

VARIABLE STAR  
BULLETIN

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SEARCH FOR MIRA VARIABLES  
FROM  
IRAS CATALOGUE OF POINT SOURCE

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All red color variables which was discovered recently are included in IRAS Catalogue of Point Source, Version 2.0 (PSC). 6739 variable stars which is listed in GCVS are also listed in PSC, among them 2857 are Mira type.

In order to pick up the candidate of Mira variables, Fig. 1, 2 and 3 are considered. Fig. 1 shows the ratio of  $25\mu$  and  $12\mu$  flux of 2587 Mira variables. Most Mira variables have 36% to 56% ratio. Fig. 2 shows the ratio of  $60\mu$  and  $12\mu$  flux, and 4% to 14% is predominant. Fig. 3 shows IRAS spectra (NIRS), 13 to 19 and 21 to 30 may be specified by Mira variables.

Finally, after comparison the magnitude of the selected star using the method above mentioned with the Guide Star Catalogue and True Visual Magnitude Photographic Star Atlas, the candidates of Mira variables are decided. The candidate star is limited the one of which declination  $-10'$  or north. The reason only depends on the condition of observing site.

Table 1 shows the list of the candidates of Mira variable and the outline of the observation results. ISV NUM means Number of IIDA Suspected Variable Stars. Probability of light variation from PSC is shown in bracket after IRAS number. In the column of magnitude, PP means True Visual Magnitude Photographic Atlas, and  $<13.5$  means fainter than 13.5 mag. and not detected.

The observation is carried out by step method with 25 cm reflector between Sep. 1990 and Feb. 1992. According to bad weather and press of business, only 32 stars out of 78 were observed. The stars of which light variation are confirmed are already listed in New Catalogue of Suspected Variable Stars (NSV). The observation of the remaining candidate stars are desirable in the near future.

The preliminary results of observation NSV1020 (ISV0258+69), NSV9887 (ISV 1754+10) and NSV 14469 (ISV2313+78) are already published.<sup>1)</sup>

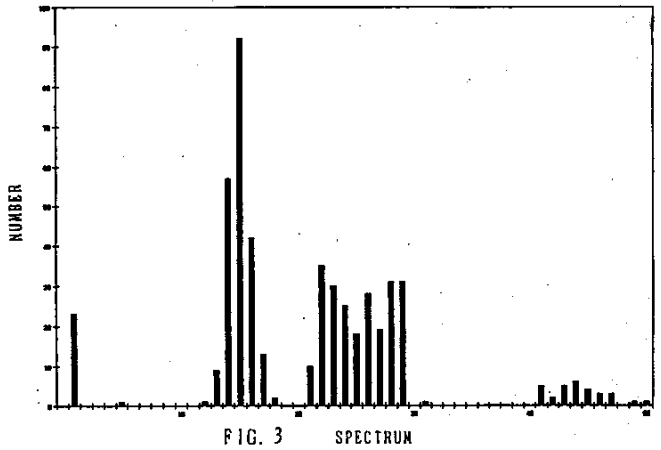
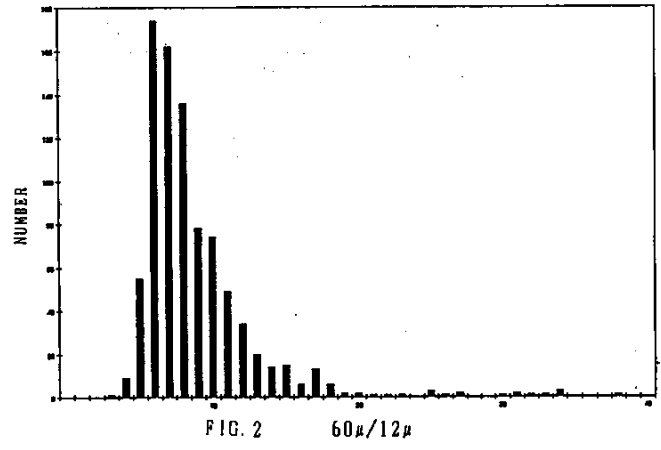
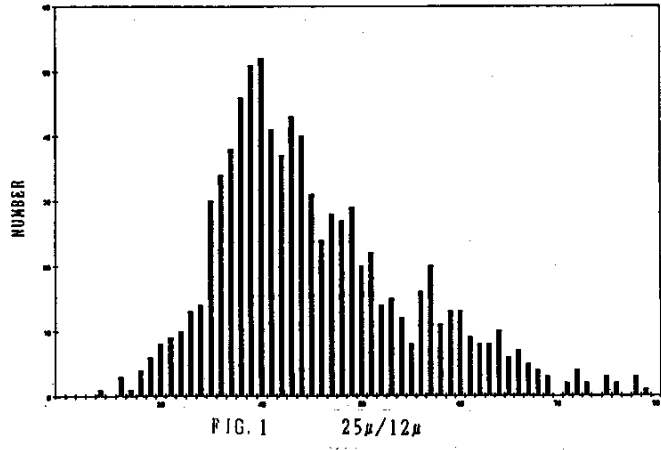


