A SEARCH FOR ULTRAVIOLET-EXCESS OBJECTS

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Abstract

A search for UV-excess objects has been undertaken with the use of the 105-cm Schmidt telescope at the Kiso Observatory by means of *UGR* three-image method. A general description of the method is given, and positions, magnitudes, and color indices of detected 588 objects covering 22 fields (600 square degrees) are listed in this paper. The brightness of the objects ranges from 12.5 to 18.5 magnitudes. About 13 percent of all are identified with white dwarfs or quasars appeared in the previous catalogues, and the remainder is left unidentified.

Key words: Color survey; UV-excess objects; Schmidt observation.

1. Introduction

A number of color surveys followed the pioneering work by Humason and Zwicky (1947) for the detection of blue stars including white dwarfs, subdwarfs, novae, quasars, compact galaxies, and some other peculiar objects. Proper motion surveys by Luyten (1951) and Giclas (1960) were also efficient for the detection of white dwarfs.

Recently a color survey was done by Green (1976) covering about 10,000 square degrees of $|b| \geq 30°$. He discovered four quasars, eighty-nine white dwarfs, and many other blue objects brighter than 16.5 mag (Green and Morrill 1978, Green 1980*). Berger and Fringant (1977*, 1980*) obtained three-image plates with the Palomar 48-inch Schmidt telescope. They picked out over 7,000 blue objects down to 18.5 or 19.0 mag in 23 fields near the north and the south galactic poles. Steppe (1978*) made a systematic search for blue objects in high galactic latitudes. He used several plates per color band taken with the Palomar 48-inch Schmidt telescope. A total of 1,906 objects are listed down to 20 mag in five high latitude fields.

We have undertaken a search for UV-excess objects with the use of the 105-cm Schmidt telescope at Kiso Observatory. The observation technique is a kind of "three-image method" (e.g., Haro and Luyten 1962) by which we obtain three images for individual objects on a plate through *U* (ultraviolet), *G* (green), and *R* (red) filters. This method is very profitable to detect UV-excess objects quickly by visual inspection.

2. Observation

The 105-cm Schmidt telescope has a UBK7 corrector plate which is transparent in the ultraviolet band. This telescope also has a mechanism of the automatic filter loading in its tube. This is very efficient for the three-image method because three exposures can be done successively without changing the attitude of the telescope (Takase et al. 1977). The plate scale is 62″.6 mm^{-1}, and a 14 inch square plate covers about $6° \times 6°$ celestial area. Kodak 103aE emulsion (baked at 40°C during

The asterisk * is attached to the literature cited in table 2.

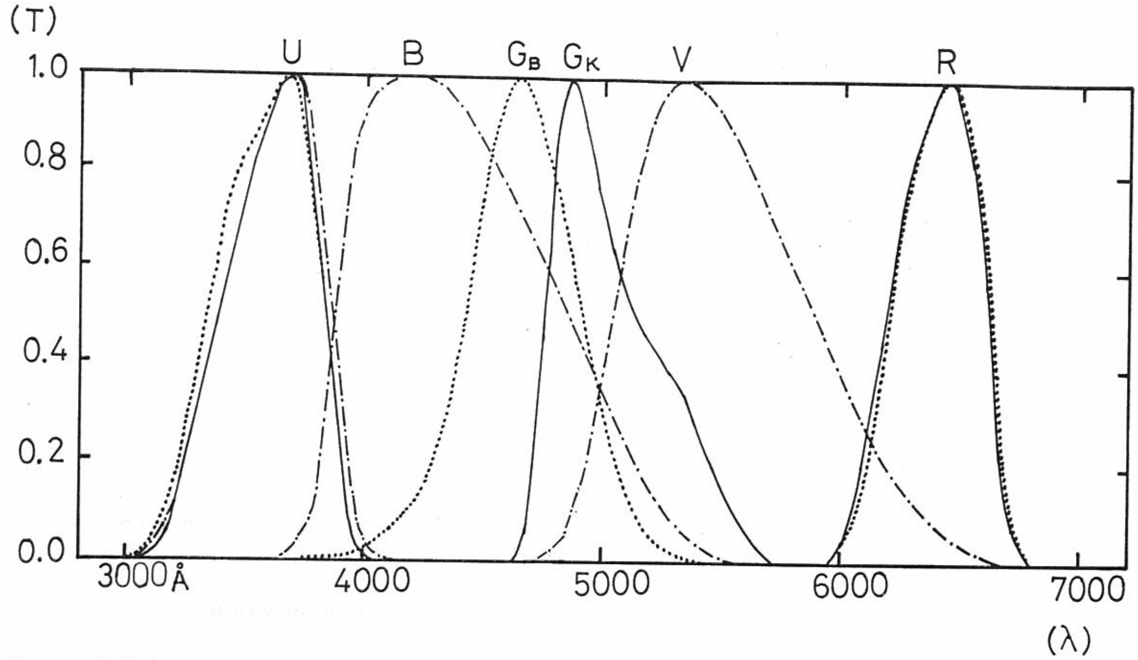

Fig. 1. *Relative response curves of Kiso UGR system (full lines), Becker's RGU system (dotted lines), and Johnson's UBV system (dot-dash lines). Curves for two latter systems are referred to Buser* (1979).

17 hours in forming gas) are used behind filters UG-1, BPB-50, and RG-610; the second one is supplied by Fuji Film Corporation, and the other two are Schott color filters.

Relative response curves of this color system are shown in figure 1, together with Johnson's *UBV* and Becker's *RGU* systems (Buser 1978). Our *U* band closely resembles those of Johnson's and Becker's. Our *R* band is the same combination of emulsion and filter as Becker's *R*. Our *G* band has a unique sensitivity; it is located between *B* and *V*, and shifted to the longer wavelength by 220 Å than Becker's *G*.

U, *G*, and *R* images are taken in alignment with the separation of 20 arcseconds each other on the plate (cf., figure 2). The standard exposure times are 40, 100, and 20 minutes for *U*, *G*, and *R* bands, which give almost the equal size or density of the three images for unreddened A0 stars. In the early period of the survey, different combinations of emulsion like 103aF or 103aE without baking and exposure times were applied to some observations.

The main object area is the region from the north to the south galactic pole with the galactic longitude $l^{II}=180°$. A total of about 100 Kiso fields are included in the survey. Table 1 lists the fields and plates searched in this paper. The first column designates the Kiso field number (cf., *Kiso Information Bulletin*, vol. 1, 1979), and the following four columns give the coordinates of the plate center. The last five columns include plate data.

3. Detection and Measurement

The detection has been made by visual inspection with the use of the projector whose field is a diameter of 16 mm on the photographic plate with five times magnification. The searching time over a plate is two to three hours in the high galactic latitudes, and more in the field near the galactic plane. A plate is searched repeatedly by each of us in order to secure as complete detection as possible. Initially we intended to detect bright objects in $(U+R-2G)$ magnitude. But now, Kiso

Table 1

Observed Areas and Plate Data

Area	Plate Center Coordinates (1950)				Plate	Date	Emulsion	Exp. (min.)			Seeing *
	α	δ	l^{II}	b^{II}	No.			U	G	R	
1037	2^h00^m	$-10°00'$	170°.26	-65°.87	KL1816	$1978^y11^m\ 6^d$	103a-F	90	90	30	F 3"
896	3 00	0 00	177.42	-48.30	1895	1978 12 5	$103a\text{-}E^+$	40	100	20	C 3
897	3 20	0 00	182.27	-44.59	1865	1978 11 25	$103a\text{-}E^+$	50	120	30	H 3
684	4 20	15 00	180.02	-23.58	1330	1978 1 14	103a-E	50	50	20	C 3
685	4 40	15 00	183.25	-19.79	1825	1978 11 8	103a-F	100	120	30	H 3
757	4 40	10 00	187.57	-22.75	1862	1978 11 24	$103a\text{-}E^+$	40	100	25	C 3
686	5 00	15 00	186.22	-15.88	1817	1978 11 6	103a-F	90	-	30	C 3
543	5 20	25 00	180.56	- 6.33	1818	1978 11 7	103a-F	90	92	30	C 3
476	7 00	30 00	186.85	15.49	1935	1978 12 25	$103a\text{-}E^+$	40	100	20	C 3
343	8 00	40 00	180.59	30.21	1557	1978 4 4	103a-E	60	120	25	C 5
344	8 24	40 00	181.56	34.73	1554	1978 3 31	103a-E	60	120	25	C 4
345	8 48	40 00	182.25	39.29	1445	1978 2 26	103a-E	50	90	20	C 3
410	9 00	35 00	189.10	41.10	1446	1978 2 26	103a-E	25	50	10	C 5
347	9 36	40 00	182.55	48.48	1947	1978 12 26	$103a\text{-}E^+$	40	100	20	C 3
348	10 00	40 00	181.98	53.06	1897	1978 12 5	$103a\text{-}E^+$	40	90	20	C 3
352	11 36	40 00	168.48	70.34	1519	1978 3 17	103a-E	45	80	15	C 1
494	13 00	30 00	80.80	86.45	1555	1978 3 31	103a-E	60	120	25	F 3
433	16 40	35 00	56.97	40.70	2139	1979 3 28	$103a\text{-}E^+$	40	92	20	H 2
4109	18 17	66 40	96.59	28.13	2254	1979 6 24	$103a\text{-}E^+$	36	90	18	F 2
49	21 00	75 00	109.72	18.68	1716	1978 10 6	103a-F	90	60	30	F 3
8741	23 13	13 20	90.18	-43.08	1717	1978 10 6	103a-F	90	60	30	C 2
813	23 20	10 00	89.97	-46.83	1860	1978 11 22	103a-E	60	150	30	F 3

* Characters represent the condition of the sky: C is clear, F is fair, and H is hazy. Numerals express the size of seeing image roughly.

UV-excess objects (written as KUV objects abbreviately in the following) are detected with a criterion of enhanced U image relative to G and R images, because we have experienced that stressing on both U and R requires much time of search.

Candidates are carefully inspected with a magnifier, and the eye-estimated G magnitude and the color index are assigned to them. To accomplish this process, a sequence of the standard object of magnitude must be set on individual plates. There exist few fields in which objects are photometrically observed as faint as 18 or 19 magnitudes. In this circumstance, V magnitudes of bright standards are referred to Purgathofer (1969), Mermilliod (1976), and Mermilliod and Nicolet (1977). In the portion of fainter magnitudes, objects are picked out of the lists of Eggen and Greenstein (1965*, 1967*), and Burbidge, Crowne, and Smith (1977*). Moreover, the *Palomar Sky Survey Print* is consulted in order to check the identification of objects and magnitudes. The magnitude thus obtained is the brightness of G band calibrated with V magnitude.

