

ภาคผนวก ก

แฟ้มข้อมูลจากการสังเกตการณ์

แฟ้มข้อมูล ก DATAPRO.DAT

แฟ้มข้อมูล ข DATAPRO2.DAT

แฟ้มข้อมูล ค DATAPRO4.DAT

แฟ้มข้อมูล ง DATAPRO5.DAT

แฟ้มข้อมูล จ DATAPRO6.DAT

แฟ้มข้อมูล ฉ DATAPRO8.DAT

แฟ้มข้อมูล ช DATAPROO.DAT

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แฟ้มข้อมูล DATAPRO.DAT จากภารกิจสังเกตการณ์วันที่ 5 มกราคม 2535

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
1	450	U	01-05-1992	22:09:27	324	314	10
2	450	B	01-05-1992	22:11:12	645	314	331
3	450	V	01-05-1992	22:12:47	1455	318	1138
4	450	R	01-05-1992	22:14:37	2167	323	1844
5	450	I	01-05-1992	22:16:11	4656	361	4295
6	730	U	01-05-1992	22:19:33	351	315	36
7	730	B	01-05-1992	22:21:32	787	315	394
8	730	V	01-05-1992	22:23:22	786	319	467
9	730	R	01-05-1992	22:24:57	695	325	378
10	730	I	01-05-1992	22:27:01	847	362	487
11	49T	U	01-05-1992	22:34:07	753	315	439
12	49T	B	01-05-1992	22:35:44	4979	317	4662
13	49T	V	01-05-1992	22:37:21	6897	321	5776
14	49T	R	01-05-1992	22:39:16	5854	329	4726
15	49T	I	01-05-1992	22:41:10	6751	375	6376
16	DEL	U	01-05-1992	22:44:52	468	315	153
17	DEL	B	01-05-1992	22:46:47	3589	317	3272
18	DEL	V	01-05-1992	22:48:22	9688	321	9367
19	DEL	R	01-05-1992	22:50:03	13399	328	13071
20	DEL	I	01-05-1992	22:51:45	27013	378	26643
21	37T	U	01-05-1992	23:02:34	389	318	78
22	37T	B	01-05-1992	23:04:27	2842	321	1719
23	37T	V	01-05-1992	23:05:27	5643	322	5321
24	37T	R	01-05-1992	23:06:50	8276	327	7899
25	37T	I	01-05-1992	23:08:39	17253	366	16887
26	39T	U	01-05-1992	23:13:36	364	316	48
27	39T	B	01-05-1992	23:14:33	927	319	609
28	39T	V	01-05-1992	23:15:57	1537	321	1216
29	39T	R	01-05-1992	23:17:28	1853	327	1526
30	39T	I	01-05-1992	23:18:51	3123	361	2762
31	49T	U	01-05-1992	23:23:26	739	319	423
32	49T	B	01-05-1992	23:25:20	4897	320	4577
33	49T	V	01-05-1992	23:26:42	5956	324	5632
34	49T	R	01-05-1992	23:28:19	4737	329	4409
35	49T	I	01-05-1992	23:29:42	6433	366	6064
36	DEL	U	01-05-1992	23:33:16	466	318	148
37	DEL	B	01-05-1992	23:35:26	3324	321	3203
38	DEL	V	01-05-1992	23:36:11	9447	325	9122
39	DEL	R	01-05-1992	23:38:15	13172	333	12797
40	DEL	I	01-05-1992	23:39:43	26928	377	26551
41	730	U	01-05-1992	23:42:46	332	321	31
42	730	B	01-05-1992	23:45:36	598	321	367
43	730	V	01-05-1992	23:47:52	782	322	468
44	730	R	01-05-1992	23:49:39	698	324	364
45	730	I	01-05-1992	23:50:57	834	359	475

แฟ้มข้อมูล DATAPRO.DAT (ต่อ)

NO.	STAR FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT	
46	450	U	01-05-1992	23:54:01	328	318	18
47	450	B	01-05-1992	23:55:39	631	328	311
48	450	V	01-05-1992	23:56:33	1413	325	1288
49	450	R	01-05-1992	23:58:11	2894	329	1765
50	450	I	01-05-1992	24:00:00	4583	357	4146
51	450	U	01-06-1992	00:09:48	332	322	18
52	450	B	01-06-1992	00:11:36	631	321	312
53	450	V	01-06-1992	00:13:28	1427	326	1094
54	450	R	01-06-1992	00:15:23	2186	332	1776
55	450	I	01-06-1992	00:16:13	4434	365	4065
56	770	U	01-06-1992	00:19:51	354	321	33
57	770	B	01-06-1992	00:21:34	482	323	359
58	770	V	01-06-1992	00:22:44	765	325	440
59	770	R	01-06-1992	00:24:15	686	332	354
60	770	I	01-06-1992	00:25:44	822	352	470
61	19A	U	01-06-1992	00:35:03	483	324	156
62	19A	B	01-06-1992	00:36:39	2125	326	1799
63	19A	V	01-06-1992	00:38:05	3115	327	2788
64	19A	R	01-06-1992	00:39:52	3158	338	2866
65	19A	I	01-06-1992	00:41:24	5451	349	5102
66	DEL	U	01-06-1992	00:46:32	459	323	127
67	DEL	B	01-06-1992	00:47:57	3153	325	2833
68	DEL	V	01-06-1992	00:49:34	2814	330	2484
69	DEL	R	01-06-1992	00:51:09	12403	337	12066
70	DEL	I	01-06-1992	00:52:24	25214	358	24856
71	68T	U	01-06-1992	00:55:45	673	325	348
72	68T	B	01-06-1992	00:57:38	4237	328	3954
73	68T	V	01-06-1992	00:58:55	5473	330	5143
74	68T	R	01-06-1992	01:00:17	4629	336	4293
75	68T	I	01-06-1992	01:01:46	6213	355	5858
76	16A	U	01-06-1992	01:08:48	626	326	300
77	16A	B	01-06-1992	01:10:07	2312	327	1985
78	16A	V	01-06-1992	01:11:25	2384	331	1973
79	16A	R	01-06-1992	01:12:56	1963	337	1526
80	16A	I	01-06-1992	01:14:35	2118	348	1762
81	DEL	U	01-06-1992	01:18:54	439	325	113
82	DEL	B	01-06-1992	01:20:18	2933	329	2624
83	DEL	V	01-06-1992	01:21:33	8226	333	7893
84	DEL	R	01-06-1992	01:23:28	11795	338	11457
85	DEL	I	01-06-1992	01:24:49	24298	363	23927
86	68T	U	01-06-1992	01:27:47	633	323	307
87	68T	B	01-06-1992	01:29:25	3893	327	3556
88	68T	V	01-06-1992	01:30:45	5141	332	4809
89	68T	R	01-06-1992	01:32:37	4485	335	4076
90	68T	I	01-06-1992	01:34:02	5907	359	5548

แฟ้มข้อมูล DATAPRO.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	PXY-COUNT	NET-COUNT
91	450	U	01-06-1992	01:40:57	331	322	9
92	450	B	21-06-1992	01:47:35	583	325	258
93	450	V	01-06-1992	01:44:29	1298	329	969
94	450	R	21-06-1992	01:45:48	1899	332	1567
95	450	I	01-06-1992	01:47:09	3951	355	3596
96	730	U	01-06-1992	01:49:38	349	324	25
97	730	B	21-06-1992	01:51:34	615	328	287
98	730	V	01-06-1992	01:52:24	789	329	460
99	730	R	21-06-1992	01:54:45	646	332	314
100	730	I	01-06-1992	01:56:28	773	356	417

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แฟ้มข้อมูล DATAPRO2.DAT จากการสังเกตการณ์วันที่ 7 มกราคม 2535

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
1	DEL	U	01-07-1992	00:12:28	436	312	124
2	DEL	B	01-07-1992	00:23:10	3024	316	2708
3	DEL	V	01-07-1992	00:21:35	8621	319	8302
4	DEL	R	01-07-1992	00:23:16	12382	325	12057
5	DEL	I	01-07-1992	00:24:46	24318	352	23966
6	AST	U	01-07-1992	00:27:24	656	315	341
7	AST	B	01-07-1992	00:28:51	4273	315	3958
8	AST	V	01-07-1992	00:30:33	4974	323	4651
9	AST	R	01-07-1992	00:32:57	4454	323	4131
10	AST	I	01-07-1992	00:34:51	5814	350	5464
11	730	U	01-07-1992	00:41:06	636	317	319
12	730	B	01-07-1992	00:42:56	344	314	30
13	730	V	01-07-1992	00:44:38	720	319	401
14	730	R	01-07-1992	00:46:51	648	322	326
15	730	I	01-07-1992	00:48:12	772	347	425
16	450	U	01-07-1992	00:50:54	323	315	8
17	450	B	01-07-1992	00:52:10	593	319	274
18	450	V	01-07-1992	00:53:21	1290	319	971
19	450	R	01-07-1992	00:54:42	1934	323	1611
20	450	I	01-07-1992	00:56:04	4036	349	3737
21	450	U	01-07-1992	00:57:35	324	315	9
22	450	B	01-07-1992	00:59:10	588	319	269
23	450	V	01-07-1992	01:00:28	1307	322	985
24	450	R	01-07-1992	01:01:49	1395	326	1069
25	450	I	01-07-1992	01:02:54	3501	351	3150
26	730	U	01-07-1992	01:05:53	343	317	26
27	730	B	01-07-1992	01:07:10	630	320	310
28	730	V	01-07-1992	01:08:18	719	320	398
29	730	R	01-07-1992	01:09:50	647	326	321
30	730	I	01-07-1992	01:11:04	764	351	413
31	DEL	U	01-07-1992	01:13:38	419	318	101
32	DEL	B	01-07-1992	01:17:04	2754	322	2432
33	DEL	V	01-07-1992	01:19:03	7740	327	7413
34	DEL	R	01-07-1992	01:19:22	11119	332	10787
35	DEL	I	01-07-1992	01:20:29	22406	363	22043
36	AST	U	01-07-1992	01:23:23	592	320	272
37	AST	B	01-07-1992	01:24:15	3647	324	3323
38	AST	V	01-07-1992	01:25:23	4866	326	4540
39	AST	R	01-07-1992	01:26:48	4213	329	3884
40	AST	I	01-07-1992	01:28:02	5419	360	5059
41	MUA	U	01-07-1992	01:40:14	329	315	14
42	MUA	B	01-07-1992	01:41:57	977	320	657
43	MUA	V	01-07-1992	01:43:39	3733	320	3405
44	MUA	R	01-07-1992	01:44:41	8568	330	8238
45	MUA	I	01-07-1992	01:46:04	27935	350	27578

แฟ้มข้อมูล DATAPRO2.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
46	DEL	U	01-07-1992	01:57:57	430	317	83
47	DEL	B	01-07-1992	01:54:25	2335	322	2043
48	DEL	V	01-07-1992	01:55:10	6913	327	6491
49	DEL	R	01-07-1992	01:56:46	13042	335	9787
50	DEL	I	01-07-1992	01:57:59	19777	370	19407
51	6BT	U	01-07-1992	02:00:52	529	319	110
52	6BT	B	01-07-1992	02:01:57	3043	324	2719
53	6BT	V	01-07-1992	02:03:03	4174	329	3845
54	6BT	R	01-07-1992	02:04:17	3720	333	3387
55	6BT	I	01-07-1992	02:05:30	4968	371	4597

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แฟ้มข้อมูล DATAPRO4.DAT จากการสังเกตการณ์วันที่ 9 มกราคม 2535

NO.	STAR FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT	
1	DEL	U	01-09-1992	00:40:26	429	318	111
2	DEL	B	01-09-1992	00:41:40	2856	321	2535
3	DEL	V	01-09-1992	00:42:34	7954	324	7630
4	DEL	R	01-09-1992	00:44:29	11263	329	10934
5	DEL	I	01-09-1992	00:45:29	22512	368	22144
6	DEL	U	01-09-1992	00:47:20	424	319	105
7	DEL	B	01-09-1992	00:48:17	2834	320	2514
8	DEL	V	01-09-1992	00:49:31	7070	325	6745
9	DEL	R	01-09-1992	00:50:33	11354	330	11024
10	DEL	I	01-09-1992	00:51:35	22301	372	21929
11	DEL	U	01-09-1992	00:54:19	607	319	288
12	DEL	B	01-09-1992	00:55:19	3798	321	3477
13	DEL	V	01-09-1992	00:57:23	4948	324	4624
14	DEL	R	01-09-1992	00:58:48	4217	330	3887
15	DEL	I	01-09-1992	00:59:47	5595	374	5221
16	DEL	U	01-09-1992	01:01:05	603	319	284
17	DEL	B	01-09-1992	01:02:07	3754	322	3432
18	DEL	V	01-09-1992	01:03:05	4026	326	3700
19	DEL	R	01-09-1992	01:04:07	4200	328	3872
20	DEL	I	01-09-1992	01:05:48	5595	371	5224
21	DEL	U	01-09-1992	01:08:29	468	317	151
22	DEL	B	01-09-1992	01:09:27	2241	321	1920
23	DEL	V	01-09-1992	01:10:31	3122	324	2804
24	DEL	R	01-09-1992	01:11:37	2866	326	2540
25	DEL	I	01-09-1992	01:12:45	4004	370	3634
26	DEL	U	01-09-1992	01:13:55	469	320	149
27	DEL	B	01-09-1992	01:15:01	2170	322	1858
28	DEL	V	01-09-1992	01:16:25	3101	326	2775
29	DEL	R	01-09-1992	01:17:13	2870	328	2550
30	DEL	I	01-09-1992	01:18:11	3953	373	3580
31	DEL	U	01-09-1992	01:23:28	324	314	10
32	DEL	B	01-09-1992	01:24:35	562	320	240
33	DEL	V	01-09-1992	01:25:25	1209	327	882
34	DEL	R	01-09-1992	01:26:24	1795	329	1466
35	DEL	I	01-09-1992	01:27:41	3736	361	3375
36	DEL	U	01-09-1992	01:28:40	320	320	0
37	DEL	B	01-09-1992	01:29:40	557	322	235
38	DEL	V	01-09-1992	01:30:28	1190	325	865
39	DEL	R	01-09-1992	01:31:27	1799	333	1466
40	DEL	I	01-09-1992	01:32:31	3699	361	3338
41	DEL	U	01-09-1992	01:38:54	350	320	30
42	DEL	B	01-09-1992	01:40:05	503	323	260
43	DEL	V	01-09-1992	01:41:01	669	324	345
44	DEL	R	01-09-1992	01:42:05	618	328	290
45	DEL	I	01-09-1992	01:43:24	731	360	371

