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**A REVISION OF DOLIDZE'S
“LIST OF PROBABLE LONG-PERIOD VARIABLES OF M TYPES...”**

The following table constitutes a revision of the star list appearing in an obscure paper by Dolidze (1975) concerning spectral peculiarities of M stars and the possibility of using these to predict the type of variability. I became interested in using the list to get visible-light identifications and spectral types for IRAS sources. The original publication includes a list of spectral types determined on red-light objective-prism plates for 191 stars plus seven supplemental stars. About half of these were known or suspected variables, but the remaining ‘probable’ variables appear to have been observed for the first time, at least for spectral type.

A large number of errors were found in the paper, so a complete revision seemed necessary in order to make the IRAS identifications. In particular, the positions supplied by Dolidze are commonly in error by 5' or more. Luckily, finder charts from objective-prism plates are shown for each star, which were necessarily relied upon to identify them. I was able to match these with digitized sky survey images in all but two cases. The revised list provides precise positions for the remainder, with identifications from the IRAS and Guide Star Catalogues where possible, plus links with other names available through the SIMBAD database. For many of the known variables, precise positions are provided for the first time, among which are substantial corrections to the GCVS4 (Kholopov *et al.* 1985).

The procedure was simply to compare Dolidze's finder charts against the digitized sky survey using the Goddard SkyView facility (McGlynn *et al.* 1994, Scollick 1995) and SIMBAD. The original charts cover 12' square. Matching star fields was usually unambiguous. I then did searches in SIMBAD around the position estimated from SkyView for IRAS sources and other previously published names as well as GSC positions. For stars with large Dolidze position errors, often the reverse procedure proved successful: calling up SkyView images centered on various IRAS sources near the nominal location. When a GSC identification was made, its position was adopted. Positions for stars missing from the GSC were taken most often from the U. S. Naval Observatory UJ1.0 or A0.9 catalogues (Monet *et al.* 1994, Monet 1996), although in a few cases I derived them from SkyView frames at large image scale.

The table shows Dolidze's designation (from his Tables 3 and 4) in the first column, followed by the equinox 2000 position, the coded source of the position (A = A0.9, G = GSC, P = PPM, S = SkyView, U = U1.0), and IRAS and GSC numbers as available. The spectral types are from Dolidze, being mean values if types were determined on more than one plate. The types were assigned usually only in odd-numbered increments (M3, M5, M7, etc.), but with many intermediate values (*e.g.* M5-7). I have taken this to mean the types are not highly accurate, although comparison with other published values suggests there are neither gross systematic errors nor much scatter in the types, especially considering that all the stars are surely variable and observed at random phases.