The color index $C.I.$ is estimated as the enhancement in U image relative to G image, and calibrated with the known values of color $U-B$, which are again referred to the papers cited in the last paragraph. It is determined with a step scale of every 0.5. The value $C.I.=-3$ corresponds to

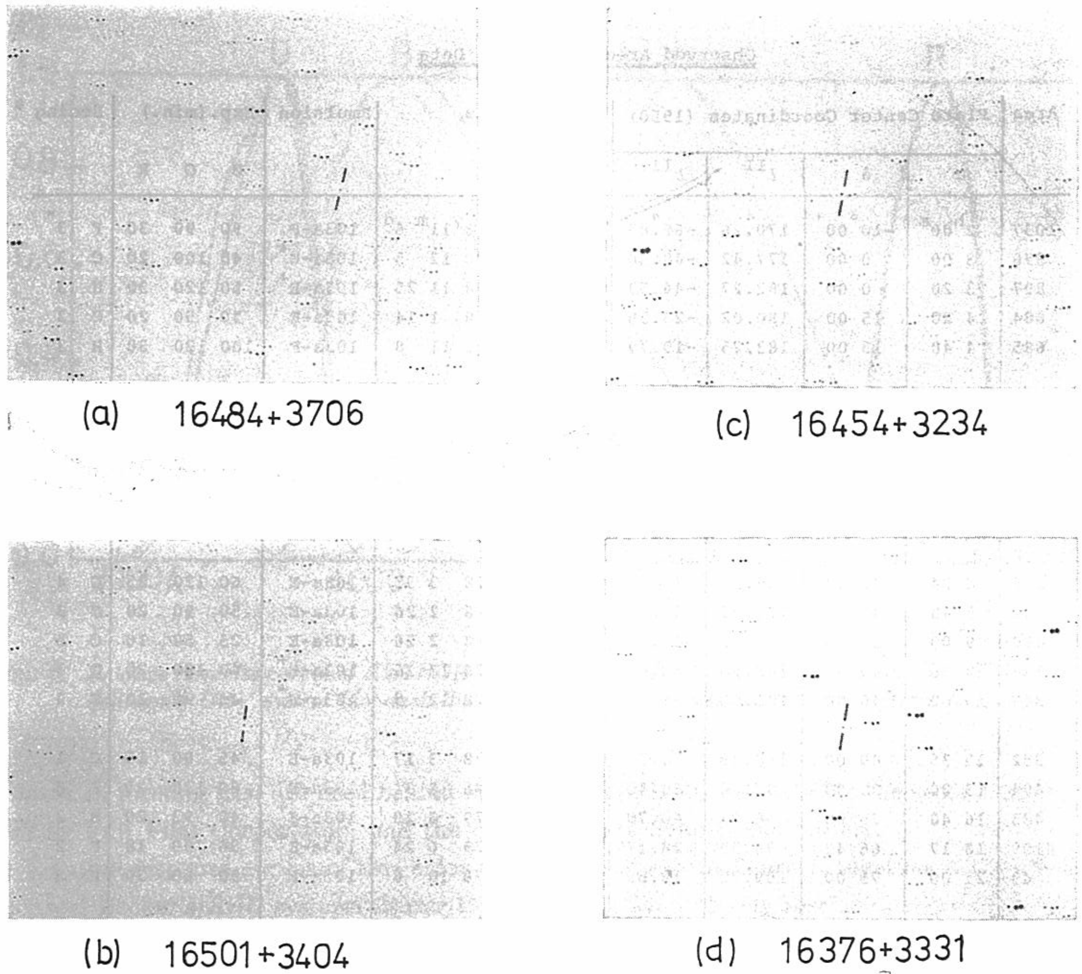

Fig. 2. *Portions of a searched plate* KL2139 *of the field* A0433. *Every star has U, G, and R images (from left to right) separated by about* 20 *arcseconds.* (a) 15.^{m}8, *C.I.*=−0.5. (b) 14.^{m}5, *C.I.*=−0.5. (c) EG239 (DB); V=13.65, $B-V$=−0.11, $U-B$=−1.04, *C.I.*=−2.0. (d) EG120 (DAs); V=14.64, $B-V$=+0.22, $U-B$=−0.58, *C.I.*=−1.0.

$U-B=-1.5$, and $C.I.=0.0$ to $U-B=0.0$. The accuracy of magnitude is about ±0.5 mag in the well-calibrated field, though it is worse in the poorly-calibrated field. This inaccuracy partly comes from the error in eye-estimation of the magnitude, and partly comes from the deficiency of photometric data.

Figure 2 shows four portions of the plate KL2139 of the field A0433 ($\alpha_{1950}=16^h40^m$, $\delta_{1950}=+35°$). Every object has U, G, and R images from left to right. Four examples show varieties of U enhancement. Among them, the objects (c) and (d) belong to Eggen and Greenstein's.

In order to examine our color index, the iris measurement was made on the plate KL1445 of the field A0345 ($\alpha_{1950}=8^h48^m$, $\delta_{1950}=+40°$). The result is illustrated in figure 3, where the coordinates are the differences between two iris values, I_U-I_G, and I_G-I_R. Since the iris value adopted here holds a good linearity to the magnitude over a wide range of it (Ishida, Maehara, and Ohashi 1978), it is noticed that the *C.I.* is well correlated with the color $U-G$ for UV-excess objects. Two labelled objects GD94 and GD98 are a suspected white dwarf and a white dwarf, respectively.

The position measurement of the objects is performed with the use of a comparator at Kiso. Standard stars are selected at density of a star per square degree from AGK3 catalogue for the field

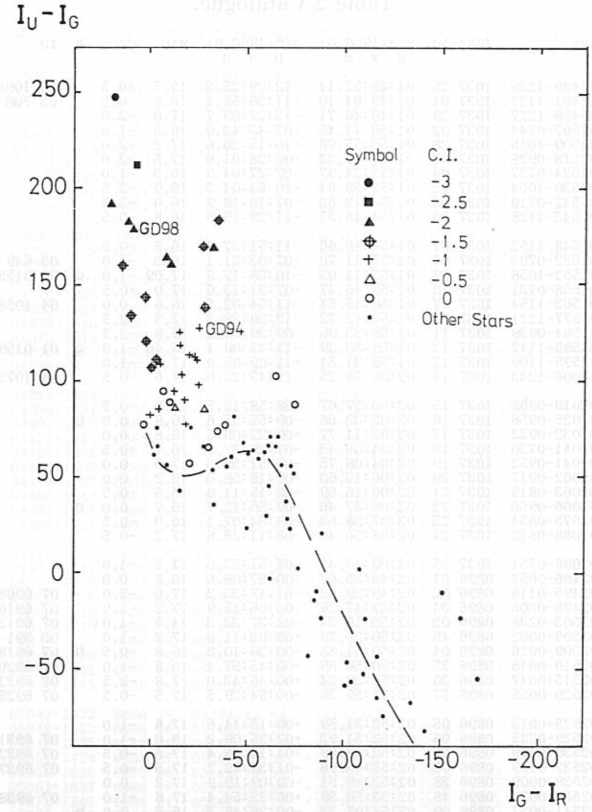

Fig. 3. *Iris measurements on plate* KL1445 *of the field* A0345. *Both coordinates are the differences in iris values of respective bands.* KUV *objects are plotted as the symbols corresponding to their values of C.I. Two labelled objects* GD94 *and* GD98 *are white dawrfs whose* $U-B$*'s are* -0.60 *and* -0.94*, respectively.*

of $\delta \geq -2°$, and from SAO catalogue for the southern field. The position of each standard star is measured three times, and those of KUV objects are measured successively on the plate. The reduction of the position is carried out by the standard coordinate method (Mikami 1980). The positional accuracy is within about $\pm 0.''5$ (s.d.) for most stars, though it is worse for stars located near the edge of the plate.

4. Catalogue of the KUV objects

Data of individual KUV objects are listed in table 2. The first column shows the KUV designation, which is composed of the right ascension and declination of the objects. The second column gives the Kiso field number and the serial number in the field. The following two columns give the right ascension and declination of the object at the equinox of 1950.0. The fifth and the sixth columns present the visual G magnitude and the *C.I.* In the seventh column the remark is given as follows:

W: white dwarfs,

Q: quasars,

D: diffuse objects,

V: variable objects.

The last column gives the identification of stars previously appeared in the literature; the number

Table 2 Catalogue.