แฟ้มข้อมูล DATAPRO4.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
46	730	U	01-09-1992	01:44:24	342	321	21
47	730	B	01-09-1992	01:45:20	582	324	258
48	730	V	01-09-1992	01:46:16	667	326	341
49	730	R	01-09-1992	01:47:27	614	319	295
50	730	I	01-09-1992	01:48:11	740	362	378
51	EPC	U	01-09-1992	01:56:27	365	319	46
52	EPC	B	01-09-1992	01:57:50	1297	319	978
53	EPC	V	01-09-1992	01:59:02	3136	326	2810
54	EPC	R	01-09-1992	02:00:17	4270	328	3942
55	EPC	I	01-09-1992	02:01:23	8645	351	8294
56	EPC	U	01-09-1992	02:02:45	368	319	49
57	EPC	B	01-09-1992	02:04:00	1260	321	939
58	EPC	V	01-09-1992	02:05:16	3059	326	2733
59	EPC	R	01-09-1992	02:06:22	4450	327	4123
60	EPC	I	01-09-1992	02:07:30	8523	354	8269
61	DEL	U	01-09-1992	02:12:39	370	319	59
62	DEL	B	01-09-1992	02:13:59	1983	323	1660
63	DEL	V	01-09-1992	02:15:47	5502	330	5172
64	DEL	R	01-09-1992	02:17:36	8668	331	8337
65	DEL	I	01-09-1992	02:18:08	17619	371	17248
66	DEL	U	01-09-1992	02:20:47	324	310	6
67	DEL	B	01-09-1992	02:22:06	1923	323	1600
68	DEL	V	01-09-1992	02:22:59	5433	328	5105
69	DEL	R	01-09-1992	02:24:16	8170	334	7836
70	DEL	I	01-09-1992	02:25:15	17002	369	16633
71	68T	U	01-09-1992	02:28:59	459	325	134
72	68T	B	01-09-1992	02:30:14	2340	326	2014
73	68T	V	01-09-1992	02:30:50	3367	327	3040
74	68T	R	01-09-1992	02:32:32	3111	332	2779
75	68T	I	01-09-1992	02:33:33	4132	367	3765
76	68T	U	01-09-1992	02:34:55	440	320	120
77	68T	B	01-09-1992	02:35:46	2207	327	1880
78	68T	V	01-09-1992	02:36:36	3222	332	2890
79	68T	R	01-09-1992	02:37:45	2940	330	2610
80	68T	I	01-09-1992	02:38:49	4006	371	3715
81	450	U	01-09-1992	02:44:39	328	321	7
82	450	B	01-09-1992	02:45:41	457	324	135
83	450	V	01-09-1992	02:46:35	291	328	553
84	450	R	01-09-1992	02:48:22	1358	330	1028
85	450	I	01-09-1992	02:49:36	2750	366	2382
86	450	U	01-09-1992	02:50:41	327	323	4
87	450	B	01-09-1992	02:51:29	452	326	126
88	450	V	01-09-1992	02:52:30	805	325	560
89	450	R	01-09-1992	02:53:13	1306	330	976
90	450	I	01-09-1992	02:53:18	3741	368	2373

แฟ้มข้อมูล DATAPRO4.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
91	730	U	01-09-1992	02:57:23	329	321	8
92	730	B	01-09-1992	02:58:54	441	321	120
93	730	V	01-09-1992	02:59:49	528	326	194
94	730	R	01-09-1992	03:01:00	510	330	180
95	730	I	01-09-1992	03:01:51	620	370	250
96	730	U	01-09-1992	03:02:46	331	324	7
97	730	B	01-09-1992	03:03:47	431	324	107
98	730	V	01-09-1992	03:05:48	479	327	152
99	730	R	01-09-1992	03:06:54	490	330	160
100	730	I	01-09-1992	03:07:58	594	362	232

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แฟ้มข้อมูล DATAPRO5.DAT สังเกตการณ์วันที่ 12 มกราคม 2535

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
1	DEL	U	01-12-1992	21:18:45	414	283	131
2	DEL	B	01-12-1992	21:20:24	3151	384	2847
3	DEL	V	01-12-1992	21:21:23	8367	314	8055
4	DEL	R	01-12-1992	21:22:41	12354	317	12237
5	DEL	I	01-12-1992	21:23:51	24438	381	24349
6	DEL	U	01-12-1992	21:29:23	675	277	349
7	DEL	B	01-12-1992	21:29:33	4315	286	4029
8	DEL	V	01-12-1992	21:30:32	5513	294	5219
9	DEL	R	01-12-1992	21:31:31	4722	301	4421
10	DEL	I	01-12-1992	21:32:29	6138	357	5773
11	DEL	U	01-12-1992	21:37:38	393	266	127
12	DEL	B	01-12-1992	21:38:39	3874	288	2794
13	DEL	V	01-12-1992	21:39:38	8625	291	8334
14	DEL	R	01-12-1992	21:40:35	12533	295	12238
15	DEL	I	01-12-1992	21:41:39	24598	359	24239
16	DEL	U	01-12-1992	21:45:00	685	259	346
17	DEL	B	01-12-1992	21:46:24	4159	267	3892
18	DEL	V	01-12-1992	21:47:20	5264	271	4993
19	DEL	R	01-12-1992	21:48:36	4667	286	4381
20	DEL	I	01-12-1992	21:49:38	6821	334	5747
21	DEL	U	01-12-1992	22:13:31	441	306	135
22	DEL	B	01-12-1992	22:14:34	1946	314	1634
23	DEL	V	01-12-1992	22:15:32	2944	323	2621
24	DEL	R	01-12-1992	22:16:36	3872	329	2743
25	DEL	I	01-12-1992	22:17:44	5194	389	4805
26	DEL	U	01-12-1992	22:25:53	474	305	119
27	DEL	B	01-12-1992	22:27:43	3815	313	2782
28	DEL	V	01-12-1992	22:29:07	8657	326	8331
29	DEL	R	01-12-1992	22:30:09	12711	349	12362
30	DEL	I	01-12-1992	22:31:08	24936	408	24528
31	DEL	U	01-12-1992	22:34:39	639	308	331
32	DEL	B	01-12-1992	22:35:36	4734	319	3915
33	DEL	V	01-12-1992	22:36:28	5363	322	5041
34	DEL	R	01-12-1992	22:37:57	4716	331	4385
35	DEL	I	01-12-1992	22:39:26	6119	402	5717
36	DEL	U	01-12-1992	22:40:39	646	308	338
37	DEL	B	01-12-1992	22:41:46	4197	316	3881
38	DEL	V	01-12-1992	22:42:52	5336	325	5011
39	DEL	R	01-12-1992	22:44:00	4686	332	4274
40	DEL	I	01-12-1992	22:45:05	6138	407	5731
41	DEL	U	01-12-1992	22:47:48	409	318	119
42	DEL	B	01-12-1992	22:48:39	3881	312	2769
43	DEL	V	01-12-1992	22:49:31	6359	327	6032
44	DEL	R	01-12-1992	22:50:25	12344	337	12007
45	DEL	I	01-12-1992	22:51:21	23976	412	23564

แฟ้มข้อมูล DATAPRO5.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
46	450	U	01-12-1992	22:55:20	320	312	8
47	450	R	01-12-1992	22:56:16	599	315	275
48	450	V	01-12-1992	22:57:04	1304	320	984
49	450	R	01-12-1992	22:58:29	1979	326	1653
50	450	I	01-12-1992	22:59:15	4136	307	3739
51	440	U	01-12-1992	23:01:55	338	307	31
52	440	B	01-12-1992	23:02:51	572	315	257
53	440	V	01-12-1992	23:03:36	621	318	303
54	440	R	01-12-1992	23:04:32	574	322	252
55	440	I	01-12-1992	23:05:39	679	375	304
56	450	U	01-12-1992	23:07:52	310	300	10
57	450	B	01-12-1992	23:09:01	585	313	272
58	450	V	01-12-1992	23:09:50	1298	310	988
59	450	R	01-12-1992	23:10:54	1974	325	1649
60	450	I	01-12-1992	23:11:43	4160	397	3763
61	440	U	01-12-1992	23:13:09	342	309	33
62	440	R	01-12-1992	23:14:05	577	313	264
63	440	V	01-12-1992	23:14:51	625	316	309
64	440	R	01-12-1992	23:15:45	574	325	249
65	440	I	01-12-1992	23:16:36	702	393	309
66	730	U	01-12-1992	23:18:15	337	310	27
67	730	B	01-12-1992	23:19:23	637	314	323
68	730	V	01-12-1992	23:20:21	720	318	402
69	730	R	01-12-1992	23:21:15	659	325	333
70	730	I	01-12-1992	23:22:04	827	399	428
71	DEL	U	01-12-1992	23:26:32	426	310	116
72	DEL	B	01-12-1992	23:27:31	3016	316	2700
73	DEL	V	01-12-1992	23:28:24	8352	331	8021
74	DEL	R	01-12-1992	23:29:25	12127	333	11794
75	DEL	I	01-12-1992	23:31:09	24172	406	23766
76	68T	U	01-12-1992	23:33:45	632	311	321
77	68T	B	01-12-1992	23:34:42	4100	317	3783
78	68T	V	01-12-1992	23:35:36	5257	323	4934
79	68T	R	01-12-1992	23:36:36	4503	331	4172
80	68T	I	01-12-1992	23:37:37	6809	435	5374
81	320	U	01-12-1992	23:41:04	1035	311	724
82	320	B	01-12-1992	23:42:08	5463	316	5147
83	320	V	01-12-1992	23:43:03	5870	321	5549
84	320	R	01-12-1992	23:44:54	4607	326	4281
85	320	I	01-12-1992	23:45:58	5250	326	4924
86	DEL	U	01-12-1992	23:49:50	413	312	106
87	DEL	B	01-12-1992	23:50:55	2905	316	2589
88	DEL	V	01-12-1992	23:51:59	8260	324	7936
89	DEL	R	01-12-1992	23:53:01	11810	336	11472
90	DEL	I	01-12-1992	23:54:02	23471	400	23071

แฟ้มข้อมูล DATAPRO5.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
91	68T	U	01-12-1992	23:57:07	636	310	296
92	68T	R	01-12-1992	23:57:59	3834	317	3517
93	68T	V	01-12-1992	23:58:50	5098	320	4778
94	68T	R	01-12-1992	23:59:48	4424	329	4095
95	68T	I	01-13-1992	00:00:40	5873	394	5479
96	68T	U	01-13-1992	00:03:07	608	313	287
97	68T	R	01-13-1992	00:04:01	3891	317	3574
98	68T	V	01-13-1992	00:04:31	5123	323	4798
99	68T	R	01-13-1992	00:05:47	4487	328	4077
100	68T	I	01-13-1992	00:06:43	5308	398	5410
101	DEL	U	01-13-1992	00:09:35	415	310	105
102	DEL	R	01-13-1992	00:10:49	2795	317	2478
103	DEL	V	01-13-1992	00:12:21	7841	328	7513
104	DEL	R	01-13-1992	00:13:39	11523	331	11192
105	DEL	I	01-13-1992	00:14:32	22952	406	22446
106	24A	U	01-13-1992	00:20:45	323	311	12
107	24A	R	01-13-1992	00:21:38	862	316	546
108	24A	V	01-13-1992	00:22:31	2734	322	2412
109	24A	R	01-13-1992	00:23:26	4854	330	4524
110	24A	I	01-13-1992	00:24:26	11504	325	11179
111	DEL	U	01-13-1992	00:28:43	409	315	94
112	DEL	R	01-13-1992	00:29:18	2707	328	2387
113	DEL	V	01-13-1992	00:30:27	7678	323	7355
114	DEL	R	01-13-1992	00:31:53	11224	335	10889
115	DEL	I	01-13-1992	00:32:49	22692	403	22289
116	68T	U	01-13-1992	00:36:07	575	312	263
117	68T	R	01-13-1992	00:37:15	3569	321	3248
118	68T	V	01-13-1992	00:38:04	4899	321	4488
119	68T	R	01-13-1992	00:39:23	4171	327	3844
120	68T	I	01-13-1992	00:40:14	5620	390	5230
121	37T	U	01-13-1992	00:47:18	356	313	43
122	37T	R	01-13-1992	00:48:23	1430	316	1114
123	37T	V	01-13-1992	00:49:14	4175	326	3799
124	37T	R	01-13-1992	00:50:19	6528	326	6294
125	37T	I	01-13-1992	00:51:19	17810	400	17410
126	DEL	U	01-13-1992	00:55:43	408	315	69
127	DEL	R	01-13-1992	00:56:48	2503	323	2180
128	DEL	V	01-13-1992	00:57:29	7207	325	6882
129	DEL	R	01-13-1992	00:58:34	10815	344	10471
130	DEL	I	01-13-1992	00:59:27	21748	402	21346
131	68T	U	01-13-1992	01:02:28	543	317	226
132	68T	R	01-13-1992	01:03:20	3306	323	2983
133	68T	V	01-13-1992	01:04:17	4455	326	4129
134	68T	R	01-13-1992	01:05:12	4832	333	4499
135	68T	I	01-13-1992	01:06:12	5397	402	4995

แฟ้มข้อมูล DATAPRO5.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
136	RHO	U	01-13-1992	01:11:23	660	315	345
137	RHO	B	01-13-1992	01:12:38	3978	323	3655
138	RHO	V	01-13-1992	01:14:00	6318	328	5982
139	RHO	R	01-13-1992	01:15:26	6532	333	6199
140	RHO	I	01-13-1992	01:16:02	9989	379	9510
141	DEL	U	01-13-1992	01:19:18	392	319	73
142	DEL	B	01-13-1992	01:20:32	2280	323	1957
143	DEL	V	01-13-1992	01:21:23	6692	331	6361
144	DEL	R	01-13-1992	01:22:32	10196	337	9859
145	DEL	I	01-13-1992	01:23:31	20631	410	20221
146	68T	U	01-13-1992	01:26:58	585	318	187
147	68T	B	01-13-1992	01:27:51	2932	323	2609
148	68T	V	01-13-1992	01:28:46	4138	323	3815
149	68T	R	01-13-1992	01:29:38	3376	335	3041
150	68T	I	01-13-1992	01:30:35	5185	408	4785
151	EPC	U	01-13-1992	01:37:02	344	317	27
152	EPC	B	01-13-1992	01:38:07	1435	319	1116
153	EPC	V	01-13-1992	01:38:52	5223	326	4897
154	EPC	R	01-13-1992	01:39:52	10206	336	9870
155	EPC	I	01-13-1992	01:40:40	26724	394	26330
156	DEL	U	01-13-1992	01:46:05	375	319	56
157	DEL	B	01-13-1992	01:46:52	1670	323	1347
158	DEL	V	01-13-1992	01:47:44	5986	331	5655
159	DEL	R	01-13-1992	01:48:42	9294	347	8947
160	DEL	I	01-13-1992	01:49:36	19177	404	18773

แฟ้มข้อมูล DATAPRO6.DAT จากการสังเกตการณ์วันที่ 13 มกราคม 2535

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
1	DEL	U	81-13-1992	22:59:11	411	313	92
2	DEL	B	81-13-1992	22:57:43	2753	325	2428
3	DEL	V	81-13-1992	23:00:42	7698	347	7351
4	DEL	R	81-13-1992	23:01:43	11387	353	11034
5	DEL	I	81-13-1992	23:02:53	23200	418	22782
6	DEL	U	81-13-1992	23:06:36	594	313	281
7	DEL	B	81-13-1992	23:07:58	3621	329	3292
8	DEL	V	81-13-1992	23:08:58	4894	343	4551
9	DEL	R	81-13-1992	23:07:52	4432	357	4075
10	DEL	I	81-13-1992	23:10:45	5875	413	5462
11	16A	U	81-13-1992	23:16:30	343	315	28
12	16A	B	81-13-1992	23:17:25	1267	323	944
13	16A	V	81-13-1992	23:18:23	3949	333	3616
14	16A	R	81-13-1992	23:19:29	7331	341	6990
15	16A	I	81-13-1992	23:23:27	17153	382	16771
16	DEL	U	81-13-1992	23:23:59	415	315	101
17	DEL	B	81-13-1992	23:24:39	2788	328	2360
18	DEL	V	81-13-1992	23:25:32	7812	343	7469
19	DEL	R	81-13-1992	23:26:31	11247	358	10889
20	DEL	I	81-13-1992	23:27:57	22923	414	22512
21	DEL	U	81-13-1992	23:31:24	582	316	266
22	DEL	B	81-13-1992	23:32:02	3581	325	3256
23	DEL	V	81-13-1992	23:32:59	4766	336	4430
24	DEL	R	81-13-1992	23:34:28	4363	353	4010
25	DEL	I	81-13-1992	23:35:15	5656	418	5246
26	DEL	U	81-13-1992	23:45:12	322	312	10
27	DEL	B	81-13-1992	23:46:12	689	319	370
28	DEL	V	81-13-1992	23:47:15	3393	331	3062
29	DEL	R	81-13-1992	23:49:35	8107	334	7773
30	DEL	I	81-13-1992	23:49:17	26724	488	26236
31	DEL	U	81-13-1992	23:52:49	402	312	70
32	DEL	B	81-13-1992	23:53:42	2513	325	2188
33	DEL	V	81-13-1992	23:54:34	7125	432	6693
34	DEL	R	81-13-1992	23:55:34	18896	354	18542
35	DEL	I	81-13-1992	23:56:33	21566	418	21156
36	DEL	U	81-14-1992	00:00:27	553	315	238
37	DEL	B	81-14-1992	00:01:35	3287	329	2958
38	DEL	V	81-14-1992	00:02:38	4413	342	4071
39	DEL	R	81-14-1992	00:03:37	4821	355	4466
40	DEL	I	81-14-1992	00:04:38	5496	426	5070
41	DEL	U	81-14-1992	00:11:36	587	316	271
42	DEL	B	81-14-1992	00:12:26	3331	321	3010
43	DEL	V	81-14-1992	00:13:25	5357	327	5030
44	DEL	R	81-14-1992	00:14:25	5720	333	5387
45	DEL	I	81-14-1992	00:15:23	5771	331	5440