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Table 1

[D75]	RA (2000)	Dec	s	IRAS	GSC	spec	Remarks
1p	4 20 47.1	+20 54 24	G		1276-0352	C:	
2p	5 46 40.7	+9 23 20	G		0719-0991	C:	
3p	5 52 27.1	+8 57 18	G	05497+0856	0716-0136	M3S	
4p	6 43 56.3	+1 44 59	A	06413+0148		M3/5S	S1* 170
5p	6 44 18.7	+1 55 01	A	06416+0158		C:	CGCS 376
6p	23 17 17.4	+63 22 30	G	23151+6305	4283-0114	M1/3S:	
7p	0 03 34.6	+67 12 59	U	00010+6656		dM5e	
1	0 07 05.6	+61 48 55	G	00044+6132	4014-0314	M5/7	V658 Cas
2	0 17 56.3	+59 09 15	U	00152+5852		M5/7	V659 Cas
3	0 23 17.2	+62 21 39	G	00205+6204	4019-2516	M5	
4	0 27 10.7	+63 33 24	G	00243+6316	4019-1440	M5	
5	0 28 46.2	+63 52 36	G	00259+6335	4023-0332	M5/7	
6	0 34 26.5	+64 32 52	G	00315+6416	4024-1176	M3/5SC:	V660 Cas
7	0 44 17.0	+60 42 20	G	00413+6025	4016-0347	M5/7	NSV 274
8	0 48 07.0	+60 20 19	G	00451+6003	4016-1895	M5/7	
9	0 54 26.1	+63 33 21	G	00513+6317	4021-0393	M5/7	BL Cas
10	1 34 25.8	-18 58 28	G	01320-1913	5854-0287	M7	AP Cet
11	3 30 03.2	+35 40 17	G	03268+3529	2354-1581	M7	R Per
12	3 49 34.8	+51 03 57	G	03458+5054	3338-0022	M8	AP Per
13	3 54 02.3	+36 32 18	G	03507+3623	2369-0278	M5/7	
14	4 02 33.4	+28 29 52	G	03594+2821	1825-0286	M5	
15	4 08 11.8	+26 35 54	G	04051+2627	1822-1275	M3	TX Tau
16	4 11 42.4	+26 27 18	G	04086+2619	1823-0250	M3/5	
17	4 11 48.1	+29 23 26	G	04086+2915	1827-1174	M3/5	see note
18	4 15 37.7	+35 12 26	G	04123+3504	2379-1135	M7	
19	4 15 40.7	+35 31 59	G	04123+3524	2379-0693	M3/5S:	NSV 1531
20	4 21 11.0	+25 53 00	G	04181+2545	1820-0620	M5/7	V412 Tau
21	4 25 17.4	+28 04 41	G	04221+2757	1824-0840	M5	
22	5 20 55.4	+35 05 21	G	05176+3502	2398-0293	M5	EE Aur
