

Declination, D, east of north 16 degrees - tabulated values in minutes of arc.

January 1961

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	60.5	60.8	60.8	60.7	60.7	60.7	58.5	57.1	56.1	56.0	55.2	54.5	55.8	57.8	59.0	61.5	64.1	65.2	64.6	64.4	63.4	62.8	62.4	62.2	1444.8	60.20	
2 D	61.5	60.9	60.7	56.2	53.2	42.5	45.5	49.9	44.3	56.9	59.7	61.4	65.0	63.4	64.5	66.2	70.1	71.6	70.4	69.0	66.1	65.2	63.0	61.8	1449.0	60.37	
3 D	61.3	61.3	56.9	59.0	60.6	60.9	60.1	58.3	57.8	58.0	59.2	59.8	60.8	61.8	61.1	64.7	67.1	68.7	67.8	66.9	64.4	63.5	63.3	59.7	1486.0	61.92	
4	61.1	61.5	59.1	58.8	59.7	59.6	59.0	59.3	58.4	57.8	57.3	57.2	58.8	60.7	61.7	64.1	65.9	67.1	67.6	65.2	64.0	62.9	61.2	62.1	1470.1	61.25	
5	62.4	61.9	61.7	61.2	61.5	60.4	59.2	60.2	58.0	56.3	56.8	57.2	58.0	60.1	62.7	64.4	65.4	65.8	65.6	64.1	62.8	62.5	62.9	63.5	1474.6	61.44	
6	62.8	62.3	61.5	60.0	59.7	59.7	58.9	57.9	57.8	58.0	58.1	58.8	59.0	59.8	60.7	62.1	63.4	63.9	63.6	62.8	62.3	62.3	62.4	62.2	1460.0	60.83	
7	61.9	61.7	61.6	61.5	60.2	59.7	59.0	58.6	58.4	57.9	56.3	57.5	59.9	61.3	62.5	62.6	64.8	65.6	65.2	63.4	62.6	62.9	63.4	63.5	1472.0	61.33	
8	63.2	62.4	62.1	61.6	61.0	60.2	59.0	58.6	57.5	57.1	57.1	58.7	60.6	60.7	60.6	61.7	63.4	63.7	64.1	64.1	63.5	63.7	64.3	63.6	1472.5	61.35	
9	64.4	63.5	61.9	61.5	59.3	57.0	56.9	56.1	55.3	56.2	56.0	56.9	58.6	59.5	60.4	63.7	66.9	65.6	66.1	64.4	63.6	65.2	64.1	63.4	1466.5	61.10	
10 D	61.3	57.7	61.6	61.1	59.8	56.1	57.1	56.8	57.7	57.8	57.8	59.0	60.6	61.2	61.2	63.0	64.4	64.4	63.8	63.5	63.0	62.4	60.2	59.9	1451.4	60.48	
11	61.2	61.2	61.6	60.7	59.9	60.1	59.5	58.8	58.8	58.6	57.7	57.3	58.7	59.7	60.7	63.4	65.3	65.8	64.4	63.0	62.4	62.5	62.3	62.1	1465.7	61.07	
12	61.3	61.2	61.3	60.7	60.7	60.6	59.8	58.8	58.0	57.8	57.4	57.9	58.9	59.7	60.6	62.2	63.3	63.4	62.4	61.3	61.0	61.3	61.8	62.4	1453.8	60.58	
13	62.1	61.5	60.6	59.0	59.9	59.9	58.9	57.9	57.1	57.0	57.1	57.8	59.7	61.8	62.8	63.7	65.5	65.8	64.6	63.2	62.0	61.6	61.2	60.7	1461.4	60.89	
14 D	61.0	61.1	60.8	60.6	60.4	59.7	58.5	57.6	56.9	56.9	57.0	57.5	57.6	57.2	57.8	59.7	61.9	63.2	62.4	61.5	61.5	60.9	60.7	60.6	1433.0	59.71	
15 D	60.7	60.6	60.6	60.6	60.1	59.5	58.9	58.0	57.1	56.7	57.0	57.8	59.0	60.1	60.7	61.7	63.6	63.9	64.1	64.0	63.9	63.5	63.2	63.4	1458.7	60.78	
16 D	62.5	61.7	61.0	59.7	59.0	57.0	55.3	55.3	53.0	51.5	56.8	59.0	60.7	60.9	62.4	66.5	69.4	69.2	66.6	64.0	63.6	62.5	62.1	61.6	1461.3	60.89	
17	61.5	60.4	60.1	58.1	60.1	59.9	59.3	57.9	57.8	56.9	57.5	60.5	60.7	61.3	62.5	63.7	64.9	65.6	66.2	65.6	64.4	63.6	62.8	62.6	1473.9	61.41	
18	62.4	61.3	59.0	59.7	59.0	58.8	58.4	57.7	57.1	57.9	57.0	56.5	56.4	57.3	58.8	60.7	62.6	64.4	64.8	63.4	62.1	61.7	61.6	61.5	1440.1	60.00	
19	61.3	61.2	60.8	60.6	59.9	59.5	59.1	58.4	57.2	56.6	56.9	57.3	58.2	59.1	60.3	62.5	65.2	66.3	66.1	65.5	64.5	62.4	62.3	62.5	1463.7	60.99	
20	61.5	61.8	61.3	60.2	59.4	59.0	58.9	58.8	58.2	57.1	56.9	56.5	58.2	59.3	60.1	61.3	62.3	63.4	63.5	63.2	63.2	62.7	62.4	62.1	1451.3	60.47	
21 D	61.6	61.0	60.6	60.5	60.0	59.7	58.9	58.8	58.8	58.5	57.7	57.3	57.8	59.0	60.8	62.8	63.7	63.5	62.5	62.1	62.1	61.9	62.1	62.4	1454.1	60.59	
22 D	62.4	61.4	59.5	60.0	59.6	58.6	57.3	56.2	56.2	56.1	56.5	57.2	58.1	59.0	59.7	61.3	62.8	62.5	61.6	61.0	61.0	61.0	61.2	61.3	1431.6	59.65	
23	61.2	60.7	60.4	59.6	59.3	59.0	58.4	58.9	58.0	58.0	57.7	56.2	56.3	57.8	60.1	62.5	65.0	65.5	64.7	63.5	62.8	62.4	62.2	62.4	1452.6	60.53	
24	62.4	62.3	60.8	59.1	58.0	58.0	56.9	57.0	56.7	56.0	55.7	57.0	57.9	59.8	62.1	61.9	63.4	64.7	64.5	62.8	62.4	62.1	62.1	61.5	1445.1	60.21	
25	60.2	61.0	60.8	60.7	60.5	60.1	58.6	57.2	57.7	57.7	57.9	59.2	59.8	60.2	60.6	62.0	63.4	64.8	65.3	64.7	65.8	64.3	64.7	63.4	1470.6	61.28	
26	62.4	61.6	59.3	61.3	60.9	60.4	59.8	59.0	58.0	57.7	57.4	57.3	58.0	59.5	61.3	62.4	62.6	62.9	61.6	60.8	61.5	61.6	61.7	62.1	1451.1	60.46	
27 D	61.8	61.6	61.1	61.2	59.9	60.1	59.8	59.0	58.8	58.6	58.8	59.0	59.2	59.9	60.6	62.4	64.4	65.2	64.0	62.6	62.5	60.6	60.6	61.0	1462.7	60.95	
28	61.0	60.7	60.7	60.7	60.3	59.4	58.2	56.9	55.1	54.5	55.5	56.9	57.6	57.5	58.6	60.0	61.6	62.1	61.6	61.6	61.6	62.8	62.1	61.6	1428.6	59.53	
29	61.6	61.5	60.8	60.6	59.2	58.9	56.4	56.4	57.0	57.3	59.6	57.3	63.2	65.3	64.0	64.4	66.2	65.8	64.3	63.7	63.6	62.7	61.3	60.6	1471.7	61.32	
30	60.0	59.9	57.8	59.1	59.1	58.9	59.5	59.5	58.0	57.7	57.3	57.5	58.1	59.0	59.2	62.1	64.1	63.6	62.0	61.1	60.7	59.9	59.5	59.5	1433.1	59.71	
31 D	59.9	60.4	60.6	59.8	59.3	58.5	58.0	57.0	56.1	56.1	59.8	61.1	59.9	58.2	59.0	61.8	65.0	66.3	66.6	65.0	64.0	61.6	60.0	59.5	1453.5	60.56	
Sum.																									45164.5		
1000+	910.4	898.1	877.4	864.1	850.2	822.4	801.6	787.9	762.9	767.2	778.8	795.1	831.1	857.9	890.1	943.0				971.4	952.3	937.0	925.1	916.7			
2000+																	001.7	019.5	002.6								
Mean.	61.63	61.23	60.56	60.13	59.68	58.79	58.12	57.67	56.87	57.01	57.38	57.91	59.07	59.93	60.97	62.68	64.57	65.15	64.60	63.59	62.98	62.48	62.10	61.83		60.71	

Horizontal component, H, 23000 gammas + tabulated value

January 1961

U.T. Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.
1	300	301	297	297	300	298	301	300	298	297	294	288	280	270	265	261	270	288	301	305	303	313	306	310	7045	293.5
2 D	317	322	336	341	314	289	277	272	257	261	270	224	240	228	223	210	198	207	239	256	271	273	283	286	6394	266.4
3 D	281	283	287	281	279	279	277	270	265	256	255	256	253	244	243	244	247	256	274	273	288	282	289	280	6412	268.4
4	285	299	296	296	287	293	284	275	264	267	269	261	249	244	240	227	244	264	269	283	279	277	293	280	6534	272.2
5	284	295	298	298	300	294	288	286	281	277	274	267	258	255	255	260	267	273	277	281	282	282	277	287	6696	279.0
6	291	293	295	295	292	292	288	283	279	274	270	268	265	262	263	267	276	279	282	289	289	283	289	297	6761	281.7
7	295	295	295	297	295	296	293	291	287	286	277	267	271	261	272	273	279	273	279	274	274	280	286	286	6782	282.6
8	285	287	291	293	295	299	297	295	291	279	274	273	278	281	280	286	295	309	312	299	295	300	291	291	6977	290.7
9	282	295	312	315	312	303	298	297	294	288	282	279	284	276	278	269	269	277	293	278	297	286	265	292	6921	288.4
10 D	297	309	298	306	299	292	282	282	277	274	270	263	262	269	273	269	272	286	286	287	289	285	285	290	6803	283.5
11	283	292	292	294	287	293	292	288	285	279	269	261	261	264	269	275	287	298	293	287	268	273	280	286	6756	281.5
12	290	288	291	292	290	291	287	287	282	276	270	266	268	270	274	280	286	289	289	285	277	280	278	284	6770	282.1
13	289	294	293	291	294	292	293	290	282	278	276	273	271	272	273	281	286	293	292	287	282	278	278	282	6820	284.2
14 Q	285	288	292	292	292	292	291	289	285	283	280	280	276	274	270	266	272	285	293	292	290	289	290	293	6840	285.0
15 Q	297	298	296	295	294	294	294	293	289	283	277	272	268	263	264	269	280	294	305	301	297	293	299	301	6916	288.2
16 D	312	329	335	335	346	338	316	304	279	261	277	283	275	253	244	230	236	259	259	269	271	276	275	279	6841	285.0
17	284	290	290	290	288	288	286	285	273	273	267	261	268	262	253	262	271	277	286	282	282	283	282	286	6669	277.9
18	291	289	290	287	288	285	285	284	283	284	280	271	262	252	246	240	247	257	262	275	280	282	284	288	6592	274.7
19	286	287	288	287	286	287	289	289	283	281	280	276	273	271	261	258	265	270	275	292	286	292	300	300	6762	281.7
20	287	289	296	296	295	283	282	283	280	275	271	268	263	263	263	262	265	265	265	267	274	280	288	295	6660	277.5
21 Q	295	292	294	297	295	294	289	285	284	284	280	274	266	257	257	263	266	273	285	291	296	293	289	291	6794	283.1
22 Q	301	302	300	298	295	290	286	281	277	278	276	274	271	264	259	262	269	272	279	282	287	293	295	295	6786	282.7
23	295	297	296	294	290	295	296	293	293	291	286	284	279	270	265	268	270	276	280	280	280	284	293	293	6848	285.3
24	299	304	307	305	313	312	303	300	298	287	281	275	276	276	279	276	278	276	268	270	274	276	281	280	6894	287.2
25	281	292	297	303	306	305	303	289	285	279	278	277	280	275	270	270	274	276	278	283	275	276	268	285	6805	283.5
26	284	288	288	285	284	279	280	280	280	276	275	269	263	254	256	263	271	272	275	275	273	275	280	281	6606	275.2
27 Q	287	286	287	287	289	289	290	285	283	282	281	280	272	262	256	259	267	281	289	287	284	283	284	289	6739	280.8
28	301	306	306	309	316	305	291	282	279	281	279	270	265	263	263	264	270	278	286	303	316	306	309	281	6931	288.8
29	298	287	296	299	299	291	297	283	280	272	275	264	256	261	268	263	263	280	283	272	278	276	276	276	6693	278.9
30	283	287	281	284	279	280	279	279	276	272	268	271	267	258	259	262	263	277	289	298	299	297	290	288	6686	278.6
31 D	285	288	287	289	290	292	296	297	297	283	297	303	286	275	262	249	254	264	251	264	280	288	279	279	6755	281.5
Sum.	9030	9152	9207	9228	9189	9115	9010	8900	8746	8617	8558	8398	8306	8149	8103	8088	8257	8524	8694	8796	8822	8836	8849	8944	209518	
Mean.	291.3	295.2	297.0	297.7	296.4	294.0	290.6	287.1	282.4	278.0	276.1	270.9	267.9	262.9	261.4	260.9	266.4	275.0	280.5	283.7	284.6	285.0	285.5	288.5		281.6



Vertical component, Z, - (36000 + tabulated values) gammas

January 1964

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	274	270	266	265	266	265	266	264	260	256	254	248	239	231	230	229	239	252	256	257	253	257	257	260	6114	254.7	
2 D	264	268	274	271	252	216	209	220	207	176	186	192	236	244	245	240	237	252	275	292	299	294	292	288	5929	247.0	
3 D	262	263	274	272	270	265	260	261	260	255	252	252	254	254	256	253	250	257	271	269	281	273	281	281	6366	265.2	
4	278	281	274	268	265	263	260	257	255	260	260	254	248	244	243	239	250	257	264	280	281	281	277	283	6322	263.4	
5	275	275	277	274	273	270	265	257	253	257	257	254	248	244	241	248	249	255	262	267	270	270	265	270	6276	261.5	
6	277	277	278	274	272	270	265	263	260	257	254	253	253	251	245	244	247	252	256	260	267	269	272	273	6289	262.0	
7	273	272	273	273	268	268	268	265	260	257	251	244	244	243	244	236	239	247	251	255	260	265	263	266	6187	257.8	
8	269	271	273	272	270	270	269	267	265	256	249	244	249	254	249	249	248	253	257	257	262	270	269	271	6263	261.0	
9	273	276	284	281	273	268	265	265	262	254	249	243	244	244	239	231	234	246	257	257	267	266	265	276	6219	259.1	
10 D	286	287	276	274	264	244	243	252	254	254	252	248	248	250	246	240	247	257	260	263	265	267	272	272	6221	259.2	
11	267	270	270	269	264	266	263	260	257	254	251	247	245	245	242	239	236	243	247	248	244	256	265	265	6113	254.7	
12	269	269	270	270	268	266	265	263	260	255	254	252	250	252	248	249	253	256	260	261	260	261	262	265	6238	259.9	
13	270	272	272	269	268	267	267	265	261	257	254	251	249	252	254	251	244	244	249	254	257	260	260	263	6240	258.7	
14 Q	265	267	269	269	268	268	266	265	263	260	256	254	254	252	247	241	244	251	255	256	260	260	262	265	6217	259.0	
15 Q	264	265	261	261	262	262	262	261	258	254	249	244	241	240	240	240	246	257	265	265	259	255	257	260	6128	255.3	
16 D	269	277	279	276	275	264	252	249	239	230	222	218	225	227	224	223	240	259	267	268	269	276	275	273	6076	253.2	
17	278	282	267	260	265	265	260	243	238	249	241	240	244	243	243	248	254	261	267	263	263	264	264	267	6169	257.0	
18	269	269	268	268	266	264	261	262	260	256	252	249	244	242	236	232	237	244	252	260	260	260	261	260	6132	255.5	
19	260	260	260	260	258	260	260	256	252	249	248	245	243	245	240	237	242	246	252	262	263	265	266	268	6097	254.0	
20	261	262	265	264	260	260	256	254	252	249	248	244	240	240	237	235	237	243	248	251	255	256	257	259	6033	251.4	
21 Q	263	261	261	261	259	255	253	252	252	255	255	250	244	239	233	237	244	252	256	256	258	261	258	257	6072	253.0	
22 Q	261	263	263	261	259	256	253	251	256	253	251	244	240	238	234	230	236	242	252	248	250	250	251	255	5997	249.9	
23	255	257	257	255	255	255	253	251	249	247	244	244	240	236	228	226	227	228	241	248	251	255	260	259	5921	246.7	
24	260	261	261	265	263	260	255	251	248	242	238	237	239	236	239	235	232	237	240	249	255	257	257	263	5980	249.2	
25	264	265	265	263	261	261	246	245	248	244	244	241	243	245	245	244	243	246	255	260	260	274	265	274	6101	254.2	
26	270	270	265	265	258	256	256	256	256	252	246	242	235	229	235	237	236	243	244	244	247	247	251	255	5995	249.8	
27 Q	260	259	257	257	257	257	256	252	251	251	249	247	247	247	240	231	235	244	250	254	254	256	255	257	6023	251.0	
28	261	263	262	261	261	252	244	244	244	245	244	237	230	232	236	231	227	234	241	245	251	244	244	237	5870	244.6	
29	253	253	258	265	260	247	233	243	240	232	232	232	223	231	238	230	228	239	244	244	249	253	255	257	5839	243.3	
30	260	262	260	257	255	250	250	248	244	244	239	236	234	230	227	226	231	243	249	248	249	249	245	247	5883	245.1	
31 D	246	248	249	251	252	252	254	253	253	244	233	226	224	226	223	218	223	233	238	256	257	264	261	260	5844	243.5	
Sum.	8273	8315	8288	8251	8167	8043	7935	7895	7817	7704	7614	7512	7497	7486	7427	7349	7435	7673	7883	7997	8076	8135	8146	8206	189124		
Mean.	266.9	268.2	267.4	266.2	263.5	259.5	256.0	254.7	252.2	248.5	245.6	242.3	241.8	241.5	239.6	237.1	239.8	247.5	254.3	258.0	260.5	262.4	262.8	264.7		254.2	

P

Declination, D, east of north 16 degrees + tabulated values in minutes of arc.

February 1964

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	60.0	60.4	59.8	59.3	58.8	58.9	58.9	58.8	58.3	58.2	57.4	56.2	56.9	57.8	59.7	61.8	64.1	65.2	64.7	63.6	61.6	59.8	59.9	59.2	1433.3	59.97	
2	58.3	60.4	60.8	60.7	60.2	59.7	59.4	59.5	58.8	58.6	58.7	58.8	58.6	60.1	61.5	62.7	64.3	64.7	64.8	64.4	64.1	62.8	61.7	61.2	1464.8	61.03	
3 Q	60.7	60.6	60.2	59.8	59.7	59.7	59.7	58.9	57.9	56.9	55.5	55.2	56.7	58.7	60.8	61.7	62.6	62.6	62.0	60.8	60.6	60.8	61.6	61.9	1435.6	59.82	
4	61.7	61.5	60.6	59.6	58.8	59.0	58.8	59.5	58.8	57.9	56.2	56.9	57.8	59.8	63.7	64.2	64.7	64.3	64.4	64.2	63.9	63.4	63.2	62.5	1465.4	61.06	
5	61.5	60.8	60.1	59.3	58.5	58.0	58.7	58.2	57.5	57.0	56.8	55.8	56.0	56.9	58.8	60.8	63.6	65.2	64.6	63.2	62.4	63.7	65.4	64.5	1447.3	60.30	
6 D	63.1	57.8	56.0	58.8	59.0	58.7	55.2	57.3	57.5	60.6	61.5	59.9	62.6	62.6	63.8	64.5	65.2	65.4	66.3	65.1	63.6	63.4	61.7	61.5	1471.1	61.30	
7	61.7	61.5	60.6	57.8	58.8	57.9	57.0	57.1	56.7	59.0	59.1	57.7	58.6	59.5	59.9	61.0	62.8	65.2	63.7	62.6	62.4	62.1	62.6	61.0	1446.3	60.26	
8 D	61.5	57.8	59.1	60.8	60.6	60.0	59.7	59.8	58.9	58.8	58.0	58.6	59.5	59.8	60.1	61.5	62.5	63.4	64.1	65.0	66.1	65.8	65.0	62.3	1468.7	61.20	
9	62.4	61.6	60.1	57.9	58.8	59.0	59.7	58.8	58.8	59.1	58.0	57.9	58.7	59.0	60.1	60.7	62.4	63.4	62.3	62.4	62.4	62.5	62.4	60.3	1448.7	60.36	
10	59.7	61.3	61.1	59.9	59.7	59.8	59.1	58.8	58.2	58.7	58.7	59.7	60.7	61.0	61.8	62.9	63.5	63.6	63.2	62.6	62.2	61.6	61.6	61.7	1461.1	60.88	
11 Q	61.5	61.3	61.0	60.6	60.1	59.7	59.0	59.0	58.8	57.8	57.9	58.2	58.8	58.8	59.8	61.6	63.3	64.3	63.7	62.9	62.0	61.5	60.8	60.9	1453.3	60.55	
12	60.7	60.6	59.9	59.3	59.1	58.2	55.6	53.3	54.0	54.4	56.0	58.3	58.8	58.8	61.0	63.0	64.3	65.3	65.0	64.4	63.5	63.2	63.1	62.3	1442.1	60.09	
13 D	62.5	60.9	57.9	52.2	51.7	53.3	53.4	55.5	55.8	55.8	56.9	60.8	61.7	62.1	61.7	64.3	66.7	67.8	67.0	68.2	65.9	63.3	61.6	61.0	1448.0	60.33	
14	61.2	61.0	60.7	58.8	57.0	59.0	59.5	58.8	58.8	57.1	56.9	58.0	59.2	60.1	61.4	63.4	64.3	65.0	64.3	62.7	61.7	61.5	61.1	60.8	1452.3	60.51	
15	61.2	61.0	60.7	60.1	59.7	59.1	58.6	58.3	57.9	57.0	56.7	57.4	58.6	59.0	59.9	60.8	62.1	62.9	63.2	62.5	62.3	62.0	61.7	61.3	1444.0	60.17	
16 Q	60.8	60.6	60.1	59.7	59.3	59.0	58.5	57.9	57.0	56.9	56.3	58.2	59.0	60.1	60.8	62.1	63.4	64.1	64.0	63.5	63.4	62.7	62.5	61.5	1451.7	60.49	
17	61.3	60.8	60.6	59.8	59.7	59.0	58.5	57.9	57.7	57.2	56.1	56.0	57.0	57.8	59.7	61.3	63.2	64.4	65.3	63.6	62.2	61.5	60.7	60.5	1441.8	60.07	
18 Q	60.1	60.1	60.1	60.1	59.8	59.7	58.9	58.0	58.2	58.0	58.7	59.0	58.6	57.8	58.6	61.4	64.3	65.6	64.9	63.5	62.8	61.3	60.0	59.8	1449.3	60.39	
19 Q	60.1	60.6	60.6	60.0	60.1	60.1	59.7	59.1	58.3	57.9	57.1	57.5	57.8	57.8	58.8	60.4	61.9	62.6	63.0	62.5	61.4	60.5	60.0	60.1	1437.9	59.91	
20	60.5	60.6	60.6	60.2	59.9	59.6	58.9	57.8	57.1	56.2	55.3	54.0	55.3	56.0	57.0	59.8	63.0	65.3	66.6	64.3	61.9	63.0	65.4	64.3	1442.6	60.11	
21	62.5	59.4	58.2	60.3	56.8	58.7	59.3	59.5	59.9	59.4	58.0	57.7	59.9	61.0	61.8	63.1	64.2	64.5	63.6	63.1	62.5	61.6	61.2	61.3	1457.5	60.73	
22	60.8	60.8	60.6	60.5	60.7	60.1	59.9	59.6	59.7	58.9	58.0	57.9	58.6	58.8	60.6	61.8	63.3	63.6	63.4	62.4	61.8	62.0	62.0	61.6	1457.4	60.73	
23	61.3	60.9	60.7	60.7	60.4	59.8	59.8	59.8	59.0	58.2	58.2	58.6	58.9	58.5	59.2	60.7	62.6	64.3	64.7	62.4	61.5	60.7	60.9	60.9	1452.7	60.53	
24	60.3	60.6	60.6	60.4	59.6	59.2	59.1	58.8	58.2	57.7	56.1	56.3	57.6	58.8	59.8	61.0	62.1	62.5	62.9	62.8	62.5	62.4	62.5	61.6	1443.4	60.14	
25 D	60.7	60.7	59.9	59.8	59.6	57.9	57.8	57.6	56.0	55.3	56.0	57.0	56.9	58.5	59.6	61.4	63.3	65.9	67.0	66.5	62.8	63.6	62.4	61.6	1448.0	60.33	
26 D	61.0	60.5	59.8	56.0	54.9	57.1	60.1	60.1	59.7	58.1	57.1	60.6	62.2	58.9	60.1	62.1	63.4	63.4	62.6	61.9	60.9	60.7	60.8	61.9	1443.9	60.16	
27	59.6	58.2	60.2	60.4	59.9	59.8	59.8	59.7	59.1	59.2	58.3	57.8	57.9	58.9	60.4	62.0	65.0	66.9	67.0	64.8	63.4	61.2	61.2	61.3	1462.0	60.92	
28	61.6	60.7	58.8	59.6	59.9	58.9	56.1	56.8	57.9	58.0	58.9	58.8	57.9	59.8	61.1	62.0	64.1	65.1	64.9	63.4	62.3	61.1	60.7	60.6	1449.0	60.37	
29	60.4	60.5	59.8	57.3	57.0	59.0	59.8	58.6	59.0	58.8	57.9	57.7	57.1	57.5	58.9	61.4	63.5	64.4	64.1	63.1	61.6	60.1	60.0	59.6	1437.1	59.88	
Sum.																									12062.3		
1000+	768.7	753.5	739.2	719.7	708.1	707.9	698.5	692.8	683.5	676.7	666.3	676.5	697.9	714.2	750.6	795.4	843.7	870.9	867.3	842.4	815.7	799.8	793.7	779.3			
Mean.	60.99	60.47	59.97	59.30	58.90	58.89	58.57	58.37	58.05	57.82	57.46	57.81	58.55	59.11	60.37	61.91	63.58	64.51	64.39	63.53	62.61	62.06	61.85	61.35		60.13	



