1. DATE - TIME GROUP 7 Sept 64 08/0806Z	**2. LOCATION** Whiteman AFB, Missouri
3. SOURCE Military	**10. CONCLUSION** INSUFFICIENT DATA FOR EVALUATION
4. NUMBER OF OBJECTS One	
5. LENGTH OF OBSERVATION One Hour	**11. BRIEF SUMMARY AND ANALYSIS** Object changing course moving with wind. Observed as a bright light to South of several Missile sites. In sight for over one hour. Kept changing course. Report as low (200 ft). Efforts by mobile team to close on object failed. Chase turned over to civil authorities. Object described as a blue light size and brightness of auto headlight. At one time reported to appear to explode in mid air. Kept moving and reported to be as low as 20 ft off ground at one of the sites.
6. TYPE OF OBSERVATION Ground-Visual	
7. COURSE Erratic	
8. PHOTOS ☐ Yes XX No	COMMENTS: Object apparently moving with wind. Definite track of object as observed not included with the report. Sighting indicates a possible balloon at low altitude with light attached. Insufficient data for a firm analysis. No report from the civil authorities who continued chanse of object and no flight path of object included with the report.
9. PHYSICAL EVIDENCE ☐ Yes XX No	

FORM
FTD SEP 63 0-329 (TDE) Previous editions of this form may be used.

Identification

COLUMBIA, MO.
38°_58' N 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LAND STATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time ...th mer.	1964	SEP	5	1715
Scheduled (G.M.T.)	19	57	6	00
Ascension No.		225		

Page 2

Slant range (M.) (yds.)	Pibal ht. above sfc. (m.) 100-gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N	Wind Speed (m.p.s.)
	14570	51	12480	17.35		39500	256.2	51		
	14860	52		17.15			256.3	52	261	23.0
	15145	53	13080	17.05		41800	256.6	53		
	15425	54	13280	16.75		43500	256.7	54	260	25.0
	15705	55	13600	16.55		45100	256.8	55		
	15985	56	13880	16.45		46400	256.8	56	260	24.5
	16265	57		16.20			256.9	57		
	16545	58	14200	16.00		49400	257.2	58	262	21.0
	16825	59		16.00			257.6	59		
	17105	60	14920	15.95		51400	257.7	60	264	16.5
	17385	61		15.90			257.7	61		
	17670	62	15400	15.90		53300	257.8	62	268	13.0
	17950	63		16.00			258.2	63		
	18235	64	15980	16.10		54450	258.2	64	274	8.5
	18515	65		16.25			258.3	65		
	18795	66	16520	16.45		55000	258.5	66	275	8.0
	19080	67		16.55			258.8	67		
	19360	68	17200	16.70		56400	258.8	68	266	8.5
	19645	69		16.90			258.6	69		
	19925	70	17890	17.10		57200	258.5	70	248	6.5
	20210	71		17.30			258.4	71		
	20490	72	18500	17.50		57700	258.2	72	242	5.5
	20775	73		17.65			258.0	73		
	21055	74	19100	17.80		58500	259.1	74	244	6.0
	21340	75		17.95			258.1	75		
	21620	76	19780	18.15		59300	258.0	76	258	5.0
	21905	77		18.35			258.1	77		
	22185	78	20420	18.70		59500	256.2	78	89	4.0
	22470	79		18.95			258.1	79		
	22750	80	20980	19.25		59200	258.0	80	81	4.0
	23040	81		19.60			257.9	81		
	23320	82	21530	19.85		58800	258.0	82	72	2.5
	23600	83		20.2			258.1	83		
	23880	84	22200	20.4		58500	258.2	84	53	2.0
	24160	85		20.7			258.3	85		
		86						86	46	2.0

Minute	Wind Direction° 360°= N	Wind Speed (m.p.s.)	Azimuth angle °	Distance from observation Point (m.)	Elevation angle° Smoothed	Elevation angle° Observed	Rawin ht. above surface (m.)	Minute	Slant range (m.) (yds.)
106								106	
107								107	
108								108	
109								109	
110								110	
111								111	
112								112	
113								113	
114								114	
115								115	

*Stamp the following:
1. Name of Station
2. Lat. and long.
3. Local Standard time, meridian
4. El. of S
5. Method obs., e. rawinso rawin,
6. Type of equip., WBRT-5 GMD-1A GMD-1, SCR-65 theodol

Altitude in km.,

Punched Card Data

Altitude#	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude#	Direction (degrees)	Speed (m.p.s.)
Card No. 3			15	Card No. 4		
Type of			16	Type of		

	20210	71		17.30								
	20490	72	18500	17.50		57700	258.2	72	242	5.5		
	20775	73		17.65			258.0	73				
	21055	74	19100	17.80		58500	258.1	74	244	6.0		
	21340	75		17.95			258.1	75				
	21620	76	19780	18.15		59300	258.0	76	258	5.0		
	21905	77		18.35			258.1	77				
	22185	78	20420	18.70		59500	258.2	78	89	4.0		
	22470	79		18.95			258.1	79				
	22750	80	20980	19.25		59200	258.0	80	81	4.0		
	23040	81		19.60			257.9	81				
	23320	82	21580	19.85		58800	258.0	82	72	2.5		
	23600	83		20.2			255.1	83				
	23880	84	22200	20.4		58500	256.2	84	53	2.0		
	24160	85		20.7			258.3	85				
	24440	86	22830	21.0		58200	258.5	86	49	2.0		
	24730	87		21.5			258.6	87				
	25010	88	23470	21.8		58000	258.6	88	76	1.5		
	25300	89		22.1			258.2	89				
	25580	90	24140	22.3		57900	258.2	90	134	3.0		
	25860	91		22.6			258.1	91				
	26140	92	24900	22.9		57800	258.0	92	158	3.5		
	26420	93		23.3			257.8	93				
	26700	94	25640	23.6		57800	258.6	94	167	3.5		
	26980	95		24.0			258.6	95				
	27260	96	26500	24.4		57600	258.4	96	165	3.0		
	27540	97		24.7			258.3	97				
	27820	98	27300	25.0		57800	258.0	98	167	2.5		
	28100	99		25.2			258.9	99				
	28380	100	28100	25.5		58000	258.9	100	169	2.5		
	28660	101	28?					101				
	28940	102						102				
	29220	103						103				
	29500	104	28332					104				
	29780	105						105				

Minute	106	107	108	109	110	111	112	113	114	115
Slant range (m.) (yds.)										

Altitude
in km., m

Punched Card Data

Altitude#	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude#	Direction (degrees)	Speed (m.p.s.)
Card No. 3			15	Card No. 4		
Type of equipment		8	16	Type of equipment		8
19	241	5	17-21	31		
20	255	5	22-26	32		
21	84	4	27-31	33		
22	68	2	32-36	34		
23	48	2	37-41	35		
24	94	2	42-46	36		
25	152	3	47-51	37		
26	167	4	52-56	38		
27	166	3	57-61	39		
28	169	3	62-66	40		
29			67-71	41		
30			72-76	42		

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		

FORM 610-12
(8-31)
COMM-WB-DC

Page 1

*Identification

COLUMBIA, MO.
38° 58' N 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

	Year	Month	Day
Actual time ___th mer.	1964	SEP	6
Scheduled (G.M.T.)	1964	SEP	6

Ascension No. 927

Type of balloon 600G

Orientation, 360° = South

Slant range (m.) (yds.)	Pibal ht. above sfc. (m.) 30 gram	Pibal ht. above sfc. (m.) 100 gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N.	Wind Speed (m.p.s.)
										sfc.	130	3.1
	216	350	1	2400	21.3		6200	155.2	1	170	12.4
	414	670	2	3200	18.65		10450	169.6	2	181	14.8
	612	980	3	7300	17.65		12250	178.2	3	199	13.0
	801	1285	4	9400	16.15		12900	185.1	4	214	10.4
	990	1585	5	11700	14.90		13450	190.2	5	221	10.2
	1170	1880	6	13900	14.20		14000	195.6	6	224	11.4
	1350	2170	7	16200	13.55		14600	199.8	7	227	11.1
	1530	2455	8	18600	14.15		15200	203.3	8	229	11.3
	1710	2740	9	21000	19.65		15800	206.4	9	228	12.5
	1890	3020	10	23100	19.40		16600	209.6	10	227	13.3
	2070	3300	11	25350	19.10		17300	212.8	11	232	12.6
	2250	3580	12	27800	19.10		18000	215.9	12	235	12.4
	2430	3856	13	30200	19.05		18700	214.8	13	234	11.9
	2610	4130	14	32500	19.05		19350	216.0	14	229	13.0
	2790	4405	15	35000	18.80		20150	216.8	15	219	15.2
	2970	4676	16	37200	18.50		21200	216.5	16	216	14.4
	3180	4948	17	39400	18.15		21950	216.5	17	222	12.1
	3330	5218	18	42000	18.40		22650	217.3	18	239	11.6
	3510	5488	19	44600	18.50		23300	218.7	19	245	10.6
	3690	5755	20	47400	18.80		23800	219.7	20	251	9.6
	3870	6020	21	49800	18.10		24300	221.1	21	262	10.0
	4050	6285	22	52400	18.50		24750	221.7	22	268	10.4
	4230	6550	23	55100	19.00		25200	224.5	23	260	11.4
			24						24	248	11.5
			25						25	244	11.5
			26						26	248	13.0
			27						27		
			28						28	241	11.6
			29						29		
	5490	8035	30						30	241	15.0
	5670	8300	31						31		
	5850	8565	32						32	248	14.0
	6030	8825	33	81100	19.25		23500	232.1	33		
	6210	9085	34		19.05			233.5	34	254	14.5
	6390	9350	35	86500	19.00		24400	231.6	35		
	6570		36		19.00			234.3	36	256	13.0

Rawinsonde Time-Altitude Data

Contact	Pressure (mb.)	Altitude (m., m.s.l.)	Elapsed time (min.)
1.5	986	230	0.0
10	947	600	2.5
15	878	1260	4.5
20	817	1850	7.0
25	758	2470	9.5
30	702	3100	12.0
35	648	3740	15.5
40	598	4420	18.1
45	549	5100	20.7
50	502	5800	23.2
55	459	6490	26.1
60	417	7210	28.2
65	379	7890	31.6
70	342	8620	34.1
75	307	9390	37.4
80	275	10150	39.6
85	244	11000	42.0
90	216	11800	45.9
95	190	12600	49.1
100	167	13400	52.3
105	144	14300	55.2
110	123	15270	58.7
115	105	16220	62.0
120	88	17250	65.5
125	72	18410	69.6
130	59	19500	74.1
135	47		80.0
140	37		

Ramp the following:

Name of Station

Lat. and long.

Local Standard time, ___th meridian

El. of Station

Method of obs., e.g., rawinsonde, rawin, pibal

Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Termination Alt. for 150 & 300 m. use with respect to ground, alt. for other standard levels are in km., msl.

Punched Card Data

Altitude	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude	Direction (degrees)	Speed (m.p.s.)
Card No. 1			15	Card No. 2		
Type of			16	Type of		

	5485	19	3960	1950					19	249	18.6		
	3090 6756	20	4220	1920			13300	219.1	20	251	9.6		
	3670 6025	21	4950	1910			14300	221.1	21	262	10.0		
	4050 6295	22	5240	19.50			14750	222.7	22	268	10.4		
	4230 6565	23	5510	19.90			15200	224.5	23	260	11.4		
	4410 6835	24	5800	1980			15900	225.6	24	239	12.5		
	4590 7105	25	6090	1970			16500	226.7	25	232	15.5		
	4770 7375	26	6360	1945			17100	227.4	26	232	16.0		
	4950 7645	27	6670	1920			17800	228.5	27				
Termination	5130 7915	28		1930				227.2	28	241	11.5		
Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.	5310 8185	29	7040	1925			20000	227.6	29				
	5490 8455	30		1915				228.1	30	241	15.0		
	5670 8730	31	7600	1915			21750	229.0	31				
	5850 9005	32		1910				229.7	32	248	14.0		
	6030 9285	33	8110	1905			23300	229.9	33				
	6210 9565	34		1905				230.8	34	254	14.5		
	6390 9850	35	8650	1900			24900	231.6	35				
	6570 10135	36		1900				232.3	36	256	13.0		
	6750 10420	37	9170	1845			26500	232.9	37				
	6930 10710	38		1900				233.5	38	257	11.0		
	7110 11005	39	9630	1906			27700	234.2	39				
	7290 11300	40		1910				234.8	40	260	14.0		
	7470 11595	41	10230	1910			29200	235.2	41				
	7650 11890	42		1935				235.3	42	270	11.5		
	7830 12185	43	10780	1940			30300	235.1	43				
	8010 12480	44		1930				235.0	44	276	12.5		
	8190 12775	45	11300	1960			31500	235.9	45				
	8370 13075	46		1970				236.4	46	282	13.0		
	8550 13375	47	11830	1970			32750	236.8	47				
	8730 13675	48		1965				241.6	48	271	15.0		
	8910 13975	49	12330	1960			34300	240.4	49				
	9090 14275	50		1945				243.3	50	273	19.5		

105	144	14700	5										
110	123	15220	5.8										
115	105	16220	6.2.0										
120	88	17280	65.5										
125	72	18450	69.6										
130	57	19930	74.4										
135	43	21770	80.0										
140	28												
145	13												
326	34	23263	83.5										

Computer C. BARNES

Verifier H. LAWHAM

Coded Data for Transmission

1[illegible]	1931	1413	[2]1728	2026	[4]2120	2221	[6]2322	2322	[8]2325
2325	0 2324	2 2227	4 2223	6 2519	8 2721	02425	3 2424	5 2429	02525
52722	02727	52733	02533	32527	09996	02904	51911	01505	30754

Punched Card Data

Altitude #	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude #	Direction (degrees)	Speed (m.p.s.)
Card No. 1			15	Card No. 2		
Type of equipment		8	16	Type of equipment		8
sfc.	130	2	17-21	7	240	13
150 M.	158	10	22-26	8	241	14
300 M.	173	13	27-31	9	254	12
0.5	168	13	32-36	10	258	12
1.0	200	13	37-41	11	274	12
1.5	221	10	42-46	12	276	14
2.0	228	11	47-51	13	275	15
2.5	228	13	52-56	14	270	15
3	234	12	57-61	15	252	15
4	217	14	62-66	16	248	15
5	249	10	67-71	17	241	15
6	243	12	72-76	18	302	4

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		
Enter check if additional levels appear on reverse side.		