Table 1 -1

ISV_NUM	R.A.	DEC.	CATALOGUE	MAGNITUDE	OBS. NO.	REMARKS
1	0004+69	000402	+694244 =NSV00030=IRAS00040+6942(8X)	PP=<13.5),GSC=11.6		
2	0118+66	011837	+663431 =IRAS01186+6634(6X)	PP=12.5,GSC=11.8	4	CONST
3	0142+62	014205	+625202 =GCCS267=IRAS01420+6251(8X)	PP=12.8,GSC=14.5	5	NOT VISIBLE
4	0253-06	025343	-061411 =IRAS02537-0614(2X)	PP=12.0,GSC=13.0		
5	0258+69	025854	+695617 =NSV01020=IRAS02588+6956(12X)	PP=<(12.5),GSC=11.2	40	MIRA
6	0325+20	032519	+203026 =IRAS03253+2030(5X)	PP=<(13.3),GSC=12.4		
7	0346+67	034608	+672746 =NSV01348=IRAS03461+6727(4X)	PP=<(13.3),GSC=11.9		
8	0407+54	040751	+540046 =NSV01488=IRAS04078+5400(66X)	PP=12.5,GSC=<(14.0)	15	NOT VISIBLE
9	0412+33	041221	+334218 =NSV01528=IRAS04123+3342(13X)	PP=12.8,GSC=11.3		
10	0434+32	043426	+323127 =IRAS04344+3231(14X)	PP=12.5,GSC=11.5		
11	0442-02	044226	-024235 =IRAS04424-0242(0X)	PP=11.5,GSC=12.5		
12	0452+02	045253	+025944 =NSV01773=IRAS04528+0259(21X)	PP=<(13.0),GSC=12.7	9	NOT VISIBLE
13	0503+26	050301	+265919 =GCCS851=IRAS05030+2659(72X)	PP=12.5,GSC=13.7	2	NOT VISIBLE
14	0521+02	052158	+020610 =GCCS934=IRAS05219+0206(-1X)	PP=12.0,GSC=13.1	2	?
15	0530+41	053026	+415713 =NSV02120=IRAS05304+4157(-1X)	PP=12.5,GSC=13.3	5	MIRA?
16	0600-03	060029	-033722 =GCCS1154=IRAS06004-0337(-1X)	PP=12.6,GSC=14.0	1	?
17	0603-05	060354	-054154 =IRAS06038-0541(35X)	PP=13.8,GSC=<(15.0)		
18	0608+43	060848	+432904 =GCCS1182=IRAS06088+4329(86X)	PP=13.0,GSC=11.8		
19	0623-00	062319	-005051 =GCCS1270=IRAS06233-0050(30X)	PP=12.3,GSC=13.4		
20	0633-04	063348	-045849 =GCCS1323=IRAS06337-0458(-1X)	PP=13.4 GSC=<(14.0)		
21	0636-00	063607	-004654 =GCCS1340=IRAS06361-0046(-1X)	PP=13.5,GSC=<(13.5)		
22	0636-08	063610	-085221 =GCCS1341=IRAS06361-0852(-1X)	PP=13.0,GSC=14.1		
23	0647+03	064708	+030124 =NSV03223=GCCS1417 =IRAS06471+0301(99X)	PP=12.2,GSC=<(13.5)	1	?
24	0658-09	065852	-091351 =GCCS1510=IRAS06588-0913(-1X)	PP=13.0,GSC=14.3		