KUV	AREA-NO.	R.A(1950.0) H M S	DEC(1950.0) D M S	MAG	CI	R	ID
01489-1229	1037 26	01:48:52.14	-12:29:25.2	15.5	+0.5		04 1098
01491-1127	1037 01	01:49:04.10	-11:26:58.4	16.8	-0.5		03 708-538
01498-1227	1037 29	01:49:46.71	-12:27:09.7	17.0	-2.0		
01507-0744	1037 02	01:50:41.45	-07:43:42.0	16.5	-1.5		
01509-1015	1037 28	01:50:55.98	-10:15:20.6	17.2	-2.0		
01518-0928	1037 03	01:51:45.22	-09:28:01.0	17.5	-2.0		
01524-0727	1037 04	01:52:24.97	-07:27:04.9	16.3	-1.0		
01530-1054	1037 05	01:52:59.84	-10:54:04.3	16.9	-2.5		
01542-0710	1037 06	01:54:12.62	-07:10:18.9	16.0	-2.5		
01543-1128	1037 30	01:54:18.53	-11:28:19.6	16.8	-0.5		
01548-1152	1037 07	01:54:46.66	-11:51:37.8	16.5	-0.5		
01552-0703	1037 08	01:55:11.70	-07:03:21.1	16.3	-1.0		03 649-6
01552-1058	1037 09	01:55:14.05	-10:58:17.5	17.09	-1.0	Q	01 0155-109
01558-0731	1037 10	01:55:46.47	-07:31:13.6	17 0	+0.5		
01563-1154	1037 27	01:56:15.51	-11:54:02.5	16.6	0.0		04 1058
01577-1221	1037 31	01:57:42.72	-12:20:38.2	17.3	-2.5		
01584-0939	1037 11	01:58:23.96	-09:39:01.2	16.8	-2.5		
01595-1147	1037 12	01:59:30.29	-11:47:00.1	16.40	-1.0	Q	01 0159-117
01595-1109	1037 13	01:59:31.51	-11:09:05.9	17.0	-1.0		
02006-1243	1037 14	02:00:38.25	-12:43:23.0	14.6	-0.5		04 1072
02010-0858	1037 15	02:00:57.67	-08:58:12.5	17.0	-0.5		
02025-0956	1037 16	02:02:32.68	-09:55:55.6	16.9	0.0	D	
02032-0922	1037 17	02:03:11.77	-09:22:09.5	16.8	0.0		
02041-0730	1037 18	02:04:03.43	-07:29:37.6	16.7	+0.5		
02041-0952	1037 19	02:04:08.75	-09:51:59.3	17.0	0.0		
02062-0917	1037 20	02:06:12.60	-09:16:58.0	16.2	0.0		
02063-0815	1037 21	02:06:16.69	-08:15:11.9	16.5	+0.5		
02066-0956	1037 22	02:06:37.46	-09:56:12.7	16.7	0.0	D	
02075-0834	1037 23	02:07:28.83	-08:34:07.1	16.0	-0.5		
02088-0812	1037 24	02:08:50.40	-08:11:28.8	17.2	-0.5		
02098-0751	1037 25	02:09:49.41	-07:51:23.6	17.5	-1.0		
02486-0057	0896 01	02:48:35.67	-00:57:08.6	16.8	0.0		
02495-0118	0896 02	02:49:29.62	-01:17:33.2	17.0	-2.0		07 6908
02498-0006	0896 34	02:49:47.26	-00:06:15.9	17.2	-1.0		07 6910
02503-0238	0896 03	02:50:19.24	-02:37:32.3	14.5	-1.0:		07 6912
02505+0002	0896 45	02:50:28.79	+00:02:11.6	17.2	-1.0		03 591-101
02509-0026	0896 04	02:50:51.88	-00:26:10.2	16.8	-0.5	D	07 6918
02510-0046	0896 35	02:50:58.89	-00:45:57.1	16.8	-1.0		07 6920
02515+0047	0896 36	02:51:29.24	+00:46:43.0	17.8	-2.5		07 6922
02520-0055	0896 37	02:51:59.36	-00:54:29.5	17.5	-0.5		07 6925
02525+0013	0896 05	02:52:31.59	+00:13:14.6	17.8	-1.0		
02529+0225	0896 06	02:52:51.93	+02:25:09.2	18.0	-1.0		07 6931
02530+0119	0896 07	02:52:58.69	+01:18:55.4	17.5	-0.5		07 6932
02537-0139	0896 08	02:53:43.96	-01:38:42.2	17.5	-0.5		07 6937
02538-0009	0896 38	02:53:49.51	-00:09:19.9	17.2	0.0		
02538+0024	0896 48	02:53:50.59	+00:23:54.4	17.8	-1.0		07 6938
02541-0027	0896 09	02:54:07.23	-00:26:48.3	16.5	0.0	D	
02542+0001	0896 44	02:54:10.78	+00:00:42.7	18.0	-0.5		07 6940
02545-0228	0896 10	02:54:27.11	-02:28:06.9	17.0	0.0		
02545-0024	0896 11	02:54:32.08	-00:23:54.0	16.5	0.0		04 37
02546+0034	0896 39	02:54:34.68	+00:34:26.1	17.8	-0.5		07 6943
02552+0049	0896 52	02:55:11.84	+00:49:07.0	17.8	-1.0		07 6947
02558+0200	0896 12	02:55:45.89	+01:59:44.5	17.0	-2.5		07 6956
02558+0026	0896 14	02:55:50.25	+00:26:17.8	16.5	+0.5	D	
02558+0236	0896 13	02:55:50.49	+02:35:50.3	16.5	+0.5		
02560+0259	0896 15	02:55:58.44	+02:58:55.3	15.5	-2.5		07 6958
02561-0206	0896 50	02:56:05.95	-02:06:06.7	18.0:	-0.5:		07 6959
02566-0035	0896 46	02:56:37.01	-00:34:35.4	17.8	-0.5		
02569-0032	0896 47	02:56:55.11	-00:31:54.8	17.50	-1.5	Q	01 0256-005
02570-0126	0896 49	02:57:02.53	-01:25:59.0	16.8	-2.5		07 6962
02571+0026	0896 16	02:57:03.21	+00:25:42.1	16.3	-0.5		07 6963
02578+0121	0896 17	02:57:45.89	+01:21:27.1	15.8	0.0		07 6969
02579-0036	0896 19	02:57:51.16	-00:35:34.0	17.0	-2.5		07 6970
02579+0229	0896 18	02:57:53.87	+02:28:59.3	16.5	-1.0		07 6972
02594+0120	0896 20	02:59:22.67	+01:20:13.0	16.8	+0.5		
03000-0158	0896 40	03:00:02.54	-01:57:50.7	16.8	-0.5		
03003-0120	0896 22	03:00:20.42	-01:20:16.6	15.00	-2.0	W	02 384
03007+0004	0896 41	03:00:41.44	+00:04:00.8	18.0	-0.5		
03011+0117	0896 21	03:01:07.83	+01:17:13.5	16.0	0.0		
03018+0234	0896 23	03:01:48.36	+02:34:02.1	15.5	0.0		
03018+0011	0896 24	03:01:48.37	+00:10:52.6	17.0	-1.5		07 6995
03021+0052	0896 42	03:02:05.95	+00:51:33.2	17.5	+0.5		
03036-0043	0896 25	03:03:33.89	-00:42:48.1	16.0	-0.5		07 7003
03039+0152	0896 26	03:03:56.88	+01:51:53.8	17.2	-0.5	D	07 7008
03065-0242	0896 27	03:06:32.95	-02:41:49.7	17.5	+0.5		
03066-0100	0896 28	03:06:35.60	-01:00:18.4	17.5	0.0		
03066+0013	0896 43	03:06:37.60	+00:12:34.6	17.5	-1.0		
03069-0129	0896 51	03:06:55.93	-01:28:56.4	14.5	-0.5		
03070-0244	0896 29	03:06:57.36	-02:44:24.5	17.5	0.0		
03071-0015	0896 30	03:07:05.81	-00:15:02.4	17.0	-0.5		
03073+0035	0896 31	03:07:20.02	+00:34:59.4	17.0	0.0		
03079-0101	0896 32	03:07:54.81	-01:01:11.0	16.5	-1.5		
03113+0242	0896 33	03:11:16.20	+02:41:43.9	16.8	0.0	D	
03123+0155	0897 01	03:12:16.64	+01:55:01.1	17.3	-2.0		
03134-0001	0897 02	03:13:26.42	-00:01:14.7	16.5	+0.5		
03137+0031	0897 03	03:13:45.81	+00:31:22.0	15.0	-1.0		
03138+0018	0897 04	03:13:47.08	+00:17:45.5	16.0	+0.5	D	
03163+0031	0897 05	03:16:19.83	+00:30:42.8	16.3	-1.5		
03184-0211	0897 17	03:18:26.81	-02:10:45.2	16.0	-0.5		
03187+0028	0897 06	03:18:39.04	+00:28:25.3	17.8	-0.5		
03191-0152	0897 18	03:19:03.97	-01:51:55.3	18.0	-0.5		
03195+0001	0897 07	03:19:31.20	+00:01:20.7	16.8	-0.5		
03197+0045	0897 19	03:19:39.41	+00:44:32.9	16.8	0.0		
03205-0005	0897 20	03:20:28.96	-00:04:38.8	17.2	-0.5		
03217-0240	0897 08	03:21:39.04	-02:39:53.1	17.5	-2.0		
03237+0008	0897 09	03:23:45.47	+00:07:51.4	17.2	-0.5		
03270-0243	0897 10	03:26:59.82	-02:43:11.4	17.0	-0.5		
03290+0053	0897 11	03:28:59.17	+00:53:18.4	16.8	-1.5		
03292+0035	0897 12	03:29:11.21	+00:35:08.5	16.8	-1.0		
03295-0108	0897 13	03:29:27.65	-01:08:00.0	17.0	-1.5		

Table 2 (Continued)

KUV	AREA-NO.	R.A(1950.0) H M S	DEC(1950.0) D M S	MAG	CI	R	ID
03301-0100	0897 14	03:30:03.96	-00:59:42.2	15.0	-2.0		
03302-0143	0897 15	03:30:11.18	-01:42:53.7	17.0	-2.5		
03304-0141	0897 16	03:30:25.74	-01:41:00.9	18.0	-0.5		
04110+1434	0684 01	04:11:00.23	+14:33:52.9	15.0	0.0		
04190+1522	0684 02	04:18:58.51	+15:22:13.9	16.62	-1.5	W	02 35
04211+1614	0684 03	04:21:04.03	+16:14:22.9	14.29	-2.0	W	02 36
04233+1502	0684 04	04:23:17.83	+15:01:44.6	14.30	-1.0		
04237+1649	0684 05	04:23:42.26	+16:48:44.0	13.8	-0.5		
04239+1406	0684 06	04:23:52.67	+14:05:33.2	16.8	-1.0		
04258+1652	0684 07	04:25:46.85	+16:51:37.8	14.02	-2.5	W	02 37
04280+1605	0684 08	04:27:58.24	+16:04:43.3	16.3	-1.5		
04295+1739	0684 09	04:29:30.07	+17:38:42.7	13.95	-1.0	W	02 38
04296+1418	0684 10	04:29:36.76	+14:18:11.1	16.5	-0.5		
04304+1339	0685 03	04:30:21.63	+13:38:55.9	16.5	-1.0		
04310+1236	0685 04	04:30:57.14	+12:36:26.5	14.18	-2.5	W	02 39
04336+1034	0757 02	04:33:34.66	+10:33:39.7	12.5	-1.0		
04359+1640	0685 05	04:36:53.63	+16:40:03.1	16.2	0.0		
04370+1514	0685 06	04:37:02.02	+15:13:56.9	15.5	-2.5		
04376+1353	0685 07	04:37:34.40	+13:52:59.7	14.83	-2.5	W	02 316
04379+0835	0757 03	04:37:56.06	+08:34:59.3	13.5	-1.5		
04383+1054	0757 04	04:38:15.75	+10:53:56.0	13.83	-2.0	W	02 42
04390+1631	0685 08	04:39:02.09	+16:30:57.1	15.5	-1.5		
04402+1455	0685 09	04:40:12.72	+14:54:48.1	14.0	-2.0		
04421+1416	0685 10	04:42:07.01	+14:16:22.0	15.0	-1.5		
04425+1525	0685 11	04:42:32.57	+15:25:01.6	16.0	-0.5		
04456+1502	0685 12	04:45:38.95	+15:02:26.4	15.8	-2.5		
04473+1737	0685 13	04:47:19.50	+17:36:58.7	13.5	-1.0		
04466+1444	0685 15	04:46:36.46	+14:43:52.1	15.5	-0.5		
04482+1727	0685 14	04:48:11.87	+17:26:45.4	16.0	0.0		
04498+1727	0685 16	04:49:46.47	+17:26:47.5	16.0	-2.0		
04514+1603	0686 19	04:51:25.46	+16:02:50.2	16.0	-1.0		
04542+1444	0686 22	04:54:10.36	+14:43:48.8	15.5	-1.5		
04571+1620	0686 01	04:57:06.63	+16:19:55.9	15.5	-2.0		
04586+1736	0686 02	04:58:37.09	+17:36:04.6	16.8	-0.5		
05008+1218	0686 03	05:00:46.67	+12:18:20.9	17.0	-0.5		
05013+1218	0686 23	05:01:15.11	+12:17:53.0	14.5	-0.5		
05014+1225	0686 24	05:01:23.10	+12:24:43.8	16.7	-1.0		
05020+1220	0686 04	05:01:59.81	+12:20:01.2	16.5	-0.5		
05020+1216	0686 05	05:02:01.85	+12:15:51.4	17.5	-0.5		
05034+1445	0686 20	05:03:24.90	+14:44:32.1	13.6	-2.0		
05042+1632	0686 18	05:04:12.64	+16:32:13.6	16.2	-1.5		
05048+1653	0686 16	05:04:45.78	+16:52:41.5	16.0	-2.5		
05048+1435	0686 06	05:04:47.64	+14:34:50.2	17.2	0.0		
05050+1424	0686 07	05:05:02.09	+14:23:57.7	16.8	-0.5		
05053+1628	0686 08	05:05:19.84	+16:28:25.1	15.5	-2.5		
05061+1637	0686 17	05:06:03.69	+16:36:58.8	15.8	-1.5		
05072+1249	0686 21	05:07:14.12	+12:49:02.6	16.0	-2.0		
05075+2418	0543 02	05:07:28.00	+24:18:09.9	15.8	-0.5		
05097+1649	0686 09	05:09:39.96	+16:48:35.8	14.0	0.0:		
05101+1619	0686 10	05:10:06.90	+16:19:09.7	16.5	-1.0		
05102+1613	0686 11	05:10:11.08	+16:13:20.7	15.8	-1.5		
05106+1525	0686 14	05:10:33.42	+15:24:50.6	16.5	0.0		
05106+1625	0686 12	05:10:36.22	+16:25:26.6	16.5	-1.0		
05106+1558	0686 13	05:10:37.40	+15:58:29.2	16.8	0.0		
05109+1739	0686 15	05:10:55.15	+17:38:34.7	13.5	-2.0		
05112+2229	0543 17	05:11:11.08	+22:29:24.4	13.0	0.0		
05134+2605	0543 01	05:13:21.95	+26:05:21.2	16.0	-2.5		
05165+2732	0543 18	05:16:29.25	+27:31:46.2	15.5	-1.0		
05174+2716	0543 03	05:17:23.60	+27:15:39.5	15.5	0.0		
05234+2655	0543 04	05:23:20.99	+26:55:05.5	15.5	0.0		
05235+2216	0543 05	05:23:31.16	+22:16:06.6	14.8	-0.5		
05243+2221	0543 06	05:24:19.01	+22:20:51.5	15.0	-0.5		
05260+2711	0543 19	05:25:58.74	+27:10:36.3	15.3	-1.0		
05270+2733	0543 20	05:26:58.95	+27:32:47.4	13.5	0.0		
05278+2228	0543 07	05:27:47.37	+22:28:15.6	16.5	0.0		
05286+2208	0543 08	05:28:35.96	+22:07:46.4	14.5	-1.0		
05289+2240	0543 21	05:28:56.81	+22:40:26.3	14.0	0.0		
05295+2210	0543 10	05:29:29.15	+22:10:06.9	15.8	0.0		
05296+2227	0543 11	05:29:34.54	+22:27:13.9	15.5	-0.5		
05296+2610	0543 09	05:29:38.56	+26:09:54.4	16.0	+0.5		
05300+2251	0543 14	05:30:01.61	+22:50:33.4	16.2	-0.5		
05301+2609	0543 12	05:30:08.20	+26:08:37.8	16.0	0.0		
05302+2308	0543 22	05:30:10.20	+23:08:15.9	14.0	0.0		
05302+2647	0543 13	05:30:14.89	+26:47:05.6	14.5	0.0		
05306+2303	0543 15	05:30:38.80	+23:03:24.0	17.0	-1.5		
05319+2528	0543 23	05:31:52.10	+25:28:25.4	13.8	-0.5		
06497+2904	0476 01	06:49:41.90	+29:04:04.8	15.5	-2.0		
06514+3104	0476 18	06:51:23.47	+31:03:51.2	17.0	-0.5		
06548+3225	0476 17	06:54:47.10	+32:24:54.3	18.0	-1.0		
06579+3012	0476 02	06:57:54.30	+30:11:40.2	14.0	-0.5		
06586+2838	0476 03	06:58:38.96	+28:33:23.7	15.0	-2.0		
06591+3034	0476 15	06:59:07.58	+30:34:08.6	17.8	-2.0		
06597+3143	0476 16	06:59:41.53	+31:43:04.2	17.5	0.0		
07019+2816	0476 14	07:01:52.23	+28:16:22.6	15.8	-0.5		
07047+2826	0476 13	07:04:44.48	+28:25:51.8	17.0	-1.5		
07069+2735	0476 04	07:06:53.11	+27:34:46.9	17.2	-2.0		
07069+2929	0476 12	07:06:55.05	+29:29:00.7	16.5	-1.5		
07072+2901	0476 05	07:07:09.48	+29:01:10.3	16.2	-1.5		
07075+2803	0476 06	07:07:31.79	+28:02:57.6	14.5	-1.0		
07088+3232	0476 07	07:08:47.82	+32:31:43.2	15.0	-1.5		
07088+3021	0476 08	07:08:50.10	+30:21:11.1	13.8	-1.0		
07094+3236	0476 09	07:09:23.96	+32:36:27.1	13.0	-0.5		
07110+2929	0476 10	07:10:57.85	+29:28:30.8	13.8	0.0		
07116+3209	0476 11	07:11:37.49	+32:09:22.6	17.0	-2.5		
07470+3750	0343 21	07:47:02.02	+37:49:37.9	15.8	-0.5		
07509+3759	0343 22	07:50:55.19	+37:58:38.9	16.2	+0.5	D	
07521+3919	0343 19	07:52:03.48	+39:19:07.6	15.8	0.0	D	
07523+4017	0343 23	07:52:17.47	+40:17:16.2	17.5	-1.5		
07527+4113	0343 36	07:52:42.21	+41:13:04.7	16.6	0.0		
07528+4113	0343 18	07:52:45.33	+41:12:54.1	16.8	-2.0		

