

COMMISSIONS 27 AND 42 OF THE IAU
INFORMATION BULLETIN ON VARIABLE STARS

Number 4441

Konkoly Observatory
Budapest

19 February 1997

HU ISSN 0374 – 0676

IDENTIFICATION OF VARIABLES NEAR NGC 7635

A group of new and known variable stars in the field of the emission nebula NGC 7635 was studied by Rosino, Bianchini, and Martino (1976). In the source paper, approximate positions, spectral types, and elements of variation were presented along with finder charts for the thirty-two new variables. All but one of these are now named variables. Although the positions provided are generally accurate, they are not precise. For the fainter stars especially, precise positions are required both for their recovery for further study at the telescope and for linkage within other surveys such as IRAS.

The tables below give precise positions and identifications for all the stars. Table 1 matches the Rosino *et al.* Table 1 in showing the variables already known at the time of publication. The sources of the positions are coded in column ‘s’ as follows:

- A A1.0 (Monet *et al.* 1996)
- G GSC, version 1.1
- P PPM
- S SkyView
- U UJ1.0 (Monet *et al.* 1994)

For stars not in any available catalogue, I used the Goddard SkyView facility (Scollick 1997) to estimate positions from the Digitized Sky Survey to $\pm 2''$ using a coordinate-grid overlay. The positions for MO Cas and MP Cas, which lie in the bright nebulous region of NGC 7635, were given erroneously by Rosino (1953). At the request of G. Williams, amateur observer D. diCicco obtained CCD frames that allowed measurement of their positions, which are given here.

The spectral types are copied directly from Rosino *et al.*; those in parentheses were taken from the literature. An asterisk in the final column indicates a note at the bottom of the tables.

Table 1

Name	RA (2000)	Dec	s	GSC	spec	n
CC Cep	23 01 28.5	+61 40 19	U		G/K?	
AS Cep	23 02 05.2	+59 49 06	G	3997-0641	M3	
CR Cas	23 04 52.0	+59 33 57	G	3997-1059	K8:[sic]	*
DP Cep	23 08 21.1	+61 12 00	G	4278-0009	F0	
PV Cas	23 10 02.5	+59 12 07	P		(B6 ⁻ V)	
GU Cep	23 10 10.9	+61 14 30	G	4279-0027	M3	
V Cas	23 11 40.6	+59 41 58	P		(M5-7e)	
CI Cep	23 11 26.8	+62 58 24	G	4283-0552	M5e	*
HQ Cep	23 12 46.8	+61 26 32	U			

Table 1 (cont'd.)

Name	RA (2000)	Dec	s	GSC	spec	n
OQ Cep	23 12 57.0	+60 34 38	U		M7	*
CY Cep	23 20 09.3	+63 01 23	A			*
MO Cas	23 20 43.6	+61 14 43	*		M8	*
MP Cas	23 20 39.6	+61 13 53	*		M8	*
CH Cas	23 22 28.5	+62 45 26	G	4283-1264	(F3pIb)	*
V398 Cas	23 22 30.9	+59 18 26	P		M5	
DQ Cas	23 24 57.4	+62 18 51	G	4283-0555	M5	
V433 Cas	23 25 12.1	+61 19 29	G	4279-0165	M6	*
PW Cas	23 25 58.5	+61 16 01	G	4280-1499	F8/G0	
IS Cas	23 28 28.7	+60 33 57	G	4280-1578	A2	
CY Cas	23 29 12.8	+63 22 28	G	4284-0433	(G0-G2Ib)	
DR Cas	23 30 53.4	+62 07 23	G	4284-0602	M2?	*
V530 Cas	23 30 44.1	+60 15 21	G	4280-1989		*
V435 Cas	23 31 27.3	+59 24 25	U			*
DS Cas	23 32 21.0	+62 06 33	G	4284-0514	C	
V438 Cas	23 36 00.0	+62 03 12	A		M8	
RS Cas	23 37 16.1	+62 25 45	G	4284-0674	(F8-G2Ib)	

Table 2, containing Rosino *et al.*'s new variables, is arranged in a similar way. Because the stars are somewhat fainter, few of them appear in the GSC; IRAS identifications are shown instead following the positions.

Table 2

No.	Name	RA (2000)	Dec	s	IRAS	spec	n
1	PZ Cep	22 56 55.2	+60 25 10	S	22549+6009		
2	QQ Cep	22 59 43.9	+60 53 25	U			
3	V352 Cep	23 01 27.0	+61 33 50	P			*
4	QR Cep	23 01 50.9	+61 40 07	A	22598+6123	M10:	
5	NSV 14394	23 02 01.5	+61 53 04	A	22599+6136		
6	QS Cep	23 03 03.7	+61 30 18	A	23009+6113	M4/5	
7	QT Cep	23 05 58.4	+60 15 00	S		M6:	*
8	QU Cep	23 06 19.4	+60 04 31	A	23042+5948	M6:	
9	QV Cep	23 11 47.8	+60 34 14	G			*
10	QW Cep	23 12 28.3	+59 52 19	U	23103+5935	M7	
11	QX Cep	23 13 30.2	+62 50 33	A	23113+6234	M7	
12	QY Cep	23 13 38.1	+63 09 02	A	23115+6252	M5	
13	V569 Cas	23 15 14.9	+59 27 48	A	23130+5910	M6	*
14	V570 Cas	23 16 27.6	+59 48 18	U			
15	V563 Cas	23 16 55.3	+60 26 01	U		M6e	*
16	V571 Cas	23 19 41.5	+59 58 18	S		M	*
17	V572 Cas	23 19 57.2	+62 27 48	A		M8/10	
18	V573 Cas	23 21 14.6	+59 08 53	A	23190+5852	M7	
19	V574 Cas	23 21 31.9	+60 22 13	G	23193+6005	M5	*
20	V575 Cas	23 21 55.2	+62 03 03	A		M2/4e	
21	V576 Cas	23 23 11.5	+61 44 40	S	23209+6128	M6	