Identification: COLUMBIA, MO.
38° 58' N 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LAND STATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time ___th mer.	1964	SEP	6	0515
Scheduled (G.M.T.)	1964	SEP	6	12
Ascension No.	927			

Page 2

Slant range (M.) (yds.)	Pibal ht. above sfc. (m.) 100-gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N	Wind Speed (m.p.s.)
	14570	51	12960	19.4		36400	244.3	51		
	14860	52		19.3			245.1	52	270	16.0
	15145	53	13400	19.2		38100	245.5	53		
	15425	54	13720	19.5		39200	246.0	54	270	17.0
	15705	55	13980	19.8		40200	246.8	55		
	15985	56	14280	19.9		41200	247.2	56	262	18.7
	16265	57		18.7			247.5	57		
	16545	58	14860	18.6		43600	247.7	58	247	17.0
	16825	59		18.6			247.6	59		
	17105	60	15430	18.5		45300	247.3	60	238	12.6
	17385	61		18.5			247.9	61		
	17670	62	16000	18.5		46800	247.2	62	269	10.7
	17950	63		18.70			247.6	63		
	18235	64	16560	18.85		47800	248.4	64	294	12.4
	18515	65		1890			249.1	65		
	18795	66	17240	1920		48800	249.8	66	301	8.3
	19080	67		19.55			250.0	67		
	19360	68	17870	19.80		49000	250.0	68	301	2.5
	19645	69		20.1			250.0	69		
	19925	70	18420	20.4		49200	253.2	70	224	2.0
	20210	71		20.6			250.0	71		
	20490	72	19080	20.9		49500	249.6	72	197	5.5
	20775	73		21.1			249.2	73		
	21055	74	19720	21.3		49800	249.1	74	185	5.0
	21340	75		21.5			248.6	75		
	21620	76	20300	21.8		50100	248.5	76	179	4.0
	21905	77		22.0			248.4	77		
	22185	78	20930	22.4		50200	248.0	78	156	3.5
	22470	79		22.7			247.7	79		
	22750	80	21554	23.0		50200	247.5	80	148	1.5
	23040	81		23.3			247.5	81		
	23320	82	22240	23.7		50200	247.5	82	66	2.5
	23600	83	22600	24.0		50000	247.7	83		
	23880	84						84		
	24160	85						85		

Minute	Wind Direction° 360°= N	Wind Speed (m.p.s.)	Azimuth angle °	Distance from observation Point (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Rawin ht. above surface (m.)	Slant range (m.) (yds.)
106								
107								
108								
109								
110								
111								
112								
113								
114								
115								

*Stamp the following:
1. Name of Station
2. Lat. and long.
3. Local Standard time, ___ meridian
4. El. of S
5. Method obs., e. rawinso rawin, r
6. Type of equip., WBRT-5 GMD-1A GMD-1, SCR-65 theodol

Altitude in km., n

Punched Card Data

Altitude#	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude#	Direction (degrees)	Speed (m.p.s.)
Card No. 3			15	Card No. 4		

19360	68	17870	19.00			2380	69					
19645	69		20.1									
19925	70	15470	20.4		49200	2382	70	224	2.0			
20210	71		20.6			2500	71					
20490	72	19080	20.9		49500	2496	72	197	5.5			
20775	73		21.1			2492	73					
21055	74	14790	21.3		49800	2491	74	184	5.0			
21340	75		21.5			2486	75					
21620	76	20200	21.8		50100	2485	76	179	4.0			
21905	77		22.0			2484	77					
22185	78	20920	22.4		50200	2480	78	156	3.5			
22470	79		22.7			2477	79					
22750	80	21554	23.0		50200	2475	80	148	1.5			
23040	81		23.3			2475	81					
23320	82	22240	23.7		50200	2475	82	66	2.5			
23600	83	22600	24.0		50000	247.7	83					
23880	84						84					
24160	85						85					
24440	86	24770					86					
24730	87						87					
25010	88						88					
25300	89						89					
25580	90						90					
25860	91						91					
26140	92						92					
26420	93						93					
26700	94						94					
26980	95						95					
27260	96						96					
27540	97						97					
27820	98						98					
28100	99						99					
28380	100						100					
28660	101						101					
28940	102						102					
29220	103						103					
29500	104						104					
29780	105						105					

Rawin ht. above surface (m.)	Minute	Slant range (m.) (yds.)
	106	
	107	
	108	
	109	
	110	
	111	
	112	
	113	
	114	
	115	

Altitude: in km., n

Punched Card Data

Altitude#	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude#	Direction (degrees)	Speed (m.p.s.)
Card No. 3			15	Card No. 4		
Type of equipment		8	16	Type of equipment		2
19	213	4	17-21	31		
20	186	5	22-26	32		
21	161	4	27-31	33		
22	133	2	32-36	34		
23			37-41	35		
24			42-46	36		
25			47-51	37		
26			52-56	38		
27			57-61	39		
28			62-66	40		
29			67-71	41		
30			72-76	42		

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		

FORM 610-12
(3)
COMM-WB-DC

Page 1

*Identification

COLUMBIA, MO.
38° 58' N 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WIND'S-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual release time 90th mer.	1984	SEP	6	1715
Scheduled (G.M.T.)	1984	SEP	7	00

Ascension No. 929

Type of balloon Laotex — Orientation, 360° = South

Slant range (m.) (yds.)	Pibal ht. above sfc. (m.) 30 gram / 100 gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N. sfc. / 910	Wind Speed (m.p.s.)
	216 / 350	1	210	23.1		490	186.6	1	183	7.5
	414 / 670	2	460	25.7		970	183.2	2	182	7.3
	612 / 980	3	700	26.7		1390	182.1	3	179	7.7
	801 / 1285	4	980	27.7		1860	180.6	4	178	7.4
	990 / 1585	5	1210	28.4		2220	180.3	5	174	7.0
	1170 / 1880	6	1480	27.6		2720	178.7	6	177	8.0
	1350 / 2170	7	1690	27.4		3240	179.3	7	180	8.2
	1530 / 2455	8	1920	27.8		3610	179.2	8	180	7.0
	1710 / 2740	9	2180	28.9		3910	179.5	9	183	6.1
	1890 / 3020	10	2400	29.2		4290	181.7	10	186	6.3
	2070 / 3300	11	2680	29.6		4670	180.7	11	183	5.8
	2250 / 3580	12	2900	29.9		4970	180.3	12	188	4.0
	2430 / 3855	13	3120	31.4		5100	181.6	13	179	2.3
	2610 / 4130	14	3360	33.2		5200	181.7	14	262	1.5
	2790 / 4405	15	3580	35.0		5100	183	15	276	3.3
	2970 / 4675	16	3790	36.7		5000	186.6	16	262	4.2
	3150 / 4945	17	4000	37.2		5250	189.3	17	241	6.4
	3330 / 5215	18	4240	37.6		5550	191.2	18	241	6.5
	3510 / 5485	19	4480	38.2		5900	194.6	19	249	6.0
	3690 / 5755	20	4720	38.3		6200	197.2	20	237	6.2
	3870 / 6025	21	4950	38.3		6500	199.1	21	232	6.2
	4050 / 6295	22	5190	38.2		6850	200.2	22	225	6.0
	4230 / 6565	23	5430	38.1		6950	201.4	23	224	6.4
	4410 / 6835	24	5670	37.7		7400	202.7	24	227	7.2
	4590 / 7105	25	5900	37.6		7750	204.3	25	234	6.0
	4770 / 7375	26	6120	37.7		7950	206.2	26	240	6.0
	4950 / 7645	27	6350	37.6		8300	207.8	27	232	6.8
	5130 / 7915	28	6580	37.1		8700	208.2	28	226	7.6
	5310 / 8185	29	6800	36.6		9120	208.2	29		
	5490 / 8455	30		36.2			210.5	30	235	8.0
	5670 / 8730	31	7300	35.9		10100	211.8	31		
	5850 / 9005	32		35.6			213.4	32	243	9.0
	6030 / 9285	33	7780	35.1		11000	215.0	33		
	6210 / 9565	34		34.5			216.7	34	243	12.0
	6390	35						35		

Rawinsonde Time-Altitude Data

Contact	Pressure (mb.)	Altitude (m., m.s.l.)	Elapsed time (min.)
65	984	238	0.0
10	942	630	1.9
15	877	1250	4.4
20	814	1870	7.0
25	754	2530	9.6
30	697	3160	12.8
35	642	3840	15.8
40	590	4530	18.7
45	539	5260	21.7
50	491	6000	25.2
55	446	6730	29.2
60	403	7540	31.4
65	361	8360	34.7
70	324	9160	38.0
75	287	10000	41.6
80	253	10880	45.0
85	222	11740	48.6
90	194	12600	52.7
95	168	13500	56.3
100	143	14500	60.1
105	122	15480	64.1
110	102	16550	67.9
115	85	17650	71.9
120	70	18860	76.4
125	56	20240	81.5
130	43	21950	87.6
135	31	24100	95.1
140	19	27400	106.0
1423	17	29528	114.6

Punched Card Data

Altitude #	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude #	Direction (degrees)	Speed (m.p.s.)

Stamp the following:

Name of Station

Lat. and long.

Local Standard time, 90 th meridian

El. of Station

Method of obs., e.g., rawinsonde, rawin, pibal

Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Termination

Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

GMD-1A, GMD-1, SCR-658, theodolite

Termination

Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

	5180 4945	17	[illegible]	37.0		[illegible]	[illegible]						
	5330 5215	18	4240	37.6		5550	191.2	18	241	65			
	5510 5485	19	4450	38.2		5200	1946	19	241	60			
	5690 5756	20	4720	38.3		6000	197.2	20	237	62			
	5870 6025	21	4950	38.3		6300	199.1	21	232	62			
	4050 6295	22	5110	38.2		6600	200.2	22	225	60			
	4230 6565	23	5130	38.1		6900	201.1	23	222	64			
	4410 6835	24	4920	37.7		7200	202.1	24	[illegible]	72			
	4590 7105	25	5020	37.6		7500	204.5	25	234	60			
	4770 7375	26	5120	37.1		7800	206.2	26	240	60			
	4950 7645	27	0350	37.6		8300	207.8	27	232	68			
	5130 7915	28	6580	37.1		8700	208.2	28	226	76			
	5310 8185	29	9800	36.6		9200	207.2	29					
	5490 8455	30		36.2			211.5	30	235	8.0			
	5670 8730	31	7300	35.9		10100	211.8	31					
	5850 9005	32		35.6			213.4	32	243	9.0			
	6030 9285	33	7850	35.1		11000	215.0	33					
	6210 9565	34		34.5			216.7	34	243	120			
	6390 9850	35	8220	33.8		12300	218.4	35					
	6570 10135	36		33.1			219.8	36	245	136			
	6750 10420	37	8900	32.2		13750	221.1	37					
	6930 10710	38		31.5			222.7	38	246	144			
	7110 11005	39	9130	30.9		15300	224.3	39					
	7290 11300	40		30.2			225.4	40	237	150			
	7470 11595	41	9680	29.4		17100	226.0	41					
	7650 11890	42		28.7			226.5	42	237	155			
	7830 12185	43	10120	28.0		19000	227.0	43					
	8010 12480	44		27.4			227.7	44	238	165			
	8190 12775	45	10580	26.6		21000	228.4	45					
	8370 13075	46		25.8			229.1	46	242	175			
	8550 13375	47	11050	25.5		23000	229.9	47					
	8730 13675	48		25.1			230.9	48	244	170			
	8910 13975	49	11580	24.7		25000	231.5	49					
	9090 14275	50		24.3			231.9	50	245	175			

100	143	14500	60.7		
105	122	15460	66.7		
110	102	16580	67.7		
115	85	17650	71.9		
120	70	18860	76.4		
125	56	20240	81.5		
130	43	21950	87.6		
135	31	24100	95.1		
140	19	27400	106.0		
145	17	29828	114.6		

Computer A R BROWN

Verifier D O Lammers

Coded Data for Transmission

PP2WW	00451	2009	21814	1815	41814	1715	61816	1814	81812
1912	01809	22605	42412	62412	82211	02311	92315	52416	02528
52432	02437	52525	02521	32503	11	99996	02512	42702	80905
01205	21506	60204	00910	00809	70607				

Punched Card Data

Altitude #	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude #	Direction (degrees)	Speed (m.p.s.)
Card No. 1			15	Card No. 2		
Type of equipment		8	16	Type of equipment		8
sfc.	210	4	17-21	7	229	8
150 M.	190	6	22-26	8	244	11
300 M.	182	7	27-31	9	246	14
0.5	184	7	32-36	10	236	16
1.0	179	8	37-41	11	242	18
1.5	175	7	42-46	12	245	16
2.0	179	8	47-51	13	245	13
2.5	184	6	52-56	14	250	15
3	185	5	57-61	15	254	12
4	265	4	62-66	16	253	6
5	236	6	67-71	17	251	11
6	229	7	72-76	18	255	9

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		

Enter check if additional levels appear on reverse side.

Identification

COLUMBIA, MO.
38° 58' N 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LAND STATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time ___th mer.	1964	SEP	6	1715
Scheduled (G.M.T.)	1964	SEP	7	00
Ascension No.	929			

Slant range (M.) (yds.)	Pibal ht. above sfc. (m.) 100-gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N	Wind Speed (m.p.s.)
	14570	51	12040	24.0		27800	232.3	51		
	14860	52		23.7			232.7	52	246	14.0
	15145	53	12[illegible]0	23.5		28800	233.0	53		
	15425	54		23.3			233.1	54	246	13.0
	15705	55	13[illegible]0	23.1		30400	233.7	55		
	15985	56	13[illegible]0	22.9		31200	234.3	56	248	12.5
	16265	57	13500	22.9		32000	234.6	57		
	16545	58	13200	22.6		32900	235.1	58	250	14.5
	16825	59		22.4			235.5	59		
	17105	60	14300	22.2		34750	236.0	60	252	15.0
	17385	61		22.1			236.5	61		
	17670	62	14500	22.1		36100	237.0	62	254	11.0
	17950	63		22.1			237.3	63		
	18235	64	15000	22.2		37200	237.6	64	256	10.5
	18515	65		22.2			237.8	65		
	18795	66	15300	22.1		38500	238.2	66	256	12.0
	19080	67		22.1			238.4	67		
	19360	68	15[illegible]0	22.0		39450	238.5	68	251	10.5
	19645	69		22.0			239.0	69		
	19925	70	16860	22.1		41000	239.4	70	252	11.0
	20210	71		22.2			239.5	71		
	20490	72	17540	22.2		42500	239.6	72	253	9.5
	20775	73		22.3			239.8	73		
	21055	74	18020	22.3		43300	240.2	74	256	6.5
	21340	75		22.5			240.5	75		
	21620	76	18600	22.7		44000	240.6	76	254	3.5
	21905	77		22.9			240.5	77		
	22185	78	19160	23.3		44200	240.4	78	249	1.5
	22470	79		23.6			240.3	79		
	22750	80	19700	23.7		44100	240.3	80	32	1.0
	23040	81		24.1			240.3	81		
	23320	82	20240	24.4		44200	240.0	82	79	2.5
	23600	83		24.7			239.6	83		
	23880	84	20780	25.0		44000	239.3	84	107	3.0
	24160	85		25.2			239.3	85		

Minute	Slant range (m.) (yds.)	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation Point (m.)	Azimuth angle °	Wind Direction° 360°= N	Wind Speed (m.p.s.)
106		27170	33.8		41400	235.9	84	4.5
107			34.2			235.6		
108		27730	34.7		40700	235.3	05	6.0
109			35.1			235.2		
110		28320	35.7		39800	235.3	13	5.5
111			35.9			235.2		
112		28920	36.1		39400	234.9	69	4.0
113			36.4			235.2		
114		29410	36.9		39000	235.4	10	3.5
115		238						

Punched Card Data

Altitude#	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude#	Direction (degrees)	Speed (m.p.s.)
Card No. 3			15	Card No. 4		

Page 2.