Table 2 (Continued)

KUV	AREA-NO.	R.A(1950.0) H M S	DEC(1950.0) D M S	MAG	CI	R	ID
07531+4148	0343 20	07:53:05.10	+41:47:59.7	16.3	-0.5		03 207-55
07540+4015	0343 37	07:54:00.85	+40:15:19.5	16.8	-1.0		
07549+4228	0343 17	07:54:52.76	+42:27:43.1	16.3	-1.0		03 208-11
07559+3923	0343 16	07:55:55.87	+39:23:07.3	14.8	0.0		
07566+4221	0343 34	07:56:37.35	+42:21:07.8	16.2	-1.5		
07564+3723	0343 15	07:56:26.89	+37:23:17.6	16.2	-2.5		
07571+4233	0343 14	07:57:08.47	+42:32:47.1	15.0	+0.5		
07586+4019	0343 13	07:58:33.02	+40:19:20.2	16.3	0.0		
07589+4019	0343 12	07:58:52.77	+40:19:09.9	16.0	-1.0		
07592+3931	0343 11	07:59:10.27	+39:30:53.2	15.0	-2.0		
07596+4123	0343 10	07:59:35.42	+41:23:03.3	15.0	-2.0		
08005+3940	0343 09	08:00:27.19	+39:39:44.3	17.5:	-1.5:		
08011+4222	0343 08	08:01:03.24	+42:21:46.3	16.6	-1.0		
08016+4206	0343 24	08:01:33.65	+42:06:18.9	17.3	-0.5		
08023+3841	0343 07	08:02:18.27	+38:40:54.8	15.60	-1.5	W	02 346
08026+4118	0343 06	08:02:34.41	+41:18:09.1	14.5	-1.5		
08039+4003	0343 29	08:03:55.78	+40:03:11.5	17.5	-1.0		
08054+3958	0343 30	08:05:23.04	+39:57:39.0	17.0	-0.5		
08057+4148	0343 25	08:05:42.19	+41:48:20.9	16.5	-0.5		
08062+4144	0343 26	08:06:13.42	+41:44:18.2	16.3	-0.5	D	
08070+4109	0343 33	08:07:02.89	+41:08:53.5	16.7	-0.5		
08075+4228	0343 27	08:07:32.42	+42:28:26.6	15.5	0.0		
08084+4221	0343 28	08:08:24.51	+42:21:08.6	17.0	-0.5		
08086+4037	0343 31	08:08:38.64	+40:37:12.6	17.2	-1.0		
08100+3915	0343 35	08:10:02.22	+39:14:39.5	16.4	-2.0		
08102+3843	0343 05	08:10:11.19	+38:42:30.9	17.5:	-1.5:		
08108+3745	0343 04	08:10:47.10	+37:45:10.6	15.2	0.0		
08119+3806	0343 03	08:11:54.39	+38:05:58.1	15.3	0.0		
08126+4154	0344 23	08:12:35.64	+41:54:10.7	16.5	-1.0		
08156+4004	0344 21	08:15:36.42	+40:03:30.4	14.5	-1.5		
08157+3739	0344 22	08:15:39.80	+37:39:14.7	16.5	-2.0		
08157+3946	0344 20	08:15:40.90	+39:46:03.3	17.5	-1.0		
08159+4243	0344 18	08:15:53.14	+42:43:03.1	16.1	-2.0		
08165+3741	0344 19	08:16:30.41	+37:40:57.6	15.7	-1.0		04 90
08166+4244	0344 28	08:16:33.21	+42:44:14.4	16.8	-0.5		
08167+3844	0344 26	08:16:43.84	+38:44:09.0	16.58	-1.0	W	02 58
08172+3838	0344 17	08:17:14.93	+38:38:19.6	15.2	-1.5		
08191+3951	0344 16	08:19:07.00	+39:50:56.1	16.5	-1.5		
08201+3950	0344 15	08:20:05.10	+39:49:40.9	17.0	-1.0		
08217+4235	0344 14	08:21:44.89	+42:35:02.4	16.8	-0.5		
08247+4050	0344 93	08:24:42.02	+40:50:05.8	18.0:	-1.5:		
08267+4027	0344 29	08:26:41.23	+40:26:51.2	16.8	-1.0		
08268+4150	0344 13	08:26:50.92	+41:50:06.8	17.0	-0.5		
08273+4101	0344 12	08:27:17.71	+41:01:19.3	15.8	-1.0		
08279+3753	0344 35	08:27:53.98	+37:52:39.5	17.5	+1.0		
08279+3752	0344 37	08:27:55.08	+37:52:17.8	18.2:	-1.5:	Q	01 0827+378
08286+3842	0344 34	08:28:36.10	+38:42:24.0	15.0	0.0		
08290+3844	0344 11	08:28:58.25	+38:43:48.0	15.2	-1.0		
08315+3837	0344 31	08:31:28.24	+38:36:53.4	17.8	-0.5		
08316+4231	0344 30	08:31:35.31	+42:31:13.2	17.0	0.0		
08317+4117	0344 10	08:31:43.33	+41:17:01.5	16.5	-2.0		
08352+3837	0344 38	08:35:09.39	+38:37:18.4	18.0	0.0		
08368+4026	0345 26	08:36:50.51	+40:25:42.7	15.5	-1.5		
08371+4137	0345 13	08:37:04.78	+41:36:46.9	16.5	+0.5		
08371+3754	0345 54	08:37:08.92	+37:53:32.6	17.6	-1.0		
08373+4137	0345 14	08:37:16.24	+41:37:25.1	17.2	-1.0		
08373+4027	0345 25	08:37:16.79	+40:27:01.7	17.2	-1.0		
08373+3816	0345 80	08:37:18.98	+38:15:36.3	15.8	0.0		
08376+3824	0345 81	08:37:33.12	+38:24:29.5	15.5	0.0		
08377+4136	0345 15	08:37:39.57	+41:36:01.4	17.1	-0.5		
08377+4007	0345 28	08:37:44.48	+40:06:59.2	15.0	-2.0		
08378+3934	0345 29	08:37:48.04	+39:33:49.5	16.5	-1.5		
08381+4013	0345 27	08:38:06.70	+40:12:54.9	16.5	0.0		
08381+3737	0345 52	08:38:08.89	+37:37:03.1	17.0	-1.5		
08384+4103	0345 16	08:38:23.53	+41:03:20.8	16.7	-0.5		
08387+4026	0345 23	08:38:39.60	+40:25:57.9	17.0	-1.5		
08387+3734	0345 53	08:38:42.00	+37:33:56.8	17.5	-1.0		
08388+4029	0345 24	08:38:46.53	+40:29:17.0	16.6	-0.5		
08391+3800	0345 51	08:39:05.30	+37:59:46.4	16.0	-1.5		
08397+4202	0345 12	08:39:41.54	+42:01:58.2	16.8	0.0		
08399+3956	0345 30	08:39:56.53	+39:55:38.7	14.5	-2.0		
08401+4131	0345 19	08:40:08.12	+41:31:17.4	16.0	0.0		
08405+4129	0345 17	08:40:31.07	+41:28:32.1	17.0	-0.5		
08416+4120	0345 20	08:41:36.89	+41:19:32.4	16.0	+0.5		
08417+4112	0345 21	08:41:44.39	+41:11:35.9	17.5	-1.0		
08418+3814	0345 46	08:41:49.99	+38:14:25.7	16.0	-0.5		
08422+3813	0345 45	08:42:10.99	+38:12:56.7	16.02	-1.0		04 94
08426+3945	0345 31	08:42:33.34	+39:44:59.5	15.0	0.0		
08432+4216	0345 11	08:43:12.16	+42:15:56.4	16.8	0.0		
08434+4057	0345 22	08:43:22.79	+40:56:40.2	14.7	0.0		
08437+4003	0345 61	08:43:39.10	+40:02:32.0	16.8	0.0		
08445+3843	0345 44	08:44:32.40	+38:42:42.2	17.0	-1.0		
08455+3902	0345 69	08:45:30.87	+39:02:02.5	16.5	+1.0		
08456+4137	0345 87	08:45:36.62	+41:37:16.7	18.0	-1.0		
08457+4245	0345 56	08:45:40.06	+42:44:58.9	18.0	-1.0		
08457+3901	0345 70	08:45:41.99	+39:00:44.8	16.3	0.0		
08460+3901	0345 42	08:45:59.22	+39:00:39.9	16.0	0.0		
08460+3828	0345 43	08:46:00.11	+38:28:10.6	14.5	0.0		
08460+3441	0410 08	08:46:01.65	+34:40:56.2	16.6	-0.5		
08460+4030	0345 32	08:46:02.79	+40:30:12.5	16.5	-0.5		
08463+4213	0345 08	08:46:20.01	+42:12:47.5	15.8	+0.5		
08467+3331	0410 09	08:46:42.29	+33:30:36.3	16.8	-0.5:		
08472+3927	0345 62	08:47:14.72	+39:27:08.0	17.0	0.0		
08473+3838	0345 41	08:47:20.48	+38:38:30.1	17.0	-1.5		
08474+3828	0345 63	08:47:23.53	+38:27:40.0	16.7	0.0		
08480+4135	0345 06	08:48:01.75	+41:34:46.6	16.0	-1.0		
08482+4146	0345 07	08:48:10.09	+41:46:14.5	17.0	-1.0		
08488+3731	0345 64	08:48:45.41	+37:31:02.8	16.5	0.0		
08491+3726	0345 65	08:49:05.62	+37:26:28.6	16.5	0.0		
08492+4138	0345 05	08:49:14.75	+41:37:49.7	16.0	0.0		