Table 2 (cont'd.)

No.	Name	RA	(2000)	Dec	s	IRAS	spec	n
22	V577 Cas	23 23	33.7	+60 28	23	U		
23	V578 Cas	23 25	07.2	+59 03	04	A		
24	V579 Cas	23 25	55.3	+60 57	31	G	M5	*
25	V581 Cas	23 29	58.0	+60 28	12	A	23276+6011	M8
26	V583 Cas	23 31	16.1	+61 32	19	S	23289+6115	M
27	V584 Cas	23 31	47.7	+61 02	46	A	23294+6046	M6/8
28	V585 Cas	23 33	59.0	+61 04	10	A	23316+6047	M5
29	V587 Cas	23 37	45.5	+60 59	39	A	23354+6043	M6
30	V586 Cas	23 35	16.7	+61 35	25	U		M3
31	V582 Cas	23 30	11.3	+60 16	46	G		M5
32	V580 Cas	23 28	15.4	+60 28	59	G	23259+6012	M2

Notes:

Table 1

CR Cas	LS III +59°40. GCVS4 spectral type in error: <i>cf.</i> Popper (1996).
CI Cep	IRAS 23093+6242
OQ Cep	S 5686. Rosino <i>et al.</i> -1 ^m RA error.
CY Cep	ID verified with chart in Rosino (1943).
MO Cas	position from CCD frames by diCicco.
MP Cas	position from CCD frames by diCicco.
CH Cas	large Rosino/GCVS4 RA error, ID verified with chart in Parenago & Kukarkin (1940).
V433 Cas	IRAS 23229+6102 = Case 264 = CGCS 5875.
DR Cas	IRAS 23286+6150.
V530 Cas	S 5744.
V435 Cas	large Rosino <i>et al.</i> /GCVS4 position error, ID verified with chart in Hoffmeister (1967).

Table 2

3 = V352 Cep	HD 217692.
7 = QT Cep	southmost star in the nebulous patch BFS 17 = GM 1-79.
9 = QV Cep	GSC 4279-1936.
13 = V569 Cas	southern star of a merged pair on DSS.
15 = V563 Cas	IRC +60395.
16 = V571 Cas	[LRS87] 172 = CGCS 5847.
19 = V574 Cas	GSC 4279-2403.
24 = V579 Cas	GSC 4280-0617 = IRAS 23236+6040 = C* 3188 = CGCS 5877.
30 = V586 Cas	GSC 4280-1006 = IRAS 23329+6118. large Rosino <i>et al.</i> position error.
31 = V582 Cas	GSC 4280-1858; Rosino <i>et al.</i> Dec error; located on north side of sparse 3' cluster.
32 = V580 Cas	GSC 4280-1884.

This work was facilitated by the use of SIMBAD, maintained by the Centre de Données Astronomique, Strasbourg, France; I appreciate the efforts of Gérard Jasniewicz (Université de Montpellier) to integrate these stars into the database. The U. S. Naval Observatory PMM catalogues, which were prepared by Dave Monet and colleagues at USNO-Flagstaff, were an indispensable aid in identifying the fainter stars. My thanks to Gareth Williams for providing the positions for MO Cas and MP Cas.

Brian A. SKIFF
 Lowell Observatory
 1400 West Mars Hill Road
 Flagstaff AZ 86001-4499
 USA
 e-mail: bas@lowell.edu

References:

- Hoffmeister, C. 1967, *Astron. Nach.*, **290**, 43
- Monet, D., Canzian, B., and Henden, A. 1994, *Bull. Amer. Astr. Soc.*, **26**, 1314 (abstract); see also <http://www.usno.navy.mil/pmm>
- Monet, D. *et al.* 1996, "USNO-A V1.0: A Catalogue of Astrometric Standards," Washington DC; see also <http://www.usno.navy.mil/pmm>
- Parenago, P., and Kukarkin, B. W. 1940, *Perem. Zvezdy*, **5**, 331
- Popper, D. E. 1996, *Astrophys. J., Suppl. Ser.*, **106**, 133
- Rosino, L. 1943, *Publ. Obs. Bologna*, **4**, No.4
- Rosino, L. 1953, *Publ. Obs. Bologna*, **6**, No.3
- Rosino, L., Bianchini, A., and Martino, D. 1976, *Astron. Astrophys., Suppl. Ser.*, **24**, 1
- Scollick, K. 1997, http://skview.gsfc.nasa.gov/cgi-bin/v3.0/skyview_advanced.pl