*Stamp the following:
1. Name of Station
2. Lat. and long.
3. Local Standard time, ___ meridian
4. El. of S
5. Method of obs., e.g. rawinsonde, rawin, p
6. Type of equip., WBRT-5 GMD-1A GMD-1, SCR-65 theodolite

Altitudes in km., n

29673

	19645	69		23.5			239.6	69				
	19925	70	16860	22.1		41000	239.1	70	252	11.0		
	20210	71		22.2			239.5	71				
	20490	72	17540	22.2		42500	239.6	72	253	9.5		
	20775	73		22.3			239.8	73				
	21055	74	18020	22.4		43300	240.1	74	256	6.5		
	21340	75		22.5			240.5	75				
	21620	76	18600	22.7		42000	240.6	76	254	3.5		
	21905	77		22.9			240.5	77				
	22185	78	19160	23.3		41300	240.4	78	249	1.5		
	22470	79		23.6			240.3	79				
	22750	80	19700	23.7		41400	240.3	80	32	1.0		
	23040	81		24.1			240.3	81				
	23320	82	20240	244		41200	240.0	82	79	2.5		
	23600	83		247			239.6	83				
	23880	84	20780	250		44000	239.3	84	107	3.0		
	24160	85		252			239.3	85				
	24440	86	21300	255		41200	239.4	86	129	3.0		
	24730	87		257			239.4	87				
	25010	88	21850	260		41200	239.2	88	147	3.0		
	25300	89		263			239.0	89				
	25580	90	22400	265		43000	238.0	90	76	1.0		
	25860	91		269			237.9	91				
	26140	92	22940	272		42200	238.1	92	25	2.0		
	26420	93		274			238.5	93				
	26700	94	23560	280		43800	238.4	94	77	4.0		
	26980	95		286			238.0	95				
	27260	96	24130	291		43000	237.4	96	94	5.0		
	27540	97		296			236.9	97				
	27820	98	24720	299		42600	236.9	98	92	4.0		
	28100	99		303			236.6	99				
	28380	100	25300	306		42400	236.7	100	91	3.0		
	28660	101		310			236.8	101				
	28940	102	25990	314		42000	236.8	102	90	3.0		
	29220	103		321			236.2	103				
	29500	104	26540	327		41800	236.0	104	93	4.0		
	29780	105		331			236.0	105				

Minute	Rawin ht. above surface (m.)	Slant range (m.) (yds.)
106	27170	
107		
108	27730	
109		
110	28320	
111		
112	28920	
113		
114	29410	
115	338	

2967

Altitudes in km., n

Punched Card Data

Altitude#	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude#	Direction (degrees)	Speed (m.p.s.)
Card No. 3			15	Card No. 4		
Type of equipment		8	16	Type of equipment		8
19	253	3	17-21	31		
20	32	1	22-26	32		
21	106	3	27-31	33		
22	144	2	32-36	34		
23	113	2	37-41	35		
24	83	4	42-46	36		
25	92	4	47-51	37		
26	91	3	52-56	38		
27	91	4	57-61	39		
28	75	6	62-66	40		
29	70	5	67-71	41		
30			72-76	42		

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		

WHITEMAN AFB, 7 Sep 64 Missouri

On 8 Sep 64 Hq USAF SAFOI PB (Helen) called regarding a sighting at Whiteman AFB on 7 Sep 64. UPI had asked them for information on sighting. Helen gave this information: Blue object 500 ft in air, speed 5 knots, g crashed rose 20 ft in air in field, rose about 5 ft took off at 4 - 5 knots. This was reported by Highway Patrol. Air Force Security People on station at Whiteman had done reporting to Highwa Patrol.

On 8 Sep 64 call made to Whiteman AFB, Base Security Office, area code 816 Logan 3 5511. Spoke with Airman Farley. told him we were checking up on a UFO report. We have reports from Wash which we want to find out about. Call transfered to Wing (387). Spoke with Sgt Lemington. Last night at 2106 hours about 20 and 25 miles. Appeared about 200 ft in air. Similar reports. Directly South of original sighting. Col Baker said no action unless object intends penetration. Sgt Lemington said he would find out more information and give us a call right back after Maj Q informed him that the Secreaty of the Air Force needed this information in a hurry as someone had reported it to the UPI and associated press also had info on it.

10 Sep 64 placed a Call to Whiteman AFB, spoke with Command post. Sighting at 0336Z, 8 Sep 64, India reported sighting UFO, small blue light size of auto headlight. Also 5 other sighted south of Whiteman Moved ~~xx~~ towards Clington, Missour about 20 ft off ground. Mobile Strike team sent ~~xxx~~ out. Looked like it was hovering over another site. State highway patrol notified. Always in South. Striketeam called back in. Seemed to be moving with wind. Wind to South. Ask command Post to find out lateral movement. Command post ext 3855.

WX BLOCKED 9/22

Lt. of Station

Method of obs., e.g., rawinsonde, rawin, pibal

Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Termination

Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

Computer R.S. Vasey

Verifier G. Barnes

BUPST

	2250 3580	12	3000	19.60		8300	200.4	12	201	12.5	70	332	4950	33.4
	2430 3855	13	3210	19.55		9000	200.9	13	208	10.8	75	278	9700	38.3
	2610 4130	14	3430	19.75		9600	201.3	14	204	10.0	80	264	10550	41.3
	2790 4405	15	3700	19.95		10200	201.2	15	194	10.0	85	234	11360	44.4
	2970 4675	16	3930	20.0		10800	200.5	16	192	11.4	90	206	12180	47.5
	3150 4945	17	4180	19.90		11500	200.1	17	190	12.6	95	180	13160	50.7
	3330 5215	18	4410	19.80		12300	199.2	18	184	12.5	100	156	13950	53.9
	3510 5485	19	4650	19.70		13000	198.3	19	186	11.1	105	135	14560	57.3
	3690 5755	20	4910	19.75		13600	197.9	20	191	10.2	110	114	15860	60.9
	3870 6025	21	5140	19.90		14200	197.7	21	192	9.1	115	77	16800	64.5
	4050 6295	22	5400	20.2		14700	197.8	22	200	9.0	120	81	17590	68.7
	4230 6565	23	5660	20.3		15300	197.9	23	202	9.0	125	66	19130	73.4
	4410 6835	24	5900	20.5		15800	198.1	24	206	2.5	130	52	20610	77.1
	4590 7105	25	6140	20.8		16200	198.4	25	213	6.0	135	39	22500	82.8
	4770 7375	26	6400	21.2		16500	198.6	26	213	5.0	140	24	25180	90.1
	4950 7645	27	6640	21.5		16800	198.9	27	208	6.2	145	12		1.3
	5130 7915	28	6900	21.6		17400	199.2	28	208	5.6				
	5310 8185	29	7080	21.9		17500	199.3	29						
	5490 8455	30		22.1			199.2	30	198	5.3				
	5670 8730	31	7560	22.4		18200	198.8	31						
	5850 9005	32		22.8			198.5	32	196	6.0				
	6030 9285	33	8060	23.0		15900	198.5	33						
	6210 9565	34		23.3			199.1	34	219	6.2				
	6390 9850	35	8550	23.5		19600	199.6	35						
	6570 10135	36		23.9			200.4	36	234	7.5				
	6750 10420	37	9120	24.0		20400	201.1	37						
	6930 10710	38		24.2			201.7	38	220	8.8				
	7110 11005	39	9670	24.2		21400	202.4	39						
	7290 11300	40		24.3			203.1	40	243	8.5				
	7470 11595	41	10240	24.3		22200	204.1	41						
	7650 11890	42		25.1			204.7	42	245	6.4				
	7830 12185	43	10540	25.4		22750	205.4	43						
	8010 12480	44		25.9			206.2	44	241	4.7				
	8190 12775	45	11350	26.3		22750	206.9	45						
	8370 13075	46		26.7			207.6	46	223	6.0				
	8550 13375	47	11930	27.2		23100	208.5	47						
	8730 13675	48		27.6			209.1	48	262	5.3				
	8910 13975	49	12500	27.9		23500	209.8	49						
	9090 14275	50		28.3			210.8	50	273	7.0				

Punched Card Data

Altitude #	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude #	Direction (degrees)	Speed (m.p.s.)
Card No. 1			15	Card No. 2		
Type of equipment		&	16	Type of equipment		&
sfc.	160	4	17-21	7	209	6
150 M.	179	9	22-26	8	198	6
300 M.	193	13	27-31	9	253	7
0.5	192	13	32-36	10	240	9
1.0	208	14	37-41	11	261	6
1.5	207	11	42-46	12	220	6
2.0	197	9	47-51	13	222	7
2.5	195	9	52-56	14	226	5
3	196	13	57-61	15	266	9
4	203	10	62-66	16	262	7
5	187	11	67-71	17	240	5
6	204	9	72-76	18	236	7

Coded Data for Transmission

SP 72445	12941	1612	2 1928	2128	4 2126	2121	6 2018	2018	8 2018	
19232	0 2025	2 2119	4 1923	6 1823	8 1917	0 2016	3 2112	5 2011	02315	
5 2513	02711	52816	02718	326130	99996	02705	52207	00705	00712	
20816										

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		
Enter check if additional levels appear on reverse side.		

FORM 610-12
(3)
COMM-WB-DC

*Identification: COLUMBIA, MO.
38° 58' N · 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time 90th mer.	1964	SEP	7	0515
Scheduled (G.M.T.)	1964	SEP	7	12

Ascension No. 931

Page 1

Type of balloon 600 gr

Orientation, 360° = South

Slant range (m.) (yds.)	Pibal ht. above sfc. (m.) 30 gram	Pibal ht. above sfc. (m.) 100 gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N.	Wind Speed (m.p.s.)
										sfc. 160	4
	216	350	1	270	20.1		740	187.3	1	199	13.8
	414	670	2	520	17.35		1660	193.9	2	204	15.5
	612	980	3	770	16.95		2500	198.3	3	211	13.8
	801	1285	4	1020	17.15		3300	202.3	4	213	12.5
	990	1585	5	1250	17.90		4000	203.5	5	207	10.8
	1170	1880	6	1520	18.25		4600	203.9	6	201	9.0
	1350	2170	7	1760	19.10		5100	202.3	7	196	9.3
	1530	2455	8	2020	19.55		5700	202.8	8	196	9.2
	1710	2740	9	2250	20.0		6200	202.2	9	195	9.0
	1890	3020	10	2480	20.1		6800	201.4	10	194	11.0
	2070	3300	11	2730	19.90		7500	201.0	11	195	12.5
	2250	3580	12	2960	19.60		8300	200.4	12	201	12.5
	2430	3855	13	3210	19.55		9050	200.9	13	208	10.8
	2610	4130	14	3430	19.75		9600	201.3	14	204	10.0
	2790	4405	15	3700	19.95		10200	201.2	15	194	10.0
	2970	4675	16	3930	20.0		10800	200.5	16	192	11.4
	3150	4945	17	4180	19.90		11500	200.1	17	190	12.6
	3330	5215	18	4410	19.80		12300	199.2	18	184	12.5
	3510	5485	19	4650	19.70		13000	198.3	19	186	11.1
	3690	5755	20	4910	19.75		13600	197.9	20	191	10.2
	3870	6025	21	5140	19.20		14200	197.2	21	192	9.1

Stamp the following:

Name of Station

Lat. and long.

Local Standard time, 120 th meridian

El. of Station

Method of obs., e.g., rawinsonde, rawin, pibal

Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Rawinsonde Time-Altitude Data

Contact	Pressure (mb.)	Altitude (m., m.s.l.)	Elapsed time (min.)
6.5	988	238	0.0
10	936	710	2.1
15	870	1360	4.7
20	807	2000	7.2
25	749	2630	9.9
30	692	3280	12.6
35	639	3940	15.2
40	587	4620	18.1
45	539	5290	20.9
50	494	5980	23.6
55	450	6680	26.5
60	410	7390	29.4
65	369	8200	32.3
70	332	9930	35.4
75	298	9700	38.3
80	264	10550	41.3
85	234	11360	44.4
90	206	12180	47.2
95	180	13160	50.7
100	156	13950	53.9
105	135	14840	57.2
110	114	15560	60.2
115	97	16300	64.1

	17670	62						222.3	63		
	17950	63		30.2							
	18235	64	16490	30.4		27900			64	239	4.6
	18515	65		30.5				222.9	65		
	18795	66	17080	30.7		28600			66	241	5.5
	19080	67		30.8				223.1	67		
	19360	68	17700	31.1		29200		223.6	68	236	3.8
	19645	69		31.4				223.4	69		
	19925	70	18300	31.7		29500		223.5	70	224	2.6
	20210	71		31.9				223.6	71		
	20490	72	18920	32.2		29900		223.5	72	227	3.7
	20775	73		32.8				223.5	73		
	21055	74	19560	33.4		30600		223.5	74	224	3.6
	21340	75		32.6				223.5	75		
	21620	76	20100	32.5		30900		223.5	76	122	1.0
	21905	77		33.4				223.0	77		
	22185	78	20780	34.0		30600		223.2	78	72	2.4
	22470	79		34.4				223.4	79		
	22750	80	21420	34.7		30500		223.1	80	71	2.9
	23040	81		35.0				223.9	81		
	23320	82	22000	35.5		30400		223.0	82	95	1.6
	23600	83		36.0				223.0	83		
	23880	84	22700	36.7		30300		223.8	84	92	3.0
	24160	85		37.4				223.3	85		
	24440	86	23500	38.0		29900		223.8	86	72	4.1
	24730	87		38.5				223.9	87		
	25010	88	24180	39.3		29300		223.8	88	66	5.6
	25300	89		40.1				223.5	89		
	25580	90	24890	40.9		28600		223.5	90	69	5.8
	25860	91	25360	41.5		28400		219.5	91		
	26140	92							92		
	26420	93							93		
	26700	94							94		
	26980	95							95		
	27260	96							96		
	27540	97							97		
	27820	98							98		
	28100	99							99		
	28380	100							100		
	28660	101							101		
	28940	102							102		
	29220	103							103		
	29500	104							104		
	29780	105							105		

