type and rate data are described in Reference 1). These are described, in general, as follows:

a. Type of Observation

- 2 = 2 raobs per day (wind not tracked by electronic equipment)
- 6 = 2 rawins per day (wind tracked by electronic equipment)

b. Rate Code

The first digit describes the percentage frequency that data were received for the station:

1 = data received 90 percent of period and/or 90 percent of the possible observations of the month.

2 = data received 50-89 percent of period and/or 50-89 percent of possible observations.

The second digit describes the percentage frequency that observations reached selected mandatory levels:

2 = equal to or greater than 50 percent of observations received reach the 100 mb level

3 = equal to or greater than 50 percent of observations received reach the 300 mb level

4. Accuracy of Data

The climatological data given in this report are subject to errors of various kinds (for example, observational and processing errors). As far as is known, there is presently no pertinent information as to the accuracy of the instruments and procedures employed in making the observations and, hence, specific statements concerning the reliability of the data cannot be made. Several reports have been published, however, giving accuracies of radiosondes used in the United States, References 2, 3, 4, and 5. For example, the standard deviations of observational errors for the AN/AMT-4 radiosonde, as quoted in Reference 2, are as follows:

<u>Pressure</u>	<u>Temperature</u>	<u>Relative Humidity</u>
±1 mb at 1000 mb	±1°C	±5%
±3 mb at 500 mb	±1°C	±5%
±1.5 mb at 100 mb	±1°C	±5%

The above errors in radiosonde measurements would produce air density errors of the following magnitudes:

<u>Pressure</u> (mb)	<u>Air Density Error</u> (Relative to ARDC 1959) (%)
1000	0.4
500	0.8
100	1.6

The climatological seasonal mean densities were compared for consistency with the monthly mean data given in Reference 6. It was found that the monthly data, in terms of percent deviation from the ARDC 1959 standard atmosphere, enveloped the seasonal data, as given in Appendix B.

The errors in the wind data are even more difficult to assess. Reference 5 indicates that the observational errors in radiosonde measurements would be less than 10 knots in wind magnitude. The decreasing number of observations with altitude constitutes the most serious handicap in the wind climatological data. A bias is introduced at the higher levels (a bias toward lower values) in that the strong winds at the lower levels blow the balloon out of range before it reaches the upper levels. The magnitude of the mean winds given in Appendix A were compared with the monthly mean wind data given in Reference 7. Here again, the data were in reasonable agreement.

Except for the possible bias in the upper wind data, it is assumed that all the other errors in both the wind and density data would be random, and would not produce significant biases in the data as given.

DISCUSSION

1. Wind Profiles

The variation with pressure level of the seasonal mean wind components and standard deviations is shown in Figures 2, 3, and 4 for several typical stations, the latitudes and longitudes of which are representative of the area covered by the data of this report. Typical seasonal variations of the mean east-west components of the wind profiles are shown in Figure 2. In general, for all of the data recorded, the mean east-west components exceed the mean north-south components by a factor of about 2 or 3; in order to demonstrate this relation, Figure 3 shows a comparison of typical mean east-west and mean north-south components. Representative values of the standard deviations of the mean components, together with the corresponding means, are shown in Figure 4. The data show that there is little difference in the shapes of the profiles for the four seasons; typically, the highest mean winds occur during the winter season and the lowest mean winds occur during the spring season. The mean wind profiles exhibit an increase in the wind speed with altitude throughout most of the troposphere with peak mean winds generally occurring at an altitude of approximately 11 kilometers (in the region of the 300 and 200 millibar levels). Little seasonal variation is exhibited in the mean surface winds; however, the seasonal variations of the mean winds increase with altitude. Over the span of the locations of the twenty-five stations, only slight variation of the mean wind profiles with latitude is demonstrated; for example, at about the 300 millibar level, the mean winds for the lowest latitudes considered are only about 5 knots greater than the mean winds for the highest latitudes considered. For all of the wind data contained in this report, the standard deviation of the mean wind (of the same order of magnitude for both the mean east-west and mean north-south components) increases with altitude over most of the troposphere; at the surface, typical standard deviations are from about 5 to 10 knots whereas at the 300 millibar level the standard deviations are usually about 25 knots. The increases in mean wind speed and variability with altitude, as shown by the data of this report, are in agreement with the results reported in Reference 8.

2. Density Profiles

The variation with geometric altitude of the seasonal mean air densities, expressed as the percent departure from the ARDC 1959 model atmosphere, and the standard deviations are shown in Figures

MEAN EAST-WEST WIND COMPONENTS
SEASONAL DEPENDENCE PER STATION
(DATA LEVELS -)

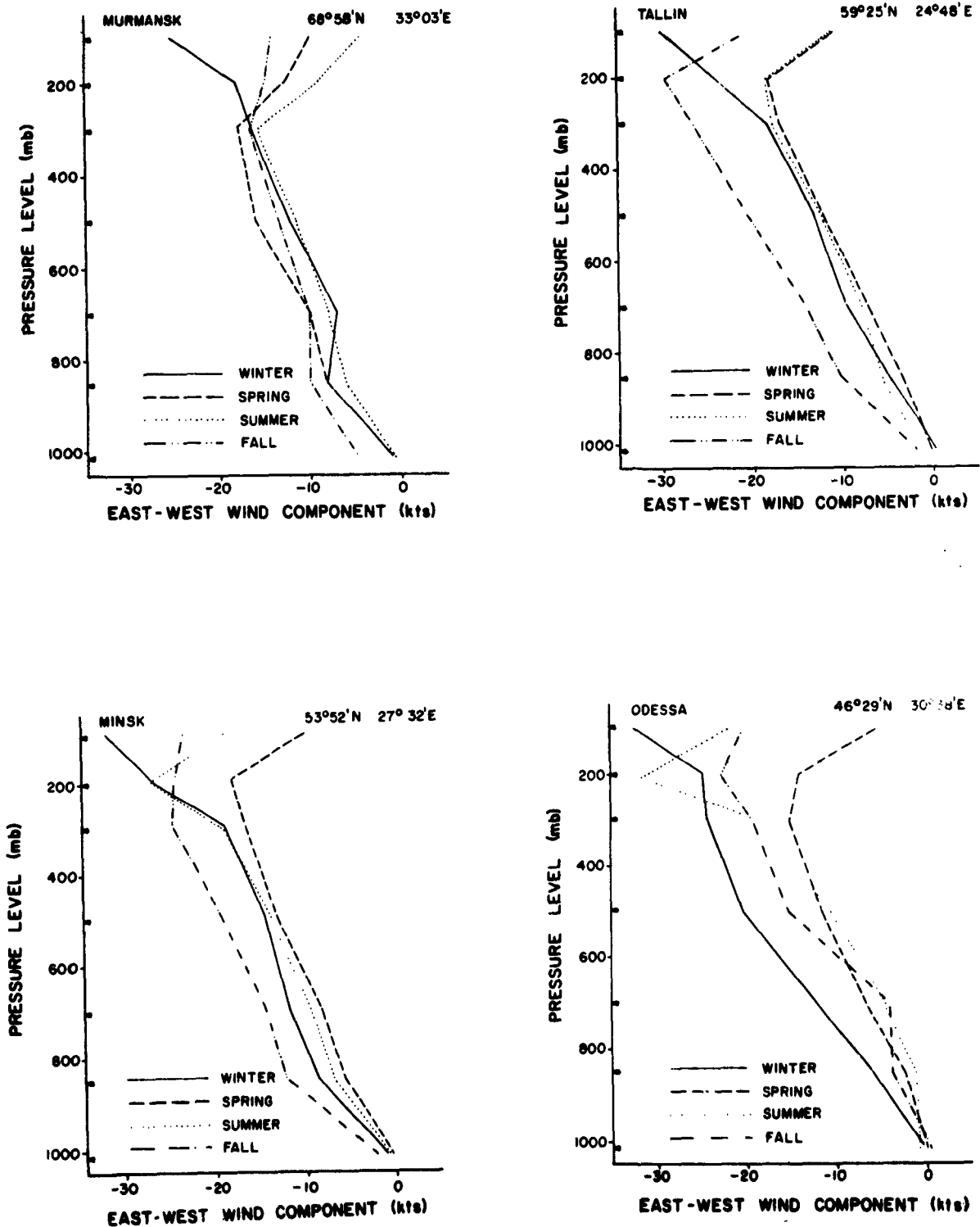


FIGURE 2

COMPARISON OF MAGNITUDES OF TYPICAL MEAN
EAST-WEST AND MEAN NORTH-SOUTH WIND COMPONENTS
(DATA LEVELS -)

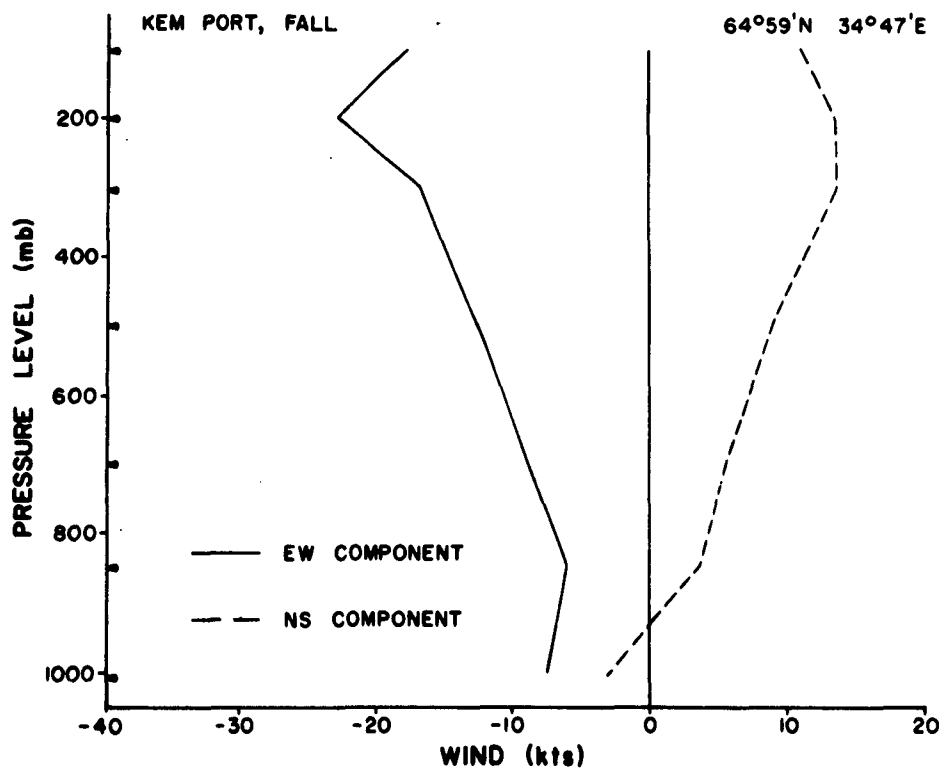
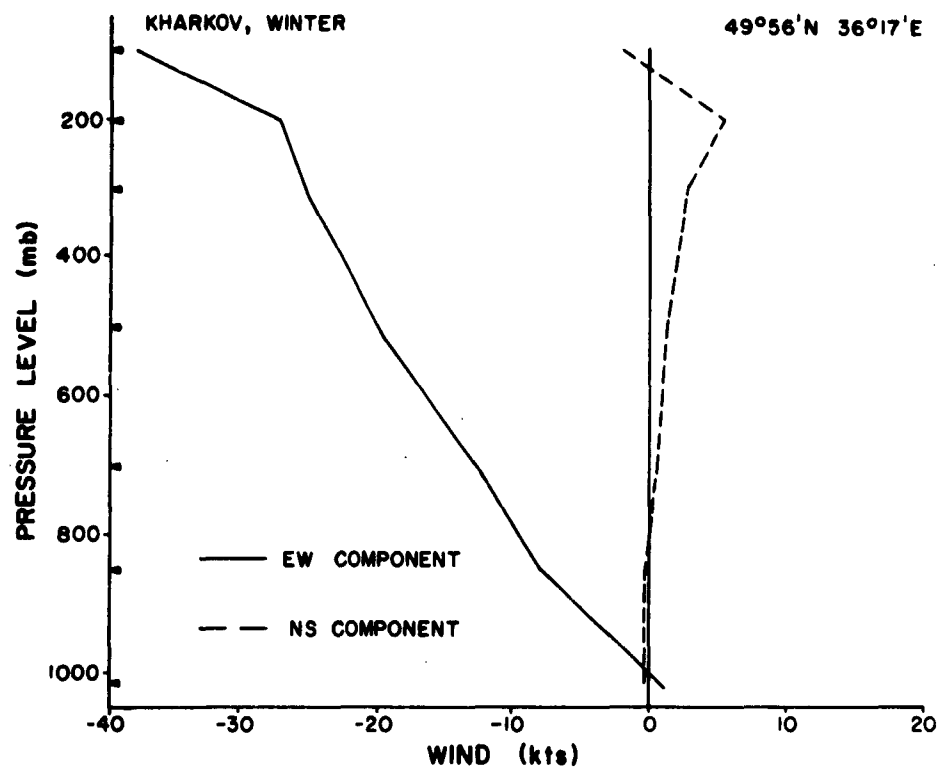


FIGURE 3

STANDARD DEVIATION OF TYPICAL MEAN SEASONAL WIND COMPONENTS (DATA LEVELS -)

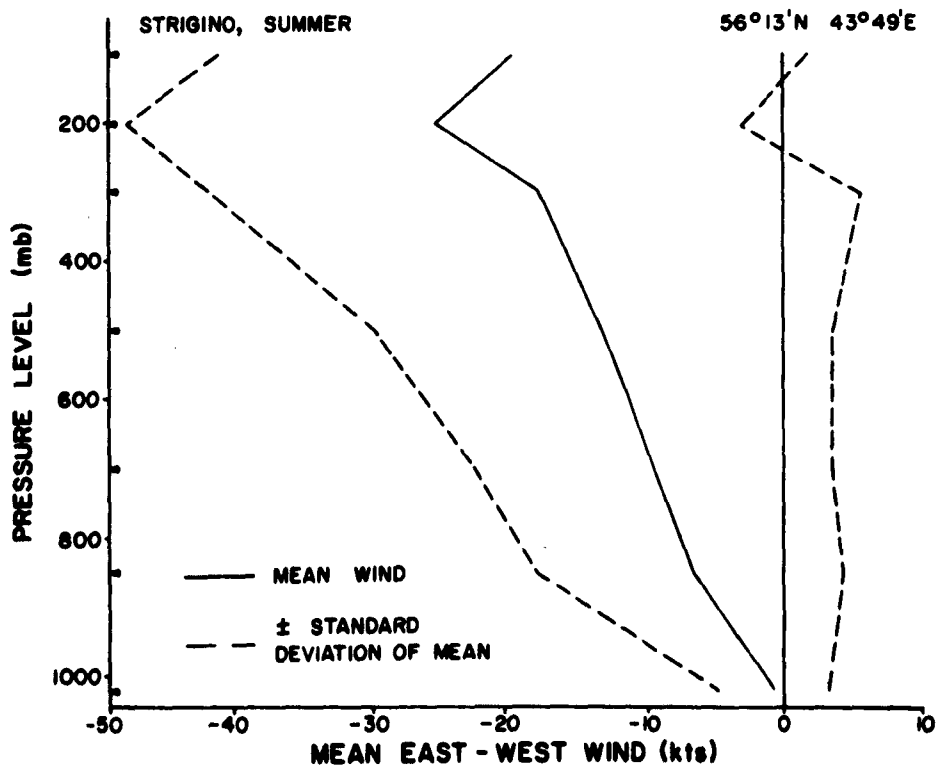
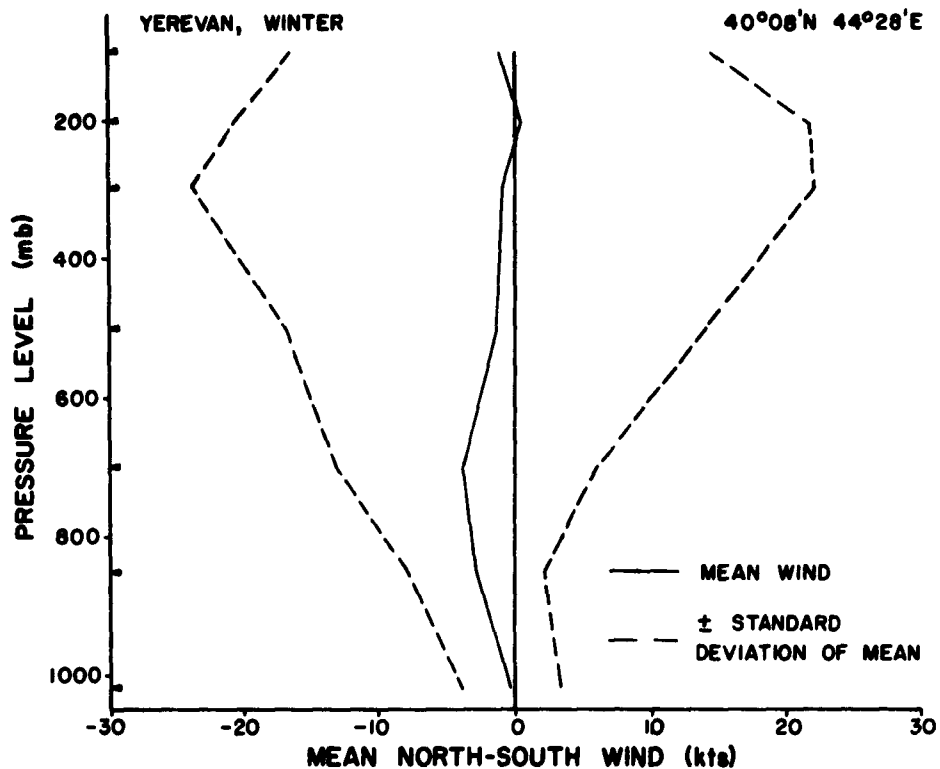


FIGURE 4

MEAN DENSITY DEPARTURES FROM ARDC 1959 MODEL ATMOSPHERE

SEASONAL DEPENDENCE PER STATION

(DATA LEVELS -)

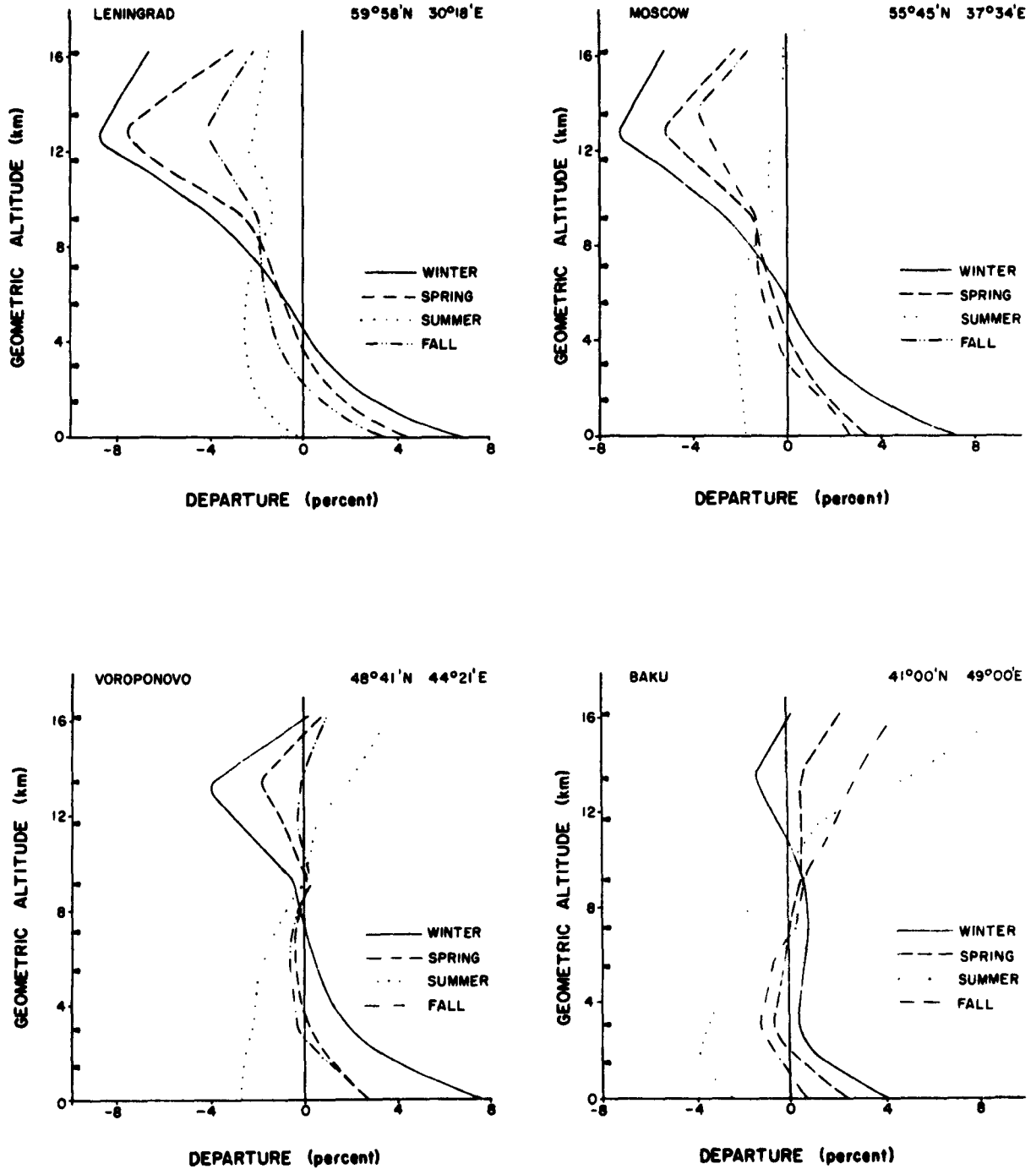


FIGURE 5

MEAN DENSITY DEPARTURES FROM ARDC 1959 MODEL ATMOSPHERE

LATITUDE DEPENDENCE PER SEASON

(DATA LEVELS -)

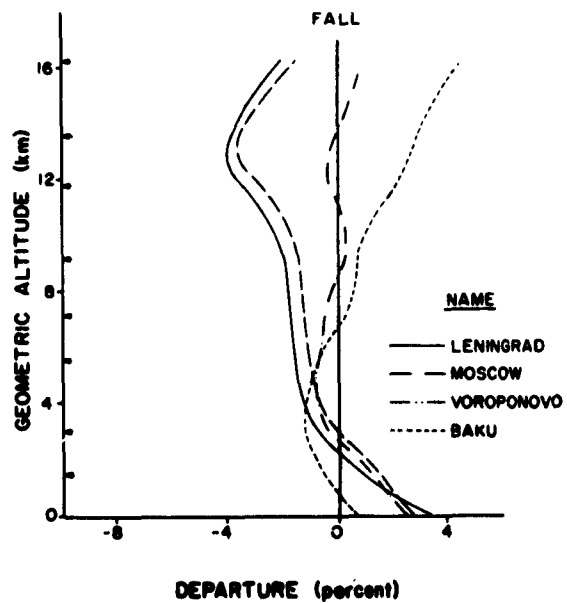
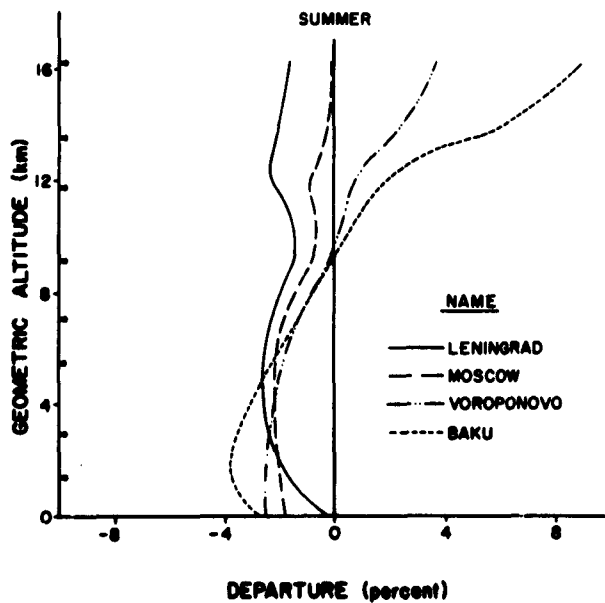
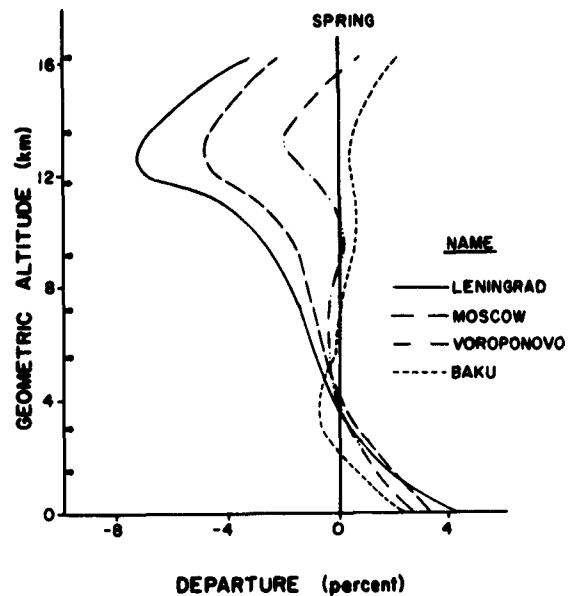
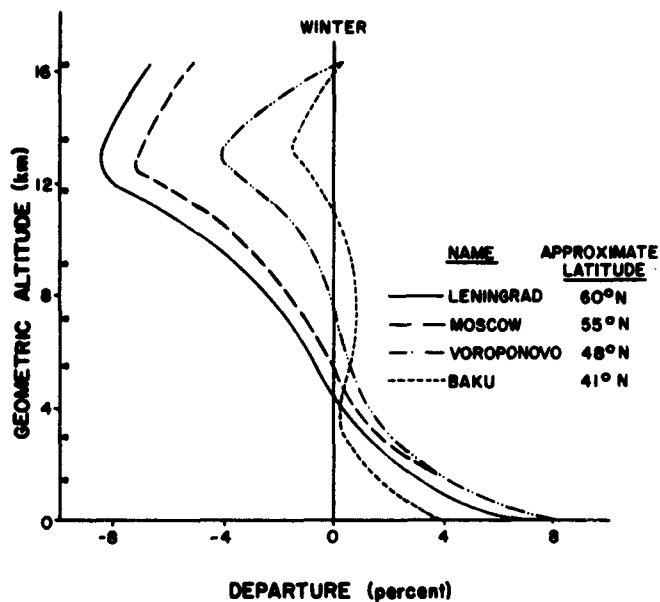