Horizontal component, H, 23000 gammas + tabulated value

February 1964

U.T.	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																										
1	279	278	285	294	294	290	284	281	277	273	274	272	268	259	249	242	250	263	272	281	280	286	289	284	6604	275.2
2	284	282	286	286	290	288	283	283	282	277	279	276	269	260	250	250	254	265	277	286	288	287	285	284	6651	277.1
3 Q	284	285	286	287	287	285	282	280	278	278	275	268	265	260	254	255	260	270	279	266	289	284	284	288	6629	276.2
4	295	295	299	299	300	303	305	299	289	298	276	270	260	248	253	255	257	267	278	278	278	268	274	286	6750	280.4
5	291	291	292	292	292	296	298	291	286	281	280	279	277	267	261	257	263	276	290	297	299	288	263	271	6778	282.4
6 D	288	283	284	282	286	300	299	288	283	276	289	272	256	260	254	251	255	263	256	243	260	266	258	248	6550	272.1
7	283	286	285	288	276	275	277	277	272	272	273	275	269	268	265	270	266	260	268	267	269	273	260	277	6551	273.0
8 D	283	294	288	287	289	289	287	286	278	272	269	269	269	269	273	276	265	268	264	269	271	271	250	247	6533	274.3
9	290	264	270	279	278	275	271	266	261	264	266	264	260	258	251	256	258	264	274	276	273	272	273	275	6438	268.2
10	278	278	277	278	278	283	279	277	273	270	269	268	266	256	254	255	256	261	269	277	277	261	269	271	6433	270.1
11 Q	275	277	279	280	279	280	280	281	279	274	273	275	271	267	266	265	265	269	271	272	274	276	275	275	6578	274.1
12	278	281	281	281	284	289	311	302	294	299	277	282	279	264	247	245	251	255	269	282	283	293	291	289	6707	273.5
13 D	286	291	299	303	278	273	274	277	271	266	264	251	258	257	243	233	236	247	257	266	258	266	267	276	6397	266.5
14	281	283	284	282	282	275	276	274	273	269	262	258	255	257	247	246	260	272	278	281	281	277	269	265	6487	270.3
15	279	280	283	285	283	279	279	274	275	272	270	268	266	257	257	258	258	268	270	270	275	276	282	286	6550	272.9
16 Q	281	280	280	281	282	283	278	279	275	270	264	266	270	262	258	254	254	264	270	270	274	277	279	284	6535	272.3
17	286	287	288	288	287	287	284	280	277	275	271	270	262	258	252	254	264	266	270	266	273	280	282	282	6569	274.5
18 Q	283	283	285	285	286	284	287	281	279	278	279	279	274	262	246	236	240	257	270	282	280	276	279	280	6571	273.8
19 Q	279	284	284	280	280	279	278	274	273	271	272	270	265	256	249	252	257	267	278	283	289	290	288	290	6588	274.5
20	238	294	298	296	301	297	305	302	298	297	295	286	292	288	282	267	275	279	285	277	286	291	258	243	6580	286.7
21	248	258	270	283	285	273	272	271	272	264	264	261	257	249	249	249	252	257	265	272	268	263	270	271	6318	264.5
22	275	276	279	282	282	281	279	277	277	275	275	271	266	251	248	260	269	272	273	280	278	277	274	273	6550	272.9
23	279	282	287	287	291	291	287	287	284	280	277	276	275	270	260	254	256	252	257	274	279	279	281	283	6628	276.2
24	281	284	283	285	284	283	285	285	282	284	283	275	260	262	264	261	266	272	276	280	283	283	275	285	6661	277.5
25 D	293	293	292	288	287	285	282	286	281	277	269	280	273	267	261	263	269	268	265	254	263	264	268	275	6503	275.1
26 D	278	285	284	298	281	276	276	274	270	265	270	263	272	263	258	295	263	273	275	276	275	275	276	269	6590	274.6
27	280	282	273	276	274	274	273	273	270	272	272	268	260	256	251	250	257	260	256	272	272	276	280	282	6459	269.1
28	280	281	277	284	297	304	281	277	272	269	266	274	264	256	251	251	255	274	284	263	282	277	278	278	6595	274.8
29	280	280	284	282	271	278	284	278	272	272	271	269	260	247	238	234	242	254	266	277	276	273	276	276	6540	268.3
Sum.	8165	8197	8242	8298	8264	8255	8236	8160	8053	7990	7924	7855	7738	7554	7391	7394	7473	7683	7862	7957	8033	8030	7853	8026	190733	
Mean.	281.6	282.7	284.2	286.1	285.0	284.7	284.0	281.4	277.7	275.5	273.2	270.9	266.8	260.5	254.9	255.0	257.7	264.9	271.1	274.4	277.0	276.9	274.2	276.7		274.0

Vertical component, Z, - (36000 + tabulated values) gammas

February 1964

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	260	259	260	259	252	251	252	252	252	251	251	247	241	235	231	231	234	242	249	253	255	260	260	256	5993	249.7	
2	256	255	255	255	256	252	251	251	251	247	247	241	236	237	234	239	242	247	249	252	257	259	262	260	5991	249.6	
3 Q	259	258	256	256	255	253	252	252	254	254	253	246	239	237	238	240	242	247	250	255	255	251	250	251	6003	250.1	
4	258	258	258	256	256	257	256	251	240	234	232	235	231	226	234	244	249	253	256	256	256	252	258	264	5970	248.7	
5	268	267	263	259	258	256	258	253	252	250	248	246	240	232	231	230	230	235	244	250	253	258	258	258	5997	249.9	
6 D	270	264	254	254	258	246	225	238	234	234	235	234	232	242	239	237	243	249	250	252	265	268	264	272	5959	248.3	
7	270	268	261	258	252	252	251	250	242	238	239	243	240	239	239	242	237	232	243	247	252	258	257	264	5974	248.9	
8 D	267	262	255	258	256	256	255	254	250	246	246	244	242	244	247	243	236	238	241	250	252	277	281	269	6069	252.9	
9	274	277	273	266	258	259	258	253	249	249	247	247	242	239	238	239	239	242	250	258	257	255	256	257	6082	253.4	
10	258	258	258	258	257	255	252	252	250	248	246	244	244	246	246	243	242	243	247	251	255	253	255	259	6020	250.8	
11 Q	260	259	259	258	256	255	258	253	250	247	247	247	244	243	244	243	239	238	243	249	252	253	254	252	6003	250.1	
12	255	257	255	253	254	251	251	244	248	247	230	230	235	233	228	232	239	238	247	252	253	259	257	252	5900	245.8	
13 D	257	257	256	239	221	230	221	225	238	243	237	223	234	234	225	216	220	231	239	250	251	260	263	276	5746	239.4	
14	261	261	260	258	251	251	251	250	250	249	245	242	241	242	237	236	239	244	249	252	252	252	251	249	5973	248.9	
15	258	257	255	254	253	251	247	246	245	246	243	239	234	229	236	233	227	233	235	239	243	250	250	250	5853	243.9	
16 Q	250	251	251	251	251	251	247	246	242	243	242	239	242	242	239	234	231	234	241	247	247	251	251	255	5878	244.9	
17	255	255	254	250	250	250	247	246	242	242	240	240	239	238	237	239	242	242	247	247	249	253	252	251	5907	246.1	
18 Q	252	250	250	249	249	248	247	244	246	246	244	242	239	234	227	221	223	230	239	251	256	254	255	255	5851	243.8	
19 Q	250	250	250	247	247	247	247	246	247	247	246	241	238	236	230	227	232	236	240	242	245	244	243	251	5829	242.9	
20	237	238	238	237	237	235	237	236	235	234	230	225	222	218	212	200	210	218	229	239	244	255	255	261	5582	232.6	
21	263	258	256	251	236	238	242	243	244	242	242	234	228	231	234	234	236	242	250	253	250	251	251	251	5860	244.2	
22	251	251	250	250	248	247	245	242	242	241	240	238	236	232	227	233	234	236	240	247	244	246	243	243	5806	241.9	
23	249	250	249	247	247	243	240	238	239	239	238	235	236	235	230	226	226	228	231	243	251	248	248	248	5764	240.2	
24	250	249	247	247	247	245	245	244	242	241	238	234	231	234	233	233	235	237	242	244	244	247	243	249	5801	241.7	
25 D	252	251	249	246	246	243	242	239	238	239	231	233	233	230	230	230	226	226	231	247	247	247	246	251	5753	239.7	
26 D	252	256	256	247	234	234	238	238	239	239	233	224	226	228	226	224	230	237	244	247	249	249	249	247	5745	239.4	
27	250	243	244	247	246	245	246	244	242	242	243	241	234	234	230	228	230	231	231	247	251	256	254	251	5810	242.1	
28	247	251	250	251	249	239	222	230	236	236	232	236	234	231	230	231	226	239	247	247	250	248	246	244	5752	239.7	
29	247	246	247	242	238	239	237	235	237	239	239	241	238	231	227	228	234	240	246	252	251	251	251	248	5784	241.0	
Sum.	7436	7416	7369	7303	7218	7179	7120	7095	7076	7053	6984	6911	6851	6812	6759	6736	6773	6888	7050	7219	7286	7365	7363	7394	170656		
Mean.	256.4	255.7	254.1	251.8	248.9	247.6	245.5	244.7	244.0	243.2	240.8	238.3	236.2	234.9	233.1	232.3	233.6	237.5	243.1	248.9	251.2	254.0	253.9	255.0		245.2	



Declination, D, east of north 16 degrees + tabulated values in minutes of arc.

March 1964

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	59.8	60.2	59.8	59.9	60.0	59.9	59.8	59.7	59.1	58.3	57.7	56.9	57.1	58.2	60.2	62.1	63.9	64.7	64.3	62.8	61.6	60.7	60.7	60.2	1442.2	60.34	
2	60.8	60.8	60.7	60.3	59.9	59.7	59.3	59.1	59.1	58.1	57.6	57.4	57.8	58.1	58.8	61.7	63.4	63.9	63.7	62.5	61.5	60.8	60.8	60.5	1446.3	60.26	
3	59.9	60.5	60.8	60.4	59.7	59.0	58.6	58.0	58.0	57.9	57.2	56.2	56.5	57.9	59.2	61.4	62.9	63.7	63.6	62.6	62.6	63.2	62.5	62.7	1445.0	60.21	
4 D	62.2	60.7	58.7	58.9	56.1	52.2	56.8	58.8	59.3	60.2	57.9	62.5	63.7	62.6	62.5	63.6	66.3	69.9	68.2	67.1	66.4	57.6	59.0	60.0	1471.2	61.30	
5 D	58.1	54.3	55.8	59.4	60.7	60.8	61.7	62.6	60.0	57.3	58.2	58.9	60.8	61.6	62.6	63.7	64.5	64.8	66.5	65.3	63.2	58.0	61.4	57.4	1447.3	60.72	
6	60.2	61.6	61.6	60.6	58.3	61.1	60.6	60.1	61.6	60.4	61.6	58.4	58.8	59.9	61.6	58.7	58.4	58.3	58.7	58.1	58.1	57.4	61.3	59.4	1434.2	59.78	
7	57.1	56.2	59.1	59.0	59.5	60.9	60.6	59.9	59.9	59.8	59.6	59.0	59.0	59.1	60.1	61.7	62.8	64.1	65.2	63.2	62.6	61.8	60.9	60.4	1451.5	60.48	
8	57.9	60.3	56.5	58.0	59.8	60.3	60.3	59.2	63.1	59.7	58.5	59.0	58.1	59.1	61.3	62.6	63.8	65.3	65.1	64.1	62.9	62.0	57.4	59.9	1454.2	60.59	
9	60.4	60.9	59.6	54.3	53.9	57.2	60.0	62.5	60.8	60.0	59.9	58.2	58.1	58.7	60.2	62.6	64.5	64.6	63.6	62.5	61.6	60.9	60.8	60.2	1446.6	60.27	
10	60.7	60.8	60.7	60.7	60.4	60.0	59.9	59.9	59.8	59.1	59.1	58.0	57.9	58.6	59.8	60.9	62.6	63.7	63.7	62.7	61.4	61.1	60.9	60.6	1453.0	60.54	
11	60.4	60.7	60.5	60.0	59.8	59.1	58.9	58.7	57.2	57.9	56.1	57.2	57.4	58.5	60.6	61.8	62.6	62.6	62.5	62.7	62.5	61.6	61.1	60.3	1441.2	60.05	
12	60.5	60.7	59.8	51.6	53.9	56.3	58.1	58.9	59.1	60.8	58.6	58.0	58.1	59.1	60.2	61.6	61.6	62.1	62.7	63.2	62.2	61.4	60.7	60.3	1429.5	59.56	
13	60.2	60.3	59.7	57.9	58.1	58.8	58.8	58.5	59.3	59.9	58.3	58.1	57.9	57.3	58.1	59.8	61.1	62.4	62.6	62.5	62.4	62.1	61.9	61.2	1437.8	59.91	
14	61.6	60.0	60.3	60.2	59.8	59.2	59.4	59.0	58.5	57.5	56.8	57.2	56.8	57.6	59.6	61.7	62.8	64.2	65.3	64.9	64.8	63.1	62.5	61.8	1454.6	60.61	
15	61.6	60.2	58.5	58.0	58.7	59.2	59.6	59.2	59.1	59.1	58.8	58.1	58.0	58.7	59.9	62.5	64.4	65.0	65.2	64.5	63.4	62.8	61.7	61.5	1457.7	60.71	
16	60.6	60.8	60.7	59.4	59.2	59.8	60.3	60.1	59.2	59.1	58.5	56.9	56.9	57.9	59.6	61.7	63.5	63.4	62.6	61.6	60.6	60.4	60.6	60.3	1444.2	60.18	
17	61.2	60.8	60.5	59.0	57.3	57.1	56.2	59.0	58.0	56.7	56.8	58.0	58.7	59.0	60.5	62.4	63.1	63.7	63.5	62.6	61.7	60.9	60.8	60.4	1438.3	59.93	
18	60.8	60.8	60.7	60.5	59.9	59.5	58.9	58.9	59.0	59.0	58.1	58.0	57.8	58.3	59.3	60.7	61.7	62.4	62.6	62.7	62.0	61.4	61.1	60.8	1444.9	60.20	
19	61.1	61.0	60.8	60.3	59.8	58.6	58.1	58.0	58.4	58.1	57.8	57.4	58.0	59.4	60.2	61.4	61.9	62.5	62.5	62.0	61.5	61.0	60.8	60.2	1437.4	59.89	
20	60.9	60.8	60.7	60.0	59.5	58.7	57.9	56.7	56.2	55.4	56.5	57.0	57.7	59.0	60.5	62.5	63.9	63.6	63.4	62.4	62.6	61.4	61.4	60.7	1444.2	60.05	
21	58.9	56.3	58.0	57.2	55.4	55.2	56.2	57.9	58.7	59.6	59.5	59.1	59.2	59.2	59.9	61.1	62.5	62.9	62.8	62.5	62.4	62.6	62.6	62.5	1432.2	59.68	
22 D	60.8	61.0	60.8	60.0	59.5	58.9	57.9	58.1	58.1	57.7	58.0	57.2	57.1	57.3	59.6	62.0	64.0	62.8	65.4	69.0	66.0	65.4	62.7	59.2	1459.0	60.79	
23 D	62.5	60.8	60.0	60.8	59.2	58.9	56.9	59.5	60.5	60.0	64.5	61.4	59.7	59.6	60.6	61.3	63.4	62.6	64.1	62.9	62.5	61.7	60.5	60.1	1464.0	61.00	
24	60.8	60.7	60.0	57.3	57.9	57.9	57.4	60.0	59.0	57.3	59.5	58.0	58.5	60.1	60.8	62.6	65.3	66.1	63.5	63.0	61.7	60.9	60.8	60.3	1449.4	60.39	
25	60.3	59.4	54.3	58.9	59.6	60.2	61.4	61.9	60.6	59.8	59.8	58.4	58.0	58.8	60.0	61.4	62.5	62.4	62.6	61.6	60.1	60.0	57.2	59.0	1437.9	59.91	
26	57.9	55.9	59.0	57.9	56.0	56.1	58.9	60.7	59.0	59.0	58.8	58.0	58.2	59.1	60.4	61.6	62.6	62.6	62.4	61.4	60.7	60.8	60.5	60.8	1428.6	59.53	
27	60.8	60.4	60.5	60.3	60.1	59.9	59.3	59.5	59.5	59.1	59.1	59.0	58.4	58.8	59.9	61.6	62.7	63.0	62.3	60.9	60.5	60.4	60.5	60.5	1447.2	60.30	
28	60.8	60.8	60.7	60.3	59.9	59.8	59.3	59.2	59.2	59.2	59.1	58.4	58.1	58.6	59.9	60.9	61.9	62.5	61.9	60.9	60.5	60.5	60.5	60.5	1443.4	60.14	
29	60.5	60.4	60.3	60.0	59.9	59.6	59.1	59.0	59.1	59.3	59.1	58.8	58.7	59.0	60.2	61.4	62.1	62.5	61.8	60.9	60.4	60.3	60.7	60.3	1443.9	60.16	
30 D	60.5	60.7	60.2	58.9	52.6	54.5	58.1	55.2	53.1	53.7	56.2	57.9	59.2	60.7	61.8	63.5	66.3	69.9	66.3	64.2	62.5	60.9	60.3	60.8	1438.0	59.92	
31	61.1	60.8	60.7	60.7	60.7	60.8	60.7	60.6	60.2	60.0	59.9	59.7	59.1	59.1	59.1	61.0	61.8	62.4	62.4	62.2	61.8	61.7	61.3	61.4	1459.2	60.60	
Sum.																										14837.7	
1000+	970.9	859.3	850.4	830.9	815.1	819.2	829.0	839.4	831.7	819.0	817.1	806.0	808.7	827.5	866.0	912.8	954.3	973.9	974.0	952.0	925.2	895.3	886.4	878.2			
Mean.	60.35	59.38	59.63	59.06	58.55	58.68	59.00	59.30	59.09	58.68	58.62	58.26	58.35	58.95	60.19	61.70	63.04	63.67	63.58	62.97	62.10	61.14	60.44	60.59		60.27	

Horizontal component, H, 23000 gammas + tabulated value

1. Dec. 1961

U.T. Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.		
1	275	279	281	286	280	275	277	277	277	277	277	262	252	246	241	237	233	231	229	227	210	211	212	213	214	2152	258.3	
2	283	284	282	282	283	284	280	277	277	277	277	265	258	250	246	246	251	262	271	277	276	277	277	278	279	2791	271.4	
3	282	287	289	287	286	283	281	283	281	283	281	280	271	272	265	261	272	276	285	287	281	278	278	276	275	2751	271.3	
4	295	287	255	261	266	219	257	256	270	273	262	241	252	240	239	236	222	211	211	239	232	231	231	231	231	2310	250.0	
5	251	290	283	258	269	272	275	271	271	271	265	261	259	242	241	235	235	215	211	215	211	236	235	271	271	271	271	255.3
6	261	262	273	269	261	271	276	267	270	260	276	267	257	247	243	237	236	213	255	262	259	261	261	261	261	2650	260.8	
7	272	279	268	268	272	276	273	268	270	263	268	270	265	262	242	230	250	253	255	250	247	261	261	261	261	2650	262.0	
8	251	262	274	265	273	280	281	273	280	281	276	281	270	255	238	230	250	257	261	265	261	261	261	261	261	2650	265.0	
9	270	275	280	271	273	270	273	277	270	270	271	265	251	239	236	230	230	261	267	272	272	271	272	272	272	2710	265.7	
10	273	275	276	277	278	277	277	279	270	277	278	278	260	253	243	230	230	230	254	250	262	262	261	261	261	261	261	261.5
11	281	282	280	277	289	294	294	281	271	275	276	278	269	254	248	232	263	267	266	273	276	277	280	282	282	282	282	271.6
12	287	283	286	281	288	287	270	267	260	269	261	256	247	242	242	252	257	262	262	265	269	271	272	273	273	273	273	273.9
13	273	273	271	278	271	273	273	268	268	272	273	265	261	259	253	250	248	253	257	265	270	272	275	275	275	275	275	267.0
14	281	280	285	285	278	281	280	278	278	275	272	266	258	252	249	244	249	255	254	260	260	269	271	271	271	271	271	267.5
15	281	274	283	276	274	280	279	275	273	271	271	271	265	257	247	236	249	260	260	265	274	272	277	275	275	275	275	269.0
16	271	273	286	287	283	280	278	276	276	277	280	278	270	256	250	251	256	271	283	281	280	281	286	282	282	282	282	276.3
17	291	287	283	286	285	280	275	277	270	269	262	257	259	249	239	231	244	257	268	277	278	276	276	276	276	276	276	269.5
18	277	278	280	281	282	281	280	280	271	271	268	268	261	256	252	256	260	261	260	260	273	279	281	281	281	281	281	271.6
19	283	286	287	287	288	287	278	280	279	282	280	275	268	265	262	262	262	262	265	271	273	275	277	281	281	281	281	276.6
20	287	286	291	293	293	295	297	293	292	288	286	280	271	260	251	255	258	265	271	280	273	282	280	280	280	280	280	279.2
21	270	263	261	256	257	265	270	273	271	271	273	272	269	267	255	265	244	280	291	277	271	278	278	281	281	281	281	271.5
22	283	283	283	283	282	281	277	281	280	272	271	271	275	271	254	261	271	271	273	256	243	259	268	268	268	268	268	269.5
23	257	263	272	291	299	274	274	265	264	268	252	252	258	249	243	241	240	252	260	250	250	271	280	268	268	268	268	263.1
24	270	274	270	269	267	277	267	270	276	267	264	264	250	235	231	221	231	231	231	261	260	266	260	270	270	270	270	259.9
25	264	272	270	273	272	273	276	272	272	272	267	260	251	239	230	237	246	251	263	260	263	261	266	266	266	266	266	262.0
26	272	281	271	284	272	261	263	272	272	269	270	263	253	245	247	250	256	260	266	266	268	268	268	268	268	268	268	265.5
27	271	271	272	272	272	272	271	271	271	271	271	271	262	250	243	246	251	266	275	276	271	269	271	273	273	273	273	267.8
28	275	275	275	276	276	275	275	274	275	274	272	267	259	246	244	247	257	265	271	276	276	276	275	276	277	277	277	269.1
29	276	276	276	276	275	275	273	271	273	273	273	272	262	255	251	259	266	273	276	277	283	283	283	283	283	283	283	272.6
30	287	287	287	275	265	252	263	277	273	273	275	271	266	253	243	226	227	222	230	247	253	247	251	258	258	258	258	258.8
31	261	262	261	262	264	266	266	264	263	263	265	263	259	252	247	241	247	250	251	259	261	262	267	270	270	270	270	264.1
Sum.	8517	8595	8553	8525	8529	8520	8532	8508	8439	8453	8408	8305	8101	7823	7634	7619	7732	7976	8159	8230	8233	8278	8331	8427	8555	8555	274.7	
Mean.	274.7	277.3	275.9	275.0	275.1	274.8	275.2	274.5	274.2	274.2	272.7	271.2	267.7	261.3	252.3	246.3	245.8	251.0	257.3	263.2	265.7	265.8	267.0	268.3	271.5	271.5	266.1	



Vertical component, Z, - (36000 + tabulated values) gammas

Station 1361.