Minute	Slant range (m.) (yds.)	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed
106				
107				
108				
109				
110				
111				
112				
113				
114				
115				

rawinso
rawin, p

6. Type of
equip.,
WBRT-5
GMD-1A
GMD-1,
SCR-65
theodoli

#Altitude
in km., n

Punched Card Data

Altitude#	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude#	Direction (degrees)	Speed (m.p.s.)
Card No. 3			15	Card No. 4		
Type of equipment		8	16	Type of equipment		8
19	227	3	17-21	31		
20	195	3	22-26	32		
21	75	2	27-31	33		
22	75	2	32-36	34		
23	91	3	37-41	35		
24	70	4	42-46	36		
25	73	8	47-51	37		
26			52-56	38		
27			57-61	39		
28			62-66	40		
29			67-71	41		
30			72-76	42		

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		

Identification

COLUMBIA, MO.
38° 58' N 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LAND STATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time ___th mer.	1964	SEP	7	0515
Scheduled (G.M.T.)	1964	SEP	7	12
Ascension No.	951			

Page 2

Slant range (M.) (yds.)	Pibal ht. above sfc. (m.) 100-gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N	Wind Speed (m.p.s.)
	14570	51	13080	28.6		23900	211.8	51		
	14860	52	13380	29.0		24000	212.3	52	285	8.5
	15145	53	13620	29.3		24200	214.1	53		
	15425	54	13890	29.6		24500	215.0	54	274	8.0
	15705	55		29.7			216.0	55		
	15985	56	14280	29.8		25000	217.1	56	265	9.5
	16265	57		29.8			218.0	57		
	16545	58	14700	29.8		25900	218.8	58	263	9.5
	16825	59		29.8			219.8	59		
	17105	60	15430	29.8		26700	220.6	60	263	9.3
	17385	61		29.8			221.5	61		
	17670	62	15950	30.0		27500	222.1	62	250	6.5
	17950	63		30.2			222.3	63		
	18235	64	16490	30.4		27900	222.5	64	259	4.6
	18515	65		30.5			222.9	65		
	18795	66	17050	30.7		28400	223.7	66	241	5.5
	19080	67		30.8			223.1	67		
	19360	68	17700	31.1		29200	223.6	68	236	3.8
	19645	69		31.4			223.4	69		
	19925	70	18300	31.7		29500	223.4	70	224	2.6
	20210	71		31.9			223.6	71		
	20490	72	18920	32.2		29900	223.5	72	227	3.7
	20775	73		32.3			223.5	73		
	21055	74	19560	32.4		30600	223.5	74	224	3.6
	21340	75		32.6			223.5	75		
	21620	76	20100	32.5		30900	223.5	76	122	1.0
		77						77		

Minute	106	107	108	109	110	111	112	113	114	115
Wind Direction° 360°= N										
Wind Speed (m.p.s.)										
Azimuth angle °										
Distance from observation Point (m.)										
Elevation angle° Observed										
Elevation angle° Smoothed										
Rawin ht. above surface (m.)										
Slant range (m.) (yds.)										

*Stamp the following:
1. Name of Station
2. Lat. and long.
3. Local Standard time, ___ meridian
4. El. of St
5. Method obs., a rawinso rawin, p
6. Type of equip., WBRT-5 GMD-1A GMD-1, SCR-65 theodoli

Altitude- In km., m

FORM 610-12
(3-31)
COMM-WB-DC

Page 1

*Identification: COLUMBIA, MO. 38° 58' N 92° 22' W LST-90th Meridian El. 238 Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time 90th mer.	1964	SEP	7	1715
Scheduled (G.M.T.)	1964	SEP	8	00
Ascension No.				

Type of balloon GOODRICH PA 322 — Orientation, 360° = South

Slant range (m.) (yds.)	Pibal ht. above sfc. (m.) 30 gram / 100 gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N.	Wind Speed (m.p.s.)
									sfc. 220	4.5
	216 / 350	1	230	32.2		370	204.4	1	207	8.1
	414 / 670	2	500	29.0		890	206.6	2	206	9.9
	612 / 980	3	770	27.0		1500	207.6	3	204	10.0
	801 / 1285	4	1040	26.5		2090	203.2	4	196	10.1
	990 / 1585	5	1290	25.9		2690	201.1	5	191	10.0
	1170 / 1880	6	1560	25.4		3250	199.9	6	190	10.5
	1350 / 2170	7	1800	24.3		3950	197.7	7	188	11.2
	1530 / 2455	8	2050	23.7		4590	196.1	8	188	10.7
	1710 / 2740	9	2280	23.2		5100	195.2	9	189	9.4
	1890 / 3020	10	2540	24.0		5630	194.7	10	193	8.1
	2070 / 3300	11	2800	24.4		6080	195.0	11	201	7.9
	2250 / 3580	12	3050	24.5		6590	195.9	12	206	9.0
	2430 / 3855	13	3280	24.4		7130	196.5	13	209	8.7
	2610 / 4130	14	3500	24.4		7580	197.6	14	213	8.6
	2790 / 4405	15	3780	24.2		8250	198.7	15	210	9.4
	2970 / 4675	16	3990	24.1		8740	199.5	16	214	10.5
	3150 / 4945	17	4250	24.2		9430	200.7	17	215	10.3
	3330 / 5215	18	4500	24.4		9900	201.5	18	217	9.1
	3510 / 5485	19	4770	24.7		10320	202.0	19	219	7.9
	3690 / 5755	20	5000	24.9		10750	202.1	20	223	8.2
	3870 / 6025	21	5280	25.0		11250	202.3	21	227	8.3
	4050 / 6295	22	5500	25.1		11740	202.2	22	[illegible]	8.8
	4230 / 6565	23	5780	25.1		12300	203.4	23	217	8.4
	4410 / 6835	24	5980	25.2		12610	203.6	24	209	6.3
	4590 / 7105	25	6200	25.3		12870	202.2	25	204	5.2
	4770 / 7375	26	6480	25.4		13490	202.4	26	207	7.0
	4950 / 7645	27	6710	25.7		14000	206.2	27	220	8.0
						[illegible]	[illegible]	28	236	7.1

Stamp the following:

Name of Station

Lat. and long.

Local Standard time, 90th meridian

El. of Station

Method of obs., e.g., rawinsonde, rawin, pibal

Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Rawinsonde Time-Altitude Data

Contact	Pressure (mb.)	Altitude (m., m.s.l.)	Elapsed time (min.)
GP	988	238	0.0
10	934	740	2.0
15	866	1410	4.6
20	801	2080	7.5
25	740	2760	9.9
30	681	3410	12.5
35	627	4100	15.5
40	574	4800	18.5
45	524	5540	21.4
50	477	6280	24.7
55	432	7030	27.7
60	390	7800	30.8
65	350	8609	33.9
70	314	[illegible]	37.3
75	280	10190	40.4
80	246	11110	43.6
85	217	11950	46.9
90	190	12960	50.0
95	164	13820	54.2
100	141	14640	57.0
105	120	15600	61.4
110	101	16450	65.1
115	84	17240	69.3
120	69	[illegible]	
125	54	[illegible]	
130	41	[illegible]	[illegible]
135	28	24[illegible]6	92.9
140	14	21300	105.9
			[illegible]

Lat. of station

Method of obs., e.g., rowinsonde, rawin, pibal

Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Termination

Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

Reason for termination

Computer J. O'BRIEN Ry. EST

Verifier D.A.S.

	2250 3580	12	3050	24.5		6590	195.7	12	206	7.0	70	314	32.3
	2430 3855	13	3280	24.4		7130	196.5	13	209	8.7	75	280	10180 40.4
	2610 4130	14	3500	24.4		7580	197.6	14	213	8.6	80	246	11110 43.6
	2790 4405	15	3780	24.2		8250	198.7	15	214	9.4	85	217	11350 46.9
	2970 4675	16	3990	24.1		8740	199.5	16	214	10.5	90	190	12960 50.7
	3150 4945	17	4250	24.2		9430	200.7	17	215	10.3	95	164	13690 54.2
	3330 5215	18	4500	24.4		9900	201.5	18	217	9.1	100	141	17640 57.7
	3510 5485	19	4770	24.7		10320	202.0	19	219	7.9	105	120	15600 61.4
	3690 5755	20	5000	24.9		10750	203.1	20	223	8.2	110	101	16650 65.1
	3870 6025	21	5280	25.0		11250	204.3	21	227	8.3	115	84	17740 69.3
	4050 6295	22	5500	25.1		11740	205.3	22	229	8.8	120	69	17930 [illegible]
	4230 6565	23	5780	25.1		12300	205.4	23	217	8.4	125	54	[illegible] [illegible]
	4410 6835	24	5980	25.2		12610	205.6	24	209	6.3	130	41	22238 84.4
	4590 7105	25	6200	25.3		12870	205.2	25	204	5.2	135	28	24660 92.4
	4770 7375	26	6480	25.4		13490	205.4	26	207	7.0	140	14	27300 105.4
	4950 7645	27	6710	25.7		14000	206.2	27	220	8.0			
	5130 7915	28	6960	26.1		14220	207.0	28	236	7.1			8.3
	5310 8185	29	7180	26.5		14350	208.0	29					
	5490 8455	30		26.8			208.6	30	229	6.5			
	5670 8730	31	7680	26.9		15100	209.2	31			1#.1	10	31552 113.5
	5850 9005	32		27.2			209.5	32	228	6.0			
	6030 9285	33	8200	27.4		15750	209.9	33					
	6210 9565	34		27.5			210.0	34	225	6.5			
	6390 9850	35	8900	27.6		16400	210.0	35					
	6570 10135	36		27.7			210.1	36	221	7.0			
	6750 10420	37	9200	27.7		17030	210.3	37					
	6930 10710	38		27.8			210.7	38	225	6.0			
	7110 11005	39	9700	28.2		15000	211.0	39					
	7290 11300	40		28.6			211.5	40	232	11.5			
	7470 11595	41	10200	28.8		18500	211.9	41					
	7650 11890	42		29.1			211.9	42	242	2.3			
	7830 12185	43	10700	29.6		18300	212.0	43					
	8010 12480	44		30.1			212.2	44	250	2.0			
	8190 12775	45	11200	30.6		19300	212.5	45					
	8370 13070	46		31.3			213.4	46	281	5.0			
	8550 13375	47	11700	32.0		18900	214.9	47					
	8730 13675	48		32.4			216.0	48	304	6.5			
	8910 13975	49	12210	32.9		18300	217.0	49					
	9090 14275	50		33.4			217.8	50	306	11.5			

Punched Card Data

Altitude #	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude #	Direction (degrees)	Speed (m.p.s.)
Card No. 1			15	Card No. 2		
Type of equipment		8	16	Type of equipment		8
sfc.	290	5	17-21	7	[illegible]	[illegible]
150 M.	[illegible]	9	22-26	8	[illegible]	[illegible]
300 M.	300	9	27-31	9	[illegible]	[illegible]
0.5	307	8	32-36	10	[illegible]	[illegible]
1.0	304	10	37-41	11	[illegible]	[illegible]
1.5	192	10	42-46	12	[illegible]	[illegible]
2.0	155	11	47-51	13	[illegible]	[illegible]
2.5	157	10	52-56	14	[illegible]	[illegible]
3	200	8	57-61	15	[illegible]	[illegible]
4	214	9	62-66	16	[illegible]	[illegible]
5	218	8	67-71	17	[illegible]	[illegible]
6	215	8	72-76	18	[illegible]	[illegible]

Coded Data for Transmission

PP92445	00951	2212	2118	2119	4 2020	1919	6 1721	1922	8 1719
1916	0 2015	2 2117	4 2120	6 2216	8 2216	0 2115	3 2215	52313	02214
52708	2 2013	52810	02810	32414	9 11	99976	02907	51707	01503
00110	01021	00310	20611	0					

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		

Enter check if additional levels appear on reverse side.

	17670	62								
	17950	63		35.9			228.7	63		
	18235	64	16,140	359		22200	229.4	64	250	7.0
	18515	65		35.8			230.3	65		
	18795	66	16680	36.0		22800	230.7	66	247	5.5
	19080	67		36.2			231.0	67		
	19360	68	17220	36.4		23300	231.2	68	243	5.0
	19645	69		36.8			230.6	69		
	19925	70	17780	36.5		23900	230.9	70	240	4.0
	20210	71		36.6			231.6	71		
	20490	72	18300	37.1		24100	231.6	72	239	3.0
	20775	73		37.7			232.3	73		
	21055	74	18970	37.5		24550	231.2	74	222	2.5
	21340	75		38.2			231.1	75		
	21620	76	19520	38.3		24700	230.8	76	198	3.5
	21905	77		38.7			230.3	77		
	22185	78	20080	38.9		24800	229.3	78	165	3.0
	22470	79		39.0			229.5	79		
	22750	80	20700	39.1		25300	229.3	80	157	2.0
	23040	81		39.5			229.5	81		
	23320	82	21300	40.1		25300	229.5	82	150	1.5
	23600	83		40.5			229.3	83		
	23880	84	21900	40.9		25200	229.1	84	122	2.0
	24160	85		41.3			229.0	85		
	24440	86	22480	41.8		25050	228.9	86	85	3.0
	24730	87		42.4			229.1	87		
	25010	88	23080	43.3		24400	229.2	88	58	6.0
	25300	89		44.1			228.8	89		
	25580	90	23620	44.9		23600	228.3	90	48	6.5
	25860	91		45.5			227.7	91		
	26140	92	24350	46.1		23250	227.9	92	75	4.0
	26420	93		46.8			227.3	93		
	26700	94	25240	47.5		23000	227.5	94	78	4.5
	26980	95		48.4			226.9	95		
	27260	96	25920	49.2		22300	225.9	96	85	6.5
	27540	97		49.9			225.1	97		
	27820	98	26500	50.5		21700	224.1	98	94	5.5
	28100	99		51.0			223.0	99		
	28380	100	27140	51.3		21500	222.6	100	100	4.0
	28660	101		51.9			222.2	101		
	28940	102	27800	52.5		21300	221.9	102	96	3.0
	29220	103		52.9			221.8	103		
	29500	104	28480	53.5		21000	221.3	104	66	4.0
	29780	105		54.2			221.4	105		

Minute	Slant range (m.) (yds.)	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed
106		29080	550	
107			555	
108		29680	562	
109			569	
110		30240	597	
111			585	
112		30860	589	
113		31460	592	
114		2 3 4		
115		31998		