FIGURE 6

MEAN DENSITY VARIABILITY
SEASONAL DEPENDENCE PER STATION
(DATA LEVELS -)

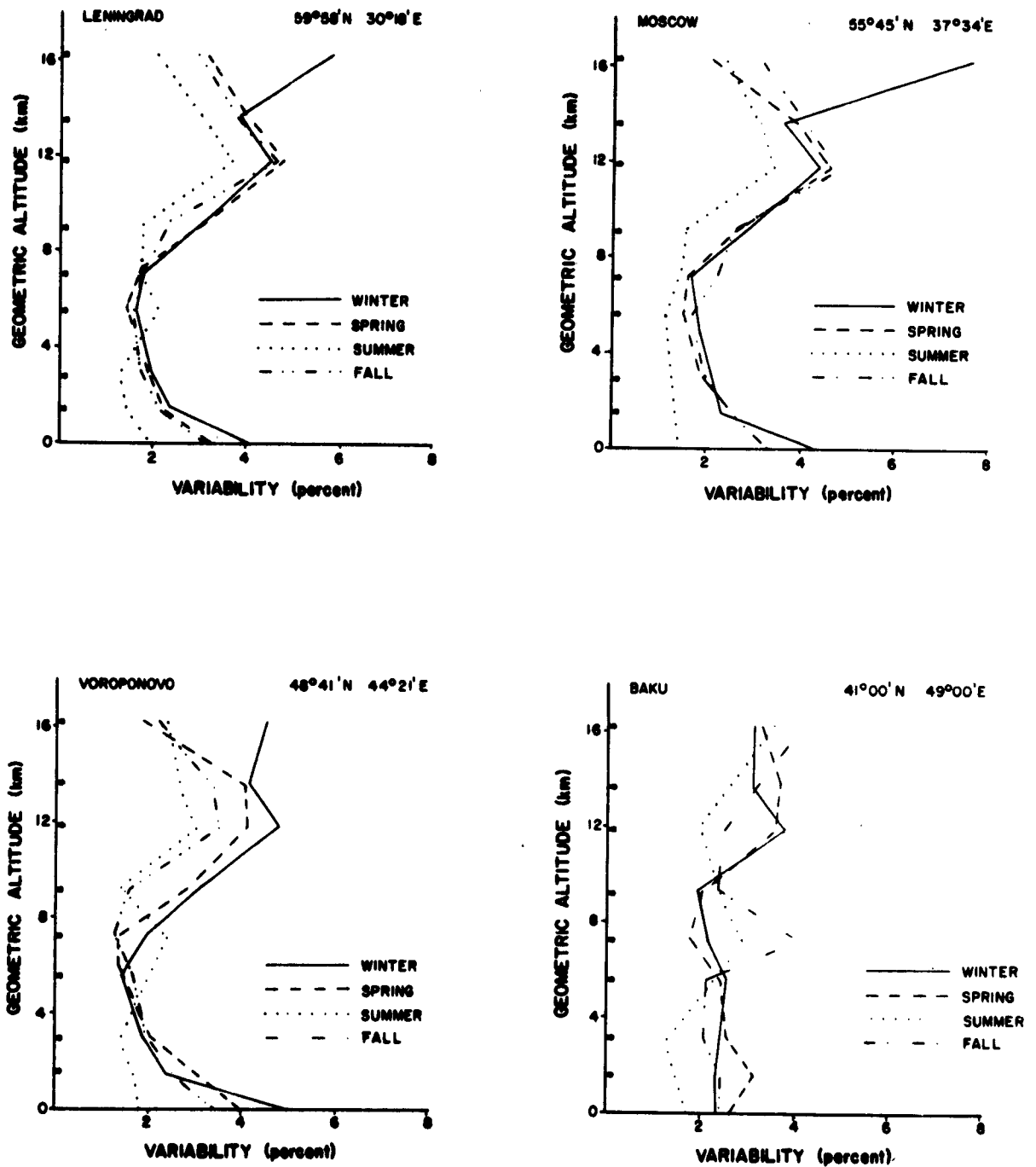


FIGURE 7

5, 6, and 7 for several typical stations, the latitudes and longitudes of which are representative of the area covered by the data of this report. Typical seasonal variations of the mean air density are shown in Figure 5. For each of the seasons, Figure 6 shows the variation of mean air density with latitude. Representative values of the percentage variability of the density are shown in Figure 7 (percent variability is defined, for any given altitude, as the standard deviation of the air density expressed as a percentage of the mean air density). The data of Figures 5 and 6 clearly demonstrate the isopycnic level occurring at altitudes of between 7 and 9 kilometers; at the isopycnic level, the departures of the mean densities from that of the standard atmosphere are usually less than 1 or 2 percent. The departures with respect to the standard atmosphere above the isopycnic level are negatively correlated with the departures below the isopycnic level; typically, the density profiles with the largest departures near the surface attain the largest departures above the isopycnic level (with the sign of the departure opposite to that of the surface departure). Above the isopycnic level, the data show (Figures 5 and 6) that the maximum deviations from the standard atmosphere (negative for the latitudes considered) occur at an altitude of approximately 13 kilometers. For the twenty-five stations, the largest departures from the standard atmosphere, at both the surface and at an altitude of about 13 kilometers, are exhibited during the winter season, whereas typically the least departures are obtained during the summer season. The data of Figure 6 show that the departures are strongly dependent on latitude, particularly above the isopycnic level. Perhaps of some interest is the fact that the mean densities below an altitude of about 3 kilometers usually tend towards a positive departure, independent of the sign of the departure above the isopycnic level. The percent variabilities of the mean seasonal densities are shown in Figure 7 for several typical stations. For the altitudes of the data considered, the maximum variabilities are exhibited at an altitude of about 12 kilometers; the variability at the surface, however, is only slightly less than at an altitude of 12 kilometers. The least variabilities are exhibited in the region of the isopycnic level. The dependences on season and latitude of the mean densities and variabilities as shown by the data of this report are in general agreement with the results reported in Reference 3.

PLANNED REPORTS OF CLIMATOLOGICAL DATA FOR ADDITIONAL STATIONS

Climatological data for additional Eurasian stations are expected to be published during the latter part of 1963. These data, applicable to 40 stations for wind and 37 stations for density, are based on about two to ten years of observation during the period of 1950 to 1962. The stations are located in the geographical area from approximately 22 degrees north to 80 degrees north and from approximately 35 degrees east to 180 degrees east.

REFERENCES

1. USAF and NWRC Reference Manual 524 of 19 July 1961
2. AOMC Report No. RR-TR-61-50, Reliability and Representativeness of Air Density Data, of 16 October 1961
3. AFCRC-TN-58-627, Behavior of Atmospheric Density Profiles, of December, 1958
4. NWRC Memo, A Preliminary Evaluation of the Reliability of Upper Air Density Data for the Eurasian Continent, by Harold L. Crutcher of March, 1963 (Unpublished)
5. Handbook of Geophysics, United States Air Force, 1960
6. NASA TN D-1641, Cross Sections of Temperature, Pressure, and Density Near the 80th Meridian West, of May, 1963
7. AOMC Climatological Ringbook, 1959-1961
8. AFCRC-TN-57-478, Maximum Variability Level of Winds, of 31 May 1957

TABULATIONS OF WIND DATA

APPENDIX A

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LAT 68 58 N LONG 033 03 E

EAST-WEST		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
			MNS	-7.99	-0.08	0.90	2.31	5.77	8.90	8.77
			SNS	10.53	18.83	16.04	21.70	26.49	21.73	17.38
OBSN	LEVEL	MEW	SEW							
30	SFC	-0.79	4.45		.421	.190	.349	.190	.080	-.022
598	850	-8.37	18.08	.684		.704	.514	.353	.366	.258
599	700	-7.22	16.77	.665	.732		.724	.498	.405	.274
544	500	-12.28	19.55	-.251	.460	.705		.773	.667	.473
413	300	-16.35	28.96	.056	.289	.522	.687		.828	.582
220	200	-17.96	23.11	-.056	.168	.359	.488	.556		.793
162	100	-25.58	16.05	-.132	.149	.251	.392	.427	.592	

MI-1A

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

W-1SP

TABLE 3

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

MURMANSK, SUMMER		LAT 68 58 N LONG 033 03 E									
EAST-WEST	ORSN LEVEL	NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
			MNS	0.70	0.05	-0.23	-0.44	-2.45	-3.98	-1.94	
			SNS	6.13	13.30	14.66	19.98	28.60	19.04	9.32	
			SEW								
		MEW									
80	SFC	-0.42	2.22		.576	.277	.082	-.116	-.023	-.057	
609	850	-5.92	12.93	.107		.702	.469	.342	.280	.183	
633	700	-7.77	14.10	.158	.764		.710	.579	.544	.312	
584	500	-11.60	18.61	-.030	.618	.775		.732	.792	.478	
388	300	-15.83	26.54	-.101	.428	.580	.785		.817	.514	
205	200	-9.22	16.72	-.090	.520	.630	.741	.752		.649	
189	100	-4.35	11.40	-.117	.178	.203	.194	.474	.396		

W-1SU

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LAT 68 58 N LONG 033 03 E

W-1F

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LAT 64 59 N LONG 034 47 E

		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS		1.14	2.03	3.96	4.73	9.41	13.58
				SNS		16.32	19.95	22.60	29.31	26.83	23.04
	OBSN	LEVEL	MEW	SEW							
0	SFC										
560	850	-5.36		16.22			.776	.612	.461	.362	.178
531	700	-7.55		20.83		.753		.680	.532	.435	.263
477	500	-9.81		21.68		.617	.650		.683	.635	.547
350	300	-14.61		27.37		.404	.442	.672		.809	.613
127	200	-24.29		21.93		.354	.346	.600	.699		.644
56	100	-27.89		21.71		.122	.198	.385	.465	.582	

MZ-M

TABLE 6

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KEM PORT, SPRING												
		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST		MNS	11.24	3.10	4.41	5.64	5.33	9.92	6.26			
		SNS	16.16	17.89	23.57	32.03	26.39	13.56				
OBSN	LEVEL	MEW										
1	SFC	13.40										
533	850	-7.22	17.63	.752	.535	.426	.468	.150				
505	700	-11.34	16.37	.657	.737	.665	.568	.312				
455	500	-16.20	21.12	.437	.676	.761	.695	.412				
377	300	-21.83	28.84	.388	.527	.742	.742	.318				
134	200	-21.28	23.72	.221	.414	.498	.694	.412				
94	100	-10.97	17.56	.052	.141	.163	.324	.472				

W-2SP

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LAT 64 59 N LONG 034 47 E

		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS		0.50	-1.49	-2.00	-3.19	-5.13	-3.14
				SNS		14.27	16.80	19.93	29.47	23.98	15.24
ORSN	LEVEL	MEW		SEW							
0	SFC										
547	850	-0.93		15.49			.633	.574	.453	.363	.146
526	700	-3.61		17.41		.545		.699	.666	.421	.196
497	500	-7.85		20.90		.512	.568		.772	.517	.321
446	300	-13.01		29.58		.391	.517	.700		.689	.416
152	200	-14.38		23.70		.528	.537	.711	.757		.519
124	100	-5.02		14.86		.391	.303	.468	.407	.497	

W-2SU

TABLE 9

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

ARKHANGELSK, WINTER			LAT 64 35 N LONG 040 30 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			MNS		-1.65	-0.23	1.33	2.49	6.66	6.78
			SNS		14.94	18.24	19.64	26.33	26.19	21.04
OBSN LEVEL			MEW							
0	SFC									
568	850	-4.77	13.84			.730	.632	.407	.290	.120
553	700	-7.02	16.22		.834		.718	.483	.414	.199
534	500	-9.69	20.65		.622	.735		.705	.656	.454
452	300	-11.94	25.36		.420	.495	.681		.841	.547
182	200	-18.12	26.35		.328	.511	.652	.755		.589
114	100	-25.02	20.55		.252	.342	.549	.653	.764	

W-3W

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

W-3SP

TABLE 11

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

ARKHANGELSK, SUMMER		LAT					LONG				
		64	35	N	040	30	E				
EAST-WEST	NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100		
	MNS			-0.09	-0.66	0.04	-0.04	-2.27	-0.63		
	SNS			11.45	15.82	17.93	23.38	20.66	15.57		
OBSN	LEVEL	MEW									
	0	SFC									
	566	850	-2.20	11.28		.730	.623	.486	.515	.397	
	536	700	-4.72	13.84	.772		.625	.540	.512	.449	
	493	500	-8.48	20.39	.601	.715		.747	.808	.568	
	444	300	-10.81	24.58	.535	.652	.660		.846	.535	
169	200	-8.96	20.71	.372	.610	.514	.769		.719		
140	100	-5.29	15.53	.346	.458	.306	.505	.590			

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LAT 64 35 N LONG 040 30 E

		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS		2.80	5.13	7.12	9.39	10.86	16.70
				SNS		14.00	15.74	20.72	25.64	22.80	26.01
OBSN	LEVEL	MEW		SEW							
0	SFC										
614	850	-6.67		15.98			.815	.698	.508	.435	.385
586	700	-8.03		16.69		.720		.747	.557	.514	.489
546	500	-12.06		18.12		.583	.739		.705	.670	.496
487	300	-14.48		26.60		.413	.502	.732		.732	.419
143	200	-19.00		21.89		.324	.432	.650	.705		.661
104	100	-16.07		19.78		.116	.358	.491	.440	.604	

W-3F

TABLE 13

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SORTOVOLA, WINTER				LAT 61 43 N LONG 030 43 E								
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100		
EAST-WEST			MNS	9.30	2.05	2.44	1.80	3.33	5.20	7.10		
			SNS	15.17		19.28	22.62	30.30	24.34	20.67		
OBSN	LEVEL	MEW	SEW									
1	SFC	-25.57										
356	850	-4.92	15.19		.741	.560	.427	.372	.291			
309	700	-8.97	17.22	.725		.581	.440	.380	.396			
259	500	-13.51	20.46	.506	.691		.754	.565	.416			
231	300	-19.49	27.68	.323	.465	.685		.698	.504			
215	200	-20.73	20.22	.282	.336	.539	.640		.632			
161	100	-26.17	16.67	.203	.251	.320	.440	.585				

W-4W

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

W-4SP

TABLE 15

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SORTOVOLA, SUMMER

SORTOVOLA, SUMMER			LAT 61 43 N LONG 030 43 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			MNS		-0.86	-1.70	-2.39	-3.26	-5.58	-2.09
			SNS		13.70	16.51	19.75	29.78	22.14	12.16
			SEW							
OBSN	LEVEL	MEW								
0	SFC									
523	850	-3.57	12.04			.659	.596	.428	.271	.026
442	700	-5.67	14.51		.751		.731	.581	.415	.191
372	500	-8.94	17.22		.551	.769		.779	.677	.354
264	300	-10.20	30.82		.304	.505	.714		.720	.274
231	200	-10.46	21.84		.320	.521	.705	.701		.332
223	100	-4.60	12.19		.179	.308	.326	.429	.518	

W-4SU

TABLE 16

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SORTOVOLA, FALL				LAT 61 43 N LONG 030 43 E						
OBSN	LEVEL	MEW	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			NORTH SOUTH							
			MNS		0.56	4.43	7.07	12.34	12.90	11.23
			SNS		16.17	18.08	25.34	31.42	26.74	17.40
			SEW							
0	SFC									
352	850	-5.68	13.57			.786	.582	.549	.463	.390
298	700	-9.02	13.82		.707		.694	.669	.622	.542
249	500	-14.09	19.00		.449	.697		.683	.586	.457
229	300	-17.24	27.32		.286	.624	.724		.766	.510
224	200	-17.55	22.48		.226	.512	.674	.719		.643
206	100	-15.56	17.15		.068	.347	.452	.547	.597	

W-4F

TABLE 17

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS).
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

TALLIN, WINTER				LAT 59 25 N LONG 024 48 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-1.57	0.33	1.87	4.64	4.59	4.49	5.36	
			SNS	7.54	15.08	17.66	24.35	29.42	29.03	23.32	
OBSN		LEVEL	MEW								
417	SFC	0.16	6.78		.533	.473	.420	.373	.277	.255	
373	850	-5.32	16.71	.607		.842	.689	.565	.476	.338	
417	700	-10.06	18.61	.579	.830		.818	.696	.601	.462	
417	500	-13.52	24.19	.507	.705	.852		.830	.715	.386	
417	300	-18.73	30.68	.338	.557	.688	.809		.830	.473	
296	200	-24.52	26.83	.347	.507	.622	.681	.800		.712	
68	100	-30.43	26.87	.241	.218	.316	.414	.480	.770		

W-5W

TABLE 18

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

TALLIN, SPRING												LAT 59 25 N				LONG 024 48 E			
		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100								
EAST-WEST				MNS	-0.08	1.75	2.62	4.12	5.54	5.01	2.88								
				SNS	7.31	14.67	16.77	24.85	33.11	26.13	24.05								
OBSN	LEVEL	MEW		SEW															
424	SFC	-0.47		5.97		.491	.447	.371	.222	.166	-.020								
406	850	-4.10		13.54	.416		.799	.607	.468	.419	.241								
424	700	-7.50		15.87	.331	.771		.811	.687	.635	.398								
424	500	-12.59		21.37	.214	.567	.760		.839	.742	.567								
424	300	-17.53		28.02	.167	.476	.664	.810		.813	.629								
355	200	-18.67		23.76	.178	.446	.625	.708	.792		.678								
83	100	-11.31		19.55	.158	.250	.333	.443	.421	.450									

W-5SP

TABLE 19

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

TALLIN, SUMMER				LAT 59 25 N LONG 024 48 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-0.17	-0.95	-1.20	-1.79	-4.49	-5.28	-3.79	
			SNS	5.95	12.71	15.74	22.15	30.12	27.57	16.55	
OBSN	LEVEL	MEW	SEW								
426	SFC	-1.57	5.40		.534	.497	.417	.351	.316	.353	
395	850	-6.04	13.35	.562		.861	.739	.632	.530	.381	
427	700	-8.26	14.28	.497	.823		.862	.730	.667	.511	
427	500	-12.67	19.97	.322	.620	.777		.832	.752	.486	
427	300	-18.23	26.27	.303	.529	.676	.780		.793	.489	
309	200	-18.79	23.69	.240	.439	.586	.732	.799		.621	
103	100	-11.00	19.00	.124	.472	.456	.611	.570	.551		

W-55U

TABLE 20

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

TALLIN, FALL			LAT 59 25 N LONG 024 48 E								
			NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-1.69	0.08	2.91	4.78	7.71	9.85	8.26
				SNS	7.31	16.26	18.21	25.03	33.69	32.02	26.25
OBSN	LEVEL	MEW		SEW							
426	SFC	-1.75		6.70		.667	.622	.519	.405	.381	.294
400	850	-10.57		14.18	.505		.848	.726	.604	.567	.432
426	700	-14.38		16.59	.471	.807		.848	.716	.682	.505
426	500	-20.83		21.90	.393	.669	.786		.826	.780	.619
426	300	-26.81		28.62	.371	.541	.679	.807		.889	.699
323	200	-29.61		27.69	.300	.468	.604	.696	.791		.769
80	100	-20.40		34.22	.170	.167	.278	.512	.560	.609	

W-5F

TABLE 21

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LENINGRAD TOWN, WINTER				LAT 59 58 N LONG 030 18 E							
				LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-2.04	-0.66	0.56	3.36	5.62	9.93	6.74
				SNS	6.78	15.95	19.14	23.34	29.73	29.15	20.69
OBSN	LEVEL	MEW	SEW								
413	SFC	-0.51	6.47			.599	.532	.440	.344	.234	.122
392	850	-7.13	15.99		.565		.851	.730	.577	.483	.377
413	700	-9.72	18.24		.509	.841		.838	.692	.551	.393
413	500	-12.63	21.86		.402	.686	.815		.852	.702	.529
413	300	-16.83	28.97		.304	.535	.656	.835		.803	.633
240	200	-23.96	25.96		.235	.458	.536	.656	.800		.705
53	100	-22.64	19.47		.029	.128	.270	.321	.536	.614	

TABLE 22

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LENINGRAD TOWN, SPRING

LENINGRAD TOWN, SPRING				LAT 59 58 N LONG 030 18 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-0.06	0.17	0.00	1.07	2.56	3.42	5.15	
			SNS	6.02	14.75	17.88	25.30	33.01	24.75	18.48	
OBSN	LEVEL	MEW	SEW								
430	SFC	-0.37	5.56		.481	.409	.313	.215	.178	-.104	
415	850	-5.23	14.90	.564		.814	.642	.504	.528	.285	
430	700	-8.67	16.63	.487	.850		.813	.672	.647	.464	
430	500	-13.89	23.35	.350	.612	.786		.865	.726	.553	
430	300	-17.68	28.41	.213	.469	.647	.823		.760	.692	
318	200	-22.50	22.21	.185	.377	.547	.654	.740		.731	
45	100	-9.27	12.77	-.003	.371	.435	.528	.520	.489		

W-6SP

TABLE 23

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LENINGRAD TOWN, SUMMER										LAT 59 58 N LONG 030 18 E					
		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100				
EAST-WEST				MNS	-0.52	-2.22	-3.28	-4.12	-5.54	-5.87	0.16				
				SNS	5.17	12.40	15.43	20.46	29.46	27.16	12.77				
OBSN	LEVEL	MEW		SEW											
413	SFC	-0.70		4.60		.530	.434	.374	.274	.303	.320				
393	850	-5.21		12.67	.521		.854	.722	.593	.616	.433				
413	700	-7.38		13.81	.494	.845		.831	.714	.695	.349				
413	500	-10.69		19.45	.375	.701	.838		.834	.750	.447				
413	300	-15.31		27.45	.310	.571	.692	.829		.764	.427				
233	200	-18.03		22.50	.321	.510	.648	.697	.749		.509				
64	100	-9.00		9.60	.087	.436	.488	.539	.547	.635					

W-6SU

TABLE 24

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LENINGRAD TOWN, FALL				LAT 59 58 N LONG 030 18 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100			
EAST-WEST			MNS	-2.10	0.45	2.14	5.21	8.35	10.94	7.77			
			SNS	5.89	15.10	17.62	24.48	31.83	31.44	17.45			
ORSN	LEVEL	MEW	SEW										
421	SFC	-1.85	5.77		.669	.589	.497	.372	.420	.346			
405	850	-10.38	14.77	.526		.846	.760	.625	.615	.582			
421	700	-13.48	16.67	.519	.848		.839	.740	.727	.646			
421	500	-19.43	22.69	.420	.693	.821		.845	.752	.687			
421	300	-24.03	29.28	.341	.608	.742	.838		.838	.677			
276	200	-27.28	26.87	.322	.547	.660	.751	.815		.725			
66	100	-11.91	20.36	.373	.536	.553	.610	.662	.674				

TABLE 25

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

RIGA, WINTER			LAT 56 58 N LONG 024 04 E								
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-3.44	0.56	2.25	4.45	5.21	5.65	8.78	
			SNS	7.85	16.03	18.23	24.00	31.55	26.29	18.19	
OBSN	LEVEL	MEW	SEW								
429	SFC	-0.45	6.84		.480	.453	.353	.310	.258	.069	
400	850	-7.99	17.29	.645		.807	.630	.502	.427	.218	
429	700	-11.39	19.68	.565	.870		.793	.648	.542	.342	
429	500	-15.45	25.24	.426	.693	.813		.842	.721	.581	
429	300	-20.54	31.32	.340	.569	.711	.854		.838	.639	
288	200	-23.57	27.73	.299	.545	.072	.746	.836		.610	
67	100	-25.57	20.98	.259	.274	.449	.579	.592	.765		

