

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

Number 5134

Konkoly Observatory  
Budapest  
3 July 2001

*HU ISSN 0374 – 0676*

**IDENTIFICATION OF KNOWN AND SUSPECTED  
VARIABLES FROM THE ROTSE1 SURVEY**

WILS, PATRICK

Vereniging Voor Sterrenkunde, Belgium (Patrick.Wils@cronos.be)

Akerlof et al. (2000) published a list of 1781 variables discovered by the ROTSE1 (Robotic Optical Transient Search Experiment 1) survey. The complete catalog is available through <http://www.umich.edu/~rotse>. By comparing the positions of these stars with positions of known variable stars from the General Catalogue of Variable Stars (GCVS) to within  $28''.8$ , they identified about 10% of the stars on their list as known variables. However, the precision of the positions of some stars in the GCVS is not better than  $1'$ . Therefore the identification done with GCVS variables cannot be complete.

By visually inspecting computer plots of the positions of the ROTSE1 stars against stars from the GCVS and the New Catalogue of Variable Stars (NSV), and verifying candidates with the type of variability and the magnitude and period if possible, 170 additional identifications were done which are not registered in the Simbad database (operated at CDS, Strasbourg, France, <http://simbad.u-strasbg.fr/>). The list is produced in Table 1.

The GCVS stars may be up to  $5'$  off the ROTSE1 positions. In fact, the ROTSE1 catalog provides a more accurate position for these stars than the GCVS. For some of them, more precise positions have already been determined before in other papers. The position given by Kinnunen and Skiff (2000a) for IX Lyr lies about  $0'.5$  south of the ROTSE1 position, and that for OS Her (Kinnunen and Skiff, 2000b)  $0'.5$  to the north.

Some stars appear twice in the ROTSE1 catalog, with a slightly different position (probably because they appear in the region of two overlapping frames). The known variables that correspond to these stars will in this case appear twice in Table 1.

Table 2 provides an overview of the number of ROTSE1 variables that are not present in the GCVS or the NSV, for which an identification exists in the Simbad database, and which have been identified in this paper, according to the ROTSE1 classification of variability.

The technique used by ROTSE proves to be very efficient in the discovery of new variables. For short period variables it gives an immediate estimate of the period (see also Diethelm 2001, for ephemerides of the new eclipsing binaries discovered by ROTSE). It may also be valuable in the monitoring of long period variables, which has been the almost exclusive terrain of visual observers until now. A large number of maxima and minima of Mira variables may be calculated from the CCD data.

P. Lampens and P. Van Cauteren are acknowledged for stimulating discussions.

Table 1: New identifications of known variables and suspected variables from the ROTSE1 survey

ROTSE1	GCVS	ROTSE1	GCVS
J124004.01+273014.0	U Com	J170831.41+183116.7	V458 Her
J124055.05+370507.0	SW CVn	J170913.29+143807.7	NSV 8243
J125110.42+325808.3	AP CVn	J171049.24+125250.4	V461 Her
J125421.57+321433.3	TY CVn	J171110.02+230011.1	V462 Her
J130236.85+311822.9	FQ Com	J171110.07+230009.2	V462 Her
J132942.14+285248.2	VW CVn	J171134.15+233630.5	V464 Her
J133430.88+291815.5	WW CVn	J171232.71+402826.1	V725 Her
J133455.38+262700.2	BT Com	J171249.56+250150.5	V467 Her
J134844.63+334335.3	RT CVn	J171250.06+250149.1	V467 Her
J140258.07+253211.8	BH Boo	J171339.95+205849.5	V468 Her
J140601.69+243413.2	CS Boo	J171432.90+100536.8	V904 Oph
J144739.80+255828.6	NSV 6808	J171446.79+100455.7	V905 Oph
J150950.25+265104.7	NSV 6969	J171708.50+083929.5	V740 Oph
J151846.68+304945.0	NSV 20296	J171734.05+163531.5	V621 Her
J152704.83+294205.9	NSV 20314	J171806.51+090802.1	NSV 8484
J160126.57+300221.7	NSV 7397	J171830.15+092245.3	NSV 8495
J161021.28+250325.9	NSV 7509	J171839.51+281228.3	KQ Her
J161139.19+250101.0	V681 Her	J171843.60+130622.3	NSV 8503
J161406.62+235315.4	V538 Her	J172022.29+143040.6	DL Her
J162406.76+363548.7	SV CrB	J172119.20+083726.6	NSV 8555
J162558.43+174246.7	V695 Her	J172119.36+095439.1	V750 Oph
J162908.11+341344.2	HT Her	J172308.33+223931.4	V397 Her
J162931.15+182944.5	V698 Her	J172502.43+103818.5	NSV 8622
J163630.25+263213.0	V599 Her	J172530.05+214452.0	V485 Her
J163738.34+083721.6	NSV 7865	J172638.42+265616.5	V486 Her
J163906.52+094756.2	NSV 7883	J172725.98+084314.5	NSV 8773
J163945.40+091637.2	NSV 7891	J172812.34+102626.2	V2074 Oph
J164121.67+122501.7	V546 Her	J172836.76+153115.0	V658 Her
J164409.33+251503.7	AH Her	J172907.86+184239.8	FP Her
J164409.43+341225.7	V450 Her	J173011.66+142233.5	V552 Her
J165020.37+095652.2	LT Her	J173016.44+233719.0	V493 Her
J165124.98+081853.8	NSV 8001	J173137.58+122524.7	V769 Oph
J165319.42+330958.3	KO Her	J173200.87+450142.4	V495 Her
J165505.96+113304.1	V1125 Oph	J173205.53+394531.1	V421 Her
J170207.62+341251.2	IN Her	J173219.79+374414.3	FQ Her
J170236.60+255134.1	V452 Her	J173254.71+111831.1	V776 Oph
J170412.89+262019.6	V454 Her	J173426.95+321331.1	NSV 9188
J170539.90+213100.5	V365 Her	J173640.43+231812.0	V503 Her
J170548.92+333517.6	V646 Her	J173903.05+384138.2	NSV 9450
J170621.17+315318.2	V619 Her	J173903.25+384135.6	NSV 9450
J170641.03+154032.3	NSV 8208	J174056.11+240252.8	V514 Her
J170711.85+361809.4	NSV 8224	J174318.65+281514.6	LX Her
J170717.77+130553.7	NSV 8217	J174413.83+251453.9	FS Her

Table 1: (cont.)