Punched Card Data

Altitude*	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude*	Direction (degrees)	Speed (m.p.s.)
Card No. 3			15	Card No. 4		
Type of equipment		8	16	Type of equipment		8
19	227	2	17-21	31	57	5
20	171	4	22-26	32		
21	156	2	27-31	33		
22	130	2	32-36	34		
23	70	4	37-41	35		
24	69	7	42-46	36		
25	76	4	47-51	37		
26	82	6	52-56	38		
27	98	5	57-61	39		
28	100	3	62-66	40		
29	57	5	67-71	41		
30	45	5	72-76	42		

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		

rawinso
rawin, I
6. Type of
equip.,
WBRT-5
GMD-1A
GMD-1,
SCR-65
theodol

* Altitude
in km., r

Identification

COLUMBIA, MO.
38° 58' N 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LAND STATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time of ther.	1964	SEP	7	1715
Scheduled (G.M.T.)	1964	SEP	8	00
Ascension No.		933		

Page 2

Slant range (M.) (yds.)	Pibal ht. above sfc. (m.) 100-gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N	Wind Speed (m.p.s.)
	14570	51	12710	33.7		18800	218.4	51		
	14860	52		34.0			219.2	52	280	4.0
	15145	53	13230	34.4		19200	219.9	53		
	15425	54	13490	34.6		19500	220.4	54	278	5.5
	15705	55	13750	35.0		19800	221.6	55		
	15985	56	14020	35.2		19900	223.2	56	279	7.5
	16265	57		35.6			225.5	57		
	16545	58	14520	36.0		20000	227.8	58	285	7.0
	16825	59		36.1			227.3	59		
	17105	60	14820	36.0		20600	227.6	60	280	5.0
	17385	61		35.9			228.2	61		
	17670	62	15530	36.1		21300	228.6	62	265	7.0
	17950	63		35.9			228.7	63		
	18235	64	16140	35.9		22200	229.4	64	250	7.0
	18515	65		35.8			230.3	65		
	18795	66	16680	36.0		22800	230.7	66	247	5.5
	19080	67		36.2			231.0	67		
	19360	68	17220	36.4		23300	231.2	68	243	5.0
	19645	69		36.3			230.6	69		
	19925	70	17780	36.5		23900	231.3	70	240	4.0
	20210	71		36.6			231.6	71		
	20490	72	18300	37.1		24100	231.6	72	239	3.0
	20775	73		37.7			231.1	73		
	21055	74	18970	37.5		24550	231.0	74	222	2.5
	21340	75		37.7			231.1	75		
	21620	76	19520	38.3		24700	230.8	76	178	3.5
	21905	77		38.7			230.3	77		
	22185	78	20080	38.9		24800	229.9	78	165	3.0
	22470	79		39.0			229.5	79		
	22750	80	20700	39.1		25300	229.3	80	157	2.0
	23040	81		39.5			229.1	81		

Minute	Wind Direction° 360°= N	Wind Speed (m.p.s.)	Azimuth angle °	Distance from observation Point (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Rawin ht. above surface (m.)	Slant range (m.) (yds.)
106	48	5.5	220.0	20700	55.0		29080	
107			220.6					
108	45	5.0	221.2	19700	56.2		29680	
109			221.3		56.9			
110	52	5.0	220.9	19200	57.7		30240	
111			220.2		58.5			
112	58	5.5	219.3	18600	58.9		30860	
113			219.1	18400	59.2		31420	
114							23*	
115							21098	

*Stamp the following:
1. Name of Station
2. Lat. and long.
3. Local Standard time, ___ meridian
4. El. of S
5. Method obs., e. rawinso rawin, r
6. Type of equip., WBRT-5 GMD-1A GMD-1, SCR-65 theodol

Altitude in km., r

Punched Card Data

FORM 610-12
-63)
COMM-WB-DC

Page **1**

tamp the
ollowing:

Name of Station

Lat. and long.

Local Standard time, 90th meridian

El. of Station

Method of obs., e.g., rawinsonde, rawin, pibal

Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Termination

*Identification

COLUMBIA, MO.
38° 58' N 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time ___th mer.	1964	SEP	8	0515
Scheduled (G.M.T.)	1964	SEP	8	12

Ascension No. 935

Type of balloon 600GR

Orientation, 360° = South

Slant range (m.) (yds.)	Pibal ht. above sfc. (m.) 30 gram / 100 gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N.	Wind Speed (m.p.s.)
									sfc. 180	
	216 / 350	1	240	19.35		680	207.7	1	215	12.9
	414 / 670	2	480	17.20		1540	214.9	2	221	14.8
	612 / 980	3	730	16.45		2450	217.3	3	222	14.2
	801 / 1285	4	960	16.35		3240	217.6	4	223	13.8
	990 / 1585	5	1200	16.40		4100	219.8	5	226	13.0
	1170 / 1880	6	1470	17.15		4800	221.4	6	228	10.1
	1350 / 2170	7	1700	17.80		5300	221.9	7	230	8.3
	1530 / 2455	8	1960	18.75		5800	222.7	8	233	7.6
	1710 / 2740	9	2200	19.65		6200	223.5	9	243	6.1
	1890 / 3020	10	2480	20.9		6500	224.9	10	250	4.6
	2070 / 3300	11	2710	22.1		6700	225.8	11	247	2.6
	2250 / 3580	12	2970	23.3		6500	225.7	12	248	2.5
	2430 / 3855	13	3220	24.4		7100	226.8	13	237	2.5
	2610 / 4130	14	3480	25.7		7200	226.5	14	202	1.8
	2790 / 4405	15	3740	26.9		7300	226.1	15	194	1.8
	2970 / 4675	16	4000	28.3		7350	225.0	16	197	1.9
	3150 / 4945	17	4250	29.5		7500	225.2	17	189	3.2
	3330 / 5215	18	4520	30.4		7200	223.8	18	188	5.1
	3510 / 5485	19	4800	30.9		8000	223.6	19	185	4.6
	3690 / 5755	20	5030	31.5		8200	224.9	20	215	6.0
	3870 / 6025	21	5300	31.6		8700	224.8	21	225	6.0
	4050 / 6295	22	5590	31.9		8900	225.5	22	238	4.8
	4230 / 6565	23	5870	32.3		9200	225.7	23	237	5.0
	4410 / 6835	24	6080	32.9		9400	224.5	24	244	3.0
	4590 / 7105	25	6320	33.7		9550	224.6	25	229	1.7
	4770 / 7375	26	6600	34.2		9700	224.8	26	225	1.4
	4950 / 7645	27	6560	34.8		9500	224.1	27		
	5130 / 7915	28		35.6			225.4	28	236	1.4
							225.2	29		

Rawinsonde Time-Altitude Data

Contact	Pressure (mb.)	Altitude (m., m.s.l.)	Elapsed time (min.)
GS	990	238	0.0
10	935	730	2.2
15	868	1360	4.7
20	802	2030	7.4
25	742	7680	—
30	684	3370	12.9
35	628	4070	15.5
40	576	4760	18.1
45	527	5460	21.1
50	479	6220	23.9
55	437	6920	26.7
60	394	7710	29.6
65	356	8460	32.5
70	319	9260	35.6
75	285	10040	38.6
80	253	10840	41.7
85	224	11650	44.7
90	197	12510	47.9
95	172	13350	51.0
100	149	14250	54.6
105	129	15120	57.1
110	110	16070	60.4
115	93	17060	63.
120	79	18200	67.
125	67	19300	71.
130	56	20101	74.
135	47	22820	81.0
140	40	25200	83.
145	33	29771	91.1

El. of Station

Method of obs., e.g., rawinsonde, rawin, pibal

Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Termination

Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

Reason for termination _____

Computer H. J. EMERY

Verifier R. S. VEACH

	2250 3580	12	2970	23.3		6500	225.7	12	245	2.5		
	2430 3855	13	3220	24.4		7100	226.8	13	237	2.5		
	2610 4130	14	3480	25.7		7200	226.5	14	202	1.8		
	2790 4405	15	3740	26.9		7300	226.1	15	194	1.8		
	2970 4675	16	4000	28.3		7350	225.0	16	197	1.9		
	3150 4945	17	4250	29.5		7500	225.2	17	189	3.2		
	3330 5215	18	4520	30.4		7700	223.8	18	188	5.1		
	3510 5485	19	4800	30.9		8000	222.6	19	195	4.6		
	3690 5755	20	5030	31.5		8200	221.9	20	215	6.0		
	3870 6025	21	5300	31.6		8700	221.8	21	225	6.0		
	4050 6295	22	5590	31.9		8900	222.5	22	253	4.8		
	4230 6565	23	5870	32.3		9200	223.7	23	257	5.0		
	4410 6835	24	6080	32.9		9400	224.5	24	244	3.0		
	4590 7105	25	6320	33.7		9550	224.6	25	227	1.7		
	4770 7375	26	6600	34.2		9700	224.8	26	225	1.4		
	4950 7645	27	6560	34.8		9800	224.9	27				
	5130 7915	28		35.6			225.4	28	236	1.4		
	5310 8185	29	7370	36.0		10000	225.7	29				
	5490 8455	30		36.4			225.9	30	232	2.8		
	5670 8730	31	7900	36.8		10600	225.5	31				
	5850 9005	32		37.6			225.8	32	343	4.0		
	6030 9285	33	8430	38.4		10600	225.9	33				
	6210 9565	34		39.4			226.6	34	352	5.3		
	6390 9850	35	8930	40.5		10300	227.8	35				
	6570 10135	36		41.4			228.9	36	323	3.0		
	6750 10420	37	9440	42.4		10300	230.0	37				
	6930 10710	38		43.2			231.5	38	324	5.5		
	7110 11005	39	9970	43.9		10250	233.2	39				
	7290 11300	40		44.7			236.9	40	328	8.8		
	7470 11595	41	10510	45.5		10250	239.9	41				
	7650 11890	42		46.4			242.9	42	330	8.8		
	7830 12185	43	11020	47.0		10250	245.8	43				
	8010 12480	44		47.4			247.5	44	326	5.5		
	8190 12775	45	11540	47.8		10400	249.4	45				
	8370 13075	46		47.9			251.0	46	284	5.0		
	8550 13375	47	12080	48.0		10800	251.7	47				
	8730 13675	48		48.0			252.3	48	224	4.3		
	8910 13975	49	12660	47.9		11400	252.2	49				
	9090 14275	50		47.9			255.1	50	303	10.0		

70	315	9260	35.6
75	295	10040	38.6
80	253	10840	41.7
85	224	11650	44.7
90	197	12510	47.9
95	172	13350	51.0
100	149	14250	54.6
105	129	15120	57.1
110	110	16070	60.4
115	93	17060	63.7
120	77	18200	67.3
125	62	19430	71.2
130	50	20701	75.1
135	37	22820	81.0
140	26	25200	88.3
145	13	29771	97.1
1050	13	29771	99.1

Coded Data for Transmission

PP72445	12941	1807	2 2227	2228	4 2226	2323	6 2318	2316	8 2412
2510	0 2505	2 2204	4 1704	6 1710	8 2211	0 2110	3 2303	52402	03515
53317	02810	52920	02514	32612	D 77776	01503	00304	63302	00115
00114	60802								

Punched Card Data

Altitude#	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude#	Direction (degrees)	Speed (m.p.s.)
Card No. 1			15	Card No. 2		
Type of equipment		3	16	Type of equipment		2
sfc.	190	3	17-21	7	227	1
150 M.	120	5	22-26	8	232	3
300 M.	214	13	27-31	9	350	5
0.5	212	12	32-36	10	324	5
1.0	214	14	37-41	11	332	9
1.5	227	12	42-46	12	310	5
2.0	230	8	47-51	13	270	8
2.5	244	6	52-56	14	285	1
3	247	3	57-61	15	284	5
4	194	2	62-66	16	264	6
5	192	5	67-71	17	252	6
6	256	5	72-76	18	292	3

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		
Enter check if additional levels appear on reverse side.		

UNCLAS EFTO

14SEP 21 01z

atch 1 to EW 280

WPA054

CZCSQJ279ZCJYA823

RR RUCDSQ

DE RUEAGL 58 14/1803Z

R 141751Z

FM AFSC

TO FTD WPAFB OHIO

BT

UNCLAS E F T O SCFTC 74-9-13.

FOR TDEW (UFO). THE FOLLOWING MSG FROM 351 STRATMSLWG

WHITEMAN AFB MO IS QUOTED FOR YOUR INFORMATION. QUOTE. UNCLAS

BC 00001. AFSC FOR SCFD & SCFT; CSAF FOR AFNIN;

USAF FOR SAFOI

~~DANIEL FOR SAFOI~~, SAFOIPB & SAFOIPC. UFO. IN ACCORDANCE WITH PARA

W

ITH PARA

14, AFR -00--, THE FOLLOWING IS SUBMITTED: IARA A, (1) ROUND, (2) BLANK, (3) BLUE, (4) ONE, (5) N/A, (6) BLUE LIG T ABOUT THE SIZE OF AN AUTOMMBILE HEADLIGHT, (7) BLANK, (8) NONE, (9) APPEARED TO EXPLODE IN MID AIR AND LAND IN FIELD, KEPT MOVING ABOUT 20 FEET OFF GROUND AT SITE I-10 (ABOUT 15 MILES SOUTHWEST OF WHITEMAN AFB

Identification

COLUMBIA, MO.
38° 58' N 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LAND STATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time ___th mer.	1964	SEP	8	0515
Scheduled (G.M.T.)	1964	SEP	8	12
Ascension No.	935			

Slant range (M.) (yds.)	Pibal ht. above sfc. (m.) 100-gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N	Wind Speed (m.p.s.)
	14570	51	13200	47.7		12000	256.9	51		
	14860	52	13470	47.4		12400	255.9	52	306	10.0
	15145	53	13780	47.1		12800	261.0	53		
	15425	54	14060	46.8		13200	262.9	54	289	8.0
	15705	55		46.6			263.1	55		
	15985	56	14680	46.2		14100	262.8	56	223	7.8
	16265	57		45.7			263.1	57		
	16545	58	15230	45.4		15000	263.9	58	269	6.0
	16825	59		45.3			263.6	59		
	17105	60	15760	45.2		15500	263.5	60	262	6.2
	17385	61		45.0			263.5	61		
	17670	62	16400	45.6		16500	263.5	62	264	6.0
	17950	63		45.6			263.6	63		
	18235	64	16970	45.5		17200	263.5	64	247	5.0
	18515	65		45.0			263.1	65		
	18795	66	17600	45.0		17600	263.5	66	220	3.3
	19080	67		45.6			261.5	67		
	19360	68	18240	45.9		17700	261.6	68	154	1.0
	19645	69		46.6			261.5	69		
	19925	70	18900	46.7		17800	261.2	70	121	1.5
	20210	71		47.0			261.6	71		
	20490	72	19500	47.0		18000	262.7	72	101	2.0
	20775	73		47.5			262.6	73		
	21055	74	20180	48.6		17500	262.1	74	85	2.5
	21340	75		49.9			262.1	75		
	21620	76	20870	50.9		16800	260.8	76	54	2.5
	21905	77		51.4			261.0	77		
	22185	78	21540	51.5		17200	262.8	78	347	2.0
								79		

Minute	106	107	108	109	110	111	112	113	114	115
Wind Direction° 360°= N										
Wind Speed (m.p.s.)										
Azimuth angle °										
Distance from observation Point (m.)										
Elevation angle° Smoothed										
Elevation angle° Observed										
Rawin ht. above surface (m.)										
Minute	106	107	108	109	110	111	112	113	114	115
Slant range (m.) (yds.)										