W-7W

TABLE 26

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

RIGA, SPRING			LAT 56 58 N LONG 024 04 E								
OBSN	LEVEL	MEW	NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-0.45	0.64	2.93	5.15	5.01	2.80	-4.10
				SNS	7.17	15.17	18.07	25.47	31.42	25.08	19.22
				SEW							
407	SFC	-0.39		5.73		.518	.420	.331	.240	.151	-.245
396	850	-5.75		13.52	.459		.818	.675	.509	.498	.111
407	700	-8.47		17.18	.424	.827		.840	.691	.662	.367
407	500	-12.55		22.60	.336	.631	.847		.816	.744	.445
407	300	-17.10		27.78	.273	.513	.724	.856		.796	.544
339	200	-18.77		21.94	.268	.501	.687	.756	.802		.708
57	100	-7.99		16.19	.077	.276	.456	.490	.513	.685	

TABLE 27

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

RIGA, SUMMER

RIGA, SUMMER		LAT 56 58 N LONG 024 04 E										
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100		
EAST-WEST			MNS	-0.70	-0.97	-1.94	-2.70	-4.20	-5.30	-3.73		
			SNS	5.34	11.76	14.75	20.89	30.62	25.86	12.34		
OBSN	LEVEL	MEW	SEW									
414	SFC	-1.28	4.57		.489	.449	.386	.305	.267	.116		
401	850	-7.64	11.85	.498		.792	.678	.560	.509	.230		
414	700	-10.12	13.48	.478	.820		.820	.714	.657	.404		
414	500	-15.29	18.69	.373	.638	.808		.871	.803	.422		
414	300	-20.38	26.31	.279	.459	.639	.820		.832	.438		
278	200	-23.14	23.63	.289	.437	.595	.756	.798		.432		
64	100	-7.36	11.70	.393	.475	.577	.657	.668	.733			

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TABLE 28

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

RIGA, FALL		LAT 56 58 N LONG 024 04 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-2.18	-0.54	2.12	4.70	6.39	8.28	-0.04	
			SNS	7.11	15.66	18.03	26.09	31.24	28.56	16.75	
OBSN LEVEL		MEW	SEW								
400	SFC	-1.81	6.31		.617	.549	.475	.398	.372	.288	
382	850	-13.89	14.63	.542		.795	.661	.615	.586	.457	
400	700	-16.46	16.88	.521	.800		.806	.755	.730	.575	
400	500	-21.33	22.79	.439	.639	.777		.833	.812	.695	
400	300	-26.23	26.93	.338	.536	.694	.812		.870	.738	
256	200	-27.80	23.65	.322	.482	.629	.714	.817		.807	
50	100	-17.43	14.38	-.016	.326	.396	.445	.504	.656		

TABLE 29

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

MINSK, WINTER			LAT 53 52 N LONG 027 32 E									
			NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST				MNS	-1.96	-1.01	0.95	2.95	5.25	5.60	5.56	
				SNS	7.25	16.38	17.64	21.12	26.95	27.20	26.83	
OBSN LEVEL			MEW	SEW								
429	SFC	-0.93		7.03		.606	.529	.393	.278	.304	.271	
407	850	-8.59		15.78	.630		.867	.686	.545	.485	.399	
429	700	-11.60		17.37	.535	.882		.829	.685	.607	.572	
429	500	-14.40		21.78	.414	.724	.864		.845	.757	.706	
429	300	-18.65		28.78	.284	.576	.725	.838		.838	.758	
281	200	-26.87		25.94	.253	.490	.656	.780	.881		.839	
131	100	-31.83		19.72	.060	.446	.561	.682	.731	.787		

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TABLE 30

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

MINSK, SPRING		LAT 53 52 N LONG 027 32 E									
	OBSN	LEVEL	MEW	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST		NORTH									
		SOUTH									
				MNS	0.35	1.11	1.28	0.93	1.94	1.44	-1.34
				SNS	6.41	14.24	15.70	22.13	30.21	22.87	20.52
				SEW							
						.538	.451	.299	.188	.123	.079
441	441	-0.56		5.79			.800	.581	.447	.428	.468
439	439	-5.58		14.42	.584			.817	.692	.647	.649
441	441	-8.30		16.22	.475	.824			.874	.761	.760
441	441	-13.13		21.00	.396	.691	.840				
441	441	-16.53		27.10	.281	.575	.737	.882		.797	.710
306	306	-17.82		22.89	.271	.515	.688	.775	.802		.842
92	92	-9.95		17.93	.255	.437	.542	.643	.605	.718	

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TABLE 31

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

MINSK, SUMMER

		LAT 53 52 N LONG 027 32 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	0.35	-0.43	-1.63	-3.01	-4.37	-4.18	-3.54	
			SNS	5.34	11.09	13.72	18.85	25.41	26.74	18.81	
OBSN	LEVEL	MEW	SEW								
429	SFC	-0.97	4.78		.428	.320	.293	.193	.156	.135	
408	850	-6.72	11.60	.514		.795	.652	.481	.457	.350	
429	700	-9.54	13.87	.453	.834		.815	.663	.651	.544	
429	500	-13.64	17.25	.371	.705	.837		.856	.811	.729	
429	300	-18.71	23.98	.258	.569	.709	.845		.865	.735	
202	200	-27.18	24.17	.116	.464	.595	.743	.799		.820	
94	100	-19.10	16.59	.200	.257	.396	.527	.548	.689		

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TABLE 32

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

MINSK, FALL		LAT 53 52 N LONG 027 32 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-1.30	0.80	2.86	4.06	5.89	9.72	7.05	
			SNS	8.04	14.53	17.18	21.33	28.72	28.76	23.35	
OBSN	LEVEL	MEW	SEW								
424	SFC	-2.39	6.16		.635	.556	.445	.331	.351	.308	
400	850	-11.89	12.24	.631		.854	.700	.566	.544	.469	
424	700	-14.44	14.05	.537	.859		.835	.698	.703	.635	
424	500	-19.10	17.00	.374	.720	.832		.866	.859	.802	
424	300	-24.50	22.62	.298	.554	.686	.801		.892	.781	
269	200	-24.37	22.11	.257	.493	.621	.758	.842		.844	
142	100	-23.45	16.26	.299	.341	.505	.604	.649	.705		

TABLE 33

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KIROV, WINTER			LAT 58 39 N LONG 049 37 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			MNS	-3.28	-2.68	-1.75	1.22	2.10	-1.71	0.29
			SNS	8.72	15.82	17.16	21.28	26.93	26.97	22.07
OBSN	LEVEL	MEW	SEW							
165	SFC	-1.40	8.22		.544	.490	.376	.334	.303	.038
160	850	-6.26	15.00	.616		.811	.634	.505	.524	.384
165	700	-7.77	16.75	.506	.901		.790	.663	.648	.533
164	500	-13.64	18.28	.486	.676	.727		.788	.755	.622
164	300	-19.66	26.81	.401	.492	.606	.776		.834	.564
103	200	-25.63	24.79	.240	.392	.526	.531	.625		.648
69	100	-32.68	21.88	.161	.279	.443	.408	.405	.456	

TABLE 34

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KIROV. SPRING			LAT 58 39 N LONG 049 37 E						
	NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST		MNS	-0.27	1.13	2.10	3.11	5.13	7.40	6.61
		SNS	7.29	12.12	15.12	21.04	26.48	23.69	12.78
OBSN LEVEL	MEW	SEW							
	214 SFC	-0.68	5.40	.581	.406	.308	.223	.216	.023
	207 850	-5.54	13.41	.516	.844	.624	.534	.523	.192
	214 700	-9.44	14.03	.379	.709	.804	.770	.755	.378
	214 500	-16.88	17.68	.332	.552	.737	.828	.746	.460
	214 300	-22.25	21.16	.170	.278	.572	.713	.828	.374
	94 200	-24.95	16.85	.062	-.020	.285	.595	.766	.557
72 100	-15.74	13.13	-.021	-.047	.090	.350	.247	.363	

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TABLE 35

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KIROV, SUMMER

KIROV, SUMMER											
			LAT 58 39 N LONG 049 37 E								
			NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-0.04	-0.19	0.21	0.74	0.82	-2.86	0.23
				SNS	5.46	10.20	12.94	17.47	23.37	17.35	10.86
OBSN LEVEL			MEW								
257	SFC	0.16	4.53			.479	.349	.287	.182	.129	.047
248	850	-3.01	9.66	.443			.828	.701	.490	.377	.282
257	700	-7.09	12.34	.441	.813			.846	.675	.657	.443
257	500	-10.69	16.50	.371	.659	.841			.742	.742	.507
257	300	-14.61	22.67	.249	.515	.663	.791			.768	.459
106	200	-15.43	23.96	.213	.494	.665	.675	.785			.707
78	100	-2.84	12.01	.175	.251	.357	.461	.545	.349		

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TABLE 36

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KIROV, FALL LAT 58 39 N LONG 049 37 E

		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST											
				MNS	-2.12	-0.99	0.84	4.95	6.70	5.40	5.25
				SNS	8.22	13.68	16.69	22.89	28.52	28.56	18.05
				SEW							
OBSN	LEVEL	MEW			7.31	.669	.583	.387	.290	.214	.120
129	SFC	-3.44			12.80	.478	.871	.661	.454	.491	.497
124	850	-11.06			14.86	.481	.836	.775	.662	.641	.565
129	700	-14.83			17.66	.329	.527	.680	.683	.821	.693
129	500	-20.56			23.06	.311	.429	.603	.807	.773	.572
129	300	-25.14			22.33	.166	.440	.605	.720	.724	.715
88	200	-28.25			18.92	.003	.227	.136	.206	.100	.261
75	100	-22.09									

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TABLE 37

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

STRIGINO, WINTER			LAT 56 13 N LONG 043 49 E										
	OBSN	LEVEL	MEW	LEVEL	SFC	850	700	LAT			LONG		
								500	300	200	100	500	300
EAST-WEST				MNS	-3.17	-3.23	-1.85	-1.03	2.22	6.59	7.13		
				SNS	7.83	15.68	18.03	23.10	30.29	28.72	28.91		
				SEW									
	390	SFC	-1.87	6.35		.427	.401	.361	.296	.312	.178		
	365	850	-9.60	15.72	.544		.880	.724	.600	.560	.436		
	390	700	-11.42	17.43	.515	.869		.824	.707	.657	.518		
	390	500	-14.83	22.93	.435	.725	.847		.819	.827	.596		
	390	300	-20.21	30.27	.360	.616	.720	.825		.837	.605		
	166	200	-28.91	29.20	.182	.527	.602	.750	.792		.722		
	70	100	-24.62	28.89	.069	.510	.598	.664	.741	.753			

TABLE 38

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

STRIGINO, SPRING				LAT 56 13 N LONG 043 49 E								
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100		
EAST-WEST			MNS	-1.75	-2.18	-2.88	-3.40	-4.59	3.07	-1.09		
			SNS	7.15	14.77	18.19	24.17	30.76	28.87	21.04		
OBSN	LEVEL	MEW	SEW									
402	SFC	-0.85	6.14		.552	.510	.416	.341	.262	.274		
379	850	-7.40	14.09	.449		.897	.745	.625	.551	.526		
402	700	-10.14	15.68	.441	.818		.845	.721	.674	.585		
402	500	-14.01	20.07	.320	.625	.787		.848	.770	.697		
402	300	-18.63	25.53	.253	.492	.667	.815		.811	.723		
111	200	-23.10	22.66	.198	.451	.681	.744	.780		.750		
46	100	-17.66	21.76	.117	.191	.606	.628	.723	.797			

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TABLE 39

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

STRIGINO, SUMMER				LAT 56 13 N LONG 043 49 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-0.31	2.16	0.17	0.02	-0.95	-4.72	-4.14	
			SNS	5.13	11.33	14.84	18.58	24.46	23.06	23.28	
OBSN	LEVEL	MEW	SEW								
366	SFC	-1.15	4.24		.525	.434	.348	.329	.252	.143	
297	850	-6.98	10.94	.478		.869	.705	.608	.392	.360	
365	700	-9.58	13.12	.400	.808		.835	.744	.571	.460	
365	500	-13.33	17.00	.322	.593	.751		.828	.607	.410	
365	300	-18.15	24.05	.283	.493	.655	.757		.809	.458	
94	200	-25.78	22.62	.244	.498	.699	.766	.792		.596	
39	100	-20.01	21.88	.176	.424	.391	.328	.350	.480		

W-10SU

TABLE 40

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

STRIGINO, FALL

LAT 56 13 N LONG 043 45 E

		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-2.00	0.78	2.12	2.27	3.56	3.42	9.42
				SNS	7.09	14.07	16.50	22.99	28.99	30.87	30.64
ORSN	LEVEL	MEW		SEW							
363	SFC	-2.58		5.54		.554	.527	.470	.413	.284	.249
307	850	-13.74		12.38	.432		.842	.725	.633	.529	.457
363	700	-14.42		16.32	.478	.857		.870	.765	.633	.544
363	500	-19.45		19.55	.366	.770	.848		.819	.678	.619
363	300	-24.54		25.10	.299	.657	.758	.838		.827	.646
126	200	-28.33		25.78	.143	.566	.595	.700	.809		.752
44	100	-27.77		20.56	.140	.241	.590	.657	.609	.783	

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TABLE 41

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KAZAN, WINTER				LAT 55 47 N LONG 049 11 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-3.07	-0.95	0.23	1.55	4.06	7.23	5.81	
			SNS	7.36	13.95	15.91	21.72	29.13	29.40	29.48	
OBSN	LEVEL	MEW		SEW							
232	SFC	-0.93	6.94		.440	.378	.261	.150	.143	.145	
214	850	-7.46	15.37		.504	.812	.625	.429	.497	.475	
232	700	-10.40	19.22		.457	.837	.753	.579	.589	.619	
232	500	-14.77	22.44		.298	.659	.774	.801	.728	.661	
232	300	-20.77	29.61		.245	.597	.711	.804	.827	.750	
137	200	-26.08	28.19		.268	.452	.647	.746	.827	.789	
42	100	-26.48	22.83		.095	.502	.536	.616	.725	.642	

W-11W

TABLE 42

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KAZAN, SPRING				LAT 55 47 N LONG 049 11 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-1.69	-1.53	-1.55	-1.61	-0.78	5.36	4.02	
			SNS	7.05	13.64	16.05	20.62	26.39	28.39	18.09	
OBSN	LEVEL	MEW									
290	SFC	-0.62	5.60		.483	.397	.265	.181	.164	.017	
275	850	-7.31	12.73	.355		.845	.675	.585	.638	.388	
290	700	-10.51	16.34	.300	.716		.816	.698	.721	.433	
290	500	-14.81	21.14	.201	.516	.715		.818	.847	.576	
290	300	-19.72	27.14	.119	.423	.625	.797		.900	.518	
100	200	-26.68	23.34	.102	.409	.639	.729	.794		.564	
34	100	-14.09	18.32	.225	.279	.392	.336	.436	.443		

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TABLE 43

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KAZAN, SUMMER

KAZAN, SUMMER											
			LAT 55 47 N LONG 049 11 E								
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	0.23	1.98	2.41	3.09	3.46	-2.41	-0.29	
			SNS	5.50	12.42	14.81	18.75	25.63	22.62	15.70	
			SEW								
OBSN LEVEL			MEW								
335	SFC	-1.17	4.76		.513	.370	.323	.281	.123	.234	
290	850	-5.60	11.99	.447		.814	.701	.566	.396	.344	
334	700	-9.52	14.16	.382	.671		.827	.708	.583	.412	
334	500	-13.81	17.93	.328	.600	.813		.791	.720	.470	
334	300	-18.23	22.66	.250	.511	.700	.824		.770	.377	
110	200	-24.85	24.89	.328	.405	.677	.763	.771		.462	
39	100	-16.07	17.95	.306	.588	.664	.697	.773	.670		

TABLE 44

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KAZAN, FALL			LAT 55 47 N LONG 049 11 E								
OBSN	LEVEL	MEW	NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST											
				MNS	-2.45	-0.33	1.30	3.63	5.81	5.95	9.73
				SNS	7.03	13.00	14.79	20.13	28.17	27.63	21.04
				SEW							
264	SFC	-2.27		5.79		.489	.481	.386	.281	.253	.348
236	850	-12.69		13.52	.394		.775	.640	.482	.478	.300
264	700	-16.65		15.27	.371	.816		.759	.653	.622	.523
264	500	-22.81		18.32	.308	.675	.752		.775	.723	.521
264	300	-27.26		22.89	.254	.540	.631	.745		.833	.652
147	200	-30.99		25.88	.141	.427	.574	.713	.775		.616
46	100	-24.40		24.03	.393	.489	.460	.530	.503	.500	

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TABLE 45

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

MOSCOW, WINTER

MOSCOW, WINTER											
			LAT 55 45 N LONG 037 34 E								
			NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-1.63	-1.59	0.00	0.87	2.58	7.99	7.07
				SNS	6.18	16.75	18.92	24.40	31.79	29.40	23.37
OBSN	LEVEL	MEW		SEW							
443	SFC	-0.54		5.56		.479	.433	.361	.285	.311	.169
429	850	-8.51		15.82	.537		.866	.688	.551	.592	.433
443	700	-11.72		17.39	.453	.814		.818	.691	.708	.550
443	500	-15.33		22.85	.392	.694	.845		.860	.827	.641
443	300	-19.55		28.46	.283	.557	.725	.853		.872	.685
207	200	-29.98		23.35	.218	.542	.693	.778	.827		.821
146	100	-32.23		20.69	.200	.450	.533	.528	.561	.674	

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

MOSCOW, SPRING											
			LAT 55 45 N LONG 037 34 E								
			NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-0.43	-1.42	-2.16	-3.44	-4.26	-1.20	3.42
			SNS	6.92	15.78	18.79	24.17	30.39	25.45	17.29	
OBSN	LEVEL	MEW	SEW								
446	SFC	-0.14	5.81		.572	.486	.330	.249	.150	-.097	
441	850	-5.42	14.09	.554		.841	.673	.568	.558	.370	
447	700	-8.57	16.40	.478	.770		.840	.729	.702	.553	
447	500	-12.51	21.37	.365	.618	.833		.901	.828	.718	
447	300	-16.63	26.77	.247	.487	.712	.869		.839	.691	
158	200	-22.42	21.82	.201	.459	.664	.742	.727		.808	
91	100	-14.98	17.68	-.010	.103	.283	.282	.359	.543		

W-12SP

TABLE 47

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

MOSCOW, SUMMER				LAT 55 45 N LONG 037 34 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100			
EAST-WEST			MNS	0.00	-0.85	-1.69	-3.21	-3.21	-3.65	-1.67			
			SNS	4.60	12.18	14.61	17.66	24.62	21.45	12.24			
OBSN	LEVEL	MEW	SEW										
448	SFC	-0.58	4.02	.392	.360	.247	.172	.201	.239				
431	850	-6.02	11.21	.467	.835	.677	.483	.444	.356				
448	700	-9.62	13.45	.467	.824	.834	.660	.621	.377				
448	500	-13.58	17.25	.383	.703	.821	.837	.776	.396				
448	300	-18.58	23.63	.285	.543	.665	.822	.811	.473				
152	200	-27.77	20.30	.394	.431	.569	.699	.743	.457				
90	100	-9.37	10.96	.396	.419	.430	.435	.482	.616				

W-12SU

TABLE 48

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

MOSCOW, FALL		LAT 55 45 N LONG 037 34 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-1.22	0.31	1.75	2.72	4.97	8.82	7.09	
			SNS	10.90	15.39	18.42	24.05	31.46	28.06	18.89	
OBSN	LEVEL	MEW	SEW								
449	SFC	-1.87	5.01		.307	.290	.238	.186	.340	.278	
438	850	-12.42	13.66	.462		.822	.698	.547	.658	.514	
449	700	-15.78	15.74	.417	.833		.851	.711	.791	.680	
449	500	-21.02	19.74	.345	.719	.829		.869	.862	.749	
449	300	-24.50	24.77	.248	.556	.656	.809		.901	.765	
189	200	-26.91	21.68	.296	.566	.679	.808	.822		.806	
155	100	-22.09	15.16	.225	.371	.528	.563	.541	.605		

W-12F

TABLE 49

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SVERDLOVSK, WINTER

SVERDLOVSK, WINTER										
			LAT 56 48 N LONG 060 38 E							

TABLE 50

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SVERDLOVSK, SPRING										
			LAT 56 48 N LONG 060 38 E							
			LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			MNS	-1.52	1.57	1.55	2.68	3.89	13.02	7.97
			SNS	6.35	12.98	15.93	23.45	28.39	23.92	21.39
OBSN LEVEL MEW <td>SEW</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			SEW							
395	SFC	-1.09	5.95		.336	.319	.224	.133	.176	.167
331	850	-9.21	14.22	.418		.778	.619	.520	.502	.171
395	700	-13.10	15.35	.356	.754		.808	.706	.660	.363
395	500	-19.68	21.65	.265	.597	.803		.842	.788	.506
395	300	-25.90	28.45	.163	.432	.630	.826		.872	.555
83	200	-29.09	19.22	.284	.386	.599	.732	.787		.551
29	100	-17.21	19.12	.142	.216	.255	.138	.363	.463	

TABLE 51

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SVERDLOVSK, SUMMER

		LAT 56 48 N LONG 060 38 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	0.25	4.78	5.21	6.43	8.16	4.14	3.26	
			SNS	5.03	11.39	14.67	20.28	28.46	23.90	11.76	
			SEW								
OBSN	LEVEL	MEW									
388	SFC	-0.87	4.14		.313	.237	.174	.120	.207	.128	
378	850	-4.47	11.95	.411		.749	.629	.526	.558	.271	
389	700	-7.05	15.17	.352	.805		.822	.746	.781	.385	
389	500	-10.80	19.18	.316	.708	.854		.836	.837	.381	
389	300	-14.65	25.76	.184	.567	.714	.839		.856	.402	
134	200	-13.93	21.98	.196	.566	.700	.805	.879		.464	
94	100	-6.39	13.70	.249	.354	.210	.209	.203	.236		

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TABLE 52

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SVERDLOVSK, FALL			LAT 56 48 N LONG 060 38 E									
OBSN	LEVEL	MEW	NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS		-1.26	3.26	2.60	3.98	6.26	2.06	2.02
				SNS		6.06	15.52	18.13	24.35	31.05	24.03	14.79
				SEW								
				MEW								
412	SFC	-2.80		5.75			.499	.470	.418	.288	.416	.237
402	850	-13.93		15.68		.544		.805	.665	.530	.509	.386
412	700	-16.94		17.12		.417	.789		.794	.684	.693	.565
412	500	-23.01		22.73		.302	.645	.776		.820	.771	.595
412	300	-28.21		27.94		.205	.513	.626	.820		.888	.606
159	200	-34.00		20.15		.120	.399	.490	.701	.776		.708
84	100	-25.53		13.15		.129	.331	.469	.567	.596	.570	

TABLE 53

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

UFA, WINTER			LAT 54 45 N LONG 056 00 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			MNS	-3.15	-6.55	-7.71	-8.26	-8.45	-7.29	-16.48
			SNS	8.37	15.16	16.17	22.03	30.25	23.72	18.79
OBSN LEVEL			MEW							
156	SFC		-0.80	6.16	.555	.416	.261	.212	.093	.325
143	850		-4.39	12.44	.505	.807	.534	.376	.346	.281
156	700		-8.57	17.64	.426	.831	.749	.630	.540	.200
156	500		-12.88	23.12	.352	.616	.718	.748	.549	.232
156	300		-19.82	28.78	.299	.522	.635	.825	.782	.193
75	200		-30.62	24.15	.249	.453	.654	.706	.771	.141
19	100		-35.36	24.23	.283	.644	.767	.662	.524	.509

W-14W

TABLE 55

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

UFA. SUMMER		LAT 54 45 N LONG 056 00 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	0.33	1.92	3.32	3.85	5.09	1.05	0.51	
			SNS	5.25	11.77	14.09	18.87	25.41	24.25	10.03	
OBSN LEVEL		MEW	SEW								
302	SFC	-0.37	4.39		.367	.363	.281	.284	.095	.062	
291	850	-4.35	10.16	.462		.776	.695	.586	.484	.080	
302	700	-7.05	14.30	.386	.783		.833	.702	.648	.386	
302	500	-10.61	17.49	.371	.681	.818		.831	.768	.321	
302	300	-13.74	22.40	.267	.479	.654	.766		.802	.544	
62	200	-16.13	24.17	.313	.571	.705	.752	.770		.791	
20	100	-10.22	11.95	.124	.223	.423	.518	.506	.775		

