

Discovery of five new eclipsing systems of W UMa type

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#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1		USNO-A2.0 1350-03467786	03 27 45.61, +45 17 20.17	EW	14.5	14.77	R	0.39180	2458425.48706	min		Comm. 1	LC_USNO-A2.0_1350-03467786.jpg	FoV_USNO-A2.0_1350-03467786.jpg	A2.0_1350-03467786.txt
2		USNO-A2.0 1275-02644421	03 45 53.35, +37 45 09.70	EW	15.6	15.70	R	0.29969	2458376.47059	min		Comm. 2	LC_USNO-A2.0_1275-02644421.jpg	FoV_USNO-A2.0_1275-02644421.jpg	A2.0_1275-02644421.txt
3		USNO-A2.0 0900-14578525	19 18 48.08, +06 37 56.63	EW	17.3	17.65	R	0.67246	2458317.50558	min		Comm. 3	LC_USNO-A2.0_0900-14578525.jpg	FoV_USNO-A2.0_0900-14578525.jpg	A2.0_0900-14578525.txt
4		USNO-A2.0 1125-16127402	20 29 12.19, +24 36 47.80	EW	14.8	15.05	R	0.30718	2455392.56492	min		Comm. 4	LC_USNO-A2.0_1125-16127402.jpg	FoV_USNO-A2.0_1125-16127402.jpg	A2.0_1125-16127402.txt
5		USNO-A2.0 1425-15515944	23 45 05.41, +57 00 51.24	EW	17.5	18.03	R	0.29917	2458081.27500	min		Comm. 5	LC_USNO-A2.0_1425-15515944.jpg	FoV_USNO-A2.0_1425-15515944.jpg	A2.0_1425-15515944.txt

Comments:

1. The system USNO-A2.0 1350-03467786 (indicated as V in the finding chart) is located in the Field of View of the planetary nebula HDW 3. USNO-A2.0 1350-03466399 and USNO-A2.0 1350-03461726 were used as Comparison (C) and Check (K) stars, respectively, and they are also indicated in the finding chart. $\text{MaxI}-\text{MinI} \sim \text{MaxI}-\text{MinII} \sim -0.27$ mag in R-filter. The maximum magnitude in R-filter is given in the USNO-A2.0 Catalog (Monet et al. 1998). Other cross identifications for the variable: NOMAD1 1352-0077531. The observations were carried out at the Kryoneri Observatory of the National Observatory of Athens, Corinthia, Greece between September and December 2018 using a 1.2-m prime focus telescope (f/3) equipped with the APOGEE ASPEN CG47 CCD camera and the R (Bessell) photometric filter.

2. The system USNO-A2.0 1275-02644421 (indicated as V in the finding chart) is located in the Field of View of the planetary nebula HaWe 5. USNO-A2.0 1275-02639026 and USNO-A2.0 1275-02643221 were used as Comparison (C) and Check (K) stars, respectively, and they are also indicated in the finding chart. $\text{MaxI}-\text{MinI} = -0.095$ mag and $\text{MaxI}-\text{MinII} = -0.09$ mag in R-filter. The maximum magnitude in R-filter is given in the USNO-A2.0 Catalog (Monet et al. 1998). Other cross identifications for the variable: NOMAD1 1277-0076480. The observations were carried out at the Kryoneri Observatory of the National Observatory of Athens, Corinthia, Greece between September and December 2018 using a 1.2-m prime focus telescope (f/3) equipped with the APOGEE ASPEN CG47 CCD camera and the R (Bessell) photometric filter.

3. The system USNO-A2.0 0900-14578525 (indicated as V in the finding chart) is located in the Field of View of the planetary nebula NGC 6781. USNO-A2.0 0900-14575744 and USNO-A2.0 0900-14575325 were used as Comparison (C) and Check (K) stars, respectively, and they are also indicated in the finding chart. $\text{MaxI}-\text{MinI} = -0.35$ mag and $\text{MaxI}-\text{MinII} = -0.33$ mag in R-filter. The maximum magnitude in R-filter is given in the USNO-A2.0 Catalog (Monet et al. 1998). Other cross identifications for the variable: NOMAD1 0966-0493572, 2MASS J19184804+0637562. The observations were carried out at the Kryoneri Observatory of the National Observatory of Athens, Corinthia, Greece between July and September 2018 using a 1.2-m prime focus telescope (f/3) equipped with the APOGEE ASPEN CG47 CCD camera and the R (Bessell) photometric filter.

4. The system USNO-A2.0 1125-16127402 (indicated as V in the finding chart) is located in the Field of View in the FoV of AW Vul and the variable 2MASS J20275736+2453029 (Liakos & Niarchos 2011). The star could also be a delta Sct variable with a dominant period of 0.1536 days. However, $J-H = 0.52$ from the 2MASS catalogue suggests a rather cool star (K type), therefore the EW-type variability seems more suitable. USNO A2.0 1125-16127586 and USNO A2.0 1125-16126802 were used as Comparison (C) and Check (K) stars, respectively, and they are also indicated in the finding chart. $\text{MaxI}-\text{MinI} \sim \text{MaxI}-\text{MinII} \sim -0.25$ mag in R-filter. The maximum magnitude in R-filter is given in the USNO-A2.0 Catalog (Monet et al. 1998). Other cross identifications for the variable: 2MASS J20291217+2436475. The observations were carried out at the University of Athens Observatory, Athens, Greece in July 2010 using a 20-cm newtonian reflector telescope (f/5) equipped with the SBIG ST-8XME CCD camera and the R (Bessell) photometric filter.

5. The system USNO-A2.0 1425-15515944 (indicated as V in the finding chart) is located in the Field of View of the planetary nebula A66 82 and the variable EG Cas. USNO-A2.0 1425-15522780 and USNO-A2.0 1425-15522749 were used as Comparison (C) and Check (K) stars, respectively, and they are also indicated in the finding chart. $\text{MaxI}-\text{MinI} = -0.53$ and $\text{MaxI}-\text{MinII} = -0.49$ mag in R-filter. The maximum magnitude in R-filter is given in the USNO-A2.0 Catalog (Monet et al. 1998). Other cross identifications for the variable: NOMAD1 1470-0525441. The observations were carried out at the Kryoneri Observatory of the National Observatory of Athens, Corinthia, Greece between October and November 2017 using a 1.2-m prime focus telescope (f/2.8 using a focal reducer) equipped with the ANDOR ZYLA 5.5 sCMOS camera and the R (Bessell) photometric filter.

Remarks:

In this study, photometric elements of five newly discovered W UMa- type eclipsing binaries are presented for the first time. Their variability was detected for the first time as a by-product during observations of other targets. Differential magnitudes were obtained for all targets using the software Muniwin v.1.1.29 (Hroch 1998).

References:

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