U.T. Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.
1	217	216	214	212	212	211	211	211	212	213	212	233	232	229	228	228	229	231	210	211	211	216	216	216	5755	239.8
2	215	213	212	212	211	210	239	239	239	239	239	236	234	231	229	227	229	233	210	211	215	215	216	216	5751	239.8
3	215	213	213	212	210	238	238	239	239	210	239	236	231	228	226	225	226	230	238	210	238	210	235	213	5682	236.7
4 D	250	217	212	217	230	191	227	211	232	231	230	218	229	231	236	231	221	229	213	238	260	216	215	231	5737	240.0
5 D	261	216	235	239	250	250	211	231	231	231	212	211	231	231	232	231	238	236	238	217	218	247	261	266	5837	243.3
6	257	236	233	212	212	216	211	212	212	231	212	239	237	231	231	225	233	238	211	219	219	251	255	251	5812	243.1
7	252	246	212	212	212	216	212	210	212	230	212	212	212	212	235	235	235	238	239	213	216	253	257	253	5835	243.1
8	219	252	251	211	218	217	237	229	222	224	229	230	226	226	222	230	231	235	237	213	216	251	251	251	5719	238.9
9	252	251	213	233	229	235	237	235	238	235	211	211	211	231	226	225	229	238	211	217	218	217	216	216	5719	238.9
10	216	216	215	211	211	213	212	210	239	239	239	239	239	237	226	225	226	230	239	215	219	251	250	250	5773	240.5
11	251	218	218	212	217	216	231	223	224	226	226	233	230	226	226	223	235	212	212	213	213	211	216	211	5697	237.1
12	216	215	215	221	217	224	231	237	237	231	237	238	235	235	231	231	236	210	210	212	211	217	216	215	5690	237.0
13	216	211	211	213	211	239	239	237	237	239	211	235	237	235	232	231	230	231	236	212	217	217	211	217	5711	239.5
14	216	211	216	211	210	210	237	238	238	236	237	238	231	235	230	228	231	236	238	211	212	217	251	250	5753	239.7
15	252	218	211	212	212	212	238	238	239	239	239	238	235	231	226	223	231	239	239	212	230	216	217	217	5760	240.0
16	216	215	215	210	239	239	238	236	237	238	239	238	235	230	226	227	233	237	211	217	211	239	237	238	5717	238.2
17	210	237	235	231	231	229	226	225	225	226	227	228	231	233	230	228	235	212	217	230	219	216	213	212	5639	234.9
18	239	239	239	239	210	239	236	226	223	233	231	236	231	230	228	228	230	231	235	238	239	213	212	212	5613	235.1
19	210	239	239	238	239	235	231	232	232	231	231	232	227	226	226	226	229	231	231	231	236	238	211	211	5611	233.9
20	210	238	238	238	236	232	230	226	225	226	226	226	224	222	221	221	225	231	237	230	238	212	213	211	5558	231.0
21	236	232	230	230	229	227	227	230	231	236	236	231	231	230	230	227	228	231	239	238	230	231	235	239	5576	232.3
22 D	210	239	238	239	238	236	231	231	232	226	229	229	231	229	216	222	230	235	235	237	212	219	250	251	5611	235.0
23 D	251	252	250	210	235	236	226	222	223	227	199	223	231	232	231	232	228	239	212	212	216	217	216	211	5650	235.1
24	213	213	211	238	229	229	226	228	227	221	229	236	230	226	230	221	229	233	216	216	217	211	211	213	5631	234.7
25	211	212	231	231	229	231	226	221	231	235	233	232	231	225	221	225	227	231	235	236	213	210	239	239	5578	232.1
26	238	227	230	221	217	217	225	228	231	230	232	233	230	226	226	227	230	231	238	239	238	235	236	236	5521	230.2
27	237	236	236	235	235	235	235	231	231	232	231	231	230	228	226	232	231	210	211	211	239	235	235	235	5627	234.5
28	235	235	235	235	231	231	231	231	231	233	231	231	231	229	227	230	231	235	239	239	238	235	235	231	5617	234.0
29	233	232	231	231	231	232	230	230	230	210	232	231	230	226	226	231	236	237	210	212	210	238	231	231	5567	232.0
30 D	236	231	235	230	213	210	205	205	212	219	229	229	227	223	221	213	221	225	212	230	232	230	230	210	5187	228.6
31	211	212	210	239	238	238	237	236	235	235	237	236	237	231	230	229	231	233	236	239	210	211	212	210	5689	237.0
Sum.	7590	7517	7465	7367	7313	7270	7212	7197	7203	7196	7216	7253	7206	7110	7051	7053	7152	7280	7129	7321	7560	7616	7612	7603	176090	
Mean.	248.5	242.5	240.8	237.6	235.9	234.5	233.6	232.2	232.3	232.1	233.7	231.0	232.5	230.3	227.5	227.5	230.7	231.8	239.6	242.7	243.9	245.7	245.5	245.3		236.7







Vertical component, Z, - (36000 + tabulated values) gammas

April 1961

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1 D	240	239	237	237	237	236	234	232	233	231	231	234	231	226	218	222	214	210	226	239	217	273	238	252	5677	236.5	
2 D	260	269	255	249	238	229	246	241	239	235	233	234	239	236	231	231	232	236	250	251	252	257	258	256	5657	244.0	
3	254	244	240	222	230	231	234	239	237	239	234	236	234	240	238	242	242	239	219	251	249	250	251	244	5769	240.4	
4	248	243	241	235	235	234	231	234	231	227	232	237	236	234	231	230	234	238	243	247	248	245	245	248	5707	237.8	
5	247	246	247	244	237	231	234	234	234	231	231	234	235	233	230	230	231	234	238	239	239	244	247	245	5695	237.3	
6	250	251	248	246	238	235	236	237	238	238	238	239	241	238	230	229	232	234	238	240	239	240	240	239	5731	238.9	
7	236	242	240	239	239	233	231	229	227	233	235	237	239	235	232	230	226	228	231	231	234	243	244	244	5641	235.0	
8	244	244	245	241	239	236	235	234	229	221	213	224	231	236	233	230	233	236	239	242	233	239	243	242	5646	235.3	
9	240	236	238	238	232	234	234	234	232	230	229	230	232	234	231	229	231	235	238	242	242	242	242	242	5647	235.3	
10	240	239	239	237	236	234	234	234	231	232	227	231	236	232	227	228	231	235	238	238	238	238	238	238	5627	234.5	
11	235	235	235	234	234	231	230	228	227	225	224	222	221	226	227	225	226	227	234	239	242	241	241	241	5550	231.2	
12	240	239	238	237	235	234	233	231	232	233	233	230	234	231	229	228	232	237	238	236	235	235	235	234	5616	234.0	
13	234	233	231	232	231	231	231	230	230	231	231	231	230	228	224	224	229	231	239	238	235	234	234	233	5558	231.6	
14	231	231	231	231	230	234	234	232	232	231	231	231	230	231	231	231	233	231	234	237	246	235	234	234	5576	232.3	
15	232	234	231	230	230	229	228	228	228	228	229	226	227	226	222	219	218	223	231	236	235	236	235	235	5494	228.2	
16	238	240	231	227	228	226	226	222	221	226	229	231	228	226	226	226	226	224	231	235	235	236	236	234	5542	229.7	
17	234	231	220	226	227	228	210	213	221	226	226	228	230	229	225	222	229	234	234	235	235	235	235	234	5467	227.2	
18	234	234	234	231	231	231	231	230	227	226	226	223	222	225	222	214	217	228	233	235	236	236	236	236	5498	229.1	
19 D	234	232	230	228	229	229	229	229	226	213	223	230	226	226	225	222	227	234	236	238	236	228	239	242	5511	229.6	
20	240	237	230	231	231	227	225	217	211	226	227	229	231	233	227	224	222	226	233	239	239	238	238	238	5503	229.3	
21	234	235	234	233	233	231	230	229	228	228	227	231	234	230	229	227	230	231	232	234	237	234	235	236	5556	231.5	
22	235	234	233	231	231	231	231	229	228	229	228	229	230	228	226	224	225	228	231	231	231	231	230	230	5514	229.7	
23	230	230	230	231	230	226	227	228	228	228	228	228	227	227	225	223	225	226	231	232	233	228	228	227	5476	228.2	
24	229	229	227	227	226	226	226	226	226	224	225	226	225	226	226	225	226	228	230	230	230	229	227	226	5445	226.9	
25	224	223	225	227	227	227	225	220	221	220	221	218	217	224	222	220	221	226	230	230	230	231	232	231	5395	224.8	
26	237	232	226	219	223	209	217	216	216	218	224	226	228	227	226	226	227	227	232	233	234	234	232	230	5419	225.8	
27 D	229	226	227	226	230	231	221	208	217	220	224	220	227	226	222	234	212	224	237	241	238	239	236	236	5423	226.0	
28 D	246	218	200	227	208	189	224	196	203	194	213	223	226	231	238	234	235	236	238	234	236	237	234	231	5351	223.0	
29	231	223	210	218	214	213	214	219	222	223	221	223	228	230	228	221	221	221	228	239	238	234	234	234	5387	224.5	
30	234	231	230	230	228	227	226	226	227	228	229	230	229	227	226	228	230	229	228	230	226	226	226	232	5443	228.5	
Sum.	7140	7080	6983	6964	6917	6813	6867	6805	6802	6793	6822	6871	6904	6901	6827	6768	6817	6903	7050	7125	7117	7146	7179	7109	66733		
Mean.	238.0	236.0	232.8	232.1	230.6	228.1	228.9	226.8	226.7	226.4	227.4	229.0	230.1	230.0	227.6	225.6	227.2	230.1	235.0	237.5	237.2	238.2	239.3	237.0		231.6	



Declination, D, east of north 16 degrees + tabulated values in minutes of arc.

May 1964

G.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1 D	55.5	52.3	57.1	58.9	61.0	61.8	62.0	64.5	62.2	62.1	62.8	64.9	63.9	62.0	60.9	61.6	62.7	62.3	62.6	62.0	61.8	61.3	61.2	60.7		1468.9	61.20
2	60.9	60.7	61.1	68.4	68.6	70.1	63.2	61.0	59.3	60.4	60.4	61.8	60.8	60.1	61.0	61.6	61.9	61.3	61.4	61.5	61.4	60.2	60.7	58.8		1468.0	62.00
3	58.1	59.2	53.4	59.3	60.1	60.4	60.7	60.6	61.0	60.7	60.3	60.2	60.2	59.9	60.2	61.1	61.9	62.2	61.8	61.0	60.7	60.7	59.9	60.4		1449.7	60.40
4	60.3	59.9	60.7	60.1	60.2	60.1	60.4	60.1	60.6	60.6	60.5	60.1	59.9	59.6	60.2	61.1	61.9	62.0	61.7	61.3	60.9	60.5	60.1	60.6		1452.7	60.53
5	58.7	59.3	60.1	60.0	59.4	59.2	59.1	59.0	59.8	60.1	61.7	60.9	60.1	60.8	60.1	60.9	61.9	62.1	62.2	61.9	61.1	60.9	60.0	60.9		1451.1	60.46
6	60.7	60.5	60.4	60.2	60.1	60.0	60.0	60.1	59.5	59.7	59.7	60.0	59.8	59.8	60.0	60.7	61.2	61.7	61.6	61.0	60.5	60.3	60.3	60.3		1455.4	60.34
7	60.3	60.2	60.0	58.2	57.6	58.2	58.3	59.1	59.6	59.4	59.6	59.7	59.9	60.0	60.4	61.1	61.9	61.8	61.7	61.0	60.8	60.7	60.5	60.1		1440.5	60.62
8	60.3	60.3	60.3	60.3	60.2	60.1	60.1	60.1	60.1	60.2	60.1	60.0	59.8	59.6	60.2	61.2	61.8	61.3	60.9	60.2	60.2	60.1	60.1	60.1		1447.7	60.32
9	60.1	60.2	60.0	60.1	60.0	59.9	59.4	59.4	59.6	59.5	59.6	59.5	59.4	59.5	60.3	61.1	62.5	61.8	61.0	60.5	60.3	60.3	60.2	60.2		1444.2	60.17
10	60.1	59.8	59.4	59.4	59.1	59.1	59.1	59.0	58.9	59.5	59.2	58.9	58.9	60.1	60.4	61.8	61.7	63.1	61.8	62.7	66.0	62.5	59.1	59.2		1460.5	61.70
11	62.7	57.3	57.6	51.9	52.7	60.4	54.7	62.0	59.9	60.5	61.0	61.1	61.1	61.0	61.3	62.1	62.6	62.2	61.9	61.6	61.1	61.1	61.0	61.1		1433.9	60.00
12	60.9	60.4	60.4	60.1	59.3	59.1	59.2	59.4	60.2	60.9	60.9	60.5	60.2	59.9	59.4	61.1	61.6	61.8	61.2	60.7	60.1	60.3	60.3	60.2		1445.1	60.33
13	60.1	60.1	60.1	60.1	60.1	60.0	59.9	59.9	59.7	59.3	59.3	59.1	58.9	58.6	60.2	62.7	61.0	61.3	60.5	61.1	65.0	63.9	62.3	61.8		1458.3	60.76
14 D	61.3	60.6	59.4	59.4	60.1	60.2	59.3	57.3	61.8	59.3	58.3	59.9	60.2	60.0	60.9	61.0	62.0	62.0	63.1	61.9	61.2	61.5	60.8	60.1		1451.6	60.61
15 D	60.9	59.1	59.1	54.7	46.2	52.9	55.3	60.0	59.1	62.8	62.6	60.5	60.5	60.7	60.7	61.8	61.9	62.0	61.7	61.3	61.6	61.8	60.9	60.2		1428.3	59.51
16	55.6	56.3	59.7	60.7	61.1	59.1	59.9	59.7	63.7	61.3	60.8	60.8	60.2	60.5	60.7	61.6	62.0	61.6	61.3	62.3	61.3	60.6	60.6	60.9		1452.3	60.51
17	60.7	60.1	60.1	60.3	59.8	59.3	59.8	59.2	58.2	61.1	61.1	60.2	60.9	61.0	61.9	61.6	61.4	61.7	61.8	61.0	61.0	61.3	61.0	61.0		1456.0	60.67
18	60.7	60.4	60.3	60.2	59.3	60.0	60.0	60.1	59.9	60.3	61.7	60.7	60.0	59.7	59.9	60.7	61.3	61.6	61.1	60.6	60.3	60.3	60.3	60.2		1449.6	60.40
19	60.2	60.1	60.0	59.2	58.2	59.2	59.8	60.0	60.0	60.4	60.1	59.8	59.5	59.3	59.6	60.5	61.1	61.5	61.2	60.7	60.2	60.2	60.2	60.4		1444.1	60.05
20	60.2	60.1	59.4	59.8	59.7	59.3	59.6	60.0	60.0	60.1	60.0	59.4	59.4	59.3	59.8	60.8	61.8	61.6	61.0	60.1	60.1	60.1	60.1	60.1		1442.1	60.09
21	60.2	60.2	60.1	60.0	59.8	60.0	60.1	60.0	59.9	59.7	60.1	60.2	60.1	60.1	60.0	60.2	61.2	61.6	61.0	60.4	60.4	60.5	60.4	61.0		1447.2	60.30
22	60.5	60.1	60.0	59.8	60.0	60.0	59.9	60.4	59.7	59.2	59.4	60.1	60.1	60.0	60.2	60.4	60.9	60.8	60.1	60.0	59.6	60.0	60.0	60.1		1444.6	60.07
23	60.1	60.0	59.9	58.5	57.2	57.5	58.2	59.2	59.9	60.1	60.1	60.0	59.8	59.5	59.4	60.0	60.4	60.3	60.1	59.8	59.6	59.3	59.2	58.3		1426.0	59.13
24 D	60.1	60.1	58.1	50.1	46.9	55.4	56.6	61.0	60.4	61.8	62.0	60.2	61.6	62.8	62.0	62.7	62.4	62.4	61.6	61.1	60.5	60.7	58.0	57.1		1435.9	59.44
25 D	59.8	60.2	60.5	60.4	60.4	59.3	58.6	58.4	58.0	61.5	57.2	61.4	61.2	61.1	61.8	62.7	62.3	62.9	62.2	62.7	60.0	60.3	60.0	57.3		1419.5	60.44
26	53.6	59.3	60.2	60.8	60.6	60.7	60.8	60.8	60.1	60.1	60.3	60.3	60.2	60.5	61.0	61.1	61.1	61.0	60.9	60.6	60.4	60.3	60.3	60.3		1440.3	60.22
27	60.1	59.2	59.1	59.1	57.5	58.3	59.3	53.7	56.3	58.1	60.0	61.9	61.8	61.3	61.0	61.1	61.9	61.4	61.2	61.0	60.7	60.9	59.0	59.5		1433.5	59.73
28	60.6	60.0	59.2	58.1	57.9	58.9	60.0	60.1	59.9	60.1	60.1	61.0	60.7	60.2	60.2	61.1	61.9	61.5	61.5	61.0	60.4	60.6	58.5	59.9		1441.1	60.47
29	60.1	60.1	59.9	58.2	57.1	59.0	59.2	60.3	60.7	60.4	60.1	60.1	60.1	60.1	60.1	60.3	60.5	60.7	60.9	60.4	60.4	60.4	60.3	60.3		1437.8	59.91
30	60.0	60.1	59.2	59.1	59.1	60.0	60.0	60.1	60.0	59.4	59.5	59.8	59.5	60.8	61.0	60.3	61.1	61.1	60.9	60.7	60.1	60.2	59.2	57.3		1439.1	59.98
31	60.0	60.1	59.7	58.0	58.3	59.3	59.8	59.9	60.1	60.1	60.1	60.0	60.0	60.0	59.9	60.5	60.9	61.0	60.7	60.2	59.7	60.0	60.1	59.4		1438.5	59.94
Sum.																										14472.0	
1000+	353.4	346.3	348.5	333.9	317.6	316.8	312.3	351.4	352.1	368.7	368.9	373.0	362.7	368.2	371.7	390.1	413.9	412.9	405.3	396.6	427.9	387.5	375.8	368.0			
Mean.	59.79	59.57	59.63	59.16	58.63	59.57	59.43	59.82	59.94	60.28	60.29	60.12	60.28	60.26	60.17	61.29	61.74	61.74	61.16	61.40	60.93	61.89	60.54	60.26			60.34