23	5 21 24.1	+20 44 27	G	05184+2041	1308-0034	M5	
24	5 22 25.2	+22 44 26	G	05193+2241	1847-0895	M7	
25	5 26 54.6	+36 54 11	G	05235+3651	2415-1199	M5/7	W Aur
26	5 28 23.2	+8 41 28	G	05256+0839	0700-0875	M5	V440 Ori
27	5 34 26.5	+20 22 53	U	05314+2020		M3/5	
28	5 40 00.7	+28 42 49	A	05368+2841		M5	AW Aur = PEP 18
29	5 40 07.9	+37 38 10	A	05367+3736		M7/9	RU Aur
30	5 44 04.9	+6 57 16	G	05413+0656	0127-0715	M5	V520 Ori
31	5 51 41.9	+28 18 25	G	05485+2817	1875-2114	M3/5	AZ Tau
32	6 03 25.8	+13 43 56	G	06005+1344	0729-1282	M7/9	DT Ori
33	6 15 34.4	+15 12 22	G	06127+1513	1314-1235	M5	
34	6 48 09.8	+1 58 23	A	06455+0201		M7	see note
35	6 53 36.0	-5 42 02	G	06511-0538	4813-0430	M5	
36	6 59 28.9	-2 20 09	G	06569-0215	4805-1671	M5	
37	7 12 53.4	-4 09 32	A	07104-0404		M5	
38	7 23 09.3	+13 06 05	G	07203+1311	0771-0003	M5	V Gem
39	7 24 51.0	+12 08 17	G	07220+1214	0772-1474	M5	
40	7 34 00.4	+11 44 07	G	07312+1150	0773-0757	M7	T CMi
41	8 24 55.4	+37 06 53	G	08216+3716	2489-1344	M7	CLS 4
42	8 37 37.2	+39 58 04	G		2975-1484	M7	
43	15 59 23.8	-23 46 24	G	15564-2337	6779-1681	M7	BK Sco
44	16 02 27.8	-26 22 18	A			M7	
45	16 02 42.7	-26 54 38	G	15596-2646	6787-2279	M7	NSV 7398
46	16 02 47.1	-26 25 24	A			M7	
47	16 03 44.1	-26 25 02	U	16006-2616		M7/9	see note
48	16 04 16.6	-25 21 51	G	16012-2513	6784-0956	M5	
49	16 08 28.8	-22 04 31	G	16055-2156	6213-0571	M7	UV Sco
50	16 13 12.9	-24 56 16	G	16101-2448	6797-0345	M5/7	
51	16 15 40.3	-25 01 02	A	16126-2453		M5	UZ Sco
52	16 17 22.0	-24 55 31	G	16143-2448	6797-0098	M3/5	
53	16 18 05.5	-21 49 03	G	16151-2141	6214-1694	M7	VW Sco

Table 1 (cont.)