Table 2 (Continued)

KUV	AREA-NO.	R.A(1950.0)	DEC(1950.0)	MAG	CI	R	ID
		H M S	D M S				
08493+4125	0345 67	08:49:19.76	+41:25:26.3	17.0	0.0		
08494+4152	0345 04	08:49:22.10	+41:51:44.8	16.2	0.0		
08497+3856	0345 40	08:49:41.01	+38:56:12.1	15.8	0.0		
08504+3803	0345 66	08:50:21.81	+38:03:04.7	16.0	0.0		
08504+4155	0345 03	08:50:24.91	+41:55:18.7	17.0	-1.0		
08504+4112	0345 68	08:50:25.63	+41:12:20.1	17.0	-0.5		
08516+3714	0410 01	08:51:35.92	+37:13:37.9	15.0	-0.5		
08521+3855	0345 39	08:52:06.67	+38:54:55.9	15.7	0.0		
08526+3750	0410 02	08:52:38.15	+37:49:30.8	15.5	-0.5		
08529+4004	0345 33	08:52:53.36	+40:03:38.6	16.5	-0.5	D	
08543+4028	0345 34	08:54:15.87	+40:27:52.4	14.87	-2.0	W	02 218
08547+3830	0345 38	08:54:42.85	+38:30:28.4	15.3	-2.5		
08555+3634	0410 03	08:55:31.63	+36:34:01.8	16.6	-0.5		
08562+3309	0410 04	08:56:10.48	+33:08:52.6	15.18	-1.5	W	02 182
08565+4129	0345 60	08:56:28.95	+41:29:01.1	17.0	-1.0		
08567+3921	0345 83	08:56:43.22	+39:20:37.2	14.5	+1.0		
08587+3619	0410 05	08:58:40.53	+36:19:00.7	14.55	-1.5	W	02 219
08598+4029	0345 35	08:59:46.12	+40:28:55.5	15.3	-0.5		
08599+4121	0345 58	08:59:52.02	+41:20:53.4	15.5	0.0		
08599+4130	0345 57	08:59:53.79	+41:29:39.8	14.5	-0.5		
09008+3752	0345 37	09:00:49.62	+37:52:13.0	17.0	-2.0		
09012+4019	0345 36	09:01:10.11	+40:19:00.4	17.0	-1.0		
09014+4105	0345 59	09:01:21.62	+41:04:53.6	15.5	+0.5		
09025+4253	0345 01	09:02:31.24	+42:52:38.9	15.5	-1.5		
09026+4235	0345 00	09:02:37.16	+42:35:15.2	16.0	-3.0		
09029+4153	0345 02	09:02:55.90	+41:53:16.8	17.0	-2.0		
09061+3324	0410 06	09:06:05.76	+33:24:05.7	13.5	-0.5		
09076+3342	0410 07	09:07:33.20	+33:41:39.6	15.5	-1.0		
09222+3741	0347 01	09:22:10.57	+37:40:45.5	17.5	+0.5		
09236+3901	0347 02	09:23:37.49	+39:01:27.4	17.5	+0.5		
09239+3915	0347 03	09:23:55.35	+39:15:23.0	17.86	-0.5	Q	01 0923+392
09247+4052	0347 04	09:24:39.54	+40:51:36.4	17.5	-1.5		
09250+3821	0347 07	09:24:59.91	+38:21:02.9	18.0	-1.0		
09250+3843	0347 06	09:25:02.58	+38:43:06.2	17.5	-1.5		
09252+3918	0347 05	09:25:13.27	+39:17:52.7	17.5	-1.5		
09266+3755	0347 08	09:26:34.21	+37:55:19.1	17.0	-1.5		
09269+3913	0347 10	09:26:56.96	+39:12:58.0	17.8	-0.5		
09272+3930	0347 11	09:27:12.07	+39:29:38.5	17.5	-2.0		
09272+3854	0347 09	09:27:12.35	+38:53:52.8	17.7	0.0		
09288+3959	0347 12	09:28:48.06	+39:59:24.0	17.5	-1.5		
09299+3933A	0347 50	09:29:51.52	+39:32:55.8	18.0	-0.5	D	
09299+3933B	0347 13	09:29:51.77	+39:33:07.5	17.5	-1.0		
09299+3906	0347 14	09:29:56.33	+39:05:46.9	17.5	-1.0		
09302+4038	0347 21	09:30:12.37	+40:37:48.0	17.3	0.0		
09306+3740	0347 16	09:30:37.28	+37:40:22.8	17.5	-1.0		
09309+3852	0347 15	09:30:54.56	+38:51:49.0	17.5	-1.0		
09310+4055	0347 23	09:30:59.24	+40:55:17.4	17.5	+0.5		
09313+4052	0347 22	09:31:15.16	+40:51:30.5	17.3	-1.5	V	
09327+3937	0347 19	09:32:44.83	+39:36:48.0	17.3	0.0		
09331+3835	0347 18	09:33:03.66	+38:35:27.4	18.0	-2.0		
09331+4250	0347 24	09:33:05.92	+42:50:22.6	17.5	0.0		
09333+4003	0347 20	09:33:18.57	+40:03:00.8	17.3	-0.5		
09339+3821	0347 17	09:33:54.97	+38:20:51.4	15.47	-1.5	W	05 22
09358+4046	0347 26	09:35:47.01	+40:45:44.1	17.0	-0.5	D	
09358+4142	0347 25	09:35:48.70	+41:41:55.2	16.0	-2.0		
09366+3938	0347 27	09:36:38.87	+39:37:38.1	17.5	-1.5		
09369+3724	0347 31	09:36:53.60	+37:24:04.4	18.2	-1.5		
09372+3933	0347 28	09:37:13.14	+39:33:29.8	17.5	0.0		
09380+3908	0347 30	09:37:59.08	+39:07:30.4	18.0	-1.5	Q	01 0937+391
09385+3926	0347 29	09:38:31.46	+39:25:50.0	16.8	-0.5		
09403+3829	0347 32	09:40:17.42	+38:29:12.5	17.9	-0.5		
09436+3709	0347 33	09:43:33.70	+37:09:15.8	17.5	0.0		
09436+4157	0347 48	09:43:37.75	+41:56:57.3	17.8	-1.0		
09441+3830	0347 34	09:44:08.75	+38:29:48.5	17.8	0.0		
09443+4229	0347 49	09:44:15.87	+42:28:35.0	17.0	-2.0		
09445+3819	0347 35	09:44:28.67	+38:19:20.1	18.2	-1.5		
09447+3919	0347 42	09:44:43.91	+39:18:59.5	15.0	0.0	D	
09451+4113	0347 47	09:45:03.89	+41:13:08.4	17.7	+0.5		
09458+4054	0347 46	09:45:50.13	+40:53:43.3	18.5	-1.0:	Q	01 0945+408
09466+3753	0347 36	09:46:37.99	+37:53:05.7	17.5	0.0		
09467+3809	0347 37	09:46:41.82	+38:08:54.8	17.5	0.0		
09468+3916	0347 43	09:46:49.69	+39:16:05.0	17.2	-1.0		
09469+3813	0347 38	09:46:56.63	+38:13:21.4	17.0	-0.5		
09477+3930	0347 44	09:47:40.68	+39:29:44.5	18.0	-2.0		
09477+3941	0347 45	09:47:44.84	+39:40:53.9	17.2	-1.5		
09478+3806	0347 39	09:47:45.27	+38:05:40.7	17.0	+0.5		
09481+3830	0348 26	09:48:03.04	+38:29:45.9	17.0	+0.5		
09485+4000	0348 05	09:48:29.57	+39:59:44.0	18.3	-1.5		
09490+3845	0348 27	09:48:57.06	+38:45:18.5	17.0	0.0		
09518+4203	0348 06	09:51:45.24	+42:03:11.1	16.8	0.0	D	
09538+4130	0348 07	09:53:48.12	+41:29:38.3	15.3	-1.5		
09554+4128	0348 08	09:55:26.47	+41:28:26.2	15.0	0.0		
09568+3848	0348 09	09:56:50.78	+38:47:52.9	18.1	-1.0		
09573+4006	0348 22	09:57:19.73	+40:05:29.9	17.8	-1.0		
09588+3812	0348 10	09:58:45.52	+38:12:00.7	12.5	-0.5		
09590+3741	0348 11	09:58:57.88	+37:41:13.6	18.0	-1.0		
10003+3732	0348 12	10:00:19.22	+37:31:39.0	15.0	-1.5		
10009+4049	0348 13	10:00:52.25	+40:48:50.4	13.0	-2.5		
10022+3901	0348 14	10:02:09.92	+39:00:49.8	14.5	-1.0		
10064+4120	0348 23	10:06:21.64	+41:19:49.7	17.8	-1.5		
10074+4147	0348 15	10:07:26.02	+41:47:25.0	17.0	-1.0		
10081+3817	0348 17	10:08:04.59	+38:16:45.1	16.8	-1.5		
10086+4132	0348 16	10:08:33.34	+41:31:54.5	15.3	-0.5		
10090+3712	0348 19	10:08:58.48	+37:12:24.4	17.0	-0.5		
10096+3837	0348 20	10:09:38.44	+38:36:57.0	15.0	0.0		
10098+4138	0348 18	10:09:48.77	+41:38:01.8	16.9	-2.0		
10128+4055	0348 24	10:12:48.88	+40:55:04.4	17.5	-1.5		
10136+3933	0348 21	10:13:33.53	+39:32:35.3	17.8	-1.0		
11211+3717	0352 13	11:21:06.63	+37:16:57.9	15.0	-1.0		
11219+4218	0352 12	11:21:55.89	+42:18:12.6	16.0	-1.5		