Vertical component,  $\mu$ , -- (36000 - tabulated values) gamma

196 196

Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Mean		
1	225	221	220	219	217	217	217	217	217	219	220	221	221	220	219	219	219	220	220	220	219	218	217	219	2203	219.1	
2	220	219	219	219	219	219	219	219	219	220	219	220	221	220	219	219	220	220	220	221	221	220	220	220	220	2212	219.7
3	220	219	216	217	215	215	216	216	217	217	217	217	219	219	220	220	220	220	222	222	222	221	221	220	2250	219.7	
4	216	217	217	217	217	217	216	216	215	215	217	217	217	217	219	219	219	219	220	221	220	220	219	219	219	2237	219.0
5	219	219	219	219	219	218	219	217	217	217	217	217	217	217	217	216	217	217	219	219	219	219	219	219	2233	219.0	
6	213	216	216	217	217	217	216	216	215	215	215	215	217	217	217	216	216	217	218	218	217	217	217	217	2200	219.7	
7	217	216	217	217	216	216	216	216	217	217	217	217	217	219	220	219	218	220	220	219	219	217	217	219	219	2213	219.2
8	217	216	217	216	216	216	216	212	199	198	207	215	217	219	219	218	217	217	217	217	216	217	217	217	2155	219.7	
9	216	217	217	217	217	217	208	208	212	213	215	217	216	216	217	217	217	220	221	220	218	219	220	217	2159	219.2	
10	219	217	216	215	171	179	122	160	225	210	211	225	230	226	225	228	229	232	233	231	233	233	229	229	2108	212.5	
11	226	232	216	212	225	225	221	217	212	212	207	219	225	228	224	226	226	224	232	230	229	222	230	231	3355	223.1	
12	223	227	226	216	217	216	220	220	219	220	221	218	217	220	223	222	220	220	221	226	227	224	220	225	3317	221.5	
13	223	222	222	221	212	212	212	212	216	218	212	217	223	222	221	220	222	221	225	225	223	220	221	221	3274	219.7	
14	222	221	220	220	216	211	212	216	216	216	220	221	220	221	221	220	220	220	221	227	222	221	220	217	3256	219.0	
15	216	220	223	221	217	219	217	217	218	218	219	218	219	219	219	219	219	219	220	221	221	220	217	217	3253	218.9	
16	216	217	216	216	216	217	217	217	217	217	218	218	217	217	217	217	217	219	220	219	218	217	216	216	3215	217.3	
17	217	217	216	216	216	216	213	213	215	216	217	217	218	217	217	217	217	220	219	217	218	218	218	218	3133	216.1	
18	216	216	216	216	216	215	215	215	215	216	216	216	218	215	215	215	212	212	215	211	212	212	218	216	3153	216.7	
19	221	221	220	220	219	217	217	216	216	216	217	216	217	217	216	219	211	213	213	214	215	210	211	215	3189	216.2	
20	220	220	221	223	219	228	228	225	225	223	221	219	211	212	215	217	216	220	220	216	220	222	221	221	3233	220.1	
21	216	206	212	219	220	219	217	216	215	210	213	219	220	221	219	219	219	219	216	213	219	220	219	218	3204	216.8	
22	217	217	216	216	216	216	215	215	215	215	215	215	215	215	219	218	216	217	217	216	216	216	216	216	3173	215.5	
23	217	216	217	215	215	212	208	211	211	212	214	215	213	217	217	216	217	217	218	218	216	218	211	212	3177	215.5	
24	217	215	217	217	216	215	215	215	215	215	215	215	215	215	215	216	216	216	216	211	209	212	215	213	3156	215.8	
25	217	210	211	208	189	195	191	179	185	200	211	215	212	216	213	213	216	216	218	217	216	215	211	212	289	207.7	
26	213	213	213	213	212	210	211	211	207	209	208	208	211	212	211	212	211	217	217	215	215	211	212	212	3090	212.1	
27	217	217	212	215	215	211	213	211	212	213	213	213	212	215	215	211	211	211	211	211	210	211	212	212	3107	212.8	
28	212	211	211	211	211	207	200	208	207	207	209	212	208	205	204	204	199	209	216	215	215	211	212	213	3005	209.1	
29	216	215	215	212	212	212	211	211	204	202	207	209	208	209	209	209	211	215	216	211	213	212	211	211	3063	211.0	
30	212	212	212	211	211	211	211	211	211	210	211	211	211	211	211	209	210	212	212	213	211	211	211	211	3073	211.1	
Sum.	6512	6526	6508	6489	6116	6365	6340	6354	6107	6108	6137	6197	6500	6520	6507	6193	6507	6550	6577	6557	6511	6511	6508	6523	65524		
Mean.	218.3	217.5	216.9	216.3	213.9	212.3	211.3	211.8	213.6	213.6	211.6	216.6	216.7	217.3	216.9	216.1	216.4	216.3	219.2	219	219	217.4	216.9	217.5		216.1	



Horizontal component, H, 23000 gammas + tabulated value

June 1964

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	265	268	265	267	264	266	265	264	264	268	271	272	273	272	267	267	268	269	271	271	262	265	269	263	6218	267.4	
2	264	265	265	262	263	262	263	265	267	267	267	268	272	268	262	261	265	270	272	270	267	267	268	271	6391	266.3	
3 Q	271	267	264	266	265	264	262	262	263	264	265	265	267	268	259	256	259	263	265	266	266	265	265	266	6343	264.3	
4	263	262	262	262	260	259	257	259	264	264	263	263	262	260	257	256	256	261	262	262	261	260	258	260	6253	260.5	
5 Q	261	260	260	261	262	263	263	262	263	263	264	266	266	264	258	255	257	261	264	266	266	265	262	264	6296	262.3	
6 Q	255	266	266	267	267	267	265	265	264	265	271	268	265	264	262	257	258	261	263	264	264	263	262	262	6341	264.2	
7	262	263	262	263	263	263	264	263	265	267	268	268	268	265	263	261	264	267	270	274	271	265	258	262	6359	265.0	
8	262	258	262	264	263	264	264	270	276	269	258	261	264	264	261	258	258	261	262	260	257	259	261	259	6295	262.3	
9	255	255	256	257	260	265	265	261	261	261	262	265	266	263	262	258	261	262	265	266	266	269	272	272	6305	262.7	
10 D	275	276	261	239	198	144	168	188	214	211	227	239	237	233	231	230	230	234	236	236	243	243	221	236	5450	227.1	
11 D	223	231	203	228	236	233	234	248	241	245	239	239	240	245	246	244	244	233	247	243	242	226	240	249	5699	237.5	
12 D	243	241	247	243	233	233	236	243	244	247	254	251	246	251	252	252	248	238	239	248	247	241	226	241	5844	243.5	
13	254	249	246	256	255	244	254	250	246	248	243	249	253	250	248	246	244	248	254	255	251	245	245	250	5983	249.3	
14	250	250	251	254	257	256	244	244	247	250	251	254	254	252	249	248	251	256	260	260	259	257	259	253	6066	252.7	
15	248	245	251	257	254	253	251	252	254	252	254	253	254	254	254	257	257	258	260	261	262	259	256	253	6109	254.5	
16 Q	249	257	251	251	252	252	254	254	252	255	256	255	253	251	249	250	257	262	264	262	260	258	256	254	6114	254.7	
17	254	253	255	255	254	255	253	251	251	254	255	257	258	256	254	253	255	256	259	257	256	253	252	251	6107	254.5	
18	255	255	256	256	256	256	256	257	259	261	263	265	265	269	270	260	258	259	257	251	245	230	230	244	6133	255.5	
19	250	250	253	253	253	254	255	256	257	259	259	261	261	259	257	255	255	255	255	255	255	249	242	235	229	6067	252.8
20 D	224	215	208	215	213	237	245	249	254	259	262	267	265	270	264	252	245	253	252	237	241	249	251	250	5876	244.8	
21 D	239	229	234	241	245	247	250	251	254	257	254	258	259	258	252	251	248	250	246	240	248	253	254	254	5972	248.8	
22	255	255	255	255	254	255	255	256	255	257	259	260	260	258	255	252	251	255	253	251	251	249	246	248	6100	254.2	
23	253	253	252	251	255	255	251	249	251	252	257	259	257	257	257	251	252	256	257	257	253	243	239	245	6062	252.6	
24	244	247	250	253	253	254	254	255	258	259	260	258	261	260	258	258	260	262	262	258	246	249	253	250	6122	255.1	
25	260	257	253	262	245	238	258	246	254	253	250	253	254	255	249	248	251	255	257	255	254	254	250	250	6061	252.5	
26	251	253	252	253	252	257	258	256	255	260	257	255	258	256	252	249	250	254	255	252	250	246	244	244	6069	252.9	
27	250	251	253	253	254	254	259	257	256	258	259	261	262	267	269	265	268	267	266	263	259	258	259	258	6226	259.4	
28	260	262	259	260	264	258	258	258	257	261	269	280	272	264	259	249	238	249	257	254	254	251	250	248	6191	258.0	
29	251	250	251	251	256	256	255	254	251	251	264	266	263	259	257	253	253	255	259	259	258	255	255	253	6135	255.6	
30 Q	253	254	257	256	256	256	256	257	257	257	259	260	260	260	258	257	258	258	260	260	260	259	259	259	6186	257.7	
Sum.	7613	7597	7561	7611	7562	7520	7572	7602	7652	7694	7740	7796	7795	7772	7691	7609	7619	7690	7749	7713	7674	7597	7546	7598	183573		
Mean.	253.8	253.2	252.0	253.7	252.1	250.7	252.4	253.4	255.1	256.5	258.0	259.9	259.8	259.1	256.7	253.6	254.0	256.3	258.3	257.1	255.8	253.2	251.5	253.3		255.0	

Vertical component, Z, - (36000 + tabulated values) gammas

June 1964

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	223	221	220	219	217	217	217	217	217	219	220	221	221	220	219	219	219	220	220	220	219	218	217	219	5259	219.1	
2	220	219	219	219	219	219	219	219	219	220	219	220	221	220	219	219	220	220	221	221	220	220	220	220	5272	219.7	
3 Q	220	219	218	217	215	215	216	216	217	217	217	217	219	219	220	220	220	220	222	222	222	221	221	220	5250	218.7	
4	218	217	217	217	217	217	216	216	215	215	217	218	218	219	219	219	219	220	221	220	220	219	219	219	5232	218.0	
5 Q	219	219	219	219	219	218	219	217	217	217	217	217	218	218	217	216	217	218	219	219	219	219	218	218	5233	218.0	
6 Q	218	218	218	217	217	217	216	216	215	215	215	215	216	217	217	216	216	217	218	218	217	217	217	217	5200	216.7	
7	217	218	217	217	216	216	216	216	217	217	217	218	219	220	218	218	220	220	219	219	217	213	212	216	5213	217.2	
8	217	216	217	216	216	216	216	212	199	198	207	215	217	219	219	218	217	217	217	217	216	217	217	217	5153	214.7	
9	216	217	217	217	217	214	208	208	212	213	215	217	216	216	217	217	217	220	221	220	218	219	220	217	5189	216.2	
10 D	219	217	216	215	174	149	122	160	228	212	211	228	230	226	225	228	229	232	233	231	233	233	226	229	5108	212.8	
11 D	226	232	216	212	225	225	224	218	212	212	207	219	225	228	224	226	226	224	232	230	229	222	230	231	5355	223.1	
12 D	228	227	226	216	216	216	220	220	219	220	221	218	217	220	223	222	220	220	224	228	227	224	220	225	5317	221.5	
13	228	222	222	221	212	212	212	212	216	218	212	217	223	222	221	220	222	224	225	225	223	220	221	224	5274	219.7	
14	222	221	220	220	216	211	212	216	216	216	220	221	220	221	221	220	220	220	221	222	222	221	220	217	5256	219.0	
15	216	220	223	221	217	219	217	217	218	218	219	218	219	219	219	219	219	219	220	221	221	220	217	217	5253	218.9	
16 Q	216	217	216	216	216	217	217	217	217	217	218	218	217	217	217	217	218	220	220	219	218	217	217	216	5215	217.3	
17	217	217	216	214	216	216	213	213	215	216	217	217	218	217	217	217	217	220	219	217	216	216	216	216	5193	216.4	
18	216	216	216	216	216	215	215	215	215	216	216	216	213	215	215	212	212	215	214	212	212	208	216	221	5153	214.7	
19	224	221	220	220	219	217	217	216	216	216	217	216	217	217	216	215	214	213	213	214	215	210	211	215	5189	216.2	
20 D	220	220	221	223	219	228	228	225	225	223	221	219	211	212	215	217	216	220	220	216	220	222	221	221	5283	220.1	
21 D	216	206	212	219	220	219	217	216	215	210	213	219	220	221	219	219	219	219	216	213	219	220	219	218	5204	216.8	
22	217	217	216	216	216	216	215	215	215	215	215	215	215	215	215	212	216	217	217	216	216	216	214	216	5173	215.5	
23	217	216	217	215	215	212	208	211	211	212	214	215	213	217	217	216	217	217	218	218	216	212	211	212	5147	214.5	
24	214	215	217	217	216	215	215	215	215	215	215	215	215	215	215	216	216	216	216	214	209	212	215	213	5156	214.8	
25	214	210	211	208	189	195	191	179	185	200	211	215	212	216	213	213	216	218	219	217	216	215	214	212	4989	207.9	
26	213	213	213	213	212	210	211	211	207	209	208	208	211	212	211	212	214	217	217	215	215	214	212	212	5090	212.1	
27	217	217	212	215	215	214	213	211	212	213	213	213	212	215	215	211	211	211	211	211	210	211	212	212	5107	212.8	
28	212	211	211	211	211	207	208	208	207	207	209	212	208	205	204	201	199	209	216	215	215	214	212	213	5025	209.4	
29	216	215	213	212	212	212	211	211	204	202	207	209	208	209	209	209	211	215	216	214	213	212	212	211	5053	211.0	
30 Q	212	212	212	211	211	211	211	211	211	210	211	211	211	211	211	209	210	212	212	213	216	212	211	211	5073	211.4	
Sum.	6548	6526	6508	6489	6416	6385	6340	6354	6407	6408	6439	6497	6500	6520	6507	6493	6507	6550	6577	6557	6514	6514	6508	6525	155624		
Mean.	218.3	217.5	216.9	216.3	213.9	212.8	211.3	211.8	213.6	213.6	214.6	216.6	216.7	217.3	216.9	216.4	216.9	218.3	219.2	218.3	218.3	217.1	216.9	217.5		216.1	



Declination, D. east of north 16 degrees + tabulated values in minutes of arc.

July 1964

U.T. Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.
1	59.3	57.9	59.3	59.4	59.5	59.4	59.3	59.3	59.5	59.5	59.5	59.5	59.2	58.9	59.1	59.4	59.7	59.7	59.6	59.5	59.2	58.9	59.3	59.3	1423.2	59.30
2	59.5	59.4	59.3	59.3	59.3	59.3	59.3	59.3	59.4	59.3	59.3	59.4	59.6	59.6	59.5	59.6	59.7	59.6	59.3	58.7	58.6	58.7	58.7	58.7	1422.4	59.27
3 D	59.3	59.5	59.4	59.1	58.4	57.1	56.2	57.9	58.8	57.7	59.4	59.9	59.6	61.0	60.4	59.9	60.2	60.4	60.3	60.5	59.6	54.4	59.9	60.6	1419.5	59.15
4	59.5	59.5	58.8	58.2	59.5	59.5	59.3	58.7	59.7	59.5	60.6	60.4	60.4	60.5	60.5	60.6	60.7	60.6	60.4	59.7	59.7	59.6	59.6	59.7	1435.2	59.80
5	58.8	59.4	59.5	59.9	59.9	59.5	59.8	59.7	59.6	60.0	60.5	60.1	60.1	59.6	59.6	60.0	60.5	60.5	60.1	59.7	59.7	59.8	59.9	59.9	1436.1	59.85
6	59.5	57.5	57.2	58.9	58.6	57.5	58.2	58.8	59.5	59.5	59.6	60.4	59.7	59.7	59.9	60.3	60.5	60.4	60.2	59.6	59.4	59.5	59.6	59.5	1423.7	59.32
7 D	60.1	59.6	57.8	56.6	52.4	57.7	57.9	57.9	60.0	58.8	57.7	58.6	59.5	60.5	61.1	61.4	60.6	60.5	60.7	60.5	62.2	57.1	59.5	62.0	1420.7	59.20
8 D	60.6	56.5	56.1	49.9	53.0	59.4	58.8	59.9	59.9	60.1	60.3	62.2	61.4	60.6	60.7	60.6	60.5	61.2	60.7	57.0	60.2	61.1	57.5	59.7	1417.9	59.08
9	59.4	53.8	58.4	59.2	59.5	59.8	58.8	58.7	58.8	59.7	60.1	60.4	60.4	60.2	60.5	61.0	60.9	62.2	60.4	59.6	56.9	58.7	59.7	52.6	1420.0	59.17
10	56.2	59.5	58.4	57.7	56.7	57.4	57.7	56.8	60.5	62.3	59.9	59.7	60.6	62.2	61.1	61.2	61.2	61.1	60.6	60.2	59.9	59.7	60.3	60.3	1431.2	59.63
11	60.3	56.0	58.9	59.6	59.7	59.7	59.7	59.5	59.3	59.3	59.5	60.2	59.5	59.5	60.3	60.6	61.2	61.0	61.1	60.6	60.4	60.1	59.9	59.6	1435.8	59.83
12	59.8	59.4	59.4	59.3	59.1	59.0	59.3	59.5	59.7	59.9	60.1	59.7	59.6	59.6	60.0	60.8	61.1	60.6	60.4	59.8	59.8	59.6	59.6	58.5	1433.6	59.73
13	59.7	59.7	58.7	59.5	59.4	59.3	58.9	58.8	58.4	58.4	58.2	58.8	60.3	59.7	60.2	60.6	60.8	61.1	60.8	60.2	60.0	59.9	59.8	60.0	1431.8	59.66
14	60.2	59.8	59.4	59.6	59.5	59.9	60.3	58.8	58.7	59.4	59.6	59.9	59.9	59.8	59.9	60.1	60.8	60.8	60.5	60.2	59.8	59.6	59.7	59.8	1436.3	59.85
15	59.9	59.7	59.3	59.5	59.3	59.2	59.3	59.4	59.4	59.6	59.8	59.8	59.8	59.7	59.8	60.2	60.5	60.5	60.1	59.5	61.0	61.1	61.1	61.1	1438.6	59.91
16	59.6	59.5	59.5	59.5	58.8	58.8	59.4	59.7	59.6	59.6	59.9	59.6	59.3	59.3	59.5	60.0	60.5	60.4	59.8	59.4	59.0	59.4	59.5	59.7	1429.3	59.55
17 D	59.5	56.4	57.6	59.4	58.9	59.5	59.5	58.7	58.1	59.0	59.4	59.5	59.8	60.4	60.2	61.8	61.4	63.1	63.2	61.5	59.6	59.7	59.6	59.7	1435.5	59.81
18 D	58.4	51.3	52.9	56.5	53.3	55.8	56.2	55.3	59.7	59.7	60.4	57.8	61.3	61.3	61.5	62.1	61.7	61.7	60.9	60.9	60.2	61.1	60.1	56.5	1417.9	59.08
19	59.1	57.7	59.7	58.7	59.7	56.9	58.7	62.3	59.7	58.9	64.2	60.4	60.2	60.2	60.0	60.5	60.5	60.6	60.3	59.9	59.9	59.8	57.7	58.8	1432.5	59.77
20	56.6	56.2	57.7	59.7	59.7	59.5	59.9	59.9	59.6	62.4	61.0	60.2	60.4	60.4	60.5	61.0	61.2	61.2	60.7	60.6	60.0	60.2	60.2	60.3	1438.6	59.91
21	59.8	57.8	59.4	59.4	59.0	59.8	59.7	59.8	60.1	60.3	60.1	60.4	60.2	60.1	59.9	60.5	61.0	61.1	60.8	60.9	59.7	59.8	57.7	59.6	1437.0	59.88
22	59.6	59.6	58.7	56.8	55.8	55.9	58.1	60.1	61.8	61.3	60.2	60.2	60.4	60.5	60.4	60.5	61.1	61.4	61.1	60.4	60.3	59.8	59.7	59.6	1433.3	59.72
23	59.4	57.8	57.5	59.4	59.2	59.0	60.4	58.8	59.3	60.5	60.3	59.7	59.7	60.5	59.8	60.4	60.6	60.6	60.6	60.2	59.5	59.8	59.8	59.9	1432.7	59.70
24	59.9	59.7	59.7	59.4	59.2	59.3	59.6	59.5	59.5	59.9	60.1	60.3	59.7	59.7	59.6	59.9	60.6	60.6	60.4	59.8	59.6	59.6	59.6	59.5	1434.7	59.78
25	59.3	59.6	59.0	60.4	59.5	59.8	59.3	59.5	59.5	59.1	59.6	59.1	59.6	59.7	59.7	59.9	60.4	60.5	60.5	59.9	59.7	59.9	59.8	59.6	1432.7	59.70
26	59.6	59.7	59.5	58.6	58.5	59.3	58.9	59.5	59.6	59.5	59.5	59.6	59.6	59.7	59.6	60.3	60.5	60.4	60.4	59.8	59.6	59.5	59.6	59.6	1430.1	59.60
27	59.7	59.7	58.9	59.2	59.0	58.8	59.2	59.3	59.5	59.5	59.6	59.6	59.3	59.1	59.4	59.9	59.9	60.5	60.3	59.6	59.4	59.3	59.4	59.4	1427.5	59.48
28	59.7	58.6	59.2	59.0	59.3	59.3	58.9	58.9	59.2	59.3	59.3	59.5	59.5	59.1	59.3	59.8	60.5	60.5	59.9	59.5	59.5	59.5	59.5	59.5	1426.3	59.43
29	59.6	59.3	59.5	59.0	58.6	57.9	57.7	58.5	59.3	59.0	58.2	60.4	60.6	60.0	61.5	61.1	61.1	61.2	60.6	61.2	62.7	60.4	59.8	59.8	1437.0	59.88
30	57.7	51.2	57.8	57.7	56.5	57.0	60.5	60.7	58.1	59.9	59.2	59.7	61.4	61.7	61.2	60.7	61.1	61.3	60.7	60.8	60.5	60.0	60.1	59.5	1427.8	59.49
31	58.4	58.4	58.6	58.8	59.6	59.9	58.8	60.5	59.7	59.9	61.4	60.2	60.3	59.6	59.7	60.2	60.2	60.5	60.1	59.9	59.7	59.9	60.2	58.8	1433.3	59.72
sum.																									14334.8	
1000-	238.0	602.7	815.1	816.7	808.6	820.2	827.6	834.3	843.3	850.8	857.4	865.5	861.0	862.4	864.4	875.2	881.3	885.8	875.5	859.4	855.9	845.5	846.7	844.5		
Mean.	59.29	58.15	58.55	58.60	58.34	58.72	58.95	59.17	59.46	59.70	59.92	60.18	60.03	60.08	60.14	60.49	60.69	60.83	60.50	59.98	59.87	59.53	59.57	59.40		59.59





Vertical component, Z, - (36000 + tabulated values) gammas

Jan 1961

U.T. Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.
1	211	212	213	212	211	211	211	211	211	211	210	211	211	211	209	208	207	211	210	210	210	208	207	207	5006	210.2
2	208	208	208	208	209	209	209	209	209	210	210	210	210	210	210	209	209	210	209	207	205	205	205	205	5001	208.1
3	207	205	205	206	205	199	198	197	202	203	204	205	208	206	209	211	210	209	207	205	205	198	202	211	5007	209.3
4	219	219	220	216	211	202	199	201	210	210	210	212	213	218	217	211	213	211	211	213	213	212	210	210	5000	212.1
5	210	211	212	213	210	209	210	210	211	211	210	210	211	212	211	211	213	211	211	213	210	208	207	210	5005	211.0
6	210	208	207	210	210	206	206	209	210	211	211	210	212	212	211	211	212	213	213	211	208	207	207	210	5005	209.5
7	210	210	206	205	190	205	206	206	206	202	201	203	206	206	210	209	210	211	211	210	210	201	203	210	5005	209.5
8	214	209	207	191	182	201	200	199	203	206	206	198	211	215	211	213	213	211	213	206	212	206	217	211	5001	206.5
9	210	207	201	206	209	205	199	203	205	205	209	209	210	210	209	210	209	208	211	211	207	212	217	211	5001	206.8
10	201	209	209	200	201	201	194	191	191	191	200	203	205	202	200	211	212	209	211	210	209	209	209	209	5007	208.0
11	209	206	207	209	210	210	209	208	207	206	207	208	209	209	208	208	207	210	210	211	211	210	209	209	5010	208.7
12	209	209	210	207	207	207	207	206	206	203	203	206	207	206	201	201	206	210	210	211	211	210	209	209	5010	208.7
13	208	208	205	207	207	206	205	206	201	200	200	202	199	202	203	205	207	209	210	208	209	209	209	209	5007	207.0
14	209	208	208	207	207	206	203	203	205	206	206	206	205	206	207	207	209	209	210	208	209	209	209	209	5007	208.3
15	207	207	206	206	205	205	205	206	206	206	207	207	207	208	207	207	201	208	208	209	208	208	208	208	5005	208.5
16	205	201	201	204	203	202	202	203	201	201	201	206	207	207	206	205	209	202	203	203	202	202	201	199	5007	208.6
17	203	201	199	205	205	203	205	205	202	201	201	201	201	201	202	201	201	193	198	201	206	206	207	210	5001	208.0
18	207	195	199	199	180	177	206	209	211	209	203	188	202	207	205	206	210	210	210	210	210	210	210	210	5002	208.1
19	210	208	210	202	206	191	190	197	205	204	196	200	206	207	207	206	207	208	208	208	208	208	208	208	5002	208.1
20	203	199	200	209	210	207	205	206	201	199	206	210	212	210	208	207	208	210	209	208	208	208	208	208	5001	208.6
21	207	206	206	202	206	206	206	206	206	206	207	207	208	207	207	208	206	206	206	206	206	206	206	210	5001	208.1
22	207	206	206	199	191	193	194	195	190	190	202	205	206	201	205	207	207	205	206	210	208	206	201	209	5001	208.1
23	206	208	206	205	201	203	199	199	201	201	206	206	206	206	206	206	206	206	206	201	201	206	206	206	5002	209.7
24	207	207	206	205	204	203	202	203	203	203	203	202	203	203	201	201	202	203	206	206	201	203	203	202	5005	208.5
25	203	202	203	203	201	203	201	202	201	199	199	199	200	199	199	202	203	203	202	202	202	202	201	202	5001	208.1
26	202	202	202	201	200	201	199	199	199	199	199	199	199	199	199	191	200	201	202	212	202	202	201	201	5001	208.3
27	201	201	201	199	199	198	198	198	198	198	198	198	199	199	199	198	193	193	193	200	201	201	200	199	5001	199.1
28	198	197	198	198	199	198	197	197	197	197	197	198	198	199	198	198	198	200	202	200	199	193	198	198	773	199.1
29	198	197	198	197	197	197	191	192	193	193	193	199	191	190	196	190	191	196	197	191	190	203	202	202	756	198.0
30	198	198	199	198	193	187	188	193	191	191	195	195	193	191	199	197	197	198	198	199	199	199	199	199	5001	198.0
31	199	195	195	196	195	195	196	190	195	192	191	195	197	191	197	190	198	197	197	196	197	198	198	198	711	196.0
Sum.	6395	6362	6359	6325	6273	6246	6213	6260	6291	6281	6300	6302	6356	6366	6357	6367	6383	6392	6408	6339	6375	6352	6377	6386	15211.5	
Mean.	206.3	205.2	205.1	201.0	202.4	201.5	201.1	201.9	202.9	202.6	203.2	203.3	205.0	205.1	205.1	205.4	205.9	206.2	206.7	206.1	205.1	204.3	205.7	206.0		201.5

Declination, D, east of north ~~16~~ degrees + tabulated values in minutes of arc.