W-14SU

TABLE 56

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

UFA, FALL		LAT 54 45 N LONG 056 00 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-2.02	-2.20	-1.52	-1.30	0.60	-2.25	-6.10	
			SNS	7.13	14.09	17.49	23.86	29.83	25.96	15.33	
ORSN	LEVEL	MEW	SEW								
178	SFC	-2.53	5.60		.642	.557	.476	.438	.307	.403	
167	850	-10.30	12.36	.449		.858	.673	.646	.390	.347	
178	700	-14.90	15.10	.376	.855		.738	.657	.541	.365	
178	500	-22.40	20.30	.318	.695	.787		.802	.654	.574	
178	300	-26.77	24.29	.279	.583	.692	.729		.837	.555	
77	200	-32.89	17.33	.429	.503	.583	.546	.569		.673	
27	100	-23.16	14.61	.095	.392	.478	.402	.489	.563		

W-14F

TABLE 57

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KUIBISHEV, WINTER

LAT 53 14 N LONG 050 10 E											

W-15W

TABLE 58

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KUIBISHEV, SPRING

		LAT 53 14 N LONG 050 10 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-0.31	-3.19	-3.07	-1.87	-1.36	4.41	6.84	
			SNS	7.23	14.69	17.08	21.37	24.85	26.02	21.66	
			SEW								
OBSN	LEVEL	MEW									
386	SFC	-0.10	6.14		.417	.316	.267	.229	.196	.276	
347	850	-5.81	14.26	.487		.830	.706	.533	.515	.470	
386	700	-9.79	16.44	.452	.821		.809	.661	.593	.572	
386	500	-14.18	20.05	.434	.721	.833		.803	.730	.733	
386	300	-18.54	25.59	.313	.533	.671	.824		.804	.715	
99	200	-20.81	25.47	.335	.515	.683	.791	.869		.846	
52	100	-21.61	23.92	.350	.588	.680	.712	.750	.814		

W-15SP

TABLE 59

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KUIBISHEV, SUMMER			LAT 53 14 N LONG 050 10 E									
			NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST				MNS	1.20	1.87	1.13	0.78	1.79	-0.87	3.13	
				SNS	4.95	11.83	14.98	19.00	24.52	24.75	20.96	
OBSN	LEVEL	MEW		SEW								
406	SFC	-0.35		4.04		.376	.303	.268	.213	.086	.018	
323	850	-5.77		10.47	.287		.799	.711	.554	.473	.477	
406	700	-9.05		12.78	.262	.800		.874	.726	.677	.677	
406	500	-13.02		17.37	.223	.678	.834		.830	.772	.752	
406	300	-17.55		23.49	.206	.537	.714	.823		.903	.854	
134	200	-23.34		24.77	.277	.628	.772	.836	.898		.907	
73	100	-24.89		23.32	.369	.650	.735	.778	.779	.835		

W-15SU

TABLE 60

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KUIBISHEV, FALL

LAT 53 14 N LONG 050 10 E

		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-1.05	0.95	1.69	4.14	5.89	2.93	3.81
				SNS	7.25	14.75	16.85	22.21	28.04	29.49	22.42
OBSN	LEVEL	MEW	SEW								
407	SFC	-1.73	5.56			.453	.370	.224	.210	.099	.172
359	850	-11.68	14.20		.529		.782	.644	.606	.485	.292
407	700	-15.27	15.70		.426	.780		.829	.709	.669	.613
407	500	-22.40	20.77		.358	.605	.770		.823	.807	.703
407	300	-26.74	26.25		.218	.471	.616	.750		.840	.739
166	200	-34.68	25.82		.172	.390	.497	.682	.814		.747
86	100	-33.54	20.91		.250	.228	.452	.580	.719	.695	

TABLE 61

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KYEY, WINTER

LAT 50 24 N LONG 030 27 E

		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-1.17	0.27	1.32	3.13	3.91	7.11	7.09
				SNS	7.13	15.52	16.36	22.01	28.56	24.56	20.77
OBSN	LEVEL	MEW		SEW							
414	SFC	-1.24		7.11		.620	.466	.285	.179	.142	.063
386	850	-9.00		14.36	.545		.789	.549	.354	.279	.273
413	700	-13.41		16.34	.504	.830		.769	.601	.564	.452
413	500	-18.85		21.37	.337	.646	.774		.811	.751	.631
412	300	-23.47		27.98	.248	.492	.615	.811		.829	.613
209	200	-25.80		24.07	.120	.518	.592	.770	.800		.699
60	100	-25.28		14.28	-.094	.174	.284	.385	.424	.593	

W-16W

TABLE 62

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KYEY, SPRING			LAT 50 24 N LONG 030 27 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			MNS	0.04	0.93	0.56	0.56	0.84	-0.06	3.11
			SNS	6.94	13.97	16.01	21.35	26.89	23.26	18.48
OBSN LEVEL		MEW	SEW							
	417	SFC	-0.08	5.79	.559	.398	.280	.120	.052	-.103
	408	850	-3.13	13.78	.588	.728	.535	.373	.291	-.060
	417	700	-6.61	17.02	.447	.786	.814	.656	.633	.565
	417	500	-11.50	23.22	.375	.656	.828	.782	.690	.686
	417	300	-16.34	29.53	.268	.572	.747	.867	.734	.704
	213	200	-17.78	23.80	.212	.498	.651	.714	.748	.727
	48	100	-11.13	19.06	-.045	.394	.651	.655	.617	.711

W-16SP

TABLE 63

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KYEY, SUMMER				LAT 50 24 N LONG 030 27 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	1.05	1.13	0.56	-0.91	0.06	-1.67	-3.40	
			SNS	5.21	10.57	12.38	16.46	22.27	23.47	11.97	
OBSN	LEVEL	MEW	SEW								
432	SFC	-0.82	4.51		.432	.262	.215	.121	.168	-.138	
417	850	-4.33	11.35	.508		.740	.587	.434	.372	.104	
432	700	-7.62	13.62	.402	.846		.791	.641	.639	.413	
432	500	-11.83	18.01	.366	.759	.825		.807	.765	.585	
432	300	-17.39	23.04	.292	.642	.723	.840		.765	.623	
165	200	-30.87	20.03	.122	.463	.553	.669	.733		.638	
57	100	-16.75	13.23	.131	.391	.271	.478	.522	.483		

W-16SU

TABLE 64

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KYEY, FALL		LAT 50 24 N LONG 030 27 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST											
			MNS	-0.49	2.00	2.33	3.61	5.27	9.00	9.17	
			SNS	5.83	13.31	14.88	19.18	26.11	27.94	16.19	
OBSN	LEVEL	MEW	SEW								
419	SFC	-1.34	5.73		.487	.378	.226	.145	.379	.164	
379	850	-7.67	12.69	.587		.808	.580	.440	.553	.288	
419	700	-12.12	14.16	.508	.785		.768	.659	.711	.567	
419	500	-18.54	18.46	.387	.616	.756		.821	.828	.623	
419	300	-23.88	25.43	.287	.488	.613	.761		.853	.606	
180	200	-26.62	23.24	.148	.438	.571	.724	.841		.729	
87	100	-19.57	12.12	.121	.206	.391	.479	.470	.534		

TABLE 65

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LVOV, WINTER		LAT 49 49 N LONG 023 57 E									
	NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100		
EAST-WEST		MNS	-1.79	0.10	1.85	2.51	3.19	5.65	8.70		
		SNS	6.57	13.19	15.39	20.93	27.09	26.35	20.27		
ORSN LEVEL	MEW	SEW									
381	SFC	-1.44		.439	.264	.193	.148	.190	-.005		
352	850	-10.10	.477		.783	.520	.409	.449	.275		
379	700	-11.83	.407	.723		.677	.571	.587	.322		
379	500	-17.02	.260	.535	.757		.768	.768	.415		
379	300	-19.39	.180	.410	.613	.766		.751	.458		
210	200	-19.53	.201	.363	.618	.724	.779		.637		
62	100	-21.14	.281	.300	.449	.448	.509	.560			

W-17W

TABLE 66

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LVOV, SPRING		LAT 49 49 N LONG 023 57 E									
EAST-WEST	OBSN LEVEL	NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
			MNS	0.45	1.67	2.08	2.99	1.96	0.14	1.71	
			SNS	5.62	12.18	14.30	19.94	25.88	23.39	16.63	
			SEW								
		MEW									
			5.09		.532	.368	.242	.125	.056	-.068	
415	SFC	-0.91									
396	850	-5.13	13.95	.479		.729	.521	.393	.276	-.015	
415	700	-6.82	16.11	.428	.827		.745	.616	.536	.433	
415	500	-10.34	22.83	.328	.611	.787		.793	.678	.419	
415	300	-14.94	28.23	.214	.495	.674	.828		.726	.435	
264	200	-13.52	25.88	.252	.471	.645	.770	.806		.567	
40	100	-3.81	16.71	.304	.249	.397	.587	.637	.721		

W-17SP

TABLE 67

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LVOV, SUMMER		LAT 49 49 N LONG 023 57 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-0.02	0.45	-1.07	-2.04	-2.78	-8.28	-11.37	
			SNS	4.12	10.08	12.30	15.64	22.34	25.20	17.66	
ORSN	LEVEL	MEW	SEW								
409	SFC	-1.30	4.00		.336	.233	.150	.083	-.042	-.078	
379	850	-5.71	10.84	.380		.680	.480	.313	.304	.000	
409	700	-8.34	13.41	.323	.774		.752	.613	.580	.380	
409	500	-12.71	17.20	.237	.679	.821		.769	.710	.594	
409	300	-18.30	23.04	.200	.542	.663	.780		.775	.680	
200	200	-28.12	23.47	.077	.397	.580	.696	.666		.723	
44	100	-18.71	16.36	-.178	-.105	.226	.288	.525	.436		

TABLE 68

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LVOV, FALL		LAT 49 49 N LONG 023 57 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-1.36	-0.04	1.11	2.86	3.36	4.41	5.13	
			SNS	4.99	11.33	13.72	19.53	27.59	25.51	19.51	
OBSN	LEVEL	MEW	SEW								
383	SFC	-0.91	5.13		.393	.311	.236	.122	.089	.082	
334	850	-9.17	11.77	.496		.627	.515	.345	.405	.328	
383	700	-11.66	13.76	.393	.745		.772	.600	.564	.558	
383	500	-17.72	18.65	.282	.497	.733		.790	.725	.563	
383	300	-21.90	25.88	.219	.367	.587	.760		.843	.677	
205	200	-21.92	24.87	.299	.405	.595	.685	.781		.747	
65	100	-21.22	16.48	.203	.213	.326	.337	.471	.577		

TABLE 69

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

ODESSA, WINTER				LAT 46 29 N LONG 030 38 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	1.19	1.61	0.93	1.05	2.68	4.12	5.30	
			SNS	7.77	13.60	13.74	20.17	27.40	28.29	20.83	
OBSN	LEVEL	MEW	SEW								
353	SFC	-0.33	6.47		.431	.233	-.043	-.063	.014	.034	
315	850	-6.20	12.77	.495		.689	.390	.259	.280	.403	
353	700	-12.44	15.06	.440	.675		.684	.543	.522	.500	
353	500	-20.36	21.61	.309	.538	.742		.745	.694	.613	
353	300	-24.17	27.49	.188	.420	.625	.776		.775	.556	
180	200	-24.87	29.20	.198	.438	.607	.734	.797		.703	
60	100	-32.51	20.50	.055	.219	.431	.388	.512	.549		

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WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

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TABLE 71

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

ODESSA, SUMMER

LAT 46 29 N LONG 030 38 E

		NORTH SOUTH		LEVEL		SFC	850	700	500	300	200	100
EAST-WEST				MNS								
				SNS								
OBSN	LEVEL	MEW	SEW									
411	SFC	-0.99	3.89				.453	.265	.122	.001	.002	.303
392	850	-1.07	10.22			.422		.673	.517	.394	.296	.326
411	700	-4.78	12.32			.338	.787		.764	.598	.559	.635
411	500	-10.41	16.30			.345	.686	.782		.771	.656	.658
411	300	-18.89	24.05			.276	.505	.652	.780		.693	.352
168	200	-31.52	21.39			.236	.200	.434	.503	.632		.541
29	100	-21.96	18.28			-.004	.056	.209	-.051	-.050	.080	

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WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS)•

LAT 46 29 N LONG 030 38 E

NORTH
SOUTH

W-18F

TABLE 73

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SARATOV, WINTER

		LAT 51 34 N LONG 046 02 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-1.71	-2.20	-2.20	-0.66	1.09	5.19	3.67	
			SNS	8.06	14.55	14.51	18.11	23.39	28.23	23.39	
			SEW								
OBSN	LEVEL	MEW									
385	SFC	-0.43	6.55		.503	.422	.315	.213	.162	-.074	
385	850	-6.22	15.47	.516		.859	.702	.539	.406	.224	
385	700	-9.33	15.97	.418	.882		.816	.639	.495	.280	
385	500	-15.45	20.21	.323	.754	.821		.796	.693	.595	
385	300	-19.43	24.46	.252	.651	.709	.848		.816	.742	
155	200	-26.17	24.13	.105	.511	.581	.745	.828		.787	
80	100	-25.34	20.21	.172	.367	.425	.480	.597	.733		

TABLE 74

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SARATOV, SPRING

SARATOV, SPRING											
			LAT 51 34 N LONG 046 02 E								
			NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-0.06	-3.01	-3.77	-3.73	-3.40	-2.58	-0.78
				SNS	8.26	14.44	15.27	18.40	23.04	24.00	20.38
ORSN	LEVEL	MEW		SEW							
424	SFC	-0.04		6.68		.550	.409	.338	.198	.160	.256
416	850	-2.70		13.91	.448		.828	.706	.537	.456	.470
424	700	-4.53		14.94	.416	.830		.825	.687	.613	.626
424	500	-7.91		18.54	.391	.715	.833		.831	.779	.687
424	300	-12.30		23.16	.263	.615	.702	.837		.848	.721
107	200	-17.70		23.08	.287	.479	.543	.654	.771		.795
58	100	-12.14		20.54	.129	.245	.384	.463	.715	.834	

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TABLE 75

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SARATOV, SUMMER				LAT 51 34 N LONG 046 02 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100			
EAST-WEST			MNS	0.85	0.25	-0.14	-0.10	-0.56	-2.70	-3.34			
			SNS	9.73	11.83	13.74	16.11	21.72	21.02	12.84			
OBSN	LEVEL	MEW	SEW										
413	SFC	-0.70	4.97	.227	.190	.143	.108	.240	.083				
398	850	-2.97	11.56	.383	.770	.697	.554	.285	.247				
413	700	-6.88	12.57	.355	.800	.828	.699	.527	.420				
413	500	-10.61	15.76	.340	.724	.809	.832	.726	.571				
413	300	-14.83	21.41	.233	.583	.672	.806	.725	.529				
122	200	-28.19	24.52	.276	.552	.718	.761	.845	.723				
67	100	-18.50	17.41	.225	.490	.677	.670	.728	.786				

W-19SU

TABLE 76

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

SARATOV, FALL

SARATOV, FALL										
			LAT 51 34 N LONG 046 02 E							

TABLE 77

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KHARKOV, WINTER			LAT 49 56 N LONG 036 17 E							
NORTH SOUTH			LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			MNS	-0.43	-0.60	0.45	1.52	2.80	5.60	-1.71
			SNS	7.52	14.16	16.19	20.79	25.96	28.31	25.03
OBSN LEVEL MEW			SEW							
377	SFC	0.76	8.06		.535	.377	.250	.122	.184	.202
358	850	-8.08	16.81	.709		.772	.574	.404	.483	.363
377	700	-12.75	18.67	.584	.859		.741	.610	.670	.613
377	500	-19.82	23.51	.398	.643	.809		.761	.763	.636
377	300	-25.18	27.42	.326	.490	.650	.817		.859	.687
195	200	-27.10	24.27	.277	.442	.572	.702	.827		.753
68	100	-37.46	22.87	.273	.371	.399	.536	.657	.720	

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TABLE 78

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KHARKOV, SPRING

LAT 49 56 N LONG 036 17 E

	NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST		MNS	-0.43	-2.14	-2.64	-3.61	-3.32	-1.65	2.29
		SNS	7.54	13.15	15.68	20.89	27.61	25.06	22.52
		SEW							
OBSN	OEVEL	MEW							
422	SFC	1.03		.580	.433	.280	.182	.150	-.052
409	850	-3.11	.546		.812	.623	.473	.558	.338
422	700	-6.00	.466	.822		.809	.671	.737	.653
422	500	-10.86	.354	.627	.775		.838	.786	.715
422	300	-16.65	.215	.488	.658	.808		.788	.694
140	200	-14.18	.192	.485	.658	.639	.781		.747
25	100	-6.53	.278	.767	.657	.435	.290	.510	

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TABLE 79

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KHARKOV, SUMMER

KHARKOV, SUMMER				LAT 49 56 N LONG 036 17 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100			
EAST-WEST			MNS	1.53	0.56	-0.16	-0.56	-1.11	-0.97	-1.50			
			SNS	5.40	10.10	12.05	15.35	21.80	26.17	20.40			
OBSN		MEW	SEW										
417	SFC	0.04	4.55		.344	.229	.172	.062	.052	-.223			
402	850	-2.90	11.89	.486		.740	.647	.484	.531	.232			
417	700	-6.02	13.66	.443	.873		.794	.592	.639	.404			
417	500	-10.94	17.95	.417	.790	.838		.739	.673	.433			
417	300	-16.83	23.35	.317	.641	.704	.813		.806	.559			
153	200	-31.73	22.56	.122	.532	.575	.628	.692		.464			
36	100	-20.63	18.56	-.221	.152	.308	.382	.398	.347				

TABLE 80

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

KHARKOV, FALL

KHARKOV, FALL											
				LAT 49 56 N LONG 036 17 E							
		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	0.02	1.22	1.98	3.34	5.91	8.61	10.78
				SNS	6.65	12.90	15.16	21.49	27.95	30.35	25.34
		MEW		SEW							
OBSN	LEVEL										
412	SFC	-0.17	6.35	.479	.398	.314	.232	.316	.344		
393	850	-7.64	13.46	.640	.815	.662	.511	.660	.558		
412	700	-12.59	15.19	.541	.831	.831	.715	.774	.575		
412	500	-20.30	20.23	.397	.640	.815	.862	.837	.559		
412	300	-25.80	26.11	.297	.483	.674	.813	.864	.575		
173	200	-34.47	23.53	.222	.293	.536	.682	.824	.779		
61	100	-30.33	25.32	.076	.134	.199	.244	.293	.374		

TABLE 81

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

VOROPONOV, WINTER			LAT 48 41 N LONG 044 21 E									
			NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS		0.02	-2.35	-1.85	3.01	9.09	4.64	2.76
				SNS		9.11	12.28	15.14	22.99	30.43	27.16	21.08
OBSN	LEVEL	MEW		SEW								
123	SFC	-0.52		11.04			.583	.365	.222	.132	.130	.058
114	850	-9.72		17.80		.686		.673	.509	.410	.390	.405
123	700	-14.46		19.37		.545	.832		.661	.547	.522	.314
123	500	-22.50		21.35		.397	.529	.711		.808	.726	.598
123	300	-26.31		30.66		.302	.428	.621	.758		.805	.536
106	200	-29.86		25.10		.295	.435	.532	.681	.672		.726
47	100	-36.45		21.76		.185	.444	.301	.250	.308	.514	

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TABLE 82

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS).
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

VOROPONOVO, SPRING

		LAT 48 41 N		LONG 044 21 E					
		NORTH SOUTH							
		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST		MNS	-1.55	-3.73	-4.29	-5.56	-5.36	-6.66	-3.28
		SNS	7.95	13.15	15.04	19.22	25.40	21.45	17.02
OBSN	LEVEL	MEW	SEW						
144	SFC	0.80	8.57	.437	.374	.229	.105	.004	-.015
136	850	-1.83	14.55	.578	.770	.620	.418	.328	-.045
144	700	-4.27	17.35	.439	.804	.754	.584	.524	.440
144	500	-9.89	21.61	.365	.677	.823	.721	.674	.523
144	300	-15.39	25.28	.239	.523	.683	.856	.751	.542
86	200	-14.51	24.66	.296	.559	.606	.721	.769	.616
28	100	-11.87	15.39	.387	.500	.645	.609	.532	.695

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TABLE 83

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

VOROPONOVO, SUMMER				LAT 48 41 N					LONG 044 21 E		
EAST-WEST	OBSN	LEVEL	MEW	LEVEL	SFC	850	700	500	300	200	100
				NORTH							
				SOUTH							
				MNS	0.43	-0.64	-0.60	-0.39	-1.01	-0.60	-1.07
				SNS	6.20	9.70	11.56	15.91	20.98	16.98	11.27
				SEW							
				MEW							
				5.93		.500	.261	.201	.076	.026	.355
				12.16	.563		.638	.501	.367	.271	.479
				15.66	.428	.814		.731	.552	.547	.256
				18.69	.388	.711	.789		.745	.622	.393
				24.44	.286	.575	.658	.774		.699	.545
				20.03	.226	.463	.479	.619	.675		.477
				11.76	-.021	.048	.117	.257	.357	.347	

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LAT 48 41 N LONG 044 21 E

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TABLE 85

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS).
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

ROSTOV NA DONU. WINTER				LAT 47 15 N LONG 039 49 E									
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100			
EAST-WEST			MNS	-0.95	-0.54	-1.19	1.03	2.49	4.92	2.58			
			SNS	8.10	12.69	14.28	21.02	30.84	23.94	21.45			
OBSN	LEVEL	MEW	SEW										
139	SFC	0.41	9.05		.316	.189	.211	.078	.081	-.070			
130	850	-8.74	15.95	.463		.767	.562	.397	.467	.436			
139	700	-14.36	16.28	.437	.787		.690	.526	.562	.400			
139	500	-18.89	20.05	.373	.617	.790		.814	.770	.603			
139	300	-24.91	26.97	.144	.530	.650	.785		.813	.645			
132	200	-24.35	23.35	.186	.447	.585	.719	.814		.783			
81	100	-24.40	23.88	-.125	.197	.283	.460	.574	.724				

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TABLE 86

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

ROSTOV NA DONU, SPRING				LAT 47 15 N					LONG 039 49 E		
EAST-WEST	OBSN	LEVEL	NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
				MNS	1.65	-2.99	-2.64	-2.97	-3.09	-6.41	-6.30
				SNS	6.00	11.00	12.65	18.07	23.55	22.40	24.23
				SEW							
				MEW							
				1.30		.170	.140	.093	.065	.136	-.019
				-0.68	.625		.694	.511	.413	.445	.346
				-4.37	.584	.820		.797	.675	.689	.589
				-7.79	.431	.670	.839		.869	.775	.680
				-12.01	.379	.491	.728	.794		.795	.636
				-14.84	.427	.476	.647	.716	.816		.772
				-12.61	.444	.617	.677	.708	.731	.784	

W-22SP

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

LAT 47 15 N LONG 039 49 E

		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	1.90	-0.78	-1.11	-0.31	-0.62	-1.87	-2.90
				SNS	5.05	8.92	9.73	14.46	20.67	19.49	18.65
OBSN	LEVEL	MEW	SEW								
250	SFC	0.51	6.02			.225	.222	.103	.049	.009	-.124
235	850	-1.46	13.66		.635		.654	.526	.480	.420	.094
250	700	-5.58	13.81		.523	.779		.724	.673	.469	.259
250	500	-11.76	15.49		.367	.657	.750		.779	.538	.291
250	300	-21.26	20.56		.338	.469	.586	.742		.676	.427
128	200	-31.83	18.30		.266	.292	.493	.556	.727		.637
80	100	-21.80	17.47		-.077	-.069	.075	.379	.371	.516	

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TABLE 88

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

[illegible]

TABLE 89

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

TBILISI, WINTER											
				LAT 41 41 N LONG 044 57 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	1.17	2.68	0.66	0.66	-1.30	2.04	-1.69	
			SNS	5.05	8.28	10.38	14.18	22.07	24.73	16.55	
OBSN	LEVEL	MEW	SEW								
202	SFC	0.04	5.63		.343	.157	.065	.015	.022	-.145	
162	850	-8.78	11.85	.375		.505	.191	.195	.171	.160	
202	700	-15.82	13.37	.206	.435		.540	.438	.446	.385	
202	500	-23.70	17.29	-.028	.039	.582		.479	.677	.735	
202	300	-33.42	26.00	.016	.030	.490	.392		.861	.665	
143	200	-36.55	23.82	.017	.060	.399	.601	.732		.712	
45	100	-40.20	17.68	-.206	.384	.121	.312	.369	.420		

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TABLE 90

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

TBILISI, SPRING													
				NORTH SOUTH		LEVEL	SFC	850	700	500	41 41 N	LONG	044 57 E
EAST-WEST					MNS		0.00	-0.78	-3.32	-4.12	-7.48	-7.36	-10.03
					SNS <td></td> <td>4.82</td> <td>9.02</td> <td>9.33</td> <td>13.78</td> <td>20.23</td> <td>19.92</td> <td>16.69</td>		4.82	9.02	9.33	13.78	20.23	19.92	16.69
OBSN LEVEL				MEW <th>SEW<td colspan="8"></td></th>	SEW <td colspan="8"></td>								
190	SFC	1.13	10.08					-0.063	-0.027	-0.184	-0.128	-0.004	-0.234
175	850	-2.43	10.92				0.050		0.312	0.054	0.040	0.040	-0.046
189	700	-7.42	13.91				0.173	0.521		0.545	0.427	0.509	0.314
190	500	-14.57	18.26				0.152	0.352	0.756		0.726	0.716	0.690
190	300	-22.01	23.10				0.010	0.216	0.550	0.749		0.817	0.819
84	200	-20.32	25.05				0.090	0.406	0.678	0.717	0.763		0.763
32	100	-15.97	19.55				0.141	0.715	0.708	0.626	0.577		0.629