25	0706-00	070623	-001233 =GCCS1568=IRAS07063-0012(36X)	PP=12.5,GSC=<(14.6)		
26	0707+06	070742	+063408 =NSV03434=IRAS07077+0634(25X)	PP=11.3,GSC=12.4	1	?
27	0708-06	070853	-060630 =GCCS1588=IRAS07088-0606(9X)	PP=12.5,GSC=14.2		
28	0717-08	071733	-084249 =GCCS1655=IRAS07175-0842(-1X)	PP=12.8,GSC=14.7		
29	0719-09	071955	-095013 =GCCS1676=IRAS07199-0950(0X)	PP=12.8,GSC=14.3		
30	0723-03	072335	-035558 =GCCS1708=IRAS07235-0356(12X)	PP=10.4,GSC=12.5		
31	0724-07	072432	-074356 =GCCS1718=IRAS07245-0743(-1X)	PP=13.0,GSC=<(14.5)		
32	0724-08	072458	-083246 =GCCS1724=IRAS07249-0832(0X)	PP=12.8,GSC=<(15.0)		
33	0724-09	072441	-090303 =GCCS1720=IRAS07246-0903(67X)	PP=13.2,GSC=<(15.0)		
34	0729-04	072957	-041522 =GCCS1755=IRAS07299-0415(-1X)	PP=12.0,GSC=14.1		
35	0729-09	072921	-092138 =GCCS1750=IRAS07293-0921(-1X)	PP=10.8,GSC=12.7		
36	0755-00	075511	-003254 =GCCS1980=IRAS07551-0032(94X)	PP=11.8,GSC=13.9		
37	0758-07	075805	-071413 =GCCS1987=IRAS07580-0714(11X)	PP=10.8,GSC=12.3		
38	0800-12	080050	-120542 =IRAS08008-1205(7X)	PP=12.6,GSC=13.6		
39	0849-03	084935	-031256 =IRAS08495-0312(68X)	PSC=10.5,GSC=11.6		
40	1613-02	161311	-021607 =NSV07582=IRAS16131-0216(25X)	PP=12.7,GSC=13.2		
41	1615-08	161546	-080430 =GCCS3680=IRAS16157-0804(97X)	PP=14.3,GSC=<(14.5)	1	?
42	1620-15	162034	-154503 =IRAS16205-1545(27X)	PP=13.6,GSC=<(15.0)		
43	1721-08	172155	-080011 =GCCS983=IRAS17219-0800(-1X)	PP=<(14.5),GSC=14.2	1	?
44	1737-10	173800	-100601 =IRAS17379-1006(99X)	PP=12.8,GSC=<(13.5)		
45	1751+16	175125	+164047 =NSV09827=IRAS17514+1640(0X)	PP=13.0,GSC=12.9	13	CONST
46	1754+10	175417	+100647 =NSV09887=IRAS17542+1006(98X)	PP=<(13.1),GSC=11.2	34	MIRA
47	1819+50	181942	+503014 =NSV10701=IRAS18196+5030(76X)	PP=<(13.0),GSC=11.8	27	MIRA 370day
48	1826+17	182613	+171748 =GCCS1046=IRAS18262+1717(0X)	PP=12.5,GSC=11.9	3	?
49	1827+82	182735	+823652 =NSV10931=IRAS18276+8236(98X)	PP=13.3,GSC=11.3	1	?
50	1836+03	183646	+030613 =IRAS18367+0306(0X)	PP=<(13.0),GSC=12.1		