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U.T. Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
1	56.7	57.6	58.4	58.8	59.3	59.8	59.6	59.9	59.5	59.7	59.7	59.7	59.6	59.7	59.7	60.1	60.5	60.7	60.6	60.4	60.0	59.2	59.5	59.4	1428.1	59.50	
2	59.5	59.3	59.5	58.7	59.6	59.1	59.8	59.9	59.9	59.7	59.5	59.5	59.3	58.9	59.1	59.7	60.4	60.6	60.8	60.4	59.7	59.9	59.9	58.8	1431.5	59.65	
3	59.1	59.7	59.7	58.8	58.2	58.8	58.9	59.4	59.4	59.4	59.3	59.1	59.3	58.9	59.5	60.5	61.2	61.5	61.3	60.5	59.8	59.5	59.6	59.6	1431.1	59.63	
4 D	59.6	59.3	58.4	50.6	54.1	40.7	51.8	59.6	58.4	60.6	63.4	62.5	62.5	61.9	61.7	61.3	61.4	62.2	62.2	60.8	60.8	60.3	59.2	58.2	1401.5	58.40	
5 D	59.5	59.3	57.8	60.4	58.9	59.5	59.6	59.9	60.4	59.7	62.1	59.9	61.1	61.4	61.3	62.4	63.4	62.2	61.5	60.8	61.6	59.8	59.4	57.6	1449.5	60.10	
6	59.8	58.0	55.5	56.4	56.0	59.6	60.1	59.7	59.7	60.0	60.1	59.9	60.0	59.8	59.8	60.4	61.2	61.5	60.8	60.2	59.7	59.8	59.7	59.0	1426.7	59.25	
7	56.6	58.6	54.4	55.8	55.0	54.5	54.3	56.8	57.5	58.2	59.0	59.7	64.4	62.3	61.7	61.7	62.4	62.5	61.9	61.0	60.5	60.3	60.4	59.5	1419.0	59.13	
8	59.8	59.7	59.0	59.4	59.0	59.0	57.8	58.6	59.0	59.0	59.1	59.3	59.5	59.1	59.5	60.1	60.8	61.7	61.7	61.0	60.1	59.7	59.6	59.5	1431.0	59.63	
9	59.7	59.5	58.8	54.7	55.1	57.8	58.8	58.8	59.0	59.0	59.1	59.3	58.8	59.1	60.1	60.7	61.4	62.4	61.7	61.7	61.0	60.1	59.7	59.6	59.5	1426.7	59.45
10 Q	59.8	59.7	59.5	59.0	58.4	58.4	58.6	59.6	58.8	59.2	59.0	59.0	58.9	58.9	59.0	59.7	60.4	60.9	60.9	60.1	59.5	59.5	59.1	59.4	1425.3	59.39	
11 D	58.9	58.6	56.6	57.8	57.8	56.9	53.6	55.4	57.8	58.9	59.5	59.2	59.1	59.0	59.7	60.6	61.3	61.7	63.4	61.9	59.6	62.2	54.4	56.6	1410.5	58.77	
12 D	58.8	59.0	57.4	57.9	58.8	59.0	59.0	58.9	62.6	59.6	59.5	59.5	59.1	59.0	60.4	61.1	61.4	61.6	61.6	62.5	61.4	60.7	59.9	59.8	1438.5	59.94	
13	57.8	58.5	58.9	59.0	58.2	59.0	59.0	59.8	60.6	60.3	59.7	59.5	59.1	59.0	59.5	60.1	60.7	61.6	61.4	60.4	59.9	59.7	57.5	56.9	1426.1	59.42	
14	58.8	59.1	59.5	59.6	59.7	59.6	59.6	59.9	60.0	60.6	60.6	60.4	59.7	59.0	59.0	59.9	60.7	60.9	61.0	60.8	59.8	59.7	59.8	59.0	1436.7	59.86	
15 Q	58.2	59.1	59.0	59.0	59.2	59.0	59.6	59.7	59.9	60.1	59.8	59.6	59.0	58.6	58.8	59.7	60.6	60.6	60.4	60.1	59.9	59.8	59.8	59.7	1429.2	59.55	
16	59.9	58.8	58.5	59.0	58.9	59.0	58.9	59.0	59.0	59.0	59.1	59.5	59.0	58.8	59.0	59.7	60.4	60.7	60.8	60.7	59.9	59.7	59.7	59.7	1426.7	59.45	
17	58.6	58.6	56.9	56.1	58.0	59.3	59.6	59.5	59.8	59.9	59.5	59.2	58.8	58.2	58.9	59.7	60.6	61.7	61.5	60.9	60.4	60.0	59.7	59.5	1424.9	59.37	
18	59.3	59.0	58.8	58.0	58.0	58.8	59.3	59.5	58.1	58.1	59.1	59.0	58.8	58.8	59.1	60.4	61.0	61.4	61.6	60.9	60.0	59.5	59.1	59.1	1424.7	59.36	
19	59.4	59.5	59.4	59.1	59.0	59.0	51.4	59.0	59.7	59.5	60.4	61.1	59.7	59.0	59.1	60.1	61.2	61.6	61.5	61.1	60.6	60.4	60.0	59.4	1438.2	59.93	
20	59.5	59.0	59.0	59.0	58.9	59.0	59.5	59.6	59.7	59.7	59.7	59.2	58.8	58.2	58.6	59.3	60.4	61.0	61.1	60.7	60.2	59.9	59.6	59.8	1429.4	59.56	
21	59.8	59.7	59.6	59.0	58.9	58.2	58.5	59.0	59.0	59.1	58.8	59.0	59.0	58.8	59.1	60.5	61.9	62.3	61.3	60.5	59.6	59.3	59.3	59.5	1429.7	59.57	
22	59.1	59.1	55.5	56.9	56.7	57.8	56.7	56.0	56.9	57.8	60.1	60.7	59.5	58.8	59.1	60.1	61.0	61.5	61.5	61.0	60.2	60.2	60.8	60.5	1417.5	59.06	
23	59.5	59.0	58.9	59.1	59.0	59.0	59.1	59.0	59.1	59.3	59.7	59.5	58.8	58.6	59.0	59.8	60.6	61.0	61.2	60.7	60.1	59.8	59.7	59.6	1429.1	59.55	
24 Q	59.5	59.5	59.4	59.3	59.1	59.0	59.3	59.1	59.1	59.1	58.9	58.8	58.4	58.1	58.3	59.0	59.1	61.2	61.6	61.3	60.4	59.7	59.7	59.5	1426.4	59.43	
25	59.5	59.5	58.8	57.8	57.8	58.7	58.8	58.8	59.0	59.0	58.8	58.2	57.8	57.3	58.9	59.8	61.5	61.9	62.6	61.4	60.5	59.9	59.8	59.7	1425.8	59.41	
26	58.8	56.2	57.9	58.0	57.7	57.6	59.0	58.2	58.7	59.7	59.6	59.0	58.1	57.9	58.4	59.0	60.0	61.0	61.6	61.5	60.5	59.0	57.1	58.6	1413.1	56.88	
27	59.0	59.6	58.8	55.1	55.6	57.1	59.5	59.0	59.5	60.1	59.8	59.5	59.0	59.4	59.7	60.7	61.7	61.6	61.9	61.2	60.7	60.1	59.9	59.8	1428.3	59.51	
28 Q	59.8	59.5	59.4	59.1	59.1	58.9	59.0	59.5	59.8	59.8	59.8	59.8	58.7	58.0	58.0	59.0	60.7	61.5	61.7	61.2	60.6	59.9	59.7	59.7	1432.2	59.67	
29	57.8	58.3	59.0	59.1	59.1	59.0	59.0	59.0	58.9	59.0	59.9	59.3	58.6	58.2	58.8	59.7	60.6	61.5	61.3	60.8	60.1	59.6	59.0	59.5	1425.1	59.38	
30 Q	59.3	59.0	58.8	58.8	59.0	59.2	59.5	59.2	59.4	59.0	59.6	58.9	58.7	58.5	58.8	59.7	60.6	61.0	61.1	60.8	60.4	59.9	60.1	60.1	1429.4	59.56	
31 D	59.9	59.0	58.2	56.4	56.5	55.9	55.5	56.2	57.4	58.2	59.6	59.5	61.2	60.0	60.0	60.1	60.6	61.5	62.4	61.6	61.4	61.6	61.5	59.8	1424.0	59.33	
Sum. 1000+	631.3	828.3	799.3	795.7	798.6	796.2	810.7	825.5	835.6	840.3	851.8	846.3	842.3	831.2	841.6	864.6	869.7	905.0	905.9	888.5	868.6	858.9	842.8	837.2	44235.9		
Mean.	59.07	58.98	58.04	57.93	58.02	57.94	58.41	58.89	59.21	59.36	59.73	59.56	59.43	59.07	59.41	60.15	60.96	61.45	61.48	60.92	60.28	59.96	59.45	59.26		59.47	



Horizontal component, H, ~~23000 gamma~~ tabulated value

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U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	251	244	249	251	249	250	250	252	254	253	254	254	254	250	246	247	249	252	252	249	248	248	249	249	6004	250.2	
2	248	248	248	247	252	252	250	249	251	253	254	256	256	254	253	249	248	248	249	250	251	252	252	255	6025	251.0	
3	248	253	253	258	254	256	252	253	255	258	258	258	258	257	252	244	242	245	252	256	258	259	260	267	6106	254.4	
4 D	264	266	282	239	226	238	218	222	234	231	237	245	241	239	226	220	230	239	244	248	251	253	251	253	5797	241.5	
5 D	248	238	241	246	251	247	245	246	246	247	248	254	244	246	239	224	224	234	228	235	234	240	239	240	5784	241.0	
6	239	237	249	248	236	245	245	243	243	244	245	245	245	242	238	236	236	242	246	248	248	246	244	240	5830	242.9	
7	242	245	255	241	233	228	237	246	242	241	243	241	246	255	246	241	241	242	246	249	246	245	244	241	5836	243.2	
8	244	245	250	246	246	251	245	244	246	246	249	249	247	246	244	243	243	246	243	243	247	247	245	247	5902	245.9	
9	249	246	246	246	241	243	246	246	249	250	250	251	253	250	251	255	250	246	242	243	242	240	240	242	5917	246.5	
10 Q	246	246	247	250	250	250	249	254	251	251	253	255	254	250	245	242	241	245	246	250	250	250	250	248	5973	248.9	
11 D	251	257	251	250	253	254	260	259	255	252	257	259	256	254	247	238	239	235	231	221	232	231	239	239	5920	246.7	
12 D	239	245	245	240	240	244	248	246	256	255	247	244	243	241	231	225	228	231	231	220	228	233	238	236	5734	238.9	
13	245	245	243	248	253	255	257	248	247	249	249	249	248	243	243	240	239	210	243	243	243	244	240	240	5894	245.6	
14	244	244	244	244	248	248	247	247	248	249	249	248	247	242	236	236	239	242	243	240	235	240	241	239	5840	243.3	
15 Q	237	245	244	247	255	252	252	252	252	253	253	253	248	242	237	235	237	244	248	249	245	243	243	243	5909	246.2	
16	240	244	256	262	257	257	258	257	256	256	259	258	253	247	245	244	243	245	247	248	248	247	243	244	6014	250.6	
17	241	238	234	247	252	251	252	252	254	256	256	257	256	248	242	239	235	232	239	245	248	242	248	246	5918	246.6	
18	245	242	248	248	247	251	252	261	254	248	252	254	256	247	240	237	237	239	239	243	242	243	243	247	5915	246.5	
19	249	249	249	250	253	251	253	254	255	254	252	258	255	246	238	231	233	238	243	244	240	241	236	233	5904	246.0	
20	241	242	247	252	254	251	251	251	251	251	252	252	250	248	243	239	240	244	249	253	250	248	253	253	5965	248.5	
21	252	249	251	252	255	254	253	254	253	257	256	256	255	246	239	240	240	245	254	257	257	256	256	257	6044	251.8	
22	253	247	239	240	240	245	252	249	250	249	244	252	248	249	245	241	241	244	251	255	254	249	249	247	5933	247.2	
23	245	250	250	254	254	253	252	253	254	254	257	257	252	245	242	241	240	241	246	249	249	250	251	251	5990	249.6	
24 Q	253	254	254	255	254	250	252	251	251	254	255	256	257	254	250	244	244	246	251	252	253	258	259	260	6057	252.6	
25	258	257	252	246	246	254	254	251	252	255	258	260	258	253	246	238	240	239	240	251	252	251	252	251	6014	250.6	
26	228	227	240	260	250	249	255	257	249	250	254	256	254	251	244	238	238	241	241	242	246	241	224	233	5868	244.5	
27	237	246	247	241	241	242	250	252	255	267	257	258	254	244	241	235	235	237	241	244	242	242	243	244	5895	245.6	
28 Q	244	243	246	247	249	249	248	244	249	252	254	255	254	248	241	236	237	239	243	245	245	242	245	246	5901	245.9	
29	246	249	251	253	254	254	254	256	255	255	257	262	259	253	242	233	232	237	241	246	247	242	244	250	5972	248.8	
30 Q	250	250	249	251	253	254	255	254	254	254	256	255	251	245	241	239	241	247	254	239	258	256	257	260	6023	251.0	
31 D	259	262	258	260	253	257	246	246	247	253	250	247	241	250	245	242	244	249	254	257	252	249	254	224	5998	249.9	
Sum.	7636	7653	7718	7719	7699	7735	7738	7719	7768	7796	7815	7854	7793	7685	7518	7392	7406	7494	7577	7614	7641	7634	7631	7627	183892		
Mean.	246.3	246.9	249.0	249.0	248.4	249.5	249.6	250.0	250.6	251.5	252.1	253.3	251.4	247.9	242.5	238.5	238.9	241.7	244.1	245.6	246.5	246.3	246.2	246.0		247.2	

Vertical component, Z, - (36000 + tabulated values) gammas

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U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.		
Date																												
1	199	195	195	194	194	197	197	193	199	199	199	199	199	199	198	198	198	198	198	198	198	199	199	199	199	7146	197.7	
2	199	198	198	196	197	195	197	198	199	199	199	200	201	199	198	195	194	195	196	199	199	199	199	196	196	7155	197.7	
3	199	202	200	198	194	195	195	195	197	198	198	199	198	198	195	190	190	195	200	202	202	201	199	202	202	7122	197.6	
4 D	196	200	208	184	178	144	173	175	166	186	184	193	197	201	194	197	204	206	205	205	204	204	202	203	203	6511	192.2	
5 D	195	204	202	202	194	197	197	194	207	192	190	198	192	197	200	193	196	206	202	206	205	206	205	205	205	7655	199.4	
6	201	201	196	190	180	185	193	196	197	197	197	197	197	198	197	194	195	198	202	202	200	198	197	194	702	195.9		
7	195	196	190	183	182	179	177	190	188	190	194	190	190	193	194	195	194	196	202	201	202	200	199	199	196	6222	192.6	
8	208	207	206	203	203	203	196	201	203	201	202	202	202	203	200	199	202	204	204	204	204	207	206	204	205	375	203.1	
9	204	204	203	198	194	199	204	203	203	203	199	200	199	198	199	202	199	199	199	201	204	203	204	206	206	827	204.1	
10	207	206	205	205	202	201	199	199	196	199	199	200	199	199	195	195	195	199	201	203	203	202	201	199	199	369	200.1	
11 D	199	204	201	202	206	195	181	184	189	194	198	198	198	198	192	187	189	190	193	193	206	204	204	202	1707	196.1		
12 D	206	205	197	194	196	197	195	196	185	179	192	194	197	198	192	190	190	195	195	192	199	201	207	206	1701	195.9		
13	206	203	200	201	198	191	188	191	194	198	199	199	200	199	197	195	194	194	195	198	200	201	199	196	196	196	196	197.3
14	198	198	198	197	198	198	197	196	197	196	196	197	197	197	195	194	194	195	198	198	196	198	200	200	200	1728	197.0	
15	200	202	198	198	197	196	197	198	198	198	198	198	198	198	197	194	193	193	197	199	199	198	198	198	199	71	197.5	
16	198	201	203	203	198	198	197	194	193	194	196	195	197	194	192	190	189	193	196	198	198	198	195	197	197	707	196.1	
17	197	195	193	194	196	197	197	197	197	197	197	198	198	197	193	190	186	186	194	198	199	198	198	197	197	689	195.4	
18	197	197	198	197	194	195	193	190	189	188	193	194	194	193	192	190	191	192	193	197	198	198	197	197	197	657	194.0	
19	198	198	197	197	196	195	194	195	195	194	189	190	194	195	193	190	191	195	198	199	198	199	197	196	196	683	195.1	
20	200	199	199	199	198	196	196	195	194	194	194	194	195	194	193	189	189	190	194	197	197	194	197	194	194	681	195.0	
21	195	195	196	195	195	193	192	194	194	194	194	194	195	194	190	188	187	191	198	199	199	195	194	195	195	656	194.0	
22	192	193	190	192	191	194	190	187	189	188	185	190	193	195	192	190	190	192	195	199	199	194	194	194	194	608	192.0	
23	194	197	195	196	195	194	192	192	192	191	190	190	190	190	189	187	186	187	192	197	197	196	196	195	195	620	192.5	
24	194	194	194	193	192	191	191	191	191	191	191	191	191	191	190	189	187	187	188	191	194	194	196	195	194	600	191.7	
25	192	191	190	190	190	192	191	190	190	191	191	191	191	191	189	184	180	182	183	186	192	195	195	194	194	555	189.6	
26	187	190	195	194	190	183	179	183	187	191	192	193	191	190	186	183	183	185	187	191	195	194	187	194	194	530	188.7	
27	195	199	198	187	186	186	192	193	192	189	187	191	190	185	185	180	182	186	187	191	195	195	194	195	195	560	190.0	
28	194	194	194	194	194	191	191	191	191	193	194	194	193	191	186	182	182	186	191	194	194	194	194	194	194	596	191.5	
29	193	193	192	192	191	191	190	191	190	188	188	191	190	186	183	181	181	183	187	191	194	194	194	194	194	543	189.3	
30	193	191	191	191	191	190	190	190	190	190	190	190	190	187	186	185	187	188	191	194	193	191	190	191	191	560	190.0	
31 D	191	191	187	186	183	183	177	180	182	184	187	185	181	189	190	188	187	187	190	191	190	190	194	191	191	464	186.8	
Sum.	6122	6143	6109	6045	5993	5941	5938	5967	5974	5986	6007	6035	6037	6033	5963	5897	5907	5979	6059	6126	6158	6141	6126	6123	11209			
Mean.	197.5	198.2	197.1	195.0	193.3	191.6	191.5	192.5	192.7	193.1	193.6	194.7	194.7	194.6	192.4	190.2	190.5	192.9	195.5	197.6	198.6	198.1	197.6	197.5			191.6	



Declination,  $\delta$ , east of north 16 degrees + tabulated values in minutes of arc.