TABLE 91

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

TBILISI, SUMMER

TBILISI, SUMMER											
			LAT 41 41 N LONG 044 57 E								

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TABLE 92

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

TBILISI, FALL

LAT 41 41 N LONG 044 57 E

		NORTH SOUTH		LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	0.56	1.19	-1.75	-1.94	-3.05	-2.23	1.61
				SNS	4.90	8.43	7.91	11.97	19.74	18.89	15.16
OBSN LEVEL		MEW	SEW								
200	SFC	0.31	5.13			.369	.100	.084	.019	.021	-.111
174	850	-3.67	11.46		.369		.381	.130	-.090	-.166	.190
200	700	-12.14	12.10		.253	.664		.482	.173	.323	.154
200	500	-21.37	15.89		.152	.439	.661		.574	.613	.314
200	300	-32.43	21.65		.051	.348	.500	.628		.730	.340
137	200	-41.91	23.90		.142	.281	.389	.548	.698		.441
54	100	-35.52	23.59		-.151	-.020	.142	.303	.533	.449	

TABLE 93

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

YEREVAN, WINTER				LAT 40 08 N LONG 044 28 E							
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100	
EAST-WEST			MNS	-0.35	-2.88	-3.71	-1.52	-1.05	0.39	-1.20	
			SNS	3.67	4.84	9.38	15.08	23.04	21.30	15.43	
OBSN	LEVEL	MEW	SEW								
296	SFC	-0.74	4.88		.018	.062	-.020	-.098	-.049	-.044	
252	850	-0.02	5.87	.095		.295	.237	.103	.136	.041	
296	700	-11.19	10.84	.059	.162		.539	.408	.362	.143	
296	500	-20.95	17.06	.091	.108	.564		.621	.657	.282	
296	300	-27.34	25.24	.104	.160	.495	.678		.676	.522	
169	200	-35.77	21.74	.084	-.026	.411	.698	.663		.648	
87	100	-35.19	20.13	.098	-.062	.322	.455	.474	.477		

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TABLE 94

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

YEREVAN, SPRING											
				LAT 40 08 N LONG 044 28 E							
				NORTH SOUTH							
				LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	0.23	-3.34	-5.28	-6.70	-10.38	-11.66	-9.68
				SNS	5.23	6.28	8.01	13.21	21.08	19.20	15.39
				SEW							
OBSN	LEVEL	MEW		4.62		.115	.005	-.116	-.131	-.059	.052
329	SFC	0.35		6.82	.064		.327	.142	.005	-.047	-.209
305	850	1.01		10.55	.064	.234		.491	.359	.343	.083
329	700	-6.08		16.03	.035	.163	.683		.665	.633	.480
329	500	-15.70		22.52	.022	.169	.489	.731		.733	.576
329	300	-25.06		25.57	.061	.225	.558	.708	.818		.644
111	200	-28.15		16.34	.308	.381	.535	.640	.652	.750	
36	100	-19.37									

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TABLE 95

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

YEREVAN, SUMMER

YEREVAN, SUMMER			LAT 40 08 N LONG 044 28 E							
OBSN	LEVEL	MEW	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			MNS	0.72	-2.20	-4.60	-5.85	-9.11	-8.88	-8.37
		SNS	4.92	4.60	5.91	13.33	18.91	20.52	17.55	
		SEW								
382	SFC	0.52	4.55		-0.023	-0.008	-0.087	-0.093	-0.134	0.263
359	850	2.39	5.44	0.036		0.128	-0.058	-0.171	-0.125	-0.148
382	700	-1.22	7.38	0.078	0.162		0.489	0.404	0.310	0.414
382	500	-13.89	11.41	0.048	0.130	0.449		0.709	0.587	0.256
382	300	-34.57	20.69	0.035	-0.031	0.261	0.493		0.734	0.289
140	200	-45.58	20.91	-0.077	0.000	0.050	0.358	0.600		0.456
59	100	-32.04	19.55	-0.140	0.166	0.054	0.147	0.164	0.438	

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TABLE 97

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

BAKU, WINTER			LAT 41 00 N LONG 049 00 E							
OBSN	LEVEL	MEW	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			MNS	-0.52	-1.53	-2.90	-1.13	0.16	4.06	0.64
	SNS	4.53	13.19	12.73	15.82	24.19	22.69	20.48		
	SEW									
180	SFC	-0.29	4.43		.156	.030	.050	.012	-.095	.155
158	850	-8.55	11.50	.071		.487	.225	-.003	-.031	.481
181	700	-11.95	11.19	.118	.537		.645	.471	.339	.472
181	500	-19.31	16.81	.177	.227	.527		.636	.438	.482
181	300	-28.33	24.31	.147	.227	.480	.772		.716	.465
139	200	-34.80	22.52	.039	.081	.350	.565	.701		.740
21	100	-38.24	12.94	.324	.052	.019	-.058	.398	.374	

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TABLE 98

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

BAKU, SPRING			LAT 41 00 N LONG 049 00 E								
			NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST				MNS	-0.45	-1.57	-3.32	-6.65	-5.77	-5.25	-4.84
				SNS	5.46	12.03	10.20	15.43	21.41	21.49	18.89
OBSN	LEVEL	MEW		SEW							
191	SFC	0.14		4.68		.255	.150	.051	.020	-.011	.241
178	850	-4.33		10.63	-.004		.401	-.016	-.150	-.065	-.047
191	700	-6.86		12.36	.025	.605		.345	.233	.304	.089
191	500	-11.62		17.02	-.007	.559	.636		.626	.489	.269
191	300	-21.12		19.88	-.006	.381	.452	.669		.706	.615
81	200	-27.38		24.56	-.131	.379	.334	.511	.689		.740
28	100	-18.34		20.79	.281	.508	.274	.337	.503	.655	

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WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

W-25SU

TABLE 100

WIND COMPONENT MEANS AND STANDARD DEVIATIONS (IN KNOTS),
BY LEVELS (IN MILLIBARS), WITH CORRELATIONS BETWEEN LEVELS FOR EACH COMPONENT

BAKU, FALL		LAT 41 00 N LONG 049 00 E								
		NORTH SOUTH	LEVEL	SFC	850	700	500	300	200	100
EAST-WEST			MNS	0.10	-0.70	-1.01	1.11	1.38	-1.15	0.33
			SNS	4.14	12.55	10.34	13.25	20.89	22.71	32.60
OBSN	LEVEL	MEW	SEW							
166	SFC	-0.10	4.31		.170	-.008	-.111	-.200	-.248	-.312
153	.850	-6.98	10.43	.152		.276	.129	-.033	-.110	-.307
166	700	-10.90	10.96	.039	.379		.460	.249	.112	-.435
166	500	-18.34	16.38	.003	.099	.534		.498	.367	.283
166	300	-28.80	22.44	-.057	.167	.505	.666		.597	.618
115	200	-41.02	23.94	-.003	.125	.325	.486	.569		.763
25	100	-46.09	35.03	-.010	-.056	.233	.507	.630	.801	

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TABULATIONS OF DENSITY DATA

APPENDIX B

TABLE 101

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MURMANSK, WINTER											
		LAT 68 58 N LONG 033 03 E									
		HGT	1	2	3	4	5	6	7	8	9
M			1.3171	1.1054	.9253	.6864	.5679	.4415	.2940	.2175	
SX10			.5220	.2184	.1753	.1992	.1581	.1529	.0677	.0415	
OBSN	HGT										
349	46	1	1.000	.578	.366	.151	.066	-.058	-.231	-.228	
349	1458	2		1.000	.768	.372	.334	.373	-.244	-.347	
345	3014	3			1.000	.540	.382	.416	-.308	-.283	
229	5579	4				1.000	.631	-.226	-.273	-.232	
228	7193	5					1.000	.315	-.117	-.113	
22	9177	6						1.000	.790	.740	
11	11806	7							1.000	.926	
11	13638	8									1.000
0	16221	9									

TABLE 102

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MURMANSK, SPRING

LAT 68 58 N LONG 033 03 E

HGT	1	2	3	4	5	6	7	8	9
M	1.2937	1.0982	.9212	.6859	.5698	.4463	.2935	.2210	.1544
SX10	.4154	.2190	.1729	.1681	.1689	.1802	.1387	.0878	.0436

OBSN HGT

393	46	1	1.000	.659	.483	.121	.117	.181	.084	-.109	.566
393	1458	2	1.000	1.000	.764	.274	.160	.066	.070	-.161	-.079
390	3014	3			1.000	.455	.268	.070	.016	-.178	-.216
273	5579	4				1.000	.603	-.052	.210	.044	-.065
271	7193	5					1.000	.489	.523	.453	.514
51	9177	6						1.000	.798	.783	.705
28	11806	7							1.000	.962	.869
27	13638	8								1.000	.932
5	16221	9									1.000

TABLE 103

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MURMANSK, SUMMER		LAT 68 58 N LONG 033 03 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.2427	1.0622	.8974	.6767	.5689	.4523				
	SX10	.2286	.1844	.1218	.1088	.1741	.1075			
OBSN	HGT									
297	46 1	1.000	.785	.634	.271	.241	.477			
297	1458 2		1.000	.698	.279	.241	.317			
294	3014 3			1.000	.401	.296	.633			
224	5579 4				1.000	.418	.305			
167	7193 5					1.000	.758			
92	9177 6						1.000			
0	11806 7							1.000		
0	13638 8								1.000	
0	16221 9									1.000

TABLE 104

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER) •
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MURMANSK, FALL LAT 68 58 N LONG 033 03 E

HGT		1	2	3	4	5	6	7	8	9
M		1.2785	1.0851	.9116	.6842	.5680	.4542			
SX10		.3615	.2242	.1740	.1177	.1196	.0788			
OBSN		HGT								
281	46	1	1.000	.822	.722	.516	.239	.178		
280	1458	2		1.000	.834	.571	.232	.173		
279	3014	3			1.000	.607	.278	.029		
180	5579	4				1.000	.563	.221		
172	7193	5					1.000	.688		
25	9177	6						1.000		
0	11806	7							1.000	
0	13638	8								
0	16221	9								

TABLE 105

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KEM PORT, WINTER

LAT 64 59 N LONG 034 47 E

HGT 1 2 3 4 5 6 7 8 9

M 1.3299 1.1089 .9284 .6939 .5727 .4423 .2941 .2175

SX10 .5790 .2751 .2003 .1290 .1280 .1659 .1412 .0778

OBSN HGT

310 10 1 1.000 .521 .356 .270 .196 .101 .334 .319

310 1458 2 1.000 .620 .329 .215 -.166 .043 .121

307 3014 3 1.000 .663 .422 .266 -.009 .041

252 5579 4 1.000 .729 .439 -.050 .004

244 7193 5 1.000 .635 .377 .341

59 9177 6 1.000 .922 .919

20 11806 7 1.000 .972

19 13638 8 1.000

0 16221 9 1.000

TABLE 106

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KEM PORT, SPRING											
		LAT 64 59 N LONG 034 47 E									
HGT		1	2	3	4	5	6	7	8	9	
M		1.3106	1.1015	.9241	.6933	.5754	.4510	.3019	.2261	.1543	
SX10		.5212	.2617	.1948	.1425	.1313	.1530	.1628	.1134	.0597	
OBSN	HGT										
298	10 1	1.000	.744	.532	.387	.043	-.279	-.214	-.288	.326	
298	1458 2		1.000	.762	.482	.126	-.370	-.425	-.460	.067	
294	3014 3			1.000	.499	.077	-.465	-.470	-.465	.166	
225	5579 4				1.000	.288	-.168	-.230	-.241	.114	
219	7193 5					1.000	.593	.471	.506	.444	
70	9177 6						1.000	.903	.895	.843	
37	11806 7							1.000	.980	.861	
35	13638 8								1.000	.940	
15	16221 9									1.000	
											1.000

TABLE 107

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KEM PORT, SUMMER		LAT 64 59 N LONG 034 47 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.2397	1.0524	.8959	.6808	.5684	.4541	.3032	.2287	.1591	
SX10	.2497	.2277	.1670	.1825	.1098	.0896	.1924	.1312	.0435	
OBSN	HGT									
167	10 1	1.000	.749	.535	.258	.346	.511	.262	.380	.249
164	1458 2		1.000	.609	.217	.187	.233	.044	.120	-.352
161	3014 3			1.000	.383	.310	.142	.066	.158	-.425
138	5579 4				1.000	.426	-.138	-.331	-.355	-.664
126	7193 5					1.000	.578	.033	.144	-.595
93	9177 6						1.000	.657	.792	-.484
13	11806 7							1.000	.933	-.002
12	13638 8								1.000	.255
8	16221 9									1.000

TABLE 108

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KEM PORT. FALL										
		LAT 64 59 N LONG 034 47 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.2857	1.0879	.9151	.6873	.5733	.4546	.3089	.2309	.1574	
SX10	.4157	.2749	.2063	.1677	.1968	.1165	.1534	.1101	.0601	
OBSN	HGT									
290	10 1	1.000	.647	.575	.365	.242	.109	.082	.018	.280
289	1458 2		1.000	.733	.412	.346	-.018	-.243	-.215	.535
285	3014 3			1.000	.557	.376	-.049	-.165	-.177	.060
252	5579 4				1.000	.308	-.039	.090	-.045	-.582
239	7193 5					1.000	.591	.306	.282	.188
77	9177 6						1.000	.759	.779	.537
22	11806 7							1.000	.980	.889
20	13638 8								1.000	.956
7	16221 9									1.000

TABLE 109

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ARKHANGELSK, WINTER

ARKHANGELSK, WINTER											
		LAT 64 35 N LONG 040 30 E									
		HGT	1	2	3	4	5	6	7	8	9
M			1.3488	1.1189	.9321	.6965	.5791	.4392	.2940	.2183	
SX10			.5911	.2371	.1648	.1252	.2112	.1225	.1158	.0754	
OBSN	HGT										
377	13	1	1.000	.593	.509	.296	.147	.050	.081	.081	
369	1458	2		1.000	.744	.416	.206	.136	-.003	-.012	
345	3014	3			1.000	.645	.249	.116	-.076	-.105	
282	5579	4				1.000	.462	.253	.096	.088	
270	7193	5					1.000	.620	.424	.381	
53	9177	6						1.000	.906	.896	
35	11806	7							1.000	.974	
35	13638	8									1.000
0	16221	9									

TABLE 110

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ARKHANGELSK, SPRING

LAT 64 35 N LONG 040 30 E

HGT	1	2	3	4	5	6	7	8	9
M	1.3131	1.1037	.9260	.6942	.5753	.4476	.3002	.2244	.1541
SX10	.5708	.2607	.1710	.1510	.1273	.1845	.1641	.1073	.0555
OBSN	HGT								
336	13 1	1.000	.601	.370	.074	-.013	-.047	-.486	-.727
332	1458 2		1.000	.796	.274	.023	-.228	-.610	-.606
297	3014 3			1.000	.405	.125	-.136	-.603	-.494
255	5579 4				1.000	.420	.023	-.154	-.209
248	7193 5					1.000	.696	.475	.255
68	9177 6						1.000	.872	.738
45	11806 7							1.000	.871
42	13638 8								.933
16	16221 9								1.000

TABLE 111

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ARKHANGELSK, SUMMER										
		LAT 64 35 N LONG 040 30 E								
HGT		1	2	3	4	5	6	7	8	9
M		1.2453	1.0565	.8966	.6807	.5722	.4568	.3172	.2380	.1583
SX10		.2210	.1693	.1092	.1203	.1915	.0565	.1088	.0662	.0238
OBSN	HGT									
193	13 1	1.000	.712	.615	.319	.119	.036	-.278	-.176	.083
190	1458 2		1.000	.784	.338	.135	.003	-.564	-.509	-.110
166	3014 3			1.000	.421	.150	.149	-.521	-.470	-.238
144	5579 4				1.000	.112	.263	-.389	-.369	-.142
138	7193 5					1.000	.492	-.141	-.237	-.129
104	9177 6						1.000	.257	.136	.179
10	11806 7							1.000	.985	.632
9	13638 8								1.000	.736
9	16221 9									1.000

TABLE 112

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ARKHANGELSK, FALL

LAT 64 35 N LONG 040 30 E

HGT 1 2 3 4 5 6 7 8 9

M 1.2906 1.0923 .9175 .6899 .5740 .4503 .3015 .2244 .1482

SX10 .4656 .2835 .2050 .1531 .1388 .1535 .1731 .1138 .0748

OBSN HGT

310 13 1 1.000 .765 .585 .412 .258 .034 -.208 -.314 -.282

306 1458 2 1.000 .737 .520 .193 -.149 -.250 -.248 .051

288 3014 3 1.000 .631 .170 -.280 -.460 -.495 -.318

246 5579 4 1.000 .287 -.286 -.327 -.356 -.211

231 7193 5 1.000 .472 .518 .573 .358

65 9177 6 1.000 .924 .913 .808

31 11806 7 1.000 .971 .745

29 13638 8 1.000 .940

9 16221 9 1.000

TABLE 113

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SORTOVOLA, WINTER											
		LAT 61 43 N LONG 030 43 E									
		HGT	1	2	3	4	5	6	7	8	9
OBSN		M	1.3227	1.1134	.9292	.6938	.5737	.4421	.2966	.2212	.1571
		SX10	.7567	.2985	.1895	.1361	.1318	.1419	.1250	.0848	.1137
		HGT									
	265	18 1	1.000	.419	.314	.327	.104	.107	-.094	-.089	.849
	265	1458 2		1.000	.712	.457	.181	.005	-.215	-.154	.998
	261	3014 3			1.000	.751	.422	.165	-.144	-.064	-.007
	173	5579 4				1.000	.721	.347	.075	.135	.104
	169	7193 5					1.000	.610	.267	.331	-.157
	144	9177 6						1.000	.842	.857	.907
	114	11806 7							1.000	.948	-.464
112	13638 8									1.000	.376
3	16221 9										1.000

TABLE 114

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SORTOVOLA, SPRING		LAT 61 43 N LONG 030 43 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.2999	1.0942	.9217	.6925	.5777	.4503	.3047	.2282	.1553	
SX10	.4678	.2597	.1859	.1176	.1852	.1385	.1347	.0870	.0529	
OBSN	HGT									
335	18 1	1.000	.678	.560	.395	.132	.104	-.067	-.138	-.230
335	1458 2	1.000	.605	.406	.060	-.001	-.212	-.250	-.234	
330	3014 3		1.000	.536	.063	-.072	-.251	-.280	-.271	
230	5579 4			1.000	.296	.172	-.117	-.129	-.204	
222	7193 5				1.000	.184	-.110	-.168	-.098	
195	9177 6					1.000	.589	.527	.124	
171	11806 7						1.000	.952	.515	
168	13638 8							1.000	.770	
51	16221 9								1.000	

TABLE 115

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SORTOVOLA, SUMMER

		L T 61 3 N ONG 0 0 43								
HGT		1	2	3	4	5	6	7	8	9
M		1.2359	1.0549	.8968	.6804	.5708	.4570	.3172	.2387	.1594
SX10		.3002	.1578	.1315	.1222	.0839	.1412	.1187	.0772	.0408
OBSN	HGT									
298	18 1	1.000	.336	.328	.142	.223	.144	.093	.092	-.027
297	1458 2		1.000	.554	.133	.110	.034	-.135	-.172	-.103
296	3014 3			1.000	.322	.296	.135	-.068	-.053	-.108
249	5579 4				1.000	.256	.087	-.032	-.068	-.144
180	7193 5					1.000	.376	.225	.292	.262
176	9177 6						1.000	.207	.195	.160
154	11806 7							1.000	.946	.631
152	13638 8								1.000	.798
142	16221 9									1.000

TABLE 116

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SORTOVOLA, FALL		LAT 61 43 N LONG 030 43 E								
		HGT	1	2	3	4	5	6	7	8 9
M		1.2728	1.0857	.9128	.6873	.5732	.4516	.3104	.2321	.1579
SX10		.3927	.2558	.2104	.1320	.1347	.1524	.1425	.0879	.0500
OBSN	HGT									
270	18 1	1.000	.533	.336	.165	.162	.100	.110	.069	.253
270	1458 2	1.000	.514	.310	.233	-.038	-.031	-.067	.144	
264	3014 3	1.000	.247	.127	-.097	-.142	-.166	.000		
218	5579 4	1.000	.347	.009	.008	-.003	-.018			
203	7193 5	1.000	.377	.096	.063	-.017				
186	9177 6	1.000	.442	.431	-.057					
157	11806 7	1.000	.958	.182						
151	13638 8	1.000	.504							
39	16221 9	1.000								

TABLE 117

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

TALLIN, WINTER											
		LAT 59 25 N LONG 024 48 E									
		HGT	1	2	3	4	5	6	7	8	9
	M		1.3057	1.1069	.9269	.6971	.5754	.4470	.3026	.2255	.1554
	SX10		.5744	.2731	.2095	.1640	.1109	.1390	.1521	.0954	.0707
OBSN	HGT										
560	44 1	1.000	.585	.344	.267	.276	.177	.177	-.056	-.071	-.382
560	1458 2		1.000	.760	.454	.371	.195	.195	-.095	-.082	.141
556	3014 3			1.000	.475	.373	.115	.115	-.135	-.092	.363
461	5579 4				1.000	.575	.173	.173	-.115	-.098	.065
444	7193 5					1.000	.727	.727	.364	.407	.332
333	9177 6						1.000	1.000	.839	.851	.806
214	11806 7								1.000	.979	.810
206	13638 8									1.000	.919
8	16221 9										1.000

TABLE 118

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

TALLIN, SPRING										
		LAT 59 25 N LONG 024 48 E								
HGT		1	2	3	4	5	6	7	8	9
M		1.2862	1.0919	.9208	.6941	.5771	.4539	.3092	.2312	.1567
SX10		.3824	.2271	.1602	.1353	.0872	.1173	.1325	.0848	.0327
OBSN	HGT									
591	44 1	1.000	.714	.542	.302	.195	-.021	-.169	-.262	-.155
590	1458 2		1.000	.846	.418	.242	-.194	-.427	-.478	-.393
587	3014 3			1.000	.480	.261	-.190	-.447	-.472	-.407
490	5579 4				1.000	.532	.033	-.239	-.251	-.312
464	7193 5					1.000	.607	.290	.299	.034
403	9177 6						1.000	.802	.788	.571
326	11806 7							1.000	.974	.791
309	13638 8								1.000	.887
155	16221 9									1.000

TABLE 119

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

TALLIN, SUMMER		LAT 59 25 N LONG 024 48 E							
OBSN	HGT	HGT							
		1	2	3	4	5	6	7	8 9
M	1.2297	1.0557	.8974	.6827	.5709	.4564	.3189	.2409	.1611
	SX10	.1643	.1288	.1180	.1212	.0765	.0783	.1152	.0834 .0434
538	44 1	1.000	.702	.500	.314	.363	.220	.042	.002 -.052
538	1458 2		1.000	.644	.362	.305	.045	-.290	-.341 -.280
536	3014 3			1.000	.327	.170	-.041	-.266	-.332 -.354
511	5579 4				1.000	.108	-.069	-.167	-.214 -.276
412	7193 5					1.000	.448	.060	.054 .076
405	9177 6						1.000	.390	.352 .308
359	11806 7							1.000	.971 .717
284	13638 8								1.000 .849
281	16221 9								1.000

TABLE 120

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

TALLIN, FALL											
		LAT 59 25 N LONG 024 48 E									
		HGT	1	2	3	4	5	6	7	8	9
OBSN	M	1.2625	1.0802	.9104	.6883	.5748	.4551	.3174	.2371	.1597	
	SX10	.3465	.2074	.1516	.0956	.1482	.0855	.1360	.0940	.0461	
	HGT										
562	44 1	1.000	.618	.390	.277	.105	.126	.070	.034	.287	
560	1458 2		1.000	.794	.597	.133	.032	-.118	-.147	-.051	
555	3014 3			1.000	.593	.107	-.087	-.249	-.275	-.331	
498	5579 4				1.000	.268	.089	-.151	-.166	-.172	
464	7193 5					1.000	.064	.106	.092	.082	
421	9177 6						1.000	.686	.652	.551	
301	11806 7							1.000	.968	.856	
246	13638 8								1.000	.933	
145	16221 9										1.000