แฟ้มข้อมูล DATAPRO6.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
46	DEL	U	01-14-1992	00:19:03	385	315	70
47	DEL	B	01-14-1992	00:20:04	2220	323	1897
48	DEL	V	01-14-1992	00:20:55	6402	341	6141
49	DEL	R	01-14-1992	00:21:55	10044	351	9693
50	DEL	I	01-14-1992	00:22:53	20936	406	20480
51	ERT	U	01-14-1992	00:26:26	510	316	194
52	ERT	B	01-14-1992	00:27:22	2882	322	2560
53	ERT	V	01-14-1992	00:28:13	4064	339	3725
54	ERT	R	01-14-1992	00:29:03	3763	346	3417
55	ERT	I	01-14-1992	00:29:59	5054	403	4651

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แฟ้มข้อมูล DATAPRO8.DAT จากการสังเกตการณ์วันที่ 4 กุมภาพันธ์ 2535

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
1	DEL	U	82-04-1992	19:34:14	416	292	124
2	DEL	B	82-04-1992	19:35:35	3256	296	2960
3	DEL	V	82-04-1992	19:36:38	6758	384	6454
4	DEL	R	82-04-1992	19:37:58	12378	316	12062
5	DEL	I	82-04-1992	19:39:04	24562	362	24220
6	6BT	U	82-04-1992	19:43:14	646	293	347
7	6BT	B	82-04-1992	19:44:29	4465	383	4162
8	6BT	V	82-04-1992	19:45:44	5546	382	5246
9	6BT	R	82-04-1992	19:46:54	4741	308	4433
10	6BT	I	82-04-1992	19:48:03	6122	353	5769
11	6AT	U	82-04-1992	19:52:03	485	292	193
12	6AT	B	82-04-1992	19:53:09	2631	296	2385
13	6AT	V	82-04-1992	19:54:27	3615	385	3310
14	6AT	R	82-04-1992	19:55:22	3275	384	2971
15	6AT	I	82-04-1992	19:56:26	4428	349	4079
16	DEL	U	82-04-1992	20:00:08	418	298	120
17	DEL	B	82-04-1992	20:01:21	3221	378	2921
18	DEL	V	82-04-1992	20:02:18	6755	388	6432
19	DEL	R	82-04-1992	20:03:33	12346	387	12039
20	DEL	I	82-04-1992	20:04:45	24453	355	24100
21	6BT	U	82-04-1992	20:08:16	623	295	328
22	6BT	B	82-04-1992	20:09:29	4385	299	4086
23	6BT	V	82-04-1992	20:10:31	5058	324	5154
24	6BT	R	82-04-1992	20:11:40	4702	310	4392
25	6BT	I	82-04-1992	20:12:44	6046	352	5694
26	320	U	82-04-1992	20:17:46	999	294	705
27	320	B	82-04-1992	20:20:35	5573	381	5272
28	320	V	82-04-1992	20:21:53	5919	382	5617
29	320	R	82-04-1992	20:23:13	4574	385	4269
30	320	I	82-04-1992	20:24:37	5212	353	4862
31	DEL	U	82-04-1992	20:28:55	418	291	127
32	DEL	B	82-04-1992	20:30:03	3842	299	2743
33	DEL	V	82-04-1992	20:30:58	8608	385	8303
34	DEL	R	82-04-1992	20:32:01	12491	312	12079
35	DEL	I	82-04-1992	20:33:59	12228	355	11883
36	6BT	U	82-04-1992	20:44:17	678	297	337
37	6BT	B	82-04-1992	20:46:26	4325	296	4027
38	6BT	V	82-04-1992	20:47:15	5447	374	5117
39	6BT	R	82-04-1992	20:48:41	4625	295	4328
40	6BT	I	82-04-1992	20:49:47	5872	358	5522
41	DEL	U	82-04-1992	21:12:54	483	295	188
42	DEL	B	82-04-1992	21:14:18	2928	388	2620
43	DEL	V	82-04-1992	21:15:58	7936	387	7679
44	DEL	R	82-04-1992	21:16:53	11753	389	11469
45	DEL	I	82-04-1992	21:18:17	25455	352	25103

แฟ้มข้อมูล DATAPROB.DAT (ต่อ)

NO.	STAR FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT	
46	6BT	U	02-04-1992	21:21:35	593	295	303
47	6BT	B	02-04-1992	21:23:06	3970	298	3672
48	6BT	V	02-04-1992	21:24:24	5103	303	4800
49	6BT	R	02-04-1992	21:25:55	4478	307	4171
50	6BT	I	02-04-1992	21:26:31	4428	310	4118
51	37T	U	02-04-1992	21:30:58	344	299	45
52	37T	B	02-04-1992	21:31:57	1623	300	1323
53	37T	V	02-04-1992	21:32:52	4689	302	4387
54	37T	R	02-04-1992	21:33:56	7121	306	6815
55	37T	I	02-04-1992	21:35:03	14693	345	14348
56	37T	U	02-04-1992	21:38:54	331	298	33
57	37T	B	02-04-1992	21:39:52	760	300	460
58	37T	V	02-04-1992	21:40:52	1346	302	1044
59	37T	R	02-04-1992	21:41:55	1647	306	1341
60	37T	I	02-04-1992	21:43:02	2689	343	2346
61	DEL	U	02-04-1992	21:46:52	399	296	103
62	DEL	B	02-04-1992	21:47:52	2853	303	2550
63	DEL	V	02-04-1992	21:48:53	7736	305	7431
64	DEL	R	02-04-1992	21:50:20	11684	308	11276
65	DEL	I	02-04-1992	21:51:16	23271	347	22924
66	6BT	U	02-04-1992	21:53:56	586	299	287
67	6BT	B	02-04-1992	21:55:02	3880	303	3497
68	6BT	V	02-04-1992	21:56:02	4950	305	4645
69	6BT	R	02-04-1992	21:57:05	4322	309	4013
70	6BT	I	02-04-1992	21:58:10	5766	346	5420
71	24A	U	02-04-1992	22:01:39	310	300	10
72	24A	B	02-04-1992	22:02:56	823	300	523
73	24A	V	02-04-1992	22:04:01	2596	304	2292
74	24A	R	02-04-1992	22:05:12	4700	308	4392
75	24A	I	02-04-1992	22:06:04	11084	343	10741
76	25A	U	02-04-1992	22:09:10	365	299	66
77	25A	B	02-04-1992	22:10:13	1243	306	737
78	25A	V	02-04-1992	22:11:14	1375	303	1072
79	25A	R	02-04-1992	22:12:11	1355	312	1043
80	25A	I	02-04-1992	22:13:20	2016	337	1679
81	17A	U	02-04-1992	22:20:09	415	298	117
82	17A	B	02-04-1992	22:21:02	1777	305	1472
83	17A	V	02-04-1992	22:22:00	2700	303	2397
84	17A	R	02-04-1992	22:23:04	2855	326	2549
85	17A	I	02-04-1992	22:23:52	4869	339	4530
86	18A	U	02-04-1992	22:23:15	327	296	31
87	18A	B	02-04-1992	22:24:59	1275	332	943
88	18A	V	02-04-1992	22:25:57	1028	309	719
89	18A	R	02-04-1992	22:26:59	7175	329	6846
90	18A	I	02-04-1992	22:27:01	17142	344	16798

แฟ้มข้อมูล DATAPRO8.DAT (ต่อ)

NO	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
91	14A	U	02-04-1992	22:40:47	438	299	171
92	14A	B	02-04-1992	22:41:47	1919	703	1616
93	14A	V	02-04-1992	22:42:38	2783	304	2479
94	14A	R	02-04-1992	22:43:36	2723	311	2412
95	14A	I	02-04-1992	22:45:39	3927	351	3576
96	DEL	U	02-04-1992	22:49:26	370	298	92
97	DEL	B	02-04-1992	22:50:22	2658	380	2358
98	DEL	V	02-04-1992	22:51:13	7425	306	7119
99	DEL	R	02-04-1992	22:52:14	11207	309	10978
100	DEL	I	02-04-1992	22:53:13	22324	354	21970
101	6BT	U	02-04-1992	22:55:58	558	308	250
102	6BT	B	02-04-1992	22:56:57	3534	384	3238
103	6BT	V	02-04-1992	22:57:48	4698	316	4382
104	6BT	R	02-04-1992	22:58:39	4164	311	3853
105	6BT	I	02-04-1992	22:59:41	5483	356	5127
106	450	U	02-04-1992	23:02:43	307	302	5
107	450	B	02-04-1992	23:04:25	538	304	234
108	450	V	02-04-1992	23:04:58	1182	366	876
109	450	R	02-04-1992	23:05:53	1806	312	1494
110	450	I	02-04-1992	23:06:48	3789	357	3432
111	440	U	02-04-1992	23:07:59	338	308	30
112	440	B	02-04-1992	23:08:59	517	305	222
113	440	V	02-04-1992	23:09:43	583	309	271
114	440	R	02-04-1992	23:10:36	543	318	230
115	440	I	02-04-1992	23:11:25	645	360	285
116	DEL	U	02-04-1992	23:14:48	389	289	90
117	DEL	B	02-04-1992	23:15:45	2518	306	2234
118	DEL	V	02-04-1992	23:16:31	7188	308	6880
119	DEL	R	02-04-1992	23:17:36	10556	314	10242
120	DEL	I	02-04-1992	23:18:36	21246	366	20880
121	6BT	U	02-04-1992	23:21:21	537	303	236
122	6BT	B	02-04-1992	23:22:11	3374	305	3267
123	6BT	V	02-04-1992	23:23:11	4553	310	4246
124	6BT	R	02-04-1992	23:24:26	3977	315	3684
125	6BT	I	02-04-1992	23:25:23	5338	369	4969
126	6HD	U	02-04-1992	23:29:59	620	324	316
127	6HD	B	02-04-1992	23:31:07	7818	304	3576
128	6HD	V	02-04-1992	23:32:26	5997	307	5690
129	6HD	R	02-04-1992	23:33:32	6175	313	5882
130	6HD	I	02-04-1992	23:34:47	5735	353	4985
131	6PC	U	02-04-1992	23:39:16	345	332	17
132	6PC	B	02-04-1992	23:42:15	1187	309	882
133	6PC	V	02-04-1992	23:41:08	2959	306	2653
134	6PC	R	02-04-1992	23:41:55	4218	313	3905
135	6PC	I	02-04-1992	23:42:46	9139	355	7744

แฟ้มข้อมูล DATAPRO8.DAT (ต่อ)

NO.	STAR FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT	
136	GAC	U	02-04-1992	23:45:46	335	324	31
137	GAC	B	02-04-1992	23:46:48	1300	306	1074
138	GAC	V	02-04-1992	23:47:38	5048	308	4740
139	GAC	R	02-04-1992	23:48:36	9877	318	9581
140	GAC	I	02-04-1992	23:49:41	25679	365	25314
141	DEL	U	02-04-1992	23:54:18	368	391	67
142	DEL	B	02-04-1992	23:55:17	2186	306	1880
143	DEL	V	02-04-1992	23:56:21	6362	389	6053
144	DEL	R	02-04-1992	23:57:31	9528	316	9204
145	DEL	I	02-04-1992	23:58:20	19589	384	19205
146	6BT	U	02-05-1992	00:01:46	488	304	184
147	6BT	B	02-05-1992	00:03:33	2846	305	2541
148	6BT	V	02-05-1992	00:04:24	4010	312	3698
149	6BT	R	02-05-1992	00:05:18	3659	316	3343
150	6BT	I	02-05-1992	00:06:19	4872	301	4571

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แฟ้มข้อมูล DATAPROO.DAT จากการสังเกตการณ์วันที่ 9 กุมภาพันธ์ 2535

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
1	DEL	U	02-09-1992	20:03:26	596	278	116
2	DEL	B	02-09-1992	20:01:20	2944	279	2665
3	DEL	V	02-09-1992	20:01:45	7775	285	7490
4	DEL	R	02-09-1992	20:02:37	12055	290	11765
5	DEL	I	02-09-1992	20:03:24	23177	354	22823
6	6BT	U	02-09-1992	20:05:31	587	276	311
7	6BT	B	02-09-1992	20:06:20	3942	288	3652
8	6BT	V	02-09-1992	20:07:10	4977	289	4688
9	6BT	R	02-09-1992	20:08:00	4288	293	3995
10	6BT	I	02-09-1992	20:09:47	5553	359	5194
11	64T	U	02-09-1992	20:10:55	441	277	164
12	64T	B	02-09-1992	20:11:59	2371	279	2092
13	64T	V	02-09-1992	20:12:53	3236	288	2948
14	64T	R	02-09-1992	20:13:54	2967	294	2673
15	64T	I	02-09-1992	20:14:43	4863	354	3789
16	DEL	U	02-09-1992	20:16:50	384	278	106
17	DEL	B	02-09-1992	20:17:57	2972	282	2690
18	DEL	V	02-09-1992	20:18:44	7822	291	7531
19	DEL	R	02-09-1992	20:19:34	11214	299	10915
20	DEL	I	02-09-1992	20:20:23	22248	362	21886
21	6BT	U	02-09-1992	20:22:37	592	277	315
22	6BT	B	02-09-1992	20:23:15	4013	282	3731
23	6BT	V	02-09-1992	20:24:02	5023	289	4734
24	6BT	R	02-09-1992	20:25:15	4308	293	4015
25	6BT	I	02-09-1992	20:26:12	5674	357	5317
26	64T	U	02-09-1992	20:28:21	448	273	175
27	64T	B	02-09-1992	20:29:11	2382	282	2100
28	64T	V	02-09-1992	20:30:21	3241	286	2955
29	64T	R	02-09-1992	20:31:03	2967	296	2671
30	64T	I	02-09-1992	20:31:57	4820	356	3644
31	DEL	U	02-09-1992	20:34:08	385	277	106
32	DEL	B	02-09-1992	20:34:50	2848	280	2568
33	DEL	V	02-09-1992	20:35:37	7793	289	7494
34	DEL	R	02-09-1992	20:36:31	11197	297	10900
35	DEL	I	02-09-1992	20:37:19	21527	364	21163
36	6BT	U	02-09-1992	20:39:09	577	278	299
37	6BT	B	02-09-1992	20:39:58	3939	282	3657
38	6BT	V	02-09-1992	20:40:47	4963	271	4692
39	6BT	R	02-09-1992	20:41:36	4222	276	3946
40	6BT	I	02-09-1992	20:42:22	5584	359	5225
41	F50	U	02-09-1992	20:45:15	1527	281	1246
42	F50	B	02-09-1992	20:46:03	7826	283	7543
43	F50	V	02-09-1992	20:46:57	8092	271	7821
44	F50	R	02-09-1992	20:47:49	6339	254	6085
45	F50	I	02-09-1992	20:48:36	6952	351	6601