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U.T. Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.
1	60.1	60.3	57.3	56.2	55.3	55.8	57.8	59.7	62.3	60.8	60.3	59.8	59.1	58.7	59.4	61.2	62.4	64.0	62.4	61.9	61.0	60.6	58.6	59.2	1434.2	59.76
2	54.6	56.9	57.8	58.9	58.8	59.4	60.1	59.9	59.8	59.6	59.6	59.7	59.1	59.1	59.2	59.9	60.9	61.5	61.6	61.1	59.3	59.6	59.9	59.7	1426.0	59.42
3	58.6	57.7	58.6	57.8	57.6	56.6	59.7	60.2	59.8	59.6	59.0	58.8	58.1	57.9	58.7	59.8	61.2	62.4	62.9	61.9	60.2	59.9	59.5	59.1	1425.6	59.40
4	59.1	59.0	58.7	58.2	57.5	58.7	58.9	58.9	59.0	60.1	59.5	60.9	58.8	58.7	59.1	59.2	60.6	60.8	61.4	61.9	61.5	59.3	59.1	60.3	1429.8	59.58
5	59.8	58.9	57.7	57.8	56.5	58.0	58.9	59.1	59.7	59.8	59.8	59.1	58.8	58.9	59.4	60.1	60.8	61.5	61.5	61.3	60.8	60.1	59.9	59.8	1428.0	59.50
6	59.5	59.7	59.5	59.1	58.9	58.9	58.4	58.7	58.9	59.0	58.6	58.0	57.8	57.8	58.9	59.9	61.2	62.1	61.9	61.5	60.7	62.4	62.8	62.3	1436.5	59.94
7 D	60.7	59.5	59.8	58.8	58.8	58.5	58.6	57.6	58.3	59.9	58.6	62.4	62.2	60.1	59.8	61.0	63.4	64.8	65.9	60.9	60.3	60.4	55.3	55.5	1441.1	60.05
8 D	60.7	57.9	54.3	57.3	58.2	58.9	59.2	62.9	60.7	58.9	59.5	60.1	59.8	58.9	59.7	60.6	61.8	62.5	61.7	61.9	60.9	60.9	60.4	58.6	1436.3	59.85
9	58.8	58.8	57.2	56.0	56.0	57.0	58.9	59.5	59.7	59.9	60.7	60.1	60.6	59.2	59.1	60.7	61.9	62.5	62.4	61.6	61.9	57.3	58.5	59.9	1428.2	59.51
10	56.7	55.9	55.3	58.2	59.0	59.6	59.8	59.8	59.7	59.7	59.6	58.9	58.1	57.9	58.6	59.3	60.1	60.7	61.4	60.8	60.4	59.7	59.7	58.1	1417.0	59.04
11	57.2	56.0	56.5	57.7	59.0	59.9	59.9	59.7	59.7	59.7	59.1	58.8	58.0	57.9	58.8	59.8	61.0	61.8	62.1	61.5	60.6	59.7	59.0	59.0	1422.4	59.27
12	59.0	58.9	58.6	58.4	59.1	59.3	59.3	59.5	59.7	59.5	59.1	58.8	57.9	57.6	58.6	60.0	61.1	61.7	62.4	61.6	60.4	59.6	59.6	59.2	1428.9	59.54
13 Q	59.0	59.3	59.4	59.1	59.4	59.4	59.5	59.3	59.3	59.5	59.0	58.8	58.0	58.3	59.0	60.1	61.1	61.9	62.3	61.5	60.6	59.9	59.7	59.5	1432.9	59.70
14 Q	59.5	59.2	59.3	59.2	59.2	59.0	59.0	59.0	59.0	59.0	58.9	58.7	58.3	58.3	58.8	59.3	60.2	61.5	62.2	61.4	60.4	59.8	59.7	58.8	1427.7	59.49
15 Q	58.9	59.2	59.2	59.0	58.8	58.2	58.1	58.3	58.1	58.0	57.9	58.0	57.8	57.8	58.4	59.2	60.4	61.0	61.5	61.1	60.4	60.0	59.9	59.7	1418.9	59.12
16	59.6	59.5	58.8	57.0	55.8	55.9	57.0	56.9	57.4	58.8	57.9	57.2	56.3	56.7	60.2	61.7	62.7	62.1	65.9	65.9	66.1	66.9	62.9	60.7	1442.9	60.12
17	58.6	55.9	56.7	57.3	56.9	57.8	57.8	58.0	58.3	58.8	58.9	58.1	58.1	58.0	58.8	59.7	61.0	61.6	62.0	61.8	61.3	60.1	59.8	59.6	1414.9	58.95
18	59.1	59.0	58.9	58.8	58.5	58.0	58.0	58.2	58.8	59.4	58.8	57.8	57.1	57.2	58.1	59.7	61.1	61.7	62.0	61.5	60.7	59.9	59.2	59.1	1420.6	59.19
19 Q	59.2	59.2	58.9	58.5	57.8	57.8	58.2	58.4	58.8	58.8	58.7	58.0	57.8	57.9	58.2	59.7	60.5	60.8	61.4	61.5	61.0	60.1	59.7	59.5	1420.4	59.18
20 Q	59.1	58.9	58.9	58.9	58.8	58.7	58.6	58.5	58.8	58.7	58.4	57.8	57.2	57.7	58.9	60.8	61.6	61.8	62.1	61.4	60.4	59.8	59.3	59.3	1424.9	59.37
21	59.0	59.0	58.8	58.6	57.8	57.2	57.3	57.8	58.3	57.9	57.8	57.2	56.8	57.3	58.5	59.6	60.5	60.8	61.4	61.3	60.6	60.3	60.4	60.2	1414.4	58.93
22 D	60.2	58.8	54.4	53.8	55.7	58.7	59.2	59.3	60.3	60.5	59.3	58.3	58.6	59.1	59.7	60.6	61.5	62.2	62.4	62.2	61.1	60.4	58.5	59.8	1424.6	59.36
23	59.8	57.9	58.4	59.7	59.1	59.2	59.9	61.6	59.0	58.1	58.0	58.4	58.9	59.0	59.6	60.1	60.9	61.6	61.7	61.6	60.9	60.1	59.8	59.7	1433.0	59.71
24	59.9	59.8	59.7	58.1	57.7	59.0	58.9	58.8	59.0	60.1	61.3	59.0	57.9	58.3	59.1	60.5	61.3	61.9	62.5	62.3	60.8	60.5	59.9	59.8	1436.1	59.34
25	58.9	58.3	59.0	59.1	59.0	59.0	58.8	58.9	59.4	59.4	59.0	58.6	58.1	58.3	59.0	60.1	61.0	61.9	62.5	62.0	61.1	60.2	60.0	59.1	1430.7	59.61
26	59.6	59.0	59.4	59.4	59.3	59.0	59.0	59.0	60.0	59.7	58.4	57.9	57.6	57.8	58.7	59.7	61.2	62.3	62.5	61.6	60.9	60.1	59.9	60.0	1432.0	59.67
27	59.9	59.6	59.5	59.1	58.8	58.4	58.8	58.8	58.5	57.9	57.9	57.8	57.8	57.7	58.4	59.7	60.7	61.8	62.5	62.4	61.5	61.3	60.5	60.8	1430.3	59.60
28 D	59.8	58.9	53.9	55.8	56.7	57.8	56.9	56.2	60.5	59.4	61.3	58.9	58.4	59.5	60.9	62.7	63.9	64.7	65.2	65.3	62.1	61.9	59.6	59.0	1439.3	59.97
29	59.7	59.8	59.9	59.2	59.1	59.1	59.5	60.2	59.0	58.9	58.6	57.9	58.2	58.9	59.7	60.7	61.7	62.4	62.2	61.5	60.7	60.1	60.1	59.0	1436.1	59.84
30 D	59.7	59.5	59.4	58.2	53.3	48.6	52.1	55.1	56.2	57.0	58.7	58.4	59.6	61.1	61.5	61.2	61.7	62.9	64.7	64.3	62.5	61.6	60.5	57.8	1415.6	58.98
Sum.																									42851.3	
1000+	774.3	760.3	743.8	743.2	736.4	742.4	756.1	767.8	776.0	776.4	772.2	762.2	750.8	751.8	774.8	807.2	839.4	863.2	874.6	858.5	831.1	812.5	794.2	782.1		
Mean.	59.14	58.68	58.13	58.11	57.88	58.08	58.54	58.93	59.20	59.21	59.07	58.74	58.36	58.39	59.16	60.24	61.31	62.11	62.49	61.95	61.04	60.42	59.81	59.40		59.51



Horizontal component, H, 23000 gammas + tabulated value

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U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	236	244	245	246	234	238	245	251	241	242	243	242	242	237	236	232	230	232	247	250	245	229	222	232	5741	239.2	
2	250	244	246	253	244	242	245	243	243	246	244	241	241	236	233	235	237	237	243	242	241	246	249	249	249	5830	242.9
3	243	246	242	246	244	244	246	249	250	250	252	251	247	242	234	230	228	233	239	244	236	249	251	254	254	5850	243.7
4	254	255	249	257	251	254	254	253	249	249	254	250	254	244	237	237	239	241	246	245	243	240	239	241	241	5935	247.3
5	243	252	246	263	245	246	248	247	249	249	252	253	249	244	236	232	236	240	241	245	248	246	248	249	249	5907	246.1
6	248	249	251	251	249	252	249	249	250	253	257	257	256	251	243	244	243	246	247	251	264	253	252	259	259	6024	251.0
7 D	226	225	242	248	250	250	254	258	255	256	255	256	271	256	237	222	210	205	214	213	224	219	239	236	236	5723	238.5
8 D	242	247	245	247	243	255	254	249	256	252	238	241	239	231	226	220	225	222	230	239	227	231	231	243	243	5733	238.9
9	244	251	256	265	256	241	244	243	243	243	248	244	235	228	226	222	221	226	222	227	224	226	233	234	234	5702	237.6
10	232	230	248	235	239	240	240	242	243	246	246	245	242	241	237	237	234	238	242	243	244	238	242	238	238	5762	240.1
11	243	238	235	237	247	252	250	249	248	248	247	246	242	233	226	222	225	231	237	241	243	243	242	243	243	5768	240.3
12	244	247	248	249	248	248	247	248	249	251	251	248	241	235	226	222	226	235	243	251	251	249	248	248	248	5853	243.9
13 Q	247	247	250	249	248	248	248	247	248	247	248	245	240	233	228	230	235	240	244	249	246	242	243	243	243	5845	243.5
14 Q	244	247	247	246	248	247	246	247	247	247	247	246	244	240	232	230	234	239	243	246	245	246	245	245	245	5848	243.7
15 Q	250	253	253	252	251	251	253	253	256	255	257	256	254	249	243	240	242	247	251	256	255	252	254	259	259	6042	251.7
16	266	267	264	264	258	253	264	259	256	259	261	264	258	242	233	240	239	240	236	232	226	218	227	238	238	5964	248.5
17	234	233	244	246	250	250	246	245	242	244	245	246	242	241	233	230	228	229	233	236	234	233	236	240	240	5742	239.2
18	241	242	246	249	247	246	247	246	245	247	251	250	246	235	225	222	230	234	241	245	247	244	244	246	246	5816	242.3
19 Q	248	250	254	250	249	250	248	246	246	249	249	249	245	238	236	238	239	241	243	246	249	250	249	250	250	5912	246.3
20 Q	250	251	253	254	253	251	250	251	250	250	249	246	241	234	228	230	235	242	245	250	252	248	248	249	249	5910	246.2
21	253	257	260	260	259	255	253	253	254	254	254	254	254	251	247	246	249	249	256	260	266	263	265	275	275	6147	256.1
22 D	285	271	261	239	229	239	238	233	229	228	230	229	228	227	223	223	225	230	234	234	236	233	229	238	238	5671	236.3
23	239	234	239	240	241	245	246	253	246	241	244	234	231	228	222	223	225	232	237	242	243	238	233	236	236	5692	237.2
24	238	242	243	244	249	241	241	241	245	244	244	250	241	232	221	212	220	226	232	219	230	241	241	243	243	5680	236.7
25	236	236	242	245	250	247	242	241	241	241	241	241	238	232	225	221	220	228	234	241	243	243	239	243	243	5710	237.9
26	242	244	246	245	246	245	245	245	244	247	246	242	234	230	225	221	223	231	238	243	247	247	250	250	250	5776	240.7
27	255	256	257	258	256	255	253	252	250	249	250	251	249	244	240	237	233	236	241	247	247	235	229	221	221	5904	246.0
28 D	242	248	260	242	254	260	250	250	255	275	254	241	229	212	194	175	181	220	237	233	225	228	228	230	230	5623	234.3
29	236	239	239	239	239	245	238	238	234	236	236	232	224	214	210	212	219	228	235	240	243	244	245	233	233	5598	233.2
30 D	239	245	248	248	239	223	218	226	236	232	233	236	225	214	203	214	212	211	214	227	230	233	229	234	234	5439	226.6
Sum.	7350	7390	7459	7467	7416	7413	7402	7407	7400	7430	7426	7386	7282	7074	6865	6799	6843	6989	7145	7237	7254	7210	7232	7301	17477		
Mean.	245.0	246.3	248.6	248.9	247.2	247.1	246.7	246.9	246.7	247.7	247.5	246.2	242.7	235.8	228.6	226.6	228.1	233.0	238.2	241.2	241.8	240.3	241.1	243.4	243.4		241.9

Vertical component, Z, - (36000 + tabulated values) gammas

September 1964

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	195	197	195	179	174	168	162	163	180	179	193	194	192	190	187	182	183	186	196	198	195	191	191	195	4465	186.0	
2	194	187	190	187	183	187	187	187	189	190	190	191	192	190	187	187	186	187	190	191	192	196	194	194	4515	189.5	
3	192	191	191	190	186	181	186	187	188	190	190	190	192	190	185	183	182	185	190	195	194	199	196	194	4517	189.5	
4	194	193	190	188	183	187	183	179	181	181	183	179	186	187	183	183	185	187	187	187	190	191	190	194	4471	186.3	
5	195	195	191	184	179	186	187	187	187	187	188	190	190	187	183	182	185	186	189	191	194	194	193	192	4522	188.4	
6	191	191	191	190	190	188	187	187	187	188	189	187	188	185	182	182	181	182	187	191	199	194	190	198	4525	188.5	
7 D	195	197	201	199	196	195	190	183	181	179	179	174	183	183	175	172	171	177	187	199	207	203	198	204	4528	188.7	
8 D	204	201	187	184	183	181	179	158	179	179	178	187	188	187	182	179	184	185	191	199	197	200	199	199	4490	187.1	
9	197	197	192	194	168	176	186	186	186	186	186	187	186	187	188	183	183	190	192	197	199	201	201	201	4529	188.7	
10	195	191	187	188	191	192	194	193	193	192	192	192	191	189	187	186	182	187	190	193	198	194	195	192	4584	191.0	
11	192	187	187	189	192	191	190	190	191	191	191	191	190	186	182	182	182	186	190	194	197	196	194	192	4553	189.7	
12	192	192	190	188	187	187	187	188	188	190	190	190	187	186	182	180	181	183	188	194	195	192	190	190	4517	188.2	
13 Q	188	189	189	187	187	187	187	187	188	187	189	189	187	183	182	179	183	183	187	191	191	188	189	184	4481	186.7	
14 Q	190	190	188	187	188	187	187	187	187	187	187	186	184	183	180	177	175	176	181	187	189	190	188	187	4417	185.3	
15 Q	190	190	187	187	186	185	186	186	186	186	186	183	182	179	176	175	176	178	179	183	184	183	184	187	4404	183.5	
16	190	187	187	186	183	181	183	182	182	181	183	183	182	174	171	176	179	180	181	187	190	195	200	204	4427	184.5	
17	201	198	195	192	186	188	187	187	186	187	187	190	185	183	179	178	175	179	184	187	189	191	194	194	4502	187.6	
18	194	193	192	191	189	188	187	186	186	185	187	188	187	182	179	177	179	182	187	190	191	188	188	189	4485	186.9	
19 Q	189	189	189	187	185	183	182	182	183	183	184	185	183	181	179	178	179	179	179	182	185	187	187	187	4407	183.6	
20 Q	187	186	186	186	183	183	183	182	182	182	182	183	179	174	170	172	176	179	181	186	188	186	184	185	4365	181.9	
21	187	187	187	187	185	181	179	179	179	179	179	179	178	174	171	170	171	171	174	180	186	183	183	187	4316	179.8	
22 D	194	191	181	181	171	182	180	179	174	176	183	185	183	182	181	182	183	185	190	191	195	194	192	194	4369	182.0	
23	194	190	190	190	190	190	184	174	173	179	186	179	183	181	178	179	181	183	185	188	190	190	186	188	4431	184.6	
24	190	190	189	187	184	185	186	186	187	182	177	181	181	178	174	170	175	179	181	180	191	195	194	193	4415	184.0	
25	190	188	190	190	187	187	185	186	184	185	185	183	182	179	176	176	178	180	183	188	192	192	190	190	4446	185.2	
26	188	186	187	185	186	186	186	186	181	183	183	184	180	178	176	174	174	176	179	184	190	191	191	188	4402	183.4	
27	188	187	186	186	184	183	181	179	179	182	183	183	179	178	175	174	173	173	177	183	188	187	189	191	4368	182.0	
28 D	199	203	195	182	181	174	179	180	170	161	154	170	171	165	162	158	177	190	196	199	163	163	158	158	4208	175.3	
29	195	194	193	190	187	184	179	182	187	190	190	190	186	179	176	179	179	183	187	190	191	191	192	186	4480	186.7	
30 D	191	191	192	190	173	154	161	166	169	175	184	185	181	177	174	182	179	181	182	190	195	200	199	199	4370	182.1	
Sum.	5781	5748	5695	5551	5527	5507	5500	5464	5493	5502	5538	5558	5538	5457	5362	5337	5377	5458	5570	5695	5744	5745	5719	5736	133602		
Mean.	192.7	191.6	189.8	185.0	184.2	183.6	183.3	182.1	183.1	183.4	184.6	185.3	184.6	181.9	178.7	177.9	179.2	181.9	185.7	189.8	191.5	191.5	190.6	191.2		185.6	



Declination, D, east of north 16 degrees + tabulated values in minutes of arc.

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U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	57.8	57.0	59.1	59.0	58.3	56.7	58.0	59.3	60.4	58.9	58.1	57.8	57.7	57.8	59.7	61.6	62.7	64.1	63.7	63.0	61.6	60.5	60.0	60.0	1432.8	59.70	
2	58.1	57.2	58.5	59.2	59.1	58.8	58.8	58.7	58.3	58.2	58.0	57.7	56.7	56.9	58.1	60.3	62.3	63.4	63.4	62.4	61.3	60.6	60.1	60.1	1426.2	59.43	
3	60.1	59.2	58.4	59.1	59.1	59.0	58.7	58.2	57.8	58.0	57.9	57.0	56.9	57.2	58.9	60.9	62.2	62.5	63.4	61.9	61.3	61.4	61.6	60.2	1431.5	59.65	
4 D	60.6	58.3	55.5	57.3	57.3	54.9	57.8	57.6	57.9	59.3	59.1	58.0	57.5	57.9	58.4	59.9	62.3	65.8	63.9	64.1	57.5	59.8	60.0	58.6	1409.3	58.72	
5 D	54.9	57.3	58.8	55.7	57.8	60.1	60.1	60.1	59.0	57.8	58.4	59.0	59.8	61.3	60.7	62.1	63.7	63.6	62.5	62.1	59.8	60.2	57.9	54.5	1427.5	59.48	
6	59.0	59.9	58.8	59.6	59.3	59.0	59.0	59.3	58.4	57.8	57.8	57.7	57.9	59.2	61.0	62.5	64.3	63.2	62.9	62.4	61.4	60.1	59.5	55.9	1435.9	59.83	
7	56.7	56.7	56.7	57.7	57.8	57.6	58.0	58.2	58.8	59.8	59.8	58.9	58.8	59.0	59.2	59.9	61.0	62.0	62.4	62.4	61.6	59.7	60.4	60.6	1423.7	59.32	
8	60.4	59.8	58.8	58.9	58.6	58.1	57.8	58.9	59.6	58.5	58.0	58.3	58.8	59.4	60.1	61.2	62.3	63.5	62.4	62.8	62.8	60.6	59.3	58.6	1437.5	59.90	
9	57.7	59.9	59.9	57.9	57.1	57.1	57.6	59.5	62.4	61.0	59.1	59.9	59.8	59.7	60.1	60.7	63.5	62.8	63.2	62.7	61.9	60.1	59.7	59.8	1443.1	60.13	
10	59.8	59.9	59.8	59.6	59.5	59.1	59.0	58.9	58.8	59.0	59.7	59.0	57.9	57.9	58.6	59.8	61.4	62.5	63.5	63.5	62.5	61.3	60.6	59.8	1441.4	60.06	
11	59.6	59.5	59.4	59.2	59.0	58.8	58.8	58.8	58.4	58.6	58.6	57.8	56.8	56.5	57.7	59.6	61.7	63.7	63.7	63.6	62.5	60.6	59.7	59.7	1432.3	59.68	
12	59.8	59.7	59.6	59.2	58.9	58.2	57.8	57.4	55.7	55.4	55.1	57.8	61.6	60.5	62.3	62.4	62.5	63.1	62.6	62.7	62.3	60.8	59.9	60.0	1435.3	59.80	
13	59.8	58.5	57.8	57.9	58.1	58.9	58.8	58.9	59.7	58.7	57.9	57.8	57.1	58.4	60.0	61.1	61.9	62.9	62.9	62.5	62.4	61.7	60.7	60.3	1434.7	59.78	
14	58.8	57.8	58.6	57.8	58.6	58.0	58.6	58.7	58.1	58.0	57.9	57.9	57.9	58.1	58.5	60.2	62.5	63.5	63.2	62.1	60.7	59.9	59.8	59.8	1425.0	59.38	
15	58.0	58.8	58.9	58.9	58.8	58.7	58.1	58.1	59.1	58.9	58.2	58.0	57.3	57.1	57.9	59.7	61.5	62.7	63.0	62.7	61.7	60.7	59.9	59.3	1426.0	59.42	
16	59.3	59.1	59.0	58.8	57.2	56.8	56.7	57.1	57.1	57.1	57.1	56.9	56.6	56.9	58.0	60.2	62.2	63.4	63.5	62.4	61.0	60.1	59.3	58.8	1414.6	58.94	
17	59.0	58.6	58.8	58.2	57.1	57.8	56.9	56.4	56.2	56.1	56.1	56.1	57.0	57.8	59.6	61.3	62.0	62.7	63.1	62.4	61.6	60.9	60.6	60.0	1416.3	59.01	
18	59.7	59.5	59.2	57.8	55.6	55.3	55.9	56.6	56.1	56.0	56.6	56.4	58.0	58.0	58.4	60.1	61.5	62.4	63.4	64.2	63.4	61.7	58.2	52.2	1406.2	58.59	
19 D	55.2	58.4	58.6	58.9	58.8	58.9	55.7	56.7	55.5	56.1	56.5	57.8	58.0	59.8	59.1	55.7	56.7	57.6	56.7	55.2	52.4	57.4	57.9	60.3	1373.9	57.25	
20	55.5	56.9	58.4	59.7	60.1	59.6	58.9	58.2	58.9	58.8	59.0	58.8	57.9	58.9	60.1	61.8	62.9	62.8	62.3	61.6	61.5	60.7	60.6	60.6	1434.5	59.77	
21 D	58.3	58.7	59.1	58.4	58.2	57.9	59.8	59.3	56.9	56.9	58.7	58.4	58.1	58.6	59.9	61.9	63.5	63.7	63.5	60.7	60.4	59.6	59.6	60.1	1430.2	59.59	
22	59.9	60.1	60.5	60.1	59.5	59.1	59.0	58.9	59.0	58.2	58.0	58.0	57.8	58.0	59.0	60.8	62.5	62.6	62.0	61.0	60.2	59.7	59.5	59.6	1433.0	59.71	
23	59.7	59.9	59.8	59.6	59.3	58.9	58.5	58.0	57.7	57.0	56.8	57.1	57.7	58.0	58.7	60.0	61.4	61.9	61.8	61.6	61.0	60.5	60.1	59.8	1424.8	59.37	
24	59.8	59.7	59.5	59.0	58.9	58.5	58.0	57.8	57.2	56.7	56.6	55.9	55.7	56.9	58.2	60.0	62.1	61.3	63.4	61.2	62.2	60.8	60.6	59.7	1419.7	59.15	
25	58.2	58.9	59.2	59.2	58.9	58.0	57.9	57.3	57.0	57.0	57.3	57.6	57.1	58.0	59.5	61.5	63.1	63.4	62.5	61.8	60.7	60.0	59.8	59.5	1423.4	59.31	
26 D	59.0	59.3	59.0	57.9	57.0	56.1	54.4	53.7	58.2	60.5	58.8	57.1	58.7	59.6	60.9	62.5	63.5	63.6	62.6	61.8	60.4	59.8	59.7	59.6	1423.7	59.32	
27	59.2	59.9	59.8	59.0	58.4	58.8	58.2	57.8	56.5	56.7	56.0	56.7	57.8	58.7	60.1	62.4	64.5	64.7	63.5	62.5	61.3	60.1	60.1	60.1	1432.8	59.70	
28	60.0	59.0	59.4	59.8	59.7	59.3	58.9	58.4	57.8	57.0	57.1	56.9	57.0	57.8	59.8	61.4	63.5	64.3	63.4	62.3	61.1	60.4	60.3	59.9	1434.5	59.77	
29	59.9	59.6	59.2	57.4	57.1	57.7	58.0	58.3	58.2	57.8	57.8	57.9	57.9	58.8	59.0	60.4	61.6	62.4	62.7	62.4	61.4	60.7	60.1	59.7	1426.3	59.43	
30	58.9	58.9	58.9	58.8	58.0	58.0	58.0	57.8	57.0	57.2	57.0	58.0	58.0	58.5	59.3	60.6	61.4	61.4	61.7	61.6	61.0	60.6	60.1	59.8	1420.5	59.19	
31	59.7	59.5	59.5	59.2	58.7	58.0	57.7	57.4	56.9	56.1	56.3	56.5	57.1	58.0	59.7	61.3	62.4	62.4	61.6	61.0	60.7	60.6	60.5	60.4	1421.2	59.22	
Sum.																									44197.8		
1000+	822.4	825.5	826.5	818.8	809.8	801.7	799.4	800.6	798.6	793.1	789.3	788.7	792.9	809.2	840.5	883.8	931.2	949.9	944.4	924.9	891.6	871.6	856.1	827.3			
Mean.	58.79	58.89	58.92	58.67	58.38	58.12	58.05	58.08	58.02	57.84	57.72	57.70	57.84	58.36	59.37	60.77	62.30	62.90	62.72	62.09	61.02	60.37	59.87	58.95		59.41	