Table 2 (Continued)

KUV	AREA-NO.	R.A(1950.0) H M S	DEC(1950.0) D M S	MAG	CI	R	ID
11230+4240	0352 26	11:22:58.90	+42:40:03.4	16.8	-2.0		04 308
11245+4202	0352 15	11:24:28.47	+42:01:35.8	16.2	0.0		
11257+3944	0352 16	11:25:39.69	+39:44:02.8	13.5	0.0		
11265+3825	0352 14	11:26:29.95	+38:25:24.0	14.89	-2.0	W	02 80
11273+4242	0352 11	11:27:15.18	+42:41:31.2	16.2	+0.5		
11274+4133	0352 24	11:27:22.96	+41:32:51.4	16.5	-1.0		
11279+3831	0352 17	11:27:52.49	+38:30:58.9	16.0	0.0	D	
11294+3725	0352 10	11:29:25.32	+37:25:21.2	17.3	-1.5		
11295+3849	0352 25	11:29:42.97	+38:48:34.4	16.5	-2.0		
11337+3946	0352 09	11:33:44.63	+39:46:09.5	13.5	-0.5		
11370+4222	0352 07	11:37:02.05	+42:21:57.2	16.8	-0.5		
11375+4030	0352 08	11:37:31.51	+40:29:56.3	16.0	-1.0		
11380+3753	0352 18	11:38:02.05	+37:53:06.5	17.0	0.0	D	
11386+4229	0352 06	11:38:35.80	+42:29:00.8	15.2	-2.5		
11390+4225	0352 05	11:38:57.48	+42:25:20.3	15.5	-1.5		
11390+3816	0352 19	11:38:59.67	+38:16:08.7	15.5	0.0	D	
11419+3710	0352 21	11:41:52.46	+37:09:48.1	15.8	-0.5		
11423+3946	0352 20	11:42:19.19	+39:46:23.7	16.1	0.0		
11467+3725	0352 22	11:46:43.85	+37:25:08.8	17.5	-0.5		
11472+3858	0352 04	11:47:13.46	+38:57:35.1	17.2	-1.0		
11481+3732	0352 23	11:48:05.21	+37:32:22.1	17.2	0.0		
11489+4052	0352 03	11:48:54.52	+40:51:36.1	16.5	-1.0		
11491+4104	0352 02	11:49:06.15	+41:03:53.5	16.1	-1.0		
11495+3925	0352 01	11:49:27.90	+39:25:08.2	15.0	-2.0		
12479+3000	0494 25	12:47:54.16	+29:59:55.9	15.0	-1.0		
12481+2826	0494 20	12:48:05.19	+28:26:20.8	15.5	+1.0		
12485+2825	0494 21	12:48:29.14	+28:24:55.3	16.5	+0.5		
12486+2828	0494 22	12:48:37.93	+28:27:39.0	16.5	+0.5		
12491+2932	0494 23	12:49:03.18	+29:31:43.8	16.0	+0.5		
12500+2930	0494 24	12:49:59.50	+29:29:38.1	16.0	-0.5		
12505+2914	0494 26	12:50:31.64	+29:13:51.0	16.0	0.0		
12506+2812	0494 27	12:50:36.48	+28:12:10.2	16.0	+0.5		
12509+3023	0494 11	12:50:53.44	+30:22:45.5	15.5	-1.5		
12531+2756	0494 29	12:53:04.13	+27:56:13.9	16.0	0.0		
12532+2819	0494 28	12:53:14.18	+28:19:16.9	15.5	-0.5		
12537+2824	0494 09	12:53:39.58	+28:23:31.3	13.5	-0.5		
12537+2757	0494 30	12:53:40.61	+27:56:52.6	15.5	0.0	D	
12540+2759	0494 07	12:54:02.01	+27:58:43.9	15.5	-1.5		
12560+3045	0494 32	12:56:02.18	+30:45:14.0	17.5	0.0		
12562+2839	0494 31	12:56:09.65	+28:38:57.1	16.0	-0.5		
12568+3043	0494 33	12:56:48.24	+30:42:38.9	17.0	0.0		
12569+2750	0494 06	12:56:56.31	+27:50:14.6	14.43	-2.0		06 57-362
12570+2738	0494 05	12:57:01.00	+27:37:32.0	15.59	-1.0		06 57-286
12572+2811	0494 72	12:57:09.84	+28:11:01.7	16.8	-1.0	D	07 3191
12574+2750	0494 19	12:57:22.24	+27:50:11.3	15.5	-0.5	W	02 94
12581+2846	0494 59	12:58:04.10	+28:46:18.2	17.53	-1.5	Q	01 1258+287
12583+2909	0494 41	12:58:16.94	+29:08:44.7	15.5	0.0		
12584+2839	0494 71	12:58:23.65	+28:39:28.1	18.0	-2.0	Q	01 1258+286
12586+2836	0494 44	12:58:36.43	+28:35:51.1	16.5	-0.5		
12587+2942	0494 60	12:58:44.09	+29:42:15.7	18.0	-2.0		03 322-329
12593+2743	0494 48	12:59:16.64	+27:43:05.7	16.0	-0.5		
13000+2908	0494 42	13:00:01.65	+29:07:34.7	17.0	-0.5	D	
13003+2757	0494 04	13:00:17.26	+27:56:47.5	14.22	-1.5		06 57-282
13005+2746	0494 49	13:00:27.87	+27:45:52.1	15.5	0.0		
13008+2827	0494 47	13:00:48.81	+28:27:11.4	16.0	-1.0		
13009+3042	0494 37	13:00:52.80	+30:42:29.1	16.0	0.0		
13011+3143	0494 34	13:01:03.40	+31:43:26.4	17.5	-1.0		
13014+2703	0494 08	13:01:21.93	+27:02:34.2	15.0	-1.5		
13015+3043	0494 61	13:01:30.50	+30:42:37.4	17.5	-1.0		06 57-114
13016+2932	0494 43	13:01:37.25	+29:32:14.5	15.5	+0.5		
13016+2848	0494 45	13:01:38.13	+28:47:43.7	16.0	+0.5		
13016+2733	0494 50	13:01:37.21	+27:33:15.5	16.5	0.0		
13020+3146	0494 35	13:02:00.09	+31:46:27.8	15.0	+0.5		
13021+2834	0494 62	13:02:07.45	+28:34:09.4	17.5	-0.5		06 57-253
13022+2854	0494 46	13:02:11.92	+28:53:42.3	16.0	-0.5	D	
13023+3145	0494 02	13:02:16.99	+31:45:08.5	16.0	-1.5		07 3282
13024+2824	0494 03	13:02:24.76	+28:23:32.8	15.44	-2.0	W	02 97
13027+3043	0494 38	13:02:41.55	+30:43:20.1	16.5	0.0		
13029+3033	0494 39	13:02:55.95	+30:32:40.5	16.5	0.0	D	06 57-108
13030+2734	0494 51	13:03:02.14	+27:34:16.1	15.5	+0.5		
13035+3049	0494 63	13:03:31.88	+30:48:53.4	17.5	-1.5	Q	01 1303+308
13036+2723	0494 52	13:03:38.79	+27:22:46.9	16.0	0.0		
13036+2707	0494 13	13:03:35.33	+27:06:38.7	13.5	0.0		
13037+2751	0494 53	13:03:41.81	+27:51:30.2	16.0	-0.5		
13039+3122	0494 64	13:03:54.13	+31:21:31.3	17.5	-1.5	Q	01 1303+313
13046+3118	0494 65	13:04:37.68	+31:18:23.9	18.0	-1.0		06 57-16
13047+2822	0494 66	13:04:42.40	+28:21:35.9	18.0	-1.0	D	
13060+2839	0494 67	13:05:57.10	+28:38:44.1	17.5	-0.5		06 57-235
13061+3022	0494 16	13:06:07.13	+30:21:36.9	16.5	-0.5	Q	01 1306+303
13065+2739	0494 55	13:06:32.86	+27:39:08.1	16.5	+1.0		
13066+2800	0494 54	13:06:36.25	+28:00:18.3	16.5	+0.5		
13074+2706	0494 57	13:07:23.64	+27:05:56.2	16.0	+0.5		
13076+2944	0494 68	13:07:33.73	+29:44:01.3	18.0	-1.5		06 57-176
13077+3208	0494 36	13:07:39.32	+32:07:36.9	16.0	+0.5		
13079+3213	0494 12	13:07:52.14	+32:13:18.2	15.0	-0.5		
13082+3027	0494 40	13:08:13.50	+30:27:11.7	17.0	-0.5		
13088+3139	0494 17	13:08:47.44	+31:38:48.5	16.5	-1.0		06 57-28
13088+2851	0494 56	13:08:48.43	+28:50:53.3	15.5	0.0		
13090+2717	0494 58	13:09:00.97	+27:16:44.4	16.5	-1.0		
13091+3122	0494 18	13:09:06.80	+31:21:46.5	17.5	-1.5		06 57-26
13096+3008	0494 69	13:09:37.79	+30:07:53.1	17.5	-1.5		06 57-357
13106+3157	0494 14	13:10:35.17	+31:56:55.0	15.0	0.0		
13109+3138	0494 10	13:10:52.10	+31:37:51.5	14.8	-1.0		06 57-37
13112+3014	0494 70	13:11:14.42	+30:14:06.9	18.0	-1.0		06 57-186
13126+3229	0494 01	13:12:34.31	+32:28:46.5	16.5	-1.0		07 3432
13139+3213	0494 15	13:13:52.85	+32:12:42.8	14.5	0.0		
16266+3653	0433 01	16:26:38.41	+36:52:34.0	13.86	-2.0	W	02 119
16283+3616	0433 02	16:28:16.59	+33:16:25.9	16.5	-1.0		
16290+3619	0433 15	16:28:57.98	+36:19:29.4	17.50	-1.0	Q	01 1628+363
16303+3744	0433 16	16:30:15.46	+37:44:08.2	16.5	-1.0		

Table 2 (Continued)