แฟ้มข้อมูล DATAPROO.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
46	P60	U	82-07-1992	20:51:03	299	268	19
47	P60	B	82-07-1992	20:51:55	1172	283	887
48	P60	V	82-07-1992	20:52:45	4871	287	3882
49	P60	R	82-07-1992	20:53:48	7233	292	6991
50	P60	I	82-07-1992	20:54:43	17486	351	17255
51	P60	U	82-07-1992	20:56:58	1491	277	1232
52	P60	B	82-07-1992	20:57:44	7795	282	7513
53	P60	V	82-07-1992	20:58:27	8137	291	7846
54	P60	R	82-07-1992	20:59:18	6231	294	5987
55	P60	I	82-07-1992	21:00:08	6973	354	6619
56	P60	U	82-07-1992	21:02:07	299	238	17
57	P60	B	82-07-1992	21:03:08	1167	283	884
58	P60	V	82-07-1992	21:03:42	3791	238	3723
59	P60	R	82-07-1992	21:04:44	7353	295	6755
60	P60	I	82-07-1992	21:05:37	17625	365	17268
61	DEL	U	82-07-1992	21:07:49	276	231	95
62	DEL	B	82-07-1992	21:08:48	2438	285	2315
63	DEL	V	82-07-1992	21:09:26	7254	273	6961
64	DEL	R	82-07-1992	21:10:15	12562	277	18363
65	DEL	I	82-07-1992	21:11:37	21442	369	21073
66	69T	U	82-07-1992	21:12:55	533	268	253
67	69T	B	82-07-1992	21:13:47	3446	295	3161
68	69T	V	82-07-1992	21:14:42	4479	291	4188
69	69T	R	82-07-1992	21:15:43	3860	308	3568
70	69T	I	82-07-1992	21:16:33	5702	366	4934
71	24A	U	82-07-1992	21:17:58	286	233	3
72	24A	B	82-07-1992	21:20:42	764	293	481
73	24A	V	82-07-1992	21:21:38	2420	278	2138
74	24A	R	82-07-1992	21:22:25	4235	277	3938
75	24A	I	82-07-1992	21:23:11	18183	305	2838
76	25A	U	82-07-1992	21:25:25	341	224	57
77	25A	B	82-07-1992	21:26:23	977	237	693
78	25A	V	82-07-1992	21:27:15	1277	271	958
79	25A	R	82-07-1992	21:28:04	1242	276	744
80	25A	I	82-07-1992	21:28:54	1377	334	1525
81	24A	U	82-07-1992	21:31:37	292	292	18
82	24A	B	82-07-1992	21:32:24	778	235	493
83	24A	V	82-07-1992	21:33:35	1407	271	2113
84	24A	R	82-07-1992	21:33:56	4722	275	3924
85	24A	I	82-07-1992	21:34:43	13173	357	2911
86	25A	U	82-07-1992	21:36:33	342	238	62
87	25A	B	82-07-1992	21:37:24	973	235	698
88	25A	V	82-07-1992	21:38:17	1521	278	1211
89	25A	R	82-07-1992	21:39:17	1252	276	956
90	25A	I	82-07-1992	21:40:07	1385	255	1533

แฟ้มข้อมูล DATAPROO.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
91	DEL	U	02-09-1992	21:42:29	376	284	92
92	DEL	B	02-09-1992	21:43:21	2617	287	2330
93	DEL	V	02-09-1992	21:44:11	7229	293	6936
94	DEL	R	02-09-1992	21:44:58	10378	303	10075
95	DEL	I	02-09-1992	21:45:44	20567	372	20195
96	6BT	U	02-09-1992	21:47:56	542	285	257
97	6BT	B	02-09-1992	21:48:43	3551	298	3263
98	6BT	V	02-09-1992	21:49:24	4573	294	4279
99	6BT	R	02-09-1992	21:50:18	3966	302	3664
100	6BT	I	02-09-1992	21:51:02	5266	370	4896
101	37T	U	02-09-1992	21:55:16	326	284	42
102	37T	B	02-09-1992	21:56:15	1451	289	1162
103	37T	V	02-09-1992	21:57:23	4176	297	3879
104	37T	R	02-09-1992	21:58:13	6266	305	5961
105	37T	I	02-09-1992	21:59:02	12883	373	12510
106	39T	U	02-09-1992	22:01:35	303	287	16
107	39T	B	02-09-1992	22:02:00	559	293	266
108	39T	V	02-09-1992	22:02:45	1225	303	922
109	39T	R	02-09-1992	22:03:37	1447	306	1141
110	39T	I	02-09-1992	22:04:21	2337	375	1962
111	37T	U	02-09-1992	22:06:41	326	288	38
112	37T	B	02-09-1992	22:07:29	1380	292	1088
113	37T	V	02-09-1992	22:08:16	4033	300	3733
114	37T	R	02-09-1992	22:09:05	6198	306	5892
115	37T	I	02-09-1992	22:09:47	12879	380	12499
116	39T	U	02-09-1992	22:11:37	319	291	28
117	39T	B	02-09-1992	22:12:24	692	295	397
118	39T	V	02-09-1992	22:13:05	1192	302	890
119	39T	R	02-09-1992	22:13:49	1435	309	1126
120	39T	I	02-09-1992	22:14:43	2432	385	2047
121	DEL	U	02-09-1992	22:17:07	374	295	79
122	DEL	B	02-09-1992	22:17:51	2416	298	2118
123	DEL	V	02-09-1992	22:18:34	6787	305	6482
124	DEL	R	02-09-1992	22:19:21	9852	310	9542
125	DEL	I	02-09-1992	22:20:11	20170	381	19789
126	6BT	U	02-09-1992	22:22:27	524	290	234
127	6BT	B	02-09-1992	22:23:29	3176	295	2881
128	6BT	V	02-09-1992	22:24:14	4364	300	4064
129	6BT	R	02-09-1992	22:25:13	3044	308	2736
130	6BT	I	02-09-1992	22:26:01	5110	379	4731
131	320	U	02-09-1992	22:29:28	843	290	553
132	320	B	02-09-1992	22:30:11	4506	292	4214
133	320	V	02-09-1992	22:30:55	4887	296	4591
134	320	R	02-09-1992	22:31:44	3907	304	3603
135	320	I	02-09-1992	22:32:27	4583	362	4221

แฟ้มข้อมูล DATAPROO.DAT (ต่อ)

NO.	STAR	FILTER	DATE	TIME	STAR-COUNT	SKY-COUNT	NET-COUNT
136	DEL	U	02-09-1992	22:34:44	371	293	82
137	DEL	B	02-09-1992	22:35:36	2337	293	2096
138	DEL	V	02-09-1992	22:36:20	6751	304	6447
139	DEL	R	02-09-1992	22:37:10	9882	315	9567
140	DEL	I	02-09-1992	22:37:56	20440	379	20061
141	6BT	U	02-09-1992	22:40:10	521	290	231
142	6BT	B	02-09-1992	22:41:01	3196	291	2905
143	6BT	V	02-09-1992	22:41:49	4024	279	3725
144	6BT	R	02-09-1992	22:42:32	5751	303	5448
145	6BT	I	02-09-1992	22:43:27	4976	370	4598
146	320	U	02-09-1992	22:45:51	830	291	539
147	320	B	02-09-1992	22:46:37	4520	272	4228
148	320	V	02-09-1992	22:47:23	4922	296	4626
149	320	R	02-09-1992	22:48:09	3725	301	3424
150	320	I	02-09-1992	22:48:59	4467	363	4106
151	EPC	U	02-09-1992	22:52:40	316	292	24
152	EPC	B	02-09-1992	22:53:57	1076	293	883
153	EPC	V	02-09-1992	22:54:45	2713	297	2416
154	EPC	R	02-09-1992	22:55:32	3733	304	3481
155	EPC	I	02-09-1992	22:56:16	7705	304	7394
156	GAC	U	02-09-1992	23:00:06	314	251	23
157	GAC	B	02-09-1992	23:00:09	1263	304	959
158	GAC	V	02-09-1992	23:00:55	4547	297	4350
159	GAC	R	02-09-1992	23:01:56	8007	301	8596
160	GAC	I	02-09-1992	23:02:47	23444	350	23094
161	EPC	U	02-09-1992	23:04:52	325	289	37
162	EPC	B	02-09-1992	23:05:47	1080	293	787
163	EPC	V	02-09-1992	23:06:34	2691	294	2397
164	EPC	R	02-09-1992	23:07:24	3826	290	3529
165	EPC	I	02-09-1992	23:08:11	7372	351	7021
166	GAC	U	02-09-1992	23:10:13	313	287	24
167	GAC	B	02-09-1992	23:11:10	1202	289	913
168	GAC	V	02-09-1992	23:11:59	4643	292	4351
169	GAC	R	02-09-1992	23:12:52	8969	278	8690
170	GAC	I	02-09-1992	23:13:44	23785	353	23432
171	RHO	U	02-09-1992	23:15:32	346	290	56
172	RHO	B	02-09-1992	23:17:20	1789	292	1497
173	RHO	V	02-09-1992	23:18:03	5221	293	4928
174	RHO	R	02-09-1992	23:19:56	3793	300	3493
175	RHO	I	02-09-1992	23:19:50	19392	353	19039
176	RHO	U	02-09-1992	23:21:11	344	280	56
177	RHO	B	02-09-1992	23:22:02	1759	291	1468
178	RHO	V	02-09-1992	23:22:48	5191	297	4894
179	RHO	R	02-09-1992	23:23:43	9399	321	7778
180	RHO	I	02-09-1992	23:24:26	18356	353	18003

ภาคผนวก ข

โปรแกรมที่ใช้ในการวิจัย

- โปรแกรม ก " DATAAC33.BAS " สำหรับเก็บบันทึกข้อมูล
- โปรแกรม ข " EXTINGTN.BAS " สำหรับวิเคราะห์ค่าสัมประสิทธิ์การลดลงของแสงดาว
อันดับที่หนึ่ง และอันดับที่สอง
- โปรแกรม ค " TRUEMAG.BAS " สำหรับวิเคราะห์ค่า Extra-Atmospheric Magni-
tude และค่าโชติมาตรปรากฏแท้จริงของดาวโปรแกรม

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TUTUNGN DATAAC33.BAS

```

1  REM DATAAC33.BAS V 1.5
10 KEY OFF: CLS
130 REM D$ = DATE OF OBSERVATION
140 REM T$ = LOCAL TIME
150 REM N$ = NAME OF STARS
160 REM F$ = FILTER
170 REM C = COUNTS FOR STARS
180 REM K = COUNTS FOR SKY
190 DIM N$(200), F$(200), D$(200), T$(200), Q(200), C(200), K(200)
200 LOCATE 10, 31: COLOR 0, 7: PRINT " DATA ACQUISITION 33 ": COLOR 7, 0
300 LOCATE 12, 27: COLOR 0, 7: PRINT " FOR PHOTOELECTRIC PHOTOMETRY "
    : COLOR 7, 0
400 LOCATE 23, 1: PRINT "PRESS ANY KEY TO CONTINUE..."; : A$ = INPUT$(1)
    : CLS
500 OPEN "B:PROJECT.DAT" FOR OUTPUT AS #2
1600 LOCATE 1, 1: PRINT "DATA ACQUISITION STARTING.... "
1610 GOSUB 12200
1700 LOCATE 3, 1: INPUT "TYPE 'N' FOR NEW DATA ", Y$
1800 IF (Y$ <> "N") AND (Y$ <> "n") THEN GOSUB 5400: GOTO 3500
1900 CLS
1910 CH% = 0
2000 LOCATE 1, 1: INPUT "TITLE : ", TT$: U = 0: LOCATE 3, 1
    : PRINT "DATA INPUT STARTS "
2100 LOCATE 5, 1: PRINT "DATA : "; : N = U + 1
2110 COLOR 0, 7: PRINT N; SPACES(10 - LEN(STR$(N))): COLOR 7, 0
2200 LOCATE 7, 1: INPUT "STAR'S NAME(2-LETTER) : ", STARNAMES$
2201 IF CH% = 0 THEN IF STARNAMES$ = "" THEN BEEP: GOTO 2200
    ELSE OLDSTAR$ = STARNAMES$
2220 IF CH% > 0 THEN IF STARNAMES$ <> "" THEN OLDSTAR$ = STARNAMES$
2300 N$(N) = OLDSTAR$
2305 LOCATE 9, 1: INPUT "FILTER : ", FILTERNAMES$
2330 IF CH% = 0 THEN IF FILTERNAMES$ = "" THEN BEEP: GOTO 2305
    ELSE OLDFILTER$ = FILTERNAMES$
2331 IF CH% > 0 THEN IF FILTERNAMES$ <> "" THEN OLDFILTER$ = FILTERNAMES$
2340 F$(N) = OLDFILTER$
2341 CH% = 1

```

โปรแกรม DATAAC33.BAS (ต่อ)

```

2350 GOSUB 12300
2400 PRINT
2500 GOSUB 7500
2510 LOCATE 22, 1: PRINT SPACE$(70)
2520 LOCATE 23, 1: PRINT SPACE$(70)
2600 C(N) = FREQUENCY1#
2650 D$(N) = D$
2700 T$(N) = T$
2710 Q(N) = TIMER
2800 K(N) = FREQUENCY2#
2810 WRITE #2, OLDSTAR$,OLDFILTER$,D$,T$,TIMER,FREQUENCY1#,FREQUENCY2#
2900 LOCATE 23, 1: PRINT SPACE$(50)
2901 IF CST = 0 THEN BEEP: BEEP: BEEP: LOCATE 23, 1: COLOR 7, 0
2902 IF CST = 0 THEN INPUT "ERROR: CANNOT CONTROL PHOTOMETER", Y$
      : LOCATE 23, 1
2903 IF CST = 0 THEN PRINT SPACE$(50)
2910 LOCATE 23, 1: INPUT "MORE DATA ? (Y/N)... ", Y$
3000 IF Y$ = "N" THEN 3300
3100 IF Y$ <> "Y" THEN 2900
3200 U = U + 1: GOTO 2100
3300 NUM = U + 1
3400 GOSUB 4600
3500 LOCATE 23, 1: PRINT SPACE$(50)
3510 LOCATE 23, 1: INPUT "CHECK THE DATA ? (Y/N) ", B$
3600 IF B$ = "Y" THEN GOSUB 6300
3700 LOCATE 23, 1: PRINT SPACE$(50)
3701 LOCATE 23, 1: INPUT "ADD MORE DATA ? ", B$: IF B$ = "Y" THEN CLS
3750 IF B$ <> "Y" THEN GOSUB 3900
3800 PRINT TT$:PRINT "LAST ADDRESS IS... ";NUM:U = NUM:CH% = 0:GOTO 2100
3900 LOCATE 23, 1: INPUT "PRINTER ? (Y/N) : ", B$
3950 IF B$ <> "Y" THEN GOSUB 6300:CLOSE #2:PRINT "END PROGRAM":KEY ON:END
3960 GOSUB 13000: KEY ON: END
4000 CLS : PRINT " CORRECTION STARTS:- ": PRINT " ADDRESS..'0' TO END "
4100 PRINT:PRINT " ADDRESS: "; :INPUT G:IF G = 0 THEN GOSUB 4600:GOTO 3500
4200 PRINT G, N$(G), F$(G), D$(G), T$(G), C(G), K(G)
4300 PRINT : PRINT " ***BECOMES*** "
4400 PRINT : INPUT G, N$(G), F$(G), D$(G), T$(G), Q(G), C(G), K(G)