[D75]	RA (2000)	Dec	s	IRAS	GSC	spec	Remarks
54	16 19 24.6	-22 21 18	A			M3/5	VY Sco
55	16 20 45.2	-21 06 26	A	16178-2059		M5/7	
56	16 20 58.0	-21 31 18	G	16180-2124	6214-1096	M3/5	NSV 7639
57	16 29 26.4	-19 20 51	G	16265-1914	6211-0430	M7/9	Y Sco
58	17 45 18.4	-17 42 01	A	17423-1740		M7	see note
59	17 45 48.1	-16 07 08	A	17429-1606		M7	FK Sgr
60	17 49 17.7	+24 59 08	G	17472+2459	2081-0566	M5	EK Her, see note
61	17 57 03.0	-19 20 16	A	17540-1919		M7	VV Sgr
62	18 05 33.2	-13 53 18	G	18027-1353	5687-0504	M5	BE Ser
63	17 58 43.0	-16 35 54	A	17558-1635		M7	
64	18 08 41.9	+32 02 06	G	18068+3201	2625-0410	M7	PS Her
65	18 11 57.8	+32 27 54	G	18101+3227	2626-1277	M3/5	FL Her
66	18 20 17.3	-16 28 01	G	18173-1629	6265-2290	M5	
67	18 21 37.4	-17 11 07	A	18187-1712		M7	
68	18 22 40.2	-19 23 33	A	18197-1925		M5	
69	18 23 22.8	-12 40 52	G	18205-1242	5698-2284	M3/5	FR Sct
70	18 25 00.9	-6 50 57	G	18223-0652	5111-0308	M5	
71	18 25 58.5	-19 41 29	G	18230-1943	6274-0645	M5	V1982 Sgr
72	18 28 19.6	-18 26 08	A	18253-1828		M7:	
73	18 29 02.7	-17 47 01	G	18261-1748	6270-1514	M5	
74	18 26 01.0	+50 55 49	G	18248+5053	3538-0295	M7	CZ Dra = StM 433
75	18 28 48.7	+6 17 53	G	18263+0615	0450-1286	M5	T Ser
76	18 29 41.3	-19 04 03	A	18267-1906		M7:	V1993 Sgr
77	18 30 11.5	-8 11 16	G	18274-0813	5690-1260	M7:	
78	18 30 13.4	+6 16 50	G	18277+0614	0458-0918	M3/5	BP Ser
79	18 31 07.6	+7 00 31	G	18286+0658	0458-0449	M8	BI Oph
80	18 31 32.2	+4 22 52	A	18289+0420		M3S	TY Oph, see note
81	18 32 23.1	-9 55 09	G	18296-0957	5695-0653	M7	VW Sct
82	18 34 49.1	-19 30 41	A	18318-1933		M7	
83	18 34 57.4	-17 14 29	G		6271-0917	M5	
84	18 34 17.7	+7 48 22	G	18318+0745	1024-1698	M7	V623 Oph
85	18 35 23.7	+6 27 36	G	18329+0625	0458-0515	M3/5	V925 Oph
86	18 36 00.6	+7 41 10	G	18335+0738	1024-1462	M5/7	BK Oph
87	18 36 14.5	+5 04 40	G	18337+0502	0454-1452	M5/7	BR Ser
88	18 37 37.1	+7 22 01	A	18352+0719		M7	
89	19 15 47.2	+31 49 31	G	19138+3144	2653-1244	M5/7	
90	19 21 50.1	+32 00 32	G	19199+3154	2658-1662	M7	AN Lyr
91	19 24 48.4	+30 36 03	G		2654-2686	M5	
92	19 25 22.1	+29 15 54	G	19233+2909	2137-0292	M7	
93	19 26 02.4	+31 53 08	A	19241+3147		M7	V456 Lyr
94	19 59 17.1	+41 24 55	U	19575+4116		M5/7	
95	20 02 58.0	+41 31 27	A	20012+4123		M5/7	
96	20 04 46.9	+40 11 54	U	20030+4003		M5/7	
97	20 11 45.9	+38 00 49	G	20099+3751	3151-2691	M3-M7e	
98	20 13 12.2	+41 27 26	G	20114+4118	3159-0739	M5	V431 Cyg
99	20 13 55.9	+39 23 49	G	20121+3914	3155-0689	M3-M7e	IRC +40400
100	20 14 00.1	+43 26 20	G		3163-0973	M5	
101	20 17 59.3	+43 17 43	G	20162+4308	3163-0118	M5	
102	20 21 18.3	+38 12 44	U	20194+3803		M7	IRC +40407
103	20 26 43.0	+40 56 27	A	20249+4046		M5	
104	20 27 22.9	+41 04 50	G	20255+4054	3156-1234	M5	KZ Cyg
105	20 36 57.1	+37 52 34	A	20350+3741		M5/7	V1828 Cyg
106	20 42 21.8	+27 28 47	G	20402+2718	2178-0679	M5/7	EN Vul
107	20 43 50.5	+34 28 49	G	20418+3417	2695-1838	M5	V1975 Cyg
108	20 44 12.4	+26 12 46	U	20420+2601		M7	
109	20 44 31.5	+32 29 32	U	20425+3218		M5/7	V570 Cyg
110	20 46 32.3	+29 26 08	G	20444+2915	2182-0983	M5/7	
111	20 46 09.6	+40 57 58	A			M5	
112	20 48 22.9	+32 40 57	G	20463+3229	2691-2873	M7	