Dispersal component, H, 23000 gammas - tabulated value

October 1964

U.T. Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.
1	244	243	243	242	251	237	237	238	239	242	237	235	224	218	209	210	216	222	233	240	241	241	242	244	5628	234.5
2	246	244	242	245	244	244	242	242	240	241	242	240	232	220	213	210	216	225	230	237	237	241	244	246	5663	236.0
3	249	246	246	245	243	241	243	241	238	238	240	238	240	240	219	221	229	228	238	246	248	248	250	251	5764	240.2
4 D	245	235	229	247	250	261	245	245	242	242	241	245	241	236	230	225	223	200	222	216	205	217	212	216	5570	232.1
5 D	223	224	245	244	241	249	242	241	240	238	238	234	221	204	207	213	213	223	233	231	239	239	222	235	5539	230.8
6	243	246	250	251	251	249	246	245	245	240	240	237	228	211	206	198	206	228	240	243	240	237	236	219	5636	234.8
7	228	228	232	238	249	244	239	234	239	237	240	241	235	224	215	218	227	236	241	245	237	216	231	237	5611	233.8
8	248	249	250	246	245	244	243	242	240	246	236	240	236	221	213	214	219	216	215	224	231	224	232	232	5606	233.6
9	231	242	245	246	246	246	241	249	244	248	241	235	226	218	213	210	212	221	228	237	235	229	233	231	5607	233.6
10	242	245	246	245	244	243	243	241	240	240	244	244	235	220	213	210	211	215	223	232	238	240	241	244	5639	235.0
11	244	248	248	248	248	248	248	248	248	248	251	253	246	233	219	215	220	224	232	244	244	235	237	240	5769	240.4
12	246	248	248	248	248	252	252	263	257	251	248	243	245	229	217	207	219	220	227	228	232	232	239	241	5740	239.2
13	240	240	237	227	229	235	237	237	240	240	241	239	227	203	198	198	207	223	234	242	247	247	249	248	5564	231.8
14	245	240	237	243	240	235	240	238	237	237	238	234	225	217	212	212	216	226	248	247	250	249	248	248	5662	235.9
15	247	244	243	242	241	244	243	243	239	244	243	241	234	223	211	206	211	224	239	245	243	245	245	246	5686	236.9
16	244	244	248	245	250	247	244	243	241	241	243	241	232	219	210	210	217	227	242	250	253	253	248	248	5739	239.1
17	248	249	250	252	252	257	249	243	240	240	241	243	239	226	216	220	224	236	245	248	251	249	253	253	5824	242.7
18	254	257	266	264	265	255	252	251	248	245	241	238	229	228	222	219	226	237	244	236	234	236	233	231	5811	242.1
19 D	232	245	252	258	262	267	269	249	240	235	239	238	227	203	210	203	211	221	222	205	223	220	214	234	5579	232.5
20	243	245	246	245	254	251	246	243	240	240	230	239	225	209	213	220	230	246	252	252	237	238	243	245	5738	239.1
21 D	247	249	251	257	253	247	249	248	239	232	245	233	227	216	206	207	220	232	230	217	232	230	234	234	5612	233.8
22 C	240	245	246	246	246	246	241	239	240	240	240	236	227	219	218	219	226	234	240	244	244	244	244	244	5710	237.9
23	244	244	244	243	240	240	241	240	240	239	233	228	221	214	212	212	220	232	239	240	240	251	245	246	5648	235.3
24	248	250	251	251	250	248	250	248	248	243	237	227	218	210	210	218	225	235	244	256	256	252	265	253	5793	241.4
25	238	244	244	248	246	243	245	245	244	244	240	230	216	207	207	219	229	238	248	254	254	250	249	253	5734	238.9
26 D	269	273	276	282	277	262	253	234	248	238	235	219	198	190	187	192	200	215	226	232	232	238	240	240	5656	235.7
27	239	240	240	239	239	237	236	236	233	232	232	224	215	206	199	203	212	227	236	240	240	245	244	244	5538	230.7
28	240	242	242	244	243	242	240	240	239	236	232	228	220	212	211	218	227	236	241	243	246	247	248	252	5669	236.2
29	253	252	252	256	246	242	244	243	240	235	232	226	215	209	211	219	228	230	233	236	241	244	245	244	5673	236.4
30	243	240	240	238	238	239	241	242	239	238	233	225	219	216	221	226	233	238	242	241	242	243	247	250	5674	236.4
31	248	247	246	245	244	244	245	244	240	236	235	227	211	200	197	202	215	229	244	248	254	254	255	256	5666	236.1
Sum.	7545	7588	7635	7670	7675	7639	7586	7535	7487	7446	7397	7301	7032	6701	6545	6574	6788	7044	7311	7399	7450	7434	7466	7500	175748	
Mean.	243.4	244.8	246.3	247.4	247.6	246.4	244.7	243.1	241.5	240.2	238.6	235.5	226.8	216.2	211.1	212.1	219.0	227.2	235.8	238.7	240.3	239.8	240.8	241.9		236.2

Vertical component, Z, - (36000 + tabulated values) gammas

October 1961

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	197	189	190	189	185	176	182	181	179	183	186	186	184	182	176	174	179	183	189	194	197	196	194	192	192	463	186.7
2	191	187	187	187	186	186	185	184	183	185	185	185	183	179	173	170	174	179	183	190	191	191	192	191	191	427	184.5
3	191	188	187	185	185	184	184	183	182	182	182	183	180	177	165	166	173	176	181	188	194	198	194	195	195	403	183.5
4 D	190	190	190	194	183	171	179	182	181	178	176	183	181	177	174	172	172	162	183	190	199	199	199	199	199	454	183.5
5 D	190	192	182	179	183	185	182	181	185	183	181	177	175	172	178	179	176	183	190	199	200	200	191	195	195	438	184.9
6	194	193	190	189	189	188	185	183	182	181	182	181	180	172	172	168	172	186	191	193	193	194	197	189	189	444	185.2
7	190	183	181	185	181	174	181	184	187	180	178	181	180	181	174	176	180	183	186	190	191	188	194	193	193	451	183.4
8	196	192	189	185	184	179	173	169	172	180	175	177	176	172	170	174	170	172	180	192	196	198	200	197	197	4365	181.9
9	193	193	193	189	183	185	181	176	181	183	182	173	172	172	172	172	176	181	185	190	195	192	193	192	192	4321	180.2
10	193	191	189	188	185	186	185	185	184	184	184	184	186	185	180	174	172	171	172	176	181	189	193	192	191	4416	181.0
11	189	189	187	186	185	185	184	184	183	181	181	184	181	176	168	165	164	165	173	181	188	185	189	189	189	4312	180.9
12	189	187	185	185	184	185	184	173	168	168	167	161	161	159	159	160	169	176	185	191	194	194	197	194	194	4275	178.1
13	192	188	185	183	184	185	185	184	181	181	181	181	176	171	173	173	174	181	184	190	193	190	192	191	191	4398	183.2
14	191	187	186	181	173	178	183	181	180	180	181	180	177	176	172	169	172	180	186	192	192	192	189	188	188	4366	181.9
15	185	184	184	184	182	184	181	181	176	178	178	178	180	175	171	167	171	170	181	183	191	192	192	192	192	4346	181.1
16	189	186	185	184	180	174	176	178	179	177	176	177	176	171	167	164	166	172	180	185	189	189	187	186	186	4293	178.9
17	185	184	185	184	181	176	168	172	173	173	172	171	169	163	160	162	166	173	179	182	185	185	186	185	185	4219	175.8
18	184	184	186	183	176	173	176	176	176	172	168	169	165	165	164	163	165	169	175	177	179	185	189	190	190	4209	175.4
19 D	187	189	188	187	186	179	162	168	169	173	174	172	168	155	163	157	168	172	178	187	188	197	193	199	199	4259	177.5
20	196	185	187	186	185	180	180	180	178	176	172	175	171	165	164	165	169	176	182	187	181	183	186	184	184	4293	178.9
21 D	185	185	185	180	178	176	173	167	165	169	172	178	176	172	166	162	164	169	176	182	189	190	188	188	188	4235	176.5
22	188	189	187	185	184	184	181	180	180	179	177	174	172	169	165	163	168	174	181	185	186	187	186	184	184	4308	179.5
23	182	181	181	180	180	181	181	182	182	181	177	175	173	170	168	167	169	175	178	181	182	183	183	183	183	4275	176.1
24	183	182	182	181	180	179	180	179	179	176	172	169	168	163	157	153	156	162	171	180	181	181	189	183	183	4186	174.4
25	177	179	179	180	179	178	180	180	178	176	173	171	167	161	159	161	167	172	178	183	185	181	180	183	183	4207	175.3
26 D	189	187	186	184	176	165	162	158	162	139	152	159	154	152	155	160	168	176	184	190	189	192	189	187	187	4115	171.5
27	185	183	181	180	177	177	179	179	177	174	170	165	165	161	157	155	160	176	184	188	189	189	186	184	184	4221	175.9
28	181	181	180	180	178	178	178	179	178	176	171	169	166	162	160	164	164	174	182	185	190	192	184	184	184	4236	176.5
29	184	183	180	172	169	172	174	171	168	171	168	168	165	163	165	168	166	166	173	177	182	188	190	187	187	4170	173.7
30	185	182	182	181	178	178	180	180	177	175	172	169	165	165	167	168	168	172	176	188	183	183	184	184	184	4222	175.9
31	181	181	178	178	177	177	176	176	176	172	171	168	163	159	156	159	165	175	181	185	185	181	178	181	181	4179	174.1
Sum.	5332	5774	5737	5694	5616	5558	5540	5516	5471	5436	5416	5425	5354	5237	5164	5115	5212	5413	5611	5766	5866	5888	5883	5860	5860	133139	
Mean.	188.1	186.3	185.1	183.7	181.2	179.3	178.7	177.9	176.5	175.4	174.7	175.0	172.7	168.9	166.6	166.0	169.1	174.5	181.0	186.0	189.2	189.9	189.8	189.0	189.0		179.4



Declination,  $\delta$ , east of north 16 degrees + tabulated values in minutes of arc.

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U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1 D	60.1	60.0	59.6	58.8	56.9	54.8	54.1	54.4	54.8	55.4	54.8	54.3	56.3	57.1	60.1	62.4	64.1	65.6	64.5	62.3	61.2	61.1	61.0	59.6	1413.3	58.89	
2 D	59.5	59.6	57.0	58.0	59.0	57.8	57.0	57.5	57.2	57.0	57.8	58.5	58.9	59.1	60.1	61.5	62.4	62.5	61.7	60.9	60.7	60.6	57.9	59.1	1421.3	59.22	
3	59.8	59.5	58.5	58.6	59.0	58.9	58.8	58.0	57.8	57.0	57.0	57.2	57.9	59.1	60.4	62.0	63.2	63.1	61.9	60.3	59.6	59.3	59.7	59.9	1426.5	59.44	
4	59.8	59.7	59.2	57.1	56.4	57.8	57.6	57.0	56.1	55.5	55.3	55.4	57.3	60.5	61.6	61.6	62.4	63.4	62.4	60.7	60.0	60.4	61.1	59.4	1417.7	59.07	
5	59.0	59.5	59.8	59.3	58.8	58.2	58.2	57.3	56.6	56.1	56.6	56.6	57.7	60.7	60.0	51.7	53.2	53.7	54.9	54.7	53.1	52.3	52.0	60.7	1360.7	56.70	
6	60.7	60.7	60.5	59.8	59.0	58.6	58.0	57.0	56.1	55.4	56.1	57.5	58.5	59.8	60.7	61.1	61.6	61.9	61.7	61.5	60.6	60.3	60.1	60.2	1427.4	59.48	
7 Q	59.8	59.8	59.8	59.6	59.3	58.9	58.1	57.6	56.7	56.0	56.1	56.7	57.6	58.3	59.2	60.1	60.6	60.8	60.7	60.1	59.9	60.0	60.4	60.2	1416.3	59.01	
8	60.1	59.7	59.1	58.7	56.9	54.2	54.5	55.0	54.6	54.9	55.3	56.3	57.9	60.4	60.6	61.7	62.6	63.5	63.4	62.8	61.9	61.9	61.7	61.5	1419.2	59.13	
9 D	60.6	57.7	55.8	56.2	54.3	53.3	54.7	55.1	55.5	56.2	57.6	58.9	60.0	59.9	60.2	61.5	62.4	63.7	63.7	64.1	64.3	63.2	61.9	58.4	1419.2	59.13	
10	60.3	60.0	55.5	58.1	58.8	58.4	57.8	56.9	57.1	57.1	57.2	57.8	58.9	59.7	59.9	61.1	61.5	61.6	62.2	62.3	61.5	61.3	60.7	60.6	1426.3	59.43	
11	60.2	59.8	59.1	58.6	57.8	57.0	56.9	56.2	56.8	57.3	57.5	57.9	57.9	58.4	59.3	60.1	61.3	61.8	61.9	62.3	62.3	61.6	61.1	60.7	1423.8	59.33	
12	59.1	57.7	57.1	57.0	57.0	56.7	56.4	56.2	56.8	56.7	57.2	57.3	57.8	58.2	59.0	60.9	62.3	62.3	62.4	62.4	62.4	61.6	61.4	60.8	1416.7	59.03	
13	60.2	59.8	59.5	58.4	58.0	57.7	57.5	56.9	55.6	55.8	57.0	58.6	60.5	61.1	61.0	61.7	61.8	61.6	61.3	60.8	60.7	60.7	60.9	60.8	1427.9	59.50	
14 Q	60.6	60.1	59.8	59.4	58.9	58.1	57.8	57.1	56.7	56.4	56.7	57.2	58.4	59.1	59.8	60.7	61.3	60.8	59.9	59.5	59.7	60.1	60.1	59.9	1418.1	59.09	
15 D	59.7	59.7	59.6	59.0	58.4	57.9	57.2	57.1	56.2	55.3	53.3	54.2	55.6	58.0	60.8	60.8	60.8	61.9	63.4	62.0	62.4	61.6	61.5	61.1	1417.5	59.06	
16	59.2	59.1	58.8	58.9	58.9	57.0	57.9	55.7	55.0	56.1	56.7	58.1	59.0	59.7	61.2	62.5	62.5	62.0	62.5	62.9	62.7	61.8	61.4	59.7	1429.3	59.55	
17	59.7	59.9	59.8	59.7	58.9	58.8	58.0	56.8	56.4	55.9	56.6	57.6	59.0	60.0	61.6	62.1	62.0	62.4	62.4	61.9	61.3	60.7	60.5	59.8	1431.8	59.66	
18	59.8	59.5	59.6	59.0	58.6	58.2	57.9	57.5	56.2	55.3	55.2	56.2	57.3	58.5	59.5	60.7	61.6	62.4	61.9	60.8	60.5	60.6	60.5	59.7	1417.0	59.04	
19 Q	59.7	59.8	59.7	59.0	58.4	58.0	57.8	57.1	56.6	56.0	56.0	57.0	58.2	59.8	60.7	61.8	62.5	62.3	61.3	60.2	59.8	59.9	60.3	60.4	1422.3	59.26	
20	59.9	59.7	59.1	58.8	58.5	58.6	57.8	56.9	55.9	56.0	56.7	56.6	57.0	58.8	60.6	61.8	62.4	62.4	61.5	60.6	59.7	59.7	59.8	60.3	1419.1	59.13	
21	60.4	60.0	59.8	59.1	58.8	57.8	57.1	56.2	55.4	55.1	55.5	56.1	56.9	57.9	59.9	61.5	62.6	63.5	63.5	62.4	60.9	59.8	59.7	59.6	1419.5	59.15	
22	59.7	59.8	59.1	57.5	57.9	57.4	56.6	55.4	54.3	53.2	52.9	55.2	57.2	57.9	59.2	60.9	61.6	62.4	62.4	61.8	62.4	62.4	62.3	61.6	1411.5	58.81	
23 D	59.5	57.8	58.6	57.8	54.6	52.4	51.6	53.2	52.5	54.3	56.1	55.2	57.8	59.5	63.2	67.0	67.1	66.8	65.0	64.7	63.1	61.5	60.6	60.5	1420.4	59.18	
24 Q	60.1	60.0	60.1	60.0	59.5	58.7	58.1	57.6	56.7	55.9	55.4	56.1	57.5	59.0	60.8	62.7	64.3	64.6	63.5	62.3	61.3	60.8	60.7	60.7	1436.4	59.85	
25 Q	60.7	60.7	60.2	59.7	59.2	58.8	57.9	57.0	56.1	55.6	55.9	56.1	57.1	57.9	59.0	60.1	61.0	61.6	61.6	61.6	60.8	61.3	61.3	60.7	1421.9	59.25	
26	60.4	59.7	58.9	57.2	55.8	56.3	55.3	54.5	54.2	55.1	57.0	57.9	57.9	61.0	62.6	63.8	64.3	64.4	64.1	63.5	62.5	61.3	60.8	60.8	1429.3	59.55	
27	60.7	60.5	60.0	59.3	58.1	57.1	56.3	56.1	55.4	55.1	55.2	56.1	57.0	57.9	59.6	61.0	61.7	62.1	61.9	61.6	61.5	61.6	62.0	61.7	1419.5	59.15	
28	60.9	60.7	58.0	57.2	56.7	56.2	56.1	56.9	56.5	56.0	56.7	57.8	59.3	60.6	60.9	61.7	62.7	63.0	61.4	60.3	60.6	60.9	61.4	61.3	1423.8	59.33	
29	60.8	60.1	59.8	59.2	58.8	58.4	57.8	57.2	56.8	56.1	56.2	56.8	57.9	58.9	59.8	60.8	61.4	61.4	61.3	60.6	60.1	60.4	60.7	60.7	1422.0	59.25	
30	59.7	59.5	59.0	58.8	57.9	55.8	54.7	55.4	55.2	55.1	56.0	56.2	57.0	58.1	59.7	61.1	62.3	62.4	62.0	60.8	60.1	60.1	60.4	61.2	1408.5	58.69	
Sum.																									42584.2		
1000+	800.7	790.1	770.4	758.2	739.1	717.8	705.5	692.8	677.8	672.9	683.6	703.4	737.3	774.9	811.0	838.4	861.5	871.9	862.3	842.7	827.6	818.8	813.9	811.6			
Mean.	60.02	59.67	59.01	58.61	57.97	57.26	56.85	56.43	55.93	55.76	56.12	56.78	57.91	59.16	60.37	61.28	62.05	62.40	62.08	61.42	60.92	60.63	60.46	60.39		59.15	

Horizontal component, H, 23000 gammas + tabulated value

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U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1 D	252	257	257	264	269	254	250	251	247	243	238	229	219	215	217	227	241	231	235	240	248	251	232	228	5793	241.4	
2 D	241	243	249	251	254	253	242	238	239	237	232	221	212	207	208	212	216	226	233	237	240	242	236	241	5610	233.7	
3	240	241	239	239	243	244	245	243	240	235	230	220	211	203	201	207	214	230	241	246	248	249	248	248	5605	233.5	
4	251	253	254	245	235	242	243	248	245	243	235	222	203	197	204	216	227	238	240	246	248	248	243	238	5664	236.0	
5	244	244	247	248	245	239	243	242	240	235	231	225	214	208	215	219	220	236	243	228	230	237	245	249	5627	234.5	
6	247	246	248	251	249	251	251	248	243	239	227	216	210	207	212	221	230	237	242	245	243	245	246	247	5701	237.5	
7 C	247	245	247	246	246	245	245	246	242	238	232	226	221	229	215	219	223	231	198	203	208	212	215	215	5494	228.9	
8	269	275	269	275	276	267	250	249	246	244	236	229	219	216	219	225	232	240	243	243	245	251	258	259	5935	247.3	
9 D	271	257	245	245	269	244	238	234	230	232	231	217	221	214	212	216	228	229	236	237	232	234	241	238	5651	235.5	
10	244	247	251	243	244	241	241	238	232	230	222	215	207	206	216	227	235	238	233	233	233	241	245	250	5612	233.8	
11	251	250	250	250	256	249	248	244	240	238	233	226	222	214	215	219	223	233	238	244	249	252	255	253	5752	239.7	
12	256	251	249	244	243	240	241	239	239	238	230	219	209	205	206	215	226	239	242	244	243	238	248	251	5655	235.6	
13	249	248	250	249	248	245	243	243	238	232	226	218	211	210	211	220	230	238	243	240	243	249	251	250	5685	236.9	
14 C	247	248	247	246	245	242	241	242	244	241	234	227	224	227	233	241	243	244	242	243	250	252	254	255	5812	242.2	
15 D	255	252	252	253	249	247	247	249	249	245	238	228	224	228	244	250	241	243	232	238	250	259	260	233	5866	244.4	
16	244	249	255	254	252	239	248	252	249	245	231	222	221	217	216	221	224	228	232	234	225	239	248	241	5686	236.9	
17	247	250	251	254	254	254	253	246	246	240	235	229	223	219	217	220	229	239	241	242	244	242	246	250	5771	240.5	
18	250	250	255	253	252	253	249	247	245	244	231	224	218	215	218	224	229	233	240	244	249	251	251	248	5773	240.5	
19 C	248	246	251	250	251	246	244	242	242	240	233	222	211	206	208	213	222	232	240	246	253	258	257	256	5717	238.2	
20	253	253	250	247	245	247	249	249	247	244	239	232	221	211	205	212	227	240	250	256	258	258	256	251	5800	241.7	
21	257	258	261	262	259	255	253	254	254	252	244	234	222	214	210	211	220	233	244	250	255	258	258	258	5876	244.8	
22	259	264	264	261	261	259	260	253	251	246	236	233	228	220	219	221	232	246	252	249	262	266	260	266	5968	248.7	
23 D	257	252	252	245	241	237	250	236	224	228	250	220	214	195	183	191	194	211	219	228	230	236	242	245	5480	228.3	
24 C	243	243	241	241	240	237	234	234	234	233	229	217	205	194	188	192	205	221	236	241	240	239	241	242	5170	227.9	
25 C	242	242	245	247	247	247	249	247	248	245	240	232	221	213	212	216	226	241	250	262	250	258	261	263	5804	241.8	
26	264	265	265	263	250	251	249	242	237	231	234	239	234	232	235	232	232	230	227	232	238	242	247	248	5817	242.5	
27	249	250	250	246	240	233	233	237	234	232	228	225	225	222	215	213	222	236	245	253	245	243	255	256	5687	237.0	
28	260	268	257	254	257	260	254	252	245	234	227	223	228	226	226	229	231	228	227	236	235	241	247	253	5799	241.6	
29	252	251	250	252	251	251	251	250	249	245	241	242	239	235	230	224	225	232	236	245	250	254	258	267	5880	245.0	
30	238	256	263	259	257	258	245	245	242	240	237	230	227	226	224	220	221	229	239	246	247	257	250	247	5803	241.8	
Sum.	7527	7554	7564	7537	7528	7430	7389	7340	7261	7169	7010	6762	6563	6431	6434	6573	6768	7012	7119	7231	7291	7402	7454	7446	171795		
Mean.	250.9	251.8	252.1	251.2	250.9	247.7	246.3	244.7	242.0	239.0	233.7	225.4	218.8	214.4	214.5	219.1	225.6	233.7	237.3	241.0	243.0	246.7	248.5	248.2		238.6	