```

โปรแกรม DATAAC33.BAS (ต่อ)

```

4500 GOTO 4100
4600 REM *** WRITE-IN SUBROUTINE ***
4700 LOCATE 23, 1: PRINT SPACE$(50)
4710 LOCATE 23, 1: INPUT "TO BE CALLED ? (Y/N) : ", M$
4730 IF M$ <> "Y" THEN GOTO 2900
4752 LOCATE 23, 1: PRINT SPACE$(50)
4753 LOCATE 23, 1: INPUT "FILE NAME : ", A$
4755 A$ = "B:" + A$
4800 OPEN A$ FOR OUTPUT AS #1
4850 WRITE #1, NUM
4900 FOR R = 1 TO NUM
5000 WRITE #1, N$(R), F$(R), D$(R), T$(R), Q(R), C(R), K(R)
5100 NEXT R
5200 CLOSE #1
5300 RETURN
5400 REM *** READ-OUT SUBROUTINE ***
5500 CLS : INPUT "DATA FILE CALLED ? (Y/N) : ", M$
5550 IF M$ <> "Y" THEN GOTO 1600
5600 INPUT "FILE NAME : ", A$: A$ = "B:" + A$
5700 OPEN A$ FOR INPUT AS #1
5750 INPUT #1, NUM
5760 IF EOF(1) THEN CLOSE #1: RETURN
5800 FOR R = 1 TO NUM
5900 INPUT #1, N$(R), F$(R), D$(R), T$(R), Q(R), C(R), K(R)
6050 NEXT R
6200 CLOSE #1: RETURN
6210 L% = 1: GOSUB 7200: GOSUB 7450: L% = 3: GOSUB 7200: RETURN
6300 REM *** CHECK DATA ***
6400 CLS : PRINT TT$: PRINT
6500 GOSUB 6210
6501 ROW% = 1
6600 FOR R = 1 TO NUM
6700 LOCATE ROW% + 3, 2: PRINT R
6701 LOCATE ROW% + 3, 8: PRINT N$(R)
6702 LOCATE ROW% + 3, 14: PRINT F$(R)
6703 LOCATE ROW% + 3, 20: PRINT D$(R)
6704 LOCATE ROW% + 3, 34: PRINT T$(R)

```

โปรแกรม DATAAC33.BAS (ต่อ)

```

6706 LOCATE ROW% + 3, 47: PRINT C(R)
6707 LOCATE ROW% + 3, 60: PRINT K(R)
6708 LOCATE ROW% + 3, 72: PRINT C(R) - K(R)
6709 ROW% = ROW% + 1
6800 IF ((R MOD 18) = 0) THEN L% = 22: GOSUB 7200: GOSUB 7110
      : GOSUB 6210: ROW% = 1
6900 NEXT R
7000 L% = 22: GOSUB 7200
7100 RETURN
7110 LOCATE 23, 1: INPUT "HIT ENTER-KEY TO CONTINUE...", B$: L% = 2: GOSUB 7200
7120 CLS : RETURN
7200 REM *** SUBROUTINE UNDERLINE ***
7300 LOCATE L%, 1: PRINT STRING$(80, "-")
7400 RETURN
7450 LOCATE 2, 1
7451 PRINT " NO. STAR FILTER DATE TIME STAR-COUNT SKY-COUNT NET-COUNT"
7452 RETURN
7500 REM *** DATA ACQUISITION 2 ***
7600 LOCATE 22, 1: PRINT "COUNTS FOR ";: COLOR 0, 7: PRINT " STAR ": COLOR 7, 0
7700 LOCATE 23, 1: INPUT "HIT ENTER-BAR TO STARTS COUNTER ", B$
7710 LOCATE 22, 60: COLOR 16, 1: PRINT "START...": CST = 0
7800 BASEADDRESS% = 768
7900 OUT BASEADDRESS% + 7, 54
8000 OUT BASEADDRESS% + 7, 114
8100 OUT BASEADDRESS% + 7, 176
8200 OUT BASEADDRESS% + 4, 20000 MOD 256
8300 OUT BASEADDRESS% + 4, 20000 \ 256
8400 OUT BASEADDRESS% + 5, 232
8500 OUT BASEADDRESS% + 5, 3
8700 OUT BASEADDRESS% + 6, 255
8710 OUT BASEADDRESS% + 6, 255
8800 OUT BASEADDRESS%, 4
8900 OUT BASEADDRESS%, 0
9000 FOR I = 1 TO 75: J = I + 1: NEXT I
9100 OUT BASEADDRESS% + 7, 228
9200 IF (INP(BASEADDRESS% + 5) AND 128) <> 128 THEN 9100
9300 OUT BASEADDRESS% + 7, 232

```

โปรแกรม DATAAC33.BAS (ต่อ)

```

9400 IF (INP(BASEADDRESS%+6) AND 64) <> 0 THEN FREQUENCY1# = 0: RETURN
9500 FREQUENCY1# = INP(BASEADDRESS% + 6) + 256 * INP(BASEADDRESS% + 6)
9600 FREQUENCY1# = 65536# - FREQUENCY1#
9700 D$ = DATE$
9800 T$ = TIME$
9810 Q = TIMER: CST = 1
9811 LOCATE 22, 60: COLOR 7, 0: PRINT "READY... "
9820 LOCATE 11, 1: PRINT "STAR'S COUNTS      : "
9830 LOCATE 13, 1: PRINT "DATE              : "
9840 LOCATE 15, 1: PRINT "LOCAL TIME         : "
9850 LOCATE 17, 1: PRINT "TIMER              : "
9860 COLOR 0, 7
9870 LOCATE 11, 25: PRINT FREQUENCY1#; SPACES$(20 - LEN(STR$(FREQUENCY1#)))
9880 LOCATE 13, 25: PRINT " "; D$; SPACES$(20 - LEN(D$))
9890 LOCATE 15, 25: PRINT " "; T$; SPACES$(20 - LEN(T$))
9990 LOCATE 17, 25: PRINT TIMER; SPACES$(20 - LEN(STR$(TIMER)))
10000 COLOR 7, 0
10111 SOUND 3000, .5
10120 LOCATE 22, 1: PRINT "COUNTS FOR ";: COLOR 0, 7: PRINT "SKY";: COLOR 7, 0
      : PRINT " "
10130 LOCATE 23, 1: INPUT "HIT ENTER-BAR TO STARTS COUNTER ", B$
10131 LOCATE 22, 60: COLOR 16, 1: PRINT "START..."
10140 BASEADDRESS% = 768
10200 OUT BASEADDRESS% + 7, 54
10300 OUT BASEADDRESS% + 7, 114
10400 OUT BASEADDRESS% + 7, 176
10500 OUT BASEADDRESS% + 4, 20000 MOD 256
10600 OUT BASEADDRESS% + 4, 20000 \ 256
10700 OUT BASEADDRESS% + 5, 232
10800 OUT BASEADDRESS% + 5, 3
10900 OUT BASEADDRESS% + 6, 255
11000 OUT BASEADDRESS% + 6, 255
11100 OUT BASEADDRESS%, 4
11200 OUT BASEADDRESS%, 0
11300 FOR I = 1 TO 75: J = I + 1: NEXT I
11400 OUT BASEADDRESS% + 7, 228
11500 IF (INP(BASEADDRESS% + 5) AND 128) <> 128 THEN 11400

```

โปรแกรม DATAAC33.BAS (ต่อ)

```

11600 OUT BASEADDRESS% + 7, 232
11700 IF (INP(BASEADDRESS% + 6) AND 64) <> 0 THEN FREQUENCY2# = 0: RETURN
11800 FREQUENCY2# = INP(BASEADDRESS% + 6) + 256 * INP(BASEADDRESS% + 6)
11900 FREQUENCY2# = 65536# - FREQUENCY2#
11910 LOCATE 22, 60: COLOR 7, 0: PRINT "READY..."
12000 LOCATE 19, 1: PRINT "SKY COUNTS      : ";
12001 COLOR 0, 7
12010 LOCATE 19, 25: PRINT FREQUENCY2#; SPACE$(20 - LEN(STR$(FREQUENCY2#)))
12011 COLOR 7, 0
12020 SOUND 3000, .5
12100 RETURN
12200 REM *** RESET FILTER SUBROUTINE ***
12210 BASEADDRESS% = 768: ST% = 6: DI% = 1: FILTER% = 1
12220 OUT BASEADDRESS%, 2 * DI%
12230 FOR I% = 1 TO 33 * ST%
12240 OUT BASEADDRESS%, DI% * 2 + 1
12250 OUT BASEADDRESS%, DI% * 2
12260 NEXT I%
12270 RETURN
12300 REM *** CHANGE FILTER SUBROUTINE ***
12310 IF F$(N) = "U" THEN NEWF% = 1
12320 IF F$(N) = "B" THEN NEWF% = 2
12330 IF F$(N) = "V" THEN NEWF% = 3
12340 IF NEWF% > FILTER% THEN DI% = 0 ELSE DI% = 1
12350 ST% = ABS(NEWF% - FILTER%)
12360 OUT BASEADDRESS%, 2 * DI%
12370 FOR I% = 1 TO 33 * ST%
12380 OUT BASEADDRESS%, DI% * 2 + 1
12390 OUT BASEADDRESS%, DI% * 2
12400 NEXT I%
12410 FILTER% = NEWF%
12420 RETURN
12500 GOSUB 13300: GOSUB 13400: GOSUB 13300: RETURN
13000 REM *** CHECK DATA ***
13010 LPRINT TT$
13020 GOSUB 12500
13040 FOR R = 1 TO NUM

```

โปรแกรม DATAAC23.BAS (ต่อ)

```

13050 LPRINT USING "###"; R; : LPRINT SPC(4);
13060 LPRINT N$(R); : LPRINT SPC(4);
13070 LPRINT F$(R); : LPRINT SPC(5);
13080 LPRINT D$(R); : LPRINT SPC(4);
13090 LPRINT T$(R); : LPRINT SPC(4);
13100 LPRINT USING "#####"; C(R); : LPRINT SPC(6);
13110 LPRINT USING "#####"; K(R); : LPRINT SPC(6);
13120 LPRINT USING "#####"; C(R) - K(R)
13121 IF ((R MOD 5) = 0) THEN LPRINT
13140 IF ((R MOD 45) = 0) THEN GOSUB 13300: GOSUB 13200: GOSUB 12500
13150 NEXT R
13160 GOSUB 13300: LOCATE 23, 1: PRINT "END"
13170 RETURN
13200 LPRINT : LPRINT : LPRINT : LPRINT : LPRINT
13210 CLS : RETURN
13300 REM *** SUBROUTINE UNDERLINE ***
13310 LPRINT STRING$(78, "-")
13320 RETURN
13400 LPRINT "NO. STAR FILTER    DATE        TIME        STAR-COUNT    SKY-COUNT    NET-COUNT"
13420 RETURN

```

โปรแกรม EXTINCTN.BAS

```

100 REM *****
200 REM *****      THE EXTINCTN.BAS      *****
400 REM ***** BY SURAJIT PRAMUANG *****
500 REM *****
1000 DIM NS(200),C(200),K(200),Fs(200),Ds(200),Ts(200),Q(200),Y(200),H(200)
      ,AB(20),AV(20),KB(20),KV(20),DR(100)
1010 DIM ZZ(8,100),Xs(2,100),DM(12),MD(10,100),AIR(10,100),TM(10,100),
      SM(6),N(200),S(200),D(200),M(200),FFs(10,100),NA$(100),MB(20),MV(20)
1020 DIM XU(100),XB(100),XV(100),XR(100),YU(100),YB(100),YV(100),YR(100),
      PU(100),PB(100),PV(100),PR(100),QU(100),QB(100),QV(100),QR(100),DU(100)
1030 DIM VU(100),VB(100),VV(100),VR(100),ZU(100),ZB(100),ZV(100),ZR(100),
      BB(20),BV(20),JB(20),JV(20),CB(20),CV(20),CR(20),CI(20),DB(100),DV(100)
1500 REM *****
1510 REM ***ROUTINE TO CHOOSE MODE***
1520 REM *****
1530 CLS
1540 LOCATE 1,1: PRINT "*****"
1550 PRINT "** 0) End                      **"
1555 PRINT "** 1) To select star, filter and compute **"
1565 PRINT "** 2) Save Data-File          **"
1566 PRINT "** 3) To compute second star    **"
1567 PRINT "** 4) To compute second-order extinction **"
1590 PRINT "*****"
1600 PRINT "Press 0,1,2,3 or 4 only "
1610 V$ = INKEY$
1620 IF V$ = "0" THEN CLS : END
1630 IF V$ = "1" THEN GOSUB 1670: GOTO 1530
1640 IF V$ = "2" THEN GOSUB 5000: GOTO 1530
1650 IF V$ = "3" THEN GOTO 1725
1655 IF V$ = "4" THEN GOTO 7000
1660 GOTO 1610
1670 GOSUB 2000
1675 GOSUB 2040
1680 GOSUB 2500
1690 FI$ = "U": A = A + 1: GOSUB 3500
1700 FI$ = "B": A = A + 1: GOSUB 3500

```

โปรแกรม EXTINCTN.BAS (ต่อ)

```

1710 F1$ = "V": A = A + 1: GOSUB 3500
1714 F1$ = "R": A = A + 1: GOSUB 3500
1715 F1$ = "I": A = A + 1: GOSUB 3500
1720 GOSUB 4000
1721 GOTO 1530
1725 CLS
1740 GOTO 1675
1760 GOTO 1540
2000 REM *****
2010 REM ***ROUTINE TO CALL DATA-FILE ***
2020 REM *****
2030 LOCATE 10, 1: INPUT "   Data-File called   "; Z$
2031 OPEN Z$ FOR INPUT AS #1
2032 INPUT #1, NUM
2033 FOR R = 1 TO NUM
2034 INPUT #1, N$(R), F$(R), D$(R), T$(R), Q(R), C(R), K(R): GOSUB 2085
2035 NEXT R
2036 CLOSE #1
2037 RETURN
2040 INPUT "Input star - name:"; NA$
2050 IF A < 5 THEN GOTO 2070
2060 RESTORE
2065 A = 0
2070 FOR I = 1 TO 5:READ TM$:PRINT "Input true mag. for star;NA$;" filter"
      ; TM$: INPUT ; " ", SM(I): PRINT : NEXT I
2080 DATA "U","B","V","R","I"
2085 DD$ = MID$(D$(R), 4, 2): M$ = LEFT$(D$(R), 2): Y$ = RIGHT$(D$(R), 4)
2086 H$ = LEFT$(T$(R), 2): N$ = MID$(T$(R), 4, 2): S$ = RIGHT$(T$(R), 2)
2089 D(R) = VAL(DD$): M(R) = VAL(M$): Y(R) = VAL(Y$)
2090 H(R) = VAL(H$): N(R) = VAL(N$): S(R) = VAL(S$): RETURN
2100 RETURN
2500 REM *****
2510 REM ***ROUTINE INPUT DEC,RA***
2520 REM *****
2530 CLS
2540 PRINT "*****"
2550 LOCATE 2,-1: INPUT ; "*** Input DEC(dec,min,sec) ***", DG, DM, DS

```

EXTINCTN.BAS (ต่อ)

```

2560 IF DG < -90 OR DG > 90 THEN A$ = "DEC HAVE VALUE BETWEEN -90 TO 90:"
      : GOTO 2600
2570 IF (DM < 0) OR (DM > 60) THEN A$ = "DM HAVE VALUE BETWEEN 0 TO 60:"
      : GOTO 2600
2580 IF DS<0 OR DS>60 THEN A$ ="DS HAVE VALUE BETWEEN 0 TO 60:":GOTO 2600
2590 D1 = DG + DM / 60 + DS / 3600: GOTO 2620
2600 LOCATE 20, 1: PRINT A$: GOTO 2550
2620 LOCATE 20, 1: PRINT "
2622 LOCATE 3, 1: INPUT ; "***Input R.A. (hrs,min,sec)***", RH, RM, RS
2630 IF RH < 0 OR RH > 24 THEN A$ = "HRS HAVE VALUE BETWEEN 0 TO 24:"
      : GOTO 2670
2640 IF RM<0 OR RM>60 THEN A$ ="RM HAVE VALUE BETWEEN 0 TO 60:":GOTO 2670
2650 IF RS<0 OR RS>60 THEN A$ = "RS HAVE VALUE BETWEEN 0 TO 60:": GOTO 2670
2660 RA = RH + RM / 60 + RS / 3600: GOTO 2680
2670 LOCATE 20, 1: PRINT A$: GOTO 2622
2680 I$ = "*****"
2690 FOR I = 22 TO 4 STEP -1: LOCATE I, 1: PRINT I$
2700 II = I + 1: LOCATE II, 1: PRINT "
2710 NEXT I
2720 PRINT "*****"
2730 PRINT "Time zone = 7:***": ZN = 7
2740 PRINT "Longitude = -6.567***": L1 = -6.567
2750 PRINT "Latitude = 18.5:***": L2 = 18.5
2760 PRINT "*****"
2770 PRINT "Do you want to change ?"
2772 V$ = INKEY$
2773 IF V$ >= " " THEN 2780
2774 GOTO 2772
2780 IF V$ = "Y" THEN GOSUB 3000
2785 BEEP
2790 RETURN
3000 CLS
3010 REM *****
3020 REM ***ROUTINE TO CHANGE COORDINATE OF SITE***
3030 REM *****
3040 PRINT "(1) TIME ZONE = "; ZN
3050 PRINT "(2) LONGITUDE = "; L1