KUV	AREA-NO.	R.A(1950.0) H M S	DEC(1950.0) D M S	MAG	CI	R	ID
16366+3506	0433 03	16:36:36.81	+35:06:04.2	14.5	-2.0		
16376+3331	0433 04	16:37:35.77	+33:31:20.0	14.64	-1.0	W	02 120
16378+3438	0433 05	16:37:45.77	+34:38:17.6	15.2	-2.0		
16395+3351	0433 06	16:39:30.87	+33:50:32.8	15.3	-2.0		
16398+3614	0433 07	16:39:46.48	+36:14:27.6	15.0	+0.5		04 355
16416+3307	0433 17	16:41:33.31	+33:06:46.3	16.5	-2.5		
16454+3234	0433 08	16:45:25.66	+32:33:48.3	13.65	-2.0	W	02 239
16476+3733	0433 09	16:47:35.85	+37:33:28.2	14.8	-2.0		
16484+3706	0433 10	16:48:22.94	+37:06:14.3	15.8	-2.5		
16491+3539	0433 11	16:49:06.53	+35:38:42.7	14.5	-2.0		
16501+3404	0433 12	16:50:05.34	+34:04:25.3	14.5	-0.5		
16507+3635	0433 13	16:50:43.70	+36:35:09.6	14.2	-0.5		
16531+3635	0433 14	16:53:07.69	+36:34:55.3	15.0	-0.5	D	
18004+6836	4109 01	18:00:26.38	+68:35:53.0	14.6	-1.5		
18020+6639	4109 09	18:02:02.21	+66:39:11.1	17.2	-1.0		
18036+6738	4109 03	18:03:37.32	+67:37:54.7	15.8	-1.5	Q	01 1803+676
18046+6436	4109 10	18:04:38.06	+64:35:36.4	16.0	-1.0		
18126+6704	4109 08	18:12:35.30	+67:03:51.3	15.6	-1.0		
18169+6643	4109 07	18:16:52.23	+66:42:59.3	16.0	-2.5		
18186+6740	4109 04	18:18:37.04	+67:40:04.0	16.5	-1.5		
18189+6501	4109 11	18:18:53.20	+65:00:43.6	15.8	-2.0		
18216+6420	4109 12	18:21:36.77	+64:20:18.7	14.5	-1.5		
18217+6419	4109 13	18:21:41.69	+64:19:00.9	13.8	0.0		
18246+6508	4109 14	18:24:35.97	+65:07:36.9	16.3	-0.5		
18284+6650	4109 06	18:28:24.24	+66:50:23.2	16.0	-0.5		
18312+6432	4109 15	18:31:12.39	+64:32:25.1	14.2	-2.0		
18312+6431	4109 16	18:31:14.61	+64:31:29.9	17.0	-1.5		
18332+6429	4109 17	18:33:14.01	+64:29:26.8	17.0	-1.0		
18423+6558	4109 18	18:42:18.52	+65:57:36.4	14.8	-2.0		
18453+6819	4109 05	18:45:20.63	+68:19:17.7	14.8	-2.0		
20417+7604	0049 05	20:41:39.78	+76:03:51.5	13.0	-0.5		
20432+7457	0049 08	20:43:13.00	+74:57:08.7	15.5	0.0		
20441+7548	0049 07	20:44:07.76	+75:48:29.2	16.0	-0.5		
20573+7233	0049 01	20:57:19.02	+72:32:50.5	15.0	-1.5		
21017+7158	0049 02	21:01:40.17	+71:58:29.9	13.5	-1.0		
21026+7210	0049 06	21:02:34.06	+72:10:00.0	16.5	-2.5		
21168+7338	0049 03	21:16:48.71	+73:38:03.9	15.0	-1.5		
21267+7326	0049 04	21:26:43.68	+73:25:44.9	12.88	-1.0	W	02 144
23032+1129	8741 13	23:03:08.54	+11:29:23.3	14.42	-1.5	W	05 75
23032+1254	8741 25	23:03:09.60	+12:53:48.5	16.5	0.0		
23052+1102	8741 14	23:05:10.78	+11:01:56.2	17.0	-0.5		
23060+1303	8741 12	23:06:00.19	+13:03:06.5	15.0	-1.0		
23061+1229	8741 11	23:06:04.64	+12:29:23.5	14.8	-1.5		
23073+1530	8741 04	23:07:17.05	+15:29:31.5	14.6	0.0		
23088+0952	0813 01	23:08:46.54	+09:51:57.0	15.5	-1.0	Q	01 2308+098
23089+0942	0813 02	23:08:52.45	+09:42:25.7	15.2	-2.0		
23098+1031	0813 03	23:09:50.25	+10:30:45.4	13.11	-1.0	W	02 233
23099+1056	8741 15	23:09:55.32	+10:55:37.2	17.0	-0.5		
23112+1315	8741 28	23:11:10.12	+13:14:53.9	16.0	-0.5	D	
23112+1101	0813 04	23:11:12.59	+11:01:24.2	16.3	0.0	D	
23116+1254	0813 05	23:11:34.75	+12:54:19.2	16.0	+0.5	D	
23117+1054	0813 06	23:11:43.40	+10:54:11.2	15.0	0.0		
23120+1013	0813 07	23:12:02.56	+10:12:60.0	16.7	0.0		
23128+1157	0813 30	23:12:48.12	+11:56:50.5	17.0	-1.5		
23134+1117	0813 08	23:13:21.64	+11:16:39.7	16.7	-1.0		
23136+1213	0813 09	23:13:37.57	+12:13:19.0	16.8	-1.0		
23139+1129	0813 10	23:13:56.68	+11:29:19.9	17.0	-1.0		
23141+1057	0813 31	23:14:04.95	+10:56:51.3	17.0	0.0		
23147+0822	0813 11	23:14:39.22	+08:22:20.2	17.2	-0.5		
23147+1104	0813 32	23:14:41.45	+11:03:48.5	17.0	-0.5		
23149+1408	8741 03	23:14:53.18	+14:07:31.6	16.7	-2.0		
23149+0736	0813 12	23:14:54.86	+07:35:40.4	13.8	-0.5		
23158+0855	0813 29	23:15:47.21	+08:55:24.1	14.0	-2.0	W	05 80
23158+1341	8741 18	23:15:50.88	+13:40:46.3	16.5	-0.5		
23160+0918	0813 13	23:16:00.15	+09:17:39.0	16.8	-1.0		
23162+1220	0813 14	23:16:13.94	+12:19:38.4	15.0	-1.5		
23165+1005	0813 15	23:16:32.13	+10:04:47.2	16.8	-0.5		
23180+1242	8741 19	23:17:59.97	+12:41:46.0	16.6	-1.5		03 522-34
23181+1305	8741 20	23:18:09.00	+13:05:12.5	16.5	0.0		
23182+1007	0813 33	23:18:12.62	+10:07:24.6	16.8	-0.5		
23189+0901	0813 17	23:18:54.89	+09:01:00.7	17.0	-1.5		
23198+1151	0813 18	23:19:49.49	+11:50:31.1	15.5	0.0		
23200+1149	0813 19	23:20:02.68	+11:48:40.4	15.6	0.0		
23201+0756	0813 28	23:20:03.87	+07:55:33.8	17.5	-1.5:	Q	01 2320+079
23202+0718	0813 20	23:20:12.90	+07:18:10.0	15.0:	-1.0:		
23205+1422	8741 24	23:20:32.11	+14:22:22.5	16.8	-0.5		
23207+0840	0813 21	23:20:41.76	+08:40:14.0	14.0	-0.5		
23213+1415	8741 02	23:21:19.88	+14:14:39.3	14.66	-1.0	W	05 81
23218+1410	8741 23	23:21:47.61	+14:09:59.8	16.8	0.0	D	
23220+0953	0813 22	23:22:01.82	+09:52:55.9	17.0	-2.0		
23223+1116	0813 23	23:22:20.42	+11:16:00.4	16.6	-1.5		
23223+0921	0813 34	23:22:20.97	+09:21:01.9	16.8	-1.0		
23224+1151	0813 24	23:22:26.48	+11:51:13.8	16.1	-1.0		
23229+1140	0813 25	23:22:54.71	+11:39:40.1	16.4	0.0	D	
23235+1205	0813 26	23:23:27.46	+12:04:54.6	14.5	-1.5	W	05 82
23236+1544	8741 01	23:23:35.73	+15:43:51.4	15.09	-1.0	W	02 335
23281+1044	0813 36	23:28:08.81	+10:43:45.8	17.8:	-0.5:	Q	01 2328+107
23282+1046	0813 27	23:28:09.67	+10:45:33.6	15.3	-1.5		

Appendix of Table 2

Ref. 01; Quasars
Burbidge, G.R., Crowne, A.H., and Smith, H.E. 1977, *Astrophys. J. Suppl.*, **33**, 113.
Ref. 02; EG stars
Eggen, O.J., and Greenstein, J.L. 1965, *Astrophys. J.*, **141**, 83.
Eggen, O.J., and Greenstein, J.L. 1965, *Astrophys. J.*, **142**, 925.
Eggen, O.J., and Greenstein, J.L. 1967, *Astrophys. J.*, **150**, 927.
Greenstein, J.L. 1969, *Astrophys. J.*, **158**, 281.
Greenstein, J.L. 1970, *Astrophys. J. (Letters)*, **162**, L55.
Greenstein, J.L. 1974, *Astrophys. J. (Letters)*, **189**, L131.
Greenstein, J.L. 1975, *Astrophys. J. (Letters)*, **196**, L117.
Greenstein, J.L. 1976, *Astrophys. J. (Letters)*, **207**, L118.
Ref. 03; LP stars
Luyten, W.J. 1979, *"White Dwarfs II"*, Univ. Minnesota, Minneapolis.
Ref. 04; GD stars
Giclas, H.L., Burnham, R. Jr., and Thomas, N.G. 1965, *Lowell Obs. Bull.*, **VI**, 155.
Giclas, H.L., Burnham, R. Jr., and Thomas, N.G. 1967, *ibid*, **VII**, 49.
Giclas, H.L., Burnham, R. Jr., and Thomas, N.G. 1970, *ibid*, **VII**, 183.
Giclas, H.L., Burnham, R. Jr., and Thomas, N.G. 1972, *ibid*, **VII**, 217.
Giclas, H.L., Burnham, R. Jr., and Thomas, N.G. 1973, *ibid*, **VII**, 273.
Giclas, H.L., Burnham, R. Jr., and Thomas, N.G. 1975, *ibid*, **VIII**, 9.
Ref. 05
Green, R.F. 1980, *Astrophys. J.*, **238**, 685.
Ref. 06
Steppe, H. 1978, *Astron. Astrophys. Suppl.*, **31**, 209.
Ref. 07
Berger, J., and Fringant, A.M. 1977, *Astron. Astrophys. Suppl.*, **28**, 123.
Berger, J., and Fringant, A.M. 1980, *Astron. Astrophys. Suppl.*, **39**. 39.

of first two figures indicates the reference number appended at the end of the table, and the number of following figures indicates the object number in the literature.