Table 1 - 2

51	1837-10	183734	-101019	=IRAS18375-1010(93%)	PP=<(13.5), GSC=12.5		
52	1905+30	190518	+300640	=IRAS19053+3006(16%)	PP=13.0, GSC=11.5		
53	1929+23	192903	+232409	=IRAS19290+2324(10%)	PP=<(13.5), GSC=13.1		
54	1931+16	193127	+161943	=IRAS19314+1619(95%)	PP=12.2, GSC=<(13.5)	4	?
55	1937+20	193707	+200403	=IRAS19371+2004(26%)	PP=11.2, GSC=10.4	1	?
56	1939-11	193941	-110526	=NSV12313:=IRAS19396-1105(33%)	PP=11.0, GSC=12.7	2	?
57	1947+21	194717	+212704	=IRAS19472+2127(0%)	PP=<(13.1), GSC=11.1		
58	1949+19	194944	+191224	=NSV12491=(IRAS19497+1912(29%))	PP=12.6, GSC=<(13.0)		
59	1956+29	195609	+295819	=IRAS19561+2958(97%)	PP=<(12.8), GSC=12.5		
60	2001+68	200115	+682404	=NSV12751=IRAS20012+6824(35%)	PP=12.4, GSC=13.4	6	?
61	2020+07	202049	+074741	=IRAS20208+0747(2%)	PP=11.2, GSC=10.4		
62	2021+02	202146	+020306	=NSV13062=IRAS20217+0203(-1%)	PP=12.9, GSC=11.5	3	?
63	2025+24	202518	+240713	=IRAS20253+2407(99%)	PP=12.4, GSC=<(13.0)	1	?
64	2032-07	203216	-073732	=NSV13155=IRAS20322-0737(26%)	PP=11.2, GSC=12.1		
65	2048+33	204815	+335936	=IRAS20482+3359(6%)	PP=11.0, GSC=10.2	1	?
66	2101+22	210200	+221845	=IRAS21019+2218(14%)	PP=<(11.5), GSC=11.5	12	SR?
67	2102+07	210229	+073120	=NSV13509=IRAS21024+7031(0%)	PP=<(12.5), GSC=11.8		
68	2107+10	210756	+102343	=IRAS21079+1023(99%)	PP=<(12.6), GSC=11.6		
69	2131+54	213113	+540538	=NSV13781=IRAS21312+5405(0%)	PP=11.6, GSC=10.3		
70	2140+73	214012	+735422	=IRAS21401+7354(13%)	PP=12.0, GSC=11.4		
71	2145+78	214548	+781931	=NSV13883=IRAS21458+7819(80%)	PP=<(13.6), GSC=13.1	8	?
72	2157+63	215700	+632900	=IRAS21570+6329(23%)	PP=<(14.5), GSC=13.4		
73	2212+56	221235	+560843	=GCCS5612=IRAS22125+5608(42%)	PP=11.5, GSC=<(13.8)	15	CONST
74	2217+66	221701	+665046	=IRAS22170+6650(15%)	PP=<(13.5), GSC=13.1		
75	2221+56	222115	+562737	=GCCS5644=IRAS22212+5627(16%)	PP=13.3, GSC=<(14.0)	2	NOT VISIBLE
76	2300+71	230035	+715312	=NSV14403=IRAS23005+7153(37%)	PP=13.1, GSC=<(14.0)	4	?
77	2307+39	230752	+395529	=IRAS23078+3955(1%)	PP=12.0, GSC=11.0		
78	2313+78	231306	+784017	=NSV14469=IRAS23131+7840(56%)	PP=<(13.5), GSC=11.8	51	KIRA

Reference:

1) 1990, Variable Star Bull., Japan No. 13.

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