ROTSE1	GCVS	ROTSE1	GCVS
J174556.16+325133.2	EH Her	J183615.60+242928.9	CI Her
J174702.36+453941.9	NSV 9702	J183652.99+280417.6	CE Lyr
J174706.93+383253.6	NSV 9697	J183751.21+472324.5	NSV 11154
J174753.92+264121.3	BK Her	J183856.81+235824.4	CL Her
J174820.33+244227.7	EI Her	J183950.26+385856.2	NSV 11194
J175148.02+263845.2	EL Her	J184023.50+435622.4	V480 Lyr
J175201.83+294008.1	EM Her	J184257.98+451819.5	NSV 11272
J175245.38+353921.5	NSV 9817	J184301.01+321951.3	CQ Lyr
J175338.23+263922.9	EN Her	J184413.82+231230.0	DW Her
J175355.81+281326.0	EO Her	J184506.17+401112.2	NSV 11321
J175510.34+263618.2	EP Her	J184717.62+535644.0	BZ Dra
J175648.63+255417.7	ER Her	J184741.41+383826.6	NSV 11363
J175809.11+411945.0	V526 Her	J184813.35+401846.0	NSV 11371
J175809.27+412537.6	FV Her	J185126.14+461702.4	NSV 11453
J180012.86+343851.1	OS Her	J185231.15+413312.1	NSV 11476
J180350.26+332303.1	EW Her	J185304.14+515837.4	CC Dra
J180438.84+324141.5	EY Her	J185325.94+430918.7	V355 Lyr
J180442.64+232238.9	FX Her	J185410.14+324957.4	RX Lyr
J180507.69+300538.9	FF Her	J185507.82+350119.4	NO Lyr
J180733.25+401530.1	PQ Her	J185546.43+401056.6	NSV 11565
J180955.10+312147.2	FI Her	J185805.21+540853.3	EG Dra
J181258.35+420345.7	V442 Her	J185950.87+452145.9	V396 Lyr
J181339.13+372834.2	V676 Her	J190048.09+500530.0	AW Dra
J181625.83+462753.7	HI Lyr	J190234.05+255026.2	BL Lyr
J181700.08+344856.0	HX Lyr	J190350.47+460144.8	NSV 11717
J182109.33+460854.1	MX Lyr	J190359.49+491641.4	XX Dra
J182109.56+460900.3	MX Lyr	J190402.42+271629.8	BM Lyr
J182240.62+293115.0	NSV 10725	J190725.76+354627.1	V496 Lyr
J182529.14+313304.1	IS Lyr	J190827.56+384842.2	NR Lyr
J182559.91+312952.2	IT Lyr	J190932.16+422013.6	NSV 11780
J182809.21+272403.7	NSV 10876	J191159.94+435725.7	NSV 11820
J182855.38+321513.8	IX Lyr	J191957.87+465320.6	NSV 11924
J182905.77+335457.3	V443 Lyr	J192219.06+441508.9	NSV 11964
J183044.56+382355.1	KN Lyr	J192544.43+510929.2	V1119 Cyg
J183253.85+430101.5	OP Lyr	J192633.96+522908.9	NSV 12055
J183345.31+281716.4	FR Lyr	J193037.82+494040.5	NSV 12114
J183412.62+323533.4	KZ Lyr	J193247.37+430701.5	V461 Cyg
J183412.88+323540.2	KZ Lyr	J193327.66+383202.4	HO Cyg
J183507.95+313233.4	V464 Lyr	J193328.41+403035.4	HP Cyg
J183510.04+423333.8	NSV 11081	J193417.93+425513.0	V1133 Cyg
J183534.10+260357.7	BN Her	J193425.54+451829.5	V1621 Cyg
J183536.41+392944.1	LM Lyr	J193650.52+532833.5	DE Cyg

Table 2: Number of variables in the ROTSE1 survey according to their classification by the ROTSE1 team

ROTSE1 classification	Previously unknown	Identified in Simbad	Identified in this paper	Percentage new variables
c	187	2	12	93
ds	87	3	1	96
e	80	25	4	73
ew	350	29	3	92
lpv	427	47	60	80
m	39	60	47	27
rrab	76	71	39	41
rrc	102	7	4	90

#### References:

- Akerlof, C., Amrose, S., Balsano, R., Bloch, J., Casperson, D., Fletcher, S., Gisler, G., Hills, J., Kehoe, R., Lee, B., Marshall, S., McKay, T., Pawl, A., Schaefer, J., Szymanski, J., Wren, J., 2000, *AJ*, **119**, 1901
- Diethelm, R., 2001, *IBVS*, No. 5060
- Kinnunen, T., Skiff, B.A., 2000a, *IBVS*, No. 4895
- Kinnunen, T., Skiff, B.A., 2000b, *IBVS*, No. 4897