TABLE 120

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

TALLIN, FALL											
		LAT 59 25 N LONG 024 48 E									
		HGT	1	2	3	4	5	6	7	8	9
M			1.2625	1.0802	.9104	.6883	.5748	.4551	.3174	.2371	.1597
SX10			.3465	.2074	.1516	.0956	.1482	.0855	.1360	.0940	.0461
OBSN	HGT										
562	44	1	1.000	.618	.390	.277	.105	.126	.070	.034	.287
560	1458	2		1.000	.794	.597	.133	.032	-.118	-.147	-.051
555	3014	3			1.000	.593	.107	-.087	-.249	-.275	-.331
498	5579	4				1.000	.268	.089	-.151	-.166	-.172
464	7193	5					1.000	.064	.106	.092	.082
421	9177	6						1.000	.686	.652	.551
301	11806	7							1.000	.968	.856
246	13638	8								1.000	.933
145	16221	9									1.000

TABLE 121

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

LENINGRAD TOWN, WINTER		LAT 59 58 N LONG 030 18 E								
OBSN	HGT	1	2	3	4	5	6	7	8	9
M	1.3098	1.0961	.9175	.6868	.5673	.4405	.2969	.2214	.1501	
SX10	.5345	.2593	.1821	.1125	.1031	.1362	.1339	.0843	.0875	
708	4 1	1.000	.650	.528	.385	.283	.174	.077	.063	.947
707	1458 2	1.000	.793	.532	.322	-.008	-.134	-.135	-.627	
696	3014 3	1.000	.713	.407	-.017	-.183	-.164	.860		
583	5579 4	1.000	.752	.186	-.051	-.023	.853			
578	7193 5	1.000	.554	.297	.303	.916				
329	9177 6	1.000	.768	.994						
260	11806 7	1.000	.971	.898						
260	13638 8	1.000	.974							
4	16221 9	1.000								

TABLE 122

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER).
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

LENINGRAD TOWN, SPRING										
HGT		1	2	3	4	5	6	7	8	9
M		1.2808	1.0816	.9114	.6855	.5690	.4462	.3000	.2246	.1557
SX10		.4168	.2325	.1725	.1002	.1007	.1384	.1429	.0912	.0498
OBSN	HGT									
657	4 1	1.000	.767	.524	.402	.063	-.052	-.159	-.220	-.227
654	1458 2		1.000	.726	.507	-.007	-.290	-.403	-.436	-.279
645	3014 3			1.000	.458	-.020	-.338	-.393	-.404	-.410
538	5579 4				1.000	.525	.030	-.118	-.079	.194
532	7193 5					1.000	.598	.411	.462	.428
341	9177 6						1.000	.817	.834	.635
261	11806 7							1.000	.974	.684
253	13638 8								1.000	.873
43	16221 9									1.000

TABLE 123

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

LENINGRAD TOWN, SUMMER											
		LAT 59 58 N LONG 030 18 E									
HGT		1	2	3	4	5	6	7	8	9	
M		1.2221	1.0426	.8876	.6743	.5639	.4507	.3143	.2363	.1582	
SX10		.2364	.1506	.1172	.1434	.1000	.0831	.1148	.0733	.0329	
OBSN	HGT										
582	4 1	1.000	.601	.492	.243	.207	.205	.000	.049	-.007	
580	1458 2		1.000	.613	.250	.248	.162	-.138	-.114	-.192	
570	3014 3			1.000	.368	.337	.281	-.082	-.005	-.124	
505	5579 4				1.000	.135	.026	-.050	-.063	-.121	
460	7193 5					1.000	.334	.061	.125	.106	
409	9177 6						1.000	.402	.452	.159	
284	11806 7							1.000	.954	.524	
241	13638 8								1.000	.726	
227	16221 9									1.000	

TABLE 124

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER).
BY GEOMETRIC HEIGHTS (IN METERS). WITH CORRELATIONS BETWEEN HEIGHTS

LENINGRAD TOWN. FALL									
		LAT 59 58 N LONG 030 18 E							
		HGT	1	2	3	4	5	6	7 8 9
M		1.2686	1.0729	.9023	.6809	.5666	.4487	.3101	.2319 .1574
SX10		.4013	.2261	.1602	.1084	.1037	.1048	.1432	.0882 .0473
OBSN	HGT								
597	4 1	1.000	.705	.564	.391	.231	.077	-.061	-.109 .015
595	1458 2	1.000	.810	.531	.256	.016	.016	-.243	-.278 -.159
586	3014 3	1.000	.563	.260	-.061	-.346	-.353	-.206	-.206
540	5579 4	1.000	.509	.147	-.201	-.186	.035		.035
536	7193 5	1.000	.390	.073	.054	.127			.127
384	9177 6	1.000	.694	.639	.812				.812
281	11806 7	1.000	.966						.966
260	13638 8	1.000							
83	16221 9	1.000							

TABLE 125

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

RIGA, WINTER										
		LAT 56 58 N LONG 024 04 E								
		HGT	1	2	3	4	5	6	7	8 9
M			1.3053	1.0985	.9207	.6928	.5742	.4472	.3032	.2256 .1589
SX10			.4916	.2480	.1793	.1222	.1032	.1245	.1456	.0881 .0323
OBSN	HGT									
562	3	1	1.000	.659	.504	.284	.210	.127	.089	.064 .889
559	1458	2		1.000	.749	.411	.232	-.075	-.120	-.117 -.479
556	3014	3			1.000	.473	.187	-.176	-.194	-.211 -.490
463	5579	4				1.000	.376	-.018	-.053	-.059 .825
459	7193	5					1.000	.455	.257	.278 .619
421	9177	6						1.000	.771	.849 .848
283	11806	7							1.000	.970 .581
276	13638	8								1.000 .738
4	16221	9								1.000
1.000										

TABLE 126

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

RIGA, SPRING										
HGT		1	2	3	4	5	6	7	8	9
M		1.2811	1.0836	.9151	.6914	.5753	.4511	.3069	.2295	.1571
SX10		.3717	.2477	.1911	.1367	.1079	.1296	.1342	.0844	.0343
OBSN	HGT									
537	3 1	1.000	.633	.396	.383	.252	.070	-.043	-.113	-.271
536	1458 2		1.000	.716	.340	.165	-.112	-.368	-.387	-.302
517	3014 3			1.000	.368	.173	-.098	-.339	-.345	-.260
465	5579 4				1.000	.662	.106	-.077	-.067	-.058
458	7193 5					1.000	.539	.290	.307	-.114
434	9177 6						1.000	.724	.707	.166
379	11806 7							1.000	.955	.657
356	13638 8								1.000	.841
118	16221 9									1.000

TABLE 127

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

RIGA, SUMMER

RIGA, SUMMER											
		LAT 56 58 N LONG 024 04 E									
		HGT	1	2	3	4	5	6	7	8	9
	M	1.2292	1.0520	.8945	.6789	.5691	.4547	.3185	.2391	.1595	
	SX10	.2867	.1862	.1381	.0877	.0780	.0764	.1162	.0760	.0337	
OBSN	HGT										
494	3 1	1.000	.358	.359	.150	.088	-.006	-.123	-.142	-.200	
491	1458 2		1.000	.462	.197	.054	-.040	-.330	-.361	-.258	
469	3014 3			1.000	.307	.051	-.063	-.251	-.281	-.262	
429	5579 4				1.000	.558	.182	-.118	-.123	-.204	
417	7193 5					1.000	.505	.085	.125	.028	
414	9177 6						1.000	.519	.533	.376	
398	11806 7							1.000	.941	.675	
316	13638 8								1.000	.824	
308	16221 9									1.000	

TABLE 128

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

RIGA, FALL		LAT 56 58 N LONG 024 04 E											
OBSN	HGT	HGT											
		1	2	3	4	5	6	7	8	9			
	M	1.2647	1.0741	.9058	.6852	.5741	.4538	.3168	.2360	.1599			
	SX10	.3320	.2087	.1593	.0916	.1407	.0935	.1437	.0970	.0436			
490	3 1	1.000	.666	.483	.399	.179	.154	-.034	-.052	-.013			
489	1458 2		1.000	.761	.610	.250	.002	-.244	-.266	-.152			
473	3014 3			1.000	.647	.111	-.142	-.397	-.382	-.305			
422	5579 4				1.000	.374	.012	-.335	-.317	-.104			
407	7193 5					1.000	.051	-.083	-.103	.052			
403	9177 6						1.000	.702	.712	.595			
352	11806 7							1.000	.971	.675			
291	13638 8								1.000	.836			
129	16221 9									1.000			

TABLE 129

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MINSK, WINTER		LAT 53 52 N LONG 027 32 E								
HGT		1	2	3	4	5	6	7	8	9
M		1.2816	1.1023	0.9218	0.6927	0.5724	0.4512	0.3081	0.2293	0.1548
SX10		.4654	.2754	.2039	.1124	.0770	.1065	.1296	.0810	.0818
OBSN	HGT									
264	234 1	1.000	.712	.522	.357	.161	-.119	-.172	-.149	.115
264	1458 2		1.000	.760	.518	.242	-.206	-.411	-.387	-.298
262	3014 3			1.000	.570	.212	-.255	-.456	-.446	-.311
261	5579 4				1.000	.661	-.004	-.271	-.275	-.417
261	7193 5					1.000	.707	.193	.129	-.655
238	9177 6						1.000	.654	.564	-.615
222	11806 7							1.000	.946	.571
219	13638 8								1.000	.929
13	16221 9									1.000

TABLE 130

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MINSK, SPRING		LAT 53 52 N LONG 027 32 E								
HGT		1	2	3	4	5	6	7	8	9
M		1.2473	1.0824	0.9144	0.6916	0.5737	0.4555	0.3113	0.2330	0.1572
SX10		.4110	.2460	.1795	.1190	.0738	.1032	.1215	.0753	.0355
OBSN	HGT									
296	234 1	1.000	.748	.460	.287	.153	-.061	-.207	-.268	-.209
296	1458 2		1.000	.620	.355	.103	-.196	-.409	-.448	-.333
295	3014 3			1.000	.370	.059	-.173	-.336	-.378	-.446
290	5579 4				1.000	.673	.016	-.140	-.173	-.307
284	7193 5					1.000	.694	.288	.281	.150
261	9177 6						1.000	.635	.652	.558
237	11806 7							1.000	.963	.740
229	13638 8								1.000	.872
111	16221 9									1.000

TABLE 131

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MINSK, SUMMER		LAT 53 52 N LONG 027 32 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.1979	1.0483	0.8946	0.6811	0.5687	0.4568	0.3228	0.2438	0.1627	
SX10	.1940	.1715	.1276	.1328	.0796	.0820	.1162	.0833	.0406	
OBSN HGT										
305	234 1	1.000	.735	.542	.448	.615	.491	-.024	-.021	-.098
305	1458 2		1.000	.623	.308	.359	.224	-.316	-.313	-.342
303	3014 3			1.000	.326	.347	.219	-.253	-.228	-.313
301	5579 4				1.000	.796	.160	-.112	-.147	.022
262	7193 5					1.000	.703	.172	.150	.158
260	9177 6						1.000	.460	.469	.320
235	11806 7							1.000	.973	.735
207	13638 8								1.000	.868
204	16221 9									1.000

TABLE 132

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MINSK. FALL		LAT 53 52 N LONG 027 32 E										
	HGT	1	2	3	4	5	6	7	8	9		
M	1.2424	1.0779	0.9087	0.6884	0.5731	0.4579	0.3200	0.2387	0.1602			
SX10	.2854	.2173	.1327	.1037	.0653	.0960	.1276	.0806	.0367			
OBSN	HGT											
258	234	1	1.000	.730	.579	.403	.335	.065	.064	-.027	.066	
258	1458	2	1.000	.657	.369	.369	.270	-.019	-.278	-.361	-.148	
257	3014	3		1.000	.518	.518	.285	-.174	-.425	-.452	-.251	
252	5579	4			1.000	.667	-.104	-.225	-.289	-.179		
247	7193	5				1.000	.659	.088	-.010	.079		
245	9177	6					1.000	.508	.444	.349		
206	11806	7						1.000	.946	.522		
185	13638	8							1.000	.735		
100	16221	9								1.000		

TABLE 133

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KIROV, WINTER		LAT 58 39 N LONG 049 37 E								
		HGT	1	2	3	4	5	6	7	8 9
	M		1.3290	1.1186	.9325	.6953	.5740	.4489	.3024	.2246 .1438
	SX10		.5850	.2677	.1592	.0874	.1008	.1292	.1315	.0790 .0091
OBSN	HGT									
342	164	1	1.000	.684	.533	.228	-.077	.011	.023	-.056 .965
341	1458	2		1.000	.767	.360	-.120	-.127	.216	-.220 .846
337	3014	3			1.000	.571	-.006	-.173	.236	-.237 .985
258	5579	4				1.000	.632	.124	.076	-.052 .979
252	7193	5					1.000	.677	.343	.364 .582
163	9177	6						1.000	.846	.854 .124
153	11806	7							.000	.977 .784
153	13638	8								1.000 .768
3	16221	9								1.000

TABLE 134

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KIROV. SPRING		LAT 58 39 N LONG 049 37 E								
		HGT	1	2	3	4	5	6	7	8 9
M		1.2675	1.0906	.9176	.6901	.5716	.4486	.3040	.2278	.1577
SX10		.5313	.3013	.2075	.1319	.1022	.1759	.1708	.1158	.0457
OBSN	HGT									
304	164 1	1.000	.702	.464	.318	.036	-.318	-.392	-.439	-.423
303	1458 2		1.000	.741	.351	-.052	-.389	-.541	-.569	-.491
299	3014 3			1.000	.303	-.114	-.398	-.467	-.465	-.304
241	5579 4				1.000	.247	-.094	-.056	-.045	.195
223	7193 5					1.000	.734	.466	.496	.489
167	9177 6						1.000	.708	.716	.743
146	11806 7							1.000	.979	.768
145	13638 8								1.000	.881
57	16221 9									1.000

TABLE 135

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KIROV, SUMMER											
		LAT 58 39 N LONG 049 37 E									
		HGT	1	2	3	4	5	6	7	8	9
OBSN		M	1.2034	1.0460	.8915	.6786	.5696	.4557	.3174	.2393	.1601
		SX10	.2602	.1629	.1248	.1395	.0769	.0896	.1216	.0783	.0299
	HGT										
233	164	1	1.000	.617	.501	.274	.252	.023	-.260	-.274	-.382
232	1458	2		1.000	.793	.457	.491	.166	-.190	-.199	-.524
231	3014	3			1.000	.567	.643	.260	-.100	-.091	-.491
174	5579	4				1.000	.432	-.113	-.199	-.250	-.389
108	7193	5					1.000	.481	.149	.136	-.270
108	9177	6						1.000	.527	.509	.012
91	11806	7							1.000	.968	.606
90	13638	8								1.000	.768
86	16221	9									1.000

TABLE 136

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
 BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KIROV, FALL

LAT 58 39 N LONG 049 37 E

HGT

9

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● 1578

X5

●0347

OB	SN	HGT
0000	0000	0000
0001	0001	0001
0002	0002	0002
0003	0003	0003
0004	0004	0004
0005	0005	0005
0006	0006	0006
0007	0007	0007
0008	0008	0008
0009	0009	0009
0010	0010	0010
0011	0011	0011
0012	0012	0012
0013	0013	0013
0014	0014	0014
0015	0015	0015
0016	0016	0016
0017	0017	0017
0018	0018	0018
0019	0019	0019
0020	0020	0020
0021	0021	0021
0022	0022	0022
0023	0023	0023
0024	0024	0024
0025	0025	0025
0026	0026	0026
0027	0027	0027
0028	0028	0028
0029	0029	0029
0030	0030	0030
0031	0031	0031
0032	0032	0032
0033	0033	0033
0034	0034	0034
0035	0035	0035
0036	0036	0036
0037	0037	0037
0038	0038	0038
0039	0039	0039
0040	0040	0040
0041	0041	0041
0042	0042	0042
0043	0043	0043
0044	0044	0044
0045	0045	0045
0046	0046	0046
0047	0047	0047
0048	0048	0048
0049	0049	0049
0050	0050	0050
0051	0051	0051
0052	0052	0052
0053	0053	0053
0054	0054	0054
0055	0055	0055
0056	0056	0056
0057	0057	0057
0058	0058	0058
0059	0059	0059
0060	0060	0060
0061	0061	0061
0062	0062	0062
0063	0063	0063
0064	0064	0064
0065	0065	0065
0066	0066	0066
0067	0067	0067
0068	0068	0068
0069	0069	0069
0070	0070	0070
0071	0071	0071
0072	0072	0072
0073	0073	0073
0074	0074	0074
0075	0075	0075
0076	0076	0076
0077	0077	0077
0078	0078	0078
0079	0079	0079
0080	0080	0080
0081	0081	0081
0082	0082	0082
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0086	0086	0086
0087	0087	0087
0088	0088	0088
0089	0089	0089
0090	0090	0090
0091	0091	0091
0092	0092	0092
0093	0093	0093
0094	0094	0094
0095	0095	0095
0096	0096	0096
0097	0097	0097
0098	0098	0098
0099	0099	0099

HGT

296 164 1

1

296 1458 2

2

294 3014 3

3

227 5579 4

4

202 7193 5

5

155 9177 6

5

131 11806 7

7

119 13638 8

α

37 16221 9

6

TABLE 137

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

STRIGINO, WINTER		LAT 56 13 N LONG 043 49 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.3122	1.1026	.9214	.6885	.5700	.4449	.3005	.2234		
	SX10	.5775	.2601	.1862	.1072	.1080	.1268	.1398	.0834	
OBSN	HGT									
231	82 1	1.000	.627	.506	.366	.075	.047	-.036	-.083	
231	1458 2		1.000	.861	.520	-.001	-.229	-.363	-.371	
230	3014 3			1.000	.592	.048	-.312	-.412	-.421	
227	5579 4				1.000	.443	.069	-.084	-.073	
227	7193 5					1.000	.573	.292	.339	
165	9177 6						1.000	.816	.844	
163	11806 7							1.000	.961	
163	13638 8									1.000
0	16221 9									

TABLE 138

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

STRIGINO, SPRING		LAT 56 13 N LONG 043 49 E								
HGT		1	2	3	4	5	6	7	8	9
M		1.2655	1.0812	.9085	.6849	.5691	.4448	.3035	.2265	.1562
SX10		.4678	.3000	.2124	.1106	.0950	.1599	.1741	.1106	.0349
OBSN	HGT									
178	82 1	1.000	.768	.545	.414	.119	-.216	-.364	-.400	-.174
178	1458 2		1.000	.633	.383	.066	-.315	-.493	-.514	-.456
178	3014 3			1.000	.500	.098	-.250	-.341	-.359	-.218
178	5579 4				1.000	.636	.042	-.054	-.046	.112
178	7193 5					1.000	.699	.447	.468	.246
152	9177 6						1.000	.727	.722	.599
152	11806 7							1.000	.979	.678
151	13638 8								1.000	.823
38	16221 9									1.000

TABLE 139

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

STRIGINO, SUMMER										
		LAT 56 13 N LONG 043 49 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.1944	1.0338	.8858	.6733	.5659	.4545	.3180	.2392	.1592	
SX10	.1090	.1059	.1340	.0577	.0507	.0839	.1182	.0715	.0308	
OBSN	HGT									
94	82 1	1.000	.816	.146	.321	.159	-.184	-.229	-.291	-.372
94	1458 2		1.000	.160	.240	.075	-.217	-.393	-.412	-.388
93	3014 3			1.000	.054	.024	-.103	-.039	-.140	-.228
93	5579 4				1.000	.846	.376	.098	.121	.006
93	7193 5					1.000	.553	.222	.232	.077
91	9177 6						1.000	.272	.289	.226
89	11806 7							1.000	.970	.651
88	13638 8								1.000	.789
86	16221 9									1.000

TABLE 140

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

STRIGINO, FALL										
		LAT 56 13 N LONG 043 49 E								
HGT		1	2	3	4	5	6	7	8	9
M		1.2713	1.0825	.9070	.6842	.5708	.4494	.3100	.2317	.1571
SX10		.4633	.2951	.1560	.0963	.1115	.1040	.1381	.0845	.0245
OBSN	HGT									
174	82 1	1.000	.818	.683	.462	.157	-.026	-.192	-.271	.064
174	1458 2		1.000	.685	.476	.145	-.097	-.282	-.345	-.214
174	3014 3			1.000	.646	.248	-.077	-.349	-.374	-.186
172	5579 4				1.000	.414	-.020	-.273	-.299	-.102
172	7193 5					1.000	.235	.071	.069	.074
154	9177 6						1.000	.779	.760	.274
139	11806 7							1.000	.965	.546
138	13638 8								1.000	.718
36	16221 9									1.000

TABLE 141

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KAZAN, WINTER											
		LAT 55 47 N LONG 049 11 E									
		HGT	1	2	3	4	5	6	7	8	9
M		1.3212	1.1048	.9221	.6919	.5738	.4438	.2996	.2228	.1512	
SX10		.5246	.2236	.1612	.1174	.1419	.1509	.1594	.0987	.1378	
OBSN	HGT										
257	64	1	1.000	.581	.478	.311	.198	.045	.015	.012	-.742
257	1458	2		1.000	.804	.512	.221	-.062	-.238	-.215	-.885
256	3014	3			1.000	.578	.304	-.019	-.209	-.170	-.477
254	5579	4				1.000	.666	.307	.144	.175	.363
252	7193	5					1.000	.620	.542	.584	.978
237	9177	6						1.000	.786	.781	.093
169	11806	7							1.000	.968	-.340
169	13638	8								1.000	.355
4	16221	9									1.000

TABLE 142

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KAZAN SPRING

		LAT 55 47 N LONG 049 11 E								
		HGT	1	2	3	4	5	6	7	8 9
M		1.2748	1.0833	.9120	.6873	.5713	.4476	.3064	.2270	.1578
SX10		.4685	.3277	.1950	.1335	.0823	.1331	.1662	.1002	.0413
OBSN	HGT									
238	64 1	1.000	.793	.689	.215	.089	-.295	-.456	-.501	-.380
238	1458 2		1.000	.729	.231	.025	-.426	-.585	-.586	-.319
238	3014 3			1.000	.472	.151	-.407	-.589	-.574	-.270
236	5579 4				1.000	.322	-.068	-.242	-.235	.006
236	7193 5					1.000	.635	.337	.331	.203
229	9177 6						1.000	.848	.826	.632
201	11806 7							1.000	.976	.858
179	13638 8								1.000	.916
37	16221 9									1.000

TABLE 143

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER).
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KAZAN, SUMMER											
		LAT 55 47 N LONG 049 11 E									
		HGT	1	2	3	4	5	6	7	8	9
M			1.2043	1.0390	.8874	.6749	.5685	.4532	.3178	.2397	.1603
SX10			.2453	.1231	.0946	.0684	.2046	.0680	.1040	.0703	.0366
OBSN	HGT										
123	64 1		1.000	.556	.386	.266	-.005	-.138	-.236	-.272	-.256
123	1458 2			1.000	.654	.487	.065	-.193	-.450	-.518	-.470
123	3014 3				1.000	.560	.145	-.038	-.342	-.380	-.373
121	5579 4					1.000	.215	.175	-.161	-.229	-.324
120	7193 5						1.000	-.153	-.038	-.167	-.258
119	9177 6							1.000	.521	.453	.046
117	11806 7								1.000	.943	.536
107	13638 8									1.000	.767
104	16221 9										1.000

TABLE 144

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KAZAN, FALL											
		LAT 55 47 N LONG 049 11 E									
		HGT	1	2	3	4	5	6	7	8	9
M		1.2788	1.0866	.9117	.6865	.5717	.4499	.3093	.2306	.1562	
SX10		.5232	.2641	.1888	.0966	.0937	.1200	.1557	.0931	.0345	
OBSN	HGT										
227	64 1	1.000	.835	.653	.651	.344	-.013	-.110	-.202	-.280	
227	1458 2		1.000	.827	.685	.282	-.154	-.255	-.336	-.358	
223	3014 3			1.000	.629	.228	-.200	-.331	-.403	-.528	
220	5579 4				1.000	.564	.151	-.041	-.093	-.077	
219	7193 5					1.000	.543	.290	.234	-.048	
215	9177 6						1.000	.818	.816	.615	
177	11806 7							1.000	.975	.807	
168	13638 8								1.000	.898	
34	16221 9									1.000	

TABLE 145

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MOSCOW, WINTER												
		LAT 55 45 N LONG 037 34 E										
HGT		1	2	3	4	5	6	7	8	9		
M		1.3078	1.1061	.9232	.6915	.5711	.4459	.3026	.2248	.1524		
SX10		.5313	.2657	.1940	.1258	.0964	.1289	.1339	.0810	.1170		
OBSN	HGT											
823	156 1	1.000	.680	.477	.321	.195	.052	.033	.021	-.613		
821	1458 2		1.000	.751	.311	.160	-.127	-.208	-.205	-.085		
817	3014 3			1.000	.319	.159	-.153	-.229	-.249	.194		
765	5579 4				1.000	.571	.129	-.059	-.036	.883		
762	7193 5					1.000	.683	.364	.383	.505		
528	9177 6						1.000	.792	.827	-.149		
393	11806 7							1.000	.963	-.935		
389	13638 8								1.000	-.374		
4	16221 9									1.000		