Page 2

*Stamp the following:
1. Name of Station
2. Lat. and long.
3. Local Standard time, ___ meridian
4. El. of S
5. Method obs., o. rawinso rawin, p
6. Type of equip., WBRT-5 GMD-1A GMD-1, SCR-65 theodol

Altitude in km., n

	17950	63		45.6			263	63			
	18235	64	16970	45.5		17200	263	64	247	5.0	
	18515	65		45.0			263.1	65			
	18795	66	17600	45.0		17600	263.0	66	220	3.3	
	19080	67		45.6			261.5	67			
	19360	68	18240	45.5		17700	261.6	68	154	1.0	
	19645	69		46.2			261.5	69			
	19925	70	18900	46.7		17800	261.2	70	121	1.5	
	20210	71		47.0			261.6	71			
	20490	72	19500	47.0		18000	262.9	72	101	2.0	
	20775	73		47.5			263.6	73			
	21055	74	20180	48.6		17500	263.1	74	85	2.5	
	21340	75		49.9			262.1	75			
	21620	76	20870	50.4		16800	260.8	76	54	2.5	
	21905	77		51.4			261.0	77			
	22185	78	21540	51.5		17200	260.8	78	347	2.0	
	22470	79		51.7			261.2	79			
	22750	80	22280	52.3		17200	261.3	80	320	2.0	
	23040	81		52.8			261.4	81			
	23320	82	23030	53.2		17200	263.6	82	333	2.0	
	23600	83		53.9			263.6	83			
	23880	84	23650	54.0		17200	264.6	84	87	4.0	
	24160	85		54.9			263.5	85			
	24440	86	24260	56.3		16200	263.2	86	97	12.5	
	24730	87		57.7			261.7	87			
	25010	88	25000	60.1		14300	261.3	88	85	13.5	
	25300	89		61.8			261.2	89			
	25580	90	25810	63.3		12500	263.3	90	62	10.8	
	25860	91		64.5			264.1	91			
	26140	92	26590	65.7		11900	265.2	92	79	8.6	
	26420	93		67.0			265.0	93			
	26700	94	27480	68.2		10900	264.1	94	90	6.5	
	26980	95		69.1			263.7	95			
	27260	96	28230	69.9		10300	264.6	96	82	4.4	
	27540	97		70.6			265.4	97			
	27820	98	29030	71.1		9700	264.4	98	86	3.6	
	28100	99	29440	71.9		9500	265.4	99			
	28380	100	238					100			
	28660	101	29268					101			
	28940	102						102			
	29220	103						103			
	29500	104						104			
	29780	105						105			

Minute	Slant range (m.) (yds.)	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed
106				
107				
108				
109				
110				
111				
112				
113				
114				
115				

obs., e.
rawinso
rawin, p

6. Type of
equip.,
WBRT-5
GMD-1A
GMD-1,
SCR-65
theodol

Altitude
in km., n

Punched Card Data

Altitude#	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude#	Direction (degrees)	Speed (m.p.s.)
Card No. 3			15	Card No. 4		
Type of equipment		8	16	Type of equipment		8
19	132	1	17-21	31		
20	96	2	22-26	32		
21	60	3	27-31	33		
22	354	1	32-36	34		
23	326	2	37-41	35		
24	85	4	42-46	36		
25	92	13	47-51	37		
26	64	11	52-56	38		
27	82	5	57-61	39		
28	88	6	62-66	40		
29	84	4	67-71	41		
30			72-76	42		

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Airport Station
Springfield, Missouri

September 28, 1964

Colonel Eric T. de Jonckheere
Deputy for Technology & Subsystems
Foreign Technology Division
United States Air Force
Wright-Patterson AFB, Ohio

Dear Colonel:

Reference is made to your letter of September 25, 1964, requesting wind data. It is assumed that you are interested in upper air data. Copies for the period requested are enclosed.

Yours truly,

Ray C Nelson

Ray C. Nelson
Meteorologist in Charge

Encls

TDEW

Wind Data for Springfield, Missouri, 7 - 8 September 1964 25 Sep 64

U S Weather Station
Springfield, Missouri

1. We would like to have copies of the wind data for 7 - 8 Sep 64. Contact with the U S Weather Records Center at Ashville, North Carolina, revealed that these records are not forwarded for approximately thirty days.

2. We are attaching a self addressed label for your convenience in mailing. Thank you for your cooperation in this matter.

FOR THE COMMANDER

ERIC T de JONCKHEERE
Colonel, USAF
Deputy for Technology
and Subsystems

1 Atch
a/s

WB Form 610-12

Page

[illegible] FIELD MISSOURI

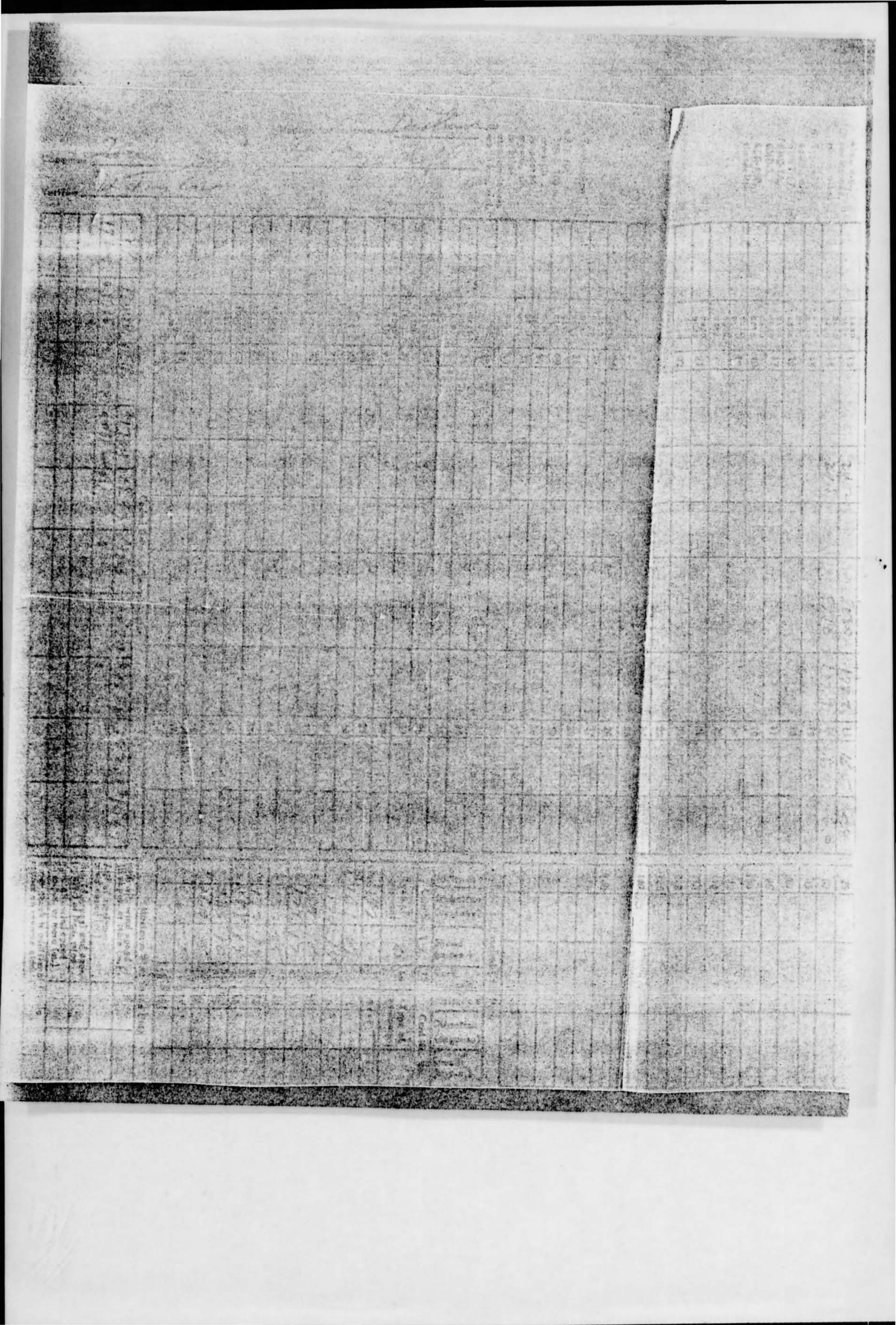
U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS ALOFT COMPUTATION SHEET
(LAND STATION TOPS)

	Year	Month	Day	Hour
	[illegible]	9	6	[illegible]
	[illegible]	9	3	[illegible]

Type of balloon: [illegible]

Time (min.)	Minute	Elevation angle Observed	Elevation angle Smoothed	Distance (s)	Azimuth angle	Minute	Direction	Speed
	1	25.4		[illegible]	169.3	1	122	[illegible]
	2	18.8		[illegible]	172.6	2		[illegible]
	3	18.3		[illegible]	[illegible]	3	[illegible]	[illegible]
	4	18.7		[illegible]	[illegible]	4	[illegible]	[illegible]
	5	18.7		[illegible]	175.5	5	[illegible]	[illegible]
	6	12.6		[illegible]	176.0	6	[illegible]	[illegible]
	7	12.6		[illegible]	177.8	7	[illegible]	[illegible]
	8	12.7		[illegible]	[illegible]	8	[illegible]	[illegible]
	9	[illegible]		[illegible]	[illegible]	9	[illegible]	[illegible]
	10	[illegible]		[illegible]	[illegible]	10	[illegible]	[illegible]
	11	[illegible]		[illegible]	[illegible]	11	[illegible]	[illegible]
	12	[illegible]		[illegible]	[illegible]	12	[illegible]	[illegible]
	13	[illegible]		[illegible]	[illegible]	13	[illegible]	[illegible]
	14	[illegible]		[illegible]	[illegible]	14	[illegible]	[illegible]



U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LAND STATION FORM)
WBAN-20

[illegible] MISSOURI

	Yr.	Month	Day	Time
Actual time	1959	1	6	2205
Scheduled (G.M.T.)	[illegible]	[illegible]	7	0000

Ascension No. [illegible]

Orientation: 360° = South

Minute	Elevation angle: Observed	Elevation angle: Recomputed	Distance from observation point (m)	Azimuth angle	Minute	Wind direction	Wind speed
1	56.9	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	3	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	4	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	5	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	6	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	8	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	9	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	10	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	12	[illegible]	[illegible]
13	[illegible]	[illegible]	470	[illegible]	13	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	14	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	15	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	16	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	17	[illegible]	[illegible]
18	[illegible]	[illegible]	5770	[illegible]	18	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	19	223	[illegible]
20	[illegible]	[illegible]	6240	[illegible]	20	213	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	21	210	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	22	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	23	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	24	[illegible]	[illegible]
25	[illegible]	[illegible]	7050	[illegible]	25	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	1825	26	[illegible]	[illegible]
27					27		
28					28		
29					29		
30					30		
31					31		
32					32		
33					33		
34					34		
35					35		
36					36		

Radiosonde Time-Altitude Data

Code No.	Pressure (mb.)	Altitude (m. m.s.l.)	Elapsed time (min.)
5			
10			
15			
20			
25			
30			
35			
40			
45			
50			
55			
60			
65			
70			
75			
80			
85			
90			
95			
100			
105			
110			
115			
120			
125			
130			
135			
140			

Punched Card Data

Card No. 2

Wind Data for Transmission

Maximum Wind Speed Data

Max. six-minute wind speed (mph)		
Max. gust speed (mph)		
Date (yr, mo, day) and time (hr, min) of max. gust		
Max. gust wind speed for which tower was designed (mph)		
Failure speed of anemometer, if this occurred and was less than max. gust		