5. Discussion

The three-image method was initially adopted by Haro and Herbig (1955). It is very efficient to detect blue objects. Their work was followed by Iriarte and Chavira (1957), Haro and Luyten (1962), Rubin, Moore, and Bertiau (1967), and Berger and Fringant (1977*, 1980*). All of these observations employed the *UBV* system. The *UGR* system adopted here is more sensitive to the gradient of continuous spectra of the objects. This fact is certified by the comparison of the *UBV* three-image plate with the *UGR* plate. Takase (1980) has detected some 1,100 galaxies with bright ultraviolet radiation by means of the similar method as ours. He picked out diffuse objects on the *UGR* three-image plates, while our search is mainly confined to stellar images with UV-excess. Six out of twenty plates are common to our search.

This work is compared with the following surveys. The comparison with Green's (1976) search cannot be done, since lists of individual detected objects are not available for us. On the other hand, both Steppe (1978*), and Berger and Fringant (1977*) listed the objects around the north galactic pole. Photometric values by Steppe (1978*) are derived from several plates in each band, and they are considered to be the most reliable ones. In figure 4, our color indices are plotted against Steppe's $U-B$ for common objects. Though the scatter is fairly large especially in the portion of small UV-excess, the *C.I.* is as a whole proportional to the color $U-B$ with the inclination of about 2.5. This relation holds over a range of four magnitudes. Therefore, the eye-estimated color index is proved to be a good indicator of the degree of the UV-excess. On the other hand, our color

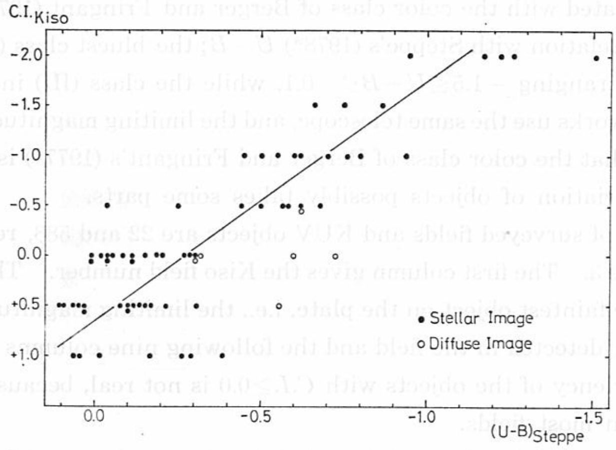

Fig. 4. *Comparison of our color index C.I. with U−B by Steppe* (1978*) *in the region including* SA57 (*plate* KL1555).

Table 3

Limiting Magnitudes and Number of KUV-Objects 22 Fields

Area	Limiting Magnitude	Total Number	Color Indices -3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0	0.5	1.0
1037	17.5	31	0	4	3	1	6	7	6	4	0
896	18.0	52	0	5	2	3	10	14	13	5	0
897	18.2	20	0	1	3	3	2	8	1	2	0
684	17.2	10	0	1	1	2	3	2	1	0	0
685	17.0	14	0	4	2	2	2	2	2	0	0
757	17.2	3	0	0	1	1	1	0	0	0	0
686	17.5	24	0	2	4	4	4	6	4	0	0
543	17.2	22	0	1	0	1	3	6	10	1	0
476	18.0	18	0	1	4	4	3	4	2	0	0
343	17.8	34	0	1	4	6	6	8	7	2	0
344	17.8	24	0	0	3	5	8	4	3	0	1
345	18.0	67	1	1	5	7	14	10	23	4	2
410	16.8	9	0	0	0	2	1	6	0	0	0
347	18.5	48	0	0	5	12	8	8	10	5	0
348	18.2	22	0	1	1	6	6	3	4	1	0
352	17.5	26	0	1	4	3	6	4	7	1	0
494	18.0	72	0	0	4	11	13	15	16	11	2
433	17.2	17	0	2	7	0	4	3	0	1	0
4109	17.2	17	0	1	4	5	4	2	1	0	0
49	17.0	8	0	1	0	2	2	2	1	0	0
8741	17.2	16	0	0	1	3	3	5	4	0	0
813	17.6	34	0	0	3	7	9	7	7	1	0
		588	1	27	61	90	118	126	122	38	5

index is not well correlated with the color class of Berger and Fringant (1977*). Their data, however, show a scattered relation with Steppe's (1978*) $U-B$; the bluest class (I) of Berger and Fringant's includes objects ranging $-1.5 \leq U-B \leq -0.1$, while the class (III) includes objects as blue as $U-B \simeq -0.6$. Both works use the same telescope, and the limiting magnitudes are not so different. Hence it is suggested that the color class of Berger and Fringant's (1977*) is less accurate, though the light and color variation of objects possibly takes some parts.

The total numbers of surveyed fields and KUV objects are 22 and 588, respectively. Some statistics are given in table 3. The first column gives the Kiso field number. The second column gives the G magnitude of the faintest object on the plate, i.e., the limiting magnitude. The third column shows the total number detected in the field and the following nine columns the frequency for each color index. The deficiency of the objects with $C.I. \geq 0.0$ is not real, because such objects are not searched thoroughly in most fields.

The integrated luminosity function of the KUV objects are shown in figure 5, where they are divided into three groups according to the *C.I.* The completeness in detection is not secured for the objects fainter than 17 mag, because the limiting magnitude of underexposed plates are located around it. As is shown in this figure, objects with the large UV-excess are more frequently detected around 15 mag than expected from the uniform distribution. On the other hand, objects with the small UV-excess do not exhibit such a hump. This tendency is clearly seen in the fields A0684, A0685 (Hyades), and A0433 (M13 region). Some of them are identified as white dwarfs or blue horizontal-branch stars in previous catalogues.

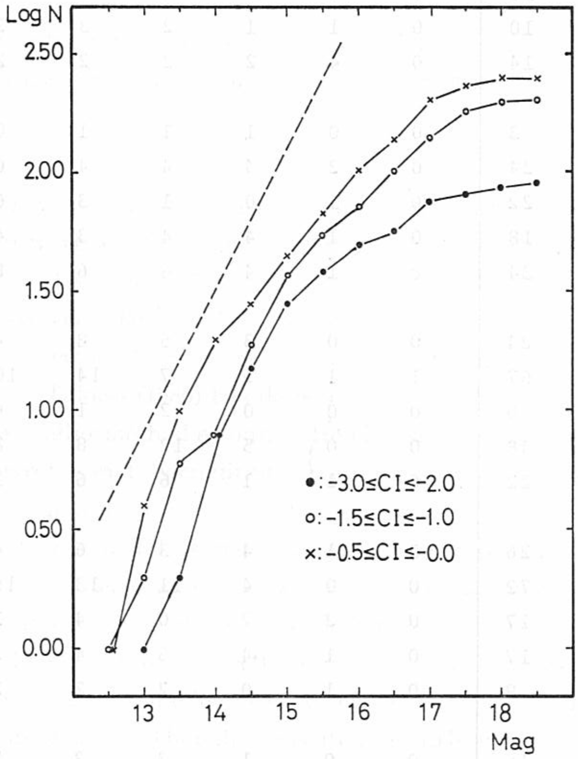

Fig. 5. *Logarithmic integrated luminosity function of the detected* KUV *objects. They are divided into three groups according to C.I. The completeness is not secured at the fainter portion than* 17 *mag. The dashed line indicates uniform distribution of objects.*

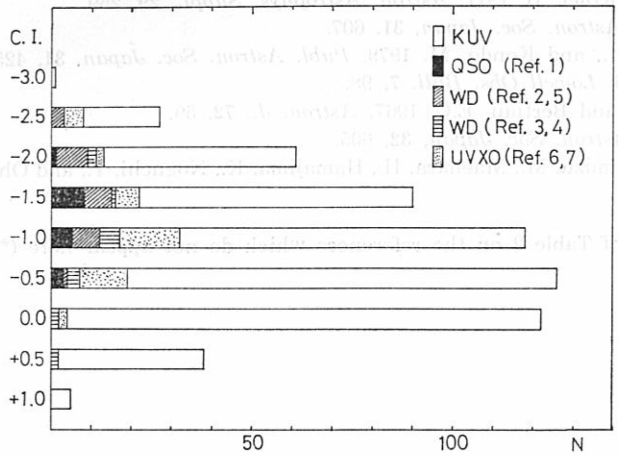

Fig. 6. *Frequency distribution against C.I. for the detected* KUV *objects. Common objects with other surveys are designated with hatches.*

The frequency distribution against the *C.I.* for all the objects of this survey is shown in figure 6. 17 Objects are identified as quasars, 26 as spectroscopic white dwarfs, and 15 as suspected white dwarfs. Among the remaining objects, 42 are identified as blue objects of Berger and Fringant (1977*, 1980*) and Steppe (1978*). The remainder (83 percent) is left unidentified. A suspected dwarf nova has been discovered in the course of this search (Noguchi et al. 1979). The *C.I.*'s of quasar range from −0.5 to −2.0, while those of white dwarfs are distributed down to −2.5.

Judging from the result, major constituents of our objects are possibly white dwarfs. Quasars and blue extragalactic objects seem to be minor groups in our accessible magnitudes. Moreover, galactic objects such as hot subdwarfs, novae, dwarf novae, central stars of planetary nebulae, etc. are also expected as candidates (Green 1980*). Spectroscopic observations are undertaken with the use of the 188-cm reflector at Okayama Astrophysical Observatory.

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References

Buser, R. 1978, *Astron. Astrophys.*, **62**, 411.
Giclas, H.L. 1960, *Lowell Obs. Bull.*, **IV**, 1.
Green, R.F. 1976, *Publ. Astron. Soc. Pacific*, **88**, 665.
Green, R.F., and Morrill, M.E. 1978, *Publ. Astron. Soc. Pacific*, **89**, 601.
Haro, G., and Herbig, G.H. 1955, *Bol. Obs. Tonantzintla y Tacubaya*, No. **14**, 8.
Haro, G., and Luyten, W.J. 1962, *Bol. Obs. Tonantzintla y Tacubaya*, No. **32**, 37.
Humason, H.L., and Zwicky, F. 1947, *Astrophys. J.*, **105**. 85.
Iriarte, B., and Chavira, E. 1957, *Bol. Obs. Tonantzintla y Tacubaya*, No. **16**, 3.
Ishida, K., Maehara, H., and Ohashi, M. 1978, *Tokyo Astron. Obs. Report*, **18**, 260 (in Japanese).
Kiso Information Bulletin, 1979, Vol. **1**, No. 2.
Luyten. W.J., and Miller, W.C. 1951, *Astrophys. J.*, **114**, 488.
Mermilliod, J.-C. 1976, *Astron. Astrophys. Suppl.*, **24**, 159.

Mermilliod, J.-C., and Nicolet, B. 1977, *Astron. Astrophys. Suppl.*, **29**, 259.
Mikami, T. 1980, *Publ. Astron. Soc. Japan*, **31**, 607.
Noguchi, T., Maehara, H., and Kondo, M. 1979, *Publ. Astron. Soc. Japan*, **31**, 425.
Purgathofer, A. Th. 1969, *Lowell Obs. Bull.* **7**, 98.
Rubin, V.C., Moore, S., and Bertiau, E.C. 1967, *Astron. J.*, **72**, 59.
Takase, B. 1980, *Publ. Astron. Soc. Japan*, **32**, 605.
Takase, B., Ishida, K., Shimizu, M., Maehara, H., Hamajima, K., Noguchi, T., and Ohashi, M. 1977, *Ann. Tokyo Astron. Obs.*, **16**, 74.

N.B., See the appendix of Table 2 on the references which do not appear here (* in the text).