TABLE 146

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER).
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MOSCOW, SPRING		LAT 55 45 N LONG 037 34 E								
HGT		1	2	3	4	5	6	7	8	9
M		1.2638	1.0835	.9135	.6878	.5712	.4508	.3081	.2299	.1571
SX10		.4104	.2716	.1750	.1075	.0934	.1250	.1416	.0895	.0329
OBSN	HGT									
783	156 1	1.000	.871	.732	.574	.235	-.200	-.360	-.429	-.101
781	1458 2		1.000	.822	.599	.194	-.332	-.512	-.573	-.262
777	3014 3			1.000	.711	.285	-.293	-.469	-.515	-.271
754	5579 4				1.000	.619	.005	-.256	-.260	.073
744	7193 5					1.000	.669	.239	.237	.171
587	9177 6						1.000	.753	.720	.279
444	11806 7							1.000	.967	.740
421	13638 8								1.000	.867
128	16221 9									1.000

TABLE 147

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MOSCOW, SUMMER		LAT 55 45 N LONG 037 34 E								
HGT		1	2	3	4	5	6	7	8	9
M	156	1.2027	1.0424	.8891	.6755	.5660	.4539	.3187	.2404	.1605
SX10	1458	.1692	.1409	.1129	.0734	.0798	.0699	.1091	.0761	.0385
OBSN	HGT									
684	156	1.000	.832	.583	.456	.292	.117	-.156	-.192	-.273
684	1458		1.000	.665	.458	.261	-.001	-.357	-.386	-.441
682	3014			1.000	.536	.340	.119	-.262	-.298	-.395
674	5579				1.000	.687	.446	-.020	-.065	-.279
654	7193					1.000	.487	.056	.008	-.108
636	9177						1.000	.431	.370	.106
538	11806							1.000	.961	.626
437	13638								1.000	.805
428	16221									1.000

TABLE 148

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

MOSCOW, FALL											
		LAT 55 45 N LONG 037 34 E									
		HGT	1	2	3	4	5	6	7	8	9
M		1.2564	1.0794	.9075	.6848	.5702	.4512	.3126	.2323	.1580	
SX10		.4088	.2693	.1861	.1180	.1274	.1214	.1487	.0957	.0496	
OBSN	HGT										
694	156 1	1.000	.757	.654	.574	.353	.265	.038	.002	.203	
692	1458 2		1.000	.792	.627	.346	.136	-.189	-.254	-.275	
689	3014 3			1.000	.714	.336	.043	-.236	-.227	-.072	
667	5579 4				1.000	.506	.185	-.117	-.090	-.027	
654	7193 5					1.000	.412	.197	.191	.061	
561	9177 6						1.000	.727	.680	.122	
443	11806 7							1.000	.963	.611	
374	13638 8								1.000	.842	
121	16221 9									1.000	

TABLE 149

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SVERDLOVSK, WINTER											
		LAT 56 48 N LONG 060 38 E									
		HGT	1	2	3	4	5	6	7	8	9
M			1.3197	1.1164	.9283	.6926	.5721	.4458	.2995	.2224	.1481
SX10			.5586	.2520	.1769	.1016	.1085	.1261	.1201	.0711	.0068
OBSN	HGT										
601	237	1	1.000	.615	.481	.310	.043	-.159	-.117	-.100	.022
600	1458	2		1.000	.729	.332	-.027	-.316	-.372	-.328	-.201
597	3014	3			1.000	.448	.076	-.214	-.387	-.347	-.321
498	5579	4				1.000	.706	.320	.032	.067	-.181
489	7193	5					1.000	.769	.452	.463	-.963
208	9177	6						1.000	.814	.797	-.637
152	11806	7							1.000	.963	.116
152	13638	8								1.000	.456
3	16221	9									1.000

TABLE 150

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SVERDLOVSK, SPRING		LAT 56 48 N LONG 060 38 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.2570	1.0855	.9139	.6872	.5695	.4492	.3032	.2266	.1554	
	SX10	.4946	.3110	.2014	.1183	.0994	.1447	.1478	.0962	.0488
ORSN HGT										
422	237	1	1.000	.818	.708	.495	.334	-.464	-.555	-.462
422	1458	2	1.000	.847	.536	.135	-.463	-.646	-.705	-.501
414	3014	3	1.000	.622	.221	-.393	-.556	-.593	-.524	
350	5579	4	1.000	.673	-.156	-.395	-.440	-.315		
330	7193	5	1.000	.549	.166	.152	-.008			
188	9177	6	1.000	.729	.683	.529				
118	11806	7	1.000	.957	.526					
110	13638	8	1.000	.818						
34	16221	9	1.000							

TABLE 151

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SVERDLOVSK, SUMMER											
		LAT 56 48 N LONG 060 38 E									
HGT		1	2	3	4	5	6	7	8	9	
M		1.1892	1.0397	.8861	.6756	.5648	.4536	.3147	.2369	.1587	
SX10		.1950	.1829	.1029	.1355	.0805	.0858	.1163	.0776	.0369	
OBSN	HGT										
407	237	1	1.000	.726	.691	.196	.299	.088	-.144	-.161	-.385
406	1458	2	1.000	.612	.121	.176	.133	.133	-.420	-.431	-.520
398	3014	3		1.000	.334	.379	.093	.093	-.094	-.153	-.463
344	5579	4			1.000	.253	-.029	-.029	-.118	-.171	-.198
299	7193	5				1.000	.630	.630	.069	.018	-.118
279	9177	6					1.000	.370	.339	.339	.243
130	11806	7						1.000	.968	.968	.664
114	13638	8							1.000	.832	.832
108	16221	9								1.000	1.000

TABLE 152

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SVERDLOVSK, FALL		LAT 56 48 N LONG 060 38 E								
HGT		1	2	3	4	5	6	7	8	9
M		1.2606	1.0873	.9121	.6868	.5699	.4500	.3065	.2283	.1567
SX10		.5497	.3305	.2255	.1431	.1096	.1610	.1494	.0945	.0410
OBSN	HGT									
487	237 1	1.000	.765	.628	.443	.311	-.187	-.246	-.347	-.248
486	1458 2		1.000	.766	.406	.175	-.298	-.442	-.519	-.334
482	3014 3			1.000	.432	.187	-.262	-.492	-.573	-.286
412	5579 4				1.000	.477	-.290	-.276	-.350	-.182
381	7193 5					1.000	.489	.176	.159	-.327
217	9177 6						1.000	.614	.590	.017
146	11806 7							1.000	.972	.556
137	13638 8								1.000	.765
19	16221 9									1.000

TABLE 153

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

UFA. WINTER											
		LAT 54 45 N LONG 056 00 E									
		HGT	1	2	3	4	5	6	7	8	9
M		1.3431	1.1270	.9358	.6997	.5781	.4551	.3100	.2302	.1496	
SX10		.5991	.2488	.1623	.1119	.0981	.1237	.1302	.0750	.0527	
OBSN	HGT										
407	197	1	1.000	.627	.382	.213	.062	-.133	-.064	-.061	-.275
407	1458	2		1.000	.634	.334	.058	-.330	-.312	-.274	.087
401	3014	3			1.000	.444	.214	-.191	-.266	-.250	-.135
305	5579	4				1.000	.712	.145	-.258	-.226	-.459
287	7193	5					1.000	.719	.134	.152	-.081
95	9177	6						1.000	.731	.686	-.016
59	11806	7							1.000	.944	-.300
58	13638	8								1.000	.287
8	16221	9									1.000

TABLE 154

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

UFA, SPRING		LAT 54 45 N LONG 056 00 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.2754	1.0918	.9192	.6938	.5745	.4576	.3172	.2367	.1623	
SX10 ⁴	.6044	.3554	.2044	.1961	.1089	.1562	.1862	.1385	.0400	
OBSN	HGT									
375	197	1	1.000	.861	.786	.312	.165	-.457	-.714	-.706
375	1458	2	1.000	.990	.296	.030	-.472	-.746	-.740	-.063
363	3014	3		1.000	.348	.139	-.428	-.719	-.690	-.085
290	5579	4			1.000	.293	-.180	-.236	-.227	.261
242	7193	5				1.000	.472	.354	.373	.258
130	9177	6					1.000	.662	.698	.145
65	11806	7						1.000	.990	.830
56	13638	8							1.000	.943
30	16221	9								1.000

TABLE 155

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

UFA. SUMMER		LAT 54 45 N LONG 056 00 E									
		HGT	1	2	3	4	5	6	7	8	9
M			1.1950	1.0415	.8897	.6783	.5670	.4558	.3205	.2422	.1622
SX10			.2494	.1785	.1203	.1236	.0673	.0614	.1150	.0960	.0444
OBSN	HGT										
298	197	1	1.000	.696	.434	.081	.212	.164	-.763	-.907	-.861
297	1458	2		1.000	.744	.174	.174	.116	-.765	-.873	-.897
295	3014	3			1.000	.359	.390	.285	-.729	-.827	-.707
263	5579	4				1.000	.767	.490	-.521	-.733	-.588
187	7193	5					1.000	.800	-.399	-.730	-.711
177	9177	6						1.000	.178	.371	.441
20	11806	7							1.000	.996	.940
8	13638	8								1.000	.963
8	16221	9									1.000

TABLE 156

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

UFA, FALL											
		LAT 54 45 N LONG 056 00 E									
HGT		1	2	3	4	5	6	7	8	9	
M		1.2762	1.0951	.9190	.6907	.5759	.4603	.3214	.2379	.1600	
SX10		.5705	.3381	.2074	.1275	.1121	.0943	.1359	.1072	.0545	
OBSN		HGT									
312	197	1	1.000	.860	.700	.613	.483	.251	-.025	.078	.374
307	1458	2		1.000	.861	.696	.511	.260	-.224	-.166	.615
296	3014	3			1.000	.796	.544	.297	-.277	-.311	.413
254	5579	4				1.000	.739	.378	-.121	-.214	-.062
221	7193	5					1.000	.641	.338	.445	-.177
124	9177	6						1.000	.699	.727	.779
30	11806	7							1.000	.989	.931
20	13638	8								1.000	.960
8	16221	9									1.000

TABLE 157

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KUIBISHEV, WINTER		LAT 53 14 N LONG 050 10 E									
		HGT	1	2	3	4	5	6	7	8	9
M			1.3490	1.1281	.9379	.7020	.5826	.4570	.3118	.2313	.1575
SX10			.6082	.2542	.1660	.1032	.1297	.1269	.1457	.0926	.0711
OBSN	HGT										
300	136 1	1.000	.617	.449	.208	.026	-.061	-.020	-.057	-.359	
300	1458 2		1.000	.670	.353	-.086	-.233	-.339	-.330	-.243	
299	3014 3			1.000	.562	.004	-.196	-.410	-.397	-.637	
291	5579 4				1.000	.484	.100	-.110	-.144	-.323	
291	7193 5					1.000	.365	.154	.113	.026	
237	9177 6						1.000	.723	.667	-.101	
199	11806 7							1.000	.972	.882	
196	13638 8								1.000	.965	
12	16221 9									1.000	

TABLE 158

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KUIBISHEV, SPRING		LAT 53 14 N LONG 050 10 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.2875	1.0960	.9239	.6981	.5818	.4612	.3179	.2371	.1616	
SX10	.6027	.3300	.2035	.1087	.0814	.1121	.1631	.1127	.0478	
OBSN	HGT									
306	136 1	1.000	.803	.628	.466	.194	-.197	-.396	-.458	-.244
305	1458 2		1.000	.848	.621	.213	-.358	-.619	-.670	-.454
303	3014 3			1.000	.674	.205	-.410	-.640	-.675	-.466
299	5579 4				1.000	.659	-.068	-.350	-.380	-.207
290	7193 5					1.000	.526	.200	.178	.118
247	9177 6						1.000	.645	.601	.497
203	11806 7							1.000	.972	.676
193	13638 8								1.000	.851
94	16221 9									1.000

TABLE 159

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KUIBISHEV, SUMMER		LAT 53 14 N LONG 050 10 E									
OBSN	HGT	HGT 1 2 3 4 5 6 7 8 9									
		M	1.2158	1.0510	.8976	.6873	.5753	.4620	.3233	.2450	.1644
	SX10	.2153	.1806	.1315	.1818	.1227	.0881	.1070	.0798	.0408	
181	136 1	1.000	.808	.622	.327	.426	.170	-.047	-.265	-.296	
181	1458 2	1.000		.655	.285	.371	.056	-.366	-.511	-.525	
181	3014 3			1.000	.434	.290	-.047	-.379	-.527	-.572	
180	5579 4				1.000	.049	-.244	-.271	-.418	-.387	
176	7193 5					1.000	.280	.059	-.013	-.150	
175	9177 6						1.000	.491	.441	.220	
113	11806 7							1.000	.972	.779	
105	13638 8								1.000	.893	
102	16221 9									1.000	

TABLE 160

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KUIBISHEV, FALL

LAT 53 14 N LONG 050 10 E

		1	2	3	4	5	6	7	8	9
HGT										
M	1.2901	1.1023	.9258	.6983	.5811	.4591	.3164	.2367	.1599	
	SX10	.5688	.3085	.1929	.1532	.1063	.1249	.1407	.0947	.0457
OBSN HGT										
237	136 1	1.000	.794	.659	.442	.454	.179	.128	.051	.139
237	1458 2		1.000	.856	.562	.523	.107	-.069	-.129	-.172
237	3014 3			1.000	.681	.609	.137	-.164	-.202	-.347
232	5579 4				1.000	.535	.146	-.090	-.116	-.216
230	7193 5					1.000	.579	.292	.275	-.045
215	9177 6						1.000	.670	.617	.276
185	11806 7							1.000	.971	.803
173	13638 8								1.000	.905
95	16221 9									1.000

TABLE 161

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KYEY, WINTER		LAT 50 24 N LONG 030 27 E									
		HGT	1	2	3	4	5	6	7	8	9
M		1.2891	1.1001	.9210	.6938	.5764	.4564	.3115	.2316	.1563	
SX10		.4526	.2733	.1952	.1145	.1037	.1096	.1452	.0911	.0855	
OBSN	HGT										
690	179 1	1.000	.717	.518	.372	.158	-.062	-.297	-.334	-.278	
690	1458 2	1.000		.723	.516	.172	-.291	-.559	-.552	-.380	
653	3014 3			1.000	.570	.158	-.387	-.495	-.509	-.150	
601	5579 4				1.000	.610	-.029	-.417	-.387	-.165	
587	7193 5					1.000	.391	.023	.068	.092	
201	9177 6						1.000	.633	.576	-.354	
153	11806 7							1.000	.957	.490	
148	13638 8								1.000	.908	
10	16221 9									1.000	

TABLE 162

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KYEY, SPRING		LAT 50 24 N LONG 030 27 E								
OBSN	HGT	HGT 1 2 3 4 5 6 7 8 9								
		M	1.2458	1.0794	.9122	.6900	.5760	.4593	.3142	.2349
	SX10	.4070	.2921	.1731	.1227	.1402	.0849	.1246	.0763	.0334
668	179 1	1.000	.794	.625	.435	.153	-.126	-.234	-.321	-.274
667	1458 2		1.000	.798	.469	.145	-.185	-.409	-.470	-.363
639	3014 3			1.000	.617	.273	-.178	-.361	-.413	-.439
560	5579 4				1.000	.396	.134	-.082	-.103	-.223
516	7193 5					1.000	.349	.196	.173	-.257
295	9177 6						1.000	.665	.677	.330
161	11806 7							1.000	.957	.685
159	13638 8								1.000	.825
71	16221 9									1.000

TABLE 163

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KYEY, SUMMER		LAT 50 24 N LONG 030 27 E									
		HGT	1	2	3	4	5	6	7	8	9
M		1.1973	1.0451	.8929	.6811	.5716	.4584	.3241	.2459	.1646	
SX10		.1770	.1723	.1411	.1847	.1594	.0671	.0940	.0670	.0375	
OBSN		HGT									
630	179	1	1.000	.667	.452	.119	.105	.021	-.308	-.427	-.439
630	1458	2		1.000	.437	.102	.072	-.005	-.370	-.455	-.440
617	3014	3			1.000	.216	.132	-.147	-.220	-.234	-.206
571	5579	4				1.000	.175	.100	-.113	-.300	-.456
491	7193	5					1.000	.553	.013	-.057	-.063
457	9177	6						1.000	.167	.106	.068
106	11806	7							1.000	.953	.677
83	13638	8								1.000	.848
82	16221	9									1.000

TABLE 164

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KYEY, FALL												
		LAT 50 24 N LONG 030 27 E										
		HGT	1	2	3	4	5	6	7	8	9	
OBSN	543	179	1	1.000	.707	.612	.432	.403	.249	.023	-.101	-.223
	543	1458	2		1.000	.767	.455	.380	.166	-.189	-.318	-.403
	514	3014	3			1.000	.509	.456	.075	-.258	-.309	-.332
	469	5579	4				1.000	.401	.264	-.114	-.286	-.357
	435	7193	5					1.000	.490	.181	.109	-.056
	328	9177	6						1.000	.471	.531	.331
	79	11806	7							1.000	.951	.548
	67	13638	8								1.000	.758
	51	16221	9									1.000

TABLE 165

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

LVOV, WINTER		LAT 49 49 N LONG 023 57 E								
	HGT	1	2	3	4	5	6	7	8	9
M	1.2569	1.0981	.9197	.6926	.5747	.4524	.3093	.2305	.1549	
SX10	.4427	.2898	.2162	.1403	.1058	.1392	.1529	.0940	.0923	
OBSN	HGT									
676	325	1	1.000	.611	.369	.235	.126	-.047	-.210	-.214
675	1458	2	1.000	.633	.387	.133	.133	-.165	-.412	-.409
672	3014	3	1.000	1.000	.464	.061	-.160	-.273	-.300	-.345
587	5579	4			1.000	.412	.038	-.139	-.190	-.123
571	7193	5				1.000	.577	.216	.199	.079
287	9177	6					1.000	.682	.695	.141
192	11806	7						1.000	.971	.703
175	13638	8							1.000	.897
15	16221	9								1.000

TABLE 166

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

LVOV, SPRING											
		LAT 49 49 N LONG 023 57 E									
HGT		1	2	3	4	5	6	7	8	9	
M		1.2240	1.0769	.9116	.6899	.5754	.4588	.3144	.2349	.1580	
SX10		.3406	.2564	.1846	.1270	.0904	.1201	.1157	.0700	.0325	
OBSN	HGT										
652	325	1	1.000	.741	.571	.441	.130	-.110	-.337	-.394	-.535
649	1458	2	1.000		.642	.349	.114	-.183	-.302	-.453	-.414
646	3014	3			1.000	.373	.086	-.148	-.402	-.442	-.277
574	5579	4				1.000	.578	-.080	-.315	-.370	-.533
532	7193	5					1.000	.337	-.043	.052	.001
339	9177	6						1.000	.369	.463	.579
171	11806	7							1.000	.956	.736
159	13638	8								1.000	.854
78	16221	9									1.000

TABLE 167

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

LVOV, SUMMER											
		LAT 49 49 N LONG 023 57 E									
		HGT	1	2	3	4	5	6	7	8	9
M			1.1843	1.0460	.8926	.6801	.5709	.4578	.3236	.2452	.1641
SX10			.2048	.1913	.1396	.1401	.1553	.0806	.1100	.0748	.0377
OBSN	HGT										
614	325	1	1.000	.645	.555	.304	.231	.142	-.245	-.370	-.320
614	1458	2		1.000	.513	.259	.178	.127	-.257	-.376	-.307
614	3014	3			1.000	.313	.212	.148	-.198	-.331	-.407
603	5579	4				1.000	.297	.233	-.247	-.456	-.352
537	7193	5					1.000	.492	-.110	-.256	-.274
502	9177	6						1.000	-.099	-.228	.167
115	11806	7							1.000	.858	.688
85	13638	8								1.000	.846
83	16221	9									1.000

TABLE 168

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

LV0V, FALL											
		LAT 49 49 N LONG 023 57 E									
		HGT	1	2	3	4	5	6	7	8	9
M		1.2202	1.0710	.9045	.6864	.5731	.4574	.3238	.2431	.1641	
SX10		.2831	.2260	.1637	.1645	.0901	.1101	.1133	.0790	.0383	
OBSN	HGT										
560	325	1	1.000	.750	.573	.294	.320	.110	.095	.039	.019
558	1458	2		1.000	.724	.278	.306	-.028	-.192	-.167	-.173
556	3014	3			1.000	.314	.231	-.029	-.165	-.092	-.360
526	5579	4				1.000	.263	.131	-.025	-.064	-.098
485	7193	5					1.000	.691	.302	.266	-.082
366	9177	6						1.000	.581	.676	.240
118	11806	7							1.000	.927	.459
92	13638	8								1.000	.795
51	16221	9									1.000

TABLE 169

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER).
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ODESSA, WINTER		LAT 46 29 N LONG 030 38 E									
HGT		1	2	3	4	5	6	7	8	9	
M		1.2929	1.0949	.9203	.6933	.5777	.4591	.3153	.2336	.1548	
SX10		.4059	.2637	.1846	.0948	.0840	.0987	.1433	.0871	.0635	
OBSN	HGT										
563	64 1	1.000	.647	.510	.275	.068	-.158	-.309	-.336	-.663	
563	145R 2		1.000	.741	.444	.125	-.260	-.683	-.695	-.663	
558	3014 3			1.000	.514	.071	-.435	-.666	-.682	-.639	
469	5579 4				1.000	.397	-.206	-.543	-.533	-.515	
442	7193 5					1.000	.470	.194	.311	.085	
150	9177 6						1.000	.591	.486	-.191	
82	11806 7							1.000	.956	.705	
74	13638 8								1.000	.907	
14	16221 9									1.000	

TABLE 170

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ODESSA, SPRING		LAT 46 29 N LONG 030 38 E									
OBSN	HGT	HGT									
		1	2	3	4	5	6	7	8	9	
M		1.2560	1.0725	.9090	.6892	.5757	.4608	.3212	.2397	.1607	
SX10		.3566	.2633	.1760	.1395	.1039	.0665	.0979	.0689	.0312	
540	64 1	1.000	.734	.554	.339	.206	.092	-.441	-.474	.062	
539	1458 2		1.000	.754	.430	.231	.099	-.576	-.597	.043	
536	3014 3			1.000	.407	.192	.074	-.435	-.469	.034	
486	5579 4				1.000	.283	.171	-.344	-.307	.166	
414	7193 5					1.000	.575	-.153	-.085	.223	
239	9177 6						1.000	.432	.458	.391	
85	11806 7							1.000	.955	.607	
80	13638 8								1.000	.835	
49	16221 9									1.000	

TABLE 171

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ODESSA, SUMMER		LAT 46 29 N LONG 030 38 E									
	HGT	1	2	3	4	5	6	7	8	9	
	M	1.2041	1.0398	.8898	.6814	.5703	.4582	.3263	.2491	.1672	
	SX10	.2104	.1488	.1354	.2282	.1207	.0790	.0857	.0564	.0360	
OBSN	HGT										
559	64 1	1.000	.594	.343	.105	.156	.011	-.251	-.347	-.358	
559	1458 2		1.000	.494	.140	.281	.102	-.130	.033	-.032	
555	3014 3			1.000	.101	.088	-.123	-.279	-.604	-.497	
544	5579 4				1.000	.098	-.040	-.226	-.706	-.543	
450	7193 5					1.000	.473	.083	.067	.020	
424	9177 6						1.000	.238	.387	.338	
55	11806 7							1.000	.935	.432	
9	13638 8								1.000	.689	
9	16221 9									1.000	

TABLE 172

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ODESSA, FALL										
		LAT 46 29 N LONG 030 38 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.2467	1.0695	.9040	.6866	.5756	.4604	.3258	.2439	.1639	
SX10	.2986	.2356	.1614	.1385	.1226	.0508	.0866	.0671	.0403	
OBSN	HGT									
510	64 1	1.000	.865	.676	.352	.250	.276	-.123	-.311	-.534
510	1458 2		1.000	.754	.360	.210	.217	-.385	-.529	-.556
502	3014 3			1.000	.330	.187	.155	-.491	-.474	-.395
472	5579 4				1.000	.343	.138	-.370	-.367	-.563
425	7193 5					1.000	.268	-.271	-.248	-.017
354	9177 6						1.000	.327	.539	.250
74	11806 7							1.000	.915	.599
47	13638 8								1.000	.839
35	16221 9									1.000

TABLE 173

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SARATOV, WINTER		LAT 51 34 N LONG 046 02 E									
HGT		1	2	3	4	5	6	7	8	9	
M		1.3323	1.1214	.9314	.6962	.5743	.4477	.3064	.2269	.1444	
SX10		.6794	.2487	.1980	.1159	.1013	.1356	.1397	.0860	.0834	
OBSN	HGT										
264	156 1	1.000	.412	.125	-.030	-.107	-.234	-.201	-.182	.636	
264	1458 2		1.000	.544	.136	-.048	-.380	-.544	-.504	.479	
263	3014 3			1.000	.172	-.103	-.387	-.531	-.502	.704	
208	5579 4				1.000	.439	-.049	-.122	-.136	.401	
190	7193 5					1.000	.424	.069	.062	-.975	
122	9177 6						1.000	.518	.571	-.737	
108	11806 7							1.000	.937	-.785	
107	13638 8								1.000	.786	
3	16221 9									1.000	