```

```

EXTINCTN.BAS (ต่อ)

3060 PRINT "(3) LATITUDE  = "; L2
3070 LOCATE 5, 1: PRINT "WHAT DO YOU WANT TO CHANGE(1 OR 2 OR 3)?"
3072 V$ = INKEY$
3080 IF V$ = "1" THEN LOCATE 7, 1: PRINT "CHANGE TIME ZONE FROM "; ZN; "TO";
      : INPUT ZN: GOTO 3115
3090 IF V$ = "2" THEN LOCATE 7, 1: PRINT "CHANGE LONGITUDE FROM "; L1; "TO";
      : INPUT L1: GOTO 3115
3100 IF V$ = "3" THEN LOCATE 7, 1: PRINT "CHANGE LATITUDE FROM "; L2; "TO";
      : INPUT L2: GOTO 3115
3110 GOTO 3072
3115 CLS : LOCATE 10, 1: PRINT "To change again? "
3123 LOCATE 1, 1: PRINT "(1) Time zone = "; ZN
3124 LOCATE 2, 1: PRINT "(2) Longitude = "; L1
3125 LOCATE 3, 1: PRINT "(3) Latitude  = "; L2
3129 V$ = INKEY$
3130 IF V$ = "Y" THEN GOTO 3000
3133 IF V$ = "N" THEN 3140
3135 GOTO 3123
3140 RETURN

3500 REM *****
3510 REM ***ROUTINE TO SELECT STAR FOR EACH FILTER***
3520 REM *****
3530 NO = 0
3540 FOR R = 1 TO NUM
3550 IF N$(R) = NA$ AND F$(R) = FI$ THEN NO = NO + 1: ZZ(1, NO) = D(R)
      : ZZ(2, NO)=M(R):ZZ(3, NO) = Y(R): ZZ(4, NO) = H(R): ZZ(5, NO) = N(R)
      : ZZ(6, NO) = S(R):ZZ(7, NO) = C(R):ZZ(8, NO) = K(R) :X$(1, NO) = N$(R)
      : X$(2, NO) = F$(R)
3560 NEXT R
3570 IF A = 1 THEN GOTO 3585
3580 GOTO 3620
3585 FOR I = 1 TO 12
3590 READ DM(I)
3600 NEXT I
3610 DATA 31,28,31,30,31,30,31,31,30,31,30,31
3620 FOR I = 1 TO NO
3630 SD = ZZ(1, I): SM = ZZ(2, I): SY = ZZ(3, I)

```

โปรแกรม EXTINGTN.BAS (ต่อ)

```

3650 TH = ZZ(4, I) + ZZ(5, I) / 60 + ZZ(6, I) / 3600
3660 UT = 24 + TH - ZN
3670 IF UT >= 24 THEN UT = UT - 24: GOTO 3720
3680 SD = SD - 1
3690 IF SD = 0 THEN SM = SM - 1: SD = DM(SM)
3700 IF SM = 0 THEN SY = SY - 1: SM = 12
3710 IF SY / 4 - INT(SY / 4) = 0 AND SM = 1 THEN DM(2) = 27
3720 TD = 0
3725 IF SM = 1 THEN 3760
3730 FOR J = 1 TO SM - 1
3740 TD = TD + DM(J)
3750 NEXT J
3760 TD = TD + SD
3770 JD = 2415020! + (365 * SY) + TD + INT(SY / 4) - .5
3780 ST = 6.6460556# + 2400.0512617# * (JD - 2415020!) / 36525!
      + (1.0027379# * UT) - L1
3790 SS = INT(ST / 24) * 24
3800 SS = ST - SS
3810 HA = SS - RA
3820 IF HA < 0 THEN HA = 24 + HA
3830 R = ABS(HA * 15)
3840 P = 3.1416
3850 X = 1 / (SIN(L2 / 180 * P) * SIN(D1 / 180 * P) + COS(L2/180 * P)
      *COS(D1/180 * P) * COS(R / 180 * P))
3860 IF X <= 0 THEN AIR(A, I) = 0: GOTO 3890
3870 X = X - .0018167*(X - 1) - .002875*(X - 1)^2 - .0008083*(X - 1)^3
3880 AIR(A, I) = X
3885 ZZ(7, I) = ZZ(7, I) / 10: ZZ(8, I) = ZZ(8, I) / 10
3890 C = ZZ(7, I)*(1 + ZZ(7, I)*.0000001) - ZZ(8, I)*(1 + ZZ(8, I)*.0000001)
3900 IF C <= 0 THEN MD(A, I) = 0: GOTO 3920
3910 MD(A, I) = -2.5 * (LOG(C) / LOG(10)): TM(A, I) = SM(A) - MD(A, I)
3920 NEXT I
3930 RETURN
4000 REM *****
4010 REM *** ROUTINE HEADLINE ***
4020 REM *****
4030 CLS : PRINT TAB(35); NA$; "-STAR"

```

```

TUTUNGN EXTINCTN.BAS (ต่อ)
4040 FOR I = 1 TO 72: PRINT "="; : NEXT I
4060 LOCATE 3, 1:PRINT"!   ! AIRMASS AND INSTRUMENTAL MAGNITUDE !"
4070 LOCATE 4,1:PRINT "!   !";:FOR I = 1 TO 65:PRINT TAB(6 + I);"_";:NEXT I
      : PRINT "!";
4090 LOCATE 5,1:PRINT"! NO ! X   ! U-u   ! X   ! B-b   ! X   ! V-v   !"
4100 FOR I = 1 TO 72: PRINT "="; : NEXT I
4120 FOR I = 1 TO NO
4121 PRINT TAB(1);"!"; I;TAB(6);"!";:PRINT AIR(MO + 1,I);TAB(17);"!";
4122 PRINT TM(MO + 1,I);TAB(28);"!";:PRINT AIR(MO + 2,I);TAB(39);"!";
4123 PRINT TM(MO + 2,I);TAB(50);"!";:PRINT AIR(MO + 3,I);TAB(61);"!";
4124 PRINT TM(MO + 3, I); TAB(72);"!": GOSUB 4190
4130 NEXT I
4131 FOR I = 1 TO 72: PRINT "="; : NEXT I
4135 LOCATE 13, 1: PRINT
4140 FOR I = 1 TO 72: PRINT "="; : NEXT I
4145 LOCATE 15,1:PRINT"! NO ! X   ! R-r   ! X   ! I-i   !"
4150 FOR I = 1 TO 72: PRINT "="; : NEXT I
4151 FOR I = 1 TO NO
4152 PRINT TAB(1);"!";I;TAB(6);"!";:PRINT AIR(MO + 4,I);TAB(17);"!";
4153 PRINT TM(MO + 4, I); TAB(28);"!";
4154 PRINT AIR(MO + 5, I); TAB(39);"!";
4155 PRINT TM(MO + 5, I); TAB(50);"! ***** !"
4156 GOSUB 4190
4157 NEXT I
4158 FOR I = 1 TO 72: PRINT "="; : NEXT I
4160 GOSUB 4500
4170 PRINT : PRINT "TYPE ANY KEY TO CONTINUE": BEEP
4175 V$ = INKEY$
4176 IF V$ > " " THEN 4180
4177 GOTO 4175
4180 RETURN
4190 IF ((I / 20 - INT(I / 20)) = 0) THEN PRINT : LOCATE 30, 1
      : PRINT "TYPE ANY KEY TO CONTINUE": GOTO 4195
4192 GOTO 4200
4195 V$ = INKEY$
4196 IF V$ > " " THEN GOTO 4200
4197 GOTO 4195

```

โปรแกรม EXTNCTN.BAS (ต่อ)

```

4198 CLS
4200 RETURN
4500 REM *****
4510 REM ***ROUTINE UNDERLINE***
4511 REM *****
4515 PRINT "SAVE (Y/N) "; : INPUT V$
4516 IF V$ = "Y" OR V$ = "y" THEN GOSUB 5000
4520 IF V$ <> "Y" THEN 4521
4521 PRINT : INPUT "PRINTER ? (Y/N) "; B$
4525 IF B$ = "Y" OR B$ = "y" THEN 4535
4530 IF B$ <> "Y" OR B$ <> "y" THEN GOTO 1530
4535 LPRINT TAB(17); "THE TABLE OF OBSERVATION FOR "; NA$; "-STAR"
4540 FOR I = 1 TO 72: LPRINT "="; : NEXT I
4545 LOCATE 3,1:LPRINT"!      AIRMASS AND INSTRUMENTAL MAGNITUDE      !"
4550 LOCATE 4,1:LPRINT"!      ";:FOR I = 1 TO 65:LPRINT TAB(6 + I);"_";
      : NEXT I: LPRINT"!";
4560 LOCATE 5,1:LPRINT"! NO      X      U-u      X      B-b      X      V-v      !"
4570 FOR I = 1 TO 72: LPRINT "="; : NEXT I
4580 FOR I = 1 TO NO
4590 LPRINT TAB(1);"!";I;TAB(6);"!";:LPRINT AIR(MO + 1, I); TAB(17);"!";
4591 LPRINT TM(MO + 1, I); TAB(28);"!";
4592 LPRINT AIR(MO + 2, I); TAB(39);"!";
4593 LPRINT TM(MO + 2, I); TAB(50);"!";
4594 LPRINT AIR(MO + 3, I); TAB(61);"!";
4595 LPRINT TM(MO + 3, I); TAB(72);"!": GOSUB 4190
4600 NEXT I
4610 FOR I = 1 TO 72: LPRINT "="; : NEXT I
4615 PRINT : PRINT
4630 LOCATE 18, 1:LPRINT"! NO      X      R-r      X      I-i      !"
4650 FOR I = 1 TO 72: LPRINT "="; : NEXT I
4660 FOR I = 1 TO NO
4670 LPRINT TAB(1);"!";I;TAB(6);"!";:LPRINT AIR(MO + 4, I);TAB(17);"!";
4671 LPRINT TM(MO + 4, I); TAB(28);"!";
4672 LPRINT AIR(MO + 5, I); TAB(39);"!";
4673 LPRINT TM(MO + 5, I); TAB(50);"! ***** !"
4680 NEXT I
4690 FOR I = 1 TO 72: LPRINT "="; : NEXT I

```

โปรแกรม EXTINCTN.BAS (ต่อ)

```

4695 LPRINT : LPRINT : LPRINT : LPRINT
4800 GOTO 1530

5000 REM *****
5010 REM ***ROUTINE TO CREATE DATA-FILE ***
5020 REM *****
5030 INPUT ; "Input new File-named:", M$: PRINT
5040 INPUT ; "Input star-name:", NA$
5050 OPEN M$ FOR OUTPUT AS #1
5060 WRITE #1, NO, A
5100 FOR J = 1 TO A
5110 FOR R = 1 TO NO
5115 FF$(J, R) = F$(J)
5120 WRITE #1, NA$, FF$(J, R), MD(J, R), AIR(J, R)
5125 PRINT : PRINT NA$, FF$(J, R); R, MD(J, R), AIR(J, R)
5130 NEXT R
5140 NEXT J
5150 BEEP
5160 INPUT "TYPE ENTER TO CONTINUE"; V$: BEEP
5170 V$ = INKEY$
5180 IF V$ > " " THEN 5190
5190 CLOSE #1
5200 RETURN

7000 REM *****
7010 REM **** ROUTINE SECOND ORDER CALCULATION ****
7020 REM *****
7030 CLS :LOCATE 5,1:PRINT"You'll calculate the second-order extinction
after you finished your first-order extinction and saved for two
stars or more,only."
7040 PRINT : INPUT "You are sure ? (y/n) ", V$
7050 IF V$ = "Y" OR V$ = "y" THEN 7070
7060 IF V$ <> "Y" OR V$ <> "y" THEN GOTO 1530
7070 CLS : PRINT : INPUT "Data-File called : ", Z$
7080 OPEN Z$ FOR INPUT AS #1
7085 INPUT #1, NO, A
7110 FOR J = 1 TO A
7120 FOR R = 1 TO NO
7130 INPUT #1, NA$, FF$(J, R), MD(J, R), AIR(J, R)

```

โปรแกรม EXTINCTN.BAS (ต่อ)

```

7140 NEXT R
7150 NEXT J
7170 CLOSE #1
7190 STARNAMES$ = NA$
7200 PRINT : INPUT "Input first star-name : ", STARNAMES$
7210 FOR R = 1 TO NO
7220 VU(R) = (AIR(1,R) + AIR(2,R))/2: VB(R) = (AIR(2,R) + AIR(3,R))/2
      :VV(R) = (AIR(3,R) + AIR(4,R))/2:VR(R) = (AIR(4,R) + AIR(5,R))/2
7230 XU(R) = MD(1, R) - MD(2, R): XB(R) = MD(2, R) - MD(3, R)
      : XV(R) = MD(3, R) - MD(4, R): XR(R) = MD(4, R) - MD(5, R)
7240 AB(R) = MD(2, R): AV(R) = MD(3, R)
7245 BB(R) = AIR(2, R): BV(R) = AIR(3, R)
7250 NEXT R
7265 PRINT : INPUT "New Data-File called : ", Z$
7270 OPEN Z$ FOR INPUT AS #2
7275 INPUT #2, NO, A
7280 FOR J = 1 TO A
7285 FOR R = 1 TO NO
7290 INPUT #2, NA$, FF$(J, R), MD(J, R), AIR(J, R)
7295 NEXT R
7296 NEXT J
7300 CLOSE #2
7305 STARNAMES$ = NA$
7310 PRINT : INPUT "Input second star-name : ", STARNAMES$
7315 FOR R = 1 TO NO
7320 YU(R) = MD(1,R) - MD(2,R): YB(R) = MD(2,R) - MD(3,R)
      :YV(R) = MD(3,R) - MD(4,R): YR(R) = MD(4, R) - MD(5, R)
7325 PU(R) = (AIR(1,R) + AIR(2,R))/2:PB(R) = (AIR(2,R) + AIR(3, R))/2
      : PV(R) = (AIR(3,R) + AIR(4,R))/2:PR(R) = (AIR(4, R) + AIR(5,R))/2
7329 KB(R) = AIR(2, R): KV(R) = AIR(3, R)
7330 JB(R) = MD(2, R): JV(R) = MD(3, R)
7335 NEXT R
7345 FOR R = 1 TO NO
7350 DU(R) = XU(R) - YU(R): DB(R) = XB(R) - YB(R): DV(R) = XV(R) - YV(R)
      : DR(R) = XR(R) - YR(R)
7355 CB(R) = AB(R) - JB(R): CV(R) = AV(R) - JV(R)