Table 1 (cont.)

[D75]	RA (2000)	Dec	s	IRAS	GSC	spec	Remarks
113	20 49 32.8	+29 47 23	G	20474+2936	2183-0777	M7	
114	20 51 33.8	+28 08 45	G	20494+2757	2183-1590	M7	
115	20 51 52.2	+29 07 49	G	20497+2856	2183-2351	M7	
116	20 52 32.1	+27 10 28	G	20502+2658	2179-1415	M7	UW Vul
117	20 54 39.8	+28 30 12	G	20525+2818	2183-2400	M7	
118	20 55 05.5	+30 24 52	U	20529+3013		M7	UX Cyg
119	20 56 13.6	+36 21 52	G	20542+3610	2700-2803	M5	V1886 Cyg
120	20 59 09.3	+26 48 57	G	20569+2637	2180-0920	M7	
121	20 59 49.4	+26 13 48	G	20576+2602	2176-0027	M7	
122	21 04 17.1	+37 51 07	G	21023+3739	3168-0575	M5/7	LD 37
123	21 06 33.2	+37 32 51	G		3168-0583	M5/7	LD 38
124	21 06 20.9	+41 35 57	G		3176-1825	M7	
125	21 07 29.8	+37 10 45	G		2713-0439	M7	V1804 Cyg
126	21 10 19.3	+39 40 29	G		3173-0157	M8	IRC +40472
127	21 12 59.5	+40 08 37	U			M5/7	V529 Cyg, see note
128	(21 11.5	+39 11)	-			M5/7	see note
129	21 12 48.3	+38 06 42	G		3169-1735	M3-M7	
130	21 14 12.2	+36 39 01	S			M7	
131	21 15 54.8	+38 11 29	U			M5	V479 Cyg
132	21 16 52.9	+41 03 46	G		3173-0556	M7	IRC +40477
133	21 16 06.8	+39 52 31	G		3173-2544	M5/7	
134	21 16 47.2	+36 50 03	G		2714-0558	M5	IRC +40476
135	21 18 40.2	+40 04 08	G		3173-2344	M3/5	
136	21 24 44.3	+38 05 58	G		3182-1658	M7	V473 Cyg
137	21 27 19.2	+36 55 57	G		2716-0960	M7	
138	21 33 30.0	+56 46 48	G		3975-1232	M8	
139	21 35 52.4	+51 14 42	G	21341+5101	3603-0512	M3/5	V1728 Cyg
140	21 35 59.8	+58 27 46	G	21344+5814	3979-1062	M7	
141	(21 43.5	+55 44)	-		M8	see note	
142	21 44 52.6	+58 51 19	G	21433+5837	3979-1510	M5	
143	21 50 02.3	+51 27 56	U	21482+5113		M5	
144	21 52 05.5	+56 45 48	G	21503+5631	3976-1073	M5/7	
145	21 56 19.0	+58 48 23	A	21547+5834		M7	
146	21 56 41.3	+58 53 10	A	21550+5838		M7	
147	21 59 52.2	+57 21 49	G	21581+5707	3976-0717	M5	GN Cep = IRC +60336
148	22 05 28.6	+62 30 11	G	22039+6215	4267-2009	M5/7	TT Cep
149	22 07 30.2	+44 48 53	G		3210-1749	M5	
150	22 16 19.5	+44 16 48	G	22142+4401	3211-1559	M5/7	
151	22 20 08.4	+62 10 14	G	22184+6155	4268-0720	M5/7	NSV 14126
152	22 31 08.1	+55 11 57	G	22291+5456	3987-1158	M6	NV Lac
153	22 34 16.5	+40 53 40	G		3205-0257	M5/7	
154	22 39 38.0	+42 22 18	G	22374+4206	3209-2055	M3/5	
155	22 43 15.6	+42 22 11	P	22410+4206	3222-0674	M7	R Lac
156	22 43 21.0	+41 17 20	G	22410+4101	3222-0149	M7	LD 207
157	22 44 02.9	+42 35 29	G	22418+4219	3222-1335	M5	
158	22 46 20.6	+40 45 00	G	22440+4028	3218-1625	M5	
159	22 49 16.9	+58 35 07	G	22472+5819	3996-0641	M7	AL Cep
160	22 52 35.6	+41 10 55	G	22503+4054	3219-0597	M5/7	
161	22 57 00.4	+57 40 00	G	22549+5723	3993-1301	M7	NSV 14375
162	23 02 13.1	+57 21 44	G	23000+5705	3993-0933	M5/7	
163	23 04 49.6	+56 32 58	G	23026+5616	3993-2216	M5	V343 Cas
164	23 05 27.4	+57 07 46	U	23033+5651		M7	
165	23 08 39.8	+58 18 10	G	23065+5801	4010-1748	M5	same as #167
166	23 07 53.7	+60 19 28	G	23057+6003	4278-0748	M5	IRC +60386
167	23 08 39.8	+58 18 10	G	23065+5801	4010-1748	M5	same as #165
168	23 09 15.4	+60 58 56	G	23071+6042	4279-1734	M3	
169	23 10 43.6	+64 28 53	G	23085+6411	4287-0974	M5	CH Cep
170	23 11 40.6	+59 41 58	P	23095+5925	4010-0907	M5	V Cas
171	23 12 57.0	+60 34 38	U	23108+6018		M5	OQ Cep

Table 1 (cont.)