TABLE 174

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SARATOV, SPRING		LAT 51 34 N LONG 046 02 E									
OBSN	HGT	HGT									
		1	2	3	4	5	6	7	8	9	
	M	1.2611	1.0803	.9129	.6920	.5759	.4549	.3158	.2351	.1603	
	SX10	.5199	.3345	.1917	.1233	.0809	.1106	.1622	.1142	.0500	
263	156 1	1.000	.762	.619	.360	.193	-.215	-.453	-.514	-.552	
263	1458 2		1.000	.841	.337	.248	-.271	-.591	-.641	-.726	
254	3014 3			1.000	.402	.362	-.185	-.523	-.552	-.664	
225	5579 4				1.000	.571	.112	-.121	-.150	-.327	
188	7193 5					1.000	.680	.329	.305	.049	
164	9177 6						1.000	.781	.743	.460	
144	11806 7							1.000	.978	.795	
139	13638 8								1.000	.925	
58	16221 9									1.000	
											1.000

TABLE 175

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SARATOV, SUMMER		LAT 51 34 N LONG 046 02 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.1949	1.0390	.8896	.6794	.5701	.4562	.3195	.2415	.1624	
SX10	.1922	.1650	.2035	.1229	.0833	.0688	.0945	.0631	.0402	
OBSN HGT										
163	156 1	1.000	.746	.311	.178	.382	.057	-.238	-.404	-.416
161	1458 2		1.000	.384	.160	.253	-.079	-.462	-.549	-.467
132	3014 3			1.000	.338	.352	.042	-.200	-.347	-.379
97	5579 4				1.000	.006	-.092	-.107	-.177	-.212
64	7193 5					1.000	.652	.212	.059	-.058
63	9177 6						1.000	.570	.412	.141
42	11806 7							1.000	.936	.601
37	13638 8								1.000	.822
35	16221 9									1.000

TABLE 176

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SARATOV, FALL		LAT 51 34 N LONG 046 02 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.2689	1.0889	.9141	.6925	.5756	.4554	.3142	.2354	.1590	
SX10	.4653	.3055	.1772	.1467	.0808	.0982	.1416	.0885	.0551	
OBSN HGT										
247	156 1	1.000	.762	.624	.352	.497	.297	.167	.076	-.064
246	1458 2		1.000	.644	.330	.307	.002	-.094	-.183	-.276
234	3014 3			1.000	.463	.355	-.107	-.269	-.391	-.450
175	5579 4				1.000	.162	-.112	-.187	-.241	.026
166	7193 5					1.000	.501	.204	.182	.124
133	9177 6						1.000	.680	.707	.449
101	11806 7							1.000	.955	.477
98	13638 8								1.000	.725
34	16221 9									1.000

TABLE 177

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KHARKOV, WINTER

KHARKOV, WINTER											
HGT		1	2	3	4	5	6	7	8	9	
M	1.2986	1.1022	.9220	.6946	.5776	.4551	.3095	.2302	.1527		
	SX10	.4882	.3243	.2025	.1261	.1159	.1481	.0910	.0696		
OBSN	HGT										
457	152	1	1.000	.776	.595	.422	.235	-.108	-.076	-.110	-.566
456	1458	2	1.000	.666	.450	.180	-.315	-.256	-.275	-.613	
452	3014	3		1.000	.540	.243	-.238	-.345	-.343	-.477	
443	5579	4			1.000	.480	.058	-.061	-.069	-.347	
435	7193	5				1.000	.509	.307	.366	.079	
203	9177	6					1.000	.631	.648	.481	
174	11806	7						1.000	.957	.081	
172	13638	8							1.000	.537	
14	16221	9								1.000	1.000

TABLE 178

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KHARKOV, SPRING

KHARKOV, SPRING											
		LAT 49 56 N LONG 036 17 E									
HGT		1	2	3	4	5	6	7	8	9	
M		1.2539	1.0815	.9125	.6909	.5772	.4583	.3140	.2346	.1593	
SX10		.4345	.2953	.1863	.1312	.1326	.0962	.1233	.0808	.0375	
OBSN	HGT										
459	152	1	1.000	.801	.681	.500	.249	-.036	-.382	-.479	-.397
458	1458	2	1.000		.795	.522	.252	-.169	-.476	-.546	-.547
452	3014	3		1.000		.608	.267	-.158	-.520	-.586	-.433
437	5579	4			1.000		.276	.148	-.241	-.276	-.178
431	7193	5				1.000	.369	.133	.104		-.095
277	9177	6					1.000	.558	.537		.365
185	11806	7						1.000	.959		.559
182	13638	8							1.000		.756
76	16221	9									1.000

TABLE 179

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KHARKOV, SUMMER											
		LAT 49 56 N LONG 036 17 E									
HGT		1	2	3	4	5	6	7	8	9	
M		1.1984	1.0391	.8898	.6798	.5703	.4577	.3235	.2451	.1646	
SX10		.1825	.1508	.1287	.1548	.0946	.0610	.0935	.0708	.0370	
OBSN	HGT										
444	152	1	1.000	.846	.495	.273	.182	-.027	.034	-.137	
443	1458	2	1.000	.568	.258	.305	.148	-.167	-.088	-.283	
441	3014	3		1.000	.265	.434	.271	-.012	.030	-.437	
435	5579	4			1.000	.010	.171	-.069	-.058	-.274	
430	7193	5				1.000	.414	.083	.059	-.258	
412	9177	6					1.000	.355	.273	-.044	
112	11806	7						1.000	.925	.599	
104	13638	8							1.000	.834	
102	16221	9								1.000	

TABLE 180

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

KHARKOV, FALL										
HGT		1	2	3	4	5	6	7	8	9
M		1.2559	1.0806	.9090	.6898	.5761	.4602	.3201	.2400	.1612
SX10		.4548	.2947	.1563	.1363	.0876	.0886	.1158	.0759	.0344
OBSN	HGT									
376	152 1	1.000	.542	.468	.197	.225	.113	.107	-.024	-.063
376	1458 2		1.000	.684	.303	.249	.048	-.187	-.264	-.210
375	3014 3			1.000	.492	.389	.103	-.269	-.269	-.018
374	5579 4				1.000	.255	.140	-.113	-.121	.170
369	7193 5					1.000	.322	.186	.232	.367
277	9177 6						1.000	.602	.619	.484
103	11806 7							1.000	.954	.693
102	13638 8								1.000	.840
65	16221 9									1.000

TABLE 181

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

VOROPONOV, WINTER		LAT 48 41 N LONG 044 21 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.3179	1.1070	.9249	.6951	.5778	.4551	.3120	.2321	.1611	
SX10	.6258	.2636	.1823	.0993	.1109	.1383	.1495	.0963	.0728	
OBSN	HGT									
418	145	1	1.000	.527	.317	.224	.061	-.072	-.044	-.049
417	1458	2		1.000	.741	.546	.111	-.262	-.356	-.354
412	3014	3			1.000	.687	.188	-.297	-.401	-.383
302	5579	4				1.000	.643	.036	-.178	-.168
288	7193	5					1.000	.533	.187	.190
161	9177	6						1.000	.767	.773
132	11806	7							1.000	.962
129	13638	8								.375
7	16221	9								1.000

TABLE 182

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

VOROPONOVO, SPRING		LAT 48 41 N LONG 044 21 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.2574	1.0777	.9101	.6885	.5745	.4580	.3188	.2367	.1619	
SX10	.4879	.3278	.1904	.1009	.0780	.1292	.1310	.0954	.0303	
OBSN	HGT									
418	145	1	1.000	.800	.552	.102	-.191	-.571	-.549	-.285
417	1458	2	1.000	.705	.560	.110	-.261	-.643	-.598	-.280
412	3014	3		1.000	.740	.347	-.193	-.581	-.536	-.468
334	5579	4			1.000	.687	.001	-.321	-.269	-.011
246	7193	5				1.000	.389	.205	.244	.164
178	9177	6					1.000	.471	.384	-.432
125	11806	7						1.000	.957	.603
104	13638	8							1.000	.871
40	16221	9								1.000

TABLE 183

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

VOROPONOVO, SUMMER

VOROPONOVO, SUMMER											
		LAT 48 41 N LONG 044 21 E									
HGT		1	2	3	4	5	6	7	8	9	
M	1.1922	1.0345	.8876	.6785	.5699	.4570	.3232	.2463	.1666		
SX10	.2144	.1763	.1232	.1351	.1348	.0659	.0972	.0657	.0402		
OBSN	HGT										
366	145	1	1.000	.646	.421	.066	-.015	-.024	-.192	-.222	-.209
366	1458	2	1.000	.442	.042	.042	-.003	.025	-.182	-.222	-.219
366	3014	3		1.000	.198	.123	.140		-.177	-.244	-.320
356	5579	4			1.000	.265	-.297		-.236	-.372	-.319
171	7193	5				1.000	-.083		-.226	-.242	-.125
169	9177	6					1.000		.486	.466	.040
78	11806	7						1.000		.922	.242
78	13638	8								1.000	.604
77	16221	9									1.000

TABLE 184

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

VOROPONOVO, FALL

VOROPONOVO, FALL											
		LAT 48 41 N LONG 044 21 E									
HGT		1	2	3	4	5	6	7	8	9	
OBSN	M	1.2582	1.0753	.9063	.6868	.5744	.4589	.3205	.2409	.1623	
	SX10	.4194	.2656	.1754	.1160	.0760	.0750	.1126	.0803	.0360	
	HGT										
334	145	1	1.000	.871	.686	.432	.382	.134	.049	-.078	.066
334	1458	2	1.000	.805	.463	.411	.084	-.119	-.202	-.192	
331	3014	3		1.000	.528	.546	.223	-.088	-.107	-.267	
279	5579	4			1.000	.700	.422	.026	-.004	-.157	
176	7193	5				1.000	.714	.217	.211	-.063	
159	9177	6					1.000	.507	.546	.209	
101	11806	7						1.000	.949	.638	
95	13638	8							1.000	.824	
63	16221	9								1.000	

TABLE 185

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ROSTOV NA DONU, WINTER										
HGT		1	2	3	4	5	6	7	8	9
M		1.3040	1.0965	.9208	.6948	.5830	.4561	.3133	.2331	.1573
SX10		.4949	.2732	.1740	.1382	.1722	.1086	.1354	.0832	.0706
OBSN	HGT									
609	77 1	1.000	.546	.378	.153	.188	-.081	-.144	-.153	-.112
607	1458 2		1.000	.772	.323	.172	-.263	-.488	-.521	-.497
596	3014 3			1.000	.406	.136	-.213	-.442	-.475	-.496
469	5579 4				1.000	.319	-.158	-.318	-.320	-.273
449	7193 5					1.000	.434	.044	.048	-.003
314	9177 6						1.000	.689	.695	.216
289	11806 7							1.000	.955	.168
287	13638 8								1.000	.585
39	16221 9									1.000

TABLE 186

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ROSTOV NA DONU, SPRING										
HGT		1	2	3	4	5	6	7	8	9
M	1.2583	1.0730	.9088	.6892	.5813	.4580	.3174	.2373	.1601	
SX10	.4391	.2923	.1822	.1171	.1836	.0900	.1236	.0872	.0428	
OBSN	HGT									
616	77 1	1.000	.758	.587	.406	.260	-.110	-.405	-.494	-.567
615	1458 2		1.000	.802	.532	.323	-.167	-.642	-.698	-.678
605	3014 3			1.000	.538	.266	-.229	-.643	-.697	-.695
519	5579 4				1.000	.321	-.057	-.400	-.422	-.481
434	7193 5					1.000	.328	-.195	-.220	-.379
347	9177 6						1.000	.614	.596	.307
295	11806 7							1.000	.971	.854
283	13638 8								1.000	.932
141	16221 9									1.000

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

LAT 47 15 N LONG 039 49 E

[illegible]

TABLE 188

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

ROSTOV NA DONU, FALL			LAT 47 15 N LONG 039 49 E								
HGT		1	2	3	4	5	6	7	8	9	
M	1.2580	1.0708	.9039	.6876	.5797	.4590	.3212	.2411	.1625		
SX10	.4073	.2523	.1761	.1742	.1817	.1326	.1196	.0804	.0390		
ORSN	HGT										
538	77	1	1.000	.789	.517	.254	.135	-.061	-.055	-.166	
535	1458	2	1.000	.713	.346	.167	-.132	-.225	-.333	-.411	
532	3014	3		1.000	.074	.015	-.081	-.222	-.305	-.452	
452	5579	4			1.000	.289	-.248	-.243	-.286	-.209	
393	7193	5				1.000	.088	-.144	-.178	-.065	
354	9177	6					1.000	.102	.136	.160	
286	11806	7						1.000	.913	.471	
273	13638	8							1.000	.733	
186	16221	9								1.000	

TABLE 189

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

TBILISI, WINTER		LAT 41 41 N LONG 044 57 E								
HGT		1	2	3	4	5	6	7	8	9
M		1.2245	1.0926	.9206	.6961	.5811	.4592	.3205	.2383	.1615
SX10		.3141	.2702	.2032	.1208	.1441	.1066	.1106	.0818	.0514
OBSN	HGT									
249	490	1	1.000	.600	.328	.101	.158	.128	.185	.254
249	1458	2	1.000	.667	.411	.139	.079	-.070	-.082	.014
247	3014	3		1.000	.526	.176	.042	-.193	-.128	.139
239	5579	4			1.000	.419	.145	-.049	.089	.287
220	7193	5				1.000	.101	.044	.098	.370
211	9177	6					1.000	.439	.498	.433
162	11806	7						1.000	.944	.800
134	13638	8							1.000	.919
52	16221	9								1.000

TABLE 190

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

TBILISI, SPRING		LAT 41 41 N LONG 044 57 E								
HGT		1	2	3	4	5	6	7	8	9
M	1.1853	1.0687	.9030	.6888	.5765	.4605	.3256	.2440	.1639	
SX10	.3065	.2678	.2147	.1535	.0938	.0761	.1025	.0903	.0579	
OBSN HGT										
236	490	1	1.000	.800	.473	.302	.297	.060	-.388	-.437
										-.171
236	1458	2	1.000	.547	.346	.394	.092	.092	-.370	-.440
										-.207
235	3014	3		1.000	.299	.243	.015	.015	-.265	-.314
										-.169
231	5579	4			1.000	.640	-.040	-.040	-.152	-.200
										-.028
222	7193	5				1.000	.440	.037	.014	.128
218	9177	6					1.000	.410	.420	.364
195	11806	7						1.000	.924	.622
157	13638	8							1.000	.863
118	16221	9								1.000

TABLE 191

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

TBILISI, SUMMER											
		LAT 41 41 N LONG 044 57 E									
HGT		1	2	3	4	5	6	7	8	9	
M		1.1430	1.0341	.8848	.6787	.5699	.4540	.3260	.2525	.1746	
SX10		.2276	.2024	.1817	.2532	.1983	.1049	.0893	.0770	.0699	
OBSN	HGT										
227	490	1	1.000	.770	.493	.288	.544	.372	.158	.049	
227	1458	2	1.000	.548	.320	.358	.591	.341	.153	.046	
224	3014	3	1.000		.210	.184	.402	.259	.218	.102	
220	5579	4			1.000	.084	-.016	-.077	-.238	-.159	
208	7193	5				1.000	.238	.228	.116	.134	
208	9177	6					1.000	.699	.473	.183	
200	11806	7						1.000	.893	.517	
149	13638	8							1.000	.838	
148	16221	9								1.000	

TABLE 192

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

TBILISI, FALL

		LAT 41 41 N LONG 044 57 E								
		HGT	1	2	3	4	5	6	7	8 9
OBSN	HGT	M	1.1839	1.0678	.9042	.6894	.5760	.4596	.3280	.2476 .1675
		SX10	.3776	.3009	.2065	.1965	.1034	.0897	.0935	.0778 .0543
238	490	1	1.000	.774	.652	.350	.489	.299	-.028	-.137 -.090
238	1458	2		1.000	.855	.397	.591	.325	-.079	-.253 -.199
237	3014	3			1.000	.446	.667	.380	-.084	-.221 -.156
229	5579	4				1.000	.296	.111	-.138	-.292 -.144
223	7193	5					1.000	.610	.084	-.019 -.095
221	9177	6						1.000	.357	.332 .047
204	11806	7							1.000	.884 .348
119	13638	8								1.000 .787
97	16221	9								1.000

TABLE 193

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

YEREVAN, WINTER

YEREVAN, WINTER											
		LAT 40 08 N LONG 044 28 E									
		HGT	1	2	3	4	5	6	7	8	9
OBSN		M	1.1860	1.1076	.9250	.6958	.5812	.4601	.3212	.2392	.1618
		SX10	.4679	.3181	.2093	.1443	.1488	.1147	.1211	.0898	.0622
	HGT										
342	907	1	1.000	.739	.382	.372	.145	.363	.316	.478	.666
342	1458	2		1.000	.539	.470	.208	.355	.372	.428	.620
337	3014	3			1.000	.626	.193	.281	.137	.222	.566
285	5579	4				1.000	.503	.393	.214	.367	.636
250	7193	5					1.000	.459	.188	.350	.707
203	9177	6						1.000	.491	.505	.519
165	11806	7							1.000	.937	.737
140	13638	8								1.000	.921
60	16221	9									1.000
1.000											

TABLE 194

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

YEREVAN, SPRING

YEREVAN, SPRING												
		LAT 40 08 N LONG 044 28 E										
		HGT	1	2	3	4	5	6	7	8	9	
OBSN	M	1.1276	1.0564	.9000	.6884	.5764	.4603	.3243	.2430	.1643		
	SX10	.3093	.3026	.2006	.1952	.1755	.1098	.1044	.0929	.0634		
		HGT										
	344	907	1	1.000	.692	.662	.344	.220	.092	-.268	-.363	-.077
	343	1458	2		1.000	.611	.324	.142	-.011	-.290	-.351	-.098
	341	3014	3			1.000	.390	.245	.092	-.404	-.474	-.231
	327	5579	4				1.000	.062	-.016	-.285	-.312	-.065
	247	7193	5					1.000	.198	-.094	-.055	.221
	230	9177	6						1.000	.261	.292	.440
	184	11806	7							1.000	.937	.579
	133	13638	8								1.000	.822
	94	16221	9									1.000

TABLE 195

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

YEREVAN, SUMMER										
HGT		1	2	3	4	5	6	7	8	9
	M	1.0883	1.0190	.8746	.6764	.5671	.4530	.3271	.2548	.1771
	SX10	.2476	.1853	.1672	.2512	.1219	.1028	.0798	.0668	.0605
OBSN	HGT									
294	907 1	1.000	.655	.463	.154	.274	.341	.034	-.140	-.203
294	1458 2		1.000	.636	.149	.373	.408	.003	-.265	-.386
294	3014 3			1.000	.112	.226	.191	-.125	-.315	-.427
288	5579 4				1.000	-.254	-.218	-.266	-.445	-.292
215	7193 5					1.000	.532	.206	.075	-.211
212	9177 6						1.000	.289	-.028	-.334
203	11806 7							1.000	.822	.238
166	13638 8								1.000	.727
164	16221 9									1.000

TABLE 196

AIR DENSITY MEANS AND STANDARD DEVIATIONS, (IN KILOGRAMS PER CUBIC METER),
 BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

YEREVAN, FALL

LAT 40 08 N LONG 044 28 E

HGT	1	2	3	4	5	6	7	8	9
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M 1.1333 1.0576 .8983 .6876 .5773 .4609 .3291 .2502 .1699

SX10 •3946 •3375 •2340 •1870 •1337 •1193 •1153 •0906 •0719

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329	907	1	1.000	.810	.664	.505	.595	.472	.205	.029	-.079
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329	1458	2	1.000	.780	.502	.610	.476	.177	-.016	-.046
329	1458	2	1.000	.780	.502	.610	.476	.177	-.016	-.046

328	3014	3	1.000	.482	.478	.428	.080	-.144	-.125
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314	5579	4	1.000	.439	.225	.142	-.016	.133
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239	7193	5	1.000	.693	.458	.373	.202
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235	9177	6	1.000	.543	.427	.143
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217	11806	7	1.000	.850	.238
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176	13638	8	1.000	•704
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149	16221	9	1.000
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TABLE 197

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

BAKU, WINTER

		LAT 41 00 N LONG 049 00 E								
		HGT	1	2	3	4	5	6	7	8 9
M		1.2756	1.0796	.9120	.6959	.5817	.4606	.3198	.2378	.1610
SX10		.3006	.2503	.2195	.1761	.1254	.0888	.1219	.0742	.0502
ORSN		HGT								
175	30	1	1.000	.415	.265	.143	.074	-.187	-.294	-.357
175	1458	2	1.000	1.000	.503	.311	.099	-.096	-.288	-.418
175	3014	3			1.000	.160	-.078	-.268	-.330	-.462
173	5579	4				1.000	-.131	-.275	-.565	-.377
169	7193	5					1.000	.352	.056	.073
162	9177	6						1.000	.276	.272
128	11806	7							1.000	.950
106	13638	8								.847
36	16221	9								1.000

TABLE 103

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

SAKU, SPRING										
		LAT 41 00 N LONG 049 00 E								
		HGT	1	2	3	4	5	6	7	8 9
M			1.2545	1.0676	.9015	.6898	.5770	.4595	.3233	.2425 .1641
SX10			.3329	.3344	.2318	.1677	.1035	.0924	.1175	.0900 .0541
OBSN	HGT									
198	30 1	1.000	.765	.660	.347	.415	-.061	-.403	-.486	-.504
198	1458 2		1.000	.708	.298	.320	-.049	-.457	-.565	-.526
198	3014 3			1.000	.306	.166	-.149	-.383	-.457	-.476
196	5579 4				1.000	.226	-.097	-.373	-.360	-.264
195	7193 5					1.000	.240	-.203	-.183	-.042
184	9177 6						1.000	.302	.351	.146
163	11806 7							1.000	.924	.309
130	13638 8								1.000	.644
39	16221 9									1.000

TABLE 109

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

BAKU, SUMMER

		LAT 41 00 N LONG 049 00 E								
		HGT	1	2	3	4	5	6	7	8 9
OBSN	HGT	M	1.1942	1.0226	.8760	.6766	.5695	.4547	.3268	.2540 .1756
		SX10	.2129	.1533	.1101	.1624	.1642	.1131	.0658	.0653 .0627
166	30	1	1.000	.342	.309	.056	.065	.050	-.170	-.348 -.471
165	1458	2		1.000	.694	.201	.129	.007	-.357	-.426 -.395
165	3014	3			1.000	.199	.125	.067	-.357	-.522 -.526
164	5579	4				1.000	-.016	-.095	-.397	-.483 -.447
164	7193	5					1.000	-.037	-.365	-.417 -.398
164	9177	6						1.000	.017	-.270 -.346
151	11806	7							1.000	.850 .552
127	13638	8								1.000 .883
126	16221	9								1.000

TABLE 200

AIR DENSITY MEANS AND STANDARD DEVIATIONS (IN KILOGRAMS PER CUBIC METER),
BY GEOMETRIC HEIGHTS (IN METERS), WITH CORRELATIONS BETWEEN HEIGHTS

BAKU, FALL											
		LAT 41 00 N LONG 049 00 E									
		HGT	1	2	3	4	5	6	7	8	9
M		1.2338	1.0588	.8975	.6866	.5787	.4604	.3282	.2483	.1680	
SX10		.3089	.2584	.1929	.1462	.2373	.1107	.0813	.0792	.0700	
OBSN	HGT										
184	30	1	1.000	.773	.644	.499	.179	.134	-.359	-.557	-.581
184	1458	2	1.000		.793	.552	.201	.155	-.394	-.592	-.495
183	3014	3			1.000	.533	.180	.135	-.370	-.599	-.516
181	5579	4				1.000	.135	.193	-.227	-.429	-.441
180	7193	5					1.000	-.119	-.263	-.292	-.238
178	9177	6						1.000	.251	.060	-.102
168	11806	7							1.000	.816	.299
140	13638	8								1.000	.859
114	16221	9									1.000

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K-3	1
KG	1
KGX	4
KXR	1
ACL	20
File	1

LISSAKI, WINNEBOG
PANC-NWL-5070/15 (7-62)



Naval Weapons Laboratory, Dahlgren, Virginia. (NWL Report No. 1859) CLIMATOLOGICAL WIND AND DENSITY DATA FOR TWENTY-FIVE USSR STATIONS, by M. D. France. May 1963. 10 p., 6 figs., 200 tables. UNCLASSIFIED Climatological wind and density data, by seasons, are presented for 25 USSR stations. Tabulations of means, standard deviations, and correlation coefficients, based on about ten years of statistical data over the period of 1950 to 1962, are given. For purposes of description, graphical presentations of typical data are given for selected cases.	1. Wind - Tables - USSR 2. Wind - Statistical analysis - USSR 3. Atmosphere - Density - USSR 4. USSR - Weather stations I. France, M. D. UNCLASSIFIED
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