```

โปรแกรม EXTNCTN.BAS (ต่อ)

```

7360 QU(R) = (VU(R) + PU(R))/2:QB(R) = (VB(R) + PB(R))/2
      :QV(R) = (VV(R) + PV(R))/2:QR(R) = (VR(R) + PR(R))/2
7365 MB(R) = 1 / 2 * (BB(R) + KB(R)): MV(R) = 1 / 2 * (BV(R) + KV(R))
7366 ZU(R) = DU(R) * QU(R):ZB(R) = DB(R) * QB(R):ZV(R) = DV(R) * QV(R)
      : ZR(R) = DR(R) * QR(R)
7400 NEXT R
7405 BEEP: BEEP
7410 CLS:PRINT TAB(10);"THE DIFFERENT OF COLOR INDEX OF DEL & 68T STARS"
7415 PRINT : FOR I = 1 TO 75: PRINT "="; : NEXT I
7420 LOCATE 4,1:PRINT"! NO | X | (u-b) | (u-b)X | X | (b-v) | (b-v)X |"
7425 FOR I = 1 TO 75: PRINT "="; : NEXT I
7430 FOR R = 1 TO NO
7440 PRINT TAB(1); "!"; R; TAB(6); "!": PRINT QU(R); TAB(17); "!";
7441 PRINT DU(R); TAB(28); "!";
7442 PRINT ZU(R); TAB(40); "!";
7443 PRINT QB(R); TAB(51); "!";
7444 PRINT DB(R); TAB(64); "!";
7445 PRINT ZB(R); TAB(75); "!";
7450 NEXT R
7455 FOR I = 1 TO 75: PRINT "="; : NEXT I
7456 PRINT
7459 FOR I = 1 TO 75: PRINT "="; : NEXT I
7460 PRINT"! NO | X | (v-r) | (v-r)X | X | (r-i) | (r-i)X |"
7465 FOR I = 1 TO 75: PRINT "="; : NEXT I
7470 FOR R = 1 TO NO
7480 PRINT TAB(1); "!"; R; TAB(6); "!": PRINT QV(R); TAB(17); "!";
7481 PRINT DV(R); TAB(28); "!";
7482 PRINT ZV(R); TAB(39); "!";
7483 PRINT QR(R); TAB(50); "!";
7484 PRINT DR(R); TAB(63); "!";
7485 PRINT ZR(R); TAB(75); "!";
7490 NEXT R
7491 FOR I = 1 TO 75: PRINT "="; : NEXT I
7492 PRINT : INPUT "TYPE ENTER TO CONTINUE", V$
7494 V$ = INKEY$
7495 GOSUB 8000
7500 PRINT : INPUT " Printer? (Y\N) "; V$: BEEP

```

โปรแกรม EXTINCTN.BAS (ต่อ)

```

7515 IF V$ = "Y" OR V$ = "y" THEN 7530
7520 IF V$ <> "Y" OR V$ <> "y" THEN 1530
7530 LPRINT:LPRINT"THE DIFFERENT OF COLOR INDEX OF DEL-TAU AND 68-TAU STARS"
7540 FOR I = 1 TO 75: LPRINT "="; : NEXT I
7550 LOCATE 5,1:LPRINT"! NO ! X ! (u-b) ! (u-b)X ! X ! (b-v) ! (b-v)X !"
7560 FOR I = 1 TO 75: LPRINT "="; : NEXT I
7570 FOR R = 1 TO NO
7580 LPRINT TAB(1); "!"; R; TAB(6); "!"; : LPRINT QU(R); TAB(17); "!";
7581 LPRINT DU(R); TAB(28); "!";
7582 LPRINT ZU(R); TAB(39); "!";
7583 LPRINT QB(R); TAB(50); "!";
7584 LPRINT DB(R); TAB(63); "!";
7585 LPRINT ZB(R); TAB(75); "!";
7590 NEXT R
7600 FOR I = 1 TO 75: LPRINT "="; : NEXT I
7610 LPRINT : PRINT : PRINT
7620 FOR I = 1 TO 75: LPRINT "="; : NEXT I
7630 LOCATE 12,1:LPRINT"! NO ! X ! (v-r) ! (v-r)X ! X ! (r-i) ! (r-i)X !"
7631 FOR I = 1 TO 75: LPRINT "="; : NEXT I
7632 FOR R = 1 TO NO
7634 LPRINT TAB(1); "!"; R; TAB(6); "!"; : LPRINT QV(R); TAB(17); "!";
7635 LPRINT DV(R); TAB(28); "!";
7636 LPRINT ZV(R); TAB(39); "!";
7637 LPRINT QR(R); TAB(50); "!";
7638 LPRINT DR(R); TAB(63); "!";
7639 LPRINT ZR(R); TAB(75); "!";
7640 NEXT R
7645 FOR I = 1 TO 75: LPRINT "="; : NEXT I
7650 LPRINT : LPRINT : LPRINT
7660 FOR I = 1 TO 75: LPRINT "="; : NEXT I
7670 LPRINT"! NO ! X ! v(o) ! (b-v) ! (b-v)X ! ***** !"
7680 FOR I = 1 TO 75: LPRINT "="; : NEXT I
7690 FOR R = 1 TO NO
7700 LPRINT TAB(1); "!"; R; TAB(6); "!"; : LPRINT MV(R); TAB(17); "!";
7701 LPRINT CV(R); TAB(28); "!";
7702 LPRINT ZB(R); TAB(39); "!";
7703 LPRINT MB(R); TAB(50); "!";

```

โปรแกรม EXTINCTN.BAS (ต่อ)

```

7704 LPRINT CB(R); TAB(63); "!";
7705 LPRINT ZB(R); TAB(75); "!";
7710 NEXT R
7720 FOR I = 1 TO 75: LPRINT "="; : NEXT I
7800 GOTO 1530
8000 CLS : PRINT
8005 LOCATE 2, 9: PRINT "The different of each filter between two stars"
8010 FOR I = 1 TO 75: PRINT "="; : NEXT I
8020 LOCATE 4,1:PRINT"! NO ! X ! v(o) ! (b-v) ! (b-v)X ! ***** !"
8030 FOR I = 1 TO 75: PRINT "="; : NEXT I
8040 FOR R = 1 TO NO
8050 PRINT TAB(1); "!"; R; TAB(6); "!"; : PRINT MV(R); TAB(18); "!";
8051 PRINT CV(R); TAB(30); "!";
8052 PRINT ZB(R); TAB(41); "!";
8053 PRINT MB(R); TAB(52); "!";
8054 PRINT CB(R); TAB(64); "!";
8055 PRINT ZB(R); TAB(75); "!";
8060 NEXT R
8065 FOR I = 1 TO 75: PRINT "="; : NEXT I
8200 RETURN

```

โปรแกรม TRUEMAG.BAS

```

1000 DIM N$(200),C(200),K(200),F$(200),D$(200),T$(200),Q(200),Y(200),H(200)
1010 DIM ZZ(8,100),X$(2,100),DM(12),MD(20,200),AIR(20,200),TM(10,100),SM(6),
      N(200),S(200),D(200),M(200),FF$(10,200),NA$(200),CU(200),CV(200),CB(200)
1020 DIM XU(200),XB(200),XV(200),XR(200),XI(200),V(200),BVO(200),UBO(200),
      VRO(200),RIO(200),U(200),B(200),R(200),I(200),VO(200),CR(200)
1500 REM *****
1510 REM ****ROUTINE TO CHOOSE MODE***
1520 REM *****
1530 CLS
1540 LOCATE 1, 1: PRINT "*****"
1550 PRINT "** 0) End                                **"
1555 PRINT "** 1) To find extra-atmosphere magnitude **"
1565 PRINT "** 2) Save Data-File                      **"
1566 PRINT "** 3) To compute second star                **"
1567 PRINT "** 4) To Transform to standard magnitude  **"
1590 PRINT "*****"
1600 PRINT "Press 0,1,2,3 or 4 only "
1610 V$ = INKEY$
1620 IF V$ = "0" THEN CLS : END
1630 IF V$ = "1" THEN GOSUB 1670: GOTO 1530
1640 IF V$ = "2" THEN GOSUB 5000: GOTO 1530
1650 IF V$ = "3" THEN GOTO 1725
1655 IF V$ = "4" THEN GOTO 7000
1660 GOTO 1610
1670 GOSUB 2000
1675 GOSUB 2040
1680 GOSUB 2500
1690 FI$ = "U": A = A + 1: GOSUB 3500
1700 FI$ = "B": A = A + 1: GOSUB 3500
1710 FI$ = "V": A = A + 1: GOSUB 3500
1714 FI$ = "R": A = A + 1: GOSUB 3500
1715 FI$ = "I": A = A + 1: GOSUB 3500
1720 GOSUB 4000
1721 GOTO 1530
1725 CLS
1740 GOTO 1675

```

โปรแกรม TRUEMAG.BAS (ต่อ)

```

1730 GOTO 1540
2000 REM *****
2010 REM ***ROUTINE TO CALL DATA-FILE ***
2020 REM *****
2030 LOCATE 10, 1: INPUT " Data-File called "; Z$
2031 OPEN Z$ FOR INPUT AS #1
2032 INPUT #1, NUM
2033 FOR R = 1 TO NUM
2034 INPUT #1, N$(R), F$(R), D$(R), T$(R), Q(R), C(R), K(R): GOSUB 2085
2035 NEXT R
2036 CLOSE #1
2037 RETURN
2040 INPUT "Input star - name:"; NA$
2042 RESTORE
2045 PRINT
2050 PRINT "Input first-order coefficient of filter U (k'u) ";:INPUT FU
2051 PRINT "Input first-order coefficient of filter B (k'b)";:INPUT FB
2052 PRINT "Input first-order coefficient of filter V (k'v)";:INPUT FV
2053 PRINT "Input first-order coefficient of filter R (k'r)";:INPUT FR
2054 PRINT "Input first-order coefficient of filter I (k'i)";:INPUT FI
2056 PRINT "Input second-order coefficient of filter V (k''v) ";:INPUT SV
2057 PRINT "Input second-order coefficient of filter UB (k''UB)";:INPUT SU
2058 PRINT "Input second-order coefficient of filter BV (k''BV)";:INPUT SB
2059 PRINT "Input second-order coefficient of filter VR (k''VR)";:INPUT SR
2060 PRINT "Input second-order coefficient of filter RI (k''RI)";:INPUT SI
2085 DD$ = MID$(D$(R), 4, 2): M$ = LEFT$(D$(R), 2): Y$ = RIGHT$(D$(R), 4)
2086 H$ = LEFT$(T$(R), 2): N$ = MID$(T$(R), 4, 2): S$ = RIGHT$(T$(R), 2)
2089 D(R) = VAL(DD$): M(R) = VAL(M$): Y(R) = VAL(Y$)
2090 H(R) = VAL(H$): N(R) = VAL(N$): S(R) = VAL(S$):RETURN
2100 RETURN
2500 REM *****
2510 REM ***ROUTINE INPUT DEC,RA***
2520 REM *****
2530 CLS
2540 PRINT "*****"
2550 LOCATE 2, 1: INPUT ; "*** Input DEC(dec,min,sec) ***", DG, DM, DS

```

โปรแกรม TRUEMAG.BAS (ต่อ)

```

2560 IF DG < -90 OR DG > 90 THEN A$ = "DEC HAVE VALUE BETWEEN -90 TO 90:"
      : GOTO 2600
2570 IF (DM < 0) OR (DM > 60) THEN A$ = "DM HAVE VALUE BETWEEN 0 TO 60:"
      : GOTO 2600
2580 IF DS < 0 OR DS > 60 THEN A$ = "DS HAVE VALUE BETWEEN 0 TO 60:"
      : GOTO 2600
2590 D1 = DG + DM / 60 + DS / 3600: GOTO 2620
2600 LOCATE 20, 1: PRINT A$: GOTO 2550
2620 LOCATE 20, 1: PRINT "
2622 LOCATE 3, 1: INPUT ; "***Input R.A. (hrs,min,sec)***", RH, RM, RS
2630 IF RH < 0 OR RH > 24 THEN A$ = "HRS HAVE VALUE BETWEEN 0 TO 24:"
      : GOTO 2670
2640 IF RM < 0 OR RM > 60 THEN A$ = "RM HAVE VALUE BETWEEN 0 TO 60:"
      : GOTO 2670
2650 IF RS < 0 OR RS > 60 THEN A$ = "RS HAVE VALUE BETWEEN 0 TO 60:"
      : GOTO 2670
2660 RA = RH + RM / 60 + RS / 3600: GOTO 2680
2670 LOCATE 20, 1: PRINT A$: GOTO 2622
2680 I$ = "*****"
2690 FOR I = 22 TO 4 STEP -1: LOCATE I, 1: PRINT I$
2700 II = I + 1: LOCATE II, 1: PRINT "
2710 NEXT I
2720 PRINT "*****"
2730 PRINT "***Time zone = 7:***": ZN = 7
2740 PRINT "***Longitude = -6.567***": L1 = -6.567
2750 PRINT "***Latitude = 18.5:***": L2 = 18.5
2760 PRINT "*****"
2770 PRINT "Do you want to change ?"
2772 V$ = INKEY$
2773 IF V$ >= " " THEN 2780
2774 GOTO 2772
2780 IF V$ = "Y" THEN GOSUB 3000
2785 BEEP
2790 RETURN
3000 CLS
3010 REM *****
3020 REM ***ROUTINE TO CHANGE COORDINATE OF SITE***

```

โปรแกรม TRUEMAG.BAS (ต่อ)

```

3030 REM *****
3040 PRINT "(1) TIME ZONE = "; ZN
3050 PRINT "(2) LONGITUDE = "; L1
3060 PRINT "(3) LATITUDE = "; L2
3070 LOCATE 5, 1: PRINT "WHAT DO YOU WANT TO CHANGE(1 OR 2 OR 3)?"
3072 V$ = INKEY$
3080 IF V$ = "1" THEN LOCATE 7,1:PRINT"CHANGE TIME ZONE FROM ";ZN;" TO";
      : INPUT ZN: GOTO 3115
3090 IF V$ = "2" THEN LOCATE 7,1:PRINT"CHANGE LONGITUDE FROM ";L1;" TO ";
      : INPUT L1: GOTO 3115
3100 IF V$ = "3" THEN LOCATE 7,1:PRINT"CHANGE LATITUDE FROM ";L2;" TO ";
      : INPUT L2: GOTO 3115
3110 GOTO 3072
3115 CLS : LOCATE 10, 1: PRINT "To change again? "
3123 LOCATE 1, 1: PRINT "(1) Time zone = "; ZN
3124 LOCATE 2, 1: PRINT "(2) Longitude = "; L1
3125 LOCATE 3, 1: PRINT "(3) Latitude = "; L2
3129 V$ = INKEY$
3130 IF V$ = "Y" THEN GOTO 3000
3133 IF V$ = "N" THEN 3140
3135 GOTO 3123
3140 RETURN
3500 REM *****
3510 REM ***ROUTINE TO SELECT STAR FOR EACH FILTER***
3520 REM *****
3530 NO = 0
3540 FOR R = 1 TO NUM
3550 IF N$(R) = NA$ AND F$(R) = FI$ THEN NO = NO + 1:ZZ(1,NO) = D(R)
      :ZZ(2,NO) = M(R):ZZ(3,NO) = Y(R):ZZ(4,NO) = H(R):ZZ(5,NO) = N(R)
      :ZZ(6,NO) = S(R):ZZ(7,NO) = C(R):ZZ(8,NO) = K(R):X$(1,NO) = N$(R)
      :X$(2, NO) = F$(R)
3560 NEXT R
3570 IF A = 1 THEN GOTO 3585
3580 GOTO 3620
3585 FOR I = 1 TO 12
3590 READ DM(I)
3600 NEXT I