Vertical component, Z, - (36000 + tabulated values) gammas

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U.T. Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
1 D	181	183	182	183	183	175	173	174	171	166	162	160	154	149	150	158	166	162	169	175	182	187	192	190	4127	172.0	
2 D	189	192	186	183	171	170	171	175	176	175	170	168	168	167	165	166	172	179	184	187	188	188	186	188	188	4264	177.7
3	183	183	176	178	180	180	180	178	177	173	169	168	165	162	162	162	167	178	186	188	187	186	182	182	182	4233	176.4
4	179	179	179	175	172	177	178	178	177	173	167	163	158	154	159	164	166	171	175	183	183	183	175	180	180	4148	172.8
5	183	182	182	183	180	178	178	178	175	171	167	166	162	154	162	163	165	173	176	176	181	183	186	186	186	4190	174.6
6	183	179	180	181	180	179	178	176	174	170	163	159	158	157	163	166	170	174	178	179	178	178	178	178	178	4159	173.3
7 Q	179	178	176	176	176	176	177	176	175	172	168	164	163	160	158	160	163	165	170	173	176	175	176	176	176	4108	171.2
8	180	182	175	176	176	167	164	164	163	162	157	154	150	150	150	157	164	170	171	171	178	179	183	180	180	4023	167.6
9 D	187	185	175	173	161	153	165	169	162	162	153	149	155	155	157	158	165	167	176	180	181	181	191	190	190	4050	168.7
10	185	185	179	175	176	175	174	172	167	166	164	163	162	160	161	163	164	166	170	172	173	178	180	182	182	4112	171.3
11	181	179	177	176	176	173	174	169	167	166	165	163	165	162	163	164	166	167	167	169	174	176	180	181	181	4101	170.9
12	182	178	174	173	171	166	167	169	169	169	165	162	162	160	159	162	163	167	170	173	174	174	178	180	180	4067	169.5
13	178	176	176	173	173	171	168	167	163	162	157	155	154	157	158	157	162	167	170	171	174	176	176	176	176	4017	167.4
14 Q	174	175	174	173	173	172	173	171	168	165	160	157	155	156	157	161	162	164	167	170	172	174	174	174	174	4021	167.5
15 D	174	172	172	173	171	170	170	169	167	162	158	154	149	151	156	163	158	156	156	163	173	181	188	179	179	3985	166.0
16	184	184	179	175	171	164	164	154	147	147	147	147	150	153	153	154	156	161	165	169	171	181	188	182	182	3946	164.4
17	186	180	177	177	174	173	172	167	168	165	160	157	160	155	152	155	160	164	168	172	176	177	180	180	180	4055	169.0
18	180	177	178	176	174	173	172	168	168	163	156	151	149	153	155	156	157	159	164	170	154	154	155	155	155	3917	163.2
19 Q	176	173	173	172	169	168	169	169	167	163	156	149	146	145	144	146	152	161	165	168	173	173	172	172	172	3921	163.4
20	170	171	171	169	169	172	173	172	169	160	156	151	145	142	139	143	152	161	167	171	171	169	171	168	168	3902	162.6
21	170	170	171	171	169	167	168	168	166	161	154	145	141	138	139	139	141	147	156	164	170	171	174	172	172	3832	159.7
22	171	171	171	168	171	170	170	167	163	160	150	145	146	144	143	145	147	155	160	158	164	166	170	176	176	3851	160.5
23 D	175	174	172	170	167	162	155	150	153	153	147	140	141	139	139	141	148	162	172	178	180	183	182	180	180	3863	161.0
24 Q	179	177	174	173	172	171	171	169	168	163	158	154	151	144	142	145	154	163	174	178	175	171	170	171	171	3967	165.3
25 Q	171	170	170	171	171	171	171	171	168	163	159	155	152	148	144	143	150	154	167	171	172	164	166	166	166	3908	162.8
26	167	170	170	168	163	166	164	161	158	154	154	151	144	143	139	142	148	154	162	174	181	181	179	179	179	3872	161.3
27	180	178	175	172	168	166	168	169	167	165	162	155	150	151	146	147	155	160	164	164	160	160	166	167	167	3915	163.1
28	171	177	173	168	170	169	165	165	158	152	145	148	151	153	157	156	154	154	161	166	165	170	172	174	174	3894	162.2
29	172	171	169	170	168	167	166	164	162	160	157	153	150	147	144	147	151	151	152	159	163	167	168	180	180	3858	160.7
30	171	174	174	168	163	155	155	160	159	158	151	146	144	142	141	142	144	151	158	165	166	170	171	172	172	3800	158.3
Sum.	5341	5325	5260	5219	5158	5096	5093	5059	4992	4901	4757	4652	4602	4551	4557	4625	4742	4883	5040	5157	5215	5256	5309	5316	120106		
Mean.	178.0	177.5	175.3	174.0	171.9	169.9	169.8	168.6	166.4	163.4	158.6	155.1	153.4	151.7	151.9	154.2	158.1	162.8	168.0	171.9	173.8	175.2	177.0	177.2		166.8	

Declination, D, east of north 16 degrees + tabulated values in minutes of arc.

December 1964

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	59.4	57.9	57.9	58.6	58.5	58.0	57.8	58.8	57.8	58.8	57.0	56.3	56.9	59.0	60.8	62.8	62.5	62.0	61.9	61.5	60.1	59.5	59.0	58.8	1421.6	59.23	
2	58.8	58.8	58.9	58.8	58.7	58.7	58.0	57.8	57.0	55.4	55.1	55.2	57.1	59.2	61.0	62.4	63.4	63.4	62.7	61.8	60.7	59.9	59.7	58.9	1421.4	59.23	
3	59.0	58.9	59.0	59.0	58.9	58.9	57.9	57.2	56.2	55.7	55.1	57.0	59.1	59.9	60.3	61.7	63.4	63.9	64.7	62.4	60.7	59.7	59.4	59.4	1427.1	59.46	
4	59.6	59.7	59.5	59.0	58.9	58.6	58.1	57.8	57.0	56.1	55.5	56.2	57.4	59.0	60.1	60.7	61.9	63.4	62.9	61.3	59.7	59.5	59.5	59.7	1421.1	59.21	
5 Q	59.8	59.1	59.0	59.0	58.7	58.0	57.8	57.1	55.9	55.9	55.7	56.2	57.4	58.9	59.2	60.8	61.4	61.6	61.7	60.6	60.0	59.7	59.2	59.2	1411.5	58.81	
6	59.3	59.0	58.8	58.4	57.9	57.3	56.7	56.1	55.2	54.6	55.0	55.6	57.1	59.0	60.7	61.7	61.9	62.3	62.1	61.7	60.8	60.1	60.4	60.6	1412.5	58.85	
7 D	59.7	59.5	58.8	58.0	57.0	56.1	55.5	54.1	53.4	53.6	54.2	55.8	58.0	58.3	58.2	60.0	62.6	63.1	62.0	62.0	61.8	61.6	60.7	60.5	1404.5	58.52	
8	60.2	58.5	58.8	57.9	57.0	56.1	56.1	55.3	55.5	55.4	55.5	56.0	57.1	58.5	60.2	62.3	62.8	62.6	62.1	62.0	61.6	61.3	60.7	60.2	1414.0	58.92	
9	59.7	59.4	59.1	58.9	58.2	57.5	57.1	56.6	55.6	54.9	55.0	56.2	57.3	58.9	59.8	61.0	62.3	62.4	61.1	60.8	60.7	60.9	59.8	60.1	1413.8	58.91	
10	60.7	60.2	59.7	59.0	58.1	57.6	57.0	56.1	55.8	56.0	56.2	57.8	58.0	58.2	59.1	60.1	60.9	61.7	61.6	61.6	61.7	61.4	60.8	60.4	1419.7	59.15	
11	59.9	59.3	58.9	58.6	58.0	57.8	57.3	56.4	56.0	55.3	55.5	56.4	57.0	57.8	59.6	61.3	61.7	61.3	60.6	60.3	60.6	60.7	61.1	60.6	1412.2	58.84	
12 Q	60.2	59.6	59.0	59.5	58.4	58.0	57.8	57.0	55.6	54.4	54.4	56.0	57.8	59.2	60.6	61.3	61.0	61.2	61.7	61.3	61.5	61.0	60.5	60.3	1416.9	59.04	
13 D	60.5	60.0	59.6	59.0	58.3	57.6	56.1	54.8	54.2	54.4	54.6	57.3	57.8	57.6	58.8	60.1	63.2	64.3	63.6	62.8	62.5	62.0	61.6	60.9	1421.6	59.23	
14	60.7	59.9	59.2	58.9	58.8	57.0	55.2	54.9	54.3	54.8	55.9	55.8	57.4	58.6	58.9	60.1	61.5	61.7	61.3	62.5	61.9	60.7	60.0	59.8	1410.3	58.76	
15	59.2	57.6	57.7	58.5	58.0	55.2	55.4	55.3	55.3	55.2	55.0	56.1	58.5	59.4	60.2	61.2	61.6	61.5	61.6	61.3	61.1	60.7	60.6	60.8	1407.0	58.63	
16 D	60.1	59.6	59.1	58.1	56.2	55.0	54.3	54.2	53.2	53.1	54.0	56.1	57.0	60.8	65.2	61.8	62.6	64.4	63.6	62.5	61.2	61.3	61.3	60.8	1415.3	58.97	
17 D	60.6	54.0	57.7	59.0	52.9	58.4	56.5	55.3	56.0	55.9	55.2	56.5	57.9	59.0	59.5	62.4	63.5	62.7	61.6	60.1	59.9	61.1	62.0	60.8	1414.5	58.94	
18	59.8	59.8	59.2	58.8	58.3	57.2	56.0	55.8	55.4	56.0	55.9	56.7	58.6	60.1	61.0	62.4	63.7	64.6	63.4	62.0	61.3	60.6	60.4	60.4	1426.8	59.45	
19 D	59.9	59.7	59.7	58.9	58.8	58.0	57.0	55.8	55.1	54.2	53.4	54.4	56.0	58.2	60.0	61.9	63.4	63.2	62.4	62.3	60.6	60.3	60.1	59.8	1413.1	58.88	
20	59.9	60.0	59.9	59.5	58.7	57.8	57.0	56.2	55.5	54.4	54.5	56.1	57.1	58.4	60.1	62.3	63.5	64.2	62.5	59.8	59.0	58.9	59.8	59.9	1415.0	58.96	
21	60.0	59.8	59.2	58.9	58.5	57.3	56.7	55.4	54.3	53.4	54.2	54.1	56.4	59.7	61.3	63.2	65.0	65.0	64.7	60.6	58.8	58.4	58.9	59.3	1413.1	58.88	
22	58.9	58.9	59.0	58.8	58.2	57.4	56.7	55.7	54.8	54.0	53.3	53.9	55.8	58.0	60.8	62.4	62.6	62.7	62.1	61.0	60.2	59.7	60.1	59.9	1405.2	58.55	
23	60.0	59.8	59.5	58.9	58.1	57.2	55.3	54.2	54.0	53.6	53.9	54.5	55.9	57.7	59.6	61.6	63.0	63.4	62.5	61.7	60.2	59.0	59.1	59.8	1402.5	58.44	
24	59.8	59.1	59.7	58.2	57.3	56.7	56.2	56.2	56.0	55.3	54.5	54.5	56.5	57.9	59.7	62.4	63.6	63.5	63.3	62.6	61.0	59.7	59.3	59.5	1412.8	58.87	
25	59.7	59.7	59.5	58.9	58.2	57.8	56.8	55.9	55.3	55.4	55.1	55.3	56.5	57.9	59.1	61.2	62.7	63.7	63.5	62.3	61.3	60.4	59.7	59.7	1415.6	58.98	
26	59.5	60.0	60.0	59.8	59.1	58.0	57.1	56.5	56.1	56.4	56.9	57.7	57.8	58.7	59.8	61.3	62.5	63.2	62.7	61.7	61.0	60.6	59.9	59.9	1426.0	59.42	
27 Q	60.1	59.8	59.6	59.1	52.5	58.6	56.5	54.9	54.3	54.3	54.4	55.2	56.6	57.9	59.2	60.7	61.3	60.8	60.7	60.7	60.6	60.6	60.7	60.4	1405.5	58.56	
28	59.8	59.3	58.8	58.8	58.4	57.9	57.3	56.8	56.0	55.2	55.0	55.2	56.4	57.9	58.8	59.9	61.6	62.4	62.4	62.4	62.1	61.6	61.3	60.8	1416.1	59.00	
29	60.4	59.7	58.9	58.9	57.9	57.8	58.8	58.0	55.5	54.7	54.3	54.5	57.3	58.8	58.9	60.9	63.5	63.7	62.7	62.1	61.4	60.6	60.6	60.7	1420.6	59.19	
30 Q	60.7	60.3	59.7	59.0	58.5	58.0	57.8	57.1	56.0	55.5	55.5	56.0	57.1	58.0	58.8	59.4	59.9	59.9	60.0	60.4	60.4	60.1	60.4	60.4	1408.9	58.70	
31 Q	60.1	59.8	59.1	58.9	57.3	57.6	56.8	56.4	55.5	55.0	54.5	55.5	57.2	58.3	58.9	60.0	61.2	61.7	61.6	61.7	61.4	61.2	61.5	61.4	1413.1	58.88	
Sum.																									145859.3		
1000+	856.0	836.7	832.5	823.6	804.5	783.1	760.6	739.7	717.8	706.9	704.3	730.1	774.0	818.6	858.2	901.3	935.7	945.5	931.8	907.8	885.8	872.9	867.8	863.9			
Year.	59.87	59.25	59.11	58.83	58.21	57.52	56.79	56.42	55.41	55.06	54.98	55.81	57.23	58.67	59.94	61.33	62.44	62.76	62.32	61.54	60.83	60.42	60.25	60.13		58.95	



Horizontal component, H, 2,000 gammas + tabulated value

December 1964

U.I.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.	
Date																											
1	247	258	250	250	253	251	245	249	246	244	238	234	226	212	201	204	212	222	225	232	229	240	245	249	5663	236.0	
2	254	254	255	254	251	251	250	249	251	246	240	230	213	212	212	220	233	242	241	236	239	242	241	243	5757	240.3	
3	252	256	257	257	258	255	254	252	249	245	243	232	226	215	214	213	221	231	235	222	235	235	239	245	5750	239.9	
4	249	252	252	251	249	243	246	246	243	243	236	227	219	214	217	218	225	231	235	236	236	244	248	252	5749	239.3	
5	255	256	256	257	252	252	251	249	249	246	239	230	218	211	211	215	222	230	239	251	255	252	255	253	5804	241.8	
6	258	262	261	261	262	260	258	257	253	243	234	225	215	210	212	220	236	248	252	257	249	253	259	267	5917	245.5	
7 D	270	271	275	273	273	269	264	264	262	255	236	231	235	235	237	230	234	235	231	248	250	251	240	243	6020	250.8	
8	257	253	252	252	252	255	245	241	236	231	223	217	209	205	206	214	220	225	228	230	237	242	249	249	5628	234.5	
9	252	253	256	257	257	258	257	249	243	239	237	233	227	219	219	222	232	242	242	244	255	260	257	253	5663	241.3	
10	257	258	258	254	249	249	251	244	238	233	228	225	223	219	215	223	232	233	233	238	243	244	244	244	5735	239.0	
11	245	250	251	253	253	251	250	246	245	245	241	236	224	215	210	219	229	234	247	235	241	243	249	255	5763	240.1	
12	258	257	258	259	258	253	252	250	249	245	237	226	223	224	225	232	234	236	242	242	247	248	249	257	5866	244.4	
13 D	262	265	271	275	274	278	274	266	258	250	246	242	242	249	245	245	235	225	225	231	253	262	262	262	6103	254.3	
14	251	254	256	260	260	251	247	242	240	232	230	233	232	228	224	211	216	222	232	234	237	247	256	259	5751	239.6	
15	260	250	249	250	249	253	240	240	238	226	218	214	205	203	209	221	230	237	242	244	255	259	255	261	5744	239.1	
16 D	257	260	258	259	251	249	247	249	242	240	232	233	224	199	224	237	239	245	250	258	263	255	253	255	5879	245.0	
17 D	266	259	246	243	242	247	239	233	230	233	229	222	211	203	206	217	237	248	257	259	257	255	241	242	5728	238.7	
18	238	246	252	247	244	242	240	241	234	228	222	218	213	214	223	234	244	249	245	243	247	253	253	253	5723	238.5	
19 D	247	249	252	252	251	251	251	246	243	239	229	219	210	208	215	220	231	245	253	250	252	252	250	248	5763	240.1	
20	251	251	251	250	248	250	249	248	243	233	228	224	213	213	216	220	231	249	255	256	266	260	268	255	5828	242.8	
21	253	255	254	253	249	245	244	240	238	234	235	230	224	218	217	220	229	246	259	267	265	261	259	258	5853	243.8	
22	248	249	249	248	246	246	248	245	240	235	227	220	213	215	211	215	229	240	251	251	260	260	262	255	5768	240.3	
23	250	256	258	257	253	262	260	252	245	237	230	226	222	226	224	221	225	236	248	248	246	244	257	258	5804	243.5	
24	258	257	255	254	250	250	248	245	244	243	235	224	223	220	214	212	219	232	252	257	254	252	257	257	5802	242.2	
25	256	254	253	253	250	249	248	247	245	243	241	244	248	245	232	222	228	241	245	236	243	249	262	255	5855	245.6	
26	244	250	253	255	258	254	254	250	246	242	241	238	228	221	216	215	220	233	243	242	242	248	264	264	5847	242.4	
27	261	260	255	255	255	255	254	253	251	249	243	233	230	230	229	225	227	230	233	240	243	242	258	262	5879	245.0	
28	261	258	255	254	254	253	253	250	250	247	242	240	239	237	233	234	248	262	260	250	245	244	258	265	5995	249.8	
29	255	255	259	261	261	261	256	251	248	247	242	240	239	236	228	226	232	239	242	243	244	239	245	247	5893	245.5	
30	254	250	253	253	255	256	256	255	249	244	240	233	233	232	235	239	248	248	244	239	237	240	248	253	5894	245.6	
31	262	261	257	260	260	258	255	249	245	242	238	228	219	218	225	231	239	245	249	247	240	239	246	253	5864	244.3	
Sum.	7391	7919	7917	7917	7883	7865	7794	7698	7593	7462	7282	7110	6935	6809	6805	6900	7113	7385	7532	7576	7665	7724	7828	7883	180506		
Mean.	254.5	255.5	255.4	255.4	254.3	253.7	251.1	244.3	244.9	240.7	234.9	229.4	225.7	219.6	217.5	222.6	230.4	238.2	243.0	244.1	247.3	249.2	252.5	254.3		242.6	

Vertical component, Z, - (36000 + tabulated values) gammas

December 1964

U.T.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Sum.	Mean.
Date																										
1	173	176	168	168	168	164	159	155	146	148	147	148	144	140	137	140	150	160	165	169	169	174	173	174	3815	159.0
2	177	174	171	168	166	166	166	166	164	160	156	149	144	140	139	144	149	155	160	161	165	170	169	169	3848	160.3
3	170	172	172	170	168	165	165	165	161	156	152	145	144	143	138	140	142	149	161	164	171	170	169	169	3821	159.2
4	170	172	172	170	168	166	165	165	162	160	156	149	146	147	146	146	149	153	161	166	161	164	165	168	3847	160.3
5 C	170	170	170	169	166	165	165	162	160	157	152	147	142	135	133	138	149	160	162	165	166	165	164	162	3794	158.1
6	166	168	167	167	166	165	165	161	160	153	146	140	138	139	140	144	153	156	158	160	154	161	165	170	3762	156.7
7 D	169	167	169	167	165	172	161	160	157	152	143	137	136	140	136	131	138	145	149	157	159	170	170	169	3719	155.0
8	175	173	171	169	165	157	160	158	157	154	149	144	140	137	138	142	147	154	155	154	157	161	168	167	3752	156.3
9	167	165	165	166	165	166	162	157	155	152	149	147	147	145	145	149	153	156	159	159	160	165	163	163	3780	157.5
10	165	165	166	165	164	161	157	154	154	151	149	149	148	148	145	145	147	150	154	157	160	161	161	164	3740	155.8
11	165	165	165	165	165	163	161	160	159	158	154	149	147	143	140	149	152	156	160	165	166	165	167	168	3807	158.6
12 C	169	166	165	163	161	158	158	157	158	155	149	144	140	139	143	147	152	156	157	157	160	161	163	165	3743	156.0
13 D	166	166	170	169	166	166	162	157	150	146	145	144	140	136	136	137	135	136	144	156	161	166	166	164	3684	153.5
14	159	159	161	162	161	157	152	150	152	148	142	142	141	135	136	141	145	150	156	157	162	173	175	171	3687	153.6
15	171	166	162	161	159	153	148	154	152	145	139	134	137	139	141	145	150	155	159	158	158	161	163	166	3676	153.2
16 D	163	165	161	162	157	153	154	157	154	150	141	137	131	117	137	150	146	150	154	158	163	164	164	166	3654	152.2
17 D	174	170	163	157	155	153	156	154	150	147	145	141	136	133	136	142	150	158	162	161	158	162	160	166	3689	153.7
18	164	166	166	162	162	160	158	159	153	148	142	137	136	137	141	142	145	154	162	166	166	167	166	165	3725	155.2
19 D	164	166	166	165	163	163	162	158	152	144	135	130	128	128	134	138	143	155	158	156	160	159	158	155	3640	151.7
20	158	158	158	158	158	159	158	158	155	148	142	135	129	130	133	134	137	147	155	158	165	158	162	159	3612	150.5
21	156	157	157	156	155	153	151	150	149	145	143	136	129	123	125	130	139	155	162	164	163	158	156	154	3568	148.7
22	158	157	157	157	156	156	156	156	153	148	141	136	129	124	124	129	137	143	153	156	158	154	156	154	3548	147.8
23	154	156	160	159	156	153	144	144	145	144	143	138	133	129	123	124	128	139	151	158	159	157	161	158	3516	146.5
24	157	157	157	155	153	151	151	151	151	149	147	143	135	129	124	124	133	146	155	158	155	153	156	156	3546	147.7
25	158	157	154	153	152	152	153	152	150	149	145	141	138	135	126	125	124	130	137	141	152	154	163	163	3504	146.0
26	156	157	156	155	156	154	154	151	148	144	142	140	139	137	134	137	140	145	149	150	155	160	164	165	3588	149.5
27 C	161	160	157	156	156	157	156	155	151	146	142	137	134	135	136	133	132	134	140	146	149	151	156	158	3538	147.4
28	160	160	158	156	154	152	150	150	148	143	140	136	135	137	135	132	131	138	144	144	149	149	156	162	3519	146.6
29	158	157	157	157	157	154	149	140	140	140	140	136	133	128	125	128	133	137	144	150	153	153	149	149	3473	144.7
30 C	156	157	159	160	158	157	156	154	149	143	140	138	136	137	140	141	139	142	148	149	148	147	151	153	3558	148.2
31 C	160	160	157	158	156	154	151	149	146	141	137	136	129	126	130	133	137	141	144	149	147	144	148	151	3484	145.2
Sum.	5089	5084	5057	5025	4977	4925	4865	4819	4741	4624	4493	4367	4264	4191	4196	4280	4405	4605	4778	4869	4929	4977	5031	5046	113637	
Mean.	164.2	164.0	163.1	162.1	160.5	158.9	156.9	155.5	152.9	149.2	144.9	140.9	137.5	135.2	135.4	138.1	142.1	148.5	154.1	157.1	159.0	160.5	162.3	162.8		152.7