[D75]	RA	(2000)	Dec	s	IRAS	GSC	spec	Remarks
172	23 14	33.6	+57 15 21	U	23123+5658		M5	V397 Cas
173	23 18	43.0	+55 58 25	A	23164+5541		M5	
174	23 21	16.9	+56 04 45	U	23190+5548		M5/7	
175	23 20	43.6	+59 34 19	G	23185+5917	4011-0468	M5	
176	23 22	34.6	+55 43 14	U	23202+5526		M7	NSV 14531
177	23 23	17.8	+57 25 27	U	23210+5708		M5/7	
178	23 24	41.4	+54 55 18	U	23223+5438		M5/7	
179	23 25	45.7	+56 19 08	G	23234+5602	4007-1219	M5	
180	23 25	52.2	+56 27 10	G		4007-1005	M3/5	
181	23 27	34.9	+55 43 18	G	23252+5526	4003-0420	M5	DG Cas
182	23 28	15.4	+60 28 59	G	23259+6012	4280-1884	M5	V580 Cas
183	23 35	50.4	+58 44 19	G	23334+5827	4012-1009	M5	
184	23 37	39.7	+58 50 47	S	23352+5834		M5/7	
185	23 38	40.0	+54 35 18	A			M5/7	
186	23 44	31.5	+56 34 52	A	23420+5618		M5	Z Cas
187	23 46	24.3	+54 29 09	G	23439+5412	4004-0140	M5	RT Cas
188	23 48	13.9	+61 01 55	U	23457+6045		M5	IRC +60424 = EM Cas
189	23 56	44.2	+58 49 02	G	23542+5832	4013-1641	M5	
190	23 57	45.8	+56 06 20	G	23552+5549	4005-0210	M5	
191	23 59	38.5	+59 45 30	G	23570+5928	4013-0847	M5	V335 Cas

Notes

17 CGCS 629; however, not a carbon star (*cf.* Bidelman 1980).

34 ID somewhat uncertain; position is for brightest DSS image.

47 ID somewhat uncertain; alternate star NW has end-figures 43^s8/24^s54^s''.

58 -1° Dolidze Dec error.

60 also GSC 2081-3600.

80 HD 170831 = CGCS 4032. this is surely a carbon star, Dolidze type wrong.

127 chart identical to #126.

128 can't identify on sky; Dolidze position given.

141 can't identify on sky; Dolidze position given.

For intermediate types (and in taking averages) I have adopted the notation of Houk (see, for example, Houk & Cowley 1975), which uses a slash (*e.g.* M5/7) to indicate uncertainty rather than a truly intermediate spectral class. Note several cases where Dolidze found indications of carbon-star or S-type characteristics (*e.g.* M3S).

The remarks and notes show additional identifications from SIMBAD, particularly variable-star names. In several cases Dolidze has given incorrect variable-star designations, which are herewith corrected.

I appreciate the help of William P. Bidelman in making a number of identifications from his bibliographic file. Two on-line facilities were indispensable for this work: SIMBAD, maintained by the Centre de Données Astronomique, Strasbourg, France; and SkyView, maintained by Keith Scollick of the Goddard Space Flight Center. This work was begun during a stay at the CDS Strasbourg; I gratefully acknowledge the assistance of the staff there.

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References:

- Bidelman, W. P. 1980, *Publ. Warner & Swasey Obs.*, **2**, 185
- Dolidze, M. V. 1975, *Byull. Abastuman Astrofiz. Obs.*, **47**, 171
- Houk, N., and Cowley, A. P. 1975, *University of Michigan Catalogue of Two-Dimensional Spectral Types for the HD Stars*, Univ. of Michigan, Ann Arbor
- Kholopov, P. N., editor, *et al.* 1985, *General Catalogue of Variable Stars*, 4th edition, Nauka, Moscow
- McGlynn, T. A., White, N. E., and Scollick, K. 1994, *Bull. Amer. Astr. Soc.*, **26**, 898 (abstract)
- Monet, D., Canzian, B., and Henden, A. 1994, *Bull. Amer. Astr. Soc.*, **26**, 1314 (abstract)
- Monet, D. G. 1996, *Bull. Amer. Astr. Soc.*, **28**, 905 (abstract).
- Scollick, K. 1995, http://skview.gsfc.nasa.gov/cgi-bin/v2.3/skyview_advanced