```

โปรแกรม TRUEMAG.BAS (ต่อ)

```

3610 DATA 31,28,31,30,31,30,31,31,30,31,30,31
3620 FOR I = 1 TO NO
3630 SD = ZZ(1, I): SM = ZZ(2, I): SY = ZZ(3, I)
3650 TH = ZZ(4, I) + ZZ(5, I) / 60 + ZZ(6, I) / 3600
3660 UT = 24 + TH - ZN
3670 IF UT >= 24 THEN UT = UT - 24: GOTO 3720
3680 SD = SD - 1
3690 IF SD = 0 THEN SM = SM - 1: SD = DM(SM)
3700 IF SM = 0 THEN SY = SY - 1: SM = 12
3710 IF SY / 4 - INT(SY / 4) = 0 AND SM = 1 THEN DM(2) = 27
3720 TD = 0
3725 IF SM = 1 THEN 3760
3730 FOR J = 1 TO SM - 1
3740 TD = TD + DM(J)
3750 NEXT J
3760 TD = TD + SD
3770 JD = 2415020! + (365 * SY) + TD + INT(SY / 4) - .5
3780 ST = 6.6460556# + 2400.0512617# * (JD - 2415020!) / 36525! +
      (1.0027379# * UT) - L1
3790 SS = INT(ST / 24) * 24
3800 SS = ST - SS
3810 HA = SS - RA
3820 IF HA < 0 THEN HA = 24 + HA
3830 R = ABS(HA * 15)
3840 P = 3.1416
3850 X = 1 / (SIN(L2 / 180 * P) * SIN(D1 / 180 * P) + COS(L2 / 180 * P)
      * COS(D1 / 180 * P) * COS(R / 180 * P))
3860 IF X <= 0 THEN AIR(A, I) = 0: GOTO 3890
3870 X = X - .0018167 * (X - 1) - .002875 * (X - 1)^2 - .0008083 * (X - 1)^3
3880 AIR(A, I) = X
3885 ZZ(7, I) = ZZ(7, I) / 10: ZZ(8, I) = ZZ(8, I) / 10
3890 C = ZZ(7, I) * (1 + ZZ(7, I) * .0000001) - ZZ(8, I) * (1 + ZZ(8, I) * .0000001)
3900 IF C <= 0 THEN MD(A, I) = 0
3910 MD(A, I) = -2.5 * (LOG(C) / LOG(10))
3914 XU(I) = (AIR(1, I) + AIR(2, I)) / 2: XB(I) = (AIR(2, I) + AIR(3, I)) / 2
3916 XR(I) = (AIR(3, I) + AIR(4, I)) / 2: XI(I) = (AIR(4, I) + AIR(5, I)) / 2
3920 CU(I) = MD(1, I) - MD(2, I): CB(I) = MD(2, I) - MD(3, I)

```

โปรแกรม TRUEMAG.BAS (ต่อ)

```

3922 CV(I) = MD(3, I) - MD(4, I): CR(I) = MD(4, I) - MD(5, I)
3925 UB = FU - FB: BV = FB - FV: VR = FV - FR: RI = FR - FI
3930 VO(I) = MD(3, I) - (FV * AIR(3, I)) - (SV * CB(I) * AIR(3, I))
3935 BVO(I) = CB(I) - (BV * XB(I)) - (SB * CB(I) * XB(I))
3940 UBO(I) = CU(I) - (UB * XU(I)) - (SU * CU(I) * XU(I))
3945 VRO(I) = CV(I) - (VR * XR(I)) - (SR * CV(I) * XR(I))
3950 RIO(I) = CR(I) - (RI * XI(I)) - (SI * CR(I) * XI(I))
3990 NEXT I
3995 RETURN

4000 REM *****
4010 REM *** ROUTINE HEADLINE ***
4020 REM *****
4030 CLS : PRINT TAB(28); NAS; "-STAR"
4040 FOR I = 1 TO 70: PRINT "="; : NEXT I
4060 LOCATE 3,1:PRINT"!      !      EXTRA-ATMOSPHERIC      MAGNITUDE      !"
4070 LOCATE 4,1:PRINT"!      !";FOR I = 1 TO 63:PRINT TAB(6 + I); "_";
      : NEXT I: PRINT "!";
4090 LOCATE 5,1:PRINT"! NO ! v(o) ! (u-b)o ! (b-v)o ! (v-r)o ! (r-i)o !"
4100 FOR I = 1 TO 70: PRINT "="; : NEXT I
4120 FOR I = 1 TO NO
4121 PRINT TAB(1); "!"; I; TAB(6); "!"; : PRINT VO(I); TAB(18); "!";
4122 PRINT UBO(I); TAB(31); "!"; : PRINT BVO(I); TAB(44); "!";
4123 PRINT VRO(I); TAB(57); "!"; : PRINT RIO(I); TAB(70); "!";
4124 GOSUB 4190
4130 NEXT I
4140 PRINT : FOR I = 1 TO 70: PRINT "="; : NEXT I
4160 GOSUB 4500
4170 PRINT : PRINT "TYPE ANY KEY TO CONTINUE": BEEP
4175 V$ = INKEY$
4176 IF V$ > " " THEN 4180
4177 GOTO 4175
4180 RETURN
4190 IF ((I / 20 - INT(I / 20)) = 0) THEN PRINT : LOCATE 30, 1
      : PRINT "TYPE ANY KEY TO CONTINUE": GOTO 4195
4192 GOTO 4200
4195 V$ = INKEY$
4196 IF V$ > " " THEN GOTO 4200

```

โปรแกรม TRUEMAG.BAS (ต่อ)

```

4197 GOTO 4195
4198 CLS
4200 RETURN
4500 REM *****
4510 REM ***ROUTINE UNDERLINE***
4511 REM *****
4515 LOCATE 23, 1: PRINT "TO BE SAVED (Y/N) "; : INPUT V$
4516 IF V$ = "Y" OR V$ = "y" THEN GOSUB 5000
4520 IF V$ <> "Y" THEN 4521
4521 PRINT : INPUT "PRINTER ? (Y/N) "; B$
4525 IF B$ = "Y" OR B$ = "y" THEN 4535
4530 IF B$ <> "Y" OR B$ <> "y" THEN GOTO 1530
4535 LPRINT TAB(18); "THE TABLE OF OBSERVATION FOR "; NA$; "-STAR"
4540 FOR I = 1 TO 72: LPRINT "="; : NEXT I
4545 LOCATE 3,1:LPRINT"!      !  EXTRA-ATMOSPHERIC  MAGNITUDE  VALUES  !"
4550 LOCATE 4, 1: LPRINT "!      !"; : FOR I = 1 TO 65:LPRINT TAB(6 + I);"_";
      : NEXT I: LPRINT "!";
4560 LOCATE 5,1:LPRINT"! NO !  v(o)  !  (u-b)o  !  (b-v)o  !  (v-r)o  !  (r-i)o !"
4570 FOR I = 1 TO 72: LPRINT "="; : NEXT I
4580 FOR I = 1 TO NO
4590 LPRINT TAB(1); "!"; I; TAB(6); "!"; : LPRINT VO(I); TAB(19); "!";
4591 LPRINT UBO(I); TAB(32); "!";
4592 LPRINT BVO(I); TAB(45); "!";
4593 LPRINT VRO(I); TAB(58); "!";
4594 LPRINT RIO(I); TAB(72); "!";
4595 GOSUB 4190
4600 NEXT I
4610 PRINT : FOR I = 1 TO 72: LPRINT "="; : NEXT I
4800 GOTO 1530
5000 REM *****
5010 REM ***ROUTINE TO CREATE DATA-FILE ***
5020 REM *****
5030 INPUT ; "Input new File-named:", M$: PRINT
5040 INPUT ; "Input star-name:", NA$
5050 OPEN M$ FOR OUTPUT AS #1
5060 WRITE #1, NO, A
5100 FOR J = 1 TO A

```

โปรแกรม TRUEMAG.BAS (ต่อ)

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5110 FOR R = 1 TO NO
5120 WRITE #1, NA$, VO(R), BVO(R), UBO(R), VRO(R), RIO(R), AIR(J, R)
5125 PRINT : PRINT NA$, VO(R), BVO(R), UBO(R), VRO(R), RIO(R)
5130 NEXT R
5140 NEXT J
5150 BEEP
5160 INPUT "TYPE ENTER TO CONTINUE"; V$: BEEP
5170 V$ = INKEY$
5180 IF V$ > " " THEN 5190
5190 CLOSE #1
5200 RETURN

7000 REM *****
7010 REM **** ROUTINE STANDARD TRANSFORMATION ****
7020 REM *****
7070 CLS : PRINT : INPUT "Data-File called : ", Z$
7080 OPEN Z$ FOR INPUT AS #1
7085 INPUT #1, NO, A
7110 FOR J = 1 TO A
7120 FOR R = 1 TO NO
7130 INPUT #1, NA$, VO(R), BVO(R), UBO(R), VRO(R), RIO(R), AIR(J, R)
7140 NEXT R
7150 NEXT J
7170 CLOSE #1
7190 STARNAMES$ = NA$
7200 PRINT : INPUT "star-name : ", STARNAMES$
7220 PRINT "Input transformation coefficient for V (E) "; : INPUT E
7230 PRINT "Input transformation coefficient for BV(M) "; : INPUT M
7240 PRINT "Input transformation coefficient for UB(W) "; : INPUT W
7250 PRINT "Input transformation coefficient for VR(O) "; : INPUT O
7260 PRINT "Input transformation coefficient for RI(N) "; : INPUT N
7270 PRINT "Input zero-point value for V "; : INPUT ZV
7275 PRINT "Input zero-point value for UB"; : INPUT ZU
7280 PRINT "Input zero-point value for BV"; : INPUT ZB
7290 PRINT "Input zero-point value for VR"; : INPUT ZR
7300 PRINT "Input zero-point value for RI"; : INPUT ZI
7305 FOR R = 1 TO NO
7310 V(R) = VO(R) + E * (B(R) - V(R)) + ZV

```

โปรแกรม TRUEMAG.BAS (ต่อ)

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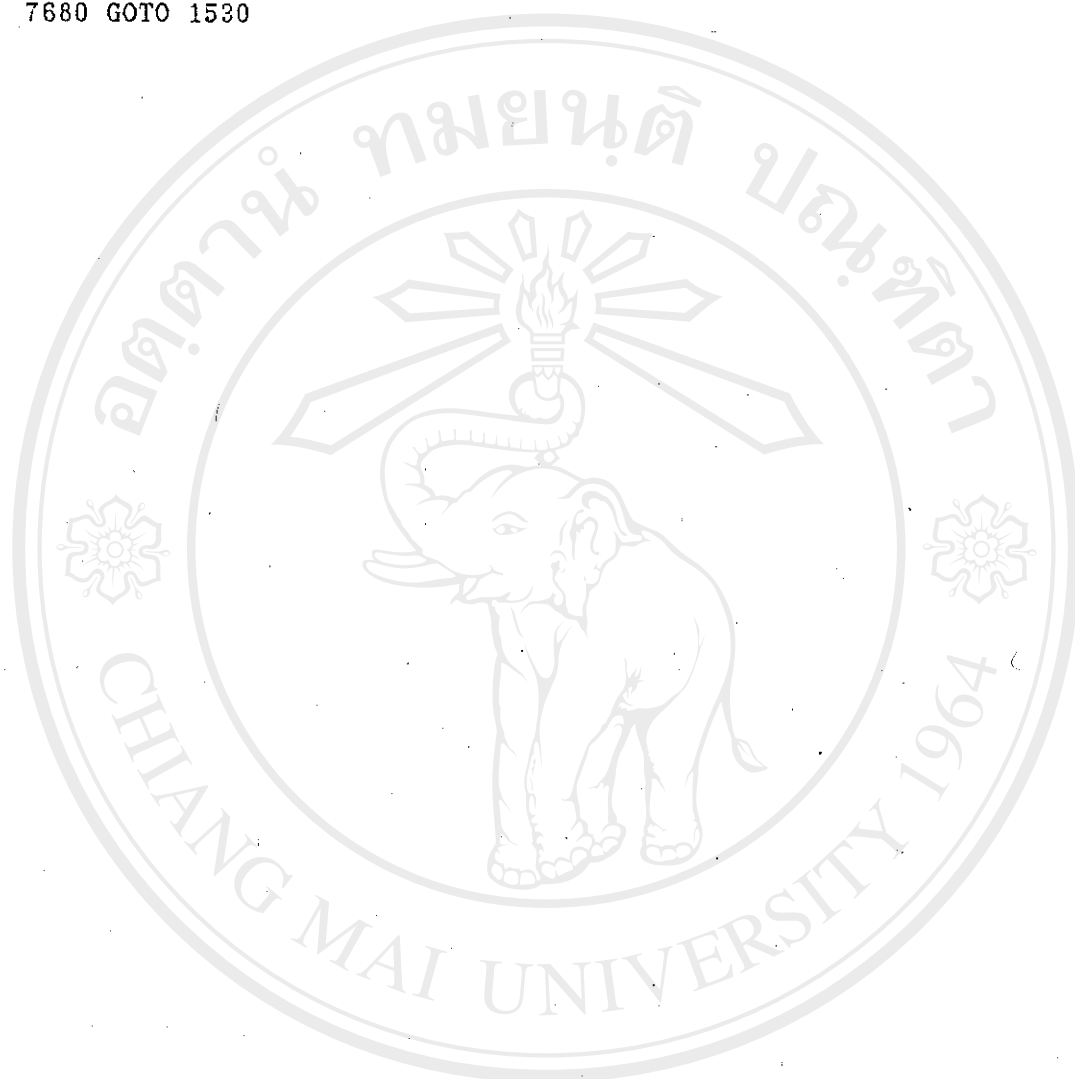
7311 BV(R) = B(R) - V(R)
7312 UB(R) = U(R) - B(R)
7313 VR(R) = V(R) - R(R)
7314 RI(R) = R(R) - I(R)
7320 BV(R) = M * BVO(R) + ZB
7330 VR(R) = O * VRO(R) + ZR
7340 RI(R) = N * RIO(R) + ZI
7350 UB(R) = W * UBO(R) + ZU
7370 NEXT R
7405 BEEP: BEEP
7410 CLS:PRINT TAB(6);"THE TRUE APPARENT MAGNITUDE OF ";STARNAME$;"-STAR"
7415 PRINT : FOR I = 1 TO 66: PRINT "="; : NEXT I
7420 LOCATE 4, 1: PRINT "! NO : V : (U-B) : (B-V) : (V-R) : (R-I) !"
7425 FOR I = 1 TO 66: PRINT "="; : NEXT I
7430 FOR R = 1 TO NO
7440 PRINT TAB(1); "!"; R; TAB(6); "!"; : PRINT V(R); TAB(17); "!";
7441 PRINT UB(R); TAB(29); "!";
7442 PRINT BV(R); TAB(42); "!";
7443 PRINT VR(R); TAB(53); "!";
7444 PRINT RI(R); TAB(66); "!";
7450 NEXT R
7455 PRINT : FOR I = 1 TO 66: PRINT "="; : NEXT I
7500 PRINT : INPUT " Printer? (Y\N) "; V$: BEEP
7515 IF V$ = "Y" OR V$ = "y" THEN 7530
7520 IF V$ <> "Y" OR V$ <> "y" THEN 1530
7530 LPRINT : LPRINT TAB(10); " THE TRUE APPARENT MAGNITUDE VALUES FOR "
; STARNAME$; "-STAR"
7540 FOR I = 1 TO 72: LPRINT "="; : NEXT I
7550 LOCATE 5,1:LPRINT"! NO : V : (U-B) : (B-V) : (V-R) : (R-I) !"
7560 FOR I = 1 TO 72: LPRINT "="; : NEXT I
7570 FOR R = 1 TO NO
7580 LPRINT TAB(1); "!"; R; TAB(6); "!"; : LPRINT V(R); TAB(19); "!";
7581 LPRINT UB(R); TAB(32); "!";
7582 LPRINT BV(R); TAB(45); "!";
7583 LPRINT VR(R); TAB(58); "!";
7584 LPRINT RI(R); TAB(72); "!";
7590 NEXT R

```

```
7600 FOR I = 1 TO 72: LPRINT "="; : NEXT I
```

```
7610 PRINT : PRINT : PRINT
```

```
7680 GOTO 1530
```



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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ประวัติการศึกษา

ชื่อ

นายสุรจิตร พระเมือง

วัน เดือน ปี เกิด

20 สิงหาคม 2507

วุฒิการศึกษา

วุฒิ

ชื่อสถาบันการศึกษา

ปีการศึกษาที่จบ

มัธยมศึกษาตอนปลาย(ม.ศ.5)

โรงเรียนศิริวิทยากร

จ.นครราชสีมา

2526

ครูศาสตร์บัณฑิต (ค.บ.นิสิทธ์)

วิทยาลัยครูนครราชสีมา

จ.นครราชสีมา

2530

ประวัติการทำงาน

อาจารย์ 1 ระดับ 3

โรงเรียนศรีศรีสาครวิทยา อ.บ่อไร่ จ.ตราด 2530-2531

อาจารย์ 1 ระดับ 3

โรงเรียนวัชรวิทยา อ.เมือง จ.กำแพงเพชร 2531-ปัจจุบัน

โทร.(055) 711901