Identification

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LAND STATION FORM)
WBAN-20

	Year	Month	Day	Time
Release time	64	07	7	0514
Last data	64	07	7	1200

Ascending no. 35

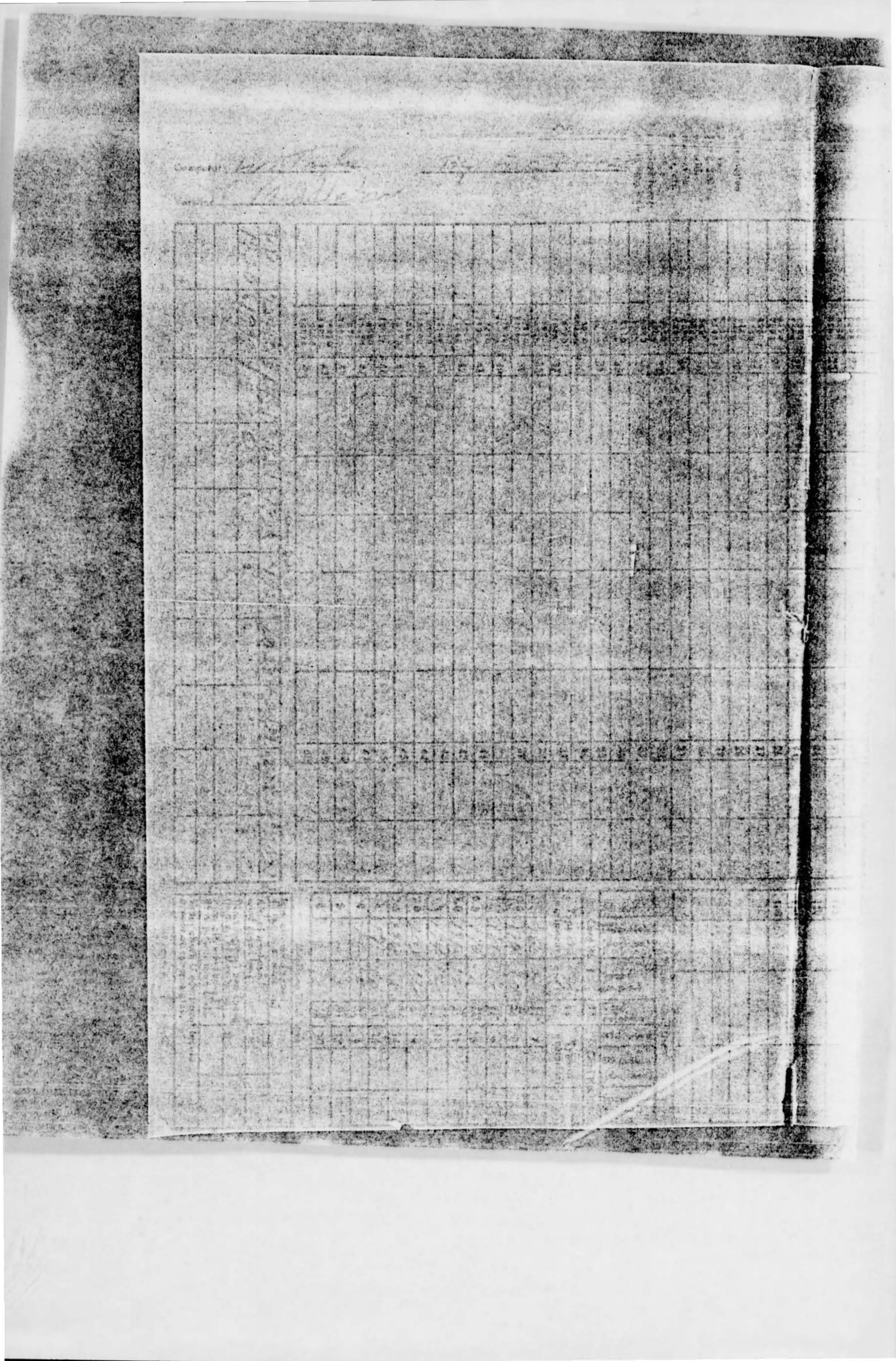
Page 1

Type of balloon

Orientation 340° to North

Radiosonde Flow-Attitude Data

Sheet no. (incl. tare)	Fitted to above (g.)		Weight to above (g.)	Elevation angle		Distance from observing point (m.)	Azimuth angle		Pilot		Radiosonde			
				Observed	Corrected				Observed	Corrected				
1	510	1		24.2		2653	174				1			
2	495	2		41.9		4665	1152	3			2			
3	480	3		57.4	57.1	8463	1151	3			3			
4	465	4				12,370	1151	3			4			
5	450	5				16,277	1151	3			5			
6	435	6				20,185	1151	3			6			
7	420	7				24,092	1151	3			7			
8	405	8				28,000	1151	3			8			
9	390	9				31,907	1151	3			9			
10	375	10				35,815	1151	3			10			
11	360	11				39,722	1151	3			11			
12	345	12				43,630	1151	3			12			
13	330	13				47,537	1151	3			13			
14	315	14				51,445	1151	3			14			
15	300	15				55,352	1151	3			15			
16	285	16				59,260	1151	3			16			
17	270	17				63,167	1151	3			17			
18	255	18				67,075	1151	3			18			
19	240	19				70,982	1151	3			19			
20	225	20				74,890	1151	3			20			
21	210	21				78,797	1151	3			21			
22	195	22				82,705	1151	3			22			
23	180	23				86,612	1151	3			23			
24	165	24				90,520	1151	3			24			
25	150	25				94,427	1151	3			25			
26	135	26				98,335	1151	3			26			
27	120	27				102,242	1151	3			27			
28	105	28				106,150	1151	3			28			
29	90	29				110,057	1151	3			29			
30	75	30				113,965	1151	3			30			
31	60	31				117,872	1151	3			31			
32	45	32				121,780	1151	3			32			
33	30	33				125,687	1151	3			33			
34	15	34				129,595	1151	3			34			
35	0	35				133,502	1151	3			35			



MISSOURI); PAR B, KEPT CHANGING COURSE, (1) OBJECT AT ABOUT 500 FEET OVER SEVERAL SITES, I-10, I-11, J-8, G-4, G-11; (2) BLANK, (3) BLANK, (4) MOVING WITH THE WIND, (5) BLANK, (6) APPROXIMATELY ONE HOUR; PAR C, (1)OUND VISUAL, (2) BLANK, 3() N/A; PAR D, (1) 08/0306Z, (2) NIGHT, PAR EN SIGHT I-10, 15 MILES SOUTHWEST OF WHITEMAN AFB MM; PAR F, (1)N/A, (2) REPORTED BY CAPTAIN W.M. BERRY, MISSILE COMBAT CREW COMMANDER, AT I-1 LAUNCH CONTROL FACILITY, 510 MISSILE SQUADRON, 351ST STRATEGIC MISSILE WING. SITE GUARD AT I-11 SIGHTED OBJECT. CONFIRMED BY SEVERAL PERSONS; PAR G, WEATHER AT 0300Z CLEAR 10 1016.3 MB 76/66 190/03 3002, WEATHER AT 0400Z CLEAR, 10 75/66 180/04 3003, WINDS: 2M 210/20, 5M 190-20, 8M 200/20, 10M 200/15, 14M 210/20, 20M 210/15, 25M 230/15, 30M 240/15, 35M 260/08, 40M 270/20, 50M 240/12; PAR H. NONE; PAR I, EFFORTS BY MOBILE STRIKE TEAM TO INTERCEPT FAILED, OBJECT KEPT MOVING, APPEARED TO BE ABOUT 20 FEE OFF OF THE GROUND; PAR J, NOE; PAR K, MAJOR GEORGE B. BAXTER, DIRECTOR OF INFORMATION, 351ST STRATEGIC MISSILE WING, WHITEMAN AFB MO. EVIDENCE OF METEORITE SHOWING DURING THE PERIOD. THE CHASE WAS TURNED OVER TO CIVIL AUTHORIIES AND MSG WAS DIRECTED TO RETURN TO THE LAUNCH CONTROL FACILITY AT 0400Z, BY THE 351ST SMW DIRECTOR OF OPERATIONS; PAR L,

NONE. UNQUOTE.

BT

WB Form 510-12
(5-50)
USCOMM-WBAN

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LAND STATION FORM)
WBAN-30

	Year	Month	Day	Time
Actual data	64	09	7	1123
Scheduled (G.M.T.)	64	09	7	1800

Ascension No. 861

Page 1

Type of balloon / Drag

Dimensions

Set / Found

Rawinsonde Flight Altitude Data

Flight time (min.) (sec.)	Pilot (no. turns, min. angle)		Remarks (cloud data, etc.)	Elevation angle: Observed	Elevation angle: Smoothed	Distance from observing point (ft.)	Azimuth angle		Wind: Direction (degrees)	Wind: Speed (knots)	Pressure (mb.)	Altitude (thousands of ft.)	Elapsed time (min.)
	1												
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
	10												
	11												
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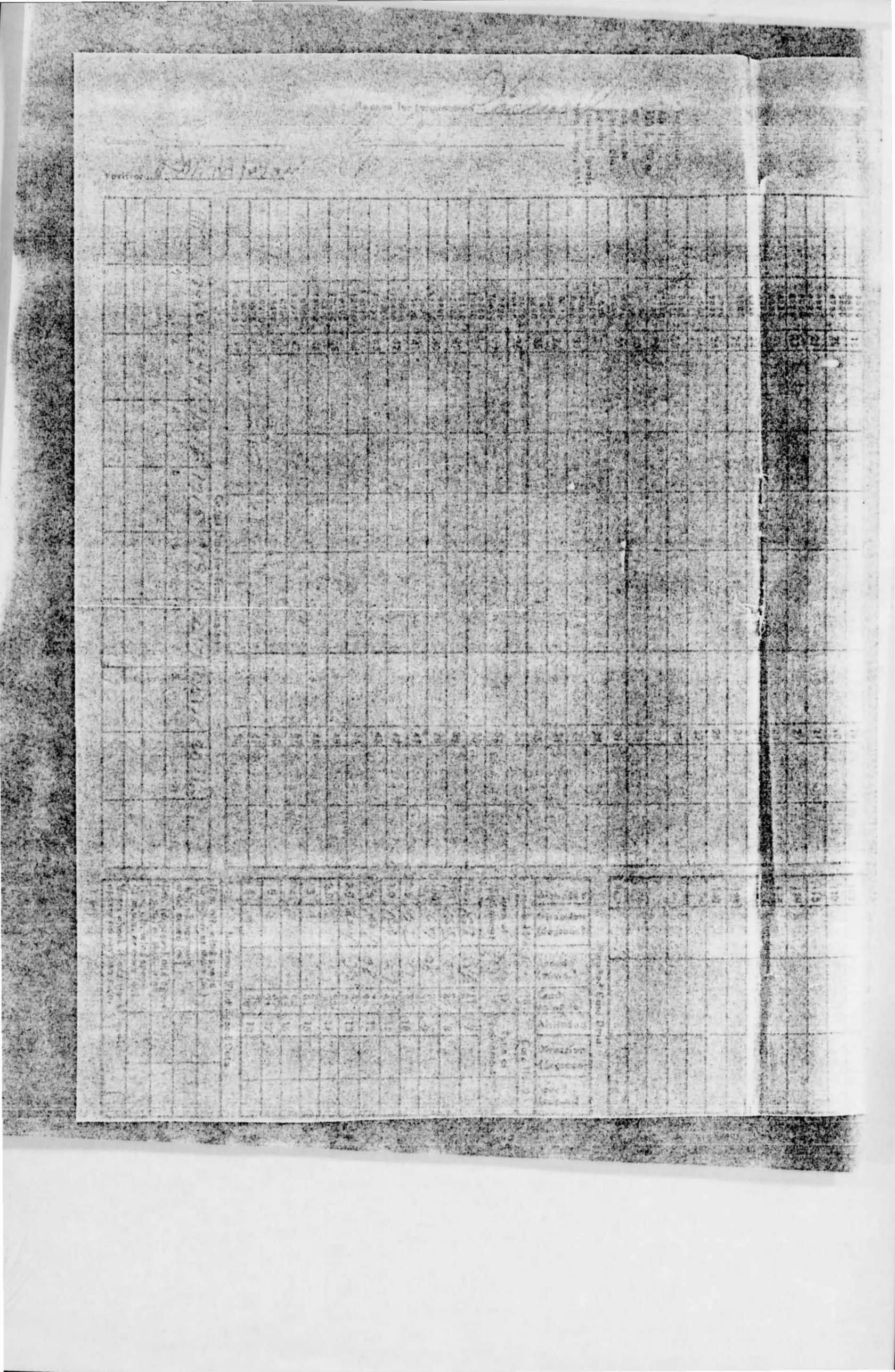
	38												
	39												
	40												



U.S. DEPARTMENT OF COMMERCE
ESSA/WEATHER BUREAU

WINDS ALOFT COMPUTATION SHEET
(LAND STATION FORM)
WBAN-30

Type | Month | Day | Time
Release (G.M.T.) | | | |
Ascension No. | | | |

Page

Type of balloon

Pilot

Observer

Recorder

Sky cover (tenths)

Wind direction (tens of degrees)

Wind speed (knots)

Pressure (mb)

Altitude (m/gpm)

Slopes Dist (nmi)

Attachments for Section

1. Form ...

2. List of ...

3. Copy of Standard ... message

4. Plot of Section

5. Method of ... (Rawin, Pibal, Radiosonde)

6. Type of ... (WBRT-57, CMO-4A, GMD-1, LCR-55, etc. delete)

Termination

a. Alt. for 150 & 300 m ... with ... wind is ... wind, with ... other ... standard levels ... in sec. ...

Remarks (Use Reverse Side)

Coded Data for Transmission

Page

TDEW

Wind Data for Springfield, Missouri, 7 - 8 September 1964 25 Sep 64

U S Weather Station
Springfield, Missouri

1. We would like to have copies of the wind data for 7 - 8 Sep 64. Contact with the U S Weather Records Center at Ashville, North Carolina, revealed that these records are not forwarded for approximately thirty days.

2. We are attaching a self addressed label for your convenience in mailing. Thank you for your cooperation in this matter.

FOR THE COMMANDER

ERIC T de JONCKHEERE
Colonel, USAF
Deputy for Technology
and Subsystems

1 Atch
a/s

DATA PROCESSING DIVISION
CLIMATIC CENTER, USAF
Air Weather Service (MATS)
Asheville, North Carolina

REPLY TO
ATTN OF: CCDPD

SUBJECT: Selected Surface and Winds Aloft Data 28 Sep 1964

TO: Aerospace Technical Intelligence Center
Foreign Technology Division (Sgt. Moody)
Wright-Patterson AFB, Ohio

1. Reference: Telecon with this Division 24 Sep 64.

2. We are sending copies of weather records as follows:

a. WBAN-10 Anderson, S. C. 28-30 June 1964

b. WBAN-20 Colombia, Mo. 6-8 September 1964

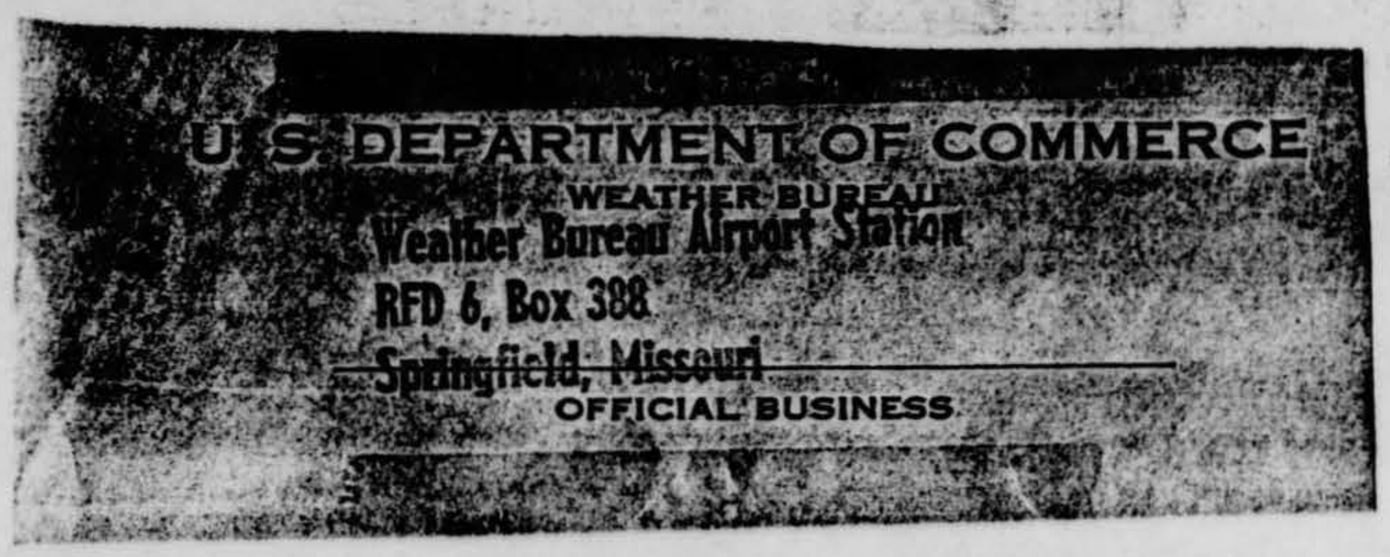
3. Springfield, Missouri is a Pibal station, and it is doubtful that data reach 50-60,000 feet. This station submits data monthly and the September 1964 records are not yet available. However, Colombia, Missouri is a rawinsonde station which forwards records weekly and we have included copies of the 6-8 Sep 64 for Colombia as a substitute.

FOR THE DIRECTOR

Thomas D Fillenworth

THOMAS D. FILLENWORTH
2D LT, USAF
Administrative Officer

Atch
a/s



FORM 610-12
(3)
COMM-WB-DC

Page 1

*Identification: COLUMBIA, MO. 38° 58' N 92° 22' W LST-90th Meridian El. 238 Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time, 90th mer.	1964	SEP	5	19[illegible]
Scheduled (G.M.T.)	1964	SEP	6	00

Ascension No. [illegible]

Type of balloon [illegible] Orientation, 360° = South

Slant range (m.) (yds.)	Pibal ht. above sfc. (m.) 30 gram / 100 gram	Minute	Rawin ht. above surface (m.)	Elevation angle° Observed	Elevation angle° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction° 360°= N.	Wind Speed (m.p.s.)
									sfc. 140	3.6
	216 / 350	1	250	46.6		240	125.8	1	139	5.0
	414 / 670	2	520	42.7		570	138.8	2	146	5.5
	612 / 980	3	790	41.0		910	141.4	3	154	5.9
	801 / 1285	4	1050	39.1		1280	145.8	4	166	6.1
	990 / 1585	5	1300	39.4		1580	152.3	5	181	5.8
	1170 / 1880	6	1550	40.3		1860	158.7	6	193	5.0
	1350 / 2170	7	1800	41.0		2060	163.1	7	196	4.7
	1530 / 2455	8	2080	41.9		2300	166.9	8	207	4.6
	1710 / 2740	9	2330	42.8		2670	172.8	9	223	5.0
	1890 / 3020	10	2570	43.9		2640	181.0	10	241	5.6
	2070 / 3300	11	2800	45.8		2710	187.3	11	255	5.8
	2250 / 3580	12	3010	46.8		2810	194.1	12	262	5.9
	2430 / 3855	13	3180	47.4		2990	200.2	13	258	6.0
	2610 / 4130	14	3500	46.7		3250	204.8	14	248	6.8
	2790 / 4405	15	3750	45.6		3650	209.7	15	244	7.2
	2970 / 4675	16	3980	44.7		3990	213.1	16	243	7.8
	3150 / 4945	17	4190	43.5		4500	216.7	17	242	8.7
	3330 / 5215	18	4450	41.9		5000	219.3	18	239	10.2
	3510 / 5485	19	4690	40.1		5670	221.5	19	241	10.8
	3690 / 5755	20	4920	38.6		6200	223.9	20	248	10.5
	3870 / 6025	21	5150	37.1		6800	226.6	21	254	10.7
	4050 / 6295	22	5390	35.9		7390	229.4	22	255	12.9
	4230 / 6565	23	5630	34.4		8200	231.7	23	256	15.8
	4410 / 6835	24	[illegible]	32.1		[illegible]	[illegible]	24	[illegible]	[illegible]
	4590 / 7105	25	[illegible]	[illegible]		[illegible]	[illegible]	25	[illegible]	[illegible]
	4770 / 7375	26	[illegible]	30.3		12750	[illegible]	26	271	17.6
	4950 / 7645	27	[illegible]	29.5		11620	240.7	27	271	15.3
	5130 / 7915	28	[illegible]	28.8		12600	[illegible]	28	271	14.1
	5310 / 8185	29	[illegible]	28.0		13620	242.2	29		
	5490 / 8455	30	[illegible]	27.7		[illegible]	[illegible]	30	[illegible]	12.1
	5670 / 8730	31	7510	27.[illegible]		[illegible]	250.4	31		
	5850 / 9005	32	[illegible]	26.2		[illegible]	251.5	32	271	7.9
	6030 / 9285	33	8070	24.7		17320	251.6	33		
	6210 / 9565	34	[illegible]	24.0		[illegible]	252.0	34	257	170
	6390 / 9850	35	8520	23.5		17500	252.1	35		
	6570	36	[illegible]	[illegible]		[illegible]	[illegible]	36	[illegible]	[illegible]

Stamp the following:

Name of Station

Lat. and long.

Local Standard time, 90th meridian

El. of Station

Method of obs., e.g., rawinsonde, rawin, pibal

Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Termination

Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

Rawinsonde Time-Altitude Data

Contact	Pressure (mb.)	Altitude (m., m.s.l.)	Elapsed time (min.)
[illegible]	986	238	0.0
10	941	[illegible]	1.4
15	879	1220	3.4
20	818	1700	6.3
25	760	2480	9.3
30	704	3260	11.8
35	652	3760	14.5
40	602	4400	17.1
45	556	5020	19.6
50	508	5720	22.6
55	466	6400	25.5
60	[illegible]	7120	28.1
65	385	7890	31.4
70	349	8600	34.2
75	311	9300	37.4
80	[illegible]	10020	40.5
85	251	10840	43.6
90	223	11600	46.7
95	197	12500	49.9
100	172	13300	53.1
105	150	14114	56.2
110	129	15100	59.7
115	109	16100	63.5
120	91	17190	67.0
125	74	18410	70.7
130	[illegible]	[illegible]	76.0
135	[illegible]	[illegible]	[illegible]
140	[illegible]	[illegible]	93.7
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	13	23611	101.2

Punched Card Data

Altitude #	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude #	Direction (degrees)	Speed (m.p.s.)
Card No. 1			15	Card No. 2		
Type of			16	Type of		

	5200 3690 5755	20	8220	36.6		6200	253.9	20	248	14.5	110	12	
	3870 6078	21	5150	37.1		6800	226.0	21	254	10.7	115	109	16100
	4060 6298	22	5390	35.9		7590	229.4	22	255	12.9	120	91	17190
	4230 6668	23	5630	34.4		8200	231.9	23	256	15.8	125	74	18410
	4410 6835	24	5870	32.9		9160	234.9	24	262	16.6	130	58	19960
	4590 7105	25	6110	31.6		10200	237.6	25	270	16.4	135	44	21520
	4770 7375	26	6350	30.5		10750	241.1	26	278	17.0	140	28	24220
	4950 7645	27	6590	29.3		11600	244.7	27	278	19.3	145	12	
	5130 7915	28	6830	28.2		12620	247.3	28	275	19.9			
	5310 8185	29	7070	27.0		13600	249.9	29					
	5490 8455	30		26.7			252.3	30	264	17.1			
	5670 8730	31	7520	26.0		15400	251.1	31			147.0	15	28644
	5850 9005	32		25.3			251.5	32	259	16.0			
	6030 9285	33	8020	24.7		17350	251.8	33					
	6210 9565	34		24.0			252.0	34	257	17.0			
	6390 9850	35	8520	23.5		19500	252.1	35					
	6570 10135	36		22.8			252.2	36	256	17.5			
	6750 10420	37	9000	22.2		21700	252.5	37					
	6930 10710	38		21.8			252.7	38	255	19.0			
	7110 11005	39	9530	21.5		24050	252.9	39					
	7290 11300	40		21.1			253.1	40	256	19.2			
	7470 11595	41	10000	20.8		26720	253.4	41					
	7650 11890	42		20.4			253.8	42	260	19.3			
	7830 12185	43	10450	20.0		28500	254.0	43					
	8010 12480	44		19.75			254.3	44	261	19.5			
	8190 12775	45	10960	19.35		30950	254.6	45					
	8370 13075	46		19.05			255.0	46	257	23.0			
	8550 13375	47	11480	18.65		33700	255.4	47					
	8730 13675	48		18.35			255.7	48	260	22.3			
	8910 13975	49	11960	17.95		36500	255.8	49					
	9090 14275	50		17.65			255.9	50	261	23.6			

Termination

Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

Computer A. R. BROWN

Verifier D. D. Lucas

Coded Data for Transmission

99999	00731	1408	2 1410	1512	4 1612	1811	6 1910	2009	8 2107
2310	02511	2613	4 2715	6 2910	8 2522	0 2632	32830	52833	02638
52638	02645	52648	02633	32919	11	99999	02611	52510	80908
00809	50504	01306	01705	319050					

Punched Card Data

Altitude #	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude #	Direction (degrees)	Speed (m.p.s.)
Card No. 1			15	Card No. 2		
Type of equipment		8	16	Type of equipment		5
sfc.	110	4	17-21	7	279	19
150 M.	139	5	22-26	8	262	11
300 M.	139	5	27-31	9	255	8
0.5	131	5	32-36	10	256	11
1.0	50	6	37-41	11	261	2
1.5	128	6	42-46	12	259	21
2.0	195	5	47-51	13	262	25
2.5	215	5	52-56	14	260	24
3	253	6	57-61	15	264	1
4	243	9	62-66	16	271	1
5	243	11	67-71	17	272	
6	260	17	72-76	18	253	5

Maximum Wind Speed Data

Min. alt. wind speed 45 m.p.s. or more (m.)		
Alt. of maximum wind speed (m.)		
Dir. (degrees) and speed (m.p.s.) of Max. wind		
Max. alt. wind speed 45 m.p.s. or more (m.)		
Enter check if additional levels appear on reverse side.		

FORM 610-12
(3)
COMM-WB-DC

*Identification

COLUMBIA, MO.
38° 58' N 92° 22' W
LST-90th Meridian El. 238
Rawinsonde WBRT-57

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

WINDS-ALOFT COMPUTATION SHEET
(LANDSTATION FORM)
WBAN-20

	Year	Month	Day	Time
Actual time 90th mer.	1964	SEP	5	[illegible]
Scheduled (G.M.T.)	1964	SEP	6	03

Ascension No. [illegible]

Page 7

Type of balloon [illegible]

Orientation, 360° = South

Slant range (m.) (yds.)	Pibal ht. above sfc. (m.) [30 gram / 100 gram]	Minute	Rawin ht. above surface (m.)	Elevation angle ° Observed	Elevation angle ° Smoothed	Distance from observation point (m.)	Azimuth angle °	Minute	Wind Direction ° 360° = N.	Wind Speed (m.p.s.)
								sfc.	140	3.6
	216 / 350	1	250	46.6		240	125.8	1	139	5.0
	414 / 670	2	520	42.7		570	138.8	2	146	5.5
	612 / 980	3	790	41.0		910	141.9	3	154	5.9
	801 / 1285	4	1050	39.1		1280	146.8	4	166	6.1
	990 / 1585	5	1300	39.4		1580	152.3	5	181	5.8
	1170 / 1880	6	1580	40.3		1860	158.7	6	193	5.0
	1350 / 2170	7	1800	41.0		2060	163.1	7	196	4.7
	1530 / 2455	8	2050	41.9		2300	166.9	8	207	4.6
	1710 / 2740	9	2300	42.8		2470	172.8	9	223	5.0
	1890 / 3020	10	2570	43.9		2640	181.0	10	241	5.6
	2070 / 3300	11	2800	45.8		2710	187.3	11	255	5.8
	2250 / 3580	12	3010	46.8		2810	194.1	12	262	5.9
	2430 / 3855	13	3280	47.4		2990	200.2	13	258	6.0
	2610 / 4130	14	3500	46.9		3250	204.8	14	248	6.8
	2790 / 4405	15	3750	45.6		3650	209.7	15	244	7.2
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	3150 / 4945	17	4190	43.5		4500	216.7	17	242	8.7
	3330 / 5215	18	4450	41.9		5000	219.3	18	239	10.2
	3510 / 5485	19	4690	40.1		5670	221.5	19	241	10.8
	3690 / 5755	20	4920	38.6		6200	223.9	20	248	10.5
	3870 / 6025	21	5150	37.1		6800	226.6	21	254	10.7
	4050 / 6300	22	5390	35.9		7390	229.4	22	255	12.9
	[illegible]	23	5630	34.4		8200	231.7	23	256	15.8
	[illegible]	24	[illegible]	32.2		9160	[illegible]	24	[illegible]	[illegible]
	[illegible]	25		[illegible]		[illegible]	[illegible]	25	[illegible]	[illegible]
	[illegible]	26		30.5		10750	[illegible]	26	[illegible]	17.6
	4950 / 7645	27	[illegible]	29.3		11620	[illegible]	27	[illegible]	[illegible]
	5130 / 7915	28	[illegible]	28.2		[illegible]	[illegible]	28	[illegible]	[illegible]
	5310 / 8185	29		[illegible]		[illegible]	[illegible]	29		
	5490 / 8455	30		[illegible]			[illegible]	30		[illegible]
	5670 / 8730	31	[illegible]	[illegible]		[illegible]	[illegible]	31		
	5850 / 9005	32		[illegible]			[illegible]	32	[illegible]	[illegible]
	6030 / 9285	33	[illegible]	[illegible]		[illegible]	251.8	33		
	6210 / 9565	34		[illegible]			252.0	34	[illegible]	[illegible]
	6390 / 9850	35	8520	23.5		17500	252.1	35		
	6570	36		[illegible]			[illegible]	36	[illegible]	[illegible]

Stamp the following:
Name of Station
Lat. and long.
Local Standard time, 90th meridian
El. of Station
Method of obs., e.g., rawinsonde, rawin, pibal
Type of equip., e.g., WBRT-57, GMD-1A, GMD-1, SCR-658, theodolite

Termination

Alt. for 150 & 300 m. are with respect to ground, alt. for other standard levels are in km., msl.

Rawinsonde Time-Altitude Data

Contact	Pressure (mb.)	Altitude (m., m.s.l.)	Elapsed time (min.)
5	986	238	0.0
10	941	[illegible]	[illegible]
15	879	1220	[illegible]
20	818	[illegible]	6.3
25	760	2480	9.3
30	704	3060	11.8
35	652	3760	14.5
40	602	4400	17.1
45	556	5070	19.6
50	508	5720	22.6
55	[illegible]	6400	25.5
60	[illegible]	7120	[illegible]
65	385	7890	31.4
70	349	8600	34.2
75	311	9300	37.4
80	[illegible]	10020	40.5
85	251	10840	43.6
90	223	[illegible]	46.7
95	197	12500	49.9
100	172	13300	53.1
105	150	14114	56.2
110	128	15100	59.7
115	109	16100	63.5
120	91	17190	67.0
125	[illegible]	18410	70.7
[illegible]	[illegible]	[illegible]	75.0
135	[illegible]	[illegible]	[illegible]
140	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]

Punched Card Data

Altitude #	Direction (degrees)	Speed (m.p.s.)	Card columns	Altitude #	Direction (degrees)	Speed (m.p.s.)
Card No. 1			15	Card No. 2		
Type of			16	Type of		